

EPA's Clean Power Plan (CPP)

CPP is the strongest federal action to combat climate change in U.S. history. It requires today's power fleet to cut CO₂ emissions 32 percent below 2005 levels by 2030. It also requires that power generation from renewable resources account for 28 percent of the generation capacity by 2030. Initial state emission compliance plans are due on September 6, 2016, with the final plan due by September 6, 2018. The interim compliance period would begin on January 1, 2022.

The new rule assigns each state emission reduction targets based on **three building blocks**:

- Heat-rate improvements at coal plants;
- A shift from coal to natural gas generation; and
- Additions of new renewable energy capacity.

EPA's calculation methodology utilizes these three building blocks to determine the category-specific emission performance rates measured in **lbs/MWh** terms. Then, these category-specific performance rates are used to calculate state emission rate goals, also measured in **lbs/MWh** terms. **State emission rate goals may also be converted to state mass goals, measured in short tons.**

In developing its plan, each state will have the flexibility to select the measures it prefers in order to achieve the CO₂ emission performance rates for its affected plants or meet the equivalent statewide rate- or mass-based CO₂ goal.

Although EPA predicts the plan will actually lower the average U.S. power bills by almost \$85 annually in 2030, there will be price differences among different areas of the U.S. These assumed bill savings will mainly result from increased use of renewable resources, which have operating costs close to zero. However, construction costs for renewable technologies will still be high in the short-term. Also, there will be the need for major power transmission upgrades or new transmission construction to transmit energy from remote areas where the renewable generators are located to major load centers. These new and uncertain power and transmission construction costs will be reflected in power bills.

Consequently, all the main market participants including power producers, utilities, investors and regulators will have major needs for accurate short- and long-term price forecasts, and strategic long-term transmission and generation plans.



Integrated Solutions from ABB Enterprise Software

EPA's Clean Power Plan brings a lot of risks to the power industry, but it also creates significant opportunities. ABB software and Advisory Services solutions help you assess these risks and opportunities and create action plans that meet both your strategic goals and comply with CPP regulations.

ABB's EPM Advisors can assist all the industry players, state regulatory and environmental agencies, IOUs, IPPs, investors etc. in evaluating and creating State or Regional Implementation Plans. Additionally, EPM Advisors provides strategic advice in managing and mitigating carbon portfolio risk and attaining targets under the CPP. Our consulting service offerings such as Off-the-Shelf energy prices under CPP, alternative CPP scenarios, individual portfolio evaluation etc. will help affected parties identify an optimal pathway to attain the CPP goals.

ABB's Velocity Suite contains extensive emissions data collected from the EPA's Continuous Emissions Monitoring System (CEMS) reporting. Alongside the various power plant attribute datasets available in the Velocity Suite, this data will be invaluable for assessing and analyzing the impacts of the Clean Power Plan. Built in tools such as Energy Map and Intelligent Chart allow for quick and easy data visualization.

ABB's System Optimizer is an energy portfolio management solution incorporating resource planning, capacity expansion, renewable regulations, energy efficiency and demand response programs (DSM), and emissions regulations under existing and EPA's new Clean Power Plan regulations. Its emission compliance module can model emission regulations for individual states, individual power companies, or individual power plants. System Optimizer can produce 20- to 30-year horizon resource investment plans to meet long-term reliability requirements, incorporating data such as technology type, fuel, size, location, and timing of capital projects and DSM programs.

ABB's Planning and Risk is a portfolio management solution that enables decision makers to consistently analyze and review all of their existing portfolio assets and **long-term future portfolio plans created by Capacity Expansion**. With Planning & Risk, organizations can analyze, report, and actively manage all existing and future assets, including power plants, customer loads, fuels, and contracts. Its comprehensive stochastic features can be used to create sophisticated risk analysis tools. Planning and Risk's comprehensive solution can analyze market leading probabilistic evaluation of both the financial and physical implications of decisions over multiple market areas and multiple years.

ABB's PROMOD is a fundamental electric market simulation solution which incorporates extensive details in generating unit operating characteristics, emissions, transmission grid topology and constraints, and market system operations to support economic transmission planning. PROMOD provides nodal Locational Marginal Price (LMP) forecasting and transmission analysis. PROMOD is integrated with **ABB's Nodal Simulation Ready Data** to accurately simulate the various regions within North America.

System Optimizer, Planning and Risk and PROMOD working together will enable the decision makers to analyze the short- and long-term effects of CPP on power prices, production costs, capital investments, imports and exports, CO2 prices etc.

For more information please contact

ABB Inc.

International:
+1.678.830.1020

North America Toll Free:
1.800.868.0497

Europe, Middle East, Africa, India:
+44 (0) 1483 794080

www.abb.com
info.pges@abb.com

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