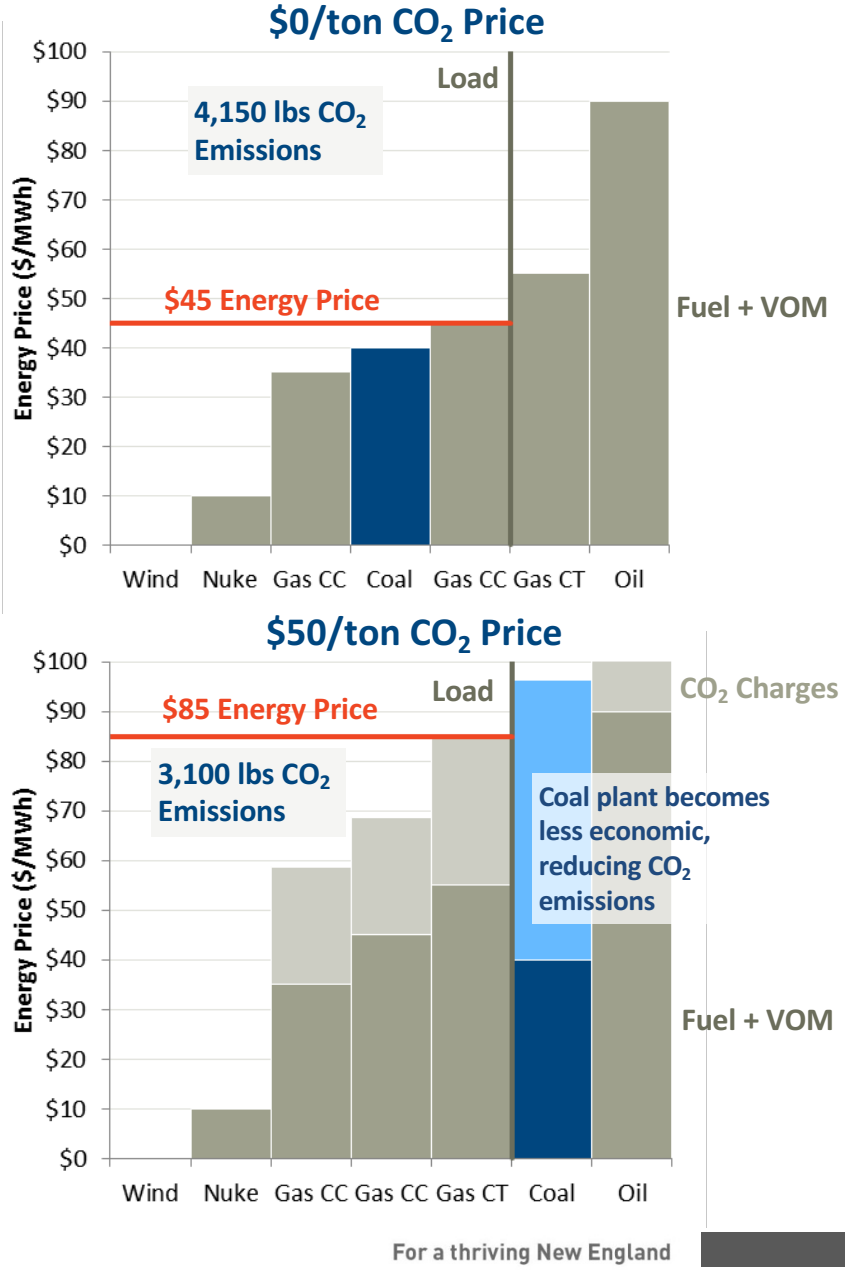
Price on Carbon in Energy Markets

- Real carbon price, not just shadow price on carbon
- Carbon price applied to generator offers will be reduced by the most recent RGGI auction price
- Approach designed to be technology neutral, rewarding low and zero carbon emitting resources
- While wholesale energy prices will reflect the carbon adder, customer cost increases will be offset by the ISO returning the carbon charges collected proportionally to state-regulated EDCs, muni/coop entities and direct wholesale customers on a monthly lump sum basis
- Seams issues will be addressed with a CO_2 price adder at the border (reflecting the difference in CO_2 prices in each market, with many details to be part of the design phase)

CO_2 Pricing Furthers State Decarbonization Goals in the Short- and Long-Term

- Short-term dispatch effect from higher-emitting resources incurring higher CO_2 charges and becoming more costly on a per MWh basis

- Will avoid dispatch of CO_2 emissions in the short-term by, for example, avoiding increased emissions from cycling; peaking DR may also be more economic than some high-emitting gas/oil peakers; and remaining coal/oil left in market dispatched less frequently



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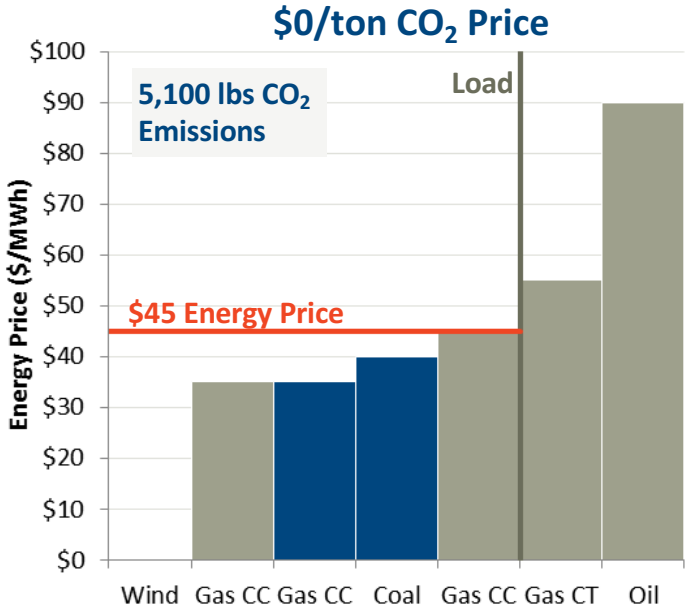
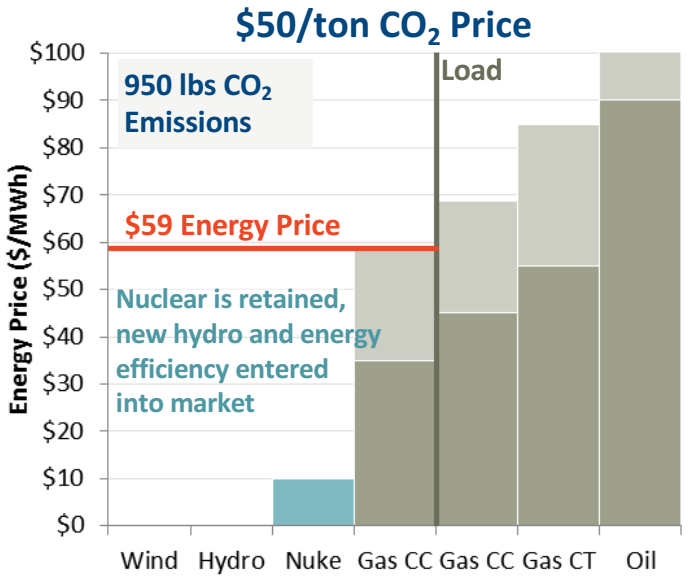
Notes: Adapted from Exelon slide 4. Each plant is 1 MW in size, with typical fuel+ VOM costs and CO_2 emissions rates.

Long-Term: Price Signal Creates Incentive for Clean Energy Resource Development

- Lower-emitting and non-emitting resources will be more profitable and more attractive to investors than without a CO_2 price
- Will induce investments toward a lower-emitting resources over time
- Expected long-term effects:
  - Higher energy margins will help retain existing clean energy resources that may otherwise retire
  - Existing coal and high-emitting steam plants will face more financial pressure to retire
  - New wind, hydro, and energy efficiency will become more attractive investments (and reduce the amount of gas CCs as new entrants)
- Long-run prices and costs:
  - Energy prices can increase (due to higher CO_2 prices) or decrease (due to more entry of non-emitting resources with no fuel costs)
  - Total energy + capacity + ZEC (see later slide) prices will be high enough to support the policy objective of attracting investments in new non-emitting generation





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Notes: Adapted from Exelon slide 4. Each plant is 1 MW in size, with typical fuel+ VOM costs and CO_2 emissions rates. Fleet effects are directional, but realized energy prices

Defining Price on Carbon

Based Upon:

1) **Social Cost and Willingness to Pay**: Stakeholders will determine a reasonable range of prices that could be adopted based on the social cost and willingness to pay for avoiding CO_2 emissions.
   - Starting Price: at federal government's Social Cost of Carbon (SCC): $61/ton.
   - Maximum Price: Highest CO_2 price reflecting the maximum willingness to pay to avoid CO_2 emissions (updated with inflation)
   - Minimum/Reservation Price: Lowest CO_2 price reflecting a situation where it is a relatively low cost to achieve even greater levels of CO_2 emissions earlier (updated with inflation)
2) **Quantity**:
   - ISO-NE will develop a CO_2 emission reduction trajectory consistent with the states' policy mandates of 80% reductions by 2050, in consultation with state regulators
   - CO_2 price may be adjusted upward or downward regularly (every 1-3 years?) based on whether the prior years' emissions were above or below the target, with price adjustments in increments not to exceed a pre-specified level
   - Price will adjust to meet quantity targets, but will stay within the price collar

Revenues from Pricing Carbon

- Price on carbon is designed to be revenue-neutral with respect to ISO-NE with 100% of surplus returned to load
- Money is returned proportionally to state-regulated EDCs, muni/coop entities, and direct wholesale customers
- State Regulators will oversee how these funds are used by the EDCs
  - PUCs can decide whether to use the funds for programs that benefit electricity consumers such as energy efficiency investments, provide direct customer rebates, or elect other uses
  - Energy efficiency programs should not be negatively impacted:
    1) Rebates to customers should maintain incentives for EE
    2) this has additional possibilities for states with LCP mandates, including MA, ME, VT, RI, because ambit of “Least Cost” is enlarged