

Barriers and Benefits to Deep Retrofits in the Toronto Office Market

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Background

- Decarbonizing cities represents a considerable opportunity to reduce GHG emissions given that just 25 cities contribute 52% of global emissions¹.
- The primary emitter in those cities tends to be the built environment, as is seen in Toronto where 60% of emissions come from buildings, with most of that coming from heating using natural gas^{2,3,4}.
- To address this issue, deep retrofit projects aimed at reducing emissions is a potential solution.

Deep Retrofit Definition

A retrofit project where significant energy and/or emissions reductions are the primary target. Where “significant” can range from 30-50% reductions, and the projects typically involve the upgrade of more than one building system or element^{5,6}.

Research Question

What are the most common benefits and barriers to deep retrofit projects in Toronto office towers that sustainability professionals need to be aware of to increase the number of retrofit projects taking place?

Objectives

- Create a framework that can be used by industry professionals to successfully plan and execute deep retrofit projects
- Provide a framework that policy makers can use to strengthen the existing incentive landscape

Methodology

Literature Review

Identified key barriers and benefits to deep retrofit projects that had already been explored

Semi Structured Interviews

Used to gain practical insights from sustainability professionals about the barriers they face and the benefits they use to build business cases for deep retrofit projects

Analysis

Results from each method were compared to identify areas of overlap, disagreement, and gaps, to identify key factors professionals should be aware of

Key Findings

1

Existing literature is heavily focused on financial benefits and barriers

2

Sustainability professionals are focused on non-financial factors, but recognize the need to address financial factors

3

The literature identifies environmental factors as outcomes of deep retrofit projects while professionals list them as a primary driver of projects

4

Taking a systematic approach over a longer time horizon is a promising solution to many of the barriers identified, and leads to more optimal sustainability outcomes

Recommendation & Future Research

1

Taking a systematic approach to deep retrofit projects can help overcome financial barriers by spreading out costs, while also improving sustainability outcomes by tackling the biggest emitters first

2

Future research is needed to understand the degree to which the market is currently pricing sustainability outcomes into asset values, thereby potentially increasing the financial case for pursuing deep retrofit projects

References

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