Clean Energy Standards and Electricity Markets

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House Bi-Partisan Briefing on Clean Energy Policy

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What is a Clean Energy Standard (CES)?

Minimum percentage of electricity from qualified sources

Important policy design questions:

- What qualifies as clean energy?
- How many credits per MWh?
- Who has to comply with the standard?
- What are the targets and timetables?

- How to make the policy flexible?
  - Credit trading
  - Banking and borrowing
  - Alternative Compliance Payment (ACP)

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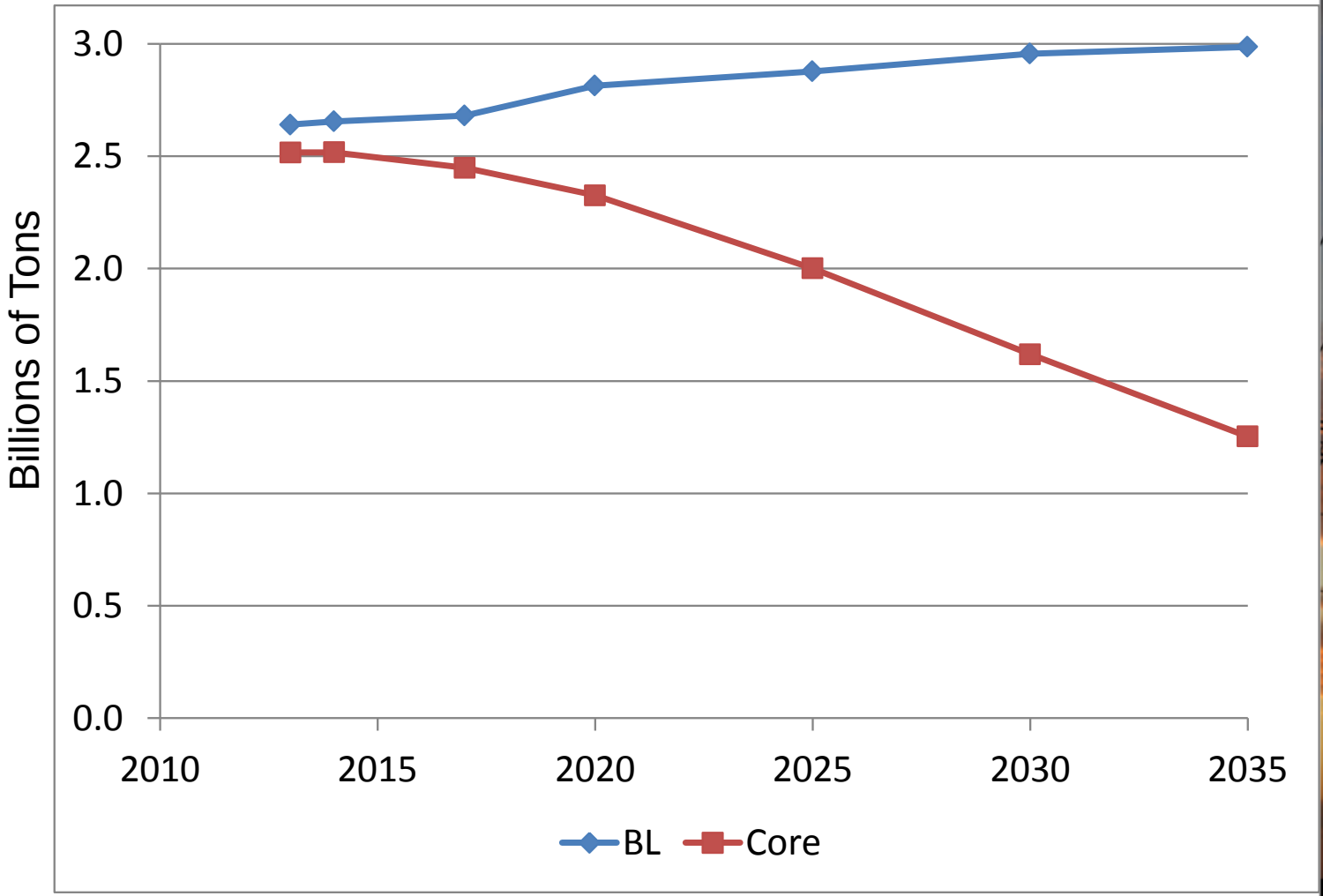
Policies Evaluated

- Baseline
- Core CES (Core)
  - Goal of 80% Clean Energy by 2035
  - Credit trading but no banking
  - No credits for existing nuclear and hydro
  - No credits for energy efficiency
  - Full credit for renewables and incremental nuclear
  - Natural gas combined cycle awarded 0.5 credits
  - Partial credits for coal with CCS
  - All utilities must comply
  - No Alternate Compliance Payment
- Credit Existing Nuclear and Hydro (CreditNH)

What to expect from an 80% CES

- A substantial 30% reduction in cumulative CO_2 emissions from the electricity sector.
- Increase in generation from broad set of clean generators.
- An 8% increase in national electricity price by 2035.
- Electricity prices rise in many regions and fall in some (mostly competitive) regions.
- Most regions that experience price increases still have electricity prices below the national average.
- Eastern states buy clean energy credits from generators in western states.

How much does a CES reduce CO_2?



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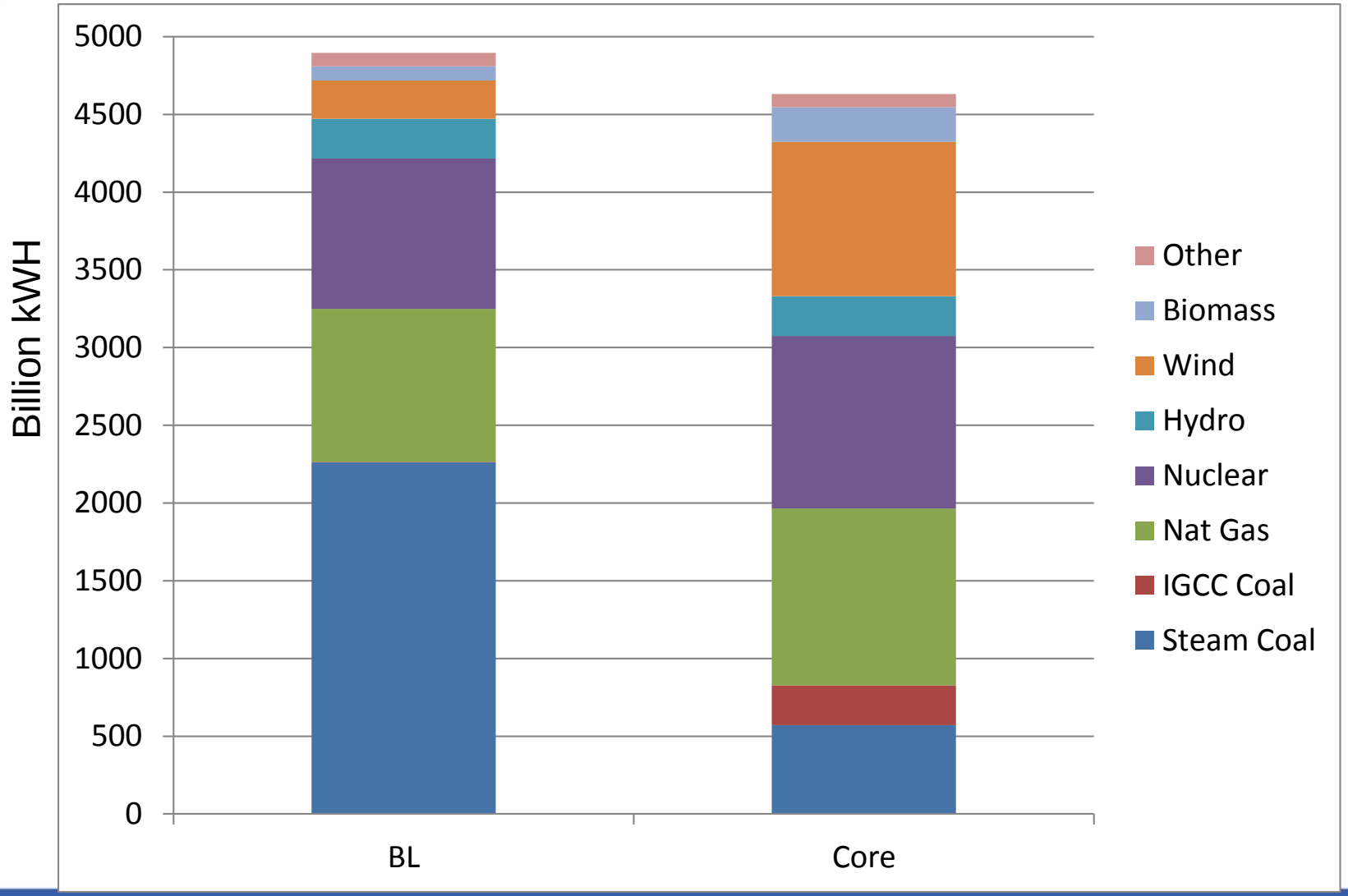
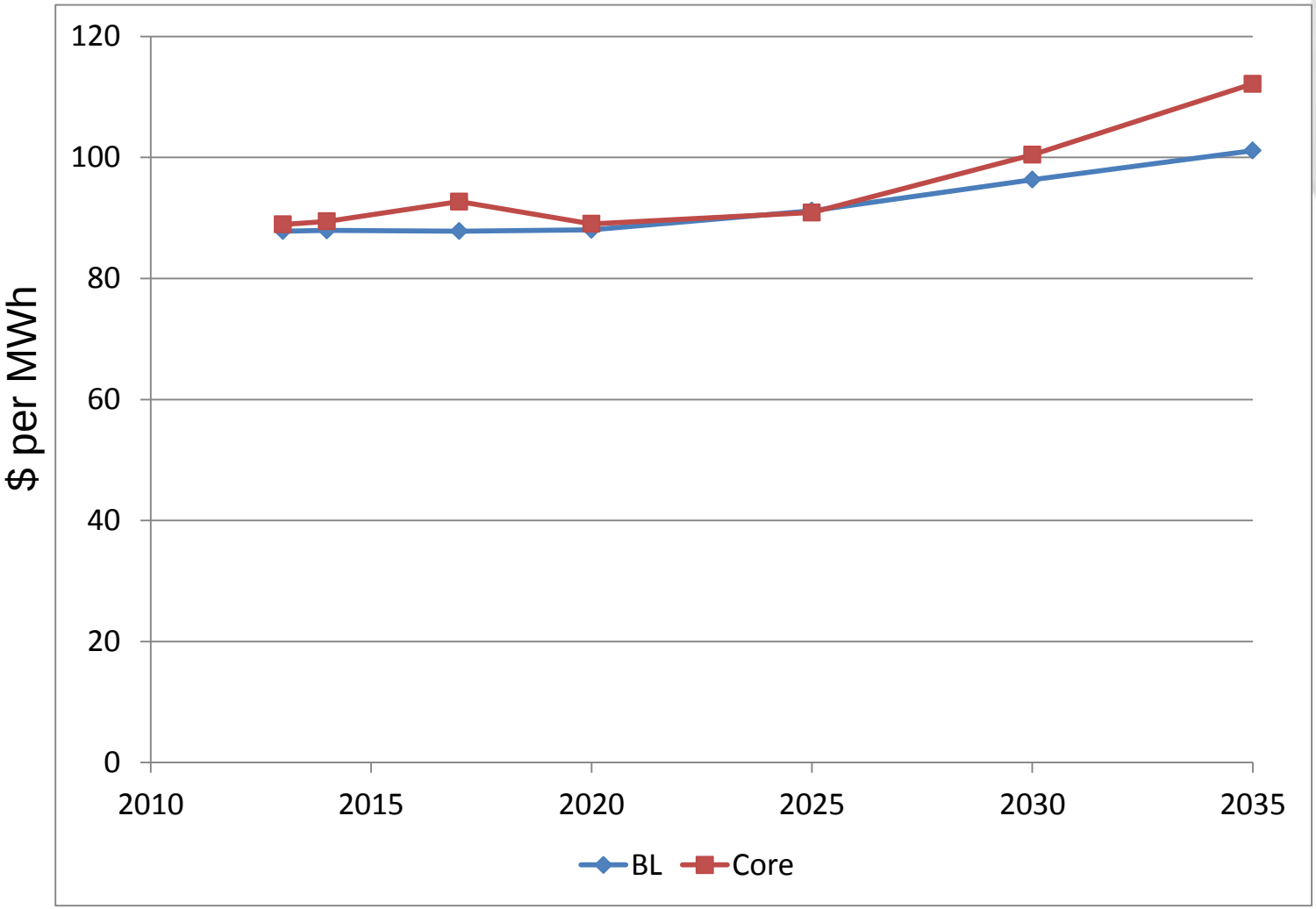
Generation Mix in 2035



National Average Electricity Price



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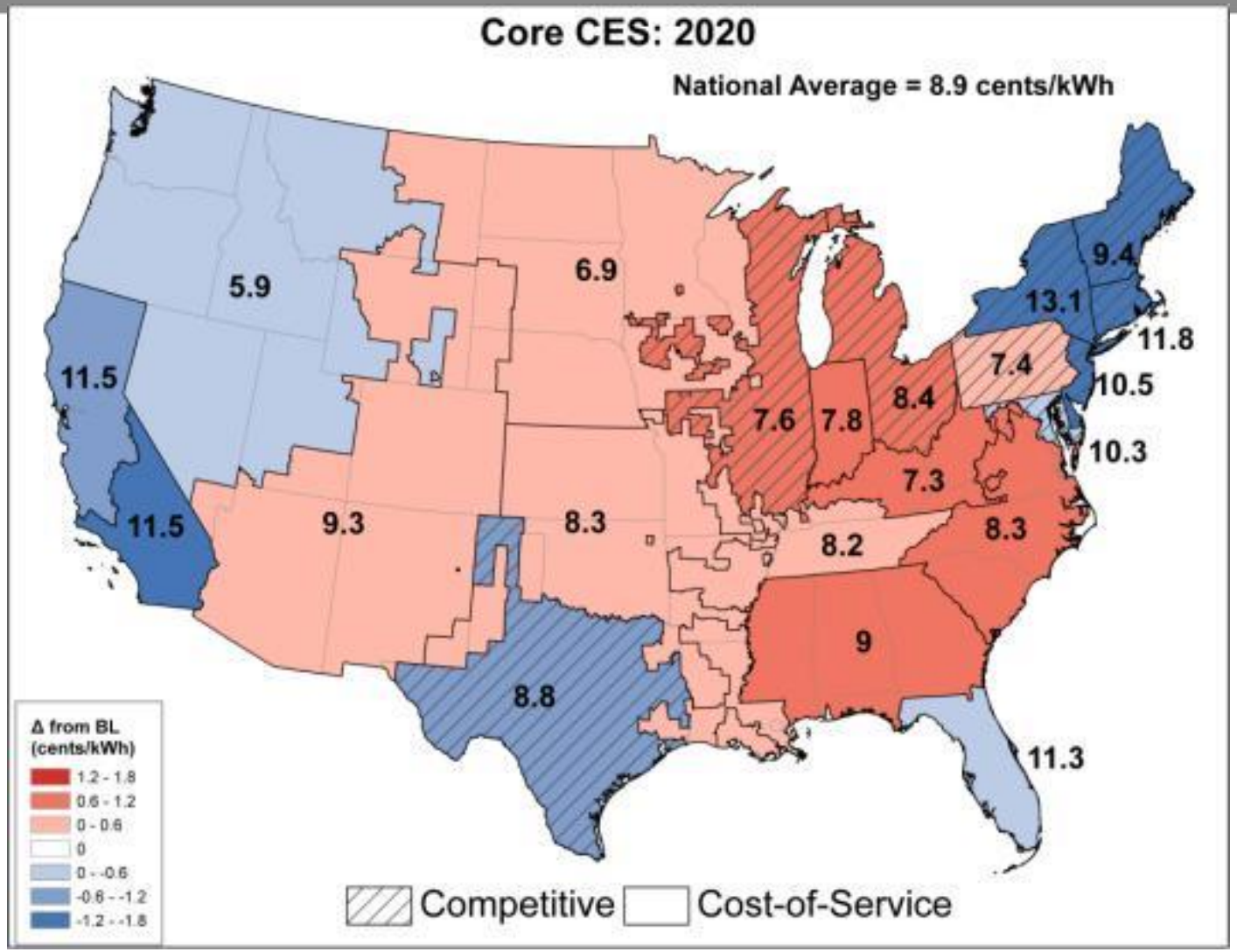
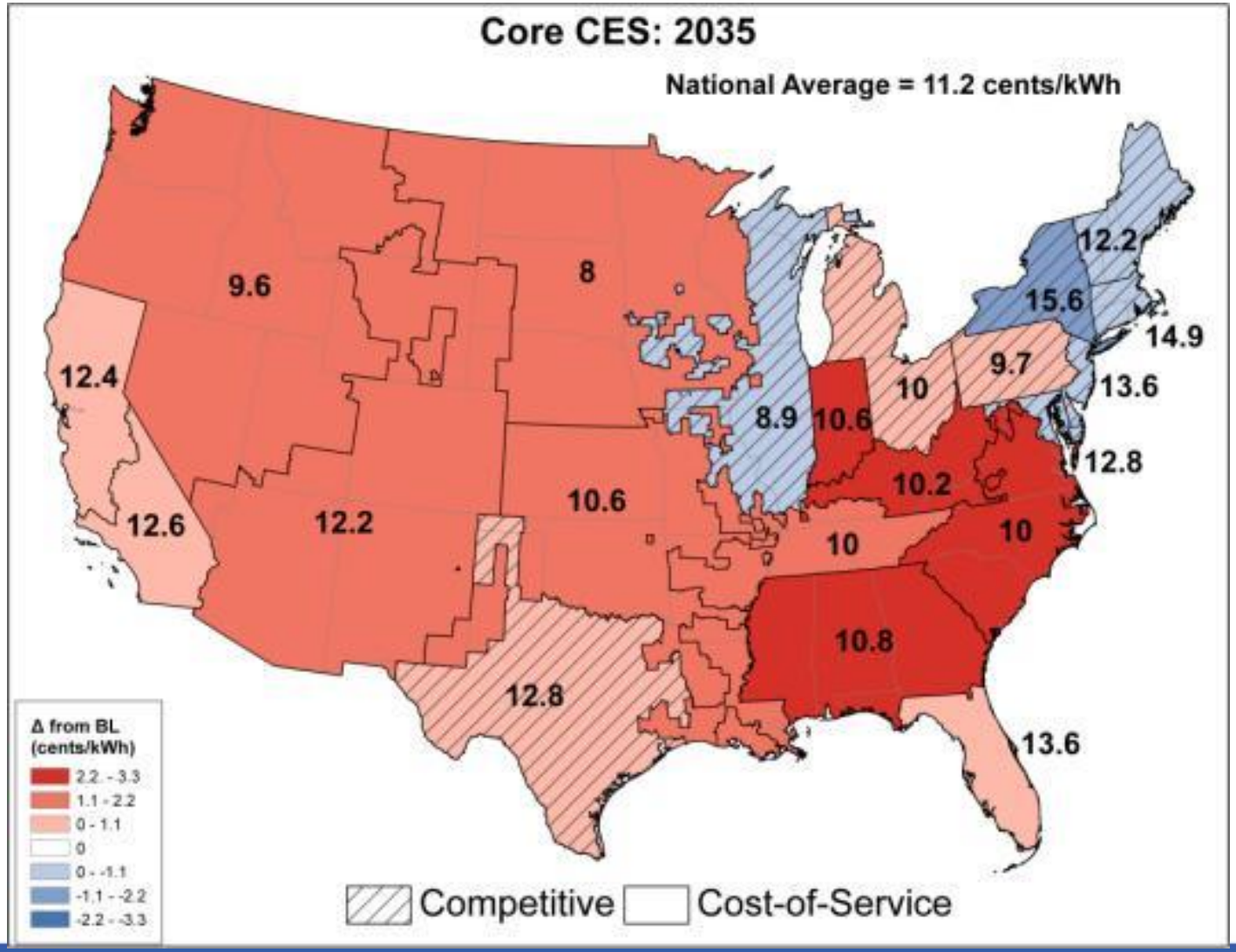
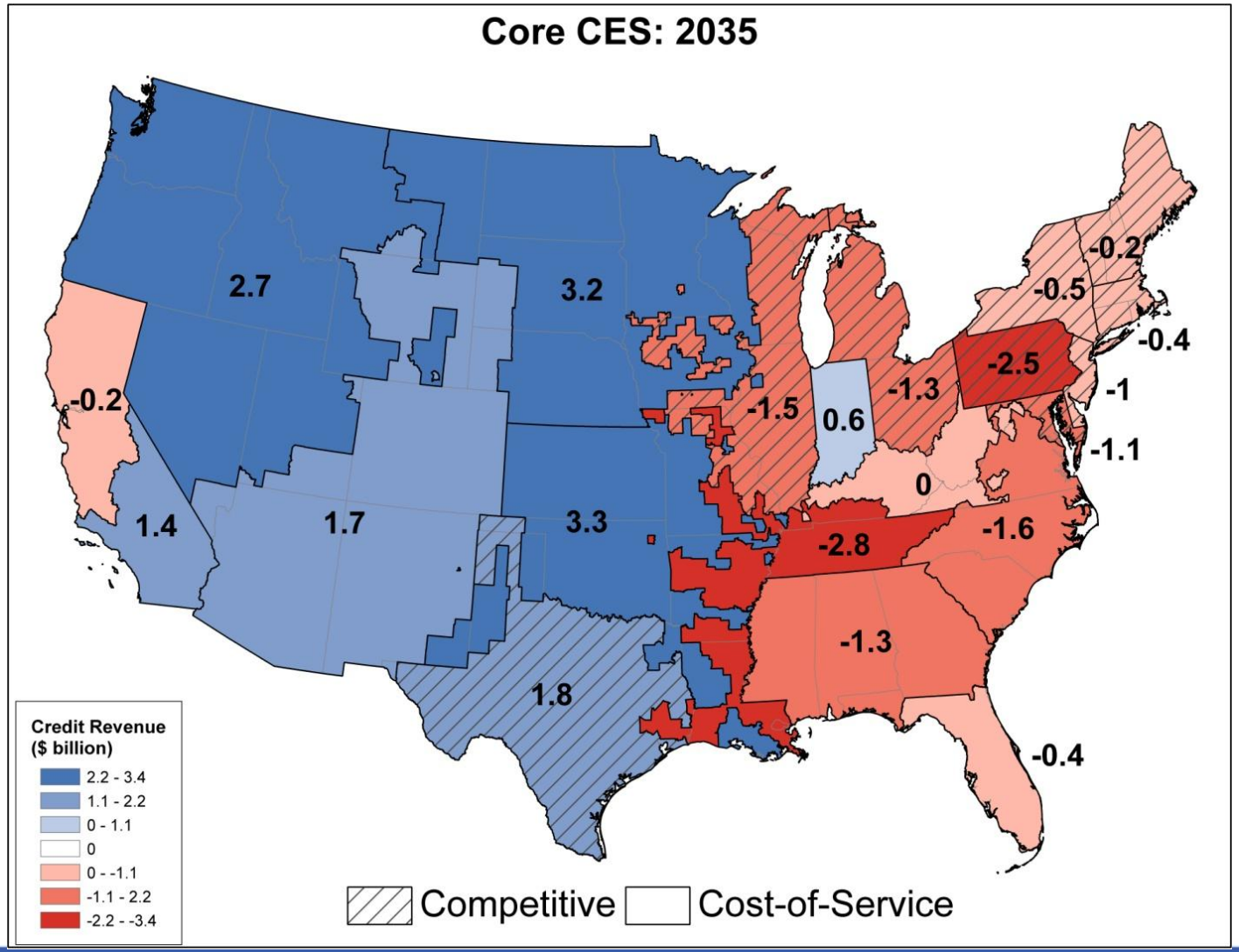
Regional Electricity Price Effects in 2020



Regional Electricity Price Effects in 2035



Net Credit Revenues in Core CES in 2035



Effect of crediting existing hydro and nuclear

- Same cumulative CO_2 emissions reductions.
- Small increase in nuclear generation.
- Larger increase in national prices.
- Smaller price effects in regions with abundant hydro (northwest) and nuclear generation (southeast).
- Higher prices in other regions.
- Larger transfers of credit revenue to regions with abundant hydro and nuclear.

Conclusions

- Cumulative CO_2 emissions reduced by 30%.
- CES benefits broad mix of clean technologies.
- Regional price effects vary:
  - Regulated regions tend to see higher prices.
  - Prices fall in some (mostly competitive) regions.
  - CES has electricity price equalizing effect.
- Payments for credits flow from east to west.
- Credit trading benefits the nation as a whole.
- More analysis is needed to inform tradeoffs inherent in policy design choices.