SUSTAINABLE ENERGY BLUEPRINT

A PLAUSIBLE STRATEGY FOR ACHIEVING A NO-NUCLEAR, LOW-CARBON, HIGHLY-EFFICIENT AND SUSTAINABLE ENERGY FUTURE

The following statement outlines an ambitious but doable strategy for dramatically reducing U.S. greenhouse gas emissions, phasing out nuclear power, and ending energy imports while simultaneously creating new domestic jobs and businesses, improving energy, homeland, and national security and the economy, and enhancing the environment and public health.

Objectives:

The three primary, longer-term objectives for the nation's energy policy should be:

1.) reduce greenhouse gas emissions to a level consistent with a world-wide goal of global climate stabilization (assumes curbing U.S. CO2 emissions by 60-80% from current levels by mid-century);

2.) eliminate U.S. energy imports (i.e., oil and natural gas - now 58% and 15% respectively), while reducing overall use of oil and natural gas;

3.) phase out the current generation of nuclear power while substantially curbing the production and consumption of fossil fuels, by increasing the use of energy efficiency and making a transition to sustainable, environmentally safer renewable energy sources.

Targets:

The following targets approximate what is technically and economically feasible given the necessary policy support and leadership as well as what would likely be necessary if the above-listed objectives are to be achieved.

By 2025

1.) reduce total energy consumption by at least one percent/year from 2005 levels, through efficiency improvements in housing, manufacturing, vehicles, airplanes, government facilities, and businesses, so that by 2025, U.S. energy use totals no more than about 80 quads.

2.) increase from 2005 levels, production of renewable energy from biofuels, biomass, geothermal, hydropower (and other water power sources), solar, and wind plus renewably-based hydrogen - in an environmentally responsible manner - by about 0.5 quads/year so that by 2025 renewables provide at least 17 quads.

3.) phase out the current generation of nuclear power plants by not relicensing currently existing reactors and not building new ones.

4.) reduce oil consumption by at least one percent/year below 2005 levels so that by 2025, U.S. oil imports are no more than one-third of total petroleum use.

5.) reduce natural gas consumption by one percent/year below 2005 levels so that by 2025, the U.S. will no longer be importing any natural gas.

6.) reduce coal consumption by at least one percent/year below 2005 levels

7.) reduce carbon dioxide and other GHG emissions by at least one percent/year so that by 2025 they are at least 20% below current levels.

By 2050

1.) continue to reduce total energy consumption by at least one percent/year below 2005 levels through efficiency improvements so that by 2050, total U.S. energy use is no more than 60 quads.

2.) continue to expand use of renewable energy sources by at least 0.5 quads per year from 2005 levels so that by 2050, renewables contribute at least 30 quads to the nation's energy supply.

3.) continue to reduce oil consumption by at least two percent/year below 2005 levels so that by 2050, oil imports will be eliminated and total oil use is no more than one-fifth of today's levels.

4.) continue to reduce coal consumption by at least one percent/year below 2005 levels and phase out all single-cycle pulverized coal power plants, so that by 2050, coal consumption is no more than one-third of today's levels.

5.) continue to reduce natural gas consumption by about one percent/year below 2005 levels so that by 2050, natural gas consumption is one-third below today's levels.

6.) continue to reduce carbon dioxide emissions so that by 2050, they are no more than one-third of current levels.

Tables:

The following tables provide estimate of what the nation's energy mix would be if the above-listed targets are realized.

2005 Energy Consumption (quadrillion BTUs)
Coal: 23.0

Oil (Domestic): 16.5
Oil (Imports): 23.0
Natural Gas (Domestic): 19.0
Natural Gas (Imports): 3.5
Nuclear: 8.0
Renewables: 7.0
100.0 – Total: 100.0
CO2 Emissions - 6,000 million metric tons

2025 Energy Consumption (quadrillion BTUs)
Coal: 18.0
Oil (Domestic): 15.5
Oil (Imports): 11.5
Natural Gas (Domestic): 18.0
Natural Gas (Imports): 0.0
Nuclear: 1.0
Renewables: 17.0
Total: 81.0
CO2 Emissions - <4,800 million metric tons

2050 Energy Consumption (quadrillion BTUs
Coal: 8.0
Oil (Domestic): 8.0
Oil (Imports): 0.0
Natural Gas (Domestic): 14.0
Natural Gas (Imports): 0.0
Nuclear: 0.0
Renewables: 30.0
Total: 60.0
CO2 Emissions - 2,000 million metric tons

Proposed Policy Initiatives:

The following policy initiatives are not exhaustive but are illustrative of the type necessary to realize the targets and objectives outlined above.

1.) By 2025, fuel economy standards for cars and trucks should be at least double what they are today, beginning with a 50% increase in fuel economy for new vehicles by the year 2015.

2.) By 2025, total annual person-miles traveled by automobile and truck should be back to levels no higher than today through expansion of mass transit, better land use planning, telecommuting, etc.

3.) By 2025, no less than 25 percent of the nation's liquid transportation fuels should be provided, or displaced, by renewable sources, including renewably-generated hydrogen.

4.) By 2025, no less than 25 percent of the nation's electricity should be mandated to be generated by renewable energy sources and increased by at least one percent/year thereafter.

5.) By 2025, state and/or federal standards should mandate that the energy efficiency of appliances, motors, and lighting should be improved by no less than 20 percent as measured on a total fuel cycle basis.

6.) By 2025, state and/or federal standards should mandate that 20 percent of all new buildings must be zero energy buildings (moving twoards a goal of all new buildings being zero energy by 2050), using a combination of efficient design and clean on-site energy production;

7.) By 2025, energy use in the electricity sector should be reduced by at least 10 percent through the use of clean distributed generation such as combined heat & power, district energy, fuel cells, and improved energy storage and transmission technologies.

8.) Energy efficiency resource standards for electric and gas utilities should be established with a target savings of at least one percent of annual sales each year, on an incremental basis, such that savings build on previous years' impacts.

9.) Expansion of renewable energy, energy efficiency and clean distributed generation technologies should be promoted through national interconnection standards i.e., (net metering and transmission access reforms), production and investment tax incentives, government procurement, updated resource assessment, and state and local planning programs.

10.) Annual federal funding for the research, development, and deployment of energy efficient and renewable energy technologies should be at least doubled over the next five years and expanded to no less than five times current levels by 2025.

11.) Funding to support sustainable energy budget outlays and tax incentives, as well as to alleviate low-income consumer impacts, should be drawn from a mix of gradually increased dedicated taxes on carbon-based fuels, energy imports, and fossil fuel leases on federal lands.

12.) Any new coal-based powerplants should be required to achieve energy efficiency and environmental performance equal to, or better than, the best-available Integrated Combined Cycle Coal Gasification technology, and must include full and permanent carbon capture and sequestration.

13.) Unless all of the following conditions are satisfied, licenses for existing nuclear power plants should not be renewed or extended and federal nuclear funds should be directed towards plant decommissioning and waste clean-up, storage & disposal:

a) greenhouse gas emissions from the nuclear fuel cycle are reduced by 60 percent;

b) designs are developed for passively-safe reactors that cannot melt down, explode, or release radioactivity, under any conditions, including direct hits from bombs, aircraft impacts, earthquakes, floods, or terrorist acts;

c) radiation exposure standards are established that ensure no radiation exposure hazards to workers or the public;

d) waste handling and disposal technologies are developed that preclude the need for long-distance waste transport or long-term storage;

e) fuel cycle and waste handling technologies are developed that preclude any risk of nuclear weapons proliferation or theft of potentially fissionable materials; and

f) private liability per nuclear power plant under the Price-Anderson Act is increased to no less than $50 billion.