

U.S. Policy Strategy and Priority of New and Renewable Energy Development

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Two new renewable energy related policies developed in 2015 will be reviewed

The Clean Power Plan (October 2015)

- As part of the President's Climate Action Plan, The Clean Power Plan sets achievable standards to reduce carbon dioxide emissions by 32 percent from 2005 levels by 2030

The Quadrennial Energy Review (April 2015)

- Through the Climate Action Plan President Obama initiated a quadrennial cycle of energy reviews to provide a multiyear roadmap for U.S. energy policy

Clean Power Plan*

- On August 3, 2015, President Obama and EPA announced the Clean Power Plan – a historic and important step in reducing carbon pollution from power plants that takes real action on climate change
- When the Clean Power Plan is fully in place in 2030, carbon pollution from the power sector will be 32 percent below 2005 levels, securing progress and making sure it continues

*<http://www2.epa.gov/cleanpowerplan/clean-power-plan-existing-power-plants>

How the Clean Power Plan Works

- The Clean Air Act – under section 111(d) – creates a partnership between EPA, states, tribes and U.S. territories – with EPA setting a goal and states and tribes choosing how they will meet it
- States then develop and implement plans that ensure that the power plants in their state – either individually, together or in combination with other measures – achieve the interim CO₂ emissions performance rates over the period of 2022 to 2029 and the final CO₂ emission performance rates, rate-based goals or mass-based goals by 2030
- Interstate emission trading is allowed to meet state goal

States may choose three among methods to reduce CO₂

- In the final Clean Power Plan, EPA determined that best system of emissions reduction (BSER) consists of three building blocks
 - **Building Block 1** - reducing the carbon intensity of electricity generation by improving the heat rate of existing coal-fired power plants
 - **Building Block 2** - substituting increased electricity generation from lower-emitting existing natural gas plants for reduced generation from higher-emitting coal-fired power plants
 - **Building Block 3** - substituting increased electricity generation from new zero-emitting renewable energy sources (like wind and solar) for reduced generation from existing coal-fired power plants

States may choose between two plan types to meet their goals

- **Emission standards plan**– includes source-specific requirements ensuring all affected power plants within the state meet their required emissions performance rates or state-specific rate-based or mass-based goal
- **State measures plan**– includes a mixture of measures implemented by the state, such as renewable energy standards and programs to improve residential energy efficiency that are not included as federally enforceable components of the plan. The plan may also include federally enforceable source-specific requirements. The state measures, alone or in conjunction with federally enforceable requirements, must result in affected power plants meeting the state's mass-based goal. The plan must also include a backstop of federally enforceable standards on affected power plants that fully meet the emission guidelines and that would be triggered if the state measures fail to result in the affected plants achieving the required emissions reductions on schedule. States may use the final model rule, which EPA proposed on August 3, for their backstop

Renewable energy played an important role in setting the Clean Power Plan goals

- EPA expects clean renewable energy generation to increase under the Clean Power Plan to nearly 20% of all power supplied by 2030, up from approximately 13% in 2014
- Renewable energy installed in 2013 or after that produces power in 2022 can provide credits to help existing sources meet their emission standards
- The Clean Power Plan facilitates the trading of renewable energy for compliance across state lines
- International renewable energy projects in Mexico and Canada may also help meet goals

Overall benefits of the Clean Power Plan have been estimated

- The Clean Power Plan itself is projected to contribute significant pollution reductions, resulting in important benefits, including:
 - Climate benefits of \$20 billion
 - Health benefits of \$14-\$34 billion
 - Net benefits of \$26-\$45 billion

Quadrennial Energy Review (QER)*

- This first-ever review focuses on energy infrastructure and identifies the threats, risks, and opportunities for U.S. energy and climate security, enabling the federal government to translate policy goals into a set of integrated actions
- The QER was conducted by a White House Task Force that included 22 Federal agencies with equities in energy

*<http://energy.gov/epsa/quadrennial-energy-review-qer>

QEA: Energy Transmission, Storage, and Distribution Infrastructure

- Chapter I: Introduction
- Chapter II: Increasing the Resilience, Reliability, Safety, and Asset Security of TS&D Infrastructure
- **Chapter III: Modernizing the Electric Grid**
- Chapter IV: Modernizing U.S. Energy Security Infrastructures in a Changing Global Marketplace
- Chapter V: Improving Shared Transport Infrastructures
- Chapter VI: Integrating North American Energy Markets
- Chapter VII: Addressing Environmental Aspects of TS&D Infrastructure
- Chapter VIII: Enhancing Employment and Workforce Training
- Chapter IX: Siting and Permitting of TS&D Infrastructure
- Chapter X: Analytical and Stakeholder Process

QER Chapter 3-Modernizing the Electric Grid: Findings in Brief (1)

- **Investments in transmission and distribution upgrades and expansions will grow**
- **Both long-distance transmission and distributed energy resources can enable lower-carbon electricity**
 - The transmission network can enable connection to high-quality renewables and other lower-carbon resources far from load centers; distributed energy resources can provide local low-carbon power and efficiency
- **The potential range of new transmission construction is within historic investment magnitudes**
- **Flexible grid system operations and demand response can enable renewables and reduce the need for new bulk-power-level infrastructure.**
 - End-use efficiency, demand response, storage, and distributed generation can reduce the expected costs of new transmission investment
- **Investments in resilience have multiple benefits**

QER Chapter 3-Modernizing the Electric Grid: Findings in Brief (2)

- **Innovative technologies have significant value for the electricity system**
- **Enhancing the communication to customer devices that control demand or generate power will improve the efficiency and reliability of the electric grid**
- **Appropriate valuation of new services and technologies and energy efficiency can provide options for the utility business model**
- **Consistent measurement and evaluation of energy efficiency is essential for enhancing resilience and avoiding new transmission and distribution infrastructure**

QER Chapter 3-Modernizing the Electric Grid: Findings in Brief (3)

- **States are the test beds for the evolution of the grid of the future**
 - Innovative policies at the state level that reflect differences in resource mix and priorities can inform Federal approaches
- **Different business models and utility structures rule out “One-Size-Fits-All” solutions to challenges**
- **Growing jurisdictional overlap impedes development of the grid of the future**

QER Chapter 3-Recommendations in Brief (1)

- **Provide grid modernization R&D, analysis, and institutional support**
- **Establish a framework and strategy for storage and grid flexibility**
 - DOE should conduct regional and state analyses of storage deployment to produce a common framework for the evaluation of benefits of storage and grid flexibility, and a strategy for enabling grid flexibility and storage that can be understood and implemented by a wide range of stakeholders
- **Conduct a national review of transmission plans and assess barriers to their implementation.**
- **Provide state financial assistance to promote and integrate TS&D infrastructure investment plans for electricity reliability, affordability, efficiency, lower carbon generation, and environmental protection**

QER Chapter 3-Recommendations in Brief (2)

- **Coordinate goals across jurisdictions.**
- **Value new services and technologies.**
 - DOE should play a role in developing frameworks to value grid services and approaches to incorporate value into grid operations and planning
- **Improve grid communication through standards and interoperability**
- **Establish uniform methods for monitoring and verifying energy efficiency**