Public Consultation on the Future Network Tariff Structure for the Medium, High, and Very High Voltage levels in Luxembourg

SUMMARY REPORT

1. Introduction

The reform of electricity network tariffs in Luxembourg is taking place within a dynamic European context, marked by the acceleration of the energy transition, the electrification of end uses, and the need to integrate decentralized energy resources. The tariff structure should reflect actual grid usage and cost drivers, support flexible and efficient behaviors, and remain clear and fair across user types while ensuring cost recovery.

Creos Luxembourg S.A. commissioned an independent study by Consentec GmbH to assess the future design of network usage tariffs at medium voltage (MV), high voltage (HV), and very high voltage (VHV) levels. The study was shared for public consultation through eleven targeted questions.

The public consultation, conducted in June–July 2025, gathered six contributions from different stakeholders: an industrial stakeholder, Electra, Enovos, FEDIL, Nexxtlab, and an independent electricity storage consultant. This report summarizes these contributions, highlights points of convergence and divergence, and provides a cross-sectional overview of implications for a new tariff structure in Luxembourg.

2. Synthesis of contributions

Q1 – Current system diagnosis

Electra, as a fast-charging station operator, can easily pass on price signals to encourage flexibility. Enovos notes that stronger flexibility incentives could lead to cost savings, the extent of which would have to be analyzed. FEDIL highlights that the current structure penalizes flexibility, especially for industrial customers. Nexxtlab urges prompt reform, emphasizing the need to include injection and self-consumption management in tariff mechanisms. The consultant stresses that batteries, though ready to provide flexibility, are not fully considered. A practical solution proposed by the industrial stakeholder is to charge based on a monthly peak rather than an annual one.

Convergence: Necessity to abandon an obsolete model. **Divergence:** Focus on industrial competitiveness (FEDIL) vs. flexibility (Nexxtlab, Consultant).

Q2 – Cascade based on annual consumption

Four participants commented on the cost allocation method (cascade). FEDIL opposes a volume-based cascade, arguing it would penalize high, constant-load customers and hinder decarbonization, potentially reducing Luxembourg's attractiveness for electro-intensive industries. Network costs are driven mainly by

consumption peaks, not total energy volume. Enovos is cautious about changing the cascade.

Convergence: Need for stability and transparency. **Divergence:** Volume vs. capacity remains a key point of contention.

Q3 – Reference capacity

Most stakeholders, except the consultant and the industrial stakeholder, see the reference capacity model as an improvement. Electra supports it for EV charging infrastructure, provided short exceedance penalties are limited. Enovos and Nexxtlab request support for customers and suppliers if implemented. FEDIL calls for tolerance margins and exemptions for system-contributed flexibility. The consultant rejects the model as incompatible with battery dynamics.

Convergence: Reference capacity model mostly seen as an improvement. **Divergence:** Storage integration remains challenging.

Q4 – Removal of simultaneity function and application of fixed shares between capacity and commodity

Consensus: all participants advocate removing it due to complexity and instability. Electra highlights its impact on short-duration users and advocates for a aplit well below the proposed 40/60. FEDIL proposes a linearized continuous function; Enovos and Nexxtlab suggest a simplified stable system of allocation, Enovos calls for a model without usage hours. The consultant and Nexxtlab reject a fixed 40/60 ratio as unsuitable for batteries.

Convergence: Imperative simplification. **Divergence:** Choice of replacement model (linear vs. fixed).

Q5 – Self-consumption & injection

Enovos criticizes current exemptions. FEDIL warns of competitiveness risks if Luxembourg diverges from Germany. Nexxtlab proposes time-differentiated tariffs based on injection timing. The industrial stakeholder advocates a reduced tariff for self-consumption. The consultant opposes double charging for batteries, recommending they be treated as bidirectional network assets.

Convergence: Shared principle of fairness. **Divergence:** Specific modalities for injection tariffs.

Q6 – Tariff design for storage

Unanimity: storage is essential and requires a dedicated tariff regime. FEDIL and the consultant oppose double charging of grid tariffs (the active consumer owning the storage facility should not be charged for withdrawal from the grid and again for

injection back into the grid). FEDIL requests long-term regulatory stability. Nexxtlab recommends differentiated charge/discharge tariffs with off-peak incentives. Electra highlights the network benefits of batteries. The consultant emphasizes dynamic, localized pricing.

Convergence: Storage as a core flexibility pillar. **Divergence:** Practical tariff design.

Q7 – Demand flexibility

All participants recognize its importance. Suggestions include variable tariffs based on time of day, season, and renewable generation levels. Nexxtlab highlights integration via Energy Management Systems (EMS). Electra notes fast-charging operators can easily transmit price signals to encourage flexibility. FEDIL requests simulation tools for industrial users. The consultant stresses localized, time-based incentives over static structures.

Convergence: Flexibility at the core of the model. **Divergence:** Type of dynamic tariffs.

Q8 – Time-differentiated tariffs

Consensus: transparency and advance publication of time blocks. Nexxtlab recommends a unified API interface. FEDIL prefers simple static blocks, dynamic tariffs only in exceptional cases, and voltage-level differentiation. The consultant suggests fixed blocks as a transitional step. Enovos emphasizes early publication for user adaptation.

Convergence: Transparency and anticipation. **Divergence:** Level of granularity.

Q9 – Consumption during PV peaks

Consensus exists on the principle, but industrial limitations are acknowledged. Storage solutions, supported by incentive mechanisms during charging, should be prioritized. FEDIL highlights limited industrial flexibility. Electra and Nexxtlab see e-mobility actors as contributors to peak absorption. The consultant recommends specific tariff incentives, while Enovos suggests targeted contracts.

Convergence: Opportunity recognized. **Divergence:** Feasibility for industrial users.

Q10 – Technical challenges of Reference Capacity model

All identify a need for support for real-time monitoring. Smaller entities without monitoring equipment risk exceedances. Electra proposes a 3-month adjustment period post-installation. FEDIL requests financial support for EMS and simulation tools. Nexxtlab recommends EMS/HEMS use. The consultant finds the model rigid and incompatible with batteries.

Convergence: Support is essential. **Divergence:** Type of support required.

Q11 –Transitional measures

Consensus: gradual, supported implementation. Enovos requests early information and a testing phase. FEDIL suggests a 2–3 year phasing with 12 months' notice and a second consultation post-structure definition. Electra requests support and simulation tools. Nexxtlab recommends sectoral pilot projects. The consultant stresses clear rules, impact simulations, and targeted communication.

Convergence: Gradual implementation and clear communication. **Divergence**: Pace and practical modalities.

3. Cross sectional comparison

Key divergences identified include:

- **Volume vs. Capacity:** some stakeholders reject volume-based approaches; others accept with tariff signal support.
- **Injection & Self-Consumption:** agreement on fairness, but disagreements on alignment with neighboring practices vs. temporal differentiation.
- **Storage:** recognized as a flexibility pillar; tariff implementation (exemptions, charge/discharge differentiation, dynamic pricing) remains debated.
- **Flexibility:** agreed as important, but tools differ (bonus/malus vs. automated dynamic signals).
- **Transition:** agreement on gradual implementation, but timing and methods differ (multi-year phasing, pilots, testing). Simulation tools and support measures are widely requested.

4. Strategic issues for Luxembourg

The submissions shed light on three strategic issues :

- **Industrial Competitiveness:** poorly designed tariffs could increase costs for electro-intensive MV/HV industries, discouraging investment in key sectors such as steel and data centers.
- **Energy Transition:** dynamic price signals are essential to integrate renewables, encourage self-consumption, and mobilize storage; transparent and predictable solutions are needed for user confidence.
- **Fairness and Acceptability:** cost allocation must remain fair across residential, SME, and industrial users; protecting small consumers and maintaining transparency is essential.

5. Recommandations

1. Align the reform with European practices to preserve competitiveness (especially compared to Germany).
2. Implement a system that incorporates storage using dynamic and locational signals with partial/total exemptions for grid friendly usage.
3. Ensure transparent, predictable tariffs (advance publication, accessible simulation tools).
4. Support the transition through test phases, pilot projects, and clear communication (guides, workshops).
5. Use bonus/malus mechanisms to encourage flexibility without unduly penalizing industrial users.
6. Ensure fair cost allocation among residential, SME, and electro-intensive industrial users.

6. Overall conclusion

The consultation confirms that network tariffing is more than a cost-recovery mechanism; it is a strategic lever for Luxembourg's energy transition and industrial competitiveness. Despite divergences on specific mechanisms (volume vs. capacity, injection pricing, transition pace), a common foundation emerges: transparency, flexibility including storage, and fairness.

Consultation feedback will be integrated into the ongoing design of the new tariff structure and compared with neighboring countries' developments. The aim is to distill key priorities, perform detailed analyses and simulations, and develop an initial operational framework by mid-2026.

Creos thanks all stakeholders for their contributions, which provide invaluable insights to shape a tariff structure aligned with Luxembourg's energy, industrial, and societal goals.

Success will depend on balancing these objectives in a gradual, transparent, and European-aligned timeline. Contributions provide a rich, detailed basis for a new tariff model fit for the coming decade.