



# **EPC and Deep Retrofit in France**

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# ***The French Building Sector***

- 68.7 million Toe: 43% of total energy consumption
  - *1.05 Toe per year and per inhabitant*
  - *20% increase over the past 30 years*
- New construction annual flow
  - *330.000 dwellings*
  - *33.7 Mm<sup>2</sup> non residential buildings*
- Stock of existing buildings
  - *32.6 million dwellings*
  - *904 Mm<sup>2</sup> non-residential buildings*
- Life duration of construction
  - *> 100 years on average*
- 70 million TCO<sub>2</sub> : 23% of total CO<sub>2</sub> emissions
  - *0.3 ton of carbon per year and per inhabitant*
  - *32.5 million tons of carbon*



## The French environment regulation for buildings : “Grenelle” laws 1 (August 2009) and 2 (July 2010)

<b>Building stock in 2020</b>	<b>38% reduction of primary energy consumption (compared to 2000)</b>
<b>Building stock in 2050</b>	<b>75% reduction of greenhouse gases (compared to 2000)</b>
<b>New commercial buildings after 2011</b> <b>New residential buildings after 2013</b>	<b>RT 2012 : Low energy consumption buildings: primary energy consumption <math>\leq 50 \text{ kWh}^*/\text{m}^2\cdot\text{year}</math> in average</b>  * 5 uses : heating, cooling, ventilation, lighting, hot water
<b>Existing tertiary buildings in 2020</b>	<b>Mandatory objectives of energy consumption reduction (a decree is awaiting publication)</b>
<b>All new buildings after 2020</b>	<b>Positive energy buildings : primary energy consumption &lt; renewable energy production (by the building itself)</b>

## **EPC : “Grenelle” laws 1 (August 2009) and 2 (July 2010)**

<b>Residential condominiums</b>	<ul style="list-style-type: none"> <li>• <b>Obligation of energy audit (more than 50 units)</b></li> <li>• <b>EPC is encouraged</b></li> </ul>
<b>Public tertiary buildings</b>	<ul style="list-style-type: none"> <li>• <b>Administration is encouraged to use PPP</b></li> <li>• <b>Public procurement codex is simplified for EPC</b></li> </ul>
<b>All sectors</b>	<ul style="list-style-type: none"> <li>• <b>Insurance companies are encouraged to develop energy performance guarantee products</b></li> </ul>

## Market of EPC

	Categories of energy efficiency measures	Guaranteed energy savings	Duration	Part of financing by savings	Examples
Type A	Operation & maintenance	5 to 15%	1 to 5 years	Total	EPC with profit sharing (several thousands)
Type B	A + Space heating, A/C, controls retrofit, renewable energy	15 to 25%	3 to 15 years	Total	Accor, Carrefour, City of Tours (less than 100 projects)
Type C	B + Wall, roof, windows insulation	> 25%	> 15 years	Partly	High Schools in Alsace and Centre, Primary schools City of Paris

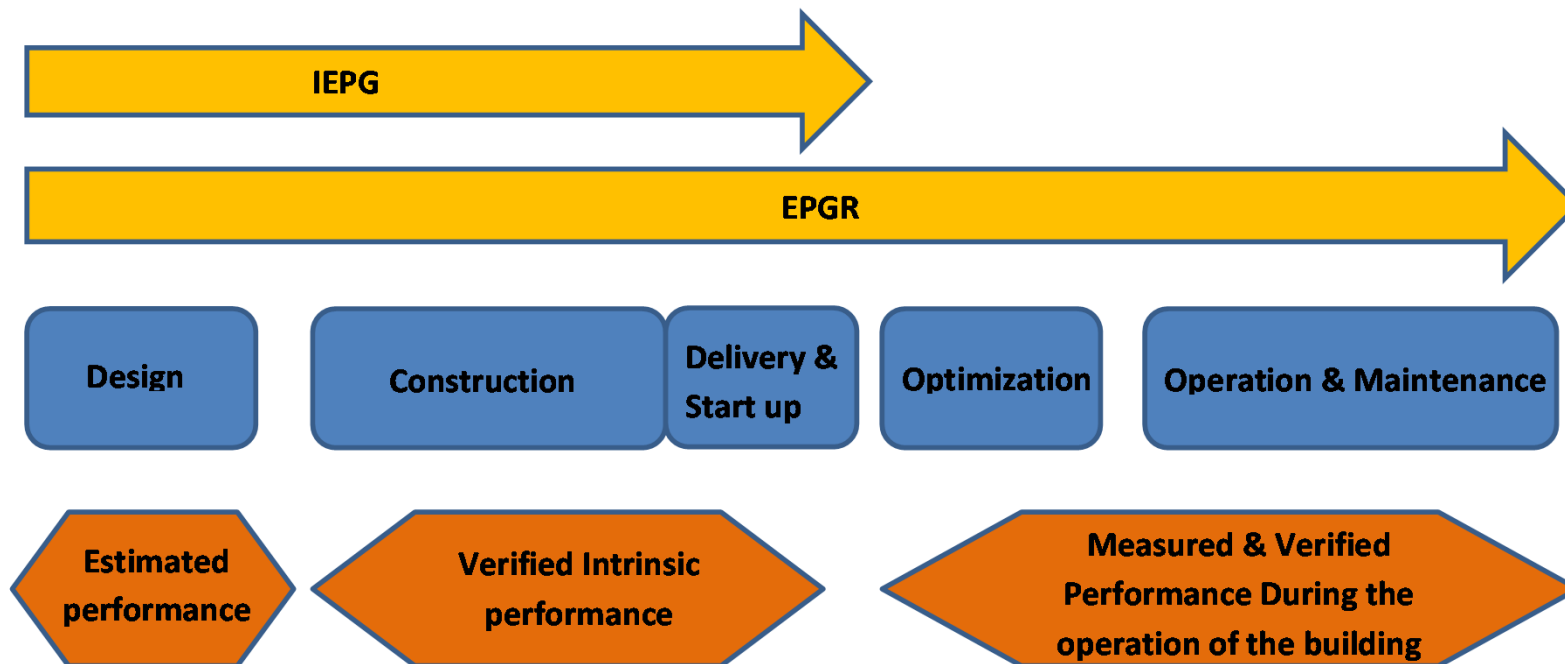
### EPC type C signed since 2010 :

- More than 1 Million m<sup>2</sup>
- Half of these meet the objectives of Grenelle in 2020 : more than 38% guarantee energy savings
- 95% in the public sector (95% with PPP)
- Most of contracts are signed with 5 majors ESCOs

## **Definitions and legal issues of Energy Performance Guarantee from a working group mandated by the Ministry of Energy-Environment**

- **Intrinsic Energy Performance Guarantee (IEPG) :**
  - Limited to design & construction phases (new and renovated buildings)
  - Guarantee a conventional (or theoretical) energy consumption
  - The energy consumption is typically estimated with a standardized simulation model (for ex. used for the RT2012)
  - Conventional : usage scenario of building, comfort criteria's (temperature, ventilation, ...) are fixed and theoretical; weather conditions are fixed
  - The energy performance is evaluated during the delivery phase of the building
  - The energy performance can be evaluated with checking of design studies, checking on site of the elements of the building, measuring (thermography pictures, blower door tests)
  - The methodology to evaluate the IEPG will be precised in 2013 by the working group
- **Energy Performance Guarantee of Results (EPGR) :**
  - Guarantee a measured energy consumption during the operation
  - The energy consumption is adjusted with routine and non routine factors (~ IPMVP)

## Definitions and legal issues of Energy Performance Guarantee from a working group mandated by the Ministry of Energy-Environment



## **Definitions and legal issues of Energy Performance Guarantee from a working group mandated by the Ministry of Energy-Environment**

Decennial liability insurance coverage is mandatory for individuals and business/corporate entities.

The insurance contract covers building repairs when fault is attributed to the insured.

The policy covers material damages of obvious severity, irrespective of cause and origin, which did not become manifest by the date of Acceptance of Work, and which appear within the ten-year period.

The damages must be beyond doubt, with the consequence that:

- Building solidity is compromised
- The building is rendered unsuitable for its purposes. Such a building is unfit to serve the purpose for which it was built.

### **Is the Energy Performance Guarantee covered by the Decennial liability ?**

- Legal uncertainty although some signals from jurisprudence
- Insurance sector reluctant to integrate EPG in the decennial liability
- IEPG would be a possible compromise
- The working group will release recommendations in 2013



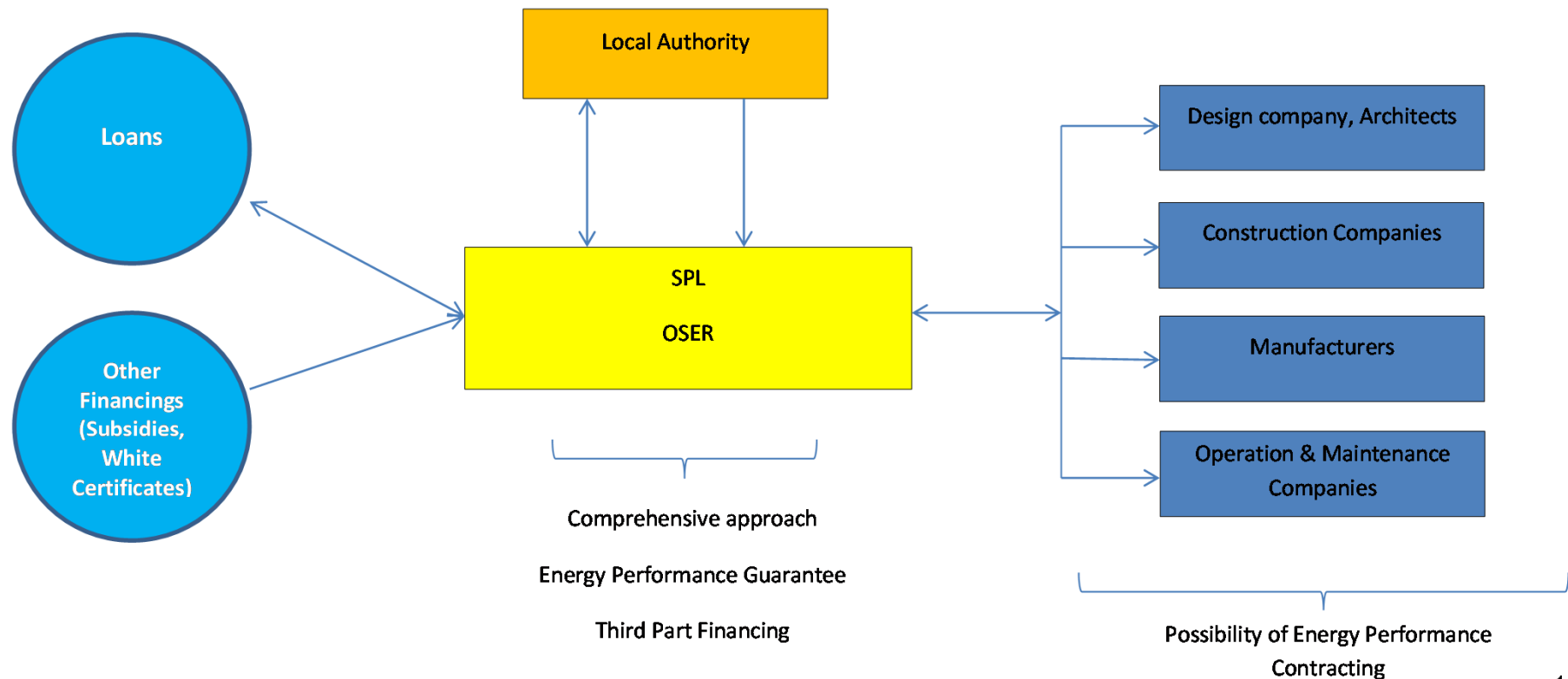


## SEM Energies POSIT'IF of Region Ile de France Third Part Financing approach for residential condominiums

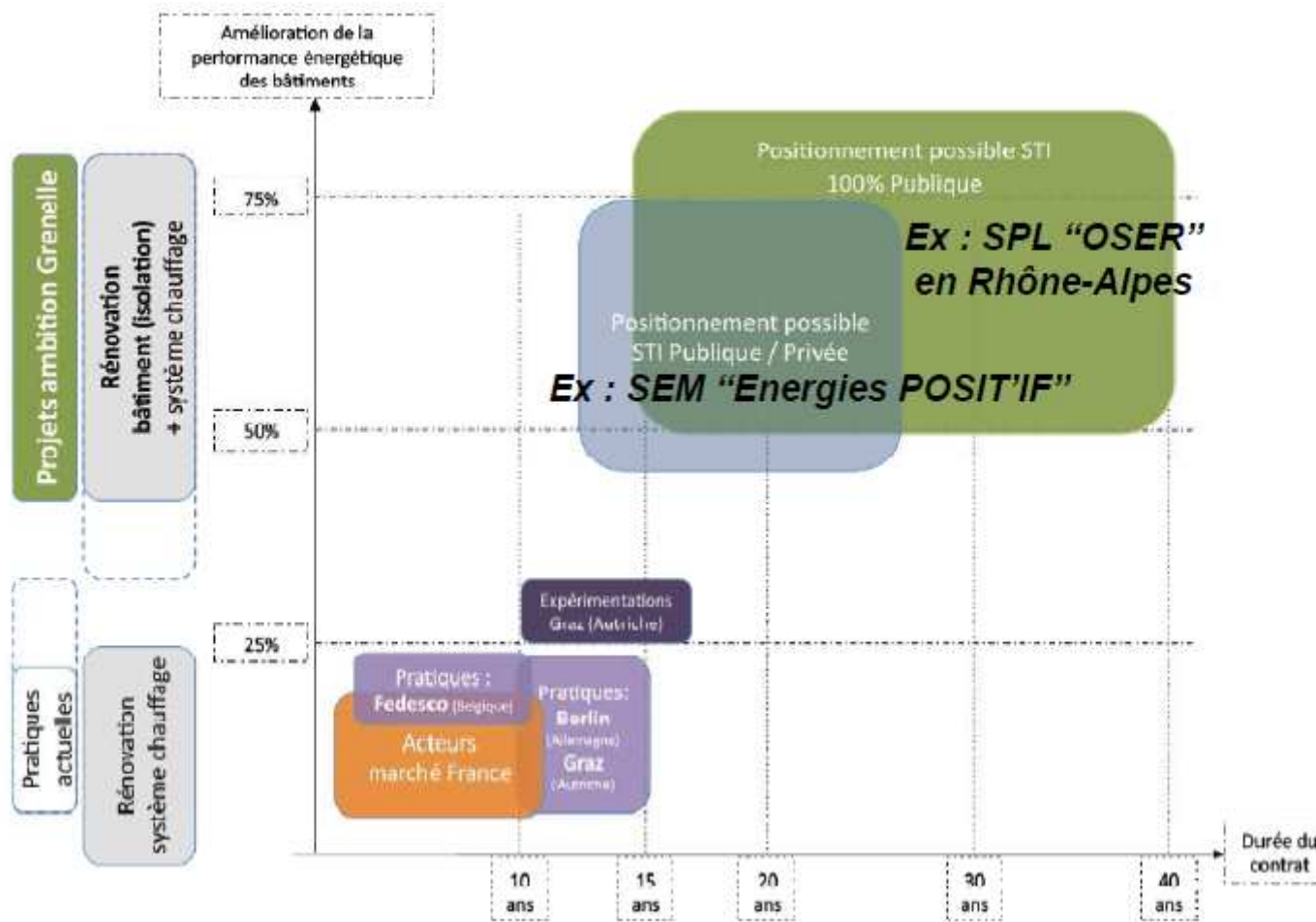
- Shareholders : 85% public (Region Ile de France (57%), other local authorities); 15% private (CdC, Caisse d'épargne IdF)
- Initial share capital : 5,3 M€
- Objectives :
  - Comprehensive services for deep renovation of residential condominiums situated in the region Ile de France (primary energy consumption under 104 kWh/sqm)
  - Implementing ambitious renovations where the private ESCOs don't invest
  - Launch : ~ 500 dwellings/year
- The offer :
  - Design
  - Works
  - Financing
  - Long term contract (>15 years), reimbursement through energy savings and ownership transfers
  - IEPG : energy performance guarantee at the delivery phase
  - Options : operation & maintenance; EPGR

## SPL OSER of Region Rhone Alpes Public Public Partnership

- 100% Shareholders (12 local authorities, end 2012)
- Initial share capital : 5,2 M€
- Objectives :
  - Comprehensive services for deep renovation of shareholder's public buildings (primary energy consumption under 96 kWh/sqm)
  - Pool of competences, expertises, resources (legal, technical and financial)



## SEM Energies POSIT'IF of Region Ile de France SPL OSER of Region Rhone Alpes





## **Call for Proposal : M&V methodology for deep retrofit with energy performance guarantee**

- R&D Work financed by ADEME and the Building Energy Research Fondation
- Call for proposal launched end 2011
- Start in march 2012
- Duration : 2 years

## **Call for Proposal : M&V methodology for deep retrofit with energy performance guarantee**

- **Research to develop a methodology suitable to:**
  - **Deep retrofit of buildings (factor 4 in one or two steps)**
  - **Tertiary sector and dwellings**
  - **Contracts with Energy Performance Guarantee, with or without third party financing**
  - **Energy Performance Guarantee of Results, with minimum duration (2 years )**
  - **Contracting of EPG with :**
    - **Any type of ESCO : size, core business (design, construction, operation & maintenance)**
    - **And/Or Insurance company**

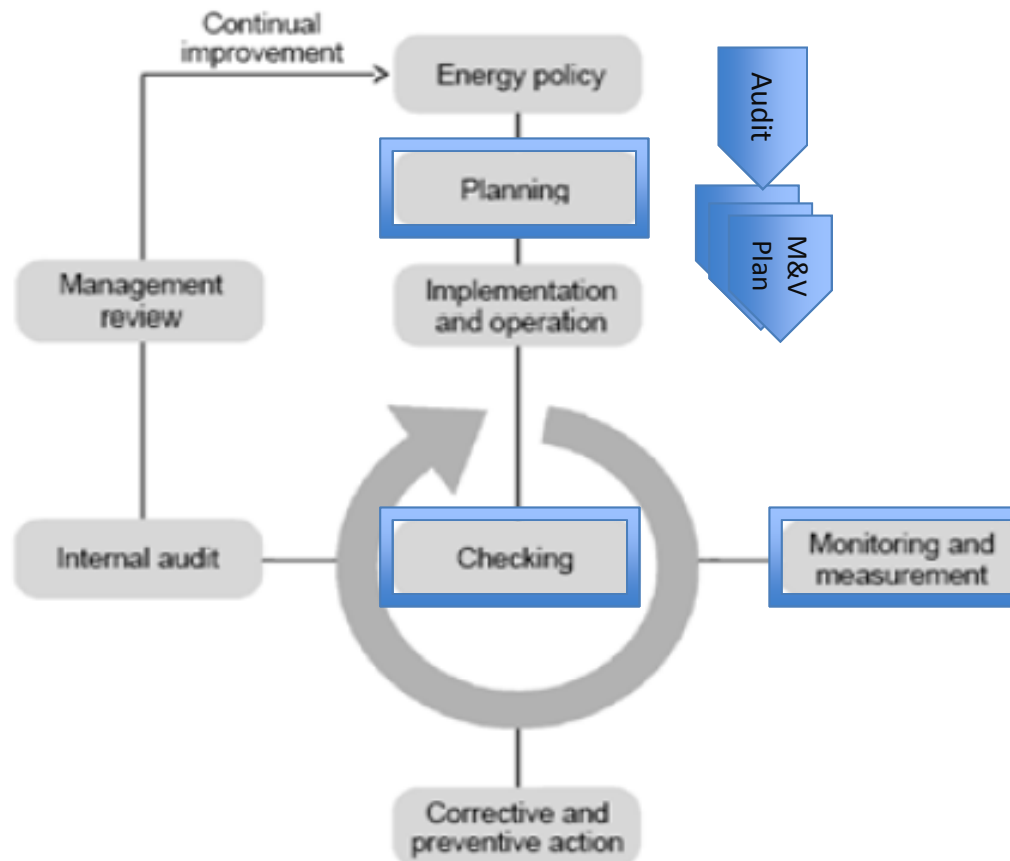
# Call for Proposal : M&V methodology for deep retrofit with energy performance guarantee

## Members

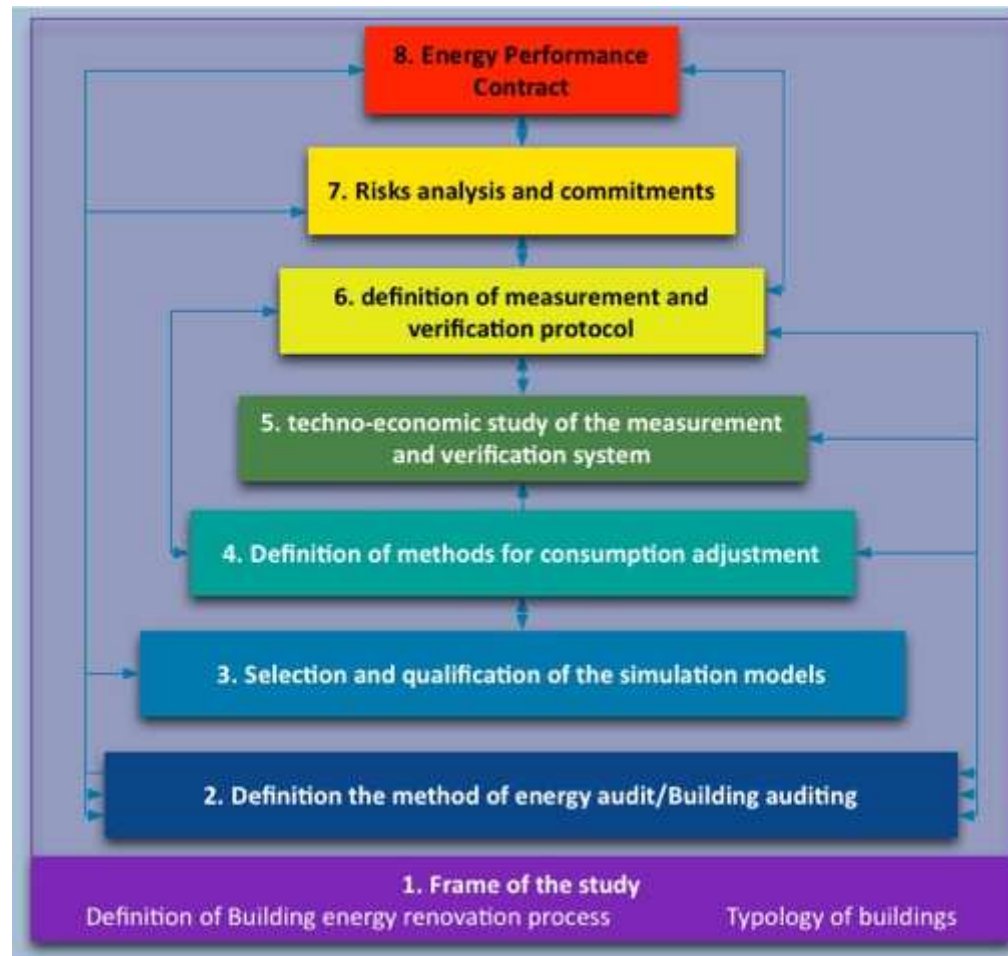
Building Owners Group	Research Group
Ministère Education Nationale	CERTOP CNRS
Ville de Nîmes	CSTB
ARC (copropriétés)	CETE ouest
Groupe ICF (HLM)	COSTIC
Région Centre	ARMINES
Région Ile de France	IFFSTAR
DELPHIS (HLM)	MANEXI
Groupe SNI (HLM)	H3C energie
VILOGIA (HLM)	De Luminæ
CICF	TBC
Architecteurs	VEOLIA
CERTIVEA	FFB
	SCHNEIDER Elec
	IBTECH (EVO et ClubS2E)
	BOUYGUES
	VERSPIEREN
	SMABTP
Representant of Building Owner	Public Research Centers
Federation, Association of technical designers, Architects	Technical Designing Companies
certification Organisation	ESCOs
	Insurance Companies

## Call for Proposal : M&V methodology for deep retrofit with energy performance guarantee

EPG within the context of an Energy Management System (EMS – ISO 50001)



## Call for Proposal : M&V methodology for deep retrofit with energy performance guarantee





## **Call for EPC Projects ADEME Rhone-Alpes**

- Sector concerned : private tertiary buildings, hospitals
- Deadline for proposals : 17 september 2013
- Requirements :
  - Minimum duration of contract : 5 years
  - Maximum cost of M&V plan : 10% energy savings
  - Energy savings guaranteed : -30% all energy uses
- Financial funding for the building owners:
  - Project Management Support (energy audit, programm, negociation with ESCOs, conclusion of contract)
  - Project implementing Support for 2 years (evaluation, M&V of energy savings)