

## FUEL SECURITY

**Focus** Resilience

**Construct** To Be Determined

Improve the system's capability to continue serving load during severe, long-term events that disrupt fuel supplies

- Helps prepare the system to better withstand prolonged disruptions in fuel delivery
- Incentivizes investment in energy secure products
- Addresses locational and temporal fuel constraints

**e.g. 14-day cold weather duration**

## CAPACITY PERFORMANCE

**Focus** Long-Term Reliability

**Market Construct** Capacity

Ensure individual capacity resources perform throughout the delivery year during peak emergency conditions

- Improves performance during peak operating conditions
- Incentivizes resource improvements to deliver during peak emergency conditions
- Penalizes non-performance

**Full delivery year (Jun. 1 – May 31)**

## RESERVE PRICE FORMATION

**Focus** Short-Term Reliability

**Market Construct** Energy Reserves

Improve price signals to more accurately value and procure the energy reserve product

- Strengthens the reserve product to improve real-time resource performance
- Incentivizes investment in flexible resources
- Improves locational reserve needs

**10-30 minute real-time operations**



## Advancing Resilience

- Resilience is preparing for, operating through and quickly recovering from a high-impact, low-frequency event.
- Resilience goes beyond existing reliability criteria.
- Advancing resilience includes a range of cost-effective solutions to mitigate the dependence on critical assets.

- The probability for naturally occurring events can be quantified: cold snaps, hurricanes, GMD, etc.
  - PJM experienced a 12-day consecutive cold snap winter 2017/18
  - PJM experienced a concurrent 90/10 Peak Winter Load and Gas-Pipeline Failure January 2019
- The probability of man-made events cannot be quantified: physical attack on a gas pipeline, cyber-attack, EMP, etc.



Cyberattack

Physical  
Attack

Geomagnetic  
Disturbance