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# NEW YORK'S CLEAN ENERGY STANDARD: CAN RENEWABLE ENERGY DEVELOPMENT REVITALIZE UPSTATE NEW YORK'S ECONOMY?

Kelsey L. Hanson†

## I. INTRODUCTION

Across the globe, countries have become increasingly aware of the effects of climate change and have enacted numerous plans to minimize the usage of fossil fuels for energy. This has become particularly true in the United States, which is one of the world's leading emitters of greenhouse gases.<sup>1</sup> Accordingly, the federal government and numerous states have invested significant time and resources into plans to develop renewable energy resources. Specifically, renewable or interchangeably referred to as "green" energy comes from sources such as sunlight and wind, which are naturally replenished, unlike fossil fuels.<sup>2</sup> Because green energy does not generate carbon dioxide, governments have increased their reliance on green energy in an effort to reduce the man-made carbon emissions typically associated with global warming.<sup>3</sup>

However, it is increasingly apparent that green energy is not the cheapest form of fuel. Rather, to encourage green energy

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<sup>1</sup> Jinwon Bae & Sandy Dall'erba, *The Economic Impact of a New Solar Power Plant in Arizona: Comparing the Input-Output Results Generated by JEDI vs. IMPLAN*, REGIONAL ECONOMICS APPLICATIONS LABORATORY 3 (Aug. 2015), <http://www.real.illinois.edu/d-paper/15/15-T-5.pdf>.

<sup>2</sup> Ken Girardin & Annette Brocks, *Green Overload: New York State's Ratepayer-Zapping Renewable Energy Mandate*, EMPIRE CENTER 2 (Sept. 2016), <http://www.empirecenter.org/wp-content/uploads/2016/09/GreenOverload.pdf>.

<sup>3</sup> *Id.* at 2. This is particularly important since methane is more than 30 times more potent than carbon dioxide in terms of the warming greenhouse effect. See *A More Potent Greenhouse Gas Than Carbon Dioxide, Methane Emissions Will Leap as Earth Warms*, SCIENCE DAILY (Mar. 27, 2014), <https://www.sciencedaily.com/releases/2014/03/140327111724.htm>.

development, government subsidies are necessary so green energy producers can economically compete with lower-cost fuels, such as natural gas.<sup>4</sup> Further, while green energy has yet to be economically feasible without government support, it is also highly land intensive. For example, large wind-based farms require significant acreage due to a required amount of spacing between each turbine.<sup>5</sup> Studies have shown one megawatt (“MW”) of installed wind capacity requires an average of 30 to 141 acres of land.<sup>6</sup> Additionally, solar farms, unlike wind farms, can take hundreds of acres out of use. As a result, large green energy projects are built in areas where acreage is readily available and open for development. As states and municipalities in the United States invest in renewable energy projects, it is becoming apparent that large-scale renewable energy projects are being constructed in America’s most rural communities.<sup>7</sup>

This article looks at New York’s Clean Energy Standard (hereinafter the “Clean Energy Standard” or “CES”), one of the most recent state renewable energy development programs and how this program mandates a significant increase in renewable energy projects across the state’s rural communities. Specifically, this article seeks to determine whether such rapid expansion and development of green energy across the state can have positive economic impacts on Upstate New York’s rural communities, which will house such projects. In doing so, Section II of this article takes an in-depth look at the Clean Energy Standard. Section III discusses the feasibility of such an immense program. Section IV identifies the direct costs and benefits associated with the program. Section V evaluates studies from renewable energy projects throughout the

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<sup>4</sup> See Girardin & Brocks, *supra* note 2, at 2.

<sup>5</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302 - Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, et al.*, NEW YORK STATE DEPARTMENT OF PUBLIC SERVICE 5-27 (May 19, 2016), <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B424F3723-155F-4A75-BF3E-E575E6B0AFDC%7D>.

<sup>6</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302, supra* note 5, at 5-27. A thorough examination of potential environmental impacts of the program is beyond the scope of this paper and are addressed in detail in the Final Supplemental Environmental Impact Statement.

<sup>7</sup> See generally Girardin & Brocks, *supra* note 2.

country to determine the net-positive economic benefits to rural communities. Section VI of this article evaluates the implications of such rapid installation of green energy development in New York. Section VII takes a broad look at the possible positive economic effects the CES could have on rural communities across New York, and Section VIII discusses the possibility that these rural communities may be too rural to realize full economic benefits.

## II. NEW YORK'S CLEAN ENERGY STANDARD

New York has a history of green energy programs dating back almost two decades. Under Governor Andrew Cuomo, there has been a renewed push to increase the amount of renewable energy produced in the state. For example, in 2012, the Governor launched the NY-Sun program, which sought to develop commercial, residential, and industrial solar installations.<sup>8</sup> More importantly, in 2014, NY-Sun was tied into the larger “Reforming the Energy Vision” (“REV”) program set forth by the Governor.<sup>9</sup> REV had the goal of reducing New York’s greenhouse gas emissions by 40% by 2030 (compared to 1990 levels), and a broader long-term goal of 80% by 2050.<sup>10</sup>

As part of accomplishing REV’s broader goals to reduce greenhouse gas emissions, Governor Cuomo, in December of 2015, directed the Public Service Commission (“PSC”) to propose a Clean Energy Standard.<sup>11</sup> On August 1, 2016, PSC, the primary regulatory authority on telecommunications and electricity in New York, issued an *Order Adopting A Clean Energy Standard*.<sup>12</sup> The CES is the most ambitious and most comprehensive clean energy mandate

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<sup>8</sup> Girardin & Brocks, *supra* note 2, at 2.

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*

<sup>11</sup> *Proceeding on Motion of the Comm'n to Implement A Large-Scale Renewable Program & A Clean Energy Standard. Petition of Constellation Energy Nuclear Grp. LLC; R.E. Ginna Nuclear Power Plant, LLC; & Nine Mile Point Nuclear Station, LLC to Initiate A Proceeding to Establish the Facility Costs for the R.E. Ginna & Nine Mile Point Nuclear Power Plants.*, 15-E-0302, 2016 WL 4129243, at \*6 (Aug. 1, 2016) (hereinafter *Clean Energy Standard Order*).

<sup>12</sup> *See Clean Energy Standard, supra* note 11, at 1.

in New York's history.<sup>13</sup> Specifically, the CES established the goal that 50% of New York's electricity is to be generated by renewable resources by 2030 (the "50 by 30 program") as part of the overarching goal to reduce statewide greenhouse gas emissions by 40% by 2030.<sup>14</sup> In reaching this goal, the CES includes the following:

(a)[a] program and market structures to encourage consumer-initiated clean energy purchases or investments; (b) obligations on load serving entities to financially support new renewable generation resources to serve their retail customers; (c) a requirement for regular renewable energy credit (REC) procurement solicitations . . . (e) a program to maximize the value potential of new offshore wind resources; (f) obligations on load serving entities to financially support the preservation of existing at-risk clear zero-emissions attributes to serve their retail customers.<sup>15</sup>

In order to satisfy these goals, the CES established three "tiers" of energy development, broadly composed of a Renewable Energy Standard ("RES") and a Zero-Emissions Credit ("ZEC") requirement.<sup>16</sup> Of these three tiers, only Tier 1 and Tier 3 were formally adopted by PSC, and therefore, only those two will be discussed in detail.

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<sup>13</sup> *Governor Cuomo Announces Establishment of Clean Energy Standard that Mandates 50 Percent Renewables by 2030*, NEW YORK STATE (Aug. 1, 2016), <https://www.governor.ny.gov/news/governor-cuomo-announces-establishment-clean-energy-standard-mandates-50-percent-renewables>.

<sup>14</sup> *Clean Energy Standard*, *supra* note 11, at 2. Authority comes from an Executive Order, in which it was proposed that a goal of New York State was to reduce current greenhouse gas emissions from all electricity generators by 80% below 1990 levels by the year 2050. See Executive Order No. 24, *Establishing a Goal to Reduce Greenhouse Gas Emission Eighty Percent by the Year 2050 and Preparing a Climate Action Plan* (2009), available at <http://www.dec.ny.gov/energy/71394.html>.

<sup>15</sup> *Clean Energy Standard*, *supra* note 11, at 2.

<sup>16</sup> *Id.* at 14.

### A. Tier 1 of the Clean Energy Standard

Tier 1, titled *New Renewable Resources*, “consists of an obligation imposed upon every LSE [load serving entity].”<sup>17</sup> This requirement broadly applies to all retail distributors of electricity, including: investor-owned distribution utilities (i.e., National Grid and ConEdison), energy service companies (oftentimes referred to as “ESCOs”), Community Choice Aggregation programs (not served by ESCOs), and municipal utilities.<sup>18</sup> Under the requirement, LSEs are required to procure a set amount of energy from new renewable resources or purchase qualifying renewable emission credits (“RECs”) from the New York State Energy Research and Development Authority (“NYSERDA”).<sup>19</sup> The eligible sources RECs include: solar, wind, biogas, biomass, liquid biofuels, hydroelectric, fuel cells, and tidal/ocean.<sup>20</sup> Further, only resources that came online after January 1, 2015 will be considered qualifying RECs.<sup>21</sup> Over time, the PSC will adopt “incrementally larger percentages for the years 2022 through 2033,” thereby requiring LSEs provide their customers with increasing levels of energy procured from the renewable sources.<sup>22</sup>

### B. Tier 3 of the Clean Energy Standard

Tier 3 is commonly referred to as the ZEC requirement and

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<sup>17</sup> *Id.* at 13.

<sup>18</sup> *Id.* at 14. Upon a request for clarification, the PSC determined that customer-sited and owned green energy projects (mostly residential solar panel installations) cannot be counted towards an LSE’s green energy purchase obligation. See Stan Parker, *NY Utilities Can’t Take Credit for Customer’s Green Energy*, LAW360 (Nov. 18, 2016), <http://www.law360.com/articles/864071/ny-utilities-can-t-take-credit-for-customers-green-energy>.

<sup>19</sup> *Id.*

<sup>20</sup> *Case 15-E-0320, Clean Energy Standard: Phase I Implementation Plan Proposal*, N.Y.S. ENERGY RESEARCH AND DEVELOPMENT AUTHORITY & N.Y.S. DEP’T OF PUBLIC SERVICE 5 (Oct. 31, 2016), <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/C12C0A18F55877E785257E6F005D533E?OpenDocument>.

<sup>21</sup> *Clean Energy Standard*, *supra* note 11, at 16.

<sup>22</sup> *Id.* at 14.

directly serves the nuclear industry.<sup>23</sup> Under the PSC's Order,

each LSE [is] obligated to purchase ZECs from nuclear facilities facing financial difficulty as determined by a Staff examination of the books and records of the facility at a price administratively set by the Commission and updated every year based upon the difference between anticipated operating costs of the units, and forecasted wholesale prices.<sup>24</sup>

Therefore, quite simply, Tier 3 acts as a “support mechanism to sustain the operations of economically distressed upstate nuclear facilities for a significant time, potentially up to their license expiration date.”<sup>25</sup>

This Tier was created because growth within the natural gas industry has increasingly priced out nuclear operators (in large part due to fracking operations).<sup>26</sup> For upstate nuclear plants, this problem has been particularly troublesome since the nuclear industry relies heavily on energy revenue margins for financial viability.<sup>27</sup> As a result, over the past several years, nuclear power plants have been forced to shut down. For example, in 2014, Vermont Yankee Nuclear Power Station (located in Vermont but supplied power to New York) closed.<sup>28</sup> Soon thereafter, the plant owners at both the R.E. Ginna (Ontario, New York) and the James A. Fitzpatrick (Oswego, New York) nuclear plants announced their intentions to close in November of 2015 due to unprofitability (these

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<sup>23</sup> *Id.* at 119.

<sup>24</sup> *Id.*

<sup>25</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302, supra* note 5, at 5-4. Nine Mile Point Unit 1 and R.E. Ginna Unit 1 both expire in August and September of 2029, while James A. Fitzpatrick Unit 1 expires in October of 2034. Additionally, the license for Nine Mile Point Nuclear Station expires October of 2046.

<sup>26</sup> *Id.* at 1-6. Natural gas has continued to play a major role in New York energy generation and has grown significantly over the past several years. In 2012, natural gas generated approximately 53,000 GWh, which grew to approximately 59,000 GWh in 2014. This number is approximately 41 percent of all annual demand. *See id.* at 2-8.

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

plants have subsequently remained in operation due to Tier 3 adoption).<sup>29</sup>

The closure of the R.E. Ginna plant, the James A. Fitzpatrick plant, and the Nine Mile Point plant (Oswego, New York) would be catastrophic to New York's energy supply. Currently, these three state nuclear plants generate approximately 16% of the state's total energy supply.<sup>30</sup> The closure of one of these plants, or the closure of all three, would result in the state becoming more reliant on fossil fuel generating plants, such as natural or coal-fired gas.<sup>31</sup> A shift back to fossil fuel generation would have a direct impact on the amount of carbon dioxide, nitrogen oxide, and other pollutants emitted by New York, all of which have an impact on the ozone layer, and generally, climate change.<sup>32</sup>

### III. FEASIBILITY OF THE CLEAN ENERGY STANDARD

While the exact feasibility of such an aggressive, cutting-edge green energy program is beyond the scope of this article, some statistics have been included to afford the opportunity to see just how widespread and monumental the task will be to meet the new 50 by 30 standard. Under what has been termed the "base scenario" by PSC, approximately 29,000-megawatt hours of green energy ("MWh") would need to be installed in New York over 14 years.<sup>33</sup> For comparison purposes, in 2014, the total generation in New York State was approximately 37,978 MWh.<sup>34</sup> This substantial increase

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<sup>29</sup> *Clean Energy Standard*, *supra* note 11, at 119, 125.

<sup>30</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302*, *supra* note 5, at 1-6.

<sup>31</sup> *Id.* A closure of the Plants would require the state to replace approximately 10,500 GWh of electricity generation. *See id.* at 4-5.

<sup>32</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302*, *supra* note 5, at 1-6.

<sup>33</sup> *Id.* at 1-4. The difference between a megawatt and megawatt hours is purely in how the measuring power is calculated. A megawatt "is a unit for measuring power that is equivalent to one million watts . . . [a] megawatt hour is equal to 1,000 Kilowatt." *What is a Megawatt and a Megawatt-Hour?*, CLEANENERGYAUTHORITY.COM (May 4, 2010), <http://www.cleanenergyauthority.com/solar-energy-resources/what-is-a-megawatt-and-a-megawatt-hour/>.

<sup>34</sup> *Power Trends 2014: Evolution of the Grid*, NEW YORK INDEPENDENT SYSTEM

under the CES “is more than double the amount generated in 2015 by the State Power Authority’s Niagara hydroelectric plant, the largest U.S. facility of its kind east of the Rockies.”<sup>35</sup>

Under the CES, PSC has determined that the energy requirements in just the first five years will require: 4,188 MW from new land-based wind turbines, 1,000 MW from new offshore turbines, and over 3,855 MW from new solar panels.<sup>36</sup> In order to construct the number of wind turbines required, the state’s current land-based wind capacity would have to at least triple.<sup>37</sup> Current estimates specify that each wind turbine generates around 2 MW, therefore, a total of 2,094 wind turbines are required to meet the 4,188 MW goal.<sup>38</sup> Additionally, because every wind turbine requires between 30 and 141 acres of land,<sup>39</sup> the Department of Energy has determined that the 2,094 turbines would require approximately 196 to 922 square miles.<sup>40</sup> Considered from another perspective, based on the acreage currently utilized by the state’s largest wind farm, 2,094 turbines could occupy approximately 428 square miles, an area the size of Nassau County,<sup>41</sup> which is home to some 1,352,000 residents.<sup>42</sup> Similarly, meeting the offshore wind turbine requirement is equally as daunting. The 1,000 MW requirement necessitates 152 wind turbines off the coast of both Long Island and New Jersey.<sup>43</sup>

In order to meet the solar requirement (3,855 MW), New York would need to increase its current capacity nearly 200 times.<sup>44</sup>

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OPERATOR,

[http://www.nyiso.com/public/webdocs/media\\_room/publications\\_presentations/Power\\_Trends/Power\\_Trends/ptrends\\_2014\\_final\\_jun2014\\_final.pdf](http://www.nyiso.com/public/webdocs/media_room/publications_presentations/Power_Trends/Power_Trends/ptrends_2014_final_jun2014_final.pdf).

<sup>35</sup> Girardin & Brocks, *supra* note 2, at 5.

<sup>36</sup> *Id.*

<sup>37</sup> *Id.* at 6.

<sup>38</sup> *Id.*

<sup>39</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302, supra* note 5, at 5-27.

<sup>40</sup> Girardin & Brocks, *supra* note 2, at 6.

<sup>41</sup> *Id.*

<sup>42</sup> *Table 2: Population, Land Area, and Population Density by County, New York State - 2013*, N.Y.S. DEP’T OF HEALTH, [https://www.health.ny.gov/statistics/vital\\_statistics/2013/table02.htm](https://www.health.ny.gov/statistics/vital_statistics/2013/table02.htm).

<sup>43</sup> Girardin & Brocks, *supra* note 2, at 6.

<sup>44</sup> *Id.*

This task is further complicated by the fact that electricity generated to meet the energy demands of adjoining homes or businesses, such as the increasingly popular rooftop panels, are not included in the state's 50 by 30 goal.<sup>45</sup> Thus, in order to meet the goals set forth by PSC, construction of the large-scale solar farms required would cover some 38 square miles, or double the size of Manhattan.<sup>46</sup>

According to these estimates and the targets set forth, the New York Independent System Operator (NYISO), the operator of competitive wholesale energy markets in New York, has calculated that more than 90% of these renewable energy projects will be located in Upstate New York.<sup>47</sup> Further supporting this conclusion is the fact that “[a]ll but three of 370 PSC-proposed sites for added land-based wind power are north of the Tappan Zee Bridge.”<sup>48</sup> Thus, Upstate New York, home to the state's rural communities, will feel the greatest impact from the renewable energy development necessitated by the CES.

#### IV. THE COSTS AND BENEFITS OF THE CLEAN ENERGY STANDARD

##### A. *Direct Costs of the Program*

The Clean Energy Standard is not only a program of immense scale, but also a shift in New York's energy policy. As such, the program will have direct costs, to both industry and consumers. For example, Governor Andrew Cuomo admitted in a press release that the CES will cost taxpayers approximately \$2 per month for the average residential consumer.<sup>49</sup> This is primarily because the increased cost to obtain the Tier 1 RECs will not be borne by the utilities, but instead, the cost will be passed on to commodity consumers (i.e., you and me).<sup>50</sup> This \$2 per month

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<sup>45</sup> *Id.* at 5.

<sup>46</sup> *Id.* at 6.

<sup>47</sup> *Id.* at 8. Unlike Upstate New York, Downstate New York will only experience the impacts of the 1,000 offshore wind turbines.

<sup>48</sup> *Id.*

<sup>49</sup> *Governor Cuomo Announces Establishment of Clean Energy Standard*, *supra* note 13.

<sup>50</sup> *Clean Energy Standard*, *supra* note 11, at 17.

increase may seem small, but it amounts to some \$3.4 billion dollars in the first five years.<sup>51</sup> While this cost will be borne by every resident of New York, it will arguably have a much greater impact on the state's rural communities.<sup>52</sup> This is in addition to the fact that New York currently has some of the highest electricity rates in the nation, only second to Hawaii.<sup>53</sup>

### B. *Cited Public Benefits from the Program*

The benefits to the public of such a green energy program include the obvious benefits relating to public health and/or climate change. In evaluating the public benefits, PSC directly noted in the Final Supplemental Environmental Impact Statement ("FSEIS") that such evaluation was considered in light of the cost of doing business as usual, versus a full implementation of the 50 by 30 program.<sup>54</sup> If the full program was to be implemented, the following public health benefits could be realized: improved air quality and societal benefits from a reduction in greenhouse gas emissions and criteria air pollutants; climate change benefits from a reduction of New York's reliance on fossil fuels; ecosystem service benefits from a reduced usage of land and water uses; benefits from fuel diversity; and economic development benefits in the form of jobs and revenue creation, increased manufacturing of equipment, and increased spending in local economies.<sup>55</sup>

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<sup>51</sup> Phil Kerpen, *Another Voice: Cuomo's Energy Scheme is an Expensive Green Fantasy*, THE BUFFALO NEWS (Nov. 11, 2016), <http://buffalonews.com/2016/11/11/another-voice-cuomos-energy-scheme-expensive-green-fantasy/>. However, what has yet to be explored is the possible net economic losses "associated with the displacement of other energy sources or land use[s]." See Jaime Cone, *Candor Town Considers Solar Farm Moratorium*, ITHACA.COM (July 26, 2016), [http://www.ithaca.com/news/candor/candor-town-considers-solar-farm-moratorium/article\\_03f70204-4e91-11e6-b1e0-3bc006edf149.html](http://www.ithaca.com/news/candor/candor-town-considers-solar-farm-moratorium/article_03f70204-4e91-11e6-b1e0-3bc006edf149.html).

<sup>52</sup> See *Final Supplemental Environmental Impact Statement in Case 15-E-0302*, *supra* note 5, at 3-14, 15.

<sup>53</sup> Davide Savenije, *The 10 States with the Highest Electricity Prices*, UTILITY DIVE (Aug. 20, 2014), <http://www.utilitydive.com/news/the-10-states-with-the-highest-electricity-prices/298112/>.

<sup>54</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302*, *supra* note 5, at 1-7.

<sup>55</sup> *Id.* at 1-8.

While this program is driven primarily by environmental concerns, the PSC acknowledged that the CES could have significant positive impacts on the local communities that will house these projects, but failed to fully quantify these benefits.<sup>56</sup> The next section of this article looks at studies from across the United States which lay out the resultant economic impacts from similar large-scale renewable energy projects in order to gain perspective on analyzing the CES' potential impacts on rural communities in New York.

#### V. ARE SOCIOECONOMIC & REGIONAL IMPACTS LIKELY TO RESULT FROM THE CES?

Renewable energy projects have the ability to positively impact farms and rural communities across the United States.<sup>57</sup> Quite simply, renewable energy projects can act as large economic development projects in rural communities.<sup>58</sup> For example, a 100 MW wind farm requires an investment of approximately \$200 million dollars.<sup>59</sup> Studies have found that the installation of green energy impacts local economies by (1) increasing the number of available jobs, (2) increasing local tax revenue, and (3) increasing income per capita.<sup>60</sup>

More specifically, one study found that for every MW of green energy installed per capita, there is correlation of \$12,179 per capita of total income growth and an increase of per capita

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<sup>56</sup> See generally *Clean Energy Standard*, *supra* note 11.

<sup>57</sup> See generally U.S. GOV'T ACCOUNTABILITY OFF., GAO-04-756, RENEWABLE ENERGY: WIND POWER'S CONTRIBUTION TO ELECTRIC POWER GENERATION AND IMPACT ON FARMS AND RURAL COMMUNITIES (Sept. 2004) (hereinafter *GAO Study*).

<sup>58</sup> Michael C. Slattery, et al., *State and Local Economic Impacts from Wind Power Projects: Texas Case Study*, 39 ENERGY POLICY 7930, 731 (2011). See also Theresa M. Groth & Christine A. Vogt, *Rural Wind Farm Development: Social, Environmental, and Economic Features Important to Local Residents*, 63 Renewable Energy 1 (2014); Michael C. Slattery & Becky L. Johnson, et al., *The Predominance of Economic Development in the Support for Large-Scale Wind Farms in the U.S. Great Plains*, Renewable and Sustainable Energy Reviews (2011-12).

<sup>59</sup> *Id.* at 731-32.

<sup>60</sup> *Id.*

employment of 0.21%.<sup>61</sup> Additionally, for every MW of green energy installed, there was a resultant \$3,330 increase in median household income.<sup>62</sup> Studies have also shown that over a 30-year period, a large-scale solar farm (i.e., above 80 MW) can produce up to \$148 million of economic output, encompassing gross business sales and “the contribution to gross domestic product of . . . goods and services produced.”<sup>63</sup> Additionally, renewable energy projects have the ability to diversify local economies, making them more resilient to economic fluctuations.<sup>64</sup>

#### A. *Potential Impacts from Lease Arrangements*

It is important to note that the payments from leases with energy development companies make up a substantial sum of the direct economic benefits to rural farmers and/or landowners. For example, wind power projects often contribute tens of thousands of dollars to farmers’ annual incomes through the form of lease payments from their land.<sup>65</sup> The farmers receive income through the leases, often referred to as “wind rights.”<sup>66</sup> Through the lease wind rights, farmers generally receive between \$2,000 and \$5,000 a year per MW of installed capacity.<sup>67</sup> Additionally, “the farmer may receive additional lease payments for other structures or considerations related to the wind project, such as substations, operations and maintenance buildings, and rights-of-way.”<sup>68</sup> While the terms can vary drastically by company and region, a study from the United States Government Accountability Office (“GAO”) determined “[w]hatever the lease arrangements, the

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<sup>61</sup> Sam Smith, *The Economic Impact of Wind Power Development*, UNIV. OF COLO. 2 (2014), [http://scholar.colorado.edu/honr\\_theses/198/](http://scholar.colorado.edu/honr_theses/198/).

<sup>62</sup> *Id.*

<sup>63</sup> Tom Smith, *Solar Farm Bonanza? Study Shows Great Economic Potential from Project*, TIMES DAILY (June 22, 2015), [http://www.timesdaily.com/news/local/solar-farm-bonanza-study-shows-great-economic-potential-from-project/article\\_0d3beea8-18c1-5ffb-8400-5b5a9890cf55.html](http://www.timesdaily.com/news/local/solar-farm-bonanza-study-shows-great-economic-potential-from-project/article_0d3beea8-18c1-5ffb-8400-5b5a9890cf55.html).

<sup>64</sup> Smith, *supra* note 61, at 2.

<sup>65</sup> *GAO Study*, *supra* note 57, at 34.

<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

<sup>68</sup> *Id.* at 35.

income farmers receive from wind projects located on their land is relatively stable compared with the income they derive from crop and livestock production.”<sup>69</sup> Consequently, the development of wind power projects on farmland can serve as a vital hedge against the routine fluctuations farmers often experience.<sup>70</sup>

Landowners entering into leases with solar farm developers receive similar economic benefits. For example, landowners can receive between \$300 and \$700 per acre annually for leases typically lasting between 10 and 30 years.<sup>71</sup> Further, since solar farms can occupy hundreds of acres, royalties from such leases can be a significant opportunity for wealth or investment in a rural community.<sup>72</sup>

#### B. *Potential Employment Opportunities*

Overall, the development of renewable energy projects is likely to have a positive impact on local employment opportunities.<sup>73</sup> Constructing a large-scale wind farm requires both skilled and unskilled workers, the services of numerous businesses, and the purchase of materials and equipment, not limited to: towers, asphalt, concrete, cement, and electrical cables.<sup>74</sup> Energy development companies further benefit local economies by hiring local residents to fill jobs constructing and operating the wind farm.<sup>75</sup> For example, a 100 MW wind farm can require as many as 80 to 100 construction workers during a one-year construction period, and an additional six to eight permanent operations and maintenance workers throughout the life of the plant.<sup>76</sup>

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<sup>69</sup> *Id.*

<sup>70</sup> *Id.*

<sup>71</sup> *Rowan's Future in Solar Farms Looks Sunny*, NC STATE UNIV., <https://nccleantech.ncsu.edu/rowans-future-in-solar-farms-looks-sunny/>.

<sup>72</sup> *Id.*

<sup>73</sup> *GAO Study*, *supra* note 57, at 36.

<sup>74</sup> *Id.*

<sup>75</sup> *Id.* Unaccounted for in a large majority of these types of studies is the loss potentially incurred by the fossil fuels industry should an electric grid become less reliant on fossil fuels. *See id.* at 36. *See also* Slattery, et al., *supra* note 58, at 7933.

<sup>76</sup> Slattery, et al., *supra* note 58, at 7933.

Unlike wind farms, solar farms do not have as great of a positive economic impact simply because “solar farms require little infrastructure or maintenance.”<sup>77</sup> Despite this, large-scale solar farms can still have a direct impact on local economies.<sup>78</sup> For example, an 80 MW solar farm can employ some 437 people over a 30-year life span, with cumulative earnings of approximately \$25 million.<sup>79</sup> After construction, a project typically employs six to eight full-time workers and numerous contract maintenance employees.<sup>80</sup> However, according to the GAO study, “a county with a larger, more diversified economic base can more likely provide these services and supplies, thereby retaining more of the project’s direct economic benefits.”<sup>81</sup> Therefore, should a smaller and more rural county be unable to provide the necessary goods and services, nearby counties or cities will directly benefit from providing the goods and services (thereby spreading the economic benefits over a larger region, but likely to areas not as desperately in need as the rural communities).<sup>82</sup> For example, the GAO study found that developers of a major project in Solano County, California were able to use almost exclusively local services and goods, as the local area had a population of some 400,000 residents.<sup>83</sup> In comparison, an energy developer of a project in Pipestone County, Minnesota had to largely contract out for goods and services to a firm in Fargo, North Dakota, after being unable to retain local services in a county of approximately 9,800 people.<sup>84</sup> Either way, any businesses and individuals employed by the energy development company are likely to spend income at local restaurants, hotels, food and clothing stores, and gas stations, resulting in a positive economic benefit.<sup>85</sup>

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<sup>77</sup> Frank Jossi, *Small Communities and Counties Struggle to Zone Big Solar*, MIDWEST ENERGY NEWS (June 15, 2015), <http://midwestenergynews.com/2015/06/15/small-communities-and-counties-struggle-to-zone-big-solar/>.

<sup>78</sup> Smith, *Solar Farm Bonanza?*, *supra* note 63.

<sup>79</sup> *Id.*

<sup>80</sup> *Id.*

<sup>81</sup> *GAO Study*, *supra* note 57, at 36.

<sup>82</sup> *Id.* See Slattery, et al., *supra* note 58, at 7932.

<sup>83</sup> *Id.*

<sup>84</sup> *Id.* at 36-37.

<sup>85</sup> *Id.* at 37. For example, after a wind farm was approved in Pesos County, Texas,

### C. *Potential Increases in Tax Revenue*

Across the states investing in renewable energy projects, the counties in which those projects are housed experience a noticeable increase in property tax revenues.<sup>86</sup> These increases in property taxes can have a significant positive benefit on local communities since the taxes are typically used to support schools, fire protection, public services and hospitals.<sup>87</sup> For example, Lincoln County, Minnesota obtained approximately \$470,000 in property tax revenues (18% of total property tax revenues) in 2003 from a wind project with 156 MW capacity; Pipestone County, Minnesota received \$660,000 in property taxes (8% of total property tax revenues) from a project of 113 MW capacity; and Pecos County, Texas received approximately \$5 million in property tax revenue in 2002, a third of which went to the local school district.<sup>88</sup> Similarly, a solar farm in Fort Lauderdale, Florida will contribute some \$52 million to the local tax revenues over a 30-year period.<sup>89</sup>

While local communities are likely to receive some economic benefit from property tax revenues from the installation of renewable energy projects, some counties (and states) often defer tax payments to attract these projects.<sup>90</sup> While these counties may not directly receive property taxes immediately, they may still benefit from sales tax on taxable goods and services that are connected with the development, construction, and operation of a renewable energy project.<sup>91</sup> However, even if a county or municipality does not defer tax payments, renewable energy installations typically pay significantly less in property taxes due to zoning categorization and property values.<sup>92</sup> For example, the average solar farm pays \$240 per acre annually in property taxes.<sup>93</sup> This compares to \$2,475 for a townhome, \$3,500 for a warehouse,

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the county saw a 10% increase in gross sales during the construction.

<sup>86</sup> *See id.*

<sup>87</sup> *Id.*

<sup>88</sup> *Id.*

<sup>89</sup> Smith, *Solar Farm Bonanza?*, *supra* note 63.

<sup>90</sup> *GAO Study*, *supra* note 57, at 37.

<sup>91</sup> *Id.* at 37-38.

<sup>92</sup> *See Jossi*, *supra* note 77.

<sup>93</sup> *Id.*

\$3,500 for any retail establishment, and \$4,500 for big box stores such as Walmart.<sup>94</sup>

Having examined the applicable studies on the widespread impacts of renewable energy development projects across different areas of the United States, the next section of this article analyzes whether similar economic benefits can be realized in New York based on the scope of the CES, and the laws regulating green energy development.

## VI. INSTALLATION OF GREEN ENERGY ACROSS NEW YORK

It is evident from a land-use perspective that almost all green energy development from the CES will have to be developed in the rural, upstate regions of New York State.<sup>95</sup> This may be particularly helpful to the upstate economy, as the rural areas have suffered from decreasing investment, economic growth, and employment opportunities.<sup>96</sup> As previously discussed, the CES has the potential to act as a large-scale economic development program in New York's rural communities. Supporting this proposition is the fact that "[a] recent analysis found that for every incentive dollar spent by New York to support the construction of new LSR [large-scale renewable] facilities, the state realizes approximately \$3 of direct investment associated with project spending over the project's lifetime."<sup>97</sup>

### A. Acreage Requirements to Meet the 50 by 30 Standard

In order to reach the goals set forth by the CES, significant acreage will have to be dedicated to renewable energy projects. As discussed *supra*, just to meet the solar energy requirement of the 50 by 30 standard, New York will have to install between 2,736 and

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<sup>94</sup> *Id.*

<sup>95</sup> See *Final Supplemental Environmental Impact Statement in Case 15-E-0302*, *supra* note 5, at 9-9.

<sup>96</sup> Jason Brown, et al., *Ex Post Analysis of Economic Impacts from Wind Power Development in U.S. Counties*, 34 ENERGY ECONOMICS 1743, 1744 (2012).

<sup>97</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302*, *supra* note 5, at 1-8.

6,865 MW of solar energy.<sup>98</sup> This equates to 5,472 acres to 13,730 acres being taken out of use and converted to solar farms.<sup>99</sup>

Currently only a small percentage (4%)<sup>100</sup> of New York's energy portfolio is wind power.<sup>101</sup> The majority of New York's current wind generation comes from just four rural New York counties: Lewis, Steuben, Wyoming, and Clinton.<sup>102</sup> However, wind generation is a key component of the 50 by 30 standard.<sup>103</sup> As of the writing of this article, there were proposed wind projects in 13 counties across New York, totaling some 3,458.9 MW.<sup>104</sup> While the proposed projects are a step towards decreasing New York's reliance on fossil fuels, these projects represent only 25% of the required 13,651 GWh to 19,802 GWh of wind capacity that would be needed to meet the 50 by 30 requirement.<sup>105</sup> The New York Natural Heritage Program (a sub-agency of New York State Department of Environmental Conservation) has identified 1.3 million acres in New York deemed suitable for wind development.<sup>106</sup> Of these 1.3 million acres, approximately 120,000 to 564,000 need to be developed to meet the goals of the CES.<sup>107</sup>

Important, however, is the fact that counties with the greatest potential for wind energy are also the counties with some of the largest amounts of agricultural land.<sup>108</sup> For example, the counties of Steuben, Wyoming and Jefferson—the first two of which already have wind development—are also in the top ten for agricultural land usage.<sup>109</sup> Therefore, as mentioned above, renewable energy projects have the potential to act as an additional, relatively stable source of revenue for rural communities and landowners.

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<sup>98</sup> *Id.* at 5-21.

<sup>99</sup> *Id.*

<sup>100</sup> *Id.* at 2-5.

<sup>101</sup> *Id.* at 5-22.

<sup>102</sup> *Id.* at 5-23.

<sup>103</sup> *Id.* at 5-22.

<sup>104</sup> *Id.* at 5-24.

<sup>105</sup> *Id.*

<sup>106</sup> *Id.* at 5-33.

<sup>107</sup> *Id.*

<sup>108</sup> *Id.*

<sup>109</sup> *Id.*

## VII. SOCIOECONOMIC IMPACTS OF THE CES

While the main goals of the CES include general public health benefits, ecosystem service benefits, and climate change benefits,<sup>110</sup> the CES will likely also provide important regional economic benefits to Upstate New York's rural communities. The scale of the CES is immense, and therefore, projections of its impacts could only be estimated. However, what is certain is that the Tier 3 program—providing aid to nuclear generators—will have an immediate impact. Therefore, those economic benefits are discussed first.

### A. *Regional Economic Impacts from Enactment of Tier 3*

Tier 3 serves as a support mechanism for struggling upstate nuclear generators. Their continued operation preserves the facilities' clean electricity generation for New York residents and provides hundreds of jobs, plus significant tax revenues for local communities.<sup>111</sup> Specifically, the James A. Fitzpatrick Plant employs 716 people, the Nine Mile Point Nuclear Station employs 1,281 people, the R.E. Ginna Nuclear Power Plant employs 500 people, and Indian Point Nuclear Generating Facility (Buchanan, New York) employs 1,255 people.<sup>112</sup>

Additionally, the average upstate nuclear plant generates some \$470 million in economic output, \$40 million of which is derived from labor income.<sup>113</sup> More specifically, one of the power plants directly benefiting from Tier 3, R.E. Ginna, generates \$358 million in economic output annually and for every dollar of that

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<sup>110</sup> *Id.* at 9-1, 2.

<sup>111</sup> *Id.* at 9-2.

<sup>112</sup> *Id.* at 9-4.

<sup>113</sup> *Id.* Since the writing of this article, New York Governor Andrew Cuomo and Entergy, the owner of Indian Point, reached an agreement to completely shut down the nuclear generating facility beginning in April 2020, with all operations to cease by April 2021. See Entergy, *New York Officials Agree on Indian Point Closure in 2020-2021: Decision Driven by Sustained Lower Power Prices*, <http://www.safesecurevital.com/entergy-ny-officials-agree-on-indian-point-closure-in-2020-2021/>.

output, “the state economy produces \$1.52.”<sup>114</sup> Further, the R.E. Ginna plant is the largest taxpayer in that county, paying approximately \$10 million in property and sales taxes to Wayne County.<sup>115</sup> Another upstate power plant receiving a benefit from Tier 3, James A. Fitzpatrick, pays Oswego County approximately \$17.3 million annually in property taxes.<sup>116</sup> Consequently, it is easy to see how without the Tier 3 “subsidies” which support the nuclear generators in the form of mandated ZEC purchases by LSEs, the closure of the plants would have an immediate negative impact on the surrounding local economies and New York State generally.<sup>117</sup>

*B. Economic Benefits to Rural Communities from Tier 1: Employment*

A recent study by the Brookings Institute found that in 2010, New York already had approximately 5,147 jobs in wind power and 556 jobs in solar power.<sup>118</sup> However, numerous studies have concluded that the construction of renewable energy projects can greatly increase these employment numbers. Specifically, during the construction stage, renewable energy development can create hundreds of jobs for local citizens.<sup>119</sup> Although the study results vary across the country, there is little doubt that similar positive results could be expected in New York. In fact, studies focusing on New York have reached similar conclusions, finding:

A 100 MW wind farm can require 120 job-years of labor and generate an estimated \$4 million in wages during the three-year construction period. A 2005 study estimated the nominal economic impacts of utility scale wind to range from \$9.71 to \$10.66 per

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<sup>114</sup> *Id.*

<sup>115</sup> *Id.*

<sup>116</sup> *Id.*

<sup>117</sup> *See id.*

<sup>118</sup> *Id.* at 9-5.

<sup>119</sup> *See Final Supplemental Environmental Impact Statement in Case 15-E-0302, supra* note 5, at 9-5, 8; Smith, *Solar Farm Bonanza?*, *supra* note 63.

MWh for projects varying in size from 50 MW up to 350 MW.<sup>120</sup>

Further, a study from NYSERDA concluded that for large-scale wind projects, one operations and management job is created for every 10 to 20 turbines installed.<sup>121</sup>

As previously explored, the CES will require approximately 4,188 land-based wind turbines and over 3,855 MW of solar panels.<sup>122</sup> At this point, simple math comes into play. If a 100 MW wind farm generates 120 jobs over its lifespan,<sup>123</sup> and assuming every wind turbine equates to 2 MW,<sup>124</sup> this means 50 turbines generate roughly 120 jobs. Additionally, as noted above, a 100 MW wind farm creates approximately seven permanent jobs. Since the CES requires 4,188 new wind turbines,<sup>125</sup> the installation of such a large-scale program has the capacity to create approximately 10,000 temporary construction jobs and 600 permanent jobs over the life cycle (approximately 25 years) of the wind farms constructed in rural communities.<sup>126</sup> In total, these numbers equate to 25,000 job-years.

Similarly, the studies discussed above identified that an 80 MW solar farm can employ around 430 people over its 30-year lifespan.<sup>127</sup> Because the CES requires the installation of over 3,855 MW of solar panels,<sup>128</sup> this means over the lifespan of the solar farms, an additional 20,720 job-years may result. While not as significant as the wind farms due to the decreased maintenance and operations of solar farms,<sup>129</sup> solar energy development has the ability to act as a large-scale, long-term employer across rural New York communities.

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<sup>120</sup> *Id.*

<sup>121</sup> *Id.*

<sup>122</sup> Girardin & Brocks, *supra* note 2, at 5.

<sup>123</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302*, *supra* note 5, at 9-5.

<sup>124</sup> Girardin & Brocks, *supra* note 2, at 6.

<sup>125</sup> *Id.*

<sup>126</sup> See Slattery, et al., *supra* note 58, at 7933.

<sup>127</sup> Smith, *Solar Farm Bonanza?*, *supra* note 63.

<sup>128</sup> Girardin & Brocks, *supra* note 2, at 6.

<sup>129</sup> Jossi, *supra* note 77.

Based on the overall installation requirements discussed above to reach the 50 by 30 goal, rural New York could expect to see an estimated 45,000 new job-years created over a 20 to 30-year period. Additionally, under both Tiers, the net project value of all renewable energy projects could “[yield] a net benefit of \$1.8 billion in the 2023 time frame.”<sup>130</sup> This net project value contains gains from short and long-term employment, increased tax revenue, in-state purchases of goods and services, and continued operation of the nuclear facilities under Tier 3.<sup>131</sup> Overall, the point of these findings is clear: significant economic impacts, particularly in terms of increased job opportunities, are realizable to New York’s economically depressed rural communities.

At this point, it is important to remember that during the first five years of the CES, the program is estimated to cost New York taxpayers approximately \$3.4 billion, or \$680 million per year.<sup>132</sup> The question then becomes, is the total estimated economic benefit worth the total cost? Analyzing the job numbers as calculated above, New York could expect to see approximately 45,000 added jobs calculated over a 20 to 30-year period.

While only rough estimates, it is also important to place these numbers in context based on the immense scale of the program. A large cost of the CES is due to the Tier 3, the nuclear industry subsidy.<sup>133</sup> However, at least two nuclear power plants will remain operational due to Tier 3, employing almost 2,000 workers annually.<sup>134</sup> Additionally, the R.E. Ginna plant generates approximately \$358 million in economic output and contributes \$10 million in property taxes to Wayne County, New York annually.<sup>135</sup> Consequently, it is clear that the large cost to taxpayers in the sum of \$3.4 billion could be offset by not only the huge economic impacts of the nuclear sector on New York’s economy, but also the

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<sup>130</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302*, *supra* note 5, at 9-8.

<sup>131</sup> *Id.* at 9-9.

<sup>132</sup> Kerpen, *supra* note 51.

<sup>133</sup> Girardin & Brocks, *supra* note 2, at 4.

<sup>134</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302*, *supra* note 5, at 9-4.

<sup>135</sup> *Id.*

health of the electric grid.<sup>136</sup> Adding these 2,000 jobs to the estimated 45,000 wind and solar jobs created by the CES over roughly 25 years yields approximately 3,800 jobs saved or created annually as a direct result of the program. At an annual cost of approximately \$680 million per year,<sup>137</sup> this results in a cost per job of approximately \$179,000.

To put these cost numbers in perspective, one can consider the cost of New York's "premier" jobs program, Start-Up NY.<sup>138</sup> Start-Up NY was created in order to allow new or expanding business to operate tax-free for a decade if located near one of the State University of New York ("SUNY") campuses.<sup>139</sup> At the time, Governor Cuomo stated "Start-Up NY would 'supercharge' the Empire State economy and boost job creation."<sup>140</sup> However, in 2015, the program created only 76 new jobs at a resultant cost of \$697,368 *per job*.<sup>141</sup> Nevertheless, the CES is not a jobs program, nor was it crafted as such. Rather, economic benefits, specifically in terms of added jobs, are just one positive net result of a program aimed at increasing renewable energy development.<sup>142</sup> Therefore, this comparison illustrates that while the program may seem costly, the average cost per job (\$179,000), is significantly lower than what is currently being spent by New York taxpayers to fund Start-Up NY (\$697,000 per job).<sup>143</sup>

### C. *Economic Benefits to Rural Communities from Tier 1: Leases*

Due to the adoption of the CES, farmers and landowners in rural communities across New York have the opportunity to benefit economically from leases with energy development companies.

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<sup>136</sup> See generally Girardin & Brocks, *supra* note 2.

<sup>137</sup> *Id.* at 2-4.

<sup>138</sup> Rex Sinquefield, *With Only 76 Jobs Created Cuomo's Start-Up NY Is a Bust — With the Cost of \$697,368 Per Job*, FORBES (May 29, 2015), <http://www.forbes.com/sites/rexsinquefield/2015/05/29/with-only-76-jobs-created-cuomos-start-up-ny-is-a-bust-with-the-cost-of-697368-per-job/#5bf1a71d65e4>.

<sup>139</sup> *Id.*

<sup>140</sup> *Id.*

<sup>141</sup> *Id.* (emphasis added).

<sup>142</sup> See generally *Clean Energy Standard*, *supra* note 11.

<sup>143</sup> Sinquefield, *supra* note 136.

Because almost 90% of renewable energy projects will be developed in rural New York, the CES has the potential to bring significant change in terms of income for area landowners.<sup>144</sup> Although wind and solar farms may permanently alter the nature of the land, the additional revenue could help preserve the existing farmland by allowing struggling farmers to remain in business.<sup>145</sup> Further, farmers voluntarily enter into leases with energy development companies, so it is likely that the revenues farmers receive from energy development leases are balanced or outweighed by the economic loss from taking farmland off-line.<sup>146</sup>

Over the last several years, farmers within rural New York have increasingly witnessed what has been termed the “new land rush.”<sup>147</sup> With the CES in place, solar developers are scrambling to lease acreage from farmers in order to develop that land in the future.<sup>148</sup> Unlike solar leases in other states, which average between \$300 and \$700 per acre annually, the average lease in New York is currently offering between \$1,500<sup>149</sup> and \$2,000 per acre over a 20-year period.<sup>150</sup> Experts suspect that this phenomenon is due to the fact that in the states with lower per-acre lease prices, no state mandate for renewable energy development exists, nor is as attractive to the industry as the CES.<sup>151</sup> Rather, renewable energy companies develop projects in those states because it is profitable (i.e., Arizona and Texas are considered “good weather states,” yielding high production numbers).<sup>152</sup>

Conversely, New York’s CES is a direct mandate to construct and install large-scale renewables across the state, thereby

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<sup>144</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302*, *supra* note 5, at 9-9.

<sup>145</sup> *Id.*

<sup>146</sup> David Robinson, *The New Land Rush in Rural New York: Solar Farms*, THE BUFFALO NEWS (Sept. 17, 2016), <http://buffalonews.com/2016/09/17/the-new-land-rush-in-rural-new-york-solar-farms/>.

<sup>147</sup> *Id.*

<sup>148</sup> *Id.*

<sup>149</sup> *Id.*

<sup>150</sup> Mary Esch, *Solar Farm Developers Target New York With Lease Offers*, YAHOO FINANCE (Apr. 3, 2016), <http://finance.yahoo.com/news/solar-farm-developers-target-york-164031965.html>.

<sup>151</sup> *See id.*

<sup>152</sup> *See id.*

not only requiring leasing, but acting as a reassurance that such development will be profitable for decades to come.<sup>153</sup> No matter the motivation, the higher price-per-acre leases are more beneficial to New York's rural communities because farmers and landowners receive a higher economic benefit than other landowners across the country. As such, since most farmers in rural New York make less than \$100,000 a year, lease revenues from large wind and solar farms have the potential to be significant additional sources of income.<sup>154</sup>

These conclusions tend to indicate that if a farmer's land was developed, the lease has the potential to pay out hundreds of thousands of dollars over that 20-year period.<sup>155</sup> However, it is important to note that just because a developer signs a lease with a farmer does not mean that farmer will ever realize a return.<sup>156</sup> The "new land rush" is driven by companies wanting to lease as much property as possible, similar to the land rush by natural gas companies eager to drill in the Marcellus Shale before a ban was placed on high volume hydro-fracking in New York.<sup>157</sup>

However, the current leases also come with some restrictions that should make farmers wary. Dennis Vacco, former New York State Attorney General, has examined several of the leases and noted that many contain restrictions on burning wood or other activities which could impair the amount of sunlight hitting the panels.<sup>158</sup> Additionally, most leases contain a provision that prohibits a farmer from putting solar panels anywhere else on his or her property, or within a one-mile radius from the companies' panels.<sup>159</sup> Therefore, if a developer leases 100 acres, but only develops 20 acres, the farmer could be prohibited from developing the other 80 acres with another company.

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<sup>153</sup> *See id.*

<sup>154</sup> *See Final Supplemental Environmental Impact Statement in Case 15-E-0302, supra* note 5, at 3-5.

<sup>155</sup> Robinson, *supra* note 146. For a lease on 20 acres, at \$1,500 an acre, with the typical 2% escalator clause, a farmer could receive some \$670,000 over the course of 20 years.

<sup>156</sup> *Id.*

<sup>157</sup> *Id.*

<sup>158</sup> *Id.*

<sup>159</sup> *Id.*

D. *Economic Benefits to Rural Communities from Tier 1: Taxes*

Increased tax revenues from renewable energy development are one of the major possible economic advantages realizable to rural communities. As discussed in-depth *supra*, counties such as Pecos County, Texas have received approximately \$5 million annually for a wind project, and other counties in Minnesota have covered 8 to 16% of their total property tax revenue from renewable energy projects.<sup>160</sup> However, some states minimize possible tax revenue by instead offering tax incentives to renewable energy developers. New York is one such state. Under current New York State law, the possible realized tax revenues from renewable energy projects could be significantly reduced.<sup>161</sup> Specifically, New York Real Property Tax Law (RPTL) § 487 provides “a 15-year real property tax exemption for properties located in New York State with renewable energy systems, including solar electric systems.”<sup>162</sup> While this law only applies to the value that a renewable energy system adds to the overall value of the property, the law still diminishes realizable tax benefits to localities.<sup>163</sup>

However, the law does provide for an opt-out system, which explicitly allows local governments to opt out of the exemption in order to generate additional tax revenue.<sup>164</sup> Unfortunately, because not all local governments have opted out, it is possible that opting out jurisdictions may actually limit renewable energy development because renewable energy companies will choose to build in localities in which they will not be fully taxed.<sup>165</sup> As of the writing of this article, 57 towns and villages and 152 school districts have opted out of RPTL § 487.<sup>166</sup>

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<sup>160</sup> *GAO Study, supra* note 57, at 37.

<sup>161</sup> *Fact Sheet: Understanding New York State’s Real Property Tax Law § 487*, NEW YORK STATE: NY - SUN, [https://training.ny-sun.ny.gov/images/PDFs/SUN-GEN-taxlaw487-fs-1-v1\\_FINAL.PDF](https://training.ny-sun.ny.gov/images/PDFs/SUN-GEN-taxlaw487-fs-1-v1_FINAL.PDF).

<sup>162</sup> *Id.*

<sup>163</sup> *Id.*

<sup>164</sup> *Id.*

<sup>165</sup> *Id.*

<sup>166</sup> *RPTL Section 487. Solar or Wind Energy Systems Exemption*, N.Y.S. DEP’T OF TAXATION AND FINANCE, <https://www.tax.ny.gov/research/property/legal/localop/487opt.htm>.

If a locality opts out of RPTL § 487, the locality may still incentivize project development within its borders by entering into a pay-in-lieu-of-taxes agreement, otherwise known as a “PILOT.”<sup>167</sup> In a PILOT agreement, the energy producer agrees to pay a fixed payment for a number of years to the municipality instead of being taxed on the assessed value of the project. After the term of the agreement expires, the project pays the assessed tax rate.<sup>168</sup> However, local governments relying on PILOT payments have reason to be wary. Older wind farms, such as the Madison Wind Farm, have paid only \$60,000 in PILOT payments, split between the local school district and the town for the past 15 years.<sup>169</sup> The local government offered Madison Wind Farm this low payment hoping to attract them and banking on making up for this lost revenue when the Wind Farm would pay full taxes from the sixteenth year on.<sup>170</sup> However, the Madison Wind Farm communicated its intentions of shutting down operations if their PILOT is not renewed.<sup>171</sup> As a result, it is possible the municipality will never receive the projected tax revenues and may end up owning the aging wind farm.<sup>172</sup> Therefore, not only did the school district and town reap little economic tax benefit from the wind farm, but the county may also incur the cost of having to decommission the wind farm using taxpayer dollars—a lose-lose situation.<sup>173</sup>

The results of PILOT programs are not all negative. For example, the Town of Eagle in Wyoming County, New York receives \$1 million per year in taxes from a large-scale wind farm.<sup>174</sup> Using the payments from the wind farm, the town has been able to

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<sup>167</sup> *Fact Sheet: Understanding New York State’s Real Property Tax Law § 487*, *supra* note 161.

<sup>168</sup> *See id.*

<sup>169</sup> Jossi, *supra* note 77.

<sup>170</sup> *Fact Sheet: Understanding New York State’s Real Property Tax Law § 487*, *supra* note 161.

<sup>171</sup> Jossi, *supra* note 77.

<sup>172</sup> *Id.*

<sup>173</sup> *Id.*

<sup>174</sup> David Bertola, *Wind Power Means Big Savings for Wyoming County Town*, *BUFFALO BUSINESS FIRST* (Aug. 19, 2014), [http://www.bizjournals.com/buffalo/blog/morning\\_roundup/2014/08/wind-power-means-big-savings-for-wyoming-county.html](http://www.bizjournals.com/buffalo/blog/morning_roundup/2014/08/wind-power-means-big-savings-for-wyoming-county.html).

eliminate local taxes, garbage fees, and has been able to buy a new ambulance, fire truck, and plow truck without spending any taxpayer money.<sup>175</sup> The payments made to the town were made possible by a 20-year PILOT agreement between the town and Noble Wind Energy LLC, the operator.<sup>176</sup> These facts suggest that the economic benefits from renewable energy projects in relation to PILOT agreements may be heavily tied to the details of the agreement reached and the specific energy developer involved.<sup>177</sup>

Overall, it is evident that towns and municipalities can directly benefit from increased tax revenue because of renewable energy projects and development within their jurisdictions. Although those benefits may be minimized by subsidies, as evidenced by the Madison example, towns can craft an arrangement that will benefit their community economically over the life span of a renewable energy project.<sup>178</sup> In reaching a suitable deal, it is important to note that renewable energy development is oftentimes not economically viable without these significant tax subsidies.<sup>179</sup> The subsidies, therefore, act as an economic driver for development since renewable energy is not the cheapest form of energy production (compared to natural gas).<sup>180</sup>

#### **VIII. ARE NY'S RURAL COMMUNITIES TOO RURAL TO SEE A FULL IMPACT?**

The CES has potential to revitalize rural communities in New York by acting as a large-scale economic development program through the creation of jobs and providing additional revenue to landowners and farmers from leases with renewable energy companies.<sup>181</sup> However, numerous studies have reached the conclusion that should a smaller and more rural county be unable to provide the necessary goods and services, other nearby areas will

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<sup>175</sup> *Id.*

<sup>176</sup> *Id.*

<sup>177</sup> *See id.*

<sup>178</sup> *Id.*

<sup>179</sup> Jossi, *supra* note 77.

<sup>180</sup> *See id.*

<sup>181</sup> *See generally* text accompanying footnotes 110-78.

benefit from providing those goods and services.<sup>182</sup> Specifically, as mentioned above, one study found that a community of approximately 400,000 residents was able to internalize the full-scope of economic benefits from a renewable energy project.<sup>183</sup> However, the top ten counties for installed and proposed wind capacity in New York have populations with substantially less than 400,000 people. The top ten include: Steuben (population of 98,650), Jefferson (119,504), Clinton (81,591), Wyoming (41,531), Chautauqua (133,080), Niagara (214,249), Franklin-Clinton (51,688), Lewis (27,149), Cattaraugus (78,892), and Rensselaer (159,918).<sup>184</sup> Therefore, any potential economic benefits derived from the CES may be reduced since these rural areas are almost “too rural” and therefore may lack the capacity to fully internalize the benefits of large-scale renewable energy development.

In New York, the PSC has identified 370 proposed sites for renewable energy development, 367 of which are located north of the Tappan Zee Bridge.<sup>185</sup> However, “in a smaller more rural economy, there is less opportunity to invest project dollars in local goods and services. This translates into less direct and induced impact from a wind installation than a larger community.”<sup>186</sup> Consequently, rural communities oftentimes receive only 15 to 20% of the overall construction costs of the project, compared to larger communities who may see a greater portion of the expenditure capitalized in the local economy.<sup>187</sup> As such, New York’s rural communities, who not only have some of the state’s highest unemployment rates<sup>188</sup> but have also seen the highest negative population growth rates, will likely not experience as much economic development as would be possible if the same development occurred in larger communities.<sup>189</sup>

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<sup>182</sup> *GAO Study*, *supra* note 57, at 36. See Slattery, et al., *supra* note 58, at 7932.

<sup>183</sup> *Id.* at 36-37.

<sup>184</sup> *Table 2: Population*, *supra* note 42.

<sup>185</sup> Girardin & Brocks, *supra* note 2, at 8.

<sup>186</sup> Slattery, et al., *supra* note 58, at 7939.

<sup>187</sup> *Id.* at 7938.

<sup>188</sup> *Final Supplemental Environmental Impact Statement in Case 15-E-0302*, *supra* note 5, at 3-14.

<sup>189</sup> *Id.* at 3-2.

## IX. CONCLUSION

This article has examined New York's Clean Energy Standard and the significant new large-scale renewable energy projects that will be constructed in New York's most rural communities. Tier 1 of the program directly spurs renewable energy projects by requiring LSEs to acquire increasing levels of electricity from new renewable energy developers,<sup>190</sup> and Tier 3 of the program acts as a subsidy to the nuclear industry by keeping nuclear plants profitable.<sup>191</sup> As discussed above, the CES is an immense program and has the ability to act as a large economic development program in New York's rural communities.<sup>192</sup> As has been shown, such a program coincides with positive economic impacts such as increased employment opportunities, increased tax revenue, and increased revenue to landowners and farmers from leases with renewable energy companies.<sup>193</sup>

Overall, in answering the question presented by the title of this article, the CES may help, but is not likely to dramatically revitalize Upstate New York's rural economy. The program has the ability to create approximately 45,000 jobs over a 20 to 30-year period.<sup>194</sup> However, this amounts to less than one job annually per 1,000 residents in Upstate New York.<sup>195</sup> These projects can generate significant tax revenues,<sup>196</sup> but municipalities must take caution when structuring PILOT agreements with renewable energy companies if their goal is to maximize long-term tax revenue.<sup>197</sup>

Perhaps the most significant benefit of the CES will accrue to landowners and farmers who are fortunate enough to receive lucrative leases.<sup>198</sup> Even in this situation, there are pitfalls

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<sup>190</sup> *Clean Energy Standard*, *supra* note 11, at 2-14.

<sup>191</sup> *Id.* at 119-25.

<sup>192</sup> *See* text accompanying footnotes 111-179.

<sup>193</sup> *Id.*

<sup>194</sup> *See* text accompanying footnotes 131-42.

<sup>195</sup> *See Table 2: Population*, *supra* note 42.

<sup>196</sup> *See* text accompanying footnotes 160-80.

<sup>197</sup> *See* text accompanying footnotes 167-80.

<sup>198</sup> *See* text accompanying footnotes 144-59.

landowners and farmers should be wary of because restrictive leases may prevent full utilization of their property.<sup>199</sup> Finally, some of the jobs and economic spillover effects of renewable energy development projects may be captured by more densely-populated regions of Upstate New York, such as Albany, Binghamton, Buffalo, Syracuse, Rochester, or Utica.<sup>200</sup>

While the economic benefits may be overshadowed by the program's total cost, it is important to note that the CES is structured as an environmental program and the corresponding economic development benefits are just a fraction of the total benefits to be gained.<sup>201</sup> Regardless, it is undeniable that rural areas and Upstate New York generally will experience some economic benefits from this program, largely at the expense of downstate consumers who will also be paying more for their electricity but will see few land-based renewable energy projects in their region.<sup>202</sup>

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<sup>199</sup> See Robinson, *supra* note 146.

<sup>200</sup> See text accompanying footnotes 181-89.

<sup>201</sup> See generally *Clean Energy Standard*, *supra* note 11.

<sup>202</sup> See Girardin & Brocks, *supra* note 2, at 6.