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EU ENERGY SYSTEM TRANSFORMATION THE AGENDA FOR THE NEXT COMMISSION

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Summary

The recently agreed Clean Energy for all Europeans Package does not mark the end of the policy journey if the EU is to deliver a deeply decarbonised energy system as required by the Paris climate agreement. Member states, businesses and individuals will all need to make some hard choices – nobody expects it to be easy and significant progress will be required over the next decade. The European Commission has a critical role to play in supporting member states and European citizens on this journey. It must take the opportunity to build on the Clean Energy Package by committing to set out a **Vision 2030** for the rules and regulations that will govern the future energy system. This would describe the delivery mechanisms that will ensure progress can be sustained through 2030 and beyond towards the goal of deep decarbonisation.

This briefing proposes three priority areas for action. Firstly, there is the need to create the institutional structures that can support member states to overcome the challenges involved. A **Clean Economy Observatory** should be established with the objective of monitoring progress and learning from best practices, both across the EU and beyond, to advise member states on the opportunities available to improve their decarbonisation strategies. It would create a centre of expertise available to inform the policy actions that may be required on the journey towards deep decarbonisation.

There are already two areas where significant political obstacles to change are emerging. There is increasing evidence that economic incentives alone are not capable of triggering changes in consumer behaviour on the scale that is required without generating significant social equity concerns. There is the need to step back from the detail and undertake a broad review of the energy system from the perspective of current and future energy consumers. This review should identify the changes necessary to ensure that the energy transition is a mechanism to **improve**



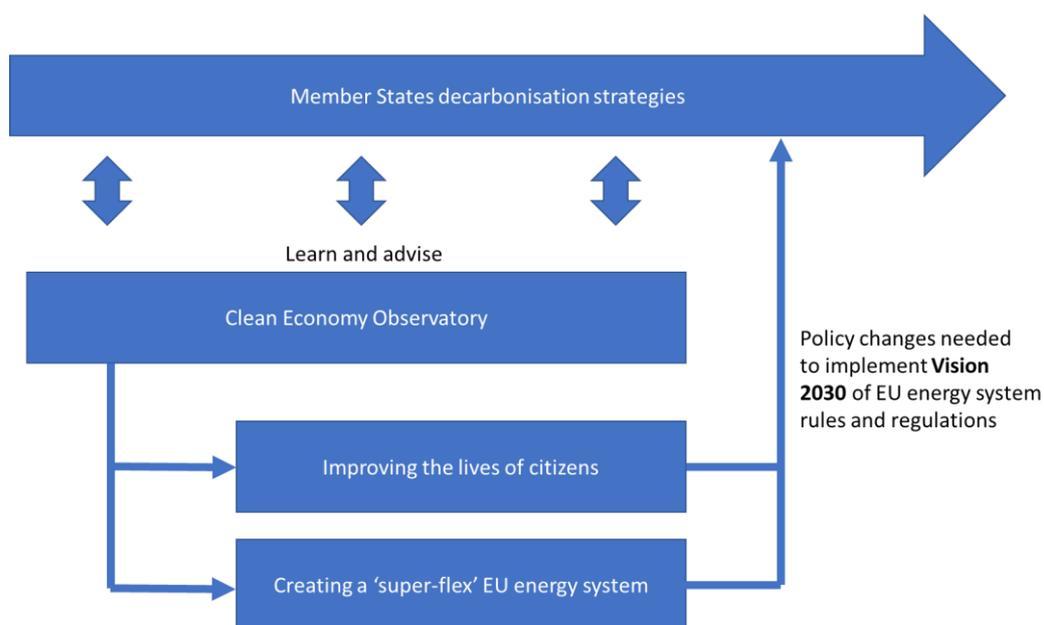
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the lives of citizens. Without such changes, the energy transition is doomed to failure.

One lesson from the Clean Energy Package is that member state governments are still not prepared to embrace large-scale trading of electricity across the continent that is managed at a regional or European level. And yet, the costs savings involved suggest that the future prosperity of European citizens is only possible in a deeply decarbonised future when such trading occurs. Moreover, the move towards decentralisation suggests that security of energy supply will increasingly depend on the dynamic operation of local grid networks. A new governance structure must be established to support the creation of a **'super-flex' EU energy system** that commands the support of member state governments and allows them to embrace the new security of supply paradigm.

The recommended approach for the Commission to support member state delivery of decarbonisation strategies is summarised in the following chart.



This paper is one of a series produced by E3G setting out priority actions for the next EU Commission and Parliament.



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Context

The 2020s must be the decade for action if the EU is to transform the energy system in a way that manages the risks of climate change and creates future security and prosperity for citizens. The extent of the changes required will be hard to deliver, both for member states, businesses and individuals. The EU must raise its game and do what it can to ensure the required momentum for change can be sustained until carbon neutrality is achieved.

Much of the political effort of the EU associated with the energy system transition has hitherto been focused on setting overall targets, including those relating to emissions of greenhouse gases, energy efficiency and the deployment of renewable energy sources. This work remains important and it will be critical to update these targets to ensure they align the transformation of the energy system with the longer-term vision for a carbon neutral economy and the obligations of the Paris climate change agreement. However, it is now necessary to go beyond consideration of the outcomes that will be required and ensure that the mechanisms are in place to support delivery of these outcomes.

The EU should set itself the goal that, by 2024, it has fully defined a **Vision 2030** for the energy system rules and regulations that will achieve and sustain deep decarbonisation. This should be based on early clarification of the level of system change must be achieved by 2030 to remain compliant with the Paris climate agreement. The energy system changes that will be required are likely to involve enhancements to the energy market and regulatory framework that build on the recently agreed Clean Energy Package. Whilst this package of measures is being implemented by member states, the EU can develop a Vision 2030 that supports and sustains the energy system transition from 2030 to the point at which climate neutrality must be reached¹.

Vision 2030 for market rules and regulations must be based on an aspirational perspective for member state governments and individual citizens alike. Indeed, unless it clearly sets out a better future, it will fail to be delivered. This briefing argues that the new European Commission should initiate three urgent strands of work to develop the vision that aligns the interests of member states and their citizens with the imperative to rapidly transform the energy system. These three dimensions are:

- > Supporting and learning from member state progress
- > Improving the lives of citizens
- > Creating a 'super-flex' EU energy system

¹ The logic behind the need for change is set out in detail in the E3G report: [Making deep decarbonisation of the energy system a reality](#). January 2019



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Supporting and learning from Member State progress

Member states will need to take a series of bold actions during the 2020's to set out on the pathway to deep decarbonisation of their economies. Whilst the technology already exists to make the changes and the economic issues can be managed, political obstacles remain that will be difficult to overcome. The EU must do what it can to support member states through this process and help them avoid political pitfalls. Implementing a mechanism to capture learning and share best practise would be extremely helpful. A **Clean Economy Observatory** should be established immediately to fulfil this function.

An EU-level **Clean Economy Observatory** that is populated with the relevant expert resource has the potential to add significant value to the efforts of member states to decarbonise their economies. A core role of the Observatory would be to monitor member state progress towards decarbonisation, including analysing National Energy and Climate Plans, and provide advice on how decarbonisation could be achieved more cheaply. This might be through, for example, making clear technology choices that will allow efficient infrastructure planning, or ensuring that maximum benefits are being derived from investments in energy efficiency. It would also consider where opportunities might exist to reduce costs through integrating actions across all energy sectors and implementing a 'whole systems' approach to infrastructure planning. This advice would be based on gathering best practise approaches to decarbonisation from across the EU and the wider international community.

Apart from providing direct advice to member states, the Observatory would also be able to advise the Commission on key aspects of policy. It would be able to find where key innovation needs exist that could be addressed with support provided through the Horizon Europe framework. It would also be able to identify areas that will suffer economically or socially from the transition and inform decisions about the allocation of EU-level funding to address these issues. The Observatory would also be well-positioned to deliver the hitherto unfulfilled recommendation of the High-Level Expert Group on Sustainable Finance to monitor the EU's sustainable finance needs and the associated capital formation to meet those needs²; revisiting this recommendation is timely given the creation of a taxonomy of sustainable activities.

Importantly, the expertise acquired within the Observatory would enable it to build the evidence base to support the need for regulatory and market measures that should be incorporated into Vision 2030. It would, therefore, provide important input into the policy-making processes to make citizens lives better and create a super-flex EU energy system that are described below.

² **Cross cutting recommendation number 3:** Whilst this would entail an expanded functionality from that envisaged by the High-Level Expert Group, there is a close alignment between the objectives of the Observatory recommended in this paper and the requirement to monitor sustainable finance needs.



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Improving the lives of citizens

Deep decarbonisation requires energy consumers (individuals and businesses) to change the amount of energy they use and the way they use it. They will not make these changes unless they recognise that it improves their lives. There is considerable evidence that economic incentives alone are not capable of triggering changes on the scale that are required without generating significant social equity concerns. It is necessary to initiate a fundamental review of the energy services market that takes the consumer perspective of the energy transition and identifies a **new consumer deal** that can sit at the heart of the Vision 2030 market and regulatory arrangements.

The recent demonstrations in France by the so-called ‘yellow vest’ movement show that it is vital to retain the consent of the population for the energy system transition and the risks that are being taken by relying too heavily on energy price incentives (e.g. carbon tax). It is necessary to think more broadly and take a fundamental look at the energy system from the perspective of the energy consumer. This review should ensure Vision 2030 enables all citizens to benefit from the energy transition as soon as possible and will need to address the following questions:

- > How to encourage companies to invest in consumer premises and what would make this proposition attractive?
- > Is there a more compelling basis for consumer protection that moves beyond the ‘switch and save’ narrative?
- > How to maintain fairness and ensure everyone benefits from the energy system transition?
- > What governance structures will allow mass deployment programmes that take advantage of local differences and allow diversity of approaches?
- > How will efficiency and demand response become reliable system resources that can offset traditional infrastructure expenditure?

This process should be informed by learnings obtained through innovations in deployment of low carbon measures, including the mission-based innovation process within Horizon Europe, along with the work of the Climate and Energy Observatory described in the previous section. The conclusions would provide a key input to the Vision 2030 market and regulatory arrangements produced in 2024.

Creating a super-flex EU energy system

Whilst other technologies will have a role to play, the ‘heavy-lifting’ of energy system decarbonisation will need to be done by deploying variable renewable power sources and the electrification of heat and transport sectors. This will create major new system balancing challenges that will require dynamic operation of local electricity grids alongside significant trading of power across the continent. This is a challenge



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for technology, markets and the overall governance of security of supply. It is necessary to initiate a process that identifies **new market and governance structures** that will allow member states to embrace resource sharing with neighbours alongside the decentralisation of the energy system and the need for active management of the power distribution network.

Sharing electricity resources between EU countries can save huge amounts of money and economic prosperity in a deeply decarbonised future will depend on it becoming the norm. However, discussions on the recently agreed Clean Energy Package show that it remains highly politically contentious. Moreover, deep decarbonisation will create additional system balancing challenges at the local level, with security of supply relying on predictable and significant demand control on the part of consumers. This will be an entirely new security of supply paradigm and member state governments will rightly need to be assured that the systems are in place to maintain the stability and integrity of the power system.

This review would be informed by the work of the Climate and Energy Observatory and will need to answer the following key questions:

- > What local power markets will allow efficient electric vehicle charging and smart heating and cooling of buildings?
- > How to efficiently plan and build new infrastructure requirements?
- > Where will resource sharing between member states deliver the largest cost benefits?
- > What are the institutions that will deliver the assurance needed by member states to confidently share resources? Who provides information? Who makes decisions? What is their incentive framework?
- > How will international institutions need to be integrated with local balancing entities to create a robust overall assurance framework?

Conclusion

There is a great deal still to do if we are to achieve a deeply decarbonised energy system. The Clean Energy Package has been an important step forward, but implementation at a national level should not delay actions that progress the journey towards decarbonisation or consideration of the potential pitfalls ahead. There is an important agenda that the European Commission must pursue to support member states as they set out on this journey.

This briefing has identified three points of focus for the new Commission. It centres around the establishment of a new institution, the Clean Economy Observatory, that is designed to accelerate progress through supporting member state actions and sharing best practise. It will create a centre of expertise that can build the expertise



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that will inform the next stages of the decarbonisation journey. The Commission should set the objective to define these next stages through describing a Vision 2030 for the rules and regulations governing the energy system.

It is already clear that potential political pitfalls lie in two key areas. The first involves the need to engage and inspire citizens with the opportunities associated with the transformation of the energy system. The second is to build a new governance framework that provides member state governments with the assurance to embrace large-scale trading of electricity across the continent alongside the active operation of local grids. These two challenges should be reviewed in depth as part of the process to develop Vision 2030.



TOWARDS A CLIMATE-NEUTRAL EU BY 2050
AN E3G SERIES

This original E3G series identifies key areas for achieving Europe's carbon neutrality objective. The series explores various sectoral analyses and policy avenues for the next European Commission's agenda to implement decarbonisation.

About E3G

E3G is an independent climate change think tank accelerating the transition to a climate safe world. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere. In 2018, for the third year running, E3G was ranked the fifth most globally influential environmental think tank.

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