**Stakeholder and Utility Proposals on Issue 3 Retrofit, by Use Case**

Framework to Guide WG Discussion

*Note: All “stakeholder proposals” are MC and Stephen’s interpretation of general stakeholder positions and may not be representative. All “utility proposals” are preliminary and subject to management approval.*

# **Maintenance Use Cases:**

***Use Case 1:******Replacing equipment with exact same equipment (i.e. same make and model)***

* **Stakeholder proposal**:
  + No notification
* **Utility concerns with stakeholder proposal**:
  + None
* **Utility proposal:**
  + No notification

***Use Case 2a: Replacing equipment “like-for-like”, where size of equipment does not exceed what is listed in the interconnection agreement***

* **Stakeholder proposal**:
  + Notification only; no application. Notification could include any new electrical permit pulled. Developer can submit these details but does not need to await utility response to proceed.
* **Utility concerns with stakeholder proposal**:
  + Validate NEM 1 grandfathering provisions? Utility must validate inverter is on the CEC list or incorporate in IA provisions.
  + There may be a legal obligation to update the IA. Utilities are confirming for Thursday.
  + If a new electrical permit is pulled, there may be a legal obligation for the utility to validate.
  + Currently, the IOUs may not have a web portal or equivalent to easily take a “lighter touch” application. Hope is to have this in the future (2-3 years from now).
* **Utility proposal:**
  + Require abridged application with no engineering review. Abridged application is one-page form submitted to dedicated inbox to the extent possible.
  + Fee may be required (utilities won’t know until next week…involves NEM tariff).
  + To implement this proposal, may need to add clause to pro forma agreement language specifying this requirement. Outstanding question about how to treat systems with existing agreements.

***Use Case 2b: Replacing equipment such that the DER’s “limiting factor” increases no more than 10% from the limiting factor’s listed size in the original interconnection agreement***

* **Stakeholder proposal**:
  + Same as Use Case 2a (Notification only; no application. Developer can submit these details but does not need to await utility response to proceed.)
* **Utility concerns with stakeholder proposal**:
  + Same concerns as 2a
  + May or may not be comfortable with 10%. May need upper and lower bound (lower bound to match NEM 1).
  + What if the increase in size triggers a switch from NEM 1.0 to 2.0?
  + If multiple DERs on the same feeder increase size by 10%, that may overload equipment on the feeder
* **Utility proposal:**
  + Same as Use Case 2a (Require abridged application with no engineering review. Fee may be required.)

***Use Case 3a: Adding or replacing equipment such that the system’s “limiting factor” increases by MORE than 10% of the listed size in the original interconnection agreement, but firmware controls limits the effective increase to the listed size in the original interconnection agreement***

* **Stakeholder proposal**:
  + Same as Use Case 2a and 2b (Notification only; no application. Developer can submit these details but does not need to await utility response to proceed.)
* **Utility concerns with stakeholder proposal**:
  + Same concerns as 2a
  + How to validate that software control will remain?
* **Utility proposal:**
  + TBD. Perhaps same as Use Case 2a and 2b (Require abridged application with no engineering review. Fee may be required.) Utilities will provide update at the working group meeting.

***Use Case 3b: Adding or replacing equipment such that the system’s “limiting factor” increases by MORE than 10% of the listed size in the original interconnection agreement, but firmware controls limit the effective increase to within 10% of listed size***

* **Stakeholder proposal**:
  + Same as Use Case 2a and 2b (Notification only; no application. Developer can submit these details but does not need to await utility response to proceed.)
* **Utility concerns with stakeholder proposal**:
  + Same concerns as 2b
  + How to validate that software control will remain?
* **Utility proposal:**
  + TBD. Perhaps same as Use Case 2a and 2b (Require abridged application with no engineering review. Fee may be required.) Utilities will provide update at the working group meeting.

***Use Case 4: Upgrading inverter firmware that does not affect grid interaction (e.g. fixes to software bugs, improving MPPT algorithm to increase energy yield)***

* **Stakeholder proposal**:
  + No notification
* **Utility concerns with stakeholder proposal**:
  + ?
* **Utility proposal:**
  + ?

# **Retrofit Use Cases:**

***Use Case 5: Adding storage to an existing storage facility (e.g. increasing a 1-hour system to a 2-hour system)***

* **Stakeholder proposal**:
  + Notification only; no application.
* **Utility concerns with stakeholder proposal**:
  + ?
* **Utility proposal:**
  + ?

***Use Case 6: Adding storage to an existing generating facility where export is limited to original interconnection agreement via firmware controls***

* **Stakeholder proposal**:
  + Require customer to submit an interconnection application. Application is subject to lighter-touch review. May require short-circuit duty check but not a full re-assessment.
* **Utility concerns with stakeholder proposal**:
  + ?
* **Utility proposal:**
  + ?

***Use Case 7: Adding storage to an existing generating facility, with no mitigating export limitations***

* **Stakeholder proposal**:
  + Require customer to submit an interconnection application. Application will require engineering review.
* **Utility concerns with stakeholder proposal**:
  + None
* **Utility proposal:**
  + Require customer to submit an interconnection application. Application will require engineering review.

***Use Case 8: Adding or replacing equipment such that the system’s “limiting factor” increases by MORE than 10% of the listed size in the interconnection agreement, with no mitigating firmware control***

* **Stakeholder proposal**:
  + Require customer to submit an interconnection application. Application will require engineering review.
* **Utility concerns with stakeholder proposal**:
  + None
* **Utility proposal:**
  + Require customer to submit an interconnection application. Application will require engineering review.

***Use Case 9: Changing inverter operating characteristics (e.g. smart inverter settings, operating set points)***

* **Stakeholder proposal**:
  + Require customer to submit an interconnection application. Application will require engineering review.
  + If utilities request an update to settings to improve network performance, this should not require a new interconnection application.
* **Utility concerns with stakeholder proposal**:
  + ?
* **Utility proposal:**
  + Require customer to submit an interconnection application. Application will require engineering review.
  + ?