

The Green Advantage dataset provides historical data associated with Freddie Mac Green Up® and Green Up Plus® loans. The purpose of the Green Advantage dataset is to supply the market with energy and water efficiency data.

Included in the dataset is basic property information provided by Freddie Mac Sellers during loan origination, such as state, county, year built and number of units. Data is also sourced from the Green Assessment® or Green Assessment Plus® reports (collectively, the Green Reports) received as part of the origination process. The reports are created by third party consultants who meet Freddie Mac's qualification requirements (Green Consultants).

Green Consultants are engaged by Freddie Mac Sellers to perform an evaluation of the Borrower's property to determine its energy and water efficiency performance and make recommendations for efficiency improvements. Data collected from the Green Reports includes projected cost estimates for improvements selected by Borrowers and projected savings estimates expressed in dollars, consumption and percentage savings. The reliability of the dataset is inherently subject to the reliability of the data in the Green Reports.

The dataset includes information from Green Up or Green Up Plus loans funded from program inception through the end of the 3<sup>rd</sup> quarter in 2018 (Aug 2016 – Sep 2018) and will be updated annually.

The dataset is segmented into two distinct groups. The first group includes loans from program inception through the end of 2017 and the second group includes loans originated in 2018. The two groups are distinguished by the program requirements and the data collection methods used for each group.

#### **Dataset: Group One**

The first group of loans in the dataset includes loans meeting the original program requirements of a 15 percent savings threshold for either owner or tenant paid utilities or whole property consumption.

Data was collected through systems at loan origination and through manual data mining from the Green Reports. The collection of this data took place prior to the implementation of a standardized report format for Green Reports and the creation of the Green Advantage database. Due to the lack of data standardization there may be some inconsistencies in data (e.g. improvements nomenclature, combined improvements), including data omissions in a small sample of loans from early Green Reports (e.g. consumption figures, cost savings). A review of the data was performed to check for missing data elements and reasonable cost and savings estimates. Where possible, anomalies or errors were corrected; where correction was not possible data was removed.

As Borrowers with loans in Group One are allowed two years to complete the green improvements before they must begin reporting, the dataset is limited to the data that Borrowers have delivered to date.

#### **Dataset: Group Two**

The second group consists of loans meeting the program requirements of a minimum of 25 percent whole property consumption savings threshold. "Whole property consumption" calculations reflect the total property consumption, which includes all owner-paid consumption plus all tenant-paid consumption. This calculation is distinct from the requirement for Group One, which allowed the consumption percentage savings to be calculated using either the total owner-paid consumption figures or the total tenant paid consumption figures. Given that the method for calculating the two requirements differed, the percentage savings figures cannot be combined and should not be compared between the two groups.

In late 2017, Freddie Mac Multifamily introduced a standardized form to be used for all Green Reports and, in mid-2018, finished creation of the Green Advantage database. The combination of these tools has automated and standardized the data collection process. Group Two relied on this data collection method. The standardized form report creates

consistency and the automated data collection prevents human input error, but the database does not have data validation checks to ensure accuracy or validity of the data being collected from the Green Reports. Similar to Group One, data was reviewed to check for missing data elements and reasonable cost and savings estimates. Where possible, anomalies or errors were corrected; where correction was not possible, data was removed.

### **Data Review**

The data is reviewed at underwriting to check for accurate property information and to check that figures in the Green Reports meet program requirements. However, we are not responsible for and do not guarantee the accuracy or validity of any data from the Green Reports provided to Freddie Mac Multifamily and used in developing this dataset. The dataset should not be viewed as projections, forecasts, predictions or opinions with respect to value. The dataset is intended for academic analysis and should not be used for financial reporting, accounting reporting, or investment decisions. This dataset should not be construed as an effort to sell or the solicitation of any offer to buy any security in any jurisdiction where such offer of solicitation would be illegal.