



**Local Action Plan for Energy Management “LAPEM”
or “PLAGE”: tool to reduce the consumption
and infuse the energy reflex to building managers**

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BRUXELLES ENVIRONNEMENT

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INTRODUCTION

- Local Action Plan for Energy Management → Program in Brussels that is made of soft measures
- Used in notification for article 7 of the Directive : +/- 5% of the target
- Program that has begun on a voluntary basis then made compulsory
- Target set in the compulsory approach based on the voluntary experience



The experience since 2006 has shown what to expect until 2020 in terms of energy savings



P.L.A.G.E. or L.A.P.E.M., what is it?

■ Definition

- Local Action **P**lan for **E**nergy **M**anagment (LAPEM)
- **P**lan **L**ocal d'**A**ctions pour la **G**estion **É**nergétique (PLAGE)

■ Objectives

1. To assess the **consumption** of buildings and **energy efficiency**
2. To identify **potential energy savings** and priorities for action
3. To organize internal management towards an efficient maintenance of buildings
4. To integrate energy efficiency in investment decisions



P.L.A.G.E. or L.A.P.E.M.: who do that?

■ Actors in the voluntary approach

5 successive **calls** for projects :

2006 : 7 **Brussels' MUNICIPALITIES**

2007 : 5 **HOSPITALS**

2008 : 8 **other MUNICIPALITIES** and 2 **SOCIAL HOUSINGS MUNICIPALITIES OWNERSHIPS**

2009 : 6 **EDUCATION NETWORKS (SCHOOLS)**

2011 : 6 **SOCIAL HOUSINGS**



P.L.A.G.E. or L.A.P.E.M.: five steps ...

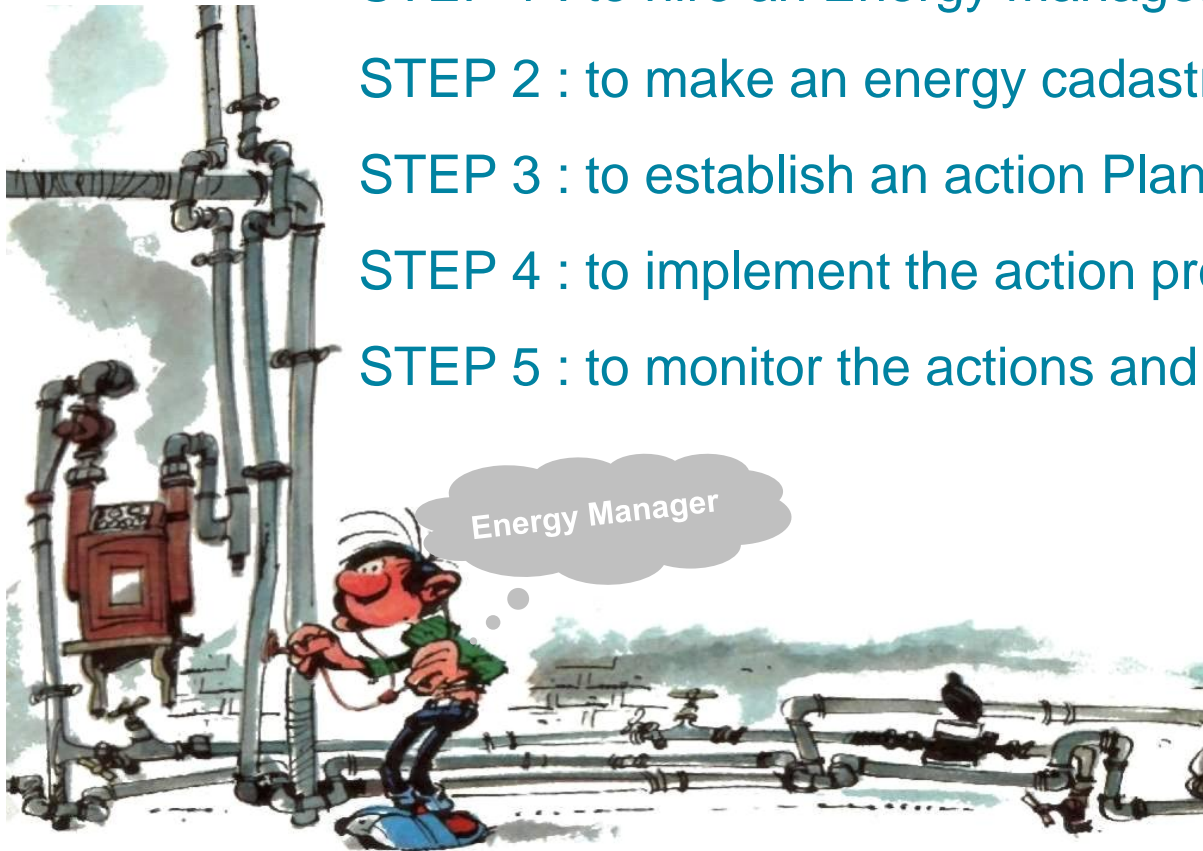
STEP 1 : to hire an Energy Manager

STEP 2 : to make an energy cadastre → priority buildings

STEP 3 : to establish an action Plan

STEP 4 : to implement the action program

STEP 5 : to monitor the actions and communicate the results



➤ To measure is to save!

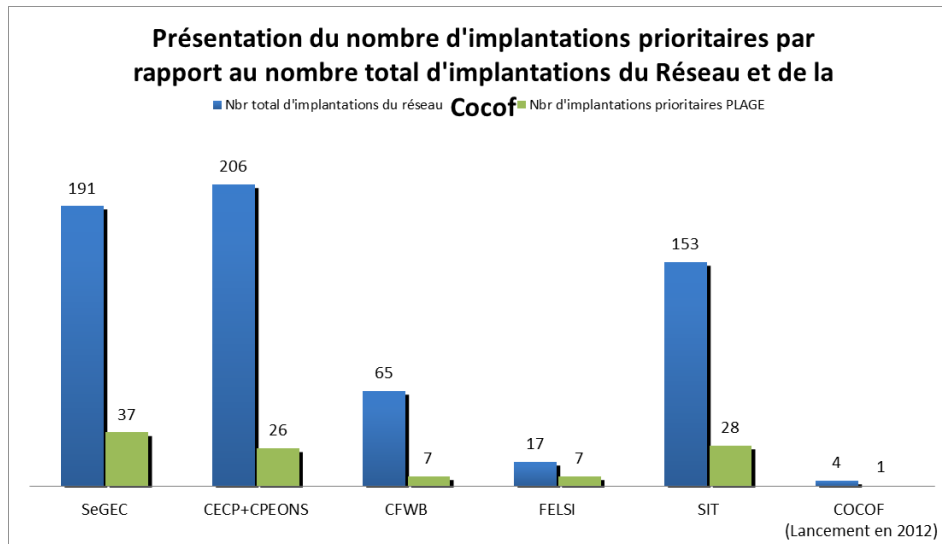
THE STEPS ...

■ STEP 1 : Energy Manager

→ Operational Coordinator - guardian of figures ...

■ STEP 2 : Energy cadaster

Establishment of an inventory consumption and potential energy savings of built heritage



Buildings with high savings potential are selected

■ STEP 3 : to establish an action Plan

This plan will include actions related to the management and maintenance of building facilities, the mobilization of occupants and investments

Improvement		Annual primary energy gain [kWh/an]	Annual financial gain [€/an]	Investment [€]	Payback [year]	Avoided CO2 [ton] per year
School "les Marronniers"	Replace boiler by condensing boiler	99726	5485	32670	6	21,6
	insulate pipes in rooms unheated permanently	14304	787	1250	2	3,1
	insulation panels / reflective panels behind radiator	17808	979	1950	2	3,9
School "Claire Vivre"	adjust control schedules to real time occupancy	24000	1320	1000	<1	5
Independent boarding	Isolate sanitary hot water pipes in rooms unheated permanently	9400	441	625	1,5	2,9
	isolating valves and pumps	9515	446	1020	2,5	2,9
	Install timers in rooms occupied intermittently and detectors in rooms occupied irregularly	6438	966	3812	4	2,5



+ Establishment of an energy accounting

STEP 4 : to implement the action program

STEP 5 : to monitor the actions and communicate the results

	2009	2010	2011	2012	2013	Résultats 2012/2009
DD15/15	1.820	2.309	1.515	1.915	1.158	5%
Heated areas (m ²)	7.637	7.637	7.637	7.637	7.637	
kWh.Gaz/m ²	268	319	211	225	99	-16%
kWh.Gaz.norm./m ²	268	270	241	217	140	-19%
Cons Gas [kWh]	2.047.047	2.439.323	1.609.643	1.720.501	753.831	-16%
Cons Gas CC [kWh]	2.043.496	2.059.414	1.842.593	1.655.477	1.065.728	-19%
Gas price VAT inc [€]	95.713 €	76.205 €	67.102 €	79.834 €	34.595 €	-17%
Gas price TVA inc [€/kWh]	0,047 €	0,031 €	0,042 €	0,046 €	0,046 €	-1%

Example of social housings gas consumption

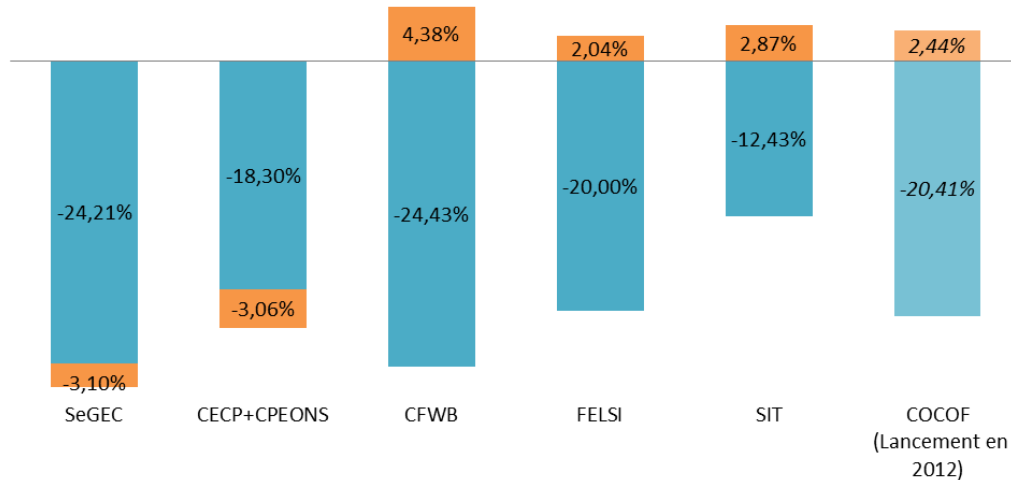


EXAMPLES OF RESULTS

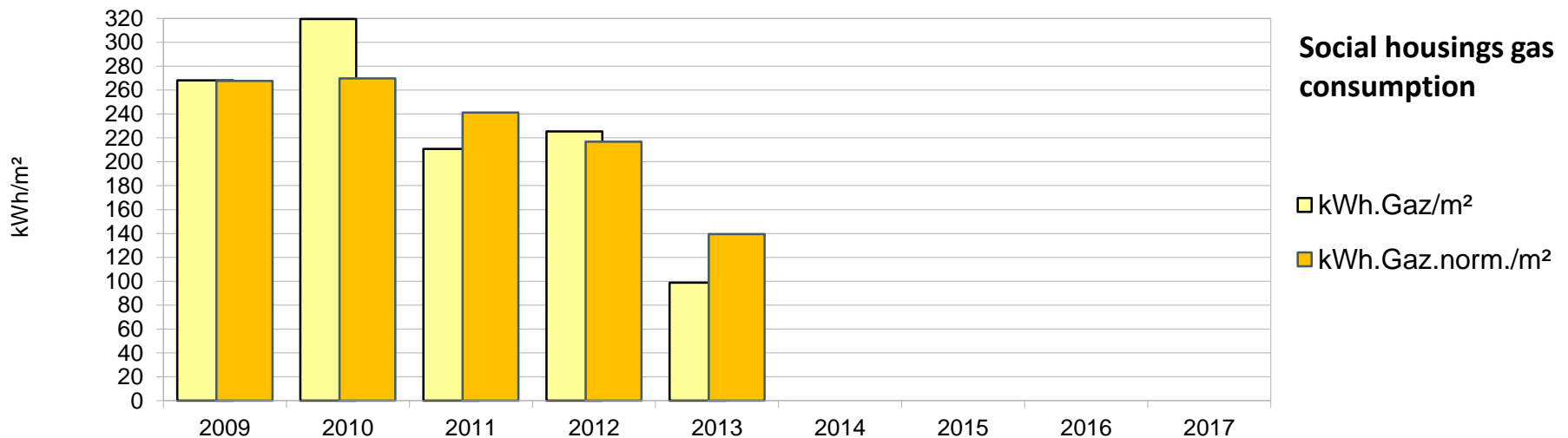
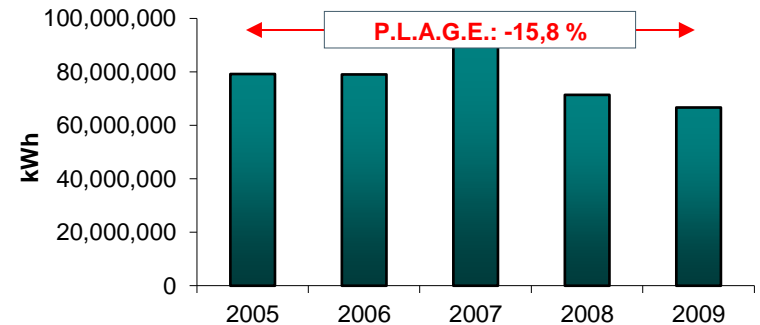
Results for school networks (energy savings in percentage)

Blue: fuel and gas variation

Orange : electricity variation



Standardised total fuel and gas consumption of buildings of PLAGÉ municipalities 1

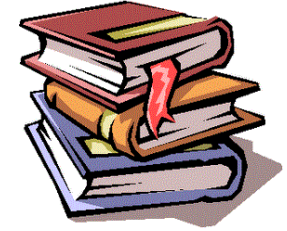


GLOBAL RESULTS FOR THE 4 PLAGE

1.380 buildings → 4,5 millions m²
of which 2 millions m² were put in the Action Plan
-16% (-10 to -18%) for fuel consumption;
Stabilisation (-4% to +1%) for electricity consumption;
4,25 millions € saved;
35 Energy Managers engaged.
Best result of -30% of fuel consumption



PLAGE : Compulsory



« COBRACE »

- « Brussels Code of the Air, Climate and Energy management » adopted in May 2013 ➡ PLAGE becomes compulsory for:

Private	Public
<ul style="list-style-type: none">• Company or association which owns or occupies buildings with a total surface area in the Region equal to 100.000 m²	<ul style="list-style-type: none">• Public authority which owns or occupies buildings with a total surface area in the Region equal to 50.000 m²• All buildings from central government

- Based on experience, more or less half of total area will be selected;
- Based on experience, the compulsory PLAGE targets a fuel diminution of 15% and a stabilization of electricity.



THANK YOU!

L.A.P.E.M.
= tool to reduce the
consumption
and infuse the energy
reflex to building
managers!



More informations : www.bruxellesenvironnement.be/plage

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P.L.A.G.E. or L.A.P.E.M.: contribution?

■ Bruxelles-Capitale's regional contribution

- **For hospitals, local authorities and social housing :**
 - 50% : Energy Manager + small equipment and expert fees
 - max 160.000 € for 4 years (local authorities)

Monitoring and expert advice during 4 years

- **For education networks :**
 - 100% : Energy Manager
 - 50.000 € for small equipment and studies (audits)

Monitoring and expert advice during 4 years

■ The commitments of entities

- Availability of an Energy Manager
- Investment payback time < 4 years (amount ≥ subsidy PLAGÉ-LAPEM)

