RED II – Going beyond RED I's achievements

Introduction

In 2009 the European Commission released its Renewable Energy Directive (RED) laying out the legally-binding shares of renewable energy European Member States should incorporate in their energy budget for the 2009-2020 period. In 2020, 20% of the energy consumed in the EU came from renewable sources, therefore successfully meeting the target set out by the RED I framework. Building upon this impressive achievement, the Union agreed on a revised version of the RED (RED II) to set out the approaches and aspirations for the period from 2021 to 2030 to build on the momentum achieved to date. RED II has now raised the aspiration to deliver 32% of the EU's final energy demand from sustainable renewable energy resources by 2030.

Building on the lessons learnt over the past decade, RED II is not only raising the bar on key targets already introduced by RED I, it is also solidifying the foundations of the framework by making sure that all of those involved share a similar knowledge of what is at stake, and by securing the funds needed to make sure the EU reaches its goal by 2030.

In an effort to engage with policymakers and stakeholders more efficiently, three pages of the RED II Directive have been dedicated to defining key terms linked to renewable energies. A particular emphasis was put on terms linked to feedstock production and sourcing, which has been a key focus for the revised Directive. A clear understanding of those terms is paramount to prevent misunderstandings or loopholes which might be counter-productive. In addition, it is estimated that to fulfill the framework's objectives the Union will need to invest about 1 trillion euros in the coming decade, amounting to 2.5 billion euros per Member State per year. As this will prove difficult to collect from public money alone through national taxes, private companies and investors have been included in the framework.

This short review of the original 200-pages long Directive will focus on the aspects of RED II which directly impact two main sectors of the Bioeconomy, namely bioenergy and biofuels. It will provide an overview of the current EU energy landscape before detailing the new measures set for the coming decade.

Last year recorded the all-time highest rates of renewable energy consumption in the EU, with a record 20% overall. In 2019, 34% of all electricity consumed in the block originated from renewable sources. By the end of 2018, the share of bioenergy use in the heating sector had doubled since 2013, with a 20% share of renewables for heating and cooling. In addition, the share of renewables used for transport was at 8%, which is an improvement but one that was lower than expected.

In 2020 the EU experienced a 10% drop in energy consumption compared to 2019. There was a 20% drop in coal demand and a drastic reduction in CO_2 emissions and air pollution. Not taking away from the progress that was made throughout the previous decade, those trends can undoubtably be attributed to the COVID-19 crisis, and more specifically to the significant reduction in road, rail and air traffic. The International Energy Agency (IEA) recognizes the progress that the EU has made to incorporate greater shares of renewable energies in its economy and praises the role that the RED played in the common effort. However, it also notes that progress has been slowing down since 2018 and that it is likely that the 2020 targets were met thanks to the unforeseen pandemic and its economic and environmental impacts. The Agency also warns of the economic rebound that will follow the COVID-

19 crisis, with fossil-based commodity prices likely to be low and attractive, which could put the European effort in jeopardy.

Feedstocks

Finding alternatives to fossil-based energy and goods is an ambitious goal which has not been without its ups and downs. The EU has set in motion a positive change which aims to revolutionise modern industry and the economy, however the impacts that renewable energies have been having on the environment so far have not all been positive. Although progress was made to reduce the share of fossil-based energy and the amount of greenhouse gas (GHG) emissions released in the atmosphere as a result of energy production, sourcing feedstocks has often been linked rightly or wrongly to deforestation, habitat and biodiversity loss, soil depletion, carbon stock damage and high GHG emissions, which has reduced confidence in the use of biomass, despite industry efforts to demonstrate best practice

In 2009, the RED I framework established a set of sustainability and GHG saving criteria which should be met for the production of bioenergy and biofuels in the Union, therefore mitigating the counter-productive impacts that renewable energy production can have on the environment. In 2018, RED II expanded the list of criteria to extend protection to further vulnerable ecosystems such as peatlands and to tighten the rules for feedstocks sourced from forestry. In addition, the production of advanced biofuels which do not require food crops as feedstock is further encouraged in the new framework, as the EU has attempted to sidestep controversy surrounding the use of edible crops for fuel. As well as mitigating the environmental impacts of renewable energy production and helping to optimize GHG savings, the EU hopes that the sustainable sourcing criteria will encourage resource use efficiency and that its risk-based approach will promote cost effectiveness.

To encourage use of wastes and residues, Member States are permitted to double count the contribution from designated waste and residues to a countries renewable energy targets. Most Member States have taken this opportunity to provide additional reward for use of such wastes. The EU provides a list of wastes and processing residues which it deems to be eligible for such support (listed in the RED and RED II Annex IX).

Bioenergy

In 2019, bioenergy was the largest source of renewable energy in the EU, accounting for 60% of all renewable energy produced and with forestry being the main source of feedstock for heating and electricity production (mainly through biomass burning). The EU is also the largest producer of biogas via Anaerobic Digestion (AD) both for electricity production and for the production of biomethane which is then used as fuel or is injected into national grids for heating. The EU is a leader in the field of bioenergy. To put things into context, in 2015 the EU produced 10 GW of electricity from biogas out of the 15 GW produced globally. Bioenergy is a "sustainability safety net" for the EU as 90% of all the feedstock consumed is produced within the Union, making it a great asset to reach the 2030 target.

Buildings are the largest energy consumer in the EU with nearly half of the total annual energy consumption in the block attributed to the sector, along with 36% of EU CO_2 emissions. Heating and cooling in particular consume enormous amounts of energy, making them prime targets for GHG emissions reduction and for opportunities in the field of bioenergy. The first instalment of the Renewable Energy Incentive published in 2009 did not set any specific targets for the introduction of renewables in the heating and cooling sector. Setting energy sub-targets was left to the discretion of

the Members States which were required to publish a "National Renewable Energy Action Plan" presenting their targets for the electricity, heat and transport sectors. Those plans were however obliged to take into account the two mandatory minimum targets set by RED: (1) 20% share of renewable energy overall and (2) at least 10% share of renewables for transport. By the end of 2018, 20% of the energy consumed for heating and cooling originated from renewable sources, however natural gas and coal remained the preferred choices by far (37% and 25% in 2017 respectively). About 79% of energy consumed by the sector is attributed to household heating and the use of hot water.

Heating and cooling

The EU projects that 40% of all renewable energy consumption will be attributed to the heating and cooling sector by 2030, but recognises that progress has been slow. The environmental impact of heating and cooling is very significant, particularly as the sector remains an avid consumer of fossil-based energy. The EU's objective is clear: the Union needs to reach a point at which it will be able to set legally binding EU-targets for the incorporation of renewable energy in the heating and cooling sector. However, the EU recognises that a lack of coordination among Members States and fragmented markets have impeded progress and are currently preventing the establishment of such targets.

RED II, like RED , defines the establishment of national targets for the incorporation of renewable energy in the heating and cooling sector taking into account the technical and financial capacities of each Member State. The Directive stipulates that each national target will be calculated according to the country's "national renewable and waste potential" and encourages closing the knowledge gaps surrounding renewable opportunities for the sector to promote deployment. However RED II sets a mandatory national 1.3 percentage point increase in renewable energy incorporation within the heating and cooling sector annually for all the Member States, and encourages inter-state cooperation and the involvement of private operators.

Although the Union cannot yet set EU-wide targets for heating and cooling directly, RED II establishes a framework to mitigate the environmental impacts and GHG emissions of biomass fuels and biomethane used to generate electricity and heat for the sector. As stated previously, biomass burning and anaerobic digestion are important sources of renewable energy for electricity, heating and cooling within the European Union. Feedstocks are readily available and found in sufficient quantities. The Member States are also legally bound to transparency on the origin of feedstocks used to prove that RED II's sustainability and GHG emissions saving criteria are being upheld.

Biofuels

In 2009, RED set a minimum mandatory target of 10% of renewable fuels used in transport by 2020. The new Directive is raising that target to 14% of fuel consumed by rail and road transport to be produced from renewable sources by 2030.

The highlight of the revised Directive is undoubtably the firm wish to mitigate the negative impacts of direct and indirect land use change (ILUC) caused by the production of bioenergy. More particularly, there is a clear ambition to cap and thereby proportionately reduce over time the use of food-based biofuels in favour of non-food crops and waste-based biofuels. The EU unequivocally recognises that the positive impact that the use of biobased renewable energy may have on the planet could easily be negated by the impacts of unsustainable feedstock sourcing. As a result, RED II is establishing a 7% cap on the share of food-based biofuels for all Member States. This cap applies to biofuels produced from

sugar, starch-rich and vegetal oil-based feedstocks. It is also expected that the EU-wide cap will keep on decreasing in the years leading up to 2030. Furthermore, Member States are allowed and encouraged to establish lower caps as national policies, and are entitled to target specific food-based feedstocks that they believe are especially unsustainable. Feedstocks harvested from palm oil and soya plantations in particular are becoming the focus of tougher national policies. The EU as a whole is also determined to phase out the use of palm oil for the production of biofuels by 2030.

As an alternative to food-based biofuels, the EU is promoting the development and deployment of advanced biofuels. "Advanced biofuels" are described as fuels produced from the feedstocks listed in RED II's Annex IX which are primarily wastes and processing residues which are considered to be sustainably produced and have a low-risk of ILUC impacts. The Directive introduces a specific climbing sub-target for the incorporation of advanced fuels to encourage their adoptions and sets a target of 0.2% of all biofuels by 2022 and 3.5% by 2030. Once again, Member States are permitted and encouraged to set their own targets for the incorporation of advanced biofuels, with the condition that these targets are no lower than the ones set by the framework. The EU has committed to providing support to international and national schemes aiming to promote the development and deployment of such advanced biofuels and is keen to support technological advances that would further enhance advanced biofuels energy potential. The Union also believes that a shift towards advanced biofuels will bring many job opportunities.

Markets

As well as reducing the block's impact on the environment and reducing GHG emissions, RED II aims to provide EU-wide regulations and guidelines that will allow easier and fairer trading between the Member States. A fair common market is after all one of the pillars the European Union was built on. Annex IX in particular is a key reference which stakeholders can cite in order to make sure that their product can benefit from financial incentives and schemes in different Members States, though this is not guaranteed. The establishment of common references and criteria is also designed to facilitate financial interactions within and between Member States, which will benefit individual nations and the EU as a whole. There is also a call for transparency, with an incentive to clearly disclose the origin of feedstocks used for energy production.

Conclusion

The revised Renewable Energy Directive released by the European Commission in December 2018 sets out to build upon the achievements of the original version of the framework. The Union's targets are ambitious yet realistic and speak to the value that all the Member States put on cooperation and equity within the EU. RED II also stands out in its clear recognition that previous regulations have had undesirable negative environmental consequences, and strives to facilitate technological advances and access to sustainable feedstocks to achieve the decarbonisation of the European Union. As well as attempting to deal with the issues, it also gives itself space to grow with the establishment of climbing targets and a wish to raise the greenhouse saving thresholds in place at present.

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