

INTELLIGENCE THAT WORKS

Resource Balance for Net CONE Calculation

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Disclaimer

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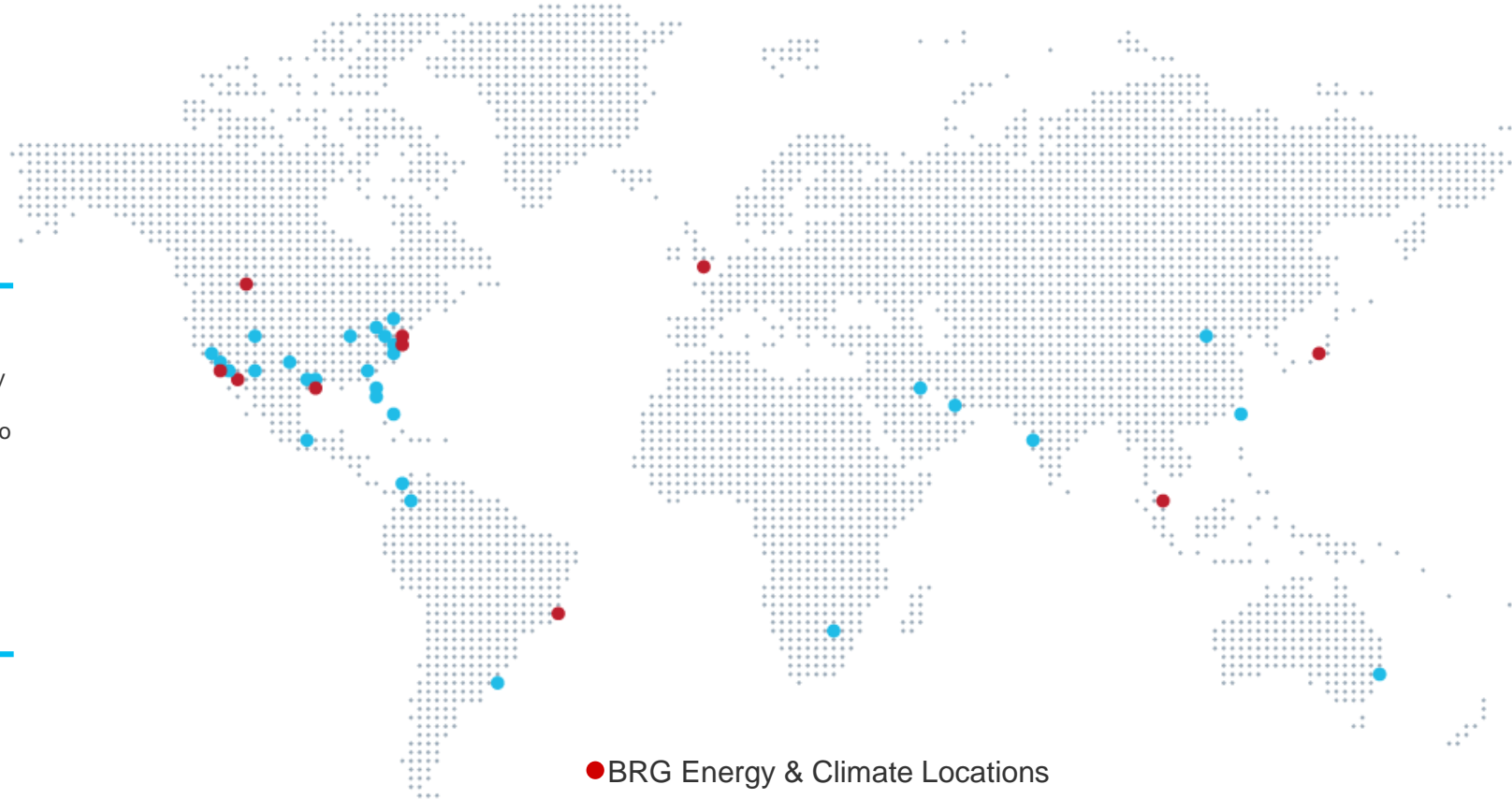
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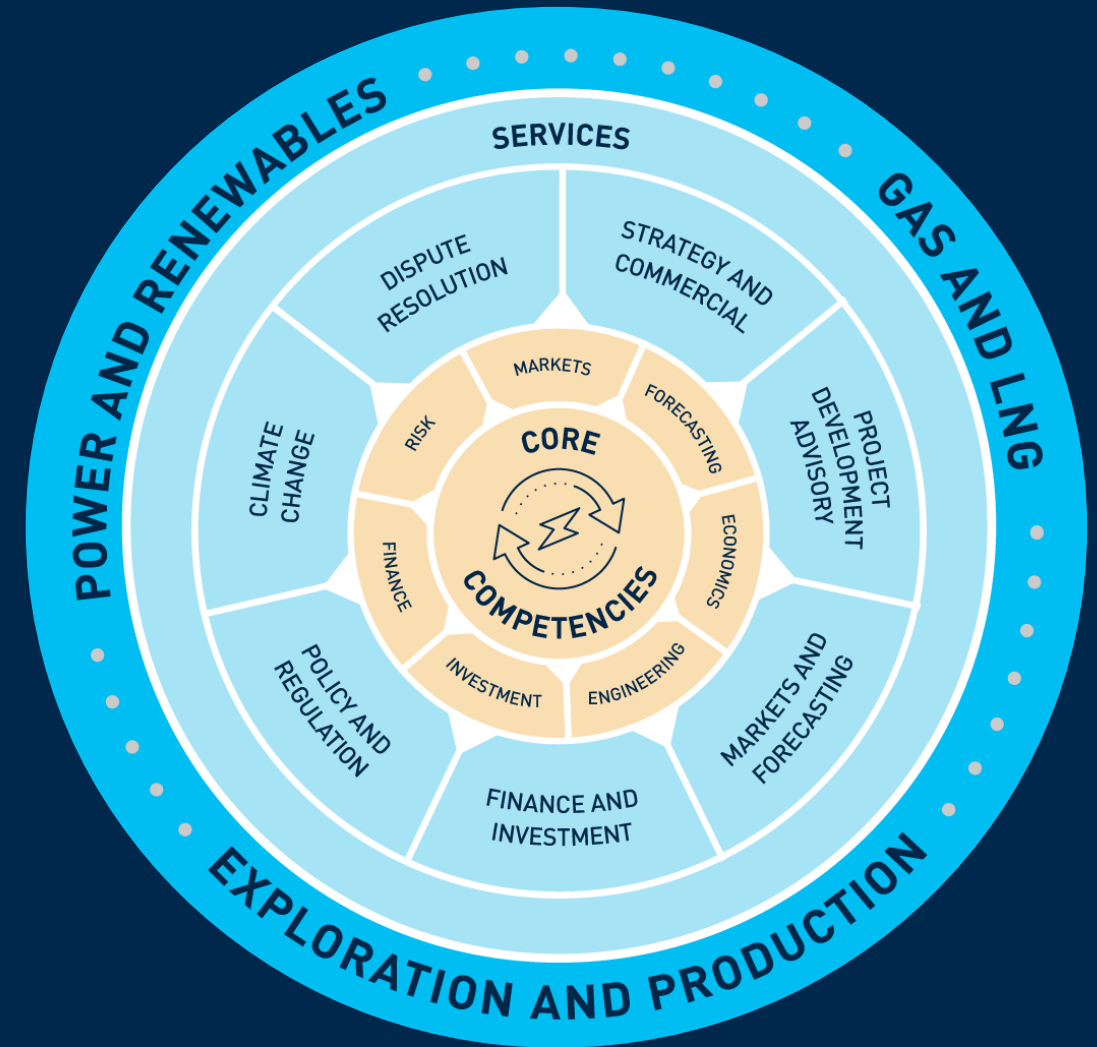
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Capacity Balance: At Criterion?

Capacity balance in setting Net CONE

- Key assumption in CEA analysis: E&AS Offset (and all other inputs to Net CONE) should be calculated at criterion
- Relies on FERC decision in ER17-795-000 characterizes this requirement in its summary of the case, but not in the decisional paragraphs: “Net CONE is intended to approximate the compensation a new entrant would need from the capacity market in the first year of operation to recover its capital and fixed costs *under long-term equilibrium conditions*.”
- BUT this non-decisional sentence cites as its authority the ISO filing letter, which states in relevant part: “Another estimated entry cost is ‘Net CONE,’ which is the gross cost of new entry less the variable profit the resource is expected to earn from energy, ancillary service and other market services.” No reference is made to “long-term equilibrium conditions.”
- This statement in turn cites the Tariff at I.2.2: “Net CONE is an estimate of the Cost of New Entry, net of the first-year non-capacity market revenues, for a reference technology resource type and is intended to equal the amount of capacity revenue the reference technology resource would require, in its first year of operation, to be economically viable given reasonable expectations of the first year energy and ancillary services revenues, and projected revenue for subsequent years.”
- Conclusion: FERC’s unsupported interposition of the term “under long-term equilibrium conditions” as it applies to Net CONE is not binding
- The Tariff says “reasonable expectations of the *first year* energy and ancillary services revenues, and projected revenue for subsequent years”

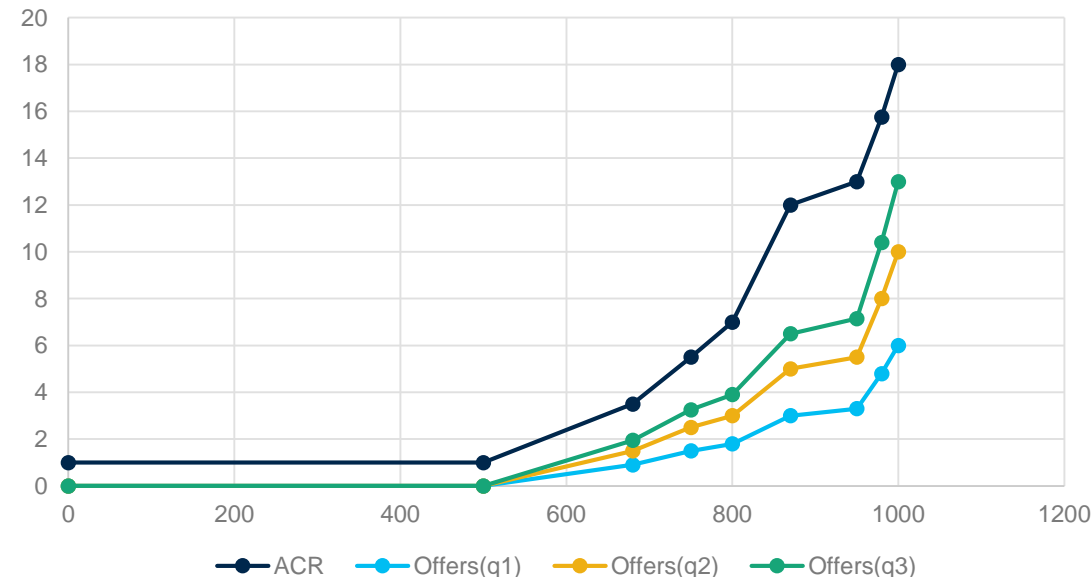
FERC and ISO on Net CONE

- “Premised on the assumption that new entrants will set prices at true Net CONE in a long-term equilibrium state, the curve’s prices are indexed to an estimated Net CONE value, with prices rising above that value if reserve margins are less than NICR + 1.4% and declining at higher reserve margins.” ISO Filing Letter at p.8, ER14-1639-000
 - › ISO’s original approach assumed that the EA&S Offset is *not equal* across all levels of installed capacity
- “We find that net CONE is a reasonable estimate of the *price that would result from a competitive auction*, and therefore we will accept the relevant Tariff revisions on this issue.” 147 FERC ¶ 61,173 at P 40 (2014)(emphasis added)
 - › Competitive capacity offers will reflect earnings expectations given the *anticipated* capacity balance, not the earnings at criterion.

Expected market earnings vary with capacity balance

- To create a Net CONE that “is a reasonable estimate of the *price that would result from a competitive auction*, E&AS Offset needs to reflect *expected* market revenues, not market prices that would occur in a hypothetical *at criterion* system
 - › Bidders’ competitive offers should deduct “reasonable expectations of the first year energy and ancillary services revenues, and projected revenue for subsequent years” from their avoidable costs
 - › PFP risk rises at capacity margins tighten

Competitive Offers Depend on
Expected Capacity Margin
Illustrative Offer Stack; $q1 < q2 < q3$



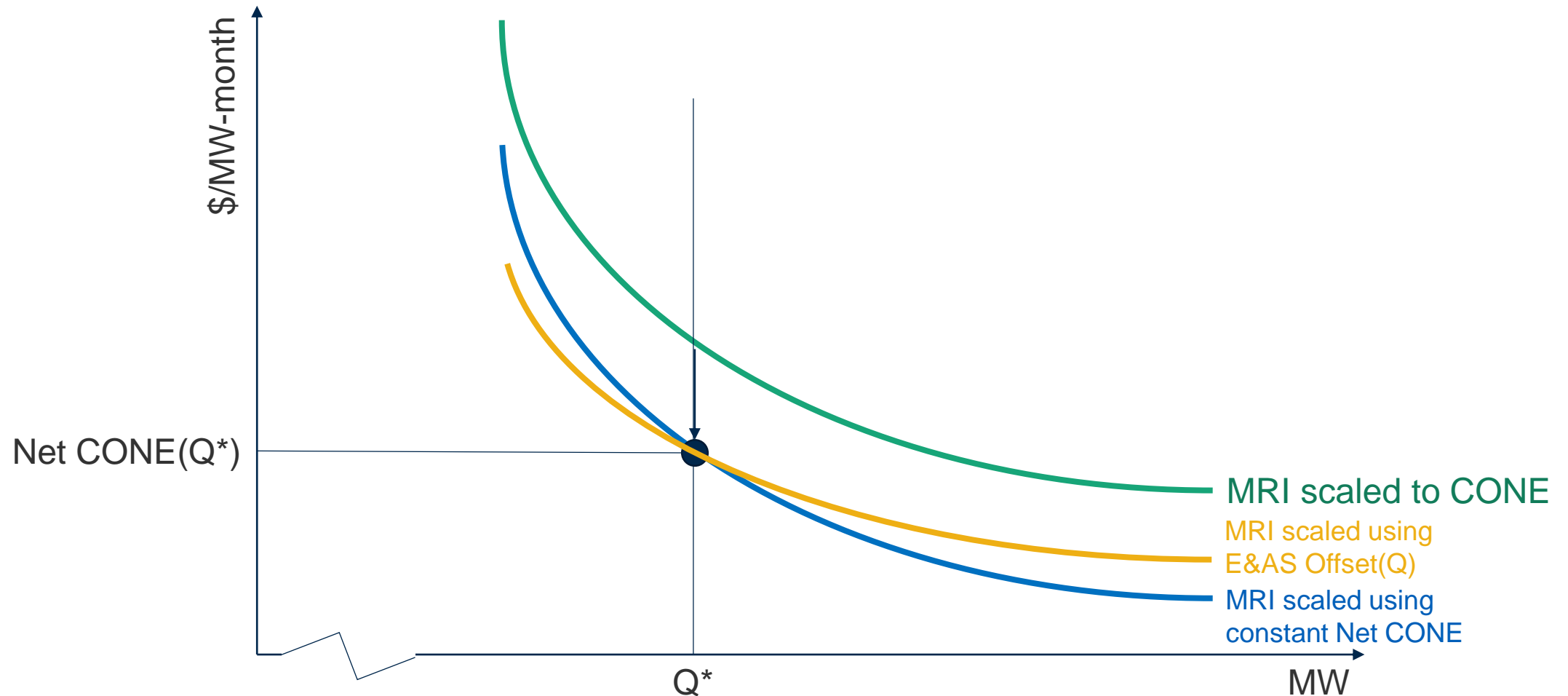
Consequences of using *at criterion* capacity balance

- Requires arbitrary and improbable adjustments to forecasts
- Ignores impacts of energy-only resources
- Numerous impacts throughout the FCM design, including:
 - › Overstates expected number of forecast scarcity hours
 - › Competitive offers could be subject to undue mitigation
 - › ORTP set too low
- FCM unlikely to produce sufficient revenue on average if uses *at criterion* Net CONE
 - › To satisfy the market's sustainability principle, the demand curves are designed to yield an average market clearing price of at least Net CONE
 - › If Net CONE reflects expected *at criterion* market earnings, demand curve is too low in surplus and too high in deficit
 - › But system rarely spends time in deficit, particularly when energy-only resources are considered
 - › So on average prices will undershoot Net CONE

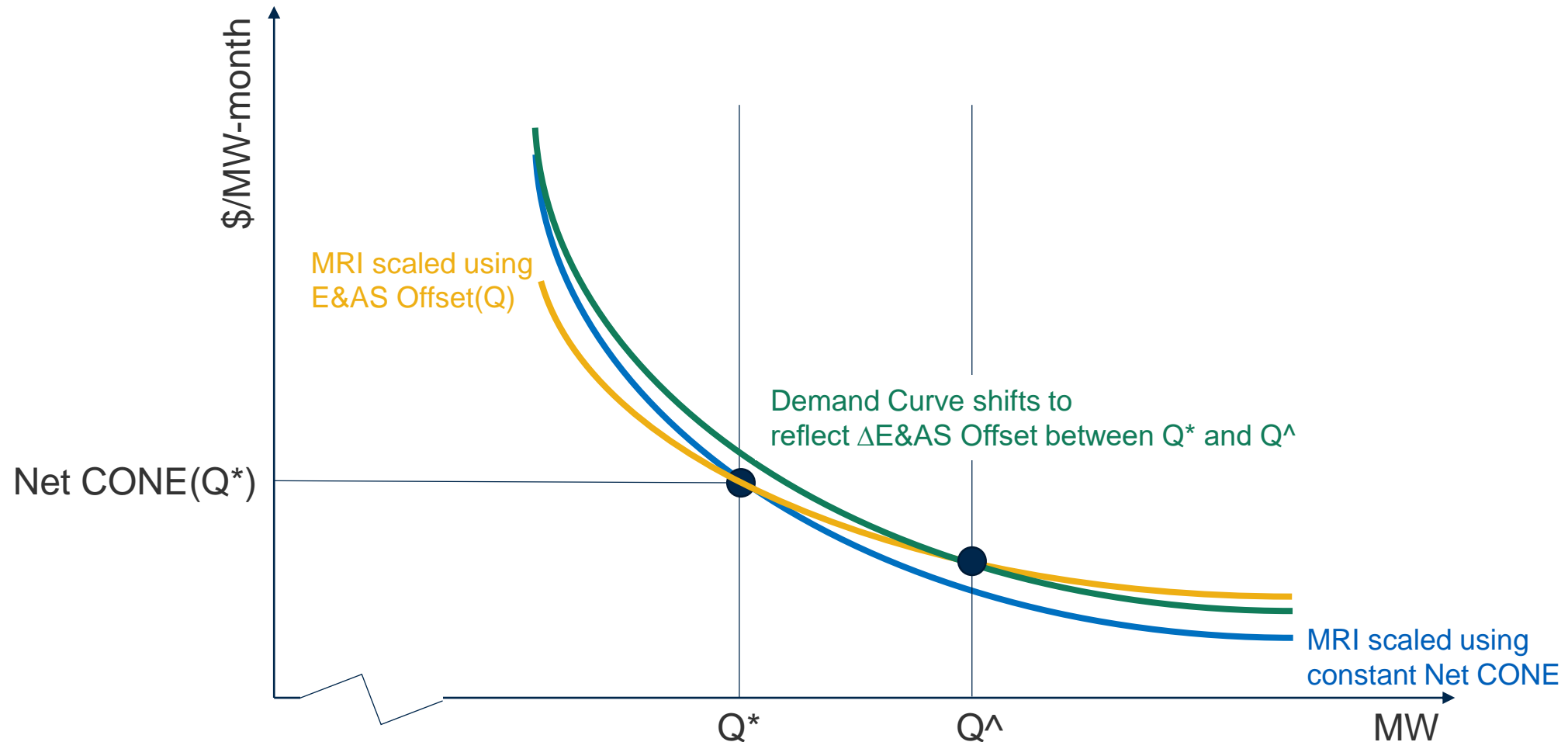
Using “as expected” is consistent with MRI principles

- 2016 Demand Curve redesign is aligned with sound economic principles
 - › Capacity demand curves reflect engineering estimates of MRI
 - › Rescaled to equilibrate at Net CONE
 - › Balances cost vs. benefit of incremental resource
- But the incremental cost is *not* Net CONE but rather (Gross) CONE
 - › CONE measures *societal* cost of adding an incremental resource
 - › Customers pay the difference between CONE and Net CONE in E&AS markets
 - › So CONE is the best measure of the expected total cost to consumers
- In theory, then, demand curves should be drawn using CONE then subtracting expected E&AS earnings at each capacity balance
 - › Which is what ISO/Brattle did in 2014
- Short of a full demand curve reset, we can achieve the same expected price level by using an “as expected” E&AS Offset

Replotting the Demand Curve (1)



Replotting the Demand Curve (2)



Questions?



