



Comments on EPA Clean Power Plan

Proposed Rule: Carbon Pollution Emission Guidelines for Existing Stationary
Sources: Electric Utility Generating Units

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Google Comments on Proposed Clean Power Plan

In allowing states the flexibility to comply using a variety of approaches, the Environmental Protection Agency's (EPA) proposed *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units*¹ (Clean Power Plan) has the opportunity to drive continued technological innovation and economic growth.

Google Inc. (Google) is one of the world's leading technology companies, a significant investor in clean energy projects and technologies, and a major electricity consumer. By allowing states the flexibility to comply using a variety of approaches, the EPA's proposed Clean Power Plan has the opportunity to drive further development and deployment of low-carbon technologies—including renewable power generation, energy efficiency, demand response, energy storage, and others—reducing emissions and spurring job creation and economic growth.

Google's comments below focus principally on the opportunities proposed in the Clean Power Plan for expanding the development and use of renewable energy.

Google offers the following overarching comments on the proposed rule:

- From our perspective as a major renewable energy investor and a major energy consumer interested in sourcing more low-carbon energy resources, Google sees the performance of renewable technologies continuing to improve, costs of power from renewable resources continuing to decline, and demand for clean power continuing to grow.
- EPA may be underestimating the potential that renewable energy offers in helping states meet their goals under the Clean Power Plan, and Google offers suggestions below on how to maximize the opportunities from renewables.
- Google stands ready to engage with Governors, regulators, electricity sector players, consumers and others to help shape practical, cost-effective, and sustainable energy policies. Expanding pathways for renewable energy generation plays a meaningful part in achieving those policy and regulatory goals.

1. Google Uses and Invests in Renewable Energy Because It Makes Sense for Our Business.

With more than 50,000 employees in 70 offices throughout 40 countries, Google is a significant consumer of electricity, using approximately 3.7 terawatt-hours worldwide in 2013.² This electricity powers Google offices and the data centers that Google owns and operates in six U.S. states (Georgia, Iowa, North Carolina, Oklahoma, Oregon, and South Carolina) and around the world. These data centers

¹ Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830 (June 18, 2014) [hereinafter "Clean Power Plan" or the "Proposed Rule"].

² Google Green, The Big Picture, <http://www.google.com/green/bigpicture/references.html>.

are some of the most efficient in the world, using 50% less energy than the typical data center.³ We have signed contracts for 1,040 megawatts (MW) of renewable energy, or enough to power over 300,000 U.S. households.⁴ This is an important step toward our long-term goal of powering our operations with 100% renewable energy. In 2013, 35% of our total electricity consumption was obtained from renewable sources.⁵

We have committed to powering our business with low-carbon sources not simply to be sustainable, but because it makes business sense. For example, using renewable energy helps Google diversify our power supply, provide protection against fuel price variability, and support innovation and economic growth in the regions in which we operate. We are seeking affordable, reliable power that reduces our carbon footprint and meets the technology needs of our business.

Google is not alone in our efforts to supply our operations with clean power. More than 60% of global Fortune 100 companies have made a greenhouse gas reduction or renewable energy commitment.⁶ These companies are meeting their commitments through large onsite renewable installations, power purchase agreements (PPAs) with off-site generators, renewable energy certificate (REC) purchases, or off-site low-carbon project investments.⁷

In addition to the renewables we source to power our operations, we further increase our impact by investing directly in renewable energy projects. We have committed over \$1.5 billion to 17 renewable energy projects to date, which have added an estimated 2.5 gigawatts of new renewable energy to the grid.⁸ Google has invested in many solar energy, wind energy, and related clean energy projects, including the 182 MW Panhandle 2 wind farm in Carson County, Texas, the 169.5 MW Peace Garden wind farms in North Dakota,⁹ 106 MW of utility scale solar PV developed by Recurrent Energy in Arizona and California,¹⁰ and three investment vehicles that fund rooftop solar in many states.¹¹

As both a large consumer of renewable electricity and as an investor in large renewable energy projects, we believe we have a broad perspective on the benefits, costs, and opportunities of expanding renewable energy. We see first-hand the performance of renewable technologies continuing to

³ Google Green, Our Data Centers: A Closer Look, <http://www.google.com/green/efficiency/datacenters> (discussing the efficiency of Google's datacenters).

⁴ Google Green, Using Green Power: A Closer Look, <http://www.google.com/green/energy/use/#purchasing>.

⁵ Google Green, The Big Picture, <http://www.google.com/green/bigpicture>.

⁶ Ceres, Power Forward 2.0: How American Companies Are Setting Clean Energy Targets and Capturing Greater Business Value 9 (2014), <http://www.ceres.org/resources/reports/reports/power-forward-2.0-how-american-companies-are-setting-clean-energy-targets-and-capturing-greater-business-value>.

⁷ *Id.* at 12.

⁸ Google Green, Investing in a Clean Energy Future, <http://www.google.com/green/energy/investments>.

⁹ *Not Merely Tilting at Windmills – Investing in Them Too*, OFFICIAL GOOGLE BLOG (May 3, 2010), <http://googleblog.blogspot.com/2010/05/not-merely-tilting-at-windmills.html>.

¹⁰ *Solar in California and Arizona: More of a Good Thing*, GOOGLE GREEN BLOG (Nov. 14, 2013), <http://googlegreenblog.blogspot.com/2013/11/solar-in-california-and-arizona-more-of.html>.

¹¹ A complete list of Google's clean energy investments is available at: Google Green, Investing in a Clean Energy Future, *supra* note 8.

improve, costs decline, and demand grow. We believe that, if done right, EPA's Clean Power Plan can spur further investment in clean energy technologies, increase energy supply diversity, modernize the U.S. electric sector, reduce the total cost of electricity supply, and create material economic activity.

2. The Clean Power Plan Has the Potential to Drive Investment in Cost-Effective Renewable Energy.

Google is committed to encouraging the development and deployment of clean energy technologies as a means of managing our own energy portfolio and as an important part of solving the world's future energy needs. EPA's proposed Clean Power Plan is consistent with those commitments. Today, renewable energy is more cost-effective in more regions of the country than ever before, and prices continue to decline. For example, the 2013 Department of Energy Wind Technologies Market Report shows that the levelized price of wind generation in certain areas of the country has achieved all-time lows of 2.5 cents per kilowatt-hour (kWh), making it cost competitive with conventional generation sources and in, some cases, the lowest cost option.¹² The story is similar for solar. Since 2010, the average price of a solar panel has fallen by over 60%. The national average photovoltaic installed system price is now \$2.73/watt, and as low as \$1.81/watt at larger scale.¹³ Recently, Georgia Power submitted a request to the Georgia Public Service Commission for approval of PPAs for 525 MW of utility scale solar at an average price of 6.5 cents per kWh.¹⁴ Similar PPAs have been signed in Texas, where Austin Energy procured 150 MW of solar for under 5 cents per kWh.¹⁵ The demand for residential renewable systems also continues to grow at an unprecedented pace. Over 2,700 MW of residential solar are online as of the first half of 2014, over double the level from the first half of 2012.¹⁶

These examples are consistent with Google's experience in the market. Significant technology development and cost reductions for renewable energy resources have persisted over time and are expected to continue apace. To be sure, these renewable energy prices have been supported by federal and state policies and tax incentives. However, as for any energy technology, including fossil fuel technologies, government support and policies have played a critical role in driving down the unsubsidized cost of the technologies and taking them to greater scale. The Clean Power Plan can help play that role going forward for renewables. By setting clear emission rate targets, by enabling renewables to be part of compliance strategies, and by providing flexibility to states in developing implementation plans, the Clean Power Plan will provide significant new market opportunities for

¹² See Department of Energy, 2013 Wind Technologies Market Report 60 (Aug. 2014), available at http://energy.gov/sites/prod/files/2014/08/f18/2013%20Wind%20Technologies%20Market%20Report_1.pdf.

¹³ Solar Energy Industries Association, Solar Industry Data, <http://www.seia.org/research-resources/solar-industry-data> (last visited Nov. 25, 2014).

¹⁴ Application for the Certification of the 2015 and 2016 Advanced Solar Initiative Prime Power Purchase Agreements and Request for Approval of the 2015 ASI PPAs, Docket No. 38877 (Ga. Pub. Serv. Comm'n filed Oct. 7, 2014).

¹⁵ Eric Wesoff, *Austin Energy Switches from SunEdison to Recurrent for 5-Cent Solar*, GREENTECH SOLAR (May 16, 2014), <http://www.greentechmedia.com/articles/read/Austin-Energy-Switches-From-SunEdison-to-Recurrent-For-5-Cent-Solar>.

¹⁶ GTM Research & SEIA, U.S. Solar Market Insight Report: Q2 2014 at 12 (2014), <http://www.greentechmedia.com/research/ussmi>.

renewable resources that can facilitate further reductions in the costs of these technologies through economies of scale and learning-by-doing.

By employing increasingly competitive renewable technologies, along with energy efficiency and other low-carbon energy technologies, states will be able to cost-effectively meet the emission reduction targets of the Clean Power Plan, while diversifying their energy mix, protecting against volatile fuel prices, and investing in their local economies. Additionally, the state implementation approach in the Clean Power Plan will greatly accelerate the modernization of the country's electric system in ways that will benefit consumers and the economy as a whole.

Google applauds EPA's focus on state flexibility, which will allow each state to tailor its compliance plan to optimize the development of clean energy resources available within the state and region.

3. Improving the Clean Power Plan Proposal on Renewable Energy Development.

We offer the following comments to improve the proposed Clean Power Plan.

A. EPA's Renewable Energy Goals Are Modest.

Google supports EPA's decision to consider emission reductions that can be achieved through increased use of renewable energy sources in determining proposed state emission targets. EPA's assessment of the potential for cost-effective renewable energy opportunities is, if anything, conservative.

EPA has identified two main methodologies for determining the achievable and cost-effective amount of renewable energy generation that each state could rely on to reduce emissions. EPA's primary proposal is a policy-based approach that assumes each state can get as much renewable energy by 2020 as the amount required by the average renewable portfolio standard (RPS) in that state's region. EPA also outlines an alternative approach that estimates state-by-state renewable energy technical and market potential.

These methodologies lead to conservative results. First, the RPS-based approach assumes that a state with a relatively aggressive existing RPS commitment or significant existing renewable generation will only meet the regional average commitment, and not its own higher commitment or even 2012 generation levels, in some instances. For example, Iowa generated 25% of its electricity from renewable sources in 2012, but under the renewable goal in the proposed rule, would only be required to generate 15% by 2030. Second, a 2020 regional average RPS benchmark is applied to states in 2030, rather than using a 2030 regional RPS average for that purpose. For example, North Carolina has committed to procuring 13% of its electricity from renewable sources by 2021, but is only required by the Clean Power Plan to procure 10% by 2030. Third, the renewable targets assume that no increase in renewable generation will occur between 2012 to 2017, when in fact, renewable generation continues to grow, by rule in most states with an RPS.

The Alternative Renewable Energy Approach¹⁷ also underestimates the level of renewable energy that states could implement by 2030, for a number of reasons. First, the technical potential is based on the 2012 penetration rates for each renewable technology in the top third of states, and so assumes no technological advancements or cost reductions between now and 2030. Second, the underlying National Renewable Energy Labs report used to determine the technically feasible renewable generation in each state uses outdated technology assumptions that underestimate the amount of installable capacity and the generation for each MW of installed capacity. Third, the energy market-based cap that EPA places on the level of renewable generation deemed achievable uses inflated cost figures, failing to account for the expected level of cost reductions over time. Lastly, both the technical potential and energy market-based caps treat some renewable resources such as biomass and hydroelectric generation inconsistently and fail to include the potential to add new sources of generation from these resources.

Nationwide, the RPS-based approach and the Alternative RE Approach result in a very similar level of renewable generation. However, neither approach fully captures the past and likely future dynamic growth in renewable energy as indicated above, including the dramatic decrease in costs outlined in Section 2 of these comments.

For all of these reasons, we believe EPA underestimates the demand and the opportunity presented by renewable energy over the next 10-20 years. Accordingly, the renewable energy goals in the final rule should better account for the full range of renewable energy opportunities in states and, at the least, should certainly be no less stringent than the additions of generation already required.

B. EPA Should Recognize the Interstate Nature of the Renewable Energy Market.

EPA has proposed that states are able to take into account all of the carbon dioxide emission reductions from renewable energy measures implemented by the state, whether they occur in the state or in other states,¹⁸ but also takes comment on a number of approaches to the appropriate treatment of interstate renewable energy (and energy efficiency).¹⁹

A final Clean Power Plan that more clearly recognizes and operates consistent with the interstate aspects of the renewable energy market would provide greater renewable energy generation opportunities at lower cost. Renewable energy developers build generation assets in locations that have the best resources and associated infrastructure. These locations are often located away from load centers, and are often in states other than those where the power is ultimately consumed. Additionally, the financing of renewable energy development relies on systems that take into account the interstate nature of renewable energy transactions. For example, the interstate trading of renewable energy

¹⁷ EPA, Alternative RE Approach Technical Support Document (June 2014), <http://www2.epa.gov/sites/production/files/2014-06/documents/20140602tsd-alternative-re-approach.pdf> [hereinafter “Alternative RE Approach”].

¹⁸ Proposed Rule, 79 Fed. Reg. at 34,922.

¹⁹ See Technical Support Document (TSD) for Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units: State Plan Considerations Technical Support Document 87-96 (June 2014), <http://www2.epa.gov/sites/production/files/2014-06/documents/20140602tsd-state-plan-considerations.pdf>.

attributes such as RECs is an integral component of the financing and deployment of renewable energy generation that utilities, regulators, energy developers and businesses, like Google, rely on.

We appreciate that the Clean Air Act requires a state-by-state compliance approach. However, such an approach need not interfere with an established and well-functioning interstate renewable energy market. Google urges EPA to set clear compliance rules that will not disrupt the interstate trading of renewable energy and associated attributes.

EPA can do this in three ways.

First, Google encourages EPA to establish clear attribution rules for how states include renewable generation in their demonstration to EPA that they have met their state-specific emission targets. Google supports an EPA requirement that states set up or participate in accounting systems or registries that will prevent double counting. While some states may choose to rely on existing REC accounting mechanisms for Clean Power Plan compliance tracking, EPA should be open to state proposals to rely on alternative approaches to allocate environmental attributes, as long as double counting is prevented. This could be done through existing voluntary REC platforms, or through a new section 111(d)-specific platform or registry. Google encourages EPA to provide additional guidance regarding viable crediting and accounting systems usable beyond RPS compliance.

Second, Google encourages EPA to make it as easy as possible for regional approaches to emerge. This will allow interested states to benefit from the compliance simplification and cost reductions of multi-state approaches. States could then incorporate policies that envision the development of regional linkages over time, rather than requiring states to work out all details by the plan submission deadlines. At the least, a clear signal from EPA indicating that state plans that rely on discrete multi-state agreements would be approvable would help in this regard.

Finally, enabling regional approaches to compliance may have implications for how EPA determines the extent of available renewable energy in constructing each state's goal. To the extent that the methodology EPA uses to set state goals conflicts with this approach, we suggest a revision to the goal-setting methodology. In its Notice of Data Availability, EPA highlights a regional approach to state goal-setting as one such way that the state goal methodology may be better aligned with the principle of interstate trading of renewable power and associated attributes.²⁰

C. EPA Should Consider Whether to Count Non-Utility Renewable Energy Measures.

Not all states have or will have an RPS or other state renewable energy policies. For this reason, we urge EPA to carefully consider the impact of all types of renewable energy procurement on state compliance plans, and not just renewable energy generated in response to a state RPS or similar state policies. As discussed above, consumers and businesses are making significant commitments to renewable energy generation for reasons other than RPS compliance. Such customer-driven renewable energy demand

²⁰ Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, Notice of Data Availability, 79 Fed. Reg. 64,543, 64,547 (Oct. 30, 2014).

may be a particularly important driver for renewable energy development in the future. However, the actions of non-utility parties are largely unaccounted for in the Clean Power Plan.

Google encourages EPA to consider the impact of allowing states to adopt policies that empower non-utility parties to contribute to state compliance under the Clean Power Plan. Google supports the approaches that will drive the most low-carbon energy onto the grid.

4. Google's Commitment: Supporting the States in their Implementation of the Clean Power Plan

We believe that the success of the Clean Power Plan requires the involvement of all stakeholders, especially in developing state implementation plans. We applaud EPA for recognizing that states can best determine the carbon reduction policies specific to their electricity grid and local needs, and for giving them flexibility to take the lead role in implementing the Clean Power Plan.

As a company looking to supply our operations with low cost renewable energy, we also have a stake in ensuring that these state compliance plans are well constructed. As a corporate citizen in the states where we operate, we want to see these rules implemented in a way that benefits everyone and takes into account each state's unique circumstances.

Google expects to engage constructively with state officials and other stakeholders in the states and regions where we operate. We look forward to working with Governors, state legislatures, and energy and environmental regulators to advance the effective implementation of the Clean Power Plan.

Subject to forthcoming discussions with state leadership, collaborative policy initiatives could include:

- Supporting efforts to generate data and analysis on local and regional renewable power options, so that decisions are data-driven and based on sound information;
- Helping to identify effective local and state policy and regulatory frameworks for driving renewable energy deployment and ensuring all customers who want to purchase renewable energy have a clear and straightforward path to do so;
- Convening dialogues with state policymakers, regulators, businesses, consumers and other interested parties to ensure that decisions take into account all interests;
- Studying the impact of allowing renewable energy procured by non-utility parties to be used as a compliance tool in state plans; and
- Working with groups of states in the development of targeted issue-specific multi-state agreements to facilitate cross-state compliance, reduce compliance costs, and streamline the obligations of businesses that operate across states.

5. Conclusion

Google applauds EPA's focus on state flexibility to reduce greenhouse gas emissions using a portfolio of approaches, including increased deployment of renewable energy—as well as end-use energy efficiency,

other demand side programs, energy storage, and others. We look forward to working with EPA to refine the final rule and assisting states and other interested parties in the development of compliance plans that support the expansion of renewable energy.

Addressing climate change, increasing the country's fuel diversity, promoting reliability, and ensuring future energy supply sustainability and cost effectiveness are each critical, if monumental, tasks. Tackling all these problems at once is an ambitious undertaking that calls for innovation and leadership. We are confident that states that demonstrate leadership through the development of innovative state plans will achieve environmental benefits and greater economic growth. We appreciate the opportunity to comment on the Clean Power Plan and look forward to working with the states as they undertake their own state compliance plans.