Energy-Technology Innovation and the Genesis of the DOE-QTR

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US Department of Energy

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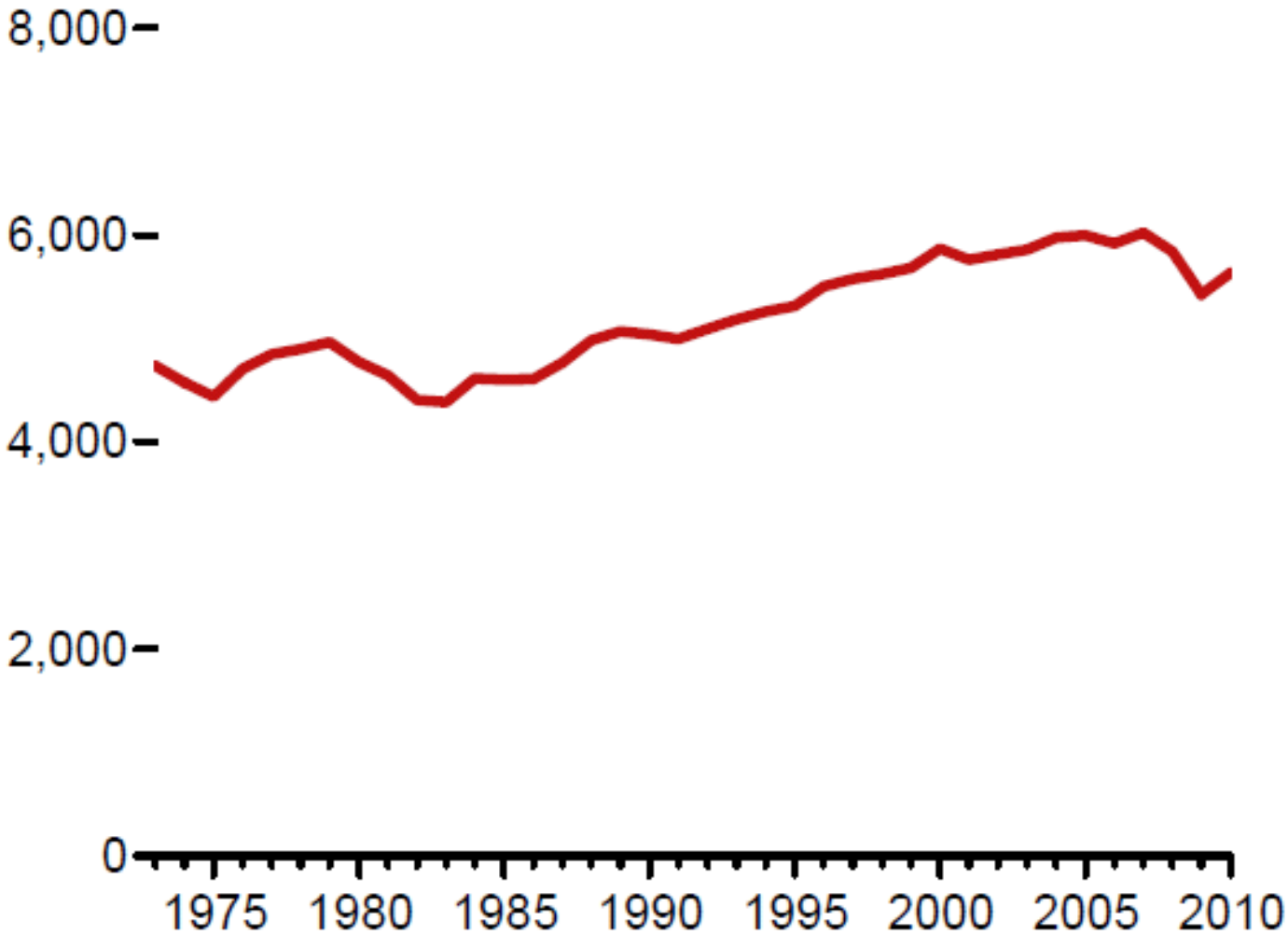
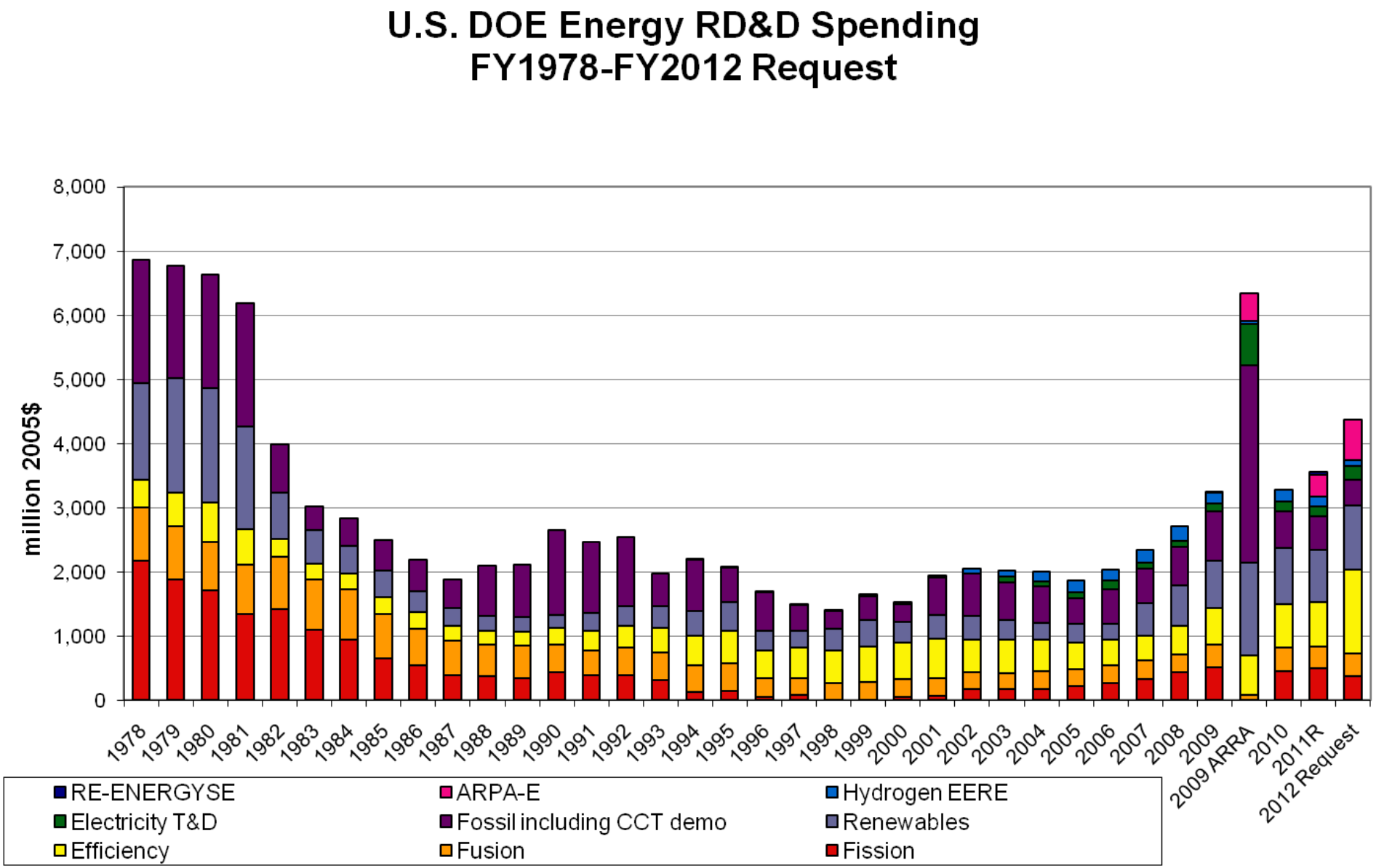
We're not innovating fast enough

US CO_2 emissions from energy supply, $MtCO_2$



Source: DOE/EIA Monthly Energy Review, June 2011

It's not hard to see why



Gallagher, K.S. and L.D. Anadon, "DOE Budget Authority for Energy Research, Development, and Demonstration Database,"

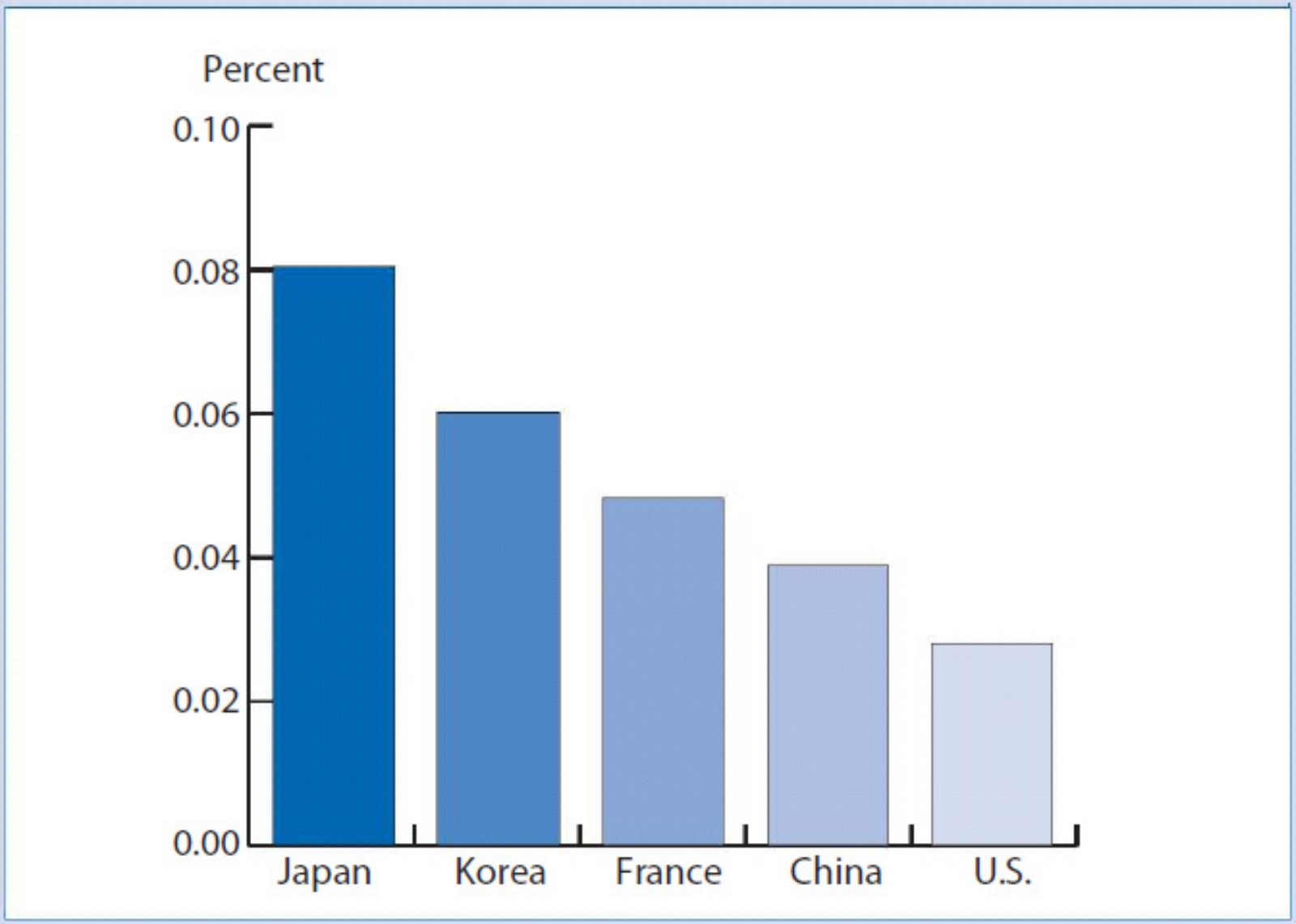
REPORT TO THE PRESIDENT ON ACCELERATING THE PACE OF CHANGE IN ENERGY TECHNOLOGIES THROUGH AN INTEGRATED FEDERAL ENERGY POLICY

Executive Office of the President

President's Council of Advisors
on Science and Technology

NOVEMBER 2010

FIGURE 3-1. PUBLIC ENERGY RD&D SPENDING AS A SHARE OF GDP, 2007



Source: American Energy Innovation Council (2010). *A Business Plan for America's Energy Future*. Washington, DC: American Energy Innovation Council. Accessible at http://www.americanenergyinnovation.org/full-report.

OVERVIEW OF PCAST RECOMMENDATIONS TO ACCELERATE THE PACE OF CHANGE IN ENERGY TECHNOLOGIES THROUGH AN INTEGRATED FEDERAL ENERGY POLICY

Recommendations to Administration and Department of Energy:

2-1 Establish a full interagency Quadrennial Energy Review (QER) led by the Executive Office of the President.

2-2 Develop and implement the DOE component of the full interagency Quadrennial Energy Review promptly.

Recommendations to Administration:

3-1 Increase annual energy RDD&D funding to about $16B.

3-2 Generate $10 of the $16 billion through new revenue streams.

3-3 Realign energy subsidies and incentives.

3-4 Enhance the Federal Government's ability to advance energy technology innovation through its purchasing power.

3-5 Reestablish the Committee on International Science, Engineering, and Technology within the National Science and Technology Council.

Recommendations to Department of Energy:

4-1 Direct $12 billion of the $16 billion to Research, Development, and Demonstration (RD&D) funding, with an emphasis on DOE competitive programs.

4-2 Exercise authorities to align internal processes and organization with energy objectives.

4-3 Establish a DOE training grant program.

4-4 Initiate a multidisciplinary social science research program.

RECOMMENDATION 2-1: The President should establish a Quadrennial Energy Review (QER) process that will provide a multiyear roadmap that:

- **lays out an integrated view of short-, intermediate-, and long-term objectives for Federal energy policy in the context of economic, environmental, and security priorities;**
- **outlines legislative proposals to Congress;**
- **puts forward anticipated Executive actions (programmatic, regulatory, fiscal, and so on) coordinated across multiple agencies;**
- **identifies resource requirements for the RD&D programs and for innovation incentive programs; and**
- **provides a strong analytical base.**

Multiple offices within the Executive Office of the President (including the Office of Energy and Climate Change Policy, the Office of Science and Technology Policy, the National Security Council, the Office of Management and Budget, the Council on Environmental Quality, the National Economic Council, the Domestic Policy Council, the Council of Economic Advisors, and others) will be engaged in this process, and the President should identify who will lead the QER.

An enterprise of this scale will need a large dedicated staff with considerable knowledge about the energy industry and energy technology and with substantial analytical capability. We recommend that the Secretary of Energy provide the QER Executive Secretariat in direct support of the EOP.

RECOMMENDATION 2-2: The Secretary of Energy should prepare and implement the DOE component of the full interagency DOE Quadrennial Energy Review on a shorter timescale than the full QER. This DOE-QER will guide DOE's role within the overall Federal effort in accelerating technological change in the energy sector.

In addition, PCAST encourages Congress to use the QER as a basis for a 4-year authorization as it does with the Department of Defense Quadrennial Defense Review. The appropriation process will continue to be annual, but a 4-year authorization provides the time needed for the actions recommended in the QER to be initiated and its outcomes to be assessed.

PCAST briefs the President on its energy report, 11-04-2010

EXECUTIVE OFFICE OF THE PRESIDENT OF THE UNITED STATES

OFFICE OF SCIENCE AND TECHNOLOGY POLICY