

The need for an EU industrial renovation model

by Yamina Saheb, IPCC Author

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The Renovation Wave is a welcome initiative from the European Commission (EC). However, making Europe's buildings Paris proof requires i) aligning the renovation target with the remaining carbon budget for the EU, ii) introducing mandatory requirements for one-shot zero energy/carbon renovation when public finance is used, and iii) moving towards an industrial approach to energy renovation.

IDENTIFIED LOOPHOLES IN THE EC PROPOSED RENOVATION WAVE:

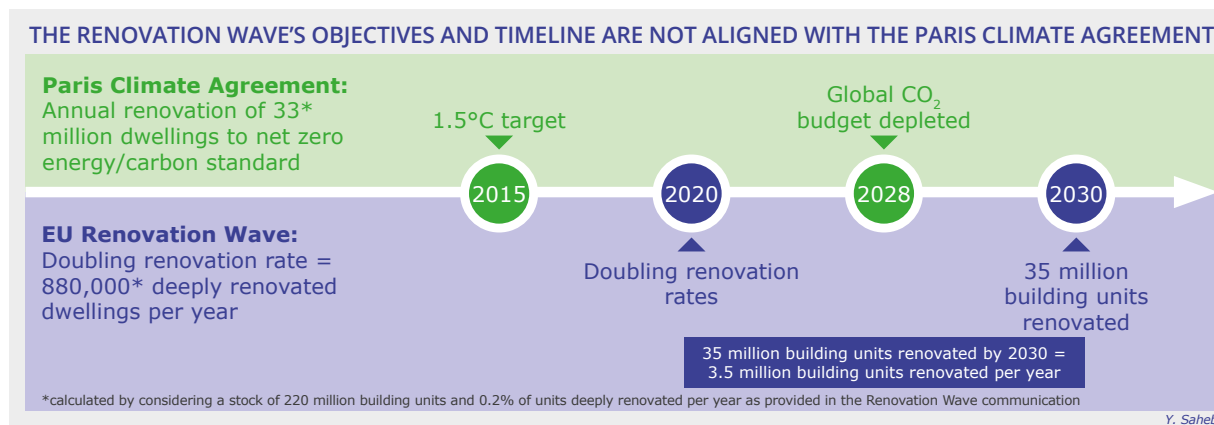
The Renovation Wave proposed by the European Commission (EC) was designed to ensure EU building stock will contribute its share to Paris climate goals. However, an early assessment of the proposal shows that the Renovation Wave, in its current version, is unlikely to lead to a decarbonised building stock. In fact, meeting such objective requires:

a. an equitable share of the remaining carbon budget to be considered when setting the climate neutrali-

- b.** as a result, the overall EU building stock must be renovated to the zero energy/carbon standard within the current decade (Figure 1). This objective is achievable only if one-shot energy renovation is made mandatory and the renovation rates are estimated based on the share of buildings out of the remaining carbon budget. In fact, doubling the renovation rate, as proposed by the EC, will not be sufficient given today's 0.2% annual deep renovation rates, as reported by the European Court of Auditors (ECA);
- c.** shallow renovation should be banned from EU legislation and no longer financed. This would mean a full revision of the Energy Performance of Buildings Directive (EPBD) and the other 19 instruments targeting buildings.

Unfortunately, none of the above enabling conditions is currently met. On the contrary, the existing EU climate and energy policy framework locks Europe's buildings

Figure 1: Assessment of the Renovation Wave objectives in relation to the Paris goals



in carbon through the EPBD and its major renovation concept. In fact, according to Article 2 of the directive, energy renovation is required only when:

- a. "The total cost of the renovation relating to the building envelope or technical systems is higher than 25% of the value of the building, excluding the value of the land upon which the building is situated; or
- b. More than 25% of the surface of the building envelope undergoes renovation".

In practice, the major renovation concept cancels the requirement to renovate existing buildings as the two conditions included in article 2 of the EPBD can be easily avoided by building owners when buildings are renovated. Furthermore, the cost of deep renovation is estimated at an average of €1,200 per square metre, which is above the EU average for the construction of new buildings, and public finance is provided for step-by-step renovation project. The combination of the major renovation concept, the cost-abuse by the renovation industry and the availability of financial support mainly for shallow renovation are among the main reasons that prevented the creation of the energy renovation market needed to meet the Paris climate goals.

Furthermore, the Renovation Wave suggests introducing Minimum Energy Performance Standards (MEPS) with the argument that this new instrument will unleash the energy renovation market. However, given the lifespan of buildings and the renovation cycle (25 years on average for residential buildings and 15 years for non-residential ones), it is unlikely that buildings will be renovated more than once during this decade while staying within the remaining EU carbon budget requires a full decarbonisation of the bloc before 2030. Therefore, by mandating MEPS, the EU will mandate the lock-in of existing buildings in carbon and the poorest segments of the population in energy poverty. The only beneficiary of MEPS is the outdated renovation/construction industry, which did not invest in innovation, more than thirty years after the first large scale renovation project was launched in the EU (KfW renovation programme in Germany).

INTO THE FUTURE

The combination of the economic measures implemented after the financial/economic crisis of 2008, and the measures implemented to meet the 3x20 targets by 2020 have led to the creation of an energy renovation market. For the first time, in 2010, the renovation market has taken over the market of the construction of new buildings. However, in the absence of mandatory requirements for one shot zero energy/carbon renovation in the EPBD, the emerging renovation market is in reality a market of shallow renovation at a high cost for EU taxpayer.

The climate emergency, the high share of the EU population facing energy poverty and the scale of the renovation challenge require moving from the unsuccessful current approach to an industrialised energy renovation model. Such a model would require that risks related to renovation are carefully assessed like innovative industries do for any new product or service under development. The Enterprise Risk Management (ERM) framework recommends the creation of a Central Risk Function to facilitate the implementation of innovative projects. The aim is to identify risks, help in the categorisation of risks and their assignment to the most appropriate organisations to be risk owners.

In the case of energy renovation, the facilitator could be an EU energy renovation agency, which should be independent from the existing EU institutions. Strategic decisions should be taken by the board of the facilitator which should be composed of the President of the European Parliament, the President of the European Commission and the President of the European Council. It is expected that the "silo" culture would be reduced if such a facilitator role is established. Similar facilitators could be established at national/regional/local levels as appropriate. Similarly, based on the ERM framework, a risk sharing pool will be needed to bundle existing public finance and allow for scaling-up private one.

The ERM model used for the development of AIRBUS A380, known as Power8 programme, could be adapted to the industrialisation of energy renovation (Figure 2). The management of risks related to the A380 project based on the Power8 programme has resulted in establishing:

1. An Airbus A380 company to lead the project which played the role of a Central Risk Function;
2. An A380 aircraft structure for setting-up an efficient aircraft production, integrating the complex supply chain, and improving and streamlining the assembly of the giant plane when mass production begins;
3. An A380 financial operations structure to manage the financial risk, handle cash and manage cash flow as well as shortening the development time to full production, and solving problems in manufacturing and operations;

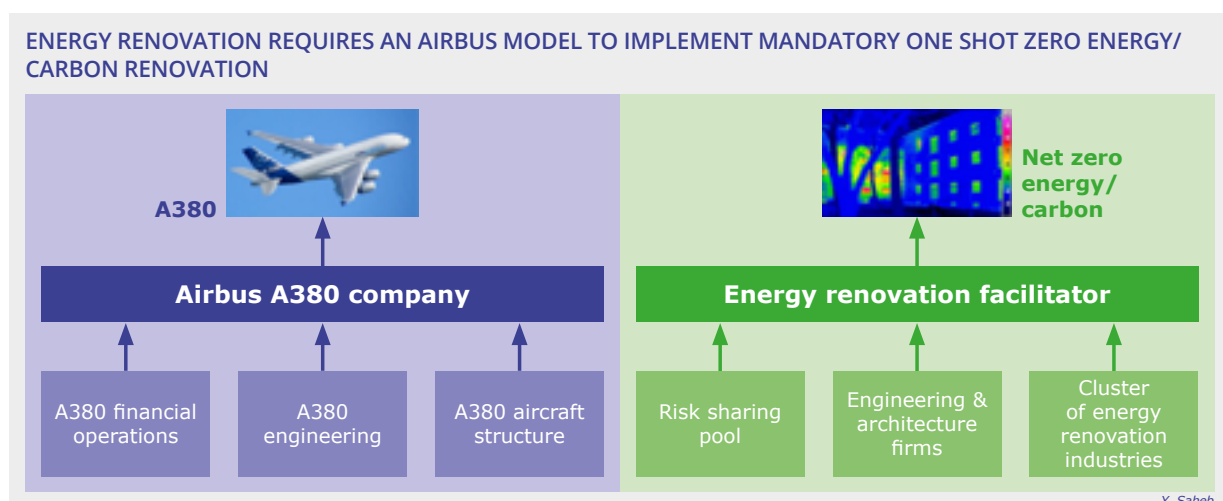
4. An A380 engineering structure to manage technical risks and ensure the supply chain deliveries are of high quality.

By analogy the identification of risks related to the industrialisation of energy renovation using the AIRBUS A380 Power8 programme would require the following structures (Figure 2):

1. An EU energy renovation facilitator;
2. An EU risk sharing pool;
3. A pool of engineering and architecture firms;
4. An aggregator of supply chain.

Overall, buildings are about the daily life of people and the building sector is a major employer in the EU. The Renovation Wave should, therefore, be designed with the EU climate, societal and industrial objectives in mind.

Figure 2: Proposal to adapt the AIRBUS model to energy renovation



For further reading:

- [Energy renovation: trapped in over-estimated costs and the staged approach](#)
- [Energy renovation: it's time for a paradigm shift in policy design](#)
- [Energy transition of the EU building stock: unleashing the 4th industrial revolution in Europe](#)
- [Energy renovation: The Trump Card for the New Start of Europe](#)