plus-energy buildings in a cooling context
where efficiency and renewables team up

14th Inter-Parliamentary Meeting on Renewable Energy and Energy Efficiency  Lisbon  14.10.10  Livia Tirone
Efficient + Renewable E-Buildings

Solar Radiation in Europe
Efficient E-Buildings

Passive systems
Efficient E-Buildings

Passive systems
Efficient E-Buildings

New, responsive Buildings

Passive systems
Efficient E-Buildings

Monitorization Results Torre Verde in Lisbon – no heating used in January 2001
In 16 years no apartment has installed cooling systems
Torre Verde in Lisbon – 70% of DHW supplied by collective solar thermal system
Efficient + Renewable E-Buildings

Torre Verde in Lisbon – 70% of DHW supplied by collective solar thermal system
Lessons learned:
Plus energy buildings are real!
But: Good solutions don’t scale automatically

Questions raised:
Then how to scale good solutions?

Course of action:
• Communicate solutions to a wider audience
• Involve all Stakeholders - above all the End User – to find solutions via consensus
• Address a wider market: refurbishment
• Broaden system boundary: building to city
BUILDING SECTOR Actors

European Institutions • Utilities • Banks • Mortgage Institutions • Insurance Companies • Non Governmental Organizations • Member States • Government Agencies • Research Institutions • Municipalities • Real Estate Promoters • Housing Associations • Design Team • Large Building Contractors • Local Building Contractors • Manufacturers • Real Estate Agents • Real Estate Managers • Collective End-Users • Individual End-Users
Efficient E-Buildings

Existing + refurbished responsive Buildings

Reject
Store
Temper
Admit
Redirect
Efficient E-Cities

\[ H \approx 0,6 \, d + h \]

H – Height of building 2
\( d \) – Distance between buildings
\( h \) – Height of Ground Level of building 1
Renewable E-Cities

Baixa, Lisbon
Urban Plan integrating Solar Potential
Renewable E-Cities

Our economy must add Value

We need to design new urban models

Renewable Energy

Decentralized E-Storage

Intelligent Grid

Efficient E-Buildings

Renewable E-Buildings

Renewable Prosperity
Renewable E-Cities

Our **economy** must add Value
We need to **design** new urban models

Renewable Energy

Decentralized E-Storage

Intelligent Grid

Efficient E-Buildings

Renewable E-Buildings

Renewable Prosperity

Failed to Scale
Lessons learned... again:
Good solutions don’t scale automatically

Questions raised:
Isn’t it the role of policies to scale good solutions?

Course of action for scaling:
Reframe the challenges around people!
Engage all stakeholders
Build on holistic consensus based solutions
Set policy precedents promoting good practices
Innovate with new business models
What do Europeans expect?
What do Europeans expect?

Identity
Collaboration
Flexibility
Diversity (Biodiversity)
Redundancy
Decentralization
Autonomy
What do Europeans expect?

Robust
Efficient
Transparent
Effective
Intelligent
Prepared
Connected
What do Europeans expect?

If Europe is **serious** about **resource services**, policies need to address the fundamental question of **resource ownership**...

Who is the rightful owner of finite resources?  
Who is the rightful owner of renewable resources?  
What rights and duties does this ownership entail?  
What is the right price to attribute to resource services?

It needs to be impossible for any stakeholder to benefit from inefficiency and waste...
What do Europeans expect?

A better performing built environment: long lasting, robust, healthy, comfortable, affordable...

Does this mean:

Energy services?
Energy at true cost price?
Free Energy?

Policies need to promote broad prosperity!
What do Europeans expect?

If Europe is **serious** about **broad prosperity**, its processes need to promote **true innovation**...

A path not known, trust emerging often informal solutions, promote creative leadership and broad societal engagement...
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THANK YOU...
Efficient E-Cities