

# ENERGY EFFICIENCY MANAGEMENT OFFICE



## Importance of Energy Management Systems

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# Energy Management Systems

- What is energy management?
- What is an energy management system?

# Why manage energy at organizational level?

- Reducing energy costs and minimising risks
- Complying with policies and regulatory frameworks
- Improving organisational effectiveness and
- Competitive advantage on the market.

# Role of standards in Energy Management Systems

- EN 16001:2009 Energy Management Systems –  
Requirements with guidance for use
- ISO 50001:2011 Energy Management Systems –  
Requirements with guidance for use



# Management Standards

ISO 9001

ISO 14001

ISO 50001

ISO 22000

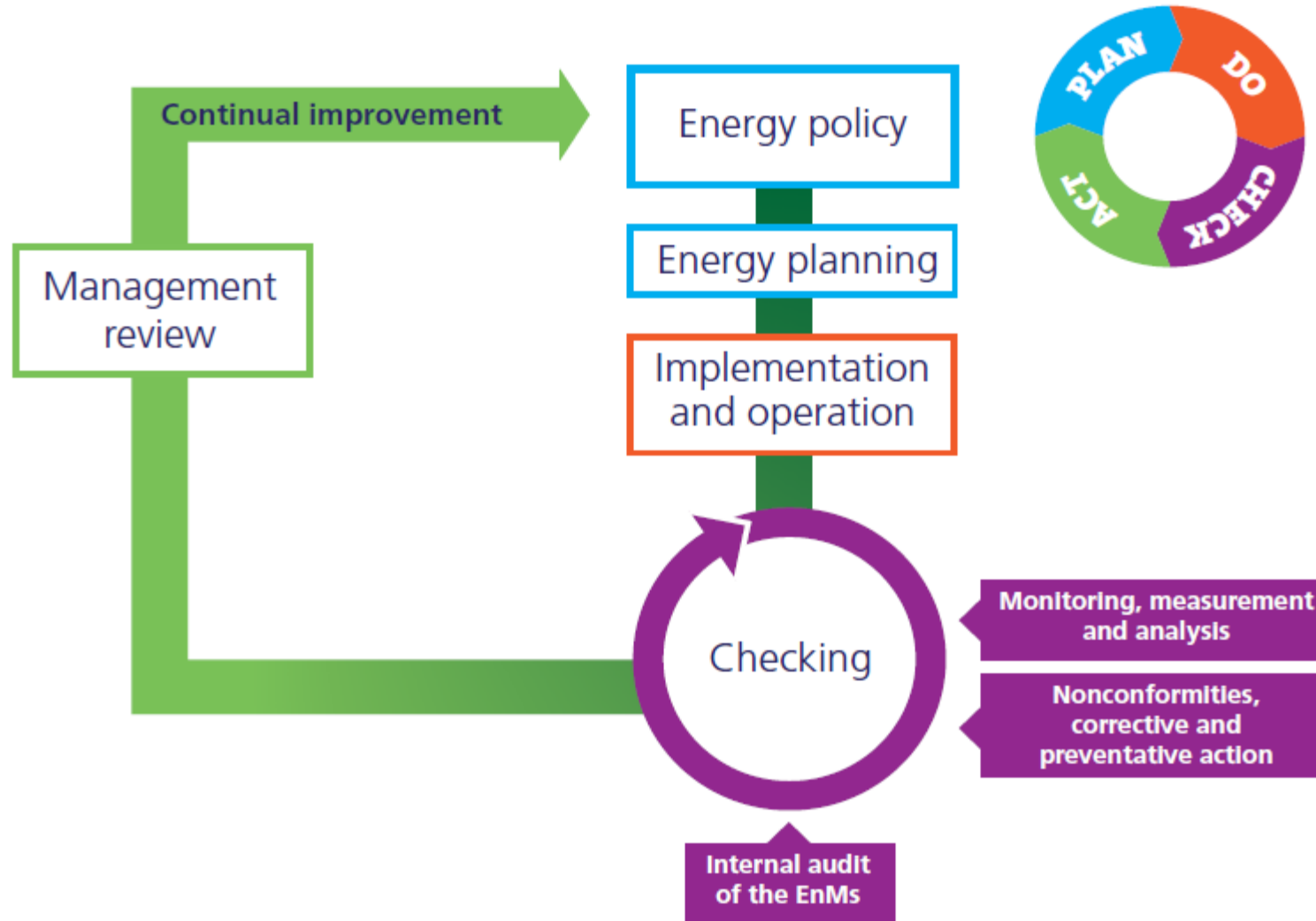
# Main benefits of ISO 50001

- Measurement and verification of energy performance of the organization
- Adaptable to large organisations and SMEs
- Energy management best practices into business operations
- Transparency and effective communication on management of energy resources

# Main benefits of ISO 50001

- Adoption of energy efficiency measures across business operations
- Awareness and commitment about energy within organisation
- Takes into account any external financial incentives

# Plan-Do-Check-Act



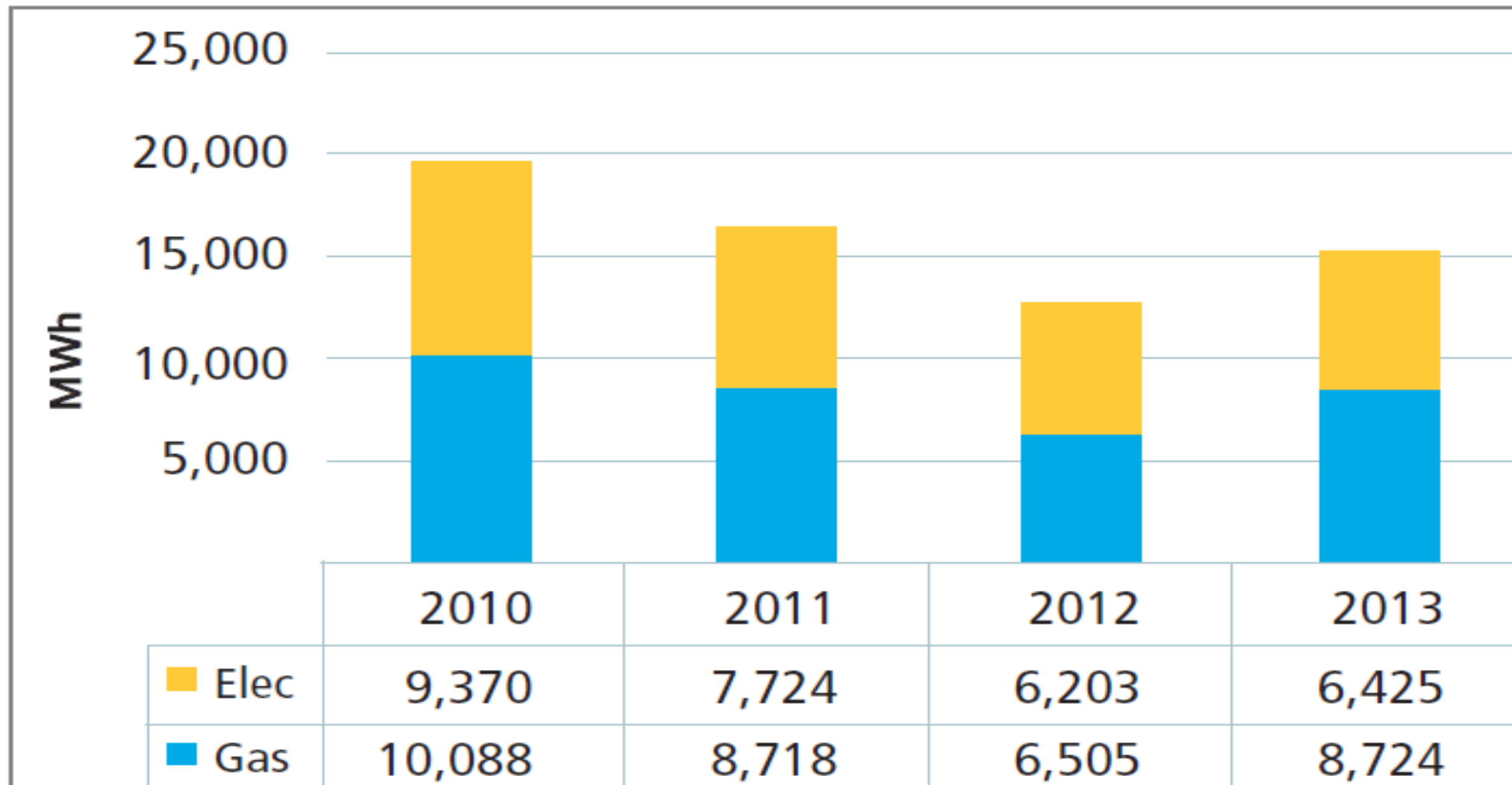


# Case Study: Implementation of ISO 50001 in Aviva Stadium (Dublin, Ireland)

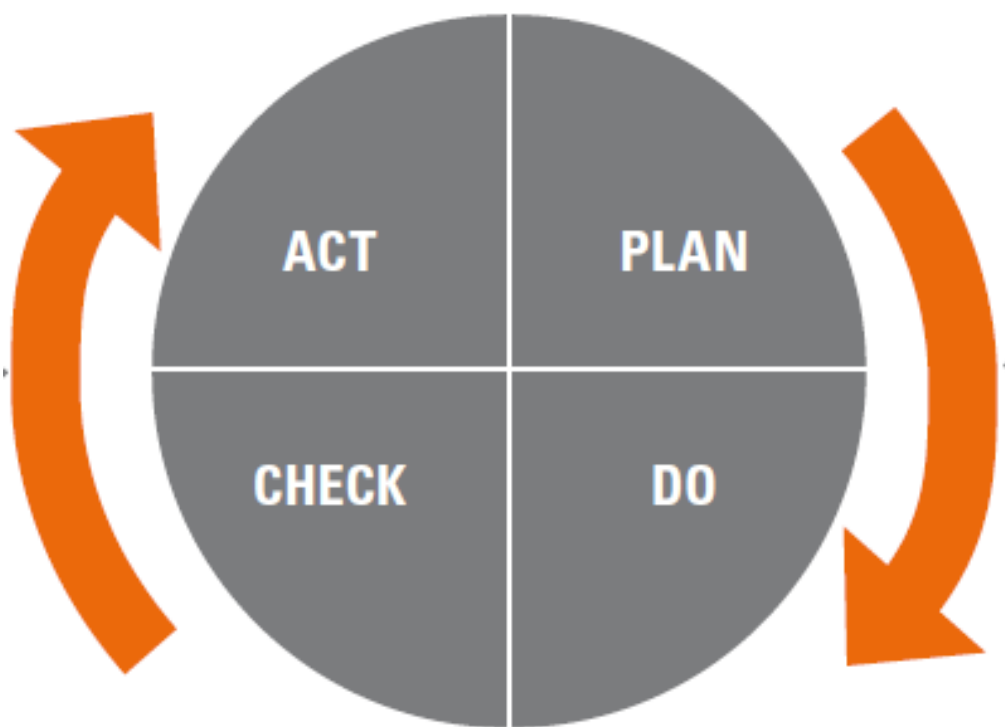
- Completed in May 2010
- Decision to implement ISO 50001 in August 2011
- First stadium to be certified ISO 50001 in 2013



# Aviva Stadium Annual Energy Consumption



# Applying ISO 50001 PDCA Methodology



# Aviva Stadium – ISO 50001 Commit Phase

- Benefits of ISO 50001 identified and communicated to senior management
- Create an energy policy stating organisation's commitment
- Appoint a management representative – Facilities Manager
- **Difficulties encountered: Implementation of ISO 50001 was a secondary role**

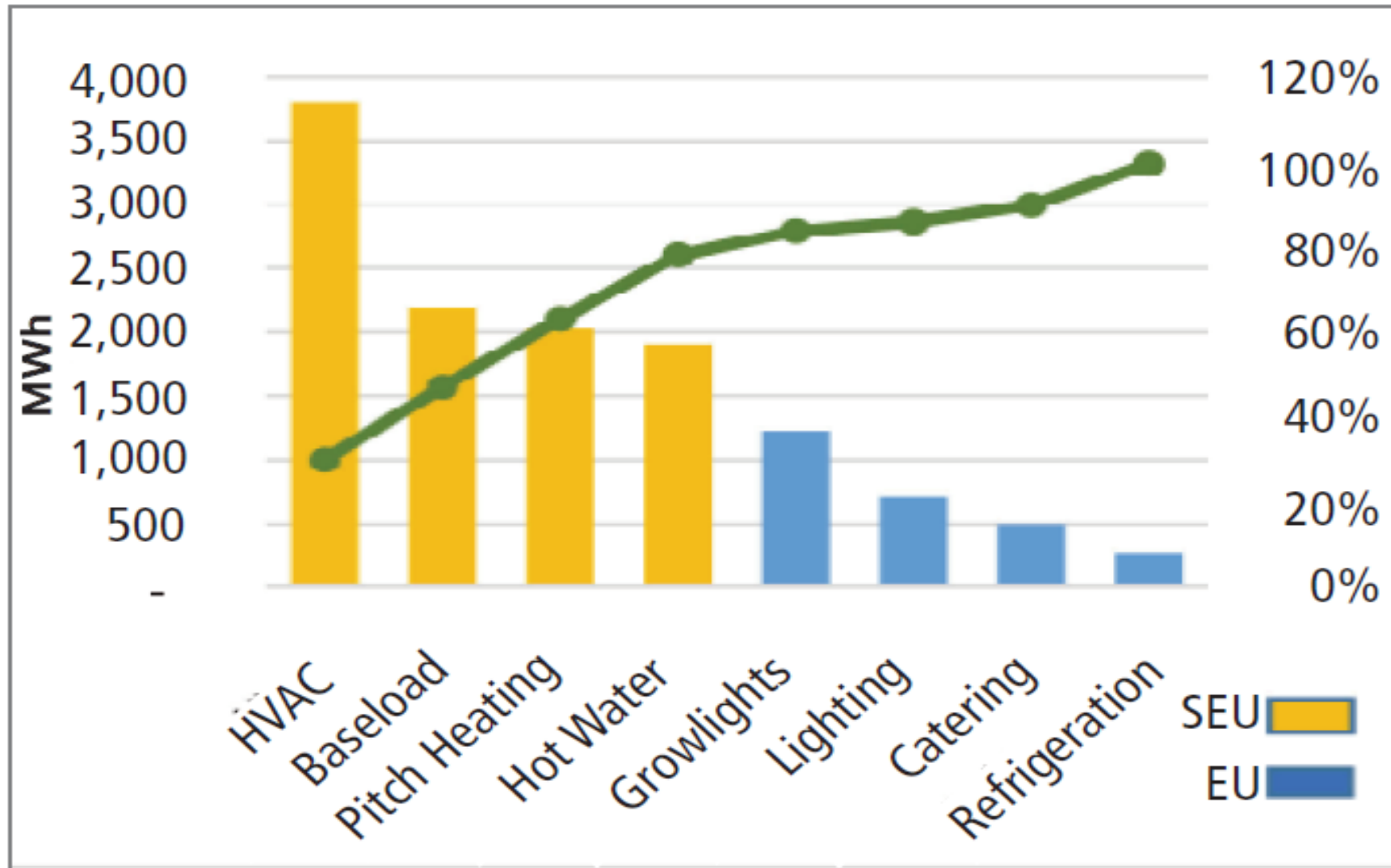
# Aviva Stadium – ISO 50001 Identify Phase

- Energy review
  - Current energy sources
  - Past and present energy consumption
  - Significant energy users (SEUs)
  - Relevant variables and energy performance indicators (EnPIs)
  - Opportunities for improving energy performance

# Aviva Stadium – ISO 50001 Identify Phase

- Profile of energy use – set a baseline (2012 energy consumption)
- Identify the Significant Energy Users
- Difficulties encountered: absence of sub-metering
- Installation of sub-metering system:
  - 150 electrical meters
  - 6 thermal heat meters
  - 3 gas sub-meters
  - web-based monitoring system

# Aviva Stadium Significant Energy Users



# Aviva Stadium – ISO 50001 Plan Phase

- Objectives and targets to meet commitments made in the energy policy
- **SMART** objectives
- Establishment of an energy action plan
- Aviva Stadium 2013 Action plan – shutting down kiosk areas between events – savings of 306,124 kWh in 2013



# Aviva Stadium – ISO 50001 Take Action Phase

- Implementation of energy action plan
- Competence
- Communication
- Documentation
- Operational Control
- Design
- Procurement of energy services, products and equipment

# Aviva Stadium – ISO 50001 Benefits

**Table 1 – Aviva Stadium's Energy Savings**

MWh	2010	2011	2012	2013	Total Savings (MWh)
Elec	9,370	7,724	6,203	6,425	
Gas	10,088	8,718	6,505	8,724	
Elec saved		1,646	3,167	2,945	7,759
Gas saved		1,370	3,584	1,364	6,317

**Table 4 – Estimated Savings / Costs Avoided**

		2011	2012	2013	Sub total
€	Elec	146,679	320,826	332,888	€800,393
	Gas	48,136	168,322	71,393	€287,851
					<b>Total €1,088,244</b>