

UNITED STATE OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Implementation Issues Under the Public Utility  
Regulatory Policies Act of 1978

Docket No. AD16-16-000

Congress enacted the Public Utilities Regulatory Policies Act (“PURPA”) nearly four decades ago, amid an oil embargo and high natural gas prices. At the time there were concerns over dependency of foreign sources of energy, the cost of new generation, the types of generation that utilities were developing, and the inability of independent power producers and renewables to gain a foothold in markets controlled by monopolies. When Congress enacted PURPA in 1978, it was intended to stimulate the development of more efficient generation, promote energy conservation, reduce the reliance on natural gas, and encourage increased reliance on domestic energy, especially renewables. All of this was to be done at “equitable retail rates for electric consumers.”<sup>1</sup>

However, renewable generation is not a fledgling industry anymore. The renewable industry no longer needs to be supported by PURPA. Wind and solar generation are now the predominant source of new generation in the U.S., accounting for over 60% of capacity additions. Because renewables are now able to compete on their own the mandatory purchase requirement should be eliminated, especially in states with Renewable Portfolio Standards (“RPS”). States with PRS requirements have already undertaken a pledge to procure a significant amount of energy through renewable sources. Keeping the mandatory purchase obligation may require these state to consume an unreasonable level of renewable generation and impose unequitable costs on consumers.

Since the enactment of PURPA, the energy sector has undergone several fundamental changes. The first of these changes provided non-discriminatory access to Qualifying Facilities (“QFs”). The Federal Energy Regulatory Commission (“FERC” or “the Commission”) Orders 888 and 890 created a pro forma Open Access Transmission Tariff (“OATT”), under which transmission owners are deemed to have met the obligation to provide nondiscriminatory transmission access.<sup>2</sup> FERC Orders 2003 and 2006 also require standardized terms and conditions of interconnection service for Interconnection Customers of all sizes.<sup>3</sup> These Orders “increase the number and types of new generation that will compete in the wholesale electricity market, facilitate development of non-polluting alternative energy sources, and help remedy undue discrimination, as sections 205 and 206 of the FPA require.”<sup>4</sup>

Second, independently administered, organized markets for energy and capacity have emerged. The Commission has recognized that Day 1 and Day 2 markets “provide greater

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<sup>1</sup> 16 U.S. Code § 2601 - Findings

<sup>2</sup> FERC Order 688 at ¶ 53

<sup>3</sup> FERC Order 2006 at ¶1

<sup>4</sup> Id. at ¶1

opportunities for QFs (and other independent generators) to compete than unorganized markets.<sup>5</sup> Furthermore, the Commission stated that RTOs/ISOs “will ensure that all users of the transmission system are treated on a nondiscriminatory basis and are provided access to markets.”<sup>6</sup>

Congress recognized these changes to the energy sector when it revised PURPA, as part of the Energy Policy Act of 2005 (“EPAAct 2005”). EPAAct 2005 required the Commission to remove the PURPA mandatory purchase obligation if a QF has non-discriminatory access to one of three categories of markets. As a result, FERC created a rebuttable presumption that utilities located in the Midwest ISO, PJM, ISO-NE, and NYISO should be relieved of the mandatory purchase requirement, when dealing with QFs over 20 MW in size.<sup>7</sup> In fact the Commission stated that “[c]ompetitive markets do not, by definition, impose ‘mandatory’ purchase obligations on buyers.”<sup>8</sup>

Another decade has passed since EPAAct 2005 was enacted. During this time, additional fundamental changes have occurred in the electric industry. As before, these changes require Congress and the Commission to reevaluate the applicability of PURPA and determine if the mandatory purchase requirement is still applicable.

The first major change that occurred, since EPAAct 2005, is the widespread adoption of state RPS. Currently, 29 states have adopted RPS requirements.<sup>9</sup> Another eight states have also adopted voluntary REPS goals.<sup>10</sup> In general, RPS set minimum requirements for the share of electricity to be supplied from renewable energy resources, by a certain date/year. Most REPS standards require that 10% to 30% of the megawatt hours generated come from renewable resources. In some instances states have adopted RPS as high as 50% to 100%.

A second major change to the energy market is the proliferation of environmental regulations. Some environmental regulations, such as Mercury Air Toxic Standards, have led to plant closures. The EIA estimates that approximately 60 gigawatts of coal-fired generation will be retired between 2001 and 2020, because of MATS and other existing laws and regulations.<sup>11</sup> Other environmental regulations, such as the Clean Power Plan, promote the development of and greater reliance on renewable resources. The EPA estimates renewable energy generation to increase under the Clean Power Plan to nearly 20 percent of all power supplied in 2030.<sup>12</sup> This increase in renewable development is accomplished by establishing limits on carbon emissions from power plants, making new renewable even more competitive.

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<sup>5</sup> FERC Order 688 at ¶38

<sup>6</sup> FERC Order 688 at ¶125

<sup>7</sup> FERC Order 688 at ¶8

<sup>8</sup> FERC Order 688 at ¶37

<sup>9</sup> National Conference of State Legislatures

<http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>

<sup>10</sup> National Conference of State Legislatures

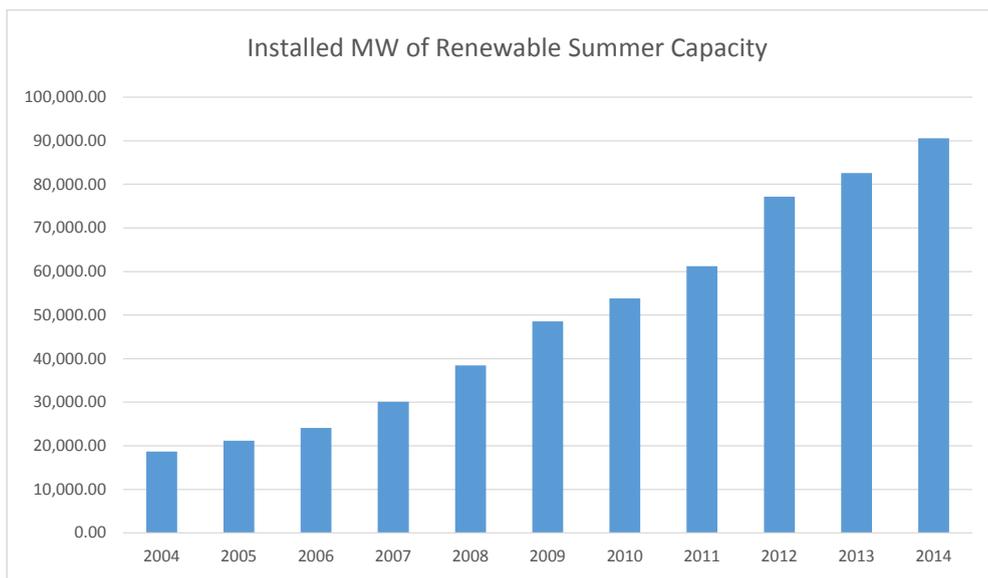
<http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>

<sup>11</sup> <http://www.eia.gov/todayinenergy/detail.cfm?id=15491>

<sup>12</sup> <https://www.epa.gov/sites/production/files/2015-11/documents/fs-cpp-renewable-energy.pdf>

These RPS and environmental regulations have led to a sudden drastic increase in renewable generation. For instance NextEra Energy has invested over \$21.3 billion in renewable developments. Next Era currently has more than 12,500 MW of wind generation and 1,000 MW of solar generation.<sup>13</sup> Southern Company also expanded its renewable portfolio, adding or announcing more than 3,800 megawatts of renewable generation since 2012.<sup>14</sup> Southern Company plans to invest another five billion dollars in renewable energy over the next five years.<sup>15</sup>

This growth in renewables is being copied throughout the U.S., which is leading to an explosion in the construction of renewable generation. From 2004 until 2014 the amount of renewables, excluding conventional and pump storage hydroelectric generation, increased from 18,717 MW of summer installed capacity to 90,603 MW of summer installed capacity.<sup>16</sup> This increase in the growth of renewables can be seen in the following graph.



Source: U.S. Energy Information Administration,  
[https://www.eia.gov/electricity/annual/html/epa\\_04\\_02\\_a.html](https://www.eia.gov/electricity/annual/html/epa_04_02_a.html)

This growth in renewables was even more pronounced in 2015. Last year wind and solar accounted for 61% of all generation constructed.<sup>17</sup> This trend has continued into 2016, with 96% of new generation installed through March coming from wind, solar, or biomass.<sup>18</sup> In total the EIA expects more than 26 gigawatts (GW) of utility-scale generation will be added to the grid in 2016. This generation will come from three sources, with solar (9.5 GW), natural gas (8.0 GW), and wind (6.8 GW) comprising ninety three percent of total

<sup>13</sup> <http://www.nexteraenergyresources.com/environment/commitment.shtml>

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<http://www.southerncompany.com/what-doing/corporate-responsibility/energy-innovation/building-renewable-resources.cshhtml>

<sup>15</sup> <http://www.wsj.com/articles/u-s-utilities-boost-investments-in-wind-solar-power-1462825903>

<sup>16</sup> [https://www.eia.gov/electricity/annual/html/epa\\_04\\_02\\_a.html](https://www.eia.gov/electricity/annual/html/epa_04_02_a.html)

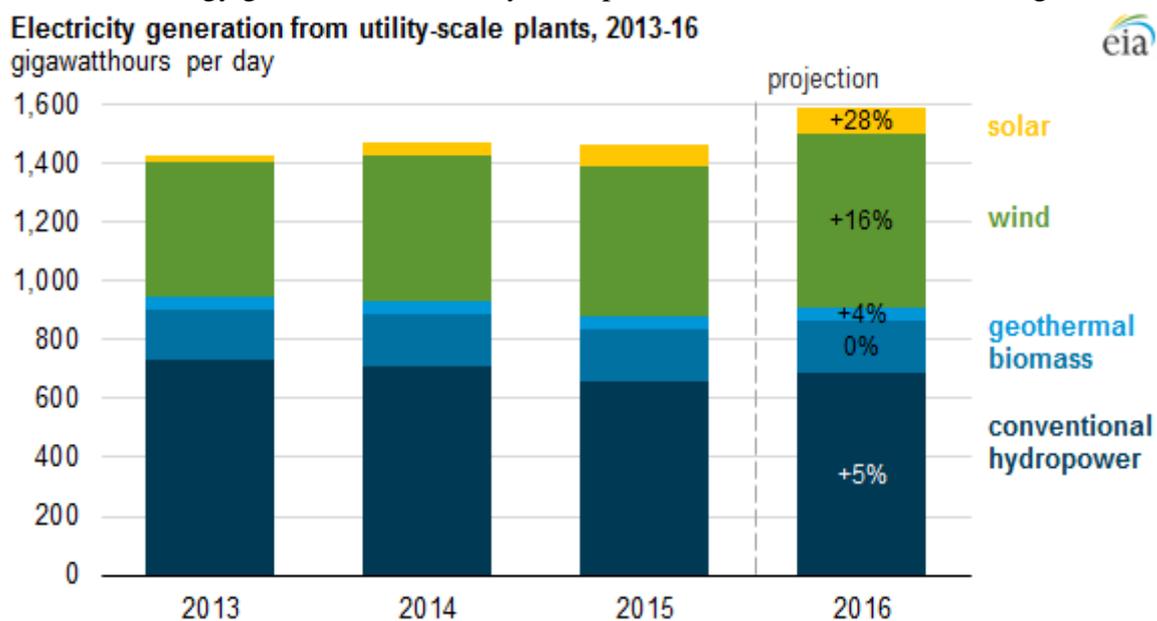
<sup>17</sup>

<http://www.utilitydive.com/news/solar-and-wind-comprise-61-of-2015-capacity-additions-gas-contributes-35/41813/>

<sup>18</sup> <http://www.ferc.gov/legal/staff-reports/2016/mar-infrastructure.pdf>

additions.<sup>19</sup> This would be the first year that utility-scale solar additions exceed additions from any other single energy source. Utility scale solar additions, in 2016, are also expected to exceed the amount of solar generation installed in the past three years combined (9.4 GW installed from 2013-2015).<sup>20</sup>

Because of this rise in the construction of renewable generation, over 10% of all U.S. megawatt-hours generated in March 2016 came from wind, solar, biomass and geothermal resources.<sup>21</sup> This represents a dramatic rise from March 2015, when renewables accounted for 7.7% of megawatt-hours generated and ten years ago when renewables accounted for 2.6% of megawatt-hours generated.<sup>22</sup> Overall the U.S. Energy Information Administration (“EIA”) projects that generation from utility-scale renewable plants will grow by 9% in 2016, up to 14% of the total electricity generated in the United States.<sup>23</sup> The growth in renewable energy generated from utility scale plants can be seen in the following chart.



**Source:** U.S. Energy Information Administration, *Short-Term Energy Outlook*, January 2016

This trend is expected to continue into the future. The EIA Annual Energy Outlook for 2016 shows that wind generation is expected to grow 150% over the next 35 years. During the same period solar generation is expected to increase nearly 12 times.<sup>24</sup> The following chart shows the expected growth in renewable generation until 2050 with and without the Clean Power Plan.

<sup>19</sup> <http://www.eia.gov/todayinenergy/detail.cfm?id=25172>

<sup>20</sup> <http://www.eia.gov/todayinenergy/detail.cfm?id=25172>

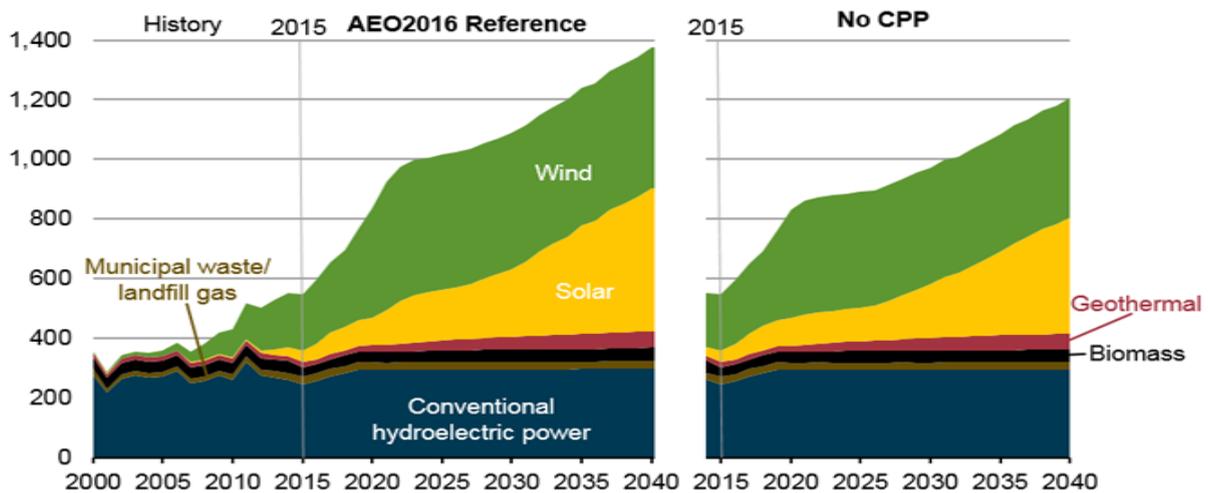
<sup>21</sup> [http://www.eia.gov/electricity/monthly/epm\\_table\\_grapher.cfm?t=epmt\\_es1a](http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_es1a)

<sup>22</sup> [http://www.eia.gov/electricity/monthly/epm\\_table\\_grapher.cfm?t=epmt\\_es1a](http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_es1a)

<sup>23</sup> <http://www.eia.gov/todayinenergy/detail.cfm?id=24792>

<sup>24</sup> [http://www.eia.gov/forecasts/aeo/er/pdf/0383er\(2016\).pdf](http://www.eia.gov/forecasts/aeo/er/pdf/0383er(2016).pdf)

renewable electricity generation by fuel type  
billion kilowatthours

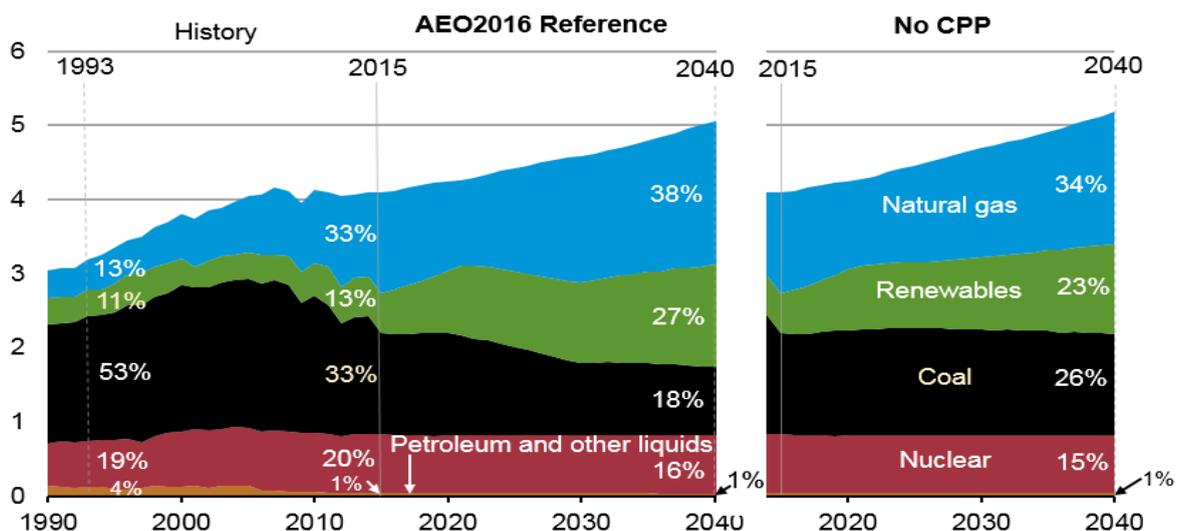


Source: EIA, Annual Energy Outlook 2016

[http://www.eia.gov/forecasts/aeo/er/pdf/0383er\(2016\).pdf](http://www.eia.gov/forecasts/aeo/er/pdf/0383er(2016).pdf)

This increase in renewables will substantially increase the proportion of energy generated from renewables from 2015 to 2040. Without the Clean Power Plan, the EIA expects the amount of energy generated from renewable resources to be equivalent to the amount of energy produced from coal. Though if the Clean Power Plan goes into effect, then the EIA expects the amount of energy generated from renewable resources to increase significantly making renewable resources the second leading generator of energy.<sup>25</sup>

electricity net generation  
trillion kilowatthours

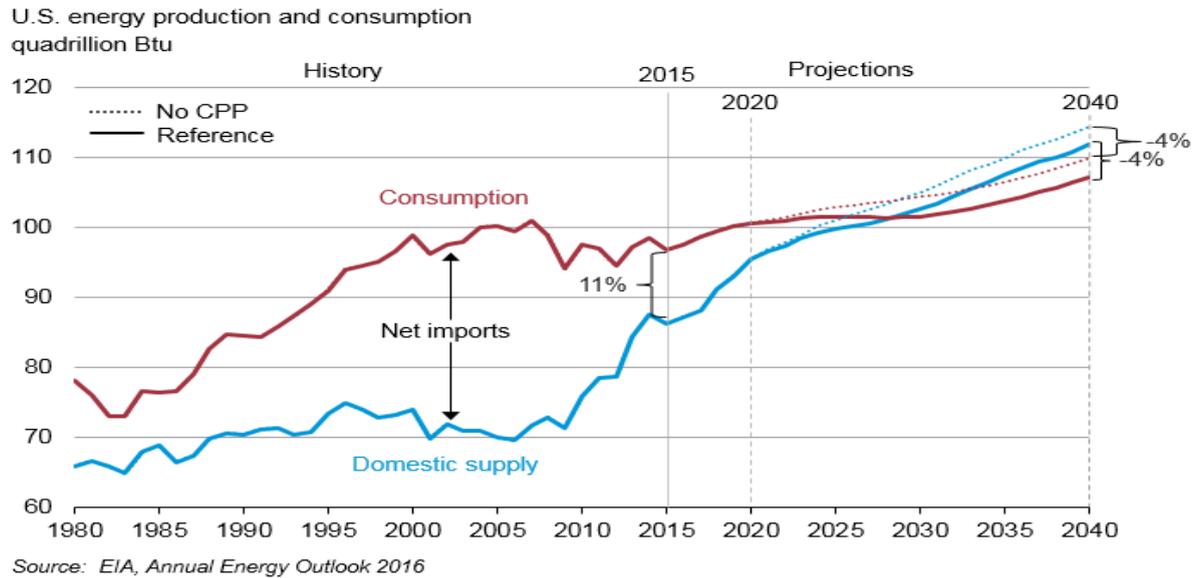


Source: EIA, Annual Energy Outlook 2016

[http://www.eia.gov/forecasts/aeo/er/pdf/0383er\(2016\).pdf](http://www.eia.gov/forecasts/aeo/er/pdf/0383er(2016).pdf)

<sup>25</sup> [http://www.eia.gov/forecasts/aeo/er/pdf/0383er\(2016\).pdf](http://www.eia.gov/forecasts/aeo/er/pdf/0383er(2016).pdf)

As a result of this shift towards renewables in the U.S. generation mix, the country is moving from a net energy importer to a net energy exporter. The chart below shows that the U.S. only imported 11% of its energy in 2015. This is a substantial drop from 2002 when nearly 30% of the energy used in the U.S. was imported. Finally, as renewable generation resources continue to grow the U.S., in the late 2020s, is scheduled to pass a breakeven point and become a net energy exporter.



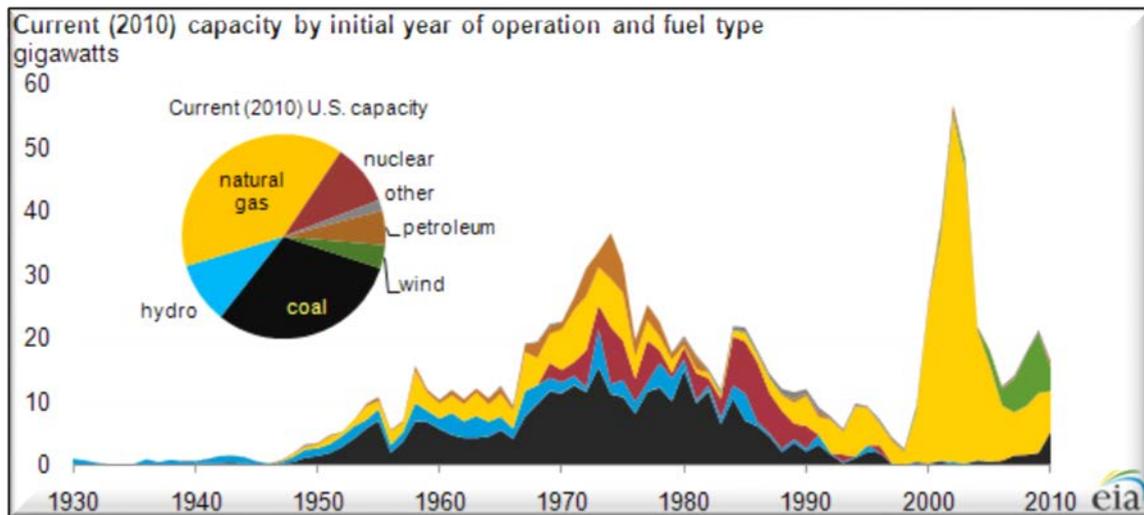
[http://www.eia.gov/forecasts/aeo/er/pdf/0383er\(2016\).pdf](http://www.eia.gov/forecasts/aeo/er/pdf/0383er(2016).pdf)

Since EPCRA 1990, another goal of PURPA has been accomplished, the increased conservation of electric energy and the increased efficiency of electric generation facilities. Energy efficiency is now commonplace. The Department of Energy's Building Technology Office sets minimum energy efficiency standards for approximately 60 categories of appliances. These minimum standards cover areas such as heating and cooling, refrigeration, cooking, and lighting. These standards have reduced carbon emissions by over 2.6 billion tons<sup>26</sup> and saved consumers \$63 billion on their utility bills in 2015 alone.<sup>27</sup>

The retirements of older, less efficient coal generation, along with the shift from coal to natural gas is also increasing the average efficiency of utility scale generation. As the chart below shows, most of the coal generation that was constructed in the U.S. was built between 1965 and 1985. This generation is now 30 to 50 years old and in many cases is getting ready to retire. This retiring generation is being replaced with newer more efficient forms of generation, which as described above is mainly in the form of renewable and natural gas.

<sup>26</sup> <http://energy.gov/eere/buildings/about-appliance-and-equipment-standards-program>

<sup>27</sup> <http://energy.gov/eere/buildings/appliance-and-equipment-standards-program>



<http://www.eia.gov/todayinenergy/detail.cfm?id=2070>

For instance, between 2010 and 2012, 145 coal units, representing 14,088 MW of capacity, were retired. The average age of these units was over 50 years old and the average heat rate exceeded 10,500 Btu/kWh.<sup>28</sup> Replacing this is newer, more modern coal-fired generation facilities. Even with emission controls, modern ultra super critical units have heat rates ranging from 8,800 Btu/kWh to 9,200 Btu/kWh. The switch from coal to gas has improved the efficiency of the generation fleet even more. In 2014 the average heat rate for a natural gas facility was 7,900 Btu/kWh.<sup>29</sup>

The confluence of all of these events has greatly reduced or even eliminated the need for the mandatory purchase requirement. Renewable resources are the predominant source of new generation. Now is the time to go past the simple requirement to purchase renewables and consider the need for additional renewable and the costs associated with those renewables. While PURPA was intended to develop more efficient generation, promote conservation, and encourage renewables, PURPA also requires this to be done at “equitable retail rates for electric consumers.”<sup>30</sup>

The mandatory purchase obligation may require the addition of unneeded renewable generation as well as the imposition of additional costs on customers. Nowhere is this more true than states with RPS requirements. Because states with RPS requirements must purchase a certain amount of energy from renewable resources they should not be subject to the PURPA mandatory purchase requirement. Instead QFs in these states should be required to compete to provide renewable resources. Mandatory QF purchases, in addition to RPS requirements, may also disproportionately increase the amount of renewables in these states. This increase not only disrupts the generation mix in these states, which was planned for a certain level of renewables, but may also impose additional integration costs as systems have to rebalance transmission and the dispatch of other forms of generation to accommodate

<sup>28</sup> <http://www.eia.gov/todayinenergy/detail.cfm?id=15031>

<sup>29</sup> [http://www.eia.gov/electricity/annual/html/epa\\_08\\_01.html](http://www.eia.gov/electricity/annual/html/epa_08_01.html)

<sup>30</sup> 16 U.S. Code § 2601 - Findings

renewable generation sources.

In many cases, QFs in states with RPS requirements do not need to rely on PURPA to sell their output. The main function of QF status in these states is to rely on PURPA to negotiate better terms than the QF would be able to get otherwise. These “better terms” may ultimately end up costing customers in the long-run in the form of higher rates. Finally, the term of QF contracts may impose additional costs on customers. Over the past decade the costs of renewables has decreased considerably. Forcing utilities to enter into contracts for two or three decades lock in those higher prices and force customers to continue to pay for those sources, even when they are no longer competitive.

In order to ensure that states with RPS requirements maintain the proper amount of renewable generation at equitable costs, the mandatory purchase obligation should be eliminated. These states have already undertaken a pledge to procure a significant amount of energy through renewable sources. Keeping the mandatory purchase obligation may require these state to consume an unreasonable level of renewable generation and impose unequitable costs on consumers.