Durham Climate Dashboard

Question 1: What is the purpose of this dashboard?
Answer: The Durham Climate Dashboard integrates data from many community data sources to provide a thorough, real-time, snapshot of local energy and emissions data that can be utilized to inform other areas of work related to supporting the implementation of the Durham Community Energy Plan. The plan aims to accelerate the transition to a clean energy economy involving efficient energy use, sustainable buildings, renewable energy adoption, and electrification. This site tracks these efforts and facilitates ongoing evaluation of progress and decision making to support achieving greenhouse gas emission reductions.

Question 2: How often is the dashboard being updated?
Answer: The dashboard is constantly being updated with the most recent data available.

Question 3: How did Durham Region decide on the metrics?
Answer: The selection of metrics for Durham Region's dashboard involved a thorough process which included consultation with municipal staff, community partners, and experts, leading to multiple revisions. The chosen metrics were also informed through an analysis of climate reporting frameworks across North America. This comprehensive approach ensured the metrics accurately represented the Region's priorities, while aligning with established standards.

Question 4: How does Durham Region get exact data for their Dashboard?
Answer: Durham Region ensures accurate data for its Dashboard by diligently collaborating with local organizations and utilizing government data sources. This cooperative effort tailors the dashboard to reflect Durham's specific regional context and affairs.

Question 5: How did we decide which metrics got placed at the top of the page?
Answer: The statistics located at the top of the page were carefully considered to allow the viewer to quickly comprehend the information they are presented with.

Durham Climate Dashboard Glossary

A

Active Transportation: Active transportation refers to the practice of using one's own physical effort to travel between locations. This encompasses modes such as walking, biking, skateboarding, in-line skating, jogging, running, non-mechanized wheel chairing, snowshoeing, and cross-country skiing. The concept holds manifold advantages for individuals, communities, transportation networks, the environment, and economies. It encourages regular physical activity, fosters social interactions, lessens traffic congestion, aids in curbing greenhouse gas emissions, and results in financial savings by reducing expenditures on fuel and parking.

Adaptation: The process of adjusting to the current and future effects of climate change.

Attributes: A piece of information which determines the properties of a field or tag in a database or a string of characters in a display.

B

Battery Electric Vehicle (BEV): Battery Electric Vehicles (BEVs) are carbon-free automobiles powered solely by electric energy stored in onboard rechargeable batteries. They produce zero tailpipe emissions, contributing to reduced air pollution and a greener transportation system.

C

Carbon Neutral: Making no net release of greenhouse gases into the atmosphere, either by reducing emissions to zero, or by offsetting emissions.

Climate Emergency: The climate emergency signifies the urgent and critical state of the Earth's climate system due to rapidly escalating global temperatures and the resulting impacts on ecosystems, communities, and economies. In recognition of these risks, Durham Regional Council voted to declare a climate emergency in 2020. The Durham Climate Dashboard is a key component for tracking Regional efforts to address the climate emergency.

Climate Equity: Ensuring the just distribution of the benefits of climate protection efforts and alleviating unequal burdens created by climate change.

Co-benefits: Climate co-benefits are additional benefits to taking a specific action not related to reducing GHG emissions. For example, if we reduce the number of internal combustion engine vehicles on the road it will reduce GHG emissions and improve local air quality simultaneously. Thus, air quality improvements is a co-benefit.

D

Durham Region: Covers eight unique area municipalities including Ajax, Brock, Clarington, Oshawa, Pickering, Scugog, Uxbridge, and Whitby. Durham Region is also home to the Mississauga Nation and a large Métis community.

E

Energy Efficiency: Energy efficiency refers to using less energy to achieve the same results, e.g., a light bulb that gives off the same amount of light while using less electricity. Energy efficiency in buildings is important because buildings are a major source of GHG emissions. By making buildings more efficient, we can reduce energy consumption, lower emissions, and mitigate climate change while also saving money and enhancing comfort for occupants.

Energy Justice: Energy justice refers to the equitable distribution of benefits and burdens related to energy production, distribution, and consumption. It concerns recognition that today's energy systems have contributed to deepened inequality locally and globally and calls for a *just* and *equitable* transition to renewable and low carbon energy systems.

Energy Poverty: Energy poverty refers to the experience of households or communities that struggle to heat and cool their homes and power their lights and appliances. Those in this situation face multiple challenges and impacts, including:

- Discomfort from living in cold and drafty homes.
- Disruptions from abrupt utility shutoffs, such as inability to cook and spoiled food.
- Sacrificing other essentials such as groceries and medication in order to keep up with energy bills.
- Increased incidence of respiratory illness in children and infants
- Higher stress and poor mental health outcomes for adults.
- Difficulty participating fully in community life.

Who experiences energy poverty? There is no "typical" scenario or single cause. Energy poverty affects households with diverse income ranges, and individuals who live in a variety of housing types all across the country.

Energy Transition: Energy transitions refers to a fundamental shift in dominant energy sources. In the context of climate change, where today's dominant energy sources are responsible for rising greenhouse gas emissions, energy transitions refer to the deliberate and urgent shift from fossil fuel-based energy systems to renewable and low carbon alternatives.

G

Greenhouse Gas (GHG) Emissions: These are gases in the Earth's atmosphere, including carbon dioxide, methane, and nitrous oxide, that trap heat from the sun. GHG emissions have risen to unsustainable levels due to human activity, especially burning fossil fuels, leading to the current climate emergency.

GHG Intensity: The amount of emissions associated with a certain metric. For example, per the energy use of a square metre of a building; per litre of gasoline burned; per kilowatt-hour of electricity used.

I

Indigenous: First used in the 1970s, when Indigenous peoples worldwide were fighting for representation at the United Nations, and now frequently used by academics and in international contexts (e.g., the United Nations Declaration of the Rights of Indigenous Peoples). Understood to mean First Nations, Métis and Inuit communities, peoples, and nations that have a historical continuity with pre–invasion, pre–settler, or precolonial societies that developed on their territories, as distinct from the other societies now prevailing on those territories (or parts of them).

Internal Combustion Engine Vehicles: Internal Combustion Engine Vehicles (ICEVs) are traditional automobiles that generate power by burning fuel within an engine. This combustion drives pistons, creating mechanical energy to propel the vehicle. ICEVs are prevalent but produce emissions and have lower efficiency compared to electric alternatives.

L

Low carbon energy system: A low carbon energy system refers to a collection of energy sources, technologies, and practices that produce minimal greenhouse gas emissions. Given that the energy sector is responsible for over 70% of global GHG emissions, transitioning to low carbon energy systems is crucial in the fight against climate change.

M

Mitigation: The process of making the impacts of climate change less severe by preventing or reducing the emission of GHGs into the atmosphere.

Mode Share: Mode share refers to the distribution of transportation trips among different modes, such as walking, cycling, public transit, and private vehicles. It quantifies the usage patterns and helps assess the sustainability and efficiency of transportation systems.

N

Natural Gas: Natural gas is a hydrocarbon-rich fossil fuel primarily composed of methane. In Ontario, it has been relied upon for space and water heating in homes and buildings. It is a

complicated issue for climate mitigation efforts because while it produces less carbon dioxide when burned, its extraction, transportation, and leakage can result in significant methane emissions, a potent greenhouse gas that contributes to global warming.

Net-zero Emissions: As defined in the Canadian Net-zero Emissions Accountability Act: anthropogenic emissions of greenhouse gases into the atmosphere are balanced by anthropogenic removals of greenhouse gases from the atmosphere over a specified period. The aim of such action is to effectively cancel out our overall impact on climate change. Durham Region aims to reduce greenhouse gas emissions in order to become Net Zero by 2050.

P

Plug-In Hybrid Electric Vehicles (PHEVs): Plug-in Hybrid Electric Vehicles (PHEVs) are hybrid cars equipped with rechargeable batteries and internal combustion engines. They can run on electricity alone for shorter distances, switching to gasoline when needed. This dual system enhances fuel efficiency, reduces emissions, and offers flexibility for various driving scenarios.

R

Renewable Energy: Energy derived from naturally replenishing sources, such as sunlight, wind, tides, and geothermal heat. These sources are used to produce electricity without burning fossil fuels, thereby contributing to reductions in greenhouse gas emissions. Renewable technologies include, for example, rooftop solar PV, which uses solar panels to convert sunlight into electricity.

Renewable Natural Gas: Biogas (the gaseous product of the decomposition of organic matter) that has been processed to purity standards and is interchangeable with conventional natural gas.

S

Scope 1, 2, 3 Emissions:

Scope 1: covers emissions from sources that a community owns or controls directly;

Scope 2: covers emissions that a community causes indirectly from the energy it uses that is imported from outside the community boundary;

Scope 3: encompasses emissions that are not produced in the community itself, and not the result of activities from assets owned or controlled in the community, but those that it is indirectly responsible for across its supply chain.

V

Vehicle Kilometers Travelled: The cumulative distance covered by all vehicles, typically measured in kilometers, within a given geographical region or time period. VKT serves as a vital indicator for analyzing transportation patterns, assessing road usage, environmental impact, and infrastructure planning.

Acronyms

DCEP: Durham Community Energy Plan
CO2: Carbon Dioxide
CO2e: Carbon Dioxide Equivalent
DE: District Energy
GHG: Greenhouse Gas
RNG: Renewable Natural Gas
VKT: Vehicle Kilometers Travelled

Units

GHG emissions: 1,000 tCO2e
Energy: 1 GJ= 278 kWh
1 MWh= 1,000 kWh
Energy Use Intensity (EUI): 1 ekWh/sqft