

# Green + Smart Buildings

for reducing GHG emissions

Jiri Skopek,

Energy and Sustainability, JLL



Organisers:



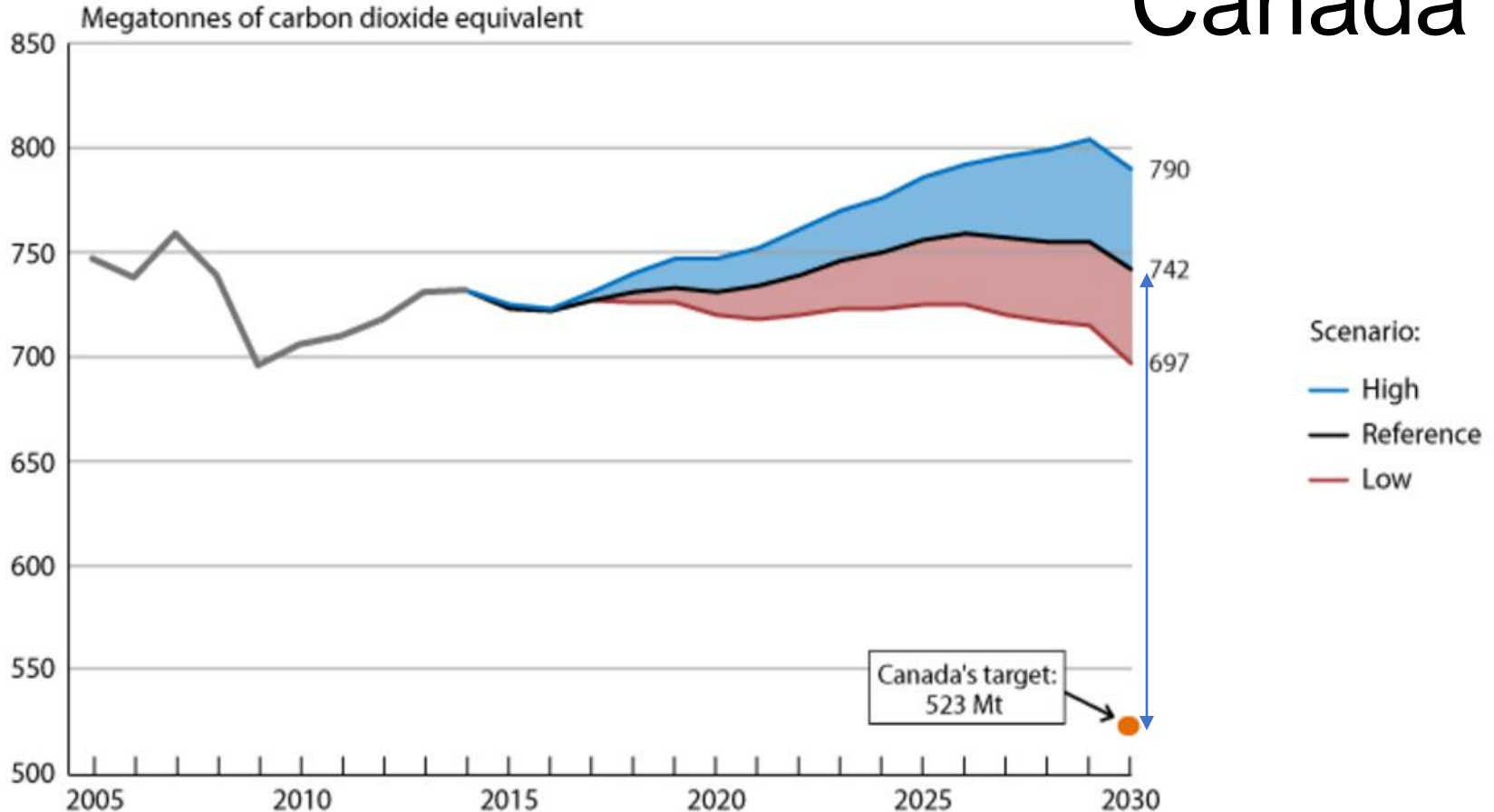
International Co-owners:



Sustainable Buildings and Climate Initiative  
Promoting Policies and Practices for Sustainability



# Progress Towards GHG Reduction- Canada



Historical greenhouse gas emissions and projections to 2030 with policies and measures as of November 1, 2016, Canada, 2005 to 2030



Organisers:



International Co-owners:



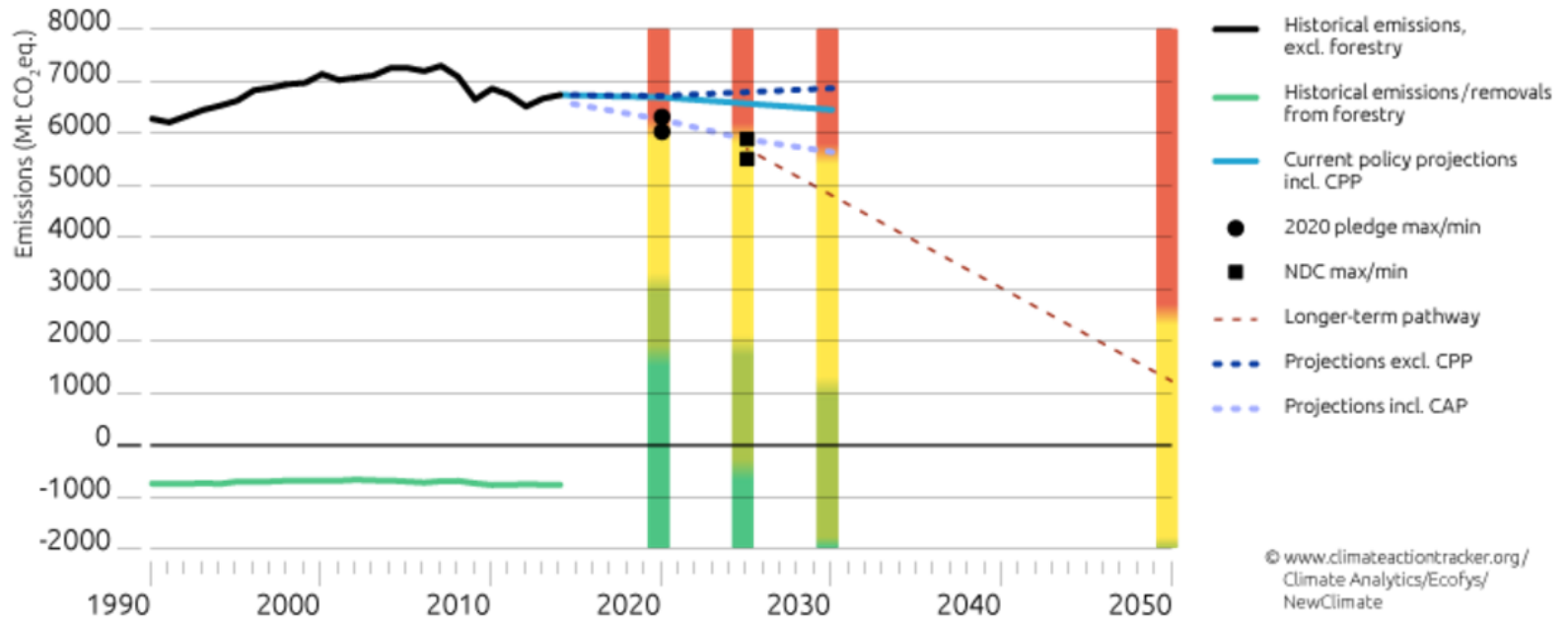
# Climate Action Tracker -USA



Basic view

+ Pledge

+ More info



CPP – Clean Power Plan (calculated via reduction of power sector emissions by 30% below 2005 levels by 2025)

CAP – Climate Action Plan (calculated via the quantification of the targets to double renewable energy generation by 2020 and double energy productivity by 2030 compared to 2010 levels).



Organisers:

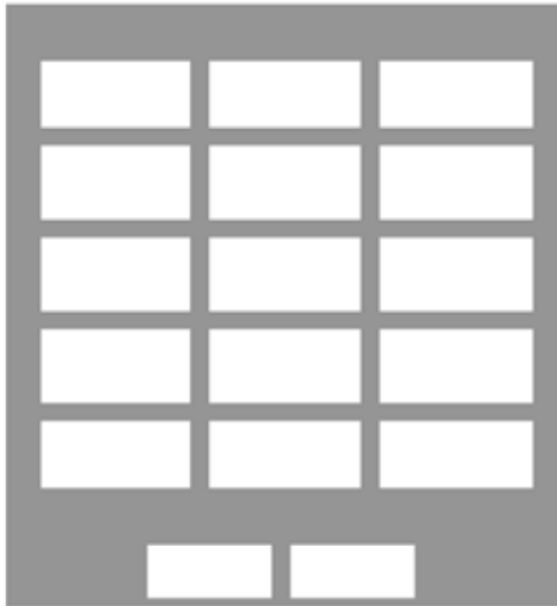


International Co-owners:



# “Leaders” represent 3.8 % of building area

Total area=  
85 billion square feet



Green Building certified =  
3.2 billion square feet (end of 2015)

3.8%



US Building Area vs. LEED Certified Building Area, End of 2015

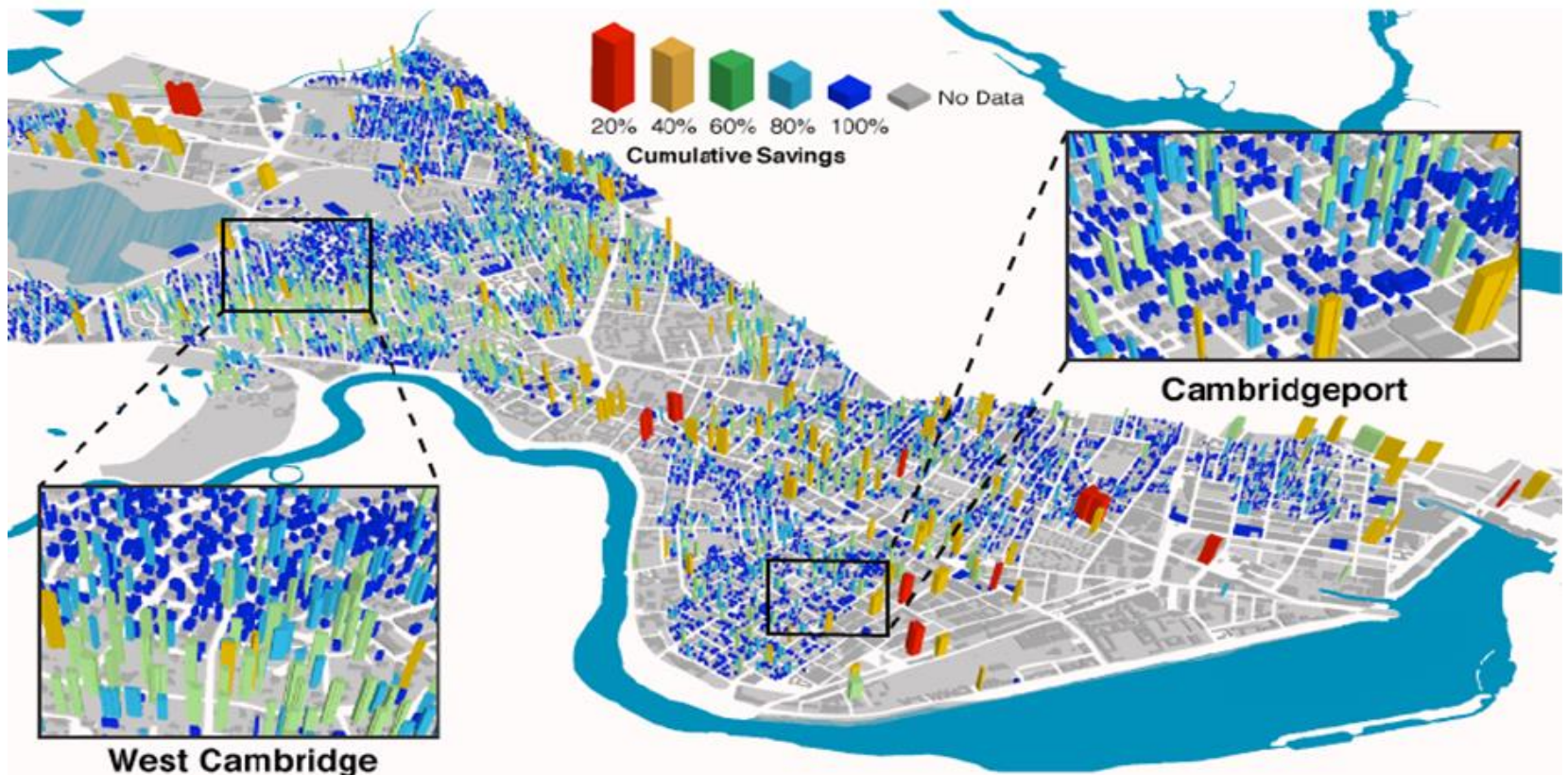
Source: Jerry Yudelson: Reinventing Green Building, 2016





# Can Big Data help?

Using the Big Data Analytics to identify energy saving potential of Cambridge Buildings



Source: Data Analytics for Energy Efficient Retrofits of Cities

# Why buildings do not perform?

1. Building **occupancy changes** faster than anticipated.
2. Correlation between good building performance and the **quality of the management**.
3. Building should be designed to the **capacity of the building operation** management.
4. Complex and innovative systems will often require several years to refine and understand.
5. Correlation between insufficient **commissioning** and poorer performance



*Do our green buildings perform as intended?*

[http://iisbecanada.ca/umedia/cms\\_files/Conference\\_Paper\\_1.pdf](http://iisbecanada.ca/umedia/cms_files/Conference_Paper_1.pdf)

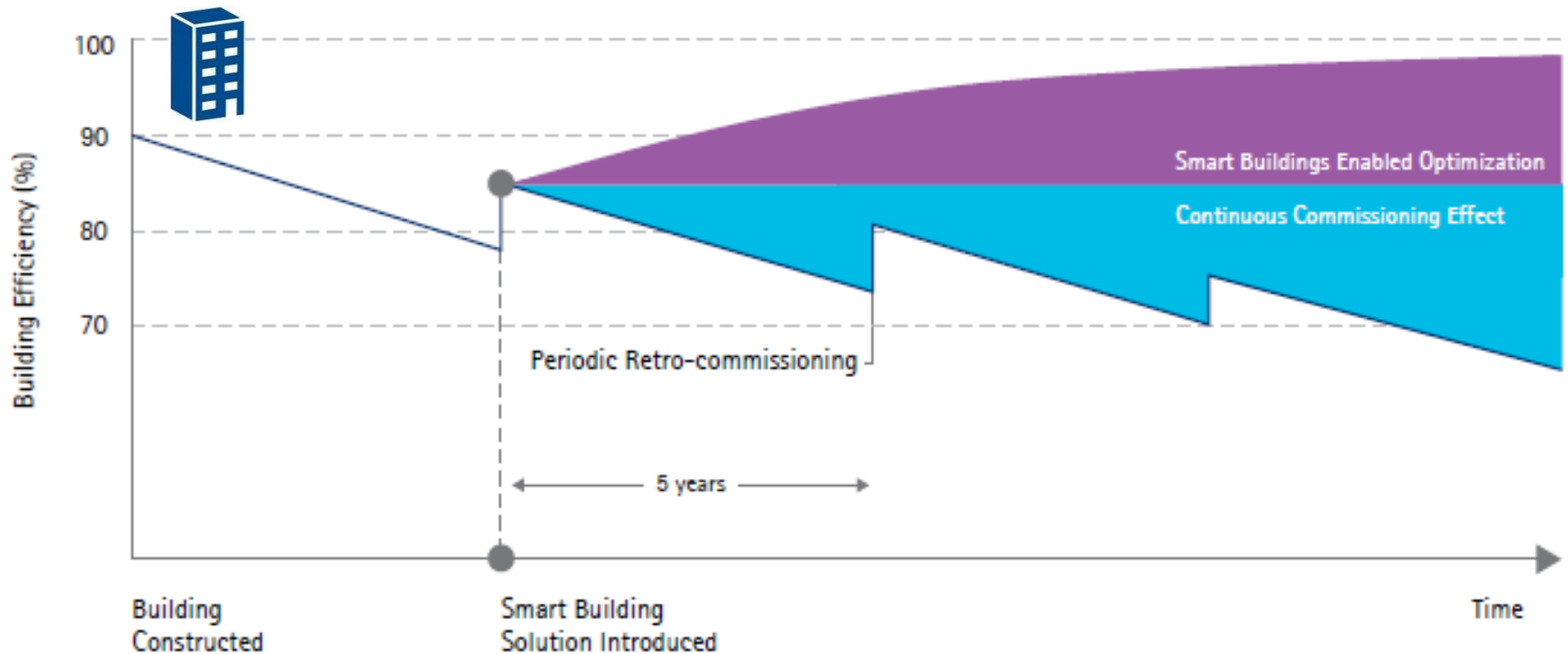


International Co-owners:



# Why Smart buildings?

Increased operating efficiency through performance monitoring and ongoing commissioning



The typical facility will become 3-5% less efficient every year without intervention.



# Examples of diagnostic solutions provided by Smart Buildings

- Equipment running in excess of scheduled operations-overflow
- Simultaneous Heating and Cooling
- Economizer Malfunction
- Leaky Valve
- Night Setback
- Morning warm-up
- Space temperature variations
- Optimum Start-up/Stop
- Duct Static Pressure Reset
- Chiller Analysis

\* Such diagnostics are normally provided by commissioning agent



Organisers:



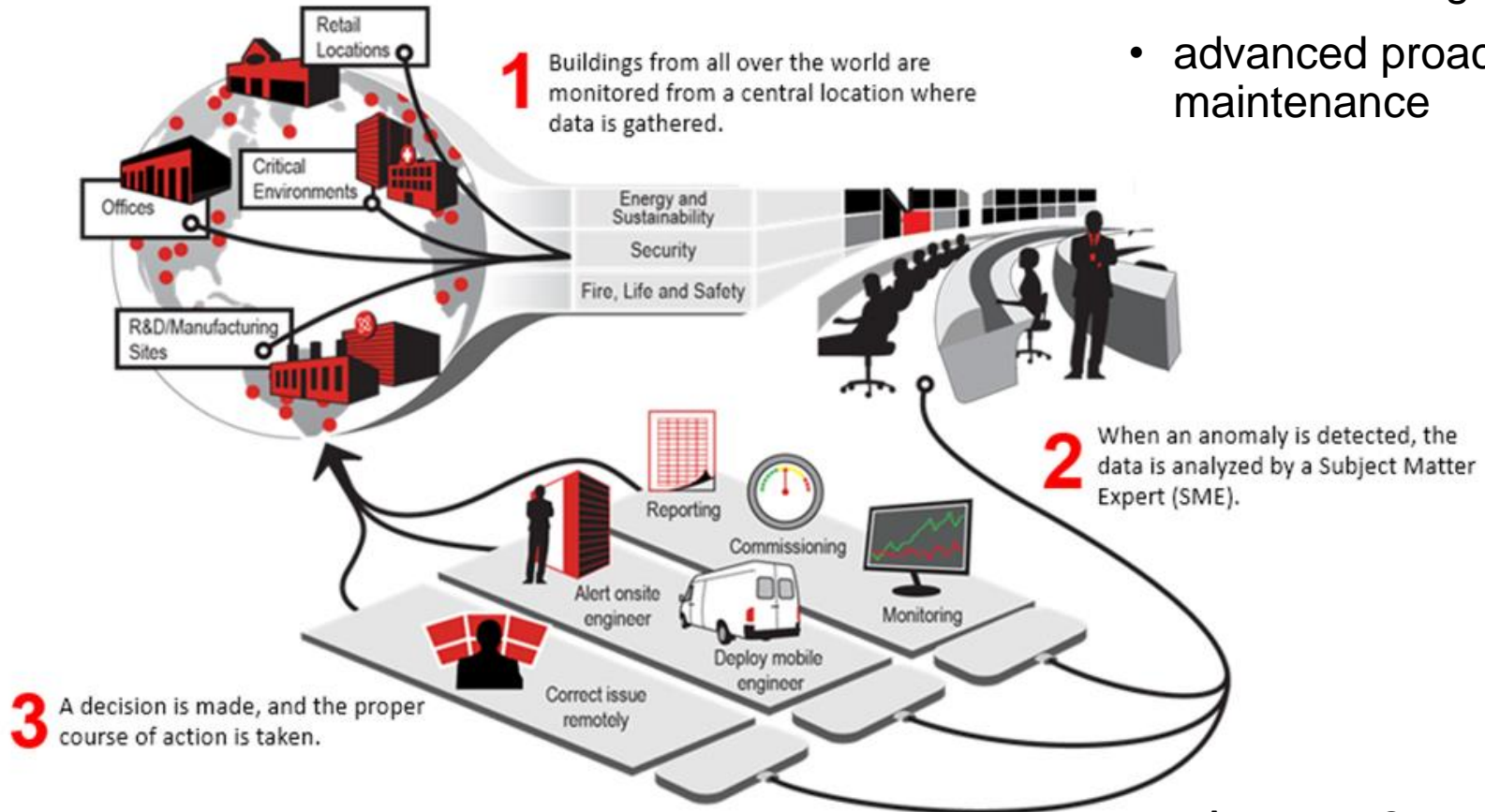
International Co-owners:





# Smart Building Concept

- effective monitoring and analytics
- ongoing commissioning
- advanced proactive maintenance



- Average 2 years ROI
- 3-10% savings

# Command Center Leverages Experts and Technology

Utilizes subject matter experts to assist FM operations;

Continually optimizes millions of data points across thousands of assets;

Remotely optimizes equipment;

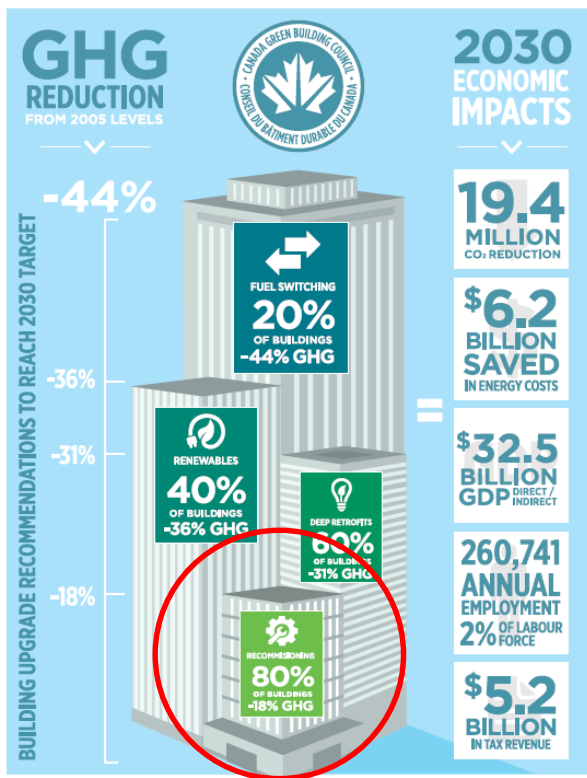
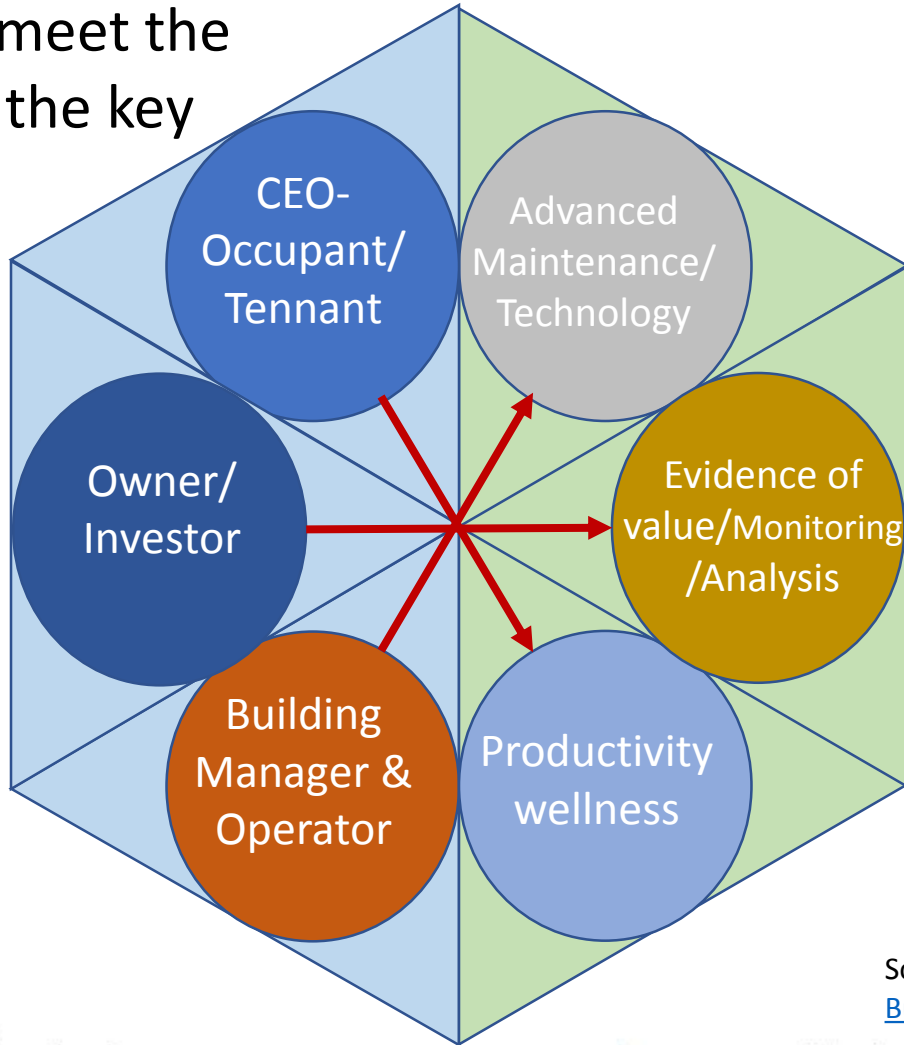
Reduces both reactive work orders and unnecessary engineer call-outs;

Seamless integration with work order system; dispatches technicians with the proper expertise, tools and repair parts



# Effective Approach to GHG Reduction

Combination of measures to meet the objectives of the key Real Estate Stakeholders



Source: [https://www.cagbc.org/CAGBC/Advocacy/Building\\_Solutions\\_to\\_Climate\\_Change.aspx](https://www.cagbc.org/CAGBC/Advocacy/Building_Solutions_to_Climate_Change.aspx)



# Value Proposition

Green +Smart buildings are effective means of reducing GHG emissions which provide effective monitoring and analytics, ongoing commissioning and advanced proactive maintenance



Organisers:



International Co-owners:



Sustainable Buildings and Climate Initiative  
Promoting Policies and Practices for Sustainability



Global Alliance  
for Buildings and  
Construction

# Thank you



Organisers:



International Co-owners:



Sustainable Buildings and Climate Initiative  
Promoting Policies and Practices for Sustainability

