

Riqualificare gli edifici pubblici: strategie, competenze, risorse finanziarie, qualità dei progetti

Strategie e strumenti a supporto della riqualificazione urbana ed energetica degli edifici
pubblici.



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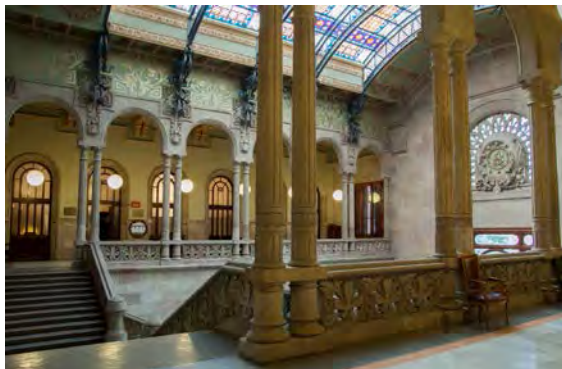
☐ **SHERPA. Risultati livello locale e nazionale**

- Coerenza con la revisione Strategia Nazionale
- Coerenza con PAES



Obiettivo

- L'obiettivo generale di SHERPA è rafforzare le capacità delle pubbliche amministrazioni a livello regionale e infra-regionale de l' spazio MED per migliorare l'efficienza energetica degli edifici pubblici.



Partners



Associated Partners:

- ES: ICAEN, AMB, Diputació de Barcelona, Arco Latino, Generalitat Valenciana
- IT: Regione Umbria, Regione Calabria, Regione Abruzzo, ENEA
- MT: Gozo Development Agency
- GR: Municipality of Hersonissos, Municipality of Heraklion



Prodotti principali e risultati



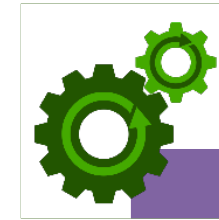
Prodotti

- **Modello SHERPA**
- Mappa di governance
- Sistema informativo condiviso
- Risorse di formazione
- Strumento di finanziamento



Resultati

- **100 progetti ERB regionali**
- **44 sessioni di formazione** con oltre 150 partecipanti
- **Analisi finanziaria** dei progetti ERB

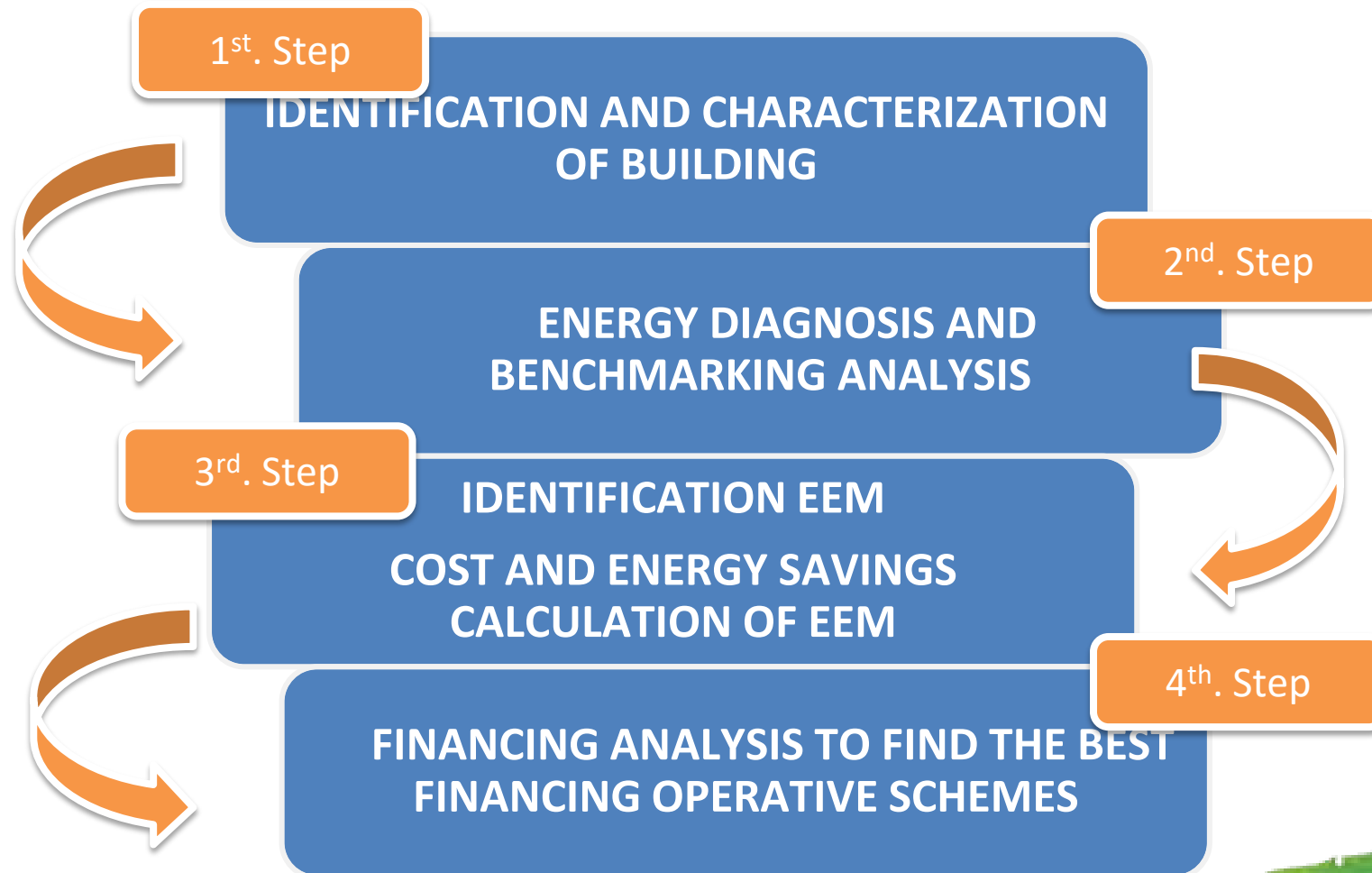


In preparazione

- Forum di capitalizzazione
- **PIANO DI AZIONE COMUNE** (Joint Action Plan)
- 50 regioni / subregioni coinvolte
- 250 regioni / subregioni consapevoli



SHERPA. Risultati livello regionale: Strategie

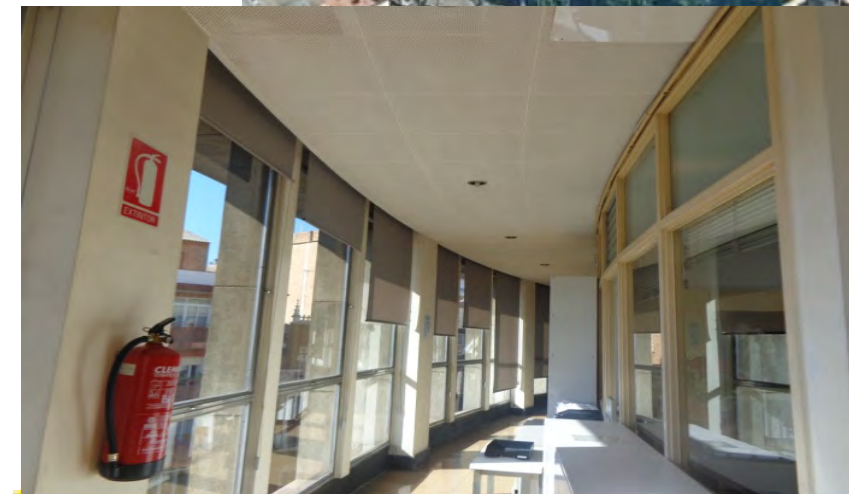


1st. Step

Practical case

IDENTIFICATION AND CHARACTERIZATION OF BUILDING

Year of construction	1961		
Construed surface	18.459	m2	
Air-conditioned surface	12.142	m2	
Floors	9		
Basement/parking	1		
Timetable	8 a 20h		
	24 h CUAP		
Operating hours year	4.778	h/y	
Users			
	Daily	2.700	u/d
	Yearly	702.038	u/y
Electric energy- 2016			
	Tariff	6.1A	
		410 KW - P1:P5	
		451 KW - P6	
	Consumption	1.417.189	kWh-e/y
	Cost	177.260,10	€/y
	Energy price (witout VAT)	0,095	€/kWh
Thermal energy (gas) - 2016			
	Tariff	3.3	
	Consumption	95.449	kWh-th/y
	Cost	5.496,60	€/y
	Energy price (witout VAT)	0,044	€/kWh
Characteristics Building			
Lighting system	80% Fluorescence with reactance		
Air-conditioning system	Heating and cooling		
	Direct expansion system (18 units)		
Ventilation	3 Units - primary air		
DHW	Boiler + Exchanges + Tank		
Façades	Concrete structure with glazed facade		
Windows	Fe / Al frame with simple glass		



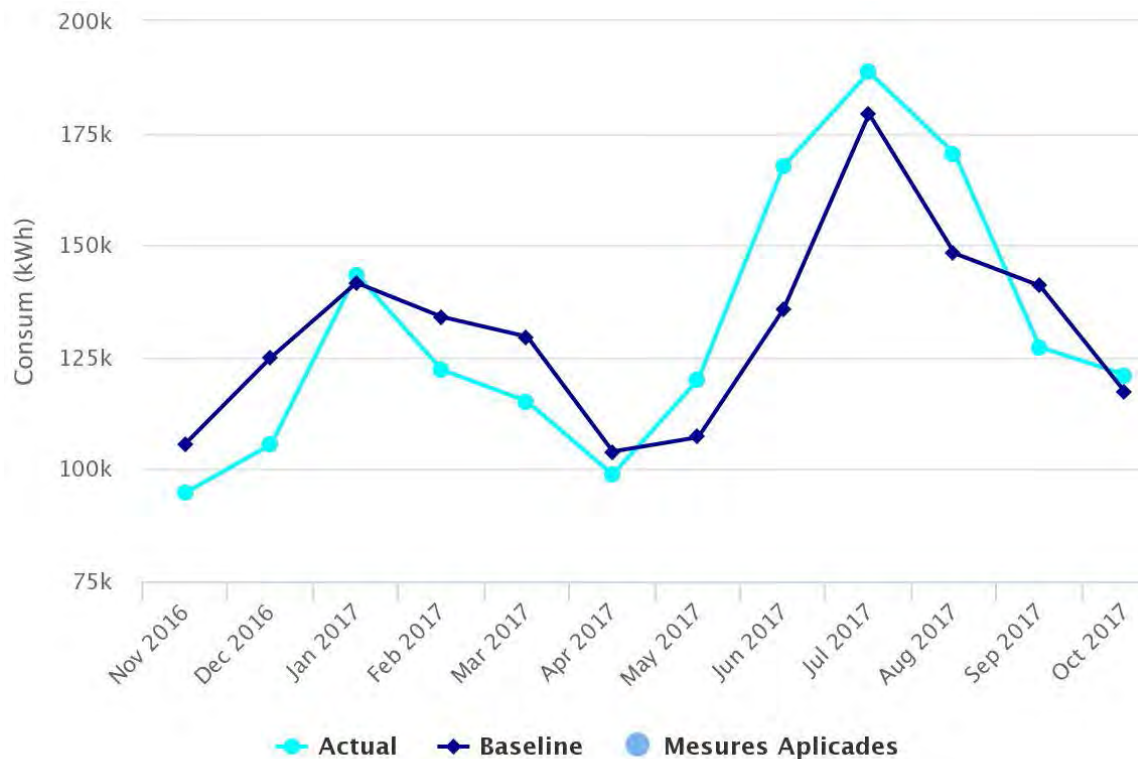
Practical case

ENERGY DIAGNOSIS AND BENCHMARKING ANALYSIS

2nd. Step

Information System

Name	Department	Sub Department	Measures applied	Global Consumption	Electricity	Heat	Electricity efficiency	Heat efficiency
CAP Manso	Salut	Institut Català de la Salut	0	😊	😊	😊	D	A



Conclusions – energy behaviour:

- Punctual demands higher than the contracted power
- Correct operation of the capacitor battery
- There are no penalties (active and reactive power)
- Lighting system: Old lights that cause high consumption
- DHS system:
 - Low consumption of DHS
 - Elevated energy losses into distribution circuit
- Air conditioning system:
 - High energy consumption
 - Thermal comfort issues in some areas
- Envelope:
 - Windows: simple glass and not Broken
 - Facades: not insulation
 - High energy losses abroad



Practical case

3rd. Step

IDENTIFICATION EMM COST AND ENERGY SAVINGS CALCULATION OF EEM

1AM: Improvement Lighting System:

- Replacement old technology by LED's
- Implementation: presence sensors, photocell, etc.....
- Automatic shutting down (computers, lightings, etc...)
- Management and Control system

2AM: Improvement Air-conditioning System:

- Replacement cooler/chillers
- Management and Control system (temperature set, workings hours)

Measures	Sources	Definition	Cost [€]	Energy Savings [kWh/y]	Energy Consumption [kWh/y]	Energy Savings [%]	Economical Savings [€/y]	Pay-Back [y]	Emissions Savings [t CO2/y]
1.1 AM	Electric energy	Replacement old Lamps (fluorescent, downlight, halogen lamp) for LEDs Lamps	86.164,85	351.415	1.609.339	21,84%	48.617,55	1,77	119,48
1.2 AM	Electric energy	Implementation of presence sensors (toilets and locker-room) and photocells	20.258,96	21.134	1.609.339	1,31%	2.071,14	9,78	7,19
1.3 AM	Electric energy	Automatic shutting down (computers and lightings)	7.770,88	29.250	1.609.339	1,82%	2.866,46	2,71	9,94
1.4 AM	Electric energy	Management and Control System - Lighting	18.672,50	29.936	1.609.339	1,86%	2.933,76	6,36	10,18
1 AM	Electric energy	Lighting System	132.867,19	431.735,00	1.609.339	26,83%	56.488,91	2,35	146,79
2.1 AM	Electric energy	Replacement cooler/chillers	256.213,00	209.191	1.609.339	13,00%	20.500,75	12,50	71,13
2.2 AM	Electric energy	Improvemnet of existing BSM	1.211,60	7.059	1.609.339	0,44%	691,76	1,75	2,40
2 AM	Electric energy	Air-conditioning System	257.424,60	216.250,38	3.218.678,00	6,72%	21.192,51	12,15	73,53

3rd. Step

Practical case

IDENTIFICATION EMM COST AND ENERGY SAVINGS CALCULATION OF EEM

3AM: Implementation renewable energies:

- BIPV – Building Integrated Photovoltaic System in auto-consumption regime
- In the lower and fixed part of the exterior of the south facade, replace the existing glass with semi-transparent photovoltaic modules.

1PM: Improvement envelope : Passive Measures:

- Improvement windows of the south façade
- Improvement insolation/sunshine in accurate zones of the south façade: film solar, automatic blinds, etc...

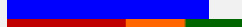
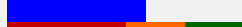



Measures	Sources	Definition	Cost [€]	Energy Savings [kWh/y]	Energy Consumption [kWh/y]	Energy Savings [%]	Economical Savings [€/y]	Pay-Back [y]	Emissions Savings [t CO2/y]
3.1 AM	Electric energy	BIPV - Replacement fixed part on 6-5-4 floor for glass laminated semi transparent crystalline modules	28.728,00	5.776	1.609.339	0,36%	750,88	38,26	1,78
3.2 AM	Electric energy	PV System on roof	44.000,00	40.880	1.609.339	2,54%	4.006,26	10,98	13,90
3 AM	Electric energy	Photovoltaic System	72.728,00	46.656,20	1.609.339	2,90%	4.757,14	15,29	15,68
1.1 PM	Electric energy	Replacement windows	337.390,78	77.249	1.609.339	4,80%	7.570,33	44,57	26,26
1.2 PM	Electric energy	Improvement insolation/sunshine issues in corredors - film solar	23.389,52	23.174	1.609.339	1,44%	2.271,10	10,30	7,88
1 PM	Electricenergy	Envelope improvement	360.780,30	100.423,48	3.218.678,00	3,12%	9.841,43	36,66	34,14

Practical case

FINANCING ANALYSIS TO FIND THE BEST FINANCING OPERATIVE SCHEMES

4TH. Step

PROJECT SUMMARY			
Data on the payer			
Name	0	Administration level	Regional
Type of public entity	Public administration		
Technical and economic data on the project			
Investment	690.932 €	Required borrowing	690.932 €
Annual energy consumption	183.260 €	Investment term	30 years
Energy savings (in %) ¹	15,86%	Pay-back	25 years (2043)
		IRR	1,33%

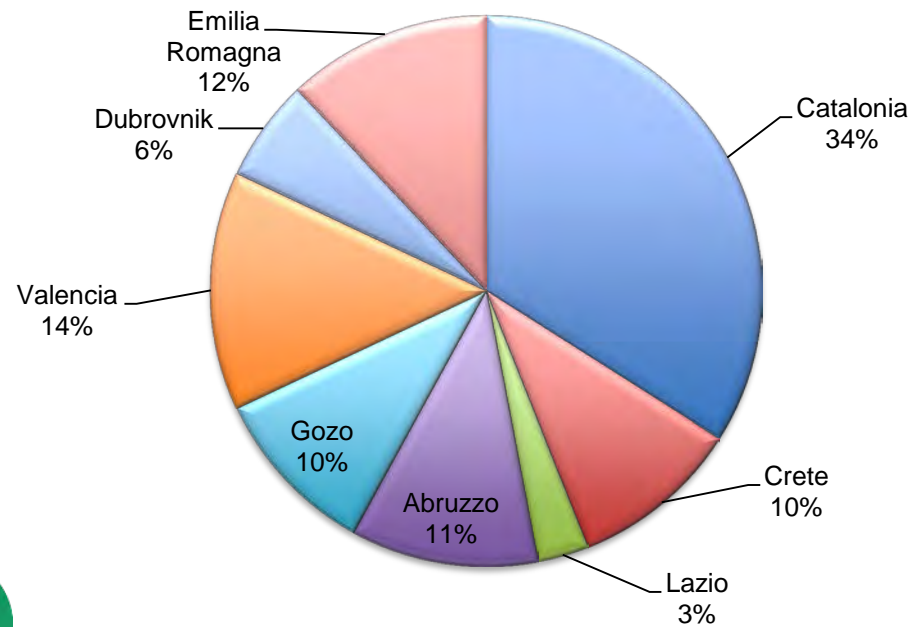
ASSESSMENT OF THE INVESTMENT PROJECT IN ENERGY EFFICIENCY IMPROVEMENT			
PROJECT ASSESSMENT			
Dimension (weight)	Points		Comment
Project assessment (10%)		✓	High degree of maturity of the project
Promoter assessment (10%)		⚠	Moderate promoter experience
Payer assessment (30%)		⚠	Rating sufficient (Evaluated by rating agencies)
Profitability assessment (50%)		✗	The project has low profitability
TOTAL ASSESSMENT		✗	Non financeable project



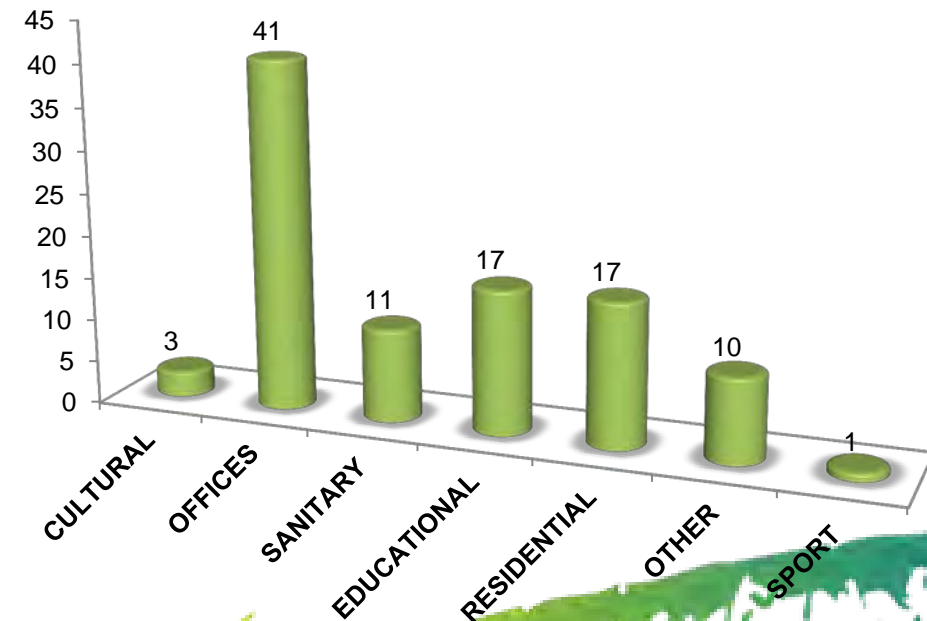
100 ERB progetti per testare la strategie

- 100 regional buildings identified with a description sheet done
- 100 ERB projects in preparation
- 8 Regional Road maps to implement SHERPA Strategies in preparation

Buildings per Region





Buildings per Typology




Qualità dei progetti. SAP


SHERPA BUILDING CARD



SHERPA Building Card

Health care Centre - CAP Manso
Centre d'Atenció Primària Manso (CAP Manso)

According to the SHERPA methodology, the energy renovation project for this building has obtained a **global score of 80**



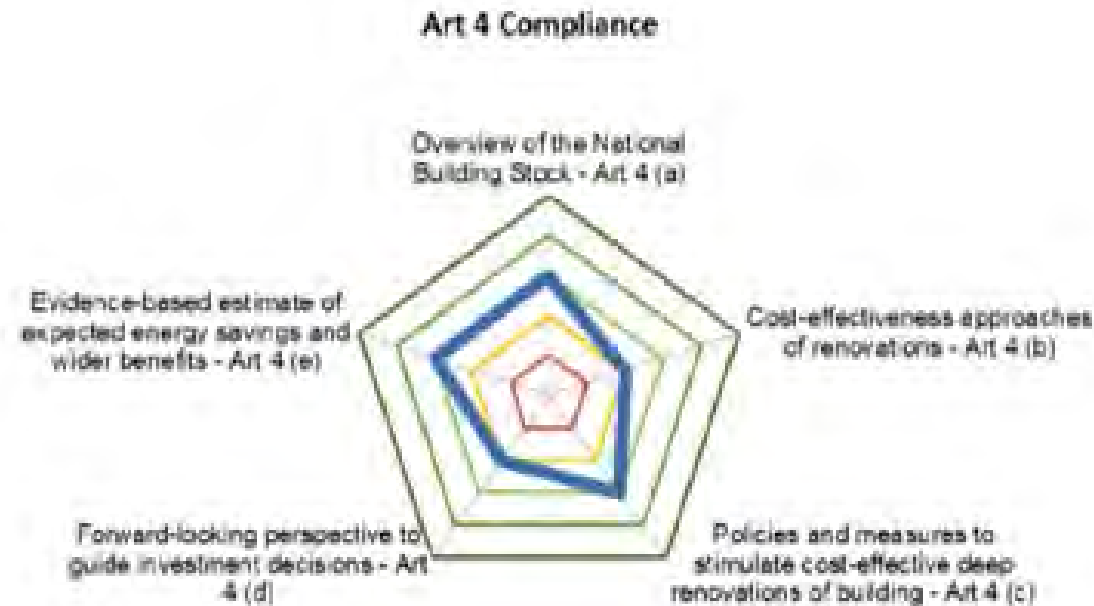
SHERPA code: ESLPORESN32 Partner: LP - Government of Catalonia Region: Spain, Catalonia, Valldoreix Date: 17 July 2018	 Generalitat de Catalunya Departament de Territori i Sostenibilitat
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PDF in a format that can be edited by each partner

- Building Name
- Score
- Logo
- Partner information



SHERPA Risultati a livello locale e nazionale: Strategie nazionali



Aspetti da migliorare: Approcci di efficienza economica del rinnovamento
Prospettiva lungimirante per guidare le decisioni di investimento



SHERPA ROAD MAPS: INTEGRAZIONE MULTILIVELLO

Le 8 regioni SHERPA devono produrre un road map per orientare e guidare il processo de riqualificazione da tutti le edifici pubblici da ogni regioni.



SHERPA RESULTATI LIVELLO LOCALE E NAZIONALE

Pla d'acció per a l'energia sostenible

Desembre 2012



Ajuntament de Lloret de Mar



Integrare i PAES nella Road Map Regionale attraverso i workshops e il Piano d'Azione integrato dell'area mediterranea nella fase di capitalizzazione.



Grazie mille per la vostra attenzione

