

Policy brief

Towards innovation-friendly, coherent and fair energy planning

Key takeaways from the event '100% RES in all sectors by 2040? – Exchange of European NGOs and TSOs about the PAC scenario'

1. Background to the PAC Scenario and this policy brief

The PAC scenario was developed by CAN Europe and the EEB under the banner of the PAC project. The Scenario is an attempt to construct a European-wide energy scenario which is aligned with the Paris Agreement's objective to limit global warming to 1.5°C and which embodies the policy demands of civil society. In doing this, it suggests a trajectory with:

- 100% renewable energy supply by 2040
- At least 65% greenhouse gas emissions (GHGs) reductions by the year 2030
- Net-zero emissions by 2040

The PAC scenario numbers are based on desk research, as well as comparing and adopting elements of a multitude of existing studies and models. As such, the PAC scenario is a bottom-up collective research exercise. Around 150 different stakeholders from member organisations, science and industry were involved in the scenario building process through these events or bilateral exchanges.

This policy brief synthesises key takeaways from discussions that took place on November 18, 2020 as part of '100% RES in all sectors by 2040? – Exchange of European NGOs and TSOs about the PAC scenario', an event organised by the Renewables Grid Initiative to understand how the PAC Scenario is useful for the TSO community, to learn which assumptions are perceived as most challenging and to discuss opportunities on how to move forward.

2. On the benefits of the PAC scenario

Reflecting upon the TYNDP scenarios, TSOs commented that, in the past, working with ambitious scenarios had partially led to significant push-back from policy makers who doubted the benefit of working with figures which go beyond legally established targets.

The Green Deal has made clear that times to 'hide behind' the remaining 20% of an 80% decarbonisation target are over, and that the future energy system has to be 100% decarbonised. In this context, the PAC scenario is perceived as a highly informative exercise on how a full decarbonisation of all sectors and the whole of society could look like.

By targeting net zero and 100% RES in all sectors by 2040, the PAC scenario is much more ambitious than what the TYNDP introduces as scenarios compliant with the Paris Agreement and current European policies such as the RES Directive or the Energy Efficiency Directive.

By delivering a new set of assumptions and figures on how to meet the future energy demand, the PAC scenario gives additional momentum to the necessary conversation on how to decarbonise Europe and provides a new reference point and an opportunity to enter into a multi-stakeholder dialogue on how to improve while moving forward.

TSOs foresee that input based on the PAC scenario will trigger further adjustments of the proposed TYNDP scenarios when fed into the consultation process surrounding the creation of these scenarios.

3. The main points of discussion and how to move forward

3.1. Point of discussion: energy imports

The PAC scenario assumes that all energy will be produced domestically within Europe. This is partially due to geopolitical considerations – e.g. reduction of dependence from certain nations, avoidance of energy colonialism. In addition, the intention of the authors of the PAC scenario is that Europe should feel fully responsible for finding solutions instead of leaving the door open for imports of fossil or insufficiently decarbonised gases.

Today, 80% of European energy is imported. In the future, as hydrogen is expected to play a key role in decarbonising the European energy system, hydrogen demand is foreseen to increase substantially – some participants assume to levels which are significantly higher than what the PAC scenario reflects. Several participants stated that imports of electricity and hydrogen cannot simply be rejected, as Europe would not be able to produce the required volume on its own.

From an economic perspective, completely disconnecting energy supply from the world market and its prices could prove to be as much a global economic advantage as a disadvantage, depending on the energy prices that an energy independent Europe would achieve.

For some stakeholders, the idea of complete energy independence is very attractive and may encourage them to be more supportive of the energy transition as such. At

the same time, international energy trade and energy imports play an important positive role in geopolitics, e.g. by securing peace or providing the opportunity to set environmental standards and promote global decarbonisation.

3.2. Point of discussion: efficiency gains in the residential sector

The PAC scenario tries to maintain a stable level of energy services. This means buildings have to become significantly more efficient.

Reflecting upon the challenges that come along with implementing energy efficiency measures, especially in existing residential buildings, this assumption was perceived as too optimistic. Participants mentioned the principle-agent dilemma implied by the landlord-tenant relationship, where investment in energy saving measures have to be done by the landlord, but the financial benefit stays with the tenant. Furthermore, the high costs of renovation and the lack of skilled workforce were described as barriers that have, until now, hindered high theoretical potentials from materialising. It was however also pointed out that the need for such workforce is an unseized opportunity, especially in places with high unemployment rates.

Participants concluded that there is a lot of progress to be made in the heating sector, and that policy makers play an important role in steering this transition.

3.3. Agreement on how to move forward: innovation

Compliance with the Paris Agreement and the associated use of carbon budgets is a very complex issue that leaves a lot of room for manoeuvre. While TSOs noted that the PAC scenario reflects a very high speed of change, with figures across sectors being at the upper end of what they have in mind, NGOs underlined that this level of ambition is a consequence of the scenario's core objective, to comply with the Paris Agreement by meeting the 1.5° temperature target in a consistent manner.

In this context, participants agreed that technological development will be fundamental, and that there are reasons to remain optimistic based on past experiences, such as the price of solar PV dropping by a factor of five in six years. This underlines the importance of further innovation.

Many important new technologies may be beyond laboratory level, but still have to scale up and costs have to decrease. Other solutions are in earlier stages of development or probably not yet on the table at all.

Therefore, an innovation-friendly context is necessary. Existing small, medium or large industry should be provided the conditions to re-invent themselves, and new players who will have a role in the energy system of tomorrow should find suitable conditions to bring their ideas to market.

There should be a strong message to any actor who is able to innovate that innovation is needed and encouraged. Legislative and regulatory frameworks for grids, among others, need to be ‘innovated’ themselves to create the right setting.

3.4. Agreement on how to move forward: policy

Investment in new solutions – be it for green hydrogen production, for energy efficiency or in other areas – is a fundamental part of implementing the PAC scenario (and any other decarbonisation scenario). As policy guides investment, participants agree that policy has a fundamental role to play.

The Green Deal is welcomed as clearly describing the broad future direction of travel, but more policy action is required for its implementation. Policy initiatives at the EU level, such as the offshore wind strategy and the TEN-E review have to formally entail measures and actions in line with the Green Deal. Such measures and actions should be designed so that they substantially contribute to implementing the Green Deal, even when closely scrutinised. From an infrastructure perspective, a key element is avoiding lock-in effects and stranded investments.

At the national level, the National Energy and Climate Plans need to reflect the targets of the Paris Agreement. Financial support provided through national recovery and resilience plans should adhere to the long-term perspective, and support innovation and investments in our future. National policy makers need to implement progressive policies across Europe, which are suitable to create a level playing field for both existing and potential new players without favouring vested interests.

Furthermore, to move forward in policy making, an honest, transparent and deliberative discourse on currently conflicting policy goals is indispensable. To give two examples: Reducing energy consumption will require an increase in energy prices, which will in turn negatively affect poorer households. The wish to protect nature often stands in the way of necessary climate action at certain levels and vice versa.

Opinions diverged on the benefits of absence of regulation, some participants arguing that such absence may in some cases be beneficial for the development of new solutions and the emergence of new sectors. This, however, was countered by the observation that the further the development of new solutions advances, the harder it becomes to establish necessary regulation. Low levels of regulation are therefore inherently risky (the example given was the need to regulate CCS to make sure there are no carbon leaks over very extensive periods of time).

Participants agreed that in order not to ‘stumble’ from one problem to the next, it is important to recognise that we live and act in an interconnected, multi-layered system, where good governance and collaboration are fundamental.

3.5. Point of discussion: social acceptance

The PAC scenario assumes a substantial increase of all RES generation capacities. TSOs challenged this, mentioning the already substantial public push-back against new generation and grid infrastructure, which makes it very difficult to obtain the necessary permits to build.

The discussion showed that there are no ‘easy’ solutions to this issue. The suggestion to go offshore, if public opposition hinders onshore wind development, does not factor in the high sensitivity of the maritime environment, which also needs to be protected. The suggestion to prioritise climate protection over nature protection in a more consistent manner neglects the fact that, from an existential perspective, the biodiversity crisis is as large as the climate crisis – even though it currently receives less attention.

With the Strategic Environmental Assessment and the Environmental Impact Assessment, two strong tools are available to find solutions for both nature and new generation capacities. Therefore, the response to societal pushback cannot be to go somewhere else or to avoid engagement, but must be to diligently use the available tools to find balanced solutions and increase the efforts to bring society along.

3.6. Agreement on how to move forward: trust and capacity building at the local level and a just transition

As avoidance is not an option, the response to societal concerns needs to be a massive exercise of building trust and capacity ‘at the local level’. This will help people understand that we are dealing with a multi-layered and interconnected system, where a problem is not fixed if it is moved out of sight. It should also sensitise the public to the urgency of action, i.e. to recognise that we cannot continue on as we are, and promote an attitude of awareness. We do not yet have a fix for all problems, we therefore need to dare to experiment to be able to move forward. Similar to the COVID-19 health crisis, people must learn to recognise that we live in an emergency situation where the habits of daily life might be curtailed in the interest of something more important: preserving lives, preserving health and acting in the interest of the entire society and the global commons in terms of solidarity mechanisms.

The concept of a ‘Just Transition’ was mentioned as fundamental in this context. It must encompass not only those who are most and directly impacted in the short term (such as workers from the coal industry) but many others, from the steel or car industry to tourism, agriculture and local communities, to name a few. Both an honest exchange about the challenges for different parts of society and an active search for new opportunities will be indispensable for winning social support, including by those who first and foremost see the risk of the upcoming changes.

3.7. The overarching importance of talking to each other and collaboration

There are municipalities, small and large businesses, farmers, cities, citizens; there are academics, practitioners, policy makers; there are experts on climate, housing, transport, agriculture, industrial processes, geopolitics and many more, who all want to move forward and are working on and implementing ideas to do so.

Recognising the complexity and multiple facets of the challenge at hand, participants agree that reaching beyond their own peer-group and the well-known patterns of engagement is vital and makes a real difference.

An intra-societal exchange across constituencies is needed, in order to bring ideas and plans together and to understand how these can be aligned and used to inform policy makers. Initiatives that provide a space for exchange of unlikely conversation partners should therefore be supported.

For example, in a context where EU processes move slower than is desirable, coalitions of action that operate bottom-up, such as grassroots initiatives, can provide important momentum to push national governments to move in the right direction and should be fostered and supported accordingly.

Last but not least, going beyond the established sphere has to include reaching out to those who are trying to preserve the status quo. Permanent interaction with those who oppose is not easy, but is still the most promising way to identify common ground and to move forward.

4. Conclusion

Against the backdrop of constantly rising costs for climate change adaptation, it is becoming increasingly important for policy makers to be able to estimate the costs of a rapid European decarbonisation.

The Climate Action Network Europe and the European Environmental Bureau have developed the PAC scenario, because they assess that the currently available official European Energy Planning scenarios, including, but not limited to the TYNDP scenarios, are insufficient to meet the targets of the Paris Agreement in a consistent and plausible manner, backed by knowledge from climate and other sciences. This includes that other scenarios currently leave the task of removing large amounts of CO₂ from the atmosphere to future generations, which will already have to contend with the effects of climate change and the loss of biodiversity.

Over the course of the PAC project, it became clear that an overall optimisation of the energy supply system has not been done to a sufficient extent. The European Network of Transmission System Operators is doing an excellent job within its remit, but from the point of view of civil society, scenarios should look for a welfare optimum that includes environmental compatibility and intergenerational justice. Politicians are called upon to find a structure in which the rather technical view of the grid operators is complemented by social and environmental perspectives.

In this context, the PAC scenario shows how a consistent implementation of the Paris Agreement could look, and, for the first time, provides a basis for estimating the feasibility and costs of rapid decarbonisation.

TSOs perceive the PAC scenario as an important impulse and contribution to the conversation on what is needed on the way towards a decarbonised European energy sector.

Four main points were highlighted as important to focus on:

- 1) An environment fostering innovation for existing and future industries and businesses.
- 2) Suitable policy, a systemic approach to policy to ensure coherence and good governance.
- 3) Dedicated action to bring society and especially local populations on board, and special attention to the just transition.
- 4) Exchange and collaboration between different parts of society to provide balanced propositions on concrete next steps for the above points.

The PAC project itself has created a space for such an engagement. Important conversations have only started. The project aims at continuing to offer a platform for exchange and joint learning on a variety of levels:

Clearly, the cross-sectoral and cross-societal exchange which has been started needs to continue. The first phase of the PAC project has shown that many energy system actors already follow detailed decarbonisation strategies or are working on developing them. To move forward, the exchange of expectations and ideas of different actors is indispensable. Different propositions need to be looked at and assessed together to identify opportunities for joint solutions, in the technical, societal and environmental spheres. The involvement of large consumers (e.g., industry, regions, cities, ports, airports and grid operators) should be intensified to duly consider their future role in the pan-European energy system planning.

Insights of these exchanges shall be shared with EU policy making and grid planning institutions. In addition, activating national level NGO capacities and discussions with decision-makers and energy system actors should increase the common understanding on what is needed to move forward on the Member State level.

Finally, the PAC project is a global pioneer for the involvement of civil society in the transformation of energy supply and, as such, is an opportunity to share new European approaches with actors involved in the decarbonisation effort around the world. The experiences from the project should therefore become international impulses and inform the steps needed to make halting climate change a global social task.

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For more information about the PAC project, see <https://www.pac-scenarios.eu>.

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