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BIOENERGY IN THE EUROPEAN COMMISSION'S PROPOSED POST-2020 EU RENEWABLE ENERGY DIRECTIVE: AN ANALYSIS OF PROPOSALS AND IMPACTS

Summary

The European Commission's proposals for a new, post-2020 Renewable Energy Directive (RED) fail to address the serious negative impacts of large-scale biofuel and wood-based bioenergy expansion which has been underway since the current RED came into force in 2010. Instead of ending incentives for biofuels, the proposed new RED allows for a 40% greater use of food-based biofuels such as palm and soybean oil in 2021, and a still significant use of them by 2030. It seeks to boost the use of advanced biofuels for which the technologies to produce them commercially have not so far been developed. And it threatens to further boost

the expansion of wood-based bioenergy.

The Commission proposes to extend the principle of sustainability and greenhouse gas standards, which have applied to liquid biofuels since 2010, to wood-based bioenergy, as well as other solid biomass and biogas (albeit with different standards in the case of wood-based bioenergy). However, no evidence exists to show that the biofuel standards have been in any way effective. Not only are the existing biofuel standards and the proposed wood-based bioenergy standards extremely weak and reliant on flawed methods for calculating greenhouse gas emissions from bioenergy, but there is no proposal for

any credible, independent verification and auditing system. Furthermore, standards cannot address indirect impacts or make fundamentally unsustainable consumption levels sustainable

Biofuelwatch supports the call, set out in a declaration signed by 120 civil society organisations in early 2016, to remove bioenergy from the scope of the RED, to ensure that only genuinely renewable and low-carbon forms of energy are supported, and to initiate meaningful economic and social changes to reduce the EU's excessive and wasteful consumption of energy and other resources.

Background

On 30th November, the European Commission published the long-awaited draft of the post-2020 EU Renewable Energy Directive, which will replace the current directive, in place since 2010. This proposal will be discussed and likely amended between member states represented

in the European Council, the European Parliament, and the European Commission itself. For a new directive to come into effect in 2020, the final version will have to be approved by 2019, likely as part of a wider 'Climate and Energy Package'.

The existing Renewable Energy

Directive (RED) has first and foremost benefited large-scale bioenergy, which makes up almost two thirds of all energy classed as renewable¹. Bioenergy consists of biofuels made from vegetable oil, ethanol made from sugar and starch, biogas made from the anaerobic digestion of crops,

grass, manure and food waste, and wood, straw and other solid biomass burned for heat and electricity. The bulk of energy generated from biomass in the EU – and worldwide – comes from burning wood.

The inclusion of bioenergy in EU renewable energy policy is controversial: in February 2016, 120 civil society groups worldwide demanded that bioenergy must be excluded from the EU's definition of renewable energy². After all, it is difficult to see how burning biofuels or wood meets the International Energy agency's definition of renewable energy, which is "*energy derived from natural processes (e.g. sunlight and wind) that are replenished at a faster rate than they are consumed*". The expansion of bioenergy under the current RED has had multiple negative impacts³, which include:

- **Climate impacts:** The emissions of greenhouse gases tend to be no better and are often worse for large-scale bioenergy than for the fossil fuels they are meant to replace, provided all direct and indirect impacts are accounted for;

- **Impacts on forests and other ecosystems:** Wood-based bioenergy is often associated with more clearcutting of forests and greater use of destructive logging practices, while tree and crop plantations for energy replace forests, biodiverse grasslands and other ecosystems;

- **Greater food price volatility and worse food spikes:** Competition for land caused by the increasing demand for

liquid biofuels has been a major cause of both in recent years;

- **More landgrabbing, displacement and other injustices** suffered by communities mainly in the global South as a result of the rising demand for agricultural products and wood for energy in the EU;

- **More depletion and pollution of freshwater and soils** as intensively managed crop and tree monocultures expand with the growing demand for bioenergy;

- **Air pollution and public health:** Tree plantations, oil palm, soya and other crop plantations that supply wood pellets or biofuels are sprayed with harmful agrotoxins. And the proliferation of wood boilers and wood-burning power plants is causing significant increases in air pollution, especially small particulates linked to respiratory and heart problems in many parts of the EU;

- **Competition with wind and solar power and a distraction from the urgent need to reduce the EU's wasteful energy use:** The RED sets an overall renewable energy target of 20% by 2020. Within that target, bioenergy competes against wind and solar power, not against fossil fuels. The false belief in a future 'bioeconomy' is further delaying urgently needed measures to drastically reduce the EU's energy and resource use.

Sadly, the European Commission appears to have learned little from the disastrous experience

with bioenergy in the current RED. This briefing summarises the main new proposals as they relate to bioenergy.

Biofuels in the new RED proposal:

Current provisions:

The current RED includes a special 10% target for renewable energy in transportⁱ, which is primarily being translated into a biofuel target. In 2015, the EU decided to cap the maximum contribution from food/land-based biofuel feedstocks, such as virgin plant oils, sugar crops and cereals, at 7% of all transport fuel by 2020. It was a disappointing compromise which aimed to tackle indirect land use changeⁱⁱ, but which allows a major, i.e. a 40% future expansion of the very feedstocks which it seeks to limit. Food- and land-based biofuels accounted for just 5% of EU road and rail transport fuel in 2015⁴. The existing RED includes biofuel greenhouse gas and sustainability standards, which have been heavily criticised as weak and insufficient by NGOs. For example, they include no social standards, i.e. no provisions to protect human rights, land rights or workers' rights, and greenhouse gas 'savings' are calculated using a flawed methodology which, for example, ignores all emissions from indirect land use change.

How do the new proposals differ from current provisions?

The generic renewable energy for transport target would be abolished;

i. Shipping and aviation are ignored when calculating the overall volume of transport fuels, but biofuels used in either sector can count towards meeting the target.

ii. Indirect land use change happens when land previously used to grow food or animal feed is instead used to grow biofuel feedstock, causing forests and other natural ecosystems to be converted to agriculture to grow food or feed instead.

There will be **one new target for “advanced” and residue- and waste-based biofuels** listed in a separate Annex, **as well as for fuels made from landfill gas, plus renewable electricity used in transport.** The list of biofuels which count towards this target includes biofuels made algae, from waste including Municipal Solid Waste and used cooking oil, and biofuels made from residues such as tallow (a slaughterhouse residue), agricultural residues, manure and sewage sludge, and “wastes and residues from forestry and forest-based industries”. It also includes cellulosic biofuels made from wood and from grasses such as miscanthus or ryegrass. Those particular biofuels will need to make up 1.5% of transport fuels at the start of 2021, rising to at least 6.8% by 2030. The share of used cooking oil and animal fats within that target will be limited;

Biofuels and bioliquidsⁱⁱⁱ made from virgin plant oils, sugar crops or starch (e.g. corn or wheat) will still count towards the overall renewable energy target, which will be gradually increased from 20% in 2020 to 27% in 2030. Their **share will be capped to 7% of total road and rail transport fuel use initially, reducing to 3.8% in 2030;**

Existing sustainability criteria for biofuels derived from agricultural crops (including palm oil) **will remain largely unchanged, and no changes are proposed to the methodology for calculating “greenhouse gas savings”.** **Minimum greenhouse gas ‘savings’ which must be achieved will be gradually raised, albeit only for biofuels produced in new plants.** New sustainability standards proposed for wood-based bioenergy will apply to biofuels

derived from wood, too.

What are the problems with those proposals?

Despite the overwhelming evidence of harm caused by food- and other land-based biofuels, the new proposal still sees a significant role for them;

“Advanced biofuels” made from solid biomass (cellulosic biofuels) or from algae, as well as fuels made from solid non-biological waste are not commercially viable with existing technologies. Serious attempts at producing cellulosic and algal biofuels have been ongoing since the 1910s and 1970s respectively, without any evidence of a major breakthrough⁵. The only exception are liquid fuels made from biomethane, which can be used in cars designed to run (partly or fully) on gas;

Using residues for biofuels can displace their existing uses and cause previous users to turn to virgin plant oils or fossil fuels instead. For example, tallow (animal fat) use for biofuels has been linked to greater palm oil use for soap and cosmetic products⁶, whereas using tall oil (made from a residue of pulp and paper production) for biofuels can cause chemical industries to use more fossil fuels⁷;

Existing greenhouse gas and sustainability standards are to be continued, even though there is no evidence of their effectiveness, i.e. of them having minimised the harm caused by biofuels which they are meant to address. The European Commission does not even know whether any consignments of biofuels have ever been deemed to breach any of the standards;

Existing biofuel refineries across the EU have a large overcapacity⁸, i.e. they can significantly ramp up production in future, without any new plants being built. Yet they will be entirely exempt from stricter greenhouse gas standards.

Wood and other solid biomass in the new RED proposal

Current provisions:

Wood-based bioenergy is being promoted mainly by virtue of counting towards the overall 20% renewable energy target by 2020 (and interim targets for earlier years). There are no greenhouse gas and sustainability standards for solid biomass, only for biofuels and bioliquids.

How do the new proposals differ from current provisions?

Biomass sustainability standards will be introduced. For ‘energy crops’, such as miscanthus, poplar or willow short rotation coppicing, the same standards as for biofuels will apply. For wood from forests and from tree plantations, different standards will be introduced. The proposed sustainability standards consist of minimum standards for “forest management”, such as minimising impacts on soils and biodiversity, and replanting logged forests and plantations or allowing them to naturally regenerate. Member States can choose to legislate for stricter biomass sustainability standards than those set out in the new RED – which has not been the case, and is not proposed for biofuels and bioliquids standards.

iii. The term bioliquids refers to liquid biofuels used for electricity, heating and/or cooling.

As is already the case for biofuels and bioliquids, energy companies can “prove” compliance with sustainability standards by one of two means: They can pay a consultancy company of their choice to provide a report confirming that standards are being met – or they can rely on voluntary certification schemes accredited by the European Commission;

Greenhouse gas standards will be introduced for biomass. The methodology for calculating “greenhouse gas savings” only accounts for emissions from fossil fuel and fertiliser use associated with tree plantations and with logging, fossil fuel emissions during transport and processing (e.g. in a wood pellet plant), and those caused by direct land use change;

Member States should try to ensure that the **share of renewable energy in heating and cooling increases by 1% every year**. This is an aspirational goal rather than a mandatory target, and genuinely low-carbon alternatives to bioenergy can count towards it. However, biomass accounted for 84% of what is classified as renewable energy in the heating and cooling sector in 2014, with biogas and bioliquids accounting for a further 3.3%⁹;

Biomass electricity generated in plants with a minimum capacity of 20 MW will only count towards the renewable energy target if it uses “high efficient cogeneration technology”, unless a Member State notifies the Commission that their security of electricity supplies is at risk. This minimum efficiency requirement will only apply to plants that start operating once

the new Directive has been adopted. At the same time, a clause in the current RED which calls on Member States to only support biomass with a minimum conversion efficiency of 70% is to be abolished^{iv}.

What are the problems with those proposals?

Proposed biomass sustainability standards are so weak as to be effectively meaningless;

As has been the case of biofuel standards, no credible independent auditing and verification system is proposed. Compliance with standards will therefore be nothing more than a paper exercise.

As with biofuels, standards for biomass cannot address indirect impacts and the sustainability of the scale of demand for wood or other types of biomass;

The proposed methodology for calculating “greenhouse gas standards” ignores the large volume of scientific evidence regarding the carbon debt and life-cycle greenhouse gas emissions associated with wood-based bioenergy. The only non-fossil fuel carbon emissions which are considered are those from direct land use change – but clearcutting a forest or turning a biodiverse forest into an industrial tree plantations are not classed as land use change. Ignored are the upfront CO₂ emissions from burning biomass, the time-lag between CO₂ being emitted by burning wood from trees and new trees potentially sequestering that carbon in future, the loss of carbon from forests, and all indirect greenhouse gas emissions (caused for example by residues

that would otherwise have one to fibre board production being burned for energy, resulting in fibre board producers resorting to increased logging);

Given the very high existing share of bioenergy in the “renewable heating and cooling” sector across the EU, there is a significant risk that encouraging year-on-year expansion of “renewables” in this sector will cause further expansion of wood burning for heat. This would be a dangerous distraction from the priorities in the heating and cooling sector, which are first and foremost better insulating homes and building new homes to the highest energy efficiency standard, followed by support for genuinely low carbon renewable energy. Apart from the impacts on forests and full-cycle carbon emissions, biomass heating has a particularly serious effect on air quality and public health: according to a World Health Organisation estimate, 59% of all particulate (PM 10) pollution in southern Germany during the winter already comes from domestic wood burning¹⁰. The World Health Organisation estimated that by 2010, 61,000 premature deaths in Europe were caused by small particulates from domestic wood and coal burning combined. This figure could rise considerably if domestic wood heating expands;

The requirement for larger biomass plants to operate as high efficiency cogeneration plants might look positive at first sight, although it is important to note that all plants that open before 2020/21 will be exempt. Current wording suggests that this exemption

iv. This provision, contained in Article 13(6) of the existing EU Renewable Energy Directive has never been enforced and appears to set out an aspiration only.

may cover all future coal (or gas)-to-biomass conversions and all co-firing of biomass with fossil fuels, because those are existing, not new plants. Conversions of fossil fuel power stations to biomass are by far the largest biomass projects in the world, with some of them consuming many millions of tonnes of wood pellets a year each. Furthermore, the definition of a high efficiency cogeneration plant is far from stringent. It is set out in the EU Energy Efficiency Directive^v, and the UK government has argued that its interpretation, under which power stations with a mere 35% overall conversion efficiency can qualify, is compatible with that Directive. This is just half the minimum efficiency which the existing RED states all supported

biomass schemes should achieve.

Conclusions:

The proposed new Renewable Energy Directive fails to reverse the EU's disastrous biofuel policy. Furthermore, it will see a significant further expansion of wood-based bioenergy in particular, which will cause more harm to forests and other ecosystems, to communities, to public health, and to the climate. The proposed sustainability and greenhouse gas standards are ineffective except insofar as they may politically legitimise the much expanded use of biomass for energy. No evidence has ever been published to show that EU biofuel standards have been in any way effective, yet despite

this lack of evidence, a similar model is now to be extended to biomass.

Excluding bioenergy from the definition of renewable energy would prevent the negative impacts of bioenergy, and at the same time significantly boost low-carbon no-burn renewable energy. However, as the declaration signed by over 120 civil society groups in early 2016 points out, this needs to be part of much more far reaching policy changes to reduce the EU's excessive and wasteful use of energy and resources and to move away from the current growth-oriented economic model.

v. The European Commission has published a proposal for a new Energy Efficiency Directive, too, however they do not propose to change the definition of high efficiency cogeneration.

References

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