Lifecycle Cost Analysis Overview (LCCA) – Mount Vernon Pilot Project

Per the September 2023 Order, the Company has conducted an LCCA of the Pilot, along with hypothetical alternative scenarios: "Baseline Business As Usual" (BBAU), “Individual Ground Source Heat Pumps,” "Air Source Heat Pumps" (ASHPs). These analyses estimate the present value of capital and operating costs, energy use, and CO2e emissions over a 25-year analysis period for these different systems to meet the building space and water heating loads the Pilot will serve. The Company followed DPS guidance in preparing and summarizing its analysis.

LCCA Limitations

This analysis has a number of limitations that need to be considered in drawing conclusions about the Pilot specifically or the UTEN model of building electrification in general.

The LCCA results will overstate the relative cost of the UTEN model compared to BBAU, Individual GSHPs, and ASHPs:

- **The cost of a first-of-its-kind Pilot will be higher than established technologies**. Pilots include many one-time costs and/or costs that will be lower once the Company and the market have developed the experiences that move them down the cost curve. For this analysis, the Company has removed from the Pilot LCCA the easily identifiable Pilot-specific costs - namely the back-end SCADA and data management systems. However, there are a number of other cost categories that are higher for the Pilot than they will be for future UTENs:
    - **Engineering and Design Costs**. Because it lacked prior experience with these kind of thermal energy networks, the Company invested greater resources in the design phase than it would need to in the future. This included funding for design iterations and multiple levels of external engineering peer review.
    - **Construction Costs**. Because it has not built this kind of infrastructure before, the Company has budgeted substantial funds in direct Con Ed construction oversight. Depending on its experience with this Pilot, this level of fundiAPPng may not be necessary for future projects.
    - **Property taxes**. These are directly proportionate to the capital cost to design and build the Pilot. Accordingly, higher Pilot-specific capital costs will translate into higher Pilot-specific property taxes.

- **IT and Con Edison labor costs to set up and execute new billing systems and processes**. These include many one-time costs that would not be repeated in future projects.
- **Legal fees and Company labor to draft and negotiate customer and thermal agreements, rates and thermal pricing, and advise on compliance with the labor provisions of the UTENJA**. First-of-their- kind agreements entail a number of one-time research and analysis expenses that will not be needed when operating at scale. Understanding and navigating the labor provisions of UTENJA is a one-time expense.
- **Insurance costs**. Because the Company's insurance providers have not insured the Company for this kind of infrastructure before, the cost to extend its coverages to the Pilot will likely be higher than for future projects.
- **Customer operating costs**. Because the Company has not operated this kind of system before, the energy the Pilot saves will likely be lower than future projects.

- **Pilots lack economies of scale.** Because the primary objective of a Pilot is to provide learnings, the Company has limited the scale of the Pilot to the minimum necessary to deliver these insights. This strategy manages the Pilot's absolute costs and scope, but it also leads to higher cost of avoided energy and carbon than if it were to operate at a more cost-efficient scale where the fixed costs were spread across greater savings. For instance, there are many more buildings located next to the UDS than the Pilot is targeting.

LCCA assumptions

A number of assumptions underpin the analysis:

- Global assumptions
  - Applies a nominal discount rate to all costs and savings equal to the Company's Weighted Average Cost of Capital in the current year of its Electric rate plan.
  - Estimates the residual value of equipment lasting beyond the analysis period by prorating the installed cost by the remaining years of useful life.

- Projects the costs of electricity, gas, and oil using the assumptions in the Company's publicly filed 2023 Final Gas Long Term Plan.[1]
- Uses a general discount rate of 3%.

- UTEN assumptions
  - Increases Thermal Customer thermal costs 3% a year.

LCCA results

The UTEN Pilot has higher lifecycle costs than the BBAU or individual electrification technologies. Please see the "LCCA Limitations" discussion above in interpreting these results.

Table 1: LCCA Results

Lifetime NPV, $MM

	Scenario	BBAU	UTEN	GSHP	ASHP
Utility	Equpment		$91.4		
	Residual Value		-$6.1		
	Electricity		$1.0		
	Net thermal rev./payment		-$0.8		
	Admin		$40.3		
	Property Taxes		$35.7		
	Other O&M		$51.7		
Resource & Customer	Equipment	$2.5	$68.5	$82.2	$23.7
	Residual Value	$0.0	-$10.3	-$11.8	-$3.7
	Electricity	$3.4	$9.4	$9.5	$10.4
	Gas/Oil	$5.6			
	Net thermal rate		$0.8		
	Other O&M	$1.1	$1.9	$1.9	$1.3
Total		**$12.6**	**$283.5**	**$81.8**	**$31.7**

[1] Case 23-G-0147, *In the Matter of a Review of the Long-Term Gas System Plans of Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc.,* Final Gas System Long-Term Plan (Nov. 29, 2023).

Conclusion

Implementing the Pilot will yield important learnings for NYS, including providing the fact base required to assess the economics of UTENs at scale to decarbonize buildings. The Company recommends updating this analysis several years into Stage 4, at which point it will have the data necessary to much more accurately estimate the cost of future UTEN projects, which will take advantage of one-time Pilot investments and build upon the experience the Pilot has provided. With funding, this update could include a pre-design analysis of the Pilot project at scale, along with an engineering study of the cost electrify the same buildings with GSHPs and/or ASHPs.