FERC Staff Report on Demand Response and Advanced Metering

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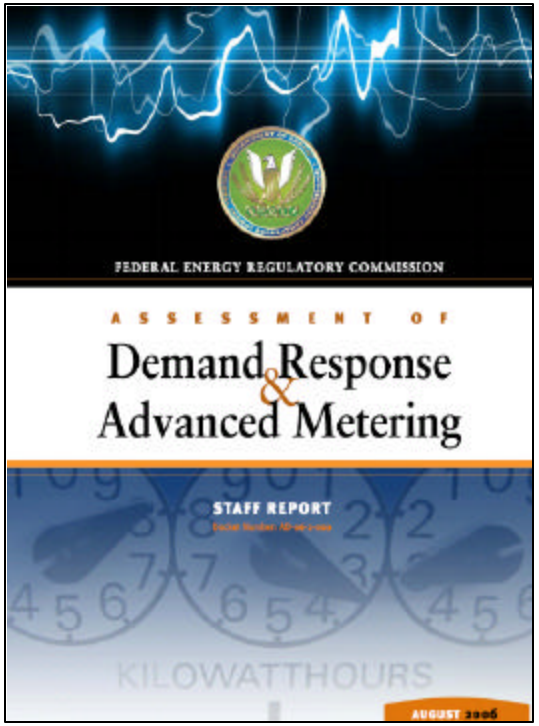
FERC Demand Response Report



- FERC staff recently completed a report required by the Energy Policy Act of 2005
- Report assesses demand response and advanced metering

http://www.ferc.gov/legal/staff-reports/demand-response.pdf

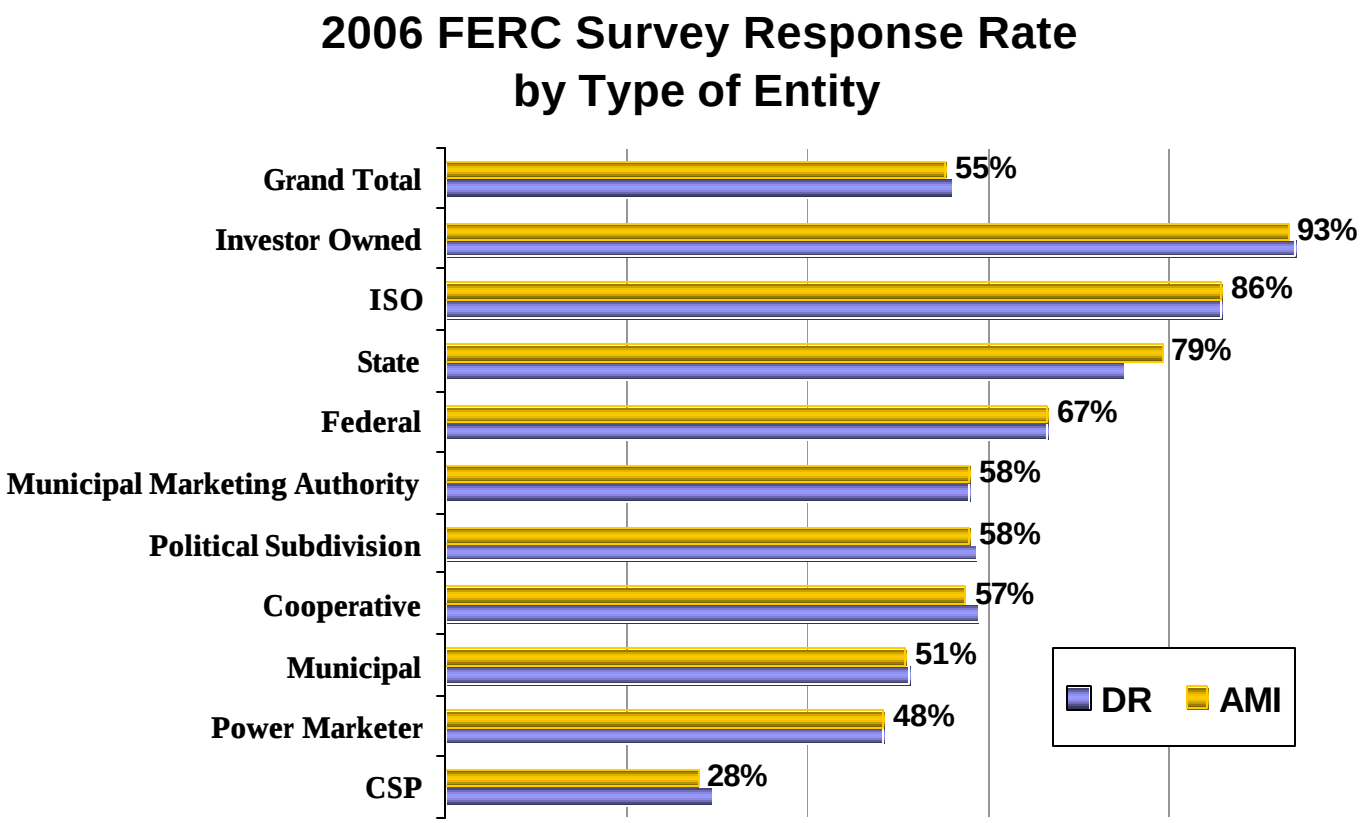
Congressional Request

- Section 1252(e)(3) of EPAct 2005 requests that FERC, by appropriate region, identify and review:
  - Advanced metering penetration
  - Demand response programs
  - Resource contribution from programs
  - Role of demand response in regional and transmission planning
  - Demand response regulatory

FERC Survey

- Sent voluntary survey to 3,365 entities
- Covered all 50 states
- Surveyed
  - Public and private utilities
  - Regulated and unregulated entities
- Response rate ~55%
  - >90% from IOUs

Survey Response

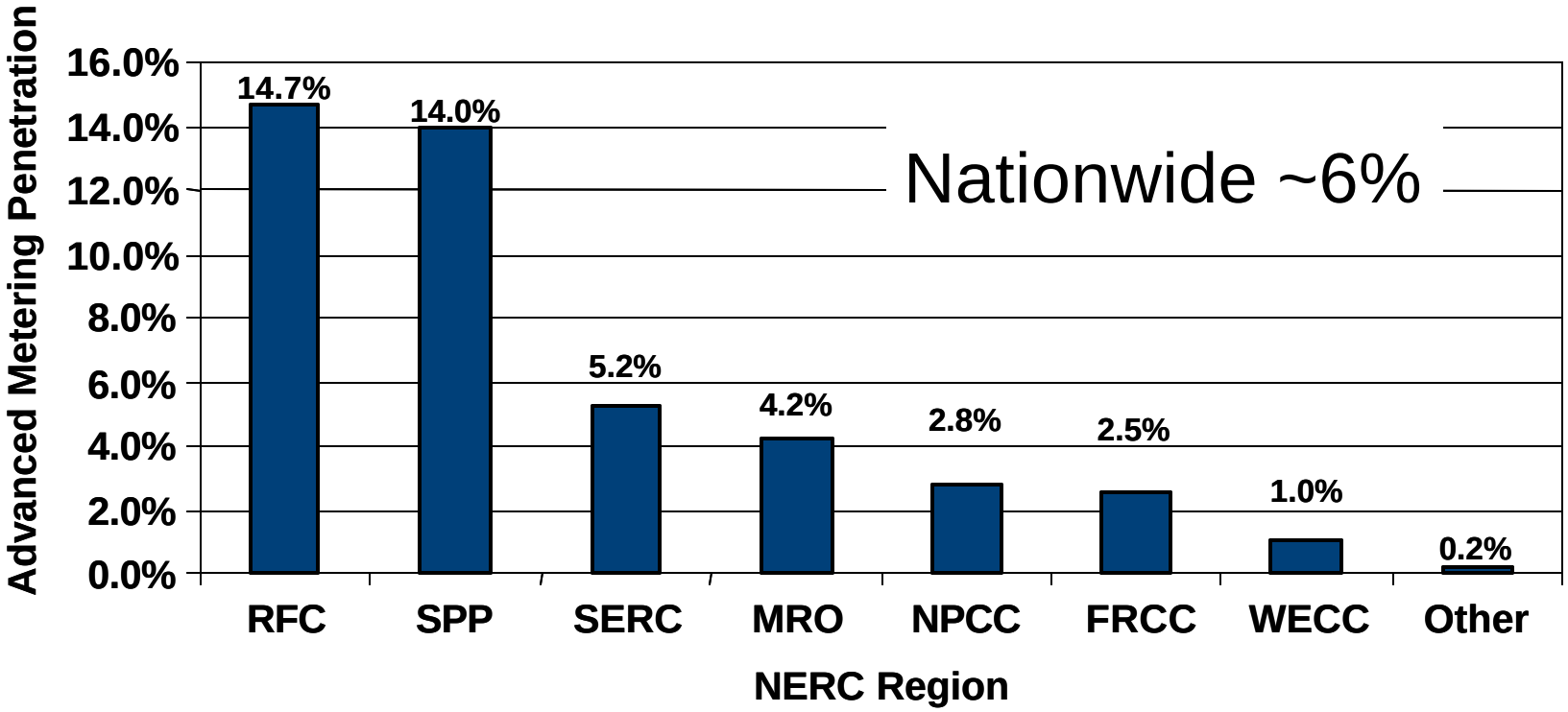


Advanced Metering Penetration Results

- Penetration of advanced metering lower than expected (~ 6%)
  - Other estimates had been closer to 10%
  - Some utilities with fixed network AMR did not report their meters as “advanced meters”
- High penetration exists in both rural and more-urbanized states
- Rural electric cooperatives have the highest penetration
  - Likely driven by meter reading savings
- Except for a few states, penetration in Northeastern U.S. is less than the national average

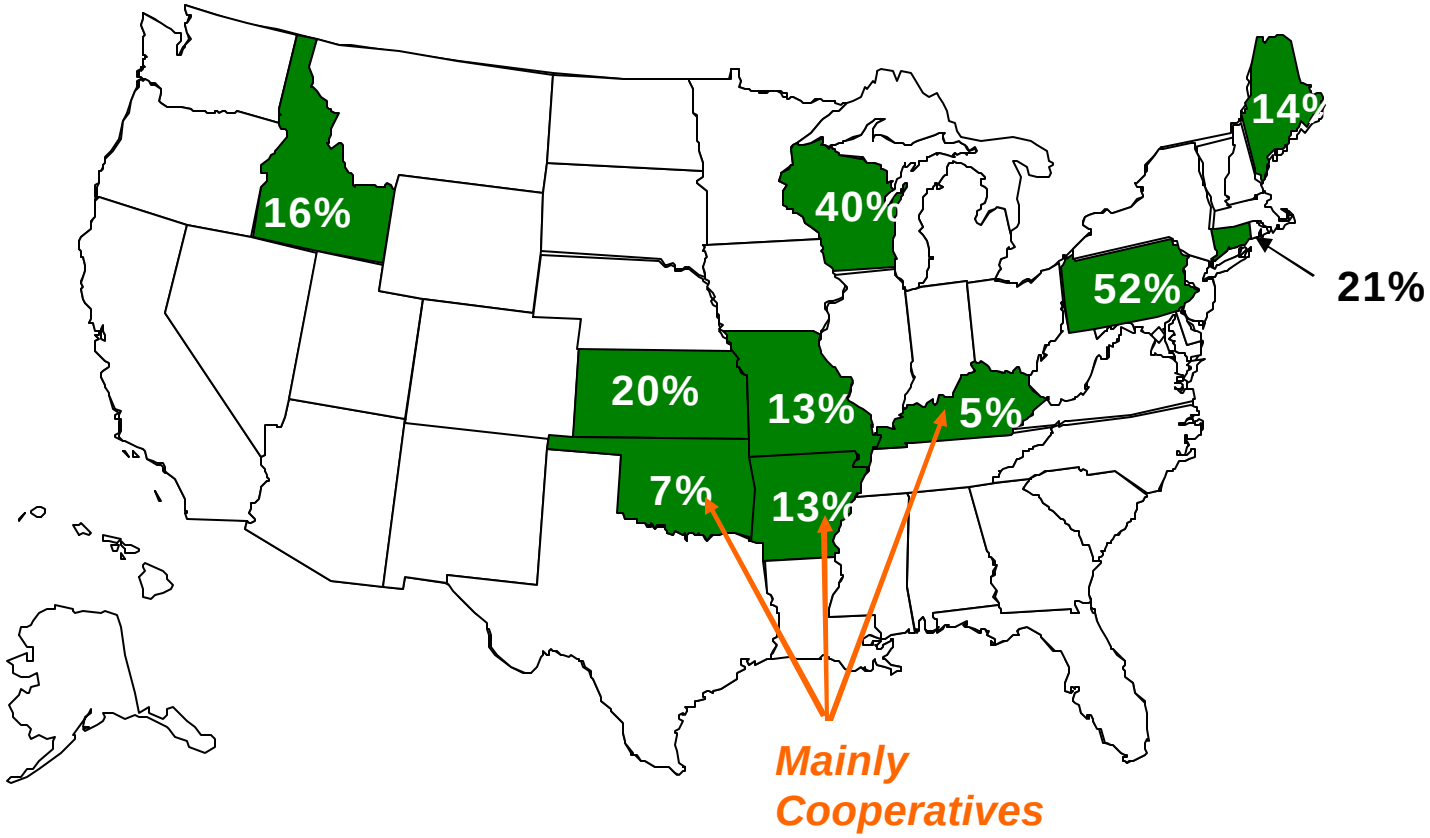
Advanced Metering Penetration

By Region



Advanced Metering Penetration

Top Ten States



Advanced Metering Penetration

Within the Northeastern United States

State	Res AMI	Com AMI	Ind AMI	Trans AMI	Other AMI	Total AMI
PA	52.1%	55.9%	29.1%	100.0%	0.0%	52.5%
CT	21.1%	23.4%	36.6%	100.0%	99.3%	21.4%
ME	14.3%	14.8%	5.7%	0.0%	0.0%	14.3%
NH	2.3%	2.0%	43.2%	0.0%	0.0%	2.5%
NJ	0.4%	0.0%	3.1%	6.5%	0.0%	0.4%
MA	0.0%	1.3%	3.5%	0.8%	0.2%	0.2%
DC	0.0%	0.9%	0.0%	0.0%	0.0%	0.1%
NY	0.0%	0.3%	10.3%	0.0%	3.6%	0.1%
RI	0.0%	0.4%	6.9%	0.0%	0.0%	0.1%
MD	0.0%	0.2%	0.0%	67.3%	2.4%	0.0%
DE	0.0%	0.0%	1.9%	0.0%	0.3%	0.0%
VT	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%
US Average	5.7%	4.7%	4.8%	5.4%	3.0%	5.6%

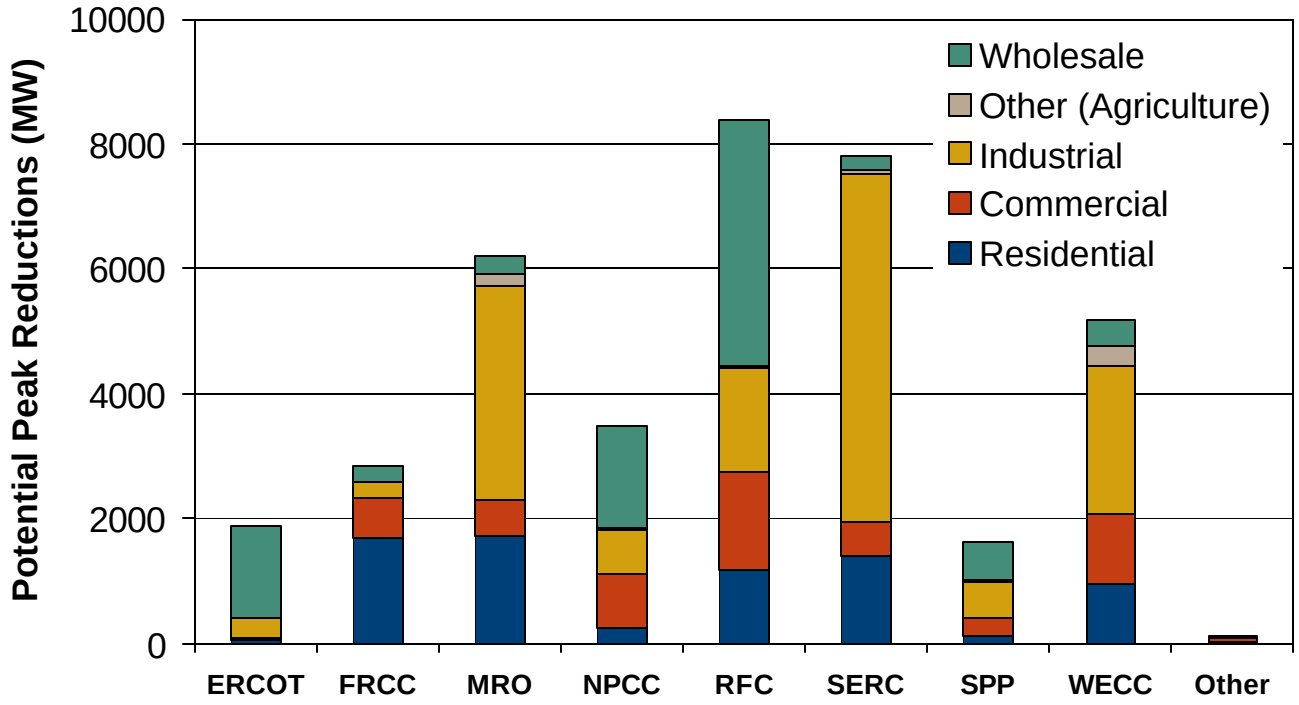
Demand Response Programs

- Incentive-Based Programs
  - Direct load control
  - Interruptible/curtailable rates
  - Demand bidding/buyback programs
  - Emergency demand response programs
  - Capacity-market programs
  - Ancillary-services-market programs
- Time-Based Rates
  - Time-of-use
  - Critical-peak pricing
  - Real-time pricing

Demand Response Results

- Demand response is important for both wholesale and retail markets
- 37,500 MW of demand response potential currently exists
  - Vast majority from incentive-based demand response
  - ISO and other wholesale demand response represents about 8,900 MW
- Current DR capability represents between 3% to 7% of peak demand in most regions
- Demand response in the Northeastern U.S. reflects the importance of ISO programs in the region (particularly in NPCC)

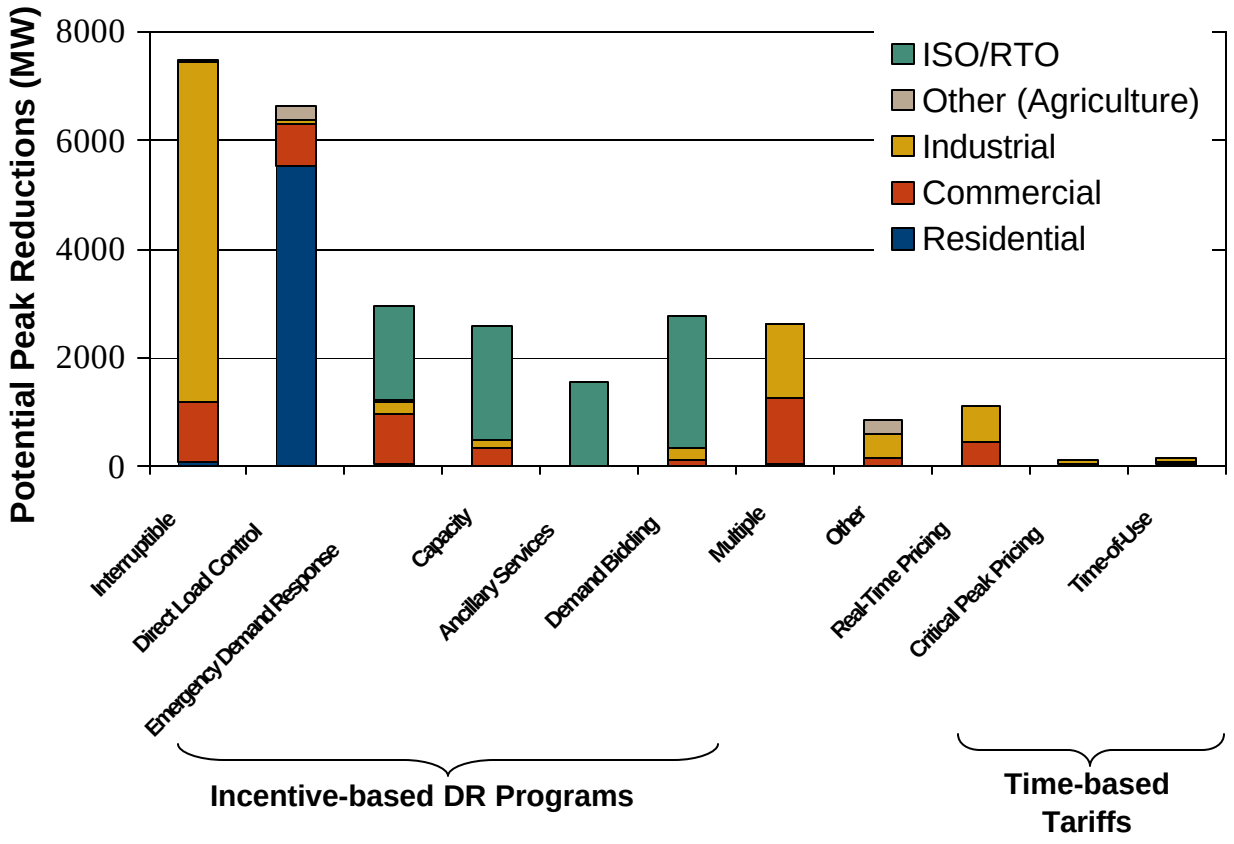
Existing DR Resource Contribution



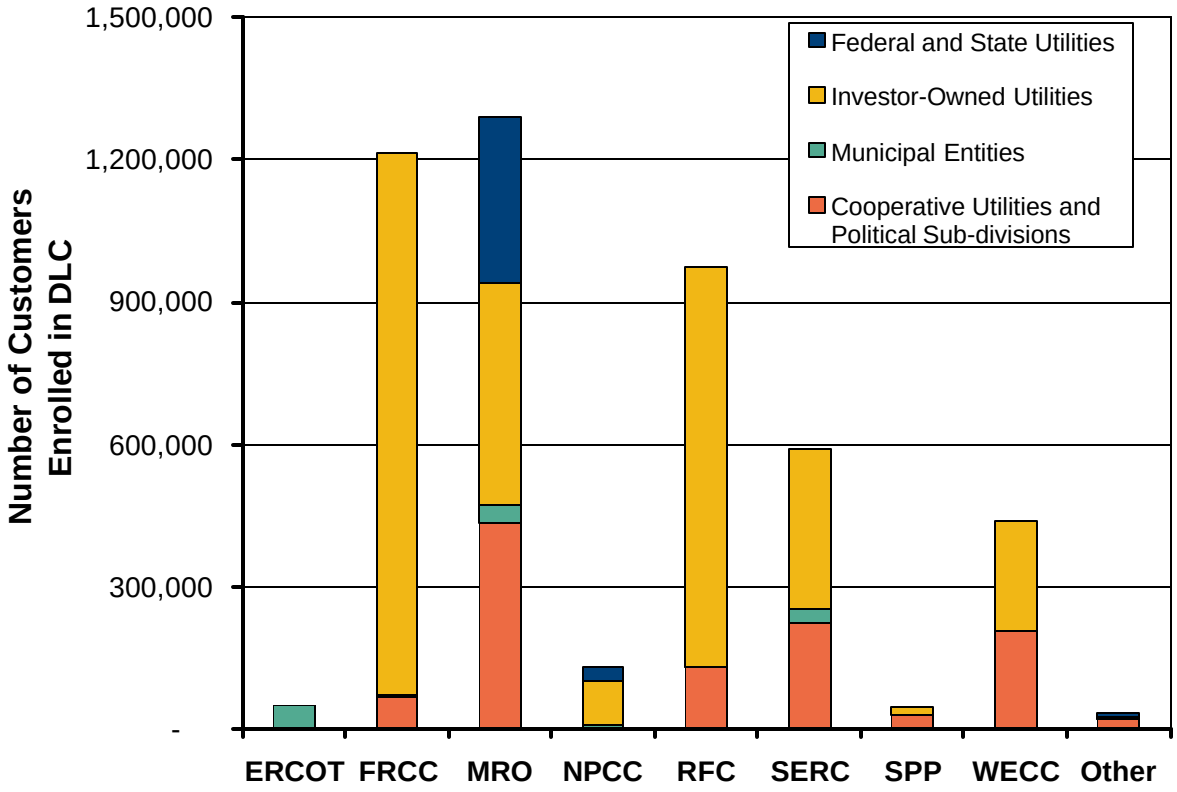
	ERCOT	FRCC	MRO	NPCC	RFC	SERC	SPP	WECC	Other
As Percent of Projected Summer 2006 Peak Demand	3%	7%	20%	6%	4%	5%	4%	4%	N/A

Existing DR Resource Contribution

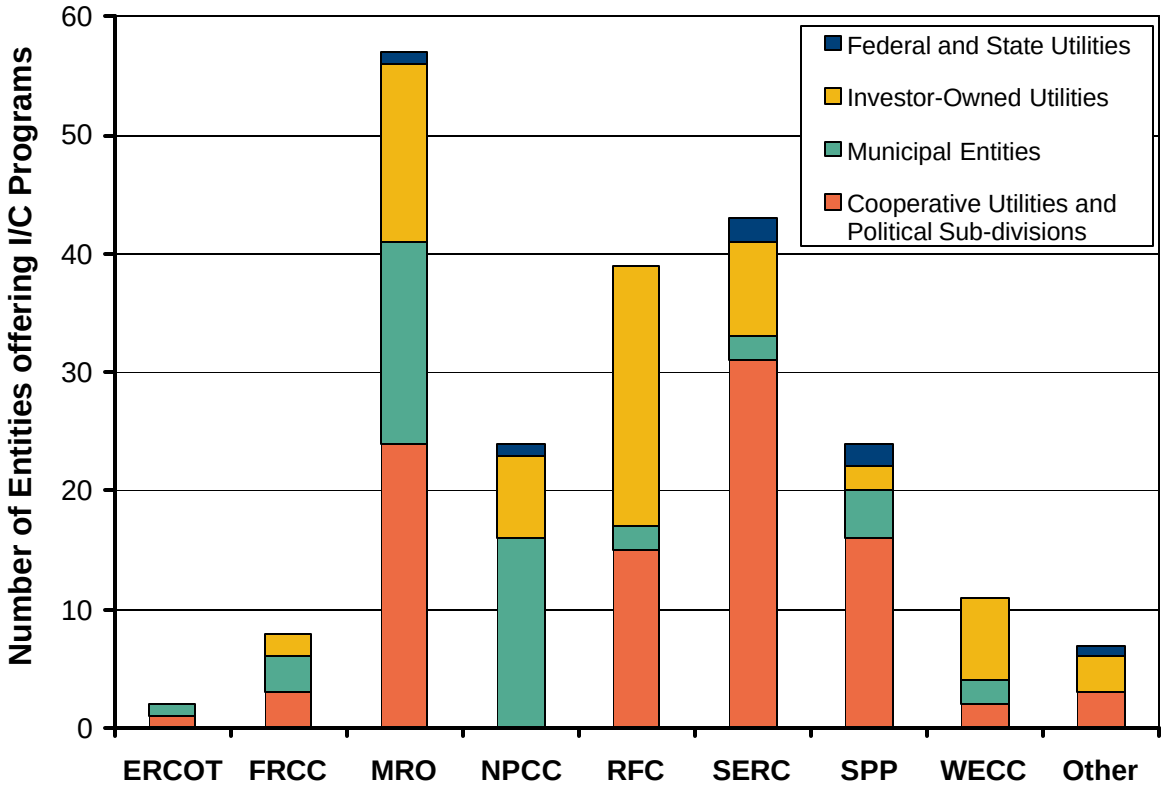
By Type of Program



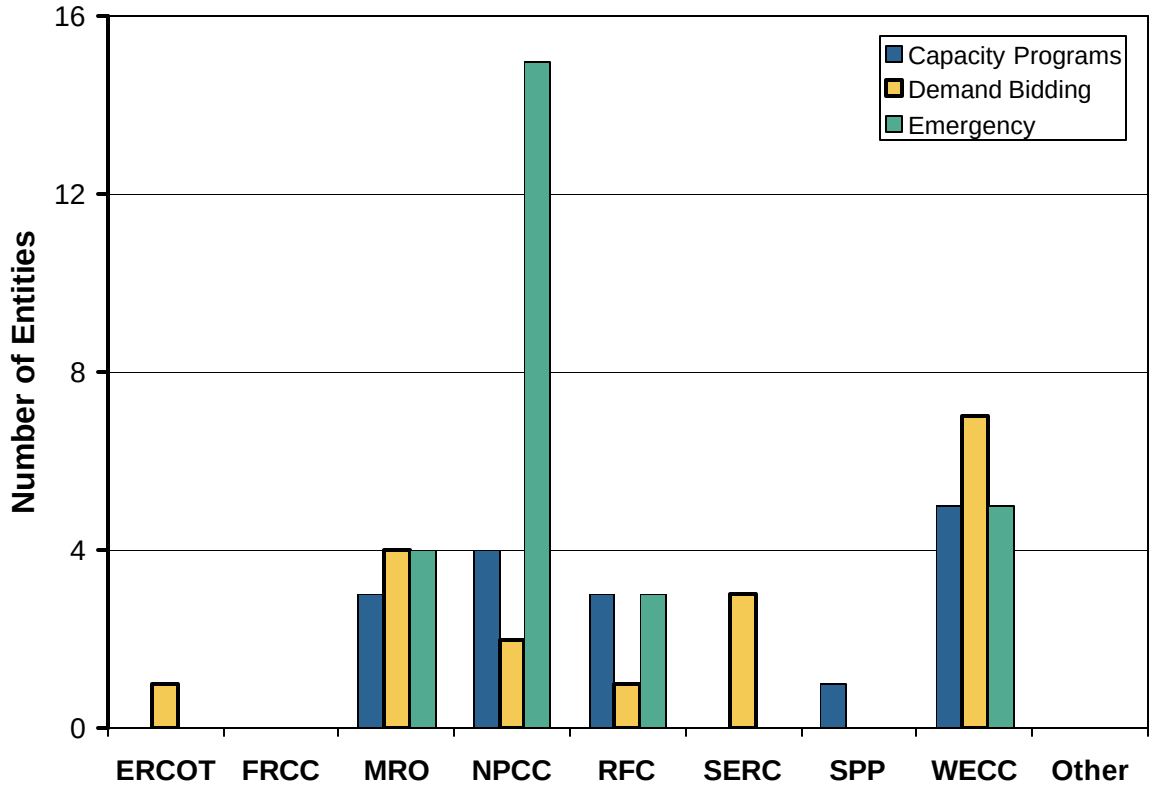
Customers Enrolled in DLC Programs



Entities Offering Interruptible / Curtailable Tariffs



Entities Offering Other Incentive-Based Demand Response



Steps to Include Demand Response in Transmission Planning

- Congress requested that FERC identify “steps taken to ensure that, in regional transmission planning and operations, are provided equitable treatment”
- Steps identified by FERC staff include:
  - Assure that planning and operational requirements are specified in terms of functional needs.
  - Accommodate the inherent characteristics of demand response resources.
  - Allow appropriately designed demand response resources to provide all ancillary services.

Steps to Include Demand Response in Transmission Planning (Cont.)

- Allow for the consideration of demand response alternatives for all transmission enhancement proposals.
- When appropriate, treat demand response as a permanent solution.
- Develop better demand response forecasting tools for system operators.

Regulatory Barriers

- Disconnect between retail pricing and wholesale markets
- Utilities have disincentives to offering demand response
- Cost recovery may be uncertain for enabling technologies—incentives lacking
- Research is needed on cost-effectiveness and how to measure demand reductions
- Specific state-level barriers may inhibit more demand response

Regulatory Barriers (cont.)

- Specific retail and wholesale market rules may limit use of demand response
- Shifting rules and regulatory uncertainty limit third-party participation
- More market transparency and access to data are needed
- Better coordination of federal and state jurisdictional programs could enable more demand response

Recommendations

- Staff recommended that the Commission:
  - Explore how to better accommodate demand response in wholesale markets;
  - Explore how to coordinate with utilities, state commissions and other interested parties on demand response in wholesale and retail markets;
  - Consider specific proposals for compatible regulatory approaches, including how to eliminate regulatory barriers to improved participation in demand response, peak reduction and critical peak pricing programs.