Community Energy Plan
Community Advisory Committee

Town of Aurora

November 19, 2020

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LISTEN · UNDERSTAND · RELATE · ADVANCE

ICLEI
Local Governments for Sustainability

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What is a Community Energy Plan?

Community Energy Plan (CEP)

- Long-Term Strategic Plan
- Improves Energy Efficiency
- Reduces Energy Use & GHG Emissions
- Moves Towards a Sustainable Energy System
- Benefit Environment, Health, Economy

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The Need for A Community Energy Plan

Local Climate Change Impacts

A Growing Population

Meeting Reduction Targets

Climate Emergency

Economic Benefits

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Plan Development

- Funding for this project has been retained from:
  - Ministry of Energy's (Ontario) Municipal Energy Program "MEP Program"
  - Federation of Canadian Municipalities' Municipalities for Climate Innovation Program "MCIP"

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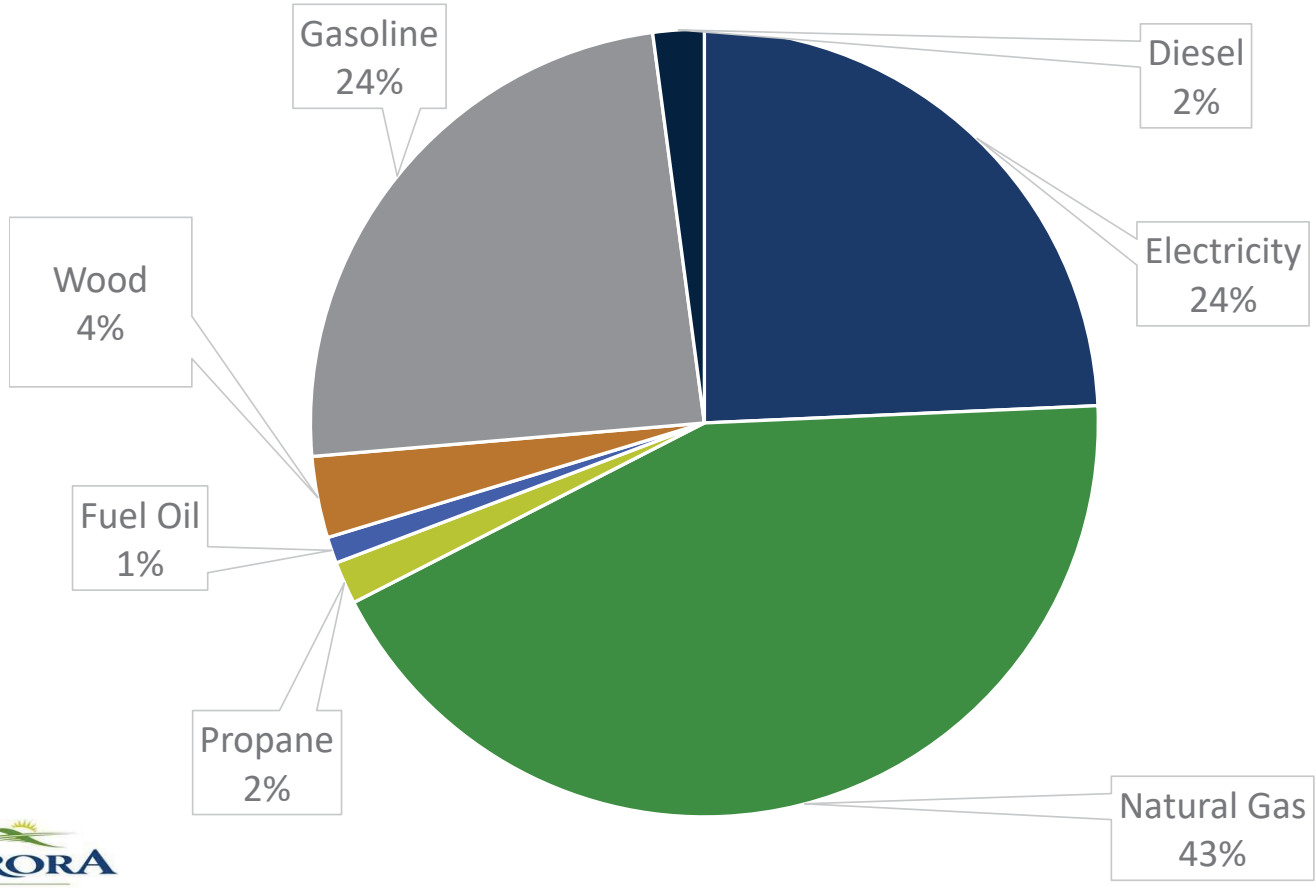
Energy Use by Fuel Type in Aurora (2018)



Total Energy
~ 6.8 million GJ
Associated Cost
~ $178 million

GJ = gigajoules

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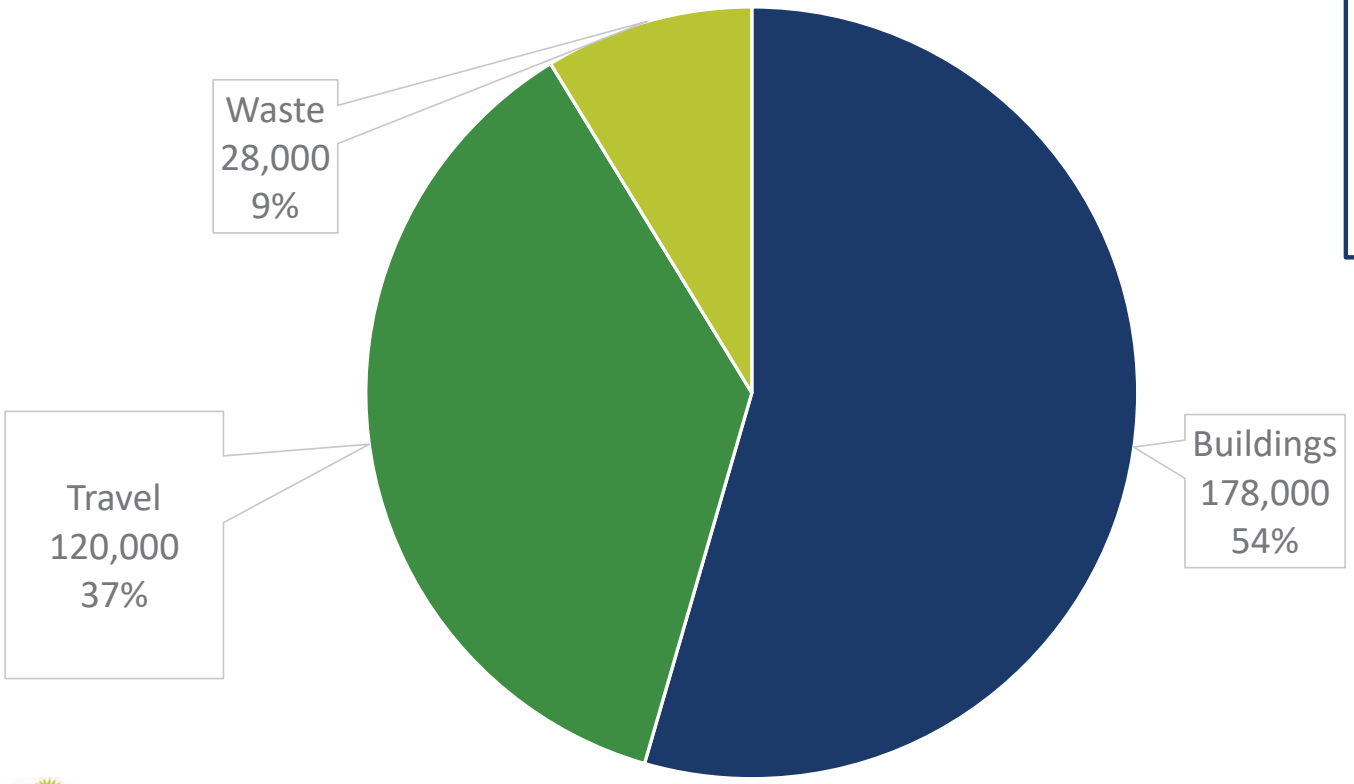
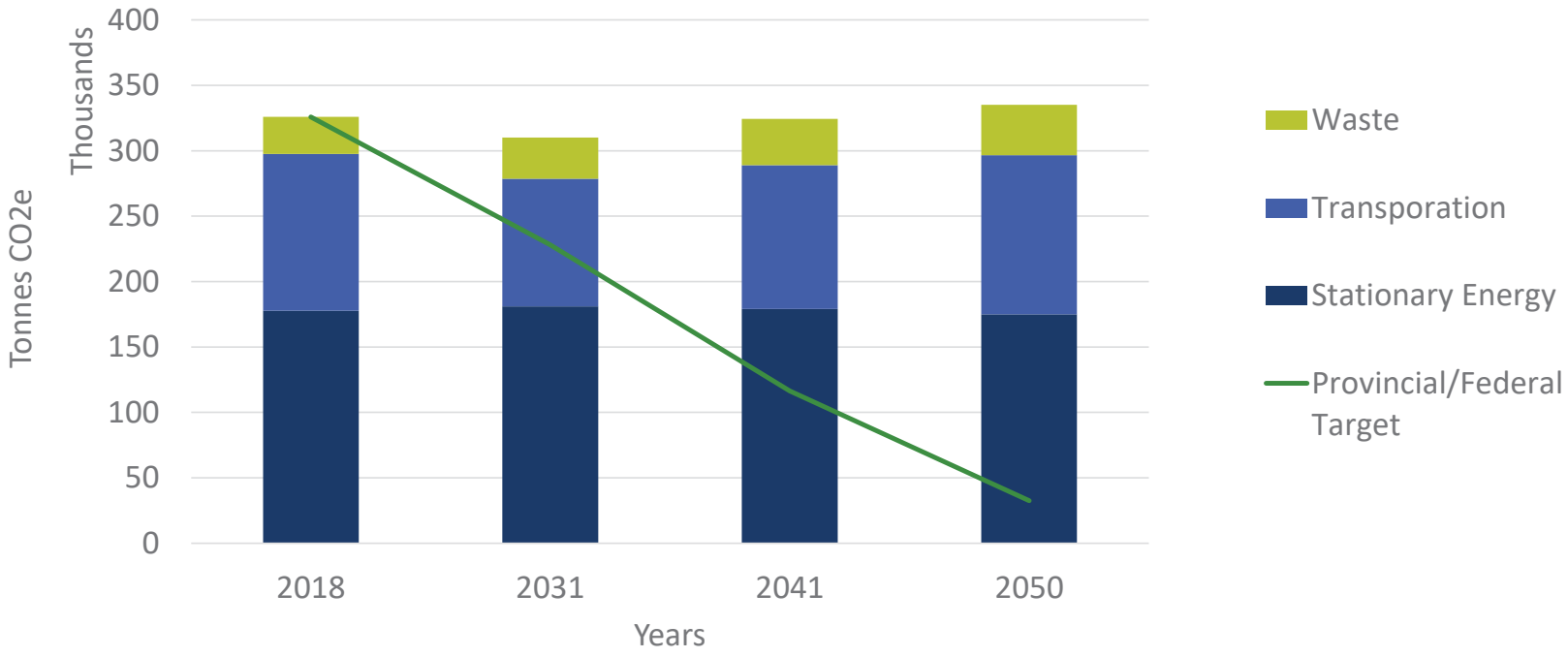
GHG Emissions (tCO_2e) by Sector in Aurora (2018)



Total Emissions
~ 326,000 tCO_2e
Per Person
~ 5 tCO_2e

tCO_2e = Tonnes of Carbon-Dioxide Equivalent

Projected GHGs in Aurora to 2050

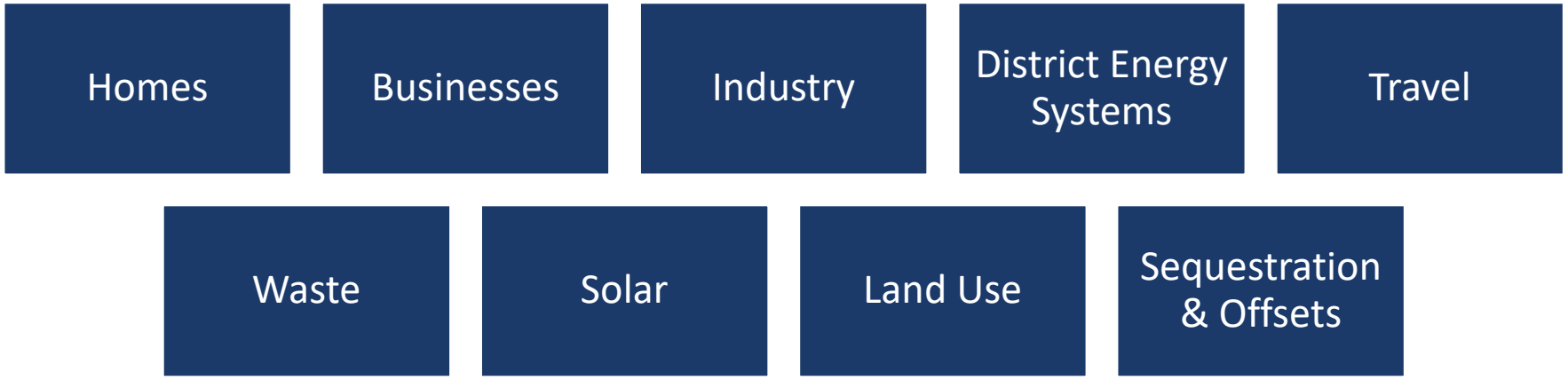


Vision & Goals

Aurora is a leader in energy and emissions reduction, with a focus on improving quality of life in collaboration with residents, organizations and businesses.

- Education & Awareness
- Business and Industrial Conservation & Efficiency
- Economic Development
- Renewable Energy
- Land Use
- Home Energy Conservation & Efficiency
- Transportation
- Natural Environment
- Waste

Strategies to Reduce Energy & GHG



The Community Energy Plan strategies **achieve 22% reduction by 2030 from 2018 levels and 65% by 2050**.

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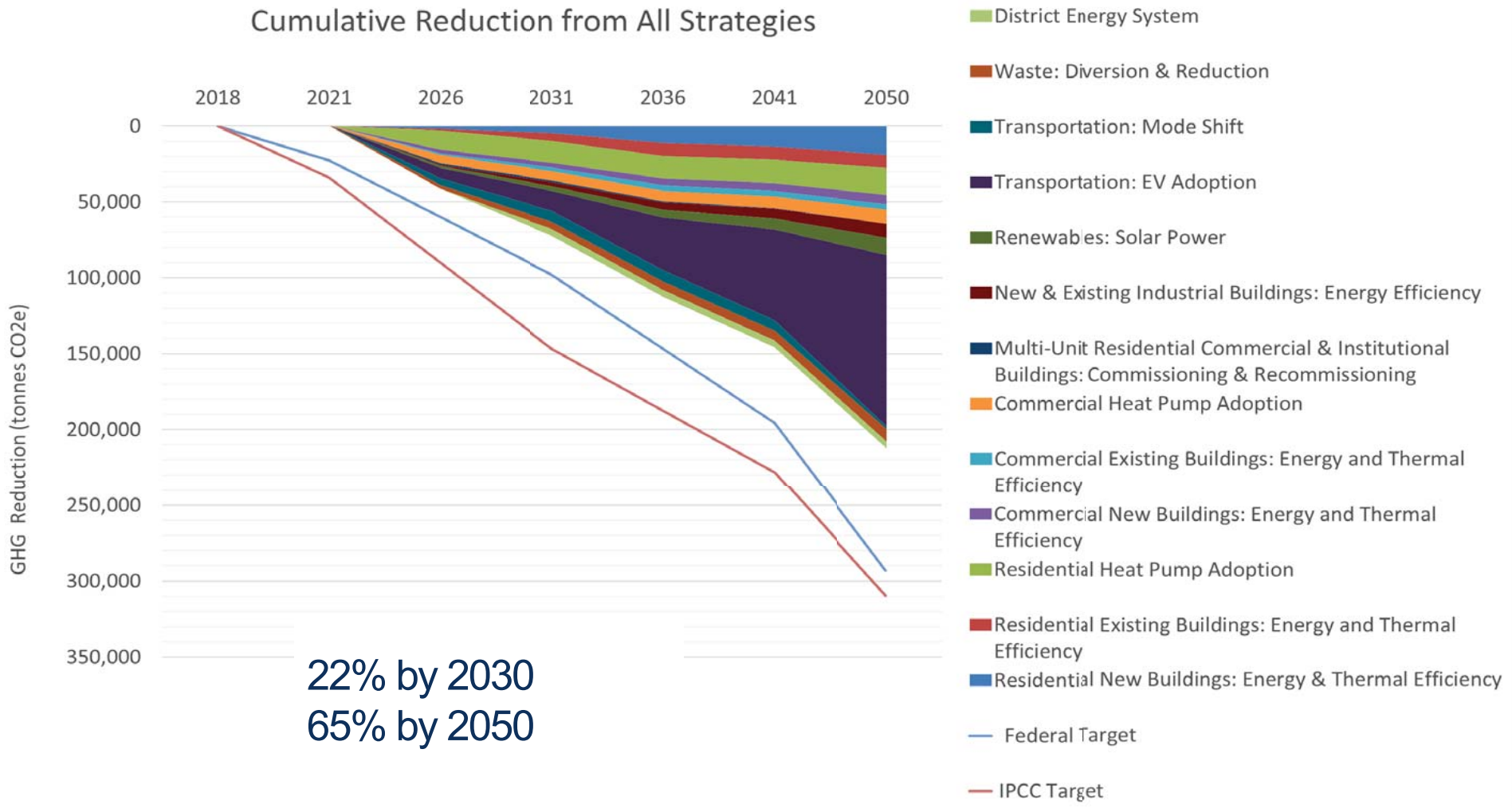
Cumulative Impact of Strategies



22% by 2030
65% by 2050

Plan Implementation

- Financing
- Engagement & Communications
- Reporting & Renewal
- Enabling Components
- Potential Partners

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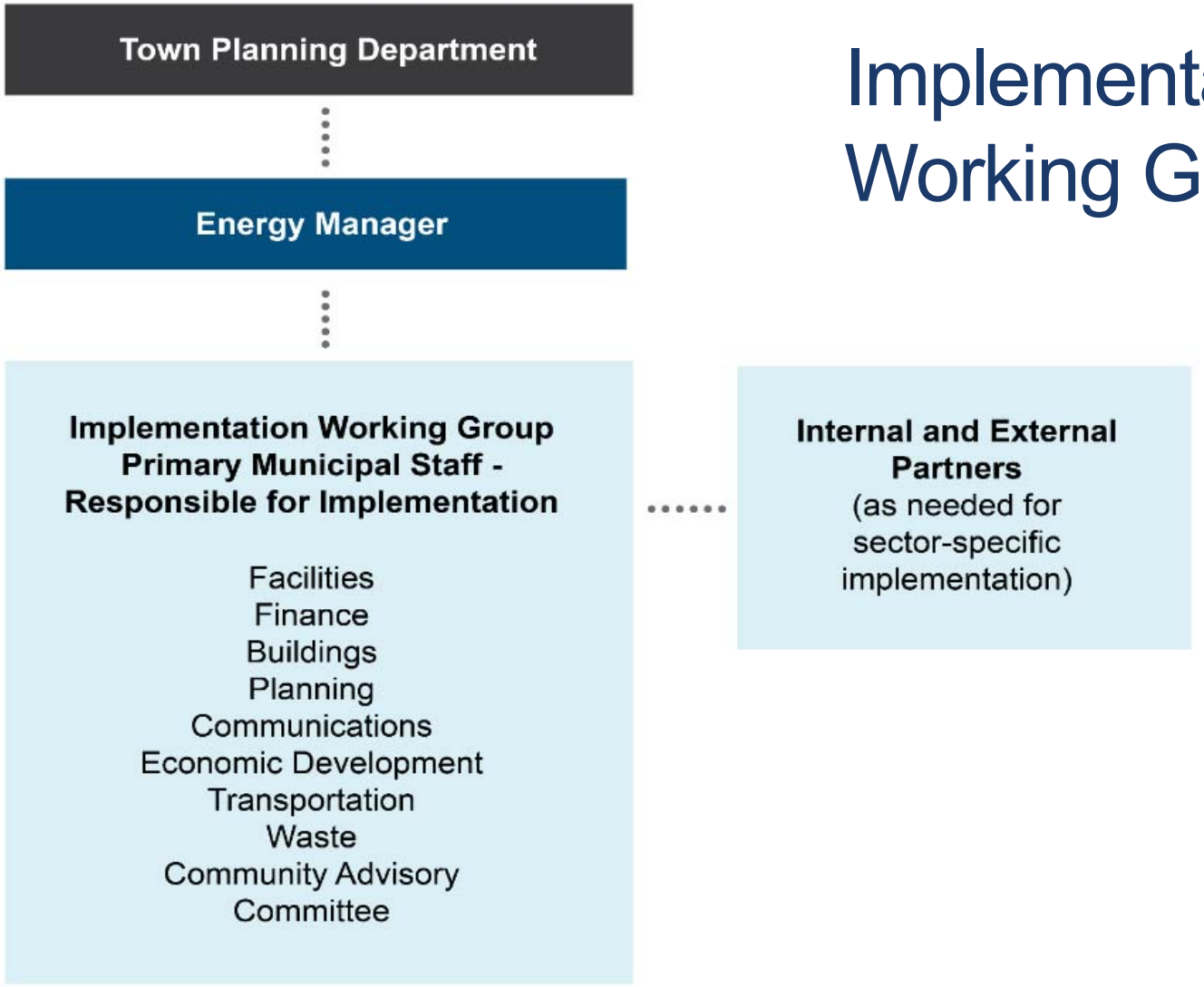
Implementation Working Group



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Next Steps

- CEP presented to Town Council in early 2021

Thank You!

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BACKUP SLIDES - STRATEGIES

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Homes

- **Green Standard for New Homes**
  - To encourage higher energy efficiency in new homes.
  - New residential buildings to be net-zero ready by 2036
  - Include prescriptive measures to address the readiness for solar installation on roofs, connection to district energy (if applicable), and electric vehicle charging.
  - Buildings are net zero and net zero ready by 2036, achieving 80% greater efficiency in 2030 and 90% in 2050.

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Homes

- **Deep Retrofit Program for Homes**
  - To offer a holistic approach to energy efficiency for homes.
  - Designed to address the most common high energy uses in the home (i.e. space heating, insulation, appliances, water heating, windows, etc.)
  - The program could include solar PV/thermal, use of air source heat pumps, where appropriate.
  - 80% of buildings are retrofitted by 2050, with efficiency gains of 20-35%
  - 20% of buildings use heat pumps by 2030; 40% by 2050

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Businesses, Institutions & Industry

- **Green Standard for New Commercial and Institutional Buildings**
  - To encourage higher energy efficiency in new businesses and institutional buildings.
  - Consider adapting a regional ‘net-zero standard by 2030’ building code.
  - Buildings are net zero and net zero ready by 2036, achieving 80% greater efficiency in 2030 and 90% in 2050.

- **Commercial and Institutional Buildings Deep Retrofit Program**
  - To offer a holistic approach to energy efficiency for businesses and institutions.
  - The retrofit program should be designed to address the most common high energy uses in businesses and institutions. This includes space heating, insulation, water heating, windows, etc. The program could include solar PV/thermal, use of air source heat pumps, where appropriate.
  - 80% of buildings are retrofitted by 2050, with efficiency gains of 20-35%
  - 20% of buildings use heat pumps by 2030; 40% by 2050

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Businesses, Institutions & Industry

- **Multi-Unit Building Program**
  - Program to assess a building's equipment and operating/maintenance systems. This normally occurs after it has been operating for some time.

- **Industrial Building Efficiency**
  - Encourage the use of energy management systems to support energy savings.
  - 3% efficiency gains annually for all industrial buildings

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Travel

- **Mode Shift**
  - To encourage a shift from traditional vehicles to active travel (cycling, walking, rolling)
  - Address ‘first and last mile’ challenges, encourage carpooling and ride-sharing, encourage public transit.
  - 7% shift to alternatives modes by 2030; 15% by 2050

- **EV Strategy**
  - To develop and implement a plan to become an electric vehicle-ready Town.
  - Provide adequate EV Charging Infrastructure to become an EV-ready municipality
  - 18% of vehicles are electric by 2030; 99% by 2050

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Waste

- **Waste Diversion and Reduction**
  - Implement programs to reduce waste generation by residents and businesses and to increase waste diversion from landfills
  - Waste reduction involves producing less garbage that ultimately needs to be disposed of. Waste diversion involves the reuse, composting, or recycling of materials that would typically be sent to a landfill.
  - 5% reduction in waste generation by 2030; 10% per capita reduction by 2050

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District Energy

- **District Energy System Feasibility Study**

  - To conduct a feasibility study for implementing a low-carbon fuel district energy system (DES).
  - District energy systems (DES) use pipes to supply heating, cooling and/or power to multiple connected buildings. Buildings that produce excess energy (“anchor tenants”) can redistribute this energy to nearby buildings. The use of a DES can lead to increased efficiencies and reliability.
  - 50% of non-residential and 10% of residential in new developments; 25% existing non-residential

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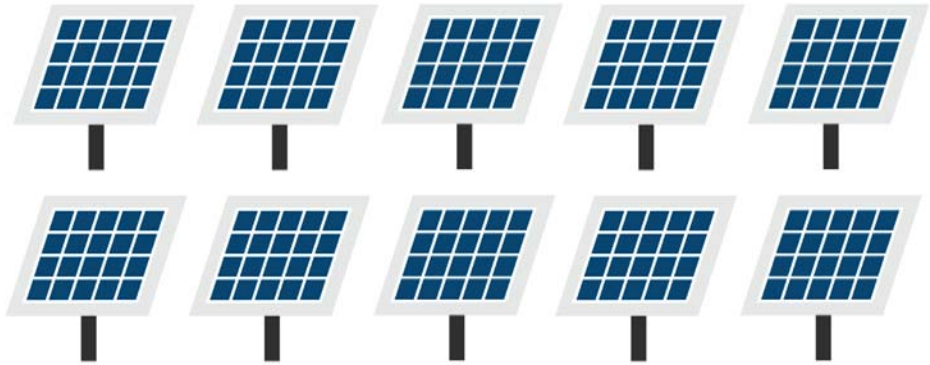
Solar

- **Solar Power Strategy**
  - To develop a plan to increase the adoption of solar energy (rooftop solar PV systems, solar thermal systems, ground-mounted arrays).
  - Solar energy is recommended above other forms of renewable energy as it is more suitable for the Town's context.
  - 50% solar technologies on industrial, commercial, institutional buildings and 15% on residential by 2050; 12MW ground mounted solar installed by 2050



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Land Use

- **Compact, Mixed Use Land Use**
  - How we plan and develop our community has a long-term impact on the environment. Building compact, mixed-use communities where residents can live, work and play has several positive benefits.
  - Promotes active travel and transit
  - Retains jobs and services
  - Promotes protection of greenspace
  - Reduced travel costs

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Carbon Sequestration & Offsets

- **Carbon Sequestration (Storage):**
  - Aurora's natural features such as forest and tree canopy have a role in offsetting carbon emissions, by taking carbon dioxide out of the air through carbon sequestration.
  - Protection and enhancement of natural features plays an important role in climate mitigation.
- **Carbon Offsets:**
  - Purchasing carbon offsets should a final option to reduce net emissions. This should only be done once all other strategies have been implemented to their fullest potential.
  - Through carbon offsetting, emission reductions are sold to the purchaser in the form of an "offset". Offsets (measured in tonnes of CO2e) effectively reduce the purchaser's net emissions.

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Town of Aurora Corporate Emissions

- Energy Conservation and Demand Management Plan (ECDM Plan 2019-2023)
  - Regulatory requirement
- CEP baseline includes all energy uses in the Town, including those of the corporation.
  - Town facilities, corporate fleet and water/wastewater facilities contributed approximately **1% of the community's 2018 emissions**.
- **Moving forward, the ECDM should be viewed as the corporation's contribution to the overall CEP.**

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