

KOR Energy

Competitive Purchasing of Electric
\$/kWh

Forward Electric Energy Markets

Intercontinental Exchange (ICE)

- Electronic Trading Platform
 - Eliminates individual brokers
 - Transparent liquidity
 - Transparent pricing
- Facilitates Trading among Members
 - Contract obligations pre-defined
 - Credit established
 - Position netting

Forward Electric Energy Markets

Intercontinental Exchange (ICE)

- Standardized Products – Simple Swap
 - 50 MW Blocks of Power
 - Location Specific (trading hubs)
 - On Peak / Off Peak
- Forward Strips
 - Monthly
 - Multi-month
 - Annual

Purchasing Electric - kWh



Electric Procurement Solutions

- RFP - Prepare bid documents which shall include:
 - Member's hourly or sub-hourly usage profile
 - Multiple product requests (term and price)
 - Hedging products
 - Request for electric supplier purchase agreements
 - History of the suppliers position in past regulatory matters
- Review and negotiate executable electric supplier agreement
 - Coordinate between customer and supplier program implementation/switch!

Electric Procurement Solutions

- Monthly Services to customer:
 - Provide monthly invoice reconciliation
 - Provide general electricity market data to customer
 - Present quarterly report to customer

Key Purchasing Considerations

- Develop a purchasing strategy which takes into account customer's budget requirements and reliability
- Due diligence of each Supplier's:
 - historical performance/delivery capabilities
 - price competitiveness and contract terms
 - (e.g., peak volume or bandwidth tolerance or 100%)
- Suppliers physical geographic position (generation assets)
- Price build-up of the applicable components to develop the retail price (\$/kWh)

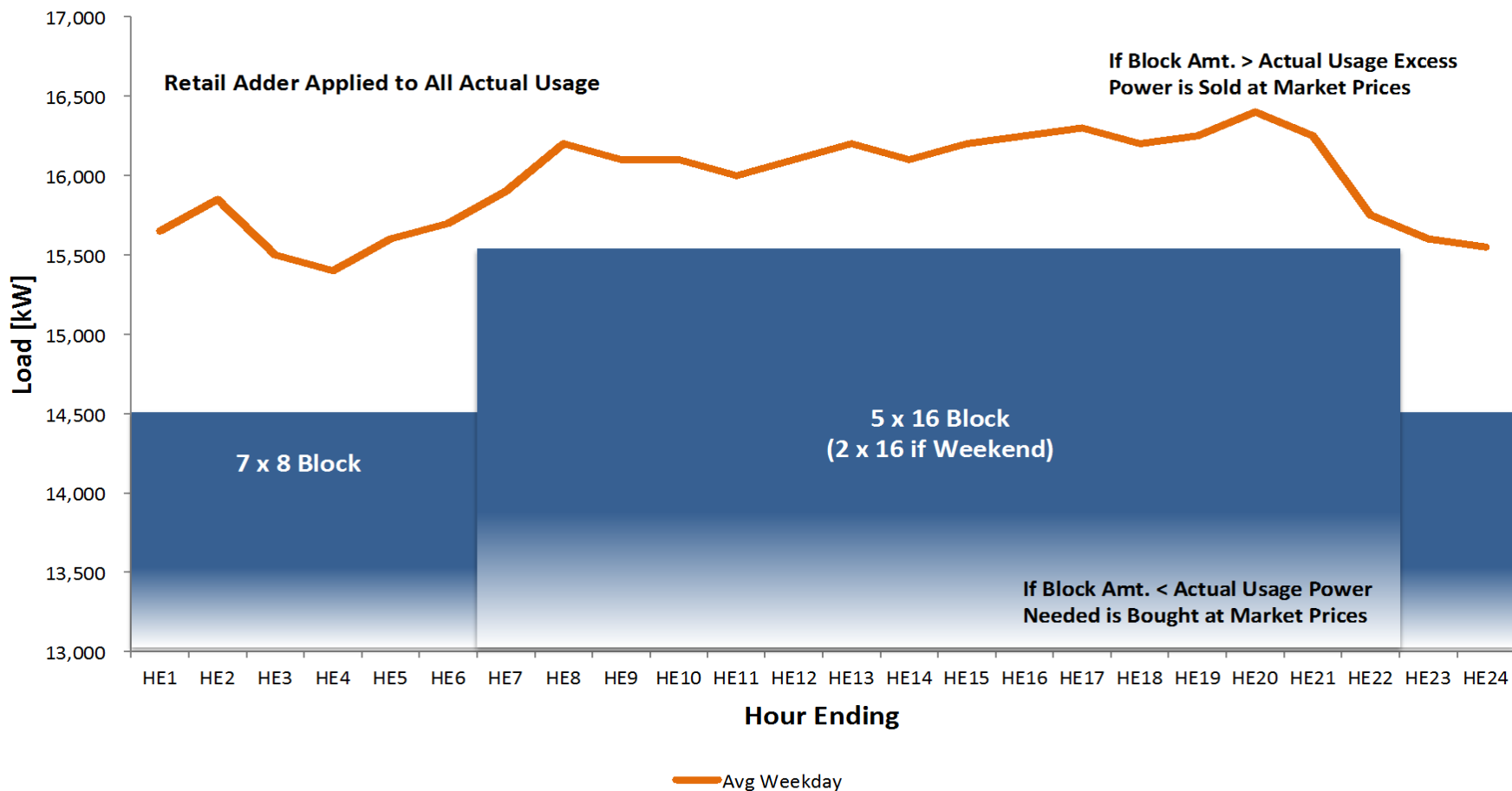
Wholesale Power = Building a Retail Electric Price

- Energy “Blocks” emulate 100% load factor
- Most common blocks are:
 - 5X16 (5 days – peak hours, HE7 to HE 22)
 - 2 X 16 (2 days – weekends, HE7 to HE22)
 - 7X8 (7 days – think overnight, HE 23 to HE 6)
 - 7X24 (7 days, round the clock, HE 1 to HE 24)

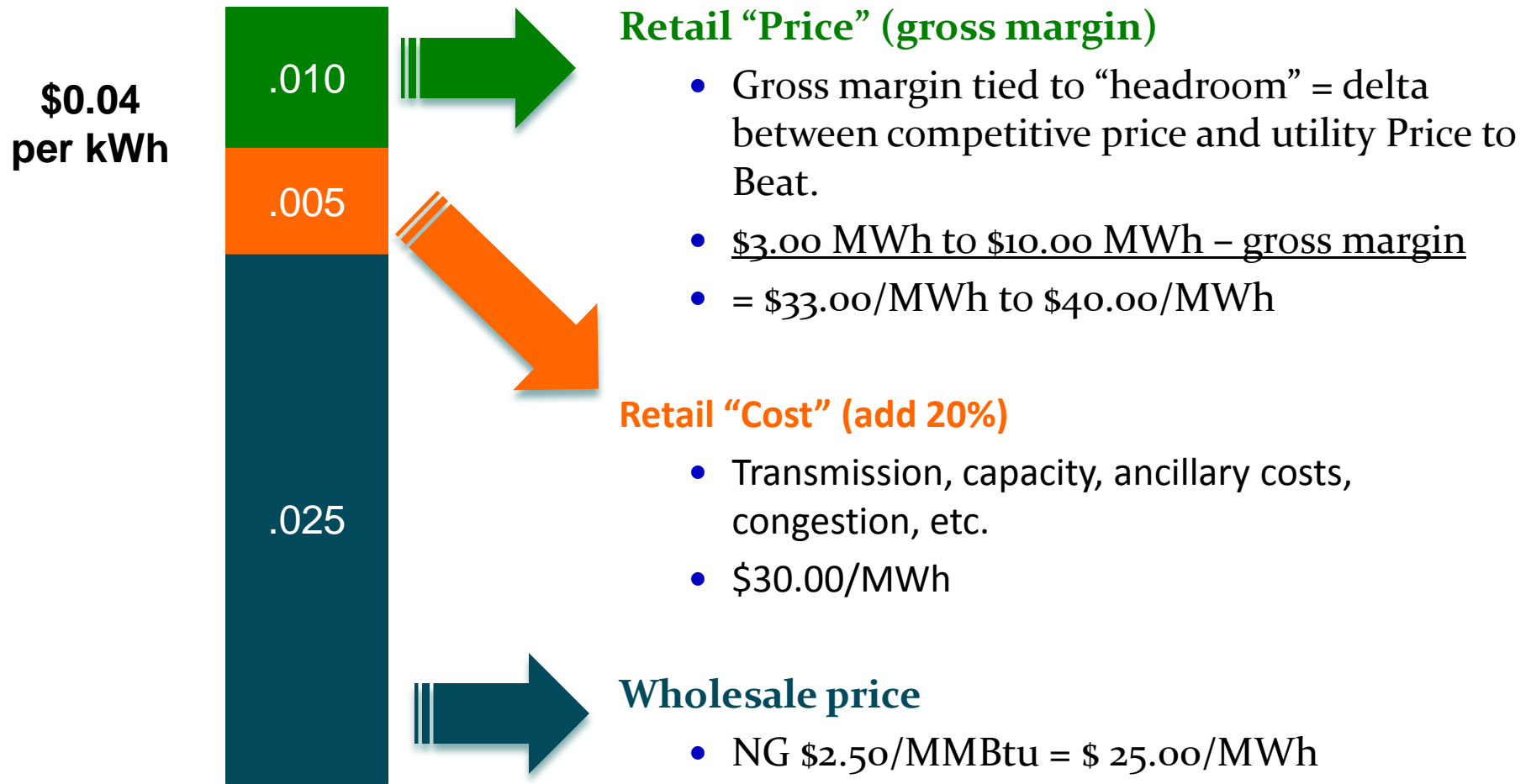
Customers don't use “blocks”, most use 5X16

Example of Shape & Blocks

Average Weekday Usage vs. Block Hedge Amounts



Building a Retail Electric Price: kWh





Electricity 101

Electricity 101: Terms

- Demand (Load): Rate at which power is being used
- kW – kilowatt: 1,000 watts common measure of customer demand
- kWh – kilowatt hours: total energy used, common unit in pricing retail business
- MW – MegaWatt 1,000,000 watts: Common unit in wholesale business

Electricity 101: Conversions

- If a customer pays 5 cents/kWh or \$.05
 - Same customer pays \$50.00/MWh for electricity
- Move the decimal point 4 spaces to convert kW to MW
- 1 MW of demand = 1,000 kW of demand

Electricity 101: Load Factor

Load Factor = Ratio of average load during a period of time compared to peak load – expressed as a percentage.

- Example:

- 50 kW Demand customer @ 740 hours per month
- $50 \times 740 = 37,000$ kWh/month or 100% load factor
- If customer uses only 18,500 kWh, but has 50 kW demand, then:
 - Load factor = $18,500 \text{ kWh} / (50 \text{ kW} \times 740 \text{ hours})$

Electricity 101: Price Drivers

- Natural Gas: sets the future price of electricity!
 - NG fuels the power plants “on the margin”
- “SHAPE” The Load: how pricing goes from wholesale to retail
 - Lower load factor = higher retail price!

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