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NERA Review of RAM Model - Status Report and Summary of Anticipated Conclusions

November 25, 2003

Draft - Preliminary



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Summary of Recommendations on Planning Horizon, Commitment Period and Auction Format

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The RAM Group Specified Objectives Of The Market Model At The Outset

1. ***Assure adequacy.*** The model to acquire resources should assure adequacy and should be capable of being applied consistently in each region through a single commodity (unforced capacity)
2. ***Choose appropriate planning horizon and commitment period.*** Address lead times needed to develop and construct new generation and develop and implement demand response programs through the appropriate planning horizon and commitment periods
3. ***Provide appropriate price signal.*** Create a market process that will reveal the appropriate price signal for market adequacy, and minimize market power and market gaming opportunities
4. ***Encourage entry.*** Accommodate market entry for all market participant types and retail load switching for LSEs
5. ***Integrate with other markets.*** Support the development of a competitive wholesale marketplace for energy and ancillary services



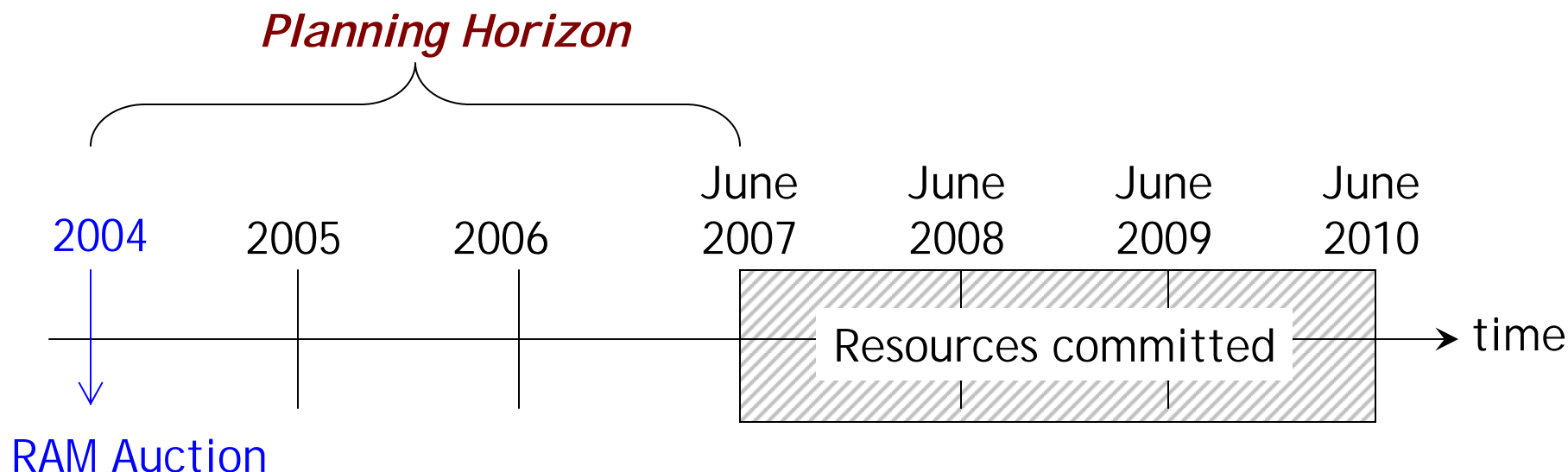
NERA's analyses aim to ensure that the model meets these objectives

Demand Survey Completed

- Complement to survey of merchant generators, lenders and investors
- Results of all surveys were considered when forming recommendations
- Recommendations are based on requirements of market and not preferences of any one group of resource providers

Our Conclusion Regarding Planning Horizon Has Proven To Be A Driver Of Other Conclusions

The *planning horizon* is the length of time between the RAM auction and the time at which the winners must start providing any resources committed through the auction



NERA Recommends a 3-Year Planning Horizon



A 3-Year Planning Horizon Fully Meets the Objectives

We assume qualification criteria that allow participation by planned resources and require binding commitment from winners. An auction with a 3-year planning horizon:

- *Then accommodates the lead times* for development of almost all new resources (generation and demand response providers)
- *Minimizes market power opportunity* by allowing all potential new resources to compete with existing resources
- *Helps assure adequacy* - new resources participate in the auction before making ultimate decision whether/when to develop
- Increases reliability of information regarding level of commitment and timing of new resources - *avoiding “booms and busts”*

A key to assure adequacy is for the auction to come before the providers' decision to develop new resources



Strong Advantages Make 3-Year Horizon Best Option on Balance Despite Concerns

- Lead times may be insufficient for some resource types

Longer horizon would alleviate concern

- Load forecast uncertainty may mean that resources inadequate for need

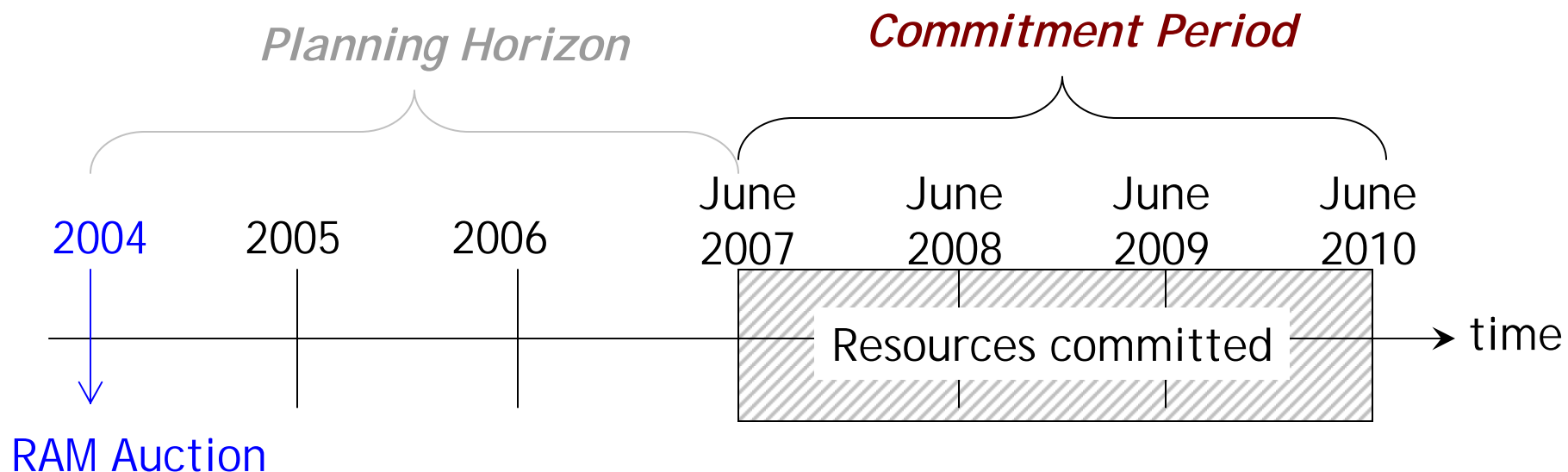
Shorter horizon would alleviate concern

- Some demand response providers will find it hard to participate

Much shorter horizon may alleviate concern

Our Conclusion on Commitment Period Works Hand-in-Hand with Recommendation on Percent Procured

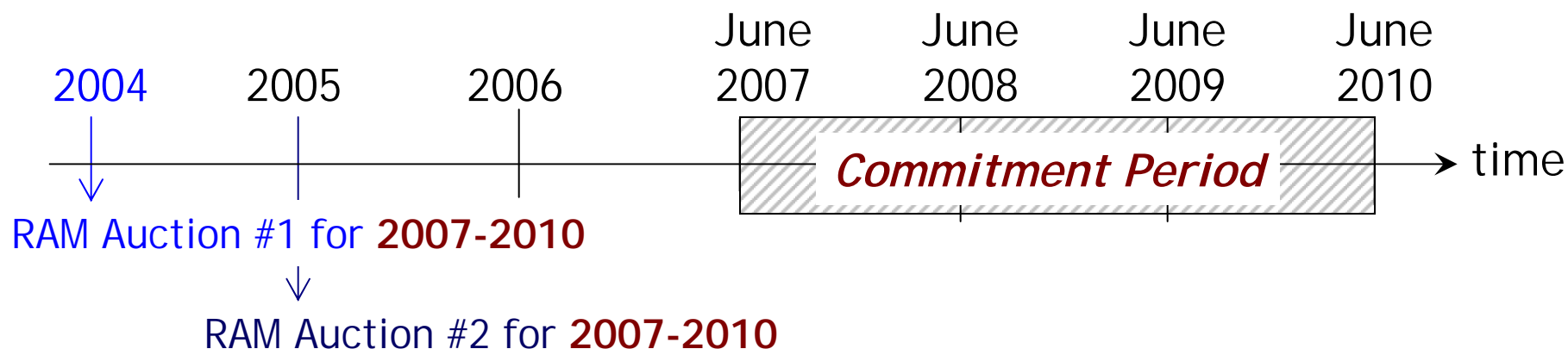
The *Commitment Period* is the length of time for which the winners at the RAM auction commit resources



NERA recommends a 3-year commitment period

A Sequence of Auctions Is One Way to Avoid Procuring 100% of Requirement in One Auction

A *sequence of auctions* is to procure through several auctions the requirement for a given commitment period

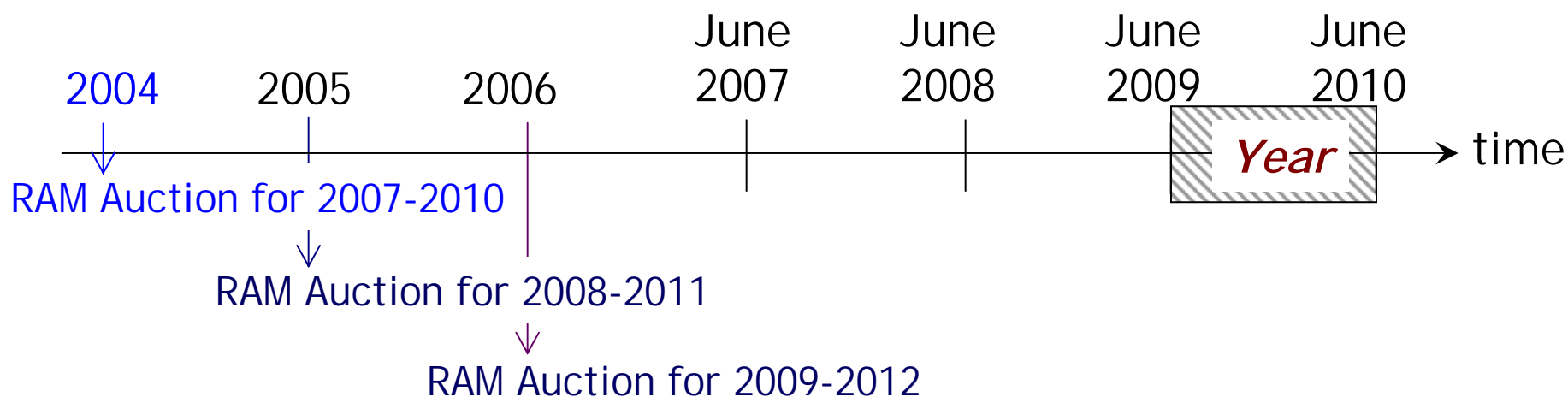


NERA recommends against a sequence of auctions

3-Year Commitment Period Allows A Variety of Options on Percentage Procured

Purchasing 100% of requirement every year would mean exposure to transient unfavorable conditions

A *staggering option* is a way to procure through several auctions the requirement for a given year



NERA recommends a 3-year rolling option with a fixed commitment period

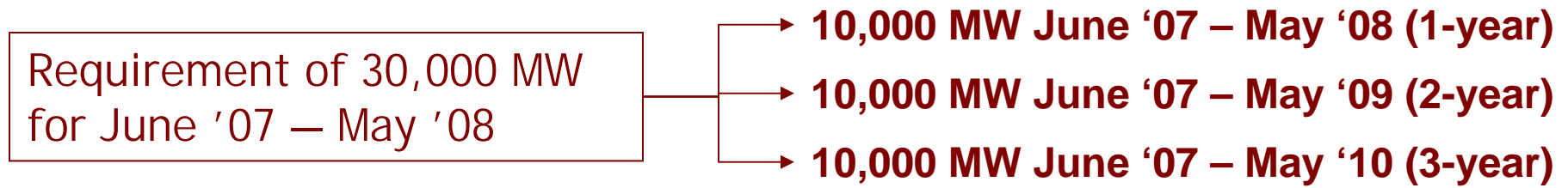
3-Year Commitment Period Meets Objectives But So Do A Variety Of Alternatives

- Importance of the length of the commitment period is
 - ▣ in providing revenue certainty and inducing providers to bid at lower prices - 3 years of certainty for receiving auction price significant in willingness to provide at lower price
 - ▣ in providing options for staggering procurement
- Longer commitment periods would be preferred by some resource providers (e.g., those with capital investments) while shorter commitment periods would be preferred by other resource providers (e.g., those without significant investment but with need for flexibility)

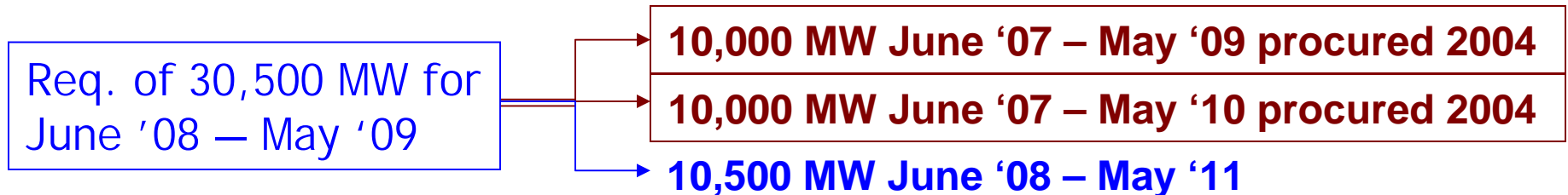
NERA recommends a 3-year commitment period. NERA believes that a 1 or 2-year commitment period could meet the objectives – but at potentially higher prices and without as much protection from transition events

Example of Rolling Option with a Fixed 3-Year Commitment

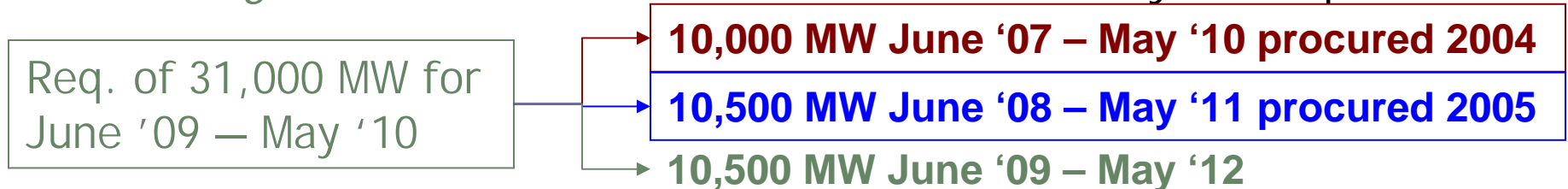
- *2004 transition auction* for June '07-May '08 requirement



- *2005 regular auction* for balance of June '08-May '09 requirement



- *2006 regular auction* for balance of June '09-May '10 requirement





Strong Advantages for the Rolling Option With Fixed Commitment

- Although a sequence of auctions protects from transient events, it introduces gaming opportunities that would make the price signal unreliable and difficult to evaluate
- Rolling option has strong advantages
 - ▣ Protection from transient event
 - ▣ Frequent price signals
 - ▣ More certainty about market results
- Rolling option with variable commitments (1-year, 2-year and 3-year commitment products in every auction) shares strong advantages but would be more difficult to administer
- A three-year commitment period allows flexibility on the percent procured and works hand-in-hand with the percent procured recommendation

Strong Advantages of 3-Year Commitment and Staggering Option Outweigh Possible Concerns

- Some demand resource providers will find it difficult to participate

These providers may need tailored solutions outside the design of market

- Staggering could complicate ability of load to hedge

Potential exists for mismatch but magnitude is small

- More complicated for bidders than 100% procured at once

Information about market will need to take care to explain options to potential bidders

Analysis of Auction Format Focused on Open versus Closed Auctions

In an *open auction* bidders acquire information throughout the auction and have an opportunity to revise their bids

Of the formats selected by the RAM Group,

- reverse English and pay-as-bid are closed auctions
- descending clock is an open auction

NERA recommends an open auction



Important Advantages of Open Auctions Translate to Benefits for Load

- Bidders learn and by having more information and facing less risk are more willing to bid aggressively (lower price)
- Information available to everyone levels the playing field
- The price signal is determined on the basis of overall market information likely to be more stable
- Open auctions designed to accommodate many products
- Winners likely to be efficient providers

NERA supplements this recommendation to ensure that format performs well in all contingencies with several design features to enhance competition



Among Open Auctions, Clock Has Strong Advantages

- Strategic Simplicity

- Open auctions designed to accommodate many products
 - ▣ Clock most sensible design when products are very similar

- Simple rules on information can provide strong protection
 - ▣ against withholding
 - ▣ against coordination when participation is adequate

These rules form part of our preliminary recommendations on mitigation in this presentation



Strong Advantages of Clock Auction Outweigh Possible Objections

- Pay-as-bid auctions could result in lower prices

Pay-as-bid can result in lower or higher prices - as rules that determine price and payments to winners change, bidding behavior changes as well

- Format may facilitate entry deterrence by existing players

Such behavior must be carefully monitored and be subject to sanctions

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Progress Report On Portion of Remaining Issues

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Preliminary Report on The Following Additional Issues

- Mitigation measures and offer caps
- Market monitoring
- Variable resource requirement

Recommendations Minimize Need for Mitigation - But Contingencies Where Competition Does not Materialize Must be Considered

- ISO sees from the qualification stage that no new resources are participating and that competition is not strong
- ISO foresees adequate competition at qualification stage but the competition does not materialize at the auction

For well-defined contingencies in which competition does not materialize, NERA proposes:

either

- *an offer cap;*

or

- *comparison of auction price to a benchmark communicated to resource providers in advance, which may lead to mitigation.*

VRR Analysis Has Focused on Its Compatibility with the Clock Format and Its Ability to Achieve the Objectives

The *VRR* is the *variable resource requirement* or *demand curve approach*. The single requirement on a MW basis is replaced by a downward sloping curve that relates each level of capacity procured to a price that the ISO is willing to pay for that level of capacity

NERA's analysis indicates that the VRR is not required to achieve the objectives. The NERA proposal excludes the VRR. The NERA proposal is nevertheless expected to achieve market outcomes similar to those under the VRR and main elements can work in conjunction with VRR.

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Context and General Approach to Market Monitoring and Mitigation

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Monitoring and Mitigation Seek to Prevent Outcomes that Are Not Competitive

- Possibility that a market participant can dictate price
- Possibility that a market participant could exploit the auction rules
- Possibility that market participants could act in concert and collude

Mitigation of Price Levels That Are Not a Result of Collusion or Illegal Activities Is Specific to Electricity Markets

- In other markets, existence of market power is not in itself sufficient for intervention absent an anti-competitive business practice
 - ▣ Merger review examines outcome of increasing concentration
 - ▣ Entry and presence of substitutes are main disciplining factors

- Characteristics of electricity markets weaken influence of usual disciplining factors, and this means more active mitigation
 - ▣ there are no substitute and there are substantial costs to entry
 - ▣ Competition is workable but on-going review by FERC and market monitors necessary

NERA's First Step Has Been to Minimize Need for Mitigation with a Design That Encourages Competition

- NERA arrived at the recommendations already reviewed with a constant view to encouraging competition
 - ▣ A 3-year *planning horizon* allows participation of new resources, which become an active part of the competitive discipline of the market
 - ▣ A 3-year *commitment period* provides new resources entrants with significant revenue assurance which should result in lower prices
 - ▣ A *clock auction* lessens risk associated with guessing, encouraging rational bidding while lessening incentives to withhold



NERA's General Approach Recognizes the Dynamics of Market Performance and Mitigation

- Market participants will consider expectations of future profit opportunities in capacity and in other markets when bidding in auction
- Mitigation seeks to prevent the exercise of market power but not to depress price levels that reflect supply scarcity
 - ▣ Making this distinction can be a difficult task
 - ▣ When mitigation measures mean that capacity prices resulting from scarcity as opposed to market power are depressed, revenues to resource providers in some period will be lower than a competitive market would have provided
 - ▣ This is a risk and market participants will need to be provided an opportunity to earn sufficient compensation in circumstances when mitigation is not needed

Long Run Nature of Market Should Act As a Natural Discipline

- Long run disciplining factors include
 - ▣ New and planned resources
 - ▣ Bilateral market
 - ▣ Elasticity of supply for demand response providers
 - ▣ Imports
 - ▣ Potential elimination of market if it is manipulated

Planning Horizon is crucial to our belief that the proposal includes natural disciplining forces that will minimize need for mitigation

Information is the Strength of the Auction Format

The *information* in a clock auction include the quantities offered at prices suggested by the auction manager and the prices in each round.

- Advantage of information is ability of bidders to revise their bids on that basis
- Prudent to control information appropriately so as to enhance pro-competitive nature of auction format

NERA recommends that

- *Only aggregate information be provided*
- *Information be limited further as auction progresses or when excess supply in auction is low*



Many Choices On Rules Need To Be Made - Two Impact Most On Competitiveness

- *Providing only aggregate information*
 - ▣ Aggregate information sufficient to garner benefits
 - ▣ Bidder-specific information can be used for tacit collusion - parties to agreement can know whether agreement has been followed

- *Reducing information as the auction progresses, and providing less information when the starting excess supply is small*
 - ▣ Information when excess supply is small could be used for parties to coordinate on an early close to the auction
 - ▣ Advantage outweighs any cost in terms of not providing bidders more information at the end of the auction



NERA Believes in Positive Actions to Encourage Competition at Auction

■ Promotion

- ▣ Clear communication of rewards and obligations associated with commitment
- ▣ Announce range of starting prices for auction
- ▣ Training and information

■ Transparency

- ▣ Clear qualification criteria and bidding rules
- ▣ Ability of bidders to understand how price is determined
- ▣ Mitigation measures that provide clear bounds

■ Confidence in Market

- ▣ Stability of design

A Range of Starting Prices Is Used by Bidders to Evaluate the Market Opportunity

- In a clock auction, in round 1 the price starts high, and the price is gradually reduced in later rounds through competition
 - ▣ The price in round 1 would be chosen in the range of starting prices announced ahead of the auction
- Starting prices that are set high encourage participation and it is not envisioned that auctions can end at or close to starting price

Qualification Criteria Can be Used in Many Ways to Encourage Competition

- Encourage participation by recognizing the possibility of new resources while protecting against non-performance
- Bidders would, as a condition of qualification, represent that they will be acting independently and competing against their rivals
- Bidders would provide binding indicative offers upon qualification

Qualification criteria are strictly outside NERA's scope

We make these suggestions given the importance of qualification for overall success of the market

Expectation Is of a Competitive Outcome - Mitigation Is Not Expected To Be Routinely Used

- All elements of the market reflect a prudent design that encourages a competitive outcome - but contingencies where competition does not materialize must nevertheless be considered
- Mitigation measures are designed for these contingencies only, and are not expected to be routinely used
- Monitoring is on-going and would be routinely performed

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Mitigation

Preventative Measures

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Qualification Process Should Provide Valuable Information About Level of Competitiveness

Qualification	Qualification Evaluation	Implication for Auction
<ul style="list-style-type: none">■ Bidders apply to qualify resources and make binding indicative offers	<ul style="list-style-type: none">■ ISOs can use qualification data as gauge of likely level of competitiveness in the auction	<ul style="list-style-type: none">■ Auction parameters can be set on basis of evaluation

There are some contingencies where, following the evaluation, mitigation can be appropriate

Pre-Auction Timeline

Resource Providers



In Two Narrow Set of Outcomes, Examine Whether Mitigation Before The Auction Is Appropriate

Expectation is that competitiveness at auction will yield price signal appropriate to reliability objective

But must consider the following contingencies:

- Qualified resources fall short of requirement
- Expected competition at the auction, and entry unlikely to be needed: price signal may not be appropriate

First Circumstance: Qualification Is Insufficient For Requirement

An *administrative price* is the price set when qualified resources are insufficient for requirement and when an auction will not take place.

The administrative price is paid to qualified resources and are paid by load during the commitment period.

NERA recommends the use of an administrative price when qualification is insufficient for the requirement

NERA proposes that this price be set at the annual cost of a CT amortized over fifteen years



The Administrative Price Is Not An Offer Cap

The administrative price is not an offer cap or a price cap on a competitive auction

- The administrative price is only invoked when there is insufficient qualified capacity
- It is not intended to be the upside opportunity required to compensate for periods of depressed prices

We recognize that it is inappropriate to cap the upside opportunity at an amortized cost and only have price go down

How the Administrative Price Is Expected to Play a Role in Entry Decisions

Bidders Evaluate:

- Cost
- Energy and A&S revenues
- Probability of administrative price being employed and administrative price methodology
- Probabilities of future CRAM auctions where prices may be low because of capacity surpluses
- Probabilities that price will clear at level required by entrants
- Impact of mitigation on prices

And Determine:

- Price at which providers are willing to offer new capacity
- This price will reveal the market price for adequacy (and may be above administrative price)
- We recommend no mitigation when the competition of new resource providers is used to reveal this price
- Only a competitive process can reveal the market's view of the risks associated with the administrative price, with application of mitigation in the future, and with the probability of periods of depressed capacity prices

Rationale for Using Cost of New CT Amortized Over 15 Years as Administrative Price

- Administrative price is for situation where qualification is not sufficient for an auction
 - ▣ Price must be capped at some level as by definition there is no competitive discipline
 - ▣ But administrative price cannot be so high as to encourage withholding from the qualification process
- A fifteen year amortization period with no offset for energy and AS net revenue should provide a signal that entry is required
 - ▣ The historic use of a price of this nature as a deficiency charge should make this level acceptable to customers
 - ▣ Providers will have a clear methodology that they can factor into their bids in future auctions

Limiting the Period When Administrative Price Is Received

What should be done given a shortfall?

- Limit period during which administrative price is used to one year
- Next auction would include products with 2-year and 3-year commitment periods

And in addition:

- Option 1 - live with shortfall for one year
- Option 2 - live with shortfall, conduct shorter planning horizon supplemental demand response program

NERA recommends limiting period during which administrative price is received by resource providers

Second Circumstance: Qualification Leads to Evaluation that Competition May be Weak and There Are No Entrants

- Evaluation based on qualified resources
- A possible mitigation measure is to set an offer cap that serves as the round 1 price
- We call this offer cap *a reserve price*
 - ▣ Being the round 1 price, it can only be competed down further
 - ▣ It would be established before hand in a manner transparent to participants

Reserve price may be appropriate when low competitiveness expected without need or disciplining influence of new resources



Nature Of The Reserve Price

- The reserve price by definition constitutes an acceptable result in the auction
 - ▣ Bidders should have the certainty that no other measures would be imposed

- The reserve price should reflect an acceptable long run price
 - ▣ Should be informed with previous auction results as experience with market grows
 - ▣ Should recognize the uncertainty of whether entry is really needed

Method to establish reserve price depends on view of market and on factors most important to ensure reliability

First Method To Set The Reserve Price Is To Use An Estimate Of What The Price Would Be If Set By Entrants

- Have entry levels be the discipline on price in general - even if a particular auction has not attracted entrants
- The entry-based price would require estimates of:
 - ▣ Investment costs for new resources
 - ▣ Energy and AS revenues
 - ▣ Bidders' view on risks and resulting capital recovery period
- Estimating the amortization period required by entrants is, however, the function of the competitive market, and we know of no reasonable way to do this reliably
- Recommendation is to use the administrative price as the entry-based reserve and adjust this to reflect results of competitive auctions among entrants



First Method Promotes Stability

- The entry-based reserve can be competed down
 - ▣ But it is applied in circumstances where competition is not strong and may not exert significant downward pressures on price
- An entry-based reserve price promotes reliability and stability of the auction results
 - ▣ Price signal is appropriate for reliability in the long run; however, it does not necessarily track all market fundamentals at a particular time

Second Method Is To Set The Reserve Price To Emulate The Economic Incentives That Would Lead To Entry Without A Capacity Market

- Absent a capacity market:
 - ▣ Entrants would develop resources in reaction to and in anticipation of economic profits from energy and AS markets
 - ▣ Capacity level would first insufficient to assure adequacy, but as entry occurs, could then become excessive
 - ▣ Prices would be volatile
- The price level would be a direct function of level of capacity shortage, i.e., the probability that capacity is needed
- The capacity market reserve could be established to emulate the economic incentives created by these price patterns, while bringing the economic incentives forward anticipating capacity needed for adequacy and avoiding energy and AS price volatility

The Second Method Recognizes That The Need For Resources Is Not Black And White

- Starts with the assumption that the competitive offers by entrants represent the price required for adequacy with CRAM - and this emulates the economic incentive that a rise in energy prices that would have provided without CRAM
- Recognizes that if economic incentive is provided forward and with greater certainty, lower economic profit and lower prices are needed to achieve same result
- Adjusts the reserve price by the probability that load will exceed the forecast and that qualified capacity will be insufficient to assure adequacy

Second Method Considers Explicitly The Possibility Of Entry And The Economic Incentive Needed For Entry

- Start with a reasonable estimate of economic incentive that an unmitigated energy market along could give toward entry
 - ▣ Long run recovery of fixed cost and return on investment
 - ▣ Opportunity cost of resources including cost of energy market mitigation

- Calculate probability that load will be 1%, 2%, 3%, etc. greater than normal forecast

- Use this probability and benchmark range to set reserve price for various levels of qualified resources

Example of Setting The Reserve Price

Target Reserve 18%

Entry-based reserve is \$75/kw Year

Adjusted entry-based reserve to allow for economic profit is \$90/kw Year

Reserve Provided by Qualified Capacity	Probability Adjustment	Reserve Price
- % -	- % -	\$/kw Year
23 and greater	30%	30
22	45%	40.5
21	65%	59.5
20	79%	71.1
19	97%	87.3

Note: The lower limit of \$30/kw Year would reflect the estimated going forward cost of the most expensive existing resource.

The Difference Between The First And Second Method Is Not In The Level Of Price Over Time, But In The Pattern Of Price

These methods could be used to set a reserve price only when competition is limited and there are no entrants

- Method 1 provides for a stable reserve that allows the market to clear at entry-based levels even with some surplus qualified capacity
- Method 2 provides for a predictable price pattern, but one that constrains price further during periods of surplus to emulate a competitive market
- Both require that an entry-based price be estimated and we recommend that until auction experience is gained both use the administrative price as a base

Treat Differently Situations When Limited Competition From Existing Resources Is A Repeating Occurrence

- In that case a possible option is a restriction on bids to eliminate incentives to coordinate on high price outcome
 - ▣ One strategy that could be used by bidders to coordinate on high price outcome is for each to withdraw a small quantity, which in aggregate close the auction
 - ▣ Strategy is profitable only if each withdraws a little
 - ▣ Restricting bids to be “lumpy” means that if a bidder withdraws, the bidder has to withdraw more; this creates winners and losers
 - ▣ Correct restriction on bids requires a careful evaluation of bidders

Measure could be appropriate when limit competition likely to be a repeating occurrence (i.e., sub-markets that are consistently less competitive)

Evaluating The Starting And Reserve Price Relative To Auction Qualification As Opposed To Market Presence

- Consistent with a voluntary market
- We have not provided for monitoring of capacity withheld from qualification
- Withholding capacity from qualification has the potential risk of revenue loss and increasing entry and as such would seem only to be economically rational if administrative price is set very high

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Mitigation

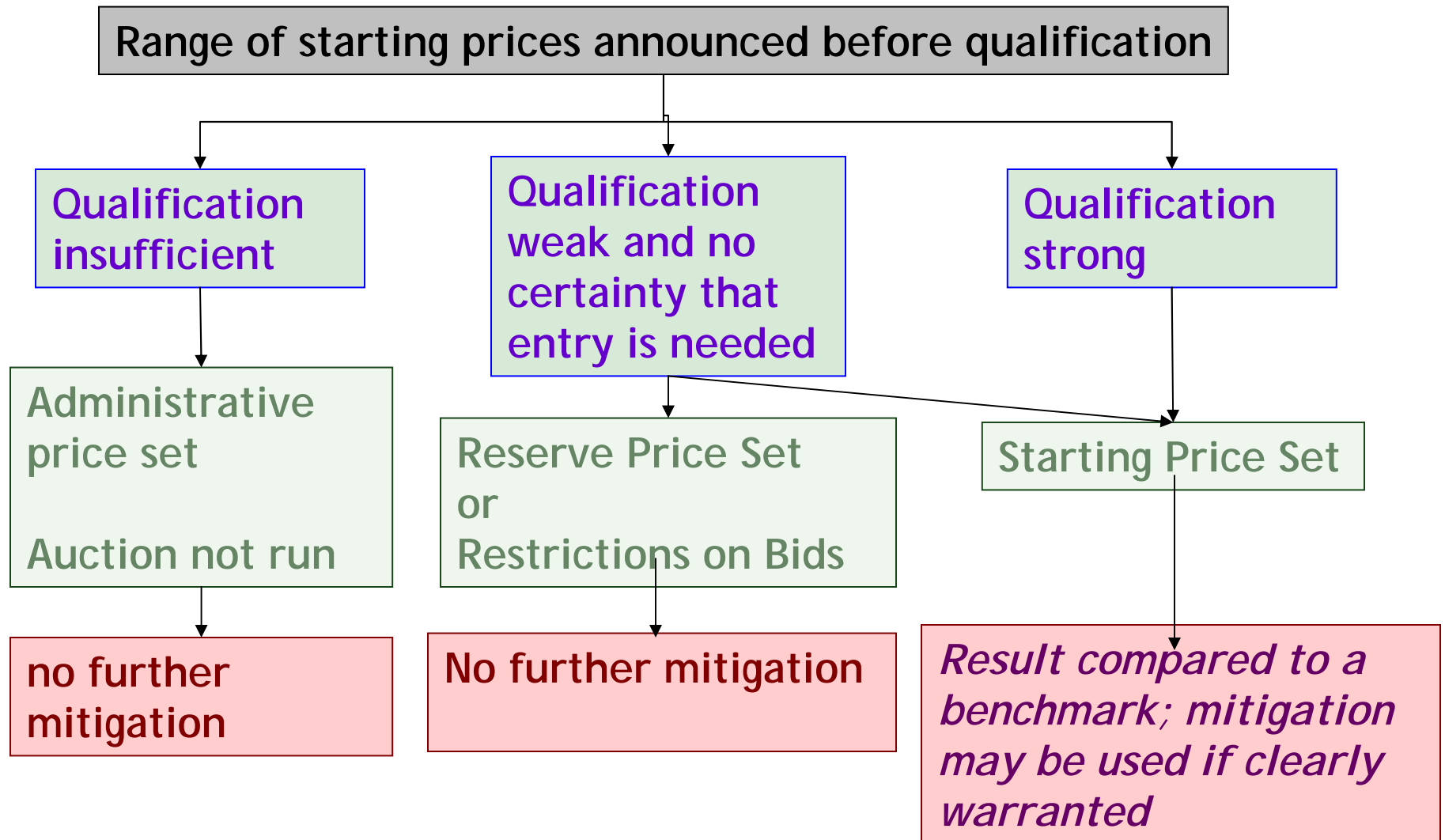
Corrective measures

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Expectation Should Be For A Competitive Outcome

- All elements of the market reflect a prudent design that encourages a competitive outcome
- If administrative price is invoked or reserve is set, no further mitigation should be used
- In other circumstances fully expect a competitive outcome
- But there are contingencies where competition does not materialize despite favorable evaluation at qualification and these contingencies must nevertheless be considered
 - ▣ Mitigation measures are designed for these contingencies only, and are not expected to be routinely used

Three Possibilities Given Evaluation Of Qualification





When To Compare Result To A Benchmark

- When adequate competition was expected
 - ▣ If competition did materialize, result will be competitive and compare favorably to the benchmark; no further mitigation will be required

 - ▣ If competition did not materialize as expected given qualification, mitigation may be required if result shows clear evidence of exercise of market power



Three Methods for Comparing Auction Result To A Benchmark

- First: Compare to an entry-based benchmark
 - ▣ Ensures that market always provides adequate or more than adequate signal for adequacy and ensures stability of revenue expectation
- Second: Compare to price that emulates incentives in a world without a capacity market and consider likelihood that entry is needed
 - ▣ Apply a sliding scale to an estimate of needed incentive depending on probability that load exceeds expectation
- Third: Use going-forward cost of providing resources
 - Ensures that auction price covers opportunity cost for existing resources that should stay in operation

The 1st And 2nd Methods Parallel Methods 1 And 2 For Setting The Reserve Price

- Setting a reserve price applies these methods before the auction; comparing result to a benchmark applies these methods after the fact
 - ▣ If a reserve price is set the result is always acceptable and is not compared to a benchmark after the fact
- Could be invoked in two instances
 - ▣ Qualification indicates weak competition, but a reserve price is not set
 - ▣ Qualification indicates adequate competition but competition does not materialize at the auction
- These measures are not implemented when entrants compete in auction
- If price compares unfavorably and there is evidence of exercise of market power, ISO would have the possibility to mitigate price down to benchmark

Third Method Is To Mitigate Price Based On Going-Forward Costs Of Auction Participants After The Auction

- Going forward costs include all non-sunk costs such as property taxes, operation and maintenance, capital additions, insurance, overheads and opportunity cost of continuing to use site for existing units
- Auction price would be compared to going-forward cost of participants that reduced amount bid at auction
- Method would not be applied to new units
- If price compares unfavorably and there is evidence of exercise of market power, ISO would have the possibility to mitigate price down to benchmark



Third Method: Informational And Monitoring Burden Is High

- Going forward cost benchmark requires more information
 - ▣ Unit-specific cost information
 - ▣ Energy and AS profits for inflexible units
- Requires increased communication with bidders as details on exactly how costs will be reviewed must be communicated and as ISO may require certain information from particular bidders

If The Third Method Is Implemented There could be Problems In Smaller Markets

- In larger markets, there is likely to be a significant amount of older capacity that is inflexible and, given a three year planning horizon, has significant going forward costs; third method should then not lead to extremely low prices during surplus, which would drive up entry prices unreasonably
- In smaller markets where entry itself causes a surplus that may last a long time and where there may not be a mix of older units that could be retired, this method could cause significant problems

All Methods Have the Following Elements in Common

- Mitigation method is established and articulated in advance
- Mitigation method impacts all resource providers
- If any mitigation inadvertently sets the price below a competitive level, resource providers can still earn an economic profit as entry prices would be allowed to adjust when there is competition among entrants

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Monitoring

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Monitoring Examines Bidder Behavior

- Examine possibility of coordinated behavior
 - ▣ Examine behavior to find whether parties parallel each other's bidding strategy
- Examine the possibility of incumbent attempting to extend power over market
 - ▣ Examine whether incumbent is bidding low enough to drive out entrants and may intend to default
- Other possible exercise of market power
 - ▣ If using going-forward cost method 3, may use information to assess individual bids

If Monitoring Uncovers Bidding Irregularities, Sanctions May Be Required

Bidding irregularities could be subject to antitrust laws or FERC enforcement.

NERA offers the following suggestions of market sanctions.

After the fact, monitoring reveals bidding irregularities,

- Possible measures include:

- ▣ Resource provider must be a price taker in future auctions
- ▣ Ability of resource provider to withdraw as price ticks down is constrained in subsequent auctions (less bidder choice)
- ▣ Compensation during commitment period is less than auction price

- Each measure could serve as important deterrent

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Other Issues:

Variable Resource Requirement

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Reviewing The Variable Resource Requirement

- The VRR is compatible with the clock auction format
- The VRR is also compatible in the context of multiple products or multiple ISOs
- Rules are more complicated and delicate, but basic concepts remain sound and usable



Potential Objectives Of The Variable Resource Requirement

- Put floor on price in times of excess to reduce price needed to induce entry when entry is required
- Recognize that added capacity is worth something and pay for it to attract capacity
- Mitigate market power by reducing incentive to withhold



Preliminary Proposal Outlined By NERA Has Similarities in Outcomes to VRR

- Both should be effective at ensuring that price is not too low with moderate over supply
- Both require some estimates of a competitive standard for entry
- Both require periodic updates of standards to reflect market information

Preliminary Proposal Does Not Integrate VRR; Has Differences in Concept with VRR

VRR

- Prices (demand) curve are by definition clearing prices
- Price is set administratively and quantity determined by market
- Possible that more existing excess capacity will be committed to market
- If capacity is insufficient, price rises

NERA Proposal

- Reserve and starting prices are maximum prices
- Quantity is set administratively, then price is determined by market and evaluated by comparison to benchmark
- Possible that capacity may be qualified and/or operate, but not necessarily be committed to market
- Administrative price remains stable when capacity is insufficient



Initial Evaluation

- The VRR would be a superior method for a short lead time market where the key is to provide a price supplement as opposed to influence the entry decision
- The RAM proposal without the VRR has one major advantage, which is that it does not constrain the clearing price to a pre-selected price for a quantity, but encourages the market to reveal the price required for entry
 - ▣ One of the objectives is for market to provide appropriate price signal for market adequacy
- The VRR does have the advantage of potentially contractually committing more existing excess capacity to the market, but the value of the commitment appears small

Both alternatives address and provide solutions to the same issues, albeit in different ways. NERA proposal does not integrate but could be made compatible with VRR



Outstanding Issues

- Deficiency charges
- Impact on bilaterals
- Compatibility with retail choice
- Impact on energy and AS Markets
- Reconfiguration alternatives (including follow-up on VRR and spot markets)



We Will Address The VRR Further On December 12

- In the context of reconfiguration auctions
- In the content of spot markets

NERA

Economic Consulting

Demand Response Survey Results

Draft - Preliminary



Marsh & McLennan Companies

How Markets Work

Sampling Frame and Responses

Survey distributed to PJM, NYISO and ISO-NE DR Working Group lists, and to others

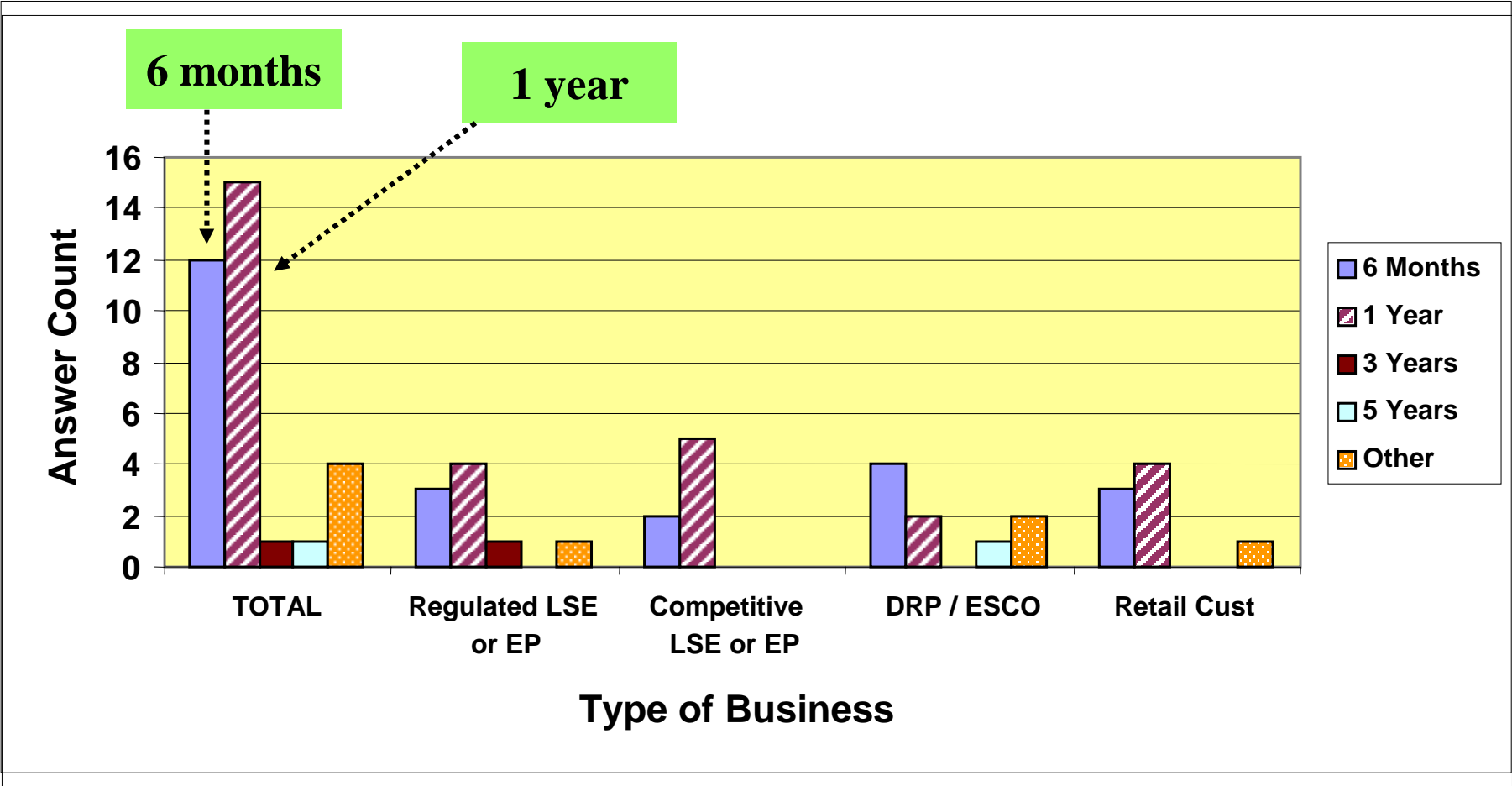
<u>Respondents by ISO</u>	
■ PJM	8
■ NYISO	9
■ ISO-NE	7
■ Multiple ISO	6
■ None	3
TOTAL	33

<u>Respondent Identity</u>	
■ Regulated LSE	9
■ Competitive LSE	7
■ Demand Service Provider	9
■ Retail Customers	8
TOTAL	33

Survey asked respondents to indicate their acceptance of alternative:

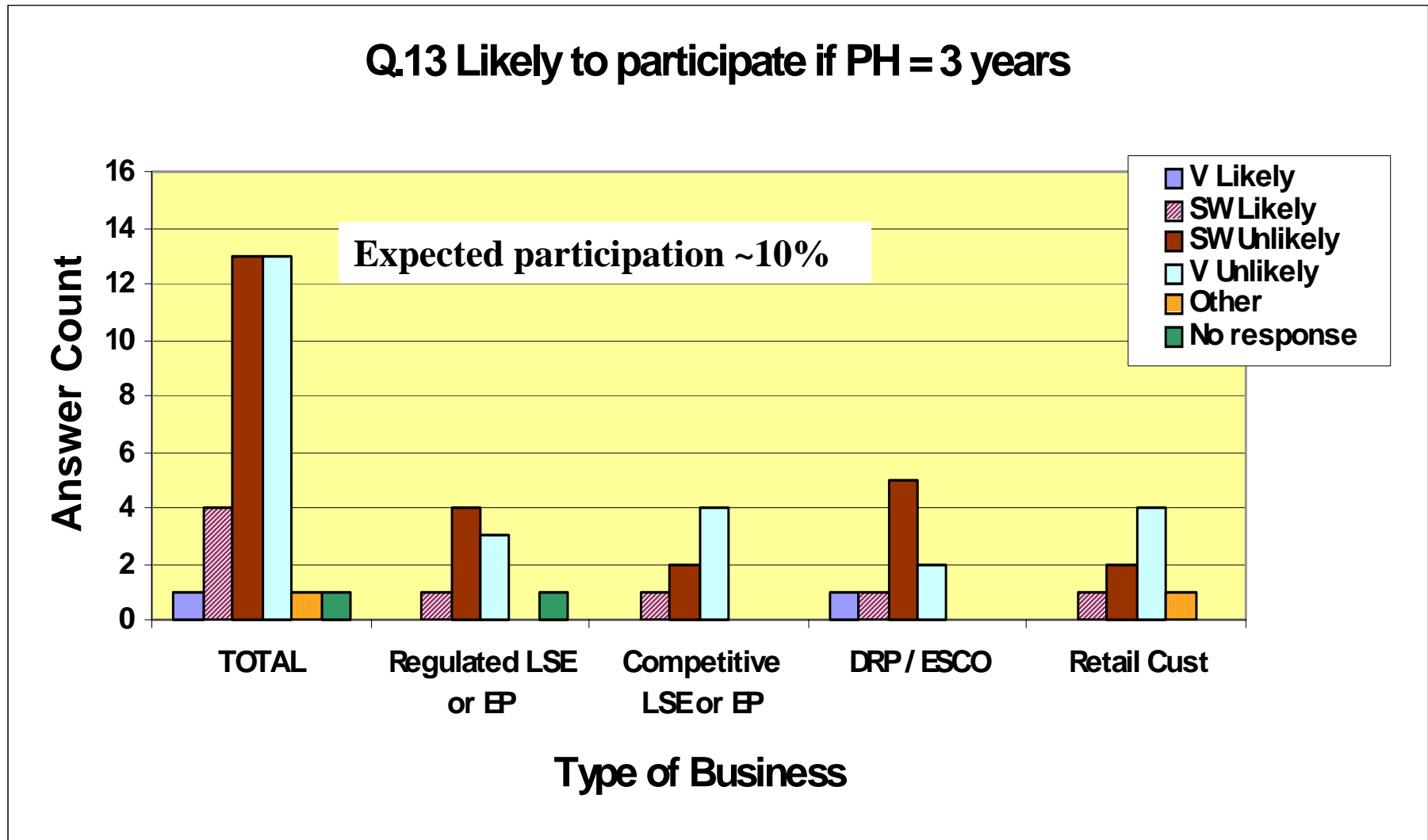
- Commitment periods (6 mo. to 3 years)
- Planning horizons (6 mo. To 3 years)

Best Commitment Period (CP)



Most respondents reported that they'd the same level (1200 MW) or more

Acceptance of PH = 3 years





End