

U.S. DEPARTMENT OF ENERGY NATIONAL ENERGY TECHNOLOGY LABORATORY

Recovery Act – Enhancing State Government Energy Assurance Capabilities and Planning for Smart Grid Resiliency

Nebraska Energy Office July 24, 2009

Project Narrative. The Nebraska Energy Office (Energy Office), an agency of State government, has three objectives:

- ❖ Strengthen and expand State and local government energy assurance planning and resiliency efforts by incorporating response actions for new energy portfolios and Smart Grid applications,
- ❖ Create jobs, and
- ❖ Build in-house State and local government energy assurance expertise.

The objectives will be accomplished with state-wide studies, job creation, information and training sessions, and interstate/intrastate exercises. With these tools, the Energy Office will build energy assurance capability which will allow Nebraska to better coordinate and communicate state-wide and regionally on energy security, reliability, and emergency response issues.

To strengthen and expand State and local government energy assurance planning and resiliency efforts by incorporating response actions for new energy portfolios and Smart Grid applications, the Energy Office will host roundtables to acquire feedback from the energy industry.

To create jobs, the Energy Office will hire consultants to conduct state-wide studies which will lead to refocusing the State Energy Assurance Plan. State-wide studies and roundtables will assess renewable energy resources, cyber security issues, Smart Grid applications and vulnerabilities, and response actions needed from State and local governments during supply disruption events. The State Energy Assurance Guidelines will serve as a model to develop and revise the Energy Assurance Plan. Jobs may be indirectly created as a result of these state-wide studies and roundtables.

To build in-house State and local government energy assurance expertise, the Energy Office will host information and training sessions focusing on specific fuels. A facilitator will preside over the sessions while panels of industry experts, pipeline and terminal staff, industry association members, and production plant staff conduct the sessions. The Energy Office will conduct training on the content and execution of the State's Energy Assurance Plan during one of the sessions. Appropriate personnel, such as city/county emergency directors and emergency personnel from state agencies and local governments, will comprise the audience for the training sessions. The agenda for each information and training session will encompass:

1. Nebraska's infrastructure for the specific fuel
2. Critical infrastructure interdependencies
3. Movement of the specific fuel into and within the state to each sector and end-user

4. The energy supply system and disruption events
 - a. The energy supply system and a process or mechanism for tracking supply
 - b. Energy data analysis, communications, and a process or mechanism for tracking the duration, response, restoration, and recovery time of energy supply disruption events
5. Response actions wanted or needed from State and local governments and the private sector during a fuel shortage or supply disruption (which may or may not be at a level to be declared an energy emergency)
6. Triggers for the response actions
7. Renewable and alternative fuels' role in a fuel shortage or supply disruption
8. The electricity training session will include cyber security and Smart Grid applications and vulnerabilities

The Energy Office will engage in an intrastate tabletop exercise to evaluate the effectiveness of the Energy Assurance Plan. The Energy Assurance Plan will be revised after the exercise to reflect lessons learned.

The Energy Office will engage in an interstate tabletop exercise to evaluate the effectiveness of the Energy Assurance Plan on a regional basis. The National Association of State Energy Officials and the U.S. Department of Energy's Office of Electricity Delivery and Energy Reliability will conduct the interstate exercise. The Energy Assurance Plan will be revised after the exercise to reflect lessons learned. The proposal request consists of \$363,635 in U.S. Department of Energy funds.

Recognized Need. The Nebraska Emergency Management Agency (NEMA) is recognized within the State for having the responsibility for planning and coordinating disaster response activities, while the Energy Office monitors energy assurance. The Energy Office relies on daily pipeline terminal supply reports, the Energy Information Administration's "Monthly Report of Prime Supplier Sales of Petroleum Products Sold for Local Consumption" (EIA-782C), windshield surveys, and phone calls from constituents. Prices are used to forecast upcoming supply disruptions. A process or mechanism to track state-wide energy supply and another process or mechanism to track the duration, response, restoration, and recovery time of energy supply disruptions would be more efficient and consume less staff time.

State-level expertise is needed for the State to remain impartial and to keep market interference at a minimum. It is also imperative that other State agencies and local government have the expertise to recognize events unfolding in their sectors.

The Energy Office needs more options and better courses of action to respond to supply disruptions so that the State is in the position of being proactive. Alternatives are needed for existing state policies. For example, the Energy Office has only the waiver as a response action to a shortfall. In the recent past, the State has used waivers to temporarily relieve hours of service and the Reid Vapor Pressure regulations. These are two methods to increase supply of fuel. When hours of service are temporarily waived, truck drivers who haul the fuel that is in short supply are allowed to drive for more hours. The truck drivers have time to make more trips and drive farther distances. Reid Vapor Pressure is a standard measurement of a liquid's vapor pressure in pounds per square inch at 100 degrees Fahrenheit. It is an indication of the propensity of the liquid to evaporate. When Reid Vapor Pressure regulations are temporarily waived, supply is increased since any Reid Vapor Pressure is then allowed to be sold in the state. Triggers are also needed so that the State can implement response actions in a timely manner when a benchmark is reached.

Tasks to be Performed. The Energy Office will complete the following tasks:

- ❖ Prepare a Project Management Plan which will focus on the details of work elements. The project budget will be included with the Project Management Plan.
- ❖ Prepare a Workforce Development Plan which will focus on the details of developing in-house expertise.
- ❖ Refine the existing Energy Assurance Plan to incorporate response actions for new energy portfolios, including Smart Grid technologies. The Energy Assurance Plan will address Smart Grid applications and vulnerabilities, critical infrastructure interdependencies, cyber security, energy supply systems, energy data analysis, and communications. The Energy Office will use the State Energy Assurance Guidelines as a model to revise the Energy Assurance Plan.
- ❖ Develop an energy supply tracking process.
- ❖ Develop an energy supply disruption tracking process.
- ❖ Engage in an intrastate exercise to implement the Energy Assurance Plan in-house.
- ❖ Engage in an interstate exercise to implement the Energy Assurance Plan regionally.

Anticipated Benefits. Each State agency that is a support agency for Energy Emergency Staff Function (ESF) 12 in the State Emergency Operations Plan will have a new or more current Energy Assurance Plan. Local governments will also have a new or more current Energy Assurance Plan. Energy Assurance Plans will incorporate new energy portfolios such as renewable, biofuels, and Smart Grid technologies. Nebraska State agencies and local governments will be more informed and better prepared when responding to energy emergencies. Local governments, State agencies, and the Midwest Region will have better coordination in response actions, duplication will be reduced, and less time will be needed to recover and restore the energy infrastructure.

Emergency personnel within each State agency will be able to quickly identify and assess energy events and supply disruptions. State agencies will be more aware of how energy systems work and the importance of energy in their field. The Energy Office will have additional resources among State agencies to quantify the severity and identify the duration of an energy supply disruption. Time spent responding, restoring, and recovering from energy supply disruption events will be reduced by having in-house energy assurance capability. Response actions will be timely and helpful to the State's citizens.

By fulfilling this grant's objectives, gaps will be highlighted where personnel is needed. Job positions will be created or saved to fill these needs.

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