

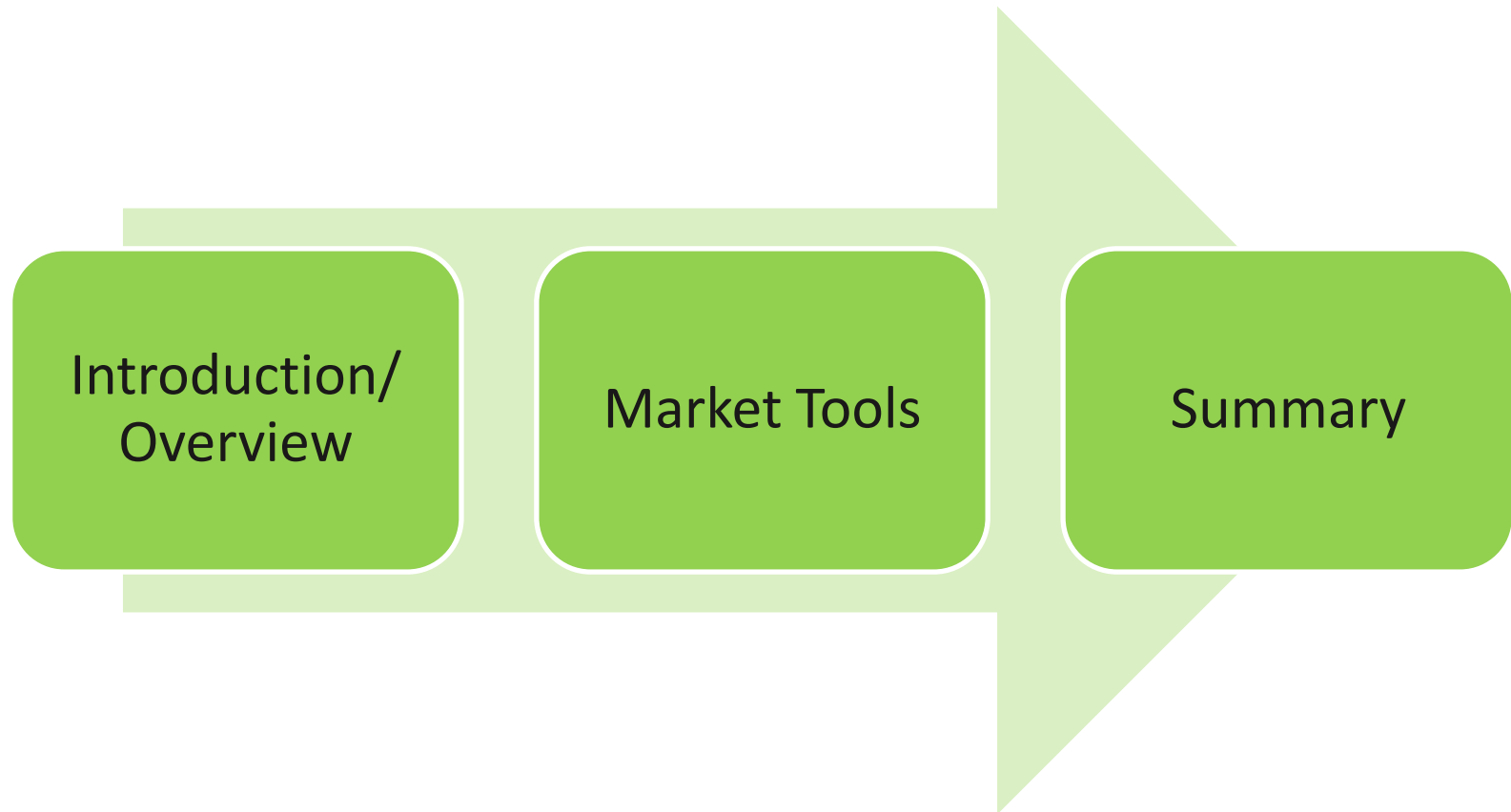
# Market Interactions: Internal Bilateral Transactions (IBTs), Increment Offers and Decrement Bids (Incs / Decs)

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# Topics Covered in this Module





Introduction/  
Overview

Market Tools

Summary

# Introduction:

## *What Are We Going to Cover?*

- Focus on market tools created with the implementation of Standard Market Design (SMD)
- Learn about these tools; how they work, their upsides and downsides, how they interact with each other, why you may need them.
- WEM 201 course allows more time to expand on these discussions and uses Case Studies to enforce the concepts all the way through
- We will not discuss the “best” or “worst” strategies to use or any specific strategies (“I” in ISO prevents that).
- Please no company specific questions – no company specific answers

# Overview

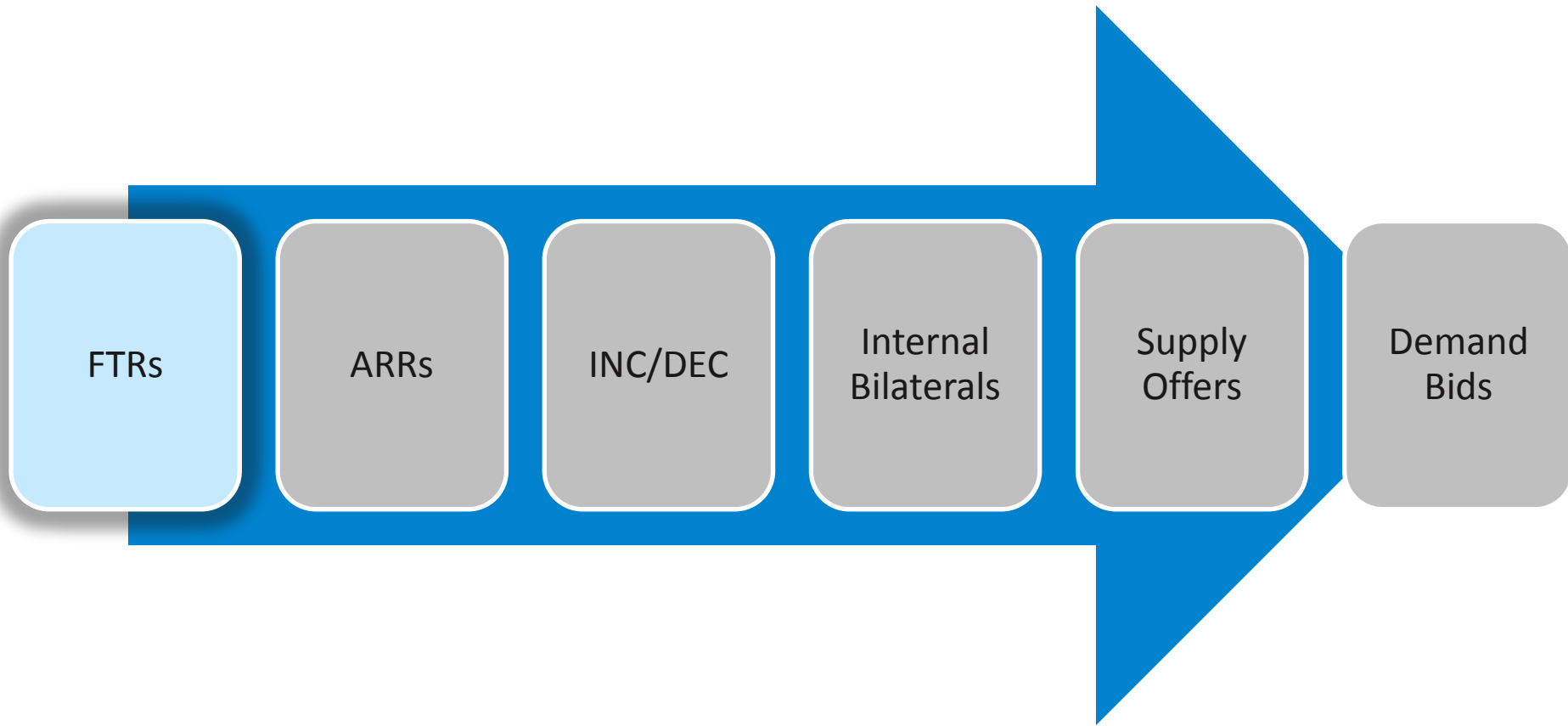
- Standard Market Design (SMD) introduced a more robust Energy Market
- More tools to use to take positions in the Market
- More opportunities to participate

Introduction/  
Overview

Market Tools

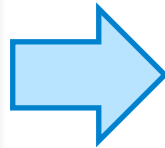
Summary

# Market Tools



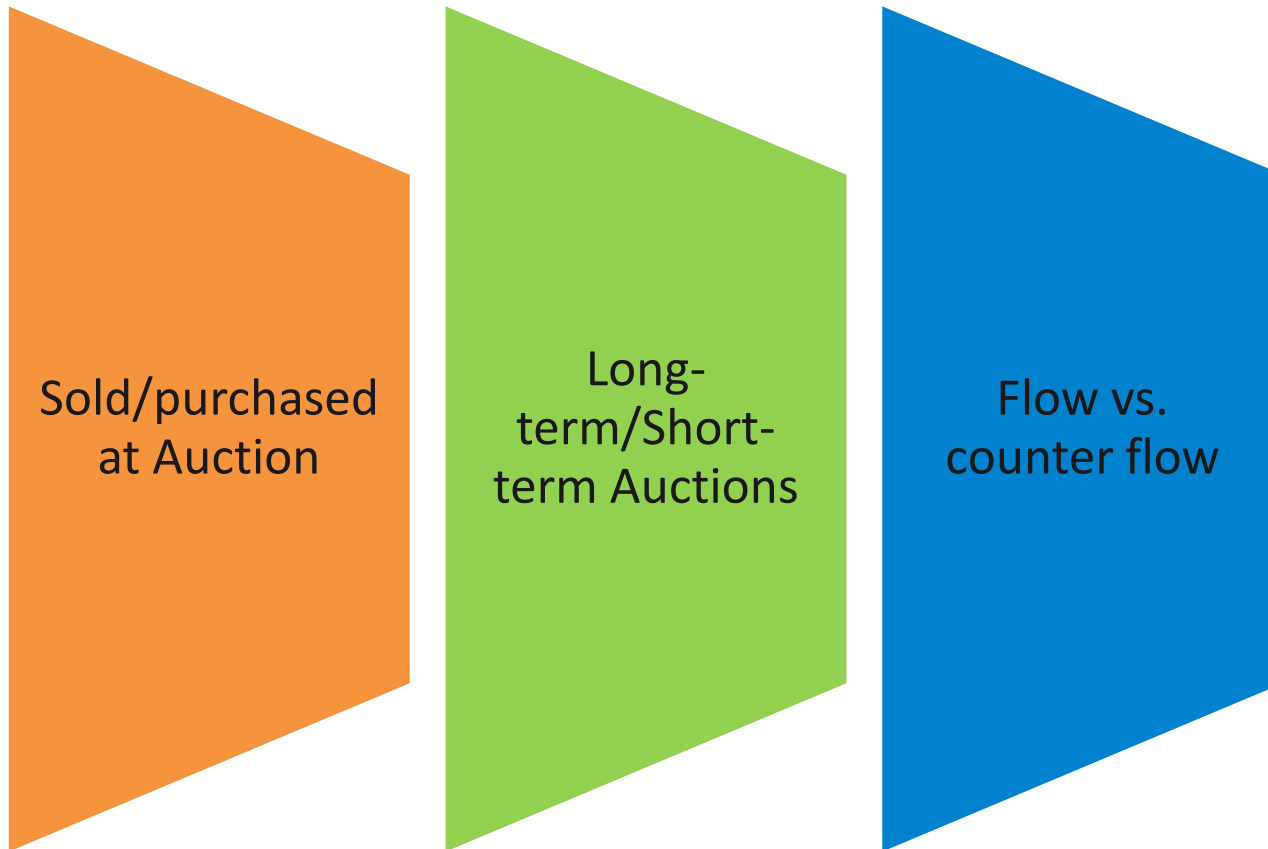
# Section Topics

## *Financial Transmission Rights (FTRs)*



- What are FTRs?
- Who and how does someone get FTRs?
- Why would I want an FTR?
- What are Auction Revenue Rights?
- Who gets the Auction Revenue?

# Financial Transmission Rights (FTRs)



# Who?

- Any Participant
  - Total Quantity x Price Bid is evaluated at the maximum quantity that could clear (Bid Financial Assurance);
  - Plus the calculated forward risk component of each path bid upon (Settlement Risk Financial Assurance);
  - Determine if remaining Financial Assurance available will cover this combined exposure.
- Additional requirements for Non-Participant FTR Customers
  - time sign up fee of \$5,000



# What?

- Long-term (more than a single month)
- Short-term (a single month)
- On-Peak or Off-Peak periods



# How?

- FTR Participant bids for the Auction period
  - Source and Sink
  - Quantity
  - Price
- Holder of Long-term Auction FTR may “resell” that FTR into the Auction.
  - Source and Sink of Long-term FTR
  - Quantity to resell (up to Long-term amount)
  - Minimum price to sell

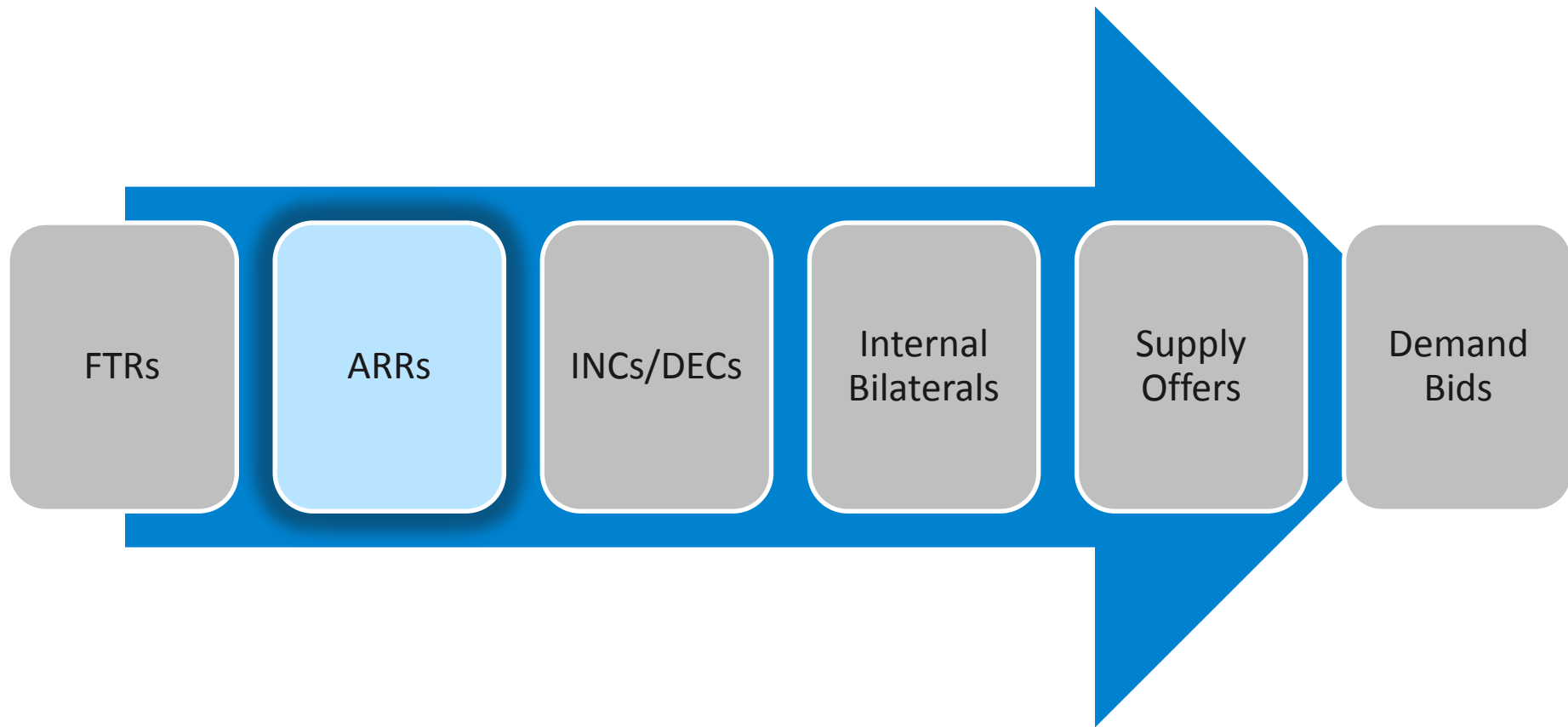


# Why?

- Look at FTRs as a stand-alone financial instrument
  - Purchase Forward Contract for congestion difference at a set price.
  - Delivery is based upon the Day-Ahead (DA) Market price differences.
  - Goal of those bidding for an FTR
    - Buy the FTR in the Auction at less than the total amount of the congestion revenue which will be paid to the FTR holder throughout the Auction period
  - These financial instruments could be thought of as investments that get future “earnings.”



# Market Tools

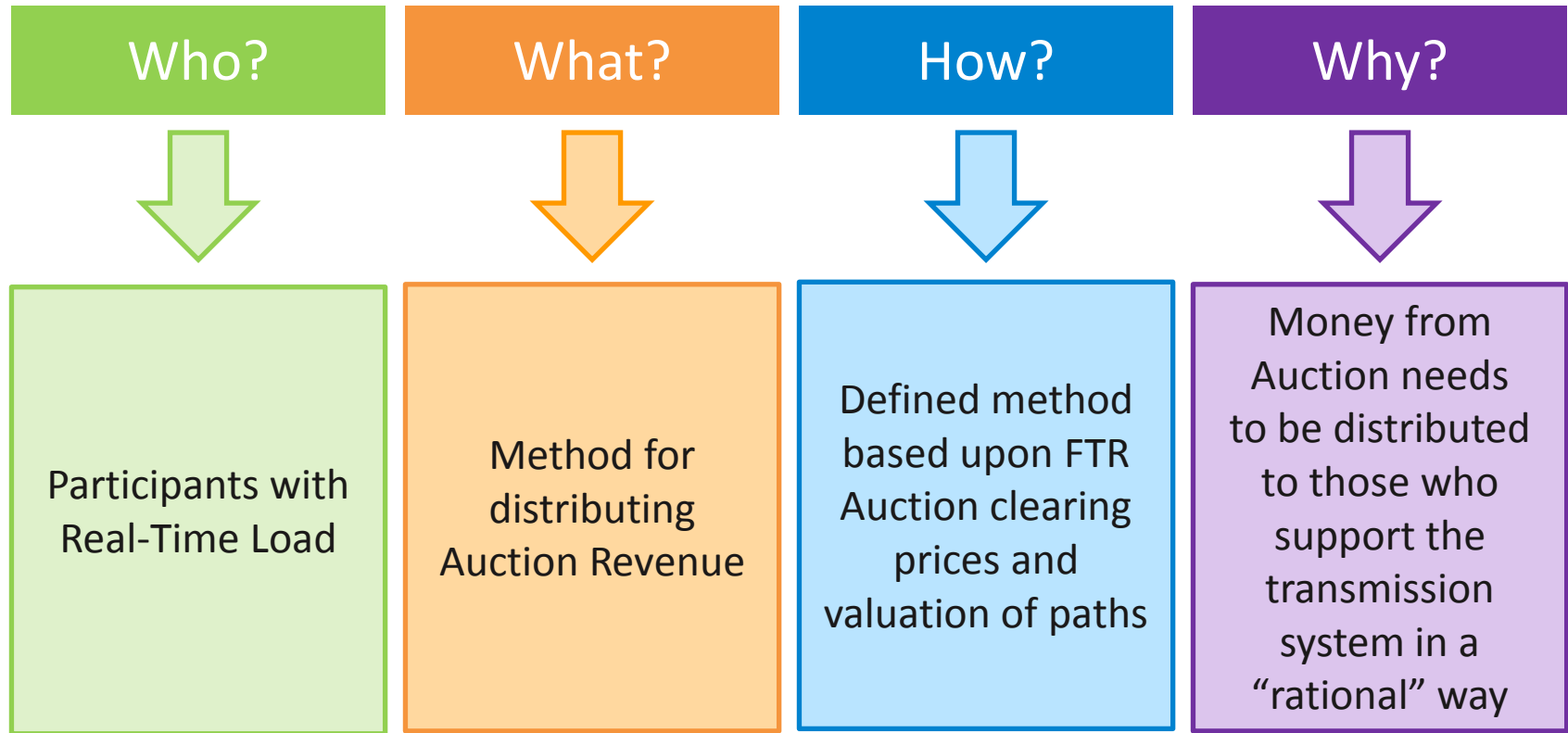


# Definitions from Manual 35

Auction Revenue Right (ARR)	Auction Revenue Right Allocation (or ARR Allocation)	Qualified Upgrade Awards (QUAs)
<p>Auction Revenue Right is a right to receive FTR Auction Revenues in accordance with Appendix C of Market Rule 1. <a href="#">[Market Rule 1]</a></p>	<ul style="list-style-type: none"> <li>ARRs are awarded to Entities paying for transmission upgrades which make it possible to award additional FTRs in an auction (excluding upgrades paid for by the POOL Regional Network Service (RNS) rate). These ARRAs are known as Qualified Upgrade Awards (see definition below and in Sections 7 &amp; 8 of Manual 6) and are determined in accordance with Section 8.2 of Manual 6.</li> <li>All other ARRAs shall be determined and allocated to Congestion Paying LSEs and NEMA LSEs using a four-stage process as described in Appendix C of Market Rule 1.</li> </ul>	<p>Qualified Upgrade Awards are revenues associated with the additional FTRs made possible in an FTR Auction by transmission upgrades, which increase transfer capability on the New England Transmission System, where such transmission upgrades are initially placed in-service on or after March 1, 1997, and paid for by an entity and are not paid for through the POOL Regional Network Service (RNS) rate.</p>



# Who, What, How, and Why?



# Auction Revenue Rights (ARRs)

## *Impact*

- What interactions can impact getting ARRs?
  - Bilaterals (we will talk about this later)

# Auction Revenue Rights (ARRs)

## *Short-term / Long-term Auction*

- ARRs for the Short-term and Long-term Auction distributed differently
  - Each Auction's revenue is distributed according to the ARR process which uses that FTR Auction's prices in the distribution.



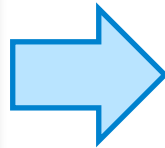
# Who?

- ARR are given to those who have RTLO.
  - This pays “Congestion Paying Entities” who support the transmission system.
  - Support of the transmission system may not be provided by the Participant with the Energy Market RTLO or by the same Participant who pays for Network Load in the Transmission Tariff.



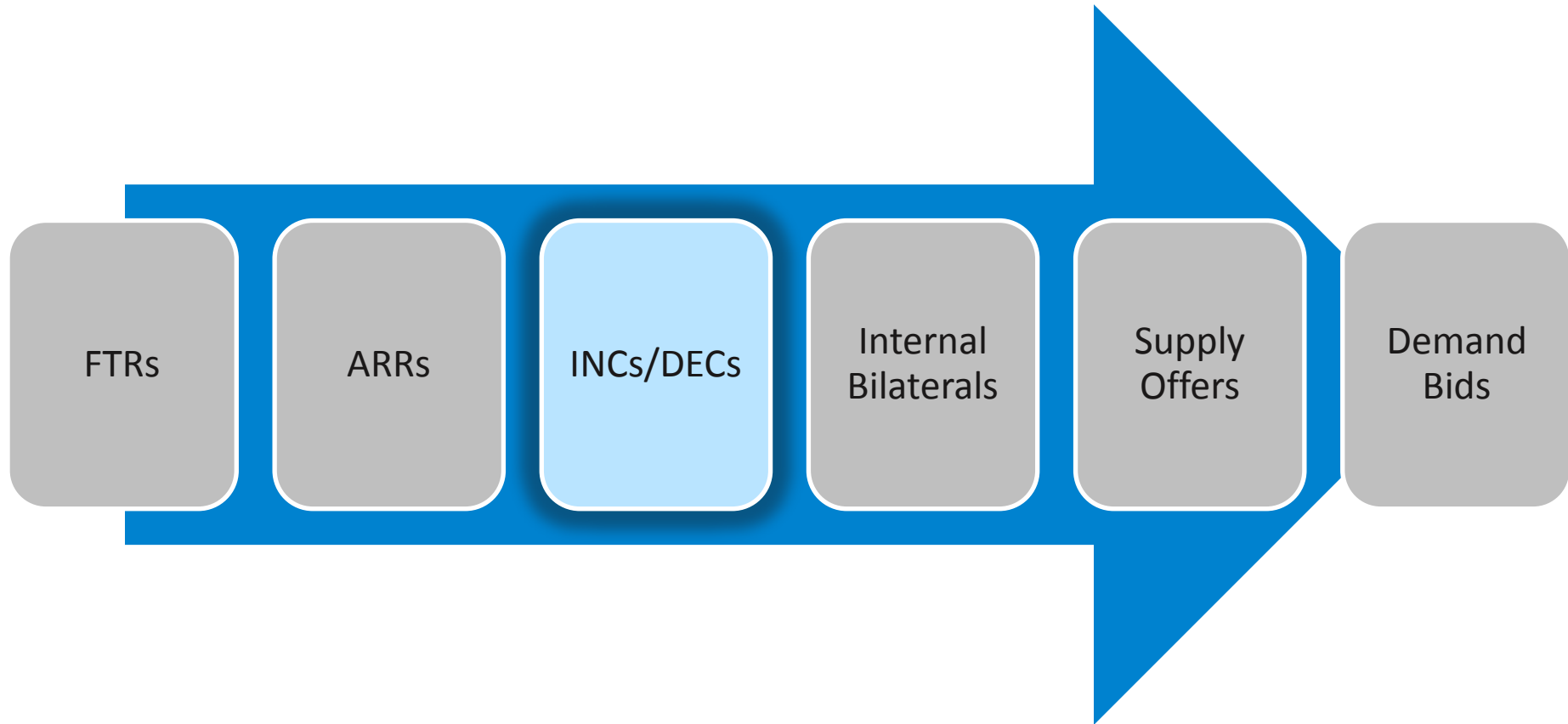
# Section Review

## *Financial Transmission Rights (FTRs)*



- ✓ What are FTRs?
- ✓ Who and how does someone get FTRs?
- ✓ Why would I want an FTR?
- ✓ What are Auction Revenue Rights?
- ✓ Who gets the Auction Revenue?

# Market Tools

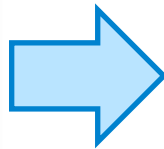


# Section Topics

## *INCs / DEC*s**



INCs /  
DEC*s*



- What are INCs?
- What are DEC*s*?
- Who and how does one get INCs/DEC*s*?
- Examples of how INCs/DEC*s* work
- What does an INC or DEC do for someone?
- What's in it for ME (depending on who I am)?

# What are INCs?

## Increments of Virtual Supply (INC)

- A quantity of MWh offered to supply at a minimum price per block in the DA financially binding Market
  - M-35 “Increment Offer shall mean an offer to sell Energy at a specified Location in the Day-Ahead Energy Market. An accepted Increment Offer results in scheduled generation at the specified Location in the Day-Ahead Energy Market.”

# What are DEC's?

## Decrements of Virtual Demand (DEC)

- A quantity of MWh bid to consume at a maximum price per block in the DA financially binding Market
  - M-35 “Decrement Bid shall mean a bid to purchase Energy at a specified Location in the Day-Ahead Energy Market, which is not associated with a physical load. An accepted Decrement Bid results in scheduled load at the specified Location in the Day-Ahead Energy Market.”

# Who?

- Any Participant may submit INCs or DEC into the DA Market.
- The only limitation is a Financial Assurance limit, which tests the largest exposure that this INC or DEC would create against remaining Financial Assurance credit limits at the time of the start of the DA Market Analysis (not at entry time).
- Submitting and clearing INCs and DEC also have impact on the ISO Self-Funding Tariff charges of the submitting Participant. Transactions are charged Transaction Units, a per INC/DEC Tariff charge to pay for the processing. (Submitted charged \$0.005 per bid and \$0.06 per cleared)



# What?

- INC is submitted as:
  - set of hourly price quantity pairs
  - at a location (Node, Zone, Hub)
  - an offer to supply up to that quantity, at that location, for at least that price



# What? (cont.)

For example:

- An INC for hour one (1) at the Hub with a price quantity pair of 50 MWh @ \$75/MW
  - If the DA LMP at the Hub is greater than or equal to \$75, then this INC would clear at this location in DA.
  - The cleared offer would then create a payment of the cleared MWhs x the DA Hub LMP.
  - Assuming no other positions taken in RT, the lack of supply at the same location (Hub) in RT would create a deviation requiring the Participant to pay back at the RT price.



# How?

- INC/DECs are submitted via the eMarket interface.
  - Submitted via UI or file upload.
  - Submitted every day (not rolled over from day-to-day).
  - Quantities between 0 - 1000 (increments of .1).
  - Prices between \$0 - \$1000 (both for INC and DEC).



# Why?

- Can be used as a purely financial instrument.
  - Used to capture the price difference between DA and RT at a location.
  - If the location price in DA is expected to be greater than RT, then an INC at that location would be the correct tool.
  - If the location price in DA is expected to be less than RT, then a DEC at that location would be the correct tool.



# Purely Financial



- Requires an ability to predict RT prices at that location within some boundary:
  - Location XYZ, if I can predict the price is going to be \$50 (+/- \$2).
  - Bid an INC at that location for \$54 (or higher depending on my risk premium desired).
  - Bid a DEC at the same location for \$44 (or lower depending on risk).
  - One of three things will happen in DA Market:
    - Nothing will clear (still have ISO Self-Funding Tariff charges).
    - Some portion (up to all) of the INC will clear.
    - Some portion (up to all) of the DEC will clear.

# Purely Financial (DEC Cleared)



- DEC cleared - if the DA price is less than the RT price, then profit is achieved (again reflects a valid prediction of RT price).
  - Difference between the two needs to cover ISO Self-Funding Tariff charges and both RT and DA NCPC charges that the DEC incurs (the \$6 spread between bid and expected RT LMP in previous example).
    - Actual profit calculation is:  $RT\ LMP - DA\ LMP - RT\ NCPC\ Charge - DA\ NCPC\ Charge - ISO\ Self-Funding\ Tariff\ Charge$ .
    - If DA price was \$43 and the RT price was \$50 (as predicted), then profit is  $\$7 - RT\ NCPC - DA\ NCPC - ISO\ Self-Funding\ Tariff$ .
    - But if DA price was \$43 and RT price was \$43 (bad prediction), then loss is  $RT\ NCPC + DA\ NCPC + ISO\ Self-Funding\ Tariff$ .

# Purely Financial (DEC Cleared)(cont.)



- Profit is only obtained if prediction of RT price is fairly accurate.
- These virtual DEC's will only bring the price closer to that RT predicted price if they clear.

# Purely Financial (INC Cleared)



- INC cleared - if the RT price is less than the DA price, then profit is achieved (if prediction of RT price was correct, then by default, RT price must be lower than DA price)
  - Difference between the two needs to cover ISO Tariff charges and RT NCPC charges (uplift) that the INC incurs (what the \$4 spread between offer and expected RT LMP in previous example is meant to show).
    - Actual profit calculation is  $DA\ LMP - RT\ LMP - RT\ NCPC\ Charge - ISO\ Tariff\ Charge$ .
    - If the DA price was \$56 and the RT price was \$50 (as predicted), then profit is  $\$6 - RT\ NCPC - ISO\ Tariff$ .
    - But if DA price was \$56 and RT price was \$57 (bad prediction), then loss is  $\$1 + RT\ NCPC + ISO\ Tariff$ .

## Purely Financial (INC Cleared) (cont.)

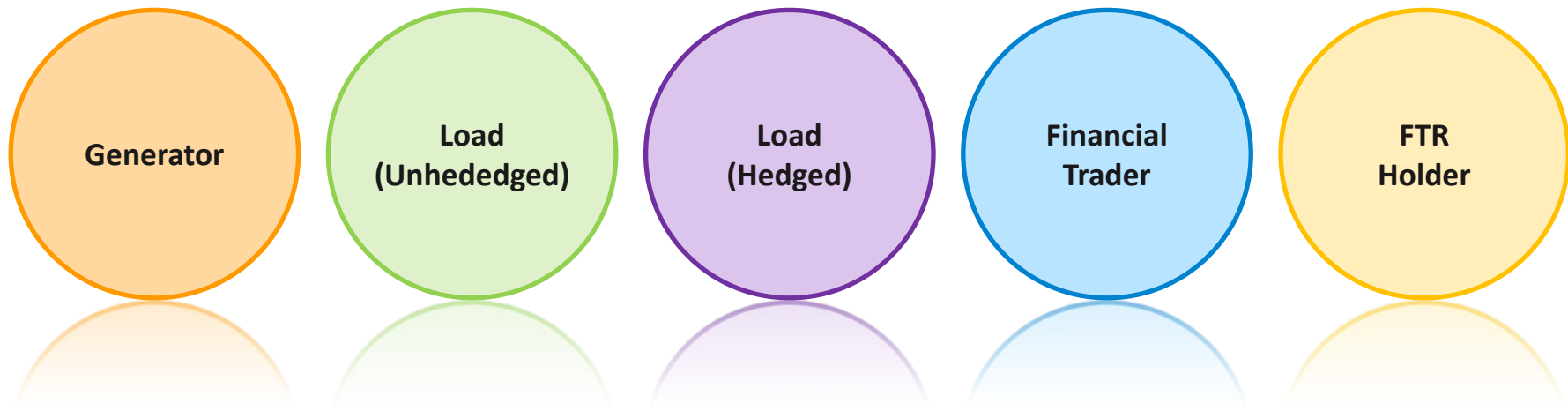


- Profit is only obtained if prediction of RT price is fairly accurate.
- These virtual INCs will only bring the price closer to that RT predicted price if they clear.

# Impacts of Virtual Transactions

## “What’s in it for me?”

Why do I want these “purely financial” transactions if I am a...



# Impacts of Virtual Transactions

## (Generators)

What's the impact on Generators?

### Positive

- DEC bids create an effectively higher price for the Generator to sell for in the DA Market.
- DEC bids mitigate any “market power” that load has in the DA to not bid to purchase or to purchase at a low price only.

### Negative

- INC offers create an effectively lower price for the Generator to sell for in the DA Market.
- INC offers mitigate any “market power” that the generator has in the DA and also any “lumpiness” of dispatch caused by high generator Economic Minimums (which create uplift).

# Impacts of Virtual Transactions

*(Unhedged Load)*

What's the impact on Load that is unhedged by Bilaterals?

## Positive

- INC offers create an effectively lower price for the Load to purchase at in the DA Market.
- INC offers mitigate any “market power” that the Generators have in the DA and also any “lumpiness” of dispatch caused by high generator Economic Minimums (which creates uplift).

## Negative

- DEC bids create an effectively higher price for the load to purchase at in the DA Market.
- DEC bids mitigate any “market power” that load has in the DA to not bid to purchase or to bid to purchase at a very low price.

# Impacts of Virtual Transactions

*(Hedged Load)*

What's the impact on Load that is hedged by Bilaterals?

## Positive

INC offers create an effectively lower price in the DA Market.

## Negative

DEC bids create an effectively higher price in the DA Market.

Bilateral Transaction prices have linkage to historical RT prices, but an efficient DA Market allows sellers of these transactions an alternative place to cover their positions.

# Impacts of Virtual Transactions

*(Financial Trader)*

What's the impact on a Financial Trader?

## Positive

INC/DEC create an opportunity to arbitrage price differences between the DA Market price and the RT Market price.

## Negative

Risks, such as uplift and emergency outages, can alter the ability to effectively arbitrage price differences.

# Impacts of Virtual Transactions

*(FTR Holders)*

What's the impact on FTR Holders?

## Positive

- INC/DEC moves the market towards an efficient price differential from the RT Market.
  - Should allow DA Market congestion to converge with expected RT congestion.

## Negative

May reduce or eliminate DA congestion by creating load/generation where none exists (when convergence goes badly).

# Impacts of Virtual Transactions

*(All Market Participants)*

- INC/DECs have impacts on the Market that all Participants can appreciate.
  - Help stabilize prices in the DA Market to more efficiently align with RT Market prices.
  - Correct for price spikes from the previous day.

# Other Facts

- Some days there are hundreds or thousands of INC/DECs.
- Depending on the settlement life cycle, Financial Assurance requirements for INC/DECs transition from proxy based values to actual exposure.



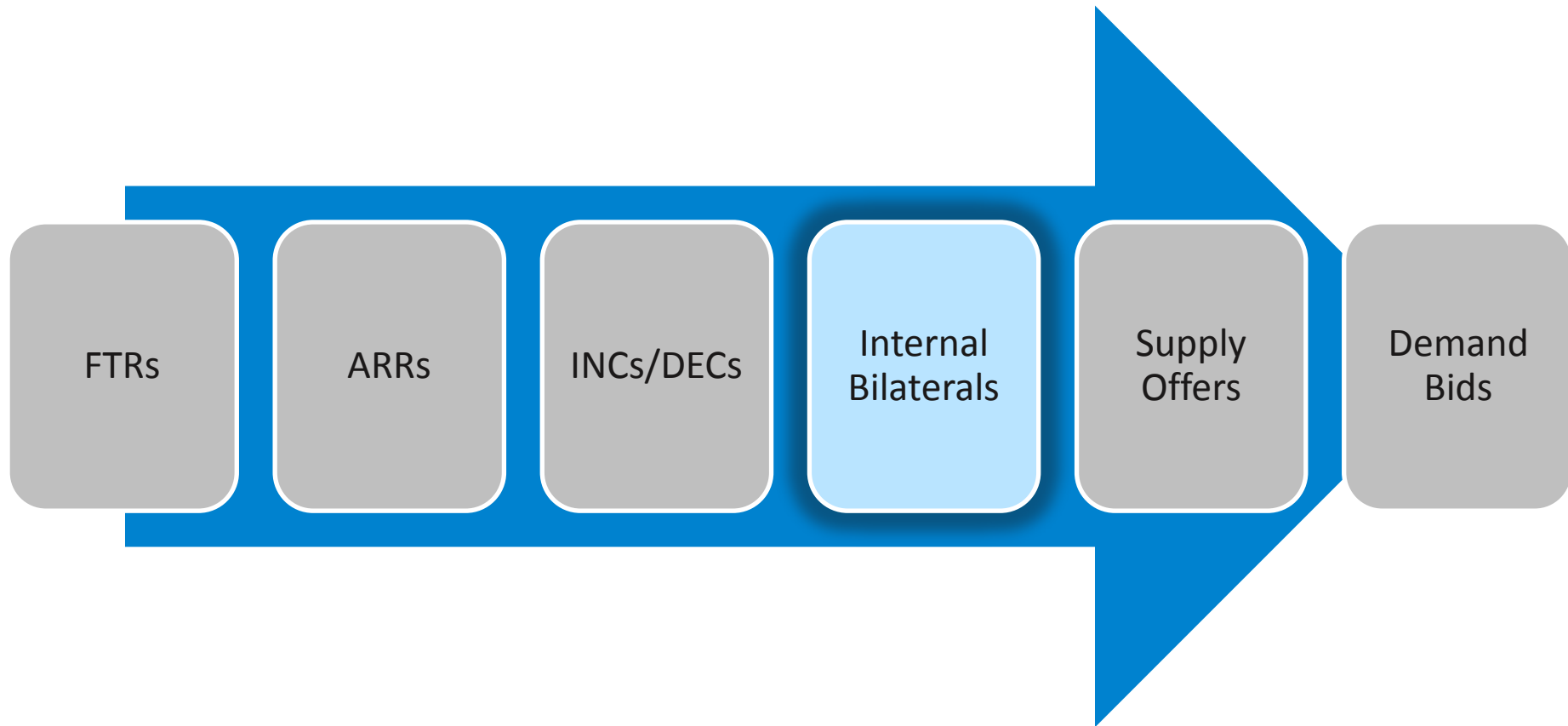
# Section Review

## *INCs / DECs*



- ✓ What are INCs?
- ✓ What are DECs?
- ✓ Who and how does one get INCs/DECs?
- ✓ Examples of how INCs/DECs work
- ✓ What does an INC or DEC do for someone?
- ✓ What's in it for ME (depending on who I am)?

# Market Tools

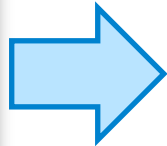


# Section Topics

## *Internal Bilaterals*



Internal  
Bilaterals



- What are Internal Bilaterals?
- Who can do Internal Bilaterals?
- How do you enter Bilaterals?
- Why would you enter Bilaterals?

# Internal Bilateral

- Financial transaction between two Participants registered with the ISO; in essence, allows two Participants to leverage the ISO Billing System to implement a trade.
  - M-35 Internal Bilateral Transaction (IBT)
    - “There are currently two types of Internal Bilateral Transactions that Participants may enter into that are supported by the ISO: Internal Bilateral for Market, which may be associated either with Energy or Regulation, and Internal Bilateral for Load. Internal Bilateral Transactions are limited to transactions between Participants within the NEPOOL Control Area, are financial in nature and do not impact the physical operation of the system.”

# Who?

- Seller and Buyer of the Internal Bilateral must be Participants.



# What?

- Submitted after the fact as a quantity of MWh at a location (in Energy Market) and for either the DA & RT or just RT Market clearing.
- Why after the fact?
  - Not used as part of DA or RT commitment or dispatch
  - Accounting tool
  - Time is given to allow seller/buyer to get quantities correct.
- Internal Bilaterals for Load shift Real-Time Load Obligation, which also shifts ARR allocations and Regulation obligations.



# How?

- Submitted via UI or file upload to the Settlement Market Systems (SMS) interface
- Can be submitted by either the seller or buyer or a third party
- The buyer and seller must “confirm” the transaction for it to be used in the Settlement.
  - Submitted up to one (1) day after the fact (six months before the fact)
  - Submitted just as Buyer, Seller, MWh quantity, and location (no prices)



# Why?

- Allows Participant to make a Contractual arrangement to financially deliver or receive energy at a location. These bilaterals settle at a contractual rate that ISO does not receive. It also does not administer payment of this contractual rate from the buyer to the seller.
- Most often used in conjunction with physical requirements (Generators and Load).
  - Some are very long-term transactions that have been in place prior to SMD.
  - Allows those with Supply to assure a fixed payment to lower risk of selling in the DA or RT.



# Why? (cont.)

- Allows those with Load to assure a fixed charge to lower risk of buyer in the DA or RT.
- Allows the Buyer/Seller to choose a single location.
- Three options:

1

Pick the Seller (Generator) location and Buyer (Load) has to risk price differences.

2

Pick the Buyer (Load) location and the Seller (Generator) has to risk price differences.

3

Pick a neutral location and both Seller (Generator) and Buyer (Load) share the price difference risk.

# Why? (cont.)

- Also allows those with no physical resources or load to enter into a transaction to “deliver” or “receive” MWh against the RT or DA price.
- If you could accurately predict that the average price at a location would be \$45 DA at a location, you could:
  - Sell a Bilateral at that location for \$49
  - Buy a Bilateral at that location for \$41
- Doesn't this look like INC/DECs?
  - Actually, it is very similar to virtual bidding in that it creates positions ahead of the RT Market that are used in the settlements.



## Why? (cont.)

- Participants may choose DA & RT settlement if the Seller and/or Buyer want to take advantage of these transactions in conjunction with FTRs and INCs/DECs to minimize risk and lock in a fixed rate of return.
- RT settlement could be a requirement if the Seller and/or Buyer would like to transact in RT in conjunction with physical delivery or withdrawals.

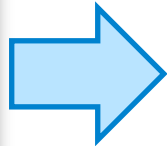


# Section Review

## *Internal Bilaterals*

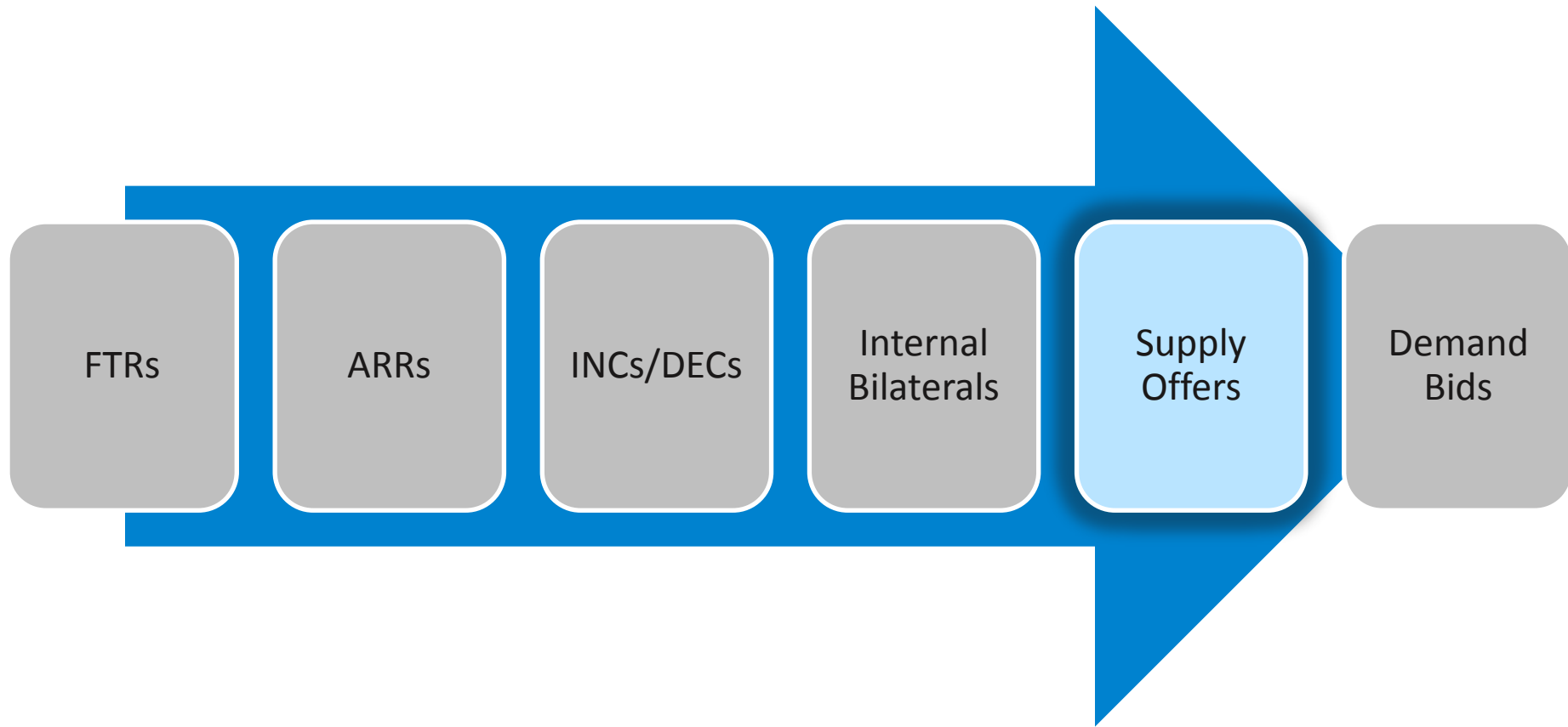


Internal  
Bilaterals



- ✓ What are Internal Bilaterals?
- ✓ Who can do Internal Bilaterals?
- ✓ How do you enter Bilaterals?
- ✓ Why would you enter Bilaterals?

# Market Tools

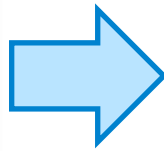


# Section Topics

## *Supply Offers*



Supply  
Offers



- Definition of Supply Offers
- Who submit Supply Offers?
- What are Supply Offers?
- How do you submit Supply Offers?
- Why do you submit Supply Offers?
- Other Issues

# Supply Offers

Supply Offer is a proposal to furnish energy at a Node or Regulation from a Resource that meets the applicable requirements set forth in the ISO New England Manuals submitted to the ISO by a Market Participant with authority to submit a Supply Offer for the Resource. The Supply Offer will be submitted pursuant to Market Rule 1 and applicable ISO New England Manuals, and include a price and information with respect to the quantity proposed to be furnished, technical parameters for the Resource, timing and other matters. A Supply Offer is a subset of the information required in a Market Participant's Offer Data. [\[Market Rule 1\]](#)

# Who?

- Lead Participant of a resource submits into the DA and RT Market.
- No Financial Assurance limits
- Supply Offers carry over from day-to-day if no new Offers are submitted.



# What?

- Supply Offers are submitted as:
  - set of daily price quantity pairs  
(one set for DA and can change prior to RT in Reoffer Period)
  - Generator parameters
    - Minimum Run Time
    - Minimum Down Time
    - Ramp Rates
  - for a generator
  - expressed as an offer to supply a up to specific quantity from a generator for at least the specified price



# What? (cont.)

- For example - A Supply Offer for the Generator with a price quantity pair of 50 MWh @ \$65/MWh
  - If the DA LMP at the Generator is greater than or equal \$65 (absent any constraints of intertemporal parameters), then this Generator would clear in DA.
  - The cleared offer would then create a payment of the Cleared MWhs x the DA Generator LMP.
  - Assuming the Generator dispatches at 50 MWh in RT, the supply at the same location in RT would create no deviation that would require the Participant to pay back at the RT price.
  - If the Generator fails to dispatch the 50 MWh in RT, the Participant's deviation is settled at the RT nodal price of the Generator.



# How?

- Supply Offers are:
  - Submitted via the eMarket interface.
  - Submitted either via UI or file upload.
  - Submitted every day (or rolled over from day-to-day).
- Prices between \$0 - \$1000 (price cap in place and allows “self-schedule” offers which will be committed without regards to LMP)



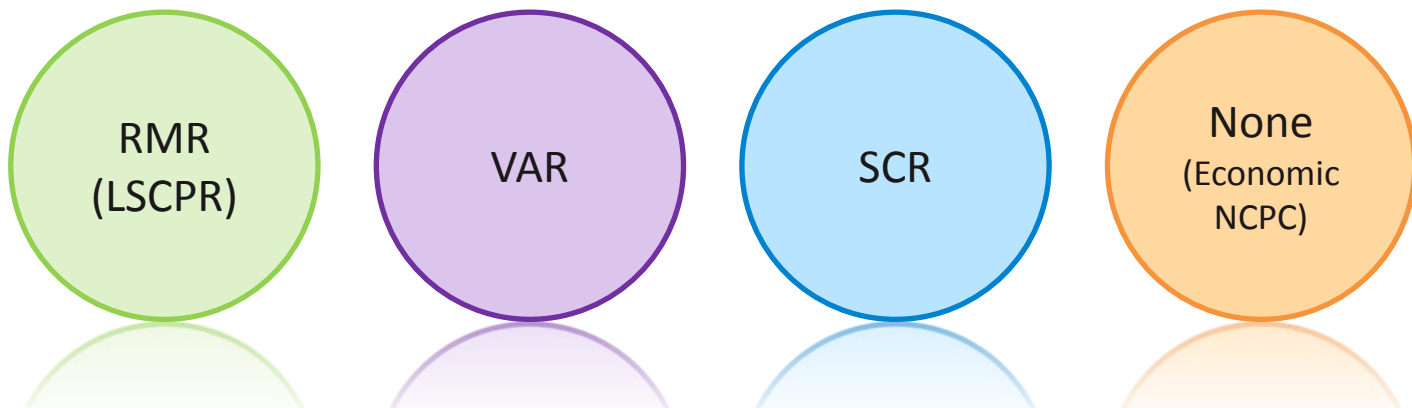
# Why?

- Cannot be used as a purely financial instrument
  - Cannot be used to capture the price difference between DA and RT at a location
  - If the location price in DA is expected to be greater than RT, then clearing at that location if the resource can meet that financial obligation in RT would be best.
  - If the location price in DA is less than RT, then taking on the DA obligation and risking deviations in RT at a higher price would be risky.



# Other Issues

- Net Commitment Period Compensation (NCPC)
  - Generators are also allowed to submit start-up and no-load costs (in \$) through the e-Market interface.
  - If the Generator is committed and dispatched economically by ISO, it will be guaranteed through NCPC to be made whole to cover its “as-offered costs,” including start-up and no-load through additional payments.
  - Charged using different allocation methods:

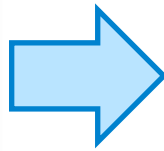


# Section Review

## *Supply Offers*

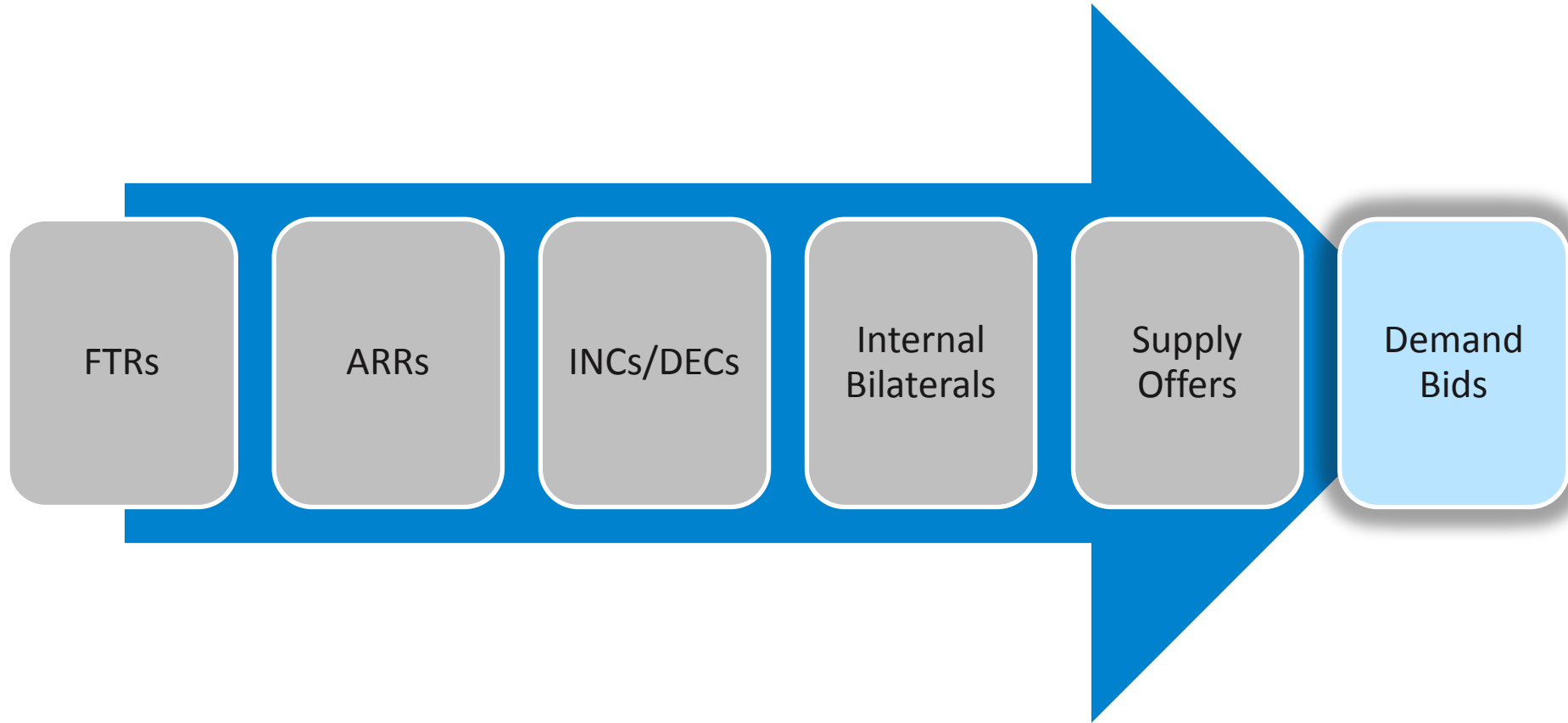


Supply  
Offers



- ✓ Definition of Supply Offers
- ✓ Who submit Supply Offers?
- ✓ What are Supply Offers?
- ✓ How do you submit Supply Offers?
- ✓ Why do you submit Supply Offers?
- ✓ Other Issues

# Market Tools

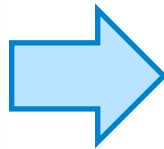


# Section Topics

## *Demand Bids*



Demand  
Bids



- Definition of Demand Bids
- Who submit Demand Bids?
- What are Demand Bids?
- How do you submit Demand Bids?
- Why do you submit Demand Bids?

# What is a Demand Bid?

Demand Bid shall mean a request to purchase a fixed amount of energy, at a specified Location, or an amount of energy at a specified price, that is associated with a physical load. An accepted Demand Bid results in scheduled load at the specified Location in the Day-Ahead Energy Market. [\[Market Rule 1\]](#)

# Who?

- A Participant submits into the DA Market
- No specific Financial Assurance limits but limited by validation rules
- Demand Bids do not carry over from day-to-day



# What?

- Demand Bids are submitted as:
  - set of price quantity pairs
  - at a load zone (or Pumped Storage pump location)
  - In the DA Market only
- Demand Bids express a bid to buy that quantity for that Participant for less than or equal to the express price.



# What? (cont.)

- For example - A Demand Bid for the Participant at a Load Zone with a price quantity pair of 50 MWh @ \$85/MWh
  - If the DA LMP at the Load Zone in which the Demand is bid is less than or equal \$85, then this Demand would clear and the location in DA
  - The cleared bid would then create a charge of the cleared MWhs x the DA Load Zone LMP.
  - Assuming the Participant consumes at 50 MWh in RT, the demand at the same location in RT would create no deviation that would require the Participant to buy or sell at the RT price.
  - If the demand does not consume exactly 50 MWh in RT, the Participant would be settled for the deviation at the RT LMP price of the Load Zone.



# How?

- Demand Bids are:
  - Submitted via the eMarket interface.
  - Submitted either via UI or file upload
  - Submitted every day (not rolled over from day-to-day)
- Prices between \$0 - \$1000  
(including “fixed” non-price sensitive bids)



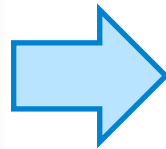
# Why?

- Cannot be used as a purely financial instrument
  - Cannot be used to capture the price difference between DA and RT at a location
  - Used in conjunction with expected RT consumption
  - Allows choice for Demand to clear in DA or RT market
    - DA Market
      - Prices may be more stable
      - If RT consumption is less than expected may sell back to market some portion of DA Purchase
    - RT Market
      - Prices may be lower on average
      - Prices may have large spikes

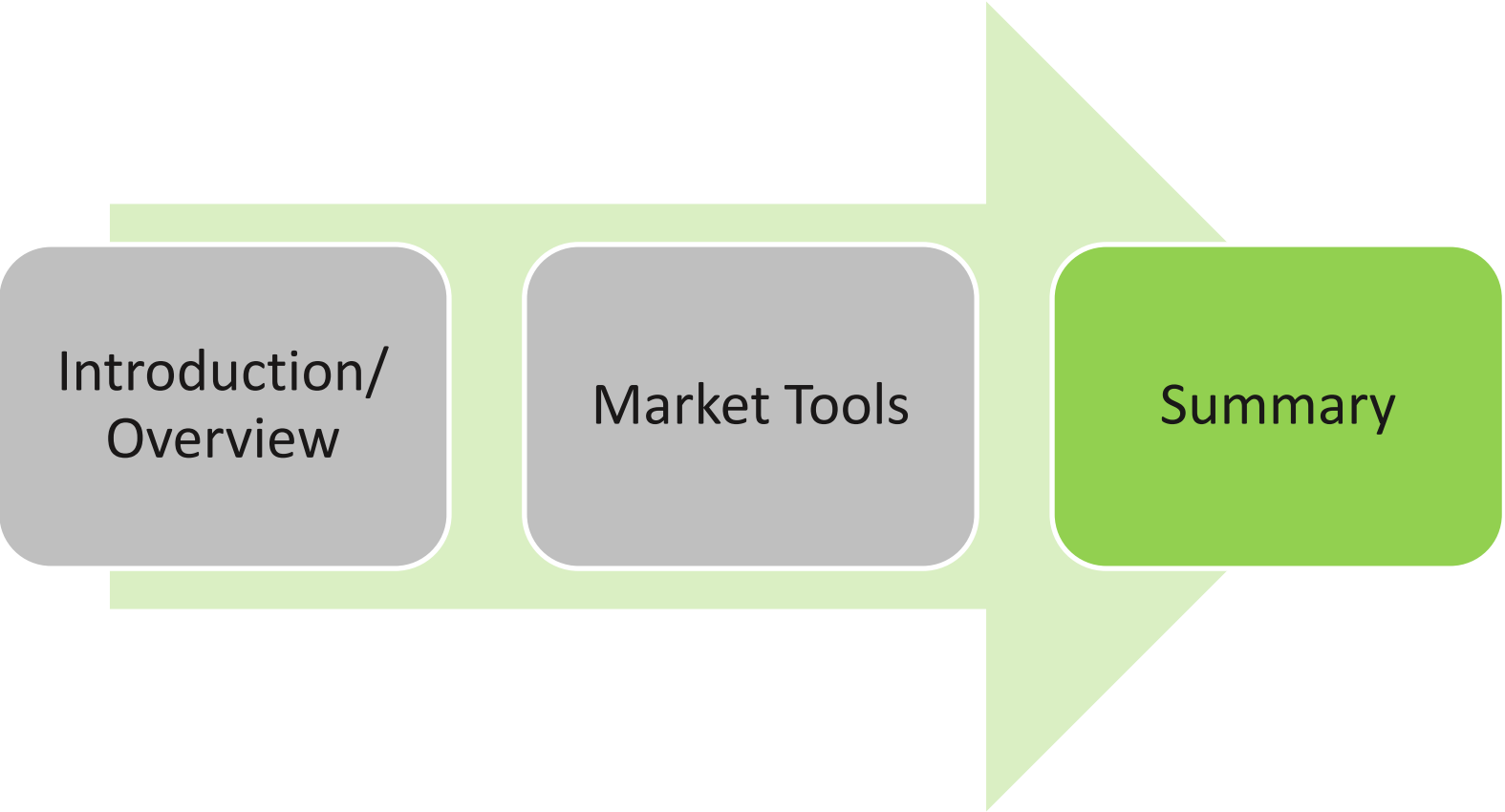


# Section Review

## *Demand Bids*



- ✓ Definition of Demand Bids
- ✓ Who submit Demand Bids?
- ✓ What are Demand Bids?
- ✓ How do you submit Demand Bids?
- ✓ Why do you submit Demand Bids?



Introduction/  
Overview

Market Tools

Summary

# FTRs/ARRs

- Learned about all the tools available
  - FTRs
    - How to use them
    - What they are used for
    - When they are used
    - Why you want to use them and how
  - ARRAs
    - What they are
    - Some examples of the dollars from ARRAs
    - Interaction between FTRs and ARRAs



# INCs/DECs

- Learned about all the tools available
  - INCs
    - How to use them
    - What they are used for
    - When they are used
    - Why you want to use them and how
  - DECs
    - How to use them
    - What they are used for
    - When they are used
    - Why you want to use them and how
  - Interaction between INCs and DECs



# Bilaterals

- Learned about tools available
  - Bilaterals
    - How to use them
    - What they are used for
    - When they are used
    - Why you want to use them and how
    - How they relate to INCs/DECs, FTRs, and ARR



# Supply Offers/Demand Bids

- Learned about tools available
  - Supply Offers
    - How to use them
    - What they are used for
    - When they are used
    - Why you want to use them and how
  - Demand Bids
    - How to use them
    - What they are used for
    - When they are used
    - Why you want to use them and how



# Where to Get More Information



- Market Rule 1
- Manuals
  - Manual 11 Supply, Demand, Virtual
  - Manual 6 FTR
  - Manual 28 Agreement Accounting



