

Vancouver Waterfront Gateway TENs Pilot Metrics

Per RCW 80.28.460(6), these performance metrics “are intended to help inform the commission's rule making and rate making and specifically to help inform any future standardized metrics that the commission may adopt for thermal energy network pilot projects,” and, as such, are not intended to be ongoing reporting requirements.

Technical Metrics

Metrics	Data Collected	Unit of Measurement	Comments
1. Load Profiles of Customer Equipment	Building number/occupancy/use/sq. ft.	Various	HB 2131 (3a)
	Nameplate capacity of space conditioning and DHW equipment	BTU/h	HB 2131 (4c, 4d)
	Electricity consumption of space conditioning and DHW equipment	kWh	HB2131 (3f) - provided by electric utility serving TEN pilot
	Thermal energy consumption building side of ETS(s)	BTU/h	HB 2131 (3d,3l, 4c,4d)
2. Load Profiles of Thermal Source(s)	Thermal energy consumption of GLHX	BTU/h	
	Electricity consumption of open loop well/circulation pump(s) and ancillary equipment	kWh	HB2131 (3f) - provided by electric utility serving TEN pilot
	Electricity consumption of GLHX ancillary equipment	kWh	HB2131 (3f) - provided by electric utility serving TEN pilot
3. Energy Input/Output of Thermal Energy Network (TEN)	Hours of system operation to provide heating	Hours	HB2131 (3d)
	Hours of system operation to provide cooling	Hours	HB2131 (4d)
	Electricity consumption of ATL pumps and ancillary equipment	kWh	HB2131 (3f) - provided by electric utility serving TEN pilot

Financial Metrics

Metric	Utility-Side	Equipment	Labor	Comments
1. Capital Expenditures (Utility-Side)	Design	X	X	HB2131 (3h)
	Electrical	X	X	HB2131 (3h)
	Equipment and facilities	X	X	HB2131 (3h)
	Property/permitting	X	X	HB2131 (3h)
	Metering	X	X	HB2131 (3h)
	Software	X	X	HB2131 (3h)
	Other	X	X	HB2131 (3h)
2. Operating Expenditures (Utility + Customer Building-Side)	Electricity	X	N/A	HB2131 (3h)
	Equipment and facilities maintenance	N/A	X	HB2131 (3h)
	Equipment and facilities labor	X	X	HB2131 (3h)
	Other	X	X	HB2131 (3h)

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Customer Metrics

Metric	Data Collected	Unit of Measurement	Comments
1. Customer Satisfaction with TEN Service	Customer-experience survey results	Customer count by satisfaction level	HB2131 (3e)
	Number of customers served	Number	HB2131 (3a)

Safety & Reliability Metrics

Metric	Data Collected	Unit of Measurement	Comments
1. Safety	Workforce safety incidents	Number	HB2131 (3c)
2. Reliability	TEN system up-time	Percent	HB2131 (3c)
	Cause of TEN shutdowns (planned/unplanned)	Description	HB2131 (3c)
	Duration of shutdowns (planned/unplanned)	Hour	HB2131 (3c)

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Societal Metrics

Metric	Data collected	Unit of Measurement	Comments
1. Greenhouse Gas Emissions Reductions	Carbon emissions reductions	TBD	HB2131 (4a)
2. Aggregate Electric Demand Reductions	Buildings enrolled in electric demand response program	Number	HB2131 (3j)
	TEN electric demand (utility owned)	kW	HB2131 (3f) – provided by electric utility serving TEN pilot
	TEN electric consumption (utility owned)	kWh	HB2131 (3f) – provided by electric utility serving TEN pilot
3. System Efficiency: COP	TEN electric demand (utility owned)	kW	HB2131 (3f) – provided by electric utility serving TEN pilot
	Space conditioning and DHW output (Customer-side)	kWh	HB2131 (3f) – provided by electric utility serving TEN pilot
4. Number of jobs created (temporary and permanent)	Number of jobs during design, construction, and operation of the pilot project (union/non-union) including use of existing workforce	Number	HB 2131 (3a, 3b)

ACRONYMS & ABBREVIATIONS

ASHP – Air Source Heat Pumps

ATL – Ambient Temperature Loop

BAU – Business as Usual

DHW – Domestic Hot Water

ETS – Energy Transfer Station

GLHX – Ground Loop Heat Exchange/Exchanger

PUD – Public Utility District

TEN – Thermal Energy Network

WSHPs – Water Source Heat Pumps, also known as ground source heat pumps