

Overview of the Forward Capacity Market (“FCM”)

ISO New England Inc.

Objectives of this Presentation

1. Introduce the ISO Presentation Series on the Forward Capacity Market
2. Present an **OVERVIEW** of the FCM
3. Summarize its Major Components

Presentations on the FCM

1. Overview of the FCM – September 13
2. Qualification Process and the Forward Capacity Auction Mechanics – September 22
3. Qualification Forum – September 27
4. Reconfiguration Auctions, Bilateral Contracts, and Rights and Obligations – October 06
5. Payments, Performance and Charges – October 11

Overview of FCM

Topics to be Covered

1. Definitions
2. Transition Payments
3. FCM Components
4. Timeline

Definitions

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Important Terms used in the FCM

1. FCA – Forward Capacity Auction process
2. Capacity – Qualified Capacity MW value of a resource
3. Offer – Capacity that offers to sell into FCM
4. Bids – Capacity that wants to leave or not participate in the FCM
5. CONE – Cost of New Entry
6. ICR – Installed Capacity Requirement for New England
7. PER – Peak Energy Rent adjustment to the FCA payment
8. Commitment Period – Whole year obligation to provide capacity

Transition Payments

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Transition Costs Bridge to FCM

Fixed capacity payments

All resources both existing and new (including Imports)

- December 2006 through May 2010
- Ensures reliability
- Payment adjusted to historical availability

Date	Payment (\$/KW-month)	Estimated Total Payment (\$Billion)
12/01/2006 – 05/31/2007	\$3.05	0.6
06/01/2007 – 05/31/2008	\$3.05	1.2
06/01/2008 – 05/31/2009	\$3.75	1.4
06/01/2009 – 05/31/2010	\$4.10	1.6

FCM Components

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Major Components of the FCM

1. Qualification
 - for both Existing and New capacity resource offers
2. Forward Capacity Auction
 - to purchase the capacity resources
3. Reconfiguration Auctions
 - to buy and sell (exchange) capacity obligations
4. Performance Incentives
 - pay for performance during shortage events
 - PER deduction
5. Financial Assurance
 - Deterrent to frivolous New capacity offers and commitment period defaults

FCM Components – Qualification

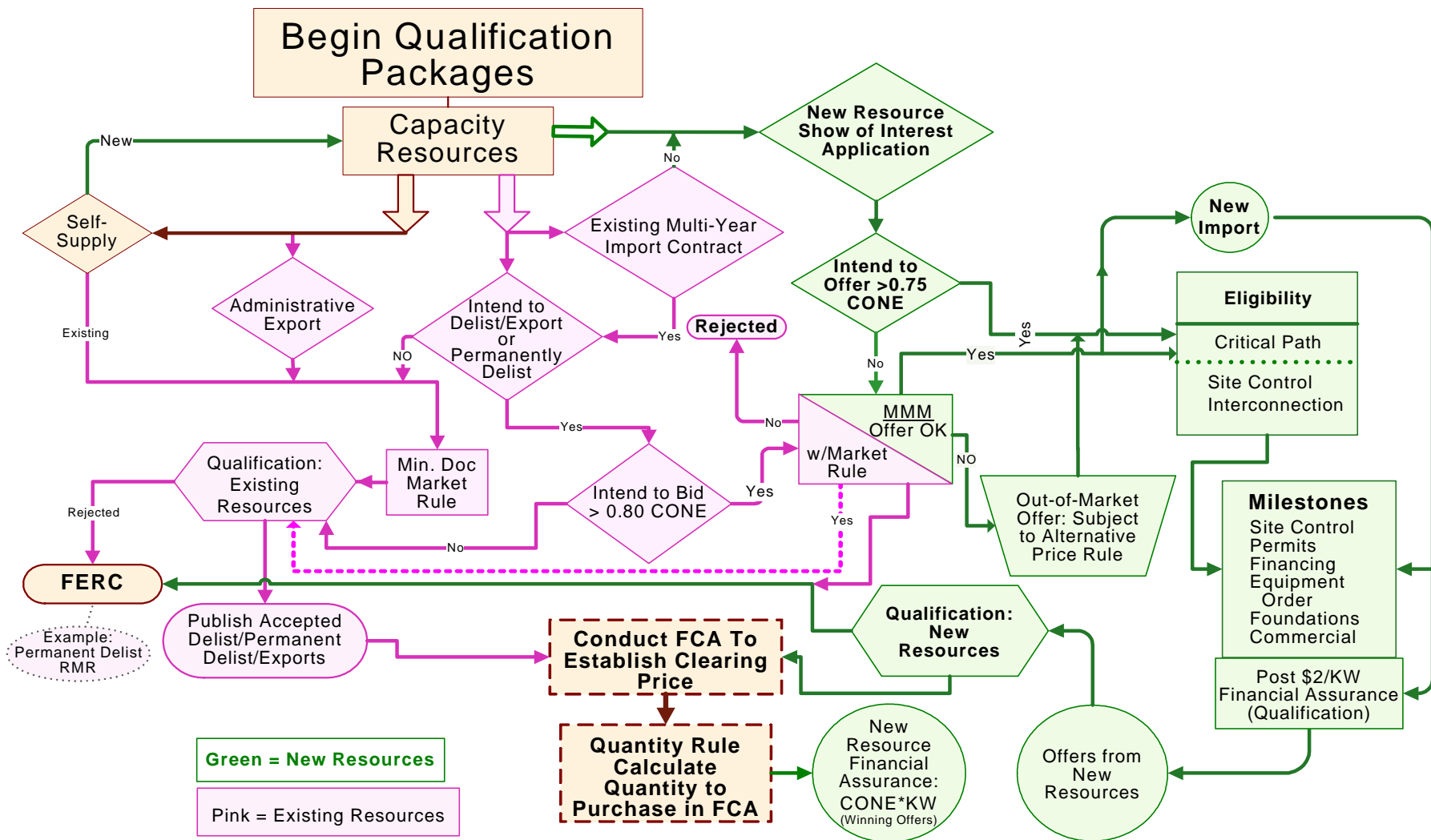
1. Qualification of the following resources is required:
 - De-list bids (Permanent, partial, etc.)
 - Existing Capacity
 - Self-Supplied Resources
 - Exports
 - Imports
 - New Resources (Including Intermittent and Demand Response)
2. Qualification Criteria is different for each Resource Type
 - **New capacity resource:** By the qualification deadline, certify that it will be able to produce a specific MW value for a future Commitment Period
3. Existing capacity resources will be assigned a specific MW value for a future Commitment Period

FCM Components – FCA Auction Design

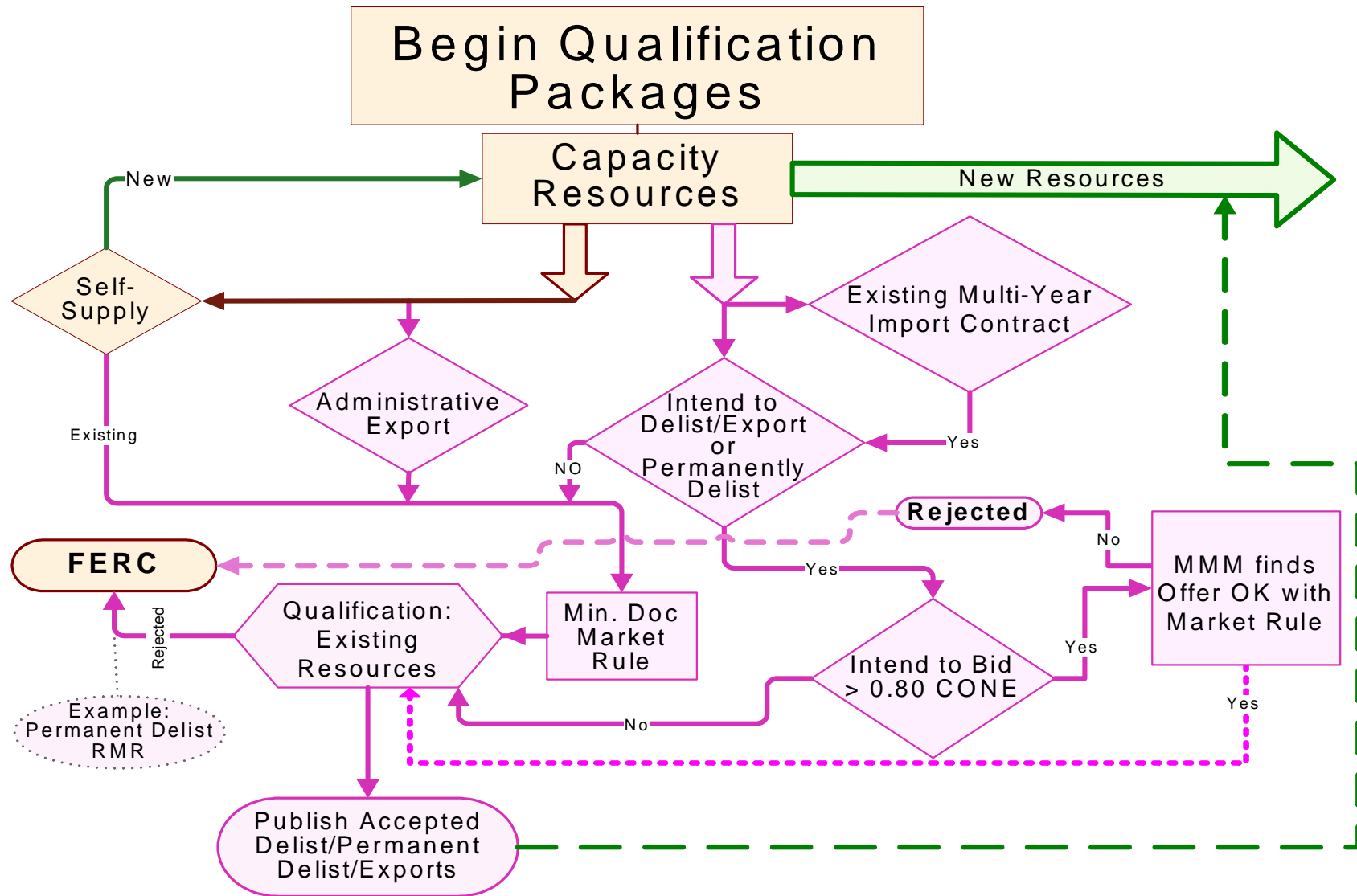
Objectives

1. Purchase Installed Capacity Requirement (“ICR”) for a future Commitment Period
2. Prevent the Exercise of Market Power
 - without distorting Competitive Prices
3. How is this Accomplished?
 - Market Monitor Review of Capacity Offers (Existing and New)
 - Descending Clock Auction
 - competitive process that relies on offers of new capacity

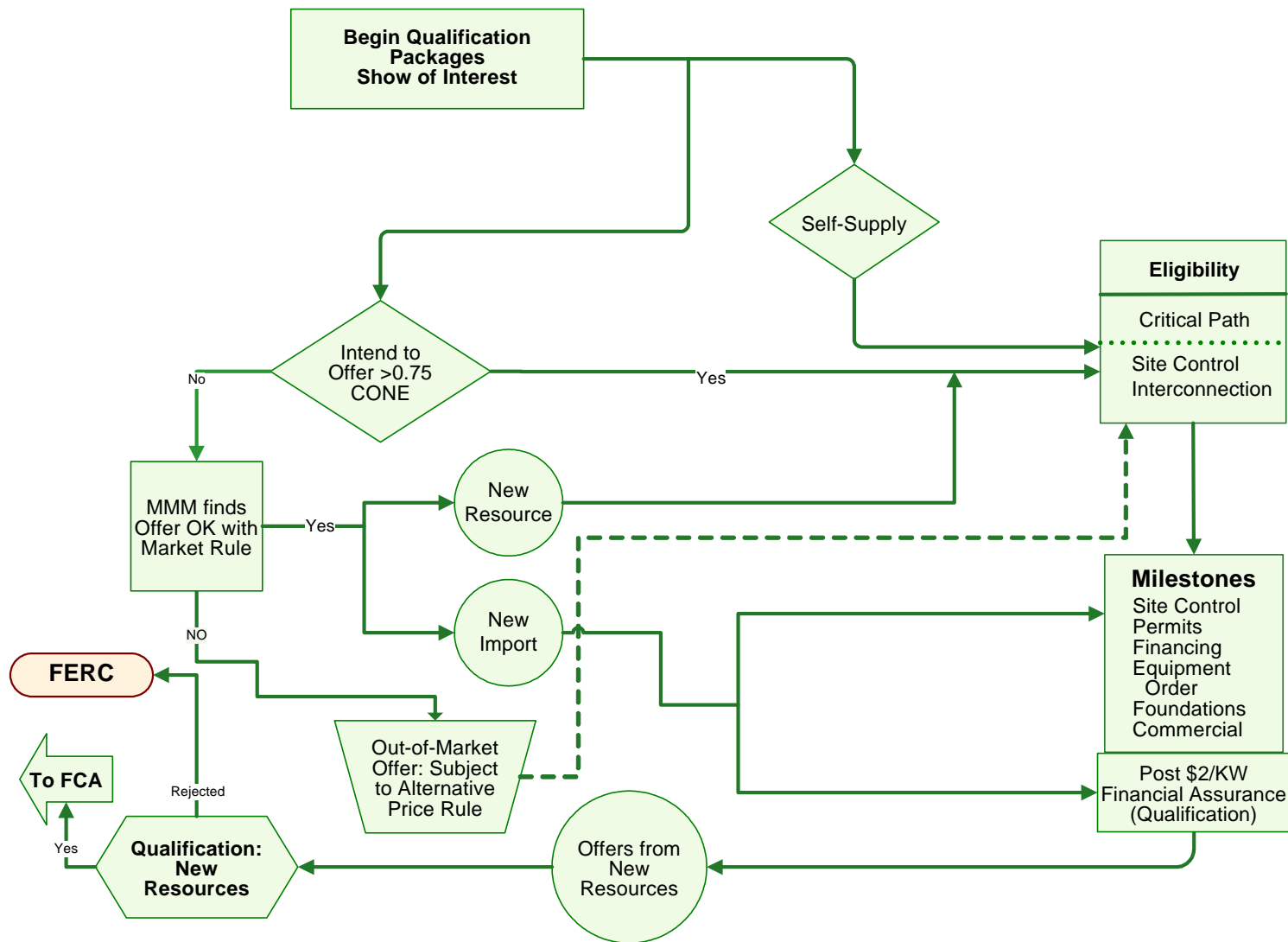
Qualification Process



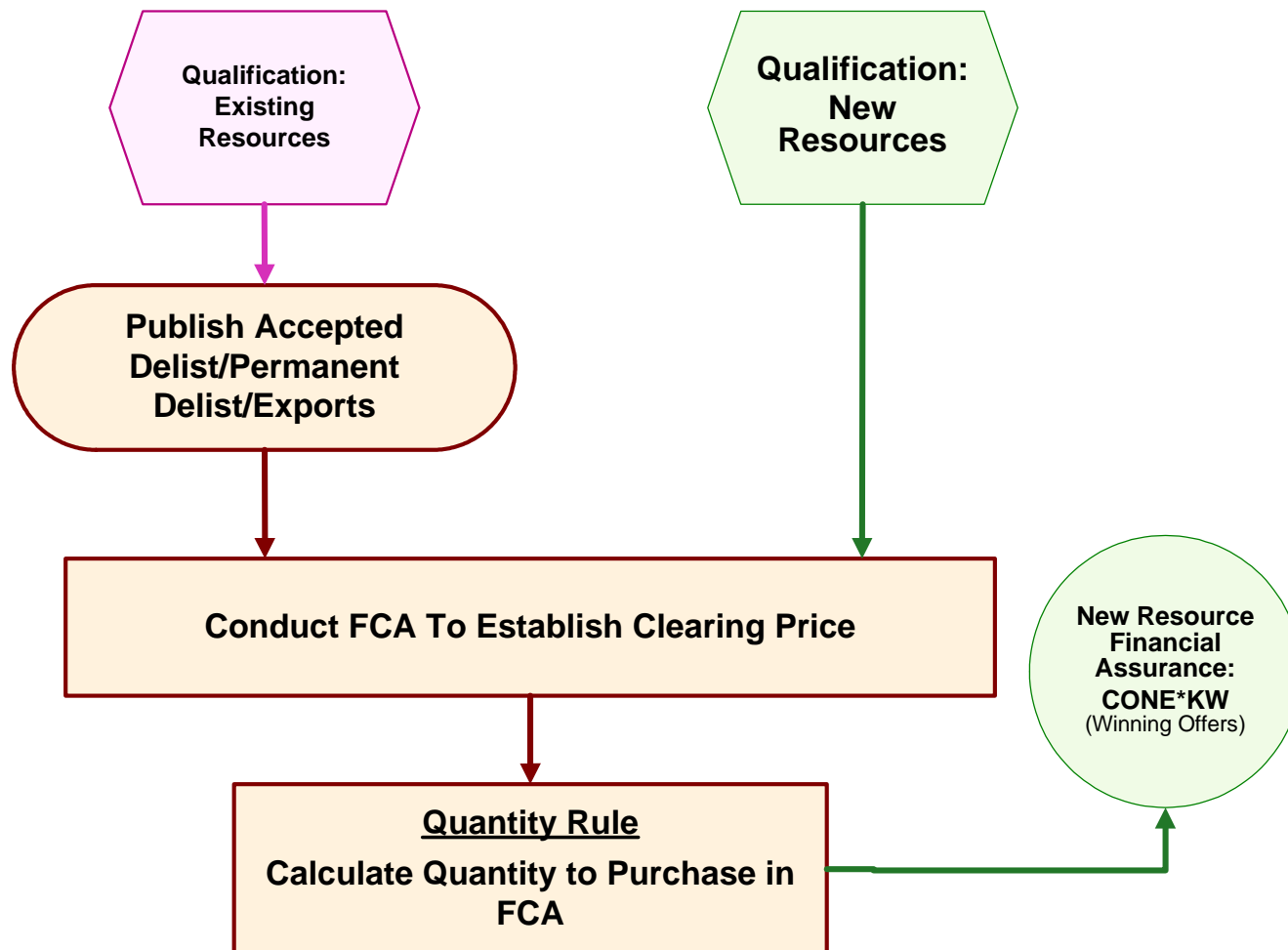
Qualification Process: Existing Resources



Qualification Process: New Resources



Qualified Resources: Eligible for the FCA



Role of Market Monitor in the FCA

1. Review Offers and Bids for potential Market Power abuse
 - Examine for attempts to lower or raise the price outside target price thresholds
2. Decide if sufficient quantity is present to conduct a competitive FCA or invoke reserve pricing (Inadequate Supply or Insufficient Competition)
3. Report on the conduct and results of the FCA to the FERC
4. Evaluate Bids from Existing resources that De-List in the FCM

Existing Capacity

Assumed to be in the FCA unless it takes action to leave (De-list)

1. Addresses potential Market Power abuse
 - Existing Capacity dwarfs New
 - Long-run costs are small relative to cost of new entry
2. Existing Capacity treated as a Zero-Bid in the FCA
3. Receives auction clearing price for only 1 year
 - Already invested

Existing Capacity: De-List Bids

De-Listed Capacity Resources opt out of FCA for entire Commitment Period (or Periods for Permanent De-List)

De-List Bid Category	Category Definition	Market Monitor Approval	Time of Submission
Static	Bids above 0.8 CONE	Required	At Qualification
Dynamic	Bids below 0.8 CONE	Not Required	During Auction Cycle
Permanent	Bids above 1.25 CONE	Required	At Qualification
Export	Bids above 0.8 CONE	Required	At Qualification

All De-List bids submitted during Qualification are binding for that FCA

Prior to a Descending Clock Auction

Capacity Zones designated before the FCA

- Based on transfer limits expected to bind in the auction
 - Import constrained zones
 - Local Sourcing Requirements exceed Zonal Capacity
 - Export constrained zones
 - Maximum capacity transfer limit < available surplus capacity
 - FCA begins with a single price
 - All capacity initially treated as a single Capacity Zone
 - Price separation only occurs if and when a transfer limit binds

Features of the Descending Clock Auction Mechanics

1. Auction: Held 3 – 4 years in advance of commitment period
2. Differing requirements for each Capacity Zone.
3. Bidders offer new capacity they are willing to supply at each price
 - Starting price = 2 x Cost of New Entry (“CONE”)
 - Initial starting price = \$15/kw-month
 - Bidders offer quantities they are willing to supply at that price

Descending Clock Auction Mechanics

1. Capacity offered > ICR → Price falls
2. Price falls → New Capacity begins to withdraw
3. Equilibrium Price: Capacity offered = ICR

Descending Clock Auction Illustration

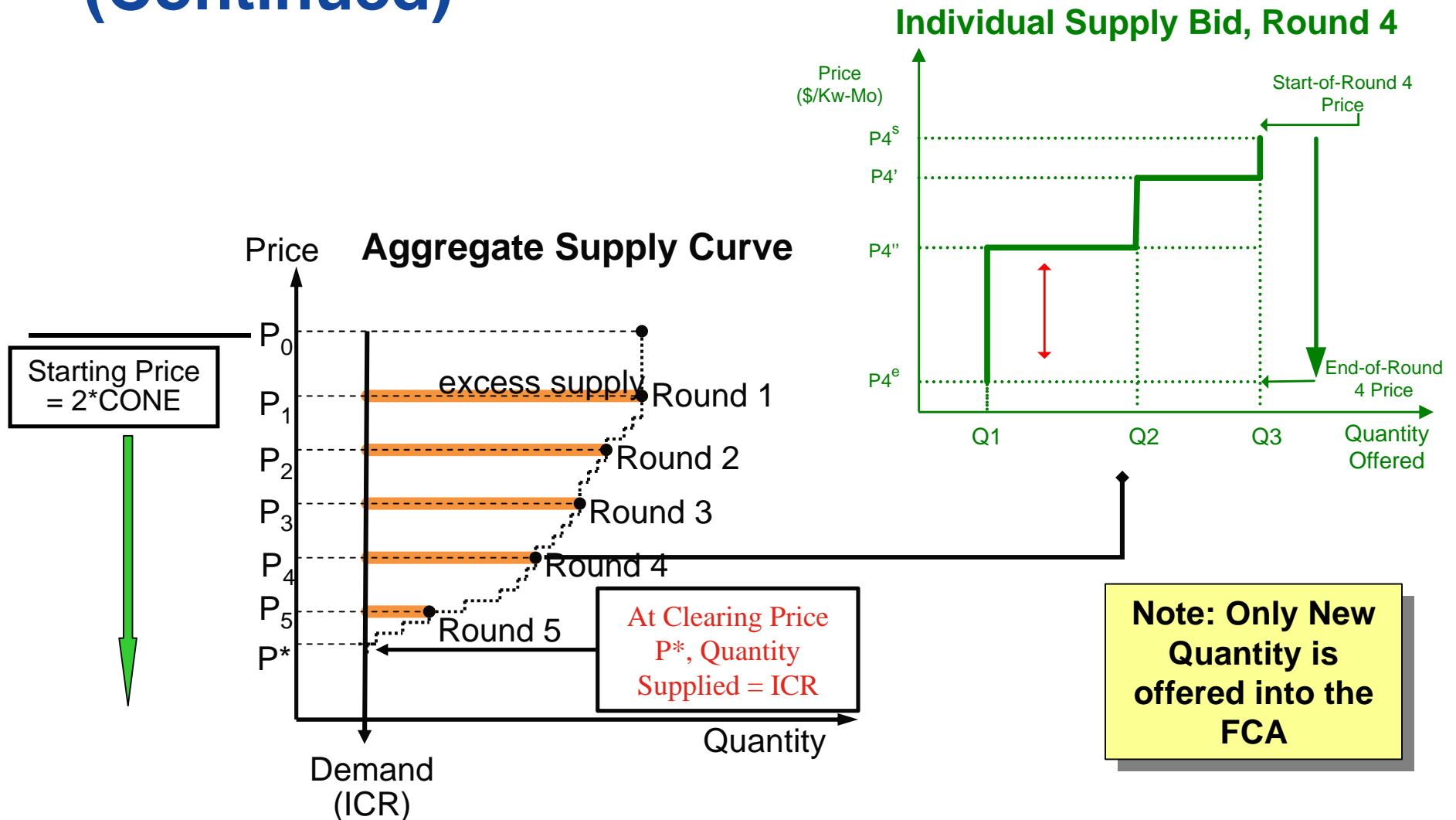
Assumptions: { New England ICR = 28,000 MW
Single Capacity Zone

Price (\$/KW-Month)	Capacity Offered (MW)	Excess Capacity (MW)
\$15.00	32,000	4,000
\$11.00	30,000	2,000
\$ 9.50	29,300	1,300
\$ 9.00	28,000	0

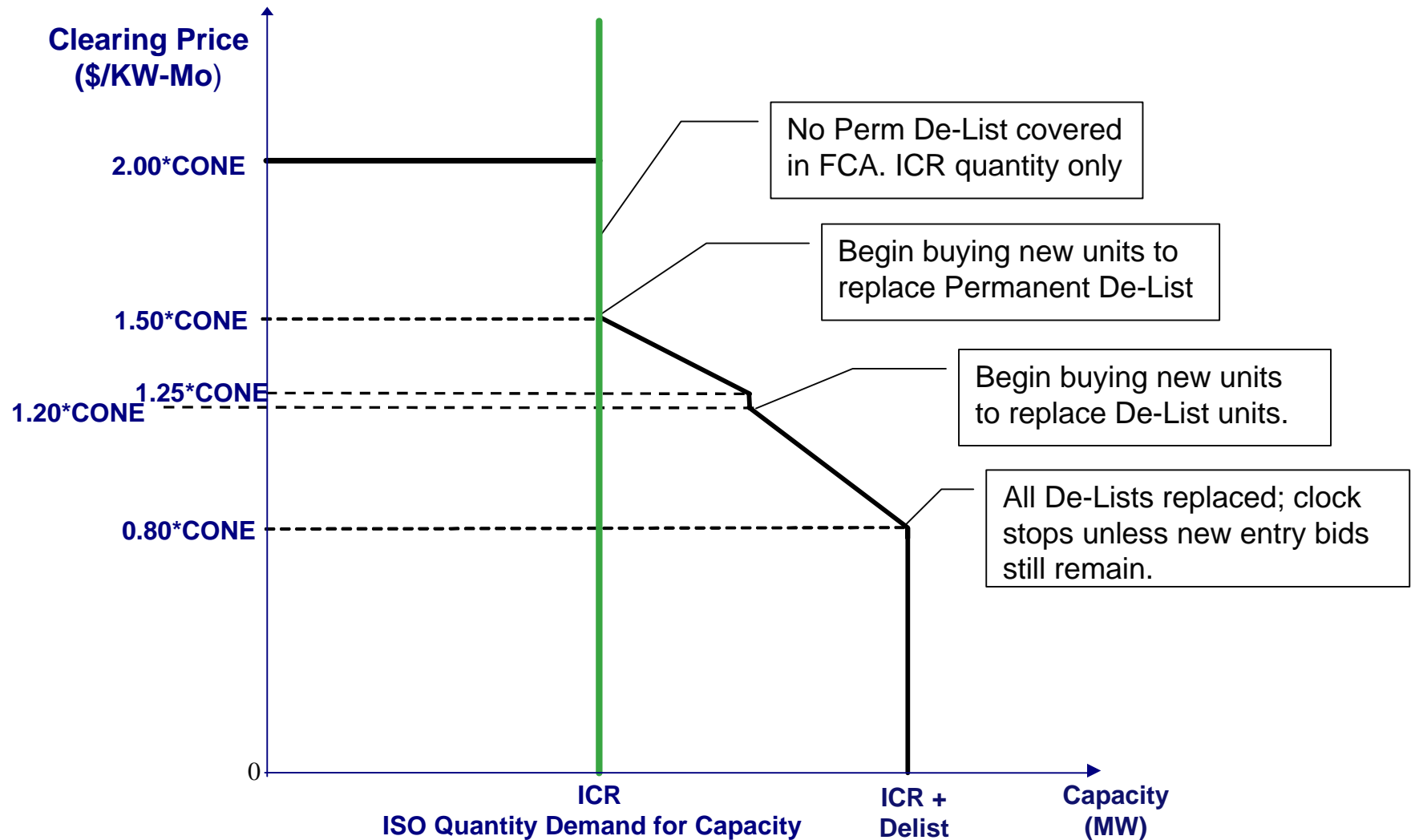
Descending Clock Auction Mechanics

1. Clock auction is done in discrete rounds
2. In each round:
 - Auctioneer announces
 - Excess supply quantity at the end of prior round
 - Start of round price (higher price)
 - End of round price (lower price)
 - Each bidder submits a supply curve at all prices between start of round price and end of round price
 - Auctioneer determines excess supply at end of round price
 - If no excess supply, clearing price is determined

Descending Clock Auction Mechanics (Continued)



Quantity Rule – Auction Mechanics



FCA Mechanics – Auction Failure Protection: Inadequate Supply

1. Capacity Zone - Insufficient supply to meet its local sourcing requirement
 - New capacity is paid $2 \times \text{CONE}$
 - Existing capacity is paid $1.1 \times \text{CONE}$
 - FCA is conducted for other zones with adequate supply
2. System Wide – Insufficient supply to meet ICR
 - Auction is conducted for export constrained zones
 - In all other zones
 - New capacity is paid $2 \times \text{CONE}$
 - Existing capacity is paid $1.1 \times \text{CONE}$

FCA Mechanics – Auction Failure Protection: Insufficient Competition

1. If System Wide or in any Capacity Zone:

- Existing Capacity < ICR or Local Sourcing Requirement; &
- At $2 \times \text{CONE}$:
 - Less than 300 MW is bid (Import constrained zones < a 5000 MW requirement will be reconsidered in Market Rule development)
 - New capacity bid > new capacity required, but < twice new capacity required; or
 - New capacity or New Import Capacity bid is pivotal – which means at $2 \times \text{CONE}$ some of the new capacity bid is required to meet the ICR

2. Auction is conducted

- New capacity is paid the clearing price
- Existing capacity is paid the lesser of the clearing price or $1.1 \times \text{CONE}$

Alternative Price Rule: New Capacity

1. Applies system wide or by zone
2. Addresses Buyer's Market Power
 - New Capacity that offers in below 0.75 Cone is reviewed by the market monitor
 - If offer is too low, then capacity is considered Out of Market
3. If Out of Market capacity exceeds the amount of new capacity needed, price set at the lower of CONE or the price at which the last new capacity left the auction

CONE Prices for Future Auctions

1. For the 1st Auction: 1st CONE = \$7.50/kw-month
2. Prior to the 2nd Successful Auction:
 - 2nd CONE = \$3.75 (50% of \$7.50) + 50% of 1st Auction Clearing Price
3. Prior to the 3rd Successful Auction
 - 3rd CONE = \$1.88 + 75% (1st Clearing Price + 2nd Clearing Price)/2
 - (Note that \$1.88 = 25% of 1st CONE (\$7.50))
4. Following the 3rd Auction
 - 4th CONE = 70% of 3rd CONE + 30% of 3rd Auction Clearing Price
 - If the auction fails in year t or no new capacity is needed:
 - CONE in year t+1 = CONE in year t

FCM Components – Reconfiguration Auction Phase

1. Capacity Products:

- Obligation trading among physical resources
- Additional capacity to cover increased ICR
- Released capacity to match decreased ICR
- Deferred capacity requirements from existing capacity resources
 - Permanent De-List
 - De-List Bids

2. Distinct product for each zone defined in the FCA

3. Clearing price:

- Reconfigured Supply = Reconfigured Demand

Reconfiguration Auction Phase (con't)

1. Annual Reconfiguration Auctions:

- Full year commitment
- After the primary FCA
- Held approximately 2 years, 1 year and just before the FCA Commitment period

2. Monthly and Seasonal Reconfiguration Auctions:

- Adjust annual commitments during the commitment period
- Begins the first month of the first commitment period
- Permits Participants to adjust (buy/sell) positions

FCM Components – Performance Incentives

1. Performance: Resources unavailable in shortage events get reduced Capacity Payments
 - System Wide Reserve Constraint Penalty Factors “RCPFs” trigger a shortage event
2. PER Deduction: $LMP > \text{strike price}$ → capacity payments are reduced by PER calculation
 - PER adjustments affect all units – on line or off
 - Reduces market power in energy spot market – removes any incentive to withhold

Performance Requirements

1. Real Time Availability Performance Measures

- Resources must be available when operating reserves are short [event]

2. Resources unavailable in shortage events get reduced capacity payments

- Penalty = 5% of annual FCA payment pr event
- Pro-rated in MW
- Capped at 10% per day
- Monthly penalty cannot exceed 2.5 times FCA payment in that month
- Annual penalties cannot exceed total FCA payment less PER adjustments

Peak Energy Rent Adjustment

1. Prevents
 - double payment
 - exercise of market power in the energy market
2. Energy price is deducted from the capacity payment when Energy Prices exceed cost of a peaking unit (assumed 22,000 heat rate)
 - At current gas prices, this is \$155/MWH

FCM Components – Financial Assurance

1. Load Serving Entity Obligation

- Monthly Capacity Payment = Actual Credit exposure under the existing Financial Assurance Policy (“FAP”)

2. Supplier Obligation

- Existing Capacity = Existing FAP requirements, unless the resource plans to retire at the end of a Commitment Period: Additional Financial Assurance = 2.5 times the FCA Monthly Payment must be posted
- New Capacity = Initial Deposit of \$2/kw times Qualified MW capacity during Qualification (“Application Fee”) AND if selected Application Fee will be applied to 1st Payment below; otherwise it is returned.

1st Payment (Within 5 Business Days) – Monthly CONE times MW awarded

2nd Payment (At Least 15 Days Prior to next FCA) – Another Monthly CONE times MW awarded

3rd Payment (At Least 15 Days Prior to following FCA) – Another Monthly CONE times MW awarded.

Total Financial Assurance Payments = Three monthly payments

FCM Timeline for 1st FCA

Horizon	Action
09/01/2006	Transition Rules Filed with Federal Energy Regulatory Commission
11/01/2006-12/31/2006	Show of Interest Application
12/01/2006	Transition Payments Begin
02/15/2007	FCM rules filed with Federal Energy Regulatory Commission
01/01/2007 – 07/01/2007	System Planning Studies
04/30/2007	Deadline: Existing Capacity Qualification Packages and De-list requests
05/01/2007	ISO Posts Export and De-List Bid Information
06/15/2007	Deadline: Bid Qualification for New Capacity and Imports
08/01/2007	New Entrants and Imports Notified of Qualification Package Disposition and Financial Assurance Requirements
08/01/2007 – 09/01/2007	Accept Qualified New Capacity FCA Offers
09/01/2007 – 10/31/2007	Planning Determines Zones and LSRs Deadline for Approval/Rejection of Permanent De-List Bids
11/01/2007	De-List Bids, Zones, LSRs & ICR filed with FERC
02/01/2008	FCA #1 – Delivery for June 2010 through May 2011

? Questions ?