



DELIVERABLE 3.1, 4.1, 5.1, 6.1, 7.1 ESMs TOP-LISTS

PARTICIPANTS :

WP leaders

OBJECTIVES :

To give a first selection of the most relevant ESMs selected in the Inventory.

Every WP leader give a Top-list of ESMs that seem the most efficient according to economic performance and energy performance criteria.

Every type of ESM is linked with different case studies (or scenarios) collected in the Inventory (D.2.1).

A checklist precise what could be the solutions for ESMs (from WP3 to WP6) supposed to be selected a pilot ESMs.

EVALUATION :

- The Handbook constitutes a daily tool for SHOs to complete the Factsheets et evaluate pilot ESMs. The document is closely linked with the Factsheet format.

With the support of



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WP4 : RUNNING MAINTENANCE

WP LEADER : STU-K

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SPEKTER : 1

MRA : 2

LE TOIT ANGEVIN : 5

SPL D.D : 4

BAUVEREIN : 4

BL : 1

AARHUS : 1

ESM #1 : HYDRAULIC BALANCING AND HEAT OUTPUT CONTROL

#5 = Installation & balance valves
LE TOIT ANGEVIN / La Roseaie, Angers

#24 = Change of regulation
SPL D.D / Polje cesta V, 1 to 9

#6 = Regulation of heating system
MRA / Mladi 25, Havirov

#10 = Hydraulic balancing of the heating system
SPEKTER / Trg revolucije 16, Trbovlje

ESM #2 : REPLACEMENT OR REPAIR OF CIRCULATING PUMPS

#18 = Circulating pumps
BAUVEREIN / Anton-Bruckner-Strasse 10-12 Dieburg

#23 = Replacement of circulating pump
SPL D.D / Povsetova 14, 16, 18

ESM #3 : HEATING CONTROL REPAIR

#17 = Repair heating control
BAUVEREIN / Waltherstrasse 7-17, Esselbornstrasse 10

#19 = Repair heating control
BAUVEREIN / Fritz-Daechert-Weg, 1-9

ESM #4 : HEATING PIPES CLEANING

#3 = Sludge removal in heating pipes
LE TOIT ANGEVIN / Le Château, Bouchemaine

ESM #5 : BOILER CLEANING

#22 = Cleaning boilers
SPL D.D / Malí trž 3 to 8

ESM #6 : AUTOMATIC LIGHT CONTROL

#2 = Lighting sensors
LE TOIT ANGEVIN / Les Justices, Angers

#16 = Light control and sensor in all hallways
AARHUS / Bjerggarden 18

#9 = Automatic lighting switching off
MRA / ?

ESM #7 : EXCHANGE OF THE TORCH/BURNER

#20 = Exchange of the torch
BAUVEREIN / Albert Lortz-Strasse 3 to 7

ESM #8 : LIFT REGULATION

#4 = Lift regulation
LE TOIT ANGEVIN / Monplaisir, Angers

ESM #9 : THERMAL INSULATION OF HEATING PIPES

#21 = Thermal insulation of heating pipes
SPL D.D / Lavriceva lica 15

ESM #10 : WATER SAVING MEASURES

#1 = Water-saver kits
LE TOIT ANGEVIN / whole housing stock

#27 = water saving measure, water efficient head
BL / Hammelstruphus, Damagervej 9-21, Copenhagen

WP3 : OPERATING MANAGEMENT

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SPEKTER : 2

MRA : 3

LE TOIT ANGEVIN : 5

SPL D.D : 1

BAUVEREIN : 3

BL : 2

ESM #1 : HEAT COST ALLOCATOR

#22 = Heat cost allocator + ESCO SPEKTER / Trg revolucije 24, Trbovlje	#15 = Heat cost allocator + ESCO + WP5 action SPEKTER / Trg revolucije 2a, Trbovlje
#42 = Heat cost allocator MRA / J Jaburové, 1; 3; 5. Havirov	

ESM #2 : PURE SERVICE ENERGY PERFORMANCE CONTRACTING

#1 = Pure service contracting with condensation boilers LE TOIT ANGEVIN / Les Capucins, Angers	#2 = Pure service contracting LE TOIT ANGEVIN / Les Viviers, Angers
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ESM #3 : ENERGY AND MAINTENANCE CONTRACT REVIEW

#3 = Contract review LE TOIT ANGEVIN / 12 buildings

ESM #4 : ENERGY MONITORING FOR TENANTS

#4 = EFFINEO online monitoring for tenants LE TOIT ANGEVIN / contrat EFFINEO	#11 = Website SPL D.D / www.mojpravnik.si
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ESM #5 : ELECTRIC ENERGY CONTROL

#5 = Electric load-sheddings managed by subcontractors LE TOIT ANGEVIN / 1500 buildings

ESM #6 : TENANT HANDBOOK

#26 = Tenant Handbook + Passivhaus BAUVEREIN / Elisabeth-Selbert-Strasse 6-8, Darmstadt	#11 = Tenant Handbook + Refurbishment BAUVEREIN / Holzhofallee 18-20, Darmstadt
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ESM #7 : TENANT EDUCATION

#36 = Personal advising and visit BL / SH0 Boligkontoret, Denmark	#2 = Climate ambassador, women network BL / Dyevekaenget, Copenhagen
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ESM #8 : CARETAKER TRAINING

#41 = TRV use and training MRA / Mladi 25, Havirov

ESM #9 : ENERGY MANAGER

#45 = Energy officer MRA /

ESM #10 : SMART METERING

#45 = Adaptherm modul BAUVEREIN / Schiebelhuthweg 19-25, Darmsadt

WP5 : REPLACEMENT OF SYSTEMS

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SPEKTER : 5

LE TOIT ANGEVIN : 1

SPL D.D : 1

BAUVEREIN : 3

ESM #1 : REPLACEMENT OF HOT WATER TANK

#1 = Exchange of hot water tank with insulation
BAUVEREIN / Trierer Strasse 2, Darmstadt

ESM #2 : REPLACEMENT OF DISTRICT HEATING SUBSTATION

#4 = Exchange of the district heating substation
BAUVEREIN / Esselbornstrasse 1-5, Darmstadt

#31 = Replacement of old substation
SPEKTER / Gimnazijska cesta 15b, Trbovlje

#34 = Replacement of old substation
SPEKTER / Trg Franca Fakina 2b, Trbovlje

#33 = Replacement of old substation
SPEKTER / Trg Franca Fakina 1, 1a, 3, 3a, Trbovlje

#36 = Replacement of old substation
SPEKTER / Trg revolucije 2a, 4, 6, Trbovlje

#38 = Replacement of old substation
SPEKTER / Trg svobode 30, 32, Trbovlje

ESM #3 : REPLACEMENT OF BOILER

#17 = New gas calorific value boiler
BAUVEREIN / Kasinostrasse 81, Darmstadt

#40 = Exchange of heating device and energy source
SPL D.D / Gorkiceva 14, 16, 18

ESM #4 : ENERGY-SAVING LIGHTING

#14 = Lighting with sensors in common spaces
LE TOIT ANGEVIN / Monplaisir, Angers

WP6 : REFURBISHMENT

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MRA : 2

LE TOIT ANGEVIN : 5

SPL D.D : 1

BAUVEREIN : 4

ATC : 2

AARHUS : 1

ESM #1 : ROOF INSULATION

#1 = Flat roof insulation replacement
LE TOIT ANGEVIN / Estienne d'Orves, Angers

#75 = Insulation of the roof
BAUVEREIN / Beckstrasse 81-85

ESM #2 : CEILING INSULATION

#11 = Ceiling insulation
LE TOIT ANGEVIN / Guynemer, Atngers

ESM #3 : EXTERNAL THERMAL INSULATION

#32-33 = External insulation and windows substitution
ATC / Via Parenzo 55, Torino

#37 = External thermal insulation
SPL D.D / Runkova ulica 2, Ljubljana

#19 = Insulation of facade (30cm)
BAUVEREIN / Holzhofallee 18-20, Darmstadt

ESM #4 : WINDOWS SUBSTITUTION

#4 = New windows with double heat protection
LE TOIT ANGEVIN / Guynemer I, Angers

#10 = New plastic windows
MRA / Jedlova 2, Havirov

#19 = External insulation, windows substitution
ATC / ?

ESM #5 : NEW HEATING SYSTEM

#5 = New heating system with a low temperature central boiler
LE TOIT ANGEVIN / Eventard, Angers

#72 = New heating system with a low temperature central boiler and a power plant
BAUVEREIN / Beckstrasse 81-85

ESM #6 : VENTILATION SYSTEM

#76 = Ventilation system with supply air through the windows frame
BAUVEREIN / Mathildenstrasse 36-40, Darmstadt

ESM #5 : GLOBAL RETROFITTING / TOTAL RENOVATION

#16 = Global retrofitting
MRA / Moskevšà 1E, Havirov

#72 = Total renovation
AARHUS / Lystrup, Centervej 30-56

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SPEKTER : 5

LE TOIT ANGEVIN : 1

SPL D.D : 1

BAUVEREIN : 3

BUILDING 1 / LE TOIT ANGEVIN, Les Châteaux

BUILDING 2 / ATC Via Pertini / Via Burolo

BUILDING 3 / AARHUS Kildevang

BUILDING 4 / BL Herning H2 College

BUILDING 5 / Bauverein AG Elisabeth Selbert Strasse

BUILDING 6 / SPEKTER Savinskja cesta 9b

CHECKLIST FOR SELECTION OF PILOT ESMs

WP3 : OPERATING MANAGEMENT

- Heat cost allocators implementation on radiators ?
 - Yes No Priority
- Pure service energy performance contracting ?
 - Yes No Priority
- Energy and Maintenance contract review with reduction of global costs?
 - Yes No Priority
- Energy monitoring for tenants (web portal for example) ?
 - Oui No Priority
- Electric energy control (electric load-sheddings managed by subcontractors) ?
 - Yes No Priority
- Training with subcontractors to improve energy reduction ?
 - Yes No Priority
- tenant handbook to use to improve a daily reduction of energy consumptions ?
 - Yes No Priority
- tenant education with personal or group training ?
 - Yes No Priority
- Tools to control the state of repair of materials (thermostatic valves for example) ?
 - Yes No Priority
- smart metering implementation (integrating maintenance costs) ?
 - Yes No Priority

WP4 : RUNNING MAINTENANCE

- hydraulic balance and heat output control (thermostatic valves, etc...) ?
 - Oui Non Priority
- repair of circulating pumps (high-efficient pump, etc...) ?
 - Oui Non Priority
- maintenance and renewal of the control thermostats (e.g programmable thermostats) ?
 - Oui Non Priority
- sludge removal in heating pipes (chemical, mechanical, ecological) ?
 - Oui Non Priority
- boilers cleaning ?
 - Oui Non Priority
- light control optimisation (automatic control with motion sensors, lighting changing) ?
 - Oui Non Priority
- torch/burner exchange (e.g (burners with low NOx emissions) ?
 - Oui Non Priority
- lift regulation (energy saving soft start kits, speed modulators, etc...) ?
 - Oui Non Priority
- thermal insulation of heating pipes ?
 - Oui Non Priority
- water-saving kits ?
 - Oui Non Priority
- ventilation systems cleaning (extractors changing, cleaning, etc...) ?
 - Oui Non Priority

WP5 : REPLACEMENT OF SYSTEMS

- replacement of hot water tanks (from horizontal to vertical, solar water heating, A to B)
 - Oui Non Priorisation
- replacement of district heating substations ?
 - Oui Non Priorisation
- district heating connection ?
 - Oui Non Priorisation
- replacement of boilers (more performing boilers, low-temperature boilers, condensing)
 - Oui Non Priorisation
- energy renewable heating (combined solar production, wood) ?
 - Oui Non Priorisation
- ventilation system replacement (insulation, energy recovery ventilators) ?
 - Oui Non Priorisation
- lighting in common parts improvement (individualized commands, timers, etc...) ?
 - Oui Non Priorisation

WP6 : RECENTLY REFURBISHED BUILDINGS

- roof insulation optimization (materials, inverted insulations, vegetalization, etc...) ?
 - Oui Non Priorisation
- good practices on the ceiling insulation (modus operandi et time, thermal bridge control, surface modification, etc...)?
 - Oui Non Priorisation
- windows substitution (frames, glazing, following of the using practices, integration of the ventilation) ?
 - Oui Non Priorisation
- external insulation (good practices during the investment phase, maintenance of the materials, prefabricated solutions, etc...) ?
 - Oui Non Priorisation
- limitation of grey energies (material choice, price negotiation, etc...) ?
 - Oui Non Priorisation