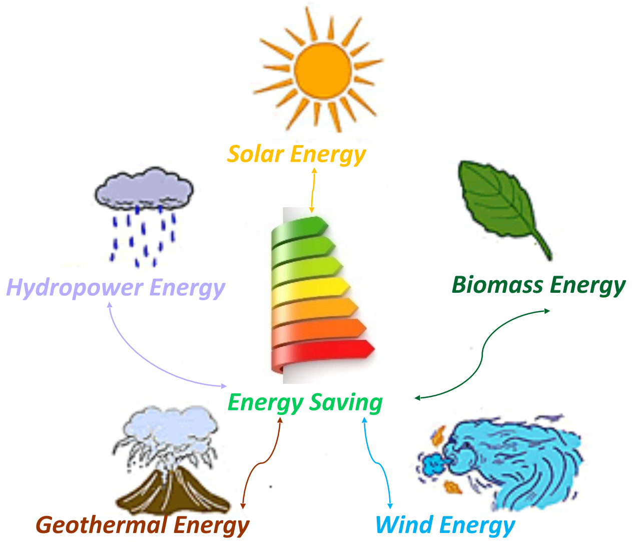
# Energy Transition of the EU Building Stock

## *Unleashing the 4th Industrial Revolution in Europe*

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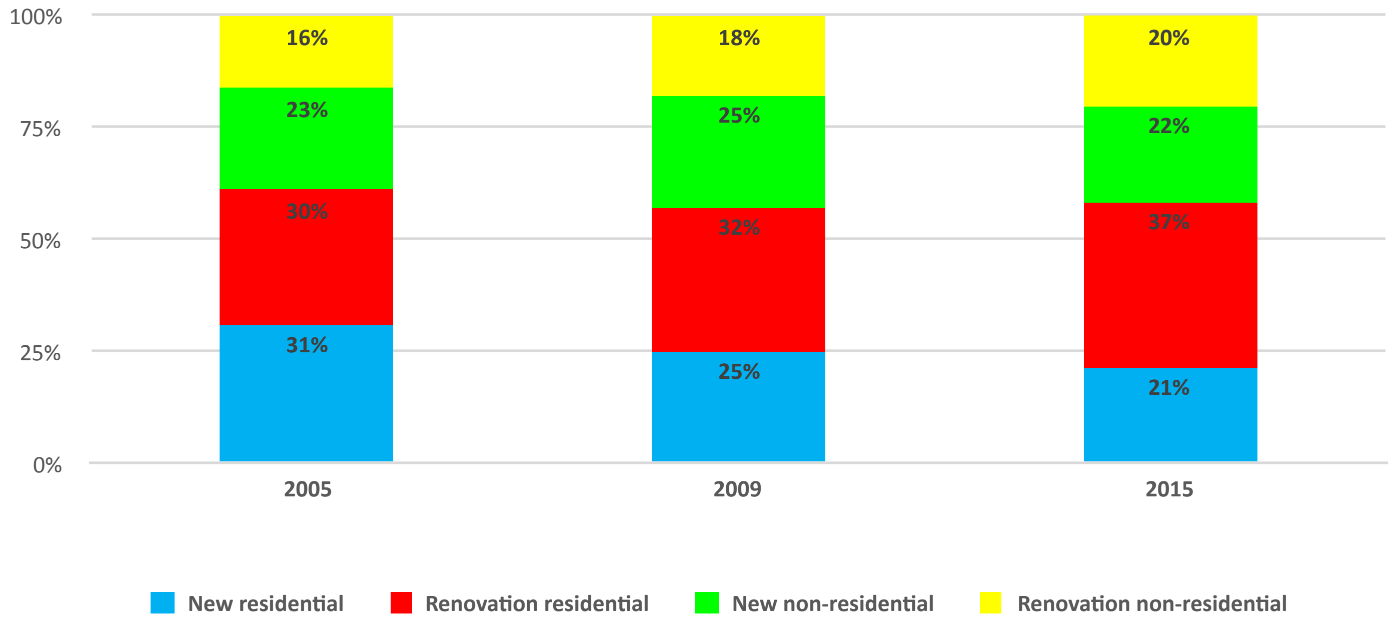
*Making the Negawatt dream a global reality*

# Policy intervention has led to the emergence of an EU energy renovation market

## Market share of activities in the building sector




***The EU Energy Renovation Market is estimated at €109 billion and 882,900 jobs in 2015***

# At least 14 EU instruments include provisions aiming at energy renovation

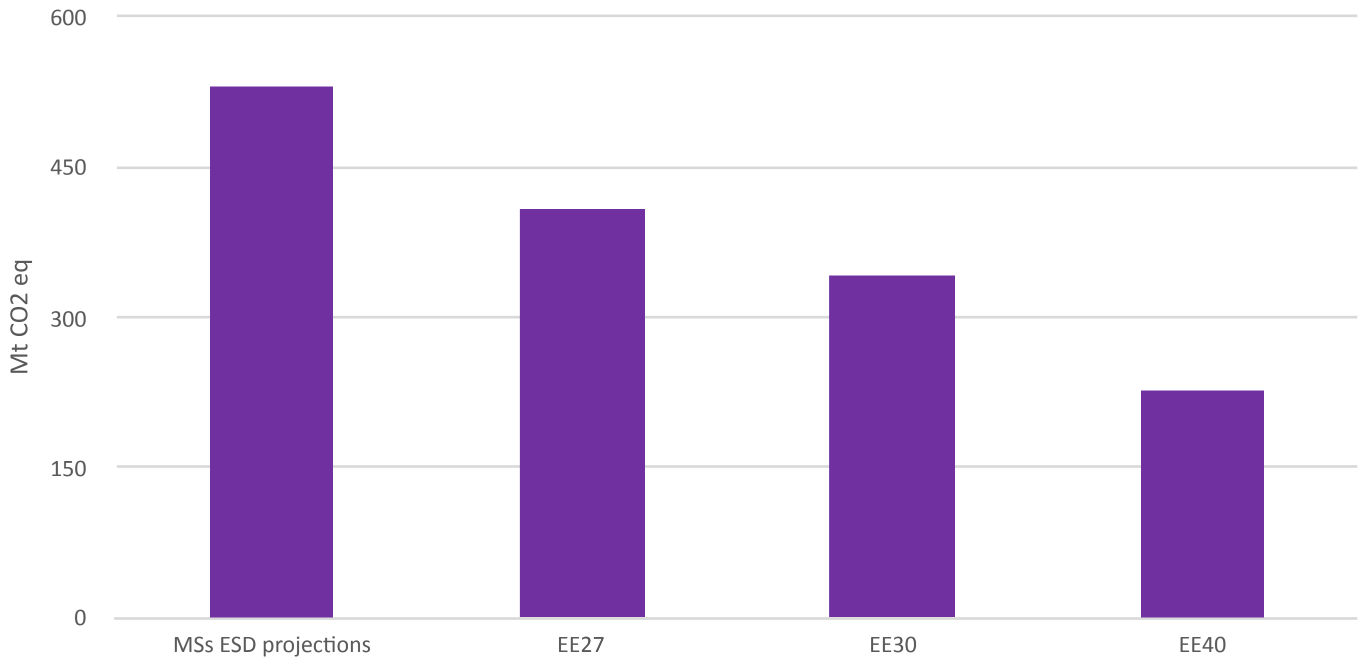
## The fragmented policy “Diamond”


1. *Energy Performance Building Directive (EPBD)*
2. *Cost-optimum methodology regulation*
3. *Energy Efficiency Directive (EED)*
4. *Renewable Energy Directive (RED)*
5. *Ecodesign Directive*
6. *Labelling Directive*
7. *Emission Trading Scheme Directive (ETS)*
8. *Effort Sharing Decision (ESD)*
9. *Mechanism for Monitoring and Reporting (MMR)*
10. *Directive on Internal Market in Electricity (IME)*
11. *Directive on Internal Market in Gas (IMG)*
12. *State Aid Regulation*
13. *Multiannual Financial Framework (MMF)*
14. *Accounting rules (ESA)*

***The fragmentation of provisions aiming at energy renovation hinders the increase of the ambition level***

# The binding ESD target, if aligned with the Paris Climate Agreement, would increase the ambition level

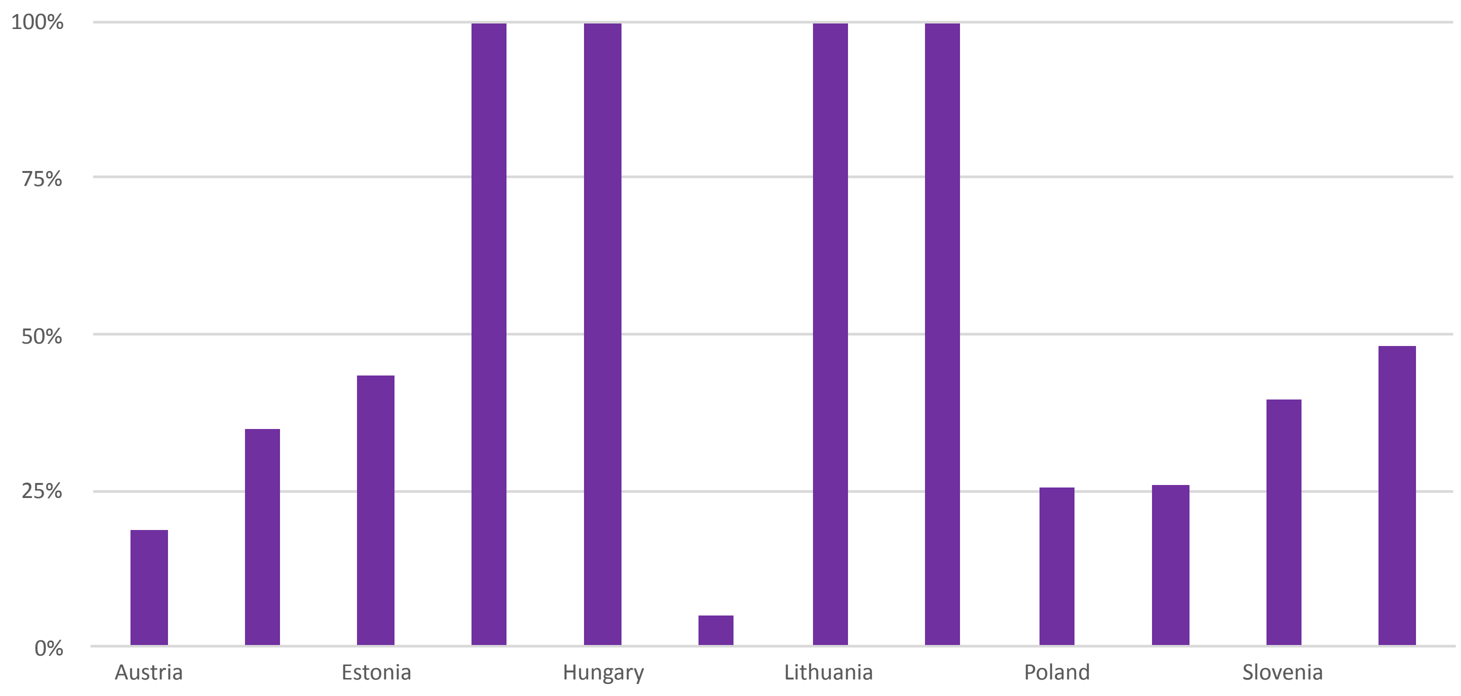
## 2030 GHG emissions projections for buildings by MSs and EC modelling




***MSs projections of buildings GHG emissions need to be aligned with those of the EC***

# Energy renovation is not prioritised in the use of ETS revenues by all MSs

## Share of ETS revenues used for energy renovation in 2014




***More transparency in the use of ETS revenues is needed***

# Electricity and gas taxes make more vulnerable citizens in risk of ending-up in energy poverty

| €/kWh | Electricity taxes per consumption bands <1000 kWh | 1000<C<2500 | 2500<C<5000 | 5000<C<15000 | >15000 kWh | Gas taxes per consumption bands <20GJ | 20GJ<C<200GJ | >200GJ |
|---|---|---|---|---|---|---|---|---|
| Belgium | 0,0632 | 0,0537 | 0,0510 | 0,0474 | 0,0439 | 0,0205 | 0,025 | 0,0208 |
| Bulgaria | 0,0163 | 0,0160 | 0,0160 | 0,0160 | 0,0160 | 0,0072 | 0,013 | 0,0130 |
| Czech Republic | 0,0510 | 0,0358 | 0,0236 | 0,0203 | 0,0181 | 0,0158 | 0,0202 | 0,0190 |
| Denmark | 0,2159 | 0,2159 | 0,2102 | 0,1449 | 0,1449 | 0,0438 | 0,0591 | 0,0591 |
| Germany | 0,1749 | 0,1565 | 0,1519 | 0,1494 | 0,1426 | 0,0253 | 0,0276 | 0,0260 |
| Estonia | 0,0350 | 0,0340 | 0,0340 | 0,0340 | 0,0340 | 0,0093 | 0,0161 | 0,0139 |
| Ireland | 0,1311 | 0,0695 | 0,0463 | 0,0345 | 0,0246 | 0,0143 | 0,0209 | 0,0191 |
| Greece | 0,0584 | 0,0537 | 0,0544 | 0,0681 | 0,0816 | 0,0194 | 0,0231 | 0,0189 |
| Spain | 0,1132 | 0,0610 | 0,0507 | 0,0446 | 0,0428 | 0,0231 | 0,0347 | 0,0252 |
| France | 0,0638 | 0,0578 | 0,0568 | 0,0559 | 0,0560 | 0,0276 | 0,0255 | 0,0213 |
| Croatia | 0,0455 | 0,0329 | 0,0309 | 0,0298 | 0,0290 | 0,0110 | 0,0182 | 0,0174 |
| Italy | 0,0923 | 0,0741 | 0,0949 | 0,1224 | 0,1324 | 0,0326 | 0,0473 | 0,0452 |
| Cyprus | 0,0473 | 0,0376 | 0,0375 | 0,0374 | 0,0370 | 0,0148 | 0,0186 | 0,0185 |
| Latvia | 0,0554 | 0,0555 | 0,0554 | 0,0553 | 0,0550 | 0,0129 | 0,0152 | 0,0152 |
| Lithuania | 0,0385 | 0,0383 | 0,0380 | 0,0373 | 0,0362 | 0,0073 | 0,0108 | 0,0113 |
| Luxembourg | 0,0482 | 0,0447 | 0,0436 | 0,0425 | 0,0417 | 0,0079 | 0,015 | 0,0148 |
| Hungary | 0,0274 | 0,0252 | 0,0243 | 0,0237 | 0,0252 | 0,0417 | 0,047 | 0,0442 |
| Malta | 0,0154 | 0,0067 | 0,0060 | 0,0073 | 0,0178 | 0,0215 | 0,0307 | 0,0276 |
| Netherlands | | | 0,0605 | 0,1148 | 0,0697 | 0,0112 | 0,0186 | 0,0184 |
| Austria | 0,1485 | 0,0951 | 0,0744 | 0,0643 | 0,0537 | 0,0267 | 0,0408 | 0,0375 |
| Poland | 0,0382 | 0,0328 | 0,0312 | 0,0303 | 0,0299 | 0,0163 | 0,0227 | 0,0209 |
| Portugal | 0,2104 | 0,1247 | 0,1132 | 0,1063 | 0,0986 | 0,0189 | 0,0284 | 0,0275 |
| Romania | 0,0388 | 0,0385 | 0,0381 | 0,0378 | 0,0372 | 0,0174 | 0,0166 | 0,0174 |
| Slovenia | 0,1065 | 0,0686 | 0,0505 | 0,0394 | 0,0318 | 0,0668 | 0,0763 | 0,0713 |
| Slovakia | 0,0451 | 0,0323 | 0,0285 | 0,0252 | 0,0225 | 0,0046 | 0,0062 | 0,0056 |
| Finland | 0,0809 | 0,0613 | 0,0521 | 0,0483 | 0,0446 | 0,0205 | 0,025 | 0,0208 |
| Sweden | 0,0986 | 0,0715 | 0,0672 | 0,0606 | 0,0565 | 0,0072 | 0,013 | 0,0130 |

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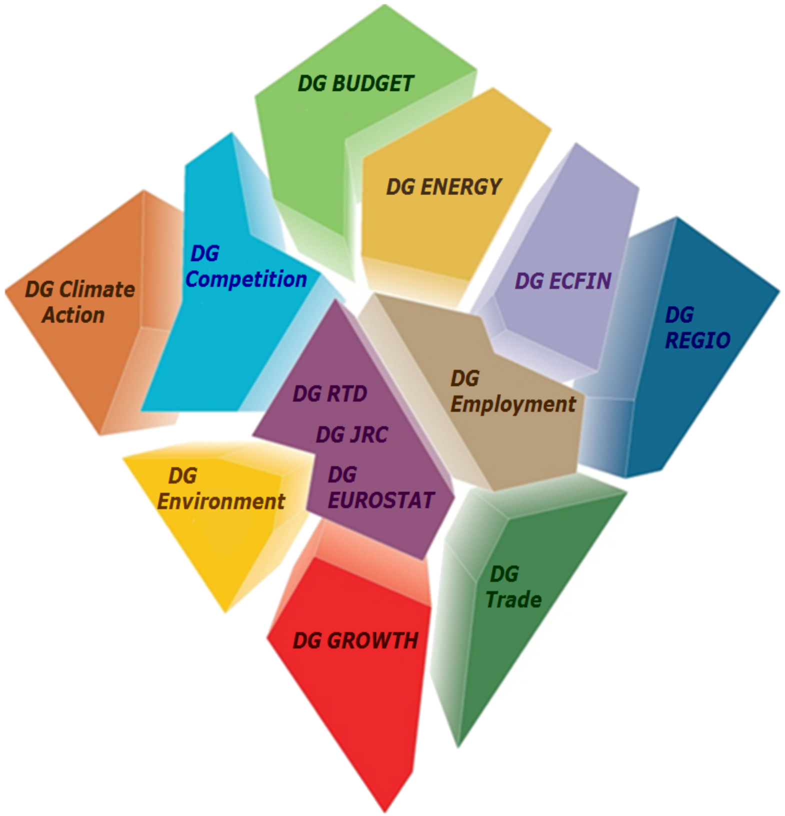
# The fragmentation of policy instruments matches well with the fragmentation of policy services and industry

The three levels of fragmentation (policy instruments, policy services and industry)



***A paradigm shift is needed in policy design, governance of energy renovation and the organisation of the industry and stakeholders to increase the ambition level***

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# The way forward

1. **Efficiency First Framework for buildings: One single, streamlined investment framework which would include climate and energy requirements for buildings**
   - Clear target to transform EU buildings from being energy wasters to being highly energy efficient and energy producers each time a building is renovated
   - Carbon and energy savings targets for the overall stock by 2050 aligned with the Paris Climate Agreement
2. **New governance structure:**
   - EU Energy Renovation Facilitator
   - EU Risk Sharing Facility
   - EU energy renovation industry (aggregators of components' industry)
3. **Industrialisation of energy renovation:**
   - Moving from component-based energy renovation to Net Zero Energy Renovation Kits
   - Integration of buildings in the EU energy system
   - Digitalisation and use of new technologies

# Industrialisation of energy renovation is needed to reduce renovation costs and accelerate the renovation pace

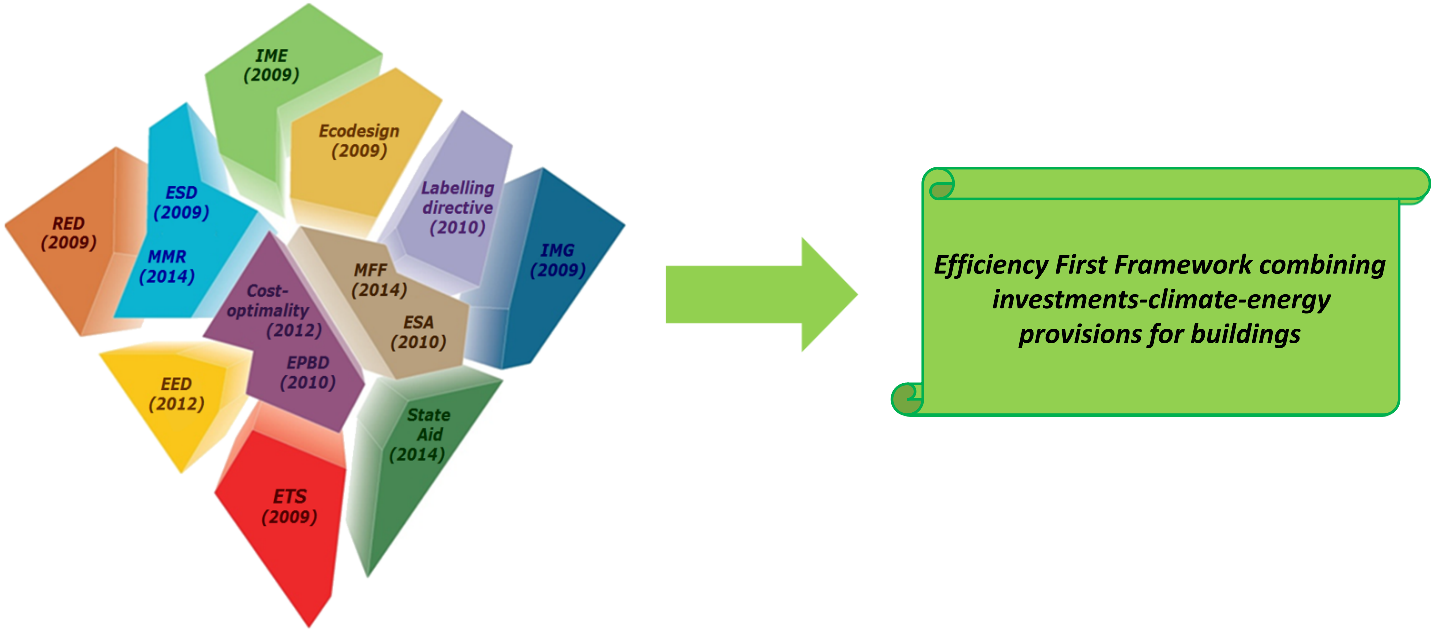

Airbus A380 company

A380 financial operations | A380 Engineering | A380 Aircraft structure


Energy Renovation Facilitator

Risk sharing pool | Engineering & architecture firms | Cluster of energy renovation industries

# Thank you for your attention

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