

EU PV SEC

New Trends in PV Applications: Self-Consumption Business Models in Energy Communities
and the Use of Corporate PPAs for Utility-Scale PV

Update of self-consumption polices

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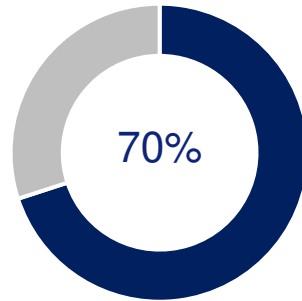
Technical Department, Eletticità Futura



Online, 7th September 2020

Elettricità Futura is the Italian leading association representing the national electricity industry. It encompasses electrical energy generators involved in RES as well as traditional sources, distributors, traders, retailers and service providers. It represents and stands up for the members interests in Italy and in Europe, contributing to making today's electrical market more efficient, enhancing the sector and exploiting the potential of the energy transition.

Elettricità Futura in figures:



of the **electricity consumed in Italy** is ensured by companies being part of Elettricità Futura

600
OPERATORS

40.000
WORKERS

75.000 MW
INSTALLED CAPACITY

1.150.000 km
ELECTRICAL LINES

We are member of:



- IEA-PVPS SelfCo Report – Soon the 2020 Edition
- Introduction to Self Consumption models
- Categories of Self Consumption Schemes
- Self Consumption in different regulatory environments
- Conclusion



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Self-Consumption Report of IEA-PVPS-Task1

The **strong growth** of **Photovoltaic sector** in the next decades obliges to boost the exploitation of non-traditional distributed electricity models

PV production fits perfectly with **distributed production systems** in which self-consumption is gaining more and more a central role in letting it to deploy the benefits like reduction of electricity taken from the grid and the revolution of **changing traditional centralized electricity systems**, thus **transforming buildings** into energy production units for people living inside and nearby



Due to **constant changes of self-consumption schemes** in many Countries

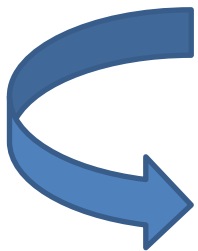
IEA PVPS-Task1 decided to update and review/renew the first edition of [Self-Consumption Report \(2016\)](#).

Self-Consumption Report of IEA-PVPS-Task1

The report makes a comparative analysis of existing mechanisms about self consumption policies in more than 20 Countries

Italian members in IEA-PVPS-Task1 contributed to the first draft of new 2020 Edition, collecting each Country regulation about self-consumption policies and reviewing some chapters

Some previews of the new Self-Consumption Report (2020) are available in this presentation



Self-Consumption Report (Edition 2020)

will be published soon!

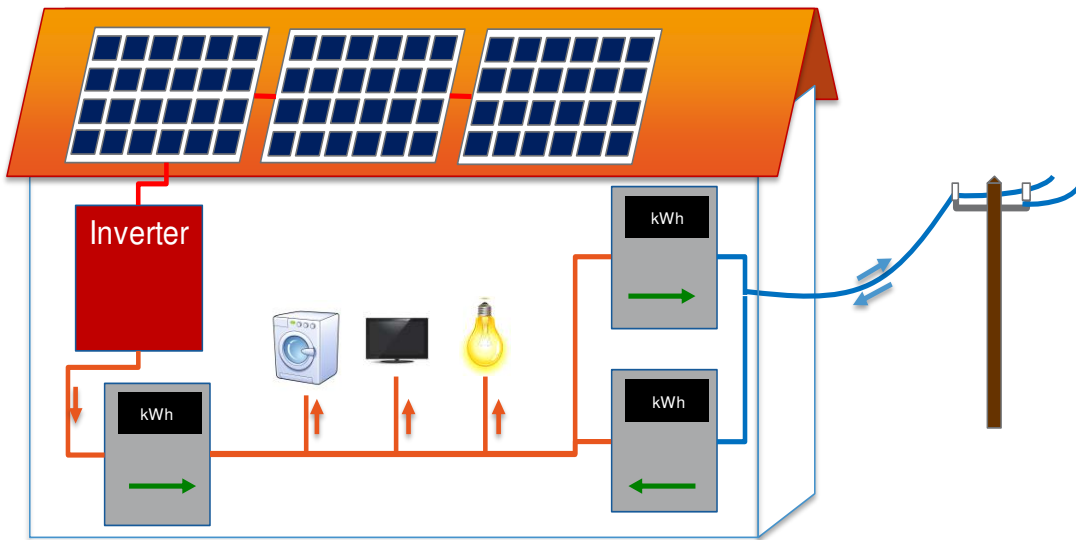


Check for updates on <https://iea-pvps.org/>

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Self Consumption and PV Sector



Mechanisms promoting **self-consumption of PV electricity** are based on the idea that PV electricity will be used first for **local use** and that all this electricity should not be injected into the grid

The part of the bill that can be compensated depends on several options that can be applied in each Country or region

Self Consumption and PV Sector

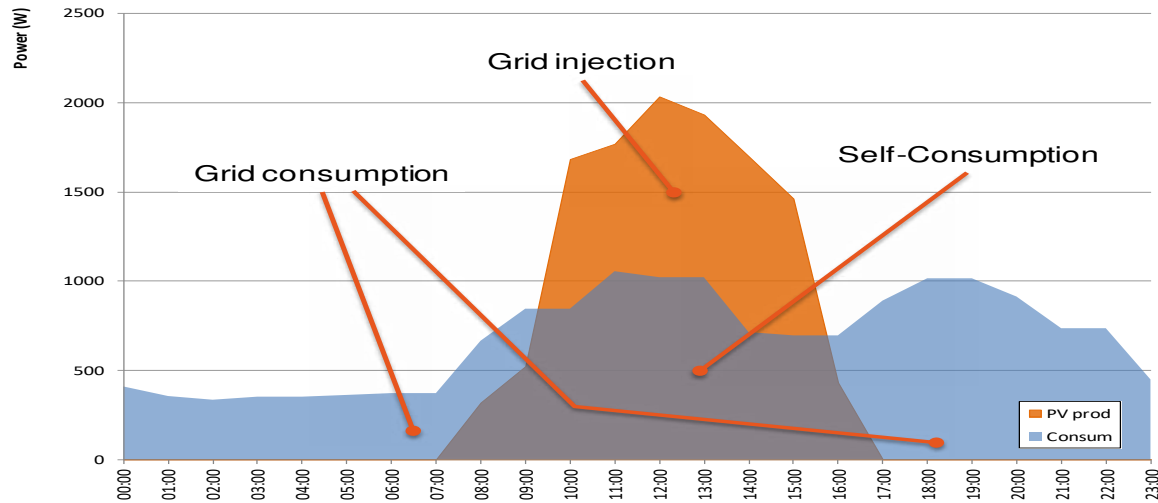
The mechanism of self-consumed energy generally is called:

- “**self-consumption scheme**” when self consumption is calculated in real-time (or within short time periods, e.g.15 minutes)
- “**net-metering scheme**” when self consumption is calculated through the compensation between production and consumption on energy basis in a larger time frame (up to one year or more)
- “**net-billing scheme**” when self consumption is calculated on a “cash-flow basis”

However, some hybrid programs exist between these main schemes

The debate in the market is focused on lots aspects, such as which type of compensation to apply not only to the price of electricity produced/injected into the grid but also to grid costs and taxes

Self Consumption and Self Sufficiency



Comparison of production and consumption profiles

Self consumption should not be confused with **Self sufficiency**

Self-consumption of PV-generated electricity system is defined as the **share of locally generated electricity** that is consumed in-house, while **self-sufficiency** is defined as the **share of total demand** that is being supplied by in-house-generated electricity

Producer: always more important in energy sector



The “**Prosumer**” is an electricity consumer producing electricity to support its own consumption (and possibly for injection into the grid). The word is built based on the association of “producer” and “consumer” and it is used widely nowadays

In the last few years prosumer started moving from a “*one to one*” to a “*one to many*” relationship, due to the introduction of new regulation supporting the introduction of **energy communities** and **collective/distributed self-consumption systems**. This evolution is essential to enlarge the potentialities of RES and in particular of PV that is the RES that better fits with this structure of power production

Collective self-consumption, solar communities and similar measures – New models for local generation



In the last years **several Countries started promoting collective and distributed self consumption** as a new model for residential and commercial/industrial electricity customers

In that schemes self-generated electricity can be shared through different consumers located in the same building or private area (**collective self-consumption**), or in the same geographical area using the public grid (**distributed or virtual self-consumption**)

For instance, in “virtual (or distributed) self-consumption” model, the prosumers are not grouped behind the same meter and production and consumption can be offset at distance, paying specific conditions on grid costs

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Parameters applied in SelfCo Report

PV Self-consumption	1	Right to self-consume
	2	Revenues from self-consumed PV
	3	Charges to finance T&D costs and RE levies
Excess PV Electricity	4	Revenues from excess electricity
	5	Maximum timeframe for compensation
	6	Geographical & individual compensation
Other System Characteristics	7	Regulatory scheme duration
	8	Third-party ownership
	9	Grid codes and/or additional taxes/fees
	10	Other enablers of self-consumption
	11	System size limitations
	12	Electricity system limitations
	13	Collective self-consumption, solar communities and similar measures
	14	Additional characteristics

These parameters have been identified, in order to categorize all kind of policies supporting self-consumption in each analyzed Country

The parameters have been updated and revised compared to those used in the first edition of SelfCo report

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Countries analyzed in the report so far*



THE AMERICAS

Canada

ASIA PACIFIC

Australia

China

Japan

Malaysia

MIDDLE EAST

Israel

EUROPE

Austria

Belgium

Denmark

Finland

France

Germany

Italy

Netherlands

Norway

Portugal

Spain

Sweden

Switzerland

Some information waiting IEA PVPS-Task1 SelfCo Report 2020*



Net-metering scheme

- It offers energy credits for PV electricity injected into the grid
- Scheme previously applied in some Countries like **USA, Canada, Denmark, the Netherlands, Portugal, Korea** and partially in **Belgium**
- These kind of policies are increasingly **replaced** by **real-time consumption** models of PV electricity, often completed with a feed-in tariff (or feed-in premium in addition the spot price) for the excess PV electricity fed into the grid

Some information waiting IEA PVPS-Task1 SelfCo Report 2020*



Collective Self-consumption scheme

- It's not yet widespread but already exists in some Countries, like **the Netherlands, Sweden, France, Switzerland, Spain Germany, Portugal**
- Other Countries applied the scheme with some pilot projects, like **Australia, Austria, Belgium, Canada**
- Other Countries soon will start testing this scheme, like **Italy** and **Japan**

Virtual Self-consumption scheme (between distant points)

- Tested in some Countries like **Finland, Mexico, Norway, Brazil, France** and **Australia**
- It's applied in the **Netherlands** under certain conditions

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Self-consumption regulation is changing in a very fast way in different Countries



Prosumers are taking on an **important role** in the **energy transition**, exploiting technical, social and environmental benefits of renewables.

New business models (collective/virtual self-consumption) **are developing** quickly and there are different aspects under discussion (grid costs, energy compensation algorithm, consumers rights, etc.)



In this context it will be more and more important ***sharing information*** about different Country's regulations in order to identify «***best practices***», to adopt the most **appropriate measures** in each Country for ***self-consumption*** plants, **in the most *efficient way*** for the whole electric system



IEA-PVPS Self-Consumption Report (Edition 2020)

will be published soon!

Check for updates on <https://iea-pvps.org/>

Thank you



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