CITY OF WATERTOWN WATER UTILITY (WATERTOWN, WI) UTILITY DATA ANALYSIS

Industrial Assessment Visit 01/15/2020

DOE Industrial Assessment Center (IAC)

Industrial Assessment Center
U.S. DEPARTMENT OF ENERGY

In Partnership with:

focus on energy
Partnering with Wisconsin utilities

OEI ECO FRANKLIN ENERGY

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PRESENTATION OUTLINE

- **Overview of Industrial Assessment Center Program**
- **Utility Data Analysis**
  - Utility Usage Overview
  - Electricity Usage
  - Gas Usage
- **Better Buildings Initiative of the US DOE**
  - Better Plants
  - 50001 Ready Program
  - 50001 Ready Navigator

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INDUSTRIAL ASSESSMENT CENTER

- **Industrial Assessment Center (IAC)**
  - Funded by US Department of Energy
  - Support small and medium-sized manufacturers nationwide through teams of university-based faculty and student engineers.
  - The professional support is **NO Cost** to participating companies

- **IAC focus**
  - Improve energy efficiency
  - Reduce wastes and prevent pollution
  - Improve manufacturing productivity

Sustainable Manufacturing

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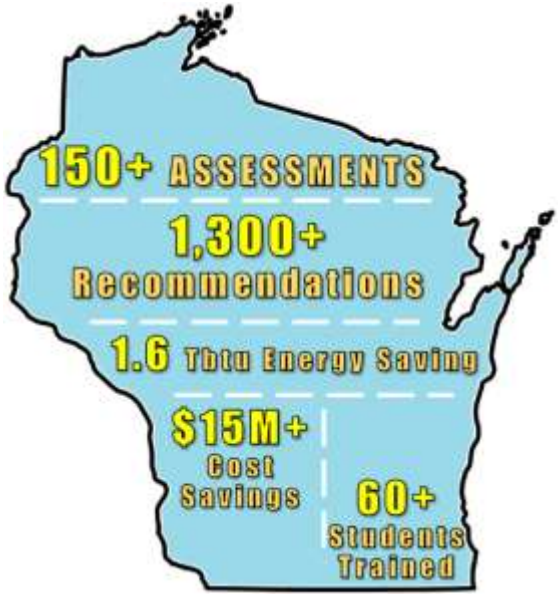
UWM - Industrial Assessment Center

- UWM IAC: One of the 31 IAC centers in the US and the only center in Wisconsin.

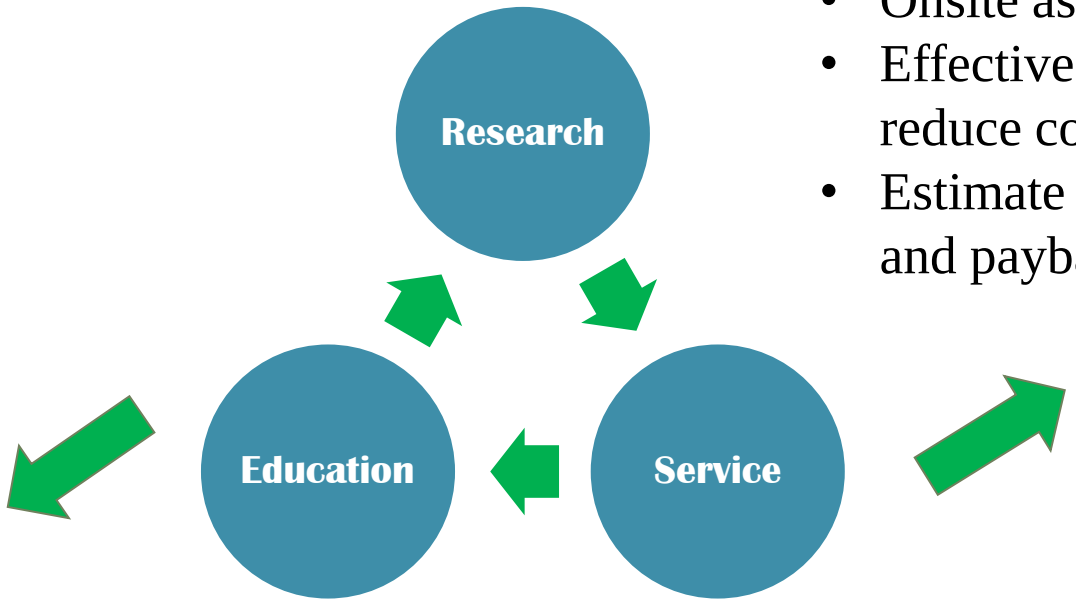


- Strong partnerships with:
  1) Wisconsin Office of Energy Innovation (OEI)
  2) Focus on Energy (FoE)
  3) ecoCity of Milwaukee (Environmental Collaboration Office)
  4) We Energies
  5) Franklin Energy

***Data of the period 2011 - 2019**

Values of the IAC

Industrial Assessment
- Onsite assessment
- Effective recommendations to reduce costs
- Estimate of costs, performance and payback periods



Develop Workforce
- Energy efficiency
- Sustainable manufacturing

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Deliverables

- Assessment of energy, waste, and productivity
- Detailed Assessment Report (60 days after assessment):

  1- Utility bills analysis

  2- Energy usage calculations

  3- Energy and cost savings recommendations

  4- Labor and implementation costs

  5- Applicable rebates and incentives.

- Provide needed follow-up clarifications of recommendations

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Support Needed from Plant

- Relevant utility bills
  - Electricity, Gas, Water, Waste, Recycling, Scrap, etc.
- A contact person to answer follow-up questions
  - Preferably in a timely manner
- Complete implementation survey and phone interview
  - Within 6 to 9 months after assessment date
- Provide feedback to national IAC field management
  - Approximately 10 months after assessment date

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Assessment Agenda

Tasks	Starting Time
Arrival to Plant	9:00 AM
Utility data analysis presentation	9:10 AM
Plant personnel gives brief process description	9:40 AM
Discussion with plant personnel before the walk through	10:00 AM
Walk through	10:30 AM
Working lunch and brainstorming session	12:00 PM
Collecting necessary data	1:00 PM
Final meeting with plant personnel	3:00 PM
Departure from plant	4:00 PM

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Cost Savings

- Savings Example
- (Currently **$167,103/year** in utility costs):
  - Suppose we save you 15% in utility costs
  - This is equivalent to **$25,000/year** cost savings

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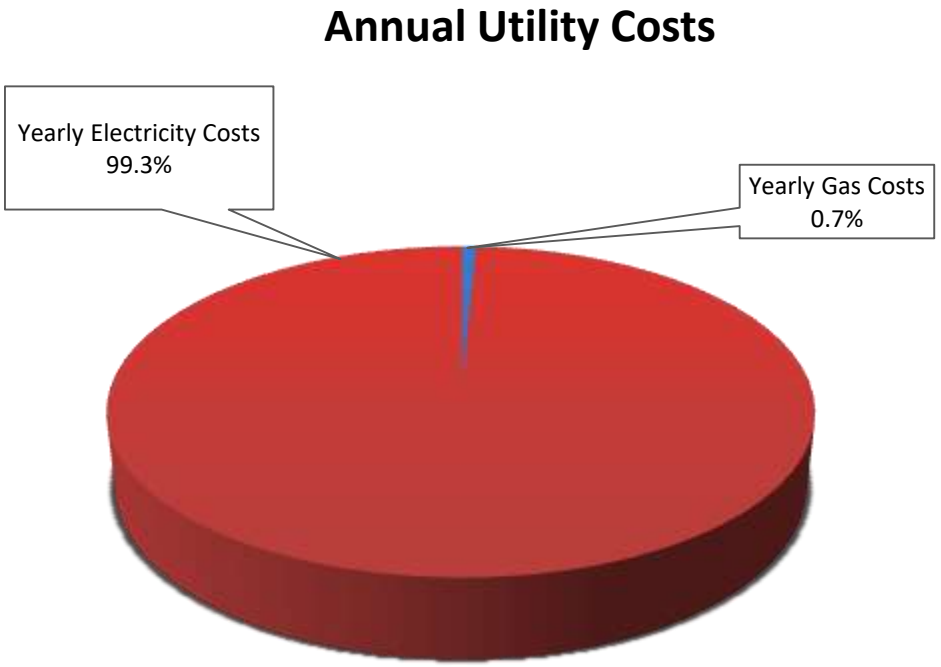
Utility Data Analysis



Category	Annual Usage	Total Costs
Electricity	2,081,065 kWh	$165,851
Gas	1,786 therms	$1,252
Total		**$167,103**

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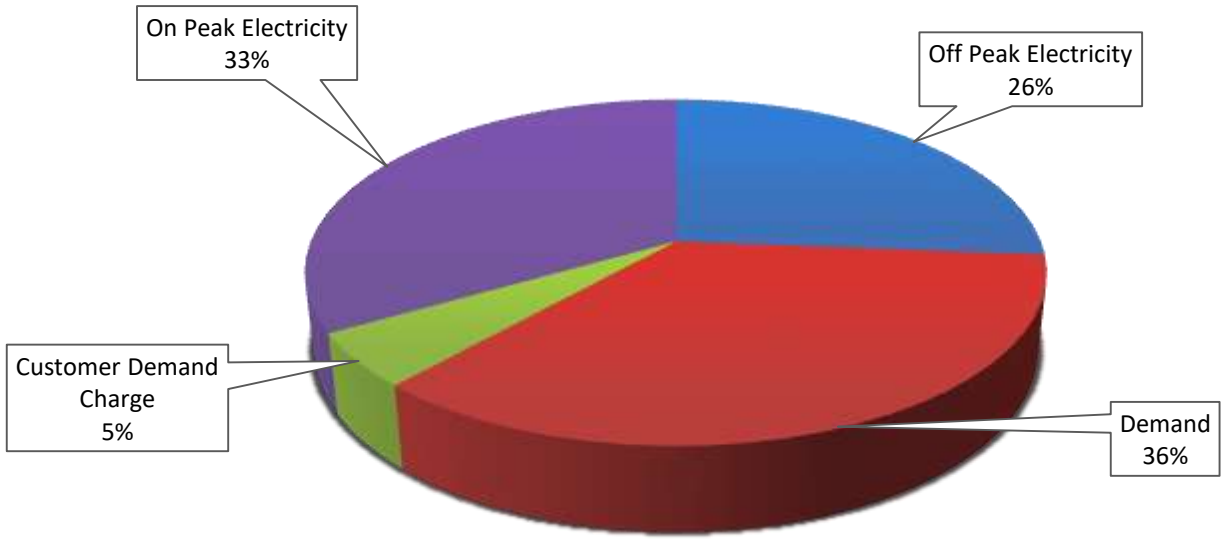
Electricity Bill Breakdown



Based on electricity bills (Oct. 2018 – Sep. 2019)

Average On-Peak Electricity Cost ($/kWh)	**0.09773**
Average Off-Peak Electricity Cost ($/kWh)	**0.06455**
Average Demand Cost ($/kW)	**11.830**
Average Electricity Cost ($/kWh)	**0.07970**
Major Consumers	**Raw water well pumps, booster pumps**

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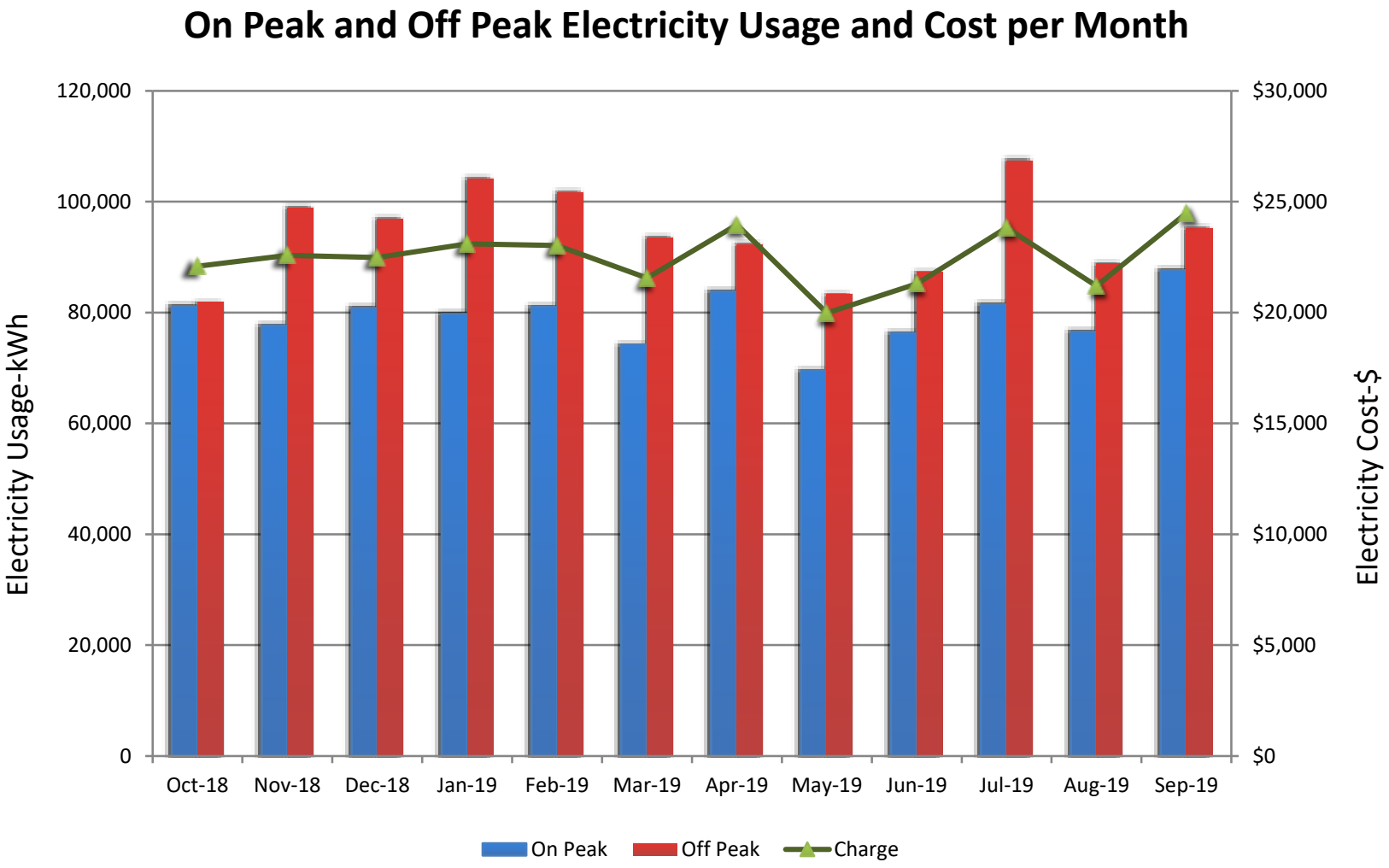
Electricity Bill Scheme



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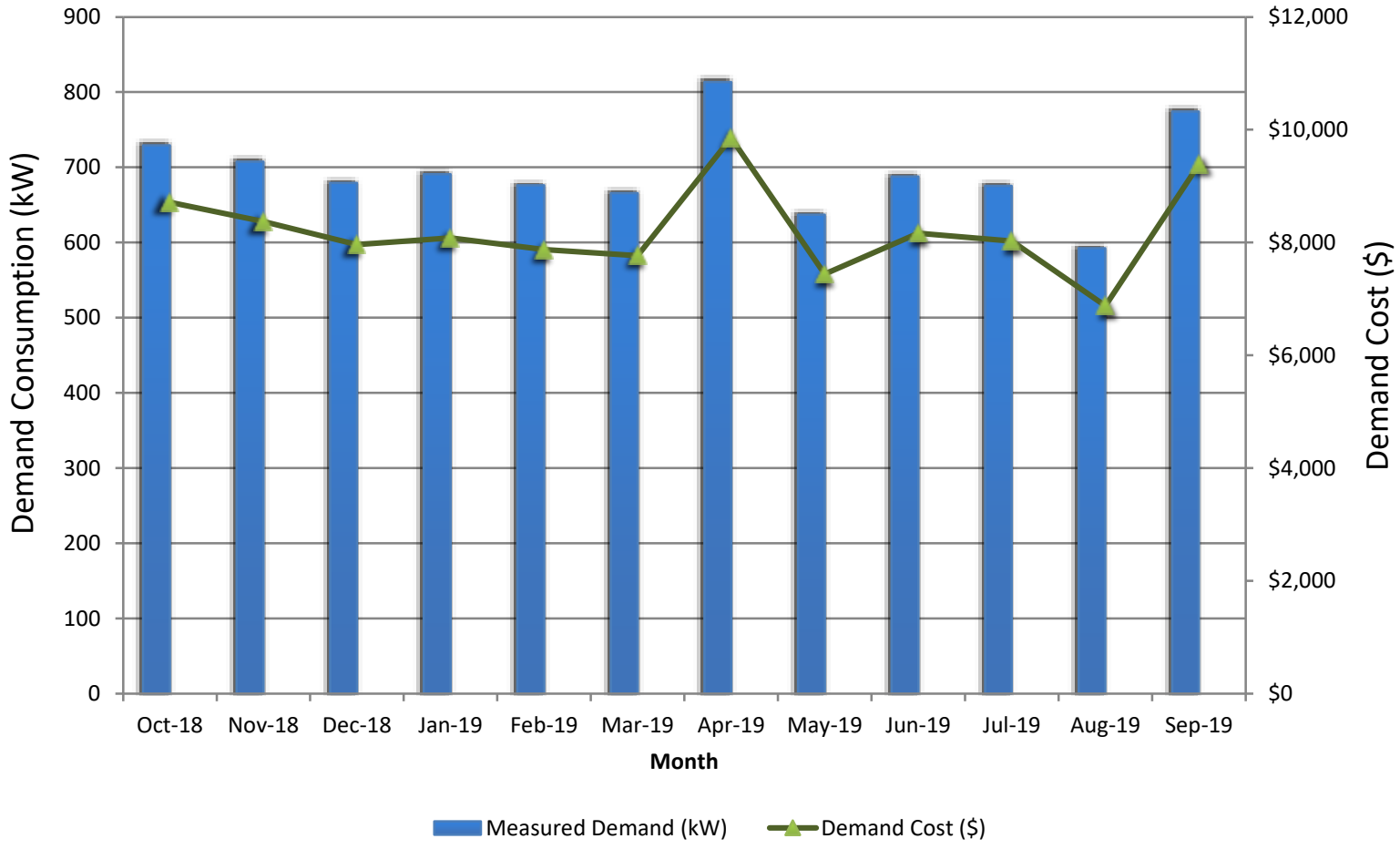
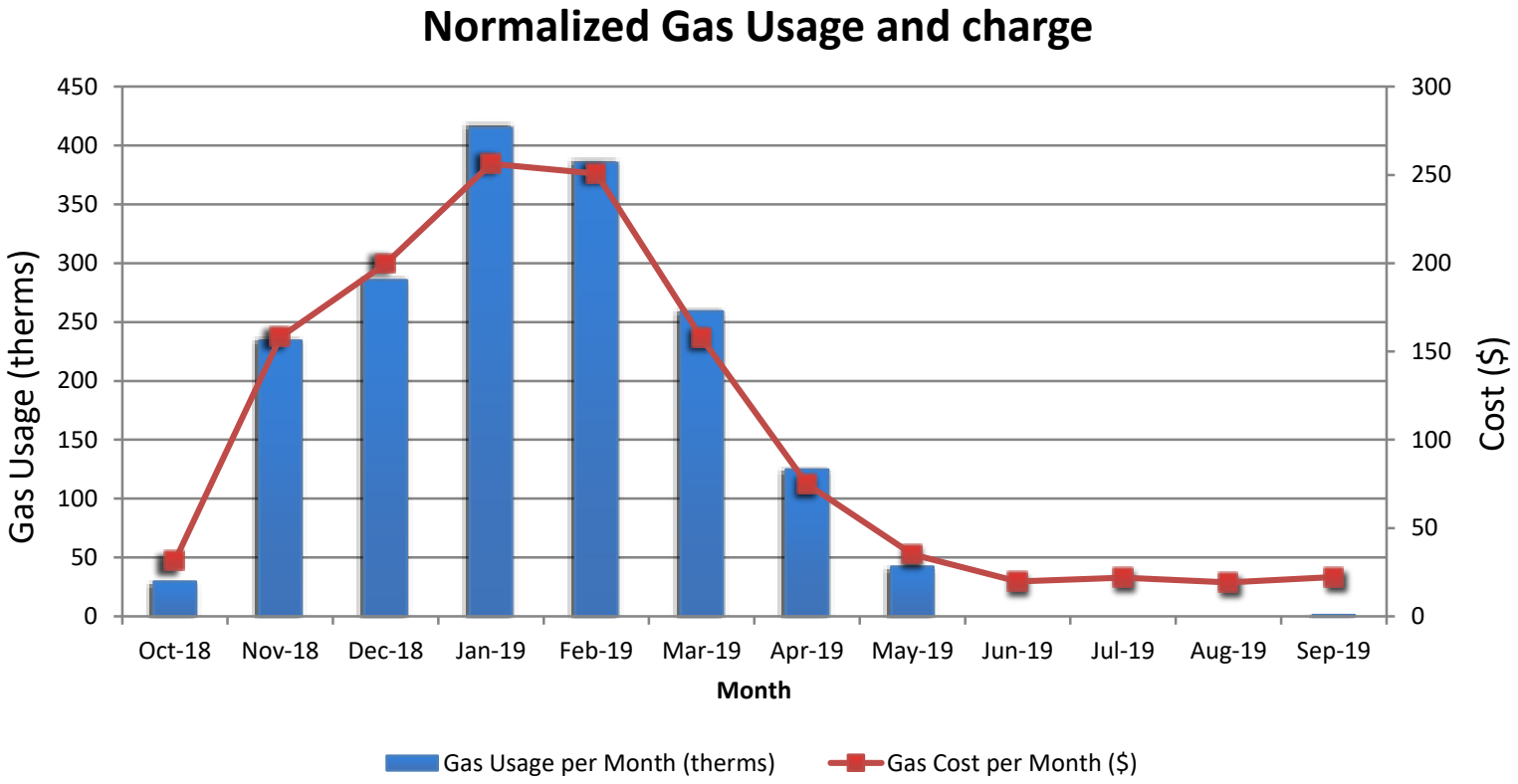
Demand Usage and Cost per Month



Gas Bill Scheme



- Total gas usage: 1,786 therms/year
- Total billed amount: $1,252/year
- Average gas cost: $0.701/therm ($7.01/MMBtu)

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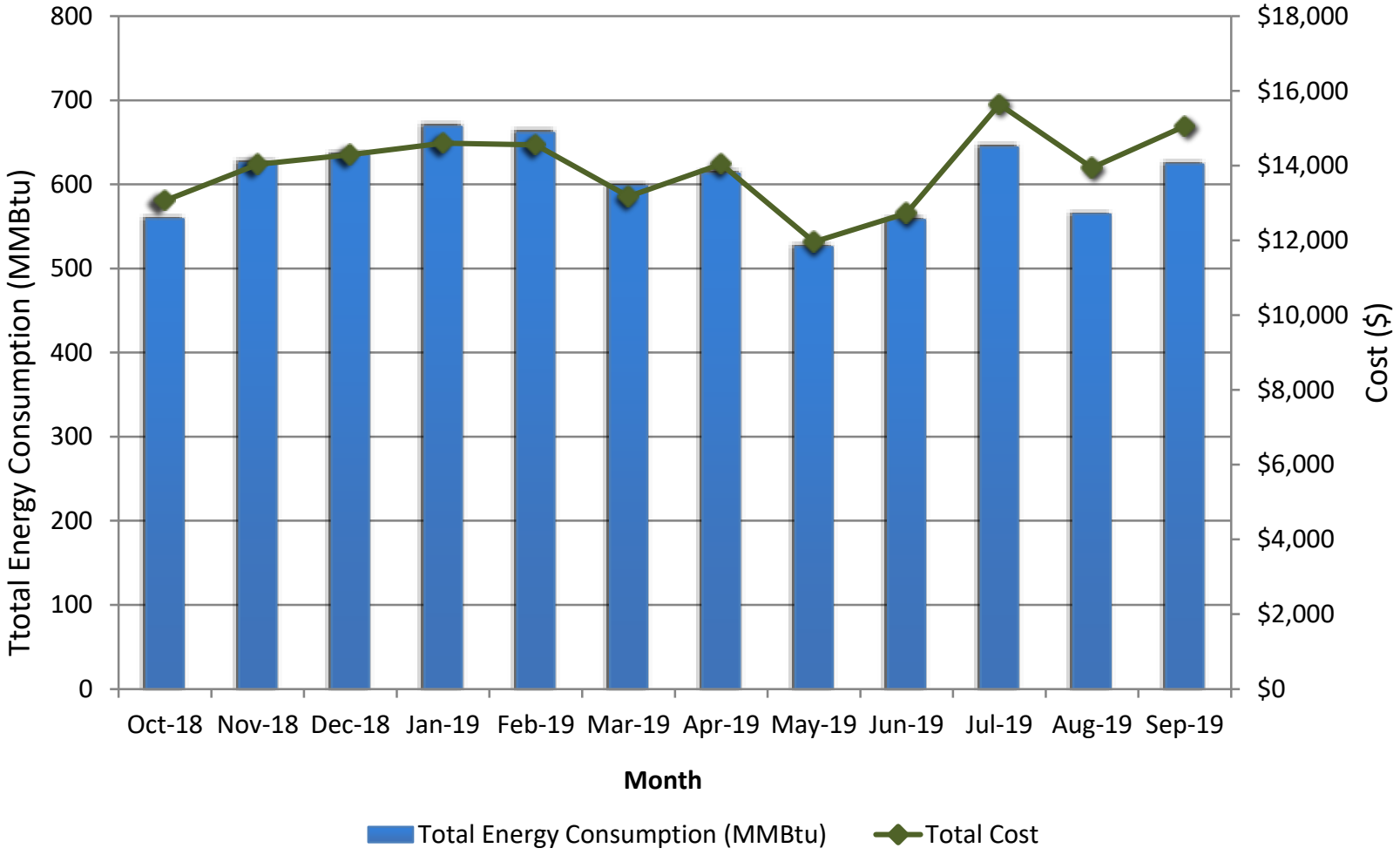
Total Energy Usage and Cost per Month



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Better Buildings Initiative

- **Better Plants:**

Better Plants is partnering with *leading manufacturers and water utilities* to improve energy efficiency and competitiveness in the industrial sector, saving money in the process.

URL: https://betterbuildingssolutioncenter.energy.gov/better-plants

- **50001 Ready Program:**

50001 Ready is a U.S. Department of Energy designation for facilities and organizations that have implemented an ISO 50001-based energy management system using the guidance in the 50001 Ready Navigator, and that have demonstrated energy performance improvement

URL: https://betterbuildingssolutioncenter.energy.gov/50001Ready

- **50001 Ready Navigator :**
  - developed by the U.S. Department of Energy
  - the Navigator is designed to help your organization build towards all parts of ISO 50001.
  - self-attest to being “50001 Ready” certification.

URL:https://navigator.lbl.gov/guidance/dashboard

Better Buildings Initiative

- **Benefits of Better Plants:**
  - Technical Assistance
  - Networking Platform
  - National Recognition
  - Access to DOE's R&D

50001 Ready Navigator

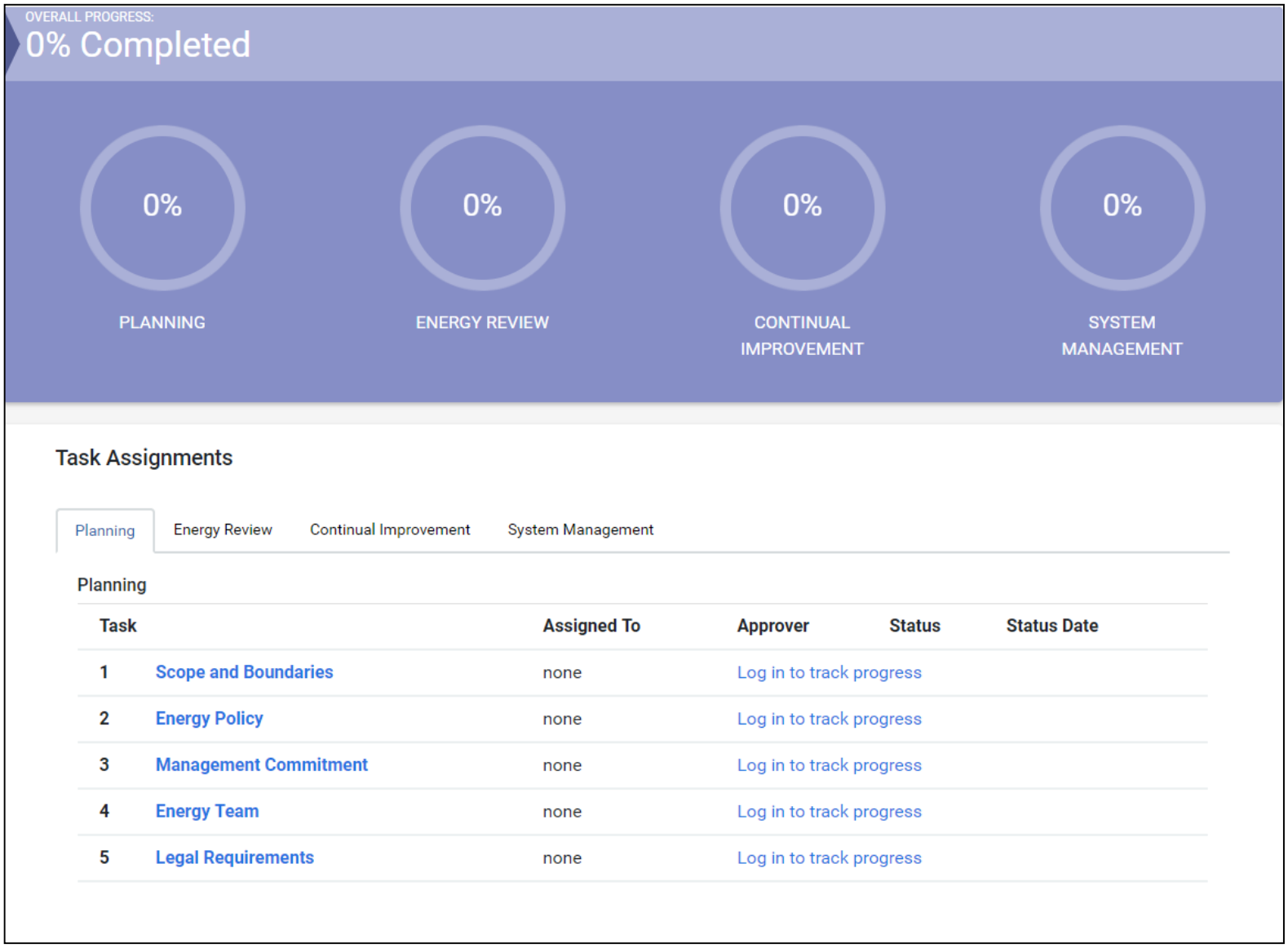
- **How to use the 50001 Ready Navigator?**

The 50001 Ready Navigator is comprised of 25 tasks, with each task corresponding directly with establishing the energy management system requirements specified in ISO 50001

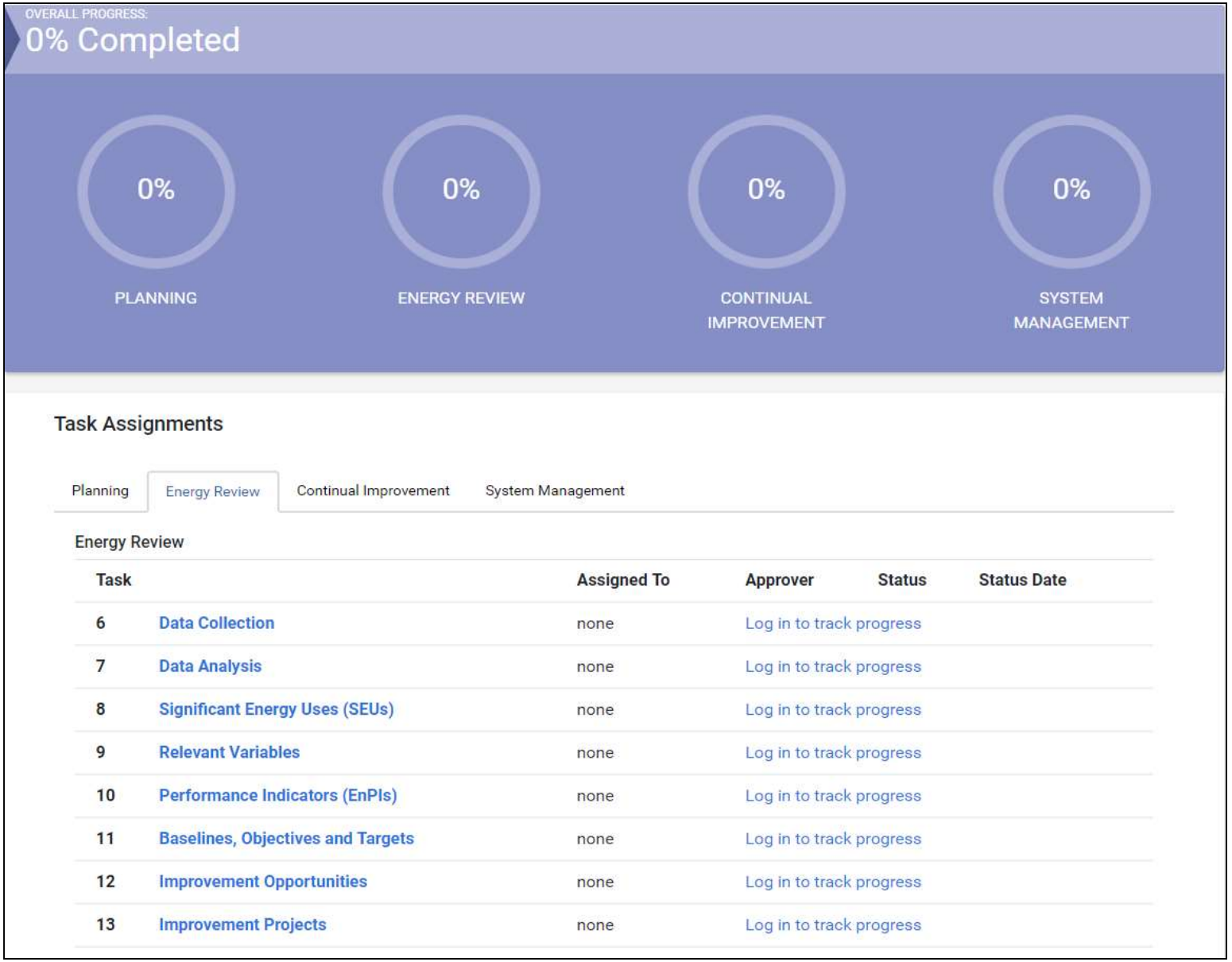
The 25 tasks are grouped into four sections:

- Planning (tasks 1-5)
- Energy Review (tasks 6-13)
- Continual Improvement (tasks 14-18)
- System Management (tasks 19-25)

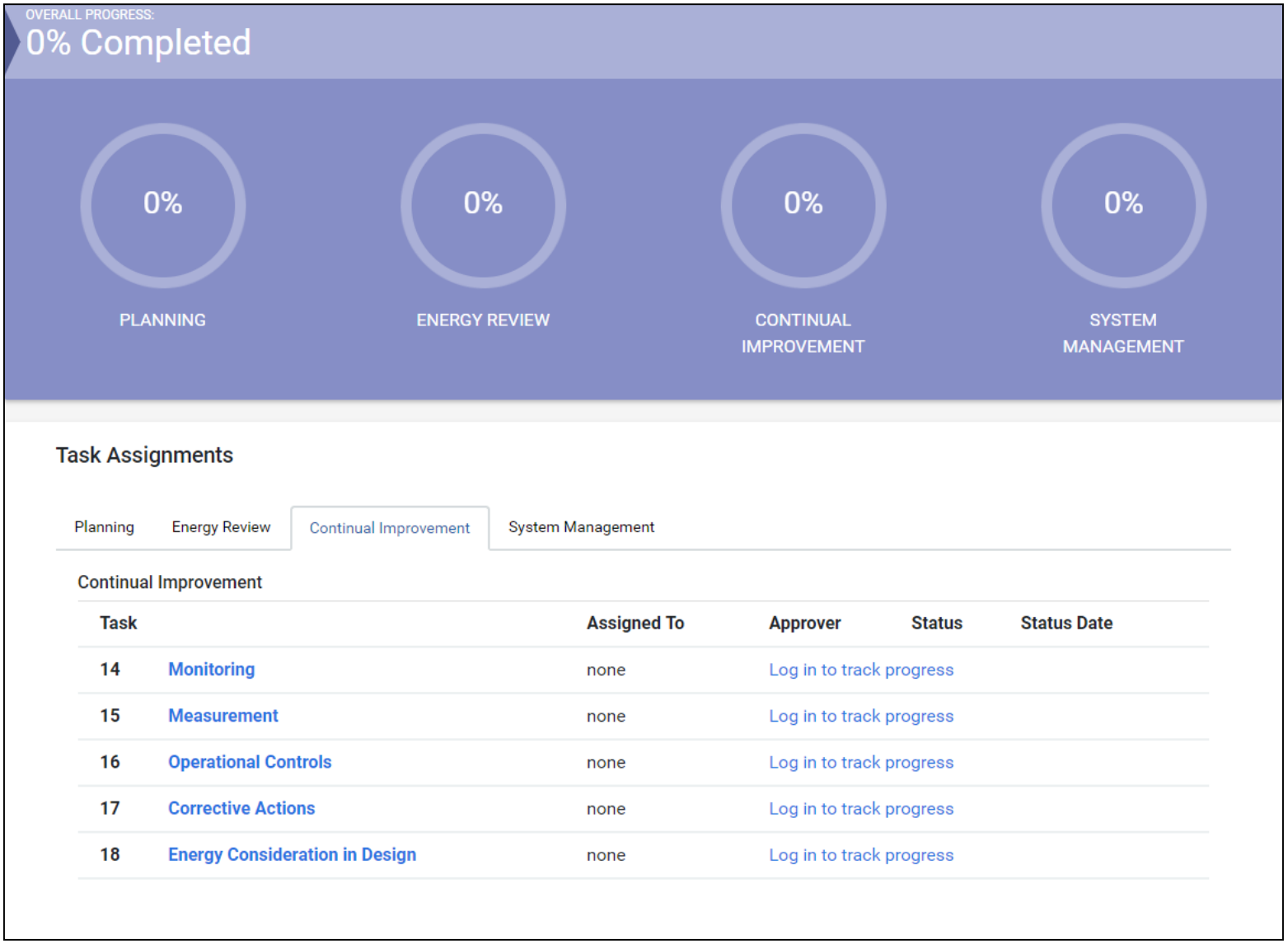
50001 Ready Navigator



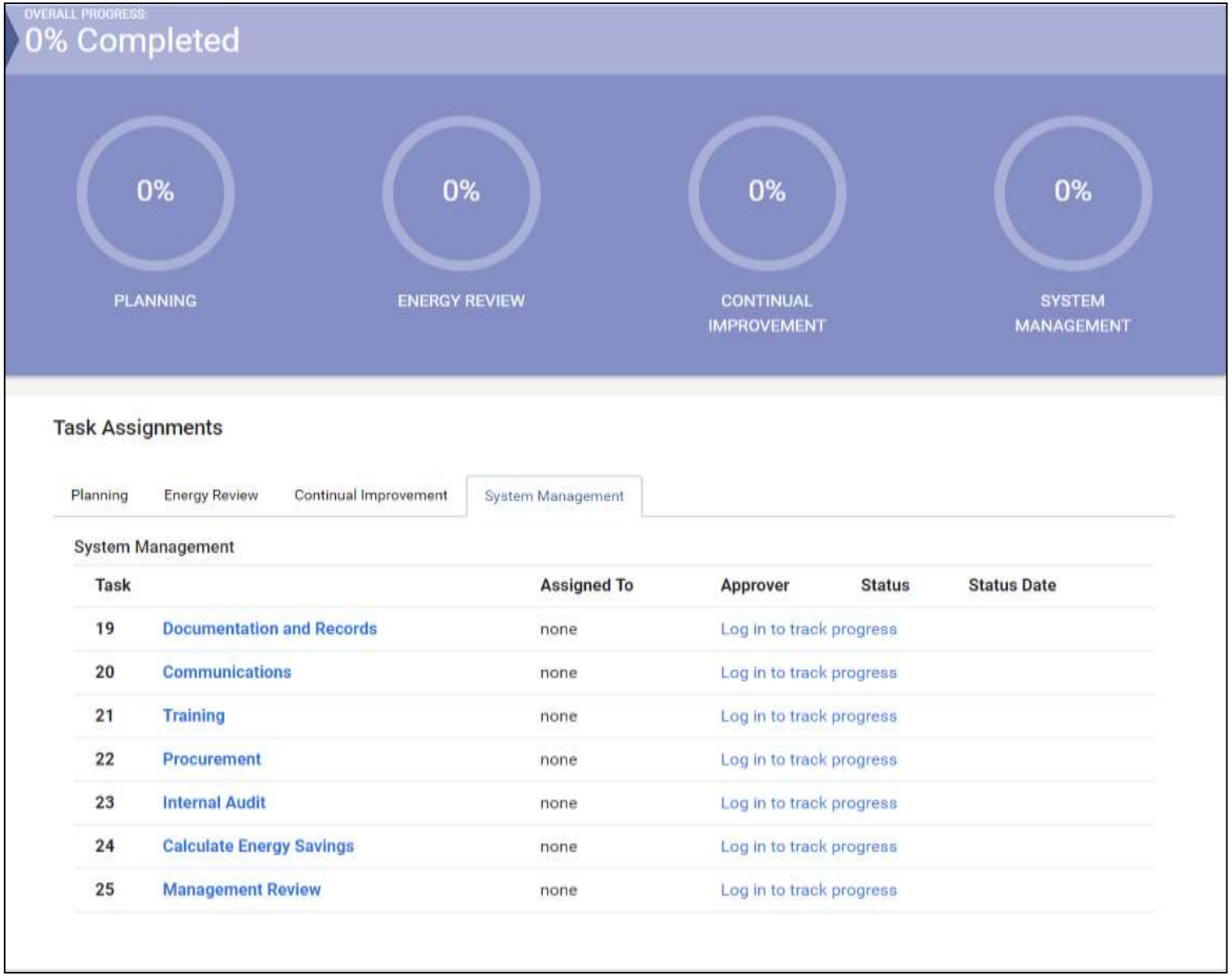
50001 Ready Navigator



50001 Ready Navigator



50001 Ready Navigator

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Thank You!