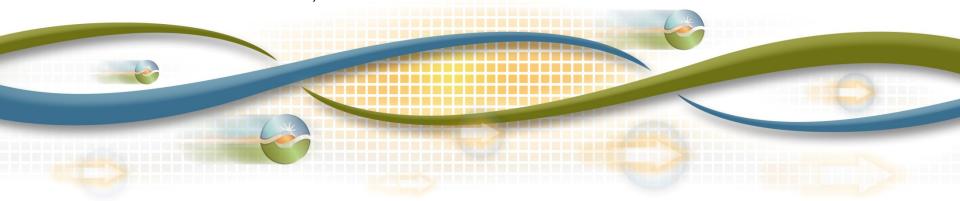


# **Briefing on Renewable Integration Market Vision and Roadmap**

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Board of Governors Meeting General Session October 27-28, 2011



# The market vision and roadmap lays out an incremental approach for evolving the market.

#### Objectives by Period:

Short-term (now to 2013)

**Mid-term** (2013 to 2015)

**Long-term** (2015 to 2020)

Increase dispatchability from intermittent resources and implement enhancements that increase market efficiency Ensure flexible resources remain viable and available and provide market incentives to increase resource flexibility

Understand short and mid-term impacts and consider west wide market developments prior to making further market reforms

### The proposed market enhancements by period are as follows:

Short-term (now to 2013)

**Mid-term** (2013 to 2015)

**Long-term** (2015 to 2020)

- Ramping and reserve management enhancements
  - ✓ Flexible ramping constraint
  - ✓ Regulation energy management
- Renewable integration policies
  - ✓ Dynamic transfers
  - ✓ Renewable integration market and product review phase 1 enhancements
- Operational enhancements
  - ✓ Wind and solar forecasting
  - ✓ Resource commitment



### The proposed market enhancements by period are as follows:

Short-term (now to 2013)

**Mid-term** (2013 to 2015)

**Long-term** (2015 to 2020)

- Market enhancements
  - √ Flexi-ramp product
  - ✓Intertie pricing & settlement
  - ✓ Flexible capacity forward procurement
  - √ Pay for performance regulation
  - ✓ Wind and solar decremental dispatch

### The proposed market enhancements by period are as follows:

**Short-term** (now to 2013)

**Mid-term** (2013 to 2015)

**Long-term** (2015 to 2020)

- More comprehensive enhancements
- Frequency/inertia response product

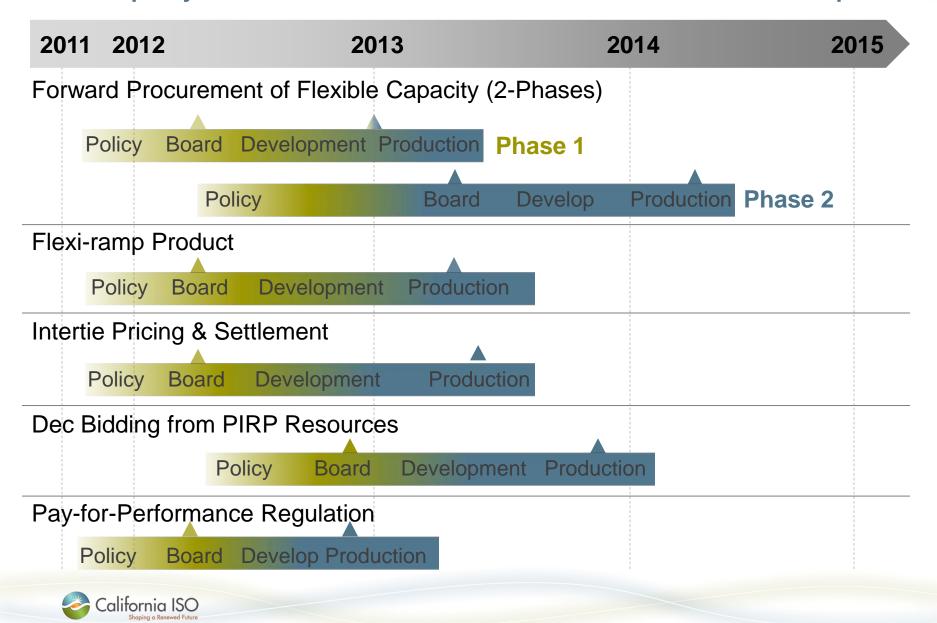
# Renewable integration design enhancements to be presented to the Board in December

Lower energy bid floor

Short-term (now to 2013)

- Changes to bid cost recovery rules
- Modifications to participating intermittent resource program

#### The projected mid-term enhancements roadmap



#### Significant challenges lie ahead

- Mechanisms to ensure sufficient flexible capacity is available to reliably operate the grid
  - Back stop procurement
  - Forward market mechanism
  - Coordination with CPUC resource adequacy program
- Cost allocation of integration services
- Leveraging existing market systems vs. developing new infrastructure

