THE REGULATORY ASSISTANCE PROJECT

DCG/EE/35146-FINAL

U.S. DOE Grant # DE-FG02-99EE35146

Final Technical Report

Two Regional Regulatory Meetings on Distributed Resources

I. Overview

The Regulatory Assistance Project (RAP) presented two workshops for state utility commissioners and their senior staff on distributed resource regulatory issues and policy options pursuant to its work plan under this grant. The Eastern Regional Distributed Resources Workshop was held on Monday, April 17, 2000 in Philadelphia, Pennsylvania. The Western Regional Workshop was held in Santa Fe, New Mexico on June 16, 2000. The workshops were for attendance by state utility regulators only, however, both workshops were held in conjunction with NARUC workshops on the same topics which were open to all stakeholders. The purpose of RAP's workshops was for state regulators to learn about distributed resources and the regulatory issues surrounding their greater use. Specifically, the workshops provided the opportunity for regulators to discuss distributed resource issues in an open, collegial atmosphere designed to encourage mutual exploration of regulatory issues and options. Both workshops were successful in attracting an audience of regulators from key states and, both were successful in examining and discussing the potential benefits and barriers of distributed resources. The attendance lists and agendas for both workshops are attached.

The workshops addressed a shared set of topics but the format for each was slightly different. The Eastern Regional Workshop occurred the day before the associated NARUC workshop and, the Western Regional Workshop the day immediately following the NARUC workshop. The Western format seemed to work better as the preceding NARUC workshop brought regulators up to speed on several different aspects of distributed resources which led to a livelier, more

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interactive discussion the following day. The Eastern Workshop was very well received by attending regulators but as it preceded the broader discussion panels at the NARUC workshop, more time was needed to simply bringing regulators up to speed on DR generally, leaving less time available for regulatory policy discussion. Piggy-backing with the NARUC workshops was an effective way to provide a two-day immersion on DR for state regulators as it is always difficult to compete for a piece of regulatory time on any topic.

II. Discussion of Workshop Activities

Regulators attending the workshops were clearly very interested in the role distributed resources could play within a distribution system. There was virtually no disagreement that interconnection barriers could and should be removed promptly. There was strong interest in learning more about how to remove the regulatory barriers to DR. Identifying high cost areas within distribution systems was of particular interest, as was learning more about the implications of various rates (e.g., hook up fees, stand-by rates) and rate design issues (variable/ fixed charges for distribution services). Regulators are currently very tuned to reliability issues at the moment and would like to know more about the reliability values DR might offer to the system. The question of whether the distribution utility should be permitted to own and sell DR was discussed with interest but without any clear resolution.

Each of the workshops focused on the same general set of issues:

- A. Introduction to DR technologies and their potential benefits to customers and to the distribution system
- B. Interconnection and Market Barriers
- C. Regulatory Incentives
- D. Rate Design Issues
- E. Environmental Issues

This report will briefly outlining the tenor of the workshop discussions on each topic.

A. Introduction to DR Technologies and their Potential Benefits

This discussion was introduced and led by Carl Weinberg at both regional workshops. Regulators expressed quite a bit of interest in the relative unit sizes, operating characteristics and fuel sources for the various DR technologies. They were also interested in how and where these technologies can be used both by the distribution utility and by customers. The benefits identified include: the use of distributed resources to free up capacity and make more efficient use of existing distribution systems; capital deferral or avoidance for system upgrades and expansions; avoided energy costs for customers; increased power quality; risk reduction through size, number and fuel diversity; line loss reductions.

It was pointed out that most outages occur within the distribution system although the regulatory community currently is more concerned about capacity shortage caused by generation and transmission constraints. The ability of DR to contribute to the relief of grid constraints was discussed.

The attractiveness of DR to customers for its power quality, security and reliability features as well as its cost effectiveness, particularly in combined heat and power (CHP) applications was discussed. Concern for the current overall reliability of the grid in many areas of the country, along with increasing customer demand for very high quality of power have stimulated customer interest in DR. In such applications, the customer may be capturing values that make it worth it to the customer to install DR even where it is more expensive than the current rates that customer pays.

Some of the regulators at the western regional workshop were intrigued by the decentralised, bottom-up characteristics of DR, envisioning networks made up of several relatively small "management areas" made up, perhaps, of four to six substations, loosely connected to the transmission system by a DC tie. Much of the needed energy in such an area could be locally produced by a variety of DR, permitting the area to "island" in times of broader grid failure.

B. Interconnection and Market Barriers

Three types of Interconnection barriers were identified and discussed: technical interconnection requirements needed to ensure parallel operation; non-technical barriers such as hook up fees and liability insurance; and regulatory policy disincentives arising from rate-making practices and rate designs. Two states have made substantial progress on the first two of these three barriers, New York and Texas. New York has adopted the proposed IEEE technical interconnection standards. Texas has adopted procedural policies which go a long distance in eliminating the non-technical barriers. Regulators were given details about the activities in these two states and encouraged to make use of the work New York and Texas have already completed in solving the key technical and non-technical issues.

C. Regulatory Incentives

The impacts of DR upon distribution utility profits was discussed, using the materials from *Progress and Profits through Distributed Resources* (RAP 2000) which had been distributed to all participants before the workshops. Regulators were interested in the concept of distribution credits to encourage customer use in high cost distribution areas. This concept needs further development. The negative impacts of establishing fixed (rather than variable) rates for distribution charges upon customer adoption of DR was discussed. Regulators recognized that some distribution utilities now want to move to fixed charges. There were mixed views on that option. Some regulators stated that in light of the existing long term practice of recovering distribution costs in variable charges, customers resistance to moving to fixed charges would pose

a major obstacle.

Ratemaking approaches were discussed, particularly the relative effects of revenue caps as compared to rate caps upon utility profits when customers installed DR on their side of the meter. Revenue caps offer the same revenue assurance to the distribution company as do fixed charges, but they allow a better price signal to be design for the customer. Rate caps can have the effect of causing the utility to encourage energy throughput and to discourage the use of DR as lost sales under a rate cap will mean lost revenue and profits to the utility.

D. Rate Design

Rate design issues were discussed as indicated in previous sections. This appears to be an area of high and growing interest to regulators. Further research should be pursued on these topics as they are very timely and of great importance to the successful implementation of cost-effective of DR. The questions requiring resolution include: how to identify high cost areas, how to design a credit for the installation of DR in a high cost area, and how to design distribution company rates including back-up and stand-by rates.

E. Environmental Issues

The workshop participants were very interested in the environmental characteristics and implications of DR technologies and use. It was recognized that on the one hand, the most common DR in use today were diesel engines, some very old, with high emissions of air pollutants and; on the other hand, if all the older coal plants grand-fathered under the Clean Air Act were replaced by more recent diesels and micro-turbines, air quality would be significantly improved. Regulators identified that the issue of environmental impacts revolved around both the emission profile for each type of DG and the specific application of the DR. The key questions regarding application of DR are: where it is used and what if anything does it displace in the dispatch order?

Regulators were strongly interested in following up on the environmental issues and wanted further collaboration with their environmental counterparts to examine issues such as setting efficiency standards for DR.

III. Work Remaining on this Grant

No works remains on this grant.

The Regulatory Assistance Project

Eastern Regional Distributed Resources Philadelphia, Pennsylvania Monday, April 17, 2000

Embassy Suites Hotel
Philadelphia International Airport
Tel: 215-365-4500

AGENDA

8:00-8:30	Breakfast
8:30-9:00	Welcome and Introduction
<i>David Moskowitz, Regulatory Assistance Project</i>
9:00-9:20	Update on Technology and Future of Distributed Resources
<i>Carl Weinberg, Regulatory Assistance Project</i>
9:20-10:00	Questions and Discussion the Update of Technology and Future of Distributed Resources
11:15-11:30	Break
11:30-11:50	Environmental Issues
<i>Paul Hibbard, Massachusetts Dept. Of Environmental Protection</i>
11:50-12:30	Questions and Discussion on Environmental Issues
12:30-1:30	Lunch
1:30-1:50	Interconnection Standards
<i>Alison Silverstein, Texas Public Utilities Commission</i>
1:50-2:45	Questions and Discussion on Interconnection Standards
2:45-3:00	Break
3:00-3:20	Perspectives of the Distributed Generation Industry
<i>Mark Kuntz, Capstone Turbine</i>
3:20-4:00	Questions and Discussion on Distributed Generation Industry
4:00-5:00	Open Discussion

Attendees Eastern Distributed Resources Workshop

Jim Burg, South Dakota PUC
Marjorie Force, Maine PUC
Ann Thompson, Vermont PSB
Judith Ripley, Indian URC
Darren Gill, Pennsylvania PUC
Bala Balasubramanian, New York DPS
Charlie Puglisi, New York DPS
Maureen Mulligan, Pennsylvania PUC
Thomas Maher, Pennsylvania PUC
James Ellars, West Virginia PSC
Joe Galdo, U.S. DOE
Peter Dunbar, Maryland DNR
Heather Forney, South Dakota PUC
Geraldine Nicholson, MD DNR
Klaus Lambeck, Ohio PUC
Grace Hu, Washington DC PSC
Shawn McBride, Illinois Commerce Commission
Terrance Fitzpatrick, Pennsylvania PUC
Paul Hibbard, Massachusetts DEP
Mike Horne, Tennessee Reg Authority
Tom Stanton, Michigan
Linda Taylor, Minnesota Dept of Commerce
Gail Wickwire, Pennsylvania PUC
Cathy Gandehari, U.S. DOE
Aaron Wilson, Pennsylvania PUC
Michael Martin, Virginia State Corp Comm
Alison Silverstein, Texas PUC
Mark Kuntz, Capstone Turbine
David Moskovitz, RAP
Cheryl Harrington, RAP
Wayne Shirley, RAP
Carl Weinberg, RAP

The Regulatory Assistance Project

Peer to Peer

Western Regional Distributed Resources

Santa Fe

June 15-16, 2000

Eldorado Hotel
309 West San Francisco Street
Santa Fe, New Mexico
Tel: 505-995-4573 Fax: 505-995-4555

AGENDA

CASUAL DRESS ALL SESSIONS

Thursday, June 15

6:00 p.m. Meet for Dinner at the Old House Restaurant at the Eldorado Hotel

Friday, June 16

8:00 a.m. Breakfast Buffet

9:00 a.m. Focus and Discussion on Technology Issues
Carl Weinberg, RAP

10:30 a.m. Break

10:45 a.m. Interconnection and Market Barrier Issues
Alison Silverstein, Texas PUC

12:00 noon Lunch

1:00 p.m. Rate Design, Regulatory Incentive, and Environmental Issues
Wayne Shirley and Cheryl Harrington, RAP

2:30 Open Discussion

3:00 p.m. Adjourn

Attendees Western Distributed Resources Workshop

Marsha Smith, Idaho PUC

Bob Anderson, Montana PSC

Rich Sedano, Vermont Dept of Public Service

Roger Hamilton, Oregon PUC

Michal Moore, CA Energy Commission

Alison Silverstein, Texas PUC

Cheryl Harrington, RAP

Wayne Shirley, RAP

Carl Weinberg, RAP

Herb Hughes, New Mexico PRC

Lani Nakazawa, Hawaii PUC

Katie McCormick, Energy Foundation

Dave Warren, WA Dept of Community Trade & Econ. Dev

Joe Galdo, U.S. DOE