



## Product Overview

### Virtual Decarbonization Planner

# Accelerating Decarbonization in Calgary

Launched in December 2024, the Virtual Decarbonization Planner (VDP) is a digital tool helps property owners to identify retrofit and renewal pathways far more quickly and cost-effectively than traditional approaches.

The City of Calgary is piloting the use of the VDP for its own municipal buildings as a more efficient alternative to traditional energy assessments, which are often costly and time-consuming. While the pilot will help The City explore how the platform can support scalable decarbonization strategies internally, the VDP will also be made available to participants in BenchmarkYYC to support their own efforts in identifying and pursuing decarbonization pathways.

Trusted by global leaders, VDP is already being used by major real estate owners like Hines, engineering firms like RDH, nonprofits such as BOMA and The Atmospheric Fund (TAF), and large utilities including Toronto Hydro.



## Turning Benchmarking into Action

The City of Calgary has set ambitious climate goals, targeting net-zero carbon emissions by 2050. With more than 65% of local emissions coming from buildings, reducing energy use in this sector is essential. The City's building energy and emissions benchmarking program, BenchmarkYYC, has already benchmarked over 600 buildings—a valuable dataset that can drive action.

**VDP can help turn this data into impact by:**

- Delivering high-quality, physics-based energy assessments at **~10% of the cost** of traditional assessments
- Identifying and assessing high-potential buildings for retrofit investment at **~1% of the time** of traditional assessments
- Eliminating the need for **site visits** or enhancing existing **knowledge** about buildings that have already been assessed
- Streamlining access to **incentives** and funding opportunities (e.g., utility programs)

# Standout Features

## How VDP Supports Calgary's Transition to a Low-Carbon City:

- For The City:** Enables citywide building assessments for strategic asset management and decarbonization planning
- For building owners:** Reduces the time and cost of audit-level assessments by up to 10x compared to traditional engineering-led studies
- For financing partners:** Simplifies and strengthens submissions for federal funding programs



### OPTIMIZED SCENARIO PLANNING

With your utility information from Energy Star Portfolio Manager, VDP generates thousands of combinations to reduce energy and emissions. You can customize the combinations based on your specific goals — e.g. “at least 80% GHG reduction for lowest incremental cost.” For each reduction pathway, VDP recommends energy conservation measures (ECMs) in a logical sequence that is aligned with your organizational priorities.



### INTERACTIVE MEASURE MODELING

Our VDP goes beyond estimating retrofit measures in isolation. Like a traditional energy model, it considers how selected measures interact when implemented together. For example, upgrading lighting, HVAC, and insulation is modeled as a combined package, capturing synergies and trade-offs between the measures. This results in more realistic projections for energy savings, emissions reductions, and total project costs.



### REPORTING FOR CONFIDENT DECISIONS

The platform supports clear and actionable decision-making by enabling users to share preferred or alternative retrofit scenarios with project stakeholders and capital providers. You can generate multiple reports at both the portfolio level, to identify the best candidates for retrofit investment, and the building level, to explore retrofit actions aligned with your impact goals and financial plans.

# Product Overview

Select your goals and optimization objectives

Build reports that support decision-making

Obtain an interactive list of ECMs

**Goals**  
↓ GHG by 80 %

**Optimization**  
Simple Payback (Years)

**Summary** of results from 6 Actions taken over 15 Years (2026 - 2040)

Category	Value
PERFORMANCE	GHG (tCO <sub>2</sub> e/yr) ↓ 96% -43
PERFORMANCE	Energy (kWh/yr) ↓ 60% -218,035
PERFORMANCE	Electrical Peak (kW) ↑ 15
BUSINESS CASE	Net Budget \$1.9M
BUSINESS CASE	Energy Cost \$884.7k
BUSINESS CASE	Cost of Carbon Abatement \$1.4k /tCO <sub>2</sub> e

**Actions**

Selected Actions	Option	Year Planned	GHG Reductions	Energy Reductions	Incremental Cost	Project Cost
<input checked="" type="checkbox"/> Domestic Hot Water	Heat Pump, Peak ...	- 2026 +	20.25 tCO <sub>2</sub> e	84,636 kWh	\$51,750	\$69,000
<input checked="" type="checkbox"/> Windows	Double Glazed Wi...	- 2030 +	4.5 tCO <sub>2</sub> e	24,765 kWh	-	\$439,972
<input checked="" type="checkbox"/> Renewable Energy	Solar Panels	- 2030 +	0.49 tCO <sub>2</sub> e	44,974 kWh	\$161,355	\$161,355
<input checked="" type="checkbox"/> Cool Roofs & Windows	Cool Roof Panels	- 2022 +	12.76 tCO <sub>2</sub> e	45,000 kWh	\$31,200	\$31,200

## How it Works

OPEN's VDP combines advanced AI with decades of building-energy expertise. VDP is trained on millions of physics-based simulations developed by engineers and calibrated to real-word data.

The platform starts with data you already have—utility information from ENERGY STAR Portfolio Manager and a simple survey—then finds the closest match between your building's attributes and our AI energy models. From there, it can simulate virtually any combination of building operations and retrofit measures, grounded in knowledge from thousands of real buildings across North America.

## How to Act

If you are interested to find out more about this tool, please visit the [BenchmarkYYC](#) website and connect with the Program Coordinators.

