



NJHMFA ENERGY BENCHMARKING TECHNICAL MANUAL

EXECUTIVE SUMMARY

This technical manual provides guidelines for building managers to successfully benchmark and report their energy usage to the New Jersey Housing and Mortgage Finance Agency (HMFA). Benchmarking is necessary for HMFA to assess sustained performance and compare each building to similar building types on their sustained performance, track the overall progress of efficiency upgrades, and effectively allocate our resources to proven models. Collected benchmarking data will be used to facilitate efficient analysis of energy performance for better management of energy usage, decreased energy expenditures, identify interesting energy use trends over time, decreased carbon emissions, and comparison of energy usage among similar locations and building types. It will allow HMFA to quantitatively compare energy usage in the newer buildings vs. the older buildings and the energy usage in the HMFA buildings that have incorporated energy efficiency measures vs. the buildings that have not received energy efficiency improvements.

DEFINITION OF ENERGY BENCHMARKING

Energy benchmarking is the process of analyzing energy usage over time and comparing the total use to the total cost. Because energy usage is affected by changes in temperature, benchmarking incorporates hot and cold weather data in order to determine the peak usage periods over time. The final results are generally expressed based upon square foot use. This allows for multiple buildings to be aggregated and compared. It is good measurement for evaluating building energy performance based on the type of building, occupancy, fuel source(s), location, weather, etc.

PURPOSE OF ENERGY BENCHMARKING

The purpose for benchmarking the energy performance of the buildings within the HMFA portfolio is to gain a better understanding of how the buildings use their energy and whether the energy efficiency measures that have been implemented within our buildings have realized their expected energy savings. It will also help us understand how our buildings are performing compared to similar buildings in other states. This analysis also has implications that can guide how HMFA provides financing in the future by:

1. Identifying properties that could benefit from energy efficiency upgrades;
2. Providing guidance for future energy efficiency program development;
3. Providing an underwriting basis for expected utility cost reduction achieved through energy efficiency and renewable energy programs

GETTING STARTED

The following instructions will guide you through the process of collecting the utility data, granting HMFA access to the information, and uploading the information online through the EPA Portfolio Manager system.

IMPORTANT NOTES:

- In order to qualify for this point, the application shall include a copy of the completed, signed and submitted letter of intent from the developer to NJHMFA.
- Prior to issuance of the 8609, developer/owner will submit a signed energy benchmarking utility release form for all common area meters (gas, oil, and electric, etc.), provision of certain project data (square footage per building, mechanical systems installed, etc.) and signed energy benchmarking utility release forms for a minimum of 75% of tenants rented up at time of 8609 issuance. Applicant is required to include the tenant utility release form as a part of the lease agreement.
- For the next three years following issuance of the 8609, the applicant will ensure that at least 75% of all tenants have viable utility release forms (or provide documentation of the efforts to obtain such forms) and common area utility data shall be uploaded into the EPA Portfolio Manager (www.energystar.gov/benchmark).
- NJHMFA does not provide additional, set-aside funding for Green Items covered by this program.

SUBMIT ALL REQUIRED DOCUMENTATION AFTER A TAX CREDIT ALLOCATION TO:

Please send all required documents to:

Pam DeLosSantos
NJ Housing and Mortgage Finance Agency
delossantos@njhmfpa.gov
Phone: 609.278.7627

For U.S. Post Office:
P.O. Box 18550
Trenton, NJ 08611

For Fed Ex, UPS, Visitors, etc:
637 S. Clinton Ave.
Trenton, NJ 08650-2085

RESOURCES:

EnergyStar Portfolio Manager:

<https://www.energystar.gov/istar/pmpam/>

Service providers that offer automated benchmarking through EnergyStar-

http://www.energystar.gov/index.cfm?c=spp_res.pt_spps_automated_benchmarking

Energy Auditors that offer benchmarking services through NJ Clean Energy:

http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/&start=

Online Portfolio Manager and Energy Benchmarking Training-

http://www.energystar.gov/ia/business/benchmarking_training/benchmarking.html
http://www.energystar.gov/index.cfm?c=business.bus_internet_presentations

Pre-Recorded Energy Benchmarking Training-

<https://energystar.webex.com/mw03071/mywebex/default.do?siteurl=energystar>

PROCEDURES

Use the following checklist as a guide as you benchmark the building and tenant utility usage.

- **STEP 1:** Sign and submit Letter of Intent to HMFA
- **STEP 2:** Set-up meeting with the HMFA Green Technical Advisor
- **STEP 3:** Gather building and space attribute information using the **HMFA ENERGY BENCHMARKING SURVEY FORM**.
- **STEP 4:** COMPLETE AND SIGN the **BUILDING OWNER UTILITY RELEASE FORM**
- **STEP 5:** Have the tenants COMPLETE AND SIGN the **TENANT UTILITY RELEASE FORM**
- **STEP 6:** Input the **TENANT AND BUILDING** account details into the **HMFA UTILITY SPREADSHEET (SEE APPENDIX A)**
- **STEP 7:** Collect **12 CONSECUTIVE MONTHS** of **BUILDING UTILITY BILLS**
- **STEP 8:** Create a building profile in **PORTFOLIO MANAGER (SEE APPENDIX B)**
 - Portfolio Manager Username (do not submit to HMFA): _____
 - Portfolio Manager password (do not submit to HMFA): _____
- **STEP 9:** Upload **BUILDING** utility data into **PORTFOLIO Manager (www.energystar.gov/benchmark)**
- **STEP 10:** Authorize annual reporting to **HMFA THROUGH PORTFOLIO MANAGER**
- **STEP 11:** Submit the following items to HMFA
 - HMFA Benchmarking survey form
 - Tenant and Building utility release forms (75% of tenants)
 - 12 consecutive months of utility bills for each building utility account (**due by January 31st, for the next three years**)
 - Filled out HMFA Utility Spreadsheet (SEE APPENDIX A)

*****OPTIONAL (consult with HMFA Green Technical Advisor in advance)*****

- **STEP 12:** Collect **12 CONSECUTIVE MONTHS** of **TENANT UTILITY BILLS** from each **Tenant account**
- **STEP 13:** Upload **ALL** tenant utility data into **PORTFOLIO Manager (www.energystar.gov/benchmark)**
- **STEP 14:** Authorize annual reporting to **HMFA THROUGH PORTFOLIO MANAGER**
- **STEP 15:** Submit **12 consecutive months of utility bills** for each tenant utility account (**due by January 31st, for the next three years**)

LETTER OF INTENT – ENERGY BENCHMARKING INITIATIVE

Please e-mail a signed copy of this page to NJHFMA Green Homes Office and include in Tax Credit Application.

By signing this document, I certify the following (“we” refers to the applicant organization):

1. **We have received and reviewed the Program’s materials, consisting of the ‘LIHTC Green Point Requirements 2012’ and ‘Energy Benchmarking’ documents, which includes the Letter of Intent, Building Utility Release Form and Survey, and Tenant Utility Release Form.**
2. **We understand that a meeting with the Green Technical Advisor is required within three (3) months of the Tax Credit Award Date.**
3. **We understand that prior to issuance of the 8609 we will submit a signed energy benchmarking utility release form for all common area meters (gas, oil, and electric, etc.), provision of certain project data (square footage per building, mechanical systems installed, etc.) and signed energy benchmarking utility release forms for a minimum of 75% of tenants rented up at time of 8609 issuance.**
4. **We understand for the next three years following issuance of the 8609, we will ensure that at least 75% of all tenants have viable utility release forms (or provide documentation of the efforts to obtain such forms) and common area utility data shall be reported. Common area utility data shall be uploaded into the EPA Portfolio Manager (www.energystar.gov/benchmark).**
5. **We understand that NJ ENERGY STAR Homes certification is a prerequisite to participation in the LIHTC Green Point program. I will comply with the ENERGY STAR requirements as indicated in the LIHTC QAP section (c)8 and 2017 ENERGY STAR letter of intent.**
6. **If requested we will allow NJHMFA staff access to the project site pre, during and post construction for the purpose of but not limited to: project monitoring, performance testing, interviews, surveys and photographs.**
7. **I am an authorized representative of the organization.**

Signature:

_____ **Date:** _____

Name of signer: _____

Title: _____

Project Name: _____

Organization: _____

ENERGY BENCHMARKING SURVEY FORM

Please complete one Building Data Form for each building in a development.

BUILDING DATA

Development Name: _____ NJHMFA #: _____

Address: _____ Year Built: _____

Building type (Senior, Family, Mixed): _____

Electricity Metering (check one): Individually-Metered / Master-Metered

Gas Metering (check one): Individually-Metered / Master-Metered

Primary hot water fuel type: _____

Percent of floor area that is cooled in 10% increments (10%, 20%, 30%, etc.): _____

Percent of floor area that is heated in 10% increments (10%, 20%, 30%, etc.): _____

Total Sq. Ft.: _____ Common Area Sq. Ft.: _____ # of Buildings: _____

of Elevators: _____ # of Floors in each building: _____ # of units: _____

of Bedrooms: 1: _____ 2: _____ 3: _____ 4: _____

Past Energy-Efficiency Work Completed (select all that apply and implementation year- write N/A if not applicable):

| <i>Energy-Efficiency Improvement</i> | <i>Year implemented</i> |
|--|--------------------------------|
| <input type="checkbox"/> ENERGY STAR Homes Certification | |
| <input type="checkbox"/> Multifamily High Rise | |
| <input type="checkbox"/> Pay for Performance | |
| <input type="checkbox"/> Home Performance with Energy Star | |
| <input type="checkbox"/> LEED | |
| <input type="checkbox"/> Enterprise Green Communities | |
| <input type="checkbox"/> Windows | |
| <input type="checkbox"/> Lighting | |
| <input type="checkbox"/> Other (please describe) | |

Please include all types of energy used. Complete additional forms as needed when utility information differs by building.

METER INFORMATION

Electric Utility Name: _____

Account Number(s): _____

Natural Gas Utility Name: _____

Account Number(s): _____

Fuel Oil Utility Name: _____

Account Number(s): _____

Other Meters-not including water or sewer (e.g. Renewable Energy, Propane, Cogeneration):

Utility Name & Account Number(s): _____

Utility Name & Account Number(s): _____

Utility Name & Account Number(s): _____

BUILDING SYSTEM CHARACTERISTICS:

Please check all that apply:

Heating System Type:

- Furnace
- High Efficiency Condensing Furnace
- High Efficiency Condensing Burner
- Hot Water Boiler
- Steam Boiler
- Heat Pump
- High Efficiency Variable Heat Pump
- Ground Source Heat Pump
- Packaged Terminal Air Conditioner (PTAC) Unit
- Cogeneration (CHP)
- Special Description:

Cooling System Type:

- Chiller
- Wall Unit (in each Apt.)
- Cooling Tower
- Window Unit (in each Apt.)
- Compressor (mini-split)
- Compressor (ducted)
- Ground Source Heat Pump
- Packaged Terminal Air Conditioner (PTAC) Unit
- Special Description:

Building type:

- Wood or steel frame
- Solid Concrete
- Masonry
- Modular
- Structurally insulated panels (SIPS)
- Other type:

Optional:

- Wood or steel frame
- Solid Concrete
- Masonry
- Modular
- Structurally insulated panels (SIPS)
- Other type:

Building Owner Utility Release Form

Authorization for NJHMFA to Receive Customer Utility Data

*****Please attach 12 consecutive months of utility data bills to this form*****

Date: _____

To Whom It May Concern:

By signing this release form, the property owner (Owner) grants the New Jersey Housing and Mortgage Finance Agency (NJHMFA) and its designee, a consultant for this initiative, permission to access utility data information for the past two (2) years of and for the following four (4) years from this date for the development/building referenced below. The utility data includes energy consumption, energy demand, energy cost, as well as associated fees and taxes for each billing period. This information will be used to track energy efficiency and consumption of the building indicated below for the express purpose of measuring the success of past energy upgrades, comparing building performance to similar building types and determining need for future energy efficiency improvements.

I am an authorized representative for the development and building listed below and account(s) listed on the following page(s), totaling ____ pages, and represent and warrant that I have full authority to execute this release form on behalf of the Owner. Owner understands that the information obtained as part of this initiative may be released by the NJHMFA to other participating developments upon request for comparison purposes. Comparison reports compiled by the NJHMFA for this program and provided to other developments will not include this development's name or address. Owner understands and acknowledges that such information may be subject to release under the Open Public Records Act, N.J.S.A. 47:1A-1 et seq., or other applicable law. Owner understands that each applicable utility provider (Utility) reserves the right to verify this authorization request.

Owner authorizes the Utility to release the requested information on Owner's account or facilities to the NJHMFA or its designee. Owner hereby releases, holds harmless, and indemnifies the NJHMFA and the Utility from any liability, claims, demands, causes of action, damages, or expenses as a result of, but not limited to: 1) any release of information to NJHMFA or its designee pursuant to this Utility Release; or 2) the unauthorized use of this information by NJHMFA or its designee.

Sincerely,

Authorized Representative (signature)

Please print clearly.

Authorized Representative Name: _____

Development Name: _____

Building Service Address: _____

Development Contact: _____

Mailing Address: _____

Phone: _____ Email: _____

Tenant Utility Release Form

Authorization for NJHMFA to Receive Customer Utility Data

Date: _____

To Whom It May Concern:

By signing this release form, the tenant (Tenant) grants the New Jersey Housing and Mortgage Finance Agency (NJHMFA) and its designee (a consultant for this initiative) permission to access utility data information for the past two (2) years of and for the following four (4) years from this date for the unit referenced below. Utility data includes energy consumption, energy demand, energy cost as well as associated fees and taxes for each billing period. This information will be used to track energy efficiency and consumption of the building indicated below for the express purpose of measuring the success of past energy upgrades, comparing building performance to similar building types and determining need for future energy efficiency improvements.

I am an authorized representative for the unit and account(s) listed below and represent and warrant that I have authority to execute this release. Tenant understands that the information obtained as part of this initiative may be released by the NJHMFA to other participating developments upon request for comparison purposes. Comparison reports compiled by the NJHMFA for this program and provided to other developments will not include tenant's information or this development's name or address. Tenant understands and acknowledges that such information may be subject to release under the Open Public Records Act, N.J.S.A. 47:1A-1 et seq., or other applicable law. Tenant understands that each applicable utility provider reserves the right to verify this authorization request.

Tenant authorizes the Utility to release the requested information on Tenant's account to the NJHMFA or its designee. Tenant hereby releases, holds harmless, and indemnifies the NJHMFA and Utility from any liability, claims, demands, causes of action, damages, or expenses as a result of, but not limited to: 1) any release of information to NJHMFA or its designee pursuant to this Utility Release; or 2) the unauthorized use of this information by NJHMFA or its designee. Tenant understands that he/she may cancel this authorization at any time by submitting a written request to both the Utility and NJHMFA.

Sincerely,

Authorized Representative (Tenant signature) _____

Please print clearly.

Representative name: _____

Development Name: _____

Building Address: _____

Unit Number: _____ Number of Bedrooms in Unit: _____

Please list utility provider(s) and account number(s):

ELECTRIC UTILITY: _____ ACCOUNT #: _____

GAS UTILITY: _____ ACCOUNT #: _____

APPENDIX A

Contact Pam DeLosSantos at delossantos@njhmfa.gov for the electronic version of the spreadsheet.

Definitions:

1. **Fuel Type:** Gas or Electric
2. **Utility Company:** PSE&G, Atlantic City Electric, JCP&L, etc.
3. **Common Area:** All bills paid only by the building management
4. **Tenant:** All bills paid only by the tenants
5. **Usage Type:** Baseload (BL) - fuel used for basic energy items like lighting and cooking
Cooling (C)
Heating (H)
Domestic Hot Water (DHW)

| HMFA # | Property Name | Unit | Fuel Type | Usage Type | Utility Company |
|-----------------------------|--------------------------------------|---|---|---|---|
| | | Common Area | | | |
| | | Common Area | | | |
| | | Tenant | | | |
| | | Tenant | | | |
| Project Gross (sqft) | Conditioned Area (sqft) | Common Area (sqft) | __ bedroom (sq ft) - __ units | __ bedroom (sq ft) - __ units | __ bedroom (sq ft) - __ units |
| | | | | | |
| Number of buildings | Number of floors per building | Number of units | __ bedroom building locations (amount) | __ bedroom building locations (amount) | __ bedroom building locations (amount) |
| | | | | | |
| Oil Company | Account # | | | | |
| | | | | | |
| Electric | | | Gas | | |
| Unit # | Account # | signed release form for this account (Y/N) | Unit # | Account # | signed release form for this account (Y/N) |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |



PORTFOLIO MANAGER ■ QUICK REFERENCE GUIDE

MULTIFAMILY HOUSING

Tracking Your Energy Performance

Portfolio Manager is an online, interactive energy management tool that allows you to measure and track your building's energy and water consumption, identify investment priorities, and verify improvements over time. Multifamily housing communities can use Portfolio Manager to track weather-normalized energy use intensity (EUI), energy costs, greenhouse gas emissions, and water consumption.



USE PORTFOLIO MANAGER STEP-BY-STEP

| STEP | ACTIVITY | ACTION | | | | | | | | | | | | | | | | | | | | | |
|-------------|--|--|---------------------------|------------------------|-----------------------|--------------------|------------------|------|---------------------|--|-----------------|--------------|----------|------------|---------|-------------|--------------------|-----------------|---------------------------|---|------------|---------|--|
| 1 | Access Portfolio Manager | www.energystar.gov/benchmark | | | | | | | | | | | | | | | | | | | | | |
| 2 | Access your account <ul style="list-style-type: none"> ■ Create a new account ■ Login to an existing account | <ul style="list-style-type: none"> ■ Click REGISTER. ■ Enter user name and password and click LOGIN. | | | | | | | | | | | | | | | | | | | | | |
| 3 | Review system updates and enter your account | Click ACCESS MY PORTFOLIO. | | | | | | | | | | | | | | | | | | | | | |
| 4 | Add a new facility | Click ADD a Property. | | | | | | | | | | | | | | | | | | | | | |
| 5 | Select property type and enter general facility information <div data-bbox="228 1136 570 1289" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Property Type</p> <p>What type of property are you managing?</p> <ul style="list-style-type: none"> <input type="checkbox"/> A single facility for which my organization owns or manages 90% or more of the floor area. <input type="checkbox"/> A portion of a single facility for which my organization owns or manages less than 90% of the floor area. <input type="checkbox"/> A single component of a single facility on a collection of facilities. <input type="checkbox"/> A multiple-tenant master meter on a collection of facilities. <input type="checkbox"/> A campus or other collection of multiple facilities at the same geographic location. View Help <p style="text-align: right;">Back Continue</p> </div> | From the "Add a Property" screen, most users will select "A single facility for which my organization owns or manages 90% or more of the floor area." This is the case even for garden or townhouse properties with multiple buildings. Only select the last option ("A campus or other collection of multiple facilities at the same geographic location") if you have multiple multifamily buildings, all on the same master meter. Click CONTINUE, enter General Facility Information, and then click SAVE. | | | | | | | | | | | | | | | | | | | | | |
| 6 | Enter space use data <div data-bbox="136 1392 646 1499" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <table border="1"> <thead> <tr> <th>Space Name</th> <th>Space Type</th> <th>Effective Date (MM/DD)</th> <th>% of Floor Area</th> <th>Area</th> <th>Area Unit</th> </tr> </thead> <tbody> <tr> <td>200</td> <td>Multifamily Housing</td> <td>1/1/2010</td> <td>100</td> <td>100,000</td> <td>Sq Ft</td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td>100</td> <td>100,000</td> <td>Sq Ft</td> </tr> </tbody> </table> <p><small>Remember that 90% of your building's floor area must be multifamily housing within Portfolio Manager. This app currently is not available for non-multifamily buildings. For more information, see the Help section.</small></p> </div> | Space Name | Space Type | Effective Date (MM/DD) | % of Floor Area | Area | Area Unit | 200 | Multifamily Housing | 1/1/2010 | 100 | 100,000 | Sq Ft | Total | | | 100 | 100,000 | Sq Ft | Go to "Space Use" section and click ADD SPACE. <ul style="list-style-type: none"> ■ Enter a facility name. In the "Select a Space Type" menu, select "Multifamily Housing." Enter an effective date. Click CONTINUE. ■ Enter space data. Enter total gross square footage (including both common area and apartment space) even if you are only entering common area energy data. The other space use questions are voluntary, but it is highly encouraged to enter optional space use information. Click SAVE. | | | |
| Space Name | Space Type | Effective Date (MM/DD) | % of Floor Area | Area | Area Unit | | | | | | | | | | | | | | | | | | |
| 200 | Multifamily Housing | 1/1/2010 | 100 | 100,000 | Sq Ft | | | | | | | | | | | | | | | | | | |
| Total | | | 100 | 100,000 | Sq Ft | | | | | | | | | | | | | | | | | | |
| 7 | Enter energy use data <div data-bbox="136 1598 646 1705" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <table border="1"> <thead> <tr> <th>Meter Name</th> <th>Energy Type</th> <th>Location</th> <th>Unit of Measure (UOM)</th> <th>Start Date (MM/DD)</th> <th>End Date (MM/DD)</th> <th>Area</th> </tr> </thead> <tbody> <tr> <td>Electricity</td> <td>Electricity (Grid, Fuel Cells, CHP, Storage/Heat Exch)</td> <td>Entire Facility</td> <td>kWh/1000 kWh</td> <td>1/1/2010</td> <td>12/31/2010</td> <td>100,000</td> </tr> <tr> <td>Water/Steam</td> <td>Water/Steam (Grid)</td> <td>Entire Facility</td> <td>1000 Gallons/1000 Gallons</td> <td>1/1/2010</td> <td>12/31/2010</td> <td>100,000</td> </tr> </tbody> </table> </div> | Meter Name | Energy Type | Location | Unit of Measure (UOM) | Start Date (MM/DD) | End Date (MM/DD) | Area | Electricity | Electricity (Grid, Fuel Cells, CHP, Storage/Heat Exch) | Entire Facility | kWh/1000 kWh | 1/1/2010 | 12/31/2010 | 100,000 | Water/Steam | Water/Steam (Grid) | Entire Facility | 1000 Gallons/1000 Gallons | 1/1/2010 | 12/31/2010 | 100,000 | Go to "Energy Meters" section and click ADD METER. <ul style="list-style-type: none"> ■ Enter meter name, type, and units. Click SAVE. ■ Enter number of months and start date. Click CONTINUE. ■ Enter energy use and cost. Click SAVE. Repeat for all energy meters and fuel types. |
| Meter Name | Energy Type | Location | Unit of Measure (UOM) | Start Date (MM/DD) | End Date (MM/DD) | Area | | | | | | | | | | | | | | | | | |
| Electricity | Electricity (Grid, Fuel Cells, CHP, Storage/Heat Exch) | Entire Facility | kWh/1000 kWh | 1/1/2010 | 12/31/2010 | 100,000 | | | | | | | | | | | | | | | | | |
| Water/Steam | Water/Steam (Grid) | Entire Facility | 1000 Gallons/1000 Gallons | 1/1/2010 | 12/31/2010 | 100,000 | | | | | | | | | | | | | | | | | |
| 8 | Set metering configuration | Underneath the "Energy Meters" section, click SET METERING CONFIGURATION. <ul style="list-style-type: none"> ■ Select appropriate option from radio button list. Click SAVE. ■ See Features section for additional guidance. | | | | | | | | | | | | | | | | | | | | | |
| 9 | Review and interpret results | Go to "Facility Performance" section and review your results. More information is provided on pages two and three of this guide. | | | | | | | | | | | | | | | | | | | | | |
| 10 | Manage account | Share data and perform other administrative tasks. | | | | | | | | | | | | | | | | | | | | | |

www.energystar.gov/benchmark