

A Cost-Effective Bridge to Florida's Energy Future

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Executive Summary

A decade from now, Florida's energy options may well differ from today's. Indeed, several trends are already evident. For instance, emerging technologies may make "biomass" a feasible and cost-effective source of energy. And for the first time since the 1970s, there has been progress in Florida toward eventually tapping the demonstrated potential of nuclear power — although the lengthy permitting process now in place will mean that 2019 is likely the earliest that a nuclear power plant proposed for Levy County can begin producing electricity.

Meanwhile, Florida and the nation as a whole face some immediate and crucial choices regarding energy. These choices can make or break our economy for decades to come. Affordable, abundant energy has long been a cornerstone of our economic well-being. Conventional sources such as oil and natural gas have dominated electricity production and transportation because they have been much less expensive to turn into usable power. If there is to be an efficient transition to other energy sources, then the economic consequences and the real-world feasibility of switching to those sources must be taken into account.

However, if government intervention in the marketplace prematurely restricts conventional sources in favor of sources that are neither cost-effective nor practical, the price differential could jeopardize Americans' economic well-being. Florida, in particular, could suffer if intrusive government policies result in a greater reliance on wind and solar power, the two alternative energy sources most commonly promoted

by environmentalists. Contrary to common misperceptions, Florida has extremely limited wind-power potential and merely average solar-power potential. Therefore, Florida would pay a steeper price than most other states if government policies dictate an overreliance on wind and solar power.

Conversely, during the transition to practical alternative sources such as nuclear power, Florida could benefit from a relaxation of the limitations on the recovery of oil and natural gas from the Gulf. Indeed, a conservative estimate suggests that allowing exploration and production there could yield from \$2.2 billion and \$12 billion a year for the state government and would add more than \$7 billion a year to Florida's economy, creating no fewer than 40,000 jobs.

Assertions that environmental concerns justify the substantial additional costs of wind and solar power fail to withstand objective analysis. All energy sources, including wind and solar, create certain negative environmental consequences. Meanwhile, technological innovations in the use of conventional energy sources have yielded substantial and ongoing improvements in air quality. Therefore, on balance, the negative environmental impacts of wind and solar power may very well outweigh the minimal air pollution from conventional power sources.

As we prepare to enter the second decade of the 21st century, those states that recognize and encourage the free-market principles that reward efficient energy production and distribution will be the states with the healthiest economies and the most rewarding standards of living.

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A Cost-Effective Bridge to Florida's Energy Future

Government weakens the economy and reduces living standards when it induces or forces consumers to purchase more expensive sources of goods and services than is necessary. For example, if corn grows more economically and efficiently in Iowa than in Pennsylvania, the economy will suffer and consumer purchasing power will diminish if government dictates that consumers may only purchase corn grown in Pennsylvania.

Similarly, the economy will suffer and consumer purchasing power will diminish if government dictates that consumers must purchase energy from uneconomical and inefficient sources.

Regardless of how one dissects the data, the fact is that wind power, solar power, and other forms of "renewable" power are significantly more expensive to produce than coal, oil, and natural gas. Accordingly, forcing consumers to purchase energy from renewable sources will harm the economy and diminish consumer purchasing power. The extra money required to purchase power from renewable sources will necessarily come at the expense of food, nutrition, clothing, shelter, education, consumer goods, and more pressing environmental issues. This will be true no matter how sophisticated the government's efforts to hide the higher costs associated with renewable power.

Gilbert Metcalf, professor of economics at Tufts University, published an illuminative study of electricity production. The study tracks actual production costs and the government subsidies that are often hidden from electricity consumers.¹ Stripping away the hidden subsidies and other government intrusions that tilt the economic playing field, Metcalf reports the following costs of electricity production in cents per kilowatt hour (kwh):

Coal:	3.79	
Clean coal:	4.37	(+15 %)
Natural gas:	5.61	(+48 %)
Nuclear:	5.94	(+57 %)
Wind:	6.64	(+75 %)
Solar thermal:	18.82	(+570 %)
Solar photovoltaic:	37.39	(+887 %)

Not only is coal the least expensive source of electricity, but the next three most cost-effective options – clean coal, natural gas, and nuclear – are the subject of significant opposition from environmental activist groups. As a result, renewable power mandates and carbon dioxide legislation typically force consumers to purchase only the most expensive forms of alternative energy -- wind and solar power.

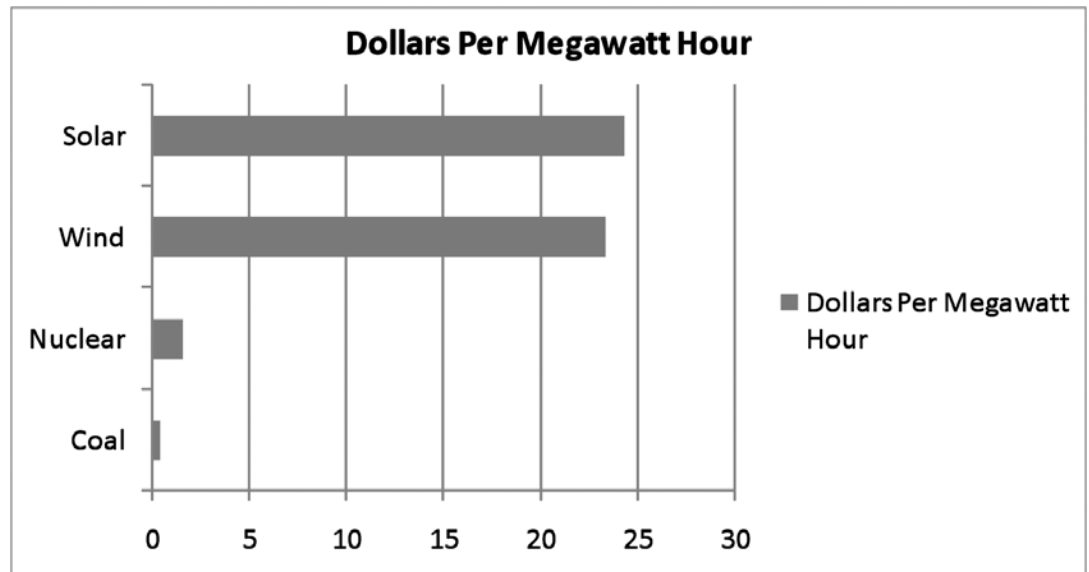
The higher cost of alternative power sources is evident in real-world electricity prices. According to the U.S. Energy Information Administration (EIA), the average retail price of electricity in states with mandates that force utilities to produce power from renewable sources is 42% higher than the price of electricity in states without such mandates.²

Worse, this costly real-world premium on renewable power represents only a fraction of the true costs because the retail price of electricity from alternative sources is artificially lowered by subsidies that aren't reflected in the final selling price.³

Moreover, states with such renewable power mandates tend to be states such as California, which have more abundant wind and solar resources than states without such mandates.^{4,5} Imposing such mandates on, for example, southeastern states with very limited wind and solar power potential would result in even higher prices than are reflected in the EIA data.

"The extra money required to purchase power from renewable sources will necessarily come at the expense of food, nutrition, clothing, shelter, education, consumer goods, and more pressing environmental issues."

“The EIA reports that Florida and Mississippi rank at the very bottom among the 50 states in terms of wind power potential.”



Federal Electric Subsidies, in Megawatt Hours. Source: “Federal Financial Interventions and Subsidies in Energy Markets,” U.S. Energy Information Administration, April, 2008, <http://www.eia.doe.gov/oiaf/servicerpt/subsidy2/pdf/subsidy08.pdf>.

Florida Disproportionately Suffers

Renewable power mandates would be especially expensive for Floridians. While citizens in all regions of the country will face higher energy costs imposed by mandates forcing utilities to use alternative sources of power, Florida is at a distinct and additional disadvantage, relative to other states, regarding alternative energy production.

As noted above, the real-world production cost of wind power is 75 percent more than coal power. This number, however, would rise dramatically if government forced consumers, especially in states such as Florida, to purchase significantly more wind power. The reason for this is that wind power developers have already picked the “low-hanging fruit,” producing wind power in the locations best suited for wind power production.

Unlike a coal power plant, whose efficiency is not constrained by local meteorological or geographical conditions, the efficiency of wind power production is closely tied to the region in which it is produced. Large wind farm operations are already in place in such advantageous locations as California’s Altamont Pass, the high plains of the Upper

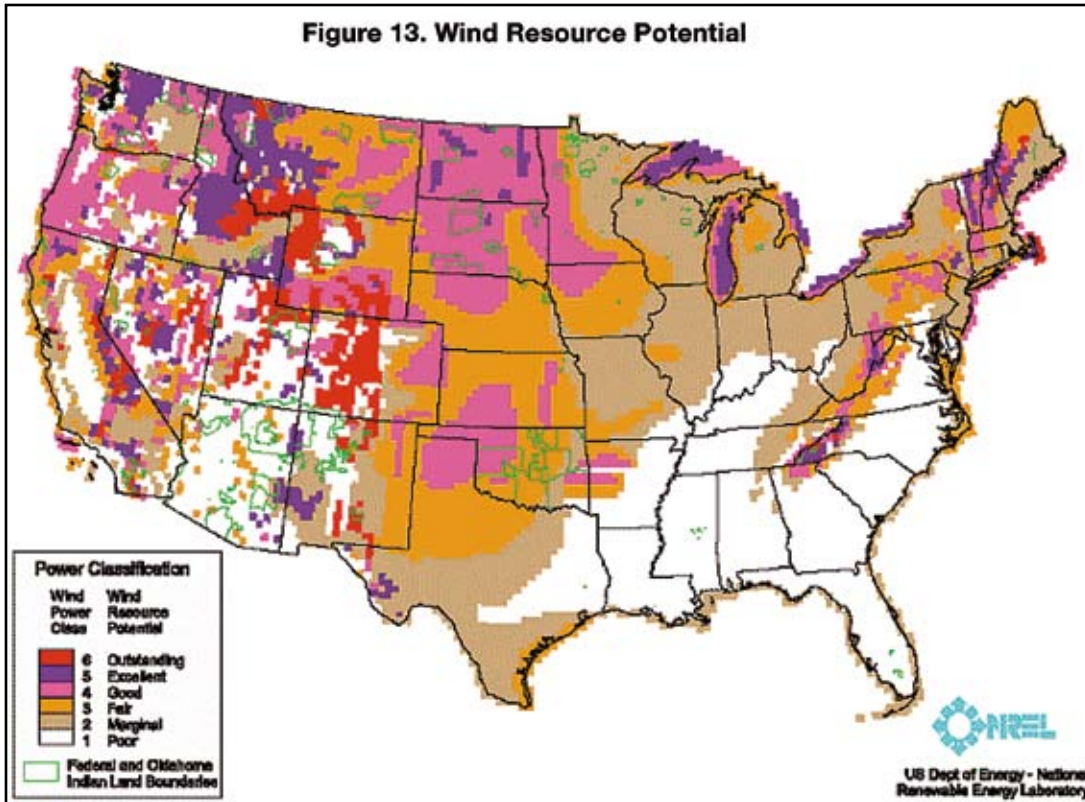
Midwest, and mountaintop ridges in the Appalachian Mountains.

Producing more wind power will require finding new, less efficient locations to construct wind farms, driving up the average price of wind power much higher than the 75 percent premium already evident in the relatively advantageous locations.

Still worse for Floridians, the EIA reports that Florida and Mississippi rank at the very bottom among the 50 states in terms of wind power potential.⁶ Because electricity can be economically transported only for a limited distance, renewable power mandates will require Floridians to purchase wind power produced in places that are much less conducive to wind power production – and hence much more expensive to produce – than in the relatively advantageous locations of current wind power production – locations that already entail a 75 percent price premium over coal power production.

Solar power offers Floridians no better hope for a cost-effective alternative. The U.S. Energy Information Administration ranks Florida as roughly average among the 50 states for solar power potential.⁷

Figure 13. Wind Resource Potential



U.S. Wind Resource Potential. Source: U.S. Energy Information Administration, <http://www.eia.doe.gov/cneaf/solar/renewables/lands/fig13.html>.

Florida's southerly location is offset by significantly more cloudiness than occurs in western states. As noted above, it costs 570% to 887% more to produce solar power than coal power, and Florida offers no competitive advantage over existing solar power projects currently operating in generally more favorable locations.

While Florida may not be much better or worse than other states in terms of solar power potential, a five-fold to nine-fold increase in the price of electricity is not something that is beneficial – or likely even feasible – for most Florida households.

Misleading Economic Reports

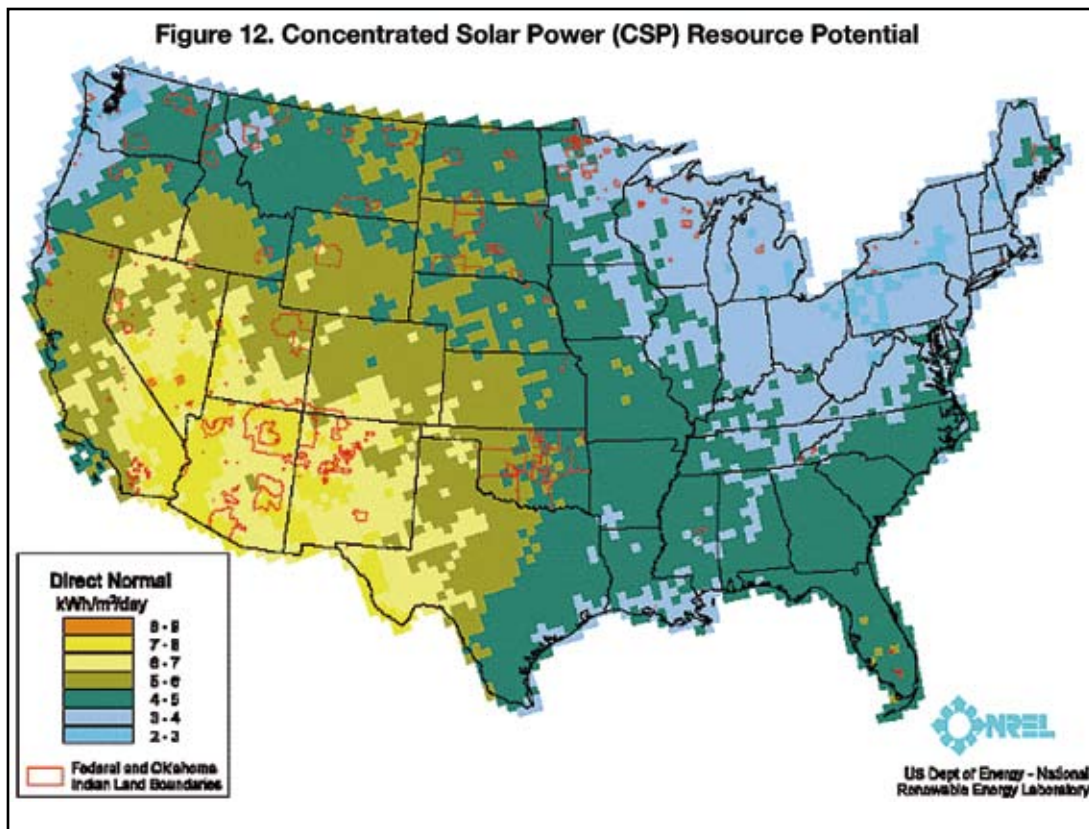
Despite the real-world cost premiums on alternative energy production, supporters of renewable power mandates and carbon dioxide restrictions point to studies such as the Congressional Budget Office (CBO) analysis

of the Waxman-Markey carbon dioxide legislation⁸ as “evidence” that forcing consumers to purchase energy from alternative sources will entail few if any additional costs. For each study cited or championed by the proponents of energy restrictions, however, the study itself is either deeply flawed or is misrepresented by the proponents of energy restrictions.

For example, Waxman-Markey supporters assert that a June 2009 CBO study shows the Waxman-Markey bill will cost the average U.S. household merely \$175 per year.⁹ This assertion is flawed in several particulars.

First and foremost, the CBO analysis was limited to a snapshot of the year 2020. However, most of the emissions cuts – and hence costs – will occur after 2020. Parading in front of the media a cost estimate that predates the majority of emissions cuts is like a crewman on the Titanic looking only at the 10 percent of the approaching iceberg that is above water and parading in front of the captain an esti-

“For each study cited or championed by the proponents of energy restrictions, however, the study itself is either deeply flawed or is misrepresented by the proponents of energy restrictions.”



Concentrated Solar Power Resource Potential. Source: U.S. Energy Information Administration, <http://www.eia.doe.gov/cneaf/solar.renewables/ilands/fig12.html>.

“The CBO analysis determined the average household will be paying \$875 extra in electricity costs – not the \$175 figure asserted by the bill’s proponents – for the year 2020.”

mate of the likely hull damage from just that 10 percent of the iceberg. The per-household cost estimate of Waxman-Markey for the year 2020 is not at all indicative of the costs that consumers will ultimately be required to pay when utilities are forced to make a majority of their emissions cuts.

Second, the CBO analysis determined the average household will be paying \$875 extra in electricity costs – not the \$175 figure asserted by the bill’s proponents – for the year 2020. The CBO analysis indicated that if government lives up to the promises of Waxman-Markey proponents to return the fees paid by carbon emitters (and hence electricity consumers) to citizens in the form of various government programs, the net worth of these government subsidies, programs, and payments allegedly made possible by Waxman-Markey carbon fees will reduce the annual net cost to \$175 for the average household in 2020.

However, this type of follow-the-money shell game of government promises and circular logic can be similarly employed to argue that any and all taxes imposed upon consumers don’t really exist and actually cost them nothing because of government subsidies, programs, and payments made possible by such taxes. Yet the fact that government takes tax dollars from the population and sometimes spends them on projects of dubious value does not mean that taxpayers are actually not being taxed or that taxpayers are getting a full economic return on their investment. No matter how the proponents of high taxes wish to describe the relative merits of resultant government programs, one cannot pretend that the taxes never were taken simply because a politician or a government bureaucrat invents a program that he or she thinks is worth the tax money.

Third, CBO’s calculation of year 2020 costs consists almost exclusively of the cost of car-

bon fees paid to the government. Indeed, 96 percent of the CBO-estimated cost premiums associated with Waxman-Markey consist of direct fees paid to the government by carbon emitters. Almost entirely ignored in the calculation are the higher prices consumers will be paying out of their pockets – though not directly to government and therefore largely ignored by the CBO analysis – for higher-priced electricity produced from inefficient alternative fuels. Given the very high and very real cost premiums consumers must pay for wind, solar, and other alternative energy sources, any economic analysis that essentially ignores the higher prices consumers will be paying for renewable power generation (an amount that ranges from 75% higher prices for wind power to 887% higher prices for solar power, depending on which form of renewable power is utilized) clearly ignores a substantial component of the true costs of the legislation.

True Costs of Renewable Power

The economic reality of significantly higher energy costs associated with renewable energy mandates is illustrated in a number of studies showing the true costs of energy restrictions.

The Congressional Budget Office – the same CBO whose snapshot analysis of Waxman-Markey in the year 2020 is being misrepresented by the proponents of energy restrictions – published a study in 2007 that examined the costs of a mere 15 percent cut in carbon dioxide emissions (as opposed to the 83 percent cut in carbon dioxide emissions required by Waxman-Markey). According to the CBO, even this minimal cut in carbon dioxide emissions would cost the average U.S. household nearly 3 percent of its income.¹⁰ Put another way, it would cost a typical household making \$50,000 per year a full \$1,400 to comply with a 15-percent cut in carbon dioxide emissions.

Explained the CBO, “Most of the cost of meeting a cap on CO2 emissions would be borne by consumers, who would face persistently higher prices for products such as

electricity and gasoline.”

“A CO2 cap would worsen the negative effects” of “existing taxes that dampen economic activity,” the CBO added. “The higher prices caused by the cap would lower real (inflation-adjusted) wages and real returns on capital, indirectly raising marginal tax rates on those sources of income.”

These are economic costs forecast by the CBO when it was asked to disclose the full and true compliance costs of a relatively minor energy restriction bill, rather than a snapshot view of an energy restriction bill before most of the restrictions are scheduled to take place, as it was asked to do regarding Waxman-Markey.

Similarly, Science Applications International Corporation (SAIC), which serves as a contractor to several federal government agencies, in 2008 analyzed the economic consequences of a 70% cut in carbon dioxide emissions by the year 2050.¹¹ SAIC used the EIA’s National Energy Modeling System under two different scenarios. SAIC analyzed the economic consequences under a “low cost” scenario in which nuclear power, clean coal, and other relatively cost-effective but environmentally controversial means are employed to meet the 70% reduction, and a “high cost” scenario in which nuclear power plants, clean coal, and other relatively cost-effective but environmentally controversial means do not play a major role in carbon dioxide reductions.

According to the EIA’s economic forecasting model, by the midpoint year (2030) of the required cuts, a 70% cut in carbon dioxide emissions will cause gasoline prices to rise 77% over baseline projections, will cause electricity prices to more than double over baseline projections, will kill more than 3 million jobs versus baseline projections, and will reduce average household income by more than \$4,000 each and every year.

The bad news is that these substantial negative consequences represent the “low cost” scenario. Under the more politically probable “high cost” scenario, by the midpoint of the required emissions cuts, a 70% cut in

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“The higher costs imposed on Florida relative to the nation as a whole reflects Florida’s relative lack of renewable power resources discussed above.”

carbon dioxide emissions will cause gasoline prices to rise 145% (more than double) over baseline projections, will cause electricity prices to rise 129% (more than double) over baseline projections, will kill more than 4 million jobs versus baseline projections, and will reduce average household income by nearly \$7,000 each and every year.

SAIC also analyzed the economic consequences of a 70% cut in carbon dioxide emissions on a state-by-state basis. Under the low cost scenario, Florida will lose 220,000 jobs, gasoline prices will rise 74% over baseline projections, electricity prices will rise 103% over baseline projections, and average household income will be reduced by more than \$3,800 per year by 2030.¹²

Under the more politically likely high cost scenario, Florida will lose 293,000 jobs, gasoline prices will rise 145% (more than double) over baseline projections, electricity prices will rise 135% (more than double) over baseline projections, and average household income will be reduced by more than \$7,000 per year by 2030.

The higher costs imposed on Florida relative to the nation as a whole reflects Florida’s relative lack of renewable power resources discussed above.

Green Job Myths

One argument commonly circulated regarding the alleged economic benefits of costly renewable energy is that it will create “green” jobs. It is true that government intervention in the free market that has the effect of inducing or requiring people to purchase alternative energy means jobs will be created in the wind and solar industry. However, a greater number of jobs will be destroyed in the more efficient conventional energy sectors and across the economy as a whole as a result of such government intervention. Consider the following analogy:

The federal government could hire people to pick up stones and throw them through people’s windows. Such a program would create an employment boom in the “glass collar”

window repair industry. At the same time, however, consumers will have to divert money from other goods and services they currently purchase in order to pay a higher premium to keep their windows repaired. Glass collar jobs have been created, but other jobs throughout the economy have been destroyed because people must withdraw money that previously purchased other goods and services to keep their windows repaired. Society as a whole is worse off, because money that was previously being spent on food, clothing, shelter, and consumer goods is now being withdrawn to keep windows repaired.

This common-sense wisdom was verified in a study published in 2009 by Gabriel Calzada, economics professor at King Juan Carlos University in Madrid, Spain. Calzada studied the economic impacts of Spain’s “green energy” initiatives that President Barack Obama has explicitly cited as a model for his own green energy goals.¹³ After careful analysis of the real-world impacts of Spain’s “green energy” programs, Calzada determined the green energy programs destroyed 2.2 Spanish jobs for every single green job created.

In “Study of the Effects on Employment of Public Aid to Renewable Energy Sources,” Calzada reports:

“As President Obama correctly remarked, Spain provides a reference for the establishment of government aid to renewable energy. No other country has given such broad support to the construction and production of electricity through renewable sources. The arguments for Spain’s and Europe’s ‘green jobs’ schemes are the same arguments now made in the U.S., principally that massive public support would produce large numbers of green jobs. The question that this paper answers is ‘at what price?’

“Optimistically treating European Commission partially funded data, we find that for every renewable energy job that the State manages to finance, Spain’s experience cited by President Obama as a model reveals with high confidence, by two different methods, that the U.S. should expect a loss of at least 2.2 jobs on average, or about 9 jobs lost for every 4 created.”

Moreover, Calzada explains: “Europe’s current policy and strategy for supporting the so-called ‘green jobs’ or renewable energy dates back to 1997, and has become one of the principal justifications for U.S. ‘green jobs’ proposals,” Calzada writes. “Yet an examination of Europe’s experience reveals these policies to be terribly economically counterproductive.”

Calzada additionally observes, “The study’s results demonstrate how such ‘green jobs’ policy clearly hinders Spain’s way out of the current economic crisis, even while U.S. politicians insist that rushing into such a scheme will ease their own emergence from the turmoil.”

Economic Benefits of Offshore Energy Production

So Florida and the nation have much to lose from the push for “green jobs” and renewable energy. Conversely, Florida and the nation have much to gain economically from offshore oil and natural gas production. Estimates vary. However, preliminary estimates have suggested that the State of Florida would take in \$1.6 billion in royalties each year from offshore oil production, which is approximately \$250 each year per Florida household.¹⁴ Moreover, those estimates also have indicated that offshore oil production would create approximately 20,000 new jobs.¹⁵

Meanwhile, a new analysis by Florida economist Hank Fishkind suggests that allowing exploration and production in the federal and state waters in the Gulf offshore of Florida could yield between \$2.2 billion and \$12 billion a year for the state government, would add more than \$7 billion a year to Florida’s overall economy, and would create upwards of 40,000 new jobs – and those are reported as conservative “baseline” estimates. More optimistic estimates suggest that a fully developed energy sector resembling those in other states bordering the Gulf of Mexico could add upwards \$41 billion a year to Florida’s economy and create as many as 231,000 new jobs in the state.

Environmental Impacts of Offshore Energy Production

Modern technologies have made offshore oil and natural gas production substantially safer and more environmentally friendly than just a few short decades ago. Over the past 20 years, for example, U.S. offshore oil producers spilled a total of approximately 5,000 barrels of oil a year, mostly in widespread, relatively small releases. By comparison, natural oil seepage released approximately 620,000 barrels of oil a year into waters off the coast of North America – more than 100 times the amount spilled by all U.S. offshore oil production combined.¹⁶

The reality of modern, environmentally safe production technology has led to something that would have been unthinkable until very recently – a sitting Florida governor is receptive to the possibility of offshore oil and natural gas production, and is not suffering any negative political consequences for such advocacy. According to Gov. Charlie Crist, offshore oil and natural gas production should be encouraged “if it’s far enough [offshore], clean enough, and safe enough.”¹⁷

Recent polls indicate Floridians agree that the state should take advantage of its offshore oil and natural gas reserves. For example, a 2009 Mason-Dixon poll found 59% of Floridians support offshore oil production, and a full 88% would support offshore oil production if it is shown to be environmentally safe.¹⁸ A 2008 McLaughlin & Associates poll found 73% of Floridians support offshore oil production, with 32% supporting oil production without any minimal buffer from Florida coastlines.¹⁹

Ecological Considerations:

Conventional Energy vs. Renewable

Ecological conservation is one of the reasons most cited for opposition to offshore oil and natural gas production. However, a comparative analysis of offshore oil and natural gas production versus wind and solar production shows ecological conservation actually favors oil and natural gas production.

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“A single wind power project at Altamont Pass, California, for example, kills up to 4,700 birds a year – more than 10 birds a day.”

Wind Power

The ecological footprint of wind power production is substantial. A single medium-to-large coal power plant can typically produce 1,000 megawatts of electricity. By contrast, some 600 square miles of land are required to provide the sites for enough wind turbines to produce the same 1,000 megawatts of electricity.²⁰ These numbers, of course, refer to current wind power production, which takes advantage of far more favorable production conditions than exist in Florida.

The 600 square miles of land development for wind turbines tells only part of the story. Even in the favorable locations utilized by existing turbines, wind turbines are able to supply electrical power only about 20 percent of the time. In Florida, wind turbines will supply electrical power even less frequently. As a result, the development of Florida land for wind turbines will come in addition to, rather than in lieu of, the development of land for base-load power generation from other sources such as coal, nuclear, or natural gas.

Moreover, the optimal sites for wind turbines are only rarely adjacent to existing transmission lines. As a result, additional land development and ecological disruption must occur to deliver wind power to electrical customers.

“Cutting wide swaths of unspoiled forest for access roads, clear-cutting miles of ridgelines, erecting industrial structures with spinning blades that threaten migrating birds and the last remaining bats – these are irreversible actions with permanent consequences,” Eleanor Tillinghast, director of the environmental advocacy group Green Berkshires wrote in the July 13 Boston Globe.²¹

The development of land for wind turbines does more than merely despoil sight-lines and eliminate natural settings. It is well documented that wind turbines, which can be 400 feet tall with a blade diameter as much as 275 feet, are proficient and indiscriminate killers of birds and bats, including many endangered species.

A single wind power project at Altamont Pass, California, for example, kills up to 4,700 birds a year – more than 10 birds a day.²² Among the birds killed are protected raptors including golden eagles, red-tailed hawks, American kestrels, and burrowing owls.

“There’s almost no understanding of the environmental impact of these wind turbines,” Ronald Kendall, director of the Texas Tech Institute of Environmental and Human Health, told the Lubbock Avalanche-Journal.²³

“If an agricultural pesticide killed as many birds as these turbines probably are, they’d be regulated right out of the market,” Kendall explained, noting that a Canadian report found a single turbine could kill more than 100 birds in a single night.

Literally hundreds of environmental groups have opposed wind power projects. A small sampling of such groups includes the Sierra Club, Audubon New York, Golden Gate Audubon Society, Kansas Audubon Society, Maine Audubon, Green Berkshires, Save Western Ohio, Maryland Chapter Sierra Club, Maryland League of Conservation Voters, Laurel Mountain Preservation Organization, Allegheny Front Alliance, Mountain Communities for Responsible Energy, Mountain Preservation Association, Protect the Flint Hills, Flint Hills Tallgrass Prairie Heritage Foundation, Save Western New York, Western Catskill Preservation Alliance, Save Vermont Ridgelines, Oregon Natural Desert Association, Appalachian Mountain Club, Appalachian Trail Conservancy, Pennsylvania Biological Survey, and Highlands Conservancy.

In Florida, the environmental complications of wind power are particularly acute. Coastal sea breezes offer the only hope of meaningful wind power production. As a result, proposed wind power projects have focused on the state’s most beautiful and ecologically sensitive areas. Good illustrations of this are provided on the Surfrider Foundation blog, documenting opposition to proposed wind farms along Florida beaches.^{24, 25}

Solar Power

Solar power production also requires substantially more land development and ecological destruction than coal power production. The Nevada Solar One solar power array, which is the most efficient solar power project in the United States, requires 350 acres of land to produce – at peak efficiency at noon on a cloudless day – less than 1/10th the power of a conventional coal power plant.²⁶

Similarly, two planned solar power projects in the California desert – which would be the largest solar voltaic plants in the nation – would require 12.5 square miles to produce, under optimum conditions, the same amount of power as a conventional coal power plant.²⁷ Considering that darkness encompasses 12 hours per day, on average, and that clouds sometimes obscure the sky during daylight hours, even the most efficient solar power project operating in an optimum location requires 40 square miles or more of ecological destruction to produce the same amount of power as a single coal power plant. Moreover, as noted above, power plants using more conventional sources still must be built and running in the background to provide baseline power at night and when clouds obscure the sky.

Like wind power development, solar-power projects also would require the construction

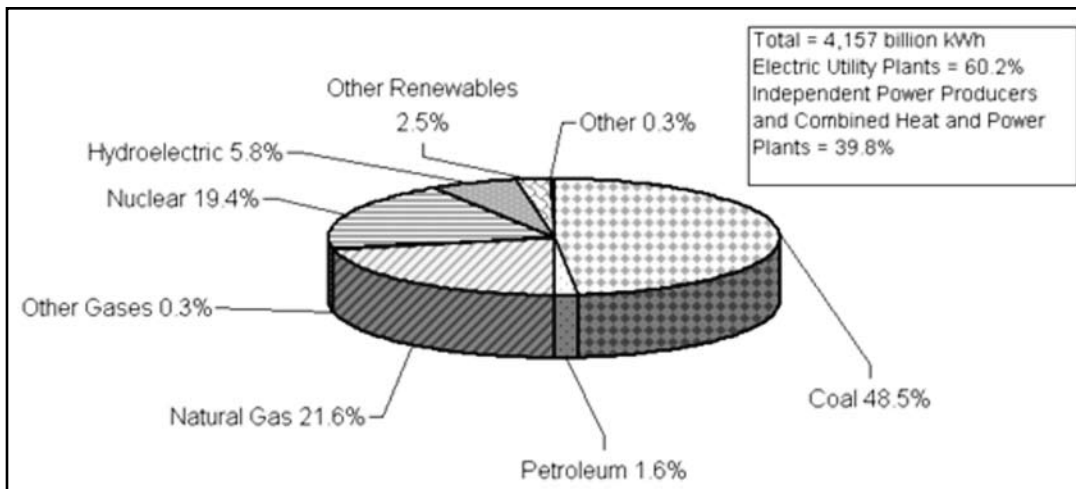
of new transmission lines, often across otherwise-pristine lands. For this reason environmental groups have often opposed solar power projects in the otherwise optimum location of the California desert.^{28, 29}

Additionally, the conversion of solar energy to electricity consumes much more water than coal power generation. Solar thermal power – the most economical and efficient form of solar power generation – uses twice as much water as coal power plants and four times as much water as natural gas power plants to convert solar energy to electricity.³⁰ For this reason, Sen. Dianne Feinstein (D-CA) and various environmental activist groups have opposed solar-power projects in California’s Mojave Desert.³¹

Oil and Natural Gas Production

Compared to the substantial ecological footprint of wind and solar power projects, then, the ecological footprint of coal, oil, and natural gas is quite small. Moreover, while coastal and offshore wind turbines are proficient killers of wildlife, oil and natural gas platforms benefit marine ecosystems by serving as reef structures and providing an inviting environment for fish.^{32, 33}

“Compared to the substantial ecological footprint of wind and solar power projects, then, the ecological footprint of coal, oil, and natural gas is quite small.”



U.S. Electric Power Industry Net Generation. Source: U.S. Energy Information Administration, January 21, 2009, <http://www.eia.doe.gov/cneaf/electricity/epa/figes1.html>

“Forty-nine percent of U.S. electricity production comes from coal. Another 22 percent is powered by natural gas, and another 19 percent is powered by nuclear.”

The Quest for ‘Energy Independence’

Opponents of coal, oil, and natural gas production often assert that national security and energy independence considerations favor wind and solar power over coal, oil, and natural gas. To the contrary, coal, oil, and natural gas production are much more likely to alleviate these concerns than wind and solar power.

Forty-nine percent of U.S. electricity production comes from coal. Another 22 percent is powered by natural gas, and another 19 percent is powered by nuclear. Hydroelectric power and other renewable sources provide most of the remainder.³⁴ Accordingly, domestic electricity is powered almost exclusively by domestic resources.

It is often said that the United States is the Saudi Arabia of coal. The U.S. Energy Information Administration reports we have 267 billion tons of economically recoverable coal. This is a 240-year supply at current use rates. Indeed, recoverable U.S. coal reserves contain more than four times the energy potential of Saudi Arabian oil reserves.³⁵ In actuality, to say that the U.S. is the Saudi Arabia of coal sells U.S. coal reserves woefully short of their true value.

Domestic energy policy that removes unjustified impediments to coal production will not only allow expanded utilization of vast domestic energy reserves, but it will also encourage coal exports and facilitate the U.S. becoming a net energy exporter rather than

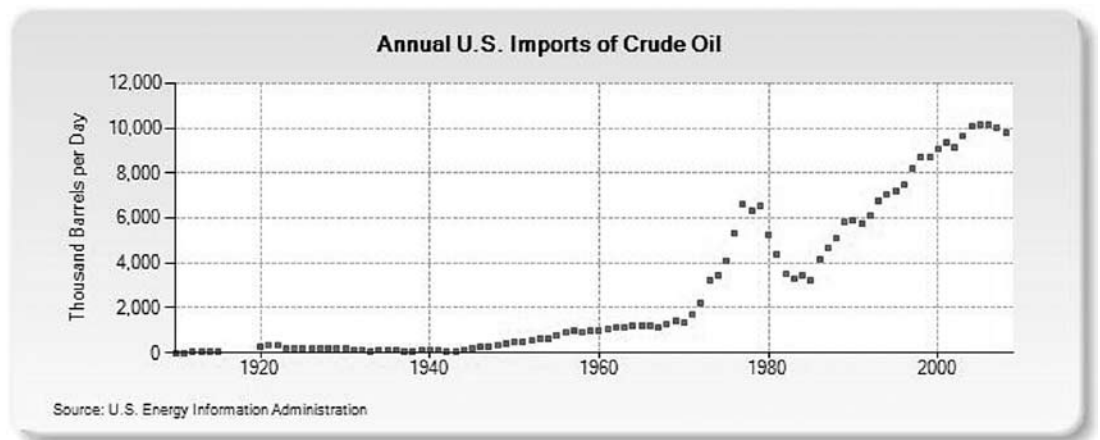
an energy importer.

Similar principles apply to transportation fuels. It is true that the U.S. imports 58 percent of its oil from other nations.³⁶ However, the prevalence of imported oil is due to political choices, environmental obstructionism, and the economic utility of purchasing oil from nations where it is easier and less expensive to produce than in the U.S., rather than a lack of available domestic oil supplies.

U.S. oil imports have risen dramatically over the past 40 years. In 1970, the U.S. imported just over 1 million barrels of oil a day. In 2007, the U.S. imported more than 10 million barrels of oil a day.³⁷ Oil imports have risen in large part because domestic oil production, which peaked at over 9.5 million barrels a day in 1970, is now less than 5 million barrels a day.³⁸

The decline in U.S. oil production has nothing to do with dwindling domestic supplies. Indeed, the U.S. has enormous untapped oil reserves that have been rendered off limits for political reasons. The EIA estimates, for instance, that 44 billion barrels of recoverable oil exist in the Gulf of Mexico alone.³⁹ Even more impressive are the 2 trillion barrels of oil contained in shale deposits beneath the high desert in the Wyoming, Utah, Colorado tri-state region.⁴⁰ This is the equivalent of more than 500 years of U.S. oil imports from all countries combined.⁴¹

Most of the oil shale is located beneath federal government lands, but the govern-



ment currently does not allow oil shale recovery except in a few limited locations. Roughly half-a-dozen companies have the technology to extract the oil from shale, and today's technologies allow oil shale extraction with minimal water usage and environmental impact.⁴²

The political decision to forbid the production of vast domestic oil reserves is the primary reason why the U.S. is a net importer rather than a net exporter of oil. Energy independence, if this is indeed a worthwhile goal, is best achieved by removing the shackles from vast domestic oil reserves rather than imposing still further restraints on domestic oil production.

Conclusion

There will likely come a day when alternative fuel technologies will offer an economically competitive choice, significantly supplementing or replacing coal, oil, and natural gas. Indeed, the energy history of the 20th Century is a story of change. We have progressed from the horse and buggy, candlelight, whale oil, and wood-fired stoves to jet fuel, LED lighting, and nuclear power. These changes illustrate the rapid pace of technological progress. This raises the hope that a time will come when technological advances will render renewable sources of energy economically beneficial and environmentally safe. At the present time, however, traditional sources such as coal, oil, and natural gas are far superior economically *and environmentally* to the proposed alternatives of wind power, solar power, and other niche renewable energy options.

Florida and national legislators will best serve their constituents by facilitating the utilization of efficient, inexpensive energy. Fortunately, this requires little expertise or grand design; government needs merely to forgo the temptation of intervening in the free market in favor of alternative energy at the expense of conventional power generation. Respecting the rights of individuals to produce and purchase the form of power they deem

most economically advantageous will ensure Floridians the healthiest possible economy and the best possible standard of living.

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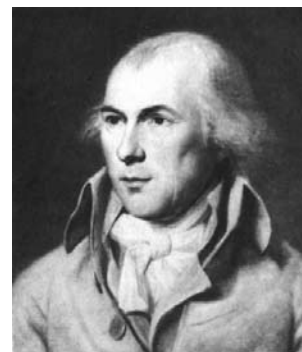
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