EXPERTS: "CLEAN" ENERGY STANDARD SHOULD NOT INCLUDE NUCLEAR, COAL

So-Called "Clean Energy Standard" Highlighted in Obama State of the Union Speech, But Huge Health, Environmental Costs Associated With Nuclear, Coal.

WASHINGTON, D.C., January 26, 2011. If Congress and the White House intend to move forward with a "clean energy standard" (CES), it will be a huge contradiction to include nuclear reactors and coal-fired power plants, according to three experts.

In the wake of President Obama's State of the Union address embracing CES, the experts pointed to a long list of unresolved waste, water and proliferation risks associated with nuclear power, and unresolved problems with commercially untested "carbon capture & storage" (CCS) for coal-fired power production.

Dr. Alan Lockwood, professor of nuclear medicine and neurology, University of Buffalo, Buffalo, NY, and past president of Physicians for Social Responsibility, said: "**We must guarantee that policy decisions we make are based on the full range of health and environmental impacts of our decisions as we devote scarce private and public resources to meeting our needs for electric power. For example, coal proponents claim that new technologies can turn coal into a source of clean energy. Yet the technology they urge us to adopt is totally unproven at commercial scale and over a meaningful time frame. In any case, coal plants under consideration with carbon capture and storage would still rely on outdated, dirty energy technologies of the past. Making matters even worse, virtually none of the pending coal plant proposals in the U.S. include any plans to capture and store carbon dioxide emissions from day one of operation. If built, these old-style coal plants, with a lifespan in excess of 50 years, would gravely diminish the prospects of slowing global warming, while exacerbating air pollution-related disease and death."**

Dr. Arjun Makhijani, president, Institute for Energy and Environmental Research, said: **"The principle of clean energy sources should be that the main environmental burdens should be borne by the generation that uses the energy. Some of the largest environmental and health impacts of nuclear energy and coal will be borne by generations far into the future. These impacts cannot be internalized by spending more money, as they are inherent in the technology. In contrast, the modest impacts of renewable energy are borne by the generations that use the energy, so that future generations can replace the facilities with better techniques as they are developed."**

Scott Sklar, president, The Stella Group Ltd., adjunct professor at George Washington University, chairman of the steering committee, Sustainable Energy Coalition, and former executive director, Solar Energy and Biomass Industries Associations, said: **"Excuse me, but how is coal clean? Even if you could sequester carbon, it emits mercury, carcinogens, requires much water, emits other greenhouse gases, leaves us with coal ash waste piles, and drives the blowing-up of our mountain tops ruining waterways and farmland. Nuclear energy, with its multi-thousand year wastes, imported uranium, and susceptibility to terrorism. Do we believe that the technology terrorists employ is stagnant, even though experts in 2010 were able to cyber-penetrate a nuclear plant? Attempts to foster coal and nuclear into a CES is another ploy to**

re-label non-renewable technologies and ooze them into a 'clean' brand. This reminds me how the high fructose corn syrup industry has recently relabeled itself the 'corn sugar' industry."

NUCLEAR AND COAL: HOW UNCLEAN?

The experts cited the following concerns about relying on nuclear power:

- **Long-lived Radioactive Waste:** From mill tailing and mine wastes to spent fuel, there is no good solution to the very long-lived radioactive wastes that are created by the use of nuclear energy. Contrary to popular belief, the amounts are very large. In the United States alone, there are hundreds of millions of tons of long-lived mining and milling wastes, even though the United States now imports most of its uranium requirements. Nuclear energy mobilizes large amounts of radioactivity, including radium and thorium at mining and milling sites that will last for eons, creates huge amounts of very long-lived main-made radionuclides, like plutonium-239 and iodine-129. The half life of the iodine-129 is about 16 million years.

- **No Spent Fuel Solution:** The much cited number that France is recycling 90 or 95 percent of its spent fuel is incorrect. France uses no more than 6 percent of the weight of fresh fuel and less than 1 percent of the uranium that is mined. Moreover, reprocessing does not reduce the need for a geologic repository and the proposed French site in Bure faces opposition. French reprocessing operations discharge about 100 million liters of liquid radioactive waste into the English Channel every year which, together with British reprocessing discharges, have contaminated the ocean all the way to the Arctic.

- **Proliferation Risks:** The risk of nuclear proliferation is inherently associated with nuclear power techno logy. There is an enormous overlap between commercial nuclear power and nuclear bomb infrastructure (both technical and human). This has been recognized by the pioneers of the Manhattan Project, notably Robert Oppenheimer (1946), and by the former Director General of the IAEA, ElBaradei (2008), who stated that the rush to nuclear power infrastructure in some countries was a kind of "deterrence" policy. Nuclear proliferation can have the gravest health, environmental, and security consequences if it results in the use of nuclear weapons – perhaps a small probability, but one that cannot be ignored. This trend could become more dangerous if the push for small reactors that can be deployed in remote areas and in a much larger number of countries than the present large reactors becomes established as a reality. While US actions do not assure that others will follow, it is nearly certain that if the US defines nuclear as "clean" there will be no way to dissuade others from doing so. If nuclear energy becomes a principal part of the response to reducing CO2 emissions 2,000 to 3,000 reactors or more of 1,000 megawatts each would be needed by 2050. This means tens of thousands of nuclear bombs equivalent of plutonium would be created in these reactors each year. If reprocessing takes hold, the problem of fissile materials accounting and proliferation would become even less manageable than it is today.

- **Large Water Use:** Nuclear power is the largest water consumer among all energy technologies. Reactors in the United States and in Europe have had to shut down during heat

waves, when electricity demand is highest. In many places, this problem will be aggravated by melting glaciers, and extremes of weather that are estimated to be a part of climate disruption.

For more information on nuclear power, see http://www.ieer.org and http://www.NuclearBailout.org.

Noting that no large-scale commercial CCS operation yet exists, the experts highlighted the following problems with so-called "clean coal" solutions and ongoing reliance on old-fashioned coal-fired power plants:

- **Public Health Risks of CCS:** The most obvious threats to health posed by CCS above would occur in the event of the release of large amounts of CO2. Carbon dioxide is a colorless, odorless gas that is heavier than air. It may cause symptoms or death by displacing oxygen from inhaled air, leading to hypoxia and asphyxiation, or by causing symptomatic or fatal acidification of the blood and body fluids after inhalation. Potential accidental releases could occur at any of the stages: at the site of CO2 capture, during transport or transfer, or during or after sequestration. The sudden release of large amounts of CO2 has the potential to cause large-scale death, as occurred on August 21, 1986 at Lake Nyos, a lake in a volcanic crater in Cameroon. About 1,700 people died when 250,000 metric tons of CO2 gas was released from the lake.

- **Coal Mining Pollution:** Coal with CCS does not address the environmental and public health impacts of mining coal. Coal mining leads U.S. industries in fatal injuries and is associated with chronic health problems among miners, such as black lung disease, which causes permanent scarring of the lung tissues. In addition to the miners themselves, communities near coal mines may be adversely affected by mining operations due to the effects of blasting, the collapse of abandoned mines, and the dispersal of dust from coal trucks. Surface mining also destroys forests and groundcover, leading to flood-related injury and mortality, as well as soil erosion and the contamination of water supplies. Mountaintop removal mining involves blasting down to the level of the coal seam and depositing the resulting rubble in adjoining valleys, which damages freshwater aquatic ecosystems and the surrounding environment by burying streams and headwaters. Coal washing, which removes soil and rock impurities before coal is transported to power plants, uses polymer chemicals and large quantities of water and creates a liquid waste called slurry. Slurry ponds can leak or fail, leading to injury and death, and slurry injected underground into old mine shafts can release arsenic, barium, lead, and manganese into nearby wells, contaminating local water supplies.

- **Air Pollutants:** Coal plants are the single largest source of sulfur dioxide, mercury and air toxic emissions and the second largest source of nitrogen oxide pollution after automobiles. Mercury exposure is particularly threatening to fetal and child development. The health effects of NOx exposure range from eye, nose and throat irritation at low levels of exposure to serious damage to the tissues of the upper respiratory tract, fluid build-up in the lungs and death at high exposure levels. Moreover, once emitted, these pollutants combine to form "secondary pollutants," such as ozone and particulate matter that pose an equally significant threat to public health. Ozone pollution, also known as smog, is a powerful respiratory irritant that can cause coughing and chest pain, and at higher concentrations, can lead to more serious effects,

including lung tissue damage, asthma exacerbation, as well as increased risk of hospitalization for asthma, bronchitis and other chronic respiratory diseases.

- **Post-Combustion (Coal Ash) Pollution:** The storage of post-combustion wastes from coal plants also threatens human health. There are 584 coal ash dump sites in the U.S., and toxic residues have migrated into water supplies and threatened human health at dozens of these sites. In December 2008, an earthen wall holding back a huge coal ash disposal pond failed at the coal-fired power plant in Kingston, Tennessee. The 40-acre pond spilled more than 1 billion gallons of coal ash slurry into the adjacent river valley, covering some 300 acres with thick, toxic sludge, destroying three homes, damaging many others and contaminating the Emory and Clinch Rivers.

For more information on coal, see http://www.psr.org/assets/pdfs/psr-coal-fullreport.pdf

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