RENEWABLE ENERGY INITIATIVES FOR PUERTO RICO

ARTICLE

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    Helfeld for his comments and mentorship.
Investing in the future’s energy, not the past’s.

INTRODUCTION

This article explores options Puerto Rico (P.R.) has as a Commonwealth to develop clean energy under the structure of United States’ federalism. Its objective is to present workable propositions to set P.R. on a gradual path towards energy independence and in a position to become a renewable energy producer and exporter. Because of P.R.’s unique circumstances and geographical location, I recommend that P.R.’s Legislature concentrate its efforts in promoting legislation that will establish a public policy that incentivizes renewable energy projects significantly more than legislation recently enacted, which touts this goal in a grandiloquent manner, but only timidly supports it fiscally. Since the production of renewable energy does not yet make economic sense for most investors, the Commonwealth must take the lead in creating, through aggressive incentives, an attractive market geared towards the production of renewable energy and renewable energy technologies. This market will have a dual objective: (1) achieve energy independence for P.R. and (2) promote P.R.’s capability to export clean energy as a service in the Caribbean and clean energy technology as a commercial product in world markets.

I. WHY DEVELOP CLEAN ENERGY AND CLEAN ENERGY TECHNOLOGIES?

Many people think that developing clean energy and clean energy technology is a sensible decision. I agree. Yet they are not being developed at the speed and pace needed to reduce P.R.’s dependence on fossil fuels, minimize greenhouse gases, and lessen the effects of climate change. Thus, we must first answer why P.R. should establish legal measures to develop clean energy and clean energy technologies.

Because of its ideal geographical location and of its geological formation as an island within an archipelago, lying between the equator and the tropic of cancer, P.R. has a competitive advantage in producing great amounts of renewable energy from its yearlong supply of wind, solar, and ocean resources. In addition to this geographic boon, the University of Puerto Rico has an extremely capable sciences and engineering faculty and student body in Mayagüez that is world-renowned. In fact, every year, research universities in the sciences, N.A.S.A., the Department of Defense, among others, actively recruit students
who graduate from the Mayagüez campus for further higher education study and employment. Since P.R. is blessed both with an ample supply of renewable resources and highly skilled science faculties, along with up-and-coming science students and young professionals, P.R. should work to produce clean energy and clean energy technology on the island.

Every day that P.R. does not use these enviable and highly coveted natural and human resources, P.R.’s leaders pass up the opportunity to gradually make the island more energy independent and retain a knowledge base produced at its universities and increasingly lost to the brain drain phenomenon. For this reason, the Legislature should establish fiscal benefits that attract highly skilled scientists who will develop the renewable energy technologies of the future in P.R. At the same time, these scientists will harness and enhance P.R.’s human capital, reducing or averting the continuous flight of professionally skilled graduates.

Combining well thought-out policies could potentially create a virtuous circle that catapults P.R. as a knowledge base hub for renewable energy and for the production of renewable energy technologies. As a Commonwealth part of the U.S.’s federal structure, P.R. has the legal, political, and economic means to start up such an initiative. All that is needed is the government’s will to establish a concerted effort among various actors – civil society, clean energy investors, and politicians – to achieve the dual goal of reaching energy independence and creating a clean energy industry.

Besides these, there are a myriad reasons – political, economic, social, environmental, and, arguably, even moral – why P.R. should actively pursue developing renewable energy projects. For example, the United States currently lacks a well-thought, comprehensive federal policy to counter the effects of climate change. Instead of seeing this passive, hands-off, wait-and-see approach from the federal government as a disadvantage, governmental actors, both at the Commonwealth and municipal level, must view it as a political opportunity to adopt legislation and regulations that encourage the production of renewable energy initiatives.

Economically, it is known that energy is a scarce product in world markets and that the price of fossil fuels greatly affects the cost of life in any society. Being one of the areas of the United States that most depends on fossil fuels, pro-

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1 See Idem Osorio, Hablan de la fuga de cerebros [They talk of the brain drain], PRENSA RUM, http://www.uprm.edu/news/articles/as2006656.html (“The flight of talent in Puerto Rico takes place principally in specialized fields such as engineering”) (translation provided); Braulio Quintero, Op-Ed, Fuga de cerebros [Brain Drain], EL NUEVO DIA, May 38, 2011, at 64; José A. Delgado, Cogen vuelo los puertorriqueños [Puerto Ricans take flight], EL NUEVO DIA, May 27, 2011, http://www.elnuevidia.com/cogenvuelo-976787.html (“The experts coincide that the increase in the Puerto Rican population in the United States reflects also that the migratory wave from Puerto Rico – which has been estimated close to 500,000 persons during the last decade – has intensified in the last two years”) (translation provided).

ducing over 90% of its energy from them, Puerto Rico is highly sensitive and vulnerable to the volatility of fossil fuel prices. Even if fossil fuel reserves do not subside in the future, and with all probability they will, it will not be viable to consume them at the current levels when the adverse effects they have on the environment are taken in consideration as an externality and factored into the costs of energy generation.

Socially, producing clean energy and clean energy technologies would create jobs, reduce unemployment, develop a new export industry, foster academic and research cooperation, increase tourism, and boost Puerto Ricans sense of national pride. One can imagine the promotion of P.R. as a green island, as it advances towards the path of energy independence.

Environmentally, P.R. will be working to reduce greenhouse gases, improving the quality of its air, and protecting the purity of its water sources.

Last, morally, it becomes ever harder to justify continuing to import and depend on environmentally hazardous fossil fuels when P.R. can produce its own clean energy locally. Furthermore, when one considers that the countries from which P.R. imports its fossil fuels operate under an uncompetitive cartel – the Oil Producing and Exporting Countries, commonly known as O.P.E.C. – which helps maintain autocratic and abusive governments in power, it becomes morally questionable to continue economically sponsoring such undemocratic institutions.

These are just a few reasons why P.R. must remedy its current fossil fuel dependence and seize it as an opportunity to initiate a steady and committed effort toward clean energy independence and the establishment of an energy industry on our island. Thus, first, I will examine what P.R.’s Government has done in regard to renewable energy; then, I will examine the White House’s Task Force Report Recommendations on renewable energy; and, finally, I will discuss renewable energy initiatives and environmental policies from U.S. states and cities, which P.R. should implement.

II. A RECENT HISTORY OF RENEWABLE ENERGY IN PUERTO RICO

A. Law 325 of September 16, 2004 (Law 325/2004)3 – Renewable Energy Development Act exempting Renewable Technologies from taxation. This exemption was effectively annulled on November 15, 2006 by Law 117 of 4 July 2006; it was again reestablished by Law 246 of August 10, 2008.

Law 325/2004, entitled Renewable Energy Development Act, added section 2048-A to P.R.’s Internal Revenue Code of 1994.4 Its purpose was to create a tax

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exemption on all movable property that served as equipment to capture, store, generate, distribute and use renewable energy. In Law 325/2004’s Statement of Motives, the Legislature explains that in the past decades it has created public agencies and assigned funds for the protection of the environment. For instance, through funds directed towards the University of Puerto Rico and other research centers, the Legislature looked to promote the development of new technologies that take advantage of energies that are derived from inexhaustible and non-polluting sources, such as the sun, wind, and ocean. Recognizing that P.R. is in an ideal position to place itself at the forefront in the use of renewable energy sources, the Legislature extols the ample sources of sun, wind, and sea available in our island as well as the expertise of our engineers and the developments already obtained by research centers and institutions of higher study.

The Legislature acknowledges, however, that since these equipments are expensive, new renewable energy technologies require a considerable investment of capital. In order to mitigate these high front-end costs, the Legislature eliminates the tax on renewable energy equipments and incentivizes their acquisition.

Law 325/2004’s second article establishes the Commonwealth’s public policy:

(i) to stimulate the development of renewable energy and exploit clean and inexhaustible energy sources.
(ii) to ensure property tax exemption of equipment for the capture, accumulation, generation, distribution and application of renewable energy for local commercial, industrial or domestic use.
(iii) to promote fiscal incentives such as deductions and/or credits for the development, manufacture and marketing of renewable energy equipment.

Subsection (b) of the Law’s third article defines which energies will be considered renewable energies: “solar energy; eolic energy; hydraulic energy; biomass energy; the energy from the difference in oceanic temperatures; ocean energy, wave energy and tidal energy, among others, whose use is clean, reliable, safe and sustainable.” In addition, subsections (c) through (g) of the same article define the different types of equipment that were exempted from taxation: equipments that capture, store, generate, conduct, and/or exploit renewable energy.

The Law’s fourth article adds section 2048-A to P.R.’s Internal Revenue Code of 1994, stating that: “Renewable energy capture, accumulation, generation, dis-
turbation and application equipment that is either imported into or manufactured in Puerto Rico shall be exempted from the excise tax levied by this Act." However, Law 117 of July 4, 2006\(^{15}\) (Law 117/2006), titled *Taxpayers Justice Act of 2006*, amended subtitle B and established a subtitle BB where tax duties on such products were substituted for a Sales and Use Tax. In Law 248/2008’s Statement of Motives, which I discuss *infra*,\(^{16}\) the Legislature acknowledges that it overlooked this tax substitution and failed to exempt such equipments from the Sales and Use Tax. Through Law 248/2008, the Legislature exempts them again, correcting the lapse.

Early in 2011, the Legislature adopted a new *Internal Revenue Code of 2011* and established transitory dispositions for the gradual repeal of the *Internal Revenue Code of 1994*.\(^{17}\) The new Code maintains a similar, although much more limited, tax exemption for renewable technologies in section 4030.17. It states that solar electric equipment used to produce electric energy, including accessories and parts necessary to comply with such purpose, shall be exempt from the Sales and Use Tax.\(^{18}\) Nonetheless, Law 83/2011\(^{19}\) establishes special tax benefits for renewable energy and renewable energy technology that override the dispositions of the new *Internal Revenue Code of 2011*.\(^{20}\)

**B. Law 114 of August 16, 2007**\(^{21}\) (Law 114/2007) – Net Metering

Law 114/2007 orders and authorizes the Puerto Rico Electric Power Authority (P.R.E.P.A.) to establish a Net Metering Program that allows customers who have installed solar power systems, wind turbines, or any equipment that produces renewable energy to interconnect to P.R.E.P.A.’s system of electric transmission and distribution and resupply it with electricity.\(^{22}\) Furthermore, it grants credits on customers’ bills for the electricity generated by these equipments and compensates, to a certain extent, any excess energy they generate.\(^{23}\)

In Law 114/2007’s Statement of Motives, the Legislature explains its reasons for adopting this legislation, which I here summarize. Net metering Programs similar to this one have already been established in over forty states and in the

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16. *infra Part Error! Reference source not found..*
18. *Id.* § 4030.17.
22. 2007 P.R. Laws 482, Act’s Summary.
23. *Id.*
District of Colombia, as well as in countries such as Canada, Japan, and Germany.\textsuperscript{24} There are three reasons for establishing a net metering program: (1) “customers instantly receive an economic benefit for the electricity produced by consuming this energy or eventually by means of a credit or payment for the excess feedback to the electricity company;”\textsuperscript{25} (2) “net metering reduces customers costs by eliminating the need for a second meter;”\textsuperscript{26} and (3) “net metering provides a simple, inexpensive, and easily administered mechanism for encouraging the use of solar electric equipment and windmills which at the same time benefit the environment and the economy in general.”\textsuperscript{27} A net metering programs works also as an incentive for energy efficiency by rewarding customers who save energy: the less energy they use, the greater the impact of the credit or the larger the payment they receive from P.R.E.P.A.\textsuperscript{28}

P.R.E.P.A. also benefits from a net metering program.\textsuperscript{29} As customers produce electricity at peak demand periods, they alleviate the burden on P.R.E.P.A.’s transmission and distribution system.\textsuperscript{30} Moreover, P.R.E.P.A. reduces its operational costs by receiving energy at a lower cost than it would spend to produce it and by increasing its power reserve.\textsuperscript{31}

This Net Metering Program established by Law 114/2007 is available either for residential or commercial customers who install equipment that generate renewable energy not exceeding a capacity of 25 kilowatts (25 W) and 1 megawatt (1 MW).\textsuperscript{32} If a customer does not use the credits earned within a year, 25\% of these are reserved for credits or rebates to public school’s electricity bills.\textsuperscript{33} This works as a tax on a customer’s energy generation. The remaining 75\% is paid out to the customer at a reasonable rate of compensation.\textsuperscript{34} The law states that this rate of compensation shall be the greater of either (1) 10 cents per kilowatt-hour or (2) the amount resulting from the subtraction of the adjusted fuel fee based on the variable costs incurred by the public corporation exclusively for the purchase of fuel and energy, from the total price charged by the public utility to its customers, converted into kilowatt-hours.\textsuperscript{35} Later on, I will discuss how establishing feed-in-tariffs incentivizes a faster adoption of renewable energy projects.

On April 13, 2011, P.R.E.P.A. announced that forty-one families in the Community of Villas del Turabo in Caguas benefitted from the Net Metering Pro-

\begin{itemize}
\item \textsuperscript{24} 2007 P.R. Laws 483, Statement of Motives.
\item \textsuperscript{25} Id.
\item \textsuperscript{26} Id.
\item \textsuperscript{27} Id.
\item \textsuperscript{28} Id. at 483-84.
\item \textsuperscript{29} Id. at 484.
\item \textsuperscript{30} Id.
\item \textsuperscript{31} Id.
\item \textsuperscript{32} Id. at 485, art. 2(a), P.R. LAWS ANN. tit. 22, § 1012(a) (2009 & Supp. 2011).
\item \textsuperscript{33} Id. at 488, art. 5(e)(2), P.R. LAWS ANN. tit. 22, § 1015(e)(2).
\item \textsuperscript{34} Id. art. 5(e)(1), P.R. LAWS ANN. tit. 22, § 1015(e)(1).
\item \textsuperscript{35} Id.
\end{itemize}
gram, being the largest such contract yet realized by P.R.E.P.A." It thus needs to improve, promote, and implement further this new and promising initiative.

C. Law 246 of August 10, 2008 (Law 246/2008) – Act to Set Forth the Public Policy on Global Warming Mitigation in Puerto Rico

Before its repeal, Law 246/2008 intended to set Puerto Rico’s public policy to mitigate global warming. It created, under the Governor’s Office, the Global Warming Board and established guides and duties for agencies, public corporations and municipalities.

In the following three paragraphs, I will summarize Law 246/2008’s Statement of Motives, in which the Legislature describes global warming, explains its causes and effects, and relates what the Government of Puerto Rico had done, up to that point, to contain it. Since 1997, Governor Pedro Rosselló conducted studies with the object of mitigating the effects of global warming. These studies, however, were never completed, and P.R. lagged in addressing global warming. As a consequence, the adverse effects of global warming became noticeable. In the last 30 years, the number of type 4 and 5 hurricanes doubled; birds that used to visit only for certain seasons or short periods remained longer, endangering native species; and coral reefs decolorized.

In 2004, a Report by the Quality Air Board found that the main air pollutants in P.R., carbon monoxide and carbon dioxide, were emitted by motor vehicles and industries. Albeit, P.R.’s air quality was within the United States’ national guideline of 50 μg/m³. Nonetheless, due to major power plants, industries, and high concentration of motor vehicles, the Ponce region and the metropolitan area had the island’s poorest air quality. In 2008, the Department of Transportation and Public Works registered 2.2 million motor vehicles; by

39 Id.
40 Id. at 1400.
41 Id. at 1398.
42 Id.
43 Id. at 1401.
44 Id. at 1402.
45 Id.
46 Though in the last decade P.R.’s population has decreased by a significant number, due to Puerto Ricans migrating to the United States, see supra note 1, the most recent quote for the number of motor vehicles registered in the Department of Transportation has increased to 3,020,455. De-
2020, that number was projected to increase to 4.4 million and government spending on gas consumption by an additional $40 million.47

As only logical from these facts, the Legislature recognizes that the consumption level of non-renewable resources was extremely high for P.R.’s population and territory.48 Therefore, “important, decisive, and necessary steps”49 needed to be taken to deal with P.R.’s oil dependence and with the absence of coherent legislation to regulate gas emissions. Ever since October 2006, the Government’s Transformation and Economic Development Plan for P.R. set the objective of diversifying energy sources and reducing oil dependence in half.50 It stipulated a quantitative goal, along with a timeline: reduce P.R.’s oil consumption from 73% to 52% in a four year period and from 52% to 33% in ten years.51

Law 246/2008 was repealed by Law 82 of 19 July 2010,52 which established a Renewable Portfolio Standard discussed below.53

D. A word on P.R.E.P.A.’s Green Way Project

Five years later, P.R. still finds itself producing nearly 70% of its energy from oil. Nevertheless, the current administration is pushing hard to convert P.R.E.P.A.’s power plants to operate with natural gas. This by itself, however, will not reduce P.R.’s dependence on fossil fuels. It only substitutes one fossil fuel, oil, for another, natural gas.

In this regard, it must be noted that the Fortuño Administration’s attempt to modify P.R.’s energy generation from oil to natural gas – arguably referred to as Vía Verde (Green Way)54 – has met with strong opposition from important media, communities, politicians, and environmental groups, such as El Nuevo Día,55 the Utuado Committee against the Pipeline,56 Congressman Luis V. Gutierrez.57
and Casa Pueblo de Adjuntas. In broad terms, they object to a gas pipeline that is to run for over 90 miles in an island roughly 110 miles wide by 35 miles long. At present, the pipeline is planned to go from the southwest to the northwest of the island, passing through P.R.’s Central Mountain Chain. From there, it is to run to the northeast of P.R. They argue that such a pipeline, which is to lie proximate to numerous communities, in an island tremor and hurricane prone, is, first and foremost, a dangerous enterprise. Second, regardless of the savings the Fortuño Administration estimates the gas pipeline could bring electricity consumers, they protest that a 92-mile pipeline, as designed, does not make economic sense and shall cause an unjustified amount of environmental damage.

Nonetheless, the Fortuño administration’s pro Vía Verde campaign has continued doggedly on. P.R.E.P.A. states on consumers’ electricity bills, for instance, the amount they could be saving if Vía Verde were operating. It does not mention on their bills, however, the amount of costs, both fiscal and environmental, P.R. and Puerto Ricans will incur to transform P.R.E.P.A.’s power plants from operating with oil to natural gas. Only of late, after a poll recording a strong negative sentiment toward the project and an inquiry from the Environmental Protection Agency, has the Fortuño administration shown signs of relenting on its adamant propaganda in favor of the pipeline.

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59 Id.


61 Id.

62 Id.

63 Id.

64 Id.

65 On P.R.E.P.A.’s website, the gas pipeline Vía Verde is estimated to cost $450 Million and to take 12 months of construction work, previously available at http://www.aepr.com/viaverde.asp (Last visited April 14, 2012).

66 Gerardo E. Alvarado León, La E.P.A. insiste en los daños a humedales: Insta al gobierno a considerar el sentir de la ciudadanía [The E.P.A. insists on the damages to wetlands: Urges government to consider the citizens’ sentiment], EL NUEVO DIA (Nov. 15, 2011), http://www.elnuevodia.com/laepaisistenlosdanoseahumedales-1120555.html.

67 Gloria Ruiz Kuilan, Baja el fervor por el gasoducto en la AEE: Decide la Junta no gastar más dinero en su publicidad [Fervor for the Pipeline Subsidies in P.R.E.P.A.: Board decides not to spend more money on its publicity], EL NUEVO DIA (Nov. 17, 2011), http://www.elnuevodia.com/bajaelfervorporelgasoductoenlaaee-1122296.html.
Albeit that the increasing abundance of cheap natural gas resources, which the International Energy Agency (I.E.A.) believes is enough to sustain current production levels for more than 250 years, is widely dispersed geographically and may bring a “golden age of gas,”68 there are considerable concerns about its possible environmental impact.69 In fact, the Wall Street Journal, a pro-business newspaper, recently reported that a “study, conducted by professors at Cornell University, found that natural gas obtained from shale formations using a process known as ‘hydraulic fracturing’ releases large amounts of methane [that when taken into account produce] more greenhouse gases than coal and coal-fired electricity generation over a 20-year time horizon.”70 Likewise, the Guardian newspaper commented that: “Shale gas represents a potential problem for governments trying to reduce CO₂ emissions, as there are significant emissions when it is burned.”71 Moreover, there are serious concerns that the process of hydraulic fracturing contaminates water supplies72 and causes minor earthquakes.73

Thus, regardless whether the Fortuño Administration achieves its objective of substituting natural gas for oil in the next few years, to reduce greenhouse gases and the effects of climate change, it will be necessary for P.R. to move away from fossil fuels and make a clear and determined commitment towards producing energy from renewable energy sources. Luckily, P.R. has enviable inexhaustible renewable energy resources throughout the whole year – sun, wind, and ocean – to generate clean energy.

E. Law 248 of August 10, 2008 (Law 248/2008)74 – Law establishing tax incentives and exemptions for the development of solar power and renewable energy technologies

Law 248/2008 added section 1040J to Subtitle A, and section 2514 to Subtitle BB of P.R.’s Internal Revenue Code of 1994, granting tax incentives for the devel-

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72 Id.
opment of solar energy. It also amended article 5.01(s) of Law 83 of August 30, 1991, the Municipal Property Tax Act of 1991, to add the use of solar energy, as well as all equipment to capture, store, generate, distribute, or use renewable energy introduced or manufactured in P.R., as a tax exemption.

In Law 248/2008’s Statement of Motives, which I here summarize in the next few paragraphs, the Legislature states that 68% of P.R.’s electricity is generated exclusively through oil consumption.75 P.R.’s oil dependence for power generation is much higher than most of P.R.’s economic competitors: Ireland has a dependence of 20%, Costa Rica 1%, Latin American and Caribbean countries, on average, 18%, and the continental United States 3%.76 P.R.’s oil dependence is even greater than Saudi Arabia’s – 63% – a top producer and exporter of oil.77

Hence, P.R.’s economic development is vulnerable to the high cost of electricity.78 On average, in 2008, industries in P.R. paid thirteen cents per kilowatt-hours;79 whereas those in the continental U.S. paid only three.80 The high cost of petroleum has a severe impact on P.R.’s economy: the capital used to buy oil, instead of remaining on the island to generate economic activity, is transferred out to the economies of petroleum exporting countries.81 A report prepared by Banco Bilbao Vizcaya Argentaria (BBVA) estimates that for every increase of $10 per barrel of imported oil, P.R.’s economy loses $750,000,000.82

Law 325/200483 was a commendable attempt to stimulate renewable energy. However, because it lacked adequate and stable incentives, it failed to produce

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75 Id., Statement of Motives, ¶ 1.
76 Id. at 1468 (Legislature cites a 2004 report titled Puerto Rico 2025, produced by A.T. Kearny consultants).
77 Id.
78 Id.
80 2008 P.R. Laws 1467, 1469.
81 Id.
82 At the time, P.R.’s Legislature stated that the price of oil for 2006 was expected to fluctuate around $60 per barrel of oil. However, in July 2008, the price of oil peaked to $147.30 per barrel of oil. On June 12, 2011, the price of a barrel of WTI crude oil stood at $97.92 and of Brent crude oil at $120.10. See OIL-PRICE.NET, http://www.oil-price.net/ (last visited May 15, 2012). See also 2008 P.R. Laws 1467, 1467-68; PUERTO RICO POWER AUTHORITY, AVERAGE COST OF ELECTRICITY, supra note 79 (Only three years later, the industrial, residential, and commercial cost of electricity in P.R. are respectively 25, 28, and 29 cents per kilowatt-hour); See also Pedro Bosque Pérez, Drástico aumento en la factura de la luz: AEE dice que se debe al aumento en precio del petróleo [Drastic increase in the electricity bill: P.R.E.P.A. says that its due to the increase in the price of oil], EL NUEVO DIA (May 14, 2011), https://www.adendi.com/archivo.asp?Xnum=965903&year=2011&mon=5; Alba Muñiz Gracia, La electricidad de la isla es la segunda más cara en EE.UU.: El costo por kilovatio hora solo lo supera Hawaii [The electricity on the Island is the second most expensive in the U.S.: The cost per kilowatt hour is only exceeded by Hawaii], EL NUEVO DIA (Sept. 8, 2011), http://www.elnuevodia.com/laelectricidadadelaislassegundamascaraenuu.-1061440.html.
83 See discussion supra Part Error! Reference source not found..
its objective of promoting the adoption and development of renewable energy technologies.\textsuperscript{84} Law 248/2008 improves these incentives by granting, during fiscal years 2007-08 and 2008-09, a 75\% tax credit on the cost of purchasing and installing solar power systems in a primary residence or business.\textsuperscript{85} For fiscal years 2009-10 and 2010-11, the credit is lowered to 50\%.\textsuperscript{86} Thereafter it stays at 25\%.\textsuperscript{87} The Government budgets $5,000,000 per fiscal year for the residential credit,\textsuperscript{88} whereas, for businesses, it budgets $15,000,000 per fiscal year.\textsuperscript{89} Any excess tax credits that remain unused, up to $10,000,000, are rolled over for future fiscal year budgets.\textsuperscript{90}

The Law also creates the possibility of the credits being ceded, sold or in any other way transferred in their totality or partiality by a taxpayer to any other person, thus creating a market for such credits.\textsuperscript{91} Once they have been so transferred, however, they cannot be ceded, sold or transferred again.\textsuperscript{92} Nevertheless, they may be carried over for a period of 10 years.\textsuperscript{93}

Law 83 of 19 July 2010,\textsuperscript{94} however, phases out these tax credit incentives by fiscal year 2010-11.\textsuperscript{95}

\textit{F. Governor Fortuño’s Executive Order 2009-23 (E.O. 2009-23) of July 21, 2009 - To create the Energy Policy Committee}\textsuperscript{96}

On July 21, 2009, the Honorable Governor Luis Fortuño approved E.O. 2009-23 to create the Energy Policy Committee (E.P.C.).\textsuperscript{97} I here summarize Governor Fortuño’s main statements therein.

Instituting a modern energy policy is essential for P.R.’s economic development.\textsuperscript{98} P.R.’s must look to provide clean energy at reasonable and stable costs.\textsuperscript{99} But P.R.’s electric infrastructure, now over 60 years old, will not suffice.\textsuperscript{100} Be-

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{84} See 2008 P.R. Laws 1467, 1470.
\item \textsuperscript{85} Id. at 1472, art. 1, § 1040(j)(b) (repealed by P.R.’s New Internal Revenue Code 2011, Law 1 of January 31, 2011).
\item \textsuperscript{86} Id.
\item \textsuperscript{87} Id.
\item \textsuperscript{88} Id. at 1473, § 1040(j)(c).
\item \textsuperscript{89} Id.
\item \textsuperscript{90} Id. § 1040(j)(d).
\item \textsuperscript{91} Id. at 1474-75, § 1040(j)(i)(i).
\item \textsuperscript{92} Id.
\item \textsuperscript{93} Id. at 1474, § 1040(j)(h).
\item \textsuperscript{94} See discussion infra Part \textit{Error! Reference source not found.}.
\item \textsuperscript{97} Id.
\item \textsuperscript{98} Id. Whereas 1.
\item \textsuperscript{99} Id.
\item \textsuperscript{100} Id. Whereas 2.
\end{itemize}
\end{footnotesize}
cause of it, P.R. predominantly depends on fossil fuel imports derived from oil and, in a minor scale, from natural gas and coal.\textsuperscript{101} Not having control over fossil fuel prices, P.R.’s economy is slave to continuous price fluctuations and to local capital flight when acquiring these fuels in world markets.\textsuperscript{102}

The actual cost of P.R.’s electric energy is approximately twice the average cost of the rest of the U.S.\textsuperscript{103} This high cost of energy adversely affects our quality of life and our economic competitiveness by increasing the cost of life and the cost of doing business in P.R.\textsuperscript{104} Likewise, pollution and greenhouse gases, generated when burning oil and other fossil fuels, lower our quality of life.\textsuperscript{105} In light of this, P.R. must immediately reduce its dependence on fuels derived from oil and diversify its energy sources to generate energy in a more cost-effective and environmentally sustainable way.\textsuperscript{106}

P.R. counts with sufficient renewable energy resources – solar, wind, biomass, marine, hydropower, and the possibility to transform waste-to-energy – to establish a public policy of diversified energy.\textsuperscript{107} Such a policy would strengthen P.R.’s economy and protect its environment.\textsuperscript{108} For this reason, the energy policy adopted by Governor Pedro Rosselló in Executive Order 1993-57\textsuperscript{109} needs to be revised and updated to the new possibilities of energy generation.\textsuperscript{110}

Promoting projects based on alternate sources and renewable energy will achieve the following objectives: diversify P.R.’s energy sources and the infrastructure of energy technology; reduce P.R.’s dependence on fuels derived from oil and other fossil fuels; reduce and stabilize P.R.’s energy costs; stimulate and develop P.R.’s economy to create green businesses and green jobs; and improve P.R.’s environment and quality of life.\textsuperscript{111}

Governor Fortuño identifies public-private partnerships, authorized by Law 29 of 9 June 2009, and economic incentives, established by the American Recovery and Reinvestment Act (A.R.R.A.)\textsuperscript{112} for private investment in infrastructure for the generation of alternate and renewable energy sources, as potential vehicles to support this diversification initiative.\textsuperscript{113}

\textsuperscript{101} \textit{Id.}
\textsuperscript{102} \textit{Id.} Whereas 3.
\textsuperscript{103} \textit{Id.} Whereas 4.
\textsuperscript{104} \textit{Id.}
\textsuperscript{105} \textit{Id.} Whereas 5.
\textsuperscript{106} \textit{Id.} Whereas 6.
\textsuperscript{107} \textit{Id.} Whereas 7.
\textsuperscript{108} \textit{Id.}
\textsuperscript{111} \textit{Id.}
\textsuperscript{112} Public Law 111-5, American Recovery and Reinvestment Act of 2009, 26 USC 1.
Law 73 of May 28, 2008 made the Secretary of the Department of Economic and Commercial Development the official responsible for recommending, developing, and instituting P.R.’s Energy Policy.114 Through E.O. 2009-23, Governor Fortuño establishes the E.P.C., constituting it with five members: (i) the Secretary of the Department of Economic and Commercial Development, who shall act as President; (2) the Executive Director of P.R.E.P.A.; (3) the Executive Director of the Administration of Energetic Affairs; (4) the President of the Government Development Bank for P.R.; and (5) a representative of the Office of the Governor.115

The governor’s intention in establishing this Committee is, among other things, to prepare and submit recommendations on: (1) a new public energy policy and an energy portfolio with diversification metrics; (2) the development and installment of new sources of alternate and renewable energy; (3) ways to achieve greater efficiency and accessibility of the systems of generation, distribution and transmission of energy; (4) the development of alternate and renewable energy projects under the incentives of federal programs; (5) ways to expedite government agency processes; and (6) the adoption of laws and regulations to better achieve this new energy policy.116 The E.P.C. must also submit periodic reports of progress and studies to the Governor.117

Various subsequent laws and executive orders regarding alternative and renewable energy, examined below, show the E.P.C. has had a verifiable impact on the Government of P.R.’s energy policy.118

G. Governor Fortuño’s Executive Order 2010-34 of July 19, 2010 (E.O. 2010-34)119 to activate the dispositions of Law 76 of May 5, 2000 (Law 76/2000)120

On July 10, 2010, Governor Fortuño approved E.O. 2010-34121 to activate the dispositions of Law 76/2000.122 I will summarize and comment on his main pronouncements therein.

P.R. confronts an energy crisis: its power generation infrastructure is antiquated, depending mainly on fuels derived from oil to produce almost 70% of electricity.123 P.R.’s oil dependence “threatens the life, health, and security of all

114 Id. Whereas ii.
115 Id. § 1.
116 Id. § 3.
117 Id. § 3.7.
118 See discussion infra Part Error! Reference source not found. o.
121 Boletin Administrativo Núm. OE-2010-34 [Administrative Bulletin No. OE-2010-34].
123 Boletin Administrativo Núm. OE-2010-34 [Administrative Bulletin No. OE-2010-34], Whereas 1.
Puerto Ricans since it affects the environment and forces the government to spend valuable resources in the payment of energy that instead could be invested in education, health, housing, and other social needs.

To avert this dire threat, this old and archaic infrastructure must be modernized and diversified to allow the use of sources other than those derived from oil. The first alternate source Governor Fortuño identifies is natural gas. Yet he always takes care to mention it married to or in conjunction with clean and sustainable renewable energies, such as wind, solar, biomass, marine, and hydraulic energy.

It is important to keep in mind that, although it produces less average air emissions when burned than coal or oil, natural gas is a nonrenewable fossil fuel. We cannot say with certainty whether generating energy through natural gas will remain for long more cost-effective than other sources of energy – for instance, renewable energies – in the next half century and beyond, particularly when the U.S. Congress has considered bills to tax carbon dioxide and when generating renewable energy becomes ever more affordable. Pondering such uncertainties and the Fortuño administration’s agenda, however, may easily give cause for speculation.

Nonetheless, in E.O. 2010-34, Governor Fortuño explains that Law 76/2000 provides him with the ability to activate expedited processes – in the concession of permits, completion of consultations, endorsements, comments, recommendations, certifications, and the like – for the execution of necessary works and projects to deal with critical situations in infrastructure that are key in the provi-
sion of essential public services to the citizenship and in situations that put at risk the life, health, and security of the population.33

In virtue of Law 76/2000, Governor Fortuño declares that P.R.’s infrastructure of electrical power generation is in a state of emergency and orders the use of Law 76/2000’s expedited processes to develop projects that promote a new infrastructure, ones that use alternate sources to those derived from oil.34 He groups natural gas, sustainable renewable energy, and alternate renewable energy projects, conveniently snuggled into one legal term: “Energy Projects.”35

His executive order creates also a Sub-committee of Accelerated Environmental Compliance, which is composed of one official from the Environmental Quality Board, one from the Urban Planning Board, one from the Natural Resources Department, and any other official the Governor designates.36 It is not clear from the wording if the Governor can designate more than one official to this Sub-committee. Nevertheless, considering that at this time his political party, the New Progressive Party, virtually controls the three branches of government, the Fortuño Administration should find no local legal difficulty in the approval of the Energy Projects it sees fit.37 Still, it may continue to face federal hurdles and public opposition.

Be that as it may, to demonstrate its approval to the Governor’s emergency declaration, the Legislature passed Law 32 of March 15, 201138 to amend the six-month limit imposed by Law 76/2000 to any emergency declaration39 and to grant Governor Fortuño the option of extending it to his entire term of office.

133 Id. Whereas 7.
134 Id. § 1.
135 Id.
136 Id. § 3.
139 P.R. LAWS ANN. tit. 3, § 1932.
Through Executive Order 2011-013 of April 12, 2011, Governor Fortuño exercises this option and declares the continuance of the emergency declaration.


On the same day that Governor Fortuño issued E.O. 2010-34,\textsuperscript{142} Law 82/2010, titled “Public Policy on Energy Diversification by Means of Sustainable and Alternative Renewable Energy in Puerto Rico Act,”\textsuperscript{143} was promulgated. This Law complements E.O. 2010-34\textsuperscript{144} by establishing a Renewable Portfolio Standards (R.P.S.) to promote the generation of renewable energy pursuant to short, medium, and long-term mandatory goals.\textsuperscript{145} In addition, it creates the Puerto Rico Renewable Energy Commission, which is in charge of overseeing compliance with the R.P.S. and with setting forth the duties of the Energy Affairs Administration (E.A.A.) with respect to this Commission and the R.P.S.\textsuperscript{146}

In Law 82/2010’s Statement of Motives,\textsuperscript{147} which I here summarize, the Legislature echoes almost verbatim Governor Fortuño’s statements in E.O. 2010-34\textsuperscript{148} by expressing, for instance, that P.R. is undergoing an energy crisis and that its energy production must be diversified in order to stabilize the price of energy.\textsuperscript{149} As a constitutional basis for the Act, the Legislature cites article VI, section 19 of the Constitution of Puerto Rico, which reads in part: “It shall be the public policy of the Commonwealth to conserve, develop, and use its natural resources in the most effective manner possible for the general welfare of the community.”\textsuperscript{150}

Only last year President Barack Obama committed to invest 150 billion dollars in sustainable renewable energy technology during the next decade, which is expected to generate five million direct and indirect jobs for the U.S. economy.\textsuperscript{151} Similarly, P.R.’s Legislature foresees the creation of a “new, strong renewable

\begin{flushleft}
\textsuperscript{142} Id.
\textsuperscript{143} Id. § 8121.
\textsuperscript{146} P.R. LAWS ANN. tit. 12, § 8122.
\textsuperscript{150} Id.
\textsuperscript{151} Id. ¶ 5.
\end{flushleft}
energy industry and thousands of new direct and indirect jobs.”

Showing it is completely in sync with the Fortuño Administration’s efforts, the Legislature states and follows the recommendations of the E.P.C.:

The members of the Energy Policy Committee (E.P.C.) created by the Governor of Puerto Rico, the Hon. Luis G. Fortuño, through Executive Order of July 21, 2009, (Administrative Bulletin No. OE-2009-23) reached a unanimous agreement as to a renewable portfolio standard proposal and defined the minimum percentage of renewable energy to be produced in Puerto Rico over the next decades.

Establishing a R.P.S. has become a popular idea. Prior to P.R., over 30 states adopted a R.P.S. or a renewable energy goal. Even the U.S. Congress evaluated establishing a nationwide R.P.S. Through Law 82/2010 the Legislature joins these states and sets a twenty-five-year mandatory timetable for retail electricity suppliers in P.R. to generate 20% of their energy from sustainable or alternative renewable sources, defined as follows:

“Sustainable Renewable Energy” means the energy derived from the following sources:

- Solar energy;
- Wind energy;
- Geothermal energy;
- Renewable Biomass Combustion;
- Renewable Biomass Gas Combustion;
- Combustion of biofuel derived solely from renewable biomass;
- Qualified hydropower;
- Marine and hydrokinetic renewable energy, as defined in section 632 of the Energy Independence and Security Act of 2007 (Public Law 110-140, 42, U.S.C. § 17211);
- Ocean thermal energy;
- Any other clean and/or renewable energy that the Administration may define in the future through regulation or order as sustainable renewable energy.

“Alternative Renewable Energy” means energy derived from the following sources:

- Conversion of municipal solid waste;
- Landfill gas combustion;
- Anaerobic digestion;

152 Id.
153 Id. ¶ 8; See discussion supra Part Error! Reference source not found.0.
155 Id. ¶ 6.
156 Id. ¶ 7.
157 P.R. LAWS ANN. tit. 12, § 8121(16).
d. Fuel Cells;
e. Any other energy that the Administration may define in the future as alternative renewable energy.  

The twenty-five year R.P.S. timetable is set up as follows:

Table 1. P.R.’s twenty-five year R.P.S. timetable

<table>
<thead>
<tr>
<th>Years</th>
<th>Mandatory Renewable Energy Percentage</th>
<th>Percentage Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 to 2014</td>
<td>0%</td>
<td>-</td>
</tr>
<tr>
<td>2015 to 2019</td>
<td>12%</td>
<td>12% (P.R.E.P.A. currently produces 1-2% of its energy from renewable energy)</td>
</tr>
<tr>
<td>2020 to 2027</td>
<td>15%</td>
<td>3%</td>
</tr>
<tr>
<td>2027 to 2034</td>
<td>Suppliers shall establish a progressive plan stating the annual percentages for such periods that reaches 20% by 2035</td>
<td>0%</td>
</tr>
<tr>
<td>2035 and beyond</td>
<td>20%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Law 82/2010 stipulates that "retail electricity supplier" means P.R.E.P.A. and “any other electricity supplier that sold more than fifty thousand megawatt-hours (50,000 MWh) of electric power to electric power consumers in Puerto Rico during the preceding calendar year.”

The idea behind this new energy policy, explains the Legislature, is to move towards energy source diversification and conservation, to ensure that the generation of electricity is “affordable, feasible, reliable, stable, and sustainable, while ‘green jobs’ are created and the environment is preserved.” Yet P.R. still finds itself far from achieving the R.P.S. targets set in Law 82/2010: only between one to two percent (1-2%) of P.R.’s energy is currently generated from renewable sources. By 2015, however, retail electricity suppliers must reach the first and

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158 P.R. LAWS ANN. tit. 12, § 8121(14).
159 P.R. LAWS ANN. tit. 12, § 8121(28).
largest targeted increase in renewable energy production, twelve percent (12%), either by generating it or by purchasing Renewable Energy Certificates. Law 82/2010 defines a Renewable Energy Certificate (R.E.C.) as:

A personal property that constitutes a tradeable and negotiable asset or commodity that may be purchased, sold, assigned, and transferred between persons for any lawful purpose, which is equal to one (1) megawatt-hour of electricity generated from a sustainable renewable energy source or alternative renewable energy source (issued and registered pursuant to this Act) and represents all environmental and social attributes, as defined in this Act."62

In addition, connecting with Law 114/2007, the Net Metering Act, discussed above, Law 82/2010 allows Retail Electricity Providers to purchase Distributed Renewable Energy, defined as: "sustainable renewable energy or alternative renewable energy supplying electric power to a retail electricity supplier through a net metering program with a capacity of up to one (1) megawatt."63 This is a commendable disposition to promote individuals and businesses to invest in renewable energy technology.

As a criticism, however, to sustain the adoption of renewable energy technology, instead of lowering the percentage increase in Table 1 above, the government should increase it as time progresses, particularly when it is well documented that renewable energy technology becomes ever more affordable, efficient, and necessary.64


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5839MW. Also, the report states that: "The Authority has entered into Power Purchase Agreements (PPA) with developers to purchase electric energy from three different wind energy projects and a waste-to-energy project. The wind projects, while not yet permitted, are 39 MW, 40 MW and 50 MW each. The largest 50 MW farm is to be located in Guayanilla on the southern side of the island.”).  
62 P.R. LAWS ANN. tit. 12, § 8121(8).  
63 Id. § 8121(15).  
64 See for example: INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE [I.P.C.C.], SPECIAL REPORT RENEWABLE ENERGY SOURCES, SUMMARY FOR POLICYMAKERS, 11th Session of Working Group III of the I.P.C.C., Abu Dhabi, United Arab Emirates, 5-8 May 2011, at ii, ("The cost of most [renewable energy] technologies has declined and additional expected technical advances would result in further cost reductions") (hereinafter IPCC Summary for Policymakers), available at http://srren.ipcc-wg3.de/report/IPCC_SRREN_SPM.pdf; Paul Krugman, Here Comes the Sun, N.Y. TIMES (November 6, 2011), http://www.nytimes.com/2011/11/07/opinion/krugman-here-comes-solar-energy.html?nl=today headlines&emc=tha212. ("as a blog post at Scientific American put it, ‘there’s now frequent talk of a ‘Moore’s law’ in solar energy,’ with prices adjusted for inflation falling around 7 percent a year.").  
66 Id. § 10421.

First, to provide residents of Puerto Rico with the opportunity to join the new R.E.C. and renewable energy source markets existing in the United States, the Legislature stipulates that R.E.C.’s, defined exactly as in Law 82/2010, are tradable and negotiable assets within and outside of Puerto Rico. Thus, from the moment of their issue, they constitute an economic value for any person who acquires, trades, or negotiates them.

Second, to provide financial incentives that further the establishment of renewable energy projects in Puerto Rico, the Legislature orders the Department of the Treasury to establish a special Green Energy Fund, which shall remain separate from other government funds. The fund is to be nourished from different revenue sources, such as taxes, state and federal incentives, donations from private non-governmental entities, and fines. The Legislature designates the Energy Affairs Administration as the fund’s administrator. It instructs it to grant incentives to sustainable and alternative renewable energy projects that promote renewable energy sources at a residential, commercial, and industrial level.

In addition, the Legislature establishes a three member Evaluating Committee—constituted by the Secretary of the Department of Economic Development and Commerce, the President of the Government Development Bank, and the Secretary of the Treasury—to supervise the operation of the fund, certify the quarterly adjudication process for medium-scale green energy projects, and approve R.E.C. purchase agreements for large-scale green energy projects.

Third, to standardize Puerto Rico’s green energy incentive scheme, Law 83/2010 combines, reforms, and organizes existing economic benefits, many reviewed here, to create a uniform economic benefit scheme that shall transform Puerto Rico into a highly competitive jurisdiction for the development of sustainable and alternative renewable energy projects.

Fourth, to spread its impact, Law 83/2010 establishes tax benefits adjusted for small, medium, and large-scale renewable energy projects. For example, some of these benefits are:

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167 Id.
169 Id. Statement of Motives, ¶ 8 & ¶ 2.4.
170 See Id. Statement of Motives ¶ 8.
171 Id. Statement of Motives, ¶ 9.
172 Id.
173 Id. Statement of Motives, ¶ 10.
174 Id. Statement of Motives, ¶ 11.
175 Id. Statement of Motives, ¶ 12-13.
(1) Reimbursements to partially reduce the costs of production unit installation in the case of small and medium-scale green energy projects;
(2) Deduction of R.E.C. acquisition costs from regular income when retiring or cancelling a R.E.C. to comply with the R.P.S.’s requirements established through Law 82/2010, supra;
(3) Tax exemption decrees for producers who comply with certain requirement in order to obtain preferential rates for income tax, personal and real property tax, and municipal licenses, among others.
(4) Tax benefits for owners of real property that locate green energy production units in them.176

As mentioned earlier, Law 83/2010 amends Law 248/2008 to phase out the tax credit for solar power installations by fiscal year 2009-2010.177 In its place, the Government of P.R. institutes the Green Energy Fund and endows it with the following yearly fiscal budget (Table 2) to develop renewable energy projects on the island.178

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Maximum Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2012</td>
<td>$20,000,000</td>
</tr>
<tr>
<td>2012-2013</td>
<td>$20,000,000</td>
</tr>
<tr>
<td>2013-2014</td>
<td>$25,000,000</td>
</tr>
<tr>
<td>2014-2015</td>
<td>$30,000,000</td>
</tr>
<tr>
<td>2015-2016</td>
<td>$35,000,000</td>
</tr>
<tr>
<td>2016-2020</td>
<td>$40,000,000</td>
</tr>
</tbody>
</table>

Table 2. Green Energy Fund’s Fiscal Year Budgets179

Thus, the Green Energy Fund’s 10-year budget to promote small, medium, and long-term renewable energy projects adds up to a paltry $170 million. In contrast, for a project it planned to complete in a year’s time – Green Way, the natural gas pipeline for P.R.E.P.A.180 – the Fortuño administration budgeted $450 million dollars. Even more questionable, it committed $30 million, including publicity contracts for $2 and $2.7 million as recent as October 2011, for a project that has yet to receive approval from the U.S. Army Corps of Engineers.181 This begs the question: Is the Fortuño Administration efficiently allocating the people’s money towards a clean and sustainable energy future?

176 Id. Statement of Motives, ¶ 14.
178 P.R. LAWS ANN. tit. 12, §§ 8121Id. (a)(1).
180 See supra Part Error! Reference source not found.0.
181 See Ruiz Kuilan, supra note 67.
III. OVERVIEW OF THE RECOMMENDATIONS ON DEVELOPING P.R. AS A MODEL FOR CLEAN ENERGY IN THE REPORT BY THE PRESIDENT’S TASK FORCE ON PUERTO RICO’S STATUS OF MARCH 2011

The Report by the President’s Task Force on Puerto Rico’s Status of March 2011 (Task Force Report) goes far beyond discussing P.R.’s political status. To our benefit, it devotes a section to Recommendations for Building Competitive Industries, in which the first matter considered is Developing Puerto Rico as a Model for Clean Energy. I here discuss the Task Force’s main findings and recommendations pertinent to our discussion.

The Task Force Report reckons that P.R.’s recent commitments to energy efficiency and renewable energy in Laws 82/2010 and 83/2010 are bolstered by the Department of Energy $125.6 million allocation from the American Recovery and Reinvestment Act (A.R.R.A.) of 2009. With these federal funds, the State Energy Program subsidized various energy projects, such as efficient traffic light replacements across the island and, in the Municipality of Gurabo, photovoltaic panel installations and lighting retrofits. In addition, in Bayamón, the Energy Efficiency and Conservation Block Grant Program partly funded a solar array installation of 587 kilowatts.

For the months following the Report’s publication, the Task Force recommends, “that the President and Congress work closely with, and support, Puerto Rico’s efforts to fundamentally change the Island’s approach to energy and the environment.” Specifically, the President and Congress should:

1. Assess Puerto Rico/U.S. Virgin Islands Electrical Interconnectivity
2. Help Puerto Rico Transform its Energy Economy
   - Phase I: Work with the government of Puerto Rico to develop improved regulatory and oversight conditions
   - Phase II: Assist Puerto Rico in developing a comprehensive plan for a new energy economy

The Task Force’s first recommendation, looking into interconnecting P.R.’s and the U.S. Virgin Island’s Power Systems, aims to expand the size of the electricity market that a utility can access to support renewable energy projects on a medium and large scale and to improve grid stability and resilience in the event of a hurricane or other natural disaster. Since wind and solar are renewable ener-

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183 See Id. at 71.
184 Id. at 72.
185 Id.
186 Id. at 74.
187 Id.
188 Id.
gies of an intermittent nature, the Report recommends that the island back up with thermal generation that can be quickly dispatched. In the long term, Secretary of Energy Steven Chu and Secretary of State Hillary Clinton foresee a Caribbean-wide electricity grid, with P.R. as the region’s hub.

To this end, the Department of Energy signed a contract with Siemens PTI to conduct a feasibility study for a subsea electrical interconnection between P.R.E.P.A., the U.S. Virgin Islands’ Water and Power Authority, and the utility in the British Virgin Islands. As a next step, the Department of State should fund a prefeasibility study to interconnect P.R. with St. Kitts and Nevis, which expressed desire to develop its geothermal resources, estimated at 300-megawatt capacity. Being this capacity in excess of St. Kitts and Nevis’ electricity demand, which fluctuates around 40 megawatts, the Task Force views P.R. as a prospective market for the extra power. To advance these initiatives, Puerto Rican officials and the relevant Federal agencies are to conduct environmental impact statements and assessments. A timeline is set for the submittal of interim reports, whose deadlines have passed, and a final report is left for an undetermined date.

A potential drawback of electrically interconnecting the islands, however, is that P.R. may compromise its independence to regulate P.R.E.P.A. At the same time, one may counter argue that independence from the Federal Electricity Regulatory Commission has not improved the energy situation in P.R. If anything, the opposite happened: while remaining less regulated by federal authorities, energy prices have dramatically increased and P.R.E.P.A.’s services steadily deteriorated.

The Task Force’s second recommendation, help P.R. transform its energy economy, is divided into two phases: (i) work with the government of P.R. to develop improved regulatory and oversight conditions, and (2) assist P.R. in developing a comprehensive plan for a new energy economy. As evidenced by the media, scholars, and stakeholders, P.R.E.P.A.’s operations are in dire need of

189 Id.
190 Id.
191 Id. at 75.
193 Id.
194 Id.
195 Id.
improvement. At the moment, P.R.E.P.A., P.R.’s sole power utility, is a public corporation directed by a government board. Since it does not interconnect with any other states or territories, P.R.E.P.A. is not required to abide by federal interstate regulations.

The Task Force therefore first recommends that the Federal Government -in collaboration with the Office of the Governor, Energy Affairs Administration, Puerto Rico Industrial Development Company, Government Development Bank, P.R.E.P.A., and key members of the Puerto Rico Legislative Assembly- support efforts to change P.R.’s energy regulatory structure and to establish a public utilities commission with regulatory and enforcement power. It sets another timeline to review and provide a model regulatory framework. Although the Report’s timeline passed on April 2011, at the moment of this writing, P.R.E.P.A.’s establishing law has yet to be revised and a public utility commission created.

In regard to the second phase, developing a comprehensive plan for a new energy economy, the Task Force recommends the Department of Energy (D.O.E.) support the development of a Puerto Rico-led plan to:

- Reduce Puerto Rico’s dependence on fossil fuels;
- Create “green job” opportunities;
- Reduce greenhouse gas emissions and criteria air pollutants; and
- Attract private capital to Puerto Rico.

For this effort, the Task Force exHORTS P.R. to use the D.O.E.’s “Integrated Deployment Model,” “a comprehensive energy approach that addresses the entire energy system for any given location” with the purpose of “accelerat[ing] market adoption of renewable energy solutions to power homes, businesses, and vehicles.” As examples, the Report suggests the Hawaii Clean Energy Initiative (H.C.E.I.) and the U.S. Virgin Island Energy Development in Island Nations (E.D.I.N.) pilot project. H.C.E.I. looks to transform Hawaii’s economy, based predominantly on oil, to one based on 70% clean energy by 2030. In a similar fashion, the E.D.I.N. initiative sets the goal of reducing the U.S. Virgin Island’s fossil fuel consumption by 60% by 2025.

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197 See, e.g., Autoridad de Energia Eléctrica, supra note 79; WHITE HOUSE TASK FORCE REPORT, supra note 182, at 77; Joel Ortiz Rivera, DIFÍCIL DE FISCALIZAR LA OPERACIón DE LA AEE: ADEUDAN A SUS BONISTAS S$8,000 MILLONES [Difficult to maintain fiscal oversight over PREPA’s operations: Owes bondholders $8,000 millions], EL NUEVO DIA (Aug. 19, 2011), http://www.elnuevodia.com/dificildesfiscalizarlaoperaciondelaaee-1043626.html; See also CNE’s FINANCIAL ANALYSIS OF PREPA, supra nota 196.

198 WHITE HOUSE TASK FORCE REPORT, supra note 182, at 76.

199 Id. at 77.

200 Id.

201 Id.

202 Id. at 78.

203 Id.

204 Id. at 79.

205 Id.

206 Id.
recent enactment of Law 82/2010 only requires that 20% of retail electricity provider’s energy generation come from renewable sources by 2035.207 H.C.E.I. and E.D.I.N. both suggest that P.R. could and should set much higher mandatory requirements for renewable energy generation and energy efficiency.

The Report makes clear however that a commitment for an aggressive, cost-effective goal for energy efficiency and renewable energy implementation must ultimately come from Puerto Rican stakeholders.208 The D.O.E. would assist P.R. with its own Integrated Deployment Plan by providing analysis and technical expertise to inform stakeholders, and the Federal Government would support it by providing funding.209 A third timeline is set for the application of the Integrated Deployment approach, which is to be fully applied by September 2016.210

Another area identified for advancing P.R. toward a clean energy future is the production of high value bioproducts.211 Employing locally available biomass, such as post harvest agricultural end products, to produce biofuels would reduce P.R.’s fossil fuel dependence and open an opportunity for exporting non-fuel products, such as organic feeds and fertilizer.212 The Department of Commerce’s Minority Business Development Agency (M.B.D.A.) is helping develop a public-private partnership called the Integrated Bio-Refinery Project (I.B.P.) of Puerto Rico, which brings together industry, academia, and government to work under one entity, Sustainable AgroBiotech, LLC (S.A.B.I.).213 S.A.B.I.’s objective is to “build integrated biorefineries . . . at strategic locations in Puerto Rico where sufficient cellulosic waste biomass, primarily sugarcane bagasse, can be locally generated to produce at least 3-4 million gallons of fuel alcohol per year.”214 The Report informs that a feasibility study is underway and the first phase of the project should begin before 2012.215

Last, the Task Force briefly mentions two A.R.R.A. programs that provide grants and tax credits for renewable energy: sections 48C and 1603.216 Nevertheless, the $2.3 billion in tax credits available under section 48C has been fully allocated and, albeit section 1603 grants were extended until 2011, the extension did not include specific language regarding the treatment of energy companies in P.R. and their U.S. subsidiaries.217

Thus, from the Task Force Report’s comments on “Developing Puerto Rico as a Model for Clean Energy,” the Government of P.R. should conclude that: (i) the Federal Government wishes for P.R. to take a significantly more aggressive
commitment to a clean energy future; (2) P.R. possesses all the means necessary to do so; (3) a good approach to follow is the Department of Energy’s Integrated Deployment Model; (4) the Federal Government is available to provide technical expertise and support; and (5) all Puerto Rican energy stakeholders must take part in these efforts for them to succeed.

IV. STATE INITIATIVES AND MEASURES

A. Hawaii

Since the Task Force Report mentions the State of Hawaii as an example for P.R. to follow, let’s take a closer look at what it has done. In 2008, the D.O.E. and the State of Hawaii signed a Memorandum of Understanding establishing the Hawaii Clean Energy Initiative (H.C.E.I.).\(^\text{218}\) Albeit the M.O.U. is not a legally binding document, it spurred Hawaii’s legislature into action. In 2009, the Hawaiian Legislature expanded a previously adopted R.P.S and mandated that each electric utility company comply with the following more ambitious R.P.S.:\(^\text{219}\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Mandatory Renewable Energy Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 31, 2010</td>
<td>10%</td>
</tr>
<tr>
<td>December 31, 2015</td>
<td>15%</td>
</tr>
<tr>
<td>December 31, 2020</td>
<td>25%</td>
</tr>
<tr>
<td>December 31, 2030</td>
<td>40%</td>
</tr>
</tbody>
</table>

Besides this, in 2009, Hawaii’s legislature created a separate Energy Efficiency Portfolio Standards (E.E.P.S.), which set the goal of reducing 4,300 gigawatt-hour in electricity use by 2030.\(^\text{220}\) By combining both efforts, the R.P.S. and the E.E.P.S., Hawaii set itself the goal of producing 70% clean energy by 2030 with 30% coming from efficiency measures, and 40% from locally generated renewable sources.

Furthermore, to stabilize the negotiating process of power purchase agreements for clean energy products, on May 6, 2009, Hawaii’s legislature enacted Act 50 to refocus the regulatory standard to a methodology that is just and reasonable by significantly reducing any linkages between the volatile prices of fossil fuels and the rate for nonfossil fuel generated electricity.\(^\text{221}\) Such decou-

\(\text{219}\) See HAW. REV. STAT. § 269-92 (2011).
pling enables “utility customers to share in the benefits of fuel cost savings resulting from the use of nonfossil fuel generated electricity.” Moreover, it paved the way for Hawaii’s Public Utilities Commission to issue a decision establishing feed-in-tariffs (FiTs).

A FiT is a contractual obligation where the electric utility connects the renewable energy generator to the grid and pays the generator a fixed price for the electricity produced. FiT programs reduce capital investment risk by ensuring the rate of return that power producers make for the length of a contract. Under Hawaii’s program, qualified FiT projects receive a fixed rate for twenty (20) years. The creation of the feed-in tariff is well in accordance with the Hawaii Clean Energy Initiative.

In fact, on May 26, 2011, Darcy L. Endo-Omotto, Vice President of Government & Community Affairs at the Hawaiian Electric Company, Inc., submitted to the Hawaii Public Utilities Commission the 2010 Renewable Portfolio Standard Status Report. The Status Report states: “Hawaiian Electric Company and its subsidiaries... have achieved a consolidated Renewable Portfolio Standard (RPS) of 20.7 percent in 2010... This report shows that the Hawaiian Electric Companies have exceeded the 2010 RPS compliance percentage of 10% required by Hawaii law.”

If the State of Hawaii can achieve these goals by 2030, and it is showing that it can actually surpass them, P.R. can achieve and surpass them too. It is just a matter of (1) setting more ambitious and aggressive legal mandates for renewable energy and energy efficiency, and (2) instituting a FiT program that reduces the risk of investing in renewable energy projects.

B. California

In 2002, California established its R.P.S. It originally set a goal of increasing the percentage of renewable energy in the state’s electricity mix to 20% by 2017. The next year, however, the Energy Commission realized, just as Hawaii,

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222 Id. § 2.
226 Id.
that California could do more and recommended accelerating the 20% goal to 2010 and increasing the renewable energy mix to 33% by 2020. On April 2011, the Commission’s recommendation became mandatory when Governor Edmund G. Brown, Jr. signed Senate Bill X1-2.

In 2006, California enacted the Global Warming Solutions Act, a law that indirectly promotes the development of renewable energy projects by measuring and limiting greenhouse gases. The legislation establishes aggressive greenhouse gas reduction goals for the state. First, the state must identify the statewide level of greenhouse gas emissions of year 1990 to set it as the emissions limit to be achieved by 2020. Then, the state shall develop a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions by 2020.

As discussed earlier, the Government of P.R., through Law 246/2008, enacted a public policy to mitigate global warming. However, it fell short of establishing a greenhouse gas cap or reduction mandate and ultimately was repealed by Law 82/2010. If the State of California can set and achieve this R.P.S. mandate and limit its greenhouse gases, P.R. can set and achieve a similar R.P.S. and limit its greenhouse gases as well.

V. City Initiatives

A. Portland, Oregon

In 1993, much earlier than the State of California, the City of Portland adopted a carbon dioxide reduction plan: it set the goal of reducing emissions to 20% below 1990 levels by 2010. The plan covered a wide range of urban policy areas, including land use planning, transportation, energy efficiency, solid waste and recycling, urban forestry, and renewable energy. Although Portland didn’t reach its target reductions due to rapid population growth, it did accomplish a great deal of successes, for instance:

- 2 new major light rail lines and a 75 percent increase in public transit use since 1990; purchase of more than 10 percent renewable energy for its energy use; a recycling rate of 54 percent; construction of close to 40 high-performance green buildings; planting of over 750,000 trees and shrubs since 1996; weatherization

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231 CAL. HEALTH AND SAFETY CODE § 38550.

232 Id. § 38561.

of 10,000 multi-family units and over 800 family homes over a 2-year period; and establishing the Energy Trust of Oregon. It reduced per capita emissions by 12.5 percent over that period, which puts it at the leading edge of urban achievement on climate change in the United States.”

Portland’s efforts demonstrate that “urban areas have the capacity to change their emissions profiles dramatically through comprehensive planning efforts that rely upon partnerships between public, private, and nonprofit entities.” If through such multi-sector collaboration a city like Portland can adopt a comprehensive carbon dioxide reduction plan, increase the use of public transit, increase the availability of renewable energy, construct more efficient buildings, plant numerous trees and shrubs, weatherize multi-family units and family homes, and establish an Energy Trust that through efficiency measures have helped lower per capita energy use by 12.5%, cities in Puerto Rico can also adopt such plans and goals.

**Conclusions and Proposals**

After reviewing recent legislation and policies adopted by the Government of P.R. regarding the promotion of renewable energy, in particular, the Net Metering Act, the Renewable Portfolio Standard, and the Green Energy Fund, one must acknowledge that P.R. has made progress to develop renewable energy projects on the island. Nevertheless, the White House Task Force Report and policies from other jurisdictions, both at the state and municipal level, such as in Hawaii, California, and the City of Portland, Oregon, demonstrate that Puerto Rico could and should be doing much more to promote renewable energy, achieve greater energy efficiency, and reduce the effects of climate change.

For instance, considering that renewable energy technology becomes ever more affordable due to continuous advances in technology, P.R. should set a higher mandatory Renewable Portfolio Standard that raises the percentage increase of renewable energy production as time goes by rather than, as it currently is designed, lowering it. P.R.’s renewable energy production target, therefore, should at least be equal and preferably superior to Hawaii’s, which mandates Hawaii’s utilities to produce 40% of their electric power from renewable sources by 2030.

Yet the Government of P.R. must not only concentrate on developing renewable energy projects. To enhance the effects of forthcoming renewable energy projects, the Government of P.R. should complement recent renewable energy legislation by adopting an Energy Efficiency Portfolio Standard, by improving public transit use, by increasing the percentage of waste that is recycled, by promoting the construction of energy efficient buildings and the weatherization of existing ones, by establishing a greenhouse gas reduction plan, and by insti-

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234 Id. at 417.
235 Id. at 421.
tuting a feed in tariff program that lowers the risk of investing in renewable energy projects. All of these policies have been adopted and applied with success in other U.S. jurisdiction examined. There is no legal impediment against P.R. following the lead of these jurisdictions and taking advantage of these tried and proven energy and climate policies.

As the White House Task Force Report evidences, the U.S. Government’s Department of Energy is ready and eager to assist P.R. in its effort to develop an Integrated Deployment Model similar to Hawaii’s Clean Energy Initiative. Progress on such a model and all other fronts mentioned above, however, depends ultimately on the decisions and commitments Puerto Rican stakeholders are willing to make. It is high time that these stakeholders come together to establish a more resolute plan to ensure P.R.’s energy and sustainable development well into the future.