

MAYORS IN ACTION
CENTRALIZED TRAINING FOR SUPPORTING
STRUCTURE
50000&1SEAPs Project
Energy Management Systems in Local Government
March 10, 2016 – Croatian Chamber of Trades and Crafts

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“50000AND1SEAPS” PROJECT

(<http://www.50001seaps.eu/home/>)

- ✿ 13 Partners;
- ✿ 8 EU Countries involved;
- ✿ 40 Municipalities supported.



SOGESCA

Project Development

- ✦ Municipalities supported in the Project Activities:
 - Pordenone (52,000 inh.)
 - Montecchio Maggiore (24,000 inh.)
 - Marostica (14,000 inh.)
 - Federazione dei Comuni del Camposampierese (11 Municipalities, 97,000 inh.)

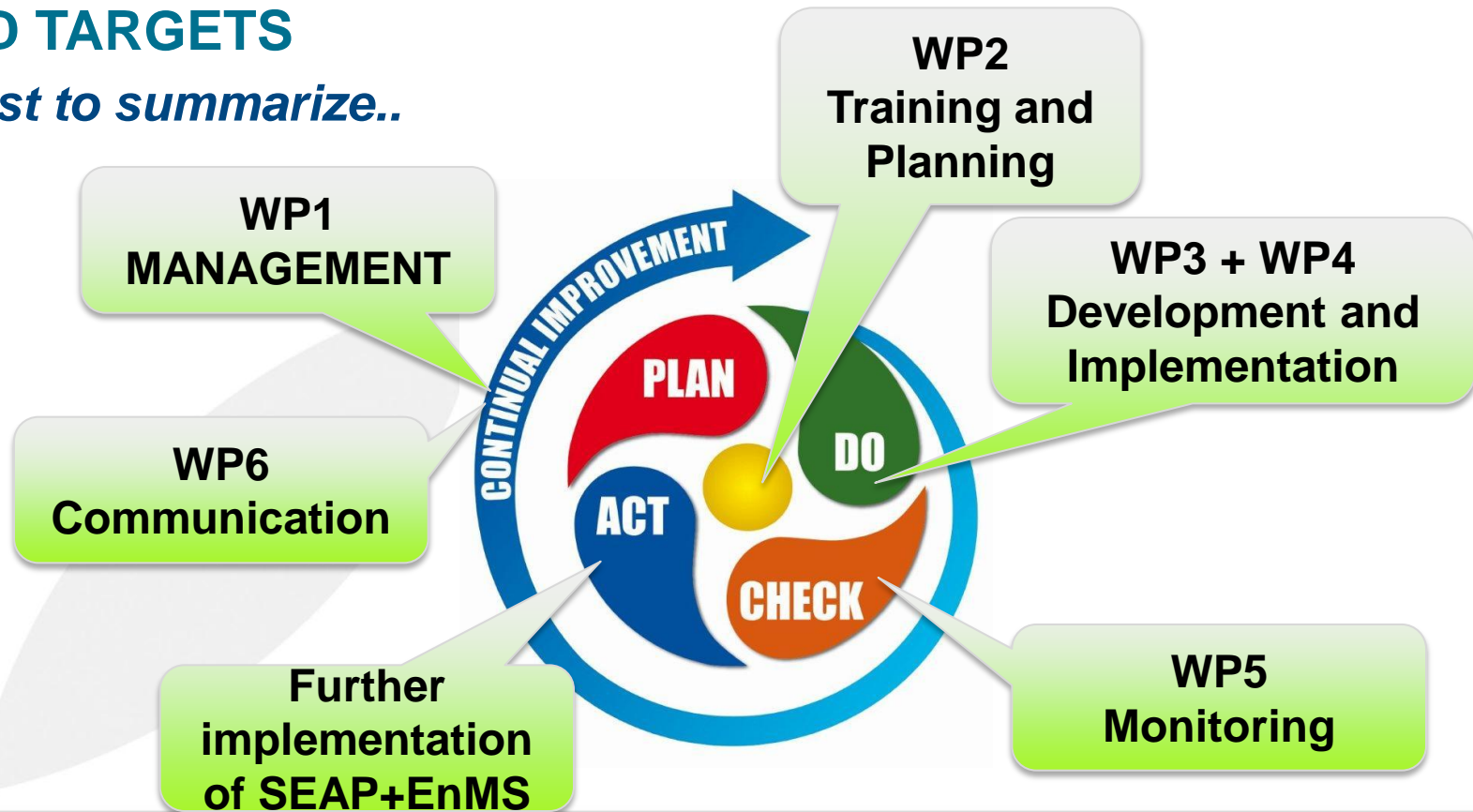


SEAP AND ENMS: SINERGIES IN IEE PROJECTS



“50000AND1SEAPs” PROJECT: FRAMEWORK, ACTIVITIES AND TARGETS

Just to summarize..



HOW TO DEVELOP A SEAP+ENMS IN A LOCAL GOVERNMENT STEP BY STEP

DATA QUALITY AND DATA COLLECTION METHODOLOGY IMPORTANCE



SEAP+EnMS: STEP 1: TOP MANAGEMENT COMMITMENT

Commitments

Top management commitments (involve, discuss, support, check, decide, feedback):

- ✦ **Creating Energy Policy;**
- ✦ Creating scope and boundaries of the EnMS;
- ✦ Appointing a management representative/team;
- ✦ Providing resources and communicating;
- ✦ Reviewing the EnMS performance;
- ✦ Being involved while

Objectives and targets are established

Finalizing EnPI

- ✦ Receiving performance reports;
- ✦ Considering energy performance in political decisions



SEAP+EnMS: STEP 2: APPOINT IMPLEMENTATION TEAM

Commitment to Implement: Gain Commitment (Energy Team)

Management must commit resources to the implementation effort which could include:

- ✦ Assigning a manager with appropriate skills and competence as project leader (defined in the training procedure of the energy team)

ENERGY TEAM COORDINATOR	ENERGY TEAM MEMBERS
Laurea Tecnica o Diploma Tecnico	Laurea o Diploma
Formazione specifica in materia di Gestione dell'Energia	Formazione specifica in materia di Gestione dell'Energia
Esperienza professionale in materia di Gestione dell'Energia di almeno 2 anni	
Esperienza lavorativa di almeno 5 anni	Esperienza lavorativa nel ruolo al momento ricoperto di almeno 2 anni

What kind of
expertise is
required to take
part in the Energy
Team?



- ✦ Approving the energy management team

LIST OF THE PROCEDURES – ROLE AND RESPONSIBILITIES OF THE ENERGY TEAM MEMBERS

Procedures of the System (EnMS)

- Energy Uses Evaluation → Energy Review (WP3)
- Legal requirements concerning energy issues
- Energy objectives, energy targets and EnMS **Action Plan (WP4)**
- Competence, training and awareness
- Communication (internal and external) (WP6)
- Documentation control
- Monitoring, measurement and analysis (WP5)
- Nonconformities, Corrective Actions and Preventive Actions
- Audit
- Management Review
- Monitoring suppliers Design
- **+ SEAP Management and Monitoring**

Operative/technical procedures

- Public lighting systems
- Heating plants and boilers
- Air conditioning systems
- Public vehicle fleet
- Private sectors (SEAP)
- Other



DEFINITION OF THE BOUNDARIES IN SEAP+EnMS DEVELOPMENT

- ✿ Public Buildings and facilities;
- ✿ Public Lighting;
- ✿ Vehicles fleet;

LGs significant energy use sectors influenced and controlled by the LG

→ **Private sectors:** Residential, Commercial, Agriculture, Industrial, Public and Private Transport

are not included in the EnMS boundaries and are not directly influenced and controlled by the LG, but represent significant energy use sectors in the LG area



ENERGY REVIEW, ENERGY BASELINE AND BASELINE INVENTORY EMISSION ACCORDING TO THE Definition of the energy use in a LG: direct energy

Significant

Significant

Significant

Significant

Significant

Tipologia	Uso dell'energia	Vettore	Anno	Dato	Consumi	
Schools	Consumi di EE in edifici di proprietà e in uso diretto	EE	2013	303.144	KWh	303,14
	Consumi di gas metano in edifici di proprietà e in uso diretto	METANO	2013	421.605,98	m3	
Municipal Buildings and Infrastructures	Consumi di EE in edifici di proprietà e in uso diretto	EE	2013	366.948,00	KWh	366,95
	Consumi di gas metano in edifici di proprietà e in uso diretto	METANO	2013	118.419,00	m3	1.161,16
Sport facilities	Consumi di EE in edifici di proprietà e in uso diretto	EE	2013	60.474,00	KWh	60,47
	Consumi di gas metano in edifici di proprietà e in uso diretto	METANO	2013	51.282,00	m3	502,85
Cemeteries	Consumi di EE in edifici di proprietà e in uso diretto	EE			KWh	47,43
	Consumi carburante parco veicoli comunale	BENZINA	2013		l	0,00
Municipal vehicles fleet	Consumi carburante parco veicoli comunale	GPL	2013		l	0,00
	Consumi carburante parco veicoli comunale	GASOLIO	2013		l	0,00
illuminazione pubblica	Consumi EE illuminazione pubblica	EE	2013	2.017,80	MWh	2.017,80

ENERGY REVIEW, ENERGY BASELINE AND BASELINE INVENTORY EMISSION ACCORDING TO THE SEAP

Definition of the energy use in a LG: direct energy use indicators

(EnPI)

- * kWh/m²th
- * kWh/m³th
- * kWh/m²el
- * kWhel/th produced by RES/year
- * External temperature
- * Costs indicators:
- * €/kWhth/m³
- * €/kWhel
- * Other...

Internal Action: school building refurbishment		
EnPI	Appropriate?	Why?
Annual consumption of natural gas [m ³]	NO	It doesn't take into account relevant variables affecting energy use, like external temperature
Annual consumption of natural gas linked to Heating degree days [m ³ /HDD]	YES	It takes into account external temperature and it recognizes energy consumption drops due to higher external temperature due to energy efficiency improvement

ENERGY REVIEW, ENERGY BASELINE AND BASELINE INVENTORY EMISSION ACCORDING TO THE SEAP

Definition of the energy use in a LG: direct energy use

Where these data come from?

- ✱ Energy bill;
- ✱ Energy consumption reports obtained by energy suppliers (if possible);
- ✱ Distribution System Operators (only in particular best practices case as electricity);
- ✱ Open Source Data Management platform (Municipality of Montecchio Maggiore case);
- ✱ Remote control system of energy consumption (Municipality of Pordenone case in collaboration with Enel Distribuzione SpA)

But... What is the office that is in charge of the registration and analysis of energy consumption data?
Accountancy Office?
Public Works Office?

ENERGY REVIEW, ENERGY BASELINE AND BASELINE INVENTORY EMISSION ACCORDING TO THE SEAP

Definition of the energy use in a LG: indirect use

Tipologia	Usò dell'energia	Vettore	U.M.	Dato 2019	Dato 2020
Residenziale	Consumi per riscaldamento e ACS	METANO	m3	14.122.703,00	148.288,38
Residenziale	Consumi elettrici	EE	MWh	24.134,06	24.134,06
Terziario	Consumi per riscaldamento e ACS			3.569.409,00	
Terziario	Consumi elettrici	EE	MWh	31.513,74	31.513,74
Mobilità	Trasporto Pubblico Locale	Gasolio	ton	0,00	0,00
Mobilità	Consumi per mobilità privata			2.975,42	36.124,41
Mobilità	Consumi per mobilità privata			8.319,06	99.209,74
Mobilità	Consumi per mobilità privata	GPL	ton	435,68	4.944,70
Industria / Agricoltura	Consumi energia termica industria privata	METANO	m3	3.342.320,00	35.094,36
Industria / Agricoltura	Consumi energia elettrica industria privata	EE	MWh	120.251,99	120.251,99

Significant

Significant

Significant

Significant

Significant



ENERGY REVIEW, ENERGY BASELINE AND BASELINE INVENTORY EMISSION ACCORDING TO THE SEAP

Definition of the energy use in a LG: indirect energy use

Where these data come from?

- ❁ European/National/Regional/Local statistics data;
- ❁ Ministry of Economic Development (Fuel sales data in the Italian case);
- ❁ Distribution System Operators (Electricity and Natural Gas DSOs operating in the Municipality territory).

ENERGY REVIEW, ENERGY BASELINE AND BASELINE INVENTORY EMISSION ACCORDING TO THE SEAP

Definition of the energy use in a LG: indirect energy use

- ✦ Electricity data consumption coming from a DSO (Italy) – Meshartility Project experience

Anno	Regione	Provincia	Comune	ISTAT	Tipo Utenza	CONSUMI IN kWh
					Edifici, attrezzature, impianti Comunali	6.048.658
					Illuminazione Pubblica	1.813.827
					AGRICOLTURA	422.635
					INDUSTRIA	119.829.353
					USI DOMESTICI	24.134.061
					TERZIARIO	31.513.741
Tot Anno 2013						183.762.275

ENERGY REVIEW, ENERGY BASELINE AND BASELINE INVENTORY EMISSION ACCORDING TO THE SEAP

Definition of the energy use in a LG: indirect energy use

* Natural Gas data consumption coming from a DSO (Italy)

Riscaldamento	362.056
Uso cottura cibi e/o produzione di acqua calda sanitaria	367.210
Riscaldamento + uso cottura cibi e/o produzione di acqua calda sanitaria	9.408.207
Uso tecnologico + riscaldamento	110.535
Riscaldamento	31.778
Uso cottura cibi e/o produzione di acqua calda sanitaria	0
Riscaldamento + uso cottura cibi e/o produzione di acqua calda sanitaria	6.344
Riscaldamento	2.965.573
Uso cottura cibi e/o produzione di acqua calda sanitaria	38.435
Riscaldamento + uso cottura cibi e/o produzione di acqua calda sanitaria	925.131
Uso tecnologico (artigianale-industriale)	75.917
Uso tecnologico + riscaldamento	3.266.403
Riscaldamento	12.716
Riscaldamento + uso cottura cibi e/o produzione di acqua calda sanitaria	5.253
Uso tecnologico + riscaldamento	86.751

RESIDENTIAL
TERTIARY
INDUSTRIAL

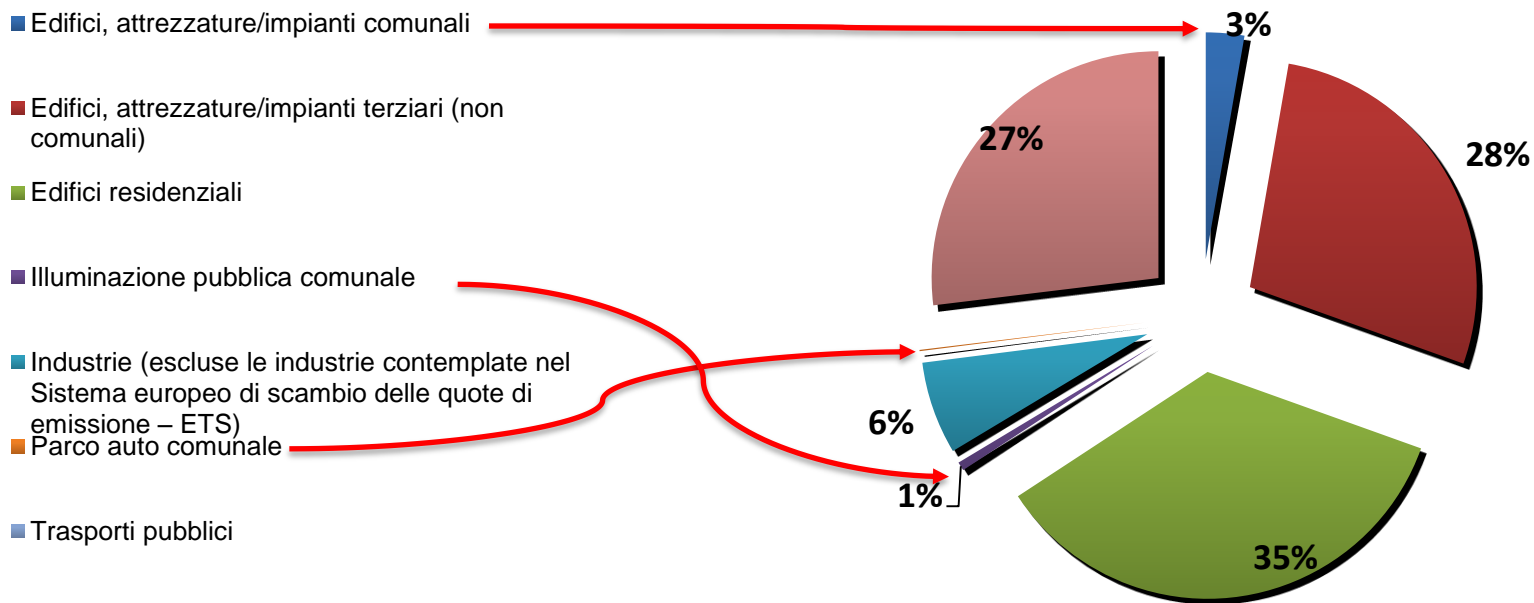
ENERGY REVIEW, ENERGY BASELINE AND BASELINE INVENTORY EMISSION ACCORDING TO THE SEAP DEFINITION OF THE ENERGY USE IN A LG: INDIRECT ENERGY USE INDICATORS (EnPI)

- ✿ kWh or MWh/year reduction
- ✿ CO₂ reduction/year by electricity consumption
- ✿ m³/year reduction
- ✿ CO₂ reduction/year by thermal consumption
- ✿ kWhel/th produced by renewable energy plant/year
- ✿ CO₂ reduction/year by renewable energy production
- ✿ Costs indicators
- ✿ Other...

WHY DATA COLLECTION OF ENERGY CONSUMPTION IN PRIVATE SECTORS IS IMPORTANT?

Energy consumption in LGs (IT average).

FINAL ENERGY CONSUMPTION PER SECTOR IN ITALY



SEAP+EnMS: STEP 3: DEFINITION OF IMPROVEMENTS OPPORTUNITIES

Commitment to Implement: Gain Commitment (Energy Targets, improvement opportunities)

Management must commit resources to the implementation effort which could include:

- ✿ Classifying implementation as high-priority project starting from “**Energy use evaluation**” procedures and defining a “**Register of improvement opportunities**”



SEAP+EnMS: STEP 4: DEVELOP IMPLEMENTATION PLAN

Now that we know what we have to achieve (through the GAP analysis, the definition of roles and responsibilities, the definition of the improvement opportunities register), we can develop and implement an Action Plan

- ✿ Identify important activities, processes that need to be established;
- ✿ Identify energy review needs, measurement needs, monitoring requirements;
- ✿ Identify analysis and tools and techniques needed;
- ✿ Estimate costs, timeframes, resources requirements, etc.

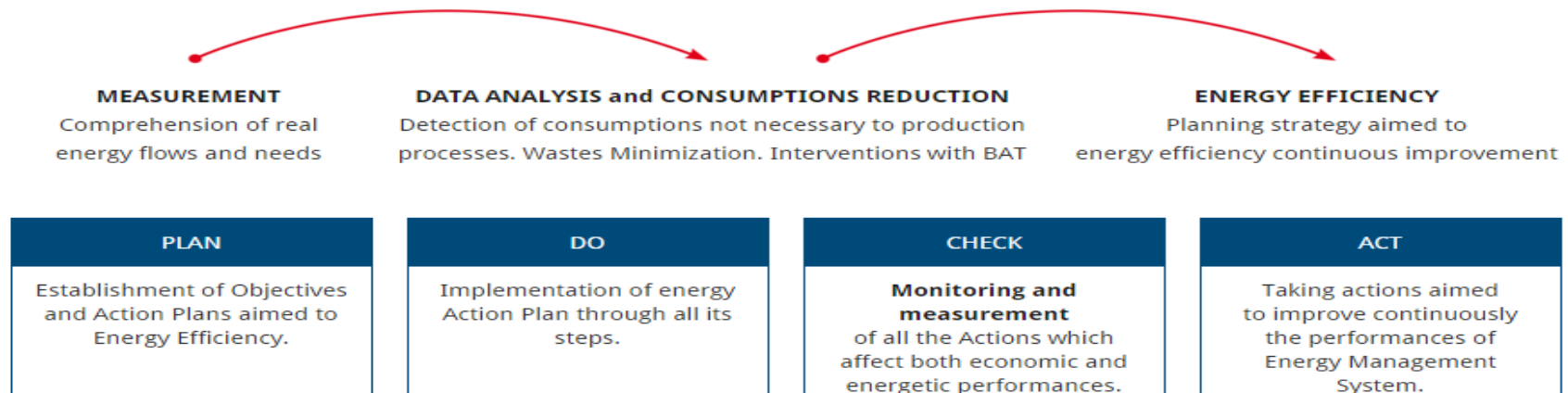


SEAP+EnMS: STEP 5: IMPLEMENTATION OF THE PLAN AND MONITORING

Commitment to Implement: Gain Commitment (SEAP+EnMS develop./impl.)

Management must commit resources to the implementation effort which could include:

- ✿ Developing a high-level implementation plan integrating SEAP+EnMS Plan;
- ✿ Ensuring adequate project resources (own funds, regional funds, national funds, stakeholders investments, public/private partnership, ...)



SEAP AND SEAP+EnMS, WHAT ARE THE DIFFERENCES?

SEAPs

SEAP+EnMS

Internal Structure of the Public Administration	↔	Top Management (official commitment)
Baseline Emission Inventory	↔	Energy Baseline + definition of EnPI
Vision of the most relevant aspects	↔	Energy Policy (official commitment)
Action Plans	↔	Action Plans
Implementation	↔	Implementation
Monitoring and reporting of the actions	↔	Monitoring and measure for Effectiveness (what to measure, how, who is the responsible, frequency, ...)
Internal and External Communication (stakeholders involvement, Energy Days, ...)	↔	Internal and external Communication
Approval by the C.C. Approval by JRC	↔	Certification and Registration (stage 1 and Stage 2)

SEAP AND SEAP+EnMS, WHAT ARE THE DIFFERENCES?

SEAPs

Energy Consumption in LGs (Buildings, Public Lighting, Vehicle fleet)

(Should be an estimation)

Energy Consumption in Private sectors: Residential, Commercial, Industrial, Private Transport, Waste production, Renewable energy Production (...)

Definition of consumption indicators
(MWh/year – CO₂ reduction/year)

Definition of monitoring indicators

SEAPs + EnMS

Energy Consumption in Public Administration (Buildings, Public Lighting, Vehicle fleet)

(Real consumption data)

Definition of EnMS **boundaries**:
Application of the EnMS at LG areas including EnMS approach for private sectors management

Energy Performance Indicators (EnPI)
(Detailed indicators about energy use)

Definition of monitoring indicators

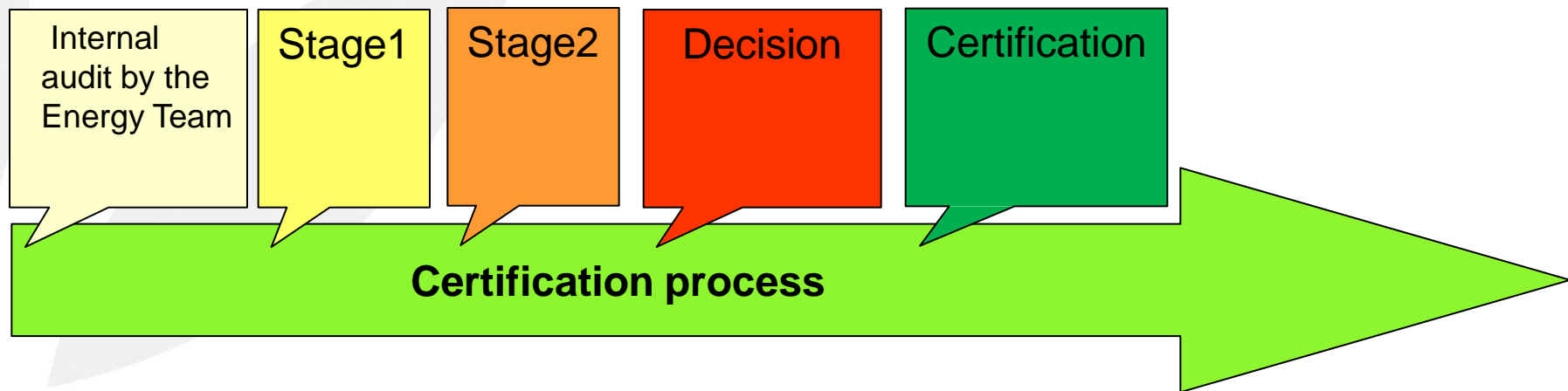


ISO 50001 CERTIFICATION PROCESS

STAGE 1: FOCUS PROBLEMS AND DOCUMENTS PREPARATION

STAGE 2: TO CHECK THE EFFECTIVENESS OF THE ENMS

DECISION FOR THE CERTIFICATION



50000AND1SEAPS PROJECT EXPECTED RESULTS

- ✿ Use an ISO 50001 methodological approach to implement a Sustainable Energy Action Plan;
- ✿ Development of an high quality SEAP using real energy data consumption;
- ✿ Develop an EnMS of the organization;
- ✿ Approval of the SEAP document by City Council and JRC;
- ✿ Be certified by a Certification body.



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EVENT

Covenant of Mayors Workshop on Local Energy Data Collection for GHG Inventories
18 June 2015 • Brussels, Belgium

This training workshop will inform participants about energy data collection practices in Europe and will provide practical advice and discussion on energy data gathering ...

[Read more >](#)

NEWS

Integracja planów działań na rzecz zrównoważonej energii z systemem zarządzania energią
22 May 2015

What is 50000&1 SEAPs?

The 50000&1 SEAPs project provides a coherent approach to integrating Energy Management Systems (EnMS) with Sustainable Energy Action Plans (SEAPs) according to energy management standards such as ISO50001.



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THANK YOU FOR YOUR KIND ATTENTION.

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