HACKENSACK MERIDIAN HEALTH - HACKENSACK UNIVERSITY MEDICAL CENTER — no.3767451

Partner for Change - 2018: Energy

This application is being viewed in read-only mode.

Data imported from previous year application highlighted in yellow.

Introduction

The generation of energy from fossil fuels emits a range of different pollutants, in addition to being the largest contributor to greenhouse gas emissions. Air pollutants from energy sources can cause asthma, respiratory disease and other ailments in the community. Please use this section of the application to enter your energy data and report on energy conservation successes. This section of the application is tied to the Climate section, due to energy's contribution to an organization's carbon footprint.

Energy Use Demographics

1. Please enter the facility's **Baseline Year** for Energy data:

2013

Baseline Year is the year the facility began actively tracking energy use and reduction.

PGH uses Energy Star Portfolio Manager's definition of **Gross Floor Area**. If the facility uses Portfolio Manager, you can cut and paste the value for **Gross Floor Area** into the application.

Please enter the facility's **Gross Floor Area in Square Feet** below:

Baseline Year Sq Ft	Previous Year Sq Ft	Current Year Sq Ft
3.	4.	5.
2504408	2504408	2,504,408

Enter the same value for all three years if the facility's **Gross Floor Area** has not changed. These values will populate on both the Water and Energy pages.

Energy Usage

All energy data MUST be provided for a 12-month **CALENDAR YEAR**, meaning we are seeking data from January 1st through December 31 for Current Year. **Baseline and Previous Year data** will also need to be tracked by calendar year.

The reason for this requirement is that in order to appropriately compare energy performance, Practice Greenhealth has to utilize weather normalization. To use weather normalization appropriately, there is a need for data from the **same 12-month period** (e.g. we need to see energy

use in an especially cold February (or extreme heat waves in the summer) for all sites for an accurate comparison--not just those who typically utilize a calendar year for reporting.)

Please provide details on energy usage at your facility.

5. Do you have an **onsite laundry**?
- ○ No Answer
- ○ Yes
- ◉ No

6. Please indicate the number of **MRI machines** at your facility:

4

7. Did the facility have any activities in 2017 that might have significantly **increased** its energy use (for example: the introduction of new major medical equipment, mobile equipment or plugs, equipment failure mitigation; or major renovation/construction load)?"

We introduced a Mobile MRI unit that is connected to our Emergency Department. A new Cath Lab procedure room was also utilized beginning in early 2017.

Please indicate the facility's CALENDAR YEAR energy use in **Table A** below. Every applicant is required to complete the CURRENT YEAR USAGE (2017) column, even if this is the facility's first year completing an application. To receive maximum points on this page, please enter the facility's baseline and previous year (2016) data as well. This data may have been imported for you if you are a repeat applicant.

If this is your first year of tracking energy data, you should enter your 2017 data in BOTH the baseline and current year columns and leave previous year blank. If last year (2016) was the facility's baseline year, enter it for both previous year and baseline year below. **If you do not use a particular energy type, please leave it blank. Do not enter zeros.**

PGH would like your facility to properly identify **energy used to power parking lots/structures** (lighting, HVAC, etc) and **remove this data** from your entries for energy use in Table A below. **The first row of data in Table A should not include parking kWh.**

8. Do you **submeter** your **parking** lots/structures?
- ○ No Answer
- ○ Yes
- ◉ No

Facilities must provide **CALENDAR YEAR data** for energy use (January 1st- December 31st).

Table A. Fossil Fuel-Based Energy Use: Please check that the data for any given fuel type (electricity, natural gas, etc) is the same order of magnitude for all years, and check the units for each energy type for each year. Please provide data for any given FUEL TYPE (Electricity, natural gas) for ALL 3 YEARS, if appropriate (Baseline, Previous and Current).

Please only include **building energy use**--DO NOT INCLUDE energy use for fleet vehicles, such as diesel or fuel oil for vehicles. If you cannot separate building and vehicle use for a certain fuel type, please check with Awards Technical Assistance for guidance.

Energy Categories	Baseline Year Usage	Units (baseline)	Previous Year Usage	Units (previous)	Current Year Usage	Units (current)
Electricity (fossil fuel)	9. 74638653	10. kWh	11. 74285365	12. kWh	13. 76,020,471	14. kWh
Natural Gas	15.	16.	17.	18.	19.	20.

	3125598	Therms	3144473	Therms	3,196,003	Therms
Fuel Oil (#2)	21. 0	22. Fuel Oil-U.S. G	23. 0	24. Select an optic	25. 0	26. Select an optic
Steam	27. 0	28. Select an optic	29. 0	30. Select an optic	31. 0	32. Select an optic
Chilled Water	33. 0	34. Select an optic	35. 0	36. Select an optic	37. 0	38. Select an optic
Purchased Hot Water	39. 0	40. Select an optic	41. 0	42. Select an optic	43. 0	44. Select an optic
Diesel	45. 0	46. Diesel-U.S. Ga	47. 3184	48. Diesel-U.S. Ga	49. 5525	50. Diesel-U.S. Ga
Propane	51.	52. Select an optic	53.	54. Select an optic	55.	56. Select an optic
57. Enter Other fossil fuel type	58.	59.	60.	61.	62.	63.

64. Did you enter data for calendar year (Jan 1, 2017-Dec 31, 2017)?

- ○ No Answer
- ◉ Yes
- ○ No

64.a Did you ensure previous year data was updated to calendar year as well?

- ○ No Answer
- ◉ Yes
- ○ No

Otherwise the facility will not get credit for the energy reduction metric–as it needs baseline and previous year data to be in same 12 month period as current year.

64.b Did you ensure baseline year data was updated to calendar year as well?

- ○ No Answer
- ◉ Yes
- ○ No

65. Please describe any barriers or challenges to providing data in calendar year format. Please be specific:

We have no challenges as our utility is reliable with uploading our consumption information.

66. Is the hospital using **hydropower** as its primary source of electricity?

- ○ No Answer
- ○ Yes
- ◉ No

67. Does the facility generate or purchase **renewable energy**?

No

67.b If your facility is not currently purchasing or generating **renewable energy**, what are the key barriers to moving forward with cleaner energy projects?

HealthTrust purchases energy for all of Hackensack Meridian Health. When HealthTrust was asked about purchasing renewable energy from the Sustainability director from HMH (with the HUMC Sr VP, Purchasing present), HealthTrust advised against us purchasing renewable energy because it would only raise our costs. In terms of generating renewable energy HackensackUMC is located in the heart of a city with no surrounding land. We did have a solar company come in and evaluate where we could put solar. For resiliency we have most of our equipment located on the roofs so most buildings don't have space to put solar panels. It turned out that 2 of our garages had the capability of putting solar panels on them. From an energy generation standpoint the solar panels would only supply a fraction of energy to the garage itself making the payback very challenging to justify.

68. Has the facility put a **combined heat and power/cogeneration project** in place in the last 5 years?

- ○ No Answer
- ○ Yes
- ◉ No

Current Energy Costs

Type	Total Cost ($) Current
Conventional Energy Categories	
Electricity (fossil fuel)	**69.** 7884332
Natural Gas	**70.** 2036243
Fuel Oil	**71.** 0
Steam	**72.** 0
Chilled Water	**73.** 0
Purchased Hot Water	**74.** 0
Diesel	**75.** 6347
Propane	**76.** 0
Hydroelectric (conventional)	**77.** 0
Renewable Energy Categories	

78. Type 1: Generated On-Site Select an option	79.
80. Type 2: Generated Off-Site Select an option	81.
82. Type 3: Generated Off-Site Select an option	83.
84. Type 4: Purchased Renewable Energy / Renewable Energy Credits Select an option	85.
Total Energy Costs	86. 9926922

This table **auto-calculates the facility's Energy Use Portfolio** (percent energy usage and cost by energy type) and is based on values entered in Table A (and Table B if applicable).

Table C. Current Energy Use Portfolio

Category	kBtus (Baseline)	kBtus (Previous)	kBtus (Current)	Percent of Total Usage (Current)	Percent of Total Cost (Current)
Conventional Electricity (Fossil Fuel or Nuclear)	87. 254741723	99. 253535951	111. 259457868	112. 44.7	135. 79.4
Natural Gas	88. 312559800	100. 314447300	113. 319600300	114. 55.1	136. 20.5
Fuel Oil	89. 0	101. 0	115. 0	116. 0.0	137. 0.0
Steam	90. 0	102. 0	117. 0	118. 0	138. 0
Chilled Water	91. 0	103. 0	119. 0	120. 0	139. 0
Purchased Hot Water	92. 0	104. 0	121. 0	122. 0	140. 0
Diesel	93. 0	105. 439392	123. 762450	126. 0.1	141. 0.1
Propane	94. 0	106. 0	124. 0	127. 0	142. 0
Hydroelectric (conventional)	95. 0	107. 0	125. 0	128. 0	143. 0
Onsite Renewable Energy	96. 0	108. 0	129. 0	130. 0	144. 0
Offsite Renewable Energy	97. 0	109. 0	131. 0	132. 0	145. 0

Total	98.	110.	133.	134.	146.
	567301523	568422643	579820618	99.9	100.0

147. Based on this data, the below % of your facility's energy portfolio is from renewable sources.

0

Energy Performance Metrics : Energy Use Intensity (EUI)

Table D auto-calculates and summarizes your **energy performance metrics** based on values entered in **Table A** above. If your EUI (kBtus/sq ft) is **less than 100 or greater than 500**, please review your energy data and **gross floor area** for errors. The median data from 2017 hospital award winners was **227 kBtus/sq ft** (and was 142 kBtus/sq ft for Long Term Care facilities in 2016).

Table D. Energy Use Intensity (EUI) Note: EUI values should be the same order of magnitude for all three years. Percent change from baseline should generally be less than +/- 30%. Percent change from previous year should generally be less than +/- 25%. If this is not true of your data in Table D, please review your energy data in Table A and **gross floor area** above).

Current Year kBtus	Baseline Year kBtus	Previous Year kBtus	% Change from Baseline kBtus	% Change from Previous kBtus
148.	149.	150.	151.	152.
579820618	567301523	568422643	-2.2	-2.0
Current Year EUI	**Baseline Year EUI**	**Previous Year EUI**	**% Change from Baseline EUI**	**% Change from Previous EUI**
153.	154.	155.	156.	157.
231.5	226.5	227.0	-2.2	-2.0

158. Is your facility participating in the **Healthier Hospitals Leaner Energy Challenge**?

- ○ No Answer
- ◉ Yes
- ○ No

158.a Please indicate **which challenge level** your organization is striving for?

- ○ No Answer
- ○ 3% reduction
- ◉ 5% reduction
- ○ 10% reduction

159. Does the facility have an **energy manager**?

- ○ No Answer
- ◉ Yes
- ○ No

160. Does the facility use **Energy Star Portfolio Manager**?

- ○ No Answer
- ◉ Yes
- ○ No

160.a Has the facility **shared access to its energy data through Portfolio Manager** with Practice Greenhealth (through the Healthier Hospitals program)?

- ○ No Answer
- ◉ Yes
- ○ No

160.b Has your facility benchmarked your facility using **EnergyStar's Portfolio Manager**?

- ○ No Answer
- ◉ Yes
- ○ No

160.b.a Please indicate most recent **Energy Star score**:

42

160.b.b Please indicate the facility's **Site EUI** for 2017 according to Portfolio Manager:

244

160.b.c Please indicate the facility's **Weather-Normalized Site EUI** for 2017 according to Portfolio Manager:

147.8

161. Does the facility have a **written plan to reduce energy use** over time with timelines and goals?

- ○ No Answer
- ◉ Yes
- ○ No

161.a Please describe written plan to reduce energy use, timelines, and goals:

Attached is the Energy plan that was attached for 2016-2018. We are currently in the 2nd and final phase of that energy plan. In 2018 we will be drafting a new energy plan based off of the beginning of construction on our new central utility plant. The 2017 energy plan consisted of the continuation of the Siemens building automation system upgrade in the Medical Plaza, completion of the PSEG Phase 3 funding initiatives, and our demand response program.

161.b Please attach written plan to reduce energy use:

2016-2017 HUMC Energy Management Program Report by Gotham 360.pdf

(2016-2017 HUMC Energy Management Program Report by Gotham 360.pdf) (1.53 MB)

Plan must be attached to get full credit for this question.

Please indicate who is accountable for the plan to reduce energy use:

161.c Name of person accountable for energy use plan:

Allen Prinzi

161.d Title of person accountable for energy use plan:

Director of Plant Operations

161.e Email of person accountable for energy use plan:

Allen.Prinzi@hackensackmeridian.org

162. Has the facility developed a **Strategic Energy Master Plan (SEMP)**?

- ○ No Answer
- ◉ Yes
- ○ No

162.a What is the name of the firm hired to develop the SEMP plan?

Gotham360

162.b What date was the SEMP plan launched?

2016-01-15

163. Has the facility conducted a **baseline energy audit** for the institution in the past five years?

- ○ No Answer
- ◉ Yes
- ○ No

163.a ASHRAE Level I baseline energy audit performed?

- ○ No Answer
- ○ Yes
- ◉ No

163.b ASHRAE Level II baseline energy audit performed?

- ○ No Answer
- ◉ Yes
- ○ No

163.b.a Name of Firm performing ASHRAE Level II baseline energy audit:

DLB Engineering and Concord Engineering

163.b.b Date baseline ASHRAE Level II energy audit was completed:

2012-06-04

163.c ASHRAE Level III baseline energy audit performed?

- ○ No Answer
- ◉ Yes
- ○ No

163.c.a Name of Firm performing ASHRAE Level III baseline energy audit:

DLB Engineering and Concord Engineering

163.c.b Date baseline ASHRAE Level III energy audit was completed:

2012-09-17

164. Has the facility engaged a **retrocommissioning firm** to **optimize building performance**?

- ○ No Answer
- ◉ Yes
- ○ No

164.a Name of firm engaged for retrocommissioning?

Utilivisor

164.b Date of contract for retrocommissioning?

2016-01-01

165. Has the facility engaged in other **ongoing energy improvements** such as **continuous commissioning**?

- ○ No Answer
- ◉ Yes
- ○ No

166. Does the facility **utilize submeters** to better monitor energy efficiency opportunities?

- ○ No Answer
- ◉ Yes
- ○ No

166.a Please indicate which **areas** have been submetered (e.g. by department, certain pieces of equipment etc.).

We began to sub-meter the campus in 2017 but only began on large pieces of equipment. We have begun to replace the steam meters on our boilers with the money that we have received from being a part of the demand response program. As part of the demand response program we receive $356,903 over a 3 year span. As each check comes in we put it towards adding a new meter to the campus. We will be able to install many more through the demand response revenue.

166.b Is the hospital submetering specific **technologies** (such as MRI)?

- ○ No Answer
- ○ Yes
- ◉ No

166.c What has your facility found to be the **biggest benefits of submetering?**

It allows us to better gauge where our efforts should go with energy conservation. At this point in time we still do not sub-meter enough of the campus but have begun the process.

167. Has the facility **collaborated** with the **Information Technology (IT) Department** to integrate energy efficiency measures?

- ○ No Answer
- ◉ Yes
- ○ No

167.a Please describe this work collaborating with IT to integrate energy efficiency:

Our Infrastructure Supervisor works with IT to connect points from all of our boilers, chillers, air handling units with our continuous monitoring system campus wide. We are able to tell if there are any inefficiencies with the equipment due to these points being set up by IT. Each year we have added more and more points throughout the campus so that we can track additional air handlers etc. This is on-going work so that we can continue to commission our plant.

168. Does the facility have an **onsite data center** that requires a constant power load of **75 kW** or more?

- ○ No Answer
- ◉ Yes
- ○ No

EPEAT

169. Does the facility **purchase energy-efficient equipment** that is **EnergyStar labeled?**

Yes

Provide the Top 3 **Energy Star product purchases** by dollars spent last year

169.a Product 1:

WYSE 7010 TC WES7 16GF/4GR (3984330) - $118,629

169.b Product 2:

HPG HP 800 G2 I5 500GB 8GB W10 SFF (4370443) $130,244.49

169.c Product 3:

HP Z2 MINI G3 ZH3.4 258GB 8GB W710P (4490606) - $95,051.25

170. When an **EnergyStar** label is not available for a given technology, does the hospital consider **energy performance** as a part of cost of operation for the product?

- ○ No Answer
- ◉ Yes
- ○ No

170.a Please provide example and description of how energy performance is considered as part of the cost of operation for the product:

Clinical Quality and Integration capabilities for a technology are the number one concern. All else being equal energy always will be considered. We have reached out to manufacturers in the past if they are using their technology and they aren't EPEAT or Energy Star rated and ask them why. In 2017 HackensackUMC spent $925,071.08 on Energy Star and EPEAT products

Energy Efficiency Project Data

Please list the biggest **energy-saving projects** implemented in 2017 in Table E.

Table E. Energy Efficiency Project Data

Project Description	Project Category	Energy Saved/Year	Units	kBtus Saved	Dollar Savings
171. Revised Control Specs: CHW/CW Flow Control and CT Sequence	172. Cooling	173. 1,355,127	174. kWh	175. 4625048	176. 135991.14
177. Boiler Head Pressure Setpoint Reduction	178. Heating	179. 211,434	180. Therms	181. 21143400	182. 111187.43
183. Electric Chillers: Corrected Flow Measurements	184. Cooling	185. 326,100	186. kWh	187. 1112979	188. 32069.35
189. Cooling Towers: Capped PC Ext. CTs	190. Cooling	191. 95,550	192. kWh	193. 326112	194. 9465.27
195. Steam Trap	196.	197. 47,106	198.	199. 4710600	200. 76348

	Heating		Therms		
Totals				**201.** 31918139	**202.** 365061

Please describe any additional **successes or innovations** in the energy program or projects at your facility that you would like to share in the space provided below. Please feel free to provide commentary and/or attach a file.

203. Energy Success 1: Please describe or attach any additional documentation:

With the upgrade of our building automation system in the Medical Plaza we increased our energy star score to a 61. Our baseline was a 22 in 2015, this was a major increase for us and with the OR set backs we look forward to increasing the score further in 2018. Our Director of Facilities also presented the energy management program from HackensackUMC at the system-wide value analysis team meeting in 2017. The value analysis team consists of facilities directors from each of the hospitals in the system. Energy management is a topic for each meeting. Attached is the presentation Allen did with our energy consultant, Jennifer Kearney (Gotham 360).

204. (optional) Attachment for Energy Success 1:

HackensackUMC Energy Management Program PowerPoint (1).ppt (HackensackUMC Energy Management Program PowerPoint (1).ppt) (760.5 KB)

205. Energy Success 2: Please describe or attach any additional documentation.

Published Case Study through Better Buildings Challenge and Kyle Tafuri was a member of the Better Buildings Challenge Healthcare Steering Committee. Our case study was on our partnership with Utilivisor who provides us with continuous oversight of our plant. After only 4 months (Published in April- was ranked 7th in September) of being published it was the 7th most viewed case study on the Department of Energy's Better Buildings Solutions page. The Solutions page consists of over 1000 + case studies!!!! https://betterbuildingssolutioncenter.energy.gov/solutions-at-a-glance/continuous-energy-oversight-saves-400000-annually-at-hackensack-meridian

206. (optional) Attachment for Energy Success 2:

HackensackUMC Better Buildings Challenge Case Study Utilivisor.pdf (HackensackUMC Better Buildings Challenge Case Study Utilivisor.pdf) (421.34 KB)

207. Please describe any energy **lessons learned** that can be shared with other facilities.

We completed the following initiatives with PSEG over the past few years yet our Energy Star number for entire campus remains low at 42. One of the challenges that we have had is in sub metering the campus. Without sub metering it is very challenging for us to determine where our biggest inefficiencies are. Although some of our buildings on campus that have their own meters drastically improved (i.e. Medical Plaza from 22 to 47), our overall main campus score remains low. It is clear that we need to sub meter the campus.