Utilities & Energy Services Inflation Reduction Act Opportunities

July 13, 2023

Facilities & Services

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Agenda

- Inflation Reduction Act of 2022
- Potential Projects
- Next Steps

Inflation Reduction Act of 2022

- University Tax reviewed and provided information.
- Effective January 1, 2023, tax credits are available for certain energy saving initiatives (e.g., solar, wind, cogen, geothermal, energy storage, thermal energy storage, microgrid controllers).
- Credits can range from 6% to up to 50% of a project's cost basis (30-40% more likely).
- The credits may result in refundable direct payments.
- Filed with tax return and payments could take up to 18 months.
- The energy property must begin construction on or after 1/1/2023 but before 1/1/2025.

Onsite Solar Farm

- The iCAP has a milestone to of 140,000MWhs from renewable sources by 2025.
- We engaged an energy consultant and discussed various options to source the additional 90,000 MWhs to achieve this goal. One option was to build an onsite solar farm that produces 30,000 MWhs.
  - Estimated Total Project: $42,400,000
  - IRA Potential Contribution: $21,200,000
  - UIUC Contribution: $21,200,000
  - Simple Payback: 8 Years
  - Avoided Energy Purchases by Year 15: $63,500,000

Hydrogen Ready Combustion Turbine (CT) Installation

- This project involves the installation of a Combustion Turbine (CT) – Heat Recovery Steam Generator (HRSG) cogeneration system.
- The CT will have the capability to co-fire hydrogen, and the project will investigate the possibility of co-firing hydrogen in the HRSG as well.
- Current CT technology is capable of co-fire up to 60% hydrogen, and it is anticipated that by 2030 there will be a CT design that can run on 100% hydrogen.
  - Estimated Total Project: $49,000,000
  - IRA Potential Contribution: $24,500,000
  - UIUC Contribution : $24,500,000
  - Simple Payback: 17 years

Chiller and Cooling Tower Replacement at NCCP

- This project involves the replacement of chillers 2 and 3 at NCCP with a new 5,000-6,000 ton VFD driven chiller. This chiller will increase the capacity at NCCP, and the overall efficiency.
- The installation of additional capacity will require the installation of additional cooling tower capacity. The new towers will increase the overall efficiency of the plant, as they will include VFD driven pumps and tower fans.
- This will replace equipment that is all over 30 years old.
  - Estimated Total Project: $16,800,000
  - UIUC Contribution : $8,400,000
  - IRA Potential Contribution: $8,400,000
  - Simple Payback: 112 years

Second Thermal Energy Storage (TES)

- This project involves the installation of a second Thermal Energy Storage (TES) tank at the north end of campus and would be very similar in size and operation to the existing TES tank.
- The project will result in cost savings of approximately $150,000 a year, by shifting the operation of the chillers into the evening hours when the price of electricity is lower.
- The second TES tank could also be offered into the electric demand response market which could save additional $44,000 annually.
  - Estimated Total Project: $28,000,000
  - UIUC Contribution : $14,000,000
  - IRA Potential Contribution: $14,000,000
  - Simple Payback: 72 years

Second Heat Recovery Chiller (HRC) at Roger Adams Lab

- This project involves the installation of a second HRC in RAL.
- In a previous project, a HRC was installed, and this project will add a second HRC to support the load at RAL.
- The project will result in a cost savings of approximately $200,000 a year.
  - Estimated Total Project: $4,200,000
  - IRA Potential Contribution: $2,100,000
  - UIUC Contribution: $2,100,000
  - Simple Payback: 24 years

Chilled Water Expansion in Research Park

- This project involves expanding the campus chilled water loop to the research park.
- This expansion will provide research park buildings with superior central cooling system that is more efficient, and sustainable than the current systems.
  - Estimated Total Project: $17,900,000
  - IRA Potential Contribution $8,950,000
  - UIUC Contribution: $8,950,000
  - Simple Payback: 20 years

Chilled Water Expansion in North Campus

- This project involves expanding the campus chilled water loop to the North Campus.
  - Estimated Total Project: $1,600,000
  - IRA Potential Contribution: $800,000
  - UIUC Contribution: $800,000
  - Simple payback: 20 years

Pilot Microgrid Project-DC10

- This is a pilot project to convert distribution center 10 (DC-10) to a microgrid.
- DC-10 includes the two onsite solar plants, with a total capacity of 14.6 MW, and 20 buildings.
- This project would include electric vehicle infrastructure, system monitoring and control, and electric storage capacity.
  - Estimated Total Project: $42,000,000
  - IRA Potential Contribution: $21,000,000
  - UIUC Contribution: $21,000,000
  - No payback is expected

Next Steps