



Image courtesy of Theo van Rensen,
TBB Photo Contest

A global benchmark

Building Refurbishment Initiatives and Business Models

Lucienne Krosse, Manuel Calvo Diaz, Mikel Laso, 26th April 2021



The **Naturgy Foundation** is a non-profit institution created in 1992 by **Naturgy** to educate and raise awareness in society of improvements in energy efficiency and technological innovation in the energy sector. It also develops social action programmes, in particular by supporting initiatives aimed at alleviating energy vulnerability.

Aware of the great challenge the fight against climate change is, the great commitments of Europe and the relevance of residential energy consumption regarding these goals, we decided to support a survey about business models on building refurbishment to help better understanding on the key factors to make it happen on an appropriate scale.

Reducing risk and time-to-market for energy innovations

- Ensure security and safety of supply
- Reduce costs in the energy value chain
- Reduce CO₂ emissions
- Improve European competitiveness
- Remove barriers to innovation
- Encourage sustainable growth
- Create jobs



EIT InnoEnergy shareholders



- Education
- Incubation
- Innovation
- Industrial value chains

The bigger picture

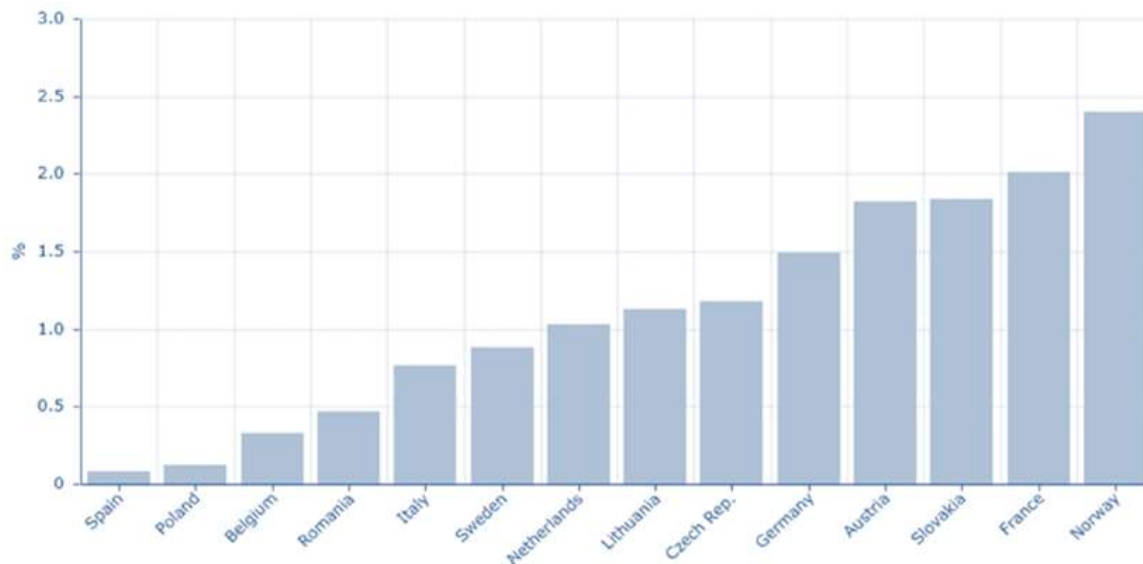
- Buildings account for ca. 40% of EU's energy consumption, ca. 36% of CO2 emissions
- EU relative old building stock, 40% built before 1960s and 90% before 1990s
- Ca. 75% of today's building stock is energy inefficient
- EU's construction sector is largest industrial employer (total direct workforce 18 million people) and it contributes ca 9% to the Gross Domestic Product of the European Union
- About 80-90% of our time we spend indoors



Commission's post-COVID 19 recovery plan identified doubling the rate of renovation as a specific aim to kick-start the European recovery.

“A renovation Wave for Europe – Greening our buildings, creating jobs, improving lives”

Renovation rates of residential buildings in Europe



- To realise climate goals, acceleration of refurbishment of existing buildings is imperative.
- Average renovation rate is below 1% despite numerous subsidies and incentive schemes

Barriers from a building owner perspective



Technological

- Uncertainty of performance and performance gap
- Lack of technological, product and system developments



Knowledge-informative

- Difficulties of proving non-energy benefits of renovation
- low awareness (genuine disconnect climate change and energy efficiency property)
- Reliable information and support



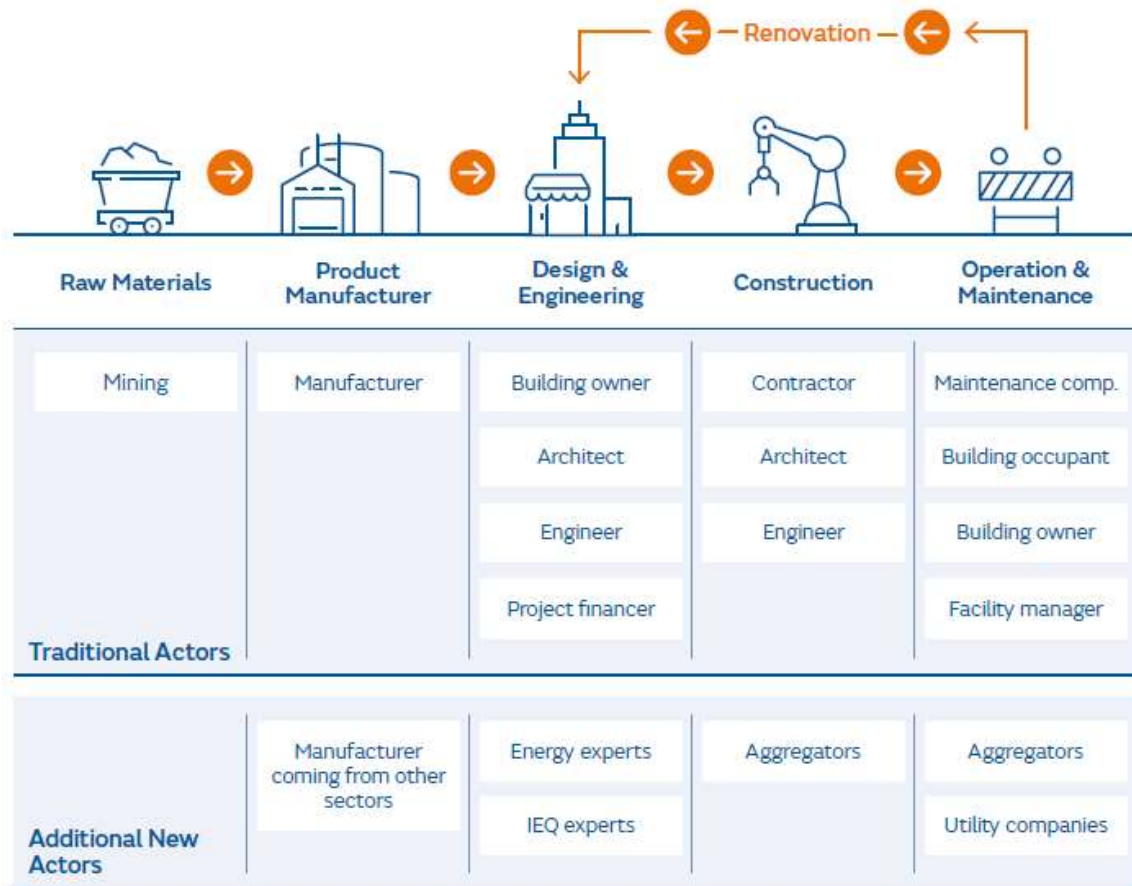
Market Inefficiencies

- Split incentives and conflicting interests
- Duration, hassle and complexity of energy efficiency renovation projects



Financial

- High upfront costs
- Lack of access to capital
- Uncaptured value (energy efficiency improvements do not always translate into increased rent or property valuation)
- Low confidence in energy bill savings



Barriers from value chain actors perspective



Knowledge-informative

- Lack of skilled personnel and training
- Low quality auditing



EE renovation market structure

- Fragmented value chain: difficulties in coordination and communication
- Insufficient resources and competences to tender for public procurements
- Reluctant leaseholders, not willing to contribute to change, thereby limiting economy of scale
- Gaining permission: collective agreement amongst groups of apartment owners
- Supply chain constraints: limitations in scale, costs and routine
- Bureaucracy: financing models for energy efficiency renovation projects have long lead times for approval



Regulatory

- Lack of continuity in regulations
- Limited consistent grant schemes and governmental programs

Main barrier addressed

- Complexity and hassle
- Performance guarantee
- Reducing lead times

One Stop Shop

- Single point of contact
- - Offering all services related to renovation, taking care of the complete process

Innovative Financing Schemes

- High upfront cost
 - Access to capital
- Often initiated by public government
 - Financial institutions offering new financial products for boosting Energy Efficiency

New Revenue Streams

- Split incentive
 - Uncaptured value
- Tax reduction schemes, feed-in tariffs, financial incentives based on Energy Efficiency performance
 - Additional value of a sustainability assessment scheme or certificate

company	founding year	country of origin	type of business model			market segment		
			OSS	NRS	IFS	single	multi	tertiary
Sustainable Australia Fund	2002	Australia			✓			✓
PACE	2008	USA	✓		✓	✓	✓	
EnergieSprong	2009	Netherlands	✓			✓	✓	
Carbon Lighthouse	2009	USA		✓	✓			✓
Metrus Energy	2009	USA			✓			✓
EcoHome Financial	2010	Canada			✓	✓		
Refresh Renovations	2010	New Zealand	✓			✓		
Sealed	2012	USA	✓		✓	✓		
Retrofit Works	2013	UK	✓			✓		
Operene	2014	France	✓				✓	
Oktave	2015	France	✓		✓	✓	✓	
SiRE / ReformANERR	2015	Spain	✓				✓	
Factory Zero	2015	Netherlands	✓			✓		
Mon Carnet	2015	France	✓			✓		
Betterhome	2015	Denmark	✓			✓		
EuroPace	2018	Spain	✓		✓	✓	✓	
CleanBC Better Home	2018	Canada		✓	✓	✓	✓	✓
EOS Energy	2019	Spain	✓		✓		✓	
Business Energy Pro	2019	USA		✓				✓

Business Model



Customer Journey



Scope



Business Model



Customer Journey



Scope





- Common barriers addressed include complexity and hassle through the **One-Stop-Shop** approach. Gaining considerable traction
- Important aspects such as **guaranteed performance and quality** are in many cases secured through **creation of networks of trained and qualified professionals** exclusively executing renovation works.
- Often **collaboration with public authorities, utilities or associations** for lead generation (identifying and approaching potential customers) and use of supporting digital platforms.
- Important success factor is gaining sufficient market traction and getting economies of scale. All offer to some extent **standardised solutions**.
- For upscaling innovative financing schemes such as PACE and Sustainable Australia Fund, often an **adoption of local regulatory framework** is required.
- Interesting feature of several American based business models is the implementation of a **portfolio approach to tap into favourable large scale project financing**. Single building renovation projects are aggregated into one large project portfolio that is financed and further de-risked by an insurance of the energy savings performance (lower cost of capital).

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