Report to the Suffolk County Legislature and the Suffolk County Executive

RENEWABLE ENERGY CONSTRUCTION TASK FORCE of the Suffolk County Legislature

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December 4, 2018

To: County Executive Steve Bellone
Members of the Suffolk County Legislature

The Suffolk County Legislature's Renewable Energy Construction Task Force is pleased to provide you with the following Report and Recommendations of the Renewable Energy Construction Task Force. The Suffolk County Legislature, by Resolution Number 387-2017, created a comprehensive Renewable Energy Construction Task Force ("Task Force") to conduct a survey of available public and privately held land in Suffolk County to develop a list of parcels that would be suitable for renewable energy production, while considering the desire of communities to protect the natural environment and quality of life.

I am deeply grateful to the members of the Task Force, who worked on a volunteer basis and contributed many hours toward an examination of the important issues considered here.

Very truly yours,

Bridget Fleming
Suffolk County Legislator
Second Legislative District

Suffolk County Legislature Renewable Energy Construction Task Force Report and Recommendations

November 26, 2018

Summary

The Suffolk County Legislature, by Resolution 387-2017, as amended, created a comprehensive Renewable Energy Construction Task Force ("Task Force") to conduct a survey of all available public and privately held land in the County to develop a list of parcels that would be suitable for renewable energy production. The purpose is to aid the County in developing a sustainable renewable energy program to be implemented on a County-wide basis. As is noted in the Resolution, Suffolk County does not have a comprehensive plan for renewable energy development that balances the demand for development of renewable energy against the destruction of high quality natural areas such as forests, woodlands, and fields, while considering the desire of communities to protect the environment and its quality of life. Further, a comprehensive renewable energy development plan that considers both public and private properties, including rooftops, parking lots, brownfields, rights-of-way, and other already developed places, will aid in encouraging sustainable energy production, while driving development towards the most appropriate parcels and uses. The Resolution recognized that any comprehensive renewable energy plan should seek to maximize community ownership of renewable energy, retain profits within the local economy and consider matters of environmental justice. It charged the Task Force to assist with the development of the plan and to recommend ways to incentivize renewable energy development on private lands identified as suitable for this purpose.

Speakers and Presentations

While investigating ways to encourage an increase in renewable energy projects, while steering development away from undisturbed open space and wooded areas and toward already disturbed areas, the Task Force engaged in discussions relating to issues important to a diverse range of stakeholders and entertained presentations from industry participants.

The Task Force held seven public meetings, which included general discussions and presentations by relevant speakers, as follows:

September 27, 2017	Carlo Lanza of Harvest Power Solar presented on Carports
November 14, 2017	Tria Case of the City University of NY presented the Long Island LIDAR Map
December 12, 2017	General discussion
January 18, 2018	Joel Lindsay of Ameresco presented on solar projects in highways and rights of way
March 23, 2018	Zach Pollock of Smarter Grid Solutions presented on integrating DER and Energy Storage
June 8, 2018	Kevin Creamer of Sunshine Plus Solar presented on Northport VA & Carports

September 14, 2018 Jessica Price of The Nature Conservancy presented an Interim Report of the Spatial Analysis Subgroup of the Task Force (described below) on Identifying Low-Impact Sites for Solar Energy Generation

Spatial Analysis Subgroup

The Renewable Energy Construction Task Force was directed to "conduct a survey of all available public and privately held land in the County to develop a list of parcels that would be suitable for renewable energy production." (IR 387-2017) In keeping with this directive, and to assist in the creation of a report and recommendations, the Task Force created a Spatial Analysts Subgroup, which explored the feasibility of developing a mapping tool that would identify appropriate parcels throughout Suffolk County. The Subgroup was made up of the following volunteer members who are well-versed in spatial analysis and the Geographic Information Systems ("GIS") capabilities of various municipalities and organizations throughout the County: Jessica Price, PhD (Conservation Landscape Ecologist, The Nature Conservancy), Ross Baldwin (GIS Manager, Town of Southampton); James Daly (GIS Coordinator, Suffolk County); David Genaway (Deputy Director/GIS Manager, Town of Huntington); Karen Leu (GIS Specialist, The Nature Conservancy); and Stephen Lloyd (GIS Manager/Senior Spatial Analyst The Nature Conservancy).

Findings of the Spatial Analysis Subgroup

The spatial analyst subgroup examined available data, tested methodology, and performed a feasibility study, using the towns of Huntington and Southampton, for the development of recommendations for the scope, methodology, and timeline for spatial analysis to identify low-impact sites for solar energy generation in Suffolk County, and to estimate the time needed for the analysis.

The subgroup's findings are summarized in the following recommendations:

1. Set a **minimum target solar installation size of 500 kW DC**.
2. Focus on identifying **parcels** that can host a 500kW DC solar installation on **rooftops and parking lots** (total aggregate size) as well as **Brownfield sites** that have completed remediation.
3. Parcels must meet a set of suitability criteria based on minimum size, ecological attributes, and land use. Recommended criteria are detailed below and summarized in Table 1.
    a. **Minimum parcel size = 3ac**. High-density rooftop systems require the least amount of space per unit energy generation compared to parking lot and ground-mounted systems. The minimum rooftop area required is 0.7 ac for a 250 kW DC array, 1.4 ac for a 500 kW DC array, and 2.9 ac for a 1000 kW DC array (1MW DC). These estimates are based on the Clean Coalition's solar siting studies

performed for communities in California (see their siting survey for Southern California Edison's Preferred Resources Pilot).

Table 1 shows the minimum rooftop size necessary for installations of 500 and 1000 kW DC, the number of buildings in Suffolk county in that size range, and the size of parcels that > 80% of these buildings occupy. Most (~90%) buildings capable of hosting a 500 kW array or larger are commercial, industrial, or institutional land use types. These results show that choosing a minimum parcel size of 5 ac would capture most buildings capable of hosting a 500 kW DC installation.

A minimum parcel size of 3 ac is recommended, as it will also be inclusive of parcels capable of hosting a 500 kW DC solar installation on a parking lot (assuming that is the only feature on the parcel), as ~2.5 ac is needed for a 500 kW parking lot array (estimated from the solar industry rule of thumb is that 5ac is need to host a 1 MW ground-mounted array).

Table 1. Number of buildings in Suffolk County capable of hosting 500 and 1000 kW DC solar arrays and the size of parcels they sit on.

System size	**Min rooftop size**	**# of buildings (roof size)**	**Parcel Size**
500kW	1.4 ac	681 (1.43 to 2.87 ac)	82% are on >=5ac parcels
1000kW	2.9 ac	304 (2.87ac and up)	81% are on >=10ac parcels

The Subgroup also suggests identifying buildings and parking lots meeting the minimum size necessary to host 500kW DC that that are situated on multiple parcels, but note that solar development on these sites would be less feasible due to the potential for multiple owners and complexity of legal implementation.

b. **Ecological attributes.** Exclude areas near freshwater or tidal wetlands (based on DEC wetlands data), in the 100yr and 500yr flood zones (based on FEMA's Digital Flood Insurance Rate Map), and Brownfield or Superfund sites undergoing active remediation. Note: The physical extent of any Brownfield or Superfund site will be assumed to be the entire parcel due to the uncertain location of any pollution.

c. **Land Use.** Exclude parcels with incompatible Property Type Classification Codes as defined by the New York State Office of Real Property Services shown in Table 2. Town-specific land use codes identifying additional incompatible land use types may be added to this list. Exclude any additional parcels that are currently protected (CFP owned) or are a priority for future protection (in the Suffolk County open space protection plan and PEP's open space protection plan).

Table 2. Parcels with the following land use codes are incompatible with solar energy development. A full description of land use codes can be found here: https://www.tax.ny.gov/research/property/assess/manuals/prclas.htm#public%20parks

Code	Description
183	Aquatic: Oysterlands, fish and aquatic plants
190	Fish, Game and Wildlife Preserves
315	Underwater vacant land
448	Piers, Wharves, Docks and Related Facilities
661	Army, Navy, Air Force, Marine, Coast Guard
692	Roads, Streets, Highways and Parkways, Express or Otherwise (if listed) Including Adjoining Land
695	Cemeteries
820	Water
821	Flood Control
822	Water Supply
911	Forest Land Under Section 480 of the Real Property Tax Law (Forest Tax Law)
932	State Owned Land Other Than Forest Preserve Covered Under Section 532-b, c, d, e, f, or g of the Real Property Tax Law (State-owned forest land)
940	Reforested Land and Other Related Conservation Purposes (Tax exempt under the Forest Tax Law)
942	County Owned Reforested Land (Tax exempt under the Forest Tax Law)
970	Other Wild or Conserved Land
971	Wetlands, Either Privately or Governmentally Owned, Subject to Specific Restrictions as to Use
972	Land Under Water, Either Privately or Governmentally Owned
315	Underwater land (explicitly called out in Huntington's database)

4. Use solar radiation data to estimate the amount of energy (kW/yr) that could be generated on rooftops and parking lots on parcels that meet the minimum size and suitability criteria. This information can then be summarized for each parcel and aggregated by town. Solar radiation data will be available from Sustainable CUNY.

5. In the interest of simplicity and feasibility, **focus on characterizing the technical solar siting potential** and estimate electrical power that could be generated from a given location based upon a set of reasonable assumptions. Do not include political considerations (i.e. local zoning policy), structural integrity (i.e. rooftop condition), or other considerations (i.e. interconnect potential) that can only be discovered by performing a deeper and much more detailed study for each individual site.

Proposed Action Plan

The Task Force proposes that the Spatial Analyst Subgroup be authorized to pilot the full analysis described above for the Town of Huntington and the Town of Southampton. The effort will produce a consistent, tested spatial analysis methodology that can be applied in other towns and at a larger scale for the county-wide analysis. Future consideration could be given to expanding the project to Nassau County, since utility investments made in Nassau County may be borne equally by Suffolk County ratepayers.

The timeframe for completing these pilot analyses based on the above recommendations is 6 months. Based on the pilot analysis, a time frame for a county-wide and/or island-wide study can then be estimated.

Additional Considerations

Given the limited resources available, and the potentially broad scope of the issues related to the topic of siting of renewable energy projects, it is recommended that the subgroup be authorized to conduct a pilot analysis for the Town of Huntington and the Town of Southampton as described above. However, as demonstrated by the broad range of presenters and topics reviewed by the Task Force, meeting renewable energy goals with limited impact on natural resources, will require a broad, diverse and robust Countywide effort. The Legislature may therefore desire further site identification efforts in the future. Should the Legislature require further study, the following topics should be explored:

- Sites appropriate for ground-mounted installations may be important to reaching renewable energy goals in the future. Analysis of such potential sites is not included in the proposed pilot because it would require considerable, more time-consuming spatial analysis, and would necessarily include considerable community input.

- Technologies other than photo-voltaic solar installations should be explored, in order to keep pace with evolving technologies and energy needs, as well as to ensure that project capacity be adaptable to the capacity range of ongoing utility solicitations for Feed-in-Tariff and/or other renewable energy projects.

- Solar developers need certainty to be able to finance large carport, rooftop and parking lot projects. Recommendations could be developed to encourage local officials to make the permitting process transparent, low or no-cost and fast. Further, local codes can be reviewed to see how the permitting of carport, rooftop and parking lot structures could be streamlined.

- Battery storage options should be considered when reviewing commercial solar projects.

- Recommendations could be made to incentivize Carport Solar by, for instance, amending codes so a solar carport is not considered a secondary or accessory structure; amending codes so setbacks can be minimized, allowing for maximum carport development; eliminating Floor Area Ration (FAR) considerations for construction of carports; considering addition of EV Charging stations when solar carports are proposed.

- Suffolk County should encourage towns and villages to adopt amendments to their local codes which mandate a certain amount of new solar generation on new commercial and industrial buildings. This concept is generally referred to as the "Merton Rule", which was adopted in 2003 in this English municipality.

- In addition, recommendations can be made, consistent with the authority of town governments, that consider energy conservation construction codes for new construction, and solar requirements for new building construction.

- Efforts could be made for utilities to work with the industry to fine-tune what to date have been unsuccessful Feed-in-Tariff for Commercial rooftop and parking lot solar.

- Although the Commissioner of Department of Public Works recommended against solar installations on County-owned rights-of-way, successful projects have been undertaken in other locations, and town, state, and federally owned highways and roadways should be considered.