The Influence of Clean Power Plan Compliance Pathway Choice on Renewable Energy Construction

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Synapse Energy Economics

- Founded in 1996 by CEO Bruce Biewald
- Leader for public interest and government clients in providing rigorous analysis of the electric power sector
- Staff of 30 includes experts in energy and environmental economics and environmental compliance

The Clean Power Plan (abridged)

Clean Power Plan and Section 111(d)

Who?	Applies to existing fossil fuel-fired generators that were in operation or under construction by January 8, 2014 and that meet certain size and production requirements
What?	Covered units must reduce emissions of carbon dioxide (CO_2) by the amount determined by EPA to reflect the Best System of Emission Reductions (BSER) for the source category
When?	Compliance targets must be met on average over an 8-year interim compliance period as well as in the final compliance year: 2030
Where?	Applies to units in 47 states and several Tribal lands (Vermont and Washington D.C. have no covered units; Hawaii, Alaska, Puerto Rico, and Guam will be brought into the program when more data is available on the units in those states/territories)
Why?	To reduce emissions of CO_2 from the electricity sector in order to reduce the contribution to global climate change

Timeline for Compliance

- First date for compliance pushed back from 2020 to 2022
- Two additional years to complete final State Plans
- States still expected to demonstrate progress during an interim period through 2029 and must meet the final compliance targets by 2030

CPP Compliance Options (abridged)

Two Forms of Compliance

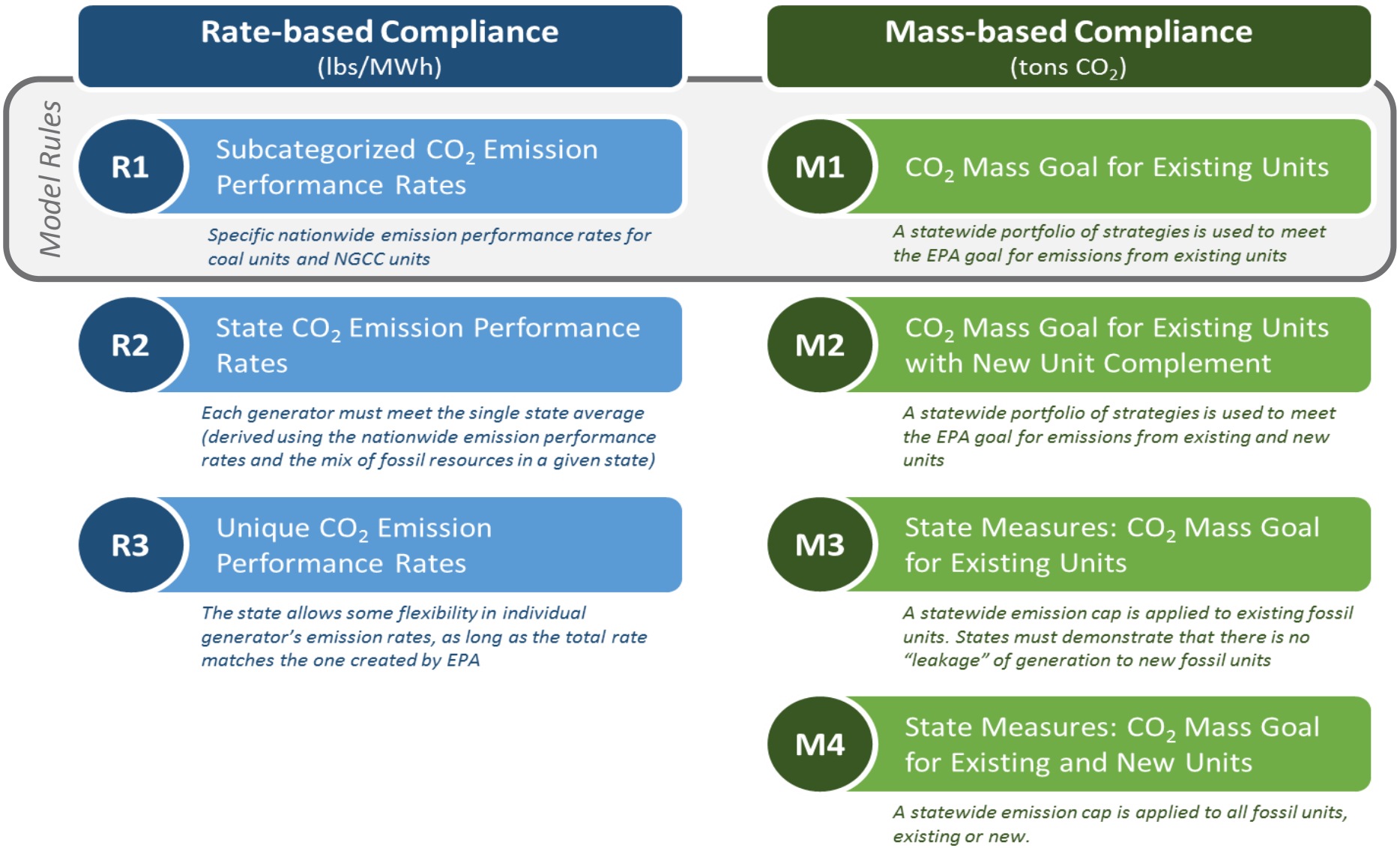
Rate-based Compliance is determined on a pounds per megawatt hour basis at the unit level or on a state-wide weighted average basis

Mass-based Compliance is determined on a total tons of CO2 emitted basis (*EPA has done the translation from rate to mass for each state*)

Two Types of Compliance Plan Approaches

Emission standards plan	Includes source-specific requirements on all units covered by the Clean Power Plan in order to meet the required emissions performance rates or the state-specific rate-based or mass-based goals
State measures plan	Includes a mixture of measures implemented by the state, such as EERS or RPS programs, that are not included in the federally enforceable components of the plan. Must include a backstop of federally enforceable emission standards on all units covered by the Clean Power Plan in case the state measures fail to achieve the required reductions. Available only to states who choose a mass-based compliance pathway.

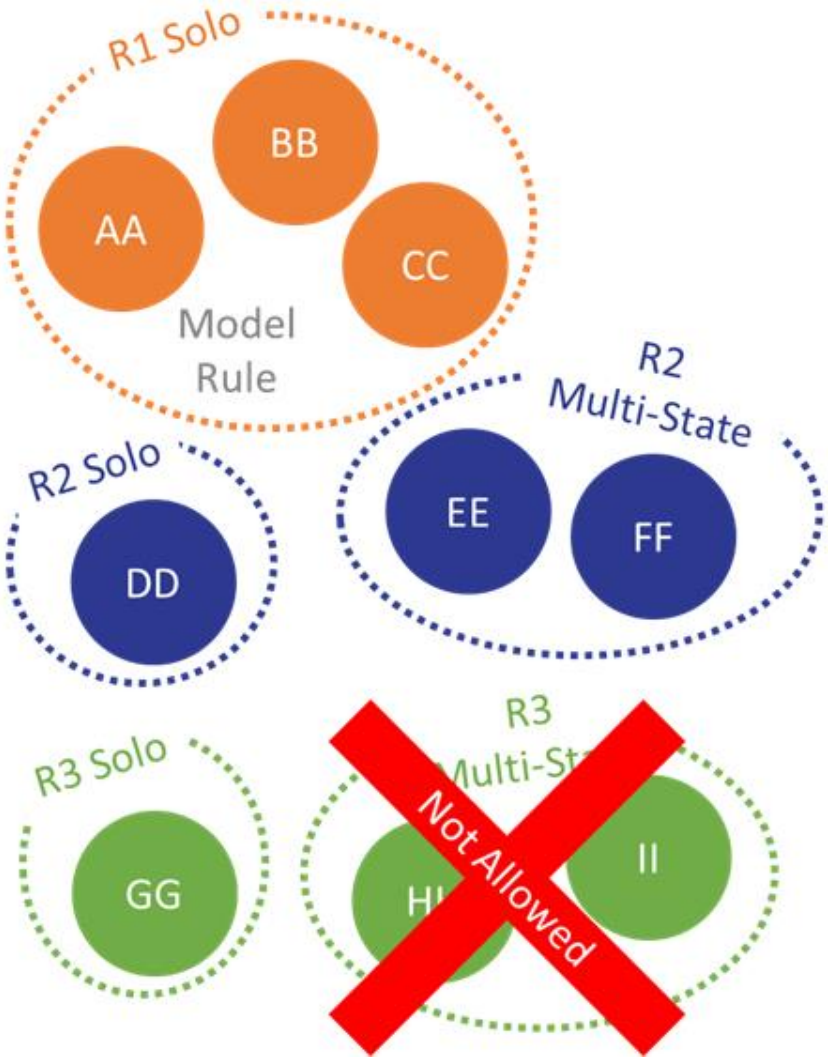
Potential Compliance Pathways

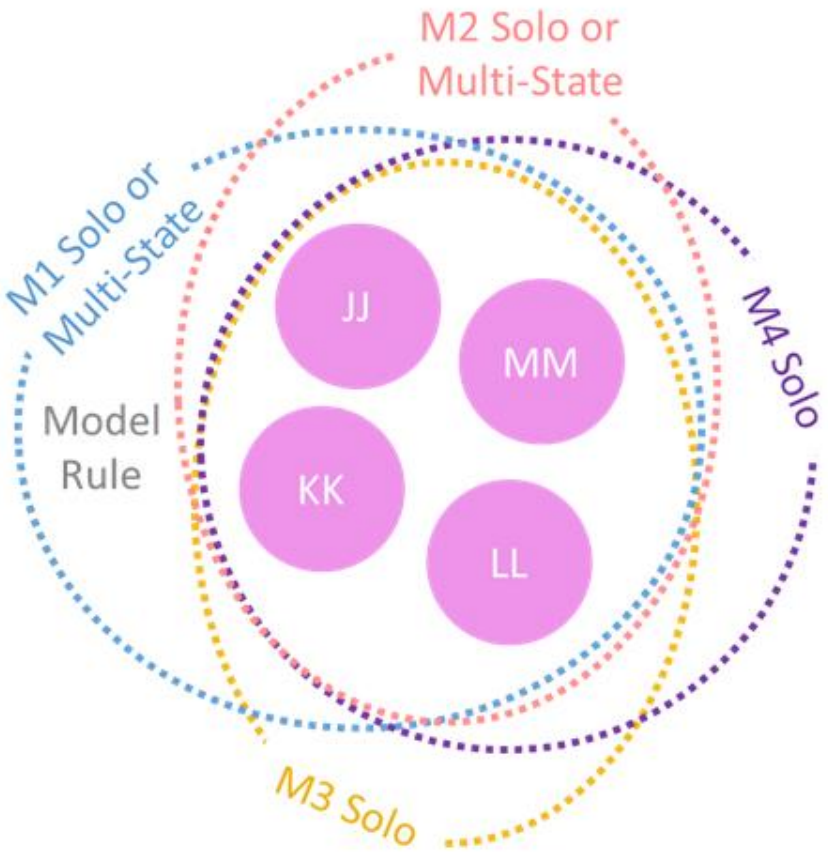


Emission Trading for Compliance

- Emissions trading is a long-established mechanism for complying with environmental regulations
  - Acid Rain program, Regional Haze, NOx Budget Trading program, CSAPR, CAIR, RGGI in the Northeast, AB 32 in California
- EPA provides a "panoply" of tools to facilitate the use of emissions trading programs in the Clean Power Plan
- Both of EPA's proposed model rules (rate and mass) include emission budget trading programs
- Trading options limited by compliance pathway

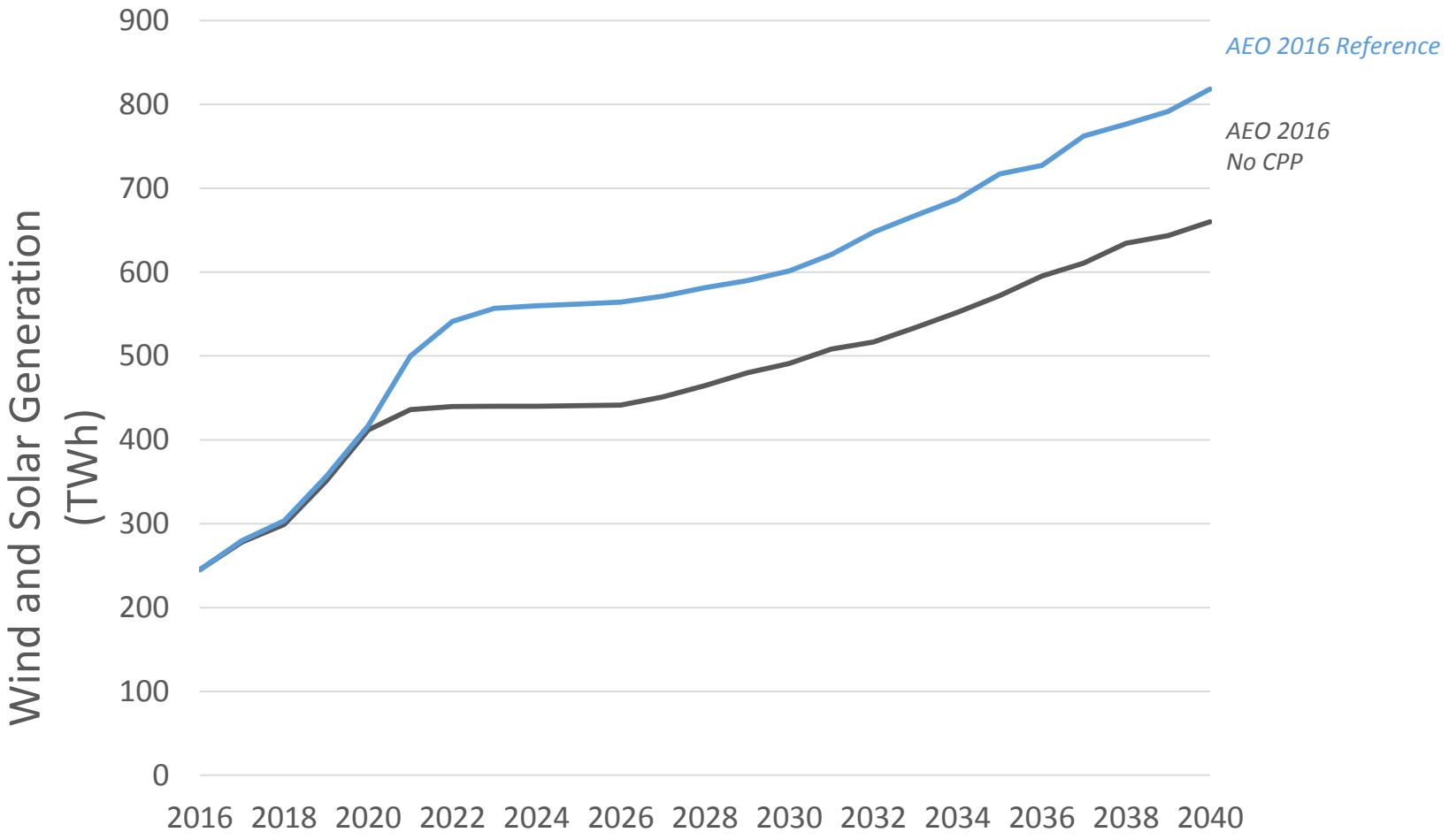
Who Can Trade with Whom?





CPP Compliance Pathway Implications on RE Construction

USA Wind and Solar w/ & w/out CPP

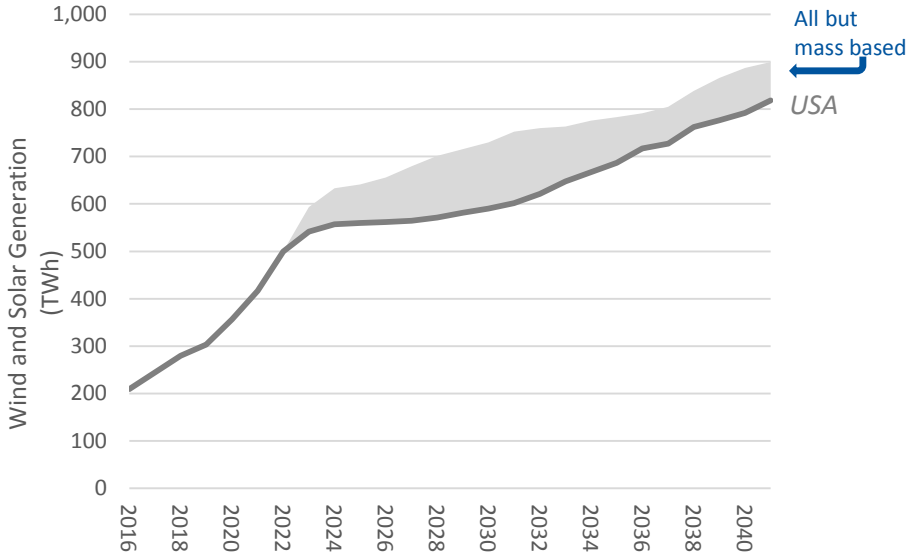


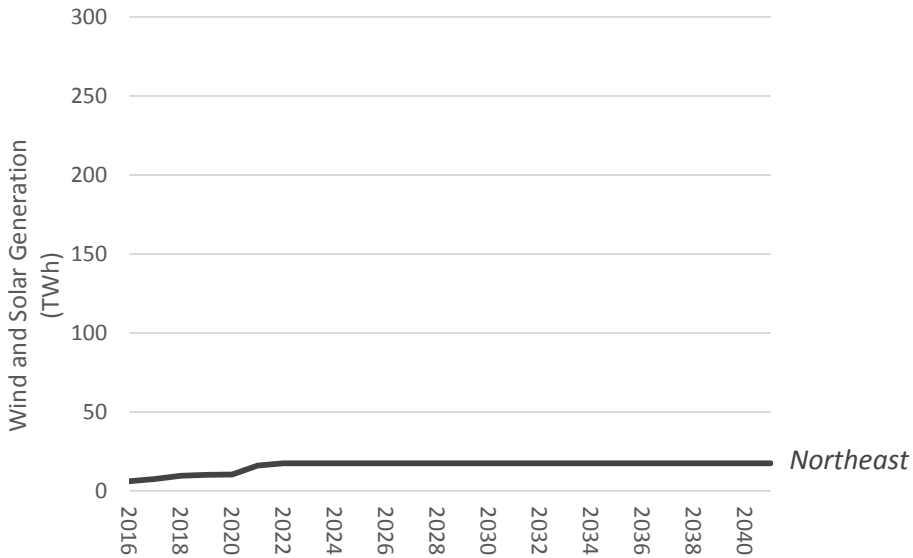
AEO Run Permutations

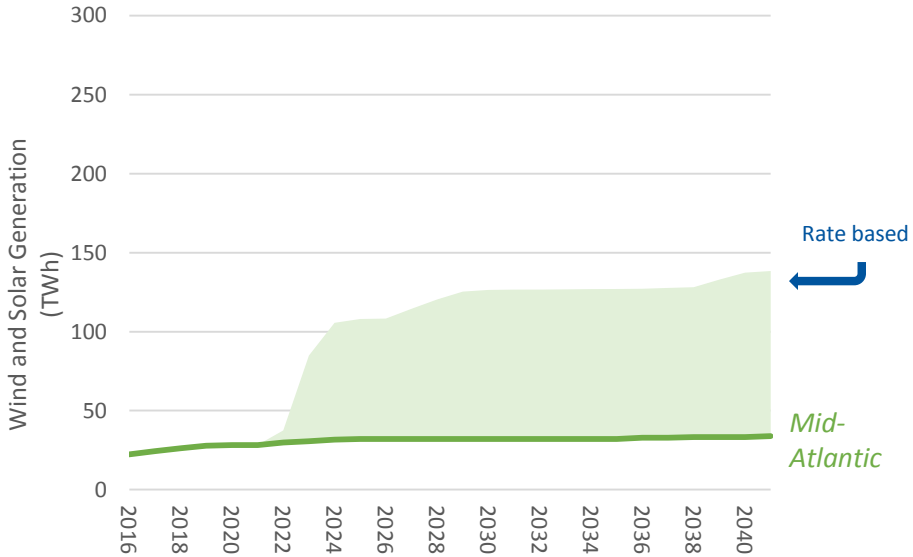
- Reference case: CPP mass-based, new source complement, intraregional trading
- CPP Rate case: intraregional trading
- CPP Extended case: mass-based, new source complement, interregional trading within interconnect
- CPP Hybrid case: RGGI (Northeast) & AB32 (CA) mass-based, remaining rate-based with interregional trading

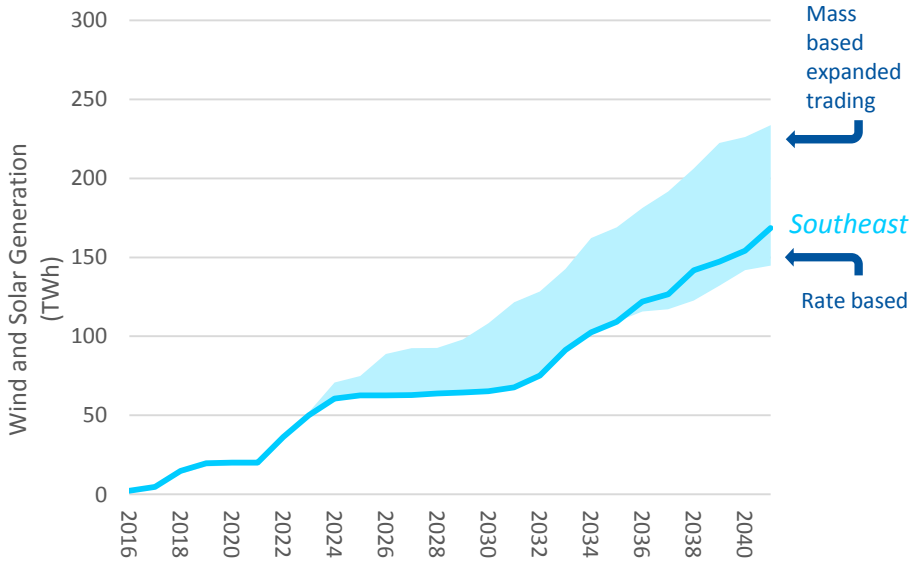
Other cases include Allocation to Generators case, Extended case

AEO Charts: USA, NE, Mid-A, SE

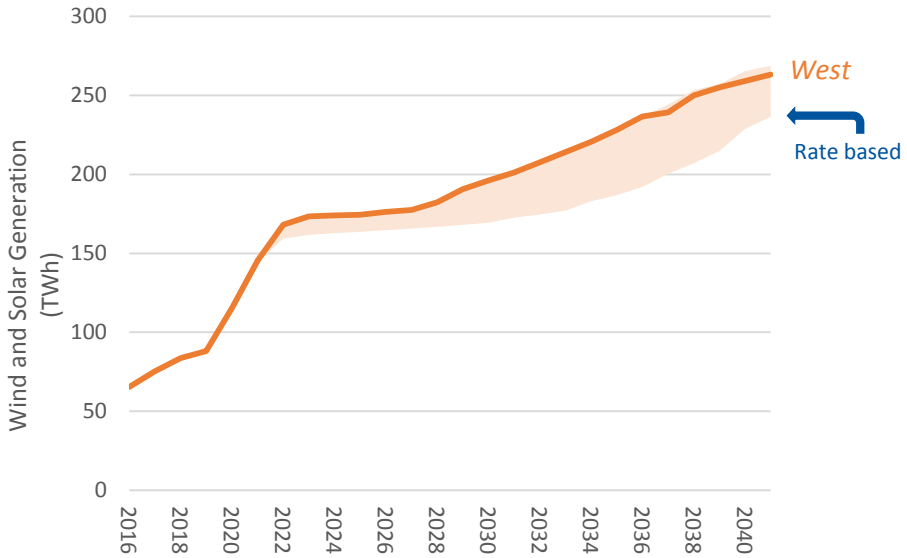


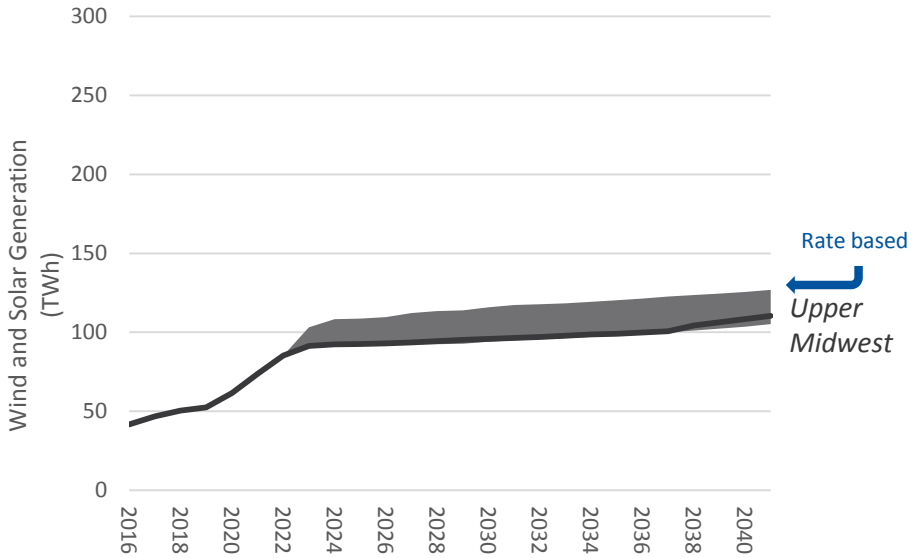


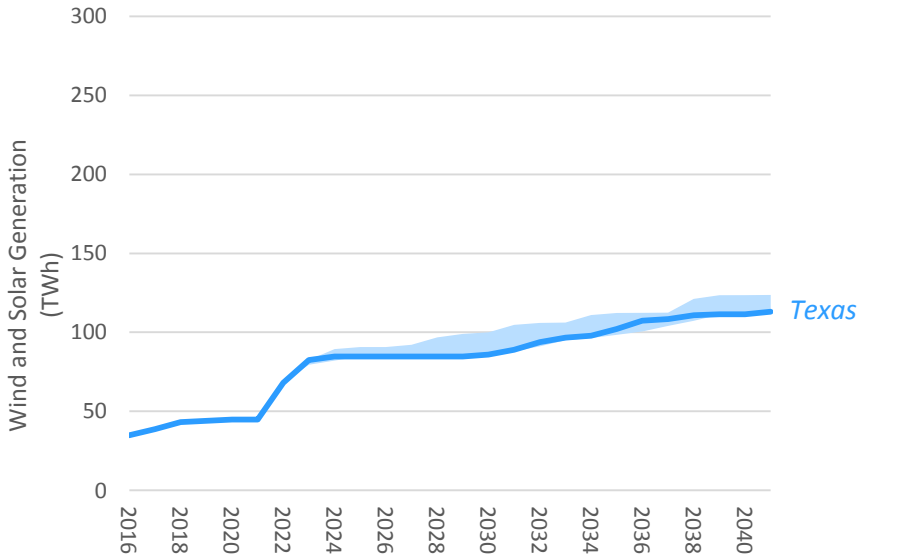


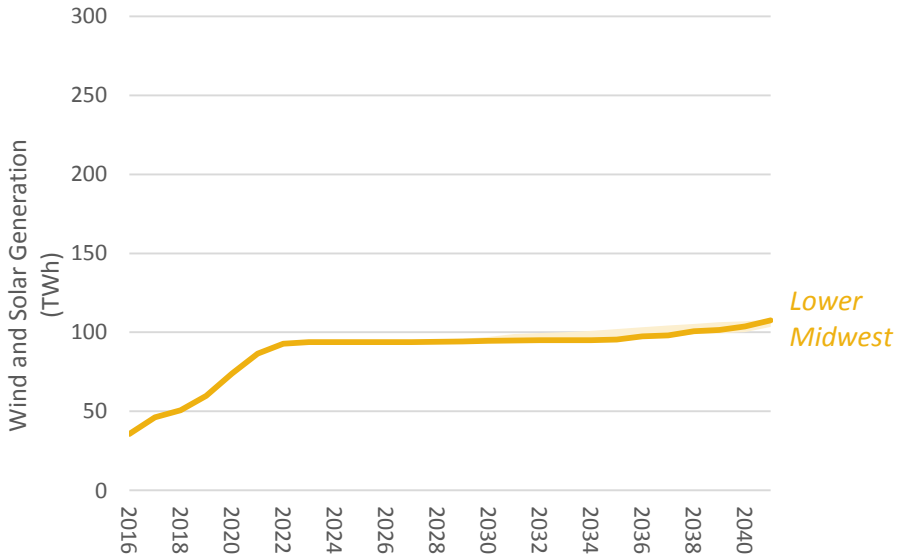


AEO Charts: West, Upper MW, TX, Lower MW









What Else Could Change CPP RE Results?

- Price of natural gas, coal
- Price of wind, solar
- Changes to Clean Power Plan
- Compliance plan permutations of states, especially with respect to rate vs. mass and within an RTO
- Changes to other environmental policies related to fuel extraction, emissions, carbon trading, renewable portfolio standards, net metering, nuclear subsidies, tax credits, …

Let's talk.

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Related Media

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