



Energy Efficiency in Industry Barriers and Lessons learnt

3rd VEPG High- Level Meeting

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Annex - Results of UNIDO projects in Viet Nam

UNIDO's Mandate: Inclusive & Sustainable Industrial Development (ISID)

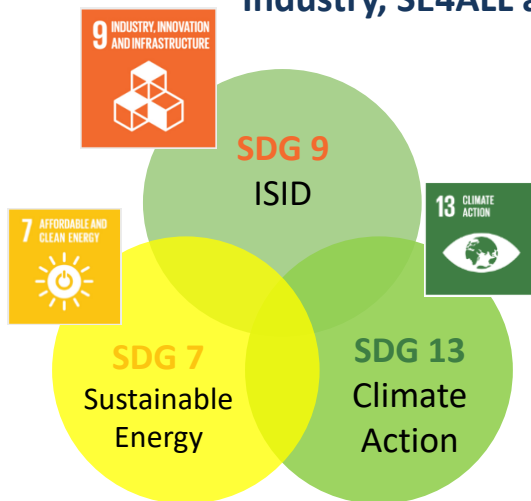
Thematic Areas:

-  **Creating shared prosperity**
-  **Advancing economic competitiveness**
-  **Safeguarding the environment**

Achieving **equitable & sustainable** social, economic and environmental growth while mainstreaming women and youth.

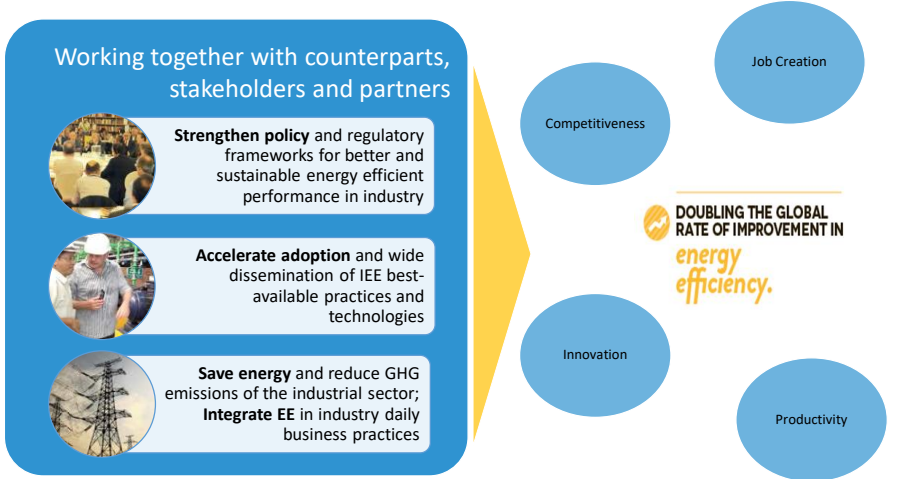


Industry, SE4ALL and SDGs



- Jobs Creation
- Business Models
- Women's Empowerment
- Nexus Co-benefits
- Promoting innovation
- Sustainable Energy and Climate Agreement

UNIDO Industrial Energy Efficiency Programme



INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT

UNIDO Industrial Energy Efficiency Programme

- Energy Management Systems (at global level)
- System Optimization (at global level)
- Efficient Technologies (Boilers, Motors, Pumps etc)
- Innovation based clean technologies (already implementation in 10 countries)
- Value chain projects (eg. on-going boiler project in Vietnam)
- Cleantech Innovation projects
- South-South Cooperation projects (WHR in Indonesia and Cooling technologies in Thailand)
- Energy Efficiency for SMEs and including financing mechanisms (two projects in India)

INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT

Barriers to Industrial Energy Efficiency

- Management focus is on production but not on energy efficiency
- Technology and equipment bias
- Initial investment costs more important than recurring costs → disconnection between capital and operating budgets
- Lack of adequate technical skills for energy efficiency (EE) measures and projects
- EE knowledge resides with individuals rather than with the organization → sustainability risk
- Financial constraints including lack of information and understanding of financial and qualitative benefits, esp. in SMEs
- Lack of information on available EE options/solutions

UNIDO's IEE projects in Viet Nam

- Promoting Industrial Energy Efficiency through System Optimization and Energy Management Standards in Vietnam (2011-2015):
 - System Optimization: Steam and Compress air systems
 - Energy Management Standards: ISO 50001
- Promotion of energy efficient industrial boiler adoption and operating practices in Vietnam (on-going)
 - Policy advice: national boiler standards, database, technical guidelines
 - Awareness & capacity building: to all stakeholders along boiler value chain
 - Demonstration projects and replication support
 - Boiler efficiency evaluations
 - Access to finance, incentives

Lessons Learnt

- Informed, realistic and domestic specific project design and target setting is vital
- Engagement of the appropriate implementing departments with the relevant mandates and decision-making authority
- Enabling policy and regulatory support required if market failing to adopt efficiency improvements due to barriers (i.e. low energy prices)
- Co-financing is important to demonstrate and encourage economy's ownership and commitment

Lessons Learnt (cont.)

- Strong top management support and involvement is key to successful for any energy efficiency project adoption
- Provide industry examples of benefits achieved through energy efficiency projects
- Enterprises supplying the global market and large multi-site corporations seem to be the most successful
- Provide a replication modality and upscaling plan for the government counterpart to sustain the activities after project completion, which includes concrete institutional structure along with the financing needs



Energy Used in Industry

- **Main Energy using in Industry for the following purpose.**
 - For direct heating in furnace, kiln to produce Ceramic, brick, Cement, steel, drying etc.
 - To produce a secondary energy such as steam, compressed air, thermal oil, hot water etc
 - To run electric motor for the production processing
 - To run pump and fan to transport liquid or gas
 - To run HVAC system or produce refrigeration.
- **Characteristics of using energy.**
 - Direct burning fuel mainly serves direct heating demand are easy to cause pollution of the surrounding environment and usually complex systems/ equipment with great potential for energy saving.
 - The majority of energy is used in the form of heating or cooling, and the loss of energy primarily takes place in the form of heat loss.
 - The energy-saving potential lies mainly in auxiliary areas serving the production of main products such as lighting, steam, refrigeration, compressed air, pump, fan.
 - The management of energy use pays little attention to weather.



Energy Used in Industry

- **Strategy for energy efficiency**
 - Improve demand of saving energy in the production process
 - Enhance innovation, good operation practices, maintenance related to typical energy using system/equipment
 - Increase energy management for the systems and for the whole enterprises
 - Develop market for consultation services and EE equipment/system suppliers
 - Focusing on training, improving the capacity of operation management and maintenance of auxiliary systems



Proposed project

Project title: Accelerating Energy Efficiency in Larger Industries through Energy Management Systems and System Optimization and Promotion and Adoption of Energy Efficiency in SMEs

Main objective: to promote, stimulate market demand and adoption of energy efficiency by industry (including DEUs and SMEs) for their greater energy performance, reduced carbon footprint and enhanced productivity & competitiveness.

Three specific objectives:

1. Enhance institutional, technical and financial capacity (government agencies, financial institutions, market and industrial stakeholders)
2. Accelerate energy efficiency in DEUs through greater uptake of energy management systems and system optimization (including innovative technologies)
3. Stimulate adoption of best practices and EE technologies in SMEs

Duration of the project: 6 years from mid 2020 to mid 2026

➤ The project will contribute to the targets of VNEEP3



Project scope

Technical focus: EnMS and SO on steam and compressed air systems, chillers, refrigeration, pumping, process heat and motor system

Nine target sectors: food-processing, textiles, rubber, pulp & paper, cement, metallurgy and steels, chemicals & fertilizers, plastics and beverages

Geographic focus: Nationwide with focus on the provinces: on Hanoi, Ho Chi Minh City, Hai Phong, Bac Ninh, Da Nang, Tien Giang, Dong Thap, Binh Duong, Dong Nai and Can Tho



Project scope

International Standards:

- ISO 50001:2018
- ISO 50002 (Energy Audit)
- ISO 50003 (Requirements for Bodies Providing Audit and Certification of EnMS)
- ISO 50015 (Measurement and Verification of Energy Performance of Organizations)

Beneficiaries: industrial enterprises (DEUs & SMEs), equipment vendors/suppliers, distributors, financial institutions, government agencies, energy auditors/national experts/service providers and ESCOs



Thank you for your attention

For more information:

Dr. Nguyễn Xuân Quang

Head of Department Thermal Energy Systems,
Hanoi University of Science and Technology on
behalf of United Nations Industrial
Development Organisation (UNIDO)