

A green and digital EU recovery plan for the future (the Danish perspective)

The economic and social implications of COVID-19 are unprecedented and call for strong, collective and urgent measures to bring the EU's economy back on track towards sustainable and inclusive growth. Efforts to address the EU's immediate economic challenges must contribute to our objectives for growth, competitiveness, climate action and sound public finances now and for the future.

If done right, the recovery from the crisis could provide the EU with a window of opportunity for modernising and strengthening our policies to ensure a historic boost to European competitiveness and the green transition towards climate neutrality in 2050. We can show once again that EU can lead by example and serve as inspiration globally.

The objectives of the European Green Deal must be the backbone of the EU's recovery plan for a more sustainable and resilient Europe and together with a 'Europe fit for the digital age' remain central strategic priorities in both short and long-term stimulating the economy and creating jobs whilst taking into consideration the need for a just transition. After COVID-19 passes, we must accelerate the development of a true, barrier-free, open and fair Single Market that will allow companies to scale across borders and innovate in a large home market, regardless of sector.

The present situation has also raised some fundamental questions about Europe's dependence on third country deliveries in certain key value chains or technologies of critical importance for our economic development and security. How Europe addresses the vulnerabilities following from such dependence should also be addressed as part of the re-launch of the economy.

Rebooting Europe in a sustainable, competitive and resilient way – a three-pronged approach:

A reboot of the European economy should aim at investing in sustainable jobs and growth, developing the enabling foundations for competitiveness and fostering European strategic ecosystems:

- 1) Scale up and accelerate investments in the green transition, including:
 - i. **Expanding renewable energy infrastructure** to enable renewable energy to flow freely throughout the EU and facilitates a rapid deployment of renewable energy.
 - ii. **Promoting renewable energy production**, especially off shore hybrid projects through EU regulation and mobilising funding.
 - iii. **Increasing sector integration**, notably through increased electrification
 - iv. **Improving energy efficiency in and digitalizing buildings** to stimulate job creation and reduce emissions.
 - v. **Greening the transportation sector**, including light and heavy duty vehicles and shipping
 - vi. **Transition to a circular economy**
 - vii. **Promotion of best available clean technologies(water, resources, air, chemicals)**
 - viii. **Bio-based and nature-based solutions, including focusing on the food sector**
- 2) Develop the enablers of new technology and update our regulatory framework in order to make Europe a digital front-runner, ensuring that the Single Market works for business and through an accelerated roll-out of 5G, AI and quantum communication as well as an expansion and electrification of the European energy system that supports the climate neutrality target.
- 3) Foster industrial ecosystems of strategic importance for Europe's resilience in crisis, as well as green and digital transition. This would encompass a further development of:
 - i. **A life-science industry** that ensures European innovative capacity in upholding and developing the production of essential drugs and medical equipment.

- ii. **Develop hydrogen and power-to X supply hubs and green industrial ecosystems around these hubs. Power-to-X**, can help decarbonise industry and contribute to **sustainable transport solutions**, such as a zero emission shipping. Together with **Carbon Capture, Utilisation and Storage (CCUS)**, “hard-to-eliminate” emissions from the greatest CO₂ emitters can be significantly reduced.
- iii. New technology like research and innovation in **AI and Quantum technology- and communication**, boosting Europe's digital capability.

4) Critical technologies: The lessons from this crisis also raised a broader debate about the need to for greater autonomy as regards certain technologies of critical importance for future economic development and security in Europe. This notably concerns 5G that is of horizontal importance as a key enabler for modernisation of the economy in all sectors, including the digital internal market, industrial production and the service economy. The recovery plan should pave the way for an ambitious Europe wide 5G campaign to create a global state-of-the art economic ecosystem for the European economy as a whole. The campaign should be based on large-scale deployment of secure 5G, scaling-up of European investment in both research, technology development and infrastructure.

Sound European values and principles:

Our response to the current economic crisis must be built on a sound, common regulatory framework rooted in core European policies, economic principles and values that have served European interests well. Thus, the recovery should be based on the following principles:

- Long-term objectives for growth and competitiveness, sound and resilient public finances and an efficient and future-proof Single Market must remain the winning formula for Europe.
- Upholding our effective, flexible legal framework, providing businesses scalability within our Single Market, while at the same time ensuring consumer protection and high environmental standards.
- Strong state aid rules should enable us to address relevant challenges in relation to the development of digital, green and sustainable technologies.
- Fundamental principles of independent enforcement should be upheld and free and fair competition safeguarded.
- We should further develop the "European way" in our Digital Single Market where responsibility, ethics and safety goes hand in hand with innovation, especially concerning data and AI.
- Urgently tackle climate change through strengthened climate regulation, ambitious climate targets and cost-efficient measures, providing long-term clarity and a stable framework for investors.
- Promoting competitive sustainability by a broad sectoral strategic approach implementing the main strategies.
- Public spending will not deliver results and mobilise private funding without being sustainable and setting a clear political direction.
- Promoting sustainable investments and sustainable competitiveness through the full implementation of the existing sustainable investment plan and the presentation of a new sustainable investment plan for Europe, including through the implementation of regulation on sustainable investments.
- The EU should develop industrial eco-systems where a concerted effort is needed to address market failure or ensure European resilience and innovation.
- Dependence on key products and technologies from third countries, i.e. digital capacities should be reduced through a transparent process selecting where the EU should invest and provide a strong, regulatory framework to underpin European interests.
- In focusing our European efforts, global trade should not be kept at bay nor should global value chains be dismantled, but rather further diversified and hence become more robust. Global free trade remains essential for the EU's prosperity.

On this basis, the Danish Government has identified a range of concrete initiatives to boost the EU's industrial ecosystems, accelerate the green transition and support the digital transformation. These initiatives are described in the Annex.

Annex: Initiatives for a green and digitalized recovery plan

Building up EU's future competitiveness and sustainable growth towards climate neutrality should both on the short-term and long-term basis clearly focus where the EU collectively and strategically gains most by a closer and targeted cooperation. This is the case for our digital, physical and green infrastructure and policies as well as for ensuring robustness in the medical sector and making sure we can leap into the technologies of the future. We should **invest** in key projects, boosting growth and greening the economy, ensure focus on key **enablers** of future growth and a concerted effort on **industrial ecosystems** that can ensure European resilience and competitiveness in the future.

I. Investments to stimulate recovery in the short run to strengthen the foundation for future sustainable competitiveness

We must focus on accelerating investments that stimulate activity in the short run not least through existing EU programmes and funds to help the EU's recovery by creating economic growth and jobs while laying foundations for digital and sustainable growth in the longer run.

i) Accelerate the green transition through

Mobilisation of financing of climate and energy projects by:

- Mobilising private sector and financial actors, e.i. through strengthening the EIB's efforts on climate and through restoring the EU's competitiveness and the level playing for official trade finance with a special focus on climate and renewable energy projects.
- Swift and effective deployment of funds from the Connecting Europe Facility, the Innovation Fund and the Modernisation Fund.
- Focus funding from the Just Transition Fund to facilitate the green transition in the most vulnerable regions in the EU.
- Further developing the EU framework for sustainable investments. The European financial sector should continue to develop towards securing a leading position for the EU in promoting sustainable and responsible investments, enabling the financial sector to support sustainable growth and mobilizing the private investments necessary to decarbonize our economies.
- Rapid modernization of the state aid guidelines for environment protection and renewable energy in order to support the green transition and ensure a level playing field. The revision should make the rules future proof by e.g. including all new green technologies. More flexible procedures and rules could be introduced in a temporary period in order to facilitate the fast tracking of green infrastructure projects.

Ambitious deployment of renewable energy, especially offshore wind by:

- Developing common EU framework and mobilising funding to facilitate hybrid projects with offshore wind with the potential to include Power to X.
- Utilizing market principles to facilitate an economically expedient approach to offshore infrastructure and ensure competition between offshore and onshore technologies.
Facilitating EU funding to develop cross border offshore transmission infrastructure and cross border offshore wind farms.

Initiating a wave of energy renovation projects by:

- Moving forward the European Green Deal initiative on a green renovation wave, which should focus on reducing the consumption of fossil energy.
- Providing clear guidance and funding on cost efficient energy renovation projects in public and private buildings.

- Future proofing of buildings through renovation strategy that combines energy efficiency and digitalization – such as roll out of grid and charging stations for electric vehicles, sustainable heating and cooling systems.
- Strengthening investments in sustainable heating solutions in district heating systems and provide infrastructure investments that promote common heating and cooling solutions for buildings and communities and CO₂ reductions.

Moving forward investments in energy infrastructure through existing EU funds by:

- Prioritizing funding for demonstration of Power to X facilities producing green hydrogen and other more advanced e-fuels, which can help decarbonize heavy transport and industry.
- Boosting large-scale investments in the development, deployment and integration of new clean energy technology and infrastructure.
- Encouraging funding for projects aimed to develop carbon capture, utilization and storage (CCUS) technologies, which could play a significant role in reaching EU's long-term reduction goal of becoming climate neutral.
- Accelerating electrification and foster the deployment of smart grids, using digital solutions, storage and utilization, as well as enabling sector integration incl. integration of green gasses to facilitate the integration of large amounts of renewable energy in relevant sectors.

Greening the transport sector by:

- Keeping the focus of the European Green Deal on smart systems for traffic management in order to reduce congestion, pollution, fuel usage and climate impact through the Connected Europe Facility. In this regard, a high level of ambition is needed for the upcoming smart mobility package in terms of both targets and funding.
- Expediting funding call for the deployment of public recharging and refueling points to disseminate large amounts of electric vehicles and thereby push the transition to a zero emission passenger's cars fleet by 2030.
- Maintaining a high level of ambition for the upcoming reviews of the Alternative Fuels Infrastructure directive and the TEN-T regulation in order to increase a stable environment for both public and private investments in green infrastructure.
- Focusing investments on sustainable and smart infrastructure projects such as railroad corridors, alternative fuels infrastructure, shipping and electrification of transport.
- Upholding the level of ambition of the Strategic Action Plan on Batteries as well as the upcoming legislative initiative announced in the European Green Deal in order to ensure supply for the growing market of electric vehicles.
- Maintaining the plans for an ambitious revision in June 2021 of the legislation on CO₂ performance standards for cars and vans.

Investments in best available clean technologies by:

- The Commission presenting a Zero pollution strategy promoting investments in water technologies and water efficiency technologies in order to adapt to climate change, investments in waste management technologies, including sorting and recycling technologies and waste management plants and investments in investment in air pollution technologies
- The Commission presenting a sustainable chemistry focusing on the the European chemical industry.
- The Commission presenting an investment strategy for climate change adaptation solutions.
- The commission promoting investements i infrastructure and technologis for the management of waste, water and circular economy.

Investments in bio based and nature based solutions – including the food sector by:

- The Commission presenting the biodiversity strategy and the farm to fork strategy focusing i.e. on investments in natural capital and nature based solutions for climate change mitigation, investments in sustainable and clean technologies for the agricultural sector investments in bio economy solutions, and initiatives to promote resilience of the sector.
- Giving focus to investments in the establishment of food supply chains to avoid deforestation (for example by replacing soy beans with alternative plant proteins for example from grass)

ii) Promoting the digital transformation by

- Moving forward investments in digital infrastructure through existing EU funds
- Prioritizing investments in digital infrastructure such as 5G and high-speed broadband, e.g. through CEF 2 Digital, within an overall strategy for secure 5G in all of Europe.
- Boosting the The Digital Europe program, i.e. through investment in high performance computing on a globally competitive scale, testing and experimentation facilities and Digital Innovation hubs that boost businesses' uptake of digital technologies and solutions that paves the way towards a carbon-neutral and circular economy.
- Improve upon conditions for cloud technology to allow for practical use of high performance computing by private companies and public authorities alike and for the development and usage of technologies based on, e.g. AI and IoT and for the upscaling of such technologies.

II. Enablers for Europe's competitiveness and green transition

We must focus on building an enabling framework for future digital and green industrial competitiveness in Europe as well as the EU's green transition. This requires an updated and sound, future-proof regulatory framework for the digital sphere and fully implementing and exploiting the opportunities in the Energy Union.

A norm-setting regulatory framework

- The digital agenda – and its regulatory framework - should address barriers to scaling up across the Single Market and enable cross-border innovation, competition and upscaling of European digital companies, ensuring effective IP protection.
- A Single Market for data should be developed in order to enable the exchange and interconnection of data, common definitions and frameworks in order to reap the benefits in B2B data sharing and cooperation with research institutions through a focused effort to remove barriers, creating data spaces and the development of standards. The vision of European data spaces should become reality based on experiences in Member States.
- New instruments should be introduced to handle unfair competition and the competition framework should be fit for the digital age.
- The development of AI as well as the broader uptake must be based on effective regulation that does not hamper innovation but provides for ethical, trustworthy and secure AI. A voluntary labelling scheme would be a practical way of achieving trustworthy and responsible AI's for citizens and making this a competitive advantage for responsible companies as well as a trademark for the EU.

Expansion and electrification of the European energy system

- To enable EU's capacity to become climate neutral, the recovery plan should accelerate investments in the European energy system, notably electrification and infrastructure, to reap the full benefits of the Clean Energy Package and the establishment of the Energy Union, which must be implemented fully and expeditiously.
- The EU's energy infrastructure must be expanded in a way that supports the climate neutrality target and enables renewable energy to flow freely throughout the EU and increasing security of supply. Particular focus must be put on electrification i.e. increased production of electricity from renewable

sources, expanding electric infrastructure between member states and within member states not least to address bottle-necks and increasing electrification of the heating sector, industry and transportation. This needs to be supplemented by Power-to-X as a bridge technology linking the electricity market and markets for gas and liquid fuels.

- We need to use all tools and policies towards this aim, including investments through CEF, the Modernisation Fund, the Innovation Fund, the Just Transition Fund, Horizon, and EIB financing, combined with establishing additional supportive regulatory framework, notable through the upcoming off-shore strategy and the Strategy for smart sector integration.

Transitioning to a circular economy by:

- Full implementation of the proposed circular economy action plan put forward by the Commission.
- Setting explicit objectives for the transition to a circular economy in the EU as an important element for the EU to become climate neutral by 2050.
- Focusing on utilizing the internal market and digital technologies as key elements in the development of a more circular economy across the various areas and identified key value chains in the circular economy action plan.
- Employing the use of digital technologies to track, trace and map material streams and material quality in value chains by developing standards and protocols for access to and use of interoperable data standardized methods to effectively share data between companies, investors and authorities in order to enable new data-driven circular business opportunities and actively promote the development of a well-functioning Single Market for secondary resources.
- Revising the EU's waste shipment directive, with the aim of ensuring a well-functioning Single Market for secondary resources, e.g. through strengthened standardization.
- Agreeing on a coherent sustainable product legislation The legislation should include specific requirements set for products in the production and consumption phase regarding material consumption, repairability, upgradeability and reusability.
- The Commission should support the implementation of the newly adopted Directive on Drinking Water Quality and propose regulation on the reuse of water outside the agricultural sector.
- Further integrating resource efficiency best available technologies in industry regulation, for example in the Industrial Emissions directive.
- Improved sustainability and long-term resilience supply chains of key materials for the European economy.

III. Ecosystems: Targeted approach on industrial ecosystems to ensure a world-leading industry, notably in the green and digital economy

A sustainable industrial policy should provide the best possible framework for European companies to become world leaders in clean, low-emission and digital technologies. A convergence is needed of optimal framework conditions and regulation, research and public-private cooperation.

Key industrial ecosystems:

- **Life Science**, ensuring European innovative capacity in upholding and developing the production of new drugs and medical equipment. Innovation is crucial for European competitiveness and autonomy in today's world but also in terms of increasing the quality of care to patients. The aim should be to scale up the innovation capacity in the European ecosystem by strengthening the framework conditions for conducting medical research and to enhance the agile transformations of business to ensure access to critical medicines and medical devices in times of crisis like with COVID-19. Likewise, there should be a specific focus on increasing the secure utilisation of health data and digital technologies through a common framework.

Green industrial ecosystems

Power-to-X, developing new ways of converting, utilizing and potentially storing clean energy, i.e. by helping establish a sound business case for large-scale production of green hydrogen. Power-to-X (PtX) technology can convert electric energy into green hydrogen and other types of fuel. PtX can enable sector-coupling and thus using low cost renewable electricity to replace gaseous and liquid fossil fuels used in other sectors where potentials for direct electrification is limited (i.e. some parts of transport and industry). There should be a specific focus on efficient energy system integration with emphasis on electrification and implementation of market rules for the internal electricity market and on developing common standards for green hydrogen and other PtX-products to enable competition and establishing a European market for these green solutions. Furthermore, the development of EU tenders for the deployment of PtX demonstration projects should be prioritised. In the longer perspective, the development of hydrogen supply hubs with surrounding industrial ecosystems should be in focus.

- **Innovative green transport technologies**, a green and further digital-developed transport sector is essential for the EU to become climate neutral by 2050. All transportation forms will have to contribute to this reduction. This should among other things be provided through European investments in and development of key infrastructure and an enhanced focus on greening land and sea transport. Concerning sea transport, an ecosystem for developing CO₂-neutral shipping should be given priority based on cooperation between public and private partners, given that sea transport is the among the most effective in terms of emissions, but due to high volume also a significant emitter.
- **Carbon Capture, Utilisation and Storage (CCUS)**, has the potential to significantly reduce “hard-to-eliminate” emissions from the greatest CO₂ emitters. The technologies are largely available today and the challenge is therefore primarily a lack of public, political and financial support in order to establish large-scale demonstration plants and storage facilities which can be scaled and made profitable. Several national measures and pilot projects have been launched, which highlight the need for greater coordination at European level to ensure consistencies and allow for synergies in reaching the reduction targets set out in the Green Deal. To ensure better coordination the Commission should adopt a strategy for the wider deployment of CCUS, including large-scale public-private projects on carbon capture plants and storage facilities to overcome the market failure. This will be especially relevant for the energy intensive industry, including steel, cement and chemical production, in which many businesses would be viable partners for large-scale European public-private projects on carbon capture plants.

Digital industrial ecosystems

- **Artificial intelligence**, boosting artificial intelligence capacities as this is key for Europe’s competitiveness and for the transition to a climate-neutral and circular economy. The EU must build on its strengths to develop the AI technology and thereby set global standards. Member states initiatives must be maximised through closer coordination as well as underpinned by world-class research and innovation. Initiatives under the Digital Europe Programme such as the creation of reference testing centres for AI as well as the Digital Innovation Hubs can support research and innovation actions for the entire ecosystem. This will contribute effectively to accelerating the digital transformation by providing access and information for SME’s, startups and public authorities on how to use data and digital technologies. In order for research and innovation initiatives to accelerate the development and uptake of AI, this must be followed up by adjusting our framework conditions aiming at building a true Single Market for data. Furthermore, such framework conditions must ensure that competitiveness and innovative solutions goes hand in hand with trustworthy and ethical AI. Furthermore, the establishment of a CERN for AI could be explored.

- **Quantum technology- and communication (QTC)**, as this cutting-edge technology can provide new business opportunities and secure European data spaces. The technology can be used to establish secure European digital infrastructure, for both private and public, by allowing information and data to be transmitted and stored ultra-securely. To enhance its development we must ensure continuously favorable conditions for research and development of QTC in Europe. In addition, the Commission should strengthen the support for QTC activities by securing funding options for the development and deployment of QTC.

Critical technologies

- **Secure 5G** – Creating a global state-of-the art European 5G ecosystem that will let Europe reap the benefits of new network technology in areas such as automatic processes within agriculture, industry, energy, health and transport, while addressing security of infrastructure and communications. An overall strategy for European development, production and deployment of secure 5G network in Europe could ensure a fast roll-out while handling the related security issues up front. To accelerate this process immediate attention must be given to supporting test, trial and demonstration projects with the involvement of both telecommunications and cybersecurity companies as well as governments.