

4. ULUSLARARASI İNŞAATTA KALİTE ZİRVESİ 2012  
4th. INTERNATIONAL IMSAD QUALITY IN CONSTRUCTION SUMMIT

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# GUIDEBOOK

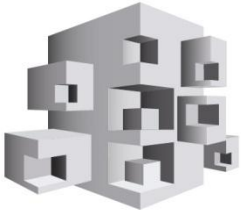
## FINANCING ENERGY EFFICIENCY in BUILDINGS

### FUTURE PERSPECTIVES

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Senior Expert  
Building Performance Institute Europe (BPIE)



**IMSAD**



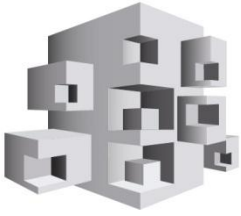
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## PRESENTATION OVERVIEW

**EU CONTEXT– policy landscape, energy in buildings, financing**

**EUbuild COUNTRY COMPARISON**

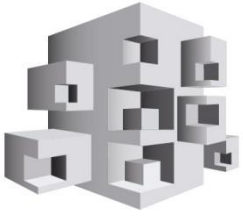
**FUTURE PERSPECTIVES**



# EU Climate & Energy Legislation

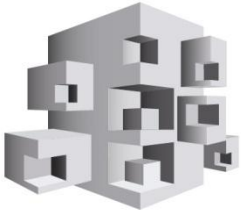
- Climate “20-20-20” package
- 2050 Energy and Climate Roadmaps
- EU Emissions Trading Scheme
- Resource Efficiency
- Sustainable Construction
- Eco-Design Directive
- Energy Labelling Directive
- Energy Performance of Buildings Directive
- Energy Efficiency Directive (replaces ESD & CHP)





# Energy Performance of Buildings Directive

- Energy performance requirements for new buildings & major renovations
- Nearly Zero Energy Buildings (2018/2020)
- Inspections of HVAC plant
- Financial incentives and market barriers
- Energy Performance Certificates



# Energy Efficiency Directive

- Long term building renovation strategies
- Energy supplier obligations – 1.5% saving p.a.
- 3% p.a. renovation of central government bldgs
- Public procurement requirements
- Energy audits
- Energy Efficiency National Fund, Financing and Technical Support

[www.buildingsdata.eu](http://www.buildingsdata.eu)

## DATA TOOL RESULTS

Modify your search ▾

### Existing stock

By building type

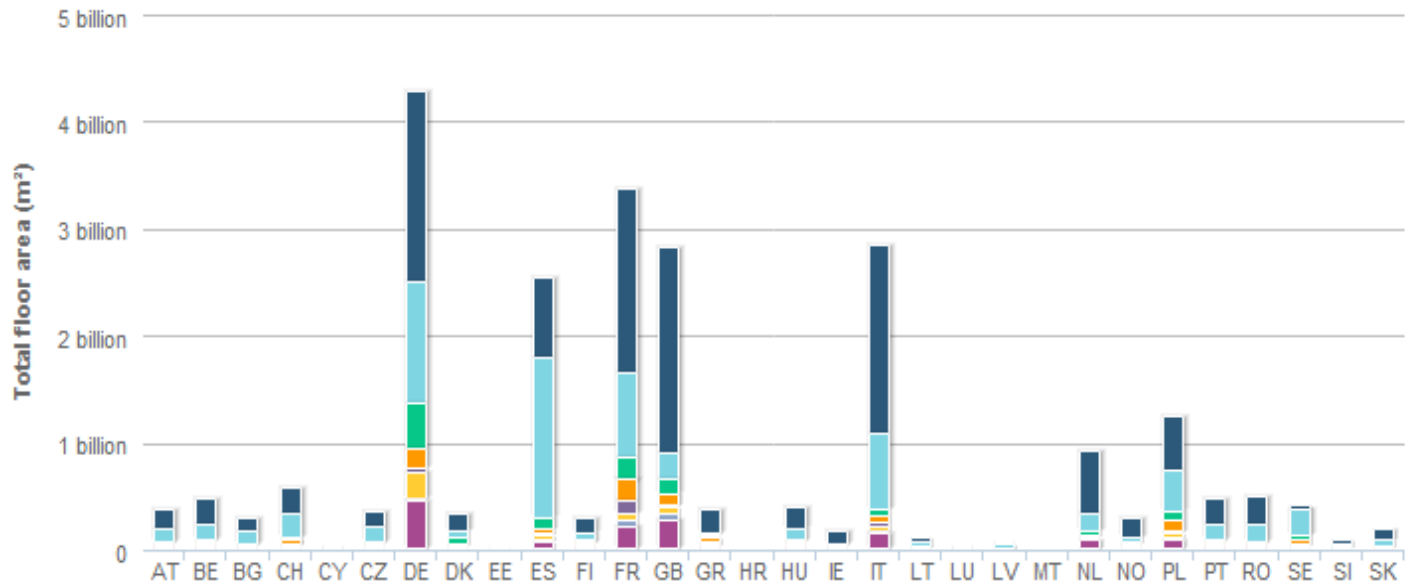
By age band

By location

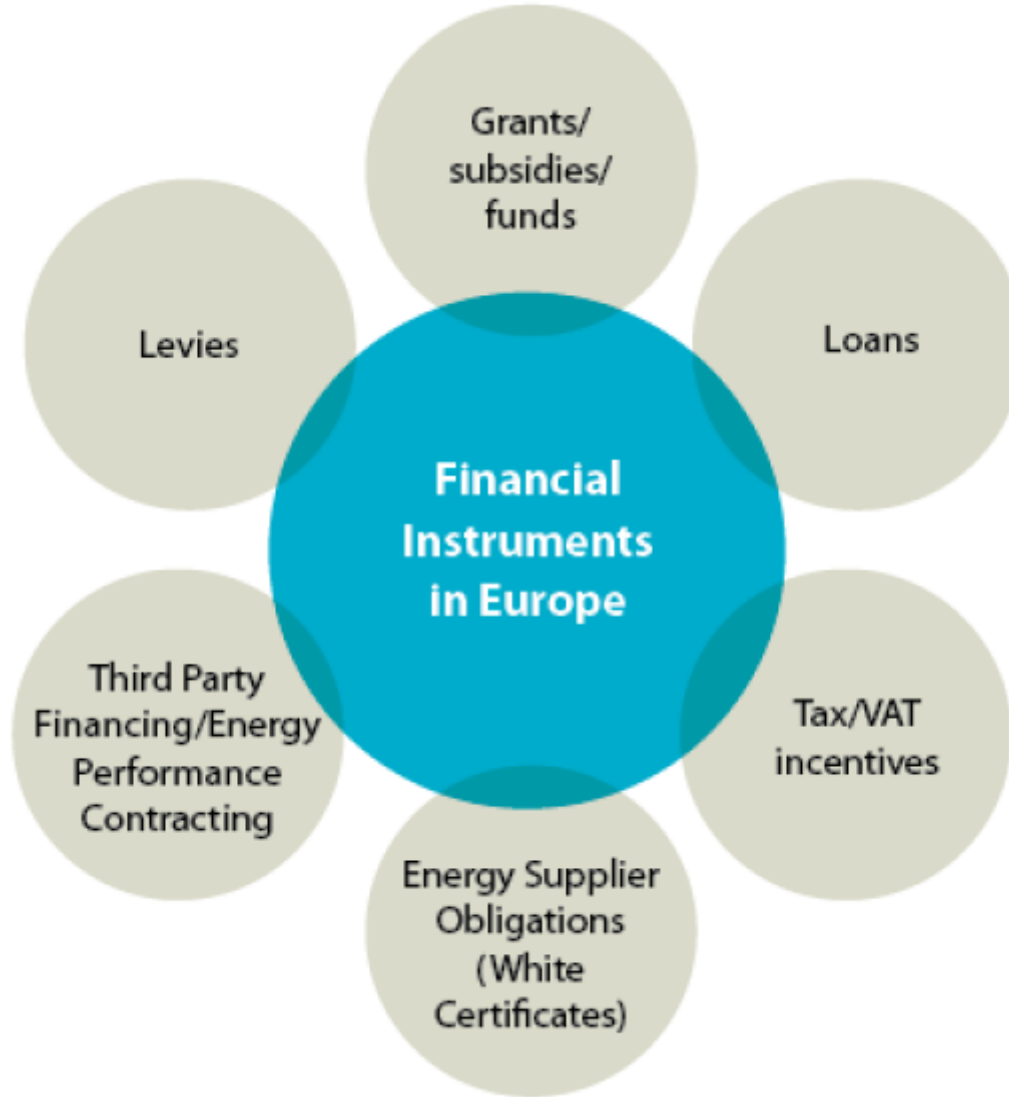
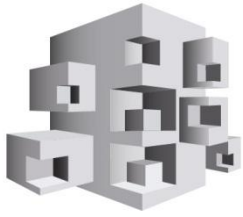
By ownership profile

By occupant profile in residential buildings

Breakdown of the building stock by building types



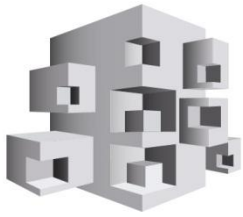
■ Single family houses
 ■ Multi family houses
 ■ Offices
 ■ Educational buildings
 ■ Hospitals
 ■ Hotels & Restaurants



**İMSAD**

İNŞAAT MALZEMESİ SANAYİCİLERİ DERNEĞİ  
ASSOCIATION OF TURKISH BUILDING MATERIAL PRODUCERS

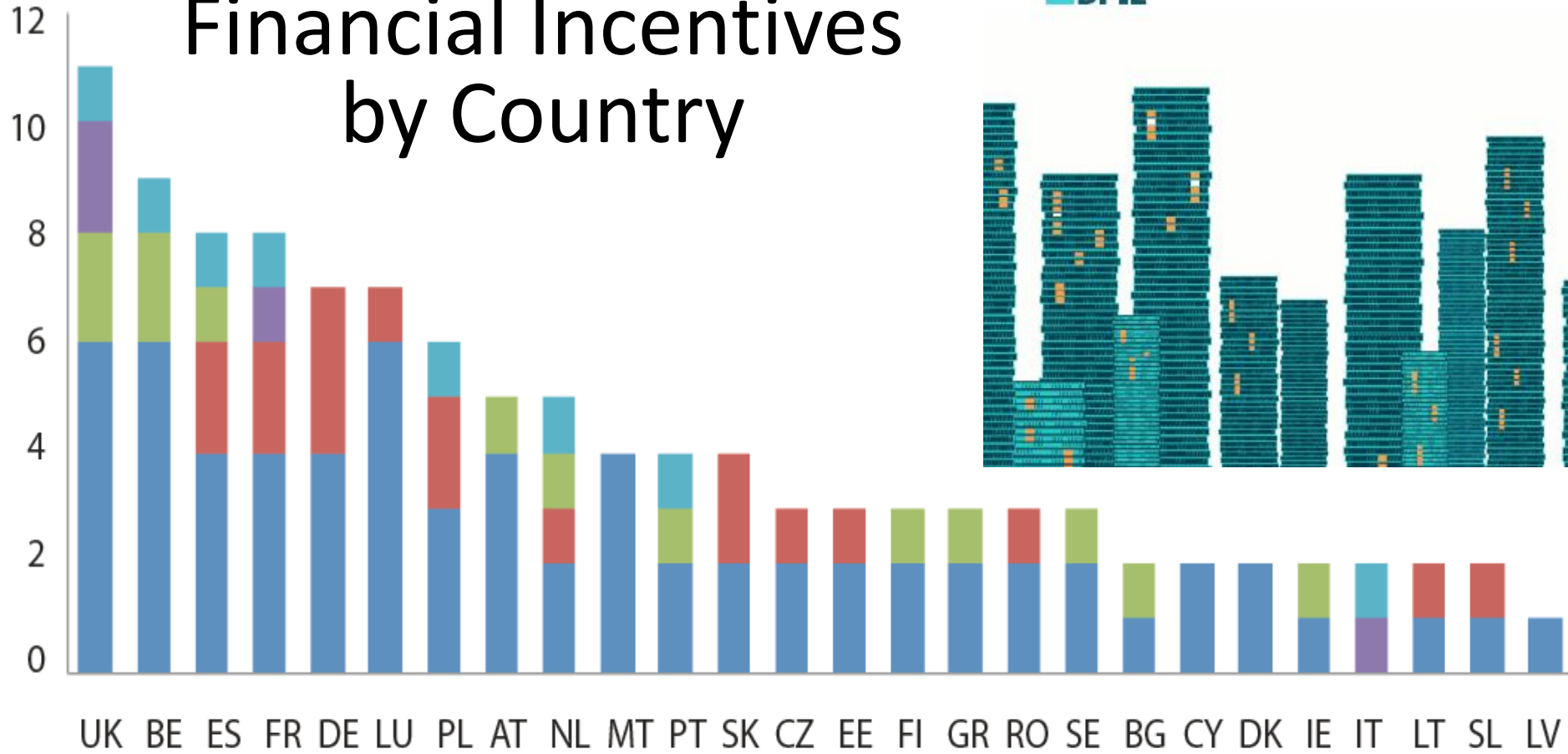




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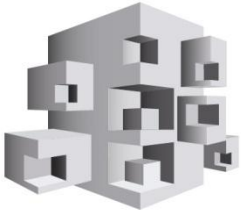
ENERGY EFFICIENCY POLICIES IN BUILDINGS –  
THE USE OF FINANCIAL INSTRUMENTS  
AT MEMBER STATE LEVEL

# Financial Incentives by Country



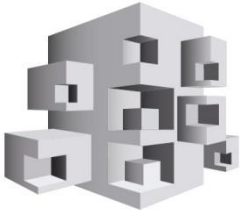
■ Grants/subsidies ■ Preferential loans ■ Tax reduction ■ Tax credit ■ Reduced VAT





# Sources of Funding

- EU funds (€17bn 2014-2020)
- EIB, EBRD
- National/municipal sources (grants, subsidies etc)
- Energy suppliers [customers] (obligations)
- Feed in tariffs
- Shared savings (ESCOs, EPC)
- Investment funds (various)
- Private sources (building owners)



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## **EUbuild PARTNER COUNTRY COMPARISONS**

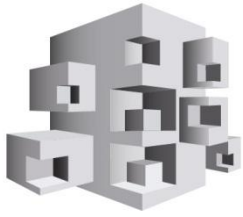
**GENERAL INDICATORS**

**LEGISLATIVE FRAMEWORK**

**INSTITUTIONAL FRAMEWORK**

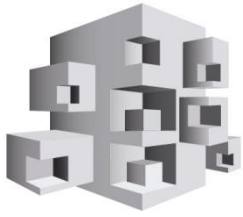
**EE APPLICATIONS/MEASURES**

**FINANCIAL MECHANISMS FOR EE**



# Key Country Indicators

Indicator	ALBANIA	BOSNIA	MACE- DONIA	MONTE- NEGRO	SERBIA	TURKEY
Population (M)	3	3.8	2.1	0.6	7.3	73.7
Population growth rate (%/year)	0.03%	-0,41%	0,21%	-0,7	-4.6%	1.25%
GDP growth rate (%/year)	8	2	2.9	1.1	1.7	9
Education Literacy rate	99%	78% (F) 94% (M)	97%	98%	96%	80% (F) 97% (M)
Illegal building work	166,000	No data	No data	80-100,000	>1M	72%



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**Table 7. Comparison of EE legislative framework**

Legislation	ALBANIA	BOSNIA	MACEDONIA	MONTENEGRO	SERBIA	TURKEY
EE law	Draft EE Law	Draft EE Law	Energy Law	EE Law	Draft EE Law	EE Law
BEP regulation	Not yet developed	Present	Present	No separate regulation	Present	BEP TR
EE strategy	Albanian National Strategy of Energy June 2003/2008-2010	Present in both FBH (2009) and RS (2012)	EE Strategy of the Republic of Macedonia until 2020	Present	Present	EE strategy of Turkey 2012-2023
National EE Action Plan	National Action Plan 2009-2018	National EE Action Plan	EE strategy of Turkey 2012-2023	Present	National Action Plan for Energy Efficiency 2010-2012	None

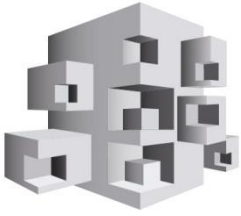
**Table 8. Comparison of institutional framework (Acuner, 2012)**

Institution	ALBANIA	BOSNIA	MACEDONIA	MONTENEGRO	SERBIA	TURKEY
Government responsible ministry (ies)	Ministry of Economy Trade and Energy	Ministry of Foreign Trade and Economic Relations of BH	Ministry of Economy, Ministry of Transport and Communication, Ministry of Local Self Government	Ministry of Economy	Ministry of Infrastructure and Energy Ministry of Environment, Mining and Spatial Planning After 26. July 2012: Ministry of Energy, Development and Environmental Protection - MEDEP Ministry of Construction and Urbanism	Ministry of Energy and Natural Resources Ministry of Environment and Urban Planning
Local government	Infrastructure office which deal also with energy issues	Cantonal ministries for responsible for energy issues in FBH, municipalities in RS	All units of the local self-governments (84 municipalities plus Skopje)	Not active but articles in EE law to be more strong	Established five Regional energy efficiency centres REECs	Self-Financing Covenant of Mayors
Agency	State institutions	None	Energy Agency of the Republic of Macedonia; Energy Regulatory Commission	Energy Regulatory Agency not on energy efficiency	Serbian Energy Efficiency Agency (SEEA) -Governmental -(was merged from 07 October 2012 with the newly formed Ministry of Energy, Development and Environmental Protection) Serbian Energy Agency (SEA) –independent	None
Private sector	Not enough interest,	Not enough interest Things getting to be improved	The private sector is involved but not to a desired level because of lack of legal framework.	Not enough interest Especially if we are talking about the banks	Private sector, SME-s is interested in EE issues but could be more.	Involved but not sufficiently

EE application/measure	ALBANIA	BOSNIA	MACEDONIA	MONTENEGRO	SERBIA	TURKEY
Building energy performance evaluation/ building energy performance certification	Not yet and it is part of secondary legislation of Draft EE Law	FBH, every new building when apply for operation permit with at least a class B rating Existing buildings in case of renovation, renting and sale/purchase All public buildings have to have energy certificate until 2013	Energy Agency of the Republic of Macedonia; Energy Regulatory Commission	Energy Regulatory Agency not on energy efficiency	Serbian Energy Efficiency Agency (SEEA) -Governmental -(was merged from 07 October 2012 with the newly formed Ministry of Energy, Development and Environmental Protection) Serbian Energy Agency (SEA) – independent	None
ESCOs	Not yet and it is part of secondary legislation of Draft EE Law	Limited activity	Not systematic program in place	Regarded as energy services and defined EPC No practice	The recently adopted Law on Public-Private Partnerships and concessions should provide long-term cooperation between public and private partners, ESCO companies, based on strict rules.	Present since 2008 but no EPC application

**Table 11. Future prospects of EUbuild EE partner countries on financing mechanisms for EE in the building sector (Acuner, 2012)**

COUNTRY	FUTURE PROSPECTS
<b>ALBANIA</b>	» Soft Loans; Energy Efficiency Fund; Tax Reduction
<b>BOSNIA</b>	» Soft loans, budget grants, international technical assistance
<b>MACEDONIA</b>	<ul style="list-style-type: none"> <li>» Direct Subsidies with controlling mechanism</li> <li>» Taxation policy (Amortization, Energy consumption tax, Tax benefits (for investors and fund users), Green mortgage – lower tax or no tax on energy efficient equipment and household appliances, White certificates or similar</li> <li>» Favourable customs duties for energy efficient equipment</li> <li>» Mobilizing capital for creation of investment funds (National Fund for Energy Efficiency)</li> <li>» Guarantees for commercial banks</li> <li>» Low-income family energy efficiency financing programs given the rate of people with low income in the country</li> <li>» Development of secondary legislation for ESCO's, and promotion of ESCO's</li> </ul>
<b>MONTENEGRO</b>	» Enhanced and greater involvement of relevant addresses - stakeholders, (local governments, public companies, financial organizations – banks, energy supplying company, public sector, private sector NGO's...) towards establishing new and innovative mechanisms for supporting EE, eg tax relief, low interest loans, easier fund access...
<b>SERBIA</b>	<ul style="list-style-type: none"> <li>» Third-party financing, energy performance contracting, guarantee of energy savings contracts...</li> <li>» Preferential loans and credits with low interest rate</li> <li>» Minor part of the population and consumers of energy has own economic potential to self -invest in Energy efficiency and they are preferably interested for tax and duties reduction/exemption on the constructing material, equipment, etc.,</li> <li>» Government should continually improving instructions and awareness for citizens and other stakeholders according the latest regulations, how to apply energy efficiency measures in the households and invest in increasing energy efficiency, especially in the building sector.</li> </ul>
<b>TURKEY</b>	<ul style="list-style-type: none"> <li>» Governmental financing mechanisms (EE projects and Voluntary Agreements types of incentives) for building sector</li> <li>» Public-private partnership, energy performance contracting with third party financing</li> <li>» Preferential loans and credits with low interest rate together with the involvement of more national financing institutions</li> <li>» Taxation and tariff policy arrangements in favour of EE in buildings</li> </ul>



## EUbuild SUMMARY CONCLUSIONS (part)

**Design**

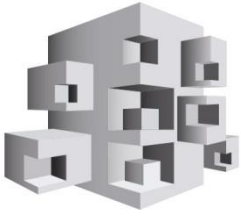
**Structure**

**Equipment**

**Performance**







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### STRATEGY

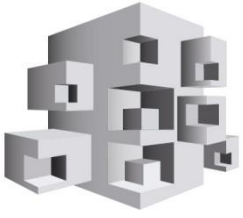
- DESIGN

### KEY PERFORMANCE INDICATORS

- Reduce gap between design and built performance

### EXPECTED OUTCOMES

- Better design tools
- Higher quality in the construction process
- Improved commissioning



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STRATEGY

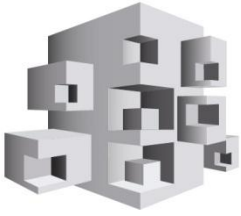
- STRUCTURE

KEY PERFORMANCE INDICATORS

- Embodied CO2 of construction materials
- Recycled/reused materials

EXPECTED OUTCOMES

- Standards for construction materials



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### STRATEGY

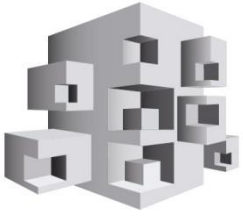
- ENERGY EQUIPMENT

### KEY PERFORMANCE INDICATORS

- Zero energy/CO2 neutral districts
- Energy labelling
- Real time optimization

### EXPECTED OUTCOMES

- Zero energy becomes standard
- Refurbishment strategies
- Reduced peak loads



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### STRATEGY

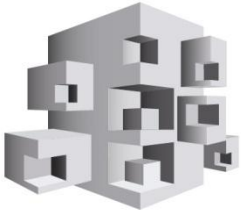
- PERFORMANCE MONITORING AND MANAGEMENT

### KEY PERFORMANCE INDICATORS

- Performance contracts
- Building energy management systems (BEMS)

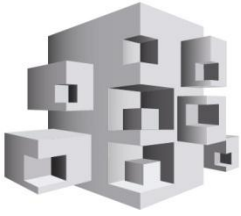
### EXPECTED OUTCOMES

- Improved control of costs, energy use and CO<sub>2</sub> footprints



# Key EUbuild Recommendations

- Building stock inventory, energy saving potentials & renovation road map
- Mandatory energy certification of buildings
- Development of energy management and energy auditing skills
- Development of EPC/ESCO markets
- Verification / testing EE equipment
- Awareness raising campaigns
- Environmental / green financing opportunities



# Take-away Messages

- Energy efficiency: strategic and integral part of energy, climate & environmental policies
- Robust & effective building energy policies
- “Trigger” opportunities
- Public sector leadership
- Support measures play a key role
- Financing mechanisms need to reflect the needs of different building owner types