

Energy Performance Evaluation Methodology Development and Promotion in APEC Economies (EWG 14 2011T)

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1. Project Background

- Energy Management System (EnMS) has been applied in many countries and areas, such as Australia; China; USA and India. International Standard of Energy Management System (ISO50001) was released in 2011.
- Among these EnMS components, energy performance evaluation plays a fundamental supporting role in measuring and evaluating energy performance. Therefore developing a mature and practical energy performance evaluation methodology becomes a key point to promote and implement EnMS.
- Nowadays many economies in APEC region have implemented a series of energy efficiency policies, programs and mechanisms (including EnMS).

2. Project Objective

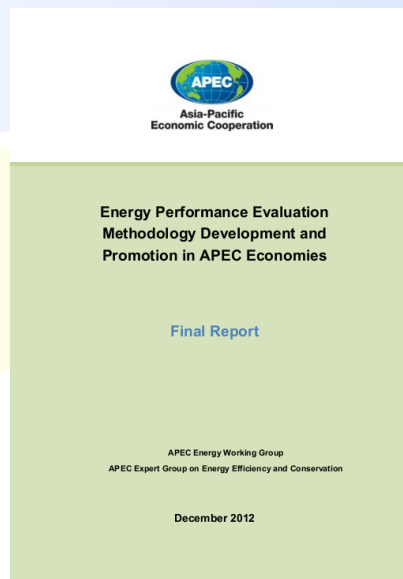
- Enhance experiences and resources sharing and cooperation in APEC economies in terms of energy performance evaluation and EnMS promotion;
- Develop typical and comprehensive energy performance indicators and evaluation methodology for industrial enterprises, deliver best practices case studies, and provide technical reference for APEC economies to initiate or improve their own energy performance evaluation programs;
- Under APEC framework, propose a harmonized approach and implementation recommendations for energy performance evaluation, to reduce the possible green trade barriers that may be induced.

3. Project Activities

- Task 1: Conduct survey and comparative analysis on energy performance evaluation methodologies, guidance and practices in APEC economies and selected economies in other regions.
- Task 2: Develop energy performance evaluation methodology for industrial enterprises.
- Task 3: Case study on energy performance evaluation best practices in industrial enterprises.
- Task 4: Propose a harmonized approach and implementation recommendations on energy performance evaluation for APEC economies and prepare draft full project report.
- Task 5: Hold a workshop on energy performance evaluation in APEC region.

4. Project Achievements

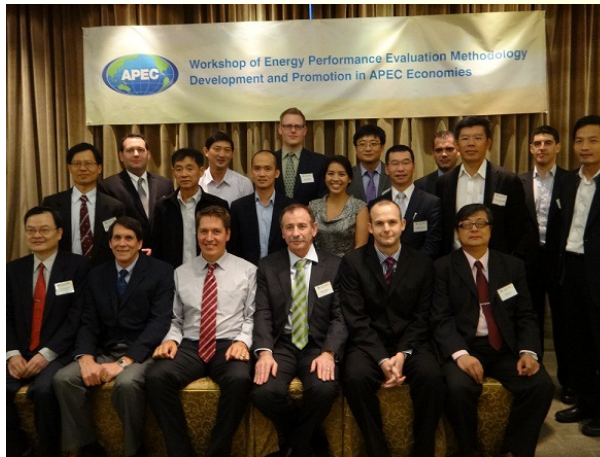
- Project Duration: January 2012 to February 2013.
- Project Final Report:



- Download: http://publications.apec.org/publication-detail.php?pub_id=1384

4. Project Achievements

- Workshop of Energy Performance Evaluation Methodology Development and Promotion in APEC Economies (EWG14 2011T)
(7 November 2012, Taipei International Convention Center, Chinese Taipei)



5. Key Findings



The Role of Energy Performance Evaluation for Energy Management System

5. Key Findings

- Desk review and comparative analysis



Five Targeted Economies and one Region for Survey and Analysis

5. Key Findings

■ Including:

➤ Canada:

- Benchmarking
- Energy Efficiency Evaluation Tool

➤ China

- Responsibility Evaluation System for Achieving Energy Efficiency Goals of Top 1000 Enterprises
- Energy Efficiency Benchmarking Activity
- Energy Efficiency Star of Suzhou

➤ Japan

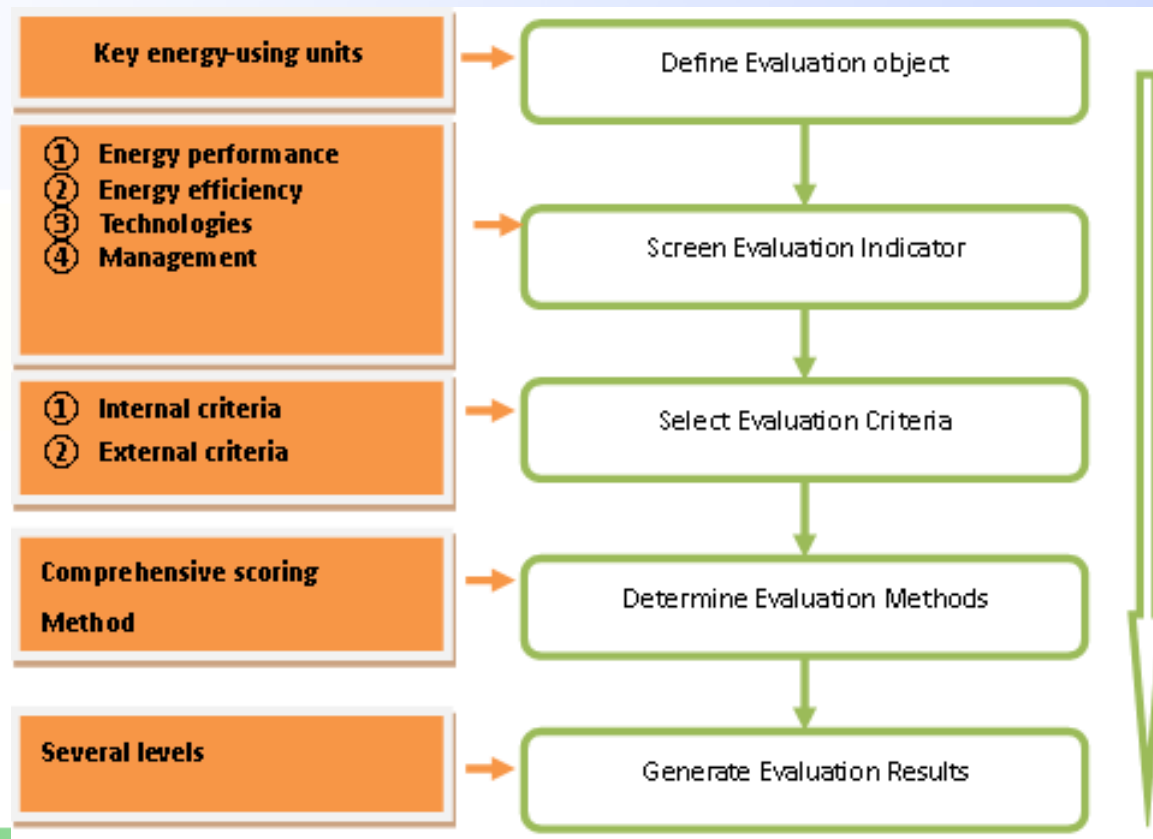
- General Examination of Factories

5. Key Findings

- Including: (Cont'd)
 - Singapore:
 - EENP Award
 - USA
 - Superior Energy Performance
 - Energy Star Program
 - ASEAN
 - Energy Management Gold Standard – Energy Management Scheme

5. Key Findings

■ Similarities of Energy Performance Evaluation Methodologies



5. Key Findings

■ General Evaluation Indicators and Criteria for Industrial Enterprises

Items	Indicator	Score	Evaluation Criteria
Energy performance (30 points + 10 points)	1. Energy savings	20 points (+5 points )	.....
	2. Carbon emission reductions	10 points (+5 points )	.....
Energy efficiency (15 points + 10 points)	1. energy consumption per product (process)	10 points (+5 points )	.....
	2. energy efficiency of main energy-using equipment	5 points (+5 points )	.....
Energy management (40 points)	1. establishment of energy management organization	7 points	.....
	2. Set energy conservation goals	7 points	.....
	3. Formulate energy conservation specification	7 points	.....

5. Key Findings

■ General Evaluation Indicators and Criteria for Industrial Enterprises

Energy management (40 points)	4. Development of M&V for energy consumption and management	7 points	.....
	5. Energy efficiency progress and technical reform management	6 points	.....
	6. Energy conservation training management	6 points	.....
Energy conservation technology (15 points)	1. application of energy conversation technologies	6 points	.....
	2. Production of energy conversation technology and products	4 points	.....
	3. Phasing out backward production capacity	3 points	.....
	4 Exchange and sharing of energy conservation technology	2 points	.....

5. Key Findings

■ A cement plant case study

Evaluation items		Standard score	Plant's practice	Actual score
1.Management (15+3.5 points)	Organization leadership	2		0.5
				0.3
				1
	Objective examination	2		1
				0.5
				0.5
	Process management	6		2
				0.8
				0.4
				0.5
				2
				0.5
	Measurement, statistics and monitoring	3		1
				0.5
				1
			0.5	
Energy audits and benchmarking	1+1		1	
			1	

5. Key Findings

■ A cement plant case study

Evaluation items		Standard score	Plant's practice	Actual score
1.Management (15+3.5 points)	Training and award	1+0.5		0.5
				0.5
				0.5
	Energy Management System	+2		1
2.Technical energy conservation (20 points)	Research and development of energy efficiency technologies	9		1
				1
				0
				2
	Energy efficiency technology application	11		3
				4
				2
				1
3.Energy efficiency level (65 points)	Energy savings	10		5
		10		5
	Energy efficiency level	40		30
	Use of waste heat and energy	5		5

5. Key Findings

■ Harmonization and Implementation Suggestion

➤ Technical aspect

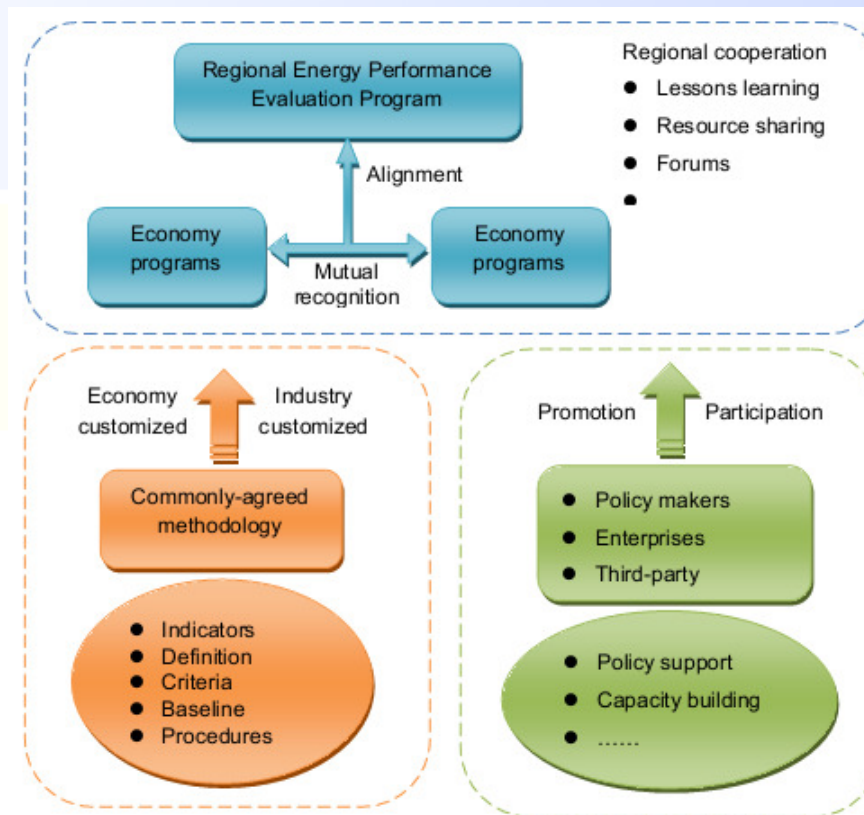
- Starting point
- Resources – People and expertise
- Agreement on identification of units – intra industry comparison
- Harmonizing process important for comparability - BUT - context still important as materials feeding into the process vary across economies
- Scoring system

5. Key Findings

- Harmonization and Implementation Suggestion
 - Policy aspect
 - National priorities
 - Tie in ancillary benefits
 - Regional cooperation
 - Promote lessons learning
 - More forums
 - Agreement on a basic strategic framework

5. Key Findings

- A draft strategic framework to for promotion of energy performance evaluation



6. Two Ideas

- Energy Management System best practices.
- Energy savings M&V.

Thank You!

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