

Deep energy retrofit projects and finance models

How to do clean energy upgrades that get results, including cost containment results. We will cover projects such as André-Laurendeau College's outcomes-based deep energy retrofit, and will explore financing models that make projects easier.

Thurs Oct 14, 2020 | 2:00 - 3:00 PM ET

Olivier Matte, Antoine Courchesne-Tardif & Bruce (BF) Nagy.



**Clean Air
Partnership**

CLIMATE SOLUTIONS WEBINAR SERIES





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ELECTRIC FLEET VEHICLES



GEO THERMAL FOR SCHOOLS

ENGINEER DUYERLANT & MOORE, SCHOOL DISTRICT DIRECTOR



MICROGRIDS & BATTERIES



WEBINAR SERIES - UPCOMING:

- Solar thermal for seniors & recreation (Ontario & Alberta)
- Electric vehicle fleet management

THIS MONTH FROM ECOSYSTEM

Olivier Matte

Olivier Matte is an engineer with more than 20 years of experience. One of the many things he does is develop training programs for the operating personnel of Ecosystem clients. Over the past few years, he has also coordinated and led communications about Ecosystem's clean energy projects and business model. His technical knowledge and his natural interpersonal skills, make him an excellent communicator.



Antoine Courchesne-Tardif

Antoine Courchesne-Tardif started at Ecosystem as a project designer. He then managed the implementation of a major industrial project at the CAE headquarters in Montreal where he designed a system that reduced the number of HVAC units by 75% and improved air conditioning efficiency by 35%. . He is a project director for recent projects including André-Laurendeau College, Lanaudière Health Center and the Sir Wilfrid Laurier School Board.



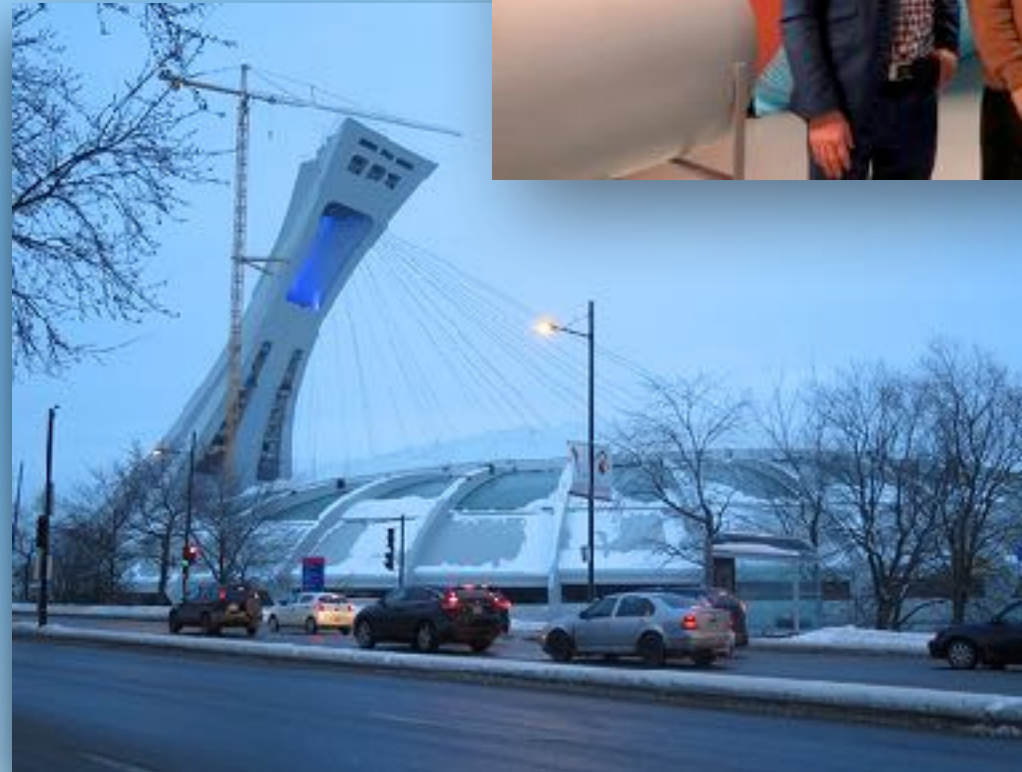
ECOSYSTEM SUCCESS

QUEBEC SCHOOLS
SAVE \$18M DROPPING FOSSIL FUELS

SAMARES SCHOOL BOARD
52 SCHOOLS GEOTHERMAL,
SOLAR, & CERAMIC
THERMAL STORAGE.

ENGINEERING FIRM SIGNS
CONTRACT FOR
GUARANTEED ENERGY
SAVINGS
& ONGOING MAINTENANCE.

SAME KIND OF CONTRACT FOR 3 LAVAL HOSPITALS, BIODOME &
OLYMPIC STADIUM MODERNIZATION. USED FOR GOVT BLDGS IN COLORADO.



BRUCE (BF) NAGY CLIMATE SOLUTIONS

- Columnist & features
- Consultant
- Author 200+ articles on climate solutions
- Author *The Clean Energy Age*, Rowman & Littlefield



Climate solutions
Expert best practices
Case examples
Clear priorities



SOLUTIONS, PRIORITIES, CASE EXAMPLES



BUILDINGS

NEW & RETROFIT TECHNOLOGY & PROGRAMS



TRANSPORTATION

ELECTRIC FLEETS, INFRASTRUCTURE & TRANSIT VEHICLES



POWER GENERATION & STORAGE

TECHNOLOGY, PLANNING & ECONOMICS

CLEAN ENERGY FUNDING MODELS



1 Local Improvement Charge aka PACE
LIC with GOVT backstop

2 Utility model
aka Energy Service Agreement
aka Guaranteed Energy Savings

3 Green bond
Green bank
Foundation

4 Modern bank loan
with IREE from ICP

5 Government incentive
eg Feed-In Tariff or energy upgrade

6 Many other bank &
financial instruments/arrangements

FCM GREEN MUNICIPAL FUND \$950 MILLION+

BEING USED for PACE RETROFIT PROJECTS, CLEAN TRANSPORT ETC.
THRONE SPEECH HINTS THERE MAY BE MORE COMING



126 LIC OR PACE PROGRAMS IN NORTH AMERICA

HALIFAX

ZERO DOWN

10-YEAR LOAN

AT 4.75% INTEREST

UTILITY SAVINGS

COVER PAYMENTS



LOAN IS ON THE PROPERTY TITLE - NO EFFECT ON SELLING DECISIONS

NO BURDEN ON NON-PARTICIPATING TAXPAYERS

TAF GETS ANOTHER \$50 MILLION

WILL BE USED TO MAKE 400 DEEP ENERGY RETROFITS INTO 1600

Big Canadian moment for climate: unique model goes national

September 9, 2020 by [Julia Langer](#) - [5 Comments](#)



Signatures and endorsements for the agreement from Federation of Canadian Municipalities CEO Carole Saab, Toronto Mayor John Tory, TAF CEO Julia Langer and Chair Parminder Sandhu

KEN SOBLE TOWER

NUMEROUS GRANTS AS AN EMBLEMATIC RETROFIT PROJECT



WHY DO RETROFITS MATTER?

- REGULATING NEW CONSTRUCTION IS IMPORTANT, BUT WE ONLY REPLACE ABOUT 3% OF BUILDING STOCK ANNUALLY.

- WE MUST ADDRESS EXISTING BUILDINGS.

- ROCKY MOUNTAIN INSTITUTE ESTIMATES 4-5 MILLION BUILDINGS IN NORTH AMERICA MUST BE RETROFITTED EVERY YEAR FOR 10 YEARS TO MEET PARIS TARGETS.



- CANADA: HUNDREDS OF THOUSANDS OF BUILDINGS, TENS OF THOUSANDS OF GOVERNMENT BUILDINGS, THOUSANDS OF AFFORDABLE HOUSING & SOCIAL HOUSING BUILDINGS.

HARVARD: “OLD BUILDINGS ARE THE BIGGEST CHALLENGE”



“THE VAST MAJORITY OF OUR CURRENT BUILDING STOCK WILL STILL BE IN PLACE IN 2030 — THE CURRENT TIMEFRAME IDENTIFIED TO MAKE SIGNIFICANT PROGRESS TOWARD CLIMATE COMMITMENTS. THIS IS ESPECIALLY TRUE IN THE COMMERCIAL BUILDINGS MARKET, SPECIFICALLY LARGE COMMERCIAL BUILDINGS, WHERE WELL OVER 75 PERCENT OF EXISTING BUILDINGS WILL STILL BE IN USE...”

[HTTPS://HBR.ORG/2016/01/OLD-BUILDINGS-ARE-U-S-CITIES-BIGGEST-SUSTAINABILITY-CHALLENGE](https://hbr.org/2016/01/old-buildings-are-u-s-cities-biggest-sustainability-challenge)

ESA: THIRD PARTY INVESTMENT/MAINTENANCE ARRANGEMENT

KUAKINI MEDICAL CENTRE

212 BED HOSPITAL IN HONOLULU

\$5.8 MILLION CLEAN TECH HVAC
EQUIP OWNED BY AN INVEST CO/
ENGINEER FIRM

ENERGY SAVINGS, GHG CUTS
& MAINTENANCE GUARANTEED

HOSPITAL SAVES MORE ON POWER THAN THE PAYMENTS (\$1.1 M YR)
ZERO UP FRONT COST, ZERO RISK.



SOKA UNIVERSITY CALIFORNIA BATTERY & MICROGRID LEASE BUYBACK

PEAK SHAVING BY STEM (CALIF)

300 & 100 KILOWATT

BATTERIES & LOAD MANAGEMENT

SOFTWARE - NO UP FRONT COST

AFTER LEASE COSTS

NET SAVINGS WERE

\$55K IN THE FIRST YEAR

WILL INCREASE EACH YEAR TO ABOUT \$100K IN YEAR 10

ENERGY SAVINGS TRANSLATE TO GHG FOOTPRINT REDUCTIONS

SELF LEARNING SOFTWARE IMPLEMENTS STORAGE DECISIONS AUTOMATICALLY

SCHNEIDER ELECTRIC & EMERSON AND OTHER BIG PLAYERS ARE NOW FORMING ENTITIES TO
IMPLEMENT SIMILAR MODELS WITH CORPORATE & INSTITUTIONAL CLIENTS.



GEOTHERMAL FOR CONDOS

THIRD PARTY
'UTILITY' MODEL
FOR GEOTHERMAL
HEATING & COOLING

564 CONDOS
LILLIAN PARK IN
DOWNTOWN TORONTO
ALSO CONNECTED TO EXISTING
NEIGHBOURING SENIORS HOME

370 UNITS WESTWOOD
GARDENS, RICHMOND HILL

SAVES GHG, IMPROVES THE
HEALTH OF RESIDENT FAMILIES
& THE PLANET.



GEOHERMAL FOR CONDOS

TORONTO ENGR FIRM/
QUEBEC FINANCIER
OWN, MAINTAIN & OPERATE
GEO SYSTEM
(CONTACT DIVERSO, TIM WEBER)

20 YEAR TERM
AFTER WHICH CONDO
ASSOC CAN BUY OUT

DEVELOPER: REDUCES CAPITAL
BUDGET & TECH UNCERTAINTY

FIRST-TIME BUYERS:
LOW, PREDICTABLE
MAINTENANCE FEES



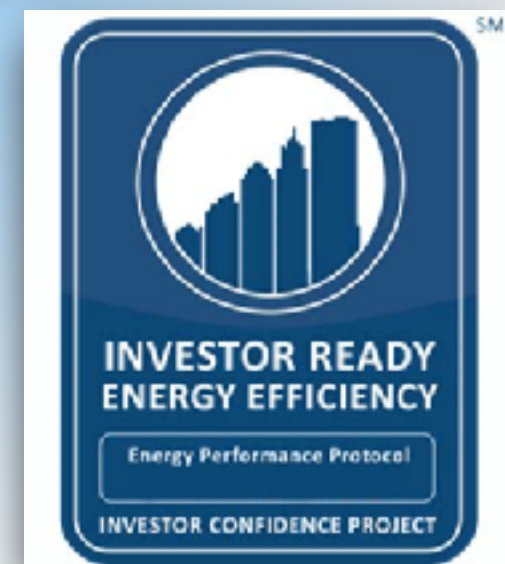
MODERN BANK LOAN WITH IREE FROM ICP

INVESTOR READY
ENERGY EFFICIENCY
(IREE)

INVESTOR CONFIDENCE
PROJECT (ICP)

THIRD PARTY ENGINEERING PANEL VERIFIES PROJECT
ENERGY SAVINGS, PROVIDES IREE CERTIFICATION

REDUCES BANK RISK AND THEY PROCESS LOAN
BASED ON TRADITIONAL CREDITWORTHINESS



SWITCH TO OLIVIER & ANTOINE

QUESTIONS?

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THANK YOU

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