



Pacific Northwest Center for
Global Security

U.S. ENERGY SECURITY AND ENERGY DIPLOMACY

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- ▶ In this decade, U.S. merge foreign policy, security agenda with energy security.
- ▶ U.S. one of world's 2 major energy consumers focused on energy security as a key element of its economic health.
- ▶ Last several years created new pressures on U.S. and international community to make energy top priority
- ▶ “U.S. holds the view that energy security is not a zero-sum game. Indeed, no nation's energy security can be had at the expense of any other nations' — we're all in this together.” US Undersecretary for Economic Affairs Daniel Sullivan



ENERGY POLICY ACT OF 2005

- ▶ Sets forth an energy research and development program covering:
- ▶ (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology
- ▶ It also calls for an international cooperation program with the Western hemisphere



US NATIONAL ENERGY PROGRAM

GOAL 1 – ENERGY DIVERSITY

- ▶ Energy diversity is essential for U.S. energy security and economic prosperity.
- ▶ Increase U.S. energy options and reduce dependence on oil.
- ▶ U.S. energy security and economic well-being challenged when it is currently dependent upon other countries for 60% of its energy use.



STRATEGIES TO REACH DIVERSITY GOAL

- ▶ Reduce dependence on energy imports, particularly oil in transport sector.
- ▶ Collaborate globally with governments and scientists to expedite development and deployment of unconventional energy resources.
- ▶ Ensure adequate crude and regional home heating oil supplies during emergency shortages
- ▶ Ensure expanding supply of U.S. energy by promoting further exploitation of domestic resources.



US ENERGY DIVERSITY PROGRAMS

- ▶ Global Nuclear Energy Partnership (GNEP)
- ▶ \$375 million fund three, cutting-edge Bioenergy Research Centers
- ▶ Advanced Energy Alternatives –
 - Changing the way U.S. fuels vehicles.
 - Changing the way U.S. power homes and businesses.



GOAL 2 – ENVIRONMENTAL IMPACTS OF ENERGY

- ▶ Improve environmental quality by reducing greenhouse gas emissions and environmental impacts to land, water, and air from energy production and use.
- ▶ Reduce consumption of fossil fuels for electricity generation and transportation.
- ▶ Continue research for technology options that reduce the environmental footprint.



STRATEGIES TO REACH ENVIRONMENTAL GOAL

- ▶ Support new nuclear generation by 2015;
 - complete permanent repository at Yucca Mountain by 2017;
 - develop advanced reactor and fuel cycle technologies by 2025
- ▶ Advance clean coal technology through public-private partnerships.
- ▶ Support R&D to reduce costs of renewable energy technologies and accelerate use of carbon-free electricity sources.
- ▶ Develop technology to reduce vehicle emissions by improving efficiency, use of clean fuels, but maintain vehicle safety, performance, and cost characteristics.
- ▶ Work within USG, with private industry, and with other countries to accelerate adoption of technologies to reduce global emissions of greenhouse gases



U.S. CLEAN ENERGY PROGRAMS

- ▶ The Clean Energy Initiative to provide millions of people in developing world with affordable, reliable, clean, healthy, and efficient energy services.
- ▶ Global Nuclear Energy Partnership (GNEP) - international framework for sharing nuclear power with the developing world which is proliferation resistant.
- ▶ Advanced Technology Initiative – make clean energy technologies cost competitive with traditional sources and get them to market faster.
- ▶ Use complex climate modeling to better predict consequences of climate change.
- ▶ Solar America Initiative - \$60 million



GOAL 3 – ENERGY INFRASTRUCTURE

- ▶ Create more flexible, more reliable, and higher capacity U.S. energy infrastructure.
- ▶ Use 21st Century technology to improve:
 - aging energy infrastructure, including physical network of pipes for oil and natural gas, electricity transmission lines,
 - facilities that turn raw natural resources into useful energy products; and
 - rail networks, truck lines, and marine transportation.



STRATEGIES TO REACH INFRASTRUCTURE GOAL

- ▶ Develop advanced wires and coils to increase capacity, efficiency, and reliability of electricity system.
- ▶ Advance real-time visualization and control tools to improve reliability and efficiency of U.S. electricity delivery systems.
- ▶ Integrate advanced technologies to improve efficiency and reliability of constrained sections of electricity grid.
- ▶ Provide technical assistance to State and regional officials on policies and emergency response options.



ENERGY INFRASTRUCTURE PROJECTS

- ▶ \$51.8 million for 5 cost-shared projects to accelerate much-needed modernization of U.S. electricity grid.
 - Research to advance development and application of high-temperature superconductors to alleviate congestion on electricity grid.
- ▶ Establish Energy corridors on federal land



GOAL 4 - ENERGY PRODUCTIVITY

- ▶ Energy efficiency enables production of more energy services (e.g., lighting, heat, transport) from fixed amount of energy.
- ▶ Energy productivity enables creation of more economic value (GDP, worker productivity, air quality) from fixed amount of energy.
- ▶ Energy efficiency technologies exist that produce more lighting, heat or transport services, but with higher capital costs that often outweigh lower energy costs over the life of technology, thus, these technologies do not always increase energy productivity.
- ▶ Major objective of U.S. energy efficiency RD&D is to lower cost and promote deployment of energy efficient technologies in all sectors of economy (buildings, industrial, transportation), enabling these technologies to increase U.S. energy productivity.



STRATEGIES TO REACH PRODUCTIVITY GOAL

- ▶ Support enhancements to existing energy markets to stimulate private investment in efficient and economic end-use technologies.
- ▶ Develop integrated building technologies and formulate appliances standards to significantly increase the energy efficiency of residential and commercial buildings.
- ▶ Partner with energy-intensive industries to develop technologies to improve energy efficiency in industrial processes.
- ▶ Develop technologies for cars and trucks to be fuel efficient, while remaining cost and performance competitive.
- ▶ Promote increased energy efficiency and sustainable practices in USG facilities.



U.S. ENERGY PRODUCTIVITY PROGRAMS

- ▶ “20 in 10” plan to reduce projected gasoline consumption by 20% in 10 years
- ▶ Build America program with industry to produce homes by 2020 that produce as much energy as they consume - “Zero Energy Homes”.



U.S. ENERGY DIPLOMACY IN NE ASIA

- ▶ Promote global energy security,
- ▶ Encourage greater international cooperation in advancing clean energy technologies, and
- ▶ Find common ground on improving energy security through increasing the supply of diverse energy resources and employing more energy efficient measures
- ▶ Urge adherence to market principles.
- ▶ Promote use of strategic oil reserves



U.S. – NE ASIA ENERGY COOPERATION

- ▶ Asia-Pacific Partnership on Clean Development (APP) to develop and accelerate deployment of cleaner, more efficient energy technologies, reduce poverty and promote economic development.
- ▶ Asia-Pacific Energy Technology Co-operation Centre, financed and managed by South Korea, will aggregate information on energy efficiency and best practices and share them.
- ▶ 5 Party Energy Ministerial – China, India, Japan, South Korea, and U.S.



U.S.-NE ASIA ENERGY COOPERATION PROGRAMS

- ▶ International Partnership for the Hydrogen Economy,
- ▶ Carbon Sequestration Leadership Forum,
- ▶ Gen IV International Forum
- ▶ International Thermonuclear Experimental Reactor



SECRETARY BODMAN ON U.S.-CHINA ENERGY COOPERATION

- ▶ “The relationship between the U.S. and the People’s Republic of China is critical for both our countries. As two of the world’s largest economies and two of the largest energy consumers we face similar challenges because of the projected increase in global energy demand.”
- ▶ “It is my belief that we can and should find ways to confront these [energy] challenges together. The United States and the People’s Republic of China are not competing, one against the other, for increasingly scarce energy resources. The projected rise in global energy demand presents common problems for all nations. And these problems require global solutions.”



US-CHINA ENERGY PROGRAMS

- ▶ U.S.-China Energy Policy Dialogue established in May 2004
- ▶ U.S.-China Oil and Gas Industry Forum begun in 1998
- ▶ January 2004 Protocol to promote use of U.S. clean energy technologies to improve Beijing's environmental standards by 2008 Beijing Summer Olympic Games



U.S. VIEWS ON COOPERATION WITH RUSSIAN FEDERATION

- ▶ “...Different perspectives ...the U.S. is world’s largest net consumer of energy and Russia is world’s largest net producer. So, we won’t always agree.” Deputy Secretary Sell, US Department of Energy
- ▶ Want to encourage and expand Russia’s global energy leadership, because what Russia does matters. It matters to the world. It matters to the U.S. And it matters to global energy security.
- ▶ New development in oil and gas sector in Russia will require new technology, foreign capital, and experience and best practices of world’s leading energy companies.



U.S.-RUSSIA ENERGY COOPERATION PROGRAMS

- ▶ Group of Eight in Saint Petersburg, under Russian leadership, Plan of Action on Global Energy Security.
- ▶ Power plant efficiency and reliability enhancement agreement - study of Primorskaya power plant to identify cost-effective and timely technological and management improvements at power plant and coal mine.
- ▶ Bilateral energy dialogue on oil and gas, including establishing Russian oil and gas technology program, and development of LNG in Russia.
- ▶ Joint cooperation on nuclear energy linking Putin Initiative on multinational enrichment facility and GNEP



SIX PARTY TALKS

- ▶ In effort to secure expansion of clean, safe nuclear power throughout Asia, need to address issue of North Korea's nuclear program through the Six Party Talks.
- ▶ Working Groups address North Korea's nuclear, economic, and energy programs and humanitarian cooperation. Reciprocal steps, including energy assistance, as North Korea carries out commitments to disclose and disable nuclear programs.
- ▶ North Korea responsive to energy security