MINUTES
LANCASTER COUNTY BOARD OF COMMISSIONERS
TUESDAY, NOVEMBER 10, 2009
COMMISSIONERS HEARING ROOM, ROOM 112
FIRST FLOOR, COUNTY-CITY BUILDING
9:30 A.M.

Commissioners Present:	Bernie Heier, Chair Ray Stevens, Vice Chair Larry Hudkins Deb Schorr Bob Workman
Others present:	Kerry Eagan, Chief Administrative Officer Gwen Thorpe, Deputy Chief Administrative Officer and Interim Lancaster Manor Administrator Tom Fox, Deputy County Attorney Dan Nolte, County Clerk Cori Beattie, Deputy County Clerk Angela Zocholl, County Clerk's Office

The location announcement of the Nebraska Open Meetings Act was given and the meeting was called to order at 9:30 a.m.

1) **MINUTES: Approval of the minutes of the Board of Commissioners meeting held on Tuesday, November 3, 2009.**

MOTION: Stevens moved and Hudkins seconded approval of the minutes. Hudkins, Stevens, Schorr, Workman and Heier voted aye. Motion carried 5-0.

2) **CLAIMS: Approval of all claims processed through Tuesday, November 10, 2009.**

MOTION: Stevens moved and Schorr seconded approval of the claims. Schorr, Hudkins, Workman, Stevens and Heier voted aye. Motion carried 5-0.

3) **SPECIAL PRESENTATION:**

A. **Awarding of a $5,000,000 stimulus grant to the District Energy Corporation (DEC) for a ground source heat pump demonstration project serving the new Lancaster County Correctional Facility – Steve Masters, DEC President; Don Killeen, County Property Manager; and Krishna Amancheria, DEC Project Manager**

Don Killeen said Steve Masters was unable to attend but asked Killeen to commend Krishna Amancheria for his hard work.

3) **SPECIAL PRESENTATION CONTINUED:**

Amancheria thanked everyone involved. He submitted a copy of the stimulus grant application (Exhibit A).

Heier questioned Amancheria on submitting more than one grant. Amancheria said there was one grant application originally, but he later found two other grants.

Workman and Hudkins praised Amancheria for his work.

Amancheria spoke of the benefits of reduced emissions and low operating expenses. He also noted the economy stimulation due to huge orders coming from other parts of the country.

Schorr said only 37 awards were made nationally, and only three received the full $5,000,000 amounts.

Amancheria said there was $61,900,000 given total with only three receiving the full $5,000,000.

Workman noted the direct impact on County taxpayers due to the decreased cost of operation.

Stevens said the energy costs of operating the jail would be substantially less.

OTHER PRESENTATION:

Terry Wagner, County Sheriff, introduced Jessica Jackson, a junior at Norris High School, who is job shadowing the Sheriff due to her interest in a possible law enforcement career.

4) **OLD BUSINESS:**

A. **A contract and business associate agreement between Lancaster County and Symphony Diagnostic Services No. 1, d/b/a MobilexUSA, to provide portable x-ray and EKG services to Lancaster Manor residents upon doctor's orders. The County will pay for the services according to the fee schedule outlined in Exhibit A. Term of the contract is from November 1, 2009, to October 31, 2010. Either party may terminate the contract by giving 30 days written notice. (C-09-0572)**

MOTION: Stevens moved and Workman seconded approval of the contract and agreement. Schorr, Stevens, Hudkins, Workman and Heier voted aye. Motion carried 5-0.

5) **NEW BUSINESS:**

A. **A special designated license application for WunderRosa, L.L.C., to provide liquor beverage service at 2361 Wittstruck Road, Roca, from 6:00 p.m. to 11:00 p.m. on Saturday, December 12, 2009.**

MOTION: Stevens moved and Hudkins seconded approval of the special designated license application. Stevens, Workman, Schorr, Hudkins and Heier voted aye. Motion carried 5-0.

5) **NEW BUSINESS CONTINUED:**

B. **A resolution authorizing the installation of two roundabout warning signs (W2-6) in advance of the intersection of South 98th Street and Old Cheney Road with one 500 feet east for westbound traffic and one 500 feet north for southbound traffic, which will be installed by the City of Lincoln, and the installation of a driveway warning sign (W2-2mod) on West Mill Road approximately 500 feet east of 12900 West Mill Road for westbound traffic. (R-09-0091)**

MOTION: Stevens moved and Schorr seconded approval of the resolution. Workman, Schorr, Hudkins, Stevens and Heier voted aye. Motion carried 5-0.

C. **A resolution in the matter of witness fees paid by Lancaster County, which have remained unclaimed for six months or more. (R-09-0092)**

MOTION: Hudkins moved and Stevens seconded approval of the resolution. Schorr, Hudkins, Stevens, Workman and Heier voted aye. Motion carried 5-0.

D. **A resolution instituting eminent domain proceedings against Frank A. Sobotka, Trustee, and all persons having or claiming any interest in said property, real names unknown, Project CP-0-206, Tracts No. 1 and 2 (South 1st Street, between Yankee Hill Road and Rokeby Road). (R-09-0093)**

MOTION: Stevens moved and Workman seconded approval of the resolution. Hudkins, Stevens, Schorr, Workman and Heier voted aye. Motion carried 5-0.

E. **A Medicare enrollment application reassignment of Medicare benefits regarding Kathleen Byorth for the Lancaster County Community Mental Health Center. (C-09-0583)**

MOTION: Schorr moved and Stevens seconded approval of the application. Hudkins, Stevens, Schorr, Workman and Heier voted aye. Motion carried 5-0.

F. **An architectural agreement with Larry Chilese, Architect, for patrol station architectural plans, in the amount of $16,000. Services shall be complete by January 8, 2010. (C-09-0584)**

MOTION: Hudkins moved and Workman seconded approval of the agreement. Schorr, Hudkins, Workman, Stevens and Heier voted aye. Motion carried 5-0.

G. **A program resolution and program agreement with Nebraska Department of Roads for Project No. BR-NBIS(83) to perform a routine and fracture critical bridge inspection on County bridges. (R-09-0094) (C-09-0587)**

MOTION: Hudkins moved and Stevens seconded approval of the resolution and agreement. Workman, Schorr, Stevens, Hudkins and Heier voted aye. Motion carried 5-0.

5) **NEW BUSINESS CONTINUED:**

H. **A contract between Lancaster County and Christian Retirement Home, Inc., d/b/a Eastmont Towers, to provide on a temporary basis service of qualified licensed registered nurses with the skills and experience necessary to fulfill the position of assistant director of nursing at Lancaster Manor. The County shall pay $35 per hour for the services up to a total of 40 hours per week. The term of the contract is from November 10, 2009, to February 1, 2010. (C-09-0588)**

Item was held at the request of the County Attorney's office.

I. **A contract with the State of Nebraska, Department of Roads for the purchase of two small buses under the American Recovery and Reinvestment Act. There is no cost to the County. (C-09-0589)**

MOTION: Workman moved and Hudkins seconded approval of the contract.

Stevens asked to which department the buses belonged. Schorr said they are for Aging for rural transportation services.

ROLL CALL: Stevens, Workman, Schorr, Hudkins and Heier voted aye. Motion carried 5-0.

J. **Request from the Lancaster County Personnel Policy Board to create a classification for an Emergency Management Specialist at a proposed pay grade of $39,659.36 - $50,797.76, and to change the pay grade for a Medical Records Technician from $26,971.36 - $34,548.80 to a pay grade of $29,991.52 - $38,415.52.**

MOTION: Workman moved and Stevens seconded approval of the request. Workman, Schorr, Hudkins, Stevens and Heier voted aye. Motion carried 5-0.

6) **CONSENT ITEMS:** *These are items of business that are routine which are expected to be adopted without dissent. Any individual item may be removed for special discussion and consideration by a Commissioner or by any member of the public without prior notice. Unless there is an exception, these items will be approved as one with a single vote of the Board of Commissioners. These items are approval of:*

A. **Receive and place on file the following:**
   1. **County Clerk monthly report for October, 2009**
   2. **Weed Control Authority monthly report for October, 2009**
   3. **Assessor/Register of Deeds monthly report for October, 2009**
   4. **Clerk of the District Court monthly report for October, 2009**
   5. **County Records & Information Management monthly report for October, 2009**

6) **CONSENT ITEMS CONTINUED:**

B. **Right-of-way contracts between the County Engineer and Ron and Carol DeBoer, in the amount of $10,825.50, located at 110th Street and Saltillo Road; Project No. C55-PQ-406(2). (C-09-0585) (C-09-0586)**

C. **Setting of a public hearing for Tuesday, November 24, 2009, at 9:30 a.m., in the Commissioners Hearing Room, Room 112, on the first floor of the County-City Building, regarding a corporate manager application for Arnold Cihal in connection with Miller Long VFW 3606, located at 3340 West A Street, Lincoln, Lancaster County, Nebraska.**

MOTION: Hudkins moved and Stevens seconded approval of the consent items. Schorr, Hudkins, Stevens, Workman and Heier voted aye. Motion carried 5-0.

7) **PUBLIC COMMENT:**

Kim Kaspar, President of American Federation of State, County & Municipal Employees, spoke of the employee meeting held with the new potential owners of Lancaster Manor on November 4 and the union's effort to attend the meeting. She further discussed the concerns of the Manor employees and the need to hire an administrator.

Melvin Moore discussed his concern over the union being unable to attend the Lancaster Manor employee meeting. He spoke of the importance of truth.

8) **ANNOUNCEMENTS:**

A. **The Lancaster County Board of Commissioners will hold a staff meeting on Thursday, November 12, 2009, beginning at 8:30 a.m., in Room 113 on the first floor of the County-City Building.**

B. **A public hearing will be held on Tuesday, November 17, 2009, at 7 p.m. in the County Commissioners Hearing Room, Room 112, on the first floor of the County-City Building regarding Lancaster County's proposed One and Six-Year Road and Bridge Improvement Program beginning July 1, 2010, through June 30, 2015.**

C. **The Lancaster County Board of Commissioners meeting is broadcast live at 9:30 a.m., on Tuesdays and rebroadcast at 1:30 p.m., and 6:30 p.m., as well as on Saturday afternoon on 5 City-TV, Cable Channel 5. In addition, this meeting may be viewed on Nebraska On Demand Time Warner Channel 101 and is available on the Internet 24 hours a day at www.lancaster.ne.gov. Click on 5 City-TV Video On Demand.**

9) **ADJOURNMENT**

MOTION: Stevens moved and Schorr seconded to adjourn the Board of Commissioners meeting at 10:02 a.m. Hudkins, Stevens, Schorr, Workman and Heier voted aye. Motion carried 5-0.

Dan Nolte
Lancaster County Clerk

MINUTES
LANCASTER COUNTY BOARD OF EQUALIZATION
TUESDAY, NOVEMBER 10, 2009
COMMISSIONERS HEARING ROOM, ROOM 112
FIRST FLOOR, COUNTY-CITY BUILDING
IMMEDIATELY FOLLOWING THE REGULAR BOARD OF COMMISSIONERS MEETING

Commissioners Present:	Bernie Heier, Chair Ray Stevens, Vice Chair Larry Hudkins Deb Schorr Bob Workman
Others present:	Norm Agena, County Assessor/Register of Deeds Kerry Eagan, Chief Administrative Officer Gwen Thorpe, Deputy Chief Administrative Officer and Interim Lancaster Manor Administrator Tom Fox, Deputy County Attorney Dan Nolte, County Clerk Cori Beattie, Deputy County Clerk Angela Zocholl, County Clerk's Office

The location announcement of the Nebraska Open Meetings Act was given and the meeting was called to order at 10:02 a.m.

1) **MINUTES: Approval of the minutes of the Board of Equalization meeting held on Tuesday, November 3, 2009.**

MOTION: Stevens moved and Workman seconded approval of the minutes. Hudkins, Stevens, Schorr, Workman and Heier voted aye. Motion carried 5-0.

2) **ADDITIONS AND DEDUCTIONS: Approval of four additions and deductions to the tax assessment rolls per Attachment "A".**

MOTION: Schorr moved and Stevens seconded approval of the additions and deductions. Schorr, Hudkins, Workman, Stevens and Heier voted aye. Motion carried 5-0.

3) **MOTOR VEHICLE TAX EXEMPTION APPLICATIONS:**

Crossbridge Christian Church
Sesostris Shrine

MOTION: Stevens moved and Workman seconded approval of the motor vehicle tax exemptions. Workman, Schorr, Stevens, Hudkins and Heier voted aye. Motion carried 5-0.

4) **ADJOURNMENT**

MOTION: Schorr moved and Stevens seconded to adjourn the Board of Equalization meeting at 10:04 a.m. Schorr, Stevens, Hudkins, Workman and Heier voted aye. Motion carried 5-0.

Dan Nolte
Lancaster County Clerk

Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

October 30, 2009

Mr. Krishna Amancherla
District Energy Project Manager
District Energy Corporation
1040 O Street
Lincoln, NE 68501-0869

Dear Mr. Krishna Amancherla:

SUBJECT: Funding Opportunity Announcement Number DE-FOA-0000116,
Recovery Act – Geothermal Technologies Program: Ground Source Heat Pumps
Application Titled: District Energy SW 40th Street Thermal Plant

Evaluation of your application received in response to the subject Funding Opportunity Announcement has been completed. After a careful review, I am pleased to inform you that your application has been selected for negotiations leading to an award. You will be notified in the near future by a representative from this office if further information is needed to clarify and supplement your application, in order for an award to be finalized.

During fiscal year 2008, this office implemented a new electronic, paperless procurement system called STRIPES. Upon implementation of STRIPES, ALL organizations currently doing or wanting to do business with this office MUST BE registered with the Central Contractor Registration (CCR) and with FedConnect. As a result, it is imperative that you read and react to information provided in the document entitled "CCR and FedConnect Registrations" on the above referenced PMC website.

On behalf of the Department of Energy, I would like to express a sincere appreciation of your interest and participation in the Geothermal Technologies Program and look forward to initiating this worthwhile project.

Any questions can be addressed to me at 303-275-4728.

Sincerely,

Eric K. Hass

Eric K. Hass
Merit Review Committee Chairperson

U.S. DEPARTMENT OF ENERGY

News Media Contact(s):
(202) 586-4940

For Immediate Release
October 29, 2009

Department of Energy Awards $338 Million to Accelerate Domestic Geothermal Energy

Innovative geothermal projects are funded in support of project deployment, technology development, and data collection

WASHINGTON, DC – U.S. Department of Energy Secretary Steven Chu today announced up to $338 million in Recovery Act funding for the exploration and development of new geothermal fields and research into advanced geothermal technologies. These grants will support 123 projects in 39 states, with recipients including private industry, academic institutions, tribal entities, local governments, and DOE's National Laboratories. The grants will be matched more than one-for-one with an additional $353 million in private and non-Federal cost-share funds.

"The United States is blessed with vast geothermal energy resources, which hold enormous potential to heat our homes and power our economy," said Secretary Chu. "These investments in America's technological innovation will allow us to capture more of this clean, carbon free energy at a lower cost than ever before. We will create thousands of jobs, boost our economy and help to jumpstart the geothermal industry across the United States."

These grants are directed towards identifying and developing new geothermal fields and reducing the upfront risk associated with geothermal development through innovative exploration and drilling projects and data development and collection. In addition, the grants will support the deployment and creative financing approaches for ground source heat pump demonstration projects across the country.

Collectively, these projects will represent a dramatic expansion of the U.S. geothermal industry and will create or save thousands of jobs in drilling, exploration, construction, and operation of geothermal power facilities and manufacturing of ground source heat pump equipment.

The projects selected for negotiation of awards fall in six categories:

- **Innovative Exploration and Drilling Projects** (up to $98.1 million): Twenty-four projects have been selected focusing on the development of new geothermal fields using innovative sensing, exploration, and well-drilling technologies.
- **Coproduced, Geopressured, and Low Temperature Projects** (up to $20.7 million): Eleven projects have been selected for the development of new low-temperature geothermal fields, a vast but currently untapped set of geothermal resources. This includes geothermal heat found in the hundreds of thousands of oil and gas wells around the U.S., where up to ten barrels of hot water are produced for every barrel of oil.
- **Enhanced Geothermal Systems Demonstrations** (up to $51.4 million): Three projects have been selected for the exploration, drilling and development of enhanced geothermal systems (EGS) to validate power production from deep hot rock resources using innovative technologies

and approaches.

- **Enhanced Geothermal Systems Components Research and Development / Analysis** (up to $81.5 million): Forty-five projects have been selected to focus on research and development of new technologies to find and drill into deep hot rock formations, stimulate enhanced geothermal reservoirs, and convert the heat to power.
- **Geothermal Data Development, Collection and Maintenance** (up to $24.6 million): Three projects have been selected for the population of a comprehensive nationwide geothermal resource database to help identify and assess new fields.
- **Ground Source Heat Pump Demonstrations** (up to $61.9 million): Thirty-seven projects have been selected to demonstrate the deployment of ground source heat pumps for heating and cooling of a variety of buildings for a variety of customer types, including academic institutions, local governments and commercial buildings.

View the project selections announced today.

DOE's Geothermal Technologies Program works in partnership with U.S. industry to establish geothermal energy as an economically competitive contributor to the U.S. energy supply. Learn more information about these awards on the Geothermal Technologies Program website.

This announcement covers projects selected for financial award. The final details and funding level of each project are subject to modification based on contract negotiations between the selected entity and the Department of Energy.

U.S. Department of Energy, Office of Public Affairs, Washington, D.C.

Grantee	DOE Grant Amount	Project Location (City)	Project Location (State)	Description
Tennessee Department of Education	$3,000,000	Lawrenceburg Cookeville Chattanooga Manchester	TN	The Tennessee Department of Education will install GHP systems in schools in order to validate the current hybrid GHP system design model developed by ASHRAE. Oak Ridge National lab will analyze performance and savings.
The Curators of the University of Missouri	$2,476,400	Holliday Bunceton	MO	The University of Missouri will retrofit two poultry farms with solar-assisted GHP systems, making use of an innovative concentrated solar collector and financing approach.
University at Albany	$2,786,250	Albany	NY	The University at Albany will install a large GHP system serving 200,000 sq. ft. of dorm and apartment housing, and will leverage additional incentives from the State of NY.
Geothermal Heat Pump Consortium	$1,077,500	Washington	DC	The Geothermal Heat Pump Consortium will create a national certification standard for GHP installation technicians.
1001 South 15th Street Associates LLC	$1,682,920	Philadelphia	PA	1001 South 15th Street Associates will retrofit a historic train depot with a hybrid GHP system to reduce heating and cooling costs and improve cycle efficiency.
District Energy Corporation	$5,000,000	Lincoln	NE	District Energy Corporation will incorporate a GHP heating/cooling system at an adult detention facility.
Oak Ridge City Center, LLC	$5,000,000	Oak Ridge	TN	The Oak Ridge City Center is a 660,000 sq. ft. shopping mall which will be fitted with an innovative hybrid GHP heating/cooling system.
SKYCHASER ENERGY, INC.	$325,124	Twin Lakes	WI	Skychaser Energy, Inc. will demonstrate the viability of an innovative GHP business and financing model.

DEC ENERGY

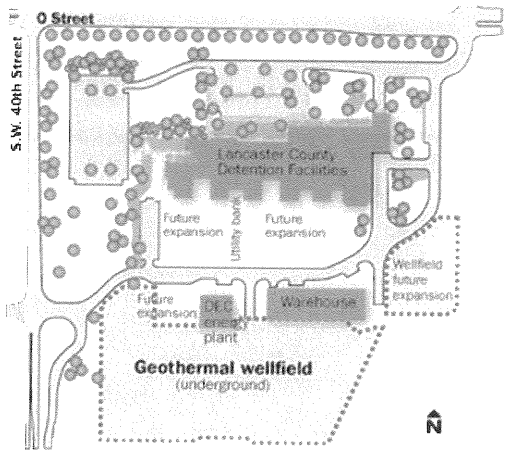
Efficiency in Government

ABOUT US

News

U.S. Department of Energy awards District Energy Corporation $5 million dollar in stimulus funds for geothermal project

The U.S. Department of Energy awarded the District Energy Corporation (DEC) $5 million in stimulus funds Oct. 29, 2009, to install a ground source geothermal heat pump demonstration project in Lancaster County (Nebraska). The funding is part of the American Recovery and Reimbursement Act of 2009.



While a total of $61.9 million in grants were awarded in this geothermal category, only three out of 37 projects received $5 million dollars in matching funds, ranging from $146,973 to $5 million.

The DEC will install a district geothermal energy plant to serve the new Lancaster County Adult Detention Facility, which is scheduled to be completed in late 2011. The facility is planned to be the largest geothermal ground-source loop field system for a county detention facility in the United States.

The geothermal energy plant will provide heating, cooling and backup electricity to the facility, using renewable energy sources. The geothermal loop field will consist of between 650 and 750 bore holes at 300-foot depth. Water will be circulated through a matrix of 300-foot-deep wells as part of a closed-loop system. In summer, warm water will be cooled as it moves through plastic pipes. That's because the ground has a constant temperature of about 55 degrees. In the winter, cool water will be warmed by the temperature of the ground.

Grant recipients will demonstrate the deployment of ground source heat pumps for heating and cooling of a variety of buildings and customer types, including academic institutions, local governments and commercial buildings.

These grants are directed toward identifying and developing new geothermal fields and reducing the upfront risk associated with geothermal development through innovative exploration and drilling projects and data development and collection. The grants also support the development and creative financing approaches for ground source heat pump demonstration projects across the country.

For more information...

BEN NELSON
U.S. SENATOR FOR NEBRASKA

Thursday, October 29, 2009

NELSON: $5 MILLION IN STIMULUS FUNDS FOR GEOTHERMAL ENERGY IN LINCOLN

October 29, 2009 – Today, Nebraska's Senator Ben Nelson welcomed an announcement by the U.S. Department of Energy that a Lincoln company will receive $5 million to install a ground source geothermal heat pump demonstration project in Lancaster county. The funding is part of the American Recovery and Reinvestment Act of 2009.

"Today's announcement by the Department of Energy represents a dramatic expansion of US geothermal capacity," said Nelson. "The Lincoln demonstration project will help jump-start this new industry while increasing our use of renewable sources of energy."

"Lincoln is excited about geothermal energy," said Mayor Chris Beutler. "We are using it in our schools and some newer developments in the city. The District Energy Corporation is truly a leader in the efficient use of renewable energy, and this demonstration will greatly encourage geothermal use, not just locally, but across the state."

District Energy Corporation in Lincoln will receive $5,000,000 to install a district geothermal energy plant to serve a new jail facility in Lancaster County. The new district energy plant will provide heating, cooling, and backup electricity to the facility, using renewable energy sources. The facility is planned to be the largest geothermal ground-source loop field system for a county detention facility within the United States. As a demonstration project, DEC is hopeful the facility will demonstrate high efficiency coupled with low life cycle cost.

DEC is an inter-local corporation, providing tax-exempt financing, joint planning, and coordinated use of energy infrastructure to facilities throughout Lincoln and Lancaster County, Nebraska.
The funding announced today by the US Department of Energy is part of $338 million in grants funding the exploration and development of new geothermal fields and research into advanced geothermal technologies. These stimulus grants will support 123 total projects in 39 states, including 37 demonstration projects for ground source heat pumps such as the facility slated for Lincoln. The grants are being matched more than one-for-one with an additional $353 million in private and non-Federal cost-share funds.

Senator Nelson played a key role in the passage of the $787 billion stimulus bill. He worked with a bipartisan group of nearly 20 Senators to better focus The American Recovery and Reinvestment Act on tax cuts for the middle class and job creation for millions of Americans. Senator Nelson led the group through the initial bill line by line, dollar by dollar, to reduce spending and cut out $108 billion of inefficient or less-stimulative spending. The bipartisan group helped the improved bill win congressional approval. President Obama signed it into law February 17, 2009.

Senator Nelson is posting information about the release of stimulus finds on his website as it becomes available. Visit http://bennelson.senate.gov/feature_4.cfm for more information.

###

County jail's heating, cooling plant gets $5M grant

- Story
- Discussion

By ALGIS J. LAUKAITIS / Lincoln Journal Star | Posted: Friday, October 30, 2009 5:20 pm | Loading...

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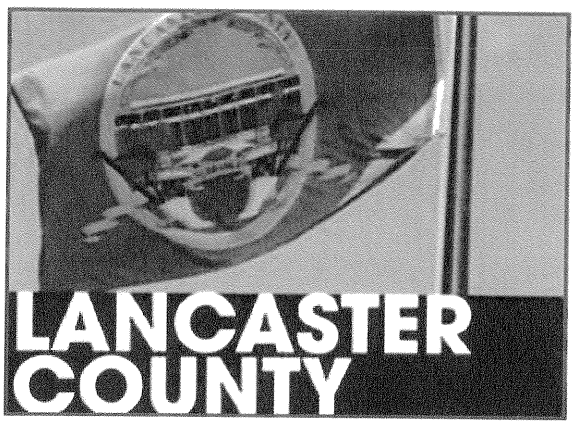

Lancaster County's new jail project will get some big financial help from the U.S. Department of Energy.

The agency will give $5 million in federal stimulus money for a ground source geothermal heat pump demonstration project.

The DOE awarded the grant to the nonprofit District Energy Corporation, which provides utility services owned by the city, county and state.

County Board Chairman Bernie Heier welcomed the news, saying it will help lower District Energy Corporation's costs for the project -- but not the county's.

"This is DEC money. This is not the county's money. They applied for the grant," Heier said. "It doesn't reduce the bonding price for the jail."

Some of the 20-year-old DEC's projects are the State Office Building, the Capitol, the K Street Records Facility, the County-City Building and the Mansion. In all, it serves nearly 1.5 million square feet of space.

The Lancaster County Board has raised $65 million for the jail through a bond sale. But Sampson Construction Co., submitted a guaranteed maximum price of $59.9 million to build it. The board said the difference will be needed for equipment and other expenses.

Lincoln Electric System is the contractor for the geothermal energy project and will operate and maintain it. It is designed to last more than 75 years.

The jail is set to be completed in late 2011.

Engineers plan to drill hundreds of wells and use

geothermal energy to heat and cool the new 779-bed jail on Southwest 40th Street. Natural gas will be available but used only in the kitchen.

Officials say it will be the largest geothermal ground-source loop field system for a county detention facility in the United States.

The system, similar to a heat pump, will result an an annual energy savings of 25 percent to 30 percent, compared with a conventional mechanical system, according to Krishna Amancherla, project manager for DEC.

"Lincoln is excited about geothermal energy," said Mayor Chris Beutler. "We are using it in our schools and some newer developments in the city. The District Energy Corporation is truly a leader in the efficient use of renewable energy, and this demonstration will greatly encourage geothermal use, not just locally, but across the state."

The $5 million is part of $338 million in grants funding for the exploration and development of new geothermal fields and research into advanced geothermal technologies. The stimulus grants will support 123 projects in 39 states, including 37 demonstration projects for ground source heat pumps.

Reach Algis J. Laukaitis at 473-7243 or alaukaitis@journalstar.com.

Posted in Govt-and-politics on *Friday, October 30, 2009 5:20 pm* Updated: 10:18 am. | Tags: Countyboard

/news/local/govt-and-politics

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Geothermal energy project will heat and cool new county jail

The county's new jail will go green with a geothermal energy heating and cooling system.

- Story
- Discussion

ALGIS J. LAUKAITIS / Lincoln Journal Star | Posted: Monday, May 4, 2009 12:00 am | Loading…

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The county's new jail will go green with a geothermal energy heating and cooling system.

Engineers plan to drill hundreds of wells into the ground and use its geothermal properties to heat and cool the new 672-bed jail on Southwest 40th Street.

Here's how it will work:

Water will be circulated through a matrix of 300-foot deep wells as part of a closed-loop system. In summer, warm water will be cooled as it moves through plastic pipes. That's because the ground has a constant temperature of about 55 degrees. In the winter, cool water will be warmed by the temperature of the ground.

Natural gas will be available but used only in the kitchen - not for heating or cooling.

The system - similar to a heat pump - will result in an annual energy savings of 25 to 30 percent, compared to a conventional mechanical system, said Krishna Amancherla, project manager for the District Energy Corporation.

Don Killeen, the county property manager, said the savings could be higher. He points to the success of similar systems used at a handful of schools and businesses in the city.

The District Energy Corporation, or DEC, is a nonprofit entity that provides innovative, efficient and low-cost utility services to facilities owned by the city, county and state.

Formed in 1989, it is providing energy to the State Office Building, Capitol, K Street Records Facility, County/City Building, Governor's Mansion, current county jail, Hall of Justice, the Court House Plaza Building and, soon, the 900 J Building.

In all, it serves nearly 1.5 million square feet of space.

The new jail, scheduled to be completed in late 2011, will be its biggest project, said Amancherla, also a senior engineer for the Lincoln Electric System.

Amancherla wears two hats because LES is the contractor for the geothermal energy project and will operate and maintain it. The system, designed to last more than 75 years, will be the largest ever built for a jail in the U.S., he said.

It's not yet known how many wells will be needed, though the site has room for about 855, Amancherla said. The DEC will install up to 725 wells on a 6.5-acre wellfield first and have 1.25 acres left for expansion.

Total cost of the wellfield is estimated at between $2.5 million and $3 million, Amancherla said.

But there will be millions of dollars in other costs, too.

The DEC will build an energy plant building and a network of utility pipes and wiring. It also wants to install three 1.8-megawatt emergency diesel generators to provide full backup power to the jail, the energy plant building and the community, if necessary.

The DEC will issue bonds to cover the cost of the project, Killeen said. Those bonds will be separate from those issued for the jail.

The jail will be a big energy user because it will be operating 24/7.

To reduce some of the energy costs, Amancherla said, domestic hot water will be pre-heated and recovered, the laundry will use an ozone treatment system that also saves hot water, sensors will adjust indoor lighting based on daylight coming into the building, and high-efficiency exhaust hoods will be used in the kitchen and laundry.

Killeen said the geothermal facility also could provide heating and cooling energy for private businesses in the area.

Because of all the renewable energy components, the DEC will try to get some federal stimulus money for the geothermal facility and other energy-conservation measures of the project, Killeen said.

The timing is right, Killeen said, because the project is "shovel-ready" and will be built at the same time as the new jail.

Dirt work for the jail is scheduled to begin in early July and the DEC plans to have its geothermal energy project ready to provide heat in October/November 2011.

Reach Algis J. Laukaitis at (402) 473-7243 or alaukaitis@journalstar.com.

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DISTRICT ENERGY CORPORATION — Krishna Amancherla

cover page | attachments | cost sensitive attachments | **summary** | complete

Print

Reference Number: DE-FOA-0000116

Cover Page

Description: As Solicited

Company name: DISTRICT ENERGY CORPORATION
DUNS: 798253589 -

Mailing address: ATTENTION: KRISHNA AMANCHERLA
1040 O STREET P.O. BOX 80869

City: LINCOLN
State: NE
Postal code: 685083609
Country: USA

Contact: KRISHNA AMANCHERLA
Phone: 4024733395
Fax: 4024751716
Email: kamancherla@les.com

Items

Option Line Items

GRANTS.GOV™

Grant Application Package

Opportunity Title:	Recovery Act - Geothermal Technologies Program: Ground
Offering Agency:	Golden Field Office
CFDA Number:	81.087
CFDA Description:	Renewable Energy Research and Development
Opportunity Number:	DE-FOA-0000116
Competition ID:	
Opportunity Open Date:	06/02/2009
Opportunity Close Date:	08/06/2009
Agency Contact:	Pete Simon Grants and Agreements Spec. E-mail: pete.simon@go.doe.gov

This electronic grants application is intended to be used to apply for the specific Federal funding opportunity referenced here.

If the Federal funding opportunity listed is not the opportunity for which you want to apply, close this application package by clicking on the "Cancel" button at the top of this screen. You will then need to locate the correct Federal funding opportunity, download its application and then apply.

☐ **I will be submitting applications on my behalf, and not on behalf of a company, state, local or tribal government, academia, or other type of organization.**

*** Application Filing Name:** District Energy Corporation

Mandatory Documents

Move Form to Complete

Move Form to Delete

Mandatory Documents for Submission

Application for Federal Assistance (SF-424)
Other Attachments Form
Project/Performance Site Location(s)

Optional Documents

Disclosure of Lobbying Activities (SF-LLL)

Move Form to Submission List

Move Form to Delete

Optional Documents for Submission

Instructions

1 Enter a name for the application in the Application Filing Name field.

- This application can be completed in its entirety offline; however, you will need to login to the Grants.gov website during the submission process.
- You can save your application at any time by clicking the "Save" button at the top of your screen.
- The "Save & Submit" button will not be functional until all required data fields in the application are completed and you clicked on the "Check Package for Errors" button and confirmed all data required data fields are completed.

2 Open and complete all of the documents listed in the "Mandatory Documents" box. Complete the SF-424 form first.

- It is recommended that the SF-424 form be the first form completed for the application package. Data entered on the SF-424 will populate data fields in other mandatory and optional forms and the user cannot enter data in these fields.

- The forms listed in the "Mandatory Documents" box and "Optional Documents" may be predefined forms, such as SF-424, forms where a document needs to be attached, such as the Project Narrative or a combination of both. "Mandatory Documents" are required for this application. "Optional Documents" can be used to provide additional support for this application or may be required for specific types of grant activity. Reference the application package instructions for more information regarding "Optional Documents".

- To open and complete a form, simply click on the form's name to select the item and then click on the => button. This will move the document to the appropriate "Documents for Submission" box and the form will be automatically added to your application package. To view the form, scroll down the screen or select the form name and click on the "Open Form" button to begin completing the required data fields. To remove a form/document from the "Documents for Submission" box, click the document name to select it, and then click the <= button. This will return the form/document to the "Mandatory Documents" or "Optional Documents" box.

- All documents listed in the "Mandatory Documents" box must be moved to the "Mandatory Documents for Submission" box. When you open a required form, the fields which must be completed are highlighted in yellow with a red border. Optional fields and completed fields are displayed in white. If you enter invalid or incomplete information in a field, you will receive an error message.

3 Click the "Save & Submit" button to submit your application to Grants.gov.

- Once you have properly completed all required documents and attached any required or optional documentation, save the completed application by clicking on the "Save" button.
- Click on the "Check Package for Errors" button to ensure that you have completed all required data fields. Correct any errors or if none are found, save the application package.
- The "Save & Submit" button will become active; click on the "Save & Submit" button to begin the application submission process.
- You will be taken to the applicant login page to enter your Grants.gov username and password. Follow all onscreen instructions for submission.

OMB Number: 4040-0004
Expiration Date: 01/31/2009

Application for Federal Assistance SF-424

Version 02

* 1. Type of Submission:
- [ ] Preapplication
- [x] Application
- [ ] Changed/Corrected Application

* 2. Type of Application:
- [x] New
- [ ] Continuation
- [ ] Revision

* If Revision, select appropriate letter(s):

* Other (Specify)

* 3. Date Received: Completed by Grants.gov upon submission.

4. Applicant Identifier:

5a. Federal Entity Identifier:

* 5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: District Energy Corporation

* b. Employer/Taxpayer Identification Number (EIN/TIN): 470736680

* c. Organizational DUNS: 798253589

d. Address:

* Street1: 1040 O Street
Street2:
* City: Lincoln
County:
* State: NE: Nebraska
Province:
* Country: USA: UNITED STATES
* Zip / Postal Code: 68501-0869

e. Organizational Unit:

Department Name:

Division Name: DEC

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: Mr.
* First Name: Krishna
Middle Name:
* Last Name: Amancherla
Suffix:

Title: District Energy Project Manager

Organizational Affiliation:

* Telephone Number: 402-473-3395
Fax Number: 402-475-1716

* Email: kamancherla@les.com

OMB Number: 4040-0004
Expiration Date: 01/31/2009

Application for Federal Assistance SF-424

Version 02

9. Type of Applicant 1: Select Applicant Type:

M: Nonprofit with 501C3 IRS Status (Other than Institution of Higher Education)

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Golden Field Office

11. Catalog of Federal Domestic Assistance Number:

81.087

CFDA Title:

Renewable Energy Research and Development

*** 12. Funding Opportunity Number:**

DE-FOA-0000116

* Title:

Recovery Act - Geothermal Technologies Program: Ground Source Heat Pumps

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

The County of Lancaster, Nebraska and City of Lincoln, Nebraska.

*** 15. Descriptive Title of Applicant's Project:**

District Energy SW 40th Street Thermal Plant

Attach supporting documents as specified in agency instructions.

Add Attachments | Delete Attachments | View Attachments

OMB Number: 4040-0004
Expiration Date: 01/31/2009

Application for Federal Assistance SF-424

Version 02

16. Congressional Districts Of:

* a. Applicant: NE-001

* b. Program/Project: NE-001

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 10/15/2009

* b. End Date: 02/01/2012

18. Estimated Funding ($):

* a. Federal	6,876,053.00
* b. Applicant	13,256,769.00
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	20,132,822.00

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .

☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☒ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation.)**

☐ Yes ☒ No Explanation

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: Mr. * First Name: Krishna

Middle Name:

* Last Name: Amancherla

Suffix:

* Title: District Energy Project Manager

* Telephone Number: 402-473-3395 Fax Number: 402-475-1716

* Email: kamancherla@les.com

* Signature of Authorized Representative: Completed by Grants.gov upon submission. * Date Signed: Completed by Grants.gov upon submission.

OMB Number: 4040-0004
Expiration Date: 01/31/2009

Application for Federal Assistance SF-424

Version 02

*** Applicant Federal Debt Delinquency Explanation**

The following field should contain an explanation if the Applicant organization is delinquent on any Federal Debt. Maximum number of characters that can be entered is 4,000. Try and avoid extra spaces and carriage returns to maximize the availability of space.

Other Attachment File(s)

*** Mandatory Other Attachment Filename:** Project-DEC.pdf

Add Mandatory Other Attachment | Delete Mandatory Other Attachment | View Mandatory Other Attachment

To add more "Other Attachment" attachments, please use the attachment buttons below.

Add Optional Other Attachment | Delete Optional Other Attachment | View Optional Other Attachment

OMB Number: 4040-0010
Expiration Date: 08/31/2011

Project/Performance Site Location(s)

Project/Performance Site Primary Location ☐ I am submitting an application as an individual, and not on behalf of a company, state, local or tribal government, academia, or other type of organization.

Organization Name: District Energy Corporation

DUNS Number: 7982535890000

* Street1: 3801 West O Street

Street2:

* City: Licnoln County: Lancaster

* State: NE: Nebraska

Province:

* Country: USA: UNITED STATES

* ZIP / Postal Code: 68528-1821 * Project/ Performance Site Congressional District: NE-001

Project/Performance Site Location 1 ☐ I am submitting an application as an individual, and not on behalf of a company, state, local or tribal government, academia, or other type of organization.

Organization Name: District Energy Corporation

DUNS Number: 7982535890000

* Street1: 3801 West O Street

Street2:

* City: Lincoln County: Lancaster

* State: NE: Nebraska

Province:

* Country: USA: UNITED STATES

* ZIP / Postal Code: 68528-1821 * Project/ Performance Site Congressional District: NE-001

Applicant Name: District Energy Corporation Award Number:

Budget Information - Non Construction Programs

OMB Approval No. 0348-0044

Section A - Budget Summary

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1.						$0
2.						$0
3.						$0
4.						$0
5. Totals		$0	$0	$0	$0	$0

Section B - Budget Categories

6. Object Class Categories	Grant Program, Function or Activity (1)	(2)	(3)	(4)	Total (5)
a. Personnel					$0
b. Fringe Benefits					$0
c. Travel					$0
d. Equipment					$0
e. Supplies					$0
f. Contractual			$6,876,053	$13,256,769	$20,132,822
g. Construction					$0
h. Other					$0
i. Total Direct Charges (sum of 6a-6h)	$0	$0	$6,876,053	$13,256,769	$20,132,822
j. Indirect Charges					$0
k. **Totals** (sum of 6i-6j)	$0	$0	$6,876,053	$13,256,769	$20,132,822
7. Program Income					$0

Section C - Non-Federal Resources

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) **Totals**
8.				$0
9.				$0
10.				$0
11.				$0
12. **Total** (sum of lines 8 - 11)	$0	$0	$0	$0

Section D - Forecasted Cash Needs

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
13. Federal	$3,979,611	$889,946	$535,199	$1,577,388	$977,078
14. Non-Federal	$6,549,727	$1,333,990	$1,103,805	$2,157,775	$1,954,157
15. **Total** (sum of lines 13 and 14)	$10,529,338	$2,223,936	$1,639,004	$3,735,163	$2,931,235

Section E - Budget Estimates of Federal Funds Needed for Balance of the Project

(a) Grant Program	**Future Funding Periods (Years)**			
	(b) First	(c) Second	(d) Third	(e) Fourth
16. Federal	$1,354,784	$936,454	$109,866	
17. Non-Federal	$3,709,567	$2,872,908	$622,908	
18.				
19.				
20. **Total** (sum of lines 16-19)	$5,064,351	$3,809,362	$732,774	$0

Section F - Other Budget Information

21. Direct Charges	22. Indirect Charges

23. Remarks

Assuming the 1st quarter is for 2010. This is a fast track project expected to be compled by end of 2011.

Detailed Estimated Budget and Monthly Budget spread is enclosed as attachments

PM[illegible]23.1 - Budget Justification for SF 424A Budget

Instructions and Summary

Award Number: _____
Award Recipient: _____

Date of Submission: August 5 2009
Form submitted by: District Energy Corporation
(May be award recipient or sub-recipient)

Please read the instructions on each page before starting.
If you have any questions, please ask your DOE contact. It will save you time!

On this form, provide detailed support for the estimated project costs identified on the SF-424A form (Budget).

- **The dollar amounts on this page must match the amounts on the associated SF-424A.**
- **The award recipient and each sub-recipient with estimated costs of $100,000 or more must complete this form and a SF-424A form.**
- **The total budget presented on this form and on the SF424A must include both Federal (DOE), and Non-Federal (cost share) portions, thereby reflecting TOTAL PROJECT COSTS proposed.**
- **For costs in each Object Class Category on the SF-424A, complete the corresponding worksheet on this form (tab at the bottom of the page).**
- **All costs incurred by the preparer's sub-recipients, vendors, contractors, consultants and Federal Research and Development Centers (FFRDCs), should be entered only in section f. Contractual. All other sections are for the costs of the preparer only.**

SUMMARY OF BUDGET CATEGORY COSTS PROPOSED

(Note: The values in this summary table are from entries made in each budget category sheet.)

CATEGORY	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Total Costs	Project Costs %	Comments (Add comments as needed)
a. Personnel	$0	$0	$0	**$0**	**0.0%**	
b. Fringe Benefits	$0	$0	$0	**$0**	**0.0%**	
c. Travel	$0	$0	$0	**$0**	**0.0%**	
d. Equipment	$0	$0	$0	**$0**	**0.0%**	
e. Supplies	$0	$0	$0	**$0**	**0.0%**	
f. Contractual						
Sub-recipient	*$9,529,338*	*$10,603,483*	*$0*	*$20,132,821*	*100.0%*	
FFRDC	*$0*	*$0*	*$0*	*$0*	*0.0%*	
Vendor	*$0*	*$0*	*$0*	*$0*	*0.0%*	
Total Contractual	$9,529,338	$10,603,483	$0	**$20,132,821**	**100.0%**	
g. Construction	$0	$0	$0	**$0**	**0.0%**	
h. Other Direct Costs	$0	$0	$0	**$0**	**0.0%**	
i. Indirect Charges	$0	$0	$0	**$0**	**0.0%**	
Total Project Costs	**$9,529,338**	**$10,603,483**	**$0**	**$20,132,821**	**100.0%**	

Additional Explanations/Comments (as necessary)

Enclsoed detailed Engineering Budget estimate includes budget spread for this project. Please refer to the attached documents. All work will be issued for Public bidding. Todate Farris Engineering consultant firm based at Nebraska has been selected to proceed with engineering design and issued documentst for bid. Site work will be issued for Bid during September 2(

Ground Source Loop field will be bid during 4th quarter of 2009. Loop and building construction to commence during and be compled by end of 2010. Enclosed detailed project schedule.

f. Contractual

PLEASE READ!!!

The entity completing this form must provide all costs related to sub-recipients, vendors, contractors, consultants and FFRDC partners in the applicable boxes below.

Sub-recipients (partners, sub-awardees):

For each sub-recipient with total project costs of $100,000 or more, a separate SF-424A budget and PMC123.1 budget justification form must be submitted. These sub-recipient forms may be completed by either the sub-recipients themselves or by the preparer of this form. The budget totals on the sub-recipient's forms must match the sub-recipeint entries below.

The preparer of this form need only provide further support of the completed sub-recipient budget forms as they deem necessary. The support to justify the budgets of sub-recipients with estimated costs less than $100,000 may be in any format, and at a minimum should provide what Statement of Project Objectives task(s) are being performed, the purpose/need for the effort, and a basis of the estimated costs that is considered sufficient for DOE evaluation.

Vendors (includes contractors and consultants):

List all vendors, contractors and consultants supplying commercial supplies or services used to support the project. The support to justify vendor costs (in any amount) should provide the purpose for the products or services and a basis of the estimated costs that is considered sufficient for DOE evaluation.

Federal Research and Development Centers (FFRDCs):

For FFRDC partners, award recipient will provide a Field Work Proposal (if not already provided with the original application), along with the FFRDC labor mix and hours, by category and FFRDC major purchases greater than $25,000, including Quantity, Unit Cost, Basis of Cost, and Justification. The award recipient may allow the FFRDC to provide this information directly to DOE.

Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the preparer.

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
EXAMPLE ONLY!!! XYZ Corp.	Partner to develop optimal fresnel lens for Gen 2 product - Task 2.4	$48,000	$32,000	$16,000	**$96,000**
To-Bid (Contractor)	Building (Engineering Budget Estimate)	$2,000,000	$948,624		**$2,948,624**
To-Bid (Contractor)	Mechanical Systems (Engineering Budget Estimate)	$2,640,833	$2,564,419		**$5,205,252**
To-Bid (Contractor)	Direct Buried Piping (Engineering Budget Estimate)	$951,038			**$951,038**
To-Bid (Contractor)	Electrical Plant only (Engineering Budget Estimate)	$1,226,037	$1,839,055		**$3,065,092**
To-Bid (Contractor)	Emergency Electrical System (Engineering Budget Estimate)	$1,129,330	$4,517,320		**$5,646,650**

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
Farris Engineering	Engineering Design & Permits (Engineering Budget Estimate)	$973,600	$451,732		$1,425,332
LES (Contractor)	Project Management (Engineering Budget Estimate)	$608,500	$282,333		$890,833
	Please refer to detailed attached Budget Spread documents				$0
	Sub-total	$9,529,338	$10,603,483	$0	$20,132,821

Vendor Name/Organization	Product or Service, Purpose/Need and Basis of Cost (Provide additional support at bottom of page as needed)	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
EXAMPLE ONLY!!! ABC Corp.	Vendor for developing custom robotics to perform lens inspection, alignment, and placement (Task 4). Required for expanding CPV module mfg. capacity. Cost is from competitive quotes.	$32,900	$86,500		$119,400
					$0
					$0
					$0
					$0
					$0
					$0
					$0
		$0	$0	$0	$0

FFRDC Name/Organization	Purpose	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
					$0
					$0
					$0
		$0	$0	$0	$0

Total Contractual		$9,529,338	$10,603,483	$0	$20,132,821

AdditionalExplanations/Comments (as necessary)

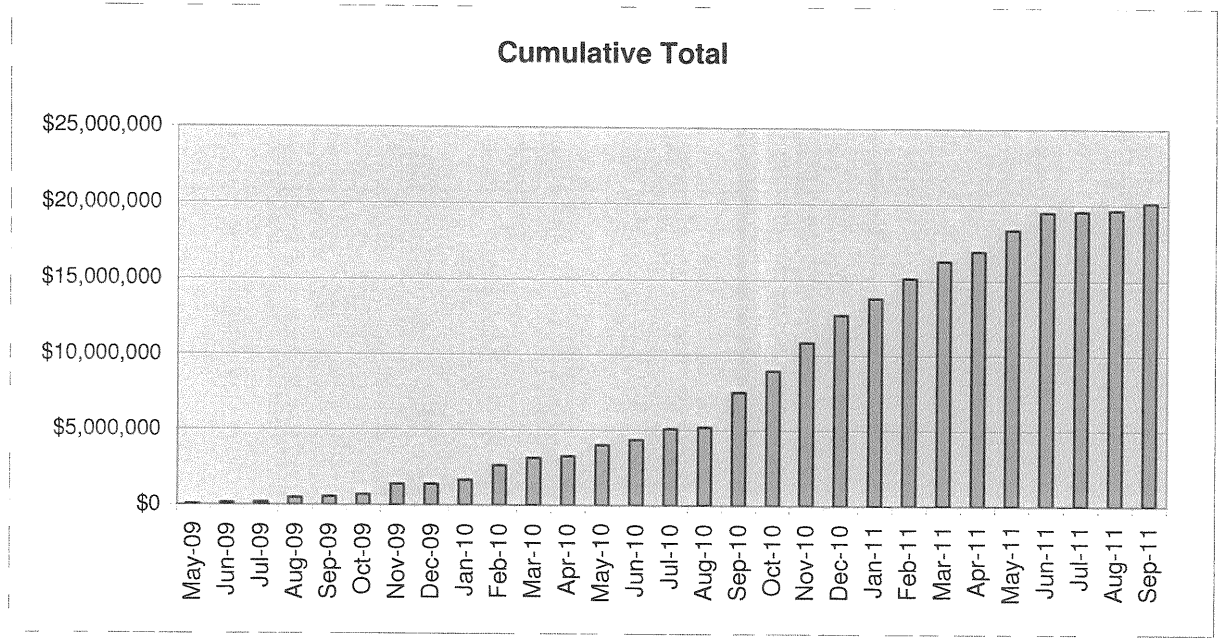
f. Contractual

Funding Schedule - DEC SW 40th St Thermal Plant			
Month	**Task**	**Amount**	**Monthly Total**
May-09	Loop Field Design	$35,633	
			$35,633
Jun-09	Building Design	$89,083	
			$89,083
Jul-09	Loop Field Design	$35,633	
			$35,633
Aug-09	Building Design	$89,083	
	Electrical Design	$106,900	
	Mechanical Design	$106,900	
			$302,883
Sep-09	Loop Field Design	$35,633	
	Project Management	$24,943	
			$60,577
Oct-09	Building Design	$89,083	
	Loop Field Design	$35,633	
	Project Management	$24,943	
			$149,660
Nov-09	Electrical Design	$106,900	
	Mechanical Design	$106,900	
	Generators PP Order	$261,878	
	Switchgear PP Order	$177,405	
	Transformers PP Order	$27,170	
	Project Management	$24,943	
			$705,196
Dec-09	Project Management	$24,943	
			$24,943
Jan-10	Building Design	$89,083	
	Heat Pumps PP Order	$158,400	
	Project Management	$24,943	
			$272,427
Feb-10	Electrical Design	$106,900	
	Mechanical Design	$106,900	
	Loop Field Installation	$735,000	
	Project Management	$24,943	
			$973,743
Mar-10	UG Utilities Design	$17,817	
	Civil Construction	$448,074	
	Project Management	$24,943	
			$490,834
Apr-10	UG Utilities Design	$17,817	
	Controls Design	$66,812	
	Project Management	$24,943	
			$109,572
May-10	UG Utilities Design	$17,817	
	Loop Field Installation	$735,000	
	Project Management	$24,943	
			$777,760

Funding Schedule - DEC SW 40th St Thermal Plant			
Month	**Task**	**Amount**	**Monthly Total**
Jun-10	UG Utilities Design	$17,817	
	Controls Design	$66,812	
	Electrical Design	$106,900	
	Mechanical Design	$106,900	
	Project Management	$24,943	
			$323,372
Jul-10	Loop Field Installation	$735,000	
	Project Management	$24,943	
			$759,943
Aug-10	Controls Design	$66,812	
	Project Management	$24,943	
			$91,756
Sep-10	Civil Construction	$448,074	
	General Contractor Construction	$1,095,059	
	Loop Field Installation	$735,000	
	Project Management	$24,943	
			$2,303,076
Oct-10	Controls Design	$66,812	
	Electrical Installation	$900,346	
	Mechanical Installation	$444,620	
	Project Management	$24,943	
			$1,436,722
Nov-10	Generators PP Delivery	$785,633	
	Heat Pumps PP Delivery	$475,200	
	Switchgear PP Delivery	$532,216	
	Transformers PP Delivery	$81,510	
	Project Management	$24,943	
			$1,899,501
Dec-10	Civil Construction	$448,074	
	Electrical Installation	$900,346	
	Mechanical Installation	$444,620	
	Project Management	$24,943	
			$1,817,983
Jan-11	General Contractor Construction	$1,095,059	
	Project Management	$24,943	
			$1,120,002
Feb-11	Electrical Installation	$900,346	
	Mechanical Installation	$444,620	
	Project Management	$24,943	
			$1,369,909
Mar-11	General Contractor Construction	$1,095,059	
	Project Management	$24,943	
			$1,120,002

Funding Schedule - DEC SW 40th St Thermal Plant			
Month	**Task**	**Amount**	**Monthly Total**
Apr-11	Generators PP Completion	$261,878	
	Heat Pumps PP Completion	$158,400	
	Switchgear PP Completion	$177,405	
	Transformers PP Completion	$27,170	
	Project Management	$24,943	
			$649,796
May-11	Electrical Installation	$900,346	
	Mechanical Installation	$444,620	
	Controls System Installation	$50,000	
	Project Management	$24,943	
			$1,419,909
Jun-11	General Contractor Construction	$1,095,059	
	Controls System Installation	$50,000	
	Project Management	$24,943	
			$1,170,002
Jul-11	Controls System Installation	$50,000	
	Project Management	$24,943	
			$74,943
Aug-11	Controls System Installation	$50,000	
	Project Management	$24,943	
			$74,943
Sep-11	Civil Construction	$448,074	
	Project Management	$24,943	
			$473,018
	Project Total		**$20,132,824**

Cumulative Total	
Month	Cost
5/1/09	$35,633
6/1/09	$124,717
7/1/09	$160,350
8/1/09	$463,233
9/1/09	$523,810
10/1/09	$673,470
11/1/09	$1,378,666
12/1/09	$1,403,609
1/1/10	$1,676,036
2/1/10	$2,649,779
3/1/10	$3,140,613
4/1/10	$3,250,186
5/1/10	$4,027,946
6/1/10	$4,351,318
7/1/10	$5,111,261
8/1/10	$5,203,017
9/1/10	$7,506,093
10/1/10	$8,942,815
11/1/10	$10,842,316
12/1/10	$12,660,300
1/1/11	$13,780,302
2/1/11	$15,150,211
3/1/11	$16,270,213
4/1/11	$16,920,009
5/1/11	$18,339,918
6/1/11	$19,509,920
7/1/11	$19,584,863
8/1/11	$19,659,806
9/1/11	$20,132,824



PRELIMINARY COST ESTIMATE - DISTRICT ENERGY THERMAL SYSTEM

SYSTEM	EQUIPMENT	QUANTITY	UNIT	TOTAL COST/UNIT	TOTAL COST	% of Matching FED Funds	FED Fund Request	Non-FED Funding
BUILDING	THERMAL PLANT BUILDING - MAIN LEVEL	11,724	SF	175.11	2,052,990	50%	$ 1,026,495	$ 1,026,495
	THERMAL PLANT BUILDING - BASEMENT	2,600	SF	91.11	236,886	50%	$ 118,443	$ 118,443
	INTERIOR LIGHTING, COMM, POWER	11,724	SF	18.00	211,032	50%	$ 105,516	$ 105,516
	PLUMBING	11,724	SF	9.00	105,516	50%	$ 52,758	$ 52,758
	FIRE PROTECTION	14,324	SF	3.00	42,972	50%	$ 21,486	$ 21,486
	LANDSCAPING, GRADING, & PAVEMENT	14,324	SF	16.17	231,619	50%	$ 115,810	$ 115,810
	BUILDING HVAC	14,324	SF	4.72	67,609	50%	$ 33,805	$ 33,805
BUILDING TOTAL					**2,948,624**	50%	$ 1,474,312	$ 1,474,312
MECHANICAL SYSTEMS								
	WATER-TO-WATER HEAT PUMPS (50 TON UNITS)	24.00	EA	49,500.00	1,188,000	50%	$ 594,000	$ 594,000
	GROUND SOURCE LOOP FIELD	700.00	BORE	4,200.00	2,940,000	50%	$ 1,470,000	$ 1,470,000
	LOOP FIELD PUMPS	4.00	EA	13,538.00	54,152	50%	$ 27,076	$ 27,076
	HOT WATER PUMPS	3.00	EA	18,250.00	54,750	50%	$ 27,375	$ 27,375
	CHILLED WATER PUMPS	3.00	EA	18,250.00	54,750	50%	$ 27,375	$ 27,375
	HP PIPING, INSUL, VALVES, FITTINGS, & HANGER	1.00	LS	393,600.00	393,600	50%	$ 196,800	$ 196,800
	WATER TREATMENT	1.00	LS	150,000.00	150,000	50%	$ 75,000	$ 75,000
	VARIABLE FREQUENCY DRIVE - LOOP PUMP	4.00	EA	14,000.00	56,000	50%	$ 28,000	$ 28,000
	VARIABLE FREQUENCY DRIVE - HOT WATER PUMP	3.00	EA	19,000.00	57,000	50%	$ 28,500	$ 28,500
	VARIABLE FREQUENCY DRIVE - CHILLED WATER PUMP	3.00	EA	19,000.00	57,000	50%	$ 28,500	$ 28,500
	CONTROL & INSTRUMENTS	1.00	LS	200,000.00	200,000	50%	$ 100,000	$ 100,000
MECHANICAL SYSTEMS TOTAL					**5,205,252**	50%	$ 2,602,626	$ 2,602,626
DIRECT BURIED PIPING								
	HOT WATER PIPING - PREINSULATED SYSTEM	1075.00	LF	711.50	764,863	50%	$ 382,431	$ 382,431
	CHW PIPING	1075.00	LF	125.00	134,375	50%	$ 67,188	$ 67,188
	DW/FIRE LINE TO CUP	220.00	LF	85.00	18,700	50%	$ 9,350	$ 9,350
	BLDG SANITARY SEWER TO CUP	220.00	LF	85.00	18,700	50%	$ 9,350	$ 9,350
	SANITARY SEWER MANHOLES	2.00	EA	4,575.00	9,150	50%	$ 4,575	$ 4,575
	NATURAL GAS SERVICE TO CUP	250.00	LF	21.00	5,250	50%	$ 2,625	$ 2,625
DIRECT BURIED PIPING TOTAL					**951,038**	50%	$ 475,519	$ 475,519
ELECTRICAL-PLANT ONLY								
	PLANT SYSTEMS ELECTRICAL	1.00	LS	606,520.17	606,520	50%	$ 303,260	$ 303,260
	MEDIUM VOLTAGE SWITCHGEAR AND FEEDERS	1.00	LS	1,774,052.39	1,774,052	50%	$ 887,026	$ 887,026
	CONCRETE TRANSFORMER PADS	4.00	EA	3,455.00	13,820	50%	$ 6,910	$ 6,910
	15 kV SERVICE TO JAIL - DUCTBANK	950.00	LF	216.00	205,200	50%	$ 102,600	$ 102,600
	15 kV SERVICE TO JAIL - CABLE	1900.00	LF	102.00	193,800	50%	$ 96,900	$ 96,900
	2000 kVA TRANSFORMER FOR JAIL SERVICE	2.00	EA	135,850.00	271,700	50%	$ 135,850	$ 135,850
ELECTRICAL TOTAL					**3,065,093**	50%	$ 1,532,546	$ 1,532,546
OTHER								
	ENGINEERING/PERMITS (ESTIMATE)	1.00	LS	973,600.48	973,600	50%	$ 486,800	$ 486,800
	PROJECT MANAGEMENT (ESTIMATE)	1.00	LS	608,500.30	608,500	50%	$ 304,250	$ 304,250
OTHER TOTAL					**1,582,101**	50%	$ 791,050	$ 791,050
TOTAL CONSTRUCTION COST					**12,170,006**	50%	$ 6,085,003	$ 6,085,003
TOTAL PROJECT COST					**13,752,107**	50%	$ 6,876,053	$ 6,876,053
TOTAL OVERALL PROJECT COST					**20,132,822**		**$ 6,876,053**	**$ 13,256,769**

PRELIMINARY COST ESTIMATE - EMERGENCY ELECTRICAL SYSTEM

SYSTEM	EQUIPMENT	QUANTITY	UNIT	TOTAL COST/UNIT	TOTAL COST	% of Matching FED Funds	FED Fund Request	Non-FED Funding
BUILDING	THERMAL PLANT BUILDING - MAIN LEVEL	4,876	SF	175.11	853,836	0%	$ -	$ 853,836
	THERMAL PLANT BUILDING - FAN ROOM	8,200	SF	149.11	1,222,702	0%	$ -	$ 1,222,702
	INTERIOR LIGHTING, COMM, POWER	4,876	SF	18.00	87,768	0%	$ -	$ 87,768
	PLUMBING	4,876	SF	9.00	43,884	0%	$ -	$ 43,884
	FIRE PROTECTION	13,076	SF	3.00	39,228	0%	$ -	$ 39,228
	LANDSCAPING, GRADING, & PAVEMENT	13,076	SF	16.17	211,439	0%	$ -	$ 211,439
	BUILDING HVAC	13,076	SF	4.72	61,719	0%	$ -	$ 61,719
BUILDING TOTAL					**2,520,576**	0%	$ -	$ 2,520,576
MECHANICAL SYSTEMS								
	VENTILATION SYSTEM - GENERATORS	1.00	LS	314,300.00	314,300	0%	$ -	$ 314,300
MECHANICAL SYSTEMS TOTAL					**314,300**	0%	$ -	$ 314,300
FUEL HANDLING								
	NO. 2 FUEL OIL TANK 20000 GAL	2.00	EA	45,000.00	90,000	0%	$ -	$ 90,000
	FUEL OIL TANK FOUNDATION, MONITORING, EXCAVATION	1.00	LS	68,000.00	68,000	0%	$ -	$ 68,000
	NO. 2 FUEL OIL PUMPS & DOUBLE WALL PIPE	1.00	LS	35,000.00	35,000	0%	$ -	$ 35,000
FUEL HANDLING TOTAL					**193,000**	0%	$ -	$ 193,000
ELECTRICAL-PLANT ONLY								
	GENERATOR 1825 KW, PRIME POWER, 12470 V	3.00	EA	872,925.00	2,618,775	0%	$ -	$ 2,618,775
ELECTRICAL TOTAL					**2,618,775**	0%	$ -	$ 2,618,775
OTHER								
	ENGINEERING/PERMITS (ESTIMATE)	1.00	LS	451,732.08	451,732	0%	$ -	$ 451,732
	PROJECT MANAGEMENT (ESTIMATE)	1.00	LS	282,332.55	282,333	0%	$ -	$ 282,333
OTHER TOTAL					**734,065**	0%	$ -	$ 734,065
TOTAL CONSTRUCTION COST					**5,646,651**	0%	$ -	$ 5,646,651
TOTAL PROJECT COST					**6,380,716**	0%	$ -	$ 6,380,716

District Energy Project

Projected Cash Flow for New Detention Facilities WITH DOE Matching Funds

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
kWh	247,709	125,926	82,344	78,750	156,667	319,364	381,766	320,604	234,577	171,049	83,413	202,846	2,405,015
kW Demand	481	298	284	335	485	726	799	705	623	537	334	418	6,025
Billing Demand	519	519	519	519	519	726	799	705	623	537	519	519	7,025
Energy Charge	$ 4,929	$ 2,506	$ 1,639	$ 1,567	$ 3,118	$ 8,687	$ 10,384	$ 8,720	$ 6,380	$ 3,404	$ 1,660	$ 4,037	$ 57,031
Demand Charge	$ 8,051	$ 8,051	$ 8,051	$ 8,051	$ 8,051	$ 11,246	$ 12,386	$ 10,933	$ 9,651	$ 8,320	$ 8,051	$ 8,051	$ 108,893
Customer Charge	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 2,423
Total Energy Expense	$ 13,182	$ 10,759	$ 9,892	$ 9,820	$ 11,371	$ 20,134	$ 22,972	$ 19,855	$ 16,234	$ 11,926	$ 9,913	$ 12,290	$ 168,347
Total Energy Expense	$ 19,252	$ 15,713	$ 14,446	$ 14,342	$ 16,606	$ 29,406	$ 33,550	$ 28,997	$ 23,709	$ 17,417	$ 14,477	$ 17,948	$ 245,864
O&M Expense	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 229,421
A&G Expense	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 104,310
Total Experse	$ 47,063	$ 43,524	$ 42,257	$ 42,153	$ 44,417	$ 57,216	$ 61,361	$ 56,808	$ 51,519	$ 45,228	$ 42,288	$ 45,759	$ 579,595
Demand Revenue	$ 152,246	$ 152,246	$ 152,246	$ 152,246	$ 152,246	$ 152,246	$ 152,246	$ 152,246	$ 152,246	$ 152,246	$ 152,246	$ 152,246	$ 1,826,952
Debt Service	$ 83,157	$ 83,157	$ 83,157	$ 83,157	$ 83,157	$ 83,157	$ 83,157	$ 83,157	$ 83,157	$ 83,157	$ 83,157	$ 83,157	$ 997,889
Net	$ 22,025	$ 25,565	$ 26,831	$ 26,936	$ 24,671	$ 11,872	$ 7,728	$ 12,280	$ 17,569	$ 23,860	$ 26,800	$ 23,329	$ 249,469

Projected Cash Flow for New Detention Facilities WITHOUT DOE Matching Funds

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
kWh	247,709	125,926	82,344	78,750	156,667	319,364	381,766	320,604	234,577	171,049	83,413	202,846	2,405,015
kW Demand	481	298	284	335	485	726	799	705	623	537	334	418	6,025
Billing Demand	519	519	519	519	519	726	799	705	623	537	519	519	7,025
Energy Charge	$ 4,929	$ 2,506	$ 1,639	$ 1,567	$ 3,118	$ 8,687	$ 10,384	$ 8,720	$ 6,380	$ 3,404	$ 1,660	$ 4,037	$ 57,031
Demand Charge	$ 8,051	$ 8,051	$ 8,051	$ 8,051	$ 8,051	$ 11,246	$ 12,386	$ 10,933	$ 9,651	$ 8,320	$ 8,051	$ 8,051	$ 108,893
Customer Charge	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 202	$ 2,423
Total Energy Expense	$ 13,182	$ 10,759	$ 9,892	$ 9,820	$ 11,371	$ 20,134	$ 22,972	$ 19,855	$ 16,234	$ 11,926	$ 9,913	$ 12,290	$ 168,347
Total Energy Expense	$ 19,252	$ 15,713	$ 14,446	$ 14,342	$ 16,606	$ 29,406	$ 33,550	$ 28,997	$ 23,709	$ 17,417	$ 14,477	$ 17,948	$ 245,864
O&M Expense	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 19,118	$ 229,421
A&G Expense	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 8,692	$ 104,310
Total Expense	$ 47,063	$ 43,524	$ 42,257	$ 42,153	$ 44,417	$ 57,216	$ 61,361	$ 56,808	$ 51,519	$ 45,228	$ 42,288	$ 45,759	$ 579,595
Demand Revenue	$ 206,164	$ 206,164	$ 206,164	$ 206,164	$ 206,164	$ 206,164	$ 206,164	$ 206,164	$ 206,164	$ 206,164	$ 206,164	$ 206,164	$ 2,473,968
Debt Service	$ 126,292	$ 126,292	$ 126,292	$ 126,292	$ 126,292	$ 126,292	$ 126,292	$ 126,292	$ 126,292	$ 126,292	$ 126,292	$ 126,292	$ 1,515,500
Net	$ 32,809	$ 36,349	$ 37,615	$ 37,720	$ 35,455	$ 22,656	$ 18,512	$ 23,064	$ 28,353	$ 34,644	$ 37,584	$ 34,113	$ 378,873

Economic Viability of District Energy Project WITH DOE Matching Funds

	2012	2013	2014	2015
Expenses				
Energy Expense	$ 245,864	$ 250,781	$ 255,797	$ 260,913
Electric Rate Change	10.0%	2.0%	2.0%	2.0%
Demand	$ 124,285	$ 126,770	$ 129,306	$ 131,892
Energy	$ 121,579	$ 124,011	$ 126,491	$ 129,021
O&M Expense	$ 229,421	$ 236,304	$ 243,393	$ 250,695
A&G Expense	$ 104,310	$ 107,439	$ 110,662	$ 113,982
Total Expenses	$ 579,595	$ 594,524	$ 609,852	$ 625,590
Revenues	$ 1,826,956	$ 1,826,956	$ 1,826,956	$ 1,826,956
Monthly Demand Charge	$ 152,246	$ 152,246	$ 152,246	$ 152,246
Net Operating Revenue	$ 1,247,361	$ 1,232,432	$ 1,217,104	$ 1,201,366
Debt Service	$ 997,889	$ 997,889	$ 997,889	$ 997,889
Debt Coverage Ratio	1.25	1.24	1.22	1.20

Economic Viability of District Energy Project WITHOUT DOE Matching Funds

	2012	2013	2014	2015
Expenses				
Energy Expense	$ 245,864	$ 250,781	$ 255,797	$ 260,913
Electric Rate Change	10.0%	2.0%	2.0%	2.0%
Demand	$ 124,285	$ 126,770	$ 129,306	$ 131,892
Energy	$ 121,579	$ 124,011	$ 126,491	$ 129,021
O&M Expense	$ 229,421	$ 236,304	$ 243,393	$ 250,695
A&G Expense	$ 104,310	$ 107,439	$ 110,662	$ 113,982
Total Expenses	$ 579,595	$ 594,524	$ 609,852	$ 625,590
Revenues	$ 2,473,970	$ 2,473,970	$ 2,473,970	$ 2,473,970
Monthly Demand Charge	$ 206,164	$ 206,164	$ 206,164	$ 206,164
Net Operating Revenue	$ 1,894,375	$ 1,879,445	$ 1,864,118	$ 1,848,380
Debt Service	$ 1,515,500	$ 1,515,500	$ 1,515,500	$ 1,515,500
Debt Coverage Ratio	1.25	1.24	1.23	1.22

Projected Benefit from $6,876,053 in DOE Funds for Lancaster County, the City of Lincoln and District Energy Corporation

Monthly Savings Estimate:	$ 53,918
Annual Savings Estimate:	$ 647,014
Projected Savings over 20 Year Period:	$ 10,352,222

DISTRICT ENERGY CORPORATION
FINANCIAL PLANNING MODEL
2009 Budget with New Detention Facilities

		2008	2009	2010	2011	2012	2013
	Revenue-						
1	Energy Services	$2,035,078	$ 2,053,975	$ 2,112,235	$ 4,586,203	$ 4,586,203	$ 4,586,203
2	Rents and Others	$ -	$ -	$ -	$ -	$ -	$ -
3	**Total**	**$2,035,078**	**$ 2,053,975**	**$ 2,112,235**	**$ 4,586,203**	**$ 4,586,203**	**$ 4,586,203**
	Expenses-						
4	Energy Expense	$ 860,365	$ 841,642	$ 872,481	$ 1,018,689	$ 1,038,042	$ 1,036,523
5	O&M Expense	$ 345,968	$ 295,337	$ 342,720	$ 571,040	$ 603,447	$ 617,418
6	A&G Expense	$ 98,027	$ 119,454	$ 122,440	$ 125,501	$ 231,437	$ 237,223
7	**Total**	**$1,304,360**	**$ 1,256,433**	**$ 1,337,642**	**$ 1,715,230**	**$ 1,872,926**	**$ 1,891,164**
8	**Net Operating Revenue**	**$ 730,718**	**$ 797,542**	**$ 774,593**	**$ 2,870,973**	**$ 2,713,277**	**$ 2,695,039**
9	**Interest Income**	**$ 26,600**	**$ 77,821**	**$ 27,574**	**$ 38,907**	**$ 34,302**	**$ 43,828**
10	**Available for Debt Service**	**$ 757,318**	**$ 875,363**	**$ 802,167**	**$ 2,909,879**	**$ 2,747,579**	**$ 2,738,867**
11	Debt Service	$ 398,927	$ 446,511	$ 395,535	$ 1,652,763	$ 2,025,530	$ 2,025,250
12	Capital Projects	$ 200,000	$ 2,885,000	$ 10,141,412	$10,141,412	$ 75,000	$ 75,000
13	State R&R Fund Contribution	$ -	$ -	$ -	$ -	$ -	$ -
14	Count / City R&R Fund Contribution	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
15	Long Term Borrowings	$ -	$ -	$ 23,132,824	$ -	$ -	$ -
16	Short Term Borrowings	$ -	$ -	$ (3,000,000)	$ -	$ -	$ -
17	Year End Balance	$ 1,706,626	$ 1,511,957	$ 11,662,744	$ 2,636,070	$ 3,239,323	$ 3,833,768
18	Minimum Balance	$ 1,706,626	$ 1,511,957	$ 11,098,128	$ 1,752,298	$ 2,700,234	$ 3,303,776
19	Depreciation	$ 443,159	$ 463,828	$ 466,578	$ 470,328	$ 1,551,969	$ 1,555,719
	Statistics and Assumptions-						
20	**Debt Coverage Ratio**	**1.90**	**1.96**	**2.03**	**1.76**	**1.36**	**1.35**
21	**Rate Stabilization Fund**	$ -	$ -	$ -	$ -	$ -	$ -
22	**Debt Coverage with Rate Stab.**						
23	Total Sales (MMBTU)	67,357	65,845	65,845	65,845	65,845	65,845
24	Sales change	0.1%	-2.2%	0.0%	0.0%	0.0%	0.0%
25	Average Yield ($/MMBTU)	$ 30.21	$ 31.19	$ 32.08	$ 69.65	$ 69.65	$ 69.65
26	Average Yield Change	12.0%	3.2%	2.8%	117.1%	0.0%	0.0%
27	**Total Revenue Change**	9.2%	0.9%	2.8%	117.1%	0.0%	0.0%
28	Interest Rate Earnings	1.75%	2.0%	2.0%	2.0%	2.0%	2.0%
29	Short Term Interest Rate	1.75%	2.0%	2.0%	2.0%	2.0%	2.0%
30	Gas Rate Change	8.1%	3.4%	3.0%	-1.0%	-1.0%	-1.0%
31	Electric Rate Change	14.1%	0.0%	1.5%	0.0%	10.0%	2.0%
32	CPI Change	NA	NA	2.5%	2.5%	2.5%	2.5%

7/14/2009
Rates, Forecasting and Load Research

DISTRICT ENERGY CORPORATION
FINANCIAL PLANNING MODEL
Supplemental Data Table

		2008	2009	2010	2011	2012	2013
	Debt Service-						
1	Principal	$ 171,667	$ 178,333	$ 188,333	$ 719,630	$ 1,118,294	$ 1,161,508
2	Interest	$ 227,260	$ 268,178	$ 207,202	$ 933,133	$ 907,236	$ 863,742
3	**Debt Service Total**	**$ 398,927**	**$ 446,511**	**$ 395,535**	**$ 1,652,763**	**$ 2,025,530**	**$ 2,025,250**
4	**Available for Debt Service**	**$ 757,318**	**$ 875,363**	**$ 802,167**	**$ 2,909,879**	**$ 2,747,579**	**$ 2,738,867**
5	**Debt Coverage Ratio**	**1.90**	**1.96**	**2.03**	**1.76**	**1.36**	**1.35**
	Heating Sales (MMBTU)						
6	Hall of Justice	7,621	8,100	8,100	8,100	8,100	8,100
7	Jail	2,693	2,900	2,900	2,900	2,900	2,900
8	K-Street	1,092	700	700	700	700	700
9	County/City	4,190	4,100	4,100	4,100	4,100	4,100
10	Courthouse Plaza	592	592	592	592	592	592
11	900 J Building		148	148	148	148	148
12	New County Detention Facility				5,161	5,161	5,161
13	State Office	3,753	3,900	3,900	3,900	3,900	3,900
14	State Capitol	37,091	32,000	32,000	32,000	32,000	32,000
15	**Total**	57,032	52,440	52,440	57,601	57,601	57,601
	Cooling Sales (MMBTU)						
16	Hall of Justice	4,812	5,800	5,800	5,800	5,800	5,800
17	Jail	3,154	4,000	4,000	4,000	4,000	4,000
18	K-Street	391	430	430	430	430	430
19	County/City	1,950	2,500	2,500	2,500	2,500	2,500
20	Courthouse Plaza	540	540	540	540	540	540
21	900 J Building		135	135	135	135	135
22	New County Detention Facility				20,022	20,022	20,022
23	**Total**	10,847	13,405	13,405	33,427	33,427	33,427
24	**Demand Revenue ($/mo.)**	$ 76,766	$ 78,470	$ 80,470	$ 183,552	$ 286,634	$ 286,634
25	Demand Revenue Change (%)	0.0%	2.2%	2.5%	128.1%	56.2%	0.0%
26	Lancaster Demand Revenue (Decembe	$ 65,720	$ 65,720	$ 65,720	$ 65,720	$ 65,720	$ 65,720
27	New County Detention Fac. Dem. Rev.	$ -	$ -	$ -	$ 103,082	$ 206,164	$ 206,164
28	State Demand Revenue (December)	$ 11,046	$ 12,750	$ 14,750	$ 14,750	$ 14,750	$ 14,750
29	State Facilities Revenue (December)	$ 28,833	$ 28,833	$ 28,833	$ 28,833	$ 28,833	$ 28,833
	Demand Revenue Percent Split-						
30	Hall of Justice	44%	44%	44%	44%	44%	44%
31	Jail	19%	19%	19%	19%	19%	19%
32	K-Street	9%	9%	9%	9%	9%	9%
33	County/City	23%	23%	23%	23%	23%	23%
34	Courthouse Plaza	4%	4%	4%	4%	4%	4%
35	900 J Building	1%	1%	1%	1%	1%	1%
36	Total	100%	100%	100%	100%	100%	100%
	State Demand Revenue Percent Split-						
37	State Office	28%	28%	28%	28%	28%	28%
38	State Capitol	72%	72%	72%	72%	72%	72%
39	Total	100%	100%	100%	100%	100%	100%
40	**County Heating Rate ($/MMBTU)**	$ 13.00	$ 14.00	$ 14.50	$ 14.50	$ 14.50	$ 14.50
41	County Heating Rate Change (%)	-1.9%	7.7%	3.6%	0.0%	0.0%	0.0%
42	**State Heating Rate ($/MMBTU)**	$ 13.00	$ 14.00	$ 14.50	$ 14.50	$ 14.50	$ 14.50
43	State Heating Rate Change (%)	-1.9%	7.7%	3.6%	0.0%	0.0%	0.0%
44	**Cooling Rate ($/MMBTU)**	$ 2.40	$ 2.40	$ 3.00	$ 3.00	$ 3.00	$ 3.00
45	Cooling Rate Change (%)	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%
	R & R Fund Balance						
46	State	$ 316,924	$ 316,924	$ 316,924	$ 316,924	$ 316,924	$ 316,924
47	County	$ 150,000	$ 175,000	$ 200,000	$ 225,000	$ 250,000	$ 275,000
	Rate Stabilization Fund Balance						
48	State	$ 113,000	$ 113,000	$ 113,000	$ 113,000	$ 113,000	$ 113,000
49	County	$ 74,000	$ 74,000	$ 74,000	$ 74,000	$ 74,000	$ 74,000

Project Summary/Abstract

Project Title: District Energy SW 40th Street Thermal Plant

Name of Applicant: District Energy Corporation

Project Director/Principal Investigator: Krishna Amancherla

Objectives of the Project: Project aims to provide heating and cooling service to the Lancaster County Adult Detention Facility on adjacent site employing the most efficient and sustainable method that also proves to be the most economically feasible over the life cycle of the project. The efficiencies achieved in the design of the plant will also allow economically advantageous thermal service to future building sites in the area.

Description of the Project: In accordance with the results of a Feasibility Study comparing the total Life Cycle Cost of several options, the District Energy Corporation will construct a central utility plant equipped with a geothermal heat pump system to serve the thermal energy demands of the adjacent Lancaster County Adult Detention Facility. The Detention Facility will house 779 inmates plus the required staff for this population. The peak cooling load for this facility is approximately 858 tons, and the peak heating load is approximately 6,000 MBh. The total peak simultaneous load is 108 therms/hr.

To meet this demand for thermal energy, the DEC plant will install 24 nominal 50-ton water-to-water heat pump units connected to a system of geothermal bores from which heat is extracted during the heating season and to which heat is rejected during the cooling season. The plant will send hot water, chilled water, and domestic hot water to the Detention Facility via a system of underground piping that connects to the building mechanical system piping.

The interconnected heat pump units are capable of reversing operation to perform either heating or cooling, lowering the initial equipment cost of the project and providing an inherent source of redundancy. The geothermal system provides a renewable source of heat exchange at a much higher efficiency than conventional methods. This decreased operation cost results in a significantly lower Life Cycle Cost than a conventional thermal energy plant. In fact, although the geothermal system requires a higher initial investment, the energy savings results in an 8.7% total savings over a 25 year period. The energy savings realized by operating the geothermal system achieves not only economic benefits, but environmental benefits as well.

In addition to sustaining the environment, the project will contribute to sustaining the economy as well. The domestic manufacture of equipment, as well as an infusion of design and construction jobs, will not only bolster the economy in the short term, but will help to grow and support a green economy and encourage demand for sustainable and renewable energy solutions.

Project Narrative

Project Title: District Energy SW 40th Street Thermal Plant (Topic Area 1)

Name of Applicant: District Energy Corporation

Project Director/Principal Investigator: Krishna Amancherla

Project Objectives:
Lancaster County is designing a new Adult Detention Facility to be located at SW 40th and O Streets in Lincoln, Nebraska. This new facility will serve as the replacement to house inmates and facilitate administrative functions currently housed in the existing downtown jail and the Airpark detention facility. The Lancaster County Detention Center will initially be constructed with 779 beds in approximately 270,000 square feet. Three future phases of expansion will bring the capacity to 1896 beds in approximately 500,000 square feet. The building will require considerable thermal services, as it is a large facility with constant occupancy. The critical nature of the facility supports the construction of a central plant to provide this service. District Energy Corporation commissioned a feasibility study to determine the optimal mechanical system to be installed in a central plant constructed concurrently with the jail facility. The purpose of the study was to evaluate potential systems to provide heating, cooling, and emergency power services and offer a comparison and recommendation in terms of economic and technical feasibility. Feasibility of the recommended system was to be proven by its superior Life Cycle Cost.

Plant Options
The following details the options considered for plant equipment to serve the jail building load. Options were selected for their potential to offer energy cost savings and reliably serve the building load.

Option #1 – Conventional Thermal Plant
Option #1 consists of firetube boilers with necessary auxiliaries and centrifugal chillers with cooling tower and other necessary auxiliaries all sized to provide firm capacity to meet the peak load of the facility. (Firm capacity is defined as the capacity of the plant with the largest unit of a given type out of service.)

The chillers considered for Option #1 include variable frequency drives (VFD). The additional cost for this feature is included in the estimated machine cost. The chilled water will be pumped using a variable primary configuration. The cooling towers can be located either on the roof of the plant building or on grade adjacent to the building. Various factors affect the choice of cooling tower location, including available site space and soil conditions. Condenser water pumps will also be controlled via VFDs.

The boilers included in this option do not include low NOx burners, but this option can be added for an additional cost.

The plant facility required to house the equipment in Option #1 is a 27,400 ft^2 building with a main level, a partial mezzanine level, and a partial basement. The plant will be located south of the jail. The proposed building footprint is essentially rectangular to minimize construction costs. The footprint can be altered within the confines of maintaining the equipment layout for efficient operation. In such case, the cost of the building should be reassessed.

Capital Costs

The total estimated capital cost to purchase and install the Conventional System is approximately $17,693,478 in today's dollars. This capital cost includes not only the conventional mechanical system but also the emergency power system installed in the plant for support of the Detention Facility. The cost of the emergency power system is excluded from the budget estimates for purposes of federal funding requests.

Replacement Costs

The analysis included the additional consideration of equipment replacement costs. The service life of the major pieces of plant equipment was based on established values published by the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) and values provided by equipment suppliers. Equipment replacement costs were escalated by a factor of 5% annually to the year of replacement. The replacement cost was then added to the other annual costs to arrive at the Total Annual Cost.

Energy Consumption

Using the thermal energy load profile calculated for the Detention Center, the monthly electrical consumption and demand for the following equipment was calculated:

- Chillers
- Chilled Water Pumps
- Cooling Tower Fans
- Condenser Water Pumps
- Boiler Feedwater Pumps
- Condensate Transfer Pumps

With the same load profile, the monthly natural gas consumption for the following equipment was calculated:

- Boilers

Option #2 – Geothermal Heat Pump

Option #2 incorporates the use of a water-to-water geothermal heat pump system in the plant to serve the thermal needs of the jail building. Water-to-water heat pumps are available in a variety of sizes. Larger sized units are typically a fabricated module of multiple smaller units combined to share common piping and electrical connections. For the cases of this study, the option evaluated consists of nominal 50 ton units. A total of twenty four (24) units are installed in this option, with twenty three (23) units required to support the load and one (1) unit to provide firm capacity, or N+1 redundancy. Three (3) 1825 kW emergency generators will also be provided with this option. All auxiliary equipment required is included in this option.

The units can operate in either heating or cooling mode via a reversing valve internal to the unit. The header piping connecting the units can also be valved to route the supply water to heating or cooling, depending on the operation of the unit. This allows an additional source of redundancy and reduces capital cost as the same equipment can satisfy heating and cooling loads.

Although the initial cost may seem high, the water-to-water heat pumps have the capacity to serve the heating and cooling loads, saving on total equipment installations. Further, the need for the cooling tower is eliminated, except to support the function of a backup chiller, thereby decreasing capital costs. The pricing obtained for the heat pump units includes a five year warranty. Extended warranty packages are available at additional cost.

Rather than adding equipment to the Central Plant for redundancy, this project will build a level of redundancy into the system by installing additional heat pump units and additional geothermal bores in the well field. The well field was designed with capacity sufficient to satisfy the peak loads even in the case of higher entering temperatures on the cooling side or the exclusion of freeze protection on the heating side. Further, the long term ground temperature rise due to the cooling dominated load was the basis of the bore field size. These allowances built in a certain factor of safety to ensure operation even in the case of unfavorable loop field performance.

The number and depth of well field bores for the geothermal loop are dependent on the ground's ability to transfer heat. Certain information is required to determine the thermal capacity of the ground. Using data from a detailed soil test on the site, the ground properties were measured. This information was used to calculate the required size of the loop field. In total the loop field will consist of between 650 and 750 bores at 300 ft depth. Each piping header will exit the plant separately to isolate against a large scale piping failure. The headers will be 3" HDPE lines, with up to 20 bores per line. Each vertical loop will consist of 3" pipe headers with 1" U-bends on 20 foot centers in a step-down, step-up reverse return configuration.

Capital Costs
The total estimated capital cost to purchase and install the Ground Source Heat Pump System is approximately $20,132,824 in today's dollars. This capital cost includes not only the geothermal mechanical system but also the emergency power system installed in the plant for support of the Detention Facility. The cost of the emergency power system is excluded from the budget estimates for purposes of federal funding requests.

Replacement Costs
The analysis included the additional consideration of equipment replacement costs. The service life of the major pieces of plant equipment was based on established values published by the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) and values provided by equipment suppliers. Equipment replacement costs were escalated by a factor of 5% annually to the year of replacement. The replacement cost was then added to the other annual costs to arrive at the Total Annual Cost.

Energy Consumption
Using the thermal energy load profile calculated for the Detention Center, the monthly electrical consumption and demand for the following equipment was calculated:

- Water-to-Water Heat Pump Units
- Chilled Water Distribution Pumps
- Hot Water Distribution Pumps
- Loop Field Pumps

The GSHP System has no natural gas consumption.

Cost Projection Methodology
Economic analyses were performed on each of the two options discussed in the previous sections. Capital cost, energy cost, operation and maintenance cost, and equipment replacement costs were defined for each of the alternatives. These values were annualized and projected over the total evaluation period. Total Life Cycle Cost and Net Present Value were calculated for equitable comparison.

Costing Factors
The evaluation period used in the economic analysis was 25 years. This period was selected on the basis of the service life of various pieces of plant equipment. Taken as an overall average, the majority of equipment will still be within its useful life, but the length of time is adequate to allow cost projections and loan payoffs. The interest rate applied in the analysis is 5%. These factors combine for a capital recovery rate of 0.070952. The discount rate used to calculate the Net Present Value was 5%. Energy costs were escalated at 3% annually, and labor costs were escalated at 3% as well.

Capital Costs

The capital costs for each option were obtained by various methods. Where possible, actual budget estimates were received from equipment vendors. This represents a conservative but realistic value. If vendor pricing was not available, experience of actual purchase prices offered in recent equipment acquisitions was used. Lastly, prices unavailable from other sources were obtained from an engineering estimating resource book. Estimated costs include purchase and installation of the listed equipment. The Total Capital Costs for each option are listed below:

Capital Costs		
Option	**Total Cost**	**Incremental Cost**
Conventional System	$17,693,478	--
GSHP System	$20,132,824	$2,439,346

The capital costs are annualized using the capital recovery factor described earlier in this section. This capital cost includes not only the mechanical system but also the emergency power system installed in the plant for support of the Detention Facility. The cost of the emergency power system is excluded from the budget estimates for purposes of federal funding requests.

Energy Costs

The energy costs apply the actual contracted electrical and natural gas rates to the energy consumption and demand values as calculated in energy model simulations performed for each option. The Annual Energy Costs are as follows:

Annual Energy Costs			
Option	**Total Annual Electrical Cost**	**Total Annual Natural Gas Cost**	**Total Annual Energy Cost**
Conventional System	$116,401	$140,799	$257,200
GSHP System	$168,347	$0	$168,347

O&M Costs

Operations and maintenance costs can be difficult to estimate without an accurate frame of reference. The DEC's experience with their own utility plants offers the best resource to determine future O&M costs. To arrive at the most dependable estimates possible, the operations and maintenance costs were defined by DEC based on actual cost at other plants operated by DEC and scaled to match the size and operation of this plant. The DEC estimate of O&M costs included the following cost items:

- Plant Operations Expenses (including salaries, benefits, transportation, and incidentals)
- Plant Maintenance Expenses (including parts and labor incurred by plant personnel and equipment maintenance contracts)

DEC also estimated the Administrative Expenses on an annual basis. This value includes administration, accounting, office supplies, marketing, insurance, and legal services. This amount is the same for either option and is not a function of the plant's operation, and as such was excluded from the Life Cycle Cost.

The O&M costs are as follows:

Operations and Maintenance Costs	
Option	**Annual O& M Cost**
Conventional System	$273,953
GSHP System	$209,953

The O&M Costs of the GSHP System are approximately 76.6% of the O&M Costs of the Conventional System.

Total Annual Costs

The sum of the Capital Cost Recovery, Annual Energy Cost, and Annual O&M Cost is defined as the Total Annual Cost. The Total Annual Cost is escalated annually as a function of the escalation of each individual cost. Energy Costs and O&M Costs are escalated at a rate of 3% per year. The Capital Recovery value is constant but is calculated with a 5% interest rate. The Total Annual Costs for the first year are listed below.

Total Annual Costs				
Option	**Capital Recovery**	**Annual Energy Cost**	**Annual O&M Cost**	**Total Annual Cost**
Conventional System	$1,255,396	$257,200	$273,953	$1,786,548
GSHP System	$1,428,473	$168,347	$209,953	$1,806,774

Life Cycle Costs

To arrive at the Life Cycle Cost, which is the true indication of the total cost of each option, the Total Annual Cost was escalated and summed for the entire 25 year time period, and the escalated Equipment Replacement Costs were added in the year of replacement. The Life Cycle Cost is then converted into a Net Present Value with a discount rate of 5%. The results are as follows:

Life Cycle Cost Comparison		
Mechanical System	**Total Life Cycle Cost**	**Net Present Value of Total Cost**
Conventional System	$60,264,515	$30,778,922
Ground Source Heat Pump System	$55,044,704	$29,454,988

Environmental Impact

The energy consumed by each system impacts the environment not only in terms of the consumption of natural resources, but also in terms of the emission of greenhouse gasses. The total energy consumed by the GSHP System on an annual basis is approximately 44% of the energy consumed by the Conventional System. The operation of the GSHP System therefore allows an opportunity for a significant decrease in the consumption of energy resources.

This energy savings also produces a net decrease in the emission of greenhouse gasses. Based on the extraction of Lincoln Electric System (LES) power plant emissions data from the eGRID2007 Version 1.1 annual non-baseload CO_2 output emission rates (year 2005 data) as published by the Environmental Protection Agency (the most recent data available), the power consumed by the GSHP System produces approximately 61 metric tons of CO_2 less than the Conventional System. This is the equivalent of:

- the annual greenhouse gas emissions from 11.2 passenger vehicles,
- the CO_2 emissions from the electricity use of 8.5 homes for one year, or
- the carbon sequestered annually by 13.9 acres of pine or fir forests.

Although this amount is not a dramatic reduction, it should be noted that since the collection of 2005 data, LES has made acquisitions that decrease its overall emission rate, thereby increasing this value of avoided emissions. Further actions by LES to improve the emissions rates of their power plants will only enhance the environmental benefits of the GSHP option.

The use of the GSHP system to provide the Detention Center's domestic hot water results in further energy savings and environmental benefits. The decrease in energy consumption as compared to a conventional gas-fired hot water heater is responsible for one level of energy savings, while the increased use of the GSHP system for heating enhances the efficiency of the well field of this otherwise cooling-dominated system by balancing the ground temperature between the seasons.

Summary of System Options Analysis

Option #1 – Conventional Thermal Plant

Option #1 provides the plant with a total heating capacity of 10,350 MBh and a firm heating capacity of 6,900 MBh. The equipment installed will also provide 1500 tons of total cooling capacity and 1000 tons of firm cooling capacity. Emergency power generation is available for 5,475 kW of total capacity and 3,650 kW of firm capacity. The economic analysis showed the following results:

Option #1 – Conventional Plant	
Capital Cost	$17,693,478
Annual Energy Cost	$257,200
Annual O&M Cost	$273,953
Total Projected Annual Cost	$1,786,548
Total Life Cycle Cost	$60,264,515

Option #2 – Geothermal Heat Pump

Option #2 provides the plant with total heating capacity of 13,597 MBh and a firm heating capacity of 12,917 MBh. The installed equipment will also provide 977 tons of total cooling capacity and 928 tons of firm capacity. Emergency power generation is identical to Option #1. The economic analysis resulted in the following:

Option #2 – Ground Source Heat Pumps	
Capital Cost	$20,132,824
Annual Energy Cost	$168,347
Annual O&M Cost	$209,953
Total Projected Annual Cost	$1,806,774
Total Life Cycle Cost	$55,044,704
Payback (years)	9.1

Because the Equipment Replacement Cost plays a significant role in the Life Cycle Cost of each option, the Payback was calculated as the number of years required for the savings in Energy Cost and O&M Cost to equal the incremental Capital Cost and Equipment Replacement Cost. The Equipment Replacement Cost between the two systems varies greatly because the GSHP system requires only the replacement of pumps and water-to-water heat pump units within the 25 year life cycle included in the analysis, while the Conventional system requires replacement of virtually all equipment. The long life of the geothermal well field avoids a very high replacement cost within this time frame.

Although the GSHP System comes with a high first cost, the energy and O&M savings, along with the high Equipment Replacement Cost of the Conventional System, result in a lower Total Life Cycle Cost over the 25 year time period under analysis.

Benefits of GSHP System	
Estimated Energy Cost Savings	35%
Estimated O&M Cost Savings	23.3%
Estimated Life Cycle Cost Savings	$5,219,811

System Efficiency

The efficiency of each system was calculated in terms of Coefficient of Performance (COP), or the ratio between useful energy acquired and energy applied. The improved efficiency of the GSHP System as compared to the Conventional System provides a benefit that will continue throughout the life of the system.

System Efficiency Comparison	
Option	**Efficiency (COP)***
Conventional System	1.73
GSHP System	3.93

*$COP = E_u/E_a$

where E_u = useful energy acquired (in Btu)

E_a = energy applied (in Btu)

Conclusions

Despite the 13.8% increase in capital cost, the GSHP system saves 35% in energy costs and 23.3% in operating and maintenance costs as compared to the conventional system. This overall operation savings along with the high cost of equipment replacement for the conventional system, results in a 25 year Life Cycle Cost for the GSHP system that is approximately $5,219,811, or 8.7%, less than that of the conventional system. Combining the cost savings over the Life Cycle of the equipment with the environmental benefits of decreased energy use lends a clear advantage to the GSHP System. Further detail on Life Cycle Cost Analysis calculations is available.

Merit Review Criterion Discussion:

Criterion 1: Innovativeness, Feasibility, and Cost Effectiveness of Approach

Information to explain and detail the innovation, feasibility, and cost effectiveness of the approach to be utilized in this project are contained in the previous sections. The goal of the feasibility study was to find the solution that best provided these benefits. The complete analysis of the study including the Life Cycle Cost analysis proves that the geothermal system is the best method by which to reliably serve the thermal load with an approach that is innovative, feasible, and cost effective.

Criterion 2: Project Management Approach

The project schedule indicates that the design of the loop field will be complete within 60 days, and construction on this portion of the project can begin within 120 days. In fact, design is much closer to completion than the schedule indicates, and local excavation companies are seeking out projects to begin as quickly as possible. A selection of the project drawing set illustrating the progress of the project design is attached with this application, and a larger drawing set is available upon request. The current projected project schedule is included as an attachment to this application.

All permits have been issued or submitted, and signs indicate that all permits will be approved. Communications with major equipment vendors have been initiated, and equipment lead times have been established and incorporated into project schedules. All leases and easements between the City/County and DEC for the project site have been defined and agreed upon.

The role and contribution of each team member in the deployment of the technology as well as the proposed work and budget distribution among the team members is very clearly distinguished as a contract is already in place defining the work tasks required of each party as well as the fee structure and sums contracted between the parties.

Criterion 3: Roles, Responsibilities, and Capabilities

The members of the team responsible for completing this project together have an impressive set of qualifications, capabilities, credentials, and experience relative to large-scale utility plant projects and the incorporation of innovative approaches to design solutions. The resume file included as an attachment to this application highlights only a selection of examples of such achievements. Further evidence of experience and qualifications, particularly as related to geothermal systems, both on an individual and firm-wide level are available on request.

All entities involved or impacted by this project are fully cooperative and supportive of the efforts related to this project. Several letters of commitment and approved contracts have been included as attachments to this application. No equipment supply contracts or construction contracts have yet been executed as this project will be competitively bid for maximum cost benefit as required by internal DEC regulations.

Control systems will be designed to provide data collection and report trending for use in internal system improvements, future similar installations, and to be made available to the National Geothermal Data System. Control systems design will be executed by DEC personnel, and as such will be completely customizable to the application and the needs of the operating entity.

American Recovery and Reinvestment Act of 2009, P.L. 111-5 (Recovery Act) Information

The district project will immediately create approximately 150 construction- and installation-related jobs. These jobs will be created as construction activities begin in 2009. Indirectly, this project will also create or retain manufacturing jobs at various vendor facilities. In addition to the jobs created in Nebraska, the project is likely to stimulate economic activity through major component orders from: Illinois, Wisconsin, Indiana, Texas, Kansas, Missouri and Iowa. The majority of civil, mechanical, electrical and controls design engineering, installation, material and assembly will be performed in Nebraska.

All components for the project will be handled through public bidding. It is anticipated that much of the geothermal system will be awarded to local and regional contractors. Most of the materials for the project are expected to be supplied by Midwest based manufacturers and majority of the equipment is expected to be produced domestically.

The calculation to determine job creation values was based on the preliminary cost estimate for the project. Using the labor cost for each component of construction and the regional hourly rate for each labor discipline, the total number of manhours for each task was calculated. The manhours distributed across the total timeline to complete each task resulted in an estimated number of laborers for each task, resulting in the total number of jobs created for the design and construction portion of the project. Manufacturing job estimates were dependent upon the number of units to be purchased and the manufacturer's estimated time of completion. A calculation spreadsheet is included as an attachment to this application.

Multiple Principal Investigators:

This project involves two co-Principal Investigators: Krishna Amancherla and Greg Kronaizl. Krishna Amancherla, District Energy Corporation, is serving as the Project Manager from the owner side of the project. Amancherla has directed all analysis and design efforts to date and will, with his staff, act as the general contractor during construction. Greg Kronaizl, Farris Engineering, is the Project Manager from the engineering side of the project. Kronaizl is leading all analysis and design efforts and will, with his staff, act as construction administrator during construction activities to ensure that design intent is achieved.

Statement of Project Objectives

Project Objectives:

Lancaster County is designing a new Adult Detention Facility to be located at SW 40th and O Streets in Lincoln, Nebraska. This new facility will serve as the replacement to house inmates and facilitate administrative functions currently housed in the existing downtown jail and the Airpark detention facility. The Lancaster County Detention Center will initially be constructed with 779 beds in approximately 270,000 square feet. Three future phases of expansion will bring the

capacity to 1896 beds in approximately 500,000 square feet. The building will require considerable thermal services, as it is a large facility with constant occupancy. The critical nature of the facility supports the construction of a central plant to provide this service. District Energy Corporation commissioned a feasibility study to determine the optimal mechanical system to be installed in a central plant constructed concurrently with the jail facility.

A study was conducted to evaluate potential systems to provide heating, cooling, and emergency power services and offer a comparison and recommendation in terms of economic and technical feasibility. Feasibility of the recommended system was to be proven by its superior Life Cycle Cost. The results of the study indicated that a geothermal system provided superior performance in terms of system efficiency, operating costs, sustainability, and environmental impact. The objective of this project is to install a central utility facility to provide efficient and sustainable thermal energy via a geothermal mechanical system which will serve as a technical and business model for future large-scale energy plant installations by proving the inherent benefits of this system.

Project Scope:
In accordance with the results of the Feasibility Study comparing the Life Cycle Cost of several options, the District Energy Corporation will construct a central utility plant equipped with a geothermal heat pump system to serve the thermal energy demands of the adjacent Lancaster County Adult Detention Facility. The peak cooling load for this facility is approximately 858 tons, and the peak heating load is approximately 6,000 MBh. The total peak simultaneous load is 108 therms/hr. To meet this demand for thermal energy, the DEC plant will install 24 nominal 50-ton water-to-water heat pump units connected to a system of geothermal bores from which heat is extracted during the heating season and to which heat is rejected during the cooling season. The plant will send hot water, chilled water, and domestic hot water to the Detention Facility via a system of underground piping that connects to the building mechanical piping system.

The interconnected heat pump units are capable of reversing operation to perform either heating or cooling, lowering the initial equipment cost of the project and providing an inherent source of redundancy. The geothermal system provides a renewable source of heat exchange at a much higher efficiency than conventional methods. This decreased operation cost results in a significantly lower Life Cycle Cost than a conventional thermal energy plant. In fact, although the geothermal system requires a higher initial investment, the energy savings result in an 8.7% total savings over a 25 year period. The energy savings realized by operating the geothermal system achieves not only economic benefits, but environmental benefits as well. In addition to sustaining the environment, the project will contribute to sustaining the economy as well. The domestic manufacture of equipment, as well as an infusion of design and construction jobs, will not only

bolster the economy in the short term, but will help to grow and support a green economy and encourage demand for sustainable and renewable energy solutions.

Tasks To Be Performed:

PHASE 1 FEASIBILITY STUDY

Task 1.0 Feasibility Study
A study was conducted to evaluate potential systems to provide heating, cooling, and emergency power services and offer a comparison and recommendation in terms of economic and technical feasibility. Feasibility of the recommended system was to be proven by its superior Life Cycle Cost.

Subtask 1.1 System Identification
Initially, ten mechanical systems were identified as possible systems for installation in the planned central utility plant to serve the Detention Facility. Systems were selected for potential energy efficiency and reliability.

Subtask 1.2 Technical Analysis
The systems selected for initial analysis were first the subject of a technical analysis which eliminated several options on the basis of logistical drawbacks, unproven technology, or economic disadvantage.

Subtask 1.3 Building Simulation/Load Calculation
In the beginning stages of the Feasibility Study, actual building loads were still undetermined as building design was incomplete. Therefore a building simulation model was created to calculate the peak loads for system design using the DOE eQuest program as well as Carrier's HAP program. During the later stages, building design was more complete, and loads were refined by building engineers using similar building modeling software.

Subtask 1.4 Equipment Sizing
The calculated building loads were used to size the equipment for each remaining mechanical system option. Equipment was sized and selected to provide firm capacity, or capacity sufficient to supply peak loads in the event that the largest piece of equipment is inoperable. The capital cost of equipment was obtained from several sources, including: budget estimates from equipment vendors, purchase prices offered in recent equipment acquisitions, and engineering estimating resource books. Combining the monthly load information with the mechanical equipment sizing and efficiency data, the monthly energy consumption and demand was calculated for each option.

Subtask 1.5 Life Cycle Cost Analysis
Economic analyses were performed on each of the two options. Capital cost, energy cost, operation and maintenance cost, and equipment replacement costs

were defined for each of the alternatives. These values were annualized and projected over the total evaluation period. Total Life Cycle Cost and Net Present Value were calculated for equitable comparison.

PHASE 2 DESIGN

Task 1.0 Design Development/Construction Documents Design
Design Development and Construction Documents Design will be a series of ongoing tasks. For scheduling purposes and to attempt to meet the construction heating and cooling needs of the Detention Facility, CDs will be released as a series of separate packages with the total construction project to be managed by DEC personnel. Each of the following Subtasks will be a separately bid project:

Subtask 1.1 Building Design
Complete architectural and structural design of central utility plant building.

Subtask 1.2 Civil Design
Design of site planning and grading, geothermal loop field, and underground utilities.

Subtask 1.3 Mechanical Design
Design of geothermal mechanical system including heat pump units, geothermal loop field, plant piping, distribution piping, and auxiliary systems.

Subtask 1.4 Electrical Design
Design of plant electrical systems, utility power connections and distribution, emergency electrical generation, emergency electrical service to Detention Facility, and available generator feed to utility.

Subtask 1.5 Controls Design
Design of mechanical controls systems, data trending and collection systems, and plant security and monitoring systems, including interfaces to Detention Facility security and select building mechanical equipment.

PHASE 3 EQUIPMENT PRE-PURCHASE

Task 1.0 Electrical and Mechanical Equipment Pre-Purchase
The purchase of each of the following will be bid and managed as a separate package. Bids and shop drawings for this equipment are required in advance of the completion of the building design package so that design details of the equipment can be incorporated into the architecture and structure of the building. Installation will be included in the mechanical and electrical installation packages.

Subtask 1.1 Emergency Generator Pre-Purchase

Subtask 1.2 Switchgear Pre-Purchase

Subtask 1.3 Transformer Pre-Purchase

Subtask 1.4 Heat Pump Pre-Purchase

PHASE 4 CONSTRUCTION

Task 1.0 Civil Construction
The Civil portion of the project construction consists of: rough grading, loop field installation, duct bank installation, underground distribution piping installation, building sitework for the plant, and underground fuel storage installation.

Task 2.0 General Contractor Construction
The General Contractor portion of the project construction consists of: foundations, superstructure, roofing, interior construction, and finish work of the central utility plant building.

Task 3.0 Mechanical Installation
The Mechanical portion of the project construction consists of: installation of plant mechanical systems, piping, and ductwork, system flush-out and cleaning, and mechanical system commissioning.

Task 4.0 Electrical Installation
The Electrical portion of the project construction consists of: installation of plant electrical systems, duct bank cable installation, installation of switchgear, breakers, and motor control center, installation of emergency generators, metering installation, and electrical systems commissioning.

Task 5.0 Control System Installation
The Control System portion of the project construction consists of: installation of plant control systems, remote communications, and security controls, and control systems commissioning and start-up.

Task 6.0 Project Management and Reporting
All project management and reporting will be performed by District Energy Corporation. Project Management includes planning, oversight, and coordination of all phases including Feasibility Study, Design, Equipment Pre-Purchase, and Construction. As such, Project Management and Reporting will occur throughout the entire project and continue beyond construction into plant operation. Reports and other deliverables will be provided in accordance with the Federal Assistance Reporting Checklist following the instructions included therein.

Appendix – Equipment List

As project has not yet begun construction, no equipment has been procured as of the date of this application. Equipment planned for purchase to be installed in the District Energy SW 40th Street Thermal Plant includes:

SYSTEM	EQUIPMENT	QUANTITY	UNIT
BUILDING	THERMAL PLANT BUILDING - MAIN LEVEL	11,724	SF
	THERMAL PLANT BUILDING - BASEMENT	2,600	SF
	INTERIOR LIGHTING, COMM, POWER	11,724	SF
	PLUMBING	11,724	SF
	FIRE PROTECTION	14,324	SF
	LANDSCAPING, GRADING, & PAVEMENT	14,324	SF
	BUILDING HVAC	14,324	SF
MECHANICAL SYSTEMS			
	WATER-TO-WATER HEAT PUMPS (50 TON UNITS)	24.00	EA
	GROUND SOURCE LOOP FIELD	700.00	BORE
	LOOP FIELD PUMPS	4.00	EA
	HOT WATER PUMPS	3.00	EA
	CHILLED WATER PUMPS	3.00	EA
	HP PIPING, INSUL, VALVES, FITTINGS, & HANGER	1.00	LS
	WATER TREATMENT	1.00	LS
	VARIABLE FREQUENCY DRIVE - LOOP PUMP	4.00	EA
	VARIABLE FREQUENCY DRIVE - HOT WATER PUMP	3.00	EA
	VARIABLE FREQUENCY DRIVE - CHILLED WATER PUMP	3.00	EA
	CONTROL & INSTRUMENTS	1.00	LS
DIRECT BURIED PIPING			
	HOT WATER PIPING - PREINSULATED SYSTEM	1075.00	LF
	CHW PIPING	1075.00	LF
	DW/FIRE LINE TO CUP	220.00	LF
	BLDG SANITARY SEWER TO CUP	220.00	LF
	SANITARY SEWER MANHOLES	2.00	EA
	NATURAL GAS SERVICE TO CUP	250.00	LF
ELECTRICAL-PLANT ONLY			
	PLANT SYSTEMS ELECTRICAL	1.00	LS
	MEDIUM VOLTAGE SWITCHGEAR AND FEEDERS	1.00	LS
	CONCRETE TRANSFORMER PADS	4.00	EA
	15 kV SERVICE TO JAIL - DUCTBANK	950.00	LF
	15 kV SERVICE TO JAIL - CABLE	1900.00	LF
	2000 kVA TRANSFORMER FOR JAIL SERVICE	2.00	EA

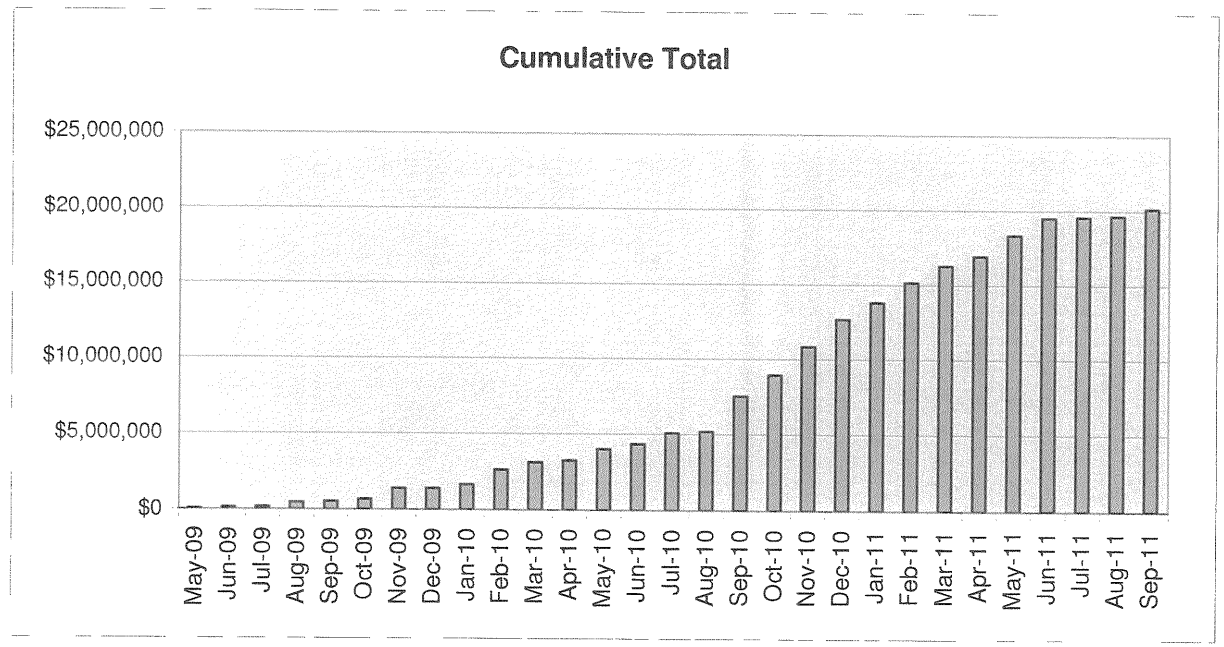
Funding Schedule - DEC SW 40th St Thermal Plant			
Month	**Task**	**Amount**	**Monthly Total**
May-09	Loop Field Design	$35,633	
			$35,633
Jun-09	Building Design	$89,083	
			$89,083
Jul-09	Loop Field Design	$35,633	
			$35,633
Aug-09	Building Design	$89,083	
	Electrical Design	$106,900	
	Mechanical Design	$106,900	
			$302,883
Sep-09	Loop Field Design	$35,633	
	Project Management	$24,943	
			$60,577
Oct-09	Building Design	$89,083	
	Loop Field Design	$35,633	
	Project Management	$24,943	
			$149,660
Nov-09	Electrical Design	$106,900	
	Mechanical Design	$106,900	
	Generators PP Order	$261,878	
	Switchgear PP Order	$177,405	
	Transformers PP Order	$27,170	
	Project Management	$24,943	
			$705,196
Dec-09	Project Management	$24,943	
			$24,943
Jan-10	Building Design	$89,083	
	Heat Pumps PP Order	$158,400	
	Project Management	$24,943	
			$272,427
Feb-10	Electrical Design	$106,900	
	Mechanical Design	$106,900	
	Loop Field Installation	$735,000	
	Project Management	$24,943	
			$973,743
Mar-10	UG Utilities Design	$17,817	
	Civil Construction	$448,074	
	Project Management	$24,943	
			$490,834
Apr-10	UG Utilities Design	$17,817	
	Controls Design	$66,812	
	Project Management	$24,943	
			$109,572
May-10	UG Utilities Design	$17,817	
	Loop Field Installation	$735,000	
	Project Management	$24,943	
			$777,760

Funding Schedule - DEC SW 40th St Thermal Plant			
Month	**Task**	**Amount**	**Monthly Total**
Jun-10	UG Utilities Design	$17,817	
	Controls Design	$66,812	
	Electrical Design	$106,900	
	Mechanical Design	$106,900	
	Project Management	$24,943	
			$323,372
Jul-10	Loop Field Installation	$735,000	
	Project Management	$24,943	
			$759,943
Aug-10	Controls Design	$66,812	
	Project Management	$24,943	
			$91,756
Sep-10	Civil Construction	$448,074	
	General Contractor Construction	$1,095,059	
	Loop Field Installation	$735,000	
	Project Management	$24,943	
			$2,303,076
Oct-10	Controls Design	$66,812	
	Electrical Installation	$900,346	
	Mechanical Installation	$444,620	
	Project Management	$24,943	
			$1,436,722
Nov-10	Generators PP Delivery	$785,633	
	Heat Pumps PP Delivery	$475,200	
	Switchgear PP Delivery	$532,216	
	Transformers PP Delivery	$81,510	
	Project Management	$24,943	
			$1,899,501
Dec-10	Civil Construction	$448,074	
	Electrical Installation	$900,346	
	Mechanical Installation	$444,620	
	Project Management	$24,943	
			$1,817,983
Jan-11	General Contractor Construction	$1,095,059	
	Project Management	$24,943	
			$1,120,002
Feb-11	Electrical Installation	$900,346	
	Mechanical Installation	$444,620	
	Project Management	$24,943	
			$1,369,909
Mar-11	General Contractor Construction	$1,095,059	
	Project Management	$24,943	
			$1,120,002

Funding Schedule - DEC SW 40th St Thermal Plant			
Month	**Task**	**Amount**	**Monthly Total**
Apr-11	Generators PP Completion	$261,878	
	Heat Pumps PP Completion	$158,400	
	Switchgear PP Completion	$177,405	
	Transformers PP Completion	$27,170	
	Project Management	$24,943	
			$649,796
May-11	Electrical Installation	$900,346	
	Mechanical Installation	$444,620	
	Controls System Installation	$50,000	
	Project Management	$24,943	
			$1,419,909
Jun-11	General Contractor Construction	$1,095,059	
	Controls System Installation	$50,000	
	Project Management	$24,943	
			$1,170,002
Jul-11	Controls System Installation	$50,000	
	Project Management	$24,943	
			$74,943
Aug-11	Controls System Installation	$50,000	
	Project Management	$24,943	
			$74,943
Sep-11	Civil Construction	$448,074	
	Project Management	$24,943	
			$473,018
	Project Total		**$20,132,824**

Appendix - Funding Schedule

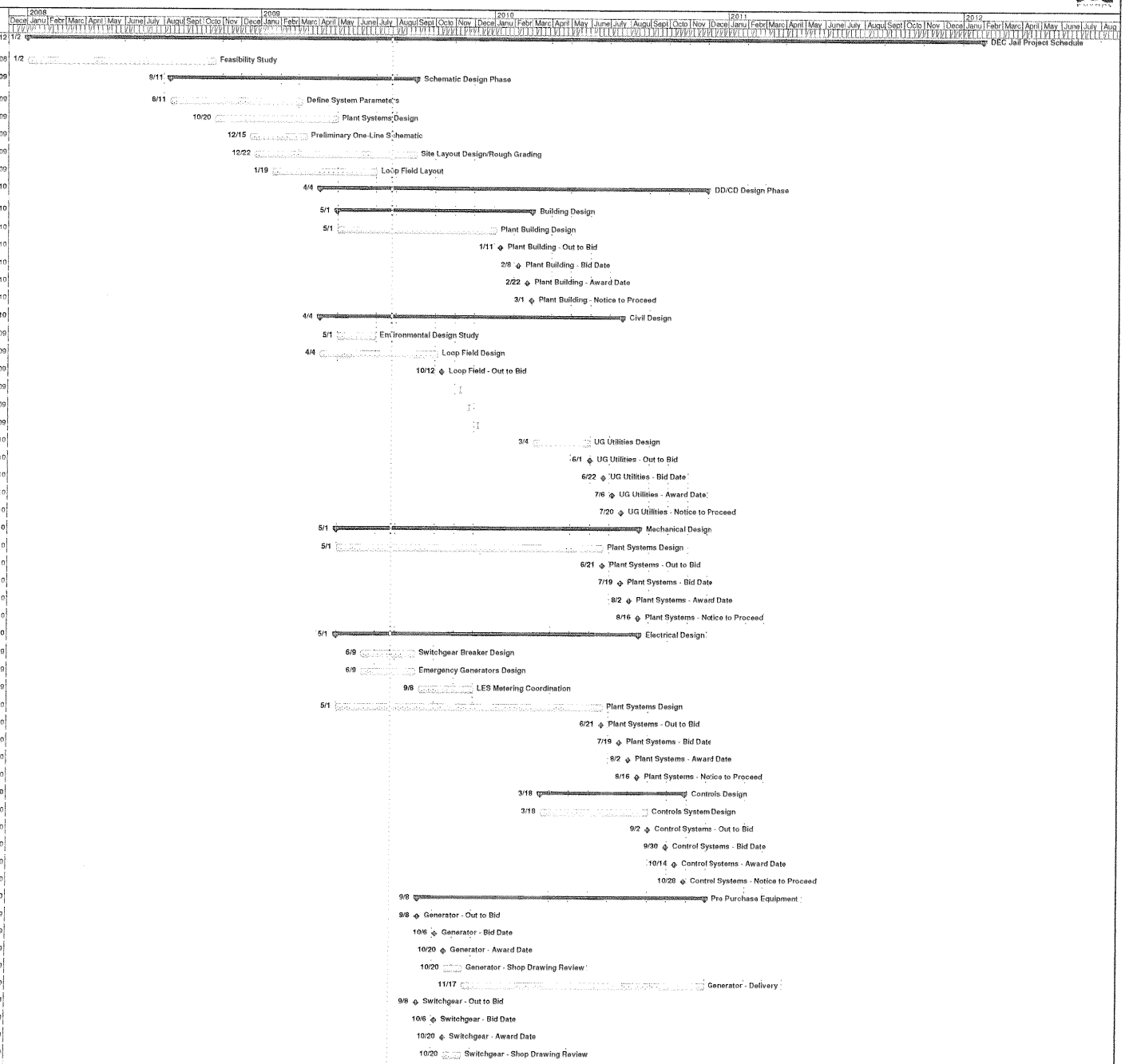
Cumulative Total	
Month	Cost
5/1/09	$35,633
6/1/09	$124,717
7/1/09	$160,350
8/1/09	$463,233
9/1/09	$523,810
10/1/09	$673,470
11/1/09	$1,378,666
12/1/09	$1,403,609
1/1/10	$1,676,036
2/1/10	$2,649,779
3/1/10	$3,140,613
4/1/10	$3,250,186
5/1/10	$4,027,946
6/1/10	$4,351,318
7/1/10	$5,111,261
8/1/10	$5,203,017
9/1/10	$7,506,093
10/1/10	$8,942,815
11/1/10	$10,842,316
12/1/10	$12,660,300
1/1/11	$13,780,302
2/1/11	$15,150,211
3/1/11	$16,270,213
4/1/11	$16,920,009
5/1/11	$18,339,918
6/1/11	$19,509,920
7/1/11	$19,584,863
8/1/11	$19,659,806
9/1/11	$20,132,824



Appendix - Project Schedule

DEC Central Utility Plant Jail

ID	Task Name	Duration	Start	Finish
1	**DEC Jail Project Schedule**	**1492 days**	**Wed 1/2/08**	**Wed 2/1/12**
2	Feasibility Study	293 days	Wed 1/2/08	Mon 10/20/08
3	**Schematic Design Phase**	**387 days**	**Mon 8/11/08**	**Tue 9/1/09**
4	Define System Parameters	208 days	Mon 8/11/08	Fri 3/6/09
5	Plant Systems Design	193 days	Mon 10/20/08	Thu 4/30/09
6	Preliminary One-Line Schematic	89 days	Mon 12/15/08	Fri 3/13/09
7	Site Layout Design/Rough Grading	254 days	Mon 12/22/08	Tue 9/1/09
8	Loop Field Layout	154 days	Mon 1/19/09	Wed 7/1/09
9	**DD/CD Design Phase**	**606 days**	**Sat 4/4/09**	**Tue 11/30/10**
10	**Building Design**	**305 days**	**Fri 5/1/09**	**Mon 3/1/10**
11	Plant Building Design	249 days	Fri 5/1/09	Mon 1/4/10
12	Plant Building - Out to Bid	1 day	Mon 1/11/10	Mon 1/11/10
13	Plant Building - Bid Date	1 day	Mon 2/8/10	Mon 2/8/10
14	Plant Building - Award Date	1 day	Mon 2/22/10	Mon 2/22/10
15	Plant Building - Notice to Proceed	1 day	Mon 3/1/10	Mon 3/1/10
16	**Civil Design**	**473 days**	**Sat 4/4/09**	**Tue 7/20/10**
17	Environmental Design Study	60 days	Fri 5/1/09	Mon 6/29/09
18	Loop Field Design	185 days	Sat 4/4/09	Mon 10/5/09
19	Loop Field - Out to Bid	1 day	Mon 10/12/09	Mon 10/12/09
20	Loop Field - Bid Date	1 day	Mon 11/9/09	Mon 11/9/09
21	Loop Field - Award Date	1 day	Mon 11/23/09	Mon 11/23/09
22	Loop Field - Notice to Proceed	1 day	Mon 12/7/09	Mon 12/7/09
23	UG Utilities Design	89 days	Thu 3/4/10	Tue 6/1/10
24	UG Utilities - Out to Bid	1 day	Tue 6/1/10	Tue 6/1/10
25	UG Utilities - Bid Date	1 day	Tue 6/22/10	Tue 6/22/10
26	UG Utilities - Award Date	1 day	Tue 7/6/10	Tue 7/6/10
27	UG Utilities - Notice to Proceed	1 day	Tue 7/20/10	Tue 7/20/10
28	**Mechanical Design**	**473 days**	**Fri 5/1/09**	**Mon 8/16/10**
29	Plant Systems Design	417 days	Fri 5/1/09	Mon 6/21/10
30	Plant Systems - Out to Bid	1 day	Mon 6/21/10	Mon 6/21/10
31	Plant Systems - Bid Date	1 day	Mon 7/19/10	Mon 7/19/10
32	Plant Systems - Award Date	1 day	Mon 8/2/10	Mon 8/2/10
33	Plant Systems - Notice to Proceed	1 day	Mon 8/16/10	Mon 8/16/10
34	**Electrical Design**	**473 days**	**Fri 5/1/09**	**Mon 8/16/10**
35	Switchgear Breaker Design	85 days	Tue 6/9/09	Tue 9/1/09
36	Emergency Generators Design	85 days	Tue 6/9/09	Tue 9/1/09
37	LES Metering Coordination	85 days	Tue 9/8/09	Tue 12/1/09
38	Plant Systems Design	417 days	Fri 5/1/09	Mon 6/21/10
39	Plant Systems - Out to Bid	1 day	Mon 6/21/10	Mon 6/21/10
40	Plant Systems - Bid Date	1 day	Mon 7/19/10	Mon 7/19/10
41	Plant Systems - Award Date	1 day	Mon 8/2/10	Mon 8/2/10
42	Plant Systems - Notice to Proceed	1 day	Mon 8/16/10	Mon 8/16/10
43	**Controls Design**	**225 days**	**Thu 3/18/10**	**Thu 10/28/10**
44	Controls System Design	168 days	Thu 3/18/10	Wed 9/1/10
45	Control Systems - Out to Bid	1 day	Thu 9/2/10	Thu 9/2/10
46	Control Systems - Bid Date	1 day	Thu 9/30/10	Thu 9/30/10
47	Control Systems - Award Date	1 day	Thu 10/14/10	Thu 10/14/10
48	Control Systems - Notice to Proceed	1 day	Thu 10/28/10	Thu 10/28/10
49	**Pre Purchase Equipment**	**449 days**	**Tue 9/8/09**	**Tue 11/30/10**
50	Generator - Out to Bid	1 day	Tue 9/8/09	Tue 9/8/09
51	Generator - Bid Date	1 day	Tue 10/6/09	Tue 10/6/09
52	Generator - Award Date	1 day	Tue 10/20/09	Tue 10/20/09
53	Generator - Shop Drawing Review	29 days	Tue 10/20/09	Tue 11/17/09
54	Generator - Delivery	379 days	Tue 11/17/09	Tue 11/30/10
55	Switchgear - Out to Bid	1 day	Tue 9/8/09	Tue 9/8/09
56	Switchgear - Bid Date	1 day	Tue 10/6/09	Tue 10/6/09
57	Switchgear - Award Date	1 day	Tue 10/20/09	Tue 10/20/09
58	Switchgear - Shop Drawing Review	29 days	Tue 10/20/09	Tue 11/17/09

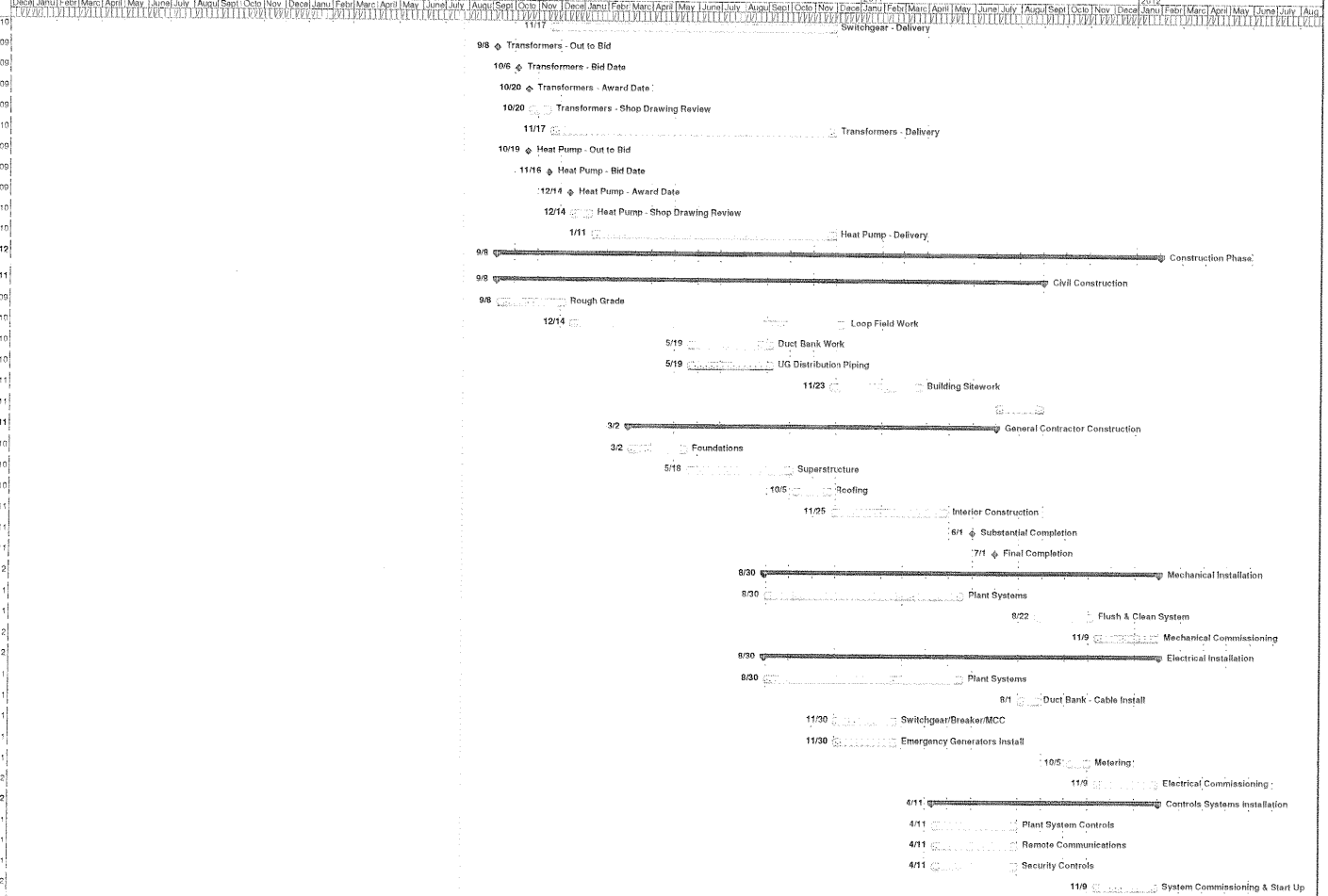


Preliminary Schedule

Appendix - ject Schedule

DEC Central Utility Plant Jail

ID	Task Name	Duration	Start	Finish
59	Switchgear - Delivery	379 days	Tue 11/17/09	Tue 11/30/10
60	Transformers - Out to Bid	1 day	Tue 9/8/09	Tue 9/8/09
61	Transformers - Bid Date	1 day	Tue 10/6/09	Tue 10/6/09
62	Transformers - Award Date	1 day	Tue 10/20/09	Tue 10/20/09
63	Transformers - Shop Drawing Review	29 days	Tue 10/20/09	Tue 11/17/09
64	Transformers - Delivery	379 days	Tue 11/17/09	Tue 11/30/10
65	Heat Pump - Out to Bid	1 day	Mon 10/19/09	Mon 10/19/09
66	Heat Pump - Bid Date	1 day	Mon 11/16/09	Mon 11/16/09
67	Heat Pump - Award Date	1 day	Mon 12/14/09	Mon 12/14/09
68	Heat Pump - Shop Drawing Review	29 days	Mon 12/14/09	Mon 1/11/10
69	Heat Pump - Delivery	324 days	Mon 1/11/10	Tue 11/30/10
70	**Construction Phase**	**877 days**	**Tue 9/8/09**	**Wed 2/1/12**
71	Civil Construction	**724 days**	**Tue 9/8/09**	**Thu 9/1/11**
72	Rough Grade	91 days	Tue 9/8/09	Mon 12/7/09
73	Loop Field Work	366 days	Mon 12/14/09	Tue 12/14/10
74	Duct Bank Work	113 days	Wed 5/19/10	Wed 9/8/10
75	UG Distribution Piping	113 days	Wed 5/19/10	Wed 9/8/10
76	Building Sitework	123 days	Tue 11/23/10	Fri 3/25/11
77	UG Fuel Storage System	63 days	Fri 7/1/11	Thu 9/1/11
78	**General Contractor Construction**	**487 days**	**Tue 3/2/10**	**Fri 7/1/11**
79	Foundations	78 days	Tue 3/2/10	Tue 5/18/10
80	Superstructure	141 days	Tue 5/18/10	Tue 10/5/10
81	Roofing	52 days	Tue 10/5/10	Thu 11/25/10
82	Interior Construction	155 days	Thu 11/25/10	Thu 4/28/11
83	Substantial Completion	1 day	Wed 6/1/11	Wed 6/1/11
84	Final Completion	1 day	Fri 7/1/11	Fri 7/1/11
85	**Mechanical Installation**	**521 days**	**Mon 8/30/10**	**Wed 2/1/12**
86	Plant Systems	264 days	Mon 8/30/10	Fri 5/20/11
87	Flush & Clean System	78 days	Mon 8/22/11	Mon 11/7/11
88	Mechanical Commissioning	85 days	Wed 11/9/11	Wed 2/1/12
89	**Electrical Installation**	**521 days**	**Mon 8/30/10**	**Wed 2/1/12**
90	Plant Systems	264 days	Mon 8/30/10	Fri 5/20/11
91	Duct Bank - Cable Install	28 days	Mon 8/1/11	Sun 8/28/11
92	Switchgear/Breaker/MCC	85 days	Tue 11/30/10	Tue 2/22/11
93	Emergency Generators Install	85 days	Tue 11/30/10	Tue 2/22/11
94	Metering	31 days	Wed 10/5/11	Fri 11/4/11
95	Electrical Commissioning	85 days	Wed 11/9/11	Wed 2/1/12
96	**Controls Systems Installation**	**297 days**	**Mon 4/11/11**	**Wed 2/1/12**
97	Plant Sysam Controls	113 days	Mon 4/11/11	Mon 8/1/11
98	Remote Communications	113 days	Mon 4/11/11	Mon 8/1/11
99	Security Controls	113 days	Mon 4/11/11	Mon 8/1/11
100	System Commissioning & Start Up	85 days	Wed 11/9/11	Wed 2/1/12



Appendix - Job Creation Calculations

PRELIMINARY COST ESTIMATE - GEOTHERMAL SYSTEM					
SYSTEM	EQUIPMENT	QUANTITY	UNIT	TOTAL COST/UNIT	TOTAL COST
BUILDING	THERMAL PLANT BUILDING - MAIN LEVEL	11,724	SF	175.11	2,052,990
	THERMAL PLANT BUILDING - BASEMENT	2,600	SF	91.11	236,886
	INTERIOR LIGHTING, COMM, POWER	11,724	SF	18.00	211,032
	PLUMBING	11,724	SF	9.00	105,516
	FIRE PROTECTION	14,324	SF	3.00	42,972
	LANDSCAPING, GRADING, & PAVEMENT	14,324	SF	16.17	231,619
	BUILDING HVAC	14,324	SF	4.72	67,609
BUILDING TOTAL					**2,948,624**
MECHANICAL SYSTEMS					
	WATER-TO-WATER HEAT PUMPS (50 TON UNITS)	24.00	EA	49,500.00	1,188,000
	GROUND SOURCE LOOP FIELD	700.00	BORE	4,200.00	2,940,000
	LOOP FIELD PUMPS	4.00	EA	13,538.00	54,152
	HOT WATER PUMPS	3.00	EA	18,250.00	54,750
	CHILLED WATER PUMPS	3.00	EA	18,250.00	54,750
	HP PIPING, INSUL, VALVES, FITTINGS, & HANGER	1.00	LS	393,600.00	393,600
	WATER TREATMENT	1.00	LS	150,000.00	150,000
	VARIABLE FREQUENCY DRIVE - LOOP PUMP	4.00	EA	14,000.00	56,000
	VARIABLE FREQUENCY DRIVE - HOT WATER PUMP	3.00	EA	19,000.00	57,000
	VARIABLE FREQUENCY DRIVE - CHILLED WATER PUMP	3.00	EA	19,000.00	57,000
	CONTROL & INSTRUMENTS	1.00	LS	200,000.00	200,000
MECHANICAL SYSTEMS TOTAL					**5,205,252**
DIRECT BURIED PIPING					
	HOT WATER PIPING - PREINSULATED SYSTEM	1075.00	LF	711.50	764,863
	CHW PIPING	1075.00	LF	125.00	134,375
	DW/FIRE LINE TO CUP	220.00	LF	85.00	18,700
	BLDG SANITARY SEWER TO CUP	220.00	LF	85.00	18,700
	SANITARY SEWER MANHOLES	2.00	EA	4,575.00	9,150
	NATURAL GAS SERVICE TO CUP	250.00	LF	21.00	5,250
DIRECT BURIED PIPING TOTAL					**951,038**
ELECTRICAL-PLANT ONLY					
	PLANT SYSTEMS ELECTRICAL	1.00	LS	606,520.17	606,520
	MEDIUM VOLTAGE SWITCHGEAR AND FEEDERS	1.00	LS	1,774,052.39	1,774,052
	CONCRETE TRANSFORMER PADS	4.00	EA	3,455.00	13,820
	15 kV SERVICE TO JAIL - DUCTBANK	950.00	LF	216.00	205,200
	15 kV SERVICE TO JAIL - CABLE	1900.00	LF	102.00	193,800
	2000 kVA TRANSFORMER FOR JAIL SERVICE	2.00	EA	135,850.00	271,700
ELECTRICAL TOTAL					**3,065,093**
OTHER					
	ENGINEERING/PERMITS (ESTIMATE)	1.00	LS	973,600.48	973,600
	PROJECT MANAGEMENT (ESTIMATE)	1.00	LS	608,500.30	608,500
OTHER TOTAL					**1,582,101**
TOTAL CONSTRUCTION COST					**12,170,006**
TOTAL PROJECT COST					**13,752,107**

Labor Cost	Type of Laborer	Hourly Rate	Manhours	Task Duration (working days)	# Jobs
1,129,144	Gen Con	$49.82	22,664.48	301.09	10
130,287	Gen Con	$49.82	2,615.16	66.77	5
116,068	Elec	$49.41	2,349.07	83.04	4
58,034	Plumber	$49.16	1,180.51	55.36	3
23,635	FP	$49.10	481.36	55.36	2
127,390	Landscape	$49.91	2,552.40	87.86	4
37,185	Mech	$50.78	732.28	83.04	2
					30
653,400	Mech	$50.78	12,867.27	504.29	4
1,176,000	Geotech	$49.16	23,921.89	232.14	13
29,784	Mech	$60.02	496.23	15.00	5
30,113	Mech	$60.02	501.71	15.00	5
30,113	Mech	$60.02	501.71	15.00	5
216,480	Mech	$60.02	3,606.80	42.86	11
52,500	Mech/Plum	$49.16	1,067.94	42.86	4
19,600	Elec	$49.41	396.68	10.00	5
19,950	Elec	$49.41	403.76	10.00	6
19,950	Elec	$49.41	403.76	10.00	6
110,000	Controls	$49.41	2,226.27	80.71	4
					47
420,674	Mech/Exc	$50.78	8,284.25	80.71	13
73,906	Mech/Exc	$50.78	1,455.42	80.71	3
10,285	Mech/Exc	$50.78	202.54	45.00	1
10,285	Mech/Exc	$50.78	202.54	45.00	1
5,033	Mech/Exc	$50.78	99.10	45.00	1
2,888	Mech/Exc	$50.78	56.86	45.00	1
					20
333,586	Elec	$49.41	6,751.39	132.14	7
532,216	Elec	$49.41	10,771.42	85.71	16
7,601	Elec	$49.41	153.84	10.00	2
102,600	Elec	$49.41	2,076.50	20.00	13
96,900	Elec	$49.41	1,961.14	20.00	13
149,435	Elec	$49.41	3,024.39	42.86	9
					60
535,480	Eng	$65.00	8,238.16	657.86	4
334,675	Eng	$75.00	4,462.34	657.86	2
					6
					163

Project Management Plan

Executive Summary

For the past few years Lancaster County has experienced overcrowding in its Jail facility. After extensive study, planning, workshops, public hearing, the Lancaster County's determined it is necessary for the County to develop a new facility that will house the current jail population for Lancaster County as well as growth of the area's needs over the next 20 to 25 years. Recently the County received Bond financing in the amount of $65 million and committed to constructing a new detention facility at Lincoln Nebraska. This is one of the largest projects being developed by the County of Lancaster. Ground breaking is being held of July 14 2009. Detention facility is scheduled to be occupied during first quarter of 2012.

District Energy Corporation is a joint entity created and supported by the County of Lancaster, Nebraska and the City of Lincoln, Nebraska.

The District Energy Corporation (DEC) is building a new district energy facility, to serve the new Detention facility and any potential development within the surrounding community. This facility will supply heating and cooling to the jail facility using a renewable energy source as well as provide emergency electrical backup power. The renewable energy geothermal loop field will be the single largest geothermal ground source loop field system being build for a County detention facility within United States of America.

*District Energy is apply for DOE Funding opportunity **DE-FOA-0000116**, under the Topic Area 1: Technology Demonstration Projects.*

Project Description

Overcrowding in the County's current jail facility has made it necessary for the County to develop a new facility that will house the current jail population for Lancaster County as well as growth of the area's needs over the next 20 to 25 years. Growth for this type of community facility is dependant on many factors such as the philosophy of the judicial systems, rate of growth in various populations which tend to have a higher rate of incarceration, and general socio-economic factors that drive up criminal activity.

Objectives of the Project

Lancaster County is designing a new Adult Detention Facility to be located at SW 40th and O Streets in Lincoln, Nebraska. This new facility will serve as the replacement to house inmates and facilitate administrative functions currently housed in the existing downtown jail and the Airpark detention facility. The Lancaster County Detention Center will initially be constructed with 779 beds in approximately 270,000 square feet. Three future phases of expansion will bring the capacity to 1896 beds in approximately 500,000 square feet. The building will require considerable thermal services, as it is a large facility with constant occupancy. The critical nature of the facility supports the construction of a central plant to provide this service. District Energy Corporation commissioned a feasibility study to determine the optimal mechanical system to be installed in a central plant constructed concurrently with the jail facility. The purpose of the study was to evaluate potential systems to provide heating, cooling, and emergency power services and offer a comparison and recommendation in terms of economic and technical feasibility. Feasibility of the recommended system was to be proven by its superior Life Cycle Cost.

Planned Renewable Energy Facilities

A new energy plant will be built by the District Energy Corporation (DEC), Lincoln Nebraska to support the new Jail facility and for any potential development and growth within the surrounding community. This facility will supply hot and cold water to the jail facility using a renewable energy source and provide emergency backup power. The renewable energy geothermal loop field being proposed for this project will be the single largest geothermal ground source loop field system being build for a County detention facility within United States of America. The geothermal loop filed heat pump system is being designed to incorporate a high breed system as the detention facilities or thermal needs expand in the future.

In 2008 the Lancaster County Board approved the construction of the Lancaster County Adult Detention Facility (CADF), for occupancy in 2011/2012. During the decision process the County Board requested the District Energy Corporation (DEC) identify the optimal heating and cooling system for the new facility. The Lancaster County Board was familiar with the District Energy Corporation since it has provided district energy services to county facilities since its incorporation in 1991. As part of the evaluation the DEC commissioned an engineering and economic analysis which evaluated ten different heating and cooling system designs. The analysis identified a geothermal based heat pump system to have the lowest life cycle costs. Even though the installed first cost of the ground coupled heat pump system (GCHP) was more than the conventional boiler/chiller/cooling tower based system, it projected significant energy savings compared to a conventional system. Therefore, the Lancaster County Board approved the District Energy Corporation's recommendation to proceed with the installation of a geothermal, ground coupled heat pump system, energy conservation projects and emergency backup power system the for the new detention facility.

The site will also house two additional facilities that will support the needs of the detention facility. The detention facility would house a minimum of 779 inmates with potential to grow to 1000 beds was developed. The size of facility to house 779 inmates is approximately 270,000 SF. All support services for the facility are either sized for the 1000 beds or could be expanded to meet that size. Part of that equation is the site. The facility sits on a site of approximately 36 acres which will allow the growth needs of the facility to occur without overcrowding the site.

Third building is a new warehouse which will be approximately 30,000 SF. In the short term, this will be a jointly used facility between the detention facility and as a county maintenance shop. As the needs of the detention facility expand, the use of the entire warehouse may be turned over to the detention facility if necessary.

Site Location

The project site is located within the northwest ¼ of the northwest ¼ of Section 29, Township 10 North, Range 6 East, Lancaster County, Nebraska. The project site is located on Lot 73 and Lot 74, southeast of the intersection of Southwest 40th Street and West 'O' Street (U.S. Highway 6) near the western corporate boundary of the City of Lincoln, Nebraska. Project Site assigned address 3801 West O Street, Lincoln NE 68522. A Site Location Map is enclosed.

County Adult Detention Facilities
The detention facility will be designed for multiple classifications of inmates and operate as a direct supervision facility. A mixture of dormitory style housing for minimum security such as work-release up to maximum security and special management housing will offer the county flexibility for housing options based on population needs.

Along with each housing module will be programs space used for the purpose of education and socialization skill training. As a tool for controlling inmates, the program spaces will enable the corrections staff to reward positive behavior thus reducing violent incidents while giving individuals opportunities toward bettering themselves in order to avoid returning into the corrections system.

Project Schedule
District Energy plant construction activities are scheduled to commence in 2009. The geothermal well field construction will begin in early 2009 with installation of the heat pump system and associated support facilities starting in mid-2010. Commercial operation of the facility is scheduled to begin in the fall of 2011. Detention facility is scheduled to be occupied during first quarter of 2012.

Job Creation
The district project will immediately create over 100 construction and installation related jobs. These jobs will be created as construction activities begin in 2009. Indirectly, this project will also create or retain manufacturing jobs at various vendor facilities. In addition to the job created in Nebraska, the project is likely to stimulate economic activity through major component orders from: Illinois, Wisconsin, Indiana, Texas, Kansas, Missouri and Iowa.

The majority of civil, mechanical, electrical and controls design engineering, installation, material and assemble will be performed in Nebraska.

The detention facility will generate as many as 100 new jobs in the Lancaster County. Additionally, the construction of detention facility will create over 200 construction jobs within the local community between 2009 to 2011.

Domestic Content
All components for the project will be handled through public bidding. It is anticipated that much of the geothermal system will be awarded to local and regional contractors. An experienced local contractor has already been selected for the Jail portion of the project. Most of the materials for the project are expected to be supplied by Midwest based manufacturers and majority of the equipment is expected to be produced domestically.

Capital Costs
The total estimated capital cost to purchase and install the Ground Source Heat Pump System is approximately $20,132,824 in today's dollars. This capital cost includes not only the geothermal mechanical system but also the emergency power system installed in the plant for support of the Detention Facility. The cost of the emergency power system is excluded from the budget estimates for purposes of federal funding requests.

Life Cycle Costs
To arrive at the Life Cycle Cost, which is the true indication of the total cost of each option, the Total Annual Cost was escalated and summed for the entire 25 year time period, and the escalated Equipment Replacement Costs were added in the year of replacement. The Life Cycle Cost is then converted into a Net Present Value with a discount rate of 5%. The results are as follows:

Life Cycle Cost Comparison		
Mechanical System	**Total Life Cycle Cost**	**Net Present Value of Total Cost**
Conventional System	$60,264,515	$30,778,922
Ground Source Heat Pump System	$55,044,704	$29,454,988

Environmental Impact – Green House Emission Reductions

The energy consumed by each system impacts the environment not only in terms of the consumption of natural resources, but also in terms of the emission of greenhouse gasses. The total energy consumed by the GSHP System on an annual basis is approximately 44% of the energy consumed by the Conventional System. The operation of the GSHP System therefore allows an opportunity for a significant decrease in the consumption of energy resources.

This energy savings also produces a net decrease in the emission of greenhouse gasses. Based on the extraction of Lincoln Electric System (LES) power plant emissions data from the eGRID2007 Version 1.1 annual non-baseload CO_2 output emission rates (year 2005 data) as published by the Environmental Protection Agency (the most recent data available), the power consumed by the GSHP System produces approximately 61 metric tons of CO_2 less than the Conventional System. This is the equivalent of:

- the annual greenhouse gas emissions from 11.2 passenger vehicles,
- the CO_2 emissions from the electricity use of 8.5 homes for one year, or
- the carbon sequestered annually by 13.9 acres of pine or fir forests.

Although this amount is not a dramatic reduction, it should be noted that since the collection of 2005 data, LES has made acquisitions that decrease its overall emission rate, thereby increasing this value of avoided emissions. Further actions by LES to improve the emissions rates of their power plants will only enhance the environmental benefits of the GSHP option.

The use of the GSHP system to provide the Detention Center's domestic hot water results in further energy savings and environmental benefits. The decrease in energy consumption as compared to a conventional gas-fired hot water heater is responsible for one level of energy savings, while the increased use of the GSHP system for heating enhances the efficiency of the well field of this otherwise cooling-dominated system by balancing the ground temperature between the seasons.

Geothermal Heat Pump

Option #2 provides the plant with total heating capacity of 13,597 MBh and a firm heating capacity of 12,917 MBh. The installed equipment will also provide 977 tons of total cooling capacity and 928 tons of firm capacity. Emergency power generation is identical to Option #1. The economic analysis resulted in the following:

Option #2 – Ground Source Heat Pumps	
Capital Cost	$20,132,824
Annual Energy Cost	$168,347
Annual O&M Cost	$209,953
Total Projected Annual Cost	$1,806,774
Total Life Cycle Cost	$55,044,704
Payback (years)	9.1

Because the Equipment Replacement Cost plays a significant role in the Life Cycle Cost of each option, the Payback was calculated as the number of years required for the savings in Energy Cost and O&M Cost to equal the incremental Capital Cost and Equipment Replacement Cost.

The Equipment Replacement Cost between the two systems varies greatly because the GSHP system requires only the replacement of pumps and water-to-water heat pump units within the 25 year life cycle included in the analysis, while the Conventional system requires replacement of virtually all equipment. The long life of the geothermal well field avoids a very high replacement cost within this time frame.

Although the GSHP System comes with a high first cost, the energy and O&M savings, along with the high Equipment Replacement Cost of the Conventional System, result in a lower Total Life Cycle Cost over the 25 year time period under analysis.

Benefits of GSHP System	
Estimated Energy Cost Savings	35%
Estimated O&M Cost Savings	23.3%
Estimated Life Cycle Cost Savings	$5,219,811

High System Efficiency over 60%:
The efficiency of each system was calculated in terms of Coefficient of Performance (COP), or the ratio between useful energy acquired and energy applied. The improved efficiency of the GSHP System as compared to the Conventional System provides a benefit that will continue throughout the life of the system.

System Efficiency Comparison	
Option	**Efficiency (COP)***
Conventional System	1.73
GSHP System	3.93

*$COP = E_u/E_a$
where E_u = useful energy acquired (in Btu)
E_a = energy applied (in Btu)

Decision to proceed with geothermal System:
Despite the 13.8% increase in capital cost, the GSHP system saves 35% in energy costs and 23.3% in operating and maintenance costs as compared to the conventional system. This overall operation savings along with the high cost of equipment replacement for the conventional system, results in a 25 year Life Cycle Cost for the GSHP system that is approximately $5,219,811, or 8.7%, less than that of the conventional system. Combining the cost savings over the Life Cycle of the equipment with the environmental benefits of decreased energy use lends a clear advantage to the GSHP System.

Merit Review Criterion Discussion

Ability to Preserve or Create Domestic Jobs

The district project will immediately create approximately 200 construction- and installation-related jobs. These jobs will be created as construction activities begin in 2009. Indirectly, this project will also create or retain manufacturing jobs at various vendor facilities. In addition to the jobs created in Nebraska, the project is likely to stimulate economic activity through major component orders from: Illinois, Wisconsin, Indiana, Texas, Kansas, Missouri and Iowa. The majority of civil, mechanical, electrical and controls design engineering, installation, material and assembly will be performed in Nebraska.

All components for the project will be handled through public bidding. It is anticipated that much of the geothermal system will be awarded to local and regional contractors. Most of the materials for the project are expected to be supplied by Midwest based manufacturers and majority of the equipment is expected to be produced domestically.

The calculation to determine job creation values was based on the preliminary cost estimate for the project. Using the labor cost for each component of construction and the regional hourly rate for each labor discipline, the total number of manhours for each task was calculated. The manhours distributed across the total timeline to complete each task resulted in an estimated number of laborers for each task, resulting in the total number of jobs created for the design and construction portion of the project. Manufacturing job estimates were dependent upon the number of units to be purchased and the manufacturer's estimated time of completion.

Existing Project Management and Resources

The project schedule indicates that the design of the loop field will be complete within 60 days, and construction on this portion of the project can begin within 120 days. In fact, design is much closer to completion than the schedule indicates, and local excavation companies are seeking out projects to begin as quickly as possible. A selection of the project drawing set illustrating the progress of the project design is attached with this application, and a larger drawing set is available upon request.

All permits have been issued or submitted, and signs indicate that all permits will be approved. Communications with major equipment vendors have been initiated, and equipment lead times have been established and incorporated into project schedules. All leases and easements between the City/County and DEC for the project site have been defined and agreed upon.

All key personnel have significant experience in previous projects of this type. Project Engineers have successfully designed several central utility plants as evidenced by information contained in their profiles attached to this application. District Energy Corporation personnel have also played critical roles in the successful design, construction, and operation of other DEC and Lincoln Electric System utility plants.

The role and contribution of each team member in the deployment of the technology as well as the proposed work and budget distribution among the team members is very clearly distinguished as a contract is already in place defining the work tasks required of each party as well as the fee structure and sums contracted between the parties.

Energy Benefits
All details relative to this criterion are described in previous portions of the narrative.

Other Tangible and intangible project benefits project offers:

- This **project** offers energy security to the County by delivering heating and cooling needs of the detention facility.
- **County is committed** to receiving thermal and electrical backup services from District facility for over 20 year period.
- **County is leasing property** for a period of 20 years to the DEC for $1.00 to build the proposed district system
- **County support Renewable Energy Project**, which demonstrates **high efficiency** with **lowest life cycle cost.**
- **This is the single largest geothermal project** for a County detention facility within US.
- **This project will stimulate Nebraska economy and community** through construction, engineering and installation jobs.
- **In addition this project is likely to stimulate economic activity within US.** Likely states to benefit are: **Indiana, Illinois, Iowa, Wisconsin, Texas, Missouri and Kansas.**
- **This project is guaranteed to create jobs** within the local community and other parts of US.
- **Guaranteed to reduce greenhouses.**
- **Shovel ready project**, commencing: 2009 with completion date of October 2011.
- **Renewable Energy Project**, demonstrating **high efficiency** with **lowest life cycle cost.**
- **Enhances Energy Security** through reduced reliance on fossil fuels.

Current Project Status:
District Energy project has an established Project Schedule and Miles Stones. Ground breaking is schedule for July 14 2009.

• Preliminary Feasibility study	Completed
• Energy Conservation Project	Identified
• Design & Environmental Issues	Ongoing
– 404 Wetlands Permit	Approved
– Plant Layout	Commenced
– Well Loop Design 2009	Continues, To be issued for Bid
– System Design	Continues

Refer to detailed project schedule enclosed with support documents.

Positive Economic Viability Analysis:
DEC has undertaken economic viability on this project.

Projected Benefit from $6,876,053 in DOE Matching Funds for Lancaster County, the City of Lincoln and District Energy Corporation indicts:

Monthly Savings Estimate: $ 53,918

Annual Savings Estimate: $ 647,014

Projected Savings over 20 Year Period: $ 10,352,222

Detailed economic analysis and 5 year perform are include in the support documents.

Established Budgets and Agreements:

A detailed budget has been developed for this project. Non-Fed Financing will be through tax-exempt bond financing. All services contracts and property lease are established and secured for a period of 20. Property is being leased by the County for $1.00 over 20 year period. (Enclosed draft copy of the property lease and thermal service agreement that have been developed.)

Environmental Permits & Status:

404 Wetlands Permit – In response to the DEC application for a 404 wetlands permit, received a Preliminary Jurisdictional Determination from the US Army Corps of Engineers (USACE) that authorizes construction activities in the wetland area of the site under 404 Nationwide Wetlands Permit Number 12. Approved. Enclosed 404 wetland permit document. (Detailed of the 404 permit is enclosed as the support documents.)

Class II "Synthetic Minor" Air Emissions Permit –Received additional information on the emissions for the Caterpillar gen-sets. Analysis is underway by Trinity and DEC. Expect to submit the application during July 2009.

Floodplain Development Permit - The City of Lincoln Floodplain Development permit application is complete. The permit will be issued shortly after the 404 Permit according to Michele Williamson of the City of Lincoln office. A copy of the 404 Wetlands Permit was forwarded to Ms. Williamson yesterday. Approved.

Storm Water Pollution Prevention Plan: A storm water pollution prevention plan is being developed for the site.

Support Letters and Committmnet from Customers:
Refer to enclosed support letter and commitment of receiving thermal services from the District energy for a 20 year period. District energy project is a project driven and facilitates economic growth within the local community.

Relevance and Outcomes/Impacts:
The geothermal system provides a renewable source of heat exchange at a much higher efficiency than conventional methods. This decreased operation cost results in a significantly lower Life Cycle Cost than a conventional thermal energy plant. In fact, although the geothermal system requires a higher initial investment, the energy savings results in an 8.7%

total savings over a 25 year period. The energy savings realized by operating the geothermal system achieves not only economic benefits, but environmental benefits as well.

In addition to sustaining the environment, the project will contribute to sustaining the economy as well. The domestic manufacture of equipment, as well as an infusion of design and construction jobs, will not only bolster the economy in the short term, but will help to grow and support a green economy and encourage demand for sustainable and renewable energy solutions.

Experienced Project Management Team & Roles of Participants:
This project involves two co-Principal Investigators: Krishna Amancherla and Greg Kronaizl. Krishna Amancherla, District Energy Corporation, is serving as the Project Manager from the owner side of the project. Amancherla has directed all analysis and design efforts to date and will, with his staff, act as the general contractor during construction. Greg Kronaizl, Farris Engineering, is the Project Manager from the engineering side of the project. Kronaizl is leading all analysis and design efforts and will, with his staff, act as construction administrator during construction activities to ensure that design intent is achieved. Lincoln Electric System the local municipal utility has an experienced management term and providers project management, operation and maintenance support for all the District Energy projects. (Enclosed DEC organizational chart for reference).

E. BENJAMIN NELSON
NEBRASKA

720 HART SENATE OFFICE BUILDING
WASHINGTON, DC 20510
(202) 224-6551
FAX: (202) 228-0012
www.bennelson.senate.gov

United States Senate

July 31, 2009

The Honorable Steven Chu, Secretary
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585-0001

Dear Secretary Chu:

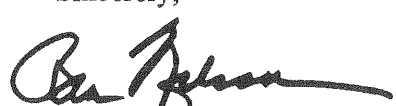
I am writing regarding the application of District Energy Corporation (DEC) of Lincoln, Nebraska, for a Recovery Act – Industrial Energy Efficiency grant through the U.S. Department of Energy.

DEC is an inter-local corporation, providing tax-exempt financing, joint planning, and coordinated use of energy infrastructure to facilities throughout Lincoln and Lancaster County, Nebraska. Currently, DEC is proposing a district geothermal energy plant to serve a new jail facility in Lancaster County. This new district energy plant will provide heating, cooling, and back-up electricity to the facility, using renewable energy sources.

With construction scheduled to begin in 2009 and commercial energy production in 2011, DEC hopes this new energy-efficient facility will directly spur the Nebraska economy through the creation of 200 construction jobs and 100 full-time jobs. DEC also hopes this project will indirectly aid the economy of my home state through the completion in Nebraska of the majority of civil, mechanical, electrical, and control design engineering and installation, material and assembly.

Your full and fair consideration of DEC's application for a Recovery Act – Industrial Energy Efficiency grant would be appreciated.

Sincerely,



E. Benjamin Nelson
United States Senator

EBN:hcb

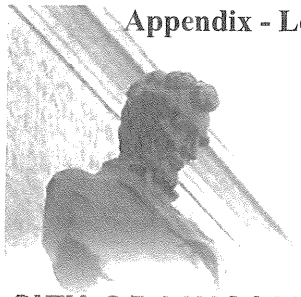
440 NORTH 8TH STREET
SUITE 120
LINCOLN, NE 68508
(402) 441-4600
FAX: (402) 476-8753

FIELD REPRESENTATIVE
POST OFFICE BOX 2105
KEARNEY, NE 68848
(308) 293-5818

FIELD REPRESENTATIVE
POST OFFICE BOX 1472
SCOTTSBLUFF, NE 69363
(308) 631-7614

FIELD REPRESENTATIVE
POST OFFICE BOX 791
SOUTH SIOUX CITY, NE 68776
(402) 209-3595

7602 PACIFIC STREET
SUITE 205
OMAHA, NE 68114
(402) 391-3411
FAX: (402) 391-4725



CITY OF LINCOLN
NEBRASKA

MAYOR CHRIS BEUTLER
lincoln.ne.gov

Office of the Mayor
555 South 10th Street
Suite 208
Lincoln, Nebraska 68508
402-441-7511
fax: 402-441-7120
mayor@lincoln.ne.gov

July 14, 2009

U.S. Department of Energy
Washington, DC

RE: Support letter for DOE Funding opportunity: **DE-FOA-0000044**, under the area: District Energy System and **DE-FOA-0000116**, under the area Geothermal Technologies.

To Whom This Concern:

We have been fortunate in Lincoln, Nebraska to have as a major resource for the development and use of efficient energy systems the Lincoln-based District Energy Corporation (DEC). The DEC is a joint entity created and supported by the City of Lincoln and Lancaster County. This well-managed non-profit has led the way in our community to demonstrate how heating and cooling systems that are shared by city and county buildings is a sure route to taxpayer savings, energy savings, and energy efficiencies.

The District Energy Corporation is now moving into renewable energy more significantly, and I strongly support the DEC's efforts to develop affordable and low-maintenance geothermal technologies on some of the more major public construction efforts in the community.

Overcrowding in the current jail facility has made it necessary for the City of Lincoln to participate with Lancaster County to develop a new detention facility that will house the current jail population, as well as the growing area's needs over the next 20 to 25 years. This is one of the largest construction projects actively going forward at present in the City of Lincoln. The detention facility has received Bond financing in the amount of $65 million and has begun the bid letting process. Ground breaking is being held of the week of July 13.

A new district energy plant built and maintained by the DEC will serve the new detention facility and any potential development within the surrounding community. This facility will supply heating and cooling to the jail facility using a renewable energy source as well as provide emergency electrical backup power. The renewable energy geothermal loop field will be the single largest geothermal ground source loop field system being build for a county detention facility within United States.

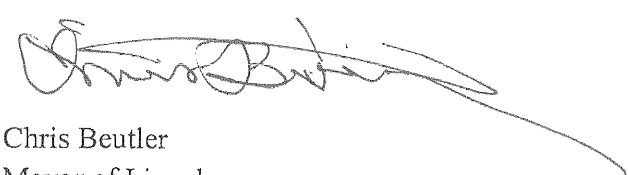
I believe there are several very strong benefits of the DEC's project, which makes them an excellent candidate for this Recovery Act funding:

- **Shovel ready project**, commence date: 2009, completion date October 2011.
- **Renewable Energy Project**, which demonstrates **high efficiency** with **lowest life cycle cost**.
- **Largest geothermal project** for a County detention facility within US.
- **Stimulates Nebraska economy and community** through construction, engineering and installation jobs.
- **Stimulates other demographic states within US** at vendor facilities: Likely states to benefit are: **Indiana, Illinois, Iowa, Wisconsin, Texas, Missouri and Kansas.**
- **Creation of Jobs** within the local community and other parts of US.
- **Reduction in Greenhouse Emissions and the enhancement of our region's energy Security**.

The City of Lincoln supports the District Energy Corporation's application for funding from the Recovery Act, and believes the present detention facility project and its potential to boost district energy and geothermal technology in the community is an ideal match for this funding program. I urge your department to strongly consider qualifying this project for stimulus funding. If you need additional information please free to contact Milo Mumgaard in my office (402-441-8044), or you can reach Don Killeen with the DEC and the Public Building Commission at 402-441-7356.

Thank you for this opportunity to support the DEC's application for stimulus funding that will produce many benefits in our region.

Sincerely,



Chris Beutler
Mayor of Lincoln

Appendix - Letters of Commitment

LANCASTER COUNTY BOARD OF COMMISSIONERS

Bernie Heier Larry Hudkins Deb Schorr Ray Stevens Bob Workman

July 14, 2009 Kerry Eagan, *Chief Administrative Officer* Gwen Thorpe, *Deputy Administrative Officer*

Michael S. DeStefano
Department of Energy
Washington, D.C.

Dear Mr. DeStefano:

This letter is being written in support of the Lincoln Lancaster County District Energy Corporation's Grant Application for both DOE Funding Opportunity DE-FOA-0000044 and DE-FOA-0000116. Both the applications are related to a new district energy plant to serve a new Adult Detention facility being constructed by Lancaster County in Lincoln, Nebraska.

Overcrowding in the County's current jail facility has made it necessary for Lancaster County to develop a new facility that will house the current jail population for the County as well as growth of the area's needs over the next 20 to 25 years.

A new district energy plant will be built by the District Energy Corporation (DEC), Lincoln Nebraska to support the new jail facility and for any potential development and growth within the surrounding community. This facility will supply hot and cold water to the jail facility using a renewable energy source and provide emergency backup power. The renewable energy geothermal loop field being proposed for this project will be the single largest geothermal ground source loop field system being built for a County detention facility within the United States of America. The geothermal loop field heat pump system is being designed to incorporate a high breed system as the detention facilities or thermal needs expand in the future. Lancaster County will provide DEC with the property to construct the geothermal well field through a lease and will commit to acquiring hot water and chilled water from the DEC.

District Energy plant construction activities are scheduled to commence during 2009. The geothermal well field construction will begin in 2009, with installation of the heat pump system and associated support facilities starting in mid 2010. Commercial operation of the facility is scheduled to begin in the summer of 2011. The Detention facility is scheduled to be occupied during the first quarter of 2012.

Lancaster County Board is both supportive and enthusiastic about District Energy Corporation supplying the County's new Correctional facility with a renewable energy source for both heating and cooling

Sincerely,

Bernie Heier, Chair

Ray Stevens, Vice-Chair

Larry Hudkins

Bob Workman

Deb Schorr

555 South 10th Street, Suite 110 / Lincoln, NE 68508 / (402) 441-7447 / Fax: (402) 441-6301
Email: commish@lancaster.ne.gov / www.lancaster.ne.gov

DEC
ENERGY

1040 O Street
P.O. Box 80869
Lincoln, NE
68501-0869
(402) 473-3395

July 10, 2009

The Honorable Congressmen Jeff Fortenberry
1535 Longworth Building
Washington, DC 20515

Dear Congressmen Fortenberry:

Thank you for your staff in meeting with us and discussing our new district energy plant for the new County Adult Detention facilities being constructed in Lincoln, Nebraska.

Overcrowding in the County's current jail facility has made it necessary for Lancaster County to develop a new facility that will house the current jail population for Lancaster County as well as growth of the area's needs over the next 20 to 25 years.

A new district energy plant is being proposed by the District Energy Corporation (DEC), to serve the new Jail facility and any potential development within the surrounding community. This facility will supply heating and cooling to the jail facility using a renewable energy source as well as provide emergency electrical backup power. The renewable energy geothermal loop field will be the single largest geothermal ground source loop field system for a County detention facility within United States.

Some of the Distinct Benefits of the District Energy application for stimulus funding are:

- **Shovel ready project**, commencing: 2009 with completion date of October 2011.
- **Renewable Energy Project**, demonstrating **high efficiency** with **lowest life cycle cost**.
- **Largest geothermal project** for a County detention facility within US.
- **Stimulates Nebraska economy and community** through construction, engineering and installation jobs.
- **Stimulates other demographic states within US** at vendor facilities: Other states likely to benefit are: **Indiana, Illinois, Iowa, Wisconsin, Texas, Missouri and Kansas.**
- **Creation of Jobs** within the local community and other parts of US.
- **Reduction in Greenhouse Emissions.**
- **Enhances Energy Security** through reduced reliance on fossil fuels.

Any support from your office would be greatly appreciated. We have enclosed a sample support letter for your consideration. If you need additional information please contact Don Killeen at 402-441-7356.

Sincerely,

Steve Masters
President
District Energy Corporation
Tel: 402-441-7588
Email: smasters@lincoln.ne.gov

Don Killeen
DEC Project Coordinator
District Energy Corporation
Tel: 402-441-7356
Email: dkilleen@lancaster.ne.gov

c: Alan Feyerherm, Deputy Chief of Staff Legislative Director
DEC Board of Directors
Doug Bantam, Shelley Sahling-Zart, Krishna Amancherla

Lincoln Journal Star
Monday 5/04/09

New jail to go geothermal

The energy system should cut 25 to 30 percent off the annual energy bill.

BY ALGIS J. LAUKAITIS
Lincoln Journal Star

The county's new jail will go green with a geothermal energy heating and cooling system.

Engineers plan to drill hundreds of wells into the ground and use its geothermal properties to heat and cool the new 672-bed jail on Southwest 40th Street.

Here's how it will work:

Water will be circulated through a matrix of 300-foot-deep wells as part of a closed-loop system. In summer, warm water will be cooled as it moves through plastic pipes. That's because the ground has a constant temperature of about 55 degrees. In the winter, cool water will be warmed by the temperature of the ground.

Natural gas will be available but used only in the kitchen — not for heating or cooling.

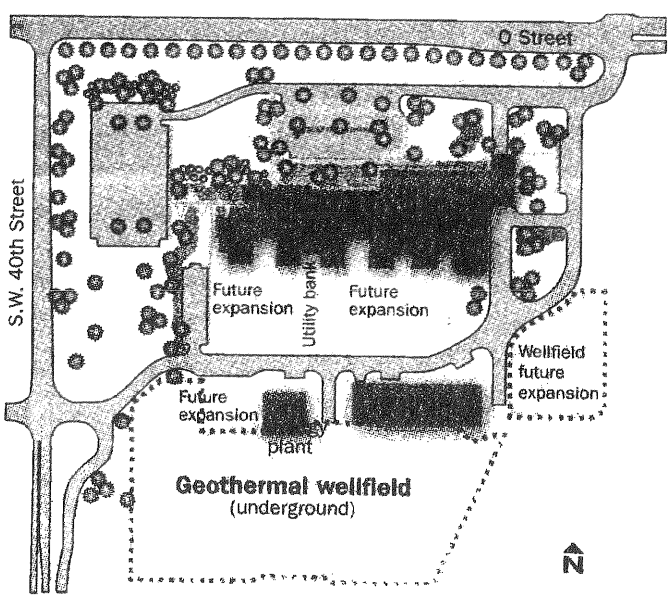
The system — similar to a heat pump — will result in an annual energy savings of 25 to 30 percent compared with a conventional mechanical system, said Krishna Amancherla, project manager for the District Energy Corporation.

Don Killeen, the county property manager, said the savings could be higher. He points to the success of similar systems

See JAIL, Page A2

Lancaster County Jail goes green

A geothermal energy system will heat and cool the new Lancaster County Jail. Using a closed-loop matrix of hundreds of wells and pipes, the system will take advantage of the ground's constant 55-degree temperature to save energy.



SOURCE: District Energy Corp.

SHEILA STORY/Lincoln Journal Star

Jail

Continued from Page A1

used at a handful of schools and businesses in the city.

The District Energy Corporation, or DEC, is a nonprofit entity that provides innovative, efficient and low-cost utility services to facilities owned by the city, county and state.

Formed in 1989, it is providing energy to the State Office Building, the Capitol, K Street Records Facility, County-City Building, Governor's Mansion, current county jail, Hall of Justice, the Court House Plaza Building and, soon, the 900 J Building.

In all, it serves nearly 1.5 million square feet of space.

The new jail, scheduled to be completed in late 2011, will be its biggest project, said Amancherla, also a senior engineer for Lincoln Electric System.

Amancherla wears two hats because LES is the contractor for the geothermal energy project and will operate and maintain it. The system, designed to last more than 75 years, will be the largest ever built for a jail in the United States, he said.

It's not yet known how many wells will be needed, though the site has room for about 855, Amancherla said. The DEC will install as many as 725 wells on a 6.5-acre wellfield first and have 1.25 acres left for expansion.

Total cost of the wellfield is estimated at between $2.5 million and $3 million, Amancherla said.

But there will be millions of dollars in other costs, too.

The DEC will build an energy plant building and a network of utility pipes and wiring. It also wants to install three 1.8-megawatt emergency diesel generators to provide full backup power to the jail, the energy plant building and the community, if necessary.

The DEC will issue bonds to cover the cost of the project, Killeen said. Those bonds will be separate from those issued for the jail.

The jail will be a big energy user because it will be operating 24/7.

To reduce some of the energy costs, Amancherla said, domestic hot water will be pre-heated and recovered, the laundry will use an ozone treatment system that also saves hot water, sensors will adjust indoor lighting based on daylight coming into the building, and high-efficiency exhaust hoods will be used in the kitchen and laundry.

Killeen said the geothermal facility also could provide heating and cooling energy for private businesses in the area.

Because of all the renewable energy components, the DEC will try to get some federal stimulus money for the geothermal facility and other energy-conservation measures of the project, Killeen said.

The timing is right, Killeen said, because the project is "shovel-ready" and will be built at the same time as the new jail.

Dirt work for the jail is scheduled to begin in early July, and the DEC plans to have its geothermal energy project ready to provide heat in October or November 2011.

Reach Algis J. Laukaitis at 473-7243 or alaukaitis@journalstar.com.

Lincoln Journal Star
Wednesday 7/08/09

New jail price tag $5M less

The $59.9 million project is cheaper than expected and includes 779 beds — more than Lancaster County had sought.

BY ALGIS J. LAUKAITIS
Lincoln Journal Star

A struggling economy and a little patience added up to a lower-than-expected construction price and more beds for the new Lancaster County Jail.

Sampson Construction Co., general contractor for the proposed jail project, submitted a guaranteed maximum price of $59.9 million to the Lancaster County Board of Commissioners on Tuesday.

That is the cost of building the jail without any fixtures or furnishings. Those items, along with architectural fees, will be paid out of an estimated savings of $5.1 million.

Jail cam

A camera will be mounted on a 35-foot high pole at the construction site for the new Lancaster County Jail. Corrections Administrator Mike Thurber said the camera will take time-lapse photographs that will allow commissioners to follow construction from start to finish. After the work is done, the pole may be used for a warning siren at Southwest 40th and West O streets.

"I'm very pleased that the bids Sampson received were low and very pleased with the outcome of the guaranteed maximum price," said County Purchasing Agent Vince Mejer, who oversaw the bid process.

See JAIL, Page A2

Jail

Continued from Page A1

"We do not foresee a problem."

The Sampson price is 7.8 percent lower than the $65 million figure with which commissioners had been working for months and the amount raised through a bond sale in late January.

Then, the County Board exercised patience and rejected a bond bid with high-interest payments from an out-of-state syndicate of buyers. It later held a negotiated sale with a group of Nebraska investment firms and ended up saving taxpayers about $2.8 million over the 20-year life of the bond issue.

Craig Gies, secretary for the Lincoln-based construction firm, said Sampson's $59.9 million included the addition of space for 112 beds, bringing total capacity of the jail to 779.

The County Board initially wanted to build a 776-bed facility, but later dropped the number to 667 because of the expense.

That was before the economy tanked, and prices for steel, concrete and other building materials began to drop. As the prices fell, commissioners were able to ask for more beds.

A groundbreaking ceremony for the jail at Southwest 40th and West O streets will be July 14, with construction set to begin July 20 and a projected completion date of Feb. 14, 2012 — a date some commissioners say may be changed because it's Valentine's Day.

The County Board also was pleased to hear 71 percent of the bids came from companies with ties to Lancaster County, and 84 percent were from within Nebraska.

"We estimate it will create or sustain about 300 jobs in the county," said Sampson's Project Manager Chuck Richter. The jobs will be either on the construction site or in shops making materials for the new jail.

"We haven't had an economy where people are (as) excited about a project as they are here," Gies said.

Sampson reviewed more than 110 bids from subcontractors and plans before presenting its final figure to county commissioners on Tuesday.

In an interview, Gies attributed the $5.1 million in savings mainly to the struggling economy. Companies don't have a lot of work in the city and county right now, he said, and they are looking for ways to keep their employees working and products moving.

"They're not selling as many light fixtures as they were two years ago," Gies said.

Commissioners thanked Sampson and said they look forward to the completion of the project.

"We've worked with you before and we know you folks will build us a good jail," said Commissioner Larry Hudkins.

Corrections Administrator Mike Thurber said the new jail — and the extra beds — couldn't come at a better time.

"We're overcrowded. We're anxious to get started," he told the County Board. "We would fill our dormitories on the day we opened up if we didn't have those extra cells."

Reach Algis J. Laukaitis at 473-7243 or alaukaitis@journalstar.com.

Omaha World Herald
Thursday 07/09/09

Lancaster County to break ground for jail

LINCOLN — A groundbreaking ceremony is scheduled for 11 a.m. Tuesday for Lancaster County's new $59.5 million jail.

The 779-bed facility has been envisioned since 2002, when the county's current jail facilities were ruled out of compliance because of overcrowding.

Lancaster County has been shipping out about 50 inmates per day from its two jail facilities, which have a capacity of 373, according to Brad Johnson, who is coordinating the transition for the county's corrections department.

Lancaster County voters in May 2008 defeated a $65 million bond issue to build the jail, but the County Board proceeded with the project anyway, citing the overcrowding.

The new jail is being built at 40th and O Streets. It is scheduled to be completed in 2012.

— **Paul Hammel**

DEC ENERGY

1040 O Street
P.O. Box 80869
Lincoln, NE
68501-0869
(402) 473-3395

6/2/09

District Energy Corporation

Executive Summary:

- **District Energy Corporation** (DEC) provides innovative, efficient and low-cost utility services to facilities owned by Nebraska's City of Lincoln and Lancaster County and the State of Nebraska.

- Uniquely, DEC streamlines jurisdictions of the City of Lincoln and Lancaster County into a single, nonprofit organization whose combined powers enable it to provide efficient and reliable energy services at some of the lowest costs in the nation.

History:

- In 1989, the City of Lincoln and Lancaster County formed the District Energy Corporation (DEC) under the State of Nebraska's Interlocal Corporation Act, which allows governmental entities to form nonprofit corporations for the benefit of the citizens they serve.

- Advantages of an interlocal corporation includes: the ability to obtain tax-exempt financing for energy projects, joint planning and the coordinated use of energy infrastructure and resources by participants and customers.

DEC Customers:

- DEC's mission is to provide low-cost reliable and efficient thermal energy services. Currently thermal services are provided to:
  - County-City Building
  - Court House Plaza
  - Nebraska State Capitol
  - Nebraska Governor's Mansion
  - Lancaster County Jail
  - K-Street Records Storage Facility
  - Nebraska State Office Building
  - Hall of Justice Building

Grants & Awards:

- DEC received $105,818 in grants from Department of Energy (DOE), Western Area Power Administration (WAPA), Housing and Urban Development (HUD).

- 1994 National Awards Program for Energy Efficiency and Renewable Energy – (DOE).

Benefits:

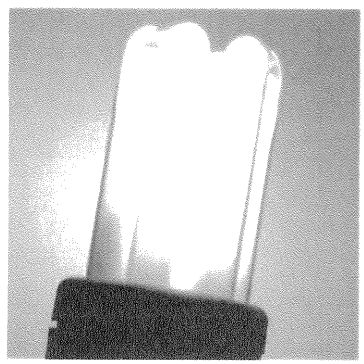
- Cleaner Environment
- Increased Reliability
- Efficient Use of Resources
- Diversity of Load
- Reduction in Use of Energy
- Cost Effectiveness

DEC Facilities:

- 9th & K Street Plant - 4.7 Million Facility Became Operational During 1991
- 14th & K Street Plant - 3.2 Million Facility Became Operational During 1999

Savings:

- Estimated Annual Energy Savings of 30% per year. This is equivalent to $135,000 per year for the City/County Project alone. In addition, there are significant operations and maintenance cost savings.



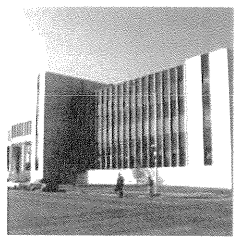
DEC
ENERGY

State Office Building

State Capitol

K Street Records Facility

900 J Building



County-City Building

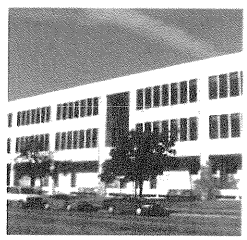
DEC Energy –

Efficiency in Government

An excellent example of efficiency in government can be found in the District Energy Corporation (DEC Energy), which provides innovative, efficient and low-cost utility services to facilities owned by the City of Lincoln, Lancaster County and the State of Nebraska.

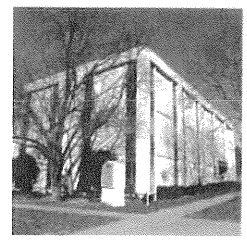
Uniquely, DEC Energy streamlines jurisdictions of the City of Lincoln and Lancaster County into a single, non-profit organization whose combined powers enable it to provide efficient and reliable energy services at some of the lowest costs in the nation.

Governor's Mansion



Lancaster County Jail

Hall of Justice



The Court House Plaza Building

Background and Mission

In 1989, the City of Lincoln and Lancaster County formed the District Energy Corporation under the State of Nebraska's Interlocal Corporation Act, which allows governmental entities to form non-profit corporations for the benefit of the citizens they serve. There are many advantages of an Interlocal Corporation. They include the ability to obtain tax-exempt financing for energy projects, joint planning and the coordinated use of energy infrastructure and resources by participants and customers.

DEC Energy's mission is to provide low-cost, reliable and efficient thermal energy services. Initially, these services were provided to the County-City Building and the Lancaster County Jail. Today, the scope of DEC Energy's operation has expanded to include the Nebraska State Capitol, the Nebraska State Office Building, the Nebraska Governor's Mansion, the Hall of Justice Building, the Court House Plaza Building, the 900 J Building and the K Street Records storage facility. In all, DEC Energy's system serves close to 1.5 million square feet.

Importantly, the reliable and efficient infrastructure and resources provided by DEC Energy today can help foster economic development of the greater Lincoln area tomorrow by providing efficient, low-cost thermal services to even more qualifying participants.

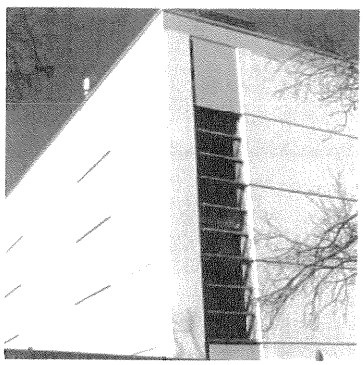
Financing

DEC Energy provides low-cost financing for HVAC-related ground coupled heat pump loop fields for buildings owned and used by public agencies. Financing is available, with contract terms that range from a minimum of five years to a maximum of 20 years. For more information on this program, contact the corporation's Management Contractor at 473-3395.

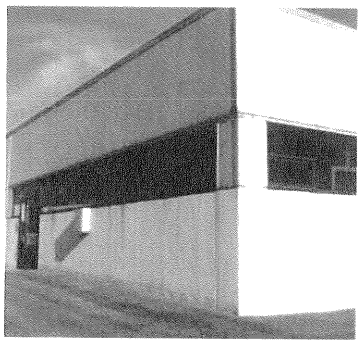
DEC Board & Management

The DEC is governed by a Board of Directors appointed by the Lancaster County Board, Lincoln City Council, Mayor of Lincoln and the Lincoln Electric System (LES) Administrative Board. DEC Energy has contracted with LES to provide management services. These services include technical, accounting, administrative, operations and general corporation functions.

The Board of Directors consists of five members: two are appointed by the Lancaster County Board of Commissioners; two are appointed by the Mayor of the City and confirmed by the Lincoln City Council; and one is appointed by LES. These members serve two-year terms and are eligible for reappointment.



14th & K Street Plant



9th & K Street Plant

Facilities

DEC Energy meets the heating and cooling needs of its customers with a district heating and cooling system. It includes two facilities: a thermal energy plant located at 14th and K streets in downtown Lincoln, Neb., and a second thermal plant at 9th and K streets in Lincoln. Thermal energy produced at these central plants is distributed to customers through an underground network of insulated pipes.

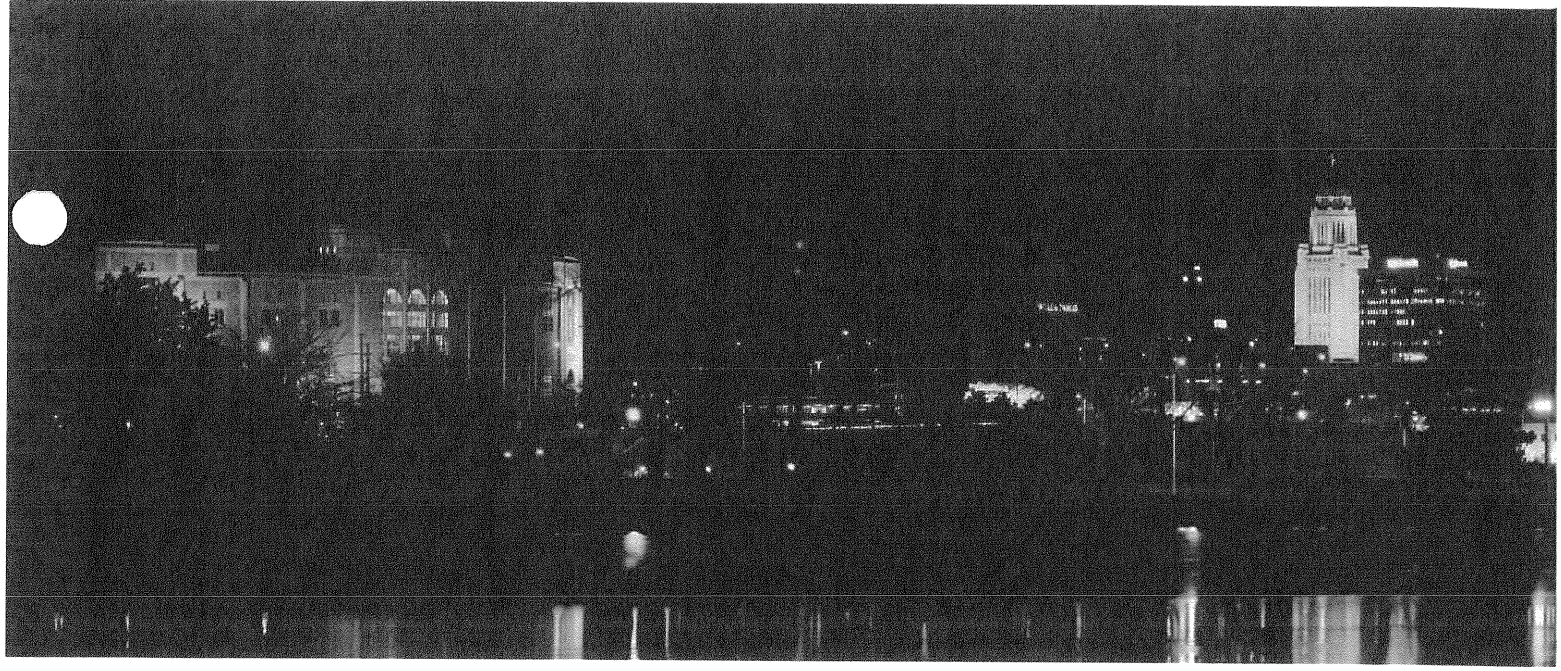
14th and K Street Plant

This $3.6 million facility became operational in the winter of 1999. It uses gas-fired boilers to produce high-pressure steam that heats the Nebraska State Office Building, State Capitol Building and Governor's Mansion.

9th and K Street Plant

Commissioned in June 1991, this $3.3 million facility uses a combination of ground source heat pumps, gas- and oil-fired boilers and thermal ice storage to meet customers' heating and cooling needs.

These systems use 30-50 percent less energy than the conventional systems that are traditionally installed in buildings today.



Advantages of District Heating and Cooling

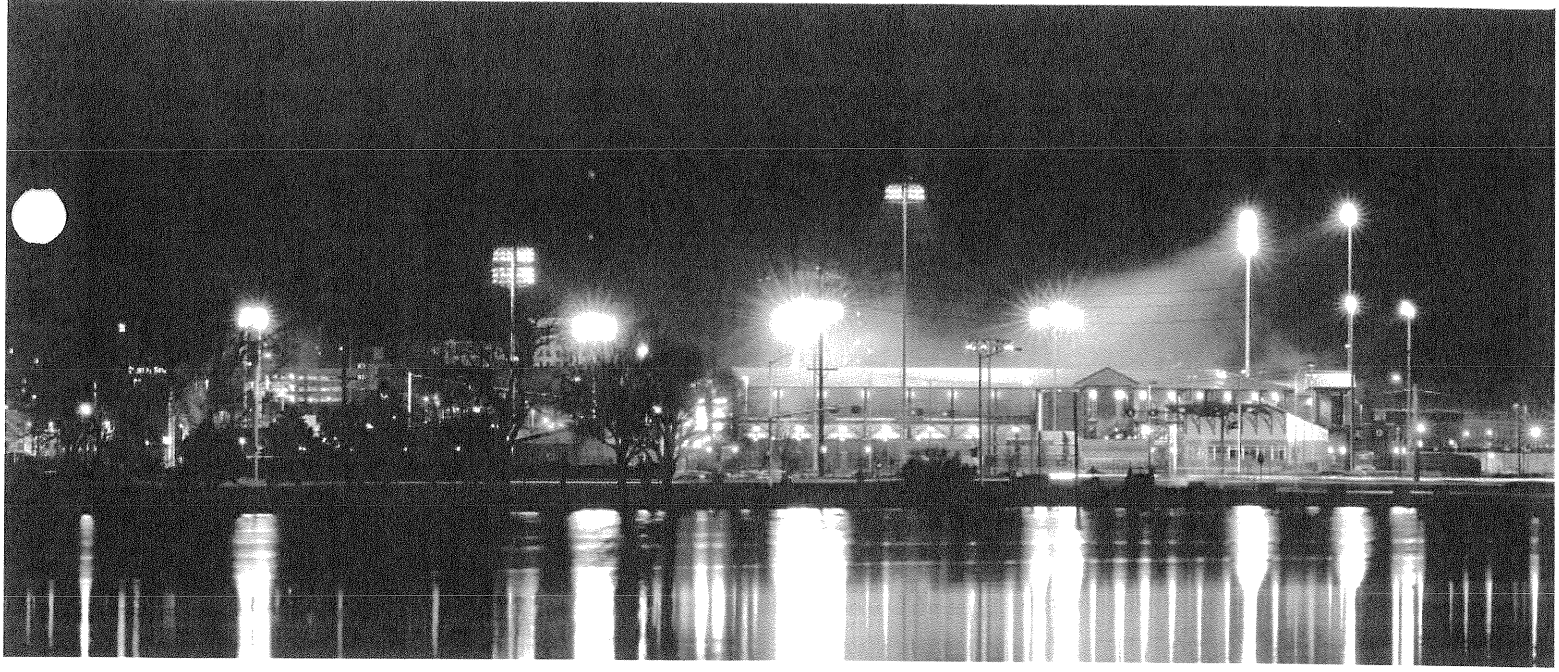
District heating and cooling benefits building owners, developers and the community.

A Better Environment, Reduced Risk

- On-site fossil fuel combustion and its related air emissions are reduced.
- The use of non-renewable fuels is reduced.
- Ozone-depleting CFC emissions are eliminated, reducing the burden and risk to individual building owners of complying with mandated CFC regulations.
- Indoor air quality and temperature controls are improved.

Efficient Use of Resources

- Operators at DEC Energy's central plants use state-of-the-art control systems to monitor efficiencies 24 hours a day, enabling use of demand-side electricity management.
- Heating and cooling are available without switching major equipment on and off to handle daily and seasonal load variations.
- Customers only use the amount of heating and cooling energy they actually need, eliminating waste.
- Peak electricity demand is reduced.
- System efficiency is improved.



Reliability

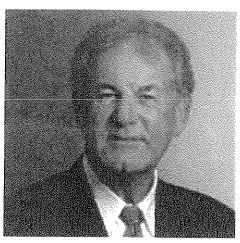
- High-quality production, distribution and control equipment is used at the central plant.
- Professional staff manages operations.
- Space heating and cooling is uniform.
- Customers are assured of building comfort.
- The city's downtown infrastructure is enhanced.

Cost-Effectiveness

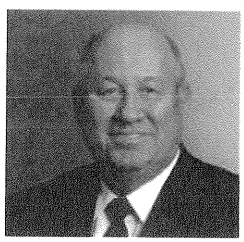
- The need for on-site chillers is eliminated, reducing energy demand and use while increasing usable building space.
- Capital costs for installation of on-site chillers and cooling towers are eliminated, making the capital available for other uses.
- Maintenance, operating and labor costs are lowered.

Visually Pleasing

- By eliminating cooling towers, architects have more rooftop design freedom and buildings can be more architecturally pleasing.
- With fewer cooling towers on rooftops, the city's skyline is improved.

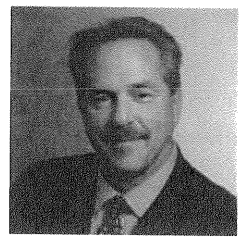


Bernie Heier

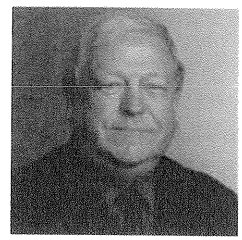


Larry Hudkins

Steve Masters



Ken Svoboda



Ken Ward

2007 DEC Energy Board of Directors

Board Member	Representing
Bernie Heier	Lancaster County Board of Commissioners
Larry Hudkins	Lancaster County Board of Commissioners
Steve Masters	City of Lincoln
Ken Svoboda	Lincoln City Council
Ken Ward	Lincoln Electric System

DEC Energy's Future

DEC Energy is attracting interest. Growing numbers of energy consumers are working with the organization's board and management staff to see if they, too, can benefit from the efficiencies, economies and benefits provided by district heating and cooling. If you would like to learn how you might benefit, contact DEC Energy's management group at LES today.

DEC ENERGY

DEC Energy 1040 O Street P.O. Box 80869 Lincoln, NE 68501-0869 402.473.3395

Financial and Operating Statement
For Period Ending
June 30, 2009

DISTRICT ENERGY CORPORATION

Financial Statement

Index

DISTRICT ENERGY CORPORATION
Balance Sheet
June 30, 2009

ASSETS

	END OF MONTH BALANCE	INC./(DEC.) SINCE JANUARY 1
Current Assets:		
Cash and Cash Equivalents		
Operating Fund	$ 1,762,235	454,333
Rate Stabilization Fund	187,000	-
Bond Principal & Interest	182,110	87,450
Total Funds (a)	2,131,345	541,783
Receivables	4,849	(252,602)
Note Receivable, current portion	-	-
Inventory-Fuel	12,555	-
Inventory-Parts	12,703	(70)
Prepaid Expenses	18,088	18,088
Interest Receivable	-	-
Total Current Assets	2,179,540	307,199
Non-Current Assets:		
Restricted Bond Funds:		
Bond Reserve	288,136	-
Construction Fund	399,126	(145,665)
Renewal and Replacement Fund	504,469	12,505
Total Funds (a)	1,191,732	(133,160)
Bond/Note Issuance Cost	20,050	(9,621)
Total Non-Current Assets	1,211,782	(142,781)
Capital Assets:		
Plant in Service	$ 8,107,429	$ 31,025
Construction Work in Progress	172,323	114,640
Subtotal Utility Plant	8,279,752	145,665
Less Accum. Depr. & Amort.	4,486,991	232,549
Total Capital Assets	3,792,761	(86,884)
Total Assets	$ 7,184,083	$ 77,534

LIABILITIES AND NET ASSETS

	END OF MONTH BALANCE	INC./(DEC.) SINCE JANUARY 1
Current Liabilities:		
Accounts Payable	95,293	(205,350)
Deferred Income	374,833	173,000
Payable from Restricted Assets		
Current Maturities -LTD	175,000	-
Notes Payable	3,000,000	-
Accrued Interest Payable	40,078	(350)
Total Current Liabilities	3,685,205	(32,700)
Non-Current Liabilities:		
Long-Term Debt		
1998 Bonds	$ 2,210,000	$ -
Notes Payable	-	-
Total Long Term Debt	2,210,000	-
Less Current Maturities	175,000	-
Total Non-Current Liabilities	2,035,000	-
Net Assets		
Balance January 1	1,353,644	143,678
Current Year Revenue/(Loss)	110,234	(33,445)
Total Net Assets	1,463,878	110,234
Total Liabilities and Net Assets	$ 7,184,083	$ 77,534

(a) Total Current & Noncurrent Asset Funds:

Cash & Cash Equivalents	3,323,077
Securities	-
Total	3,323,077

DISTRICT ENERGY CORPORATION
Revenue and Expense Statement
For the period ending June 30, 2009

	Current Month		Inc./(Dec.) from Budget		Year to Date		Inc./(Dec.) from Budget	
	Actual	Budget	Amount	%	Actual	Budget	Amount	%
REVENUE:								
Operating Revenue	$ 112,133	$ 113,172	$ (1,039)	-0.9%	$ 1,108,945	$ 1,118,472	$ (9,527)	-0.9%
Financing Revenue	-	-	-	-	-	-	-	-
Total Revenue	112,133	113,172	(1,039)	-0.9%	1,108,945	1,118,472	(9,527)	-0.9%
EXPENSES:								
Electrical Demand	5,441	6,377	(936)	-14.7%	24,879	31,092	(6,213)	-20.0%
Electrical Energy	5,719	4,339	1,380	31.8%	13,845	10,938	2,907	26.6%
Fuel	1,274	1,200	74	6.2%	442,614	455,730	(13,116)	-2.9%
Operation	8,291	12,715	(4,424)	-34.8%	71,427	76,289	(4,862)	-6.4%
Maintenance	7,738	11,898	(4,160)	-35.0%	41,255	71,364	(30,109)	-42.2%
Administrative	8,876	9,471	(595)	-6.3%	54,602	60,718	(6,116)	-10.1%
Depreciation	38,758	38,652	106	0.3%	232,549	231,912	637	0.3%
Total Expenses	76,098	84,652	(8,554)	-10.1%	881,170	938,043	(56,873)	-6.1%
NET OPER. REVENUE (LOSS)	36,035	28,520	7,515	26.3%	227,775	180,429	47,346	26.2%
OTHER EXPENSE/INCOME								
Interest Expense	18,030	40,529	(22,499)	-55.5%	108,725	200,475	(91,750)	-45.8%
Amortization Issuance/Disc Exp	1,604	1,604	-	0.0%	9,621	9,621	-	0.0%
AFUDC*	-	(15,098)	15,098	-100.0%	-	(53,843)	53,843	-100.0%
Other/Extraordinary Expense	-	-	-	-	-	-	-	-
Total Other Expense	19,633	27,035	(7,402)	-27.4%	118,346	156,253	(37,907)	-24.3%
Interest Income	107	9,267	(9,160)	-98.8%	805	48,111	(47,306)	-98.3%
Net Other Expense/Income	19,526	17,768	1,758	9.9%	117,541	108,142	9,399	8.7%
NET REVENUE(LOSS)	$ 16,509	$ 10,752	$ 5,757	53.5%	$ 110,234	$ 72,287	$ 37,947	52.5%

*Allowance for Funds Used During Construction

STATISTICS								
MMBTU's								
Chilled Water	2,012.22	2,445.00	(432.78)	-17.7%	3,051.52	4,343.00	(1,291.48)	-29.7%
Hot Water	-	-	-	-	32,700.10	33,159.00	(458.90)	-1.4%
Total	2,012.22	2,445.00	(432.78)	-17.7%	35,751.62	37,502.00	(1,750.38)	-4.7%

DISTRICT ENERGY CORPORATION
Revenue and Expense Statement
For the period ending June 30, 2009

	Current Month		Inc./(Dec.) from Last Year		Year to Date		Inc./(Dec.) from Last Year	
	Actual	Last Year	Amount	%	Actual	Last Year	Amount	%
REVENUE:								
Operating Revenue	$ 112,133	$ 110,752	$ 1,381	1.2%	$ 1,108,945	$ 1,129,065	$ (20,119)	-1.8%
Financing Revenue	-	-	-	-	-	64	(64)	-100.0%
Total Revenue	112,133	110,752	1,381	1.2%	1,108,945	1,129,129	(20,183)	-1.8%
EXPENSES:								
Electrical Demand	5,441	4,390	1,052	24.0%	24,879	19,978	4,902	24.5%
Electrical Energy	5,719	6,737	(1,017)	-15.1%	13,845	15,953	(2,109)	-13.2%
Fuel	1,274	1,261	13	1.0%	442,614	491,468	(48,853)	-9.9%
Operation	8,291	8,869	(578)	-6.5%	71,427	62,598	8,828	14.1%
Maintenance	7,738	6,382	1,356	21.2%	41,255	33,466	7,788	23.3%
Administrative	8,876	6,336	2,540	40.1%	54,602	42,239	12,363	29.3%
Depreciation	38,758	36,930	1,828	5.0%	232,549	221,580	10,969	5.0%
Total Expenses	76,098	70,904	5,194	7.3%	881,170	887,282	(6,112)	-0.7%
NET OPER. REVENUE (LOSS)	36,035	39,848	(3,813)	-9.6%	227,775	241,847	(14,072)	-5.8%
OTHER EXPENSE/INCOME								
Interest Expense	18,030	18,667	(638)	-3.4%	108,725	116,910	(8,185)	-7.0%
Amortization Issuance/Disc Exp	1,604	1,620	(17)	-1.0%	9,621	17,678	(8,057)	-45.6%
AFUDC*	-	-	-	-	-	-	-	-
Other Expense**	-	-	-	-	-	-	-	-
Total Other Expense	19,633	20,287	(654)	-3.2%	118,346	134,588	(16,242)	-12.1%
Interest Income	107	1,476	(1,369)	-92.8%	805	14,100	(13,295)	-94.3%
Net Other Expense/Income	19,526	18,811	715	3.8%	117,541	120,488	(2,947)	-2.4%
NET REVENUE(LOSS)	$ 16,509	$ 21,036	(4,527)	-21.5%	$ 110,234	$ 121,359	(11,125)	-9.2%

*Allowance for Funds Used During Construction
** Retirement of K-Street Controls System

STATISTICS								
MMBTU's								
Chilled Water	2,012.22	2,146.77	(134.55)	-6.3%	3,051.52	3,138.75	(87.23)	-2.8%
Hot Water	-	-	-	-	32,700.10	37,533.50	(4,833.40)	-12.9%
Total	2,012.22	2,146.77	(134.55)	-6.3%	35,751.62	40,672.25	(4,920.63)	-12.1%

DISTRICT ENERGY CORPORATION
Statement of Debt Coverage
For the period ending June 30, 2009

	Current Month			Year to Date		
	Actual This Year	Budget This Year	Actual Last Year	Actual This Year	Budget This Year	Actual Last Year
REVENUE:						
Operating Revenue	$ 112,133	$ 113,172	$ 110,752	$ 1,108,945	$ 1,118,472	$ 1,129,065
Total Revenue	112,133	113,172	110,752	1,108,945	1,118,472	1,129,065
EXPENSES:						
Electrical Demand	5,441	6,377	4,390	24,879	31,092	19,978
Electrical Energy	5,719	4,339	6,737	13,845	10,938	15,953
Fuel	1,274	1,200	1,261	442,614	455,730	491,468
Operation	8,291	12,715	8,869	71,427	76,289	62,598
Maintenance	7,738	11,898	6,382	41,255	71,364	33,466
Administrative	8,876	9,471	6,336	54,602	60,718	42,239
Total Expenses	37,340	46,000	33,974	648,621	706,131	665,702
Net Oper Rev for Debt Coverage	74,793	67,172	76,777	460,324	412,341	463,362
Interest & Other Income	107	9,267	1,476	805	48,111	14,100
AVAILABLE FOR DEBT SERVICE	74,900	76,439	78,253	461,129	460,452	477,463
Interest on Bonds & Notes	18,030	40,530	18,667	108,725	200,476	112,851
AFUDC on Bonds	-	(15,098)	-	-	(53,843)	-
Net Interest on Bonds & Notes	18,030	25,432	18,667	108,725	146,633	112,851
Principal	14,583	14,583	14,167	87,500	87,500	85,000
DEBT SERVICE	32,613	40,015	32,834	196,225	234,133	197,851
DEBT COVERAGE (a)	2.30	1.91	2.38	2.35	1.97	2.41
Debt Coverage for County City Project	4.65	2.96	4.77	4.68	3.13	5.22
Debt Coverage for State Project	1.40	1.18	1.49	1.46	1.21	1.46

DISTRICT ENERGY CORPORATION
STATEMENT OF CASH FLOWS
June 30, 2009

	CURRENT MONTH		YEAR-TO-DATE	
CASH FLOWS FROM OPERATING ACTIVITIES				
1. Customer Receipts	$ 430,014		$ 1,534,547	
2. Reimbursement to LES for Operational Payroll	(17,143)		(116,778)	
3. Fuel & Energy Cost	(12,556)		(624,852)	
4. Supplies & Services	(8,038)		(157,229)	
5. Net Cash Flow from Operating Activities (a)		**392,277**		**635,687**
CASH FLOWS FROM CAPITAL FINANCING ACTIVITIES				
Increase/(Decrease):				
6. Utility Plant Additions	(3,347)		(118,793)	
7. Net Proceeds (Cost) Retiring Plan Assets	-		-	
8. Long Term Borrowing	-		-	
9. Short Term Borrowing	-		-	
10. Reduction of Long Term Debt	-		-	
11. Interest Paid on Bonds and Notes	-		(109,075)	
12. Net Cash Provided (Used) by Capital Financing Activities		**(3,347)**		**(227,868)**
CASH FLOWS FROM INVESTING ACTIVITIES				
Increase/(Decrease):				
13. Purchase of Securities	-		-	
14. Maturity and Sale of Securities	-		-	
15. Interest Income	107		805	
16. Net Cash Provided (Used) by Investing Activities		**107**		**805**
17. NET INCREASE/(DECREASE) IN CASH & CASH EQUIVALENTS		389,037		408,624
18. CASH AND CASH EQUIVALENT BEGINNING OF PERIOD		2,934,040		2,914,453
19. CASH AND CASH EQUIVALENT END OF PERIOD		3,323,077		3,323,077

Cash and cash equivalents consist of operating funds in banks and investments with original maturities of three months or less. CD's, USTB's and USTN's with original maturities in excess of three months are considered securities.

(a) Reconciliation of operating income to net cash provided by operating activities				
1. Net Operating Revenue		36,035		227,775
Adjustments to Reconcile Net Operating Revenue to Net Cash				
2. Depreciation & Amortization	38,758		232,549	
Changes in Current Assets (Increase)/Decrease:				
3. Receivables	714		252,602	
4. Inventory - Fuel	-		-	
5. Inventory - Parts	(31)		70	
6. Prepayments	3,015		(18,088)	
Changes in Current Liabilities Increase/(Decrease):				
7. Accounts Payable	(3,381)		(232,221)	
8. Deferred Income	317,167		173,000	
9. Other Assets	-		-	
10. Total Adjustments		356,242		407,912
11. Net Cash Provided (Used) by Operating Activites		392,277		635,687

DISTRICT ENERGY CORPORATION
Schedule of Utility Plant Costs
June 30, 2009

* **CITY COUNTY PROPERTY:**			
Total Plant Cost Phase One			**$2,207,578**
Total Plant Cost Phase Two			**157,692**
Total Control Systems - K Street			**136,078**
Boiler & Feedwater Upgrade			**251,133**
County City Addition			**533,105**
Controls Conversion - 2001			**132,298**
Other Plant Additions			**275,759**
County City Cooling Capacity Upgrade - 2007			**1,393,335**
Subtotal			**$5,086,979**
Less:			
Contributions and Grants	**105,818**		
Retirements	**163,832**		
			269,650
Net City County Property Plant Cost			**4,817,329**
* **STATE PROJECT**			
Initial Plant Cost			**3,226,149**
Other Plant Additions			**44,594**
			3,270,743
STATE WALKWAY & PLATFORMS - 2009			
R.O. Youker, Inc	3,400		
			3,400
COUNTY JAIL PRELIMINARY DESIGN - 2008			
Various	52,645		
			52,645
COUNTY JAIL ENGINEERING DESIGN & PM - 2009			
Farris Engineering	96,620		
Lincoln Electric System	13,248		
Miscellaneous	6,410		
			116,278
Plant Cost Total		**$**	**8,260,395**
Plus:			
Equipment			7,540
Organization Cost			11,817
Total Utility Plant			**$8,279,752**

* Phase One covered construction for service to the City County Building and the Jail. Phase Two covered construction for service to the K St. Building. The K Street Controls was for the purchase and installation of the controls for K St. The Boiler and Feeder Upgrade covered the purchase and installation of a third boiler. The County City Addition covered construction for service to the new County City Building. The Hall of Justice Renovation was for the work to renovate heating and cooling at the old City County Building. The State Project includes the construction of a boiler facility to serve the heating needs of the State Capitol, Nebraska State Office Building and the Governor's Mansion.

District Energy Corporation
of
Lincoln and Lancaster County (DEC)
Investment Policy

DEC
ENERGY

Table of Contents

Investment Policy
District Energy Corporation of Lincoln and Lancaster County

I. PURPOSE

The purpose of this policy is to set forth the investment objectives and parameters for the management of the funds of the District Energy Corporation of Lincoln and Lancaster County, (hereinafter "DEC"). These policies are designed to ensure the prudent management of funds, the availability of operating and capital funds when needed, and an investment return competitive with comparable funds and financial market indices.

II. SCOPE

This investment policy applies to all cash and investments held or controlled by DEC and shall be identified as "Available Funds" of DEC.

III. INVESTMENT OBJECTIVES

Safety of Principal

The foremost objective of this investment program is the safety of the principal of those funds within. Investment transactions shall seek to keep capital losses at a minimum, whether they are from securities defaults or erosion of market value. To attain this objective, diversification is required in order that potential losses on individual securities do not exceed the income generated from the remainder of the investments.

From time to time, securities may be traded for other similar securities to improve yield, maturity or credit risk. For these transactions, a loss may be incurred for accounting purposes to achieve optimal investment return, provided any of the following occurs with respect to the replacement security:

A. The yield has been increased, or

B. The maturity has been reduced or lengthened, or

C. The quality of the investment has been improved.

Maintenance of Liquidity

The investments shall be managed in such a manner that funds are available to meet reasonably anticipated cash flow requirements in an orderly manner. Periodic cash flow analyses will be completed in order to ensure that the investments are positioned to provide sufficient liquidity.

Return on Investment

Investments shall be designed with the objective of attaining a market rate of return throughout budgetary and economic cycles, taking into account the investment risk constraints and liquidity needs. Return on investment is of least importance compared to the safety and liquidity objectives described above. The core of investments is limited to relatively low risk securities in anticipation of earning a fair return relative to the risk being assumed.

IV. DELEGATION OF AUTHORITY

In accordance with DEC's Board Policies, the responsibility for providing oversight and direction in regard to management of the investment program resides with DEC's Finance Manager. The daily management responsibility for DEC funds in the investment program and investment transactions also resides with the Finance Manager who shall establish written procedures for the operation of the investments and a system of internal accounting and administrative controls to regulate the activities of representatives. DEC may employ an Investment Manager to assist in managing DEC's portfolios. Such Investment Manager must be registered under the Investment Advisors Act of 1940.

V. STANDARDS OF PRUDENCE

The standard of prudence to be used by investment officials shall be the "Prudent Person" standard and shall be applied in the context of managing the overall investment program. Investment officers acting in accordance with written procedures and this investment policy and exercising due diligence shall be relieved of personal responsibility for an individual security's credit risk or market price changes, provided deviations from expectation are reported to the Board in a timely fashion and the liquidity and the sale of securities are carried out in accordance with the terms of this policy. The "Prudent Person" rule states the following:

> Investments shall be made with judgment and care, under circumstances then prevailing, which persons of prudence, discretion and intelligence exercise in the management of their own affairs, not for speculation, but for investment, considering the probable safety of their capital as well as the probable income to be derived from the investment.

While the standard of prudence to be used by investment officials who are officers or representatives is the "Prudent Person" standard, any person or firm hired or retained to invest, monitor, or advise concerning these assets shall be held to the higher standard of "Prudent Expert". The standard shall be that in investing and reinvesting moneys and in acquiring, retaining, managing, and disposing of investments of these funds, the contractor shall exercise: the judgment, care, skill, prudence, and diligence under the circumstances then prevailing, which persons of prudence, discretion, and intelligence, acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of like character and with like aims by diversifying the investments of the funds, so as to minimize the risk, considering the probable income as well as the probable safety of their capital.

VI. ETHICS AND CONFLICTS OF INTEREST

Representatives involved in the investment process shall refrain from personal business activity that could conflict with proper execution of the investment program, or which could impair their ability to make impartial investment decisions. Also, representatives involved in the investment process shall disclose to the Board any material financial interests in financial institutions that conduct business with DEC, and they shall further disclose any material personal financial/investment positions that could be related to the performance of DEC's investment program.

VII. INTERNAL CONTROLS AND INVESTMENT PROCEDURES

The Finance Manager shall establish a system of internal controls and operational procedures that are in writing and made a part of DEC's operational procedures. The internal controls should be designed to prevent loss of funds, which might arise from fraud, representative error, and misrepresentation, by third parties, or imprudent actions by representatives. The written procedures should include reference to safekeeping, repurchase agreements, separation of transaction authority from accounting and recordkeeping, wire transfer agreements, banking service contracts and collateral/depository agreements. No person may engage in an investment transaction except as authorized under the terms of this policy.

Independent auditors as a normal part of the annual financial audit of DEC shall conduct a review of the system of internal controls to ensure compliance with policies and procedures.

VIII. CONTINUING EDUCATION

The Finance Manager and others as deemed necessary shall annually complete 8 hours of continuing education in subjects or courses of study related to investment practices and products.

IX. AUTHORIZED INVESTMENT INSTITUTIONS AND DEALERS

Authorized DEC representatives and Investment Advisors shall only purchase securities from financial institutions, which are Qualified Institutions by DEC or institutions designated as "Primary Securities Dealers" by the Federal Reserve Bank of New York. Authorized DEC representatives and Investment Advisors shall only enter into repurchase agreements with financial institutions that are Qualified Institutions and Primary Securities Dealers as designated by the Federal Reserve Bank of New York. Qualified Institutions are either Banks or Broker/Dealers located in states adjacent to the State of Nebraska. The Finance Manager and/or the Investment Advisors shall maintain a list of financial institutions and broker/dealers that are approved for investment purposes and only firms meeting the following requirements will be eligible to serve as Qualified Institutions:

1) regional dealers that qualify under Securities and Exchange Commission Rule 15C3-1 (uniform net capital rule);
2) capital of no less than $10,000,000;
3) registered as a dealer under the Securities Exchange Act of 1934;
4) member of the National Association of Securities Dealers (NASD);
5) registered to sell securities in Nebraska; and
6) the firm and assigned broker have been engaged in the business of effecting transactions in U.S. government and agency obligations for at least five (5) consecutive years.

All brokers, dealers and other financial institutions deemed to be Qualified Institutions shall be provided with current copies of DEC's Investment Policy. A current audited financial statement is required to be on file for each financial institution and broker/dealer with which DEC transacts business.

X. MATURITY AND LIQUIDITY REQUIREMENTS

To the extent possible, an attempt will be made to match investment maturities with known cash needs and anticipated cash flow requirements. Investments of current operating funds shall have maturities of no longer than twenty-four (24) months.

Investments of bond reserves, construction funds, and other non-operating funds ("core funds") shall have a term appropriate to the need for funds and in accordance with debt covenants, but in no event shall exceed ten (10) years.

The maturities of the underlying securities of a repurchase agreement will follow the requirements of the Master Repurchase Agreement.

XI. COMPETITIVE SELECTION OF INVESTMENT INSTRUMENTS

After the Finance Manager or the Investment Advisor has determined the approximate maturity date based on cash flow needs and market conditions and has analyzed and selected one or more optimal types of investments, a minimum of three (3) Qualified Institutions and/or Primary Dealers must be contacted and asked to provide bids/offers on securities in questions. Bids will be held in confidence until the bid deemed to best meet the investment objectives is determined and selected.

However, if obtaining bids/offers are not feasible and appropriate, securities may be purchased utilizing the comparison to current market price method on an exception basis. Acceptable current market price providers include, but are not limited to:

A. Telerate Information System

B. Bloomberg Information Systems

C. Wall Street Journal or a comparable nationally recognized financial publication providing daily market pricing

D. Daily market pricing provided by DEC's custodian or their correspondent institutions

The Finance Manager or the Investment Advisor shall utilize the competitive bid process to select the securities to be purchased or sold. Selection by comparison to a current market price, as indicated above, shall only be utilized when, in judgment of the Finance Manager or the Investment Advisor, competitive bidding would inhibit the selection process.

Examples of when this method may be used include:

A. When time constraints due to unusual circumstances preclude the use of the competitive bidding process

B. When no active market exists for the issue being traded due to the age or depth of the issue

C. When a security is unique to a single dealer, for example, a private placement

D. When the transaction involves new issues or issues in the "when issued" market

Overnight sweep repurchase agreements will not be bid, but may be placed with DEC's depository bank relating to the demand account for which the repurchase agreement was purchased.

XII. AUTHORIZED INVESTMENTS AND COMPOSITION

Investments should be made subject to the cash flow needs and such cash flows are subject to revisions as market conditions and DEC's needs change. However, when the invested funds are needed in whole or in part for the purpose originally intended or for more optimal investments, the Finance Manager or designee may sell the investment at the then-prevailing market price and place the proceeds into the proper account at DEC's custodian.

The following are the investment requirements and allocation limits on security types, issuers, and maturities as established by DEC. The Finance Manager or designee shall have the option to further restrict investment percentages from time to time based on market conditions, risk and diversification investment strategies. The percentage allocations requirements for investment types and issuers are calculated based on the original cost of each investment. Investments not listed in this policy are prohibited.

The allocation limits and security types do not apply to the investment of debt proceeds. These investments shall be governed by the debt covenant included in the debt instrument.

A. United States Government Securities

1. Purchase Authorization

The Finance Manager may invest in direct negotiable obligations, or obligations the principal and interest of which are unconditionally guaranteed by the United States Government. Such securities will include, but not be limited to the following:

Cash Management Bills
Treasury Securities – State and Local Government Series ("SLGS")
Treasury Bills
Treasury Notes
Treasury Bonds
Treasury Strips

2. Composition

A maximum of 100% of available funds may be invested in the United States Government Securities.

3. Maturity Limitations

The maximum length to maturity of any direct investment in the United States Government Securities is ten (10) years from the date of purchase.

B. United States Government Agencies

1. Purchase Authorization

The Finance Manager may invest in bonds, debentures, notes or callables issued or guaranteed by United States Government agencies, provided such obligations are backed by the full faith and credit of the United States Government. Such securities will include, but not be limited to the following:

Government National Mortgage Association (GNMA)
-GNMA guaranteed mortgage-backed bonds
-GNMA guaranteed pass-through obligations
United States Export – Import Bank
-Direct obligations or fully guaranteed certificates of beneficial ownership
Farmer Home Administration
-Certificates of beneficial ownership
Federal Financing Bank
-Discount notes, notes and bonds
Federal Housing Administration Debentures
General Services Administration
United States Maritime Administration Guaranteed
-Title XI Financing
New Communities Debentures
-United States Government guaranteed debentures
United States Public Housing Notes and Bonds
-United States Government guaranteed public housing notes and bonds
United States Department of Housing and Urban Development
-Project notes and local authority bonds

2. Composition

A maximum of 75% of available funds may be invested in United States Government agencies.

3. Limits on Individual Issuers

A maximum of 50% of available funds may be invested in individual United States Government agencies.

4. Maturity Limitations

The maximum length to maturity for an investment in any United States Government agency security is ten (10) years from the date of purchase.

C. Federal Instrumentalities (United States Government sponsored agencies)

1. Purchase Authorization

The Finance Manager may invest in bonds, debentures or notes which may be subject to call, issued or guaranteed as to principal and interest by United States Government sponsored agencies (Federal Instrumentalities) which are non-full faith and credit agencies limited to the following:

Federal Farm Credit Bank (FFCB)
Federal Home Loan Bank or its district banks (FHLB)
Federal National Mortgage Association (FNMA)
Federal Home Loan Mortgage Corporation (Freddie-Macs)
Student Loan Marketing Association (Sallie-Mae)

2. Composition

A maximum of 80% of available funds may be invested in Federal Instrumentalities.

3. Limits on Individual Issuers

A maximum of 40% of available funds may be invested in any one issuer.

4. Maturity Limitations

The maximum length to maturity for an investment in any Federal Instrumentality security is ten (10) years from the date of purchase.

D. Interest Bearing Time Deposit or Saving Accounts

1. Purchase Authorization

The Finance Manager may invest in non-negotiable interest bearing time certificates of deposit or savings accounts in banks organized under the laws of this state and in national banks organized under the laws of the United States and doing business and situated in the State of Nebraska and banks located in adjacent states to the State of Nebraska. Additionally, the bank shall not be listed with any recognized credit watch information service.

2. Composition

A maximum of 25% of available funds may be invested in non-negotiable interest bearing time certificates of deposit.

3. Limits on Individual Issuers

A maximum of 15% of available funds may be deposited with any one issuer.

4. The maximum maturity on any certificate shall be no greater than one (1) year from the date of purchase.

E. Repurchase Agreements

1. Purchase Authorization

a. The Finance Manager may invest in repurchase agreements composed of only those investments based on the requirements set forth by DEC's Master Repurchase Agreement. All firms are required to sign the Master Repurchase Agreement prior to the execution of a repurchase agreement transaction.

b. A third party custodian with whom DEC has a current custodial agreement shall hold the collateral for all repurchase agreements with a term longer than one (1) business day. A clearly marked receipt that shows evidence of ownership must be supplied to the Finance Manager and retained.

c. Securities authorized for collateral are negotiable direct obligations of the United States Government, Government Agencies, and Federal Instrumentalities with maturities under five (5) years and must have a market value for the principal and accrued interest of 102 percent of the value and for the term of the repurchase agreement. Immaterial short-term deviations from 102 percent requirement are permissible only upon the approval of the Finance Manager.

2. Composition

A maximum of 50% of available funds may be invested in repurchase agreements excluding one (1) business day agreements and overnight sweep agreements.

3. Limits on Individual Issuers

A maximum of 25% of available funds may be invested with any one institution.

4. Limits on Maturities

The maximum length to maturity of any repurchase agreement is 90 days from the date of purchase.

F. Commercial Paper

1. Purchase Authorization

The Finance Manager may invest in commercial paper of any United States company that is rated, at the time or purchase, "Prime-1" by Moody's and "A-1" by Standard & Poor's (prime commercial paper). Additionally, the company shall not be listed with any recognized credit watch information service.

2. Composition

A maximum of 30% of available funds may be directly invested in prime commercial paper.

3. Limits on Individual Issuers

A maximum of 10% of available funds may be invested with any one issuer.

4. Maturity Limitations

The maximum length to maturity for prime commercial paper shall be 180 days from the date of purchase.

G. High Grade Corporate Notes

1. Purchase Authorization

The Finance Manager may invest in corporate notes issued by corporations organized and operating within the United States or by depository institutions licensed by the United States that have a long term debt rating, at the time of purchase, at a minimum "Aa" by Moody's and a minimum long term debt rating of "AA" by Standard & Poor's. Additionally, the company shall not be listed with any recognized credit watch information service.

2. Composition

A maximum of 15% of available funds may be directly invested in corporate notes.

3. Limits on Individual Issuers

A maximum of 5% of available funds may be invested with any one issuer.

4. Maturity Limitations

The maximum length to maturity for corporate notes shall be 3 years from the date of purchase.

H. Bankers' acceptances

1. Purchase Authorization

The Finance Manager may invest in Bankers' acceptances issued by a domestic bank or a federally chartered domestic office of a foreign bank, which are eligible for purchase by the Federal Reserve System, at the time or purchase, the short-term paper is rated, at a minimum, "P-1" by Moody's Investors Services and "A-1" Standard & Poor's. Additionally, the bank shall not be listed with any recognized credit watch information service.

2. Composition

A maximum of 30% of available funds may be directly invested in Bankers' acceptances

3. Limits on Individual Issuers

A maximum of 10% of available funds may be invested with any one issuer.

4. Maturity Limitations

The maximum length to maturity for Bankers' acceptances shall be 180 days from the date of purchase.

I. State and/or Local Government Taxable and/or Tax-Exempt Debt

1. Purchase Authorization

The Finance Manager may invest in state and/or local government taxable and/or tax-exempt debt, general obligation and/or revenue bonds, rated at least "Aa" by Moody's and "AA" by Standard & Poor's for long-term debt, or rated at least "MIG-2" by Moody's and "SP-2" by Standard & Poor's for short-term debt.

2. Composition

A maximum of 20% of available funds may be invested in taxable and tax-exempt debts.

3. Maturity Limitations

A maximum length to maturity for an investment in any state or local government debt security is three (3) years from the date of purchase.

J. Registered Investment Companies (Money Market Mutual Funds)

1. Investment Authorization

The Finance Manager may invest in shares in open-end and no-load funds provided such funds are registered under the Federal Investment Company Act of 1940 and operate in accordance with 17 C.F.R. § 270.2a-7, which stipulates that money market funds must have an average weighted maturity of 90 days or less. In addition, the share value of the money market funds must equal to $1.00.

2. Composition

A maximum of 50% of available funds may be invested in money market funds excluding one (1) business day overnight sweep agreements.

3. Limits of Individual Issuers

A maximum of 25% of available funds may be invested with any one money market fund.

4. Rating Requirements

The money market funds shall be rated "AAm" or "AAm-G" or better by Standard & Poor's, or the equivalent by another national rating agency.

5. Due Diligence Requirements

A thorough investigation of any money market fund is required prior to investing, and on a continual basis. There shall be a questionnaire developed by the Finance Manager that will contain a list of due diligence considerations that deal with the major aspects of any investment pool/fund. A current prospectus must be obtained.

K. Investment Agreements

Investment Agreements with provisions initially rated at least "AA-" and "Aa3" by S&P and Moody's with the provision that (i) if the provider is downgraded below "AA-" or "Aa3" by S&P or Moody's the provider must deliver collateral of the type described in paragraph (A) above at a margin percentage of 103%, or that described in paragraph (B) or (C) above at a margin percentage of 104%, and (ii) if the provider is further downgraded below "A-" or "A3" by S&P or Moody's the Issuer will have the right to terminate the agreement and receive all invested amounts plus accrued but unpaid interest without penalty. Investment Agreements must be approved the Bond Insurer, if applicable. Any other investment instruments for bond proceeds will be approved in writing by the appropriate organizations.

XIII. DERIVATIVES AND REVERSE REPURCHASE AGREEMENTS

Investment in any derivative products or the use of reverse repurchase agreements requires specific Board approval prior to their use. If the Board approves the use of derivative products, the Finance Manager shall develop sufficient understanding of the derivative products and have the expertise to manage them. A "derivative" is defined as a financial instrument the value of which depends on, or is derived from, the value of one or more underlying assets or indices or asset values. If the Board approves the use of reverse repurchase agreements or other forms of leverage, the investment shall be limited to transactions in which the proceeds are intended to provide liquidity and for which the Finance Manager has sufficient resources and expertise to manage them.

XIV. PERFORMANCE MEASUREMENTS

In order to assist in the evaluation of the portfolios' performance, DEC will use performance benchmarks for short-term and long-term portfolios. The use of benchmarks will allow DEC to measure its returns against other investors in the same markets.

A. Investment performance of funds designated as short-term funds and other funds that must maintain a high degree of liquidity will be compared to the return on the six-month U.S. Treasury Bill.

Investments of current operating funds shall have maturities of no longer than twenty-four (24) months.

B. Investment performance of funds designated as core funds and other non-operating funds that have a longer-term investment horizon will be compared to an index comprised of U. S. Treasury or Government securities. The appropriate index will have a duration and asset mix that approximates the portfolios and will be utilized as a benchmark to be compared to the portfolios' total rate of return. Investments of bond reserves, construction funds, and other non-operating funds ("core funds") shall have a term appropriate to the need for funds and in accordance with debt covenants, but in no event shall exceed ten (10) years.

XV. REPORTING

The Finance Manager and/or Investment Advisor shall provide the Board with a "Quarterly Investment Report" that summarizes but not limited to the following:

A. Recent market conditions, economic developments and anticipated investment conditions.

B. The investment strategies employed in the most recent quarter.

C. A description of all securities held in investment portfolios at month-end.

D. The total rate of return for the quarter and year-to-date versus appropriate benchmarks.

E. Any areas of policy concern warranting possible revisions to current or planned investment strategies. The market values presented in these reports will be consistent with accounting guidelines pertaining to the valuation of investments and the treatment of unrealized gains/losses.

On an annual basis, the Finance Manager shall submit to the Board a written report on all invested funds. The annual report shall provide all, but not limited to, the following: a complete list of all invested funds, name or type of security in which the funds are invested, the amount invested, the maturity date, earned income, the book value, the market value, the yield on each investment and a portfolio stress test analysis.

The annual report will show performance on both a book value and total rate of return basis and will compare the results to the above-stated performance benchmarks. All investments shall be reported at fair value per GASB Statement 31. Investment reports shall be available to the public.

XVI. THIRD-PARTY CUSTODIAL AGREEMENTS

Securities, with the exception of certificates of deposits, shall be held with a third party custodian; and all securities purchase by, and all collateral obtained by, DEC should be properly designated as an asset of DEC. The securities must be held in an account separate and apart from the assets of the financial institution. A third party custodian is defined as any bank depository chartered by the Federal Government, the State of Nebraska, or any other state or territory of the United States which has a branch or principal place of business in the State of Nebraska, or by a national association organized and existing under the laws of the United States which is authorized to accept and execute trusts and which is

doing business in the State of Nebraska. Certificates of deposits will be placed in the provider's safekeeping department for the term of the deposit.

The custodian shall accept transaction instructions only from those persons who have been duly authorized by the Finance Manager and which authorization has been provided, in writing, to the custodian. No withdrawal of securities, in whole or in part, shall be permitted unless directed by such a duly authorized person.

The custodian shall provide the Finance Manager with safekeeping receipts that provide detail information on the securities held by the custodian. On a monthly basis, the custodian will also provide reports that list all securities held for DEC, the book value of holdings and the market value as of month-end.

Security transactions between a broker/dealer and the custodian involving the purchase or sale of securities by transfer of money or securities must be made on a "delivery vs. payment" basis, if applicable, to ensure that the custodian will have the security or money, as appropriate, in hand at the conclusion of the transaction. Securities held as collateral shall be held free and clear of any liens.

XVII. INVESTMENT POLICY ADOPTION

The investment policy shall be adopted by Board resolution. The Finance Manager shall be responsible for an annual review of the policy and for recommending any policy changes to the Administrative Board. The Administrative Board shall approve any modification made thereto.

APPROVED AND ADOPTED BY THE BOARD ON _____.

FedConnect

DISTRICT ENERGY CORPORATION — Krishna Amancherla

Print

Reference Number: DE-FOA-0000116

Cover Page

Description: As Solicited

Company name: DISTRICT ENERGY CORPORATION
DUNS: 798253589 -

Mailing address: ATTENTION: KRISHNA AMANCHERLA
1040 O STREET P.O. BOX 80869

City: LINCOLN
State: NE
Postal code: 685083609
Country: USA

Contact: KRISHNA AMANCHERLA
Phone: 4024733395
Fax: 4024751716
Email: kamancherla@les.com

Items

Option Line Items

Attachments

Title	File Name	Created By	Last Updated By
DEC Topic 1 Application	DEC-1-Topic1-Application.pdf	Krishna Amancherla	Krishna Amancherla
PMC123 excel file	PMC123_1-Budget_Justification-DEC.xls	Krishna Amancherla	Krishna Amancherla
Site Grading Plans	DEC_Grading_Plans_06.11.09.pdf	Krishna Amancherla	Krishna Amancherla
SF424A excel file	SF424A.xls	Krishna Amancherla	Krishna Amancherla

Cost Sensitive Attachments

Complete

Previous | Continue | Return to Opportunity Summary

DISTRICT ENERGY CORPORATION
RESOLUTION 09-3

WHEREAS, the County of Lancaster, Nebraska is building a new County Adult Detention Facility (CADF) located at Lots 73 and 74, Northwest quarter (NW¼) Section 29, Township 10 North, Range 6 East of the Sixth Principal Meridian, Lancaster County, Nebraska, and generally located at SW 40th and "O" Streets, Lincoln, Nebraska (the **"Site"**); and

WHEREAS, the new CADF is to receive thermal energy and emergency power services from a proposed District Energy facility that is planned to be built within the same property of the CADF; and

WHEREAS, the District Energy Corporation (DEC) is required to lease the site for the proposed thermal plant; and

WHEREAS, the legal counsel for Lancaster County and DEC have developed a lease that would facilitate the DEC to lease the site for the proposed thermal plant; and

WHEREAS, the Lease will be for a period of twenty (20) years or until all obligations have been paid in full, whichever is later, and shall thereafter continue from year to year subject to the right of either party to terminate this Lease on six (6) months prior written notice; and

WHEREAS, the Management Contractor recommends the DEC Board of Directors review and authorize the DEC to enter into a long-term site lease with the County of Lancaster, Nebraska;

NOW, THEREFORE, BE IT RESOLVED, that the DEC Board of Directors hereby authorizes the DEC President to execute a Site Lease document between the County of Lancaster, Nebraska and the District Energy Corporation, subject to the general conditions presented to the DEC Board.

Steve Martin
President

Adopted: 22 July 09

DRAFT #2
JULY 17, 2009

SITE LEASE

This **SITE LEASE**, dated _____ 2009 (the **"Lease"**), is between The County of Lancaster, Nebraska (the **"Lessor"**), and District Energy Corporation (the **"Lessee"**).

WITNESSETH:

WHEREAS, the Lessor is the owner of Lots 73 and 74, Northwest quarter (NW¼) Section 29, Township 10 North, Range 6 East of the Sixth Principal Meridian, Lancaster County, Nebraska, and generally located at SW 40th and "O" Streets, Lincoln, Nebraska (the **"Site"**); and

WHEREAS, the Lessee is a nonprofit Nebraska corporation organized pursuant to the Nebraska Interlocal Cooperation Act (Chapter 13, Article 8, Reissue Revised Statutes of Nebraska, as amended, the **"Interlocal Act"**) and the Nebraska Nonprofit Corporation Act (Chapter 21, Article 19, Reissue Revised Statutes of Nebraska, as amended, the **"Nonprofit Act"**) for the purpose of providing for purchasing, leasing, constructing and financing facilities and acquiring services in order to furnish energy requirements and related services to the Lessor and The City of Lincoln, Nebraska (the **"City"**) and to such other persons and entities as the Lessor and the City may be authorized by law to serve; and

WHEREAS, the Lessor and the City have entered into the Joint Public Agency Agreement Creating the Lancaster County Correctional Facility Joint Public Agency, dated September 9, 2008 (the **"JPA Agreement"**) for the purpose of creating the Lancaster County Correctional Facilities Joint Public Agency (the **"Agency"**) to finance constructing, equipping and furnishing adult intake and correctional facilities (the **"Correctional Facilities"**) on the Site; and

WHEREAS, the Correctional Facilities will be owned by the Agency until the payment in full of debt incurred by the Agency to finance constructing, equipping and furnishing the Correctional Facilities, at which time title to the Correctional Facilities will be transferred to the Lessor, and the Lessor will have total responsibility for the operation, maintenance and management of the Correctional Facilities; and

WHEREAS, the Lessor and the Lessee have agreed that the Lessee will provide thermal services and emergency power to the Correctional Facilities and for such purpose it is necessary, desirable, advisable and in the best interests of the Lessor and the Lessee that the Lessor lease to Lessee that portion of the Site described on **Exhibit A** attached hereto and made a part hereof by reference (the **"DEC Site"**);

NOW THEREFORE, in consideration of the premises and covenants contained herein, the Lessor and the Lessee agree as follows:

1. **Property and Facilities Leased**. The Lessor hereby leases to the Lessee the DEC Site described on **Exhibit A** hereto for the purpose of constructing, equipping and furnishing facilities (the **"DEC Facilities"**) to provide thermal services and emergency power (the **"Services"**) to the Correctional Facilities and such other projects as may be undertaken by the Lessee in the future.

2. **Additional Leased Property and Facilities**. The Lessor and the Lessee agree that in order to provide the Services as contemplated, it may be necessary in the future for the Lessor to lease to the Lessee property or facilities in addition to the DEC Site and it is agreed that such property and

facilities may be added to and be subject to the provisions of this Lease by addendum to be signed by the parties hereto.

3. Lease Consideration. As consideration for this Lease, the Lessee agrees to pay to the Lessor the sum of One Dollar ($1.00) during the term hereof and to construct, equip and furnish facilities necessary to provide the Services to the Correctional Facilities upon the terms specified in one or more service contracts between Lessor and Lessee as may be mutually agreed (collectively, the **"Service Contract"**).

4. Maintenance of Leased Property and Facilities. The Lessee agrees to maintain and keep the DEC Site in good condition and to make such improvements thereof from time to time as may be required to provide Service with the costs thereof to be reflected in the rates and charges under the Service Contract.

5. Operation of System. It is agreed and understood that the Lessee will enter into a management agreement with Lincoln Electric System to manage the DEC Facilities.

6. Right of Access. In order to operate and maintain the DEC Facilities, the Lessor hereby grants right of access to the DEC Site over and into such property of the Lessor as may be necessary for such operation and maintenance.

7. System Financing. It is understood that the Lessee will finance the costs of constructing, equipping and furnishing the DEC Facilities by the issuance of tax exempt obligations (the **"Obligations"**).

8. Insurance. The Lessee will carry and maintain, throughout the duration of this Lease, insurance against personal injury, property damage and such other liability in such amounts, subject to availability of such insurance, as the Lessee shall determine; provided, however, such insurance shall include general liability insurance, including coverage for bodily injury, wrongful death, personal injury and property damage. The minimum limits of liability to be provided by such insurance shall be as follows:

Bodily Injury/Property Damage	$1,000,000 Each Occurrence $2,000,000 Aggregate
Personal Injury Damage	$1,000,000 Each Occurrence

The Lessee shall provide the Lessor with a Certificate of Insurance (a) showing the specific limits of insurance required by this section and showing the Lessor as an additional insured and (b) stating that such insurance policies require the insurer to provide the Lessor County thirty (30) days notice of cancellation, non-renewal, or any material reduction of insurance coverage.

The costs of any insurance provided hereunder shall be payable as provided in the Service Contract.

9. Term. The term of this Lease will commence on _____, 2009, and will be for a period of twenty (20) years or until all Obligations have been paid in full, whichever is later, and shall thereafter continue from year to year subject to the right of either party to terminate this Lease on six (6) months prior written notice.

10. Taxes and Assessments. If the DEC Site, the DEC Facilities or any portion thereof is determined to be taxable or subject to assessment for any reason, the Lessee shall be obligated to pay such

taxes prior to delinquency and provide the Lessor documentation that such payment has been timely made. Any and all taxes, assessments, interest, or penalty assessed against the DEC Site or the DEC Facilities shall be the sole responsibility of the Lessee.

11. Quiet Enjoyment. At all times during the term of this Lease, the Lessor will peaceably and quietly have, hold and enjoy all of the DEC Site, and the Lessor will provide to the Lessee the ability to quietly have, hold and enjoy all of the DEC Site.

12. Warranties, Covenants and Indemnities Regarding Environmental Matters.

(a) As used in this Section, the following terms have the following meanings:

"Environmental Laws" means any now existing or hereafter enacted or promulgated federal, state, local, or other law, statute, ordinance, rule, regulation or court order pertaining to (i) environmental protection, regulation, contamination or clean up, (ii) toxic waste, (iii) underground storage tanks, (iv) asbestos or asbestos containing materials, or (v) the handling, treatment, storage, use or disposal of Hazardous Substances, including without limitation the Comprehensive Environmental Response, Compensation and Liability Act and The Resource Conservation and Recovery Act, all as exist from time to time.

"Hazardous Substances" means all (i) "hazardous substances" (as defined in 42 U.S.C. §9601(14)), (ii) "chemicals" subject to regulation under Title III of the Superfund Amendments and Reauthorization Act of 1986, as amended from time to time (iii) natural gas liquids, liquefied natural gas or synthetic gas, (iv) any petroleum, petroleum based products or crude oil or any fraction, or (v) any other hazardous or toxic substances, wastes or materials, pollutants, contaminants or any other substances or materials that are included under or regulated by any Environmental Law.

(b) The Lessor warrants and represents to the Lessee that (i) there has not, at any time during the Lessor's ownership of the DEC Site, nor, to the knowledge of the Lessor, at any time prior to the Lessor's ownership of the DEC Site, been any "release" (as defined in 42 U.S.C. §9601(22)) by the Lessor or any third party of any Hazardous Substances on, about, or near the DEC Site (including without limitation adjacent or nearby properties) that could have come to be located upon the DEC Site, or in the water or the groundwater thereon or thereunder; (ii) no part of the DEC Site is or has been used at any time during the Lessor's ownership of the DEC Site nor, to the knowledge of the Lessor, at any time prior to the Lessor's ownership of the DEC Site as the site of any handling, treatment, storage, refining or disposal of any Hazardous Substances; (iii) no part of the DEC Site is or has been at any time during the Lessor's ownership of the DEC Site nor, to the knowledge of the Lessor, at any time prior to the Lessor's ownership of the DEC Site, a "facility" (within the meaning of 42 U.S.C. §9607(a)); (iv) there are not now, nor has there been during the Lessor's ownership of the DEC Site, nor, to the knowledge of the Lessor, at any time prior to the Lessor's ownership of the DEC Site, any underground storage tanks located in, on or about any of the DEC Site; (v) no asbestos or asbestos containing materials are located in or have been installed, used, incorporated into or disposed of on or about the Project; (vi) no polychlorinated biphenyls are located on or about the Project, including without limitation in any electrical transformers or in fluorescent light fixtures or ballasts; (vii) there are no conditions on or about the DEC Site that are violative of any Environmental Laws; and (viii) no claims or demands have been asserted or made by any third parties arising out of, relating to or in connection with any Hazardous Substances on or about or allegedly on or about the DEC Site for any injuries suffered or incurred or allegedly suffered or incurred by reason of any of the foregoing.

(c) The Lessor will provide the Lessee with copies of any notifications of releases of Hazardous Substances or of any environmental hazards or potential hazards that are given by or on behalf

of the Lessor to any federal, state or local or other agencies or authorities or that are received by the Lessor from any federal, state or local or other agencies or authorities with respect to the DEC Site. Such copies will be sent to the Lessee concurrently with their being mailed or delivered to the governmental agencies or authorities or within ten days after they are received by the Lessor.

(d) The Lessor warrants and represents that the Lessor has provided the Lessee with copies of all emergency and hazardous chemical inventory forms (hereinafter **"Environmental Notices"**) that relate to the DEC Site previously given, as of the date hereof, by the Lessor to any federal, state or local governmental authority or agency as required pursuant to the Emergency Planning and Community Right to Know Act of 1986, 42 U.S.C.A. §11001 et seq., or any other Environmental Laws. The Lessor will provide the Lessee with copies of all Environmental Notices that relate to the DEC Site subsequently sent to any such governmental authority or agency as required pursuant to the Emergency Planning and Community Right to Know Act of 1986 or any other Environmental Laws. Such copies of subsequent Environmental Notices will be sent to the Lessee concurrently with their being mailed to any such governmental authority or agency.

(e) The Lessee will provide the Lessor with copies of any notifications of releases of Hazardous Substances or of any environmental hazards or potential hazards that are given by or on behalf of the Lessee to any federal, state or local or other agencies or authorities or that are received by the Lessee from any federal, state or local or other agencies or authorities with respect to the DEC Site. Such copies will be sent to the Lessor concurrently with their being mailed or delivered to the governmental agencies or authorities or within ten days after they are received by the Lessee.

(f) The Lessee will comply with and operate and at all times use, keep and maintain the DEC Facilities and every part thereof (whether or not such property constitutes a facility, as defined in 42 U.S.C. § 9601 et. seq.) in conformance with all Environmental Laws. Without limiting the generality of the foregoing, the Lessee will not use, generate, treat, store, dispose of or otherwise introduce any Hazardous Substance into or on the DEC Site or any part thereof nor cause, suffer, allow or permit anyone else to do so except in the ordinary course of the operation of the Lessee's business and in compliance with all Environmental Laws.

(g) From and after the commencement of this Lease, the Lessee agrees to indemnify, protect and hold harmless the Lessor from and against any and all claims, demands, costs, liabilities, damages or expenses, including, without limitation, attorneys' fees and expenses, arising from (i) any release (as defined above) or threat of a release, actual or alleged, of any Hazardous Substances, upon or about the DEC Site or respecting any products or materials previously, now or thereafter located upon, delivered to or in transit to or from the DEC Site, (ii) (A) any violation now existing (actual or alleged) of, or any other liability under or in connection with, any Environmental Laws relating to or affecting the DEC Site, or (B) any hereafter arising violation, actual or alleged, or any other liability, under or in connection with, any Environmental Laws relating to any products or materials previously, now or hereafter located upon, delivered to or in transit to or from the DEC Site, (iii) any assertion by any third party of any claims or demands for any loss or injury arising out of, relating to or in connection with any Hazardous Substances on or about or allegedly on or about the DEC Site, or (iv) any breach, falsity or failure of any of the representations, warranties, covenants and agreements contained in this Section.

13. Indemnity. Each party agrees to indemnify and hold harmless, to the fullest extent allowed by law, the other party and its officers, employees and agents from and against all claims, demands, suits, actions, payments, liabilities, judgments and expenses (including court-ordered attorneys' fees) arising out of or resulting from its acts or omissions of their officers, employees or agents in the performance of this Lease. Further, each party shall maintain a policy or policies of insurance (or a self-insurance program), sufficient in coverage and amount to pay any judgments or related expenses from or in conjunction with any such claims. Nothing in this Agreement shall require either party to

indemnify or hold harmless the other party from liability for the negligent or wrongful acts or omissions of such other party or its principals, officers, or employees.

14. Eminent Domain.

(a) In the event the whole or any part of the DEC Site is taken by eminent domain proceedings, the interests of the Lessor and the Lessee will be recognized. The proceeds of such condemnation will be applied as mutually agreed by the Lessor and the Lessee. Under Nebraska statutes, the Lessor has the power to condemn property for its purposes, and the Lessor acknowledges that if the Lessor condemned the DEC Site, such action could adversely affect the continuation of this Lease. The Lessor further acknowledges that condemnation of the DEC Site would adversely affect the Lessee and that without the Lessee's interest in the DEC Site, the Lessee would not construct, equip and furnish the DEC Facilities to provide Thermal Services to the Lessor pursuant to the Service Contract.

(b) In the event that title to all or a portion of the DEC Site is challenged or threatened by means of competent legal or equitable action, the Lessor covenants that it will cooperate with the Lessee and will take all reasonable actions, including where appropriate the lawful exercise of the Lessor's power of eminent domain, in order to quiet title to the DEC Site in the Lessor and the Lessee, as their respective interests are set forth herein.

15. Default. The Lessor will have the right to exclude the Lessee from the DEC Site or take possession of the DEC Facilities Project or to terminate this Lease prior to the expiration of its term upon any default by the Lessee hereunder.

16. Surrender. In the event that either party terminates this Lease pursuant to **Paragraph 9**, the Lessee agrees to surrender to the Lessor the peaceable possession of the DEC Site. It shall be further agreed that upon surrender or termination of the Lessee's occupancy of the premises, whether by the Lessee or the Lessor giving proper notice under the terms of this Agreement, the Lessee shall have no claim or right to receive compensation by virtue of the Eminent Domain Statutes of the State of Nebraska (Chapter 76, Article 7, Reissue Revised Statutes of Nebraska, as amended).

17. Assignment. The Lessee shall not assign this Lease or underlet, sublet, or relinquish the DEC Site without first obtaining written approval from the Lessor.

18. Partial Invalidity. If any one or more of the terms, provisions, covenants or conditions of this Lease will to any extent be declared invalid, unenforceable, void or voidable for any reason whatsoever by a court of competent jurisdiction, the finding or order or decree of which becomes final, none of the remaining terms, provisions, covenants and conditions of this Lease will be affected thereby, and each provision of this Lease will be valid and enforceable to the fullest extent permitted by law.

19. Notices. All written notices to be given under this Lease will be given by mail to the party entitled thereto at the addresses set forth below:

To the **Lessor**: The County of Lancaster, Nebraska
555 South 10th Street
Lincoln, Nebraska 68508
Attention: Chief Administrative Officer
Telephone: (402) 441-6865
Facsimile: (402) 441-6301

To the **Lessee**: District Energy Corporation
c/o Lincoln Electric System
1040 ""O" Street
Lincoln, Nebraska 68508
Attention: Project Manager
Telephone: (402) 473-3396
Facsimile: (402) 473-1716

20. Section Headings. All section headings contained herein are for convenience of reference only and are not intended to define or limit the scope of any provision of this Lease.

21. Amendments, Changes and Modifications. This Lease may not be effectively amended, changed, modified, altered or supplemented except with the written consent of the Lessor and the Lessee.

22. Applicable Law. This Lease will be governed by and construed in accordance with the laws of the State of Nebraska.

23. Execution. This Lease may be executed in any number of counterparts, each of which will be deemed to be an original but all together will constitute but one and the same Lease. It is also agreed that separate counterparts of this Lease may be executed by the Lessor and the Lessee all with the same force and effect as though the same counterpart had been executed by both the Lessor and the Lessee.

24. Successors. This Lease will be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

25. Complete Agreement. This written agreement is a final expression of the agreement between the parties hereto and such agreement may not be contradicted by evidence of any prior oral agreement or of a contemporaneous oral agreement between the parties hereto. No unwritten oral agreement between the parties exists.

26. Electronic Transactions. The parties agree that the transaction described herein may be conducted and related documents may be stored by electronic means. Copies, telecopies, facsimiles, electronic files and other reproductions of original executed documents will be deemed to be authentic and valid counterparts of such original documents for all purposes, including the filing of any claim, action or suit in the appropriate court of law.

[The remainder of this page intentionally left blank.]

IN WITNESS WHEREOF, this Lease has been executed as of the date first above written.

THE COUNTY OF LANCASTER, NEBRASKA

ATTEST:

By: _____
Chair

By: _____
Clerk

DISTRICT ENERGY CORPORATION

ATTEST:

By: _____
President

By: _____
Secretary

ACKNOWLEDGMENTS

STATE OF NEBRASKA)
) **ss.**
COUNTY OF LANCASTER)

I, the undersigned, Notary Public in and for said County in said State, do hereby certify that Bernie Heier and Dan Nolte, whose names as Chair of the Board of Commissioners and Clerk, respectively, of The County of Lancaster, Nebraska, are signed to the foregoing Lease and who are known to me to be such officers, acknowledged before me on this day that the execution of said Lease was their voluntary act and deed as such officers.

WITNESS my hand and seal this _____ day of _____, 2009.

_____
Notary Public

(SEAL)

STATE OF NEBRASKA)
) **ss.**
COUNTY OF LANCASTER)

I, the undersigned, Notary Public in and for said County in said State, do hereby certify that _____ and _____, whose names as President and Secretary, respectively, of District Energy Corporation are signed to the foregoing Lease and who are known to me to be such officers, acknowledged before me on this day that the execution of said Lease was their voluntary act and deed as such officers.

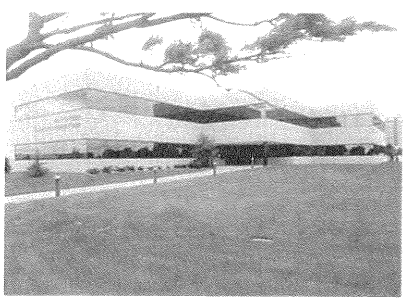
WITNESS my hand and seal this _____ day of _____, 2009.

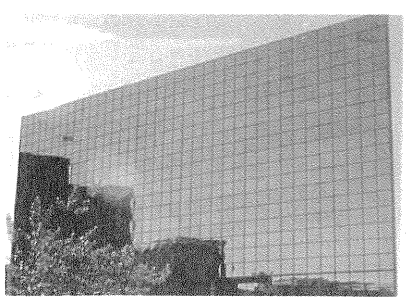
_____
Notary Public

(SEAL)

FARRIS ENGINEERING
CONSULTING ENGINEERS

FIRM PROFILE





Farris Engineering, a provider of quality professional mechanical and electrical consulting engineering services, was established in 1967 in Omaha, Nebraska. The firm has evolved into a staff of 89 employees located in four offices: Omaha; Lincoln; Colorado Springs; and Des Moines. Of the 89 employees, 35 are engineers, of whom 27 are registered professional engineers averaging greater than 21 years of experience.

As the Farris reputation of expertise and quality spread, the firm grew and expanded its activities in the areas of mechanical and electrical engineering and design in the commercial, educational, industrial, governmental, and institutional marketplace. Projects have included both mechanical and electrical systems for schools; skilled nursing facilities; retirement communities; recreational facilities; hospitals; laboratories and office/commercial buildings, as well as the design of technology networks.

Professional services provided include: engineering design; complete project management from preparation of contract documents through commissioning and owner acceptance; studies; life cycle cost analyses; facility evaluations; energy management studies; energy audits; surveys and feasibility studies.

There have been two standards that our firm has followed since its inception in order to provide high quality mechanical and electrical professional engineering services to our clients. The first standard is the investment we have made -- and will continue to make -- in registered engineers. Today, 40% of the employees company-wide are graduate engineers.

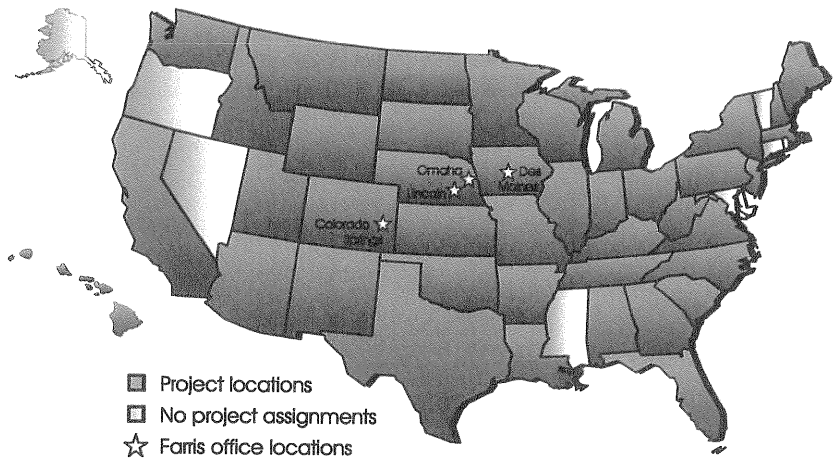
The second standard is the viewing of ourselves as consultants. As consultants, we listen to the clients' wants, needs and desires in order to better understand the scope of their project. With open communication and detailed supportive documentation throughout the project, the client is ensured of a project done correctly, on time and within budget.

What makes Farris Engineering different? Experience and our ability and willingness to respond to the client's needs during and after a project is completed continue to be the two greatest advantages to clients of Farris Engineering. With open communication and very detailed supportive documentation throughout the project, the client is ensured of a project done correctly, on time, and within budget. The employees of Farris Engineering represent a pool of consulting capability which can be marshaled to meet the challenges of any project. This tradition has been true for the past thirty-nine years and will continue in the future.

FARRIS ENGINEERING
CONSULTING ENGINEERS

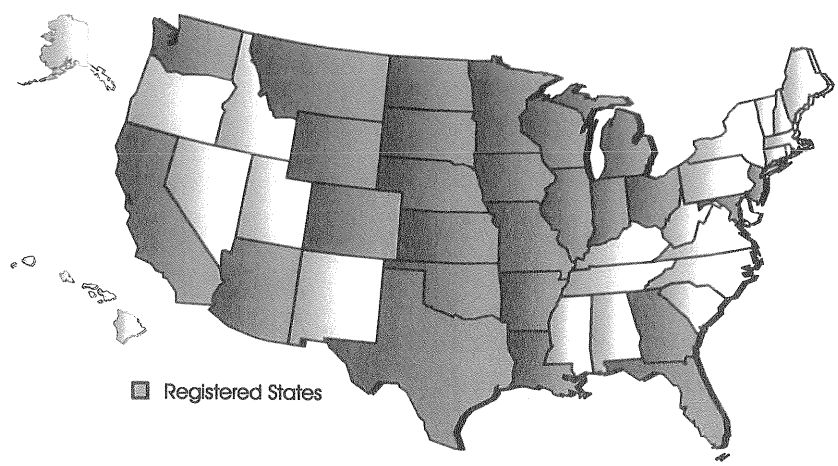
FIRM EXPERIENCE

- Farris Engineering has worked on over 19000 individual projects -- including design of specialized systems such as geothermal loop fields, category 5, 5e and 6 cabling, BSL3 laboratories, etc.,
- In 42 of the 50 United States and Internationally,
- With a total construction budget value greater than $7.5 billion.



- Farris Engineering employs 35 Mechanical and Electrical Engineers, including individuals certified and registered in Fire Protection Engineering, Qualified Commissioning and Energy Auditing Processes, LEED® Design, Geo-Exchange Design, as well as Communications Distribution Design,
- 27 of the 35 engineers are Registered Professional Engineers,
- With an average of 21 years of experience.

Two key principles:
- Investing in registered engineers
- Viewing ourselves as consultants

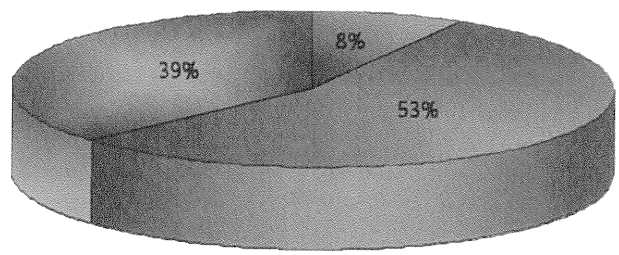


FIRM ORGANIZATIONAL STRUCTURE

Farris Engineering was established as a mechanical and electrical consulting and design engineering firm and today consists of 89 staff people including:

Mechanical Engineers	23 Persons
Electrical Engineers	12 Persons
Construction Field Engineers	4 Persons
Mechanical/Electrical Design Technicians	37 Persons
Engineering Support Staff	6 Persons
Administrative/Marketing Support	7 Persons

Your project will always be led by an individual who is a Registered Professional Engineer and Principal Owner of Farris.



PERCENTAGE OF EMPLOYEES

We have always felt that the most important resource that we have to offer our clients is our people. With this investment, 92% of our staff is involved in the design of every project that we undertake.

Farris Engineering has on staff a far greater number of engineers than a typical engineering firm, with 39% of our employees being graduate engineers and 77% of these Professionally Registered.

Your project will always be led by an individual who is a Registered Professional Engineer and Principal Owner of Farris. This ensures that a highly experienced professional engineer is leading the design effort. The design team, once put together for a particular project, will only be changed in extreme circumstances. This continuity of the design team from the beginning of the project through construction administration to project completion is so important for the consistency, accuracy and success of the project. This consistency of the design team also includes the design technicians who are creating the drawings. They are the individuals that have the "hands on" knowledge of the drawings; thus, when changes are made, they are made more quickly and drawing accuracy is maintained.

Farris Engineering is qualified to provide a full range of mechanical, electrical, plumbing and technology consulting and design services, whether we are a sub-consultant on the project or acting as the Prime Project Manager. In fact, Prime Project Management responsibilities constitute approximately 50% of our project workload.

Our firm is structured in such a way as to provide mechanical and electrical design familiarity and expertise in several distinct areas of concentration: Commercial, Industrial, Process Infrastructure and Technology. With this organizational approach, we are able to direct the correct engineering

resources to a project -- which helps ensure that the objectives of the project are met, the design is correct, the schedule is followed, and the project is within budget.

COMMERCIAL: All non-industrial type projects such as: the design of HVAC (constant volume VAV, geothermal, laboratory, radiant in-floor, overhead and solar heating, etc.); DDC controls (LON, BacNET, Johnson, etc.); plumbing (medical gases, solar water heating, etc.); security; fire protection (wet/dry, AFFF, Inergen/FM200, etc); electrical (normal, emergency, aircraft, power, etc.) and lighting (building, site, airfield, etc.) for either new facilities or the renovation of and/or addition to an existing facility.

INDUSTRIAL: The design of central plant utilities such as chilled water, cooling towers, steam generation, medium/high temperature hot water, turbine drives, medium/high voltage electrical service and the distribution of these system utilities throughout a building or campus.

PROCESS INFRASTRUCTURE: The design of manufacturing support systems such as compressed air, dust collection, process piping, painting/paint booth, galvanizing, vehicle/tailpipe exhaust, etc.

TECHNOLOGY: The design of systems to support the use of technology throughout a facility or campus environment. These services include not only the design of the exterior/interior cable infrastructure (i.e., Category 5e cabling and fiber optic information systems) but also the specifications for the hardware used to support the technology in a particular environment.

On a weekly basis, two very important meetings take place at Farris Engineering. The first is a meeting of the firm shareholders and principals to discuss the current status of projects and to determine what resources are required to meet the needs of current projects.

This meeting is then followed up by a meeting of the design teams. At this meeting, the priorities of the various projects are determined and tasks are assigned accordingly. As a result of this meeting, each team member involved understands the priorities of the projects and what their responsibilities include.

It is because of this team communication and attention to detail that the design and construction of each Farris project moves forward in an orderly, efficient, accurate and expeditious manner.

Farris Engineering can provide a scope of services that includes all phases of mechanical, electrical, fire protection, controls, plumbing and technology consulting and design for commercial, institutional, industrial, private and governmental facilities.

Farris' thorough experience with all types of construction design has laid a firm foundation for the provision of our professional services in a wide

variety of projects. Services offered include: consultation; planning and feasibility studies; technical engineering analyses; life cycle cost analyses; design; opinions of construction costs; investigations and research; asbestos abatement consulting (through the use of a consultant); removal of PCB and other hazardous materials (through the use of a consultant); project observation and inspection; and commissioning and validation of systems after construction.

Rarely will engineering decisions be made solely on the basis of engineering or technical conclusions. Realistically, every engineering decision made will take into consideration the existing economics, laws, regulations and code requirements; expediency; project circumstances; assumptions of future growth or change; current conditions; and - common to all factors - the health, safety, welfare and needs of the Owner, the users of the facility and the public, if applicable.

Our most significant accomplishment as a consulting engineering firm is the recognition and reconciliation of these varied influences and their role in the ability to reach a conclusion and/or to produce a practical plan or design that is both economically and technically sound.

Conclusions, recommendations, and results of these engineering activities will be conveyed to the Owner and the design team, either through personal visits, graphic presentations, written reports or plans and specifications.

The following indicates the scope of services offered for every project - ranging from simpler systems with smaller budgets to larger, more complex systems with multi-million dollar budgets - for which we are hired:

Design Development

The detailed design of the project commences as soon as the technical studies are completed, if applicable. We will further investigate the site and arrange a meeting(s) with the Owner to determine the requirements of the project. Typically, there will be a 35%, 95% and 100% project design review. Included with each of these reviews will also be an updated opinion of probable cost for the project.

Construction Documents / Final Design

After the designs, plans, programs and opinions of probable cost have been approved by the Owner, the project will then move forward to the final design phase. At this stage, our engineers will provide detailed design and contract documents, including: drawings, specifications, technical reports and other design services necessary for construction. A high quality, complete set of contract documents will result in a competitive bidding environment because there are fewer unknowns or ambiguous areas to cause concerns for the bidding contractors. During construction, a good set of contract documents will result in fewer problems that need to be resolved in the field and a lesser need for change orders.

Distinct areas of expertise:

- Commercial
- Industrial
- Process Infrastructure
- Technology

Construction documentation will normally include contractor agreement forms, general conditions, supplementary conditions, bid forms, an invitation to bid, instructions to bidders and other related documents.

We frequently assist our clients in the evaluation, selection and purchase of materials and equipment and also in the awarding of the construction contract. We are available to answer contractor and vendor questions during the bidding period and distribute clarifications to these questions in writing to all bidders.

CONSTRUCTION PHASE SERVICES

Farris Engineering can provide certain services during the construction phase of a project. These services include: site visits to observe progress and quality of construction and conformance to contract documents; review and/or approval of shop drawings; acceptance or rejection of substitute materials proposed by contractors; rejection of defective work; verification of work completed; review and recommendations on contractors' requests for payments and issuance of certificates of substantial completion.

WARRANTY CLOSEOUT / PROJECT CLOSEOUT

Farris can also provide certain services during the warranty and project closeout phase. These include system commissioning and operator training. Commissioning services begin during the early stages of design and continue until the project is successfully completed and accepted by the Owner. Training of the system(s) operators helps assure that Owner representatives can trouble-shoot any problems that may occur.

STUDIES, TECHNICAL REPORTS & INVESTIGATIONS

Farris Engineering can provide three types of studies: feasibility, design and planning. Typically, these studies will precede either the authorization and/or commencement of a project. It is important that these studies not be confused with preliminary design studies which are part of the actual design of a specific project.

Farris is often requested by clients to provide technical investigations and studies. These typically involve analyses, cost estimates, tests, and the research and review of available solutions to answer a particular challenge. Examples of these types of services provided include:

- Life Cycle Cost Analyses
- Technical Engineering Analyses / Energy Audits and Analyses
- Surveys and Feasibility Studies
- Indoor Air Quality Studies
- Piping and Hydraulic Systems Analyses

SCOPE OF SERVICES OFFERED (CONTINUED)

- Technical Assistance Studies
- Central Plant Utility Distribution Studies
- Master Planning
- Program Statements
- Building and System Commissioning

OTHER ADVISORY SERVICES

Typically, advisory services do not include any design or drawings. Instead, they may include the investigation of internal structures and systems, the examination of system failures, professional opinions of another engineer's design and other assignments that require special research and analysis.

LAUNDRY FACILITIES FOR NEW RESIDENCE HALLS AND TOWNHOMES
NEBRASKA WESLEYAN
LINCOLN, NEBRASKA

Farris Engineering provided the mechanical, electrical and plumbing engineering and design services for the construction of this 336 bed residence hall with complete laundry facilities to serve the residents. The laundry facility includes twelve commercial grade washers and twelve commercial grade dryers for the residents use.

FARRIS ENGINEERING
CONSULTING ENGINEERS

DONALD B. FOSTER, PE, LEED AP
SENIOR PRINCIPAL
MECHANICAL ENGINEER

EDUCATION
Bachelor of Science, Mechanical Engineering
Iowa State University, 1980
Bachelor of Science, Construction Engineering
Iowa State University, 1981

PROFESSIONAL REGISTRATION
Nebraska Iowa Georgia Montana

PROFESSIONAL BIOGRAPHY
1985 - Present: Farris Engineering, Inc., Consulting Engineers
1981 - 1985: Kirkham, Michael & Associates, Engineers/Architects

ORGANIZATIONS
American Society of Heating, Refrigerating and Air Conditioning Engineers

PROFESSIONAL EXPERIENCE SUMMARY
Don Foster is a registered mechanical engineer with 25 years of design experience, 20 of these with Farris Engineering. He brings to this project extensive design experience in HVAC design, HVAC load calculations, direct digital control systems, single-loop digital controllers and interfaces to allow for facility and campus-wide energy monitoring and control systems, plumbing, piping of numerous types of liquids and gases, specifications, cost estimating, and field administration for a wide variety of facilities.

Don's diverse experience also includes technical assistance energy audits, energy conservation measure design and building renovations. In addition, Don is a ***Certified GeoExchange Designer.***

RELEVANT PROJECT EXPERIENCE
City Hall
New Construction
West Des Moines, Iowa

LaVista City Hall
Remodel
LaVista, Nebraska

Scoular Building
Remodel
Omaha, Nebraska

Sarpy County Courthouse
Addition
Papillion, Nebraska

Denison Job Corps Recreation Building
New Construction
Denison, Iowa

Denison Job Corps Dormitory
Addition and Alteration
Denison, Iowa

MCC Sarpy Center
New Construction
LaVista, Nebraska

MCC Mahoney Building
Remodel
Omaha, Nebraska

Millard Schools Administration Building
Remodel
Omaha, Nebraska

West Des Moines City Hall
New Construction
West Des Moines, Iowa

Iowa National Guard Readiness Center
New Construction
Estherville, Iowa

FARRIS ENGINEERING
CONSULTING ENGINEERS

DONALD B. FOSTER, PE, LEED AP
SENIOR PRINCIPAL
MECHANICAL ENGINEER

CERTIFIED GEOEXCHANGE DESIGNER

The Association of Energy Engineers

CERTIFIES THAT

Donald Foster

has completed the prescribed standards for certification,
has demonstrated a high level of competence and ethical fitness
for geoexchange design and is hereby granted the title of
CERTIFIED GEOEXCHANGE DESIGNER

CGD Board Chairman

CGD Director

December 31, 2004
Certification Expiration Date

IN CONJUNCTION WITH:
IGSHPA
The Geothermal Heat Pump Consortium

AWARDED BY:
aee
The Association of Energy Engineers

SEAL

CGD

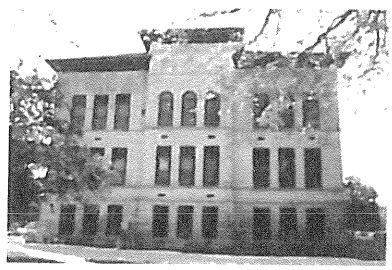
U.S. Green Building Council

Don Foster

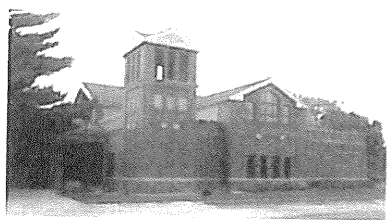
LEED ACCREDITED PROFESSIONAL

FARRIS ENGINEERING
CONSULTING ENGINEERS

GEOTHERMAL SYSTEMS
COMMERCIAL AND PUBLIC FACILITIES
REPRESENTATIVE PROJECT EXPERIENCE (CONTINUED)



Harrison County Courthouse – Logan, Iowa

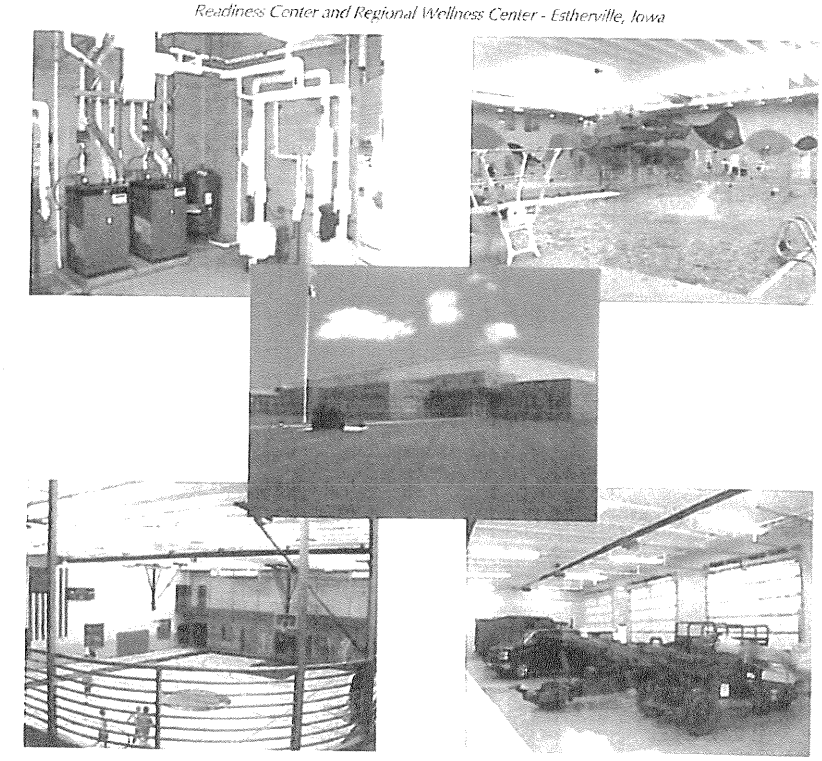


Federated Church – Columbus, Nebraska

MCC/La Vista Library LaVista, Nebraska	150 Tons
Federated Church Columbus, Nebraska	120 Tons
St. Michael Lutheran Church Omaha, Nebraska	100 Tons
St. James Catholic Church Omaha, Nebraska	120 Tons
AGP Day Care Omaha, Nebraska	50 Tons
South Sioux City Library South Sioux City, Nebraska	40 Tons
Elkhorn Recreation Center Elkhorn, Nebraska	200 Tons

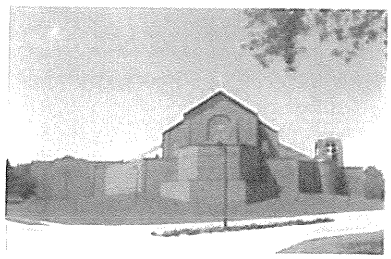
1780

Readiness Center and Regional Wellness Center - Estherville, Iowa



FARRIS ENGINEERING
CONSULTING ENGINEERS

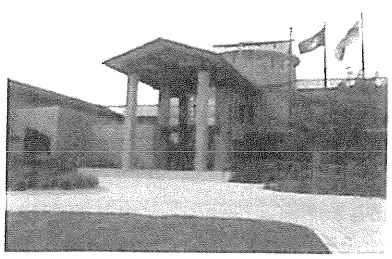
GEOTHERMAL SYSTEMS
COMMERCIAL AND PUBLIC FACILITIES
REPRESENTATIVE PROJECT EXPERIENCE



St. James Catholic Church – Omaha, Nebraska

Preucil School of Music - Iowa City

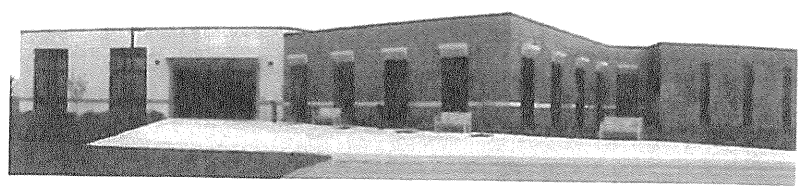
Muscatine County Courthouse – Muscatine, Iowa



MCC/La Vista Library - LaVista, Nebraska

Muscatine County Courthouse Muscatine, Iowa	100 Tons
Harrison County Courthouse Logan, Iowa	40 Tons
Iowa Army National Guard Readiness Center Waterloo, Iowa	40 Tons
Readiness Center and Regional Wellness Center Estherville, Iowa	200 Tons
West Des Moines City Hall West Des Moines, Iowa	130 Tons
Stone Park Nature Center/Museum Sioux City, Iowa	40 Tons
Grandview Church Dubuque, Iowa	65 Tons
Preucil School of Music Iowa City	100 Tons
Central Community College – Administration Building Grand Island, Nebraska	60 tons
Central Community College – Distance Learning Center Grand Island, Nebraska	30 Tons
Frontier Harley Davidson Lincoln, Nebraska	180 Tons
Quality Living, Inc. Omaha, Nebraska	240 Tons
Pacific Springs Village Omaha, Nebraska	370 Tons
Urban League of Nebraska Omaha, Nebraska	30 Tons
Beatrice Public Works Beatrice, Nebraska	16 Tons
Ainsworth Community Center Ainsworth, Nebraska	50 Tons

Central Community College – Administration Building – Grand Island, Nebraska

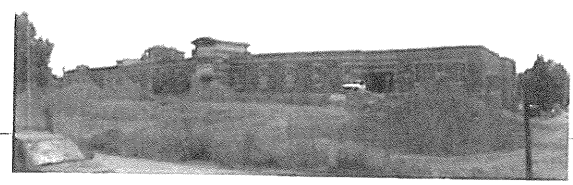


ENGINEERING EXCELLENCE

GEOTHERMAL SYSTEMS
K-12 EDUCATIONAL FACILITIES
REPRESENTATIVE PROJECT EXPERIENCE (CONTINUED)

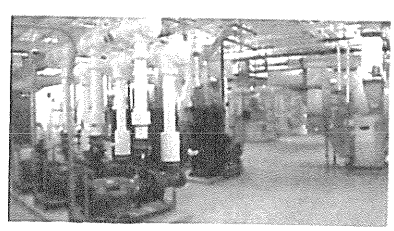
Castelar Elementary School Omaha, Nebraska	140 Tons
Walnut Hill Elementary School Omaha, Nebraska	150 Tons
Washington Elementary Omaha, Nebraska	145 Tons
Leigh Public School Leigh, Nebraska	200 Tons
Cresco Elementary School Cresco, Nebraska	90 Tons
Valparaiso Elementary School Valparaiso, Nebraska	90 Tons
North Platte High School North Platte, Nebraska	750 Tons
Clarkson Elementary School Clarkson, Nebraska	40 Tons

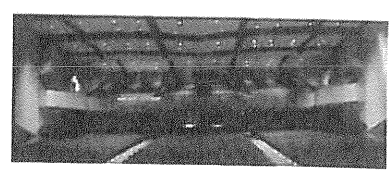
165



Walnut Hill Elementary School – Omaha, Nebraska

Rose Hill Elementary School – Omaha, Nebraska



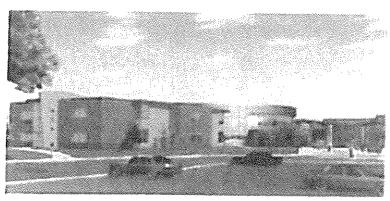


North Platte High School – North Platte, Nebraska

FARRIS ENGINEERING
CONSULTING ENGINEERS

GEOTHERMAL SYSTEMS
K-12 EDUCATIONAL FACILITIES
REPRESENTATIVE PROJECT EXPERIENCE

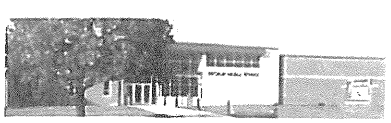
Atlantic High School - Atlantic, Iowa



Johnston Middle School – Rendering
Johnston, Iowa

Beavercreek Elementary School - Johnston, Iowa

Longfellow Elementary School – Council Bluffs, Iowa



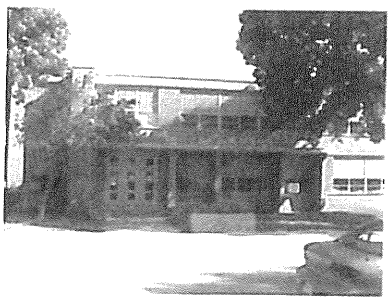
Keokuk Middle School – Keokuk, Iowa

Rue Elementary School Council Bluffs, Iowa	120 Tons
Roosevelt Elementary School Council Bluffs, Iowa	120 Tons
Edison Elementary School Council Bluffs, Iowa	130 Tons
Bloomer Elementary School Council Bluffs, Iowa	150 Tons
Longfellow Elementary School Council Bluffs, Iowa	130 Tons
Thomas Jefferson High School Council Bluffs, Iowa	525 Tons
Atlantic High School Atlantic, Iowa	375 Tons
Johnston Middle School Johnston, Iowa	330 Tons
Beavercreek Elementary School Johnston, Iowa	160 Tons
Granger Mitchell Elementary Des Moines, Iowa	140 Tons
Mann-Watrous Elementary School Des Moines, Iowa	130 Tons
Callanan Middle School Des Moines, Iowa	220 Tons
Weeks Middle School Des Moines, Iowa	230 Tons
Oak Park Elementary School Des Moines, Iowa	110 Tons
May Goodrell Middle School Des Moines, Iowa	320 Tons
Pella Elementary Pella, Iowa	140 Tons
Pella Christian High School Pella, Iowa	200 Tons
Anderson Elementary School Bondurant, Iowa	120 Tons
North Corridor Middle School Iowa City, Iowa	200 Tons

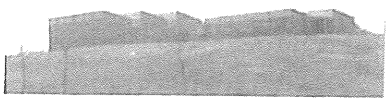
3850

FARRIS ENGINEERING
CONSULTING ENGINEERS

GEOTHERMAL SYSTEMS
K-12 EDUCATIONAL FACILITIES
REPRESENTATIVE PROJECT EXPERIENCE (CONTINUED)



Edison Elementary School – Council Bluffs, Iowa



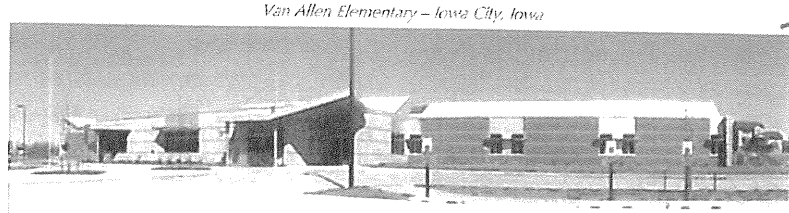
North Corridor Middle School – Iowa City, Iowa

Belvedere Elementary School – Omaha, Nebraska

Castelar Elementary School – Omaha, Nebraska

Alternative High School Iowa City, Iowa	120 Tons
Van Allen Elementary School Iowa City, Iowa	160 Tons
West High School Addition Iowa City, Iowa	160 Tons
Preucil School of Music Iowa City, Iowa	100 Tons
Jefferson Elementary School Clinton, Iowa	160 Tons
North End Elementary Clinton, Iowa	160 Tons
Keokuk Middle School Keokuk, Iowa	200 Tons
Twin Cedars Elementary School Bussey, Iowa	20 Tons
Iowa Braille and Sight Saving School Vinton, Iowa	100 Tons
Louisa-Muscatine High School Letts, Iowa	40 Tons
Oak Ridge School Marion, Iowa	348 Tons
Epworth Elementary School Epworth, Iowa	90 Tons
Cascade Elementary School Cascade, Iowa	20 Tons
Southeast Polk High School Pleasant Hill, Iowa	750 Tons
Rose Hill Elementary School Omaha, Nebraska	140 Tons
Belvedere Elementary School Omaha, Nebraska	160 Tons
Mountain View Elementary School Omaha, Nebraska	140 Tons

Van Allen Elementary – Iowa City, Iowa

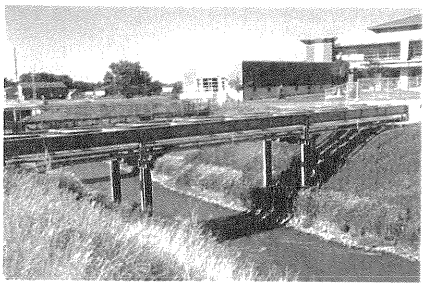


2868

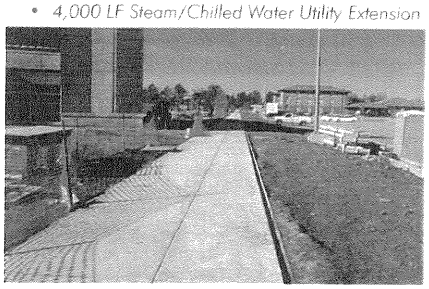
19,000+

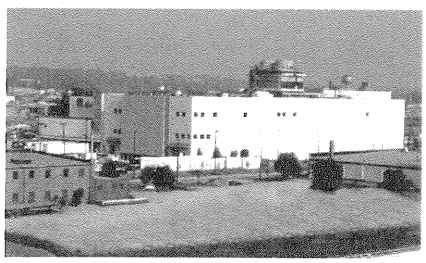
FARRIS ENGINEERING
CONSULTING ENGINEERS

FIRM PROFILE

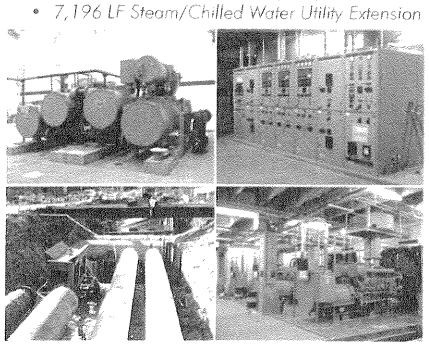


UNIVERSITY OF NEBRASKA AT KEARNEY
KEARNEY, NEBRASKA
- 4,000 LF Steam/Chilled Water Utility Extension





ENERGY SYSTEMS COMPANY
CALIFORNIA STREET THERMAL ENERGY PLANT
NEW CONSTRUCTION
OMAHA, NEBRASKA
- 22,000 Tons Chilled Water Capacity
- 160,000 lbs/hour Steam Capacity
- 7,196 LF Steam/Chilled Water Utility Extension



Farris Engineering, a provider of quality professional mechanical and electrical consulting engineering services, was established in 1967 in Omaha, Nebraska. The firm has evolved into a staff of 92 employees located in four offices: Omaha; Lincoln; Colorado Springs; and Des Moines. Of the 92 employees, 37 are engineers, of whom 27 are registered professional engineers averaging greater than 20 years of experience and 15 employees are LEED accredited..

As the Farris reputation of expertise and quality spread, the firm grew and expanded its activities in the areas of mechanical and electrical engineering and design in the commercial, educational, industrial, governmental, and institutional marketplace. Projects have included both mechanical and electrical systems for schools; skilled nursing facilities; retirement communities; recreational facilities; hospitals; laboratories and office/commercial buildings, as well as the design of technology networks.

Professional services provided include: engineering design; complete project management from preparation of contract documents through commissioning and owner acceptance; studies; life cycle cost analyses; facility evaluations; energy management studies; energy audits; surveys and feasibility studies.

There have been two standards that our firm has followed since its inception in order to provide high quality mechanical and electrical professional engineering services to our clients. The first standard is the investment we have made – and will continue to make – in registered engineers. Today, 40% of the employees company-wide are graduate engineers.

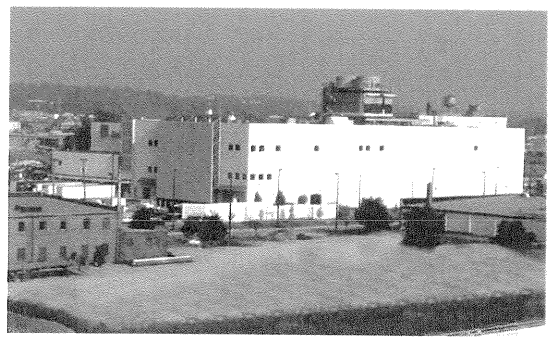
The second standard is the viewing of ourselves as consultants. As consultants, we listen to the clients' wants, needs and desires in order to better understand the scope of their project. With open communication and detailed supportive documentation throughout the project, the client is ensured of a project done correctly, on time and within budget.

What makes Farris Engineering different? Experience and our ability and willingness to respond to the client's needs during and after a project is completed continue to be the two greatest advantages to clients of Farris Engineering. With open communication and very detailed supportive documentation throughout the project, the client is ensured of a project done correctly, on time, and within budget. The employees of Farris Engineering represent a pool of consulting capability which can be marshaled to meet the challenges of any project. This tradition has been true for the past thirty-nine years and will continue in the future.

FARRIS ENGINEERING
CONSULTING ENGINEERS

California Street Thermal Energy Plant
Energy Systems Company
Omaha, Nebraska

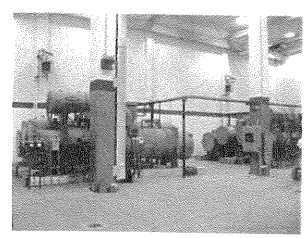
New Construction

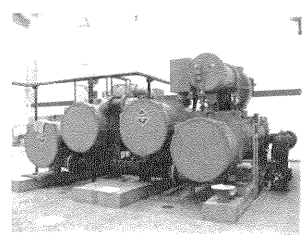


When Energy Systems Company (ESC) of Omaha decided to expand their capabilities to provide district energy to downtown Omaha, they turned to Farris Engineering to design a system that would meet their current and future needs for years to come. The current phase, which was recently completed, included the addition of a second Thermal Energy Plant located at 13th & California Streets in downtown Omaha and an underground utility extension. This new plant works in unison with ESC's Howard Street Energy Plant as well as with Creighton University's Energy Plant, which is also operated by ESC.

When ESC acquired nearly 150,000 ft² of warehouse space Farris Engineering began design on a Thermal Energy Plant that will eventually accommodate 22,000 tons of total chilled water capacity, 160,000 lbs/hour of steam capacity. The project included modifications to an existing building structure to integrate boiler plant systems, chiller plant systems as well as to integrate burner equipment to support low No_x burner controls, metering and heat recovery systems. The project also included electrical switchgear, motor control centers, variable frequency drives, control and power wiring, on-site electrical power generation equipment and all auxiliaries. These auxiliaries included:

- Water treatment softeners
- Deaeration
- Surge condensate storage
- Fuel system dual gas/oil
- Boiler feed system
- Condensate transfer system
- Electrical support systems
- Flue gas economizer system
- Boiler breeching and stack
- Water circulating pumps
- Chemical feed systems
- Reverse osmosis filtration and storage
- Makeup air/pre-heating combustion air





The first phase of the plant - of which construction was finished in mid-2003 included two Carrier chillers, each producing 2,500 tons of chilled water supplied at 38°F. In addition, the design accommodates a total of 44,000 gallons per minute of condenser water. A Marley cooling tower was chosen to supply the first 10,000 gallons per minute of capacity and was placed on the roof of the energy plant. This required a significant amount of structural analysis of the current building and also took into account the many aesthetic factors that had to be evaluated in choosing an initial location for the new cooling tower. The

FARRIS ENGINEERING
CONSULTING ENGINEERS

GREGORY T. KRONAIZL, PE
PRESIDENT/CEO
MECHANICAL ENGINEER

EDUCATION
Bachelor of Science, Mechanical Engineering
South Dakota School of Mines & Technology, 1972

PROFESSIONAL REGISTRATION
Colorado Iowa Minnesota Nebraska North Dakota Oklahoma
South Dakota Wyoming

PROFESSIONAL BIOGRAPHY
1981 - Present: Farris Engineering, Inc., Consulting Engineers
1973 - 1981: Scott Engineering Company, Consulting Engineers

ORGANIZATIONS
- American Society of Heating, Refrigerating and Air Conditioning Engineers
- Society of American Military Engineers
- American Consulting Engineers Council
- American Society of Mechanical Engineers
- International District Energy Association
- Engineers Club of Omaha

PROFESSIONAL EXPERIENCE SUMMARY
Greg is a Registered Mechanical Engineer, Principal and Executive Vice President of Farris Engineering with over 36 years of design and project management experience. He has extensive experience in the design of industrial and central heating/cooling plant systems – including associated district distribution piping systems. He has developed special expertise in the design of exterior piping distribution systems for saturated and superheated steam, high temperature hot water (HTHW) and chilled water systems. Experience in the evaluation of project scope, timely completion of designs and projects and remaining within budget are trademarks of Greg's project management.

RELEVANT PROJECT EXPERIENCE
Bryan Lincoln General Hospital
West Campus Thermal Energy Plant
New Construction
- 2,700 Ton Chiller Plant
- Steam Distribution Utility Extension

Lincoln, Nebraska

Midlands Medical Center
- ?

Papillion, Nebraska

Immanuel Medical Center
- ?

Omaha, Nebraska

University of Nebraska Medical Center
Thermal Energy Plant Addition
- (2) 13.8kV, 125 psig Electric Boilers
- 2,500 Ton Chiller #6 Plant Addition

Omaha, Nebraska

Iowa State University
- 80,000 GPM Heat Plant Cooling Tower
- 14MW Turbine #6 Steam Generator
- Coal-Fired Heat Plant Piping Modifications

Ames, Iowa

ESC California Street Thermal Energy Plant
New Construction
- 22,000 Tons Chilled Water Capacity
- 160,000 lbs/hour Steam Capacity

Omaha, Nebraska

ESC Howard Street Thermal Energy Plant
Addition
- 5,000 Ton Steam Centrifugal Chiler
- 50,000 GPM 6 Cell Cooling Tower

Omaha, Nebraska

DEC State Capital Central Steam Plant
New Construction
- (3) 300 hp, 150 psig Steam Boilers

Lincoln, Nebraska

University of Nebraska - Lincoln
City Campus Thermal Energy Plant Addition
- (2) 2,000 Ton Centrifugal Chillers
- 3,000 Ton Chiller Addition
- 33,000 GPM Matrix Cooling Tower
- 4,000 Ton Chiller Addition
- 80,000 lbs/hr, 625 psig 850°F Steam Boiler #1
- 80,000 lbs/hr, 285 psig 500°F Steam Boiler #2
- 80,000 lbs/hr, 285 psig 500°F Steam Boiler #7

Lincoln, Nebraska

University of Nebraska - Lincoln

RELEVANT PROJECT EXPERIENCE (CONTINUED)

East Campus Thermal Energy Plant Addition
- (2) 2,000 Ton Centrifugal Chiller Additions
- (2) 1,500 Ton Chiller Additions
- 13,000 GPM Cooling Tower
- 4,000 Ton Chiller Addition

Lincoln, Nebraska

FARRIS ENGINEERING
CONSULTING ENGINEERS

DENNIS C. LUX, PE
SENIOR PRINCIPAL
ELECTRICAL ENGINEER

EDUCATION
Bachelor of Science, Electrical Engineering
University of Nebraska - Lincoln, 1992

PROFESSIONAL REGISTRATION
Iowa Michigan Missouri Nebraska

PROFESSIONAL BIOGRAPHY
1992 - Present: Farris Engineering, Inc., Consulting Engineers
1975 - 1991: Electrician and Electrical Contractor

PROFESSIONAL EXPERIENCE SUMMARY
Dennis is a registered electrical engineer and Senior Principal of Farris Engineering with over 17 years design and project management experience. He is an experienced designer of both interior and exterior electrical low, medium and high voltage distribution systems. Dennis is well versed on the provisions of the National Electrical Code and electrical construction techniques.

In addition to his experience as a registered electrical engineer, Dennis is an experienced electrician and electrical contractor for industrial, agricultural, commercial and residential facilities and has held a Nebraska Class A Electrical Contractor's license since 1981.

RELEVANT PROJECT EXPERIENCE

CAMPUS UTILITY MASTER PLANNING EXPERIENCE
University of Nebraska - Lincoln
East Campus Utility Infrastructure Master Plan
Lincoln, Nebraska

University of Nebraska - Lincoln
City Campus Utility Infrastructure Master Plan
Lincoln, Nebraska

University of Nebraska at Omaha
Campus Utility Infrastructure Master Plan
Omaha, Nebraska

University of Nebraska at Kearney
Campus Utility Infrastructure Master Plan
Kearney, Nebraska

University of Nebraska Medical Center
Campus Utility Infrastructure Master Plan
Omaha, Nebraska

South Dakota State University Campus
Campus Utility Infrastructure Master Plan
Brookings, South Dakota

University of South Dakota Campus
Campus Utility Infrastructure Master Plan
Vermillion, South Dakota

District Energy Corporation
Haymarket Campus Utility Master Plan
Lincoln, Nebraska

Alegent Health
Facility Infrastructure Assessments
- Midlands Medical Center
- Immanuel Medical Center
- Bergan Mercy Medical Center
- Mercy Medical Center
- Lakeside Hospital

CENTRAL UTILITY PLANT EXPERIENCE
Bryan Lincoln General Hospital
West Campus Thermal Energy Plant
New Construction
- 2,700 Ton Chiller Plant
- Steam Distribution Utility Extension

Lincoln, Nebraska

Midlands Community Hospital
- (2) 480 Ton Centrifugal Chillers
- (3) 1 MW Emergency Diesel Generators
- 5kV and 15kV Paralleling Switchgear
- Steam Boiler Modifications

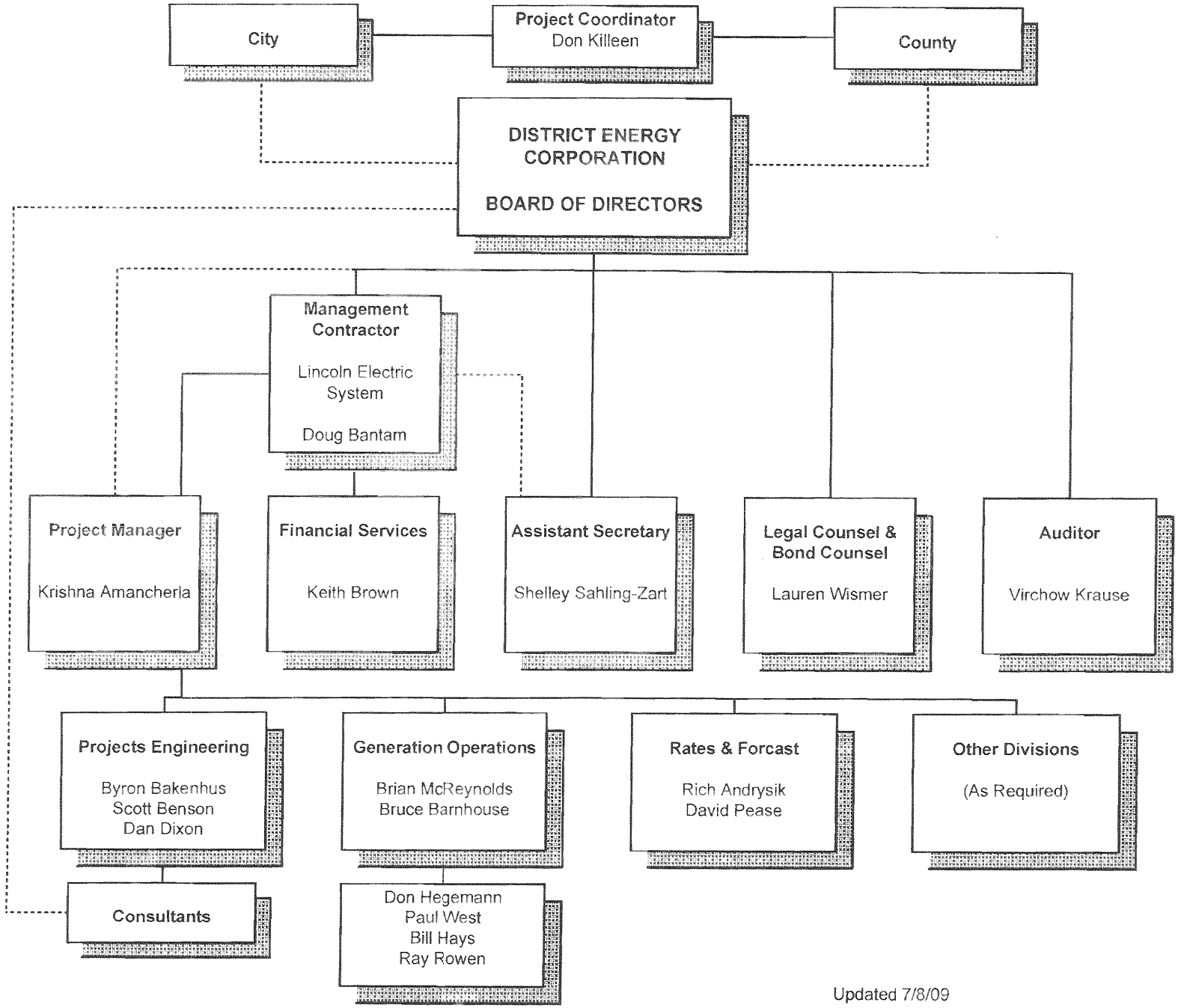
Papillion, Nebraska

Immanuel Medical Center
- (2) 1,000 Ton Centrifugal Chillers
- New Cooling Tower
- 13.8 kV Utility Service
- 480 V Motor Control Center

Omaha, Nebraska

Lancaster County Jail
Campus Utility Infrastructure Master Plan
Lincoln, Nebraska

Organi tion Chart
District Energy Corporation



Updated 7/8/09

Krishna Amancherla

PROFESSION QUALIFICATION

District Energy Corporation /Lincoln Electric System, Lincoln, Nebraska
District Energy Corporation Project Manager, Senior Engineer LES

District Energy Corporation (DEC) – Report to the DEC Board of Directors and manage District Energy Corporation's Operations which include Administration, Budgeting, Project Management, Engineering Services and Operational management. Responsible for overall management of the District Energy Operations. DEC Facilities provide heating and cooling thermal services to customer buildings.

Lincoln Electric System – Provide Profession Engineering service to Lincoln Electric System power generation and special projects. Manager large scale capital intensive construction projects from conception to commercialization and provide engineering services for exiting generation projects.

EMPLOYMENT

1989 to present

District Energy Corporation, Lincoln, Nebraska

- Provided project management and engineering services from development to commercialization of the first District Energy project in Lincoln, which providers thermal services (heating and cooling services) to major downtown building that include:
  - Nebraska State Capitol building,
  - Governors Mansion, State office Building,
  - Various City County Buildings, Hall of Justice building (County Court) and other buildings.

Responsible for the development and management of District Energy facilities.

- Major facilities include:
  - District Energy 9th and K Street Thermal Plant
  - District Energy 14th & K Street thermal Plant.
  - Proposed District Energy SW 40th Street Thermal Facilities

- Closely work with the City, County, State and private developers and responsible for developing energy efficient projects, renewable energy project, which reduce emission and sustain economic development within the local community.

- Responsible for ensuring all projects are competed within the Board approved budgets and completed on schedule.
- Manager internal staff, contractors, sub-contractors, operation and maintenance group involved with the design, construction and installation of District Energy facilities.

Lincoln Electric System, Lincoln, Nebraska
Provide profession Engineering services for the utilities power generation and special projects.

Major Project includes:
Terry Bundy Generating Station – Combine Cycle Power Generating Station $165 Million

- Project management, over see utilities design review, and manage major contracts from engineering phase to commercialization. Provide Engineering to operation and maintenance group.

Rokeby Generating Station – 3 Units Simple Cycle Power Generating Station $129 Million

- Provide Project management for the design, and installation of ABB Simple cycle units (45 MW each) and for 3 MW black start Station diesel facilities.

- Notable projects that received national award and reorganization include:
  - World First Inlet cooling project partly funded by Electric Power Research Institute and DOE.
  - Worlds 2nd Largest Ice Thermal Storage System.
  - Combine Cycle power generation project

EDUCATION

1989 Post-Graduate Degree in Business Administration (MBA)

1987 Bachelor of Science Degree in Mechanical Engineering,

SCOTT J. BENSON, P.E.

EMPLOYMENT
1995 to present

Lincoln Electric System, Lincoln, Nebraska
Assistant Engineer/Associate Engineer/Engineer/Senior Engineer, Projects Engineering Department
Primary Responsibilities:
Power Stations - Site of Lincoln Electric System's local generating capacity, and
District Energy Corporation - Heating and cooling plants for County-City and State offices

- Develop, maintain, and troubleshoot existing plant electrical, control, and network systems
- Design and project management for construction of new plant resources

TYPICAL PROJECTS

Lincoln Electric System, Lincoln, Nebraska

Terry Bundy Generating Station – Initial Plant Construction

- Project management, owner's design review, and technical field support for 19 contracts totaling over 16 million dollars, including plant control systems, control network, electrical systems, emissions systems, and site buildings

Terry Bundy Generating Station – Plant Security

- Conception of plant security philosophy, including follow up project management and design for all resulting contracts and systems

Rokeby Generating Station - Black Start

- Project management, design, and installation of auxiliary electrical and control systems for new 3 MW black start diesel unit

Rokeby Generating Station – Control System Ethernet Network

- Conception, budget, project management, and design of isolated Ethernet network for all plant control systems

Rokeby Generating Station – Site Electrical Model

- Conception, budget, and development of software model representing plant electrical systems

District Energy Corporation - Control System Retrofit

- Conception, budget, project management, design, and installation of replacement control system for boiler steam heating and ammonia based cooling plant

EDUCATION
1994 to 1996

University of Nebraska-Lincoln, Lincoln, Nebraska
Master of Science degree in Electrical Engineering, December 1996

- Cumulative GPA: 4.0 (on a 4.0 scale)
- Areas of emphasis: Power and Control Systems
- Masters Thesis: Evaluating Demand-Side Management Through the Use of A Fuzzy Expert System

1989 to 1993

Bachelor of Science degree in Electrical Engineering, December 1993

- Cumulative GPA: 3.609 (on a 4.0 scale)
- Field of specialization: Power Systems

MEMBERSHIPS AND RECOGNITIONS

Licensure as a Professional Electrical Engineer in Nebraska
Current member of IEEE
Current member of ISA

DEC
ENERGY

1040 O Street
P.O. Box 80869
Lincoln, NE
68501-0869
(402) 473-3395

July 30, 2009

Michael S. DeStefano
Golden Field Office
U.S. Department of Energy
1617 Cole Blvd.
Golden, CO 80401-3393

RE: Assurance for DOE Funding Opportunity: DE-FOA-0000116

Mr. DeStefano:

In 1989, the City of Lincoln and Lancaster County formed the District Energy Corporation (DEC) under the State of Nebraska's Interlocal Corporation Act, which allows governmental entities to form nonprofit corporations for the benefit of the citizens they serve. DEC is managed by Lincoln Electric System which is a non-profit public utility.

District Energy Corporation requires all contractors to comply with Fair Employment Laws and practices which include:

> Fair Employment Practices
> Neither Contractor nor any of its subcontractors shall discriminate against any employee or applicant for employment to be employed in the performance of this contract with respect to hire, tenure, terms, conditions, or privileges of employment because of race, color, religion, sex, disability, national origin, ancestry, age or marital status.
>
> Governing Law
> The Contract and all documents incorporated therein shall be construed pursuant to the law of the State of Nebraska.
>
> Applicable Laws and Regulations
> For work done in Nebraska in the performance of the Contract, the Contractor shall comply with all laws and regulations enacted and promulgated by the United States, the state of Nebraska, or any political subdivision thereof which govern the conduct of the Contractor during the performance of its obligations under this Contract, and they shall be deemed to be included in this Contract as though written out in full in this Contract. Specifically included in the laws to which Contractor shall comply, are: (1) Nebraska Workers' Compensation Act, §§ 48-101 to 48-1,110, R.R.S. 1943; (2) Employment Regulations, Chapter 48, Article 2, R.R.S. 1943; (3) Child Labor, Chapter 48, Article 3, R.R.S. 1943; (4) Health and Safety Regulations, Chapter 48, Article 4, R.R.S. 1943; (5) Employment Security Law, §§ 48-601 to 48-671 R.R.S. 1943; (6) Act Prohibiting Unjust Discrimination in Employment Because of Age, §§ 48-1001 to 48-1009, R.R.S. 1943; (7) Wage and Hour Act, §§ 48-1201 to 48-1209, R.R.S. 1943; (8) Nebraska Wage Payment and Collection Act.

In addition, Lincoln Electric System employees and staff working on the DEC project are subjected to the following regulations:

- Civil Rights Act of 1964 and executive order no. 11246
- All laws and regulations enacted and promulgated by the United States, the state of Nebraska, or any political subdivision

- Nebraska Workers' Compensation Act, §§ 48-101 to 48-1,110, R.R.S. 1943
- Employment Regulations, Chapter 48, Article 2, R.R.S. 1943
- Child Labor, Chapter 48, Article 3, R.R.S. 1943
- Health and Safety Regulations, Chapter 48, Article 4, R.R.S. 1943
- Employment Security Law, §§ 48-601 to 48-671 R.R.S. 1943
- Prohibiting Unjust Discrimination in Employment Because of Age, §§ 48-1001 to 48-1009, R.R.S. 1943
- Wage and Hour Act, §§ 48-1201 to 48-1209, R.R.S. 1943
- Nebraska Wage Payment and Collection Act

I assure you that Lincoln Electric System operates in compliance with all laws and regulations that govern us, as noted above, with regard to wage and hour issues in our operation of the District Energy Corporation.

Sincerely,

Debbra Hoy
Human Resources Utility Manager III
District Energy Corporation / Lincoln Electric System
1040 O Street
Lincoln NE 68501
Tel: 402-473-3220

cc: Doug Bantam, DEC
Krishna Amancherla, DEC

Farris Engineering
Consulting Engineers

March 17, 2009

District Energy Corporation
1040 "O" Street
P.O. Box 80869
Lincoln, NE 68501-0869

PROPOSAL

Attn: Mr. Doug Bantam

Subject: Professional Engineering Services for Engineering/Design

Re: Lancaster County Jail – Thermal Energy Facilities
Lincoln, Nebraska
FE #092002

Dear Mr. Bantam:

In response to a request, we offer this Proposal outlining professional design services for effort with reference to the project assignment identified as "Lancaster County Jail – Thermal Energy Facilities " at Lincoln, Nebraska.

The project design scope includes full professional engineering design services for the construction of a thermal energy plant to serve the proposed jail facility with thermal energy for heating and cooling requirements, and standby electrical power generation for electrical needs.

Plant design criteria is based in part by energy loads provided by the jail facilities designers for basic heating, cooling, domestic hot water, and electrical power requirements for the facility as well as those provided by the District Energy Corporation. It is further understood that the jail facility is considered a critical user with occupancy 24 hours per day, 365 days per year.

The project scope includes the following:

- Geothermal Field – Prepare project manual/technical specifications for procuring installation of geothermal bore field which shall be incorporated into the final construction phases of the project.

- Pre-Purchase Plant Equipment – Prepare project manual/technical specifications for procurement of long lead item equipment (such as chillers, engine driven generators etc.) and to provide design information which shall be incorporated into the final installation phase of the project.

- General Construction – Prepare single general construction project manuals required to support construction phasing schedules including site preparation work, demolition, civil, architectural, structural, mechanical, plumbing, electrical and fire protection systems, electrical service from 15 kV switchgear, standby power generation systems, structures, and plant control interface coordination for the purpose of commissioning plant and auxiliary system modifications.

- Work By Others - Coordination of project elements as they relate to design effort and project document preparation will be coordinated with Others' under separate design services contracts as they relate to the overall DEC project including the jail facility infrastructure, regulatory air permitting, etc.

The Scope of the Work proposed by Farris Engineering (FE) for this Project shall be as further outlined in the Standard Form of Agreement for this project. This proposal will abide by the terms and conditions in that agreement and provides for phases of work as follows:

- SCHEMATIC DESIGN PHASE – Conceptual project documentation, preliminary pre-purchase equipment identification, general arrangement of equipment, analysis of influential codes, code interpretations, assistance with site regulation and special permit applications, site survey lease descriptions, basic building concepts, opinion of costs based on identified scopes, and flow diagrams.

- DESIGN DEVELOPMENT PHASE – Further development of schematic design phase documentation, assist in formulating technical project decisions, flow schematics and diagrams, permit submission assistance, preliminary project opinion of costs, etc.

- CONSTRUCTION DOCUMENT PHASE – Final documentation of project primary elements, identify construction bid packages (civil, architectural, mechanical, electrical, etc.), updated opinion of project costs, bidding assistance and evaluations.

- SHOP DRAWINGS REVIEW PHASE – Review contractor provided equipment drawings of pre-purchased and project construction shop drawings for compliance with the design project intent.

- CONSTRUCTION PHASE – Interpretation and construction phase assistance to design intent of various bid packages, site visits at critical periods of construction phases, opinion of costs for changes in scope, commissioning, as-built drawings, and other related project tasks.

- AS-BUILT DRAWINGS PHASE – Record drawings depicting details of construction for the project in electronic form using AutoCad® format.

BASIC SERVICES –
The BASIC SERVICES engineering fees proposed for this project shall be on a Not To Exceed (NTE) basis for the amount of One Million Three Hundred Twenty-Seven Thousand Five Hundred Dollars and No Cents ($1,327,500.00).

The Basic Services fee does not include any Special Services beyond those described herein.

ADDITIONAL SERVICES –
Additional Services as outlined below:

Miscellaneous Expenses – Miscellaneous expenses such as special mailings or authorized travel for Project requirements are additional services.

We have begun early concept planning as of January 2009 as requested by the District Energy Corporation and propose to complete the assignment in a timely manner as site and other project related information is made available.

Schedule – Tentative primary schedule dates as follows:

February 2009	Design Services Agreement
May 2009	Bore Field Construction Documents to DEC
July 2009	Bore Field Construction Award
August 2009	Bore Field Construction Start
September 2009	Equipment Pre-purchase specs to DEC
October 2009	Pre-purchase Equipment Award
January 2010	Construction Document to Bid
March 2010	Construction Contract Award
November 2010	Pre-purchase Equipment Delivery
September 2011	Substantial Completion
December 2011	Final Completion/Commissioning

We appreciate the opportunity to be of service to DEC and your consideration of this proposal.

Very truly yours,

FARRIS ENGINEERING

Attachments
- Scope of Work (Exhibit A)
- Hourly Rate (P-1)
- List of Subconsultants

LANCASTER COUNTY JAIL – THERMAL ENERGY FACILITIES

ATTACHMENT A

General Description

The project consists of the construction of a thermal energy plant to provide heating, cooling and domestic water systems to a jail facility under design by others. The District Energy Corporation (DEC) proposes to provide for the thermal energy needs as well as standby power generation. The project includes geothermal fields for the purpose of exchanging thermal energy for use in the jail facility for heating and cooling needs. The energy plant is proposed on a green field site and is to be coordinated with the planning and construction of the jail facility. Engineering contract includes full engineering and architectural services for the project as further described herein. The budget for construction is approximately $17,000,000.

Work Performed By FE

- FE effort includes full engineering support to the scope of work to include:
  - + Topographic survey of project site.
  - + Vertical and horizontal control of the project site.
  - + Site drainage contours or elevations.
  - + Exterior site utilities including plant water, sewers, electrical, and geothermal fields.
  - + Reference to permanent or temporary benchmark elevations for construction.
  - + Thermal Energy Plant – Site improvements, building envelope, thermal energy systems (heating, cooling and domestic hot water), fire protection, electrical power generation, electrical power distribution, standby fuel storage tank facilities, and miscellaneous support systems generally associated with such a project.

Work Performed By DEC

- DEC to provide in additional information and tasks to the scope of work to include:
  - + Latest available topographic survey of project site for FE's use.
  - + Vertical and horizontal control of the project site.
  - + Site drainage contours or elevations.
  - + Existing buried utilities.
  - + Location of building structures adjacent to the project site.
  - + Reference to permanent or temporary ISU benchmark elevation for construction.

- Soil Borings
  - + As required for the design of structural foundations and other elements within the project scope.

- Bore Field Test Borings
  - + As required for the design of structural elements within the project scope.

Work Performed By Others

- Coordination and tasks to the scope of work to include:
  - + Site Surveys - Latest available topographic survey of project site for FE's use.
  - + Thermal Energy Requirements - Clark Enersen Partners, Inc.; jail building envelope for thermal heating, cooling and domestic hot water loads for both current and future building demands.
  - + Air Permitting - DEC energy plant for site emissions.
  - + Utilities - Existing and proposed for the site.
  - + Adjacent Structures – Location of buildings and other structures proposed adjacent to the DEC project site.
  - + Site Electrical – Lincoln Electric System to provide site electrical power.

FARRIS ENGINEERING

PROJECT COST AND PRICING DATA

EFFECTIVE APRIL 1, 2009

CATEGORY	2009/2010 Hourly Rate	20010/2011 Hourly Rate
1. Principal	$160.00	$165.00
2. Project Managers/ Engineers	$135.00	$140.00
3. Fire Protection Engineers	$114.00	$118.00
4. Mechanical/ Electrical Engineers	$110.00	$114.00
5. Architect	$95.00	$100.00
6. Civil Engineer	$100.00	$105.00
7. Structural Engineer	$110.00	$120.00
8. Mechanical/ Electrical Designers	$80.00	$83.00
9. Field Coordinator	$78.00	$81.00
10. Technicians/ CADD Operators	$57.00	$59.00
11. Clerical Staff	$42.00	$44.00

MISCELLANEOUS COSTS	
Travel Mileage*	Prevailing IRS Rate Cost
Per Diem*	As Allowed
Miscellaneous Items* (Printing, Travel Expense, Etc.)	Net Costs
Payment Terms	Net 45 days. Interest @ 1.5%/Month on unpaid balance over 45 days.

*Note - As authorized by client.

FARRIS ENGINEERING

LIST OF SUBCONSULTANTS

DISCIPLINE	
1. Architect	Nielsen-Mayne Architecture
2. Civil	HWS Consulting Group
3. Structural	Nielsen-Baumert Engineering

PMC-EF1

(2/06/02)

U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
ENVIRONMENTAL CHECKLIST
(To Be Completed by Potential Recipient)

PART I: General Information **DOE Project Officer:** Eric Hass **Date:** 8/3/2009

Project Title: District Energy SW 40th Street Thermal Plant **ST:** NE

Organization Name: District Energy Corproation

Solicitation Number: DE-FOA-EE0000116 Award No:

1. Please describe the intended use of DOE funding in your proposed project. For example, would the funding be applied to the entire project or only support a phase of the project? Describe the activity as specifically as possible, i.e. planning, feasibility study, design, data analysis, education or outreach activities, construction, capital purchase and/or equipment installation or modification. If the project involves construction, also describe the operation of the completed facility/equipment.

DOE funding will be used for the proposed thermal energy systrems. DOE funding will not be used for any emergency power backup systrems. Please refer to eneclosed documents attachment whoich show a breakdown of fed and non-fed usage.

For the past few years Lancaster County has experienced overcrowding in its Jail facility. After extensive study, planning, workshops, public hearing, the Lancaster County's determined it is necessary for the County to develop a new facility that will house the current jail population for Lancaster County as well as growth of the area's needs over the next 20 to 25 years. Recently the County received Bond financing in the amount of $65 million and committed to constructing a new detention facility at Lincoln Nebraska. This is one of the largest projects being developed by the County of Lancaster. Ground breaking is being held of July 14 2009. Detention facility is scheduled to be occupied during first quarter of 2012.

The District Energy Corporation (DEC) is building a new district energy facility, to serve the new Detention facility and any potential development within the surrounding community. This facility will supply heating and cooling to the jail facility using a renewable energy source as well as provide emergency electrical backup power. The renewable energy geothermal loop field will be the single largest geothermal ground source loop field system being build for a County detention facility within United States of America.

The project will use water-to-water geothermal heat pump system in the plant to serve the thermal needs of the jail building. Water-to-water heat pumps are available in a variety of sizes. Larger sized units are typically a fabricated module of multiple smaller units combined to share common piping and electrical connections. For the cases of this study, the option evaluated consists of nominal 50 ton units. A total of twenty four (24) units are installed in this option, with twenty three (23) units required to support the load and one (1) unit to provide firm capacity, or N+1 redundancy. Three (3) 1825 kW emergency generators will also be provided with this option. All auxiliary equipment required is included in this option.

The number and depth of well field bores for the geothermal loop are dependent on the ground's ability to transfer heat. Certain information is required to determine the thermal capacity of the ground. Using data from a detailed soil test on the site, the ground properties were measured. This information was used to calculate the required size of the loop field. In total the loop field will consist of between 650 and 750 bores at 300 ft depth. Each piping header will exit the plant separately to isolate against a large scale piping failure. The headers will be 3" HDPE lines, with up to 20 bores per line. Each vertical loop will consist of 3" pipe headers with 1" U-bends on 20 foot centers in a step-down, step-up reverse return configuration.

2. Does any part of your project require review and/or permitting by any other federal, state, regional, local, environmental, or regulatory agency? ☑ Yes ☐ No

3. Has any review (e.g., NEPA documentation, permits, agency consultations) been completed?
☑ Yes ☐ No If yes, is a finding or report available and how can a copy be obtained?

Limited Phase II Environmental Site Assessment was undertaken during November 1995 (Document number GSI#2302129). The Site Assessment documentation is enclosed. In addition District Energy Corporation has received authorization or application is in process for the following permits:

• 404 Wetlands Permit – Approval received from Department of the Army, Corps of Engineers (USACE), Omaha District, 2009-007969-KEA, issued on June 22 2009, and copy filed with Nebraska Department of Environmental Quality.

In response to the DEC application for a 404 wetlands permit, received a Preliminary Jurisdictional Determination from the US Army Corps of Engineers (USACE) that authorizes construction activities in the wetland area of the site under 404 Nationwide Wetlands Permit Number 12. DEC has received approval on this permit. This permit is valid until June 3 2011.

• Class II "Synthetic Minor" Air Emissions Permit –Received additional information on the emissions for the Caterpillar gen-sets. DEC will apply for this permit within the next 60 days.

• Floodplain Development Permit - The City of Lincoln Floodplain Development permit application is complete. The permit will be issued shortly after the 404 Permit according to Michele Williamson of the City of Lincoln office. A copy of the 404 Wetlands Permit was forwarded to Ms. Williamson July 16, 2009. Storm Water Prevention permit is also being applied for this project.

• Title 159, Nebraska Administrative Code Rules and Regulations Underground Storage Tanks, requires that a person who uses any underground storage tank for the storage of regulated substances must obtain an operating permit. Operating permits are issued to facilities that have been inspected and have met the requirements of Nebraska's underground tank rules and regulations. The District Energy Corporation (DEC) plans to work with the Nebraska State Fire Marshall on this permitting process and obtain an Operating permit for two underground #2 fuel storage tanks

4. Is the proposed project part of a larger scope of work? ☑ Yes ☐ No If yes, please describe.
In addition to the District Energy Facilities to provide heating and cooling facility, the Lancaster County has started site work to construct a new Jail (detention) facility on the north side of the proposed DEC plant.

Do you anticipate requesting additional federal funding for subsequent phases of this project?
☐ Yes ☑ No If yes, please describe.

5. Does the scope of your project **only** involve one or more of the following:
☐ Information gathering such as literature surveys, inventories, audits,
☐ Data analysis including computer modeling,
☐ Document preparation such as design, feasibility studies, analytical energy supply and demand studies, or
☐ Information dissemination, including document mailings, publication, distribution, training, conferences, and informational programs.

Preparer:	Phone:	Email:
Krishna Amancherla	402-473-3395	kamancherla@les.com
Business Contact:	Phone:	Email:
Krishna Amancherla	402-473-3395	kamancherla@les.com

PART II: Environmental Considerations

Section A Conditions or special areas are present, required, or could be affected by your project:

15. Floodplains

A 100 year and 500 year flood plain are located south of the property. A wetland area is delineated on the south east portion of the property. No structures or buildings are being planned within the flood plain or the wetlands. Part of the geothermal loop field has been authorized to impact the wetland area under Nationwide Permit No. 12. An application for Flood plain development has also been filed. Refer to enclosed documents attached. We are in the process of obtaining a flood plain permit.

In addition a construction storm water pollution prevention plan is being developed for the site

18. Wetlands

Part of the project is located in a delineated wetland. The wetland is located along the south east portion of the property. No structures or building are being planned within the flood plain or the wet lands. Part of the geothermal loop field has been authorized to impact the wetland area under Nationwide Permit No. 12. Please refer to attached support documents.

8. Class I Air Quality Control Region

Project is NOT located in a Class 1 Air Quality Control Region

3. New or Modified Federal/State Permits And/or Requests for Exemptions

Building Permit
Fire Permit
404 Wetland Permit
Floodplain Development Permit
Minor Source Air Permit
Underground Fuel Storage Tank Operating Permit

6. Criteria Pollutants

A "Minor Source" Air Permit is being developed for this project since three 1825 KW diesel generators will be installed at the proposed district energy plant located south of the Jail building. Limiting hours of operation will keep emissions below Major Source levels

Criteria pollutants and HAPs below Major Source levels.EPA Tier 2 compliance for Diesel Engines

17. Underground Extraction/Injection

The project does involve some amount of underground extraction or injection due the construction of the proposed loop field.

The number and depth of well field bores for the geothermal loop are dependent on the ground's ability to transfer heat. Certain information is required to determine the thermal capacity of the ground. Using data from a detailed soil test on the site, the ground properties were measured. This information was used to calculate the required size of the loop field. In total the loop field will consist of between 650 and 750 bores at 300 ft depth. Each piping header will exit the plant separately to isolate against a large scale piping failure. The headers will be 3" HDPE lines, with up to 20 bores per line. Each vertical loop will consist of 3" pipe headers with 1" U-bends on 20 foot centers in a step-down, step-up reverse return configuration.

20. Public Issues or Concerns

The County Detention Facility project has undergone numerous public hearings, workshops prior to being approved

Section B. Would your project use, disturb, or produce any chemicals or biological substances? (i.e., pesticides, industrial process, fuels, lubricants, bacteria)

9. Underground Storage Tanks

☑ Permit Required Quantity: 20,000 Permit Type: Operating Permit

Specific nature of use:

We are installing two 20,000 gallon underground storage #2 fuel storage tanks for this project. The District Energy Corporation plans to work with the Nebraska State Fire Marshall on this permitting process and obtain an Operating permit for two underground #2 fuel storage tanks.

Section C. Would your project require or produce any radiological materials?

1. Radioactive Mixed Waste

☐ Permit Required Quantity: Permit Type:

Specific nature of use:

radioactive materials will NOT be used or disposed of as part of this project.

1. Radioactive Mixed Waste

☐ Permit Required Quantity: Permit Type:

Specific nature of use:
radioactive materials will NOT be used or disposed of as part of this project.

EF2

U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER

NEPA REVIEW AND RECOMMENDATIONS
(To Be Completed By DOE Project Officer)

PART I. PROJECT INFORMATION

Project Title: District Energy SW 40th Street Thermal Plant **State:** NE

Recipient: District Energy Corproation

Funding Opportunity Announcement Number	Procurement Instrument Number	CID Number
DE-FOA-EE0000116		0

1. Is this an ongoing project? Yes: ☐ No: ☑ If no, skip to part II.

Original NEPA Determination Category Original NEPA Control Number

2. Has there been a change in the original scope, environmental conditions, and/or determination? Yes: ☐ No: ☑
If yes, please describe the nature of the change.

PART II. RECOMMENDED CATEGORY OF EVIRONMENTAL REVIEW

Please provide answers to the following questions and indicate your recommended category of environmental review. If you need assistance, please contact Steve Blazek (Contact information listed below)

1. Please describe the intended use of DOE and cost share funding associated with this award.

2. Please list any applicable **existing** documentation (i.e. programmatic EAs, technical studies, state level environmental reviews). For each, please list the type of document, and its title, document number (if applicable), and date of publication.

3. Concerns or Issues

4. Is there enough information available to make a final NEPA determination for the entire award at this time? Yes: ☐ No: ☑
If no, please describe what additional information will be needed prior to making a final NEPA determination.

5. CX, EA, EIS Category
Appendix and Number

PART III. CONTACT INFORMATION

DOE Project Officer: Hass, Eric **Date:** **EERE Office:** Golden Field Office

Email: eric.hass@go.doe.gov **Phone:** 303-275-4728 **Fax:** 303-275-4753

PMC-EF2a

(2.04.02)

U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION

RECIPIENT: District Energy Corproation **STATE:** NE

PROJECT TITLE : District Energy SW 40th Street Thermal Plant

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-EE0000116			0

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:
Description:

Rational for determination:

NEPA PROVISION
Note to Specialist :

None Given.

No Provision has been selected!

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: _____
NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☐ Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

☐ Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
☐ Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____ Date: _____
Field Office Manager

NEPA Submissions for Login Name: DECenergy

Click Icon to view and edit submissions

NEPA EF1 Environmental/NREL Worksheet Submissions

 EF1 Checklist	District Energy SW 40th Street Thermal Plant District Energy Corproation	Krishna Amancherla 402-473-3395 kamancherla@les.com	Hass, Eric 303-275-4728 eric.hass@go.doe.gov

eere-pmc@go.doe.gov

08/03/2009 11:33 AM

To gonepa@go.doe.gov
cc eric.hass@go.doe.gov
bcc
Subject EF1 Submission Notification - U.S. Department of Energy

EERE-PMC NEPA EF1 Submission Notification

U.S. Department of Energy - EERE Project Management Center

Updated By: Krishna Amancherla
Project Officer: Eric Hass **Email:** eric.hass@go.doe.gov
Award Number:
Project Title: District Energy SW 40th Street Thermal Plant
Awardee: District Energy Corproation
EF1 Preparer: Krishna Amancherla **Phone:** 402-473-3395 **Email:** kamancherla@les.com
EF1 Contact: Krishna Amancherla **Phone:** 402-473-3395 **Email:** kamancherla@les.com

Go to the PMC website: https://www.eere-pmc.energy.gov

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(11/2007) OPI=320
(Previous Editions Obsolete)

U.S. DEPARTMENT OF ENERGY

ENVIRONMENTAL QUESTIONNAIRE

I. BACKGROUND

The Department of Energy (DOE) National Environmental Policy Act (NEPA) Implementing Procedures (10 CFR 1021) require careful consideration of the potential environmental consequences of all proposed actions during the early planning stages of a project or activity. DOE policy directs at the earliest possible stage in a project whether such actions will require preparation of an Environmental Assessment, an Environmental Impact Statement, or a Categorical Exclusion. To comply with these requirements, an Environmental Questionnaire (NETL Form F 451.1-1/3) must be completed for each proposed action to provide DOE with the information necessary to determine the appropriate level of NEPA review and documentation. If the proposed project qualifies for Categorical Exclusion designation, a Categorical Exclusion Designation Form NETL Form F451.1-1/1 *(Click Twice to Link)* will also be completed in addition to the Environmental Questionnaire.

II. INSTRUCTIONS

Separate copies of the Environmental Questionnaire and Categorical Exclusion Designation Form (if required) should be completed by the principal proposer and principal subcontractor(s). In addition, if the proposed project includes activities at different locations, an independent questionnaire should be prepared for each location. Supporting information can be provided as attachments.

In completing this Questionnaire, the proposer is requested to provide specific information and quantities, when applicable, regarding air emissions, wastewater discharges, solid wastes, etc., to facilitate the necessary review. The proposer should identify the location of the project and specifically describe the activities that would occur at that location. In addition, the proposer will be required to submit an official copy of the project's statement of work (SOW) or statement of project objective (SOPO) that will be used in the contract/agreement between the proposer and DOE.

III. QUESTIONNAIRE

A. PROJECT SUMMARY

1. Solicitation/Project Number: DE-FOA-0000116
2. Proposer and Subcontractors: District Energy Corporation
3. Principal Investigator: Krishna Amancherla
   Telephone Number: 402-473-3395
4. Project Title: District Energy County Detention Facility
5. Duration: 8/14/2009 to 5/05/2012
6. Location(s) of Performance (City/Township, County, State): 3801 West O Street, Lincoln, Lancaster County, Nebraska, Lot 73 and 74, northwest quarter of northwest quarter of section 29, Township 10 North, Range 6 East of the sixth principal meridian, Lancaster County, Nebraska
7. Identify and select checkbox with the predominant project work activities under Group A-7a, A-7b, or A-7c.

Group A-7a

☐ Categorical Exclusion CX-A: Routine administrative, procurement, training, and personnel actions. Contract activities/awards for management support, financial assistance, and technical services in support of agency business, programs, projects, and goals. Literature searches and information gathering, material inventories, property surveys; data analysis, computer modeling, analytical reviews, technical summary, conceptual design, feasibility studies, document preparation, data dissemination, and paper studies. Technical assistance including financial planning, assistance, classroom training, public meetings, management training, survey participation, academic contribution,

technical consultation, stakeholders surveys. Workshop and conference planning, preparation, and implementation which may involve promoting energy efficiency, renewable energy, and energy conservation.

Group A-7b

☐ Categorical Exclusion CX-B: Laboratory Scale Research, Bench Scale Research, Pilot Scale Research, Proof-of-Concept Scale Research, or Field Test Research. Work DOES NOT involve new building/facilities construction and site excavation/groundbreaking activities. This work typically involves routine operation of existing laboratories, commercial buildings/properties, offices and homes, project test facilities, factories/power plants, vehicles test stands and components, refueling facilities, utility systems, or other existing structures/facilities. Work will NOT involve major change in facilities missions and operations, land use planning, new/modified regulatory/operating permit requirements. Includes work specific to routine DOE Site operations and Lab research work activities, but NOT building construction and site preparation. DOE work typically involves laboratory facilities and lab equipment operations, buildings and grounds management activities; and buildings and facilities maintenance, repairs, reconfiguration, remodeling, equipment use and replacement.

Group A-7c

☒ Categorical Exclusion CX-B, Environmental Assessment (EA), Environmental Impact Statement (EIS): Pilot Test Facilities Construction, Pilot Scale Research, Field Scale Demonstration, or Commercial Scale Application. Work typically involves facility construction, site preparation/excavation/groundbreaking, and/or demolition. This work would include construction, retrofit, replacement, and/or major modifications of laboratories, test facilities, energy system prototypes, and power generation infrastructure. Work may also involve construction and maintenance of utilities system right-of-ways, roads, vehicle test facilities, commercial buildings/properties, fuel refinery/mixing facilities, refueling facility, power plants, underground wells, and pipelines, and other types of energy research related facilities. This work may require new or modified regulatory permits, environmental sampling and monitoring requirements, master planning, public involvement, and environmental impact review. Includes work specific to DOE Site Operations and Lab operation activities involving building and facilities construction, replacement, decommissioning/demolition, site preparation, land use changes, or change in research facilities mission or operations.

☐ Other (please describe):

If all work activities related to this project can be classified and described within categories under item A-7a, it is a categorically excluded action. Proceed directly to Section IV CERTIFICATION BY PROPOSER, completing information and signatures as requested. The questionnaire is now complete and no additional information is required.

If project work activities are described under either item(s) A-7b, or A-7c.; then continue filling out questionnaire starting below with Question.A.8.

8. Summarize the objectives of the proposed work. List activities planned at the location as covered by this Environmental Questionnaire.

The proposed project consists of a 27,400 square foot central utility plant building, a geothermal wellfield, and underground distribution piping to supply chilled and hot water for heating, cooling, and domestic hot water service to the new 779-bed Lancaster County Adult Detention Facility on the site north of the proposed project. The plant will house water-to-water heat pumps, emergency generators, auxiliary mechanical and electrical equipment, control room, and maintenance areas.

The installation of a geothermal system was found to be the most feasible option for the provision of thermal services to the jail on the basis of Life Cycle Cost analysis. This renewable energy source, while imposing higher capital cost, provides significant energy and operating cost savings. Environmental benefits are realized by the reduction in energy consumption as well as the elimination of onsite mechanical system emissions.

9. List all other locations where work would be performed by the primary contractor of the project and primary subcontractor(s). (Note: An environmental questionnaire may be required for each new location after reviewing the SOW/SOPO, project scope, tasks, and environmental affects).
None

10. Identify major materials that would be used and produced by the project when projects are larger than lab or bench scale.

Materials Used (input)	(Estimate Quantity)	Materials Produced (output)	(Estimate Quantity)
☐ Coal	( )	☐ Wastewater	( )
☐ Natural Gas	( )	☐ Air Emissions	( )
☐ Oil	( )	☐ Solid Waste	( )
☒ Electricity	(2,405,015 kWh)	☐ Hazardous Waste	( )
☐ Water	( )	☐ Others -- List	( )
☐ Others – List	( )		

B. PROPOSED PROJECT ALTERNATIVES

1. If applicable, list any project alternative considered to achieve the project objectives.
Conventional Thermal System consisting of firetube boilers and centrifugal chillers.

C. PROJECT LOCATION

1. Provide a brief description of the project location (physical location, surrounding area, adjacent structures).
The project is located on Lot 74, irregular tract in the northwest quarter of the northwest quarter of Section 29, Township 10 North, Range 6 East of the sixth principal meridian, Lancaster County, Nebraska. The project site is located southeast of the intersection of Southwest 40th Street and West "O" Street (US Highway 6) near the western corporate boundary of the City of Lincoln, Nebraska. The site of the proposed project lies directly south of the location of the Lancaster County Adult Detention Facility (ADF) for which this project provides thermal energy. The project site is located on an undeveloped parcel historically utilized for agricultural crop production, with a farmstead located thereon. An unnamed lake interfaces the southeast corner of the project site, and an emergent wetland forms a fringe around the perimeter of the lake. An unnamed, intermittent stream is located south of the southern boundary of the project site. The intermittent stream generally traverses from west to east and discharges into the lake. Southwest 40th Street forms the western boundary of the project site, and the Lancaster County ADF forms the northern boundary. Upland drainage ditches located along West "O" Street discharge through a culvert onto an erosional feature which traverses from north to south across the project site.

2. Attach a project site location map of the project work area. Project site photos and topographical maps may be requested for further review.
Attached as referrence

D. ENVIRONMENTAL IMPACTS

This section is designed to obtain information concerning environmental impacts and regulatory compliance of a proposed project. NEPA procedures require evaluations of possible effects (including land use, energy resource use, natural, historic and cultural resources, and pollutants) from proposed projects on the environment. The Environmental Virtual Campus website has valuable information concerning environment impacts and regulatory compliance.

1. Land Use

a. Characterize present land use where the proposed project would be located.

☐ Urban	☐ Industrial	☐ Commercial	☒ Agricultural
☐ Suburban	☐ Rural	☐ Residential	☐ Research Facilities
☐ Forest	☐ University Campus	☐ Other	

b. Identify the total size of the facility, structure, or system and what portion would be used for the proposed project.
Central Plant Building = 27,400 square feet
Geothermal Wellfield = 7.3 acres (total area reserved for geothermal well installation, initial construction may not consume entire reserved area)

c. Describe planned construction, installation, and/or demolition activities, i.e., roads, utilities system right-of-ways, parking lots, buildings, laboratories, storage tanks, fueling facilities, underground wells, pipelines, or other structures.

☐ No construction would be anticipated for this project.

Project includes construction of 27,400 square foot central utility plant building, installation of geothermal wellfield, an access road north of the plant to be shared with adjacent Lancaster County ADF, small parking lot east of plant, two underground fuel storage tanks to support operation of emergency generators, and underground distribution piping and duct bank to ADF.

d. Describe how land use would be affected by operational activities associated with the proposed project.
☐ No land areas would be affected.
Land use will be converted to Private Industrial Use.

e. Describe any plans to reclaim areas that would be affected by the proposed project.
☐ No land areas would be affected.
The project includes planting of native grasses in geothermal wellfield and turf areas surrounding the plant building, as well as required restoration of wetland areas.

f. Would the proposed project affect any unique or unusual landforms (e.g., cliffs, waterfalls, etc.)?
☒ No ☐ Yes (describe)

g. Would the proposed project be located in or near local, state, or federal parks; forests; monuments; scenic waterways; wilderness; recreation facilities; or tribal lands?
☒ No ☐ Yes (describe)

If project work activities falls under item A-7b; then proceed directly to question D.6 (Atmospheric Conditions/Air Quality) and continue to fill out questionnaire.

If project work falls under item A-7c; then proceed directly below to question D.2 (Construction Activities and/or Operations) and continue to fill out questionnaire.

2. Construction Activities and/or Operation

a. Identify project structure(s), power line(s), pipeline(s), utilities systems(s), right-of-way(s) or road(s) that will be constructed and clearly mark them on a project site map or topographic map as appropriate.
☐ None

Structure consists of a 27,400 square foot central utility plant building, power lines will be installed east from Southwest 40th Street to plant building location, water line serving plant and ADF will be installed north of the plant building and connected in a loop to water mains on Southwest 40th Street and West "O" Street, sewer lines will be connected to lines serving the ADF to the east of the plant building, new thermal and electrical distribution lines will be installed from the plant to the ADF to the north, an access road north of the plant will be constructed for the shared use of the plant and the ADF.

b. Would the proposed project require the construction of waste pits or settling ponds?
☒ No ☐ Yes (describe and identify location, and estimate surface area disturbed)

c. Would the proposed project affect any existing body of water?
☒ No ☐ Yes (describe)

d. Would the proposed project impact a floodplain or wetland?
☐ No ☒ Yes (describe) 100-year and 500-year floodplains are located in the south portion of the property. Wetland is located in the southeast portion of the property. No structures or buildings are being planned within the floodplain or the wetlands. Part of the geothermal wellfield is being proposed within the wetland and floodplains. Refer to site drawings attached to this application. Application for Section 404 Wetland permit has been approved. Application for Floodplain development has also been filed.

e. Would the proposed project cause runoff/sedimentation/erosion?
☒ No ☐ Yes (describe)

f. Describe any instability (e.g., subsidence, perma-frost, erosion, faulting/fracturing) affecting building construction, site development, and/or project operation.
None

3. Vegetation and Wildlife Resources

a. Identify any State- or Federal-listed endangered or threatened plant or animal species affected by the proposed project.
☒ None

b. Would any threatened or endangered species habitat be affected by the proposed project?
☒ No ☐ Yes (describe)

c. Describe any impacts that construction would have on any other types of sensitive or unique habitats.
☐ No planned construction ☒ No habitats ☐ None ☐ Impact (describe)

d. Would any unnatural substances/materials be introduced into ground or surface waters, soil, or other earth/geologic resource because of project activities? How would these foreign substances/materials affect the water, soil, and geologic resources.
☐ No ☒ Yes (describe) Geothermal piping will be bored into the ground to depths of 300 feet to provide a renewable source of heat exchange. Piping will reside within groundwater pathways and reservoirs.

e. Would any migratory animal corridors be impacted or disrupted by the proposed project?
☒ No ☐ Yes (describe)

4. Socioeconomic and Infrastructure Conditions.

a. Would local socio-economic changes result from the proposed project?
☒ No ☐ Yes (describe)

b. Would the proposed project generate increased traffic use of roads through local neighborhoods, urban or rural areas.?
☐ No ☒ Yes (describe) Minor increases in traffic due to deliveries of materials and fuels to the plant as well as plant personnel commuting will be attributable to this project. Future road improvements to accommodate increased traffic activity as a result of the adjacent ADF are planned as separate projects.

c. Would the proposed project require new transportation access (roads, rail, etc.)? Describe location, impacts, costs.
☐ No ☒ Yes (describe) Access road to be installed as part of the ADF project to the north, use will be shared by ADF and central utility plant.

d. Would the proposed project create a significant increase in local energy usage?
☐ No ☒ Yes (describe) Project is new plant installation to serve thermal energy needs of new large detention facility. Accordingly, there will be an increase in energy usage. As compared to conventional method of serving the thermal needs of the detention facility, the geothermal system will use less energy.

5. Historical/Cultural Resources

a. Describe any historical, archeological, or cultural sites in the vicinity of the proposed project; note any sites included on the National Register of Historic Places.
☒ None

b. Would construction or operational activities planned under the proposed project disturb any historical, archeological, or cultural sites?
☐ No planned construction ☒ No historic sites ☐ Yes (describe) ☐ No Impact (Discuss)

c. Has the State Historic Preservation Office been contacted with regard to this project?
☒ No ☐ Yes (describe)

d. Would the proposed project interfere with visual resources (e.g., eliminate scenic views) or alter the present landscape?
☒ No ☐ Yes (describe)

For all proposed project work activities identified under item A-7b, respond to item D6 directly below and continue filling out environmental questionnaire.

6. Atmospheric Conditions/Air Quality

a. Identify air quality conditions in the immediate vicinity of the proposed project with regard to attainment of National Ambient Air Quality Standards (NAAQS). This information is available under the Green Book Nonattainment Areas for Criteria Pollutants located at http://epa.gov/oar/oaqps/greenbk or http://www.epa.gov/air/oaqps/greenbk/astate.html

	Attainment	Non-Attainment
O_3 - 1 Hour	☒	☐
O_3 – 8 Hour	☒	☐
SO_x	☒	☐
PM-2.5	☒	☐
PM-10	☒	☐
CO	☒	☐
NO_2	☒	☐
Lead	☒	☐

b. Would proposed project require issuance of new or modified local, state, or federal air permits to perform project related work and activities?
☐ No ☒ Yes (describe) Class 2 Synthetic Minor air emissions permit application is being submitted.

c. Would the proposed project be in compliance with local and state air quality requirements?
☐ No (explain) ☒ Yes

d. Would the proposed project be classified as either a New Source or a major modification to an existing source?
☐ No ☒ Yes (describe) Minor Source.

e. What types of air emissions, including fugitive emissions, would be anticipated from the proposed project, and what would be the maximum annual rate of emissions for the project?

	(Maximum per year)	(Total for project)
☒ SO_x	2.44	2.44
☒ NO_x	99.70	99.70
☐ PM-2.5		
☒ PM-10	2.49	2.49
☒ CO	40.08	40.08
☒ CO_2	7713	7713
☒ Lead	0.00	0.00
☐ H_2S		

☐ Organic solvent vapors or other volatile organic compounds. List 0.39 tons total
☒ Hazardous air pollutants. List 0.15 tons total - Benzene, Toluene, Xylenes, Formaldehyde, Acetaldehyde, Acrolein, Naphthalene
☐ Other. List
☐ None

f. Would any types of emission control or particulate collection devices be used?
☐ No ☒ Yes (describe, including collection efficiencies) EPA Tier 2 compliance for Diesel Engines.

g. If no control devices are used, how would emissions be vented?

7. Hydrologic Conditions/Water Quality

a. What is the closest body of water to the proposed project area and what is its distance from the project site?
Capitol Beach Salt Lake, approximately 1.5 miles.

b. What sources would supply potable and process water for the proposed project?
City utility.

c. Quantify the daily or annual amount of wastewater that would be generated by the proposed project.
☐ None
☐ Non-contact cooling water (gallons)
☐ Process water (gallons)
☒ Sanitary and/or grey water (30 daily gallons)
☐ Other – describe (gallons)

d. What would be the major components of <u>each</u> type of wastewater (e.g., coal fines)?
☐ No wastewater produced

e. Identify the local treatment facility that would receive wastewater from the proposed project.
☐ No discharges to local treatment facility
Lincoln Wastewater System

f. Describe how wastewater would be collected and treated.
Piped to city treatment plant.

g. Would any run-off or leachates be produced from storage piles or waste disposal sites?
☒ No ☐ Yes (describe source)

h. Would project require issuance of new or modified water permits to perform project work or site development activities?
☒ No ☐ Yes (describe)

i. Where would wastewater effluents from the proposed project be discharged?
☐ No wastewater produced
Piped to city treatment plant.

j. Would the proposed project be permitted to discharge effluents into an existing body of water?
☒ No ☐ Yes (describe water use and effluent impact)

k. Would a new or modified National Pollutant Discharge Elimination System (NPDES) permit be required?
☒ No ☐ Yes (describe)

l. Would the proposed project adversely affect the quality or movement of groundwater?
☒ No ☐ Yes (describe)

m. Would the proposed project require issuance of an <u>Underground Injection Control (UIC)</u> permit?
☒ ☐ Yes (describe)

8. Solid and Hazardous Wastes

a. Identify and estimate major nonhazardous solid wastes that would be generated from the project. Solid wastes are defined as any solid, liquid, semi-solid, or contained gaseous material that is discarded or has served its intended purpose, or is a manufacturing or mining by-product (See EPA Municipal Solid Waste at http://www.epa.gov/msw/ and Municipal Solid by State at http://www.epa.gov/msw/states.htm).

	Annual Quantity
☒ None	
☐ Municipal solid waste, i.e., paper, plastic, etc.	(_____)
☐ Coal or coal by-products	(_____)
☐ Other -- identify	(_____)

b. Would project require issuance of new or modified solid waste and/or hazardous waste related permits to perform project work activities?
☒ No ☐ Yes (explain)

c. How and where would solid waste disposal be accomplished?
☐ On-site (identify and describe location)
☐ Off-site (identify location and describe facility and treatment)

d. How would wastes for disposal be transported?
N/A

e. Identify hazardous wastes that would be generated, used, or stored under this project. Hazardous information can be found at EPA Hazardous Waste website at http://www.epa.gov/epaoswer/osw/hazwaste.htm.
☒ None

f. How would hazardous or toxic waste be collected and stored?
☒ None used or produced

g. If hazardous wastes would require off-site disposal, have arrangements been made with a certified TSD (Treatment, Storage, and Disposal) facility?
☒ Not required ☐ Arrangements not yet made ☐ Arrangements made with a certified TSD facility (identify):

9. Health/Safety Factors

a. Identify hazardous or toxic materials that would be used in the proposed project.
☒ None ☐ Hazardous or toxic substances that would be used (identify):

b. What would be the likely impacts of these project related hazardous materials on human health and the environment?
☒ None ☐ Yes (explain)

c. Would there be any special physical hazards or health risks associated with the project?
☒ No ☐ Yes (describe)

d. Does a worker safety program exist at the location of the proposed project?
☐ No ☒ Yes (describe) District Energy Corporation has existing safety programs that will be implemented on this site.

e. Would safety training be necessary for any laboratory, equipment, or processes involved with the project?
☐ No ☒ Yes (describe) All major installed equipment will include training by the manufacturer as a condition of purchase.

f. Describe any increases in ambient noise levels to the public from construction and operational activities.

☐ None ☒ Increase in ambient noise level (describe) Operation of emergency generators will increase ambient noise level. However, direction of discharge is away from occupied areas and sound attenuation devices will be installed. Operation will be intermittent based on testing schedules and emergency conditions.

g. Would project construction result in the removal of natural barriers that act as noise screens?
☐ No construction planned ☒ No ☐ Yes (describe)

h. Would hearing protection be required for workers?
☐ No ☒ Yes (describe) Hearing protection during emergency generator operation.

10. Environmental Restoration and/or Waste Management

a. Would the proposed project include CERCLA removals or similar actions under RCRA or other authorities?
☒ No ☐ Yes (describe)

b. Would the proposed project include siting, construction, and operation of temporary pilot-scale waste collection and treatment facilities or pilot-scale waste stabilization and containment facilities?
☒ No ☐ Yes (describe)

c. Would the proposed project involve operations of environmental monitoring and control systems?
☒ No ☐ Yes (describe)

d. Would the proposed project involve siting, construction, operation, and decommissioning of a facility for storing packaged hazardous waste for 90 days or less?
☒ No ☐ Yes (describe)

E. REGULATORY COMPLIANCE

1. For the following laws, describe any existing permits, new or modified permits, manifests, responsible authorities or agencies, contacts, etc., that would be required for the proposed project (Information on the following environmental laws can be found at the Major Environmental Law website http://www.epa.gov/epahome/laws.htm :

a. Resource Conservation and Recovery Act (RCRA):
☐ None ☐ Required (describe)

b. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA):
☒ None ☐ Required (describe)

c. Toxic Substance Control Act (TSCA):
☒ None ☐ Required (describe)

d. Clean Water Act (CWA):
☐ None ☐ Required (describe)

e. Underground Storage Tank Control Program (UST):
☐ None ☐ Required (describe)

f. Underground Injection Control Program (UIC):
☒ None ☐ Required (describe)

g. Clean Air Act (CAA):
☐ None ☒ Required (describe) Class 2 Synthetic Minor Air Emissions permit is being completed for submittal.

h. Endangered Species Act (ESA):
☒ None ☐ Required (describe)

i. Floodplains and Wetlands Regulations :
☐ None ☒ Required (describe) 404 Wetlands permit has been approved. Floodplain development permit application has been submitted.

j. Fish and Wildlife Coordination Act (FWCA):
☒ None ☐ Required (describe)

k. National Historic Preservation Act (NHPA):
☒ None ☐ Required (describe)

l. Coastal Zone Management Act (CZMA):
☒ None ☐ Required (describe)

2. Identify any other environmental laws and regulations (Federal, state, and local) for which compliance would be necessary for this project, and describe the permits, manifests, and contacts that would be required.

F. DESCRIBE ANY ISSUES THAT WOULD GENERATE PUBLIC CONTROVERSY REGARDING THE PROPOSED PROJECT.
☒ None

G. WOULD THE PROPOSED PROJECT PRODUCE ADDITIONAL DEVELOPMENT, OR ARE OTHER MAJOR DEVELOPMENTS PLANNED OR UNDERWAY, IN THE PROJECT AREA?
☒ No ☐ Yes (describe)

H. SUMMARIZE THE SIGNIFICANT IMPACTS THAT WOULD RESULT FROM THE PROPOSED PROJECT.
☐ None (provide supporting detail) ☐ Significant impacts (describe)

IV. CERTIFICATION BY PROPOSER

I hereby certify that the information provided herein is current, accurate, and complete as of the date shown immediately below.

SIGNATURE: _____ DATE: 8 / 3 / 2009
month day year

TYPED NAME: Krishna Amancherla

TITLE: Project Manager

ORGANIZATION: District Energy Corporation

V. REVIEW AND APPROVAL BY DOE

I hereby certify that I have reviewed the information provided in this questionnaire, have determined that all questions have been appropriately answered, and judge the responses to be consistent with the efforts proposed. Based on the information in the questionnaire, I conclude the following (check the appropriate box):

☐ The proposed action falls under one or more of the categorical exclusions (CXes) listed in Appendix A or B of Subpart D of the DOE NEPA Implementing Procedures and would not (1) violate applicable ES&H requirements, (2) require siting of waste transportation, storage and disposal or recovery facilities, (3) disturb hazardous substances (excluding naturally occurring petroleum and natural gas), thus producing uncontrolled or unpermitted releases, and (4) adversely affect environmentally sensitive resources.

Additionally, the proposed action (1) would not present any extraordinary circumstances such that the action might have a significant impact upon the human environment, (2) is not connected to other actions with potentially significant impacts, and (3) is not related to other actions with cumulatively significant impacts.

Based on the Environmental Questionnaire and these conclusions, Categorical Exclusion of the proposed action would be appropriate.

☐ The proposed action does not qualify as a CX as identified in Subpart D of DOE's NEPA Implementing Procedures; therefore, the proposed action may require further documentation in the form of an Environmental Assessment or Environmental Impact Statement.

PROJECT MANAGER:

SIGNATURE: _____ DATE: ____ / ____ / ____
month day year

TYPED NAME: _____

DISTRICT ENERGY CORPORATION

1040 O STREET
LINCOLN, NEBRASKA 68501

LANCASTER COUNTY DETENTION CENTER
DEC THERMAL PLANT
ENERGY EFFICIENCY STUDY

PREPARED BY

FARRIS ENGINEERING
11239 CHICAGO CIRCLE
OMAHA, NEBRASKA

PHONE (402) 330-5900

DATE ISSUED: May 15, 2009

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Appendices

I. Executive Summary

Purpose

The planned construction of the new Lancaster County Adult Detention Facility will require a considerable level of reliable thermal services. The critical nature of the facility supports the construction of a central plant to provide this service. District Energy Corporation has commissioned a feasibility study to determine the optimal mechanical system to be installed in a central plant constructed concurrently with the jail facility. The purpose of the study is to evaluate potential mechanical systems and offer a comparison and recommendation in terms of economic and technical feasibility. Feasibility of the recommended system will be proven by its superior Life Cycle Cost.

Process

The process to determine the most feasible solution by which to provide the Detention Center with thermal energy requires the comparison of the total Life Cycle Cost of the systems under consideration. A project decided on the basis of initial capital cost can quickly lose its advantage if inefficiencies lead to high costs to operate and maintain over its lifetime. However, a Life Cycle Cost analysis calculates the true cost of ownership, including the cost to procure and install equipment as well as the energy, operating and maintenance costs required to operate the equipment throughout its service life. A preliminary analysis narrowed the system options on the basis of technological and economic feasibility from ten to two: a Conventional (boiler-chiller) system and a Ground Source Heat Pump (GSHP) system.

The first step in the Life Cycle Cost analysis was an energy simulation to define the building loads. First the plant engineer and later the building engineer constructed a building model and performed an energy simulation to obtain monthly peak loads and thermal energy consumption of the building heating and cooling systems. Mechanical equipment was then selected and sized to satisfy the calculated thermal loads for each mechanical system option. Capital costs were accumulated for each mechanical system from a variety of sources. The building simulations were used to calculate the energy required to operate each component of the plant mechanical system. The cost of this energy consumption was calculated using actual utility costs. The sum of these results were calculated and projected over a 25 year period for comparison of the total cost of operation and ownership of the two systems.

Economic Analysis

The Economic Analysis annualized and summed the capital cost, energy cost, and operation and maintenance cost of each system to arrive at a Total Annual Cost for each. The results of the Economic Analysis for the first year costs are shown below:

Annual Cost Comparison				
Mechanical System	**Capital Cost**	**Annual Energy Cost**	**Annual O&M Cost**	**Total Annual Cost**
Conventional System	$17,693,478	$257,200	$273,953	$1,786,548
Ground Source Heat Pump System	$20,132,824	$168,347	$209,953	$1,806,774

The GSHP System shows a distinct advantage in terms of energy usage. In fact, comparing the system efficiencies definitely favors the GSHP System as shown below:

System Efficiency Comparison	
Option	**Efficiency (COP)**
Conventional System	1.73
GSHP System	3.93

The Economic Analysis also calculated a 25 Year Life Cycle Cost as well as the Net Present Value of costs to illustrate the impact over a longer term. This allows a comprehensive comparison including all incurred operating costs and the financing of capital costs as well as the effect of equipment life and replacement costs. These results are shown in the following table:

Life Cycle Cost Comparison			
Mechanical System	**Net Present Value of Total Cost**	**Total Life Cycle Cost**	**Life Cycle Cost Savings**
Conventional System	$30,778,922	$60,264,515	--
Ground Source Heat Pump System	$29,454,988	$55,044,704	$5,219,811

Environmental Impact

The energy savings available by operating the system with the lowest Life Cycle Cost achieves not only economic benefits, but environmental benefits as well. The operation of a Ground Source Heat Pump System results in the consumption of 1,170,868 more kWh of electricity but 144,376 fewer therms of natural gas on an annual basis. This equates to a decrease of 61

metric tons of carbon dioxide emissions, or the equivalent decrease in greenhouse gas emissions resulting from the removal 11.2 passenger vehicles from the roads, the CO_2 emissions from the electricity use of 8.5 homes for one year, or the carbon sequestered annually by 13.9 acres of pine or fir trees.

The use of the GSHP system to provide the Detention Center's domestic hot water results in further energy savings and environmental benefits. The decrease in energy consumption as compared to a conventional gas-fired hot water heater is responsible for one level of energy savings, while the increased use of the GSHP system for heating enhances the efficiency of the well field of this otherwise cooling-dominated system by balancing the ground temperature between the seasons.

Conclusions

Despite the 13.8% increase in capital cost, the GSHP system saves 35% in energy costs and 23.3% in operating and maintenance costs as compared to the conventional system. This overall operation savings along with the high cost of equipment replacement for the conventional system, results in a 25 year Life Cycle Cost for the GSHP system that is approximately $5,219,811, or 8.7%, less than that of the conventional system.

Combining the cost savings over the Life Cycle of the equipment with the environmental benefits of decreased energy use lends a clear advantage to the GSHP System.

Concern regarding the available land at the Detention Center site being able to accommodate the necessary geothermal wells to support the load has been resolved with a layout of the wells necessary for the initial build-out, which can be installed on the land south and west of the DEC Central Utility Plant. Another area east of the future warehouse remains available for well installation to support future expansion, and the land south of the current site may be purchased if even more land is required. After the system operates for a few years, the true capacity of the well field will be determined to better define future needs.

Recommendation

In consideration of the economic analysis and the non-economic factors, it is recommended that the DEC install a Ground Source Heat Pump System in the Central Utility Plant to serve the thermal loads of the Detention Center. This will provide the facility with a reliable means of heating and cooling with minimal cost, energy consumption, and environmental impact over the Life Cycle of the system.

II. Introduction

Purpose

Lancaster County is designing a new Adult Detention Facility to be located at SW 40th and O Streets in Lincoln. This new facility will serve as the replacement to house inmates and facilitate administrative functions currently housed in the existing downtown jail and the Airpark detention facility. The Lancaster County Detention Center will initially be constructed with 667 beds in approximately 250,000 square feet. Three future phases of expansion will bring the capacity to 1896 beds in approximately 500,000 square feet. The building will require considerable thermal services, as it is a large facility with constant occupancy. To this end, the District Energy Corporation has commissioned a study to determine the economic and logistic feasibility of constructing a thermal plant onsite to serve the jail's thermal loads.

Scope

The study will investigate various potential systems to provide heating, cooling, and emergency power services and determine the optimal system in terms of economic and technical feasibility. It should be noted that since the jail is considered a critical facility where service reliability is essential, only proven technologies with a reasonable history of successful operation will be evaluated. For the purposes of this study, the building was defined as it will stand following the Phase II build-out, containing 1000 beds at approximately 350,000 ft^2.

Initially, the study determined preliminary building heating and cooling loads for the purpose of sizing equipment and the plant building. Emergency power loads were also estimated and the necessary equipment selected. In the later stages, these load estimates were refined by the building engineers who performed more accurate building simulations.

Process

The following describes the process by which the recommendations of this study were concluded. Initially, requests were made to obtain design details for the jail facility. As the project was only in the schematic design phase, the only available resources were sketches indicating the layout and size of the building. Since building loads had not yet been calculated, modeling software was utilized to approximate the building's loads. eQuest version 3.60, an enhanced edition of the Department of Energy's DOE-2 energy simulation program, and the Hourly Analysis Program (HAP) version 4.34 published by the Carrier Corporation were used for the load and energy modeling. Load

calculations were approached in a conservative manner so as not to underestimate the building's demand for thermal energy. Certain assumptions and simplifications had to be made, as the mechanical systems had not yet been selected for the building's interior.

The analysis was ultimately revised after the building engineers had finalized the building and mechanical system design. The building engineer provided actual building load data for use in the analysis, greatly increasing the accuracy of the equipment sizing and energy consumption values.

After the loads were decided, a list of potential plant systems was compiled. The list could have been quite extensive considering the wide array of conventional mechanical systems and equipment available and the selection of emerging technologies that offer the possibility of improved efficiency. However, in the interest of time and resources, the list was limited to systems that showed potential to increase the efficiency and lower the operating costs of the plant while at the same time carrying a record of satisfactory proven operation.

The list of potential options was subjected to two levels of analysis. The Preliminary Analysis evaluated each option first on the basis of logistical feasibility. Options with obvious drawbacks or unattractive cost or operational features were discounted at this stage. The two options remaining, a Conventional (boiler-chiller) system and a Ground Source Heat Pump (GSHP) system, were subjected to economic analysis.

First, the capital cost of each alternative was estimated using equipment vendor quotes, actual recent purchase prices, and engineering estimation resources. Energy analysis software was then used to create a model of the plant serving the building load defined earlier. The plant equipment for each option was entered into the model and the plant's energy consumption was simulated for a one year period. The simulations provided annual, monthly, daily, and even hourly results for the energy consumption and peak energy use by source type and by plant equipment. The electrical and natural gas billing rates were applied to the consumption profiles to calculate a total annual energy cost. The energy cost, operation and maintenance cost, capital cost, and equipment replacement cost were combined and annualized to compare the options.

In addition to the analysis of the cost of each option, non-economic considerations were included in the analysis. This part of the analysis allows for the fact that an option which may have the lowest calculated cost may

have other factors that preclude its selection and recommendation or that an option with a higher cost may have additional benefits that counteract the cost. All factors were taken into account in the Recommendation.

III. Building Loads

Load Assumptions

The load profile of the jail building is somewhat atypical. The differences shown on the daily load curves between minimum and maximum load are much smaller than the average building due to the 24-hour occupancy. Also affecting the load is the requirement for 100% outdoor air for the inmate spaces. This inflates the loads as more energy is required to heat the outdoor air in the winter and cool it in the summer than would be consumed by conditioning return air.

According to DEC's anticipated customer agreement, chilled water will be supplied at 45°F with a 10° ΔT return from the customer. DEC typically supplies heating hot water at an average of 120°F, also with the expectation of a minimum 10° ΔT on the return. The building mechanical systems were designed for 180°F hot water, and therefore if 120°F heating hot water is supplied, a system must be installed in the building to boost the temperature upstream of the air handling units, or air handling units will need larger coils to achieve the necessary heat transfer. Due to issues of low ΔT on other installations, DEC is considering imposing a monetary penalty in the case of low ΔT. This will be determined during service contract negotiations.

The options selected to be evaluated for the study included mechanical systems that could potentially offer energy savings while adequately satisfying the building loads. Each option includes the necessary equipment to provide firm capacity for the building loads, that is the capacity remaining if the largest unit were inoperable. Although the loads for each option are the same, the plant capacity of each option may be different due to different available or economic equipment sizes.

Because the jail is a critical facility which must receive thermal and electrical service in any event and at all hours, backup power must be available to support the entire electrical load of the building and the plant. The emergency power generation equipment is sized to handle the electrical load of the building and all mechanical equipment necessary to supply the peak loads of the building.

Load Summary

The simulations performed by the building engineer for the 1000 bed facility indicated a peak heating load of approximately 6,000 Mbh and a peak cooling load of approximately 858 tons. These peak heating and cooling loads are

used to size the mechanical and electrical equipment in the plant. The peak simultaneous thermal load is approximately 108 therms/hr. This simultaneous peak is one of the pieces of information used to size the well field for the GSHP system. Peak loads for the initial build-out of 667 beds would be approximately 70% of these values.

Estimates performed by building electrical engineers calculated the peak electrical load of the Detention Center to be approximately 2389 kVA for the initial 667 bed build-out and approximately 3225 kVA for the 1000 bed facility. The peak electrical load of the Central Utility Plant is approximately 1724 kVA to support the 667 bed facility and 2328 kVA for the 1000 bed build-out. This requires emergency power capable of supplying a total load of 4113 kVA for the initial build-out and increasing to 5553 kVA for the 1000 bed facility.

IV. Equipment Sizing and Capital Costs

Plant Options

The following details the options considered for plant equipment to serve the jail building load. Options were selected for their potential to offer energy cost savings and reliably serve the building load.

Option #1 – Conventional Thermal Plant

Equipment Sizing

The plant as defined in Option #1 includes three (3) 100 BHP gas-fired firetube boilers each capable of producing 3,450 MBh of steam, three (3) 500 ton electric centrifugal chillers, and three (3) 1825 kW emergency generators. Auxiliary equipment is included and consists of the following:

- Boiler Stacks
- Boiler Feedwater Pumps
- Condensate Transfer Pumps/Storage
- Steam Piping, Fittings, and Hangers
- Boiler Controls
- Cooling Tower (3 cells @ 1500 gpm each)
- Condenser Water pumps with VFDs
- Chilled Water pumps with VFDs
- Chilled Water and Condenser Water piping
- Water Treatment
- Chiller and Cooling Tower Controls
- Electrical Equipment
- Fuel Oil tanks, pumps, and piping
- All Direct Buried Piping from the plant to the building
- The Plant Building and Sitework

The chillers considered for Option #1 include a VFD. The additional cost for this feature is included in the estimated machine cost. The chilled water will be pumped using a variable primary configuration. The cooling towers can be located either on the roof of the plant building or on grade adjacent to the building. Various factors affect the choice of cooling tower location, including available site space and soil conditions. Condenser water pumps will also be controlled via a VFD.

The boilers included in this option do not include low NOx burners, but this option can be added for an additional cost.

The plant facility required to house the equipment in Option #1 is a 27,400 ft^2 building with a main level, a partial mezzanine level, and a partial basement. The plant will be located south of the jail. The proposed building footprint is essentially rectangular to minimize construction costs. The footprint can be altered within the confines of maintaining the equipment layout for efficient operation. In such case, the cost of the building should be reassessed.

Capital Costs

The total estimated capital cost to purchase and install the Conventional System is approximately $17,693,478 in today's dollars.

A detailed cost estimate is available in Appendix A. The cost estimate includes a contingency factor on the building costs, mechanical systems, and electrical systems.

Replacement Costs

The analysis included the additional consideration of equipment replacement costs. The service life of the major pieces of plant equipment was based on established values published by the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) and values provided by equipment suppliers. The Equipment Replacement Schedule is as follows:

Equipment Replacement Schedule	
Equipment	**Service Life**
Gas-Fired Boiler	25
Boiler Stack	25
Chiller	25
Cooling Tower	20
Boiler Feedwater Pumps	20
Condensate Transfer Pumps	20
Chilled Water Pumps	20
Condenser Water Pump	20
Boiler Controls	15
Chiller/CT Controls	15

Equipment replacement costs were escalated by a factor of 5% annually to the year of replacement. The replacement cost was then added to the other annual costs to arrive at the Total Annual Cost.

Option #2 – Geothermal Heat Pump

Equipment Sizing

Option #2 incorporates the use of a water-to-water geothermal heat pump system in the plant to serve the thermal needs of the jail building. Water-to-water heat pumps are available in a variety of sizes. Larger sized units are typically a fabricated module of multiple smaller units combined to share common piping and electrical connections. For the cases of this study, the option evaluated consists of nominal 50 ton units. A total of twenty (20) units are installed in this option, with nineteen (19) units required to support the load and one (1) unit to provide firm capacity, or N+1 redundancy. Three (3) 1825 kW emergency generators will also be provided with this option. Auxiliary equipment is included and consists of the following:

- Hot Water distribution pumps with VFDs
- Chilled Water distribution pumps with VFDs
- Hot Water piping
- Chilled Water piping
- Loopfield Water pumps with VFDs
- Loopfield piping
- GSHP Controls
- Water Treatment
- Electrical Equipment
- Fuel Oil tanks, pumps, and piping
- All Direct Buried Piping from the plant to the building
- The Plant Building and Sitework

The units can operate in either heating or cooling mode via a reversing valve internal to the unit. The header piping connecting the units can also be valved to route the supply water to heating or cooling, depending on the operation of the unit. This allows an additional source of redundancy and reduces capital cost as the same equipment can satisfy heating and cooling loads.

Although the initial cost may seem high, the water-to-water heat pumps have the capacity to serve the heating and cooling loads, saving on total equipment installations. Further, the need for the cooling tower is eliminated, except to support the function of a backup chiller, thereby decreasing capital costs. The pricing obtained for the heat pump units includes a five year warranty. Extended warranty packages are available at additional cost.

This option excludes costs for backup equipment in the case of loop failure or heat transfer deficiencies. In a typical heat pump installation in a school or other non-critical facility, a backup boiler is included in the design and is sized only for a 2°F temperature rise to supplement heating if necessary. The small capacity of the backup boiler is due to the non-critical nature of the building and the option of evacuating the building in the event of failure or low heating performance. In such facilities, cooling backup is not required since the building is unoccupied during peak cooling season. Rather than adding equipment to the Central Plant for redundancy, this project will build a level of redundancy into the system by installing additional heat pump units and additional geothermal bores in the well field. The well field was designed with capacity sufficient to satisfy the peak loads even in the case of higher entering temperatures on the cooling side or the exclusion of freeze protection on the heating side. Further, the long term ground temperature rise due to the cooling dominated load was the basis of the bore field size. These allowances built in a certain factor of safety to ensure operation even in the case of unfavorable loop field performance.

The number and depth of well field bores for the geothermal loop are dependent on the ground's ability to transfer heat. Certain information is required to determine the thermal capacity of the ground. Using data from a detailed soil test on the site, the ground properties were measured. This information was used to calculate the required size of the loop field. In total the loop field will consist of between 650 and 750 bores at 300 ft depth. Each piping header will exit the plant separately to isolate against a large scale piping failure. The headers will be 3" HDPE lines, with up to 20 bores per line. Each vertical loop will consist of 3" pipe headers with 1" U-bends on 20 foot centers in a step-down, step-up reverse return configuration.

The total land area occupied by the bore field will be dependent upon the location on the site and the layout of the bore field. Due to the large area required, the loop field will have to be split with the majority of the bores south of the plant and the remainder installed in other locations on the property.

Capital Costs

The total estimated capital cost to purchase and install the Ground Source Heat Pump System is approximately $20,132,824 in today's dollars.

A detailed cost estimate is available in Appendix A. The cost estimate includes a contingency factor on the building costs, mechanical systems, and electrical systems.

Replacement Costs

The analysis included the additional consideration of equipment replacement costs. The service life of the major pieces of plant equipment was based on established values published by the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) and values provided by equipment suppliers. The Equipment Replacement Schedule is as follows:

Equipment Replacement Schedule	
Equipment	**Service Life**
Hot Water Pumps	20
Chilled Water Pumps	20
Loop Field Pumps	20
System Controls	15
Water-to-Water Heat Pumps	15

Equipment replacement costs were escalated by a factor of 5% annually to the year of replacement. The replacement cost was then added to the other annual costs to arrive at the Total Annual Cost.

V. Energy Consumption and Costs

Conventional System

Energy Consumption

Using the thermal energy load profile calculated for the Detention Center, the monthly electrical consumption and demand for the following equipment was calculated:

- Chillers
- Chilled Water Pumps
- Cooling Tower Fans
- Condenser Water Pumps
- Boiler Feedwater Pumps
- Condensate Transfer Pumps

With the same load profile, the monthly natural gas consumption for the following equipment was calculated:

- Boilers

The actual monthly energy consumption and demand for electricity and natural gas are tabulated in Appendix B.

Energy Costs

The Conventional System qualifies for the Lincoln Electric System's Large Light and Power rate schedule with the consumption of greater than 100,000 kWh of energy for each of six consecutive billing periods as determined by the energy consumption calculations described above. The DEC Central Utility Plant will be served with a firm electric supply as opposed to the interruptible option. The LES charges applied in this analysis are the rates effective through October of 2008.

The estimated total annual electricity cost for the Conventional System is approximately $116,401.

The DEC Plant will receive natural gas service from Black Hills Energy (formerly Aquila). The Plant will receive firm service as opposed to interruptible. The BHE (Aquila) charges applied in this analysis are the actual rates charged in 2007-2008.

The total annual natural gas cost for the Conventional System is approximately $140,799.

The estimated total annual energy cost for the Conventional System is approximately $257,200. This information is also detailed in Appendix B. Energy costs are escalated at a rate of 3% annually.

Ground Source Heat Pump System

Energy Consumption

Using the thermal energy load profile calculated for the Detention Center, the monthly electrical consumption and demand for the following equipment was calculated:

- Water-to-Water Heat Pump Units
- Chilled Water Distribution Pumps
- Hot Water Distribution Pumps
- Loop Field Pumps

The GSHP System has no natural gas consumption.

The actual monthly energy consumption and demand for electricity are tabulated in Appendix B.

Energy Costs

The GSHP System also qualifies for the Lincoln Electric System's Large Light and Power rate schedule with the consumption of greater than 100,000 kWh of energy for each of six consecutive billing periods as determined by the energy consumption calculations described above. The DEC Central Utility Plant will be served with a firm electric supply as opposed to the interruptible option. The LES charges applied in this analysis are the rates effective through October of 2008.

The estimated total annual electricity cost for the GSHP System is approximately $168,347. This is the total annual energy cost for the GSHP System. This information is also detailed in Appendix B. Energy costs are escalated at a rate of 3% annually.

System Efficiency

The efficiency of each system was calculated in terms of Coefficient of Performance (COP), or the ratio between useful energy acquired and energy applied.

System Efficiency Comparison	
Option	**Efficiency (COP)***
Conventional System	1.73
GSHP System	3.93

*COP = E_u/E_a

where E_u = useful energy acquired (in Btu)

E_a = energy applied (in Btu)

VI. Operation and Maintenance Costs

Operation and Maintenance Cost Analysis

Operation and Maintenance Costs are very complicated and difficult to predict on a theoretical basis. As such, incorrect approximations can skew the results of an economic analysis and create invalid conclusions. The most reliable means of estimating O&M costs is on the basis of actual costs experienced at a similar plant. To avoid the effect of this sensitivity, the operations and maintenance costs were defined by DEC based on actual costs at other plants operated by DEC and scaled to match the size and operation of this plant.

The DEC estimate of O&M costs included the following cost items:

- Plant Operations Expenses (including salaries, benefits, transportation, and incidentals)
- Plant Maintenance Expenses (including parts and labor incurred by plant personnel and equipment maintenance contracts)

DEC also estimated the Administrative Expenses on an annual basis. This value includes administration, accounting, office supplies, marketing, insurance, and legal services. This amount is the same for either option and is not a function of the plant's operation, and as such was excluded from the Life Cycle Cost.

O&M Costs are escalated at 3% per year. These costs are also available in Appendix B.

Operation and Maintenance Cost Summary

Annual Operations and Maintenance Cost Comparison		
Option	**Annual O&M Costs**	**Annual Admin Costs**
Conventional System	$273,953	$70,900
GHP System	$209,953	$75,900

The O&M Costs of the GSHP System are approximately 76.6% of the O&M Costs of the Conventional System.

VII. Life Cycle Cost Analysis

Cost Projection Methodology

Economic analyses were performed on each of the two options discussed in the previous sections. Capital cost, energy cost, operation and maintenance cost, and equipment replacement costs were defined for each of the alternatives. These values were annualized and projected over the total evaluation period. Total Life Cycle Cost and Net Present Value were calculated for equitable comparison.

Costing Factors

The evaluation period used in the economic analysis was 25 years. This period was selected on the basis of the service life of various pieces of plant equipment. Taken as an overall average, the majority of equipment will still be within its useful life, but the length of time is adequate to allow cost projections and loan payoffs. The interest rate applied in the analysis is 5%. These factors combine for a capital recovery rate of 0.070952. The discount rate used to calculate the Net Present Value was 5%. Energy costs were escalated at 3% annually, and labor costs were escalated at 3% as well.

Capital Costs

The capital costs for each option were gained by various methods. Where possible, actual budget estimates were received from equipment vendors. This represents a conservative but realistic value. If vendor pricing was not available, experience of actual purchase prices offered in recent equipment acquisitions was used. Lastly, prices unavailable from other sources were obtained from an engineering estimating resource book. Estimated costs include purchase and installation of the listed equipment. The Total Capital Costs for each option are listed below:

Capital Costs		
Option	**Total Cost**	**Incremental Cost**
Conventional System	$17,693,478	--
GSHP System	$20,132,824	$2,439,346

The capital costs are annualized using the capital recovery factor described earlier in this section. The capital costs for each option are detailed in Appendix A.

Material Cost Escalation

It must be noted that preliminary cost estimates included in this report may be subject to significant material price escalation. Certain materials, such as copper, steel, and concrete, have seen notable price increases in recent months. Speculation is that these rate increases will likely continue at least in the short term. The cost estimate should be updated as plant construction approaches.

Energy Rates

The plant will be subject to LES's Large Light and Power rate for customers whose consumption exceeds 100,000 kWh for each of six consecutive months or whose demand exceeds 400 kW in two summer months within the current and preceding 11 months. A customer charge of $201.90 is charged monthly. The energy rate is $0.0199 per kWh for the months of October through May and $0.0272 per kWh for the months of June through September. The demand charge is $15.5 per kW of billable demand. Billable demand is defined as the greater of:

a) The maximum demand occurring during the billing period, or
b) 65 percent of the highest maximum demand established for the bills rendered in June, July, August, or September of the preceding 11 months.

Natural gas is subject to a customer charge of $20 per month and a consumption rate that is reestablished on a monthly basis. For the purposes of this study, the rates for the previous twelve months were used. These rates on a per therm basis are as follows:

Natural Gas Prices (2007-2008)	
Month	**$/therm**
January	$0.96053
February	$1.00157
March	$1.08037
April	$1.15798
May	$0.97695
June	$0.99222
July	$0.90207
August	$0.82708
September	$0.76671
October	$0.84520
November	$0.95339
December	$0.96353

Energy rates are escalated at 3% per year.

Energy Costs

The energy costs detailed in Appendix B apply the earlier described electrical and natural gas rates to the energy consumption and demand values as calculated in energy model simulations performed for each option. The Annual Energy Costs are as follows:

Annual Energy Costs			
Option	**Total Annual Electrical Cost**	**Total Annual Natural Gas Cost**	**Total Annual Energy Cost**
Conventional System	$116,401	$140,799	$257,200
GSHP System	$168,347	$0	$168,347

The operating costs are further detailed in Appendix B.

O&M Costs

Operations and maintenance cost can be difficult to estimate without an accurate frame of reference. The DEC's experience with their own utility plants offers the best resource to determine future O&M costs. To arrive at the most dependable estimates possible, the operations and maintenance costs were defined by DEC based on actual cost at other plants operated by DEC and scaled to match the size and operation of this plant. The O&M factors are as follows:

Operations and Maintenance Costs	
Option	**Annual O& M Cost**
Conventional System	$273,953
GSHP System	$209,953

O&M Costs are escalated at 3% per year. These costs are also available in Appendix B.

Total Annual Costs

The sum of the Capital Cost Recovery, Annual Energy Cost, and Annual O&M Cost is defined as the Total Annual Cost. The Total Annual Cost is escalated annually as a function of the escalation of each individual cost. Energy Costs and O&M Costs are escalated at a rate of 3% per year. The Capital Recovery value is constant but is calculated with a 5% interest rate. The Total Annual Costs for the first year are listed below.

Total Annual Costs				
Option	**Capital Recovery**	**Annual Energy Cost**	**Annual O&M Cost**	**Total Annual Cost**
Conventional System	$1,255,396	$257,200	$273,953	$1,786,548
GSHP System	$1,428,473	$168,347	$209,953	$1,806,774

Life Cycle Costs

To arrive at the Life Cycle Cost, which is the true indication of the total cost of each option, the Total Annual Cost is escalated and summed for the entire 25 year time period, and the escalated Equipment Replacement Costs are added in the year of replacement. The Life Cycle Cost is then converted into a Net Present Value with a discount rate of 5%. The results are as follows:

Life Cycle Cost Comparison		
Mechanical System	**Total Life Cycle Cost**	**Net Present Value of Total Cost**
Conventional System	$60,264,515	$30,778,922
Ground Source Heat Pump System	$55,044,704	$29,454,988

VIII. Environmental Impact

Environmental Impact

The energy consumed by each system impacts the environment not only in terms of the consumption of natural resources, but also in terms of the emission of greenhouse gasses. The total energy consumed by the GSHP System on an annual basis is approximately 44% of the energy consumed by the Conventional System. The operation of the GSHP System therefore allows an opportunity for a significant decrease in the consumption of energy resources.

This energy savings also produces a net decrease in the emission of greenhouse gasses. Based on the extraction of Lincoln Electric System (LES) power plant emissions data from the eGRID2007 Version 1.1 annual non-baseload CO_2 output emission rates (year 2005 data) as published by the Environmental Protection Agency (the most recent data available), the power consumed by the GSHP System produces approximately 61 metric tons of CO_2 less than the Conventional System. This is the equivalent of:

- the annual greenhouse gas emissions from 11.2 passenger vehicles,
- the CO_2 emissions from the electricity use of 8.5 homes for one year, or
- the carbon sequestered annually by 13.9 acres of pine or fir forests.

Although this amount is not a dramatic reduction, it should be noted that since the collection of 2005 data, LES has made acquisitions that decrease its overall emission rate, thereby increasing this value of avoided emissions. Further actions by LES to improve the emissions rates of their power plants will only enhance the environmental benefits of the GSHP option.

IX. Conclusions and Recommendations

Option #1 – Conventional Thermal Plant

Option #1 provides the plant with a total heating capacity of 10,350 MBh and a firm heating capacity of 6,900 MBh. The equipment installed will also provide 1500 tons of total cooling capacity and 1000 tons of firm cooling capacity. Emergency power generation is available for 5,475 kW of total capacity and 3,650 kW of firm capacity. The economic analysis showed the following results:

Option #1 – Conventional Plant	
Capital Cost	$17,693,478
Annual Energy Cost	$257,200
Annual O&M Cost	$273,953
Total Projected Annual Cost	$1,786,548
Total Life Cycle Cost	$60,264,515

Option #2 – Geothermal Heat Pump

Option #2 provides the plant with total heating capacity of 13,597 MBh and a firm heating capacity of 12,917 MBh. The installed equipment will also provide 977 tons of total cooling capacity and 928 tons of firm capacity. Emergency power generation is identical to Option #1. The economic analysis resulted in the following:

Option #2 – Ground Source Heat Pumps	
Capital Cost	$20,132,824
Annual Energy Cost	$168,347
Annual O&M Cost	$209,953
Total Projected Annual Cost	$1,806,774
Total Life Cycle Cost	$55,044,704
Payback (years)	9.1

Because the Equipment Replacement Cost plays a significant role in the Life Cycle Cost of each option, the Payback here was calculated as the number of years required for the savings in Energy Cost and O&M Cost to equal the incremental Capital Cost and Equipment Replacement Cost.

The Equipment Replacement Cost between the two systems varies greatly because the GSHP system requires only the replacement of pumps and water-to-water heat pump units within the 25 year life cycle included in the analysis,

while the Conventional system requires replacement of virtually all equipment. The long life of the geothermal well field avoids a very high replacement cost within this time frame.

Although the GSHP System comes with a high first cost, the energy and O&M savings, along with the high Equipment Replacement Cost of the Conventional System, result in a lower Total Life Cycle Cost over the 25 year time period under analysis.

Benefits of GSHP System	
Estimated Energy Cost Savings	35%
Estimated O&M Cost Savings	23.3%
Estimated Life Cycle Cost Savings	$5,219,811

The improved efficiency of the GSHP System as compared to the Conventional System provides a benefit that will continue throughout the life of the system.

System Efficiency Comparison	
Option	**Efficiency (COP)**
Conventional System	1.73
GSHP System	3.93

Recommendation

The 25 Year Life Cycle Cost, on both an annualized basis and a net present value basis, showed a distinct advantage to Option #2, the Ground Source Heat Pump system. Knowing this plant will operate longer than the 25 year period used for this analysis, the lower energy cost will provide more of a savings in the long term, especially if natural gas prices realize anticipated increases. The modular nature of the GSHP system also means a better ability to match the load, which saves energy in low load conditions. The further advantage brought about by utilizing the GSHP system to provide domestic hot water to the Detention Center improves the efficiency of the system and reuses thermal energy already present in the system. The energy savings achieved by the operation of the GSHP system also reap considerable environmental benefits. The decreased impact to the environment is a real and relevant factor and one more advantage of the GSHP system.

It is recommended that the DEC construct a Central Utility Plant equipped with a Ground Source Heat Pump system to supply thermal energy to the Lancaster County Detention Center.

APPENDIX A
Cost Estimates

PRELIMINARY COST ESTIMATE - CONVENTIONAL SYSTEM					
SYSTEM	EQUIPMENT	QUANTITY	UNIT	TOTAL COST/UNIT	TOTAL COST
BUILDING					
	THERMAL PLANT BUILDING - MAIN LEVEL	16,600	SF	175.11	2,906,826
	THERMAL PLANT BUILDING - FAN ROOM	8,200	SF	149.11	1,222,702
	THERMAL PLANT BUILDING - BASEMENT	2,600	SF	91.11	236,886
	INTERIOR LIGHTING, COMM, POWER	16,600	SF	18.00	298,800
	PLUMBING	16,600	SF	9.00	149,400
	FIRE PROTECTION	27,400	SF	3.00	82,200
	LANDSCAPING, GRADING, & PAVEMENT	27,400	SF	16.17	443,058
	BUILDING HVAC	27,400	SF	4.72	129,328
BUILDING TOTAL					**5,469,200**
BOILER					
	BOILER (100 BHP GAS-FIRED)	3.00	EA	171,750.00	515,250
	BOILER STACK	3.00	EA	14,950.00	44,850
	DEAERATOR W/ FEEDWATER PUMPS	1.00	EA	56,121.00	56,121
	CONDENSATE SURGE TANK W/ TRANSFER PUMPS	1.00	EA	34,477.50	34,478
	STEAM PIPING, INSUL, VALVES, FITTINGS, & HANGER	1.00	LS	237,200.00	237,200
	BOILER BLOWDOWN TANK, PIPING	1.00	EA	18,000.00	18,000
	CONTROL & INSTRUMENTS	1.00	LS	150,000.00	150,000
BOILER TOTAL					**1,055,899**
CHILLER					
	CHILLER (500 TON ELECTRIC CENTRIFUGAL)	3.00	EA	289,000.00	867,000
	COOLING TOWER 1500 GPM 95/85/78	3.00	EA	106,480.00	319,440
	CHILLED WATER PUMP 1200 GPM	3.00	EA	18,250.00	54,750
	CONDENSER WATER PUMP 1500 GPM	3.00	EA	18,250.00	54,750
	CHILLED & CONDENSER WATER PIPING	1.00	LS	555,000.00	555,000
	WATER TREATMENT	1.00	LS	40,000.00	40,000
	VARIABLE FREQUENCY DRIVE	6.00	EA	19,000.00	114,000
	CONTROL & INSTRUMENTS	1.00	LS	300,000.00	300,000
CHILLER TOTAL					**2,304,940**

PRELIMINARY COST ESTIMATE - CONVENTIONAL SYSTEM

SYSTEM	EQUIPMENT	QUANTITY	UNIT	TOTAL COST/UNIT	TOTAL COST
DIRECT BURIED PIPING					
	HOT WATER PIPING - PREINSULATED SYSTEM	1075.00	LF	711.50	764,863
	CHW PIPING	1075.00	LF	125.00	134,375
	DW/FIRE LINE TO CUP	220.00	LF	85.00	18,700
	BLDG SANITARY SEWER TO CUP	220.00	LF	85.00	18,700
	SANITARY SEWER MANHOLES	2.00	EA	4,575.00	9,150
	NATURAL GAS SERVICE TO CUP	250.00	LF	21.00	5,250
DIRECT BURIED PIPING TOTAL					**951,038**
FUEL HANDLING					
	NO. 2 FUEL OIL TANK 20000 GAL	2.00	EA	45,000.00	90,000
	FUEL OIL TANK FOUNDATION, MONITORING, EXCAVATION	1.00	LS	68,000.00	68,000
	NO. 2 FUEL OIL PUMPS & DOUBLE WALL PIPE	1.00	LS	35,000.00	35,000
FUEL HANDLING TOTAL					**193,000**
ELECTRICAL-PLANT ONLY					
	PLANT SYSTEMS ELECTRICAL	1.00	LS	606,520.17	606,520
	MEDIUM VOLTAGE SWITCHGEAR AND FEEDERS	1.00	LS	1,774,052.39	1,774,052
	GENERATOR 1825 KW, PRIME POWER, 12470 V	3.00	EA	872,925.00	2,618,775
	CONCRETE TRANSFORMER PADS	4.00	EA	3,455.00	13,820
	15 kV SERVICE TO JAIL - DUCTBANK	950.00	LF	216.00	205,201
	15 kV SERVICE TO JAIL - CABLE	1900.00	LF	102.00	193,800
	2000 kVA TRANSFORMER FOR JAIL SERVICE	2.00	EA	135,850.00	271,700
ELECTRICAL TOTAL					**5,683,869**
OTHER					
	ENGINEERING/PERMITS (ESTIMATE)	1.00	LS	1,252,635.60	1,252,636
	PROJECT MANAGEMENT (ESTIMATE)	1.00	LS	782,897.25	782,897
OTHER TOTAL					**2,035,533**
TOTAL CONSTRUCTION COST					**15,657,945**
TOTAL PROJECT COST					**17,693,478**

PRELIMINARY COST ESTIMATE - GSHP SYSTEM					
SYSTEM	EQUIPMENT	QUANTITY	UNIT	TOTAL COST/UNIT	TOTAL COST
BUILDING					
	THERMAL PLANT BUILDING - MAIN LEVEL	16,600	SF	175.11	2,906,826
	THERMAL PLANT BUILDING - FAN ROOM	8,200	SF	149.11	1,222,702
	THERMAL PLANT BUILDING - BASEMENT	2,600	SF	91.11	236,886
	INTERIOR LIGHTING, COMM, POWER	16,600	SF	18.00	298,800
	PLUMBING	16,600	SF	9.00	149,400
	FIRE PROTECTION	27,400	SF	3.00	82,200
	LANDSCAPING, GRADING, & PAVEMENT	27,400	SF	16.17	443,058
	BUILDING HVAC	27,400	SF	4.72	129,328
BUILDING TOTAL					**5,469,200**
MECHANICAL SYSTEMS					
	WATER-TO-WATER HEAT PUMPS (50 TON UNITS)	24.00	EA	49,500.00	1,188,000
	GROUND SOURCE LOOP FIELD	700.00	BORE	4,200.00	2,940,000
	LOOP FIELD PUMPS	4.00	EA	13,538.00	54,152
	HOT WATER PUMPS	3.00	EA	18,250.00	54,750
	CHILLED WATER PUMPS	3.00	EA	18,250.00	54,750
	HP PIPING, INSUL, VALVES, FITTINGS, & HANGER	1.00	LS	393,600.00	393,600
	WATER TREATMENT	1.00	LS	150,000.00	150,000
	VARIABLE FREQUENCY DRIVE - LOOP PUMP	4.00	EA	14,000.00	56,000
	VARIABLE FREQUENCY DRIVE - HOT WATER PUMP	3.00	EA	19,000.00	57,000
	VARIABLE FREQUENCY DRIVE - CHILLED WATER PUMP	3.00	EA	19,000.00	57,000
	VENTILATION SYSTEM - GENERATORS	1.00	LS	314,300.00	314,300
	CONTROL & INSTRUMENTS	1.00	LS	200,000.00	200,000
MECHANICAL SYSTEMS TOTAL					**5,519,552**
DIRECT BURIED PIPING					
	HOT WATER PIPING - PREINSULATED SYSTEM	1075.00	LF	711.50	764,863
	CHW PIPING	1075.00	LF	125.00	134,375
	DW/FIRE LINE TO CUP	220.00	LF	85.00	18,700
	BLDG SANITARY SEWER TO CUP	220.00	LF	85.00	18,700
	SANITARY SEWER MANHOLES	2.00	EA	4,575.00	9,150
	NATURAL GAS SERVICE TO CUP	250.00	LF	21.00	5,250
DIRECT BURIED PIPING TOTAL					**951,038**

PRELIMINARY COST ESTIMATE - GSHP SYSTEM					
SYSTEM	EQUIPMENT	QUANTITY	UNIT	TOTAL COST/UNIT	TOTAL COST
FUEL HANDLING					
	NO. 2 FUEL OIL TANK 20000 GAL	2.00	EA	45,000.00	90,000
	FUEL OIL TANK FOUNDATION, MONITORING, EXCAVATION	1.00	LS	68,000.00	68,000
	NO. 2 FUEL OIL PUMPS & DOUBLE WALL PIPE	1.00	LS	35,000.00	35,000
FUEL HANDLING TOTAL					**193,000**
ELECTRICAL-PLANT ONLY					
	PLANT SYSTEMS ELECTRICAL	1.00	LS	606,520.17	606,520
	MEDIUM VOLTAGE SWITCHGEAR AND FEEDERS	1.00	LS	1,774,052.39	1,774,052
	GENERATOR 1825 KW, PRIME POWER, 12470 V	3.00	EA	872,925.00	2,618,775
	CONCRETE TRANSFORMER PADS	4.00	EA	3,455.00	13,820
	15 kV SERVICE TO JAIL - DUCTBANK	950.00	LF	216.00	205,201
	15 kV SERVICE TO JAIL - CABLE	1900.00	LF	102.00	193,800
	2000 kVA TRANSFORMER FOR JAIL SERVICE	2.00	EA	135,850.00	271,700
ELECTRICAL TOTAL					**5,683,869**
OTHER					
	ENGINEERING/PERMITS (ESTIMATE)	1.00	LS	1,425,332.68	1,425,333
	PROJECT MANAGEMENT (ESTIMATE)	1.00	LS	890,832.92	890,833
OTHER TOTAL					**2,316,166**
TOTAL CONSTRUCTION COST					**17,816,658**
TOTAL PROJECT COST					**20,132,824**

APPENDIX B
Economic Analysis

Option #1 - Gas-Fired Steam Boilers and Electric Centrifugal Chillers

Operating Costs

	January	February	March	April	May	June	July	August	September	October	November	December
LES (kWh/Month)*	8,762	8,476	6,180	34,491	105,210	240,633	293,284	244,680	161,044	112,204	10,302	8,882
LES (kW)*	38.077	38.077	97.218	200.905	341.880	548.334	612.637	541.487	438.214	373.605	121.217	38.077
Energy Charge	174.37	168.66	122.98	686.36	2,093.67	6,545.23	7,977.32	6,655.29	4,380.40	2,232.85	205.01	176.74
Demand Charge	6,172.32	6,172.32	6,172.32	6,172.32	6,172.32	8,499.17	9,495.88	8,393.05	6,792.31	6,172.32	6,172.32	6,172.32
Customer Charge	201.9	201.9	201.9	201.9	201.9	201.9	201.9	201.9	201.9	201.9	201.9	201.9
Total Monthly Electrical Charge	6,548.59	6,542.89	6,497.20	7,060.59	8,467.90	15,246.30	17,675.10	15,250.24	11,374.61	8,607.08	6,579.24	6,550.97
Natural Gas Consumption (therm)	39,006	19,864	12,414	6,681	4,389	2,946	2,826	3,221	3,940	4,880	11,673	32,536
Natural Gas Peak (therm/hr)	75	46.25	28.75	16.25	8.75	6.25	6.25	6.25	7.5	10	30	66.25
Natural Gas Charge	37,486.74	19,915.02	13,431.52	7,756.83	4,307.73	2,943.47	2,569.62	2,684.28	3,040.89	4,144.63	11,148.51	31,369.72

Projected Annual Energy Costs

Electrical Energy	33,841.70
Electrical Demand	82,558.99
Natural Gas	140,798.96
Total Annual Energy Costs	257,199.65

Total Capital Cost	$17,693,478

Total Annualized Costs

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Capital Recovery	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396
Projected Annual Energy Cost	257,200	264,916	272,863	281,049	289,480	298,165	307,110	316,323	325,813	335,587	345,655	356,024	366,705
Projected Annual O&M Cost	273,953	282,172	290,637	299,356	308,337	317,587	327,114	336,928	347,035	357,447	368,170	379,215	390,591
Projected Annual Replacement Cost													
Total Projected Annual Costs	1,786,548	1,802,483	1,818,896	1,835,801	1,853,213	1,871,147	1,889,620	1,908,647	1,928,244	1,948,429	1,969,220	1,990,635	2,012,692

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Capital Recovery	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396	1,255,396
Projected Annual Energy Cost	377,706	389,038	400,709	412,730	425,112	437,865	451,001	464,531	478,467	492,821	507,606	522,834	538,519
Projected Annual O&M Cost	402,309	414,378	426,810	439,614	452,803	466,387	480,378	494,790	509,633	524,922	540,670	556,890	573,597
Projected Annual Replacement Cost			935,518					1,378,490					4,832,667
Total Projected Annual Costs	2,035,411	2,058,812	3,018,432	2,107,740	2,133,310	2,159,648	2,186,775	3,593,207	2,243,496	2,273,139	2,303,671	2,335,120	7,200,179

Total 25 Year LifeCycle Cost	$60,264,515
Net Present Value of LCC	$30,778,922

*LES Rate = Large Light and Power

Option #2 - Water-to-Water Ground Source Heat Pump

Operating Costs

	January	February	March	April	May	June	July	August	September	October	November	December
LES (kWh/Month)*	247,709	125,926	82,344	78,750	156,667	319,364	381,766	320,604	234,577	171,049	83,413	202,846
LES (kW)*	481.30	297.53	284.48	335.27	485.46	725.54	799.11	705.33	622.66	536.79	333.88	417.76
Energy Charge	4,929.42	2,505.92	1,638.65	1,567.13	3,117.67	8,686.70	10,384.03	8,720.42	6,380.50	3,403.87	1,659.91	4,036.64
Demand Charge	8,051.05	8,051.05	8,051.05	8,051.05	8,051.05	11,245.87	12,386.23	10,932.59	9,651.28	8,320.29	8,051.05	8,051.05
Customer Charge	201.9	201.9	201.9	201.9	201.9	201.9	201.9	201.9	201.9	201.9	201.9	201.9
Total Monthly Electrical Charge	13,182.37	10,758.88	9,891.60	9,820.08	11,370.63	20,134.47	22,972.17	19,854.91	16,233.68	11,926.06	9,912.86	12,289.59

Projected Annual Energy Costs

Electrical Energy	59,453.67
Electrical Demand	108,893.63
Natural Gas	0
Total Annual Energy Costs	168,347.30

Total Capital Cost	$20,132,824

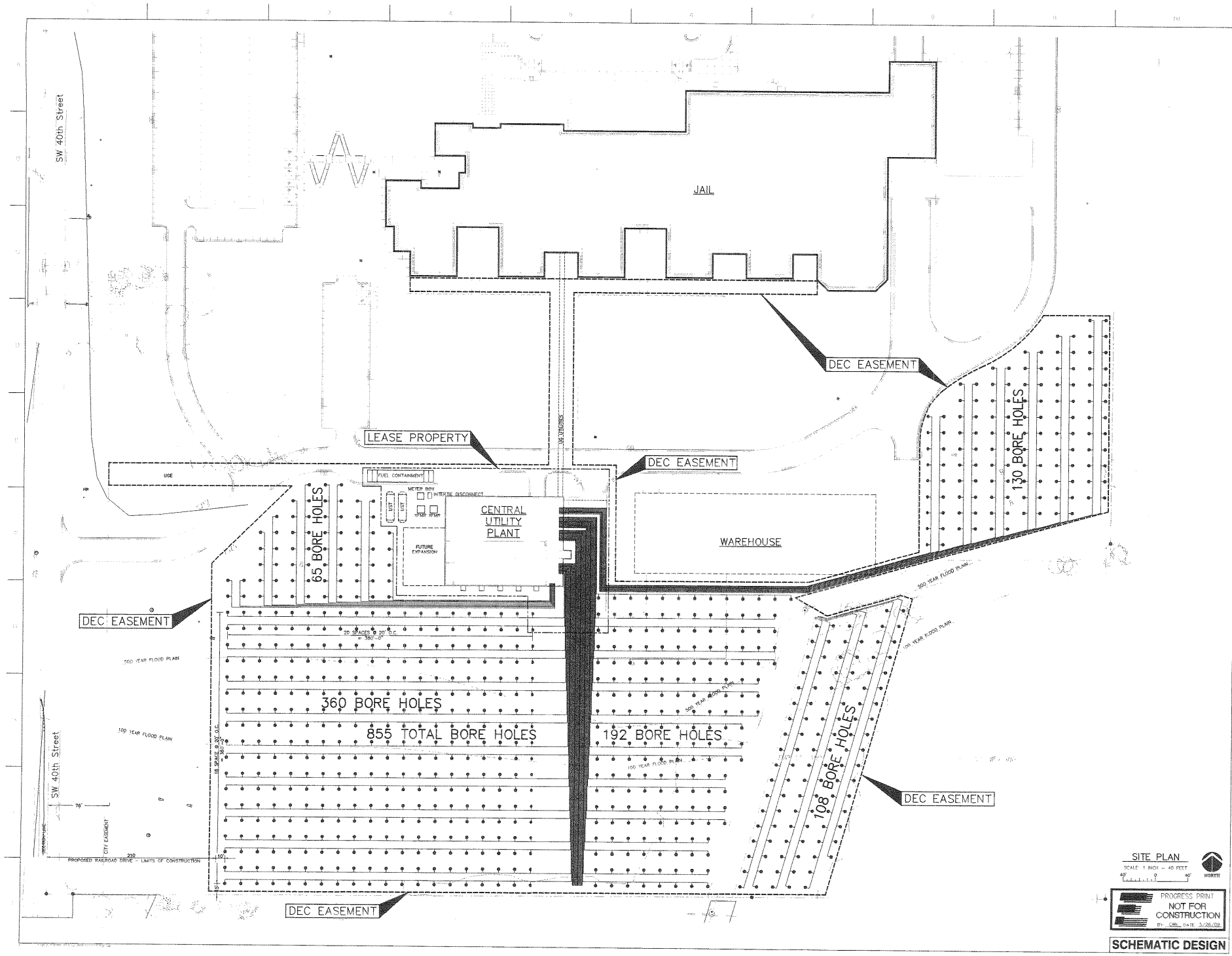
Total Annualized Costs

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Capital Recovery	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473
Projected Annual Energy Cost	168,347	173,398	178,600	183,958	189,476	195,161	201,015	207,046	213,257	219,655	226,245	233,032	240,023
Projected Annual O&M Cost	209,953	216,252	222,739	229,421	236,304	243,393	250,695	258,216	265,962	273,941	282,159	290,624	299,343
Projected Annual Replacement Cost													
Total Projected Annual Costs	1,806,774	1,818,123	1,829,812	1,841,852	1,854,254	1,867,027	1,880,184	1,893,735	1,907,693	1,922,069	1,936,877	1,952,129	1,967,839

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Capital Recovery	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473	1,428,473
Projected Annual Energy Cost	247,224	254,640	262,280	270,148	278,252	286,600	295,198	304,054	313,176	322,571	332,248	342,215	352,482
Projected Annual O&M Cost	308,323	317,573	327,100	336,913	347,020	357,431	368,154	379,198	390,574	402,292	414,360	426,791	439,595
Projected Annual Replacement Cost			2,885,552					434,217					
Total Projected Annual Costs	1,984,020	2,000,686	4,903,405	2,035,534	2,053,746	2,072,504	2,091,825	2,545,943	2,132,223	2,153,336	2,175,082	2,197,480	2,220,550

Total 25 Year LifeCycle Cost	$55,044,704
Net Present Value of LCC	$29,454,988

*LES Rate - Large Light and Power



SITE PLAN
SCALE: 1 INCH = 40 FEET
40' 0 40'
NORTH

PROGRESS PRINT
NOT FOR CONSTRUCTION
BY: CWL DATE: 5/28/09

SCHEMATIC DESIGN

FARRIS ENGINEERING
CONSULTING ENGINEERS
OMAHA · LINCOLN · COLORADO SPRINGS · DES MOINES

REVISIONS

DISTRICT ENERGY CORPORATION
CENTRAL UTILITY PLANT - JAIL
SW 40th Street & West O Street
Lincoln, Nebraska

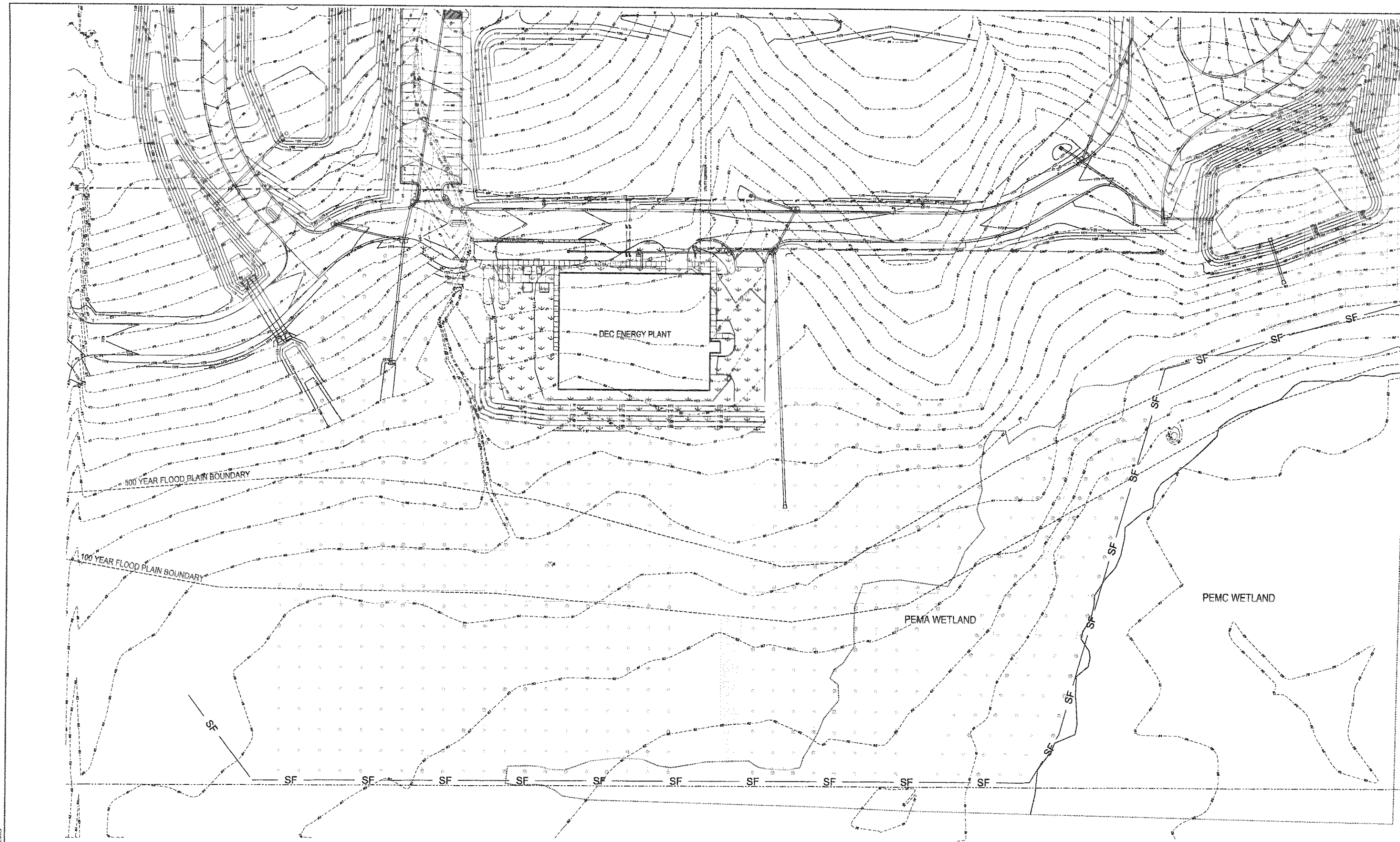
DESIGNED BY: GTK
DRAWN BY: CWK
CHECKED BY: GTK
DATE: May 26, 2009
PROJECT NO: 092002

SHEET TITLE: CIVIL BORING FIELD SITE PLAN

SHEET NO: CS102

STORM WATER POLLUTION PREVENTION PLAN

DISTRICT ENERGY CORPORATION
LINCOLN, NEBRASKA



LEGEND

Symbol	Description
- - - - -	PROPERTY LINE
- - - - -	EASEMENT OR SETBACK LINE
═════	PROPOSED STORM SEWER
=====	EXISTING STORM SEWER
- - 1410 - -	EXISTING CONTOURS
—— 1410 ——	PROPOSED CONTOURS
- - - - -	FLOOD PLAIN BOUNDARY
- - - - -	WETLAND BOUNDARY
—— SF ——	SILT FENCE
ψ ψ ψ	SEEDING, TYPE B

Diggers Hotline Of Nebraska

Statewide (800) 331-5666 or "811" www.ne-diggers.com

Call Before You Dig. Its The Law

PRIOR TO CONSTRUCTION:

CALL : 1-800-331-5666 OR 811 FOR LOCATION OF UNDERGROUND TELEPHONE, ELECTRIC, GAS MAINS, CABLEVISION AND CITY OF LINCOLN UTILITIES.

NOTE: EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND DRAINAGE STRUCTURES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS THE RESPONSIBILITY OF THE INDIVIDUAL CONTRACTORS TO EXACTLY LOCATE AND PROTECT EACH EXISTING UTILITY BEFORE AND DURING ACTUAL CONSTRUCTION.

GENERAL NOTES:

The undersigned certifies this plan has been designed in accordance with the terms of the Interlocal Agreement For NPDES Compliance.

All erosion and sediment control practices shall be maintained in accordance with the requirements specified in the Lower Platte South Natural Resources District Manual of Erosion and Sediment and Storm Water Management Standards, dated 1994 and approved supplements. Construction and placement of erosion and sediment control devices shall conform to the Lincoln Standard Plans (LSP) 175, 176 and 178.

Following soil disturbance, permanent or temporary stabilization shall be completed within seven (7) calender days to the surface of all perimeter sediment controls, topsoil stockpiles and any other disturbed or graded area on the project site which are not being used for material storage or on which actual earth moving activities are not being performed.

All sediment and erosion control practices will be inspected at least once every seven (7) calender days and after any storm event of greater than 0.5 inches of precipitation during any 24-hour period by responsible personnel. Any necessary repairs or cleanup to maintain the effectiveness of the best management practices shall be made immediately.

FRANK DOLAND, P.E.

NO.	REVISIONS	DATE
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

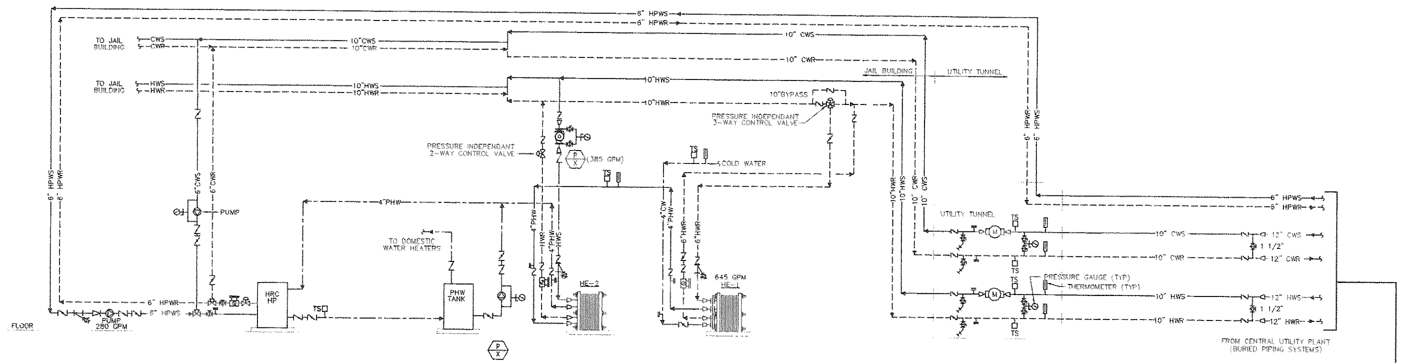
HWS
LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
(402) 479-2200
www.hws.com

PROJECT: DEC

DATE: JUNE 2009

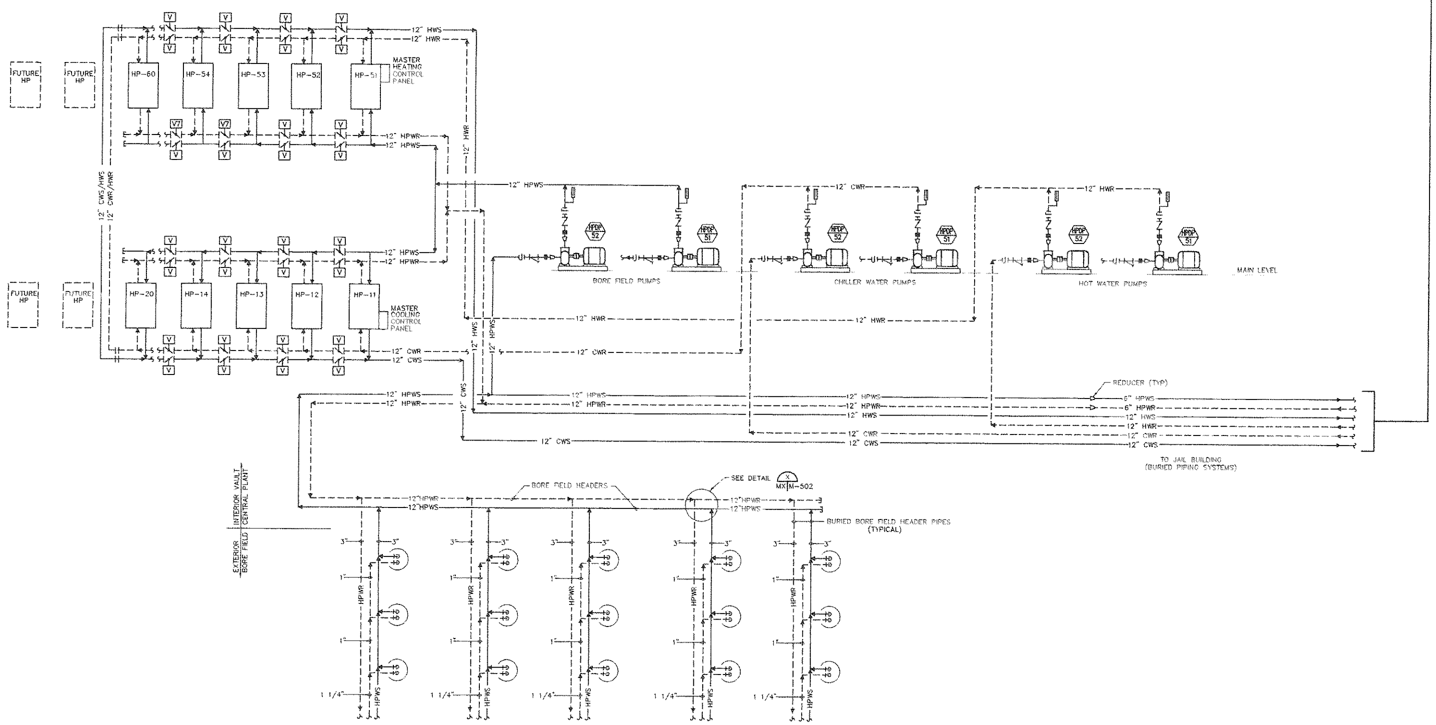
JOB NO.: [illegible]

SHEET NO.: C-07



JAIL BUILDING FLOW DIAGRAM

NO SCALE



PLANT HEAT PUMP – FLOW DIAGRAM

NO SCALE

FARRIS ENGINEERING
CONSULTING ENGINEERS
OMAHA · LINCOLN · COLORADO SPRINGS · DES MOINES

REVISIONS

DISTRICT ENERGY CORPORATION
CENTRAL UTILITY PLANT - JAIL
SW 40th Street & West O Street
Lincoln, Nebraska

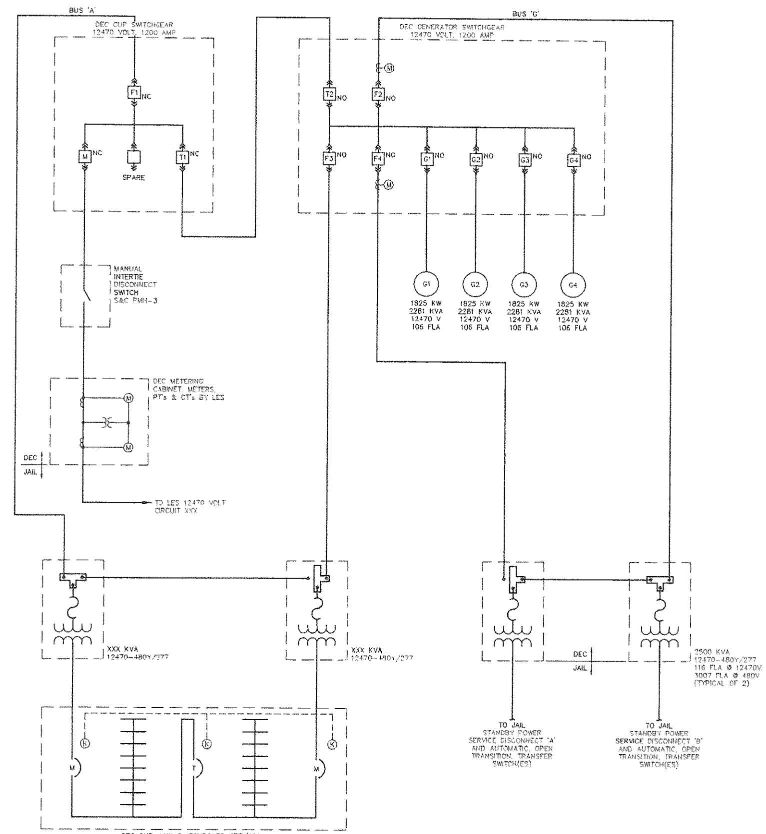
DESIGNED BY: GTK
DRAWN BY: CWK
CHECKED BY: GTK
DATE: June 4, 2009
PROJECT NO: 092002

SHEET TITLE: MECHANICAL - FLOW DIAGRAMS

PROGRESS PRINT
NOT FOR CONSTRUCTION
BY DMG DATE 6/15/09

SCHEMATIC DESIGN

SHEET NO: M-502



ONE-LINE DIAGRAM

NO SCALE

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REVISIONS

DISTRICT ENERGY CORPORATION
CENTRAL UTILITY PLANT - JAIL
SW 40th Street & West O Street
Lincoln, Nebraska

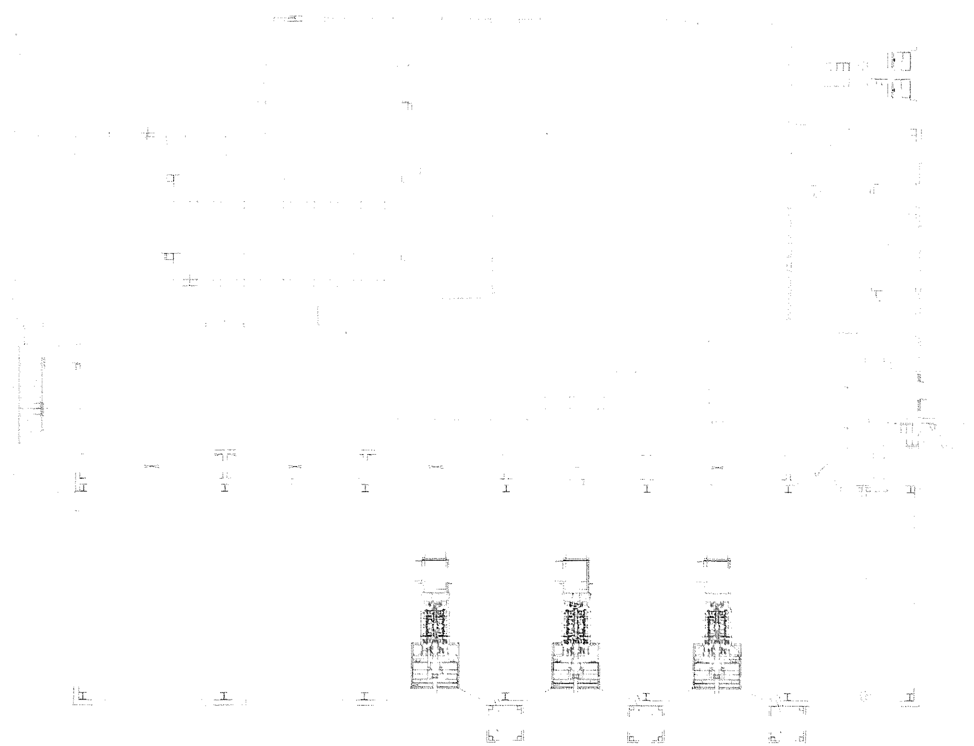
DESIGNED BY: DCL
DRAWN BY: SAK
CHECKED BY: DCL
DATE: June 4, 2009
PROJECT NO: 092002

SHEET TITLE: ELECTRICAL - ONE-LINE DIAGRAM

PROGRESS PRINT
NOT FOR
CONSTRUCTION
BY: DMC DATE: 6/4/09

SCHEMATIC DESIGN

SHEET NO: E-602



ELECTRICAL – LIGHTING FIRST LEVEL FLOOR PLAN

SCALE: 1/8 INCH = 1 FOOT

12' 0 5' 10' 15'

NORTH

PROGRESS PRINT
NOT FOR CONSTRUCTION

SCHEMATIC DESIGN

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REVISIONS

DISTRICT ENERGY CORPORATION
CENTRAL UTILITY PLANT - JAIL
SW 40th Street & West O Street
Lincoln, Nebraska

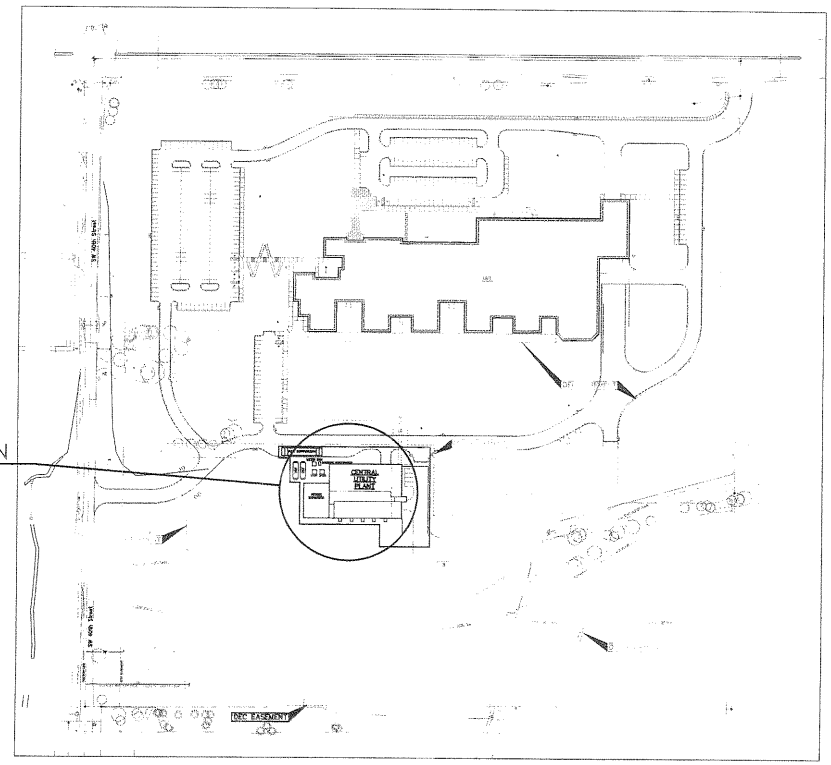
DESIGNED BY: DCL
DRAWN BY: SAK
CHECKED BY: DCL
DATE: June 4, 2009
PROJECT NO: 092002

SHEET TITLE: ELECTRICAL - LIGHTING FIRST LEVEL FLOOR PLAN

SHEET NO: EP101

DISTRICT ENERGY CORPORATION
CENTRAL UTILITY PLANT – JAIL
SW 40TH STREET & WEST O STREET
LINCOLN, NEBRASKA

PROJECT LOCATION



PROJECT LOCATION PLAN
SCALE: 1 INCH = 100 FEET
100' 0 100'
NORTH

DRAWING INDEX

SHEET	SHEET TITLE
G-101	COVER SHEET, INDEX OF DRAWINGS
G-102	SYMBOLS LEGEND
G-103	SYMBOLS LEGEND, GENERAL NOTES
CS101	CIVIL – SITE UTILITY PLAN
CS102	CIVIL – BORE FIELD SITE PLAN
FX101	FIRE PROTECTION – FIRST LEVEL FLOOR PLAN
FX102	FIRE PROTECTION – MEZZANINE LEVEL AND BASEMENT LEVEL FLOOR PLANS
PL101	PLUMBING – FIRST LEVEL FLOOR PLAN
PL102	PLUMBING – MEZZANINE LEVEL AND BASEMENT LEVEL FLOOR PLANS
P-501	PLUMBING – DETAILS AND RISER DIAGRAMS
P-601	PLUMBING – FIXTURE SCHEDULE
MH100	MECHANICAL – HVAC FIRST LEVEL GENERAL ARRANGEMENT FLOOR PLAN
MH101	MECHANICAL – HVAC FIRST LEVEL FLOOR PLAN
MH102	MECHANICAL – HVAC MEZZANINE LEVEL AND HVAC BASEMENT LEVEL FLOOR PLANS
MP101	MECHANICAL – PLANT PIPING FIRST LEVEL FLOOR PLAN
MP102	MECHANICAL – PLANT PIPING MEZZANINE LEVEL AND HVAC BASEMENT LEVEL FLOOR PLANS
M-301	MECHANICAL – PLANT PIPING PARTIAL FIRST LEVEL FLOOR PLAN
M-302	MECHANICAL – PLANT PIPING PARTIAL FIRST LEVEL FLOOR PLAN
M-303	MECHANICAL – PLANT PIPING PARTIAL BASEMENT LEVEL FLOOR PLAN
M-304	MECHANICAL – PLANT PIPING PARTIAL BASEMENT LEVEL FLOOR PLAN
M-401	MECHANICAL – PLANT PIPING SECTIONS
M-402	MECHANICAL – PLANT PIPING SECTIONS
M-501	MECHANICAL – FLOW DIAGRAMS
M-502	MECHANICAL – FLOW DIAGRAMS
M-601	MECHANICAL – DETAILS
M-602	MECHANICAL – DETAILS
M-701	MECHANICAL – SCHEDULES
ES101	ELECTRICAL – SITE PLAN
EP101	ELECTRICAL – POWER FIRST LEVEL FLOOR PLAN
EP102	ELECTRICAL – POWER MEZZANINE LEVEL AND POWER BASEMENT LEVEL FLOOR PLANS
EL101	ELECTRICAL – LIGHTING FIRST LEVEL FLOOR PLAN
EL102	ELECTRICAL – LIGHTING MEZZANINE LEVEL AND LIGHTING BASEMENT LEVEL FLOOR PLANS
E-501	ELECTRICAL – DETAILS
E-601	ELECTRICAL – SCHEDULES
E-602	ELECTRICAL – RISER DIAGRAMS

PROGRESS PRINT
NOT FOR CONSTRUCTION
BY: LWK DATE: 5/26/09

SCHEMATIC DESIGN

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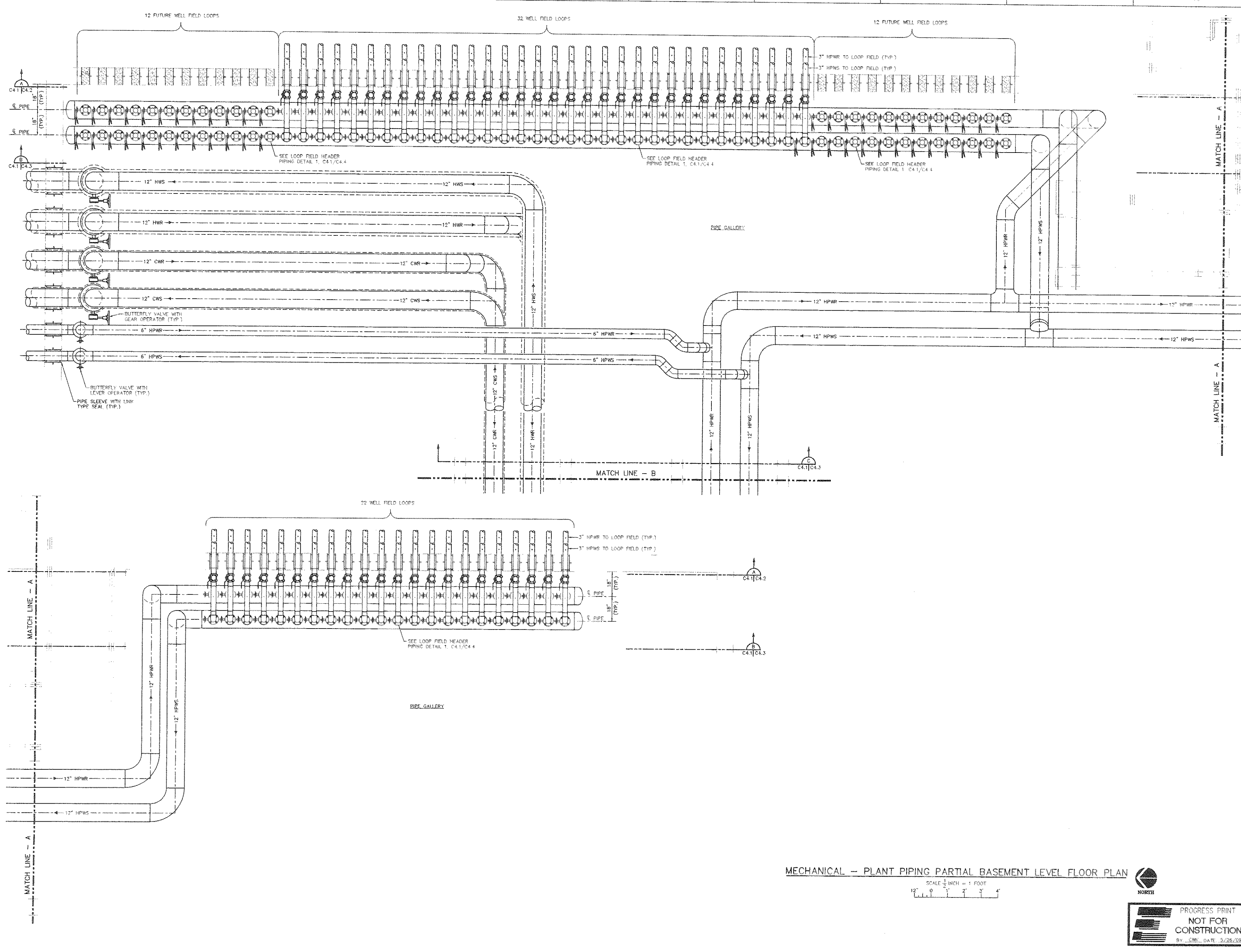
REVISIONS

DISTRICT ENERGY CORPORATION
CENTRAL UTILITY PLANT - JAIL
SW 40th Street & West O Street
Lincoln, Nebraska

DESIGNED BY: GTK
DRAWN BY: CWK
CHECKED BY: GTK
DATE: May 26, 2009
PROJECT NO: 092002

SHEET TITLE: COVER SHEET, INDEX OF DRAWINGS

SHEET NO: G-101



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REVISIONS

DISTRICT ENERGY CORPORATION
CENTRAL UTILITY PLANT - JAIL
SW 40th Street & West O Street
Lincoln, Nebraska

DESIGNED BY: GTK
DRAWN BY: JFN
CHECKED BY: GTK
DATE: May 26, 2009
PROJECT NO: 092002

SHEET TITLE: MECHANICAL - PLANT PIPING PARTIAL BASEMENT LEVEL FLOOR PLAN

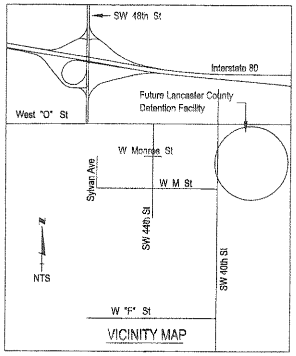
SHEET NO: M-304

PROGRESS PRINT NOT FOR CONSTRUCTION
BY: CWL DATE: 5/26/09

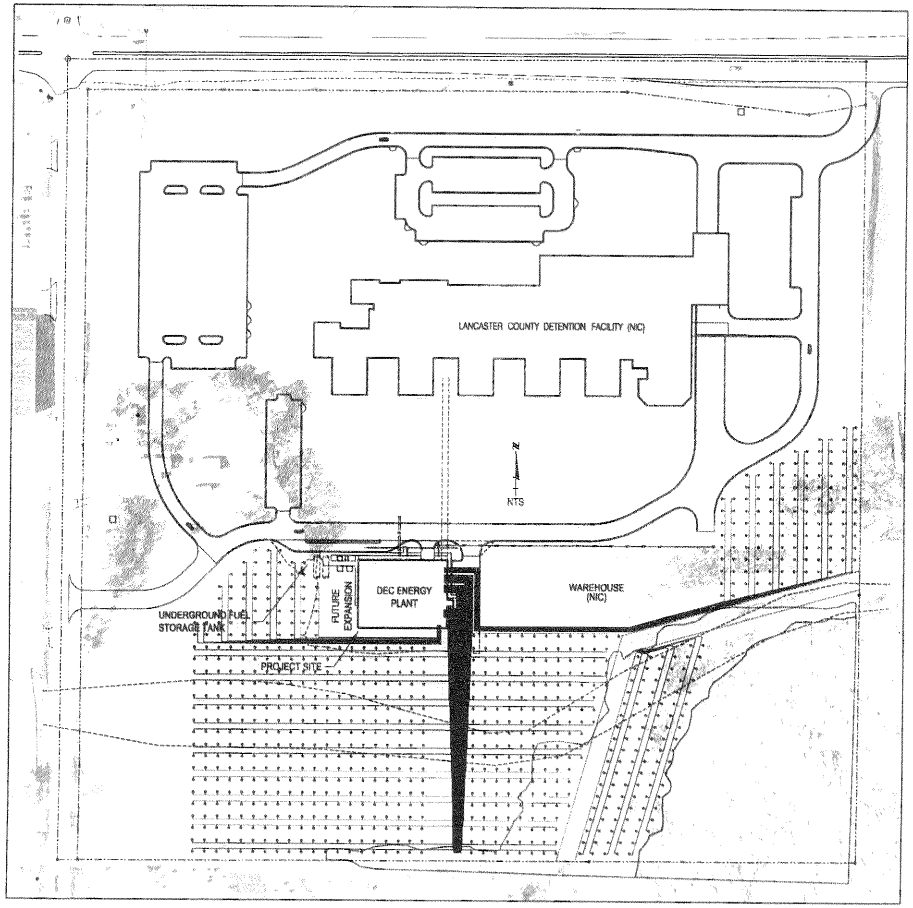
SCHEMATIC DESIGN

DISTRICT ENERGY CORPORATION

GRADING AND UTILITIES PROJECT
LINCOLN, NEBRASKA (2009)



VICINITY MAP



INDEX OF SHEETS

Diggers Hotline Of Nebraska

PRIOR TO CONSTRUCTION:

CALL: 1-800-331-5666 OR 811 FOR LOCATION OF UNDERGROUND TELEPHONE, ELECTRIC, GAS MAINS, CABLEVISION AND CITY OF LINCOLN UTILITIES.

NOTE: EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND DRAINAGE STRUCTURES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS THE RESPONSIBILITY OF THE INDIVIDUAL CONTRACTORS TO EXACTLY LOCATE AND PROTECT EACH EXISTING UTILITY BEFORE AND DURING ACTUAL CONSTRUCTION.

GENERAL NOTES:

THE APPOXIMATE LOCATION OF ALL KNOWN CABLES AND UTILITIES ARE LOCATED ON THE PLANS. ALL CABLES AND UTILITIES MAY NOT BE SHOWN. PRIOR TO BEGINNING ANY WORK ALL CONTRACTORS SHALL HAVE CONTACTED ONE CALL (1-800-292-8989) FOR NECESSARY LOCATION OF PUBLIC AND PRIVATE ELECTRIC, TELEPHONE, GAS, WATER, SEWER, COMMUNICATION, LIGHTING LINES AND OTHER CABLES/UTILITIES WITHIN THE CONSTRUCTION SITE.

EXISTING PAVEMENT, TURF, ROADS, CABLES, UTILITIES, AND INCIDENTALS THAT ARE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

THE CONTRACTOR SHALL PRESERVE ALL SURVEY CONTROL. THE CONTRACTOR IS RESPONSIBLE FOR ALL STAKING ON THIS PROJECT.

EXCAVATIONS THAT WILL BE OCCUPIED BY PERSONNEL SHOULD BE MADE IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) CONSTRUCTION STANDARDS-29 CFR PART 1926, SUBPART P-EXCAVATIONS AS PUBLISHED IN THE FEDERAL REGISTER, VOL. 54, 209, TUESDAY, OCTOBER 31, 1989, RULES AND REGULATIONS. OSHA STATES THAT A SOIL SHOULD BE RECLASSIFIED IF THE PROPERTIES, FACTORS, OR CONDITIONS AFFECTING THE SOIL'S CLASSIFICATION CHANGE IN ANY WAY. SHEET PILING AND/OR SHORING WILL BE NECESSARY IF THE SIDES OF THE EXCAVATIONS CANNOT BE SLOPED TO MEET OSHA REGULATIONS.

THE CURRENT CITY OF LINCOLN STANDARD PLANS SHALL BE CONSIDERED PART OF THIS PLAN SET.

THE CURRENT CITY OF LINCOLN STANDARD SPECIFICATIONS FOR MUNICIPAL CONSTRUCTION SHALL BE USED FOR THIS PROJECT

CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND MAINTAINING ALL TRAFFIC CONTROL DEVICES REQUIRED TO PROTECT WORK, DIVERT TRAFFIC, WARN OF OPEN EXCAVATIONS, AND OTHER AREAS OR CONDITIONS WHICH MIGHT BE HAZARDOUS OR DANGEROUS DURING DAY OR DARKNESS.

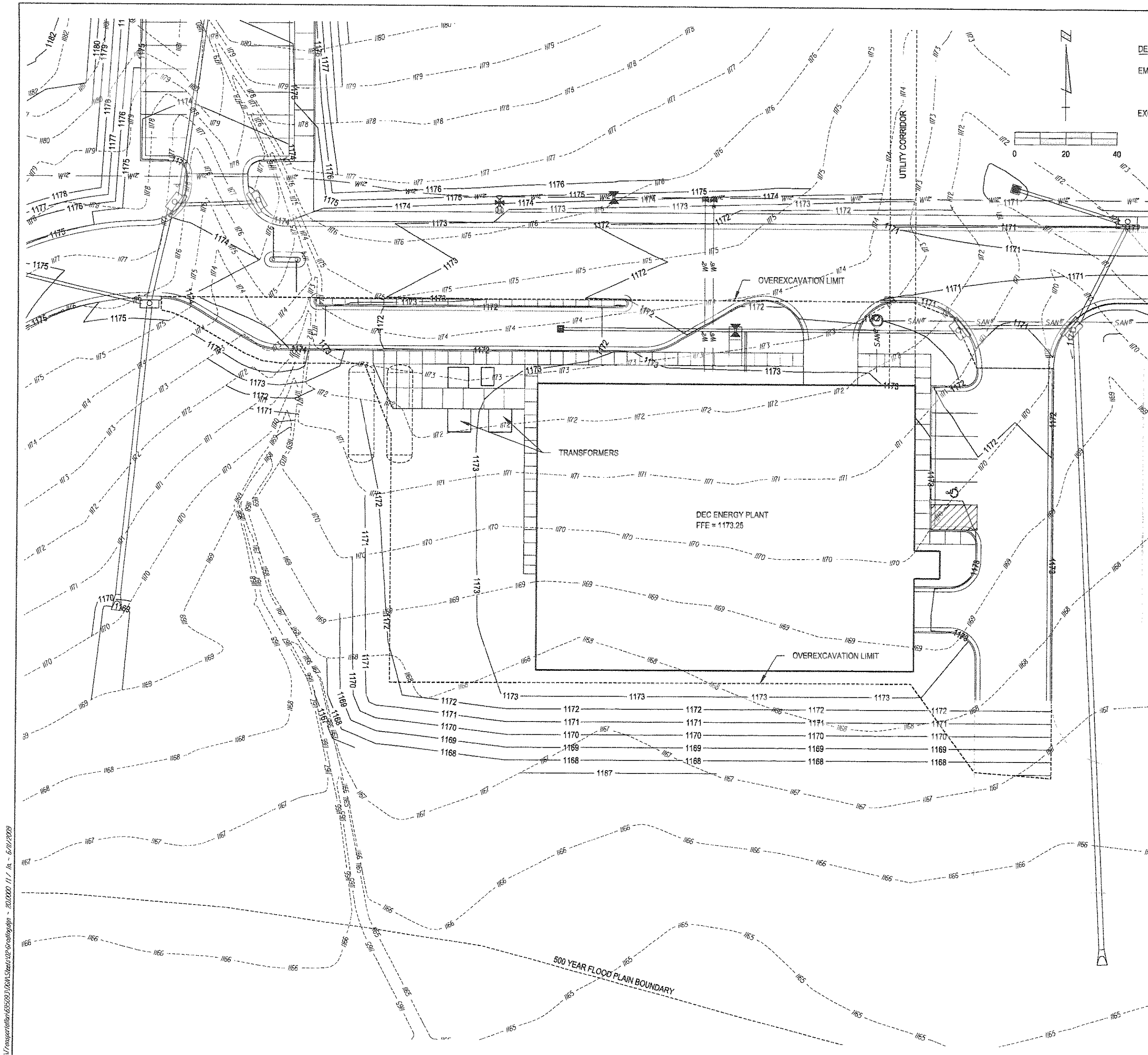
NO.	REVISIONS	DATE
-	-	-

COVER

DISTRICT ENERGY CORPORATION
LINCOLN, NEBRASKA

HWS
LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
(402) 479-2200
www.hws.com

PROJECT: DEC
DATE: JUNE 2009
JOB NO.: 52695093
SHEET NO. C-01



EARTHWORK SUMMARY

DESCRIPTION		
EMBANKMENT		
NEW FILL	4,094	CY
FILL TO REPLACE OVEREXCAVATION	10,302	CY
TOTALS:	14,396	CY
EXCAVATION		
MISC. EXCAVATION	320	CY
EXCAVATION FOR BASEMENT	870	CY
OVEREXCAVATION	10,302	CY
TOTALS:	11,492	CY

GENERAL NOTES

GRADING SHALL FOLLOW THE RECOMMENDATIONS SPECIFIED IN THE GEOTECHNICAL REPORT

EARTHWORK CALCULATED TO BOTTOM OF 9" PAVEMENT AND 6" BELOW FINISH FLOOR ELEVATION. FILL BALANCE FACTOR OF 1.0.

OVEREXCAVATION AREA TO ELEV. 1163.50

Preparation of the Building Area and Areas to be Paved

All existing topsoil shall be removed from the building area and areas to be paved. All existing low-moisture content (moist) soils shall be removed and replaced with controlled earth fill. The removal of these materials shall extend beyond the outside edges of the proposed footings a minimum horizontal distance of 5.0 feet. The sides of the excavation shall be sloped to permit the controlled earth fill to be placed against the sides of the excavations to the recommended degree of compaction. Thereafter, the exposed ground located in areas that have been "cut" to the proposed subgrade elevations and areas to be filled shall be proofrolled with a loaded dump truck or similar piece of equipment (in the presence of the Geotechnical Engineer) to locate unstable materials. Any unstable material shall be either removed and replaced with controlled earth fill or reworked to conform to the moisture content and compaction recommendations presented in Table 1. The Geotechnical Engineer shall observe the building area and areas to be paved to verify that all unsuitable and unstable soils have been either removed and replaced or reworked. Upon approval of the site by the Geotechnical Engineer, any exposed ground surface that has not been previously reworked shall be scarified to a minimum depth of 6 inches and reworked to conform to the moisture content and compaction recommendations presented in Table 1. Areas to be filled shall then be raised to the desired elevation with controlled earth fill. Immediately prior to placement of the pavement structure, the subgrade in cut and fill sections shall be scarified to a minimum depth of 6 inches and reworked to a uniform condition conforming to the moisture content and compaction recommendations presented in Table 1. The Geotechnical Engineer shall observe the foundation excavations to verify that the footings will be seated in suitable foundation materials.

Types of Soils to be used as Fill and Backfill.

Controlled earth fill placed within the building area and areas to be paved shall be constructed of inorganic CL, ML, SM, and/or SC materials (all with a liquid limit less than 50 and a plasticity index less than 30). The materials used as fill and backfill outside the building area and areas to be paved may consist of CL, ML, SM, SC, and/or CH (fat clay, fat clay with sand, and/or sandy fat clay). The existing topsoil and fat clays (CH) encountered at the project site shall be placed in grass areas or removed from the site. Any granular backfill shall be capped with at least two feet of clay. Proposed fill and backfill materials shall be subject to approval by the Geotechnical Engineer. Representative samples of the proposed fill and backfill materials shall be submitted to the Geotechnical Engineer at least three days prior to placement so the necessary laboratory tests can be performed.

Placement of Fill and Backfill.

The suggested basis for controlling the placement of fill and backfill on the site, excluding free-draining granular materials, are the "optimum moisture content" and "maximum dry density" as determined by ASTM D 698, Procedure A, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3) (600 kN-m/m3). The recommended acceptable values of moisture content and degree of compaction are given in Table 1.

TABLE 1
Compaction Recommendations of Controlled Earth Fill and Backfill

Location	Soil Type	Minimum Moisture Content	Minimum Compaction *
Below top-of-interior footing elevation in the building area.	Glacial Till	Optimum	97%
	Silts and Lean Clays	2% Below Optimum	97%
	Silty and Clayey Sands	**	100%
From 0.0 to 1.0 foot below pavement subgrade elevation outside the building area.	Glacial Till	Optimum	100%
	Silts and Lean Clays	2% Below Optimum	100%
	Silty and Clayey Sands	**	100%
(a) Above top-of-interior-footing elevation in the building area and (b) greater than 1.0 foot below pavement subgrade elevation outside the building area.	Glacial Till	Optimum	95%
	Silts and Lean Clays	2% Below Optimum	95%
	Silty and Clayey Sands	**	95%
Backfill of footings and utility trenches outside the building area and outside of areas to be paved.	Silts and Clays	2% Below Optimum	92%

* Percent of Maximum Dry Density (ASTM D 698, Procedure A)
** Moisture as necessary to obtain density (near Optimum)

Clean free-draining sand used as backfill shall be consolidated by means of a vibratory compactor to at least 55% "relative density", as determined in accordance with ASTM D 4253 (Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table) and D 4254 (Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculations of Relative Density).

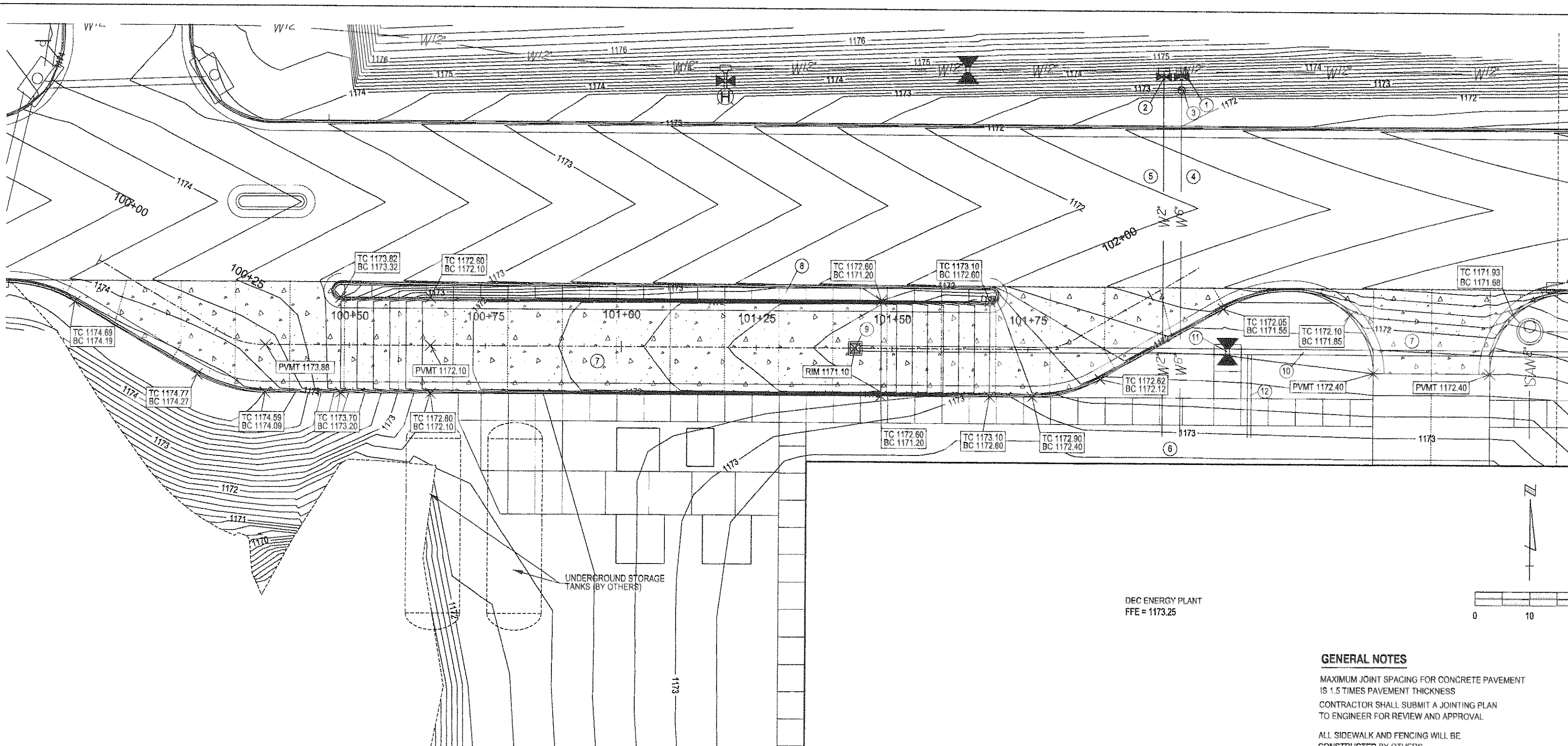
NO.	REVISIONS	DATE

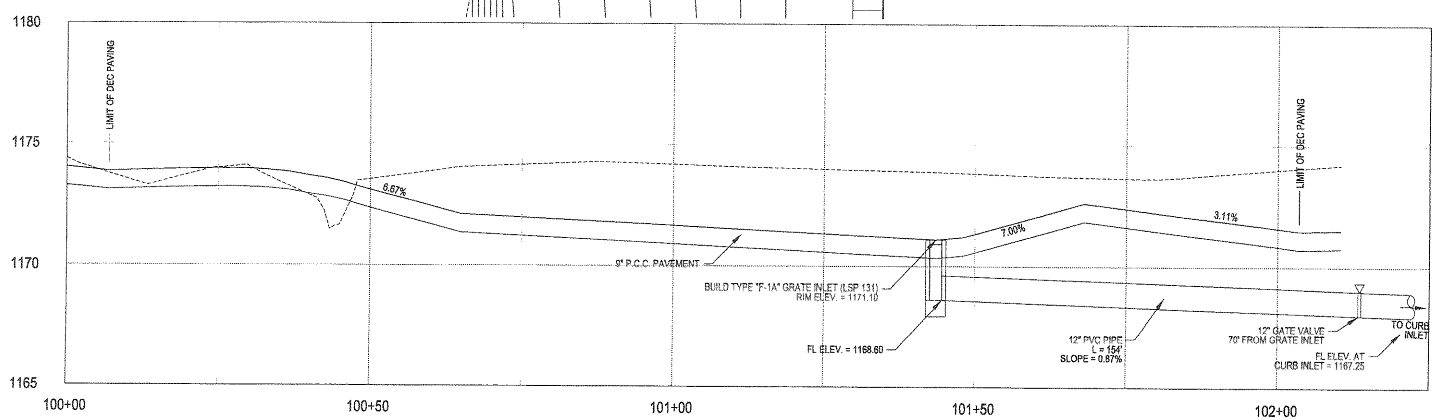
GRADING PLAN

DISTRICT ENERGY CORPORATION
LINCOLN, NEBRASKA

HWS
LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
(402) 479-2200
www.hws.com

PROJECT: DEC
DATE: JUNE 2009
JOB NO.: 52690093
SHEET NO. C-02





GENERAL NOTES

MAXIMUM JOINT SPACING FOR CONCRETE PAVEMENT IS 1.5 TIMES PAVEMENT THICKNESS

CONTRACTOR SHALL SUBMIT A JOINTING PLAN TO ENGINEER FOR REVIEW AND APPROVAL

ALL SIDEWALK AND FENCING WILL BE CONSTRUCTED BY OTHERS

CONSTRUCTION NOTES

1. BUILD 12" X 6" TAPPING SLEEVE AND VALVE WITH THRUST BLOCK
2. BUILD 12" X 4" TAPPING SLEEVE AND VALVE WITH THRUST BLOCK
   BUILD 4" X 2" REDUCER, M.J.
3. BUILD 6" POST INDICATOR VALVE (PIV)
4. BUILD 67 LF OF 6" WATER MAIN
5. BUILD 67 LF OF 2" WATER SERVICE LINE
6. SEE MECHANICAL PLANS FOR WATER LINE CONTINUATION INTO BUILDING
7. BUILD 440 SY OF 9" P.C.C. PAVEMENT W/ INTEGRAL CURB (L-3500)
   6" CURB UNLESS OTHERWISE NOTED (SEE DETAIL)
8. BUILD 273 SF OF 5" P.C.C. MEDIAN (L-3500)
9. BUILD TYPE "F-1A" GRATE INLET (LSP 131)
10. BUILD 154 LF OF 12" PVC PIPE (AWWA C900 OR C905)
11. BUILD 12" GATE VALVE
12. BUILD 8"X12" TEE
    BUILD 16 LF OF 8" STORM SEWER PIPE
    CONNECT TO 8" PIPE FROM BUILDING

NO.	REVISIONS	DATE
-	-	-

CONSTRUCTION PLAN

DISTRICT ENERGY CORPORATION
LINCOLN, NEBRASKA

HWS

LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
(402) 479-2200
www.hws.com

PROJECT: DEC
DATE: JUNE 2009
JOB NO.: 02895093
SHEET NO. C-03

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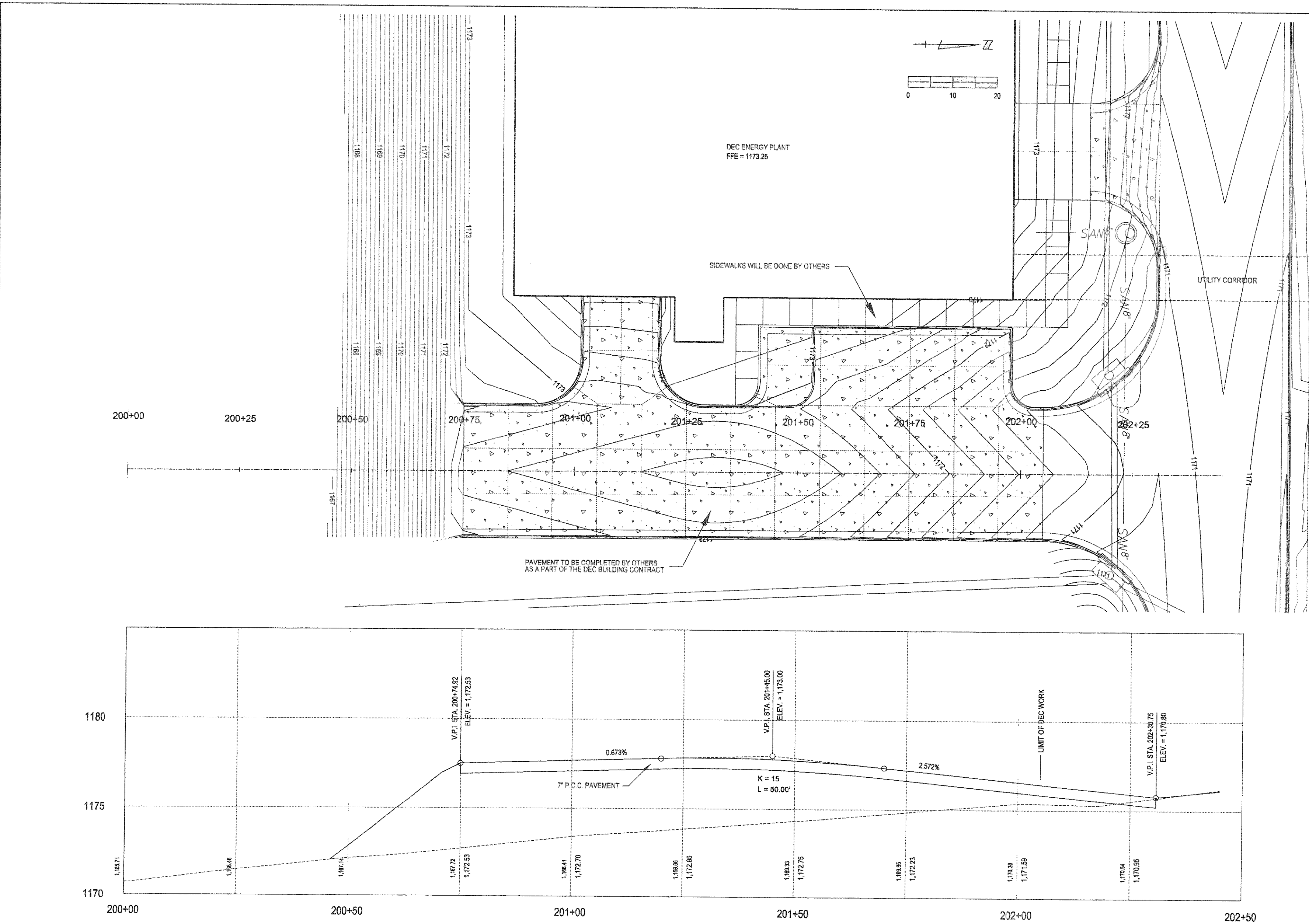


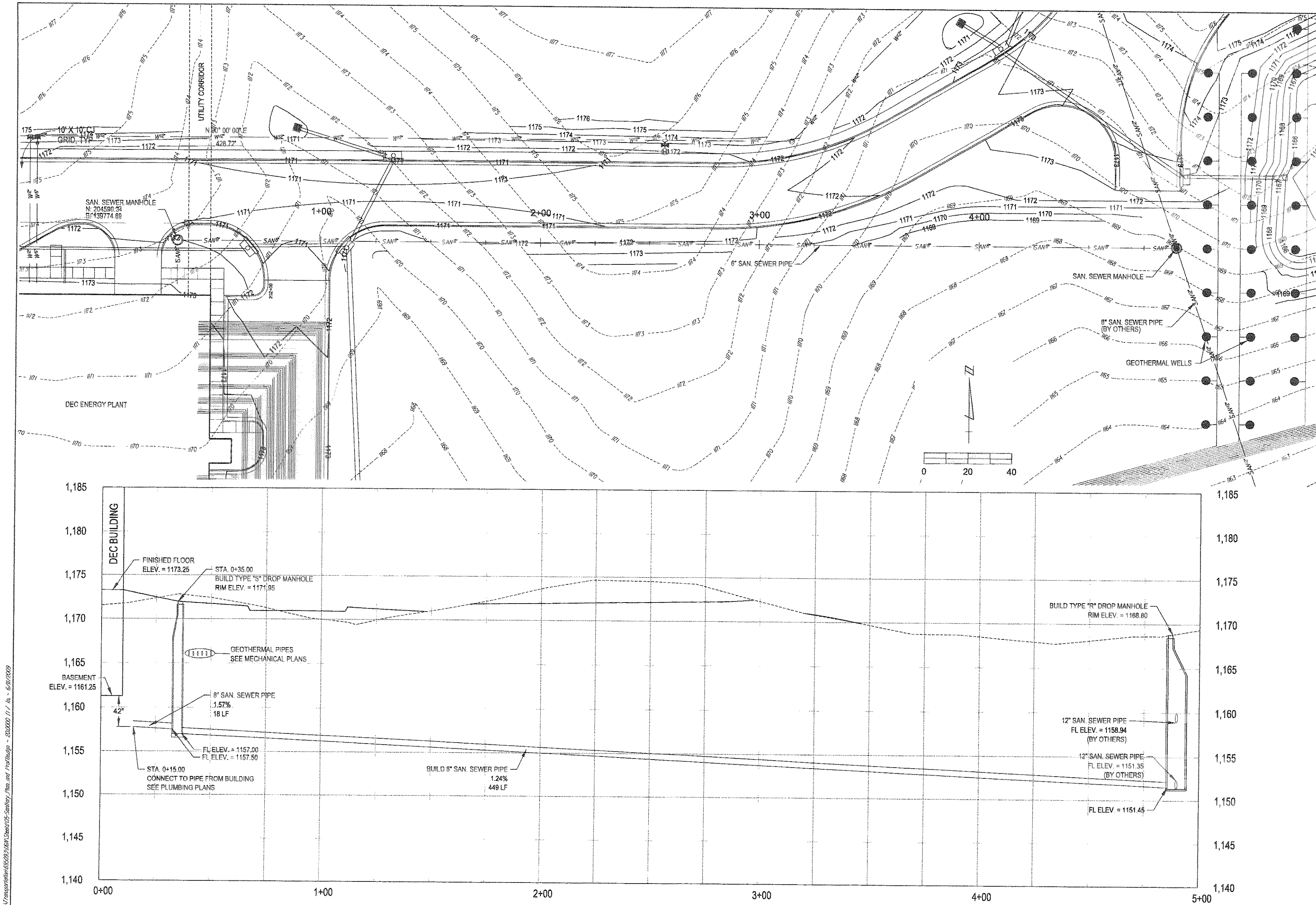
PAVING PLAN

DISTRICT ENERGY CORPORATION
LINCOLN, NEBRASKA

HWS
LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
(402) 479-2200
www.hws.com

NO.	REVISIONS	DATE

PROJECT: DEC
DATE: JUNE 2000
SHEET NO. C-04



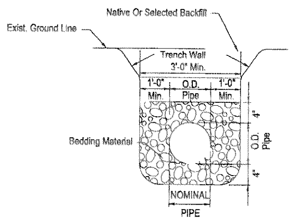
NO.	REVISIONS	DATE

SANITARY SEWER PLAN AND PROFILE

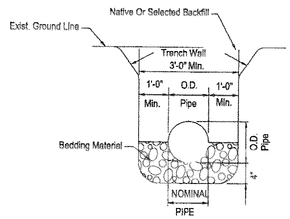
DISTRICT ENERGY CORPORATION LINCOLN, NEBRASKA

HWS
LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
(402) 479-2200
www.hws.com

PROJECT: DEC
DATE: JUNE 2009
JOB NO.: [illegible]
SHEET NO. C-05



PIPE BEDDING AND FOUNDATION MATERIAL
FOR ALL PIPE EXCEPT DUCTILE IRON
AND REINFORCED CONCRETE

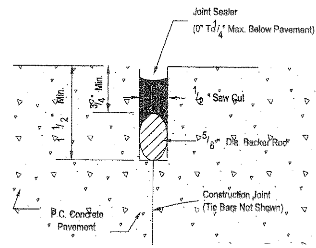


PIPE BEDDING FOR DUCTILE IRON
AND REINFORCED CONCRETE PIPE
12" DIAMETER OR LARGER

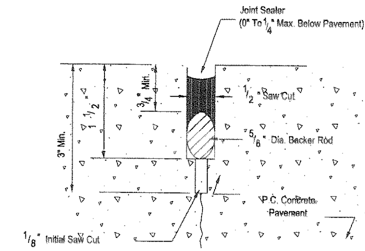
1. Bedding Material Shall Meet Requirements of NDOR 47B Material.
2. Bedding Material Placed In Loose Lifts Not Exceeding 8" In Thickness And Compacted To A Density Of At Least 55% Of Its Relative Density As Defined By ASTM D 4253 And D 4254.
3. Care Shall Be Taken To Ensure Compaction Activities Do Not Damage Any Pipe Line.
4. Remainder Of Trench Shall Be Filled With Clean Soil Placed In Loose Lifts Not Exceeding 8" In Thickness And Compacted To At Least 100% Of Its Maximum Dry Density As Defined By ASTM D 698.
5. Moisture Content Shall Be Within 2% Of The Optimum Moisture Content.

TYP. PIPE BEDDING DETAILS

NOT TO SCALE



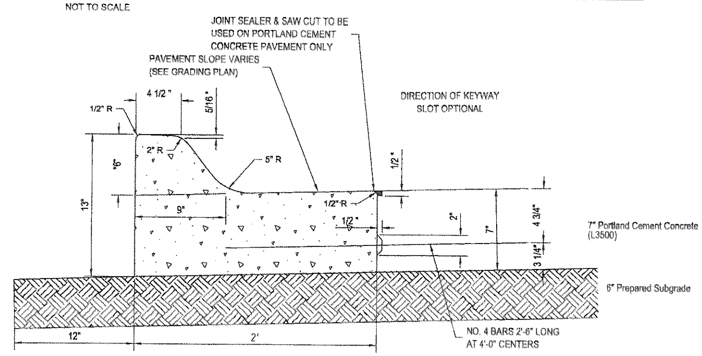
DETAIL 1
(TYPICAL CONSTRUCTION JOINT)



DETAIL 2
(TYPICAL CONTRACTION JOINT)

SAWING AND SEALING DETAILS

NOT TO SCALE



1. Prior To Constructing The Concrete Pavement, The Subgrade Shall Be Proofrolled With A Loaded Dump Truck Or Similar Piece Of Equipment To Locate Any Unstable Soils. Any Unstable Soils Shall Be Either Removed And Replaced With Properly Placed Earth Fill Or Reworked To Conform To The Moisture Content And Compaction Specifications Presented In The Geotechnical Report

2. The contractor shall have the option of constructing the curb and gutter seperately. The quantity for 7" P.C.C. Pavement assumes that curb and gutter will be constructed as integral.

* The typical height of curb is 6" unless otherwise noted. See the construction/paving plan for actual curb heights.

24" COMBINED CURB & GUTTER DETAIL AND TYPICAL PAVING SECTION DETAIL

NOT TO SCALE

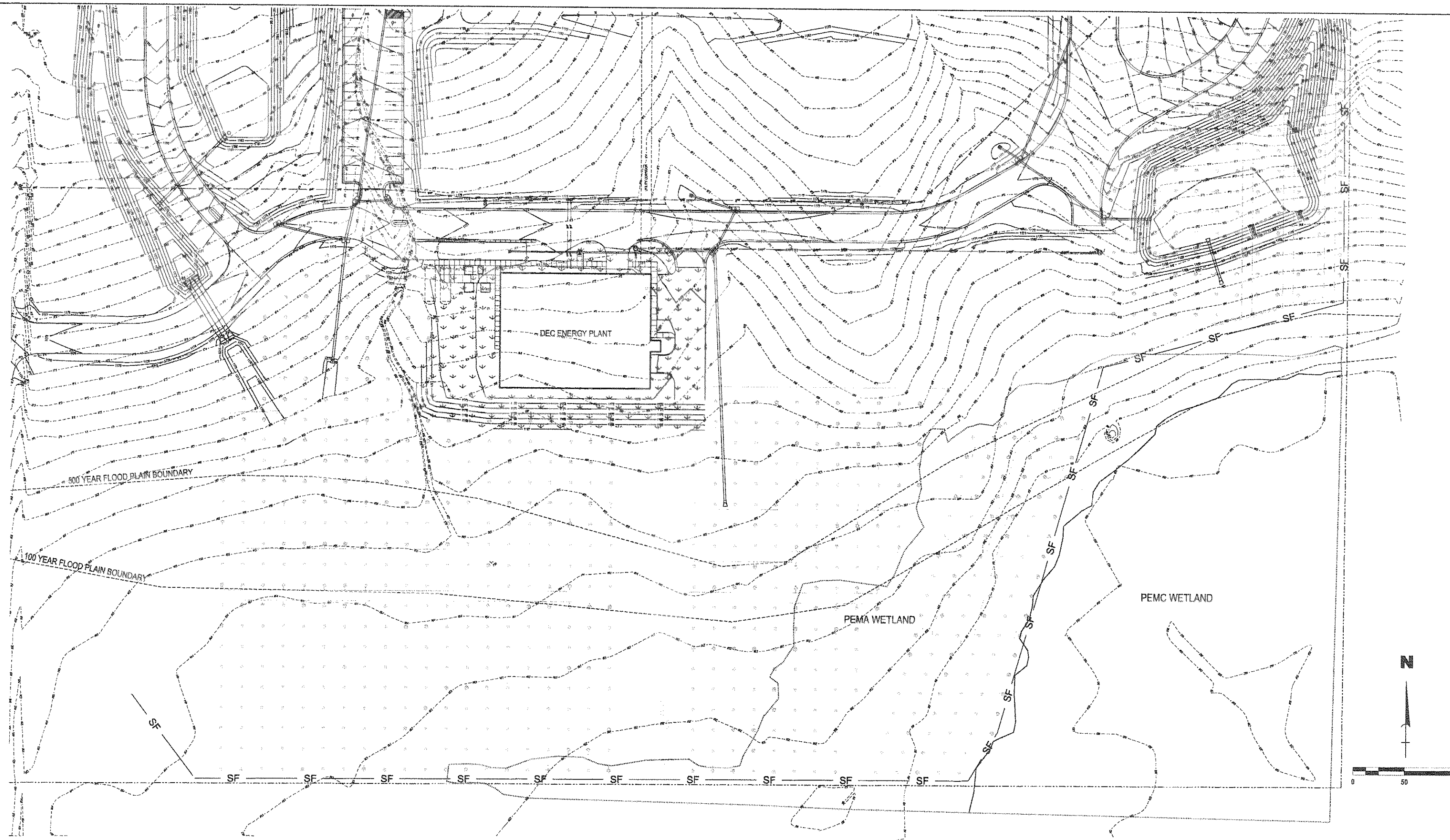
NO.	REVISIONS	DATE
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

SITE DETAILS

DISTRICT ENERGY CORPORATION
LINCOLN, NEBRASKA

HWS
LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
(402) 479-2200
www.hws.com

PROJECT: DEC
DATE: JUNE 2009
JOB NO. 12655003
SHEET NO. C-06



LEGEND

- - - - - - -	PROPERTY LINE
- - - - - - -	EASEMENT OR SETBACK LINE
═══════	PROPOSED STORM SEWER
=======	EXISTING STORM SEWER
------1410------	EXISTING CONTOURS
——1410——	PROPOSED CONTOURS
- - - - - - -	FLOOD PLAIN BOUNDARY
- - - - - - -	WETLAND BOUNDARY
—— SF ——	SILT FENCE
	SEEDING, TYPE B

Diggers Hotline Of Nebraska
Statewide (800) 331-5666 or "811"
www.ne-diggers.com
Call Before You Dig... Its The Law

PRIOR TO CONSTRUCTION:

CALL : 1-800-331-5666 OR 811 FOR LOCATION OF UNDERGROUND TELEPHONE, ELECTRIC, GAS MAINS, CABLEVISION AND CITY OF LINCOLN UTILITIES.

NOTE: EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND DRAINAGE STRUCTURES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS THE RESPONSIBILITY OF THE INDIVIDUAL CONTRACTORS TO EXACTLY LOCATE AND PROTECT EACH EXISTING UTILITY BEFORE AND DURING ACTUAL CONSTRUCTION.

GENERAL NOTES:

The undersigned certifies this plan has been designed in accordance with the terms of the Interlocal Agreement For NPDES Compliance.

All erosion and sediment control practices shall be maintained in accordance with the requirements specified in the Lower Platte South Natural Resources District Manual of Erosion and Sediment and Storm Water Management Standards, dated 1994 and approved supplements. Construction and placement of erosion and sediment control devices shall conform to the Lincoln Standard Plans (LSP) 175, 176 and 178.

Following soil disturbance, permanent or temporary stabilization shall be completed within seven (7) calendar days to the surface of all perimeter sediment controls, topsoil stockpiles and any other disturbed or graded area on the project site which are not being used for material storage or on which actual earth moving activities are not being performed.

All sediment and erosion control practices will be inspected at least once every seven (7) calendar days and after any storm event of greater than 0.5 inches of precipitation during any 24-hour period by responsible personnel. Any necessary repairs or cleanup to maintain the effectiveness of the best management practices shall be made immediately.

FRANK DOLAND, P.E.

NO.	REVISIONS	DATE
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

STORM WATER POLLUTION PREVENTION PLAN

DISTRICT ENERGY CORPORATION LINCOLN, NEBRASKA

HWS
LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
(402) 479-2200
www.hws.com

PROJECT: DEC
DATE: JUNE 2008
JOB NO.: [illegible]
SHEET NO. C-07

THERMAL ENERGY & EMERGENCY POWER SERVICE AGREEMENT

Between

The Lancaster County of Nebraska

And

The District Energy Corporation

Services to

The Lancaster County Detention Facilities

DRAFT

March 10, 2009

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7007CON

THERMAL ENERGY ENERGY &
EMERGENCY POWER SERVICE
AGREEMENT

This Thermal Energy & Emergency Power Service Agreement ("Agreement") made as of the ___ day of ____, _____, between Lancaster County of Nebraska, as "Customer", and District Energy Corporation (DEC).

WITNESSETH:

WHEREAS, the Customer desires Thermal Energy heating and cooling services and emergency power service for the Lancaster County Detention Facilities located at SW 40 street, Lincoln Nebraska, collectively (the "Premises"), and

WHEREAS, DEC is a nonprofit Nebraska corporation organized by the City of Lincoln, Nebraska and the County of Lancaster, Nebraska pursuant to the Interlocal Cooperation Act to provide Thermal Energy Energy & Emergency Power Services for sale to such buildings and projects as may be authorized from time to time; and

WHEREAS, in order for the DEC to furnish such Thermal Energy & Emergency Power Services to the Customer it is advisable that the Customer and the DEC enter into an agreement for such service.
NOW THEREFORE, the parties hereby agree as follows:

ARTICLE 1
DEFINITIONS

Certain terms used, for the purposes of and subject to this Agreement unless otherwise indicated are defined as follows:

1.01 DEC

Shall be defined as the District Energy Corporation acting through the duly appointed board members, agents and employees within the scope of their duties and responsibilities.

1.02 Thermal Energy & Emergency Power Services

Shall be defined as the delivery of:
a) Thermal Energy by DEC for the purpose of heating and cooling.
b) emergency electrical energy by DEC for the purpose of emergency use during an electrical service interruption by the local utility.

1.03 Service Distribution System

The piping, electrical and communication cables and conduits connecting the distribution facilities to Customer's distribution system.

1.04 Point of Delivery

The point where DEC supplies service to a Customer and which, unless otherwise agreed upon between DEC and the Customer, shall be the point where DEC Service Distribution System is joined to the Customer's Distribution System.

The Point of Delivery for the Lancaster County Adult Detention facilities shall be at the demarcation point, which is 5' outside the south wall of the Customers building, at a mutually agreed point.

1.05 Meter

The device or devices including all auxiliary equipment necessary to measure and register a Thermal Energy quantity (energy or demand) that is supplied by DEC to the Customer at a Point of Delivery.

1.06 Facilities

The property and equipment used by DEC to provide Thermal Energy & Emergency Power Services to the Customer.

1.07 Parallel Thermal Energy Production

Parallel Thermal Energy Production shall be defined as all forms of Thermal Energy and electrical Energy which could operate in parallel with the Facilities. Such equipment may incude, but not limted to, heatpumps, conventional heating and cooling systems, emergency generators, etc.

1.08 Facilities Investment Cost

The total cost to DEC, including preliminary survey, design, material, equipment, labor, labor overheads, financing costs, interest during construction and administrative costs to build, install, modify or purchase Facilities or property in order to provide Thermal Energy & Emergency Power Services for the Customer.

ARTICLE 2
CONTRACT TERM

2.01 This Agreement shall remain in effect for a period of 20 years from its date or until all debt associated with the Facilities has been paid, whichever is longer. Thereafter, this Agreement shall remain in effect on a year to year basis until either of the parties gives the other twenty-four month written notice of termination of this Agreement, whereupon the Agreement shall terminate. Should the Customer choose to terminate the Agreement at the end of 20 years notice shall be given no later than the last day of the eighteenth year.

2.02 In the event of termination of Thermal Energy & Emergency Power Services pursuant to 6.04 of this Agreement, the Customer shall remain obligated to pay DEC the greater of: 1) The estimated cumulative Demand Charges (Facilities Financing), as defined in Exhibit A, for service throughout the remaining term of this Agreement, or 2) An amount estimated by DEC which represents the remaining unamortized portion of the Facilities Investment Cost made by DEC to serve the Customer.

2.03 In the event no funds or insufficient funds are lawfully and fully budgeted and appropriated by the Customer in any fiscal year of the Customer to provide for the payment of all amounts due under this Agreement during such fiscal year, then the Customer will immediately notify DEC of such occurrence. On the first day of the month following the fiscal year during which the last payment pursuant to this Agreement can be made in full from lawfully budgeted and appropriated funds, the obligation of DEC to provide Thermal Energy & Emergency Power Services hereunder shall terminate, and the Customer shall have no further obligation

under this Agreement of any kind whatsoever, except as to the portions of any payments herein agreed upon for fiscal years in which sufficient funds have been lawfully budgeted and appropriated. In the event of such termination, the Customer shall have no right, title, interest or claim to any part of the Facilities. DEC will have all legal and equitable rights and remedies available to it by law, including, but not limited to, possession of the Facilities and of the same as it determines to be in its best interests.

2.04 On the termination of this Agreement and upon the written request of the Customer, if the Customer has paid in full all amounts due pursuant to this Agreement, DEC will convey and transfer the Facilities to the Customer by good and sufficient instrument of conveyance and will assign to the Customer all of its right, title and interest in and to the Facilities free and clear of all liens and encumbrances, except any encumbrances caused by default of the Customer, hereunder, and such conveyance and assignment shall be made without payment by the Customer of any other consideration therefore.

2.05 At any time during the term of this Agreement, the Customer shall have the option to purchase the Facilities upon such date as shall be specified by the Customer in a written notice provided to DEC not less than twenty-four months prior to the date specified for such purchase and upon payment of such amount as shall be necessary to discharge all debt incurred by DEC in connection with the Facilities in accordance with the instrument authorizing the issuance of such debt, together with all other amounts which are or may be or become due under this Agreement prior to the date specified for such purchase. Upon receipt of such notice and payment of such amounts, the Facilities shall be transferred to the Customer in the same manner and on the same conditions as provided in Section 2.04 above.

ARTICLE 3
AVAILABILITY AND CHARACTER OF SERVICE

3.01 The availability of service and the Facilities (to be used in providing Thermal Energy & Emergency Power Service) shall be determined by DEC before connection to the Service Distribution System. DEC shall advise the Customer of the available capacity, pressure and temperature for Thermal Energy & Emergency Power Services. The Customer shall be responsible for operation, maintenance, replacement and renewal expenses on all Customer equipment.

ARTICLE 4
RATES AND CHARGES

4.01 Customer shall pay the monthly charges as set forth in Exhibit A of this Agreement based upon the cost of service principles in Exhibit B. These

charges are subject to adjustment by DEC from time to time based on cost of service. The Customer will be notified in writing of any changes.

4.02 Exhibit A - Thermal Energy & Emergency Power Service-Rate Schedule may be modified by DEC at any time upon 60 days prior written notice to the Customer. Such revised Exhibit A shall replace the then current Exhibit A.

ARTICLE 5
DELIVERY POINT

5.01 The DEC rates are based upon the supply of Thermal Energy & Emergency Power Services to the entire premises through a single delivery and metering point. If DEC agrees to supply Thermal Energy & Emergency Power Service to more than one Point of Delivery, each Point of Delivery will be considered a separate service. Meter readings will not be combined for billing purposes. Equipment which can transfer load between separately metered Thermal Energy & Emergency Power Services will not be allowed.

ARTICLE 6
PAYMENT AND BILLING

6.01 Charges for Thermal Energy & Emergency Power Services shall be calculated in accordance with Exhibit A using the data collected by the Meter.

6.02 DEC shall be paid monthly for Thermal Energy & Emergency Power Services made available to the Customer. Payment is due and payable at the Accounting Office of DEC at P.O. Box 80869, Lincoln, NE 68501 upon the Customer's receipt of the DEC' statement and is delinquent if not paid to DEC within forty five (45) days from the date billed. Any overdue balance is subject to a late charge of one percent per month.

6.03 The Demand Charge-Facilities Financing is billable annually and payable on July 15 in each year during the term of the Agreement to provide for the payment of debt service and coverage on DEC indebtedness for the project. The first annual payment is due July 15, 1999 and payable as set forth in the Agreement. The Demand Charge-Other will be billed monthly. The first Demand Charge-Other monthly billing will commence September 1, 1999.

6.04 Termination of Thermal Energy & Emergency Power Services may occur for nonpayment of an undisputed bill over thirty (30) days in arrears. The system will provide written notice of account status for service fifteen (15) days prior to termination of Thermal Energy & Emergency Power Services. Causes for termination may also include, but shall not be limited to, the following:

a. Without notice in the event of a condition determined by the DEC to be hazardous.

b. Without notice in the event of use of Customer equipment in such a manner as to adversely affect the Facilities or Thermal Energy & Emergency Power Services to others.

c. Without notice upon in the event of a violation of the provisions of Article 12.

d. Upon 30 days written notice for any other violation or noncompliance with this Agreement.

e. Upon 30 days notice for failure of the Customer to provide and maintain to DEC unobstructed access to the Facilities.

6.05 If reconnected after disconnection, DEC may include a charge covering the cost of restoring Thermal Energy & Emergency Power Services including labor, material and equipment.

6.06 A disputed bill for Thermal Energy & Emergency Power Services is one where the Customer questions the accuracy of the calculations. The Customer must present in writing within 15 days the disputed points to avoid termination. DEC will provide in writing a response to the disputed points within 15 days of the receipt of Customer's dispute. Resolution of the dispute will have final disposition under the authority of DEC' Board of Directors. The accuracy of the meter readings is covered in Article 9.04.

ARTICLE 7
RESALE AND REDISTRIBUTION OF SERVICE PROHIBITED

7.01 Thermal Energy & Emergency Power Service purchased by Customer shall be for the sole use of Customer in and upon the Premises and shall not be sold directly nor a bill rendered, on a metered basis, by Customer to any third party.

ARTICLE 8
SERVICE INSTALLATION

8.01 Prior to connection with the Facilities, the Customer's piping and other equipment must conform to the requirements of the DEC or such other requirements of the applicable governmental authorities. It is the Customer's responsibility to obtain from the DEC the maximum pressure, flow and temperature available at the Point of Delivery for use in Customer's design of the Customer's equipment.

8.02 The location of the Service Distribution System and Meter shall be determined by DEC in coordination with the Customer. Any piping installed without first determining the Point of Delivery shall be brought into conformance by Customer upon notification by DEC. It is the Customer's responsibility to provide and maintain unobstructed access to the Meter for DEC.

8.03 The Customer, without expense to DEC, shall provide or procure the easements necessary to furnish Thermal Energy & Emergency Power Service to the Customer. DEC will not make installation of Service Distribution System until all necessary easements have been obtained.

8.04 DEC will connect Service Distribution System as soon as practical after final inspection by the appropriate authority(s) and DEC.

8.05 The Customer shall notify DEC of any expected changes in Thermal Energy & Emergency Power Services which requires delivery of Thermal Energy energy for heating purposes at a level which exceeds 120% of the Customer's prior maximum level of Thermal Energy energy delivered for heating purposes. Such notice shall be given at least twelve **(12)** months prior to the expected change.

8.06 The Customer shall provide any devices necessary to protect the Customer's equipment from loss or damage due to disturbances in Thermal Energy & Emergency Power Services. It is expressly understood that DEC has no liability for any such loss or damage and Customer shall bear the risk of all such loss or damage.

8.07 The Customer shall provide unrestricted access to a location on the DEC side of the Point of Delivery for the installation, maintenance and operation of DEC owned cutoff valves.

ARTICLE 9
METERING

9.01 DEC shall furnish the Meter required to measure the Thermal Energy & Emergency Power Services supplied, and will keep the Meter accurate within the limits specified in 9.03.

9.02 The DEC will provide separate metering for the Nebraska State Office Building and the Capital at the Central Steam Plant.

9.03 Any meter used for billing purposes installed pursuant to this Agreement shall be tested by DEC at any reasonable time upon request by either party, at the requesting party's expense. If a Meter is found to violate tolerances set by equipment manufacturer's specifications or to be otherwise defective, it shall be repaired or replaced. Customer shall be afforded an opportunity to have its representative present during all testing which has been requested by the Customer.

9.04 If any test of the Meters discloses inaccuracy in excess of the equipment manufacturer's specifications, payments shall be adjusted for:

a. The actual period during which inaccurate measurements were made, if the period can be determined, or if not;

b. The adjustments shall be made for the previous month or from the date of the latest test (if within the previous month) and for the elapsed period in the month during with the test was made.

9.05 Should the Meter at any time fail to register or should the registration thereof be so erratic as to be meaningless, the amounts of Thermal Energy & Emergency Power Services provided shall be determined from the best data available.

ARTICLE 10
CONSTRUCTION AND GRADE CHANGES

10.01 The Customer shall be liable to DEC for all costs incurred in the relocation and repair of Facilities necessitated by construction work or grade changes on the property or required by other changes or circumstances beyond the control of DEC.

ARTICLE 11
SYSTEM DISTURBANCES

11.01 DEC will require installation by the Customer of corrective equipment, to be approved by DEC, in cases where DEC has determined the operation of the Customer's equipment would result in operating conditions unacceptable to DEC.

11.02 The Customer will protect DEC's distribution steam and water from accidental or intermittent contamination. No mixing of DEC and Customer water shall occur. DEC will not supply either hot or cold water for consumption by Customer.

11.03 The Customer shall be responsible for the isolation of Customer's potable water system from possible contamination contained in DEC's distribution steam or condensate water.

ARTICLE 12
CUSTOMER PARALLEL OPERATION

12.01 The Customer shall only be allowed to interconnect Thermal Energy production equipment with the Facilities upon meeting DEC's parallel production requirements. Any unapproved Parallel Thermal Energy Production installations shall be grounds for immediate disconnection of Thermal Energy & Emergency Power Services.

12.02 If the Customer has Thermal Energy generation capacity for supplying its needs during an interruption in Thermal Energy & Emergency Power Services, then an approved transfer means shall be installed in the Customer's piping. The transfer means shall be capable of first

disconnecting the load from piping connected to the Facilities before transferring the load to the Customer's Thermal Energy generation equipment.

ARTICLE 13
ASSIGNMENT AND SUCCESSORS

13.01 This Contract shall not be assigned in whole or in part by the Customer without the prior written approval of the DEC. This contract shall be binding upon the successors and assigns of the Customer.

ARTICLE 14
INDEMNIFICATION

14.01 The Customer shall, to the extent and as permitted by law, indemnify and hold DEC and its directors, employees and agents harmless from any damage, liability or cost to the extent caused by the negligent acts, errors, or omissions of the Customer or caused by the breach of any of the representations or warranties of the Customer herein arising out of or in connection with the delivery of Thermal Energy & Emergency Power Services under this Agreement.

14.02 Under no circumstances shall DEC its directors, officers, employees or agents, be liable to the Customer for any indirect, special, incidental or consequential damages, including but not limited to, loss of revenue, loss of full or partial use of facility, cost of capital or other similar damages.

ARTICLE 15
NOTICES

15.01 Except as otherwise provided herein any notices or communications permitted or required herein shall be deemed given where sent in writing by first class mail with sufficient postage affixed thereto to the following addresses of the parties. Notice shall be deemed to be given 3 days following the date such notice is delivered to the United States Postal System or upon the date of actual delivery to the Party if another delivery system is used.

a. If to the Customer:
Administrator
State Building Division
Lancaster County of
Nebraska
521 South 14th Street
Lincoln, NE 68508-2707

b. If to DEC:
District Energy Corporation
P.O. Box 80869
Lincoln, NE 68501
ATT: DEC Management Contractor

ARTICLE 16
NONDISCRIMINATION

16.01 The Nebraska Fair Employment Practice Act prohibits contractors to the State of Nebraska, and their subcontractors, from discriminating against any employee or applicant for employment, to be employed in the performance of such contracts, with respect to hire, tenure, terms, conditions or privileges of employment because of race, color, religion, sex, disability, or national origin. (48-1101 to 48-1125)

The DEC's signature to this proposal is a guarantee of compliance with the Nebraska Fair Employment Practice Act, and breach of this provision shall be regarded as a material breach of contract. The contractor shall insert a similar provision in all subcontracts for services to be covered by any contract resulting from this agreement.

ARTICLE 17
ENTIRETY

17.01 This agreement and Exhibits A and B, are intended by the parties as the final expression of their agreement and is intended also as a complete and exclusive statement of the terms of their agreement. All prior written or oral understanding, offers or other communications of every kind pertaining to the sale of Thermal Energy
Services to the Customer by DEC are here by superseded and replaced.

ARTICLE 18
FORCE MAJEURE

18.01 If DEC shall be wholly or partially prevented from performing any of its obligations under this Agreement by reason of or through strikes, lightning, rain, wind, riots, fire, flood, invasion, insurrection, civil commotion, accident, equipment failures, the order of any court, judge or civil authority, war, any act of God, the public enemy, or any other similar cause reasonably beyond its exclusive control and not attributable

to its neglect, then and in any such event, DEC shall be excused from whatever performance is prevented by such event.

to the extent so prevented, and DEC shall not be liable for any damage or loss resulting therefrom.

IN WITNESS WHEREOF, this Agreement has been executed as of the date first above written.

EXHIBIT A

DISTRICT ENERGY CORPORATION
THERMAL ENERGY & EMERGENCY
POWER SERVICE RATE SCHEDULE
DATED: August 4, 1998

APPLICABLE: The Customer will be placed on this rate upon the effective date of a Thermal Energy & Emergency Power Services Agreement.

CHARACTER OF SERVICE: The character of Thermal Energy & Emergency Power Service shall be as defined in ARTICLE 3 of the Thermal Energy & Emergency Power Service Agreement.
ANNUAL BILL: Demand Charge (Facilities Financing)

MONTHLY BILL: Demand Charge (other) + Commodity Charge for Steam + Commodity Charge for Condensate Consumed + All Surcharges (if applicable); based on the rate in effect.

MONTHLY BILLING PERIOD: Under normal conditions, BILLING PERIODS typically range from 27 to 35 days. BILLS are rendered on the basis of the scheduled meter reading dates for a date agreeable with the DEC for final readings. There will be twelve billing periods per year.

RATE: (Estimated)

Demand Charge . . . . . (Facilities Financing)	$346,000 Billable annually payable on July 15.
Demand Charge (Other). . .	$8333.00 per Billing Period.
Commodity Charge. . . . . for Energy	$5.00 per MMBTU for all MMBTU delivered through the system per Billing Period.
Commodity Charge . . . . . for Condensate Consumed by Customer	$.05 per gallon for all gallons of condensate delivered to the Customer but not returned to DEC.

Upon request DEC will if practical provide recorded energy consumption readings for the purpose of allocating Demand and Energy charges.

MINIMUM BILL: Demand Charge.

TERMS AND CONDITIONS:

1. Thermal Energy & Emergency Power Services will be furnished subject to the DEC Thermal Energy & Emergency Power Service Agreement.

2. TERMS OF PAYMENT- BILLS are due and payable upon receipt and delinquent if not paid in within 45 days of date of billing.

EXHIBIT B

DISTRICT ENERGY CORPORATION
THERMAL ENERGY & EMERGENCY
POWER SERVICE
COST OF SERVICE PRINCIPALS

For purposes of developing charges for Thermal Energy energy service provided by the DEC, cost of service analysis will be conducted from time to time (typically annually). All expenses chargeable to or directly assigned to DEC will be separated into three major cost components - capacity, commodity and customer related. A fully distributed cost of service approach will be used as it relates historical costs of existing facilities with the normalized expenses that occur in an annual test period. Investments, operations, and maintenance expenses are functionally related to the three major components of cost.

The fully distributed costing method attempts to allocate the embedded cost associated with common facilities on an equitable basis. The costs, however, that are not common to all users will be assigned directly to the user responsible for their occurrence. Established standard utility cost of service methodology, will be utilized to assign costs to different types of services provided (i.e., chilled water, hot water, steam.)

Capacity or demand related costs are those costs incurred by or related to the ownership and maintenance of the physical plant used by DEC. Examples of capacity related costs include debt service and coverage, the capacity portion of purchased energy contracts and fixed operation and maintenance expenses on facilities.

Commodity related costs vary as a function of the amount of the commodity (hot water, cold water or steam) delivered by DEC. Examples of commodity related costs are those associated with fuel used in production of the Thermal Energy energy, electrical energy cost and variable operations and maintenance costs. Energy allocation factors incorporating distribution losses will be applied as necessary.

Customer related costs vary as a function of the number of customers served by DEC. Example of costs included are billing, meter reading, operation and maintenance of metering equipment, technical assistance, investment cost for meter reading equipment and other customer related distribution facilities (i.e., shutoff valves). Allocation factors may be utilized to estimate costs of providing service to different customer classes. Customer costs may be included in capacity costs for billing purposes.

The revenue requirement will be determined in order to trace the cost of production and delivery of Thermal Energy energy in the various stages to its final use. The revenue requirement will be divided into:

1. Production - internal production, purchase contracts and other production expenses.

2. Distribution - expenses for operating the facilities needed to deliver the energy to the customer.

Thermal Energy

3. Accounting expenses.

4. Customer related investment and operation and maintenance expenses.

5. Administrative and general expenses allocated to production, distribution and customer related functions.

6. Debt service including interest expense and principal payment on outstanding debt, allowance for debt coverage requirements and construction revenues.

Since costs may vary with time of use, time differentiated costing and rates may be developed. Marginal costing may be utilized in the development of the time differentiated cost of service analysis.

Once the total cost per class and per unit cost of different consumption levels have been determined, rates will be designed that recover revenues approximately equal to the cost incurred by each class and are fair, equitable and easily understood by the customers.

It is the intent that the rates designed would fully cover the total expenses of DEC.

FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT

U.S. Department of Energy
Golden Field Office

Recovery Act – Geothermal Technologies Program:

Ground Source Heat Pumps

Funding Opportunity Announcement Number: DE-FOA-0000116

Announcement Type: Initial

CFDA Number: 81.087

Issue Date:	**06/02/2009**
Application Due Date:	**08/06/2009, 11:59 PM Eastern Time**

NOTE: Questions regarding the content of this announcement must be submitted through FedConnect. Applicants must be registered in FedConnect to submit or view Questions.

APPLICATION SUBMISSION, FEDCONNECT QUICK START GUIDE, REGISTRATION REQUIREMENTS, AND SUBMISSION OF QUESTIONS

1. **Application Submission**
   APPLICATIONS MUST BE SUBMITTED THROUGH FEDCONNECT AT https://www.fedconnect.net/ TO BE CONSIDERED FOR AWARD. The Adobe Application Package identified in Section IV. C. is posted as an attachment to this Funding Opportunity Announcement (FOA) (in FedConnect). It is the responsibility of the applicant, prior to the application due date and time, to verify successful transmission.

   In the Adobe Application Package that is provided as a separate attachment to this announcement in FedConnect, first attach your application documents within the Adobe Application Package. Then save the Adobe Application Package, and submit it via the FedConnect portal. IMPORTANT: DO NOT use the "Save & Submit" button in the Adobe Application Package, because that button is only used when submitting an application in Grants.gov.

   Organizations with system-to-system capabilities with Grants.gov for their submissions may continue to use their systems, and they may apply through Grants.gov.

2. **Electronic Authorization of Applications and Award Documents**
   Submission of an application and supplemental information under this announcement through electronic systems used by the Department of Energy, including FedConnect, constitutes the authorized representative's approval and electronic signature.

   Submission of award documents, including modifications, through electronic systems used by the Department of Energy, including FedConnect, constitutes the authorized representative's approval and acceptance of the terms and conditions of the award. Submission via FedConnect constitutes the authorized representative's electronic signature.

3. **FedConnect Quick Start Guide**
   Use this guide to assist you with FedConnect:
   https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf

4. **Registration Requirements**

   To submit an application in response to this FOA, applicants must be registered with FedConnect. Before you can register with FedConnect, you will need the following:

   A. Your organization's DUNS (including plus 4 extension if applicable). If you do not know your organization's DUNS or if your organization does not have a DUNS, you can search for it or request one at http://fedgov.dnb.com/webform/displayHomePage.do .

   B. A Federal Central Contractor Registration (CCR) account. If your organization is not currently registered with CCR, please register at www.ccr.gov before continuing with your FedConnect registration.

C. Possibly, your organization's CCR Marketing Partner Identification Number (MPIN). If you are the first person from your organization to register, FedConnect will need to create an organization account. Only a person who knows your organization's CCR MPIN can do this. To find out who this is in your organization, go to http://www.ccr.gov/ and click **Search CCR**. Once you have found your organization, locate the Electronic Business Point of Contact.

After the initial FedConnect account is created, employees can register themselves without the MPIN. If you are not sure whether your organization has an account with FedConnect, complete the registration form and FedConnect will let you know if your organization is registered. (PLEASE REFER TO THE FEDCONNECT QUICK START GUIDE).

Applicants who are not registered with CCR and FedConnect, should allow at least 21 days to complete these requirements. It is suggested that applicants start the process as soon as possible. For those applicants already registered in CCR, the CCR registration must be updated annually at http://www.ccr.gov/Renew.aspx.

5. **Adobe Application Package - Instructions for Completion of Forms**

The Adobe Application Package was intended to be utilized in Grants.gov; however, DOE is currently utilizing it with FedConnect. Please disregard any information within the Adobe Application Package regarding use with Grants.gov; specifically, DO NOT use the "Save & Submit" button in the Adobe Application Package, because that button is only used when submitting an application in Grants.gov.

A. Copy the Adobe Application Package to your desktop;

B. Open the Adobe Application Package, and first complete the SF-424 Application, Project/Performance Site Location(s) form, and SF-LLL form (if applicable), which are all part of the Adobe Application Package. To start this process, simply click on the form's name to select the item and then click on the => button. This will move the document to the appropriate "Documents for Submission" box and the form will be automatically added to your application package. Open the forms by selecting the form name and clicking on the "Open Form" button, then complete the required data fields.

C. Identify the remaining forms required to be completed, as identified in Part IV of the Announcement. Prepare and save these forms to your desktop (e.g., project narrative, resume file, budget file). Once finalized and files are named as indicated in Part IV of the Announcement, upload (attach) these files individually within the Adobe Application Package by clicking on "Add Mandatory Other Attachment" to attach the Project Narrative and clicking on "Add Optional Other Attachment" to attach the remaining files;

D. Once all completed files have been attached within the Adobe Application Package, save the Adobe Application Package to your desktop, and submit to FedConnect, following the steps outlined in the FedConnect Quick Start Guide at:

https://www.fedconnect.net/Fedconnect/PublicPages/FedConnect_Ready_Set_Go.pdf
Note that applications may be submitted to multiple Topic Areas; however, SEPARATE applications must be submitted for each Topic Area. If submitting to multiple Topic Areas, save the Adobe Application Package in a single file, using up to 10 letters of the applicant's Organization Name as the file name (e.g., UCLA). If your organization is submitting more than one application to different Topic Areas, you must identify an application number and the Topic Area Number at the end of each file name (e.g., UCLA-1-Topic1).

Note that it is the responsibility of the applicant, prior to the application due date and time, to verify successful transmission in FedConnect.

6. Questions

Questions regarding the content of the announcement must be submitted through the FedConnect portal. You must register with FedConnect to submit questions and to receive responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. More information is available at https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf. DOE will try to respond to a question within 3 business days, unless a similar question and answer have already been distributed.

Instructions for completing the Grant Application Package are contained in the full text of the Funding Opportunity Announcement (FOA) which can be obtained at: https://www.fedconnect.net/Fedconnect/PublicPages/PublicSearch/Public_Opportunities.aspx by clicking on the "Advanced Options" link, and in "Issuing Office" field, entering "Golden Field Office", then clicking on "Search". Once the screen comes up, locate the appropriate Announcement. In order to be considered for award, you MUST follow the instructions contained in the Announcement.

Questions pertaining to the submission of applications through FedConnect or the FedConnect system should be directed by e-mail to support@FedConnect.net or by phone to FedConnect Support at 1-800-899-6665.

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SECTION I – FUNDING OPPORTUNITY DESCRIPTION

A. Introduction: American Recovery and Reinvestment Act of 2009

Projects under this FOA will be issued with funds appropriated by the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, (Recovery Act or Act). The Recovery Act's purposes are to stimulate the economy and to create and retain jobs. The Act gives preference to activities that can be started and completed expeditiously, including a goal of using at least 50 percent of the funds made available by it for activities that can be initiated not later than June 17, 2009. Due to the schedule of this FOA, this date does not impact applications to this FOA. Accordingly, special consideration will be given to projects that promote and enhance the objectives of the Act, especially job creation, preservation and economic recovery, in an expeditious manner.

Be advised that special terms and conditions may apply to projects funded by the Act relating to:

- Reporting, tracking and segregation of incurred costs;
- Reporting on job creation and preservation;
- Publication of information on the Internet;
- Access to records by Inspectors General and the Government Accountability Office;
- Prohibition on use of funds for gambling establishments, aquariums, zoos, golf courses or swimming pools;
- Ensuring that iron, steel and manufactured goods are produced in the United States;
- Ensuring wage rates are comparable to those prevailing on projects of a similar character;
- Protecting whistleblowers and requiring prompt referral of evidence of a false claim to an appropriate inspector general; and
- Certification and Registration.

These special terms and conditions will be based on provisions included in Titles XV and XVI of the Act. The exact terms and conditions will be provided as soon as possible. The currently available Special Provisions are located at: http://management.energy.gov/business_doe/business_forms.htm.

The Office of Management and Budget (OMB) has issued Initial Implementing Guidance for the Recovery Act. See M-09-10, Initial Implementing Guidance for the American Recovery and Reinvestment Act of 2009. OMB will be issuing additional guidance concerning the Act in the near future. Applicants should consult the DOE website, www.energy.gov, the OMB website http://www.whitehouse.gov/omb/, and the Recovery website, www.recovery.gov, regularly to keep abreast of guidance and information as it evolves.

Recipients of funding appropriated by the Act shall comply with requirements of applicable Federal, State, and local laws, regulations, DOE policy and guidance, and instructions in this FOA, unless relief has been granted by DOE. Recipients shall flow down the requirements of applicable Federal, State and local laws, and regulations, DOE policy and guidance, and instructions in this FOA to subrecipients at any tier to the extent necessary to ensure the recipient's compliance with the requirements.

Be advised that Recovery Act funds can be used in conjunction with other funding as necessary to complete projects, but tracking and reporting must be separate to meet the reporting requirements of the Recovery Act and related OMB Guidance. Applicants for projects funded by sources other than the Recovery Act should plan to keep separate records for Recovery Act funds and ensure those records comply with the requirements of the Act. Funding provided through the Recovery Act that is supplemental to an existing grant is one-time funding.

Applicants should begin planning activities for their first tier subawardees, including obtaining a DUNS number (or updating the existing DUNS record), and registering with the Central Contractor Registration (CCR). The extent to which subawardees will be required to register in CCR will be determined by OMB at a later date.

B. Description

Background

The U.S. Department of Energy (DOE) Geothermal Technologies Program (GTP) will address Section 931(a)(2)(C) of the Energy Policy Act (EPAct) of 2005, which includes authorization to promote the deployment of ground source heat pumps, also known as geothermal heat pumps (GHPs). Funding will be made available through the American Recovery and Reinvestment Act of 2009. Through this FOA, DOE seeks to increase the deployment of ground source heat pumps through new commercialization strategies that incorporate: 1) innovative commercial-scale or residential community technology demonstration projects; 2) data gathering and analysis related to system costs, performance, and installation techniques; and 3) a national GHP certification standard. These strategies should address key barriers that have prevented this technically-mature technology from reaching its full commercial potential, including the high cost of installation, limited consumer knowledge and trust in GHP systems, and the lack of business and financing approaches to deliver the technology in a cost-effective and ubiquitous manner in the marketplace.

DOE's objective in offering this FOA is to promote ground source heat pumps via the following three Topic Areas:

1. **Technology Demonstration Projects:** DOE will fund mid- or large-scale (**i.e., provide 50-100 tons of heating and/or cooling**) cost-shared technology demonstration projects that incorporate innovative business and financing strategies and/or technical approaches designed to overcome commercialization barriers that currently exist for GHPs. These projects should also include a data gathering, analysis and reporting component, to provide hard data on system performance and benefits, installation techniques and other best practices. The data generated from these projects will be presented via the GTP website or other means and made available to aid consumers in their purchase decisions. Please see pages 3, 4 and 5 for more detail.

2. **Data Gathering and Analysis:** DOE will fund data gathering and analysis research papers related to system costs, performance, and installation techniques which will provide insights into the lowest life-cycle cost applications for GHPs and assist consumers in determining project feasibility. Proposed projects should include collaboration with industry, academia and National Laboratory partners to assemble independent, statistically valid data on the costs and benefits of GHPs in a variety of

building applications to target those that are most cost effective from a life cycle standpoint. Projects should include modeling of system performance and cost benefits for a variety of system designs and applications, from small residential to large district heating systems, and identify GHP applications based on lowest life cycle cost. Please see page 5 for more detail.

3. **National Certification Standard:** DOE will fund organization(s) to create a national certification standard for the GHP industry designed to increase consumer confidence in the technology, reduce the potential for improperly installed systems, and assure product quality and performance. Projects should solicit information and input from a variety of industry stakeholders, manufacturers, professional and trade organizations to develop a certification standard for all primary personnel involved in the installation of GHP systems, including drillers; plumbers and electricians; Heating, Ventilating, and Air Conditioning (HVAC) and refrigeration specialists; engineers; and architects. **This Topic Area does NOT include the development of curriculum, training, or certification programs.** Please see page 6 for more detail.

The Program seeks to maintain an aggressive schedule for project completion as well as the creation and maintenance of jobs. Applications with more aggressive schedules for completion, greater number of jobs created, cost share above the minimum level required, and cooperation between industry, accredited educational institutions, and/or Indian Tribes/ Tribal Energy Resource Development Organizations or Groups may be given greater consideration.

A single Principal Investigator or organization may submit separate applications to multiple Topic Areas, or separate applications to a single Topic Area. **However, a single Principal Investigator or organization may not submit a single application that addresses multiple Topic Areas. Each application will be evaluated according to its respective merit review criteria. Therefore, applicants are required to clearly declare which Topic Area they are applying for within each application. Applications that address more than one Topic Area will not pass the Initial Review.** Also, DOE reserves the right to make one award, multiple awards, or no awards in any given Topic Area.

For all Topic Areas, the applicant must state, in writing with concurrence from an authorized representative from the organization, that non-proprietary data collected during the project period will be made available to the public through the National Geothermal Data System (please reference http://www1.eere.energy.gov/geothermal/ for more information). The data shall be converted to a common file format (e.g., Word, PDF, .jpg) if necessary. DOE must also be provided with reasonable access to the project site.

Topic Area 1
Technology Demonstration Projects

Proposed projects for Topic Area 1 (Technology Demonstration Projects) MUST be of a mid- or large-scale (i.e. provide no less than 50 tons of heating and/or cooling). It is NOT the intent of this topic to fund installation of small-scale residential or commercial heat

pump systems that do not provide at least 50 tons (individually or in aggregate) of heating and/or cooling. If the application does not clearly state and demonstrate adherence to this requirement, it will NOT pass the Initial Review in order to be considered for Merit Review as described in Part V.A.

For Topic Area 1, any costs incurred prior to selection for negotiation of award (such as temperature gradient well drilling, borehole drilling, installation of existing system components, etc.) are not allowable project costs.

Applications for Topic Area 1 should also include an economic analysis and detailed discussion regarding the proposed approach for project replicability and transferability. Proposed projects should also be cost-effective, on a life-cycle and/or simple payback basis, and take advantage of existing conditions that reduce installation costs, such as local geological factors or the nature of the built environment that serve to minimize ground loop installation costs. DOE is seeking applications that offer greater energy savings, jobs created, and emissions avoided. Projects may include the following Phases:

Phase I – Feasibility Study and Engineering Design

During Phase I, recipients must conduct a feasibility study to ensure that a ground source heat pump can be utilized (technically and economically at the site) and provide a comprehensive design approach for the GHP installation, including the bore-field and ground loop system design.

Innovative business and financing strategies and/or technical approaches should be implemented. The project could successfully share or leverage financing and expertise from third parties (e.g., utilities, municipalities) to address the first-cost barrier that GHP systems face over conventional HVAC alternatives. This could include, for example, a GHP tariff approach, a community loop, or loop leasing scenario for a residential subdivision. The project could also be innovative from a technology perspective (e.g., it incorporates technology that improves the GHP value proposition, efficiency, performance, and maintenance requirements). This could include a new application approach, such as a hybrid system (e.g., GHP + cooling towers), the use of advanced energy storage technologies or heat exchanger designs. However, the proposed approach should also be replicable in that it should be capable of being transferred elsewhere.

Regulatory and environmental permitting must be completed prior to the end of this phase. Additionally, a program review may be included at the end of Phase I.

Phase II – Installation and Commissioning of Equipment

During Phase II, recipients will procure and install the equipment for the ground source heat pump and to report data on capital costs. The data shall include a detailed accounting of installation costs for the ground loop heat exchanger and balance of system components, as well as direct and indirect jobs created by the project.

Phase III – Operation, Data Collection, and Marketing

During Phase III, recipients must operate the geothermal heating/cooling facility for 2-3 years, provide annual reporting on energy savings, performance, operations and

maintenance characteristics, and continue to market the GHP system according to the business and design approach utilized. Marketing should be included in order to extend the business and technical approach to additional hardware installations. The ground source heat pump systems themselves will continue to serve as showcase facilities for the technology in order to market the innovative approach.

Award recipients will be required to provide detailed utility energy consumption data to demonstrate GHP energy performance. For retrofit applications, utility data should be provided that establishes building energy consumption baselines, pre- and post-retrofit. All non-proprietary data collected during the project period shall be made available on the National Geothermal Data System.

Topic Area 2
Data Gathering and Analysis

Projects for Topic Area 2 (Data Gathering and Analysis) will consist of research papers that address system costs, performance, and installation techniques to provide insights into the lowest life-cycle cost applications for GHPs and assist consumers in determining project feasibility. Recipients should propose projects that assemble independent, statistically valid data on the costs and benefits of GHPs utilized in a representative sample of building applications (e.g. residential, commercial, government, schools and universities), age, and utility service type (compare between electric and natural gas systems) and generating fuel mix (to calculate emissions offsets). The data gathering sample should be representative of major system loop designs and sizes, climate zones, and ground conditions, all which may have an impact on installation cost and feasibility. Data generated will be utilized by consumers to identify the most cost-effective applications. This Topic Area will include modeling of system performance and cost benefits for a variety of system designs and applications from small residential to large district heating systems to identify GHP applications based on lowest life cycle cost. Specifically, research papers may include but are not limited to:

- Investigate options to enhance efficiencies and reduce costs to the consumer, including options to aggregate drilling services and installations, simplify the customer purchase experience, and investigate unique financing approaches and novel applications
- Evaluate innovative utility programs and incentives, such as loop tariffs, community loops, loop leases, etc. Identify potential new business models, financing arrangements, project, service, and delivery approaches that address current GHP market barriers including industry best practices, and seek approaches to enhance system design and performance
- Create new modeling "decision" tools that enable prospective GHP customers to analyze system cost and performance for a variety of applications to aid in purchase and design decisions
- Develop validated hybrid designs and simulation tools. Hybrid GHP systems may offer the potential to improve system cost, economics and design flexibility
- Develop enhanced commercial-quality models/modeling tools for vertical, horizontal, and pond/lake loops. This may include GHP-specific interfaces for existing HVAC software design tools

Topic Area 3
National Certification Standard

Projects for Topic Area 3 (National Certification Standard) should develop a certification standard for all primary personnel involved in the installation of GHP systems. The standard should be based on a nationally-recognized competency regimen developed in conjunction with professional and trade organizations, product manufacturers, and government regulatory authorities. Recipients should base the certification standard on industry best practices for system design and installation, to provide the highest level of system performance, quality and safety. DOE anticipates that certification standards would remain in place and available to the public beyond the project period. **This topic does NOT include the development of curriculum, training, or certification programs.**

SECTION II – AWARD INFORMATION

A. Type of Award Instrument

DOE anticipates awarding grants or cooperative agreements under this program announcement.

B. Estimated Funding

Approximately $50 million is expected to be available for new awards under this announcement.

C. Maximum and Minimum Award Size

The DOE funding ceiling is defined as the maximum amount for an individual award made under this announcement. The DOE funding floor is defined as the minimum amount for an individual award made under this announcement. The following funding levels are expected for each Topic Area:

Program/Topic Area:	DOE Funding Ceiling	DOE Funding Floor
1	$5,000,000	None
2	$250,000	None
3	$3,000,000	None

D. Expected Number of Awards

Under this announcement, DOE expects to make the following number of awards for each Topic Area:

Program/Topic Area:	Number of Awards
1	Up to 10 for Topic Area 1
2	Up to 8 for Topic Area 2
3	Up to 3 for Topic Area 3

E. Anticipated Award Size

The anticipated award size for projects under each Topic Area in this announcement is:

Program/Topic Area	Anticipated Award Size
1	$5,000,000
2	$250,000
3	$1,000,000 - $3,000,000

F. Period of Performance

The anticipated period of performance for projects under each Topic Area in this announcement is:

Program/Topic Area	Award Duration
1	Up to 5 years
2	Up to 1 year
3	Up to 5 years

G. Type of Application

DOE will accept only new applications under this announcement (i.e., applications for renewals of existing DOE funded projects will not be considered).

SECTION III - ELIGIBILITY INFORMATION

A. Eligible Applicants

The following domestic entities are eligible to apply for this announcement: institutions of higher education, non-profit and for-profit private entities, State and Local Governments, Indian Tribes, and Tribal Energy Resource Development Organizations or Groups.

DOE Federally Funded Research and Development Centers (FFRDCs), non-DOE FFRDCs, National Laboratories, and Federal agencies are not eligible to apply as prime recipients for this announcement; however, these entities are eligible as sub-recipients **provided their scope and budget does not exceed 20% of total project costs.**

Foreign participants are eligible as sub-recipients provided that:

- The foreign sub-recipient effort, in aggregate, shall not exceed one-third (33%) of the total project costs which includes both the applicant's and the foreign subcontractor's portions of the effort.
- The foreign sub-recipient must provide the minimum required cost share for the Topic Area for its own portion of the project.

B. Cost Share

- **For Topic Area 1 (Technology Demonstration Projects),** DOE is seeking applications that provide a minimum cost share of 50% of the total project costs. However, DOE will consider applications with proposed cost share as low as 25% of the total project costs, using the Secretary of Energy's authority to reduce cost-share requirements under the Recovery Act. For Indian Tribes or Tribal Energy Resources Groups, cost share may be

waived in full. **Applicants proposing cost share below 50% must provide a justification for their request in the Project Narrative Part IV.C.b.** The justification should explain why the applicant cannot cost share at the statutory level (50%) and provide specifics as to why the applicant is proposing at the lower level.

- **For Topic Area 2, (Data Gathering and Analysis),** DOE is seeking applications that provide a minimum cost share of 20% of the total project costs. However, DOE will consider applications with proposed cost share as low as 10% of the total project costs, using the Secretary of Energy's authority to reduce cost-share requirements under the Recovery Act. For Indian Tribes or Tribal Energy Resources Groups, cost share may be waived in full. **Applicants proposing cost-share below 20% in must provide a justification for their request in the Project Narrative Part IV.C.b.** The justification should explain why the applicant cannot cost share at the statutory level (20%) and provide specifics as to why the applicant is proposing at the lower level.

- **For Topic Area 3, (National Certification Standard),** recipient cost share is not required.

C. Other Eligibility Requirements

Federally Funded Research and Development Center (FFRDC) Contractors

FFRDC contractors may be proposed as a team member on another entity's application subject to the following guidelines:

Authorization for non-DOE FFRDCs. The Federal agency sponsoring the FFRDC contractor must authorize in writing the use of the FFRDC contractor on the proposed project and this authorization must be submitted with the application. The use of a FFRDC contractor must be consistent with the contractor's authority under its award and must not place the FFRDC contractor in direct competition with the private sector.
Save the authorization document in a single file named "FFRDC_Auth.pdf," and attach.

Authorization for DOE FFRDCs. The cognizant Contracting Officer for the FFRDC must authorize in writing the use of a DOE FFRDC contractor on the proposed project and this authorization must be submitted with the application. The following wording is acceptable for this authorization.

> "Authorization is granted for the _____ Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complementary to the missions of the laboratory, will not adversely impact execution of the DOE assigned programs at the laboratory, and will not place the laboratory in direct competition with the domestic private sector."

Value/Funding. The value of, and funding for, the FFRDC contractor portion of the work will not normally be included in the award to a successful applicant. Usually, DOE will fund a DOE FFRDC contractor through the DOE field work proposal system and other FFRDC contractors through an interagency agreement with the sponsoring agency.

Cost Share. The applicant's cost share requirement will be based on the total cost of the project, including the applicant's and the FFRDC contractor's portions of the effort.

FFRDC Contractor Effort:

- The FFRDC contractor effort, in aggregate, shall not exceed **20%** of the total estimated cost of the project, including the applicant's and the FFRDC contractor's portions of the effort.

Responsibility. The applicant, if successful, will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues, including but not limited to, disputes and claims arising out of any agreement between the applicant and the FFRDC contractor.

D. Multiple Principal Investigators

The assignment and use of multiple Principal Investigators (PIs) in projects awarded under this FOA is allowed. The applicant, whether a single organization or team/partnership/consortium, must however indicate in the application if the project will include multiple PI's. The decision to use multiple PIs for a project is the sole responsibility of the applicant. If multiple PI's will be designated, the application must identify in the application the Contact PI/Project Coordinator and provide a "Coordination and Management Plan" that describes the organization structure of the project as it pertains to the designation of multiple PI's. This plan should, at a minimum, include:

- Process for making decisions on scientific/technical direction;
- Publications;
- Intellectual property issues;
- Communication plans;
- Procedures for resolving conflicts; and
- PI's roles and administrative, technical, and scientific responsibilities for the project.

SECTION IV – APPLICATION AND SUBMISSION INFORMATION

A. Address to Request Application Forms

Apply at FedConnect

In the Adobe Application Package that is provided as a separate attachment to this announcement in FedConnect, first attach your application documents within the Adobe Application Package. Then save the Adobe Application Package, and submit it via the FedConnect portal. IMPORTANT: DO NOT use the "Save & Submit" button in the Adobe

Application Package, because that button is only used when submitting an application in Grants.gov.

Organizations with system-to-system capabilities with Grants.gov for their submissions may continue to use their systems, and they may apply through Grants.gov.

B. Notice of Intent and Pre-Application

1. Notice of Intent

- Provide a notice of intent to apply via email to go.geothermal@go.doe.gov by 07/16/2009, 11:59 PM Eastern Time. The notice should include the applicant's name, FOA title, and Topic Area to which you will be applying. The notice of intent will be used for DOE planning purposes only.

2. Pre-Application

- A pre-application is not required.

C. Content and Form of Application

The Adobe Application Package is provided as a separate attachment to this Funding Opportunity Announcement in FedConnect.

Organizations with system-to-system capabilities with Grants.gov for their submissions may continue to use their systems, and they may apply through Grants.gov.

You must complete the mandatory forms and any applicable optional forms in accordance with the instructions on the forms and the additional instructions below, as required by this FOA. **Files that are attached to the forms must be in Adobe Portable Document Format (PDF), unless otherwise specified in this announcement.**

Once the forms below have been completed, save the Adobe Application Package in a single file, using up to 10 letters of the applicant's Organization Name as the file name (e.g., UCLA). If your organization is submitting more than one Application, you must identify an application number at the end of each file name (e.g., UCLA-1). If your organization is submitting more than one Application to different Topic Areas, you must identify an application number and the Topic Area Number at the end of each file name (e.g., UCLA-1-Topic1).

1. SF 424 - Application for Federal Assistance

Complete this form first to populate data in other forms. Complete all required fields in accordance with the pop-up instructions on the form. To activate the instructions in the form, turn on the "Help Mode" (icon with the pointer and question mark at the top of the form). The list of certifications and assurances referenced in Field 21 can be found at http://management.energy.gov/business_doe/business_forms.htm, under Certifications and Assurances.

2. Project/Performance Site Location(s)

Indicate the primary site where the work will be performed. If a portion of the project will be performed at any other site(s), identify the site location(s) in the blocks provided. **Note that the Project/Performance Site Congressional District is entered in the format of the 2 digit state code followed by a dash and a 3 digit Congressional district code; for example, VA-001.** In the form, place the mouse pointer over this field for additional instructions.

Use the "Next Site" button to expand the form to add additional Project/Performance Site Locations.

3. Other Attachments Form

Submit the following files with your application and attach them to the Other Attachments Form. Click on "Add Mandatory Other Attachment" to attach the Project Narrative. Click on "Add Optional Other Attachment," to attach the other files.

a. Project Summary/Abstract File

The project summary/abstract must contain a summary of the proposed activity suitable for dissemination to the public. It should be a self-contained document that identifies the name of the applicant, the project director/principal investigator(s), the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (e.g., benefits or outcomes), and major participants (for collaborative projects). This document must not include any proprietary or sensitive business information, as the Department may make it available to the public. The project summary must not exceed 1 page when printed using standard 8.5" by 11" paper with 1" margins (top, bottom, left and right), single spaced, with font not smaller than 11 point. Save this information in a file named "Summary.pdf," and click on "Add Optional Other Attachment" to attach.

b. Project Narrative File - Mandatory Other Attachment

The project narrative must not exceed 15 pages, including cover page, table of contents, charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right), single spaced. EVALUATORS WILL REVIEW ONLY THE FIRST 15 PAGES OF THE PROJECT NARRATIVE. The font must not be smaller than 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the application. See Section VIII.D for instructions on how to mark proprietary application information. Save the information in a single file named "Project.pdf," and click on "Add Mandatory Other Attachment" to attach.

The project narrative must include:

- Statement of Project Objectives (SOPO)
  The SOPO must address how the project objectives will be met. It must

contain a clear, concise description of all activities to be completed during the project performance and follow the requirements in the template. In the SOPO, describe the technical merit of the proposed project as well as the project phases as specified in the Project Description in Part I. For a suggested format, please refer to form PMC 134.1 (SOPO template) at the following link: https://www.eerepmc.energy.gov/procurenet/FinancialAssistance/Forms/Procurenet/PMC134_1-SOPO.doc.

- Merit Review Criterion Discussion
  The section should be formatted to address each of the merit review criterion and sub-criterion listed in Part V. A. below. Provide sufficient information so that reviewers will be able to evaluate the application in accordance with these merit review criteria. **Describe the current state of the art for the Topic Area and proposed improvement to that technology, as applicable.** DOE WILL EVALUATE AND CONSIDER ONLY THOSE APPLICATIONS THAT ADDRESS SEPARATELY EACH OF THE MERIT REVIEW CRITERION AND SUB-CRITERION.

- American Recovery and Reinvestment Act of 2009, P.L. 111-5 (Recovery Act) Information This section should address how the project will promote and enhance the objectives of the Recovery Act, especially job creation and/or preservation, and economic recovery in an expeditious manner. The response must include quantitative data supporting the number of jobs created and/or preserved, as well as data supporting any other direct economic recovery impacts attributable to the performance and conduct of the project.

- Justification, if any, for reduced recipient cost share request (see Part III.B)
  Applicants requesting reduced recipient cost share must address the following factors: (1) why the additional DOE contribution is necessary to finance the project - that sufficient equity or debt financing is not readily available in the commercial markets; (2) why the project's financial model requires the additional DOE contribution to be viable; and, (3) why the additional contribution is necessary to achieve the objectives of the Topic Area.

- Multiple Principal Investigators

  The applicant, whether a single organization or team/partnership/consortium, must indicate if the project will include multiple PIs. The decision to use multiple PIs for a project is the sole responsibility of the applicant. If multiple PIs will be designated, the application must identify the Contact PI/Project Coordinator and provide a "Coordination and Management Plan" that describes the organization structure of the project as it pertains to the designation of multiple PIs. This plan should, at a minimum, include:

  - Process for making decisions on scientific/technical direction;
  - Publications;
  - Intellectual property issues;

- Communication plans;
- Procedures for resolving conflicts; and
- PIs' roles and administrative, technical and scientific responsibilities for the project.

The above listed components of your Project Narrative combined, must be within the 15-page limit specified above.

If cost share is proposed, you must have a letter from each third party contributing cost share (i.e., a party other than the organization submitting the application) that proposes to provide all or part of the required cost share. Each letter must state that the third party is committed to providing a specific minimum dollar amount of cost share. In the budget justification, identify the following information for each third party contributing cost share: (1) the name of the organization; (2) the proposed dollar amount to be provided; (3) the amount as a percentage of the total project cost; and (4) the proposed type of cost share – cash, services, or property. Letters of Commitment from parties participating in the project, exclusive of vendors, who will not be contributing cost share, but will be integral to the success of the project must be included as part of this Appendix to the Narrative. **All Letters of Commitment must be attached to the Project Narrative File.** Letters of Commitment will not count towards the Project Narrative page limit.

Documents listed below may also be included as clearly marked appendices to your Narrative and will not count towards the Project Narrative page limit. Please note that some of the required documents listed below may have their own page limits to which you must adhere.

c. Resume File

Provide a resume for each key person proposed, including subawardees and consultants if they meet the definition of key person. A key person is any individual who contributes in a substantive, measurable way to the execution of the project. Save all resumes in a single file named "resume.pdf" and click on "Add Optional Other Attachment" to attach. Each resume must not exceed 2 pages when printed on 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right), single spaced, with font not smaller than 11 point and should include the following information, if applicable:

Education and Training. Provide institution, major/area, degree and year for undergraduate, graduate and postdoctoral training.

Professional Experience: Beginning with the current position list, in chronological order, professional/academic positions with a brief description.

Publications: Provide a list of up to 10 publications most closely related to the proposed project. For each publication, identify the names of all authors (in the same sequence in which they appear in the publication), the article title, book or journal title, volume number, page numbers, year of publication, and website address, if available electronically.

Patents, copyrights and software systems developed may be provided in addition to, or substituted for, publications.

Synergistic Activities. List no more than 5 professional and scholarly activities related to the proposed effort.

Of the key personnel identified in this file, indicate the Principal Investigator(s) (PI). If multiple PIs are proposed, the applicant must provide the information indicated in Section III, Section D. as part of this file.

The resume file does not count towards the 15-page limit for the Project Narrative. Save this information in a file named "Resume.pdf," and click on "Add Optional Other Attachment" to attach.

d. Budget File, SF 424 A Excel, Budget Information – Non-Construction Programs File

You must provide a separate budget for each year of support requested and an accumulative budget for the total project period. Use the SF 424 A Excel, "Budget Information – Non Construction Programs" form on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm.

You may request funds under any of the Object Class Categories as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (see Section IV, G). Save the information in a single file named "SF424A.xls," and click on "Add Optional Other Attachment" to attach.

e. Budget Justification File

You must justify the costs proposed in each Object Class Category/Cost Classification category. Specifically, where applicable, you should (1) identify key persons and personnel categories and the estimated costs for each person or category; (2) provide a list of equipment and cost of each item; (3) identify proposed subaward/consultant work and cost of each subaward/consultant; (4) describe purpose of proposed travel, number of travelers and number of travel days; (5) list general categories of supplies and amount for each category; and (6) provide any other information you wish to support your budget). Provide the name of your cognizant/oversight agency, if you have one, and the name and phone number of the individual responsible for negotiating your indirect rates. If cost share is required, you must have a letter from each third party contributing cost share (i.e., a party other than the organization submitting the application) stating that the third party is committed to providing a specific minimum dollar amount of cost share. In the budget justification, identify the following information for each third party contributing cost share: (1) the name of the organization; (2) the proposed dollar amount to be provided; (3) the amount as a percentage of the total project cost; and

(4) the proposed type of cost share – cash, services, or property. By submitting your application, you are providing assurance that you have signed letters of commitment. Successful applicants will be required to submit these signed letters of commitment. Save the budget justification information in a single file named "Budget.pdf," and click on "Add Optional Other Attachment" to attach.

f. American Recovery and Reinvestment Act of 2009, P.L. 111-5 (Recovery Act) Additional Budget Justification Information

Applications shall provide information that validates all laborers and mechanics on projects funded directly by or assisted in whole or in part by and through funding appropriated by the Recovery Act are paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by Subchapter IV of Chapter 31 of Title 40, United States Code (Davis-Bacon Act). For guidance on how to comply with this provision, see http://www.dol.gov/esa/whd/contracts/dbra.htm.

To satisfy this requirement, please provide a written assurance that you will comply with the Davis-Bacon Act, as identified above, with the signature of the authorized representative of your organization. Save this information in a file named "Assurance.pdf," and click on "Add Optional Other Attachment" to attach.

g. Subaward Budget File(s)

You must provide a separate budget (i.e., budget for each budget year and a cumulative budget) for each subawardee that is expected to perform work estimated to be more than $100,000 or 50 percent of the total work effort (whichever is less). Use the SF 424 A Excel for Non Construction Programs, which can be found on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm. Save each Subaward budget in a separate file. Use up to 10 letters of the subawardee's name (plus 424.xls) as the file name (e.g., ucla424.xls or energyres424.xls). Click on "Add Optional Other Attachment" to attach each file.

A budget justification for the subaward budget is also required. The budget justification must include the same justification information described in paragraph e. above.

h. Budget for DOE Federally Funded Research and Development Center (FFRDC) Contractor File, if applicable

If a DOE FFRDC contractor is expected to perform a portion of the work, you must provide a DOE Field Work Proposal in accordance with the requirements in DOE Order 412.1 Work Authorization System. The DOE Order 412.1, Work Authorization System and the DOE O 412.1, Field Work Proposal form are available at the following link, under "DOE Budget Forms":

http://management.energy.gov/business_doe/business_forms.htm

Use up to 10 letters of the FFRDC name (plus .pdf) as the file name (e.g., lanl.pdf or anl.pdf), and click on "Add Optional Other Attachment" to attach.

i. Authorization for non-DOE or DOE FFRDCs

Save the Authorization for non-DOE or DOE FFRDCs, as specified in Section III.C. Other Eligibility Requirements, in a single file named "FFRDC_Auth.pdf" and click on "Add Optional Other Attachment"

j. Environmental Questionnaire, if applicable

For Topic Area 1 (Technology Demonstration Projects) ONLY, you must complete the environmental questionnaire at https://www.eere-pmc.energy.gov/NEPA.asp. As the online instructions indicate:

a. Enter your user ID and password to access the site (if you are a new user, select "Create a new account for me" and create a user ID and password). Then select "DOE PMC-EF1 Environmental Checklist" as your submission type and click "Login." *Please remember your User ID and Password for all future NEPA submissions. You may also return to view and update your previous submissions.*

b. On the next screen, complete all fields except for Subcontract Number (select "Eric Hass" as the DOE Project Officer in the dropdown box and specify "DE-FOA- EE0000116" as the Solicitation [FOA] Number), and upload a document describing your project by clicking on the "Browse" button and selecting your file. Click "Create EF1 and Continue to Part I and Part II" to proceed.

c. Then, complete Part I of the Environmental Checklist and **make sure to click on the "Update Part I Information" button in the middle of the page.** After that, complete Part II and click on the "If You are Finished with Parts 1 & 2, Click to Continue to the Forms Area" button at the bottom of the page.

   On the final screen, upload construction/operation/regulatory permits already obtained for the project and other relevant documents by clicking on the "Browse" button, selecting your file, and then clicking on the "Upload Now" button. Save the questionnaire in a single file named "Env.pdf" and click on "Add Attachments" in Field 11 to attach. When you have completed uploading all files, you may close the browser window as your EF1 submission is complete.

Please provide sufficient information to describe the extent of environmental benefits and impacts resulting from the proposed project including assumptions and quantitative data – provide as much information as possible on topics including but not limited to cultural and biological resources, handling/disposal of GHP working fluids, and site restoration.

Sufficiently characterize the technical work to be accomplished and all historical and future environmental related activities in support of the proposed technical work. Include completed documents or links to completed documents and identify work remaining to be completed. These documents include, but are not limited to, permits, regulatory approvals, environmental assessments and environmental impact statements.

k. **Project Management Plan**

The Project Management Plan (PMP) should identify the activities/tasks to be performed, a time schedule for the accomplishment of the activities/tasks, the spending plan associated with the activities/tasks, and the expected dates for the release of outcomes. Applicants may use their own project management system to provide this information. This plan should identify any decision points and go/no-go decision criteria. Award recipients must use this plan to report schedule and budget variances. Save this plan in a single file named "pmp.pdf" and click on "Add Optional Other Attachments" to attach.

Summary of Required Forms/Files

Your application must include the following documents:

Name of Document	Format	File Name	Topic Area 1: Technology Demonstration Projects	Topic Area 2: Data Gathering and Analysis	Topic Area 3: National Certification Standard
1) SF 424 - Application for Federal Assistance	Part of Adobe Application Package		X	X	X
2) Project/ Performance Site Location(s)	Part of Adobe Application Package		X	X	X
3) Other Attachments Form: Attach the following files to this form:	Part of Adobe Application Package	See Instructions	X	X	X
a) Project Summary/Abstract File	PDF	Summary.pdf	X	X	X
b) Project Narrative File, including required appendices (e.g., Letters of Commitment)	PDF	Project.pdf	X	X	X
c) Resume File	PDF	Resume.pdf	X	X	X

d) SF 424A Excel – Budget Information for Non-Construction Programs File	Excel	SF424A.xls	X	X	X
e) Budget Justification File	PDF	See Instructions	X	X	X
f) Davis-Bacon Act Assurance	PDF	Assurance.pdf	X	X	X
g) Subaward Budget File(s), if applicable Budget Justification(s), if applicable	Excel for Budget PDF for Justification	See Instructions	**if applicable**	**if applicable**	**if applicable**
h) Budget for Federally Funded Research and Development Center (FFRDC) Contractor File, if applicable	PDF	See instructions	**if applicable**	**if applicable**	**if applicable**
i) Authorization from cognizant Contracting Officer for FFRDC, if applicable	PDF	FFRDC_Auth. pdf	**if applicable**	**if applicable**	**if applicable**
j) Environmental Questionnaire	PDF	See Instructions	X	N/A	N/A
k) Project Management Plan	PDF	PMP.pdf	X	X	X

D. Submissions from Successful Applicants

If selected for award, DOE reserves the right to request additional or clarifying information for any reason deemed necessary, including, but not limited to:

- Indirect cost information
- Other budget information
- Commitment Letter from Third Parties Contributing to Cost Share, if applicable
- Environmental Questionnaire, if applicable
- Because Recovery Act funds apply to awards under this announcement, additional certification requirements will be required for state or local governments. See Special Provisions located at: http://management.energy.gov/business_doe/business_forms.htm.

E. Submission Dates and Times

1. Pre-Application Due Date

- Pre-applications are not required.

2. Notice of Intent Due Date

- Provide a notice of intent to apply via email to go.geothermal@go.doe.gov by 07/16/2009, 11:59 PM Eastern Time. The notice should include the applicant's name, FOA title, and Topic Area to which you will be applying. The notice of intent will be used for DOE planning purposes only.

3. Application Due Date

Applications must be received by 08/06/2009, 11:59 PM Eastern Time. You are encouraged to transmit your application well before the deadline. **APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.**

FedConnect questions should be directed to: support@fedconnect.net
The Grants.gov Helpdesk is not available after 9:00 PM Eastern Time.

F. Intergovernmental Review

- This program is not subject to Executive Order 12372 – Intergovernmental Review of Federal Programs.

G. Funding Restrictions

Cost Principles. Costs must be allowable in accordance with the applicable Federal cost principles referenced in 10 CFR Part 600. The cost principles for commercial organization are in FAR Part 31.

Pre-award Costs. Recipients (other than State or Local Governments) may charge to an award resulting from this announcement pre-award costs that were incurred within the ninety (90) calendar day period immediately preceding the effective date of the award, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 10 CFR part 600. Recipients must obtain the prior approval of the Contracting Officer for any pre-award costs that are for periods greater than this 90 day calendar period.

Pre-award costs are incurred at the applicant's risk. DOE is under no obligation to reimburse such costs if for any reason the applicant does not receive an award or if the award is made for a lesser amount than the applicant expected.

If recipients are State or Local Governments, they may not incur pre-award costs prior to award, without prior approval of the DOE Contracting Officer.

For Topic Area 1, any costs incurred prior to selection for negotiation of award (such as temperature gradient well drilling, borehole drilling, installation of existing system components, etc.) are not allowable project costs.

H. Submission and Registration Requirements

1. Where to Submit

APPLICATIONS MUST BE SUBMITTED THROUGH FEDCONNECT TO BE CONSIDERED FOR AWARD. Submit electronic applications through the FedConnect portal at www.FedConnect.net. Information regarding how to submit applications via Fed Connect can be found at https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf.

Organizations with system-to-system capabilities with Grants.gov for their submissions may continue to use their systems, and they may apply through Grants.gov.

Further, it is the responsibility of the applicant, prior to the application due date and time, to verify successful transmission.

2. Registration Process Requirements

To submit an application in response to this FOA, applicants must be registered with FedConnect. Before you can register with FedConnect, you will need the following:

a. Your organization's Dun and Bradstreet Data Universal Numbering System (DUNS) (including plus 4 extension if applicable). To check whether your organization has a DUNS or if your organization requires a DUNS, search for the number or request one at http://fedgov.dnb.com/webform/displayHomePage.do.
b. A Federal Central Contractor Registration (CCR) account. If your organization is not currently registered with CCR, please register at www.ccr.gov before continuing with your FedConnect registration.
c. Possibly, your organization's CCR MPIN. If you are the first person from your organization to register, FedConnect will need to create an organization account. Only a person who knows your organization's CCR MPIN can do this. To find out who this is in your organization, go to http://www.ccr.gov/ and click **Search CCR**. Once you have found your organization, locate the Electronic Business Point of Contact.

   After the initial FedConnect account is created, employees can register themselves without the MPIN. If you are not sure whether your organization has an account with FedConnect, complete the registration form and FedConnect will let you know if your organization is registered. (PLEASE REFER TO QUICK START GUIDE).

Applicants who are not registered with CCR and FedConnect, should allow at least 21 days to complete these requirements. It is suggested that applicants start the registration process as soon as possible. For those applicants already registered in CCR, the CCR registration must be updated annually at http://www.ccr.gov/Renew.aspx.

SECTION V - APPLICATION REVIEW INFORMATION

A. Criteria

1. Initial Review Criteria

- **For All Topic Areas,** prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the applicant is eligible for an award; (2) the information required by the announcement has been submitted; (3) all mandatory requirements are satisfied; and (4) the proposed project is responsive to the objectives of the funding opportunity announcement. If an application fails to meet these requirements, it may be deemed non-responsive and eliminated from full Merit Review.

  A single Principal Investigator or organization may submit separate applications to multiple Topic Areas, or separate applications to a single Topic Area. **However, a single Principal Investigator or organization may not submit a single application that addresses multiple Topic Areas. Each application will be evaluated according to its respective merit review criteria. Therefore, applicants will be required to clearly declare which Topic Area they are applying for within each application. Applications that address more than one Topic Area will not pass the Initial Review.**

  Also, proposed projects for Topic Area 1 (Technology Demonstration Projects) MUST be of a mid- or large-scale (i.e. provide no less than 50 tons of heating and/or cooling). It is NOT the intent of this topic to fund installation of small-scale residential or commercial heat pump systems that do not provide at least 50 tons (individually or in aggregate) of heating and/or cooling. If the application does not clearly state and demonstrate adherence to this requirement, it will NOT pass the Initial Review in order to be considered for Merit Review as described below.

2. Merit Review Criteria

The following factors will be used to objectively evaluate applications **for Topic Area 1 only (Technology Demonstration Projects).** The bullets within each criterion should not be considered to be equally weighted and are not listed in order of priority.

Criterion 1: Innovativeness, Feasibility and Cost Effectiveness of Approach [Weight: 40%]

- Adequacy and completeness of the project description including the engineering design and financing approach
- Level of technical innovation in terms of the utilization of new system designs or component technologies that enhance system performance and/or life-cycle cost effectiveness
- Level of innovation of the business or financial model to: 1) address existing market barriers including high GHP installation costs; 2) deploy GHP systems on

a large scale; 3) create an impact on GHP market demand; and 4) provide the ability for industry to deliver systems competitively and/or cost effectively
- Completeness of project economic analysis including an assessment of potential jobs created, cost/benefit analysis, life cycle cost, and payback through avoided environmental emissions and electricity consumption
- Likelihood of transferring and replicating project approach and results

Criterion 2: Project Management Approach
[Weight: 40%]

- Soundness of the project management concept with respect to proposed tasks and organizational structure to achieve project objectives
- Likelihood of achieving project objectives through realistic milestones and logical task structure and reasonableness of the schedule and milestones including Gantt Chart
- Adequacy, appropriateness, and reasonableness of the proposed budget to complete the project
- Extent of the characterization, planning, and regulatory/environmental permitting of the target site including status/evidence of permits

Criterion 3: Roles, Responsibilities and Capabilities
[Weight: 20%]

- Qualifications, capabilities, credentials, and experience of the project team to complete the hardware demonstration project
- Level of commitment as evidenced by letter(s) of commitment from all project stakeholders, including financial partners and/or sources of project capital; engineering and architectural firms; GHP designers and installers; and HVAC, plumbing, electrical, and construction contractors
- Adequacy of plan to provide non-proprietary data to the National Geothermal Data System

The following factors will be used to objectively evaluate applications **for Topic Areas 2 (Data Gathering and Analysis) and 3 (National Certification Standard) only.** The bullets within each criterion should not be considered to be equally weighted and are not listed in order of priority.

Criterion 1: Project Description
Weight: [40%]

- Clarity and completeness of the description of each activity necessary to complete the research paper or develop a national GHP certification standard
- Level of technical quality, clarity, and completeness of the application
- Feasibility of the proposed work

Criterion 2: Project Management Plan
Weight: [35%]

- Soundness of the project management concept with respect to proposed tasks and organizational structure to achieve project objectives
- Likelihood of achieving project objectives through realistic milestones and logical task structure and reasonableness of the schedule and milestones including Gantt Chart
- Adequacy, appropriateness, and reasonableness of the proposed budget to complete the project

Criterion 3: Roles, Responsibilities, and Capabilities
Weight: [25%]

- Qualifications, capabilities, credentials, and experience of the principal investigator(s) and other members of the project team
- Level of Commitment as evidenced by letter(s) of commitment from all project partners
- Adequacy of facilities and resources to accommodate the proposed project
- Adequacy of plan to provide non-proprietary data to the National Geothermal Data System

3. Other Selection Factors

For all Topic Areas, the Selection Official may consider the following program policy factors in the selection process:

1. Technological diversity of projects
2. Proposed cost share above the minimum level required
3. Projects in high electricity cost regions and rural or remote areas, or projects proposed by Indian Tribes/Tribal Energy Resource Development Organizations or Groups
4. The extent the applications promote and enhance the objectives of the American Recovery and Reinvestment Act of 2009, P.L. 111-5, especially job creation, and/or preservation and economic recovery in an expeditious manner

B. Review and Selection Process

1. Merit Review

Applications that pass the initial review will be subjected to a merit review in accordance with the guidance provided in the "Department of Energy Merit Review Guide for Financial Assistance." This guide is available at: http://www.management.energy.gov/documents/meritrev.pdf.

It is very important that those documents, Project Abstract and Project Narrative file, that will be used during the Merit Review Process do not contain any Personally Identifiable Information as described in Appendix B.

2. Selection

The Selection Official may consider the merit review recommendation, program policy factors, and the amount of funds available.

3. Discussions and Award

The Government may enter into discussions with a selected applicant for any reason deemed necessary, including, but not limited to: (1) the budget is not appropriate or reasonable for the requirement; (2) only a portion of the application is selected for award; (3) the Government needs additional information to determine that the recipient is capable of complying with the requirements in 10 CFR part 600; and/or (4) special terms and conditions are required. Failure to satisfactorily resolve the issues identified by the Government will preclude award to the applicant.

C. Anticipated Notice of Selection and Award Dates

- DOE anticipates notifying applicants selected for award by the December 2009 and making awards from December 2009 through September 2010.

SECTION VI - AWARD ADMINISTRATION INFORMATION

A. Award Notices

1. Notice of Selection

DOE will notify applicants selected for award. This notice of selection is not an authorization to begin performance. (See Section IV.G with respect to the allowability of pre-award costs.)

DOE will promptly notify those organizations whose applications have not been selected. This notice will explain why the application was not selected.

2. Notice of Award

A Financial Assistance Award or Assistance Agreement issued by the Contracting Officer is the authorizing award document. It normally includes, either as an attachment or by reference: (1) Special Terms and Conditions; (2) Applicable program regulations, if any; (3) Application as approved by DOE; (4) DOE assistance regulations at 10 CFR part 600; (5) National Policy Assurances To Be Incorporated As Award Terms; (6) Budget Summary; and (7) Federal Assistance Reporting Checklist, which identifies the reporting requirements.

For grants and cooperative agreements made to universities, non-profits and other entities subject to OMB Circular A-110, the Award also includes the Research Terms and Conditions and the DOE Agency Specific Requirements located at:

http://www.nsf.gov/bfa/dias/policy/rtc/index.jsp.

B. Administrative and National Policy Requirements

1. Administrative Requirements

The administrative requirements for DOE grants and cooperative agreements are contained in 10 CFR part 600 (See: http://ecfr.gpoaccess.gov). Grants and cooperative agreements made to universities, non-profits and other entities subject to OMB Circular A-110 are subject to the Research Terms and Conditions located on the National Science Foundation web site at: http://www.nsf.bfa/dias/policy/rtc/index.jsp.

American Recovery and Reinvestment Act 2009 Award Administration Information
Special Provisions relating to work funded under American Recovery and Reinvestment Act of 2009, Pub. L. 111-5 shall apply. (Special Provisions are located at: http://management.energy.gov/business_doe/business_forms.htm.) Also, the Office of Management and Budget may be promulgating additional provisions or modifying existing provisions. Those additions and modifications will be incorporated into the Special Provisions as they become available.

2. Special Terms and Conditions and National Policy Requirements

The DOE Special Terms and Conditions for Use in Most Grants and Cooperative Agreements are located at
http://management.energy.gov/business_doe/business_forms.htm
http://www.management.energy.gov/documents/specialtermsandcondition308.pdf.

The National Policy Assurances To Be Incorporated As Award Terms are located at
http://management.energy.gov/business_doe/business_forms.htm
http://management.energy.gov/business_doe/1374.htm.

3. Intellectual Property Provisions

The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at
http://www.gc.doe.gov/financial_assistance_awards.htm.

4. Statement of Substantial Involvement

Either a grant or cooperative agreement may be awarded under this announcement. If the award is a cooperative agreement, the DOE Specialist and DOE Project Officer will negotiate a Statement of Substantial Involvement prior to award.

C. Reporting

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to the award agreement. For a sample Checklist, see
http://management.energy.gov/documents/DOEF46002PolicyVersion.pdf.

Awards under this FOA will be issued with funds appropriated by the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, (Recovery Act or Act). Be advised that Recovery Act reporting requirements may apply to projects funded by the Act. The reporting requirements will be specified in the DOE F 4600.2 or other related Recovery Act guidance as they become available.

SECTION VII - QUESTIONS/AGENCY CONTACTS

A. Questions

Questions regarding the content of the announcement must be submitted through the FedConnect portal. You must register with FedConnect to respond as an interested party to submit questions, and to review responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. More information is available at http://www.compusearch.com/products/fedconnect/fedconnect/asp. DOE will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Questions pertaining to the **submission** of applications through FedConnect should be directed by e-mail to support@FedConnect.net or by phone to FedConnect Support at 1-800-899-6665.

B. Agency Contacts

Name: Pete Simon
E-mail: go.goethermal@go.doe.gov

All questions should be submitted through the FedConnect portal (see Part VII.A. above.)

SECTION VIII - OTHER INFORMATION

A. Modifications

Notices of any modifications to this announcement will be distributed through the FedConnect portal. You can receive an email when a modification or an announcement message is posted by registering with FedConnect as an interested party for this FOA. It is recommended that you register as soon after the release of the FOA as possible to ensure you receive timely notice of any modifications or other announcements. More information is available at http://www.fedconnect.net and http://www.compusearch.com/products/fedconnect/fedconnect.asp.

B. Government Right to Reject or Negotiate

DOE reserves the right, without qualification, to reject any or all applications received in response to this announcement and to select any application, in whole or in part, as a basis for negotiation and/or award.

C. Commitment of Public Funds

The Contracting Officer is the only individual who can make awards or commit the Government to the expenditure of public funds. A commitment by other than the Contracting Officer, either explicit or implied, is invalid.

D. Proprietary Application Information

Patentable ideas, trade secrets, proprietary or confidential commercial or financial information, disclosure that may harm the applicant, should be included in an application only when such information is necessary to convey an understanding of the proposed project. The use and disclosure of such data may be restricted, provided the applicant includes the following legend on the first page of the project narrative and specifies the pages of the application that are to be restricted:

> The data contained in pages _____ of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data herein to the extent provided in the award. This restriction does not limit the government's right to use or disclose data obtained without restriction from any source, including the applicant.

To protect such data, each line or paragraph on the pages containing such data must be specifically identified and marked with a legend similar to the following:
"The following contains proprietary information that (name of applicant) requests not be released to persons outside the Government, except for purposes of review and evaluation."

E. Evaluation and Administration by Non-Federal Personnel

In conducting the merit review evaluation, the Government may seek the advice of qualified non-Federal personnel as reviewers. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The applicant, by submitting its application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign conflict of interest and non-disclosure agreements prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

F. Intellectual Property Developed under this Program

Patent Rights. **For all Topic Areas:** the government will have certain statutory rights in an invention that is conceived or first actually reduced to practice under a DOE award. 42 U.S.C. 5908 provides that title to such inventions vests in the United States, except where 35 U.S.C. 202 provides otherwise for nonprofit organizations or small business firms. However, the Secretary of Energy may waive all or any part of the rights of the United States subject to certain conditions. (See "Notice of Right to Request Patent Waiver" in paragraph G below.)

Rights in Technical Data. **For all Topic Areas:** normally, the government has unlimited rights in technical data created under a DOE agreement. Delivery or third party licensing of proprietary software or data developed solely at private expense will not normally be required except as specifically negotiated in a particular agreement to satisfy DOE's own needs or to insure the commercialization of technology developed under a DOE agreement.

Special Protected Data Statutes. **For Topic Area 1 (Technology Demonstration Projects) only**: this program is covered by a special protected data statute. The provisions of the statute provide for the protection from public disclosure, for a period of up to three years from the date of its development, of first-produced data that would be trade secret, or commercial or financial information that is privileged or confidential, if the information had been obtained from a non-Federal party. Generally, the provision entitled, Rights in Data – Programs Covered Under Special Protected Data Statutes, (10 CFR 600 Appendix A to Subpart D), will apply to an award made under this announcement. This provision will identify data or categories of data first produced in the performance of the award that will be made available to the public, notwithstanding the statutory authority to withhold data from public dissemination, and may also identify data that will be recognized by the parties as protected data. For National Laboratories and FFRDCs, the data rights clause in applicant's Management and Operating (M&O) Contract will apply.

Copyrights. **For Topic Area 3 (National Certification Standard) only:** Recipients (including sub-recipients) must request written permission from DOE before asserting copyrights to any works created under this Award. The request must be in writing, addressed to the Contracting Officer, and must describe the work for which copyright assertion is requested, a plan for distribution (e.g., open source, royalty-bearing licenses, etc.), and describe how that plan for distribution furthers the Statement of Project Objectives. The Contracting Officer will consult with the Contracting Officer's Representative and the DOE Patent Counsel prior to rendering a written decision regarding copyright assertion.

G. Notice of Right to Request Patent Waiver

DOE intends to issue a class waiver for Agreements awarded under this FOA, which DOE expects will cover most, if not all, prime Recipients and team members. If a class waiver is not issued or a prime Recipient or team member does not qualify for the class waiver, an Applicant, including team members other than the prime Recipient, may request a waiver of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of an agreement as a result of this announcement, in advance of or within 30 days after the effective date of the award. Even if such advance

waiver is not requested or the request is denied, the prime Recipients and team members will have a continuing right under the award to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784. Additionally, DOE's patent waivers will include a U.S. competitiveness provision reflecting DOE's programmatic objectives; e.g., improving the competitive position as well as the U.S. employment opportunities in U.S. industries.

Domestic small businesses and domestic nonprofit organizations will receive the patent rights clause at 37 CFR 401.14, i.e., the implementation of the Bayh-Dole Act. This clause permits domestic small business and domestic nonprofit organizations to retain title to subject inventions. Therefore, small businesses and nonprofit organizations do not need to request a waiver.

H. Notice Regarding Eligible/Ineligible Activities

Eligible activities under this program include those that describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not those that encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

I. Notice of Right to Conduct a Review of Financial Capability

DOE reserves the right to conduct an independent third party review of financial capability for applicants that are selected for negotiation of award (including personal credit information of principal(s) of a small business if there is insufficient information to determine financial capability of the organization).

J. Notice of Potential Disclosure under Freedom of Information Act

Applicants should be advised that identifying information regarding all applicants, including applicant names and/or points of contact, may be subject to public disclosure under the Freedom of Information Act, whether or not such applicants are selected for negotiation of award.

REFERENCE MATERIAL

Appendix A – Definitions

"Amendment" means a revision to a Funding Opportunity Announcement.

"**Applicant**" means the legal entity or individual signing the application. This entity or individual may be one organization or a single entity representing a group of organizations (such as a Consortium) that has chosen to submit a single application in response to a Funding Opportunity Announcement.

"**Application**" means the documentation submitted in response to a Funding Opportunity Announcement.

"Authorized Organization Representative (AOR)" is the person with assigned privileges who is authorized to submit grant applications through Grants.gov on behalf of an organization. The privileges are assigned by the organization's E-Business Point of Contact designated in the CCR.

"**Award**" means the written documentation executed by a DOE Contracting Officer, after an applicant is selected, which contains the negotiated terms and conditions for providing Financial Assistance to the applicant. A Financial Assistance Award may be either a Grant or a Cooperative Agreement.

"**Budget**" means the cost expenditure plan submitted in the application, including both the DOE contribution and the Applicant Cost Share.

"Central Contractor Registration (CCR)" is the primary database which collects, validates, stores and disseminates data in support of agency missions. Funding Opportunity Announcements which require application submission through FedConnect or Grants.gov require that the organization first be registered in the CCR at http://www.grants.gov/CCRRegister.

"**Consortium (plural consortia)**" means the group of organizations or individuals that have chosen to submit a single application in response to a Funding Opportunity Announcement.

"**Contracting Officer**" means the DOE official authorized to execute Awards on behalf of DOE and who is responsible for the business management and non-program aspects of the Financial Assistance process.

"**Cooperative Agreement**" means a Financial Assistance instrument used by DOE to transfer money or property when the principal purpose of the transaction is to accomplish a public purpose of support or stimulation authorized by Federal statute, and Substantial Involvement (see definition below) is anticipated between DOE and the applicant during the performance of the contemplated activity.

"**Cost Sharing**" means the respective share of Total Project Costs to be contributed by the applicant and by DOE. The percentage of Applicant Cost Share is to be applied to the Total

Project Cost (i.e., the sum of applicant plus DOE Cost Shares) rather than to the DOE contribution alone.

"Credential Provider" is an organization that validates the electronic identity of an individual through electronic credentials, PINS, and passwords for Grants.gov. Funding Opportunity Announcements that require application submission through Grants.gov require that the individual applying on behalf of an organization first be registered with the Credential Provider at https://apply.grants.gov/OrcRegister.

"Data Universal Numbering System (DUNS) Number" is a unique nine-character identification number issued by Dun and Bradstreet (D&B). Organizations must have a DUNS number prior to registering in the CCR. Call 1-866-705-5711 to receive one free of charge. http://www.grants.gov/applicants/request_duns_number.jsp

"E-Business Point of Contact (POC)" is the individual who is designated as the Electronic Business Point of Contact in the CCR registration. This person is the sole authority of the organization with the capability of designating or revoking an individual's ability to conduct CCR transactions.

"E-Find" is a Grants.gov webpage where you can search for Federal Funding Opportunities in FedGrants. http://www.grants.gov/search/searchHome.do

"**Financial Assistance**" means the transfer of money or property to an applicant or Participant to accomplish a public purpose of support authorized by Federal statute through Grants or Cooperative Agreements and sub-awards. For DOE, it does not include direct loans, loan guarantees, price guarantees, purchase agreements, Cooperative Research and Development Agreements (CRADAs), or any other type of financial incentive instrument.

"FedConnect" is where Federal agencies post opportunities and make awards via the web. Any applicant can view public postings without registering. However, registered users have numerous added benefits including the ability to electronically submit applications / responses to the government directly through this site. https://www.fedconnect.net/FedConnect/

"Federally Funded Research and Development Center (FFRDC)" means a research laboratory as defined by Federal Acquisition Regulation 35.017.

"Funding Opportunity Announcement (FOA)" is a publicly available document by which a Federal agency makes known its intentions to award discretionary grants or cooperative agreements, usually as a result of competition for funds. Funding opportunity announcements may be known as program announcements, notices of funding availability, solicitations, or other names depending on the agency and type of program.

"Geothermal" refers to the stored thermal energy in, or heat produced from, the Earth's interior.

"Geothermal Resources" are defined as geothermal conditions where the technology exists to use the stored thermal energy to either produce electricity or for direct use, e.g., space heating, district heating, snow melting, aquaculture.

"Grant" means a Financial Assistance instrument used by DOE to transfer money or property when the principal purpose of the transaction is to accomplish a public purpose of support or stimulation authorized by Federal statute, and no Substantial Involvement is anticipated between DOE and the applicant during the performance of the contemplated activity.

"Grants.gov" is the "storefront" web portal which allows organizations to electronically find grant opportunities from all Federal grant-making agencies. Grants.gov is THE single access point for over 900 grant programs offered by the 26 Federal grant-making agencies. http://www.grants.gov

"Indian Tribe" means any Indian tribe, band, nation, or other organized group or community, including Alaska Native village or regional or village corporation, as defined in or established pursuant to the Alaska Native Claims Settlement Act, 85 Stat. 688, 43 U.S.C. § 1601 *et seq.*, that are recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

"**Key Personnel**" mean the individuals who will have significant roles in planning and implementing the proposed Project on the part of the applicant and participants, including FFRDCs.

"Marketing Partner Identification Number (MPIN)" is a very important password designated by your organization when registering in CCR. The E-Business Point of Contact will need the MPIN to assign privileges to the individual(s) authorized to perform CCR transactions on behalf of your organization. The MPIN must have 9 digits containing at least one alpha character (must be in capital letters) and one number (no spaces or special characters permitted).

"**Participant**" for purposes of this Funding Opportunity Announcement only, means any entity, except the applicant substantially involved in a Consortium, or other business arrangement (including all parties to the application at any tier), responding to the Funding Opportunity Announcement.

"Principal Investigator" refers to the technical point of contact/Project Manager for a specific project award.

"**Project**" means the set of activities described in an application, State plan, or other document that is approved by DOE for Financial Assistance (whether such Financial Assistance represents all or only a portion of the support necessary to carry out those activities).

"Recipient" means the organization, individual, or other entity that receives a Financial Assistance Award from DOE, is financially accountable for the use of any DOE funds or property provided for the performance of the Project, and is legally responsible for carrying out the terms and condition of the award.

"**Selection**" means the determination by the DOE Selection Official that negotiations take place for certain Projects with the intent of awarding a Financial Assistance instrument.

"Selection Official" means the DOE official designated to select applications for negotiation toward Award under a subject Funding Opportunity Announcement.

"Substantial Involvement" means involvement on the part of the Government. DOE's involvement may include shared responsibility for the performance of the Project; providing technical assistance or guidance that the applicant must follow; and the right to intervene in the conduct or performance of the Project. Such involvement will be negotiated with each applicant prior to signing any agreement.

"Technology Investment Agreement (TIA)" is a type of assistance instrument used to support or stimulate research projects involving for-profit firms, especially commercial firms that do business primarily in the commercial marketplace. TIAs are different from grants and cooperative agreements in that the award terms may vary from the Government-wide standard terms (See DOE TIA regulations at 10 CFR Part 603). The availability of TIAs as award instruments can encourage non-traditional Government contractors to participate in an R&D program and facilitate new relationships and business practices. A TIA can be particularly useful for awards to consortia (See 10 CFR 603.225(b) and 603.515, Qualification of a consortium).

"Total Project Cost" means all the funds to complete the effort proposed by the applicant, including DOE funds (including direct funding of any FFRDC) plus all other funds that will be committed by the applicant as Cost Sharing.

"Tribal Energy Resource Development Organization or Group" means an "organization" of two or more entities, at least one of which is an Indian Tribe (see "Indian Tribe" above) that has the written consent of the governing bodies of all Indian Tribes participating in the organization to apply for a grant or loan, or other assistance under 25 U.S.C. § 3503.

Appendix B – Personally Identifiable Information

In responding to this Announcement, applicants must ensure that Protected Personally Identifiable Information (PII) is not included in the following documents: Project Abstract, Project Narrative, Biographical Sketches, Budget or Budget Justification. These documents will be used by the Merit Review Committee in the review process to evaluate each application. PII is defined by the Office of Management and Budget (OMB) and DOE as:

> Any information about an individual maintained by an agency, including but not limited to, education, financial transactions, medical history, and criminal or employment history and information that can be used to distinguish or trace an individual's identity, such as their name, social security number, date and place of birth, mother's maiden name, biometric records, etc., including any other personal information that is linked or linkable to an individual.

This definition of PII can be further defined as: (1) Public PII and (2) Protected PII.

a. **Public PII:** PII found in public sources such as telephone books, public websites, business cards, university listing, etc. Public PII includes first and last name, address, work telephone number, email address, home telephone number, and general education credentials.

b. **Protected PII:** PII that requires enhanced protection. This information includes data that if compromised could cause harm to an individual such as identity theft.

Listed below are examples of Protected PII that applicants must not include in the files listed above to be evaluated by the Merit Review Committee.

- Social Security Numbers in any form
- Place of Birth associated with an individual
- Date of Birth associated with an individual
- Mother's maiden name associated with an individual
- Biometric record associated with an individual
- Fingerprint
- Iris scan
- DNA
- Medical history information associated with an individual
- Medical conditions, including history of disease
- Metric information, e.g. weight, height, blood pressure
- Criminal history associated with an individual
- Employment history and other employment information associated with an individual
- Ratings
- Disciplinary actions

- Performance elements and standards (or work expectations) are PII when they are so intertwined with performance appraisals that their disclosure would reveal an individual's performance appraisal
- Financial information associated with an individual
- Credit card numbers
- Bank account numbers
- Security clearance history or related information (not including actual clearances held)

Listed below are examples of Public PII that applicants may include in the files listed above to be evaluated by the Merit Review Committee:

- Phone numbers (work, home, cell)
- Street addresses (work and personal)
- Email addresses (work and personal)
- Digital pictures
- Medical information included in a health or safety report
- Employment information that is not PII even when associated with a name
- Resumes, unless they include a Social Security Number
- Present and past position titles and occupational series
- Present and past grades
- Present and past annual salary rates (including performance awards or bonuses, incentive awards, merit pay amount, Meritorious or Distinguished Executive Ranks, and allowances and differentials)
- Present and past duty stations and organization of assignment (includes room and phone numbers, organization designations, work email address, or other identifying information regarding buildings, room numbers, or places of employment)
- Position descriptions, identification of job elements, and those performance standards (but not actual performance appraisals) that the release of which would not interfere with law enforcement programs or severely inhibit agency effectiveness
- Security clearances held
- Written biographies (e.g. to be used in a program describing a speaker)
- Academic credentials
- Schools attended
- Major or area of study
- Personal information stored by individuals about themselves on their assigned workstation or laptop unless it contains a Social Security Number

Appendix C – Cost Share Information

Cost Sharing or Cost Matching

The terms "cost sharing" and "cost matching" are often used synonymously. Even the DOE Financial Assistance Regulations, 10 CFR Part 600, use both of the terms in the titles specific to regulations applicable to cost sharing. DOE almost always uses the term "cost sharing," as it conveys the concept that **non-Federal share is calculated as a percentage of the Total Project Cost.** An exception is the State Energy Program Regulation, 10 CFR Part 420.12, State Matching Contribution. Here "cost matching" for the non-Federal share is calculated as a percentage of the federal funds only, rather than the Total Project Cost.

How Cost Sharing Is Calculated

As stated above, cost sharing is calculated as a percentage of the Total Project Cost. Following is an example of how to calculate cost share amounts for a project with $1,000,000 in Federal funds with a minimum 20% non-Federal cost share requirement:

Formula: Federal share ($) divided by Federal share (%) = Total Project Cost
Example: $1,000,000 divided by 80% = $1,250,000

Formula: Total Project Cost ($) minus Federal share ($) = Non-Federal share ($)
Example: $1,250,000 minus $1,000,000 = $250,000

Formula: Non-Federal share ($) divided by Total Project Cost ($) = Non-Federal share (%)
Example: $250,000 divided by $1,250,000 = 20%

See the sample cost share calculation for a blended cost share percentage below. **Keep in mind that FFRDC funding is DOE funding.**

What Qualifies For Cost Share

While it is not possible to explain what specifically qualifies for cost share in one or even a couple of sentences, in general, if a cost is allowable under the cost principles applicable to the organization incurring the cost and is eligible for reimbursement under a DOE grant or cooperative agreement, then it is allowable as cost share. Conversely, if the cost is not allowable under the cost principles and not eligible for reimbursement, then it is not allowable as cost share. In addition, costs may not be counted as cost share if they are paid by the Federal Government under another award unless authorized by Federal statute to be used for cost sharing.

The rules associated with what is allowable as cost share are specific to the type of organization that is receiving funds under the grant or cooperative agreement, though are generally the same for all types of entities. The specific rules applicable to:

- Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations are found at 10 CFR 600.123;
- State and Local Governments are found at 10 CFR 600.224;
- For-profit Organizations are found at 10 CFR 600.313.

In addition to the regulations referenced above, other factors may also come into play such as timing of donations and length of the project period. For example, the value of ten years of donated maintenance on a project that has a project period of five years would not be fully allowable as cost share. Only the value for the five years of donated maintenance that corresponds to the project period is allowable and may be counted as cost share.

Additionally, DOE generally does not allow pre-award costs for either cost share or reimbursement when these costs precede the signing of the appropriation bill that funds the award. In the case of a competitive award, DOE generally does not allow pre-award costs prior to the signing of the Selection Statement by the DOE Selection Official.

Following is a link to the DOE Financial Assistance Regulations. You can click on the specific section for each Code of Federal Regulations reference mentioned above.

DOE Financial Assistance Regulations:
http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=98a996164312e8dcf0df9c22912852b0&rgn=div5&view=text&node=10:4.0.1.3.9&idno=10

As stated above, the rules associated with what is allowable cost share are generally the same for all types of organizations. Following are the rules found to be common, but again, the specifics are contained in the regulations and cost principles specific to the type of entity:

(A) *Acceptable contributions.* All contributions, including cash contributions and third party in-kind contributions, must be accepted as part of the recipient's cost sharing if such contributions meet all of the following criteria:

(1) They are verifiable from the recipient's records.

(2) They are not included as contributions for any other federally-assisted project or program.

(3) They are necessary and reasonable for proper and efficient accomplishment of project or program objectives.

(4) They are allowable under the cost principles applicable to the type of entity incurring the cost as follows:

(a) *For-profit organizations.* Allowability of costs incurred by for-profit organizations and those nonprofit organizations listed in Attachment C to OMB Circular A–122 is determined in accordance with the for-profit costs principles in 48 CFR Part 31 in the Federal Acquisition Regulation, except that patent

prosecution costs are not allowable unless specifically authorized in the award document.

(b) *Other types of organizations.* Allowability of costs incurred by other types of organizations that may be subrecipients under a prime award is determined as follows:

(i) *Institutions of higher education.* Allowability is determined in accordance with OMB Circular No. A-21 -- Cost Principles for Educational Institutions

(ii) *Other nonprofit organizations.* Allowability is determined in accordance with OMB Circular A-122, Cost Principles for Non-Profit Organizations

(iii) *Hospitals.* Allowability is determined in accordance with the provisions of 45 CFR Part 74, Appendix E, Principles for Determining Costs Applicable to Research and Development Under Grants and Contracts with Hospitals

(iv) *Governmental organizations.* Allowability for State, local, or federally recognized Indian tribal government is determined in accordance with OMB Circular No. A-87, Cost Principles for State, Local, and Indian Tribal Governments

(5) They are not paid by the Federal Government under another award unless authorized by Federal statute to be used for cost sharing or matching.

(6) They are provided for in the approved budget.

(B) *Valuing and documenting contributions*

(1) *Valuing recipient's property or services of recipient's employees.* Values are established in accordance with the applicable cost principles, which mean that amounts chargeable to the project are determined on the basis of costs incurred. For real property or equipment used on the project, the cost principles authorize depreciation or use charges. The full value of the item may be applied when the item will be consumed in the performance of the award or fully depreciated by the end of the award. In cases where the full value of a donated capital asset is to be applied as cost sharing or matching, that full value must be the lesser or the following:

(a) The certified value of the remaining life of the property recorded in the recipient's accounting records at the time of donation; or
(b) The current fair market value. If there is sufficient justification, the Contracting Officer may approve the use of the current fair market value of the donated property, even if it exceeds the certified value at the time of donation to the project. The Contracting Officer may accept the use of any reasonable basis for determining the fair market value of the property.

(2) *Valuing services of others' employees.* If an employer other than the recipient furnishes

the services of an employee, those services are valued at the employee's regular rate of pay, provided these services are for the same skill level for which the employee is normally paid.

(3) *Valuing volunteer services.* Volunteer services furnished by professional and technical personnel, consultants, and other skilled and unskilled labor may be counted as cost sharing or matching if the service is an integral and necessary part of an approved project or program. Rates for volunteer services must be consistent with those paid for similar work in the recipient's organization. In those markets in which the required skills are not found in the recipient organization, rates must be consistent with those paid for similar work in the labor market in which the recipient competes for the kind of services involved. In either case, paid fringe benefits that are reasonable, allowable, and allocable may be included in the valuation.

(4) *Valuing property donated by third parties.*

(a) Donated supplies may include such items as office supplies or laboratory supplies. Value assessed to donated supplies included in the cost sharing or matching share must be reasonable and must not exceed the fair market value of the property at the time of the donation.

(b) Normally only depreciation or use charges for equipment and buildings may be applied. However, the fair rental charges for land and the full value of equipment or other capital assets may be allowed, when they will be consumed in the performance of the award or fully depreciated by the end of the award, provided that the Contracting Officer has approved the charges. When use charges are applied, values must be determined in accordance with the usual accounting policies of the recipient, with the following qualifications:

(i) The value of donated space must not exceed the fair rental value of comparable space as established by an independent appraisal of comparable space and facilities in a privately-owned building in the same locality.

(ii) The value of loaned equipment must not exceed its fair rental value.

(5) *Documentation.* The following requirements pertain to the recipient's supporting records for in-kind contributions from third parties:

(a) Volunteer services must be documented and, to the extent feasible, supported by the same methods used by the recipient for its own employees.

(b) The basis for determining the valuation for personal services and property must be documented.

I can truly say the last year has been a challenging and rewarding one, but last Wed. really took the pie. I have sometimes felt there was some form of disruption in the County Board office and this time Gwen Thorpe has truly proven this. As she continues to work two fulltime jobs, both being filled on a part-time status, it goes to show just how neither can really be fulfilled correctly. It also goes to show as Bob Workman has stated, just how hard it is to fire a County employee. Of course you first must see the misconduct before you can act upon it, then you must act. So, knowing this, let me just share our side of the story as I am fairly sure you only have one side and then again maybe you haven't really heard anything.

On Nov. 4, there were two meetings scheduled for the employees of Lancaster Manor and the new potential owner. As the Union felt it was in the best interest of the employees to attend, Becki Simerley and myself went to the Manor. It was only a few brief minutes before Becki was approached and asked to leave. Only moments later, Gwen Thorpe approached me and demanded we leave. At this point, Gwen stated this was for Manor employees only and we briefly, in heated moments, discussed this issue in the doorway, in front of the employees. Gwen then stated again we needed to leave and that she was calling the Sheriff. She also stated we would discuss this in a couple seconds and never again approached us for any such conversation. At request of the Union Attorney Becki and I stepped outside waiting the hear from the County Attorney's office to why we were threw out of the Manor.

What was reported back to us was this. Gwen Thorpe was told by County Attorney Mike Thew she needed to contact either Gary Young or myself and inform us of this situation. This call never came in to us and well after the fact, we learned Gwen Thorpe was going to contact Mary Howard instead. Even later after this fact, we learned Gwen Thorpe, indeed, never followed through with this either. This meeting was to be for Manor employees only, NO MANAGEMENT, NO UNION and NO COUNTY BOARD MEMBERS. Therefore, purposefully, and in a flagrant attempt, tried to undermine the Union in light of the situation. It appears Gwen Thorpe had no intention of notifying anyone and had a hidden agenda this whole time. She showed no regard for a room full of employees as she was

making her demands upon us. There was no professionalism and no respect for anyone within hearing or sight of what was happening. But we do give credit to Gwen Thorpe for calling the police as we now felt protected from more of her verbal bashings.

As we continue to work our way through the potential sale of Lancaster Manor, the Union is constantly meet with slamming doors and broken promises. I can say in the last few weeks I have been approached by Bernie Heier in regard to setting up a meeting and this has never happened. Then a phone call the Deb Schorr which was returned by her husband but never followed up by her. It goes to show the lack of concern the County Board has to show in regard to the Union and its requests, as simple as they may be. And not only to the Union but the employees who are working at the Manor struggling to get through every day while under the rule of Gwen. As she has shown us her total disrespect, it can only be apparent as to how she treats the employees. She has not, to our information, attempted to bring moral up but continues to depreciate the value of the employee. And let's not talk about the residents and the families, as we have such reports there too.

Lastly, lets discuss just what happened at the meetings . Reports coming out of the meetings, employees were saying how their wage was going to "freeze" at their current rate for one year. What we didn't hear was are the jobs going to freeze for the employees for one year. Nebraska is a right to hire state and knowing this tells us there may be no true intention of keeping these high dollar employees around too long. After all, there was mention of reducing the CNA's positions by one third.

It still only sounds reasonable the County Board does the right thing and hires a respectable and trained Administrator and keeps Lancaster Manor just as it has always been. County owned and operated, fulfilling its duty to the people of Lancaster County in all respects as the people want it. It is not about what you want, but what the people want and it is time to listen to them and support them as they have supported you for the last several years. And I ask you, all of you,

"Would you sell yourself out as you are trying to sell out the people of Lancaster County?" I truly believe you would not!