The Rise of Markets in the West

Arizona Energy Consortium
Feb. 26, 2021 | Virtual meeting

Mark A. Gabriel
Administrator and CEO
Who we are

- Serve 40 million Americans
- 15-state footprint
- 1.4 million square miles
- 49 offices
- ~700 customers
- Top-10 largest transmission utility in country
WAPA’s services

- Firm electric
- Energy management and marketing
- Energy and resource planning
- Transmission
- Interconnection
- Ancillary
What we manage

• $4.3 billion in assets
• 114,863 structures
• 17,326 miles of transmission line
• 324 substations
• 291 transformers
• 661 buildings
• 489 communication sites
Carbon constraints/capacity conflict

• Demand for new power sources will outstrip capacity
• Demand for clean energy will outstrip the capacity
• Public perception contrasts with the reality of the system
• Renewables are being promoted the only answer
• Cost of renewables creates financial challenges

Developed world demand dead?
Developing world demand galloping!
Transmission challenges

• Closure of traditional generation out of sync with transmission buildout
• Not a financial, permitting or process challenge
• No one willing or able to sign long-term contracts due to market uncertainty
• Upgrading and uprating DC interties
Our markets journey

- 30+ years evaluating market options in the West
- 2015: Upper Great Plains-East joined SPP RTO
- 2018: Mountain West Transmission Group
- 2019: Decided to pursue energy imbalance management alternatives for most of WAPA
- 2020: Considering further participation in SPP RTO; reviewing CAISO EIM Governance and EDAM proposals
- 2021: WEIS and EIM transitions and DSW EI decision
- What’s next: Fully integrated markets in the West
WAPA’s position on markets

• No “one-size-fits-all” solution
• Stay strategic, proactive and aligned with our mission
• Create best possible outcome for our customers and WAPA
Current status

- UGP, CRSP & RM transitioned to WEIS Feb. 1
- DSW study results expected this spring.
- SN EIM go-live accelerated to March 25.
- Evaluating SPP RTO expansion into the West.
- Paused CRSP/DSW combined transmission rate.
- Reviewing 2nd version of CAISO EIM governance.
The Solar/Peak Conundrum
(even in Arizona)

253 MW Peak Reduction

Demand After 763 MW Solar

Hourly Solar DE Production (MW)

Hourly Electric System Demand (MW)

Hour Ending
California duck curve

California Independent System Operator Duck Curve

Net Load - March 31

Ramp need ~13,000 MW in three hours

Overgeneration risk

Western Area Power Administration
CAISO’s expected resource shortage

Projected shortfalls at 7 p.m.:

- 2020 = 2,300 MW
- 2021 = 4,400 MW
- 2022 = 4,700 MW

1 Assumes no transmission outages or other significant events affecting availability of generation

Presented to CAISO Board of Governors, Sept. 18, 2019.
Change is upon us

NEW HISTORICAL PEAKS

WIND: 20,108 MW
RENEWABLES: 21,446 MW

7:45 A.M. | FEB. 4, 2021

SPP Southwest Power Pool
USVI Solar Farm post hurricane
Choice and risk

- Fixed rates
- Energy charge adjustment
- Critical peak pricing
- Real-time pricing
- Time of use

Utility Risk: Fixed rates annual adjustment
Customer Risk: Critical peak pricing
Societal changes
Radical thoughts

The kilowatt-hour is dead

Time-of-purchase vs. time-of-use

All-you-can-eat energy
Key takeaways

The industry is changing at a rapid pace. Operating the grid is becoming increasingly complex. Markets are not just a reality but a necessity.
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