

National Climate and Energy Plan – Update 2023

FEDIL note

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1 Objectives

With the National Integrated Energy-Climate Plan (PNEC) update, the Luxembourg government has increased its ambitions in two of its three main objectives. While the decarbonization objectives have remained at the same level, the objectives relating to the share of renewable energies in the gross final energy consumption and to energy efficiency have been reinforced (see Table 1)

| Objective 2030 | Loi climat du 5 décembre 2020 | PNEC 2020 | PNEC 2023 |
|--|-------------------------------|-----------|-----------|
| Decarbonation - GHG reduction* (vs 2005) | -55% | -55% | -55% |
| Renewable energy - % of renewable energy in gross final energy consumption | / | 25% | 35% à 37% |
| Energy efficiency (vs EU primes 2007) | / | 40% à 44% | 44% |

Table 1: Comparison of climate objectives, Climate Law vs. PNEC 2020 vs. PNEC 2023

*GES = Gaz à effet de serre

FEDIL is undoubtedly aware that it is imperative to decelerate the effects of climate change and that decarbonizing Luxembourg's industrial sector is one part of the solution. The Federation of Industrialists thus particularly welcomes strengthening the ambitions in renewable energies. Indeed, a large part of the decarbonization of the industrial sector will involve the electrification of heat sources, which implies access to renewable electricity at a competitive price. However, FEDIL does not find in this PNEC all the elements needed to thoroughly comprehend the origins and cost implications of the necessary green energy solutions. A competitive power price for the industry is a prerequisite for successful sector decarbonization. The PNEC must dedicate more measures to address the structural issues of high power prices.

Two of the three objectives have been broken down into sectoral objectives addressing the industrial sector: Reducing greenhouse gas (GHG) emissions and increasing energy efficiency (EE). The increase of renewable energy in the consumption mix is not directly affecting the industry as a sector objective. This chapter's two paragraphs will thus focus on GHG reduction and EE. A third paragraph will analyze the objectives underlying projections and their implications.

1.1 Greenhouse gas (GHG) emission reduction

The sectoral comparison between the greenhouse gas (hereafter "GHG") emissions reduction objectives of the PNEC 2020 and its update in 2023 vs. the baseline emissions of 2019 allows the following three observations (see Table 4Table 2):

1. The targets for three sectors have been relaxed, including the one for the industry.
2. The target for the agricultural sector remains almost unchanged.
3. The target for the transport sector has been strengthened.

Due to its large share in the overall emissions of Luxembourg, the transport sector's leverage allows it to compensate for the relaxation of the other sectors' objectives without compromising on the overall GHG reduction target.

FEDIL welcomes the adapted GHG reduction objectives of the PNEC 2023 for the industrial sector. This adaptation brings GHG reduction objectives of Luxembourg within the range of what other countries, such as France or Germany, had already determined for their industry sector in 2020. The regulation of the 22 June 2022 determining the annual greenhouse gas emission allocations for the period until December 31, 2030, of the sectors, needs be updated according to the new sectoral objectives.






| Secteur | Objectifs PNEC 2020 [ktCO ₂] | Objectifs PNEC 2023 [ktCO ₂] |
|--|---|--|
| Industrie de l'énergie & manufacturier, construction | -52% |  -35% |
| Transport | -50% |  -62% |
| Bâtiments résidentiels et tertiaires | -64% |  -44% |
| Agriculture et sylviculture | -27% |  -28% |
| Traitement des déchets et des eaux usées | -44% |  -21% |
| Total | -55% | -58% |

Table 2: GHG Reduction Targets compared in PNEC 2020 and PNEC 2023 vs. baseline of 2019

Nevertheless, the adapted GHG reduction goal remains challenging for the industry. A study about the industry's decarbonization potential until 2030, conducted by the company Schwarz and Co, commissioned by the HCDI¹ identified for the Luxembourg non-ETS industry a cumulated potential of about 13% GHG reduction. The number of those currently identified decarbonization projects is still insufficient and must be multiplied by three within the next few years to reach the newly updated goal. Therefore, solid support and incentivization measures are needed to stimulate this level of additional decarbonization projects in the non-ETS industry.

1.2 Energy Efficiency (EE)

The sectoral comparison between the Energy Efficiency objectives of the PNEC 2020 and its update in 2023 vs. the baseline energy efficiency of 2019 allows the following three observations (see Table 3):

- The targets of the industrial and services sectors have been relaxed.
- The relaxation of the services sector's objectives is most significant, with a more than 27% relaxation between the two Energy and Climate Plans of 2020 and 2023.
- The targets of household and transport sectors have been strengthened. However, the latter has such a leverage effect that it compensates for the relaxation of the other sectors; the overall energy efficiency goal for 2030 is nearly unchanged.

FEDIL welcomes the adapted Energy Efficiency objectives of the PNEC 2023 for the industrial sector. However, those new objectives do not mean that the industry will be off the hook as they need to offset the growth of the existing production capacities and, where applicable, the settlement of new production capacities. Nevertheless, the new objectives make the settlement of such new production capacities realistic, which was unthinkable with the objectives of the PNEC 2020 and its underlying projections.

The strengthening of the transport sector's EE objectives is in line with those of the GHG reduction, as in the transport sector, EE directly contributes to the reduction of GHG.







| | Base (mesuré) 2019 [GWh] | Objectif PNEC 2020 pour 2030 [GWh] | Objectif PNEC 2023 pour 2030 [GWh] | Objectif PNEC 2020 pour 2030 [%] | Objectif PNEC 2023 pour 2030 [GWh] |
|---|-----------------------------|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Industrie de l'énergie et manufacturier, construction | 7 709 | 6 088 | 6 985 | -21,0% |  -9,4% |
| Transports | 32 246 | 21 664 | 19 066 | -32,8% |  -40,9% |
| Ménages | 5 705 | 4 611 | 4 410 | -19,2% |  -22,7% |
| Tertiaire | 6 181 | 3 205 | 4 904 | -48,1% |  -20,7% |
| Agriculture et sylviculture | 62 | - | 64 | - |  3,2% |
| TOTAL | 51 903 | 35 568 | 35 429 | -31,5% |  -31,7% |

Table 3: Energy Efficiency Objective - Comparison of PNEC 2020 to PNEC 2023 vs. 2019

¹ HCDI: Haut Comité pour le Développement de l'Industrie

2 Projections

2.1 Economic and demographic projections

FEDIL welcomes that the PNEC update is based on STATEC assumptions that project solid economic and demographic growth between 2020 and 2030. The projection data is further considering the specificities of Luxembourg, including:

- A solid GDP growth of 34%;
- Population growth of 20%;
- Employment growth of 28%;
- Out of which, an increase of cross border workers of 41%

The projected increase of the non-residential building area that is supposed to contribute to the economic growth seems to be relatively tightly calculated with an additional 230ha.

2.2 Decarbonization projections

The PNEC's underlying assumptions for decarbonizing the non-ETS manufacturing and construction industry² are based on STATEC's scenarios, as shown in Figure 1. The diagram shows how the PNEC 2023's additional measures will affect emissions in 2030 and 2050.

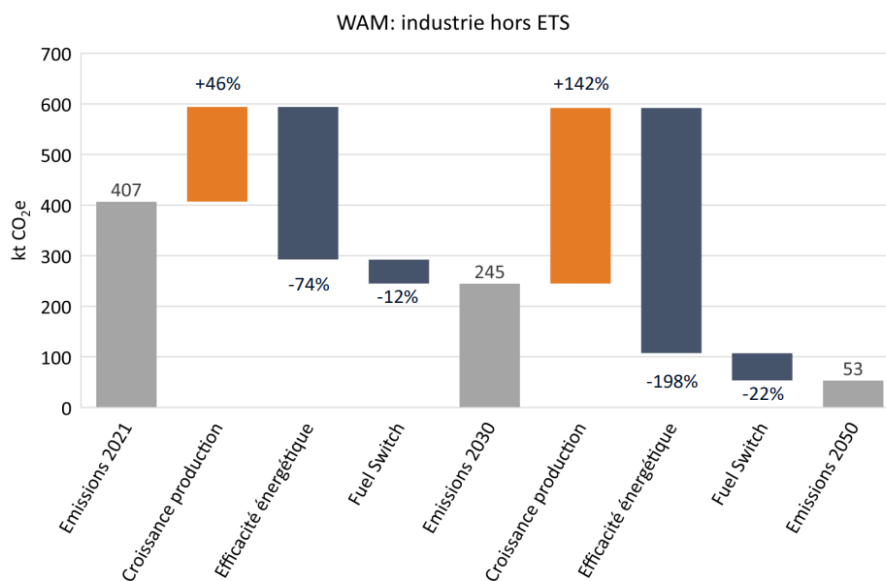


Figure 1: STATEC³ scenario for the decarbonization of the manufacturing industry's emissions until 2030 and 2050 (WAM: with additional measures)

In the decarbonization scenario until 2030, a substantial production increase of 46% is expected. Even though desirable for the sector, FEDIL believes such an increase until 2030 may be overly optimistic unless the EU succeeds in reducing the price disadvantage to which the EU industry is exposed compared to its international competition. We can further assume that those newly or additionally installed production capacities will rely on the best available technologies regarding emission levels and energy efficiency. We can further suppose that most of these additional capacities will be powered by electricity, causing no or little additional emissions. This means that the 74% in energy efficiency, which assumes the lion's share of the decarbonization scenario of this sector, would be made on the existing capacities' emissions (407 ktCO₂e). However, we doubt that the existing production capacities are based on technologies bearing a decarbonization potential of around 74% by energy efficiency. The biggest emitters are probably based on gas or fuel boilers with high energy efficiency.

² A second scenario has been elaboration for the Energy Industry, which suggests the substitution of natural gas by biomass and secondary raw materials.

³ source STATEC, « Projections du STATEC pour le nouveau PNEC », présentation Tom Haas 17/04/2023

Unclear is how the decarbonization potential of 12% (see Figure 1) expected from switching fuel has been calculated. Some clarification about this number would be appreciated. FEDIL believes that the emission reduction potential by fuel switch could be more ambitious than 12% provided that measures of this PNEC will succeed in incentivizing more decarbonization projects in the industry than initially projected in the study by Schwarz and Co.

Besides energy efficiency and switching from natural gas to electrification, the PNEC foresees hydrogen as an alternative to natural gas. Figure 2, left diagram, copied from the PNEC 2023⁴, shows the projected evolution of the energy vectors used in the manufacturing and construction sectors. The PNEC does not indicate whether the diagram refers to the ETS, the non-ETS, or both sectors. However, the total consumption levels of around seven terra-watt hours suggest that both sectors are displayed here. Within the context of this analysis, this diagram allows two relevant observations for the ETS and non-ETS sectors:

1. The substitution of natural gas (see decreasing light blue bars of Figure 2, left diagram) is projected at around 30% (more or less 1000GWh) between 2020 and 2030, primarily by electricity (see green bars increasing).
2. Hydrogen first appears as an energy source in 2028 and increases slowly until 2034.

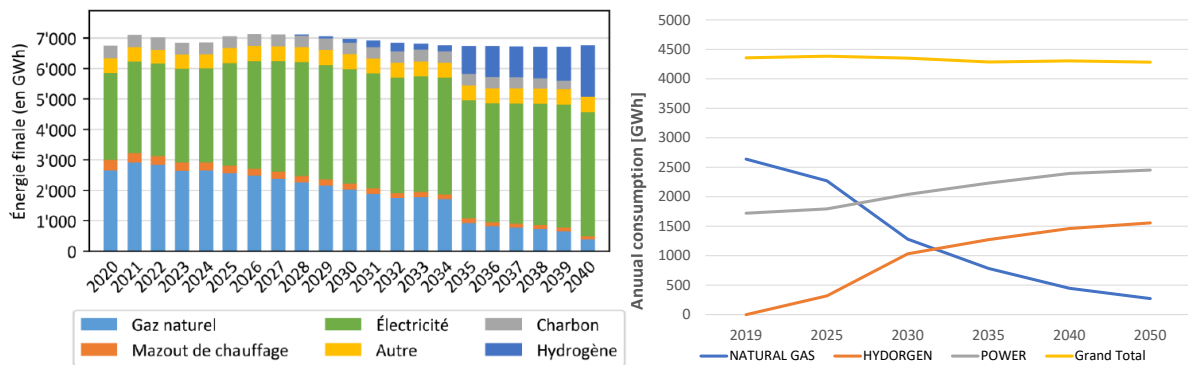


Figure 2: left⁵ diagram– Evolution of energy vectors in the manufacturing industry and the construction sector; suitable⁶ diagram - Cumulative natural gas, electricity, and hydrogen consumption projections for seven large industrial consumers

Empirical research conducted by FEDIL in 2022 yielded the diagram on the right of Figure 2. Based on a self-assessment, it projects the seven biggest industrial gas consumers' (ETS and non-ETS companies) energy vector evolutions until 2030 and 2050. It shows that:

1. The substitution of natural gas can be more significant than projected in the PNEC until 2030, provided that competitively priced hydrogen can be used instead. It could indeed be cut in half.
2. The replacement of natural gas by electricity in this group of companies is less pronounced than by hydrogen. Power consumption is projected to increase by 300-400GWh annually until 2030.
3. The most considerable hydrogen consumption increase occurs between 2025 and 2030.

FEDIL's assessment would thus indicate that significantly increasing hydrogen supply only after 2035, as foreseen in the PNEC's projection, is not fast enough to reap the full possible potential of the industry's decarbonization until 2030.

Another observation in the left diagram of Figure 2 is the missing volume of fuel oil (mazout) used in the construction sector and how it is projected to be replaced by another fuel.

2.3 Renewable energy projections

Even though the industry has no direct objectives for installing renewable energy, it may be inclined to rely on some of the renewable energy vectors to substitute parts of its fossil fuel consumption.

⁴ See PNEC 2023, Avant-projet de mise à jour, page 63, Figure 5

⁵ STATEC modelisation, source: PNEC 2023

⁶ Source: FEDIL 2022, Structured Dialogue on Decarbonisation

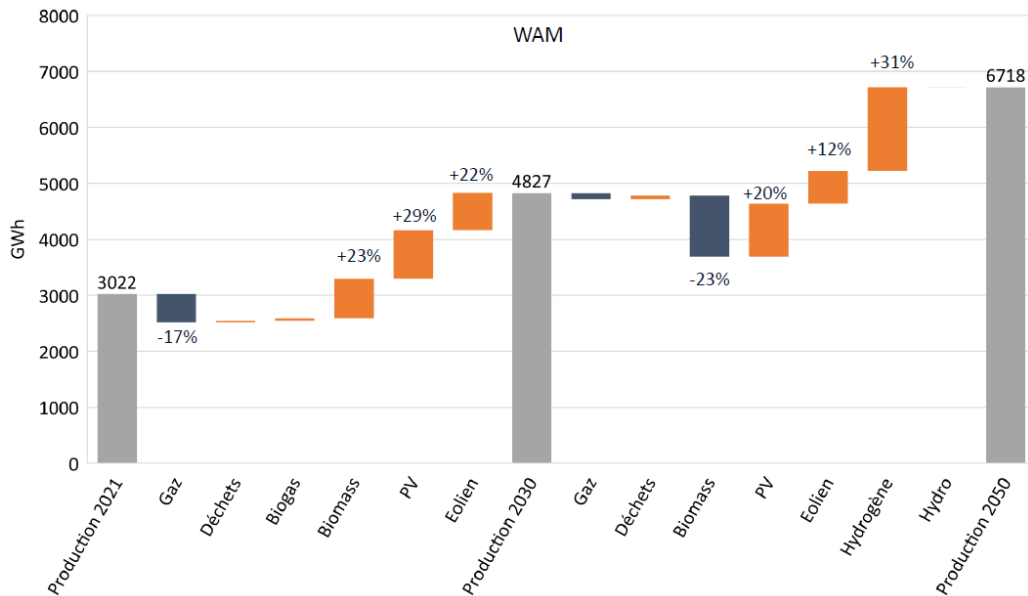


Figure 3: Projection of renewable energies within the energy industry (source STATEC)

Biomass represents one of the alternatives for the industry to substitute fossil fuels, e.g., natural gas or coal, used for heat production. The projections in Figure 3 confirm that until 2030 biomass will increase by 23% to offset natural gas reductions. However, after 2030, the projections seem to eliminate all sources of biomass, the ones added in the period before 2030 and beyond (23% after 2030 represents a higher share of energy than 23% before 2030). For industrial companies, it is crucial to understand the government’s strategy for using biomass. Companies investing in biomass systems before 2030 risk being left with stranded assets if biomass may be considered unsuitable suddenly after 2030 and before the end of the system’s lifetime.

Furthermore, it is essential for industries seeking to switch fuels from gas to electricity to have certainty about the future availability and affordability of green power in Luxembourg. According to the PNEC 2023 projections, European cooperation will cover an essential part of the additional effort to reach the updated renewable energy objective of 2030. Although Luxembourg can help to boost those renewable energy production capacities in Europe, it is crucial to ensure that they can be delivered to Luxembourg consumers at competitive prices.

3 Industry and construction sector-specific measures

FEDIL has identified 37 measures from the PNEC 2023 that will affect the industrial and construction sectors directly or indirectly. Out of these measures, 15 already existed, while 22 are new. The PNEC 2023 acknowledges that the 15 existing measures are insufficient to meet the 2030 climate objectives, hence the additional measures.

This paper focuses on the 22 new measures, of which approximately 70% are still in the planning stage. These measures need further analysis and design work, including allocating resources and budgets.

FEDIL has assessed the impact of these 22 measures on the industrial and construction sector's climate goals. Table 4 illustrates FEDIL's assessment, dividing the measures into four categories based on their expected impact: high (green), medium (yellow), limited (orange), and poor (grey). The order in which the measures are listed within each category does not indicate a ranking. Table 5 provides the assessment’s explanations.

FEDIL expects that the first eight measures in the green category will have the highest impact on achieving the industry's 2030 decarbonization goals. However, most of these measures are still at the conceptual or generic idea stage. Their final impact will depend significantly on their detailed design and allocation of necessary budgets and resources. Therefore, FEDIL is ready to contribute to elaborating these detailed designs. We further believe that ideas assessed today with a medium impact could, if adapted, yield a higher impact, and be included in the green category.

| Count | Measure N° | Measure | Stage | Type of instrument | Start | End | Impact on decarbonisation |
|-------|------------|--|--------------------------|----------------------------|-------|------|---------------------------|
| 1 | 510 & 515 | 510: Feuille de route de décarbonation de l'industrie et 515: Régime d'aides en faveur des entreprises - protection de l'environnement (Révision) | Planifiée | Planification | 2022 | | high |
| 3 | 516 | Aides au fonctionnement liées aux contrats pour différence | En analyse | Economique | - | - | high |
| 4 | 504 | Accord volontaire relatif à la décarbonation et à l'amélioration de l'efficacité énergétique dans l'industrie en combinaison avec la tax CO2 progressive pour l'industrie (à partir de 2024) | Planifiée | Accord Volontaire | 2024 | 2030 | high |
| 5 | 323 | Décarbonation de chantiers de construction - électrification des engins et raccordement rapide au réseau électrique | En analyse | Planification / économique | 2023 | | high |
| 6 | 218 | Connexion à une infrastructure européenne de transport d'hydrogène | Planifiée | Planification | - | - | high |
| 7 | 219 | Facilitation du recours aux contrats de fourniture d'électricité renouvelable à long terme par un instrument de réduction des risques | Planifiée | Economique | 2023 | - | high |
| 8 | 520 | Révision des textes législatifs en vue d'accélérer les procédures d'autorisation pour les projets de décarbonation | Planifiée | Règlementaire | 2023 | - | high |
| 9 | 105 | Taxe CO2 linéaire | Mise en œuvre, Planifiée | Fiscal | 2021 | | medium |
| 10 | 519 | Modernisation de la bonification d'impôt pour les investissements effectués dans le cadre d'un projet de transition énergétique et écologique | Planifiée | Fiscal | 2024 | - | medium |
| 11 | 208 | Appels d'offres pour centrales photovoltaïques en mode autoconsommation | Planifiée | Economique | 2022 | | medium |
| 12 | 517 | Mécanisme de partage de risques liés aux projets d'efficacité énergétique et de décarbonation des entreprises (Third party involvment) | Planifiée | Economique | - | - | medium |
| 13 | 217 | Rémunération pour la production d'hydrogène renouvelable (concept de financement pour la production d'H2 renouv. au Lux avant 2030) | Planifiée | Economique | 2023 | - | medium |
| 14 | 511 | Pacte climat pour les entreprises (PME) (Klimapakt fir Betriber) | Planifiée | Accord Volontaire | 2023 | 2030 | medium |
| 15 | 216 | Stratégie hydrogène | Adoptée | Planification | | | low |
| 16 | 506 | Audits énergétiques obligatoires pour entreprises (Révision EED 2023) | En analyse | Règlementaire | 2023 | - | low |
| 17 | 507 | Obligation d'audit énergétique et monitoring/optimisation pour bâtiments fonctionnels d'une surface supérieure à 1.000 m2 | En analyse | Règlementaire | - | - | low |
| 18 | 508 | Obligation de décarbonation par un phase-out fossile accéléré pour les bâtiments fonctionnels d'une surface supérieure à 1.000 m2 | - | Règlementaire | - | - | low |
| 19 | 509 | Obligations de monitoring et d'amélioration de l'efficacité énergétique pour centres de données | En analyse | Règlementaire | 2023 | - | low |
| 20 | 528 | Proposition de renforcement du règlement européen n° 517/2014 (F-Gas II) pour la réduction des émissions de gaz à effet de serre fluorés | En analyse | Règlementaire | - | - | low |
| 21 | 522 | Pôle de recherche public-privé en matière de CCU et DAC | En analyse | Recherche | 2024 | - | poor |
| 22 | 207 | Obligation "PV ready" pour bâtiments industriels et agricoles | En analyse | Règlementaire | - | - | poor |

Impact of measures on the decarbonization of the sector: ■ High impact ■ Medium impact ■ Limited impact ■ Poor impact

Table 4: FEDIL's assessment of the 22 additional measures from PNEC 2023 touching the industry.

| Count | Measure N° | Measure comments | Impact on decarb. |
|-------|------------|--|-------------------|
| 1 | 510 & 515 | Actively and regularly analyzing the industry's decarbonization projects in a roadmap is a welcome measure, provided that it is paralleled by government competencies, human resources, and budgets that allow prioritized and focused support to improve those projects' economic viability and allow their swift implementation. The revision of the possibilities of the state aid (measure 515) to allow them to provide the best possible support for individual projects may have some of the highest decarbonization impacts for the industry. | high |
| 3 | 516 | The possibility to subsidize decarbonization projects' operational costs (OPEX) via contracts for difference is essential to make those projects economically viable. The past has shown that investment aid (CAPEX) alone cannot make most decarbonization projects attractive for industrial investments. | high |
| 4 | 504 | Extending the Voluntary Agreement (VA) beyond energy efficiency goals to create an additional instrument for incentivizing decarbonization and renewable power projects represents a great lever to accelerate corporate climate action. The design of the VA thus needs to offer a win-win situation that takes advantage of the collective efforts of adhering companies; it must include achievable objectives proportionate to incentives. | high |
| 5 | 323 | The decarbonization of construction sites depends on the possibility of switching fuels to electricity or biofuels. Restraining this measure to electricity as the only possible alternative energy would limit its potential as the availability of electricity powered construction machines is still limited. Construction companies can be incentivised to invest in low carbon equipment when public tenders progressively include higher levels low carbon requirement. | high |
| 6 | 218 | The supply of hydrogen to decarbonize energy-intensive high-temperature industrial production processes is crucial. However, the first connection to a European hydrogen grid must be accelerated to deliver pilot sites with the low-carbon gas already before 2035 in sufficient quantities. FEDIL's research identified that Luxembourg's industry's hydrogen needs increase most between 2028 and 2035 and flatten thereafter. | high |
| 7 | 219 | FEDIL's research confirms that introducing de-risking tools for the off-taker of renewable power purchase agreements would substantially decrease off-takers reticence to contract renewable power at predetermined for long-term periods. This measure is however much dependent on how much de-risking the measure would provide, i.e. how much budget can be put aside per contract to counter the risk of a loss. | high |
| 8 | 520 | Accelerating decarbonization project's planning and permitting procedures , be it traditional industrial projects or renewable power projects, is crucial not only to meet the 2030 timeline but, above all to encourage corporates to invest. | high |
| 9 | 105 | An annual and linearly increase in CO2 tax has a medium impact on corporate decarbonization for some years compared to a more incentivizing progressive CO2 tax. FEDIL welcomes that the progressive CO2 tax will be included in measure 504 as one element of the Voluntary Agreement. | medium |
| 10 | 519 | A tax exemption for investments made in energy transition projects represents a welcome element to incentivize such investments further and may help reduce their overall return on investment. The leverage of this measure depends on the level of incentive it is willing to set. | medium |
| 11 | 208 | Companies welcome the financial support that encourages the installation of PV for self-consumption via call for tenders . It may be used to escape some elements of the price volatility on power markets but bears other risks and risk mitigation costs. This measure could be leveraged if the de-risking tool (see measure 219) could be applied to also to mitigate some parts of the flexibility and balancing the risk inherent to PV self-consumption. | medium |
| 12 | 517 | A risk-sharing mechanism for corporate energy efficiency and decarbonization projects is a welcome approach for corporates to lower the barriers to implementing projects with long-term investment returns. | medium |
| 13 | 217 | The remuneration for producing renewable hydrogen may leverage companies to start pilot installations run by hydrogen earlier due to the availability of some volumes before installing a grid connection. The limited volumes that such an initiative can produce may, however, have a medium to limited impact on the overall decarbonization of the sector. | medium |
| 14 | 511 | The governance aspects of Klimapakt fir Betriber seem to hamper this initiative's full potential. For example, setting decarbonization goals, including KPIs on focus sectors and activities to measure the impact of the pact could leverage the deployed resources. | medium |
| 15 | 216 | The current hydrogen strategy foresees supplying industrial volumes of hydrogen after 2035. The contribution to the 2030 goals is thus low. The strategy must be revised to satisfy the demand of industrial volumes already before 2030 – see also measure 218. | low |
| 16 | 506 | Energy audits for non-SMEs are already mandatory every four years. Changing the criteria from the size of the company to a minimum threshold of energy consumption can make sense in terms of impact as it targets specifically energy-intensive companies, but it will have a minimal impact on the 2030 decarbonization target for the industry. | low |
| 17 | 507 | Energy-intensive industries with a building surface > 1000m2 are already engaged on a voluntary basis to realize energy audits regularly. Furthermore, the new renewable energy directive proposal suggests mandating energy audits for energy-intensive industries. The impact of a general obligation on all industry buildings with a surface < 1000m3 on the decarbonization target for the industry sector may be limited. | low |
| 18 | 508 | Given that this measure only applies to buildings adapted for heat pumps , for temperatures < 55°, and only in case the switch does not cause excessive costs, FEDIL believes there is relatively low decarbonization potential in such an obligation. | low |
| 19 | 509 | Most data centers in Luxembourg already have voluntary engagements in energy efficiency improvements (FEDIL voluntary agreement) and/or are certified ISO 50001 and thus have robust energy management systems. Given this situation, a European monitoring obligation or energy efficiency obligation may have a low impact on the decarbonisation of data centers. | low |
| 20 | 528 | Reducing fluorinated greenhouse gas emissions transposes a European regulation into national law. It may only affect a limited number of companies. Thus, the impact on the 2030 decarbonisation target of the industrial sector may be marginal. | low |
| 21 | 522 | CCU and DAC technologies may play an essential role in a net-zero economy in 2050. In the short term, however, until 2030, this measure will not significantly impact the industry's decarbonisation target. | poor |
| 22 | 207 | The obligation to build industrial buildings PV-ready may favor the renewable energy generation objectives but it has no direct impact on the decarbonization target for the industrial sector. | poor |

Impact of measures on the decarbonization of the sector: ■ High impact ■ Medium impact ■ Limited impact ■ Poor impact

Table 5: FEDIL's assessment of the 22 additional measures from PNEC 2023 - with comments

4 Conclusion

In sum, FEDIL welcomes the PNEC 2023. Many of the ideas and suggestions brought forward by the industrial federation since the PNEC 2020 are included in the updated version of the climate and energy plan, for example, the progressive CO₂ tax, compensations for increasing OPEX, a de-risking tool for power purchase agreements, the extension of the voluntary agreement to GHG emissions or the review of industrial emission and energy efficiency goals.

Compared to the PNEC 2020's GHG reduction goal, the update 2023 is strengthening only one out of five GHG reduction objectives, the one for the transport sector. At the same time, it relaxes three objectives and leaves one roughly at the same level. The national goal of decarbonization in 2030 will thus be achieved by reducing greenhouse gas emissions the most through reducing sales of transportation fuels. However, the transportation sector's effort is enormous since the projections of the new 2023 NECP consider optimistic economic and demographic growth prospects for 2030.

The burden of the energy efficiency improvement target in the transport sector is primarily, and even more so, on road transport, mainly because the strong projected growth in the aviation sector offsets some of the improvements.

Reducing GHG emissions by reducing the sales of road transport fuel will impact one of Luxembourg's significant sources of tax income. It is thus all the more important to support the services sector and the industry to emerge stronger from the energy transition.

The adapted objectives for the industry indicate that the government's action is becoming coherent with its political narrative of strategic autonomy, reshoring, nearshoring or installing Net-Zero Valleys⁷ in Luxembourg. A narrative based on a scenario of expanding rather than reducing the industry's production capacities to strengthen Luxembourg and Europe's position for critical supply chains. Such local capacity expansion should be seen as Luxembourg's contribution to making the EU somewhat less dependent on global supply chains in health care, medical devices, food, or energy production and distribution systems.

Still, despite adapted objectives for the industry, reducing GHG emissions in the industry remains a considerable challenge. Companies can contribute significantly to the fight against climate change by transitioning from fossil fuels to green energy sources. This transition must nevertheless allow businesses to preserve their competitiveness and profitability. It seems like an obvious prerequisite. Yet, it is not given if power prices remain multiple times more expensive in the EU than their fossil counterparts, notably natural gas. The speed and success of Luxembourg's and Europe's industry's energy transition depend on two elements: firstly, on whether we manage to reduce the price differential between natural gas and power, and secondly, on whether we reduce the price differential of power in the EU compared to our international trading partner. To reduce the differential, OPEX aid is welcome, as suggested in the PNEC, but it can only be considered a temporary solution. Further, pseudo-solutions such as artificially increasing the gas price by taxes or carbon permits only hurt EU companies' competitiveness and encourage them to relocate to countries outside Europe with more competitive power prices or fewer carbon taxes. The real and probably one of the only solutions is to balance demand and offer of renewable energies. Not all components of improving that balance are European topics. So, the PNEC, which is designed as a national energy and climate document, needs to address those to determine the most effective solutions to bring down power prices, for example, by demand side management, local storage capacities, etc.

The 2023 climate and energy plan update, the cornerstone of Luxembourg's climate policy, is a first step towards a more effective and practical climate policy for the industrial sector. FEDIL welcomes this update and the fact that it has been developed based on locally developed analyses, projections, and policy measures using national expertise. The climate crisis will make these analytical and policy development capabilities a critical resource for creating an enabling framework for the energy transition of all sectors.

⁷ For more information, refer to the [EU's Net-Zero Industry Act](#): Making the EU the home of clean technologies manufacturing and green jobs