

**New York Energy Highway RFI  
Response Submission  
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**Respondent Information**

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**Background and Experience:**

Great Lakes Solar Partners, LLC (GLSP), is a woman owned and Buffalo, NY based business that concentrates on developing, financing, owning and operating turnkey renewable energy projects. GLSP shareholders and executive team members are established Western New York executives with a long history of business and community involvement. GLSP's focus is on New York State's current energy infrastructure challenges. We are pursuing renewable energy and storage projects across the state to provide support to both the aging infrastructure and local economies via job creation and sustainable and affordable long term power for businesses.

GLSP is currently developing large scale distributed renewable energy projects integrated with advanced power conversion systems, smart energy storage devices and advanced communication systems. These innovative projects are unique in New York State, as they incorporate distributed energy storage systems with renewable generation assets that are able to access wholesale market revenues by providing demand side reserve and regulation services. This unique approach has specific positive ramifications in terms of both the economic viability of the projects and relieving stress on the local distribution grid.

GLSP has identified several key strategic areas in New York State where utility-scale solar assets integrated with smart energy storage systems can provide a number of benefits to both the transmission and distribution systems by providing power generation during peak usage periods via solar generation and helping to address the grid balancing services needed to balance this intermittent resource via battery storage. Utilizing integrated solar and battery systems coupled with advanced communication capabilities, allows the assets to receive dispatch signals from NYISO to provide the grid balancing services needed. The systems can access energy, reserve and regulation wholesale market revenues providing the projects a more diversified revenue stream than a traditional stand alone energy storage system which is more vulnerable to regulation market price volatility.

## **Project Description**

GLSP is currently evaluating several utility scale solar projects coupled with smart energy storage systems. GLSP is in the early project concept development and site evaluation stage and not prepared to make public disclosure on the specific projects. These projects could be operational in late 2013 or early 2014. GLSP has assembled an EPC contractor for the solar component and smart energy storage system design firm for the energy storage component that both have the proven technical experience for projects of this scale.

Although GLSP is not at this time proposing a specific project we believe that this model can help New York address some of its critical energy infrastructure issues and these types of resource should be considered by New York stakeholders as decisions on the State's future resource mix are being made.

## **Project Justification**

These type of renewable resources integrated with smart energy storage can directly help New York meet its goal of increased amount of utility scale renewable projects.

As the penetration rate of variable output renewable energy sources such as wind and solar increases to meet New York's Renewable Portfolio Standard (RPS), the grid will face increases in the amount of rapid changes in output and transients not seen from traditional generation supply sources such as coal, oil, and natural gas fueled generation resources. As more solar and wind is integrated into the New York State's grid, it becomes increasingly important to have high quality reserve and regulation resources ready to smooth the minute-to-minute and second-to-second output fluctuations that are inherent to these resources. It is widely recognized (as verified by recent FERC Order 755) that traditional fossil fuel generation resources do not have as fast or accurate response capabilities as other energy storage devices such as batteries. In order to deal with the usage fluctuations of renewable resources, wide deployment of cost effective energy storage devices is needed to maintain the quality and reliability of electric supply that increasingly complex and electronic dependent New York State industries and residents need and expect.

Although the imminent need of energy storage devices has been widely cited, the economic feasibility of these projects to date has been widely impacted by a limitation in available revenue streams. In many cases the long term cash flows are overwhelmingly based on the regulation and reserve market prices, which are highly volatile and have contributed to recent events exposing the vulnerabilities of energy storage projects. However, the combination of solar generation with the battery storage providing regulation and reserve services, results in project economics based upon a more diversified revenue stream and thereby is less vulnerable to ancillary market price volatility.

By using a combination of utility scale renewable generation with smart and dispatchable energy storage that can access the wholesale market revenue stream for its grid balancing services, the net outcome is the mitigation of risk from both transients and market volatility with the aim to provide a more economically viable platform for deployment across New York State.

## **Financial**

These proposed projects will require public support at levels similar to current funding opportunities available through NYSERDA. Various public funding methods are appropriate, most favorable would be a combination of upfront funding as percentage of project costs coupled with a long term out of market power purchase agreement.

GLSP provides unique green energy investment opportunities to high net worth private individuals and institutional investors. The founding partners of GLSP bring several years of capital raising experience from these types of investors and have developed sources of debt and equity for projects in the pipeline. With proper public support, we are confident that we can negotiate a capital structure that will provide adequate returns to our investors and satisfy the requirements of traditional lending sources.

## **Permit/Approval Process**

The permitting/approval process including NYISO interconnect have not yet been started for these projects. Several of the potential project sites are on remediated Brownfield locations and GLSP does not expect significant permitting delays due to the limited reuse possibilities for the project locations. Although interconnection studies have not yet been conducted GLSP does not anticipate major interconnection barriers to these projects due to legacy infrastructure on these potential project locations that is no longer in use.

## **Other Considerations**

***The additional considerations are addressed as follows;***

***Property*** – Adequate space has been identified in the strategically targeted areas. Typically 15 to 50 acres of land are needed. Additionally, constructive reuses of brownfields and other under-utilized commercial property parcels are readily available in the targeted areas.

***Projected in-service Date and Project Schedule*** – The proposed projects have design and build timelines of 8-16 months which includes land acquisition and preparation.

***Interconnection*** – Interconnection costs will vary based on the age of the specific infrastructure but we believe that they will typically be significantly less than other interconnection costs associated with other types of generation assets due to the legacy infrastructure at the proposed project sites that is no longer in use.

***Technical*** – GLSP has assembled a team of experts that can efficiently and effectively design, build and operate the assets. This team includes large EPC firms, firms specializing in advanced power conversion products and advanced grid support energy storage system designs, and equipment manufacturers.

***Construction*** – System construction is based on industry standards for large utility-scale solar projects. Smart battery storage systems are typically built offsite and shipped in weather proof containers that are tied into overall communication controls of the system.

**Operational** – Once on line, system operation and maintenance is efficient and cost effective. Typical annual maintenance and system upgrades will occur as necessary. Additionally, management of the scheduling and wholesale market settlements will occur on a daily basis.

**Socio-Economic** – System load factors can be improved by these systems which lower cost for all rate payers and more efficient and higher quality regulation service is provided by the battery storage component which provides end uses with better power quality.

**Financial** – Financial benefit of the system includes, low operating costs, high quality reserve and regulation support and reuse of brownfields and other vacant sites.

**Environmental** – These systems generate no harmful byproducts during energy generation. Additionally, they optimally provide reuse of existing brownfields.

**Project Contract/RFP Status** – Projects are in the concept stage.

**Public Outreach and Stakeholder Engagement** – Local communities in the target areas will be engaged in a public outreach and response process.