Massachusetts Technical Standards Review Group (MTSRG) - Meeting Minutes

Chair: Babak Enayati, National Grid MA TSRG Regular Meeting Date: August 29, 2017 Time: 7:30AM-1:00PM Location: National Grid office in Worcester 939 Southbridge St. Worcester, MA 01610 Room: Auditorium Agenda

Present in the room:

Babak Enayati (National Grid),
Nancy Stevens (MA DPU),
Brian Ritzinger (MA DPU),
Ghebre Daniel (MA DPU),
Mike Coddington (NREL),
Mike Conway (Borrego Solar),
Mike Brigandi (Borrego Solar),
Rob Tompkins (Borrego Solar),
Shay Banton (Borrego Solar),
Will Lauwers (DOER)
Cindy Janke (Eversource)
Tony Morreale (LIG)
Nachum Sadan (Grid Edge Networks)
Tim Roughan (National Grid)
Michael Porcaro (National Grid)
Jeannie Amber (National Grid)
Brett Jacobson (Eversource)
Dave Forrest (ISO NE)
Keith Jones (Eversource)

1) The meeting kick off by Babak and introduction 7:30AM-7:40AM

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- A brief introduction took place

2) IEEE 1547 full revision status update 7:40AM-8:00AM

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- First draft passed ballot in June, but many comments and 78 percent approval
- Currently the IEEE 1547 writing group is targeting a January-February time frame for the final issuance of the full revision standard.
- Existing comments on the current draft are related to Modeling, ride-through and impact on protection.
- The discussion went on to cover the UL1741 adoption of the new standard.

- UL1741-SA has been an interim solution for CA. The UL1741 SA designation indicates that the Inverter has been tested per the 1547, and 1547.a. However, there is also more smart functionality turned on.
- It should also be noted that many existing inverters in the market also have smart functionality but may have it turned off.
- CA will be going live with the requirement for all Inverters to be UL1741 SA listed very shortly.
- The question was asked at what point does MA adopt SA? It was expressed that there should be a hard date for this to occur in order to allow developers and customers enough time to update procurement behavior.
- There is also the issue that the MA Tariff states that Inverters should be listed to IEEE1547, 1547.1 and UL1741. There is no SA designation in the Tariff and there was no talk of changing the tariff to indicate such. This could cause confusion from a legal standpoint when interpreting the tariff intention vs ISO mandate.
- Dave Forrest stated 1547.a allows trip settings to be in a range as mutually agreed upon by the customer and Utility and it discussions still need to take place to determine if adopting UL1741SA will be the ultimate solution?
- ISO main focus is flexibility with voltage and frequency ride-through settings which may be able to be accomplished through the current UL1741 and the 1547.a clearing time adjustability windows or adopting UL1741SA.
- A key consideration is between UL1741 and UL1741SA is the default settings.
- There are concerns from utilities on elevated risk of islanding with smart inverter functions
- By the end of the year, the new ISO required voltage and frequency ride-through settings will be required by Utilities.
- SMART inverter modeling is still a concern of the Utilities.
    - Load flow and other analysis models
    - Fault response – inverters will now sustain fault current for ride through times, and DER penetration levels require accurate models for protection
- There was also a question posed as to whether there would be a requirement to go back and retrofit the existing facilities. If that is the case there may not be any verbiage in existing ISA's that would allow for such action. Customer awareness of such a dynamic may also be erode as DG sites change ownership over time. Also, it may be difficult to even contact and communicate with customers/Dg owners for this reason.
- The ride-through Subgroup is almost done with the ride-through discussion and will be moving on to voltage and frequency regulation. After that an implementation plan will be created as well as a date and explanation of the reason for moving forward with this plan. Whether it be new 1547 or UL1471-SA.

Actions

- There will be one or two industry reps that will sit on the 1547 Adoption sub group to add diversity to the group.

3) Discuss interconnection studies for Storage under the SMART program in MA **8:00AM-8:30AM**

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- Mike Conway – requested Utility feedback on how Storage will be handled under the new SMART program in MA
- Tim Roughan stated the adoption will be "straight forward"
- Mike C inquired if frequency regulation with storage sites has been considered and how that would be studied. Mike Conway stated it was Borrego Solar's intention to get these conversations out into the open.
- Will Lauwers asked if we are summing inverter outputs can we discharge solar and storage together.
- Tim Roughan - mode of operation is critical – they will assume worst case scenario. However, if they could better understand the mode of operation they could possibly minimize the mitigation needed to let the Solar+storage connect.
- Also questions as to whether the frequency regulation market is actually available.
- Cindy Janke – Has been treating the Solar+Storage as the max nameplate. If you are doing another mode of operation such as frequency reg it may become FERC jurisdictional and not be under MA Tariff.
- It will likely make sense for developers to NOT output all at once. Solar/Storage sites may be configured to output later at night which will require different considerations during study.
- Capital credit is going to be the driver of whether storage is charged only from solar or from grid as well. Battery up to 30-40% of PV nameplate seems to be the model that will be the most attractive.
- The question was asked if a circuit becomes FERC jurisdictional do we follow 1547 or SGIA?
- Mike Conway requested feedback on the idea of installing a maximum export scheme to limit Solar/Storage output to a certain value.
- It was stated by Jeannie Amber that this type of installation would likely be fine for regular load flow but the protection review would be based on the aggregate nameplate of all storage + generation on-site and may require additional protection review. A minimum import relay scheme may be an option to enforce maximum output requirements for agreements that are non-protection.

<u>Actions</u>

- Action per Will Lauwers was a request to establish a working group that will work to create different use cases for solar and storage that can be leveraged in the MA market.
- This working group was formally approved at the meeting and will be moving forward in the near term

4) Standardization of detailed study Reports **8:30AM-9:00AM**

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- Rob Tompkins (Borrego solar) lead a discussion on the significantly different experience Borrego Solar is having with the Utilities around Detailed Study deliverables.

- It was explained that Borrego Solar has been receiving robust and adequate studies from National Grid while only receiving a bulleted list in an email from Eversource East which did not contain adequate information for the money spent.
- A standard template was presented that Borrego based on the information commonly received by National Grid (see meeting attachments). It was asked that Eversource considers providing information in line with what is in this template.
- It is of the opinion of Borrego Solar that the list of information in the proposed Standard template is a more than an appropriate deliverable of a study costing upwards of $70k.
- There was also a discussion about what work is done by the utility during the Detailed Study phase:
  - Cindy Janke mentioned the Eversource West Detailed Study will typically include, Specification of equipment, Transfer Trip design, Substation design, Pole petitions, Vendor walkdowns, etc.
  - National Grid indicated that their detailed study includes project scoping and work is done to the end of getting only the pertinent information about the project schedules and cost opposed to completing substantive design work as Eversource.

Action

Borrego Solar is asking is the Utilities can look at the proposed Detailed Study template and comment on whether this format will be acceptable going forward.

This would include the scope of the detailed study and a (non-detailed) construction (# of weeks) estimate.

5) Initial application review report **9:00AM-9:30AM**

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- Shay Banton (Borrego Solar) led a discussion on the required items that are due during the initial review per the MA Tariff.
  Shay also presented a proposed template for the Initial review.
- John Bonazoli – said that there is more information in the proposed template than the tariff requires. However did mention that if 'Capacity' as it is stated on the proposed template means Thermal capacity, it can be provided, but DG Capacity is too extensive a study to provide on the initial review.
- John also stated Unitil could also provide transformer rating and ampacity on initial review.
- Cindy – has an email template for initial reviews. In response Shay said WMECO is not providing the minimum criteria required by the Tariff.
- It was proposed whether fault current at closest asset will be adequate such as substation busas long as well get the rest of the information.
- It was acknowledged by Borrego that if Utilities could provide fault current at the substation bus in situations where the distribution system is not modeled, this would be an adequate compromise provided that all the rest of the Tariff required items accompanied that information.

- With regard to the proposed items by Borrego that are not in the tariff, the justification was explained that more information up front would likely decrease the amount of utility impact studies Utilities would ultimately have to perform.
- Keith Jones agreed that available fault duty at the PCC is the only thing that will be challenging from the List provided.

Action

- The ask is that Utilities look at what is being requested by Borrego and respond formally at the next meeting. This will result in a final template.

6) MA TSRG IEEE 1547 subgroup report **9:30 AM-10:00AM**

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- Discussions have been taking place with the ISO ask for new ride-through settings,
- Settings have been proposed for the Voltage ride-through time. Frequency settings have been based on NPCC curve and discussions were minimal.
- Confirm that this is applicable for ALL Inverters of ALL sizes.
- As discussions evolve it will be determined whether 1547.a (ul1741) or vs ul1741-SA default settings are important for small inverters.
- It may be reasonable for the group to agree to only make the ride-through requirement apply to those Inverters that are of a certain size.
- Cindy Janke agreed that it will be difficult for the customers to change settings. Therefore communication will be key in order to make sure inverters purchased in the future will come from the factory with the correct Settings in them.
- There is a clear distinction between Ride-through and trip settings that NGRID still has concerns about. - utilities will need to specifically require ride through requested by ISO (as it's not presently required by IEEE1547a, interconnection requirements will need updates)
- Tim R – Concern as to whether installers are going to be installing the right compliant design.
- It is not clear what developers or installers with surplus materials will be doing.
- It has been put on the table that November 1st it will be recommended that SA designation will be required then on January 1st it will be a mandatory required.
- Chris O'Neill (Developer) stated that utilities need to be more clear on maintenance requirements for DER sites
- **Action:** Babak will lead discussions on Rule 21 and UL1741SA at the next subgroup meeting
- **Action:** Ride through subgroup will need to be clear on the definitions of ride through and momentary cessation

7) Break **10:00AM-10:**15AM

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8) National Grid's Solar Phase II status update **10:15AM-10:45AM**

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- See attached Presentation

9) New TSRG leadership team and the members **10:45AM-11:15AM**

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- Mike Brigandi is new Solar Rep and Co-Chair.
- It is still unclear who will be the Utility chair.
- Babak will fill in for one more meeting.
- Utilities have committed to electing a replacement chair by next meeting,

10) Status of the TSRG Common Guideline revision 11:15AM-11:45AM

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- Utilities still need to have offline discussions and come up with comments on the new revision of the common guideline previously submitted by Reid Sprite. This did not take place since the last meeting. Nachum Sadam also has comments on section 5.2.

11) National Grid's ESB756 A & C changes 11:45 AM-12:45PM

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- Jeannie Amber highlighted updates to the ESB 756. Some items were new but many were articulations of requirements already being followed.
- See attached presentation for updated sections.

12) Open discussions 12:45PM-1:00PM

- Mike Coddington put on the table to add a modeling discussion to the end of the next TSRG meeting to talk about new modeling tools.
- One hold up will be the IP issues with inverter manufacturers.
- Next TSRG meeting will be held on November 30th in Westboro MA