

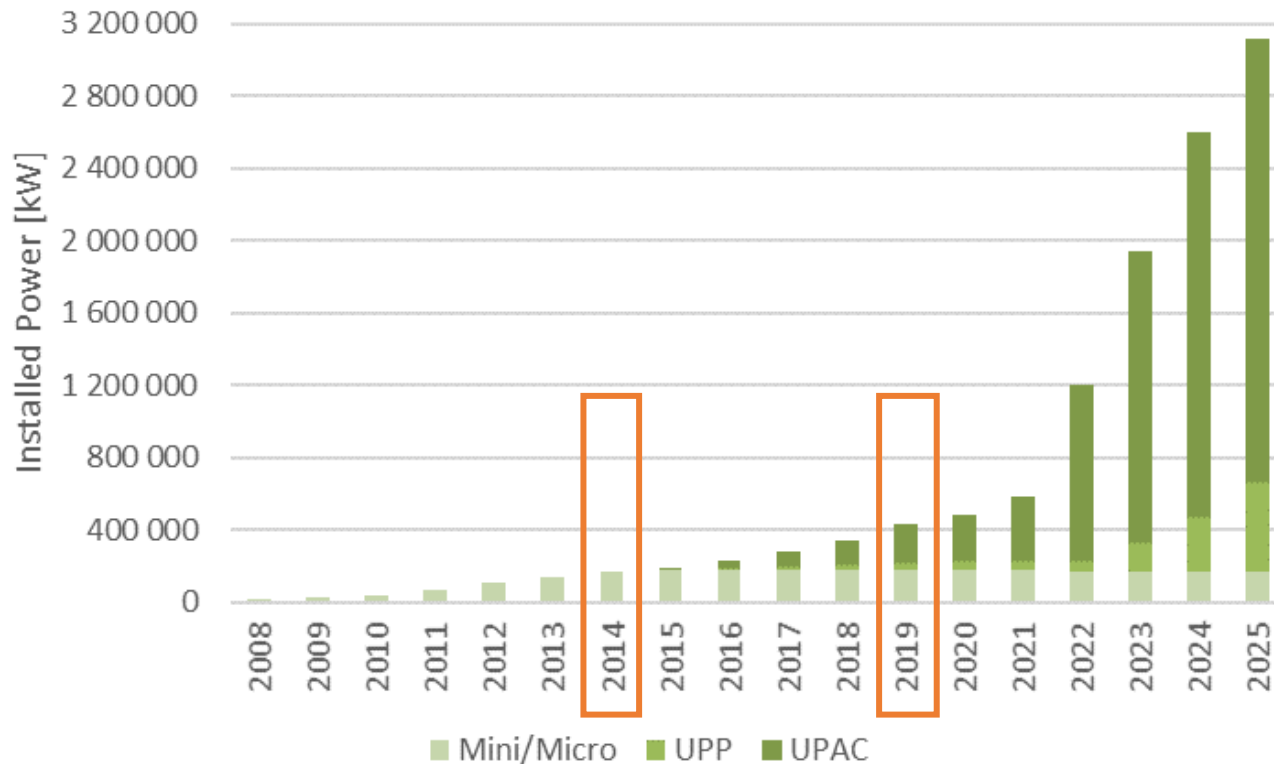
Beyond Net Metering: Pathways to Value-Based DER Compensation in Brazil

Dimensioning of self-consumption without net-
metering, the Portuguese case

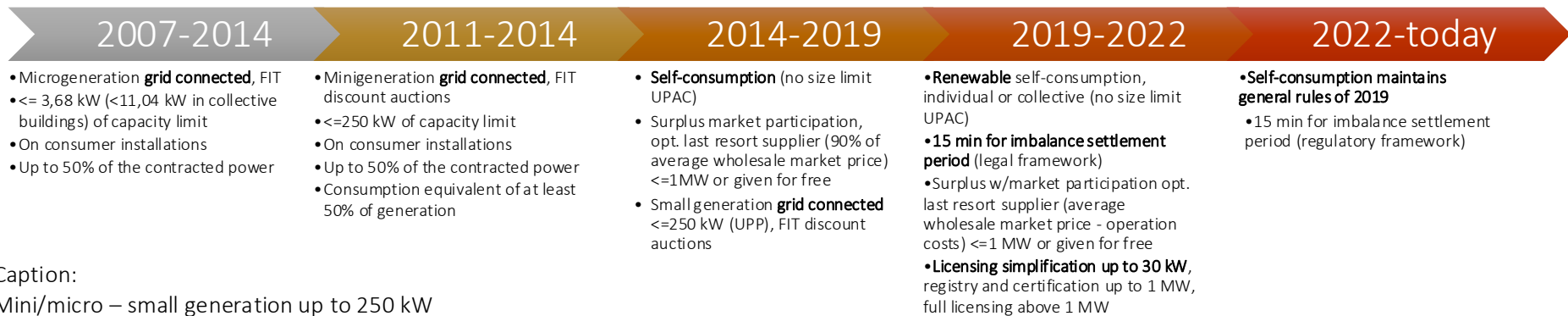
José Bigares

7th of May 2026

• Small distributed generation legal framework



Source: DGEG statistics



Caption:
 Mini/micro – small generation up to 250 kW
 UPP – Small generation up to 1000 kW
 UPAC – Self-consumption generation unit

• Main concepts of the self-consumption framework



Dimensioning of the self-consumption units must ensure the highest possible approximation of the generated electricity to the amount of the consumed electricity, **minimizing the surplus**

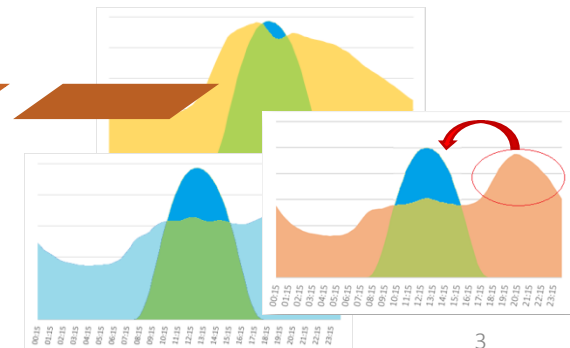
Installed capacity depends on the certified power of the consumption installation

If it's higher than the contracted power, the automatic interruption device may act

Self-consumption uses the **imbalance settlement period (15 min)** for consumption and injection (consumption, generation, storage)

Storage directly connected to generators is allowed (no special rules)

The **correct dimensioning** of the self-consumption generation unit (UPAC) **maximizes the self-consumption** and reduces surplus injected into the network
=> **Faster pay-back**

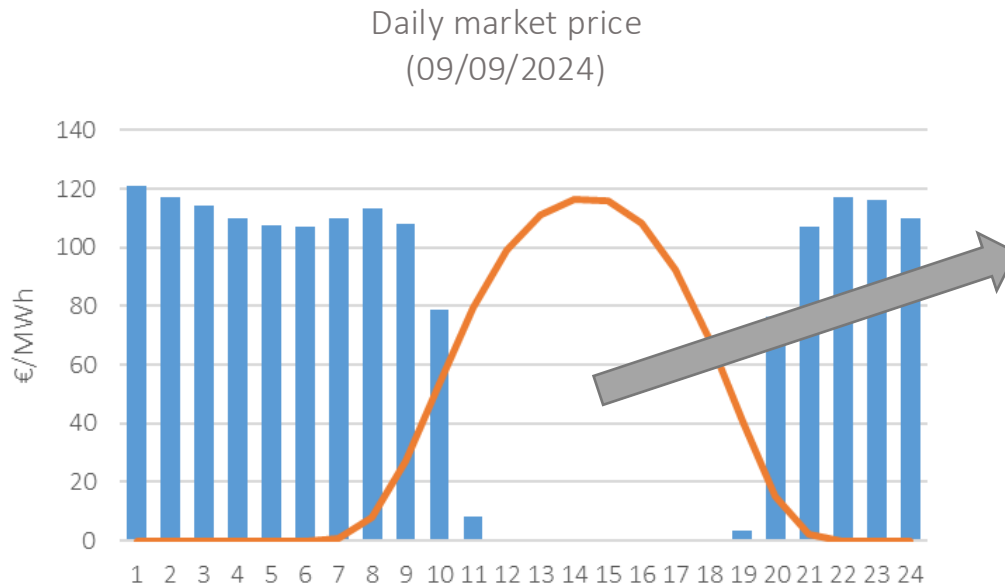


- Economic benefit of self-consumption



Low voltage client with a dynamic/indexed tariff

Ex: Daily consumption profile

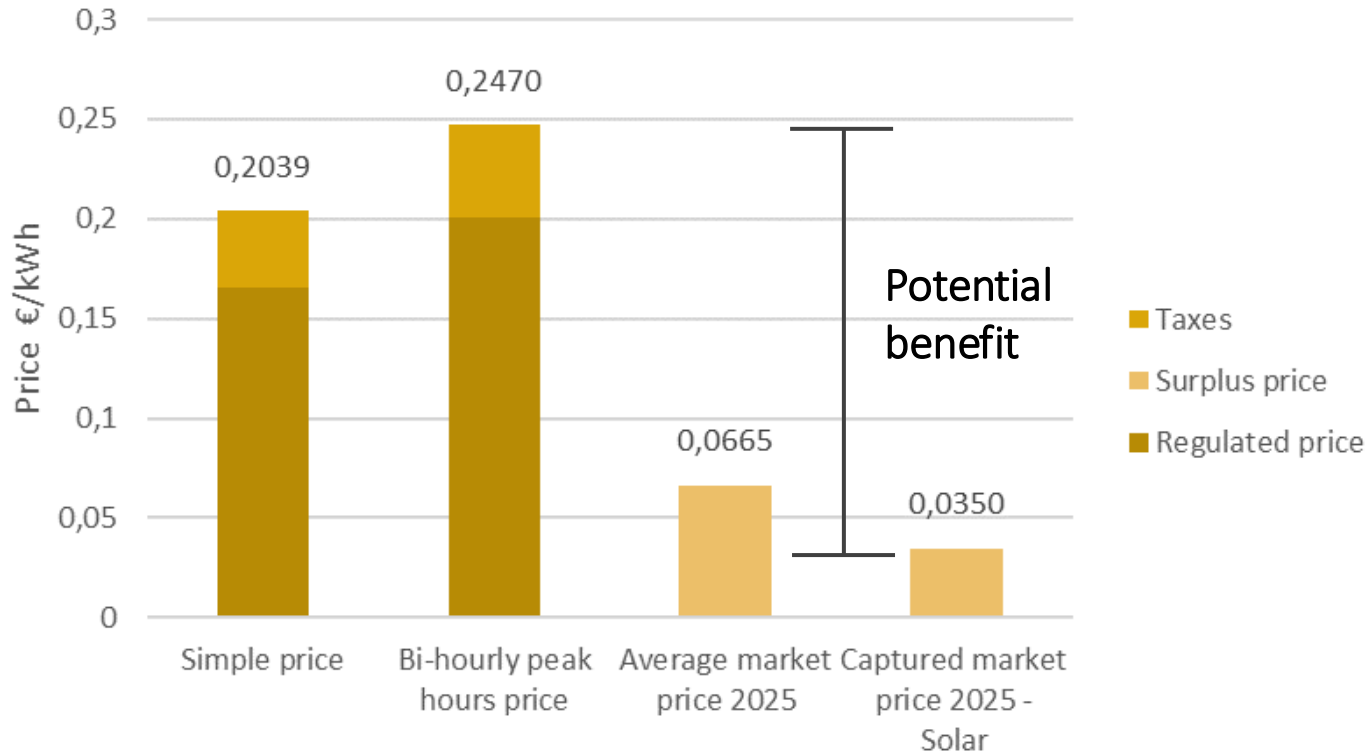


In a dynamic/indexed tariff there may be null or negative prices, especially during solar hours. A participant of this kind of tariff has a lower saving in those hours. Access tariffs matter.

Source: OMIE, PVGIS (2024)

Economic benefits of self-consumption/Energy sharing ➔ Usually self-consumers benefit of energy prices lower than the prices contracted with their supplier

- Economic benefit of self-consumption



Source: ERSE

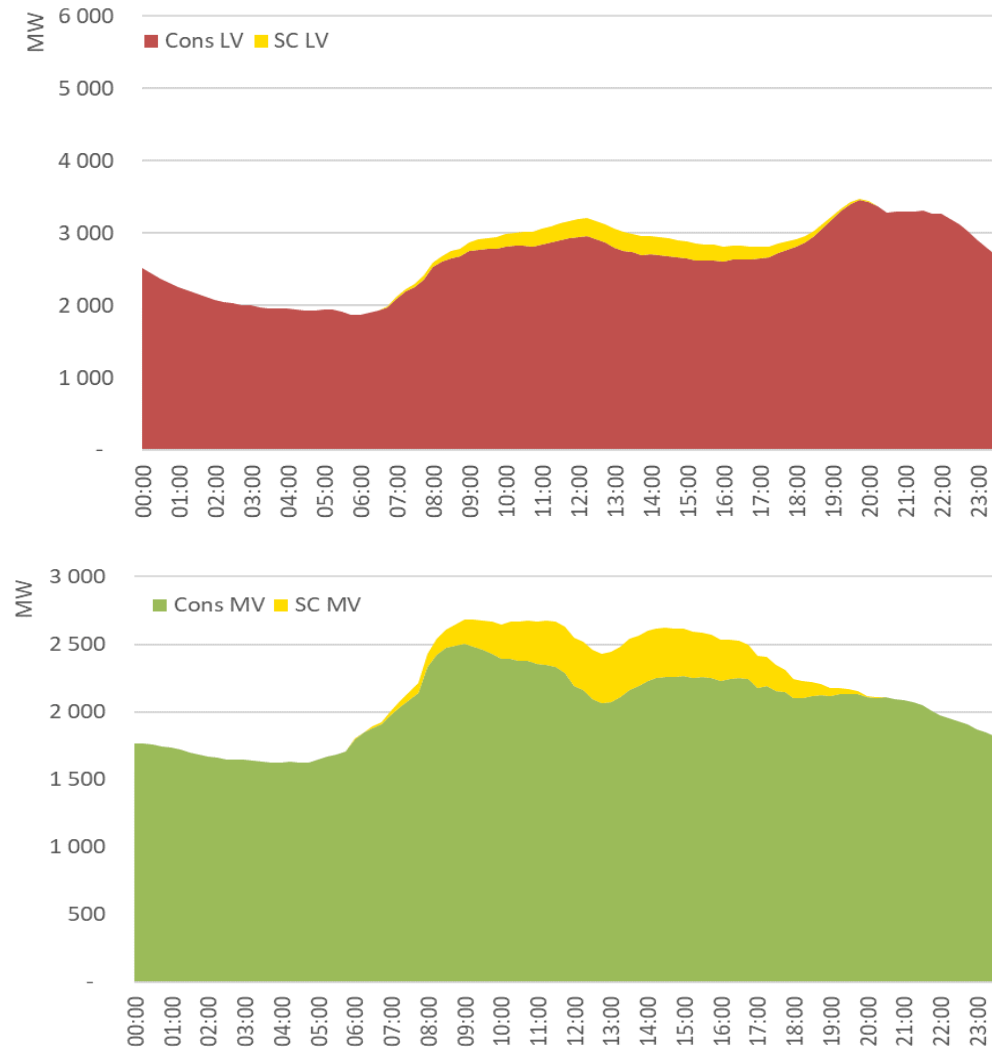
Avoiding consumption from the grid is better than selling any surplus



Caption:

Prices and taxes simplification considering, regulated final price for electricity for low voltage <20,7kVA consumers (includes energy, supply costs, network access tariffs), taxes (simplified VAT rules - 23%), market operation trading costs not included in the surplus price. Peak and mid peak hours from 8h to 22h.

- Self-consumption effects



Caption: Aggregated consumer load diagram by voltage level and self-consumption estimation (Wednesday, 26th of June 2024)

• Network access



Network access for self-consumption units with injection capacity up to 50% of the contracted capacity (by law)



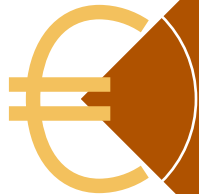
Self-consumers with “low impact”



Other options evaluated by the DSO's, depending on local restrictions, include non-firm capacity



Case by case analysis



Evolution in network use requires adaptation of tariffs



Low cost of energy during peak hours



Automatic disconnection if system limits are not met
Operators may need to curtail generation, injection is not a granted right



Technical challenges

• Results



- Self-consumption represents more than **3,5% of the yearly national consumption** (~2,2TWh)
- More than **2,2 GW** of installed capacity
- **69% of the installed capacity is related to non residential consumers** (> 41,4kVA)
- **87% of units related to residential consumers** (up to 4kW)
- **Self-consumption rate** of generated electricity is around **73%**
- 536 GWh of surplus of which **43% was traded in the wholesale market** (the rest is given to the grid)





Thank you!

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