

Renovate to recover

COVID-19 has created simultaneous health and economic crises, on top of a climate crisis that isn't going away. That's why greening the economic recovery is so important. The European Commission is already pushing for the Green Deal to be at the heart of its economic recovery plans.

Deep building renovation delivers on the EU Green deal targets, it secures economic growth and positively impacts the people hit hardest by recession.

Energy efficiency renovation is one of the highest-impact economic recovery measures to secure local jobs while contributing to achieving climate goals and building a more resilient and healthier society.



The main challenge is how to achieve both the greatest economic, and the greenest climate, impact in the shortest possible timeframe.

Energy efficiency renovations for Europe's building stock is among the best ways of doing so, and consider this: Compared to other EU industries, construction is labour-intensive and locally-based. Around 95 percent of construction companies employ 10 or fewer people, and craftsmen generate two-thirds of their revenue locally, within a 50-km radius of their business. On top of that, buildings are Europe's single largest energy consumer, accounting for close to 40 percent of the total primary energy demand and greenhouse gas emissions.

Channelling economic recovery funds specifically to energy efficiency renovation in buildings will support local jobs here and now. Actually, every €1 billion invested in renovation supports 20,000 local jobs in the short-term.

The question, however, quickly becomes: how to make it work in practice?

Read on in this issue of ROCKInsights and get four perspectives on how building renovation has the potential to impact climate change, economic recovery and help cities create local jobs.



At ROCKWOOL we take this development seriously and want to share with you the four articles below, all related to the benefits of building renovation.

The articles will offer you the following insights:

Building renovation – Powering our economic recovery. The recent situation of confinement has highlighted the vital role building renovation must play now and in the future. As national and city governments start moving towards recovery, considering renovation and retrofitting structures with energy-efficient solutions present a significant opportunity to jump-start local economies. It is time to put green renovation on the recovery agenda.

The multiple benefits to cities from renovating their buildings. Understand why the global imperative to act on climate change has never been more important. Cities are on the front lines – simultaneously as a source as well as a key solution to a substantial part of the climate challenge. Get additional insights on how the specific challenges facing individual cities can vary substantially. When looking at New York City, Copenhagen and Milan, it becomes clear that each is very different in terms of size, building stock and the main challenges they’re experiencing from urbanisation.

Reap the benefits of increased renovation rates. See how scaling up renovation projects can play a critical role in improving the current economic climate. You might not think it, but increasing renovation rates is an effective way to encourage economic growth and increase job availability.

Cities in need of renovation but lacking public funds can learn a lot from Croatia. Get detailed and hands-on insights into how the west Balkan state’s use of the “ESCO model” is helping the country invest more than €400 million through 2020 in deep renovation of its building stock. See how large-scale renovation brings cities a package of economic, social and environmental benefits that far outweighs the investment costs.

In each of the four articles we deep dive on the specific benefits and potential challenges and come up with our best insights on how to use renovation as an economic recovery measure.



Building renovation – Powering our economic recovery.....	3
The multiple benefits to cities from renovating their buildings	6
Reap the benefits of increased renovation rates	9
Cities in need of renovation but lacking public funds can learn a lot from Croatia	11



Building renovation – Powering our economic recovery

Susanne Dyrbøl

Green renovation initiatives that improve energy-efficiency can help speed up economic recovery. Here's why green renovation should be on the recovery agenda.

The importance of high-performing and comfortable buildings received renewed focus over recent months. While governments and city administrators must deal with the current situation with the COVID-19 pandemic, they will soon need to start thinking about how to address its economic impact. Institutions all over the world have shown solidarity and populations have heeded the call, collectively staying healthy by staying apart.

Even during normal times, the majority of people spend 90 percent of their time indoors. With social distancing measures and work from home orders in place, this number grew exponentially. The current situation of confinement has highlighted the vital role building renovation must play now and in the future. As national and city governments start moving towards recovery, considering renovation and retrofitting structures with energy-efficient solutions present a significant opportunity to jump-start local economies.

Setting the economic recovery agenda with energy renovation and sustainable initiatives

To build a sustainable future for the world and its inhabitants, accelerating the pace of building renovation in cities should be on every governments' recovery agenda. By renovating the spaces where people live and work to be more energy-efficient and resilient to climate change, local economies can be boosted, and cities can achieve their sustainability goals and reduce their carbon footprints while recovering from the current crisis.

Buildings are an essential part of our infrastructure. The rate of urbanisation in Europe and across the world means more people now live and work within close proximity. At the same time, building stocks are aging. Half of Europe's entire building stock dates to pre-1970, making the heating, cooling and indoor environment of these structures inefficient. Renovation is a way to create local jobs, improve life quality, reduce energy poverty and make populations more comfortable while keeping them safe.

Economic benefits of energy renovation and initiatives

Investing in energy renovation is a key enabler for economic recovery. The current economic climate shows how much inhabitants depend on central and local governments to support populations and respond to a crisis with a collective effort. Energy renovation is an innovative and cost-effective strategy to enable Small and Medium Enterprises (SMEs) to get back to work quickly.

Requiring populations to confine themselves to their homes highlights just how vital it is to invest in renovation initiatives. For those living in poor quality housing, time spent indoors means having to deal with challenging conditions over long periods. Poor quality housing does not just put the health of inhabitants at risk, it is also costly to the health care system and puts the environment in greater jeopardy.

Energy renovation can help solve today's economic challenges while providing future populations with resilience built into their buildings and public infrastructure. The United Nations' Secretary-General, António Guterres, listed the following as recovery actions for city governments to prioritise around the world:

- Enabling green transition
- Creating green jobs
- Investing in a greener economy
- Supporting sustainable solutions
- Facing up to all climate risks
- Cooperating with all stakeholders for better outcomes

What energy renovation looks like

The idea of using renovation as an economic recovery tool has found support in all spheres of society. Scaling-up investments in sustainable mobility, renewable energy, and improving the energy efficiency of buildings all help promote a circular economy. Using sustainable materials, processes and practices to improve the world's building stock can help humanity win the fight against the climate crisis.

Construction accounts for 7 percent of global employment and between 11-13 percent of gross domestic product. Bringing this sector back with renovation policies, financial incentives and broad-based support can help cities weather the economic storms that will follow. In the construction sectors of OECD countries, SMEs account for 80 to 90 percent of employment. Getting them back to work with strategic stimulus plans will create immediate benefits within local economies.

These companies make up the backbone of the construction industry, stimulating local economies. They contribute more than 80 percent of the sector's value-added services and products. Artisans typically generate two-thirds of their revenues within a 50-kilometre radius of their localities.

How governments can stimulate the economy with energy renovations

Every €1 billion invested in building renovation creates or supports approximately 20,000 jobs. This increases tax revenues but also leads to additional economic activity from indirectly connected businesses. Considering how energy renovation benefits local communities, using it as a recovery measure can help alleviate some of the economic burdens all cities will face over the next few years.

To achieve the United Nations' Sustainable Goals, the world needs to cut carbon emissions and design a low carbon future in line with the 1.5-degree Celsius scenario. Making the buildings where people spend most of their time more energy-efficient is the easiest pathway to accomplishing this.

By investing in energy renovation, governments and cities can help their populations recover economically, recuperate mentally and relax healthily. As the world looks towards cities to face-up to the current pandemic and its aftereffects, it has become just as important to provide populations with safe, sustainable and comfortable living arrangements.

Governments and cities can start by renovating public buildings and infrastructure. Investing funds into improving the energy-efficiency in schools and hospitals can bring immediate benefits to city populations. Schools make up 17 percent of the total building stocks in Europe, with hospitals accounting for 7 percent. These strategies have the added advantage of improving the conditions of the places where people learn and recover delivering a positive benefit on both, while also helping cities get closer to reaching their sustainable development goals.

[Learn more](#) about our commitment to building a better future for the world's populations with energy renovation.

Key takeaways



- Investing in energy renovation is a key enabler for economic recovery
- The current economic climate shows how much inhabitants depend on central and local governments to support populations and respond to a crisis with a collective effort.
- Energy renovation is an innovative and cost-effective strategy to enable Small and Medium Enterprises (SMEs) to get back to work quickly.

Hungry for more?

The multiple benefits to cities from renovating their buildings

The global imperative to act on climate change has never been more important.



Zero carbon cities

Insulating populations for a sustainable future.



An energy transition cannot happen without the renovation of buildings

Without re-thinking the current effort we will not be able to deliver the scale of high-quality renovation which is required to deliver the energy transition.





The multiple benefits to cities from renovating their buildings

Susanne Dyrbøl

The global imperative to act on climate change has never been more important. Cities are on the front lines – simultaneously as a source as well as a key solution to a substantial part of the climate challenge.

Although urban areas occupy only about two percent of the world's land surface, their carbon footprint is enormous. Cities account for more than two-thirds of the world's energy consumption and more than 70 percent of its CO² emissions¹. In buildings around the world, heating and cooling account for 35 to 60 percent of total energy demand and, on average, produce nearly 40 percent of emissions². Reducing and decarbonising the energy consumption of new and existing buildings is therefore critical for tackling the climate challenge.

The role of energy efficiency

The time to act is now. Looking ahead to year 2100, the world's population is predicted to grow to 10 billion, with the average income per capita expected to quadruple. Coupled with rapid urbanisation – some 1.5 million people relocate to urban environments every week – global primary energy use will likely more than double³ this century.

As a result, effective management of the built environment is becoming increasingly important in reducing carbon emissions. This creates an enormous opportunity for cities to lead a rapid transition toward more energy- and climate-efficient buildings and thus to make a major contribution to achieving the Paris Agreement's climate goals.

Encouragingly, there are solutions readily available – the most important of which is the energy renovation of existing buildings. In fact, optimising the energy efficiency of buildings could provide up to 55 percent of greenhouse gas emission reductions needed to put cities on a 1.5°C pathway through 2030⁴. Renovating existing buildings for greater energy efficiency is particularly relevant in cities that have already experienced high rates of population growth and economic development.

**Carbon neutral Copenhagen:
Tangible sustainability in
Denmark's capital city**



A tale of three cities

While there is huge potential across all urban environments, the specific challenges facing individual cities can vary substantially. Let's look at three of the world's great cities – New York City, Copenhagen and Milan. Each is very different in terms of size, building stock and the main challenges they're experiencing from urbanisation.

**Carbon neutral New York City:
Regulating resilience into the
city that never sleeps**



In New York City, for example, its more than one million buildings⁵ collectively account for 67 percent of the city's carbon emissions⁶. The city government has set a goal to reduce emissions by 80 percent by 2050, which requires broad-based and concerted action to significantly reduce the energy demand and carbon emissions among both city- and privately-owned buildings.

In Copenhagen, city leaders are looking to their building stock for different reasons. As the city continues to grow – its population is expected to reach 715,000 by 2030⁷ compared to around 613,000 today – the city's energy demand especially for heating and cooling is projected to outpace its current supply.

A district heating system already covers 97 percent of Copenhagen's buildings⁸. Reducing energy consumption in municipal buildings will decrease greenhouse gas emissions by seven percent, but more importantly, it will help alleviate pressure on the district heating system during peak demand periods⁹ and thereby help to avoid or postpone the need to invest in new heating capacity for the city.





A substantial part of Milan's building stock is old and energy inefficient and a major source of the city's greenhouse gas emissions. City leaders realise that rising energy costs will increase the burden on people living in the city. Potential savings on the energy bill is thus a key driver for Milan's ambition to accelerate energy renovation of its building stock¹⁰.

Milan has a significant number of historic buildings, which present challenges when it comes to renovation. That said, a large portion of its building stock was built between the 1960s and 1990s, with a broadly uniform architecture, which makes renovation easier from a purely technical point of view. Because almost half of Milan's occupied dwellings are multi-owned or condominium buildings, large-scale renovations will necessarily involve many private building-owners, which can be a major obstacle to deep energy renovation, despite very attractive funding opportunities being available.

Milan is a part of the European-wide Sharing Cities programme¹¹, which aims to establish a common approach to realising smart cities. Renovation

actions in Milan's public buildings are 90 percent funded by the municipality, while Sharing Cities EU funds covers the remaining 10 percent. Private-building renovation is paid by the residents, partly with a very attractive tax payback system as well as support from a Sharing Cities grant.

Zero carbon cities: Insulating populations for a sustainable future



Different challenges, common solutions, multiple benefits

Even though the three cities have distinct challenges, they each see energy renovation of their building stock as a major part of the solution. But what they have in common goes even deeper.

Municipal leaders in the three cities realise that in addition to the energy and climate benefits that building renovation creates, there are also multiple social and economic benefits. And they want to find ways to quantify these additional benefits on the belief that doing so will help unlock further funding for building renovation by engaging more stakeholders in the planning process.

To support cities like New York, Copenhagen, and Milan in this endeavour, ROCKWOOL and the C40 joined forces to develop a toolkit that enables urban stakeholders to calculate the environmental, social and economic benefits of energy renovation. Being able to calculate and quantify these benefits will help make a stronger case for energy renovation and facilitate a better dialogue with multiple stakeholders to more rapidly scale up energy renovation actions.

[The full report and tool kit can be downloaded here.](#)

Notwithstanding their distinct challenges and motivations to engage in piloting the toolkit, they each had the same feedback: being able to quantify a wider range of building renovation benefits will greatly support their efforts to accelerate renovation in the cities. The toolkit enables them to substantiate the case that renovating for energy efficiency is highly cost-effective and brings multiple benefits – and helps them engage a larger part of the city administrations in the planning. Particularly when preparing city-led renovation programmes, the additional positive impact on social and environmental challenges can be instrumental in gaining buy-in from multiple public and private stakeholders.

Keep an eye on our blog in the coming weeks where we will go into more details on how building renovation can work as a measure for economic recovery – and how this can work in major cities such as Copenhagen, Milan and New York.

Hungry for more?

Re-using the past to build a better city

Find out how the Gdansk Imperial Shipyard can transform into a thriving city neighbourhood.



Zero carbon cities

Insulating populations for a sustainable future.



Achieving a low carbon society

It boils down to energy efficiency.



Key takeaways



- The world's population is growing rapidly, and as a result, effective management of the built environment is becoming increasingly important in reducing carbon emissions
- Solutions readily available – the most important of which is the energy renovation of existing buildings
- Renovating existing buildings for greater energy efficiency is particularly relevant in cities that have already experienced high rates of population growth and economic development

Source(s):

1. (IEA WEO, 2008).
2. <https://www.c40.org/researches/mckinsey-center-for-business-and-environment>
3. Putting renovation on the agenda
4. <https://www.c40.org/researches/mckinsey-center-for-business-and-environment>
5. (Metcalf, 2013)
6. (NYC Sustainability, 2017)
7. https://www.kk.dk/sites/default/files/status_paa_kbh_2018_aug.pdf
8. (C40, 2011)
9. CPH 2025, 2012
10. (OIPE, 2019; Sharing Cities, 2019).
11. <http://www.sharingcities.eu/>



Reap the benefits of increased renovation rates

Jan Simonsen

Scaling up renovation projects can play a critical role in improving the current economic climate.

You might not think it, but increasing renovation rates is an effective way to encourage economic growth and increase job availability.

Fun fact: Did you know that every €1 million invested in renovation can be expected to support approximately 19 jobs in the construction sector (Euroace, 2012)? As such, by scaling up to a large-scale project of €100 million, 1,900 jobs could be created as a result. By providing new projects that require considerable time and work to complete, a significant level of job security is ensured for the employees involved.

And these are just the jobs that renovation is directly responsible for creating.

If you turn your sights towards how renovation initiatives can be combined with government policies or other relevant initiatives, you might observe that investments in renovation can generate even more jobs by offering work to marginalised groups such as jobless youths, thus leading to less unemployment in the community.

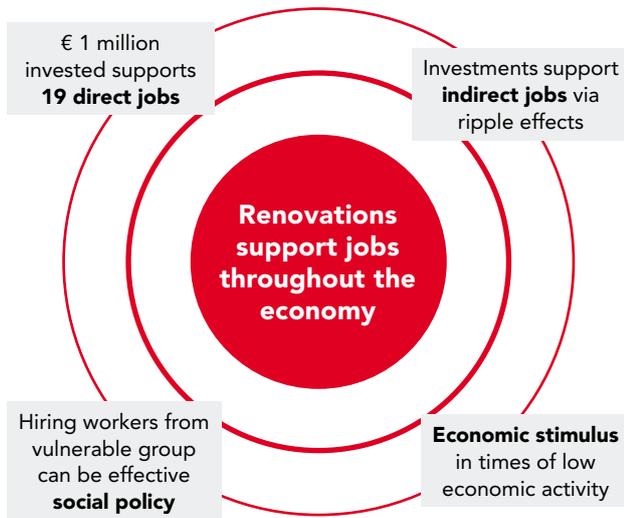
For example, a study in Denmark noted that 14 large projects in the social housing sector created 110 jobs, 70 educational internships, 80 wage-subsidised jobs and 180 company internships for local citizens (Danish Centre for Development of Social Housing, 2018).

An investment of

€1M

supports 19 direct jobs

Investments in renovations support employment throughout the economy



Additionally, an impact assessment of the EU Energy Performance of Buildings Directive shows that a simple increase in renovation rates by 1.0%-point to 1.6% for residential buildings, and 1.7% for nonresidential, would grow annual economic activity by €8-12 billion towards 2030 (EU Commission, 2016).

These improvements to the economy are always valuable, regardless of whether the current economic climate is on the rise or on the decline. Furthermore, renovation projects deliver visible results to taxpayers, providing comfort that money is being used judiciously to give back to the community.

Even more comfortable is the contemporary living spaces that renovated buildings give us, furnishing us with a place worth calling home. After all, we're all striving towards the same goal: a better quality of life. So feel good about renovating your home, as you are also contributing to the economy.

Source(s):

1. Euroace, 2012
2. Danish Centre for Development of Social Housing, 2018
3. EU Commission, 2016

Hungry for more?

Renovation

Visualize you project with our renovation tool



Study: Renovated buildings = healthier people

The impact of improved indoor environmental quality on people's health and productivity



Community and economic impact

ROCKWOOL is committed to making a positive difference in the community



Key takeaways



- Renovating buildings give us more comfortable living spaces
- You should feel good about renovating your home, as you help alleviating climate change and contribute to the local economy



Cities in need of renovation but lacking public funds can learn a lot from Croatia

Susanne Dyrbøl

The west Balkan state's use of the "ESCO model" is helping the country invest more than €400 million through 2020 in deep renovation of its building stock.

Old, dilapidated buildings are an economic, social and environmental drag on cities that have serious impacts on the health, well-being and productivity of the tenants — and the climate.

In Europe, the challenges and opportunities are huge. More than 75 percent of the continent's buildings will still be in use in 2050. And if we look at them today they are already in poor shape: Only 3 percent meet the highest energy efficiency standards.

As the public sector owns and operates many of the non-residential buildings (hospitals, schools, office towers, etc.) and a large share of the residential property as well, acquiring the necessary public funding for the renovation job is often a challenge.

The ESCO model in Croatia

By using Energy Performance Contracting (EPC), a mechanism for organising the financing linked to guaranteed energy savings in a project, together

with an Energy Service Company (ESCO) to manage the project, Croatia has succeeded in attracting private investment into the pool of funding for largescale renovations in many of its cities.

The success of the model can be seen all over the country. Between 2014 and 2016, a €220m energy renovations programme benefitted more than 15,600 family homes, 2,300 multi-unit buildings, 80 commercial buildings and 262 public buildings. By 2020, the total investment in building renovations will reach €411m, much of it through ESCOs.

One shining example of the value is Karlovac Hospital near Zagreb. Since renovation was finished on Karlovac in 2016 (60% private funds, 40% public), the hospital's energy use and CO² emissions have been cut by more than 50 percent. The annual financial savings for the hospital are roughly €540,000 per year, money that will finance the investment over a period of 14 years.

[This short video](#) shows the hospital's transformation and the results.

As Croatia has shown, the ESCO model can be an attractive option for organising the energy efficiency funding required for renovating some public buildings while ensuring the public sector benefit from the contract.

Using ESCO contracts with clearly defined conditions and specifying high ambitions will help to free public money for projects, which have a higher return on social and environmental parameters.

Large-scale renovation brings cities a package of economic, social and environmental benefits that far outweighs the investment costs. When budget limitations are the primary roadblock, the ESCO model can, if well managed, offer a solution many cities will find attractive.

ESCO contracts for renovation of public buildings: Learnings from Croatia

To reduce the perceived risk – it is important to have transparent rules and ensure a “fair” deal for the local or national authorities in the contract.

The Government in Croatia has created a contract template, which clearly defines all obligations, risks and rights, to prevent disagreements during the contract period. This is very important for the accounting of public debt.

Croatia has demonstrated an interesting path for organising the energy efficiency funding for renovation of public buildings that ensures the public sector also benefits from the contract. We encourage more governments to follow Croatia's lead and initiate more of this much-needed deep renovation across Europe.

Lessons learned and recommended actions

- Public buildings, like hospitals, which are in use 24 hours a day all year around have proven to be the most attractive investments for ESCO companies when there is a request for deep renovation
- ESCO contracts for public buildings in Croatia must guarantee at least 50% energy savings
- To maximize the total savings delivered in projects, the government can co-fund project
- Renovation of public buildings should always be evaluated on the “triple bottom-line” - environment, social and economic benefits - energy renovation will deliver a positive impact on all parameters. The economic benefit is the main parameter for ESCO companies where the public sector is expected also to deliver on the social and environmental agenda

Key takeaways



- Large-scale renovation brings cities a package of economic, social and environmental benefits that far outweighs the investment costs
- Using ESCO contracts with clearly defined conditions and specifying high ambitions will help to free public money for projects, which have a higher return on social and environmental parameters
- Renovation of public buildings should always be evaluated on the “triple bottom-line” - environment, social and economic benefits - energy renovation will deliver a positive impact on all parameters

Hungry for more?

Financing renovation of public buildings

The renovation challenge in Europe is massive



Renovation

Learn more about ROCKWOOL's approach to renovation



Urban regeneration

Buildings that improve the quality of life



Putting renovation on the agenda

Read our new report on renovation



Summarising this issue of ROCKInsights, at ROCKWOOL, we see energy efficiency renovation as one of the strongest economic recovery measures to ensure here-and-now local jobs while contributing to reaching climate goals and creating a more resilient and healthier society.

More specifically, the recent situation of home confinement has highlighted the vital role of building renovation. As national and city governments start moving towards recovery, considering renovation structures with energy-efficient solutions present a chance to kick-start local economies. In other words, now is the time to put green renovation on the recovery agenda.

Also, we have established that the global imperative to act on climate change has never been more important. Cities are seen both as a source and as a key solution to a substantial part of the climate challenge. Here, we saw how the challenges facing individual cities can vary substantially. We looked at New York City, Copenhagen and Milan, and it became clear that each is very different in terms the main challenges they're experiencing from urbanisation.

In the end, we unfolded a case from Croatia. Here we saw how the west Balkan state's use of the "ESCO model" has helped the country invest more than €400 million through 2020 in deep renovation of its building stock.

Having read through this issue of ROCKInsights it should be clear that building renovation is one of the strongest post COVID-19 recovery measures available supporting the green agenda, human wellbeing and local job creation.



If you have any comments or inputs for us

– including topics for future editions of ROCKInsights please contact us.

[Click here to write us](#)



Hungry for more?

We highly recommend you to visit our blog that deal with related topics such as well-being, the effects of urbanisation, climate change, energy efficiency, circularity and so on.

[Click here to visit our blog](#)

