Mid-term review of the EIB Energy Lending Policy

May 2023

European Investment Bank

Mid-term review of the EIB Energy Lending Policy

May 2023

European Investment Bank

Mid-term review of the EIB Energy Lending Policy
May 2023

For further information on the EIB's activities, please consult our website, www.eib.org.
You can also contact info@eib.org.

Published by the European Investment Bank.

European Investment Bank
98-100, boulevard Konrad Adenauer
L-2950 Luxembourg
+352 4379-1
info@eib.org
www.eib.org
twitter.com/eib
facebook.com/europeaninvestmentbank
youtube.com/eibtheeubank

Disclaimer
The contents of this document may not include the latest information on EIB energy lending.
Please visit www.eib.org/energy for news and updates about our energy projects and activities.

Printed on FSC® Paper.

Contents

Executive summary 1

Introduction 3

1. Context: accelerating clean energy investment to rebuild energy security and mitigate climate change 5

Increasing energy security and reducing fossil fuels use as soon as possible 5

A turning point to accelerate the energy transformation 6

Huge increase in clean energy investment 6

A global energy crisis and global energy transformation 8

Conclusion 9

2. Scaling up EIB support to the energy transformation 10

EIB energy lending focused on the priorities set out in the ELP 10

EIB will further increase energy lending in support of clean energy and energy security 11

Energy is a key pillar and contributor to the EU climate bank 12

EIB Global supports the energy transition worldwide 13

3. EIB energy lending by theme 16

Theme 1: Energy efficiency 17

Theme 2: Decarbonising energy supply 19

Increased EIB support to renewables 19

Decarbonisation technologies at early stage of deployment 20

The EIB's emission standard 21

Supply of critical raw materials needed for low-carbon technologies 21

Increasing lending to support the acceleration of low-carbon investment 21

Theme 3: Innovation 22

Theme 4: Securing enabling infrastructure 23

Electricity networks 23

Low-carbon energy infrastructure 24

District heating and cooling networks 25

Annex A: List of projects directly associated with fossil fuels approved between 14 November 2019 and 31 December 2021 26

Annex B: Energy Transition Package 27

Executive summary

The Energy Lending Policy (ELP) adopted by the Bank in 2019 sets out how the Bank, as a public bank, can help support the European Union in meeting its ambitious climate and energy targets. After two years of implementation, and as mentioned in the Energy Lending Policy, the Bank conducted a mid-term review. The results are clear: energy lending has successfully focused on the priorities set out in the ELP while remaining at a sustained level. Energy lending increased from €11.6 billion in 2020 to €14.2 billion in 2021, representing a quarter of total EIB signatures.

Since 2022, the energy sector has been confronted with an unprecedented crisis as a result of the war in Ukraine and amid market tensions caused by COVID-19. Extreme energy prices are a threat to Europe's economic prosperity and social stability.

Governments are seizing the crisis as an opportunity to mobilise resources needed to accelerate clean energy investment. Low-carbon energy can reduce dependence on imported fossil fuels and, at the same time, contribute to increasing energy security and affordability. The European Union has adopted a series of measures to cope with the emergency and the REPowerEU Plan aims at phasing out fossil fuel imports from Russia by fast-forwarding clean energy investment.

The EIB Group has decided to contribute to the REPowerEU Plan by announcing additional resources for the energy sector, increasing energy lending by €30 billion by 2027 thanks to technical and other enabling measures. One important element is that the Bank will finance up to 75% of the eligible capital cost of most clean energy projects. Besides this, the energy lending policy adopted in 2019 continues to apply in full without derogation to all Bank activities in the energy sector.

In particular, in the ELP, the EIB decided to "phase out support to energy projects reliant on unabated fossil fuels." For the first time ever, an international financial institution (IFI) decided to stop lending to all unabated fossil fuels, including natural gas. During a transition period, the Bank could continue to approve projects already under appraisal (lending to gas and other sectors was at a negligible level in 2021 at less than 1% of total lending) and the Board of Directors did not approve any such project after the end of 2021.

The mid-term review of the ELP shows that the Bank has successfully focused its lending on the activities that make the largest contribution to the ELP's objectives:

- **Energy efficiency**, the first theme of the ELP, is a high priority for EIB lending. Energy efficiency-related lending exceeded €10 billion over the period 2020-2021 — representing 42% of overall energy lending, a significant increase from the previous five-year period. Energy efficiency of buildings dominates the EIB's activity, supporting the EU renovation wave.

- In 2021, lending to **renewables** was at its highest level since the adoption of the ELP, reaching €5.7 billion despite the COVID-19 crisis. The EIB endeavoured to support the market integration of renewable electricity project technologies such as offshore wind and low-carbon gases at an early stage of deployment.
  For power generation, several projects met the 250 g CO_2/kWh emission standard and therefore were eligible for EIB financing.

- **Innovation** is the third theme of the ELP. The EIB supported investments in several first-of-a-kind projects in the energy sector, including floating offshore wind, advanced green fuel production

and innovative electrolysis. The Bank also supported innovative business models for demand response, batteries, electric vehicle chargers, and rollout of commercial energy service companies (ESCOs).

- Lastly, **energy infrastructure** remained an important activity, including energy networks and storage. During the first two years of implementation of the ELP, lending was dominated by electricity networks, which received €2.3 billion per year on average, with a significant share of lending priorities concerning renewable integration and digitalisation, and with increasing activity in Eastern Europe.

The review carried out shows that the objectives of the ELP remain fully valid in the context of the current energy crisis. Moreover, the lending volumes during the first two years of implementation are considered satisfactory, with the expectation of a further increase in the coming years in line with the measures adopted by the Bank to support the Commission's REPowerEU Plan. The review also shows the ELP's strong alignment with the EU taxonomy and the Bank's Climate Bank Roadmap adopted in 2020. For these reasons and as a result of this review, no changes in the current policy are expected.

As part of this mid-term review, the EIB revised the technical annex II to the ELP. These technical changes reflect the adoption of the EU taxonomy and provide further clarification of the EIB's lending criteria after two years of implementation. Technical annexes are included in a separate document uploaded on the EIB website. The EIB will continue to respond to policy priorities set in the EU energy sector and will revise its energy lending policy in due course.

Introduction

The European energy sector is facing an exceptional energy crisis. Two successive shocks have hit the sector and the whole economy. First, the COVID-19 pandemic led to a fall in energy consumption and disrupted global supply chains, followed by a rebound of energy demand after the lockdown. Secondly, in the context of Russia's invasion of Ukraine, the massive reduction of Russian energy supplies to Europe have pushed energy prices to record levels fuelling inflation, and has forced governments to intervene massively in the sector. A crucial new element in the EU policy response to this unprecedented situation is the REPowerEU Plan, which aims to fast-track investment of Fit for 55 legislative proposals in energy efficiency and renewables. While the short-term focus is on energy security and affordability, the long-term objective remains to reach net-zero by 2050 in the European Union.

The EIB has been supporting the energy sector since its creation and has made a significant contribution to deliver sustainable, secure and affordable energy to the European Union. The Energy Lending Policy adopted in 2019 set out how the Bank, as a public bank, can help support the European Union in meeting its ambitious climate and energy targets. With the adoption of the Energy Lending Policy in 2019, the EIB made the first big step to become the EU climate bank: the Bank has phased out the financing of energy projects reliant on unabated fossil fuels and focused on the long-term challenge of reducing emissions in the energy sector, while continuing to support security of supply.

Furthermore, the Climate Bank Roadmap (CBR), adopted in 2020, sets out the alignment of projects with the Paris Agreement as a general principle for the EIB Group's entire financing activity. As a result, the EIB Group's activities across all sectors — not only energy but also transport, industry, agriculture and public services (social housing, health, education) — must contribute towards supporting or at least not contradict the objectives of the Paris Agreement.

As one of its commitments in the Energy Lending Policy, the Bank is conducting a mid-term review in order *"to discuss the implications of the EU Sustainable Finance Taxonomy, and of further policy developments in the context of the Green Deal and EU external action."* While the mid-term review was initially scheduled for early 2022, the current context of a severe energy crisis and the adoption of new EU legislation has made it necessary to delay this mid-term review by one year to be able to thoroughly assess the new situation and adjust the ELP where necessary.

The EU regulatory framework for sustainable finance has evolved significantly since the ELP was adopted. In particular, the EU Taxonomy Regulation[1] came into force in July 2020. As explained in this document, this has implications for some of the technical criteria used to define the EIB alignment floor in the energy sector. Moreover, in March 2022 the Commission adopted a Complementary Climate Delegated Act[2] to cover nuclear and gas energy activities. Since 2019, the energy policy of the European Union has become more ambitious both in terms of decarbonisation and energy security objectives. The European Union has increased its climate ambition, pledging to reach net-zero emissions by 2050. The adoption of the Fit for 55 package in 2020 set more ambitious renewables and energy efficiency targets by 2030, significantly increasing investment needs. The REPowerEU package proposes to further increase these targets in the context of the revision of the energy efficiency and

[1] EUR-Lex — 32020R0852 — EN — EUR-Lex (europa.eu)
[2] EUR-Lex — 32022R1214 — EN — EUR-Lex (europa.eu)

renewable energy directive in order to reduce dependence on Russian fossil fuels. The ongoing energy crisis represents an opportunity to accelerate the deployment of clean energy and require the European Union and the EIB to adapt to support investment acceleration.

The EIB has decided to contribute to REPowerEU by stepping up its lending to the energy sector. The EIB Group aims to increase its energy lending by €30 billion by 2027, of which €27 billion in EIB lending and €3 billion in EIF equity investment. The EIB Group will deploy the additional funds by scaling up lending to energy efficiency, renewables and low-carbon energy as well as the infrastructure needed to integrate them into and transform energy systems. By helping to further reduce fossil fuel consumption, the Bank will support the twin EU objectives of energy security and climate neutrality.

Outside the European Union, the EIB has also reinforced its ambition for emerging and developing economies with the creation of EIB Global. The finalisation of work on the Neighbourhood, Development and International Cooperation Instrument (NDICI) Regulation has given a clear mandate to the Bank to continue to support EU external action as part of Team Europe. To be on track with the objectives of the Paris Agreement, energy investment needs outside the European Union reach trillions of euros. The issue of increasing international climate finance, and the potential role for multilateral development banks, were important elements within the recent COP27 negotiations. Consistent with the objectives of the EU climate bank, the allocation of resources available to the EIB for its activities outside the European Union focuses on renewables, electricity grids and increased energy access.

This review presents an update of the EU energy policy and market context, the results of the first years of implementation of the ELP and how the EIB Group will support REPowerEU. As a reminder, the ELP applies to all EIB Group activities in the energy sector and is reflected in the tables defining activities aligned with the objectives of the Paris Agreement as set out in the Climate Bank Roadmap applicable to the EIB Group. Furthermore, reflecting a rapidly evolving energy environment, revised and updated versions of the technical annexes of the ELP are published on the EIB website as a separate document in addition to frequently asked questions that provide further clarification for project promoters.

The energy sector is an important activity for the EIB and the Bank will continue to play a key role in delivering sustainable, secure and affordable energy to the European Union. This report shows that the EIB has successfully implemented the priorities set out in the Bank's Energy Lending Policy. In the current context of a major energy crisis, the EIB Board has decided to maintain the Energy Lending Policy without any derogation or change and the EIB services will keep a close eye on developments in the European Union and the global energy sector.

1. Context: accelerating clean energy investment to rebuild energy security and mitigate climate change

The EIB Energy Lending Policy was adopted in 2019 when the EU Member States were setting ambitious climate targets to reach the goals of the Paris Agreement. The European Green Deal, adopted in December 2019, establishes the roadmap to transform the European Union into a modern, resource-efficient and competitive economy that will be climate neutral by 2050, meaning an economy with net-zero greenhouse gas emissions within a generation of 25 years. To be on track with the net-zero goal, the EU targets a 55% reduction of greenhouse gas emissions by 2030 (compared to 1990 levels). The European Climate Law writes into law both the 2030 and 2050 climate goals. The 26th Conference of the Parties (COP26) in Glasgow made net-zero a core principle for governments and businesses to deliver on the goals of the Paris Agreement. The EIB is supporting as the EU climate bank.

Yet, the European Union is confronted with a global energy crisis of unprecedented depth and complexity. After the COVID-19 lockdowns, energy prices started to increase in 2021 in parallel with the recovery of the global economy; with the war in Ukraine, already elevated prices have surged further in view of physical supply constraints. As a result, energy security is at the top of the EU agenda. The European Union is maintaining its ambition to reach net-zero by 2050 and reduce greenhouse gas emissions by 55% by 2030, and has decided to accelerate deployment of renewables and energy efficiency to phase out imports of fossil fuels from Russia as soon as possible.

This section provides an overview of the energy sector, recent market developments and the EU energy policy response between 2020 and 2022. This includes the European Green Deal (Fit for 55 package) and the REPowerEU Plan presented in May 2022 as well as other emergency measures presented in 2022 and discusses alignment with the priorities set out in the ELP.

Increasing energy security and reducing fossil fuels use as soon as possible

The shock to energy systems in 2022 has been extreme. Energy prices reaching record levels and supply disruptions have shifted the attention of governments to short-term energy security and affordability issues. The European internal energy market was built over the last 25 years and is now undergoing a major stress test. The European Union agreed on urgent, EU-wide measures to mitigate high energy prices that most governments are already implementing, amongst them coordinated emergency market interventions of different types and scope.

The European Union is cutting as quickly as possible its dependence on imported Russian fossil fuels. As a result, a reconfiguration of the energy market is ongoing. In the short term, some Member States switched back to coal and restarted coal-fired power plants or delayed the closure of nuclear power plants to be better able to cope with the emergency situation during the winter heating season. Alongside these short-term measures, the current crisis is leading to changes of import routes and trading partners, associated with a reduction of fossil fuel dependence. In addition, several countries have decided on new investments to diversify natural gas import routes. However, in the medium term, most of the new policy initiatives aim to reduce dependence on fossil fuels.

In the meantime, the European Union and Member State governments are striving to mitigate the impact of high energy prices on consumers and the economy. Faced with exceptional circumstances, Member States are introducing new measures to re-regulate or cap energy price increases for

consumers, tax extraordinary profits of some energy companies and bail out others that have suffered from severe liquidity issues. Furthermore, and potentially with a more long-term impact, the design and rules of gas and electricity markets are being discussed.

A turning point to accelerate the energy transformation

Besides short-term measures needed to make up for the loss of Russian supplies, the best solution for reducing the European Union's dependence on imported fossil fuels is to further accelerate the deployment of renewables and energy efficiency across Member States in the coming decade. The REPowerEU Plan already recognises this, as it builds on the European Green Deal and the Fit for 55 package. The REPowerEU Plan proposes to increase energy efficiency targets and accelerate the rollout of renewable energy to replace fossil fuels. The Commission is proposing to increase the European Union's 2030 target for renewables from the initial **40% proposal to 45%,** bringing total renewable energy generation capacities to **1 236 GW** by 2030. The energy efficiency target under the Fit for 55 package would also increase (from 9% to 13%), with the objective to save energy.

The current energy crisis can be seized upon as an opportunity to mobilise the resources needed to accelerate the transformation of energy systems**.** Against the background of climate commitments, it becomes clear that low-carbon energy is also reducing dependence on imported fossil fuels and contributes to better energy security and affordability. The wealth transferred by the EU economy for energy imports in 2022 was extraordinarily high; clean energy investment therefore offers the prospect of reducing bills for consumers in the medium to long term.

Hydrogen and its derivatives, especially from renewable sources, can play a role in reaching the European Union's decarbonisation objectives and reducing fossil fuel dependence. An ambitious EU hydrogen strategy was announced in July 2020 to lay out development priorities for the next decade. The EU hydrogen strategy aims to achieve this by rolling out "dedicated gigawatt-scale green hydrogen factories" (6 GW by 2024, 40 GW by 2030 of green hydrogen capacity, that is, large-scale electrolysers based on renewable energy). The REPowerEU Plan sets a target of 10 million tonnes of domestic renewable hydrogen production and 10 million tonnes of renewable hydrogen imports by 2030. In September 2022, the European Commission approved €5.2 billion in state aid for the IPCEI (Important Projects of Common European Interest) hydrogen initiative. The EU market for hydrogen needs to be significantly scaled up and become a competitive, liquid market that attracts investments; in this context, the EIB should play a key role in mobilising private investments.

Huge increase in clean energy investment

Already before the crisis, energy investment needed to more than double to meet the EU targets of reducing net greenhouse gas emissions by at least 55% by 2030 (compared to 1990 levels). According to the European Commission's impact assessment of the 2030 climate ambition (Commission Staff Working Document (2020) 176), energy investments were below €200 billion/year in the decade 2011-2020 and needed to reach €418 billion/year on average during this decade.

The REPowerEU Plan further increases investment needs in the coming five years. The investment needs are estimated to increase by a total of €300 billion until 2030 to reach REPowerEU objectives, almost exclusively for clean energy, representing an additional €40 billion/year on top of the Fit for 55 investment needs. In total, the European Union needs to increase investment to €450 billion/year until 2030. Also taking into account inflation-induced price increases of equipment and construction

services, investments in excess of half a trillion euro per year, or around two times the current level of investment expected in 2022[3], are likely to be needed to meet these targets.

In addition to deployment of clean energy, the European Commission is also supporting clean energy industry in Europe. The European Battery Alliance, the European Clean Hydrogen Alliance, the European Raw Materials Alliance and the newly-created European Solar Photovoltaic Industry Alliance aim at increasing manufacturing capacity in the European Union across the full value chains. EU industrial strategy could translate into substantial investment in manufacturing capacity for clean energy equipment, helping to support the green transition and address strategic dependencies.

The European Union will work towards securing access to the critical raw materials and technologies necessary for the twin transition and resilient supply chains. In addition, structural transformation towards a greener and more digital economy is also raising the demand for higher-level skills and for retraining across a large number of sectors, hence the need for the EIB to continue supporting reskilling and upskilling for the transition.

More than ever, investment and financing issues will be decisive for the energy transition. The substantial increase in the level of investment needed requires mobilisation of public and private financing at scale. This will take place in a context of increasing construction costs due to inflation and higher interest rates. Higher financing costs of capital-intensive green investment is pushing up the overall cost of the energy transformation.

Governments have considerably increased public spending to ensure the recovery from COVID-19 and address the energy crisis, while channelling a substantial part of this money to climate measures. The COVID-19 recovery response has been an opportunity to increase investment, leading to the recovery and resilience plans (RRPs). In the European Union, the Member States' RRPs exceed the agreed target of 37% of Resilience and Recovery Fund (RRF) spending on climate measures.

The European Union has recently introduced many new financial instruments to support additional green spending. In addition to existing Connecting Europe Facility (CEF) and cohesion funding, new resources include the Innovation Fund, one of the world's largest funding programmes for the demonstration of innovative low-carbon technologies, as well as the RRF. The RRF can play an important role in mobilising and implementing available funding to achieve the objectives of the REPowerEU Plan and dedicated REPowerEU chapters are added to the RRPs. These resources consist in direct transfers or subsidies that countries are invited to use and could cover a significant share of investment. In addition, the new InvestEU programme will provide additional guarantees to support EIB financing.

Delivering on the investments requires to mobilise public and private finance. The EU taxonomy intends to channel capital towards sustainable projects by establishing a classification system, based on a list of environmentally sustainable economic activities, with the intention to better target funding. The EIB is in the process of aligning its tracking methodology for climate action and environmental sustainability ("green") finance with the EU taxonomy[4]. The taxonomy could play an

[3] According to the International Energy Agency (IEA), the European Union invested €260 billion in clean energy in 2022.

[4] EIB Group 2021 Climate Bank Roadmap progress report

important role in helping the European Union scale up sustainable investment and implement the European Green Deal, Fit for 55 and REPowerEU.

In practice, government regulation and policies will continue to drive decarbonisation policies thanks to a mix of market signals, public policies, and regulations. Governments have intervened heavily in the energy sector to mitigate the impact of exceptionally high energy prices, with price regulations, subsidies to consumers, price caps on gas or revenue caps on the rental of non-gas generation power plants. The European Commission is currently discussing electricity and gas market reform with the objective to decouple electricity prices from gas prices. Recent and future changes to the market framework are making the investment environment more uncertain.

Governments are also intervening to address the social consequences of the energy transformation to ensure a just energy transition and address energy poverty. Investment spending for the energy transformation is expected to represent around 1.5% of GDP on average in the European Union but it could represent up to 3% in certain countries. To support the greater effort needed, the European Union has created several funding sources like the Just Transition Mechanism and the Modernisation Fund that compensate for and finance the extra effort needed in certain countries and regions. This support can be targeted to the regions and populations most affected by the energy transition.

In this context, as a public bank, the EIB is focusing its financing on priority areas where market failures lead to investment levels lower than necessary to meet the requirements of society. The existence of the climate externality and the market failures associated with security of supply are affecting investment decisions in the energy sector, which involve decisions taken for the long term. The EIB will continue to focus its limited resources on the investment required to meet 2030 and 2050 EU climate targets and support ambitious nationally determined contributions (NDCs).

A global energy crisis and global energy transformation

Higher natural gas prices in Europe have sent shock waves around the world. The energy crisis is fuelling inflationary pressures, increasing food insecurity and squeezing household budgets but also undermining the efforts to improve energy access. Due to the combination of the pandemic and the current energy crisis, the IEA estimates that *"75 million people that recently gained access to electricity are likely to lose the ability to pay for it, and 100 million people that have gained access to cooking with clean fuels may forgo it on cost grounds, returning instead to the use of traditional biomass."*

Shortfalls in clean energy investment are largest in emerging and developing economies, which have a more rapid projected growth in demand for energy services. According to the IEA, global clean energy investment was around $1.3 trillion in 2021. This will more than double in the IEA's Announced Pledges Scenario, which assumes that aspirational targets announced will be met on time, and triple to be on track with a scenario to reach net-zero emissions. However, the current macroeconomic environment with high inflation and increasing cost of borrowing exacerbates the challenges for financing clean energy projects in many countries. This risks delaying further the development and construction of energy projects.

The European Union will continue to work towards **accelerating the global green and just energy transition**. It will also establish long-term relationships and dedicated partnerships to **strengthen its energy security, resilience and open strategic autonomy** in the areas of energy that are **mutually beneficial**, for instance through the development of a global hydrogen market. The European Union is participating in Just Energy Transition Partnerships (JETPs), which are multi-donor agreements to

accelerate the phasing out of coal-fired power plants. The European Union will also **support Ukraine and other countries** that are directly or indirectly affected by Russia's aggression.

The international community aims to scale up investment to bring sustainable, affordable and reliable energy for all. Public spending currently plays a larger role in emerging market and developing economies than elsewhere, accounting for nearly 60% of clean energy investment in recent years and IFIs like the EIB are putting greater efforts into mobilising the private sector. In order to scale up private investment in clean energy projects in developing and emerging economies, development banks have an important role to play to accelerate the development of bankable clean energy projects.

Conclusion

To conclude, the energy transformation is needed to reach net-zero and to ensure energy security at the same time. It is now clear that energy systems must be transformed not only to meet emissions reduction targets in the long term, but also to ensure energy independence from Russia and more broadly energy security. While the major energy crisis that we are facing is putting energy security and affordability at the top of short-term concerns, the European Union is seizing this opportunity to accelerate the energy transition.

From an EIB perspective, this acceleration of the energy transformation means supporting a huge increase in global energy investment. In the context of the unfolding energy crisis, the priorities established in the ELP remain fully valid and will contribute to supporting both climate action and energy security.

2. Scaling up EIB support to the energy transformation

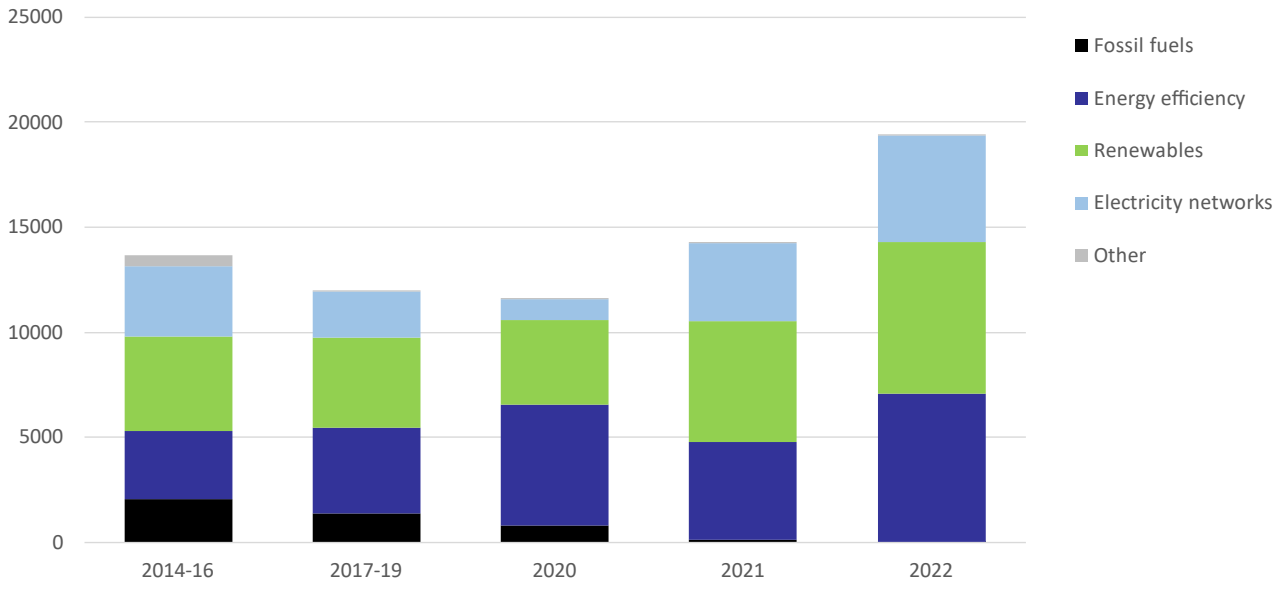
The ELP adopted by the Bank in 2019 sets out how the Bank, as a public bank, can support the European Union in meeting its ambitious climate and energy targets. This mid-term review presents the first results of its implementation in 2020-21.

In the context of the exceptional energy crisis outlined in the previous section, the EIB will further increase its lending to the energy sector in the coming years. Increased volumes for energy efficiency and renewables will improve energy security, support the implementation of REPowerEU and contribute to the commitments of the EIB as the EU climate bank. The Bank will also continue investing globally thanks to the creation of its new arm EIB Global. This section also outlines the key recent strategic orientations taken by the Bank since the adoption of the ELP, and their implications for energy lending.

EIB energy lending focused on the priorities set out in the ELP

During the first two years after the introduction of the ELP, the EIB's energy lending has successfully focused on delivering on its priorities. Energy lending signatures remained stable in 2020 compared to 2019 at €11.6 billion and increased to €14.2 billion in 2021, representing a quarter of total EIB signatures[5], in spite of the COVID-19 pandemic. The first two years of implementation indicate that energy lending has essentially focused on energy efficiency, renewable energy and electricity networks, while 98% of energy lending in 2021 also qualified as climate action. Available data for 2022 confirms the same trend.

Figure 1: Breakdown of energy lending inside and outside the European Union by theme, 2014-2022, € million per year



[5] It should be noted that due to the duration of the EIB transactional cycle, the impact of the ELP is reflected in the signature volumes with a time lag.

The priorities set out in the ELP represented the majority of energy lending, namely: (i) overcoming persistent investment gaps; (ii) focusing on infrastructure needed over the long term, including the important dimension of innovation and scaling-up of low-carbon technologies; (iii) supporting new market-based investment in the energy sector. This helped to define activities with a high policy value. The results of energy lending are further described in section 3 for each theme of the ELP.

Notwithstanding the strong focus on energy transformation, the ELP also ensured the EIB's continued support for security of supply. As set out in the ELP (section 3 paragraph 23), this was mainly done by reinforcing electricity networks and cross-border infrastructure as well as by reducing energy demand through energy efficiency projects, or through low-carbon power generation. In addition, the Bank supported new dimensions of security such as demand response and energy storage. These types of projects are at the same time improving energy security and supporting the decarbonisation of energy systems. The Bank also supported the development of a sustainable supply of critical raw materials needed for the transformation.

With the ELP, the Bank made a major decision to "phase out EIB support to energy projects reliant on unabated fossil fuels." For the first time ever, an IFI decided to stop lending to all unabated fossil fuel energy projects, including natural gas. As shown in Figure 1 above, after a transition period in 2020, lending to fossil fuel projects was at a negligible level in 2021 and the Board of Directors did not approve any such projects in 2022.

At the same time, the Bank supported Member States and regions with a more challenging transition path. The Energy Lending Policy established an Energy Transition Package to provide extra support to clean energy projects in Member States that benefit from the Modernisation Fund[6], thanks to, among other things, financing of up to 75% of the eligible project cost, advisory support and targeted sectoral dialogue.

In 2020, the Bank engaged with the energy ministries of all countries benefiting from the Energy Transition Package and organised six energy finance workshops to discuss national energy and climate plans. The number of energy-related projects financed by the Bank increased from ten projects in 2020 to 35 projects in 2021, and the approved loan amount of €2.6 billion in 2020 rose to €6.3 billion in 2021. Overall, the relative level of energy lending to these countries increased and reached around 40% of total energy lending to all EU-27 states in 2021.

EIB will further increase energy lending in support of clean energy and energy security

The EIB Group is one of the largest providers of finance to the energy sector in the European Union. However, EIB financing remains a small proportion of the European Union's overall energy investment needs. Even though clean energy investment in the European Union increased in 2020 and 2022, reaching the Fit for 55 and REPowerEU objectives still requires doubling investment in clean energy (energy efficiency, renewables and electricity grids) by 2030.

Against this backdrop, the European Investment Bank Group (EIB Group: European Investment Bank, European Investment Fund) announced that it will support the REPowerEU Plan with an additional €30 billion in loans and equity financing over the period 2023-2027. The additional funds from the EIB

[6] Bulgaria, Czech Republic, Estonia, Croatia, Latvia, Lithuania, Hungary, Poland, Romania and Slovakia, see Annex IIb of Directive (EU) 2018/410

Group will be directed to renewables, energy efficiency, grids and storage, electric vehicle charging infrastructure and breakthrough technologies, such as low-carbon hydrogen or its derivatives. The Bank's response to REPowerEU will focus on improving energy security over the medium to long term.

In addition to raising energy lending volumes, the EIB's Board of Directors also adopted a series of measures aimed at accelerating the pace and maximising the impact of the new investment. Key technical elements include higher upfront disbursements as well as longer tenors that will make EIB loans to the energy sector more attractive. In addition, the co-financing ceiling is increased to 75% for energy projects under REPowerEU (up from the typical 50% EIB limit per project). An exceptional and temporary extension of the existing exemptions in its Paris Alignment for Counterparties Framework (the PATH)[7] will enable the Bank to finance all renewable energy projects and electric vehicle charging infrastructure in the European Union until 2027.

The EIB response to REPowerEU will significantly boost EIB energy lending, helping to fill the increasing investment gap in the sector. Overall, it is expected that the EIB will provide total additional funding of €27 billion, while the EIF contribution will amount to €3 billion over the period 2023-2027. The target includes support to projects in hard-to-abate industry sectors, in addition to projects in the energy sector itself. This target represents for the EIB an average increase of €5.4 billion per year over five years and around a 50% increase to average lending in the European Union.

Energy is a key pillar and contributor to the EU climate bank

The increased energy lending target should expedite the achievement of the EIB Group's ambitious climate bank commitments. The EIB Group adopted its Climate Bank Roadmap in 2020 to deliver on its agenda to support €1 trillion of investment in climate action and environmental sustainability from 2021 to 2030 and to increase the share of annual EIB financing dedicated to climate action and environmental sustainability to 50% by 2025[8]. An additional climate bank commitment implemented under the Climate Bank Roadmap was for all new EIB Group operations to be aligned with the goals and principles of the Paris Agreement by the start of 2021.

The eligibility criteria as defined in the ELP of 2019 have been used to define Paris alignment in the energy sector as set out in the Climate Bank Roadmap. By the end of 2020, the Bank had aligned all its financing activities with the principles and goals of the Paris Agreement and had defined an alignment framework in terms of the low-carbon and resilience goals.

One of the objectives of this mid-term review is to discuss the implications of the EU taxonomy for sustainable activities. A first Delegated Act on sustainable activities for climate change adaptation and mitigation objectives was published in December 2021. The EU taxonomy introduces technical screening criteria for energy efficiency in buildings, energy production and, the production of fuels from renewable and low-carbon energy sources. Since 2022 the EIB has implemented the substantial contribution criteria from the Delegated Act for its reporting on climate action, and for its climate awareness bonds. The CBR recognised the importance of the taxonomy's "Do No Significant Harm"

[7] This exemption does not hold for counterparties investing in new coal-fired power plants or thermal coal mines.

[8] Most Bank-financed projects in the energy sector substantially contribute to climate change mitigation. Some energy projects contribute also to further environmental objectives, such as pollution prevention and climate change adaptation.

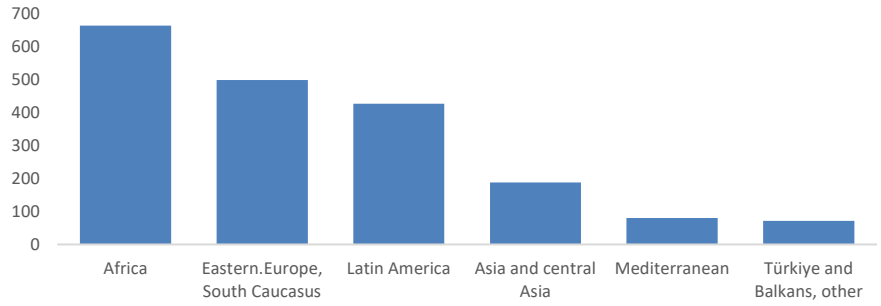
(DNSH) criteria to the climate change mitigation and adaptation objectives as a floor to the EIB framework, that is, the level below which the EU climate bank would not support a project.[9].

A Complementary Climate Delegated Act was approved in July 2022 and covers nuclear-related activities and gas for power generation and heat. The Climate Delegated Act does not have implications on the Bank's approach to lending to nuclear projects[10] (which has remained unchanged since 2013), nor to the eligibility for financing of gas-fired power plants. However, the Bank's technical requirements defined in the ELP, in particular the emission standard for power generation, are consistent with the DNSH to mitigation criteria in the Climate Delegated Act for power generation (see section 3).

EIB Global supports the energy transition worldwide

The Energy Lending Policy covers all EIB activities in the energy sector globally. Since the adoption of the ELP, the EIB has focused its lending to the energy sector outside the European Union on supporting the energy transformation and projects that have a significant impact in terms of decarbonisation. Lending to energy projects outside the European Union totalled around €1 billion/year (focusing on energy efficiency in the Eastern Neighbourhood, energy access, grids and renewables in sub-Saharan Africa and the Mediterranean region, renewables in Latin America). The bulk of the lending volume was delivered by a few large operations (around 20 large operations per year have a loan amount above €5 million) and via funds managing lending to smaller projects. Outside the European Union, the EIB did not finance any projects reliant on unabated fossil fuels in 2021 and 2022.

Figure 2: Energy lending in 2020 and 2021 in developing countries outside the European Union (€ million)



Access to modern and affordable energy outside the European Union is a key priority set out by the Energy Lending Policy. In Africa, lending to electricity grids and rural electrification supported access to modern and sustainable energy. In line with the ELP objective to support universal access to electricity, the Bank supported ten projects over the last two years, representing a total of around €500 million. In addition, the Bank is supporting the deployment of off-grid renewable solutions via investment funds. The Bank has thus contributed to the United Nations SDG 7 target to ensure universal access to electricity.

[9] An update on implementation of the Paris-alignment framework, including the incorporation of DNSH criteria, was provided in the 2021 CBR progress report published in July 2022. EIB Group 2021 Climate Bank Roadmap progress report

[10] The Bank's policy for nuclear power generation and fuel cycle projects remains unchanged from the policy approved by the Board in 2013, which already requires that the technology used is the best available technology.

The ELP also focused the Bank's support on the energy transformation in the EU neighbourhood countries. The Bank financed energy efficiency in the Eastern Neighbourhood where the needs for building renovation are very high. In contrast, in the Mediterranean, lending volumes remained relatively low in 2020-2021, against the backdrop of COVID-19 and political instability in some countries.

The Bank's activity in Latin America and Asia remains significant in all sub-sectors. The region offers particular potential for additional renewable energy and is deploying renewables rapidly. In particular, the Bank financed several electricity networks and renewables projects.

The EIB has engaged with an increasing number of countries outside the European Union to deepen dialogue and support more ambitious NDCs to the Paris Agreement. For instance, the EIB works with South Africa and Indonesia[11] to reduce coal use and address the social consequences to ensure a "just transition" outside the European Union. The creation of EIB Global will further accelerate this dialogue. More generally, these initiatives are fully in line with the EU international energy engagement strategy, to "*promote energy efficiency, the deployment of safe and sustainable low-carbon technologies, the increasing uptake and system integration of renewable energy, and the highest environmental, nuclear safety and transparency standards."* Another example is DESIREE, an initiative of the EIB and the European Commission to support these activities in certain countries (see Box 1 below). The EIB is also engaged in many multilateral fora on energy supporting the United Nations SDG 7 goals.

Beyond the energy transformation outside the European Union that was the focus of the ELP, energy security was in 2022 at the centre of discussions between the European Union and other countries in the context of the current energy crisis. While the short-term focus is on the diversification of gas supply sources, the Bank, as a long-term investor, continues engaging with governments to discuss long-term projects. The Bank participates in the discussion of renewable hydrogen projects under development in Africa, supports renewables outside the European Union and also contributes to reducing the growth of natural gas demand and gas market tensions.

The key EU policy development for developing economies is the finalisation of the European Union's NDICI-Global Europe instrument, the overarching programme of the European Union's development activity. NDICI is the new EU financing tool designed to cover the vast majority of the European Union's external spending for 2021-2027. At least 30% of the almost €80 billion of NDICI funding must be spent on climate-related activities, which mainly relates to the provision of sustainable energy. An agreement for the implementation of this instrument was signed between the European Commission and the EIB in 2022.

The EIB will continue to work within "Team Europe" to develop new partnerships and initiatives. The EIB has reinforced its cooperation in the energy sector with EBRD, AfD, GIZ, FMO and Member States to work outside the European Union. In total, the EIB is working with the European Commission on 75% of the Team Europe Initiatives, supporting the European Commission's Global Gateway initiatives.

[11] Indonesia Just Energy Transition Partnership, 15 November 2022

Box 1 — DESIREE

The Bank has co-developed a blending platform called DEmand side management, Social Infrastructures, Renewables and Energy Efficiency (DESIREE) with the European Commission and acts as the implementer of this programme. The total EU budget for financial instruments, grants and technical assistance is around €100 million over the implementation period. The EIB has set up a parallel investment envelope of €60 million to support the co-investment by the Bank in projects that could be developed under this programme, which therefore blends EU grants and EIB loans.

The DESIREE platform will focus on supporting the establishment and operationalisation of Super ESCOs, demand side management through utility companies to implement commercial and consumer energy efficiency measures, and the electrification of social infrastructure (schools and hospitals). The programme does so by providing technical assistance, financial instruments and grants to accelerate and de-risk approaches to scale up private sector business models for sustainable electrification of social infrastructure. The programme is currently planned to cover actions in five low-income and middle-income countries in Africa, Asia and Latin America. Côte d'Ivoire, Ecuador, India, Kenya and Uganda have been identified by the European Commission as initial target countries, but operations in other countries and regional investments are also possible.

The programme will support the development of the enabling environment, implement capacity-building support, provide technical assistance to key actors and make available blended finance to support innovative business models and carry out sustainable investments with private sector participation.

3. EIB energy lending by theme

This chapter of the mid-term review provides a short report on the ELP by lending theme and discusses some implications of recent policy and market developments. The chapter is organised around four key themes of the energy transformation: (i) unlocking energy efficiency; (ii) decarbonising energy supply; (iii) supporting innovative technologies; and (iv) securing the enabling infrastructure.

Energy efficiency, the first theme of the ELP, was and still is a high priority for EIB lending. Starting the ELP with objectives focusing on energy demand highlights the need to consider energy efficiency first across all energy activities before considering new investments. The first section of this chapter explains how the EIB has successfully increased its lending in support of energy efficiency.

The second theme of the ELP is clean energy supply, with a strong focus on renewable energy sources. The market remained very dynamic in 2020 and 2021 despite the COVID-19 lockdown. This section provides an overview of EIB lending to renewables, low-carbon technologies at early stage of deployment, and the emission standard for power generation.

The third theme concerns innovative technologies and new business models. The EIB has been able to support the development of innovative technologies with the support of the European Commission under the Energy Demonstration Project (EDP) facility, supporting a number of projects making a significant contribution to the EIB's ELP. This section highlights key projects in this area and explains how the Bank will continue to support innovation, including under InvestEU.

The fourth theme of the ELP relates to the network infrastructure that is needed to transport the energy supplied to meet demand, ensure security of supply and enable the energy transition. The EIB has maintained a high level of activity to finance electricity networks and cross-border infrastructure. The last section sets out how the Bank intends to support infrastructure planned to transport low-carbon gases like biomethane and hydrogen.

In addition to lending activities, the EIB is also providing project development assistance to improve the technical and financial maturity of projects, with the objective to facilitate their access to EU or EIB funding. This support is provided via several instruments, funds and programmes.

The ELP also launched a number of initiatives helping to promote the EIB's activity in the energy sector over the last two years. As described in section 2, the Energy Transition Package has translated into increased lending to countries benefiting from the Modernisation Fund. The EIB has successfully engaged with governments of many Member States, organised energy finance workshops in Central and Eastern European countries and substantially increased the financing of new energy projects in the region. The European Initiative for Building Renovation created under the ELP is described under Theme 1 and was integrated into the Bank's broader energy efficiency outreach to the building sector, including operations under other public policy goals (social housing and education facilities).

The Bank has also organised its activity under the Modernisation Fund and the Innovation Fund, on behalf of the European Commission and Member States. The scope of these funds includes energy projects and the EIB brings its technical expertise to the implementation of these funds. In particular, the Innovation Fund started supporting projects in 2021, helping in particular the decarbonisation of energy-intensive industry and transport.

Theme 1: Energy efficiency

This section describes the EIB's activity related to energy efficiency in 2020-21.

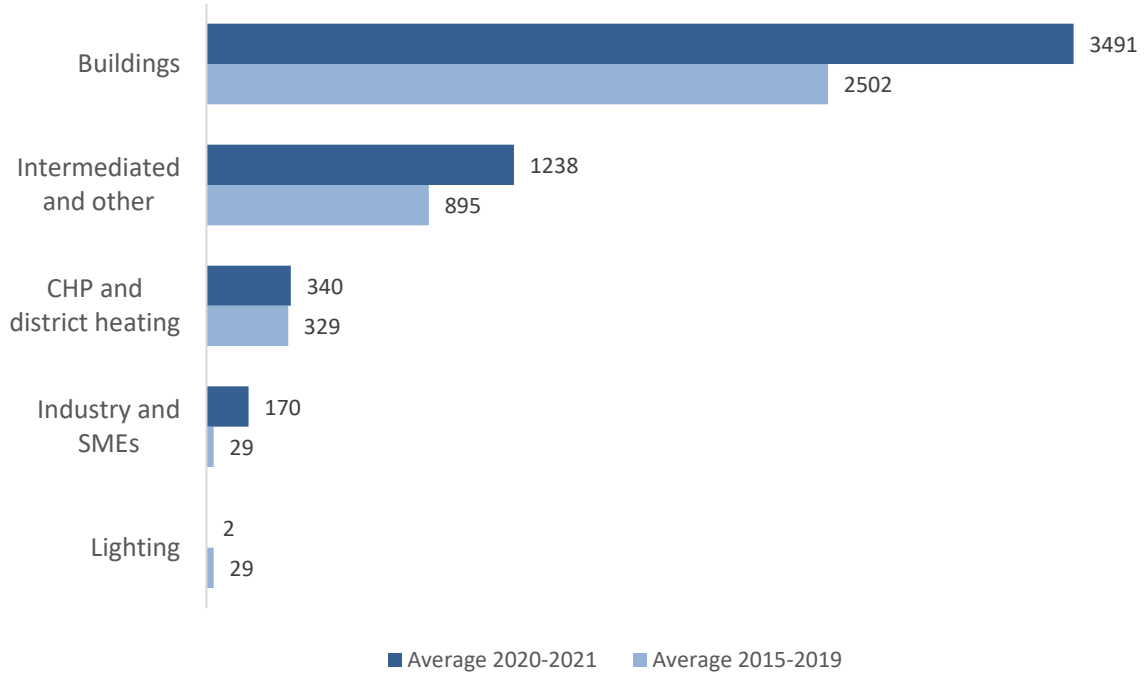
The ELP has prioritised support to energy efficiency, and financing increased across all sectors in the first two years of implementation. Energy efficiency-related lending exceeded €10 billion over the 2020-2021 period — representing 42% of overall energy lending, a 29% increase from the previous five-year period. Energy efficiency investments supported by the EIB concern all sectors of the economy and hence are often combined with other public policy goals (social housing, hospitals, schools, industry, innovation, etc.). The figure below shows the breakdown of energy efficiency lending in € billion/year on average in 2020-2021 by sub-sector and its evolution compared to the previous period.

With a share of 69%, energy efficiency of buildings dominates the Bank's energy efficiency lending, followed by intermediated operations in different sectors (24%), heating investments (6%) and small and medium-sized enterprises (3%). Lending volumes increased across all segments, except for industry and public lighting which represent a small fraction of overall lending. Next to building rehabilitation, significant efforts have been made to support high energy efficiency standards aligned with the EU taxonomy's substantial contribution criteria in new construction, especially in social housing.

Energy investment in small and medium-sized enterprises and industry has benefited from innovative approaches on how the Bank addressed small-scale investments in this sub-sector via intermediated financing (including investment funds and guarantee products for ESCOs). However, overall lending volumes remain relatively low compared to other sub-sectors.

Project development support continued to play a major role to help prepare energy efficiency projects for EIB financing. Given the technical complexity of energy efficiency projects for most counterparts, technical assistance and advisory support are often needed to support promoters in preparing the required documentation and enable the implementation of energy efficiency projects. The EIB has accumulated extensive and wide-ranging experience on energy efficiency advisory thanks to the implementation of various programmes and joint initiatives with the European Commission such as the ELENA facility, Private Finance for Energy Efficiency (PF4EE) and JASPERS.

Figure 3: EIB lending to energy efficiency (€ million/year)



In particular, project development assistance from ELENA has been provided to 127 projects in 24 countries since 2009, helping to prepare over €1.1 billion worth of EIB-funded projects. ELENA supports the setting-up of one-stop-shop solutions offering integrated energy renovation services and financing for residential building renovations. Other financial intermediaries are currently using technical assistance grants to hire energy experts and to work on specific products to finance energy efficiency measures.

The ELP launched the European Initiative for Building Renovation in 2019. This initiative resulted in the rollout of new products (green mortgages, see UCI case study below) and supported aggregators (for example, one-stop shops, national programmes) in order to facilitate EIB lending to large portfolios of granular and small investments.

As part of the EIB's support to REPowerEU, the EIB will continue to prioritise the financing of energy efficiency investment for building renovation, industry and small and medium-sized enterprises, regions and municipalities. Despite increasing efforts, a sizeable investment gap remains, which is further widened by the Fit for 55 targets and REPowerEU Plan. In order to reduce natural gas imports, the European Commission proposes in the REPowerEU Plan to enhance long-term energy efficiency measures, including an increase from 9% to 13% of the binding energy efficiency target under the Fit for 55 package of the European Green Deal legislation.

Investments in residential buildings renovation have the largest potential, with an expected increase in investments from an average of €84 billion/year (in the period 2011-2020) to €150 billion-€215 billion/year during the current decade. High energy prices are expected to boost building renovation, despite the context of increasing construction costs. Industrial investments must also double from €9 billion to €17 billion-€22 billion. In the current context, domestic and industrial energy efficiency offers an opportunity to alleviate the impact of high energy prices.

As anticipated in the ELP, transposition of the Energy Performance of Buildings Directive (EPBD) is leading to the adoption of more energy-efficient national mandated standards and building codes. The Bank has continued to support new buildings exceeding mandated standards and is aligning its technical screening criteria with the substantial contribution to climate change mitigation of the EU taxonomy.

In order to continue supporting the crucial role of energy efficiency in the European Union's ever more ambitious energy and climate goals, the Bank will offer (i) a combination of grants (Recovery and Resilience Fund/national programmes) with project assistance and EIB financing, and (ii) increased intermediated lending, benefiting from streamlined reporting offered by the EU taxonomy.

Box 2: Example of energy efficiency projects — Unión de Créditos Inmobiliarios (UCI)
The Bank financed two operations (2020 and 2021) with the Spanish mortgage lender UCI to support the financing of energy efficiency investments in buildings. With an overall financing amount of €150 million, it is targeting in particular the renovation of existing residential properties by individuals and homeowner associations and the construction of new buildings with the highest performance standards. UCI also received project development assistance from the ELENA facility for an amount of €2.6 million to support the creation of a one-stop shop to actively recruit, screen and support homeowner associations. These operations are targeting final energy savings of 50% on average.

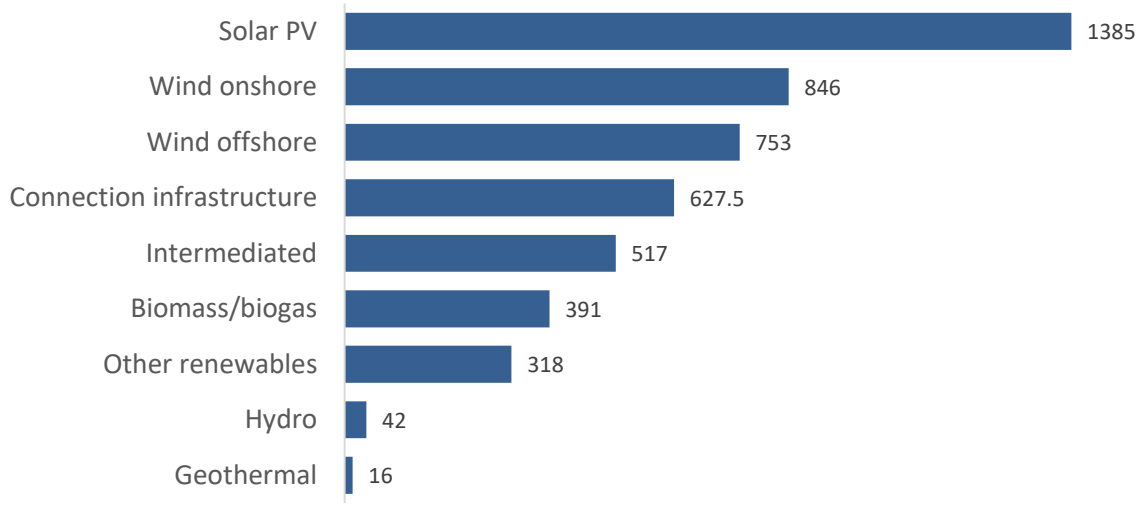
Theme 2: Decarbonising energy supply

This section describes the implementation of the ELP priorities for renewables, the status of technologies at the early stage of deployment and discusses the Bank's emission standard for power generation. It concludes that the ELP eligibilities continue to be fit for purpose to support the decarbonisation of energy supply and sets out how the EIB contribution to REPowerEU is expected to increase the EIB's support to renewables.

Increased EIB support to renewables

EIB lending to renewables was at its highest level since the adoption of the ELP. Lending to renewables increased from €4 billion in 2020 to €5.7 billion in 2021. Despite the COVID-19 crisis, renewable investment remained at a sustained level and EIB financing remained an important source of its funding in the European Union. The figure below presents the breakdown of EIB lending to renewable projects by technology and shows that lending is dominated by solar photovoltaic and wind investments, as well as the connection of renewable generation infrastructure to the electricity grid. The EIB has therefore successfully supported the rollout of renewables as set out in national energy and climate plans to collectively achieve the EU 2030 renewable target.

Figure 4: EIB lending to renewable projects, 2020-2021 average (€ million/year)



As set out in the ELP, the EIB endeavoured to support the market integration of renewable electricity projects as well as increased regional cooperation. Most renewable projects have been developed under national public support schemes, most of them relying on market mechanisms such as auctions for contracts for difference, as per the recast EU Renewable Energy Directive. In total, in 2020-2021, around 26% of projects representing €2.3 billion of financing benefited from contracts for difference (CfDs) awarded by governments for all or parts of production. The Bank also financed a number of projects still under a feed-in tariff (FiT) that were developed and under appraisal before 2019. As part of this mid-term review, the revised version of the technical annex II to the ELP provides some clarification of the notion of market risk exposure to define projects making a high contribution to the ELP objectives.

As anticipated in the ELP, the Bank is also increasingly supporting fully merchant projects without public support. Fully merchant projects are projects that do not benefit from any support mechanism, with their revenues rather depending on power purchase agreements or directly from the wholesale power market. The Bank has been very active in key geographies where several wind and solar projects are developed on a merchant basis. Most of these projects also benefit from commercial power purchase agreements (cPPAs) with corporate off-takers. In total, this accounted for 17% of projects/lending, which received €1.3 billion of financing.

Very few projects have benefited from regional cooperation between Member States at this stage, and the Bank has not identified opportunities to support them. The ELP has defined support to such projects as a priority.

Decarbonisation technologies at early stage of deployment

The ELP stated that the Bank would focus its support on the early deployment of promising technologies. The cost of most renewable technologies continued to decline in 2020 and 2021, although this trend has reversed since the start of 2022 owing to equipment and construction cost inflation. Offshore projects have experienced dramatic growth, with the EIB providing €1.5 billion to offshore wind projects over two years as well as financing three pilot projects over this period.

Renewable and low-carbon gas projects have been accelerating since 2019. The EIB participates in the Clean Hydrogen Alliance and the Bank has also established framework collaborations on green hydrogen with different stakeholders[12]. Green hydrogen is supported across the European Union with grants representing around €11 billion in the RRPs. The Bank has already started to finance green hydrogen production and stands ready to scale up its lending in this area.

The EIB's emission standard

The ELP has introduced an emission standard for power generation as part of its general policy to phase out lending in support of unabated fossil fuels. For power generation, several projects were able to meet the 250 g CO_2/kWh emission standard and therefore have been eligible for EIB financing. However, no carbon capture and storage (CCS) projects have been financed so far, reflecting the general absence of new projects in recent years. A few renewable heating projects were financed by the Bank but lending volumes remain low in this sub-sector, reflecting the size of the market. Similarly, the Bank's financing of combined heat and power (CHP) plants over the last two years remained limited as most projects continue to rely on unabated fossil fuels that cannot meet the EIB's emission standard for power generation.

The classification system for sustainable finance (the EU taxonomy) has adopted a similar emission benchmark. The Bank's emission standard of 250 g CO_2/kWh is consistent with the DNSH to mitigation threshold laid down in the taxonomy[13] and the Bank will continue to implement it when appraising the eligibility of projects for EIB financing. While the Bank's emission standard contains some flexibility as this threshold can be met on average over the economic lifetime of power plants progressively increasing the share of low-carbon gases, the EIB emission standard is very close to the European Commission's Complementary Delegated Act (CDA) of the taxonomy for power generation, consistent with the Bank's decision to phase out lending to unabated fossil fuel projects.

Supply of critical raw materials needed for low-carbon technologies

As set out in the ELP and also in the eligibilities of the Innovation, Digital and Human Capital Orientation 2021-2027, the EIB can also finance investments in the sustainable supply of critical raw materials (CRMs) for green technologies and digitalisation, respectively. The EIB focuses on innovation, resource efficiency and the circular economy. These activities can identify substitute materials to reduce dependence, foster the use of secondary raw materials and increase product lifetime.

Increasing lending to support the acceleration of low-carbon investment

Renewable and low-carbon energy investment needs to increase in the European Union. The Fit for 55 package and REPowerEU in 2022 have defined more ambitious renewable and decarbonisation targets for 2030 in order to reduce emissions and ensure independence from Russia. The need to scale up investments confirms that the Bank needs to increase its lending as proposed under the EIB Group response to REPowerEU.

[12] Through EIB InnovFin Advisory, the Bank has also established framework collaborations with the Hydrogen Council (2019) and with the French hydrogen association France Hydrogène (2020).

[13] The EIB's emission standard of 250 g CO_2/kWh is very close to the DNSH criterion in the taxonomy for power generation of 270 g CO_2/kWh.

Theme 3: Innovation

This section describes the implementation of the ELP priorities for innovation and new types of energy infrastructure. It highlights landmark energy innovation projects delivered since 2019 in key sectors of the Strategic Energy Technology (SET) Plan.

Since the adoption of the ELP, the EIB has supported investments in several first-of-a-kind projects in the energy sector. These projects are benefiting from the EIB innovation financial instrument EDP, which is supported by the European Commission. These projects are aimed at demonstrating the commercial and technical readiness of innovative technologies that can be scaled up and replicated globally and contribute to achieving the Paris Agreement goals.

Over the last three years, the EIB has supported the development of new green energy technologies for decarbonisation in energy. Examples include the part-financing of multiannual research, development and innovation (RDI) programmes of energy companies, wind turbine manufacturers, equipment providers for ancillary services, and cable manufacturers. In addition, the EIB has supported battery manufacturers in developing new battery technologies, including for energy storage solutions.

In the energy sector, the Bank has supported demonstration projects and innovative business models. The EIB has supported investments in floating wind energy technologies, carbon capture and use, demand response business, vehicle-to-grid business models, energy storage technologies, green hydrogen production and others. These investments are mainly enabling the commercial demonstration of innovative projects, developed and implemented in Europe, crystallising the European Union's leadership in energy innovation and supporting a vibrant small business ecosystem.

Table 1: Examples of innovative projects supported by the EIB since 2019

Project	Description	Mandate
PGL	30MW floating offshore wind farm demonstrating a first-of-a-kind tension-leg platform.	InnovFin EDP
Steelanol	Recycled carbon fuel and biofuel production from steel mill gases.	
Voltalis	Business model for residential demand response aggregation.	
Vehicle-to-Grid	Business model for rollout of electric vehicle chargers and aggregation of their grid services capabilities.	
Brenmiller	Development of an innovative thermal energy storage technology based on latent heat.	
TADO	Commercialisation of smart thermostats.	European Growth Finance Facility (EGFF)
RESALTA	Rollout of a commercial ECSO model for energy efficiency.	
Smart BES	Batteries business model.	
H2Pro	Development of an innovative electrolysis technology.	Breakthrough Energy Europe fund
Bloom	Development of lignin valorisation technology for production of green chemicals and sustainable fuels.	
H2Site	Development of an innovative technology to separate hydrogen from hydrogen carrier (methanol, ammonia).	
Ederlan	RDI programme on renewable energy, batteries and grid technologies.	Own resources

EIB lending to innovative projects has helped to overcome significant remaining barriers concerning climate innovation in the European Union. Over the last few years, the number of cleantech patents declined globally. The 2021 EIB Investment Report concluded that climate entrepreneurs still deem the big three barriers to be prevalent: (i) regulatory uncertainty, (ii) access to finance and (iii) high costs of innovative solutions versus current practice. However, the EIB Investment Report also noted an increase in numbers of startups in promising technologies such as offshore wind, hydrogen, batteries and other energy storage technologies.

The unfolding energy crisis may have impacts on the energy innovation landscape. It highlights the critical need for innovation in key technologies. High energy prices and the REPowerEU Plan are expected to spur a new wave of innovation investment, particularly in the sectors of digitalisation and energy storage. While uncertainty may impact the business appetite for major innovation, incremental innovation will continue. The European Commission has announced that additional resources for REPowerEU will become available under the Innovation Fund (IF) for which the EIB manages project development assistance. As part of the EIB Group's contribution to the REPowerEU Plan, the Bank has decided that in order to further support energy innovation, it will earmark €2 billion for a dedicated envelope to support green innovation with a specific focus on hard-to-abate sectors. Also, the EIB mandate to the EIF to finance innovation in cleantech will be significantly increased.

Significant progress in energy innovation and its financing are expected in the coming years thanks to several EU programmes and funds. Horizon Europe introduced an ambitious agenda to support innovation and make Europe the first digitally enabled, circular, climate-neutral and sustainable economy. The New Innovation Agenda introduces initiatives to encourage the use of private equity investments, promote company listing, support late-stage venture capital investments, introduce regulatory sandboxes for innovation and support for innovation valleys.

Theme 4: Securing enabling infrastructure

This chapter describes the evolution of EIB lending to energy network and cross-border infrastructure. It discusses changes in the Bank's requirements to determine whether new gas infrastructure is planned to transport increasing shares of low-carbon gases, which remains eligible for EIB financing.

Electricity networks

In practice, during the first two years of implementation of the ELP, EIB lending to enabling network infrastructure was dominated by electricity networks. Electricity transmission and distribution represented €2.3 billion/year on average over the period 2020-21, remaining at a relatively stable level compared to the previous four-year period. Lending to regulated networks contributes to supporting the increasing investment needed to integrate renewables and increased electrification of the transport and heat sectors.

As the ELP sets out, the Bank continued to finance cross-border interconnections and projects of common interest (PCIs). Such projects usually consist of a few large-scale investments. The EIB financed the Nordlink high-voltage direct current (HVDC) interconnector and PCIs in the Czech Republic (ČEPS). In 2022, the Bank also approved the financing of interconnections (such as the NeuConnect interconnector between Germany and the UK and the Celtic interconnector between France and Ireland) and the Bank's pipeline contains several other cross-border infrastructure projects.

The lending priorities set out in the ELP in terms of renewable integration and digitalisation represent a significant share of EIB lending to electricity networks. In total, the integration of renewables and flexibility solutions like storage and digitalisation represented 35% of financing. The Bank has also revised its economic assessment of electricity networks (these changes are reflected in Annex IV and the Guide for Economic Appraisal) to better reflect the rationale of the Bank's intervention. The ELP highlighted that the EIB wishes to support the development of energy communities and micro-grids.

The adoption of the EU taxonomy on sustainable finance is stimulating lending to electricity networks in the European Union, which can make a substantial contribution to the EIB's climate action targets. Following the adoption of the EU taxonomy on sustainable finance, network investments in the European Union are considered under the path to decarbonisation and therefore can be classified as green investments.

In terms of geography, lending to electricity networks in Eastern European Member States increased significantly. The Energy Transition Package introduced by the ELP in 2019 for countries with higher transition investment needs allows EIB financing for up to 75% of total project cost. Thanks to this measure and the classification of electricity networks in the European Union as green assets in the taxonomy, energy network lending has increased significantly in Eastern European countries, thereby contributing to increasing the Bank's climate action activity in this region.

Outside the European Union, electricity networks were the most important energy lending activity of the Bank in Africa. In line with the ELP objective to support universal access to electricity, the Bank has invested in ten projects over the last two years, representing a total of around €500 million. In addition, the Bank is financing the deployment of off-grid renewable solutions via funds. The Bank has thus contributed to supporting the United Nations SDG 7 target to ensure universal access to electricity and this will remain a priority for EIB Global.

The EU energy policy, including the Fit for 55 package and the REPowerEU Plan, further increase the need for investment in the enabling infrastructure, driven by modernisation and extension of the grid to integrate renewables and support increased electrification of the economy. Given the long lead time of electricity grid projects, the Bank will continue to support investments made in anticipation of increasing electrification and renewable integration, as a key enabler to meet the Fit for 55 targets by 2030 in the European Union and more generally prepare for net-zero by 2050 globally.

Low-carbon energy infrastructure

Since 2019, the EIB has phased out lending to energy projects reliant on unabated fossil fuels, which include the infrastructure dedicated to transporting natural gas. According to the ELP, the Bank could continue to approve until the end of 2021 some projects that were already under formal appraisal in November 2019 as well as projects on the fourth list of PCIs co-financed with the EU budget. As a result, lending to gas networks effectively decreased from an average of €1.5 billion/year over the period 2015-2019 to €455 million in 2020 and €91 million in 2021. The full list of gas projects approved until the end of 2021 is provided in Annex A.

The REPowerEU Plan and the EU hydrogen strategy are aimed at reducing natural gas and oil demand by increasing the use of low-carbon gases and in particular hydrogen. The EU targets represent a huge investment challenge for hydrogen by 2030 with a number of cross-border hydrogen pipeline projects, as illustrated by the proposed European Hydrogen Backbone initiative. Given the momentum around

hydrogen over the last two years, the EIB is maintaining its support to the production of low-carbon hydrogen as well as to gas infrastructure projects "*planned to transport renewable or low-carbon gases, including the rehabilitation and adaptation of existing infrastructure when it is part of this goal*."

The hydrogen industry is making rapid progress and many studies are ongoing to plan the development of the future hydrogen infrastructure. Besides 100% renewable and low-carbon gas infrastructure, gas network companies announce new gas infrastructure investment to prepare for the increase of low-carbon gas or hydrogen in the future, including some gas infrastructure projects being proposed to diversify natural gas supply sources. The Bank will look at the detailed justification and investment decision of these projects, in order to support new, innovative solutions enabling the transportation of green gases.

District heating and cooling networks

EIB financing to district heating or cooling projects remained limited over the last few years. Many of these projects continue to rely on natural gas; only some projects are able to meet the technical requirements set out in the technical annexes of the ELP, and when they do, they are small in size given the local nature of these markets. Nevertheless, as heating and cooling systems need to reduce emissions, it is expected that the Bank may finance more such projects in the coming years.

Annex A: List of projects directly associated with fossil fuels approved between 14 November 2019 and 31 December 2021

Here is the final list of fossil fuel projects approved between 14 November 2019 and 31 December 2021. The final EIB financing to the grandfathered projects in the sector since the approval of the ELP amounts to €0.80 billion and is therefore half of the original estimate of €1.66 billion.

The remaining projects under appraisal that were not approved by 31 December 2021 have been cancelled: WEST BANK IPP (20130556) and CONEXUS BALTIC GRID (20180903).

Name	**Country**	**Loan amount (€ million)**	**Projects of community interest (PCI)/Projects of mutual interest (PMI)**	**PIN approval**
GAS INTERCONNECTOR NIS-DIMITROVGRAD-BULGARIA	Serbia	25	PCI/PMI	11/2018
UZBEKISTAN DISTRICT HEATING LOAN	Uzbekistan	100		04/2019
CYPRUS GAS IMPORT FACILITY (CYPRUSGAS2EU)	Cyprus	150	PCI	10/2018
GAS INTERCONNECTOR GREECE-NORTH MACEDONIA GR PART	Greece	25	PMI	08/2019
MYTILINEOS SA — AGIOS NIKOLAOS POWER PLANT	Greece	125		10/2019
KAUNAS HEATING CAPEX PROGRAMME	Lithuania	55		06/2019
EAC VASILIKOS CCGT UNIT 6	Cyprus	76		10/2019
MARGHERA LEVANTE CCGT REDEVELOPMENT	Italy	150		10/2019
ENERGY SECURITY OF SUPPLY IN LITHUANIA — PCI	Lithuania	65	PCI	08/2019
GAS INTERCONNECTOR GREECE-NORTH MACEDONIA NM PART	North Macedonia	29	PMI	08/2019
TOTAL		**800**		

Annex B: Energy Transition Package

1. Background

Financing investment projects that contribute to strengthening the economic, social and territorial cohesion of the European Union has been at the heart of EIB operations since its foundation in 1958. It continues to be a core priority, and the EIB Group seeks to ensure that no people or places are left behind along the transition pathway of the transition to a green economy. This approach, to a so-called 'just transition', is set out in the EIB Group Climate Bank Roadmap.

As part of its support to the energy transition, the Bank has established — through its Energy Lending Policy — an Energy Transition Package to provide extra support to those Member States or regions with a more challenging transition path. These Member States are the ten lower-income countries in the European Union that benefit from the EU Modernisation Fund (Bulgaria, Czech Republic, Estonia, Croatia, Latvia, Lithuania, Hungary, Poland, Romania and Slovakia, see Annex IIb of Directive (EU) 2018/410).

The Energy Transition Package focuses existing Bank assistance, including advisory services, on energy projects that support the transition in those Member States. This includes increasing the co-financing threshold to 75% of the eligible project cost. Eligible areas are renewable energy, energy efficiency, modernisation of energy networks, including district heating, pipelines and grids.

The Bank also engaged with the energy ministries of all the countries benefiting from the Energy Transition Package. It organised energy finance workshops in six countries to present the EIB Energy Lending Policy and discuss national energy and climate plans.

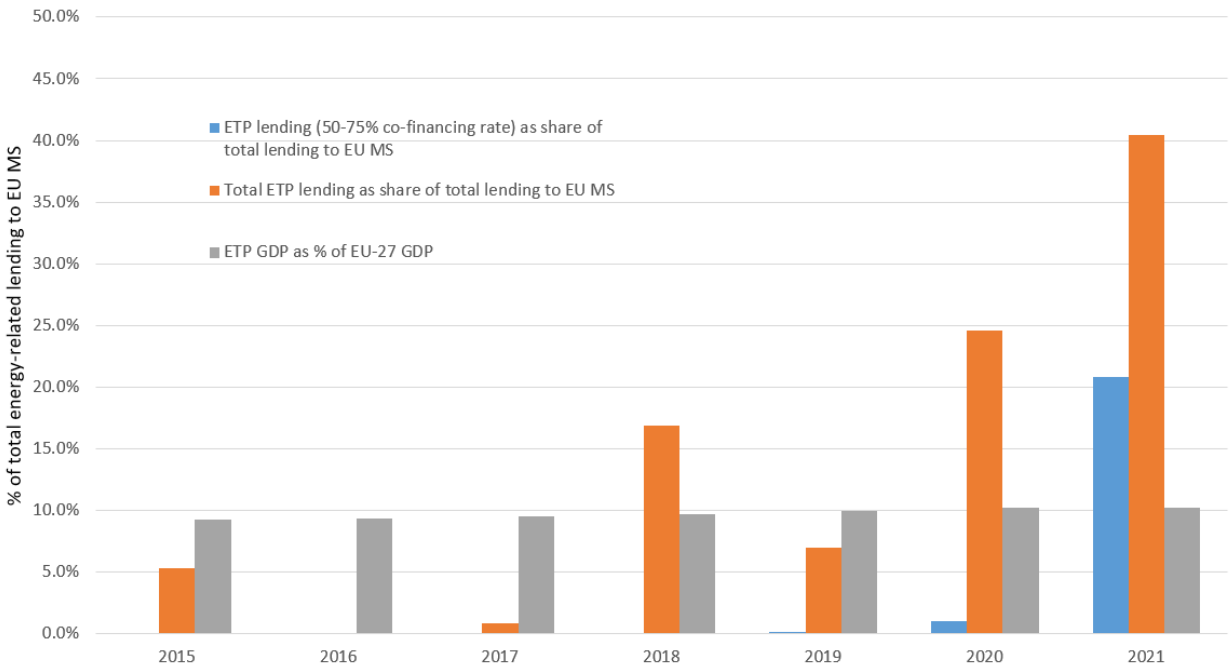
2. Results of the Energy Transition Package

In 2021, a total of 35 energy-related projects (2020: ten projects) were signed across the ten countries with an approved loan amount of €6.3 billion (2020: €2.6 billion). Fifteen projects (approved loan value of ~€2.7 billion) had a co-financing rate between 50%-75% in 2021 (2020: only one project).

In 2021, the Energy Transition Package benefited mainly network projects (electricity grid and district heating), both in terms of number and signed contract value. This significantly increased EIB climate action in these countries following the taxonomy's classification of the EU electricity network as green (that is, making a substantial contribution to climate action). In total, six projects benefited from EIB support above 50% for a total value of around €1.2 billion. Renewable energy (~€188 million) and energy efficiency projects (~€102 million) also benefited from lending above 50%. By comparison, in 2020 only energy efficiency projects (~€110 million) benefited from the increased threshold.

Overall, the relative level of energy-related lending to countries benefiting from the Energy Transition Package has increased steadily over time (except in 2019) with lending to these countries reaching around 40% of total lending to all EU-27 states. When comparing the share of lending to these countries relative to their share of GDP in the EU-27, it suggests a proportionally higher lending effort by the EIB compared with the rest of the European Union (see chart below).

Figure 5 — Overview of energy-related lending to countries benefiting from the Energy Transition Package relative to total energy-related lending to EU-27 countries



Mid-term review of the EIB Energy Lending Policy

May 2023

European Investment Bank
98 -100, boulevard Konrad Adenauer
L-2950 Luxembourg
+352 4379-22000
www.eib.org – info@eib.org