

Discussion on Monitoring & Control (M&C)

April 2019

Presentation to ITWG

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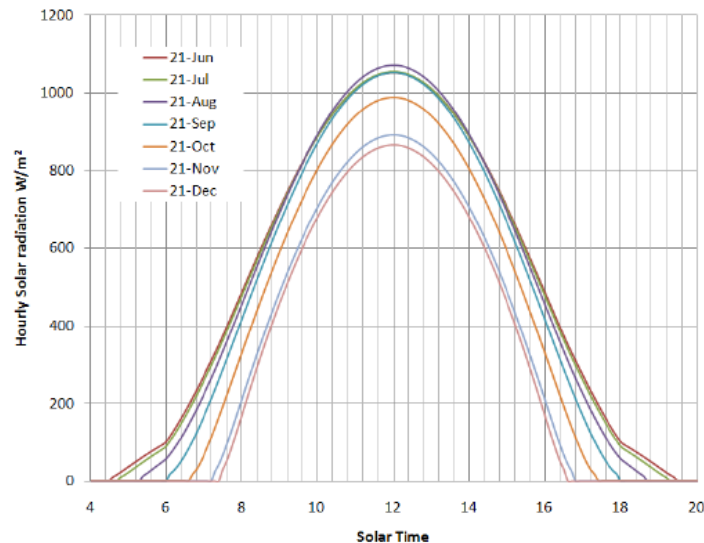
Agenda

- Export hours
- Reverse Power Relaying for AC Coupled PV+ESS
- Monitoring and Control requirements for <500kW projects
- Non-Relay options for <500kW projects

Export Hours

Grid impact vs Maximizing value of DERs

- Several utilities (Central Hudson, O&R etc.) are enforcing the requirement to open relays outside the 10am-7pm window
 - Prevents solar export on long summer days.
 - >50% PV production is often reached before 10am
 - Protection concerns or tariff enforcement?
 - Required for all project sizes, including resi?
 - When there is significant penetration of ESS into the grid, if all ESS shut down simultaneously at 7:00pm, what is the impact on the grid?
- Example project in National Grid
 - Impact study was performed for two options:
 - Option 1: 10am-7pm export
 - Option 2: 24-hour export.
 - little change in interconnection cost and impact for both options.
- Open question:
 - Can JU perform 2 simultaneous impact study: one for 10am-7pm window export and one for 24-hour export? Developers can then choose option based on interconnection cost vs revenue difference.

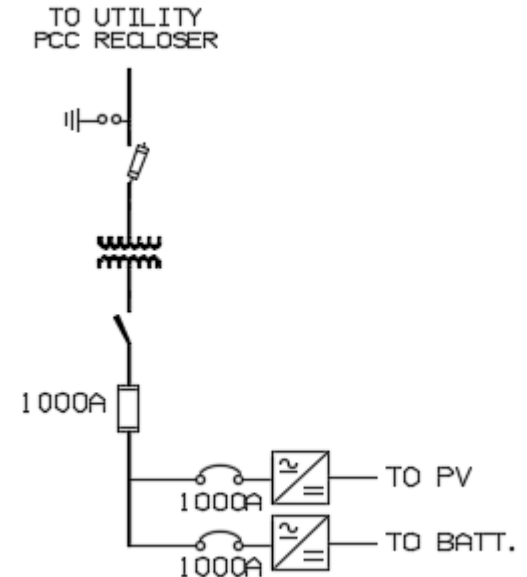


Hourly distribution of solar radiation on a south facing panel at 40° tilt angle for NYC area

Reverse Power Relaying for AC Coupled PV+ESS

System impact vs Tariff

- Several utilities requiring additional protective relaying to ensure both the ESS and PV are not exceeding the stated output.
 - Often the site is already limited by existing protective devices and/or transformer nameplate. Can those devices be used for the calculation instead?
 - The PCC Recloser was previously agreed upon to provide a common platform for M&C as well as redundant protection and controls for large projects. For projects requiring a PCC recloser, can this function be programmed in the PCC recloser instead of requiring additional equipment?
- Several utilities (ConEd etc.?) are requiring reverse power relaying to ensure the ESS is not being charged from the grid to validate operations as outlined in Appendix K.
 - Is this protective relaying requirement to ensure the tariff is followed or to prevent system impacts based on grid charging?
 - Is there a minimum size this will apply to?



Monitoring and Control Requirement

For projects <500kW

- Lack of clear policy on M&C requirements for small projects creates uncertainty and large cost burden for <500kW projects.
 - JU does not currently have a solution for SCADA monitoring of behind-the-meter projects
 - What are the considerations for “when” M&C is required? Are these considerations based on protection concerns or tariff enforcement?
 - Can we clarify the requirement for export limited controls for <500kW projects?

Interim M&C guideline for PV only projects

Proposed Monitoring and Control Requirements by Size for Solar PV in New York State			
	< 50 kW	Individual or Aggregated 50 kW up to 500 kW	Individual or Aggregated 500 kW and Greater
Monitoring	Monitoring <i>may</i> be required	Monitoring <i>may</i> be required	Monitoring <i>shall</i> be required
Control (PCC Recloser)			PCC Recloser <i>shall</i> be required
Control (RTU)		Basic control <i>may</i> be required	

Table 1: State-wide M&C requirements

Non-Relay options for <500kW projects

- Can we use a meter-only option and perform post-analysis for verification of non-export or limited export within certain time window?
 - Adding hardware relay is cost-prohibitive to small projects
 - UL 1741 CRD-certified software control is a cost-effective alternative, especially for small projects
 - Complicated and time consuming to program and install protection system for both Utilities and Customers / Installers.

