

Cutting Electric Bills with the Clean Power Plan

EPA's Greenhouse Gas Reduction Policy Lowers Household Bills: March 2016 Update

March 17, 2016

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Webinar Logistics

- The webinar is being recorded and will be circulated to all attendees, along with the slides
- All attendees have been muted on entry and will remain muted throughout the webinar
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- During the Q&A session, the panelists will answer written questions that have been sent to webinar@synapse-energy.com
- Please use the chat feature only to notify the host if you are having a technical issue with the WebEx software or audio

Synapse Energy Economics

- Research and consulting firm specializing in energy, economic, and environmental topics
- Leader for public interest and government clients in providing rigorous analysis of the electric power sector
- Services include economic and technical analyses, regulatory support, research and report writing, policy analysis and development, representation in stakeholder committees, facilitation, trainings, and expert witness services
- Develops resources such as the Synapse Clean Power Plan Toolkit to promote transparent decision-making
- All non-confidential publications and open-source tools available for free at www.synapse-energy.com

March 2016 Re-Release

- Supreme Court stays the Clean Power Plan
- “Living document”
 - Updated to reflect more up-to-date information on energy efficiency resource standards
 - Re-drafted “Low-EE-CPP” scenario to be more in line with EPA’s expectations for future energy efficiency
- Supreme Court ruling on energy efficiency (Order 745)
- Momentum towards a clean energy future

The Stay of the Clean Power Plan

- On Tuesday, February 9, 2016, the Supreme Court issued a stay on EPA's Clean Power Plan
- The “stay” pauses implementation, making it unlikely that a decision will be reached before 2017 or 2018
- This delay in implementation will likely also cause a delay in compliance dates
- However, at least 20 states are continuing to develop their plans and are planning to pursue a clean energy future with or without the Clean Power Plan



Other Recent Legal Developments

- FERC Order 745 upheld by the Supreme Court on January 25
 - Prior to the order, uncertainty existed regarding whether demand response—and energy efficiency, by extension—would be allowed to continue to participate in wholesale markets
 - The Court's ruling explicitly allows demand response to continue to participate in wholesale electricity markets
 - Many repercussions for energy efficiency: ruling protects participation by energy efficiency resources in capacity markets, preserving a valuable funding source

Agenda

1. Overview
2. Methodology
3. State-Specific Results
4. Momentum Towards a Clean Energy Future

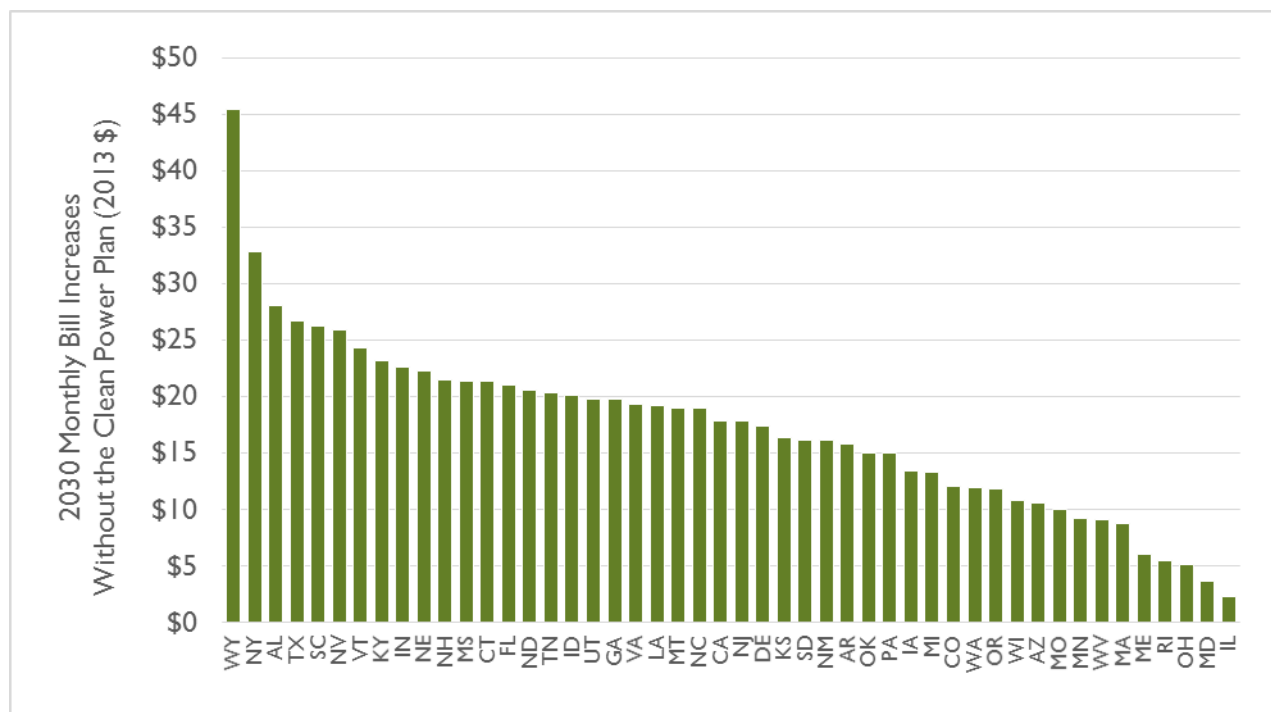
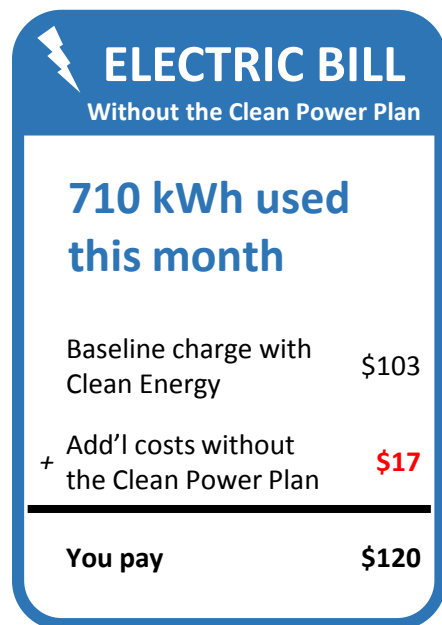
Overview

Synapse Clean Power Plan Cost Analysis

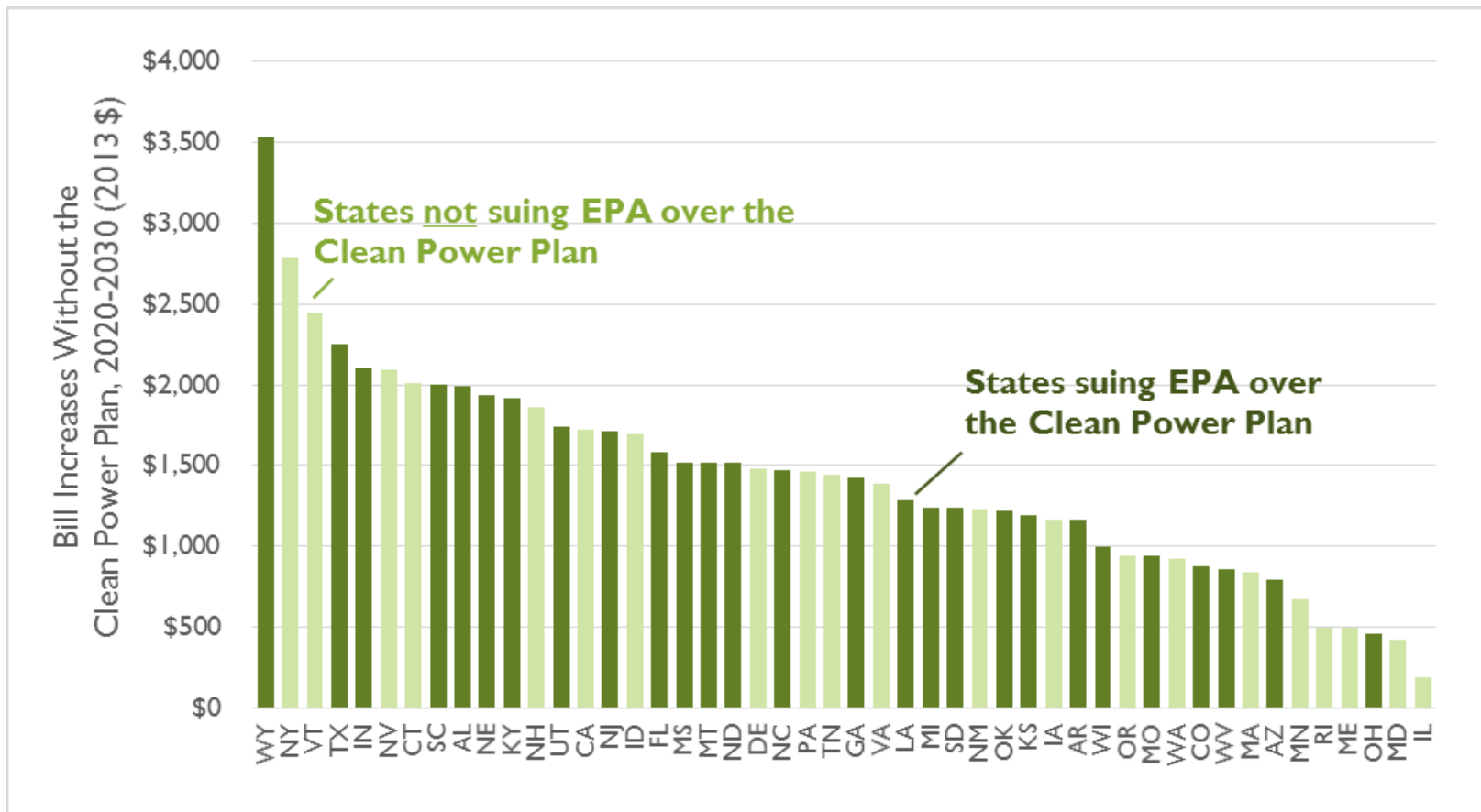
- Synapse modeled Clean Power Plan compliance in the 48 contiguous states
- Three Scenarios Modeled:
 - “No CPP” base case scenario
 - Clean Power Plan-compliant “Synapse-CPP” scenario featuring strong energy efficiency measures
 - Clean Power Plan-compliant “Low-EE-CPP” scenario, featuring lower levels of efficiency
- We examined the impacts of the Clean Power Plan on household electric bills in each state
- We paid special attention to the relationship between bill savings and:
 - Current state-level energy efficiency standards
 - State-specific emission reductions
 - Poverty rates

Ratepayers lose money without the Clean Power Plan

Without the Clean Power Plan, households can expect to pay an average of \$17 per month more on their electric bills in 2030.



Higher electric bills without the Clean Power Plan cost customers \$79 billion between 2020 and 2030

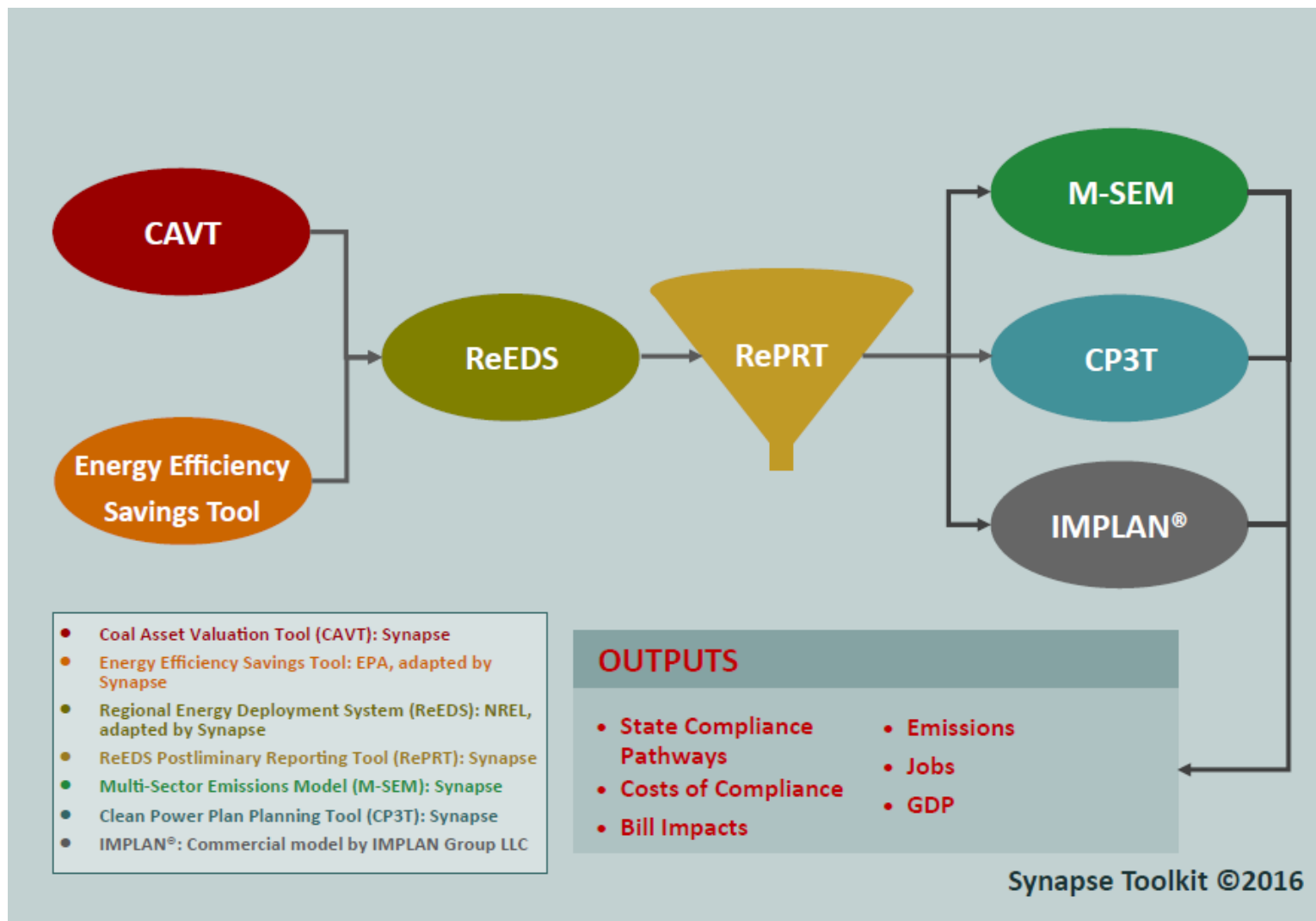


If the Clean Power Plan is not implemented, the typical household in the United States can expect to lose over \$1,400 between 2020 and 2030.

The average households in the 27 states currently suing EPA over the Clean Power Plan stands to lose \$1,500 without the Clean Power Plan.

Methodology

Synapse Clean Power Plan Toolkit



Scenario Assumptions

“No CPP” Scenario	“Synapse-CPP” Scenario	“Low-EE-CPP” Scenario
<ul style="list-style-type: none">• Not CPP compliant• Represents a business-as-usual reference case	<ul style="list-style-type: none">• CPP compliant• Assumes mass-based “existing+new” targets• Complies with the CPP through strong investment in energy efficiency	<ul style="list-style-type: none">• CPP compliant• Assumes mass-based “existing+new” targets• Complies with the CPP adding moderate energy efficiency, increased NGCCs, and renewables

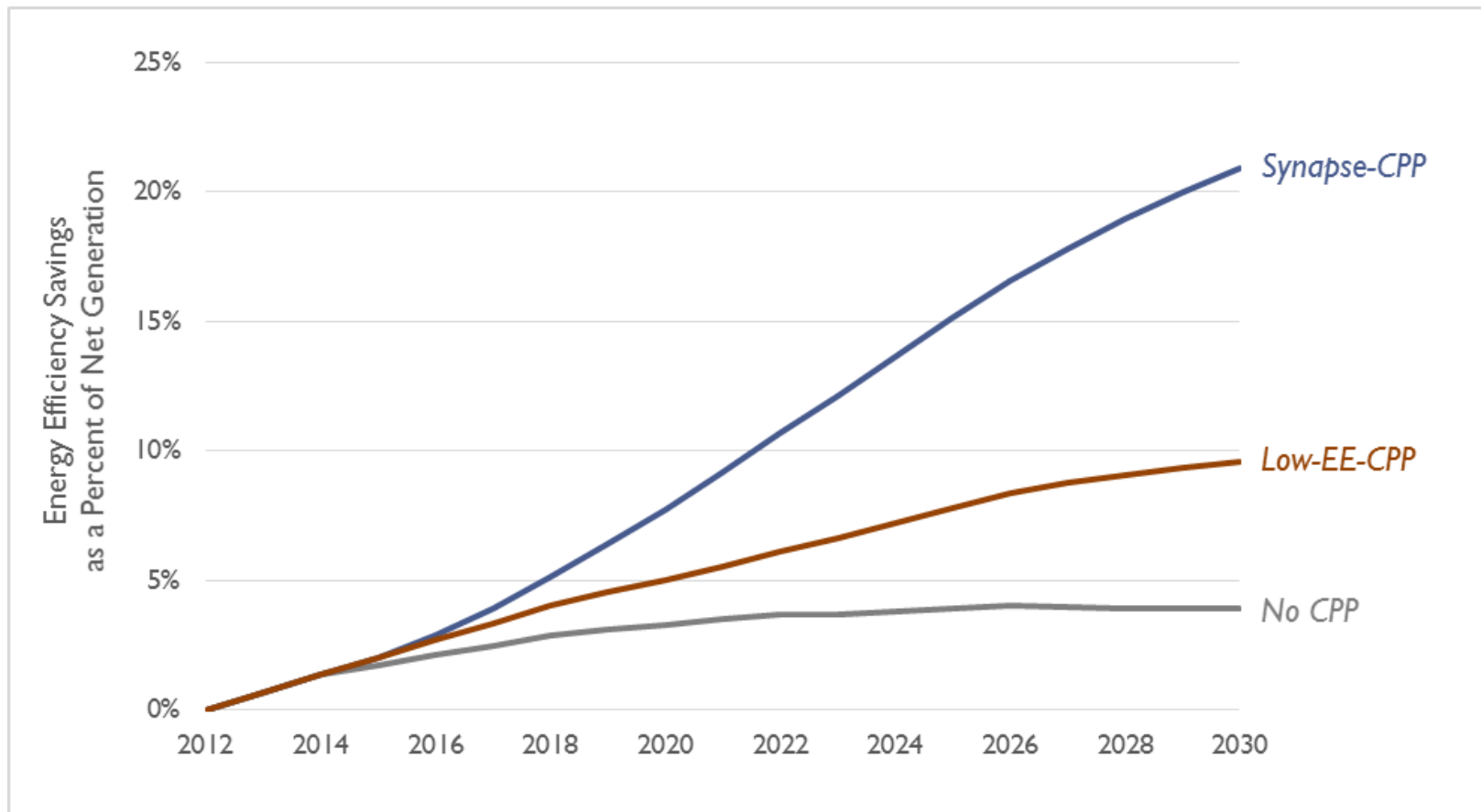
All scenarios assume the same growth in electricity demand, natural gas prices, “on-the-books” retirements and unit additions, state requirements for efficiency and renewables, and installation of future environmental retrofits needed regardless of the Clean Power Plan.

The two Clean Power Plan-compliant scenarios permit allowance trading in two separate regions: RGGI states and the rest of the United States.

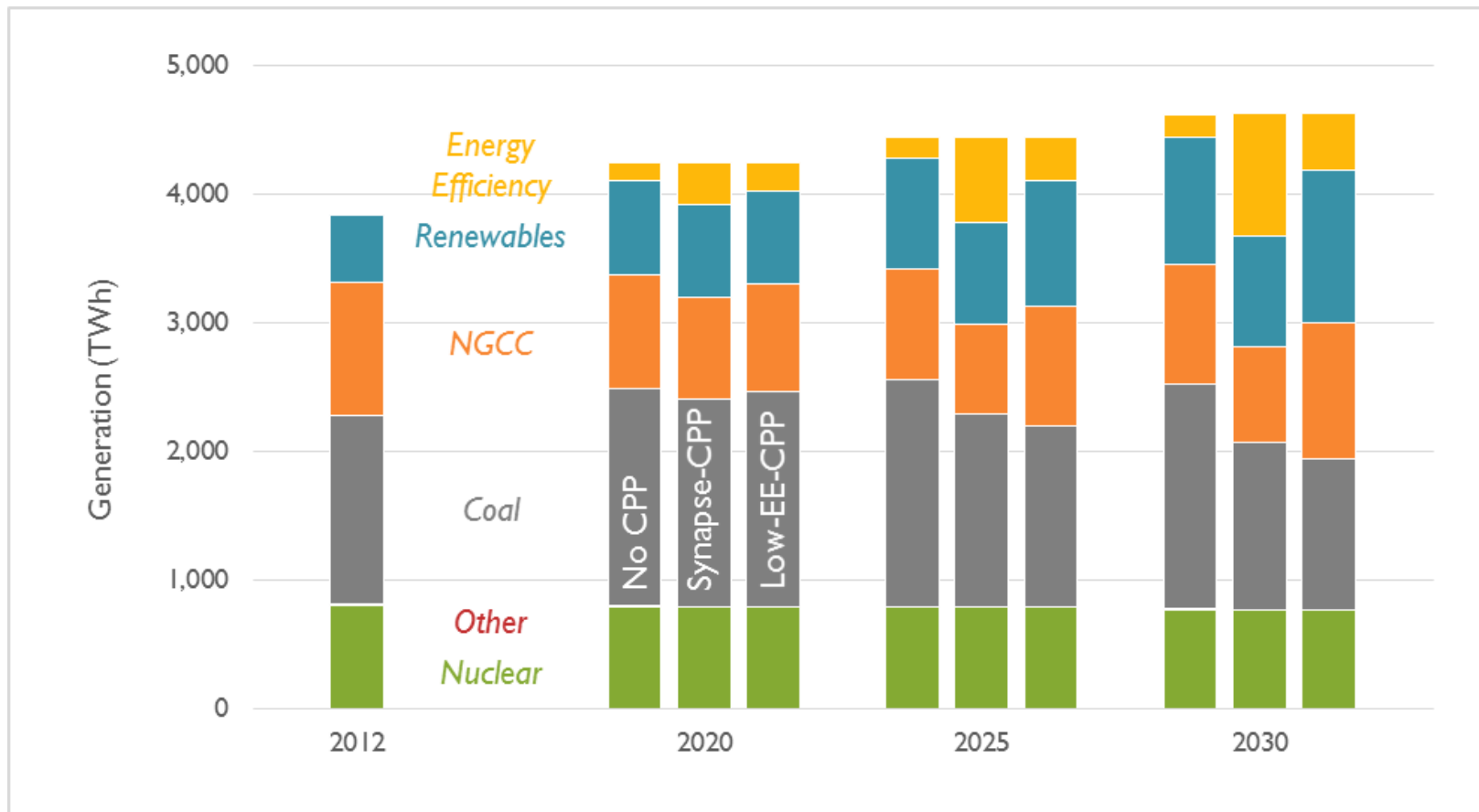
Recent Updates to Analysis

- No CPP Scenario Updates
 - Updated with current information on energy efficiency resource standards
 - Energy efficiency resource standards are defined as regulations requiring future incremental reductions in annual retail sales. Standards that are voluntary, apply to past years, or require reductions in peak demand (in MW) are not modeled in this analysis
- Low-EE-CPP Scenario Updates
 - All states now assumed to achieve a minimum of 1 percent annual incremental energy savings by 2025
 - States still meet any existing efficiency standards

Energy Efficiency in Each Scenario



Scenario Generation



Energy Efficiency and the Clean Power Plan

Energy efficiency has a critical role in the Clean Power Plan

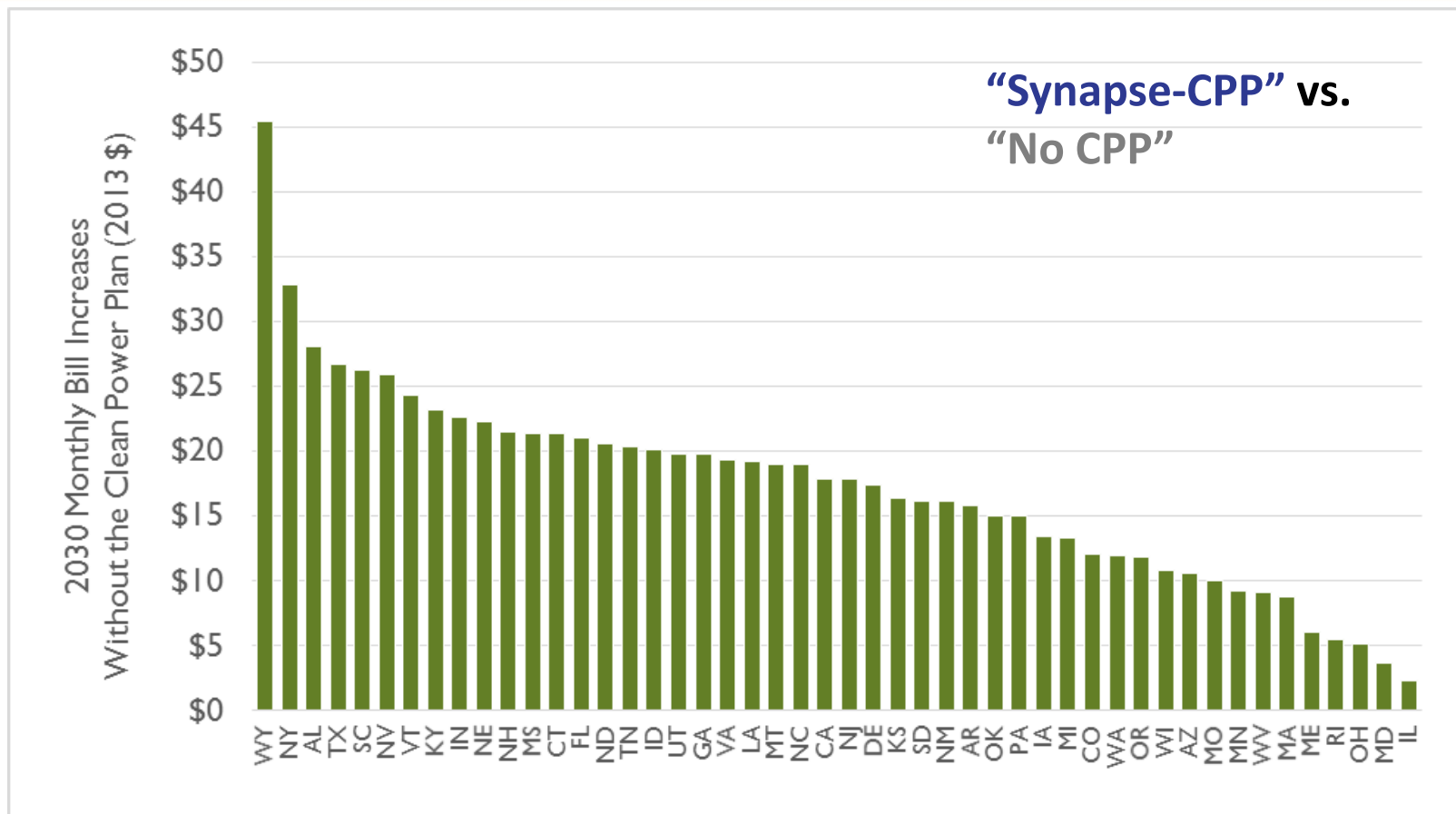
- Energy efficiency was removed from Clean Power Plan target setting in the final rule, but it can still be used for compliance.
- In rate-based approaches, energy efficiency measures are given “direct incentives” for each megawatt-hour saved.
- In mass-based approaches, energy efficiency can be used as follows:
 1. In any situation, **energy efficiency is a cost-effective way to reduce demand for electricity**, both reducing emissions and helping to avoid or defer other mass-based compliance actions.
 2. **States can take action to develop customized plans** to further encourage energy efficiency as a means for meeting mass-based compliance.
 - a. Increase set-asides
 - b. Auction allowances

State-Specific Results

Scenario Assumptions

“No CPP” Scenario	VS.	“Synapse-CPP” Scenario	“Low-EE-CPP” Scenario
<ul style="list-style-type: none">• Not CPP compliant• Represents a business-as-usual reference case		<ul style="list-style-type: none">• CPP compliant• Assumes mass-based “existing+new” targets• Complies with the CPP through strong investment in energy efficiency	<ul style="list-style-type: none">• CPP compliant• Assumes mass-based “existing+new” targets• Complies with the CPP adding moderate energy efficiency, increased NGCCs, and renewables

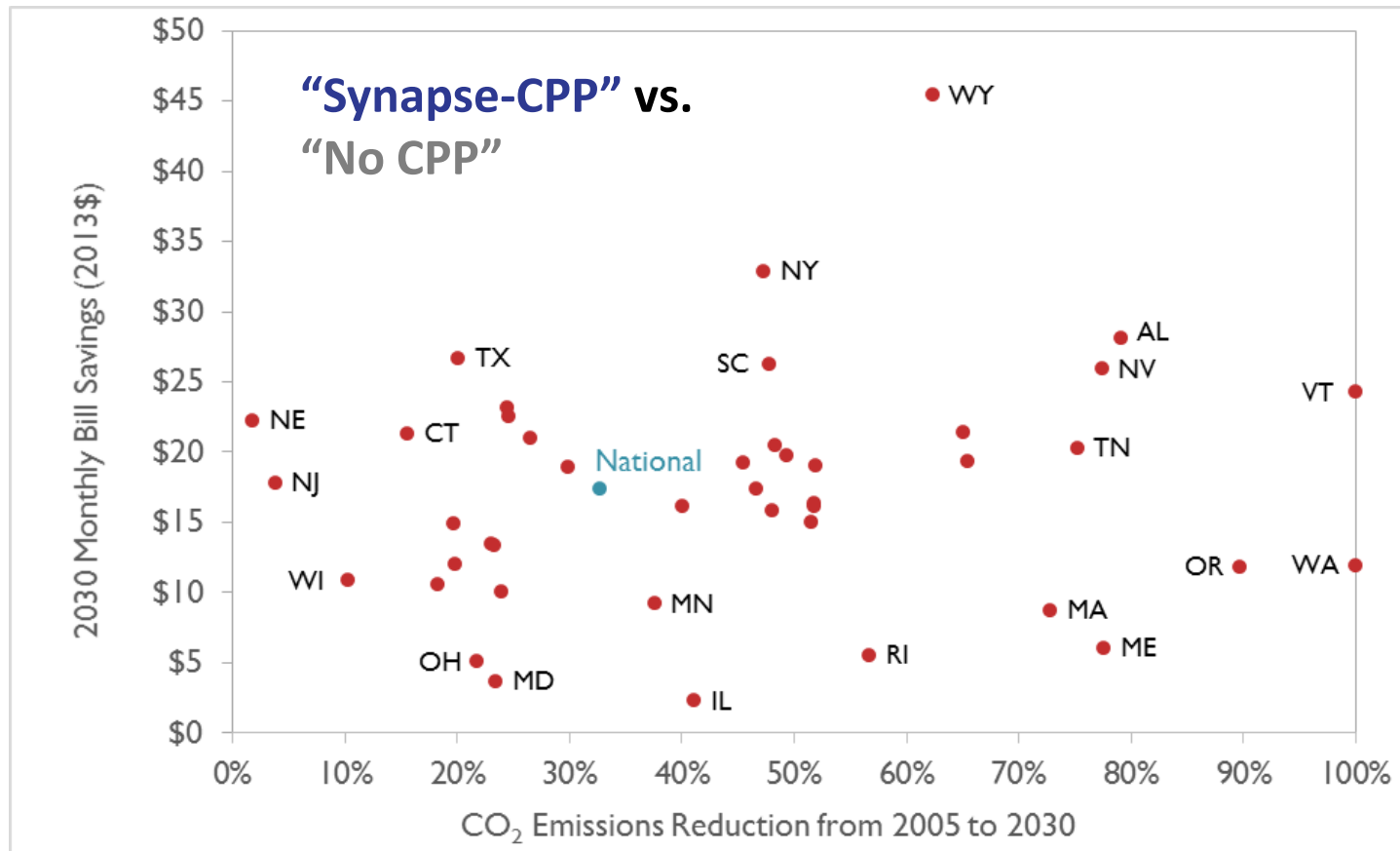
#1. Strong Investments in Energy Efficiency Save Ratepayers \$17 per Month



In 2030, average monthly bill increases without the Clean Power Plan (or savings from the Clean Power Plan) range from a high of \$45 per month in Wyoming to a minimum of \$2 per month in Illinois.

The difference in bill increases among states depends on many factors, including energy efficiency requirements and the resources used to generate power now and in the future.

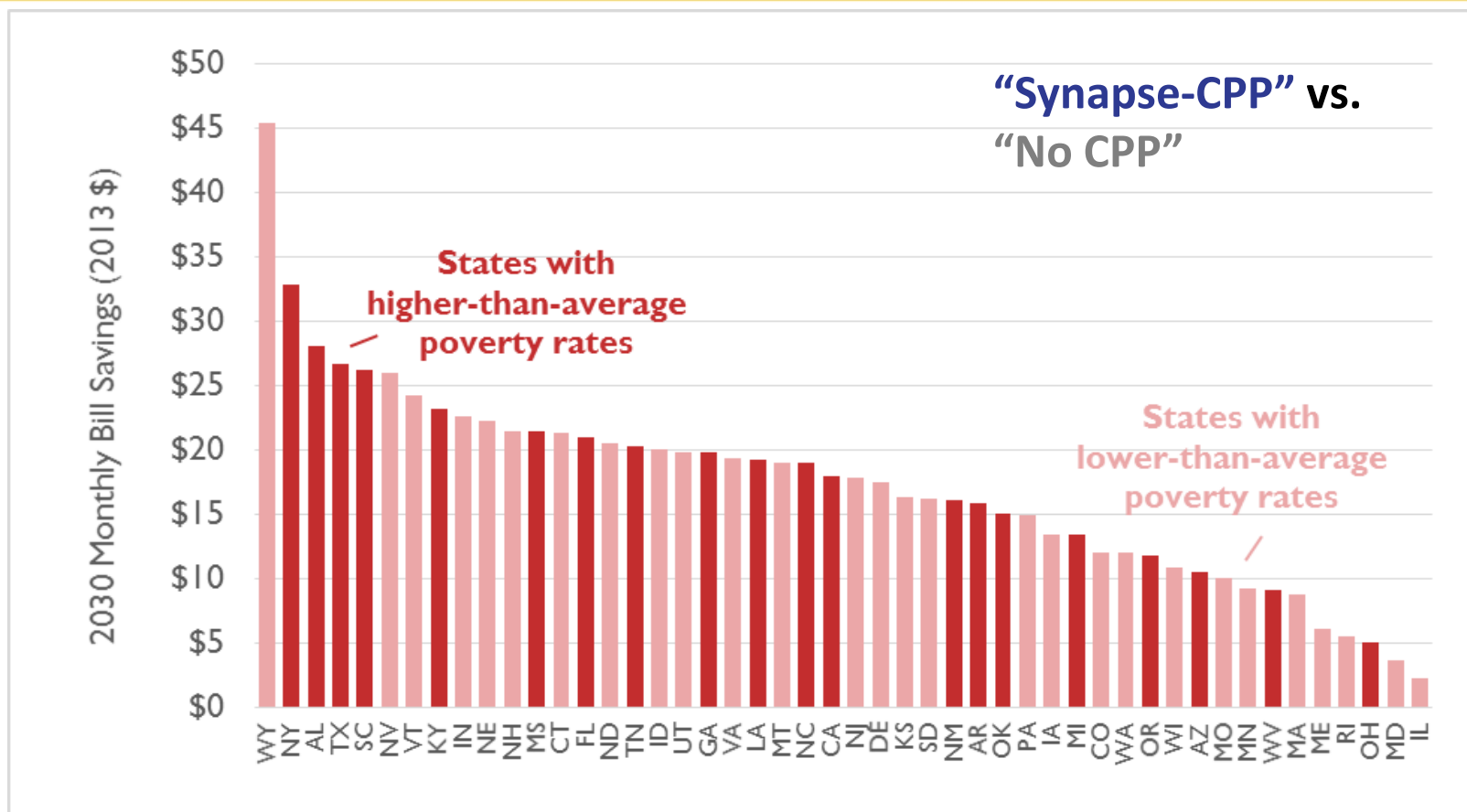
#2. Large Emission Reductions Do Not Prevent Bill Savings



Note: Four states have their emissions increase under the Synapse-CPP scenario. These states have monthly bill savings of between \$8 and \$20.

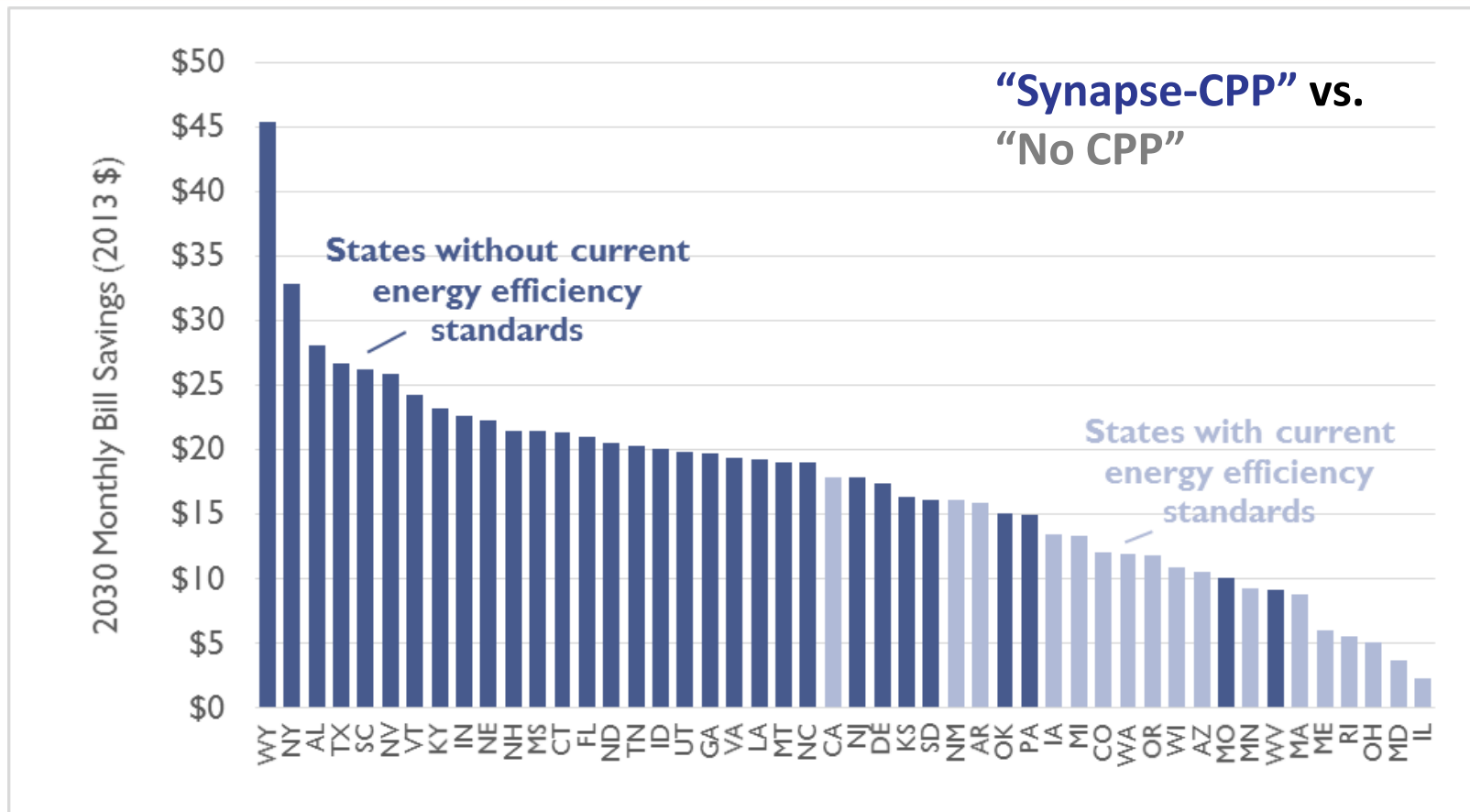
Of the seven states with the highest bill savings from the Clean Power Plan, six reduce their CO₂ emissions by more than 45% between 2005 and 2030 in the Synapse-CPP scenario. One of these states eliminates its emissions entirely.

#3. Large Bill Savings Found in States With High Poverty Rates



Of the eight states with the highest monthly bill savings between the Synapse-CPP case and the No CPP case, five have poverty rates in excess of the national rate. These five include Alabama and Kentucky, two of the five states with the highest poverty rates in the nation.

#4. Largest Bill Savings Found in States With No Current Efficiency Requirements

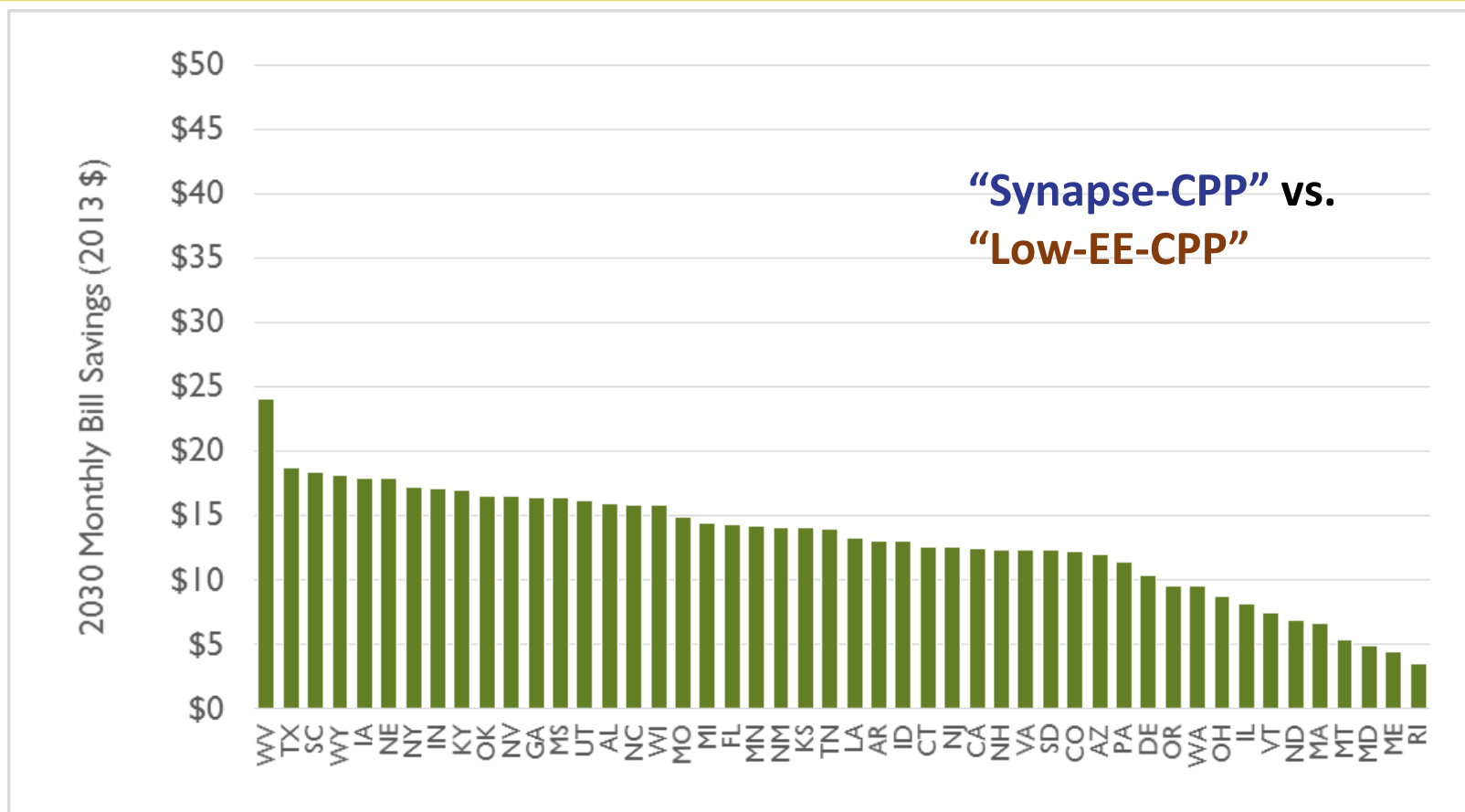


Of the 23 states with the highest monthly bill savings, none have existing policies requiring future energy efficiency savings. Regardless of their strategy for the Clean Power Plan, states without energy efficiency standards in place are leaving money on the table that could lower bills for residential consumers.

Scenario Assumptions

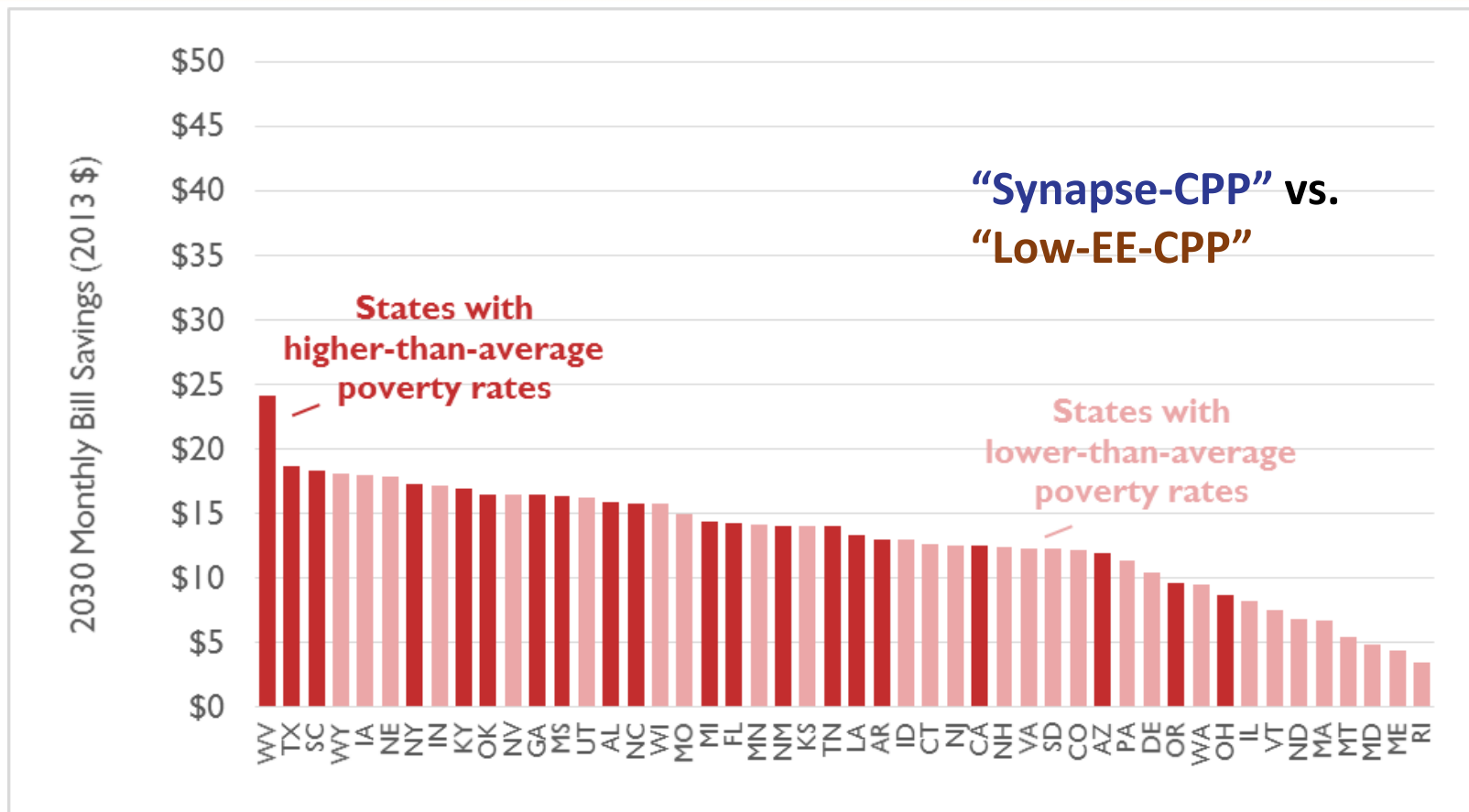
“No CPP” Scenario	“Synapse-CPP” Scenario	vs.	“Low-EE-CPP” Scenario
<ul style="list-style-type: none">• Not CPP compliant• Represents a business-as-usual reference case	<ul style="list-style-type: none">• CPP compliant• Assumes mass-based “existing+new” targets• Complies with the CPP through strong investment in energy efficiency		<ul style="list-style-type: none">• CPP compliant• Assumes mass-based “existing+new” targets• Complies with the CPP adding moderate energy efficiency, increased NGCCs, and renewables

#5. Energy Efficiency Is the Cheapest Way to Reduce CO₂ Emissions



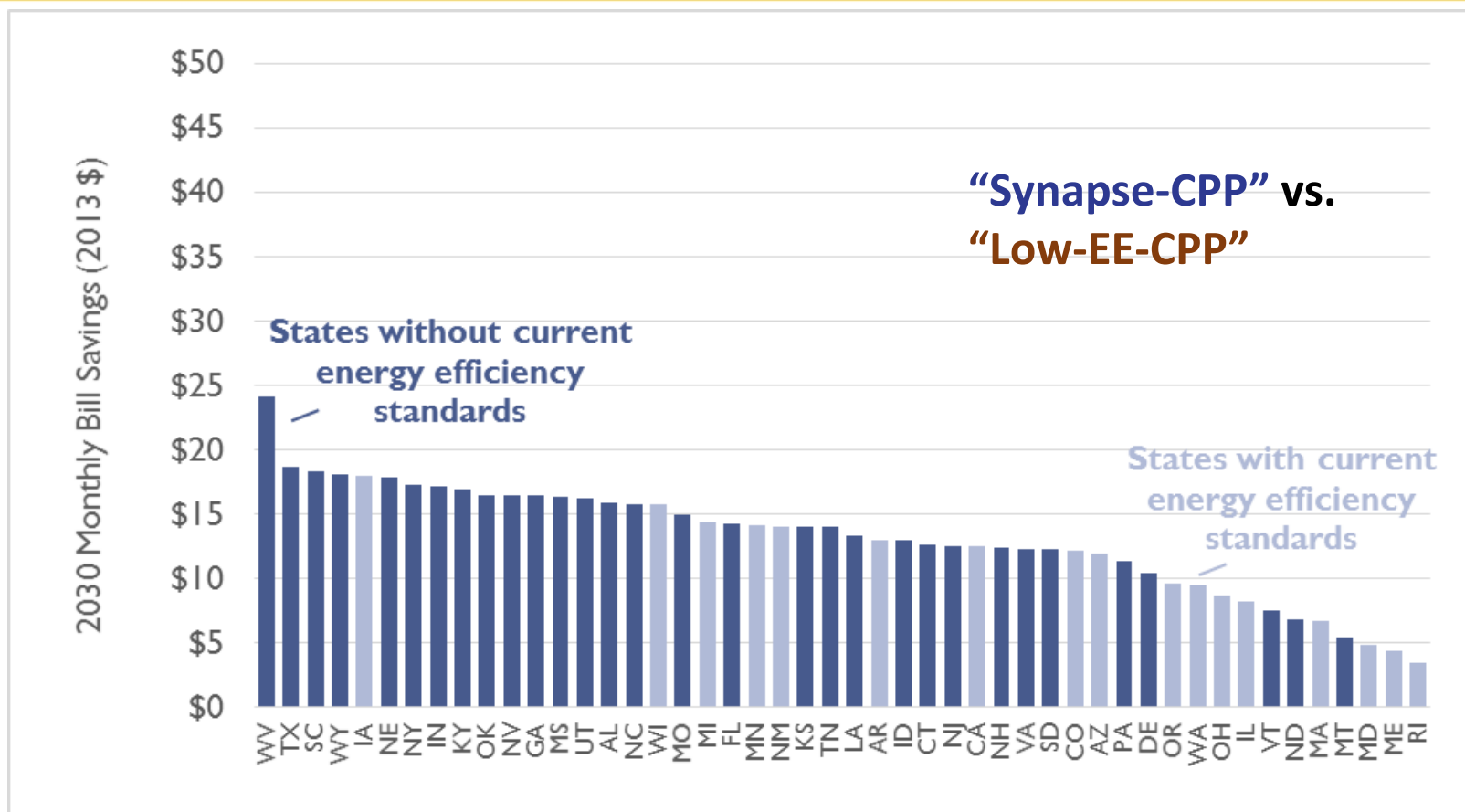
Total system costs are 10 percent higher in the Low-EE-CPP case than in the Synapse-CPP case, resulting in average household bills \$14 higher each month than if emission reductions were achieved with more energy efficiency. Average savings by state range from \$3 to \$24 per month.

#6. Energy Efficiency Is an Especially Cheap Compliance Strategy in High-Poverty States



The three states with the highest monthly bill savings between the Synapse-CPP case and the Low-EE-CPP case all have poverty rates significantly higher than the national rate. Of the 13 states with the highest savings, eight have poverty rates above the national rate.

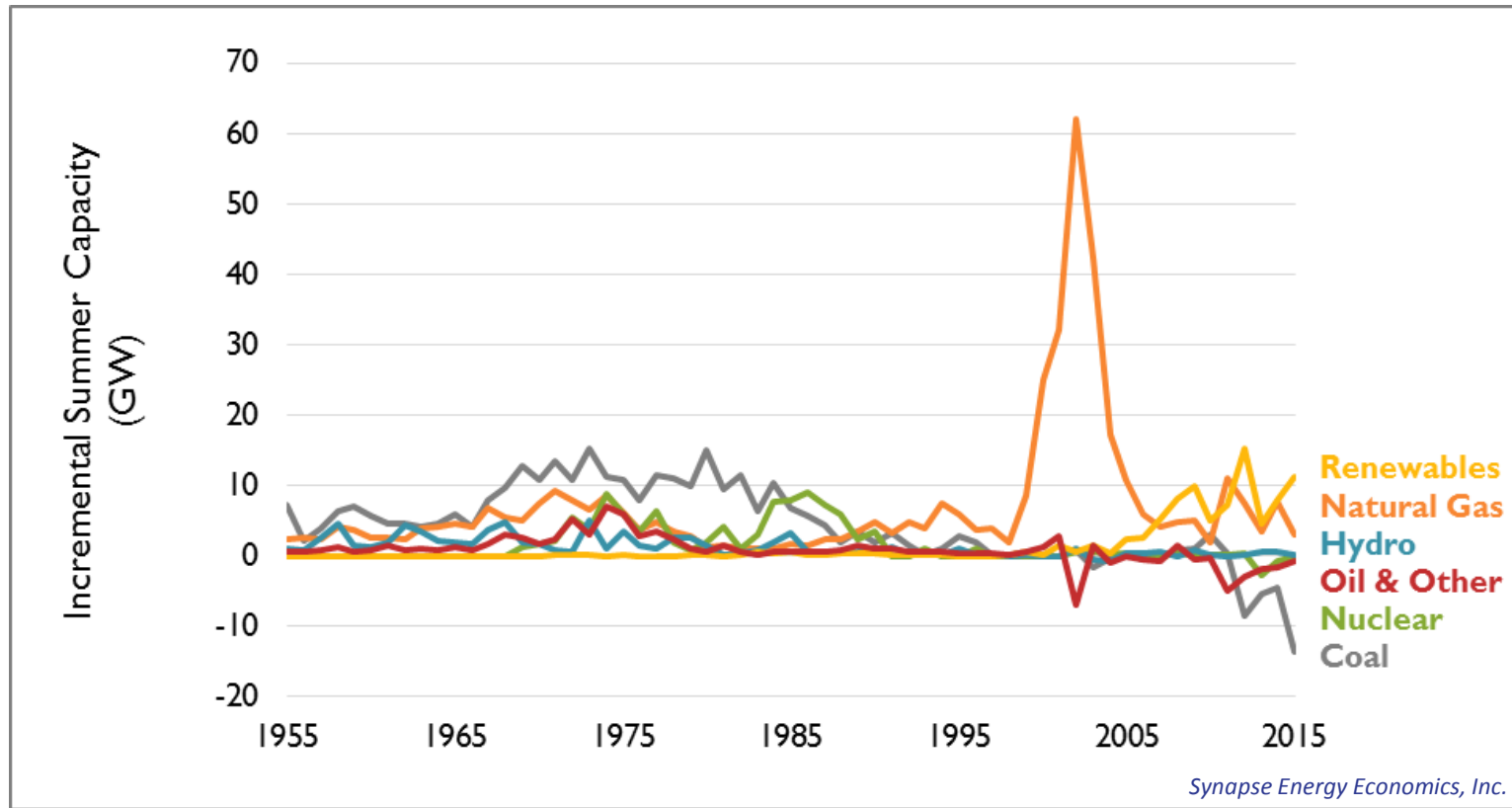
#7. Efficiency Lowers Customer Bills in States Without Efficiency Standards



Of the 16 states with the highest monthly bill savings between the Synapse-CPP case and the Low-EE-CPP case, only one has an existing policy requiring future energy efficiency savings.

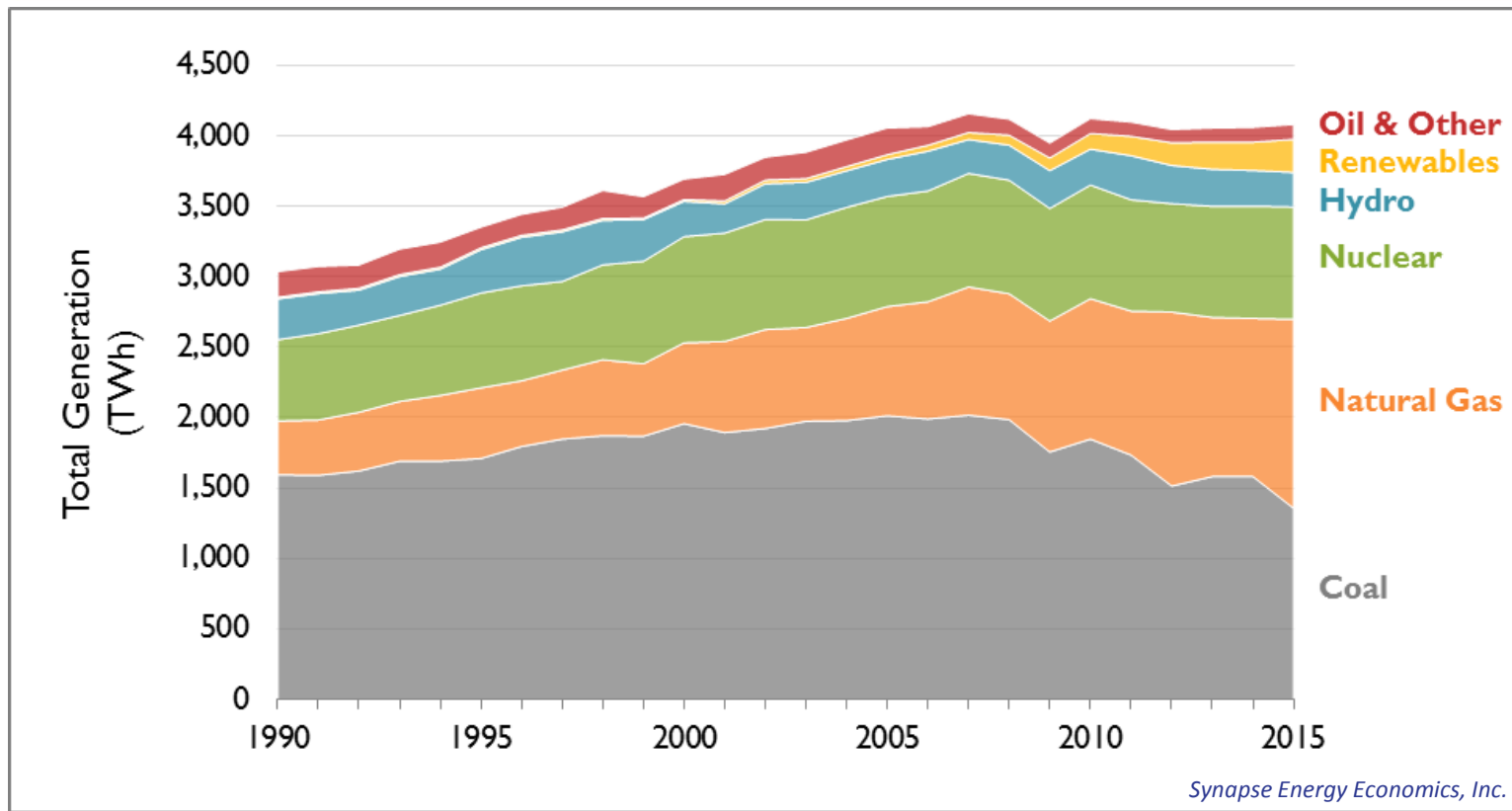
**The Clean Energy
Future is on its Way**

14 GW of coal retired in 2015; 15 GW of renewables added



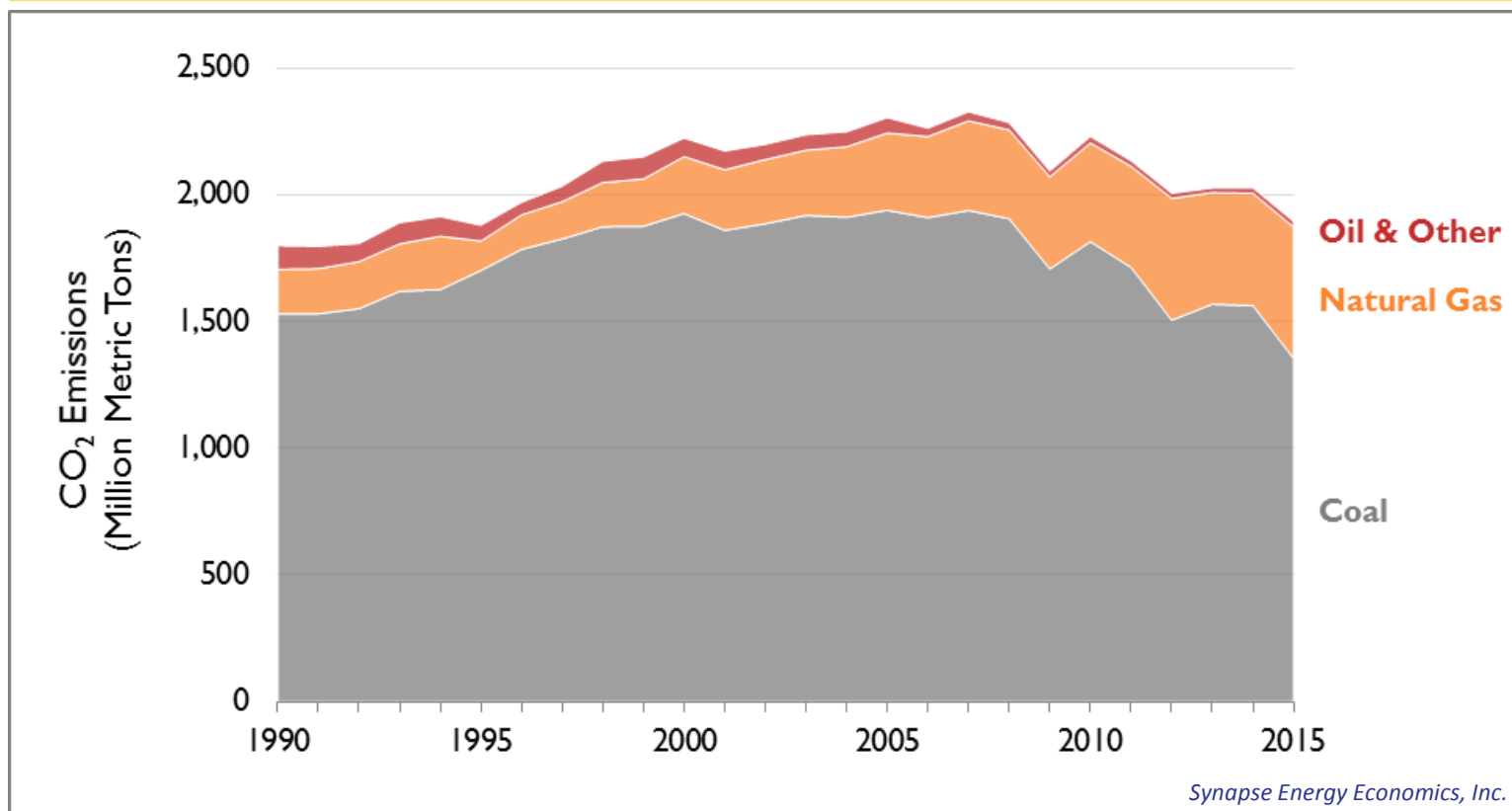
While coal, oil, and nuclear generation are in decline, renewables and natural gas capacity grow every year. Since 2012, more renewable capacity has been added each year than any other type of resource.

Coal generation is at its lowest level since 1984



In 2015, the amount of electricity generated from natural gas was just 1 percent lower than that from coal. Since 2005, total annual U.S. generation has remained flat, with an average annual growth rate of less than 0.1 percent per year.

U.S. electric-sector CO₂ emissions are at their lowest levels since 1995



Since hitting an all-time peak in 2007, nationwide CO₂ emissions from electricity generation have fallen to 1995 levels. In 2015, natural gas contributed half of fossil fuel generation, but only 27 percent of CO₂ emissions.

Resources

Related Resources

Synapse Clean Power Plan Toolkit: <http://synapse-energy.com/CleanPowerPlan>

Past Clean Power Plan Webinars: <http://synapse-energy.com/synapse-projects-and-webinars-related-clean-power-plan>

Consumer Costs of Low-Emissions Futures Factsheets and Reports: <http://synapse-energy.com/project/consumer-costs-low-emissions-futures>

Clean Power Plan Handbook for National Association of State Utility Consumer Advocates:
<http://synapse-energy.com/sites/default/files/Clean-Power-Plan-Handbook.pdf>

Synapse Blog Posts on Clean Power Plan: <http://synapse-energy.com/tags/clean-power-plan>

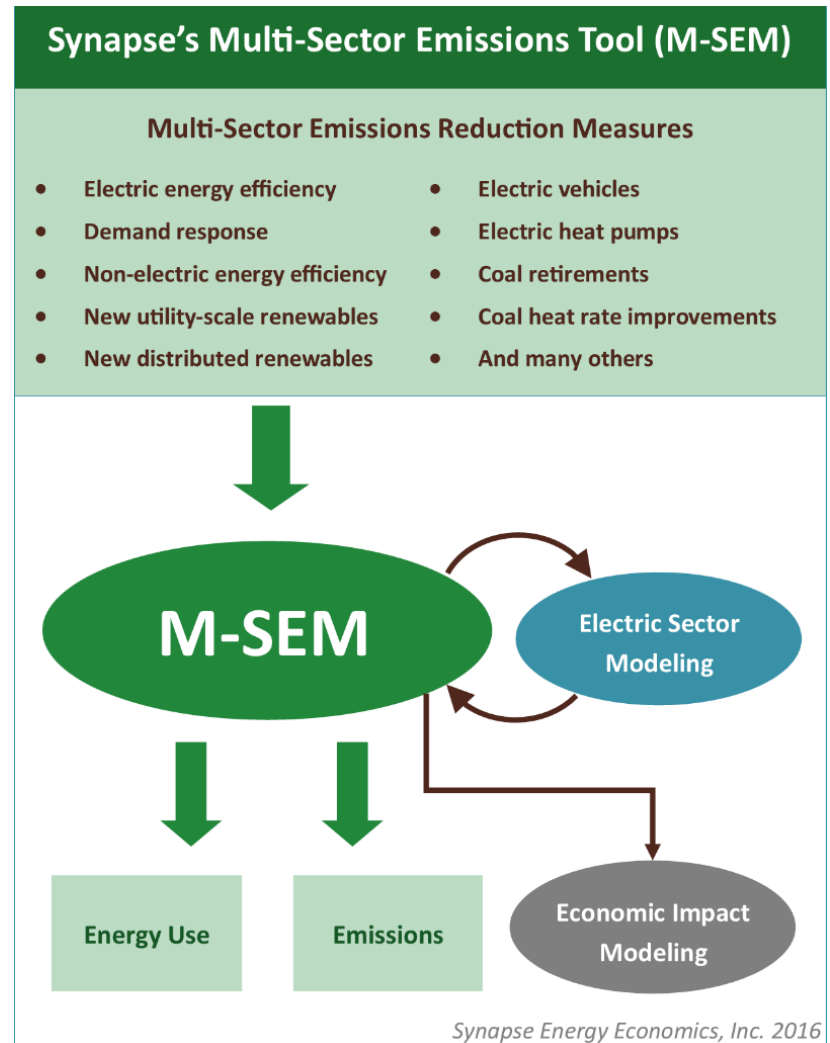
Guide to Clean Power Plan Modeling Tools (Synapse with Argonne National Laboratory):
<http://www.synapse-energy.com/project/clean-power-plan-modeling-tools-states-and-stakeholders>

Synapse Electricity Snapshot 2016: <http://www.synapse-energy.com/about-us/blog/synapse-electricity-snapshot-2016>

Multi-Sector Emissions Model (M-SEM)

Synapse has developed a tool to provide a comprehensive picture of future emissions and to enable economy-wide screening of a wide variety of emissions reduction options.

- Based on publicly available data and integrated with Synapse's other modeling tools
- Synthesizes data by sector, by state, and by fuel type for reference and policy cases
- Can be used for:
 - State and regional emissions reduction planning
 - Enhanced electric-sector modeling
 - Energy and environmental stakeholder engagement
 - Projecting clean-tech industry impacts



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