

# The Rise of Markets in the West

Arizona Energy Consortium

Feb. 26, 2021 | Virtual meeting

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Administrator and CEO



# 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

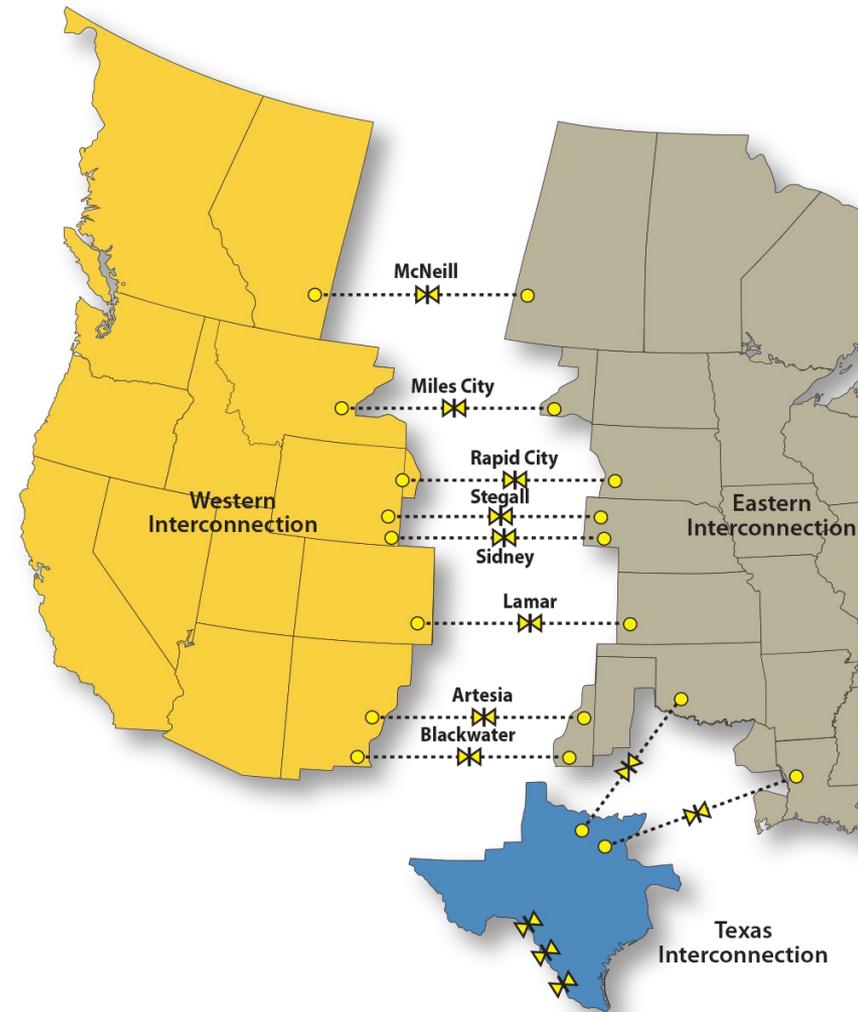
- Demand for new power sources will outstrip capacity
- Demand for clean energy will outstrip the capacity
- Public perception contrasts with the reality of the system
- Renewables are being promoted the only answer
- Cost of renewables creates financial challenges



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 upgrading DC interties

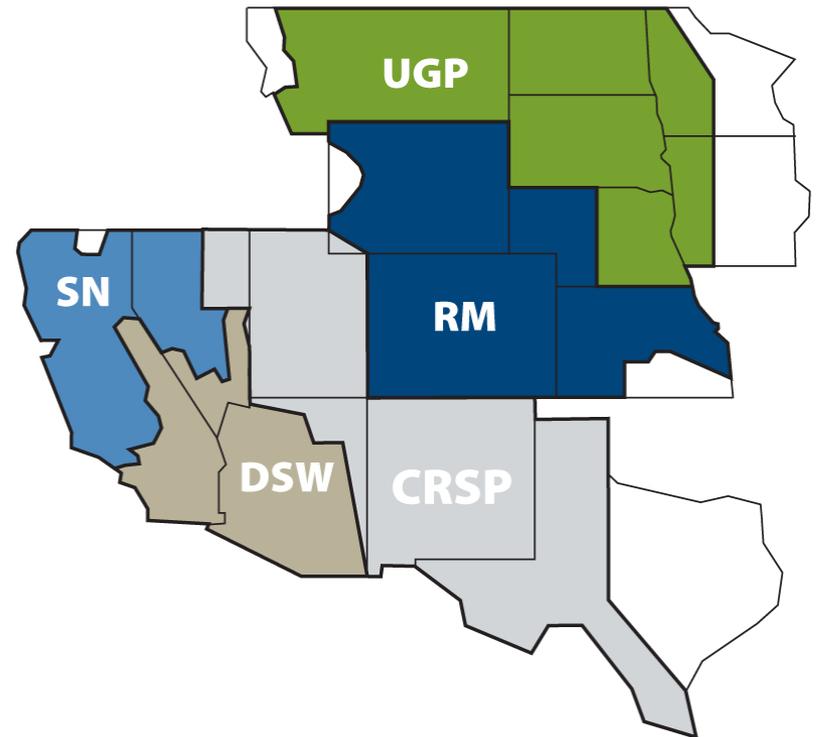


# Our markets journey

- 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



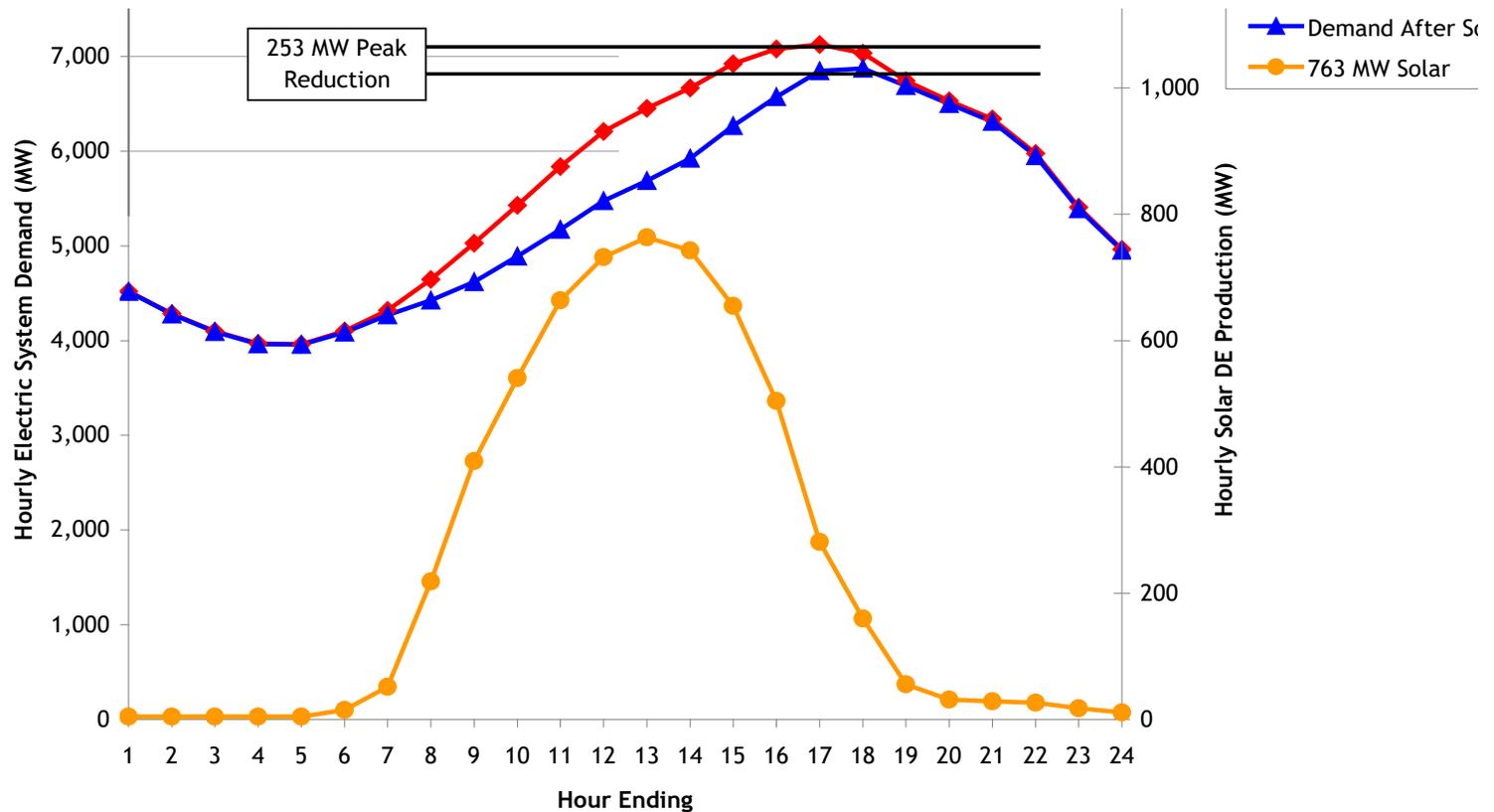
# Current status

- 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.



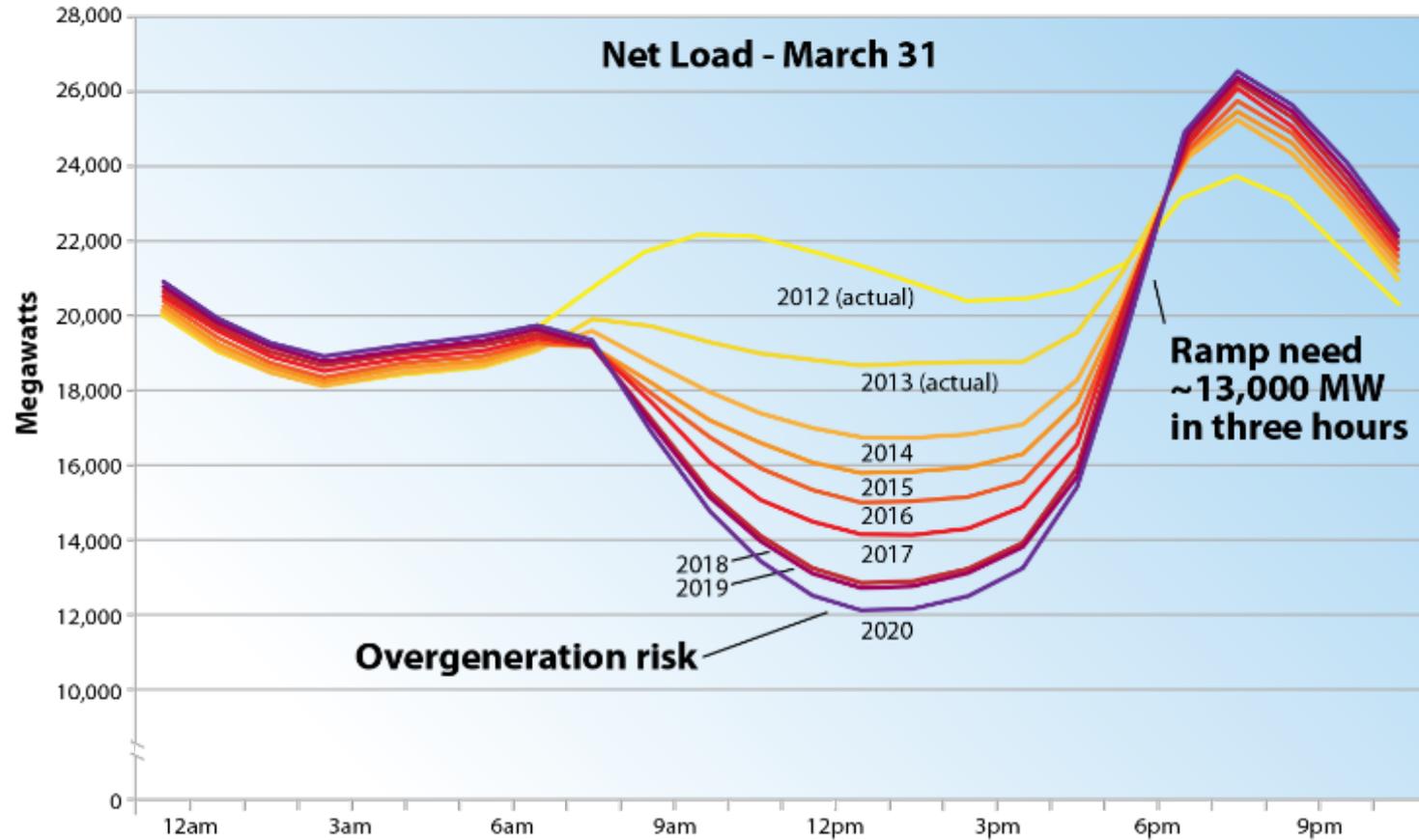
# The Solar/Peak Conundrum

## (even in Arizona)

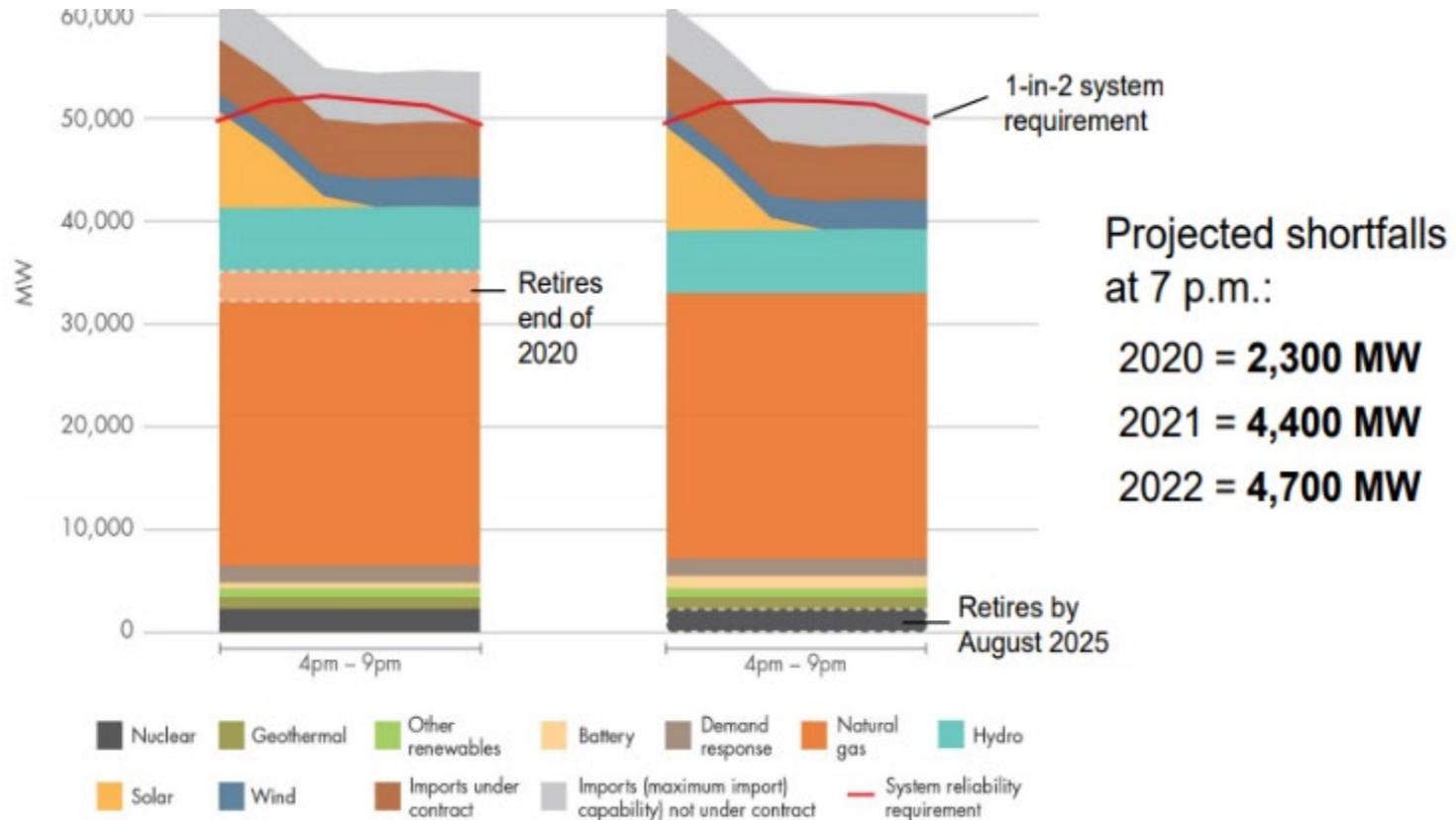


# California duck curve

## California Independent System Operator Duck Curve



# CAISO's expected resource shortage



<sup>1</sup> 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



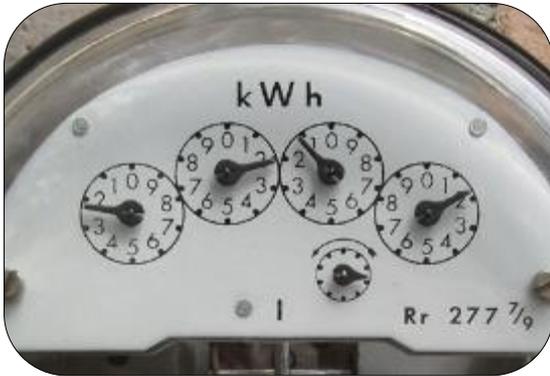
**UTILITY  
RISK**

**CUSTOMER  
RISK**

# 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.



# Contact/follow me

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*Parker Dam*