

# **THE FINANCIAL OUTLOOK FOR THE PUERTO RICO ELECTRIC POWER AUTHORITY: CHALLENGES AND OPPORTUNITIES**

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## I. Background and introduction

The Commonwealth of Puerto Rico is located in the Caribbean Sea, about 1,000 miles east-southeast of Miami, Florida. A possession of the United States, it consists of the island of Puerto Rico plus the adjacent islets of Vieques, Culebra, and Mona. Puerto Rico has a mountainous, tropical ecosystem with very little flat land and few mineral resources.

According to the U.S. Bureau of the Census, Puerto Rico's population totaled 3,615,086 in 2013 with about two-thirds of the island's population residing in the San Juan metropolitan region. Population actually decreased by about 200,000 between 2000 and 2013, with most of the island's municipalities losing residents during that period. The Census Bureau projects Puerto Rico's population decline to continue with the Commonwealth losing another 600,000 residents by 2050.

Puerto Rico's economy today is largely based on tourism and services, with a small agricultural sector. But the economy has been in a "de facto" recession for nearly a decade (see Figures 1 and 2). Indeed, the Economic Activity Index prepared by the Government Development Bank of Puerto Rico is lower today than it was in 2005. The Great Recession hit the island especially hard, pushing the unemployment rate from 10 percent in 2007 up to 16.5 percent in the spring of 2011. The rate has fallen back to 13.5 at present, largely because of a decline in the number of people seeking work.

Compounding Puerto Rico's economic distress, a number of manufacturing plants have closed or relocated. Pfizer announced recently it was closing one of its three plants in Puerto Rico, leaving an unknown number of people unemployed. The move came just days after Merck announced it would stop active ingredient production at its plant in Barceloneta, a Puerto Rican city that was once considered a pharmaceutical hub.

Puerto Rico has one of the lowest labor participation rates in the world. Only about 40 percent of the working age population is in the labor force, and of those in the labor force a third work in the public sector.<sup>1</sup> Puerto Rico's economy is also constrained by a poverty rate higher than any state and heavy welfare dependency (see Figure 3). What's more, U.S.-mainland minimum wage laws, which are not suitable to Puerto Rico's labor and economic factors, have led to high unemployment among its youth and low-skilled workers.

For years, the Government of Puerto has run budget deficits and has been ineffective at collecting taxes and user fees, including those for water and electricity. Consequently, the government and its agencies have borrowed heavily in the municipal bond market. At present,

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<sup>1</sup> U.S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, various issues.

total public debt is in excess of \$72 billion, with debt service greater than \$1.2 billion.<sup>2</sup> Pushing 120 percent of gross domestic product (GDP), Puerto Rico's public debt burden is comparable to that of Greece (see Figure 4). On a per capita basis, public debt far exceeds that of any American state (see Figure 5). To make matters worse, Puerto Rico's public pension system has unfunded liabilities in excess of \$37 billion.

But whereas the European Union provided financial assistance to Greece during its debt crisis, the U.S. government is unlikely to lend a helping hand to Puerto Rico. Moreover, like the 50 states Puerto Rico is ineligible to file for bankruptcy. However the U.S. government has put in place an advisory team to help Puerto Rico restructure its finances.

Not surprisingly, with the government's ability to make interest payments and repay principal in question, the Commonwealth's general obligation (GO) debt has been downgraded to "below investment grade" by S&P and Moody's and is trading at a discount. In mid-October, Puerto Rico's GO bonds, carrying an 8 percent coupon, traded at an average price of 87.8 cents on the dollar with a yield of 9.3 percent. Because traditional municipal bond investors are largely avoiding Puerto Rican debt, the government has been forced to rely on short-term financing to pay its bills. On October 10, for example, Puerto Rico paid an interest rate of nearly 8 percent to borrow \$1.2 billion from a syndicate of banks until next June.<sup>3</sup> By contrast, triple-A rated municipal borrowers are currently paying about 0.13 percent to borrow for a year.

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<sup>2</sup> "Puerto Rico to sell \$1.2 billion in notes on unusual terms," *Wall St. Journal*, October 7, 2014, <http://online.wsj.com/articles/puerto-rico-to-sell-1-2-billion-in-notes-on-unusual-terms-1412715249>.

<sup>3</sup> "Puerto Rico pays heavy price in \$1.2 billion note sale," *Reuters*, October 10, 2014, <http://www.reuters.com/article/2014/10/10/us-usa-puertorico-trans-idUSKCN0HZ27B20141010>.

## II. A Primer on PREPA: the Puerto Rico Electric Power Authority

The Puerto Rico Electric Power Authority (PREPA) is a government-owned entity that has a near monopoly on the Commonwealth's electricity infrastructure. Like utilities in other island economies of the Caribbean, it relies heavily on expensive fuel oil for power generation. PREPA owns and operates two oil-powered facilities that generate about 72 percent of the island's electricity.

In 1993, the Government of Puerto Rico instituted a policy to diversify fuel sources and allowed private sector participation in power generation for the first time. Subsequently, a company called EcoElectrica constructed a large gas-fired power plant that began operating in 2000 and currently supplies about 13 percent of Puerto Rico's electricity. A coal-fired plant, constructed by AES Corporation, went on line in 2002 and currently provides another 14 percent of Puerto Rico's power. Both of these plants have long-term power purchase agreements with PREPA. A small hydro facility owned by PREPA generates about one percent of the island's power.

Like the Puerto Rican economy generally, PREPA is under serious financial stress. PREPA's revenues have declined sharply in recent years as oil prices have risen and growing numbers of island residents have departed for the mainland. High electricity prices have encouraged distributed generation from rooftop solar panels and solar thermal collectors, further eroding PREPA's revenues. The utility has been operating at a loss since at least 2007, with an average annual cash flow deficit of \$330 million. PREPA has only been able to maintain the mandated debt-coverage ratio of 1.2 by capitalizing interest and using non-cash revenue and cost savings.

Ironically, the recent drop in oil prices won't help the utility's financial picture because PREPA charges customers an 11 percent markup on the oil and other fuels it buys to produce power. This markup is aimed at recovering PREPA's cost of providing "free" electricity to municipal entities, allegedly its "contribution in lieu of taxes." But because the markup is greater than the cost of providing power to municipalities, PREPA earns more when fuel costs increase and loses revenue when they decrease. In addition, because PREPA's base rate doesn't cover its capital-investment costs, the utility has no incentive to further invest in projects that would reduce fuel costs.<sup>4</sup>

PREPA's outstanding debt is more than \$9 billion, and its bonds are trading at about 58 cents on the dollar with a yield of 11.7 percent.<sup>5</sup> Facing a severe cash squeeze, the utility was unable to repay \$671 million of credit lines from a group of Wall Street lenders last summer. But because PREPA is a government-owned entity and, like the Government of Puerto Rico, can't file for

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<sup>4</sup> "PREPA profits on rising oil prices," *Caribbean Business*, April 24, 2014, [http://www.caribbeanbusinesspr.com/prnt\\_ed/prepa-profits-on-rising-oil-prices-faces-financial-obstacles-to-decreasing-oil-dependence-9805.html](http://www.caribbeanbusinesspr.com/prnt_ed/prepa-profits-on-rising-oil-prices-faces-financial-obstacles-to-decreasing-oil-dependence-9805.html).

<sup>5</sup> "Puerto Rico power authority PREPA bonds trade higher," *Reuters*, September 8, 2014, <http://www.reuters.com/article/2014/09/08/usa-puertorico-prepa-bonds-idUSL1N0R91KC20140908>.

bankruptcy, the lenders had no alternative but to extend principal repayment until March 31 of next year.

At about the same time, Puerto Rican Governor Alejandro Garcia Padilla signed a controversial law giving PREPA and other public corporations the right to restructure their debts, a move that some financial analysts view as tantamount to a default. In response, PREPA has hired restructuring experts to work on overhauling its business model as well as its finances. Insurers and investors holding more than 60 percent of PREPA's bonds have also agreed to give the utility time to work out a consensual restructuring plan.

This will be a challenging task. Not only is PREPA overburdened with debt, it is overstaffed; and because of a strong union presence, reductions in force will be difficult to achieve. For example, PREPA's 250-person Human Resources and Labor Relations Department is highly overstaffed compared with its peers, consuming 2.7 percent of total operating expenses versus the industry benchmark of 0.56 percent. Put another way, there are 35 PREPA employees for every human resources employee while the utility average is 93.

PREPA's Customer Service Department's costs are also higher and service levels lower when compared with utility and third-party benchmarks. The utility's customer-service expense per customer comes to \$85.59, more than double the median \$34.74 cost and more than four times the \$19.10 customer-service cost of the best-performing utilities.<sup>6</sup>

Excessive employee compensation is another challenge. PREPA employees billed nearly \$70 million in overtime during fiscal 2011, with the 7,261 employees in its client service, generation, and transmission and distribution departments averaging \$9,524 in annual overtime pay each, or 203 hours per employee. A November 2012 report commissioned by the Governmental Development Bank found that instituting a biometric system in which employees have to "punch in and punch out" of work could save some \$30 million annually, but staunch opposition to the move by organized labor has blocked its implementation.<sup>7</sup>

But an even more daunting challenge than reducing PREPA's payroll costs will be restructuring the utility's pension benefits and dealing with long-term unfunded liabilities. At present, any PREPA employee is eligible for pension benefits of 75 percent of their final average pay if they retire with 30 years of credible service. Members hired before January 1, 1993 are eligible for pension benefits from 62.5 percent to 72.5 percent of their final average pay if they retire with

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<sup>6</sup> "PREPAs weak management, business controls behind poor financial performance," *Caribbean Business*, May 1, 2014, [http://www.caribbeanbusinesspr.com/prnt\\_ed/prepas-weak-management-business-controls-behind-poor-financial-performance-9832.html](http://www.caribbeanbusinesspr.com/prnt_ed/prepas-weak-management-business-controls-behind-poor-financial-performance-9832.html).

<sup>7</sup> Ibid.

25-29 years of credited service. Effective January 1 of next year, employees who began working with PREPA on or after January 1, 1993, with age not less than 55 years and 30 years of credible service, will be eligible for pension benefits between 62.5 percent and 72.5 percent of their final average pay if they retire at age 50-54.<sup>8</sup>

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<sup>8</sup> Ibid.

### III. Are PREPA's rates unusually high?

#### Puerto Rico's electric power rates

According to the U.S. Energy Information Administration (EIA), the U.S. in 2013 generated about 4,058 billion kilowatt-hours of electricity. About 67% of the electricity generated was from fossil fuels, with 39% attributed to coal, 27% to natural gas, and only 1% to petroleum. 19% of U.S. electricity was generated from nuclear, and the final 14% was generated from renewable sources such as hydropower (7%), wind (4.13%), biomass (1.48%), geothermal (0.41%), and solar (0.23%).<sup>9</sup> In large, advanced economies such as the U.S., resource availability, fuel diversification, and efficient grid distribution allow utility companies to accurately match supply and demand while delivering affordable electricity to residential, commercial, and industrial consumers.

Unlike the mainland U.S., small island economies pay the highest electricity prices in the Americas (See Figure 6). Because most islands lack domestic hydrocarbon resources and are geographically isolated, they are forced to import energy sources for electricity, heating, and transportation. Due to ease of transportation and a lack of modern infrastructure, most Caribbean islands, along with Hawaii, use diesel and heavy fuel oil for the majority of electricity generation (see Figure 7). These fuels are the most expensive way to generate electricity, and their prices widely fluctuate based on the global price of oil. High electricity prices raise the cost of doing business and the cost of living in island economies, along with limiting the discretionary income of consumers. Furthermore, high electricity prices strain government budgets and impede widespread economic development in regions such as the Caribbean.

Still, compared with other Caribbean islands Puerto Rico's average electricity rates are at the low end of the scale. In the U.S. Virgin islands, for example, the average rate is 68 percent higher than in Puerto Rico while in Bermuda power costs run more than twice as high. Even in Hawaii the cost of electricity is a third higher than in Puerto Rico.

Generally, islands that rely more heavily on petroleum for power generation pay higher prices for electricity. America's islands—including the state of Hawaii and the territories of Guam, the Northern Mariana Islands, and American Samoa in the Pacific and Puerto Rico and the U.S. Virgin Islands in the Caribbean—have long depended on imported petroleum products, which are easier to transport than other fossil fuels, to meet most of their energy needs, including electricity generation. As a result of relatively high crude oil prices in recent years, residential electricity prices on the islands have been three to five times the average residential prices of electricity on the mainland (lower 48 states).

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<sup>9</sup> U.S. Energy Information Administration, <http://www.eia.gov/tools/faqs/faq.cfm?id=427&t=3>.

Hawaii's heavy dependence on imported petroleum and its isolated island grids result in, by far, the highest electricity prices of any U.S. state. During mid-2012, residential customers in Hawaii paid, on average, 37.7 cents per kilowatt-hour for electricity. In 2012, Hawaii imported 93% of the energy it consumed.<sup>10</sup> The state generates 73% percent of its electricity from petroleum, 15% from coal, and 12% from renewables, mainly wind, biomass, and geothermal. Hawaii's islands have six separate electricity grids that are not connected by undersea electric transmission cables, meaning each island must generate its own power. The state is encouraging private initiatives to interconnect the island grids for more efficient power generation and to increase development of renewable energy resources.

Like many other island economies, Hawaii is exploring diversifying its energy mix to include more affordable sources such as natural gas. Relatively low natural gas prices, a product of the shale gas boom in the mainland U.S., and new shipping technology may finally allow islands like Hawaii to import liquefied natural gas (LNG). Previously, LNG has not been an option for most islands because it is typically shipped in bulk carriers in quantities far greater than many island economies can absorb. Furthermore, LNG requires expensive re-gasification and distribution infrastructure.

The combination of relatively low natural gas prices and the development of standardized cryogenic (refrigerated) shipping containers means small amounts of LNG can now be trucked, railed, and shipped like other containerized cargo. Standardized containers can serve markets that do not have world-scale LNG import terminals. Hawaii's first LNG shipment using a standardized cryogenic container arrived in April 2014 from a liquefaction plant in California. The LNG was re-gasified and injected into the distribution system owned by Hawaii Gas, becoming the first natural gas ever put into the system. The electric power utility, Hawaiian Electric, is exploring the conversion of up to eight of its generating plants on five islands to use LNG, which will also be delivered in standardized containers.

In the U.S. Virgin Islands, where nearly 100% of electricity is generated using petroleum, residential customers during mid-2012 paid an average of 46.5 cents per kilowatt-hour, nearly four times higher than customers in the lower 48 U.S. states. Electricity typically costs Virgin Island residents and average of 9% of their income, compared to just 2% for the United States as a whole.<sup>11</sup> To reduce dependency on petroleum fuels, island officials have been seeking ways to access natural gas, including exploring a pipeline to Puerto Rico. However, the islands' small energy demand makes building a liquefied natural gas (LNG) terminal difficult to justify economically. Virgin Island authorities are looking to possible regional solutions to obtain LNG

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<sup>10</sup> U.S. Energy Information Administration, <http://www.eia.gov/state/?sid=HI>.

<sup>11</sup> U.S. Energy Information Administration, <http://www.eia.gov/state/analysis.cfm?sid=VQ>.

economically, working with governments of other Caribbean islands that face a similar challenge.

High world petroleum prices have driven typical Puerto Rico power prices to two to three times the U.S. average and have placed significant budgetary pressures on PREPA. In 2012, residential electricity rates in Puerto Rico averaged 27.78 cents per kilowatt-hour. As discussed above, Puerto Rico generates 61% of its electricity from petroleum, generated mainly at six stations with steam turbines, combustion turbines, and/or combined cycle technology. The rest of PREPA power supply is divided between natural gas (24%) and coal generation (14%). Only a small fraction (1%) of power is generated from renewables, mostly from hydroelectric generators.

Fuel and purchased power represent approximately 75% of PREPA's costs.<sup>12</sup> In response, Puerto Rico, like Hawaii and the U.S. Virgin Islands, is exploring LNG imports as an alternative energy source to petroleum. PREPA is planning to add natural gas capability at its five largest petroleum-burning plants. The utility anticipates that converting from petroleum to natural gas will greatly help to reduce and stabilize Puerto Rico's fuel cost, slashing electricity bills on the island by up to 26% in 2018 (see Figures 8-10).

Although Puerto Rican consumers pay high electricity prices relative to the mainland U.S., they actually pay relatively low rates compared to other American and Caribbean islands. While Puerto Rican residential customers paid about 27.7 cents per kilowatt-hour in 2012, customers in Hawaii paid 37.7 cents and customers in the U.S. Virgin Islands paid 46.5 cents. This does not alter the fact that electricity prices are a problem affecting all sectors of Puerto Rico's economy. High electricity rates discourage firms from establishing operations in Puerto Rico. Furthermore, expensive energy forces many consumers to migrate away from Puerto Rico to places such as the mainland U.S.

As of 2014, residential electricity prices in Puerto Rico are between 26 and 29 cents per kWh with business rates 4 to 5 cents higher. This is approximately two to three times the United States' average.<sup>13</sup> Over the past 10 years, electricity prices in Puerto Rico have more than doubled, rising from 12 cents per kilowatt-hour in 2004 (see Figure 11). In that same year, Puerto Rico's economy grew by 2.4 percent. As of 2014, the economy has been contracting for years (see Figures 1-2). For the Puerto Rican economy to grow again, securing forms of energy less expensive than petroleum must become a priority. In the short run, PREPA has room raise customer rates while still keeping prices below other Caribbean islands and American island economies such as Hawaii and the U.S. Virgin Islands. With increased revenues, PREPA can grow

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<sup>12</sup> Presentation at Puerto Rico Credit Conference 2013 by Juan F. Alicea Flores, Executive Director of PREPA.

<sup>13</sup> Greenbriar Capital Corp., <http://www.greenbriarcapitalcorp.com/puerto-rico>.

its cash flow and garner investor confidence, allowing it to secure the capital and borrowing capacity it needs in order to build LNG terminals and power plants.

### Power costs on other Caribbean Islands

Like Puerto Rico and the Virgin Islands, most other islands in the Caribbean face high electricity prices due to a heavy dependence on petroleum products. A number of factors have delayed investment toward energy diversification in the Caribbean, including subsidized oil from Venezuela, protected state power monopolies, and outdated energy infrastructure and generating equipment.

Under the PetroCaribe, a program initiated in 2005 by Hugo Chavez, Venezuela sells oil under very favorable repayment terms to ten members of the Caribbean Community, along with the Dominican Republic, Nicaragua and El Salvador. In many cases, the cost of oil is loaned by Venezuela for up to 25 years at rates as low as 1%.<sup>14</sup> Venezuela offers these terms in order to exercise influence in the region, and participating countries divert the cash savings toward domestic social programs, energy subsidies, and education. According to Scotiabank, the Dominican Republic imports about 20% of the oil it consumes through PetroCaribe, while Jamaica relies on the program for about 40% of its petroleum. However, after the death of Hugo Chavez, worries have arisen that the PetroCaribe program may not last indefinitely, or that the terms of the program may become more stringent.

In addition, high world oil prices—at least until very recently--have severely strained government budgets in the Caribbean, even with the assistance of the PetroCaribe program. For these reasons, nearly every island economy in the region is seeking alternatives to costly petroleum for power generation. The options being explored include renewables such as wind, solar, and oceanic thermal energy. However, the most affordable and reasonable alternative fuel source for the islands is natural gas.

In an attempt to reduce fuel costs, the Jamaica Public Service Company (JPS) is constructing a new LNG power plant that is set to open in 2015. According to Dan Theoc, chief financial officer of JPS, the 360-megawatt power project can cut oil imports by about \$300 million, or roughly ten percent, annually.<sup>15</sup> In 2012, Jamaica generated 91.2% of its electricity from petroleum,

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<sup>14</sup> "Single point of failure: Venezuela's financing programme leaves many Caribbean countries vulnerable", *The Economist*, October 4, 2014, <http://www.economist.com/news/americas/21621845-venezuelas-financing-programme-leaves-many-caribbean-countries-vulnerable-single-point>.

<sup>15</sup> "JPS: LNG Power Plant to Cut US\$300m fro Oil Bill," *The Gleaner*, February 10, 2012, <http://jamaica-gleaner.com/gleaner/20120210/business/business5.html>.

with the rest being generated using renewables. The average price of electricity for a residential consumer in mid-2012 was 34 cents per kilowatt-hour. The island expects that diversifying with LNG will lower prices for consumers, save money, improve competitiveness, and boost economic growth. Currently, Jamaica spends more on fuel imports than it earns from tourism. The average monthly electricity bill is equivalent to one week's earnings for those on the minimum wage.<sup>16</sup>

Like Jamaica, Aruba and Curacao rely almost exclusively upon petroleum to generate electricity. In 2012, the two islands generated nearly 100% of electricity from petroleum products such as diesel and heavy fuel oil. During mid-2012, residential consumers in Curacao paid, on average, 35.5 cents per kilowatt-hour for electricity. During mid-2011 in Aruba (the most recent year for which data are available), the average residential consumer paid 28 cents per kilowatt-hour.

Because of its fuel diversification, the Dominican Republic enjoys relatively inexpensive fuel costs compared to many other Caribbean islands. In 2012, residential customers paid on average between 20 and 22 cents for electricity. The Dominican Republic generates roughly half (51.6%) of its electricity from petroleum, 24.8% from natural gas, 12.9% from coal, and 10.7% from renewable sources, predominantly hydropower. While its prices are lower than many other Caribbean islands, customers in the Dominican Republic still pay electricity rates nearly two times higher than those in the mainland U.S. In response, the Dominican Republic is building LNG import terminals and new natural gas fired power plants.<sup>17</sup>

For the Dominican Republic, Jamaica, Hawaii, Puerto Rico, and other Caribbean islands trying to reduce electricity costs, Trinidad and Tobago offers the best example of the benefits of natural gas. Unlike other Caribbean islands, Trinidad and Tobago has an abundance of natural energy resources, namely natural gas and oil. In the early 1990s, the hydrocarbon sector in Trinidad and Tobago transitioned from being oil dominant to a predominantly natural gas-based sector. As a result, Trinidad and Tobago generates over 99% of its electricity from clean, inexpensive natural gas, allowing customers to enjoy electricity rates that are a fraction of prices in other island economies. In 2012, the average price for residential electricity in Trinidad and Tobago was a mere 4.5 cents per kilowatt-hour. Furthermore, Trinidad has the largest proportion of industrial load (66%) in the English speaking Caribbean, while enjoying some of the lowest electricity rates to be found in the region.<sup>18</sup> Trinidad and Tobago is also a major LNG exporter,

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<sup>16</sup> "Single point of failure: Venezuela's financing programme leaves many Caribbean countries vulnerable", *The Economist*, October 4, 2014, <http://www.economist.com/news/americas/21621845-venezuelas-financing-programme-leaves-many-caribbean-countries-vulnerable-single-point>.

<sup>17</sup> "U.S. firm advances Dominican Republic natural gas-fired power plant project," *Dominican Today*, May 9, 2014, <http://www.dominicantoday.com/dr/economy/2014/5/9/51416/US-firm-advances-Dominican-Republic-natural-gas-fired-power-plant-project>.

<sup>18</sup> Trinidad and Tobago Electricity Commission, [https://ttec.co.tt/about\\_us/default.htm](https://ttec.co.tt/about_us/default.htm).

and it could serve as a source of natural gas for other Caribbean islands that are willing to invest in LNG import terminals, natural gas power plants, and pipelines. Already, Trinidad and Tobago sends some LNG supplies to Puerto Rico and the Dominican Republic.

The lesson for Puerto Rico and PREPA from the experience of other Caribbean Island economies is straightforward: The most promising path for lowering electric power costs over the long-term is fuel diversification, mainly into natural gas.

#### IV. PREPA's subsidies and contributions in lieu of taxes (CILTs) restrain revenue

In addition to financial difficulties caused by operating inefficiencies, pension liabilities, overstaffing, and the high cost to import petroleum, PREPA revenues are also constrained by costly subsidies and unpaid bills owed by local officials. According to PREPA, the government utility granted \$69 million in legislated subsidies during fiscal year 2014 (ended June 30).<sup>19</sup> The recipients of PREPA subsidies include churches, hotels, the elderly, students, and farmers. In addition to subsidies, PREPA listed more than \$270.7 million in unpaid debts from government entities at the end of fiscal year 2014. Public corporations accounted for the largest percentage of unpaid debt (\$197.1 million), followed by commonwealth agencies (\$65 million) and the federal government (\$8.5 million).<sup>20</sup> If PREPA continues to bear the burden of costly subsidies and unpaid debts, it will put additional upward pressure on consumer electricity rates.

PREPA also loses revenue due to contributions-in-lieu of taxes, abbreviated as CILTs. CILTs are intended to compensate municipalities for foregone tax revenues, and they essentially serve as a transfer from the utility to government and municipal customers. Under these agreements, PREPA provides free electricity to municipal entities and, in return, pays no municipal taxes. PREPA has paid the following amounts in CILTs to Puerto Rican municipalities over the past six years: \$218 million in 2008, \$225 million in 2009, \$232 million in 2010, \$247 million in 2011, \$244 million in 2012 (unaudited), and \$268 million in 2013 (projected). PREPA in 2013 will pay 5.5% of its \$4.843 billion operating revenue to CILT payments.<sup>21</sup>

As part of its debt-restructuring plan, PREPA must find a way to reduce its CILT payments. To this end, progress is already being made. Act No. 233, approved in December 2011, modifies the CILT formula to exclude CILT payments to municipalities when the municipality is using a property to generate revenues, such as through rents, ticket sales, or parking. PREPA estimates that enforcement of Act 233 will result in additional collections of approximately \$28 million annually, thereby helping to increase cash flow and improve liquidity.<sup>22</sup>

Critics of the subsidies and the CILT payments argue that PREPA simply passes on these costs to other customers, mainly through higher charges for residential users. What's more, the subsidies distort the price of electricity while limiting revenues that PREPA can collect to service its debt or cover the costs of fuel diversification.

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<sup>19</sup> "Prepa doesn't rule out rate hikes," *Caribbean Business*, August 11, 2014, <http://www.caribbeanbusinesspr.com/news/prepa-doesnt-rule-out-rate-hikes-99473.html>

<sup>20</sup> Ibid.

<sup>21</sup> Presentation at Puerto Rico Credit Conference 2013 by Juan F. Alicea Flores, Executive Director of PREPA.

<sup>22</sup> Ibid.

For example, according to a 2012 report prepared for the Government Development Bank (GDB) by consulting firm Álvarez & Marsal, a misalignment in priorities between PREPA and its customers has impeded a comprehensive natural-gas conversion plan. PREPA's base rates, which remain unchanged, are not high enough to recover expenses such as operations, maintenance, subsidies, CILTs, and financing and administrative costs (see Figure 11). As discussed earlier, to compensate PREPA charges an 11% markup (approximately 2 cents per kilowatt hour) on the oil it buys to produce power as well as the power it buys from two private power plants on the island.<sup>23</sup> However, because the markup is larger than PREPA's real CILT costs, the utility earns more when fuel and energy costs increase and earns less when they decrease. Therefore, when oil prices rise and electricity bills go up, PREPA profits increase to the detriment of consumers and the broader Puerto Rican economy. When fuel prices fall, PREPA profits decrease. This perverse "lock in" cancels any financial incentive to diversify the fuel mix away from oil. Furthermore, since PREPA's base rate does not cover its capital investment costs, the utility has even less incentive to invest in projects, such as a natural gas plants, that would reduce fuel costs.

However, this misalignment of incentives may soon be corrected. Under the Energy Transformation & Relief Law signed by Gov. Alejandro García Padilla in May 2014, PREPA's rates are now subject to review by an independent regulatory board. Importantly, this board will not allow PREPA to recoup legislated subsidies and unpaid debts through its "fuel-adjustment charge," which will only be allowed to cover increases in the price of oil. The law also calls for a slow reduction in the level of subsidies PREPA is forced to grant to municipal governments, and it allows PREPA to cut service to public corporations who have not met the terms of payment plans on their outstanding power bills. Moreover, the law requires PREPA to actively pursue its long-term strategy of replacing petroleum fuel with natural gas and constructing more efficient power plants. If PREPA fails to act, the board will allow the private sector to bid for contracts to construct these facilities.

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<sup>23</sup> "Prepa profits on rising oil prices; faces financial obstacles to decreasing oil dependence," *Caribbean Business*, April 23, 2014, [http://www.caribbeanbusinesspr.com/prnt\\_ed/prepa-profits-on-rising-oil-prices-faces-financial-obstacles-to-decreasing-oil-dependence-9805.html](http://www.caribbeanbusinesspr.com/prnt_ed/prepa-profits-on-rising-oil-prices-faces-financial-obstacles-to-decreasing-oil-dependence-9805.html).

## V. Conclusion and recommendations

As discussed above, PREPA faces a severe cash strain and an unsustainable level of outstanding debt. Though some initial steps have already been taken to enhance revenues by limiting CILTs and going after unpaid debts, more comprehensive reforms will be required to put the utility back on a sound financial footing while at the same time holding down long-term electric rates for households and businesses on the island.

The Maguire Energy Institute has been studying the Puerto Rican electric power industry for the past three years. In fact, Dr. Bernard Weinstein was the keynote speaker at a conference in August 2011 on “The Natural Gas Energy Option” sponsored by the Institute of Public Policy at the Ana G. Mendez University System (AGMUS). At that conference, he stressed the importance of PREPA diversifying its fuel sources and correcting the distortions caused by the complex system of subsidies utilized in pricing delivered power. On the basis of our assessment of PREPA’s financial situation today, the Maguire Energy Institute concurs with the recommendations in the Alvarez & Marsal report that was issued in late 2012.

The A&M study recommends changing the rate formula by eliminating the 11 percent markup for fuel-adjustment and broadening the rate base to cover all traditional utility expenses. They conclude that these changes would boost average rates by 1.6 cents per kilowatt hour, which would still keep costs in Puerto Rico well below the Caribbean average.<sup>24</sup>

But the report goes on to stress the importance of PREPA’s long-term fuel conversion plans for ensuring rate stability. A&M estimates fuel costs savings of up to \$1 billion annually following a transition to a natural gas based power system, which could result in rate reductions of as much as 27 percent. At the same time, a new rate structure based on capital cost recovery and lower fuel costs would enhance PREPA’s ability to secure stable cash flows.

It’s also imperative that PREPA reduce its overhead and pension costs. The A&M study identifies nearly \$100 million in annual operational cost savings that could be implemented in short order, though getting the utility’s employee unions to agree to these cuts will be a challenge.

If PREPA can successfully implement the rate restructuring, fuel conversion and cost reduction recommendations of the A&M report, not only will its cash flow improve markedly but its enterprise value could increase by as much as \$1.2 billion. These enhancements, in turn, will facilitate the debt restructuring process and make it possible for PREPA to once again tap the municipal bond market to secure financing for the utility’s fuel diversification program.

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<sup>24</sup> John Marino, “Prepa’s weak management, business controls behind poor financial performance,” *Caribbean Business*, May 1, 2014.

Appendix: Charts and Data

Figure 1

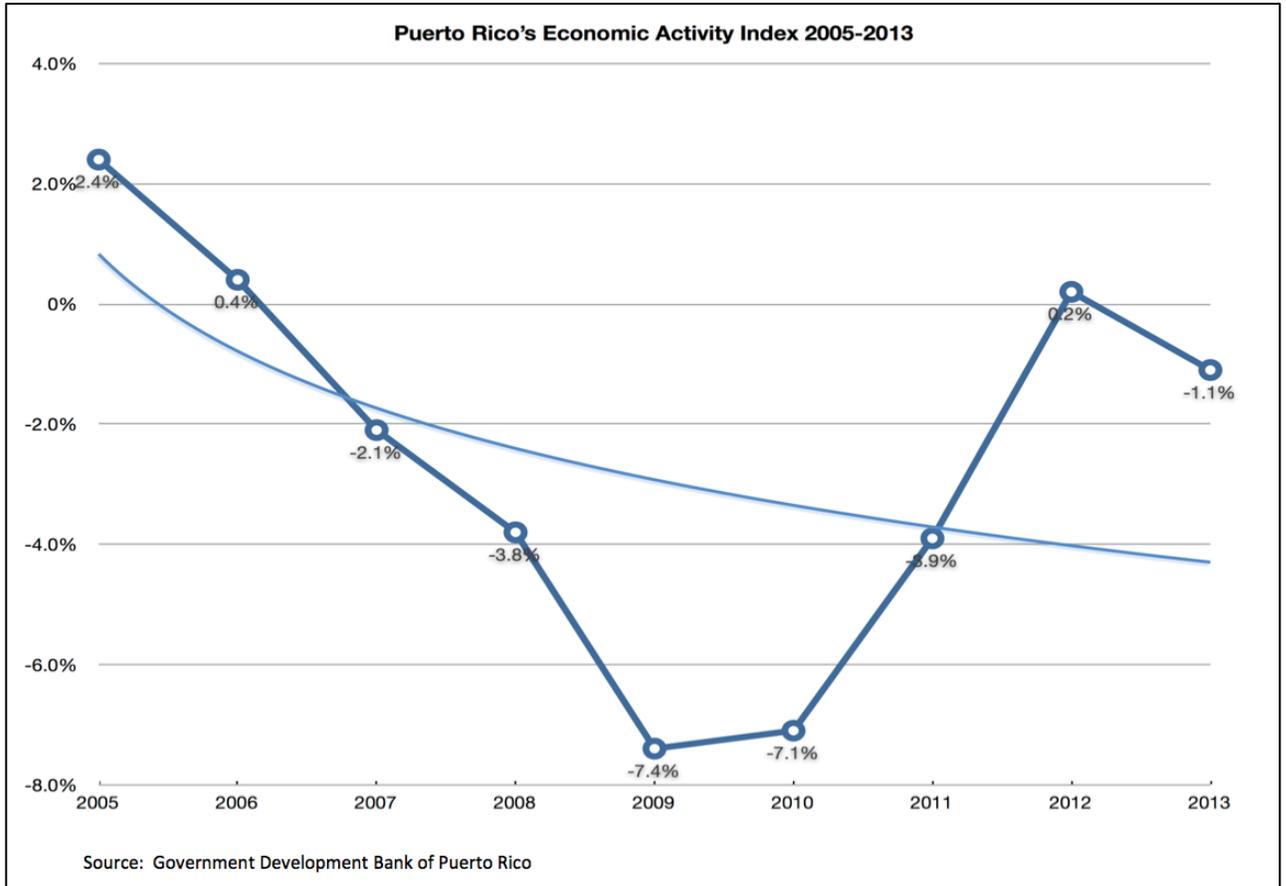


Figure 2

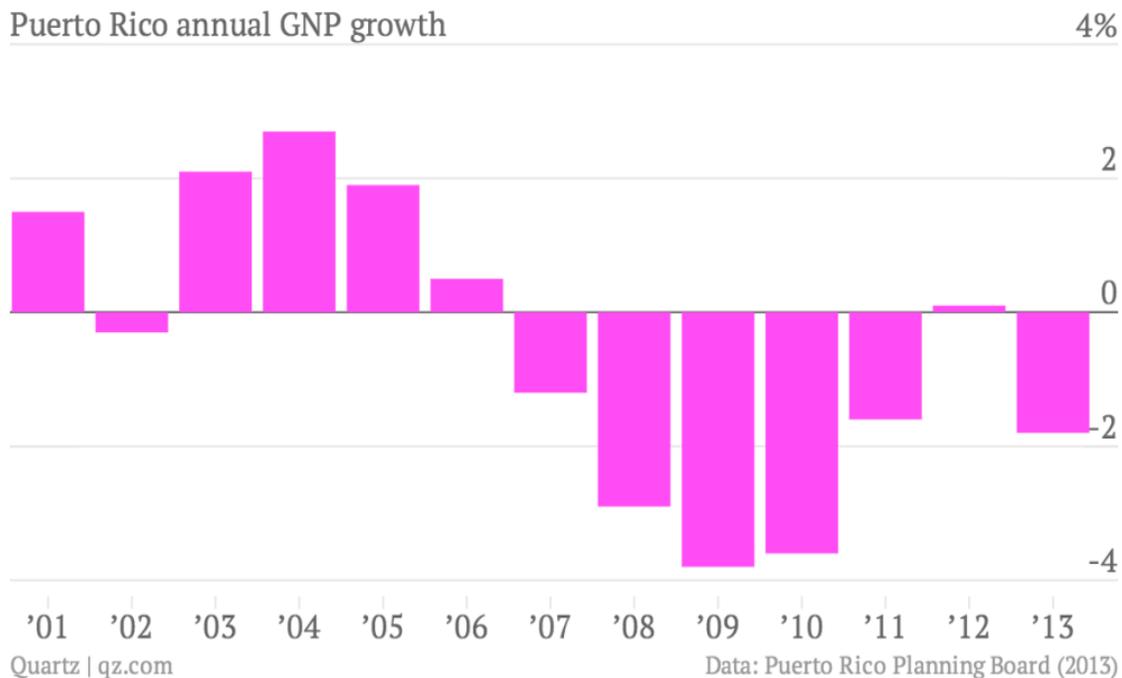


Figure 3

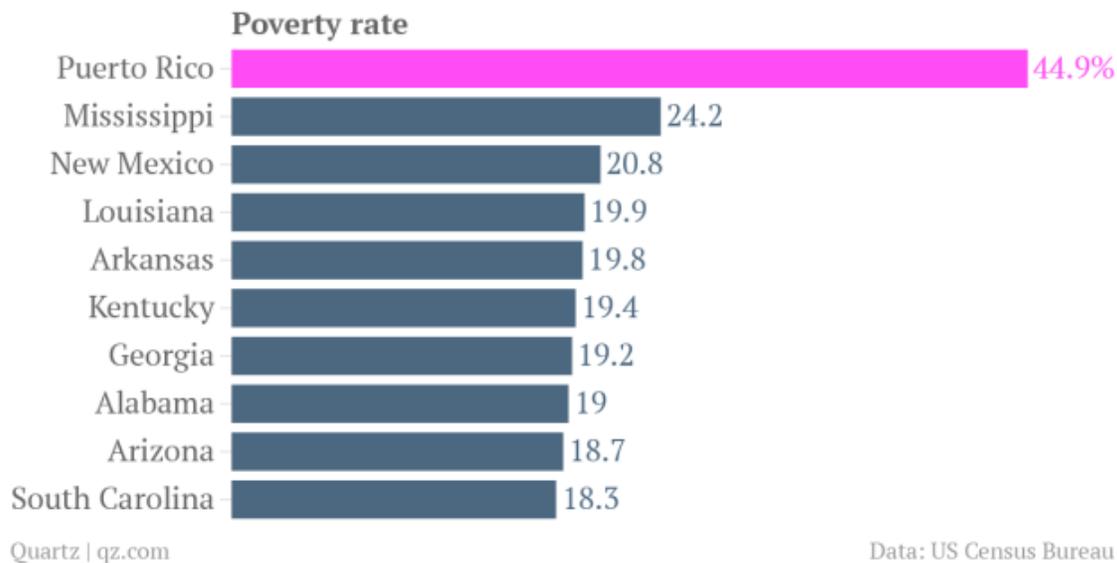
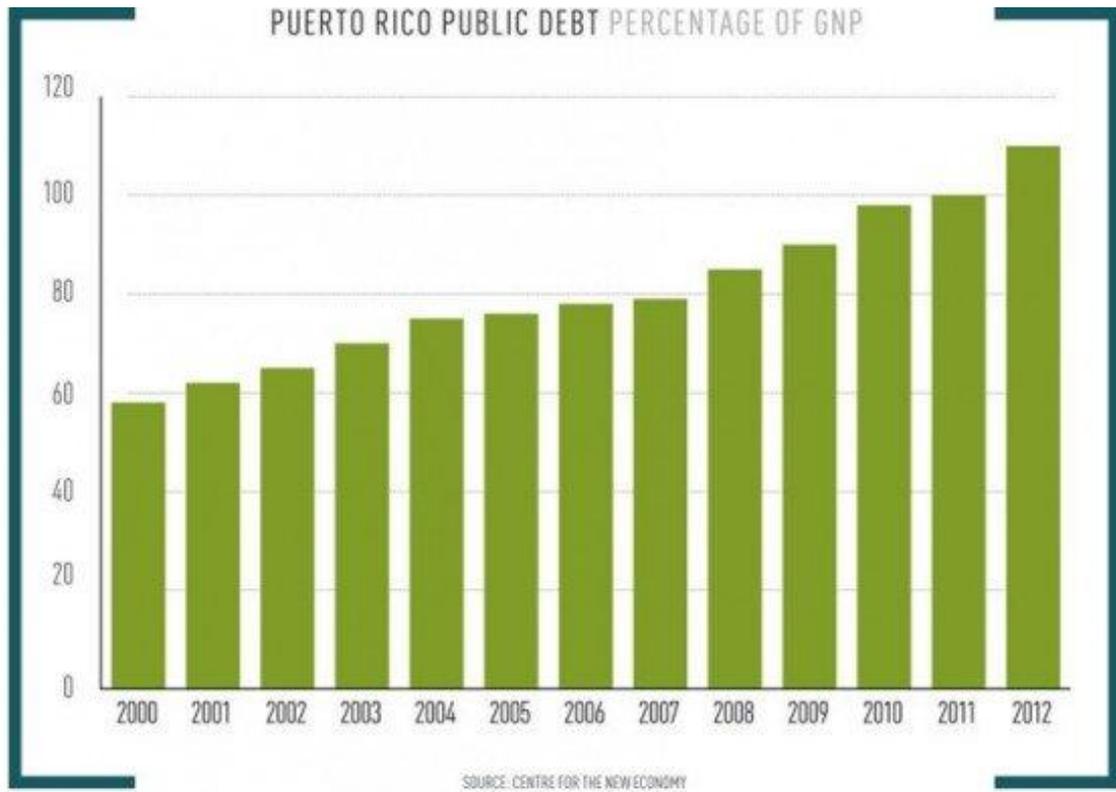


Figure 4



Market Realist

Figure 5

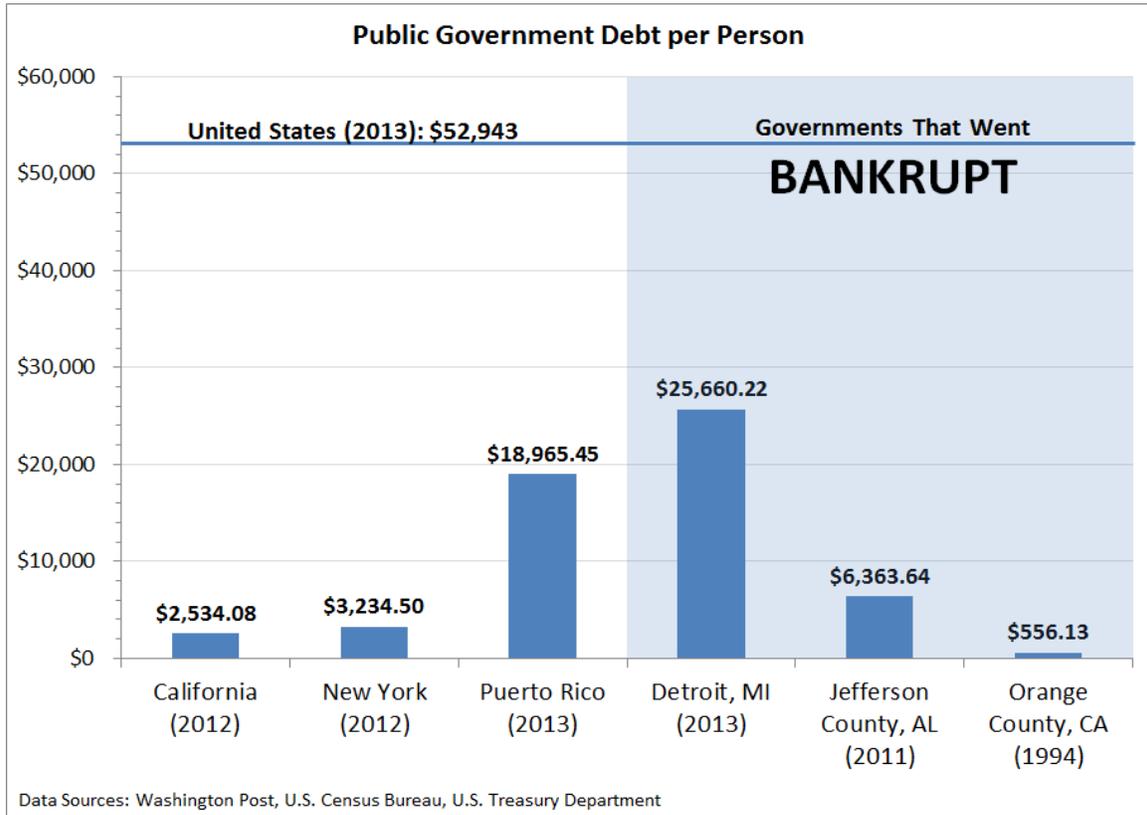


Figure 6

Sources: Sources: U.S. Energy Information Administration (EIA) Electric Power Monthly September 2012, Caribbean Electric Utility Service Corporation (CARILEC) Tariff Survey September 2012, Inter-American Developmental Bank, Puerto Rico Electric Power Authority (PREPA)

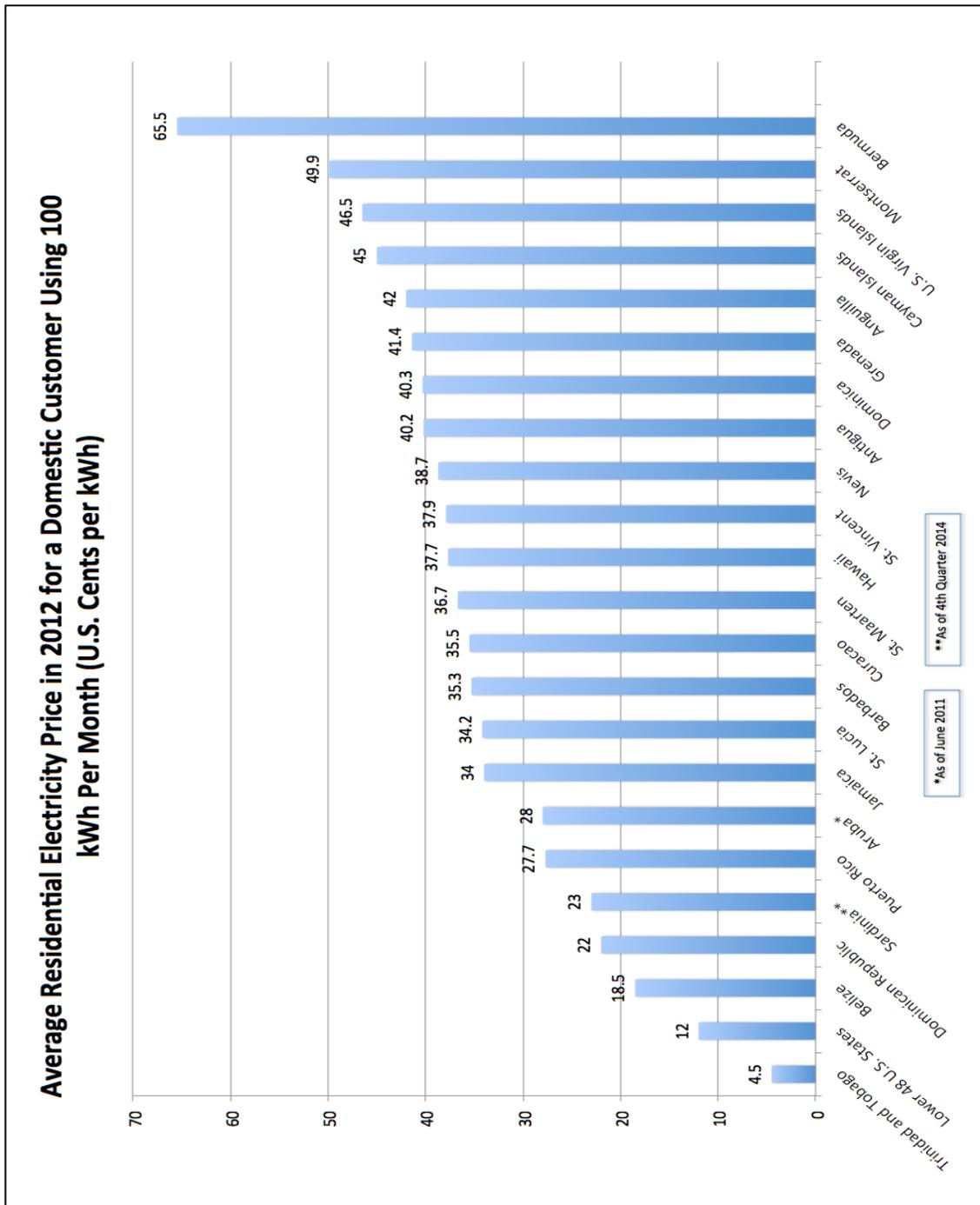


Figure 7

Sources: U.S. Energy Information Administration (EIA), Caribbean Electric Utility Service Corporation (CARILEC) Tariff Survey September 2012, Inter-American Developmental Bank, Puerto Rico Electric Power Authority (PREPA) International Energy Agency (IEA), Inter-American Development Bank (IDB)

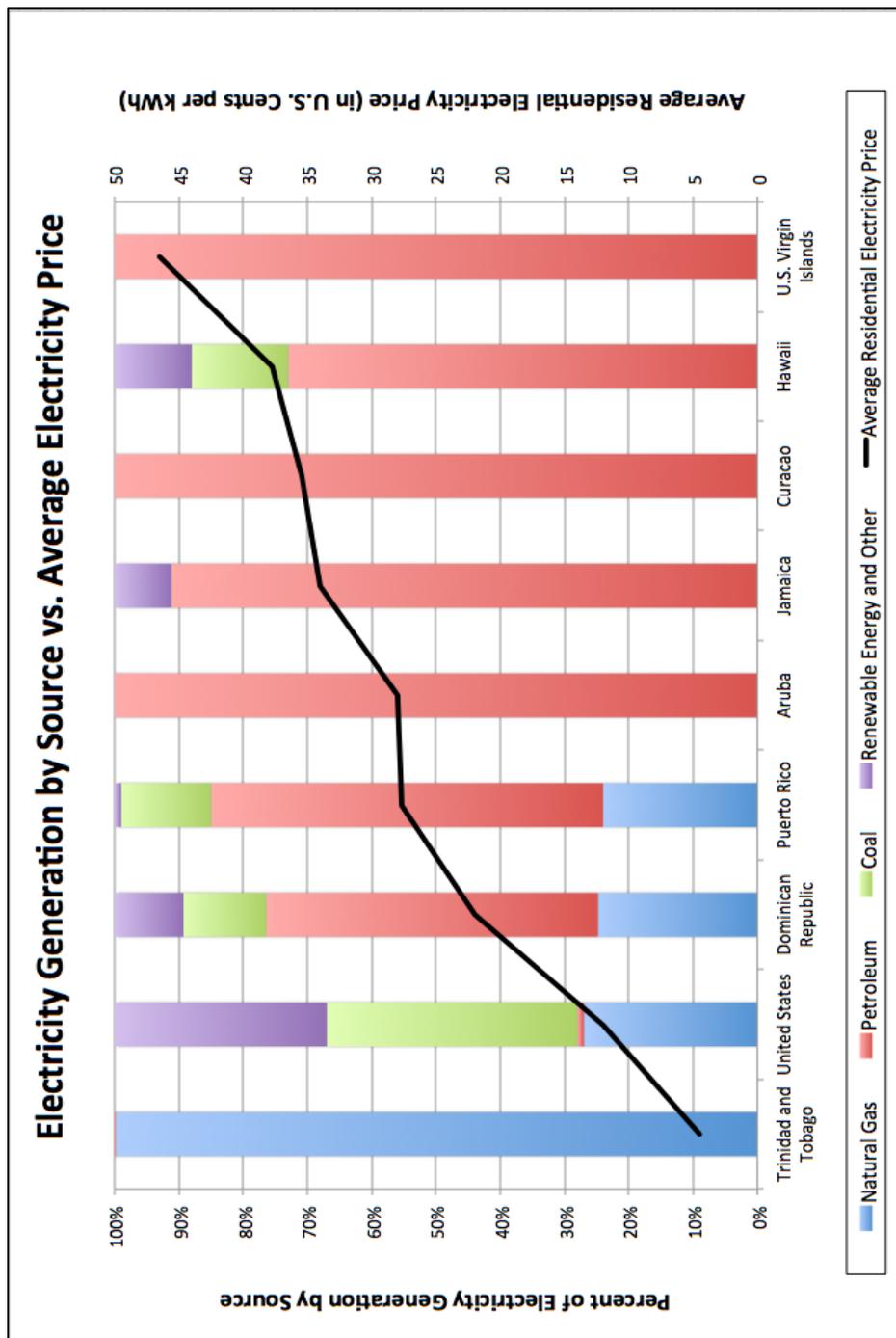
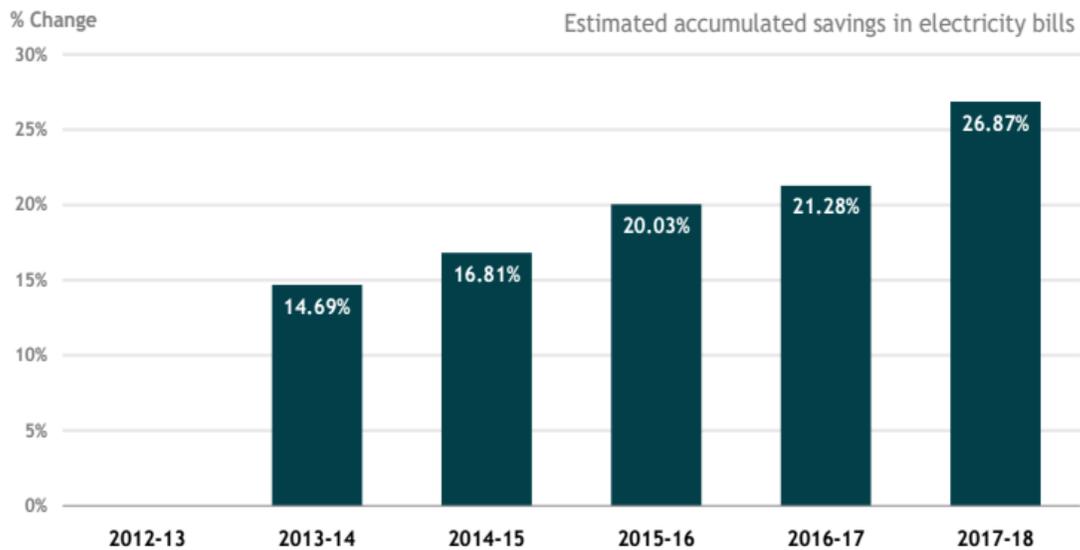


Figure 8

**Conversion to Natural Gas is expected to provide a positive impact on electricity costs**



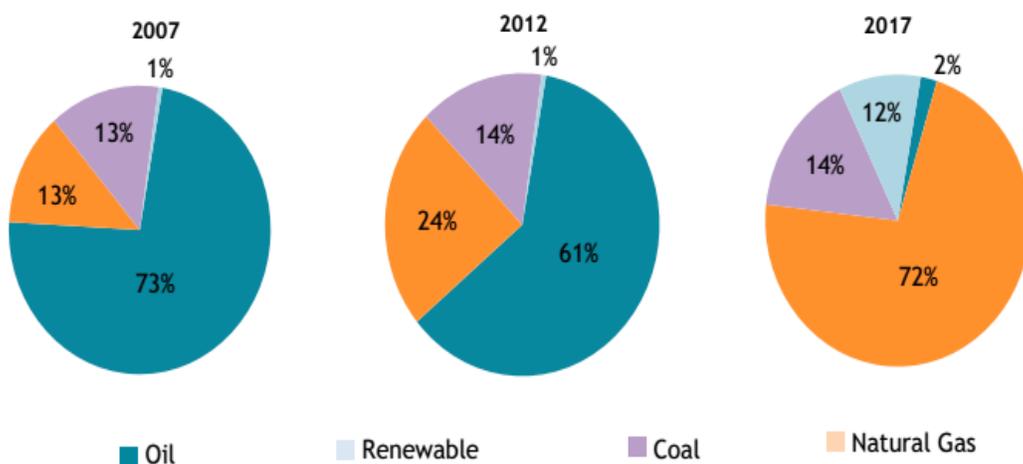
Conversion to natural gas will reduce and stabilize PREPA's fuel cost

Source: Presentation at 2013 Puerto Rico Credit Conference by Juan F. Alicea Flores, Executive Director of PREPA

Figure 9

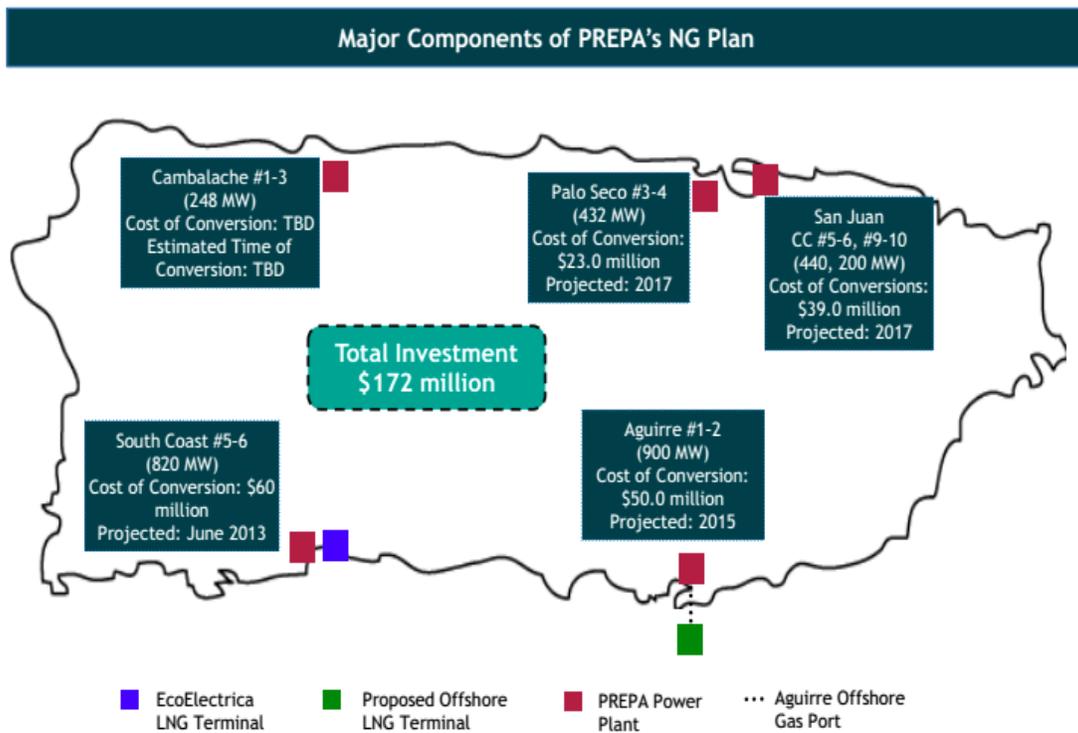
## Natural gas conversion continues to be PREPA's main priority to reduce dependence on oil by 2017

**Planned Reduction in Dependence on Oil Based Production**  
Targeted reduction in fuel oil of 60% by 2017 will replace fuel oil with natural gas and renewable resources and comply with new EPA requirements (MATS Rule).



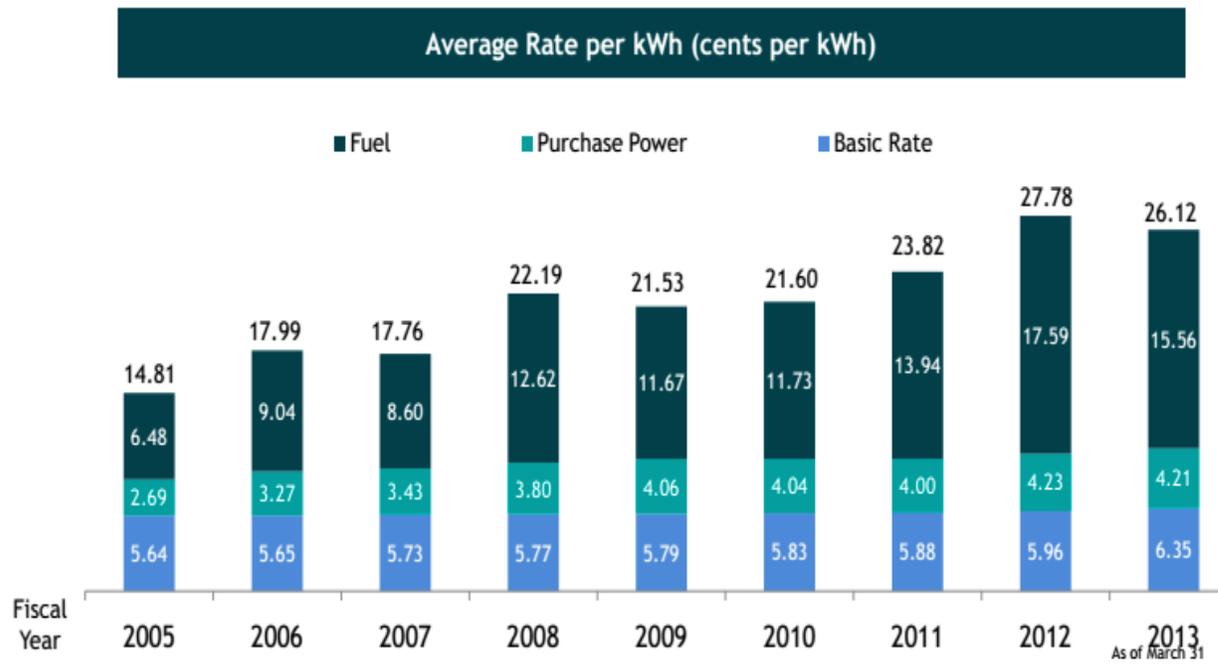
Source: Presentation at 2013 Puerto Rico Credit Conference by Juan F. Alicea Flores, Executive Director of PREPA

Figure 10



Source: Presentation at 2013 Puerto Rico Credit Conference by Juan F. Alicea Flores, Executive Director of PREPA

Figure 11



Source: PREPA's Planning and Studies Division, Comptroller Division

## **About the Maguire Energy Institute at Southern Methodist University**

The Maguire Energy Institute encourages the study of management, marketing and policy issues related to the energy industry. It sponsors a number of programs that prepare students for careers in the energy industry and strives to inform the public through disseminating independent, unbiased information.

The Institute conducts seminars, lectures, forums, field trips and other programs designed to explore the many issues surrounding the energy industry. It also conducts sponsored research on important energy topics for public, private and non-profit organizations.

The Institute has a 30-member Advisory Board of prominent energy experts to assist the director and the school in the development of its energy programs. Its programs cover all forms of energy, including traditional oil and gas, nuclear, wind, solar biomass and bio-fuels. Initial funding for the Maguire Energy Institute was provided by Cary M. Maguire, president of Maguire Oil Company.

## **About the principal author**

Bernard L. Weinstein is Associate Director of the Maguire Energy Institute and an Adjunct Professor of Business Economics in the Cox School of Business at Southern Methodist University in Dallas. From 1989 to 2009 he was Director of the Center for Economic Development and Research at the University of North Texas, where he is now an Emeritus Professor of Applied Economics.

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Dr. Weinstein has been a consultant to many companies, non-profit organizations and government agencies, and he testifies frequently before legislative, regulatory and judicial bodies. His clients have included AT&T, Texas Instruments, Reliant, Entergy, Devon Energy, Energy Futures Holdings, the Nuclear Energy Institute, the American Petroleum Institute, the U.S. Conference of Mayors, the Western and Southern Governors Associations, the Cities of Dallas and San Antonio, and the Joint Economic Committee of the U.S. Congress.

Dr. Weinstein is a member of the Dallas-Fort Worth Association for Business Economics and serves on the boards of directors of Beal Bank Texas and Beal Bank USA. From 2011 to 2014, he was a Fellow with the George W. Bush Institute and he is currently an Associate of the John Goodwin Tower Center for Political Studies at SMU.