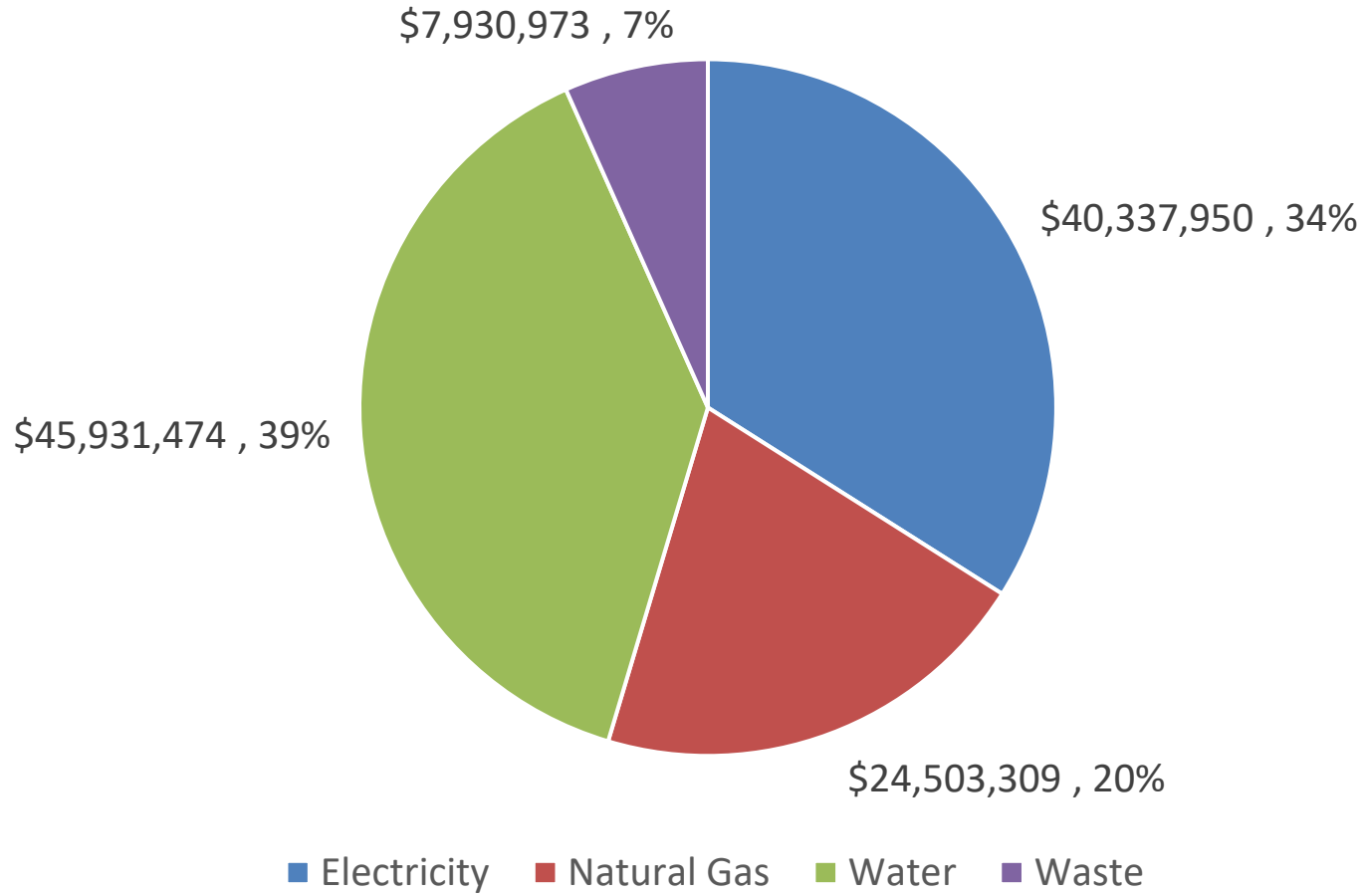


# National Housing Co- Investment Fund:

**Goal:** 25% decrease in TCHC  
portfolio's energy consumption  
by utility by 2029



# 2018 Commodity Cost Breakdown



# Energy Management Strategy

- TCHC is committed to achieving the Co-Investment energy reduction target of 25% (minimum) by employing a four-point approach:
  1. Capital Investments
  2. Operations & Maintenance
  3. Conservation
  4. Utility Management



# Proof of Concept – Tower Wise Project

The Tower Wise project, in partnership with Toronto Atmospheric Fund, is a case in point that demonstrates the saving potentials (see below for measurement and verification (savings) summary)

## Project Summary

The table below summarizes the energy savings across all three sites included in this project (Arleta Manor, RJ Smith Apartments, and Trethewey Tedder Apartments).

Table 1: Project Energy Summary								
	Base Year	Adjusted Base Year	Current Year	Savings	% Savings	Target Savings	% Target Achieved	Savings Surplus
kWh	1,621,012	1,854,054	663,619	1,190,434	64%	1,083,098	110%	107,336
m <sup>3</sup> gas	1,344,490	1,645,211	1,275,202	370,009	22%	415,898	89%	-45,889
m <sup>3</sup> water	190,030	201,253	147,610	53,643	27%	28,936	185%	24,707
GJ	55,582	67,547	49,572	17,976	27%	19,287	93%	-1,311
Tonnes CO <sub>2</sub> e	2,884.4	3,496.8	2,574.5	922.3	26%	982.4	94%	-60.1
\$	\$1,364,202	\$1,539,344	\$1,046,910	\$492,434	32%	\$404,435	122%	\$88,000

\* Savings reductions for gas was negatively impacted by operational issues

\*\* These results were achieved without replacement of windows or over-cladding, two measures that will be included in many of the projects under consideration for this program

\*\*\* SHARP, SHAI, TRP projects are in progress. Savings are expected to be in line with projections.



# 1. Capital Investment

*Table 2: TCHC Energy Management Strategy*

Energy Program	Energy Actions & Measures Examples	10-Year Associated Savings
TCHC will invest in the replacement of end-of-life equipment & building systems. These components will be refreshed with new & energy efficient models	Window Replacement, Over-cladding, Boiler and Makeup Air Upgrades, Toilet Replacement, LED Lighting Retrofits, energy and water sub-metering, BAS, etc.	<b>20%</b>



## 2. Operations & Maintenance

*Table 3: TCHC Energy Management Strategy Continued*

Energy Program	Energy Actions & Measures Examples	10-Year Associated Savings
TCHC is ensuring that all new capital work is properly commissioned. This is a combined effort between TCHC Facilities Management staff and TCHC Asset Management staff who work with equipment on a daily basis.	Reviewing and running the buildings at their highest efficiency and optimal values, tenant control systems, 3 <sup>rd</sup> party monitoring and tracking, etc.	<b>6.5%</b>



# 3. Conservation & Engagement

*Table 4: TCHC Energy Management Strategy Continued*

Energy Program	Energy Actions & Measures Examples	10-Year Associated Savings
TCHC will continue to engage tenants on the principles of energy conservation. The overall goal is to improve tenant comfort through conservation efforts while reducing TCHC's utility costs so that money saved can be used to upgrade buildings.	Incorporating and leveraging tenant engagement through Capital Energy Conservation Program (CECP), etc.	<b>2.5%</b>



# 4. Monitoring & Utility Management

Table 5: TCHC Energy Management Strategy Continued

Energy Program	Energy Actions & Measures Examples	10-Year Associated Savings
<p>TCHC is monitoring the performance of specific energy equipment to ensure that it remains operational and optimal. This is part of the of the overall M&amp;V&amp;T(Monitoring, Verification, Targeting) process to ensure that buildings remain in line with the savings objectives.</p>	<p>Performance reports and trending and report cards for all OUs, utility bill monitoring, thermostat and electrical suite metering, etc. Utility management at commercial sites</p>	<p><b>1%</b></p>





# Energy Forecasting & Verification

- Modelling: The baseline of utility usage was based on a 5-year (2013-2017) average across electricity, gas and water
- Energy assumptions are verified by 3<sup>rd</sup> party partners on an annual basis
- Data monitoring and tracking is done through on-going billing and weather analysis

