



GLIDE PATH

Advanced Energy Solutions

Lincoln Park Grid Support Center

February 7, 2019



GlidePath Power Solutions

Advanced Low Carbon Distributed Power Projects

- Formed in 2013, first projects built in 2016
- Largest independent developer of stand-alone battery storage projects in the United States
- Technology agnostic – Wind, Solar, Battery, Hybrid
- Focused on bringing new low carbon solutions forward to solve complex grid concerns
- Funding for projects provided by Quinbrook Infrastructure Partners
- Additional information at our website:

www.GlidePath.net

GlidePath Portfolio

Project (Location)	Type	Size
Jake (IL)^	Battery	20 MW
Elwood (IL)^	Battery	20 MW
McHenry (IL)^	Battery	20 MW
Marengo (IL)^	Battery	20 MW
Meyersdale (PA)*	Battery	18 MW
Waymart (PA)	Wind	65 MW
Mill Run (PA)	Wind	15 MW
Somerset (PA)	Wind	9 MW
Meyersdale (PA)	Wind	30 MW
Mountaineer (WV)	Wind	66 MW
Cabazon (CA)	Wind	39 MW
Diablo (CA)	Wind	21 MW
Stockyard (TX)*	Wind	158 MW

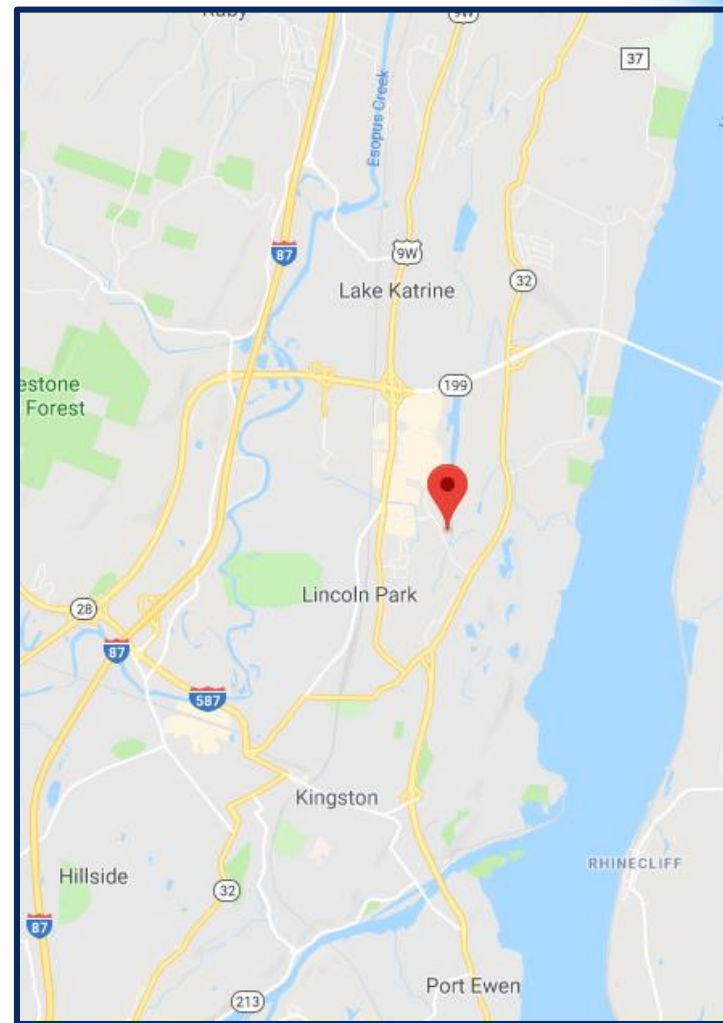
* - GlidePath has executed a contract to purchase this project and expects to close pending certain governmental approvals.

^ - Project developed by GlidePath and currently owned by third-party.

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Project Basics

- Town of Ulster, Ulster County, NY
- 20 MW Capacity
- NYISO Zone G
- Central Hudson Gas & Electric Interconnection
- Town of Ulster SEQRA Lead Agency
- Primary Permit:
 - Town of Ulster Site Plan Approval
- Anticipated Construction Start in Late 2019





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Battery-Only Reconfiguration



Project History

Evolution from Hybrid Gas + Battery to Battery Only

Evolution of Market Rules and State Policy along with Cost Reductions Have Made Batteries a Viable Alternative to Thermal Generation in New York

Project Timeline

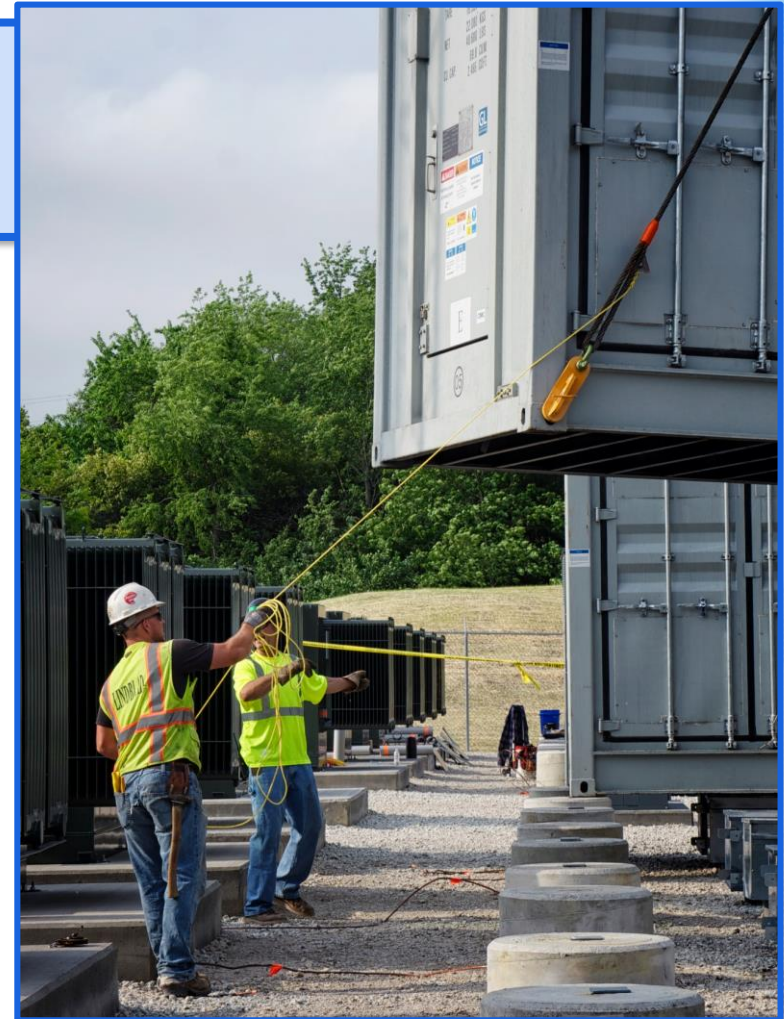
- 2016 – Site identified
- 2017 – Initial Permit Application
- 2018 – Public Outreach & Comments
- 2019 – Project Reconfiguration

New York Energy Market

- Retirement of old thermal generators creates need for peaking capacity and grid services not typically filled by renewables.
- Addition of renewable generation further complicates grid operation.
- Need for new projects to provide peaking capacity and reliability services.

Role of Batteries in New York

- Grid operator slowly developing rules to allow for batteries to provide services
- Governor Cuomo's administration has implemented policies to encourage adoption of battery storage within electric grid



Jake Energy Storage Center - Joliet, IL

Project Reconfiguration

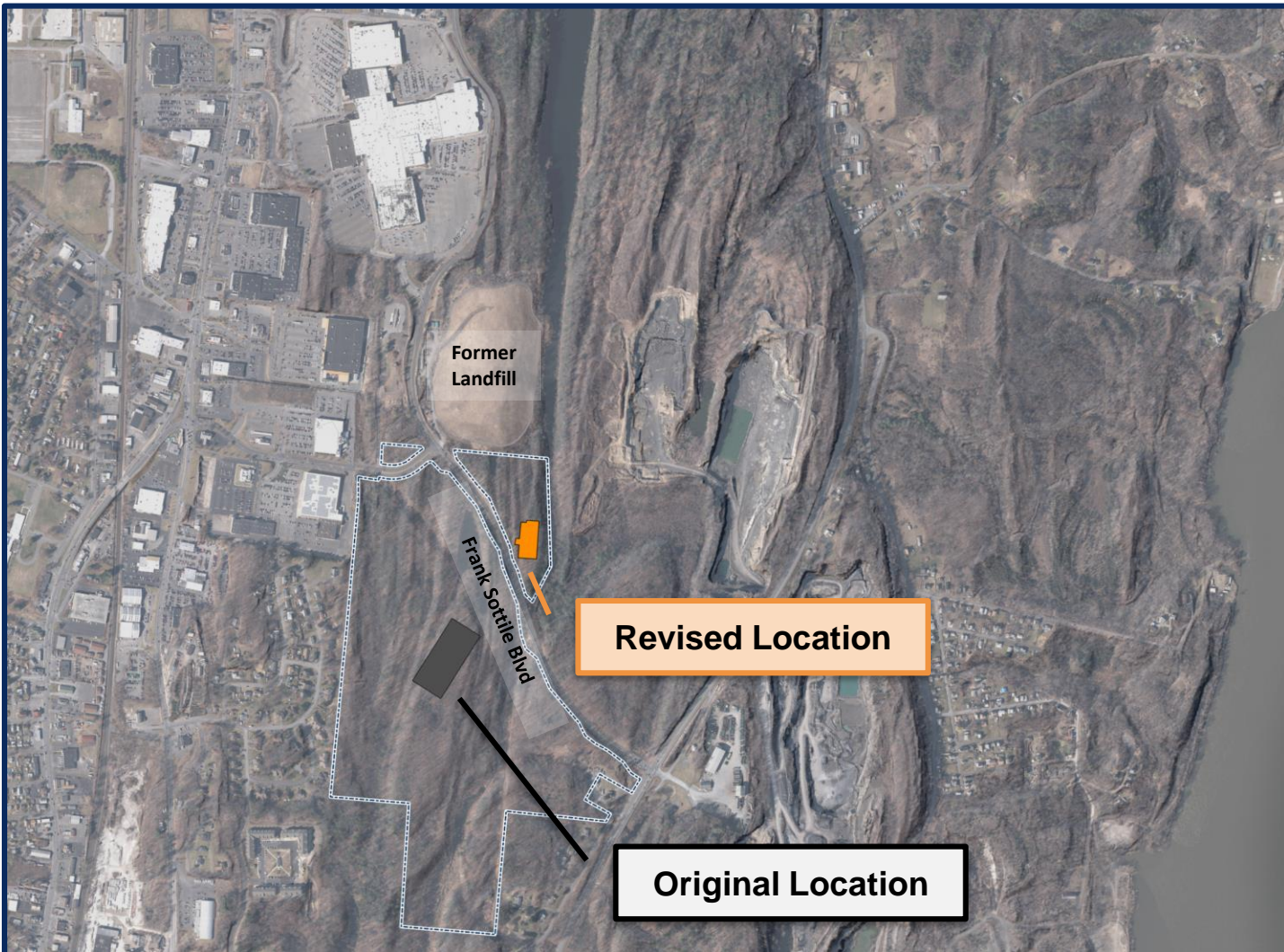
Hybrid Gas + Battery to Battery Only

Project Component	Original	Current
Project Size	20 MW	20 MW
Fuel	Natural Gas & Diesel	Batteries Charged From Grid
On-Site Fuel Storage	Up to 40,000 gallons	None
Air Emissions	Minor Source of CO ₂ , NO _x , CO	Minimal
Exhaust Stack	Dual Flue Stack 60-80' Tall	None
Battery Capacity	11 MWh (≈30 minutes)	80 MWh (4 hours)
Grid Connection	Central Hudson Lincoln Park Substation	Central Hudson Lincoln Park Substation
Footprint	5.95 acres	1.96 acres
Location	Southwest of Frank Sottile	Northeast of Frank Sottile
Sound	Engine & Battery Noise	Batteries within Building
Fire Suppression	Water Based System	Chemical Based System

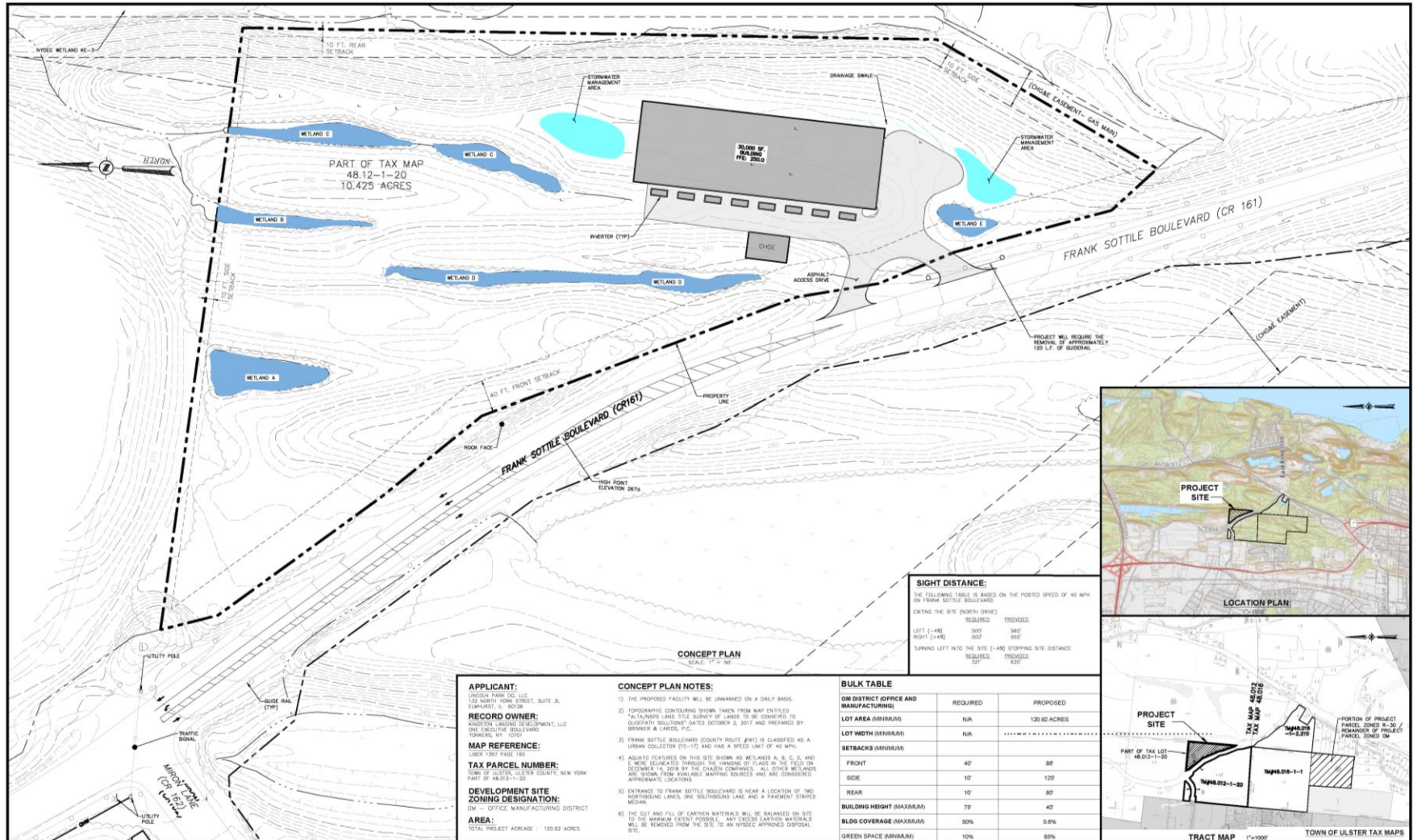
See full comparison table on Project Website: www.LincolnParkGridSupportCenter.com

Project Location

Revised Site Moves Project Farther from Residential Areas



Lincoln Park Grid Support Center Project Details





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What Will the Project Do?



Project Operation

Providing Reliability Services to the Grid

Service	Discharging	Charging
<u>Capacity</u> Planning product to ensure sufficient electric power supply.	Capable of discharging for 4 hours at maximum power	-
<u>Peaking Generation</u> Real-time energy product dispatched by grid operator (NYISO).	Maximum of 4 hours output at maximum power	System recharged during period of low demand
<u>Spinning Reserve</u> Reliability product intended to provide full output very quickly after an outage of another generator or equipment.	System discharged immediately when outage is detected to prevent additional outages while other generation is activated	System recharged during period of low demand
<u>Frequency Regulation</u> Reliability product intended to manage real-time balancing of load and generation caused by changes in demand and/or renewable generation variability.	System constantly charges and discharges based on streaming signal from grid operator	

Project may be able to provide additional services, such as local microgrid and voltage support, in coordination with Central Hudson and based on on-going regulation changes.



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Next Steps



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Project Development & Community Engagement

- Town of Ulster is Lead Agency
- Detailed site studies and design on-going
- Final policies expected from Public Service Commission (PSC) in Spring 2019
- **Open House to be Held in Coming Weeks**
- Contact Us:
 - (845) 481-0030 or LincolnPark@glidepath.net
 - www.LincolnParkGridSupportCenter.com



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