Karen Warren
David Hubert
POLS 1100-044
November 7, 2011

National Renewable Portfolio Standard

The United States consumes the most electricity in the world. In 2010, according to the CIA World Factbook, America consumed approximately 3,872 billion kWh. China is the only other country that comes close to that number. The fuel for America's electricity comes primarily from coal, natural gas and nuclear power and the environmental impact of these sources is detrimental. Global warming and acid rain are directly linked to the usage of these supplies. The mining and disposal of these fuels contaminate the soils and water systems and the power plants use an inordinate amount of fresh water to function. The United States urgently needs a complete and inclusive energy policy in order to protect the people, the environment all the while creating new jobs. America should enact an inclusive Renewable Portfolio Standard which would require electricity suppliers to obtain 20% of their power from renewable energy resources by 2018. The percentage would climb incrementally from 10% to 20% over the next six years to help the utility companies meet these standards.

Renewable energy has a substantially less impact on the environment. It consists of a number of sources including: wind power, solar power, biomass, hydro-electric power and geo-thermal power. Currently these sources are used for just over 2% of America's electricity consumed. If the United States switched to a mandatory 20% the impact on the environment would be immense. While there are still limitations to these sources the need for more research and technological advances surrounding them is essential.

Nearly 45% of America's electricity comes from coal, 24% from natural gas and 20% from nuclear power. According to the Union of Concerned Scientists, coal-fired power plants represent the United States' largest source of carbon dioxide. This is the main greenhouse gas and it is building up in our atmosphere and causing climate change. Fossil fuel plants are responsible for 67% of the sulfur dioxide and 23% of the nitrogen oxide and 40% of man-made carbon dioxide emissions. These emissions are not only primarily responsible for global warming but create smog that lead to respiratory disease and acid rain.

The mining, processing and transporting of coal and uranium also impact the environment. Strip mining to remove coal results in contamination of the soil with heavy metals. According to Nuclearfiles.org uranium mining is the most carbon dioxide intensive industrial operation. Additionally, the tailings from uranium emit radon-222 and must be carefully handled and properly disposed. The mining, processing, transporting, combustion and clean-up of nuclear wastes is expensive, dangerous to the environment and to those who handle it and live near it. Researchers at the Harvard School of Public Health estimate that the air pollution from fossil fuels kill between 50,000 and 70,000 Americans every year.

Another terrifying fact is that mercury is contaminating our water systems. The Natural Resources Defense Council reports that power plants emit around 50 tons of mercury pollution annually. The mercury then leaches into the ground and water where it is consumed by plankton which in turn is eaten by fish. The Environmental Protection Agency estimates that 3% of women of child-bearing years consume enough mercury through contaminated fish to be at risk from mercury exposure.

Offshore drilling for oil and natural gas can create environmental problems as well. When the oil is brought up from beneath the ocean floor chemicals and toxins are discharged back into the

ocean. This contamination can be environmentally and ecologically devastating. Clean-up can also drastically affects animals and plants negatively. The solution for these terrible, environmental impacts is to mandate the use of renewable energy.

According to the United States Department of Energy, natural gas, oil, coal and nuclear facilities consume 3.3 billion gallons of freshwater each day. Additionally, the water is pulled in to the power plant and then discharged heated back into the original water source. This can have a damaging effect on the aquatic organisms as well as the ecology. Coal and oil power plants create approximately 100 million tons of sludge annually. Often this is disposed of in unlined lagoons and waste facilities. The wastes are highly toxic and contain chemicals that are extremely damaging to the human nervous system. The Environmental Protection Agency is responsible for monitoring the disposal but amid proposed budget cuts and fewer resources there is risk. With the increased population and demand for water this valuable resource must be protected and conserved. Ed Brown, a director of Programs at the University of Northern Iowa determined that “billions of gallons of water can be saved every day” with the use of renewable energy.

Another important advantage of renewable resources is the cost savings. According to research conducted by Stanford civil and environmental engineering Professor Mark Z. Jacobson and University of California-Davis researcher Mark Delucchi the initial investment to create more wind turbines, solar, geothermal and hydroelectric power sources as well as transmission lines would be costly, but in the long run the savings would be dramatic. "If you make this transition to renewable…, then you eliminate the need for 13,000 new or existing coal plants," Jacobson said. "Just by changing our infrastructure we have less power demand." The Union of Concerned Scientists also recently determined that a 20% mandate in renewable sources would save the

consumer 1.5% on their energy bill each year, because generators fueled by wind and landfill gasses already produce electricity cheaper than new fossil fuel plants. This savings will only get better as technology and manufacturing improve and grow. Additionally, according to CNNMoney natural gas prices are anticipated to go up and they could double over the next several years. Natural gas is often the source for electricity during periods of peak demands and so the increase in the use of renewable sources would save a great deal of money.

Another important benefit of switching to renewable energy is the addition of more manufacturing and construction jobs as well as ongoing operation and maintenance jobs. In 2004, Professor Daniel Kammen and a team of researchers at the University of California at Berkeley reviewed thirteen reports and determined that investments in renewable energy would create 10 times as many jobs as investments in nuclear or fossil fuel. According to research by the American Solar Energy Society and Management Information Services Inc., if the United States would aggressively commit to the sustained development of renewable energy it could generate up to 40 million new jobs by the year 2030.

While not everyone loves the look of the wind turbines they actually use less land than the conventional systems. Worldwatch Institute recently determined that the difference is extensive. Solar energy requires even less land than wind as the solar panels can be placed right on top of rooftops leaving the developed area to appear unchanged.

Because of the cost benefits and environmental improvements of renewable energy, over 30 states have adopted their own Renewable Portfolio Standard. While this is a positive step it has created a multitude of different expectations and conflicting mandates from state to state. For example the states of Florida, North Dakota, South Dakota, Utah, and Virginia have voluntary Renewable Portfolio Standard goals while other states' goals vary from 10% to 40%. The need

for a National Renewable Portfolio Standard compared to individual state mandates is important for several reasons. American innovation has been an important part of the United States' history and renewable energy is very important right now. If the federal government would enact a policy which includes tax incentives and government investments America could be at the forefront of the technology. According to Bruce Bailey, CEO of the renewable energy consultancy firm AWS Truepower, "we still need a comprehensive federal policy to send the strongest possible signal that the United States is behind renewable energy and willing to push it." He points out that the countries that have invested in renewable energy have seen double digit growth in those areas.

The United States energy infrastructure was originally created by federal mandate and the oil companies receive generous government support in subsidies and tax credits. Without federal government support renewable energy will have a hard time competing with the conventional systems.

Another benefit to a federal policy is when all states participate, the costs for equipment and technology decrease. The costs will go down as manufacturing processes are simplified and the number of participants increase. Additionally, as more is learned about the technology the more streamlined the processes can become. For example, the California Energy Commission reports that in 1980 the cost of wind energy was 81 cents per kWh; currently it is near five cents per kWh and dropping steadily. Moreover buying in bulk saves a lot of money so conversely the more the United States' commits to the program the cheaper the equipment will be.

While many states do not want a federal mandate the source for renewable energy would still be their choice. In using the source that is abundant in their area the states, rather than using mined fossil fuels from another area, will save in the transportation and delivery costs.

A federal mandate is also necessary to keep the regulations on utilities uniform from state to state and it also will provide for a standardized pricing for renewable energy credits. This is important so that it levels the playing field between the states and gives a fair, regulated price to the consumer.

Investors will view a federal mandate more favorably compared to each state making their own standard because it ensures some stability. It would encourage people to create manufacturing plants and companies within the United States to provide equipment and supplies to the many utility companies that would be directed to use the 20% renewable energy. This would help the United States in this bad economic time. There would be a significant savings as well because products would be produced in America and there would not be a loss from the exchange rate. Global warming is not something that can be ignored. The average temperature of the earth is increasing and at a faster and faster rate. The Arctic ice is disappearing and glaciers and mountain snows are rapidly melting. Smog and toxin in our air and water is also an alarming problem. In addition to the desperate change needed for the environment, the boost in manufacturing and construction jobs would help America best this recession. The United States needs to drop its antiquated way of thinking and shift to renewable energy. It will save money, create jobs and most importantly save lives.

Works Cited

US Department of Energy. Energy Demands on Water Resources: Report to Congress on the Intedependency fo Energy and Water. 1 December 2006. 1 November 2011 <http://www.netl.doe.gov/technologies/coalpower/ewr/pubs/DOE%20energy-water%20Report%20to%20Congress%201206.pdf>.

Bergeron, Louis. Shifting to 100% Renewable Energy Would Save Money. 21 October 2009. 1 November 2011 <www.renewableenergyworld.com/rea/news/article/2009/10/shifting-the-world-to-100->.

Brown, Ed. Renewable Energy Brings Water to the World. 23 August 2005. 4 November 2011 <www.renewableenergyaccess.com/rea/news/story?id=35664>.

Brown, Lester R. Plan B Updates. 22 March 2006. 13 November 2011 <http://www.earth-policy.org/plan_b_updates/2006/update52>.

Central Intelligence Agency. The World Factbook. 1 January 2009. 10 November 2011 <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2042rank.html>.

Clean Energy States Alliance. 2011 National Summit on RPS. 27 October 2011. 1 November 2011 <http://www.cleanenergystates.org/events/2011-national-summit-on-rps/view/2011-10-26>.

Environmental Protection Agency. United States Environmental Protection Agency. 28 December 2007. 1 November 2011 <www.epa.gov/cleanenergy/energy-and-you/affect/air-emissions.html>.

Herman, Robin. Harvard School of Public Health. 4 May 2000. 1 November 2011 <www.hsph.harvard.edu/press/releases/press010320001.html>.

Jervis, Rick, William M. Welch and Richard Wolf. USA Today. 14 July 2008. 13 November 2011 <http://www.usatoday.com/money/industries/energy/2008-07-13-offshore-drilling_N.htm>.

National Geographic. Global Warming Fast Facts. 28 October 2010. 6 November 2011 <http://news.nationalgeographic.com/news/2004/12/1206_041206_global_warming.html>.

Natural Resources Defense Council. Mercury Contamination of Fish. 3 June 2010. 13 November 2011 <http://www.nrdc.org/health/effects/mercury/sources.asp>.

Nuclear Files Advisory Council. Project of the Nuclear Age Peace Foundation. 1 January 2011. 3 November 2011 <http://nuclearfiles.org/menu/key-issues/nuclear-energy/basics/introduction.htm>.

Pimentel, David. Renewable Energy: Economic and Environmental Issues. 8 September 1994. 1 November 2011 <http://dieoff.org/page84.html>.

Shere, Jeremy. Why the US Needs a Comprehensive Energy Policy. 9 February 2011. 1 November 2011 <http://featured.matternetwork.com/2011/22/why-us-needs-comprehensive-energy.cfm>.

SMOS Companies Inc. Energy Substitutes. 7 November 2011. 7 November 2011 <www.energysubstitutes.com/>.

The California Energy Commission. Overview of Wind Energy in California. 20 October 2011. 13 November 2011 <http://www.energy.ca.gov/wind/overview.html>.

The Pew Center on Global Climate Change. Climate Change 101. 1 January 2009. 3 November 2011 <www.pewclimate.org/dogUploads/Climate101-State-Jan09_1.pdf>.

The Union of Concerned Scientists. Global Warming. 1 February 2010. 3 November 2011 <http://www.ucsusa.org/global_warming/>.

Yousef, Hibah. Natural Gas Prices Heating Up. 14 June 2011. 3 November 2011 <http://money.cnn.com/2011/06/14/markets/natural_gas/index.htm>.