INSTITUT LUXEMBOURGEOIS
DE RÉGULATION

ELECTRICITY SHARING

Setting the ground for sustainable energy consumption in Luxembourg

National Regulatory Authority

- Electronic communication networks and services
- Electricity
- Natural gas
- Postal services
- Transport (railway and air)
- Radioelectric frequencies
- Networks Information Systems' Security

Independence is fundamental to the regulatory mission and is expressed by :

- administrative and financial autonomy;
- no political influence over the decisions of ILR;
- the absence of any personal interest as a pillar for the neutrality of ILR;
- the control of the legality of the acts of ILR by judicial authority.

Main objectives for energy regulation:

- ensure access to the gas and electricity networks based on transparent and non-discriminatory tariffs and conditions;
- facilitate, in the interest of the consumer, the development of competition in formerly monopolistic markets.

Renewable Energy DIRECTIVE (EU) 2018/2001 "Renewable energy community"	Internal market DIRECTIVE 2019/944 "Citizens energy community"
– Geographical boundary; – Exclusively for renewable energy (incl. gas, electricity, heating and cooling); – Financial gain must not be the main purpose.	– No geographical boundary; – Focus on electricity market; – Financial gain must not be the main purpose.

→ *Objectives: use green and potentially local energy, empower citizens, enable an inclusive energy transition.*

National legal framework from 3. Feb 2021

- Defines the concept of electricity sharing
- Within a building (collective self-consumption AERC, no legal form required)
- Outside a building (energy communities CE, legal form required)
- DSO calculates 15 min settlements after sharing, for each delivery point (grid infeed and offtake) based on sharing rules defined by the regulator
- No taxes or levies on self-consumption or shared electricity
- Feed-in for surplus generation

Upcoming legal framework Projet de loi 7876

- CE and electricity sharing extended nationwide
- AERC extended to 100m (without legal form), max 3 users (active consumers)

STRUCTURES

AER

FR: autoconsommateur d'énergies renouvelables
EN: renewable self-consumer

The producer and consumer of electrical energy are one and the same person.
This is the usual configuration in an individual house, to which a renewable power plant is connected.

AERC

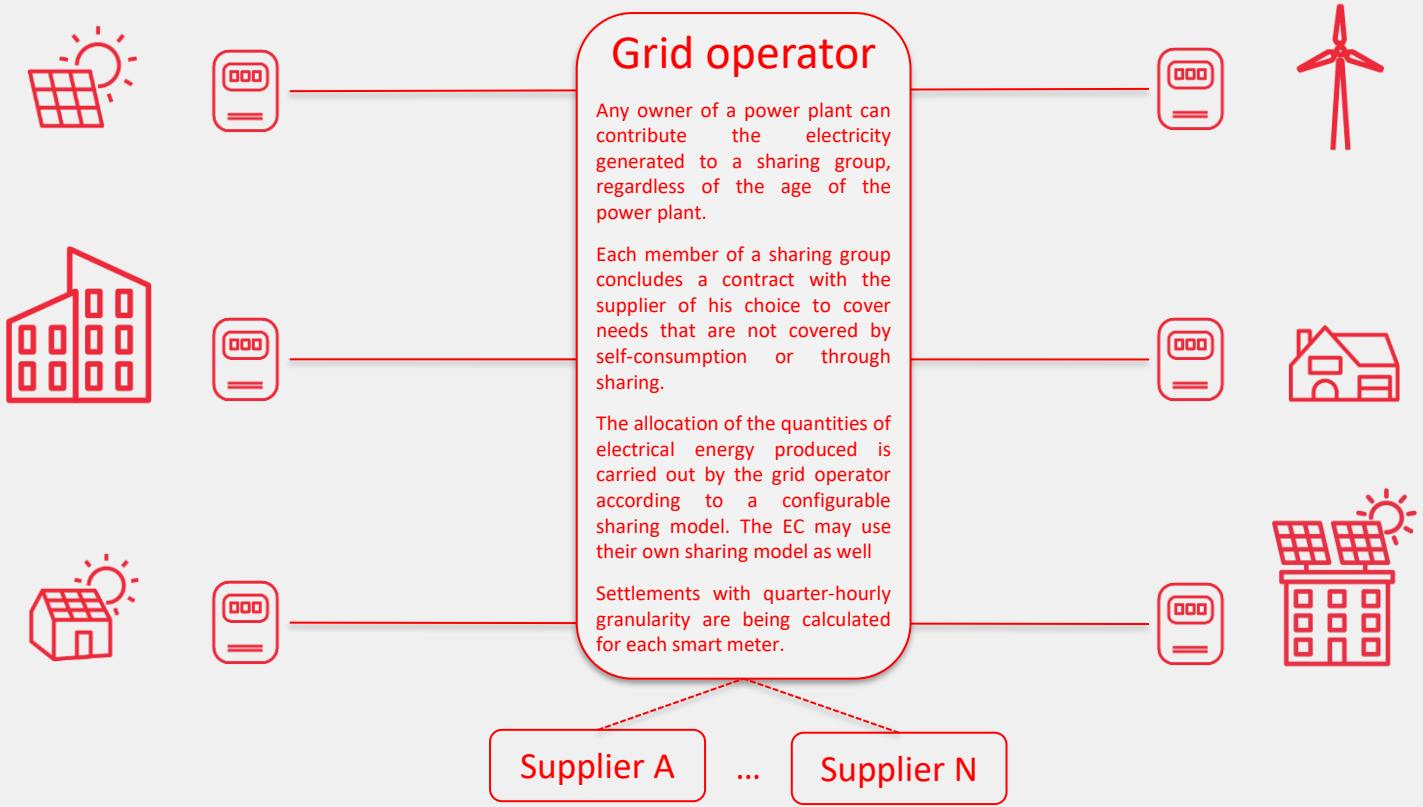
FR: autoconsommateurs d'énergies renouvelables, agissant de manière collective
EN: collective renewable self-consumers

Several parties live in a building, to which one or more production plants are connected. Each party's participation in collective self-consumption is voluntary. It also works on higher voltage levels (e.g. rooftop solar PV at industrial sites).
The electricity produced is distributed among the members of the AERC according to defined sharing rules.

CE

FR: communauté d'énergie
EN: energy community

<u>Present:</u>
Some or all the grid users of a district create their own legal personality within which the electricity produced will be shared at local level.
The PODs are all located on the same LV network segment.
<u>Future:</u>
Any legal personality whose members or shareholders are physical persons, SMEs, local authorities.
Each consumer and producer can share their electricity with one or more other parties nationwide.


Grid operator
Any owner of a power plant can contribute the electricity generated to a sharing group, regardless of the age of the power plant.
Each member of a sharing group concludes a contract with the supplier of his choice to cover needs that are not covered by self-consumption or through sharing.
The allocation of the quantities of electrical energy produced is carried out by the grid operator according to a configurable sharing model. The EC may use their own sharing model as well
Settlements with quarter-hourly granularity are being calculated for each smart meter.
Supplier A
...
Supplier N

SHARING AGREEMENT WITH DSO

Convention d'autoconsommation collective (ASRC) du 10.06.2021

N° contrat :
Autre réf. :

CONVENTION D'AUTOCONSOMMATION

pour les autoconsommateurs d'énergies renouvelables agissant de manière collective

Conformément à l'article 8ter de la loi modifiée du 1er août 2007 relative à l'organisation du marché de l'électricité (ci-après « loi Electricité »)

Sont parties à la présente convention (ci-après « **Convention** ») :

représentée par

ci-après dénommée «**Gestionnaire de réseau**»,

et les partenaires repris en **Annexe 1**

ci-après dénommés « **Partenaires** »,

représentés par **Annexe 2**

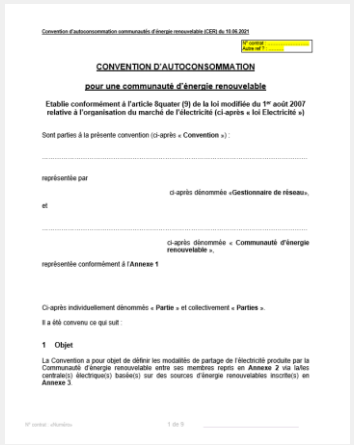
ci-après dénommé « **Représentant** »,

Ci-après individuellement dénommés « **Partie** » et collectivement « **Parties** ».

Il a été convenu ce qui suit :

1 Objet

La Convention a pour objet de définir les modalités de partage de l'électricité produite par les Partenaires via la/les centrale(s) électrique(s) basée(s) sur des sources d'énergie renouvelables inscrite(s) en **Annexe 3**



Convention d'autoconsommation communautés d'énergie renouvelable (CER) du 10.06.2021

N° contrat :
Autre réf. :

CONVENTION D'AUTOCONSOMMATION

pour une communauté d'énergie renouvelable

Etablie conformément à l'article 8quater (9) de la loi modifiée du 1er août 2007 relative à l'organisation du marché de l'électricité (ci-après « loi Electricité »)

Sont parties à la présente convention (ci-après « **Convention** ») :

représentée par

ci-après dénommée «**Gestionnaire de réseau**»,

et

ci-après dénommée « **Communauté d'énergie renouvelable** »,

représentée conformément à l'**Annexe 1**

Ci-après individuellement dénommés « **Partie** » et collectivement « **Parties** ».

Il a été convenu ce qui suit :

1 Objet

La Convention a pour objet de définir les modalités de partage de l'électricité produite par la Communauté d'énergie renouvelable entre ses membres repris en **Annexe 2** via la/les centrale(s) électrique(s) basée(s) sur des sources d'énergie renouvelables inscrite(s) en **Annexe 3**

STANDARD DISTRIBUTION KEY

ILR/E21/32 du 20 septembre 2021

The energy produced within the energy community is being shared across its members based upon a modular three-level structure:

1. Priority,
2. Percentage,
3. Pro rata

Consumers

POD #	Priority	%	Pro rata
LUxxxx1	1		✓
LUxxxx2		50	×
LUxxxx3		25	✓

Producers

POD #	Priority
LUxxxx4	
LUxxxx5	1
LUxxxx6	

PV generation cost is lower than cost for electricity generated from fossil fuels, though it is cheaper to consume from the roof than buying electricity from the market.

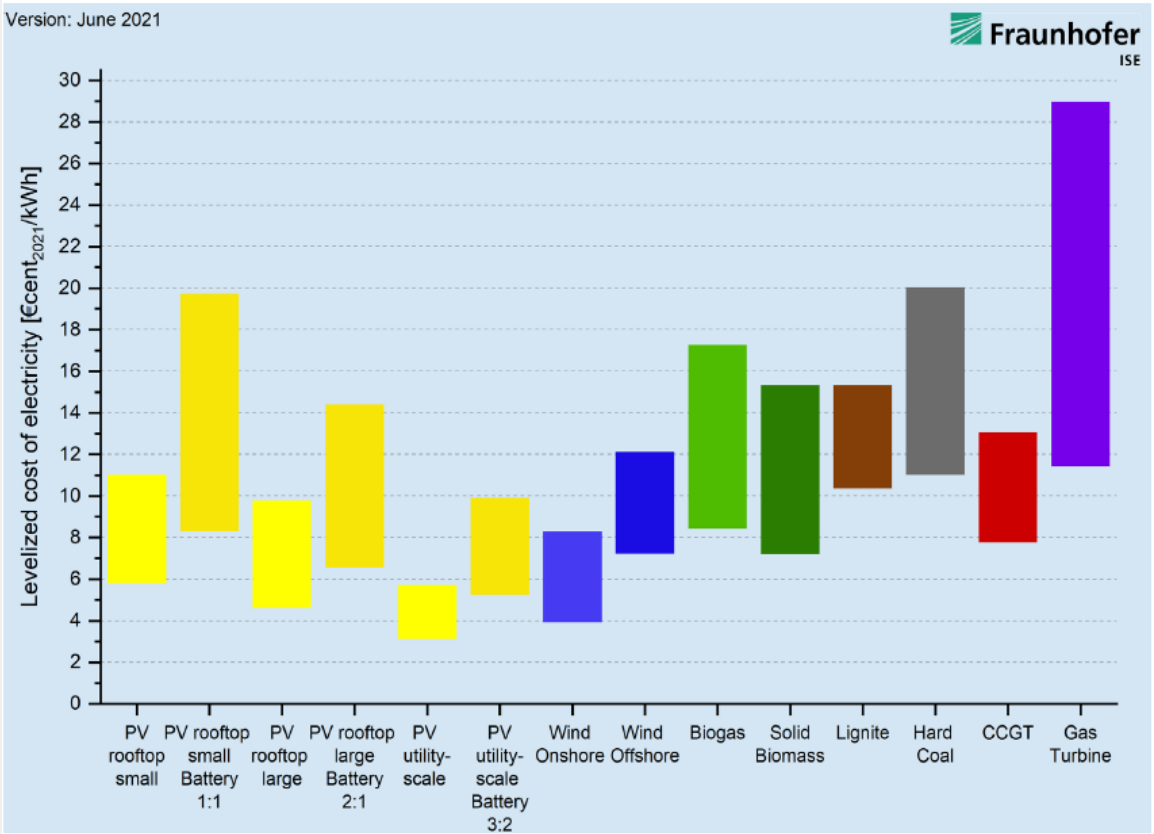
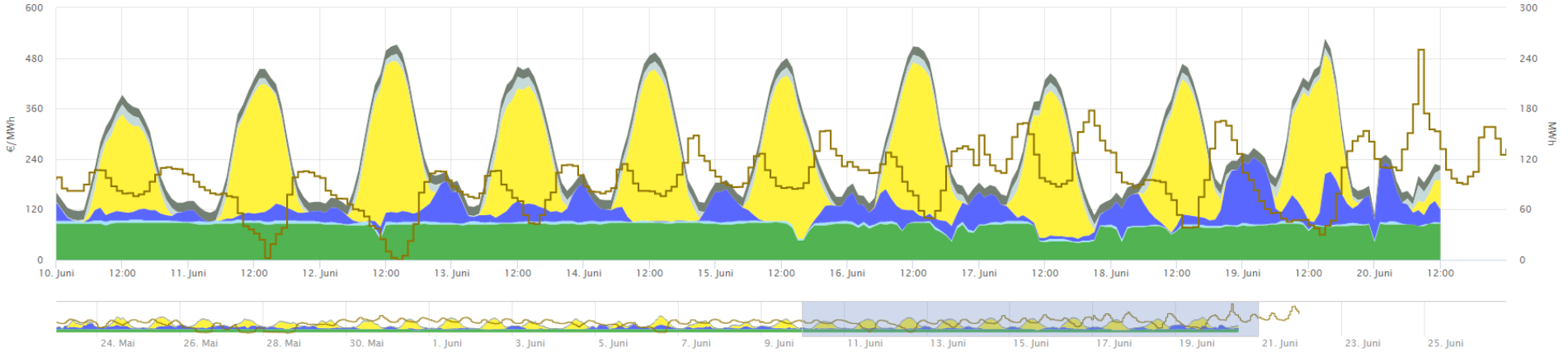


Figure 1: LCOE of renewable energy technologies and conventional power plants at locations in Germany in 2021. Specific investments are considered using a minimum and maximum value for each technology. The ratio for PV battery systems expresses PV power output (kWp) over usable battery usable capacity (kWh).

Source:
https://www.ise.fraunhofer.de/content/dam/ise/en/documents/publications/studies/EN2021_Fraunhofer-ISE_LCOE_Renewable_Energy_Technologies.pdf

1. Recent developments
   - Record increase in new PV capacity in 2021 (+90 MW) brings total capacity to 277 MW end 2021
     - *From which 47 MW come from energy coopératives – ready 4 sharing?*
   - Approx. 70% of connection requests 2022 are self-consumers compared to 14% for plants connected in 2021
2. What's next?
   - Bring the concepts of collective self-consumption and electricity sharing to the citizens
   - Development of energy community concepts
     - *Reaction to market price signals to increase renewable electricity usage and benefit from market price volatility*
     - *Intelligent community load management to minimise grid usage instead of individual optimisation*
     - *Optimisation through (community) batteries incl. smart EV charging*
     - *Heat pumps with thermal storage to enable sector coupling*
   - Improve access to energy data for community service providers
     - *15min load curves in D+1*
     - *Nearly real time data live in port P1 or via smarty plus (www.smartyplus.lu)*
     - *Aggregated generation figures per technology in H+1 (www.smard.de)*
     - *Actual and forecast data on load, generation, and much more*
       - *https://transparency.entsoe.eu/content/static_content/Static%20content/sitemap/Sitemap-pub.html*



Alle Kategorien entfernen

Stromerzeugung - Realisierte Erzeugung

1. Biomasse
2. Wasserkraft
3. Wind Onshore
4. Photovoltaik
5. Erdgas
6. Sonstige Konventionelle

Markt - Großhandelspreise

1. Deutschland/Luxemburg
2. Ø Anrainer DE/LU
3. Belgien
4. Dänemark 1
5. Dänemark 2
6. Frankreich

Source: Realisierte Stromerzeugung Luxemburg, Grosshandelspreise DE/LU, www.smard.de

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