

Distributed Energy: Barriers and Opportunities

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Introduction

- **National Council on Competition and the Electric Industry**
 - formed by government officials in 1994 to assist policymakers with the challenges posed by the dramatic changes brought about by the reexamination of the traditional franchise electric system.
www.ncouncil.org
- **Regulatory Assistance Project**
 - RAP is a non-profit organization, formed in 1992, that provides workshops and education assistance to state government officials on electric utility regulation. RAP is funded by the Energy Foundation and the US DOE.

Promise of Distributed Generation



- More Customer Choices
- Improved Societal Efficiency
 - heat rate
 - resource utilization (demand response)
- Reliability Improvement
- Need for large capital projects reduced/delayed
 - beneficial rate effects

Barriers to Distributed Generation



- Utility incentives, capabilities and concerns
- System rules
- Regulatory practices
 - utility
 - environmental
- Comfort of customers and supporters
 - ESCOs



Utility Concerns

- Safety
- Grid Operation
- Profits
 - Customer side of the meter or utility side?
- Cost Shifting
- Free Riding
 - back-up service price
- Air Quality
- Control
- Staffing
 - capability
 - confidence in DG
- Incentives for Sales



System Rules Hindering DG

- Interconnection standards rare
- Stand-by rates high
- Economic treatment of transmission alternatives
- Planning does not sufficiently consider or target DG
- Cost plus ratemaking
- Lack of performance incentives
- Revenue erosion from lost sales
- Reliability, reduced losses: values not counted



Regulatory Barriers

- Excessive charges (“procurement and recovery”)
- Inconsistency
- Lack of understanding of technology
- Insufficient Duration of Commitment
 - year to year demand response programs not consistent with investment reality



Comfort of Customers and Support Network

- Replacement in kind is easiest
- New systems often come with higher up-front costs (and long-term savings)
- Dealing with utilities and utility rules can be daunting
 - time
 - cost
 - “not my business”



Prospects

- Technology is an absolute, especially when efficiency and ease of use are involved
 - technology of small-scale generation is improving (enough?) in cost and flexibility
 - more purpose-built industrial and commercial systems can be designed with electric generation potential (CHP designed into original equipment)



Prospects

- Regulators in some states will be unable to resist waving in these new technologies
 - NY, CA, TX, DE
 - Note Interconnection and DG-friendly rulings
- Regulatory improvements will take time in many states



Prospects

- System planners will increasingly count on DG
 - As a regularly available energy source supporting the system, adding resilience
 - As a source that allows market-based “demand response” to be more successful, returning market value (not pre-determined savings) to the customer
 - Especially targeted at high marginal cost areas



Prospects

- Improved response from air regulators
 - Concern with air impacts of diesels, gas spark ignition reciprocating engines, small turbines
 - Potential proliferation of units
 - Administrability of requirements
 - transferability of air emissions to dispersed sources
 - Absence of requirements in some states.
 - Model Rule under development
 - Output-based standards, phased in, rewards CHP, technology and fuel neutrality, technology forcing



Prospects

- With more systems in place, there will be more success stories, more lessons learned
- Federal sites can demonstrate new best practices to other facilities managers



Advocacy

- Performance-Based Regulation
 - Revenue cap addresses current incentive conflict facing utilities
- Target DG incentives at T&D-constrained areas
- Interconnection: standard in every state
- Stand-by rates
 - Based on probability of contribution to peaks?
- Demand Response (why FERC is important)



Pending Issues

- Will CHP systems tend toward designs where electricity production is incidental and generally less than normal needs?
- Or will CHP systems develop toward seeing efficient electricity production as a new profit center, just as other manufacturing by-products can be, so sizing tends to require sales to the grid?



Pending Issues

- Will there develop a support industry to help the facilities manager with the commercial elements of power production
 - evolving role of the utility
 - developing role of the ESCO
- Effect of prevailing electric prices on CHP development