

## Calculations re Enbridge Responding Evidence re "Feasibility of Electrification"

EB-2020-0293

Prepared by Environmental Defence for technical conference questions for the sponsors' witnesses (panel 2) on March 6, 2022

### Peak Energy Needs to Displace Fossil Gas - St. Laurent Pipeline Area

Energy input from gas (energy in gas at forecast demand)	1.470 GW
Energy output (adjusted by est. current equipment efficiency)	1.323 GW
Energy output (adjusted by planned efficiency gains)	0.463 GW
Energy input from electricity (100% resistance at 100% efficiency)	0.463 GW
Energy input from electricity (scenario 1)	0.255 GW
Energy input (25% at efficiency of ground source heat pumps)	0.023 GW
Energy input (25% operating thermal storage units)	0.000 GW
Energy input (50% at 100% efficiency)	0.232 GW
Energy input from electricity (scenario 2)	0.370 GW
Energy input (25% at efficiency of ground source heat pumps)	0.023 GW
Energy input (0% operating thermal storage)	0.000 GW
Energy input (75% at 100% efficiency)	0.347 GW

### Peak Energy Needs - 100% Electric Heating vs. New Resources

Electricity demand - Scenario 1	0.255 GW
Electricity demand - Scenario 2	0.370 GW
Ottawa planned storage capacity	0.600 GW
Ottawa planned renewable capacity	4.300 GW

### Inputs

Peak energy needs per Environmental Defence interrogatory #25 to Enbridge	1.47
Gas equipment efficiency	90%
Energy Evolution building stock efficiency gains (60% to 70%)	65%
Ground Source Heat Pumps sCOP (seasonal co-efficient of performance)	5
Thermal storage - peak demand	0
Air-Source Heat Pumps COP at peak	1