

# NCSL Task Force on Energy Supply

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# Organized Markets versus other

- Organized Markets
  - Typically asset owners bid all units into the market for commitment and dispatch
  - Load serving entities use market operator to balance load and resources
- Traditional market
  - Each Balancing Authority Area (APS) balances load and resources independently
  - Trading is typically done bilaterally instead of through organized market

## Why Trade?

- Reduce cost by optimizing generating resource portfolio
- Increase capacity position when short
- Monetize assets
- Get rid of excess generation to avoid over generation
- Manage price risk

# Who Regulates Trading?

## **Federal Energy Regulatory Commission (FERC)**

- Regulates the transmission and wholesale sales of electricity and natural gas in interstate commerce;
- Reviews certain mergers and acquisitions and corporate transactions by electricity companies;
- Ensures the safe operation and reliability of proposed and operating LNG terminals;
- Licenses and inspects hydroelectric projects;
- Protects the reliability of the high voltage interstate transmission system through reliability standards;
- Monitors and investigates energy markets and imposes penalties and other means of enforcement;
- Administers accounting and financial reporting regulations and conduct of regulated companies

**Commodities Futures Trading Commission (CFTC)** - Mission is to foster open, transparent, competitive, and financially sound markets, to avoid systemic risk, and to protect the market users and their funds, consumers, and the public from fraud, manipulation, and abusive practices related to derivatives and other products that are subject to the Commodity Exchange Act.

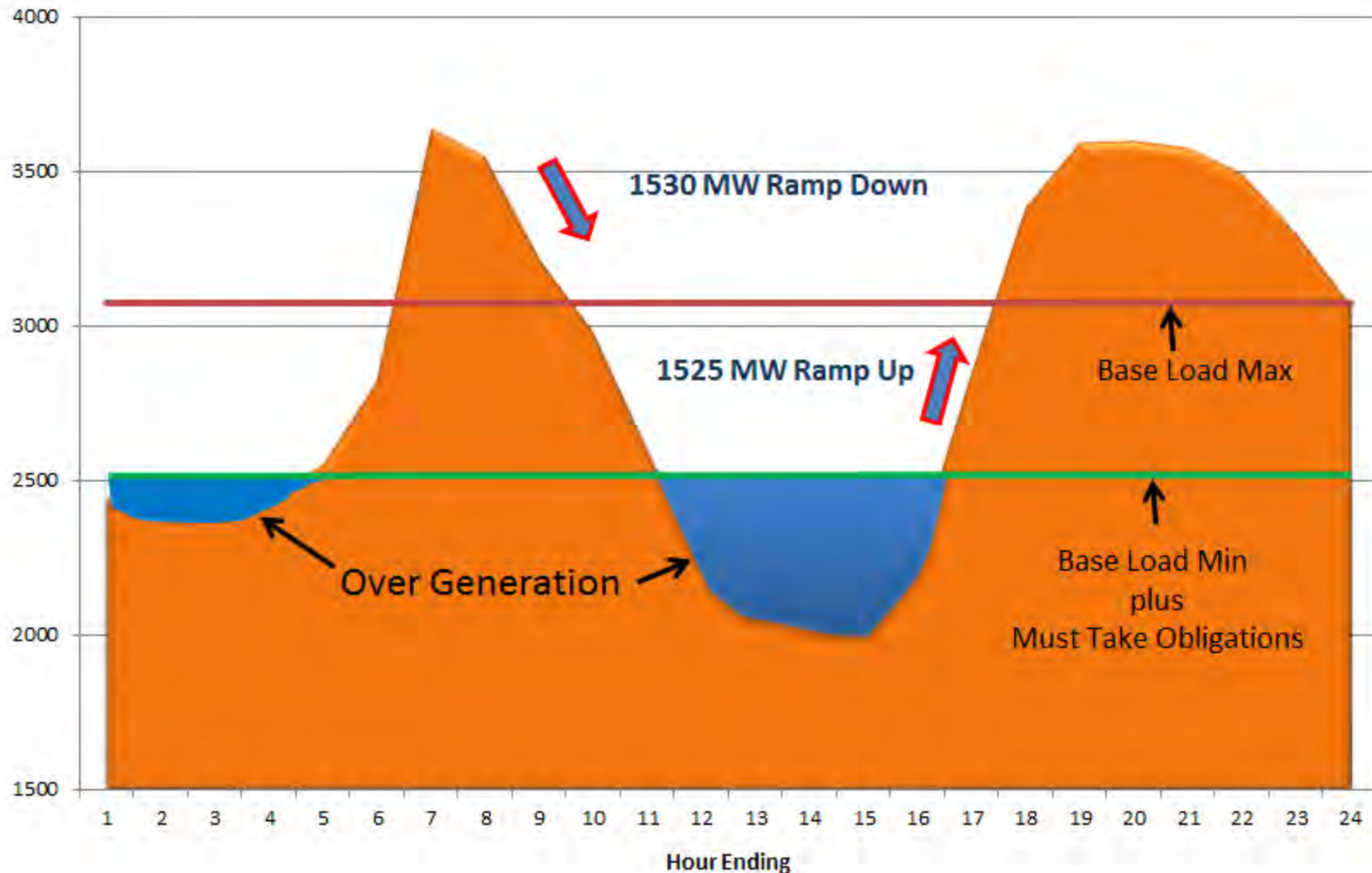
- Polices the derivatives markets for various abuses and works to ensure the protection of customer funds. Further, the agency seeks to lower the risk of the futures and swaps markets to the economy and the public.
- Oversees designated contract markets, swap execution facilities, derivatives clearing organizations, swap data repositories, swap dealers, futures commission merchants, commodity pool operators and other intermediaries.

## Variable Energy Resource Impacts

- The energy landscape is changing dramatically with the increase in renewables on the grid
- California is headed towards a 50% renewable standard in addition to rooftop solar installations
- Will dramatically change grid operations and wholesale markets
  - What does that look like?

# Thermal Generation Serving Load Shape

## Clear Winter Day – Present (Camelback)



# Managing the Renewable Uptake

## Need Innovative Solutions

- Resources
  - Big base load units not flexible enough
  - Quick start gas fired units help manage peaks
  - Energy Storage helps, but is expensive
- Customer Behavior
  - Rate design and time of use rate changes can incent customers to use energy at the right times
- Wholesale Market Solutions
  - Energy Imbalance Market – will not solve the problem alone
  - New trading products developed



# Energy Imbalance Market

*What is it and what does it do?*

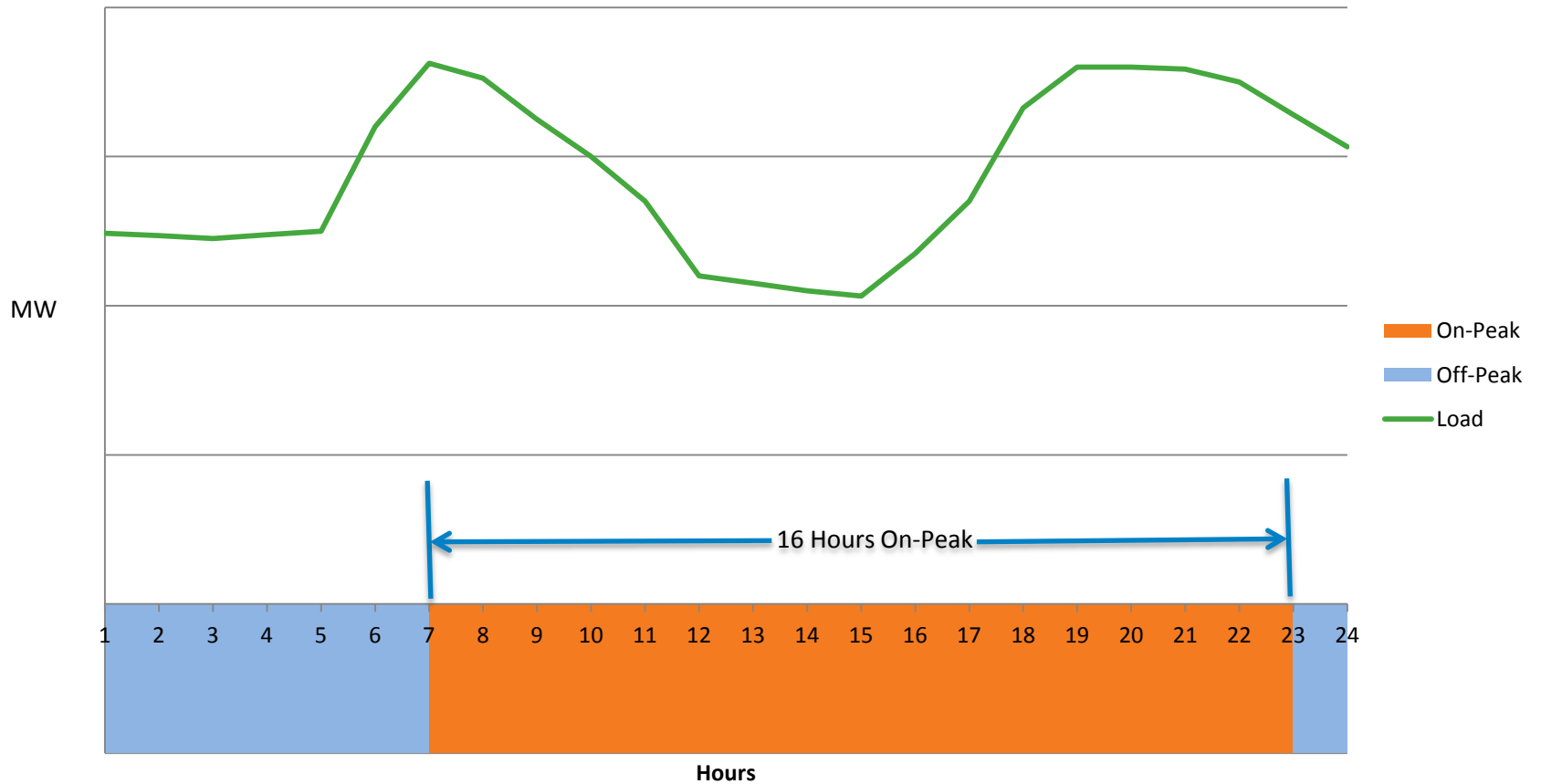


# What is an Energy Imbalance Market?

Think of it as an automated system that facilitates transactions over 5 minute intervals

- The system loads generators to balance the supply of electricity with demand over a broad footprint (across EIM participants and CAISO)
- Leads to increased efficiency
- Provides benefits for integrating higher penetrations of variable energy resources

## Non-Summer Demand Shape and Wholesale Standard On-peak Product Hours



## Demand Shape and New Products (Trough and Evening Peak)

