

Researchers draft blueprint to boost energy innovation

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The U.S. government could save the economy hundreds of billions of dollars per year by 2050 by spending a few billion dollars more a year to spur innovations in energy technology, according to a new report by researchers at the Harvard Kennedy School.

Achieving major cuts in [carbon emissions](#) in the process will also require policies that put a substantial price on carbon or set [clean energy](#) standards, the researchers find.

The report is the result of a three-year project to develop a set of actionable recommendations to achieve "a revolution in [energy](#) technology innovation."

The project, part of the [Energy Technology](#) Innovation Policy (ETIP) research group in the Kennedy School's Belfer Center for Science and International Affairs, included the first survey ever conducted of the full spectrum of U.S. businesses involved in energy innovation, identifying the key drivers of private-sector investments in energy innovation.

The researchers also surveyed more than 100 experts working with an array of energy technologies to get their recommendations for energy R&D funding and their projections of cost and performance under different R&D scenarios. They then used the experts' input to conduct extensive economic modeling on the impact of federal R&D investments and other policies (such as a clean energy standard) on economic, environmental, and security goals.

The research team identified industries that would most benefit from increased innovation investment. The report recommends the largest percentage increases for research and development in four fields: energy storage, bio-energy, efficient buildings, and solar photovoltaics.

The report, titled "Transforming U.S. Energy Innovation," recommends doubling government funding for energy research, development and demonstration efforts to about \$10 billion per year. The modeling results suggest that spending above that level might deliver decreasing marginal returns.

The modeling done for the report projected that investing more money in energy innovation without also setting a substantial carbon price or stringent clean [energy standards](#) would not bring big reductions in greenhouse gas emissions -- largely because without such policies, companies would not have enough incentive to deploy new energy technologies in place of carbon-emitting fossil fuels.

The researchers also propose ways for the government to strengthen its energy innovation institutions, particularly the national laboratories, so that the United States can get the most bang for its buck in its investments in energy innovation. The report concludes that the national laboratories suffer from fast-shifting funding and lack incentives for entrepreneurship.

The researchers also find that the performance of public-private partnerships and international partnerships on energy innovation would benefit from gathering information about the performance of previous projects.

Provided by Harvard Kennedy School's Belfer Center for Science and International Affairs

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