

Moving together toward net zero

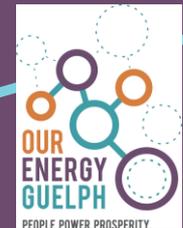
Presentation to Guelph City Council

September 7, 2021

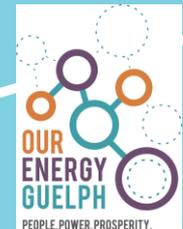


Coming up...

- Who is Our Energy Guelph?
 - Our mission
 - Meet our Board of Directors
- Why does our work matter?
 - Energy is a huge economic bleed
 - The Pathway to Net Zero Carbon is the solution
- What has OEG done?
 - Two years in review
- What's in store?
 - Our approach: Left brain, right brain
 - Priority #1: Energy efficiency retrofits
- What is OEG requesting?

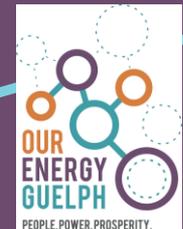


Who is Our Energy Guelph?



Our mission:

Building a clean,
prosperous, and
resilient city for
everyone.



Our mission:

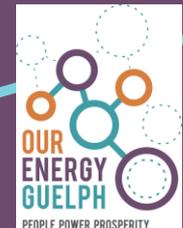
Building a clean,
prosperous, and
resilient city for
everyone.

At minimum, we do not harm the natural environment.

Ideally, we restore and regenerate it.

We are continuously decreasing the health impacts of environmental contaminants including those affecting our air, water, soil, and food.

We do not export our environmental problems elsewhere.

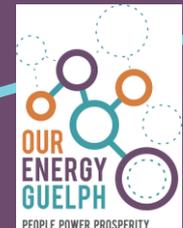


Our mission:

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everyone.

Guelph attracts new investors, new businesses,
and new residents.

Children can grow up, get an education, start a
job and/or a business and/or a family - all in
Guelph, all without needing to leave.



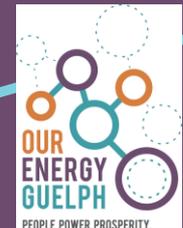
Our mission:

Building a clean,
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everyone.

Our city uses tools (such as distributed renewable generation, energy storage, and green infrastructure) to become less and less vulnerable to shocks like energy commodity price spikes and extreme weather events, and stresses like water scarcity and population growth.

Our residents have a high level of social connectedness, which helps them to withstand extreme weather and other shocks.

Our businesses and organizations are able to resume operations rapidly after extreme weather events and other shocks.

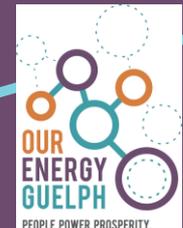


Our mission:

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Climate change has the greatest impact on those at the bottom rung of the economic ladder.

Members of our community will not have to choose between changing the thermostat and buying groceries.

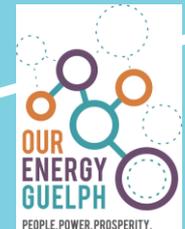


Meet our Board of directors

Alex Ciccone (Chair), Lawyer	Chris Lambeck (Treasurer), Tesflo Inc.	Kristen Tilley (Vice Chair), Simplify Inc.
David Estill , Siemens Gamesa	Mike Darmon , Guelph Coalition for Active Transportation	Vicki Gagnon , Independent Electricity System Operator
Sara Ganowski , Alectra GRE&T Centre	Mike Kazmaier , CleanCut Energy	Indigo Kim , Guelph Youth Council
Dave Sabola , Energy manager	Anne Toner Fung , Innovation Guelph	Antti Vilkkö , City of Guelph

Alex Chapman
Executive Director

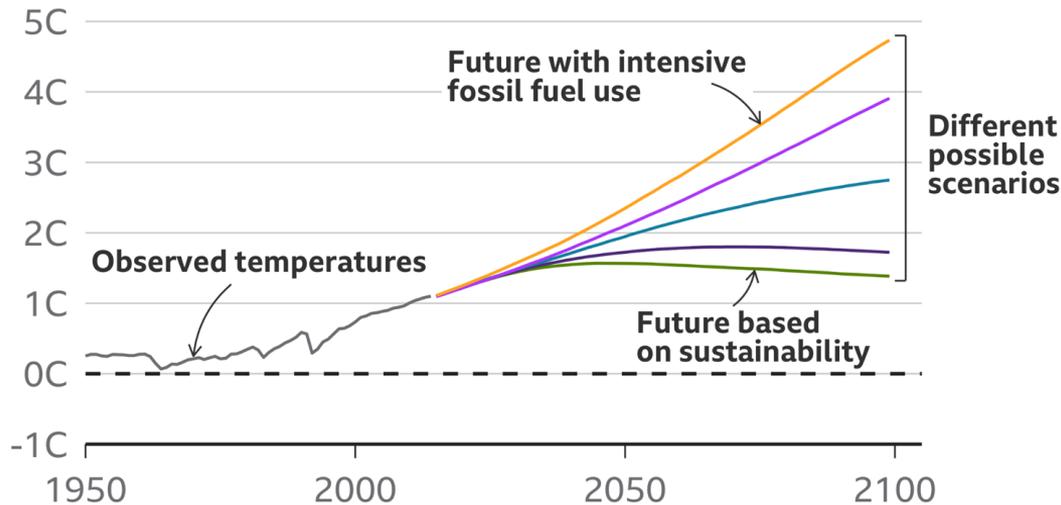
Why does our work matter?



We must avoid the unmanageable.

How much hotter could it get?

Change in average global temperature relative to 1850-1900, showing observed temperatures and future simulations



Note: Each line shows the average temperature rise for a scenario

Source: IPCC, 2021: Summary for Policymakers

How much do we spend on energy each year?

\$488 million

Source: City of Guelph Energy and Greenhouse Gas Emissions Baseline Inventory, 2016 & Business-As-Usual Scenario, to 2050. Figures apply to all homes, businesses, and institutions in Guelph.

That's
enough
for:



2 CN Towers



12 Police Stations



1 Airbus A380



2500 Lamborghinis



2 Type 23 Frigates



1 Movie ticket per day
per Guelphite

Or, the entire municipal budget of the City of Guelph, with \$100M left over.

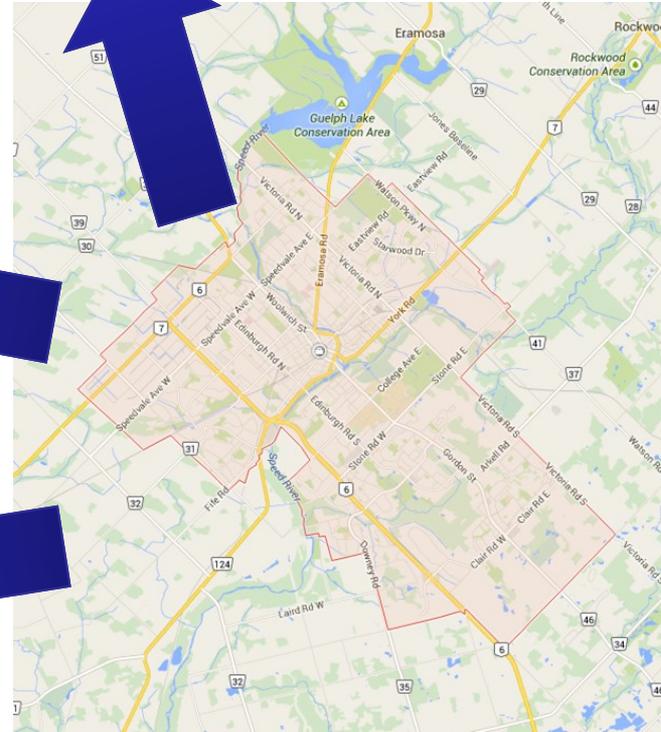
Where does that money go?

It leaves town,
and never
comes back.

Electricity:
Bruce Nuclear, Niagara Falls

Petroleum:
Alberta Oil Sands
and conventional
sources

Natural Gas:
Bakken and
Appalachia fields

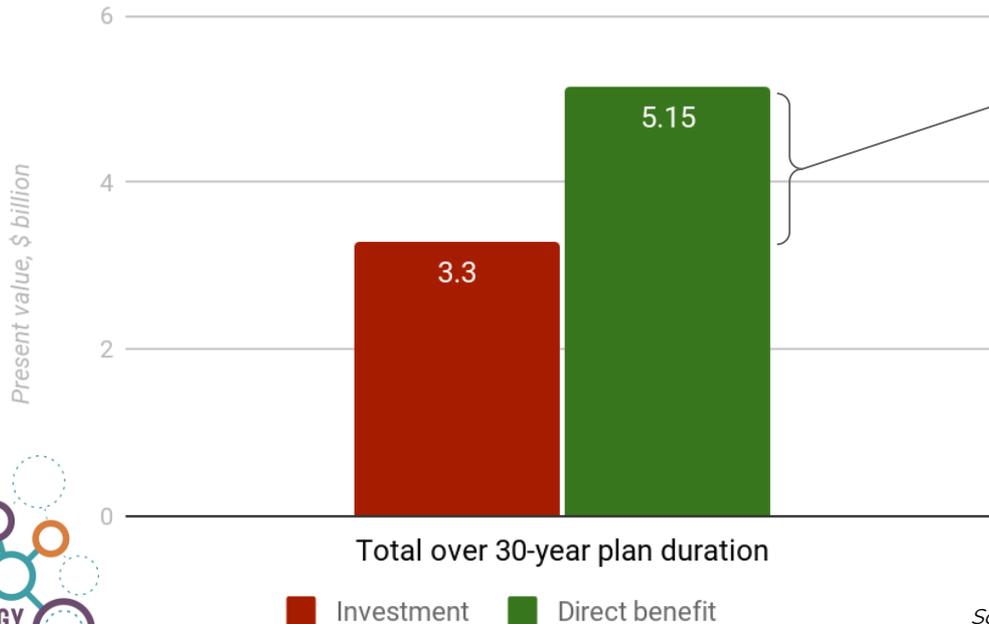


Net Zero Carbon: Myths vs. realities

Myth	Reality
Climate action will be expensive	It will be - but like an RRSP, not a gas bill
Climate action will require massive government expenditure, raised by new taxes, diverted from other existing programs, or financed by additional debt	It will be an attractive investment opportunity better than many alternatives, with no need for public sector funding

Net Zero Carbon: An exciting opportunity

Economics of the Pathway to Net Zero Carbon



- ❑ Net Present Value \$1.85B
- ❑ Internal Rate of Return ~9%
- ❑ 1,300 jobs

Only 3 direct benefits were quantified:

- Savings from energy efficiency
- Revenues from energy generation
- Savings from reduced maintenance

Source: A Low-Carbon Pathway for the City of Guelph - Technical Analysis Completed as part of the Metrics and Analysis Component of the City of Guelph Community Energy Initiative (CEI) Update, updated March 27, 2019

Net Zero Carbon Footprint - A Significant Opportunity

In summary: For every \$1 we put in, we get \$1.56 back.

Economic

Present value, \$ billion

6
4
2
0

Total over 30-year plan duration

Investment Direct benefit

Value \$1.85B

Return ~9%

Benefits were quantified:

from energy efficiency

- Revenues from energy generation
- Savings from reduced maintenance

Getting from here to here: The Pathway to Net Zero Carbon

Examples of 25 technical actions in the pathway:

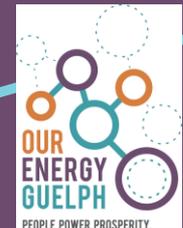
By 2030:

- All new homes net zero
- All new ICI* buildings passive house
- Hot water heat pumps in 80% of homes, 50% of ICI
- 20MW ground-mount solar PV/year

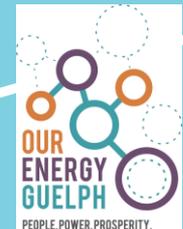
By 2050:

- Retrofit 98% of pre-1980 homes
- Retrofit 98% of post-1980 homes
- Retrofit 98% of ICI buildings
- Recommission all buildings every 10 yrs
- 70% of buildings to have heat pumps
- Rooftop solar PV on 80% of buildings
- 16MW district heating system in downtown
- 67MW energy storage
- 50MW wind energy
- Maximize renewable natural gas
- Add new transit
- Electrify transit
- Increase cycling and walking
- Double ridesharing
- Car-free downtown

* *Industrial, commercial, institutional*

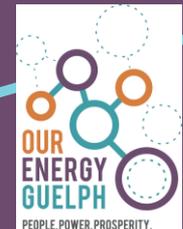


What has OEG done?



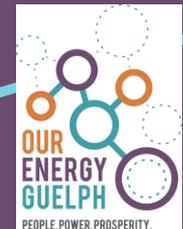
Our Energy Guelph: Two years in review

- Delivered the Pathway to Net Zero Carbon to Council (more below) in May 2019
- Incorporated as an Ontario not-for-profit enterprise, also in May 2019
- First Board of Directors meeting July 2019
- Signed service agreement with City, providing 77% of operating budget for first five years, in August 2019
- Hired Alex Chapman as Executive Director (and first employee) in November 2019
- Delivered report to City Council: *Future-proofing our buildings through energy efficiency retrofits* in January 2020
- Applied for Energy Efficiency Retrofit program funding from the Federation of Canadian Municipalities (FCM), July 2020



Our Energy Guelph: Two years in review (continued)

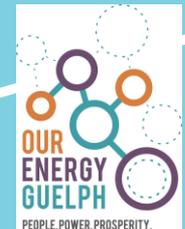
- Received initial positive indications from the Federation of Canadian Municipalities (FCM) regarding our funding application to the Community Efficiency Financing (CEF) program
- Received funding for three Canada Summer Jobs student positions
- Delivered our first fee-for-service project, a key step in the transition from City of Guelph funding toward external funding
- Successful collaborations with various local, regional, and national for-profit and not-for-profit entities
- Delivered two successful Guelph Energy Managers (GEMS) meetings, adapted to an online format in response to pandemic restrictions



OEG: Two years in review - Financials

OUR ENERGY GUELPH			
STATEMENT OF OPERATIONS			
For the Current Year Ended October 31			
	2020		2019
Revenues	\$ 136,388		\$ 70,000
Expenditures			
Salaries and benefits	\$ 142,985		\$ -
Other	\$ 41,183		\$ 933
<i>Total Expenditures</i>	<i>\$ 184,168</i>		<i>\$ 933</i>
Excess (Deficiency) of Revenues Over Expenditures	\$ (47,779)		\$ 69,067
STATEMENT OF FINANCIAL POSITION			
As at October 31 of Current Year			
	2020		2019
Assets			
Cash	\$ 12,352		\$ 69,972
Other Current Assets	\$ 30,518		\$ -
	\$ 42,870		\$ 69,972
Liabilities and Net Assets			
Liabilities	\$ 21,583		\$ 905
<i>Net Assets</i>			
Unrestricted Net Assets	\$ 69,067		
Excess (Deficiency) of Revenues Over Expenditures	\$ (47,779)		\$ 69,067
	\$ 21,288		\$ 69,067

What is in store?



Our approach: Left brain, right brain

Our Energy Guelph

25 technical actions

Capital financing

Public support

Changing habits

Buildings - New
Buildings - Existing
Energy system
Transportation

Seed capital & grants
Institutional investors
Local climate
investment fund

Youth

My World, My Choice
Youth Action on Climate Change
Community events

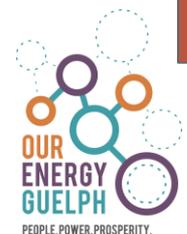
Business

GEMS: Guelph Energy Managers

Everyone

Random Acts of Green

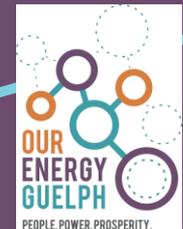
Energy Efficiency Retrofit Program



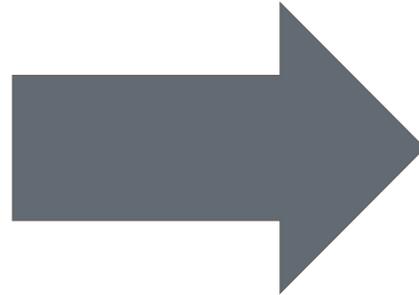
Growing beyond Guelph: Our Energy Everywhere?

Our top three priorities for the next three years

- Left brain:
 - Fulfill remaining obligations in the service agreement (principally a DE lessons learned report)
 - Energy efficiency retrofit program
 - Residential (immediate)
 - Industrial, commercial, institutional (2022-23)
 - Major community energy project(s)
 - Likely will involve City assets
 - Will require an additional governance element that is not currently in place
- Right brain:
 - Build community support for our work
 - Build direct participation in our programs
 - Build direct local financial participation via a community climate investment fund



Priority #1: Energy efficiency retrofits



**54.7% of our
community-wide
carbon pollution**
*comes from our residential,
commercial, industrial, and
institutional buildings.*

*Source: City of Guelph Energy and Greenhouse Gas
Emissions Baseline Inventory, 2016 & Business-As-Usual
Scenario, to 2050*

Making it happen: Removing the barriers



Complexity

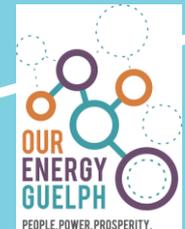
Helping property owners navigate the complexity of energy audits, incentives, contracting, and equipment supply



Financing

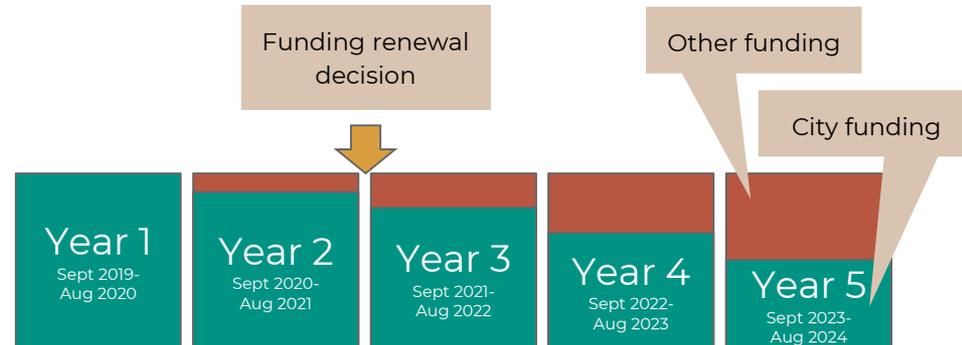
Providing the capital that is required to deliver energy efficiency gains, utility bill savings, and carbon pollution reductions

What is OEG requesting?



The OEG/City service agreement: A recap

- OEG base budget consists of payroll cost of Executive Director, with a modest discretionary budget, scaled to inflation
- The City will contribute funding of 100% in Year One, declining to 50% by Year Five
- OEG executes a work plan defined in the agreement (two items are outstanding)
- After Year Two, Council decides whether to continue funding out to Year Five



Request to Council

OEG respectfully requests that the City of Guelph renew its funding commitment for the period from September 2021 through August 2024, thereby allowing OEG to continue pursuing its mission to make Guelph net zero carbon by 2050.

Moving together toward net zero

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prosperous, and resilient
city for everyone

