



# Net-metering and other policies for buildings and households

**ECOWAS Renewable Energy Investment and Business Initiative**  
**1<sup>st</sup> Renewable Energy Investment and Business Forum**  
**27<sup>th</sup> and 28<sup>th</sup> September 2012, Dakar (Senegal)**



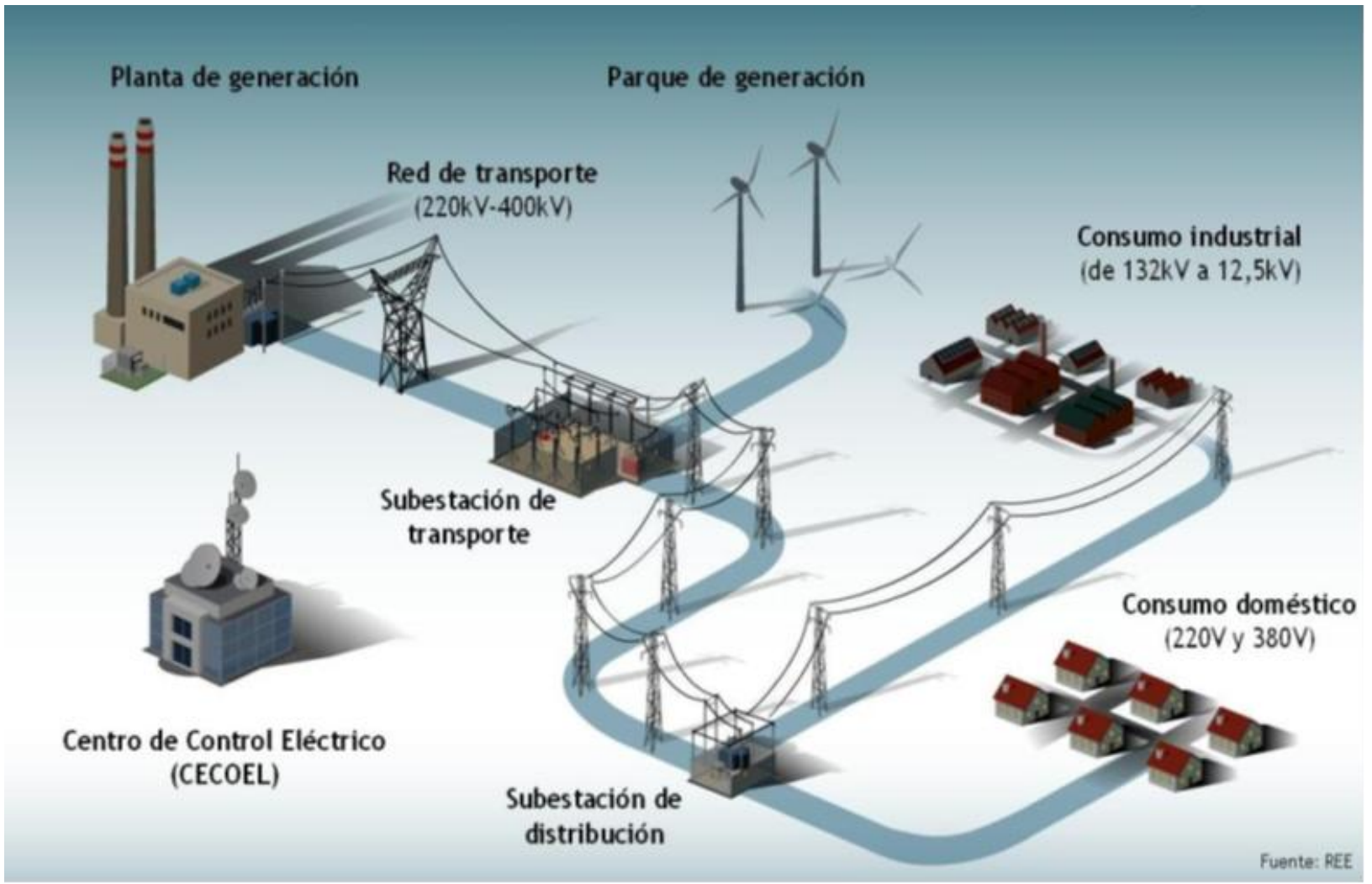
**IDAE**  
Instituto para la Diversificación  
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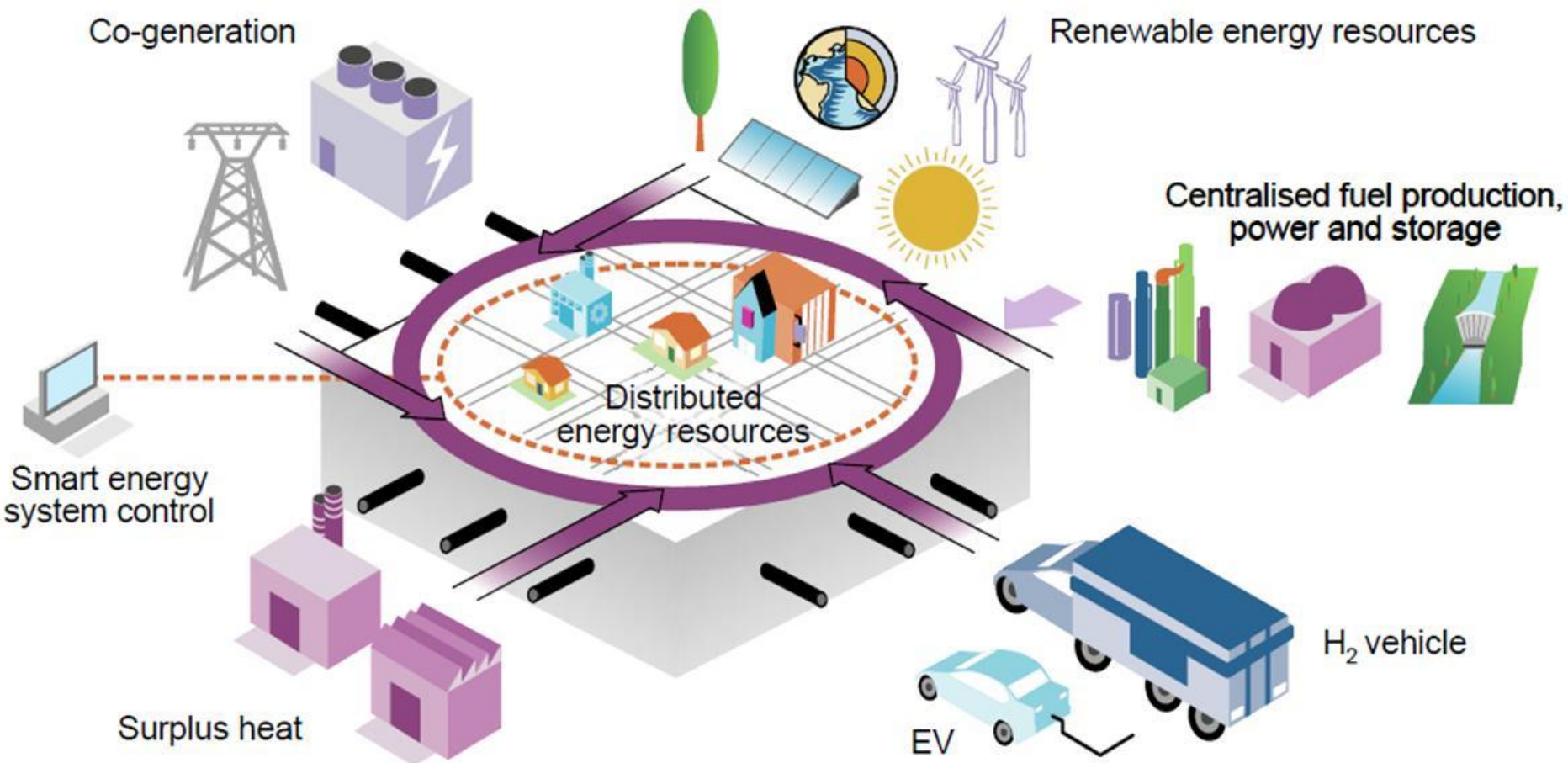
## 1. Why net-metering?

2. Net-metering and self-consumption
3. Other policies for buildings and households

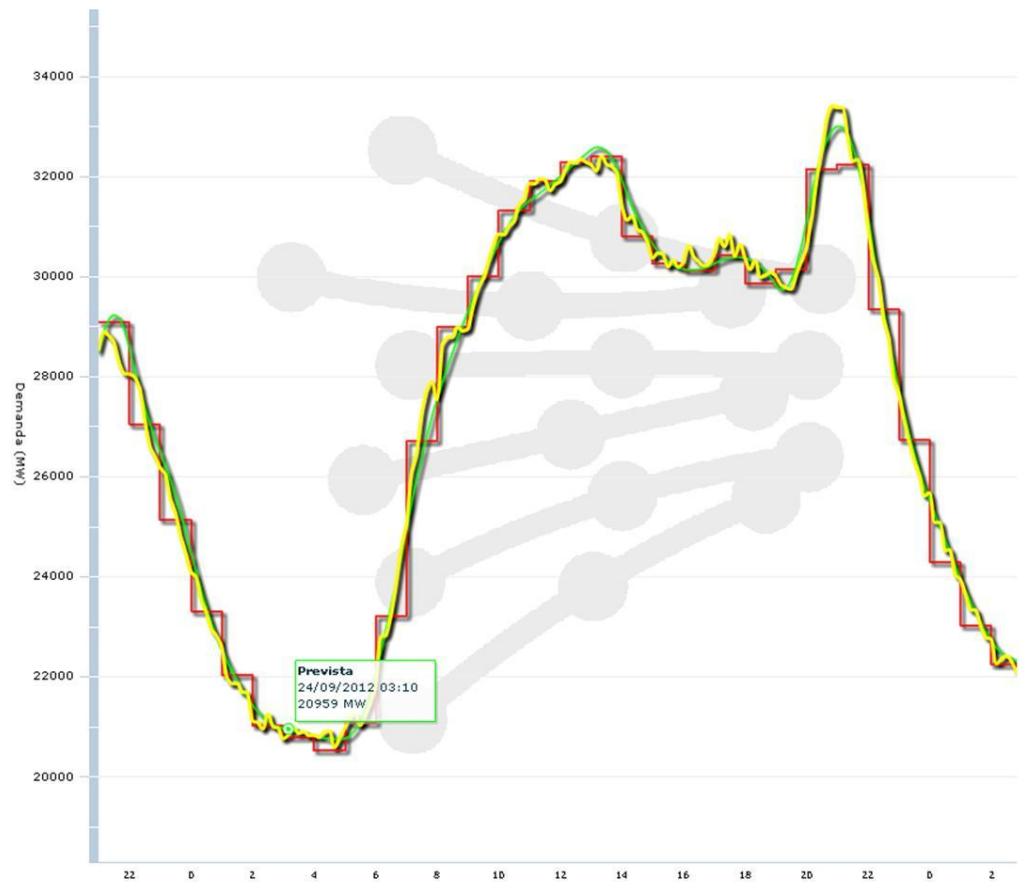
# Present energy system



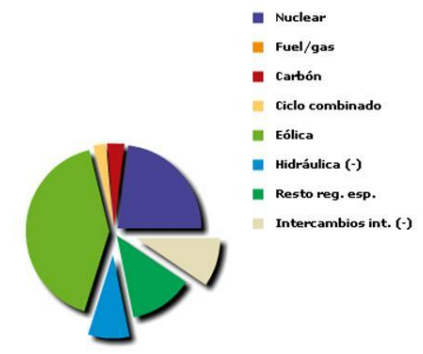
# Future energy system



- ✓ **SECURITY** of supply
- ✓ Increase **COMPETITIVENESS** of our economy
- ✓ **SUSTAINABILITY** and environmental aspects

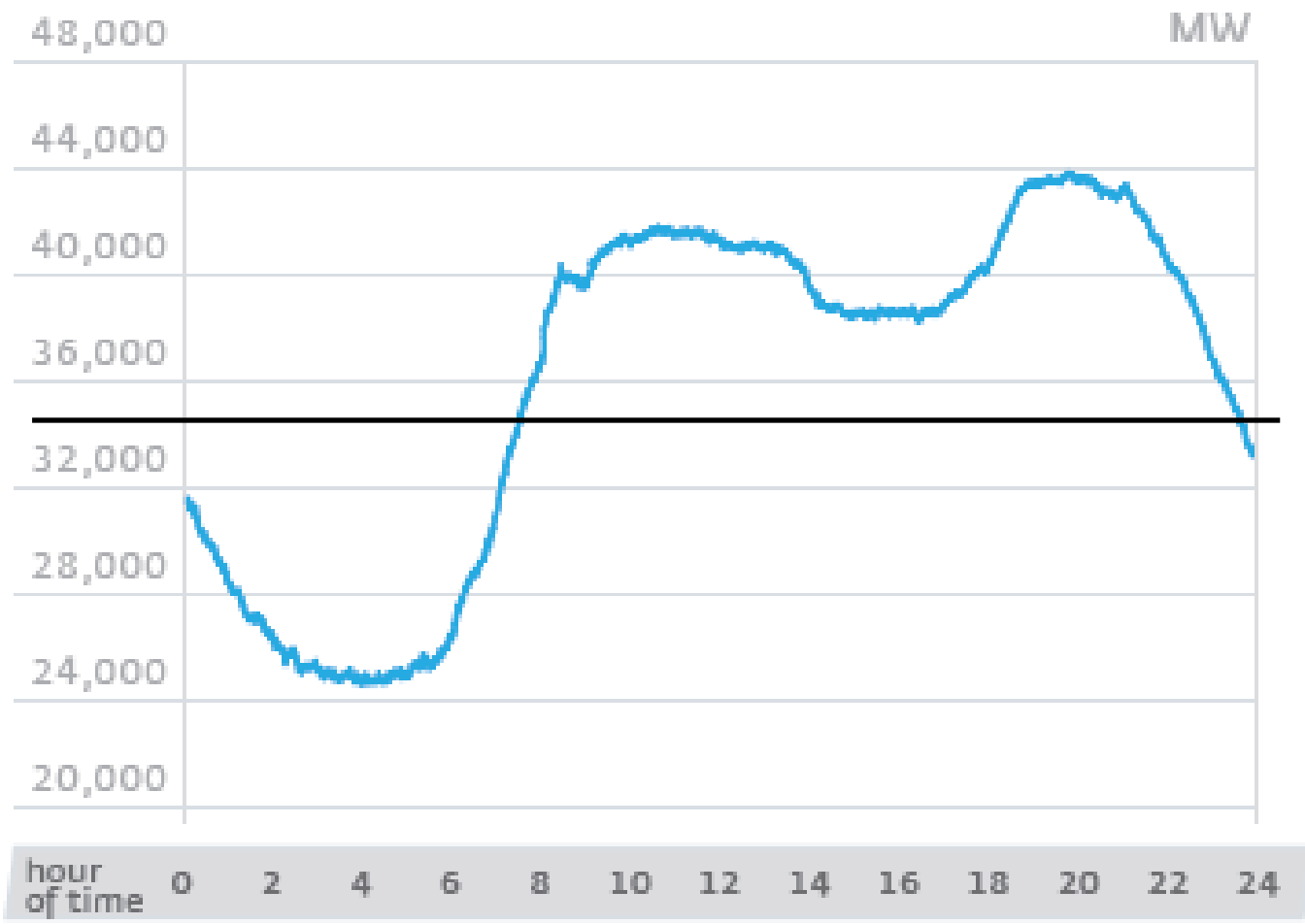



Estructura de generación a las 02:50

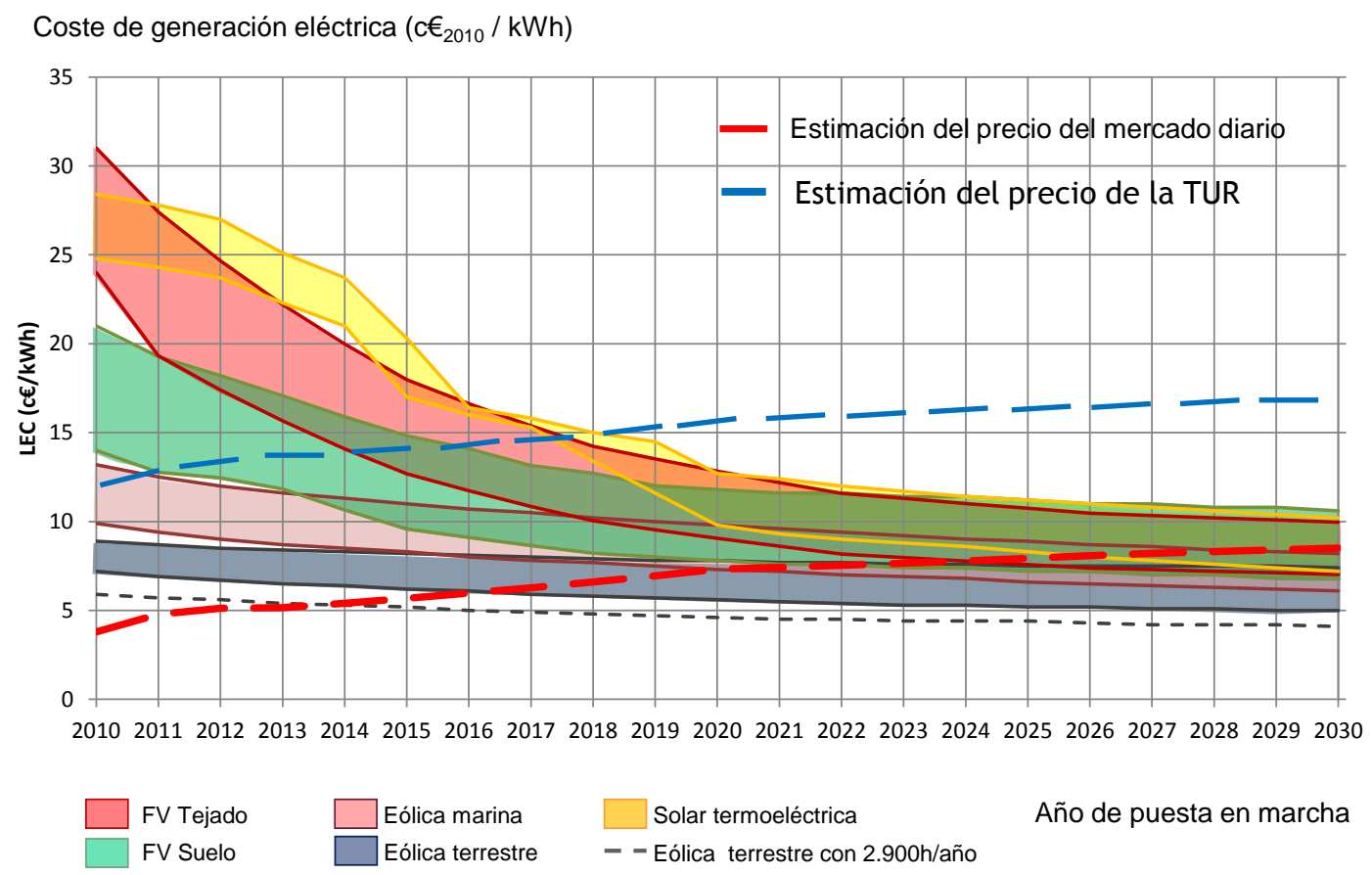


Demanda (MW) a las 03:00 de 25/09/2012    Real = 22028    Prevista = 22341    Emisiones CO2 (t/h) = 4208

# Load curve of demand



The reduction of costs and the constant increase of the electricity prices get us closer to the grid parity  Some users may prefer to produce part of their consumption instead of buying this energy to a third party





# Self-consumption

## ADVANTAGES FOR THE CONSUMER

- Bill savings
- Use of new and cutting-edges technologies
- Responsible and environmentally friendly behaviour
- More independence

## ADVANTAGES FOR THE ELECTRICITY SYSTEM

- Savings by avoiding transmission and distribution losses
- Savings due to less network infrastructures needs
- Savings energy imports (lower external deficit)

## ADVANTAGES FOR SOCIETY

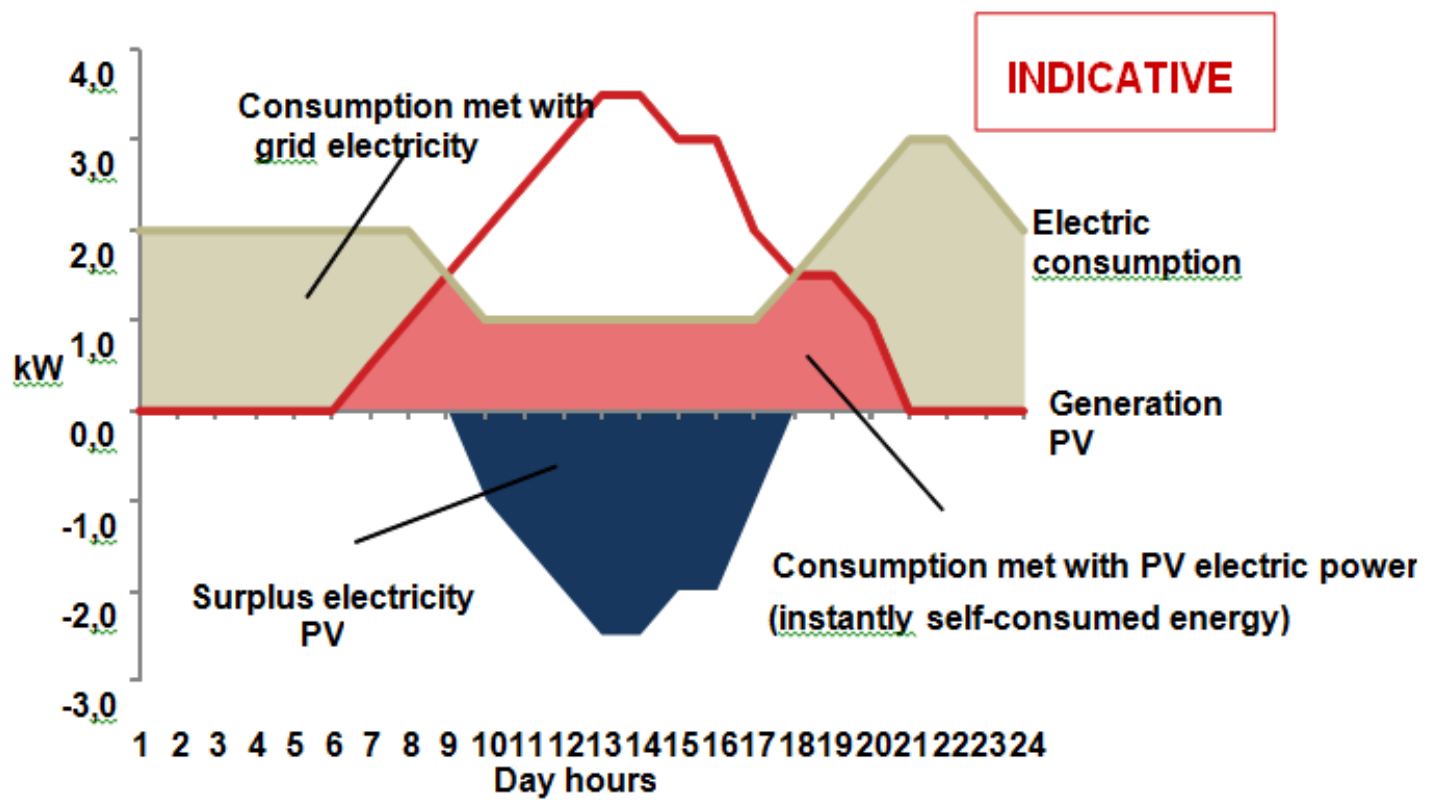
- Creation of national economy and industrial activity
- Job creation
- Local development
- Contribution to the national R&D
- Easier achievement to the national environmental objectives



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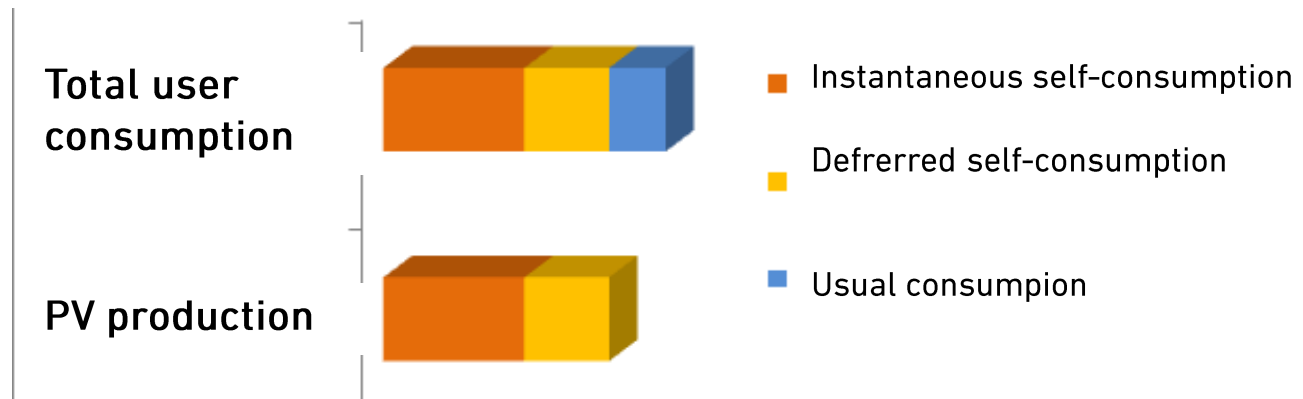
# Net-balance

- Compensation procedure of the electricity balances for production installations devoted to self-consumption, either instantly or deferred, off the electric power production legal system, and also focusing on the consumer



## Net-balance

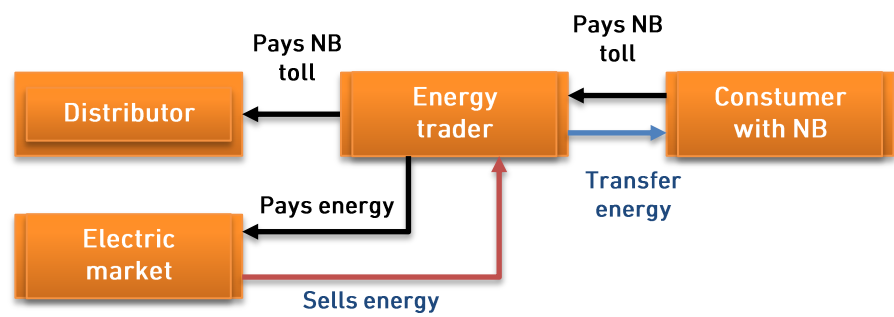
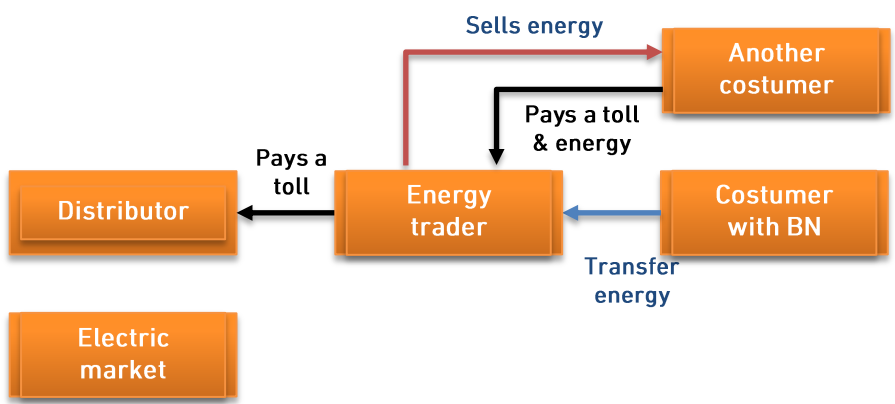
- **Instantaneous self-consumption:** electricity that will cover the consumption of the user at the moment of generation. This consumption will be "invisible" to the electrical system, isn't recorded by the counters and will be seen as a demand reduction.
- **Deferred self-consumption:** grid consumption paid with credits of the surplus of the electricity generated by our system.
- **Usual consumption:** grid consumption that exceeds the deferred self-consumption and therefore the user will be paid to the electricity company.



# Proposal for net-balance

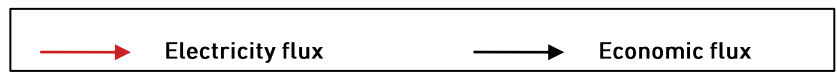
Transfer of surplus electricity: Rights of deferred self-consumption

Return of deferred self-consumption



- When the NB user has a generation surplus, they transfer energy to the trader at no cost.
- This electricity is sold by the trader to another customer.

- When the NB user needs electricity because the renewable installation not produce energy, it gets back the same electricity formerly transferred (compensation).
- This electricity is paid at a reduced price (which is called NB rate), which includes NB tolls (to be created) and the margin for the trader.



# Net-balance elements

## Theoretical performance of the system

- 1 – Compensation type for instantly self-consumed electricity.
- 2 – Compensation amount for instantly self-consumed electricity.
- 3 – Kind of compensation for the surplus electricity poured into de grid.
- 4 – Compensation value for the surplus electricity poured into the grid.
- 5 – Surplus temporary expiry.
- 6 – Compatibility of the hourly discrimination fee.
- 7 – Promotion of instant self-consumption.
- 8 – Inclusion of electricity meters.
- 9 – Compatibility with energy services companies (ESCOS)

- Not compensation, just saving
- Price of saved electricity power
- Consumption credit in kWh
- Retailer variable price – NB rate
- 12 months
- Yes
- Yes
- Not at the beginning.
- Potential improvement in the future
- Yes

## Application

- 10 – Supported technologies.
- 11 – Kind of user.
- 12 – Capacity limit

- Non-manageable renewables and micro-generation
- All the sectors
- None

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## Policies for buildings and households: framework

- The European Union (EU): an economic and political union or confederation of 27 member states
- The EU operates through a system of supranational independent institutions and intergovernmental negotiated decisions by the member states. Important institutions of the EU include the European Commission, the Council of the European Union, the European Council, the Court of Justice of the European Union, and the European Central Bank. The European Parliament is elected every five years by EU citizens.
- A directive is a legislative act of the European Union, which requires member states to achieve a particular result without dictating the means of achieving that result. It can be distinguished from regulations which are self-executing and do not require any implementing measures. Directives can be adopted by means of a variety of legislative procedures depending on their subject
  - Directive 2006/32/EC, on energy end-use efficiency and energy services
  - Directive 2009/28/EC: promotion of the use of energy from renewable sources
  - Directive 2010/31/EC: on the energy performance of buildings





## Policies for buildings and households: legislation

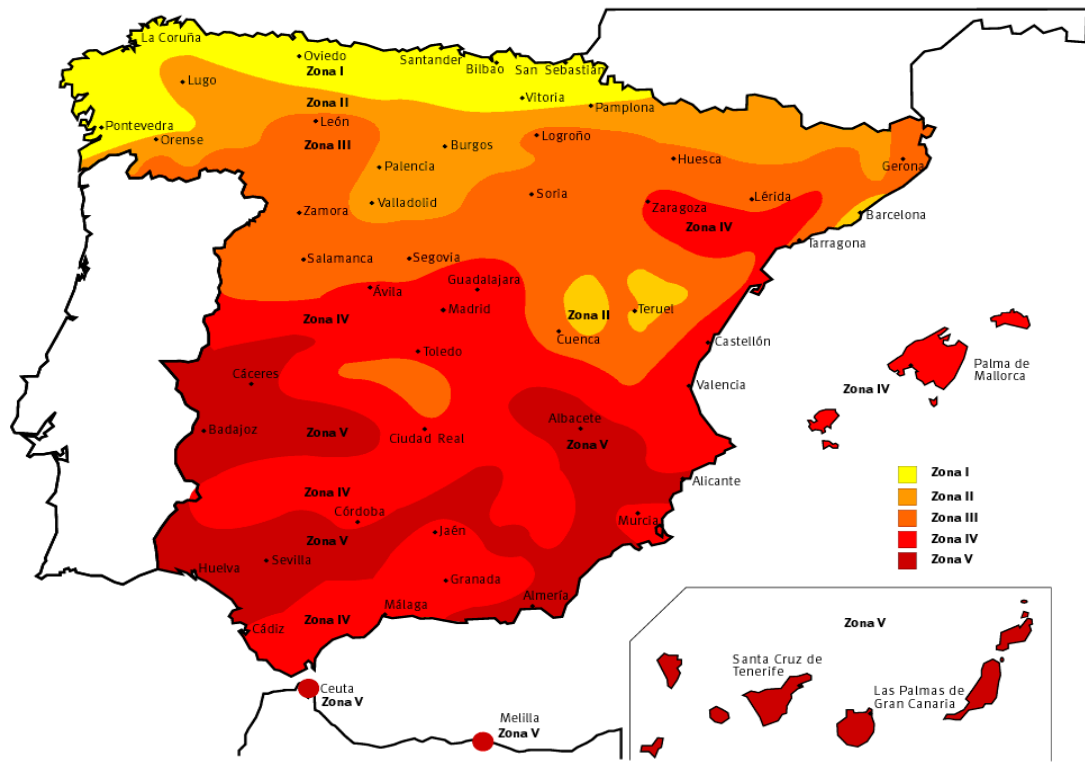
- Encourage the use of renewables in construction and urban development
  - [URSOS](#), free software for sustainable urban development
- Regulation on Indoor Heating/Air-conditioning Systems (RITE, RD 1027/2007)
- Basic procedure for the energy certification of buildings. RD 47/2007
- Energy Services Companies (ESCOs)
  - Activation Plan in the State's General Administration Buildings through ESCOS (Plan 330 ESE).
  - Plan to Boost Energy Services Contracts (Plan 2000 ESE).
  - State Plan for Housing and Rehabilitation 2009-2012 through Royal Decree 2066/2008
- Technical Building Code (CTE, Royal Decree 314/2006) establishes the requirements that must be fulfilled by buildings in relation with basic requirements of safety and habitability established
- TBC establishes six basic requirements:
  - DB-SE: Structural Safety
  - DB-SI : Safety in case of fire
  - DB-SU: Safety of use
  - DB-HS: Hygiene, Health and Protection of the environment
  - DB-HS: Protection against noise
  - DB-HE: Energy Saving and thermal isolation

## Technical Building Code: requirements for energy saving

- TBC defines five basic requirements for energy saving
  - Basic Requirements HE1: Limitation of energy demand
  - Basic Requirements HE2: Efficiency of thermal installations
  - Basic Requirements HE3: Energy Efficiency of lighting installation
  - Basic Requirements HE4: Minimal solar contribution for sanitary hot water
  - Basic Requirements HE5: Minimal photovoltaic contribution for electric power

**HE4 ESTABLISHES THE OBLIGATION TO COVER 30 – 70 % OF THE DOMESTIC HOT WATER REQUIREMENT USING SOLAR THERMAL ENERGY**

# Technical Building Code: climatic zones



Zone 1:  $H < 3,8$   
Zone 2:  $3,8 \leq H < 4,2$   
Zone 3:  $4,2 \leq H < 4,6$   
Zone 4:  $4,6 \leq H < 5,0$   
Zone 5:  $H \geq 5,0$   
 $H = \text{kWh/m}^2$

For each climatic zone and annual consumption an annual minimum solar contribution is set between 30 % and 70 %.

# Thanks for your attention



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