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"O, FOR A MUSE OF FIRE": ENERGY LAW AS FEDERAL CEREMONY

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ABSTRACT

Medieval coronation ceremonies manifest a deliberate inefficiency that is designed both to overwhelm and confuse spectators with a display of imperial power and to provide an excuse for the newly crowned to distribute public wealth to the persons with whom he is most close. Federal energy law—in particular the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007—manifest many of the characteristics of federal ceremony. Under the guise of seeking energy independence of the United States, the legislation introduces deliberate inefficiencies toward achieving ends that are designed to reward traditional party constituents with moneys paid at the public cost. Imperial posturing within such legislation should not disguise from state governments that the federal government has limited options under the Constitution to regulate the generation of electricity. As illustrated by a discussion of the particular possibilities available to Puerto Rico, transactional jurisdiction allows state governments to cite the motives of these laws to advance their own scientifically based legislation to carve out an appropriate local solution and even opt out of the execution of the one-size-fits-all solution that Congress in its posturing has proposed.

I. THE ELEMENTS OF IMPERIAL CEREMONY

Contemporaneous accounts of coronations reveal elements common to imperial ceremonies. Examining the account written by a Russian witness to the Coronation of Manuel II Palaeiologus as Byzantine Emperor on 16 February 1391 reveals how ceremonies organize power in dramatic form:

> During this time, the cantors intoned a most beautiful and astonishing chant, surpassing understanding. The imperial cortege advanced so slowly that it took three hours from the great door to the platform bearing the throne. Twelve men-at-arms, covered in mail from head to foot, surrounded the Emperor. Before him marched two standard-bearers with black hair: the poles of their standards, their costume, and their headdress were red. Before these standard-bearers went heralds: their rods were plated with silver. . . . Ascending the platform, the Emperor put on the imperial purple and the imperial diadem and the crenated crown. Then the holy liturgy began. Who can describe the beauty of it all?[1]

1. RICHARD CROWLEY, 1453, 18 (2005) (quoting PHILIP SHERRARD, CONSTANTINOPLE: THE ICONOGRAPHY OF A SACRED CITY 51 (1965)).

Among the characteristics that this coronation displays is, first, a deliberate inefficiency in bringing about the result. Specifically, the goal is to crown the emperor, but the progress itself takes three hours. Second, the ceremony employs lavish visible adornment to capture the attention of the viewing audience. Third, on top of the visual display is an overlay of incomprehensible language that only those privy to the written text could ever understand. Fourth, there is a concerted demonstration of discipline by the participants and the audience who await the completion of the progress. Fifth, the display speaks to a collective unity of purpose that implies an elite governed by regulation and law arising from a single mind. Finally, there is the implication that physical proximity to the imperial presence constitutes evidence of an enduring personal bond, a bond that in turn translates into a reasonable inference that those closest to the emperor on the occasion will continue to have access to the imperial ear throughout the emperor's reign.

Omissions in the account mark the writer himself as complicit. Some of the omissions are deliberate; their effect is to create a mystery that enhances the status of the witness. While the witness to the event advertises his proximity to the participants and his personal awareness of the participants' features, he reserves to himself all information concerning the identity of the emperor's closest adherents. As a knowing intermediary himself, he knows with whom he must cultivate relations; conversely, others who did not attend the ceremony are invited by his published account to cultivate relations with him. The deliberate inefficiency of his account makes him a participant in the imperial ethic, as it puts him in the privileged position of a man who knows to whom one must speak if one wants a problem resolved.

Other omissions cannot be helped. Written as a self-aggrandizing chronicle as opposed to an objective history, the account lacks specific data as to the ceremony's embedded costs. The witness chronicling the event can only comment on the lavishness of the ornament because he is in no position to quantify or to critique to what extent the deliberate inefficiency of the coronation ceremony provided an expedient reason for the Byzantine Emperor to dip into the treasury and reward his adherents with public funds. Likewise, he has no access to the written texts of the music. Consequently, he has no idea how the religious authorities are celebrating the emperor as he nears the throne.

Like the script of the Byzantine Coronation, the Energy Policy Act ("EPAct") of 2005[2] and the Energy Independence and Security Act ("EISA") of 2007[3] unfold before the readers' eyes as species of federal ceremony. The stated goal of both pieces of legislation is to decrease U.S. dependence on foreign energy supplies.[4] Compliance with the stated goal is vitally important to Puerto Rico because fuel oil is used to generate electricity. However, the legislation itself, from the perspective of Puerto Rico, "tis a pageant /To keep us in a false gaze."[5] Detailed examination of the mystical language that overlays the occasion of the legislation and analysis of the embedded costs, both implied and actual expenditures allowed, reveal that the real goal of both pieces of legislation is to introduce deliberate inefficiency into the progress of the United States toward energy independence. Announced in the mantra of "energy independence" by a sovereign speaking in an imperial mantle, this legislation is designed chiefly to create greater regional interdependence within the continental United States, while at the same time using an energy crisis brought on by war as a useful expedient to enrich loyal party adherents at the expense of the security of the United States.

In these two enactments of energy legislation, Congress has rightly recognized that oil is a strategic commodity that is under the control of foreign nations whose aims are and may continue to be opposed to those of the United States. Nonetheless, Congress in the EPAct and in the EISA has foregone adopting the efficient means of reducing U.S. dependency on the oil that these nation states control: instead of authorizing embargos, tariffs, quotas or conservation measures to reduce U.S. dependency, Congress has funded unrealistic supply-side solutions that themselves, in requiring fuel-switching in the transportation sector either to hydrogen or battery power, depend as an *a priori* on immediate technological breakthroughs. The very structure of the funding reveals both pieces of legislation to be unscientific laws, designed in their inefficiency to enrich party constituents at the expense of the taxpayer and to distract the states from enacting local solutions more suitable for themselves. States—and, in particular, the Commonwealth of Puerto Rico—should be cautious in blindly following the federal

2. Energy Policy Act of 2005, Pub.L. 109–58, 119 Stat. 594 (2005) (codified in scattered sections of 42 U.S.C.) [*hereinafter* Energy Policy Act].

3. Energy Independence and Security Act, Pub. L. No. 110–140, 121 Stat. 1492 (2007) (codified in scattered sections of U.S.C.) [*hereinafter* EISA].

4. Energy Policy Act § 902.

5. WILLIAM SHAKESPEARE, OTHELLO, (Stephen Greenblatt ed., W.W. Norton, 1997).

lead, for, despite the often imperious voice that these acts employ, the solutions of alternative energy are more often local than not. States, and the Commonwealth of Puerto Rico, specifically, should pay particularly keen attention when a one-size-fits-all solution is advanced on the basis of transactional jurisdiction: when the single solution proposed and partially funded by the federal government works in counter to the motives in the law, the State may find itself empowered both to resist the federal enactment and to propose more scientific legislation toward the stated ends that the Federal government may find itself compelled to fund.

II. THE LEGAL REALITY OF OIL

To understand the concept of energy independence, one must understand the legal reality of oil. The legal reality of oil is that it is a strategic commodity. It has been recognized as a strategic commodity at least as early as 1913, when Winston Churchill as the Secretary of the Navy realized that oil-fired ships could squeeze out four more knots per hour than those fired by coal.[6] The securing of oil supplies played a major part in the initiation,[7] the conduct, [8] and the outcome of the battles of World War II.[9] Due to its position as a strategic commodity, necessary for the conduct of mechanized warfare, oil can be characterized as both the winner of wars[10] and its cause.[11]

According to 2008 estimates, the United States has three percent of the oil reserves of the world, four percent of the population, but uses twenty-four to twenty-five percent of the world's oil.[12] Hardly any of this oil goes toward the generation of

6. DANIEL YERGIN, THE PRIZE: THE EPIC QUEST FOR OIL, MONEY AND POWER 156 (1992).

7. *Id.* at 312. Daniel Yergin characterizes oil as "the linchpin" of the conflict between Japan and the United States, asserting that "[t]o assure adequate supplies, Japan would attempt to get additional oil from the Dutch East Indies one way or another."

8. *Id.* at 377. Daniel Yergin characterizes "the safety of oil transport" in Battle of the Atlantic as "the focal point of the war at sea."

9. *Id.* at 383. 388. Daniel Yergin credits the winning of the Battle of Britain to the British access to American-made 100 octane airplane fuel, versus the eighty seven octane fuel used in German planes; and cites the military historian Basil Liddel Hart who says that General Patton could have put an end to the war in August 1944, had the Third Army had enough gasoline to break through to Berlin.

10. YERGIN, *supra* note 6, at 183. Daniel Yergin credits the surrender of the Germans in World War I to anticipation that they would run out of oil in only six months.

11. *Id.* at 771. Daniel Yergin characterizes the cause of the Iraqi invasion of Kuwait as Iraq's hostility to Kuwait's cheating on its OPEC quota.

12. T. BOONE PICKENS C-Span television broadcast Dec. 2, 2008 *available at* www.cspan.org. (speaking on U.S. Energy Policy at White House Writers' Group says twenty five percent; the "Energy Information Administration: Energy in Brief" says twenty four percent) *available at*

electricity. According to official U.S. government estimates published in 2001, fifty-two percent of U.S. electricity production came from coal, twenty percent from nuclear, sixteen percent from natural gas, seven percent from hydropower, three percent from oil, and two percent from renewables.[13] The most recent estimates say that fifty percent of U.S. electricity production comes from coal, twenty percent from natural gas, twenty percent from nuclear power, seven percent from hydroelectric, and roughly one percent from wind and solar power.[14] The difference indicates that the intervening years encouraged growth toward natural-gas-fueled electric generation.[15]

Official U.S. estimates published in 2001 declared that oil constituted forty percent of the nation's energy consumption profile. At that time, of the nineteen million barrels of oil that were consumed in the United States every day, sixty-seven percent was dedicated to transportation, twenty-five percent was dedicated to industrial uses, and the remaining eight percent was dedicated to other uses, like propane and heating oil.[16]

In 2001, four billion barrels of net imported oil[17] accounted for eighty-nine percent of U.S. net energy imports[18] while U.S. energy imports accounted for eleven percent of all U.S. imports.[19] Data published in 2007 by the Energy Information Administration ("EIA") indicates that the United States imported 20.7 million barrels of petroleum products per day, of which 12 million barrels per day were classified as net imports. Imported petroleum constitutes fifty-eight percent of the petroleum used in the United States.[20] This rising percentage is dedicated to the transportation sector, which accounts for nearly thirty percent of total energy consumption in the United States.[21]

The dependence of the transportation system of the United States on oil makes the U.S. vulnerable to foreign states because crude is legally construed as a product of the soil. Configured as a form of land use, profits from the extraction of crude oil are

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http://tonto.eia.doe.gov/energy_in_brief/foreign_oil_dependence.cfm (last visited Mar. 6, 2010).

13. REPORT OF THE NATIONAL ENERGY POLICY GROUP, xi, I–6 (2001), *available at* http://www.pppl.gov/common_pages/national_energy_policy.html.

14. *See* T. BOONE PICKENS, *supra* note 12.

15. *Id.*

16. REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13, at x.

17. *Id.* at 2–10.

18. *Id.* at I–11.

19. *Id.* at 2–9.

20. Energy Information Administration, *Energy In Brief*, http://tonto.eia.doe.gov/energy_in_brief/foreign_oil_dependence.cfm (last updated Aug. 22, 2008).

21. REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13, at 2–7.

described as "rents."[22] The tendency in the modern age has been toward greater government involvement in determining how rents will be split between those who provide the capital to exploit the resource and those to whom the territory belongs. The concession system that dominated at the turn of the century was transformed, at the insistence of Venezuela in 1943, into a fifty-fifty division of the rents between the state landlord and the oil company tenant.[23] Beginning with the Saudi-Aramco Agreement of December 1950, the split-down-the-middle agreement gained in popularity, becoming the standard arrangement in the Middle East by the mid-1950's.[24] In November 1970, the Shah secured a controlling fifty-five percent share of the rents for Iran, a policy which OPEC as a whole soon adopted.[25] The securing of a controlling interest for the State gave way to the nationalization of oil production by many oil-producing States in the 1970's. The most recent estimates are that seventy percent of today's foreign oil reserves are under sovereign state control, with Saudi Arabia and Russia having emerged as the chief exporters of crude.[26]

To protect itself from manipulation by other States, the United States needs a coherent energy policy to relieve U.S. dependence on foreign oil. It has already made strides to do so for short-term conflicts. The United States formed the Strategic Petroleum Reserve in the mid-1970's,[27] whose capacity of one billion barrels of oil, is ostensibly a sufficient supply for ninety days. As a statement of American foreign policy, the Carter Doctrine, put into effect in 1992 by President George Herbert Walker Bush, states that any invasion of a nation in the Middle East is a direct attack on U.S. interests as a sovereign nation.[28] The National Energy Policy Group of 2001 recommended that the President make "energy security a priority of our trade and foreign policy."[29] However, today's crisis is somewhat different. It arises not from political conflict but from the realization that it is unrealistic to imagine, in the long term, that the United States can drill out of the shortfall between domestic supply and domestic demand.[30] It seems equally unrealistic to hope that a manufactured substitute will allow us to use the internal

22. *See* YERGIN, *supra* note 6, at 432 (discussing the way that David Ricardo developed the concept of rents).
23. YERGIN, *supra* note 6, at 435.
24. *Id.* at 448.
25. *Id.* at 580.
26. T. BOONE PICKENS, *supra* note 12.
27. YERGIN, *supra* note 6, at 775.
28. *Id.* at 701–02.
29. REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13, at 1–8.
30. T. BOONE PICKENS, *supra* note 12.

combustion infrastructure that we have in place. The technology to synthesize oil-substitutes from coal by the process of hydrogenation has existed since 1913,[31] but hydrogenation is prohibitively expensive without state support.[32] The technology is not yet available to synthesize oil economically from shale.[33] Efforts in the 1920's to synthesize oil from shale required one ton of rock to produce a barrel of oil.[34] Shell's Colony Shale Oil Project on Alaska's western slope was abandoned in 1982 when the price reached six to eight billion dollars, in 1982 dollars, to produce only 50,000 barrels per day.[35] Ultimately, sound policy and not refining technology is the best hope for energy independence.

The question is what policy to adopt. The traditional efficient means of legislating toward energy independence have been embargos, the imposition of tariffs, the imposition of import quotas, and legislated conservation. The most dramatic of these means has been the embargo—a stated refusal by one state government to purchase or exchange oil with another nation. Embargos are political acts that, dramatic when announced, often backfire either politically or economically. It is well-known that the U.S. embargo of oil to Japan was the cause of Japan's bombing of the United States.[36] Likewise, it is well-known that the U.S. embargo of oil from Iran in 1980 produced a similar reprisal by Iran,[37] which refused to permit the sale of oil to nations that traded with the United States. But the economic consequences of embargo are just as self-destructive. The Arab Oil Embargo of the Six Day War soon resulted in other nations overproducing such that there was a net glut of oil on the market by autumn.[38] Similarly, overproduction in response to the Suez Canal Crisis in 1956 also intensified the glut.[39]

Less aggressive forms of control on oil imports include tariffs. Tariffs are anti-competitive measures designed to protect domestic industry and encourage diversification of energy supplies by raising the price on imported goods. Tariffs have been authorized as threats, but rarely has the United States imposed them on imported oil. In 1955, the National Security

31. YERGIN, *supra* note 6, at 329.
32. *Id.* at 331.
33. T. BOONE PICKENS, *supra* note 12.
34. YERGIN, *supra* note 6, at 330.
35. *Id.* at 716.
36. *See* YERGIN, *supra* note 6, at 306–23 (for a relation of the bickering in the Roosevelt administration on the question of the embargo which led up to the bombing of Pearl Harbor).
37. *Id.* at 702.
38. *Id.* at 558.
39. *Id.*

Amendment to the Trade Act empowered President Eisenhower to impose tariffs or quotas on imported oil.[40] This particular tariff had been pushed by the Texas Railroad Commission, which since August 17, 1931 has regulated the output of oil in Texas. However, Eisenhower did not exercise this prerogative.

Likewise, in 1986, when a glut of crude oil on the world market reduced the price so far as to threaten the viability of domestic production, Vice President George Herbert Walker Bush threatened Saudi Arabia with a U.S. tariff, and Japan also threatened OPEC, citing its desire to support the diversification of its fuel sources.[41] Saudi Arabia responded to the threat by reducing its output, stabilizing prices without further action.

Less controversial on the international front are quotas that allow sovereign nations to exercise their sovereign prerogative over their own citizens and limit the importation of the commodity but do nothing to affect the price that is charged abroad or whose oil enters the domestic market. Rather than use tariffs, on March 10, 1959, President Eisenhower's administration determined that oil imports could not exceed nine percent of total U.S. consumption.[42] In 1962, President Kennedy, faced with the reality that world crude was far cheaper than crude produced domestically, relaxed the oil quotas. The Mandatory Import Program under Johnson required that overland North American imports of crude be excluded from quota on the principle that overland routes were far more secure than routes overseas. The irony was that there was insufficient road infrastructure to import oil from Mexico. Consequently, in what is known as the "Brownsville U-Turn," Mexican crude was off-loaded in Brownsville, Texas, driven into Mexico, and driven back overland so as to comply with the letter of the law.[43]

As a policy, the quota system does not reduce dependence on foreign oil. Rather, the consequence of the quota system was to nurture the domestic oil industry. As U.S. crude output in 1968 was twenty-nine percent higher than in 1959, one can imagine that crude imports rose similarly.[44] Especially as the stable price, $2.90 per barrel in 1968 compared to $2.94 per barrel in 1959, indicates that domestic oil production kept pace with domestic demand. As demand steadily rises over time in a quota system, the quota system becomes vulnerable to other interests,

40. YERGIN, *supra* note 6, at 536.
41. *Id.* at 756.
42. *Id.* at 538.
43. *Id.* at 539.
44. YERGIN, *supra* note 6, at 541 (pointing out that crude consumption in the United States from 1948 to 1972 tripled from 5.8 to 16.4 million barrels per day).

and as domestic supplies grow scarce and more expensive, oil producing nations need only to overproduce to generate domestic pressure to open up the ports. Finally in 1973, when confronted with inexpensive world oil and a domestic crisis in production born from the fruit of the price controls on oil that had been imposed in 1971,[45] President Nixon abolished the quota system.[46]

The problem with the quota system is that it imagines that the domestic production of crude can continue indefinitely. To control the need for imported oil, the Government must control demand. Unlike import quotas, which affect the supply of the resource, legislated conservation measures directly reduce demand for the resource. There are two types of conservation measures that can be legislated; rationing, a form of direct conservation, and efficiency, a form of indirect conservation.

Rationing of gasoline in World War II began in May 1942, on the East Coast of the United States. Congress legislated gasoline rationing as a national security measure, supposedly to save rubber.[47] The basic "A" ration entitled the bearer of the coupon to between one-half and four gallons of gasoline a week, reducing gasoline consumption by thirty percent per vehicle from 1941 to 1943.[48] Gasoline rationing occurred somewhat more haphazardly in 1973, during the Arab-Israeli War, when the Arab nations determined on their own that they would cut back production progressively in support of a total ban on exporting oil to the United States.[49] This shortage of supply in the world produced a shortage of supply at the pump. The consequence was long lines at gas stations, limits on the amount of gas available for purchase, and days where there was no gas to be found. The shortage produced a concerted response by local authorities to reduce the amount of driving that occurred in the United States. This response helped create a market for more fuel-efficient cars that was filled by Japanese imports and quickened the collapse of the U.S. automotive industry that had not anticipated that the gasoline supply would ever be tight.

A better means of conservation than crisis-rationing is legislated efficiency. The Corporate Average Fuel Economy ("CAFE") standards are the most well-known of this form of efficiency legislation. In 1975, legislation requiring CAFE standards of 27.5 mpg potentially reduced U.S. oil consumption by two million barrels per day from what it would have been in

45. *Id.* at 590.
46. *Id.*
47. *Id.* at 380.
48. YERGIN, *supra* note 6, at 381.
49. *Id.* at 608, 612.

that time. High-occupancy vehicle lanes, public transportation, and bicycle lanes were other conservation measures put in place. By 1983, conservation and fuel-switching in the western world yielded a decline of consumption from 1979 levels of six million barrels per day.[50] However, more could be done. For example, prudent city planning for walk-around cities can help make cars seem more of a nuisance than a privilege, while absolute liability for injuries caused in automobile accidents have helped prevent the countryside in France from becoming an edge city by making ownership of a car a privilege that costs.[51]

A striking feature of the EPAct and EISA is their deliberate inefficiency as legislation because there are no embargos, no quotas, no tariffs, and no direct conservation measures imposed by these laws. Instead, both acts place faith on resolving an issue that primarily has to do with transportation on the one-size-fits-all solution of curing U.S. regional interdependence with an integrated transmission grid. Unfortunately, the inefficiency of the legislation emphasizes the creation of visible artifacts of progress and is shaped so as to privilege loyal constituents and not so as to eliminate dependence on foreign oil. Neither Act offers a solution suitable for Puerto Rico. In discussing the effect of the laws on Puerto Rico, this article offers both practical encouragement and the legal justification that Puerto Rico and other similarly situated jurisdictions might use to opt out.

III. THE ENERGY POLICY ACT OF 2005 ("EPACT")

Instead of restricting demand, the EPAct claims to approach the problem of energy dependency as a problem that can be resolved from the supply-side by fuel-switching.[52] The EPAct was deeply informed by the Report of the National Energy Policy Group of 2001, headed by Vice President Dick Cheney. The Report "urges action to meet five specific national goals. America must modernize conservation, modernize our energy infrastructure, increase our energy supplies, accelerate the protection and improvement of the environment, and increase our nation's energy supplies."[53]

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50. *Id.* at 718.

51. *Jand'heur v. Les Galeries Belfortaises*, 1930 DPI 57 (Cass. Ch. Réun, 1930) *available at* http://www.wfu.edu/~palmitar/Courses/ComparativeLaw/CourseReadings/WellsFrenchOpinions.htm.

52 *See* memorandum from Michael H. Shapiro, Acting Assistant Administrator for Air and Radiation to Director, Air, Pesticides, & Toxics Management Division (July 30, 1993), *available at* http://www.epa.gov/ttn/caaa/tl/memoranda/fuelsw.pdf (last visited Mar. 6, 2010).

53. REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13, at xi (repeated in the letter from Vice President Dick Cheney to President George W. Bush, coversheet).

In the supply-side fantasy that informs the EPAct, the capital class that invests in a public utility is guaranteed a profitable return on investment. The utility, in turn, is awarded federal funds and tax credits to cover its increased costs, with the hope that the increased production of electricity will create an over-abundance of hydrogen supply to fuel hydrogen-powered automobiles.

The core of the act is the rate-setting section:

> [T]he Commission shall establish, by rule, incentive-based (including performance-based) rate treatments for the transmission of electric energy in interstate commerce by public utilities for the purpose of benefitting consumers by ensuring reliability and reducing the cost of delivered power by reducing transmission congestion.
>
> (b) CONTENTS.—The rule shall—
> (1) promote reliable and economically efficient transmission and generation of electricity by promoting capital investment in the enlargement, improvement, maintenance, and operation of all facilities for the transmission of electric energy in interstate commerce, regardless of the ownership of the facilities;
> (2) provide a return on equity that attracts new investment in transmission facilities (including related transmission technologies);
> (3) encourage deployment of transmission technologies and other measures to increase the capacity and efficiency of existing transmission facilities and improve the operation of the facilities; and
> (4) allow recovery of—
> (A) all prudently incurred costs necessary to comply with mandatory reliability standards issued pursuant to section 215; and
> (B) all prudently incurred costs related to transmission infrastructure development pursuant to section 216.[54]

Committed to enriching investors, another section of the EPAct concedes appropriations for these same costs again; "[t]he Commission may approve a participant funding plan that allocates costs related to transmission upgrades or new generator interconnection."[55]

Redundant funding and reimbursement for the same cost is typical of the way that the EPAct assigns funds to utilities. To ensure that grid interconnection will be profitable the EPAct funds transmission improvements[56] and provides a $0.16/kWh

54. Energy Policy Act § 219.
55. *Id.* § 1242.
56. *Id.* § 1223(a)(4).

incentive project for up to the first ten million dollars of earnings.[57] Additionally, the Act undermines co-generating competitors by eliminating the requirement that utilities purchase electricity from co-generators when co-generators have non-discriminatory access to auction-based day-ahead and real-time wholesale markets for sale of electric energy. Furthermore, existing utilities have no obligation whatsoever to sell electricity to the co-generator if the co-generator has a time of need.[58]

To ensure even greater profitability, the EPAct authorizes the redundant payment of federal dollars to what would otherwise be conceived as expenses for operations, research and development, and compliance with federal law.

Some of the giveaways are remarkable. On top of an incentive payment for ten years of $0.018/kWh up to $750 thousand, and ten million dollars authorized for capital improvements to improve hydroelectric efficiency by three percent in FY 2006–2015,[59] the EPAct also concedes a tax credit owing to expansion of existing resources that includes qualified hydropower which can be attributed to efficiency improvements, regardless of whether these improvements were financed at the public cost.[60] The EPAct further authorizes the redundant payment of R&D to meet existing environmental mandates. It is alarming that the EPAct not only allots $200 million per year for 2006–2014 to develop clean coal technology,[61] but also concedes up to $800 million per year in aggregate tax credits to holders of "Clean Renewable Energy Bonds" and investors in clean-coal facilities against federal tax liability. Compounding the irrationality of the proposal is the conceding of tax credits regardless of whether or not the development of the technology was paid for already by federal grant, and regardless of whether or not environmental compliance standards were met.[62] In other words, the investment risk in dirty coal facilities is reduced to zero so long as dirty facilities seek to make themselves clean, potentially resulting in the federal monies that are extended to bond holders under the clean-coal-technology clause actually serving to reimburse investors when the utility is fined for failing to comply with federal environmental law.

The EPAct authorizes the federal government to assume investor risk in nuclear development even more directly by

57. *Id.* § 1224(b).
58. Energy Policy Act § 1253.
59. *Id.* § 242(e).
60. *Id.* § 1301.
61. *Id.* § 401(a).
62. Energy Policy Act § 1303.

authorizing the Department of Energy to act as guarantor. When delays in licensing arise, the EPAct authorizes the Secretary of Energy to pay 100 percent of covered costs of delays (up to $500 million per contract) for the first six reactors, and to pay fifty percent of costs (up to $250 million per contract) for the next four reactors.[63]

To employ the grid so as to reduce the United States' dependence on foreign oil, the EPAct pretends to authorize a transition to a hydrogen economy. What the legislation does not reveal is that the so-called transition to a hydrogen-fueled transportation system principally benefits existing utilities, rural landholding interests, and oil service companies and their stockholders. In other words, the transition to a hydrogen fuel economy that the EPAct imagines intersects with the interests of traditional Republican constituents.

The two most frequent means of producing hydrogen for large-scale consumption are by the refining of natural gas and by electrolysis.[64] The production of natural gas is a product of oil exploration. Refining natural gas is cheaper than electrolysis because of the energy costs associated with the process.[65] Thus, providing grants for hydrogen production is but another way for bond holders in energy utilities and oil service companies to recover their investment at the public expense.

The proposed transition to hydrogen also constitutes a boon to rural interests. Although estimates hold that the wind corridor of the United States, spanning from Texas to Canada,[66] could produce some 200,000 MW,[67] weather patterns make it most likely that wind generation will be most efficient in winter months when the need for air conditioning and electricity is lowest. A market for hydrogen fuel produced by electrolysis would allow wind-power to continue to produce a profit when the need for electricity was low.

As it happens, however, the market that the EPAct imagines for hydrogen in no way threatens traditional oil producers: indeed, by pretending that the hydrogen that will be produced under federal subsidy will serve the automotive fuel market, the EPAct actually promises that oil service companies will continue

63. *Id.* § 638.

64. *See* Jeff Wise, *The Truth About Hydrogen,* POPULAR MECHANICS, http://www.popularmechanics.com/science/energy/next-generation/4199381.

65. ARGONNE NAT'L LAB., U.S. DEPT. OF ENERGY, BASIC RESEARCH NEEDS FOR THE HYDROGEN ECONOMY 12 (2003) www.sc.doe.gov/bes/hydrogen.pdf.

66. See REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13, at 6–3 (map showing the geographic distribution of wind resources in the United States).

67. T. BOONE PICKENS, *supra* note 12.

to thrive. Quantity, distribution impediments, miniaturization[68] and safety concerns[69] impede hydrogen from becoming a threat to gasoline as an automotive fuel in the near future. Yet the EPAct fantastically imagines that 100,000 fuel-cell vehicles will be on the streets by 2010, ascending to 2.5 million fuel cell vehicles by 2020.[70] The idea that 100,000 hydrogen-powered automobiles will be on the road by the end of this year seems less of a Pollyannaish fantasy than it does an outright lie. Even were such unrealistic goals to be met, oil-service companies would glean the profits because dedicating hydrogen-fuel cells to automobiles guarantees that hydrogen will be merely another gas station product.

If one deems the assignment of funds as a means of prioritizing, then the manufacture of the gas-station product is more important for the EPAct than overcoming the technological problems of producing the cars that will use this product as fuel. The EPAct allots $185 million, ascending over five years to $375 million, for a total of $1.310 billion to hydrogen-producing facilities,[71] with $100 million more per year for hydrogen production at existing nuclear plants.[72] In addition, the EPAct offers other grants to encourage solar concentration for production of electricity and hydrogen,[73] and an additional tax credit for gasification that produces carbon monoxide and hydrogen.[74] In dramatic contrast, the EPAct allocates significantly less funding to overcome the technological hurdles that will allow the hydrogen produced to be used as an automotive fuel: the EPAct allocates only $20–100 million ascending over five years, totaling $445 million for production of hydrogen-fuel cells,[75] only forty million dollars to fund pilot projects to build hydrogen-fuel-cell cars[76] (no more than fifteen million dollars per applicant)[77] and only fifty-five million dollars to fund pilot projects for hydrogen-powered school buses.[78] The

68. On the U.S. Government's awareness of these impediments to making hydrogen competitive with the internal combustion engine, see THE NATIONAL ENERGY POLICY DEVELOPMENT GROUP, U.S. NATIONAL ENERGY POLICY REPORT 6–11 (2001), *available at* http://www.pppl.gov/common_pages/national_energy_policy.html.

69. For a record of Hydrogen fuel accidents, reported voluntarily, see Pacific Northwest National Laboratory, *H2 Incident Reporting and Lessons Learned*, http://www.h2incidents.org/ (last visited May 17, 2010).

70. Energy Policy Act § 811.

71. *Id.* § 808.

72. *Id.* § 634.

73. *Id.* § 812.

74. Energy Policy Act §48(b).

75. *Id.* § 783.

76. *Id.* § 706(f).

77. *Id.* § 721.

78. Energy Policy Act § 741.

consequence is that the EPAct subsidizes hydrogen production to such an extent that it enriches utilities without hydrogen likely to ever appear as a fuel that can compete with gasoline in the automotive sector even if compressed natural gas were to "offer[] a distribution stepping-stone to a hydrogen-refueling infrastructure," as the Report by the National Energy Policy Group suggests.[79] As it happens, such supports are likely unnecessary as the hydrogen produced with these subsidies would not likely lack a market, as "hydrogen is an important natural gas and raw material in numerous industries, such as computer, metallurgical, chemical, pharmaceutical, fertilizer and food industries."[80]

That oil companies stand to profit from this Act is clear in the amount of funding allotted for engine-idling and efficiency studies. The EPAct allots a total of ninety-four million dollars spread over 2006–2008 for car-engine-idling studies, forty-five million dollars for studies of locomotive-idling over the same period,[81] with forty-five million dollars total spread over the same period to study locomotive efficiency,[82] and fifty million dollars per year for five years to study airplane-engine efficiency.[83] Such appropriations beg the question: how much of this federal money will be spent on purchasing and testing fuels of various octanes to power perpetually-running but stationary engines in laboratory conditions?

Oil companies are also destined to profit from the production and distribution of the home-grown energy crops that the EPAct commits the United States to grow. Federal energy law presently provides tax credits for alternative, mixed and hybrid fuel cars;[84] tax credits for installation of alternative fuel stations;[85] a biodiesel tax credit capped at fifteen million gallons per year;[86] thirty-six million dollars in loans for sugar cane producing states;[87] a sugar-cane based ethanol loan guarantee program not to exceed fifty million dollars for any one project;[88] and other biodiesel and ethanol supports.[89]

Because of the significant embedded petroleum costs, federal support for ethanol and biodiesel production benefit not only

79. REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13, at 6–8.
80. *Id. at* 6–11.
81. Energy Policy Act § 756.
82. *Id.* § 751.
83. *Id.* § 758.
84. *Id.* § 1341.
85. Energy Policy Act § 1342.
86. *Id.* § 1344.
87. *Id.* § 208.
88. *Id.* § 1516.
89. EISA §§ 221–224.

farmers and oil service companies and importers but also refineries and holders of automobile stocks. The result of ethanol-based automotive fuel is more land under tillage. This land under tillage requires more petrochemical fertilizer. As it happens, the production of petrochemical fertilizer presently constitutes twenty-five percent of oil consumption in Gulf states.[90] The Report of the National Energy Group conceived of petrochemical feedstock as a bi-product of coal gasification.[91] More land under tillage for fuel crops means less land under tillage for food crops and higher food prices. Ethanol is a less efficient fuel than gasoline, requiring more trips to the pump and more money paid per consumer.[92] Moreover, ethanol is mixed with fifteen percent gasoline, leaving gasoline distribution companies ultimately in charge of its distribution. Furthermore, because there is no accounting for embedded oil costs in the production of ethanol from corn or cane, and the gasoline content of ethanol automobile fuel is only fifteen percent, the addition of ethanol-fueled automobiles threatens to skew CAFE standard compliance across the board.[93]

The EPAct provides a number of other giveaways to oil companies. The EPAct allocates thirty million dollars per year from 2006–2010 for mapping geophysical data, moneys which are likely to be paid directly to oil service companies to produce data so oil companies do not have to risk drilling dry wells.[94] Additionally, the EPAct pledges a commitment to fill the Strategic Petroleum Reserve to capacity at one billion barrels,[95] nearly double the 541 million barrels of oil held in reserve in May 2001, further enriching the oil-producing companies by paying federal money today for oil that will not be used and artificially inflating the price by creating increased demand.[96] The EPAct also contains the concession of ten-year leases of federal lands for geothermal exploration[97] in areas that the National Energy

90. REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13.

91. *Id.*

92. Consumer Reports, The Ethanol Myth, *available at* www.consumerreports.org/cro/cars/new-cars/news/2006/ethanol/overview/indew.htm (last visited Mar. 6, 2010).

93. In amending 46 U.S.C. § 32904 so as to have fuel economy of flex-fuel vehicles calculated when operating on diesel or gasoline, EISA § 109 aims to correct this problem. EIS § 109.

94. Energy Policy Act § 351.

95. *Id.* § 301(e).

96. REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13, at 8–17. At the time, this quantity held in reserve constituted a 54-day supply of all imports. *Id.* The increase was to cover a 90–day supply of all imports. *Id.*

97. Energy Policy Act § 521. Not only is geothermal energy produced by the sort of drilling in which oil service companies specialize, but the strikeouts by the chairman of the Senate energy committee indicate that the original proposal had wording requiring

Policy Group in 2001 "estimated to contain a substantial majority of the nation's undiscovered energy resources,"[98] including some estimated 4.1 billion barrels of undiscovered oil and 167 trillion cubic feet of natural gas.[99] The technologies used to exploit such geothermal resources are proprietary technologies developed by oil service companies.[100] Additionally, the EPAct requires the Department of Defense to develop a purchase strategy for the procurement of oil produced from oil sands, shale, tar sands, or coal.[101] Meanwhile it is well known that Shell's Colony Shale Oil Project on Alaska's western slope was abandoned in 1982, which caused the cost to convert shale into fuel to ascend from six to eight billion dollars, in 1982 dollars, to produce only 50,000 barrels per day.[102]

Finally, to complete the pageant, the EPAct commits itself to the promotion of visible artifacts that have absolutely nothing to do with the goal of freedom from foreign oil. To begin with, the National Priority Project Designation authorizes the President to give out medals to projects in wind and biomass, photovoltaic and fuel cell technologies, energy efficient building, and renewables if these projects generate more than thirty mega-watts ("MW"), or if they are solar voltaic or fuel cell technologies that generate more than three MW.[103] These goals are hardly ambitious for a generating facility. Ceremonial appropriations for visible artifacts continue with the "Conserve by Bicycling" program, which receives an aggregate $6.2 million allotted to no more than ten cities for bicycle conservation projects with twenty percent of the cost shared by non-federal sources,[104] a total that is nowhere near enough to pay for bike-racks at city schools. Other examples include an adjustment in the timing of Daylight Savings Time so that it begins on the second Sunday of March and ends on the first Sunday in November[105] and the promotion

paybacks by lease holders if they had not produced energy of a geothermal nature. *See* Redline of Chairman's Mark, Title V-Renewable Energy 14 (2003), *available at* http://energy.senate.gov/legislation/energybill2003/RedTitleV.pdf. Other exclusions serve to shift the burden of determining the rents from the congress to the Secretary of the respective department. *Id.* at 2. Further promising to enrich the oil service companies, the right to exploit the serendipitous discovery of oil or natural gas on public lands apparently belongs to the leaseholder, just as the discovery of sufficient geothermal resources apparently commits the federal government to permit the building of transmission infrastructure across the wilderness. *Id.*

98. REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13, at 5–7.
99. *Id.* at 5–10.
100. *Id.* at 5–6.
101. Energy Policy Act § 369.
102. YERGIN, *supra* note 6.
103. Energy Policy Act § 16493.
104. *Id.* § 16103.
105. *Id.* § 110.

of the Energy Star Program of labeling products, which is a ceremonial artifact in that it is the mark of "energy efficiency." The labeling of Energy Star products only shows the effect on the consumer's wallet and does not account for the embedded energy cost (and perhaps even the embedded petroleum cost, since petroleum is still used in the manufacturing process) that was invested in the product's manufacture. Consequently, the Energy Star program can hardly be said to constitute a measure toward energy independence, for while the use of these products may result in less expenditures of electricity, most electricity in the United States is produced by the burning of domestically-produced natural gas and coal.

In short, none of these alleged conservation measures, save the desperately underfunded Conserve by Bicycling, promise a feasible means of significantly reducing U.S. dependence on foreign oil.

IV. THE ENERGY INDEPENDENCE AND SECURITY ACT OF 2007 (EISA)

While the EPAct promises to reduce the demand for foreign oil by way of an interconnected grid, the promotion of hydrogen cars, ethanol, and the Energy Star program; EISA emphasizes a "smart grid," federal-building-efficiency requirements, improved light-bulb standards, and supports for battery-powered electric cars. It is clear that the Republican President frowned upon this approach as the Department of Energy website in December 2008 had up-to-date information on hydrogen-fueled vehicles but no information about battery-technology development since the 1990s.[106] As partisan as the President's opposition may have been, the approach taken by the Democratically controlled Congress in enacting EISA is no less ceremonial than with the EPAct. While the EPAct used the grid as an excuse to put federal money into the hands of investors in existing utilities, the oil services industry, and rural areas; EISA (originally called the CLEAN Power Act) structures grid-interconnection to benefit traditional Democratic constituents including high-tech industries, automobile workers, California, environmental interests, and coal-mining states.

The heart of EISA's energy-independence strategy is the production of electric cars. EISA appropriates ninety million dollars per year for 2008–2013, a third of which goes to municipal

106. U.S. Dep't of Energy, Advanced Vehicle Testing Activity, http://www1.eere.energy.gov/vehiclesandfuels/avta/light_duty/fsev/index.html (last visited Mar. 6, 2010).

governments, to encourage the widespread use of the electric car.[107] Another ninety-five million dollars per year is appropriated over the same period of time for "Near Term Electrification Projects."[108] The Act provides "such sums as may be necessary" for an electric-vehicle-competition prize to be held at the university level.[109] By amending EPAct § 712 (42 U.S.C. § 16062), EISA funds the retooling of domestic car manufacturers so they can make hybrid and electric cars and authorizes a tax credit for investment in electric automotive technology.[110] Additionally, the Act authorizes loan guarantees for advanced-lithium-ion-battery-technology-development programs that have been denied traditional financing[111] and appropriates $25 billion for loans to automobile manufacturers to retool their shops for advanced vehicle manufacturing.[112] Lastly, it amends § 303 of the Energy Policy Act of 1992 so as to require federal purchases of low-greenhouse-gas-emitting vehicles when they are available.[113]

By way of these provisions, EISA leverages federal funding to allow non-traditional automobile manufacturers to compete with Detroit. The legislation has borne some fruit: the company Tesla has already manufactured a luxury car that uses thousands of lithium-ion batteries.[114] Started by the founder of PayPal, Tesla promises a new center for the automotive industry.[115] The electric car also offers the possibility of cleaner air in California as it leverages cheap coal and natural gas as a replacement for refined crude and cuts out the gas stations from the distribution network.

But in promoting the electric car, EISA does not address significant technological problems that predictably await a society in which electric cars are widely used. First, battery storage of electricity is less efficient than internal combustion. Second, the legislation does not address how the United States will safely dispose of lithium-ion batteries. Third, there is a significant safety issue about driving a lithium-ion battery-powered car in extreme weather conditions, whether the scorching heat of the Nevada desert or a blinding blizzard in

107. EISA § 135.
108. *Id.*
109. *Id.*
110. *Id.*
111. EISA § 135.
112. *Id.* § 136.
113. *Id.* § 141.
114. *See* Tesla Motors, http://www.teslamotors.com, (last visited May 25, 2010).
115. Tesla Motors – board, http://www.teslamotors.com/media/company_board.php (last visited May 25, 2010).

Minnesota.[116] Fourth, unlike oil, which has been seasoned by millennia, manufactured batteries are subject to weakening under temperatures of extreme cold.[117] Finally, as will be explained below, if everyone in the United States is driving an electric car, the storage of the additional energy promises to put an enormous strain on the grid. With this additional pressure on the grid, the question that needs to be asked is: what's preventing the California energy crisis of 2001 from occurring again?

With an eye toward preventing a repeat of the California energy crisis, EISA authorizes the "Smart Grid" as its one-size-fits-all solution. The reality of this grid, however, is that it chiefly constitutes a federal mandate for the creation and manufacture of high-tech consumer products. As we can see from the excerpts below, the statute authorizing the Smart Grid imagines high-tech consumer products as indivisible from the Smart Grid transmission system:

> It is the policy of the United States to support the modernization of the Nation's electricity transmission and distribution system to maintain a reliable and secure electricity infrastructure that can meet future demand growth and to achieve each of the following, which together characterize a Smart Grid:
>
> (3) Deployment and integration of distributed resources and generation, including renewable resources.
> (5) Deployment of "smart" technologies (real-time, automated, interactive technologies that optimize the physical operation of appliances and consumer devices) for metering, communications concerning grid operations and status, and distribution automation.
> (6) Integration of "smart" appliances and consumer devices.
> (7) Deployment and integration of advanced electricity storage and peak-shaving technologies, including plug-in electric and hybrid electric vehicles, and thermal-storage air conditioning.[118]

The incentives in this legislation show it to be principally a subsidy for manufacturing. However, EISA provisions also allow for federal matching grants for research and development, as well as a host of other stimuli to promote consumer product development, including; an "H-Prize" where twenty million

116. The connection between shortened lithium-ion battery life and extreme weather conditions is well-known to experts in the high-tech field. *See, e.g.*, Isaiah Turning, Laptop Battery Life Problems, e How, http://www.ehow.com/about_5379111_laptop-battery-life-problems.html (last visited Apr. 30, 2010).

117. *Id.*

118. EISA § 1301.

dollars is allocated per year until 2017 for hydrogen production, storage, distribution & utilization prizes;[119] a Bright Tomorrow Lighting Award Fund for new energy efficient lighting technology;[120] and funding for Renewable Energy Innovation Manufacturing Partnership.[121] To sustain these new technologies EISA configures the federal government into a market for these products, either by requiring that federal agencies purchase energy efficient appliances[122] or by prohibiting the Coast Guard from using incandescent lamps.[123]

In an effort to further reduce the demand on electrical services, which in turn will encourage the additional electric generation necessary to support the electric car, EISA provides for the building of new structures that are energy efficient. While EPAct authorizes public grants for building and renovation that use thirty percent less energy,[124] EISA augments this supply-side initiative by authorizing the Secretary to establish new regulations for federal building efficiency standards[125] and introduces other supply-side initiatives for the building of high-performance commercial buildings.[126]

The legislation on this point, however, is tricky. Congress commits the federal government to aggressive reductions in electricity expenditure *without actually requiring the federal government to comply.* EISA § 433 amends § 305(a)(3) of the Energy Conservation and Production Act (42 U.S.C. § 6834(a)(3)) by requiring that the Secretary of Energy establish revised federal building energy-efficiency performance standards requiring that:

> (i) For new Federal buildings and Federal buildings undergoing major renovations, with respect to which the Administrator of General Services is required to transmit a prospectus to Congress under section 3307 of title 40, United States Code, in the case of public buildings (as defined in section 3301 of title 40, United States Code), or of at least $2,500,000 in costs adjusted annually for inflation for other buildings:
>
> (I) The buildings shall be designed so that the fossil fuel-generated energy consumption of the buildings is reduced, as compared with such energy consumption by

119. *Id.* § 654(f).
120. *Id.* § 655.
121. EISA § 656.
122. *Id.* § 525.
123. *Id.* § 522.
124. Energy Policy Act § 125.
125. EISA § 433.
126. *Id.* § 421.

> a similar building in fiscal year 2003 (as measured by Commercial Buildings Energy Consumption Survey or Residential Energy Consumption Survey data from the Energy Information Agency), by the percentage specified in the following table
>
> | Fiscal Year | Percentage Reduction |
> |---|---|
> | 2010 | 55 |
> | 2015 | 65 |
> | 2020 | 80 |
> | 2025 | 90 |
> | 2030 | 100[127] |

In addition to delegating authority to the Secretary of Energy to establish the parameters by rule, Congress also authorizes a savings clause so that the Secretary may include, as part of his rulemaking strategy, grounds for conceding exceptions.[128]

Regardless, when considered against the end goal of energy independence, the reality is that these supposed means to energy efficiency are simply monuments to an unscientific law. Unless the electric car succeeds wildly, the creation of these federal monuments, even if they do succeed in reducing fossil fuel consumption by fifty-five percent by 2010, shall provide no savings in oil consumption or any reduction in dependence on foreign oil. On the contrary, the embedded energy costs of demolition and construction, typically using heavy machinery, actually increase the need for diesel, slag, asphalt, and other petroleum based products, all paid for at federal expense. Furthermore, there is something extremely short-sighted in incentivizing the replacement of a perfectly good building built for a particular function on the sole grounds that the replacement is energy efficient. A courthouse is a courthouse; an airport terminal is an airport terminal; a fort is a fort; a prison is a prison. Consequently, if honored, the legislation either accelerates the obsolescence of existing and fully functioning buildings or generates "federal creep," where federal agencies abandon old sites for new ones in order to comply with the law. Viewed in terms of their embedded energy costs and their consequences in terms of land use, the federal monuments that

127. *Id.* § 433.

128. *Id.* Upon petition by an agency subject to this subparagraph, the Secretary may adjust the applicable numeric requirement under subclause (I) downward with respect to a specific building, if the head of the agency designing the building certifies in writing that meeting such requirement would be technically impracticable in light of the agency's specified functional needs for that building and the Secretary concurs with the agency's conclusion. This subclause shall not apply to the General Services Administration.

EISA authorizes in the name of "energy efficiency" are like the pyramids: less a means toward energy independence than a jobs program for construction workers to be paid at the sovereign's cost, designed to persuade citizens to hold true to a passage toward the future whose mysteries they are encouraged not to understand.

Just like the building initiatives that EISA authorizes, the Act's new lighting standards are similarly ceremonial. As seen in the request of a feasibility study for the installation of photovoltaic roofs on buildings in the Capitol Complex[129] or in the authorization of the installation of a photovoltaic roof for the headquarters building of the Department of Energy,[130] the provisions authorize the manufacture and purchase of visible artifacts to Congress' unified commitment to "energy independence and security" that, in reality, unite environmental interests, manufacturing interests, and consumer interests without ever producing the effects of energy independence, absent the widespread adoption of the electric car. The goal of these standards is "green" in that they seek to eliminate incandescent lighting under the premise that the burning of fossil fuels is bad and that ninety percent of the energy that incandescent lamps consume produces heat rather than light. The precious irony of the legislation is that the light-bulb has always been the paragon of scheduled obsolescence. The new lighting standards further accelerate obsolescence and create a new market for lighting fixtures visible to all, but the legislation lacks metrics as to the energy cost imbedded in the manufacture and disposal of the new light bulbs, whose mercury content threatens to make every landfill in the country a potential Superfund site. As their widespread use is destined to provoke legislation that will require special handling at disposal, there should be some doubt that their manufacture contributes to energy independence, especially as fuel used to generate electricity in the United States is not oil. Furthermore, unless the electric car is wildly successful, EISA lighting standards do nothing to reduce dependence on foreign oil in the continental United States.

V. DISTINGUISHING CEREMONIAL POSTURE FROM JURISDICTION

Perhaps it is not unusual in a democracy that a one-size-fits-all solution to a particular problem allows one party or the other to reward its constituents. What confirms the EPAct and

129. EISA § 501.
130. *Id.* § 521.

EISA as species of federal ceremony is not just the partisan way that they employ rhetoric to define the solution in a manner that will profit their political allies, but also the hyperbolic and metaphoric postures that they employ when the federal sovereign addresses the States.

It was not uncommon for sovereigns in the Renaissance to welcome hyperbolic and metaphoric representations of themselves as gods on earth. Queen Elizabeth was represented as the Biblical Deborah;[131] as Cynthia, a lunar deity;[132] and as the unattainable Faerie Queene.[133] Her successor, King James I, represented himself as an expert witchhunter;[134] as the Devil's personal enemy;[135] as a type of Solomon, or Prophet-King;[136] as Albion or a type of King Arthur;[137] and as a Neptune or an Oceanus who ruled the waves.[138]

Such representations are common in art and propaganda. However, a problem occurs when a sovereign, in official proclamations, adopts hyperbolic or metaphoric phrases to describe the power it can exercise on earth. As a hyperbole is an exaggeration and a metaphor is a comparison of two unlike things for emotional effect, hyperbolic and metaphoric statements or postures are, by definition, false and cannot be enforced at law. Federal energy policy reveals that the United

131. *See, e.g.*, Robinson's Eupolemia, Archippus and Panoplia, that is to say his good warfare against Satain (1576–1602), British Library Manuscript Royal 18 A.66, fol. 20 (discussed in J.P. Conlan, Shakespeare's Edward III: A Consolation for English Recusants, 35.2 COMPARATIVE DRAMA 177, 184 (2001).

132. *See, e.g.*, The Honourable Entertainment given to the Queenes Maiestei in Progress, at Elvetham in Hampshire, by the right Honourable the Earle of Hereford, 1591, in The Complete Works of John Lyly 431–52 (R. Warwick Bond, ed., Oxford 1902); *see also* LOUIS MONTROSE, THE PURPOSE OF PLAYING: SHAKESPEARE AND THE CULTURAL POLITICS OF THE ELIZABETHAN THEATRE 156–63 (University of Chicago Press, 1996) (discussing mythography); *see also* J.P. Conlan, The Fey Beauty of A Midsummer Night's Dream, 32 SHAKESPEARE STUDIES 118–72 (2004).

133. *See e.g.,* Marcus Gheerheart the Younger, PORTRAIT OF QUEEN ELIZABETH (1592) (discussed in J.P. Conlan, supra note 130, at 188–72).

134. King James I of England, Newes from (1591) (containing the official report of James' personal involvement in the trial and execution of more than 200 weather witches in North Berwick in 1589–91). For an analysis as to how this played out as a motif of representation throughout James' reign in England, *see* J.P. Conlan, The Tempest and the King's Better Knowledge, 6 Ben Jonson J. 161–88 (1999).

135. *See* KING JAMES I OF ENGLAND, *supra* note 132, *reprinted in* WILLIAM SHAKESPEARE, MACBETH (Norton Critical Edition) 141 (Robert Miola, ed., W.W. Norton & Co. 2004).

136. *See, e.g.*, James VI, King of Scotland, *His Maiesties Lepanto*, in HIS MAIESTIES POETICALL EXERCISES AT VACANT HOURES (Robert Waldegrave, ed., 1591).

137. *See, e.g.*, BEN JONSON, THE MASQUE OF BLACKNESS (Ben Jonson 1606); BEN JONSON, OBERON, KING OF THE FAIRIES (Ben Jonson 1610).

138. *See, e.g.*, Samuel Daniel, Tethys's Festival, or the Queen's Wake, Celebrated at Whitehall, the Fifth Day of June 1610, in COURT MASQUES: JACOBEAN AND CAROLINE ENTERTAINMENTS 54–65, World Classics Paperback (David Lindley, ed., Oxford University Press 1995).

States, in Congress Assembled, are less content to stand upright in the dignified posture of a federal republic that recognizes its limited powers than they are ambitious to adopt the posture of an imperial overlord and overreach their Constitutional authority.

There are only three principal means under the Constitution of the United States by which Congress of the "more perfect Union" has jurisdiction to establish a federal energy policy.

First, and principally in respect to the transmission of electricity, there is the interstate commerce clause.[139] As concisely stated by a report prepared by the National Energy Policy Group:

> The transmission system is the highway system for interstate commerce in electricity. Transmission allows the sale of electricity between regions. In a particular region, transmission can be a substitute for generation, allowing that region to import power that otherwise would be generated within that region. In some cases, transmission expansion may be more cost-effective than generation additions, allowing a region better access to lower-cost generation.[140]

As shown in the following figure, the regional transmission grids that cross state lines include all of the lower forty-eight states, but do not include Alaska or Hawaii. The Commonwealth of Puerto Rico is not included in the graph.[141]

139. U.S. CONST., art I, § 8, cl. 3.

140. NATIONAL ENERGY POLICY DEVELOPMENT GROUP, NATIONAL ENERGY POLICY REPORT (2001).

141. DEP'T OF ENERGY, ENERGY INFO. ADMIN., U.S. OVERVIEW (2010) *available at* http://tonto.eia.doe.gov/state/. (last visited Mar. 6, 2010).

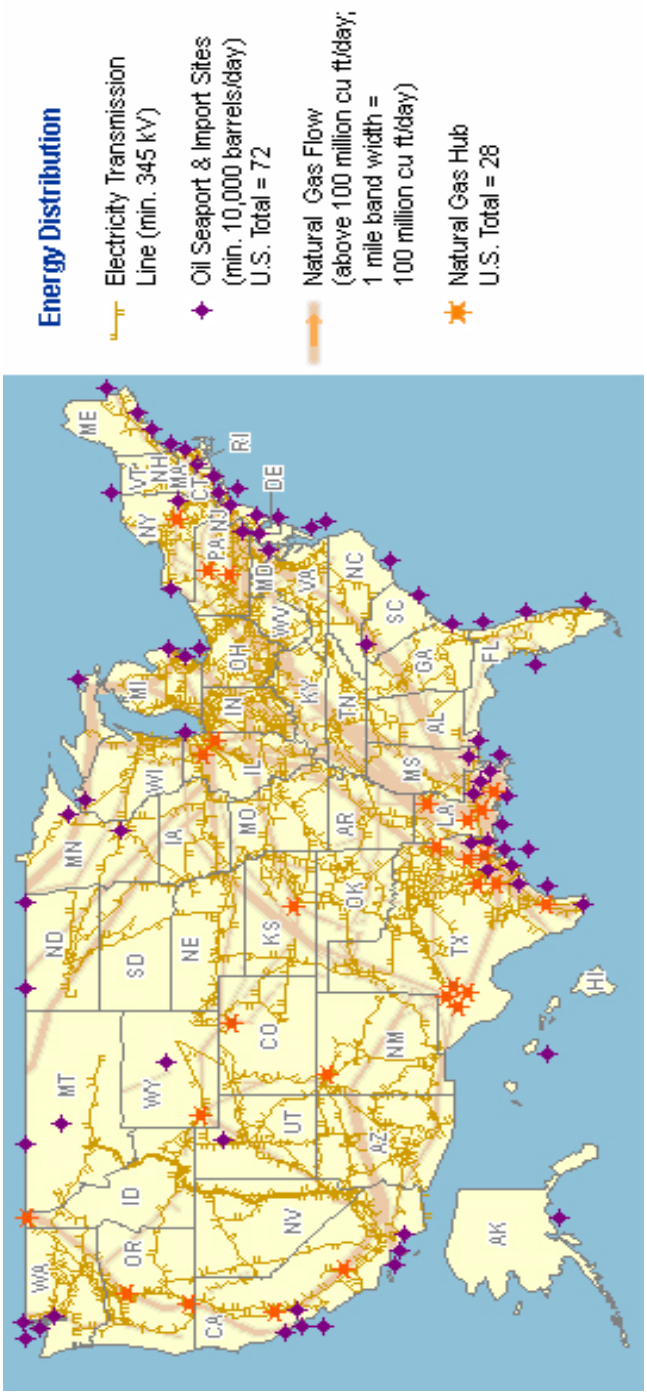

FIGURE 1: Energy Distribution via Electrical Transmission Lines, Oil Importing and Natural Gas Flow[142]

142. *Id.*

Second, and of principal importance in relation to imported oil, is the foreign commerce clause.[143] Oil is a strategic commodity whose entrance into the United States may be controlled by the federal government. Controls may include imposing an embargo, or instituting tariffs, quotas, or rationing. Once the oil enters the market, however, the power to determine how oil is used in a particular region is limited by the Apportionment Clause, the Uniform Taxation Clause, and the Equal Protection Clause. Stated another way, the federal government cannot use the foreign commerce clause to deprive a particular region of the United States of a legal commodity based on the grounds that the more perfect Union wishes to decrease the availability of the commodity's supply in that region and consequently translate the surplus into a price reduction for the remainder of the United States.

Lastly, if neither the interstate commerce clause nor the foreign commerce clause sanctions the powers that Congress wishes to wield, Congress can attempt to establish transactional jurisdiction. To establish transactional jurisdiction, Congress can make federal funds available to a State, provided a State indicates that it will conform itself to particular requirements defined by the federal government. The most well known example is the attachment of interstate highway funds to the requirement that the state raise the legal drinking age to twenty-one—a feat which was accomplished by adjusting the Interstate Highway Bill, originally passed in 1956, which funded by gasoline taxes provided ninety percent of the funding to build a 41,000 mile highway system that crossed the United States.[144]

It seems clear that Congress was aware that transactional jurisdiction was the only way in which the federal government might establish energy policy in the Commonwealth of Puerto Rico when they passed "An act to authorize appropriations for certain insular areas of the United States and for other purposes," approved December 24, 1980, codified at 48 U.S.C. § 1492.[145] This Act defines as federal policy the desire to resolve the dependence of the Commonwealth and other insular areas on imported sources of energy, as well as the need for the Commonwealth and other insular areas to make use of their renewable resources[146] as a prelude to authorizing the Secretary of Energy to prepare:

143. U.S. CONST., art I, § 8, cl. 3.

144. YERGIN, *supra* note 6, at 535.

145. 48 U.S.C § 1492 (2005).

146. 48 U.S.C. § 1492(a)–(b) (2005). (a) The Congress finds that (1) the Caribbean and Pacific insular areas of Puerto Rico, the Virgin Islands, Guam, American Samoa, the

(c) [A] comprehensive energy plan with emphasis on indigenous renewable sources of energy for Puerto Rico, the Virgin Islands, Guam, American Samoa, the Northern Mariana Islands, the Federated States of Micronesia, the Marshall Islands and Palau. The plan shall be prepared with the approval of the Secretary of the Interior and in cooperation with the chief executive officer of each insular area by --

(1) surveying existing sources and uses of energy;
(2) estimating future energy needs to the year 2020, giving due consideration to a range of economic development possibilities;
(3) assessing, in depth, the availability and potential for development of indigenous energy sources, including solar, wind, hydropower, ocean current and tidal, biogas, biofuel, geothermal and ocean thermal energy conversion;
(4) assessing the mix of energy sources (including fossil fuels) and identifying those technologies that are needed to meet the projected demands for energy; and
(5) drafting long-term energy plans for such insular areas with the objective of minimizing their reliance on energy imports and making maximum use of their indigenous energy resources.

(d) Demonstration of cost effective renewable energy technologies. The Secretary of Energy or any administrative official who may succeed him, with the approval of the Secretary of the Interior, as part of the comprehensive energy planning may demonstrate those indigenous renewable energy technologies which are determined to be

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Northern Mariana Islands, the Federated States of Micronesia, the Marshall Islands, and Palau are virtually completely dependent on imported sources of energy; (2) the dependence of such areas on imported sources of energy coupled with the increasing cost and the uncertain availability and supply of such sources of energy will continue to frustrate the political, social, and economic development of such areas by placing increasingly severe fiscal burdens on the local governments of these areas; (3) these insular areas are endowed with a variety of renewable sources of energy which, if developed, would alleviate their dependence on imported sources of energy, relieve the fiscal burden on local governments imposed by the costs of imported fuel, and strengthen the base for political, social, and economic development; (4) appropriate technologies are presently available to develop the renewable energy resources of these insular areas but that comprehensive energy plans have not been adequately developed to meet the energy demands of these areas from renewable energy resources.
(b) Congressional declaration of policy The Congress declares that it is the policy of the Federal Government to (1) develop the renewable energy resources of the Caribbean and Pacific insular areas of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Northern Mariana Islands, the Federated States of Micronesia, the Marshall Islands, and Palau; and (2) to assist other insular areas in the Caribbean and Pacific Basin in the development of their renewable energy resources.

> most cost effective through the use of existing programs and may implement any projects or programs contained in recommendations of the plan.[147]

Up to this point in the legislation, Congress adopts a posture that suggests that it can compel the compliance of the insular states. However, Congress has not yet established in any of these orders to the federal agencies its constitutional authority to legislatively order insular jurisdictions to turn away from indigenous sources of energy and cease importing their energy from abroad. It may be federal policy to free the insular jurisdictions from their dependence on foreign oil, but it is a policy that cannot be enforced at law as the foreign energy sources spoken of here are circulating in interstate commerce on flagships of the United States in the same way that heating oil circulates from the Gulf States or Venezuela to New England or New York.

The problem is corrected in the next section of the law where Congress makes an award of federal funds contingent on the insular jurisdiction's passing of a law. Subsequent sections of the Act allow the Secretary of Energy to grant financial assistance:

> (g)(1) The Secretary of Energy may grant financial assistance, not to exceed $2 million annually, to insular area governments or private sector persons working in cooperation with insular area governments to carry out projects to evaluate the feasibility of, develop options for, and encourage the adoption of energy efficiency and renewable energy measures which reduce the dependency of the insular areas on imported fuels, improve the quality of the environment, and promote development in the insular areas.
>
> (2) Any applicant for financial assistance under this subsection must evidence coordination and cooperation with, and support from, the affected local energy institutions.
>
> (3) In determining the amount of financial assistance to be provided for a proposed project, the Secretary shall consider
>
> (A) whether the measure will reduce the relative dependence of the insular area on imported fuels;
>
> (B) the ease and costs of operation and maintenance of any facilities contemplated as a part of the project;
>
> (C) whether the project will rely on the use of conservation measures or indigenous, renewable energy resources that were identified in the 1982 Territorial Energy

147. 48 U.S.C. § 1492(c)–(d) (2005).

> Assessment or that are identified by the Secretary as consistent with the purposes of this subsection;
> (D) whether the measure will contribute significantly to development and the quality of the environment in the insular area; and
> (E) any other factors which the Secretary may determine to be relevant to a particular project.
>
> (4) Notwithstanding the requirements of section 501(d) of Public Law 95–134 (48 U.S.C. 1469a(d)), the Secretary shall require at least 20 percent of the costs of any project under this subsection to be provided from non-Federal sources. Such cost sharing may be in the form of in-kind services, donated equipment, or any combination thereof.
> (5) For the purposes of this subsection
>
> (A) the term "insular area" means American Samoa, the Commonwealth of the Northern Mariana Islands, the Commonwealth of Puerto Rico, the Federated States of Micronesia, Guam, the Republic of the Marshall Islands, the Republic of Palau, and the Virgin Islands; and
> (B) the term "1982 Territorial Energy Assessment" means the comprehensive energy plan prepared by the Secretary of Energy pursuant to subsection (c) of this section.[148]

As imperious as Congress sounds in authorizing the legislation, it is actually constitutional when its procedures are considered. Understood in constitutional terms, the cost-sharing requirement established in 48 U.S.C. § 1492(g)(4) is a backdoor method of insisting that the Commonwealth of Puerto Rico pass a law appropriating local monies prior to the awarding of federal funds to demonstrate the Commonwealth's willingness to align itself with the federal policy of making the island independent of foreign energy sources. The 1992 amendment that inserts, "and may implement any projects or programs contained in recommendations of the plan,"[149] permits the federal government to allot further funds to cover some of the costs of implementation, but permits transactional jurisdiction to oversee how the allotted money is being spent.

VI. IMPERIAL POSTURING IN THE EPACT AND EISA

As with the "Act to authorize appropriations for certain insular areas of the United States, and for other purposes," Congress uses the implementation of the EPAct and EISA to

148. 48 U.S.C. § 1492(g) (2005).
149. Energy Policy Act, Pub. L. No. 102–486, § 2701, 106 Stat 2776, 3118 (1992).

adopt the posture of an imperial sovereign by announcing the energy policy it invites the Commonwealth of Puerto Rico to assume. However, once the legislation is examined in light of constitutional considerations, the policy that the federal government wants to institute would only become legally binding in the local jurisdiction if the legislative assembly of the Commonwealth of Puerto Rico passed a law demonstrating it concurs with federal policy.

The ceremonial elements of the EPAct disguise the fact that it constitutes a set-back to the federal policy of attempting to achieve the Island's energy independence. Though it authorizes six million dollars per fiscal year for governments of insular areas of the United States to carry out infrastructure projects, the EPAct § 251 amends the text of 48 U.S.C. § 1492 in several important ways. For example, EPAct § 251(e)(1) mandates that:

> The Secretary of Interior, in consultation with the Secretary of Energy and the head of government of each insular area, shall update the plans required under subsection (c) by
>
> (A) updating the contents required by subsection (c) of this section;
> (B) drafting long-term energy plans for such insular areas with the objective of reducing, to the extent feasible, their reliance on energy imports by the year 2012, increasing energy conservation and energy efficiency, and maximizing, to the extent feasible, use of indigenous energy sources;
> (C) drafting long-term energy transmission line plans for such insular areas with the objective that the maximum percentage feasible of electric power transmission and distribution lines in each insular area be protected from damage caused by hurricanes and typhoons.[150]

While two million dollars remain available per year to "insular area governments or private sector persons working in cooperation with insular governments to carry out projects to evaluate the feasibility of, develop options for, and encourage the adoption of energy efficiency and renewable energy measures which reduce the dependency of insular areas on imported fuels, improve the quality of the environment, and promote development in the insular areas,"[151] the matching component in the EPAct constitutes a procedural impediment to certain types of projects. The EPAct § 252(4) not only amends subsection (g)(4) of 48 U.S.C. § 1492 to raise the percentage of the nonfederal

150. Energy Policy Act § 251(e)(1).
151. 48 U.S.C. § 1492(g)(1) (2006).

matching requirement from twenty percent to twenty-five percent,[152] but it also requires that applicants for powerline grants "demonstrate[d] to the Secretary that the matching funds required by subparagraph (D) are available."[153]

The location of transmission lines involves questions of eminent domain. The Constitution of the Commonwealth of Puerto Rico establishes that "No se tomará o perjudicará la propiedad privada para uso público a no ser mediante el pago de una justa compensación y de acuerdo con la forma provista por ley."[154] "Será política pública del Estado Libre Asociado la más eficaz conservación de sus recursos naturales, así como el mayor desarrollo y aprovechamiento de los mismos para el beneficio general de la comunidad,"[155] that "[e]l procedimiento para otorgar franquicias, derechos, privilegios y concesiones de carácter público o cuasi público será determinado por ley,"[156] that "[e]l Poder Legislativo se ejercerá por una Asamblea Legislativa, que se compondrá de dos Cámaras -el Senado y la Cámara de Representantes-, cuyos miembros serán elegidos por votación directa en cada elección general";[157] and that "[n]inguna enmienda a esta Constitución podrá alterar la forma republicana de gobierno que por ella establece o abolir su Carta de Derechos."[158] Consequently, the Governor of the Commonwealth of Puerto Rico appears to be constitutionally impeded from authorizing new power transmission lines or committing any funds to support the plans that the Secretary of Interior or Secretary of Energy might develop, absent the passage of an appropriations bill by the local legislative assembly that permits him to act in such a way.

The effect of the constitutional impediment is that, absent the passage of a local law authorizing the Governor to petition the Secretary of Interior, in communication with the Secretary of Energy, to condemn land or to conduct a feasibility study in conformity with the EPAct §251(e)(1), the Commonwealth of

152. Energy Policy Act § 252(4).

153. *Id.*

154. "Private property will not be taken or adversely affected for public use unless there is payment of just compensation according to measures provided by law." P.R. CONST. art. II, § 9 (1952).

155. "The public policy of the Commonwealth will be for the most efficient conservation of natural resources, including the greatest development and use of the same for the general benefit of the community." *Id.* Art. VI, § 19.

156. "The procedure for granting exemptions, rights, privileges, and concessions of a public or quasi-public nature will be determined by law." *Id.* Art. VI, § 13.

157. "The Legislative power will be executed by the Assembly, which will be composed of 2 chambers, the Senate and the House of Representatives, whose members will be directly elected in each general election." *Id.* Art. III, § 1 (1952).

158. "No amendment to this Constitution may alter the republican form of government it establishes or abolish its Bill of Rights." P.R.. CONST. art. VII, § 3.

Puerto Rico cannot use the federal funds to extend transmission lines to new sites of energy generation. Nor does it appear, absent local legislation, that the Secretary of Energy can comply with the mandate either, as it requires him to update plans "in consultation with the Secretary of Energy and the head of government of each insular area."[159] In other words, absent the Commonwealth's willing compliance with the statute in passing a law appropriating possible funds for land condemnation and transmission lines, the Secretary of Energy and of the Interior are both legally impeded by Congress from either authorizing a feasibility study or introducing a law that would serve to introduce new sites of alternative energy generation and connect them to the existing grid to reduce the local jurisdiction's dependence on foreign crude for generating electricity.

Further impeding the local consideration of legislation, the EPAct mandates haste: EPAct § 251 amends 48 U.S.C. § 1492(e)(5) to read:

> Not later than 1 year after the date of enactment of this subsection, the Secretary of the Interior shall submit to the Committee on Energy and Natural Resources of the Senate, the Committee on Resources of the House of Representatives, and the Committee on energy and Commerce of the House of Representatives, the updated plans for each insular area required by this subsection.[160]

In other words, although the EPAct requires the Secretary of Energy to update long-term plans for energy independence for insular jurisdictions in cooperation with the local governor, the duty ends in 2006.[161] If the Commonwealth Legislature, the Governor, and the Secretary of Energy and Interior could not agree on a particular set of plans within that year, the Secretary of Energy has no obligation at all to submit anything to Congress regarding the plans by which the island will achieve energy independence.[162]

A step toward energy independence this is not: The original legislation and the motives of the law specify that the goal of the section was to wean the island's utilities off fuel-oil-powered generation. The 2005 amendment alters that goal. The modest quantity of funding allotted; the expansion of the Secretary's duty to consider hardening insular transmission; the deadline that the Secretary faces; and the obligation of the Governor to show that the matching requirement is not just contingent but in

159. Energy Policy Act § 251(e)(1).
160. *Id.* § 251(e)(5).
161. *Id.*
162. *Id.*

place while discussing the plans, and prior to any funds being released, combine to transform the original purpose of the legislation into the legal equivalent of a coupon for a deep discount, so that the utility can purchase high-tensile cable and hardened posts at one quarter of the cost.

Indeed, as if to protect the utility against any other disposition of monies in the event that the Legislature and the Governor manage to agree on a law, the EPAct also amends the law so as to give standing to the local utility to request a feasibility study:

> of a project to implement a strategy or project identified in the plans submitted to Congress. . . as having the potential to
>
> (A) significantly reduce the dependence of an insular jurisdiction on imported fossil fuels; or
> (B) provide needed distributed generation to an insular area,
>
> (2) on
>
> (A) the request of an electric utility located in an insular area that commits to fund at least 10% of the study.[163]

Grammatically, there is some ambiguity as to whether "that" refers to the electric utility located in an insular area or an insular jurisdiction itself that is required to commit to funding ten percent of the study. Regardless, as any applicant for financial assistance under subsection (g) "must evidence coordination and cooperation with, and support from, the affected local energy institutions,"[164] it appears clear that the $500 thousand authorized annually for the feasibility study[165] at the petition of the utility is intended as a means of scuttling a local law if the utility wants to purchase something else and not so much as means of implementing the plans reached by the head of government, whose legislature has already authorized matching funding.

VII. THE EFFECT OF EISA ON THE STATES

No less imperious in its posturing, EISA pretends to dictate the policy that the federal government expects the States to adopt in relation to local utility investment in transmission infrastructure. Referring to the Smart Grid, Congress mandates:

> Each State shall consider requiring that, prior to undertaking investments in nonadvanced grid technologies,

163. Energy Policy Act § 252(a)(1)–(2)(A).
164. 48 U.S.C. § 1492(g)(2).
165. Energy Policy Act § 252(b)(1).

> an electric utility of the State demonstrate to the State that the electric utility considered an investment in a qualified smart grid system based on appropriate factors, including
>
> (i) total costs
> (ii) cost effectiveness
> (iii) improved reliability
> (iv) security
> (v) system performance; and
> (vi) societal benefit[166]

Even for a native speaker of English, this sentence is peculiar. Phrased in the jussive future, the law insists that "states shall consider requiring" without actually defining what "shall consider requiring" entails.[167] Used elsewhere in federal law, "shall consider requiring" is language directed towards an administrative agency of the federal government as it begins its process of regulation.[168] The process of regulation takes into account petitions of citizens with standing, after which the Administrator makes his decision whether to regulate or not on the basis of the written record that was accumulated in the

166. EISA § 1307.

167. *Id.*

168. *See*, e.g.*,* the usage in airport conduct regulation:

> "(b) In promulgating regulations under this section the Administrator *shall consider requiring* any individual or organization described in subsection (a) to submit an application for a permit to engage in the soliciting of funds or the distribution of materials. In considering such an application the Administrator may require that-
> (1) a responsible individual representative of the applicant shall be designated to represent the organization,
> (2) each individual participating in any solicitation or distribution will display a proper identification approved by the Administrator,
> (3) the number of individuals engaged in any solicitation or distribution at any one time shall not exceed a reasonable number, in keeping with the need for free movement in and operation of the airports as provided for by the permit,
> (4) the solicitation or distribution be confined to limited areas and times, and
> (5) no individual or organization which holds a permit under this section shall be permitted to-
> (A) use sound amplification or display signs (other than signs approved by the Administrator);
> (B) intentionally interfere with users of the airport;
> (C) engage in the use of indecent or obscene remarks or conduct; or
> (D) engage in the use of loud, threatening, or abusive language intended to coerce, intimidate or disturb the peace.
> (c)(1) The Administrator *shall consider requiring* that a copy of a permit (if such is required) be conspicuously posted in the area in which any solicitation or distribution is permitted.
> (2) *The Administrator shall consider whether revocation of approval for any permit if required and approved under this section should occur for any violation of any rule or regulation promulgated hereunder.* (Emphasis added.)
> (d) Regulations intended to be promulgated under this section shall be submitted to Congress within 30 days after February 18, 1980."

49 U.S.C. § 1359 (cited in *U.S. v. Smith*, 812 F.2d 161, 165 (4 Cir. 1987)).

file.[169] If the written record demonstrates no evidence that the regulation was considered, judicial review of the administrative action can render the action void as either arbitrary and capricious rule-making or agency regulation inconsistent with the authorizing law.[170]

However, EISA § 1307 is not directed to a federal administrative agency: it is directed toward "each State."[171] This mandate does not distinguish whether or not this State's transmission infrastructure is connected to an interstate electricity transmission grid. The "consideration" toward "requiring" in a sovereign state takes place in its legislative body. According to EISA, State legislatures "shall" consider requiring a cost benefit analysis on the smart grid.[172] Considered literally, "consideration toward requiring" may take place in committee hearings; it may take place in one house of the body; it may take place in both. If stalling in those places, the requirement that is being considered may be alleged to have not been fully considered, because the legislature's consideration on the requirement never reached a final vote.[173]

As dormant commerce clause concerns could have been easily resolved with the use of the volative subjunctive "may" rather than the jussive future "shall," the phrasing of EISA § 1307 in the jussive future raises several questions about the extent to which State "consideration" can be enforced as federal law.[174] Are we to imagine that this legislation empowers a member of one branch of the legislature to sue in federal court upon this cause of action to bring the requirement to a vote in the other, so as to complete the "consideration" clause that the federal government, speaking imperiously, says the State must fulfill? Can a member of a majority in the upper house of the state legislature ground a federal injunctive action on this section to secure closure to a filibuster? Can someone with interest in the "smart grid" or the Secretary bring a *mandamus* action against the legislature as a whole in a federal court to compel the legislature to complete its ministerial duty to consider the requirement of a cost benefit analysis of a smart grid? Does this law give federal standing to the Secretary or to a private party to annul any and all state appropriations for infrastructure improvements in the grid as arbitrary and capricious, absent

169. *Id.*
170. EISA § 1307.
171. *Id.*
172. *Id.*
173. *Id.*
174. EISA § 1307.

evidence in the written record that the legislature considered requiring a cost benefit analysis sometime in the year before? And if so, does the Constitution tolerate federal judicial interference in the local appropriation of local monies in a strictly local matter at the petition of the Secretary or a private party, which is exactly what would happen in the case of Puerto Rico, Alaska, and Hawaii, whose grids are not connected to the grids of any other States?

The United States Supreme Court, discussing the "*Attleboro* gap" would likely say that the Constitution does not tolerate federal judicial interference. Describing the history of utility regulation in 2002, the Supreme Court specified that:

> [P]rior to 1935, the States possessed broad authority to regulate public utilities, but this power was limited by our cases holding that the negative impact of the Commerce Clause prohibits state regulation that directly burdens interstate commerce. When confronted with an attempt by Rhode Island to regulate the rates charged by a Rhode Island plant selling electricity to a Massachusetts company, which resold the electricity to the city of Attleboro, Massachusetts, we invalidated the regulation because it imposed a "direct burden upon interstate commerce." *Public Util. Comm'n of R.I. v. Attleboro Steam & Elec. Co.,* 273 U.S. 83, 89, 47 S.Ct. 294, 71 L.Ed. 549 (1927). Creating what has become known as the "*Attleboro* gap," we held that this interstate transaction was not subject to regulation by either Rhode Island or Massachusetts, but only "by the exercise of the power vested in Congress." *Id.,* at 90, 47 S.Ct. 294.[175]

Viewed in the light of constitutional considerations concerning the extent to which Congress can authorize a federal agency to regulate state utilities, and the powers conceded the Federal Power Authority by way of the Federal Power Act of 1935, it seems that Congress, by way of EISA, assumes an imperial posture. A posture from which it pretends it can dictate that all state legislators walk in lock-step with the congressional will in a way that, in the States of Alaska and Hawaii, and the Commonwealth of Puerto Rico, could never be enforced in a court of law. Posturing, Congress offers what seems to be a reasonable suggestion in terms of a command. Imperious but unenforceable in the legislative assembly of the Commonwealth of Puerto Rico, the jussive future "shall consider requiring" thus seems, on its face, less an act of constitutionally permissible legislation than an artfully phrased pronouncement designed to inspire a feeling

175. *New York v. F.E.R.C.*, 535 U.S. 1, 122 S.Ct. 1012 (2002).

of awe at the imperial posture that Congress, costumed in Tyrian purple, pretends it may adopt.

VIII. THE PROPER REACTION OF PUERTO RICO TO FEDERAL ENERGY LAW

The imperial tone of the pronouncements in the EPAct and EISA should not disguise the importance of this legislation.

Review of the federal legislation indicates:

1. Congress has indicated its desire for insular jurisdictions to attempt to reduce their dependence on imported energy sources, in particular oil;
2. For more than twenty-five years, Congress has shown itself willing to appropriate funds toward that end;
3. Congress cannot achieve its energy policy in the Commonwealth of Puerto Rico if the Commonwealth does not legislate toward this end;
4. Federal agencies are required, as purchasers of energy, to comply with the energy policy established by Congress;
5. The latest brainchild of the Congress, the Smart Grid, is legally as much a support system for the next generation of consumer goods as it is an efficient mechanism of transmission of electricity.

So understood, the imperious phrasing of the legislation actually surrenders enormous power to the local jurisdiction to establish its own energy policy. In doing so, it allows local jurisdictions to leverage the lion's share of the financing necessary to implement it at the federal cost.

First, it should be understood that the sunset provision in the EPAct's amendment to 48 U.S.C. § 1492(e) and (g) does not moot the federal policy, in place since 1980, to reduce the island's dependence on foreign fossil fuels and to encourage the local jurisdiction to develop indigenous renewable energy sources. Because the federal government can only affect its policy by way of transactional jurisdiction, the termination of the particular offer does not prevent the legislative assembly of the Commonwealth of Puerto Rico from advancing a counteroffer on terms more favorable to itself. This is especially true as the federal and local interests intersect on the importance of reducing the island's dependence on foreign oil.

The chief place where the interests of the local utility implicate the foreign policy interests of the United States is in the use of fuel oil for generation. As can be seen in the adjacent tables, the Puerto Rico Electric Power Authority's ("PREPA")

electrical generation is deeply dependent on fuel oil in terms of cost.

PREPA Fuel Costs as Percentage of Total Expenditures[176]			
Ending Date	# Months Preceding	Fuel Oil Cost (M$)	Percentage of Total Expenses
30 April 2008	10	1.802	61.8%
30 June 2007	12	1.666	54.9%
30 June 2007	60		51.3%

Furthermore, it appears that as fuel oil costs rise, the cost-efficiency of electrical generation at PREPA declines.

PREPA Fuel Costs and Efficiency, 2003-2007[177]						
Years Ending 30 June	2003	2004	2005	2006	2007	Increase + (2007/2003)
Average Fuel Cost/barrel	29.64	29.54	39.22	56.38	57.35	+27.71 (193%)
# barrels used (M)	29.1	29.27	30.16	29.55	29.83	+0.73 (102%)
Fuel Oil Cost (M$)	886.4	864.7	1,182.9	1,665.9	1,717.0	+830.6 (193.7%)
Net kWh generated (M)	17,249	16,740.6	17,270.7	16,933.1	16,974.2	-284.8 (98.3%)

In addition to the cost of electricity generation, per se, there is also the cost that results from accidents with oil.

PREPA Legal Difficulties in Arising from Use of Fuel Oil and High Costs of Producing Electricity[178]			
Date	Authority	Reason	Cost (Pending cost)
December 1992	EPA	Penalty	$1.5M (paid)
December 1992	EPA	Compliance with Consent decree	$4.5M
September 1999	EPA; Dept. of Justice	Misdemeanor violation of the Clean Water Act: fine; 2 years probation	$140K
June 2001	Probation Office	Violation of probation: additional 18 months	$10K
April 2003	Municipalities	Settlement for past debt	$68M cash; $57M infrastructure projects

176. PUERTO RICO ELECTRIC POWER AUTHORITY, POWER REVENUE BODS SERIES WW (2008), *available at* http://www.gdb-pur.com/pdfs/public_corp/OSSeriesWWJunio2008.pdf.

177. *Id.*

178. *Id.*

September 2004	EPA (Air)	Penalty	$300K
June 2004	PR Comptroller	Overcharged Clients	$49.8M (or perhaps > $700M: still pending)
September 2004	EPA (Air)	Consent degree	$200K
October 2004	EPA	Penalty (oil sheen 2000)	$67K

As these fines are transferred from the utility to the citizens of the jurisdiction either directly, via illegally increased rates or decreased service, or indirectly, by making the utility less able to generate profit for itself that it can reinvest in infrastructure improvements, or generate a return on investment for its bondholders, the jurisdiction has a vested interest in reducing the dependence of its electricity generation on imported oil.

The federal government appears to understand that dependence on foreign oil hurts the jurisdiction. As early as 1980, Congress pronounced that

> a) Congressional findings. The Congress finds that –
>
> > (1) the Caribbean and Pacific insular areas of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Northern Mariana Islands, the Federated States of Micronesia, the Marshall Islands, and Palau are virtually completely dependent on imported sources of energy;
> > (2) the dependence of such areas on imported sources of energy coupled with the increasing cost and the uncertain availability and supply of such sources of energy will continue to frustrate the political, social, and economic development of such areas by placing increasingly severe fiscal burdens on the local governments of these areas;
> > (3) these insular areas are endowed with a variety of renewable sources of energy which, if developed, would alleviate their dependence on imported sources of energy, relieve the fiscal burden on local governments imposed by the costs of imported fuel, and strengthen the base for political, social, and economic development;
> > (4) appropriate technologies are presently available to develop the renewable energy resources of these insular areas but that comprehensive energy plans have not been adequately developed to meet the energy demands of these areas from renewable energy resources.
>
> (b) Congressional declaration of policy. The Congress declares that it is the policy of the Federal Government to –

> (1) develop the renewable energy resources of the Caribbean and Pacific insular areas of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Northern Mariana Islands, the Federated States of Micronesia, the Marshall Islands, and Palau; and
> (2) to assist other insular areas in the Caribbean and Pacific Basin in the development of their renewable energy resources.[179]

Modifying the text above, the EPAct, which speaking directly to the question of insular jurisdictions' dependence on foreign energy sources, requires insular jurisdictions to become less dependent, to the extent feasible, on energy imports by 2012:

> The Secretary of the Interior, in consultation with the Secretary of the energy and the head of government of each insular area, shall update the plans required by subsection (c) by
>
> (a) updating the contents required by subsection (c)
> (b) drafting the long-term energy plans for such insular areas with the objective of reducing, to the extent feasible, their reliance on energy imports by the year 2012, increasing conservation and energy efficiency, and maximizing, to the extent feasible, the use of indigenous energy sources; and
> (c) drafting long-term energy transmission plans for such insular areas with the objective that the maximum percentage feasible of electric power transmission and distribution in each insular area be protected from hurricanes and typhoons[.][180]

When originally using the term "feasible" in 1980, Congress supposedly precluded an independent cost-benefit analysis. The Supreme Court has long held that when using the word "feasible," Congress mandated the practice, and having already taken cost into consideration the agency cannot use cost-benefit analysis to reach different ends from Congress.[181] The EPAct

179. Pub. L. 96–597, title VI, § 604 (Dec. 24, 1980); 94 Stat. 3480 (codified at 48 U.S.C. § 1492(a)).

180. Energy Policy Act § 251. In many ways, it is embarrassing to cite this legislation: when the EPAct suggests that islands look into indigenous energy sources, the legislation specifically mentions exploring the fuel substitution possibilities of coconut oil. Energy Policy Act § 251(2)(D). This false lead may indeed be yet another ceremonial aspect of the law. Yet it does appropriate $500,000 thousand allotted to the Secretary for feasibility studies at the petition of a regional electric utility that agrees to fund ten percent; and it allots four million dollars allocated for project implementation. Energy Policy Act § 252.

181. "The plain meaning of the word "feasible" supports respondents' interpretation of the statute. According to Webster's Third New International Dictionary of the English Language 831 (1976), "feasible" means "capable of being done, executed, or effected." Accord, The Oxford English Dictionary 116 (1933) ("Capable of being done, accomplished

qualifies this understanding because for the purposes of the "feasibility study" that an electric utility might request when the plans are being entertained by Congress, "a project shall be determined to be feasible if the project would significantly reduce the dependence of an insular area on imported fossil fuels, or provide needed distributed generation to an insular area, at reasonable cost."[182] This appears to indicate that any time a bill is before Congress that touches on the question of insular independence from foreign energy sources, the local utility has standing to request a feasibility study to challenge the costs of the legislation as unreasonably expensive.

Consequently, it appears to be imperative to define the parameters of energy independence for the Commonwealth of Puerto Rico within the EPAct's definition of what is "feasible." Insular energy independence means reducing the import of energy sources, *i.e.* fuel oil and diesel, and minimizing the use of imported fuel oil for electricity generation means putting fuel oil burning plants offline. The problem with replacing energy sources for the local jurisdiction is one of "feasibility," because rates are set so as to permit utilities to make a return on investment. Redundant energy production means that rates need to be set so as to allow a return on investment in both the initial fuel oil burning plant and the plant that is funded to replace it. In effect, if PREPA is to replace a working fuel oil plant with a non-fuel oil burning plant on its own, it must establish its rates to reflect twice the infrastructure cost. Such rates only become reasonable within the definition of "feasibility" when fuel costs are sufficiently high such that the cost of fuel saved outpaces the newly incurred capital cost, amortized over time.

In the Commonwealth of Puerto Rico, the cost of fuel-based systems is undoubtedly more expensive than in the continental United States as the cost of guaranteeing that a regular supply of fuel be shipped must be added to the total cost. Likewise, the Island's ever-present sun and wind undoubtedly would lower the cost of wind- and photovoltaic-energy production.

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or carried out"); Funk & Wagnalls New "Standard" Dictionary of the English Language 903 (1957) ("That may be done, performed or effected"). . . . Any standard based on a balancing of costs and benefits by the Secretary that strikes a different balance than that struck by Congress would be inconsistent with the command set forth in § 6(b)(5). Thus, cost-benefit analysis by OSHA is not required by the statute because feasibility analysis is. *Industrial Union Dept. v. American Petroleum Institute*, 448 U.S. at 718–19, 100 S.Ct. at 2902–03 (MARSHALL, J., dissenting) (cited in *American Textile Mfrs. Institute, Inc., v. Donovan*, 452 U.S. 490, 508–9 (1981)).

182. Energy PolicyAct § 252(a)(4).

Nonetheless, the market provides no incentive in and of itself for Commonwealth utilities to align themselves with federal policy. As the EPAct can define no penalties when insular authorities fail to conform to the federal policy that they establish plans to reduce their dependence on imported fossil fuels "to the extent feasible," the legislation articulating this policy is virtually ceremonial. As fossil fuels of gas and coal are domestic products circulating in interstate commerce, and the Commonwealth of Puerto Rico is included within the interstate commerce clause, the federal government has as much jurisdiction to prevent West Virginia coal from crossing into the Commonwealth of Puerto Rico as it has to prevent the importation of Maine lobsters into the State of New York.

Yet this point should not be stated too strongly. The fact that the federal government has no jurisdiction to enforce compliance does not mean that there are no consequences for noncompliance. Among the problems arising from noncompliance is that the Commonwealth is estopped from citing federal policy for insular jurisdictions to defeat the more general federal directives issued to the States.

One of these directives is the command in EISA that the States shall consider requiring a utility to perform a cost benefit analysis when rejecting smart grid improvements.[183] As unconstitutional and imperious as the command may be, some might argue that the suggestion offered by EISA appears both modest and wise. The legislation requires only that a State, at its discretion, "shall consider requiring" that a state utility engage in a cost-benefit analysis concerning a "smart grid" prior to investing funds in improvements in its "dumb grid" transmission infrastructure.[184] But the modesty of the suggestion is undermined by the term "societal benefit" against which all costs are to be measured; ambiguous as the term "general welfare," "societal benefit" is a term that, in this clause, is completely free of metrics.[185] Specifically *not* defined in relation to the energy independence of the United States, the term "societal benefit" allows any and all possible effects of the Smart Grid to be considered in the cost-benefit analysis. This opens the legislation up to concerns about environmental, employment, production, and local-revenue- generation issues, and removes the consideration of the "smart grid" from the effects of the grid on the energy independence and security of the local jurisdiction.

183. EISA § 13079(a).
184. *Id.*
185. *Id.*

Already, *Caribbean Business* has celebrated the electric car as "green," and boasted that Puerto Rico is going to be the first U.S. district outside of Japan to see the importation of the Mitsubishi i-MIEV as early as 2010.[186] The Mitsubishi i-MIEV has been developed in cooperation with two California utility companies, Southern California Edison and Pacific Gas and Electric, Co.[187] But the reality is that the introduction of the electric car into Puerto Rico, which is an integral part of the "smart grid," is not green at all because it will make Puerto Rico more dependent on the import of foreign oil. And, as demonstrated above, the use of oil as an energy source in Puerto Rico has produced many harmful environmental effects.

Nor should there be any doubt that the battery-operated car is going to increase Puerto Rico's dependence on imported oil. Gasoline within the internal combustion engine of a car produces a direct mechanical effect that turns the wheels of the car and makes it move. A fuel-oil-burning generator uses the same (though presumably a larger) internal combustion engine to translate the direct mechanical effect of burning oil into electricity. This electricity is then transmitted over miles of electric lines. The loss of electricity by transmission is roughly five percent.[188] The electric car stores this transmitted energy in a battery, to be activated when the driver wants. At each stage of the generation, storage, and release process the energy generated by burning the fuel is lost. The loss becomes more pronounced as the batteries corrode or age over time. Corrosion is further accelerated in proximity to salt water, and the ongoing use of aging batteries is more likely to occur in a society where the per capita income is low and the cost of living is high.

To qualify as an electric car, EISA mandates a battery that can store no more than 4KWh of electricity. In the 1990's, batteries in the electric car took as long as eight hours to recharge.[189] In Puerto Rico, on every day of the year, unlike in Minnesota, stored energy intended for mobility will also be used to power the air-conditioning unit. If such is the state of technology today; and, as it happens, the United States Department of Energy has not indicated any new developments

186. José L. Carmona, Green Revolution Rolls on with New Electric Car, CARIBBEAN BUSINESS 36:33 (August 21, 2008), p. 36 available athttp://www.caribbeanbusinesspr.com/archives/ArcDetail2.php?archID=27557&q=energy%20independence%20and%20security%20act. (last visited Mar. 6, 2010).

187. *Id.*

188. REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13, at 6–10.

189. U.S. Dep't of Energy, Advanced Vehicle Testing Activity, http://www1.eere.energy.gov/vehiclesandfuels/avta/light_duty/fsev/index.html (last visited Mar. 6, 2010).

in this technology since 1996, then the electric car will be less energy efficient than in any other jurisdiction.[190] Consequently, the Commonwealth of Puerto Rico can expect that every new battery-operated automobile imported will require at least two battery systems to be charged every day: one that is in the car and another that is a spare. As low charge on the road will threaten electric car owners with the possibility of being stranded away from home, service stations are also likely to keep charged batteries on hand to swap. The result for the insular jurisdiction of a sudden influx of these cars is unpredictable increases in peak demand that today is met with inefficient diesel-powered spinning reserves. The electric car thus constitutes a serious impediment to the island eventually achieving independence from imported oil.

The electric car also provides administrative headaches. Puerto Rico is included within the interstate commerce clause.[191] Nonetheless, Puerto Rico is permitted to impose an excise tax on the import of cars, supposedly based on the size of their engines and their use of gasoline as a conservation measure. The electric car deeply complicates the question of how to enforce this tax. If its engine uses no gasoline, then, according to the law, it should be exempt from the excise tax on internal combustion engines and instead the tax on electric appliances should be applied.[192] As local electricity production is dependent on fuel oil and the batteries will likely be interchangeable with others, the tax will be unreasonably low. As taxes on the internal combustion engines constitute sometimes as much as twenty percent of the value of the car, the exclusion of the electric car from import taxes on internal combustion engines would create a real incentive for the island to become more dependent on imported fuel oil rather than less dependent.

As is clear from the Report of the National Energy Policy Group, published in 2001,[193] the "Smart grid" and the electric car that it supports as a means of achieving independence from foreign oil were not considered with Puerto Rico in mind. Consequently, even within EISA's overreaching mandate that "each State shall consider requiring" the utility balance the cost of the Smart Grid against the societal benefit, the legislature and the utility would have solid grounds to argue that PREPA should

190. REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13, at 6–10.

191. *Trailer Marine Transport Corp. v. Rivera Vazquez*, 977 F. 2d 1 (1st Cir. 1992).

192. As it happens, Article 7 of Ley Núm. 7 del 7 de Marzo de 2009 has attempted to moot this problem by amending the definition of "automóvil" in §2011(b)(1) of the Código de Rentas Internas to embrace all self-propelled vehicles, including motorcycles and all other vehicles whose internal structure allows them to carry passengers.

193. REPORT OF THE NATIONAL ENERGY POLICY GROUP, *supra* note 13, at 6–10.

not invest in a "Smart Grid" unless the Commonwealth of Puerto Rico can ban the electric car.

The ability to quote 42 U.S.C. § 1492 in support of the prohibitions would add great heft to the motives of such a local law. However, a difficulty in doing so arises if the local utility or the State has shown no concern in the past to put this federal policy in place. And, unfortunately, the Commonwealth of Puerto Rico may be estopped from using this argument to ban the electric car, as PREPA is neither doing everything it can to minimize its use of foreign oil, nor doing all it can within the law to maximize indigenous sources of fuel. PREPA has less than 1000MW online of non-oil based electricity generation.[194] Further, its published fuel diversification goals for 2011 are forty-four percent natural gas, thirteen percent coal, and forty-three percent fuel oil.[195]

These projections demonstrate conformity with the 2005 amendments to the Public Utility Regulatory Policies Act meant to minimize dependence on one fuel source authorized in the EPAct § 1251(a)(12), but demonstrate no evidence of compliance with the federal policy stated in the EPAct § 251 to reduce fossil fuel consumption.[196]

The easiest way out of the Hobson's choice facing the Commonwealth of Puerto Rico is for local legislation to encourage co-generation and distributed generation. The EPAct defines the term "qualifying co-generator" to mean:

> a cogenerating facility established by new criteria under 18 CFR 292.205 so that
>
> (i) the thermal output of a new qualifying co-generation facility is used in a productive and beneficial manner
> (ii) the electrical, thermal and chemical output of the cogeneration facility is used primarily for industrial, commercial or institutional purposes and is not intended fundamentally for sale to an electric utility, taking into account technological, efficiency, economic

194. Puerto Rico Electric Power Authority Reveue Bons, Series WW 4, (2008).

PREPA Non-Oil Based Electricity Contracts				
Entity	Fuel	Date Operations Commenced	MW Purchased	Contract Expires
EcoEléctrica	Natural gas cogeneration	March 2000	507MW	2022
AES-PR	Coal cogeneration	November 2002	454MW	2027

195. Puerto Rico Electric Power Authority Power Revenue Bonds, Series WW 23 (2008).

196. Energy Policy Act §§ 251, 1251(a)(12).

and variable thermal energy requirements, as well as state laws applicable to the sales of electric energy from a qualifying facility

(iii) continuing progress in the development of efficient energy generating technology.[197]

As understood in federal law, a co-generator's energy production is a means to earn profit from the sale of excess energy that would otherwise go to waste. As co-generation imagines that investment in electricity generating infrastructure will be funded by more than one income stream, the lesser of which is profits earned from generation of electricity, co-generation allows the insular jurisdiction to comply with federal law at a minimum of cost.

A second benefit of co-generation is that the public utility is not required to maintain spinning reserve for the co-generating facility, regardless of the industry in which it is involved, as the EPAct establishes that a public utility has no obligation to sell to a qualifying co-generator.[198]

A third benefit is legal: as long as PREPA maintains control of the transmission infrastructure, the strategy suggested by cogeneration falls within the suggestion offered by the EPAct § 251(2)(A) authorizing as a permissible strategy for reduction of dependence on "imported fossil fuels;" "improved supply-side efficiency of centralized electrical generation, transmission and distribution systems." As the excess supply of electricity, generated using a fuel source other than fuel oil and paid for at a cost lower than production using fuel oil, offers a supply-side solution to the problem of the dependence of the United States, and the insular jurisdiction on that imported strategic commodity known as crude oil.

A fourth benefit is likely to be that there are fewer political costs at the local level impeding co-generation than there may be for generation based on gas, nuclear or coal-fired plants. A kiln producing ceramics that transforms its excess energy into electricity to sell to the utility at pre-set wholesale rates is not principally a competitor with the existing utility. It is instead a manufacturer whose extra capacity permits the existing utility to reduce its fuel-based operating costs.

A fifth benefit is the positive environmental effect of cogeneration. Among the most cost effective of cogenerating models is the waste-to-energy plant. In this model, the plant is paid a tipping fee to receive its fuel, which is typically municipal waste, then the plant burns the waste at high heat, turning the

197. *Id.* § 1253(n).
198. *Id.* § 1253(m)(5).

trash into harmless smoke and the water is used to cool the heat into steam that can be used as drinking water.[199]

Waste-to-energy also happens to fit nicely within other clauses of the EPAct. First, it may constitute a form of "fuel substitution and minimization with indigenous biofuels," spoken of as an acceptable strategy for reduction of dependence on foreign energy sources in the EPAct.[200] Though the preposterous prepositional phrase "such as coconut oil" defines by example the sort of "indigenous biofuel" that the Republican Congress inexplicably imagined could serve as a feasible substitute for fuel oil in the island's electrical plants, the local federal presence has a vested interest in interpreting the burning of municipal trash as an acceptable strategy, as both the EPAct and EISA compel federal authorities to comply with a renewable energy consumption profile that must equal or exceed three percent from 2007–2009, five percent from 2010–2012 and 7.5% in 2013 and later.[201] The EPAct treats waste-to-energy as a renewable resource in relation to federal compliance but not in relation to federal grants.[202] Even were municipal waste used in waste-to-energy plants not perfectly contemplated within the category of renewable fuel, it would certainly fall within a strategy to use renewable energy sources for "water vapor condensation for the production of potable water"[203] and the catch all of "other strategies or projects that the Secretary may identify as having significant potential."[204]

Unfortunately for the Commonwealth of Puerto Rico, PREPA has gone a different route. Its plans for diversification of energy sources indicate it does not intend to moot the federal government's authority to enforce the EPAct by eliminating Puerto Rico's dependence on imported oil altogether: PREPA plans to diversify its fuel sources by adding generators that can use both oil and natural gas. In addition, PREPA has recently published to its investors that it has a policy of discouraging co-generation, admitting in its latest bond issue that:

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199. *See, e.g.*, Covanta Energy, Energy From Waste 101, http://www.covantaholding.com/efw_basics.shtml (last visited May 18, 2010) (providing a basic outline of the waste-to-energy process); *s*ee *also* EUGENE DOMALSKI, THOMAS L. JOBE, JR. & THOMAS A. MILNE, THERMODYNAMIC DATA FOR BIOMASS CONVERSION AND WASTE INCINERATION passim (Solar Research Institute, 1987), *available at* http://www1.eere.energy.gov/biomass/pdfs/2839.pdf (providing an in depth scientific analysis of the thermodynamics involved in waste-to-energy).

200. *Id.* § 251(e)(2)(D).

201. Energy Policy Act § 203(a).

202. *Id.* § 203(b)(2) (including "electricity generated from …municipal solid waste" in the concept of "renewable energy" contemplated by the federal government renewable energy compliance requirements).

203. *Id.* § 251(2)(C)(viii).

204. *Id.* § 251(2)(C)(x).

> In September 1997, the Authority [PREPA] established a reduced rate for large industrial clients connected at an 115kV voltage level and meeting certain criteria such as minimum demand and a high load factor and power factor. This rate is designed to induce large clients to buy more electricity from the Authority and discourage their independent power production. As of April 30, 2008, two of the Authority's industrial clients were using such rate.[205]

As can be seen from the bond-issue documents, this policy of discouraging co-generation already has prejudiced the people and the economy of the Commonwealth of Puerto Rico. Discouraging co-generation imposes on the residential consumer an obligation to bear a greater cost of energy generation. "[T]he ten largest industrial clients accounted for 5.3% of kWh sales and 4.2% of revenues from electric sales for the fiscal year ended June 30, 2007. . . [and] [n]o single client accounted for more than 0.8% of electric energy sales or more than 0.6% of revenues from electric sales."[206] It appears that in 2007 the small business sector and residential consumers paid a premium of 1.1% for their electricity so that PREPA could discourage co-generation.

IX. THE NEED FOR LOCAL LEGISLATION

From the analysis above, it would seem that the Governor of the Commonwealth of Puerto Rico should make it his priority to update the plans that he sends to the Secretary of the Interior, in consultation with the Secretary of Energy to authorize a strategy to comply with the EPAct requirement to reduce, "to the extent feasible, [the Island's] reliance on energy imports by the year 2012, increasing energy consideration and energy efficiency, and maximizing, to the extent feasible, use of indigenous energy sources."[207] This would serve to save the Commonwealth from crushing rates brought about from ongoing dependence on imported fuel oil and the specter of an energy crisis brought about by the electric car. As the term used here is "reliance on energy imports," a more expansive mandate that includes within it strategies intended to "reduce the dependence on imported fossil fuels" spoken of in the EPAct § 251(e)(2), the mandate here would appear to discourage both the ongoing reliance on imported fossil fuels (i.e., fuel oil) and the import of electricity by way of undersea cable from Columbia.

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205. PUERTO RICO ELECTRIC POWER AUTHORITY, POWER REVENUE BONDS, SERIES WW 29 (2008).

206. *Id.*

207. Energy Policy Act, § 251(e)(1)(B).

To achieve self-reliance and render the federal policy a useful rhetorical principle with which to ban the electric car, the Commonwealth should consider passing legislation that would authorize the Governor to speak with the Secretary of Interior or the Secretary of Energy in order to update the plan for energy independence on file with Congress. Local legislation can be justified on the grounds that the Smart Grid was not considered with the Commonwealth of Puerto Rico in mind. To meet the transactional burden, the legislation should authorize, in advance, the appropriation of funds for the plans (a) provided that Congress assume a percentage of the final cost, which, as this legislation constitutes an authorization to negotiate toward the advancement of federal policy, may be wisely set at a higher percentage than the EPAct presently allows; and (b) to be released upon the local legislature deeming the plans to be a feasible means of a significant reduction of the island's dependence on energy imports.

The legislation should recognize that when the EPAct required the Secretary of Energy to "identify and evaluate the strategies or projects with the greatest potential for reducing the dependence on imported fossil fuels as used for the generation of electricity,"[208] the Act authorized strategies and projects for supply- and demand-side solutions before referring to the technological paradigm shift toward "increased use of renewable energy, including:

> (C) increased use of renewable energy, including
>
> (i) solar thermal energy for electric generation
> (ii) solar thermal energy for water heating in large buildings such as hotels, hospitals, government buildings, and residences
> (iii) photovoltaic energy;
> (iv) wind energy
> (v) hydroelectric energy
> (vi) wave energy
> (vii) energy from ocean thermal resources, including ocean thermal cooling for community air conditioning
> (viii) water vapor condensation for the production of potable water
> (ix) fossil fuel and renewable hybrid electric generation systems, and
> (x) other strategies or projects that the Secretary may identify as having significant potential; and

208. *Id.* § 251(e)(2).

(D) fuel substitution and minimization with indigenous biofuels, such as coconut oil.[209]

The supply- and demand-side solutions indicated in the earlier subparagraphs include,

(A) improved supply-side efficiency of centralized generation, transmission and distribution systems;

(B) improved demand-side management through –

(i) the application of established standards of energy for appliances;
(ii) the conduct of energy audits for business and industrial customers; and
(iii)the use of energy performance contracts[210]

To gain leverage in the negotiations, the Commonwealth should demonstrate enthusiastic interest in the use of energy performance contracts to ensure that federal buildings meet the ambitious targets of energy efficiency set by Congress in EISA without imposing on the American taxpayer the added expense of Congress employing the power of eminent domain to condemn other lands in the Commonwealth of Puerto Rico to federal use and thereby wastefully abandoning particularly good buildings in the Commonwealth of Puerto Rico that were designed specifically for federal use. This would avoid the added burden of petroleum-intensive demolition and construction processes as well as the manufacturing, overland transportation, and importing of new steel and other products that would tend to increase rather than decrease the island's and the United States of America's dependence on foreign oil.

Next, the legislation should charge the Governor with securing a satisfactory explanation from the Secretary of Energy as to why the transition to a hydrogen-based economy was unrealistically destined by the EPAct to occur first in the automotive sector instead of in shipping. Toward this end, the legislation should remind the Governor and the Secretary that shipping falls squarely within admiralty jurisdiction of federal government; that U.S. merchant ships use oil as fuel; that the marine transport of oil and refined products accounted for nearly one third of domestic shipments in 2000;[211] that, in addition to the tank barges that make coastal deliveries, 447 foreign tankers and sixty-four U.S. flag tankers imported oil into the United States in 2000;[212] and that, being an island that imports most of

209. *Id.* § 251(e)(2)(C)–(D).
210. *Id.* § 251(e)(2)(A)–(B).
211. NATIONAL ENERGY POLICY GROUP, *supra* note 13, at 7–14.
212. *Id.* at 7–15.

its food and uses fuel oil to produce energy, Puerto Rico suffers the high cost of fuel oil (1) in the cost of its import of materials necessary to sustain life; (2) in the import of its sources of energy; and (3) in the generation of energy itself. Nor is the Commonwealth of Puerto Rico the only region affected. Northeastern states and old apartments in New York City still use distillate fuel oil and residual fuel oil as heating oil. It follows that making more distillate and residual fuel oil available could potentially save American lives.

To emphasize that the Secretary's answer should be based on scientific principles, the legislation should remind the Governor and the Secretary that history demonstrates that shipping, and not land travel, has been the traditional means whereby governments advanced and supported new means of propulsion. The wind-to-coal transition began with Robert Fulton's *Clermont*, built in 1803. Celebrated as reducing shipping costs, the *Clermont*'s thirty-two-hour voyage on August 14, 1807, up the Hudson River from New York to Albany constituted the first steamboat voyage of any significant length. Further steamboat travel was advanced by the "Hot water bill" which granted a monopoly to Robert R. Livingston for "navigating all boats that might be propelled by steam, on all waters within the territory or jurisdiction of the State, for the term of twenty years," if he could sail a boat at a minimum speed of four miles-per-hour.[213] The privileges conceded him by the State of New York allowed him to seize the steamships of any who transgressed his privileges and collect for the penalties allowed.[214] Livingston and Fulton knew that they would receive this kind of benefit if their vessel met the criteria established by law, because theirs was the second grant of a monopoly by New York State to steamship travel. Livingston's and Fulton's monopoly was preceded by an act authorized in 1787, prior to the Constitution, that granted a fourteen year monopoly to John Fitch.[215] They continued to be rewarded for their development of the technology and the extension of the act, originally passed in 1808, extended the monopoly granted to Livingston and Fulton over Hudson River Steam navigation to thirty years.[216] This

213. NATIONAL ENERGY POLICY GROUP, *supra* note 13.

214. Hudson River Maritime Museum, Robert Fulton, Steamboats of the Hudson River, The First Steamboat: 1807, *available at* http://www.hrmm.org/steamboats/fulton.html (last visited March 4, 2010).

215. NATIONAL ENERGY POLICY GROUP, *supra* note 13.

216. The history of the Hudson River steamboat monopolies is related in *Gibbons v. Ogden*:

> The first was passed March 19th, 1787. By this act, a sale and exclusive right was granted to John Fitch, of making and using every kind of boat or vessel

grant of monopoly was famously overturned by the United States Supreme Court in 1824 in *Ogden v. Gibbons*, which determined that regulating commerce on major waterways was part of the interstate commerce powers of the United States. Chief Justice Marshall, writing for the court, held that: (1) "The word ["commerce"] used in the constitution, then, comprehends, and has been always understood to comprehend, navigation within its meaning; and a power to regulate navigation, is as expressly granted, as if that term had been added to the word 'commerce'";[217] and (2) "[t]he power of Congress, then, comprehends navigation, within the limits of every State in the Union; so far as that navigation may be, in any manner, connected with 'commerce with foreign nations, or among the several States, or with the Indian tribes.' It may, of consequence, pass the jurisdictional line of New-York, and act upon the very waters to which the prohibition now under consideration applies."[218] Consequently, much as the Commonwealth of Puerto Rico might wish to advance hydrogen propulsion in a field of transportation that avoids the problems of miniaturization, road safety, and distribution, thereby making a profit from its

impelled by steam, in all creeks, rivers, bays, and waters, within the territory and jurisdiction of New-York, for fourteen years.

On the 27th of March, 1798, an act was passed, on the suggestion that Fitch was dead, or had withdrawn from the State, without having made [22 U.S. 1, 6] any attempt to use his privilege, repealing the grant to him, and conferring similar privileges on Robert R. Liringston, for the term of twenty years, on a suggestion, made by him, that he was possessor of a mode of applying the steam engine to propel a boat, on new and advantageous principles. On the 5th of April, 1803, another act was passed, by which it was declared, that the rights and privileges granted to R. R. Livingston, by the last act, should be extended to him and Robert Fulton, for twenty years, from the passing of this act. Then there is the act of April 11, 1808 purporting to extend the monopoly, in point of time, five years for every additional boat, the whole duration, however, not to exceed thirty years; and forbidding any and all persons to navigate the waters of the State, with any steam boat or 11, 1808, purporting of Livingston and Fulton, under penalty of forfeiture of the boat or vessel. And, lastly, comes the act of April 9, 1811, for enforcing the provisions of the last mentioned act, and declaring, that the forfeiture of the boat or vessel, found navigating against the provisions of the previous acts, shall be deemed to accrue on the day on which such boat or vessel should navigate the waters of the State; and that Livingston and Fulton might immediately have an action for such boat or vessel, in like manner as if they themselves had been dispossessed thereof by force; and that on bringing any such suit, the defendant therein should be prohibited, by injunction, from removing the boat or vessel out of the State, or using it within the State. There were [22 U.S. 1, 7] one or two other acts mentioned in the pleadings, which principally respected the time allowed for complying with the condition of the grant, and were not material to the discussion of the case. By these acts, then, an exclusive right is given to Livingston and Fulton, to use steam navigation on all the waters of New-York, for thirty years from 1808." *Gibbons v. Ogden,* 22 U.S. 1, 5 (1824) (italics in original omitted).

217. *Gibbons v. Ogden*, 22 U.S. 1, 193 (1824).

218. *Id.* at 197.

spinning reserve, the Commonwealth cannot lawfully implement such a policy because the granting of monopolies to innovators in ship-propulsion is a field occupied by the federal government, which has chosen not to act on this front.

To highlight the negligence of Congress in this area, the Governor should remind the Secretary of the role that sovereign nations played in encouraging the conversion of coal-powered ships to ships powered by internal combustion engines. It was in 1912 that Winston Churchill, as First Lord of the Admiralty, authorized the transformation of the British navy from steam- to oil-powered vessels, recognizing that an oil-powered vessel could sail four miles-per-hour faster. This constituted the most expensive additions in the history of the British navy up to that time.[219] By way of comparison, the gasoline station that catered to automobiles, pioneered in 1907, did not become widespread in the United States until 1929.[220]

Nor should the Secretary be permitted to overlook that on December 12, 1951 Congress authorized the first nuclear submarine, the *USS Nautilus* SSN-571, which was commissioned on September 30, 1954. Even though a Presidential citation celebrated its passage beneath the polar icecap as establishing a Northwest Passage for trade by way of cargo submarines,[221] the technology that once was imagined to have peaceful applications has of yet, fifty years later, failed to transform merchant ships into faster, more versatile non-fossil-fuel-burning cargo vessels and has failed to relieve the United States of the corresponding demand for oil.

Finally, the legislation should point out that one of the suggestions listed in the Report of the National Energy Policy Group in 2001 was that hydrogen-fuel cells might be used to

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219. YERGIN, *supra* note 6, at 156.

220. *Id.* at 210.

221. USS Navy Submarine Force Museum, Home of USS Nautilus, Presidential Unit Citation, *available at* http://www.ussnautilus.org/events/panopo50th/puc.html.

> "For outstanding achievement in completing the first voyage in history across the top of the world, by cruising under the Arctic ice cap from the Bering Strait to the Greenland Sea.
>
> During the period 22 July 1958 to 5 August 1958, U.S.S. NAUTILUS, the world's first atomic powered ship, added to her list of historic achievements by crossing the Arctic Ocean from the Bering Sea to the Greenland Sea, passing submerged beneath the geographic North Pole. This voyage opens the possibility of a new commercial seaway, a Northwest Passage, between the major oceans of the world. Nuclear powered cargo submarines may, in the future, use this route to the advantage of world trade.
>
> The skill, professional competency and courage of the officers and crew of NAUTILUS were in keeping with the highest traditions of the Armed Forces of the United States and the pioneering spirit which has always characterized our country."

power ships.[222] Somehow this possibility was lost when Congress drafted the law.

222. NATIONAL ENERGY POLICY GROUP, *supra* note 13, at 6–10.

Table 5.13c Estimated Petroleum Consumption: Transportation Sector, 1980-2007 [abridged][223] (Thousand Barrels per Day)									
	Transportation Sector								
Year	Aviation Gasoline	Distillate Fuel Oil	Jet Fuel		Liquefied Petroleum Gases	Lubricants	Motor Gasoline[224]	Residual Fuel Oil	Total
			Kerosene Type	Total[225]					
1980	35	1,311	845	1,062	13	77	6,441	608	9,546
1981	31	1,365	808	1,005	24	74	6,456	531	9,487
1982	25	1,312	803	1,011	24	68	6,421	444	9,307
1983	26	1,367	839	1,046	29	71	6,510	358	9,406
1984	24	1,383	953	1,175	30	76	6,554	351	9,592
1985	27	1,491	1,005	1,218	21	71	6,667	342	9,838
1986	32	1,514	1,105	1,307	19	69	6,871	379	10,191
1987	25	1,568	1,181	1,385	15	78	7,041	392	10,505
1988	27	1,701	1,236	1,449	17	75	7,179	399	10,846
1989	26	1,734	1,284	1,489	16	77	7,171	423	10,937
1990	24	1,722	1,340	1,522	16	80	7,080	443	10,888
1991	23	1,694	1,296	1,471	15	71	7,042	447	10,763
1992	22	1,728	1,310	1,454	14	72	7,125	465	10,881
1993	21	1,785	1,357	1,469	14	74	7,367	393	11,124
1994	21	1,896	1,480	1,527	24	77	7,487	385	11,417
1995	21	1,973	1,497	1,514	13	76	7,674	397	11,668
1996	20	2,096	1,575	1,578	11	73	7,772	370	11,921
1997	22	2,198	1,598	1,599	10	78	7,883	310	12,099
1998	19	2,263	1,623	1,622	13	81	8,128	294	12,420
1999	21	2,352	1,675	1,673	10	82	8,336	290	12,765
2000	20	2,422	1,725	1,725	8	81	8,370	386	13,012
2001	19	2,489	1,656	1,655	10	74	8,435	255	12,938
2002	18	2,536	1,621	1,614	10	73	8,662	295	13,208
2003	16	2,665	1,578	1,578	12	68	8,733	249	13,321
2004	17	2,783	1,630	1,630	14	69	8,885	321	13,718
2005	19	2,858	1,679	1,679	20	68	8,948	365	R 13,957
2006	18	3,017	1,633	1,633	20	67	R 9,029	395	R14,178
2007	17	R 3,037	R 1,622	R 1,622	R 16	R 69	R 9,093	R 433	R 14,287

223. Energy Information Administration, Table 5.13c Estimated Petroleum Consumption: Transportaiton Sector, 1980–2007, http://www.eia.doe.gov/emeu/aer/txt/ptb0513c.html (last visited May 18, 2010).;

224. Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, and ethanol blended into motor gasoline.

225. Through 1951, naphtha-type jet fuel is included in the products from which jet fuel was blended: in 1952, 71 percent gasoline, 17 percent kerosene, and 12 percent distillate fuel oil. Beginning in 1952, includes naphtha-type jet fuel. Beginning in 1957, also includes kerosene-type jet fuel. Beginning in 2005, includes kerosene-type jet fuel only.

The Governor might show that the use of distillate fuel oil and residual fuel oil is a growth sector of dependence. As can be seen from the table published by the Department of Energy excerpted above, the use of distillate fuel oil and residual fuel oil in the transportation sector has risen by more than twenty-five percent since the publication of the 2001 report. As cargo ships powered by hydrogen could potentially produce their own drinking water and could potentially be refueled by dirigible if they sailed off course, it seems peculiar that, if Congress did indeed wish to advance the hydrogen economy, it did not consider the possibility that granting patents and monopolistic privileges to hydrogen-powered ships traveling particular routes or carrying particular cargos might be the most swift and cost effective means of effectively substituting hydrogen for oil.

Having demonstrated to the Secretary of Energy the contradictions and omissions in the law, the legislation should represent waste-to-energy co-generation as a supply side solution that fits within the rubric of "fuel substitution" with "indigenous biofuel"[226] or another strategy with significant potential.[227] To emphasize the renewable aspect of this particular fuel, the legislation should quantify the amount of garbage put into landfills each day, as well as the weight of packaged food and other materials that come to the island each year on American flagships, and divide both quantities by the total population. This would present a ratio showing waste per ton of imports and pounds of waste per person. In order to support the characterization of the fuel as renewable, and emphasize its usefulness to the federal government, the legislation should emphasize its "feasibility" in terms of federal law. Additionally, legislation should point out; that, although waste-to-energy may not count towards biomass renewable fuel for rural power projects or grants for renewable projects,[228] federal law does authorize a tax credit to trash-combustion facilities for increased amounts of electricity produced. This is accomplished by way of adding a new unit, and the electricity produced by waste-to-energy facilities does meet the definition of biomass in the section defining federal energy diversity purchasing requirements.[229] While the legislation should demonstrate that the Commonwealth may be willing to grant a similar tax credit to waste-to-energy facilities to encourage their development, provided there are sufficient funds, it should nonetheless fix a

226. Energy Policy Act § 251(D).
227. *Id.* § 251(C)(x).
228. *Id.* § 931.
229. *Id.* §1301(e).

low price per kilowatt-hour so that PREPA can leverage income against its enduring costs for the fuel-oil-based infrastructure that will be put offline.

When it comes time to consider the promotion of promising indigenous sources of renewable power, the legislation should acknowledge that, because of the location of these projects federal participation is required by law. Specifically, some particularly promising sources are coastal and ocean wind.[230] The legislation should highlight that the wind cycles in Puerto Rico are different from the United States in that the trade winds blow continuously. In addition, coastal wind powered by land breeze produces energy at the hottest time of day; whereas, in the wind corridor of the United States, wind fields produce the most energy at night and in the winter when demand for air conditioning is particularly low.

In support of establishing a hydrokinetic or wave based electricity generation system,[231] the legislation should indicate its willingness to charter a public corporation, in the form of a university utility partnership. This partnership should pursue becoming a federally funded National Marine Renewable Resource Research and Development Center, reminding the Governor and the Secretary that federal law authorizes the Secretary to allocate fifty million dollars a year for 2008–2012 to fund these consortia.[232]

Finally, the legislation that is introduced should signal that the legislature is willing to possibly require the utility, when the spinning reserve must be maintained, to use this spinning reserve to manufacture hydrogen by electrolysis, thereby, maximizing fuel efficiency and profit. Another possibility would be to offer it for sale to local pharmaceutical corporations at cost, or to donate it in exchange for tax credits to a local university that is engaged in trying to win a federal hydrogen prize. Such offers are designed to earn allies in Congress as much as to meet the matching requirement in a way that is useful.

In conclusion, the need for energy policy that will enable the Commonwealth of Puerto Rico to be independent of foreign oil is certain. The Commonwealth of Puerto Rico should not trust a subject so important to the future economic prosperity of this island blindly to a federal government that seems more interested in enriching its constituents, dazzling us with rhetoric, and assuming imperial postures than resolving real problems in a thoughtful way.

230. Energy Policy Act § 251(C)(iv).
231. *Id.* § 251(C)(vi).
232. EISA § 634.