

# Energy Efficiency in the New ISO-NE FCM/Pay for Performance

Vermont Systems Planning Committee Meeting  
July 23, 2014

# ISO-NE Forward Capacity Market

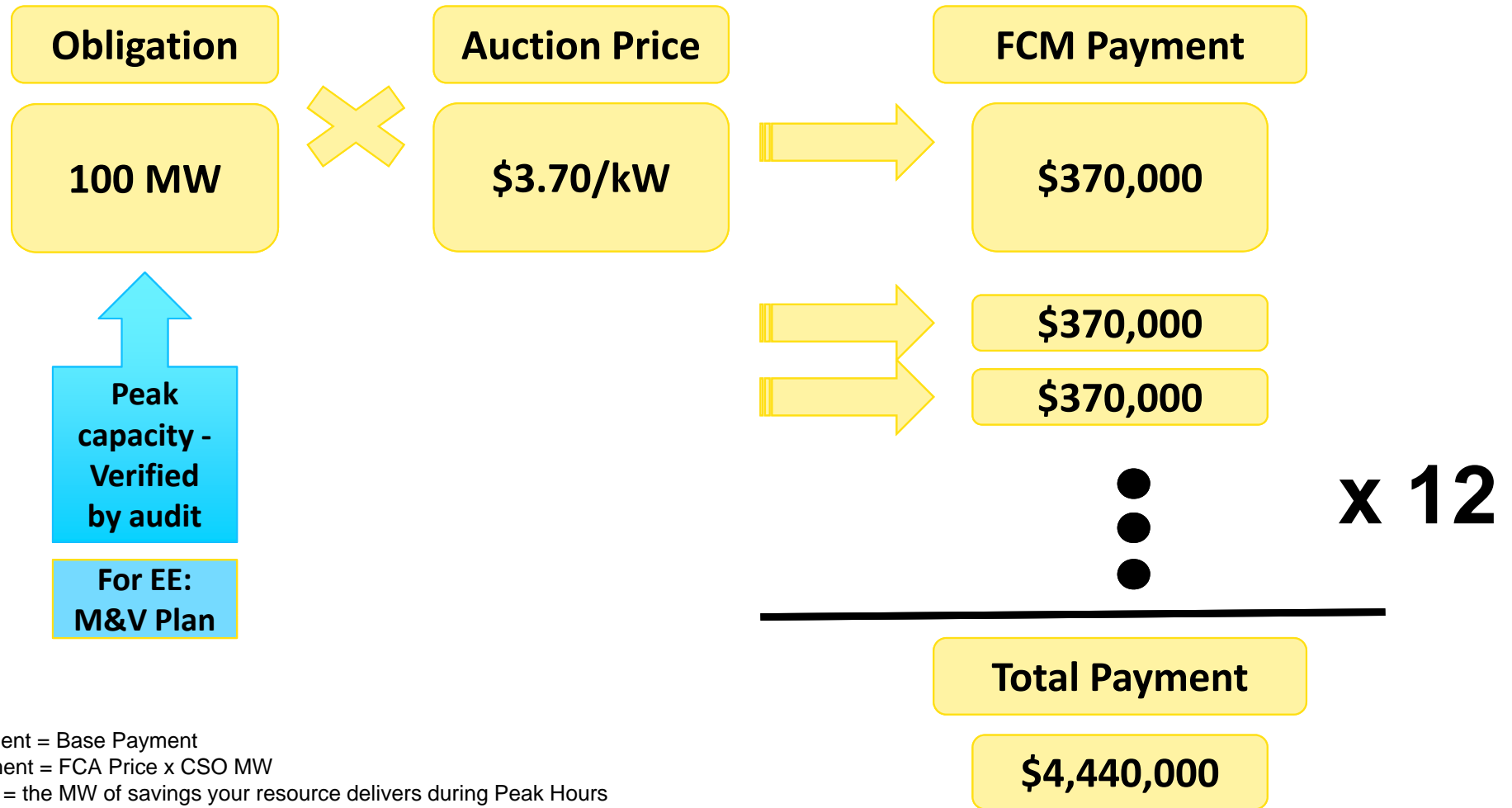
Designed to assure resource adequacy - launched June 2010

Under the FCM, ISO New England projects the capacity needs of the region's power system three years in advance and then holds an annual auction to purchase the power resources that will satisfy those future regional requirements. Resources that clear in the auction are obligated to provide power or curtail demand when called on by the ISO, at a price set by the auction.

# ISO-NE Forward Capacity Market

- Purpose: provide a price signal sufficient to ensure that sufficient capacity is available to meet New England's peak demand in the future (3 years)
  - With a particular focus on encouraging new, efficient, low-cost resources
- An open market where capacity suppliers offer to sell a **guarantee** for delivering capacity in the future – and they get a **guaranteed price**.
  - This allows project sponsors to know what they will get paid for their project, and time to get it built
- Demand-side resources eligible

# FCM Payment: Current Structure



FCM Payment = Base Payment  
Base Payment = FCA Price x CSO MW  
Actual MW = the MW of savings your resource delivers during Peak Hours

# Performance Concerns

The performance of capacity resources in New England has substantially declined in recent years to a level that has jeopardized ISO-NE's ability to reliably operate the electric system.

- The overall rate of unplanned outages across the entire New England generating fleet has more than doubled since 2007, and the average response rate for generators dispatched following a contingency is only 71%.

These conditions evidence that the current market construct has not sufficiently influenced capacity suppliers' longer-term investment and retirement decisions to ensure that their resources can reliably provide energy and reserves when called upon, particularly during reserve deficiencies.

- For example, the existing FCM treats many resources as if they are fully available to operate during Shortage Events, and pays them accordingly, even when those resources are unable to deliver energy or reserves at that time.
- These existing payment features of the FCM not only fail to incent resource performance, but also perversely select less reliable resources over more reliable resources because a capacity supplier's decision to forego investments that would improve resource performance allows it to offer into the FCA at a lower price.

# Proposed FCM Enhancements

January 17, 2014 – ISO and the New England Power Pool (“NEPOOL”) Participants Committee submitted to the Commission two proposals to modify New England’s Forward Capacity Market to address the region’s resource performance challenges.

- ISO proposed a two-settlement market design – intended to encourage better ongoing operational practices to assure performance

1) Forward capacity obligations will be sold at auction as in the current FCM – Resource Adequacy

2) Performance **incentives and penalties** will be assessed during actual shortage events – Real-time

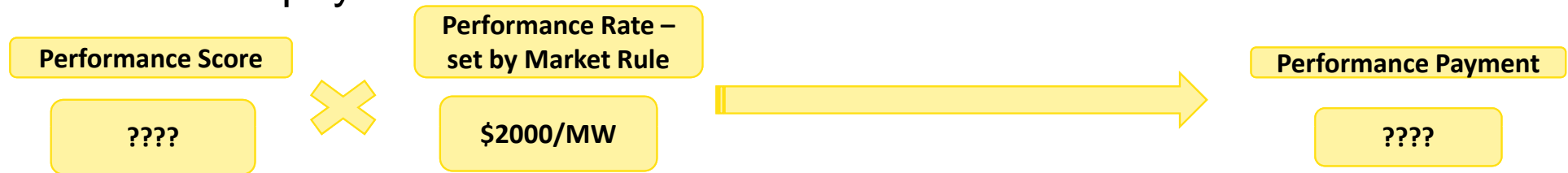
- NEPOOL proposal designed to provide more-immediate performance incentives through increases in the current Reserve Constraint Penalty Factor – no adjustments to FCM.

# ISO-NE Proposed Pay for Performance

Base payment:



Performance payment:



where monthly Performance Score is determined by **actual performance during a shortage event** relative to the FCM obligation, as well as by the number of deficiency hours in the month.

Shortage events can (and do) occur any time of any day of any month....

FCM Payment = Base Payment + Resource Performance Payment

Base Payment = FCA Price x CSO MW

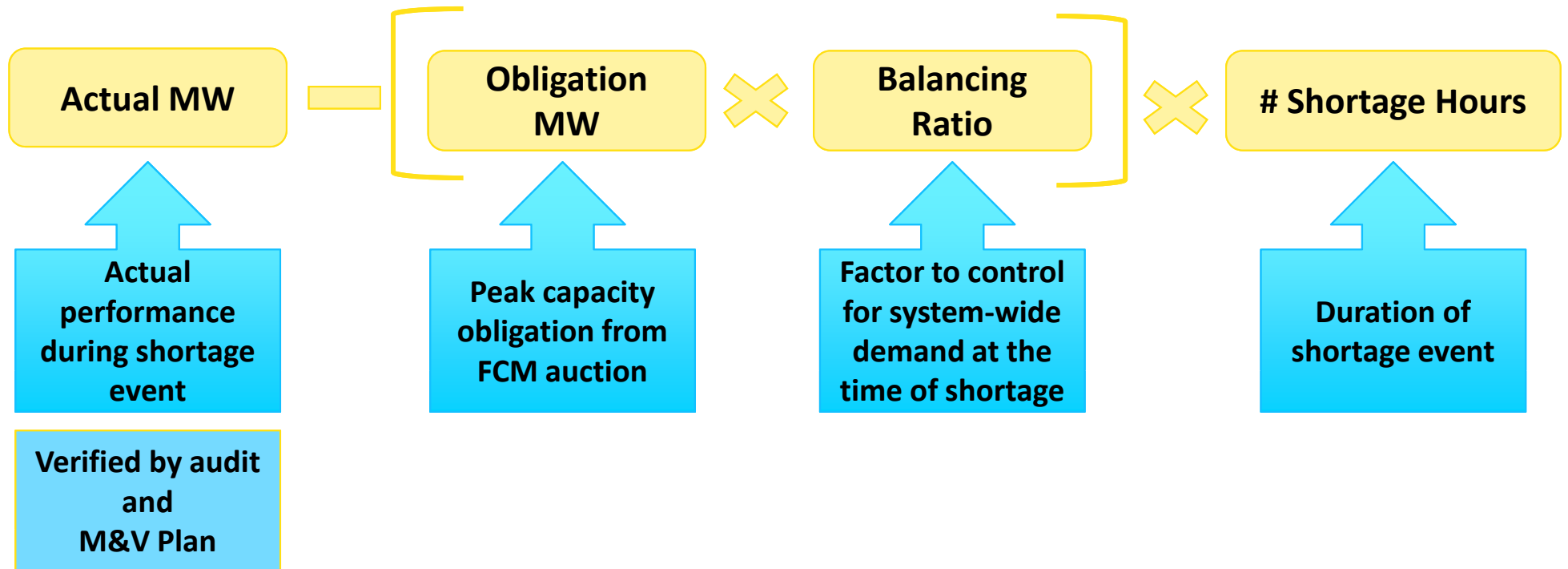
Resource Performance Payment = Performance Payment Rate x Score

Score = (Actual MW – (CSO MW x Balancing Ratio)) x # of Operating Reserve Deficiency Hours

Actual MW = the MW of savings your resource delivers during Operating Reserve Deficiency Hours

Balancing Ratio = (System Load + Reserve Requirement) during Operating Reserve Deficiency Hours/ (Total System Capacity Supply Obligation)

# Performance Score



Calculated at the time of each shortage event

FCM Payment = Base Payment + Resource Performance Payment

Base Payment = FCA Price x CSO MW

Resource Performance Payment = Performance Payment Rate x Score

Score = (Actual MW - (CSO MW x Balancing Ratio)) x # of Operating Reserve Deficiency Hours

Actual MW = the MW of savings your resource delivers during Operating Reserve Deficiency Hours

Balancing Ratio = (System Load + Reserve Requirement) during Operating Reserve Deficiency Hours / (Total System Capacity Supply Obligation)



# FERC PI Order

May 30, 2014 – FERC Order rejected both the ISO and NEPOOL proposals, but directed the ISO to file a two-settlement capacity market design based largely on the ISO Pay For Performance design, with the following revisions to the initial ISO proposal:

1. Revisions reflecting higher Reserve Constraint Penalty Factors.
2. Revisions to the treatment of energy efficiency resources.
3. Revisions to address intra-zonal constraints

# FERC PI Order – EE Exemption

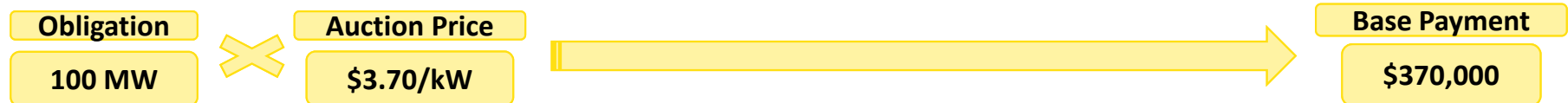
From FERC Order:

ISO-NE's proposal assumes that energy efficiency resources provide zero performance in off-peak hours, which means those resources must **either incur significant costs** to measure and verify their load reductions around-the-clock, rather than only in certain peak hours of the year, **or face guaranteed negative Capacity Performance Payments** during any Capacity Scarcity Condition during off-peak hours.

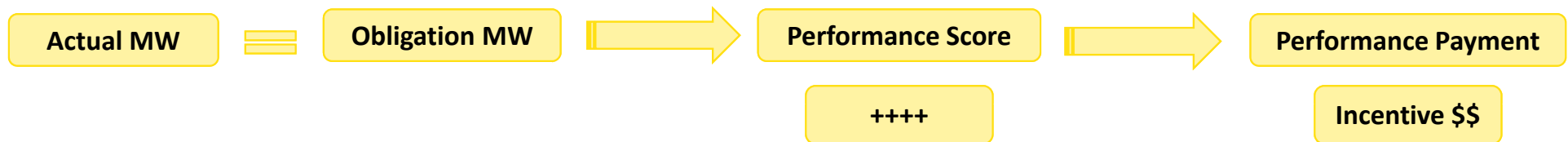
**Exactly what does that mean??**

# PfP Challenge for EE Resources

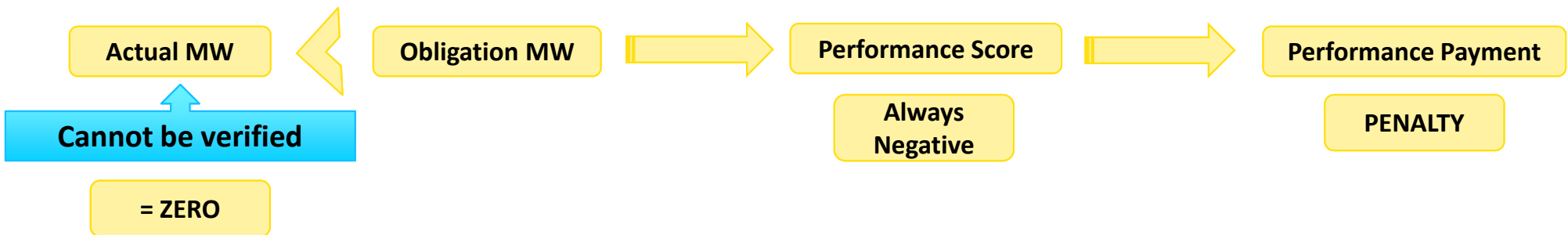
Base payment:



Performance payment IF SHORTAGE DURING PEAK HOURS:



Performance payment IF SHORTAGE DURING NON-PEAK HOURS:



FCM Payment = Base Payment + Resource Performance Payment

Base Payment = FCA Price x CSO MW

Resource Performance Payment = Performance Payment Rate x Score

Score = (Actual MW - (CSO MW x Balancing Ratio)) x # of Operating Reserve Deficiency Hours

Actual MW = the MW of savings your resource delivers during Operating Reserve Deficiency Hours

Balancing Ratio = (System Load + Reserve Requirement) during Operating Reserve Deficiency Hours / (Total System Capacity Supply Obligation)

# FERC PI Order – EE Exemption

From FERC Order:

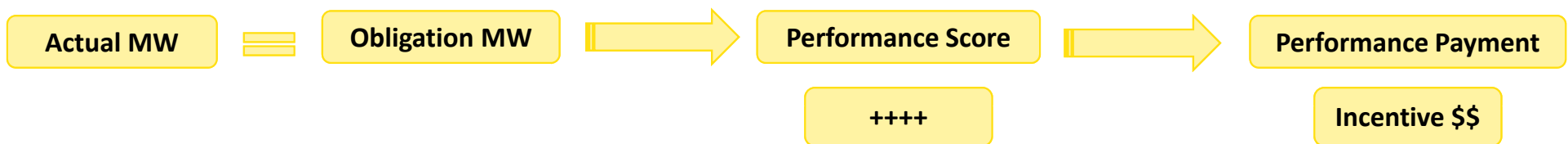
The Commission specifically directed the ISO to modify the design to ensure that Capacity Performance Payments for energy efficiency resources are calculated only for scarcity conditions that occur during hours in which demand reduction values are calculated for the applicable resource type pursuant to the Tariff.

# PfP Treatment of EE Resources

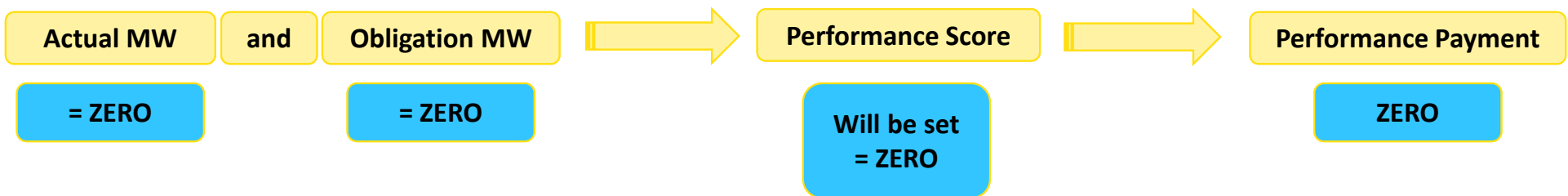
Base payment:



Performance payment IF SHORTAGE DURING PEAK HOURS:



Performance payment IF SHORTAGE DURING NON-PEAK HOURS:



# FERC PI Order – EE Exemption

FERC Order Justification for EE Exemption:

While it is necessary to track the performance of other types of resources around-the-clock under ISO-NE's proposed market design, this is not the case for energy efficiency resources.

- Energy efficiency resources are not similarly situated to other capacity resources because they do not actively perform in real-time—they represent a pre-determined level of load reduction that is constant as a percentage of that resource's load—and therefore are not able to respond to the ISO-NE proposal's performance incentive.

We and others will analyze cost of developing additional M&V support for non-peak hours against potential for earning performance incentives in the future.

## Contact Information

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