NIH GREEN ZONE NEWSLETTER

The Newsletter of the NIH Environmental Management System

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Sustainability at the NIH Bethesda Campus Central Utility Plant

Sustainability is a critical aspect of the daily operations of the NIH Bethesda campus Central Utility Plant (CUP). The CUP consists of three main plants: the Boiler Plant, the Chiller Plant and the Cogeneration Plant. These plants provide steam, chilled water and electricity to keep the buildings and facilities on the Bethesda campus operating smoothly. However, the generation of these utilities requires the consumption of various resources, such as natural gas and water. The CUP automatically records over 34 million real-time data points every day to ensure resources are being used in an optimal fashion. Additionally, the CUP constantly explores new opportunities to further increase efficiency and sustainability.

The CUP has recently completed several sustainability projects. Two of these efforts were recognized as 2017 HHS Green Champions award winners. The first of these projects includes improvements to the Chiller Plant, which allows two of the chillers to operate on unused steam generated by the CUP. During times of low steam demand, which is more frequent during the summer months, excess steam can be used to operate these chillers in place of electricity. This update provided a use for excess steam where it would normally have been vented and reduced the electricity consumption of the NIH CUP. The use of excess steam also allows the CUP to avoid the greenhouse gas emissions associated with electricity generation. Greenhouse gases trap heat in the atmosphere and make the planet warmer.[1] In total, this project saved over $600,000 and prevented nearly 6,000 tons of greenhouse gas emissions in FY2017.

The second project to win a 2017 HHS Green Champion Award included changes to the water efficiency in the CUP Boiler Plant. The boilers create steam by heating water until it evaporates. This process concentrates any dissolved solids that may be present inside the boiler feedwater, which can cause scale buildup, corrosion and deposition. The water containing the concentrated dissolved solids must be removed from the boilers at regular intervals to avoid the reliability and efficiency issues associated with these conditions. The CUP installed a Reverse Osmosis (RO) system that removes dissolved solids from the boiler feedwater. The removal of these impurities results in less frequent occurrences of the boilers needing drained. This project has created a net savings of nearly $70,000 and conserved over 2.5 million gallons of water.

In addition to the projects described above, the Cogeneration Plant demonstrates the importance of sustainability within the CUP. This plant uses a single fuel source to produce both electricity and steam simultaneously, which greatly reduces the amount of energy lost in the form of exhaust gas. The efficiency of cogeneration saves NIH an estimated $7 million per year in steam and electricity costs, which represents an annual energy savings equal to about 5,000 households. Accomplishments such as this are the reason the CUP is known as one of the largest and cleanest utility plants in the country!

You can learn more about the NIH CUP by visiting the ORF website. Also, you can read the full Green Champion project descriptions by visiting the 2017 HHS Green Champion Award site (HHS employees only) and learn about the other NIH Green Champion Award winners in this month's "Staff Spotlight" article.

TAKE ACTION

Reduce Your Carbon Footprint!

Discover your personal carbon footprint and learn about the activities that heavily contribute to greenhouse gas emission. We challenge each reader to identify and implement a few changes to reduce their carbon footprint.

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STAFF SPOTLIGHT

Go Green Get Healthy HHS

ENERGY/WATER • ENVIRONMENT • ELECTRONICS • PROCUREMENT
SUSTAINABLE BUILDINGS • TRANSPORTATION

NIH Winners from the 2017 HHS Green Champion Awards

Join us in recognizing the NIH winners of the 2017 HHS Green Champion Awards. The 9 winners from a variety of categories demonstrate another strong year of sustainability progress at NIH!

LEARN MORE

NEMS TRAINING

Did you know? The NIH Central Utility Plant collects over 34 million data points every single day! These measurements are crucial to optimizing the operations of the plant, which improves sustainability in many different aspects! To learn more about the sustainability initiatives at NIH, please visit the NEMS Training webpage to view a short (20 minute) NIH environmental awareness training video.