

Winter Storm Pt 4: IPL Market Operations

Presented on May 10

2021

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Council Questions

- What was our peak load compared to our generation during the winter storm?
- How much did wind and solar produce?
- Discuss the IPL – SPP relationship
- How can IPL manage market risk to prepare for next time?
- Can we stretch out the cost recovery over a longer period?

Load vs Generation

- From Feb 11 through Feb 19, total generation fell short of IPL's customer load (energy demand) each day
- Fuel shortages and weather were the primary drivers
- NC2 limited due to maintenance
- Wind energy was well below rated capacity, but performed at projected levels during the event
- One CT was out of service

Load vs Generation

Date	Time	Temp (F)	Load (MW)	City Generation Resources Output (MW)						Total Gen	Gen - Load	Comments
				IPL CTs	Dogwood	Iatan2	NC2	Wind	Solar			
2/8/2021	19:00	8.0	171.0	28	73.1	52	57	8.1	-0.02	218.14	47.14	Gas Index - start Winter Storm Uri
2/15/2021	13:00	-3.0	183.1	64	30.6	51	33	4.6	0.13	183.34	0.21	Load Shedding 12:04-13:02
2/15/2021	19:00	-1.0	187.0	76	25.5	51	38	4.2	-0.02	194.60	7.60	IPL Peak Hr during Winter Storm Uri
2/15/2021	22:00	-1.1	172.0	48	24.1	51	37	2.6	-0.02	162.68	-9.32	CTs limited - fuel oil supply 22:00-2/16/21 12:00
2/16/2021	07:00	-13.2	161.0	28	29.3	45	37	1.0	-0.02	140.26	-20.74	Load Shedding 06:44-10:07
2/16/2021	08:00	-7.8	159.0	24	40.1	46	36	1.0	-0.02	147.06	-11.94	
2/16/2021	09:00	-2.0	155.0	17	36.7	52	37	0.0	0.03	142.73	-12.30	
2/16/2021	10:00	0.2	159.1	19	30.3	51	37	1.0	0.08	138.34	-20.74	
2/17/2021	19:00	13.5	163.0	57	-0.3	52	36	0.4	-0.02	145.07	-17.93	IPL Peak Hr with Highest Gas Index
Accredited Generation Capacity				93	53	57	75	10.7	2.99	291.69		
Available Transmission to Assets				123	53	57	75	35	11.5	354.50		

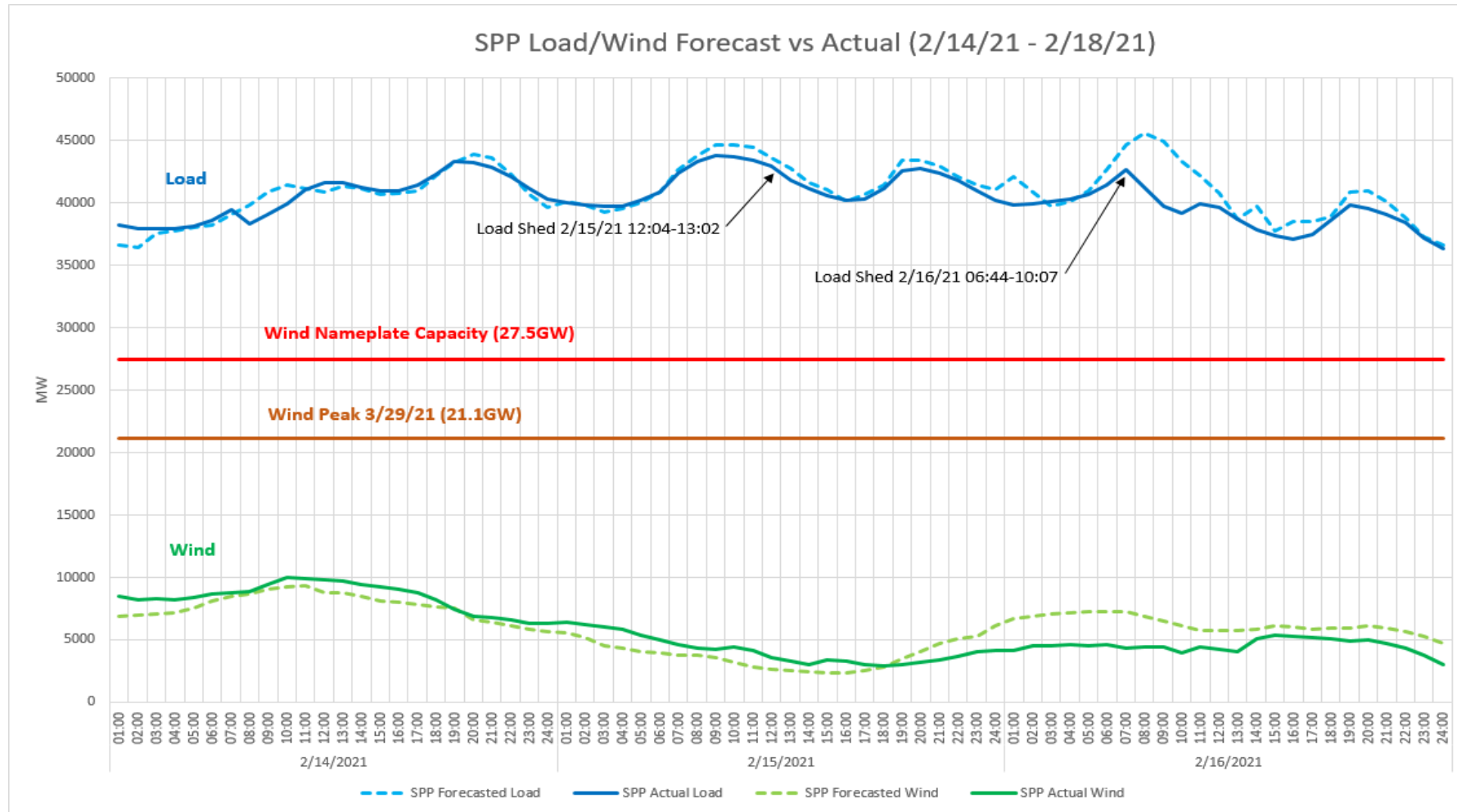
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Wind Generation



IPL – SPP Relationship

- 1941 - SPP founded
- 1970 - Independence joins SPP
- 1997 – SPP approved as Reliability Coordinator
- 2004 – SPP approved as Regional Transmission Organization
- 2009 - SPP creates Energy Imbalance Service
- 2014 – SPP Integrated Market and Consolidated Balancing Authority

SPP – Membership has its privileges...

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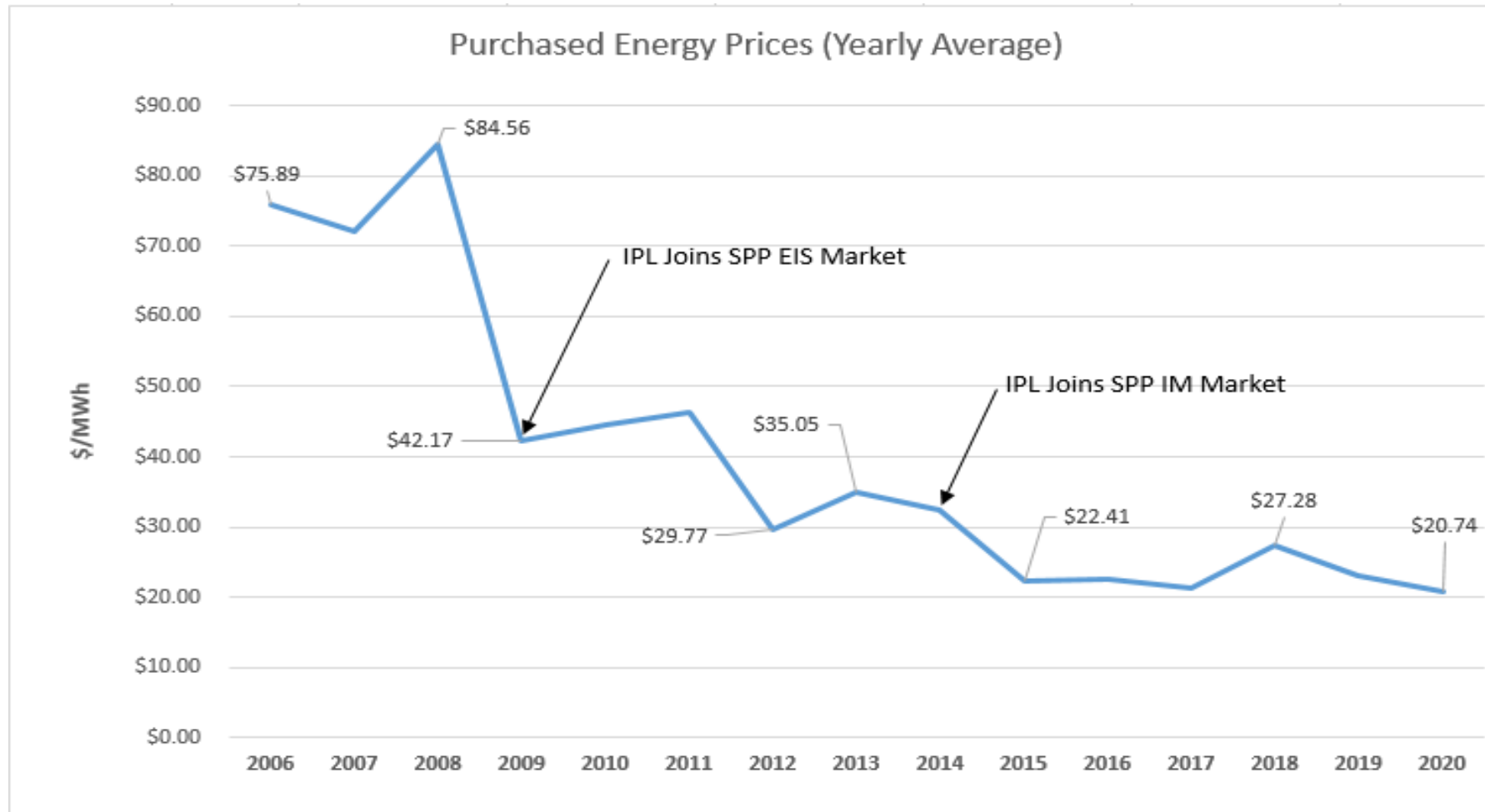
SPP reports \$2.14B in annual savings for members, unveils new mission and vision to board of directors

LITTLE ROCK, ARK. — At the April 26-27 meetings of its Regional State Committee and Board of Directors/Members Committee, Southwest Power Pool (SPP) touted the significant savings it provides its members and unveiled a new mission and vision statement to guide its continued evolution.

The regional grid operator recently completed a yearlong effort to calculate the benefits of SPP membership. SPP worked with member utilities to affirm [the methodology by which it quantifies the value of services](#) like reliability coordination, transmission planning, administration of its wholesale markets and more. The [2021 Member Value Statement](#) concluded that SPP provides \$2.14 billion in annual savings to members at a benefit-to-cost ratio of 14-to-1.

More information about the value of SPP is at www.SPP.org/about-us.

SPP – Membership has its privileges...



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SPP Member Responsibilities

(Integrated Market Protocols document)

3.1 Energy and Operating Reserve Markets

The Energy and Operating Reserve Markets processes include mandatory Market Participant participation in:

- a price-based Day-Ahead Market (DA Market) with Transmission Congestion Rights providing the hedge against transmission congestion costs in the DA Market,
- a price-based Real-Time Balancing Market (RTBM) and
- all Reliability Unit Commitment (RUC) processes.

SPP Member Responsibilities

(Integrated Market Protocols document)

4.2.1 Must-Offer Requirement

Market Participants are required to offer available Resources to the Day-Ahead Market, RUC, and RTBM as described in this section below.

4.2.1.1 Day-Ahead Market

- (A) Each Market Participant with registered load must satisfy the must offer obligation for each Asset Owner associated with that registered load as set forth in Section 4.2.1.1 based on the following criteria:
 - (1) A Market Participant's load for an Asset Owner for purposes of this section shall be equal to the Market Participant's maximum hourly Reported Load for that Asset Owner for the Operating Day. When an Asset Owner selling power under a bilateral

Market Monitor Oversight

(Integrated Market Protocols document)

8.1.4 Market Monitoring

The primary purposes of market monitoring are to (a) obtain objective information about the SPP Markets and Services, (b) assess the behavior of Market Participants, and (c) assess the behavior of other markets and services that impact the performance of the SPP Markets and Services. Key aspects of such market monitoring are (a) assessing the design and structure of the SPP Markets and Services to ensure market efficiency, (b) determining Market Participants' compliance with market rules and (c) preventing the exercise of horizontal and/or vertical market power, which includes whether a Market Participant is affecting SPP's ability to provide reliable and non-discriminatory service.

Market Monitor Oversight

(Integrated Market Protocols document)

- (C) The Market Monitor shall monitor a Market Participant's load, Operating Reserve obligation, offered Resources and net resource capacity, for an Asset Owner for each hour of the Operating Day to determine whether the Market Participant has complied with the must offer obligation for that Asset Owner set forth in Section 4.2.1.1 B.

4.2.1.1.1 Penalty Calculation

For each hour of the Operating Day that a Market Participant is found to be noncompliant as determined by the conditions set forth in Sections 4.2.1.1 B, that Market Participant shall be assessed a penalty. The penalty amount and the distribution of penalty revenues shall be determined as follows:

Next Time ??

- “Unfortunately, there is no opt-out provision for participation in the SPP Integrated Marketplace if you don’t like the prices....I’m not sure there is any real hedging or bid/offer strategy that you could implement in the SPP Marketplace to specifically address the type of event we experienced in February.” - MPUA
- Maintaining a diverse portfolio of resources with alternate fuel sources will allow flexibility to address multiple scenarios

Questions ?



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