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August 6, 2010

VIA Electronic Mail: *broadband@hq.doe.gov*
U.S. Department of Energy
Office of General Counsel
Attn: Maureen C. McLaughlin
1000 Independence Ave., SW
Room 6A245
Washington, DC 20585

Re: NBP RFI: Communications Requirements
Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities to Inform Federal Smart Grid Policy

Reply Comments of Diversified Energy Partners, Inc.

Dear Ms. McLaughlin:

In response to the Request for Information on the subject of *Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities to Inform Federal Smart Grid Policy,* please accept the enclosed Reply Comments of my client Diversified Energy Partners, Inc. ("DEPI") for consideration.

DEPI is the owner and operator of cutting-edge municipal waste-to-energy processing facilities, and submits these Reply Comments to provide the perspective of alternative and distributed generators with respect to communications requirements for the Smart Grid. DEPI urges the Department to carefully consider the needs of distributed generators and the microgrid concept when evaluating telecommunication infrastructure needs and regulatory structure for the Smart Grid.

DEPI thanks the DOE for the opportunity to provide Comments in this proceeding. Please feel free to contact me for further information, clarification or answers to questions.

Best regards,

STEVENS & LEE

Michael A. Gruin

Enclosure
cc: David Weiss, DEPI (via email)
Linda R. Evers, Esq. (via email)

UNITED STATES DEPARTMENT OF ENERGY

Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities to Inform Federal Smart Grid Policy	))))))

REPLY COMMENTS OF DIVERSIFIED ENERGY PARTNERS, INC.

Diversified Energy Partners, Inc. ("DEPI") files these Reply Comments in response to the above-enumerated Request for Information on the subject of *Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities to Inform Federal Smart Grid Policy,* which was published at 75 Federal Register 26206 on May 11, 2010. DEPI appreciates the opportunity to submit comments on this critical topic, and to present the perspective of alternative and distributed electricity generators for the Department's consideration.

I. Introduction to DEPI

DEPI is a Pennsylvania corporation that was formed to own and operate cutting-edge municipal waste-to-energy processing facilities. Leveraging a combination of proven waste processing technologies, including proprietary vortex technology, DEPI has developed a complete modular waste processing and gasification system that processes municipal solid waste into a sustainable energy source. DEPI's technical consulting team includes representatives from the Pennsylvania State University, Ingersoll Rand/Trane, Efactor3, Lubo USA, and the Emerging Technology Applications Center at Northampton Community College.

DEPI's waste-to-gasification process serves as a low cost, highly efficient alternative to municipal incinerators and landfills. The multi-stage process begins with the acceptance of municipal waste. This waste is then shredded, ground, sorted, separated, dehydrated, and pulverized using DEPI's proprietary and patented processes. The result of the process is a material with an extremely high heat value. This material – referred to as "fluff" - is then processed through gasifiers to create a methane gas that is collected and pressurized. This gas is then used to power industrial scale internal combustion engines to generate electricity for sale to municipal and/or investor-owned electric distribution companies. The process also creates certain other re-usable byproducts with various uses, including an activated carbon that is used in water and air filtration and mining operations. DEPI's facilities require a small footprint and are completely modular and scalable. DEPI's system allows facilities to be constructed quickly and efficiently at a variety of locations, and enables rapid increases in capacity in response to changes in demand.

II. Summary of Reply Comments

DEPI has reviewed the Comments filed to date in this proceeding, and is generally encouraged by the various stakeholders' commitments to ensuring adequate communications infrastructure for the developing Smart Grid. DEPI notes, however, the marked lack of input from alternative energy producers and a lack of discussion regarding distributed generation issues in the context of the Smart Grid. The truth is that smart grid technologies must integrate renewable energy from distributed generation into the Smart Grid. Renewable and alternative energy will not be optimized unless the Smart Grid's communications components account for and integrate distributed generation.

III. Issues Raised in the RFI

DEPI will not respond to each of questions presented by the NFI, but will provide input on the critical issues of concern to alternative and distributed generation system operators.

A. Current And Future Communications Needs Of Utilities For Deployment Of Smart Grid Applications

As the DOE's National Energy Technology Laboratory has stated "the modern grid must accommodate not only large, centralized power plants, but also the growing array of distributed energy resources."[1] In the near future, the use of distributed energy resources will increase dramatically, distributed energy will be derived from an ever-growing variety of sources, and distributed energy will be geographically de-centralized. DEPI agrees with NERC's position on the development of communications platforms to best enable distributed resources to be integrated into the grid. NERC has stated:

> Smart Grid technologies (devices and communications platforms) may enable distributed resources to be integrated into the grid cost effectively, efficiently, and reliably. However, the types and mix of these resources should consider interconnection requirements to ensure reliability of the bulk power system. The ability of generation sources, grid infrastructure, and end-use devices to sense and communicate is a radical development with profound benefits and challenges. Ultimately, the marketplace will decide which communications platforms and security architectures will be successful, but a collaborative effort between government, standards, end-users, and industry groups will need to carefully steer the process from theory to practice to common practice—much like the story of cellular telephones that went from an expensive rarity to common use.[2]

Conversely, an *ad hoc* adoption of new technologies could result in incompatible and poorly coordinated control systems, unreliable devices, and cyber security gaps that could be detrimental to system reliability.[3]

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[1] *A Systems View of the Modern Grid,* Appendix A5, Accommodates All Generation and Storage Options, DOE/NETL Modern Grid Team, v2.0, January 2007, pgs A5-2, 3

[2] NERC 2009 Long Term Reliability Assessment, at p. 84

[3] Id, at 85

B. Basic Requirements (Security, Bandwidth, Reliability, Coverage, Latency, and Backup) for Smart Grid Communications Systems

DEPI agrees with the National Energy Technology Laboratory's observation that a standard, ubiquitous integrated communications platform is needed to enable all power system components to intercommunicate. The smart communications platform(s) must have an open architecture acceptable to utilities, consumers, and suppliers to avoid concerns over stranded investment and to stimulate distributed generation deployment. Furthermore, given the massive amounts of bi-directional data flow created by smart meter devices, it will be critically important to ensure that sufficient bandwidth is in place to gather, send, retrieve, store, and analyze all of this data. It appears certain that the communications needs of the smart grid will be met by a combination of wireline and wireless technologies, using a variety of protocols. And again, it is DEPI's position that when communications technology and protocol choices are made, consideration must be given to the requirements of small alternative producers and distributed generators. DEPI is encouraged by some of the comments submitted by Verizon, NCTA, and others, but DEPI notes that these providers' emphasis appears to on communications pathways to the consumer premises, whereas the communications needs of alternative and distributed generators are largely overlooked.

C. Recommendations for Meeting Current and Future Utility Requirements: A Smart Grid Must Support Micro-Grids

From the distributed generator's perspective, the micro-grid concept is a critical component of the Smart Grid. It is envisioned that Cyber-Controlled Smart Microgrid Systems will evolve to allow renewable generation systems to connect with the large scale interconnected

transmission systems.[4] Smart Microgrids will need to communicate with individual smart meters at residential, commercial and industrial customer locations to control loads and respond to real-time pricing signals.[5] The Smart Microgrid concept assumes a cluster of loads and micro-sources operating as a single controllable system using Ethernet TCP/IP sensors, transducers, and communications protocols.[6] By definition, the Microgrid is geographically removed from the local grid. Therefore, if the Microgrid concept is to succeed, it is crucial for the telecommunications infrastructure to be responsive to the needs of the Microgrid and its distributed generation assets.

IV. CONCLUSION

DEPI applauds the DOE for its examination of the important issue of the telecommunications requirements for the Smart Grid and we appreciate this opportunity to file comments in this proceeding. As stated above, we urge the DOE to carefully consider the needs of distributed generators and the microgrid concept when evaluating telecommunication infrastructure needs and regulatory structure for the Smart Grid.

Respectfully Submitted,

/s/ David M. Weiss

David M. Weiss, CFO
Diversified Energy Partners, Inc.

[4] See Keyhani, Ali, *Cyber Controlled Smart Microgrid Systems of the Future: The High Penetration of Renewable and Green Energy Sources* New Research Directions for Future Cyber-Physical Energy Systems, June 3-4, 2009.
[5] Id.
[6] Id.