

**Liberty Energy Efficiency Partnership (LEEP)
Site assessment checklist: Energy and Sustainability**



SITE NAME: _____

SITE CONTACT: _____

Liberty PM contact: _____

DATE: _____

INTRODUCTION CONVERSATION

Building Operations

1. Primary activities at your site

- a. % manufacturing (describe):
- b. % Warehouse:
- c. % Office:
- d. Other (example – Laboratory, empty/unused space, server room, refrigerated storage area, etc...):

2. Which spaces are heated and/or cooled?

- a. Manufacturing (% heated, cooled, or both?)
- b. Warehouse area (% heated, cooled, or both?)
- c. # of walk-in refrigerator/freezer units

3. Types of fuels used at the facility

electricity natural gas fuel oil (building) diesel propane steam (offsite steam plant)
 chilled water compressed air (other (please describe))

4. Building hours

- a. Regular operating hours (example 8 am – 8 pm Monday through Friday):
- b. Total weekly operating hours:
- c. Does occupancy change dramatically during normal operating hours (for example, is 3rd shift only half as many people as 1st shift?) If yes please describe:
- d. Cleaning crew schedule (if any):
- e. Security crew schedule (if any):

5. Building start-up or shut-down procedures:

- a. Is there a plan that is followed regularly? If yes, what is included in plan? (get a copy of start-up and shut-down checklist, if available.)
- b. Is there a person responsible every day for start-up and shut-down?

6. Does your building have a building automation system?

- a. If yes, which building systems are controlled by a BAS?
- b. Who controls this system? (you or outside contractor?)

7. # of computers, including data center servers

Collecting and Reviewing Utility Bill Data

1. Can you describe your processes for receiving and entering utility bill information?

a. Who receives the bills? (on-site, or sent directly to corporate HQ)

b. Who signs off on the bills? (approved on-site, or by HQ)

2. Which of the following do you currently track at the facility level:

energy Water Waste Fleet fuel use Procurement (cleaning supplies, packaging, pallettes, etc..)

a. Do you track any of these metrics comparing 12 months of data or this month this year vs. last year? Or just review bills and pay as they come in?

3. Is there a review process or other quality check of billing or utility data?

a. Which individuals or groups currently see monthly consumption data? Spending data?

Let tenant know they now can have free access to Goby. Ask “What information would you like to see on a regular basis? Do you have ideas for useful ways to views environmental and energy performance data?”

Waste

1. What are your largest sources of waste?

2. Do you recycle the following items at your facility?

Cardboard Styrofoam newspaper office paper plastic wrap wood waste/pallets
 metals glass other plastics

3. If you do not recycle, what is the greatest hurdle to recycling?

Not available in my region/do not know who to call to set it up

Too expensive compared to just waste hauling

People at the facility wouldn't recycle, even if available

Other (please describe):

Water

1. Do you track water bills and consumption at the facility level? If yes, who reviews them and have you seen any trends in the last 12 months (consumption or cost)?

2. What are your largest uses of water? (e.g. landscaping, truck washing, domestic)

3. Have you taken any action to reduce water consumption? If yes, please describe

FACILITY WALKTHROUGH

If possible, take up to two hours to complete a thorough facility walk through (including a complete lighting and HVAC survey. If not possible, a 45-minute walk-through with the tenants' facility management rep can gather useful information to spot opportunities for future investigation.

The walk-through should cover major building attributes and mechanical systems, including lighting, heating, cooling, and building envelope (roof, walls, windows, doors). For these attributes, the sustainability assessor should be collecting key attribute data (age, energy consumption, etc...), maintenance information (how is system performing and how regularly is it maintained) and looking for maintenance opportunities and possible equipment upgrades.

During the walk-through (as well as with the opening and closing meeting), the assessor should also keep an eye out for current facility management strategies (checklists, maintenance schedule and completeness, delegated responsibilities), and think about opportunities for improvement. The assessor should also keep an eye out for signs of employee engagement (signage, shared energy reporting for the facility, etc...) and identify opportunities for improvement in this area as well.

Use the space below to highlight key observations not captured elsewhere in the checklist.

Lighting: During the walk through, please complete the following table for as many lighting areas as possible. If you do not know the lamp or fixture type or wattage, refer to the lighting guide attached or describe the fixture with as much detail as possible.

Lighting area (describe)	Type of lamps	Type of fixture	Total Wattage of each fixture	# of fixtures	Estimated weekly operating hours	Controls? Please describe	notes
<i>EXAMPLE: Main warehouse</i>	<i>T8 fluorescent</i>	<i>2-lamp high bay</i>	<i>96</i>	<i>80</i>	<i>60</i>	<i>Motion sensors on 20 near back of warehouse – the rest on a single switch</i>	
<i>Example: Outside building wall-mounted lights</i>	<i>Metal halide</i>	<i>Wall pack</i>	<i>250</i>	<i>20</i>	<i>72</i>	<i>On timer, dusk to dawn (updated once/yr for daylight savings)</i>	
TOTALS (for fixtures and wattage)							

Lighting – quick assessment option: If you don't have the time or ability to get a full fixture count, use the following questions for a high-level assessment.

1. What are your primary lighting types in the facility (list by area and type of lamp (metal halide, LED, etc...) and if possible type of fixture (4-lamp T5, 2-lamp T12, etc...)
2. What is your lighting operating schedule (indoor/outdoor)
3. What type of lighting controls do you have? Occupancy sensors? Photo sensors?
4. Do you have skylights? Windows? What is the general layout of daylight sources in the building?

HVAC, Heating, and Cooling

1. Primary type of heating system (by major building area)?
2. Primary type of cooling system?
3. Do you use HVAC seasonal and shift-specific temperature set points? If so what do you use?
4. Does your HVAC system have free-cooling, pre-cooling (night cooling), or economization capabilities? Are these used?
5. Does the HVAC have CO2 sensors? Are they linked to HVAC controls?
6. What contractors do you work with on environmental, energy, or HVAC/commissioning issues? What are their responsibilities?
7. What is the general maintenance schedule for HVAC equipment (e.g. coil cleaning, filter changes, belt changes, tune-ups, air dampers, bird screens).
8. Do you have a cooling tower or evaporator? If so, what is the maintenance schedule for this equipment?
9. Have variable frequency drives been installed for HVAC equipment?

List of heating and cooling units at the facility (grouped by type - roof, wall, central HVAC, cooling tower)

HVAC unit (name)	Year built	# of units	Tons heating/cooling capacity (if applicable)	SEER rating (if applicable)	Weekly hours in full operation	Weekly hours in setback mode/ partial output	Hours turned off	Description of area HVAC unit covers	notes
<i>Trane 1, 2, and 3</i>	<i>2003</i>	<i>3</i>	<i>2 tons per unit</i>	<i>SEER 12</i>	<i>60</i>	<i>108</i>	<i>0</i>	<i>Rooftop units, covering about 2,500 sqft of office each</i>	
<i>Cooling tower</i>	<i>1996</i>	<i>1</i>	<i>100 tons</i>	<i>NA</i>	<i>168</i>	<i>0</i>	<i>Off October 1 – April 30</i>	<i>Rooftop unit covering 80,000 sqft conditioned warehouse</i>	

Boilers and hot water heaters

1. How many boilers and hot water heaters do you have, and what size?
2. What are the uses for your boiler? (Building heat, process water, domestic hot water, etc)
3. What is the set temperature of your boiler(s)?
4. Are there any control systems in place to regulate boiler operations (timers, temperature and flow control valves, etc..?)
5. What type of insulation do you have around:
 - a. The boiler or hot water tank itself?
 - b. The hot water/steam pipes?

Air Compressor

1. Do you have an air compressor? If yes, what is it used for?
2. What is its monthly energy usage? (estimated or actual)
3. How often do you commission it to seal leaks?

Building Envelope

1. Is building kept under positive pressure? (symptoms of negative pressure include doors that are hard to open, air movement at entrances, interior condensation).
2. Do you have a loading dock? What are the policies around having doors opened or closed? What steps have been taken to keep conditioned air from leaving through loading dock doors?
3. Any special roof or window treatments to prevent heat loss or gain?

Misc.

1. Do you have an emergency generator? If yes how many kW, what fuel, and what are the average annual operating hours?
2. Do you have electric forklifts? If yes, how many, how many charging stations do you have, and what is the charging schedule for these forklifts?
3. Are there other major energy consumption activities on site (refrigerated storage, cooling for liquid nitrogen, ammonia, or other chemical storage, ventilation hoods, furnaces, etc...?) If yes, please describe below (including age of systems, estimated annual energy consumption, and condition assessment.)

PAST EFFORTS/FUTURE PLANS

Management strategies

1. Does anyone have energy or environmental performance in individual job performance metrics?
2. From what parts of the company does pressure come to manage or conserve energy?
3. Is there any new employee energy management training? Any training of current employees?
4. Are you required to or do you voluntarily participate in any peak load reduction programs from the utility?
5. Do you have any water consumption reduction programs?
6. Can you think of any individuals at your facility (management or other) who are managing energy exceptionally well?
7. Internal communications to employees on energy/water/waste?
8. Employees recognized when they contribute to energy/water/waste savings?
9. Do you get feedback and ideas from employees on environmental and energy issues? Is the feedback useful? How is it received and who do you share it with?

General questions

1. What energy/water/waste savings measures have you undertaken in the last five years?
 - a. equipment upgrades
 - i. HVAC / heating and cooling
 - ii. Lighting
 - iii. Water
 - b. facility management strategies (monitoring systems, shut down procedures, etc.)
 - c. Any waste reduction efforts (e.g. contests or employee education)?
 - d. Emissions-specific efforts (e.g. refrigerant swap, no idle rules, reduced VOC supplies)
 - e. Commissioning/retro-commissioning/energy audits?
2. What has worked well? - Successes?
3. What has not worked well? - Challenges and lessons learned?

4. What is on your “Wish List?” - What energy savings measures would you like to implement if budget became available?

5. Have you considered installing renewable energy equipment at the facility? If so what did you find?

6. Is there a specific payback period or internal rate of return you need to meet for energy efficiency investments?

7. What are your challenges in launching energy initiatives? Any barriers to implementation? Time, cost, interest, other?

8. What type of Liberty tools do you think would be useful in supporting your energy and sustainability efforts?