

Energy Performance Services (EPS/Canada) Inc.

Presentation and discussion  
with the Select Committee of  
the NB Legislature

**MAKING ENERGY VISIBLE.™**

Established 1992

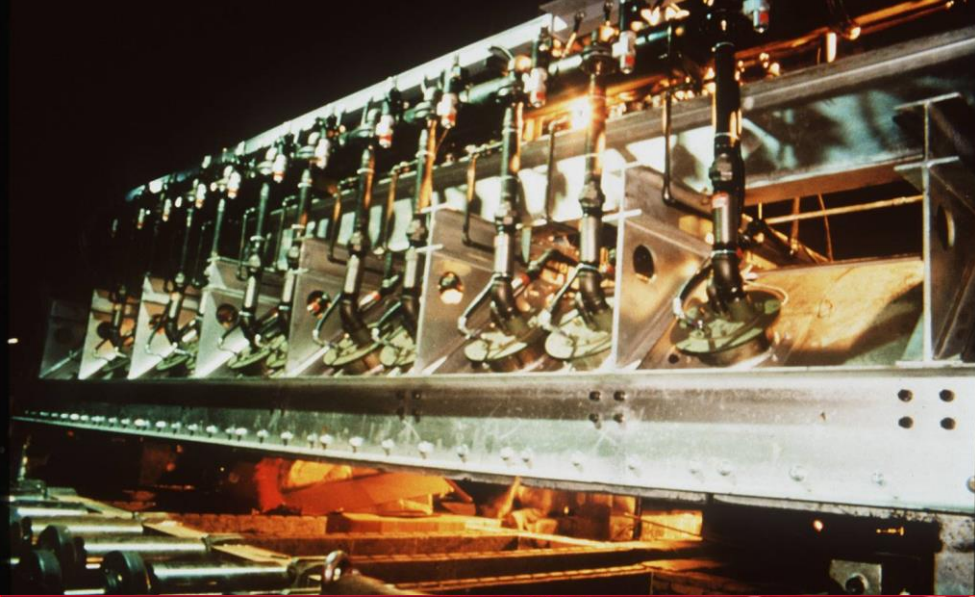
**EPS** ENERGY  
PERFORMANCE  
SERVICES

# EPS introduction

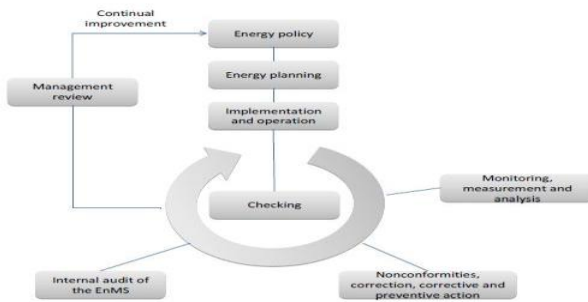
- 24 years of specialization in energy efficiency/energy management
  - Industrial EE projects
  - Industrial Energy Management Information Systems (EMIS)
  - Industrial management systems for energy management (ISO 50001)

**Canada, US, Brazil, Russia, Japan, India, Thailand, Vietnam, Africa**

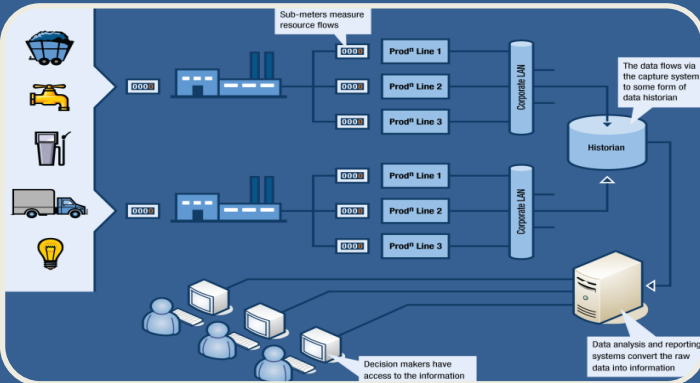




# Energy Management System (Defined management process)



# Energy Management Information System (EMIS)



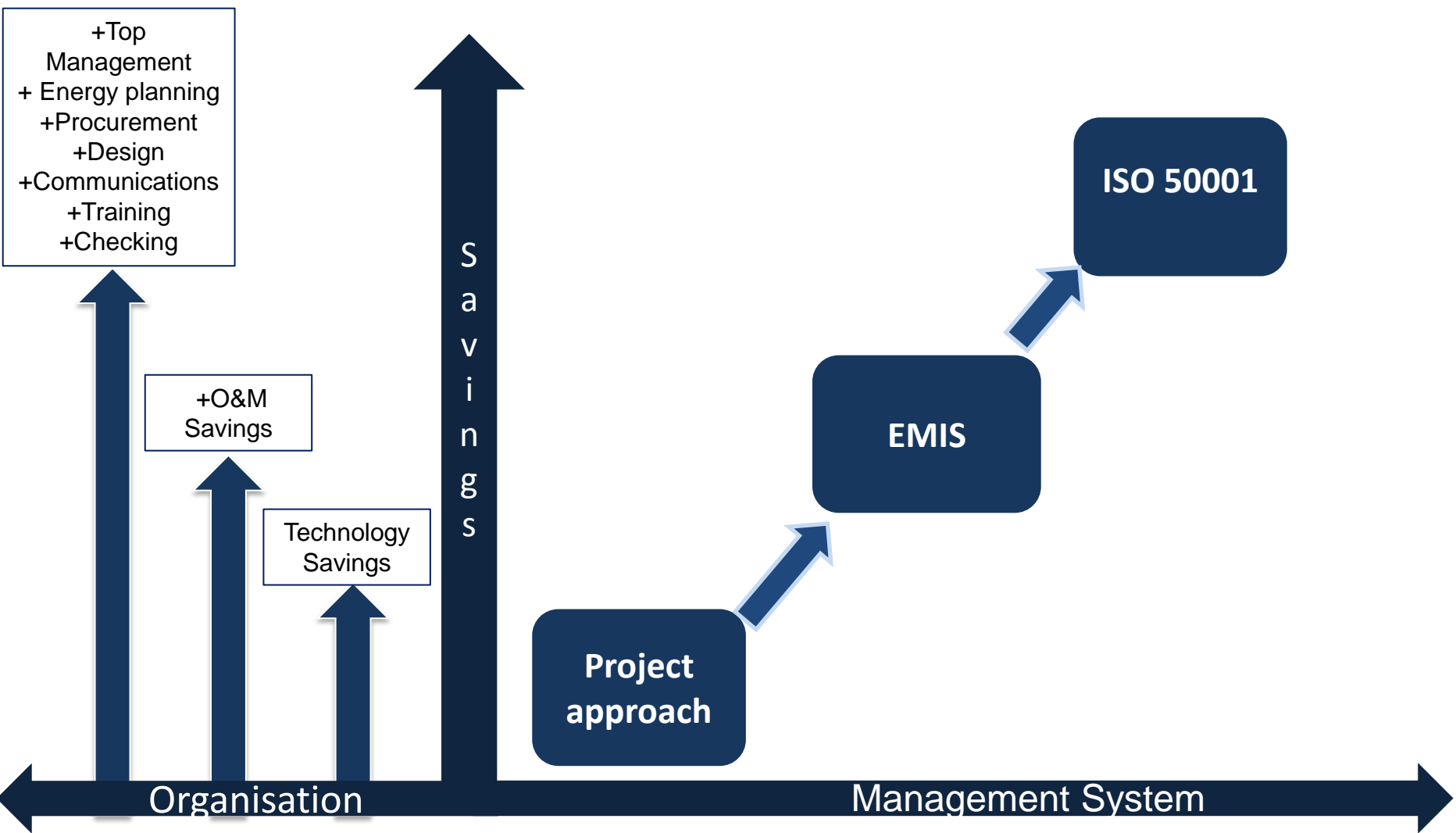
# Organizational action to manage energy

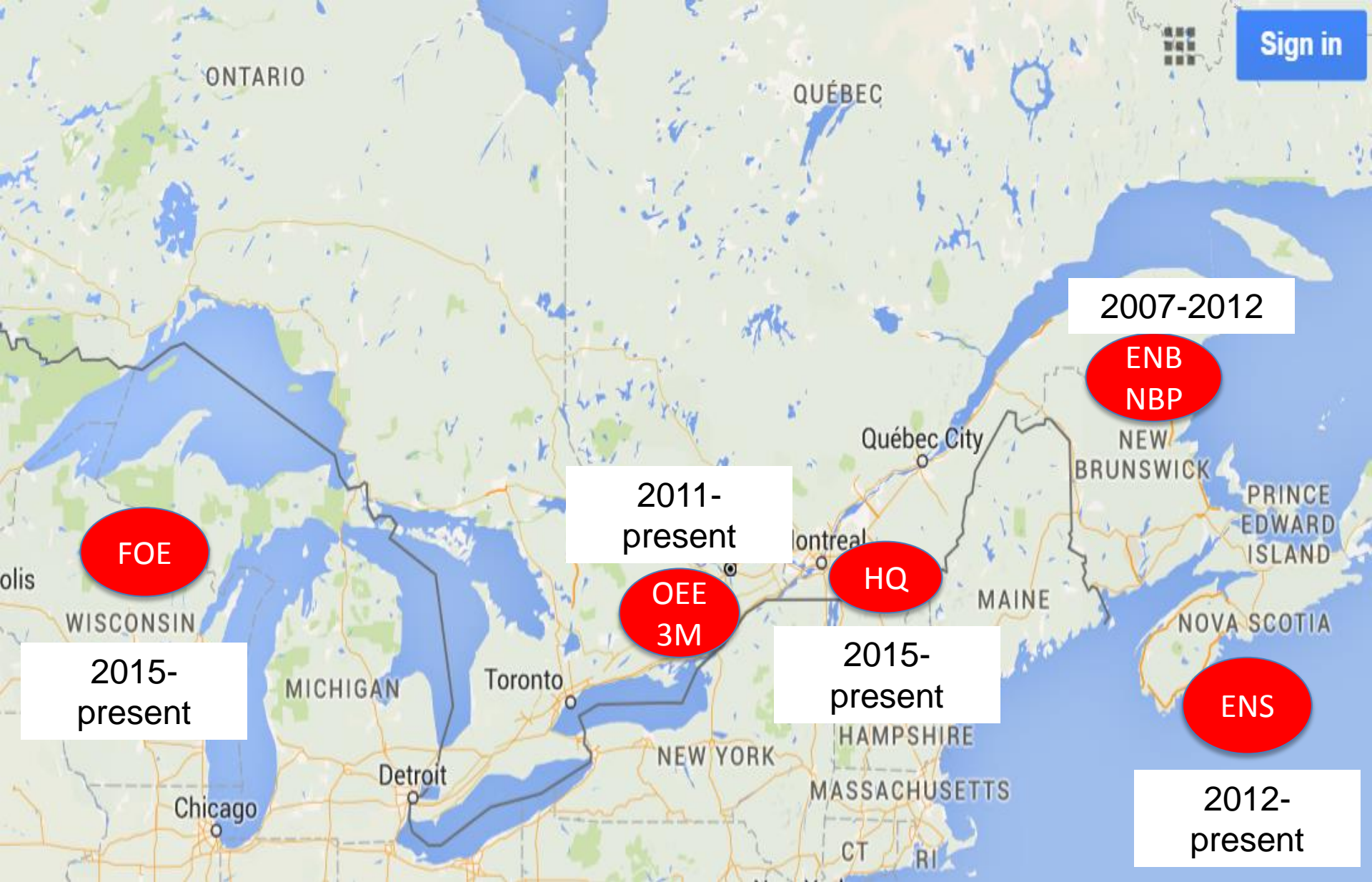
*-Management*

*-Operations*

*-Floor level*







# Current\*/Recent Projects/Customers

## Canada

**3M** \* (7 facilities)

**Hydro-Quebec**

IBM\*

Kruger\*

Domtar

Labatt

Toyoda Gosei

**Efficiency NS**

JD Irving\*

CKF\*

Oxford Frozen Foods

Stellia Aerospace\*

Michelin\*

**CEC**     **21 plants**

**Arauco**\*

**Dunsky**\*-NB Power

## US

**Focus on Energy**

Georgia Pacific\*

Kohler\*

Saputo\*

GKN\*

Aptar\*

Charter Steel\*

Menasha Packaging\*

Foremost Foods\*

Quad Graphics\*

Phillips Medisize\*

JBS\*

Green Bay Packaging\*

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[www.epsenergie.com](http://www.epsenergie.com)

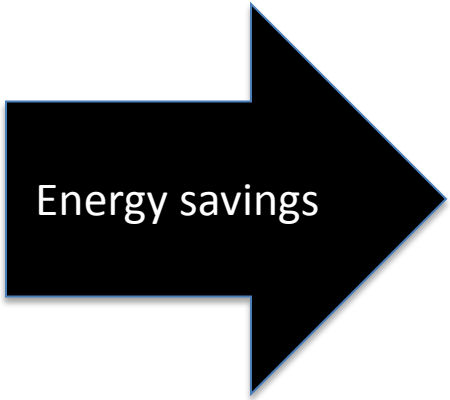
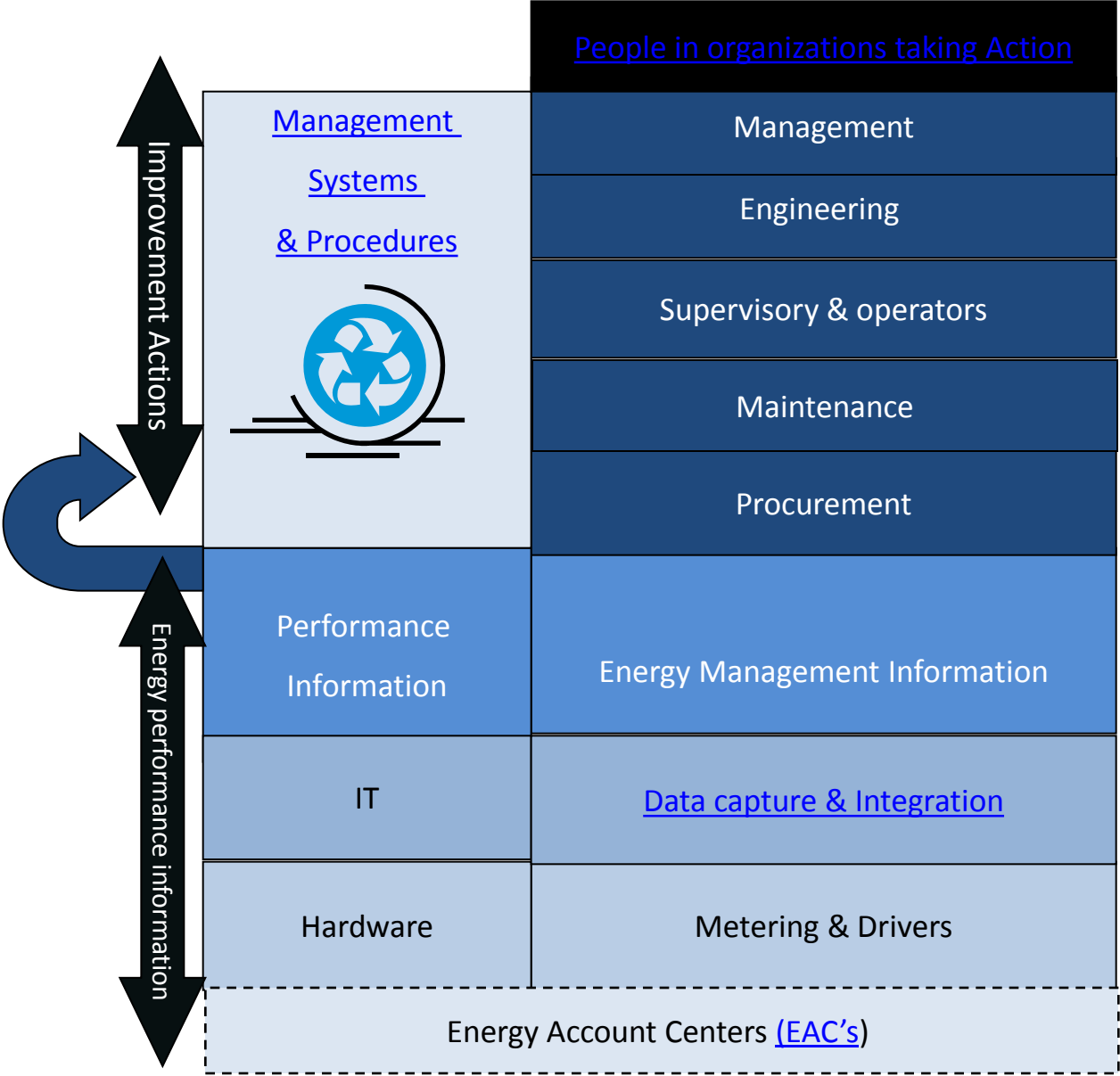


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# What is EMIS?



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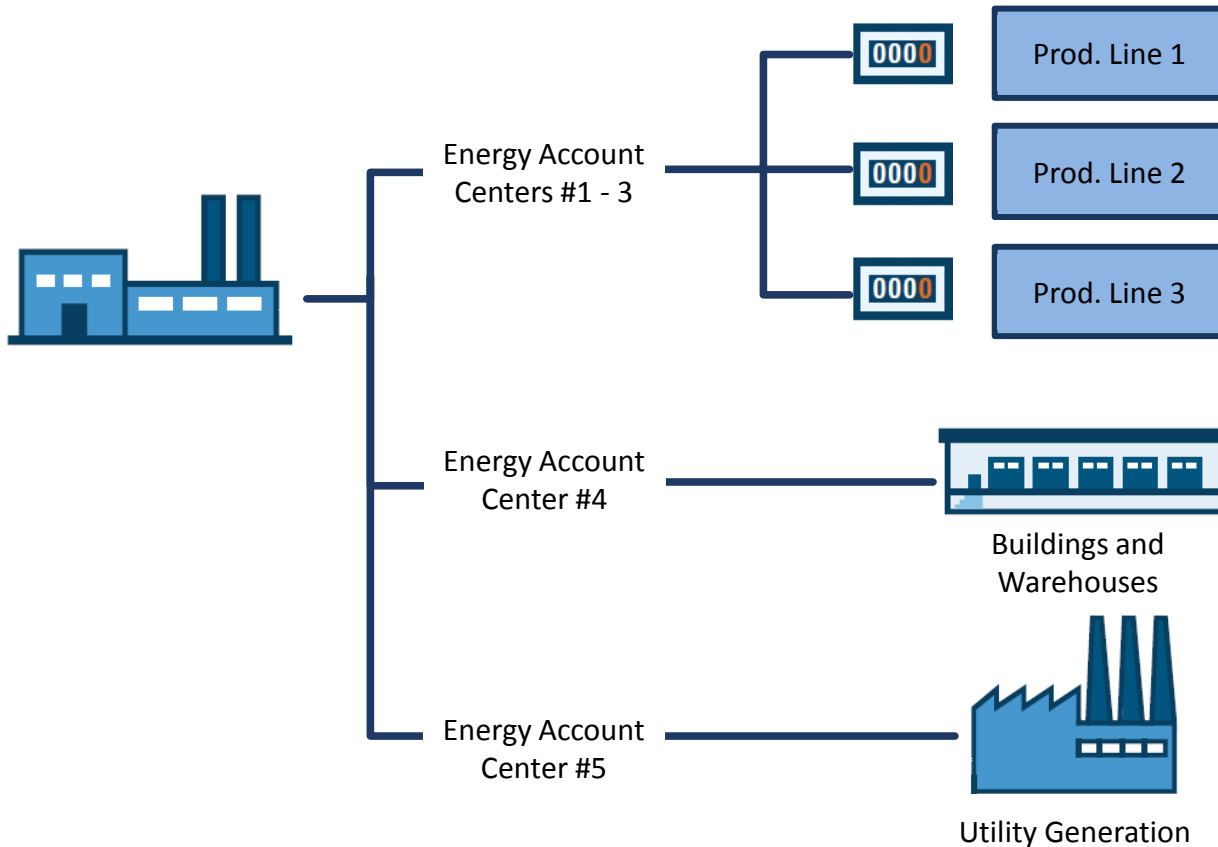
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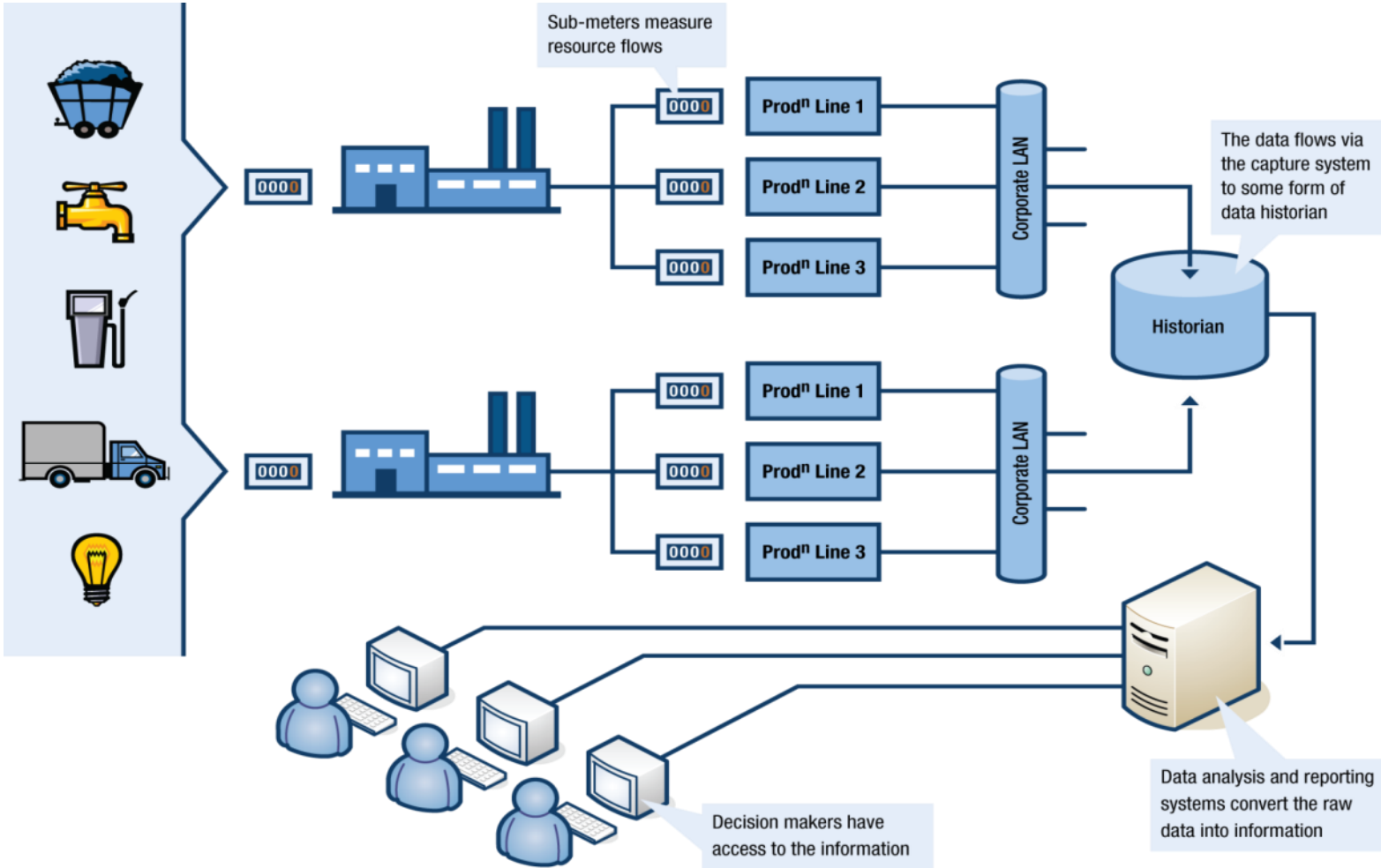
# Energy Account Centers



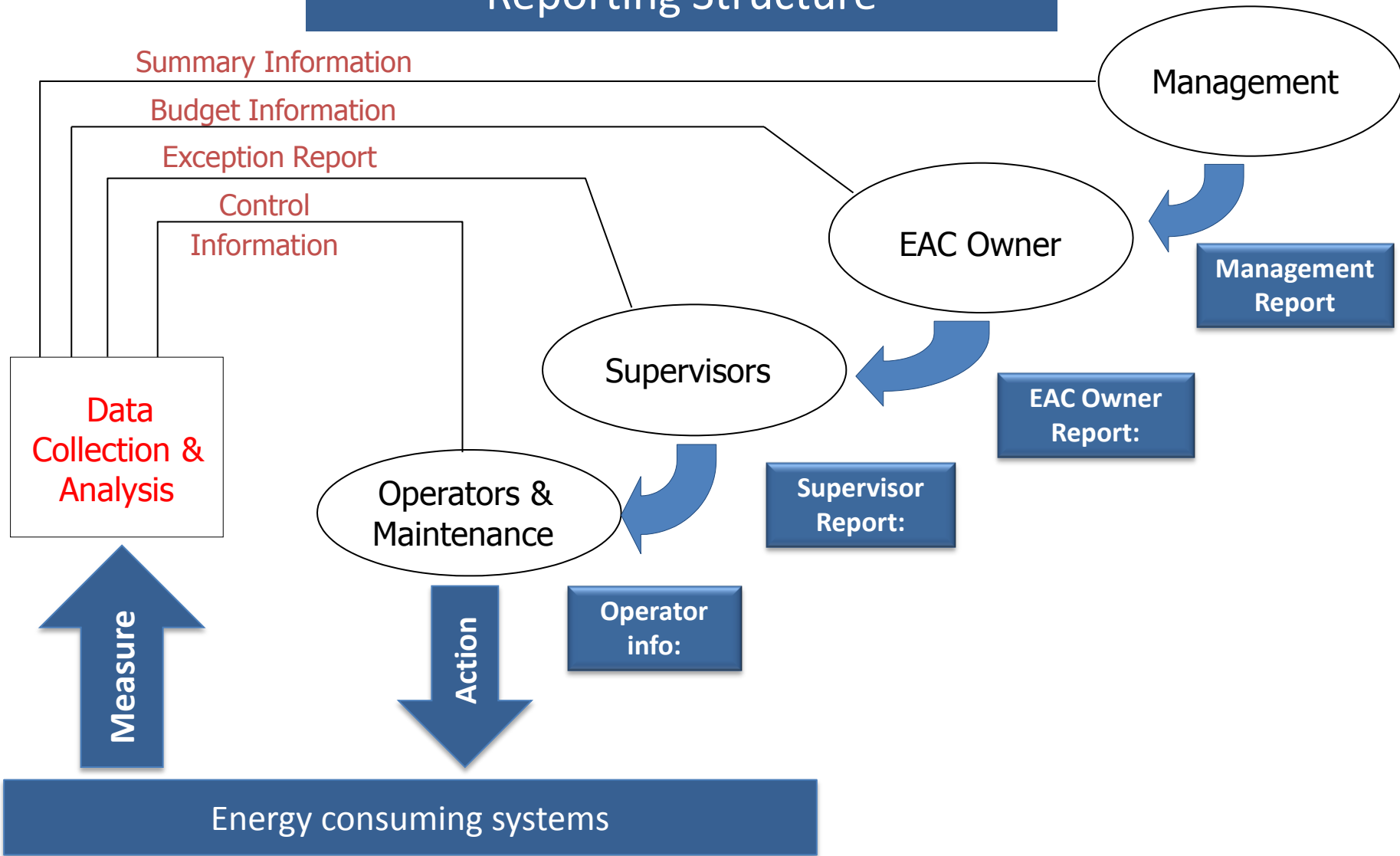
Significant energy uses  
“controllable elements”  
that can be affected by  
the organization



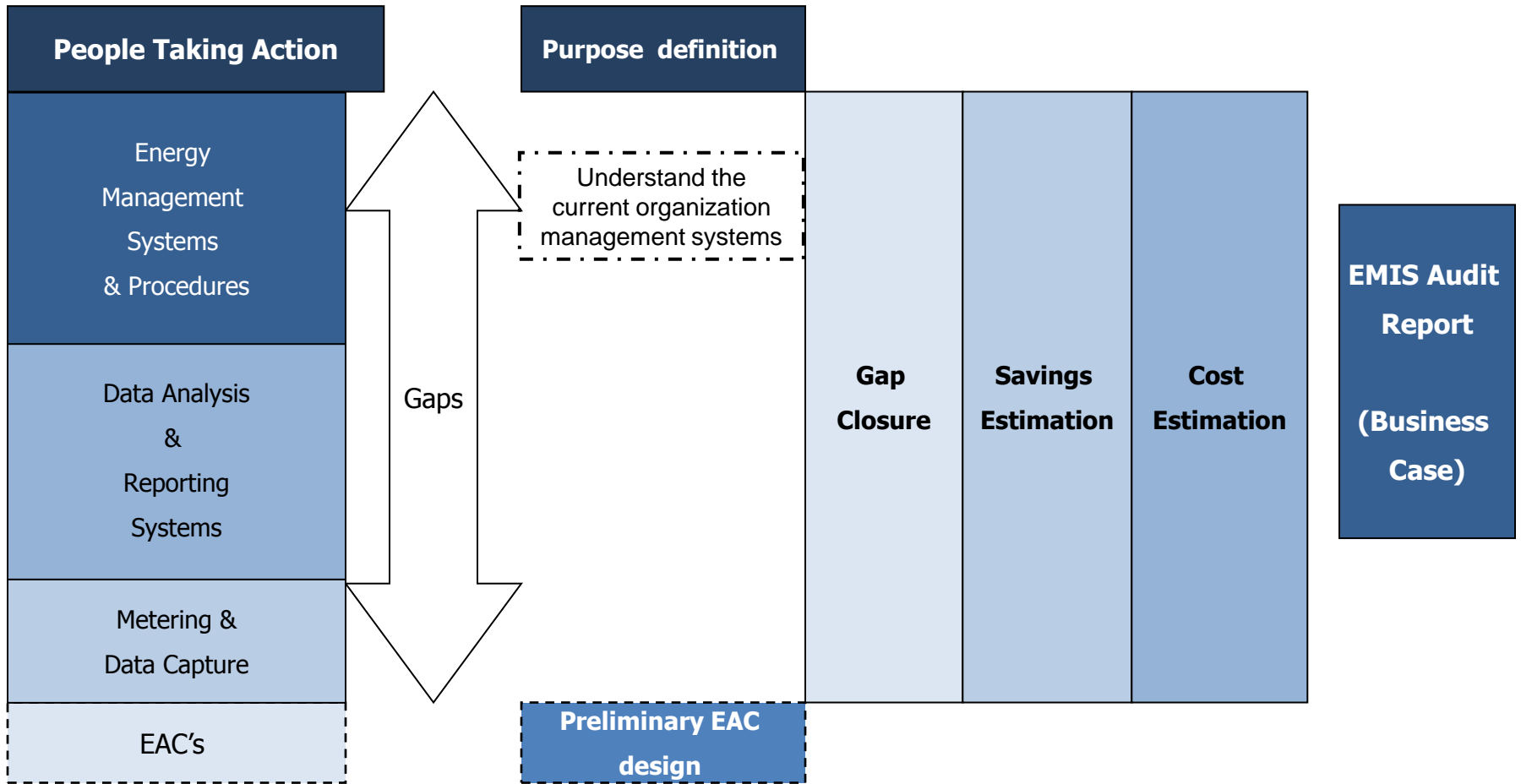
# EMIS Elements



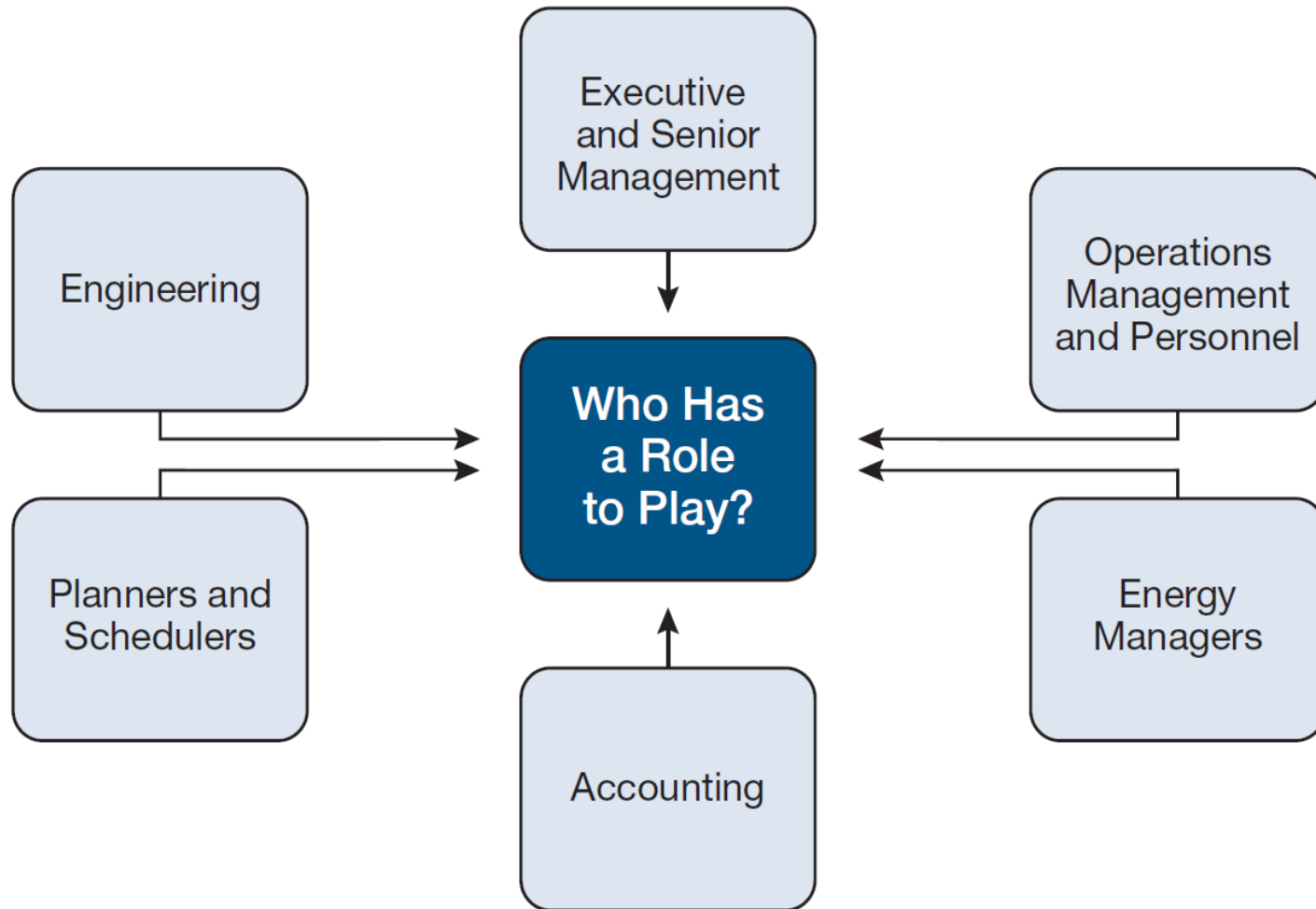
# Reporting Structure



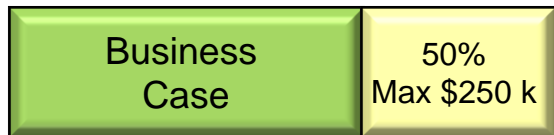
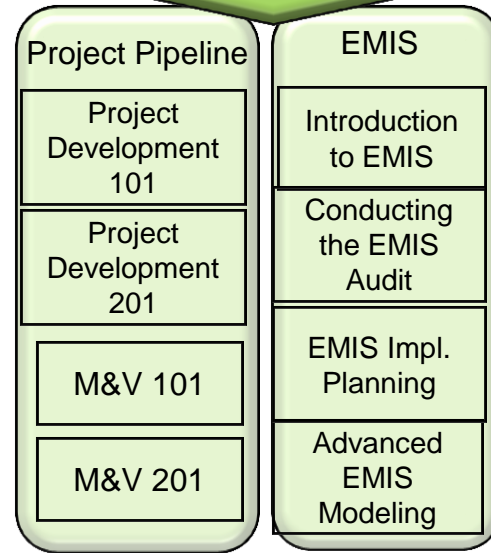
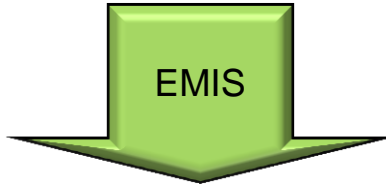
# EMIS Audit



# Who has a role to play in improving our energy performance?



# Efficiency NB Large Industry Program



[Implementation](#)



# Program Approach



Address all energy sources



Position energy efficiency as a business issue



Involve strategic, financial and operational levels of organization



Define investment criteria and co-share costs and risks based on actions



Provide a comprehensive approach and structured path for targeting and implementing **capital** and **operating** energy efficiency improvements



Build organizational and individual energy management competencies in industry & the service sector



Provide high quality account support to industry;

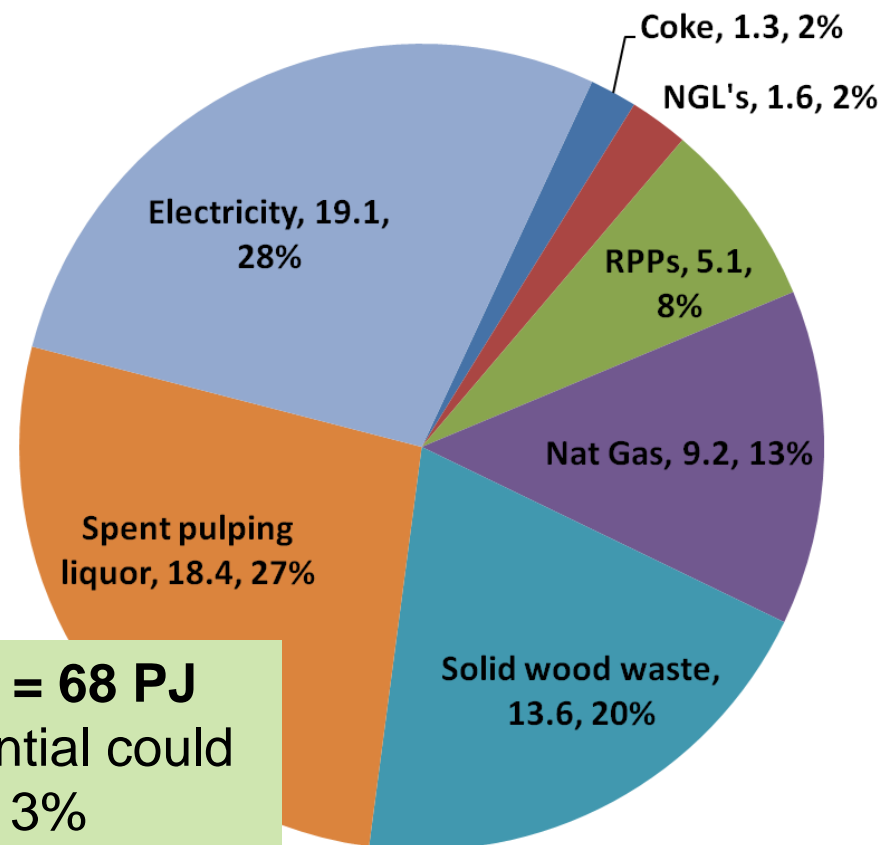
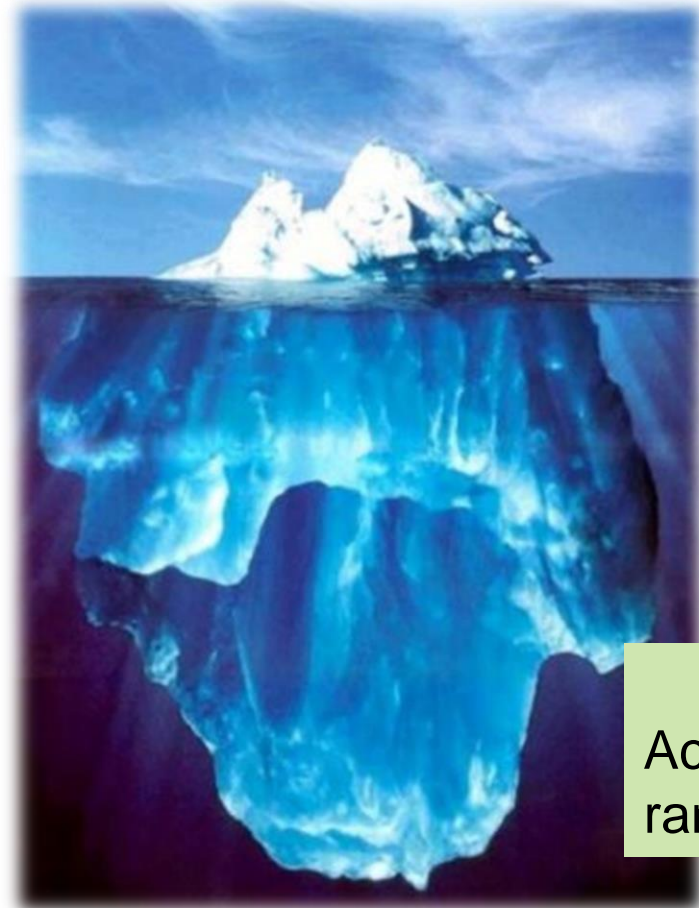
# 26 Participants

Pulp & Paper (7)	Wood Processing (9)	Food Processing (5)	Other (4)
AV Nackawic	Flakeboard	McCain's (F)	Irving Oil
AV Cell	Marwood	McCain's (GF)	CertainTeed
Irving Paper	Groupe Savoie	Moosehead	Irving Wallboard
Irving P&P	Twin River (PR)	Conner	IPL
Irving Tissue	Grand Lake Timber	Maple Leaf	Xstrata
Lake Utopia Paper	Deersdale Sawmill		
Twin River-Ed	Doaktown Sawmill		
	Scierie Grand Riviere		
	Veneer Hardwood		



Category	Financial value
Capital Investment	\$103,000,000
Annual recurring \$ savings	\$ 26,000,000
Avoided energy use	2800 TJ (4.1%)
Avoided GHG	200,000 TPY

## Tip of the Iceberg?

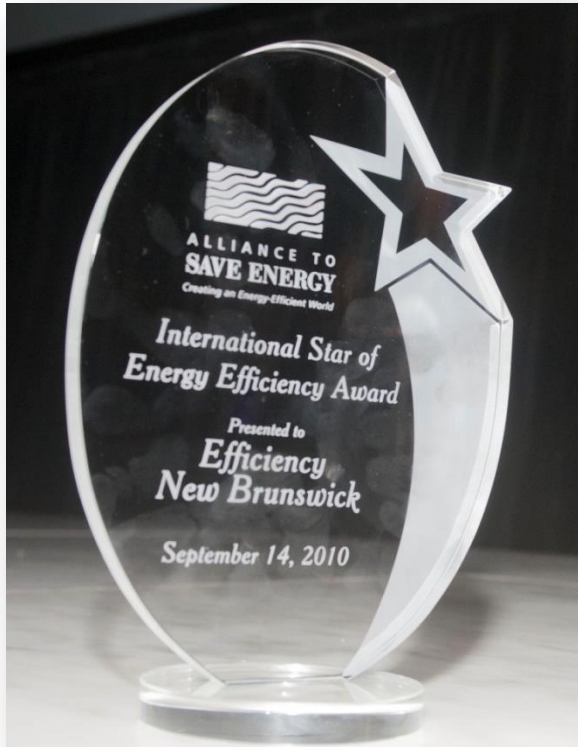


**Total Energy = 68 PJ**  
 Achievable potential could range from 5%-13%

## Program results

Large Industry Program	#	Annual TJ Reduction	Capital Invested	Annual \$ Savings	Incentives Paid
Large Industry Participants	26				
Capital Projects in construction or operation	29	2,621	\$108 million	\$26 million	\$774,000
EMIS in construction or operation	6	188	\$1.5 million	\$3.5 million	\$660,000
Impact of all measures to date in construction or operation	35	2809	109.5 million	29.5 million	\$1,434,000

# A recognized model



- ✓ 2010 International Star of Energy Efficiency Award from the Alliance to Save Energy for the Large Industrial Program
- ✓ Modest incentives focusing on energy management measures (EMIS) and capacity building, not equipment change-outs



## Energy

### Energy Sources and Distribution

### Energy Efficiency

- Energy-efficient products
- Communities and Infrastructure
- Housing
- Buildings
- Industry
  - Industrial facilities and equipment
    - Financial Assistance for Industry
    - Canadian Industry Program for Energy Conservation (CIPEC)
      - About CIPEC
      - Become a CIPEC Leader
      - CIPEC Leaders by sector

## Energy Management Information Systems (EMIS)

An Energy Management Information System (EMIS) is a performance management system to plan, make decisions and take effective action to manage energy use and costs.

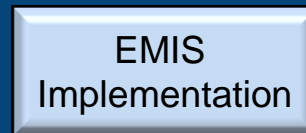


		% of total market	% conversion
<b>EMIS Audits</b>	<b>22</b>	<b>85%</b>	<b>68%</b>
<b>EMIS Implementation Plans</b>	<b>15</b>	<b>58%</b>	<b>100%</b>
<b>EMIS Implementation</b>	<b>14</b>	<b>54%</b>	

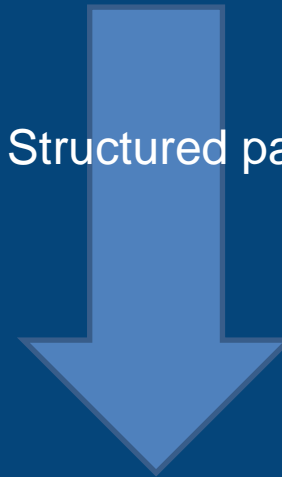
Program Structure



Business Case



Structured path



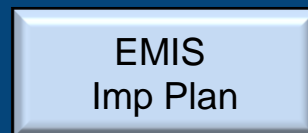
Efficiency  
New Brunswick

		% conversion
<b>EMIS Audits</b>	<b>4</b>	<b>100%</b>
<b>EMIS Implementation Plans</b>	<b>4</b>	<b>100%</b>
<b>EMIS Implementation</b>	<b>4</b>	<b>100%</b>
<b>EMIS Operation</b>	<b>4</b>	

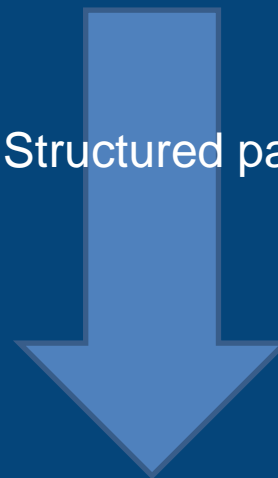
**Program Structure**



Business Case



Structured path



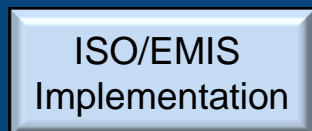
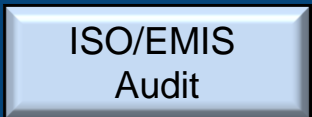
**Efficiency  
Nova Scotia**

	#	Conversion	%
<b>ISO/EMIS Audits</b>			
<i>Completed</i>	6	6	100%
<i>In-progress</i>	6		
<b>Total</b>	<b>12</b>		
<b>ISO/EMIS Implementation</b>			
<i>In-progress</i>	6		

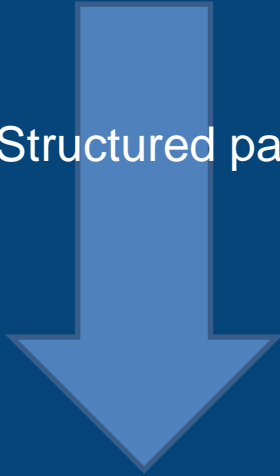
Program Structure



Business Case

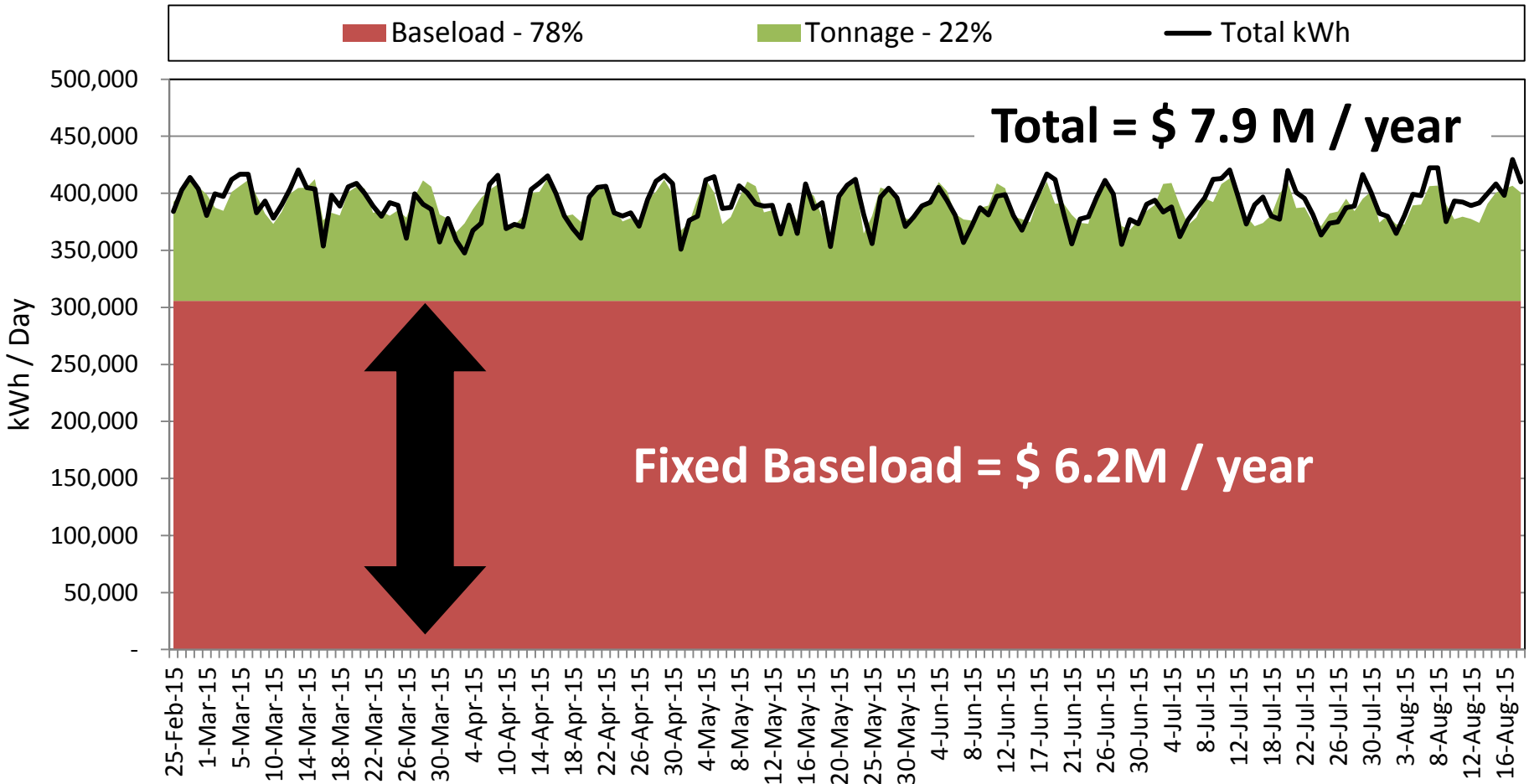


Structured path



Focus on Energy  
Wisconsin

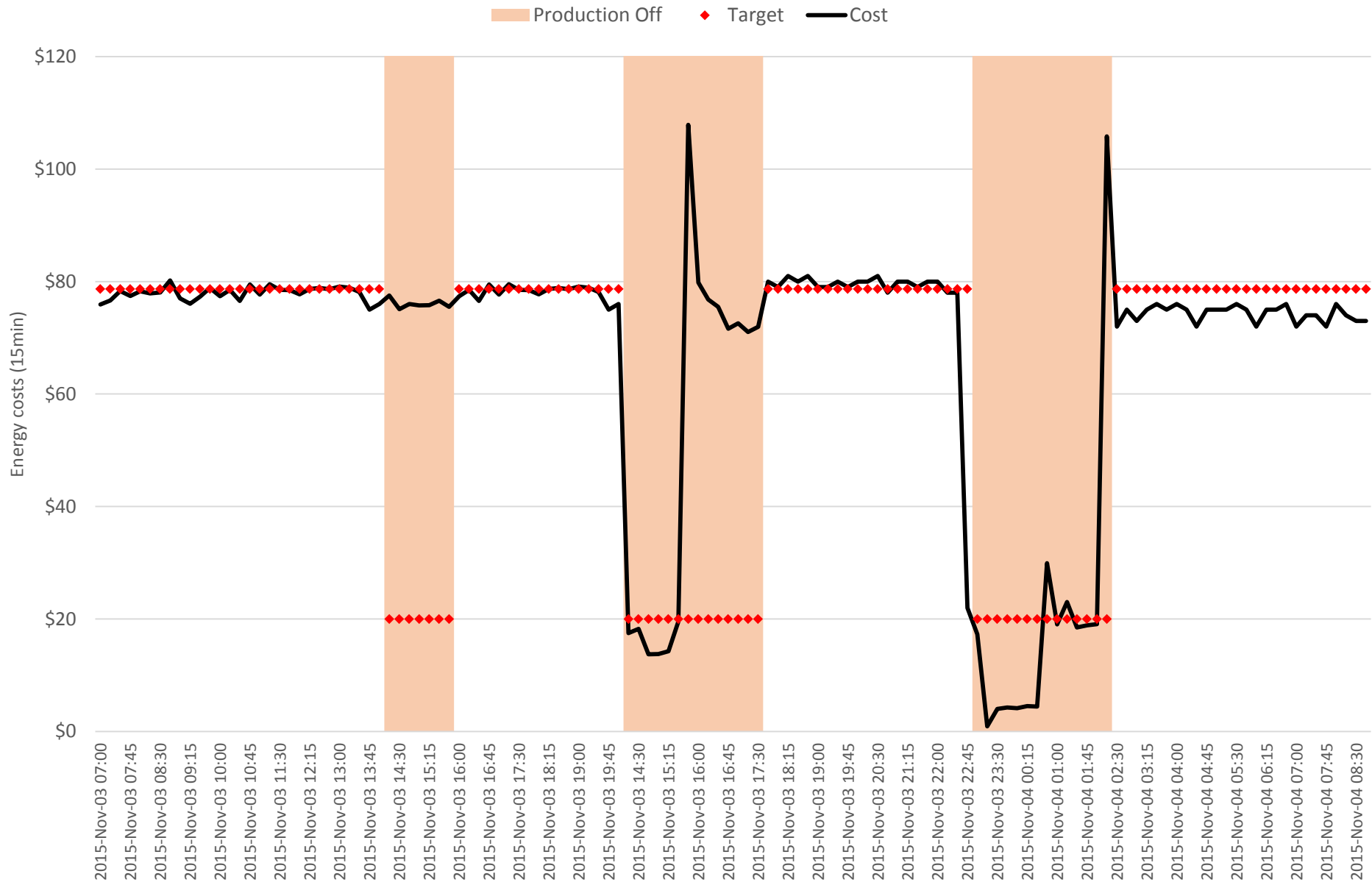
# Electricity: Energy Drivers vs Actual

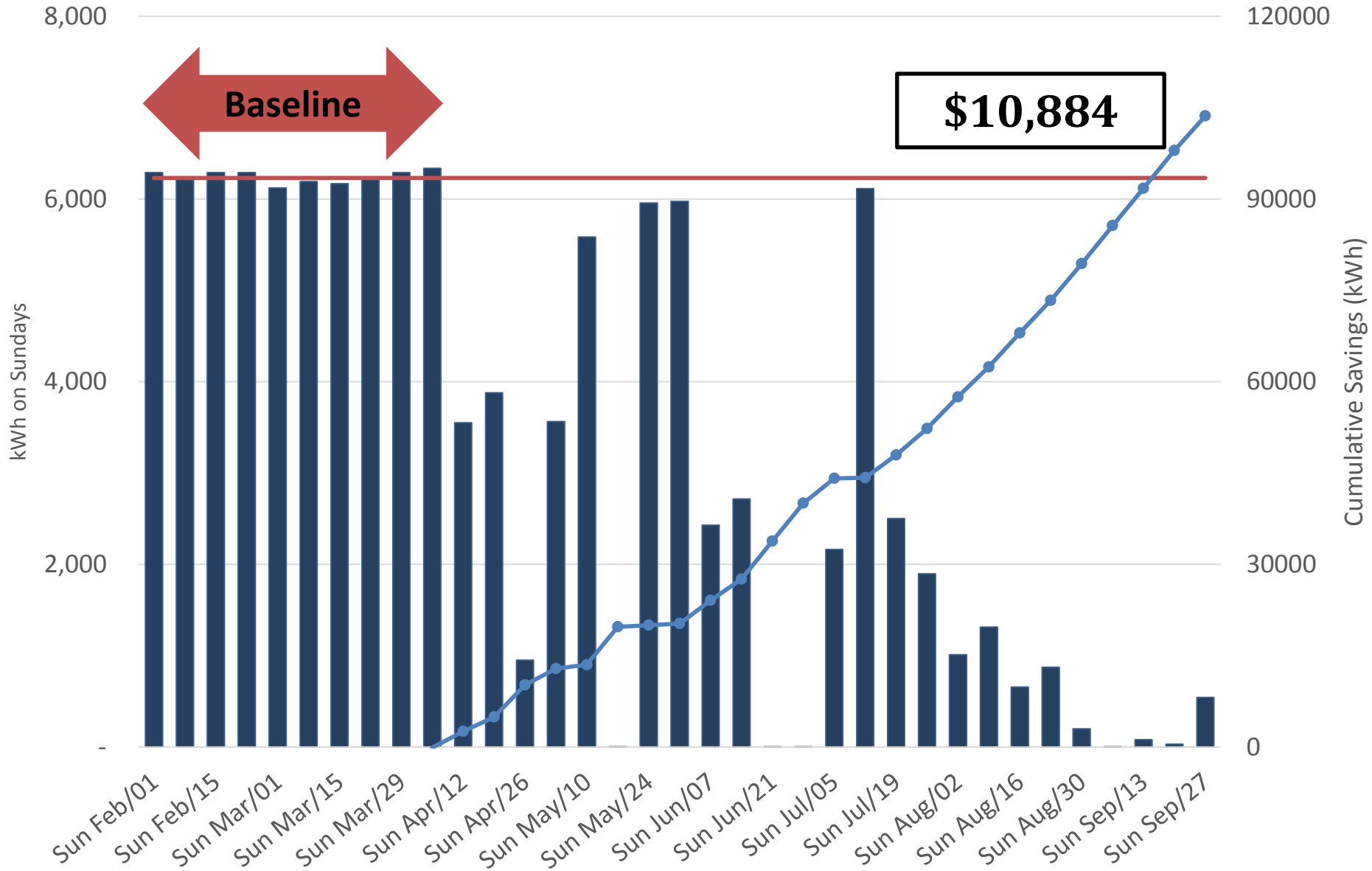


$$\text{kWh / Day} = 305,710.59 + 122.17 * \text{Tons of Production} \pm 22,309.62$$









<https://www.youtube.com/watch?v=jGE5Q1qCwzI>

This International Standard is based on the Plan - Do - Check - Act (PDCA) **continual improvement framework** and incorporates energy management into everyday organizational practices,

### 3.9 energy management system (EnMS)

set of interrelated or **interacting elements** to establish an energy **policy** and energy **objectives**, and **processes and procedures** to achieve those objectives

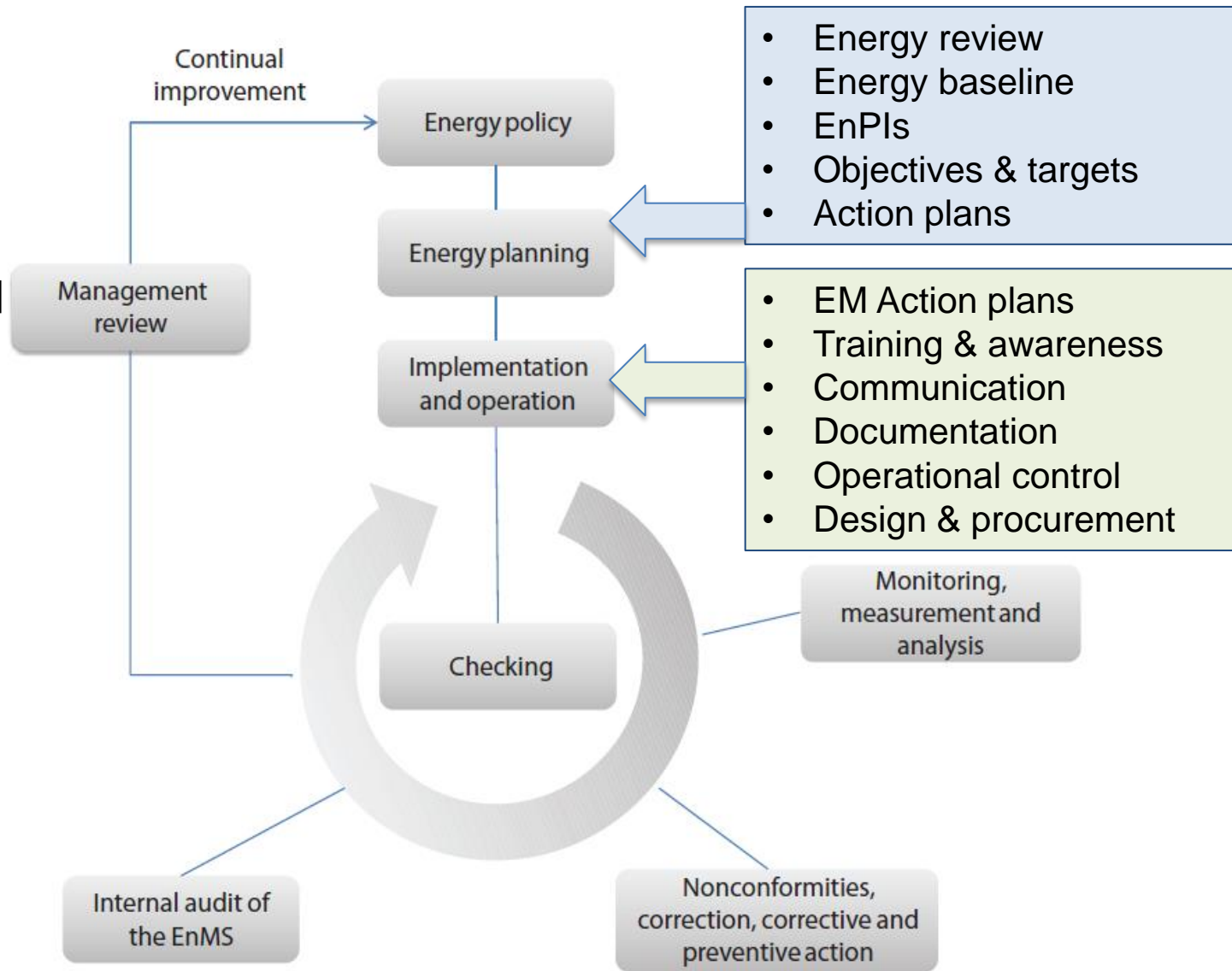


Figure 1 — Energy management system model for this International Standard

The energy management system is similar to other ISO systems. It involves the following components:

1. Top management communicates the importance of continuous improvement in energy performance through an Energy Policy, setting objectives and targets and the allocation of responsibilities and resources
2. There is an annual planning process to determine how the organization is going to achieve improvement in alignment with the policy, objectives and targets
3. The organization implements the energy action plans and build energy management into our day to day activities
4. We check our improvement in energy performance, correct non-conformities and periodically conduct internal audits of the system
5. Management conducts reviews to assess the progress of the organization in achieving energy

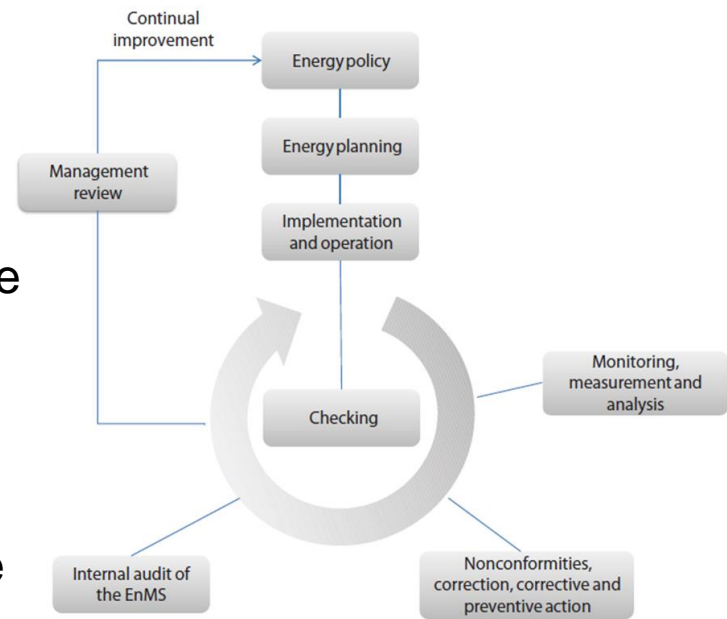


Figure 1 — Energy management system model for this International Standard



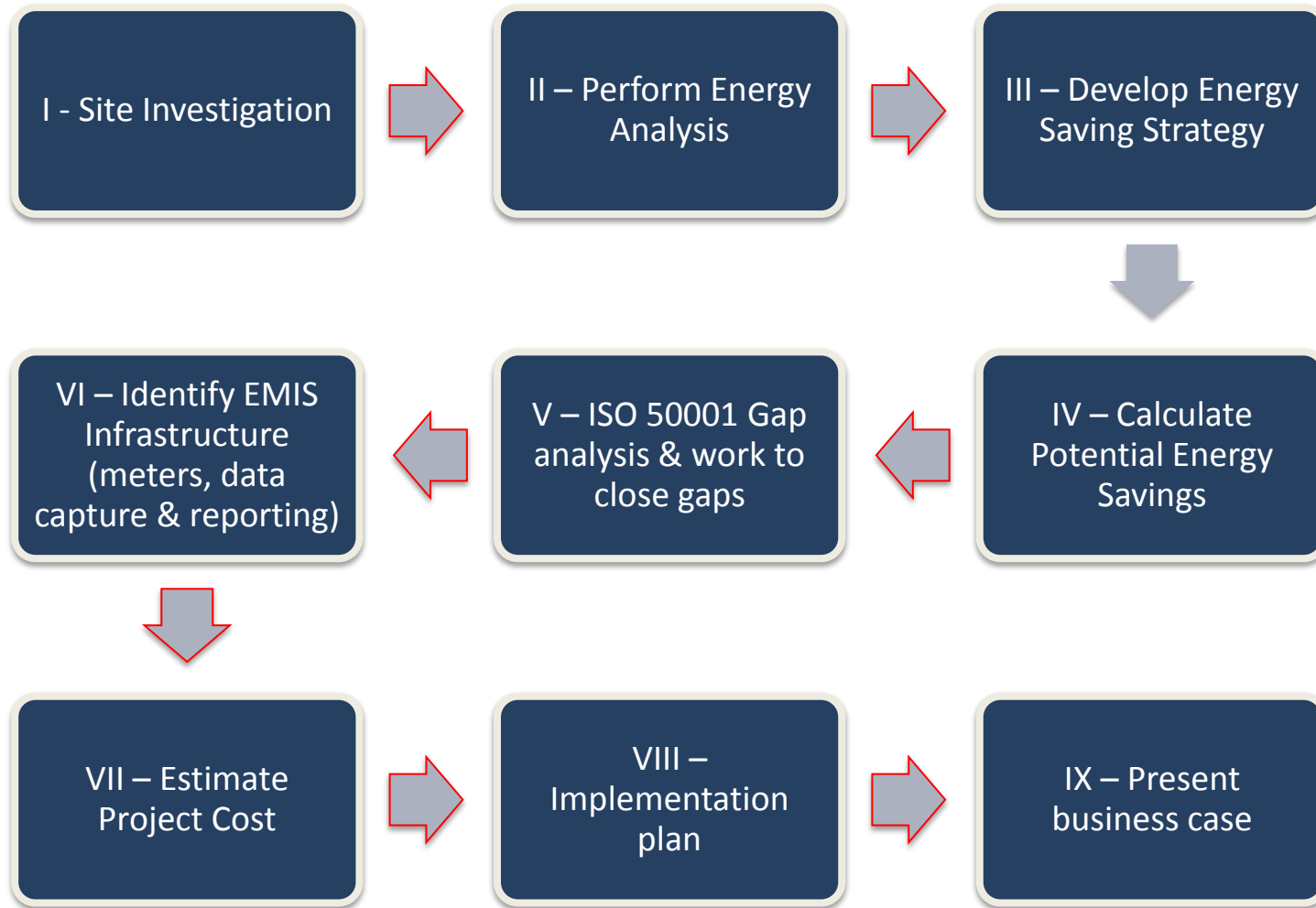
# Environmental, Health and Safety Policy

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## Corporate Energy Policy

<b>Applies To</b>	This policy applies to all 3M operations.
<b>Policy Statement</b>	3M will seek to both promote the efficient use of energy in our operations and to deliver products to our customers that help them save energy.
<b>Additional Elements</b>	<p>3M is committed to continual energy performance improvement and will take the following steps to support this policy:</p> <ul style="list-style-type: none"><li>• Emphasize energy performance in our existing operations, as a design factor in the construction of new facilities, and in the development of new products and manufacturing processes.</li><li>• Implement an effective energy management system that supports manufacturing capabilities while providing a safe and comfortable work environment with the information and resources needed to set and achieve appropriate energy objectives and targets.</li><li>• Secure adequate and reliable energy supplies at competitive rates and conduct appropriate contingency planning activities to protect operations from interruptions.</li><li>• Encourage continuous energy performance improvement by employees in their work and personal activities.</li><li>• Drive development and application of innovative energy efficiency technologies in our products and through our operations.</li><li>• Cooperate, when feasible, with governmental agencies, utility companies and other organizations on energy programs and comply with all legal requirements relating to energy use, consumption and efficiency.</li><li>• Report progress toward 3M's energy objectives and targets to executive management and external stakeholders on a regular basis.</li></ul>

# ISO 50001/EMIS Business Process Flow Diagram



Established 1992

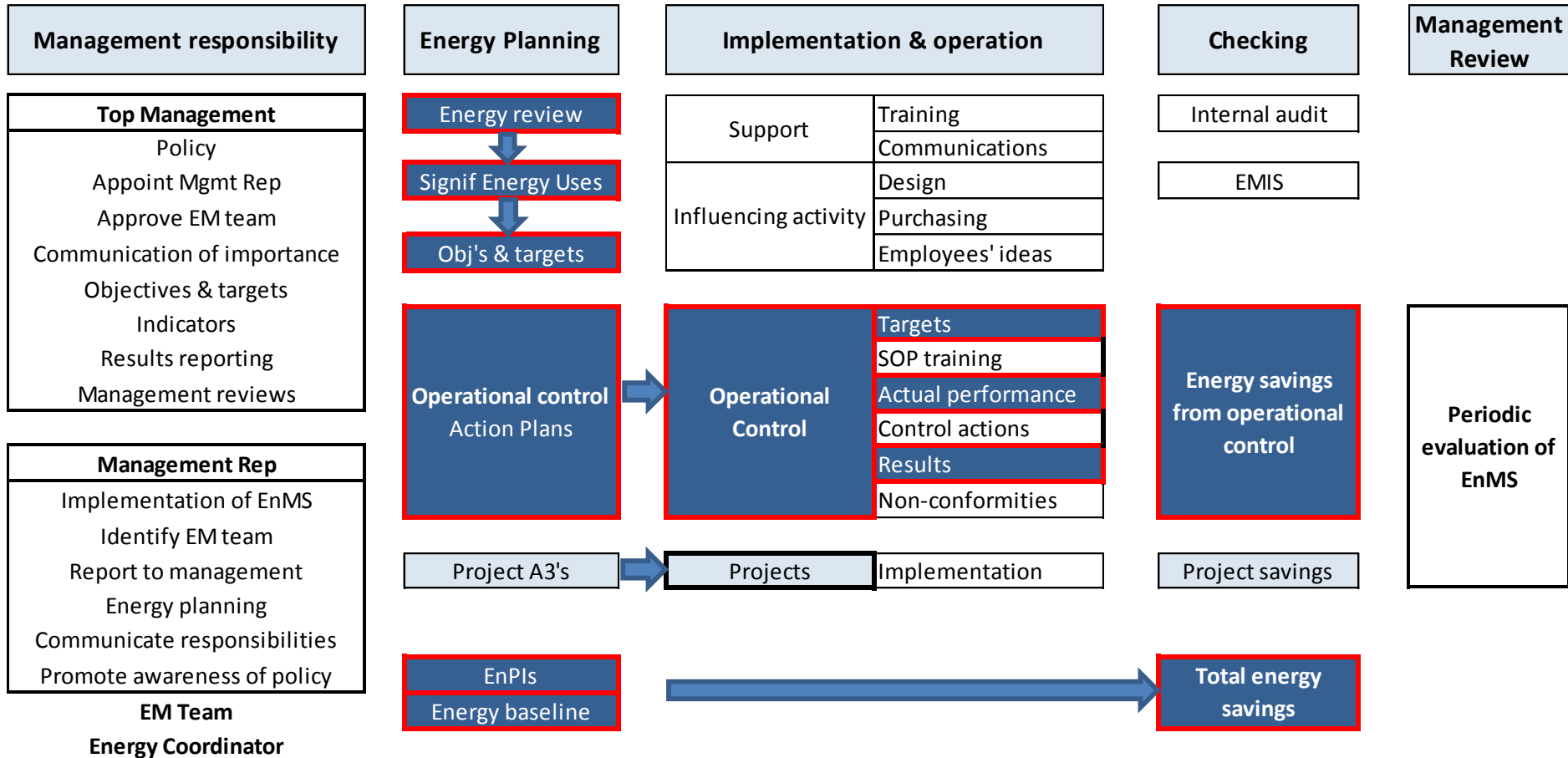


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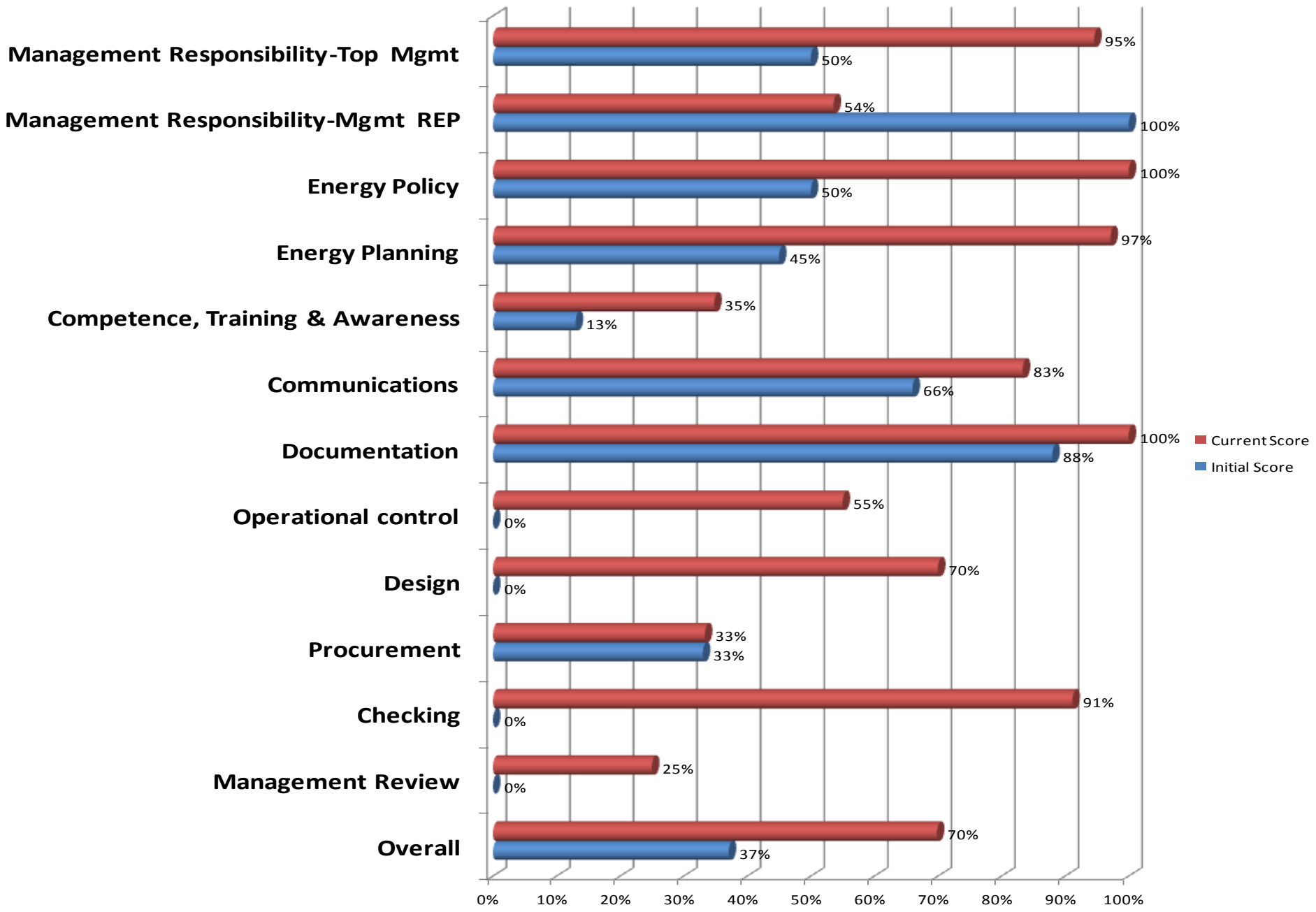
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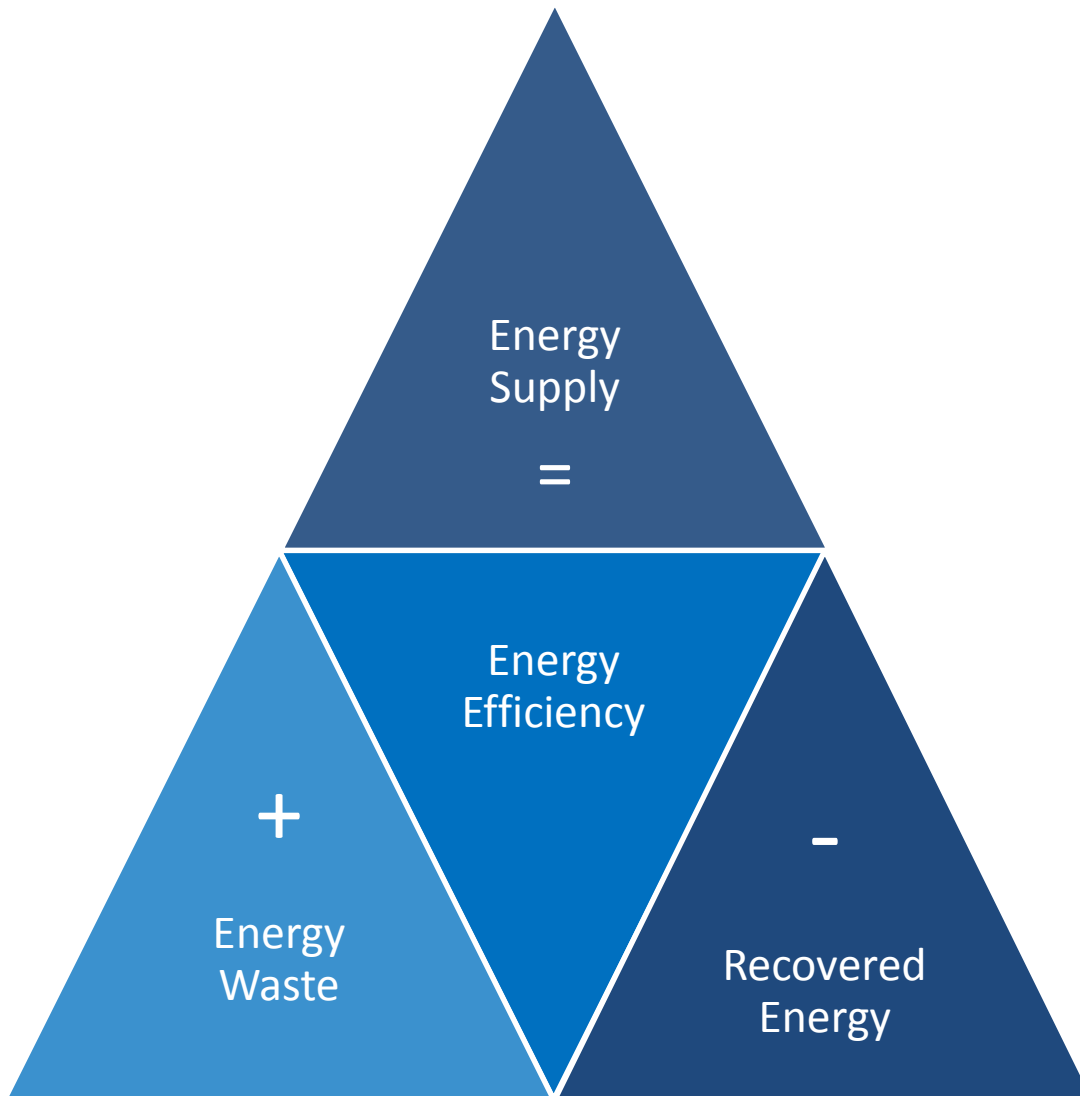
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# Energy Management System (EnMS) Structure









- I. Optimize supply
  - Understand costs
  - Optimize Tariffs
  - Control peak
- II. Increase energy efficiency
  - Projects
  - Operations
    - Utilities
    - Buildings
- III. Eliminate energy waste
  - Excess loads
- IV. Maximize recovery
  - Waste heat
    - Boiler plant
    - Buildings



# Conclusions

- Large industries recognize the value of moving to “**systematic energy management**”
- “One size does not fit all”
  - EMIS, ISO 50001, SEP, SEM
- Industry needs help building the **business case step** for positioning energy management on a customized basis with senior management and for **continuing to evolve it**;
- **Competitiveness** is the main driver for industry. (Financial/ Environmental sustainability)
- Efficiency programs are essential.
- Energy management has to be of “**all energy**” not just electricity
- Substantial potential exists for savings but **support is required** to “make a culture of efficiency happen”

Established 1992



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# Thank-you

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