As part of the Green Advantage® offerings, Green Up®/Green Up Plus® loans require the collection of energy and water utility consumption data. Prior to rate lock, Borrowers provide historical utility data to a third-party vendor (Green Consultant), who produces a Green Assessment®/Green Assessment Plus® (Green Report). For loans that rate lock after December 31, 2018, a Borrower is obligated to use a third-party vendor (Benchmarking Data Consultant) to report ongoing utility consumption for the life of their loan. In both pre- and post-loan timeframes, the utility data collected must be entered into ENERGY STAR® Portfolio Manager® (Portfolio Manager).

The goal of this Benchmarking Data Collection Guide is to create more consistent data collection throughout the entire loan process to produce higher quality data and reports. This will enable us to gain a better understanding of the performance of multifamily properties in our portfolio and the impact of the Green Advantage offerings.

The Data Collection Guide has the following sections:

1) Pre-Loan Data Collection, 2) Post-Loan Data Collection, 3) Data Quality Best Practices, and 4) Addendums.

**PRE-LOAN Data Collection – Green Consultant Activities**

Borrowers interested in pursuing a Green Up or Green Up Plus loan must first receive a Green Report. When producing a Green Report, Green Consultants are expected to collect historical utility consumption data for the whole property from the property owner through the Seller/Servicer.

When Green Consultants collect whole property data during the pre-loan data collection process, it is important to note two distinct data types: owner-paid utility data and tenant-paid utility data. Whole property data is the sum of owner-paid utility data and tenant-paid utility data. Tenant-paid utility data is only relevant when utility costs are split between owners and tenants. In the event a property has 100 percent owner-paid data, no tenant-paid data is required or necessary.

**Collecting owner-paid data**

To produce meaningful whole property data, obtaining a minimum of 12 months of owner-paid utility data is a critical first step. Below are two common approaches Green Consultants should follow for collecting energy and water owner-paid consumption and cost data.

**Owner-paid data - Approach 1**

1. Request owner-paid utility data directly from the utility company on behalf of the property owner or directly from the property owner through the Seller/Servicer to obtain both consumption and cost data. Obtaining bill copies can be used to verify the accuracy of the data. A utility management service provider can also help identify and correct billing errors.

**Owner-paid data - Approach 2**

2. If the property owner has recently acquired the property and there is limited historical data, Green Consultants must contact their Freddie Mac representative to determine acceptability for proceeding. If approval to proceed is received, the Green Consultant should utilize an energy modeling software/assessment tool, a utility benchmarking database and any available data to estimate the owner-paid or whole building consumption.

**Collecting tenant-paid data**

When a property owner is not paying for 100 percent of the utility bills at the property, tenant-paid utility data is needed to complete the whole property data. A minimum of 12 to 13 months of tenant-paid utility data is critical to building an accurate whole building data value. Below are the various approaches to collecting energy and water tenant-paid data.
consumption and cost data. If cost data is not provided by the utility in the approaches listed below, Green Consultants should follow the cost estimation options listed in the “Estimating cost data” section below.

Green Consultants should follow these approaches in prioritized order within the required Green Report deadline, with Approach 1 as the most accurate method to collect full property data. More detail on best practices for these approaches are in the Post-Loan Closing Benchmarking section.

**Tenant-paid data - Approach 1**

1. Request aggregate whole building utility data from the utility provider. This data will combine all consumption present at the property for a specific utility, and may not distinguish between owner and tenant data.
   a. Determine the utility providers
   b. Establish a contact at the utility company who is familiar with aggregate data requests.
   c. Once data is received, complete a quality assurance check on the data, to ensure the provided values are reasonable. For example, if the property receives an ENERGY STAR score of 100, it is most likely that data is missing.
   d. If the data from the utility includes owner-paid data, do not double count the owner-paid data from the collected bills. Input only the whole property data received from the utility.
      i. Consider tracking the owner-paid data in a separate meter in Portfolio Manager and mark it as ‘not in use’. Use the owner-paid bills as a data quality check on the whole property data.

**Tenant-paid data - Approach 2**

2. When aggregate tenant or whole property data cannot be provided by the utility company, an alternative option is to request a sample of tenant-paid utility data from the utility company. When collecting a sample of tenant data, always request as much tenant data as possible in order to ensure a high-quality sample set.
   a. Determine the sample: Minimum of 10 percent of units, equal representation of all unit types, and a minimum of 12 - 13 months of data.
   b. Send tenant authorization forms to the utility company to release unit level utility data.
   c. Use sampled tenant data provided by the utility to extrapolate complete tenant-paid consumption and cost at the property.
      i. The extrapolation calculation should be done on a per unit basis by calculating the average usage per bedroom from the sampled tenant data and then multiplying that number by the number of units with that bedroom type. See Better Buildings Challenge Data Tracking Manual Figure C-2¹ for more details (note that this guidance does not require the minimum 10 percent of tenants sampled).
   d. Complete a data quality assurance check on the data to ensure the provided values are reasonable. See “Data Quality Best Practices” section for more details.
   e. Combine the estimated tenant-paid data with the owner-paid data to get whole property data.

**Tenant-paid data - Approach 3**

3. When no tenant-paid utility data can be provided by the utility company, as a final effort to attain whole building data, an energy modeling software or assessment tool should be utilized to estimate whole property data.
   a. Select an energy modeling software or assessment tool. Points to consider when selecting:
      i. Ability to distinguish owner and tenant loads
      ii. Time to complete an accurate model or tool
      iii. Accuracy of the model or tool
   b. Calibrate an energy modeling software or assessment tool with existing owner-paid data, if available, and the property fixtures to get estimated whole property data.
   c. If cost data is not provided by the utility in these tenant data collection approaches, it should be estimated. Reference the “Estimating cost data” section for guidance.
   d. Combine or compare results from the energy modeling software or assessment tool to actual data that has been collected.

Collecting and estimating cost data

An additional priority for the pre-loan data collection process is ensuring that cost data is paired with all consumption data to fully understand the performance and savings at a given property.

Green Consultants should use the total charge found on the bill copy, whenever possible. The total charge includes delivery charges, supply charges, services charges, and recurring fixed charges on a utility account. Collecting one consistent value will reduce variation in collecting cost data, and also provide a more realistic picture of tenant and owner cost avoidance after the green improvement.

When bill copies are not available to collect actual cost data associated with the utility consumption, Green Consultants should follow the preferred approach below to estimate cost data. If Green Consultants are still unable to estimate cost data using the preferred approach, alternate approaches listed below can be used.

It is important to note that owner and tenant energy rates can differ based on the demand charges, quantity of energy consumed, local credits, incentives, and fixed service charges. Owner and tenant water rates can also differ based on fixed service charges, and the quantity of water consumed.

Estimating cost data – Preferred Approach
- Use the utility provider’s website to find the rate schedule most relevant to the location and property use.

Estimating cost data – Alternate Approaches
- Reference the owner’s T12 financial statements for utility vendor costs
- Look to utility rate databases for additional estimation. Some examples:
  - Water - Circle of Blue: https://www.circleofblue.org/waterpricing/

Portfolio Manager Setup

As part of the Green Report, Green Consultants are required to create a property record in Portfolio Manager using the historical utility consumption data collected. Green Consultants should follow the guidance provided below.

Property Details

Follow Portfolio Manager guidance for a detailed guide to set up a property.

Property Type: Select “Multifamily Housing”. This is the only Property Type that can produce a Water Score. Do not select any other Property Type for the property.

Property Setup: Property level tracking is simplified when defining a property as a single building in Portfolio Manager. The property is defined as one building by aggregating characteristics like gross square footage and unit count for all buildings within the property. This simplifies meter configurations. All meters covering the property are defined under the one building and this removes the need to map meters to specific buildings.

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Gross Floor Area - Tracking Commercial/Mixed-Use Space

Portfolio Manager defines Gross Floor Area (GFA) as:

“all buildings that are part of the multifamily property, including any separate management offices or other buildings that may not contain living units. GFA should include all fully-enclosed space within the outside surfaces of the exterior walls of the building(s) including living space in each unit (including occupied and unoccupied units), interior common areas (e.g. lobbies, offices, community rooms, common kitchens, fitness rooms, indoor pools), hallways, stairwells, elevator shafts, connecting corridors between buildings, storage areas, and mechanical space such as a boiler room. Open air stairwells, breezeways, and other similar areas that are not fully-enclosed should not be included in the GFA.”

Spaces like community buildings, gyms and management offices, therefore, need to be included in the GFA as multifamily area. Patio space should not be included in the GFA.

Commercial space at the property can be excluded from the GFA depending on the meter configuration:

- If the commercial space is metered directly and not part of an owner’s bill, then the space can be excluded from the GFA and does not need to be tracked.
- If the energy or water usage for the commercial space is included on the owner’s utility bill and cannot be subtracted out, the commercial space should be included in the GFA and the energy and water usage should be tracked.

Parking square footage should be entered if there is energy usage associated with it. If the consultant cannot obtain the square footage from the property manager, it can be estimated using Google Earth. For additional information regarding commercial space or parking in Portfolio Manager see the Department of Energy recommendations.

Other

- Heated swimming pools are a common energy-intensive amenity and should be noted if located at the property. The ENERGY STAR algorithm adjusts to accommodate for the presence of swimming pools.
- If cell towers on a property are metered separately, the energy usage can be excluded from ENERGY STAR score calculation.

Meter Configuration

When adding new meters into Portfolio Manager, a Green Consultant should assign and enter meters separately based on if the usage is paid by the tenants or by the owner. This is important for many reasons:

- Owner data should be actual data while tenant data may need to be modeled or estimated
- Owner and tenant cost rates differ
- Retrofits may only affect one of these spaces, so this setup allows for better tracking of savings
- Separating the data allows for better data quality tracking

Each utility (i.e. electric, gas, propane) should be added as a separate meter in Portfolio Manager. Multiple meters can be added for each utility as needed. For example, if there are two owner-paid electric meters and one owner-paid gas meter, the electric meters can be combined and added as one line with the gas meter entered as a separate line in Portfolio Manager.

The tenant data will typically be aggregated into one meter, especially if it is modeled data. If a property does access sampled tenant data, Green Consultants should use that portion of tenant data to calculate out the full tenant usage. This extrapolated number will represent the entire property and then should be entered as one meter in Portfolio Manager.

Figure 1 below provides an example of how meter coverage is defined within Portfolio Manager. By selecting what area of the property a meter covers, the Benchmarking Data Consultant can better understand the set up for ongoing benchmarking and reporting.

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3 Portfolio Manager, https://portfoliomanager.energystar.gov/pm/glossary#MultifamilyHousing

Sharing Properties in Portfolio Manager

Borrowers should create their account in Portfolio Manager before the loan closes. The best practice is to have this completed before the Green Consultant visits the site or no later than loan closing. Green Consultants should, for example, request the borrower Portfolio Manager account information on the pre-visit questionnaire.

Once the Green Consultant receives the borrower Portfolio Manager account information, they should submit a connection request to the borrower immediately and let them know it has been sent. The borrower would then accept the connection request. Once that occurs, the consultant can share the property with the borrower. Green Consultants should share the property with “full access” so the borrower can share forward the property to other contacts as needed.

Green Consultants are also encouraged to communicate with the Servicer once the loan closes to make the transition to on-going benchmarking successful.

How does the Borrower gain access to the property in Portfolio Manager?

When the loan goes “Under App” with Freddie Mac:
1. Borrower must create a Portfolio Manager account prior to loan closing.
2. Connect the account to the Green Consultant’s account by:
   - Sending the username, email and property name to Seller/Servicer who will provide account details to Green Consultant.
3. Green Consultant will send a connection request to the Borrower.
   - Borrower must accept the connection request.
4. Green Consultant will share the property with the Borrower’s Portfolio Manager account.

For more information on sharing property data see the how-to guide or the Portfolio Manager FAQs on sharing properties.
POST-LOAN Data Collection – Benchmarking Data Consultant Activities

For loans that rate lock after December 31, 2018, post-loan data collection activities must be performed by a Benchmarking Data Collection Consultant. A borrower should engage a data collection consultant based on the consultant qualifications outlined in Freddie Mac’s Benchmarking Data Consultant Requirements guide.

Portfolio Manager Access

The Benchmarking Data Consultant in charge of ongoing benchmarking requirements must establish a connection to the property within Portfolio Manager that the Green Consultant created pre-loan closing through the following methods:

- Benchmarking Data Consultant should request the Portfolio Manager login credentials from the borrower.
- If the borrower is unable or unwilling to share these login credentials, the Benchmarking Data Consultant should send a connection request from their own Portfolio Manager account to the borrower’s account and have the borrower share the property forward.
- Benchmarking Data Consultants may connect directly with the Green Consultant in Portfolio Manager.

Benchmarking Data Consultants should ask the borrower for contact information of the Green Consultants. Establishing a channel of communication between the Green Consultant and the Benchmarking Data Consultant will ensure greater consistency with data and a smoother transition between pre-loan and post-loan reporting.

Benchmarking Data Collection and Reporting

Post-loan data collection and reporting is completed in two ways – 1) Monthly inputs in Portfolio Manager of Benchmarking Data; and, 2) Annual submission in Portfolio Manager of Benchmarking Metrics.

1) Benchmarking Data

Benchmarking Data Consultants should collect aggregate whole property data if available. If the whole building data is available, it can be collected once annually but monthly values should still be represented in Portfolio Manager.

- Benchmarking Data Consultants should consider tracking the owner-paid data in a separate meter in Portfolio Manager and mark it as ‘not in use’. The owner-paid bills can be used as a data quality check on the whole property data and can assist the property owner in managing owner-paid usage.

Tips for Collecting Aggregate Data

Only a select number of utilities advertise their process for aggregating whole property data. These are typically utilities that service cities with a required annual benchmarking protocol. Otherwise, the method to collect data from utilities varies widely.

Benchmarking Data Consultants should follow the steps below to collect aggregate data.

- The utility provider needs to be contacted to confirm if they can provide aggregate data. Data share policies can change from year to year so even if the process is clearly outlined on the utility provider’s website, contacting them will still be required to confirm their process.

What is aggregate whole property data?

HUD defines aggregate data as “utility data from multiple meters that have been summed up into figures representing the consumption and cost of each utility type (electricity, natural gas, water, etc.) for each type of payer (property owner, tenants) at a property on a monthly basis.”

“Since aggregate data is the most convenient and accurate option for utility data collection in properties with a mix of owner and tenant-paid accounts, it should be used whenever possible.”


5 Energy Star Utility Data Access, https://www.energystar.gov/buildings/owners_and_managers/existing_buildings/use_portfolio_manager/find_utilities_provide_data_benchmarking

○ Many utilities will not have a process in place. The call may require education on what aggregate data is; be prepared to explain why this data is required.
○ On this call, clarify what is needed for their request process. This may require items like a Letter of Authorization (LOA) (see Addendum 1 for a sample letter) from the borrower, a list of all addresses and units at the property and/or a copy of an owner-paid bill from the site.
○ Typically, a customer service department can assist but escalating the conversation to a manager, energy program contact or financial contact may expedite the process.

● Ensure that the utility provider will provide a full 12 months of aggregate data.

● Some utility providers charge for this service. If there are fees associated with these requests, the borrower should be informed of this prior to the request being made.
  ○ For example, Duke Energy charges $400 for a one-time fee for annual whole property data.
  ○ Some utilities do not have the capability to easily aggregate data so they charge for their time; typically, between $300-$500 per data pull.

● The timeline for the utility to deliver the data needs to be clear when making the request. Delays in reporting can often be the fault of the utility. Set expectations on when to make the data request ahead of the program deadline.

● Make these data requests as early as possible. Not only can the utility data be delayed, but it may be incorrect and cause the request process to restart. It is recommended to request the prior year’s data shortly after January 31st. This ensures that the full annual data is available for the previous year and gives enough time to submit Benchmarking Metrics by March 31st.

Utility companies may have privacy restrictions against releasing whole property data or may not have the ability to easily aggregate meters. If aggregate whole property data is not available, the Benchmarking Data Consultant will need to collect:

● **Owner-paid** or owner-managed (RUBS) energy and water data entered in monthly intervals in Portfolio Manager
  ○ Estimated usage is not acceptable
  ○ See Pre-loan Data Collection: “Owner-paid data – Approach 1” for additional details

● At a minimum, 10 percent sample of **tenant-paid** data with equal representation of unit types.
  ○ Tenant energy and water usage consumption and cost data are required to be input in monthly intervals for no less than 10 percent of tenants at the property.
  ○ Use sampled tenant data provided by the utility to extrapolate complete tenant-paid consumption and cost at the property. See Pre-loan Data Collection: “Tenant-paid data – Approach 2” for additional details.

**Tips for Collecting Tenant Data**

Benchmarking Data Consultants should follow the steps below to collect tenant data.

● Prior to making a formal request for tenant data, the utility company needs to be contacted to confirm how they provide tenant data. It is likely the case that they can accept generic tenant release forms to provide the data. However, some utility companies require customers to use utility-specific release forms. See Addendum 2 for an example of a generic utility tenant release form.

● In some rare cases, utility companies will only release tenant level data if the tenant requests data themselves.
  ○ Florida Power and Light Company is an example of a utility that has steadfastly refused to accept tenant release forms.

● A greater sample size than the minimum 10 percent should be collected for various reasons:
  ○ A full 12 months of data is needed after a tenant moves in. Often the utility account number will only be associated with less than 12 months of data due to a more recent move-in date.
  ○ Additional tenant meters will also ensure that tenant turnover will not set you below the minimum threshold in future years.
  ○ A larger tenant sampling will more accurately calculate usage for the entire property and better reflect work completed.
  ○ It is recommended to always attempt to collect 100 percent of tenant release forms.
• Green lease – It is recommended that leasing language be updated to allow for easier data collection for future tenants. See sample language below.
  ○ “By executing this lease contract, you acknowledge and consent to share or allow all utility providers to share your account number, usage history and monthly billing totals with the management agent to analyze the efficiency of the buildings on an ongoing basis.”

2) Benchmarking Metrics

Green Up or Green Up Plus loans are required to annually submit utility data and property performance information, known as Benchmarking Metrics. Benchmarking Metrics are generated in Portfolio Manager after entering all Benchmarking Data for the property. Required metrics for submission include: ENERGY STAR® Score, Site Energy Use Intensity, EPA 1-100 Water Score, Water Use Intensity and the Portfolio Manager property identification.

Benchmarking Data Consultants must submit the Benchmarking Metrics on behalf of the Borrower. A link to the current year’s request and additional guidance is available here.
Data Quality Best Practices

For both pre-loan and post-loan data collection activities, Green Consultants and Benchmarking Data Consultants should adhere to the following data quality best practices.

1. **All utilities must be tracked in Portfolio Manager.** To ensure the highest data quality, all utilities (electric, gas, water, etc.) must be tracked in Portfolio Manager, even if the green improvements were not intended to benefit a specific utility category. See “Portfolio Manager Setup” and guidance available on the Portfolio Manager website for more details.

2. **Monthly data points are important.** To adjust utility data for weather when calculating the energy savings for a property, the data must be entered in monthly intervals. The number of days between the start date and end date should never exceed 31. Energy and water data can be collected once annually, for instance if a utility provides annual whole building data, but monthly values should still be represented as in the example below. In the instance the water data provided is bimonthly or quarterly, it is permissible to enter as is.

<table>
<thead>
<tr>
<th>Start Date</th>
<th>End Date</th>
<th>Usage kWh (thousand Watt-hours)</th>
<th>Total Cost ($)</th>
<th>Estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/18/2017</td>
<td>6/16/2017</td>
<td>2,347</td>
<td>351.83</td>
<td></td>
</tr>
<tr>
<td>6/17/2017</td>
<td>7/20/2017</td>
<td>2,591</td>
<td>357.36</td>
<td></td>
</tr>
</tbody>
</table>

3. **Continuous utility data** with no data gaps. Gaps in data result in incomplete baseline periods and a lower quality of data. A minimum of 12 months of pre-loan data is required to set the baseline for comparison against the 12 months of post-loan data received each year going forward. Portfolio Manager will not generate an ENERGY STAR score if there are any data gaps.

4. **Bill copies** are the preferred data type, because they are the most accurate method to understand the energy and water consumption of a building.

5. **Cost data should always be collected** and entered alongside consumption data. Cost data is critical to calculate accurate cost savings at the property.

6. **Indicate estimated data** whenever applicable. For both pre-loan closing and post-loan closing, the estimated usage data must be noted in Portfolio Manager by selecting "Estimated". See above example. For pre-loan data collection, Green Consultants must also indicate in the Green Report - Form 1106 if they estimated utility consumption and provide details of their estimation methodology. This will help provide clarity and consistency for on-going benchmarking.

7. **Improve estimated energy model utility data.** Whenever possible, it is recommended to compare any estimated utility data from an energy modeling software to actual utility data. This increases the accuracy and precision of the model.

8. **Compare utility data against a larger database.** To better identify inaccurate data, it is important to compare any utility data entered into Portfolio Manager to buildings with similar characteristics. This will ensure that the data is within a reasonable range. For example, if the property has a 100 ENERGY STAR score, it is most likely missing data.

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Addendum 1 – Sample Letter of Authorization

Letter of Authorization

[Insert Date]

Owner Name
Owner Address

To Whom It May Concern:

The signature on this letter authorizes Benchmarking Data Consultant to act on behalf of Owner Name to secure records for the property, located at Property Address including, but not limited to, aggregated whole-building data, customer’s account number, rate class, addresses, interval data, historical usage data, and other necessary data. Owner Name hereby designates, appoints, and empowers Benchmarking Data Consultant to communicate, with all public and private companies, utility service providers at the property.

Property Name: ________________________________

Authorizer Signature: __________________________

Authorizer Name: ______________________________

Authorizer Title: ________________________________
Customer Letter of Authorization to Request Energy Information

**Customer Name** is conducting an energy use survey and requires your information and authorization to obtain utility data for your residence.

Please return this form to **In-House Customer Contact**, **Contact Title**, **Contact Email** by **Day, Month Dd, YYYY**. Thank you for your help in helping us conduct our energy survey to be input into EPA Portfolio Manager to help us determine where we can help all reduce utility usage.

**Benchmarking Data Consultant**, an authorized agent of **Customer Name**, will use the information below to request and receive billing history, usage, and all meter usage history data. This information will enable **Benchmarking Data Consultant** to import past usage information from your utility bill and new consumption for the term defined below.

Providing authorization to access your usage information will not affect your utility bill in any way; you will still receive a paper bill by mail for the same total and you will be able to keep an existing online account if you already have one.

Please fill out and sign the form below. Thank you for cooperation!

Contact **In-House Customer Contact** with questions. **Contact Email** **Contact Phone (###) ### - ###**

______________________________________________________________

**I hereby authorize** **Benchmarking Data Consultant** & **Customer Name** to request historic and future billing history through **Utility Company Name**.

Account Holder Name: ____________________________________________

Account Holder Signature: __________________________________________

Account Holder Last Four of SSN: __ __ __ __

Street Address: _________________________________________________

Apartment / Unit #: ________

Date: _____ / _____ / _______ (mm/dd/yyyy)

**Electric Account**

Account #: __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __

(9 – digit account) (7 – digit premise)

The third party can receive account information and/or conduct business as indicated above through **_MM_ / _DD_ / ____YYY**

This authorization shall continue in effect until the date specified unless terminated by the customer.