TORONTO ATMOSPHERIC FUND

Energy Savings Performance Agreement (ESPA)

Non-debt financing for energy efficiency retrofits

Toronto Atmospheric Fund (TAF) invests in urban solutions to reduce greenhouse gas (GHG) emissions and air pollution.

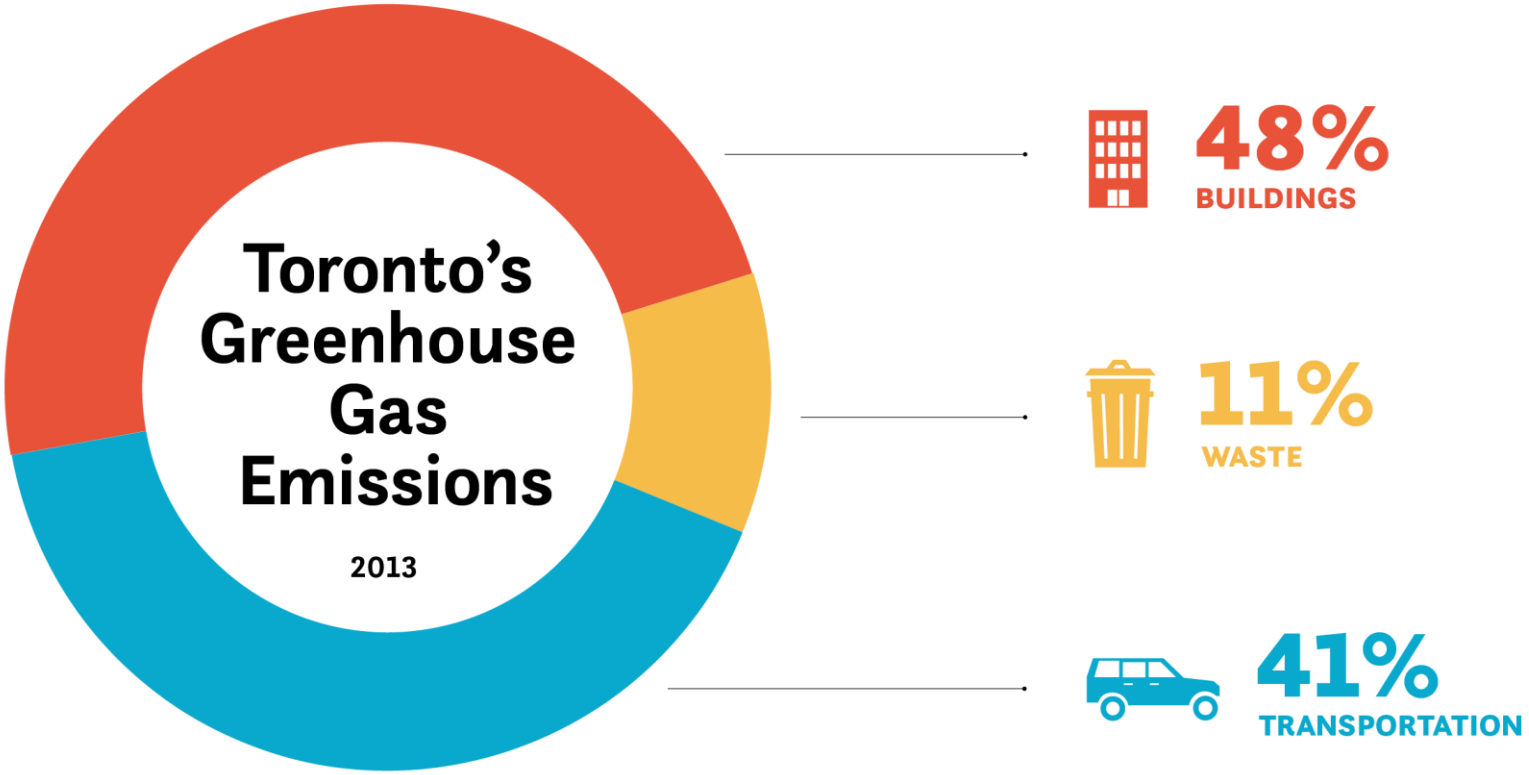
City Council established ambitious Green House Gas (GHG) emission reduction targets for Toronto:

30% By 2020

80% By 2050

TORONTO'S EMISSIONS SOURCES

Since 48% of urban GHG emissions are from buildings….TAF focuses on accelerating energy efficiency in the city's 7000+ big buildings.



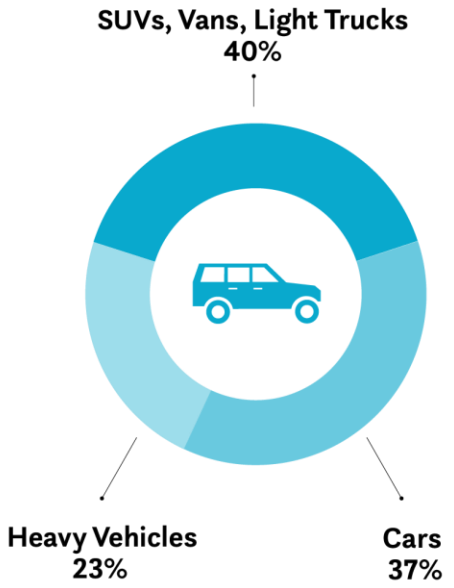
TORONTO'S EMISSIONS SOURCES

Breakdown of GHG emissions

BUILDINGS

WASTE

TRANSPORTATION



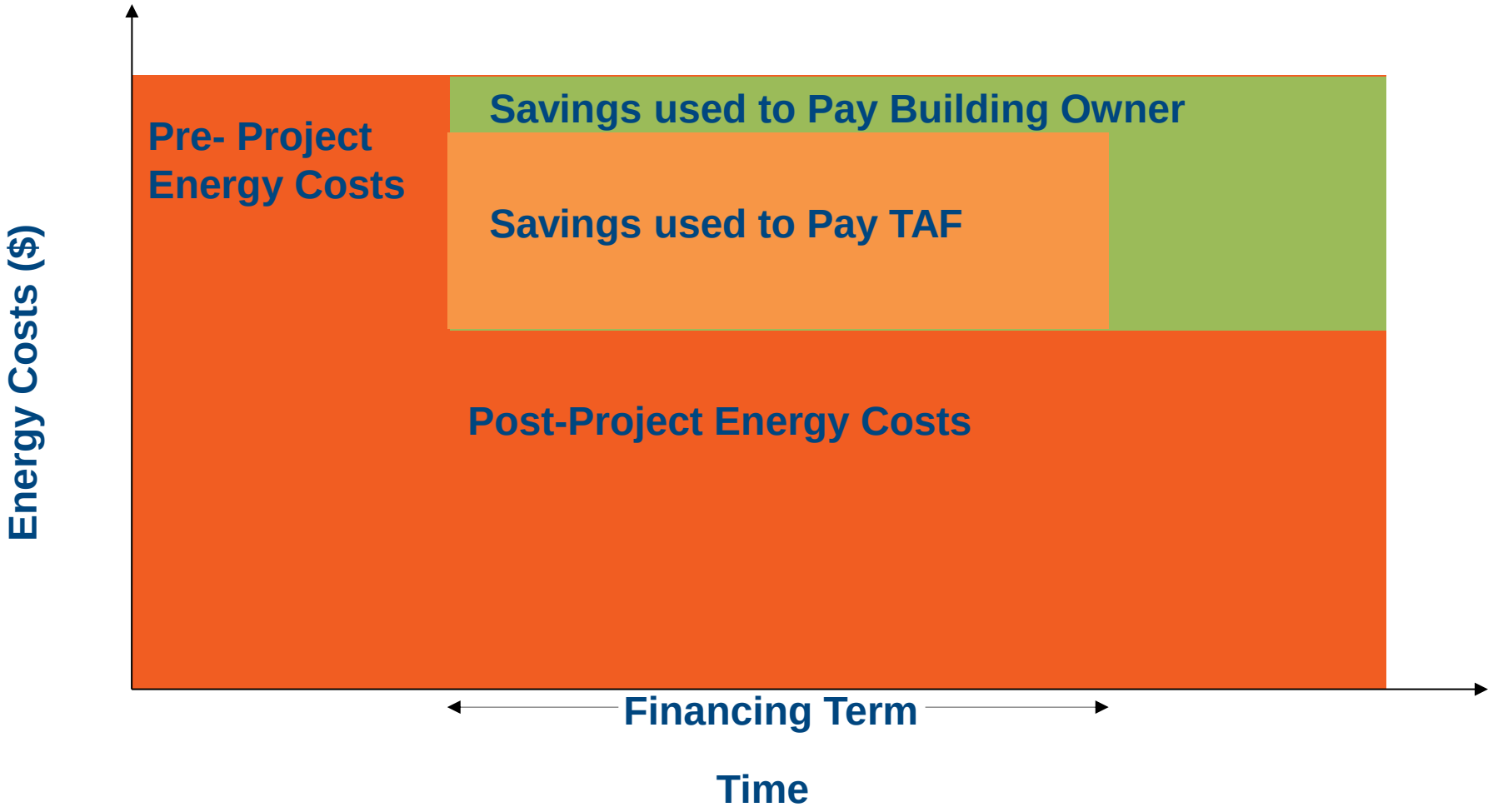
ESPA (Contract) versus a Loan (debt)

ESPA	Loan
TAF pays up to 100% - building's capital protected	Building's ability to attract capital reduced
Non-debt and no lien on property	Liability on balance sheet
Transfers risk of performance	Responsible for equipment performance
Building never pays more than savings	Building can pay more than savings
Borrowing by-law not required	Borrowing by-law required

ESPA Features & Benefits:

- **Quality:** Retrofit plan **optimized** by TAF and insurer to maximize savings
- **Commitment:** Commissioning and ongoing re-commissioning ensures equipment installed and operating correctly
- **Alignment:** all stakeholders (building owners, investors, insurer, engineers) benefit

ESPA: Payment and Return from Savings



ESPA Features & Benefits

- **Energy audit:** undertaken by building owner; incentives pay up to 50%
- **TAF return:** share of savings (or insurance claim if savings shortfall)
- **Building return**: share of savings (no investment or risk)

Example Energy Audit Results

Ref #	Description of Energy Saving Measures	Estimated Annual Utility Savings			Estimated Annual Cost Savings	Cost of Retrofit	Available Incentives	Net Cost of Retrofit	Simple Payback
		Elec.	Gas	Water					
		kWh	m^3	m^3	$	$	$	$	Years
8.1	Replace ONE Existing DHW Boiler with a New Condensing Model & add a Mixing Valve for Code		5,630		$1,550	$60,100	-$1,150	$58,950	38.0
8.2	Replace the DCW Booster Pump System with New System Equipped with a Variable Speed Drive	16,100			$1,850	$23,700	-$11,850	$11,850	6.4
8.3	Provide a Variable Speed Drive for the Make-Up Air Unit	17,200	-4,720		$700	$10,300	-$5,150	$5,150	7.4
8.4	Provide a CO Monitoring Device and Sensor for the Garage Exhaust Fans	36,600			$4,250	$21,600	-$10,800	$10,800	2.5
8.5	Lighting Retrofit	114,650			$13,300	$144,400	-$72,200	$72,200	5.4
8.6	Install High Efficiency Toilets, Low-Flow Showerheads & Aerators		3,250	6,100	$17,450	$73,200	-$650	$72,550	4.2
8.7	Weatherstripping and Air Sealing	6,450	10,670		$3,700	$39,200	-$2,800	$36,400	9.8
8.8	Replace Old Fridges with Energy Star Models	13,850			$1,600	$33,500	-$16,750	$16,750	10.5
11	Monitoring & Tracking, Training & Education	29,750	1,710	570	$5,500	$25,000	-$1,900	$23,100	4.2
	Total Estimated Savings	**234,600**	**16,540**	**6,670**	**$49,900**	**$431,000**	-$123,250	$307,750	**6.2**
	Annual Baseline Utilities (at same rates as savings)	1,489,697	85,598	28,505	$287,667	**Energy Cost Reduction: 15.1%**			
	Percent Reduction	15.7%	19.3%	23.4%	17.3%				

Better to go COMPREHENSIVE

RETROFIT MEASURE	COST ($)	PAYBACK (years)
Low-flow Showerheads	2,261	0.3
Training & Education	5,000	0.8
Lighting Retrofit	48,096	2.2
CW Booster Pumps (VFD)	18,800	2.9
Space heating system	180,000	3.2
High-efficiency Boilers	85,000	3.4
Pool Heating	31,000	3.8
CO Monitoring	27,000	3.9
Pool Covers	3,500	4.5
Chilled Water Temp Reset	5,000	5.0
High-efficiency Hot Water	61,000	5.3
Cooling Tower & Chiller (VFD)	111,000	11.7
Building Automation System	70,000	11.8
TOTAL	**647,657**	**3.9**

Cherry-picking: short-term return, but missed value.
NPV only = $240K

Deep retrofit: maximizes NPV.
NPV = $615K

NPV Gain on > Project = $375K

ESPA EXAMPLES: Harbourfront Centre

Financing: $117,000

Energy efficiency measures: 9

Energy savings: $54,000/yr

Savings sharing: 80:20

CO_2 reduced: 200 tonnes/yr

ESPA EXAMPLES: Robert Cooke Co-operative Homes

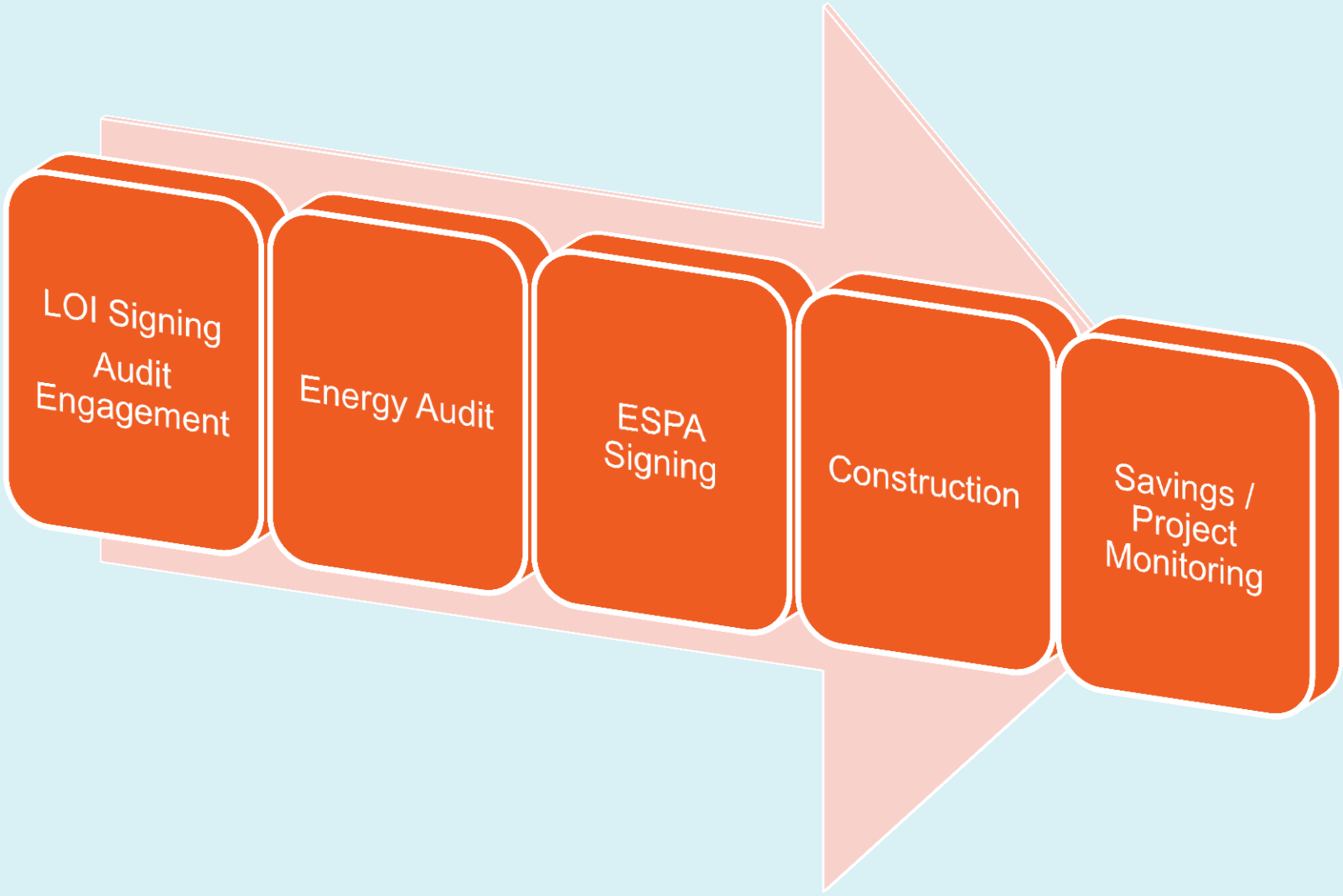
Energy efficiency measures: 7
Capital cost: $465,000
Projected Energy savings: $85,000/yr
Actual Performance: Better than projected
Savings sharing: 90:10
CO_2 reduction: 133 tonnes/yr
13 floors, 123 units

Maintenance issues and solutions

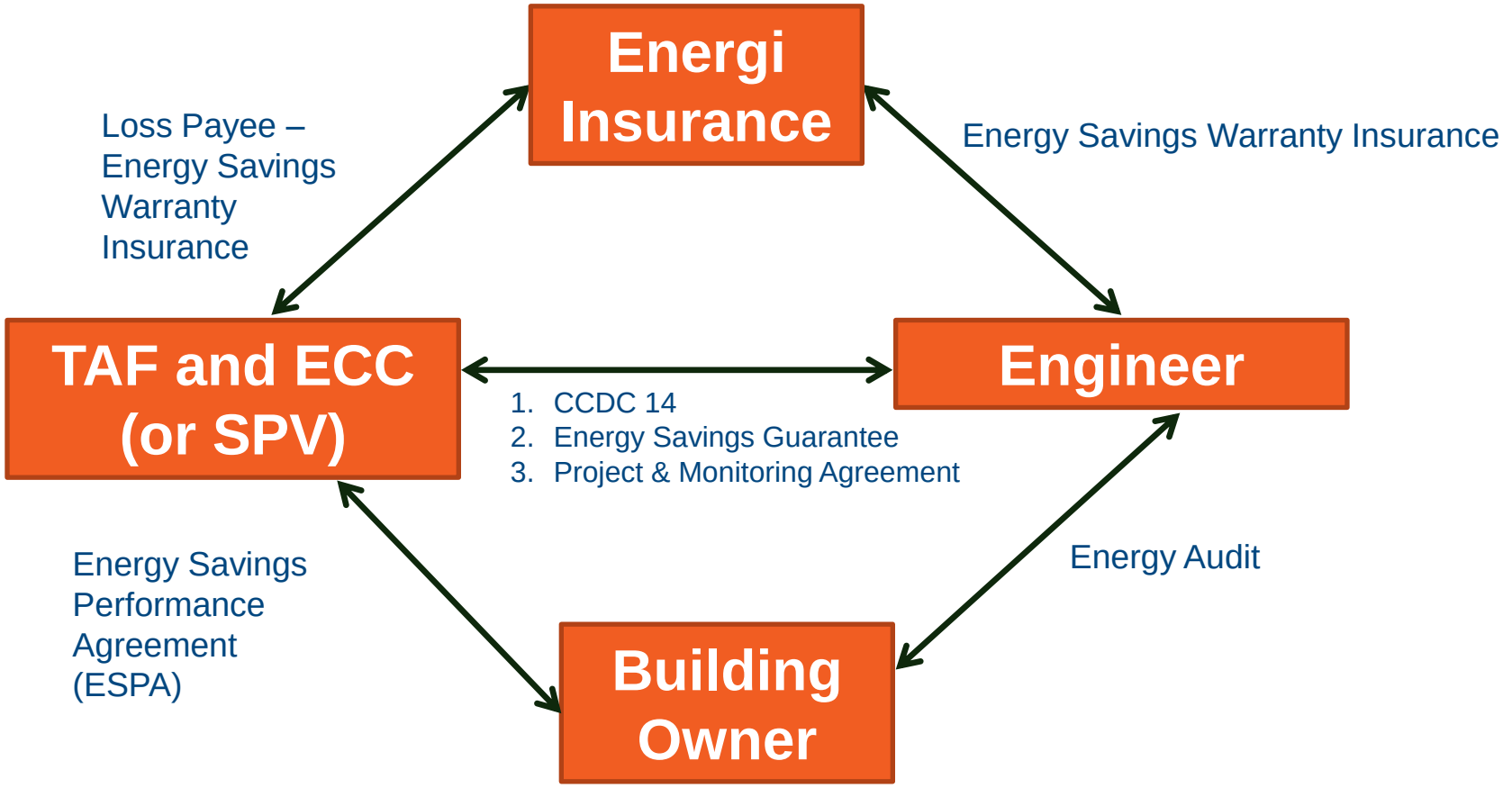
A) One boiler automatically shut off due to an issue with water flow. TAF hired the installation contractor to inspect the system. The strainer that filters the incoming water was clogged and was cleaned. Following which, the system was restored to working order. Cleaning of the strainer has been added to the maintenance contractors' contract.

B) Someone entered the mechanical room and attached a hose to the bottom of the boiler and opened a valve resulting in heated water going straight down the drain. Our remote monitoring system alerted us to this drastic increase in water consumption. We contacted the building and had the issue fixed within hours of receiving the notification. We charged the building for the lost savings but the building was happy that someone noticed. Had we not been monitoring closely, the water could have continued to flow down the drain for much longer.

ESPA Phases


LOI Signing
Audit
Engagement
Energy Audit
ESPA
Signing
Construction
Savings /
Project
Monitoring

Relationship Structure



Key reasons to work with TAF

1. **Product:** Product agnostic

2. **Fiduciary**: We act as fiduciary- more savings for building is more money for us – so we are incentivized to optimize savings and minimize the installs- monitoring the engineer

3. **Strategic finance:** Buildings use our money for mission critical equipment

4. **Right not to pay:** We don't generate the 90% building does not pay the difference (subject to exclusions)

5. **Experience:** Combined experience of 150 years plus

6. **Success:** All TAF projects operating as agreed

STAY CONNECTED!

TORONTO ATMOSPHERIC FUND

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