



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Energy Management Practices – The Case of UNIDO and IPEEC-EMWG



INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT



Energy Management Practices including ESCO program in different countries

The Case of UNIDO and IPEEC-EMWG

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Content

- UNIDO Energy Management System (EnMS) Programme
- How to measure energy performance improvements
- Policies supporting EnMS and ESCOs
- IPEEC Energy Management Working Group

UNIDO Global IEE-EnMS Programme



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Operational in 17 countries
Planned activities in 10 countries

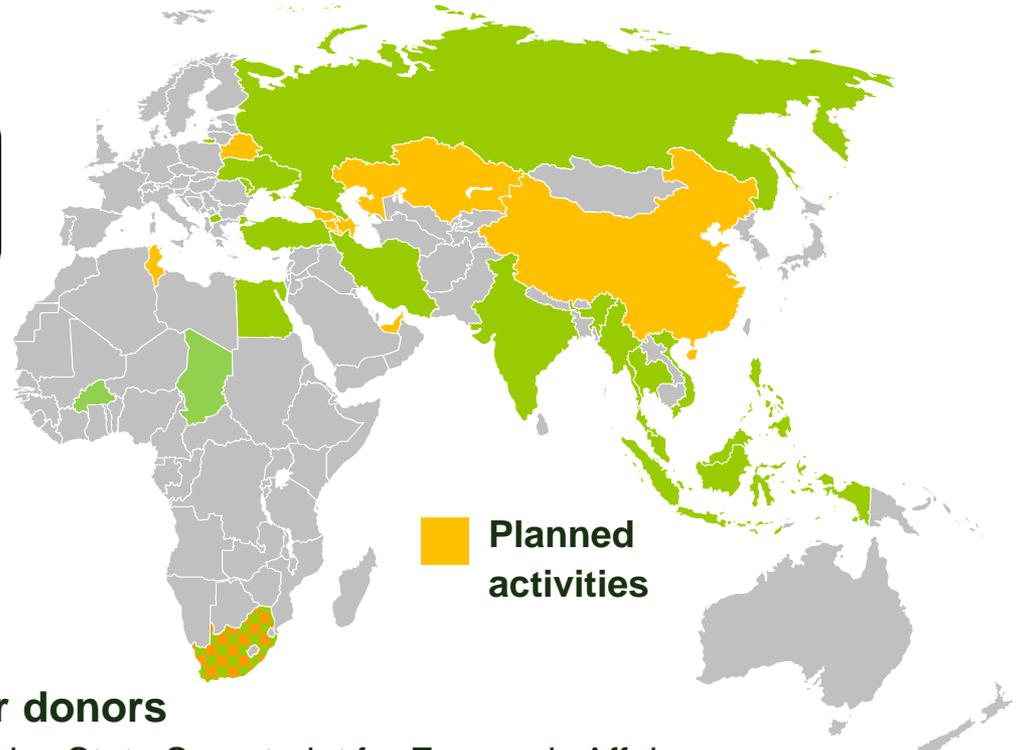
Operational

- | | |
|--------------|-------------|
| South Africa | Philippines |
| Moldova | Egypt |
| Russia | Indonesia |
| Turkey | Iran |
| Ecuador | Ukraine |
| Malaysia | Colombia |
| Thailand | Macedonia |
| Viet Nam | Myanmar |
| India | |

Planned activities

Other donors

- ✓ Swiss State Secretariat for Economic Affairs
- ✓ UK Department for International Development
- ✓ Government of South Africa
- ✓ Government of Italy



Why EnMS in Industry?

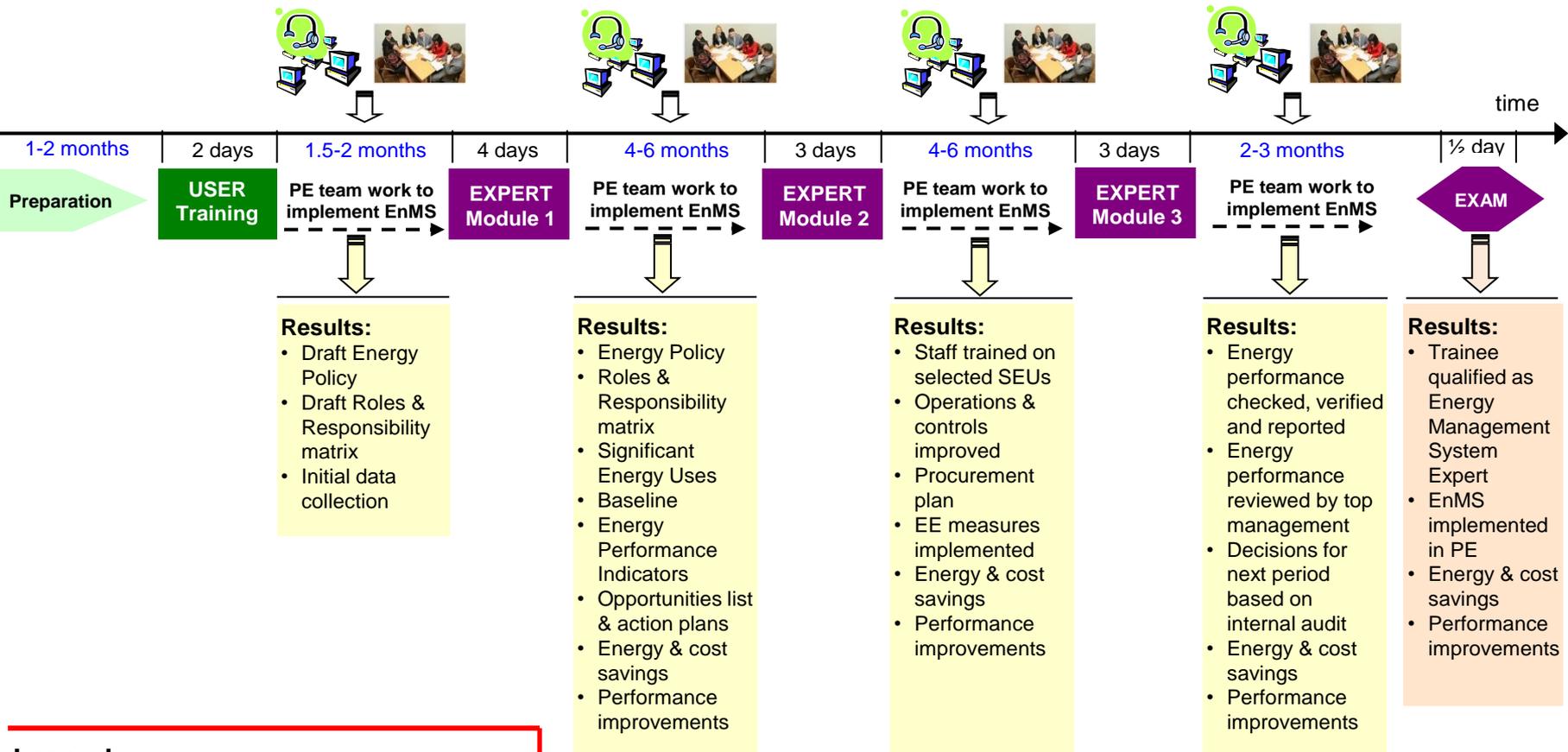
- Energy efficiency improvements with very favorable payback periods are often missed or do not get implemented due to other priorities
- Even those that are implemented may not be sustained due to lack of supportive operational/maintenance practices
- The only constant in the life of most industrial facilities is change of product mix, production, management, personnel

Problem: Energy efficiency is not integrated into daily management practices.

Solution: Staff at all levels within an organization need to be engaged in management of energy on an ongoing basis.

Source: Adapted from A. McKane, 2014

UNIDO Combining Skills Development & Results



Legend

PE team A Partner Enterprise (PE) team is formed by the PE's staff participating in the EXPERT program plus 1-2 national consultants/trainees.



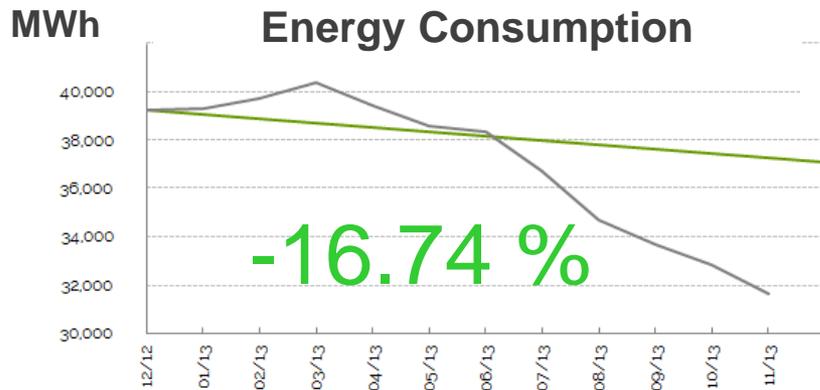
Ongoing and periodic communication through webinars, emails and phone calls between international trainers and PE teams to review progress, discuss issues and provide guidance.



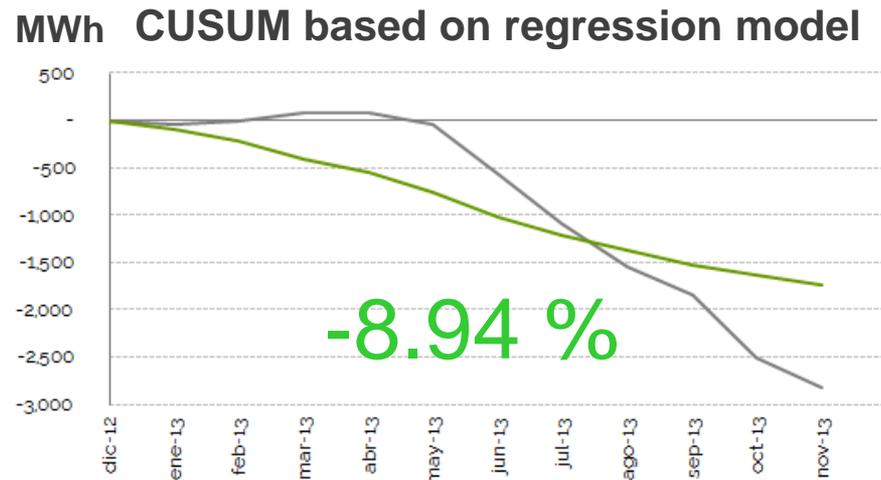
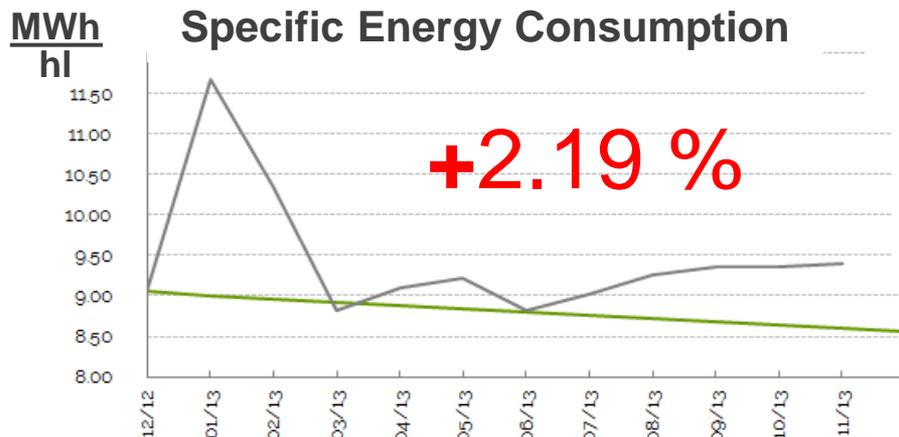
Plant visits by international and national EE-EnMS consultants

How to measure energy performance

Which is right?



— Performance Target
— Actual Performance



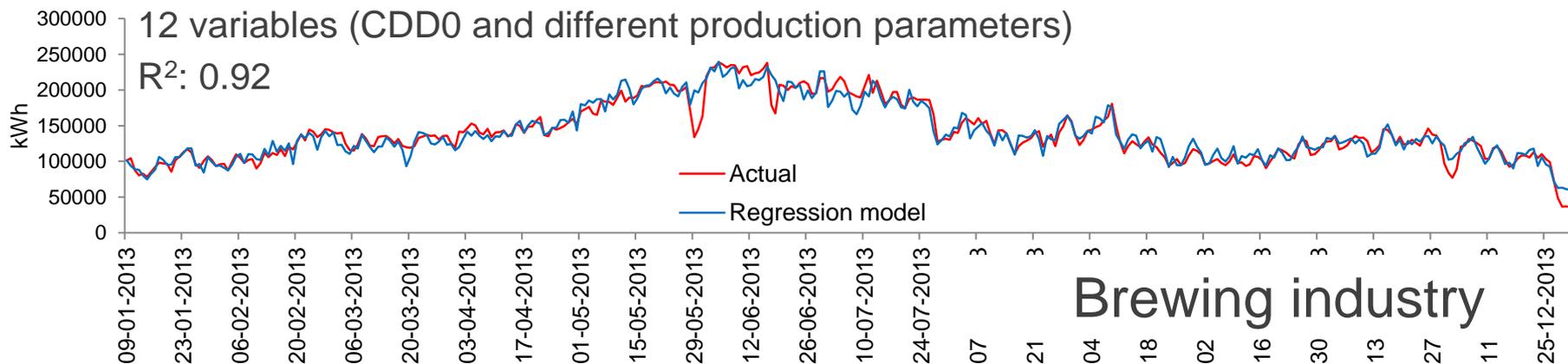
Brewing industry

Source: L. McLaughlin for UNIDO

Measuring EnMS implementation impact

➤ Define the right indicators

- ISO 50006 - Energy Performance Indicators (EnPIs) and Energy Baselines (EnBs)
- Can measure EnMS effectiveness and energy performance improvements due to training, behavioral change & organizational measures
- Can save a lot of energy at no cost



Importance of Programmatic Context for EnMS

	Voluntary or Mandatory Standard	Financial incentives for Compliance	Technical Assist. Available	Penalties for Non-Compliance	Recognition Program	Linked to Voluntary Agreement	Training Avail. on Standard Compliance	Reporting to Public Entity Required	Industrial Systems Training Available	Market Penetration by Industrial Energy Use
Denmark	Vol	Yes*	Yes	Yes*	Yes	Yes	Yes	Yes	Lim	60%
Ireland	Vol	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	25%
Sweden	Vol	Yes**	Yes	Yes**	Yes	Yes	No	Yes	No	50%e
United States	Vol	No	Yes	No	Yes	No	Yes	No	Yes	<5%

* Denmark has had a CO2 tax since 1992 that affects larger industries. Tax relief is linked to participation in a voluntary agreement.

** Sweden has had a CO2 tax since 1/2005. Tax relief for process-related electricity linked to participation in a voluntary agreement.

*** Ireland plans to expand training offerings

Source: A. McKane for UNIDO, 2007

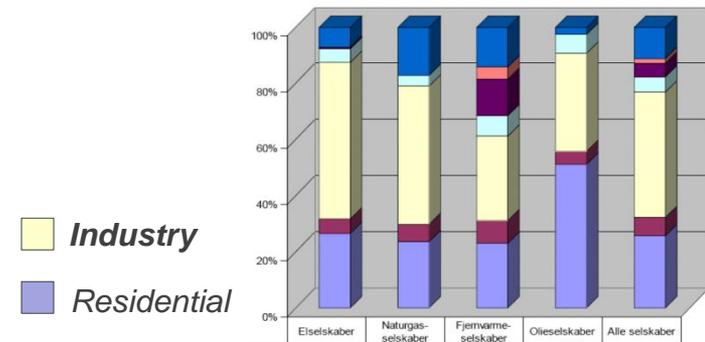
Policies supporting EnMS and ESCOs

The Danish Energy Efficiency Obligation (EEO) Scheme

- EEOs are unique in how they drive savings
 - Overall target set, obligated parties can determine the most cost-effective options
 - Flexibility to work with third parties to deliver savings
 - **Guarantee a steady stream of funding (to cover a % of the cost of EE measures). Independent of changes to government budgets**
 - Those who pay also benefit
 - ❖ Benefits of targeted energy savings accrue to all end-users
 - ❖ Beneficiaries of funds from obligations save twice: directly through energy savings, and indirectly through “system benefits”

- Danish EEO experience

- EnMS implementation included between eligible measures under the EEO scheme
- Largest share of energy savings achieved in the industrial sector



Policies supporting EnMS and ESCOs

EEO Scheme triggered development of EE service market

Danish Energy Association Experience

- ✓ We see an increasing bundling of selling energy and delivering energy efficiency services in partnership with installers and others
- ✓ Retailers are developing niche markets focusing on:
 - Energy savings in public buildings
 - Climate Partnership with a strong CSR element,
 - ESCO projects and energy performance contracting etc.
- ✓ The cost recovery element is crucial in order to remove risk for kick starting the energy service market
- ✓ Energy efficiency is more about innovation in business models and approaching the customer than new technologies

Source: Ulrich Bang, DanskEnergi



ENERGY MANAGEMENT WORKING GROUP (EMWG)

The EMWG leverages the extensive expertise of its 12 member governments to **accelerate the adoption and use of energy management systems such as ISO 50001** in industry and in commercial buildings worldwide.

Fora: The EMWG (formerly known as GSEP EMWG) is an initiative of the Clean Energy Ministerial and the **International Partnership for Energy Efficiency Cooperation (IPEEC)**. The EMWG also reports out to the G20, through their Energy Efficiency Action Plan.

Partners: The EMWG partners with **UNIDO** and other organizations promoting energy efficiency and energy management (e.g., International Organization for Standardization, Institute for Industrial Productivity, etc.).

<http://www.cleanenergyministerial.org/EnergyManagement>



Australia



Canada



Chile



European Commission



India



Indonesia



Japan



Korea



Mexico



South Africa



Sweden



United States



CURRENT EMWG ACTIVITIES

Build the Business Case

EnMS Case Studies

Supportive Programs and Policies

ISO 50001 Auditor
Certification

Provide Support and Resources

EnMS Toolbox

Measurement and
Verification Resources

Private Sector Engagement

ISO 50001 Collaborative

Energy Management
Leadership Awards

www.cleanenergyministerial.org/energymanagement



ISO 50001 COLLABORATIVE

ISO 50001 is a key strategy for fighting climate change.

- The EMWG seeks to increase multilateral and private-sector engagement on ISO 50001, expand support from governments, and enhance impacts of ISO 50001 implementation.
 - Joining the Industry Energy Efficiency Action Pledge
 - Recognizing Corporate Leadership: Energy Management Leadership Awards
 - Facilitate Ongoing Industry Dialogue on ISO 50001
 - Develop Areas of Technical Cooperation



ISO 50001 COLLABORATIVE STATUS

- The **ISO 50001 Impact Estimator Tool** is available to help countries define their own potentials from use of the standard (download at www.cleanenergyministerial.org/energymanagement)
- Planning is underway 21st Conference of Parties (COP21) in Paris, Dec. 2015:
 - The CEM is planning an ISO 50001-focused announcement during Action Day featuring ministers and CEOs who are committing to advancing implementation of the ISO 50001 standard.
 - CEM, IPEEC, and other partners will recruit companies to sign the Industry Energy Efficiency Action Pledge.
- CEM7 in San Francisco Bay Area, mid-2016
 - ISO 50001 private sector leaders will be invited to CEM7 sessions.
 - Highlights of private sector and government commitments and accomplishments on ISO 50001.
 - Opportunity for Energy Management Leadership Awards presentations.



ENMS CASE STUDIES

- Showcase EnMS early adopters; many feature ISO 50001 use
- Companies share EnMS insights, costs and resulting savings, payback, lessons learned, tips, and more
- 18 case studies available to date, including case studies from partners
- Library of case studies, can search by keyword and filter results by industry, country, and by date published

The screenshot displays the Energy Management Working Group website. On the left is a navigation menu with links: EMWG Overview, Energy Management & ISO 50001, Members and Their Programs, Case Studies, Our Activities, Build the Business Case, Provide Support & Resources, Set Policy, Publications, News & Blog, Events, Get Involved, Videos, and Contact. The main content area features a 'Case Studies' section with an introductory paragraph, a 'Get Involved' call-to-action box, a search bar, and a featured case study titled 'Chrysler Global Energy Management Implementation Case Study' dated Wednesday, September 09, 2015. On the right, there are filters for 'Categories' (Industry and Country) and a 'Sort by' dropdown menu.

www.cleanenergyministerial.org/energymanagement,
see case studies link in left navigation



ENERGY MANAGEMENT LEADERSHIP AWARDS

Global Leadership and Case Study Awards Program



Goals:

- Raise profile of energy management systems (EnMS) such as ISO 50001 as a **broadly-applicable solution with proven, successful outcomes**
- **Showcase leading companies** that have used EnMS such as ISO 50001, **document their path to success to guide others**

Benefits

- Accelerate EnMS uptake to meet national and global climate goals.
- Build a compelling business case based on real-world data and experience.
- Gather insights to enhance national and international programs.
- Reinforce the value of robust implementation and measureable results.





ISO 50001 LEAD AUDITOR CERTIFICATION PROGRAM

The effectiveness and impact of ISO 50001 standards (including the new ISO 50003 supporting standard published in 2014) requires auditors with experience in management systems and energy efficiency, but this is not well-supported by current professional credentials and training.

EMWG partners have designed the **Energy Professionals International (EPI) ISO 50001 Lead Auditor Certification Scheme** and **International Exam** as a strategy to make sure ISO 50003 is implemented successfully and transparently in their countries.

Elements of Certification Scheme*

- Scope for ISO 50001 Lead Auditor
- Job Task Analysis
- Blueprint
- Education and experience requirements
- Any prerequisites

Implementation Principles

- Guide use of the Certification Scheme for each participating country
- Maintain consistency of outcomes
- Prepare countries to meet requirements of ISO/IEC 17024 accreditation

Partners: Canada, Chile, Mexico, Republic of Korea, South Africa, United States, and UNIDO.



GET INVOLVED!

- Expand engagement between governments and the private sector through the ISO 50001 Collaborative to position ISO 50001 as a key pathway for meeting national and international climate and energy goals
- Share EMWG EnMS case studies with companies to promote the benefits of EnMS and ISO 50001
- Encourage companies with ISO 50001 certification to create case studies and submit entries for international recognition through the CEM Energy Management Leadership Awards.
- Encourage your personnel certification bodies to adopt the ISO 50001 Lead Auditor Certification Scheme and International Exam to build workforce skill and capacity for ISO 50001 audits.

Contact: Graziella Siciliano, EMWG Coordinator – Clean Energy Ministerial, U.S. Department of Energy, graziella.siciliano@hq.doe.gov

For more information about EMWG and its activities, visit:
www.cleanenergyministerial.org/energymanagement



Thank you for your attention

**For more information about
UNIDO's IEE-EnMS work:**

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