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BRIEFING PAPER

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Revising the EU's Renewable Energy Directive

In the coming months the European Commission will present its proposal for a revised Renewable Energy Directive, as part of a package of new legislation to implement the Energy Union. This briefing sets out what the Directive and related legislation need to contain if they are to revitalise the EU renewable energy sector – and help deliver President Juncker's pledge on world leadership.

SUMMARY

If we are to have any hope of keeping global temperature rise to 1.5°C – the aspirational target that Member States signed up to in Paris – then we need to move to 100% renewable energy as soon as possible[1]. The alternatives on the supply side (CCS or nuclear) are simply too dirty, too expensive or too late. We also need to move fast: if we get to 2030 and the EU is still only at 27% renewable energy then the fight against climate change has probably been lost.

This means a change of mindset. Policy makers and regulators at EU and national level need to stop thinking: '*how do we integrate renewables into the existing system?*' and instead think: '*how do we build a new system suitable for renewables?*' A good place to start is the EU's Renewable Energy Directive (RED), which has the potential during the 2020-2030 period to drive change not just in the EU but around the world. If it is to do so, and if the EU is to make good on its goal of world leadership[2], then the revised Directive (and related legislation) needs to do the following:

1. Maintain priority dispatch

The revised Renewable Energy Directive and/or other instruments need to maintain current rules on priority access, priority dispatch and curtailment, and design the electricity market and grid around renewables. Renewables should continue to be prioritised over other plant for as long as fossil plant still benefits from unfair advantages in this regard.

2. Facilitate national support frameworks

The costs of renewable generation are falling rapidly, but there is no 'level playing field' for renewables if carbon prices don't reflect the real costs to society of fossil fuels. EU rules and guidelines should facilitate and encourage national support frameworks, not hamper them.

3. Remove other barriers to renewables

Given the urgent need for more renewable energy it is crucial that there be no unnecessary barriers to its deployment. Existing provisions on permitting and grid connection should be reinforced and measures taken to enhance access to cheap capital.

4. Empower consumers

Commercial scale projects will be key to decarbonising the energy system, but engaging households, cooperatives, businesses and communities is also an important part of the transition. If the EU is to be on the side of the citizen then the RED and other instruments should remove barriers to – and indeed encourage – participation in the electricity market.

5. Regulate bioenergy

Given the growing global need for food, fibre and carbon sequestration in forests, bioenergy will remain a scarce resource. Wind and solar are likely to provide the vast majority of future EU energy supply, alongside synthetic low carbon fuels. Bioenergy may have a niche role in certain sectors but to ensure it is low carbon EU sustainability criteria need to be much tighter than at present – and must apply to solid and gaseous biomass.

6. Ensure the sustainability of hydropower

Hydropower can be a valuable source of renewable energy but can have major environmental and social impacts if developed unsustainably. Consistency of new hydropower projects with relevant EU legislation must be ensured.

7. Guarantee delivery

Investors need to have the confidence to invest for the long term, and thereby drive down costs. The RED and/or the new governance instrument should lock in the 2020 targets, set a 2030 target in line with the Paris agreement and require Member States to produce detailed and credible plans for meeting it. It should also contain strong provisions on monitoring and reporting, and clear provisions from the outset on how the EU target will be enforced.

[1] http://www.wwf.eu/what_we_do/climate/publications_climate/?265731/EU-building-blocks-for-a-successful-energy-transition

[2] President of the European Commission Jean-Claude Juncker has stated that he wants "…Europe's Energy Union to become the world number one in renewable energies." How this might be interpreted is discussed in more detail in a recent WWF paper: http://www.wwf.eu/what_we_do/climate/publications_climate/?262790/Measuring-World-Leadership-in-Renewable-Energy

DETAIL

Introduction

The Commission's 2050 roadmap, published in 2011, suggested that to limit global warming to 2°C the EU needed to cut its emissions by 80-95%. The Commission has yet to update this goal to reflect the Paris agreement, but Paris is likely to mean we need to be at the top of that range not the bottom, and very likely above that. And the options are limited: CCS isn't low carbon enough to be a long term solution for the power sector and seems unlikely to be ready early enough to play a major transitional role, and nuclear power is dirtier, riskier and more expensive than wind or solar.

In practice therefore what Paris means for the EU is what WWF and others have been calling for: a transition to a 100% renewable energy system. This is feasible – and desirable on more than just climate change grounds. And in the long term is likely to happen anyway. But we don't have the luxury of allowing the transition to proceed at its own pace. We need a revolution. And a revised Renewable Energy Directive can play a vital role in driving that forward.

What is needed most is a change in mindset. The renewable energy sources that will supply the bulk of EU energy in 2050 (wind and solar) are too often seen as a 'problem' when it comes to ensuring secure and resilient suppliers of energy to consumers. And it's true that they have different characteristics to incumbent technologies. But instead of seeing this as an inconvenience, and thinking '*how do we integrate renewables into the existing system?*', policy makers and regulators at EU and national level need to think '*how do we build a new system suitable for renewables?*'. And from that shift in mindset flows a number of conclusions about what's needed in the revised Renewable Energy Directive and related legislation.

1. Maintaining priority dispatch

There are strong provisions in the current RED designed to ensure that electricity from renewable sources has priority access to grids, benefits from priority dispatch, and is minimally curtailed. Priority dispatch obliges grid operators to schedule and dispatch energy from renewable generators ahead of other generators, insofar as secure operation of the electricity system permits.

Some argue that these provisions should be removed, in the interests of increasing efficiency or creating 'a level playing field'. But priority dispatch has been critical for the development of the renewables industry and removing it would mean exposing renewable energy producers to widely diverging and little-monitored curtailment practices, particularly at the distribution level of the grid. Investment in existing renewable energy projects has also been made on the assumption of priority dispatch, and cancellation of the latter would send a very damaging message to the renewables industry. Investors already regard the risk of curtailment as an important factor when determining the cost of capital for renewable energy investments, so removing priority dispatch without any further safeguards would hamper achievement of the EU's 2030 targets.

More generally, there is no level playing field for renewables compared to fossil fuels (see point 2 below) and to remove mitigating measures for renewables is at odds with the need for rapid expansion of renewable generation. To the extent that changes are needed to accommodate an increasing share of wind and solar on European grids these should be made in other areas, for example changes to how the wholesale electricity market works, better transmission infrastructure and interconnection[3], increased flexibility in electricity demand and a big expansion in energy storage (especially in electric vehicles, power to gas technologies and district heating systems[4]).

The persistence of old inflexible plant on the system – although outside the scope of the RED – is another issue that should urgently be addressed[5]. In WWF's view the EU should make such plant ineligible for national capacity payments and facilitate its retirement as soon as possible, thereby improving wholesale prices for RES operators and reducing the need for public subsidy.

[3] An example would be the EU-financed transmission line which links Northern and Southern Bulgaria and facilitates a market for RES electricity between Bulgaria and Turkey. Unfortunately, however, the majority of new trans-European energy infrastructure projects are gas related: https://ec.europa.eu/energy/en/news/energy-eu-invests-217-million-euros-energy-infrastructure.

[4] Provided these are supplied by zero carbon sources such as large scale marine heat pumps.

[5] https://www.agora-energiewende.de/fileadmin/Projekte/2015/Smart-Retirement/Agora_RAP_Smart-Retirement-and-MDI-Background.pdf

It may be possible at some point in the future to remove priority dispatch for new, commercial scale projects involving mature renewable technologies. But this should only be permitted where the following conditions are met:

(i) no priority dispatch or unfair advantages for any other technology;

(ii) liquid intra-day markets with gate closure near real time;

(iii) balancing markets that allow for the competitive participation of renewable energy producers;

(iv) curtailment rules and congestion management transparent to all market parties; and

(v) curtailment compensation related to forgone revenue being in place and claims for compensation being settled close in time to the event of curtailment.

2. Facilitating national support frameworks

The costs of renewable generation have been falling rapidly, but with persistent market failures and conventional technologies still being subsidised there is no level playing field. Distortions remain due to both historical[6] and current[7] public support for conventional plant, and in the absence of reforms to the ETS to ensure it reflects the real costs of fossil fuel generation it is clearly unrealistic to rely on it – or the market – to drive investment in renewables at the pace required. There remains a clear case for public intervention in support of renewables: indeed the latest EU reference scenario makes clear that without further policy intervention renewable deployment won't even reach the EU target of 27%, let alone a level that would be consistent with a 1.5 °C trajectory.

The revised RED should therefore include clear provisions – building on those already present – concerning national support frameworks, including on the question of investment protection (i.e. retroactive changes to subsidies or their clawing back through other means[8]). In particular, and in the interests of ensuring diversity and maintaining widespread public support for renewables, the RED should give Member States the right to support renewable energy financially, including through off-budget schemes such as levies, without being required to open their schemes to producers in other Member States. The use of competitive auctioning approaches can be expected to show where and when market conditions are ready for the phasing out of technology-specific (or indeed all) support.

Including common rules on national support frameworks in the RED would avoid the current damaging situation in which there is considerable uncertainty amongst investors as to the position the Commission will take on any particular national scheme, based on its interpretation of the guidelines and/or various treaty articles. Agreeing on a common rule book would also support broader Commission efforts to achieve more transparency, accountability and legitimacy in EU-level decision-making, and would involve parliaments, ministers, stakeholders and civil society in a transparent and inclusive debate on the further development of national renewable energy frameworks.

State aid decisions have destabilised investment in renewable energy since 2011 and thus contributed to the halving of European investment in renewables since that date[9], undermining delivery of EU targets and the Commission's goal of world leadership[10]. Further detail on this issue can be found in the letter in Annex, which was sent recently to the Commission by WWF, other NGOs and representatives of the renewables industry.

3. Removing other barriers to renewables

If there are no binding national targets for renewable energy, it will be even more important to ensure there are no unnecessary barriers to its deployment. And permitting procedures are still far too long and complicated in many Member States – partly as a result of a lack of strategic spatial planning on suitable locations for renewables. In addition to provisions on grid connection, the current Directive includes a valuable section on administrative procedures, regulations and codes: something that is designed to ensure that the rules applied to renewable energy technologies by national, regional and local bodies (for example on authorisation, certification and licensing) are objective, transparent and proportionate, including

[6] Such as historical long-term power contracts.
[7] Support for increased efficiency of coal-based CHP; new capacity payments etc.
[8] Retroactive and retrospective changes and moratoria to RES support, BBH, http://www.keepontrack.eu/contents/publicationsbiannualnationalpolicyupdatesversions/policy-briefing6-retroactive-and-retrospective-changes-and-moratoria-to-res-support.pdf

[9] Since peaking at $131 in 2011, European investment has more than halved, standing at 58,5bn $ in 2015.
[10] President of the European Commission Jean-Claude Juncker has stated that he wants "…Europe's Energy Union to become the world number one in renewable energies." How this might be interpreted is discussed in more detail in a recent WWF paper: http://www.wwf.eu/what_we_do/climate/publications_climate/?262790/Measuring-World-Leadership-in-Renewable-Energy

for example by ensuring that simplified procedures exist for smaller projects.

These provisions and the provisions in the subsequent section on information and training should be reinforced in the revised RED and then rigorously enforced, to ensure that their application in all Member States is as good as it is in the best. This is not to say that all restrictions on renewable energy should be lifted. Clearly there are cases where these would be justified, for example where new infrastructure could damage areas of high ecological value. But such restrictions should be objective and evidence-based[11].

The EU could also do much more to reduce barriers relating to the cost of capital, which varies significantly between Member States and substantially increases the costs of meeting EU targets. One option – a targeted EU de-risking mechanism aimed at reducing the cost of capital in Member States or regions that have high renewable potential but that are struggling to accelerate deployment – is described in a recent paper by Agora Energiewende[12].

4. Empowering consumers

As set out in the Energy Union strategy, households, businesses, communities and cooperatives are key to the energy transition. Partly this is because as consumers of energy services their active participation (including, in future, through their smart devices) is essential to creating the demand side flexibility we need. But they also have a role to play in supporting and in some cases financing the deployment of new infrastructure and technologies, whether that's wind farms, solar power, insulation, electric vehicles, heat pumps or heat networks. In WWF's view these two things go together: the more involved consumers are in the realities of the energy system the more 'energy literate' they become, and the more likely they are to want and support green technologies.

This is not to say that large scale renewables are unimportant. On the contrary, large renewable power installations such as wind farms – which should be open to participation by local residents – will for reasons of efficiency, scale, pace of development and cost remain at the core of the transition to a 100% renewable energy system. Care also needs to be taken by Member States when exempting small producers from obligations applied to larger schemes not to create perverse incentives or unjustified costs that are then socialised across all electricity consumers.

It is also vital to create new markets in the energy sector and to give entrepreneurs the space to develop innovative products and services. The spread of smart metering, solar power and electric vehicles, combined with the ubiquity of smart phones, creates the potential for a transformation of the relationship between consumers and electricity markets. EU rules need to unleash and facilitate this development, rather than restrict it, and allow the EU's creative and service industries to become world leaders in the information side of the low carbon economy.

To support these goals, the revised RED and/or the other legislative instruments under development should:

- Establish an EU-wide right for consumers, acting individually or collectively, to generate, consume and store their own energy, without unreasonable restrictions being placed on such activities by utilities or other incumbent market participants.

- Ensure that such consumers get a fair price for electricity they feed into the grid, and that small scale projects remain exempt from network access fees, balancing requirements or competitive tendering processes for which they may lack the relevant resources or expertise.

- Remove any barriers to the full participation of new entrants (including consumers via their smart devices) in the demand side of the energy market, particularly through a third party such as an aggregator;

- Increase transparency in the energy system through ensuring the provision of accurate and timely price information to market participants, and capture the huge potential benefits of demand side flexibility by ensuring that retail prices reflect the full real-time value of grid and energy services.

[11] An example of why such regulations are needed is the Polish law imposing severe restrictions on wind energy development, despite there being no science-based arguments for such restrictions. http://dobrywiatr.pl/en/

[12] Reducing the cost of financing renewables in Europe https://www.agora-energiewende.de/fileadmin/Projekte/2016/De-Risking/Agora_RES-Derisking.pdf

- Maximise the potential for consumer engagement and behaviour change by requiring all smart meters in the EU be able to broadcast real-time or near real-time[13] data on electricity, heat or gas consumption.

- Uphold the right of customers to choose their service provider.

- Ensure that individuals retain ownership of and control of access to their own data, and can enter into agreements with innovative independent service providers without the latter needing permission from the former's supplier

- Require DSOs to operate as neutral market facilitators for renewable energy and ensure that new entrants and non-traditional market players have unhindered access to wholesale power markets.

5. Regulating bioenergy

Genuinely low carbon bioenergy is not going to be available in large quantities relative to overall energy demand. For example it would take all of the world's harvested biomass – including all food crops, all residues, all wood and all biomass grazed by livestock – just to meet 20% of global energy demand in 2050[14]. This means bioenergy is essentially irrelevant to the EU's overall energy security, and that the vast majority of EU energy supply in 2050 will need to come from sources such as wind and solar (in combination with Carbon Capture and Utilisation (CCU), which presents a promising means of converting surplus renewable electricity into fuels through 'power to gas' or 'power to liquids' technology).

As bioenergy (in solid, liquid or gaseous form) will remain a rare commodity, it should be prioritised for use in sectors that require energy-dense fuels, for example high temperature industrial processes and certain forms of transport, such as aviation, shipping and heavy duty vehicles (lorries, buses etc). The use of bioenergy in other sectors (for example power generation, space and water heating, cars and vans) should be considered very carefully, by region, as it risks leading to investment in assets that will later become stranded, and delaying the transition to electrification that urgently needs to happen in those sectors.

Bioenergy must also be genuinely low carbon and its use fully sustainable in ecological terms. Current EU policies (though well-intentioned and to some extent reformed) are inadequate in this regard, having incentivised types of bioenergy that offer few if any carbon benefits over conventional fossil fuels. The revision of the EU's Renewable Energy Directive provides a crucial opportunity to reorient EU policy in this area, by putting an end to the production and use of bioenergy that – while it may be sustainable over the long term – provides no climate benefits over the relevant timelines (i.e. the next decade or two) and by instead directing investment towards advanced forms of bioenergy based on wastes and residues.

This means applying sustainability criteria to all forms of bioenergy that take fully into account the issues of carbon debt, indirect land use change, forgone carbon sequestration[15], conversion efficiency and the principle of cascading use. How best to do this, and why rules on sustainable forest management and/or LULUCF accounting will not solve the problem, will be discussed in more detail in separate WWF communications. But applying the above criteria certainly implies banning the use of food-based biofuels and the use of woody biomass in existing, inefficient plant – something that creates perverse incentives and creates windfall profits for coal-based capacity.

6. Ensuring the sustainability of hydropower

Hydropower can be a valuable source of renewable energy, particularly given its ability to help balance electricity demand over short timeframes. However it can also have major environmental and social impacts if developed unsustainably. Given the environmental goals of the RED and the specific policy driver that it creates, it is therefore imperative that the development of new hydropower plants whose output is counted towards achievement of EU targets be consistent with broader environmental goals.

On this basis, electricity generated by hydropower plants brought into service for the first time after the entry into force of the new RED should only be taken into account for the purposes of EU targets

[13] The delay between a consumer turning on an appliance and an increase in consumption registering in the data broadcast by the smart meter (and hence on the consumer's display or smart device) should be no more than a second or two.
[14] Searchinger and Heimlich, 2015, World Resources Institute (http://www.wri.org/sites/default/files/avoiding_bioenergy_competition_food_crops_land.pdf)

[15] 'Forgone carbon sequestration' refers to the fact that if agricultural land weren't being used for bioenergy or food production it would likely revert to a natural ecosystem such as forest, sequestering large amounts of carbon every year in the process.

(or national support schemes) where it is demonstrated that the plants in question have been developed in conformity with relevant European Union legislation, in particular the Water Framework Directive (WFD), the Habitats Directive (HD) and the new Environmental Impact Assessment Directive. This legislation is not currently fully applied throughout the territory of European Union and Energy Community countries, with the result that large numbers of hydropower projects are being developed in ways that are likely to have severe impacts on river ecosystems and the services they provide to society.

7. Guaranteeing delivery

If renewable energy is going to take off in the EU in the way that climate change demands, then hundreds of billions of euro need to be invested in renewable energy supply chains, from research and innovation through to deployment at scale. This will only happen if the private sector is confident in the direction of travel. Uncertainty on this point or on whether the EU and Member States will deliver their targets translates into higher costs than necessary or slower progress than is needed. The new governance regime therefore needs to build on the success of the existing RED and ensure that the level of 27% renewables in 2030 is comfortably exceeded. This means that it needs to:

- Result in strict enforcement of the 2020 renewable energy targets; The Directive must ensure full implementation of the 2020 targets by making explicit that they will continue to apply after 2020. Furthermore, the 2020 renewable energy targets should constitute the minimum baseline as regards a Member State's contribution to the 2030 EU RES target. Absent this clarification there is a very real risk that Member States that still have some way to go to meet their 2020 target will give up, knowing that it will cease to apply to them thereafter and judging that it would therefore be politically difficult for the Commission to enforce. An explicit commitment on this point is critical to convincing civil society, business and investors that Europe is sticking to its political ambition of remaining a world leader on renewable energy.

- Require Member States to produce detailed and credible National Energy and Climate Plans (NECPs) for decarbonising the power, heat and transport sectors, including on the levels of energy efficiency and renewable energy they expect to see. Crucially, these NECPs must take a 2050 perspective: there is no point in Member States investing in things up to 2030 that by 2050 will be stranded assets. Examples could include any further investment in fossil fuel infrastructure (including for gas), infrastructure for biofuel use in cars and vans (where electrification is by far the most likely option), or even the subsidising of large numbers of individual heat pumps if – for the area in question – heat networks are the optimal long term solution. The Commission should continue to work closely with Member States on developing a common approach in this area – one that helps all Member States produce high quality plans and that provides investors with the confidence they need, without imposing unnecessary administrative burdens on those Member States who are already doing very effective long term planning.

- Contain strong provisions on the monitoring of plan implementation, using effective and consistent indicators, and on the reporting of progress. Crucially, such reporting should be publicly available and allow for remedial action to be taken at an early enough stage for 2030 targets to be delivered.

- Make clear from the outset how delivery of the 2030 renewable target – which is binding at EU level – will be ensured. To this end the revised Renewable Energy Directive should set out the methodology that will apply in the event of pledges not adding up to that target and in the event of agreed pledges not being delivered. This might for example include regional or EU-wide auctions to deliver the 'missing' capacity, or the imposition of binding targets at Member State level.

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For further information:

Alex Mason
Senior Policy Officer
WWF European Policy Office
Email: amason@wwf.eu
Mobile +32494762763

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