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## 7 – INFRASTRUCTURE

### Overarching recommendations

- > The European Commission should support national capital raising plans for infrastructure by creating a European Panel on Climate Change responsible for advising Member States on infrastructure investments that are based on the least cost pathway to a net-zero economy.
- > The European Commission and European Investment Bank should strategically engage with a network of public finance institutions to improve infrastructure project development capacity at regional and local level.
- > Public finance institutions should support the creation of green infrastructure bonds in underserved regions and sectors.

### In the next few years Europe must fund the sustainable infrastructure that it will need mid-century.

The stock of infrastructure of an economy is an essential driver of prosperity, providing access to services and jobs, and increasing quality of life.<sup>291</sup> Infrastructure financing decisions will also be essential to meeting Europe's environmental and sustainability goals.

In Europe, from 2009 to 2015, there was a 15% decline in infrastructure investment as a share of GDP. Central and Eastern Europe and Southern Europe are the regions with the largest reduction in infrastructure investment as a share of GDP,<sup>292</sup> which reinforces existing investment gaps and limits economic and social convergence in Europe.

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<sup>291</sup> New Climate Economy (2016) **The Sustainable Infrastructure Imperative**

<sup>292</sup> European Investment Bank (2020) **Investment Report 2019/2020**



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Since the onset of the COVID-19 pandemic in early 2020, investment in infrastructure has stalled.<sup>293</sup> Yet infrastructure investment will play an important role in the economic recovery<sup>294</sup> and given its capital-intensive nature this will require sustained long-term investment to ensure sufficient quality and quantity. Countries have announced unprecedented support for sustainable infrastructure in their recovery plans, providing an opportunity to accelerate the quantity and quality of infrastructure spending.<sup>295</sup>

New infrastructure must be aligned with the goal of achieving net zero greenhouse gas emissions by 2050.<sup>296</sup> The European Commission is set to propose a higher 2030 climate target later this year to meet the 2050 target, and to support international efforts to achieve that target.<sup>297</sup> But the EU is not on track to meet its existing decarbonisation targets for 2030 and 2050<sup>298</sup> and Member States continue to finance carbon-intensive infrastructure, directing financial resources to projects which could increase the risk of stranded assets and increase the overall cost of decarbonisation.<sup>299</sup> Due to the long lifespans of infrastructure assets, the infrastructure being built now must be shifted to net-zero systems to achieve the climate targets in a cost-effective way.

Europe invested €158 billion, or 1.2% of GDP, in climate change mitigation in 2018, which is almost as much as the US (1.3%) but three times less than China (3.3%).<sup>300</sup> This level of investment was lower than in previous years and remains far from what is required to meet the 2030 climate targets. The additional investment requirement for the climate transition stands at over €340 billion per year to meet the current 2030 climate and energy targets and transport infrastructure.<sup>301</sup> Addressing this gap will require significant investment in both physical infrastructure such as energy, buildings and transport, and natural infrastructure such as forests, wetlands and corridors.

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<sup>293</sup> The Guardian (2020) [Energy storage boom stalls in Europe](#)

<sup>294</sup> EY (2020) [Repairing the damage from COVID-19: How infrastructure spending can help economies return to full strength](#)

<sup>295</sup> Carbon Brief (2020) [The world's 'green recovery' plans to cut emissions after coronavirus](#)

<sup>296</sup> European Commission (2019) [The European Green Deal](#)

<sup>297</sup> European Council (2020) [European Council conclusions, 17-21 July 2020](#)

<sup>298</sup> Euractiv (2020) [EU way off the mark on energy savings goal, latest figures show](#)

<sup>299</sup> European Commission (2019) [EU's new list of energy projects includes 32 gas facilities](#)

<sup>300</sup> European Investment Bank (2020) [Investment Report 2019/2020](#)

<sup>301</sup> European Commission (2020) [Commission Staff Working Document – Europe's moment: Repair and Prepare for the Next Generation](#)



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Sustainable infrastructure projects can be perceived as risky with a higher financing cost. Investors require projects to be above a certain size threshold yet decentralised solutions such as electric vehicle charging points and heat pumps, which constitute the majority of investment needs, are small and illiquid, and have an unattractive risk-return profile and high transaction costs.<sup>302</sup>

The European Commission's approach to mobilising investments into sustainable infrastructure has been to leverage private investment alongside public funds. As the main instrument for this, InvestEU has significant potential to lead investment towards climate neutrality by 2050.<sup>303</sup> InvestEU is a single investment fund integrating 14 financial instruments and building on the European Fund for Strategic Investments.<sup>304</sup>

InvestEU financing can be blended with other EU grants targeting investment, such as the Connecting Europe Facility which is the main EU fund responsible for infrastructure investments in the transport, energy and digital sectors, the LIFE programme, and the Smart Finance for Smart Buildings initiative. These can be combined at the project or financial instrument level to achieve coordination, synergies and complementarity and to leverage other sources of public and private finance.

The European Investment Bank will act as the main implementing partner under InvestEU with 75% of the guarantee, while other public finance institutions which can access low cost debt and offer finance to financial intermediaries such as commercial banks, institutional investors, infrastructure funds and private equity funds will have access to the remaining 25%.

## Improving national planning for sustainable infrastructure

The European Green Deal Communication recognises the decarbonisation of the economy as a challenge spanning across sectors including energy, buildings,

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<sup>302</sup> United Europe and Roland Berger (2015) **Squaring the circle - Improving European infrastructure financing**

<sup>303</sup> European Commission (2018) **InvestEU Programme Regulation**

<sup>304</sup> European Investment Fund (2020) **European Fund for Strategic Investments (EFSI): Boosting jobs and growth**; European Investment Bank (2018) **Evaluation of the European Fund for Strategic Investments**



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transport, industry and agriculture and land use.<sup>305</sup> Public investment to support the transition will require comprehensive and detailed medium-term planning.<sup>306</sup>

In Europe, the National Energy and Climate Plans under the Energy Union Governance Regulation are the primary framework through which countries plan their climate mitigation infrastructure and policies at EU level.<sup>307</sup> However, assessments of the National Energy and Climate Plans have found that they are of poor quality and are not consistent with Europe's 2050 climate neutrality target.<sup>308</sup> Member States were asked to develop national long-term strategies by January 2020 to ensure consistency with the 10-year National Energy and Climate Plans, but to date not all countries have submitted their long-term strategies.<sup>309</sup>

There are discrepancies in the extent to which different sectors are addressed in the National Energy and Climate Plans. Some types of investments, such as energy efficiency and low carbon heating and cooling, are not seen as a pressing issue by some Member States. For example, there are currently no mass deployment programmes to deliver building retrofits. Member States are required to align their sectoral plans such as their long-term renovation strategies and Common Agricultural Policy Strategic Plans with the content of the National Energy and Climate Plan, but countries are behind on the adoption of sectoral decarbonisation plans in some sectors. For example, to date only five countries have submitted a long-term renovation strategy.<sup>310</sup>

At the national level, there is a lack of long-term stable regulatory environment defining incentives and usage policy over time, which demotivates project promoters.<sup>311</sup> Also, some decarbonisation technologies are highly integrated across sectors and some Member States lack regulation for an integrated planning approach across departments and levels of government.<sup>312</sup> For example, even where governments have committed to support electric vehicles, this has not provided enough certainty over deployment and in some cases the

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<sup>305</sup> European Commission (2019) **The European Green Deal**

<sup>306</sup> European Investment Bank (2020) **Investment Report 2019/2020**

<sup>307</sup> European Commission (2020) **National energy and climate plans (NECPs)**

<sup>308</sup> CAN Europe (2020) **Pave the way for increased climate ambition: Opportunities and gaps in the final National Energy and Climate Plans**

<sup>309</sup> European Commission (2020) **Long-term strategies**

<sup>310</sup> Euractiv (2020) **EU countries dragging their feet on building renovation plans**

<sup>311</sup> E3G (2019) **Making deep decarbonisation of the energy system reality**

<sup>312</sup> E3G (2019) **Making deep decarbonisation of the energy system reality**



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regulatory structures are not in place to drive a whole systems approach. Electric vehicle charging infrastructure is pursued at the local level and yet requires to be part of national transport planning efforts.

### **Info: Sectoral decarbonisation investment needs**

**Buildings** produce 36% of greenhouse gas emissions in Europe.<sup>313</sup> Almost 75% of the building stock is energy inefficient and yet only 1% of the building stock is renovated each year.<sup>314</sup> Despite the EU's commitment to the "energy efficiency first principle", buildings-related investments in energy efficiency and low carbon heating and cooling face the largest annual investment gap.<sup>315</sup>

**Transport** is responsible for about 27% of the EU's total greenhouse gas emissions,<sup>316</sup> and it is the only sector whose emissions are growing.<sup>317</sup> Road transport accounts for over 80% of emissions,<sup>318</sup> with high polluting vehicles being resold in Eastern Europe causing significant local air pollution problems. Europe needs a fifteen-fold increase in electric vehicle charging points by 2030 to meet climate targets.<sup>319</sup>

**Power generation** is the largest emitting sector in Europe and plays a crucial role in decarbonising energy use across transport, industry and buildings.<sup>320</sup> Renewable energy investments are needed, particularly in distributed power generation and power system flexibility.

**Energy-intensive industries** such as steel, cement and chemicals account for 17% of EU emissions, and represent some of the most challenging areas to abate.<sup>321</sup> Significant large-scale industrial investments and regeneration are

<sup>313</sup> European Commission (2019) [Energy performance of buildings directive](#)

<sup>314</sup> Ibid

<sup>315</sup> European Commission (2019) [United in delivering the Energy Union and Climate Action - Setting the foundations for a successful clean energy transition](#)

<sup>316</sup> European Environment Agency (2019) [Greenhouse gas emissions from transport in Europe](#)

<sup>317</sup> European Parliament (2019) [Emissions from planes and ships: facts and figures](#)

<sup>318</sup> European Environment Agency (2018) [Greenhouse gas emissions from transport in Europe](#)

<sup>319</sup> Euractiv (2020) [Massive rise in EV charging points needed to reach EU climate goals, analysis finds](#)

<sup>320</sup> European Environment Agency (2020) [CO2 Intensity of Electricity Generation](#)

<sup>321</sup> E3G (2020) [Fostering Climate-Neutral, Energy-Intensive Industries in Europe](#)



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needed in carbon-intensive regions. Many of these industrial production plants are in Central and Eastern Europe.<sup>322</sup>

**Agriculture** contributes to 10% of greenhouse gas emissions from the EU and nearly 70% of those emissions come from the animal sector.<sup>323</sup> Nature-based solutions are vital in the fight against climate change,<sup>324</sup> but currently constitute a small proportion of climate investments.<sup>325</sup>

In order to generate project pipelines that meet national investment needs, National Energy and Climate Plans must identify those needs across different sectors. Currently this is not happening in a consistent or sufficient way.<sup>326</sup> A comprehensive assessment of the scale and type of funding needed will be a necessary step to attract the level of capital required to meet all of Europe's needs.<sup>327</sup>

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<sup>322</sup> E3G (2020) **Funding the Just Transition to a Net Zero Economy in Europe**

<sup>323</sup> European Commission (2020) **Farm to Fork Strategy**

<sup>324</sup> European Commission (2020) **EU Biodiversity Strategy for 2030**

<sup>325</sup> European Investment Bank (2020) **Investment Report 2019/2020**

<sup>326</sup> European Commission (2019) **United in delivering the Energy Union and Climate Action - Setting the foundations for a successful clean energy transition**

<sup>327</sup> Orozco, D. (2019) **Designing net zero and resilient economies**



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**The European Commission should support Member States in adopting capital raising plans to mobilise the financial resources needed for sustainable infrastructure.**

- > Member States should be mandated under the National Energy and Climate Plan framework to develop plans for decarbonising all sectors of the economy in line with the 2050 climate neutrality target.
- > National Energy and Climate Plans should include practical and achievable time-bound sectoral deployment targets and assessment of investment needs. They should also include capital raising plans that set out policies, regulatory reforms and financial instruments needed to unlock private investment.
- > National Energy and Climate Plans should be driven by dedicated national delivery agencies which can manage cross-departmental coordination between the energy system and other sectors, working in partnership with local governments.
- > The European Commission should provide guidance to Member States on the development of capital raising plans across all sectors to ensure alignment of national approaches with net-zero pathways based on the advice provided by a European Panel on Climate Change.

## Reforming infrastructure governance to align with climate targets

The EU faces complex challenges in identifying least cost pathways to net zero. For example, one important challenge is that there is no clearly preferred way to decarbonise heating and a mix of measures will inevitably be required and this will result in different approaches being adopted both between and within member states.<sup>328</sup> The current approach to infrastructure planning through the National Energy and Climate Plans does not benefit from a single, internally consistent and up-to-date analysis of current and future technology including costs and deployment potential and their associated uncertainty.

To support an improved governance of the financial system, the European Commission is in the process of setting up a Platform on Sustainable Finance

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<sup>328</sup> E3G (2019) **EU Energy System Decarbonisation Policy: Breaking the Logjam**



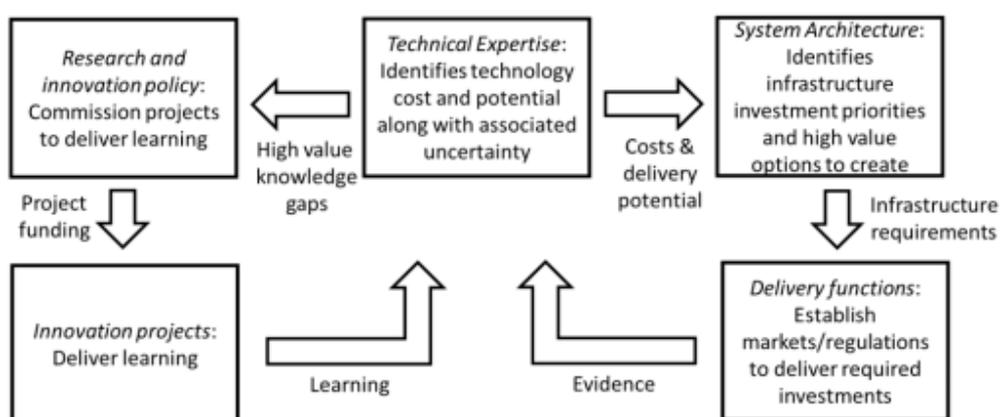
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under the Taxonomy Regulation.<sup>329</sup> The Platform will monitor and report on capital flows towards sustainable investment, and will advise the European Commission on the possible need to develop further measures to improve data availability and quality, and on the evaluation and development of sustainable finance policies, including concerning policy coherence issues. However, it is unlikely that the Platform will have the capacity to provide the full oversight needed to monitor financial flows into sustainable infrastructure.

The European Parliament is now discussing a proposal to create a European Panel on Climate Change in the context of the European Climate Law.<sup>330</sup> The independent scientific body has the potential not only to provide greater transparency and accountability but also to set the EU in the right policy direction towards climate neutrality. It would be composed of scientists with expertise in the climate field and structured to ensure their independence and autonomy.

A new independent European Panel on Climate Change could support infrastructure planning by providing science-based analysis as an input to policy choices. Such an institution could also support a cross-European approach to research and innovation, as set out in Chapter 8 on Innovation.

Figure 7: Net-Zero Delivery Architecture which could be delivered through an independent European Panel on Climate Change<sup>331</sup>



<sup>329</sup> European Parliament and Council of the EU (2020) **Taxonomy Regulation**

<sup>330</sup> European Parliament (2020) **Draft Opinion on the European Climate Law**

<sup>331</sup> E3G (2019) **EU Energy System Decarbonisation Policy: Breaking the Logjam**



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### The EU should create an independent European Panel on Climate Change under the European Climate Law.

- > The panel should look across public and private infrastructure investment and provide technical support to make long-term infrastructure commitments that are based on the least cost pathway to a net-zero economy.
- > It would advise the European Commission and Member States on priority infrastructure and technology deployment targets, and monitor progress and ensure policy coherence.
- > The panel would ensure a shared evidence base for taking policy decisions on decarbonisation and would highlight knowledge gaps and uncertainties, engaging with Member States and industry to support policy continuity and consistent progress towards targets.
- > The European Commission should produce an annual report for the European Parliament on progress made in the transition to a net-zero economy as part of the State of the Energy Union.

## Providing technical assistance for local and regional project pipelines

Despite an abundance of sustainable infrastructure initiatives in the EU, there remains a weak pipeline of shovel ready projects for investors to invest in.

Investors typically have little information about project pipelines and have limited engagement with project promoters. Infrastructure projects are of widely varying sizes and types, meaning that there may not be a pipeline of opportunities to invest in projects that are comparable and have a ‘standard’ financing volume and risk level.<sup>332</sup> Investors also typically require a standard approach to project contracting which ensures de-risking and guaranteed returns, however standardised approaches are not always available for newer types of infrastructure investment.<sup>333</sup>

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<sup>332</sup> United Europe and Roland Berger (2015) **Squaring the circle - Improving European infrastructure financing**

<sup>333</sup> Ibid.



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There is a lack of technical assistance and capacity building support to project promoters to design sustainable projects at regional and local level and to engage with investors willing to invest in sustainable infrastructure.<sup>334</sup> In particular, there is a lack of support for decentralised solutions such as energy efficiency, low carbon heating and cooling and electric vehicle charging stations, and sophisticated solutions such as nature-based solutions for resilience.

A report by the European Court of Auditors on the technical assistance provided under the European Investment Advisory Hub found limited evidence of it having increased the project pipeline. It lacked a strategy for targeting support into priority sectors such as energy and transport, it has been done through a centralised approach though the European Investment Bank while cooperation with other public finance institutions to improve geographical coverage was limited.<sup>335</sup>

Under InvestEU, technical assistance will be provided under the InvestEU Advisory Hub which will work in conjunction with the InvestEU Portal which will support engagement between project promoters and investors. The InvestEU Advisory Hub will provide project development advisory support to facilitate market-making activities and the collaboration of sectoral actors, in particular in small and decentralised projects.<sup>336</sup> The InvestEU Advisory Hub will consolidate the European Investment Advisory Hub and other European Investment Bank run support programmes. Funding for InvestEU Advisory Hub was initially proposed at €525 and still needs to be agreed in legislation. This level of funding will be insufficient to build investment pipelines across the EU and will need to be combined with other sources of technical assistance.<sup>337</sup>

In addition, InvestEU will retain a demand-driven approach to infrastructure planning rather than an integrated approach linked to national infrastructure planning process. While this approach works well for large assets such as power generation and manufacturing plants, it is less suitable for decentralised assets.<sup>338</sup> A new focus on regional and local support will therefore be needed.

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<sup>334</sup> HLEG (2018) **Final Report 2018 by the High-Level Expert Group on Sustainable Finance**

<sup>335</sup> European Court of Auditors (2020) **The European Investment Advisory Hub — Launched to boost investment in the EU, the Hub's impact remains limited**

<sup>336</sup> European Commission (2019) **The InvestEU Programme: Questions and Answers**

<sup>337</sup> Climate Strategy (2020) **Making InvestEU fit for purpose for the EU Green Deal, and the Covid Recovery** (upon request)

<sup>338</sup> Ibid.



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**The European Commission and the European Investment Bank should strategically engage with a network of public finance institutions to improve project development capacity at regional and local level.**

- > The European Commission and European Investment Bank should strategically engage with public finance institutions through the InvestEU Advisory Hub to create bankable project pipelines developed from national and local planning processes and to improve consistency in business models and project contracts across Europe.
- > The European Commission and European Investment Bank should build on direct cooperation with public finance institutions and municipalities to ensure local presence, particularly in Eastern and Southern European countries, to address geographical imbalances.
- > Engagement between investors and project promoters should be driven through the InvestEU Portal to improve the visibility of project pipelines to investors.
- > Support should be prioritised to target the key investment gaps in Europe's pathway to climate neutrality, including home renovations, expanded electric vehicle charging networks integrated with smart power, heating and cooling systems, and battery and clean energy production.

## Growing green bond markets for infrastructure investment

Green bonds are an important source of finance for infrastructure. While Multilateral Development Banks and the public sector have played an important role in the early growth of this market, the private sector is playing an increasingly significant part. Initial green bond issuance was led by large issuances from multilateral development banks and sovereign entities, but green bond issuance from the private sector has now increased to just over half of the total amount of green bonds outstanding in 2019.<sup>339</sup>

Securitisation can pool many small loans into one investment, lowering transaction costs and meeting investors' minimum size thresholds. It can also

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<sup>339</sup> Climate Bonds Initiative (2020) **2019 Green Bond Market Summary**



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attract investors that may not usually invest in this asset class by providing a range of risk-return profiles of different types of investors. However, there are risks that green securitisation is indirectly used to finance unsustainable economic activities.

Amundi's 'Planet Emerging Green One Fund' showed the range of actors now engaged in the green bond market - the fund raised \$1.4 billion from 16 institutional investors, including leading pension funds, insurance companies, and international development banks.<sup>340</sup> Rather than competing with the private sector, public finance institutions should now focus their efforts on developing green bonds for underserved sectors and regions.

**The EU should encourage public finance institutions to accelerate issuances of green bonds and should support high-quality securitisation**

- > Green projects with public risk guarantees are economically attractive to private investors. To ensure that all regions of Europe benefit from this, public finance institutions could issue bonds to fund projects in underserved areas.
- > Green bonds issuance could be encouraged across Europe by expanding credit guarantees through the European Investment Bank and national and regional public banks. Green bonds could be used to finance activities aligned with the EU taxonomy, for which adoption of the EU Green Bond Standard will provide a transparent framework.
- > The EU should set expectations for transparent green securitisation that ensure a 'closed loop' of financing, avoiding greenwashing and guaranteeing that the underlying collateral and the use of proceeds of a security are genuinely sustainable and in line with the EU taxonomy.

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<sup>340</sup> UNPRI (2019) **PRI Awards 2019 case study: Planet Emerging Green One Fund**

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