

Fixing and Strengthening Illinois Clean Energy Policies

Capitalizing on the Clean Power Plan and Federal Renewable Energy Tax Credits

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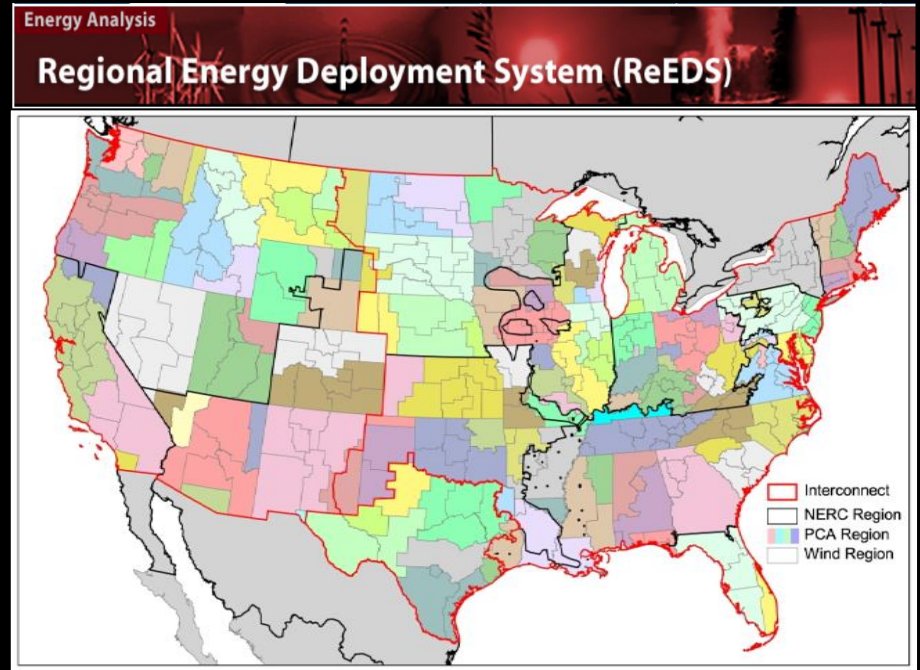


Core Messages

- Fixing and strengthening Illinois clean energy policies is a cost-effective pathway for complying with EPA's Clean Power Plan while delivering significant health and economic benefits for all of the state's residents
- Fixing and strengthening Illinois clean energy policies will help diversify the state's electricity mix and maintain its status as a net exporter of electricity
- Fixing and strengthening the RPS will allow Illinois to capitalize on federal tax credits for wind and solar, creating jobs and other economic benefits that would otherwise go to other states , and lowering the cost of complying with the Clean Power Plan.
- Projected increases in natural gas prices and establishing a price on carbon under the Clean Power Plan will greatly reduce the economic vulnerability of existing nuclear plants
- Renewables and efficiency could more than replace the generation from the Clinton and Quad Cities nuclear plants, while allowing Illinois to comply with the Clean Power Plan, save consumers money, and avoid an increase in gas generation

Methodology

- Examines impacts of the federal renewable energy tax credit extension and the Clean Power Plan, combined with stronger state clean energy policies, on Illinois economy, consumers and environment.
- Uses NREL's Regional Energy Deployment System (ReEDS) power sector planning model
- Key updates to February 2016 UCS analysis:
 - includes 5-year federal tax credit extension for wind and solar
 - analyzes impacts of fixing IL 25% by 2025 RPS and adopting 18.5% by 2025 EEPS
 - analyzes impacts of retiring Clinton and Quad Cities nuclear plants early
 - does not include Dynegy announcement to retire 2,800 MW of existing coal capacity



Full methodology and technical appendix for February 2016 analysis available at:

<http://www.ucsusa.org/clean-energy/increase-renewable-energy/clean-power-plan-illinois>

Modeling Scenarios

- **Reference Case:** includes existing state and federal policies enacted by Nov. 2015, except the Clean Power Plan (CPP).
 - RPS: assumes existing 25% by 2025 standard remains broken
 - EEPS: assumes efficiency savings are limited by rate caps to 1.1%/year reduction in electricity demand.
- **CPP Only Case:** includes CPP, assuming all states comply with mass-based targets, including new-sources and full nationwide trading of carbon allowances. Also includes extensions of federal tax credits for wind and solar adopted in Dec. 2015.
 - Same IL RPS and EEPS as Reference Case
- **Fixed RPS/Stronger EEPS Case:** includes CPP as above, with fixed RPS and stronger EEPS in IL that applies to all investor-owned utilities
 - RPS: 25% by 2025, with solar providing 7% of total renewables
 - EEPS: 6.5% in 2015 increasing to 18.5% by 2025, and 23% by 2030.
- **Clean Jobs Bill Case:** includes CPP as above, with strengthened RPS and EEPS as proposed in the IL Clean Jobs Bill that applies to all investor-owned utilities
 - RPS: 35% by 2030, with solar providing 7% of total renewables
 - EEPS: 20% by 2025 below 2014-2016 sales (~2%/yr)

Modeling Scenarios, continued

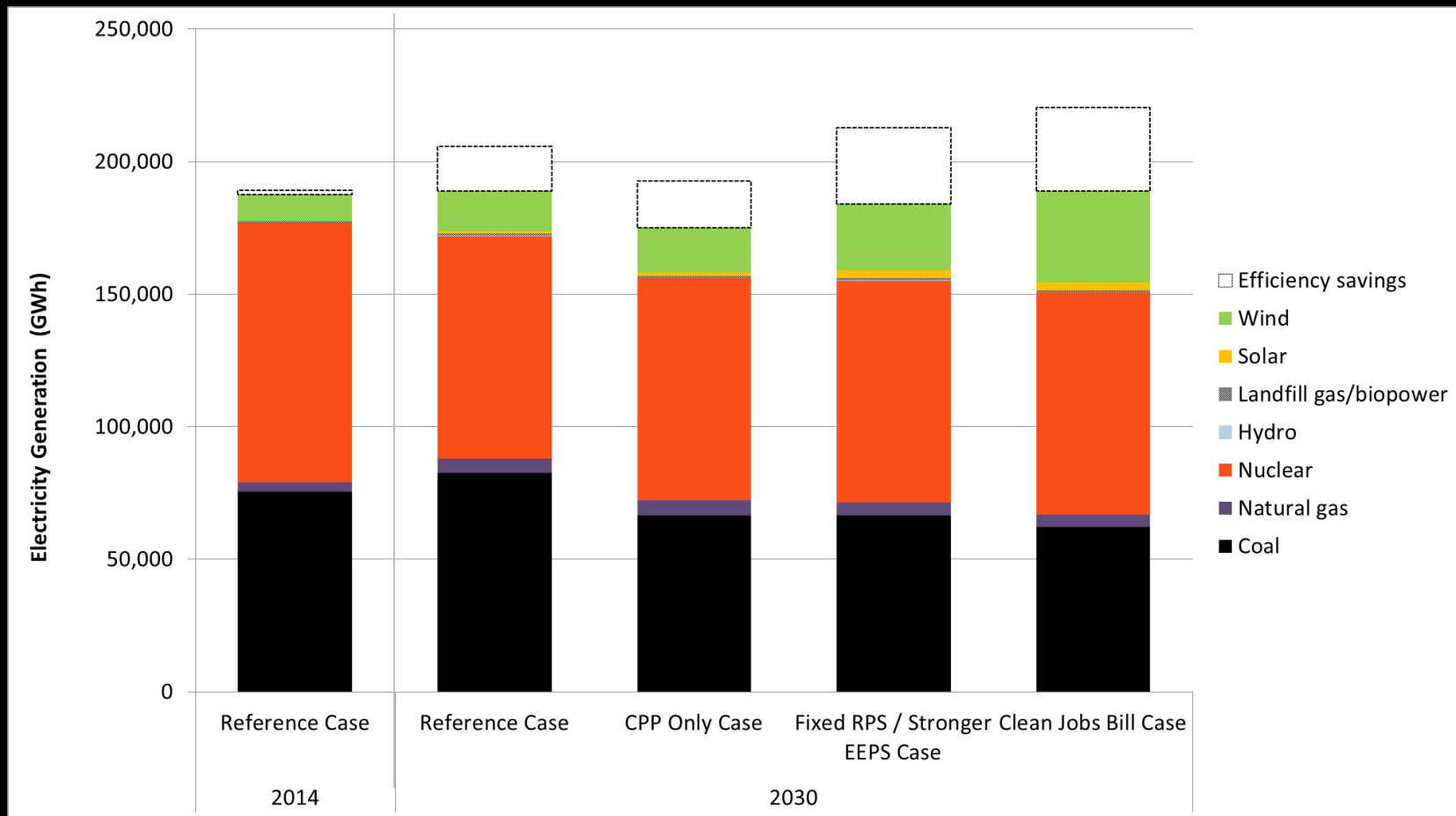
- Illinois nuclear plants are not retired prior to 2030 in any of the scenarios described in previous slide
 - The economic dispatch in the model combined with projected increases in natural gas prices and carbon constraints from complying with the CPP provide sufficient incentive to continue operating existing plants.
- To assess the impacts of retiring existing plants early, we analyze two of the cases above assuming the Clinton plant is retired by 2018 and the Quad Cities plant is retired by 2020
- Exelon's proposed wires charge to continue operating these plants, which they estimate would cost \$250 million in the first year or \$170 million on average over 6 years, is not included in our electricity bill savings estimates for any of the cases

Fixing and strengthening IL RPS and EEPS provide significant benefits for Illinois economy and consumers

Cumulative Impacts, 2016-2030*	Fixed RPS/Stronger EEPS Case (25% RPS/18.5% EEPS)	Clean Jobs Bill Case (35% RPS, 20% EEPS)
New wind capacity	3,370 MW	5,600 MW
New solar capacity	2,075 MW	2,040 MW
Investments in renewables	\$5.8 billion	\$7.5 billion
Investments in energy efficiency	\$2.9 billion	\$4.5 billion
Electricity bill savings	\$3.8 billion	\$4.5 billion
Annual residential electricity bill savings in 2030	\$84 per year (8%)	\$110 per year (10%)
Health and economic benefits	\$10.0 billion	\$10.9 billion

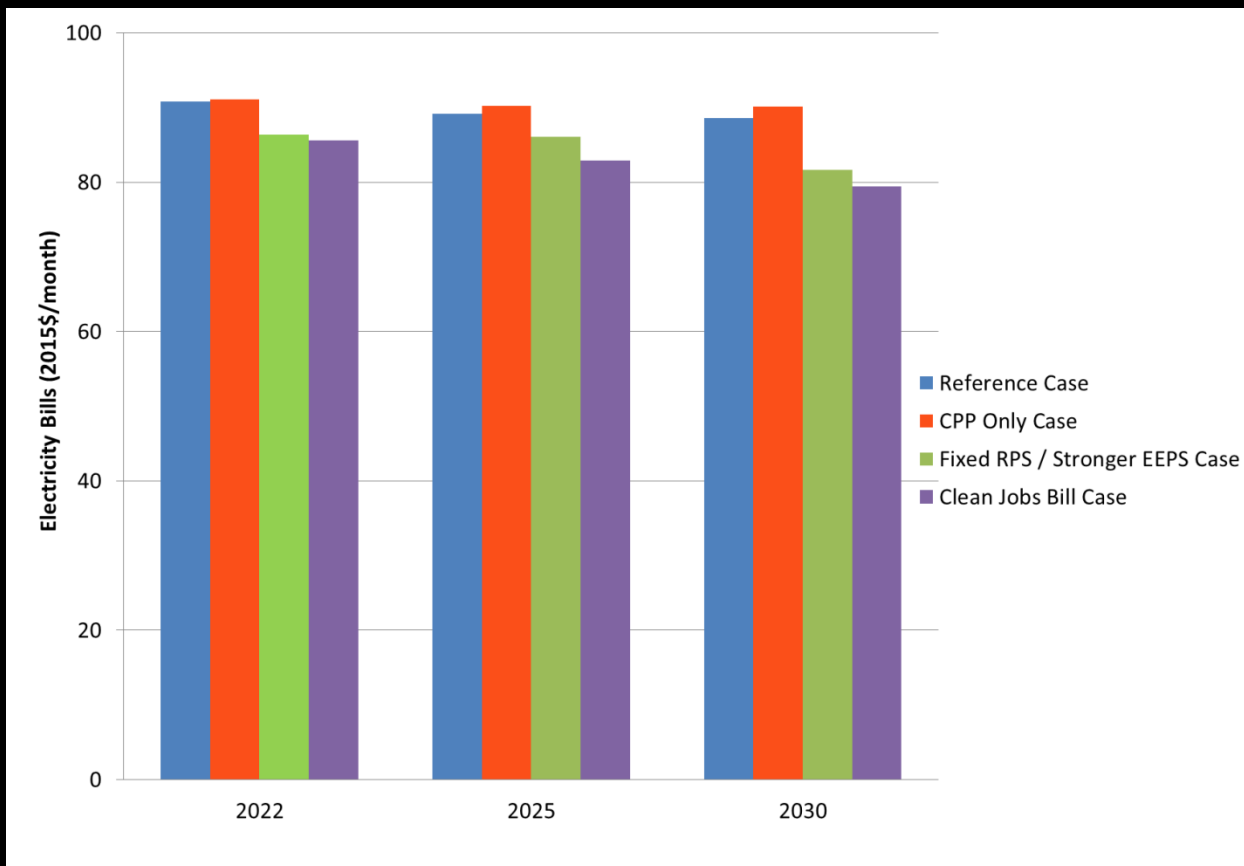
*All economic benefits are cumulative and discounted at 7%, except annual residential electricity savings.

Fixing and strengthening IL RPS and EEPS would help diversify Illinois' electricity mix



- Renewables and efficiency increase to 27-32% of Illinois electricity generation in 2030, allowing net exports of electricity from IL to stay near current levels.
- Coal generation 19-25% lower than Reference Case in 2030; natural gas is 11-13% lower.

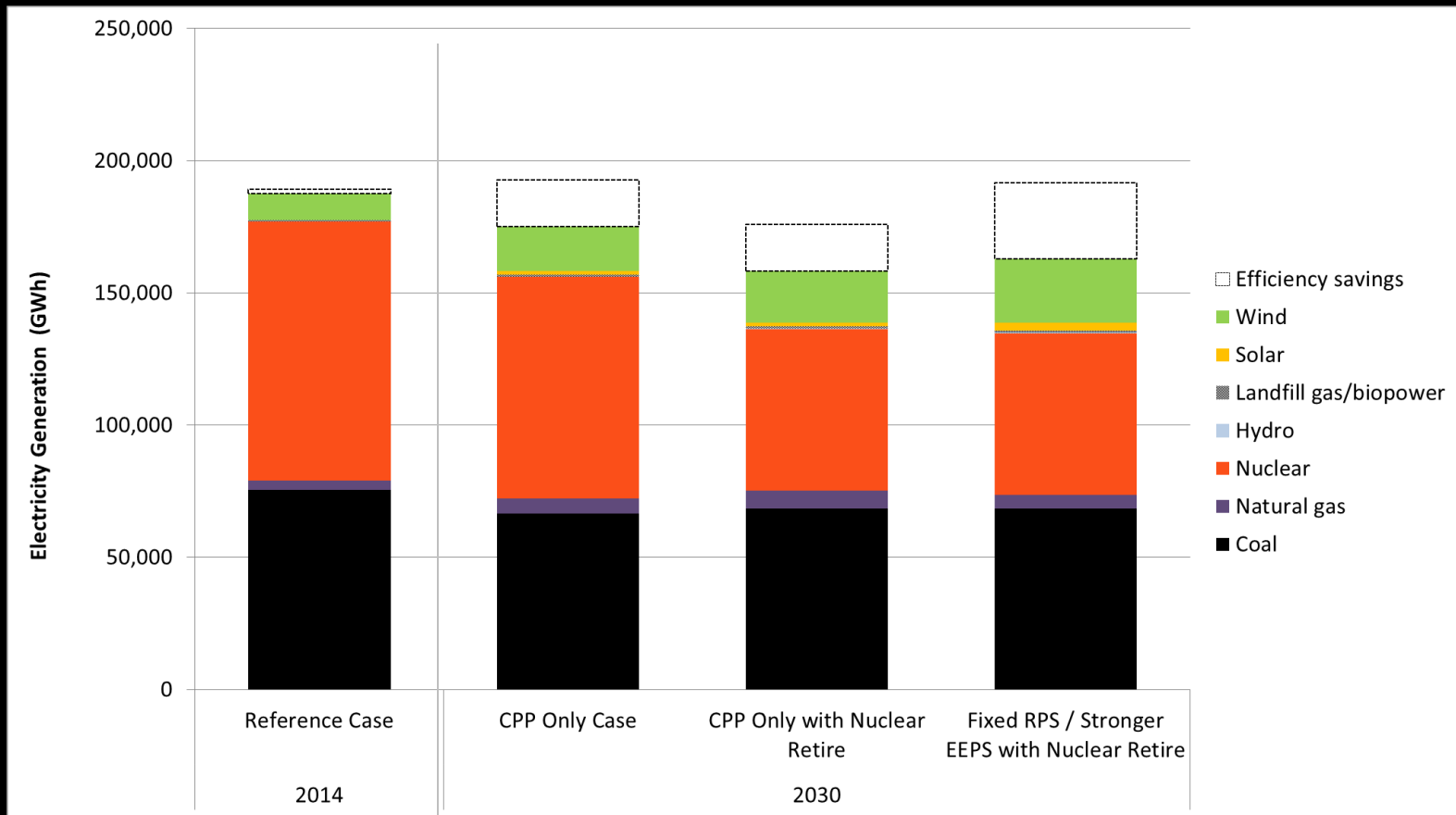
Fixing and strengthening IL RPS and EEPS to comply with the CPP lowers household electricity bills



- Annual household electricity bill savings of \$84 to \$110 by 2030 under cases with fixed and strengthened RPS and EEPS.
- Costs in CPP only case slightly higher than Reference Case.

* Electricity costs in the Reference and CPP Case are based on the monthly consumption of 653 kilowatt-hours (kWh) for a typical residential customer in 2022, falling to 644 kWh in 2030. Average monthly consumption is 8% lower in the Fixed RPS/Stronger EEPS case in 2030 (591 kWh), and 10% lower in the Clean Jobs Bill Case due to the implementation of stronger energy efficiency programs.

Fixing and strengthening IL RPS and EEPS would replace generation from retiring Clinton and Quad Cities early



- New renewable generation and efficiency exceeds retired generation from Clinton and Quad Cities by 2022 and is nearly twice as high by 2030.
- Natural gas generation in Illinois is projected to increase with nuclear plant retirement but decrease when plant retirements are combined with the Fixed RPS and Strengthened EEPS

...And benefit Illinois economy and consumers that would help offset the losses from retiring Clinton and Quad Cities

- Fixing and strengthening the IL RPS and EEPS would allow the state to comply with the CPP and save consumers money, but the savings are lower if Clinton and Quad Cities are retired early.
 - Electricity bill savings for a typical household are \$60 per year (6%) in 2030 with early retirement vs. \$84 per year (8%) without early retirement under the fixed RPS/stronger EEPS case
- Helps avoid an increase in natural gas generation and emissions in Illinois and states that import electricity from Illinois
- Illinois creates jobs from local investment in renewable energy and energy efficiency

Recommendations

- Fix the RPS by transitioning to a full non-bypassable wires charge to create a stable pool of funds for renewables procurement.
- Extend energy efficiency increases to all IOUs
- Maintain net metering and eliminate proposed residential demand charges that are detrimental to rooftop solar