

# **Climate Pollution Reduction Grant Implementation Grants Bill and Hillary Clinton National Airport**

## **Technical Appendix**

**April 1, 2024**

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To calculate GHG emissions reductions, emission usage without CUP implementation was compared to emission usage assuming the CUP was implemented. Both scenarios were looked at for the next 5 and 25 years.

**Emission Usage without CUP:** LIT projected current emissions by utilizing a business as usual (BAU) scenario<sup>1</sup>. This BAU scenario assumes our HVAC energy usage (natural gas and electricity) at the airport terminal will increase proportional to the terminal's square footage as the terminal has planned expansion already approved. In addition, we also assume an increase in the percentage of renewable energy within the mix of electricity supply. We estimated greening of grid at 5% through 2035 and 7.5% through 2050 in the BAU scenario. This BAU scenario assumption is based on the mid-case current policy scenario as understood under 2023 Standard Scenarios from National Renewable Energy Laboratory.<sup>2</sup> This mid-case scenario serves as a baseline or middle-ground scenario to reflect what might happen if current trends and conditions continue. For example, under this BAU scenario, the CO<sub>2</sub> rate for combustion (kg/MWh) in the U.S. goes from 348.98 in 2024 to 67.13 in 2050. The implication of such changes decreases GHG savings over the long-term (i.e., 25 years or more) since a higher percentage of electricity will be generated through renewable energy sources and there will be an overall reduction in fossil fuel usage without carbon capture in generation of electricity.

**Emission Usage with CUP:** Moreover, we calculated GHG emissions reduction estimates from implementing the CUP based on assuming the project will eliminate HVAC natural gas usage and reduce the HVAC electricity consumption by 25%, as the system is more efficient than conventional HVAC systems. GHG emissions reductions calculations also incorporate the anticipated change in HVAC energy usage over time due to changes in the terminal's square footage as well as changes with grid electricity GHG emission factors similar to the BAU scenario.

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<sup>1</sup> Current calculations do not account for the terminal expansion, or capabilities of geothermal systems to impact energy consumption when expansion is complete. Similarly, fugitive emissions are calculation assuming there is no change in refrigerant containing equipment except the decommissioning of three chillers. We primarily use the current energy usage, emission factors and future possibilities of grid greening to account for savings.

<sup>2</sup> Gagnon, Pieter, An Pham, Wesley Cole, Sarah Awara, Anne Barlas, Maxwell Brown, Patrick Brown, Vincent Carag, Stuart Cohen, Anne Hamilton, Jonathan Ho, Sarah Inskeep, Akash Karmakar, Luke Lavin, Anthony Lopez, Trieu Mai, Joseph Mowers, Matthew Mowers, Caitlin Murphy, Paul Pinchuk, Anna Schleifer, Brian Sergi, Daniel Steinberg, and Travis Williams. 2023. 2023 Standard Scenarios Report: A U.S. Electricity Sector Outlook. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A40-87724. <https://www.nrel.gov/docs/fy24osti/87724.pdf>.