



LEGAMBIENTE

Liberiamo in Italia

l'autoproduzione da energie pulite

Roma, 14 Aprile 2106

L' autoproduzione in Spagna

Self-consumption: An opportunity to create value for the consumer and the energy system

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The main purpose of Fundación Renovables is to raise awareness of the need for a change of new energy model based primarily on savings, efficiency and renewable energy.

L' autoproduzione in Spagna:

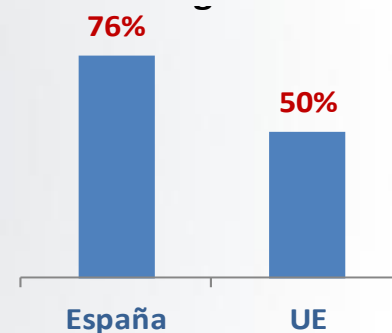
Self-consumption: An opportunity to create value for the consumer and the energy system

- The current energy system: Problems and Solutions
- Photovoltaic solar energy: A new energy revolution
- Current situation in Spain
- **Fundación Renovables** proposal

Unsustainable current energy system:

- Inefficient
- Strong dependence on foreign
- Heavy dependence on fossil fuels
- Great impact on the environment
- Great impact on health
- Unsupportive
- A business outside the general interests
- A not very responsible citizen in the use of energy

Energy Dependence

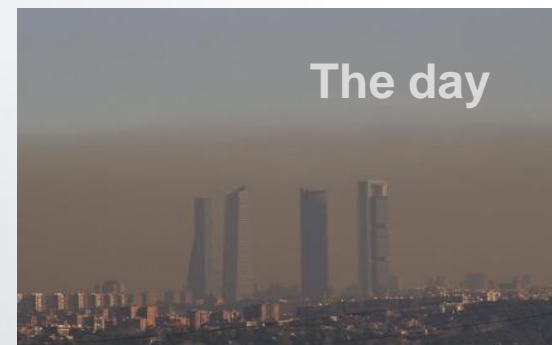


— Energy dependence on imports

- 2013: 40.997M€ fossil fuels net imports
- 2013: 7.300M€ imports avoided by renewables

— Air pollution

- 450.000 premature deaths/y in the UE;
27.000 in Spain



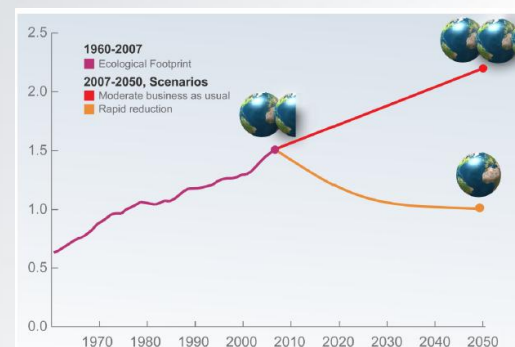
Cities with future

1. Emissions reduction



2. A new vision of energy as a way to recover urban space

3. Active role of the citizen



In May 2013 for the first time was exceeded 400 ppm

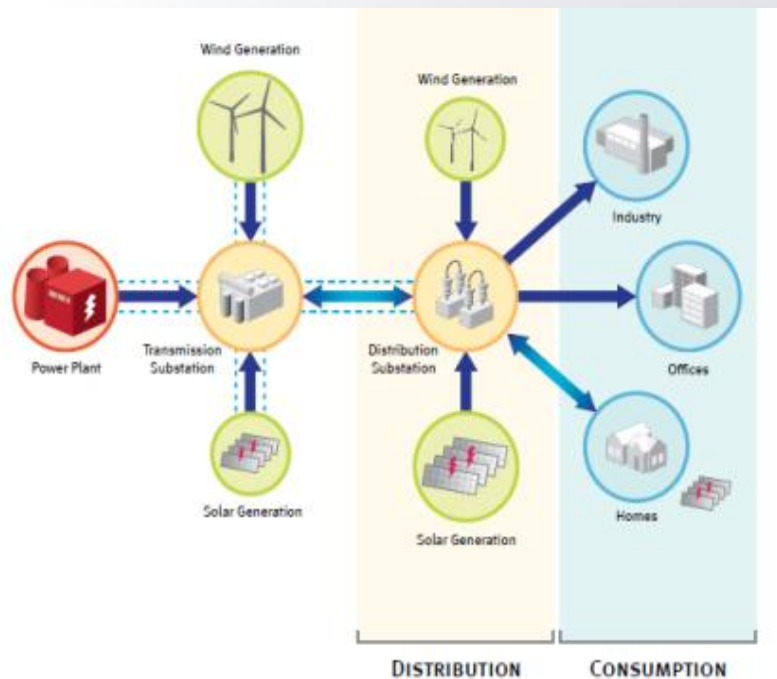
We need a new energy model that represents a technological and social change.

General principles of action:

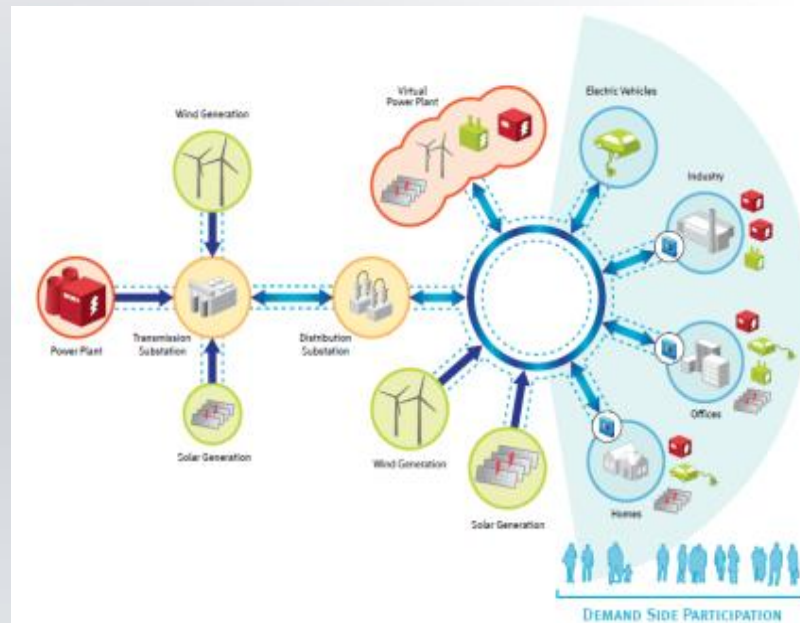
- Energy as a basic and scarce resource
- Sustainability Model
- Efficiency and use of Renewable Energy
- Demand side management not only offer management
- Energy as a motor of a New Economic Model and productive
- Transparency and Good Governance as bases and relationship management
- The need to promote a new culture of energy that empower citizens: energy prosumer

Future model of the electricity system

Traditional model...



New grid model...



The ICT holds the key to access new practices in the operation of the electric system

Renewable energies are the solution, not the problem

Fundación Renovables: Proposed energy policy

Year	Reducing emissions %Vs 1990	Improving energy efficiency % Vs 2005	Reduction of primary energy demand % Vs 2005	Electrification of demand %	Generation of electricity from renewable %	Contribution of renewables %
2020	More than 20	More than 20	More than 15	More than 30	More than 45	More than 20
2030	55	45	40	55	80	50
2040	80	55	45	70	100	80
2050	Zero Emissions	60	50	80		100

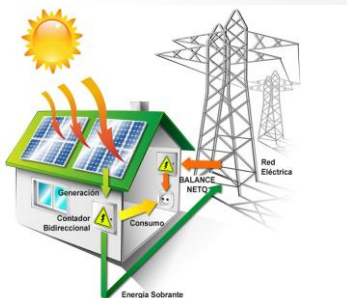
Achieving zero emissions and 100% renewable are two inescapable objectives and complementary

Self-consumption : the right to choose energy

An self-consumption installation is a system that allows the user to generate electricity to supply its energy needs and to send excess energy to the grid and to consume energy from the grid when demand can not be supplied by the installation.

In the case that this generation is performed by a photovoltaic system it is named "Self-consumption Photovoltaic System".

Self-consumption key for quick, efficient and democratic [r]evolution to a new energy model



Self-consumption : the right to choose energy

Photovoltaic Energy:

Technological advantages:

Energy sun directly converted into electricity

Modular

1955: 1500 \$/Wp and 3 % efficiency

Competitive prices

2015: 0,4 \$/Wp and 22 % efficiency

Environmental and Social Benefits:

It produces clean energy

It allows production closer to where consumption occurs

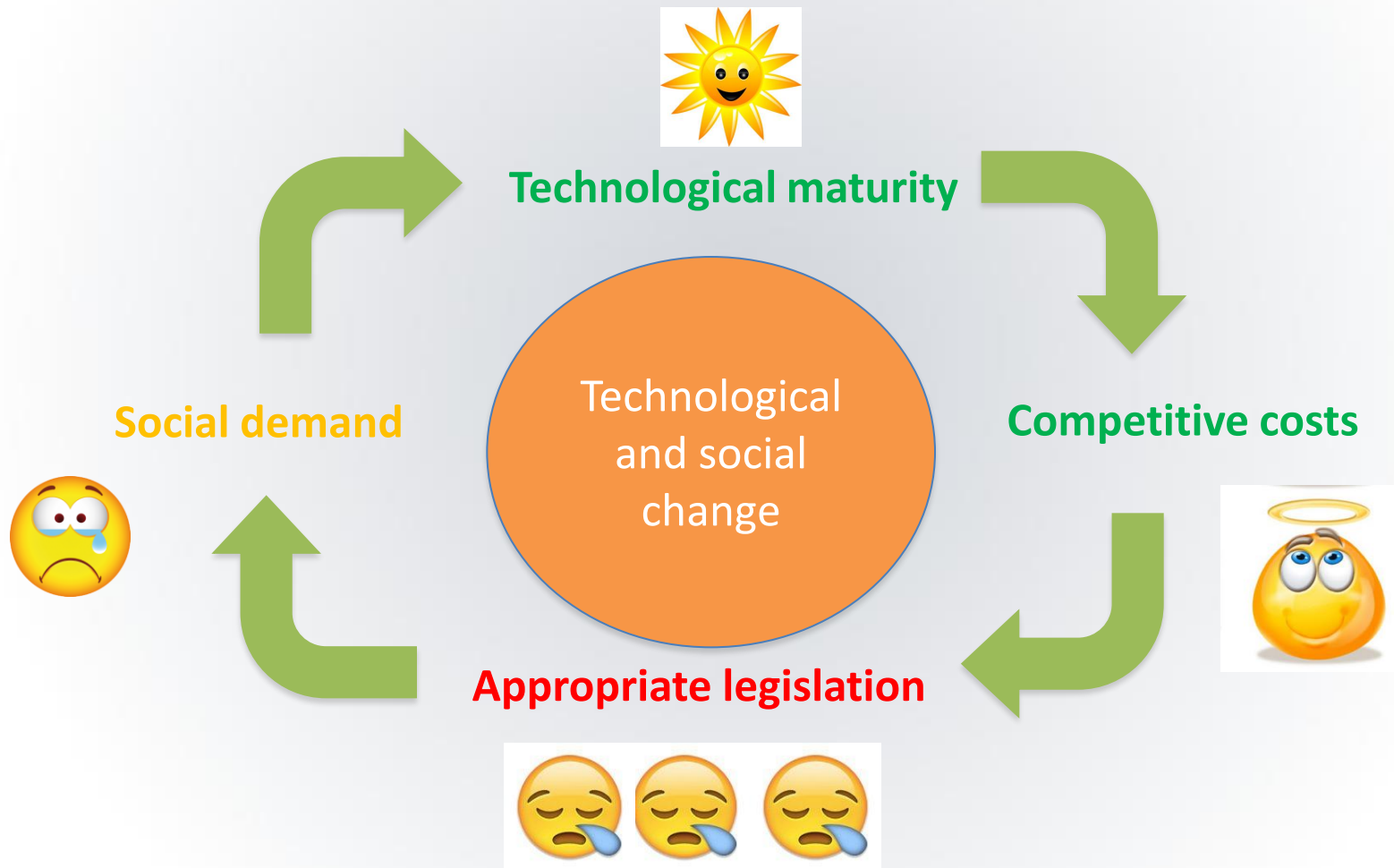
Decentralizing energy supply

Break the electricity monopoly

Responsible citizens for their energy consumption

In summary it allows democratize energy consumption

The Photovoltaics revolution: A new energy and social model



Current status in Spain: RD 900/2015 (october, 2015)

This RD establishes two modalities:

	1.	2.
Modality	Supply with self-consumption	Production with self-consumption
	Consumer	Producer and consumer
Maximum contracted power	100 kW	No limit
Maximum installed power	\leq Contracted power	\leq Contracted power
Holder supply = Holder PV system	Yes	Maximum two
Energy excess injected to the grid	unpaid	Paid according to hourly pool price
Tolls	yes	yes

Current status: RD 900/2015 (october, 2015)

Self consumers connected to the electricity system.

Tolls as a contribution to the financing of the costs and services of the electricity system.

- A. Tolls access to networks
- B. Charges associated with the electricity system costs
- C. Charges for other system services

The RD does not specify all access tolls. Transiently includes two:

1. A fixed charge for power
2. A charge to the self-consumed energy. Not applicable for installations under 10 kW





Fundación Renovables proposal

- Self-consumption must become the future model as it does not need subsidies
- Self-consumed energy does not use the grid and, therefore, it does not have cost or incentives or penalties. **The effect is reduction of demand.**
- Self-consumption installation without limitations or restrictions of power and energy.
- The exchange with the system must be based on the real assessment of the energy delivered / consumed.
- Net-billing system with yearly netting period.
- Creating a framework for Self-consumption sharing, as a union of several generators / consumers.
- Promoting line storage and demand management and system optimization as well as electric vehicle charging.
- Application of a reduced taxes for self-consumption systems.
- Registration and simple without administrative barriers for authorization.





It is necessary the implementation of an open management model to any way of participation:

- Only consumer
- Prosumer, with consumption and generation systems distributed throughout the territory
- Shared consumption
- Special treatment of residential consumers

It should be allowed to demand aggregators, managers demand and / or energy service companies established many bilateral contracts with other consumers deemed appropriate.

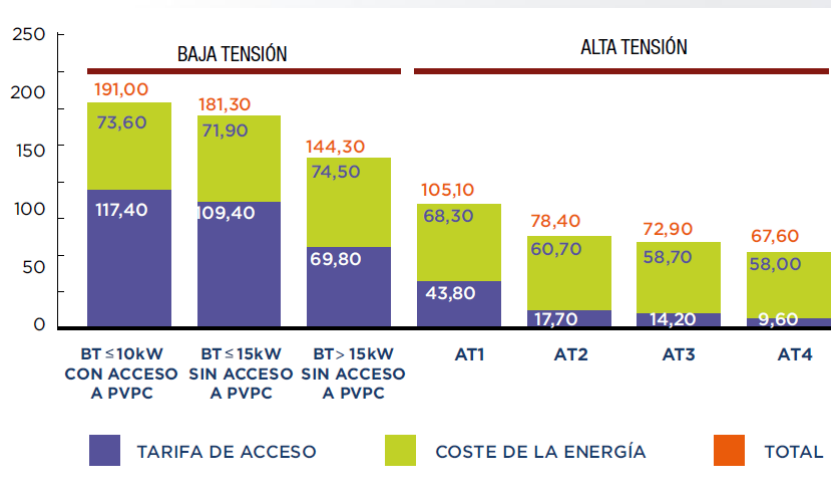




The **Fundación Renovables** is committed to the self-consumption in all its extension and all degrees of freedom based on the inherent right of citizens to choose how they want to supply their energy needs

Another step to promote full development of self-consumption is to review the current structure of the electricity tariff.

Problems of the current electricity system



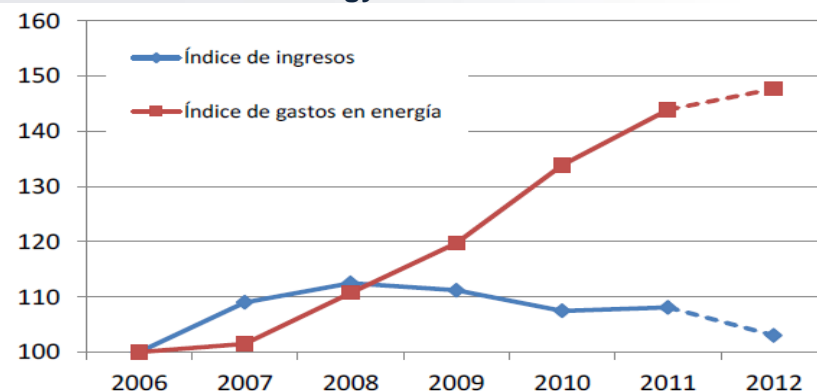
Not all citizens pay the same price



Measurement system not accessible to the user

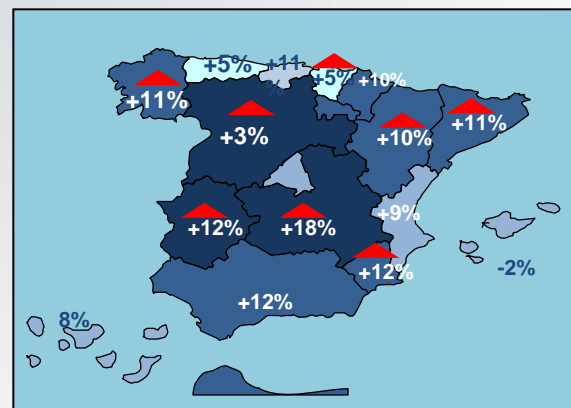
Variable price each hour, depending on the market

Income and outcome index average household energy for 2006-2012



Social problems: Energy Poverty

% Households with disproportionate costs (+ 10% of revenue) in domestic energy (2012) and evolution (2007-2012)



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Self-consumption photovoltaic system

- 12 PV modules of 250 Wp
- 1 inverter of 3.0 kW
- Protection box
- Box network connection
- Without batteries

Mean daily energy production: 13,9 kWh

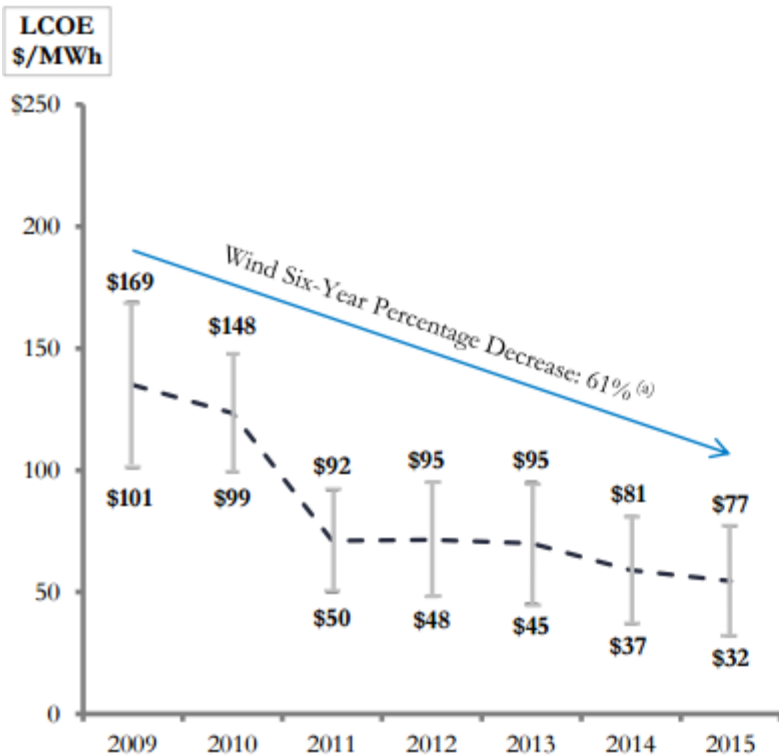
Self-consumption rate: 35%

Self-sufficiency rate: 49%

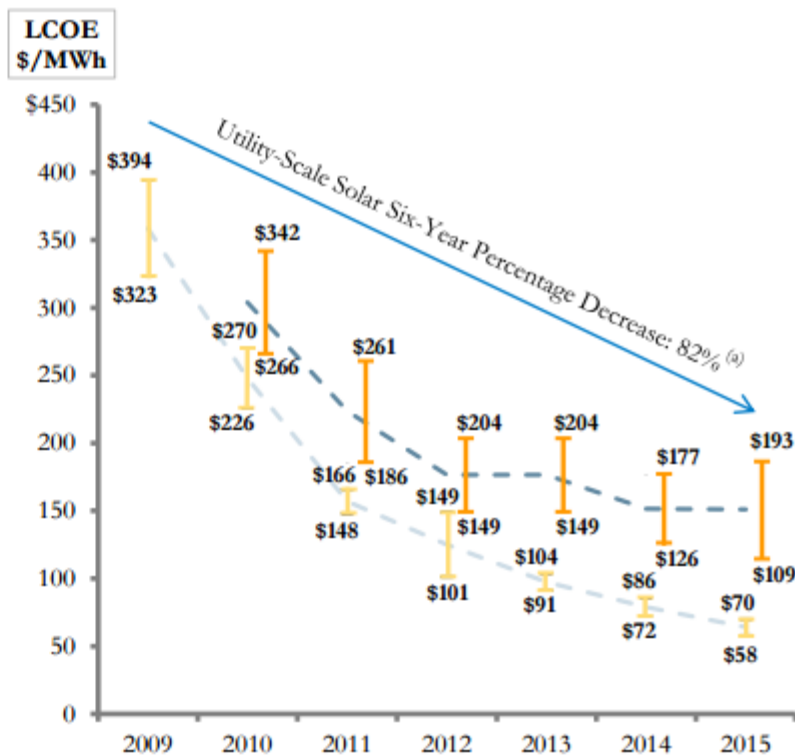
Mean daily household consumption: 9,8 kWh



WIND LCOE



SOLAR PV LCOE



Centrales conectadas
Generación en consumo

Fuente: Lazard

Self-consumption: sun is not just for tanning



ne to act

Thank you for your attention