Procurement Presentation

Storage Stakeholder Workshop #3
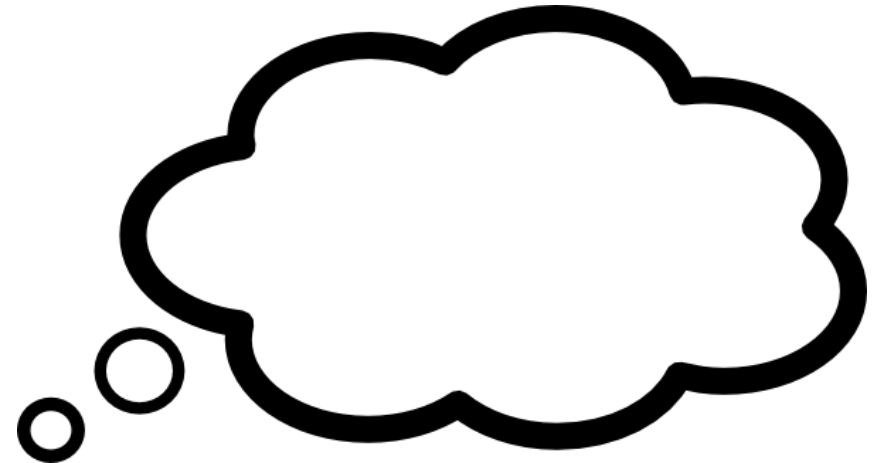
January 26, 2023

Generic Procurement Framework

Five elements:

1. Define your need/want
2. Define eligible supply
3. Build your demand curve
4. Execute procurement
5. Validate the transaction

Generic Procurement Framework

Five Steps:

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UTILITY DIVE   Deep Dive   Opinion   Podcasts   Library   Events   Topics

DIVE BRIEF

ISO-NE implements 'pay-for-performance' capacity market incentives

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Net Metering Procurement Framework

1. Define your need/want

   The purpose of this chapter is to facilitate and promote installation of <u>customer-sited</u>, <u>grid-connected generation of renewable energy</u>; to support and encourage <u>customer development</u> of renewable generation systems; to <u>reduce environmental impacts</u>; to <u>reduce carbon emissions</u> that contribute to climate change by encouraging the <u>local siting</u> of renewable energy projects; to <u>diversify the state's energy generation sources</u>; to stimulate <u>economic development</u>; to improve <u>distribution system resilience and reliability</u>; and to reduce <u>distribution system costs</u>.

   Need translated into a product : kWh (and possibly kW) from load-sited renewable generators

Net Metering Procurement Framework

2. Define eligible supply
   - Renewable generators defined in RIGL 39-26-5(a)
   - Eligible Net Metering System defined in RIGL 39-26.4-2(5)
      - Load-sited
      - Load-sized
      - Connected to the distribution system

Net Metering Procurement Framework

3. Build your demand curve
   - Price and quantity metrics defined in statute:

Billing period usage (annual period) : Renewable Net Metering Credit = + Standard Offer Supply (LRS) + Distribution Charge + Transmission Charge + Transition Charge

100% < Billing period usage ≤ 125% : Excess Renewable Net Metering Credit = Standard Offer Supply (LRS)

Net Metering Procurement Framework

3. Build your demand curve:

- Actual prices based on underlying rates
  - RIPUC No. 2095 Summary of Retail Delivery Rates
  - RIPUC No. 2096 Summary of Rates Last Resort Service

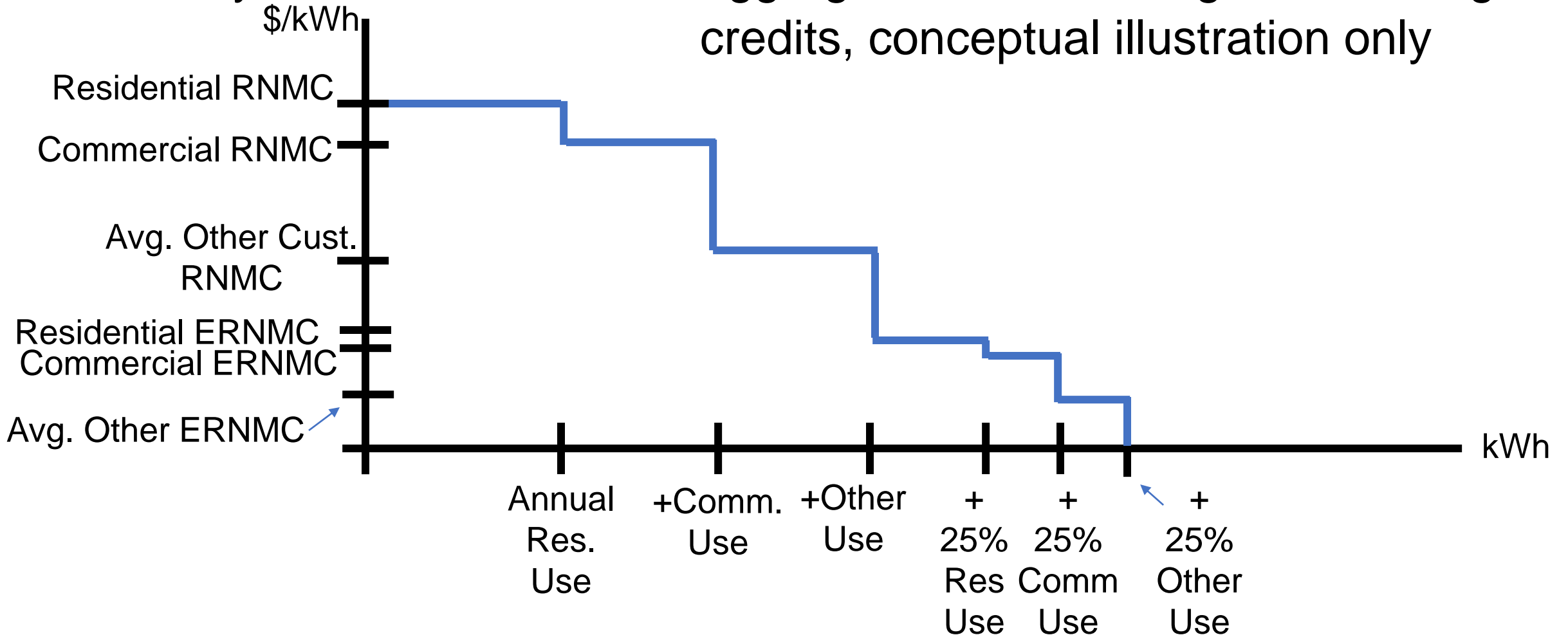# Net Metering Procurement Framework

3. Build your demand curve – Single Site, long-term average credits
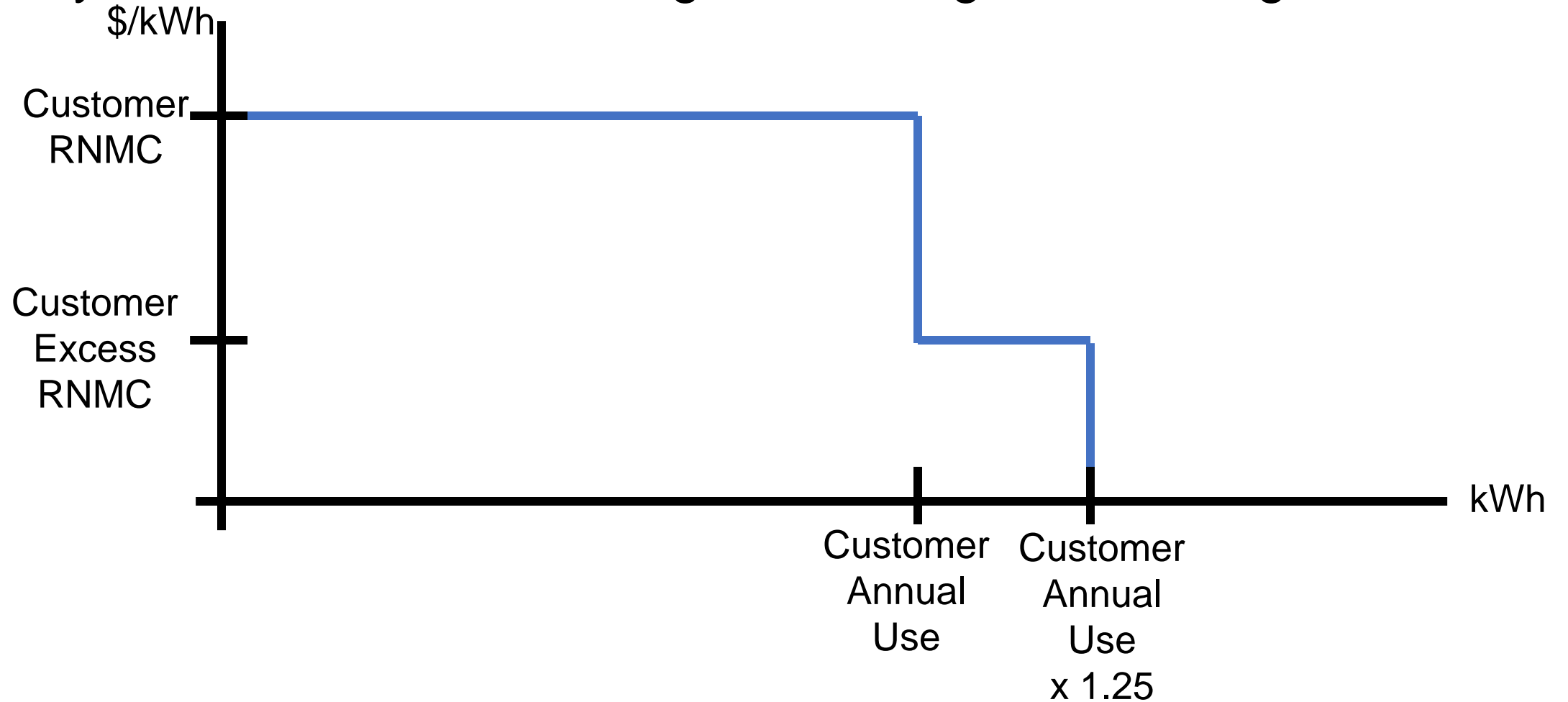
Net Metering Procurement Framework

3. Build your demand curve – Aggregate demand, long-term average credits, conceptual illustration only

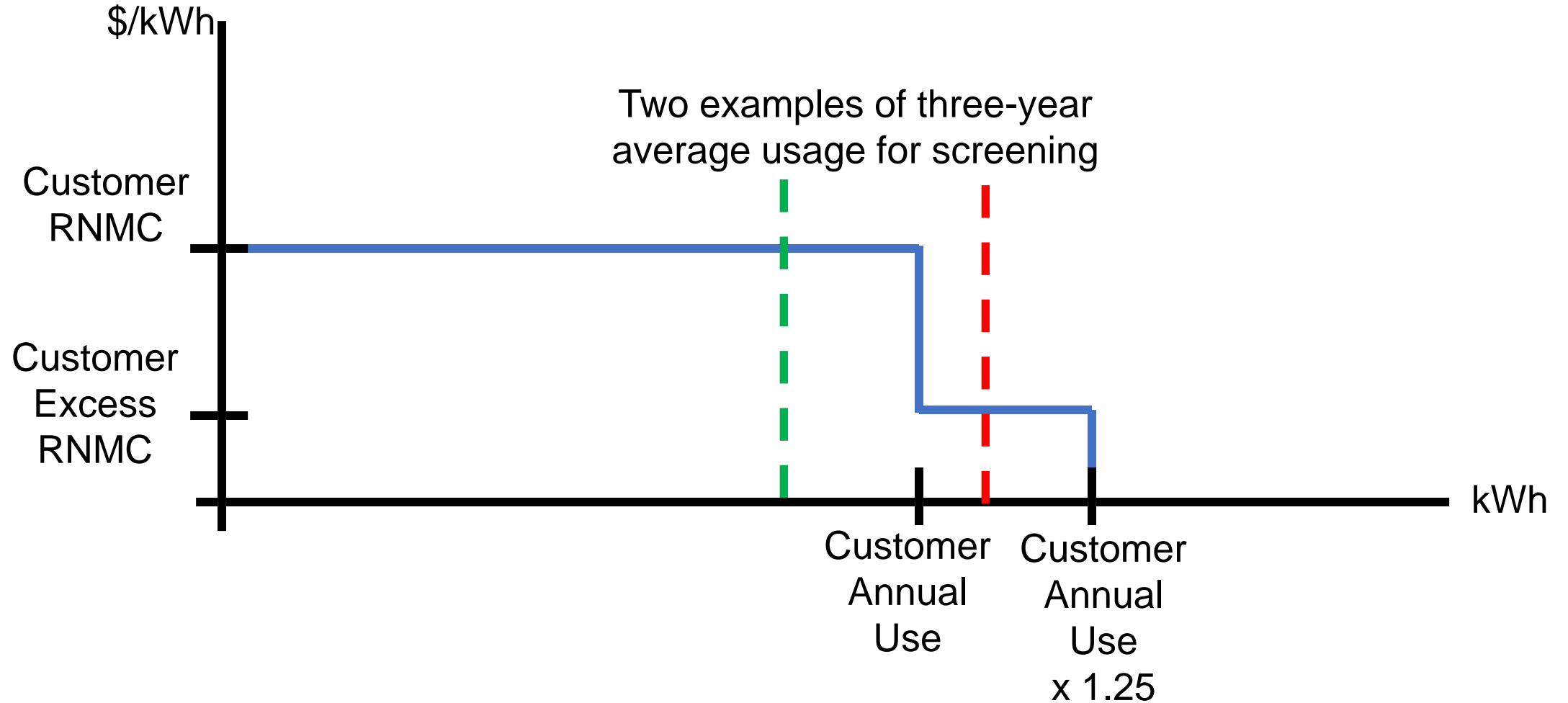# Net Metering Procurement Framework

4. Execute procurement
   - Open call
   - Eligibility Screening
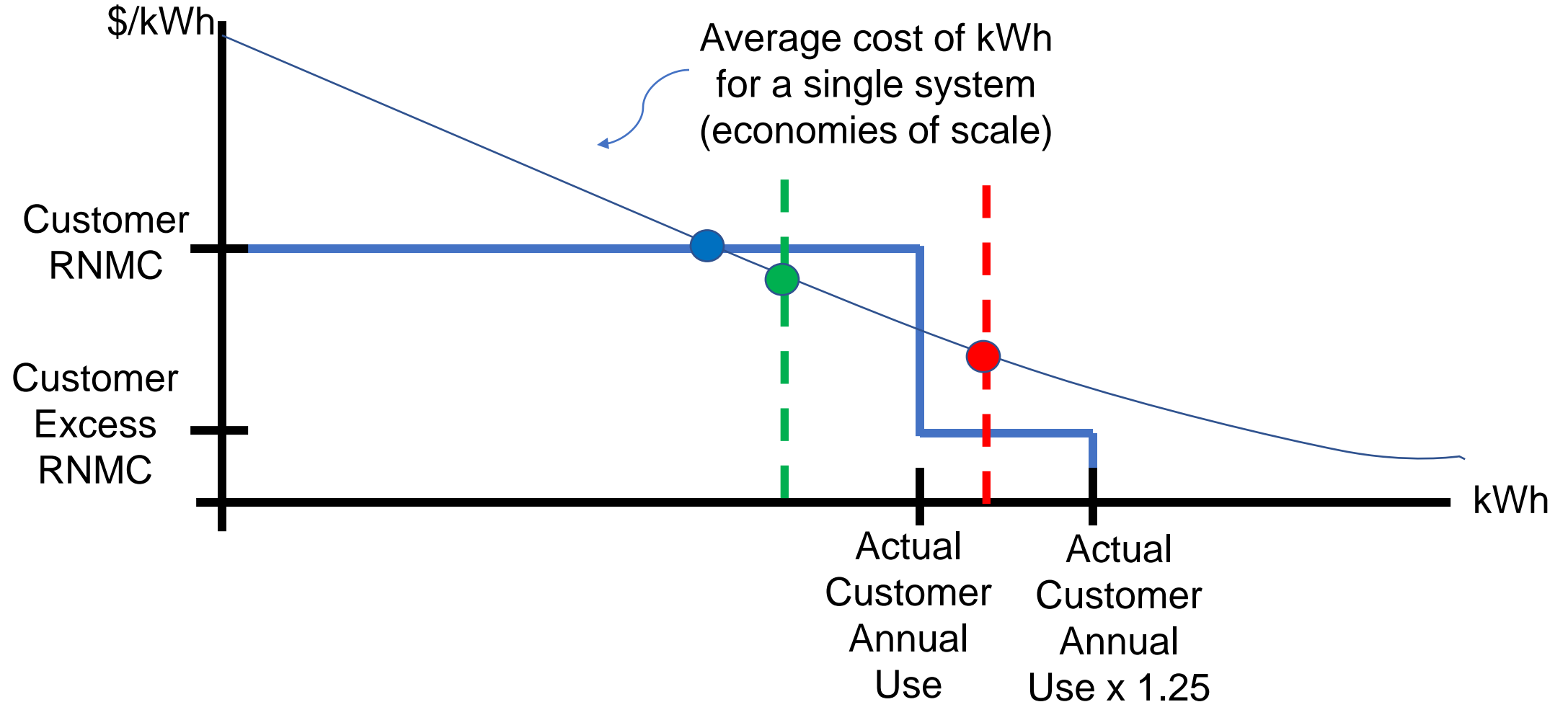   - Interconnection queue ("first come, first procured")

Net Metering Procurement Framework

4. Execute Procurement

Net Metering Procurement Framework

4. Execute Procurement

Net Metering Procurement Framework

5. Validate the transaction
   - Interconnection
   - Metered
     - System and participant get the wholesale and retail market effects in real time at the generator's meter and the distribution meters
     - Monthly interim netting of usage/excess
     - Annual adjustments for excess net metering credits if applicable

RE Growth Procurement Framework

1. Define your need/want

The purpose of this chapter is to facilitate and promote installation of ~~customer-sited~~, grid-connected generation of renewable energy; ~~to~~ support and encourage ~~customer~~ development of distributed renewable energy generation systems; ~~to~~ reduce environmental impacts; ~~to~~ reduce carbon emissions that contribute to climate change by encouraging the ~~local~~ siting of renewable energy projects in the load zone of the electric distribution company; ~~to~~ diversify the ~~state's~~ energy generation sources within the load zone of the electric distribution company; ~~to~~ stimulate economic development; to improve distribution system resilience and reliability within the load zone of the electric distribution company; and ~~to~~ reduce distribution system costs.

Need translated into a product : kWh, kW, and generation certificates from renewable generators connected to the distribution system

RE Growth Procurement Framework

2. Define eligible supply
   - Distributed Generation Facility defined in RIGL 39-26.6-3(6)
     - Renewable generators defined in RIGL 39-26-5(a)
     - 5 MW or less
   - Other development milestones in definition

RE Growth Procurement Framework

3. Build your demand curve
   - Ceiling prices and MW allocation for each class
   - Ceiling prices are based on levelized cost of energy that allows a reasonable rate of return for investment
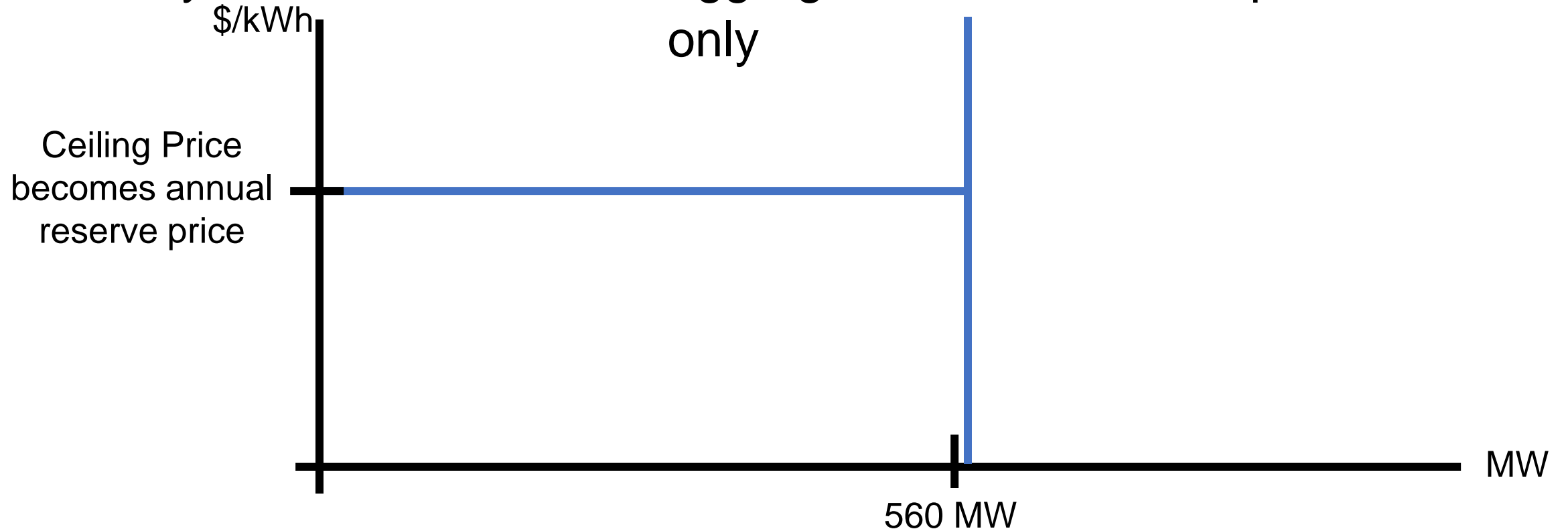
RE Growth Procurement Framework

3. Build your demand curve – Single Site, large solar example, single enrollment example
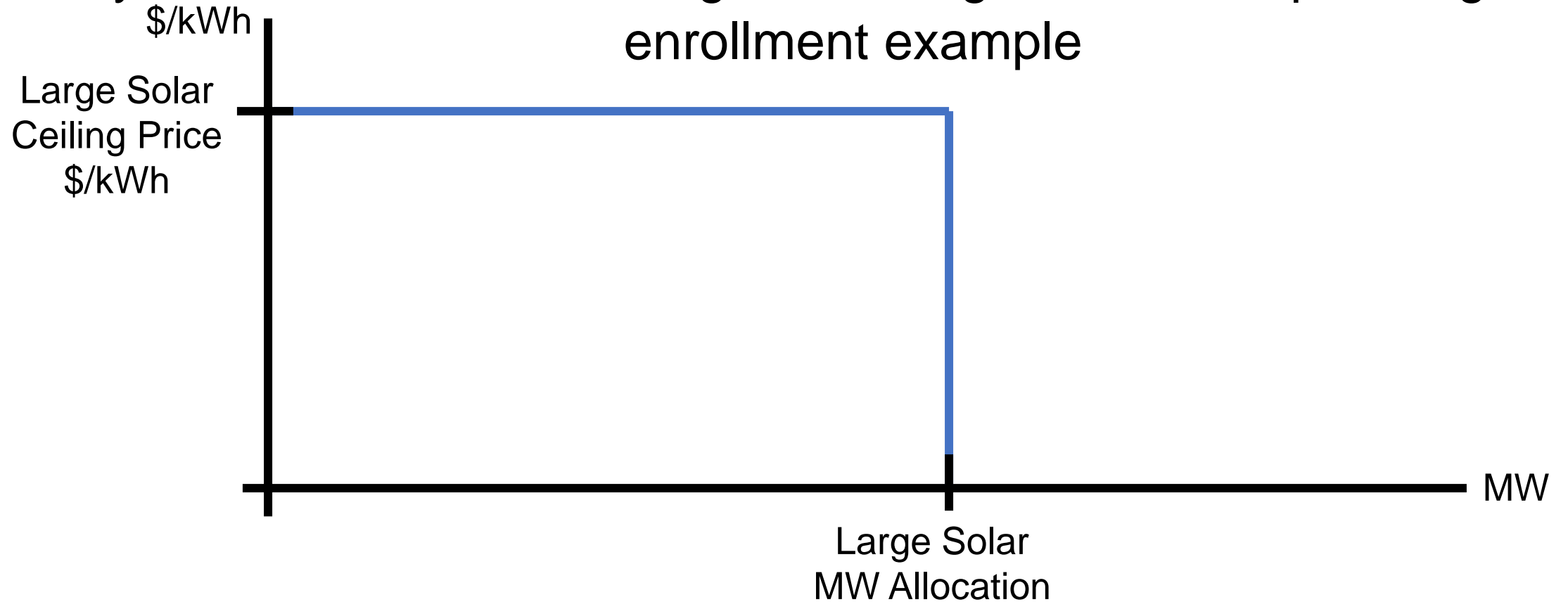
RE Growth Procurement Framework

3. Build your demand curve – Aggregate demand, conceptual illustration only

$/kWh

Ceiling Price becomes annual reserve price

560 MW

MW

RE Growth Procurement Framework

3. Build your demand curve – Aggregate demand, conceptual illustration only

$/kWh

Ceiling Price becomes annual reserve price

- Some unmet demand can roll forward to future years
- Reserve price moves year-to-year; can go down
- Technically can go up infinitely until all unmet demand is served

560 MW

MW
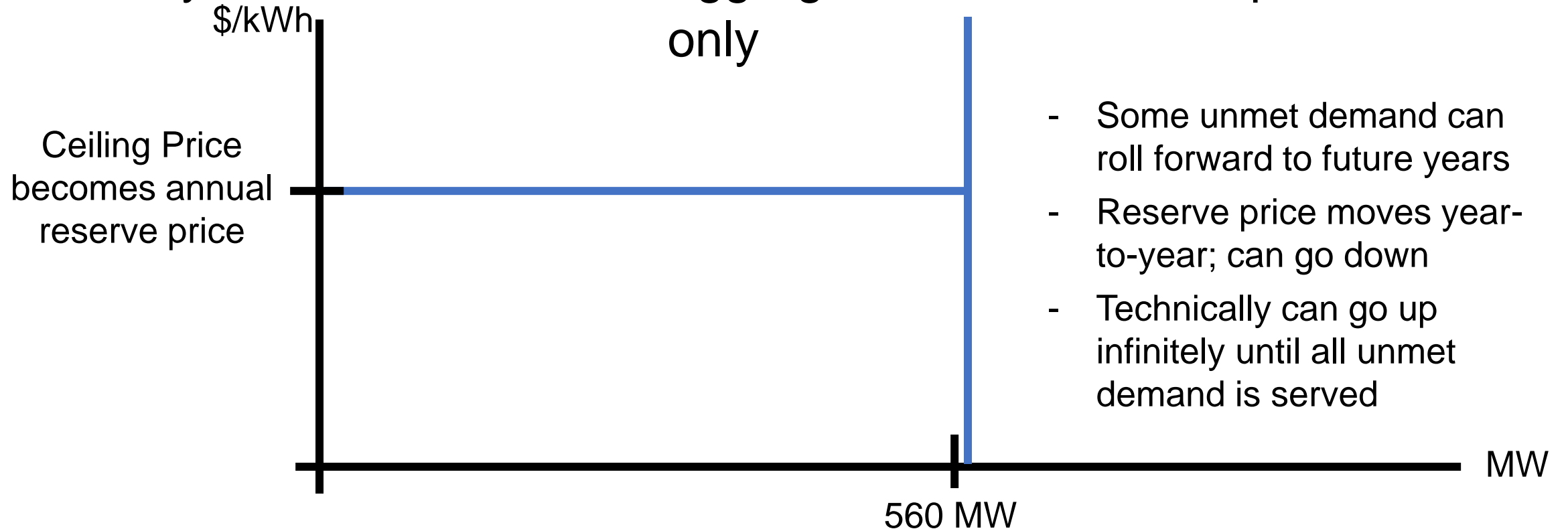
RE Growth Procurement Framework

4. Execute procurement
   - Eligibility Screening
   - Annual enrollments (single offer, sealed-bid, reverse auction)

RE Growth Procurement Framework

5. Validate the transaction
   - Meet milestones
   - Metered
     - Similar to net metering
     - Flat tariff rate over performance term
   - Transfer of generation certificates

Distribution System Load Growth Procurement Framework

1. Define your need/want
   - Need = if load is growing, it should be served
   - Need translated into a product : incremental on-peak kW

Distribution System Load Growth Procurement Framework

2. Define eligible supply
   – More wires
   – Storage
   – Energy efficiency
   – Demand response
   – Distributed generation
   – Conservation

Distribution System Load Growth Procurement Framework

2. Define eligible supply
   – More wires
   – Storage
   – Energy efficiency
   – Demand response
   – Distributed generation
   – Conservation

Alternative approach:

Define **ineligible** supply
   – Unserved demand
   – Grid outages

Distribution System Load Growth Procurement Framework

3. Build your demand curve
   - Determine Q:
     - Forecast load growth
     - Determine volume of unserved load
     - Determine timing (T) of unserved load
   - Determine P:
     - Apply duty to serve
     - Reserve price determined by planning/engineering

Forecast year

— line rating MVA   — load forecast MW
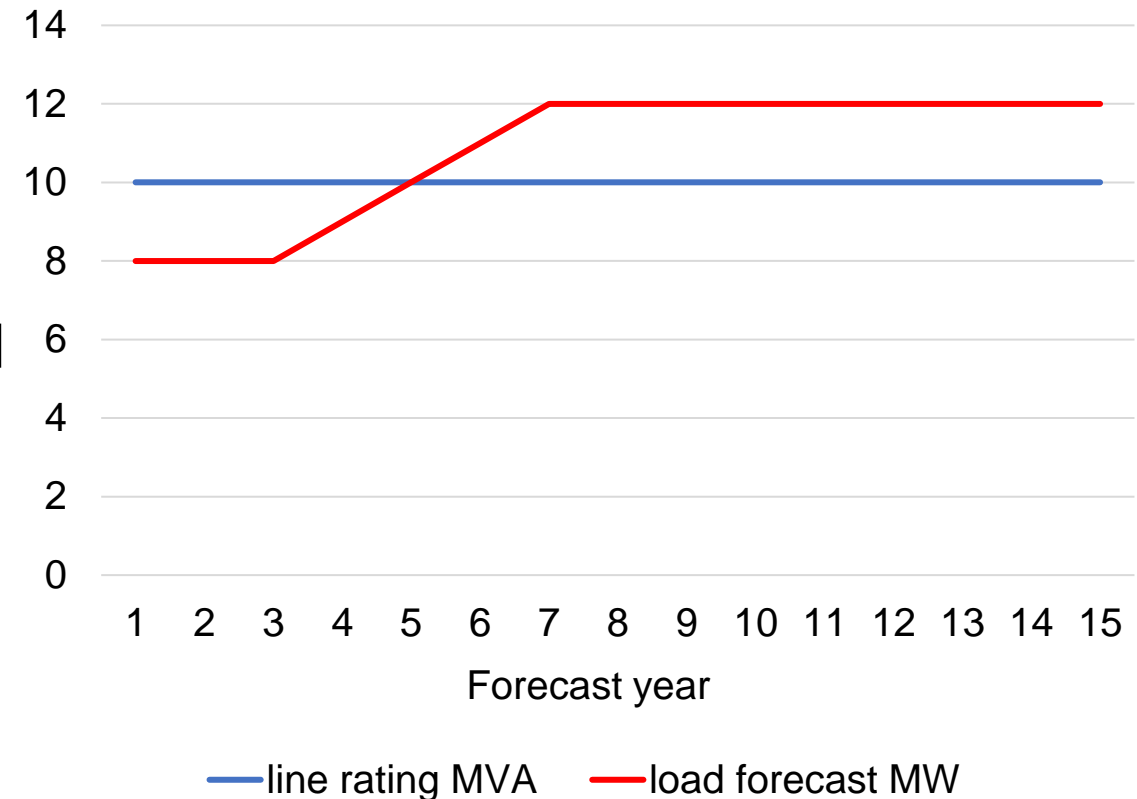
Distribution System Load Growth Procurement Framework

4. Execute procurement
   – Solicit Q MW from qualified bidders for delivery period T
   – Note the reserve price P

Distribution System Load Growth Procurement Framework

5. Validate the transaction
   - Solution-specific validation plan:
     1. Pre-operational: critical path scheduling
     2. Post-operational: monitor Q over delivery period T

Market Barriers

Market Barriers During Procurement

1. Define your product

2. Define eligible supply

3. Build your demand curve

4. Execute procurement

5. Validate the transaction

Potential market barriers:

- Is need clearly and accurately translated into a corresponding product?

Market Barriers During Procurement

1. Define your product

2. Define eligible supply

3. Build your demand curve

4. Execute procurement

5. Validate the transaction

Potential market barriers:

- Can storage net charge from the system?
- Can storage interconnect to the system?
- Must storage pair with a generating resource?
- Is there market exclusivity?

Market Barriers During Procurement

1. Define your product

2. Define eligible supply

3. Build your demand curve

4. Execute procurement

5. Validate the transaction

Potential market barriers:

- Is there a reliable price signal?

Market Barriers During Procurement

1. Define your product
2. Define eligible supply
3. Build your demand curve
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Potential market barriers:

- How well do you know your costs?
- If you supply multiple products across markets, are the markets co-optimized?
- Is your auction well designed and efficient?
- Is market power mitigated?

Market Barriers During Procurement

1. Define your product

2. Define eligible supply

3. Build your demand curve

4. Execute procurement

5. Validate the transaction

Potential market barriers:

- Does measurement and verification of performance restrict market participation?
- How will you be paid?
  - How will benefits and costs be allocated?
  - How will value and revenue be allocated?

Market Barriers to Listen for During Today's Stakeholder Presentations

- Cost transparency
- Technical limitations
- Eligibility and enrollment rules
- Right to net charge
- Interconnection
- Measurement and verification
- Price signal reliability
- Form of payment
- Unvalued production