

# Revitalizing New York's Southern Tier by Promoting Renewable Energy on Dairy Farms

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## THESIS

To address growing economic instability among dairy farmers and to mitigate the impact of climate change, New York State should incentivize the diversification of farmer incomes in the Southern Tier through expanded production and use of renewable energy on agricultural lands.

## BACKGROUND & ANALYSIS

New York is the nation's third-largest producer of dairy products, with a \$14 billion dairy industry that dominates its agricultural and food-processing sector.<sup>1,2</sup> However, reduced federal subsidies, shifting consumer preferences, and an oversupply of milk in both domestic and international markets have driven the market price of milk below \$20 per hundredweight of milk produced.<sup>3</sup> Poor market conditions are exacerbated by the disastrous effects of climate change, with hotter and drier conditions already leading to a shortage of corn, which has driven up the cost of dairy feed.<sup>4</sup> As the incidence of extreme heat events increases, dairy farmers will use more electricity to keep cows from overheating.<sup>5</sup>

These market changes have profoundly affected farmers, their families, and rural communities throughout the Southern Tier—the region west of the Catskill Mountains and bordering Pennsylvania. Small dairy farms are struggling to make ends meet: In 2017, the standard dairy farm in the state made an average profit of only \$47,804.<sup>6,7</sup> And in a five-year span of time, between 2012 and 2017, 17 percent of New York's dairy farms ceased operating.<sup>8</sup> Stagnant incomes have led to an exodus from the farming profession and an increase in suicide rates among dairy farmers.<sup>9,10</sup>

Despite growing economic uncertainty, New York sales of milk produced out of state exceeded, for the first time ever in 2017, sales of milk produced in state, indicating a capacity to increase the state's milk output.<sup>11</sup> And in response to the threat of climate change, New York has been developing a burgeoning renewable-energy sector—one that includes investing in renewable energy on agricultural lands. Encouraging dairy farmers to install scalable, renewable-energy technologies on-site would help boost New York's competitiveness in dairy production, diversify farmers' income streams, and ultimately transition the Southern Tier toward a more prosperous, sustainable future.

## TALKING POINTS

- Reduced federal subsidies, shifting consumer preferences, and decreasing milk prices have left small dairy farms in New York struggling to make ends meet.
- Investing in renewable-energy production on agricultural lands will help strengthen New York's burgeoning renewable-energy sector while diversifying farmer income streams.
- This policy will sustain New York's competitiveness in dairy production and further its role as a renewable-energy leader under Governor Cuomo's Green New Deal initiative.

## KEY FACTS

- New York's agricultural and food-processing sectors are worth \$37 billion, with \$14 billion (38 percent) attributable to dairy production and processing.<sup>32,33,34</sup>
- In 2017, the average northeastern dairy farm lost \$0.01 for every 100 pounds of milk produced, after all expenses were covered.<sup>35</sup>
- If AD were used to collect gases from the manure produced by half of New York's milk cows, it would have the same climate change-mitigating effect as removing 225,000 cars' worth of emissions annually.<sup>36</sup>

## THE POLICY IDEA

The New York State Energy Research and Development Authority (NYSERDA) should encourage the production and use of renewable energy on dairy farms in the Southern Tier region. To aid small to midsize farms in the installation of solar and wind-energy technology, the state should create a new targeted funding stream or increase allocations to the NY Green Bank, the Solar for All program, or other related programs.<sup>12,13</sup> The state should also explore the promulgation of innovative, scalable solutions, such as anaerobic digester (AD) technology, by funding research and exploring a state-administered cooperative model.

## POLICY ANALYSIS

Expanded adoption of renewable energy will support environmental sustainability in the region while helping farmers maintain profitable operations. Complete electricity self-sufficiency would save the average dairy farm \$25,000 to \$31,000 annually.<sup>14,15</sup> Generated electricity can also be net-metered to the grid, providing supplementary income that can help diversify dairy farm revenue streams and support farmers' livelihoods.<sup>16</sup>

New York's Southern Tier region has the most uniform wind-energy potential, and among the most consistent solar-energy potential, of any in the state.<sup>17,18</sup> Installing renewable-energy technology would not disrupt agricultural production; leasing turbines to farmers and installing solar panels on farms are already common practices in the state.<sup>19</sup> Land with wind turbines can still be used for grazing, and crops can be planted up to and around a turbine's base.<sup>20</sup>

Meanwhile, the region lacks the concentration of AD technology—which captures methane from manure for electricity production—seen elsewhere in the state.<sup>21</sup> Southern Tier farms could, therefore, act as prime test sites for new developments in the technology. If enough anaerobic digesters were in place to collect gases from the manure produced by even half of New York's milk cows, it would have the same climate change-mitigating effect as removing 225,000 cars' worth of emissions annually.<sup>22</sup>

The strong renewable-energy-production presence in the state will be conducive to the rapid installation of such technology on Southern Tier dairy farms.<sup>23</sup> Annual job growth in New York's clean-energy sector is 3.4 percent, faster than the 1.9 percent average growth for all jobs in the state.<sup>24</sup> If implemented, this policy would bring New York State significantly closer to Governor Cuomo's target of 100 percent carbon-neutrality by 2040, affirming the state's commitment to a diverse, renewable-energy-fueled economy.<sup>25</sup> Successfully enabling the Southern Tier to become an experimental zone for this policy would improve the financial prospects of an industry that dominates New York's agricultural sector and stands as a pillar of a robust Upstate economy. The Southern Tier would also serve as a model for similar developments in other regions of the state, and New York would solidify its role as a leader in America's energy future.

## NEXT STEPS

New York should adopt this policy in two phases. The first phase would promote renewable-energy generation on smaller farms to improve their competitiveness, and it would target those farms that are most vulnerable to harsh market conditions. The second phase would promote increased funding for research to improve the cost-effectiveness of AD technology. The state should also establish AD cooperatives, enabling smaller farms to prorate the costs and share the benefits of this emerging technology.<sup>26</sup>

To craft and promote this policy, it will be necessary to contact dairy advocacy groups, including Cornell University's PRO-DAIRY Program, and NYSERDA, the agency best suited to enact this policy because it already promotes renewable energy on a regional basis. The PRO-DAIRY Program, which aims to promote New York State's competitiveness in the dairy economy, could provide key insights as to how best to ensure the financial well-being of dairy farmers.<sup>27</sup> We will also work with the Cornell Cooperative Extension, an agricultural resource and outreach organization, to arrange meetings with dairy farmers and food producers throughout the region.<sup>28</sup> It is imperative that we partner with these Cornell resources, in addition to agricultural advocacy groups such as the Northeast Dairy Producers Association and the New York Farm Bureau, to tailor this policy to meet the needs of New York's dairy farmers.<sup>29,30,31</sup>

Once we have built a coalition of stakeholders, we will press state legislators throughout the Southern Tier, such as state Assemblywoman Barbara Lifton (D-NY) and state Senator Thomas O'Mara (R-NY), to integrate this policy's requisite appropriations into the state budget. We will present this policy to Rep. Paul Tonko (D-NY) during the upcoming summer. His status as one of Congress's most outspoken advocates for both renewable-energy development and dairy farmers makes him a valuable ally and mentor. Tonko is also a former president of NYSERDA and will prove an indispensable point of contact to both promote this policy within that agency and navigate the existing programs that the state could expand to maximize this policy's efficacy. It is important to foster an alliance between these legislators and those representing renewable-energy manufacturing bases, such as state Assemblyman Angelo Santabarbara (D-NY) and state Senator Jim Tedisco (R-NY), who represent Schenectady (home to a General Electric manufacturing plant) in the state Assembly and Senate, respectively.

## ENDNOTES

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