FEDIL

Position

FEDIL NOTE ABOUT LUXEMBOURG'S RENEWABLE ENERGY (RE) POLICY

1.INDUSTRY'S NEED FOR LOW CARBON ELECTRICITY

Luxembourg's government plans to accelerate the deployment of renewable energy (RE) dramatically and to increase its share within the country's energy mix. Compared to 2016, it intends to increase the national wind energy production by over five times and solar energy production by over ten times until 2030. Across all renewable electricity generation technologies, the National Energy and Climate Plan (NECP) targets a share of 33.6% of renewable electricity in the final electricity mix of 2030. This represents a fivefold increase compared to 2016.

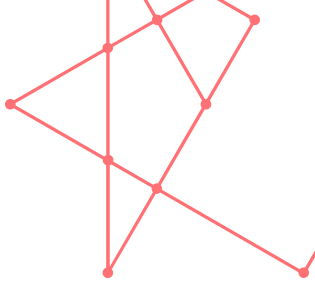
FEDIL stands behind the government's ambitions to accelerate the deployment of RE and to increase the share of renewable electricity in the overall power mix. Accessible low-carbon power will represent a fundamental prerequisite to allow businesses to comply with ever stringent climate policies focused on decarbonising the economy. It is safe to assume that significant decarbonisation efforts will rely on the electrification of industrial processes or on their switch to low-carbon e-fuels. Furthermore, the increasing digitalisation across all business sectors, as well as the electrification of the transport and mobility sectors, will massively drive demand for low-carbon electricity. Consequently, the whole economy's need for low-carbon power will increase, and it will do so across a broad spectrum of sectors, surpassing the ones identified today as electricity-intensive.

A successful energy transition of the economy, and the industry, in particular, will, however, rely on more elements than the current national policy that focuses on accelerating the pace of renewable electricity deployment and on increasing its share in the energy mix. The elements discussed in the following chapters of this paper must also find consideration

2. TRANSPARENCY OF RE DEPLOYMENT

2.1 Visibility on the National Energy and Climate Plan

The governance of the EU's energy union and the climate action rules, which entered into force on 24 December 2018, require from member states to develop integrated National Energy and Climate Plans (NECPs). Following this



requirement, on February 27th, 2019, the Minister for the Environment, Climate and Sustainable Development, Mrs Carole Dieschbourg, and the Minister for Energy, Mr Claude Turmes, presented the objectives and guidelines of Luxembourg's draft NECP. FEDIL wonders why the elaboration of the draft's goals and guidelines did not seize the opportunity to tap into the pool of expert knowledge available from significant stakeholders of the energy sector and the industry. In fact, the presentation of the draft NECP had not been preceded by an exchange of the government with representatives of the energy and industrial sector. Such an exchange may have altered the assessment by the European Commission issued on June 18th, 2019, suggesting to substantially strengthening the plan with regards to concrete policies, measures, and means necessary to reach the draft's objectives.

Further, EU's governance rules request, among others, active public participation in the development and implementation of the NECPs, ensuring that the views of citizens and businesses are considered.

To comply with this rule, Luxembourg's government organised a first stakeholder workshop called "Journée Generation Klima" on May 21st, 2019, where the three ministers for energy, environment, and finance welcomed over one hundred delegates to discuss the NECP draft. Even though the initiative was worthwhile, FEDIL regrets that the workshop was structured in a way to leave little to no margin to co-define the points of the consultation. All consultation points had been preselected in advance based on a method unknown to workshop participants. Most of the points presented for discussion showed some validity from a pure environmental dimension, but they revealed at the same time that economic or financial dimensions had mostly been ignored. For example, one measure suggested discussing a framework to progressively phase-out fuel and natural gas from residential housing. While this measure may help reduce some CO2 emissions, phasing-out gas has far-reaching implications for the gas grid as well as for the remaining industrial gas users and the whole national economy. However, the workshop did not lead the discussion towards finding answers to those implications, which include: Will the gas grid be decommissioned faster? Who will pay for it if there are no more residential users? Will it be a community effort? Will industrial users have to bear all the costs? …while many have hardly any viable technical alternative in short- to medium-term? How will the industrial landscape finally be impacted by higher gas grid costs? How much employment and tax contribution will then be at stake…?

In a nutshell, the outcome of this first public consultation was a workshop that consisted in multiple parallel brainstorming sessions, yielding simplistic ideas and filling wish lists in response to non-trivial energy, environmental and fiscal policy issues.

The government plans[1] to integrate the results from this first consultation in the NECP to organise an even more extensive public consultation starting in September 2019. At around the same time, it has also scheduled a discussion on the same topic in Parliament. The coincidental timing of both consultations risks that members of the national Parliament will have little to no time to consider the outcome of the public consultation.

FEDIL and its members stand ready to discuss already today with public authorities and decision-makers to actively engage in the consultation process to help to shape Luxembourg's NECP.

2.2 Visibility on the grid deployment roadmap

Also, the industry will only be able to plan investments into decarbonisation

technologies if it has visibility in the planning of the infrastructure development roadmap informing on how the supply level of renewable electricity will evolve.

2.3 Visibility on scheduled RE call for tenders

The call for tenders for the implementation and operation of new photovoltaic power plants in Luxembourg as initiated for the first time by the government in 2018 can represent a business opportunity for companies and a chance to actively contribute to the energy transition. Businesses would, however, welcome to have more insights into which RE call for tenders are planned in the future and how they are scheduled over a medium-term horizon of about three years. Such a schedule would allow companies to prioritise their resources according to the calls they would like to respond to and, it would allow them the necessary lead-time to form pertinent consortia already in a preliminary stage. As a result, the call can expect to benefit by receiving a higher number of more mature project applications.

2.4 Visibility about RE spatial planning beyond the solar cadastre

In a similar approach to the solar cadastre, aiming at raising awareness and informing citizens and businesses about the opportunity of solar installations on their roofs, industry and investors perceive the need to have more transparency about the potential geographic sites identified as zones to implement large scale RE generation projects.

It can be expected that such transparency would create a basis for discussion to improve the dialogue between the government, industry and investors on how to deploy renewable energy in the most effective way on the identified sites. It would further enhance investor security and most probably accelerate the overall deployment of renewable energy production in Luxembourg.

2.5 Visibility about evolving support mechanisms, administrative and legal requirements

The stability and predictability of a project's boundary conditions are critical elements for investors to assess the risk level of their project investments. In subsidised RE projects, this stability is given by guaranteed remunerations over pre-defined periods. This is what makes those projects predictable in terms of return on investments.

To further increase the level of investments into RE, it is therefore essential to keep all stakeholders along the value chain of RE project development, generation and exploitation well informed in advance about all evolutions of support mechanisms and their applicable rates as well as about changing administrative or legal requirement that usually involves compliance costs for project owners.

One distinct way into which support mechanisms should evolve in the future is also to allow small and medium-sized enterprises (SMEs) with limited rooftop surface areas to contribute to the joint effort of increasing photovoltaics (PV) capacities. Indeed, many SMEs do not have enough rooftop surface areas to participate in the current, large PV call for tenders. While these roof sizes would still allow mid-sized PV projects, the current framework conditions do not promote exploiting them as SMEs would need to accept setting-up either highly regulated cooperatives or civil societies. Most SMEs, however, cannot be bothered to deal with the related administrative and legal burden of those exploitation models. Solutions might include making support schemes available to SMEs with the same feed-in tariffs that are applicable today to cooperatives or civil societies or to design a specific regime and a legal

framework stimulating SMEs to participate in PV production projects easily.

3. COMPETITIVELY PRICED RE

Increasing the share of renewable energy by increasing the level of locally produced renewable energy fed into the grid will have a mid to long term impact on the costs of the power system. Costs will mainly be driven by two factors: (1) The need to adapt the current grid infrastructure, particularly on the DSO level and (2) the subsidies paid in the form of feed-in tariffs and market premiums to promote RE generation.

The next two subchapters explain *why* it is essential for the industry to avoid increasing grid costs and *what* industry can contribute to do so.

3.1 Preserving the status quo for the energy-intensive industry

Despite increasing costs of the power system as described above, competitively priced low-carbon electricity must represent a viable alternative source of energy to support the industry's efforts to substitute CO_2 emitting processes to succeed the energy transition. It would be counterintuitive and incoherent to surcharge electricity for the industry when one major pathway of its decarbonisation is supposed to lead via low-carbon power.

Regulators must avoid that RE cost allocation mechanisms, surcharging energy-intensive industries (EII) for an increased share of renewable energy in the grid, will result in carbon leakage. The same goes for indirect costs under EU ETS that can represent a severe deterrent towards investments by EIIs in processes that require high amounts of electricity. It is therefore vital to exempt EIIs from or compensate them for additional costs in relation with grid development, RE contribution mechanisms or carbon emissions prices, and to preserve the current status quo. Further, it becomes more and more difficult to link those exemptions and compensations to energy efficiency rules, especially for EIIs, for whom, after decades of energy efficiency efforts, it has become far from trivial to identify and exploit further new affordable efficiency potentials.

3.2 Keeping the grid costs of RE deployment low

The energy-related regulatory framework must make use of all possibilities to keep the costs of RE deployment low. The next paragraph explores one major element that has a significant impact on RE grid deployment costs, and that should find consideration in RE policy design: Demand-side management with dynamic tariffs.

Demand-side management with dynamic tariffs

One approach to reduce the burden on distribution networks, and thus reducing the development costs of the grid, is to manage the demand-side of the power system. Demand-side management (DSM) involves methods to improve the power system on the demand-side, such as by increasing load efficiency by using better-adapted equipment, by implementing dynamic tariffs to promote different consumption patterns, or by deploying advanced systems to control distributed energy sources.

As a sub-topic of DSM, Demand Response (DSR) is particularly interesting. DSR describes the change of power consumption of an electric unity customer to allow to better match demand for power with supply. It can provide a reliable way to relieve peaks in demand and to compensate for a large share of intermitted renewables in the gird. DSR generally helps to balance the power system and stabilise the grid. It may allow deferring, and in some instances

avoiding capital-intensive investments in grid reinforcement.

Promoting DSR for grid balancing requires the legal framework to allow the *TSO* and the *DSO* to harness the benefits of demand-side flexibility or to create market conditions for third-party providers, typically *aggregators,* to develop a business case around a grid balancing mission via demand-side flexibility:

- On a local level: The DSO may be able to create solutions to locally balance the grid by contracting dispatchable demand with major industrial stakeholders and also small and medium-sized distributed assets. It would enable the DSO to balance energy demand by controlling, for example, the time of use of some large energy consuming industrial devices to shift them out of peak demand periods. Such a model could also mean an additional source of revenue for industries that receive remunerations for reducing their energy demand temporarily as required by the DSO. Such remuneration models would, however, require the adaptation of current energy regimes that do not foresee such incentives. Furthermore, time-sensitive dynamic price models can change the consumption behaviours of consumers to level-off consumption peaks.
- On a regional level: Aggregators typically pool many flexibility providers' potential, for example from households but also from small and large businesses, to sell them to the TSO, the DSO, or Balance Responsible Parties (BRP). Also, this model requires changes in existing energy regimes.
- On a national level: For the TSO to be able to provide a general demand-side response solution for the domestic market, it must be able to participate in the German market as Luxembourg's grid is closely connected to the German "Regelenergie". To join in Regelenergie, barriers to enter the German flexibility market must be removed.

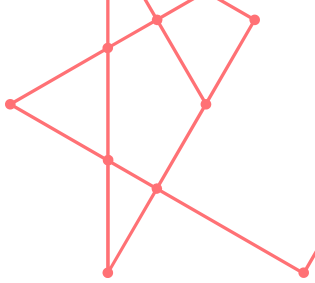
Another DSM model already applied in Germany is "peak-shaving". In this model, TSOs incentivise consumers via individualised grid costs to reduce their consumption peaks during periods of grid peak loads. Based on historical data, the model predefines and limits grid peak load periods to specific time windows in a year. To this end, grid operators publish the peak load windows for each calendar year, i.e. the periods during which the highest loads are expected to occur at the individual grid levels in the year[3].

If the consumer meets the criteria for atypical grid usage according to contract, the service price for grid usage will no longer be calculated based on the absolute maximum performance of the calendar year, but only based on the performance occurring within the peak load window. The resulting cost advantage is reimbursed to the final consumer.

4. SECURE DELIVERY AND PRICE OF RE

According to a study by Wyns[4], it is "by no means certain that sufficient, reliable and competitively priced low-CO_2 electricity will be available to enable this {the energy-} transition." Wyns suggests tackling the lack of low CO_2 electricity by allowing major electricity consumers to sign renewable Power Purchase Agreements (PPAs). For more extensive such PPAs to materialise, however, regulators must work on three major points:

1. Even though *global* renewable PPAs have seen dramatic growth in the past few years, the reality is that available volumes in renewable PPAs in the EU stay limited and are increasing only slowly[5]. Some member states, however, seem to be more successful than others in



implementing renewable PPAs. Framework conditions incentivising companies to conclude renewable PPAs may be helpful to increase demand and stimulate in this way an increase of supply.

For Luxembourg's commercial and industrial consumers to sign renewable PPAs, international barriers must be removed, and governmental backing and assistance might be required as those PPAs would certainly be cross-border agreements.

2. Most energy-intensive companies operating in Luxembourg do not source renewable electricity on a national level to supply their local facilities. They purchase renewable electricity on a cross-border, regional level and for multiple facilities. It is therefore essential to make renewable PPAs available to the industry on a regional rather than on a local level. Furthermore, experience shows that physical shifting of the energy sources as required in *direct* PPAs is generally tricky and that large scale PPAs are hard to finance. Luxembourg's industry thus suggests focussing on framework conditions that promote cross-border regional and small scale *virtual* It is, however, crucial that companies will be allowed to claim the renewable electricity acquired from such regional PPAs for their local facility's environmental performance, avoiding acceptance issues of international guarantees of origin.
3. Even though electricity sourced from renewable PPAs is free from CO_2, the electricity price of such PPA, which is in general in-line with market prices, still includes CO_2 surcharges arising from EU ETS, also referred to as indirect carbon costs. As such, the industry is unable to influence its electricity expenses by the amount of renewable energy it consumes, since the electricity price on the market is indexed to the marginal price. The most expensive power generation source sets this price according to the merit order. Today this source is often based on fossil fuels, a situation that might not change in the foreseeable future.

Efforts to increase the volume of renewable PPAs contracted by the industry must thus allow the sector to shed CO_2 surcharges if they source renewable electricity. This is especially true for energy-intensive industries to prevent carbon leakage. Future EU ETS state aid must, therefore, compensate indirect carbon costs of *all* electricity consumed by an eligible installation: renewable power as well as the one based on fossil fuels.

[1] Journée atelier I du 21 mai 2019 « Generatioun Klima – zesumme fir eise Planéit », En route vers un plan national intégré en matière d'énergie et de climat (2021-2030), presentation, page 10

[2] ENTSOE's Ten Year Network Development Plan (TYNDP)

[3] See §19.2 "atypische Netznutzung" or "Hochlastzeitfenster" of Stromnetzentgeltverordnung

[4] Wyns, T., et al., 2018: Industrial Value Chain, A Bridge Towards a Carbon Neutral Europe, p13

[5] Source: Schneider Electric, 2018: Around Europe in 5 Minutes: Top Markets for Renewable PPAs