

## Attachment E - Fractional Savings Uncertainty and Portfolio Sizing

This Appendix is designed to provide background on what Fractional Savings Uncertainty (FSU) is, how estimates for FSU for groups of buildings were derived, and how those estimates will be used in the review of responses to this solicitation.

### **Introduction to Fractional Savings Uncertainty:**

FSU represents savings uncertainty as a percentage of savings. Generally, as the FSU of a Portfolio decreases, the confidence in a Portfolio's savings increases. FSU for homogenous sub-portfolios (i.e. Portfolios that contain Projects within the same territory, building end use type, and depth of savings level) can be calculated using Equation 1:

#### Equation 1

$$FSU_{(homogeneous)} = \frac{U}{S * n}$$

Where:

- U = aggregate savings uncertainty<sup>1</sup>
- S = avoided energy use per building
- n = number of buildings in the Portfolio

To calculate the FSU of a Portfolio consisting of buildings with multiple end uses, in multiple sectors, and/or multiple energy efficiency Interventions with different anticipated depths of savings, the uncertainty of homogenous sub-portfolios can be combined to determine the FSU of the larger heterogeneous Portfolio.

The FSU of a heterogeneous Portfolio can be calculated using Equation 2:

#### Equation 2

$$FSU_{(heterogeneous)} = \frac{\sqrt{\sum_{i=1}^m S_i^2 * n_i^2 * FSU_{homogeneous,i}^2}}{\sum_{i=1}^m S_i * n_i}$$

Where:

- $n_i$  = number of buildings in Portfolio i (i.e. number of buildings of the same territory, building end use type, and depth of savings)
- m = total number of homogeneous sub-portfolios making up the larger heterogeneous Portfolio
- For calculating  $FSU_{(homogeneous)}$ , see Equation 1.

### **FSU Estimates and Analysis Details:**

Con Edison, NYSEERDA, and the AMV Platform Provider conducted an analysis to assist bidders in sizing their proposed Portfolios to ensure they meet an acceptable level of certainty in savings. Customers in the participating territories (Westchester and Staten Island) were pre-screened for pilot. For each Customer, a baseline model was created using the most recent 12 months of their anonymized utility consumption data.

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<sup>1</sup> For additional information regarding how site-level FSU is calculated, see section 4.3.2.4 of the CalTRACK methods at: <http://docs.caltrack.org/en/latest/methods.html>

Using a range of hypothetical savings depths from 5% to 30% and a range of hypothetical portfolio sizes from 5 to 1000 for each building end use type and each territory, the FSU was calculated for each scenario and an average was created by taking multiple samples from the eligibility pool.

The following should be considered while examining and leveraging the results:

- Building end use segments with less than 200 buildings in Staten Island were not included in the FSU analysis due to a lack of sufficient data. The FSU values derived for the equivalent segment in Westchester were inputted for this missing data in Attachment A. For a full list of impacted segments, see the tab *Additional Information* in Attachment A.
- Buildings with a baseline model CVMSE of greater than 1.0 were not included in the analysis. These customers will not be eligible for the P4P Pilot, as a baseline model CVMSE of greater than 1.0 indicates that the model has a high average magnitude of error and therefore a high level of uncertainty associated with calculated savings.
- While the information provided in Attachment A represents averages calculated using actual utility data and sound statistical analysis, it does not, and is in no way intended to, guarantee the performance of actual Portfolios in the P4P Pilot.

### **Calculating Proposed FSU:**

FSU will be used to measure portfolio-level savings confidence in the P4P Pilot and will be used as a performance indicator during ongoing pilot evaluation. Using the FSU Workbook tab in the Bid Package Workbook (Attachment A), bidders can review if their proposed Portfolio of energy efficiency Interventions is near a 25% portfolio-level FSU.