IENE
Investing on Energy Efficiency

Energy Audits in Industry
Best practices-Framework in Greece and EU experience

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24/5/2018

CELEBRATING 2000 PROJECTS

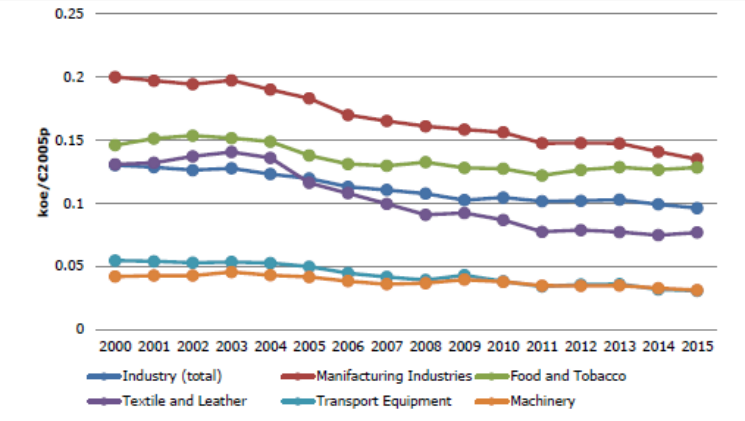
LDK CONSULTANTS

CONTENTS

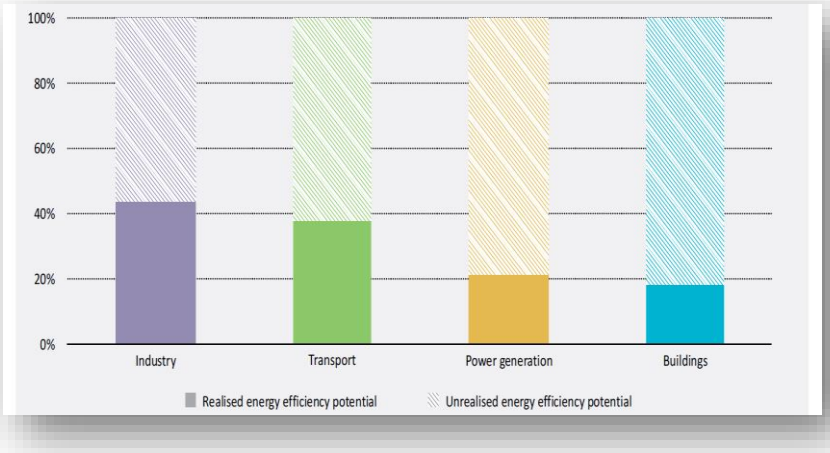
INTRODUCTION-LEGISLATION

Unexploited potential for industrial EE

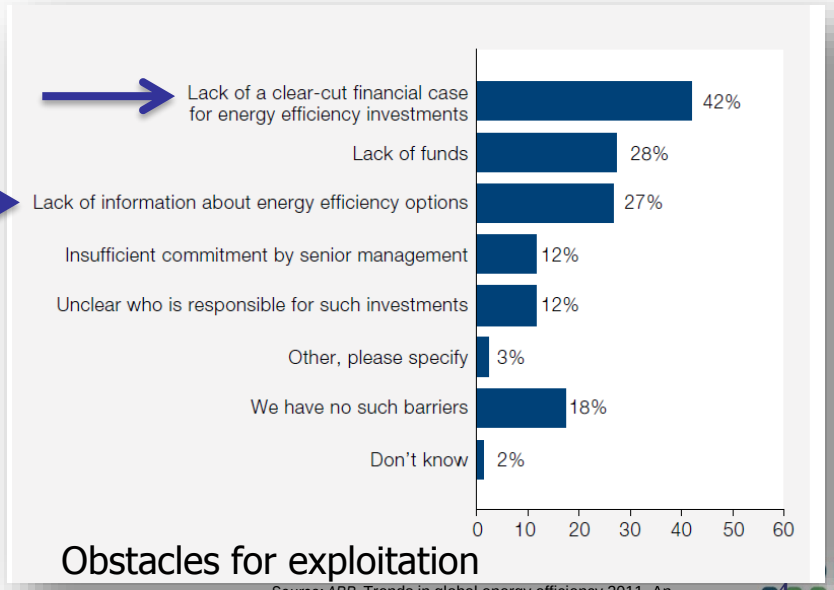
- Industry: historically a major energy consumer
- In EU accounted for 28% of FEC (2015)
- Trends in improvement of energy intensity
- Substantial unexploited potential



Source: JRC, 2017



Source: IEA, Tracking Clean Energy Progress, 2015



Obstacles for exploitation

Source: ABB, Trends in global energy efficiency 2011, An analysis of industry and utilities

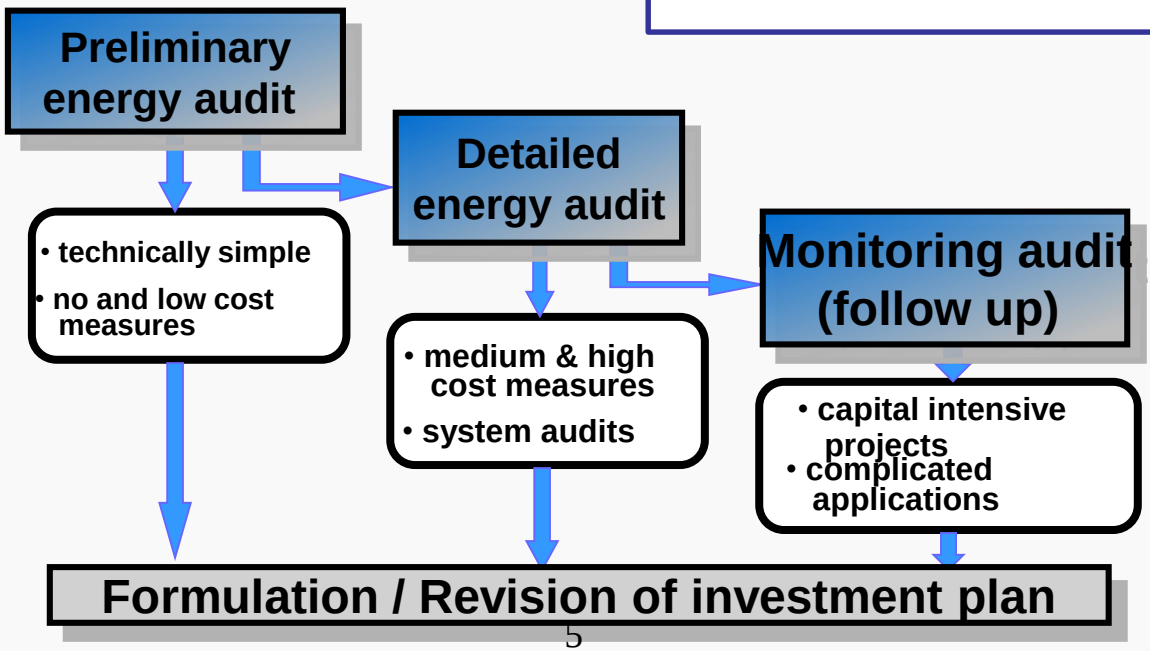
Definition-standards

Energy audit …

"A systematic procedure with the purpose of obtaining adequate knowledge of the existing energy consumption profile of a building or group of buildings, an industrial or commercial operation or installation or a private or public service, identifying and quantifying cost-effective energy savings opportunities, and reporting the findings", *Directive 27/2012/EU*

Standards

- ISO 50002
- EN 16247-1: General Requirements
- EN 16247-2: Buildings
- EN 16247-3: Industrial Processes
- EN 16247-4: Transport
- EN 16247-5: Energy Auditors qualifications



Legislation

DIRECTIVE 27/2012/EC, Article 8

Member States (MS) shall:

- ***promote the availability to all final customers of high quality energy audits*** which are cost-effective and either carried out in an independent manner by qualified and/or accredited experts according to qualification criteria; or implemented and supervised by independent authorities under national legislation
- establish transparent and non-discriminatory minimum criteria for energy audits (to guarantee their quality)
- *develop programmes to* ***encourage SMEs to undergo energy audits*** and the subsequent implementation of the recommendations from these audits
- may set up support schemes for SMEs, including if they have concluded voluntary agreements, to cover costs of an energy audit and of the implementation of highly cost-effective recommendations from the energy audits, if the proposed measures are implemented
- develop programmes to raise awareness among households about the benefits of such audits through appropriate advice services
- MS shall ensure that ***enterprises that are not SMEs are subject to an energy audit by 5 December 2015 and at least every four years from the date of the previous energy audit***

- **Law. 4342/2015-Article10**: compliance to Greek legal context of Directive 2012/27/EC of the 25 October 2012
- **MD 178679 /10.7.2017** «Systems for recognition of qualifications and certification of energy auditors, registry of energy auditors and energy audits
- **Decision: DEPEA/ 181906/5.10.2017** - Clarification for energy audits of law 4342/2015

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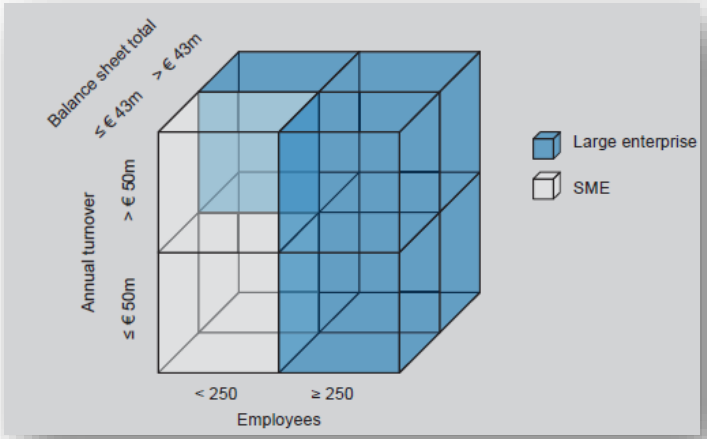
Greece-legislation

1. Subject

Independent non SME	α) have more than 250 employees OR β) less than 250 employees but annual turnover exceeds 50 MEUR and balance sheet exceeds 43 MEUR
Exemption	*Companies that implement certified systems for energy and environmental management, certified by an independent body*



2. Categories

Category A΄:	Residential, office and commercial buildings up to 2000 m2, and workshops with installed power capacity not exceeding 22 kWe or 50 kWth
Category B΄:	Office and commercial buildings over 2000 m2, other tertiary sector buildings, industrial installations with total installed capacity less than 1000 kW.
Category C΄:	Industrial installations with total installed capacity above 1000 kW

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Greece-legislation

3. Auditors

3 Categories- Independent certified auditors according to specified criteria (YA178609)

Category A΄:	At least one external certified auditor of any class	
Category B΄:	At least two auditors class B or C	It is possible that up to two energy auditors of lower class participate Can be implemented by internal energy auditors only in cooperation with at least one external energy auditor
Category C΄:	At least two auditors class C	

4. Implementation

Scope:	The audit covers at least 90% of total energy consumption
Similar installation	The audit is implemented at representative sample of similar installation of every group equal to the **square root** of the sum of all installations of the group, rounded to the next highest integer
Rented	Obliged companies that rent their assets to non obliged, **keeping the responsibility of operation and maintenance** of them, should include the, in the scope of the items to be assessed within the energy

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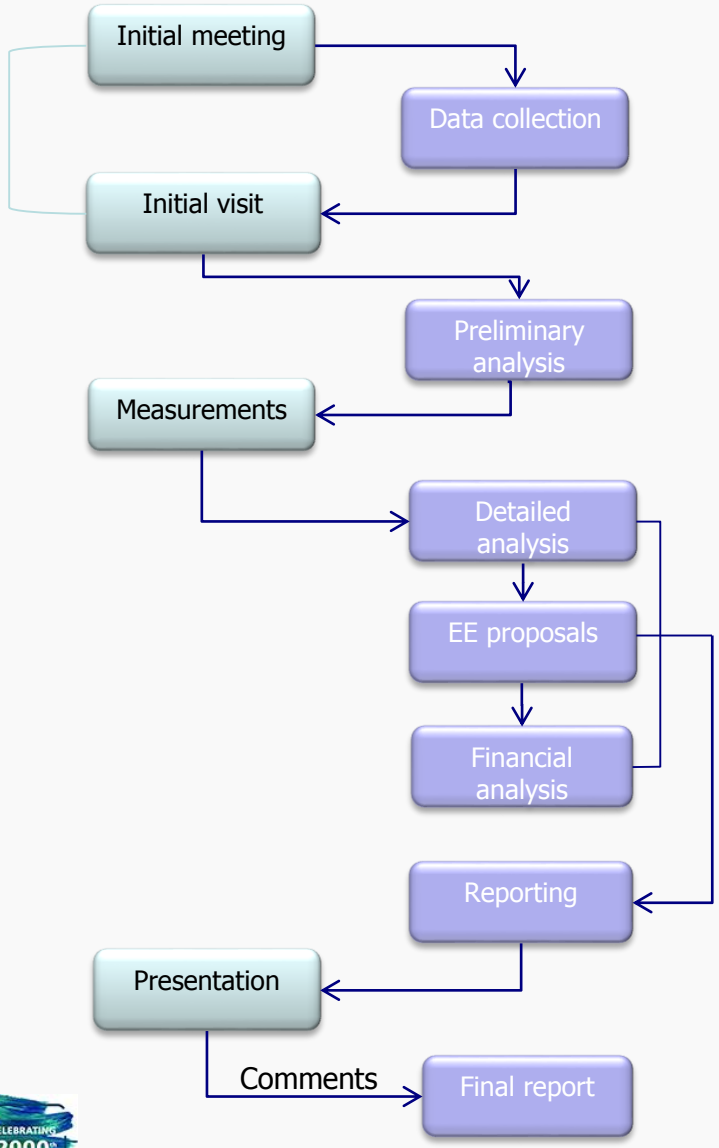
Energy Audit Steps

Steps



Step 1. Preparation-data collection

Step 2. Walk-through visit

Step 3. Analysis of energy data

Step 4- Measurements

Step 5. Data analysis

Step 6. Report

Energy Audit report

Chapter	Contents
Executive Summary	• Procedures followed • Key figures on **baseline** • List of all measures and outlook of **techno-economic r**esults • Recommended **action plan**.
CHAPTER 1 **Introduction- Site description**	• Brief outlook of **installations** • Description **processes-buildings** • Description of **utilities** • **Raw materials-products-waste** • **Energy management**, monitoring and accounting procedures followed - current sub-metering practices
CHAPTER 2 **Current energy consumption- performance**	• Fuel supply and Electricity supply • Electrical and thermal energy usage • Other resources utilisation • Detailed presentation of on site **measurements** and analysis
Chapter3 **Energy efficiency assessment - benchmarking**	• Allocation of energy to **ECC-energy balances** • **Baseline** energy consumption • Specific energy consumption per product unit or other key parameter • Comparison with international (**benchmarking**) • **CUSUM** analysis if data is available .

Example

Energy Audit report

Chapter	Contents
CHAPTER 4 **EE proposals**	• Technical description • Estimation of **CAPEX, OPEX** • Calculation of **energy savings** and other resource savings • Calculation of GHG emissions reduction • **Financial** savings

CHAPTER 5
Proposals for process improvement
	• Possibilities for improvement in the processes that can result to:
	  • Process optimization
	  • Raw material savings
	  • Increase in quality of production
	  • Modernization of production procedures
	  • Improvement of regular operation and management

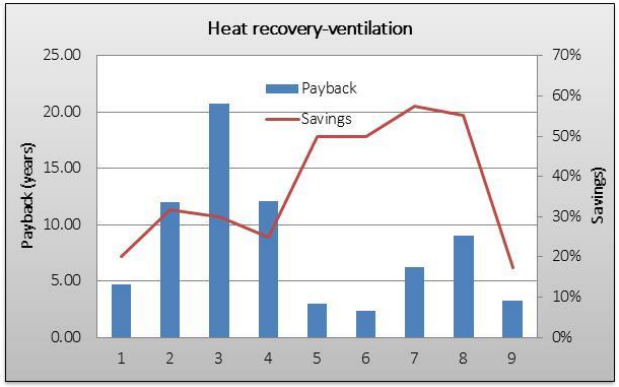
CHAPTER 6 **Financial analysis**	▪ Assumptions (tariffs, discount rate etc) ▪ **Lifecycle costs** per measure ▪ Cash-flow analysis ▪ Extraction of financial indicators (IRR and NPV) ▪ Risk-sensitivity analysis
CHAPTER 7 **Conclusions**	▪ Key findings report ▪ Proposal of financially viable improvements ▪ Follow up- action plan
Annexes	- Measurement data - Technical calculation data sheets - Financial analysis flow sheets etc.

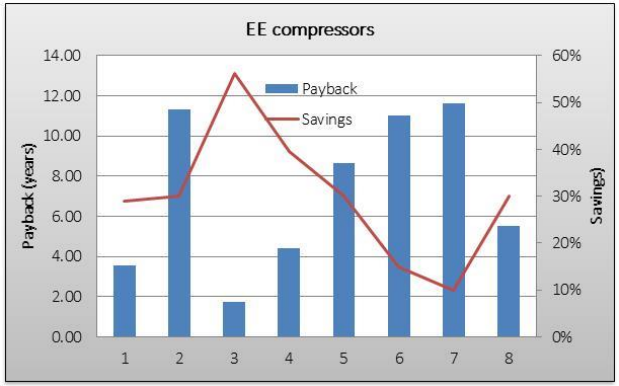
Examples of BATs

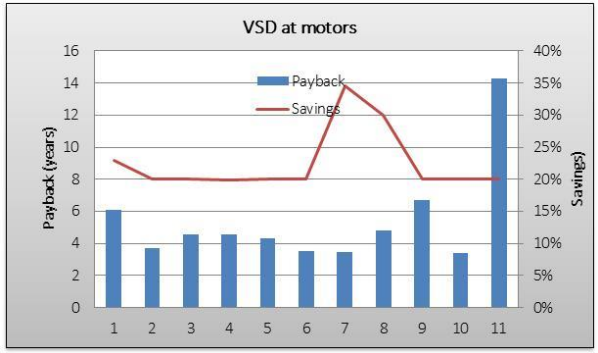
Low payback measures

Measure	Energy saving potential until 2030
Integrated control systems	17.3%
Sub-metering	13.8%
Flue gas monitoring (boilers-furnaces)	8.3%
High Efficiency burners (furnaces)	8.1%
Flue gas heat recovery	5%
Combustion optimisation (furnace)	3.8%
Steam trap optimisation	1.9%
Preventive furnace maintenance	1.6%

Source: ICF, 2015 [3]







Example: Heat recovery

Sources of waste heat

Area	Waste heat source	Utilisation
Boilers	Flue gas	Economisers Preheat combustion air
Boilers	Blowdown Condensate	Preheat boiler feedwater
Refrigeration	Waste heat from Condenser	High grade heat from de-superheater Low-grade heat recovery from condenser
Ventilation systems	Exhaust air	Heat wheel Run-around coil Heat pipes Heat pumps
Industrial processes	Heating at industrial processes Drying Heat stored in products etc.	Low temperature waste heat High temperature waste heat

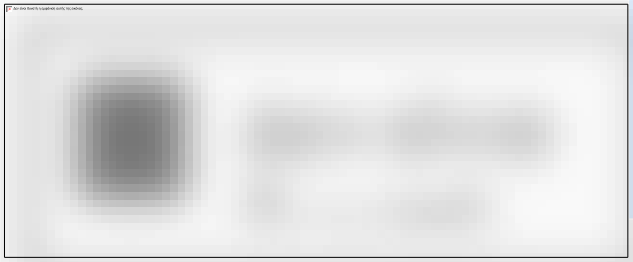
RESULTS

Heat use before=22772 MWh/y
Heat used after = 9678 MWh/y
Gas savings = 261885 EUR/y

CAPEX: = 500,000 EUR
Auxiliaries: = 125,000 EUR

Simple Payback = 2.4 years

Example: HR in ventilation in agribusiness



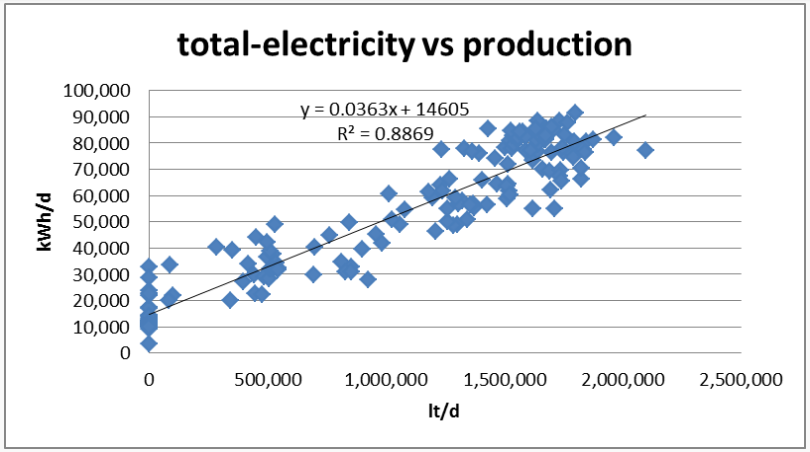
Good practices

Minimum criteria Annex VI

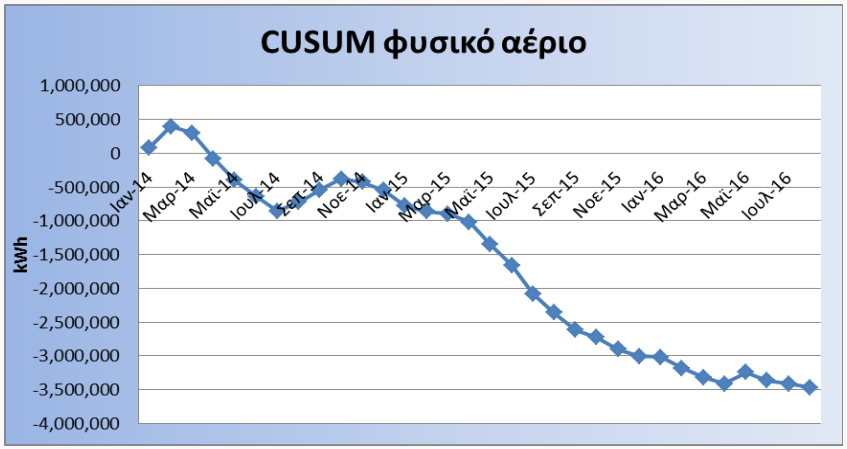
Demand	Addressing
Be based on up-to-date, measured, traceable operational data on energy consumption	• Methodology for **systematic collection of primary information**. • **Targeted measurements** for the acquisition of integrated and reliable data needed for energy balances
Comprise a detailed review of the energy consumption profile of buildings or groups of buildings, industrial operations or installations, including transportation	• Analysis at discrete **Energy Cost Centres** to be defined at early stage.
Build, whenever possible, on life-cycle cost analysis (LCCA) instead of Simple Payback Periods (SPP)	• Analytical approach and calculation of **O&M** costs of each action • **Tools** for financial viability analysis • **Risk** and **sensitivity** analysis .
Be proportionate, and sufficiently representative to permit the drawing of a reliable picture of overall energy performance and the reliable identification of the most significant opportunities for improvement.	• **Transparent criteria** for selection of targeted objects • Determine relationship of **energy vs critical parameters** (production etc**)**, **interactive effects**

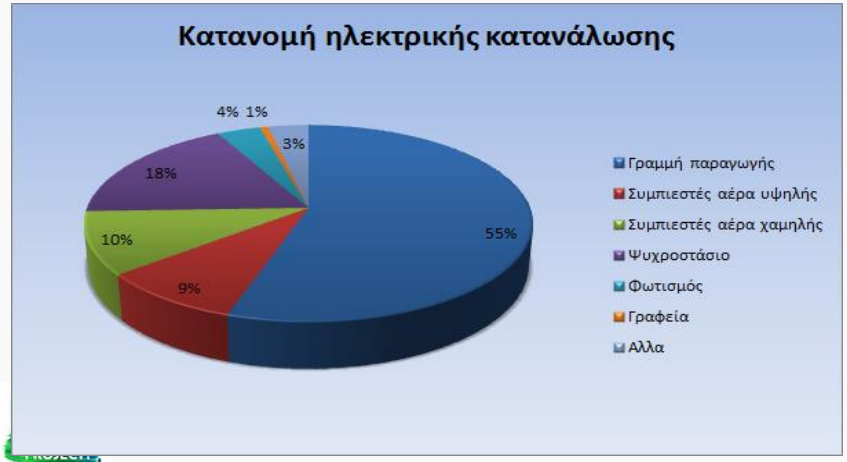
Good practices-analysis

Correlation of energy with critical parameters



Representative periods

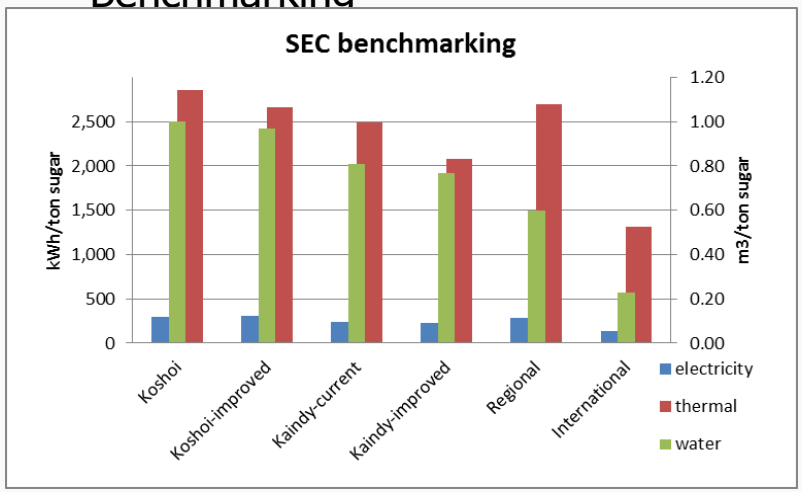


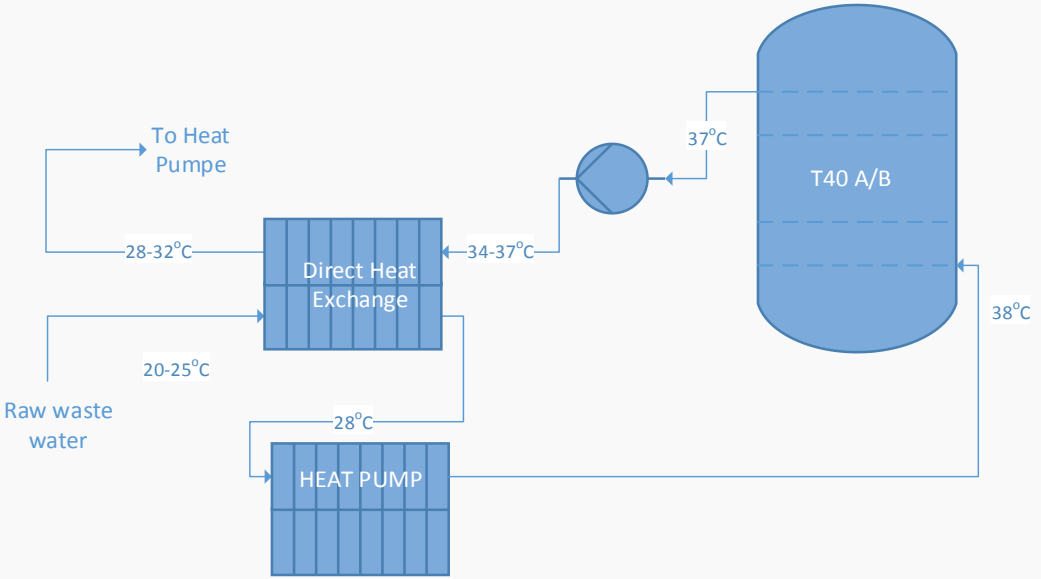


Allocation of energy use

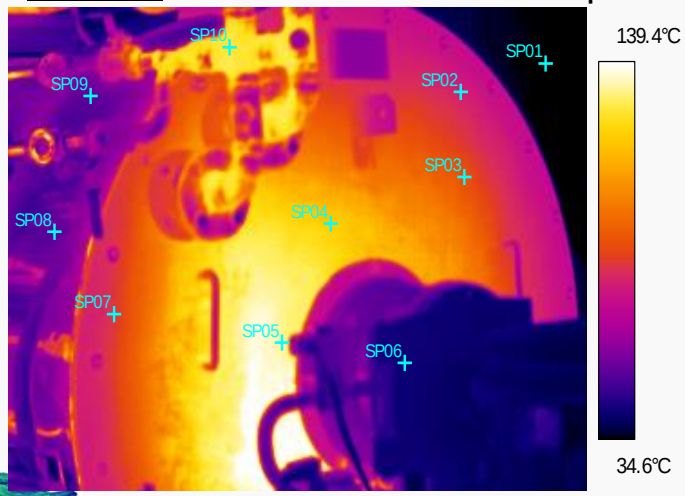
Good practices-justification

Benchmarking





Problem: Justification of need-scope

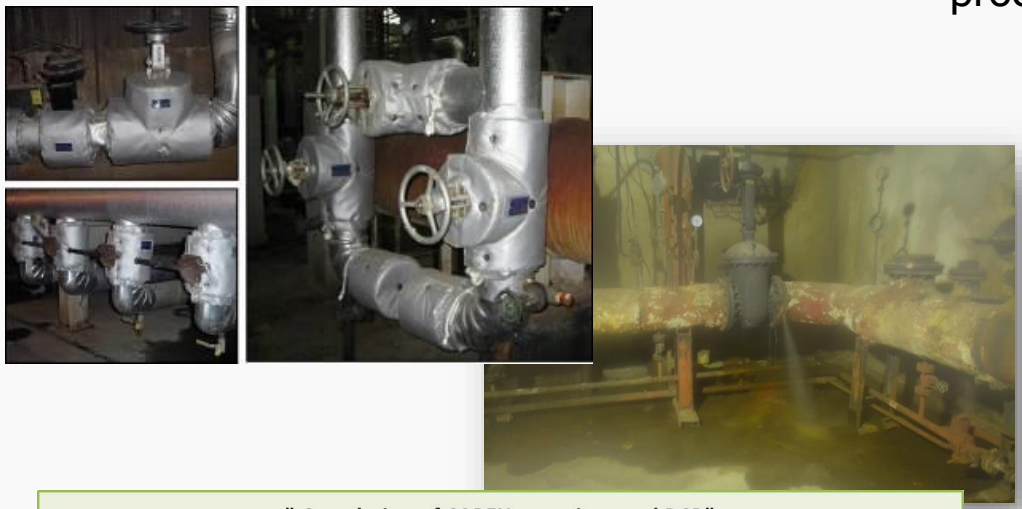


Proposals: clear and analytical, with technical evidence

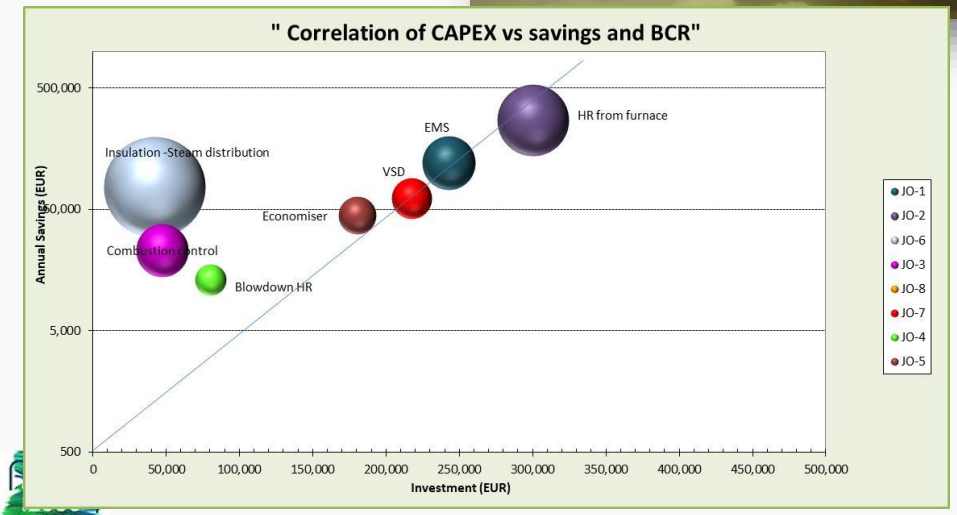
example

Good practices-measures

Target on no/low cost measures



Focus on process



Viability: LCCA

Example

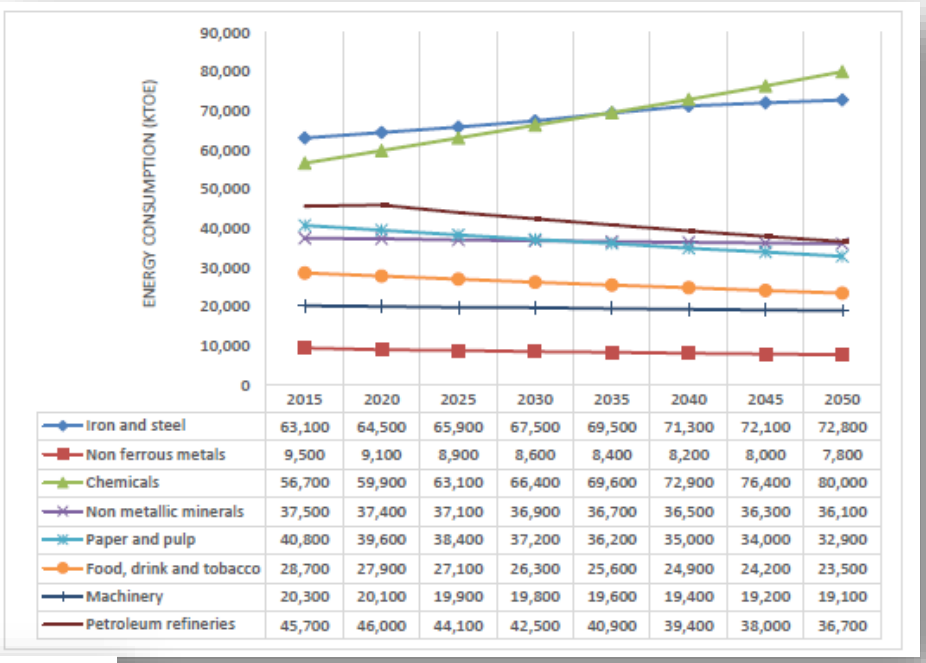
Risk: Sensitivity analysis

Example

International experience

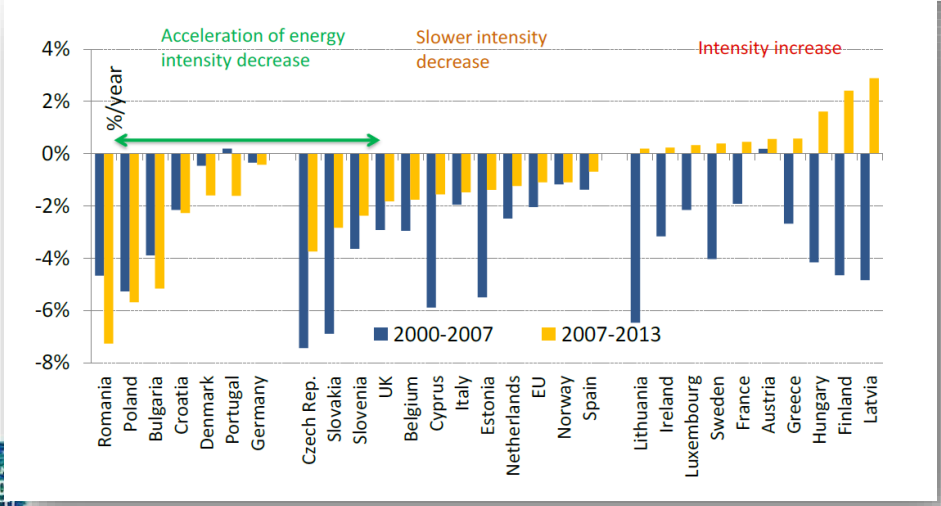
EE potential in industry

- Industry in the EU: > 35% primary energy demand
- Technical potential of EE in industry: -40% of primary energy supply
- Differentiation in achieved results in so far



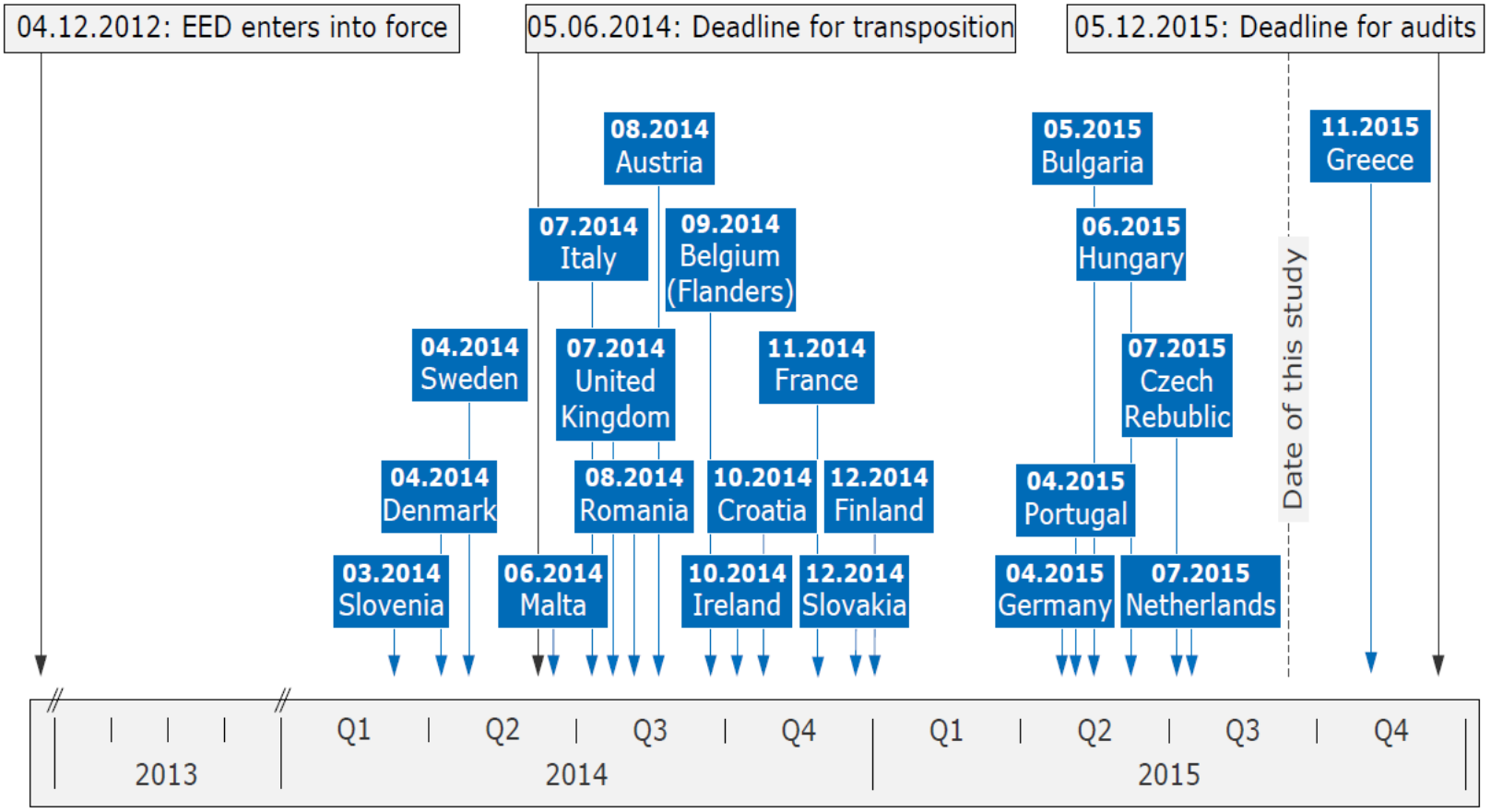
	2015	2020	2025	2030	2035	2040	2045	2050
Iron and steel	63,100	64,500	65,900	67,500	69,500	71,300	72,100	72,800
Non ferrous metals	9,500	9,100	8,900	8,600	8,400	8,200	8,000	7,800
Chemicals	56,700	59,900	63,100	66,400	69,600	72,900	76,400	80,000
Non metallic minerals	37,500	37,400	37,100	36,900	36,700	36,500	36,300	36,100
Paper and pulp	40,800	39,600	38,400	37,200	36,200	35,000	34,000	32,900
Food, drink and tobacco	28,700	27,900	27,100	26,300	25,600	24,900	24,200	23,500
Machinery	20,300	20,100	19,900	19,800	19,600	19,400	19,200	19,100
Petroleum refineries	45,700	46,000	44,100	42,500	40,900	39,400	38,000	36,700

Source: ICF, 2015



Source:
Energy Efficiency Trends and Policies In Industry *ODYSSEE-MURE, 2015*

Article 8- Compliance



Source: Ricardo, Article 8 of EED; challenges for large enterprises, 2016

Timeline for Article 8 compliance

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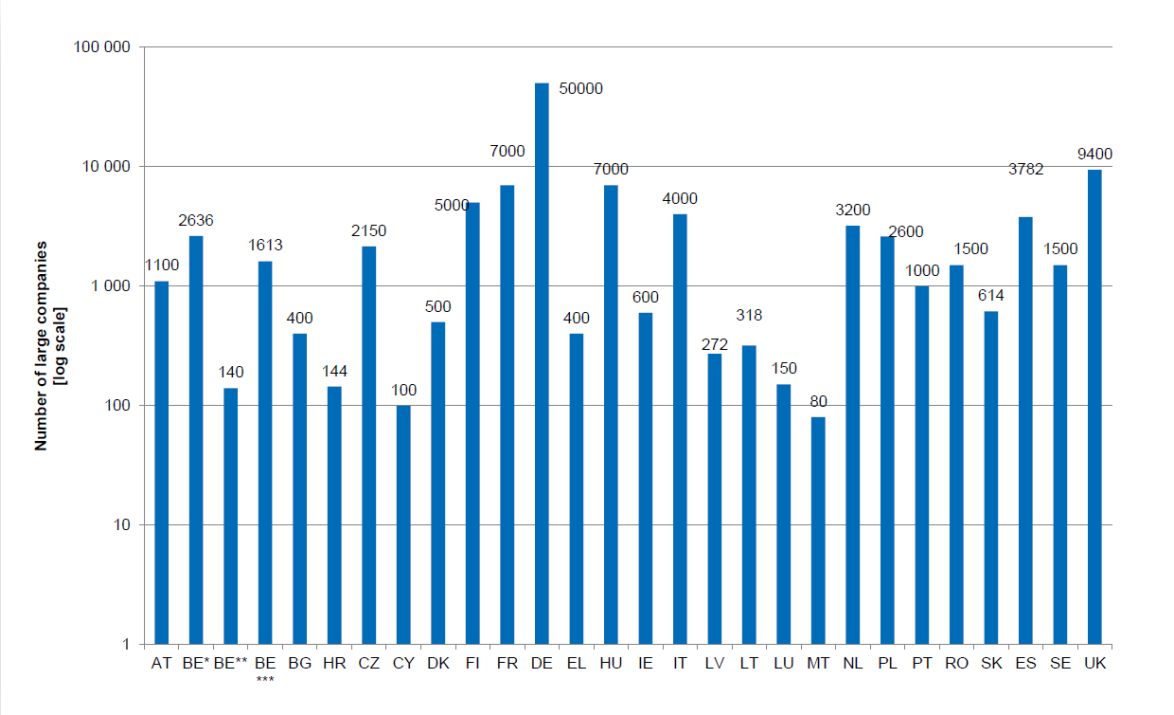
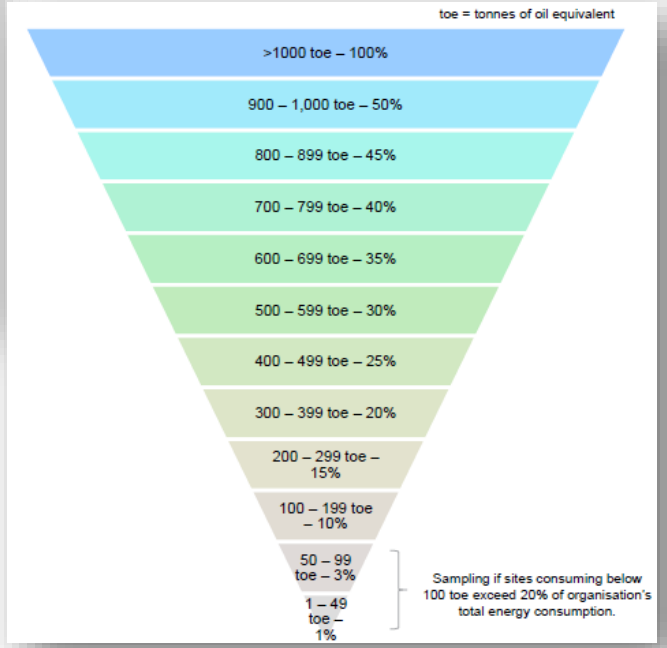
Obliged non SME companies



Source: Ricardo, Article 8 of EED; challenges for large enterprises, 2016

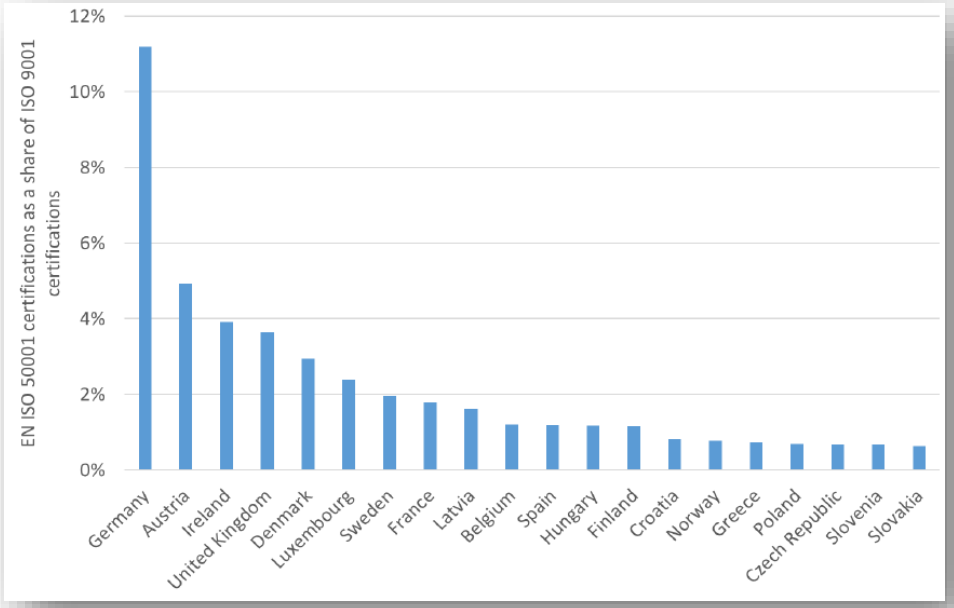
Obliged companies

Representativeness



Source: Ricardo, Article 8 of EED; challenges for large enterprises, 2016

Implementation of ISO 50001



Source: P. Waide, European Experience with energy management, 2017

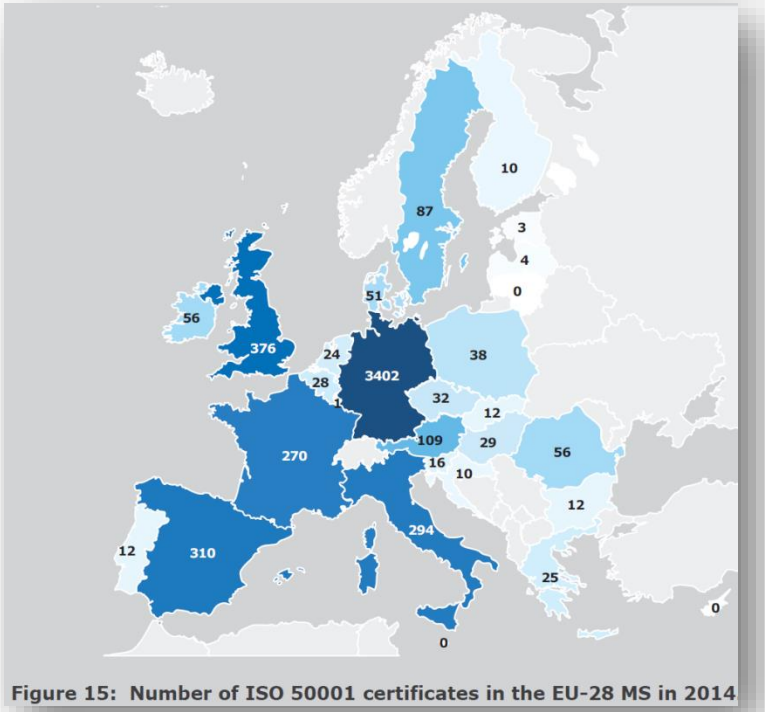


Figure 15: Number of ISO 50001 certificates in the EU-28 MS in 2014

Source: EC , 2016

Next steps

- Energy audits: lead to actions or are tools for compliance??
- EE measures financing
- Mandatory implementation…

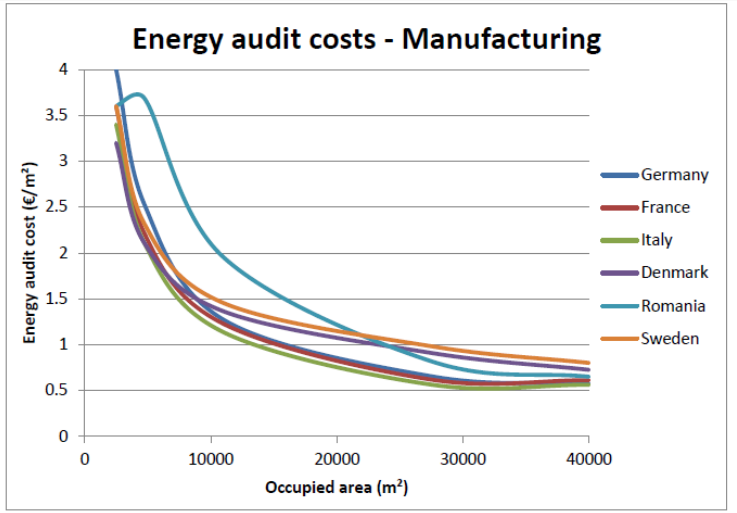
KENYA

THE ENERGY (ENERGY MANAGEMENT) REGULATIONS, 2012

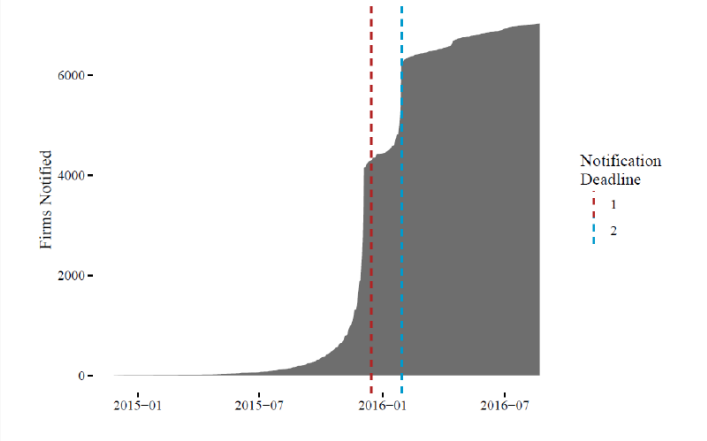
Energy conservation measures.

8. (1) The owner or occupier shall take measures to realize at least fifty percent of the identified and recommended energy savings specified in the energy investment plan by the end of three years and thereafter at every audit reporting date.

Source;
https://www.erc.go.ke/index.php?option=com_content&view=article&id=249:public-notice-the-energy-energy-management-regulations-2012&catid=108&Itemid=700



Source: A study in energy efficiency in enterprises, EC, DNV, 2016



Source: Dept of Business Energy and Industrial Strategy, UK, 2017

LDK Consultants

SN	Project	Country	Period
1	Energy Audits at Hellenc Brewery	Greece	4-6/2018
2	Energy Audits at FAMAR pharmaceutical company	Greece	4-6/2018
3	Resource Efficiency audit at Enzym Yeast plant	Ukraine	9-11/2017
4	Energy Audit at JORMAG magnesia plant	Jordan	5-8/2017
5	Energy Audit at grain facilities in Tunisia	Tunisia	5-8/2017
6	Energy audit at 2 sugar plants in Kyrgyz republic	Kyrgyzstan	5-7/2017
7	Energy audits at 5 buildings (schools/kindergartens/hospitals) in Yerevan	Armenia	9-12/2016
8	Energy audits at 5 buildings (schools/kindergartens/hospitals) in Chisinau	Moldova	9-12/2016
9	Energy Audits at 7 sites of Coca Cola Hellas as per EN16247 standards	Greece	4-12/2016
10	Energy Audits at UKPF poultry complex	Kazakhstan	11/2015-1/2016
11	Energy Audits at the buildings of Nokia Hellas (4 buildings)	Greece	9/2015-11/2015
12	Energy Audit at Zernoff Group (Agribusiness)	Moldova	8/2015-10/2015
13	Energy Audit at Khask (adhesive tapes)	Ukraine	7/2015-9/2015
14	Energy Audit at Rustavi Azot	Georgia	4/2015-7/2015
15	Energy Audits at BMI and KMN copper plants	Azerbaijan	3/2015-6/2015

- Established in 1968 in Athens, Greece
- Comprising 6 companies (including subsidiaries in Romania, Belgium, Cyprus, Serbia & Kenya)
- 80 employees
- Fields of expertise: Energy, Environment and Water,Buildings & Infrastructure, Socio-economic Development
- Average revenues: 13m €
- Assignments in more than 70 countries world-wide
- **Largest Integrated Consulting & Engineering Services Company in Greece,** with 85% of revenues generated internationally

CELEBRATING 2000th PROJECT!

CONNECTING OUR WORLD

REACHING MORE THAN 110 COUNTRIES

THANK YOU!!!

Albania
Algeria
Angola
Argentina
Armenia
Austria
Azerbaijan
Barbados
Belgium
Belize
Benin
Bolivia
Bosnia & Herzegovina
Brazil
Bulgaria
Burkina Faso
Burundi
Cambodia
Cameroon
Chile
China
Colombia
Costa Rica
Croatia
Cuba
Cyprus
Czech Republic
Denmark
Djibouti
Dominican Republic
East Timor
Ecuador
Egypt
El Salvador
Estonia
Ethiopia
Finland
France
French Guiana
French Polynesia
FYROM
Georgia
Germany
Ghana
Greece
Greenland
Guatemala
Guyana
Haiti
Honduras
Hungary
India
Indonesia
Ireland
Italy
Japan
Jordan
Kazakhstan
Kenya
Kyrgyzstan
Lao People's
Democratic Republic
Latvia
Lebanon
Libya
Lithuania
Luxembourg
Malaysia
Malta
Mexico
Mongolia
Montenegro
Morocco
Myanmar
Netherlands
New Zealand
Nicaragua
Niger
Nigeria
Norway
Oman
Pakistan
Panama
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Syria
Tajikistan
Thailand
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Data sheets

ΑΑ	Περιγραφή	Μονάδα	ΤΙΜΗ	ΣΧΟΛΙΟ
	Παραδοχές			
a	Τιμή φυσικού αερίου	EUR/kWh	0.045	Μέση τιμή 2013
b	ΑΘΔ φυσικού αερίου	kWh/Nm3	11.50	Source: ΔΕΠΑ (http://www.aerioattikis.gr/Default.aspx?pid=16&la=1)
	Παρούσα κατάσταση			
c	Κατανάλωση ΦΑ	Nm3/y	860,870	d x b * 1000
d	Κατανάλωση ΦΑ	MWh/y	9,900	από προσομοίωση
e	**Κόστος ΦΑ**	**EUR/y**	**445,500**	d x a *1000
f	Παροχή καυσαερίων	m3/y	30,855,675	
g	cp καυσαερίων(500C)	kJ/kgK	1.18	http://www.pipeflowcalculations.com/tables/flue-gas.php
h	πυκνότητα καυσαερίων (500C)	kg/m3	0.457	http://www.pipeflowcalculations.com/tables/flue-gas.php
	ΟΦΕΛΟΣ			
i	Θερμοκρασία καυσαερίων πρι	°C	500	Μέση θερμοκρασία καυσαερίων
j	Θερμοκρασία καυσαερίων μετ	°C	250	Θ/σια μετά την ανάκτηση
k	Θερμική ενέργεια	MWh/y	1,156	q=V*ρ*cp*ΔT
	Β.Α. Εναλλάκτη		70%	
m	Εξοικονόμηση ΦΑ	MWh/y	809	k / f
n	Εξοικονόμηση ΦΑ	Nm3/y	70,335	m / b x 1000
o	Ετήσιο όφελος από εξοικονόμ	EUR/y	36,398	m x a*1000
ab	Μείωση στο κόστος O&M	EUR/y	10,000	περ. 15% κατ'έτος
p	**Συνολικό όφελος**	**EUR/y**	**26,398**	
	Κόστος επένδυσης			
q	**Επένδυση**	EUR	**70,000**	
	Εκπομπές αερίων θερμοκηπίου			
r	Συντελεστής εκπομπών	tCO2/MWh fue	0.202	Πηγή: Ευρ. Επιτροπή
s	Μείωση εκπομπών CO2	tCO2/y	163.4	

Project No	PI-1A		
Biogas generation-separation			

SN	AREA	UNIT	VALUE	COMMENT
	Assumptions			
a	Electricity tariff	Eur/MWh	93.3	Assumed green tariff
b	Gas tariff	EUR/Nm3	0.46	Average 2015
c	Gas tariff	EUR/MWh	62.49	Average 2015
d	LPG LHV	MJ/Nm^3	26.477	assumed
e	Green Tariff	EURO/MWh	127	
f	**Present**			
g	Gas consumption boiler	Nm^3/y	43,915	baseline assumed
h	Gas consumption boiler	MWh/y	323	g x d /3.6/1000
i	Boiler efficiency (current)	%	95%	assumed present
j	Heat demand	MWh/y	307	h x i
k	**Gas costs**	**€/y**	**20,184**	b x g /1000
l	Electricity consumption	MWh/y	1,271	total plant's consumption
m	**Electricity Costs**	**EUR/y**	**118,607**	a x l
n	**Income**			
o	Electrical capacity	MW	0.347	
p	Electrical capacity (own)	MW	0.151	costs included in O&M
q	electrical efficiency	%	38%	average of all units
r	Heat efficiency	%	42%	average of all units
s	Heat Capacity	MWth	0.38	o x r / q
t	Fuel input	MW	0.99	o/ q
u	Operation	h/y	8,760	see analysis
v	Thermal energy UF	%	43%	
w	Power generation	MWh/y	3,040	o x u
x	**Income from electricity sale**	**Euro/y**	**283,606**	**a x w**
y	Biogas	kWh/y	8,684,914	
z	Generated heat	MWh/y	1,445	u x s
A	Saved gas	MWh/y	1,445	
B	***Saved gas***	**Euro/y**	**90,282**	**A x b /1000**
C	Nitrogen fertilizer	Euro/y	22,690	see analysis
D	P2O5-fertilizer	Euro/y	47,994	see analysis
E	K2O-fertilizer	Euro/y	8,265	see analysis
F	Liquid fertiliser	Euro/y	188,856	
G	Total income from fertilisers	Euro/y	267,805	assumed 0 as baseline
H	**Total income**	**Euro/y**	**641,693**	
I	**Expenses**			
J	Gas needed for CHP	Nm^3/y	0	NA
K	Gas for CHP costs	Euro/y	0	NA
L	Electricity costs	Euro/y	24,928	10% parasitic consumption
M	Personnel costs	Euro/y	40,000	2 employees
N	Maintenance of installations	Euro/y	290,225	mechanical + CHP
O	**Total expenses**		**-355,153**	
P	**Investment Cost**			
Q	Specific cost	Eur/kWe	8,287	
R	**Investment**	EURO	**2,875,418**	see analysis
S	**GHG emissions reduction**			
T	Emission factor-electricity	tCO_2/MWhe	0.521	source: EBRD
U	Emission factor-gas	tCO_2/MWh fuel	0.202	source: EC
V	CO2 emissions reduction	tCO_2/y	1,584	w x T + U x z

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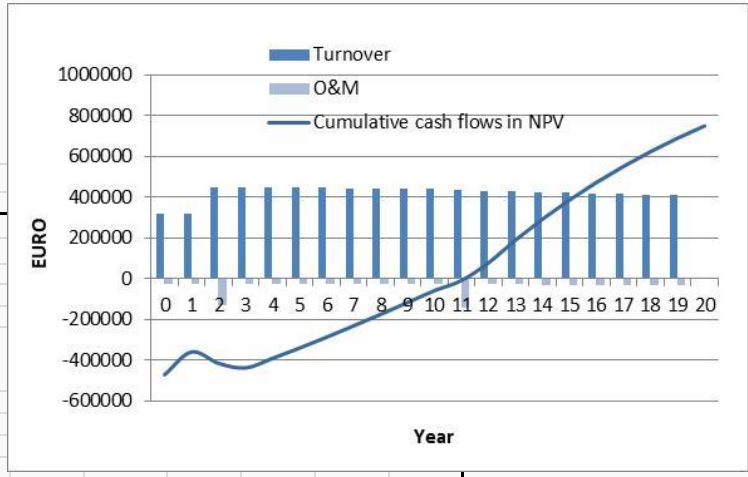
Financial analysis



ΑΝΑΛΥΣΗ ΧΡΗΜΑΤΟΡΡΟΩΝ

ΕΡΓΟ **ΑΛ-3**

Ανάκτηση θερμότητας από τους φούρνους ανόπτησης

Βασικές παράμετροι

Περιγραφή	Unit	Cost/ Benefit
Εξοικον όμηση ηλεκτρικής εν έργειας	EUR	0
Εξοικον όμηση θερμικής εν έργειας	EUR	94,759
Συνολική εξοικονόμηση ενέργειας	**EUR**	**94,759**
Εξοικον όμηση ν ερού	EUR	0
Κόστος επέν δυσης	EUR	240,000
Μείωση σε κόστος O&M	EUR	-34,286
Πρόσθετο εισόδημα από αύξηση πωλήσεων	EUR	0
Πληθωρισμός	%	2%
Χρόν ος ζωής	years	15
Συν τελεστής φορολόγησης	%	0
Επιτόκιο αν αγωγής	%	10%

Αποτελέσματα

Περιγραφή	Μονάδα	Value
Καθαρή Παρούσα Αξία (ΚΠΑ)	EUR	**271,781**
Απλή Περίοδος Αποπληρωμής (ΑΠΑ)	έτη	4.0
Λόγος Οφέλους/Κόστους (BCR)		2.1
Εσωτερικός Βαθμός Απόδοσης (IRR)	%	**26.15%**

Ετήσιες χρηματορροές [σε EURO]

Περίοδος	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Έτος	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Οφελος από εξοικον όμηση εν έργειας		94,759	96,654	98,587	100,559	102,570	104,622	106,714	108,848	111,025	113,246	115,511	117,821	120,177	122,581	122,581
Οφελος από εξοικον όμηση ν ερού		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Πρόσθετο εισόδημα από αύξηση πωλήσεων		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Μείωση σε κόστος O&M		-34,286	-34,971	-35,671	-36,384	-37,112	-37,854	-38,611	-39,384	-40,171	-40,975	-41,794	-42,630	-43,483	-44,352	-45,239
Μικτό κέρδος		**60,473**	**61,683**	**62,916**	**64,175**	**65,458**	**66,767**	**68,103**	**69,465**	**70,854**	**72,271**	**73,717**	**75,191**	**76,695**	**78,229**	**77,342**
Κόστος επέν δυσης	-240,000															
Καθαρή χρηματορρή	-240,000	60,473	61,683	62,916	64,175	65,458	66,767	68,103	69,465	70,854	72,271	73,717	75,191	76,695	78,229	77,342
Παρούσα αξία	-240,000	54,976	50,977	47,270	43,832	40,644	37,688	34,947	32,406	30,049	27,864	25,837	23,958	22,216	20,600	18,515

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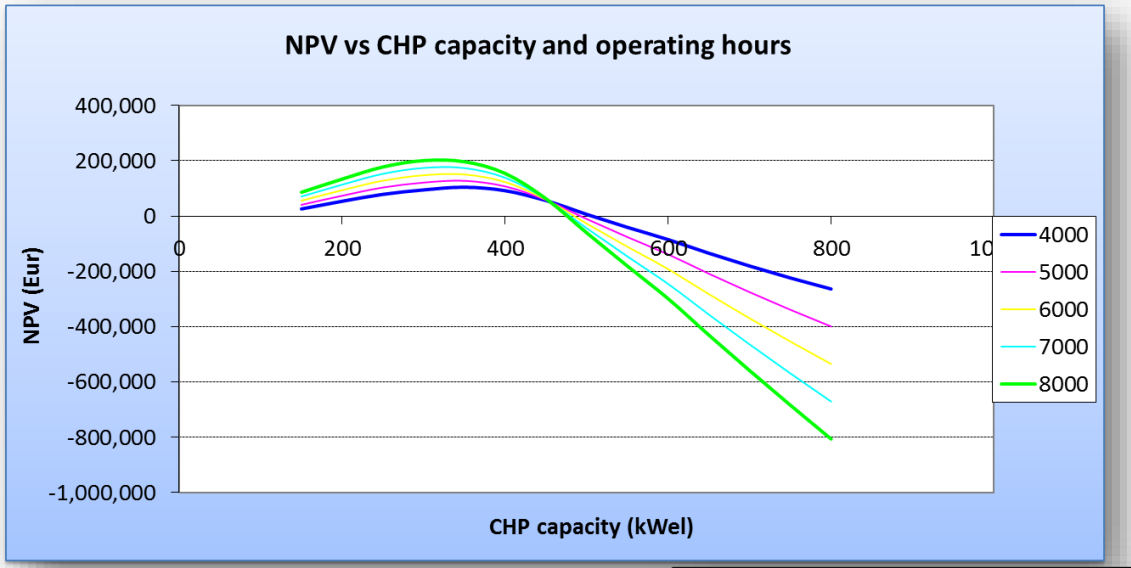
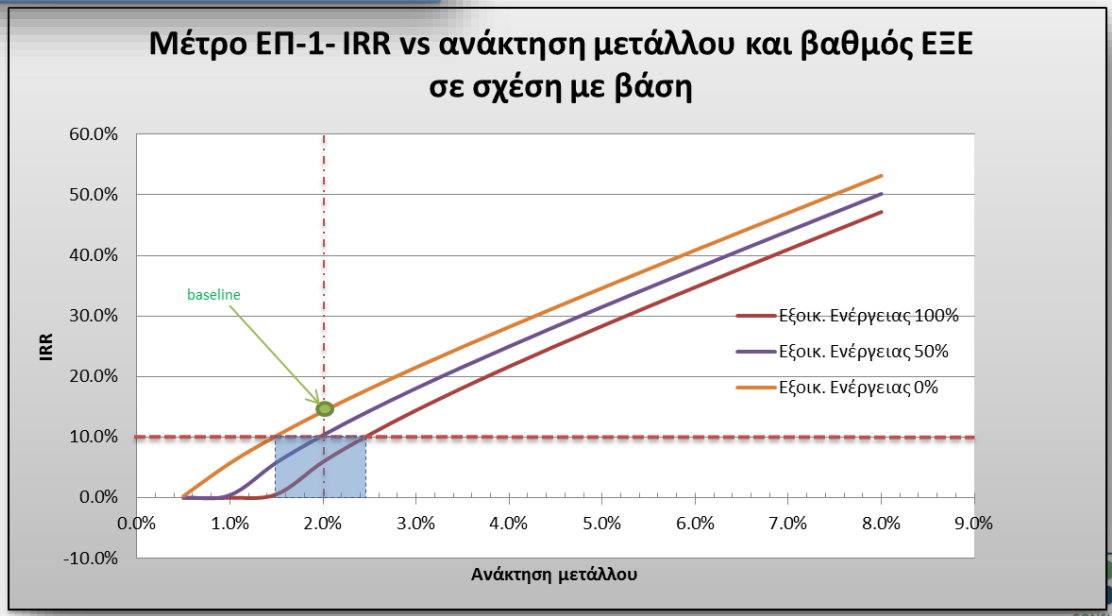
Sensitivity analysis





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Sumamry sheet

SN	Project	Investment	Electricity Savings	Electricity Savings	Thermal Savings	Thermal Savings	Cost Savings	Simple Payback	IRR	NPV	CO_2 reduction
		€	MWh/y	%	MWh/y	%	€/y	years	%	€	Ton/y
ZE-1	Biomass Boiler at the Spirit Plant	6,002,000	0	0.0%	110,444	50.4%	2,226,975	2.7	36.8%	10,936,546	22,310
ZE-2	Efficiency improvements at Boilerhouse	78,000	0	0.0%	2,592	1.2%	90,822	0.9	116.4%	612,798	524
BA-1	New small HW boiler	20,000	0	0.0%	190	5.8%	6,140	3.3	29.6%	25,177	38
BA-2	New compressed air system	40,000	120	7.1%	0	0.0%	9,062	4.2	22.2%	14,332	63
BA-3	Energy efficiency in steam distribution	27,500	0	0.0%	594	18.1%	17,940	1.5	65.2%	108,955	120
BA-4	Heat recovery for buildings heating	75,000	0	0.0%	237	7.2%	7,160	10.5	4.9%	-20,544	48
BA-5	Replacement of lamps with energy efficient	17,100	89	5.2%	0	0.0%	7,359	2.1	46.7%	43,873	46
BA-6	New Line no 4	200	1,122	65.8%	-3,298	-100.7%	177,745	5.0	18.3%	458,941	84
BA-7	Rain Harvesting system	100,000	0	0.0%	0	0.0%	2,055	43.2	0.0%	-82,405	0
PI-1	Biogas generation	2,763,566	3,040	239.1%	0	0.0%	431,111	6.4	12.6%	438,719	1,584
.....	.....										
	TOTAL	**10,189,644**	**5,784**		**110,075**		**3,121,464**	**3.3**		**12,534,173**	**29,230**
	TOTAL ACCEPTED	**9,700,644**	**5,039**		**110,523**		**3,093,060**	**3.1**		**12,834,053**	**28,933**

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