
Skills and knowledge gap assessment in the commercial and manufacturing sectors in Kenya

BY

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Presentation outline

- 1 **Overview of the energy efficiency sector in Kenya**
- 2 **Methodology**
- 3 **Requisite skills and knowledge for energy auditors**
- 4 **Skills among the in-service EE professionals**
- 5 **Sources of acquired skills and knowledge**
- 6 **Applications and processes in facilities that require EE intervention**
- 7 **The gap in the supply of EE skills**
- 8 **Bridging the gap**

Energy efficiency sector in Kenya

- Energy efficiency efforts started in the early 2000s
- The Energy Act, 2019
- Energy sector regulator - Energy and Petroleum Regulatory Authority (EPRA)

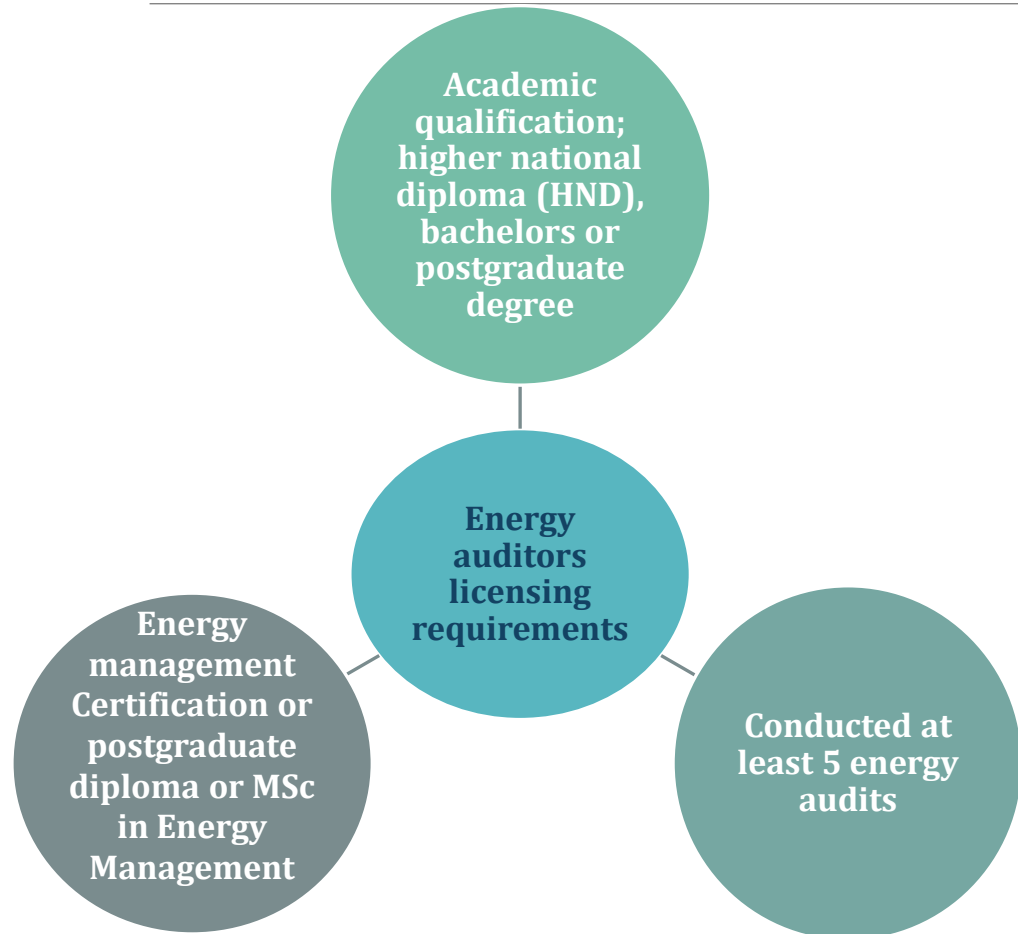
Energy (Energy Management) Regulations, 2012

- Targets industrial, commercial, and institutional facilities consuming more than 180,000 kWh p.a.
- Designated facilities required to:
 1. Conduct energy audit once every 3 years and submit report to EPRA – about 1,500 facilities
 2. Implement ECMs to achieve at least 50% of the recommended energy savings
 3. Monitor performance of EE projects, prepare implementation reports
 4. Designate an energy officer

Energy (Appliances Energy Performance and Labelling) Regulations, 2016

- Test appliances for energy performance - MEP
- Register appliances with EPRA
- Affix appliance with appropriate energy star label
- Appliances - Refrigerators, 3-Phase induction motors, non-ducted air conditioners, lamps, ballasts for lamps

Energy efficiency sector in Kenya cont'd



Kenya National Energy Efficiency and Conservation Strategy - 2020

Targets households, buildings, agriculture and industry, transport, and power utilities to be accomplished within a 5-year timeline up to 2025

Recognises training and capacity-building in EE and conservation central to meeting the targets

- **87 licensed energy auditors**
- **1,588 facilities submitted audit reports**
- **3,383 facilities classified as medium or high energy consumers.**

Methodology

**Documents review -
audit reports
submitted to EPRA &
others**

Field visits to facilities

**EE professionals'
interviews**

**Interviewed local
universities offering EE
training programs**

**Interviewed
government and non-
government agencies
involved in energy
management**

Requisite skills and knowledge for energy auditors

Energy management

Fundamentals

Tariffs

Data collection & analysis

Establishing EnPI

Technical knowledge

Electrical power systems analysis

Thermodynamics and heat transfer

Combined heat and power

Systems optimization

Commissioning principles

O&M practices

New & existing technologies

M&V techniques and protocols

Analytical skills

Statistical analysis

Whole-system analysis

Problem-solving abilities

Requisite skills and knowledge for energy auditors cont'd

Financial & accounting skills

Economics of energy management

Life cycle cost analysis

Financial decision-making processes

Economic assessment indicators

Financing options

Cost control & budgeting

Risk management

Regulations, standards, and best practices

National and county laws, rules, regulations, standards, policies

Global and sector best practices

Other areas

Communication and interpersonal skills

Performance contracting

Judgment and decision making

Report writing

EE skills among energy auditors

Understanding energy use

Establishing energy baseline

Data collection and analysis

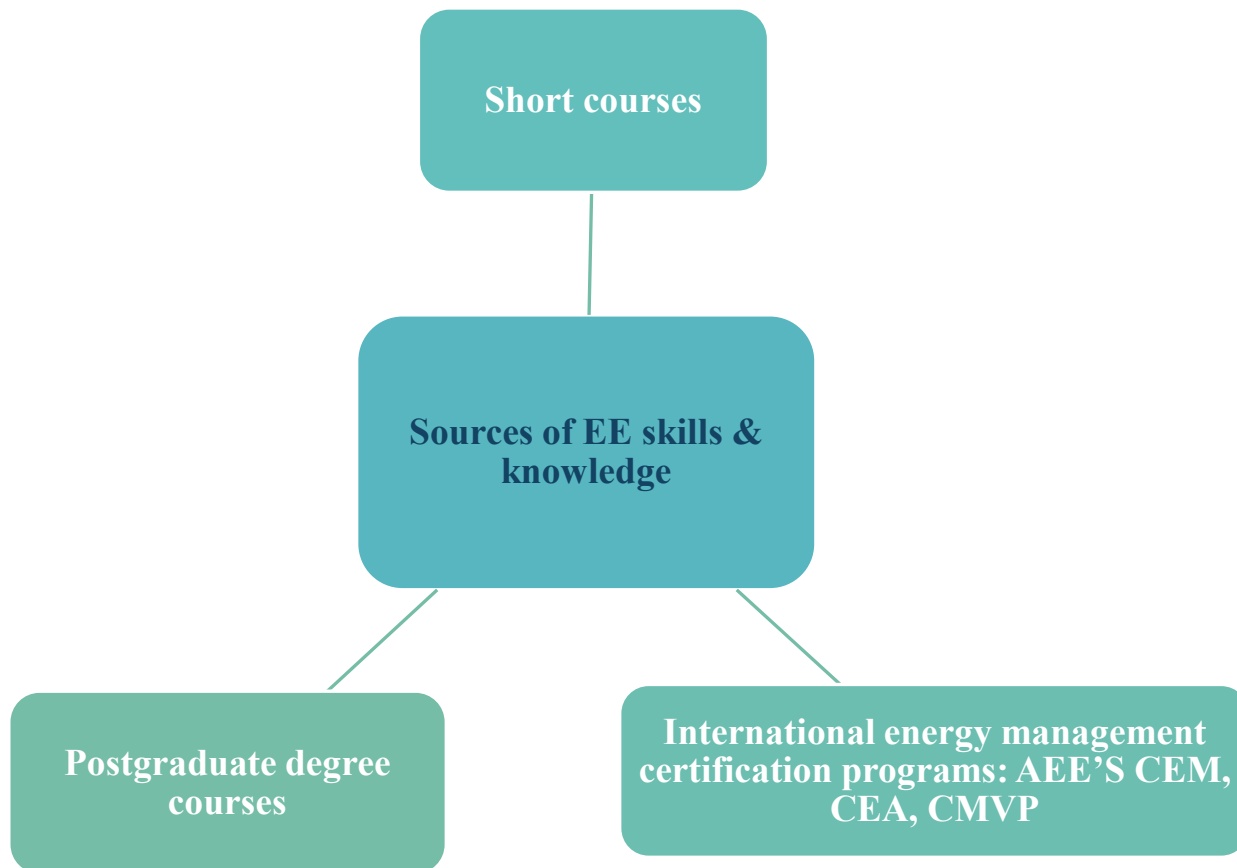
Understanding energy pricing & tariffs

Identifying appropriate EnPI

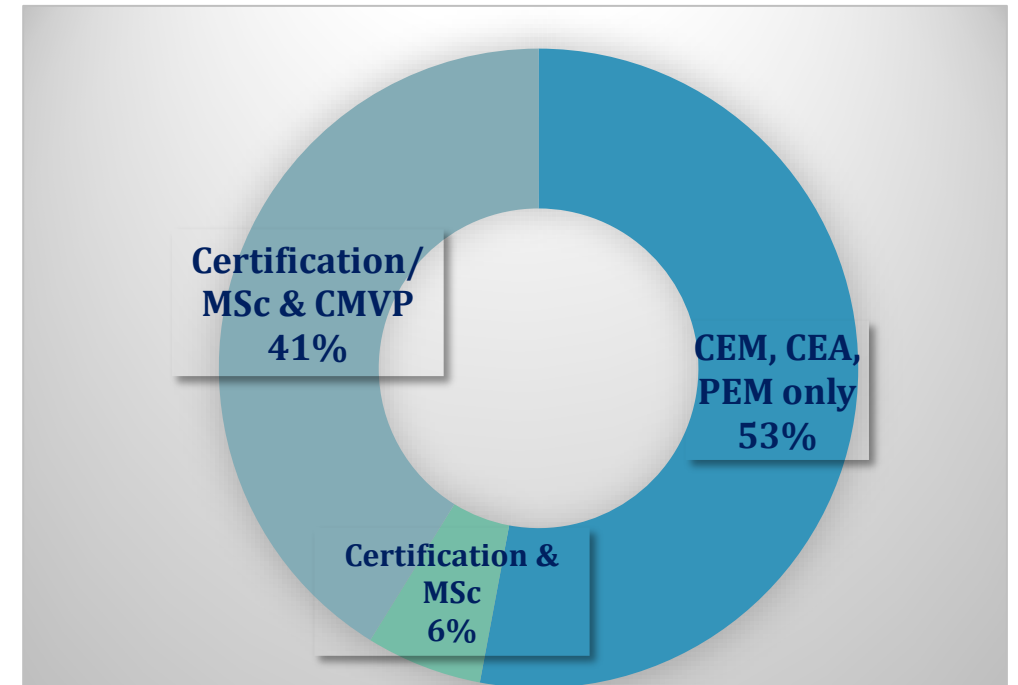
Identification and evaluation of potential EE opportunities

Sources of acquired EE skills and knowledge

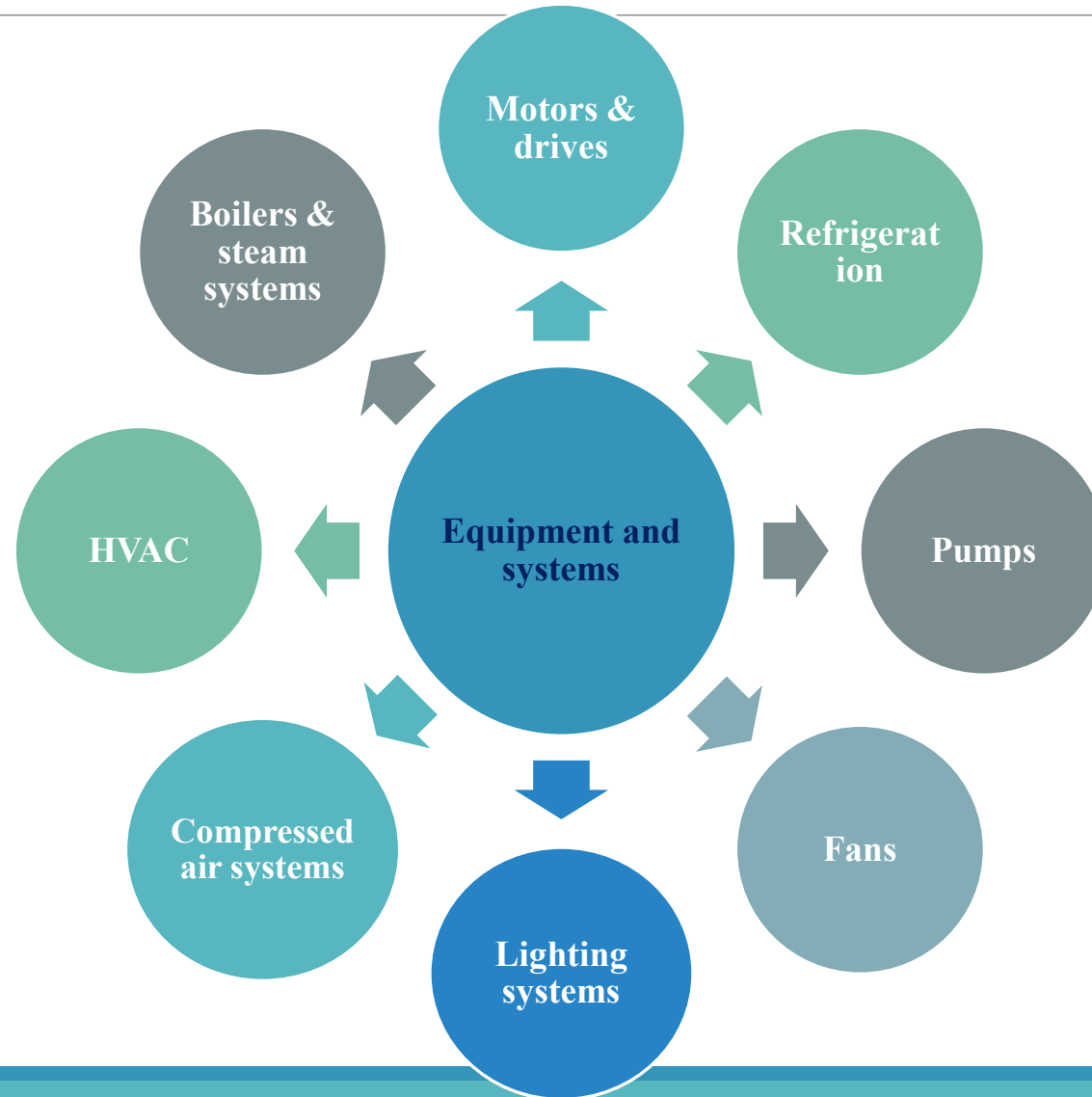
Sources of acquired skills and knowledge



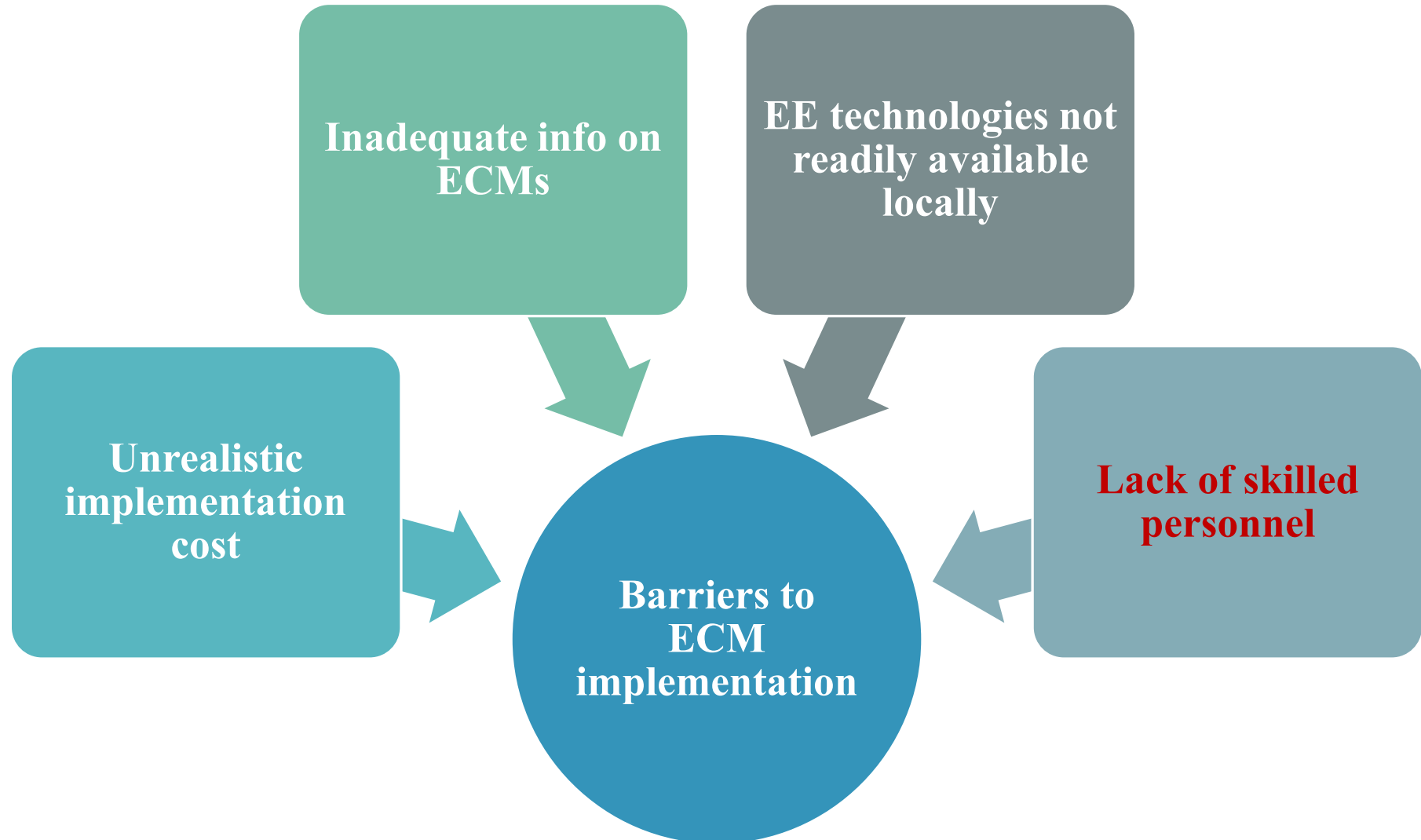
Qualifications



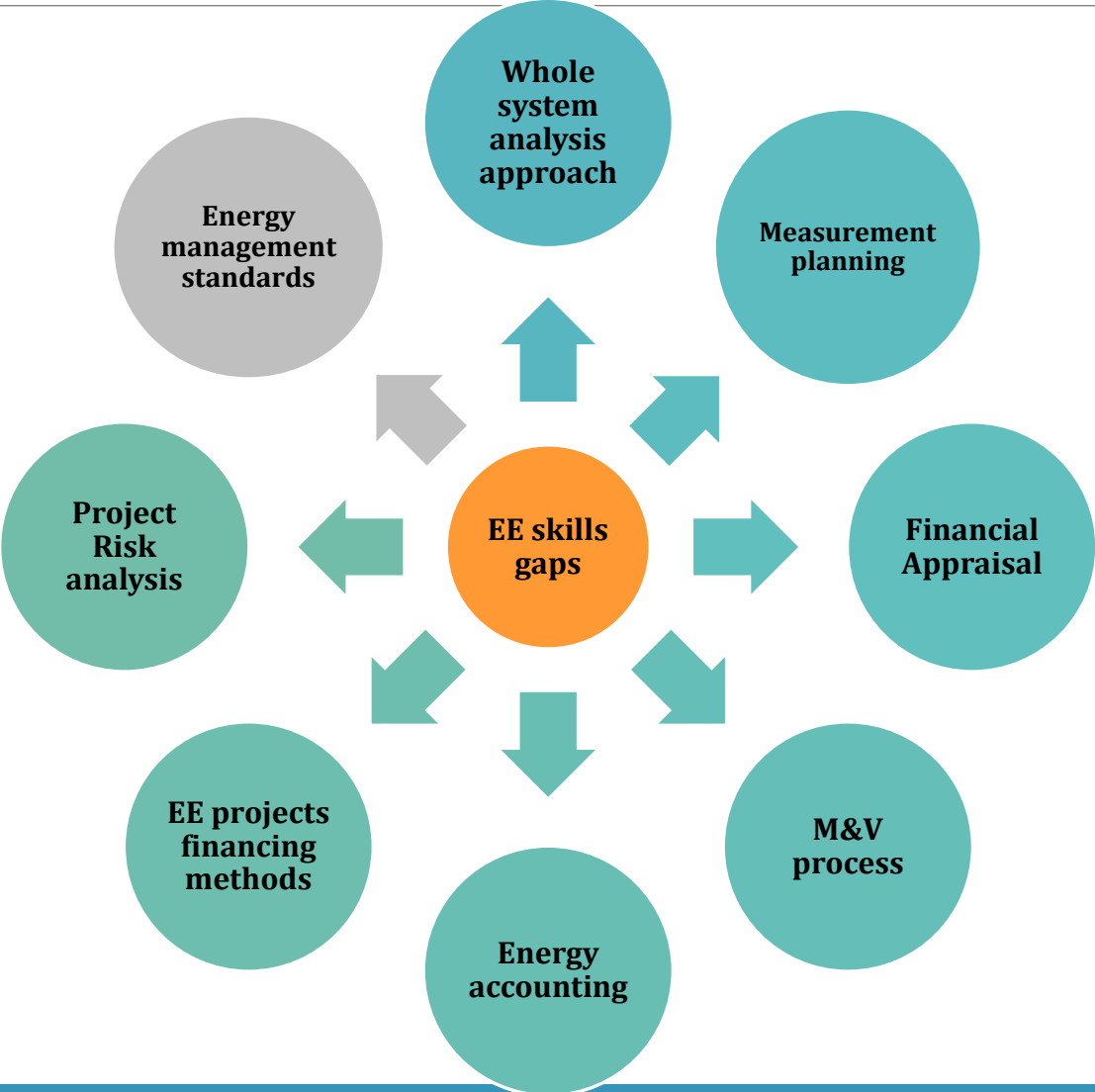
Main applications and processes that require EE intervention



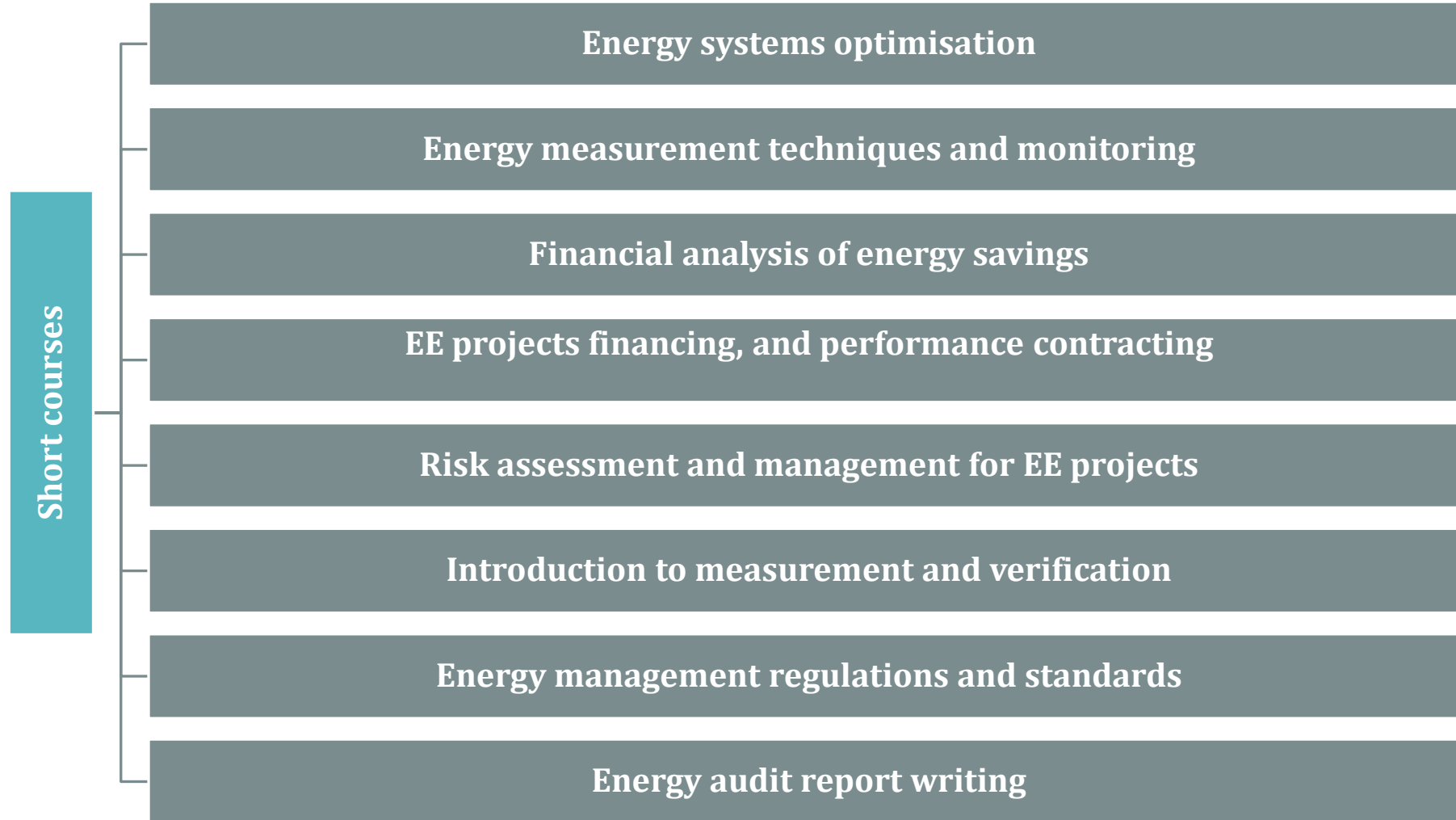
Challenges encountered during implementation of ECMs



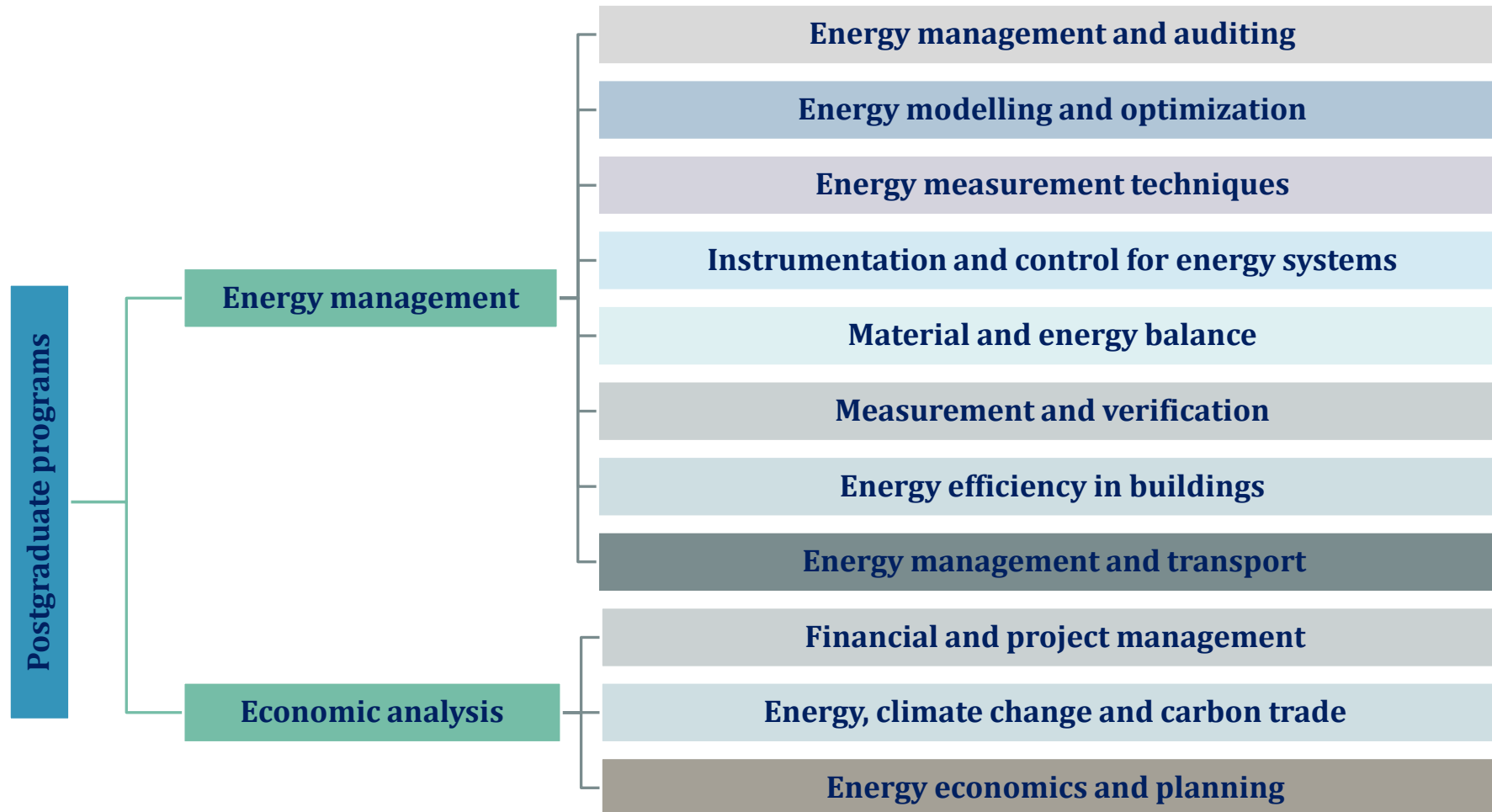
Gaps in EE skills



Bridging the EE skills gap – Energy auditors



Bridging the EE skills gap – Energy auditors cont'd



Bridging the EE skills gap – Energy managers



THANK YOU