To: Commissioner Kadri Simson, DG ENER Director-General Ditte Juul Jørgensen, ENTSO-E, ENTSOG, ITRE Committee Chair and ACER

Brussels, 10 February 2020

TYNDP scenarios need to become Paris-Agreement and EU Green Deal truly compatible

Dear Commissioner,
Dear Director General,

We are writing to you on behalf of the European Environmental Bureau (EEB), and Climate Action Network (CAN) Europe, two leading NGO coalitions fighting dangerous climate change with each more than 150 member organisations, representing more than 40 million citizens. Since December 2018, EEB and CAN Europe have been working on a Paris Agreement compatible scenario for European energy infrastructure under the PAC project. Under this collaboration, a regular exchange with ENTSO-E and ENTSOG has allowed civil society to engage in the TYNDP process.

While we welcome the progress of the ENTSOs in view of stakeholder engagement and their willingness to include a carbon budget into their modelling, we are very concerned about the current set of scenarios. These scenarios do not suggest realistic pathways to reach the Paris Agreement's 1.5°C target. They are neither in line with the promises of the **European Green Deal** nor with a net zero emissions Europe in 2050:

- **Renewable energy uptake** and **energy efficiency progress** are limited while all scenarios presuppose a high level of fossil gas demand. This locks the EU on a high level of emissions.
- Due to this high level of emissions, the scenarios foresee important efforts for carbon removals after 2050, betting on **large-scale deployment of uncertain technologies** such as Carbon Capture and Storage (CCS), BioEnergy with Carbon Capture and Storage (BECCS), Direct Air Capture (DAC).
- All scenarios project a strong uptake of biomethane, synthetic methane, hydrogen and other so-called decarbonised gases, despite the **lack of a sound assessment of their costs and sustainability**.
- Given the dominant role of gaseous energy carriers, benefits of **sector integration** are barely explored. The scenarios show **little variation**, neglect **demand side alternatives** and do neither cover the distribution grid level nor the potentials of district heating.[1]

[1] For a detailed assessment of the TYNDP's shortcomings, please refer to the attached annex and to the EEB's and CAN Europe's submissions to the ENTSOs' consultation on the TYNDP 2020 scenarios.

Against this backdrop, we urge you, before the preparation of the 5th PCI list, to:

- work with the ENTSOs to **align TYNDP scenarios with the EU's climate and energy ambition** and avoid contradictions with the Commission's own Long-term strategic vision published in 2018.
- improve the TYNDP methodology towards a **cross-sectoral optimisation of supply, demand and infrastructure options** to identify the most cost-efficient solutions on an open source modelling base.
- include at least one ambitious scenario into the set of TYNDP scenarios, entailing i.a. a **100% renewable energy pathway**.

As civil society organisations, we are willing to help improving the selection of Europe's energy infrastructure needed for a swift transition towards a 100% renewable energy supply. If the TYNDP process continues to foster the use of environmentally questionable technologies and fossil fuels, we risk not only stranded assets. Consumers might have to bear higher costs and social acceptance for necessary investments in energy infrastructure generally is jeopardised.

We remain at your disposal for further exchanges. In view of sharing the vision of the civil society on energy scenarios, we would welcome an opportunity to present our work on a Paris Agreement compatible scenario for energy infrastructure.

Yours sincerely,

Jeremy Wates
Secretary General
European Environmental Bureau

Wendel Trio
Director
Climate Action Network Europe

ANNEX: Make TYNDP scenarios consistent and compatible with the Paris Agreement

Background

On 25 November 2019, the grid operators (ENTSO-E and ENTSOG) published their joint Scenario Report for the Ten-Years Network Development Plan (TYNDP) 2020. This report belongs to the biennial exercise from the legal requirement under regulation (EU) 347/2013 and paves the way for the future gas and electricity grid infrastructure. This plan must ensure the deployment of an infrastructure to support **secure, sustainable and competitive energy**. In order to assess the need for grid deployment, the report develops three energy scenarios: 'National Trends', 'Global Ambition' and 'Distributed Energy'.

Compared with the previous scenario consultation, this edition encompasses for the first time a carbon budget approach to the scenario modelling. The EEB and CAN Europe welcome this inclusion as a guide for limiting overall greenhouse gases emissions. The joint approach on scenario building by both gas- and electricity network operators is also a positive first step on the way to sector integration, with further synergies between gas and electricity in the future. Another positive initiative is the development of an online data platform, as an important step forward in terms of transparency and data availability, which provides an indispensable tool to navigate through the grid and energy modelling.

However, this 2020 edition still lacks ambition, especially with regard to emission reductions and the share of renewables. The compatibility with the Paris Agreement and timely climate neutrality is not ensured, while the whole system relies on broad deployment of technologies with uncertain potential and sustainability concerns such as hydrogen, carbon capture and storage (CCS) or biogas. This TYNDP seems to focus more on slow and gradual transformation anchored in the status quo than present fully convincing transformative pathways to carbon neutral grids and hence **fails to demonstrate long-term viability, sustainability and security**.

Our concerns

Carbon emissions and sinks: a risky gamble

The current carbon budget approach is not sufficient to match the Paris Agreement 1.5°C target in the long-term, and, with the current design, could not be considered a 'one-size fits all' solution to tackle greenhouse gases emissions. At this time, all three TYNDP 2020 scenarios still rely on substantial shares of fossil fuels until 2040-2050, which will not be compatible with reaching a timely carbon neutrality as developed in the IPCC 1.5°C report. The current carbon budget based on per capita distribution is also excessively high because of the absence of equity-based dimension, where historic emissions would have been considered. In addition, to offset fossil-fuel induced emissions, the TYNDP scenarios depend on broad deployment of **technologies with uncertain potential** such as **carbon capture and storage (CCS), bioenergy with carbon capture and storage (BECCS),** or **direct air capture (DAC).** Issues such as technical practicability and geological

possibilities (for CCS), costs and cost-effectiveness, financing possibilities, and environmental risks are not fully factored into the vision for these solutions.

Therefore, with the inability for the TYNDP scenarios to swiftly transition away from fossil fuels and the high confidence placed in hypothetical and currently uncertain solutions, the TYNDP implicitly places the **burden of climate change mitigation on future generations**, with a risk of further technology lock-in and belated climate action, and missed opportunities for transformative innovation.

A faith placed in uncertain solutions…

Additionally, the deployment of large-scale low-carbon generation still relies on technologies with **very limited sustainable potential** such as **solid biomass, liquid biofuels or biomethane**. Given the major concerns on the environmental and land-use impacts of biomass and lessons from the mistakes made with the biofuels policies, we cannot consider biomass and waste as a secure, sustainable and competitive energy source. Biomass will be requested as a feedstock for materials and will be used in a more circular way. The limited available amount of biomethane in the future thus is not compatible with the high amount presented in the TYNDP scenarios. In the future, waste should be reduced, and remaining bio resources will need to be used in priority for a local and circular economy.

Also, the broad development of hydrogen-based solutions is based on questionable economic viability, with a high risk of fossil gas technology lock-in in the absence of technological uptake and absorption of high levels of public finance that could be targeted more cost-effectively at other solutions.

… and a failure to embrace the technology revolution

The cost for solar power fell almost fivefold and the cost for wind was halved in the last decade, a first for energy production. New wind and solar plants are now in many countries cheaper than any other new-build power technology and similar savings are forecast for batteries and electric vehicles. New business models of sharing and decentralised production of energy and promise to revolutionise households, heavy industry, manufacturing and services.

Yet, the TYNDP 2020 does not seem to believe in the energy revolution. TYNDP scenarios reach a maximum share of 40% variable renewables in 2030 and 55% in 2040. Even the most 'prosumers-oriented' scenario, the Distributed Energy scenario, shows a surprisingly low share of solar electricity. In the same scenario, wind energy shows relatively modest potential – although we notice the increase compared with the previous TYNDP.

Given the dominant role of gaseous energy carriers on the supply side, TYNDP 2020 scenarios do tend to neglect demand side alternatives. There is no proper comparison of the broad range of flexibility options such as ancillary services provided by renewables, flexible renewable generation through virtual power plants, demand response, storage technologies for heat and electricity (not only gas), in particular in connection with district heating networks. The ENTSOs' modelling neither explores how transmission grids could be eased by

better matching supply and demand on the distribution grid level. A holistic assessment of the benefits of sector integration is still missing. The TYNDP report's own benchmarking shows that the assumptions on market penetration of electric heat pumps are rather conservative. With less gaseous energy carriers and less fossil gas, the effort of decarbonising the gas sector would potentially be less challenging and less cost intensive.

Little variation in scenarios leads to little choice

The little variations in the three TYNDP 2020 scenarios do not offer policy makers a sufficient range of possible solutions. All three scenarios rely on high shares of fossil gas, show little difference in the rather modest renewable energy growth rates and keep an almost identical share of nuclear power in the electricity mix. All three scenarios expect important carbon removals with the help of CCS, an increase in bioenergy use as well as (fossil and/or non-fossil and/or so-called decarbonised) gas imports. In addition, there is almost no difference in emissions neither in reduction pathways presented in the three scenarios. The carbon price as the main lever for modelling future investments remains weak because postponing important emission reductions beyond 2050 reduces the pressure on carbon markets. Societal costs of carbon are not even internalised in the carbon price.
In order to anticipate necessary emission reductions in view of the 1.5°C target, at least one TYNDP storyline should deviate from the consensus and assess a potentially 100% renewable energy supply, focussing on proven technologies that are already introduced in European markets.

Summary

The TYNDP 2020 scenario set does not include a scenario that is able to demonstrate a Paris-Agreement-compatible pathway, to respond to the promises of the European Green Deal, the Commitment by the Council for carbon neutral Europe by 2050, and the recognition of the European Parliament of the climate crisis. There is no scenario that is sufficiently ambitious and transformative, it underplays the potential of a true renewable revolution that is needed and embraces solutions that are risky and unlikely to deliver.

We therefore call for substantial improvements of the TYNDP 2020 scenarios:

- A **more ambitious GHG reduction** pathway, considering earlier climate neutrality and relying on sustainable, reliable and scalable solutions for potential carbon removal.
- A comprehensive assessment of the **scenarios' sustainability**, including environmental assessment, resource availability and technology uncertainties – with particular focus on biomass, CCS, and so-called 'decarbonised gases'. Methodology should analyse all options in a cross-sectoral optimisation, comparing sources of energy supply, demand and infrastructure in view of reaching the 1.5°C target.
- A more thorough analysis of the real **technical, sustainable, cost-effective and financeable potential** for CCS, nuclear power and so-called 'decarbonised gases'.
- Allow for more variation in scenarios with a **fully renewable scenario**, based on 100% renewable energy penetration and increased flexibility, both at centralised and decentralised level, with updated and validated cost assumptions.