

# Essex County Regional Energy Plan



## Two Global Crises Coming Together

### Covid recovery

- Employment
- Sustained economic development

### Climate recovery

- Restructuring of energy efficiency and supply

- Community Competitiveness!

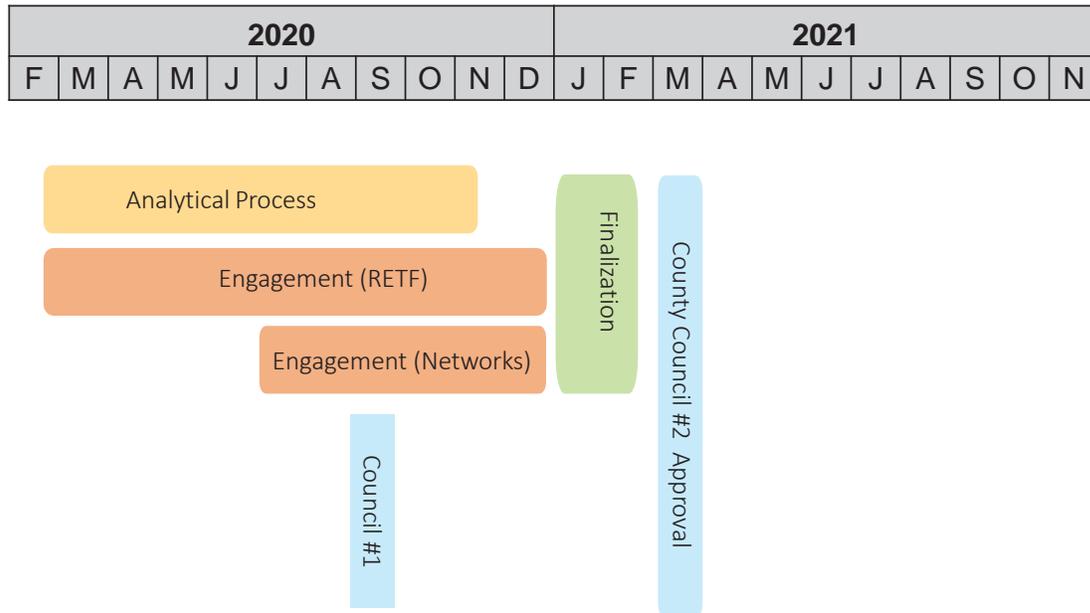
GOVERNMENT

### UPDATE: Speech from the throne includes support for housing, retrofits, green projects

Don Wall September 23, 2020

"We know the world is going towards greater energy efficiency. We know the world is going towards lower carbon. We know that the world is moving towards more renewable energy," he said. "This is the way the world is going."

## County of Essex - Regional Energy Plan *Timing Overview*



- Analytical Process Informs Engagement

## Regional Energy & Climate Planning

### *Key Factors of Successful Plan Implementation*



- Multi-disciplinary development
- Agreement on goals
- Align with land use, economic development and other plans
- Political approval with regional stakeholder support
- Seamless pathway to implementation

- One More “Layer” in Community Planning

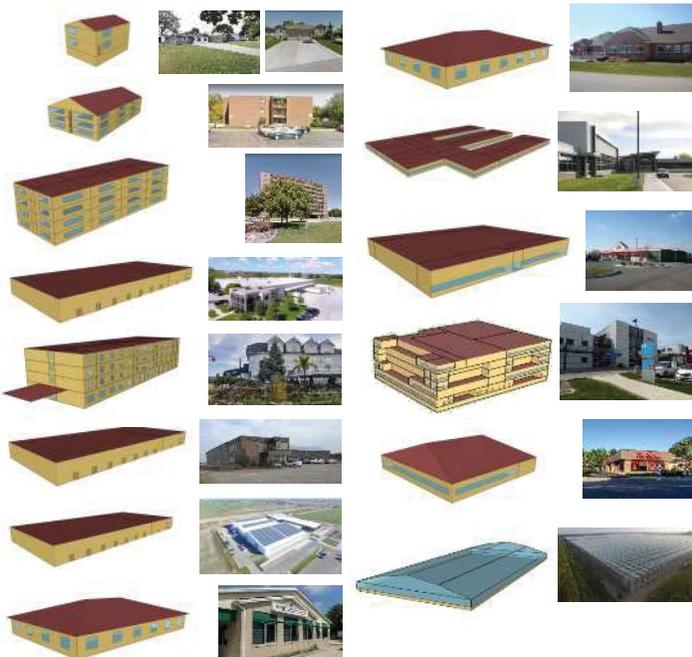
# County of Essex – Regional Energy Plan

## *Energy Planning Districts*



## Data Collection - Example

### *Efficiency of Built-Environment*



- **Characterize Property**

- Archetype
- Age - 5 bands
- Size – GFA m2
- Location – 81,000 lots

- **Baseline Energy**

- Computer model
- End-uses – heating, cooling, lighting, ventilation, process, water
- Utility needs – gas, electricity, water
- Results matched to utility data

- **Efficient Cases**

- Existing and new construction
- Remodeled with efficiency measures
- Measures appropriate to archetype
- Implementation by year and share
- Various implementation profiles can be simulated including heat pumps

## Data Collection - Example *Transportation*



### • Journeys

- Bridge-Tunnel - to & through County
- 401 - from, to & through County
- Transit – Leamington, LaSalle, Tecumseh
- Local from, to & through County
- Passenger - Driver

### • Modal mix

- Single vehicle, Transit, Cycling, Walking

### • Vehicle Type

- Car, SUV, Light Truck, HDV, Bus, Train, MCycle

### • Trip Length

- Simulation variable

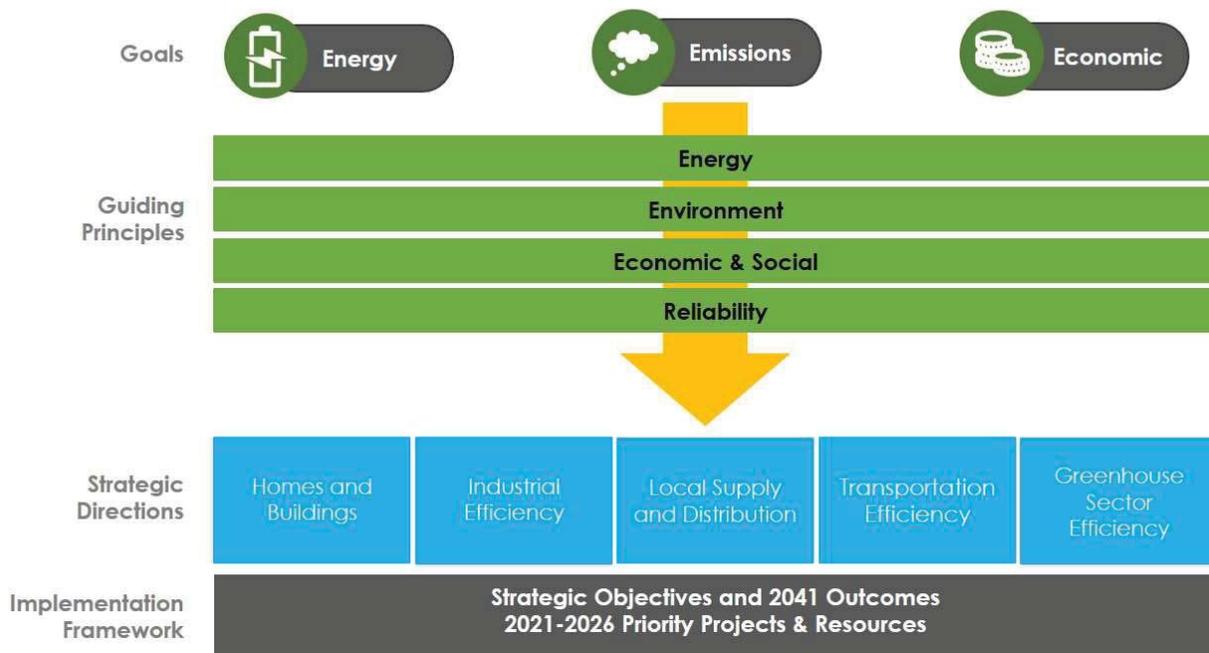
### • Vehicle Fuel

- Diesel, Biodiesel, gasoline, electricity, none

### • Vehicle Efficiency

- Simulation variation by type and fuel

# County of Essex Energy Vision



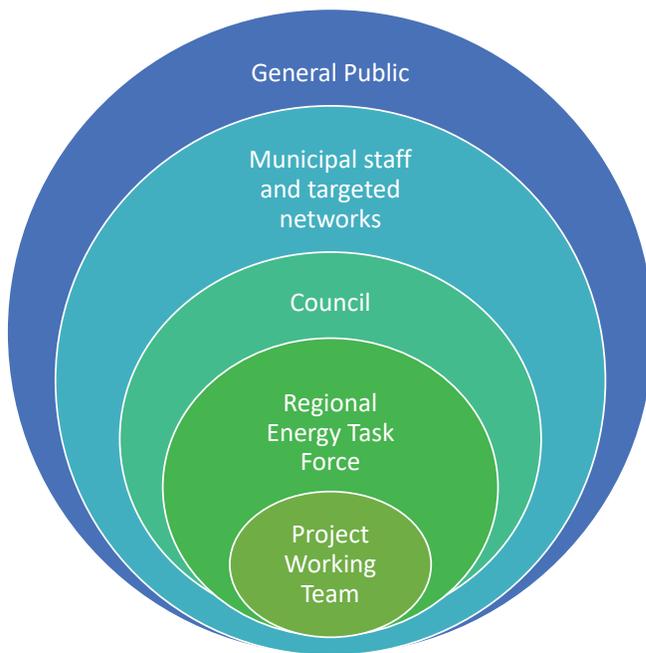
## Regional Energy Task Force- *Representative Organizations*

### **Warden Gary McNamara – Chair**

### **Dan Hanson, Windsor Construction Association – Co-Chair**

- Agriculture (non-greenhouse)
- City of Windsor
- Environmental NGOs
- Libro Credit Union
- Ontario Greenhouse & Veg Growers
- Leamington Hospital
- Windsor Construction Association
- IESO
- Indigenous Partners
- Large Industry
- Local School Boards
- Municipal Representatives
- Ministry of Energy
- Post-Secondary Institutions
- Renewable Energy Providers
- Residents Associations / Community Groups
- Transit Windsor
- Utilities (electricity and natural gas)
- Windsor Essex Community Housing Corporation
- Youth representative

## Regional Engagement Activities



- Broad feedback on priorities, vision, principles, strategies (3 rounds)
- Opportunities for alignment on strategies and implementation
- Strategic direction & approval
- Strategic direction

# County of Essex - Regional Energy Plan *Goals – County - Provisional*



## **Environment – Greenhouse Gas Emissions**

- Reduce absolute GHG emissions 60% by 2041
- Achieve net zero by 2050

## **Economic Development**

- Return at least \$15Bn to the local economy by 2041
- Create at least 1,000 jobs by 2025

## **Energy Efficiency**

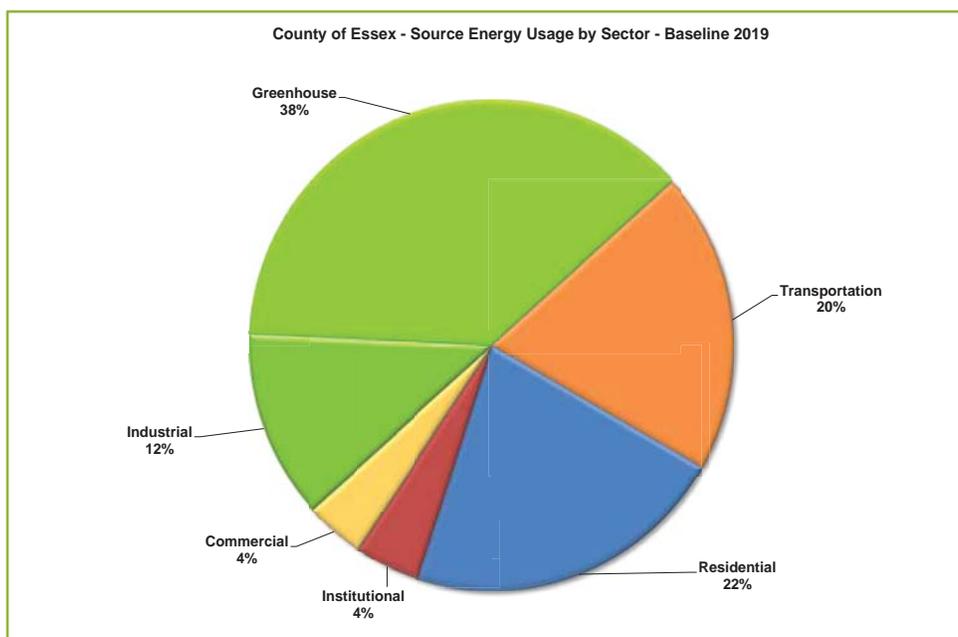
- At least 50% improvement by 2041

- Goals Relative to 2019 Baseline



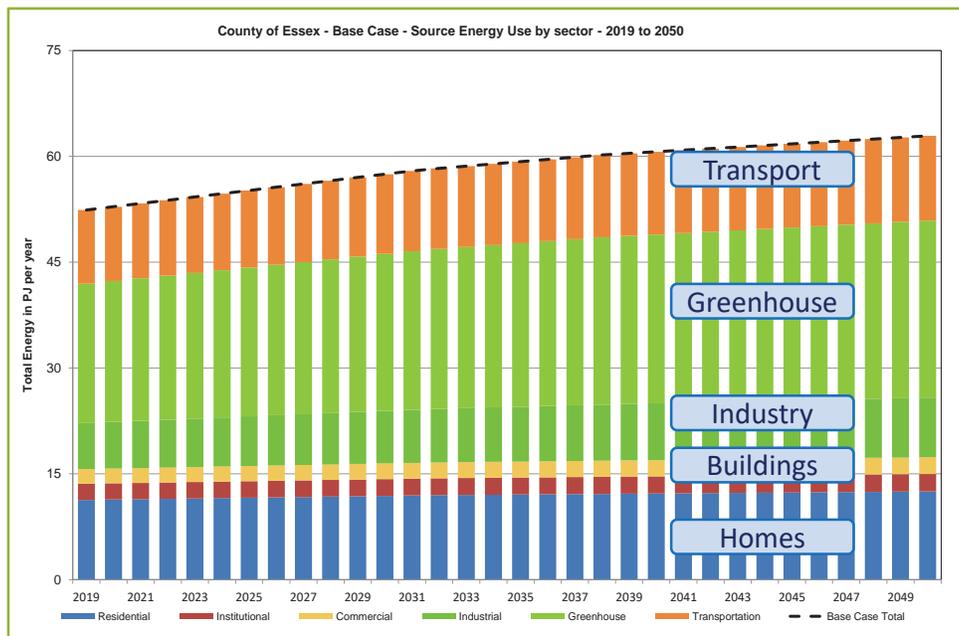
## 2019 Baseline and Base Case

# County of Essex Source Energy Usage by Sector - Baseline 2019



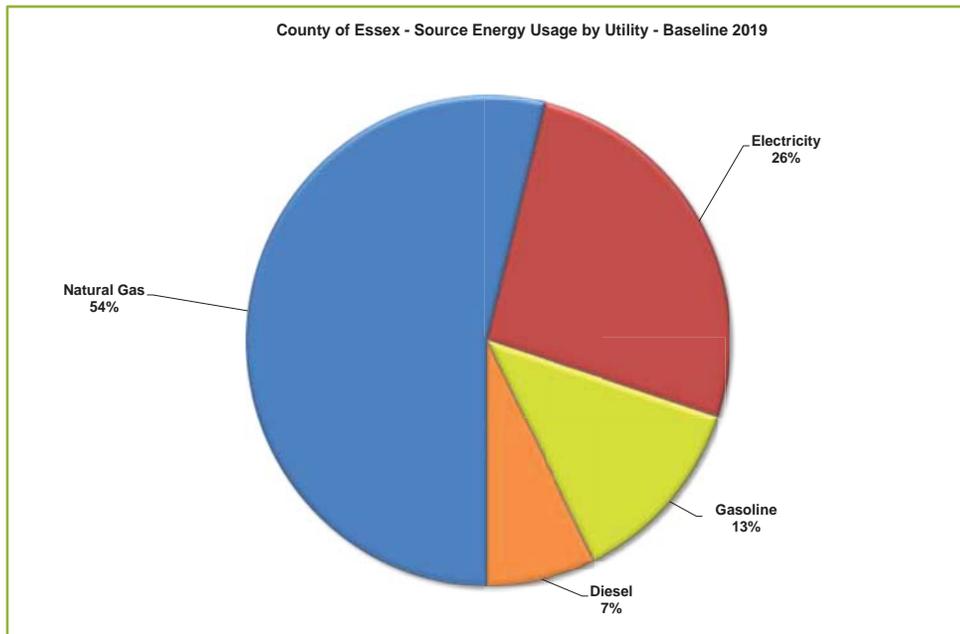
- 52 TJ per year and 270 GJ/cap in 2019

# County of Essex - Base Case Source Energy Use by sector - 2019 to 2050



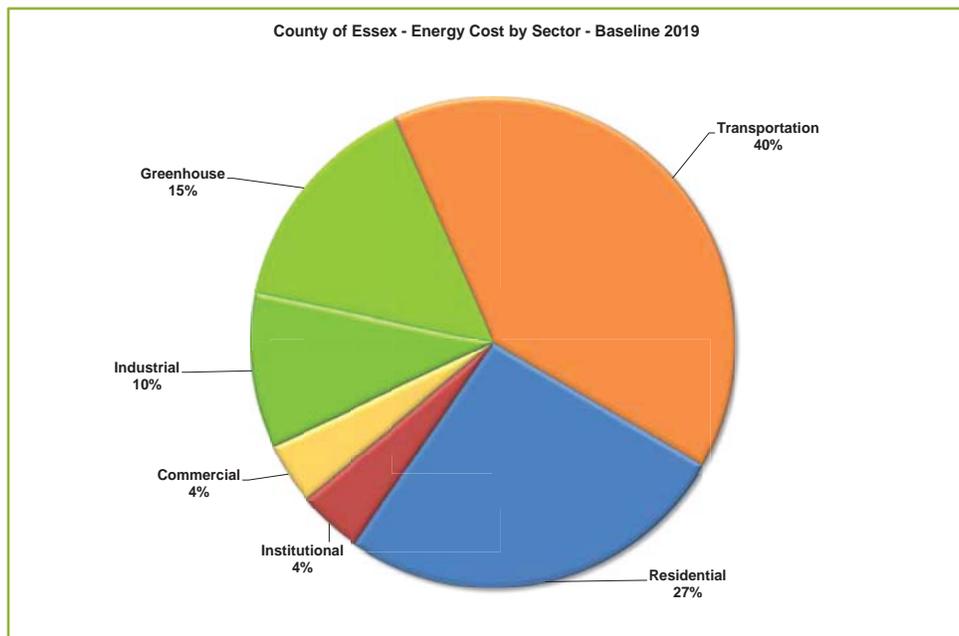
- 52 TJ in 2019 to 61 TJ in 2041

# County of Essex Source Energy Usage by Utility - Baseline 2019



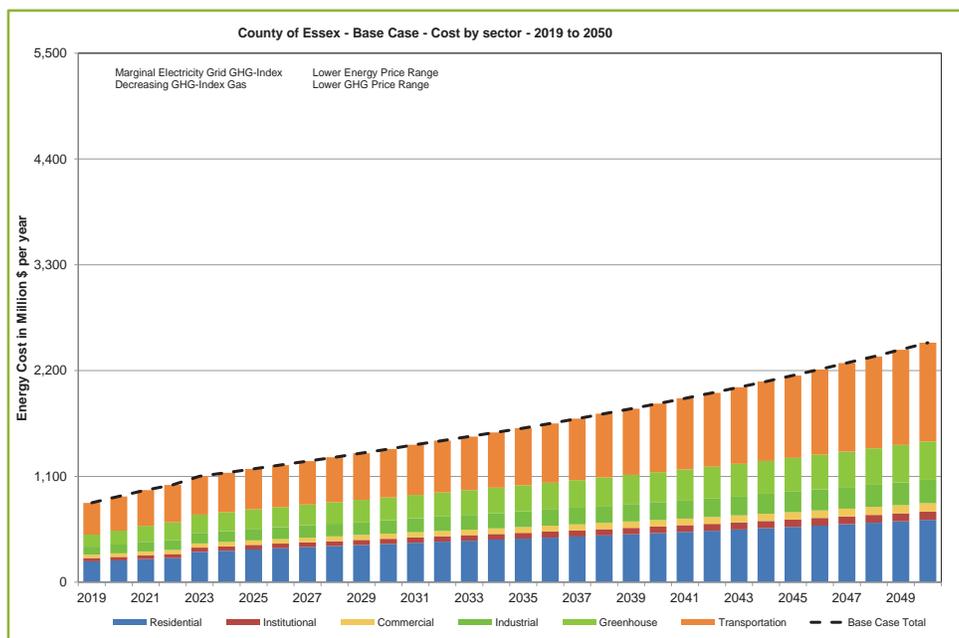
- 52 TJ per year and 270 GJ/cap in 2019

## County of Essex Energy Cost by Sector - Baseline 2019



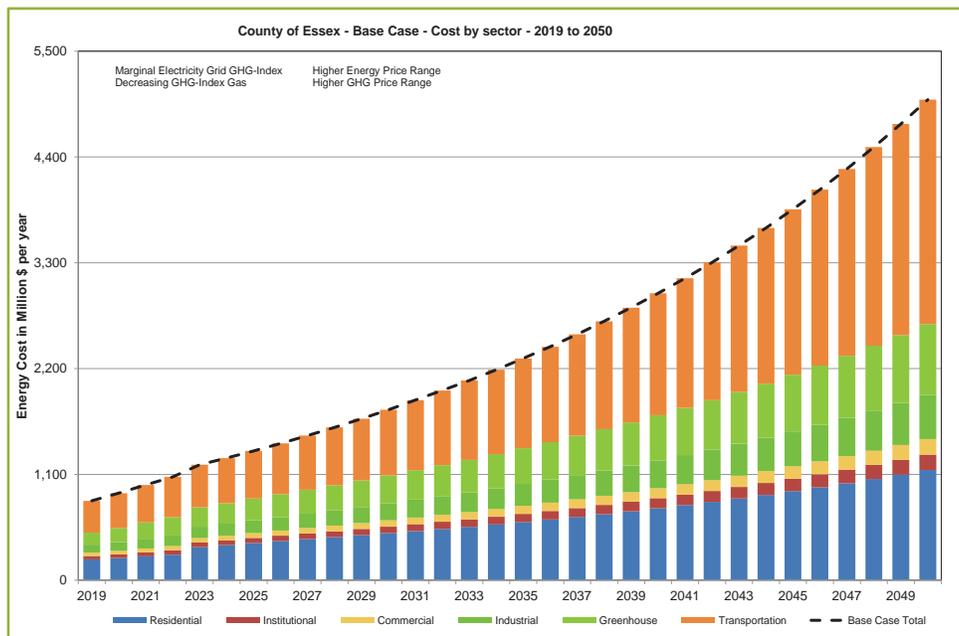
- \$820M and \$4,300/cap in 2019

# County of Essex - Base Case Lower Price Cost by sector - 2019 to 2050



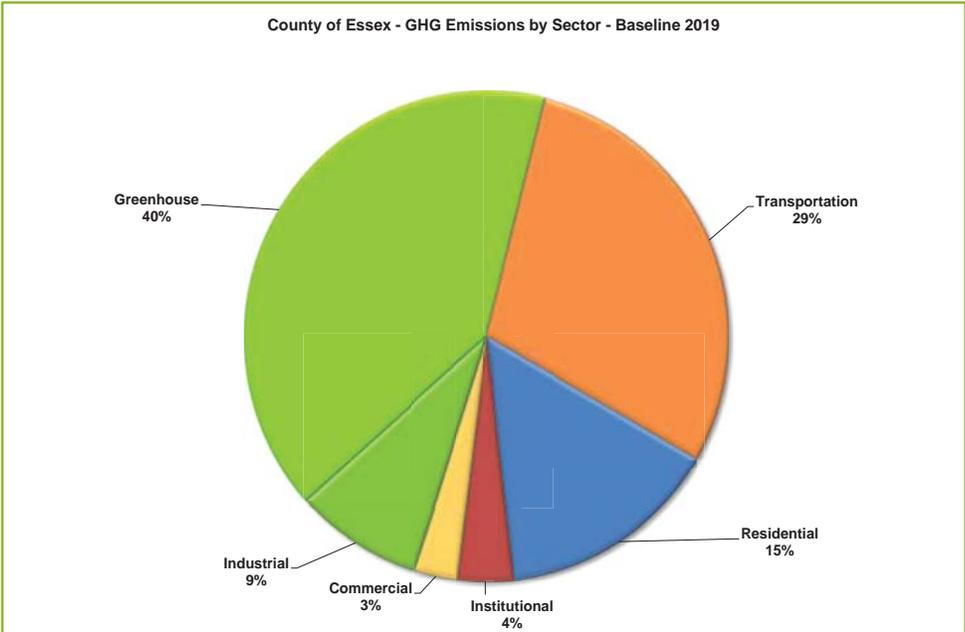
- \$820M in 2019 to \$1,900M in 2041

# County of Essex - Base Case Higher Price Cost by sector - 2019 to 2050



- \$820M in 2019 to \$3,100M in 2041

# County of Essex GHG Emissions by Sector - Baseline 2019



- 2,212,000 mt per year and 11.5 mt/cap in 2019

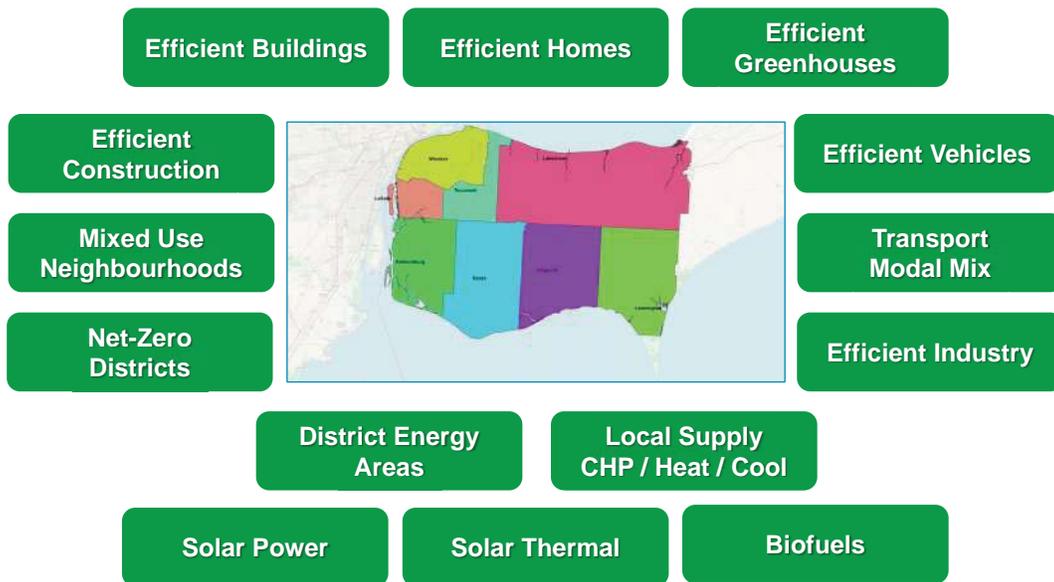
## Global Benchmarking

Indicator	Essex County Baseline	Canada Average	Ontario Average	Comparable Best Practice
Energy use/household (GJ)	130	106	107	68
Residential sector energy use per m <sup>2</sup> (GJ)	0.78	0.79	N/A	0.29
Non-residential sector energy use per m <sup>2</sup> (GJ)	1.64	1.65	N/A	0.72
Emission per capita (MT CO <sub>2e</sub> )	11.5	9.7	6.2	2.5

## 2019 Baseline and Business-as-Usual to 2050 *Observations*

- Energy intensity in homes & buildings more than twice global best practice
- Efficiency is significantly lower than most global systems
- Home water use about Canadian average
- GHG Emissions per capita
  - About 5 x best practice (3 x without greenhouses)
- Transportation & Greenhouses are 70% of all emissions
- Most of \$820M energy value leaves County (and your pocket!)
  - Energy cost risk from 200% to 500% by 2050
- Significant Opportunities!!

## Next Steps ... *Integrated Simulations*



One Solution – Many Elements!

## Additional information:

[www.countyofessex.ca/rep](http://www.countyofessex.ca/rep)

Claire Sanders, Climate Change Specialist, ERCA  
Rebecca Belanger, Manager of Planning Services, CoE



Take Our  
Survey!

Climate  
Change

Regional Energy  
Planning

Vision, Goals and  
Principles

Connect With  
Us



**Your input is critical as we develop a Regional Energy Plan that reduces emissions  
while promoting economic development.**

# Essex County Regional Energy Plan

