

SESSION 6  
POLICY  
STREAM

May 14th 2010





# Moving to Measure: Sustainability in a Knowledge- Based Economy for Existing Commercial Buildings



# Outline

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- ⦿ Existing Commercial Building Focus
- ⦿ Reasons and Opportunities
- ⦿ Risks and Challenges
- ⦿ Responses
- ⦿ Review
- ⦿ Resources



# The road behind us

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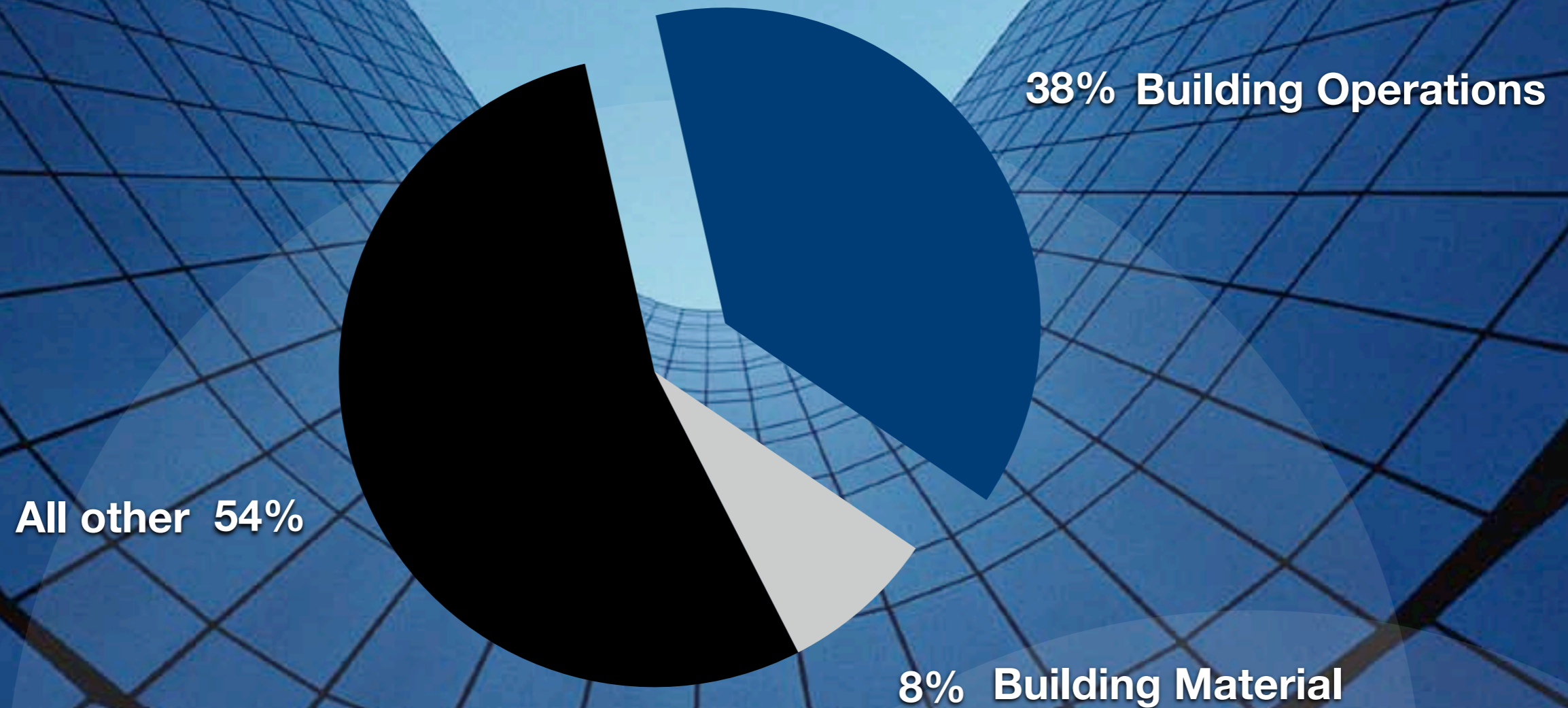
- Cheap energy
- Simple building systems
- Non regulated markets

# The path ahead

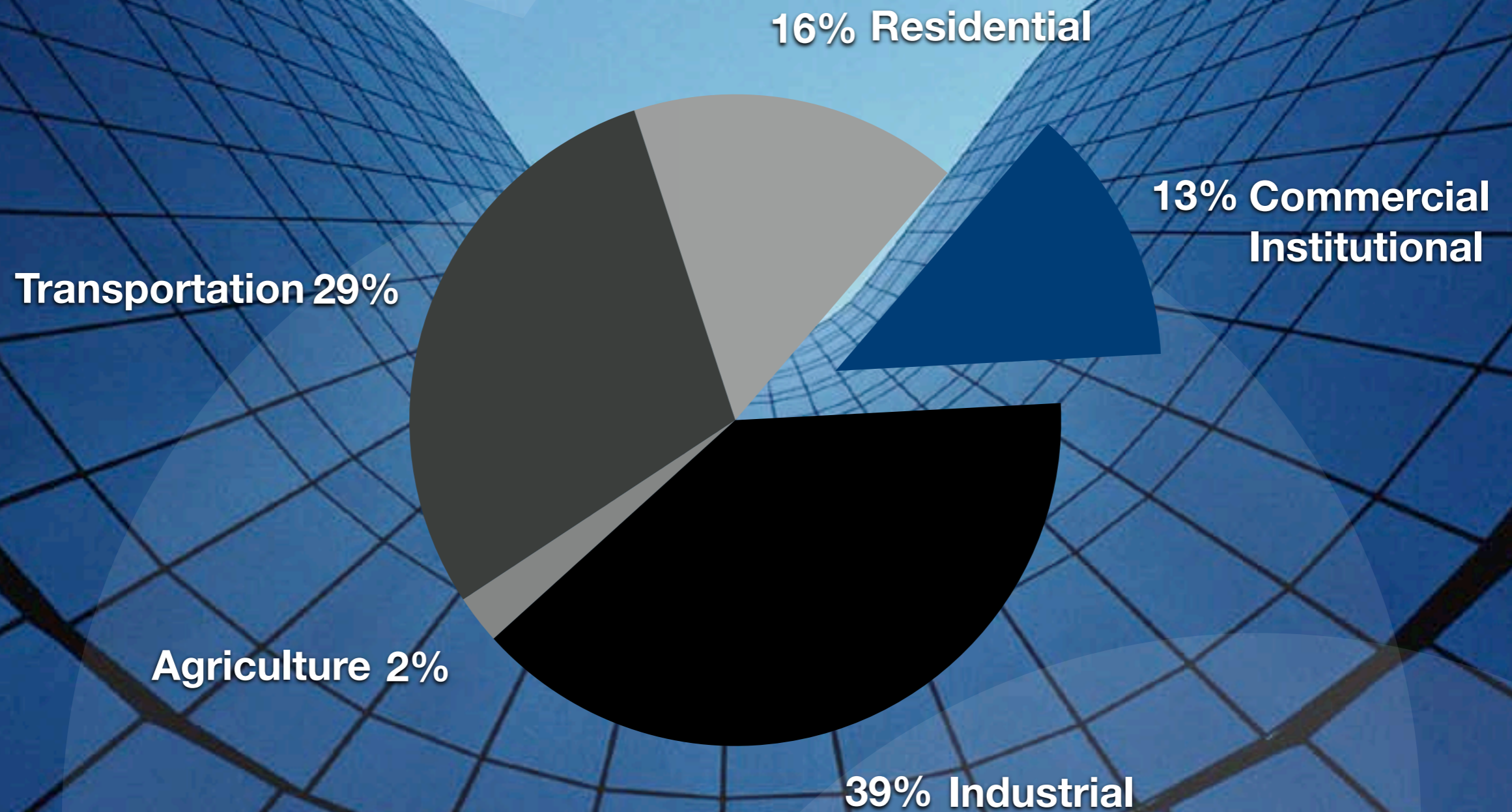
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- Increasing energy costs
- Complex building systems
- International ownership structures
- Increasing legislative, regulatory and accountability compliance issues

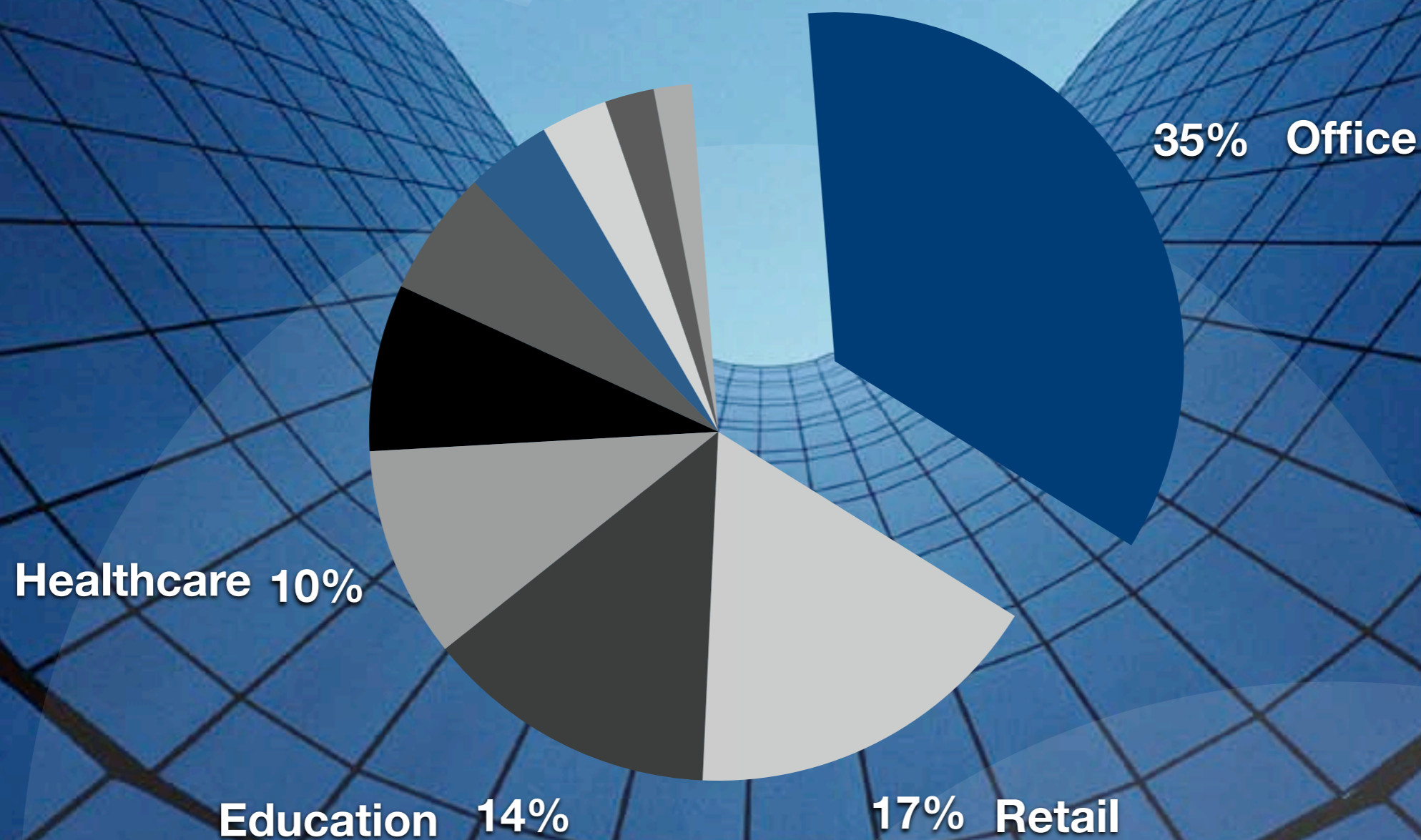
# Total Canadian Energy Use 2007



# Total Energy Use by Sector 2007



# Commercial Energy Use by Space Type





# Part II: Reasons to Measure





# Other Reasons:

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- Increase financial accountability of business decisions
- Future proof from increasing costs of energy
- Uncover operational cost savings
- Better manage complex operations and ownership structures



# Other Reasons:

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continued...

- Prerequisite for green certifications
- Enhance corporate environmental stewardship
- Increasing legislative, regulatory and accountability compliance issues



# Road blocks toward measuring

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- Energy viewed as a uncontrollable operating cost
- Insufficient information about risks and opportunities
- Owner-Tenant issues



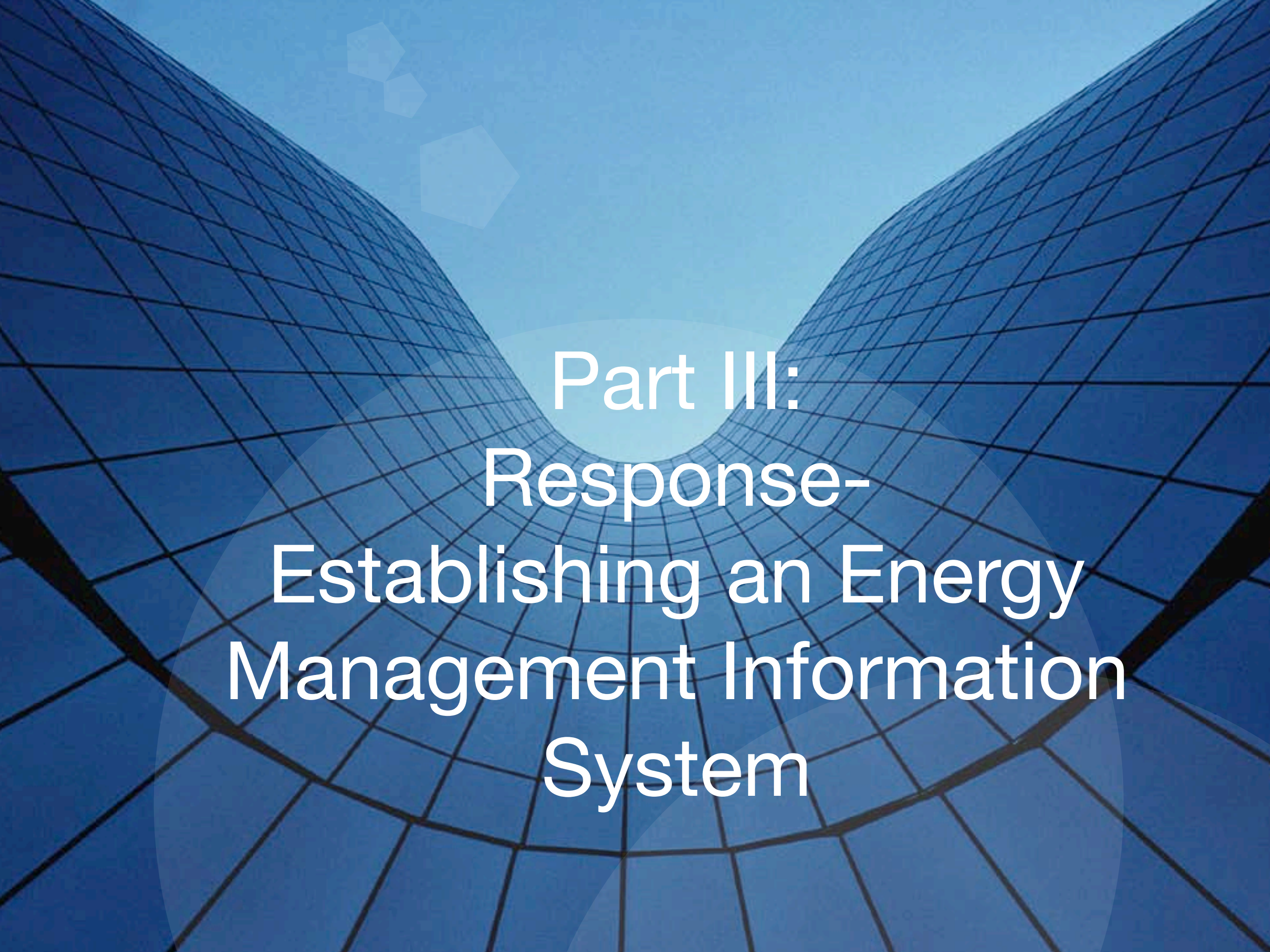
# The Challenge

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- Improve environmental performance
- Capture substantial business opportunities with attractive rates of returns
- Reduce risk for commercial owners, operators, investors and tenants
  - ▶ rising energy prices
  - ▶ increasingly regulated markets



“If you can’t measure it,  
you can’t manage it”



Part III:  
Response-  
Establishing an Energy  
Management Information  
System



# What is an EMIS?

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- A system for energy use information to be collected and stored in a centralized location and usable for making business decisions
  - A set of procedures and workflows
  - A database and a database management system
  - Database applications
  - Reports and analyses

# Components of an EMIS



Policies & Workflow

Database



Database Management System



Activity Data



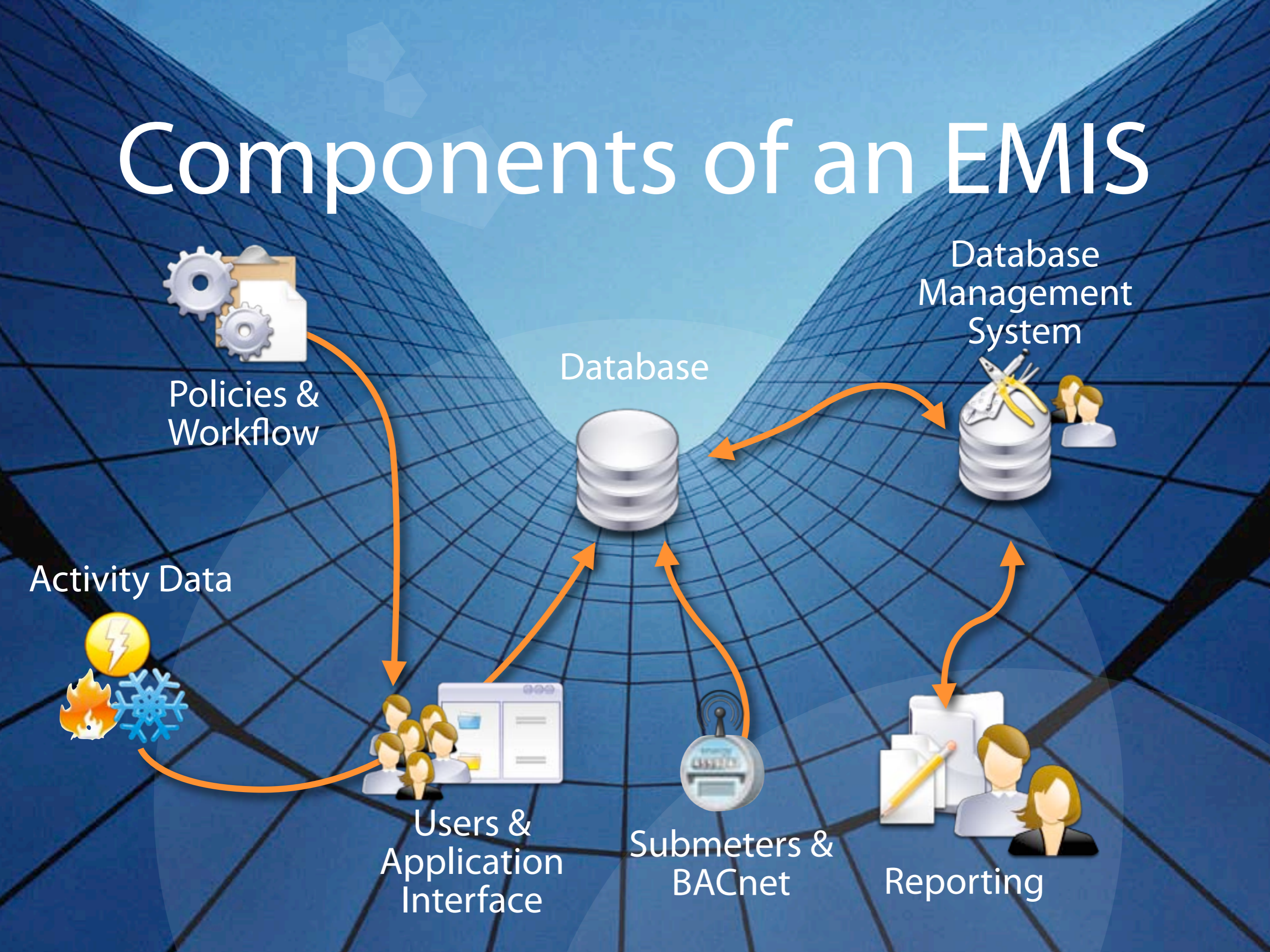
Users & Application Interface



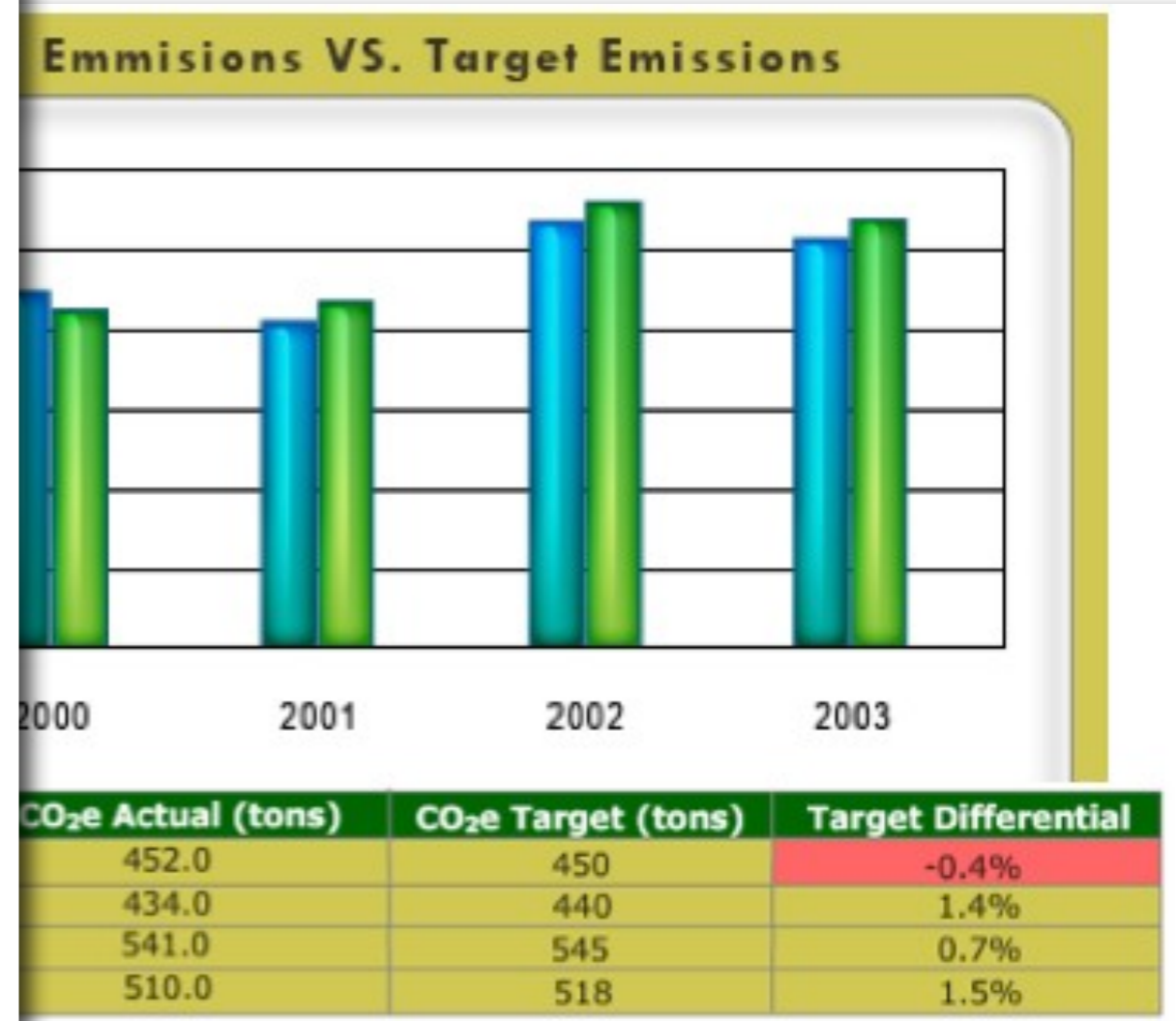
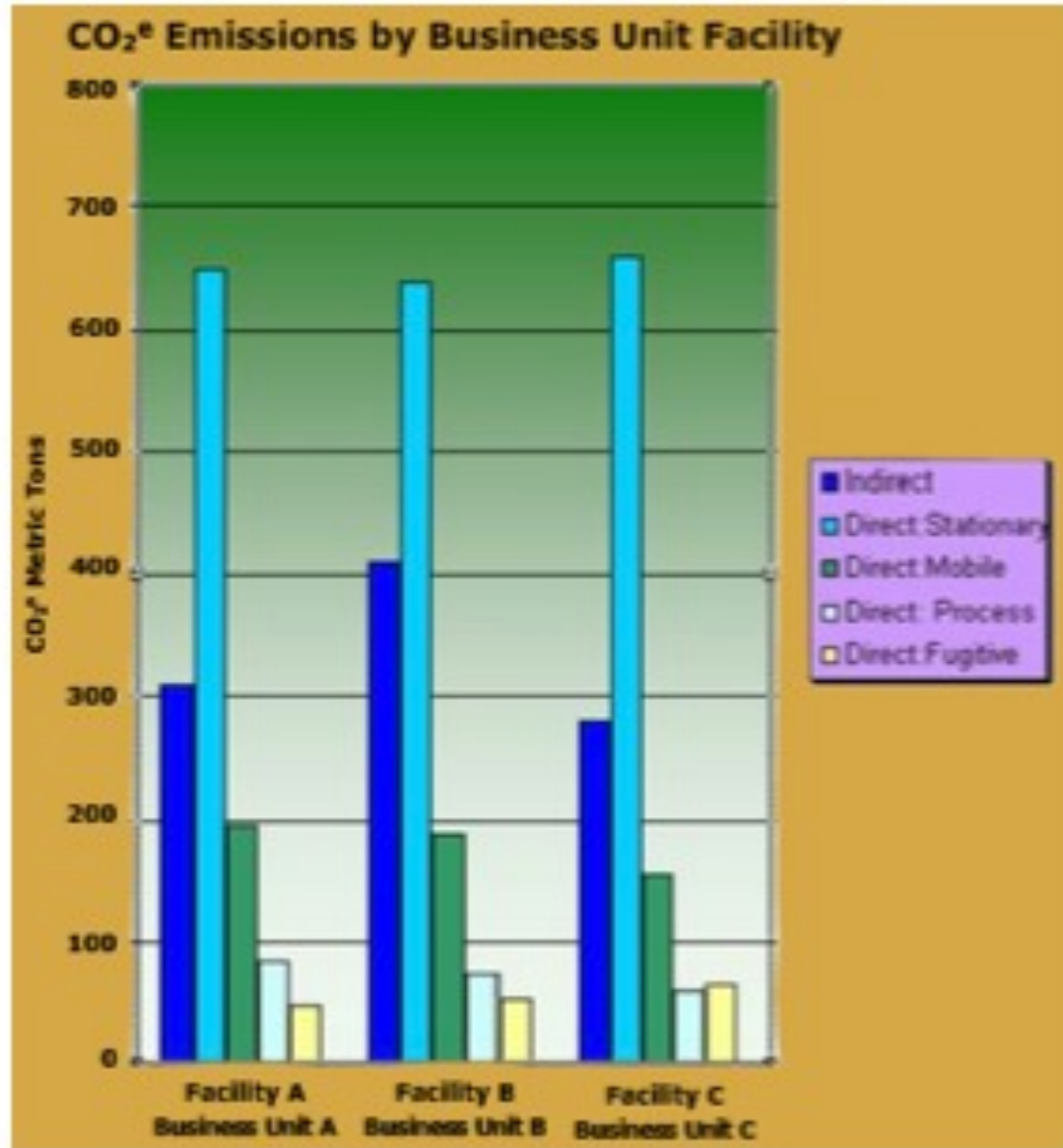
Submeters & BACnet



Reporting



# Sample Reports



CO <sub>2</sub> e Actual (tons)	CO <sub>2</sub> e Target (tons)	Target Differential
210.0	218	1.2%
247.0	242	0.3%
434.0	440	1.4%
510.0	520	-0.4%



# Do I need an EMIS

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- Multiple locations, complex ownership
- Information often requires quality control
- Information difficult to locate or access
- Desire to participate / prepare for new policies

# ISO 14064

**14064-1**  
Organization GHG  
Documentation &  
Reporting

**14064-2**  
GHG Project  
Documentation &  
Reporting

**GHG Protocol**

**GHG  
Assertions**

**14064-3**  
Validation & Verification



# ISO 14064 Information Requirements

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- **Relevant:** refers to the need of the inventory to reflect the organizations emissions and decision-making needs
- **Complete:** means accounting for all sources and activities within the inventory and boundary, and justifying any exclusions
- **Consistent:** ensures the ability to meaningfully compare inventory data over time

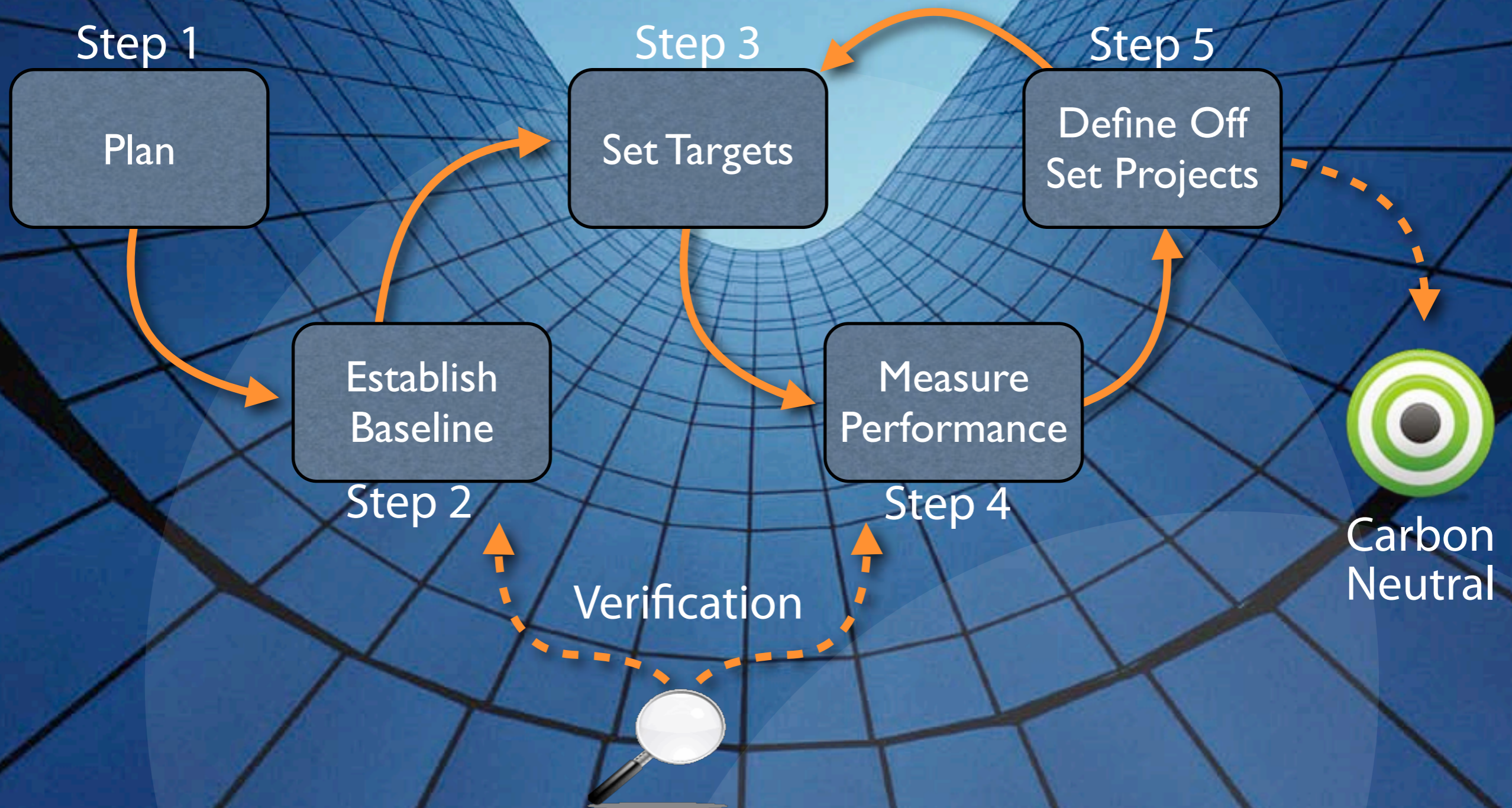


# ISO 14064 Information Requirements....

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- **Transparent:** necessitates full disclosure of all assumptions; citation of methodologies; and leaving an audit trail
- **Accurate:** refers to the need to provide a reasonable assurance of the information's integrity

# Path to Carbon Neutral





# Commercial Building Offset Opportunities

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- Improvements in
  - ▶ Combustion equipment, space heating/cooling, hot water systems
  - ▶ Building envelope improvements
  - ▶ Passive solar performance improvements



# Commercial Building Offset Opportunities

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- ▶ Switching to a less carbon-intensive fuel
- ▶ Installation of Energy Management Systems



# Types of EMIS

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- Free solutions
- Off the shelf
- Customized
- Software as a Service (SaaS)



# Key Steps: Moving to Measure

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- Planning & Certification
- Determination of Requirements
- Evaluation of Options
- Design & Development
- Implementation
- Establish Best Practices

# Review

- Improve environmental performance
- Capture substantial business opportunities with attractive rates of returns
- Reduce risk for commercial owners, operators, investors and tenants
  - rising energy prices
  - increasingly regulated markets

# Resources

Resource	Use	Cost	Location
GHG Management institute website	Industry surveys, market opportunities, reports	Free	<a href="http://ghginstitute.org/">http://ghginstitute.org/</a>
Green Office Leases	Provides templates , guides and other resources free of charge	Free	<a href="http://www.realpac.ca/green-office-leases/">www.realpac.ca/green-office-leases/</a>
GHG Protocol website	Calculation tools and some standards	Free	<a href="http://www.ghgprotocol.org/">http://www.ghgprotocol.org/</a>
EIMS A handbook for managers, engineers and operational staff	Detailed report with guidance for planning your EMIS	Free	<a href="http://oee.nrcan-rncan.gc.ca/publications/industrial/EMIS/">http://oee.nrcan-rncan.gc.ca/publications/industrial/EMIS/</a>
GHG Accounting in Commercial Building Sector	General guidance on commercial buildings and the GHG Protocol	Free	<a href="http://www.realpac.ca/store/">www.realpac.ca/store/</a>
Point Carbon Website	Comprehensive reports, news, and analysis relating to GHGs	Free	<a href="http://www.pointcarbon.com/">http://www.pointcarbon.com/</a>



Arborus  
CONSULTING

Thank you.

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Questions

Next Speaker  
Roxie Graystone  
GHG Cap and Trade Impacts on the Building Industry

# Greening Scorecard

