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American Business Leaders Call for Revolution in Energy Technology Innovation

*Group urges scale-up in investment, systemic reforms to create jobs,
address national security, solve environmental challenges*

Call for action in meetings with White House and Congressional leaders

WASHINGTON, DC – A group of America’s top business executives today released a plan to make America a global leader in energy technology innovation, and in meetings at the White House and with Congressional leaders called for urgent action to begin the national transition to clean, affordable, and secure supplies of energy.

The American Energy Innovation Council (AEIC)—whose members include Bill Gates, chairman and former chief executive of Microsoft; Norm Augustine, former chairman of Lockheed Martin; Ursula Burns, chairman and chief executive of Xerox; John Doerr, partner at Kleiner Perkins; Chad Holliday, chairman of Bank of America and former CEO of DuPont; Jeff Immelt, chief executive of GE; and Tim Solso, chairman and chief executive of Cummins — said in its report, “A Business Plan for America’s Energy Future,” that reforming and strengthening U.S. investment in energy innovation is the most critical element to securing America’s future.

The full report and supporting documents and other materials can be found at www.americanenergyinnovation.org.

“The world faces many challenges, but none more important than taking immediate and decisive action to develop new, inexpensive clean-energy sources that avoid the negative effects of climate change,” Gates said in releasing the report today. “Low-cost clean energy is the single most important way to lift poor countries out of poverty and create more stable societies. The whole world would benefit from this, and the United States can and should lead the way. The time for action is now.”

“We must reinvent our energy future,” said Chad Holliday, who serves as AEIC chairman. “A giant leap in energy technology investments and reform of our current system can make America a global leader in what will be the largest new market of the 21st Century. We have seen huge dividends from similar American investments before—in information technology, defense technology, and medical technology. But up until now, energy investments have gotten short shrift. That has to change if we are to control our energy future. This has to be at the top of America’s agenda.”

The American Energy Innovation Council plan contains five recommendations:

1: Create an independent National Energy Strategy Board

The United States does not have a coherent national energy strategy. Without such a strategy, there is no way to assess the effectiveness of existing energy policies, nor is there a logical



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framework for the development of new energy technologies. The result of this neglect is reflected in our nation’s history—with oil-driven recessions, environmental degradation, trade deficits, national security problems, and increasing CO₂ emissions.

In order to seriously address our energy future, the AEIC recommends the creation of a Congressionally mandated Energy Strategy Board charged with (1) developing and monitoring a National Energy Plan for Congress and the executive branch, and (2) oversight of a New Energy Challenge Program (see recommendation #5).

“Instead of a series of fractured challenges and solutions, we should manage the future of our energy system as an integrated whole, and build a pipeline of technologies that will solve the serious problems our world is facing,” said Ursula Burns, chief executive of Xerox. “These recommendations are the beginning of such a solution. I urge Congress and the President to act on them.”

2: Increase annual investments in clean energy RD&D by \$11 billion, to \$16 billion per year

The AEIC members recommend that sizable, sustained increases in spending on research, development and deployment (RD&D) of clean energy technologies are necessary to maintain our competitive edge and keep our economy strong. Government investments of \$16 billion per year – an increase of \$11 billion over current annual investments of about \$5 billion – is the minimum level required. For comparison, the U.S. government currently spends approximately \$30 billion each year on health research and more than \$80 billion on defense research and development. The public investment called for by AEIC would bring U.S. energy investment in line with those of our trading partners and competitors.

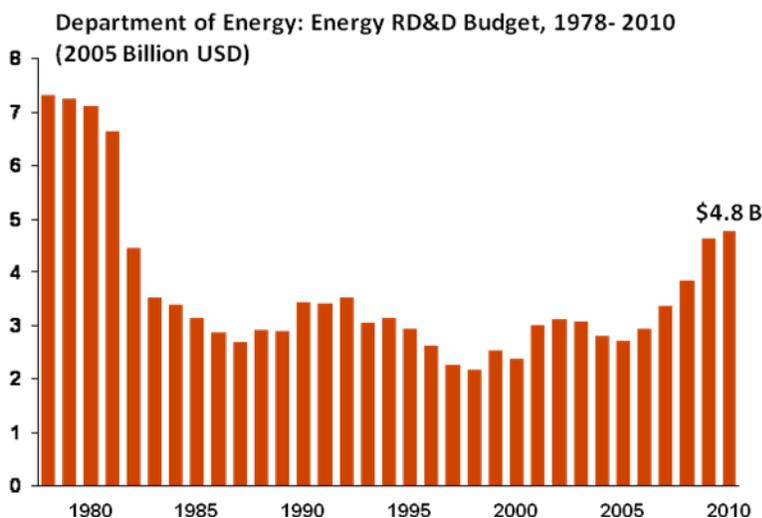


Figure source¹

John Doerr, partner at Kleiner Perkins, said, “When our company shifted our attention to clean energy, we found the innovation cupboard was close to bare. America has simply neglected to support serious energy innovation. My partners and I found the best fuel cells, the best energy

¹ Gallagher, K.S. and L.D. Anadon, "DOE Budget Authority for Energy Research, Development, and Demonstration Database," Energy Technology Innovation Policy, John F. Kennedy School of Government, Harvard University, March 22, 2010.

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storage, and the best wind technologies were all born outside of the United States. Other countries are investing huge amounts in these fields. Without innovation, we cannot build great energy companies. We need to restock the cupboard, or be left behind.”

Public energy RD&D spending as a share of GDP, 2007

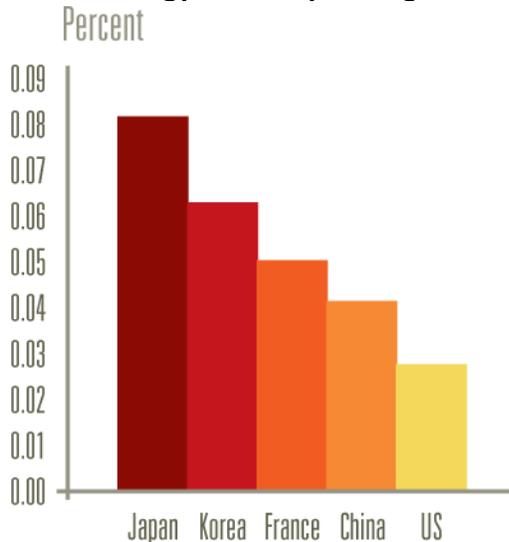


Figure sources²

Recommendation 3: Create Centers of Excellence in Energy Innovation

In the healthcare, information technology, and defense fields, critical technologies have achieved large-scale market success through multi-disciplinary collaboration among institutions in the private and public sectors. Technology innovation requires expensive equipment, well-trained scientists, multi-year time horizons, and flexibility in allocating funds. This can be done most efficiently and effectively if the institutions engaged in innovation are located in close proximity to each other, share operational objectives, and are accountable to each other for results.

The AEIC recommends the creation of centers of excellence in energy innovation, structured along the lines described above. These centers can drive down the cost of technologies and accelerate their deployment. To function effectively and deliver real results, each of these centers will require annual funding in the range of \$150 million to \$250 million as a part of the \$16 billion total.

Tim Solso, CEO of Cummins said, “Creating regional centers of excellence is central to incubating innovation across different fields and institutions. These can be our new hubs of invention. Our company has found that we win in the market by using our technical innovation to meet public standards while also developing products that meet the needs of our customers.

² (1) Energy Technology RD&D 2009 Edition, International Energy Agency, <http://wds.iea.org> (2) The world fact book, Central Intelligence Agency, <https://www.cia.gov/library/publications/the-world-factbook>.(3) China Statistical Yearbook on Science and Technology, 2008.

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The entire American economy can benefit from similar investments in innovation to help address our energy challenges.”

Recommendation 4: Fund ARPA-E at \$1 billion per year

The creation of ARPA-E has been a significant development for energy innovation. ARPA-E is challenging innovators to come up with truly novel ideas and “game changers.” The program has high potential for long-term success, but only if it is given the autonomy, budget, clear signals of support, and ability to implement needed projects. It will need long-horizon funds on a scale commensurate with its goals, and a life extension beyond the current federal stimulus. AEIC recommend that a \$1 billion annual commitment would be a wise investment as a part of the \$16 billion total.

“Ultimately, energy innovation is a matter of national security, and must be treated that way by Congress and the Administration,” said Norm Augustine, former chairman of Lockheed Martin and former Undersecretary of the Army. “This is true because disruptions in the supply of energy and environmental change are among the most likely causes of future military conflicts. DARPA was a huge success in creating high payoff returns on investments in military technologies. ARPA-E—its energy equivalent—can have a similar transformative impact on energy technology, but it must receive adequate funding.”

Recommendation 5: Establish a New Energy Challenge Program for large-scale demonstration projects

America’s energy innovation system lacks a mechanism to turn large-scale ideas or prototypes into commercial-scale facilities. AEIC recommends the creation of a program to fund, build, and accelerate the commercialization of advanced energy technologies.

This program should be structured as a joint venture between the federal government and the energy industry, and would operate as an independent corporation outside of the federal government. It would focus on the transition from pre-commercial, large-scale energy systems to integrated, full-size system tests. The program should be co-funded by the public and private sectors at an initial level of \$20 billion over 10 years, with a single federal appropriation.

The Need for Complementary Policies

The AEIC plan also notes “the need for complementary energy policies to drive market adoption of new technologies. A vigorous demand signal will increase the intensity of research, add large private-sector commitments, reduce barriers between the lab and market, and ensure technologies perform better and cost less over time. The United States will not succeed in this field without policies to ensure there are vibrant markets for clean energy technologies. Those policies may include some combination of a price or a cap on CO₂, a clean energy or renewable energy portfolio requirement, or technology performance standards. The effect of such policies should be to create a large, sustained market for new energy technology. Our nation cannot succeed without it.”

The report states that increased investment for energy innovation is such a high national priority that it should be undertaken even in the midst of tight federal budgets. The group also notes that options for generating new revenue for energy innovation investment from the energy sector include reductions in subsidies for fossil fuels, license fees for offshore oil and

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natural gas production, creating an oil import fee, increasing the gas tax or putting a price on carbon emissions. The report does not specifically advocate any of these approaches.

“The U.S. is falling behind because we don’t have the markets or the will – our policies are shortsighted and our markets aren’t set up to reward energy innovation. We have the power to transform our energy future and address many of our economic, energy security and climate challenges with the right policy clarity and robust market demand. You have to do both to drive innovation and compete,” said Jeff Immelt, CEO of GE.

“I am convinced that the right technologies and the right policies we can solve our energy and climate challenges,” said Bill Gates. “But we need a much more serious commitment to do so.”

AEIC Chair Chad Holliday said, “During my time at DuPont, when science linked CFC use and ozone depletion, we knew the world had to change the model. DuPont used this challenge to invent entire new businesses. The United States can do the same to meet our energy and climate challenges. But we must begin investing at a much larger scale now.”

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