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STATE ENERGY EFFICIENCY ACTION NETWORK

Guide to the Successful Implementation of State Combined Heat and Power Policies

State & Local Energy Efficiency Action Network

Industrial Energy Efficiency and Combined Heat and Power Working Group

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What is the SEE Action Network?

- Network of 200+ leaders and professionals, led by state and local policymakers, bringing energy efficiency to scale
- Support on energy efficiency policy and program decision making for:
  - Utility regulators, utilities and consumer advocates
  - Legislators, governors, mayors, county officials
  - Air and energy office directors, and others
- Facilitated by DOE and EPA; successor to the National Action Plan for Energy Efficiency

The SEE Action Network is active in the largest areas of challenge and opportunity to advance energy efficiency

IEE/CHP Working Group Members

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Working Group Goals and Strategy

Key Barriers

1) Industry has a high hurdle rate for investment payback on capital projects (including IEE /CHP).
2) Utility IEE program designs may not effectively reflect the unique needs of industry.
3) Industry concerns regarding their perceived benefits from IEE programs relative to their costs
4) Regulatory and market barriers to CHP adoption exist, including interconnection standards, standby rates, and utility tariffs.

Working Group Strategy

Develop resources that highlight best practice recommendations for policies, programs, and regulations that may be implemented by states and utilities to: 1) Drive demand for IEE and CHP; 2) Build the workforce and promote efficient operations and investment; 3) Move the market toward IEE / CHP technologies adoption; and 4) Promote efficient operations and investment.

Working Group Goals:

Year 1: A reduction of 0.5 quads of achieved through industrial energy efficiency and installation of 2 GW of new, cost-effective CHP.

Mid-Term/Long-Term: The Working Group identifies and supports the adoption and implementation of policies, programs, and practices that will lead to:

- A 2.5% average annual reduction in industrial energy intensity by 2020
- Installation of 40 gigawatts (GW) of new, cost-effective CHP by 2020

The Guide provides state policy makers with actionable information regarding:

- Design of standby rates
- Interconnection standards for CHP with no electricity export
- Excess power sales
- Clean energy portfolio standards
- Emerging market opportunities: CHP in critical infrastructure and utility participation in CHP markets

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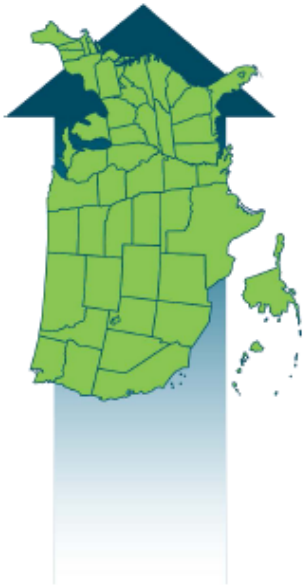

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Industrial Energy Efficiency and Combined Heat and Power Working Group

Driving Ratepayer-Funded Efficiency through Regulatory Policies Working Group

March 2013

The State and Local Energy Efficiency Action Network is a state and local effort facilitated by the federal government that helps states, utilities, and other local stakeholders take energy efficiency to scale and achieve all cost-effective energy efficiency by 2020.

Learn more at www.seeaction.energy.gov

Design of Standby Rates

Goal: Preserve the nexus between charges and cost of service. Seek to encourage customer generators to use electric service most efficiently and minimize costs imposed on the electric system.

- Offer daily or monthly as-used demand charge for backup power and shared transmission and distribution facilities
- Reflect load diversity of CHP customers in charges for shared delivery facilities
- Provide an opportunity to purchase economic replacement power.
- Allow customer-generators the option to buy all of their backup power at market prices
- Allow the customer to provide the utility with a load reduction plan.
- Offer a self-supply option for reserves

Select Successful Implementation Approaches

- **Pacific Power—Oregon Partial Requirements Service**
  - Pacific Power provides standby services in Oregon under four primary tariffs and riders.
  - Taken together, this set of tariffs provides many of the customer-generator benefits discussed in the Guide, while allowing recovery of actual costs incurred by the utility and protecting other customers.
- **Consolidated Edison Partial Requirements Service**
  - Offers replacement or supplemental service customers whose self-generation capacity is greater than 15% of their potential load. Pricing is based on a contract demand representing the highest demand the facility is likely to meet for the customer under any circumstances.
  - The contract demand charge reflects the customer's contribution to local facilities used on a regular basis for baseload demand, as well as customer-specific infrastructure necessary to meet the maximum potential demand with or without the customer's generation in service .

Interconnection Standards for CHP with No Electricity Export

Safety is paramount; but standardized processes can encourage CHP deployment without jeopardizing safety.

- Interconnection fees commensurate with system size and complexity
- Streamlined procedures with simple decision-tree screens
- Uniform technical interconnection requirements
- Dispute resolution procedures
- The ability for larger (20 megawatts and larger) CHP systems to qualify under the standards
- The ability for on-site generators to interconnect to both radial and network grids, assuming careful operational planning and system protection reviews.

Select Successful Implementation Approaches

- **Streamlined procedures with decision tree screens**
  - Colorado: Streamlined process for systems up to 2 MW that involves several different screens to determine if more detailed review is needed.
  - Maine's level 2 and 3 interconnection processes (for systems up to 2 MW and 10 MW respectively) have timelines of 15 and 17 business days for the utility to approve the application.
- **Standardized, simplified application forms and contracts.**
  - Maryland: Application forms are limited to eight pages.
  - Massachusetts proposed the creation of a uniform on-line interconnection application form.

Excess Power Sales

Optimum CHP system design recommends sizing to the thermal load. This leaves industrial operations with large thermal needs with excess power.

- Consider programs based on the federal Public Utility Regulatory Policies Act (PURPA) – flexibility possible
- Feed-in Tariffs
- Competitive Procurement Processees
  - Standard offer for small CHP
  - Competitive procurement for large CHP

Select Successful Implementation Approaches

- **California CHP Feed-in Tariff for Investor-Owned Utilities**
  - Purchase rates are based on the costs of a new combined-cycle gas turbine operating as a baseload resource, determined by the CPUC to be a reasonable proxy for the marginal unit the utilities avoid by purchasing from an eligible CHP facility.
  - A 10% location bonus for CHP systems interconnected in areas with local resource adequacy requirements—grid-constrained areas that require purchases from local resources to avoid grid system failure.
- **Oregon Standard PURPA Contracts and Avoided Cost Rates**
  - Regulated utilities must offer standard-form contracts and standard avoided cost rates for Qualifying Facilities up to 10 MW
  - Qualifying Facilities of any size should have the option to enter into contracts up to 20 years.

Clean Energy Portfolio Standards

CHP may be considered a renewable or energy efficiency under state portfolio standards (RPS, EERS, AEPS, etc). If so, then consider

- CHP eligibility definitions
- Minimum efficiency requirements or performance-based metrics
- Separate, distinct targets for CHP and other technologies

Select Successful Implementation Approaches

- **Qualifying Resources Definition—How CHP is Defined**
  - Massachusetts (APS). CHP systems using renewable fuels and natural gas qualify. CHP systems must have begun operation (including incremental additions) on or after January 1, 2008. Existing units can receive credit for their added incremental useful thermal energy or useful electrical energy. The APS provides credit for both the electric and thermal output from the CHP system.
- **Minimum Efficiency.**
  - Connecticut credits all electricity (kWh) generated from systems that meet or exceed the minimum efficiency threshold of 50%. In Washington State, CHP systems must have a useful thermal output of at least 33% to qualify.
- **Performance Metric Example.**
  - Massachusetts APS credits are allocated on the basis of one credit per MWh of net source fuel savings. Source fuel savings are determined by metering the CHP generated electrical and useful thermal energy as well as the fuel energy consumed and comparing the CHP fuel energy consumed with what would have been needed to generate an equal amount of electricity by the grid and thermal energy from a boiler or furnace.

Select Successful Implementation Approaches (2)

- Separate, distinct targets for CHP and other technologies
  - Set a separate tier for CHP and related energy efficiency technologies and require a specified percentage of the target to be met by each of these tiers
    - Examples: Connecticut's Class III and Pennsylvania's Tier II.
  - Establish a separate portfolio standard program (distinct from the RPS) which is devoted to CHP and/or other energy efficiency technologies
    - Example: Massachusetts' APS and Michigan's Energy Optimization Savings Standard.

Emerging Market Opportunity – CHP in Critical Infrastructure

- CHP can add to grid stability and critical infrastructure resilience. Consider:
- Improved coordination between government emergency planners and the electricity sector to consider CHP in critical infrastructure applications.
  - Texas bills HB 1831 and HB 4409194 require that beginning in September 1, 2009, all government entities (including all state agencies and all political subdivisions of the state such as cities, counties, school districts, institutes of higher education, and municipal utility districts) must do the following:
    - Identify which government-owned buildings and facilities are critical in an emergency situation.
    - Prior to constructing or making extensive renovations to a critical governmental facility, the entity in control of the facility must obtain a feasibility study to consider the technical opportunities and economic value of implementing CHP.

Emerging Market Opportunity – Utility Participation in CHP Markets

- Consider policies that permit but do not mandate utility participation in CHP markets.
- If so, key features would include:
  - Market rules to ensure non-discriminatory access by third-parties wishing to enter the CHP market in the utility's service territory and compete with it;
  - Financial controls to prevents the utility from shifting costs from its CHP products and services to the revenue requirements of non-CHP customers.
  - A policy determination about how to treat CHP-related earnings for rate making purposes (e.g., either imputing CHP earnings as offsets to required revenues, or allowing the utility to retain CHP earnings). Policy may differ for utilities in restructured versus traditional electricity markets.
  - Models for joint utility-customer ownership of CHP assets or utilization of utility service performance contracts
  - Allowing for utility incentives for CHP, including innovative financing mechanisms, discounted natural gas rates, or utility partnerships with government.

Additional Policy Ideas Worth Exploring

- CHP in community planning – CHP zones
  - Designated areas for CHP development in brownfields, greenfields, and areas on the utility distribution grid where it is impractical to upgrade or install new lines.
- Capacity and Ancillary Markets – How CHP can Participate
- Revision of Utility Distribution Franchise Regulations to Allow Non-Utility CHP to Serve Neighboring Load

For More Information

Download the SEE Action CHP Guide:

http://www1.eere.energy.gov/seeaction/chp_policies_guide.html

For Information on SEE Action:

- http://www1.eere.energy.gov/seeaction/
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