



California ISO  
Shaping a Renewed Future

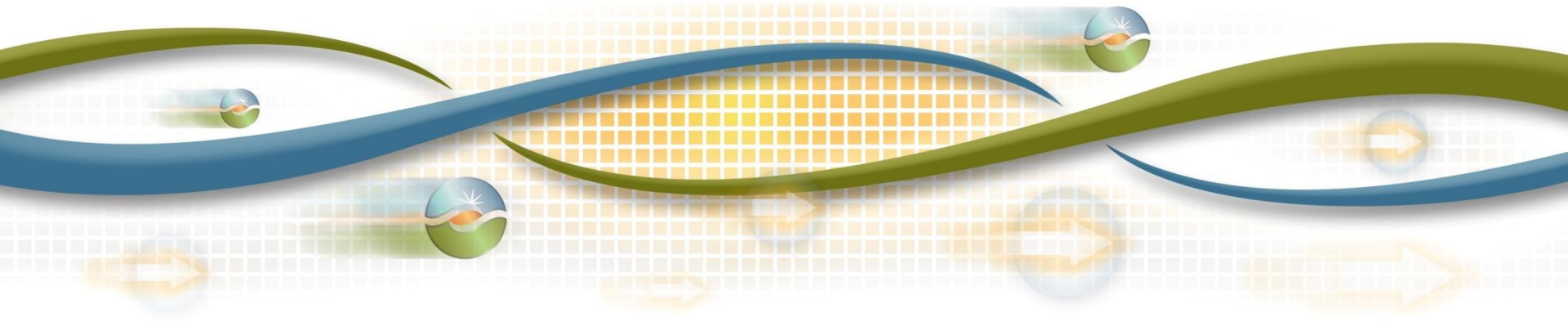
# Availability Incentive Mechanism MSC meeting

May 19, 2014

Carrie Bentley

[cbentley@caiso.com](mailto:cbentley@caiso.com)

916-608-7246



# Availability Incentive Mechanism in scope items

1. Create flexible incentive mechanism and price
2. Reevaluate system incentive price due to CPM expiration
3. Standardize resources' exposure to incentive mechanism
4. Potentially create an availability price that accounts for market conditions

# Why do we have availability standards program?

## **Reliability**

- Planning reserve margin accounts for expected forced outage rates
- If more than this percentage go on outage at once, could cause reliability concern
- Increases incentive for RA resources to be available where and when needed

## **Reduces potential gaming**

- Decreases ability of resources to profit from physical withholding

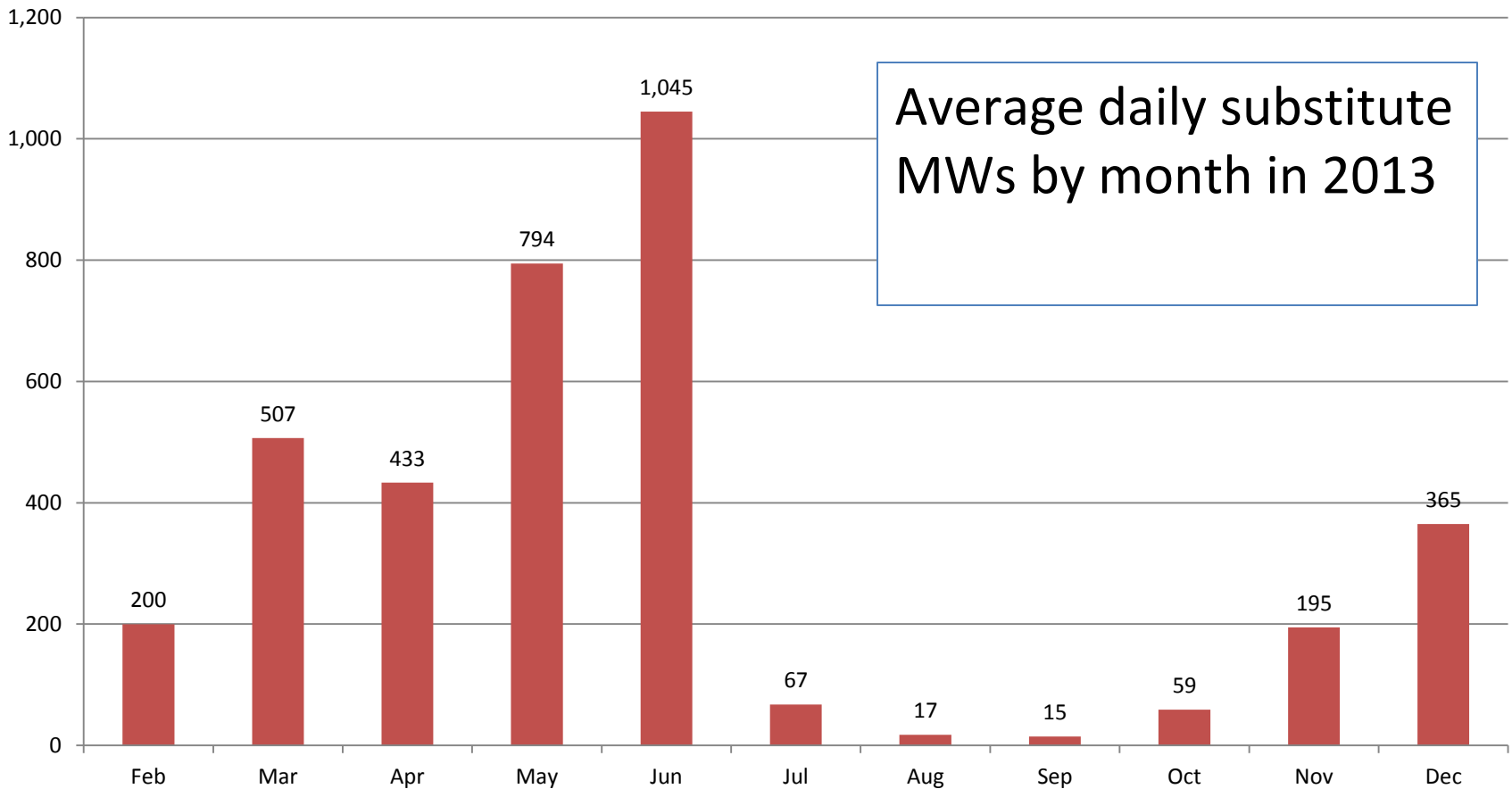
## **Standardization**

- An availability metric in the ISO tariff rather than in each contracts increases standardization between RA resources

# Current incentive mechanism (SCP)

- Resource availability is measured based on forced outages during peak hours
  - *April - October*: 2:00pm – 6:00pm
  - *January - March, November, December*: 5:00pm – 9:00pm
- Availability compared to historic availability percentages during peak hours
  - Resources more than 2.5% above/below historic availability metric receive availability credit/charge
- Availability charge tied to CPM rate
- Availability payments are funded only by charges

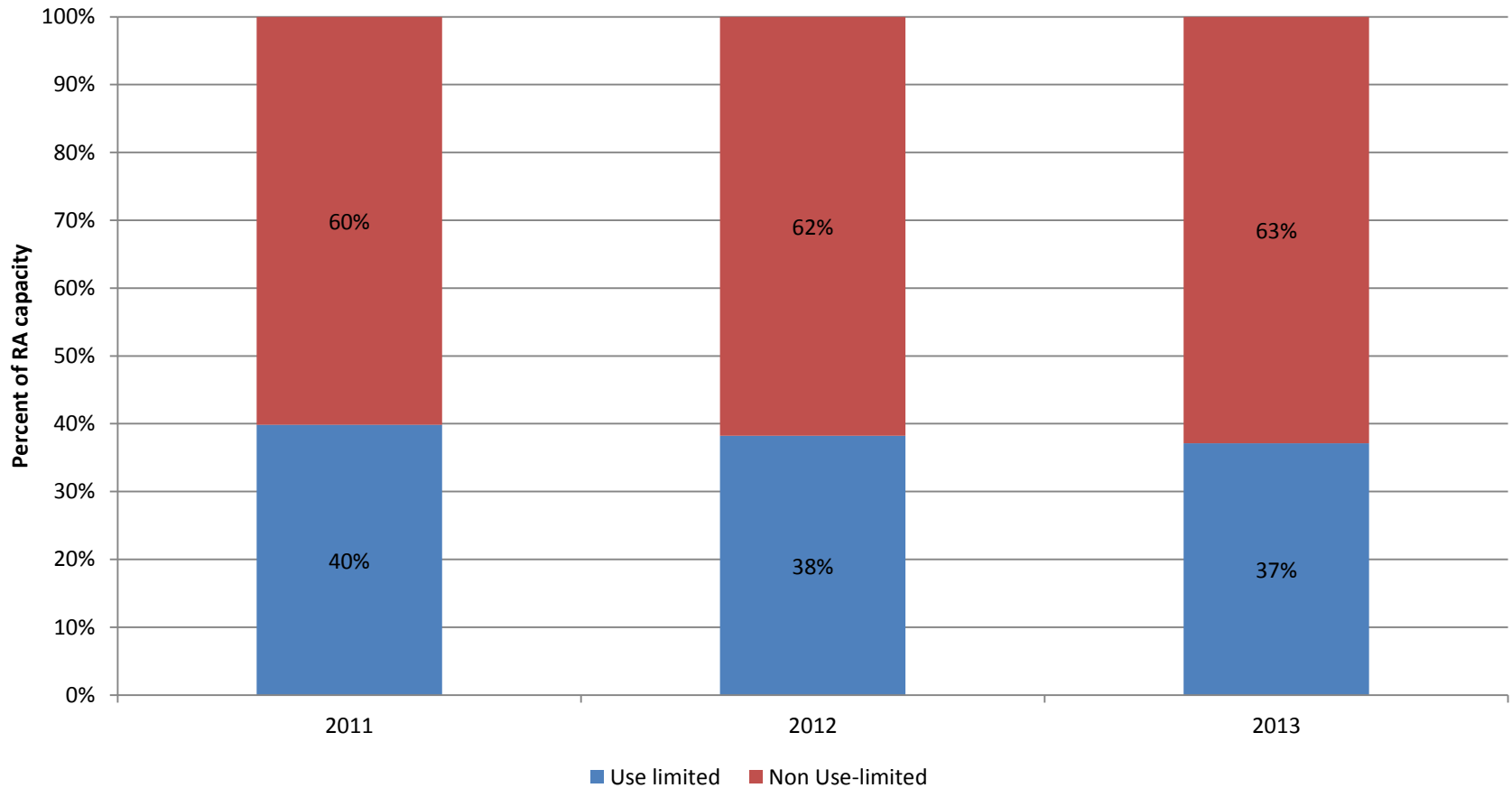
# Suppliers can substitute in resources on forced outages to avoid SCP penalties



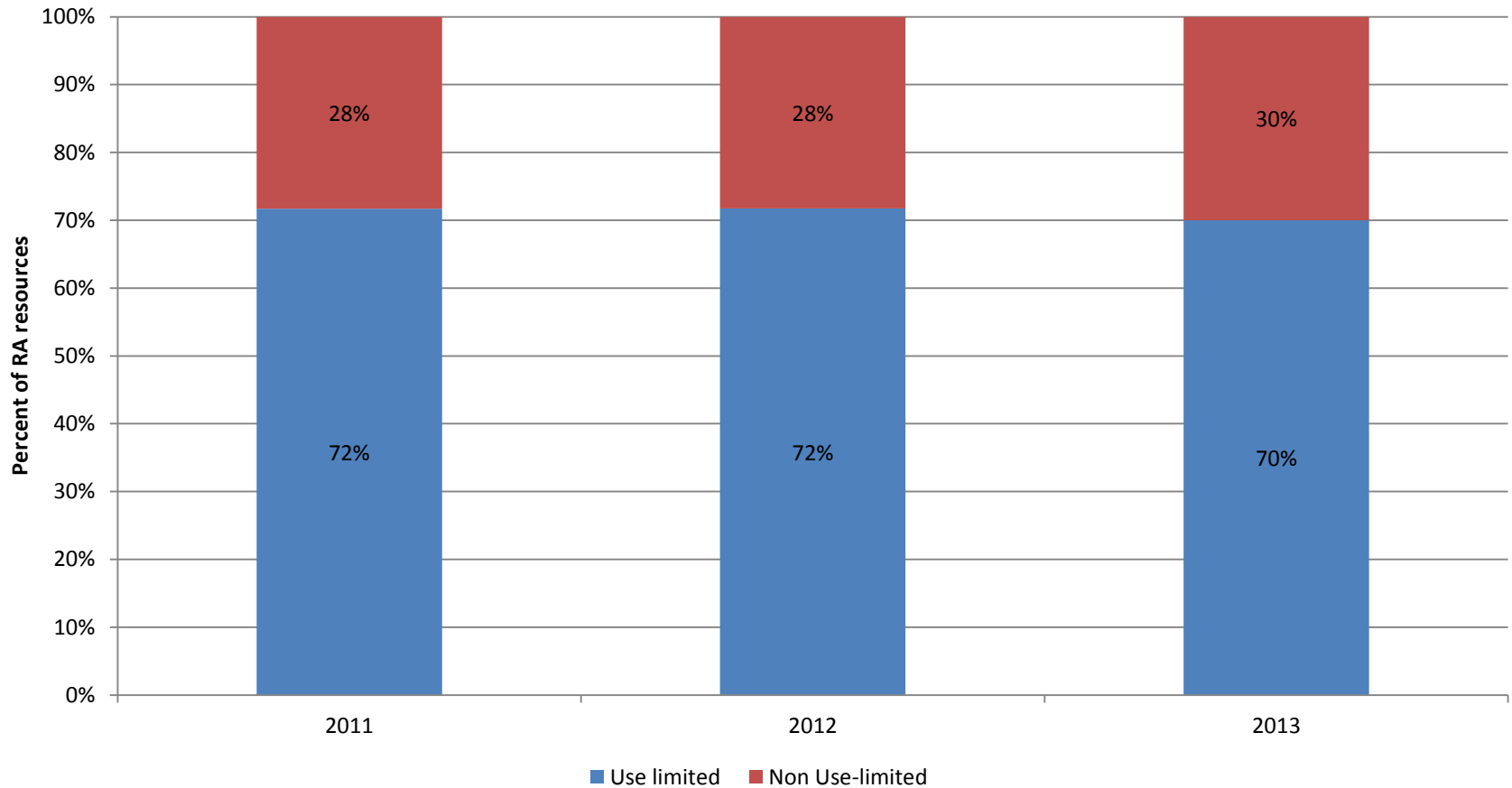
# Use-limited resources

- Use-limited resources are not exempt from the current SCP availability incentive; however:
  - There is no bid insertion for use-limited resources
  - Use-limited resources only have to bid when available according to the tariff
  - They do not have to go on forced outage during typical periods of unavailability (e.g. solar does not take a forced outage before sunrise)
  - Forced outages vs. typical unavailability is difficult to verify
- Therefore, a forced outage metric for use-limited resources is not equivalent to how the metric works for non-use-limited resources

# Resource adequacy capacity (MW) in August by use limitation status



# Resource adequacy resources (#) in August by use limitation status

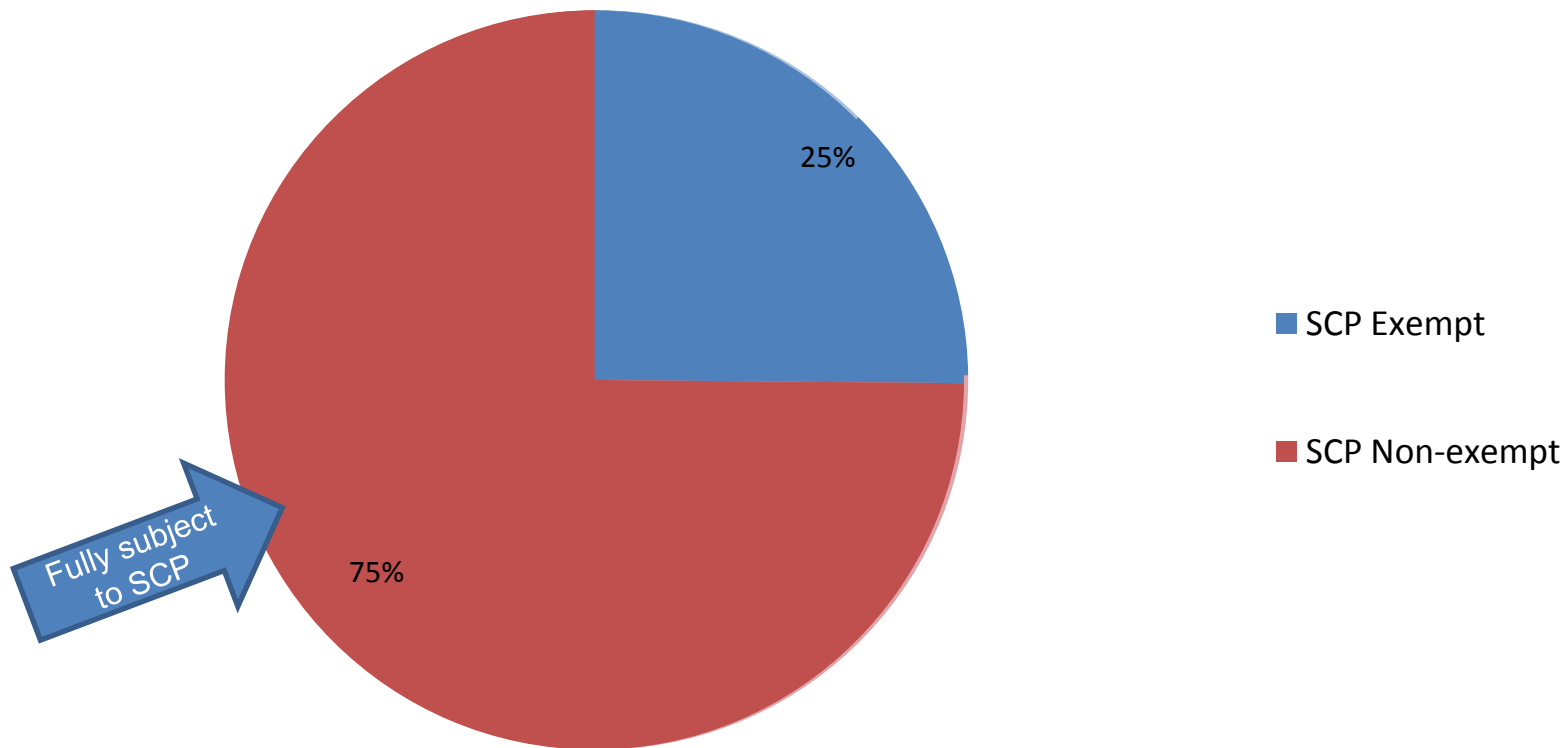




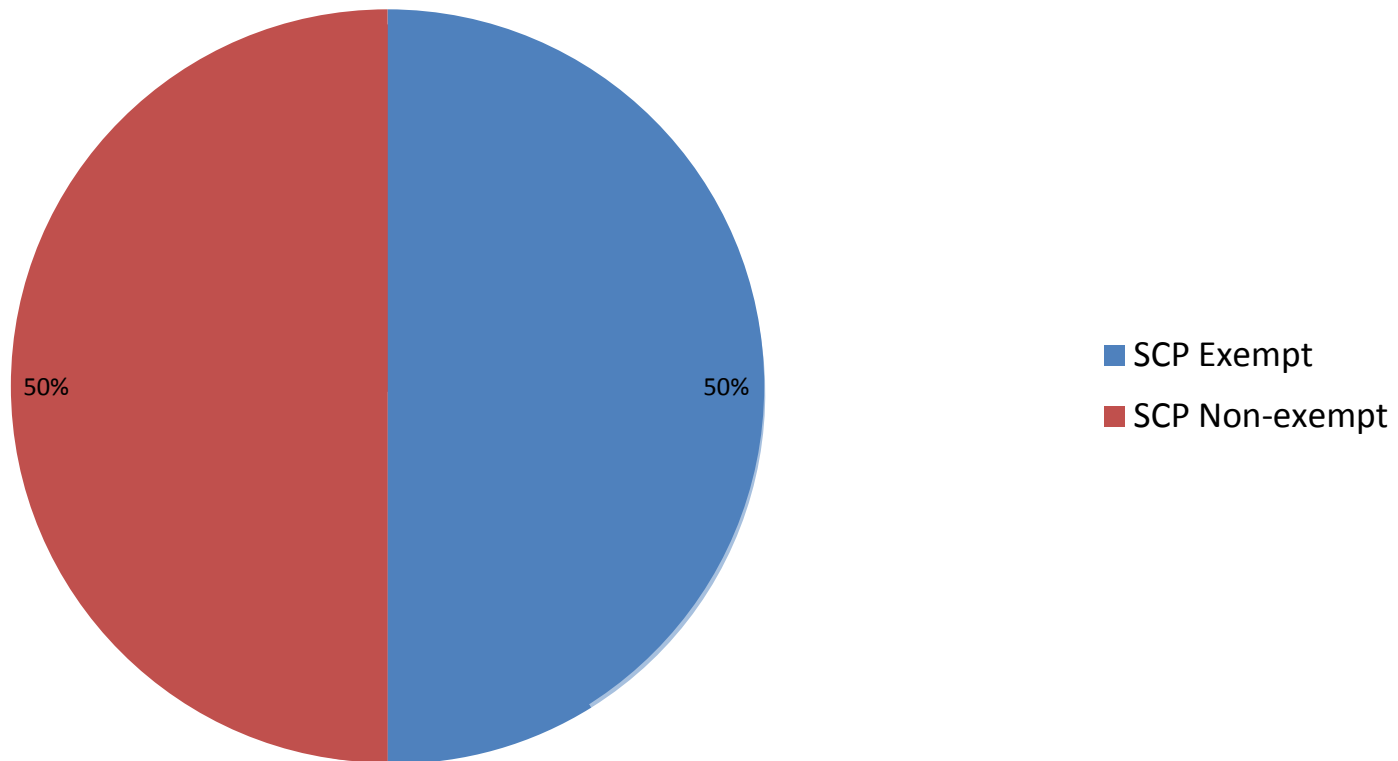
# Combining use limitations and exemptions

- Some exempt resources also have use limitations
- The following pie charts break out exempt and non-exempt resources by use limitations
- The SCP only works as intended on non-exempt, non-use limited resources
- This is indicated by the dark red on the following pie charts

# Percent of Resource Adequacy *capacity* (MW) subject to incentive mechanism by use-limitation class



# Percent of Resource Adequacy *resources* (#) subject to incentive mechanism by use-limitation class



# Principles for availability incentive design

- The energy market should be the primary incentive mechanism for RA resources to bid when required
- The availability incentive mechanism should protect the ISO to the extent possible from potential deviant behavior and physical withholding
- The mechanism should redistribute RA capacity payments in the circumstance that certain resources are significantly under-performing and other resources are making up the difference
- The mechanism should provide incentives to invest in proper maintenance of resource
- The mechanism should apply to all resource types

# Design summary

- Move from a forced outage metric to a bid based metric where a resource's availability is determined by the system and flexible must-offer requirements and hours a resource is committed as RA capacity
- Assess availability payments and charges against a fixed percentage rather than a moving fleet average
- Create a single price for flexible and system availability, but assess flexible and system availability separately

## Objective: Incent RA capacity to be available during periods when it committed to be available

- Foundation of availability incentive mechanism:
  - Was the RA capacity supposed to be available?
  - Was it actually available?
- Move from forced outage metric to bidding evaluation metric:
  - Allows for easier standardization of rules for use-limited resources
  - Allows for the different must-offer requirements between flexible and system RA resources

## Bidding evaluation metric – system/local resources

- Only evaluate hours resource is committed as RA capacity
  - Self-schedule or economic bids
- Most RA resources have a 24 must-offer requirement
- Use-limited resources discussed on a later slide

## Bidding evaluation hours – system/local resources

- Ideally system resources without limitations would be evaluated 24 hours a day or over contract hours
  - The intent is to evaluate resources only during hours they are contracted as RA resources
- At this time, propose to continue to use SCP hours (5 hours during forecasted peak load requirement)



## Bidding evaluation metric – flexible resources

- Only evaluate category bidding requirement hours
  - Economic bids
- Categories were developed in FRAC MOO
- Will respect rules in tariff on RA resource bidding
- Flexible RA resources must rebid into RT market any DA energy awards and any additional energy that must be bid in under proposed tariff rules

# Bidding evaluation hours – flexible resources

- Flexible resources will be evaluated by category
- Category 1 will be evaluated for 17 hours



- Category 2 will be evaluated for 5 hours based on seasonal assessment



- Category 3 will be evaluated for 5 hours based on seasonal assessment and be exempt after req. is met



## Objective: Standardize resources' exposure to incentive mechanism

- Two main groups receive different treatment under today's availability incentive mechanism:
- Use-limited resources
  - Resources with significant daily limitations
  - Monthly limitations
- Exempt resources
  - Resource exempt under tariff

# Objective: Create availability incentive mechanism price that accounts for market conditions

Two main components of payments and penalties for incentive mechanism:

- Availability standard percentage and bandwidth
  - ISO currently calculates monthly availability standard using the historical forced outages of RA resources over the range of assessment hours for each month over the prior three years
- Price
  - ISO currently ties to the CPM price, which expires on February 16, 2016

# Principles for availability incentive price

- Two ways to allow availability to impact the price paid to capacity
  - Decrease QC based on historic availability
  - Create payment/penalty structure to distribute RA capacity payments after the fact based on actual availability
- No pure theoretical way to come up with availability incentive price similar to other ISOs due to bilateral market construct where capacity is paid different prices per MW
- Goal is to have a price that incents maintenance of fleet and optimal behavior

## Availability incentive mechanism price- flexible, system, and local RA

- Propose to use a single availability metric and price for system, local, and flexible resources
- In order to be considered available, resource must be in compliance with highest must-offer requirement
- All resources not exempt from the availability incentive mechanism will therefore be subject to the same price and availability standard percentage

# Availability incentive potential prices

- Fixed going forward cost of marginal resource
- Negotiated price
- Tied to CPM price
  - PGE thought to tie to intermonth CPM designation price (ED and Significant Event)
- Other

# Topics for MSC

- Reason for availability standards program
- Moving from an outage metric to a bid-based metric
- Availability as a single calculation and price
  - Held to the highest must-offer or no credit at all
  - Single incentive price for resource rather than breaking out local and flexible separate from system
- Price for availability incentive
  - Benefits of linking to new CPM price