SPP Southwest Power Pool

Helping our members work together

to keep the lights on...

today & in the future

ARC/RTO Workshop
Missouri Public Service Commission
May 17, 2010

Agenda

1. Introduction to SPP
2. Energy Market
3. Demand Response Activities
4. Specific Questions and Answers

Introduction to SPP

SPP at a Glance

- Incorporated in Arkansas as a 501(c)(6) non-profit corporation
- FERC - Federal Energy Regulatory Commission
  - Regulated public utility
  - Regional Transmission Organization
- NERC - North American Electric Reliability Corporation
  - Founding member
  - Regional Entity

Our Major Services

- Facilitation
- Reliability Coordination
- Tariff Administration
- Market Operation
- Standards Setting
- Compliance Enforcement
- Transmission Planning

Key Elements of Services

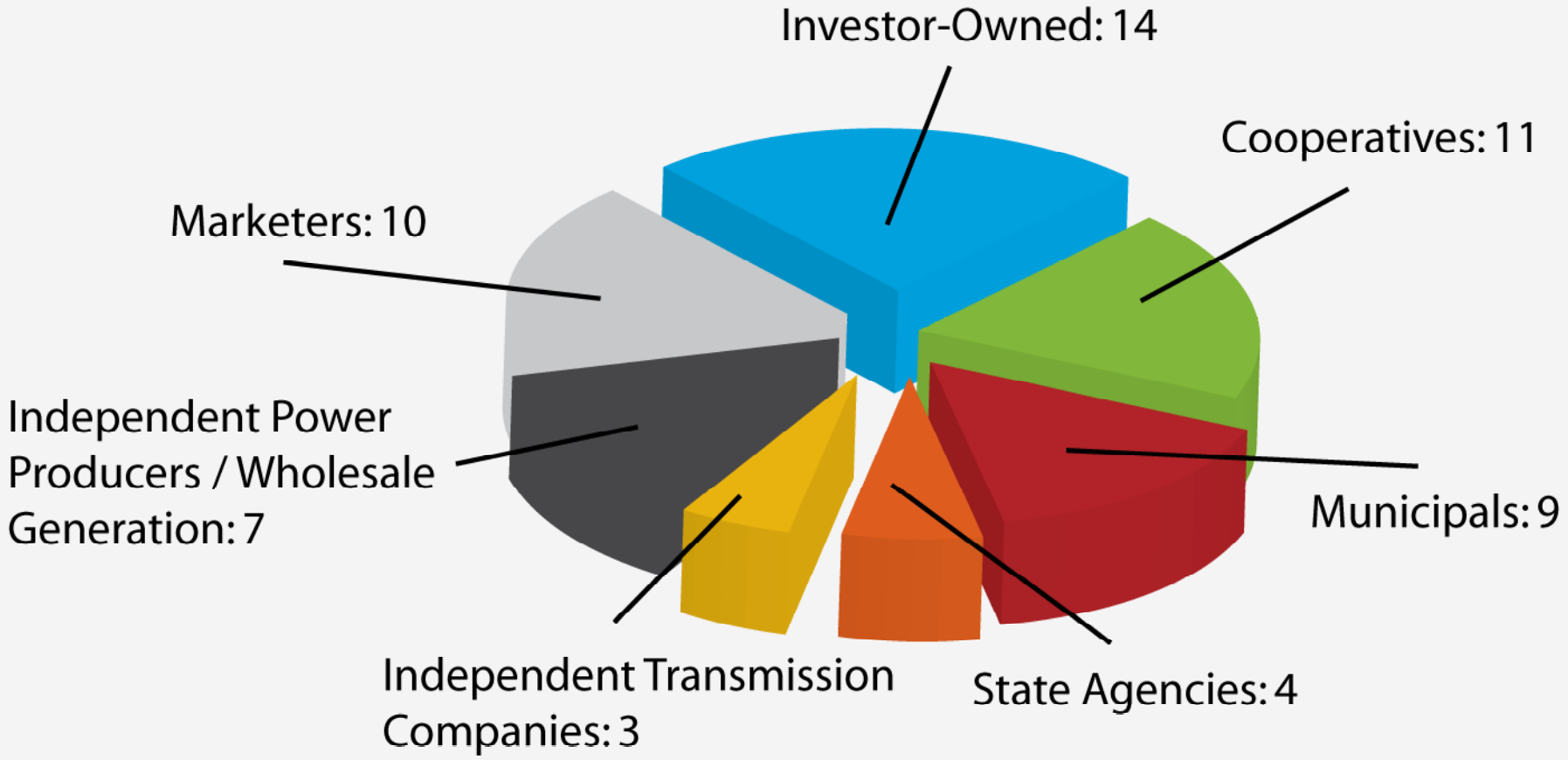
Regional

Independent

Cost-Effective

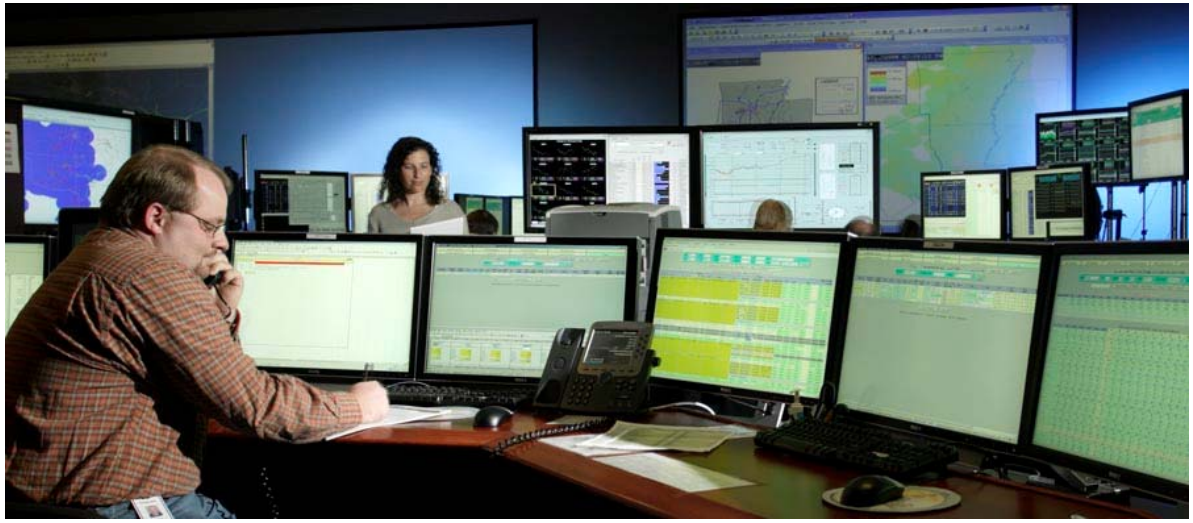
Focus on Reliability

58 SPP Members



Members in nine states:

Arkansas	Mississippi	New Mexico
Kansas	Missouri	Oklahoma
Louisiana	Nebraska	Texas



Quick Statistics

- 65,796 megawatts capacity resources
- 847 plants – 6,079 substations

Fuel Type	Percentage Capacity
Coal	40%
Gas/Oil	42%
Nuclear	3%
Hydro	4%
Wind	4%
Other	7%

Energy Market

Overview of SPP's Current Market

- Since February 2007, SPP has operated a real-time energy imbalance service market ("spot market")
- Market Participants offer resources into the market designed to promote the use of least cost generation for imbalance energy
- Regional dispatch calculated using a security-constrained, offer-based economic dispatch every 5 minutes

Total Energy transfers within the market exceed 200,000 GWh.

Month	2005	2006	2007	2008	2009 without NE	2009 with NE
January	16,210,874	15,666,000	17,513,926	17,916,956	17,667,795	17,667,795
February	13,801,101	14,913,897	15,538,645	16,130,713	14,519,057	14,519,057
March	14,770,780	15,032,395	14,980,855	15,868,522	15,533,985	15,533,985
April	13,842,032	14,927,189	14,687,552	15,082,027	14,702,153	16,777,585
May	16,137,831	17,066,150	16,271,308	16,628,534	15,949,108	18,156,693
June	19,207,696	19,302,281	18,129,631	19,473,562	19,744,249	22,229,086
July	21,137,988	22,110,340	20,672,797	21,910,456	20,820,626	23,951,369
August	21,129,901	22,267,479	23,105,995	20,922,453	20,589,527	23,606,686
September	18,491,054	16,137,026	17,931,945	16,627,506	16,441,934	18,766,591
October	15,504,518	15,332,150	16,184,560	15,439,553	15,136,538	17,460,954
November	14,775,515	14,794,643	15,187,854	14,752,400	14,749,346	17,205,015
December	17,074,178	16,479,557	17,086,857	17,595,617	18,314,184	21,282,122
Total	202,083,468	204,029,107	207,291,923	208,348,298	204,168,501	227,156,939
Yearly Change	4.2%	1.0%	1.6%	0.5%	-2.0%	NA

MWh

In 2009, the market energy invoiced was 10% of the total energy exchanges.

Month	2007		2008		2009	
	MWh Sold by Market Participants	Dollars Received by Market Participants	MWh Sold by Market Participants	Dollars Received by Market Participants	MWh Sold by Market Participants	Dollars Received by Market Participants
January	NA	NA	1,039,772	$56,216,109	1,185,553	$38,989,054
February	982,439	$52,552,411	909,783	$47,669,552	1,072,096	$25,688,072
March	1,084,657	$49,846,702	1,103,011	$69,336,696	1,490,880	$40,667,461
April	1,052,692	$52,640,111	1,219,830	$86,486,507	2,049,867	$44,530,637
May	1,103,790	$52,296,674	1,255,460	$75,968,700	2,296,007	$53,030,607
June	1,413,136	$83,835,716	1,524,363	$122,337,024	2,581,722	$67,535,973
July	1,515,464	$79,063,516	1,700,883	$141,401,971	2,163,603	$58,871,708
August	1,717,694	$99,278,662	1,607,292	$98,461,189	1,750,833	$44,084,898
September	1,236,895	$56,661,578	1,243,061	$42,733,924	1,543,249	$35,475,405
October	998,315	$49,455,937	1,156,163	$33,988,429	1,437,650	$41,562,783
November	1,042,553	$48,699,623	1,170,629	$40,589,763	1,524,504	$40,376,086
December	1,064,088	$49,144,201	1,188,272	$42,388,959	1,731,930	$64,834,942
Total	13,211,723	$673,475,131	15,118,519	$857,578,823	20,827,894	$555,647,625

Future Market Design

- Presently, SPP is in process of designing its future markets for implementation in 2013
- Markets will expand to include Day-Ahead Market with Transmission Congestion Rights, Reliability Unit Commitment process and a price-based Operating Reserves procurement
- Future Markets will include a 5-minute market for real-time energy similar to today's EIS Market
- Demand response requirements from Order 719 and 719-A are being incorporated into the Future Market design

Demand Response Activities

Demand Response covers a wide arena of retail and wholesale offerings.

- Retail Demand Response includes
  - Explicit reduction (based on retail provider request)
  - Implicit reduction (*e.g.* agricultural pumps)
  - Emergency (generally under state jurisdiction guidelines)
- Wholesale Demand Response includes
  - Explicit reduction (from RTO request)
  - Emergency (coordinated with the Balancing Authority)

SPP compliance filing under Order 719 on May 19th addresses ARCs.

Major components of the May 19th Compliance Filing as required by the November 20th Order

1. Establishment of a customer baseline methodology and alternative methodology
2. Incorporation of bidding parameters for demand response resources that are currently found in the SPP Market Protocols
3. Elimination of requirement for ARCs to provide a declaration from its regulatory body that it can offer DRR into the SPP wholesale market

May 19th Filing: Customer Baseline Methodologies

- Calculated method – measures demand response customer's baseline prior to dispatch
- Submitted method (alternative method) – demand response customer (or meter agent) will submit usage and demand response
- Submitted method is only allowed for behind-the-meter generation or if demand response is being served under a retail tariff that includes near real-time measurement and verification terms

May 19th Filing: Removal of Language requiring "Declaration" by Regulatory Authority

- SPP Stakeholders voted to include language requiring a demand response resource or an ARC to obtain certification by means of a declaration from the relevant electric retail regulatory authority that they may participate in the SPP market
- FERC rejected the "declaration" and instead stated that a demand response resource or ARC may provide certification with its registration that they may participate in the market

SPP currently supports Demand Response.

- Spot market is the only SPP energy market
- Demand Response is of a responsive type, moving every five minutes in competition with generation
- Current amount of Demand Response is in excess of 1500 MW
- Load reduction is included. Majority of the Demand Response is “behind-the-meter” and co-generation.

Specific Questions and Responses

How does the concept of allowing ARCs to bid demand response resources directly into the RTO wholesale energy and ancillary services markets work?

- ARCs are treated as any other Market Participant
- ARCs are able to represent demand response as any other resources that are responsive to dispatch instructions

How does this affect reliability of the system, if at all?

- Reliability impacts can be managed if:
  - Measurement and verification validates response by the DRR, and
  - Nodal modeling of the DRR allows appropriate substitution of DRR for generation

What are the cost/benefits of allowing ARCs to bid demand response directly into the RTO wholesale energy and ancillary services markets?

- Since the SPP Order 719 filings are still pending, there is no experience with ARCs at this time. Therefore, no analysis is available.

What happens when an ARC DRR "clears" the market?

- Any DRR, including ARCs, would be instructed to either increase or decrease load over a 5-minute basis
- Election to participate in the spot market may be changed on an hourly basis by the DRR

What role does the ratepayer, specifically large industrial users, play in the concept?

- Currently, SPP has over 1500 MW of DRR, primarily consisting of behind-the-meter generation and cogeneration
- Ratemaking is a local regulatory issue
- One concern is the ability of Retail Providers to invoice a ratepayer for unmetered consumption (amount of DR) for load reduction DRR
- Without resolution, ratepayer may “double dip” or collect from the wholesale market for performance and not be billed for the retail consumption that would have occurred

What are the experiences and "lessons learned" with ARCs in other areas of the country?

- Since SPP has only a spot market at this time, only responsive DRR (those that can change consumption based on dispatch instruction) are supported at this time.
- Other regions support load reduction DR in order to reduce the amount of load (i.e., system emergencies, etc.) across a wide footprint
- PJM allows aggregation of DR across region but not across LSEs. Since the objective is to reduce load, as opposed to substitution for generation, this aggregation is appropriate.

Are there any issues or concerns with both demand and supply ARCs operating in the same service territory?

- From an RTO standpoint, measurement and validation becomes more difficult as a single transmission interconnection is divided among many Market Participants

Summary of Demand Response in SPP

- **The SPP facilitated wholesale market supports Demand Response currently.**
  - **This is in addition to Demand Response at retail (both implicit and explicit)**
  - **Although the majority of the current Demand Response is co-located generation, the load reduction Demand Response was coordinated with retail jurisdictional parties**
  - **Too many ARCs within one load area may result in measurement and validation issues**

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