



BLAISE ENERGY

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February 10, 2010

Karlene Fine, Executive Director
North Dakota Industrial Commission
State Capitol – 14th Floor
600 East Boulevard Ave Dept 405
Bismarck, ND 58505-0840

Subject: Federal Grant Application for Blaise Energy's: Flare to Electricity – **Recycled Energy from a Wasted Resource**

Dear Ms. Fine:

Enclosed please find the Blaise Energy Inc's federal grant application requesting the North Dakota Oil & Gas Research Council (OGRC) to recommend to the North Dakota Department of Commerce the use of appropriated funds based on this application's merit, technical accuracy and consistency with the ND Oil and Gas Research Program and ND SB 2018.

This application outlines Blaise Energy Inc.'s proposal to prevent the waste of 600 Billion BTU of energy per year (600 Million cubic feet of natural gas @ 1000 BTU/Standard Cubic Foot (SCF)) by recycling otherwise flared casinghead natural gas through the on-site generation of clean green electricity. This conservation of resources will result in 5 megawatts (MW) of new distributed generation in North Dakota, which is enough to supply power to approximately 5,000 homes.

Blaise has already secured an agreement with an oil & gas producer to conserve the equivalent of 86 million cubic feet per year of otherwise wasted gas in Williams County and has received National Environmental Protection Act (NEPA) approval from the US EPA for that site. Blaise continues to negotiate pending agreements with oil operators and will get additional NEPA approval for additional sites.

Blaise's transformation of waste to electricity is expected to reduce yearly emission of carbon dioxide equivalents (CO₂e) and volatile organic compounds (VOC) by over 2,000 tons each and various nitrogen oxides (NO_x) by 300 tons.

The total cost of the project is calculated at \$4,400,000, with a request for matching funds of \$2,000,000 and Blaise's contribution of at least \$2,400,000.

The Recycled Energy from a Wasted Resource Project is detailed in the attached grant request. Please contact me if you have any questions or need additional information.

Sincerely,

Mark Wald

Oil and Gas Research Program
North Dakota Industrial Commission

Application

Project Title: **Flare to Electricity – Recycled Energy from a Wasted Resource**

Applicant: ***Blaise Energy Inc.***

Principal Investigator: ***Pascal Boudreau***

Date of Application: ***Feb. 15, 2010***

Amount of Request: ***\$2,000,000***

Total Amount of Proposed Project: ***\$4,400,000***

Duration of Project: ***24 months***

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ABSTRACT

Blaise Energy Inc. (Blaise) proposes to recycle 600 Billion BTU of otherwise wasted energy per year (600 Million cubic feet of natural gas @ 1000 BTU/scf) into green electricity while helping to support federal, North Dakota and local energy efficiency, energy security and alternative energy efforts.

The Blaise Energy project contributes to the Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE) objectives and is uniquely aligned with the stated goals of EmPower ND, the State's official comprehensive energy policy.

Currently, associated gas is often flared and wasted for economic or logistic reasons. The recycled gas from this project is enough to provide 5 MW of generation in a distributed generation fashion, which helps to offload congested intrastate transmission lines and prevent waste through line loss.

Consistent with ARRA & US DOE guidelines, Blaise will match appropriated funds and use them to assist in the purchase and installation of electrical generators that consume at least seventy-five percent of the gas from oil and gas well sites, which would otherwise be flared or wasted.

Blaise has successfully secured agreements with oil producers on this federally-approved project, as well as on other projects. These initiatives will allow the conservation of resources well beyond 2011, thereby continuing and maximizing the benefits made possible by these matching funds.

Objectives:

- Recycle 600 billion BTU of currently wasted energy per year, equivalent to 600 million cubic feet of natural gas (at a heat content of 1000 BTU/scf) by transforming otherwise flared and wasted associated gas into high quality, reliable and environmentally friendly electricity for sale to the grid.. This is enough energy to supply power to approximately 5,000 average North Dakota homes. The potential offset of the equivalent amount of coal-based electrical generation can further and greatly contribute to the environmental benefits.
- Facilitate the adoption of this solution through a turn-key service and the elimination of capital investment from the oil operator.
- Demonstrate a viable and sustainable alternative to wasteful flaring; in some cases providing a solution for "unchoking" the production limits, thereby improving the effective use of valuable natural resources, the ultimate recovery of oil and gas and its corollary contribution to the tax base.
- Create jobs, while advancing our nation's energy and environmental objectives simultaneously.
- Demonstrate and test practical methods for new energy efficiency technologies to transform waste into value. This benefits America, the State of North Dakota and oil & gas operators while making a long-term investment in the next generation of Clean Energy technologies and jobs.
- This Recycled energy has the additional benefit of being generated near the oil and gas production sites where the majority of industrial electric load is consumed. This co-location will help to offload North Dakota's intrastate transmission grid while helping to further stabilize the grid by providing energy efficient technologies and methods to promote distributed generation from alternate sources.
- Reduce emissions: The Blaise solution will reduce emission compared to flaring by approximately 75%.
- Improve the public's perception of the environmental performance and stewardship of the State of North Dakota and oil field operators, while maximizing market potential for associated gas.

Expected Results:

1. Recycle 600 Billion BTU per year of otherwise wasted energy into Green electricity. This will lead to greater natural gas utilization, conservation and emission reductions. This will also enable better stewardship of a valuable North Dakota natural resource.
2. Install a cumulative 5 MW of new distributed generation fueled by otherwise wasted resources close to the oil industry's own electric load. This generation co-located with the load will help congested transmission lines and save approximately 7% of line loss (350kW -- enough to power an additional 350 average homes).
3. Reduce flaring in North Dakota by approximately 600 million cubic feet per year, which improves overall resource conservation, utilization and sustainability by the oil & gas industry. This will enable better stewardship of a valuable North Dakota natural resource and significantly reduce pollution from flaring.
4. Prove a new and innovative oilfield service model by leveraging technologies not currently used in oil & gas operations. This will lead to greater natural gas utilization, conservation and emission reductions while providing distributed recycled energy where it is needed.
5. Create new Clean Energy jobs of the future; expand a workforce with valuable specialized skills and expertise while fostering small business growth in North Dakota and elsewhere in rural America. Spur job creation while making long-term investments in clean energy, green jobs and infrastructure which cannot be outsourced.
6. Enable increased oil and gas production by allowing "choked down" or shut-in wells to return to full production, hence increasing operator revenue, mineral owner revenue and state tax revenue.
7. Advance North Dakota as a model for America in the development of innovative, long-term energy resources to meet our nation's growing demand for energy in a clean, environmentally friendly and sustainable way. (description from the Executive Summary of the EmPower ND Comprehensive State Energy Policy)
8. Support the US DOE's Methane-to-Markets (M2M) goals and add to its knowledge base.

Duration:

The project consists of multiple installations adding up to 5WMM of generation. The first site will start immediately with remaining sites starting following NEPA approval. Funds will be utilized in the allotted time and during the installations however the benefits of the project will continue well beyond 2011 since equipment purchased with the help of these funds will continue recycling otherwise wasted energy.

- The first site has a 1 year term starting once equipment is connected to the electric grid, automatically renewing for multiple 1-year terms beyond that. This site will generate 730 kW and prevent the waste of 86 billion BTU per year. This site would otherwise be expected to flare indefinitely due to the poor gas conditions, making any other commercial use of the gas infeasible.
- Additional sites are currently being secured and will be approved by NEPA. Cumulative generation from all sites will be a minimum of 5 MW and implementation will be completed by June 30, 2011.

Total Project Costs:

The total cost of the project is \$4,400,000 with a request for contribution of \$2,000,000 and Blaise contribution of at least \$2,400,000.

Participants:

Blaise Energy Inc., multiple operators (operator identities withheld by mutual non-disclosure agreement, pending operator approval), local electric utilities and equipment vendors. The first site is in Williams county and Blaise is working with Mountrail-Williams Electric Cooperative, Basin Electric Power Cooperative and the Western Area Power Administration.

Special Note:Federal:

The stated mission of DOE EERE is to strengthen America's energy security, environmental quality, and economic vitality in public-private partnerships that: enhance energy efficiency and productivity; bring clean, reliable and affordable energy technologies to the marketplace; and make a difference in the everyday lives of Americans by enhancing their energy choices and their quality of life.

EERE leads the Federal government's research, development, and deployment efforts in energy efficiency. EERE's role is to invest in high-risk, high-value research and development that is critical to the Nation's energy future and would not be sufficiently conducted by the private sector acting on its own.

Program activities are conducted in partnership with the private sector, state and local government, DOE national laboratories, and universities. EERE also works with stakeholders to develop programs and policies to facilitate the deployment of advanced clean energy technologies and practices.

State of North Dakota:

The purpose of the establishment of EmPower ND is to develop a comprehensive energy policy for North Dakota that addresses in part:

1. "A New Approach: Partnerships between traditional energy industries and the emerging renewable industries are a central component of North Dakota's approach to energy development." (EmPower ND Executive Summary)
2. "The policy of this state to stimulate the development of renewable and traditional fossil-based energy within the state with the goal of providing secure, diverse, sustainable and competitive energy supplies that can be produced and secured within the state to assist the nation in reducing its dependence on foreign energy sources." (2007 ND Legislative Session Laws, Ch. 204, Sec. 6)
3. The policy of this state is to promote the development of new technologies, provide innovative opportunities, create additional employment and wealth that contributes to economic development and decrease dependence on foreign energy supplies. (Ibid.)
4. The assistance the state provides in research, development and marketing of North Dakota-produced energy sources... (Ibid.)
5. The need to:
 - Expand the use of existing energy resources such as coal, oil, gas, wind and hydropower by supporting continued research and development of technologies designed to enhance the use of traditional fuels.
 - Examine ways to diversify the state's energy resource...
 - Modernize and expand the state's energy infrastructure to ensure that energy supplies can be safely, reliably and affordably transported to homes and businesses.
 - Examine potential innovations that will be necessary to improve environmental conditions with new technologies designed to encourage the continued use of fossil fuel as well as renewable resources.

PROJECT DESCRIPTION

Introduction:

Gas flaring is a widely used practice for disposal of gas associated with oil production when there is no infrastructure to use or sell the gas. Of the 86 billion cubic feet of natural gas that North Dakota produced in 2008, an estimated 26 billion cubic feet, or 30% was flared off because of the lack of collecting systems and pipelines needed to move it to market. In comparison (according to the US Energy Information Administration), less than 1 percent of natural gas is flared from oil fields nationwide and less than 3 percent worldwide.

Flaring natural gas wastes resources, creates pollution, emits carbon monoxide, nitrogen oxide, hydrogen sulfide, and unburned hydrocarbons, which contribute to air pollution. A commercially viable alternative to flaring will provide tremendous advantages in a number of areas: increased energy efficiency, better resource utilization, pollution reduction, job creation, increased profitability for operators and resource owners, as well as improved industry image.

Blaise's electrical generation processes use tightly controlled combustion techniques that decrease emissions by approximately 75% versus flaring. This will improve the overall air quality in North Dakota and the perceived environmental impact of the oil & gas production industry by reducing the avoidable waste of a vital natural resource. This grant request will help to demonstrate a unique, practical and commercially viable solution of on-site electricity generation and its subsequent sale to the grid as an alternative to flaring. This business model has many additional benefits to North Dakota, which are outlined in this proposal.

North Dakota Century Code regulating the release of associated gas and Recycled Energy:

38-08-06.4. FLARING OF GAS RESTRICTED - IMPOSITION OF TAX - PAYMENT OF ROYALTIES - INDUSTRIAL COMMISSION AUTHORITY.

43-02-03-45. VENTED CASINGHEAD GAS.

43-02-03-60.2. FLARING EXEMPTION

49-02-24.7 RECYCLED ENERGY DEFINED

49-02-26 QUALIFYING FOR RENEWABLE ELECTRICITY AND RECYCLED ENERGY CREDITS

All casinghead gas in North Dakota is required to be flared and not vented. Gas that is not connected to a gathering line is subject to payment of royalties and taxes under 57-51-02.2, unless the operation meets the criteria of being economically infeasible under 43-02-03-60.2, then qualifying for a flaring exemption.

The United States is ranked 11th among the top 20 flaring countries. North Dakota is the 3rd state behind Wyoming and Texas for volume of gas flared, accounting for 9.4% of the U.S. total in 2007, according to the US Department of Energy's Energy Information Administration (DOE, EIA). Since 2005, a sharp increase in gas flaring has followed the increased oil production levels in North Dakota. Gas produced from oil wells and gas wells was 55,381 MMcf, and 16,416 MMcf respectively. The majority (77%) of gas produced in North Dakota is associated gas. The latest available statistics indicate marketed gas production in North Dakota was 54,745 MMcf, which has remained consistent over time. This means the

majority of gas associated with North Dakota's new oil production is flared and provides a good opportunity to invest in gas gathering systems or to investigate alternative gas utilization options. The volume of gas flared and wasted in North Dakota could be used to produce approximately 100 – 150 MW of new electric power annually. This is enough to supply the annual electric needs of between 100,000 to 150,000 average ND households.

Objectives:

- Recycle 600 billion BTU of currently wasted energy per year, equivalent to 600 million cubic feet of natural gas (at a heat content of 1000 BTU/scf) by transforming otherwise flared and wasted associated gas into high quality, reliable and environmentally friendly electricity for sale to the grid. This is approximately enough energy to supply power to 5,000 average North Dakota homes. The potential offset of the equivalent amount of coal-based electrical generation can further and greatly contribute to the environmental benefits.
- Facilitate the adoption of this solution through a turn-key service and the elimination of capital investment from the oil operator.
- Demonstrate a viable and sustainable alternative to wasteful flaring; in some cases providing a solution for “unchoking” the production limits, thereby improving the effective use of valuable natural resources, the ultimate recovery of oil and gas and its corollary contribution to the tax base.
- Create jobs while advancing both our nation's energy and environmental objectives simultaneously.
- Demonstrate and test practical methods for new energy efficiency technologies to transform waste into value. This benefits America, the State of North Dakota and oil & gas operators while making a long-term investment in the next generation of Clean Energy technologies and jobs.
- This recycled energy has the additional benefit of being generated near the oil and gas production sites where the majority of industrial electric load is consumed. This co-location will help to offload North Dakota's intrastate transmission grid while helping to further stabilize the grid by providing energy efficient technologies and methods to promote distributed generation from alternate sources.
- Reduce emissions: The Blaise solution will reduce emission compared to flaring by approximately 75%. Improve the public's perception of the environmental performance and stewardship of the State of North Dakota and oil field operators, while maximizing market potential for associated gas.

Additional Benefits:

Blaise Energy is actively building partnerships between two vital, yet traditionally disconnected, energy industries: the oil and gas industry and electric utilities. Blaise is doing this by actively working with oil operators to help them reduce bothersome flaring and by working with the local electric generation and transmission (G & T) cooperatives and several local distribution cooperatives to deliver needed electricity into the grid. These electric distribution cooperatives and their members benefit by using locally produced power that minimizes the necessity of paying for expensive new high capacity transmission infrastructure to handle increased demand. An important part of the American Recovery and Reinvestment Act are green, “shovel-ready” clean energy investments that will help jump-start the economy and build clean energy jobs of tomorrow.

Approval of this project is an ideal way for North Dakota to demonstrate its commitment to the objectives of the US DOE EERE and EmPower ND comprehensive state energy policy. They both seek to develop energy efficient technologies and foster economic vitality in public-private partnerships that enhance energy efficiency and bring clean, reliable and affordable energy technologies to the marketplace. EmPower North Dakota also calls for partnerships between traditional energy industries and the emerging renewable industries. North Dakota views this as being central to its approach to energy development. This strategy recognizes that meeting our nation's long-term energy needs in an environmental and sustainable way requires all players in the energy industry to be committed to innovation and new technologies.

Blaise Energy's business model is fully aligned in support of both DOE EERE goals and the two top EmPower ND goals of 1) doubling North Dakota's energy production from all sources by the year 2025 to drive economic growth, and 2) support the nation's 25X25 Initiative to derive at least 25 % of all energy produced from renewable sources by 2025. (In North Dakota, Blaise's form of electricity generation is considered renewable/recycled as of June, 2009 [see 49-02-24 and 49-02-26 on page 5])

This project's successful funding and execution will further both our national energy goals and North Dakota's progress toward the EmPower ND goals by facilitating the energy industry partnerships and advancing the energy production from renewable sources.

Methodology:

The focus of this project is to recycle 600 billion BTU of otherwise wasted energy per year by deploying the Blaise Solution on different gas condition scenarios as a turnkey and "hassle-free" service to the oil operator.

Blaise will deploy patent-pending mobile generation units, which contain all necessary components to condition the associated gas, efficiently and cleanly burn it in natural gas powered turbine generators and safely deliver the Green electricity to local Rural Electric Distribution Cooperatives. Blaise will deploy existing established technologies configured in a unique way. All components comprising the mobile generation units are proven and commercially available.

The project will accelerate the deployment of this service model business, hence preventing a significant waste of energy in North Dakota while also reducing emissions. The following information can be scaled according to the gas volume of the specific site selected:

- 1 MW Generator can supply approximately 1000 homes by consuming 120 Billion BTU of otherwise wasted flare gas per year.
- For 1000 BTU/scf gas this energy equates to 120 Million cubic feet of gas or 120,000 MCF per year.
- Emission reduction per year for each MW of generation is expected to be over 400 tons of CO₂e and VOCs and 60 tons of NO_x.
- This recycled energy will help offset coal generation equivalent to 3650 tons of coal per year.

The following describes the first site secured. Other sites may have different conditions but will yield similar benefits to the country, to North Dakota, to the environment and to the oil operators.

Site 1 is a producing well that is destined to flare indefinitely due to high H₂S content and the lack of financially viable options to condition the gas for sale. The Blaise solution is expected to provide additional revenue to the operator where none now exists, while reducing CO₂e and VOCs by over 300 tons per year and NO_x by as much as 45 tons when compared to current emissions from the existing flare. The potential offset of the equivalent amount of coal-based electrical generation can further and greatly contribute to the environmental benefits. This site is currently flaring 163MCF/d of 1445 BTU/scf, 4% H₂S gas. It will support generation capacity of approximately 730 kW; 86 Billion BTU per year is going to be recycled. This is enough to provide power to 730 average homes. In 7 years, this site alone will have prevented the waste of 600 Billion BTU of energy (enough to power 5000 homes for a year). Additional Site 1 details are provided in Appendix A.

Anticipated Results:

1. Recycle 600 Billion BTU per year of otherwise wasted energy into Green electricity. This will lead to greater natural gas utilization, conservation and emission reductions. This will also enable better stewardship of a valuable North Dakota natural resource.
2. Install a cumulative 5 MW of new distributed generation fueled by otherwise wasted resources close to the oil industry's own electric load. This generation co-located with the load will help congested transmission lines and save approximately 7% of line loss (350kW -- enough to power an additional 350 average homes).
3. Reduce flaring in North Dakota by approximately 600 million cubic feet per year, which improves overall resource conservation, utilization and sustainability by the oil & gas industry. This will enable better stewardship of a valuable North Dakota natural resource, and significantly reduce pollution from flaring.
4. Prove a new and innovative oilfield service model by leveraging technologies not currently used in oil & gas operations. This will lead to greater natural gas utilization, conservation and emission reductions while providing distributed recycled energy where it is needed.
5. Create new Clean Energy jobs of the future; expand a workforce with valuable specialized skills and expertise while fostering small business growth in North Dakota and elsewhere in rural America. Spur job creation while making long-term investments in clean energy, green jobs and infrastructure which cannot be outsourced.
6. Enable increased oil and gas production by allowing "choked down" or shut-in wells to return to full production, hence increasing operator revenue, mineral owner revenue and state tax revenue.
7. Advance North Dakota as a model for America in the development of innovative, long-term energy resources to meet our nation's growing demand for energy in a clean, environmentally friendly and sustainable way. (description from the Executive Summary of the EmPower ND Comprehensive State Energy Policy)
8. Support the US DOE's Methane-to-Markets (M2M) goals and add to its knowledge base.

Facilities:

Blaise will deploy mobile, skid-mounted, generation units on existing well locations. The units will contain all necessary components to condition the gas, generate Green recycled electricity and transmit it safely to the local rural electric distribution cooperatives. The design and installation intentionally creates negligible impact on existing well locations.

More detailed equipment specifications are contained in the confidential Appendix section.

Resources:

- People/Companies
 - Blaise Energy team
 - Oil Operators and their preferred installation contractors
 - Local Electric Utilities and their preferred installation contractors
 - Basin Electric Power Cooperative
 - Equipment Manufacturers
 - State: NDIC Oil and Gas Research Council, ND Dept. of Health, ND Dept. of Commerce
 - US DOE & EPA
- Equipment
 - High efficiency gas turbine generators
 - Latest gas conditioning techniques (e.g. remedying low BTU or high H₂S contaminated natural gas)
 - Electrical Interconnect Equipment
 - Remote Monitoring Equipment
- Finance
 - Founders
 - Investors / Lenders
 - Equipment financiers
 - State and Federal economic stimulus and research programs
- Knowledge
 - Oil & Gas Industry Advisors
 - Equipment Manufacturers
 - Utility Industry Advisors
 - Green Energy and Environmental Advisors
 - Local Rural Electric Cooperatives
 - Basin Electric Power Cooperative
 - US DOE & EPA
 - ND State Agencies

Techniques to be Utilized, Availability and Capability:

Blaise will utilize existing and proven “off the shelf” equipment, e.g. GE, Pratt & Whitney and Capstone turbines, etc. and electrical equipment already in use by Electrical Co-Ops. Blaise can accommodate gas from 200 to 2200 BTU and H₂S content up to 12% by leveraging enhanced gas conditioning methods.

Blaise will condition the associated gas utilizing existing and proven methods such as amine and membrane filters, and other accepted gas conditioning equipment. These methods will allow for a greater usable gas range and optimal combustion in a gas turbine generator, producing reliable and consistent electricity for sale and introduction into the local electrical grid.

Blaise has sourced all necessary equipment and configured it in a fully enclosed, mobile, skid-mounted manner. The proprietary solution leverages commercially available equipment packaged to ensure efficient installation and re-deployment. Blaise carefully selected components to maximize reliability, flexibility and emission reductions. Significant pre-planning with local electric utilities as well as with Basin Electric will accelerate interconnections to the electric grid.

Blaise has consulted with experts from multiple related disciplines and will utilize the expertise of respected firms in the field. Blaise will make use of the existing gas analysis provided by the oil operator.

See Confidential Appendices 1A-1E for additional details on Site 1

Environmental and Economic Impacts while Project is Underway:

The Blaise solution provides positive environmental and economic benefits while the project is underway. The environmental benefits are an expected to significantly reduce emission compared to flaring while recycling 600 Billion BTU a year of wasted energy. Classified as “recycled” energy in North Dakota, the electricity produced will contribute to the state’s renewable/recycled energy targets. The positive economic impacts will be shared among, the oil operators, the local electric cooperatives, Basin Electric, and the State of ND.

The benefits will manifest as soon as a site is operational and generating energy into the local grid. The offloading of demand congestion on the local transmission lines and elimination of electrical line loss will be another immediate benefit. Line loss avoidance is expected to be approximately 7% of generation, which would yield 350kW or enough to supply power to 350 average homes. When considering the possible offset of coal generation, the added environmental benefits are significant and could reduce CO₂e emission by as much as 70,000 tons per year.

Ultimate Technological and Economic Impacts:

The scientific and technical contribution is the demonstrated use and benefits of existing and separate technologies applied in an innovative way to the oil industry in a new service model business. This project is an investment in Clean Energy jobs of the future. It will create the opportunity for new “Clean & Green” jobs and additional subject matter expertise based in North Dakota. Blaise expects to create one additional job per MW of installed generation capacity.

The project will foster the testing and implementation of new methods of transferring recycled energy from where it is wasted to where it is needed. This project will implement the recycling of enough wasted energy to power 5,000 homes and will continue to recycle 600 Billion BTU of wasted energy per year. It will accelerate the widespread commercial deployment of new alternative energy technologies, techniques and services, many of which are not currently used anywhere else. It will also demonstrate the state’s leadership in efficient resource management and increase oil and gas production.

Blaise expects to demonstrate an ongoing positive economic impact through the creation of additional state tax revenue during the project and through future commercial deployments. Job creation, resource conservation, Renewable Energy Credit (REC or “Green Tag”) accumulation, emission reductions and reduced transmission line congestion are all anticipated outcomes that contribute to the positive economic impact of this solution.

Why the Project is Needed:

- The public and private sectors uniformly recognize a practical solution to flaring is desperately needed for both energy efficiency and pollution reduction. (e.g. the Global Flare Reduction Partnership and the US DOE Methane-to-Markets program)
- Reduced Flaring - The proposed solution can significantly reduce waste in North Dakota, and the staggering value of the lost opportunity to commercialize currently wasted associated gas.
- According to a 2007 OGRC/Basin Electric study entitled “Williston Basin Oil Development Power Load Forecast Study,” oil production is electricity-intensive and is one of ND’s largest consumers of industrial electricity. This increasing demand is straining the infrastructure of local rural electric cooperatives and is driving costly infrastructure upgrades. New sources of dependable, base-load Distributed Generation capability, co-located with demand, provide a near optimal solution for the utilities. Wind power is currently unable to provide reliable base-load generation capability.
- North Dakota’s Comprehensive State Energy Policy encourages the more efficient use of existing resources for the benefit of its citizens. This solution will provide realistic and significant advancement toward that goal without any negative tradeoffs. North Dakota must continue to demonstrate its leadership and forward thinking in sustainable oil & gas development.
- Blaise’s Project will prevent the waste of 600 Billion BTU of energy and is perfectly aligned with US DOE’s EERE objectives, as well as NDIC OGRC & EmPower ND Goals:
 - The mission of EERE is to strengthen America's energy security, environmental quality, and economic vitality in public-private partnerships that: enhance energy efficiency and productivity; bring clean, reliable and affordable energy technologies to the marketplace; and make a difference in the everyday lives of Americans by enhancing their energy choices and their quality of life.
 - EERE's role is to invest in high-risk, high-value research and development that is critical to the Nation's energy future and would not be sufficiently conducted by the private sector acting on its own.
 - One of the ND Oil and Gas Research Council’s Statutory Goals & Purposes is to: “Encourage, and promote the use of *new technologies and ideas* that will have a positive economic and environmental impact on oil and gas exploration, development, and production in North Dakota.” (Emphasis added.)
 - OGRC “Grant priority is to be given to those development projects, processes, ideas, and activities which meet the following goals and objectives:” (Abbreviated list)
 - Positively effect ultimate recovery from North Dakota’s existing oil and gas pools.

- Identify oil and gas exploration and production technologies presently not used in North Dakota.
- Maximize the market potential for oil, natural gas, and the associated byproducts produced therewith
- Improve the overall suitability of the oil and gas energy industry in North Dakota through the development of new environmental practices that will help to reduce the footprint of oil and gas activities
- Develop baseline information that will lead to other projects, processes, ideas and activities.

Justification for use of DOE Federal Fiscal Stimulus funds:

During the 2009 legislative session Senate Bill 2018 provided for the use of Federal Fiscal Stimulus Funds for Electrical Generators to be included in the Department of Commerce appropriation bill:

“The department of commerce shall use \$2,000,000 of the funding appropriated in section 2 of this Act for the purpose of establishing a grant program to assist in the purchase and installation of electrical generators that consume at least seventy-five percent of the gas from oil and gas well sites which would otherwise be flared or wasted, for the period beginning with the effective date of this Act and ending June 30, 2011. The funding is contingent upon approval from the United States Department of Energy of use of the funding for the grant program. Before making a grant from the program established by this section, the Department of Commerce shall obtain the recommendation of the Oil and Gas Research Program (OGRP) administered by the Industrial Commission regarding the application's technical accuracy and consistency with the OGRP.”

The Blaise project is perfectly aligned to fulfill SB 2018 intended use of appropriated funds:

- Blaise will purchase and install 5 MW of distributed electric generation that will consume/recycle approximately 600 Million cubic feet of otherwise wasted flare gas.
- Blaise will consume at least 75% (in most cases 100%) of the gas from oil and gas well sites that would otherwise be flared or wasted.
- The Blaise has received DOE approval for initial site.
- Blaise is seeking recommendation for this projects technical accuracy and consistency with OGRP.

STANDARDS OF SUCCESS

1. Success will be demonstrated through the measured recycling of 600 Billion BTU of wasted energy per year.
2. Proving an innovative service model leveraging proven technologies in innovative ways currently unused in oil & gas operations; this will lead to greater natural gas utilization, conservation and emission reductions.
3. Reduced flaring/waste of associated gas. Blaise will monitor volumes of gas being recycled.
4. Increase Oil and Gas production - In scenarios where sites are shut in or curtailed on production.
5. Payback to the State - Blaise’s expectation is that the federal funds allocated in this grant proposal will benefit the State of North Dakota in the form of additional production tax revenue

and job creation. For every 100 barrels of increased production, there will be an additional \$375 of production tax revenue for ND (based on \$75/bbl).

6. Reduce potential curtailment of production due to flaring.
7. New Jobs, new opportunities and additional subject matter expertise will be created through the successful validation of pilot for commercial application as new employees are added for future deployments. Anticipated job creation will be 1 new employee per megawatt of generation capability installed, therefore 5 jobs are expected to be created or retained with this project.

BACKGROUND/QUALIFICATIONS

The Blaise management team has extensive experience in leading edge technology startups, engineering, finance, sales, and marketing. The Blaise team has built relationships with industry experts in all the associated fields required to deliver the solution proposed: Generator Set Manufacturers, Gas Conditioning Consultants, Oil & Gas Operators, Local Electric Co-Ops, Basin Electric Power Co-Op, Midwest Renewable Energy Tracking System (M-RETS), US Dept. of DOE, US EPA, North Dakota Dept. of Health, North Dakota Dept. of Commerce, UND's Energy and Environmental Research Center (EERC) and the Global Gas Flaring Reduction Partnership (GGFR).

The principal investigator (Pascal Boudreau) is an electrical engineer with a specialty in control systems. Pascal heads up Operations and Engineering for Blaise and has held the following positions prior to his involvement with Blaise Energy: Manager of Sales Engineering for JDS Uniphase, Director of Implementation for Terabeam, Director of Network Development for NBTel (now Alliant) and System Control Engineer at NBPower. Pascal has over 15 years experience successfully managing complex projects and fostering relationships at all corporate levels.

MANAGEMENT

The Blaise team will manage the project using best practice project management methodologies and will leverage the vertical areas of expertise of the other project participants. The site's gas line design and build out will be performed by the oil & gas operator's preferred contractor, who will be familiar with the project site. The electrical interconnect work will be performed by the local utility's preferred contractor. The gas pre-conditioning and generator set will be commissioned and tested onsite by Blaise's preferred equipment manufacturer.

Blaise will host weekly conference calls (at a minimum) to communicate project milestones and next steps. A web portal will be established to share the project plan, activity calendar and other documents among stakeholders.

Preparations have been made to ensure quick implementation: equipment is ready to ship, contractors have been identified and their availability secured, switching equipment is on hand with a local utility, permit and application paperwork is completed and ready to deliver. Evaluation points during this stage will be tied to on-time execution and ultimately to connecting to the grid on or before schedule. Site

analysis, site visit details, and technical brief of Site 1 are included in confidential Appendix 1. This information will be provided for other sites as agreements and NEPA approval are secured.

Implementation of sites will be schedule throughout 2010 and 2011 until June 30, 2011. Operation and recycling benefits of installed sites will continue beyond June 2011. A report of installed generation and benefits to date will be provided by September 2011.

Blaise will act as the general contractor and work with project participant to meet or exceed timeline objectives.

TIMETABLE

The Recycled Energy from a Wasted Resource Project will consist of many site implementations to achieve the energy recycling target. These installations will be completed by June 30th, 2011 and timetable details on a site by site basis will be provided in the confidential section. See Appendix 1E for site 1 Gantt chart.

BUDGET

Per site budget details will be provided as sites are secured and approved by NEPA. The following budget is for Site 1.

Site 1 Budget:

Project Associated Expenses		Appropriated Funds Share	Applicant's Share (Cash)	Applicant's Share (in-kind)	Other Project Sponsor's Share
Site 1	Generation Equipment	\$335,000	\$335,000		
	Equipment	\$230,000	\$230,000		
	Maintenance (3 years)	\$105,000	\$105,000		
Site 1	Site Prep - Total	\$21,250	\$21,250		
	Legal	\$2,500	\$2,500		
	Gas line	\$5,000	\$5,000		
	Electric Equip	\$11,250	\$11,250		
	Electric Work	\$2,500	\$2,500		
	Electric Studies & REC Administration	\$4,000	\$4,000		
Site 1	Administration and Overhead	\$120,000	\$0	\$120,000	
Site 1 Totals:		\$476,250	\$356,250	\$120,000	\$0

Site 1 Total: \$952,500

CONFIDENTIAL INFORMATION

The names of the oil & gas operators participating in this project are being kept confidential due to existing NDAs. Any data used for oil and gas production, financial data and their analysis on behalf of the oil operator will also be kept confidential. Additional details, if required for grant approval, can be provided through an amended application.

Blaise Energy's proprietary equipment choices, its configuration and financial data, including, but not limited to, costs and profit margins will remain confidential.

PATENTS/RIGHTS TO TECHNICAL DATA

Patents pending on equipment design, use, configurations, processes and methods for the transformation of flared natural gas into electricity.

Affidavit of Tax Liability

I, Mark Wald, certify that Blaise Energy, Inc. does not have any outstanding tax liability owed to the State of North Dakota or any of its political subdivisions.

Mark Wald

Date

STATUS OF ONGOING PROJECTS (IF ANY)

Blaise is the recipient of \$375,000 of ND State OGRC funds for demonstration of the commercial viability pilot of a service similar to that described in this application. The federal and state projects are completely separate and have different goals and unique criteria for success.