Energy Efficiency Training Week

Select energy efficiency programme measures

Industry Stream
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IEA #energyefficientworld
Link between training content and objectives

- How to make the case for industrial energy efficiency policy
- How to select and design the best measures
- How to implement
- How to evaluate and scale-up

Develop your skills & knowledge to deliver industrial energy efficiency policies & programmes
Learning outcomes

This session will focus on developing your capabilities to:

• Understand the different policy and programme measures that can encourage improved energy efficiency in industry

• Explore the country and market factors that influence selection of each measure

• Consider how best to combine measures
Toolkit of industrial energy efficiency policy measures

1. Information measures
2. Regulatory and target setting measures
3. Capacity building measures
4. Finance measures
5. Energy management measures
6. Supply chain measures
Information measures – a range of options

• “How to” guidance materials
• Fact sheets
• Lists of typical energy efficiency projects and equipment
• Case studies
• Advice hotlines
• Workshops
• Webinars
• Energy Efficiency Networks
Information measures

Advantages

→ Can be cost effective for businesses and government

Disadvantages

→ If information isn’t contextualized, targeted and tailored it is unlikely to be actioned
Regulatory and target setting measures
Regulatory and target setting measures

• Measures include:
  - mandatory energy efficiency targets that must be met by companies or industry sectors
  - Minimum energy performance standards (MEPS) for industrial equipment (e.g. electric motors)
China’s Top-10,000 program

- Target set at national level and then cascaded to provincial and large city level
- Local councils set targets for individual firms and monitor progress
- Local councils may also conduct mandatory energy audits and/or mandate improvements for firms that don’t meet targets
- Central government support through training and capacity building, fiscal and financial incentives
Regulatory and target setting measures

Advantages
- Very high participation rate
- High confidence to achieve quantifiable savings

Disadvantages
- Cost for business to implement
- 'Compliance' focus for business
- Cost for government to enforce
Capacity building measures

• Training:
  - Implementation of energy management systems
  - Technical assessment
  - Opportunity identification
  - Business case development

• Online and in-person training through workshops and webinars

• Build knowledge, understanding and skills
SME Energy Efficiency workshops in Costa Rica
Finance measures

1. Grants
2. ESCO funding model with shared savings
3. Preferential loans
4. Equipment leasing
5. Utility on-bill financing
6. Market based instruments
   a. White certificate schemes
   b. Utility obligations
   c. Auctions and tenders
7. Tax incentives
8. Others ...
Energy Management Programmes

- Energy Management System (EnMS):
  - Systematic and structured approach to the management of energy use
  - Standards exist (ISO 50001), but many options are possible

- Energy Management Programmes:
  - Government policy/programme to promote the uptake of energy management systems

Types of Energy Management Programmes:
- Information (US and Chile)
- Incentives (Germany)
- Regulation (Australia)
Energy Management Programmes

**Advantages**
- Encourages continuous improvement in energy performance
- Addresses multiple organisational barriers

**Disadvantages**
- May lead to a focus on ‘documentation’ rather than results
- Effectiveness relies on management support and leadership
Technology acceleration measures

Phase 1
Identification
- Identify energy-intensive sectors and applications
- Conduct energy audits
- Shortlist new technologies for development

Phase 2
Technology development and demonstration
- Develop & demonstrate new energy efficient technologies
- Document demonstrated technologies and BOP

Phase 3
Diffusion
- Create awareness
- Identify and develop local service providers (LSPs)
- Hand-hold MSMEs and LSPs during implementation

Source: Mr. Upinder S. Dhinbra, Associate Fellow, TERI, India. 2015 Presentation.
Firozabad Glass Cluster

- Largest cluster in small scale glass sector
  - Annual Glass Production: 1.0 million ton/yr.
  - Estimated annual energy consumption: 0.2 million toe
- Major product - Bangle
  - Other products: colored decorative items, tableware, lab-ware, glass shells etc.
- Falls within the Taj Trapezium Zone (TTZ)
- Industry mandated to switch over to natural gas (1996 Supreme Court Mandate)
- TERI with support of SDC (Swiss Agency for Development and Cooperation) worked in the cluster to design, develop, demonstrate and disseminate energy efficient natural gas-based technologies for glass bangle industries
Supply chain measures

- The focus on energy efficiency improvement is typically within the boundaries of each organisation.

- Large organisations are increasingly examining opportunities to improve energy efficiency across their supply chains.

- This can deliver substantial benefits for suppliers as well as the corporation.

- Governments can promote, encourage and provide support for supply chain initiatives.
Beef supply chain in Brazil

Brazilian beef output is expected to increase from
**10.2 Mt in 2013 to 13.6 Mt in 2023**

- **Brazilian beef production**
  - 208 million cows/bulls
  - 10.2 Mt

- **Internal consumption**
  - 8.3 Mt
  - 80.4%

- **Export**
  - 2Mt
  - 19.6%

- **Processed**
  - 253 kt (2.5%)

- **Semi-processed**
  - 253 kt (2.1%)

- **Unprocessed**
  - 1.5Mt (15%)

USD 498 million
- EU 27 – 30%
- Hong Kong – 22%
- USA – 11%
- Other – 33%

USD 3.9 billion
- Russia – 26%
- Hong Kong – 18%
- Venezuela – 13%
- Other – 43%

Live animal exports 573k

Inaction will lead to larger impacts

Source: Adapted from (ABIEC, 2014) and (Abreu, 2011). Note: The value of the internal market is an estimate which assumes the same value/kg proportion seen in beef exports.
Choosing between different measures – key questions

- Who is your target market?
- What barriers are you attempting to overcome?
- To what extent will each measure contribute to the policy objectives?
- How certain are the outcomes?
- What resources will each require – costs, time, people, admin support, other?
- How fast acting are they?
- Are the outcomes sustainable in the long term?
- How difficult are each to organise? What partners could help?
Consider project life cycle and barriers to improvement

1. Identify potential opportunity
2. Assess feasibility
3. Develop business case
4. Secure funding
5. Procure & Implement

Energy saving
$ saving
GHG reduction
Other benefits
Energy efficiency networks (EENs) - Germany

- Companies brought together from a region, sector, supply-chain, or within a corporate group
  - Exchange experiences and undertake steps together to improve energy efficiency.

- 30 pilot networks in Germany with 210 participating companies
  - Almost 2000 different EE measures realised
  - Energy savings of 870 GWh, 10% energy cost savings and 1000 tonnes CO2 reduction
Energy efficiency networks (EENs) - Germany

Energy audit
Taking stock of energy saving potential

Target agreement
Of individual and group efficiency target

Monitoring

Network meetings and site visits

First quarter

Second quarter

Third quarter

Fourth quarter

Acquisition of participating companies

First meeting with energy consultant

Workshops, e.g. on cross-cutting technologies, introduction of ISO 50001, organisation measures, etc