

RED III

EEB Policy Brief



Taking the Paris Agreement Compatible (PAC)
energy scenario to the next level



Paris Agreement Compatible
Scenarios for Energy Infrastructure

EEB Policy Brief: Taking the Paris Agreement Compatible (PAC) energy scenario to the next level: the revision of the Renewable Energy Directive (RED III) as a key milestone towards a 100% renewable grid ¹

1. The problem - The alarm bells of the climate and environmental crises are ringing, and our climate action is not enough

The latest climate science is unequivocal. The planet is warming up faster than foreseen and GHG concentrations keep rising despite the economic downturn and disruptions due to the Covid pandemic. According to the [IPCC 6th Report on Climate](#) published on 7 August 2021, **global warming of both 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in CO₂ and other Greenhouse Gas emissions occur in the coming decades.** The report reaffirms with high confidence the finding of the 5th Report on Global Warming 1.5 published in 2018, that there is a near-linear relationship between cumulative anthropogenic CO₂ emissions and the global warming they cause. It explicitly states that every ton of CO₂ emissions adds to global warming, sending a clear message to all policymakers.

The energy sector is in the spotlight, not only because it is one of the main drivers of GHG emissions but also as a harmful pollution source. The World Health Organization released [new guidelines for air quality](#) for the first time since 2005. Since then, scientific knowledge has improved with more precise methods in measurements, modelling and exposure assessment methods. As a result, the evidence of impacts of pollution on human health including respiratory diseases, cancers, early onset dementia, lower birth weights and cranial capacities is now unequivocal, and it has led to lowering the levels of key particles (i.e. nitrogen dioxide, fine particulate matter) beyond which air quality is proven harmful to human health. The update marks an important official recognition that these pollutants are dangerous at much lower levels than understood two decades ago.

It is of vital importance to address the harm that air pollution causes. Every year, exposure to air pollution is estimated to cause 7 million premature deaths globally and around 400 thousand in Europe. WHO has assessed the potential health gains from improved annual ambient particulate matter concentrations: if the air quality guidelines levels were achieved around 80% of deaths related to PM_{2.5} could be avoided. Improved energy efficiency and energy savings, as well as greater use of cleaner renewable sources of energy would also lead to tangible reductions of air pollutants such as SO₂, NO_x, and PM_{2.5}. Renewable energy sources (such as wind and solar) help to improve air quality and human health by supplying electricity or heat without combustion. Other forms of energy sources, such as biomass, that need combustion and are currently defined as “renewable”, such as bioenergy, entail wider sustainability issues and therefore cannot be regarded as “fully” sustainable. Consequently, technologies such as wind power, solar PV electricity, geothermal energy, heat pumps or solar thermal energy are most effective at cutting air pollutant emissions. RED III is therefore an important potential policy lever to not only mitigate climate change, but also to very significantly reduce risks to human health and help avoid lives being lost.

Tackling the energy transition and achieving a 100% renewable energy sources (RES)-based energy system is key to solving the climate crisis. According to data released by the [European Environmental](#)

¹ Disclaimer note: The Policy Brief has been developed in the context of grant 2021_PAC 2.0_CLIM_GOV_DE_BMWi_RGI supported by BMWi. The EEB Policy Brief should not be taken to reflect the views of the funder or partners.

Agency, energy accounts for 71% of total greenhouse gas (GHG) emissions in the European Union ². In its report “Global Renewables Outlook: Energy transformation 2050”, the International Renewable Energy Agency (IRENA) provides an extensive analysis on what a net zero energy system would look like. It also shows that current commitments would globally lead to an increase of 2.5°C, far from the 1.5°C committed under the Paris Agreement. In a complementary report on renewable energy costs, IRENA already identifies renewables as the lowest cost technology in most locations globally, as their costs have fallen sharply (i.e. a cost reduction of 85% for utility-scale solar photovoltaics between 2010 and 2020).

Climate policies have started to react to this context, especially in the European Union. On 14 July 2021, the European Commission adopted the “Fit for 55” Package which will review the climate and energy regulatory framework for 2030 and enable the EU to implement the “-55% net” GHG emissions reduction target compared to 1990 levels. The target was enshrined in the European Climate Law in 2021, together with the binding target of climate neutrality to be reached by the EU by 2050. Both the European Climate Law and the new GHG target had been announced in the European Green Deal in December 2019. However, a 55% net emissions reductions target by 2030 is not in line with the 1.5C climate trajectory – at least a 65% net emissions reduction is needed. The package contains a set of interconnected legislative proposals which will be key to set out the policy, regulatory and financial instruments that will shape the EU’s energy system of this decade and beyond.

A fundamental instrument to decarbonise the energy system by 2050 is energy savings. It is also an essential path to matching energy supply and demand. The “Fit for 55” package includes a revision of the Energy Efficiency Directive that increases the current targets for reduction of energy demand by 2030 up to -39% for primary energy and -36% for final. The revision puts emphasis on the exemplary role of public buildings and includes enhanced provisions towards reducing energy consumption in heating and cooling. However, even with this review, the policy effort falls short of what is needed: under our PAC scenario, energy consumption needs to be reduced by 45% by 2030 in comparison to the PRIMES 2007 reference scenario to achieve climate neutrality in 2050.

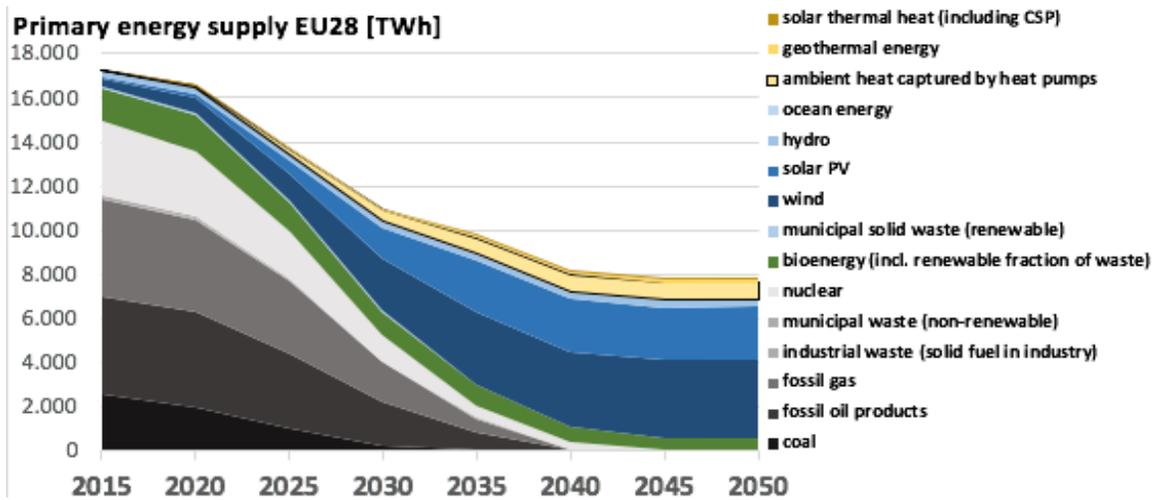
Among the proposed policies under the “Fit for 55” package, **the revision of the Renewable Energy Directive (RED III) is the key policy initiative to enable the transition to a 100% renewable energy grid.** In this policy brief, we will use the results from the Paris Agreement Compatible (PAC) scenario, developed by the EEB and CAN Europe, to benchmark the provisions of the proposed revised Directive. **As we will show, there are significant improvements that need to be made in RED III legal text proposed by the European Commission for it to be aligned with the 1.5°C objective of the Paris Agreement.**

2. The solution(s) - We need to invest in our future: decarbonisation & depollution

The EEB and CAN Europe worked together with industry, academics and energy experts to develop a **robust pathway for the EU towards net-zero emissions by 2040 in line with the Paris Agreement’s objective of limiting temperature rise to 1.5°C**, known as the **Paris Agreement Compatible (PAC) scenario**. The PAC scenario results draw a clear conclusion: we do not need to wait for a technological miracle or use polluting technologies as a bridge: a direct switch from fossil fuels to renewables is possible when combined with enhanced energy efficiency and circularity, and it is the way suggested by civil society to keep temperature increase below 1.5°C. However, political will at EU and national level is missing and, therefore, there is strong resistance to adopt the needed legislative and regulatory instruments to get society on the

² The figure is taken from EEA Sectoral shares in EU-27 in 2019 when combining the figures for energy supply, domestic transport and industry.

right track. In this policy brief, we show what is missing in RED III using PAC results as a benchmark. The results are summarised in the following chart:



The PAC scenario shows cutting energy demand in half and building a 100% renewable energy system by 2040 is possible.

Overall, PAC scenario results outline the following **needed changes in the EU energy system to achieve climate neutrality**:

- A **mobilisation of energy savings** potentials through accelerating deep renovation of buildings and a modernisation of industrial production processes. The increase of energy efficiency in transport will also contribute. This leads to halving the EU's energy demand between 2015 and 2050.
- A **swift ramping up of domestic renewable energy use**, with solar PV and wind energy for electricity production. Renewable electricity generation triples during the decade from 2020 to 2030. This leads to renewables covering 50% of gross final energy consumption in 2030 and 100% in 2040.
- An **electrification of industrial processes, heating and transport**, based on renewable electricity. Heat pumps and electric vehicles are key technologies that will progressively dominate buildings and road transport in the 2030s.
- A **quick phase-out of fossil fuels**, starting with coal mostly disappearing from the mix in 2030, fossil gas by 2035 and fossil oil products by 2040. Most nuclear power plants also will be closed by 2040.
- A **limited role for non-fossil gases** and fuels which are based exclusively on renewable hydrogen. These synthetic gases and fuels produced through electrolysis are essential for decarbonising industry and aviation, besides a smaller and declining contribution of sustainably sourced biogas and biomethane.

Additionally, to achieve the PAC scenario, further **changes beyond the energy system** need to take place. Policy coherence across the European Green Deal objectives of climate neutrality, biodiversity protection, zero pollution and circular economy needs to be ensured. This entails, but is not limited to, the following regulatory changes:

- A **mobilisation of financial resources** from the Recovery and Resilience Facility, the Just Transition Mechanism and Social Climate Fund targeted at vulnerable communities that will be the most impacted by the energy transition, including employment reallocations in coal-dependent areas.

- **Granting the necessary permits** for land use for wind and solar power plants in reasonable time, while ensuring that no plant is placed in naturally protected areas, focusing only on locations where no disruption is made to natural ecosystems or vulnerable communities.
- Ensuring that renewable energy projects are **eligible under state aid rules** to avoid delays in project planning and fast roll-out of the needed capacity.
- Establishing **controls** to ensure that the **materials** used in renewable energy power plants are as sustainable as possible and are in full compliance with due diligence.
- Making use of the potential of **Green Public Procurement** as a key leverage to upscale demand for renewable power.

This policy brief focuses on how can RED III contribute to the achievement of the needed decarbonisation of the energy system while ensuring biodiversity protection, zero pollution, circularity in the use of resources and ensuring that no one is left behind or charged with an unfair burden of the transition. The specific changes needed in the Directive are discussed in the next section.

3. The policies - Benchmarking RED III with PAC scenario

This section compares the proposed measures under RED III to the [PAC scenario results](#). Overall and as a summary, a set of **overarching policy targets**³ needed to achieve climate neutrality is analysed:

- **Climate neutrality to be reached by the EU by 2040**
- **A 65% GHG emissions reductions on 1990 levels by 2030**
- **A 2030 renewable energy target of 50% in final energy consumption**
- **A 2030 energy efficiency target of 45%**
- **An EU-wide coal phase out by 2030**
- **An EU-wide gas phase out by 2035**
- **An EU-wide phase out of fossil oil products by 2040**
- **Most nuclear power plants to be closed by 2040**
- **An EU-wide phase out for the sale of Internal Combustion Engines (ICE) cars, no later than 2035**

The RED III proposal is one of the key instruments of the “Fit for 55” package that can contribute to achieving the PAC energy scenario. The proposal introduces some **new elements** compared to the previous Directive, such as a **new and increased EU renewable energy target of 40% by 2030** as well as **dedicated sectoral measures** for heating and cooling, buildings, industry, transport and bioenergy.

The PAC results have been used to provide a **benchmarking exercise that compares what is needed to change in the current RED III proposal for the EU to stay below the Paris .5°C goal**. It does so by analysing sections of the proposed legal text in relation to the results of the PAC scenario. In the paragraphs below an overview of this analysis is provided.

RED III scope. The benchmarking exercise begins by referring to the scope of the proposed RED III. **Low carbon fuels and negative emission technologies should not be considered as renewable energies** and therefore should not be included in the scope of the Directive. For the case of negative emission technologies such as Carbon Capture Storage and Use (CCS/CCU), an additional problem arises in the form of lack of commercial viability, due to the high energy needed to capture a unit of carbon: According to the

³ These objectives are taken from EEB (2021): “EEB’s main asks for the Fit for 55 Package: A Package fit for the planet and fair to society”, available in this link.

MEDEAS model, the energy return of investment (EROI) of a conventional coal-fired power station decreases dramatically when CCS is included ⁴. Including such technologies only worsens pollution associated to power generation by requiring those power stations to use more coal to generate the same amount of energy. Instead of placing temporary solutions that further lock-in CO₂ (which also applied to low carbon fuels), **RED III must focus its scope on the solutions that already exist today: renewable energy sources (RES).**

RES penetration 2030 target. PAC scenario results also show that a fast penetration of RES in the EU energy system is needed to stay below a 1.5°C temperature increase. **A fully RES-based final energy consumption by 2040, reaching at least 50% by 2030, is required.** The EU targets for renewable energy foreseen in the RED III proposal, even if significantly higher than in RED II, still fall short of this objective. Additionally, the target is set binding only at EU level, while remaining only indicative at sectoral and national levels. A fast rollout of renewables cannot be achieved if targets cannot be properly enforced.

Industry, buildings and energy efficiency. The benchmarking exercise also features dedicated figures for key sectors addressed in the RED III proposal. For heating & cooling, an electrification of end uses driven by a **rapid introduction of heat pumps and a parallel phase-out of gas boilers is needed.** Specifically, heat pumps should become the dominant technology in residential heating & cooling by 2040, with segments of low and middle-energy consuming industries also electrified with that solution. For the case of buildings, an increase in the amount and depth of renovations of public and private buildings up to a **3% annual renovation rate** is required. Further integration with energy efficiency policies (i.e. EED and Energy Performance of Buildings Directive, EPBD) is key in both sectors, as well as untapping the potential of **district heating.**

Transport is a particularly challenging sector. **PAC scenario results show that a fully electrified private car fleet in the EU should be in place by 2040.** An EU-wide phase-out date for the sale of new internal combustion engine (ICE) cars should be set for no later than 2035, or at the earliest date in which electric cars become widely accessible and affordable. Modal shift also needs to be encouraged and incentivised. For sectors where zero carbon solutions do not yet exist (i.e. aviation), the use of synthetic fuels is preferred to biofuels, as the latter pose higher environmental concerns. Unfortunately, the targets and provisions set in the RED III proposal are not stringent enough to avoid that non-renewable energy sources are introduced under the definition of RFNBOs (renewable fuels of non-biological origin). The same applies to industry, where targets are set for RFNBOs when they should be set on RES penetration and electrification of end uses. The RFNBOs definition risks allowing the so-called low-carbon solutions, which are not entirely renewable, to uptake in the market and further lock the energy grid in CO₂.

Bioenergy and hydropower. Even if it made up about 65% of the EU's renewable energy use in 2020, the biodiversity impacts and forestry loss effects of bioenergy require that **its use by 2050 is redirected and strictly limited to hard-to-decarbonise sectors**, including the **banning of bioenergy with CCS (known as BECCS)** and the adoption of strict sustainability criteria for biomass ⁵. As for hydropower, PAC results indicate that no new plants should be constructed from 2020 onwards, and that therefore the share of hydropower in the total energy supply has to remain relatively constant by 2050. Finally, for the case of e-fuels, its use is recommended only as a last resource for aviation and only under the condition that they are obtained fully from renewables.

The complete analysis is provided in the table starting in the next page:

⁴ More information in [this article](#) by EEB.

⁵ More information in EEB paper "[Burnable Carbon - What is still burnable in a circular, cascading, low carbon economy?](#)"

	PAC SCENARIO ⁶	Commission's proposal	What we need to get to PAC 100% renewables by 2040	What needs to be removed/improved/introduced in the current RED III proposal
RED III Scope	Energy decarbonisation in the PAC scenario relies on all available renewable energy sources (i.e. wind, solar, hydro, geothermal...) and does not consider carbon capture and storage (CCS/CCU) given their high costs and limited potential.	In general, COM proposal on RED II review still relies on low-carbon or CCS when other renewables-based more competitive solutions already exist	<p>Prioritise energy sources that do not further lock in GHG emissions, focusing on renewables that are already the most competitive option (solar, wind)</p> <p>Low carbon fuels and CCS/CCU should not be part of the RED scope, as they are not renewable energy solutions. For the particular case of CCS/CCU, there is no economic rationale to justify further investment as these technologies are far from commercial and technical viability</p>	<p>Remove: CCS/CCU technologies have to remain out of REDIII</p> <p>Remove: Fossil fuel-based technologies (i.e. low-carbon fuels) have to remain out of REDIII</p>
RENEWABLE ENERGY TARGET	100% of renewable energy in final energy consumption by 2040, which requires at least 50% by 2030	40% of renewable energy in final consumption by 2030 (binding at EU level + Governance mechanism for Member States in their National Energy and Climate Plans NECPs), which means doubling RES penetration in energy mix over a decade (2022-2030)	<p>Increase 2030 renewable energy target at least by 10%</p> <p>Introduce sectoral renewable energy targets in industry, heating and transport</p> <p>Reintroduce national binding targets</p>	<p>Improve: Increase by 10% of the current EU targets for RES both in primary and final energy consumption, to match 50% of RES penetration in both of them by 2030</p> <p>Introduce: National binding targets; Sectoral targets in industry, heating and transport</p>
HEATING & COOLING	<p>High heat pump uptake</p> <p>100% of renewable energy in final energy consumption by 2040 requires heat pumps providing 50% of heating and cooling demand (increase by 6% by 2040)</p>	<p>At least 1.1 percentage points annual increase (binding)</p> <p>Indicative top-ups for each Member State</p> <p>2.2 percentage points in district heating (indicative)</p>	<p>Heat pumps need to play a larger role in phasing out fossil fuel boilers in district heating and low-mid grade industrial heat, without using expensive renewable hydrogen solutions</p> <p>In general, a combined approach between renewable energy and energy efficiency has to be included in the Directive, while keeping wider environmental impacts in check</p> <p>National heating decarbonisation plans must be required to Member States</p>	<p>Remove: Indicative targets. All of them must be mandatory for Member States and enforceable in practice</p> <p>Improve: Revision of RES shares per Member State in heating and cooling in Annex 1a for heat pumps to provide 50% of the overall demand by 2040</p> <p>Improve: Support schemes should be targeted to direct and energy-efficient electrification of heating and cooling</p> <p>Introduce: Phase-out of gas boilers and heaters</p>
BUILDINGS	3% annual renovation rate, expansion of heat pumps and district heating, ambient heat	49% RES share (indicative), promotion of renewables-based self-consumption, exemplary role of public buildings, certificates of origin for renewable energy in buildings	Further references to the key role of deep renovations in all building types (public and private) need to be introduced. Additionally, heat	Introduce: References to the need of increasing the amount and depth of renovations on both public and private buildings, with a focus on district heating promotion

⁶ **Further links:** [EEB-Hydrogen-Position-Paper](#), [EEB Burnable Carbon: What is still burnable in a circular cascading low carbon economy](#), [No more new hydropower in Europe: a Manifesto](#), [Fossil Gas Phase Out Manifesto](#)

	PAC SCENARIO ⁶	Commission's proposal	What we need to get to PAC 100% renewables by 2040	What needs to be removed/improved/introduced in the current RED III proposal
	becomes 2 nd energy source in buildings by 2035 with phase-out of solid biomass by 2040		pumps and district heating need to be flagged as key solutions to reduce the total energy demand and to electrify the energy supply in buildings	<p>Improve: RES share target must be binding</p> <p>Improve: Military buildings exemption is too broad. These buildings have to be considered public and therefore part of the building renovation targets</p>
TRANSPORT	<p>Fully electrified private car fleet by 2040</p> <p>Shipping covered by different sources (electricity for short distance, RES H2 for mid and RES H2 + Ammonia for long)</p> <p>Liquid synthetic fuels for aviation</p> <p>Biofuels demand needs to halve by 2040</p>	<p>13% reduction of GHG intensity of transport fuels by 2030</p> <p>2.2% sub-target for advanced biofuels and biogas</p> <p>2.6% sub-target for RFNBOs (renewable Fuels of Non-Biological Origin, i.e. Hydrogen)</p>	<p>Policy efforts in transport must be bold to achieve decarbonisation. For this to take place, full electrification of the private car fleet in the EU needs to be completed by 2040</p> <p>An EU-wide phase-out date for the sale of new internal combustion engine (ICE) cars should be set for no later than 2035, or at the earliest date in which electric cars become widely accessible</p> <p>For aviation, liquid synthetic fuels are preferable to advanced biofuels</p>	<p>Remove: Sub-target on biogas. This technology can only be used as last resource for hard to decarbonise sectors and should be out of the mix by 2045</p> <p>Introduce: Phase-out of biogas by 2045</p> <p>Introduce: Explicit mention in the RED III Recitals to the need of an ICE cars sales phase-out by 2035 in transport legislation</p> <p>Introduce: More specific mentions to hard to decarbonise sectors such as aviation. In those, a mention is needed on avoiding biofuels</p> <p>Introduce: Explicit mention to the need of a fully electrified EU transport sector by 2040</p> <p>Improve: The 13% reduction on GHG intensity by 2030 is largely insufficient, and it should be increased to match a complete phase out of fossil fuels in transport by 2040.</p>
INDUSTRY	<p>-33% final energy demand between 2015 and 2050</p> <p>Use of renewable electricity in as many processes as possible and no CCS/CCU</p> <p>For sectors with high energy density needs (steel, chemicals), introduction of renewable H2 and synthetic methane</p>	<p>1.1 percentage point annual increase in RES share (indicative)</p> <p>50% sub-target for RFNBOs</p>	<p>100% RES energy by 2040, with electricity accounting for 60% of industry's final energy demand – the sectoral target needs to be increased and made binding</p> <p>Integration of RED III with the reviewed EED is vital to ensure the needed reduction in final energy demand</p> <p>RFNBOs are a mixed category that risks including so-called low-carbon solutions that cannot be considered renewable energy and therefore its use has to be limited. Within RFNBOs, only renewable hydrogen is a sustainable option towards energy decarbonisation.". In all scenarios of the RED III</p>	<p>Introduce: Binding provision for limiting the use of RFNBOs to sectors that require high energy density, such as steel and chemicals</p> <p>Improve: RES share target must be binding at sectoral level and calibrated to reach 100% RES by 2040, which equals increasing the current target to 50% of RES by 2030</p> <p>Remove: There should not be a target on RFNBOs but on electricity coming from RES</p>

	PAC SCENARIO ⁶	Commission's proposal	What we need to get to PAC 100% renewables by 2040	What needs to be removed/improved/introduced in the current RED III proposal
			Impact Assessment, RFNBOs bring a minimum of 130 Mtoes of GHG emissions by 2050 – this is a significant lock-in of GHG emissions, uncoherent with climate neutrality	
BIOENERGY	<p>No use of energy crops and no increase of forest harvests. BECCS (biomass with CCS) is not used either. Instead, sustainably sourced waste is considered as the main input for biomass to ensure circularity</p> <p>First generation biofuels need to be phased out by 2030</p> <p>Solid biomass use shifted and used as raw material input for chemicals (circular use of biomass), which becomes its main use by 2050</p>	<p>Minimise distortions of biomass raw materials market- respect of waste hierarchy and cascading principle</p> <p>Delegated Act on cascading use of biomass</p> <p>No support for saw & veneer logs, stumps/roots</p> <p>From 2026, no support for installations producing electricity with forest biomass with certain exceptions (combined with CCS, regions identified in just transition plan)</p>	<p>As a general remark, environmental externalities on air and water pollution and biodiversity loss associated with use of biomass as an energy source have to be integrated in environmental sustainability criteria</p> <p>Hierarchy in cascading use of biomass has to be respected: before being used for energy, alternative uses for biomass have to be considered: construction, feedstock for chemicals, paper and pulp paper and lastly energetic use</p> <p>Biogas and liquid biofuels need to remain marginal, while the circular use of biomass as a raw material for material has to be rapidly increased.</p>	<p>Introduce: Explicit phase out of first-generation biofuels by 2030</p> <p>Improve: Sustainability criteria on the basis of environmental externalities on air and water pollution and biodiversity loss for biomass use, going beyond the current sustainability criteria on forest feedstocks</p> <p>Introduce: Banning of BECCS (bioenergy with CCS/CCU)</p> <p>Introduce: Promotion of circular uses of biomass and references to ensuring the hierarchy in the cascading use of biomass is respected</p> <p>Introduce: Address loopholes on energetic use of biomass by reducing the currently set 20MW threshold to 5MW</p> <p>Introduce: Address loopholes on energetic use of biomass by reducing the currently set 20MW threshold to 5MW</p> <p>Improve: Only sustainably sourced bioenergy from waste can be considered within RED III for the decarbonisation of energy supply. The use of sustainably sourced bioenergy from waste has to be increased while the unsustainable uses (i.e. energy crops for first generation liquid biofuels, solid biomass for inefficient heating) are phased out. Provisions in the RED III proposal and in related legislation such as the dedicated delegated act should include criteria in such direction</p>
HYDROPOWER	No new hydropower facilities are built from 2020. By 2050, <5% of total EU electricity	No new provisions on hydropower are added on the RED III proposal	No provisions in RED III should be included leading to the construction of new hydropower facilities	Introduce: Indicative recommendation to not issue any more permits for new hydropower plants in the EU

	PAC SCENARIO ⁶	Commission's proposal	What we need to get to PAC 100% renewables by 2040	What needs to be removed/improved/introduced in the current RED III proposal
Renewable Hydrogen and liquid synthetic fuels	The PAC scenario only considers renewable hydrogen and liquid synthetic fuels for the case of long-distance road transport (shipping) and as the main fuel for aviation	<p>In the RED III Impact Assessment the Commission defines "e-fuels" as a set of heterogenous fuels used to decarbonise "sectors where electrification is not feasible, not efficient or has higher cost"</p> <p>The definition of "e-fuels" includes Hydrogen as well as synthetic methane or liquid synthetic fuels, creating significant confusion.</p>	<p>The definition of "e-fuels" is too broad since it includes a set of heterogeneous fuels. E-fuels must be limited to aviation and the longest routes of road transport, and they must originate from renewable energy sources.</p> <p>Provisions in RED III need to make sure that second generation biofuels, given their high environmental impacts, remain marginal in the fuel mix to decarbonise transport</p>	<p>Introduce: A clear distinction between fuels derived from Hydrogen (often referred to as e-fuels) and renewable Hydrogen itself. Only the latter can be considered sustainable renewable energy. Second generation biofuels remain marginal in the energy mix for hard to abate sectors like aviation.</p>

4. Conclusions

Overall, the European Commission's proposal to review the RED II moves in the right direction by slightly tightening the rules towards decarbonisation of energy supply, increasing the EU RES target and introducing new sectoral ones. However, it **misses the opportunity to drive towards the fundamental shift in the energy system which is needed to meet the goal of climate neutrality and the ambitions under the Paris Agreement.**

The targets set by the proposed Directive raise are insufficient to ensure climate-neutrality-compatible trajectories. Doubts also arise regarding the enforcement of the legal text: the general **lack of binding targets** coupled with a weak governance system based on Member States' voluntary contributions to the EU's energy targets (renewable energy and energy efficiency), will make the Directive even less effective.

Excessive leeway is given to low-carbon fuels and other solutions that are far from renewable, in cases in which other fully renewable and more competitive solutions already exist. These compromises on low-carbon solutions will inevitably lock in CO₂ and GHG emissions for longer, without any need or justification. A more ambitious RED III in its final text, as well as an integrated approach ensuring coherence with all other Fit for 55 files will be key for the decarbonisation of the power sector.

Our main **policy recommendations:**

- **Remove Carbon Capture Storage and Use (CCS/CCU) and fossil fuel-based technologies such as low-carbon fuels from the scope** of RED III, as they cannot be considered renewable energy;
- **Increase by 10% the proposed EU target for renewable energy**, to achieve an EU target of 50% penetration of renewables in primary and final energy by 2030;
- Make the proposed **national and sectoral targets binding** for Member States and introduce a **mandatory phase-out period for gas boilers and heaters** in the EU;
- Include **provisions promoting the role of deep renovations and district heating** as key enablers for reducing energy demand and accelerating decarbonisation of the building sector;
- Biogas can only be used as a last resource for hard to decarbonise sectors and must be phased out by 2045. Therefore, **remove the sub-target on biogas and substitute by a phase-out by 2045;**
- **Explicit phase-out of sales of ICE cars by 2035** and increase of the target on reduction of GHG intensity by 2030 to ensure a fully electrified fleet by 2040;
- **Substitute the target of RFNBOs in industry by a target on RES penetration and electrification**, calibrated to reach 100% RES of energy supply by 2040;
- **Strengthen and expand sustainability criteria for bioenergy**, including banning BECCS and ensuring that energy use of biomass is only a last resource.

EU policymakers need to be involved in this discussion. Members of the European Parliament should propose amendments to strengthen the RED III (which we provide in a separate document) and wider Fit-for-55 package. Member States in the Council should prepare their negotiating positions to avoid the burdens of climate impacts on citizens, and trilogue negotiations should aim to move towards a common agreement on ambition that will respond to the calls of science and youth to ensure a safe operating space for humanity. Only by increasing ambition and commitments can this be achieved.

Next steps and further information.

The document above is a detailed assessment of the provisions of the Renewable Energy Directive review (RED III) proposal, in which the results from the Paris Agreement Scenario (PAC) have been used as a benchmark. It also constitutes an EEB deliverable under the PAC 2.0 project, being implemented by the team comprising CAN Europe, EEB, REN-21 and RGI, which looks at ways to implement the PAC scenario in relevant policy files and modelling activities. We look forward to working with the European Commission, the Council and the European Parliament to explore ways for RED III to become a leading instrument for energy decarbonisation in the European Union.

Other upcoming policy briefs led by the EEB under the PAC 2.0 project are the following:

*“Biodiversity and wider environmental impacts of decarbonising the EU electricity and gas grids”
(upcoming EEB policy brief)*

“Sustainability criteria for biomass and PAC Scenario” (upcoming EEB policy brief)

“Green Hydrogen solutions for a renewable grid” (upcoming EEB policy brief)

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