HELIX

Home Energy Labeling Information eXchange

A3P STRATEGIES

CLEARLYENERGY

DDER
Massachusetts Department of Energy Resources

EFG
ENERGY FUTURES GROUP

NASEO
National Association of State Energy Officials

neep

SUSTAINABLE REAL ESTATE CONSULTING SERVICES

Vermont Energy Investment Corporation

VERMONT

VL
VERMONT LAW SCHOOL

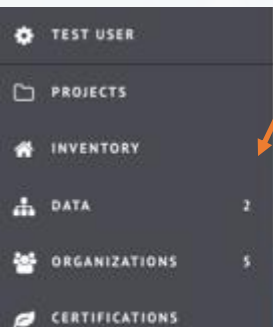HELIX 1.0   MARCH 2018

HELIX Home Page

You can open the Navigation Drawer to see your homes and organizations count

You can also navigate through the tabs at the top

Key Navigation Tabs:
- DATA: all of the datasets you load, they are combined into
- INVENTORY: your list of properties
- CERTIFICATIONS: your list of reference certifications

You can download two sample files with illustrative formats

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Appendix A
Detailed Mapping Instructions

Appendix B
Dictionary of Column Headers

HELIX Workflow

Import data

↓

Map field headers to HELIX naming conventions

↓

Merge data into existing building list

↓

Export data as needed

Organizations

- Every account holder belongs to one or more Organizations, though most users will only belong to one

- HELIX allows Organizations to have Sub-Organizations

Organizations

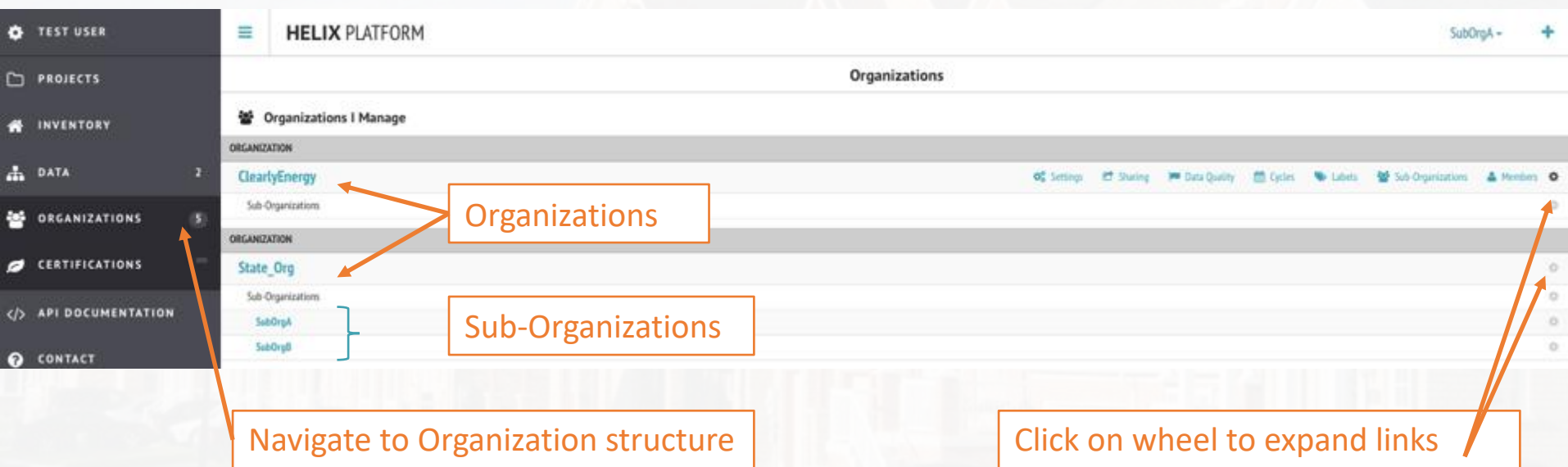Sub-Organizations

Navigate to Organization structure

Click on wheel to expand links

Organizations - Settings

Click on Setting link

Change your organization's name and other settings

Organizations

Settings | Sharing | Data Quality | Cycles | Labels | Sub-Organizations | Members

⚙ **Settings**

Organization Name

ClearlyEnergy

Measurement unit display for energy use intensities (EUI)

kBtu/sq. ft./year ▾

Measurement unit display for areas

square feet ▾

Significant figures for EUIs and areas

0.02 ▾

Save Changes

Organizations – Sub-Organizations

HELIX PLATFORM

SubOrgA ▾

Organizations

👥 **Organizations I Manage**

ORGANIZATION

ClearlyEnergy

Sub-Organizations

Parent Organization

ORGANIZATION

State_Org

Sub-Organizations   ＋ Create new sub-organization

SubOrgA

SubOrgB

Create a New Sub-Organization

Sub-Org Name: Enter sub-organization name

Invite an Owner: Enter email address

Note 1: Sub-organizations cannot be deleted.

Note 2: Parent organization members are not automatically made members of sub-organizations.

Cancel   **Create New Sub-Organization**

Organizations owners can click to create new sub-organizations

The owner of the new sub-organizations must initially be a member of the parent organizations (can be deleted from the parent later)

Organizations - Sharing

Organizations - Members

HELIX PLATFORM   SubOrgA ▾

< Organizations

Settings   Sharing   Data Quality   Cycles   Labels   Sub-Organizations   **Members**
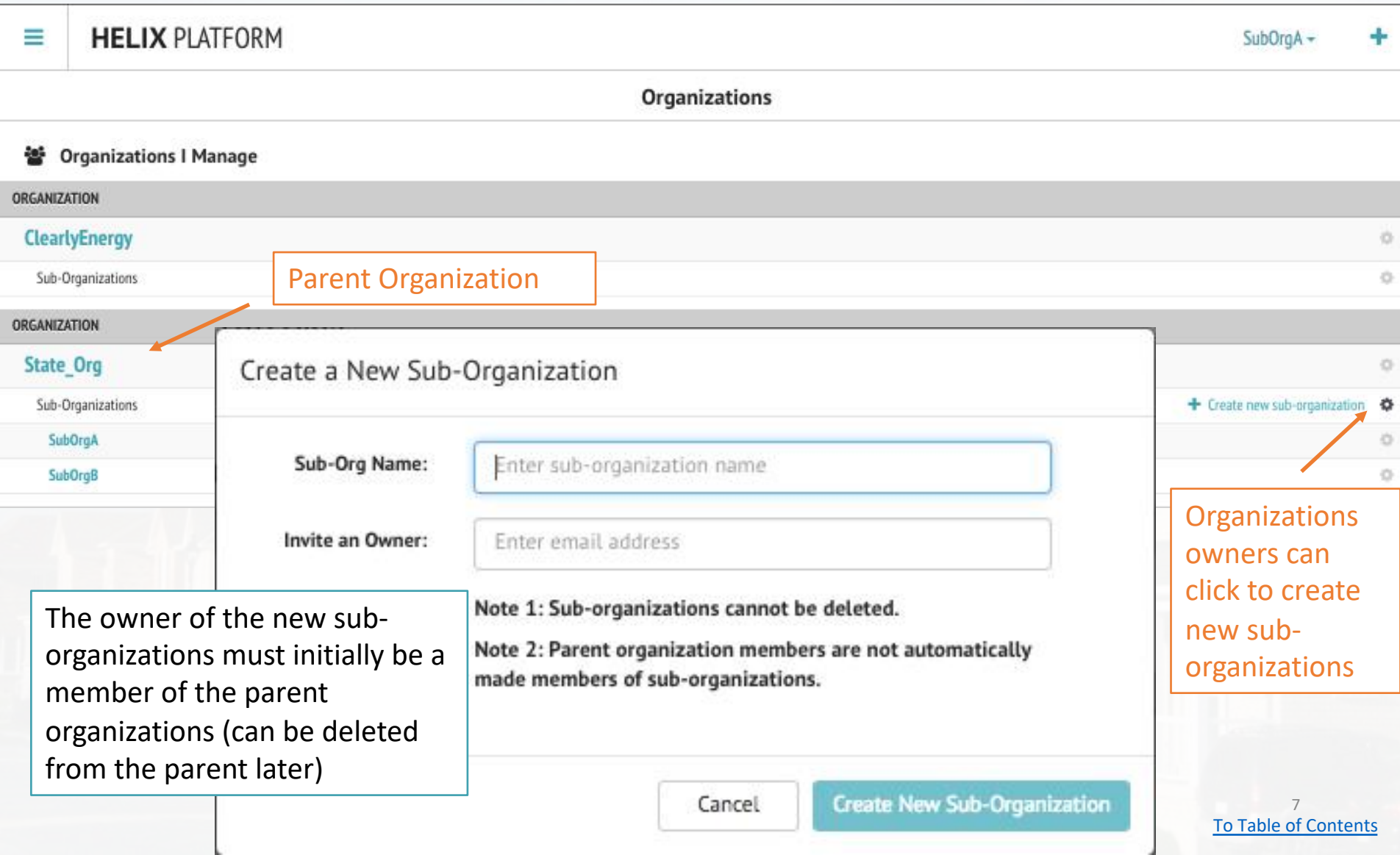
👤 **Members**   Invite a new member

MEMBER NAME	MEMBER EMAIL	LAST LOGIN	MEMBER ROLE	CERTIFICATIONS ADDED	CERTIFICATIONS EXPORTED	
member name	member email	member last login	member role	member certifications	member certifications exporte	
Test User		2018-01-13 10:41 PM	owner ⬍	1	0	Remove
						Remove
						Remove
						Remove
MLS Viewer						Remove

Invite a New Member

First Name: Enter first name

Last Name: Enter last name

Email Address: Enter Email Address

Role: Member ⬍

Cancel   Send Invite

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Annotation boxes:

1. Click on the Members link

2. Invite new members by clicking on this link

3. You can set the role of a new member

4. Invitations to HELIX and to set a password are sent via email

Organizations – Roles and Privileges

	Parent	Sub-Organization		
		Owner	Member	Viewer
Set fields to display between Sub-Org	✓			
Create Sub Orgs	✓			
Add/remove members	✓ to parent, or at setup of sub	✓		
Add/remove certifications	✓	✓		
View members	✓in parent, owner(s) of subs	✓		
Change settings: • **Rename Sub-org** • **Change member role**	✓ in parent	✓		
Add Data	✓	✓	✓	
Edit Data	✓all subs	✓	✓	
View Data	✓all subs	✓	✓	✓

User Profile Settings

In the settings menu

User Information is found under the profile tab

User information can be edited here

HELIX

PLATFORM

ClearlyEnergy Admin

Profile Info   Security   Admin   Developer

ℹ **Profile Information**

First Name:

ClearlyEnergy

Last Name:

Admin

Email Address:

info@clearlyenergy.com

Save Changes   Cancel

Certifications

Under the certifications tab

Click to edit

Create new Certification

Create a New Certification

- Certifications which are scores or ratings are assumed to be numeric. Make sure the Numeric option is checked for these
- Award, labels and other certifications can be True/False or a word descriptor
- If a score is only valid for a finite period of time, please enter this period in days
- Enable "Export to MLS" unless the data should not be exported

Data Upload – Create Dataset
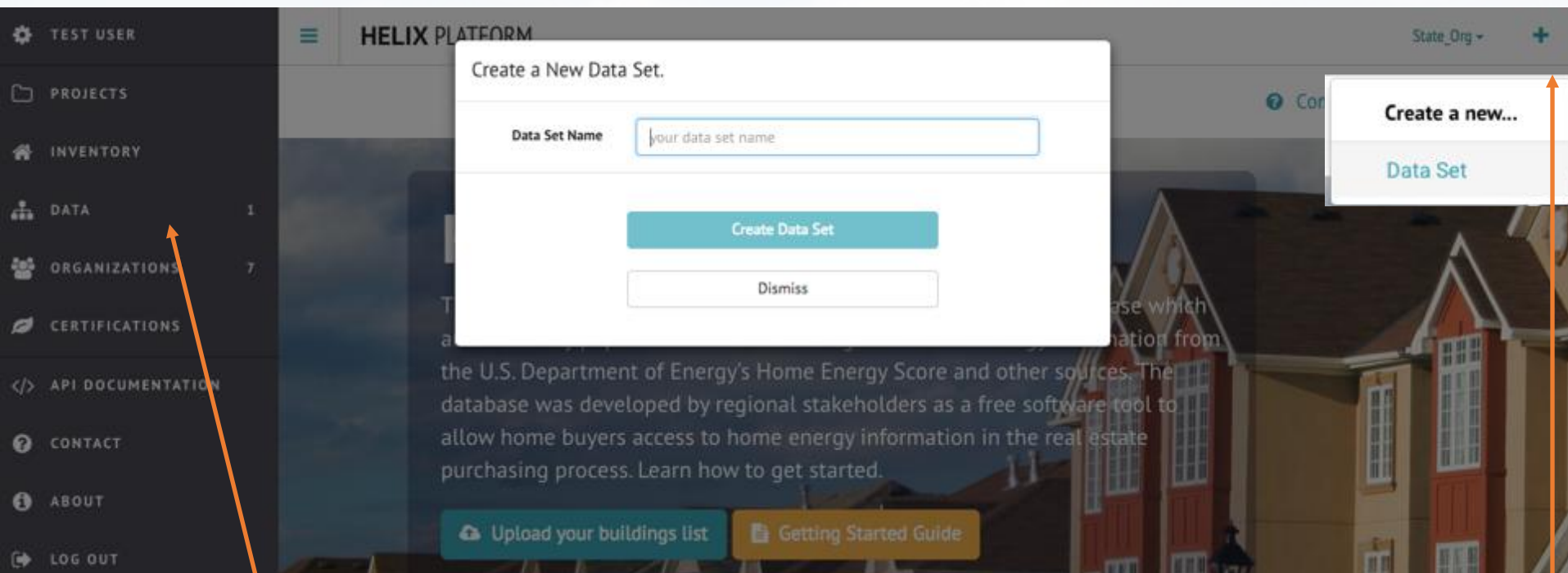
To start loading data, you first need to create a dataset. This will be used to organize various sources of data in the repository. You have three options to start:
1 Click the "Upload your buildings list" blue button on the home page
2. Click on the "+" in the upper right corner and select to Create a new Data Set
3. Click on Data in the left menu and select "Create new data set"
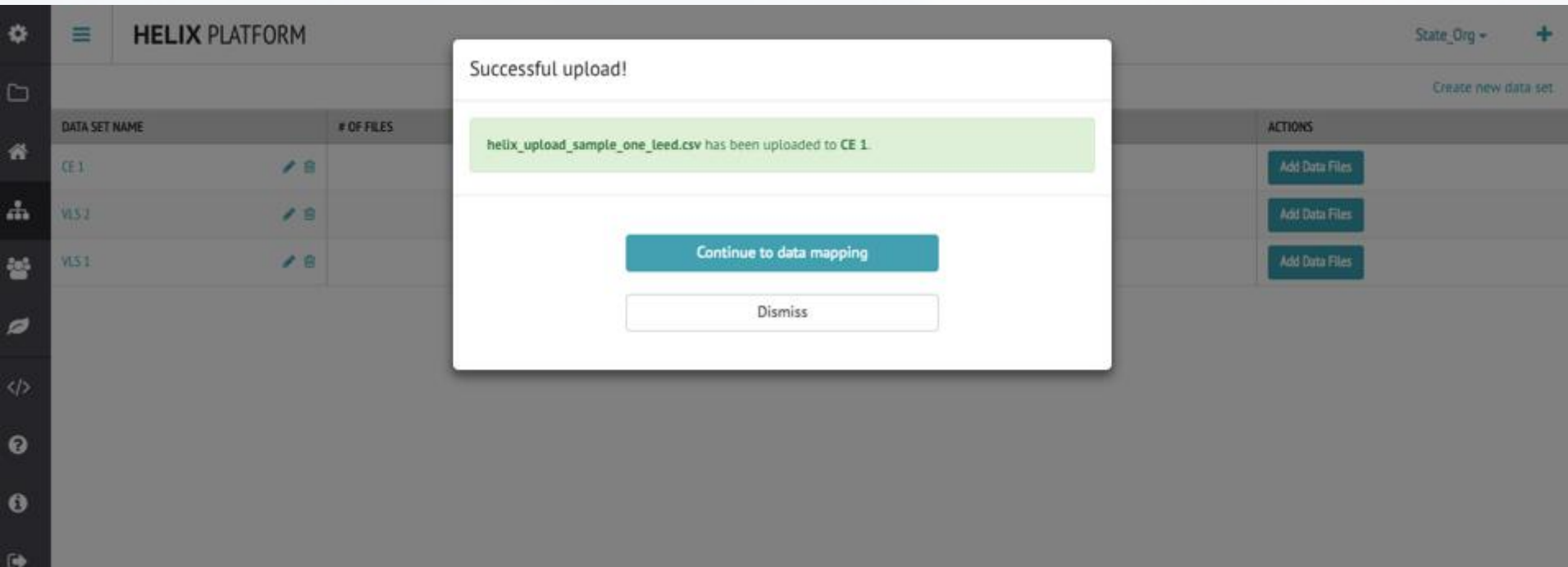
Data Upload – File Formats
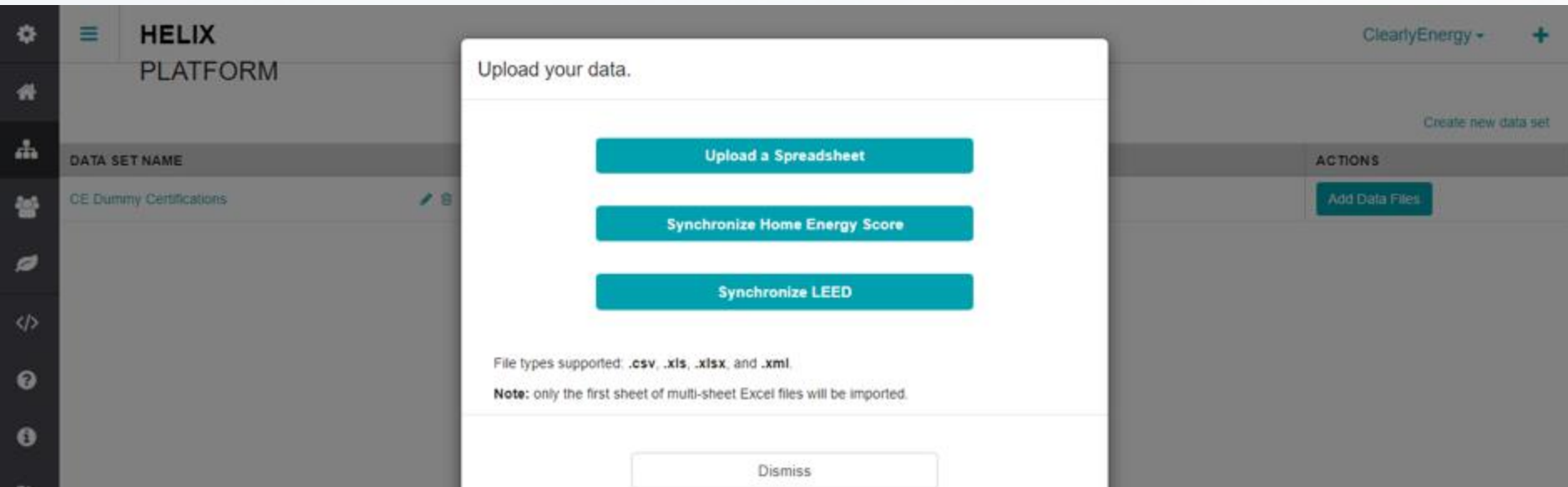
HELIX supports to types of upload and various file formats:
- Spreadsheet (cvs,xls,xlsx) or xml file upload. Sample file formats are provided on the home page by clicking on "Download Sample Data"
- Synchronizing with the Home Energy Score repository. This method requires HELIX to be a third-party recipient of the HES data and the HES credentials to be saved in your organization's settings.
- Location settings are required to synchronize LEED scores

Data Upload - Process

The file upload records the data in the HELIX database and archives of a copy of the original data files.
Upon successful upload, you are prompted to continue to data mapping.

Data Mapping

HELIX uses a custom ID and/or the normalized address (derived from the address fields) to match new and existing records

Click when finished mapping

Map names from import file to standardized HELIX data field names

Start typing to see a list of fields containing that word

Data Mapping Nomenclature

Summary list of key field names: See Appendix for detailed mapping instructions by source

Property Data

- Address Line 1
  - E.g. 1 Main St
- Address Line 2
  - E.g. Lot 5
- Postal Code
  - Same as Zip Code
- City, State
- Custom ID 1
  - Any unique identifier linked to the building (not the certification)
- Anything else that is linked to the building

Certification Data

Two options:
1. Label headers with "Green Assessment" as well as:
- Name
  - Must match existing certifications
- Property Reference ID
  - Unique ID associated with the certification. It will not be used to map/merge homes
- Property Metric
  - Number rating, for example 70
- Or Property Rating
  - Text rating, for example Gold
2. Label headers with Certification Names:
  - Names must match existing certifications
  - Save certification dates using "Green Assessment Property Date" header

Measurement Data

Measurement data includes: home consumption, cost and solar information

Data Mapping - Review

Return to previous screen

The mapping review allows you to check that your data is properly mapped before saving the mappings

Click to continue

Inspect data quality warnings

Data quality results can be exported

Data Matching

- HELIX looks for existing records to merge new information into:
  - duplicates are ignored
  - last data into HELIX becomes the current information

Matching Results for file: **home_energy_score.csv**

- Total rows in the import file: 28
- New properties: 3
- New tax lots: 1
- Merged properties: 10
- Ignored property duplicates within the import file: 1
- Ignored tax lot duplicates within the import file: 27

Summary of mapping results

Confirm Save Mappings?

Did you review your mappings? It's a good idea to double check your mappings. Once HELIX matches your properties you cannot undo or edit these mappings.

Confirm mappings & start matching

Dismiss

Add another file

Restarts process

View my properties

View building list

Review matches

Dismiss

Properties – List View

Properties are accessed from the left menu or following data import

Fields can be filtered and sorted

Click to remove all filters

Click on the icon to view property details, including certifications

Filtering rules:
Numeric fields can be filtered by the following operators: =, ==, !=, !, <>, <, <=, >, >=
For example: >1200 returns values greater than 1200

Properties – List View – List Settings

List Settings control the order of columns displayed

Property List Settings

Properties List   List Settings   Reports

⚙️ **Column Order/Visibility**

Add Shared Properties.

☐ Include in your properties list all pr

Select or de-select all fields

There are 89 columns of data availal

Select columns from the list below to n

Check/Un-check fields to show/hide

e order in which they appear. Pin the rows for them to be left-pinned in the list view.

		Column Name	☰

Select fields to "pin" to the left of the list view;
fields can also be pinned through the filter function of the list display

✓	📌	State (Property)
✓	📌	Postal Code (Property)
✓		Custom ID 1 (Property)
✓		Address Line 1 (Property)
✓		Address Line 2 (Property)
✓		City (Property)
✓		Conditioned Floor Area
✓		Gross Floor Area

Drag individual fields up or down to re-organize the list display

Properties - Export

Properties

Export your Properties and Tax Lots

| Delete Selected |
| Export Selected |
| Add/Remove Labels |
| Data Quality Check |

Actions ▾   Filter

Export Name   File Name

● CSV   ○ XLS   ○ HELIX CSV

Cancel   Export

Clear Labels   Clear Filters

View by Propert

📖 7 Properties

Click to select all filtered properties for export

Address Line 1 (Proper...

2 Test Street

3 Test Street

1 Test Street

Select individual properties for export

1822 21st ave

4441 Lowes Creek Rd

12334 main street

143 rollins ave

- Make sure to select HELIX CSV export to export certification details

Properties – Detail View

The property detail view has two parts:
1. View certification details, including any measurements or links attached to certification
2. View property history

❮ Properties   **Property Detail**

Click to view measurements and report links   ttings

🏢 **Property : 12334 main street**   ✏ Edit

	AWARD BODY	ASSESSMENT TYPE	SCORE/RATING	DATE CREATED	EXPIRATION DATE	STATUS	OPT-OUT?
ℹ	U.S. Department of Energy	Home Energy Score	9	2017-11-09		Non-Official Score	false
	MEASUREMENT TYPE	**SUB-TYPE**	**FUEL**	**QUANTITY**	**UNIT**	**STATUS**	**YEAR**
	PROD		ELEC	2737	KWH	ESTIMATE	
	CONS		ELEC	11811	KWH	ESTIMATE	
	REPORT LINKS						
	http://hescore-pnnl-label-be.s3.amazonaws.com/hes_label_X3P6F.pdf						

🏷 Add/Remove Labels   **Labels:** (no labels applied)

Building change history

FIELD	MASTER	HOME_ENERGY_SCORE.CSV.1517602
PM Property ID		
PM Parent Property ID		
Jurisdiction Property ID		
Custom ID 1 (Property)		
Address Line 1 (Property)	12334 main street	12334 main street

Application Programming Interface (API)

To programmatically retrieve information from HELIX, obtain an API Key from the HELIX administrator. This key will be valid across the regions where your organization is active

Individual Home Query

1. Retrieve home certification and/or home solar data for individual by parcel ID
   - Sample API call
   - curl –G –u email:api_key –v "https://helix.neep.org/api/v2/reso_export-xml/" --data-urlencode "property_uid=0000B4716S2"
   - Mandatory parameter: property_uid

Batch Query

1. Retrieve list of property ids updated within a certain time window
   - Sample API call:
   - curl –u email:api_key https://helix.neep.org/api/v2/reso-export-list/?start_date=2018-08-01&end_date=2018-09-01
   - Optional parameters: start_date and end_date
   - Date format: 'yyyy-mm-dd'
   - Returns list of <property_id> tags
2. Retrieve home certification and/or home solar data for individual home
   - Sample API call
   - curl –u email:api_key https://helix.neep.org/api/v2/reso_export/?property_id=…
   - Mandatory parameter: property_id

Deep Linking to HELIX

- MLS' and other data partners are welcome to deep-link to HELIX
  - Contact the HELIX administrator for help in getting started
- Deep links can provide access to:
  - Home certification and solar data for organizations/states the recipient has access to, allowing individual users to search for properties or comparable homes with similar attributes within the region
  - Properties already filtered by zip code
  - Individual property search by address and/or parcel ID.
- HELIX uses an oauth2 RFC compliant framework for authentication and token exchange

Deep Linking to HELIX – Technical Details

To embed deep links to HELIX and use oauth2 to get direct access to HELIX data, contact the HELIX administrator for help in setting up your oauth2 client credentials and to make sure you have access to the correct subset of data

1. HELIX Client Setup

1. Go to: https://helix.neep.org/oauth/applications
2. Set client name, this is the name users will see when authorizing access to application, e.g. HELIX
3. Set Client Type to Confidential
4. Set Authorization Grant Type to authorization-code
5. Set the redirect to client token endpoint, for example: http://mysite.org/oauth/token
6. Copy Client ID and Client secret for reference

2. Local Client Setup

Create authentication link:
http://helix.neep.org/oauth/authorize/?response_type=code&client_id=<CLIENT_ID>&redirect_url=<CLIENT_AUTH_TOKEN_ENDPOINT>&scope=read&state=<STATE>

- A typical client token endpoint would be http://mysite.org/oauth/token

- The state parameter prevents CSRF attacks

Query by Zip Code

1. Include token returned by authentication in your request authorization header
2. Setup access URL as: https://helix.neep.org/app/#/properties?postal_code=<POSTAL_CODE>

Query By Address or Parcel ID

1. Include token returned by authentication in your request authorization header
2. Use the following query parameters in your URL

- By address: https://helix.neep.org/app/#/properties?address_line_1=<STREET ADDRESS>&postal_code=<POSTAL_CODE>

- By parcel_id: https://helix.neep.org/app/#/properties?ubid=<PARCEL_ID>

- By address or parcel id: https://helix.neep.org/app/#/properties?street=<STREET ADDRESS>&postal_code=<POSTAL_CODE>&ubid=<PARCEL_ID>

Contact & FAQ

Contact Information and Frequently Asked Questions are provided in the "Contact" tab

About

APPENDIX A: Detailed Mapping Instructions

General Data Upload Rules

Data uploads and data synchronization can be done either automatically or manually using spread sheets.

1. Open the Data tab

2. Select appropriate folder for data upload and add data files

3. Uploads and data synchronizations from named sources (HES, LEED) have field headers that will map automatically, just click to map. Spreadsheet uploads require further details
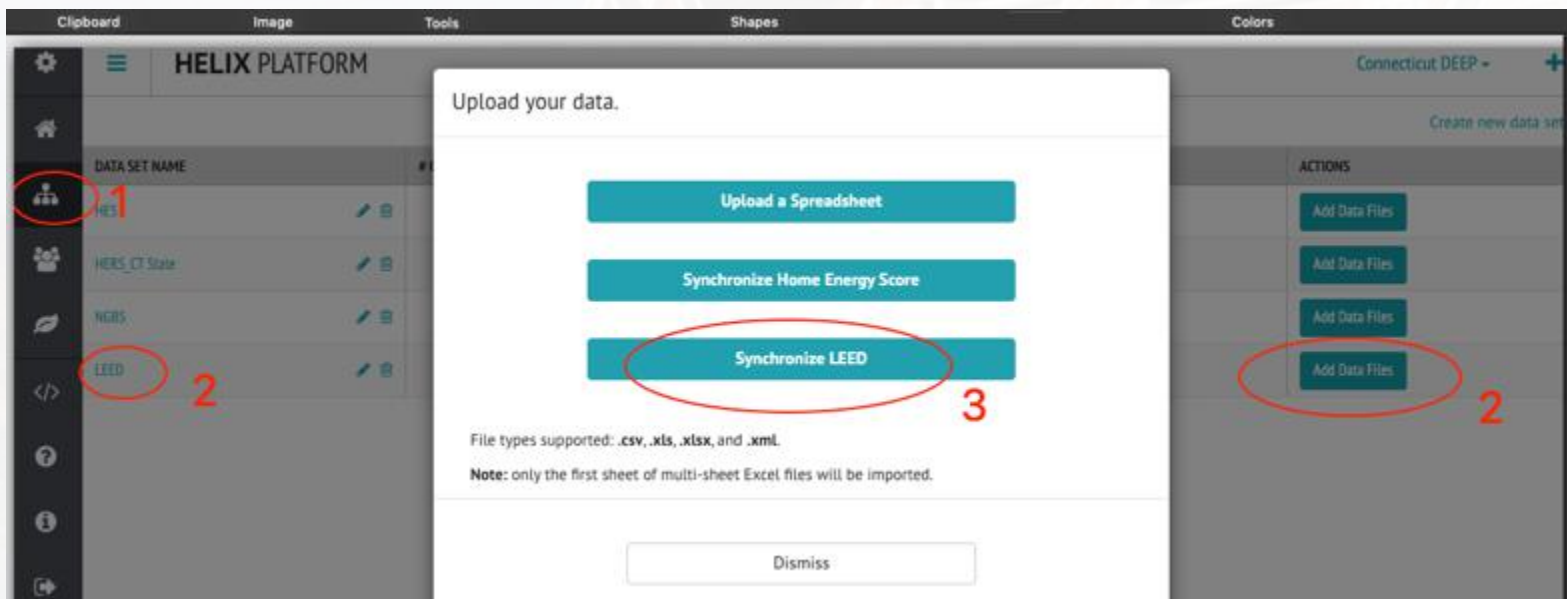
Spreadsheet Upload Rules I.

- For spreadsheet uploads, data falls into 3 categories:
  1. **Green certifications** (NGBS, HERS…); should be prefixed with "Green Assessment" with the following fields:
     - Name: "Green Assessment Name" must match the list of existing certifications which are "HERS Index Score", "Home Energy Score", "LEED for Homes" and "NGBS New Construction" etc.
     - Other fields include (still prefixed with "Green Assessment": Property Date, Property Rating , Property Metric, Property Extra Data. Please consult NEEP for details.

	E	F	G	H	I	J	K	L
	Green Assessment Property Date	ConstructionYear	Green Assessment Name	Green Assessment Property Metric	Green Assessment Status	Measurement Cost Quantity	Measureme nt Cost Unit	Measure Cost Stat
7	2017/05/06	1987	Home Energy Score	10	Confirmed Ra	1184	dollar	Estimate

Green Assessment Fields

- Source
  - Must match certification name in HELIX
- Reference ID
  - Unique ID for the certification/assessment (not for the home, other fields such as Custom ID 1, UBID exist to capture that)
- Status
- Metric / Rating
- Version
- Date
- Opt Out
  - True/False
- Extra Data
  - Any other non cost/consumption/savings data pertaining to audit

Spreadsheet Upload Rules II.

2. **Efficiency measures** on the homes; should be prefixed with "Measures"
   - "Measures Name" in the spread sheet needs to be on the BuildingSync list of possible measures e.g. "Install photovoltaic system".
   - Other fields: Implementation Status, Description, electric, current_financing, installer, various cost fields, please consult NEEP for details.

Fig 1. Excel snippet

Fig. 3 (left): Click info in properties view to see measures as shown in Fig. 4 (below).

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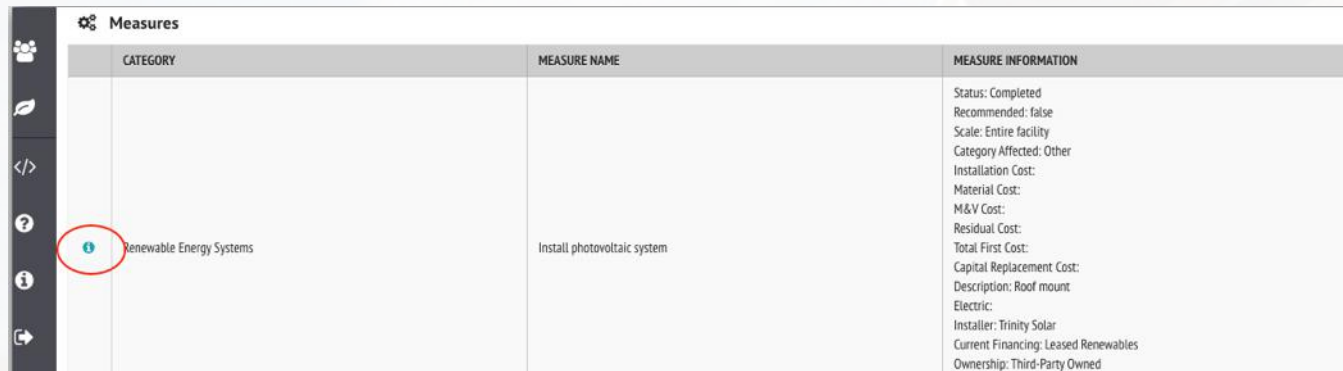
Measures Fields

- Name: should be part of BuildingSync definitions
- Reference ID: unique project identifier
- Current Financing: In
- Electric
- Installer
- Property Measure Name
- Description
- Implementation Status
- Application Scale
- Recommended

- Cost MV
- Cost Total First
- Cost Installation
- Cost Material
- Cost Capital Replacement
- Cost Residual Value
- Category Affected

Spreadsheet Upload Rules III.
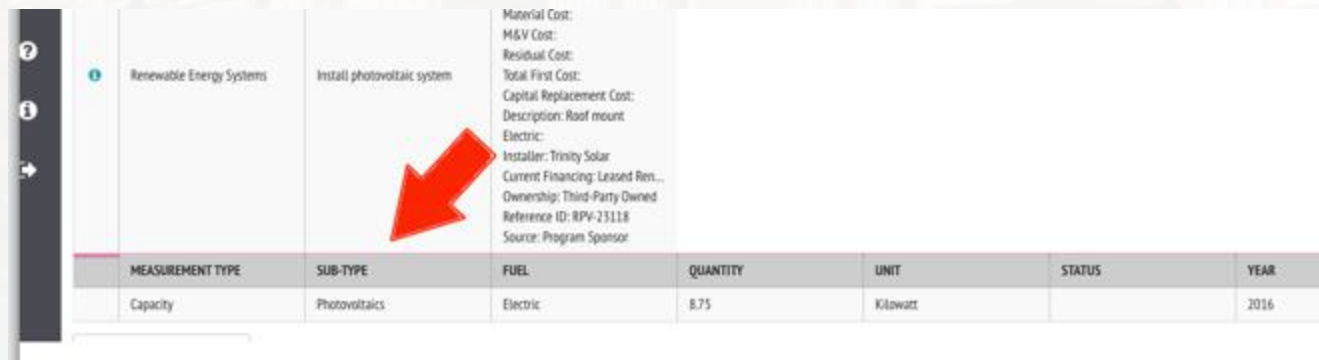
3. **Measurements** or estimated data relating to either green certifications or measures such as photovoltaic generation, mmbtu (energy) consumption, utility costs; should be prefixed with "Measurement".

- General field construction is Measurement Production/Consumption/Cost/Emissions/Capacity Unit/Quantity/Status/Year/Measurement Type/Measurement Subtype
- Example: Measurement Production Fuel or Measurement Consumption Unit

Fig. 5: In measures view similar to Fig. 4, click info to show measurements
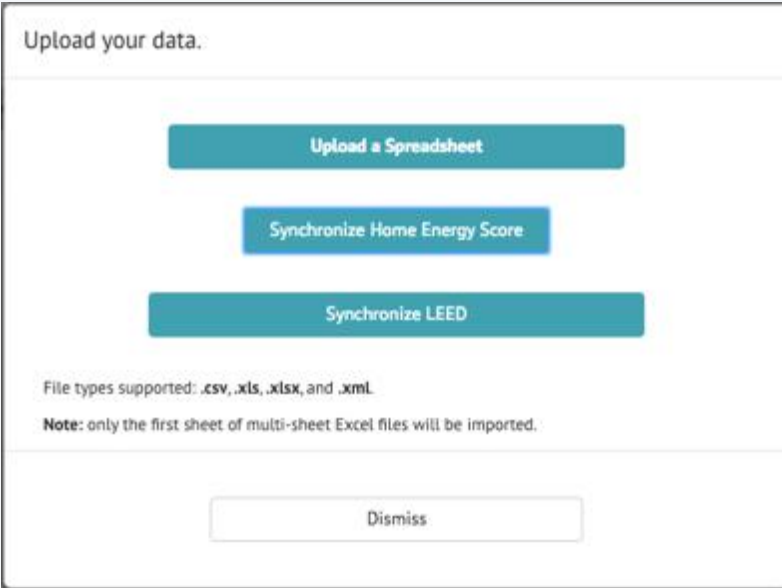
Fig. 6: Measurements

Measurement Fields

- The general label for measurements is
  - Measurement Type Description
- Type should be one of: Capacity, Production, Consumption, Cost or Emissions
- Description should include the following, with Measurement Type, Fuel, Unit and Status being required :
  - Quantity: numeric value
    - Measurement Savings Quantity= 2300
  - Measurement Type: repeat type
    - Measurement Production Measurement Type = Capacity
  - Measurement SubType: PV, Wind
    - Measurement Capacity Measurement SubType = PV
  - Fuel: Electric, Natural Gas, Heating Oil, Propane, Cord Wood, Pellet Wood
    - Measurement Capacity Fuel = Electric
  - Unit: kw, kwh, therms, therm, gallons, cords, pounds, mmbtu, dollars, dollar, tons_ghg, tons_CO2, tons_CO2e
    - Measurement Capacity Unit = kw
  - Status: in Actual, Estimated, Partially Estimated
  - Year: any date
- If values exist for multiple fuels, prefix the label with the unit, e.g.
  - Measurement Savings Unit Dollars= dollar
  - Measurement Savings Unit Mmbtu = mmbtu

LEED & Home Energy Score

Upload your data.

Upload a Spreadsheet

Synchronize Home Energy Score

Synchronize LEED

File types supported: **.csv**, **.xls**, **.xlsx**, and **.xml**.

Note: only the first sheet of multi-sheet Excel files will be imported.

Dismiss

LEED

- Please contact the HELIX manager to set up 3rd party authorization to the Home Energy Score API

Home Energy Score

- Please ask the HELIX manager to assign the regional LEED id relevant to your organization/region

Record Synchronization

- With the HES or LEED authentication active, synchronizing the records is done by pushing the relevant button in the datasets tab. Simply click-through the mapping steps

LEED & HES: Datasets Mapped Automatically

No changes in mapping required:

- LEED
- Home Energy Score

If there are any issues at the mapping state, clicking "Map HELIX Fields to imported file fields" button should reset map to default values

APPENDIX B: Dictionary of Column Headers

Dictionary A-G

Column Header	Data Type	Description
Address Line 1	String	
Address Line 2	String	Used to describe unit or apartment number. Do not include lot numbers.
Certified Passive House	Boolean	See PHIUS+
County	String	
Custom ID 1	Reference	Unique ID associated directly with the home, for example parcel or tax ID
DOE Zero Energy Ready Home	Boolean	The U.S Department of Energy Zero Energy Ready Homes are verified by a qualified third-party and are at least 40%-50% more energy efficient than a typical new home. This generally corresponds to a Home Energy Rating System
DOE Zero Energy Ready Home Date	Date	The date on which the certification was awared
EarthCraft	String	Earthcraft is a residential green building program of the Greater Atlanta Home Builders Association in partnership with Southface Energy Institute, both of which are Atlanta based non-profits that has developed its own guidelines and ratings system to help homebuilders create eco-friendly homes. Homes are rated with a combination of badges: Certified; Health Badge; Comfort Badge: Performance Badge
Efficiency Vermont Residential New Construction Program	String	The Efficiency Vermont Residential New Construction Program rates homes as "Efficiency Vermont Certified" or "Efficiency Vermont Certified High Performance Home"
ENERGY STAR Certified Homes	Boolean	The U.S. Environmental Protection Agency ENERGY STAR Certified Homes is a set of optional construction practices and technologies (above minimum code requirements) that builders can follow to upgrade a new home's energy efficiency beyond minimum code requirements. ENERGY STAR certified homes are at least 10% more energy efficient than homes built to code and achieve a 20% improvement on average. This value is set to True when the cetification is awarded.
Green Assessment Property Date	Date	The date on which the certification or rating was awared.
Green Assessment Property Metric	Numeric	This column refers to numeric scores assigned to the property by the certification board. See *Home Energy Score* and *HERS Index* .
Green Assessment Property Name	String	Contains the name of the certification as listed in the certifications tab on Helix e.g. *LEED for Homes* , *HERS Index,* and *Home Energy Score*
Green Assessment Property Rating	String	Depending on the Certification Board, there are different levels of certifications awarded. See *NGBS New Construction* and *LEED for Homes*.
Green Assessment Property Status	String	Status of the assessment. Any value accepted. RESO compliant values are "Complete" and "In Process"
Green Assessment Property Reference Id	String	Unique ID associated with the certification

Dictionary H-M

Column Header	Data Type	Description
HERS Index Score	Numeric	The Resedential Energy Services Network (RESNET)'s HERS Index is a relative performance score on a scale up to 150. The lower the score, the better the home is on energy performance. A home built to the 2006 International Energy Conservation Code is awarded a rating of 100 - the RESNET reference home; a home with a HERS Index Score of 70 is 30% more energy efficient than the RESNET Reference Home and A home with a HERS Index Score of 130 is 30% less energy efficient than the RESNET Reference Home.
Home Energy Score	Numeric	Home Energy Score uses a simple 1-to-10 scale where a 10 represents the most energy efficient homes.
Indoor airPlus	Boolean	A U.S. Environmental Protection Agency initiative which builds on the foundation of EPA's ENERGY STAR requirements for new homes. Indoor airPLUS is a voluntary partnership and labeling program that helps new home builders improve the quality of indoor air by requiring construction practices and product specifications that minimize exposure to airborne pollutants and contaminants.
LEED for Homes	String	LEED, or Leadership in Energy and Environmental Design, is the most widely used green building rating system in the world. Available for virtually all building, community and home project types, LEED provides a framework to create healthy, highly efficient and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement. LEED certification has 5 rating systems—Building and Design, Interior Design and Construction, Building Operations and Maintenance, Neighborhood Development, and Homes. Then there are 4 certification levels— Certified, Silver, Gold and Platinum.
Measurement Consumption Unit *Fuel*	String	Defines the home energy consumption associated with a green certification or an implementation measure on a home. Fuel should be amongst: Natural Gas, Electric, Heating Oil, Propane, Cord Wood, Pellet Wood. The field value should be amongst: kwh, kw, gal, mmbtu, ton, lb, cord, therm, dollar, ghg, CO2e
Measurement Consumption Quantity *Fuel*	Numeric	Defines the home energy consumption associated with a green certification or an implementation measure on a home. Fuel should be amongst: Natural Gas, Electric, Heating Oil, Propane, Cord Wood, Pellet Wood.
Measurement Consumption Measurement Type *Fuel*	String	Set to "Consumption"
Measurement Consumption Status *Fuel*	String	Defines the home energy consumption associated with a green certification or an implementation measure on a home. Fuel should be amongst: Natural Gas, Electric, Heating Oil, Propane, Cord Wood, Pellet Wood. Any string is accepted. RESO values are: Estimate, Partially Estimated, Actual

Dictionary M

Column Header	Data Type	Description
Measurement Savings Unit *Unit*	String	Defines the potential savings associated with a green certification or an implementation measure on a home. Unit should be amongst: kwh, kw, therms, therm, gallons, chords, pounds, mmbtu, dollars, dollar, tons_ghg, tons_CO2, tons_CO2e
Measurement Savings Quantity *Unit*	Numeric	Defines the potential savings associated with a green certification or an implementation measure on a home. Unit should be amongst: kwh, kw, therms, therm, gallons, chords, pounds, mmbtu, dollars, dollar, tons_ghg, tons_CO2, tons_CO2e
Measurement Savings Measurement Type *Unit*	String	Set to "Savings"
Measurement Savings Status *Unit*	String	Defines the potential savings associated with a green certification or an implementation measure on a home. Fuel should be amongst: Natural Gas, Electric, Heating Oil, Propane, Cord Wood, Pellet Wood. Any string is accepted. RESO values are: Estimate, Partially Estimated, Actual
Measurement *Type* Unit	String	Defines cost, savings, consumption, production, capacity or emissions associated with a green certification or an implementation measure on a home. Type should one of the categories listed. Unit should be amongst: kwh, kw, therms, therm, gallons, chords, pounds, mmbtu, dollars, dollar, tons_ghg, tons_CO2, tons_CO2e
Measurement *Type* Quantity	Numeric	Defines cost, savings, consumption, production, capacity or emissions associated with a green certification or an implementation measure on a home. Type should one of the categories listed.
Measurement *Type* Measurement Type	String	Defines cost, savings, consumption, production, capacity or emissions associated with a green certification or an implementation measure on a home. Both type and content of cell should one of the categories listed.
Measurement *Type* Status	String	Defines cost, savings, consumption, production, capacity or emissions associated with a green certification or an implementation measure on a home. Type should one of the categories listed. Any string is accepted. RESO values are: Estimate, Partially Estimated, Actual
Measures	Prefix	Refers to a program which aims to reduce non-renewable energy consumption e.g. Installation of Photovoltaic Cells (Solar). Note: other descriptors of the measures not listed such as costs or system impacted are available upon request
Measures Description	String	Description of measure.
Measures Name	String	The measures names hould be in the list of BuildingSync measures. Most common will be "Install photovoltaic system"
Measures Reference ID	String	Unique ID with Measures' service providers - externally generated.
Measures Source	String	Should be amongst: Administrator, Assessor, Builder, Contractor/Installer, Other, Owner, Program Sponsor, Program Verifier, Public Records
Measures Implementation Status	String	Should be amongst: Proposed, Evaluted, Selected, Initiated, In Progress, Discarded, Completed, MV, Verified, Unsatisfactory
Measures Installer	String	Name of installer
Measures Electric	String	RESO standard descriptor of system: Net Meter, Energy Storage Device, Pre-Wired for Renewables, Ready for Renewables
Measures Ownership	String	RESO standard descriptor of ownership: Seller Owned, Third-Party Owned
Meaures Current Financing	String	RESO standard descriptor of financing: Leased Renewables, Power Purchase Agreement, Property-Assessed Clean Energy

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Column Header	Data Type	Description
NGBS New Construction	String	Home Innovation Research Labs certifies homes to the ICC-700 National Green Building Standard (NGBS), which has undergone the full consensus process and received approval from the American National Standards Institute (ANSI). Home Innovation Research Labs provides project certification to the NGBS. NGBS applies to both single-family homes and multifamily buildings. Certification options also exist for new construction, remodel projects (both whole-home and functional areas such as a kitchen or bathroom) and land development/subdivision. Homes may qualify for a bronze, silver, gold, or emerald certification level depending on the number of green building practices met.
NGBS New Construction Version	String	Each version is defined using different criteria and applies to different types of buildings. Details found at https://www.homeinnovation.com/greenscoring
Passive House	Boolean	Passive house is a voluntary standard for energy efficiency in a building, which reduces the building's ecological footprint. It results in ultra-low energy buildings that require little energy for space heating or cooling.
PHIUS+	Boolean	Passive House Institute US initiative. The PHIUS+ 2015 Passive Building Standard provides the climate-specific sweet spot where aggressive energy and carbon reduction overlap with cost effectiveness. PHIUS+ 2018 is the first updated revision to the PHIUS+ 2015 standard, and will fully replace PHIUS+ 2015. This update focuses on adding more nuance for different building types, and supporting an overall transition to renewable energy.
Postal Code	String	5-digit postal code.
Property Type	String	Valid for certain states, describes property as Multi-Family Residential, Single-Family New Construction, Single-Family Home, Single-Family Green Building Renovation, etc.
State	String	2 character State abbreviation
Updated	Date	Date the record was most recently updated