

Index

Index	1
1AC	2
1AC	3
1AC	4
1AC	5
1AC	6
1AC	7
1AC	8
1AC	9
1AC	10
1AC	11
1AC	12
1AC	13
Inherency: state level renewables.....	14
Inherency: Squo = Fossil Fuel dependence- need an RPS	15
Inherency: No Federal Support- Need national integration	16
Inherency/Harms: Squo has no federal coordination = train wreck	17
Global Warming Adv: Fossil Fuels = Global Warming.....	18
Global Warming Adv: Fossil Fuels = Global Warming.....	19
Global Warming Adv: Fossil Fuels = Global Warming.....	20
Global Warming Adv: Fossil Fuels = Global Warming.....	21
Global Warming Adv: Fossil Fuels = Global Warming.....	22
Global Warming Adv: Fossil Fuels = Species loss = Extinction	23
Energy Price Adv: Fossil Fuels = High Energy Prices	24
Energy Price Adv: Fossil Fuels = High Energy Prices	25
Energy Price Adv: Fossil Fuels = High Energy Prices- Peak Oil	26
Energy Price Adv: Fossil Fuels = Economic depression.....	27
Energy Price Adv: High Energy Prices = Economic Decline	28
Energy Price Adv: High Energy Prices = Economic Decline	29
Energy Price Adv: High Energy Prices = Economic Decline	30
Energy Price Adv: Economy Impacts	31
Energy Price Adv: Economy Impacts	32
Energy Price Adv: US key to world economy	33
RPS Solvency: National RPS key renewables	34
RPS Solvency: National RPS key renewables	35
RPS Solvency: National RPS key renewable- REC.....	36
RPS Solvency: Key solve states, increase renewable, solve global warming.....	37
RPS Solvency: Market will choose best tech.....	38
RPS Solvency: Spillover.....	39
RPS Solvency: Energy prices and economy	40
RPS Solvency: Economy	41
RPS Solvency: Price Shocks.....	42
RPS Solvency: Energy Prices and global warming.....	43
RPS Solvency: GHG.....	44
RPS Solvency: Global Warming- slow rate of warming.....	45
RPS Solvency: Global Warming.....	46
RPS Solvency: Global Warming.....	47
RPS solvency: Global Warming	48
RPS Solvency: CO2.....	49
RPS Solvency: FERC.....	50
RPS Solvency: FERC.....	51
RPS Solvency: Pollution and environment	52
A2: DA – N/U RPS coming now	53
A2: DA – N/U Regulation inevitable.....	54
T: RPS is an incentive.....	55

1AC**Observation One: Inherency**

Current energy policy locks in fossil fuel dependence to meet increasing energy needs. Only a federally mandated RPS can diversify the energy portfolio and increase renewable energy

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, and **Clemmer**, Research Director for UCS' Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

Under the business as usual scenario (AEO 2004), **the United States increases its dependence on coal and natural gas in order to meet a projected 30 percent increase in demand for electricity from 2005 to 2020** (Figure 2). Non-hydro renewable energy use nearly doubles between 2005 and 2020, mostly as a result of existing state RPS policies and the increasing ability of wind power to be cost competitive with conventional energy sources. **However, the total contribution from non-hydro renewable energy increases from 2.4 percent to just 3.5 percent during that same period.**

Renewable energy diversifies the energy portfolio by meeting a much larger portion of U.S. electricity demand under a 20 percent national RPS (UCS assumptions). By 2020, non-hydro renewable energy accounts for 15.5 percent of total electric power generation (Figure 3).²⁵ **In the earlier years of the forecast, the increased renewable energy generation displaces more natural gas. In the latter years, as coal generation begins to compete with more expensive natural gas, renewable energy generation displaces more coal.** However, new growth in both coal and natural gas are still needed under the RPS to meet the projected increase in energy demand by consumers. **By 2020, nearly two-thirds of the increase in coal generation projected under business as usual is displaced as a result of the new renewable energy generation.**

The impact on the U.S. electric power mix of a 20 percent by 2020 RPS using EIA's assumptions is generally consistent with these trends. Under a 10 percent RPS, renewable energy generation still increases significantly compared with business as usual—providing important resource diversity benefits—but at lower levels than the 20 percent RPS.

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Observation Two: Energy Prices

A.) Fossil Fuel based electricity will have high energy prices for years to come

INSIDE FERC 2K7

(“High Power Prices may become the norm for the electric industry, says EPSA report” Nov 5

Relatively high power prices are likely to become the new norm for the electric industry, according to a new Electric Power Supply Association report.

Global conditions, rising fuel costs, increasing demand, environmental concerns and the need for additional infrastructure and power will continue to put upward pressure on electricity prices, the report said. **“It is simply unrealistic to expect that electricity prices are going to drop any time soon.”** Electricity is not cheap to produce, transmit or deliver, said the report prepared by Susan Tierney of the Analysis Group.

It's too easy to assign the blame for high electricity rates on regulation or competition as prices have increased in every region, the report found. Data suggests that restructuring has "not had an easily discernable and consistent impact on prices across the various states." Retail prices in states with restructured markets increased only slightly more than rates in states that retained traditional regulation from 1995 through April 2007, the report found.

Variations in prices can be attributed to market structure, availability of diverse resources for generating power, fuel and construction material costs, the types of customers served, the size of utilities, economic growth rates and the need for new generation and transmission, it said. Other factors include environmental requirements and state regulations and taxes.

1AC**B.) The instability and finite amount of fossil fuels guarantees price instability- the longer we delay the higher the cost of the transition****American Chemical Society 2K8**

(“Statement on Energy Science and Technology”

http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_SUPERARTICLE&node_id=1890&use_sec=false&sec_url_var=region1 [accessed 06/20/2008])

Plentiful, accessible, inexpensive energy is the underpinning of modern society. It is the basis for meeting numerous national and global needs such as increased demands for electricity and transportation, affordable food and water, and adequate resources for manufacturing. **In the U.S., reliable, affordable energy is crucial to the economic well-being and security of our nation. The time has come for us to confront future energy options.** The ACS and AIChE believe a comprehensive national energy strategy must address S&T opportunities thoroughly to make the best near-term decisions and develop new options for a more sustainable future.

The most important reason to address this issue now is the growing, global dependence on oil and natural gas, which experts agree are available in limited and rapidly declining quantities. Demand for oil will continue to grow as countries raise standards of living—especially populous, developing nations like China and India. As we move beyond the world’s maximum oil production point and demands continue to rise, prices and instability will certainly increase. Estimates vary on total oil resources, **but it would be a mistake to assume that fossil fuel would remain at current prices, given the inherently unstable nature of commodity markets, geopolitics, and policy changes.** We believe a targeted allocation of funds and timely change in energy policy would postpone the inevitable date that oil production would begin to decline. Thus, **investment in increasing energy options is paramount.**

Market forces will play an important, but not sufficient, role in meeting future energy needs. **A sudden increase in energy prices or long periods of energy-price instability would result in energy shortfalls, which in turn would significantly impact global economic growth.** Sufficient investment in energy innovations to increase availability and allow profound infrastructure changes (e.g., converting gasoline vehicles to hydrogen or increasing the use of public transportation) would require an ongoing, commitment over several decades. **Given the investment of time and the technology needed, it is imperative to take immediate steps toward solving this problem.**

According to the Energy Information Agency, **U.S. domestic energy utilization in 2003 was roughly 85 percent fossil fuel, 8 percent nuclear power, and 6 percent renewable energy—including hydroelectricity.** Clearly, **America is overly dependent on fossil fuel, much of which comes from unstable regions of the world. Energy-use patterns—22 percent residential, 52 percent industrial, and 27 percent transportation—must also be considered in developing a comprehensive U.S. energy policy.** Energy efficiency and conservation must be encouraged across the board.

At present, the S&T required to move beyond fossil-energy dependence and provide safely produced, sustainable power to meet growing, global needs, is simply not available. The ACS and AIChE recommend developing a dual-track, comprehensive R&D strategy that would simultaneously implement a near-term advancement of energy technologies (including fossil, solar, wind, nuclear, and efficient utilization) and a comprehensive S&T policy for developing sustainable sources to replace dwindling fossil supplies in the long term.

Finding solutions to meet advancing world needs for sustainable energy is one of the biggest challenges mankind will ever face. Burning **fossil fuels places humanity at risk environmentally, and the potential consequences are dramatic.** We must call upon universities, the private sector, and national laboratories to provide the best minds and teams to develop creative solutions through energy R&D.

1AC**C.) High electricity prices will lead to a recession that goes global- only promotion of renewable energy can solve**

Parkinson, Financial news writer for the Globe and Mail (Canada), **2K1**

(David, "Electricity markets are changing radically" The Globe and Mail (Canada) February 17)

However, underneath these assurances lies the inescapable reality that energy markets, not just in Canada and the United States, but throughout the world, are undergoing **radical changes that are fundamentally altering the flows and economics of our energy supplies.**

Increasing reliance on natural gas to fuel electrical generation. The rapid expansion of **the technology-intensive New Economy, with its heavy demand for electrical power.** Robust economic growth in the developed and the developing world. Globalization, trade liberalization and the deregulation of energy markets to promote increased competition. **Untimely energy policies in North America and abroad that discouraged development of new energy sources. The convergence of these factors contributed to the current crunch, which caused California to be nearly crippled by high electricity prices and dangerously low supplies, consumers to be pummeled by skyrocketing home heating costs,** and angry motorists to protest prices.

High energy prices are jamming the brakes on the U.S. economy, threatening to trigger a recession that could spread globally. An economic slowdown should take the pressure off energy demand and ease prices over the next year. Nevertheless, **the mess in the energy markets should serve as a distant early-warning to policy makers that energy issues will demand a lot of attention in the first part of the new millennium.**

Experts **say the next decade will see a showdown between a continued surge in energy demand on the one hand, and financial constraints, infrastructure limitations, domestic politics and environmental pressures on the other.**

"The overall picture is that we expect global demand for energy to keep rising substantially," said Robert Priddle, executive director of the International Energy Agency (IEA), an arm of the Organization for Economic Co-operation and Development, in Paris. He said that barring "policy interventions," energy demand will climb roughly 60 per cent from current levels by 2020.

The bulk of that growth will come from developing countries, as they further industrialize and their consumers acquire more energy-intensive luxury goods. **The biggest growth area will be in electricity consumption.**

"That's going to take an enormous investment in infrastructure," Mr. Priddle said. He estimated it would cost "something like \$3-trillion" (U.S.) to meet electricity demand in the developing world by 2020. "It's beyond the capacity of government investment," he said. "But it's not beyond the capacity of private enterprise." This anticipated heavy growth in demand has led to a push in many countries to deregulate energy industries. The aim is to provide increased competition and a shift to market pricing, which should encourage private-sector infrastructure investment. But the debacle of deregulation in California's electricity industry has made many policy makers nervous about going ahead with their own changes. "I think people are quite alarmed," said Marjorie Griffin Cohen, a political science professor at Simon Fraser University in Burnaby, B.C. "They have seen deregulation cause problems. There are big risks involved." Canada will soon come under increased international pressure, especially from the United States, to accelerate the deregulation of its energy industries. New U.S. President George W. Bush recently met with Prime Minister Jean Chrétien, making it clear that a continent-wide energy policy is a priority in his new administration. The United States also issued a position paper in December to the World Trade Organization calling for increased competition and market access in the energy sector, as part of its proposals for the recently started negotiations on the General Agreement on Trade in Services (GATS).

"Basically, what they want is access to Canadian energy," Ms. Griffin Cohen said. André Plourde, energy economist and associate dean of business at the University of Alberta in Edmonton, said Canadian leaders will face resistance from the public to opening up electricity and natural gas utilities to foreign competition, and in fact are beginning to hear calls for reregulation.

There's going to be some pressure," he said. But Mr. Priddle of the IEA said reregulation and government-imposed price protection for consumers would do more harm than good. "There's a risk some people will take the lesson that competition doesn't work. That would be wrong," he said. "It's not in the consumer's best interest to keep prices down in the short term, at the expense of security of supply in the long term." Indeed, the high prices in recent months have kick-started a raft of projects to bring fresh energy supplies to market, particularly natural gas. "The structure of the gas market has been fundamentally changed by the switch to gas-fired electric power generation," said Tom Adams, director of Energy Probe, a Toronto-based energy watchdog. "This electricity-driven demand is not going away." However, the high cost of natural gas is prompting some electricity producers to look at other, less-clean fuels, such as coal, to power their generators and there is also increasing talk of a resurgence of nuclear power overseas. Gerry Scott, climate-change campaign director for the David Suzuki Foundation, a Vancouver-based environmental group, said governments are losing sight of key environmental goals in the race to secure new energy supplies. "Where is the Kyoto consciousness?" Mr. Scott said, referring to the Kyoto Protocol of 1997, which calls for a 6-per-cent global reduction in greenhouse gas emissions, from 1990 levels, by 2010. Mr. Plourde of the University of Alberta said the tug-of-war between affordable energy supplies and environmental concerns will be "the big issue" in the energy sector over the next several years.

"People are going to be talking about how much they're willing to pay to protect the environment."

Analysts said that **while high energy prices have sparked renewed interest in developing alternative and renewable energy sources, governments will have to become much more active in promoting these alternatives if they hope to make a dent in the energy market.** The IEA predicts renewables will make up just 3 per cent of the global energy supply by 2020, up from 2 per cent now.

1AC**D.) Global Economic Stagnation = global nuclear war**

Mead 92 *Walter Russell Mead, Senior Fellow for U.S. Foreign Policy at the Council on Foreign Relations, World Policy Institute, 1992*

Hundreds of millions – billions – of people have pinned their hopes on the international market economy. They and their leaders have embraced market principles – and drawn closer to the west – because they believe that our system can work for them. But what if it can't? What if the global economy stagnates – or even shrinks? In that case, we will face a new period of international conflict: South against North, rich against poor. Russia, China, India – these countries with their billions of people and their nuclear weapons will pose a much greater danger to world order than Germany and Japan did in the 30s.

1AC**Observation Three: Global Warming****A.) Fossil Fuel burning for electricity is the primary source of global warming causing CO2 emissions**

PowerScoreCard, a Pace University energy project power rating system project, **2K**

("Climate change" http://www.powerscorecard.org/issue_detail.cfm?issue_id=1 [accessed 06/20/2008])

The generation of electricity is the single largest source of CO2 emissions in the United States. The combustion of fossil fuels such as coal is the primary source of these air emissions. Coal supplies 57 percent of the total energy harnessed to generate electricity (and approximately 86 percent of all coal consumed in the United States is used for electricity generation). Burning coal produces far more CO2 than oil or natural gas. **Reducing reliance upon coal combustion has to be the cornerstone of any credible global climate change prevention plan.**

Some methods of electricity production produce no or few CO2 emissions - solar, wind, geothermal, hydropower, and nuclear systems particularly. Power plants fueled by wood, agricultural crop wastes, livestock wastes, and methane collected from municipal landfills release CO2 emissions but may contribute little to global climate change since they also can prevent even greater releases of both CO2 and methane.

B.) Fossil Fuel use will cause massive species loss culminating in extinction

McDaniel, Biology professor, **and Borton**, adjunct professor in mechanical, aeronautical and nuclear engineering dept at Rensselaer Polytechnic Institute, **2K4**

(Carl N and David N, "Increased Human Energy Causes Biological Diversity Loss and Undermines Prospects for Sustainability" bioscience Oct Vol 52 issue 10)

When we use fossil fuels as an energy source, a host of selection pressures are put in motion. **Mining, transport, and burning of fossil fuels, as well as the infrastructure associated with these activities, directly disturb ecosystems.** Although the disturbances from mines, oil fields, roads, trucks, ships, seaports, trains, and railroads are substantial, **it is the release of carbon dioxide (CO[2] that will most likely alter the biosphere profoundly, because it is a major greenhouse gas** and its concentration has increased more than 30 percent in the last century. **Increased CO[2] concentration alters many plant characteristics and has been implicated in future loss of biodiversity** (Phillips and Gentry 1994). The Intergovernmental Panel on Climate Change has calculated that, **unless CO[2] emissions are reduced** by 60 to 80 percent, **global temperature will increase** between 1 and 6 °C over the next century (Watson et al. 2001). **This increase will cause major climate change that will accelerate the rate of extinction** for several reasons. Climate change is associated with heat waves, spread of diseases, changes in the timing of the seasons, sea-level rise and coastal flooding, coral reef bleaching, Arctic and Antarctic warming, and extremes in precipitation and associated flooding, droughts, and fires (UCS 1999). Species may not be able to find habitat or to move fast enough to stay in their climate zone. Their movement may be blocked by human infrastructure--roads and cities, industrial activities, farms, and other impediments. Higher temperatures have already changed species composition in ecosystems (Alward et al 1999). **Over time, these changes, coupled with other human influences, will reduce biodiversity** (Wilson 2002).

With the accelerating loss of species, habitats, and ecosystems, it is unclear when, how, or how fast the materials and functions of biological diversity, the so-called life-support functions, will decline. These life-support functions include such things as atmospheric gas regulation, climate regulation, water purification and flow, ecosystem disturbance regulation, erosion control and sediment retention, soil formation, waste removal, pollination, biological control of populations, habitat creation and preservation, food, raw materials, genetic resources, and human recreation, as well as spiritual and other cultural amenities. **These materials and functions are essential for a civil human society and ultimately, for existence** (Wilson 1992, 2002).

The relationships among current human energy flow, bio-diversity, and ecosystem life-support functions are immensely complex. Yet **the end result of human energy flow is clear. It has impoverished biodiversity and, subsequently, life support so as to make ecosystems more fragile and therefore more easily perturbed by environmental events.** For example, deforestation and other alterations of the landscape, in addition to climate change-associated processes, have contributed substantially to an increase in "natural" disasters (Abramovitz 2001). Such catastrophes in the 1990s caused economic losses of over \$608 billion, which exceeds the total for the preceding 40 years.

1AC**C.) Warming will cause escalatory nuclear wars.**

Harris '04 [Paul, The Observer, Feb 22, <http://www.guardian.co.uk/environment/2004/feb/22/usnews.theobserver>]

Climate change over the next 20 years could result in a global catastrophe costing millions of lives in wars and natural disasters.. A secret report, suppressed by US defence chiefs and obtained by The Observer, warns that major European cities will be sunk beneath rising seas as Britain is plunged into a 'Siberian' climate by 2020. Nuclear conflict, mega-droughts, famine and widespread rioting will erupt across the world. The document predicts that abrupt climate change could bring the planet to the edge of anarchy as countries develop a nuclear threat to defend and secure dwindling food, water and energy supplies. The threat to global stability vastly eclipses that of terrorism, say the few experts privy to its contents. 'Disruption and conflict will be endemic features of life,' concludes the Pentagon analysis. 'Once again, warfare would define human life.'

D.) Warming will collapse the global economy.

Eilperin '06 [Juliet, Washington Post Staff Writer, Oct 31, "Warming Called Threat To Global Economy," <http://www.washingtonpost.com/wp-dyn/content/article/2006/10/30/AR2006103000269.html>]

Failing to curb the impact of climate change could damage the global economy on the scale of the Great Depression or the world wars by spawning environmental devastation that could cost 5 to 20 percent of the world's annual gross domestic product, according to a report issued yesterday by the British government. The report by Nicholas Stern, who heads Britain's Government Economic Service and formerly served as the World Bank's chief economist, calls for a new round of international collaboration to cut greenhouse gas emissions linked to global warming. "There's still time to avoid the worst impacts of climate change, if we act now and act internationally," Stern said in a statement. "But the task is urgent. Delaying action, even by a decade or two, will take us into dangerous territory. We must not let this window of opportunity close."

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Plan: The United States Federal Government should establish a market based national Renewable Portfolio Standard (RPS) which requires utilities to provide twenty percent of their electricity from renewable sources. The Federal Electricity Regulatory Commission (FERC) will oversee implementation of the RPS and a Renewable Exchange Credit (REC) for utilities to purchase renewable energy from outlying regions.

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Observation Four: Solvency

A.) Federal leadership in the establishment of an RPS- tethered renewable energy credits- is vital to the successful transition to alternative energy sources

Inside FERC march 31 2K8

The mishmash of renewable portfolio standards among states is clouding the primary intent behind such programs.

Commissioner Philip Moeller told a Washington audience Thursday.

States have a variety of definitions "of what's considered an acceptable renewable," Moeller told the EUCI renewable portfolio standard symposium. **And states are mixed on whether they allow renewable energy credits (RECs) for energy generated in outlying regions.**

Having an assortment of rules creates much confusion, Moeller held. **"Obviously, developers aren't thrilled with it. But it also misses a fundamental policy question as to what are we trying to get at. Are we trying to reduce our concentration of carbon emissions or are we trying to stimulate in-state economic development or are we trying to outdo our neighboring state in terms of a higher percentage [of renewables] in a shorter period of time?"**

The federal RPS concept has been under debate for the last 15 years or more, Moeller pointed out. But lately the idea has been gaining momentum. "If we want to go down that road, that's fine, but we're going to need to know what we're doing," he cautioned. And although FERC doesn't have jurisdiction over RPS standards, the commission is doing what it can to get renewables connected to the grid, encourage investment in new transmission infrastructure and, "in very limited cases," promote the development of renewable generation, he said.

The commissioner declined to say whether FERC should be given the lead in regulating a federal RPS and/or REC market. "I have plenty of work on my plate right now, so I'm not looking for more," he said in an interview following the panel discussion. "But if Congress deems that they want us to do it, I will happily be part of dealing with it."

Currently, 25 states and Washington, D.C., have RPS standards. Also, four states have non-binding renewable goals. Some states are in favor of a federal RPS, while others believe it would be a detriment, said Connecticut Department of Public Utility Control Commissioner Anne George. "States often feel that we do a better job of it than the federal government," she explained.

That said, she believes **a federal RPS would create a more consistent process.** Yet any federal RPS should not pre-empt or disrupt state standards, nor should it include a mandate to include costs of such a program in retail rates, George cautioned.

The Florida Public Service Commission strongly supports renewable energy but believes a federal RPS would limit choices and increase energy costs, said Bob Niekum, director of wholesale power for Progress Energy Florida. Viable renewable generation in Florida is limited to biomass, residential solar and industrial waste heat, he explained. And there are very little hydro and wind energy resources in the state. So under a federal RPS, Florida utilities would be forced to import renewables.

PJM Interconnection has made enough changes to its interconnection and planning process to "be flexible enough to reflect a federal RPS," said William Whitehead, executive director of state government policy for PJM. One challenge for utilities in PJM will be that a majority of wind resources are clustered in locations outside of the region, he said.

The key question is whether all the RPS credit systems could be linked to make the RECs work, said Carrie Plemons, PPM Energy director of renewable origination. She suggests that **any federal RPS should include a renewable energy credit for interstate and international renewable electricity imports.**

States are tweaking their RPS programs more and more now compared to previous years, said Kevin Porter, of Exeter Associates and part-author of a report on state RPS programs in 2007 that is expected to be published this week.

Porter highlighted portions of the draft report, which includes data from DOE's Lawrence Berkeley National Laboratory, during the EUCI symposium Wednesday. He said four states started RPS programs last year and 10 revised their existing requirements. States have increased the stringency of their RPS targets, expanded the list of eligible resources, extended RPS requirements to include public utilities and electric cooperatives or gave public utilities greater leniency in meeting targets. Also, some states decided to allow energy efficiency into RPS programs, he said.

RPS policies have been the major drivers for developing renewable energy, Porter added. In 2007, about 76% of renewable capacity additions were made in states with RPS programs. "If all goes well," said Porter, roughly 56,000 MW of new renewable energy capacity could be installed by 2020.

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B.) Creating a coherent national energy plan is the most pressing concern in American politics. The establishment of a national RPS is central to overcoming the inconsistencies of state level plans. Only a national RPS can allow market access for renewable which will help to stabilize the energy supply and curb global warming

Sovacool, PhD former Fellow at Oak Ridge national lab and professor at VaTech, **and Cooper**, executive director of Network for New Energy Choices (NNEC) a nonprofit focused on expanding energy choices, **2K7**

(Benjamin and Christopher, Big is Beautiful: The Case for Federal Leadership on National renewable Portfolio Standard *The Electricity Journal* vol 20, issue 4 May pg. 48-61)

Arguably, **we face no greater national priority than crafting a coherent national energy strategy. Americans face energy challenges over the next several decades – growing dependence on foreign sources of fuel, continued exposure to the threat of terrorist sabotage, increasing vulnerability to impending climate change, and environmental threats – that demand progressive federal leadership. Yet federal legislation to establish a national renewable portfolio standard (RPS) has failed** no less than 17 times in the past 10 years.

While supporting state-based RPS efforts, the Bush Administration has officially opposed a national RPS on the grounds that it would create “winners” and “losers” among regions of the country and increase electricity prices in places where renewable resources are less abundant or harder to cultivate.² In the meantime, 21 states (and the District of Columbia) have adopted their own RPS mandates, and eight others – Florida, Indiana, Louisiana, Nebraska, New Hampshire, Utah, Vermont, and Virginia – are considering some form of RPS.

With so much state-level action, one might be tempted to agree with the National Rural Electric Cooperative Association (NRECA) that “activities on a number of fronts supplant the need for a federal RPS.”³ But looks can be deceiving. **Because the accumulated demand for electricity is expected to accelerate over the next several decades, the penetration of renewable energy technologies in individual states, while noteworthy, is not likely to substantially alter the national fuel mix nor materially address the energy risks we all face.**

Framing the debate as a choice between a perfectly functioning, undistorted energy market and a clunky, artificial federal intervention, opponents of a national RPS tend to ignore the unique drawbacks associated with a complex web of state-based mandates.⁴ Indeed, **the most compelling argument for federal action is that a national RPS may help correct many of the market distortions brought about by a patchwork of inconsistent state actions. Not only does reliance on state-based action make for an uncertain regulatory environment for potential investors, it creates inherent inequities between ratepayers in some states that are paying for “free riders” in others. Ultimately, federal legislation can help create a more just, more diverse and more predictable national market for renewable resources without significantly increasing aggregate electricity prices. A national RPS may help correct many of the market distortions brought about by a patchwork of inconsistent state actions.**

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C.) A national RPS lowers energy prices and provides massive savings to every part of the economy, in every region of the country.

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, and **Clemmer**, Research Director for UCS' Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

Both the UCS and EIA analyses show that **a national RPS can save consumers money in several ways. First, by reducing the demand for fossil fuels, and creating new competitors for the dominant fuel sources, renewable energy helps reduce the price of fossil fuels and restrain the ability of fossil fuel prices to increase in the future.** Natural gas therefore costs less for electricity generation, as well as for other purposes, benefiting both electricity consumers and other natural gas consumers.

Second, some renewable resources, especially wind energy at good sites, **are now less expensive than building new natural gas- or coal-fired power plants** over the expected lifetimes of the plants, and reduce projected generation costs. **And third, a national RPS reduces the cost of renewable energy technologies, by creating competition** among renewable sources and projects to meet the requirements, **and by creating economies of scale in manufacturing, installation, operations, and maintenance.** Most importantly, **projected savings are robust enough to be found in all of the recent RPS scenarios**, at both the 10 percent and 20 percent levels, and despite large differences in projected renewable energy costs and performance in the EIA and UCS assumptions.

Using UCS assumptions for renewable energy technologies, average consumer natural gas prices would be lower than business as usual in nearly every year of the forecast under the 20 percent RPS, with an average annual reduction of 1.5 percent. In addition, average consumer electricity prices would be lower than business as usual in every year of the forecast, with an average annual reduction of 1.8 percent. **As a result, the 20 percent RPS would save consumers \$49.1 billion on their electricity and natural gas bills by 2020 (Figure 1).**¹⁹ **All sectors of the economy would benefit, with commercial, industrial, and residential customers'** total savings reaching \$19.1 billion, \$17.4 billion, and \$12.6 billion, respectively.

With UCS running NEMS using EIA's assumptions unmodified, the results showed that a 20 percent RPS would still reduce gas and electricity prices. Cumulative savings to electricity customers under a 20 percent RPS totaled \$15.4 billion by 2020, with cumulative savings to gas consumers of an additional \$11.6 billion, for a total savings of more than \$27 billion.

A 10 percent renewable standard would save less money than the 20 percent scenario. In the UCS scenario, consumers would save almost \$28.2 billion on their electricity and natural gas bills by 2020, with the savings continuing to grow to \$37.7 billion by 2025. EIA's own analysis found that the 10 percent RPS would save consumers \$22.6 billion by 2025.²⁰

National RPS scenarios using either UCS or EIA assumptions also show that **energy bills would be reduced in every region of the country, including the Southeast**, where some people have suggested there is limited low-cost renewable energy potential (Table 1). This is primarily due to the lower natural gas prices for electricity generation and other direct gas consumers that all regions would see. In addition, all regions do have some renewable energy resources, and would likely see an increase in using local resources for generation that would often displace the need for importing fossil fuel. **Furthermore, the national credit trading market created by a national RPS would allow utilities in all regions to purchase RECs for the same price, providing utilities with negotiating leverage over local renewable generators.**

The strong relationship between renewable energy generation, and natural gas demand and prices is further supported by a 2005 Lawrence Berkeley National Laboratory (LBL) study, which reviewed 13 analyses using different computer models and assumptions. The analyses all confirmed that **renewable energy (and energy efficiency) could reduce gas demand and put downward pressure on natural gas prices and bills by displacing gas-fired electricity generation.** The report also found that the higher the level of renewable energy penetration, the more gas is saved, and the more gas prices are reduced. Furthermore, LBL's study shows how these results are broadly consistent with economic theory, with results from other energy models, and with limited empirical evidence.²¹

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D.) A national RPS will establish uniform standards and signal a national commitment to renewable that will spillover into other policies

Sovacool, PhD former Fellow at Oak Ridge national lab and professor at VaTech, **and Cooper**, executive director of Network for New Energy Choices (NNEC) a nonprofit focused on expanding energy choices, **2K7**

(Benjamin and Christopher, Big is Beautiful: The Case for Federal Leadership on National renewable Portfolio Standard *The Electricity Journal* vol 20, issue 4 May pg. 48-61)

While the value of renewable portfolio standards may not be as uniformly recognized as daylight savings time, it should be. **There exists widespread consensus on the financial, environmental, and security benefits that stem from diversifying the nation's electricity fuels by investing in clean, renewable energy** - so much so that 21 states have already mandated that utilities use more of these fuels. The real debate is over how best to do it.

There is a time for tolerating the quirks and foibles of state experimentation and there is a time – as with the daylight savings time dispute – **for federal intervention. The tangle of inconsistent state RPS mandates is deterring significant investments in renewable energy generation and hampering the development of a coherent national renewable energy strategy. Ambiguous and conflicting standards** are wasting policymakers' time **and** stakeholders' money. **Uncertainties over the stability and longevity of state policies is delaying progress and inflating the cost of renewable energy projects.**

These arguments are not merely “academic,” nor are they voiced only by staunch renewable energy advocates. Even executives from Constellation Energy – a utility serving 1.2 million customers in Baltimore and more than 10,000 commercial and industrial customers in 34 states – told the State of New York Public Service Commission that many state RPS programs “unnecessarily burden interstate commerce, raise the cost of compliance, invite retaliatory discrimination, potentially violate the Commerce Clause, reduce the availability of imports, and are ‘impractical’ given the inability to track electrons.”⁶⁷

The real debate is whether a federal standard is more advantageous than a medley of competing state statutes. **Federal legislation establishing a clear and uniform national RPS would not only resolve many of the discrepancies that have arisen from the confusing disorder of state-based RPS policies, it would also signal a national commitment to renewable energy generation that is certain to help stimulate a more robust market for renewable energy technologies. By allowing renewable energy to compete directly with older technologies, a national RPS would decrease the cost of electricity and distribute the benefits of renewable generation more justly.** Rather than relying on a handful of states to shoulder the burdens of all, **a national RPS would expand competition in ways that benefit consumers in all states.** There are times when we are 50 small states and there are times when we are one big country. In this case, the answer is clear: big is truly beautiful.

Inherency: state level renewables

Current federal renewable strategy exclusively focuses on state based wind initiatives without federal coordination and no RPS

Inside Energy may 18th 2K8

The Bush administration set forth a roadmap last week for the US to generate 20% of its electricity from wind resources by 2030, just months after the administration vowed to veto an energy bill if it required states to generate 20% of their electricity from wind and other renewable sources.

In a report issued Monday, the Energy Department said US electricity demand is expected to grow 39% from 2005 to 2030, reaching 5.8 billion MWh by 2030. **It is possible to meet 20%** of that demand through wind resources, **the DOE report said, but only if the country can overcome several hurdles, not the least of which is building new transmission** to transport all this wind power to load centers. Much of the wind power today is found in the Midwest part of the country. Much of the electricity demand, however, is in urban areas, especially the eastern seaboard.

The report **said the country must build new transmission for more power in urban areas**, develop better regional planning, decrease wind capital costs, improve the turbine technology and deal with local siting and environmental issues.

The report estimates that total capital cost to meet the 20% wind scenario would be nearly \$197 billion. But electric utilities would save at least \$155 billion by not having to purchase as much coal and natural gas for conventional power plants, which would bring the net cost of the 20% wind-power scenario to about \$43 billion, the report said.

"The report indicates we can do this nationally for less than half a cent per kilowatt hour if we have the vision on how to expand and modernize our transmission resources," said Alexander Karsner, DOE's assistant secretary for energy efficiency and renewable energy.

Larry Bruneel, vice president of federal affairs for ITC Transmission, said transmission is the key making the roadmap feasible, and that the hurdle to achieving new transmission would require a massive policy change. He said **getting new transmission built is a "precursor" to achieving the administration's 20% goal**.

"The reasons that transmission is such a hurdle is because we still have this patchwork of incumbent utilities and state regulators who are still regulating and operating the transmission system like it is a state highway [system]", he said. **"What we need is a federally controlled interstate highway system."**

The study said US wind-turbine technology has steadily advanced to offer improved performance, noting that in 2006 alone, average turbine size increased by more than 11% over the 2005 level to an average size of 1.6 MW. In addition, the average capacity factors have improved 11% over the past two years, the study said.

While US manufacturers have expanded their capacity to produce and assemble the essential components, the report said "US components continue to represent a relatively small share of total turbine and tower materials and US manufacturers are struggling to keep pace with rising demand."

Reaching the 20% by 2030 goal would allow wind power to displace about 50% of the electric utility sector's natural gas consumption, and 18% of its coal consumption by 2030. While the increase in wind capacity could reduce the need for new coal and combined-cycle gas-fired plants, it would increase the need for additional combustion turbine gas-fired capacity to maintain system reliability when wind is unavailable, the study said. Those plants, however, would run only on an as-needed basis, the report said.

In addition, the report said reaching the goal **could reduce electric sector carbon dioxide emissions by 825 million metric tons in 2030. The goal also would permit the sector to reduce cumulative emissions through 2030 by more than 7,600 million metric tons of CO2.**

The report comes just months after the White House threatened to veto the entire Energy Independence and Security Act of 2007, which was passed in December, if it contained a mandate for the country to generate 20% of US electricity from renewable resources.

Karsner, in an interview, said **the administration does not support a national renewable portfolio standard that would force every state to generate 20% of its power from renewable sources of energy. Instead, the administration supports individual states' efforts which would help lead the upward trajectory to meeting the 20% wind goal**, Karsner said.

"I'm not taking a position here and now with respect to the national RPS," he said. "The administration has been clear on it. But what I want to make clear is the viability of the technology with the timeframe in front of us does not necessarily need those specific policy spikes."

Inherency: Squo = Fossil Fuel dependence- need an RPS

Current energy policy locks in fossil fuel dependence to meet increasing energy needs. Only a federally mandated RPS can diversify the energy portfolio and increase renewable energy

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, and **Clemmer**, Research Director for UCS' Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

Under the business as usual scenario (AEO 2004), **the United States increases its dependence on coal and natural gas in order to meet a projected 30 percent increase in demand for electricity from 2005 to 2020** ([Figure 2](#)). Non-hydro renewable energy use nearly doubles between 2005 and 2020, mostly as a result of existing state RPS policies and the increasing ability of wind power to be cost competitive with conventional energy sources. **However, the total contribution from non-hydro renewable energy increases from 2.4 percent to just 3.5 percent during that same period.**

Renewable energy diversifies the energy portfolio by meeting a much larger portion of U.S. electricity demand under a 20 percent national RPS (UCS assumptions). By 2020, non-hydro renewable energy accounts for 15.5 percent of total electric power generation ([Figure 3](#)).²⁵ **In the earlier years of the forecast, the increased renewable energy generation displaces more natural gas. In the latter years, as coal generation begins to compete with more expensive natural gas, renewable energy generation displaces more coal.** However, new growth in both coal and natural gas are still needed under the RPS to meet the projected increase in energy demand by consumers. **By 2020, nearly two-thirds of the increase in coal generation projected under business as usual is displaced as a result of the new renewable energy generation.**

The impact on the U.S. electric power mix of a 20 percent by 2020 RPS using EIA's assumptions is generally consistent with these trends. Under a 10 percent RPS, renewable energy generation still increases significantly compared with business as usual—providing important resource diversity benefits—but at lower levels than the 20 percent RPS.

Inherency: No Federal Support- Need national integration

Despite industry support Congress refuses to provide support for renewable energy- federal leadership in this area is crucial to making renewable economically feasible and overseeing national integration of a renewable energy plan

Electric Utility Week may 12th 2K8

Cooperative **utilities are trying to give Congress a sense of urgency about the need for legislation to bring more renewable energy into the supply mix for electricity.**

About 3,000 representatives of co-ops were in Washington last week to talk to members of Congress about various concerns as part of the annual legislative conference and lobbying effort of the National Rural Electric Cooperative Association. Renewables were high on the agenda.

A very big concern is that Congress is looking too far down the road in considering legislation on climate change, said Glenn English, CEO of NRECA, at a news conference. **Co-ops are worried about what they need to build over the next 10 years, and Congress needs to take account of that narrow window as it considers legislation for renewables and greenhouse gas controls,** English argued. Otherwise, in his view, utilities will fall back on building too many natural gas-fired power plants, and that will drive up gas costs and then electricity costs.

"It could get real ugly out there over the next 10 years," he said.

Some members of NRECA has their own approach ? the National Renewables Cooperative Organization ? which has been created to help co-ops deal with developers of renewable energy projects (EUW, 14 April, 1). Ronald Harper, CEO of Basin Electric Power Cooperative, has been elected chairman of the new organization.

NRCO will screen developers' proposals for the best economics and help member utilities arrange to buy a piece of the power output of a project, Harper said. He did not rule out asset purchases, but he indicated he expected initial efforts to take the form of power purchase agreements. NRCO operates separately from NRECA, although NRCO members must be members of NRECA.

NRCO's transitional board will meet May 22 in Indianapolis at a meeting hosted by Wabash Valley Power Association. The board will approve bylaws and elect officers, said James Compton, general manager and CEO of South Mississippi Electric Power Association. Compton has been serving as treasurer of NRCO during its start-up.

Compton said he understood a number of developers already had shown interest in working with NRCO.

NRCO so far has 20 generation and transmission and four distribution cooperative members, and membership continues to grow, said NRECA spokesperson Patrick Lavigne. The G&Ts are: Arkansas Electric Cooperative Corporation; Associated Electric Cooperative, Missouri; Basin Electric Power Cooperative, North Dakota; Big Rivers Electric Corporation, Kentucky; Brazos Electric Power Cooperative, Texas; Buckeye Power, Ohio; Dairyland Power Cooperative, Wisconsin; East Kentucky Power Cooperative; Hoosier Energy Rural Electric Cooperative, Indiana; North Carolina Electric Membership Corporation; Oglethorpe Power Corporation, Georgia; Old Dominion Electric Cooperative, Virginia; PowerSouth Energy Cooperative, Alabama; Rayburn Country Electric Cooperative, Texas; Seminole Electric Cooperative, Florida; South Mississippi Electric Power Association; Southern Illinois Power Cooperative; Sunflower Electric Power Corporation, Kansas; Tri-State G&T, Colorado; and Wabash Valley Power Association, Indiana.

The distribution co-ops are: Adams Columbia Electric Cooperative, Wisconsin; Jo-Carroll Energy, Illinois; New Hampshire Electric Cooperative; and Southern Maryland Electric Cooperative.

NRECA concerned Congress will be shortsighted

Congress will have a central role in pushing utilities toward renewable energy and in making it affordable, English suggested. For NRECA members, **the concern is that Congress will only take partial steps, especially long-term steps that fail to address near-future needs.**

"I think we've got some folks [in Congress] who think they can vote for a climate bill, declare victory and go home," said English, himself a former member of Congress.

Along with the usual concerns about tax incentives and accelerated depreciation of assets for renewables, the **co-ops are looking for better federal legislation on transmission** siting. **Federal "backstop authority"** on siting, **written into law** through the Energy Policy Act of 2005, **is not working**, English said.

That act gave the secretary of Energy authority to designate transmission corridors to deal with congestion and gave the Federal Energy Regulatory Commission authority to site lines within the corridors if states fail to act.

"We're going to need transmission corridors if this thing is going to fully develop," said English, but he called the current law insufficient. "The political pressures that have come to bear on the secretary's office have rendered this entire plan ineffective. We haven't seen any action."

While acknowledging that the backstop authority was designed to respect states' rights, English said the process needs to be revised to work at a faster pace. **"We've got to find some way in which FERC is able to act in a timely manner without the sensitivities of state politics entering quite so heavily into it as it is today,"** he said.

English avoided endorsing any specific bills, and he did not want to take a stand on whether Congress should create a national renewable portfolio standard.

Many states have been trying to foster renewable energy within their own borders, but that approach will not achieve the best economics, English argued. As he and Harper described it, the best projects will be in various locations that may be far from cities, and both **better transmission and better federal legislation will be needed to assure that the output of those projects provides the most economical benefits to co-op utilities** around the country, **regardless of what state lines are crossed.**

Inherency/Harms: Squo has no federal coordination = train wreck

Lack of federal coordination has produced state based RPS which is unachievable and lacks the transmission coordination for successful delivery of renewable energy- the result is an energy industry train wreck

Electric Utility Weekly may 5th 2K8

If all mandatory state renewable portfolio standards are met in the US and some 60 GW of renewable resources are added to the power grid **by 2025, some hard questions about transmission siting and who will pay for transmission additions need to be answered by the industry and policymakers**, an official with the Edison Electric Institute suggested last week.

The 60-GW figure comes from a study by the Department of Energy's Lawrence Berkeley National Laboratory, but David Owens, executive vice president at EEI, said **state RPS rules, combined with interconnection queue issues at independent system operators and the hurdles surrounding transmission investment are some of the most daunting challenges facing the industry**.

In New England and the Northeast, where building energy facilities faces even stiffer resistance than in other parts of the country, there are no easy answers, Owens and others said at Platts' Northeast Power Markets Forum in Washington.

Compliance with existing RPS laws in about 25 states has been good in meeting early targets, though there have been penalties paid in a few states, the Lawrence Berkeley report said. Alternative compliance payments, which usually allow power suppliers to pay into a state fund as an alternative means of meeting RPS targets, of more than \$18 million were paid in 2006, and financial penalties of more than \$5 million have been assessed in Texas and Connecticut.

The Texas penalties were less than \$50,000 while Connecticut's totaled \$5.6 million in 2006, and while state officials call them alternative compliance payments, the national lab's report called them penalties because they are not automatically recoverable in rates.

Renewable portfolio standards in some states are "unachievable" and are among the challenges the power industry faces in trying to add some \$1 trillion in facilities over the next 30 years, Owens said.

State legislators have set renewable and energy efficiency targets too high in some cases, with regulators and utilities negotiating penalty payments or other ways to address such lofty goals, added Donald Downes, chairman of the Connecticut Department of Public Utility Control.

Downes said **state legislators crafting RPS rules seem to hold the view that if some renewable power is good, more is better, regardless of whether the projects or resources are available in a region**. Without identifying specific states, Downes said some state lawmakers "haven't been very realistic" in crafting RPS laws and demand-side management targets.

Several state RPS goals have penalty provisions or payments from power suppliers to support renewable project development if the targets are not met. Maine, for instance, passed a law in 2007 authorizing the Public Utilities Commission to set an alternative compliance payment that utilities can pay; the figure was set at \$57.12/MWh in 2007. The payment rate will be adjusted annually for inflation starting in 2008, with revenues going to the state's renewable resource fund.

Companies that fail to comply with the Maine RPS are subject to certain penalties, including license revocation, an optional payment to the renewable resource fund or other financial penalties determined by the PUC. The commission may waive penalties, however, if it determines that a utility made a good faith effort but could not reasonably satisfy the portfolio requirement because of market conditions.

Maine's RPS was set at 30% under the state's 1997 restructuring law, but it was amended in 2007 to call for new renewable projects to account for 10% of capacity additions by 2017. The standard is set at 1% for new capacity in 2008 and increases by 1% each year to 2017.

In Connecticut, the standard calls for 23% of power to come from renewable resources by 2020, and 4% to be from combined heat and power systems, conservation and load management programs or energy efficiency by 2010. Twenty percent of the renewable power must come from "class one" resources, which include solar, wind, new biomass, landfill gas, fuel cells, ocean thermal power, wave or tidal power and new run-of-the-river hydropower facilities with a maximum capacity of 5 MW. Three percent of the renewable resources could come from "class two" facilities, which include trash-to-energy projects, biomass facilities not included in class one and certain hydropower projects, according to the Database of State Incentives for Renewables & Efficiency, a project of the North Carolina and the Interstate Renewable Energy Council funded by DOE.

Power suppliers that fail to comply with the RPS during an annual period must pay 5.5 cents/kWh to the DPUC, with the payments allocated to the Connecticut Clean Energy Fund for the development of class one renewable projects.

Much like other states in New England, suppliers in Connecticut can meet the RPS target by purchasing renewable energy credits from projects in other states tracked through the NEPOOL generation information system, provided that the DPUC approves such purchases.

EEI's **Owens stressed that with the transmission grid strained ? as evidenced by increasing levels of transmission loading relief requests, and generation interconnection queues bulging at several ISOs ? the power industry is facing "tremendous tasks" to meet increased power demand.**

The debate about who should pay for transmission additions is continuing, with no simple solution in sight, Owens added.

State regulators and regional authorities are driving integrated resource planning at the utility level, while the Federal Energy Regulatory Commission plays a large role in recovery of transmission investments, with the industry caught in between, trying to avoid a "FERC-state train wreck," Owens said.

Global Warming Adv: Fossil Fuels = Global Warming

Fossil Fuel burning is the primary source of global warming causing CO2 emissions

PowerScoreCard, a Pace University energy project power rating system project, **2K**

("Climate change" http://www.powerscorecard.org/issue_detail.cfm?issue_id=1 [accessed 06/20/2008])

The generation of electricity is the single largest source of CO2 emissions in the United States. The combustion of fossil fuels such as coal is the primary source of these air emissions. Coal supplies 57 percent of the total energy harnessed to generate electricity (and approximately 86 percent of all coal consumed in the United States is used for electricity generation). Burning coal produces far more CO2 than oil or natural gas. Reducing reliance upon coal combustion has to be the cornerstone of any credible global climate change prevention plan.

Some methods of electricity production produce no or few CO2 emissions - solar, wind, geothermal, hydropower, and nuclear systems particularly. Power plants fueled by wood, agricultural crop wastes, livestock wastes, and methane collected from municipal landfills release CO2 emissions but may contribute little to global climate change since they also can prevent even greater releases of both CO2 and methane.

Global Warming Adv: Fossil Fuels = Global Warming

The burning of fossil fuels for electricity is leading to global climate change- the US is the main contributor

Robertson, is a member of the Green Party of St. Louis/Gateway Green Alliance, **2K7**

(Henry, "Global warming: too much energy" Synthesis/Regeneration 44 Fall)

Human activity is increasing the amount of C[O.sub.2], methane and other trace **GHGs**. Scientists have reconstructed the history of C[O.sub.2] in the atmosphere from air bubbles trapped in ice cores drilled deep into the Antarctic ice cap. For 650,000 years the concentration of C[O.sub.2] in the air stayed in a band of 180-290 parts per million (ppm) by volume. [5]

Then, 200 years ago, **the Industrial Revolution began, achieving unprecedented levels of production by burning fossil fuels, first coal, then oil, then natural gas.** Industrialized economies are free from the constraints of direct solar radiation. They mine the solar energy of the past in the form of buried organic matter subjected to heat and pressure over a period of 300 million years. Burning combines the fossil carbon with oxygen to make C[O.sub.2]. Economic growth accelerated this mining; half of all fossil fuel consumed since the Industrial Revolution was burned in the last 20 years. [6]

In 1958, when measurements began on Mauna Loa, Hawai'i, specifically to track global warming, the C[O.sub.2] concentration was 315 ppm. Now it's 382 ppm and rising by 2 ppm per year. [7]

Many doubt that human actions could affect the vast sky, but the atmosphere is more fragile than it appears. Compared to the Earth, it's like the skin of an onion. Half of all its gases reside in the lowest third of the bottom layer of the atmosphere, the troposphere, a level that tops out well below the peak of Mt. Everest. [8] Then **consider the rate at which we are burning fossil fuels.**

The US accounts for 25% of the world's human C[O.sub.2] emissions. Every year American motorists burn 150 billion gallons of gasoline. **Every year our power plants burn over a billion tons of coal,** and this is one area where the US does not lead the world in pollution--China burns more coal. **Each year the US burns over 20 trillion cubic feet of natural gas for industrial processes, heating, electricity generation,** etc. [9] **Burning natural gas (methane) as fuel creates C[O.sub.2];** methane is also added directly to the atmosphere by rice paddies and livestock raising, among other things. **Is it really hard to believe that we can alter the composition of the atmosphere and change the climate?**

Global Warming Adv: Fossil Fuels = Global Warming

Burning of fossil fuels for electricity is the largest contributor to CO2 emissions

Rao and Riahi, International Institute for Applied Systems Analysis Austria, 2K6

(Shilpa and Keywan, "The role of non-CO2 greenhouse gases in climate change mitigation" *The Energy Journal* Nov. 22)

C[O.sub.2] is the largest contributor to anthropogenic changes in global warming with a share of 60 percent. Current emissions are about 7 GTC, of which 6 GTC comes from fossil fuel combustion, while the remaining is due to land use changes (mainly deforestation).

The electricity sector is responsible for more than 35 percent of total energy-related C[O.sub.2] emissions worldwide. Other contributing sectors include transportation (25 percent) and direct use of fossil fuel in industry, residential and commercial sectors.

There are a number of options for reducing energy-related C[O.sub.2] emissions in the long term. These include switching from fossil fuels to renewable or nuclear power; efficiency improvements; fuel shifting (from coal to gas); and carbon capture.

The entire portfolio of C[O.sub.2]-reduction options-advanced nuclear, **wind, biomass, solar, and hydrogen-based fuel cells is available** to the model. Technological change in the form of cost declines and efficiency improvements are an important part of the assumptions, **thus leading to a significantly high penetration of renewable technologies** in the baseline scenario itself. In addition, we include various pre-combustion and post-combustion capture technologies for fossil fuel plants (see Riahi et al. 2004). We recognize that issues of storage potentials and leakage rates (see e.g. Parson and Keith, 1998) may limit the long-term adoption of such technologies. However, given the huge uncertainties that exist in the reported estimates, we have not imposed an upper bound for storage capacity in the model (6) and also do not consider leakage rates (7). We also include in this analysis, biomass energy with carbon sequestration (BECS)--a combination of biomass gasification technology for power/hydrogen generation with carbon capture and storage permitting the production of energy with negative emissions. (see Obersteiner et al. 2002, Makihira et al. 2003).

Global Warming Adv: Fossil Fuels = Global Warming

Fossil Fuels in electricity are a leading cause of global warming

OECD Surveys-United States 91

("OECD Economic Survey- United States" Nov.)

Energy policy affects air quality directly, because the use of fossil fuels is the most important single source of air pollutants and also the most important man-made contributor to the gasses implicated in global warming(71). Because of its dispersed population, abundant endowments of various fuels, mix of industries and relatively low energy prices, the US economy has remained one of the most energy-intensive in the OECD (Diagrams 17 and 19). Although fuel use and pollution do not move in lockstep, a **reduction in fossil-fuel use would help to reduce**

emissions of several air pollutants. As was discussed above, current policy has succeeded in significantly reducing many air pollutants, largely by the use of control technologies. On the other hand, some programmes intended to reduce fuel use may have actually increased emissions.(72). Energy supply The Administration projects overall energy demand to rise significantly in coming years, despite the measures suggested in the National Energy Strategy (NES) to enhance energy efficiency. At the same time, increased fossil fuel use may raise pollution, depending on control technologies adopted. The NES therefore recommends nuclear power, a relatively nonpolluting fuel. Under the "baseline" scenario (i.e. in the absence of the NES), **nuclear power is projected to contribute almost nothing to energy supply** by 2030, as the construction of nuclear power plants winds down and existing plants are retired (there have been no new orders for commercial reactors since 1978). The NES envisages that electricity generation from nuclear plants will roughly double from current levels. Given projections of overall electricity demand, this would allow reduced reliance on fossil fuels. However, several factors -- for example, the accidents at Three Mile Island and Chernobyl, the extremely high construction costs of some reactors and worries about nuclear waste disposal (another form of pollution) -- have drastically reduced the political and economic appeal of nuclear power. The NES contains proposals -- such as research on safer, standardised reactor design and changes to regulation -- that are designed to improve the industry's prospects, but rehabilitating nuclear power could prove a difficult and lengthy task. **Although the NES envisages a decrease in the use of coal, lack of a viable alternative may leave it as the backbone of electricity supply in the coming decades. Moreover, because the United States has the world's second-largest reserves, coal is an attractive option from the point**

of view of security of supply. However, coal is also a polluting fuel and, despite research into and incentives favouring so-called clean-coal technologies, it is likely to be expensive to reconcile growing use of coal with environmental policy. Energy demand Although the Administration's **projections of rising energy demand may prove to be correct**, there is nothing inevitable about such an outcome. A comparison of the energy intensities across OECD countries (Diagram 17) suggests that there is considerable scope for improve energy efficiency in the United States. Studies of specific measures of electricity conservation, largely the use of more efficient lighting and industrial electric motors, point to the same conclusion. For example, the Electric Power Research Institute estimates that over 20 per cent of current electricity use can be saved at a marginal cost equivalent to about 5 cents per kilowatt-hour (Fickett, Gellings and Lovins, 1990)(73). Since the average price of electricity in the United States was 4 1/2 to 8 1/2 cents per kilowatt-hour (depending on the customer) in 1990, these savings would seem to be cost-effective. Indeed, the fact that major savings appear to be available at costs substantially less than the price charged for electricity has led regulators to develop so-called demand-side management (DSM) plans for utilities. These plans first identify ways to reduce electricity demand -- the installation of more efficient lighting, for example -- and then use the existing regulatory structure to provide financial incentives to utilities and consumers to adopt more energy-efficient techniques. Some DSM programmes simply allow utilities to recover their expenses, while others allow them to share the net energy cost savings with their customers. In still other programmes, if the utility can convince its customers to adopt conservation measures, it is then rewarded by an increment to its rate base, just as though it had added an equivalent amount of generating capacity. In these ways, DSM gives utilities and electricity consumers added incentives to reduce electricity use. Public utility regulators in more than half the states have also begun to broaden the definition of costs of generating electricity. This new treatment of costs -- known variously as least-cost utility planning, integrated value-based planning and integrated resource planning -- attempts in particular to account for environmental costs. By so doing, regulators should be able to set the price of electricity closer to its true social cost, thereby helping to avoid overconsumption. Accounting for all social costs should also lead to better choices between different methods of generating electricity and, if DSM is used, to choices between generating capacity and certain types of conservation. Perhaps the most obvious way of reducing energy demand is to raise prices by increasing taxes, although US has not adopted a policy of high energy prices as a way of reducing demand. There is now ample evidence that energy demand falls significantly as prices rise. The sharp increase in oil prices since the early 1970s lowered demand (see, for example, Helliwell, et al., 1986, for estimates of elasticities of business use); and price differences are clearly related to energy intensities across OECD countries (Diagram 19). More specific evidence can be gleaned by comparing the fuel efficiency of automobiles across OECD countries. Mileage in the United States does not differ much from that in other countries, although it still lags the average. However, in the United States, high mileage is due largely to so-called CAFE standards(74). With the rise in oil prices after 1973, there was a shift in market demand to smaller automobiles, although declines in oil prices in the 1980s reversed this and have led to some industry pressure to relax the standards. By contrast, other OECD countries have achieved high mileage largely by having much higher gasoline prices, often by a factor of three or more(75). That is, high gasoline taxes have yielded roughly the same fuel efficiency results as regulations have in the United States (even though revenue, not mileage, was the primary purpose of the taxes). Moreover, gasoline taxes have an advantage over CAFE, from an environmental point of view, since they encourage fuel-efficient cars, as does the CAFE standard, and also discourage driving them. Higher energy taxes would generate both costs and benefits, which should ideally be equalised at the margin. Choosing an optimal energy tax therefore involves estimating several empirical magnitudes, which is in general difficult to do. By reducing use, higher energy taxes would promote energy security and, by internalising some of the social costs of pollution, improve allocative efficiency. Energy taxes would also raise substantial amounts of revenue, which could be used to reduce the federal deficit or to reduce other taxes (and therefore the allocative costs of raising them). Of course, raising energy taxes would also entail costs. If taxes were raised too high, the allocative losses could exceed the gains from internalising externalities. A rapid and large increase in energy taxes would also result in adjustment costs, as the economic efficiency of energy-intensive capital would be reduced.

As an example of the possible effects of changes in energy taxation policy, consider a higher gasoline tax. The EPA and McGraw-Hill (Brinner, et al., forthcoming) have estimated the effects of raising gasoline taxes from their current level of 31 cents per gallon to just over 57 cents per gallon by 2010(76). This near-doubling of the tax is estimated to raise \$1.2 trillion in revenues, cumulated over the 20-year phase-in period. It is assumed that this additional revenue would be offset by a reduction in the employer-paid portion of payroll (social security) taxes. In terms of real GNP, this change in the tax structure has a slightly negative impact in the short term, but a positive one in the long term. The greenhouse effect

In the last decade, **concern has mounted that emissions of so-called greenhouse gases (GHGs), by contributing to a build-up of atmospheric concentrations of these gases, may lead to an increase in average global temperatures. This, in turn, could lead to various environmental effects, such as changes in the distribution of rainfall and an increase in the sea level. The "greenhouse effect" is closely linked to energy policy because the most important GHG is carbon dioxide, and almost all man-made carbon dioxide emissions stem from energy use(77)**. Another important GHG is CFCs, and there is now an international agreement to eliminate these chemicals because they destroy stratospheric ozone. The Administration expects that implementation of the NES -- mainly the elimination of CFCs in accordance with the Montreal protocol, but also measures to improve energy efficiency and **reduce dependence on fossil fuels -- will stabilise US contribution to potential global warming** at its 1990 level.

Global Warming Adv: Fossil Fuels = Global Warming

Fossil Fuel burning for electricity is increasing American greenhouse gas emissions leading to global warming and gutting international leadership on climate change

Connor, Science editor for the independent, **2K6**

(Steve, "US Greenhouse Gas Hit Record Level, The Independent (London) April 20th, <http://www.countercurrents.org/cc-connor200406.htm> [accessed June 20, 2008])

The United States emitted more greenhouse gases in 2004 than at any time in history, confirming its status as the world's biggest polluter. Latest figures on the US contribution to global warming show that its carbon emissions have risen sharply despite international concerns over climate change.

The figures, which were quietly released on Easter Monday, reveal that net greenhouse gas emissions during 2004 increased by 1.7 per cent on the previous year, equivalent to a rise of 110 million tons of carbon dioxide.

This is the biggest annual increase since 2000 and means that in 2004 - the latest year that full data is available - the US released the equivalent of nearly 6,300 million tons of carbon dioxide into the atmosphere.

Scientists in Britain condemned the increase, saying that it showed how the US was failing to take a lead in the international attempt to curb greenhouse gas emissions despite being the worst offender.

Professor David Read, the vice-president of the Royal Society, said that **the US and Britain needed to take urgent action to reduce greenhouse gas levels in order to honour their commitments to the United Nations Framework Convention on Climate Change.**

"The figures published this week show not only that the US emissions are not decreasing, but that they are actually increasing on an annual basis," Professor Read said. "And while the UK appears to be doing slightly better, its carbon dioxide emissions have been rising annually for the past three years," he said. "The US and the UK are the two leading scientific nations in the world and are home to some of the best climate researchers.

"But in terms of fulfilling the commitment made by their signature to the UN convention to stabilise greenhouse gas levels in the atmosphere, neither country is demonstrating leadership by reducing their emissions to the levels required," Professor Read said.

The US accounts for about a quarter of the total global emissions of man-made carbon dioxide or the other gases such as methane that can exacerbate the earth's greenhouse effect, which traps sunlight and heat.

Under the UN climate change convention, America is required to publish its net contribution to greenhouse gas emissions, which takes into account pollution sources, such as cars and industry, and "sinks", such as forests.

The figures show that the total **US emissions have risen** by 15.8 per cent from 1990 to 2004, mainly **due to increased consumption of electricity generated by burning fossil fuel**, a rise in energy demands caused by increased industrial production and a rise in petrol consumption due to increased travel. Fossil fuel combustion alone accounted for 94 per cent of the carbon dioxide emissions produced by the US during 2004, the figures show.

Carbon dioxide levels in the atmosphere are now a third higher than they were before the Industrial Revolution began in the 18th century, and probably higher than they have been for at least 10 million years.

Scientists have suggested that if the international community is to try to stabilise carbon dioxide levels at twice pre-industrial levels then countries such as the US and Britain need to reduce emissions by about 60 per cent by the middle of this century.

Professor Read said **there was mounting evidence to suggest that rising temperatures caused by greenhouse gas emissions were beginning to cause serious climate effects**, such as a drop in annual rainfall in east Africa because of rising water temperatures in the Indian Ocean.

"If emissions continue to rise, we can expect even more impacts across the world," Professor Read said. "The developing world will find it difficult to adapt to climate change and the industrialised countries, which are primarily responsible for the rise in greenhouse gas levels, should realise that they would also struggle to adapt to a world in which, for instance, sea levels are several metres higher," he said.

"The science justifies action now by all countries to both adapt to climate change and to reduce greenhouse gas emissions."

Global Warming Adv: Fossil Fuels = Species loss = Extinction

Fossil Fuel use will cause massive species loss culminating in extinction

McDaniel, Biology professor, and **Borton**, adjunct professor in mechanical, aeronautical and nuclear engineering dept at Rensselaer Polytechnic Institute, 2K4

(Carl N and David N, "Increased Human Energy Causes Biological Diversity Loss and Undermines Prospects for Sustainability" bioscience Oct Vol 52 issue 10)

When we use fossil fuels as an energy source, a host of selection pressures are put in motion. **Mining, transport, and burning of fossil fuels, as well as the infrastructure associated with these activities, directly disturb ecosystems**. Although the disturbances from mines, oil fields, roads, trucks, ships, seaports, trains, and railroads are substantial, **it is the release of carbon dioxide (CO₂) that will most likely alter the biosphere profoundly, because it is a major greenhouse gas** and its concentration has increased more than 30 percent in the last century. **Increased CO₂ concentration alters many plant characteristics and has been implicated in future loss of biodiversity** (Phillips and Gentry 1994). The Intergovernmental Panel on Climate Change has calculated that, **unless CO₂ emissions are reduced** by 60 to 80 percent, **global temperature will increase** between 1 and 6 °C over the next century (Watson et al. 2001). **This increase will cause major climate change that will accelerate the rate of extinction** for several reasons. Climate change is associated with heat waves, spread of diseases, changes in the timing of the seasons, sea-level rise and coastal flooding, coral reef bleaching, Arctic and Antarctic warming, and extremes in precipitation and associated flooding, droughts, and fires (UCS 1999). Species may not be able to find habitat or to move fast enough to stay in their climate zone. Their movement may be blocked by human infrastructure--roads and cities, industrial activities, farms, and other impediments. Higher temperatures have already changed species composition in ecosystems (Alward et al 1999). **Over time, these changes, coupled with other human influences, will reduce biodiversity** (Wilson 2002).

With the accelerating loss of species, habitats, and ecosystems, it is unclear when, how, or how fast the materials and functions of biological diversity, the so-called life-support functions, will decline. These life-support functions include such things as atmospheric gas regulation, climate regulation, water purification and flow, ecosystem disturbance regulation, erosion control and sediment retention, soil formation, waste removal, pollination, biological control of populations, habitat creation and preservation, food, raw materials, genetic resources, and human recreation, as well as spiritual and other cultural amenities. **These materials and functions are essential for a civil human society and ultimately, for existence** (Wilson 1992, 2002). The relationships among current human energy flow, bio-diversity, and ecosystem life-support functions are immensely complex. Yet **the end result of human energy flow is clear. It has impoverished biodiversity and, subsequently, life support so as to make ecosystems more fragile and therefore more easily perturbed by environmental events**. For example, deforestation and other alterations of the landscape, in addition to climate change-associated processes, have contributed substantially to an increase in "natural" disasters (Abramovitz 2001). Such catastrophes in the 1990s caused economic losses of over \$608 billion, which exceeds the total for the preceding 40 years.

Energy Price Adv: Fossil Fuels = High Energy Prices

Fossil Fuel based electricity will have high energy prices for years to come

INSIDE FERC 2K7

(“High Power Prices may become the norm for the electric industry, says EPSA report” Nov 5

Relatively high power prices are likely to become the new norm for the electric industry, according to a new Electric Power Supply Association report.

Global conditions, rising fuel costs, increasing demand, environmental concerns and the need for additional infrastructure and power will continue to put upward pressure on electricity prices, the report said. **“It is simply unrealistic to expect that electricity prices are going to drop any time soon.”** Electricity is not cheap to produce, transmit or deliver, said the report prepared by Susan Tierney of the Analysis Group.

It's too easy to assign the blame for high electricity rates on regulation or competition as prices have increased in every region, the report found. Data suggests that restructuring has "not had an easily discernable and consistent impact on prices across the various states." Retail prices in states with restructured markets increased only slightly more than rates in states that retained traditional regulation from 1995 through April 2007, the report found.

Variations in prices can be attributed to market structure, availability of diverse resources for generating power, fuel and construction material costs, the types of customers served, the size of utilities, economic growth rates and the need for new generation and transmission, it said. Other factors include environmental requirements and state regulations and taxes.

Energy Price Adv: Fossil Fuels = High Energy Prices

The instability and finite amount of fossil fuels guarantees price instability- the longer we delay the higher the cost of the transition

American Chemical Society 2K8

(“Statement on Energy Science and Technology”

http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_SUPERARTICLE&node_id=1890&use_sec=false&sec_url_var=region1 [accessed 06/20/2008])

Plentiful, accessible, inexpensive energy is the underpinning of modern society. It is the basis for meeting numerous national and global needs such as increased demands for electricity and transportation, affordable food and water, and adequate resources for manufacturing. **In the U.S., reliable, affordable energy is crucial to the economic well-being and security of our nation.** **The time has come for us to confront future energy options.** The ACS and AIChE believe a comprehensive national energy strategy must address S&T opportunities thoroughly to make the best near-term decisions and develop new options for a more sustainable future.

The most important reason to address this issue now is the growing, global dependence on oil and natural gas, which experts agree are available in limited and rapidly declining quantities. Demand for oil will continue to grow as countries raise standards of living—especially populous, developing nations like China and India. As we move beyond the world’s maximum oil production point and demands continue to rise, prices and instability will certainly increase. Estimates vary on total oil resources, **but it would be a mistake to assume that fossil fuel would remain at current prices, given the inherently unstable nature of commodity markets, geopolitics, and policy changes.** We believe a targeted allocation of funds and timely change in energy policy would postpone the inevitable date that oil production would begin to decline. Thus, **investment in increasing energy options is paramount.**

Market forces will play an important, but not sufficient, role in meeting future energy needs. **A sudden increase in energy prices or long periods of energy-price instability would result in energy shortfalls, which in turn would significantly impact global economic growth.** Sufficient investment in energy innovations to increase availability and allow profound infrastructure changes (e.g., converting gasoline vehicles to hydrogen or increasing the use of public transportation) would require an ongoing, commitment over several decades. **Given the investment of time and the technology needed, it is imperative to take immediate steps toward solving this problem.**

According to the Energy Information Agency, **U.S. domestic energy utilization in 2003 was roughly 85 percent fossil fuel, 8 percent nuclear power, and 6 percent renewable energy—including hydroelectricity.** Clearly, **America is overly dependent on fossil fuel, much of which comes from unstable regions of the world. Energy-use patterns—22 percent residential, 52 percent industrial, and 27 percent transportation—must also be considered in developing a comprehensive U.S. energy policy.** Energy efficiency and conservation must be encouraged across the board.

At present, the S&T required to move beyond fossil-energy dependence and provide safely produced, sustainable power to meet growing, global needs, is simply not available. The ACS and AIChE recommend developing a dual-track, comprehensive R&D strategy that would simultaneously implement a near-term advancement of energy technologies (including fossil, solar, wind, nuclear, and efficient utilization) and a comprehensive S&T policy for developing sustainable sources to replace dwindling fossil supplies in the long term.

Finding solutions to meet advancing world needs for sustainable energy is one of the biggest challenges mankind will ever face. Burning **fossil fuels places humanity at risk environmentally, and the potential consequences are dramatic.** We must call upon universities, the private sector, and national laboratories to provide the best minds and teams to develop creative solutions through energy R&D.

Energy Price Adv: Fossil Fuels = High Energy Prices- Peak Oil

The oil peak will lead to higher energy prices for electricity

Harris, head of energy and emissions Bank of Ireland Global Markets, **2K6**

(Paul, "Fossil Fuel Addicts beware, we'll soon be past our peak" April 14th The Irish Independent)

These factors are only part of the story of rising oil prices. Focus on **the issue of 'peak oil' has begun to filter through to the business and political worlds.** This theory addresses the data suggesting **that oil in the established fields is running out and the rate of discovery of new fields is falling. Combine these facts with a global economy with an insatiable thirst for oil and it is easy to see why many observers are forecasting the end of oil.**

Prediction

With the latest prediction for peak oil production from the French government being 2013, **complacency cannot be an option.** Since Ireland imports up to 90pc of its energy, the critical importance of the peak oil debate to the future prosperity of the country is alarmingly clear.

Already, the impact of rising energy prices has arrived at the door of every household in Ireland in the form of higher heating, electricity and gas bills - and if we want to avoid the economic hardship that further energy price rises will bring, we need to quickly address our addiction to fossil fuels.

Ireland has a wealth of natural energy resources which have only partially been explored.

Studies show that we have the best wind resources anywhere in Europe and, far from congratulating ourselves that we receive around 8pc of our electricity from wind power, we should be asking why we haven't achieved the 20pc enjoyed by our Danish counterparts.

Wave power potential along the west coast of Ireland represents another enormous resource which remains, as yet, untapped.

Critics will cite prohibitive capital costs as a barrier to development of the infrastructure necessary to tap these renewable sources, yet at the same time applaud the development of a road system at enormous cost. The wisdom of providing roads that people won't be able to use because of soaring fuel costs will undoubtedly be questioned in the months ahead.

Clearly, **in the near future we will need to formulate a coherent strategy to address the impending demise of the oil supply in a way that embraces both our natural and agricultural resources to ensure continued growth and prosperity.**

Energy Price Adv: Fossil Fuels = Economic depression

Peak Fossil Fuel production will lead to soaring energy costs which will produce an economic depression

Environmental News Network 2K8

("Emissions Cap-and Share" June 12th <http://www.enn.com/business/article/37372> [accessed June 20th, 2008])

Growing energy demand and peaking fossil fuel production may lead to worldwide economic depression and disastrous climate warming as oil and fossil fuel production peaks and energy demand continues to increase. cautions Feasta, the Foundation for Economics of Sustainability.

Seeing parallels between economic developments today and the disastrous effects of petrodollar recycling seen in the 1970s — stagflation, a massive debt crisis and a 20-year-long slump in oil prices - the trillion or so dollars a year over and above anticipated revenues being funneled to oil exporters and the governments of oil exporting nations taking place today not only is the largest and fastest transfer of wealth yet seen in economic history, it is driving dislocations in savings, investment, economic growth and capital allocation that threaten the prevailing global economic system. Feasta argues.

Energy Price Adv: High Energy Prices = Economic Decline

High electricity prices lead to a recession

Philadelphia Inquirer 2K3

(March 1, “Even after Iraq war, oil prices may stay high”

Natural-gas prices also have risen, pushing up heating and electricity costs for many homes and businesses. High energy prices slow economic growth and increase the chances of recession.

“Unless it reverses itself quickly, the energy shock is big enough to threaten the economy,” said Richard Berner, the chief domestic economist at the Morgan Stanley Dean Witter & Co. investment bank in New York. He put the chance of recession at 1 in 4 in a report to clients yesterday. “While it’s anyone’s guess how long it will last, the fundamentals don’t suggest quick relief,” he added.

High energy prices decrease consumer spending leading to a depression

FEASTA, Energy and Economy think tank based in England, 2K8

(Foundation for the Economics of Sustainability “Cap & Share” <http://www.feasta.org/documents/energy/Cap-and-Share-May08.pdf> [accessed June 20, 2008])

Lending to uncreditworthy homebuyers at least put money into ordinary people’s hands. Unless the huge sums being paid in scarcity rent are recycled properly, the world economy will go into decline. The danger is that consumer spending will fall as money is divested to pay for energy. This will reduce demand and cause business investment to decline too as firms find they have surplus capacity. This could mean that there were no commercial takes for the loan being offered by the funds attempting to place the scarcity rents and unless governments borrowed to invest themselves, the fossil fuel producers would be left with no profitable ways of injecting their money back into their customers’ economies. A depression would result and fossil fuel prices could fall considerably.

Energy Price Adv: High Energy Prices = Economic Decline

High electricity prices will lead to a recession that goes global- only promotion of renewable energy can solve

Parkinson, Financial news writer for the Globe and Mail (Canada), **2K1**

(David, "Electricity markets are changing radically" The Globe and Mail (Canada) February 17)

However, underneath these assurances lies the inescapable reality that energy markets, not just in Canada and the United States, but throughout the world, are undergoing radical changes that are fundamentally altering the flows and economics of our energy supplies.

Increasing reliance on natural gas to fuel electrical generation. The rapid expansion of the technology-intensive New Economy, with its heavy demand for electrical power. Robust economic growth in the developed and the developing world. Globalization, trade liberalization and the deregulation of energy markets to promote increased competition. Untimely energy policies in North America and abroad that discouraged development of new energy sources. The convergence of these factors contributed to the current crunch, which caused California to be nearly crippled by high electricity prices and dangerously low supplies, consumers to be pummeled by skyrocketing home heating costs, and angry motorists to protest prices.

High energy prices are jamming the brakes on the U.S. economy, threatening to trigger a recession that could spread globally. An economic slowdown should take the pressure off energy demand and ease prices over the next year. Nevertheless, the mess in the energy markets should serve as a distant early-warning to policy makers that energy issues will demand a lot of attention in the first part of the new millennium.

Experts say the next decade will see a showdown between a continued surge in energy demand on the one hand, and financial constraints, infrastructure limitations, domestic politics and environmental pressures on the other.

"The overall picture is that we expect global demand for energy to keep rising substantially," said Robert Priddle, executive director of the International Energy Agency (IEA), an arm of the Organization for Economic Co-operation and Development, in Paris. He said that barring "policy interventions," energy demand will climb roughly 60 per cent from current levels by 2020.

The bulk of that growth will come from developing countries, as they further industrialize and their consumers acquire more energy-intensive luxury goods. The biggest growth area will be in electricity consumption.

"That's going to take an enormous investment in infrastructure," Mr. Priddle said. He estimated it would cost "something like \$3-trillion" (U.S.) to meet electricity demand in the developing world by 2020. "It's beyond the capacity of government investment," he said. "But it's not beyond the capacity of private enterprise." This anticipated heavy growth in demand has led to a push in many countries to deregulate energy industries. The aim is to provide increased competition and a shift to market pricing, which should encourage private-sector infrastructure investment. But the debacle of deregulation in California's electricity industry has made many policy makers nervous about going ahead with their own changes. "I think people are quite alarmed," said Marjorie Griffin Cohen, a political science professor at Simon Fraser University in Burnaby, B.C. "They have seen deregulation cause problems. There are big risks involved." Canada will soon come under increased international pressure, especially from the United States, to accelerate the deregulation of its energy industries. New U.S. President George W. Bush recently met with Prime Minister Jean Chrétien, making it clear that a continent-wide energy policy is a priority in his new administration. The United States also issued a position paper in December to the World Trade Organization calling for increased competition and market access in the energy sector, as part of its proposals for the recently started negotiations on the General Agreement on Trade in Services (GATS).

"Basically, what they want is access to Canadian energy," Ms. Griffin Cohen said. André Plourde, energy economist and associate dean of business at the University of Alberta in Edmonton, said Canadian leaders will face resistance from the public to opening up electricity and natural gas utilities to foreign competition, and in fact are beginning to hear calls for reregulation.

There's going to be some pressure," he said. But Mr. Priddle of the IEA said reregulation and government-imposed price protection for consumers would do more harm than good. "There's a risk some people will take the lesson that competition doesn't work. That would be wrong," he said. "It's not in the consumer's best interest to keep prices down in the short term, at the expense of security of supply in the long term." Indeed, the high prices in recent months have kick-started a raft of projects to bring fresh energy supplies to market, particularly natural gas. "The structure of the gas market has been fundamentally changed by the switch to gas-fired electric power generation," said Tom Adams, director of Energy Probe, a Toronto-based energy watchdog. "This electricity-driven demand is not going away." However, the high cost of natural gas is prompting some electricity producers to look at other, less-clean fuels, such as coal, to power their generators and there is also increasing talk of a resurgence of nuclear power overseas. Gerry Scott, climate-change campaign director for the David Suzuki Foundation, a Vancouver-based environmental group, said governments are losing sight of key environmental goals in the race to secure new energy supplies. "Where is the Kyoto consciousness?" Mr. Scott said, referring to the Kyoto Protocol of 1997, which calls for a 6-per-cent global reduction in greenhouse gas emissions, from 1990 levels, by 2010. Mr. Plourde of the University of Alberta said the tug-of-war between affordable energy supplies and environmental concerns will be "the big issue" in the energy sector over the next several years.

"People are going to be talking about how much they're willing to pay to protect the environment."

Analysts said that while high energy prices have sparked renewed interest in developing alternative and renewable energy sources, governments will have to become much more active in promoting these alternatives if they hope to make a dent in the energy market. The IEA predicts renewables will make up just 3 per cent of the global energy supply by 2020, up from 2 per cent now.

Energy Price Adv: High Energy Prices = Economic Decline

High electricity prices threaten crisis-conditions and an economic recession

Washington Times 2K1

("West Sees Dim Hope for Energy Aid" March 7)

Legislators from Seattle to San Diego called for temporary price controls to force down **the tenfold jump in wholesale electricity prices that is creating hardship for businesses and consumers and threatens to re-create crisis conditions** in California this summer.

Testifying before the House Energy and Commerce Committee's energy subcommittee, Rep. Jay Inslee, Washington Democrat, contrasted the Bush administration's "pathetic" hands-off response to the energy crisis with its quick offer of emergency aid after Seattle's major earthquake last week.

"We're having an energy price disaster and the federal government is refusing to come to the aid of the West," he said, noting that electricity rates have doubled in his state and have "shocked" consumers. "These obscene price hikes have the potential to drive the economy into recession."

Mr. Inslee said he discussed with President Bush a Western state proposal to temporarily impose price caps that are based on the cost of generating electricity. The proposal would exempt new power generators from the price cap to encourage companies to build plants needed to ease the West Coast crisis.

Mr. Inslee said the president told him to present the idea to the administration's energy task force, headed by Vice President Richard B. Cheney, but the task force so far has shut out the proposal. The administration insists California is largely responsible for solving the energy problems it created.

"The federal government is the only government right now that can care for my constituents," said Mr. Inslee, arguing that the Federal Energy Regulatory Commission has neglected its responsibility to protect consumers from "unjust and unreasonable" electricity rates.

Energy Price Adv: Economy Impacts

Economic Collapse leads to nuclear wars culminating in extinction

Bearden 2000 (T.E., Director, Association of Distinguished American Scientists (ADAS) Fellow Emeritus, Alpha Foundation's Institute for Advanced Study, "The Unnecessary Energy Crisis", June 24, Online)

Bluntly, we foresee these factors — and others {[5]} {[6]} not covered—converging to a catastrophic collapse of the world economy in about eight years. As the collapse of the Western economies nears, one may expect catastrophic stress on the 160 developing nations as the developed nations are forced to dramatically curtail orders.

History bears out that desperate nations take desperate actions. Prior to the final economic collapse, the stress on nations will have increased the intensity and number of their conflicts, to the point where the arsenals of weapons of mass destruction (WMD) now possessed by some 25 nations, are almost certain to be released. As an example, suppose a starving North Korea {[7]} launches nuclear weapons upon Japan and South Korea, including U.S. forces there, in a spasmodic suicidal response. Or suppose a desperate China — whose long-range nuclear missiles (some) can reach the United States — attacks Taiwan. In addition to immediate responses, the mutual treaties involved in such scenarios will quickly draw other nations into the conflict, escalating it significantly.

Strategic nuclear studies have shown for decades that, under such extreme stress conditions, once a few nukes are launched, adversaries and potential adversaries are then compelled to launch on perception of preparations by one's adversary. The real legacy of the MAD concept is this side of the MAD coin that is almost never discussed. Without effective defense, the only chance a nation has to survive at all is to launch immediate full-bore pre-emptive strikes and try to take out its perceived foes as rapidly and massively as possible.

As the studies showed, rapid escalation to full WMD exchange occurs. Today, a great percent of the WMD arsenals that will be unleashed, are already on site within the United States itself {[8]}. The resulting great Armageddon will destroy civilization as we know it, and perhaps most of the biosphere, at least for many decades.

Global Economic Stagnation = global nuclear war

Mead 92 *Walter Russell Mead, Senior Fellow for U.S. Foreign Policy at the Council on Foreign Relations, World Policy Institute, 1992*

Hundreds of millions – billions – of people have pinned their hopes on the international market economy. They and their leaders have embraced market principles – and drawn closer to the west – because they believe that our system can work for them. But what if it can't? What if the global economy stagnates – or even shrinks? In that case, we will face a new period of international conflict: South against North, rich against poor. Russia, China, India – these countries with their billions of people and their nuclear weapons will pose a much greater danger to world order than Germany and Japan did in the 30s.

economic collapse = global war

Mead 98 *Los Angeles Times August 23, 1998, Sunday, Home Edition SECTION: Opinion; Part M; Page 1; Opinion Desk LENGTH: 1316 words HEADLINE: ECONOMY;*

MARKETS BIGGEST THREAT TO PEACE BYLINE: Walter Russell Mead, Walter Russell Mead, a contributing editor to Opinion, is a senior, fellow at the Council on Foreign Relations. He is the author of "Mortal, Splendor: The American Empire in Transition" and is writing a book about, U.S. foreign policy)

Even with stock markets tottering around the world, the president and the Congress seem determined to spend the next six months arguing about dress stains. Too bad. The United States and the world are facing what could grow into the greatest threat to world peace in 60 years. Forget suicide car bombers and Afghan fanatics. It's the financial markets, not the terrorist training camps that pose the biggest immediate threat to world peace. How can this be? Think about the mother of all global meltdowns: the Great Depression that started in 1929. U.S. stocks began to collapse in October, staged a rally, then the market headed south big time. At the bottom, the Dow Jones industrial average had lost 90% of its value. Wages plummeted, thousands of banks and brokerages went bankrupt, millions of people lost their jobs. There were similar horror stories worldwide. But the biggest impact of the Depression on the United States--and on world history--wasn't money. It was blood: World War II, to be exact. The Depression brought Adolf Hitler to power in Germany, undermined the ability of moderates to oppose Joseph Stalin's power in Russia, and convinced the Japanese military that the country had no choice but to build an Asian empire, even if that meant war with the United States and Britain. That's the thing about depressions. They aren't just bad for your 401(k). Let the world economy crash far enough, and the rules change. We stop playing "The Price is Right" and start up a new round of "Saving Private Ryan."

Energy Price Adv: Economy Impacts

ECONOMIC COLLAPSE CAUSES NUCLEAR WAR

Lewis 1998 (Chris H., environmental historian, University of Colorado-Boulder, THE COMING AGE OF SCARCITY, p. 56)

Most critics would argue, probably correctly, that instead of allowing underdeveloped countries to withdraw from the global economy and undermine the economies of the developed world, the United States, Europe, Japan, and others will fight neocolonial wars to force these countries to remain within this collapsing global economy. These neocolonial wars will result in mass death, suffering, and even regional nuclear wars. If First World countries choose military confrontation and political repression to maintain the global economy, then we may see mass death and genocide on a global scale that will make the deaths of World War II pale in comparison. However, these neocolonial wars, fought to maintain the developed nations' economic and political hegemony, will cause the final collapse of our global industrial civilization. These wars will so damage the complex economic and trading networks and squander material, biological, and energy resources that they will undermine the global economy and its ability to support the earth's 6 to 8 billion people. This would be the worst-case scenario for the collapse of global civilization.

GLOBAL RECESSION WOULD RESULT IN A CATASTROPHIC EXPLOSION OF CONFLICTS, FOOD RIOTS, ARMS RACES AND FULL-BLOWN WARS.

Bernardo V. **Lopez** BusinessWorld 9/10/1998, HEADLINE: Global recession phase two: Catastrophic (Private sector views)

What would it be like if global recession becomes full bloom? The results will be catastrophic.

Certainly, global recession will spawn wars of all kinds. Ethnic wars can easily escalate in the grapple for dwindling food stocks as in India-Pakistan-Afghanistan, Yugoslavia, Ethiopia-Eritrea, Indonesia. Regional conflicts in key flashpoints can easily erupt such as in the Middle East, Korea, and Taiwan. In the Philippines, as in some Latin American countries, splintered insurgency forces may take advantage of the economic drought to regroup and reemerge in the countryside.

Unemployment worldwide will be in the billions. Famine can be triggered in key Third World nations with India, North Korea, Ethiopia and other African countries as first candidates. Food riots and the breakdown of law and order are possibilities.

Global recession will see the deferment of globalization, the shrinking of international trade - especially of high-technology commodities such as in the computer, telecommunications, electronic and automotive industries. There will be a return to basics with food security being a prime concern of all governments, over industrialization and trade expansions. Protectionism will reemerge and trade liberalization will suffer a big setback. The WTO-GATT may have to redefine its provisions to adjust to the changing times. Even the World Bank-IMF consortium will experience continued crisis in dealing with financial hemorrhages. There will not be enough funds to rescue ailing economies. A few will get a windfall from the disaster with the erratic movement in world prices of basic goods. But the majority, especially the small and medium enterprises (SMEs), will suffer serious shrinkage. Mega-mergers and acquisitions will rock the corporate landscape. Capital markets will shrink and credit crisis and spiraling interest rates will spread internationally. And environmental advocacy will be shelved in the name of survival. Domestic markets will flourish but only on basic commodities. The focus of enterprise will shift into basic goods in the medium term. Agrarian economies are at an advantage since they are the food producers. Highly industrialized nations will be more affected by the recession.

Technologies will concentrate on servicing domestic markets and the agrarian economy will be the first to regrow. The setback on research and development and high-end technologies will be compensated in its eventual focus on agrarian activity.

A return to the rural areas will decongest the big cities and the ensuing real estate glut will send prices tumbling down. Tourism and travel will regress by a decade and airlines worldwide will need rescue.

Among the indigenous communities and agrarian peasantry, many will shift back to prehistoric subsistence economy. But there will be a more crowded upland situation as lowlanders seek more lands for production. The current crisis for land of indigenous communities will worsen. Land conflicts will increase with the indigenous communities who have nowhere else to go either being massacred in armed conflicts or dying of starvation.

Backyard gardens will be precious and home-based food production will flourish. As unemployment expands, labor will shift to self-reliant microenterprises if the little capital available can be sourced.

In the past, the US could afford amnesty for millions of illegal migrants because of its resilient economy. But with unemployment increasing, the US will be forced to clamp down on a reemerging illegal migration which will increase rapidly.

Unemployment in the US will be the hardest to cope with since it may have very little capability for subsistence economy and its agrarian base is automated and controlled by a few. The riots and looting of stores in New York City in the late '70s because of a state-wide brownout hint of the type of anarchy in the cities. Such looting in this most affluent nation is not impossible.

The weapons industry may also grow rapidly because of the ensuing wars. Arms escalation will have primacy over food production if wars escalate. The US will depend increasingly on weapons exports to nurse its economy back to health. This will further induce wars and conflicts which will aggravate US recession rather than solve it. The US may depend more and more on the use of force and its superiority to get its ways internationally.

Energy Price Adv: US key to world economy

US ECONOMIC DOWNTURN WILL CAUSE WORLDWIDE DEPRESSION

Financial Post 1999 April 3, 1999 Date accessed 7/26/2006

This year, eight economies will be in recession, two in depression. But all should be growing again in the second half of next year, he predicts. Asia is moving toward the beginnings of recovery and is no longer in crisis, in Mr. Sinai's view. South Korea has turned around, from depression to modest growth. Japan seems past the worst, judging by its stock market revival. However, **if the U.S. economy falters** seriously, **so will the fledgling recoveries**, Mr. Sinai warns. **Asian growth would be stymied. China might devalue, causing new problems** for the region. **Europe could go into recession. Canada's growth**, heavily dependent on exports to the U.S., **would disappear. Latin America would fall into depression. All this could lead to financial market collapse, and** perhaps a **world depression**. 'The odds on this are not zero,' Mr. Sinai says.

THE U.S ECONOMY IS KEY TO THE WORLD ECONOMY.

ROBERTS IN 2K3 [Michael, Writer, "The World Economy After Iraq", April 27, accessed @ http://www.marxist.com/Economy/world_econ_afteriraq.html via google on 7/26/06]

And the US is the key to the world economy. If the US catches a cold, then the rest of the world will catch Severe Acute Respiratory Syndrome (SARS). Already European business surveys point to an economy that is teetering on recession, while Japan's industry remains deep in a stagnant pool. The Japanese stock market is now at a 20-year low!

US is key to global growth

AFX EUROPEAN FOCUS 2002 April 16, 2002, Date accessed 7/26/2006

He said the US is again acting as the main engine of global growth. "The US is leading the recovery and I think that is likely to be the case for the duration of this recovery. It is in the interests of the entire world to see Europe and Japan growing at potential," he said.

US RECOVERY KEY TO GLOBAL GROWTH

BLOOMBERG NEWS 2002 March 22, 2002, Date accessed 7/26/2006

"**The U.S. economy is going to be the engine for the global recovery**," said Noriyuki Kato, head of foreign exchange at the ING Baring Securities (Japan) Limited. "There is no question that the U.S. is ahead of other nations," and that will help the dollar, he said. U.S. consumer prices rose last month at the same pace as in January and first-time claims for unemployment benefits fell, reports yesterday showed. The figures suggest **the economy is picking up speed without prompting inflation**. Also, U.S. housing starts rose in February to their highest level since December, a release Wednesday showed.

RPS Solvency: National RPS key renewables

A federally mandated RPS is crucial to pollution reduction and energy price stabilization. Only federal leadership can allow for successful renewable electricity generation

Global Power Report may 31 2K7

About 200 **trade associations, businesses, utilities** and environmental groups **are urging the Senate to pass** this year a market-based **national renewable portfolio standard** that would require electric utilities to obtain a minimum percentage of their power from low-emission domestic resources.

In a letter to Senate Energy and Natural Resources Committee Chairman **Jeff Bingaman**, the companies and advocates said that **substantially increasing renewable energy generation would enhance national security, help stabilize energy prices and reduce pollution**. Bingaman's office released a copy of the letter May 25.

The letter, which was signed by Google, GE, United Steelworkers, BP America, Alliant Energy, Sempra Energy, and Wisconsin Power and Light, among others, was also sent to Senate Majority Leader **Harry Reid** of Nevada, Senate Republican Leader Mitch McConnell of Kentucky and Senator Pete Domenici, the senior Republican on the energy committee.

"We believe **the time has come for Congress to move quickly to enact national RPS legislation**," the letter said. **"The costs of inaction for our environment, national security and economy are too high."**

The advocates in the letter describe an RPS where electric utilities can buy renewable energy credits to help meet the mandate for a portion of their generation.

Bingaman last week said he would offer RPS legislation as an amendment to a massive energy efficiency bill Reid plans to bring before the full Senate in early June. Bingaman's proposal would call for utilities to generate at least 15% of their electricity sold at the retail level from renewable sources by 2020. In 2005, a 10% RPS cleared the Senate but failed in the House. The Bush administration opposes a national RPS.

Already **22 states have adopted their own renewable energy standards** to require electric utilities to generate a specific amount of power from wind, solar, biomass and geothermal resources. **But** the group told lawmakers that **the US "will not realize the full potential for renewable electricity without the adoption of a federal program to enhance the states' efforts."**

RPS Solvency: National RPS key renewables

A national RPS would quadruple renewable energy output over squo efforts. State successes prove a national RPS policy would be cost-effective and create the uniformity that the public and industries support

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, and **Clemmer**, Research Director for UCS' Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

Interest in elevating the RPS to a national policy has also been driven by several other factors. **For example, the size of the new renewable energy market created under existing state RPS policies would be far outweighed by a national RPS.** UCS estimates that **state standards, if entirely successful, would support more than 46,000 MW of new renewable power—equal to about 6 percent of total U.S. electric sales—by 2020.⁵ By contrast, a 20 percent by 2020 national RPS would support as much as four times the development of renewable energy capacity** (see Section V). **Because all national RPS proposals to date have established a national floor, with states allowed to continue to set higher standards, a combination of state and federal standards would create the most development.**

In addition, **early successes in states** like Texas, Minnesota, Iowa, and Wisconsin, along with the continuing growth of new state RPS adoption and expansion **have demonstrated that the policy can be effective.⁶ State governments are often the laboratories for national policy.** If a policy is successful in one state—as with California's standards for energy-efficient appliances—it is usually replicated and expanded by others until it is ultimately considered at the national level. Furthermore, **renewable energy provides important benefits to all consumers, not just those in states required to use it. Leveling the playing field by requiring all states and electricity providers to share in the cost of renewable energy investment is fair, as well as publicly and politically popular.**

Finally, **a national RPS would establish uniform rules for the most efficient trading of renewable energy credits (RECs).** **This uniformity could further reduce renewable energy technology costs** by creating economies of scale **and a national market for the most cost-effective resources; inducing renewable energy development in the regions of the country where they are the most cost-effective; and reducing transaction costs, by enabling suppliers to buy credits and avoid having to negotiate many small contracts with individual renewable energy projects.**

RPS Solvency: National RPS key renewable- REC

Federal leadership in the establishment of an RPS- tethered renewable energy credits- is vital to the successful transition to alternative energy sources

Inside FERC march 31 2K8

The mishmash of renewable portfolio standards among states is clouding the primary intent behind such programs, Commissioner Philip Moeller told a Washington audience Thursday.

States have a variety of definitions "of what's considered an acceptable renewable," Moeller told the EUCI renewable portfolio standard symposium. **And** states are **mixed on whether they allow renewable energy credits (RECs)** for energy generated in outlying regions.

Having an assortment of rules creates much confusion, Moeller held. **"Obviously, developers aren't thrilled** with it. But it **also misses a fundamental policy question as to what are we trying to get at. Are we trying to reduce our concentration of carbon emissions or are we trying to stimulate in-state economic development** or are we trying to outdo our neighboring state in terms of a higher percentage [of renewables] in a shorter period of time?"

The federal RPS concept has been under debate for the last 15 years or more, Moeller pointed out. But lately the idea has been gaining momentum. "If we want to go down that road, that's fine, but we're going to need to know what we're doing," he cautioned. And although FERC doesn't have jurisdiction over RPS standards, the commission is doing what it can to get renewables connected to the grid, encourage investment in new transmission infrastructure and, "in very limited cases," promote the development of renewable generation, he said.

The commissioner declined to say whether FERC should be given the lead in regulating a federal RPS and/or REC market. "I have plenty of work on my plate right now, so I'm not looking for more," he said in an interview following the panel discussion. "But if Congress deems that they want us to do it, I will happily be part of dealing with it."

Currently, 25 states and Washington, D.C., have RPS standards. Also, four states have non-binding renewable goals. Some states are in favor of a federal RPS, while others believe it would be a detriment, said Connecticut Department of Public Utility Control Commissioner Anne George. "States often feel that we do a better job of it than the federal government," she explained.

That said, she believes **a federal RPS would create a more consistent process.** Yet any federal RPS should not pre-empt or disrupt state standards, nor should it include a mandate to include costs of such a program in retail rates, George cautioned.

The Florida Public Service Commission strongly supports renewable energy but believes a federal RPS would limit choices and increase energy costs, said Bob Niekum, director of wholesale power for Progress Energy Florida. Viable renewable generation in Florida is limited to biomass, residential solar and industrial waste heat, he explained. And there are very little hydro and wind energy resources in the state. So under a federal RPS, Florida utilities would be forced to import renewables.

PJM Interconnection has made enough changes to its interconnection and planning process to "be flexible enough to reflect a federal RPS," said William Whitehead, executive director of state government policy for PJM. One challenge for utilities in PJM will be that a majority of wind resources are clustered in locations outside of the region, he said.

The key question is whether all the RPS credit systems could be linked to make the RECs work, said Carrie Plemons, PPM Energy director of renewable origination. She suggests that **any federal RPS should include a renewable energy credit for interstate and international renewable electricity imports.**

States are tweaking their RPS programs more and more now compared to previous years, said Kevin Porter, of Exeter Associates and part-author of a report on state RPS programs in 2007 that is expected to be published this week.

Porter highlighted portions of the draft report, which includes data from DOE's Lawrence Berkeley National Laboratory, during the EUCI symposium Wednesday. He said four states started RPS programs last year and 10 revised their existing requirements. States have increased the stringency of their RPS targets, expanded the list of eligible resources, extended RPS requirements to include public utilities and electric cooperatives or gave public utilities greater leniency in meeting targets. Also, some states decided to allow energy efficiency into RPS programs, he said.

RPS policies have been the major drivers for developing renewable energy, Porter added. In 2007, about 76% of renewable capacity additions were made in states with RPS programs. "If all goes well," said Porter, roughly 56,000 MW of new renewable energy capacity could be installed by 2020.

RPS Solvency: Key solve states, increase renewable, solve global warming

Creating a coherent national energy plan is the most pressing concern in American politics. The establishment of a national RPS is central to overcoming the inconsistencies of state level plans. Only a national RPS can allow market access for renewable which will help to stabilize the energy supply and curb global warming

Sovacool, PhD former Fellow at Oak Ridge national lab and professor at VaTech, **and Cooper**, executive director of Network for New Energy Choices (NNEC) a nonprofit focused on expanding energy choices, **2K7**

(Benjamin and Christopher, Big is Beautiful: The Case for Federal Leadership on National renewable Portfolio Standard *The Electricity Journal* vol 20, issue 4 May pg. 48-61)

Arguably, **we face no greater national priority than crafting a coherent national energy strategy. Americans face energy challenges over the next several decades – growing dependence on foreign sources of fuel, continued exposure to the threat of terrorist sabotage,1 increasing vulnerability to impending climate change, and environmental threats – that demand progressive federal leadership. Yet federal legislation to establish a national renewable portfolio standard (RPS) has failed** no less than 17 times in the past 10 years.

While supporting state-based RPS efforts, the Bush Administration has officially opposed a national RPS on the grounds that it would create “winners” and “losers” among regions of the country and increase electricity prices in places where renewable resources are less abundant or harder to cultivate.² In the meantime, 21 states (and the District of Columbia) have adopted their own RPS mandates, and eight others – Florida, Indiana, Louisiana, Nebraska, New Hampshire, Utah, Vermont, and Virginia – are considering some form of RPS.

With so much state-level action, one might be tempted to agree with the National Rural Electric Cooperative Association (NRECA) that “activities on a number of fronts supplant the need for a federal RPS.”³ But looks can be deceiving. **Because the accumulated demand for electricity is expected to accelerate over the next several decades, the penetration of renewable energy technologies in individual states, while noteworthy, is not likely to substantially alter the national fuel mix nor materially address the energy risks we all face.**

Framing the debate as a choice between a perfectly functioning, undistorted energy market and a clunky, artificial federal intervention, opponents of a national RPS tend to ignore the unique drawbacks associated with a complex web of state-based mandates.⁴ Indeed, **the most compelling argument for federal action is that a national RPS may help correct many of the market distortions brought about by a patchwork of inconsistent state actions. Not only does reliance on state-based action make for an uncertain regulatory environment for potential investors, it creates inherent inequities between ratepayers in some states that are paying for “free riders” in others. Ultimately, federal legislation can help create a more just, more diverse and more predictable national market for renewable resources without significantly increasing aggregate electricity prices. A national RPS may help correct many of the market distortions brought about by a patchwork of inconsistent state actions.**

RPS Solvency: Market will choose best tech

Under an RPS, wind power will likely be the dominate renewable but ultimately decide which renewable is most effective

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, and **Clemmer**, Research Director for UCS’ Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

[Table 2](#) illustrates that the mix of renewable energy generation under various national RPS scenarios is much more sensitive to the difference in assumptions between UCS and EIA than the projected consumer benefits. **Using UCS assumptions, wind power provides the majority of renewable energy generation under the 20 percent RPS, with significant contributions also coming from biomass and geothermal resources.** Under this scenario, total U.S. non-hydro renewable power capacity increases from about 20,000 MW in 2005 to 180,000 MW by 2020.

Table 2.

Renewable Energy Generation Mix, 2020

Technology	20 Percent by 2020 RPS		10 Percent by 2020 RPS	
	UCS Assumptions	EIA Assumptions	UCS Assumptions	EIA Assumptions
Biomass	28.5%	44.6%	16.2%	52.7%
Geothermal	9.9%	8.3%	14.3%	8.5%
Landfill gas	2.3%	2.5%	3.0%	2.8%
Solar	0.4%	0.4%	0.6%	1.6%
Wind	58.9%	44.2%	65.9%	34.4%

Using EIA assumptions, however, results in significantly more generation from biomass energy. This is primarily due to the more pessimistic cost and performance assumptions that EIA uses for wind power. Because wind power is more expensive under EIA’s assumptions, generation from biomass integrated gasification combined cycle plants becomes cost-competitive more quickly, and is deployed by the model to meet a larger portion of the annual targets. Greater generation from biomass, which has a higher capacity factor than wind power, also results in less total renewable energy capacity being developed. Under EIA assumptions, total non-hydro renewable power capacity increases to 150,000 MW by 2020.

The difference in renewable energy generation mix between scenarios that use UCS and EIA assumptions also holds true under a 10 percent national RPS. The UCS scenario found that wind power would account for the majority of the generation resulting from the 109,000 MW of renewable energy capacity developed by 2020. Biomass, geothermal, landfill gas, and solar resources continue to play important, but lesser roles. Under EIA’s 10 percent RPS analysis, biomass actually accounts for a majority of the renewable energy mix by 2020. **Ultimately, the competition between renewable energy resources that is stimulated by a national RPS will pressure developers to reduce costs and determine the technology winners.**

RPS Solvency: Spillover

A national RPS will establish uniform standards and signal a national commitment to renewable that will spillover into other policies

Sovacool, PhD former Fellow at Oak Ridge national lab and professor at VaTech, **and Cooper**, executive director of Network for New Energy Choices (NNEC) a nonprofit focused on expanding energy choices, **2K7**

(Benjamin and Christopher, Big is Beautiful: The Case for Federal Leadership on National renewable Portfolio Standard *The Electricity Journal* vol 20, issue 4 May pg. 48-61)

While the value of renewable portfolio standards may not be as uniformly recognized as daylight savings time, it should be. **There exists widespread consensus on the financial, environmental, and security benefits that stem from diversifying the nation's electricity fuels by investing in clean, renewable energy** - so much so that 21 states have already mandated that utilities use more of these fuels. The real debate is over how best to do it.

There is a time for tolerating the quirks and foibles of state experimentation and there is a time – as with the daylight savings time dispute – **for federal intervention. The tangle of inconsistent state RPS mandates is deterring significant investments in renewable energy generation and hampering the development of a coherent national renewable energy strategy. Ambiguous and conflicting standards** are wasting policymakers' time **and** stakeholders' money. **Uncertainties over the stability and longevity of state policies is delaying progress and inflating the cost of renewable energy projects.**

These arguments are not merely “academic,” nor are they voiced only by staunch renewable energy advocates. Even executives from Constellation Energy – a utility serving 1.2 million customers in Baltimore and more than 10,000 commercial and industrial customers in 34 states – told the State of New York Public Service Commission that many state RPS programs “unnecessarily burden interstate commerce, raise the cost of compliance, invite retaliatory discrimination, potentially violate the Commerce Clause, reduce the availability of imports, and are ‘impractical’ given the inability to track electrons.”⁶⁷

The real debate is whether a federal standard is more advantageous than a medley of competing state statutes. **Federal legislation establishing a clear and uniform national RPS would not only resolve many of the discrepancies that have arisen from the confusing disorder of state-based RPS policies, it would also signal a national commitment to renewable energy generation that is certain to help stimulate a more robust market for renewable energy technologies. By allowing renewable energy to compete directly with older technologies, a national RPS would decrease the cost of electricity and distribute the benefits of renewable generation more justly.** Rather than relying on a handful of states to shoulder the burdens of all, **a national RPS would expand competition in ways that benefit consumers in all states.** There are times when we are 50 small states and there are times when we are one big country. In this case, the answer is clear: big is truly beautiful.

RPS Solvency: Energy prices and economy

A national RPS lowers energy prices and provides massive savings to every part of the economy, in every region of the country.

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, and **Clemmer**, Research Director for UCS' Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

Both the UCS and EIA analyses show that **a national RPS can save consumers money in several ways. First, by reducing the demand for fossil fuels, and creating new competitors for the dominant fuel sources, renewable energy helps reduce the price of fossil fuels and restrain the ability of fossil fuel prices to increase in the future.** Natural gas therefore costs less for electricity generation, as well as for other purposes, benefiting both electricity consumers and other natural gas consumers.

Second, some renewable resources, especially wind energy at good sites, **are now less expensive than building new natural gas- or coal-fired power plants** over the expected lifetimes of the plants, and reduce projected generation costs. **And third, a national RPS reduces the cost of renewable energy technologies, by creating competition** among renewable sources and projects to meet the requirements, **and by creating economies of scale in manufacturing, installation, operations, and maintenance.** Most importantly, **projected savings are robust enough to be found in all of the recent RPS scenarios**, at both the 10 percent and 20 percent levels, and despite large differences in projected renewable energy costs and performance in the EIA and UCS assumptions.

Using UCS assumptions for renewable energy technologies, average consumer natural gas prices would be lower than business as usual in nearly every year of the forecast under the 20 percent RPS, with an average annual reduction of 1.5 percent. In addition, average consumer electricity prices would be lower than business as usual in every year of the forecast, with an average annual reduction of 1.8 percent. **As a result, the 20 percent RPS would save consumers \$49.1 billion on their electricity and natural gas bills by 2020 (Figure 1).**¹⁹ **All sectors of the economy would benefit, with commercial, industrial, and residential customers'** total savings reaching \$19.1 billion, \$17.4 billion, and \$12.6 billion, respectively.

With UCS running NEMS using EIA's assumptions unmodified, the results showed that a 20 percent RPS would still reduce gas and electricity prices. Cumulative savings to electricity customers under a 20 percent RPS totaled \$15.4 billion by 2020, with cumulative savings to gas consumers of an additional \$11.6 billion, for a total savings of more than \$27 billion.

A 10 percent renewable standard would save less money than the 20 percent scenario. In the UCS scenario, consumers would save almost \$28.2 billion on their electricity and natural gas bills by 2020, with the savings continuing to grow to \$37.7 billion by 2025. EIA's own analysis found that the 10 percent RPS would save consumers \$22.6 billion by 2025.²⁰

National RPS scenarios using either UCS or EIA assumptions also show that **energy bills would be reduced in every region of the country, including the Southeast**, where some people have suggested there is limited low-cost renewable energy potential (Table 1). This is primarily due to the lower natural gas prices for electricity generation and other direct gas consumers that all regions would see. In addition, all regions do have some renewable energy resources, and would likely see an increase in using local resources for generation that would often displace the need for importing fossil fuel. **Furthermore, the national credit trading market created by a national RPS would allow utilities in all regions to purchase RECs for the same price, providing utilities with negotiating leverage over local renewable generators.**

The strong relationship between renewable energy generation, and natural gas demand and prices is further supported by a 2005 Lawrence Berkeley National Laboratory (LBL) study, which reviewed 13 analyses using different computer models and assumptions. The analyses all confirmed that **renewable energy (and energy efficiency) could reduce gas demand and put downward pressure on natural gas prices and bills by displacing gas-fired electricity generation.** The report also found that the higher the level of renewable energy penetration, the more gas is saved, and the more gas prices are reduced. Furthermore, LBL's study shows how these results are broadly consistent with economic theory, with results from other energy models, and with limited empirical evidence.²¹

RPS Solvency: Economy

A national RPS would improve the US economy by providing more jobs, increasing consumer spending, and keeping American dollars in the domestic energy market while expanding the American manufacturing base

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, and **Clemmer**, Research Director for UCS' Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

Investment in renewable energy can create high-paying jobs in the U.S. For example, **direct jobs are created** in manufacturing renewable energy technologies, as well as in installing and operating them. **Jobs are also created when renewable energy workers spend their additional income on other goods and services and when consumer energy bill savings are spent in the economy.**

Using UCS assumptions, we project that by 2020 **the 20 percent RPS would generate more than 355,000 jobs** in manufacturing, construction, operation, maintenance, and other industries—**nearly twice as many as fossil fuels, representing a net increase of 157,480 jobs (Figure 4).** **Renewable energy would also provide an additional \$8.2 billion in income and \$10.2 billion in gross domestic product in the U.S. economy in 2020.**

A 10 percent national RPS would create significant, but fewer jobs. Under the 10 percent scenario using UCS assumptions, more than 190,000 jobs would be created by 2020—a net increase of 91,220 jobs when compared with fossil fuels. In addition, \$5.1 billion in income and \$5.9 billion in gross domestic product would be pumped into the U.S. economy in 2020.

Renewable energy technologies tend to create more jobs than fossil fuel technologies because they are more labor-intensive.

A large share of the expenditures for renewable energy is spent on manufacturing equipment, and installing and maintaining it. With biomass, money is also spent on fuel, but usually from sources that are within 50 miles of a biomass plant, because it is too expensive to transport it for long distances. Therefore, **renewable energy facilities avoid the need to export cash to import fuel from other states, regions, or countries—keeping money circulating in the local economy, and creating more local jobs.**

Many of the new jobs would be located in rural areas where the renewable energy generating facilities would be sited. However, a national RPS can also benefit manufacturing states, even those with less abundant renewable resources, by providing them the opportunity to manufacture and assemble components for renewable energy facilities. **Developing a strong manufacturing base can also create enormous export opportunities, given the rapidly growing commitment of the rest of the world to expand use of renewable energy.**

A national RPS can help improve the U.S. economy in other ways. **Renewable energy can greatly benefit struggling rural economies,** by providing new income for farmers, ranchers, and landowners from biomass energy production, wind power lease payments, and local ownership. Property tax revenues from renewable energy facilities can also help local communities pay for schools and vital public services. [Table 3](#) compares the economic development benefits of the 20 percent by 2020 and 10 percent by 2020 national RPS scenarios analyzed using UCS assumptions.

RPS Solvency: Price Shocks

The current energy market is subject to price shocks and supply shortages- only renewables solve

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, **and Clemmer**, Research Director for UCS' Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

In response to high gas prices, and the declining productivity of North American gas wells, EIA projects **imports of** liquefied natural gas (LNG) **to increase more than seven-fold** over the next 20 years.²⁶ **This trend threatens to push the U.S. down the same troubled road of rising dependence on imported gas that has been followed for oil. By reducing the demand for natural gas, renewable energy can reduce imports.**

Lacking long fuel supply chains, renewable energy facilities are also not vulnerable to supply shortages or disruptions, price spikes, price increases, or price manipulation. And because they do not use volatile fuel or produce dangerous wastes, renewable energy facilities (except large hydropower dams) do not present inviting targets for sabotage or attack.

RPS Solvency: Energy Prices and global warming

A national RPS will produce energy independence while curbing global warming emissions and reducing energy prices

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, and **Clemmer**, Research Director for UCS' Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

The RPS has emerged as a popular and effective tool used by a growing number of states **to reduce market barriers and stimulate new renewable energy development. Driven in part by early successes in the states,** and recognition of the many benefits that significantly increasing renewable energy use can provide the entire nation, **advocates have been calling for a national RPS for nearly a decade.** A national RPS has passed three times in the U.S. Senate from 2002 to 2005, but has failed to become law. Leadership in the 110th Congress has indicated interest in continuing the national RPS debate **as part of an effort to increase America's energy independence and reduce global warming emissions.**

For several years EIA and UCS have been conducting analyses to project the costs and benefits of various RPS proposals. The analyses demonstrate that under a wide range of assumptions, **a 20 percent national RPS is achievable, and would save consumers money by reducing natural gas and electricity prices. The analyses also show that a national RPS would diversify the electricity system, promote local economic development, improve the nation's energy security and reliability, and achieve important reductions in global warming emissions.** Even under a 10 percent RPS, both UCS and EIA analyses show Americans would see all of these benefits, but at lower levels than what would occur under a 20 percent RPS.

RPS Solvency: GHG

Adopting a portfolio to promote non-fossil fuel energy production will significantly reduce greenhouse gas emissions

Spotts, staff writer CSM, 2K4

(Peter N. "Stabilizing the global greenhouse may not be so hard" Christian Science Monitor Aug 13,

<http://www.csmonitor.com/2004/0813/p03s02-ussc.html?s=rel> [accessed 06/20/2008])

Humanity has the hardware in hand to halt the rise in heat-trapping greenhouse gases it pumps into the atmosphere and forestall the worst effects of global warming projected for the end of this century.

The goal could be achieved within the next 50 years by more widespread use of a portfolio of at least 15 approaches - from energy efficiency, solar energy, and wind power to nuclear energy and the preservation or enhancement of "natural" sinks for carbon dioxide such as rain forests, or the conservation tillage techniques on farms worldwide, say two Princeton University researchers in a study published Friday.

The list of technologies has been around for years, the researchers acknowledge. **But** past studies, such as one conducted by five US national laboratories four years ago, tended to focus on whether these approaches could be used to reach the emissions goals and deadlines in the 1997 Kyoto Protocol without trashing the economy, as some critics of the pact have warned.

Holding out for more research, **Bush administration officials have argued that "we need a solution comparable to the discovery of electricity before we can get on with the carbon problem,"** says Robert Socolow, an engineering professor at Princeton University and codirector of the school's Carbon Mitigation Initiative. **"But there isn't a [Michael] Faraday in every generation. If you don't get started, you'll waive an opportunity" to use what's available.**

The study, published in Friday's edition of the journal Science, is short on policy recommendations.

"How do you get these [technologies] into the system?" asks Eileen Claussen, president of the Pew Center on Global Climate Change and Strategies for the Global Environment in Arlington, Va. **The problem**, she says, **is more one of politics and cost than whether key technologies currently exist at industrial scales.**

Yet **by adopting a more scientifically defensible target** and a longer time scale to achieve it, Stephen Pacala and Dr. Socolow hope the study **helps break a logjam** - at least in the United States - **over when to begin efforts to stabilize and ultimately reduce the carbon-dioxide emissions that most atmospheric scientists say are contributing to a warming world climate.**

RPS Solvency: Global Warming- slow rate of warming

Even if an RPS does not solve warming it will slow the rate of warming allowing ecosystems time to adapt

Thomas et al. Centre for Biodiversity and Conservation, School of Biology, University of Leeds, 2k4

(Chris and like 20 other people, "Extinction Risk from Climate Change" *Nature* no.427 Jan 8)

Despite these uncertainties, we believe that **the consistent overall conclusions across analyses establish that anthropogenic climate warming at least ranks alongside other recognized threats to global biodiversity.** Contrary to previous projections²⁴, **it is likely to be the greatest threat in many if not most regions.** Furthermore, **many of the most severe impacts of climate-change are likely to stem from interactions between threats, factors not taken into account in our calculations, rather than from climate acting in isolation.** **The ability of species to reach new climatically suitable areas will be hampered by habitat loss and fragmentation, and their ability to persist in appropriate climates is likely to be affected by new invasive species.** Minimum expected (that is, **inevitable**) **climate-change scenarios for 2050 produce fewer projected 'committed extinctions'** (18%; average of the three area methods and the two dispersal scenarios) **than mid-range projections** (24%), **and about half of those predicted under maximum expected climate change** (35%). **These scenarios would diverge even more by 2100.** In other words, **minimizing greenhouse gas emissions** and sequestering carbon²⁵ **to realize minimum**, rather than mid-range or maximum, **expected climate warming could save a substantial percentage of terrestrial species from extinction.** Returning to near pre-industrial global temperatures as quickly as possible could prevent much of the projected, but slower-acting, climate-related extinction from being realized.

RPS Solvency: Global Warming

Europe proves that a linked network of renewable electricity can avoid blackouts and avert a global climate shift

Monbiot, held numerous professorships and fellowships and is currently a visiting professor of planning at Oxford Brookes University, **2K7**

(George, "Comment & Debate: Stop doing the CBIs bidding, and we could be fossil fuel free in 20 years: Prospects for renewable power are promising. But it means nothing if the public interest is drowned by corporate power" **The Guardian** (London) July 3)

It's a critical question, whose answer - if its results were applied globally - could determine whether or not the planetary "albedo flip" that Hansen predicts takes place. There has been remarkably little investigation of this issue. Until recently I guessed that the maximum contribution from renewables would be something like 50%: beyond that point the difficulties of storing electricity and balancing the grid could become overwhelming. But three papers now suggest that we could go much further.

Last year, **the German government published a study of the effects of linking the electricity networks of all the countries in Europe** and connecting them to north Africa and Iceland with high-voltage direct-current cables. **This would open up a much greater variety of renewable power sources**. Every country in the network would then be able to rely on stable and predictable supplies from elsewhere: hydroelectricity in Scandinavia and the Alps, geothermal energy in Iceland and vast solar thermal farms in the Sahara. **By spreading the demand across a much wider network, it suggests that 80% of Europe's electricity could be produced from renewable power without any greater risk of blackouts or flickers.**

At about the same time, Mark Barrett, of University College London, published a preliminary study looking mainly at ways of altering the pattern of demand for electricity to match the variable supply from wind and waves and tidal power. At about twice the current price, he found that we might be able to produce as much as 95% of our electricity from renewable sources without causing interruptions in the power supply.

Now a new study by the Centre for Alternative Technology takes this even further. It is due to be published next week, but I have been allowed a preview. It is remarkable in two respects: it suggests that by 2027 we could produce 100% of our electricity without the use of fossil fuels or nuclear power, and that we could do so while almost tripling its supply: our heating systems (using electricity to drive heat pumps) and our transport systems could be mostly powered by it.

It relies on a great expansion of electricity storage: building new hydroelectric reservoirs into which water can be pumped when electricity is abundant, constructing giant vanadium flow batteries and linking electric cars up to the grid when they are parked, using their batteries to meet fluctuations in demand. It contains some optimistic technical assumptions, but also a very pessimistic one: that the UK relies entirely on its own energy supplies. If the German proposal were to be combined with these ideas, we could begin to see how we might reliably move towards a world without fossil fuels.

If Hansen is correct, **to avert the meltdown that brings the Holocene to an end we require a sort of political "albedo flip". The government must immediately commission studies to discover how much of our energy could be produced without fossil fuels, set that as its target and then turn the economy round to meet it. But a power shift like this cannot take place without a power shift of another kind: we need a government which fears planetary meltdown more than it fears the CBI.**

RPS Solvency: Global Warming

RPS would lead to CO2 reductions helping to prevent global warming

The Daily Yomiuri, 2K7

(Tokyo, "Increased cost of power must be shared evenly" February 11th)

How can the emission of carbon dioxides from power generation be reduced? How should the increased cost of such a reduction be shared? **Issues on power generation, which is linked to global warming, must be resolved.**

Under **the** renewable portfolio standard (**RPS**) **system**, which **obliges utility companies to utilize a certain amount of new energy sources, such as wind and solar power**, the Economy, Trade and Industry Ministry has decided to increase the obligatory use of new energy sources to 16 billion kilowatt-hours in fiscal 2014, about a three-fold increase on the current use of renewable energy sources.

The new requirement will bring about a 30 percent increase on the current obligatory utilization of 12.2 billion kilowatt-hours, which will end in fiscal 2010. With the new obligatory amount, power generation from new energy sources would account for 1.63 percent of total electricity sales, compared to the previous target of 1.35 percent.

Under the new RPS utilization rules, solar power--the most costly renewable energy source--will be considered to be worth twice as much as other new energy sources as an incentive designed to appease the power industry, which opposes the increase of the obligatory standard.

The RPS system requires that a certain proportion of utility companies' power supply must come from new energy sources. If a company fails to meet the target, it will be obliged to purchase electric power generated by wind or other new sources from other companies to cover the shortfall.

Under this system, the ministry aims to increase the value of new energy, as well as its attractiveness, to promote the development of power generation from new sources.

Energy security

Expanding the use of wind and solar power, which do not emit CO2, would help tackle global warming and, as such energy can be produced domestically, improve the nation's energy security.

In this regard, the hike of the obligatory level is an appropriate measure, especially because it includes an incentive for solar power, a field in which technological innovation can be expected.

RPS solvency: Global Warming

A National RPS is the most important step toward preventing global warming- our policy paves the way for future policies that will be more stringent

Clayton, staff writer CSM, 2K7

(Mark, "States taking the lead in cutting carbon emissions" Christian Science Monitor April 27th)

Already, states have trimmed an estimated 20 million metric tons of CO2 emissions through **renewable-energy portfolio standards (RPS), which require that a certain percentage of power come from renewable sources.**

"Renewable standards are one of the biggest steps we can take to cut global-warming pollution in the next 10 years," says

Alison Cassady, author of a new US Public Interest Research Group report released earlier this month.

Nationwide, the rate of growth of CO2 emissions has slowed, according to her analysis. Emissions from power plants and transportation rose 18 percent between 1990 and 2004. Between 2000 and 2005, they grew only 2 percent, mostly due to a shift to less-carbon-intensive natural-gas power plants.

But with the price of natural gas surging and a phalanx of coal-fired power plants in development, lower emissions growth may be ending at about the same time Congress is entering the global-warming debate in earnest.

Bills call for more energy from renewables

Several bills pending in Congress would require 20 percent of US energy to come from renewables by 2020. That standard would be tougher than many state requirements and could cut the growth of US emissions 60 percent by 2020, the UCS analysis shows.

At that level, state RPS would produce 180,000 megawatts of power, 11 times current levels. Most important, it would prevent 434 million metric tons of CO2 emissions from entering the atmosphere.

That still leaves CO2 emissions growing in the future. But it shows **RPS can eliminate a substantial portion of greenhouse-gas emissions, paving the way perhaps for a broader national push for energy efficiency with tougher standards for appliances and lighting, for instance.**

If Congress were to mandate a new national standard that caps CO2 emissions and permits the trading of emissions allowances - a so-called cap-and-trade approach - state programs might still play a key role in accelerating the transition to less carbon-intensive energy production.

"I think [renewable energy standards] would still find a home in a world with a federal cap-and-trade system," says Michael Oppenheimer, a Princeton scientist and a lead author in the most recent report by the authoritative Intergovernmental Panel on Climate Change. **"These programs could be useful if for no other reason than that they provide extra incentives for bringing on renewable energy rapidly."**

RPS Solvency: CO2

A National RPS would significantly reduce CO2 emissions

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, **and Clemmer**, Research Director for UCS' Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

Increased renewable energy use would reduce CO2 emissions from power plants. Using UCS assumptions, the **20 percent national RPS is projected to reduce CO2 emissions by 434 million metric tons** (MMT) per year by 2020—**15 percent below business as usual levels or a 59 percent reduction in the projected growth in emissions. This reduction is equivalent to taking nearly 71 million cars off the road.**

Using EIA assumptions, a 20 percent RPS would produce slightly greater CO₂ reductions of 468 MMT by 2020, as the increased use of biomass sources displaces higher amounts of coal generation.

Under a 10 percent RPS, UCS and EIA analyses show that CO₂ emissions would be reduced 166 MMT to 215 MMT nationally by 2020—a reduction of up to 7.2 percent below business as usual levels. As with the 20 percent scenarios, the use of EIA's assumptions results in greater emission reductions due to higher levels of biomass energy production.

RPS Solvency: FERC

The affirmative is crucial to changing current RPS legislation which will lock in the ineffective Department of Energy (DOE) as lead agency on administering the RPS. Only the Federal Energy Regulatory Commission (FERC) has the capabilities to solve

Global Power Report oct 11th 2K7

The Federal Energy Regulatory Commission, not the Department of Energy, should oversee the administration of a national renewable portfolio standard, FERC commissioner Jon Wellinghoff said this week in Washington.

At a breakfast meeting October 9 hosted by the Alliance to Save Energy, Wellinghoff said, "I think **FERC would be a better place to administer that statute.**"

He added during an interview after the meeting that **making sure utilities implement more renewables is a "regulatory function" and FERC is a regulatory agency. "I don't think DOE has that extensive day to day regulation of utilities,"** he said.

"That is the main issue," he said. **If the RPS is not administered correctly by an agency like FERC, "it has the potential to spin out of control,"** he said.

He said during the meeting that he cannot think of a better agency than FERC because "the proof is in the pudding in the 2005 Energy Policy Act."

"FERC got everything done within the time frame it was required," Wellinghoff said.

Wellinghoff said he has spoken casually with DOE but has not talked to FERC Chairman Joseph Kelliher, which he plans to do and needs to do if **FERC wants to convince Congress to change the provisions in the energy bill putting DOE in charge of the RPS.**

"I have had some discussions with DOE," he said. But, "it would have to be an official FERC position" for the commission to lobby for this change.

A pending House of Representatives' version of energy legislation would require utilities to source at least 15% of their electricity from renewable generation by 2020.

RPS Solvency: FERC

Federal leadership is key- FERC must administer a federal RPS – this is crucial to renewable energies access to the market and solves for the lack of uniformity at the state level which can never increase renewable energy use

Electric Utility Week oct 15th, 2K7

(Wellinghoff = Jon Wellinghoff a commissioner for Federal Energy Regulatory Commission FERC)

State variety creates 'uneven field' for renewables

Wellinghoff's comments were welcome news to a nonprofit group aiming to facilitate national standards for net metering and utility connection rules for renewable resources at customer facilities. The New York-based group, the Network for New Energy Choices, came out with a report last year ranking state regulators on net metering rules, suggesting that **a federal RPS, overseen by FERC, would improve renewable energy penetration and ease demand for fossil-fuel generation by utilities** (EUW, 27 Nov '06, 6).

The commissioner's goals do coincide with what NNEC said in last year's report and what it is recommending in an updated version to be released next month, said group spokesman Shaun Chapman. **The lack of uniformity among state RPS efforts, which is not fostering enough investment in renewable facilities, cries out for federal management of a national system,** NNEC contends. **Because FERC has crafted interconnection rules for small generators and could be put in charge of a national net metering program, RPS oversight makes sense as well,** Chapman said.

Among state RPS plans, "the current discrepancy in the design and implementation of several dozen vastly different state programs has created an uneven playing field for renewable-energy service providers and utilities alike, and is preventing distributed renewable-energy technologies from reaching economies of scale," according to a summary of the new report.

"Uniform federal interconnection and net-metering standards could create a level playing field and provide greater regulatory predictability than the existing patchwork of state policies," NNEC contends. Although some states have improved net metering rules and tweaked interconnection standards to foster more renewable generation at customer facilities, **"some states haven't done anything"** to follow recommendations in the Energy Policy Act of 2005, Chapman said last week.

The full report "Freeing the Grid, 2007" will be released at the National Association of Regulatory Utility Commissioners meeting in November. Like the 2006 version, the updated report will rank state interconnection and net metering rules, which can reflect utility biases against net metering because many utilities view on-site renewable generation as a threat to their bottom lines, Chapman said.

RPS Solvency: Pollution and environment

An RPS decreases damage and harmful pollutants from fossil fuel extraction and burning

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, **and Clemmer**, Research Director for UCS' Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

Electricity use has a significant impact on the environment and public health. Electricity accounts for less than 3 percent of U.S. economic activity, yet **the burning of coal, oil, and natural gas for power currently accounts for more than 26 percent of smog-producing nitrogen oxide emissions, one-third of toxic mercury emissions, and 64 percent of acid rain-causing SO2 emissions.** **Increased renewable energy use can help reduce these harmful emissions,** or reduce the cost of complying with pollutant reduction requirements. **And by reducing the need to extract, transport, and consume fossil fuels, a national RPS would limit the damage done to our water and land and conserve natural resources for future generations.**

A2: DA – N/U RPS coming now

Federal RPS likely coming in the status quo

Electric Utility Weekly May 19 2K8

A panel at Goldman Sachs' Eighth Annual Power and Utility Conference in New York disagreed last week about whether integrated gasification combined-cycle technology, proposed by some major coal-burning electric utilities such as [American Electric Power](#) to cut carbon dioxide emissions, is far enough advanced to be guaranteed by vendors.

And on a separate panel, John **Bryson, Edison International president and CEO, suggested that despite the high price of renewables, it is likely a federal renewable portfolio standard will be approved**, possibly as part of greenhouse gas legislation.

The outlook for GHG legislation is unclear because the issue is in danger of being overtaken, at least in the short term, by more pressing problems such as the sagging US economy.

[Gale Klappa](#), Wisconsin Energy CEO, said chances are "remote" that Congress will deal definitively with the carbon issue this year. "In all probability, it moves to next year. One of the fundamental things that has happened is that the economy has moved to the top of the list. There is a much more heightened sensitivity to what is the impact on the economy."

He continued: "We will see work done by the Senate, we will see the House come out with something, [but] not this year, and so, I'm not sure it happens in 2009. It may very well take another year to get legislation acted on in 2010."

That is at least partly because a new president may not rank climate change among the top issues facing the country. "I think that's a disappointment for our industry, because we need to get it done now," he said.

Columbus, Ohio-based AEP, the nation's largest coal user, wants to build a pair of 629-MW IGCC plants in West Virginia and Ohio to reduce CO2 emissions. But the plants are very expensive ? at least \$2 billion apiece ? causing some consumer advocates and state regulators to balk at supporting them.

Recently, the Virginia Corporation Commission rejected a plan by Appalachian Power, an AEP subsidiary, to build its Mountaineer plant in neighboring West Virginia. Because ApCo serves customers in both states, regulatory approval is needed by Virginia and West Virginia, which already has approved the project.

In its decision, the VCC cited the cost uncertainty of the project.

Holly Koepfel, AEP executive vice president and chief financial officer, said IGCC technology is to a point where vendors will stand behind the operating performance of the equipment. "I think we can address that issue," she said.

But the bigger challenge, she added, is the price of the technology itself. "It is clearly expensive ... the regulators are in a very difficult position. They understand the technology is necessary but costs a lot more than the next best alternative to keep the lights on, natural gas generation."

AEP intends to submit revised cost estimates to Virginia regulators.

Klappa wondered aloud about those operating performance guarantees. "My concern is to try to get operating performance guarantees from the vendors," he said. "The proof is clearly in the pudding. If you build a [natural gas-fired combined cycle plant] you can get very good performance guarantees from vendors. You don't get that with IGCC."

Assuming vendor assurances are forthcoming, Klappa pointed out that the geology of some states is not conducive to storing CO2 underground. "In Wisconsin, the geology is not such that you can even do natural gas storage," he said. "It will not support any amount of CO2 storage. If you could get operating guarantees from vendors, what do you do with the CO2? There will have to be another pipeline system developed in portions of the United States to send the CO2 to another state. If you capture CO2 and ship it to Illinois, do you run into another Yucca Mountain issue?"

Koepfel said AEP expects to sequester CO2 at the site of its Mountaineer IGCC plant in West Virginia.

Federal RPS 'likely'

Meanwhile, Bryson said **a federal renewable portfolio standard is "likely," probably as part of other legislation dealing with greenhouse gas reductions or other energy issues.**

But with current renewable energy power purchase agreements generally above market prices, how sustainable will the push be for renewables? "There's going to be both, I think, large pressures on rates and cost in the next years, but also a huge emphasis on development of clean energy, including renewables," Bryson said. **"It's reasonably likely there will be a federal renewable portfolio standard approach."**

The outlook for a national RPS may improve as solar technology matures and becomes less expensive, Bryson said. "An array of [solar] vendors is coming forward with what looks like improving technology and maybe improving cost," he said, noting that expanded solar could widen the geographic base of the renewable potential in the US. Southeastern states have opposed a federal RPS, he noted.

A2: DA – N/U Regulation inevitable

Regulation of emissions is inevitable- implementing an RPS now is crucial to avoiding economic and political fallout

Nogee, Clean Energy Program Director with the Union of Concerned Scientists (UCS), **Deyette**, energy analyst with UCS, and **Clemmer**, Research Director for UCS' Clean Energy Program, **2K7**

(Alan, Jeff, Steve. The Projected Impacts of a National Renewable Portfolio Standard *The Electricity Journal* Vol 20 Issue 4 May pg. 33-47)

As discussed above, **a national RPS would reduce CO2 emissions from power plants. And because a national RPS would also save money for electricity and gas consumers, these are highly cost-effective carbon reductions. They represent insurance against the risk that electric providers—the largest source of CO2 emissions in the U.S. economy—will have to eventually reduce those emissions.**

Congressional leaders have expressed a strong interest in adopting a mandatory carbon reduction policy, and even most utility executives believe that they will have to implement carbon reductions. Yet in response to higher natural gas prices and increasing energy demand in recent years, more than 150 new coal-fired power plants have been proposed throughout the U.S.—none of which include plans to capture and store their carbon emissions.²⁸ **As a result, these plants will expose their owners, power purchasers, and customers to the risk of future price increases from CO2 regulation or installing equipment to reduce emissions that could be avoided by investing in renewable energy instead.** Indeed, under an economy-wide cap-and-trade approach, the carbon reductions from increasing renewable energy could save money. A 2001 analysis by EIA of a bill proposing to cap four power plant pollutants, including CO₂, found that **the addition of a 20 percent RPS to the cap-and-trade scenario reduced cumulative compliance costs \$72 billion by 2020.**²⁹

T: RPS is an incentive

RPS is an incentive for renewable energy production

Rubens, contributor earth2tech/GigaOM, 2K7

(Craig, "States will Continue to Drive Renewable Portfolios in 2008" Dec 28th <http://earth2tech.com/2007/12/28/states-will-continue-to-drive-renewable-portfolios-in-2008/> accessed 06/22/2008)

For example the Minnesota House of Representatives released a report in November 2006, [An Inventory of State Renewable Energy Standards](#), listing the various programs of the **23 states that had RPS in place**. The report clearly lists which investor-owned, municipal utilities, and electric cooperatives are subject to the standards as well as a list of acceptable renewable energy sources by state. While solar (PV) and wind power are good across the board, not surprisingly states with no coastline don't include wave or tidal energy in their RPS.

Minnesota's own Xcel Energy is working to meet its RPS where 30 percent of its power will be generated by renewable sources by 2020 and [doled \\$23 million to renewable energy generation projects](#) this month. States are even actively pushing utilities away from fossil sources to renewable energy. The denial of Delmarva Electric's application for a new coal power plant by the Delaware Public Service Commission was followed by the commission ordering the utility to buy power from Bluewater Wind instead.

Can the states do it on their own? They have so far. And state level **RPS will increasingly drive large utilities to switch to renewable energy sources and allow for new energy players to take advantage of state incentives.** Greening the economy increasingly is becoming the states' responsibility and states rights are being fought over when it comes to environmental standards. **In 2008 the race** to see which state will lead the green economy **will continue to heat up and a strong RPS program will be a big incentive for renewable power companies.**

A national RPS is a form of incentive for renewable energy

Environment News Service 2K5

(J.R. Pegg "Senate Approves National Renewable Energy Standard" June 17th <http://www.ens-newswire.com/ens/jun2005/2005-06-17-10.asp> accessed 06/22/2008)

Seventeen states, including Texas and Wisconsin, **have enacted renewable energy standards that require electric companies to increase their use of renewable energy sources.**

The amendment was coauthored by Republican Senator Norm Coleman of Minnesota, who said the amendment is good for his constituents.

"With Minnesota's wind energy production the fastest growing in the nation, the extension of wind **energy tax credits**, the Rural Renaissance style bonding authority, **and the Renewable Energy Standard are all important incentives, for greater energy independence, environmental protection, and economic development.**" Coleman said.

Environmentalists praised the renewable portfolio standard, but noted that the Senate has passed such a provision in each of the last three sessions only for the overall energy bill to falter.

Immediately after the vote approving the measure, Chambliss called on Senate leaders to modify the proposal in the conference report to give states "greater flexibility and protect consumers from price increases."

The Industry views RPS as an incentive

Shoock, JD Fordham Law School summa cum laude, 2K7

(Corey Stephen, "Blowing in the Wind" Fordham Journal of Corporate and finance law http://findarticles.com/p/articles/mi_qa4048/is_200707/ai_n21032683/pg_5 accessed 06/22/2008)

The American wind energy market is projected by its industry trade association, the American Wind Energy Association (the "AWEA"), to be able to support 10,000 megawatts of wind power installations every year. This in turn would make the goal of producing 20% of the nation's electrical supply achievable.¹²⁶ Considering its growth, the wind industry is still remarkably sensitive to legislative action.¹²⁷ In fact, **nearly all of the industry's major challenges are addressable through regulatory initiative and tax policy.**¹²⁸ **The wind power industry has shown responsiveness to virtually every type of supply and demand-side incentive policy on the books, including each of the following:** installation **credits**, net metering, system benefits funds, sales and property tax exemptions, grants, loans, **production tax credits** and incentives, **and renewable portfolio standards.**¹²⁹ For example, in 2003 the EIA released a study in which they examined the possible effects of a 10% national renewable portfolio standard by 2030(130) - a lower percentage and later date than most states currently employing a renewable portfolio standard.¹³¹ Wind energy, the study suggested, would be the greatest beneficiary of such action, while fossil fuels coal and natural gas would be most negatively influenced in terms of production, albeit not heavily.¹³² The price of electricity at end-use sectors (residential, commercial, industrial, transportation), the EIA found, would largely remain unaffected.¹³³