

# RUGBY NATURAL GAS SYSTEM FEASIBILITY STUDY



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## FEASIBILITY STUDY FOR NATURAL GAS FOR THE CITY OF RUGBY, ND

KLJ prepared this feasibility study identifying an Opinion of Probable cost for a natural gas supply; the estimated cost of a distribution system; a survey of the public's interest and the operational costs that would be associated with operating a distribution. Specific tasks were as follows. Appendix J contains a copy of the Executed Agreement for these services. However, an interim need to establishing the public's interest was to estimate the delivered cost of natural gas for commercial, industrial and residential customers. As the research unfolded, KLJ staff also investigated the feasibility of an investor owned utility (IOU). Historically, the obstacle to IOUs has been the rate-making process and interaction with the Public Service Commission (PSC). Accordingly, KLJ met with the PSC to discuss alternatives to the traditionally costly process.

- Task 1 - Pipeline Costs (Transmission Line to the City Gate) and Alternative Source – Liquefied Natural Gas (LNG)
- Task 2 - Distribution Costs – Assumptions for Distributions Costs: 15 miles of Transmission Main, 1,000 Customers and 150,000 dkt/Year
- Task 3 - Market Study – Prepare a Questionnaire for Use by the City for Inclusion in the Water Bills and Assist the City in Evaluation of the Responses
- Task 4 - Operations Estimate


This report summarizes findings of that research.

### GAS SOURCES

One of the most important aspects of this project was to look at potential sources and means to bring gas to the edge of the City. The alternatives are largely dependent on preliminary estimates of natural gas loads the City could anticipate. Accordingly, KLJ assumed there would only be 100 residential customers and 14 large industrial and commercial customers during the first year of operation. To determine the lowest estimated cost of delivered natural gas, KLJ investigated three separate approaches to bringing natural gas to Rugby. The first being traditional pipelining, the second using LNG trucked to the community and vaporized for distribution and the third being the use of a "virtual pipeline" or Compressed Natural Gas (CNG) approach. KLJ also discussed potential options to purchase the gas at the town border station from a natural gas supplier that would make the arrangements for one of the above approaches to bring gas to Rugby. Appendix A of this report is a letter of interest from one potential provider, Pivotal LNG.

Appendix B is a cost estimate for the pipeline option, shown is the cost of gas delivered in today's market assuming the predetermined gas loads would be approximately \$49.55 per dkt compared to propane costs of approximately \$14.00 per dkt. Accordingly, the pipeline option is not viable at this time. With substantial growth and increases in gas requirements, a pipeline may be viable in the future once load increases to a point where the cost per dkt is less than the cost for alternative gas supplies.

For the LNG option, North Dakota LNG owns a natural gas liquefaction plant near Tioga, ND where they convert natural gas to a liquid state through a cryogenic process. The plant currently has adequate capacity and could make LNG available for transport to Rugby. Another carrier would then transport the liquid to Rugby where it would be stored and then vaporized and delivered to the town border station. This option could deliver natural gas under today's market conditions for a cost of approximately \$11.03 per dkt compared to propane cost of approximately \$14.00 per dkt. This option would require capital investment by someone, either the City or an investment group, for the storage and re-vaporization equipment. As noted above, Pivotal LNG provided a letter of interest expressing their interest in owning these facilities and providing gas to the community. Appendix C is a summary table of the LNG-Vaporization estimate provided by Chart Industries, as well as a presentation describing the process provided by Chart Industries.



KLJ also worked with Major Pipeline to investigate the cost effectiveness of a relatively new concept called “virtual pipelines” that use CNG as the source. The primary advantages of this approach are smaller CNG containers that can be filled closer to Rugby (Minot area). Also, the smaller units could be delivered to large-volume customers that do not have direct access to the distribution system. This alternative requires substantial capital investment on the part of the gas supply company (Major Pipeline) for the “mother” station and smaller capital investments for the “daughter” stations. Accordingly, if there were several communities in an area, this would be a cost-effective alternative. Appendix D contains a copy of the marketing material provided by Major Pipeline.

## **ESTIMATED DISTRIBUTION SYSTEM COSTS**

The estimated capital costs for the distribution system that would serve approximately 100 residential customers and the approximately 14 industrial and commercial customers in Rugby is \$789,373. Appendix E provides the detail for this estimated cost. This cost would be billed back to customers on a per dkt basis over the life of the facility.

This capital investment could be made by Rugby if they want a municipal gas distribution system. Alternatively, third party investors may have an interest or a cooperative may be so inclined to make this investment. It is important to note that if these assets belong to the City, there is no state rate oversight and the rates are determined solely by the City. However, if an investor group owns the assets, the rates are set by the ND PSC. This is perceived as a costly process involving complete cost accounting reviews and large staffs that have traditionally impeded IOUs for small communities. KLJ met with Julie Fedorchak and Michael Diller with ND PSC and discussed some possible ways to minimize the expense, assure investors of a reasonable return on their investment and provide natural gas to North Dakota communities. KLJ also held discussions with Northwest Gas, a small gas distribution company operating in Minnesota. They have expressed a willingness to discuss the possibility of owning the distribution systems in North Dakota, and more particularly in Rugby.

## **OPERATIONS ESTIMATE**

The annual cost ranges from \$231,400 per year for a municipal operation to approximately \$249,400 per year for a third party such as Progress Solutions or an IOU to operate the distribution system. Detailed operations costs can be found in Appendix F. KLJ also had discussions with the Minnesota Municipal Utilities Association (MMUA) in which they expressed a willingness to assist Rugby with operational documentation on a cost-per-meter basis. KLJ also investigated the American Public Gas Association (APGA) as a resource for Rugby should they choose to operate the gas distribution system. KLJ will provide introductions to each of these organizations upon request.

## **MARKET STUDY**

KLJ prepared the questionnaire shown in Appendix G of this report for use by the City to assess the interest level of the community in owning a municipal gas distribution system. Along with the survey cards, KLJ provided the Frequently Asked Questions and Coffee Talk sheets included in Appendix H to illustrate benefits of a municipal gas distribution system. The questionnaires were distributed by the Job Development Authority (JDA) to throughout the community and received the following response:

Residents returned 48 survey responses that included 30 without comments and 18 with comments. The comments and results are summarized in Appendix G of this report. Of the 48 responses, 64 percent used propane as their primary heating source or as back up to their electric heat. Only 12 or 25 percent relied solely on baseboard heating, which is not easily converted to natural gas. Nearly 80 percent of residents have electric water heaters, which would not easily convert to natural gas. 75 percent said they would connect to the system if it were available.

Generally, the comments were supportive of getting natural gas to the community and 66 percent said they would support a municipal natural gas system.

The industrial customers were polled either in-person or by telephone and indicated they strongly support natural gas for the community and that natural gas would help their business to grow or remain viable.



Based on the survey results, there is interest in having natural gas in the community and if it is not available from commercial sources, there would be support for a municipal system preferably paid for by the customers using the system.

Based on this information, it appears that while there is substantial interest in having natural gas in Rugby, especially by the industrial and commercial business, there is not a great deal of residential support for a municipal system.

## **CONCLUSION**

Based on the research contained in this feasibility study, it appears that either a municipal distribution system utilizing a LNG source or an IOU would be able to provide businesses and residences with a low-cost natural gas solution. This approach would enable economic development advocates to market Rugby with a community that has natural gas, which in turn should spur growth. Over the course of several years the system would most likely expand and grow to meet the increasing needs of the community. As it grows, existing IOUs may develop an interest in acquiring the assets. The City council may wish to meet with small IOUs, such as Northwest Gas, to discuss the possibility of an IOU or may choose to move forward with a municipal system. Preliminary discussions with the Bank of North Dakota indicated that there is low-interest funding available through the bank for a municipal system. There are also MATCH funds available for an IOU at a current rate of two percent with a 15-year note. Kelvin Hullett with the Bank of North Dakota Economic Development & Government Program is the appropriate contact.

To facilitate economic viability, the buildout process would be structured so that the initial phases captured the majority of the industrial load and some of the commercial load. This is accomplished by building the primary trunk line first and connecting the sizeable loads on the first pass. Then, as it becomes economically viable in other areas, laterals will branch off of the main trunk line and extend to those customers desiring natural gas. It should be noted that there will be parts of the community where it never becomes economically viable to have natural gas service.

In the near term, Rugby could join with the PSC in a request for new legislation, similar to Minnesota regulations, which would allow the community to work with a developer or IOU to establish acceptable gas distribution rates as opposed to falling under the PSC's jurisdiction.

The bottom line is that it is feasible to install a natural gas distribution system in Rugby providing low-cost, clean-burning natural gas at prices competitive to propane, fuel oil and electricity.

Appendix I contains a sample drawing of what an initial gas distribution system layout might look like.



Ten Peachtree Place  
Atlanta, GA 30309  
www.pivotalng.com

May 16, 2016

Mr. Doug Lee  
KLJ Progress Solutions  
4585 Coleman Street  
Bismarck, ND 58503-0431

Dear Mr. Lee:

**Re: Liquefied Natural Gas Supply for Rugby, North Dakota**

Please accept this letter as a Letter of Interest on behalf of Pivotal LNG, Inc. ("Pivotal") in supplying liquefied natural gas ("LNG") to the city of Rugby, North Dakota. A wholly owned subsidiary of AGL Resources Inc. (NYSE: GAS), Pivotal provides flexible, cost-effective LNG solutions; including firm and interruptible LNG supply, liquefaction, vaporization, and transportation. Pivotal is committed to providing LNG 24 hours a day, 365 days a year. With our fleet of cryogenic tankers, we have the capability to deliver LNG (natural gas supply) directly to your specific location. Recently, Pivotal announced the expansion of its network of LNG production facilities with the construction of a new facility in Jacksonville, FL. The Jacksonville facility is expected to be operational in early 2017, enabling Pivotal LNG to more efficiently serve the trucking, marine and other high-horsepower markets in that area.

Pivotal is excited to discuss the opportunity, subject to necessary approvals and the execution of definitive agreements, to partner with KLJ Progress Solutions and others in serving Rugby, North Dakota; and looks forward to the development of our relationship.

Sincerely,

Eric Kuenzli  
Director, Fuels  
Pivotal LNG, Inc.

Bill Kickert  
Manager, C&I Sales  
Sequent Energy Management, L.P.

## APPENDIX B – PIPELINE COST ESTIMATE

### EXPENSE SUMMARY – PIPELINE OPTION

	Cost Per Month	Annual Cost
Distribution System	\$3,328	\$39,936
O&M	\$20,783	\$249,400
Compliance	\$4,333	\$52,000
LNG Storage	\$ -	\$ -
LNG Supply	\$ -	\$ -
Gas	\$20,167	\$242,000
Pipeline Fees	\$451,000	\$5,412,000
<b>Totals</b>	<b>\$499,611</b>	<b>\$5,995,336</b>
Average Cost of Gas \$49.55 per DKT		

### PIPELINE ESTIMATE

Pipeline Option	Approximately 63 Miles of 6-inch Pipeline
Capital Required	\$24,600,824
Contingency @ 2%	\$492,016
<b>Total Capital</b>	<b>\$25,092,837</b>
Months	240
Interest Rate	12%
Monthly Payment	(\$276,293.75) per month
Pipeline Operations	\$174,706.25 per month
<b>Total Monthly Fee</b>	<b>\$451,000 per month</b>

# APPENDIX C – SUMMARY TABLE OF LNG STORAGE AND VAPORIZATION COSTS AND MARKETING MATERIALS FROM CHART INDUSTRIES

## EXPENSE SUMMARY – LNG OPTION

	Cost Per Month	Annual Cost
Distribution System	\$3,328	\$39,936
O&M	\$20,783	\$249,400
Compliance	\$4,333	\$52,000
LNG Storage	\$6,490	\$77,880
LNG Supply	\$56,124	\$673,486
Gas	\$20,167	\$242,000
<b>Totals</b>	<b>\$111,225</b>	<b>\$1,334,702</b>
Average Cost of Gas \$11.03 per DKT		

## LNG SUPPLY

LNG Conversion					
	Unit Cost	DKT	Conversion Rate	Annual LNG Load	Annual Cost
LNG Conversion	\$0.40 per gallon	121,000	12.1 Gallons/dkt	1,464,100 Gallons	\$585,640
Delivery	\$0.06 per gallon	121,000	12.1 Gallons/dkt	1,464,100 Gallons	\$87,846
<b>Annual LNG Costs</b>					<b>\$673,486</b>

Gas Cost	Unit Cost	DKT	Annual Cost
Gas Cost	\$2.00 per dkt	121,000	\$242,000
<b>Total Gas Costs</b>			<b>\$242,000</b>



## LNG STORAGE-VAPORIZATION

Storage Tank (30,000 Gallons)	\$376,400
Vaporization	\$200,000
Construction	\$200,000
Commission/Train	\$25,000
Shipping	\$20,000
Automated Valves and fittings	\$112,000
Land	\$50,000
<b>Total</b>	<b>\$983,400</b>
Amortization Period	20 Years
Interest Rate	5%
Payment	(\$6,490.00)

Bid Estimate	
Equipment	\$1,309,800
2 x 30k vessels	
110,000 SCFH vaporization	
Commission/Train (2 trips and 14 days total)	\$25,000
Shipping	\$20,000
<b>Total</b>	<b>\$1,354,800</b>

(2) 30k vessels

- Deduct for only (1) x 30k vessel = (-\$376,400)

(1) 100 MMBTU/HR maximum capable vaporization

(1) lot of automated system valves for all vessels and vaporizer

(1) offload pump

PLC-control system with HMI touch-screen operation and gas detection

- All controls contained in 20' ISO container
- PLC power panel
- PLC control panel
- Pre-programmed PLC and HMI
- Pre-wired and tested

Mechanical project engineering, design and project management

On-site commissioning

On-site training





# Industrial Regasification


Erik Langeteig

[Erik.Langeteig@Chartindustries.com](mailto:Erik.Langeteig@Chartindustries.com)

608-215-5903



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## What is LNG Regasification?

**Regasification** is a process of converting **liquefied natural gas (LNG)** at  $-162\text{ }^{\circ}\text{C}$  ( $-260\text{ }^{\circ}\text{F}$ ) temperature back to natural gas at atmospheric temperature. **LNG** gasification plants can be located on land as well as on floating barges.

Wikipedia

**LNG** will expand roughly 600 times when converted to natural gas. This allows a large volume of natural gas to be captured in a relatively small vessel. It also allows LNG to be efficiently transported.

**Majority** of Americans know very little about LNG even though it has been part of this nation's energy mix for almost 100 years.

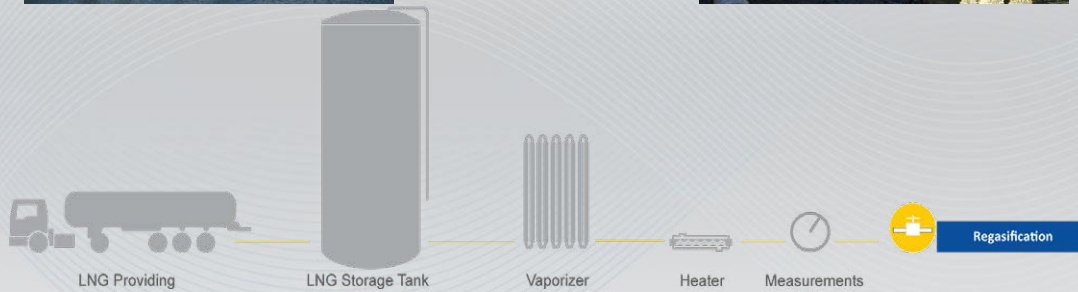
**The** first LNG facility was built in West Virginia in 1912.

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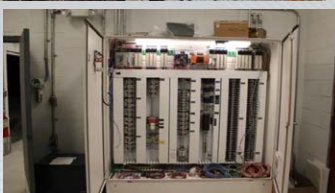
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## Typical LNG Regasification System



## LNG Satellite – Vermont USA





# LNG Satellite – Waterville, Maine



# LNG Satellite – Northwest Territories, Canada



## LNG Regasification - Offload



### Transport Offload Manifold

- Dual hoses
  - Liquid withdrawal – vapor return
- CGA connectors
- Offload pendant
- ESD
- Preassembled and tested skid

### Offload Pumps

- Centrifugal pumps – 190GPM
- Redundancy
- Cool down loop
- Fully automated
- Preassembled and tested skid



## LNG Regasification - Storage



### Vertical Storage

- Most popular in the industry
- Smaller footprint
- 500 to 35,000 gallons (larger available upon request)
- Seismic challenges on larger sizes

### Horizontal Storage

- Seismic advantage (less concrete and rebar)
- Lower profile for height limiting locations
- 1,500 to 265,000 gallons
- Preferred for large storage



## LNG Regasification - Vaporization



### Ambient

- Most cost effective
- Free energy
- Larger footprint
- Challenges with local climate



### Electric

- Requires power (usually available)
- Small footprint
- Vaporization or trim heating

### Circulating Water

- Plant cooling water or seawater
- Closed loop Water/glycol in cold weather
- Low Capex – Higher Opex



### Fuel Fired

- Most effective on large scale regas plants
- Direct or indirect water bath systems
- Natural gas fired



## LNG Regasification - Regulation



### Regulation and Flow Control

- Fully automated
- Dual redundant flow paths
- Manual bypass
- Pressure measurement
- Flow measurement
- Temperature sensing with shut-down capability
- Gas measurement

### Regulation and Flow Control

- Local indication (if desired)
- Maintenance valves
- Prewired to junction box
- Preassembled and tested skid



## LNG Regasification – Control System



### ISO Control Kiosk

- 10', 20' or 30' ISO Container
- Computer room and Operator room
- Pre-Programmed PLC & HMI
- Pre-Wired – Plug & Play design
- Factory FAT tested
- Great for green field



### Outdoor Control Cabinet

- Requires local indoor storage
- Pre-Programmed PLC & HMI
- Pre-Wired – Plug & Play design
- Factory FAT tested

### Indoor Control Cabinet

- Requires local climate controlled indoor storage
- Pre-Programmed PLC & HMI
- Pre-Wired – Plug & Play design
- Factory FAT tested



## LNG Regasification – Interconnecting Piping



### Vacuum Insulated Pipe

- Best in heat management
- Best in cold conservation and personal protection
- Rigid or flex
- Eliminates loops with bellows
- Factory built and tested
- Limited to shipping constraints
- Requires skilled field installation
- Longest lasting insulation system

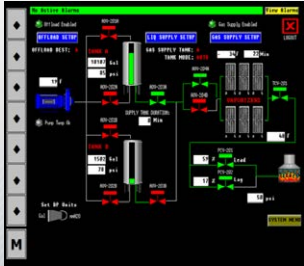


### Foam Insulation

- Limited heat management
- Good personal protection
- Can be applied in factory or field
- Requires flexibility loops
- Requires larger pipe area
- Minimum installation skills
- 5-10 year life



## Startup Support, Commission and Training



### Logic Controlled

- HMI's designed to fit your application
- Remote view/control capability



### Classroom Training

- Basic cryogenic training
- Training on your equipment package



### Startup and Commission

- Support from first fill to fine tuning the system
- Electronic to mechanical capabilities



### Hands-on Training

- Walk through entire system
- Final inspection and safety review prior to startup



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# VirtualPipeline®

## Natural Gas where pipelines can't reach.

Virtual Pipeline offers an attractive economic alternative to conventional gas pipelines in situations where demand and travelling distance cannot justify the investment in a pipeline.

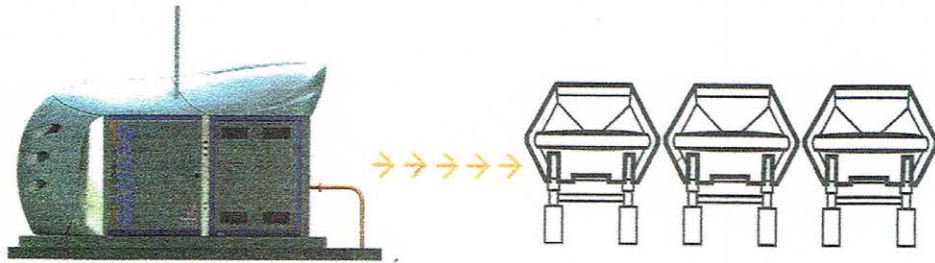
Galileo has developed a modular CNG compression-transport-decompression system by combining state-of-the-art technology in natural gas compression and decompression technologies. This new CNG road system allows you to supply natural gas to industries, mines, small towns and remote CNG stations.



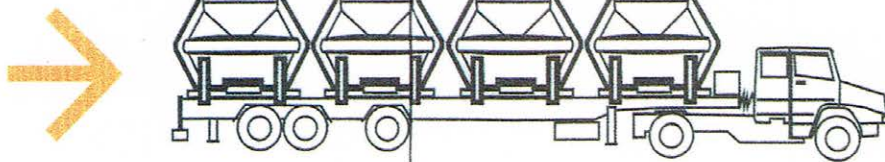
# Advantages

- **Economic energy:** Virtual Pipeline system allows you to supply natural gas to areas where having this service was unthinkable. This system can replace other fuels which are more expensive and contaminating.
- **Optimum use of transported gas:** Virtual Pipeline's modularity set and its exclusive unloading management system makes optimum use of transported gas and reduces the operating cost per cubic meter of natural gas.
- **Scalability:** working with modules allows the system to grow at the pace of demand. Each actual consumption will be matched with an actual MAT number to prevent the system overload.
- **Transportability:** through the exclusive "ST" Transport System, modules are easily transported to different consumption points. In addition to the consumptions for which the system is sized, Virtual Pipeline can supply "seasonal consumptions" maximizing the return on investment.
- **Balance between operating and investment costs:** thanks to both its modularity and its scalability, this system allows for an optimal sizing to strike a perfect balance between operating and investment costs.

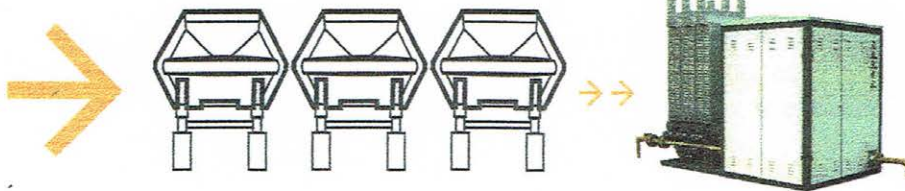




COMPRESSION AND STORAGE



TRANSPORTATION



CONSUMPTION

# APPENDIX E – DETAILED DISTRIBUTION SYSTEM COST ESTIMATE

## DISTRIBUTION SYSTEM CAPITAL

### Summary

Line Item	Price/Unit	Units	Unit Quantity	Totals
Main Labor	\$206,040	20,000' Main System	1	\$206,040
Service Line Labor (per Service)	\$1,338	Per Service Line	100	\$133,800
Main Materials	\$82,478	20,000' Main System	1	\$82,478
Service Line Materials	\$410	Per Service Line	100	\$41,040
4" Commercial Service Line Materials	\$4,962	Per Service Line	14	\$69,468
4" Commercial Service Line Labor	\$2,138	Per Service Line	14	\$29,932
Town Border Station Labor and Materials	\$133,740	Per TBS	1	\$133,740
KLJ Engineering & Consulting Fee Estimate	\$92,875	Per Estimate	1	\$92,875
Subtotal				\$657,811
<b>Total with Contingency 20%</b>				<b>\$789,373</b>

Amortization Period: 30 years

Interest Rate: 3%

Payment: **(\$3,328.03)** per month

### Main Labor Footage: 20,000 feet

Line Item	Price/Unit	Units	Unit Quantity	Totals
Trenching	3.5	Per Foot	14,000	\$49,000
Backhoe	8.5	Per Foot	4,000	\$34,000
Fusion Cost	85	Per Hour	160	\$13,600
Pipe Handling	0.5	Per Foot	20,000	\$10,000
Tracer Wire Install	0.25	Per Foot	20,000	\$5,000
HDD/Bore	20	Per Foot	2,000	\$40,000
Vac Truck	135	Per Hour	60	\$8,100
Inspection	100	Per Hour	120	\$12,000
Subtotal				\$171,700
<b>Total with Contingency 20%</b>				<b>\$206,040</b>



**Service Line Labor (per service)**  
Footage: 100 feet

Line Item	Price/Unit	Units	Unit Quantity	Totals
Trenching	3.5	Per Foot	100	\$350
Bell Hole (Alley)	150	Per Hole	1	\$150
Riser Placement	150	Per Hole	1	\$150
Fusion Cost	85	Per Hour	3	\$255
Pipe Handling	0.5	Per Foot	100	\$50
Tracer Wire Install	0.25	Per Foot	100	\$25
Vac Truck	135	Per Hour	1	\$135
Subtotal				\$1,115
<b>Total with Contingency 20%</b>				<b>\$1,338</b>
* Commercial Service Adder (Fab Work)	100	per hour	8	\$800

**Main Materials**  
Footage: 20,000 feet

Line Item	Price/Unit	Units	Unit Quantity	Totals
4" MDPE Plastic Pipe	\$2.94	Per Foot	20,000	\$58,800
BNSF Crossing Permit	\$1.00	Per Each	5,000	\$5,000
Tracer Wire	\$0.10	Per Foot	20,000	\$2,000
Gel Caps	\$6.00	Per Cap	30	\$180
Marker Posts (includes sticker)	\$20.00	Per Post	20	\$400
Misc Fittings (Teas, Elbows, etc.)	4%	Of Pipe Cost	\$58,800	\$2,352
Subtotal				\$68,732
<b>Total with Contingency 20%</b>				<b>\$82,478</b>

**Service Line Materials**  
Footage: 100 feet

Line Item	Price/Unit	Units	Unit Quantity	Totals
3/4" MDPE Plastic Pipe	\$0.30	Per Foot	100	\$30
Tracer Wire	\$0.10	Per Foot	100	\$10
Gel Caps	\$6.00	Per Cap	1	\$6
3/4" Anodeless Riser	\$35.00	Per Riser	1	\$35
4 X 3/4" SFTee w/EFV	\$40.00	Per Tee	1	\$40
Residential Meter	\$136.00	Per Meter	1	\$136
Meter Loop w/Regulator	\$85.00	Per Loop	1	\$85
Subtotal				\$342
<b>Total with Contingency 20%</b>				<b>\$410</b>

**4" Commercial Service Line Materials**  
Footage: 100 feet

Line Item	Price/Unit	Units	Unit Quantity	Totals
4" MDPE Plastic Pipe	\$2.94	Per Foot	100	\$294
Tracer Wire	\$0.10	Per Foot	100	\$10
Gel Caps	\$6.00	Per Cap	1	\$6
4" Anodeless Riser	\$150.00	Per Riser	1	\$150
4 X 4" SFTee w/EFV	\$40.00	Per Tee	1	\$40
3M Meter	\$1,750.00	Per Meter	1	\$1,750
Meter Loop w/Regulator and Relief Valve	\$1,250.00	Per Loop	1	\$1,250
Pipe, Valve and Fittings	\$635.00	Per Set	1	\$635
Subtotal				\$4,135
<b>Total with Contingency 20%</b>				<b>\$4,962</b>

**Town Border Station Labor and Materials**  
Footage: 100 feet

Line Item	Price/Unit	Units	Unit Quantity	Totals
Skid Mounted Station - Pre-fab	\$22,500.00	Per Station	1	\$22,500
Odorizer	\$16,000.00	Per Each	1	\$16,000
Gel CapLine Heater if required	\$44,800.00	Per Each	1	\$44,800
Custody Meter - Turbine	\$15,000.00	Per Meter	1	\$15,000
Labor - 44 man weeks	\$8,000.00	Per Station	1	\$8,000
Misc. Pipe, valves and fittings	\$1,150.00	Per Station	1	\$1,150
Straightening Vanes	\$1,000.00	Per Station	1	\$1,000
Civil/Site Work	\$3,000.00	Per Station	1	\$3,000
Subtotal				\$111,450
<b>Total with Contingency 20%</b>				<b>\$133,740</b>

**KLJ Engineering and Consulting Fee Estimate**

Line Item	Estimate
Hydraulic model	\$8,000
Permits (RR, County, City)	\$5,100
Survey	\$10,000
Bid Specification	\$7,200
Construction Management	\$36,000
General Engineering	\$8,000
Miscellaneous	\$18,575
<b>Total</b>	<b>\$92,875</b>

# APPENDIX F – DETAILED OPERATIONS COST ESTIMATE AND COMPARISON

## RUGBY LNG DISTRIBUTION SYSTEM ESTIMATED COST OF OPERATIONS

Yearly Costs		Progress Solutions	Municipal	IOU
1.	Maintenance, Response/Standby, Locates, Preventive Maintenance	\$120,000	\$60,000	\$120,000
2.	Control Room Monitoring	\$9,000	\$9,000	\$9,000
3.	Compliance	\$18,000	\$25,000	\$18,000
4.	Vehicle	\$10,200	\$10,200	\$10,200
5.	Fuel and Maintenance	\$7,200	\$7,200	\$7,200
6.	Supplies and Materials	\$10,000	\$10,000	\$10,000
7.	Insurance	\$40,000	\$75,000	\$40,000
8.	Contract Labor (Pipeline Repair, Relocates, etc.)	\$20,000	\$20,000	\$20,000
9.	Contingency	\$15,000	\$15,000	\$15,000
<b>Total Yearly Costs</b>		<b>\$249,400</b>	<b>\$231,400</b>	<b>\$249,400</b>

One-Time Costs		Progress Solutions	Municipal	IOU
10.	Initial Compliance (Manuals, Processes, etc.)	\$35,000	\$35,000	\$35,000
11.	Tools and Equipment	\$12,000	\$12,000	\$12,000
12.	Training	\$5,000	\$5,000	\$5,000
<b>Total One-Time Costs</b>		<b>\$52,000</b>	<b>\$52,000</b>	<b>\$52,000</b>

**Notes:**

1. For item 1 under municipal it is assumed to be less expensive as they can assign certain tasks to existing City employees. Training for operator qualifications and response would need to be completed for each employee required to work on the system.
2. Compliance includes maintaining all manuals, internal audits, record keeping, maintaining files, submissions, etc.
  2. (a) O&M Manual
  2. (b) Emergency Response Procedures
  2. (c) Public Awareness Plan
  2. (d) Damage Prevention Plan
  2. (e) Operator Qualification Plan
  2. (f) Distribution Integrity Management Plan
  2. (g) Drug and Alcohol Testing Plan
  2. (h) Safety Program

# RUGBY NATURAL GAS SYSTEM FEASIBILITY STUDY QUESTIONNAIRE

Rugby is looking at the feasibility of bringing natural gas to the area with a distribution system. This Study will help assess the public's interest and willingness to connect to natural gas, as having natural gas in Rugby could lower the cost of heating homes and water for the community and at the same time aid in growth.

Studies indicate that communities with natural gas tend to be more vibrant and grow more than cities that do not. According to business development specialists, one of the first questions asked by companies looking to expand is: "Does your community have natural gas?"

Accordingly, your participation is greatly appreciated to assess the community's interest. Please complete the following questionnaire and return it within 15 days. The results will then be tabulated and discussed to help determine what path, if any, is best for moving forward.





The following is an estimate of what the annual fuel expense would be based on today's market conditions and the anticipated load. Costs may vary depending on number of customers or actual cost of construction. Customers would be responsible for converting their own equipment and connecting the gas from a meter by their structure to the appliances. An estimated cost for average conversions is \$500.

Conversion price listed is based on current information based on a normal conversion cost for water heater, gas stove and furnace. Price is subject to change based on specific project requirements.

Fuel	Cost	Units	Conversion Factor	Cost/DKT	Annual Cost for 110 DKT
Natural Gas	\$11.00	Per DKT	1	\$11.00	\$1,210.00
Propane	\$1.19	Per Gallon	10.95	\$13.03	\$1,433.36
Electricity Dual Fuel Rate	\$0.03451	Per KWH	243	\$8.39	\$922.45
Electricity Single Fuel Rate	\$0.07863	Per KWH	243	\$19.11	\$2,101.78

Residential Load are customers that use less than 2,000 DKT/Year

Industrial Load are customers that use more than 5,000 DKT/Year

Commercial Load are customers that use between 2,000 and 5,000 DKT/Year

## FOR MORE INFORMATION CONTACT:

JT PELT AT RUGBY JDA - 701-776-7655 | EMAIL: JTPELT@RUGBYJDA.COM | WWW.RUGBYJDA.COM

Please complete the following questionnaire and return to city hall or the JDA Office, 126 2nd Ave SW Suite 100

Name (Optional): \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

1. Do you have propane or electric heat? (circle one) or other \_\_\_\_\_
2. What kind of heating system does your home have now? (circle one)  
Forced Air - Boiler Heating System - Electric Baseboard
3. How old is your furnace? \_\_\_\_\_ What efficiency rating does it have? \_\_\_\_\_
4. How old is your water heater? \_\_\_\_\_ Propane or Electric (circle one)
5. Do you have a propane range or dryer? Yes - No (circle what you have)
6. How much propane did you use for your home/business/farm last year? \_\_\_\_\_
7. Would you be supportive of a city-owned gas system paid for by users? Yes - No
8. Would you connect to the gas system if it were available? Yes - No
9. Would you be in favor of allocating a portion of existing sales tax dollars for building and the development of a natural gas distribution system? Yes - No
10. Would you be a residential, commercial or industrial customer as defined above. (circle one)  
Residential - Commercial - Industrial
11. Would you connect to the gas system if there was a connection cost of \$500 - \$1000? Yes - No
12. Would you be in favor of users paying for development and operation of the system? Yes - No
13. Questions or Comments: \_\_\_\_\_



The survey was sent out to more than 200 residents; 48 responses were received. The results included:

1. Do you have propane or electric heat?	Propane 13 (27.08%)	Electric 17 (35.42%)	Fuel Oil 1 (2.08%)	Both/Backup 17 (35.42%)
2. What kind of heating system do you have?	Forced Air 26 (54.17%)	Boiler 10 (20.83%)	Electric Baseboard 12 (25.00%)	
3. How old is your furnace/what efficiency rating?	Not Applicable			
4. How old is your water heater? Electric or Propane?	Electric 38 (79.17%)	Propane 10 (20.83%)		
5. Do you have a propane range or dryer?	Yes 3 (6.25%)	No 45 (93.75%)		
6. How much propane did you use last year?	Not Applicable			
7. Would you be supportive of a City-owned gas system paid for by users?	Yes 32 (66.67%)	No 13 (27.08%)	Unsure 3 (6.25%)	
8. Would you connect to a gas system if it were available?	Yes 36 (75.00%)	No 11 (22.92%)	Unsure 1 (2.08%)	
9. Would you be in favor of allocating a portion of existing sales tax dollars for building and development of a natural gas distribution system?	Yes 27 (56.25%)	No 14 (29.17%)	Unsure 7 (14.58%)	
10. Would you be a residential, commercial or industrial customer?	Residential 38 (79.17%)	Industrial 0 (0%)	Commercial 5 (10.42%)	Residential and Commercial 2 (4.17%) None 3 (6.25%)
11. Would you connect to a gas system if it cost \$500-\$1,000?	Yes 26 (54.17%)	No 16 (33.33%)	Unsure 6 (12.50%)	
12. Would you be in favor of users paying for development and operations of the system?	Yes 22 (45.83%)	No 16 (33.33%)	Unsure 10 (20.83%)	



Of the 48 responses, 30 residents provided comments.

- 1 Prefer system to be owned and operated by City.
- 2 Let's get this done.
- 3 City to develop and Operate system. All realestate owners to assist in paying as the system would be available to everyone.
- 4 Let's get this up and running.
- 5 Natural gas would give us more options, especially for large demand usage.
- 6 Boiler system can be easily converted to a natural gas boiler.
- 7 Only users paying for system with no backing by the City of Rugby.
- 8 I feel questions 7 and 12 are trick questions - and would you dig up all the streets in town to put in pipelines - now that you repaired them this summer + the yards.
- 9 This town is great the way it is. Quit trying to raise taxes and sales tax and other extra expenses to make it impossible to live here.
- 10 The end user always pays for the product or service. Do not use tax dollars to pay for someone else's benefit.
- 11 Please try to get an outside company to operate the gas utility. We don't need the underated on the job trained City people trying to run a gas Company. Look how poorly run the street department is.
- 12 We don't need another expensive mess like we have with sewer, water and garbage.
- 13 Use propane to supplement floor heat especially in spring & fall.
- 14 Been wanting to install a furnace - will certainly do it if natural gas is available.
- 15 About time
- 16 Have gas range and fireplace. Also have propane backup for electric plenum.
- 17 This is something we do not need!
- 18 This capital improvement would bring Rugby up to the 21st century fossil fuel standards for cleaner air requirements - Our commercial and residential community will benefit in the long run.
- 19 What are the options for development, connection and conversion along with the cost for each?
- 20 Backup fuel oil boiler is 40 plus years old, not very efficient, very little use this past year, but other years, we've used up to 2,000 gallons of fuel oil.
- 21 We have propane range and convection ovens for hot lunch program.



# RUGBY NATURAL GAS SYSTEM FREQUENTLY ASKED QUESTIONS

## **Would the Rugby Gas Distribution System be a municipal utility or private utility?**

The Feasibility Study currently underway is looking at several options to provide natural gas to Rugby. It may be more cost-effective for a municipal system, and finding private investors willing to invest in distribution systems can be difficult. However, should a Rugby business or group of Rugby businesses express an interest in owning and operating the system, it should be considered.

Due to the size of the utility, it may not be feasible to make a natural gas facility subject to the rate-making process under the Public Service Commission (PSC). In forming a municipal utility, a home rule is established to allow your city to contract for the service.

## **What will it cost our City?**

If the City chooses a municipal system, the City would be responsible for funding construction of the distribution system, and would recover that cost through monthly invoicing to residents/customers. Typically, the City recovers the costs through rates for natural gas delivered.

## **What will be the City's responsibility?**

The City would be required to own the distribution system and operate the system. This includes maintenance as well as purchasing gas for resale to its customers. Maintenance and operation can be contracted out to a third party, or the City can choose to do this themselves. Likewise, gas purchasing is a complex, risky business that can best be handled by a gas trader. The City would provide, under utility rules, access to utility easements, right-of-ways, etc. necessary to provide the service.

## **Where could the City get help to own and operate a system?**

There are several organizations available to assist municipalities with utility systems. The American Public Gas Association (APGA) is a national organization that helps with safety aspects. The Minnesota Municipal Utilities Association (MMUA) is willing to discuss providing assistance.

## **How safe is a natural gas distribution system?**

Gas distribution safety is regulated by the federal government and those regulations are adopted by the state of North Dakota and enforced by the PSC's Pipeline Safety Group. This group performs periodic inspections and provides training annually.

Comparatively, natural gas is a safe fuel for your home or business. Design, construction, operation and maintenance of a distribution system is regulated by the North Dakota PSC using regulations established by the Pipeline and Hazardous Materials Safety Administration (PHMSA) through the US Department of Transportation (DOT). The PSC has safety inspectors who perform routine inspections to verify the system meets the minimum safety standards.

## How will your city benefit?

The availability of natural gas opens the door to relocate new businesses into your city and enhances your existing business city infrastructure – lowering cost of energy to customers. There is also an opportunity for any local HVAC companies in your community.

# NATURAL GAS

## How does natural gas compare to propane and diesel?

Environmentally, natural gas is the cleanest burning fossil fuel and is seen as a strategic tool in the global effort to reduce greenhouse gas emissions. By converting Rugby homes and businesses to natural gas, the region will see an immediate reduction in greenhouse gas emissions, thereby improving regional air quality.

Energy is compared by converting the costs to a standard unit. For natural gas, the unit commonly used is Dekatherms (DKT). Natural gas has approximately 1 DKT per 1,000 cubic feet (MCF). 10.95 gallons of propane will provide 1 DKT, and 293 KWH of electricity will provide approximately 1 DKT of energy. For North Dakota, a typical home will consume approximately 110 DKTs per year for heating purposes, including heat, water and miscellaneous appliances. Accordingly, comparing the costs, preliminary numbers indicate that natural gas would cost about \$11.00 per DKT; propane at \$1.19/gallon equals \$13.03/DKT; electricity at Ottetail Power's rate of \$.03451/KWH equals \$10.11/DKT and at Ottetail's single fuel rate of \$.07863/KWH equals \$23.04.

The following table uses these rates to compare energy costs for a typical home that consumes 110 DKT per year:

FUEL	COST	UNITS	CONVERSION FACTOR	COST/DKT	ANNUAL COST FOR 110 DKT
Natural Gas	\$11.00	Per DKT	1	\$11.00	\$1,210.00
Propane	\$1.19	Per Gallon	10.95	\$13.03	\$1,433.36
Electricity Dual Fuel Rate	\$0.03451	Per KWH	243	\$8.39	\$922.45
Electricity Single Fuel Rate	\$0.07863	Per KWH	243	\$19.11	\$2,101.78

## How will converting to natural gas help meet Rugby's sustainable energy plan?

The conversion to natural gas will provide a significant and immediate reduction in greenhouse gas emissions in and around Rugby. A natural gas delivery system will also help the community cost-effectively move to a plentiful energy source capable of meeting future growth.

# CONVERTING YOUR HOME TO NATURAL GAS

## What is the timing for the project?

The distribution system would have a core main constructed early in the process and expand as additional customers opted for natural gas. Some portions of the community may never have natural gas service. There are parts of the community that have all electric heat where it may not be cost-effective to run distribution pipelines. The entire build-out process would most likely take several years.



### **How much will it cost to convert my home to natural gas?**

The cost to convert your home will depend on the type of fuel you are currently using. In any case, you should consult with your local plumbing and heating contractor. Typically, the average cost to convert a propane heated home to natural gas is approximately \$500. If a customer needs to replace a furnace or install duct work, the cost could be several thousand dollars.

If you currently use propane, the cost could be minimal. Most newer appliances are convertible from propane to natural gas with the exception of your hot water heater. This may or may not be convertible; in most cases it is not.

If you currently use electric, fuel oil, coal or wood for heat, this may require a complete renovation of your heating system; however, if you wish to use natural gas for cooking, hot water or fireplace, you can do so in conjunction with your current system.

### **How long will it take to convert my home?**

This will depend on the type of system you have.

### **Who will convert my appliances and heating system?**

The conversion of your home is very important to us. Along with your local plumbing and heating contractors, the City will endeavor to provide a sufficient number of contractors to perform the conversion work in a timely manner.

### **Who do I call to make an appointment or application for service?**

Once a survey is completed and initial routing is selected, the utility will accept applications for service.

## **GAS SUPPLY AND DISTRIBUTION CONSTRUCTION**

### **What is the natural gas source?**

Initially, the natural gas will be delivered to the city as liquefied natural gas or LNG. It is then vaporized and distributed through the distribution system. The Feasibility Study is also looking into compressed natural gas in an attempt to determine the lowest cost solution for Rugby.

### **What is the natural gas distribution system?**

The natural gas distribution system will be constructed of 1 1/2 to 3-inch poly pipe PE3408 with the mains being 2 and 3 inches and the service lines being 1/2 to 3/4-inch. The distribution system will have a maximum operating pressure of 60 pounds per square inch and a normal operating pressure of 20 to 30 pounds per square inch. The mains will be buried 24 to 36 inches and service lines will be buried 12 to 18 inches.

### **Where will distribution lines be placed?**

They will be located in utility easements, roadway right-of-ways, on City properties and on private easements where necessary.

### **How long will construction of the distribution system take?**

Construction of the mains would take one construction season. Construction of service lines will begin with the main construction and be ongoing as additional customers are added. As customers sign up for natural gas, the system would be expanded to meet those needs. This would be an ongoing process.



### **How will construction of pipeline affect me as a homeowner?**

In most cases, the mains will be located in the utility easement or in the alley. The service line will be buried from the main to the meter on your home. The service line will be buried either by open trench or by plowing in. In either case, your lawn will be restored to your satisfaction. If a paved driveway, sidewalk or other hard surface is encountered, the gas service will be bored under it.

## **MISCELLANEOUS QUESTIONS**

### **I have an unattached garage that I would like to hook up; what will that cost?**

If you wish to have your unattached garage billed separately, it would cost an additional fee for a service line to your garage and would be treated as an additional service connection. However, you could have your plumbing and heating contractor size a fuel line to be connected from the back of your home and buried to your garage. This is treated as only one service.

### **I live on a fixed income; will a budget plan be available?**

Budget plans can be made available upon demonstration of the cost of service to the home for the last year.

### **Will there be a security deposit required?**

Security deposits are handled on an individual basis.

### **I am a seasonal customer; how will I be handled?**

Seasonal customers are treated as regular customers. There is no fee for turn-off; however, there is a fee for re-establishing service.

### **I live on the edge of town; will I be able to get natural gas?**

Maybe. Natural gas will be available for residents just outside the city; if sufficient use or customers exist between your residence and the main, the utility may elect to install a main extension at its own expense. Access to gas is dependent on there being enough customers in your area to justify expansion of the system.

# COFFEE TALK

Date: \_\_\_\_\_

## ENERGY COST COMPARISONS FOR SPACE HEATING

NATURAL GAS [\$/DK] 80%	NATURAL GAS [\$/DK] 94%	FUEL OIL [\$/GAL.] 80%	PROPANE [\$/GAL.] 94%	PROPANE [\$/GAL.] 80%	ELECTRICITY [¢/KWH] 100%
3.40	4.00	0.47	0.37	0.31	1.45
3.62	4.25	0.50	0.39	0.33	1.54
3.83	4.50	0.53	0.41	0.35	1.63
4.04	4.75	0.56	0.43	0.37	1.72
<b>4.26</b>	<b>5.00</b>	<b>0.59</b>	<b>0.46</b>	<b>0.39</b>	<b>1.82</b>
4.47	5.25	0.62	0.48	0.41	1.91
4.68	5.50	0.65	0.50	0.43	2.00
4.89	5.75	0.68	0.53	0.45	2.09
<b>5.11</b>	<b>6.00</b>	<b>0.71</b>	<b>0.55</b>	<b>0.47</b>	<b>2.18</b>
5.32	6.25	0.74	0.57	0.49	2.27
5.53	6.50	0.77	0.59	0.51	2.36
5.74	6.75	0.80	0.62	0.52	2.45
<b>5.96</b>	<b>7.00</b>	<b>0.83</b>	<b>0.64</b>	<b>0.54</b>	<b>2.54</b>
6.38	7.50	0.88	0.68	0.58	2.72
6.81	8.00	0.94	0.73	0.62	2.90
7.23	8.50	1.00	0.78	0.66	3.08
<b>7.66</b>	<b>9.00</b>	<b>1.06</b>	<b>0.82</b>	<b>0.70</b>	<b>3.27</b>
8.09	9.50	1.12	0.87	0.74	3.45
8.51	10.00	1.18	0.91	0.78	3.63
9.36	11.00	1.30	1.00	0.85	3.99
<b>10.21</b>	<b>12.00</b>	<b>1.42</b>	<b>1.10</b>	<b>0.93</b>	<b>4.35</b>
12.77	15.00	1.77	1.37	1.17	5.45
15.32	18.00	2.12	1.64	1.40	6.53

The above figures are based on the following assumptions:

Natural Gas: 1,000,000 Btu = 1 decatherm (dk)  
94% AFUE\* (high efficiency furnace) | 80% AFUE\* (minimum efficiency after 1992)

Fuel Oil: 138,690 Btu per gallon of #2 fuel oil and 80% AFUE\*

Propane: 91,333 Btu per gallon and 94% and 80% AFUE\*

Electricity: 3,412 Btu per kWh and 100% efficiency

\*AFUE – Annual Fuel Utilization Efficiency



## DIRECT HEAT-VALUE RATIOS OF VARIOUS FUELS

FUEL	NATURAL GAS	PROPANE	#2 FUEL OIL	ELECTRICITY
Heating Value	1,000,000 Btu/dk	91,333 Btu/Gal.	138,690 Btu/Gal.	3,412 Btu/kWh
Units	Dekatherm	Gallons	Gallons	kWh*
Natural Gas	1	10.95	7.21	293.00
Propane	.0913	1	.659	21.41
#2 Fuel Oil	.1387	1.52	1	32.52
Electricity	.00426	.047	.031	1

\*(heating value x .80 AFUE)/(3,412)

### COST PER MILLION BTU

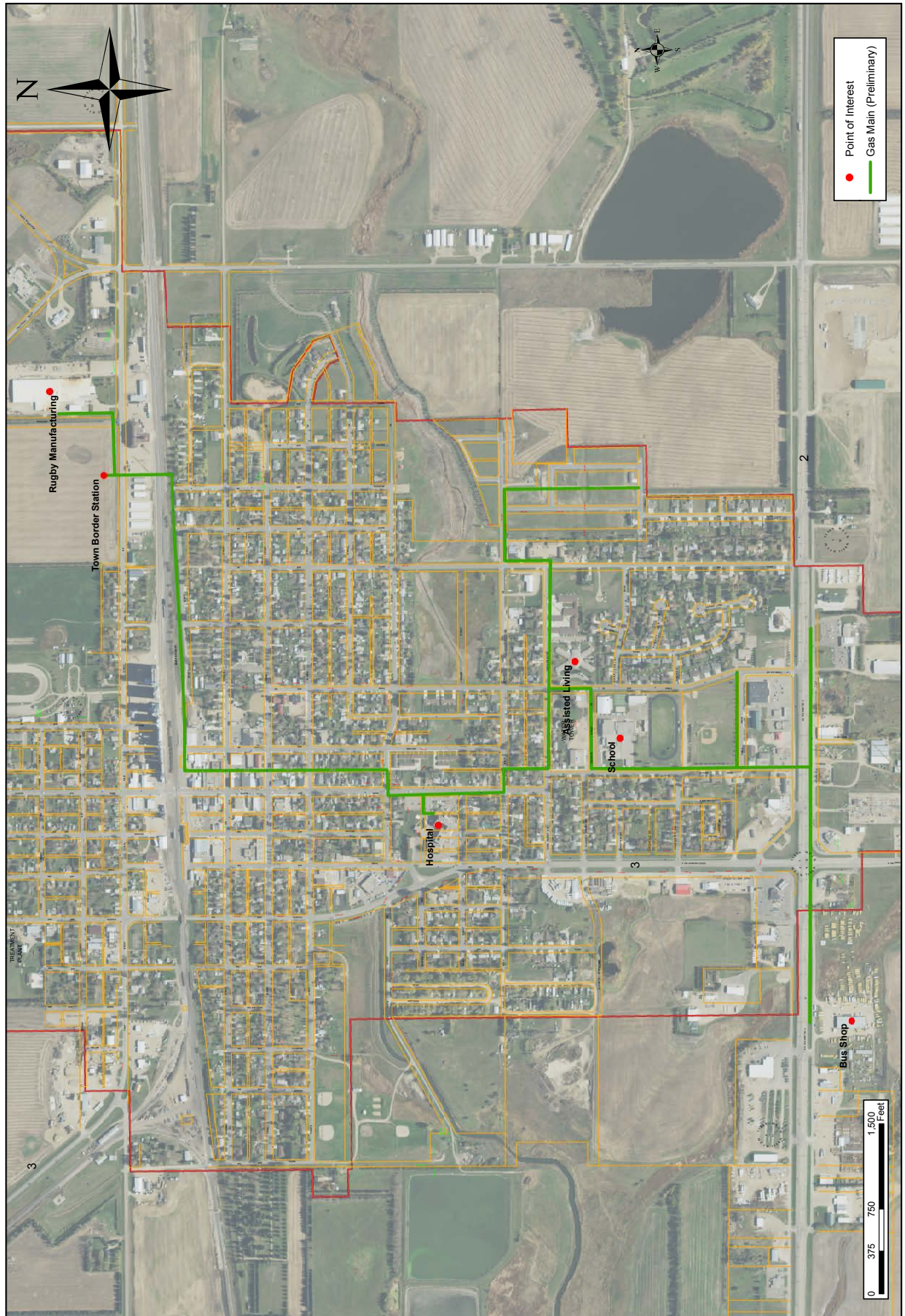
FUEL	# OF UNITS**		COST/UNIT	=	COST PER MMBTU
Natural Gas.....	1 dk	X	_____	=	_____
Propane.....	10.95 Gals.	X	_____	=	_____
#2 Fuel Oil.....	7.21 Gals.	X	_____	=	_____
Electricity.....	293.00 kWh	X	_____	=	_____

### TYPICAL RESIDENTIAL HOME SPACE HEATING REQUIREMENTS

FUEL	# OF UNITS**		COST/UNIT	=	ANNUAL HEATING COSTS
Natural Gas.....	83 dk	X	_____	=	_____
Propane.....	908.9 Gals.	X	_____	=	_____
#2 Fuel Oil.....	598.4 Gals.	X	_____	=	_____
Electricity.....	19,461 kWh	X	_____	=	_____

\*\*# of units based on 80% AFUE (except electric 100%)

# Gas Main Placement--Rugby, North Dakota



SHORT FORM OF AGREEMENT  
BETWEEN OWNER AND ENGINEER  
FOR  
PROFESSIONAL SERVICES

THIS IS AN AGREEMENT effective as of March 7, 2016 (“Effective Date”) between

**City of Rugby (“Owner”)** and **Kadmas, Lee & Jackson, Inc.**, 4585 Coleman Street,  
Bismarck, ND 58503 (“**Engineer**”).

Owner's Project, of which Engineer's services under this Agreement are a part, is generally identified as follows:

**Feasibility Study for Natural Gas**

Engineer’s Services under this Agreement are generally identified as follows:

KLJ shall prepare a feasibility study identifying an Opinion of Probable cost for the following tasks:

**Task 1 - Pipeline Costs (Transmission line to the City gate) and Alternative Source – Liquefied Natural Gas (LNG):**

Assumed source: Minot – WBI

- a. Request a quote from Major Pipeline
- b. Deliverables include –
  1. Confirmation that gas can be made available in a volume of approximately 150,000 dkt/year
  2. Confirmation of costs from WBI
  3. Estimate of construction costs
  4. Final cost of transportation to city gate within plus or minus 5%.
- c. Determine feasibility of LNG
- d. Determine probability of WBI extending a pipeline along Highway 2.
- e. Determine estimated cost to provide gas to TBS at a rate of 150,000 dkt/year
- f. Proposal cost to determine above.

**Task 2 - Distribution Costs** – Assumptions for distributions costs: 15 miles of transmission main, 1,000 customers and 150,000 dkt/year. Estimate to include the following items:

- a. TBS
- b. Mains
- c. Service Lines
- d. Meters

**Task 3 - Market Study** – Prepare a questionnaire for use by the city for inclusion in the water bills and assist the city in evaluation of the responses.

- a. Questionnaire
- b. Price Structure
- c. Assembly of data

**Task 4 - Operations Estimate:**

- a. Cost estimate assuming municipal Operation
- b. Cost estimate assuming Otter Tail Power Operation
- c. Cost estimate assuming Progress Solutions Operations

Owner and Engineer further agree as follows:

1.01 *Basic Agreement and Period of Service*

- A. Engineer shall provide, or cause to be provided, the services set forth in this Agreement. If authorized by Owner, or if required because of changes in the Project, Engineer shall furnish services in addition to those set forth above. Owner shall pay Engineer for its services as set forth in Paragraphs 7.01 and 7.02.
- B. Engineer shall complete its services within a reasonable time, or within the following specific time period: May 6, 2016
- C. If the Project includes construction-related professional services, then Engineer's time for completion of services is conditioned on the time for Owner and its contractors to complete construction not exceeding \_\_\_ months. If the actual time to complete construction exceeds the number of months indicated, then Engineer's period of service and its total compensation shall be appropriately adjusted.

2.01 *Payment Procedures*

- A. *Invoices:* Engineer shall prepare invoices in accordance with its standard invoicing practices and submit the invoices to Owner on a monthly basis. Invoices are due and payable within 30 days of receipt. If Owner fails to make any payment due Engineer for services and expenses within 30 days after receipt of Engineer's invoice, then the amounts due Engineer will be increased at the rate of 1.0% per month (or the

maximum rate of interest permitted by law, if less) from said thirtieth day. In addition, Engineer may, after giving seven days written notice to Owner, suspend services under this Agreement until Engineer has been paid in full all amounts due for services, expenses, and other related charges. Owner waives any and all claims against Engineer for any such suspension. Payments will be credited first to interest and then to principal.

### 3.01 *Termination*

A. The obligation to continue performance under this Agreement may be terminated:

1. For cause,

a. By either party upon 30 days written notice in the event of substantial failure by the other party to perform in accordance with the Agreement's terms through no fault of the terminating party. Failure to pay Engineer for its services is a substantial failure to perform and a basis for termination.

b. By Engineer:


1) upon seven days written notice if Owner demands that Engineer furnish or perform services contrary to Engineer's responsibilities as a licensed professional; or

2) upon seven days written notice if the Engineer's services for the Project are delayed for more than 90 days for reasons beyond Engineer's control.

Engineer shall have no liability to Owner on account of a termination by Engineer under Paragraph 3.01.A.1.b.

c. Notwithstanding the foregoing, this Agreement will not terminate as a result of a substantial failure under Paragraph 3.01.A.1.a if the party receiving such notice begins, within seven days of receipt of such notice, to correct its substantial failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of notice; provided, however, that if and to the extent such substantial failure cannot be reasonably cured within such 30 day period, and if such party has diligently attempted to cure the same and thereafter continues diligently to cure the same, then the cure period provided for herein shall extend up to, but in no case more than, 60 days after the date of receipt of the notice.

2. For convenience, by Owner effective upon Engineer's receipt of written notice from Owner.


- 
- B. The terminating party under Paragraph 3.01.A may set the effective date of termination at a time up to 30 days later than otherwise provided to allow Engineer to complete tasks whose value would otherwise be lost, to prepare notes as to the status of completed and uncompleted tasks, and to assemble Project materials in orderly files.
  - C. In the event of any termination under Paragraph 3.01, Engineer will be entitled to invoice Owner and to receive full payment for all services performed or furnished in accordance with this Agreement and all reimbursable expenses incurred through the effective date of termination.

#### 4.01 *Successors, Assigns, and Beneficiaries*

- A. Owner and Engineer are hereby bound and the successors, executors, administrators, and legal representatives of Owner and Engineer (and to the extent permitted by Paragraph 4.01.B the assigns of Owner and Engineer) are hereby bound to the other party to this Agreement and to the successors, executors, administrators, and legal representatives (and said assigns) of such other party, in respect of all covenants, agreements, and obligations of this Agreement.
- B. Neither Owner nor Engineer may assign, sublet, or transfer any rights under or interest (including, but without limitation, moneys that are due or may become due) in this Agreement without the written consent of the other, except to the extent that any assignment, subletting, or transfer is mandated or restricted by law. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under this Agreement.
- C. Unless expressly provided otherwise, nothing in this Agreement shall be construed to create, impose, or give rise to any duty owed by Owner or Engineer to any contractor, subcontractor, supplier, other individual or entity, or to any surety for or employee of any of them. All duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of Owner and Engineer and not for the benefit of any other party.

#### 5.01 *General Considerations*

- A. The standard of care for all professional engineering and related services performed or furnished by Engineer under this Agreement will be the care and skill ordinarily used by members of the subject profession practicing under similar circumstances at the same time and in the same locality. Engineer makes no warranties, express or implied, under this Agreement or otherwise, in connection with Engineer's services. Subject to the foregoing standard of care, Engineer and its consultants may use or rely upon design elements and information ordinarily or customarily furnished by others, including, but not limited to, specialty contractors, manufacturers, suppliers, and the publishers of technical standards.

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- B. Engineer shall not at any time supervise, direct, control, or have authority over any contractor's work, nor shall Engineer have authority over or be responsible for the means, methods, techniques, sequences, or procedures of construction selected or used by any contractor, or the safety precautions and programs incident thereto, for security or safety at the Project site, nor for any failure of a contractor to comply with laws and regulations applicable to such contractor's furnishing and performing of its work.
- C. This Agreement is to be governed by the law of the state or jurisdiction in which the Project is located.
- D. Engineer neither guarantees the performance of any contractor nor assumes responsibility for any contractor's failure to furnish and perform its work in accordance with the contract between Owner and such contractor. Engineer is not responsible for variations between actual construction bids or costs and Engineer's opinions or estimates regarding construction costs.
- E. Engineer shall not be responsible for the acts or omissions of any contractor, subcontractor, or supplier, or of any of their agents or employees or of any other persons (except Engineer's own employees) at the Project site or otherwise furnishing or performing any construction work; or for any decision made regarding the construction contract requirements, or any application, interpretation, or clarification of the construction contract other than those made by Engineer.
- F. The general conditions for any construction contract documents prepared hereunder are to be the "Standard General Conditions of the Construction Contract" as prepared by the Engineers Joint Contract Documents Committee (EJCDC C-700, 2007 Edition) unless the parties agree otherwise.
- G. All documents prepared or furnished by Engineer are instruments of service, and Engineer retains an ownership and property interest (including the copyright and the right of reuse) in such documents, whether or not the Project is completed. Owner shall have a limited license to use the documents on the Project, extensions of the Project, and for related uses of the Owner, subject to receipt by Engineer of full payment for all services relating to preparation of the documents and subject to the following limitations: (1) Owner acknowledges that such documents are not intended or represented to be suitable for use on the Project unless completed by Engineer, or for use or reuse by Owner or others on extensions of the Project, on any other project, or for any other use or purpose, without written verification or adaptation by Engineer; (2) any such use or reuse, or any modification of the documents, without written verification, completion, or adaptation by Engineer, as appropriate for the specific purpose intended, will be at Owner's sole risk and without liability or legal exposure to Engineer or to its officers, directors, members, partners, agents, employees, and consultants; (3) Owner shall indemnify and hold harmless Engineer and its officers, directors, members, partners, agents, employees, and consultants from all claims, damages, losses, and expenses, including attorneys'

fees, arising out of or resulting from any use, reuse, or modification of the documents without written verification, completion, or adaptation by Engineer; and (4) such limited license to Owner shall not create any rights in third parties.

- H. To the fullest extent permitted by law, Owner and Engineer (1) waive against each other, and the other's employees, officers, directors, agents, insurers, partners, and consultants, any and all claims for or entitlement to special, incidental, indirect, or consequential damages arising out of, resulting from, or in any way related to the Project, and (2) agree that Engineer's total liability to Owner under this Agreement shall be limited to \$50,000 or the total amount of compensation received by Engineer, whichever is greater.
- I. The parties acknowledge that Engineer's scope of services does not include any services related to a Hazardous Environmental Condition (the presence of asbestos, PCBs, petroleum, hazardous substances or waste as defined by the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq., or radioactive materials). If Engineer or any other party encounters a Hazardous Environmental Condition, Engineer may, at its option and without liability for consequential or any other damages, suspend performance of services on the portion of the Project affected thereby until Owner: (1) retains appropriate specialist consultants or contractors to identify and, as appropriate, abate, remediate, or remove the Hazardous Environmental Condition; and (2) warrants that the Site is in full compliance with applicable Laws and Regulations.
- J. Owner and Engineer agree to negotiate each dispute between them in good faith during the 30 days after notice of dispute. If negotiations are unsuccessful in resolving the dispute, then the dispute shall be mediated. If mediation is unsuccessful, then the parties may exercise their rights at law.

6.01 *Total Agreement*

- A. This Agreement (including any expressly incorporated attachments), constitutes the entire agreement between Owner and Engineer and supersedes all prior written or oral understandings. This Agreement may only be amended, supplemented, modified, or canceled by a duly executed written instrument.

7.01 *Basis of Payment—Lump Sum*

- A. Using the procedures set forth in Paragraph 2.01, Owner shall pay Engineer as follows:
  - 1. A Lump Sum amount of \$25,000, broken down as follows:
    - a. Task 1 – Pipeline Costs and Alt. Source                      \$ 5,000
    - b. Task 2 – Distribution Costs    \$15,000



- c. Task 3 – Market Study \$ 3,000
- d. Task 4 – Operations Estimate \$ 2,000

B. The portion of the compensation amount billed monthly for Engineer's services will be based upon Engineer's estimate of the percentage of the total services actually completed during the billing period.


8.02 KLJ Additions to EJCDC E-520

The Owner and Engineer each agree to assume its own liability for claims of any nature including all costs, expenses and reasonable attorney's fees, which may in any manner result from or arise out of this agreement. Neither the Owner nor the Engineer shall be obligated to indemnify the other party in any manner whatsoever for the other party's own negligence.

The Owner shall not reuse or make any modification to the project documents without Engineer's prior written authorization. The Owner agrees, to the fullest extent permitted by law, to indemnify and hold harmless Engineer's officers, directors, employees and sub-engineers (collectively) against any damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from or allegedly arising from or in any way connected with the unauthorized reuse or modification of the project documents by the Owner or any person or entity that acquires or obtains the project documents from or through the Owner without Engineer's written authorization.

In the event of a dispute arising out of or relating to the agreement or the services to be rendered hereunder, both parties hereby agree to (1) attempt to resolve such disputes through direct negotiations between the appropriate representatives of each party, (2) if such negotiations are not fully successful, the parties agree to attempt to resolve any remaining dispute by formal nonbinding mediation conducted in accordance with rules and procedures to be agreed upon by both parties, and (3) if the dispute or any issues remain unresolved after the first two steps, either party may seek to have the dispute resolved by a court of competent jurisdiction.

Notwithstanding any other provision of this Agreement, and to the fullest extent permitted by law, neither the Owner nor the Engineer, their respective officers, directors, partners, employees, contractors or subconsultants shall be liable to the other or shall make any claim for any incidental, indirect or consequential damages arising out of or connected in any way to the Project or to this Agreement. This mutual waiver of consequential damages shall include, but is not limited to, loss of use, loss of profit, loss of business, loss of income, loss of reputation or any other consequential damages that either party may have incurred from any cause of action including negligence, strict liability, breach of contract and breach of strict or implied warranty. Both the Owner and the Engineer shall require similar waivers of



consequential damages protecting all the entities or persons named herein in all contracts and subcontracts with others involved in this project.

With the execution of this Agreement, Engineer and Owner shall designate specific individuals to act as Engineer's and Owner's representatives with respect to the services to be performed or furnished by Engineer and responsibilities of Owner under this Agreement. Such an individual shall have authority to transmit instructions, receive information, and render decisions relative to the Project on behalf of the respective party whom the individual represents. Each Party may change its designated individual(s) at any time by written notice to the other Party.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, the Effective Date of which is indicated on page 1.

OWNER: City of Rugby

Arland Geiszler

By: Arland Geiszler

Title: Mayor

Date Signed: 3/15/2016

Elizabeth Heisey

Attested: Elizabeth Heisey

Title: City Auditor

Date Signed: 3/15/2016

Address for giving notices:

223 S. Main Ave.

Rugby, ND 58368

\_\_\_\_\_

\_\_\_\_\_

ENGINEER: KLJ

Mark D. Sweeney

By: Mark D. Sweeney, PE

Title: Office Manager

Date Signed: 3/10/2016

Engineer License or Firm's Certificate  
Number: \_\_\_\_\_

State of: \_\_\_\_\_

Address for giving notices:

4585 Coleman Street

PO Box 1157

Bismarck, ND 58503

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Appendix I, Standard Hourly Rates Schedule

EJCDC E-520 Short Form of Agreement Between Owner and Engineer for Professional Services.

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