

EC-supported projects

REHVA Seminar

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EC-supported Projects

- **REHVA participate in several European Projects**
 - offering technical expertise to contribute to the projects
 - promoting the projects and disseminating information through REHVA network
- **Currently running EC-supported Projects are:**
 - iSERV
 - IDES-EDU
 - 3ENCULT
 - HEALTHVENT
 - BUILD UP+

iSERV

- **Inspection of HVAC Systems through continuous monitoring and benchmarking**
 - Duration: 3 years; Started: May 2011; Budget: 3.3 M€
 - The project addresses the need for improvement of HVAC systems energy efficiency across Europe to meet the EU 2020 energy reduction targets
 - **HVAC systems** portion of the 2,843 TWh electrical consumption in the European MS (2007):

Equipment	Electrical consumption distribution (%)
Air conditioning systems	0.75
Ventilation systems	3.34
Pumps	1.81
Heating (Ambient & Domestic Hot Water)	5.23

[EC Joint Research Centre, Institute for Energy, 2009]



iSERV Objectives

- **iSERV project monitors the energy consumption of HVAC systems against end use activities**
 - Establish **benchmarks** for different HVAC **systems** and **activities** served
 - Test **continuous monitoring** as an alternative to traditional **audits/inspections**
 - Compare **CMB** (Continuous Monitoring & Benchmarking) **savings** versus **Audits/inspections savings**
 - Establish the real-world benefits of **more efficient HVAC systems**, thereby encouraging more investment where justified

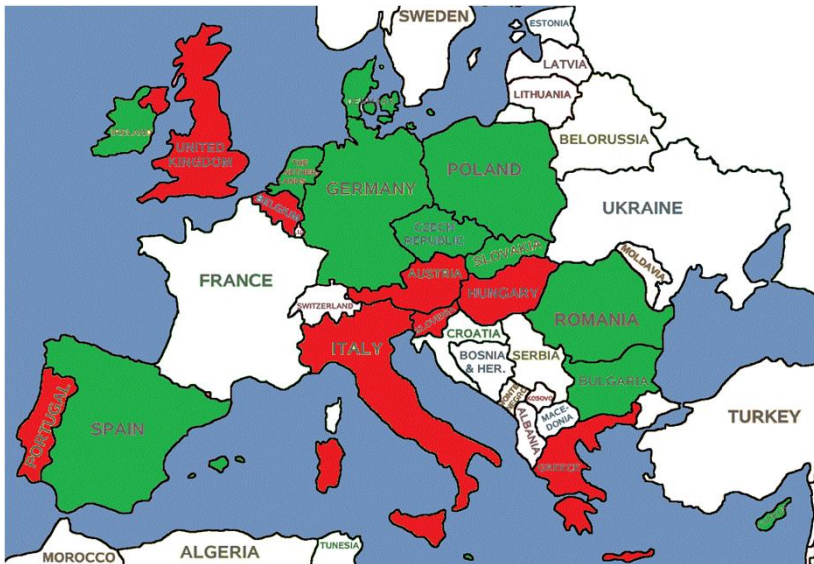
iSERV & ECO's

- **iSERV Project uses the results of the previous HARMONAC project**
 - 141 different Energy Conservation Opportunities (ECOs) were identified
- **HARMONAC Lessons Learned:**
 - The most frequent ECO's were related with “Systems” and “Maintenance and Operation” of Systems
 - Energy saving potential per system was 10-50%
 - **HARMONAC found that many ECO's were only identifiable by continuous monitoring**

iSERV

- **8 Participants**

- 20 Countries involved
- 1600 systems to be monitored and analyzed



Partner	Country
AEA	Austria
	Germany
	Denmark
CU	UK
	Ireland
POLITO	Italy
	Malta
PTE	Hungary
	Slovakia
	Czech Poland
ULg	Belgium
	Netherlands
NKUA	Greece
	Cyprus
	Bulgaria
UL	Slovenia
	Romania
UPORTO	Portugal
	Spain

iSERV – Data Collection

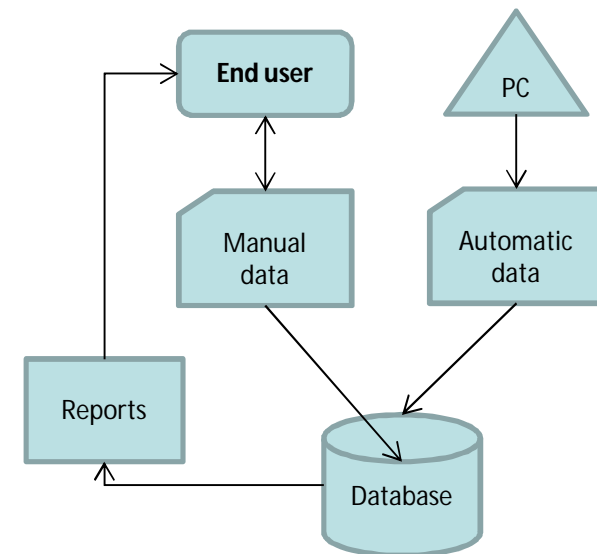
- **Definition agreed for an iSERV HVAC system:**
 - *“The HVAC system must be able to separately account for ALL the electrical energy consumption used to meet the requirements for ventilation and air conditioning to the spaces it serves. In addition it must provide details on a space by space basis of the activities served and the floor area occupied by those activities.”*

Main data:

- HVAC system:
 - Manufacturer
 - Model
 - Component types
 - Component quantities...
- Spaces:
 - Unique identification
 - Area
 - Geographical location
 - Type of activity...

Optional data:

- Components
 - Manufacturer
 - Model
 - Type of components
 - Nominal power...



iSERV – Data Analysis

- **Expected outcomes from iSERV**
 - **Comparative analysis with benchmarks for HVAC systems by activity served**
 - **Several summary reports on the systems energy performance**
 - **Updated evaluation of the systems energy efficiency**
 - **Listing of possible ECO's**
 - **Agreement on parameters to be recorded for this approach to be used as a complementary technique to Inspection**



Results

- **Participants benefits**

- Compare performance with other HVAC similar systems
- Identification of ECO, energy conservation opportunities
- Information of efficient HVAC systems for an activity
- Advertising of the collaboration in the iSERV activities
- Confidentiality to the participant data (unless otherwise)

- **Expected results**

- To monitor the energy use of 1600 HVAC systems and produce benchmarks
- Evaluate the energy savings achieved
- To contribute to professional guidance publications
- To influence HVAC Inspection procedure

IDES-EDU

- **Master and Post Graduate education and training in multi-disciplinary teams implementing EPBD and beyond**
 - Duration: 3 years; Started: June 2010; Budget: 1.25 M€
 - 15 European universities
 - Deliver specialists
 - Integral Sustainable Energy Design of the Built Environment
 - Require an optimal integrated multi-disciplinary design approach (Architects, mechanical, civil, and HVAC engineers, energy experts and installers)
 - To Implement the EPBD and the 20-20-20 targets



IDES-EDU

- **Key actors need to have the knowledge**
 - Clients
 - Professionals
 - Construction industry
 - Policy makers
- **the educational sector has to deal with these demands**
 - on the level of students
 - on the level of professionals

IDES-EDU

- **Objective: educate, train and deliver specialists**
 - Develop curricula and training programs in integrated multidisciplinary building design
 - Exchange and collaboration between students and professionals
 - Provide certification and accreditation of the courses
 - National level and frameworks for European certification
 - Develop an intelligent dynamical and adaptive multimedia teaching portal
 - Increase European awareness, promote implementation and commitment on Integral Sustainable Energy Design
 - In the Building sector by promotional campaign
 - Between universities by exchange programmes

3ENCULT

- **Efficient ENergy for EU Cultural Heritage**
 - Duration: 3.5 years; Started: Oct 2010; Budget: 4.99 M€
- **Objective**
 - Demonstrate the feasibility of factor 4 to 10 of energy reduction in historic buildings respecting their heritage
- **How**
 - Develop **passive and active energy retrofit solutions**, results of open and constructive dialogue
 - Define **diagnosis and monitoring instruments**
 - Develop **tools and concepts**
 - **integration and/or implementation of the results into regulation framework (EPBD)**

3ENCULT

- **How...**
 - **IEQ controlling**, comfort for users and “comfort” for heritage collections
 - Guidelines for scientific and public communities
- **Consortium**
 - Conservation and Energy efficiency retrofit is highly interdisciplinary
 - Scientists and stakeholder in the field of conservation, building physics, sustainability, architecture and lighting
- **8 cases studies**

HealthVent

- **Health-Based Ventilation Guidelines for Europe**

- Duration: 2.5 years; Started: July 2010; Budget: 750k€

- **General objectives**

- Develop Health-Based ventilation guidelines reconciling health and energy impacts

- Contribute to prevention of major diseases

- Reduction of health inequalities

- Promotion of sustainable health investments

- **How**

- Gathering expertise from medicine, engineering, indoor air sciences, energy, ventilation, ...

- Based on previous projects funded by EC, WHO IAQ, ...



HealthVent

- **How**

- Define correlation between diseases and ventilation
- Are ventilation standards sufficient to minimize health risk?
- Identify issues in ventilation standards and practices
- Analyze ventilation and energy use interactions & identify energy efficient ventilation technologies
- Possible integration of IAQ in energy inspections and audits
- Implementation and impact assessment of guideline

BUILD UP+

- **THE European portal for energy efficiency in buildings**
 - Transfer and promote the **best practices of energy savings** measures
 - Keep updated about **EU energy policy** for buildings
 - Legislative framework, practical implications and future revisions
 - **Connects people:** building professionals, local authorities and citizens
 - **Consolidate** the benefits of Europe's collective intelligence for an effective implementation of energy-savings measures in buildings



Building professionals



Building occupants



Public authorities

BUILD UP+

- **Functions**
 - **Find** resources
 - **Post** materials
 - Create/join **Communities**
 - **Embedded page** in REHVA site

REHVA
3E

Search...

REHVA is the leading professional organization in Europe, dedicated to the improvement of health, comfort and energy efficiency in all buildings and communities. It encourages the development and application of both energy conservation and renewable energy sources.

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BUILD UP+
energy solutions
for better buildings

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EC-supported Projects

- **Find more details on these projects on REHVA website**
 - EC-supported Projects section
 - www.rehva.eu/en/european-projects

Thank you !

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