

# Clean Energy Transition: Construction

## Growing on strong foundations

**Much of Europe's building stock is old and some holds historic and cultural value. More than 220 million premises, (85% of the region's structures), predate 2001 and the majority have poor energy efficiency. Buildings are responsible for 40% of the EU's total energy consumption, and for 36% of greenhouse gas emissions. What's more, 85-95% of the structures that exist today will still be standing in 2050.**

Transitioning to clean energy forms a central tenet of EU legislation, including the European Green Deal, Fit for 55 plan and the REPowerEU plan. The European Commission is also developing a Whole Life Carbon (WLC) Roadmap for the built environment, which is due to be released by the end of 2023. The Energy Performance of Buildings Directive and the Energy Efficiency Directive are the main EU instruments focusing on improving energy efficiency in the buildings sector. They aim to achieve climate neutrality in the buildings sector by 2050 by requiring zero emissions for all new buildings by 2028.

Individual European countries are allocating significant investment into cleaning up the construction industry. For example, the Dutch government has allocated €1 billion until 2030 for clean and emission-free construction. The Netherlands also leads Europe with the most solar power per capita, followed by Germany, Denmark and Belgium. In contrast, the UK's government is softening some of its previous clean energy commitments. According to research by Imperial College London, the UK's efforts to decarbonise buildings is lagging behind its European neighbours.

### **New construction technology: 3D printing**

3D printing offers a way of making the construction process cheaper, faster and, if sustainable and carbon neutral materials are used, better. It is still in the early stages in Europe, where the construction industry has been slow to adopt new technology. However, it holds promise for the future.



In the Middle East, the UAE is the flag bearer for sustainable development in the construction industry. This year, it became the first nation in the Middle East and North Africa to commit to a Net Zero plan. For the construction industry, this includes the introduction of building codes and a new building rating system. The way authorities validate the green credentials of the industry can be viewed differently. For example, our underwriter in Italy believes construction companies could benefit from green ratings, whereas our colleague in Belgium does not think so.



### What do Atradius underwriters in Europe and the Middle East see as the primary issues for the sector in the region?

Atradius underwriters shared their insights into the sustainability issues impacting the industry in: Austria, Belgium, Czech Republic, Slovakia, France, Germany, Ireland, Italy, Netherlands, Poland, Spain, Switzerland, Turkey, United Arab Emirates and UK.

The majority pointed to cost as one of the major challenges affecting the industry. Our underwriters in Austria and Switzerland said: “Conversion to clean energy will trigger high investment requirements in times of weak demand”, with high finance costs adding to the weight of investment. Our underwriter in Italy said: “One market risk is the possible impact of carbon tax on producers of construction raw materials (such as cement and steel), especially as this is cascaded down the supply chain.”

Skills shortages were also highlighted by our colleagues in Belgium, Germany, Netherlands and the Czech Republic. Our underwriter in Poland said: “After rising costs, the second major challenge facing the industry is a lack of qualified staff to carry out clean energy transitions.”

However, clean energy transition also brings opportunities for the construction industry. From major renewables engineering projects to the roll out

of domestic solar PVs, heat pumps and insulation, clean energy transition offers the chance for sustainable growth and the creation of jobs. However, the potential for such growth is perceived differently across markets. Our underwriter in the UAE believes they are very likely to lead to increased turnover for construction businesses. In Poland, our underwriter feels this is less likely.

### Challenges: What are the most urgent challenges for the sector in Europe and the Middle East over the next three years?

#### 1. Ambitious government targets

Achieving EU clean energy targets will require massive investment in renewables. Outside of the EU, the UK’s government has scrapped many Net Zero targets including those affecting boilers and insulation for the country’s housing stock.

#### 2. Cost of transition

Businesses are already grappling with the rising costs of labour, energy and raw materials. Finding the additional capital to implement sustainability initiatives is a challenge.

#### 3. Bottlenecks of materials and skills

The demand for decarbonisation technologies and the skilled workforce to implement them is at risk of outweighing supply. This could result in bottlenecks in supply chains and challenges in finding the right skilled workers.



### Top three materials

Here are the top three materials used in the construction industry that cause the most CO<sub>2</sub> emissions:

#### Cement

The production of cement alone is responsible for 8% of global emissions. This is due to the high energy requirements and the release of CO<sub>2</sub> during the chemical reactions in cement production.

#### Steel

The production of steel is another major contributor to CO<sub>2</sub> emissions. This is because the process of making steel from iron ore involves the use of large amounts of energy, often derived from burning coal. Every ton of steel produced in 2018 emitted on average 1.85 tons of carbon dioxide, equating to about 8% of global carbon dioxide emissions.

#### Bricks

Making bricks also creates a significant amount of CO<sub>2</sub>. This is due to the high temperatures required to fire the bricks, which are often achieved by burning fossil fuels. While it's challenging to find a specific percentage for bricks alone, the production of materials for the building sector (including concrete, brick, and steel) accounted for 11% of global energy and process-related emissions in 2018. Some estimates suggest the production of cement and bricks could be responsible for 7-8% of global CO<sub>2</sub> emissions. These materials are widely used in the construction industry and their production processes are energy-intensive, leading to high CO<sub>2</sub> emissions. Efforts are being made to reduce the carbon footprint of these materials, such as using more recycled material and machinery powered by clean fuels.

**Opportunities:** What are the greatest opportunities for the sector in Europe and the Middle East over the next three years?

#### 1. Strengthening supply chains

In a bid to grow local supply chain resilience many EU countries are investing in near-shoring and are creating business partnerships with supply chain players compliant with ESG criteria.

#### 2. Installation of solar photovoltaics (PVs)

The REPowerEU plan has ambitious targets for the installation of solar PVs on buildings, including the installation of 320 GW of solar photovoltaics by 2025 and 600 GW by 2030. This represents a significant opportunity for the industry.

#### 3. Employment opportunities

The push for Net Zero in the construction industry is creating work opportunities in both the commercial and residential subsectors.

#### Where next?

Industry opportunities not only contribute to the clean energy transition but also have the potential to boost economic growth and job creation in Europe.

Our underwriter in Spain said: "The construction industry will almost certainly play a vital role in how we tackle climate change and establish a more sustainable future and there are some exciting possibilities on the horizon. The reduction of CO<sub>2</sub> emissions will be the main focus, with the development of initiatives such as solar-powered construction sites, with machinery that runs on green energy used in the development of new builds. There will also be a drive towards modernising existing building stock, including homes. This will be important in this new age of increased teleworking, where more energy is consumed at home."



Connect with Atradius  
on social media  
[youtube.com/user/atradiusgroup](https://www.youtube.com/user/atradiusgroup)  
[linkedin.com/company/atradius](https://www.linkedin.com/company/atradius)  
[twitter.com/atradius](https://twitter.com/atradius)

**Atradius**  
David Ricardostraat 1  
1066 JS Amsterdam  
P.O. box 8982  
1006 JD Amsterdam  
The Netherlands  
Phone: +31 (0)20 - 553 91 11

[info@atradius.com](mailto:info@atradius.com)  
[www.atradius.com](http://www.atradius.com)