Complementary measures for building renovations

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Complementary measures for renovations

- Most residential building retrofits only **achieve shallow renovation standards**.
- Shallow renovation results in **less than 60% energy consumption savings** based on deep renovation definitions.
- Limited Financial Support:
  - Complementary measures **do not** currently **receive financial support** due to the mandatory **30% savings threshold**.
  - Financial incentives mainly focus on primary measures.
- Untapped Energy Saving Potential:
  - Complementary measures are applicable to more than 50% of buildings.

Active identification and support of complementary measures
→ more buildings can reach the deep energy standard.

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Complementary measures for renovations

- Contribution to energy efficiency, comfort and sustainability
- Increasing the overall benefit of renovation projects

Complementary measures go beyond primary renovation measures and optimize energy performance and occupant well-being.
They address specific aspects of building systems and operations to maximise energy savings and reduce environmental impact.

Benefits of Complementary Measures:

- Energy Efficiency
- Comfort Enhancement
- Sustainability
- Future-Proofing

Examples of Complementary Measures:

- Building envelope improvements
- HVAC system upgrades
- Lighting upgrades
- Renewable energy integration
- Smart building technologies
- Indoor air quality enhancements
- Water efficiency measures

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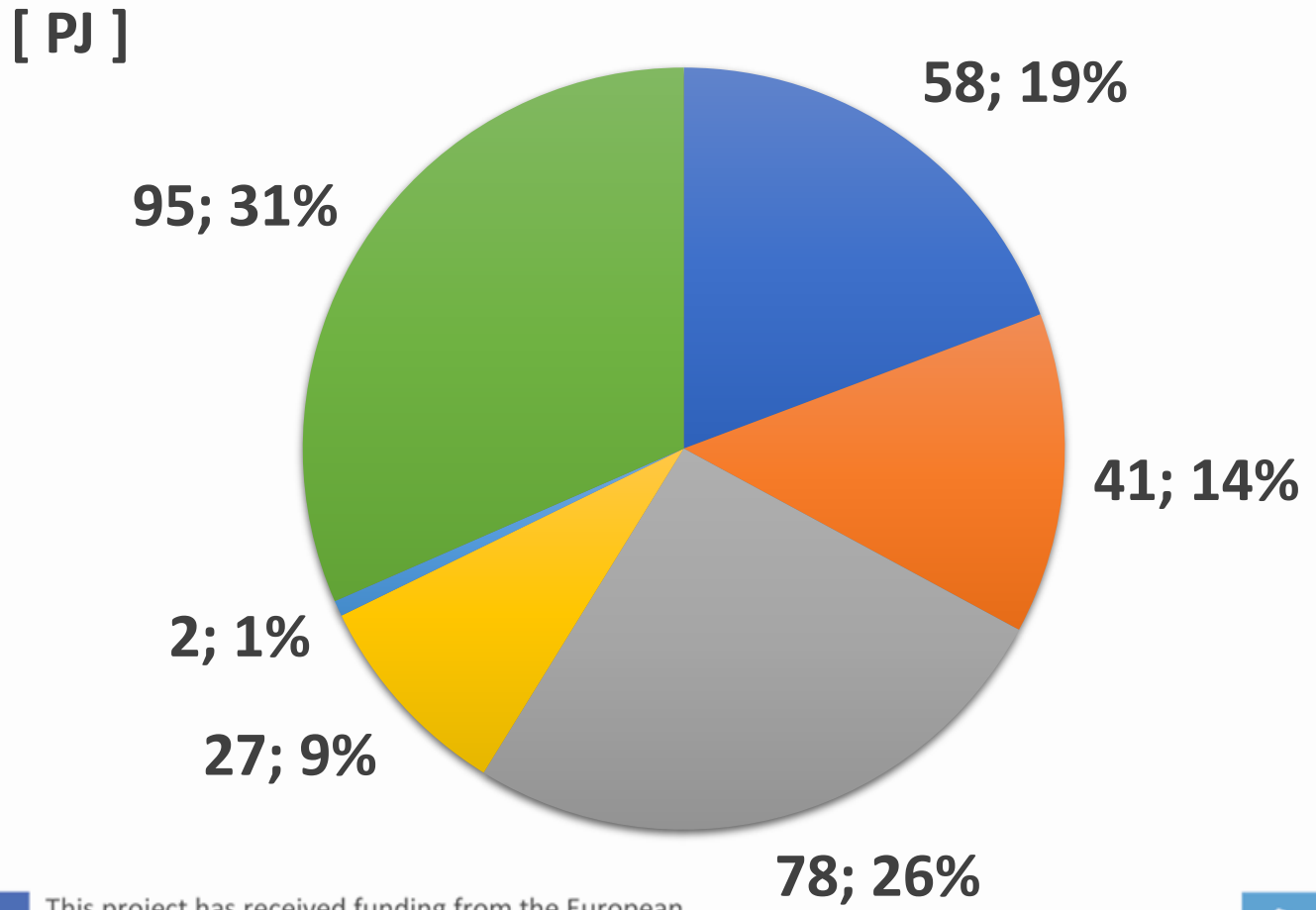
Czech case study

Final consumption – Households (CZ)



Households

Total consumption per year

299 PJ (2020)

- Electricity
- Heat
- Natural gas
- Solid fuels
- Liquid fuels
- Renewable resources

Source: the CZSO, Energo 2015, Energo 2021

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Czech case study

Dwellings and the method of their insulation

Indicator	Year				Index [%]
	2015		2021		2021/2015
	Number	%	Number	%	
Total	4 304 173	-	4 481 967	-	104.1
Wall insulation	2 024 443	47.0	2 360 798	52.7	116.6
Roof insulation	1 447 098	33.6	1 504 283	33.6	104.0
Insulated windows	3 245 828	75.4	3 440 678	76.8	106.0
Not insulated	810 967	18.8	672 927	15.0	83.0

1) the number and proportion of one specific method of insulation of flats out of the total number of flats is indicated, regardless of other methods of insulation

Source: the CZSO, Energo 2015, Energo 2021

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Step-by-step retrofit

Retrofitting components:

1) **Building assessment, planning**
2) **Energy efficiency of the building envelope** → **20-30 % energy savings for heating**

   Insulation of roof, walls, replacement of windows
3) **Energy efficient technologies** → **20-40 % energy savings**

   Heating, cooling, ventilation system
4) **Lighting retrofit** → **50-75 % electricity savings for lighting**
5) Use of **renewable energy sources**
6) **Monitoring and optimisation**

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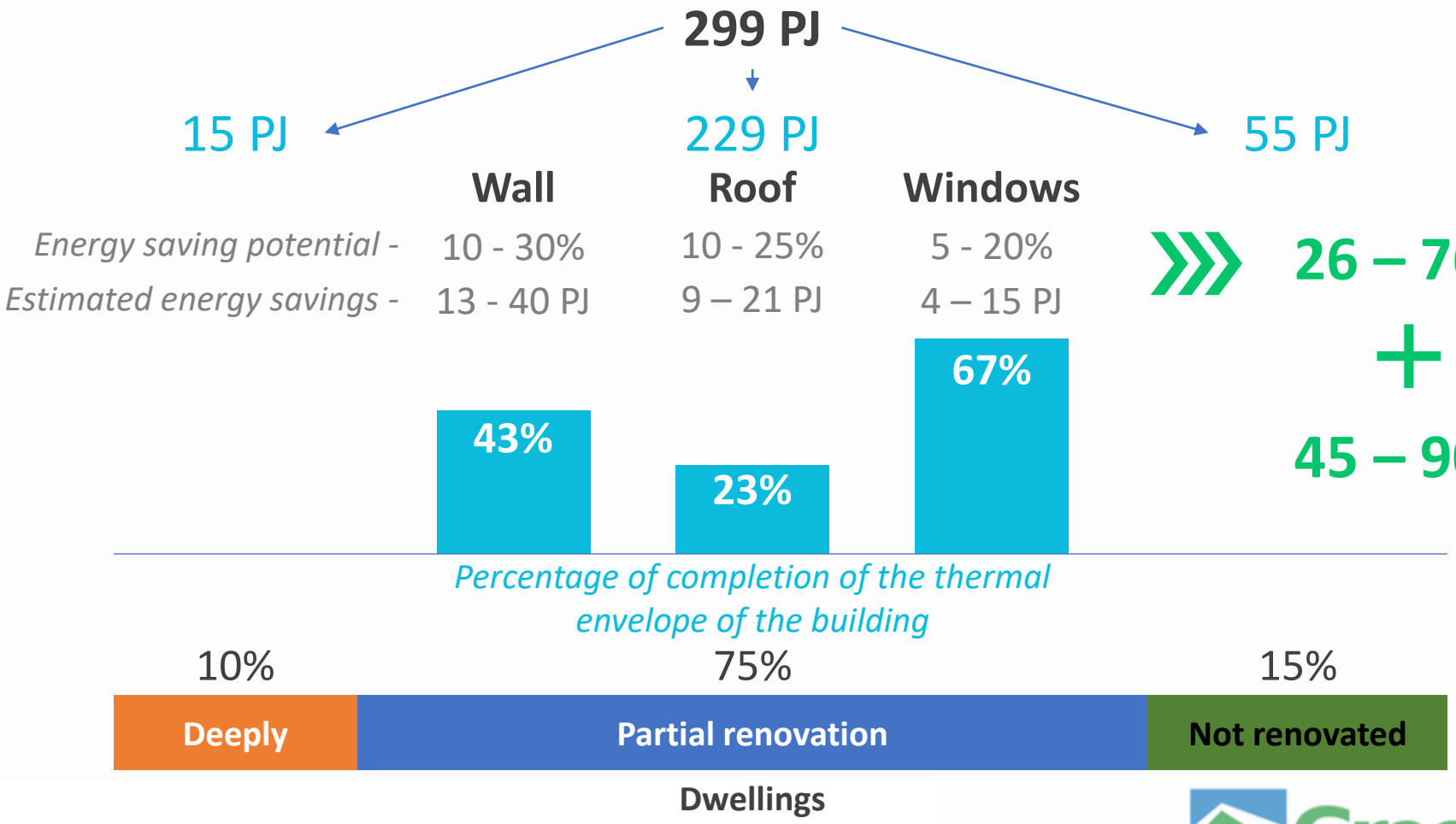
Estimation of energy savings



26 – 76 PJ

the energy saving potential of completing building insulations

+

45 – 90 PJ

the energy saving potential of using energy efficient technologies

+

Reducing the need for non-renewable energy by using renewable energy sources.

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Building Renovation Passports

Benefits of BRPs:

- Informed Decision-Making
- Risk Reduction
- Cost Optimization
- Improving Energy Efficiency

Valuable tool for:

- **building owners**
- **facility managers**
- **policymakers**

EXAMPLES:

FLANDERS (BE) – Woningpas

FRANCE – Passeport Efficacité Energétique

GERMANY – Individueller Sanierungsfahrplan (iSFP)

Source: BPIE.eu

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Discussion

- Additionality
- Calculation formula
- Avoiding double-counting

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