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E-00000A-99-0431

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From: Jerry D. Smith
To: DGI Interested Parties
Date: 10/19/99 9:35am
Subject: Distributed Generation & Interconnection Workgroup

1999 NOV -5 A 9:18

AZ CORP COMMISSION
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Docket No. E-00000A-99-0431

General investigation of Distributed Generation and Interconnections for potential retail electric competition rules consideration.

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As a party interested in the ACC's investigation of Distributed Generation and Interconnections you will find the following attached items:

- 1. Minutes of the 10/4 DGI Workgroup Meeting
- 2. Agenda for the 10/25 DGI Workgroup Meeting
- 3. Vita for our guest speaker on 10/25 - **Mr. Scott A. Castelaz**

Mr. Castelaz will be talking about the concept of a "Virtual Power Plant" and how application of new technologies can enable power automation, control, protection and communication associated with Distributed Generation. The context of his talk includes actual applications of new technology and yet provides thought provoking insight to where application of such technologies can lead.

Arizona Corporation Commission
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Special Open Meeting Minutes Distributed Generation & Interconnections Workgroup

Date: October 4, 1999

Time: 10:30 A.M.

Place: Arizona Corporation Commission Hearing Rooms 1 & 2
1200 W. Washington St., Phoenix, AZ 85007

Purpose: The Arizona Corporation Commission (ACC) Utilities Division sponsored a special open meeting to report Distributed Generation & Interconnections (DGI) Workgroup progress.

Attendance:

- Arizona Corporation Commission (ACC): No quorum of Commissioners, Commission staff members
- City staff from Phoenix, Scottsdale, and Tucson
- Representatives of Arizona Utility Investors Association (AUIA), International Brotherhood of Electrical Workers (IBEW) and Residential Utility Consumers Office (RUCO)
- Representatives of ESPs / Utilities - APS, NEV, TEP, SRP, and SW Gas
- Representatives of the following firms - Agra Simmons, Generac, Southwest Energy Solutions, and Stewart & Stevenson

Summary: Each committee gave a status report regarding its assigned scope of work and associated workshop issues. A summary is provided below along with key issues raised by attendees.

Siting, Certification & Permitting Committee: This committee reported agencies and various local jurisdictional requirements already assume responsibility for air quality, fuel supply, noise and safety compliance. It is generally believed that application of most types of distributed generation technology will comply with such pre-existing requirements. Attendees raised a concern regarding differing requirements for different counties or local jurisdictions. For example Maricopa County is considering new special use permit language that addresses generating plants. Secondly, there was concern raised regarding the aggregate effects of locating multiple units in a common geographical area. The committee was encouraged to explore the siting topic with other counties and municipalities not participating in the process.

Arizona OSHA representatives gave a presentation to this committee at its last meeting. OSHA's focus is on employers providing a safe working environment for their employees. OSHA Standard 1910.269 covers power generation, transmission, and distribution. It can be viewed at <http://www.osha.gov>. Installation, operation, maintenance, and repair of such utility components by qualified and trained personnel is a fundamental principal of OSHA standards. OSHA is not involved in residential settings; except in cases where the property owners' or resident's employees are involved. Some believe that training and instructions for operating a distributed generator may be the obligation of the manufacturer or party selling the equipment.

This committee's attention is now focused on considering two key processes. Future committee meetings will be devoted to considering a process for pre-certification of distributed generation systems and an application process for consumers desiring to install distributed generation technology. The informational content of the processes will be shaped by needs identified by the Access, Metering & Dispatch Committee and the Interconnection Standards Committee.

Access, Metering & Dispatch Committee: This committee began by conceptualizing different operational scenarios that could emerge from deployment of distributed generation. The committee's assigned workshop issues were then repackaged into two categories - tariff issues and operational issues. As a result this committee has organized into a tariff subcommittee and an operations subcommittee. This committee has conceptualized unit sizes into three groups for discussion purposes: less than 1 MW, 1-10 MW and greater than 10 MW. Whether a Utility Distribution Company has an obligation under the new Arizona Electric Competition rules to accommodate an interconnection for Distributed Generation purposes was raised by the audience. This committee has not yet reached a conclusion regarding this issue.

Interconnection Standards Committee: This committee has assembled and discussed existing and emerging national, industry and regulatory interconnection standards. It was concluded that most utilities in Arizona already have interconnection standards that accommodate qualifying facilities as defined by PURPA. APS, SRP and TEP agreed to develop and supply a draft interconnection document for committee consideration. The document has been provided and is a composite of the three utilities' interconnection standards with some negotiated modifications where there were significant differences. This committee is currently reviewing the draft document.

The Interconnection Standards committee has concluded that interconnection of distributed generators to the utility system utilizes three distinct technologies: inverter, synchronous generators, and induction generators. Based upon protection issues presented by application of these three distinct technologies this committee has grouped Distributed Generation into four classes: 50 kW or less, 51-300 kW, 301 kW - 5 MW and greater than 5 MW. Attendees questioned the choice of 300 kW as opposed to 500 kW for the breaking point between Class II and Class III. A request was made for additional inverter technology manufacturer representation on the committee. The new technologies are being UL and ETL type tested on an equipment manufacturer basis. However, attendees raised concerns that complete systems were not currently being type tested.

Meetings Adjourned at 12:10 PM

Recorded By: Jerry D. Smith, P.E., Utilities Division, Arizona Corporation Commission

ACC Special Open Meeting: Distributed Generation & Interconnections Workgroup

Date: October 25, 1999

Time: 10:00 AM

Location: Hearing Rms. 1 & 2
1200 W. Washington
Phoenix, AZ 85007

Purpose: Special open meeting to consider Distributed Generation & Interconnections (DGI).

AGENDA

1. Guest Speaker - Scott Castelaz of Encorp, "The Virtual Power Plant"
2. Committee status reports
 - Siting, Certification & Permitting
 - Access, Metering & Dispatch
 - Interconnection Standards
3. Workgroup Chairman Remarks
4. Break into Committee Meetings

Scott A. Castelaz is Vice President of Marketing & Corporate Development at Encorp, Inc. He is responsible for Encorp's worldwide marketing and strategic planning, new business development, client relations, and industry affairs. Mr. Castelaz has led efforts to introduce Encorp's leading-edge power automation and control technologies to the emerging export markets as well as to the restructuring domestic marketplace. He is a frequent speaker on the role of enabling technology in the power industry; most notably on regulatory policy issues that affect the distributed generation market. He has participated in numerous industry forums, workshops, and government hearings in this regard.

Mr. Castelaz' prior experience includes a combined 10 years with ABB, a \$40 billion global leader in electro-technology, and with Westinghouse. He served in ABB's Power Transmission & Distribution segment where he held a variety of marketing and sales management positions. While at ABB he focused on strategic marketing and business development with a particular emphasis on emerging technologies for power automation, control, and communication systems. He has worked extensively with major user groups such as utilities, industrials, and government; and in market channels such as OEM's, architect/engineering firms, export packagers, project developers, and distributors.