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U.S. DEPARTMENT OF ENERGY

STRATEGIC PLAN

MAY 2011



Transform Our Energy Systems

Goal: Catalyze the timely, material, and efficient transformation of the nation's energy system and secure U.S. leadership in clean energy technologies.

> (1) "the United States faces an increasing shortage of nonrenewable energy resources;
>
> (2) this energy shortage and our increasing dependence on foreign energy supplies present a serious threat to the national security of the United States and to the health, safety and welfare of its citizens;
>
> (3) a strong national energy program is needed to meet the present and future energy needs of the Nation consistent with overall national economic, environmental and social goals;
>
> (4) responsibility for energy policy, regulation, and research, development and demonstration is fragmented in many departments and agencies and thus does not allow for the comprehensive, centralized focus necessary for effective coordination of energy supply and conservation programs; and
>
> (5) formulation and implementation of a national energy program require the integration of major Federal energy functions into a single department in the executive branch."
>
> - Findings in the *Department of Energy Organization Act*, 1977

These findings in the *Department of Energy Organization Act*, a 34-year-old text defining the Department's role in energy, remain broadly applicable today. Reducing dependence on oil and reducing greenhouse gases are two major challenges in today's U.S. energy systems. These challenges are daunting. From 1977 to 2010, the gap between total annual U.S. imports and export of crude oil increased by more than 933 million barrels (nearly 39%).[1] Although there has been progress on local environmental concerns, the global threat of elevated greenhouse gas concentrations is now widely recognized, and related effects are better understood. The Department is committed to advancing solutions to these dangerous climatic trends. While access to affordable and reliable energy has been the cornerstone of America's economic growth, the nation's physical and social systems that produce, store, transmit, and use energy remain deficient in several important dimensions. Driven by environmental, economic, and social impacts, President Obama has set the following specific targets:

- Reduce energy-related greenhouse gas emissions by 17% by 2020 and 83% by 2050, from a 2005 baseline.

[1]International Petroleum (Oil) Imports and Exports. 2010. U.S. Energy Information Administration. Available at http://www.eia.doe.gov/emeu/international/oiltrade.html.

- By 2035, 80% of America's electricity will come from clean energy sources.[1]
- Put 1 million electric vehicles on U.S. roads by 2015.[1]

Los Alamos County, New Mexico, completed the Abiquiu Hydropower Project - the first hydropower project funded by the Recovery Act to be completed nationwide. The project provides clean energy to Los Alamos National Laboratory.

Currently more than 80% of total U.S. primary energy[2] and more than 95% of U.S. transportation fuel comes from fossil resources;[3] these percentages are expected to change little over the next 25 years under a business-as-usual scenario.[2,4] While U.S. energy consumption and carbon-dioxide emissions are also expected to increase significantly in this scenario, global energy consumption will rise more than twice as quickly due to growing population and increasing development in non-Organisation for Economic Co-operation and Development (OECD) countries.[5] Likewise, water is integral to many energy technologies, and related water demands could be amplified in the future if climate change alters regional water cycles. Our energy technology R&D activities should be cognizant of this interdependence.

This context frames the challenge before us: to achieve our long-term energy and environmental goals, we must change our current energy paradigm through concerted effort across public and private sectors. Although the scale of this challenge dictates that the necessary transformation of our energy systems will not be completed soon, efforts to facilitate an ongoing energy transformation will improve national security, the balance of trade, and demonstrate U.S. leadership on global challenges.

This document is not a national energy plan[6] but rather a strategy focused on the capabilities and authorities of the Department, and grounded in simple assumptions regarding the path to meet our national goals. Petroleum use will be decreased by raising fuel economy standards, gradual electrification of the vehicle fleet, and increasing production of advanced biofuels. Greenhouse gas emissions will be reduced through improved efficiency, accelerated deployment of low-carbon energy generation technologies (including conventional renewable, nuclear, and carbon capture and storage), modernization of the electric grid, and public policy.

The Department has substantial assets it can bring to bear as appropriate, including basic scientific discovery, invention, applied research, full-scale technology demonstrations, deployment financing, policy analysis, and information and education resources. U.S. energy infrastructure is primarily owned and operated by the private sector, and will continue to be dominated by conventional energy

[1]Clean energy is defined in the context of the Clean Energy Standard as renewables, nuclear, combined-cycle gas, and fossil energy with carbon capture and storage. *Fact Sheet: The State of the Union: President Obama's Plan to Win the Future*. 2011. Available at http://www.whitehouse.gov/the-press-office/2011/01/25/fact-sheet-state-union-president-obamas-plan-win-future.
[2]*Annual Energy Outlook 2010 with Projections to 2035*, Figure 1 data. 2010. U.S. Energy Information Administration. Available at http://www.eia.gov/oiaf/archive/aeo10/pdf/0383(2010).pdf.
[3]*December 2010 Monthly Energy Review*, Table 2.5. 2010. U.S. Energy Information Administration. Available at http://www.eia.gov/FTPROOT/multifuel/mer/00351012.pdf.
[4]*EIA Annual Energy Outlook 2011 Early Release*, Table A2. 2011. U.S. Energy Information Administration.
[5]*International Energy Outlook 2010*. 2010. U.S. Energy Information Administration. Available at http://www.eia.doe.gov/oiaf/ieo/.
[6]The DOE Quadrennial Technology Review (http://energy.gov/qtr/) will be a first step in developing a national energy plan. Other agencies will have to be involved with a national plan.

resources, even as we embark on its transformation. Thus, it is the private sector that will have to make the largest share of the investments needed to deploy clean energy technologies at scale. Our strategy will be to prioritize our resources rigorously and highly leverage the assets at our disposal. Significant authorities relevant to energy production and use reside outside the Department with such agencies as the U.S. Environmental Protection Agency and the Departments of Transportation, Commerce, Interior, and Agriculture. Accordingly, the Department must leverage its efforts and work in concert with policies and regulations established by other agencies and state and local governments to ensure safe, secure, and environmentally benign energy for our country throughout this transformation.

The Department invests in clean energy RDD&D for technologies like solar and wind.

The American Recovery and Reinvestment Act: Laying the Foundation for a Clean Energy Economy

The *American Recovery and Reinvestment Act* (ARRA) channeled an unprecedented amount of funds through the Department in record time. ARRA funding and an increased fiscal year 2009 appropriation, together representing an 187% increase over the prior year, stress-tested every part of our organization—from program managers to procurement and legal staff. The Recovery Act provided the opportunity for new, extensive projects. In energy, projects include tax credits spurring innovation across the energy industry, construction of a significant portion of the world's capacity to manufacture advanced vehicle technology batteries, and energy efficiency grants available to every state, county, and large city. These projects are driving economic growth now, while laying the foundation for our long-term prosperity through a clean energy economy.

In the first 18 months after ARRA's passage, the Department of Energy accomplished many things, including the following:

- Making the grant application review process more rigorous, including recruiting participation from the nation's best engineering and scientific professionals, and carrying out over 30,000 reviews of applications in a 1-year time frame.
- Funding over 8,000 projects that are laying the foundation to a new, clean energy economy: renewable energy deployment, energy efficiency, advanced vehicles and fuels, grid modernization, science and innovation, environmental cleanup, and carbon capture and storage.
- Leveraging the Department's $35.2 billion in Recovery Act appropriations and $7.5 billion in U.S. Treasury tax incentive programs with private capital funds that will support over $100 billion in clean energy projects.
- Expanding and accelerating the research mission of our national laboratories with $3 billion.
- Supporting small businesses around the country with over $8.2 billion in grants, contracts, loan guarantees, and tax credits. Several of these companies have already gone public.
- Creating and saving over 40,000–50,000 full-time jobs each quarter.

The White House
Office of the Press Secretary

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FACT SHEET: U.S. Reports its 2025 Emissions Target to the UNFCCC

State Department Submits President Obama's Ambitious 2025 Target

to Cut U.S. Climate Pollution by 26-28 Percent from 2005 Levels

To view the INDC submission, click **HERE**.

Building on the strong progress made under President Obama to curb the emissions that are driving climate change and lead on the international stage, today the United States submitted its target to cut net greenhouse gas emissions to the United Nations Framework Convention on Climate Change (UNFCCC). The submission, referred to as an Intended Nationally Determined Contribution (INDC), is a formal statement of the U.S. target, announced in China last year, to reduce our emissions by 26-28% below 2005 levels by 2025, and to make best efforts to reduce by 28%.

Last November, President Obama and President Xi – leaders of the largest economies and largest polluters – made the historic announcement of the respective post-2020 climate targets for the United States and China. For the first time, China committed to limit its greenhouse gas emissions, with a commitment to peak emissions around 2030 and to make best efforts to peak early, and to increase its share of non-fossil energy consumption to around 20 percent by 2030. Following that historic announcement, the European Union put forward an ambitious and achievable INDC to cut their emissions 40% by 2030. And just last week, Mexico announced that it would peak its overall net greenhouse gases by 2026, backed by strong unconditional policies and a new bilateral task force to drive climate policy harmonization with the United States.

With these actions, as well as strong INDCs submitted by Norway and Switzerland, countries representing over 50% of global CO_2 emissions have either announced or formally reported their targets. Today's action by the United States further demonstrates real momentum on the road to reaching a successful climate agreement this December in Paris and shows President Obama is committed to leading on the international stage.

The U.S. target will roughly double the pace of carbon pollution reduction in the United States from 1.2 percent per year on average during the 2005-2020 period to 2.3-2.8 percent per year on average between 2020 and 2025. This ambitious target is grounded in intensive analysis of cost-effective carbon pollution reductions achievable under existing law and will keep the United States on the pathway to achieve

deep economy-wide reductions of 80 percent or more by 2050. The Administration's steady efforts to reduce emissions will deliver ever-larger carbon pollution reductions, public health improvements, and consumer savings over time and provide a firm foundation to meet the new U.S. target.

Building on Progress

Our leadership at the international level starts at home. In 2009, U.S. greenhouse gas emissions were projected to continue increasing indefinitely. When entering office, President Obama set an ambitious goal to cut emissions in the range of 17 percent below 2005 levels in 2020. Throughout the first term, the Administration took strong actions to cut carbon pollution, including investing more than $80 billion in clean energy technologies under the Recovery Act, establishing historic fuel economy and appliance energy efficiency standards, doubling solar and wind electricity, and implementing ambitious energy efficiency measures.

Early in his second term, President Obama launched an ambitious Climate Action Plan focused on cutting carbon pollution, preparing the nation for climate impacts, and leading on the international stage to bring nations large and small to the table to pledge to act on climate change. In addition to bolstering first-term efforts to ramp up renewable energy and efficiency, the Plan is cutting carbon pollution through new measures, including:

- *Clean Power Plan:* The Environmental Protection Agency (EPA) proposed guidelines for existing power plants in June 2014 that would reduce power sector emissions 30% below 2005 levels by 2030 while delivering $55-93 billion in annual net benefits from reducing carbon pollution and other harmful pollutants.
- *Standards for Heavy-Duty Engines and Vehicles:* In February 2014, President Obama directed EPA and the Department of Transportation to issue the next phase of fuel efficiency and greenhouse gas standards for medium- and heavy-duty vehicles by March 2016. These will build on the first-ever standards for medium- and heavy-duty vehicles (model years 2014 through 2018), proposed and finalized by this Administration.

- *Energy Efficiency Standards:* The Department of Energy set a goal of reducing carbon pollution by 3 billion metric tons cumulatively by 2030 through energy conservation standards issued during this Administration. The Department of Energy has finalized multiple measures addressing buildings sector emissions including energy conservation standards for 29 categories of appliances and equipment as well as a building code determination for commercial buildings. These measures will also cut consumers' annual electricity bills by billions of dollars.

- *Economy-Wide Measures to Reduce other Greenhouse Gases:* EPA and other agencies are taking actions to cut methane emissions from landfills, coal mining, agriculture, and oil and gas systems through cost-effective voluntary actions and common-sense regulations and standards. At the same time, the State Department is working to slash global emissions of potent industrial greenhouse gases, called HFCs, through an amendment to the Montreal Protocol; EPA is cutting domestic HFC emissions through its Significant New Alternatives Policy (SNAP) program; and, the private sector has stepped up with commitments to cut global HFC emissions equivalent to 700 million metric tons through 2025.

HOME **BRIEFING ROOM** **ISSUES** **THE ADMINISTRATION** **PARTICIPATE**

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