INSTITUT LUXEMBOURGEOIS
DE RÉGULATION

OBSERVATIONS TRANSMISES

DANS LE CADRE DE LA CONSULTATION PUBLIQUE DU 30 MAI 2025 AU 08 JUILLET 2025 PORTANT SUR L'ÉVALUATION DE LA CONTRIBUTION POTENTIELLE DE L'INFRASTRUCTURE DE CHARGE À LA FLEXIBILITÉ, À L'AUGMENTATION DE LA PART D'ÉLECTRICITÉ RENOUVELABLE ET À LA RÉDUCTION DES COÛTS POUR LE SYSTEME ÉLECTRIQUE.

LUXEMBOURG, LE 23 JUILLET 2025

SECTEUR ÉLECTRICITÉ

Le présent document reprend les contributions transmises dans le cadre de la consultation publique du 30 mai 2025 au 08 juillet 2025 portant sur l'évaluation de la contribution potentielle de l'infrastructure de charge à la flexibilité, à l'augmentation de la part d'électricité renouvelable et à la réduction des coûts pour le système électrique.

Tout passage indiqué par la partie intéressée comme étant confidentiel, ne fait pas partie du présent document.

L'Institut Luxembourgeois de Régulation a reçu deux contributions dans le cadre de cette consultation.

Luxembourg, the 8th of June 2025

Creos Response to the Public Consultation by ILR on the *Contribution of Electric Vehicle Chargepoints to the Flexibility of the Luxembourgish Energy System and the Absorption of Renewable Energy*

Short Overview of Creos Position on the Report

Creos appreciates the comprehensive analysis performed by Cenex for ILR regarding the potential benefits of flexibility derived from electric vehicle (EV) charging and vehicle-to-grid (V2G) technologies. The **results of the report can effectively be used qualitatively** to showcase the multiple potential positive benefits of pursuing optimised EV charging reflected in the recommendations of the report:

- The recommendation for optimized EV charging and V2G to provide system-wide benefits for both grid and market aspects.
- The necessity to adjust network price signals based on energy markets in a flexible world, to avoid negative impacts of low wholesale prices on the grid. The report demonstrates that the increase in demand in the energy market optimisation scenario would bring the necessity for higher network capacity compared to the unmanaged scenario.
- The suggestion to encourage prolonged plug-in behaviour to maximize EV charging flexibility.

However, Creos respectfully emphasizes that the assumptions and results presented in this report constitute an absolute upper boundary scenario for theoretical flexibility potential. Practically available flexibility will be considerably lower given numerous technical and practical constraints encountered in real-world applications as described in the dedicated subsection on page 3 of this report. Consequently, **the results cannot be quantitatively applied for practical grid development and operational planning.**

In view of these points, we are thus missing three important points which should be highlighted in the Executive Summary:

- The network reinforcement postponements are based on an upper limit of the theoretical potential, not considering realistic assumptions for the plug-in behaviour, not integrating N-1 dimensioning criteria and ignoring safety margins. Such assumptions are not adequate for a state-of-the-art grid dimensioning. The results of the analysis can thus not be used to justify any reinforcement postponement.
- The simulations are limited to a 2030 horizon, but we prepare our grid on a longer time horizon. The simulations do not include the additional load which we are expecting in the years after 2030.
- The daily savings from the optimizations based on day ahead wholesale energy prices, grid services or network reinforcement postponement cannot be simply cumulated. As the results show, an optimisation on the wholesale market is only possible with a well-developed grid, as this optimisation further increases the peak demand. The biggest cost saving potential lies also in the wholesale market optimisation, thus justifying a reinforcement of the grid from an overall economical point of view.

In the following chapters we are giving more detailed feedback on critical methodological simplifications and assumptions.

Detailed Elaboration of Creos' Position

Categorization of the Results as an Optimistic Theoretical Flexibility Assessment

Flexibility assessments typically distinguish between theoretical, technical, and practical potentials, each progressively constrained by real-world limitations, as illustrated in Figure 1. To avoid misunderstanding of the quantitative results of the report, **Creos recommends to explicitly mention in the executive summary that the simulation results in this report need to be viewed as optimistic upper boundary estimates of the theoretical flexibility assessment. Looking at the maturity of the smart charging and V2G market (technology, aggregators and customers), realistically achievable practical flexibility is expected to be substantially lower.**

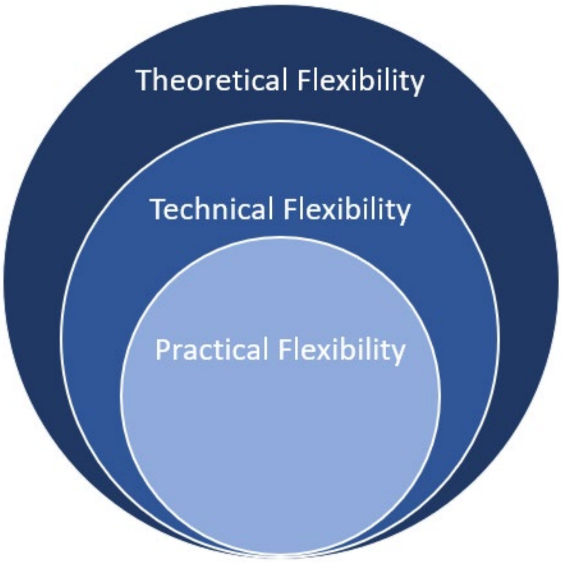

Figure 1 Categorization of flexibility potentials

Some examples of technical limitations that would need to be considered for a technical flexibility assessment would be:

- Limited simultaneous EV charging power at workplaces, where significantly less than the assumed 22 kW per electric vehicle is realistically available if multiple cars are connected simultaneously, as there will be some limitations with the grid connection power of the workplace.
- Imperfect interoperability between vehicles, chargers, and energy management systems. In 2025, standardization leaves substantial room for differing interpretations depending on the vehicle and charger manufacturers, potentially limiting effective flexibility provision.

- Certain EV models require minimum charging currents once they are connected to the charger (e.g., 6A) to prevent sleep mode, which significantly reduces the optimisation potential.
- The ISO 15118 standard for EV-charger communication will become mandatory only from 2027, limiting widespread interoperable communication adoption by 2030 and thus reducing achievable flexibility.

Practical considerations would then limit the realistically expectable flexibility from EV smart charging and V2G even further, as the following examples illustrate:

- Limited adoption of optimized charging, V2G, and automation software (home energy management systems) due to low energy literacy and limited awareness of the associated benefits.
- User concerns about accelerated battery degradation associated with V2G, significantly reducing adoption rates.

Countless other technical and practical limitations would need to be considered to achieve quantitative results that can be applied for grid development and operational planning, which are expected to result in a significantly lower flexibility potential of EV smart charging and V2G.

Creos Position Regarding the Assumptions of the Report

In this section, the most important assumptions are mentioned which contribute to the results of this report being an optimistic upper boundary of the theoretical flexibility potential of EV charging and V2G adoption:

1. Perfect foresight optimisation

This approach assumes perfect knowledge of the future events to be available to the optimization algorithms including the timely availability of all data and perfect dispatch of flexibility without any delays. Creos welcomes that a disclaimer was included in the executive summary noting this idealised assumption of the report. We expect that technical limitations like forecasting inaccuracies and unpredictable user behaviours would significantly reduce achievable flexibility. The quantitative outcomes from this model, therefore, should strictly be seen and communicated as indicative upper-bound scenarios only.

2. Choice of the lowest 2030 demand scenario from the old Creos Scenario Report from 2023

In Table 18 (page 41) of the Cenex report, an annual peak demand forecast of only 860 MW for 2030 is referenced, derived from the soon-to-be-updated Creos Scenario Report of 2023. This Creos Scenario Report presents several forecast scenarios (page

84), each varying significantly based on their underlying assumptions—such as using the "target" or "reference" NECP scenarios and the inclusion or exclusion of flexibility considerations. The specific demand scenario utilized for the optimization in the Cenex report is not explicitly stated; however, the cited figure of 860 MW suggests it corresponds to a lower-end estimate. Using this low estimate significantly influences the optimization results to the point that the adoption of a more realistic scenario from the same report would easily increase peak load estimates by several 100 MW resulting in significantly less network deferral savings. Moreover, recent governmental adjustments of the NECP indicate further increases, highlighting the overly optimistic nature of the chosen scenario and thus overstating potential grid reinforcement deferral. This is also reflected in the recently published Scenario Report (version 2024) by Creos where the projected evening peak demand is estimated to range between 1484 MW (low estimate) and 1751 MW (high estimate) by 2030 (Figure 2) largely exceeding the numbers used in the Cenex report.

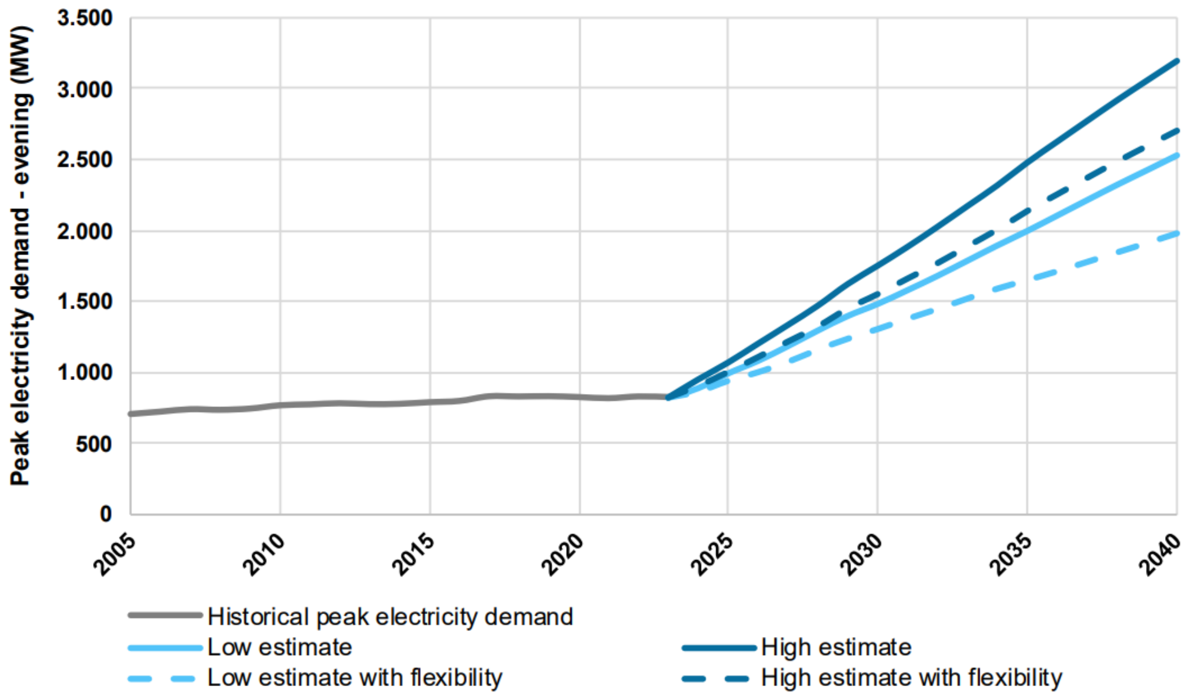

Figure 2 – Projected electricity demand during the evening peak according to updated Scenario Report version 2024 (Figure 8.2 on page 113)

3. Optimistic plug-in behaviour

The simulations in the executive summary rely exclusively on the highly optimistic "incentivized plug-in" scenario (Report, Section 3.2.2, p. 19), which assumes EVs are plugged in for at least 12 hours daily, significantly deviating from observed behaviours. Indeed, the report acknowledges this limitation, highlighting on page 31 that "*the potential available resource for flexibility can be significantly affected by how* *frequently drivers plug in their vehicles."*. Under the more realistic "necessary plug-in behaviour", the peak number of simultaneously plugged-in EVs in 2030 is reported to decrease from the modelled 130,000 to around 50,000 (Report, Section 4.3.5, p. 51). Unfortunately, none of the alternative plug-in behaviours ("current" or "necessary") have been applied for the network deferral simulations potentially leading to misleading interpretation of the relating quantitative results in the report.

4. Simplified network reinforcement deferral simulation

Numerous simplifications with enormous impact on the final results have been assumed in the network reinforcement deferral simulations:

- **Necessary grid capacity to distribute the electricity demand within the regions:** The assumption of treating each network region as a "copper plate" with only a single constraint significantly simplifies the actual complexity and overlooks congestions occurring in lower voltage networks coming from simultaneous EV charging. For realistic simulations regarding network reinforcement deferral, it is essential to consider the spatial distribution of both EV charging points and renewable generation assets. This is crucial to properly evaluate grid congestion risks arising from extensive deployment of EV charging flexibility. Specifically, according to the report, EV charging would predominantly occur at lower voltage levels near workplaces or residential areas. However, the renewable energy generation that is anticipated to be offsetting through EV flexibility typically occurs at higher voltage levels, where large-scale wind and solar installations are connected. Accounting for these practical constraints would substantially reduce the achievable flexibility from EV charging.

- **Ignoring necessary safety margins for network capacities:** The simulations assume that the grid can be safely operated at full capacity. In practice, additional safety margins are required to ensure secure grid operation in compliance with network standards. To state a few examples, operational losses are considerably higher under high loading and intermittent instantaneous peaks need to be accounted for to stay within voltage deviation standards.

- **Compliance with N-1 security criterion for demand**: Creos was asked to provide capacity limit metrics for the major network regions, but the specific use case was not specified and therefore the limits for normal operation (N-case) have been provided. In the case of network reinforcement deferral due to demand peak shaving, industry standards (e.g. VDE 4110) advise to respect the N-1 security criterion, a standard operational practice ensuring that the grid can withstand a single major fault without causing widespread outages.

As a conclusion, even with the highly optimistic flexibility assumptions of the report a considerable proportion of planned reinforcements remain necessary to meet the N-1 criterion.

- **Network operators don't have full control over EV flexibility**: Network operators are in full control of their grid reinforcement plans, but as some consumers may prefer to react to wholesale market incentives instead, smart charging and V2G optimization cannot be controlled by the grid operator. This means that the proposed network deferral via the use of EV flexibility could put secure network operation within capacity limits at risk.

- **Potential negative impacts on the network capacity requirements until 2050**: The report simulates network deferral considering 2030 demand forecasts. This ignores the demands of the following years and may put future net zero targets by 2050 at risks. The projections in the most recent Scenario Report (version 2024), shown in Figure 2 above, underline the uptake in peak demand projecting a continuous increase beyond the 2030 values to between 2500 MW (low estimate) and 3200 MW (high estimate) by 2040. Therefore, Creos advises for steady network reinforcements to prepare for long-term electricity needs.

These elements, when integrated in a more realistic way, significantly reduce achievable flexibility and thus alter the results substantially to a point where the presented quantitative results are outright wrong. Claiming a deferral of €566 million in grid reinforcements as mentioned in the report in Section 4.3.3, p. 50 is unrealistic and misleading and needs to be reassessed, considering realistic assumptions to avoid misunderstanding.

5. Charging power assumptions

Table 3: Charging type specifications

Charging Type	Typical dwell time (hours)	Power (kW)
Workplace	7-10	22
Destination	1-8	22
High Power	1-2	50
Residential	12-22	7

Figure 3 Unrealistic dwell times and charging power assumptions used for all simulations (page 20 of the Cenex report)

The assumed charging power in the report (see Figure 3) are technically and practically impossible. These assumptions are expected to contribute substantially to the high flexibility estimates in the report.

- Destination chargers of the public AC charging networks indeed often have a power of 22 kW, but this power is typically distributed across two charging ports meaning that in the end only a remaining power of 11 kW per vehicle is available. Besides this, the majority of EV onboard chargers are limited to 16 A (11 kW) AC charging anyway.

- The same applies for workplace chargers. Furthermore, they typically are integrated into an energy management system which limits the charging power even further when a lot of vehicles are connected simultaneously.
- High voltage chargers, on the other hand, cannot realistically be considered as a flexibility source as they are used for fast charging sessions where users typically want to charge as quickly as possible. Creos supports the assumption of the report that this type of charger is applicable for V2G (page 61), but it remains unclear from the document if this type of charging was included for smart charging.
- For residential charging, 11 kW charging is allowed per single family house and in case of apartment buildings the charging power is calculated case by case. In the end, this means that less than 11 kW is available per vehicle if multiple vehicles are connected at the same time. The report is partly considering this by assuming 7 kW per residential charging vehicle, but nevertheless it should be noted that with the high number of simultaneous connections in the report, the available power would still be lower. For a single house with two EVs for example 5.5 kW is available per vehicle if they are charging at the same time.
- On top of this, the considered dwell times are also very optimistic resulting in very high availability of charging power throughout the day, even during the typical commuting times (Figure 14 and 15 on page 26 of the report). This is reflected in the unmanaged charging scenario in Figure 17 on page 28, where the highest peak from EV charging is reported in the morning between 7am and 8am, which is incoherent with the statement on page 26 of the report saying that "*the minimum number of connected vehicles is expected to occur around typical commuting times during the morning and evening.*".

We expect that more realistic dwell times and charging power assumptions would drastically change the results in the report and advise that these assumptions should be revised for future simulations to avoid misleading quantitative results. To illustrate this, the connected charging power is reported to peak at 1.716 MW in 2030 according to the report (page 44). Considering the maximum number of 130.000 simultaneously connected vehicles this would result in a simultaneous charging power of 13.2 kW per plugged in vehicle.

Conclusion of proposed changes

Given the considerable limitations discussed above, Creos recommends the following essential modifications:

- Clearly state the theoretical nature and limitations of current quantitative results in the executive report mentioning that numerous technical and practical limitations have not been included which would lead to a much lower practical flexibility potential. An explanatory section on the difference between theoretical, technical and practical flexibility potential would additionally increase understanding for readers.
- Include in the executive summary that the cost saving results for energy market, grid services and network reinforcement deferral are mutually exclusive and are based on separate optimization simulations. To avoid misunderstanding, it is important to clearly state in the executive summary that although savings from energy market and grid service based optimization can be stacked, they would result in even higher peak demand and thus rely on even stronger grid reinforcements. The results from network reinforcement deferral optimization, on the other hand, did not consider any energy market or grid service optimizations.
- Integrate realistic 2030 demand forecasts aligned with current governmental energy targets and revisions.
- Include realistic alternative EV plug-in behaviour patterns into the network deferral simulations.
- Consider lower voltage grid limitations in smart charging and V2G optimisation, to address spatial and operational complexity.
- Consider N-1 security standards in case of network deferral simulations.

Finally, Creos highlights evolving international positions, such as the UK's regulator OFGEM, which has shifted away from using flexibility for deferring network investments stating in its recent publication ED3 Framework Decision: "*we have decided that a 'flex first' approach, where network flexibility is used to specifically to defer investment in network capacity is not appropriate in ED3. We think it is important that DNOs do not use flexibility to defer investment until it is needed 'just in time'. Instead, DNOs should plan and build their network, enabling a smooth build profile that will meet net zero by 2050. The value of flexibility for the wider system can then be delivered through managing peak demand and intermittent low carbon generation efficiently*" on page 60.

Creos emphasizes the importance of aligning market incentives with grid operational requirements. The report correctly identifies that unmanaged charging and solely market-driven EV charging optimization may increase peak demands, leading to higher grid reinforcement needs (Report Executive Summary, p. 8). Ensuring alignment between market incentives and grid operational requirements is therefore essential to avoid unintended negative impacts.

In summary, Creos strongly supports leveraging EV flexibility to enhance renewable integration and overall grid efficiency, but it is imperative to employ realistic, practical assumptions in future analyses if the results are expected to be used for practical grid development and operational planning by Creos.

enovos	**Consultation on the potential contribution of charging infrastructure to flexibility, increasing the share of renewable electricity and reducing costs for the electricity system** 7/07/2025

Enovos Luxembourg (Enovos) welcomes the opportunity to take part in this public consultation aimed at assessing the potential contribution of charging infrastructure to flexibility, increasing the share of renewable electricity and reducing costs for the electricity system.

As main electricity supplier in Luxembourg, producer of energy from renewable sources and mobility service provider, Enovos is particularly exposed to the challenges represented by the increasing integration of renewables into the energy mix and intense electrification required for a successful energy transition. Price volatility, increasingly fluctuant production and consumption profiles, as well as grid constraints could be alleviated by increased flexibility in the power system, with a potential for electric vehicle (EV) charging to contribute thereto.

Thanks to its activities, Enovos has a first-hand view of how EV batteries could be used to optimize power consumption and management of variable energy loads, with the aim of contributing to overall system flexibility and ultimately reducing electricity costs for individual customers.

Please find below our comments and overall position on the potential for EV charging infrastructure to contribute to system flexibility.

1. Assumptions taken for this study should be reassessed for a more realistic result

We consider that the assumptions taken for this study are overly optimistic and should be reviewed to take into account certain practical constraints that could hamper the results as to the potential represented by EV charging.

Below a few examples:

- Assumption that all Luxembourg residents that have access to private parking also have access to private charging stations (this is particularly not the case in multifamily buildings) (page 20)
- Assumption that all V2G compatible vehicles also have a V2G charging point (page 18) - However, wallboxes subsidized and installed today are not V2G capable. With each non-V2G capable wallbox installed, we are creating a technical precedent that will limit the potentials identified in the study to a lower figure.
- Assumption that batteries will charge until they are full (although this is not a usual practice as it can be damaging to the battery – typically batteries are set to charge until they are 80-90% full) (page 27).
- Assumption that all EV drivers will (i) be willing to engage in flexibility programs, (ii) be knowledgeable enough to connect their car, their equipment and themselves via a mobile app and (iii) be willing to take advantage of the monetary/environmental benefit (we believe complementing the study with early adoption public figures of Time of use tariffs, original

equipment manufacturers' (OEM) apps and flexibility schemes could help refine adoption scenarios).

We believe a review of the study's assumptions would lead to a more realistic result.

2. Strong potential for EV charging infrastructure to contribute to flexibility if certain barriers & challenges are overcome

In the future, we see bi-directional charging of EVs as a significant lever to decrease EV energy costs to customers and help stabilize the grid by supplying power during peak demand periods and absorbing excess generation during low demand. When operated in an effective manner, small storage units such as EVs offer a scalable source of flexibility. Flexibility for batteries on wheels (EVs) can be leveraged at both ends - where vehicles are parked during the day (workplace) and overnight (residential)[1], supporting both grid and market needs. This potential is linked to the strong penetration of electric vehicles (EV) in Luxembourg: the growing numbers of electric vehicles will soon represent significant volumes of electricity storage on wheels in the country.

Although we see strong potential for EV charging infrastructure to contribute to system flexibility, we have identified certain key barriers and challenges that need to be overcome – this could be achieved by implementing measures suggested in the next section (see point 3):

- Lacking technical interoperability:

  In order for small-scale decentralized batteries – including EV batteries - to deliver value for customers and system-beneficial energy optimization, through both market-oriented and grid-oriented behaviour, they must have the technical set-up allowing them to:

  - respond to external signals such as dynamic tariffs, wholesale market signals or grid conditions,
  - manage interactions with other distributed energy resources and household components such as heat pumps, EV chargers, and rooftop PV and
  - be integrated into virtual power plants in which various small household loads are bundled in order for their flexibility to be monetized.

  Key enablers include intelligent battery management systems and inverters that can support high-current flows and advanced control functionality. Initial pilots on EV connectivity, in-app control, and time-of-use tariffs have revealed valuable insights and challenges. The integration of vehicle batteries (V2X) will require strict interoperability and control standards, as well as technical readiness to handle high and multidirectional power flows in residential environments.

- Need for training to gain knowledge and experience in a nascent market:

  At present, the market for V2X compatible EVs and charging points is in nascent state in Luxembourg. With limited products on the market, both installers' and customers'

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[1] Although the study also refers to the potential of public EV charging infrastructure to contribute to system flexibility, we consider this should be taken with caution because – as pointed out in the study (page 62) - the most potential exists where EVs can stay plugged in for a long time without charging. For the time being this would not be compatible with public charging stations, where users are expected to free the charging station as soon as their EV is charged.

understanding and readiness to deploy EV-based storage infrastructure is limited, which could hamper the development of related technologies and the uptake of related products.

- Distribution grid limitations:

  Distribution grids are under rising utilization and connecting bidirectional charging units will increase stress on distribution grids (increased wear of equipment, increasingly complex planning, increased risk of grid instability and voltage fluctuations).

- OEM limitations (eg. locked V2X functionality in compatible cars).

3. Suggested measures to create a holistic ecosystem for buildings and mobility enabling the contribution of EV charging to system flexibility

We believe a holistic ecosystem for buildings and mobility should be created, to enable and encourage the contribution of EV charging to system flexibility. This ecosystem should rely on clear and coherent technical requirements (for connection of EV charging and other building and mobility assets, as well as for their interoperability (including but not limited to energy management systems[2] & API (application programming interface) connectivity), on funding programs (including studies and pilots) and financial incentives from the electricity market and grid, as well as on tax aspects where necessary. All aspects should be articulated coherently to give converging incentives to provide flexibility to the system.

We believe the regulatory framework should be adapted, under implication of the concerned stakeholders, to include the following main measures:

- Orienting subsidies towards future-ready technologies: any subsidies towards wallboxes, stationary EV charging stations in home and workplace parking areas, and EVs themselves should be made conditional upon them being:

  (i) compatible with bidirectional charging

  (ii) pilotable and interoperable with other subsidized technologies and distributed energy resources (such as home or building photovoltaic systems, home or building charging systems, heat pumps…) via the use of an energy management system or via a direct connection to OEM or aggregator (API).

- Making pilotability an essential technical requirement for any battery energy storage systems, including V2X:

  (i) make battery pilotability a technical requirement for newly installed battery systems, including EVs – starting with any subsidized EV technologies, and

  (ii) set modalities for piloting EV charging, where a market-based approach should be prioritized, allowing market actors to offer aggregation models and access flexibility markets.

- Providing clarification on applicable technical standards, from both a software and hardware perspectives: this is essential to enable interoperability of EV infrastructure with

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[2] An energy management system being a set of smart technologies integrating various interoperable devices to monitor, control, and optimise energy consumption in the house ("HEMS" - Home Energy Management System) or in larger buildings ("BEMS" - Building Energy Management System).

the grid and with other devices, and to provide visibility to market actors so they can develop adequate products and services. Should in particular be clarified:

(i) standardized communication protocols: it is essential to ensure software compatibility in order to allow interoperability of EV charging technologies with other devices and distributed energy resources piloted by energy management systems. As bidirectional charging requires communication between the EV, the EV charging station and the grid, we believe it is essential that a clear recommendation be provided for the standardized communication protocol that should best be used in Luxembourg for bidirectional EV charging (e.g. ISO 15118 has been developed for V2G communication) – as well as for devices and technologies likely to interact with bidirectional EV charging technologies;

(ii) technical requirements for grid connection of bidirectional EV charging infrastructure: on the hardware side, specific rules may need to be developed to ensure secure and system compatible connection of bidirectional EV charging infrastructure to the power grid.

(iii) Conditions in which car manufacturers should lift limitations to bi-directional charging capabilities.

- Providing regulatory clarity on taxation of energy flows in case of bidirectional charging:

  Since the potential for flexibility contribution of bidirectional EV charging relies on multiple electricity flows – to and from the grid – it should be ensured that double taxation of these flows is avoided. If an EV owner buys electricity to charge their car and then injects that same electricity back to the grid to be sold to a third party, it could be detrimental to the development of bidirectional EV charging if taxes (in particular VAT) were to be paid on both the purchase and the resale of the power. Fiscal disincentives should be avoided, and fiscal incentives should be aligned with system-beneficial use of bidirectional charging, in coherence with incentives provided through other means such as subsidy schemes or grid tariffs.

- Developing flexibility-ready grid tariffs for small-scale decentralized battery energy storage systems, including bidirectional EV charging technologies: specific grid fees should be developed to incentivize their operation in a manner that is supportive to network stability and to load management, especially in buildings with EV charging or variable demand profiles. This should be achieved via regulated price signals from the network operator that guarantee that:

(i) EVs charge & inject in a way that is beneficial to the network, both at local and at national level – time-of-use grid tariffs based, for instance, could be introduced to encourage EV charging and injection at times when the network is not saturated;

(ii) Regulated price signals are coherent with non-regulated price signals (time-of-use or dynamic tariffs offered by suppliers), leading to added value for the end customer – should notably be considered:

   a. Compatibility of bidirectional EV charging with applicable grid tariff profiles[3]

[3] Under the subscribed capacity grid tariff structure for the low-voltage grid, customers are charged additional fees when they exceed their maximum subscribed capacity – the interplay between this threshold and optimized bidirectional charging should be analysed in order to avoid penalizing the customer for providing flexibility to the grid via his EV, at times where this could lead him to exceed his subscribed capacity or require him to subscribe to a higher and more expensive capacity category.

b. Coherence with applicable subsidy schemes
c. Coherence with applicable technical requirements

(iii) Regulated grid tariffs are balanced and ensure a fair contribution to grid costs by all system users.

- Supporting training programs on the use of EV charging to contribute to system flexibility in Luxembourg and beneficial pricing schemes for customers:

  We believe installers' technical knowledge should be evaluated to assess any needs for training in installing bidirectional EV charging points, or adapting existing charging points to make them bidirectional, as well as for technical interventions required to ensure interoperability between devices (including EV charging infrastructure). Adequate training programs could be developed on this basis and offered enable the deployment of these technologies by installers in Luxembourg. In addition, sensitization and information initiatives towards customers could be envisaged to increase interest and understanding of the benefits of EV-related flexibility potential, and of demand-side flexibility in general.