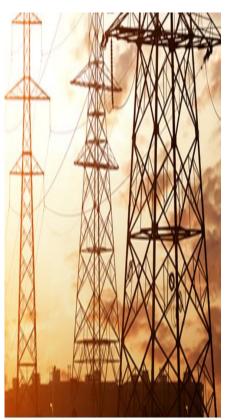# Summary and Update
Voltage Flicker Workshop
for SIR Screen H

Ric Austria, Ketut Dartawan, Amin Najafabadi

ITWG Meeting September 27,2017. Albany, NY.

Background

- For voltage flicker assessment, it was agreed at a previous ITWG Meeting to move from the outdated GE Flicker Curve to IEEE-1453 standard in compliance with SIR

- Pterra was tasked by DPS/NYSERDA to develop:

  - Stage 1: Voltage flicker screening method (presented partially at the previous ITWG Meeting and fully on Sep 18, 2017)
  - Stage 2: Presentation of methodology, assumptions, and how the detailed time series calculation is performed for voltage flicker assessment and tap movements

Objectives of the Workshop

- Provide background on voltage flicker

- Provide technical information regarding flicker with respect to PV interconnections in distribution systems

- Discuss transition from GE Flicker Curve to IEEE 1453 flickermeter for screen H and CESIR

Presented at ITWG July,19 2017

- Discuss background, methodology, and assumptions for screen H

- Present examples / exercises for screen H

Discussed in detail

Summary of the Workshop

- Based on IEEE-1453, Pterra developed an approach for voltage flicker screening characterized by:
  - A quick calculation (approximately an hour or less)
  - With input data that is readily available (size of the project, MVA of the substation transformer, and short circuit at the POI)
  - Does not require detailed modeling

- The assumptions are provided and the reasoning behind the assumptions were discussed

- There was lively discussion during the Workshop with utilities generally providing favorable feedback on the methodology developed by Pterra and its straightforward calculation

- Utilities indicated their intention to internally review the methodology and assumptions, test on actual prior applications, and submit questions for clarification by Pterra.

Important Discussions

- Question: can the flicker screening presented in the workshop be used for other loads (welding shops, rock crushers, and other loads)

- Pterra clarified that while the IEEE-1453 can be used for fluctuating installations (loads / generating plants), assumptions presented in the workshop were intended for inverter based DG application only.

Important Discussions

- Question: some of the assumptions are very conservative for inverter based DG:

  - Assuming the PV fluctuation from 0% - 100% without geographical smoothing

  - Assuming 1 second ramp rate is similar to assuming unrealistically very fast cloud movement

- Pterra clarified that it has selected conservative assumptions at the screening stage so as to catch any potential issue with flicker. Pterra did several tests with the method, the results are less conservative than using traditional GE Flicker Curve and very conservative when comparing the results with time series analysis – Utilities can individually or collectively test their own assumptions and recommend changes within the framework of the proposed screening method

What's Next

- Utilities indicated that Screen H is still needed

- Utilities would like to apply the proposed screening method and compare it against the existing approach or with the results of existing projects

- JU will provide list of questions/comments for implementing the proposed screening method

Thank You