

Webinar:

"UNWRAPPING THE CLEAN ENERGY PACKAGE: COLLECTIVE SELF-CONSUMPTION MODELS #1"



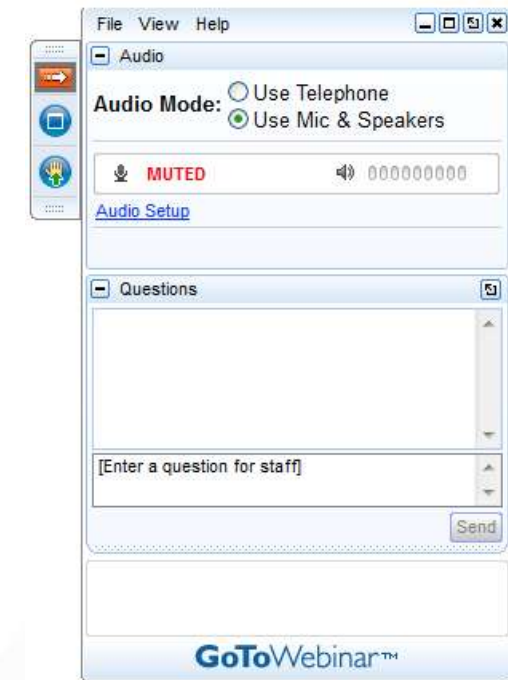
Agenda for today

- 1 Welcome participants and introduction to the meeting**
Aurélie Beauvais, Policy Director, SolarPower Europe
Giorgia Concas, General Secretary, European Association for Electrical Installers (AIE)
- 2 “Experience from Germany: the Mieterstrom model”**
David Krehan, Political Advisor, German Solar Association (BSW)
- 3 Experience from Switzerland: the self-consumption consortium model**
David Stickelberger, Director, Swiss Solar Association (Swissolar)
- 4 Experience from Greece: the virtual net-metering model**
Stelios Psomas, Policy Advisor, Greek Solar Association (Helapco)
- 5 Q&A session**

"Unwrapping the Clean Energy Package: Collective self-consumption models #1"

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"Unwrapping the Clean Energy Package: Collective self-consumption models #1"

Welcome participants and introduction to the meeting



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Policy Director, SolarPower Europe



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"Unwrapping the Clean Energy Package: Collective self-consumption models #1"



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WEBINAR: UNWRAPPING THE CLEAN ENERGY PACKAGE: COLLECTIVE SELF-CONSUMPTION MODELS

- Experience from Germany: the Mieterstrom model -



German Solar Association

May 23, 2019

German Solar Association: Who we are



TASK To represent the solar industry in Germany in the thermal and photovoltaic and storage sector

VISION A sustainable global energy supply provided by solar (renewable) energy

ACTIVITIES Lobbying, political advice, public relations, market observation, standardization

EXPERIENCE Active in the solar energy sector for over 30 years

REPRESENTS Several hundred members along the complete value chain active in the solar business



HEADQUARTERS Berlin, Germany

Framework for collective self-consumption in Germany

Basic distinction collective self-consumption

Support for collective self-consumption by premium (Mieterstrom acc. to EEG)

- Introduced in July 2017
- Includes certain criteria in order to be eligible
- Each kWh which is produced by PV and consumed locally is rewarded with a premium
- Amount of premium is deducted from FiT level acc. to EEG

Other models of collective self-consumption

- Building owners and tenants are free to sign contract according to general terms of service
- Also pricing can be agreed upon with no restrictions
- A separate contract for the supply with PV electricity is possible
- There is no benefit however some levies might be reduced

Preconditions for support by German Mieterstrom law (Renewable Energy act) I

Criteria plant size

PV system size must not exceed 100 kWp

Criteria for buildings

Building has to mainly serve housing and accommodation

At least 40% of the building space has to be used for living

Criteria usage of grid

PV Electricity has to be delivered without usage of public grid

Criteria regarding self consumer

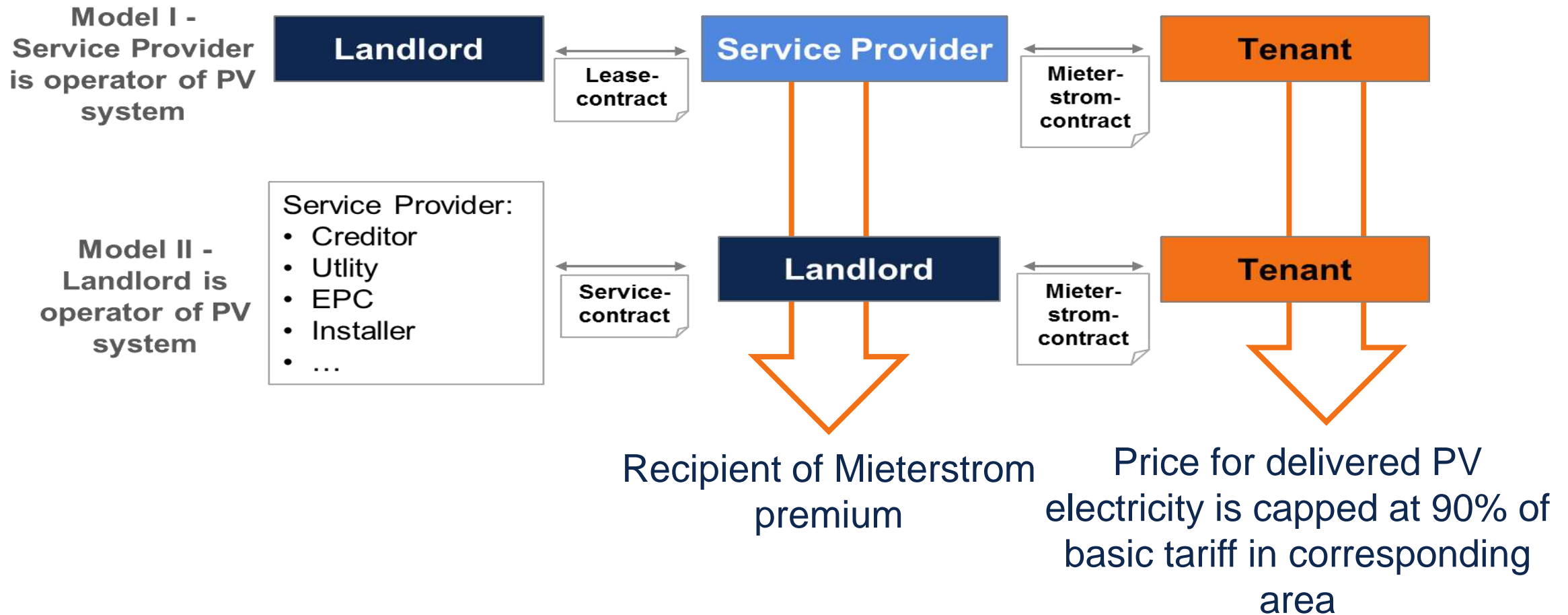
PV electricity has to be delivered to end customers only

Only one contractor for all electricity supply is required (PV and from the public grid)

PV electricity has to be consumed inside the building or nearby annex

PV electricity delivered has to be billed separately for each participating consumer

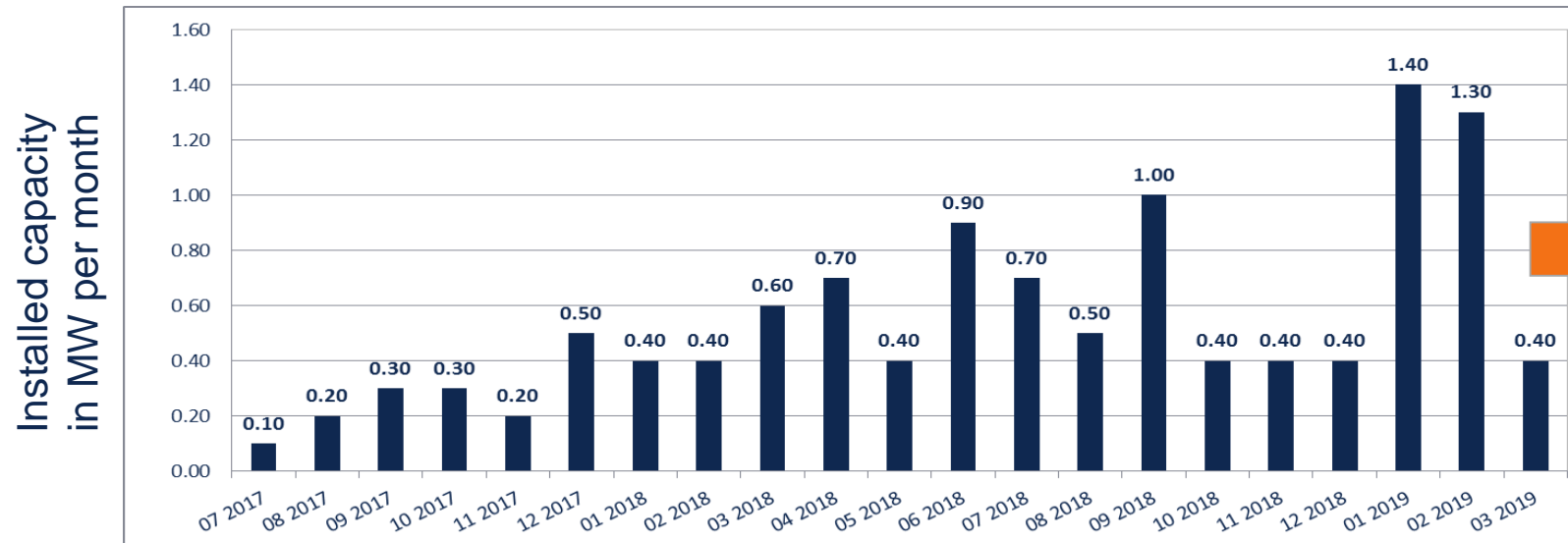
Preconditions for support by German Mieterstrom law (Renewable Energy act EEG) II



Experience of current support scheme for collective self-consumption in Germany

- So far market development has been rather slow and on a low level

Development of PV systems constructed under Mieterstrom support scheme in Germany



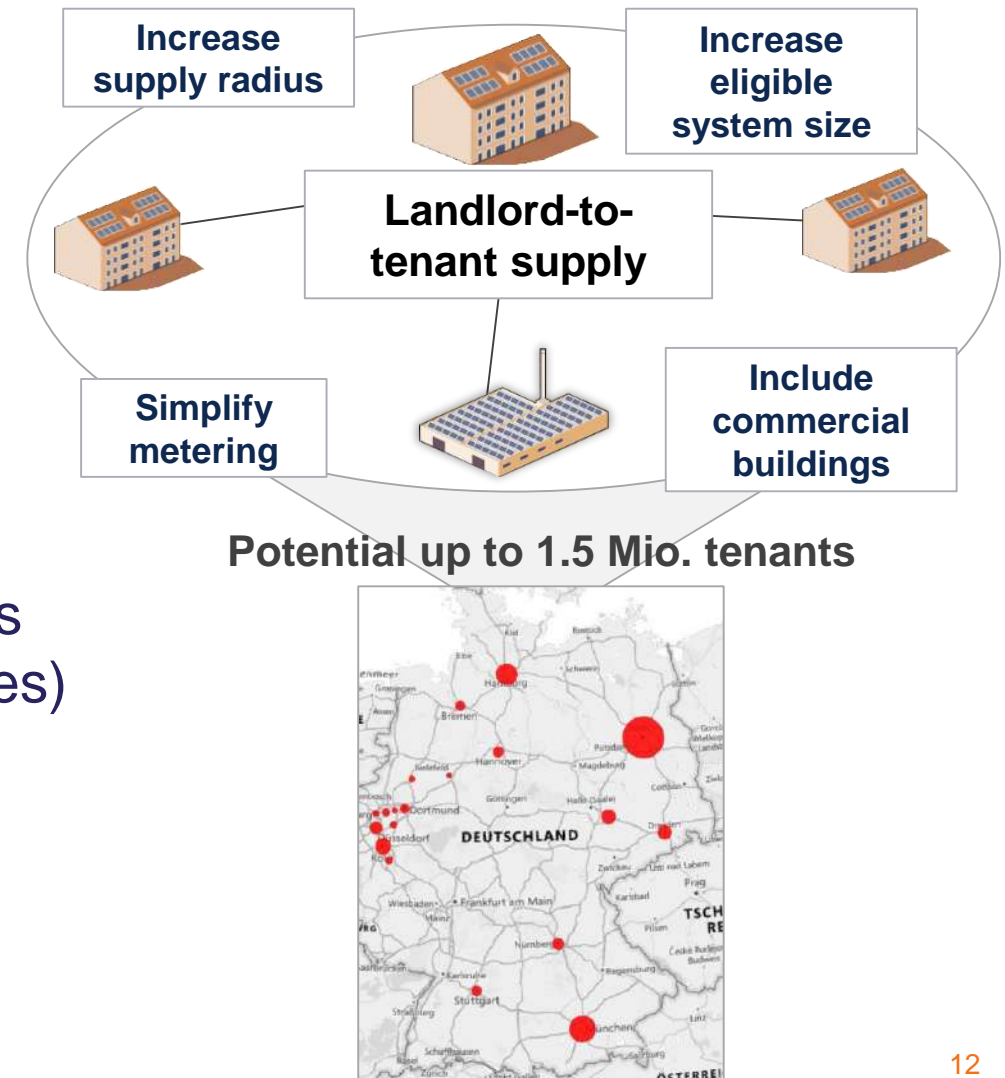
Since law put in place total inst. capacity = 12 MW*

- It appears that amount of benefit does not cover costs for implementing in an economical viable way
- Further restrictions are quite high
- Government is evaluating the law and will publish their assessment end of Sep 2019

Room for improvement: Proposals to reform German Landlord-to-tenant supply premium

Improving German Mieterstrom framework

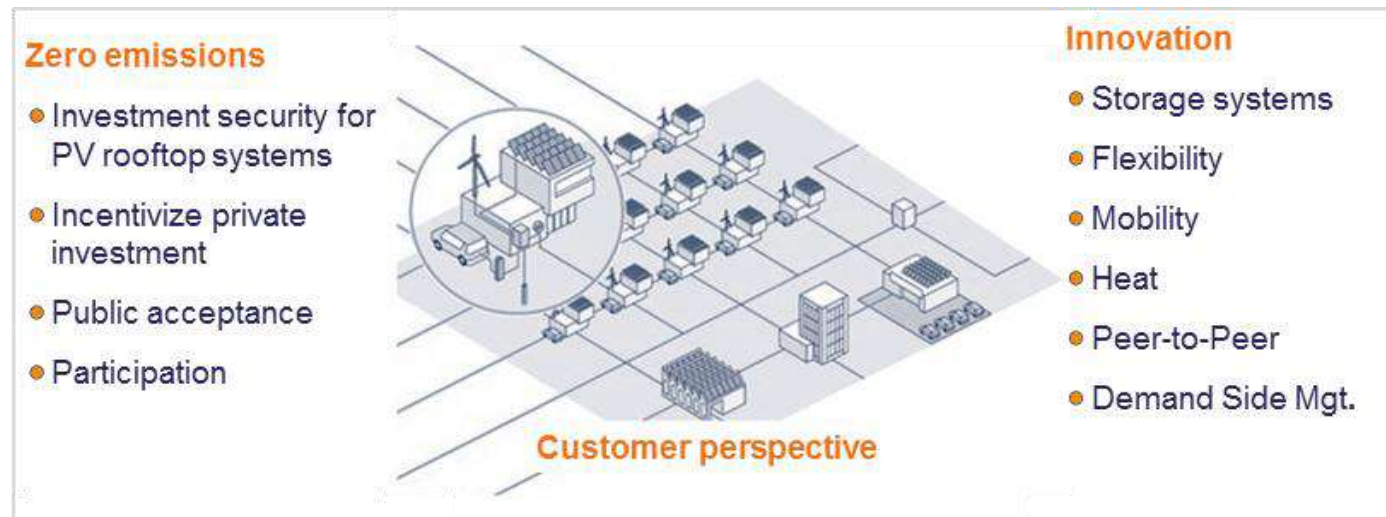
- Increase level of premium payments in order to ensure economic feasibility
- Increase size of eligible PV systems up to at least 250kWp
- Reduce requirements for metering and billing the delivered PV electricity
- Remove capped electricity price (contracting parties should be free to agree upon price levels themselves)
- Increase scope of supply geographical area and remove barriers for the supply of neighboring buildings
- Expand support scheme to commercial buildings



Beyond German Mieterstrom act: New framework for local self-consumption needed

Rearrange framework for local self-consumption by

- fully removing non energy related surcharges including payments for EEG-Umlage,
- treating individual and collective self-consumption equal,
- enabling non discriminatory Peer2Peer trading of distributed PV electricity and
- unwrapping potential of storage systems and flexibility options



Thank you for your attention...

David Krehan
Political Advisor

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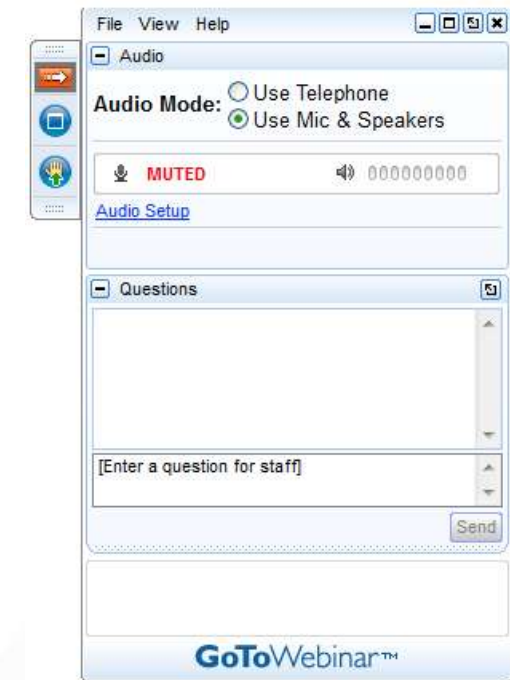
German Solar Association (BSW-Solar)
Lietzenburger Straße 53
10719 Berlin



Q&A session

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Swiss Regulations for collective Self-Consumption of PV Power

23.05.2019 | Webinar SPE

David Stickelberger, Managing Director



Swissolar: Swiss solar energy association



Experiences : active since 1978

Members: ca. 700 companies:

- Producers
- Distributer
- Installers
- Planner
- Utilities

Head office: Zürich

Branch offices in the French and Italian speaking region

Financed by: Member fees, sponsoring, Public support

Energy strategy 2050 in Switzerland, 1st action programme

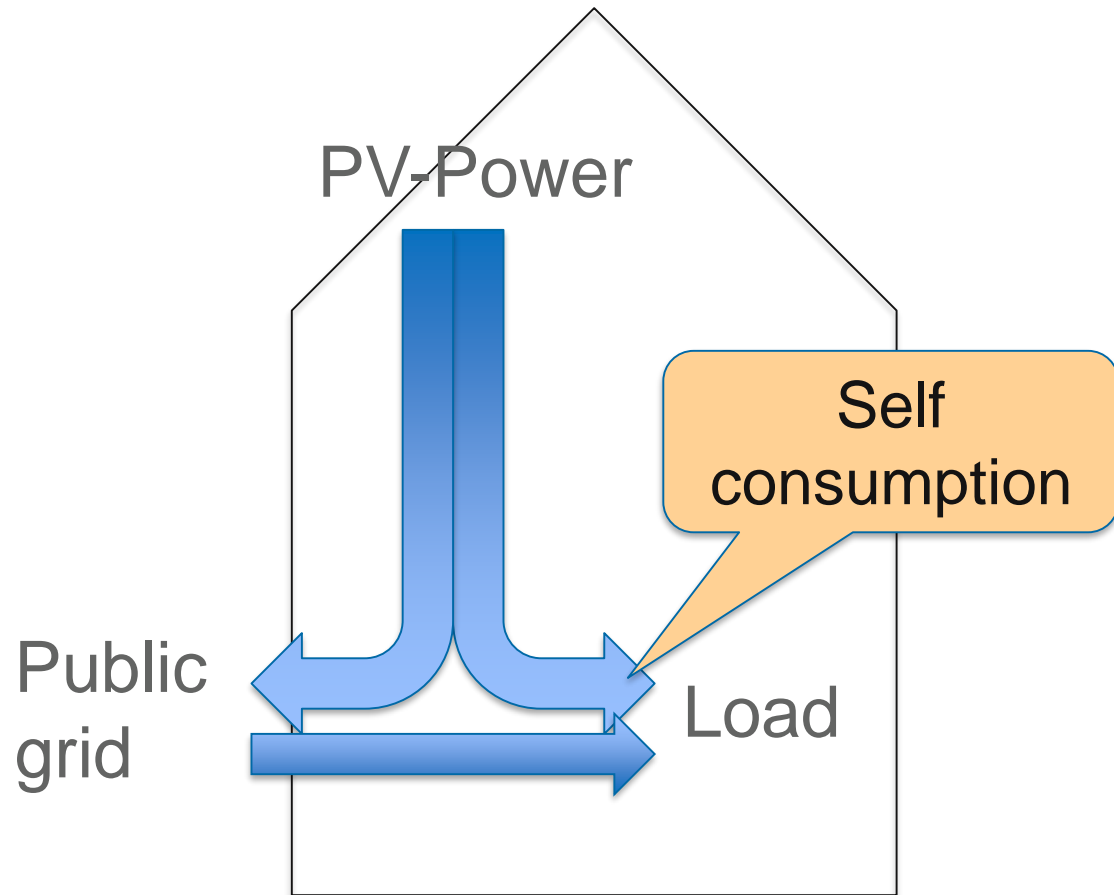
- No new nuclear power stations (but no phase-out date for existing)
- Tax on electricity consumption in order to finance programmes for the support of sustainable, renewable clean power generation.
- PV subsidy: one-off payment (~25% of investment costs)
- New Rules for self consumption of locally produced power
- Goal 2035: 11,4 TWh annual production of electricity from renewable energies, excl. Hydropower
- Accepted by a public vote on May 21, 2017, legal validity since 1.1.2018

Market liberalization only >100 MWh/y, full liberalization planned, but strong resistance (utilities, trade unions)

→ Will only be implemented as part of bilateral electricity agreement with EU

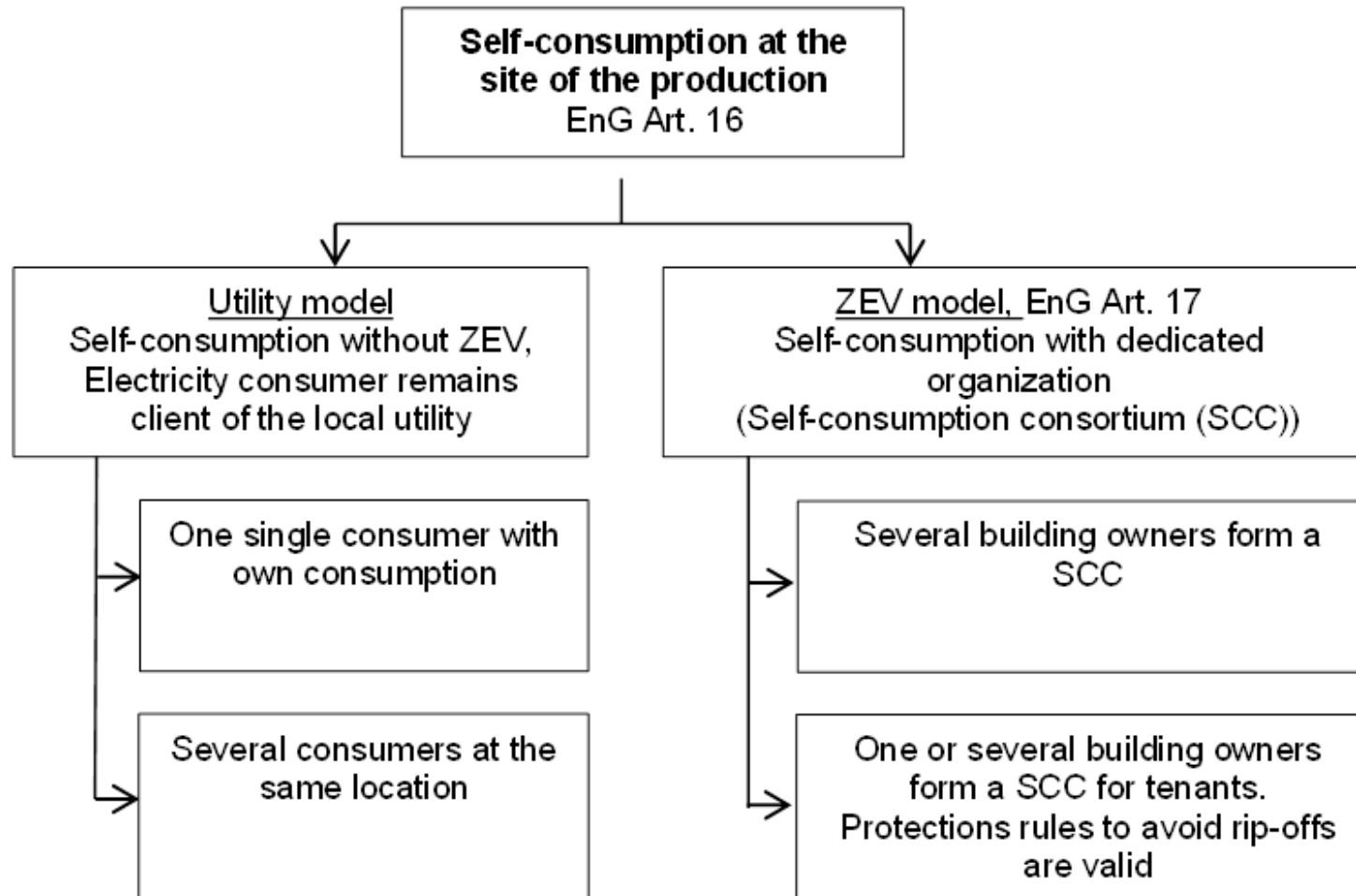
→ Not in the next 5 years?

Self consumption is the key driver for the future market of decentralized PV Power Systems in Switzerland



- On a small level self consumption was used since beginning of grid connected PV applications in 1987, often with net metering.
- For the first time it was included in a law in 2014
- As per 1.1.2018, new regulations were introduced in the energy law and decrees. Amendments per 1.4.2019

Overview of the present opportunities

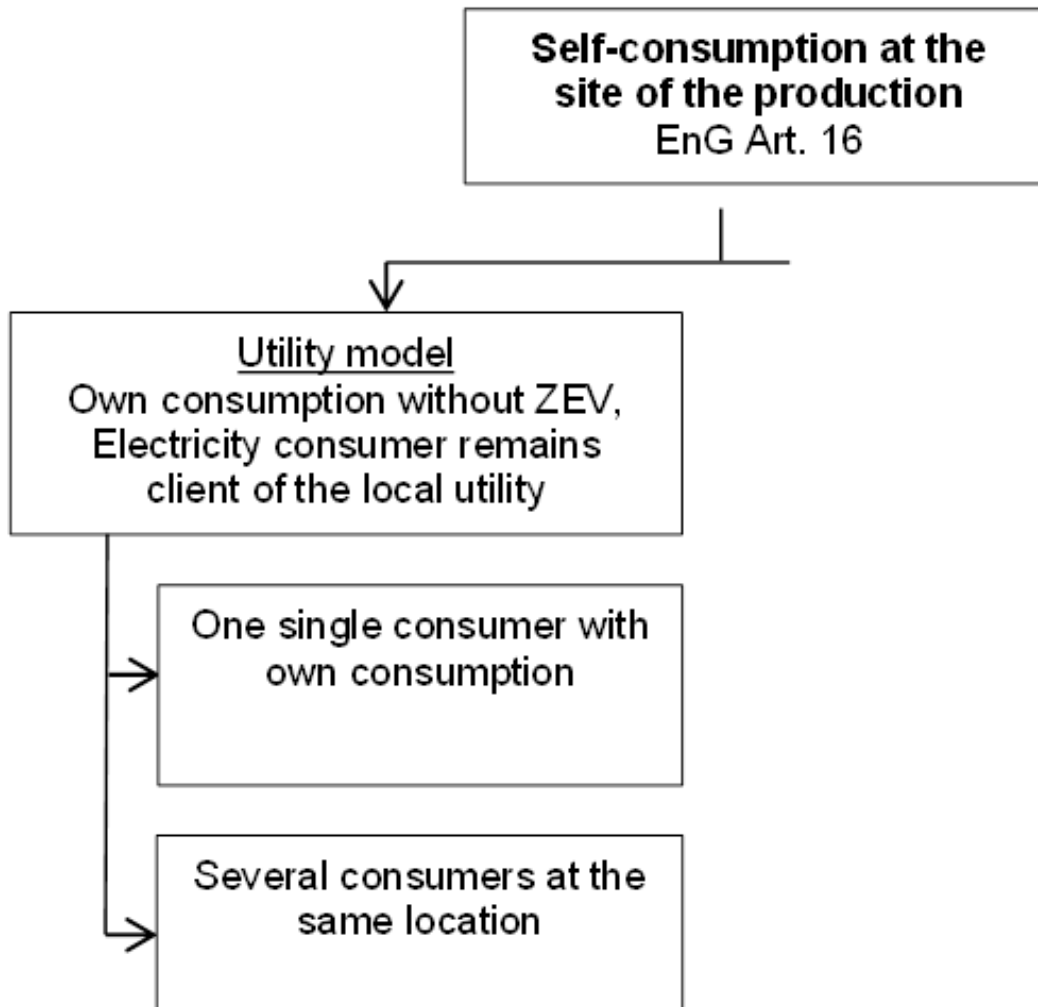


Two main ways to organize self consumption:

- Utility model
- “ZEV” model
(self-consumption consortium SCC)

Legal base:
Swiss Energy Act
(Energiegesetz, EnG)
Art. 16/17

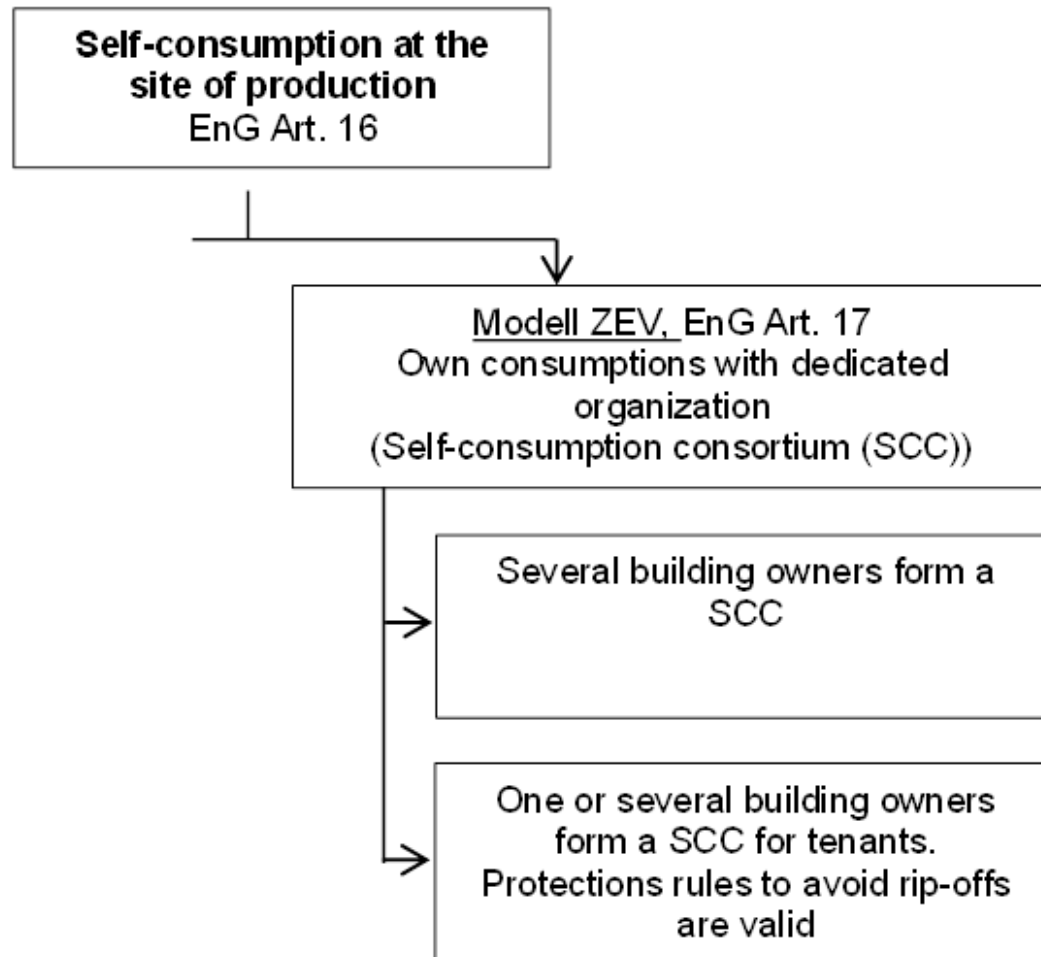
Utility Model



In the utility model, the consumer remains client of the local utility. This may apply to single family dwellings as well as for row houses or multi store buildings.

In Switzerland there is no free market for clients with an annual consumption of less than 100 MWh.

ZEV Model

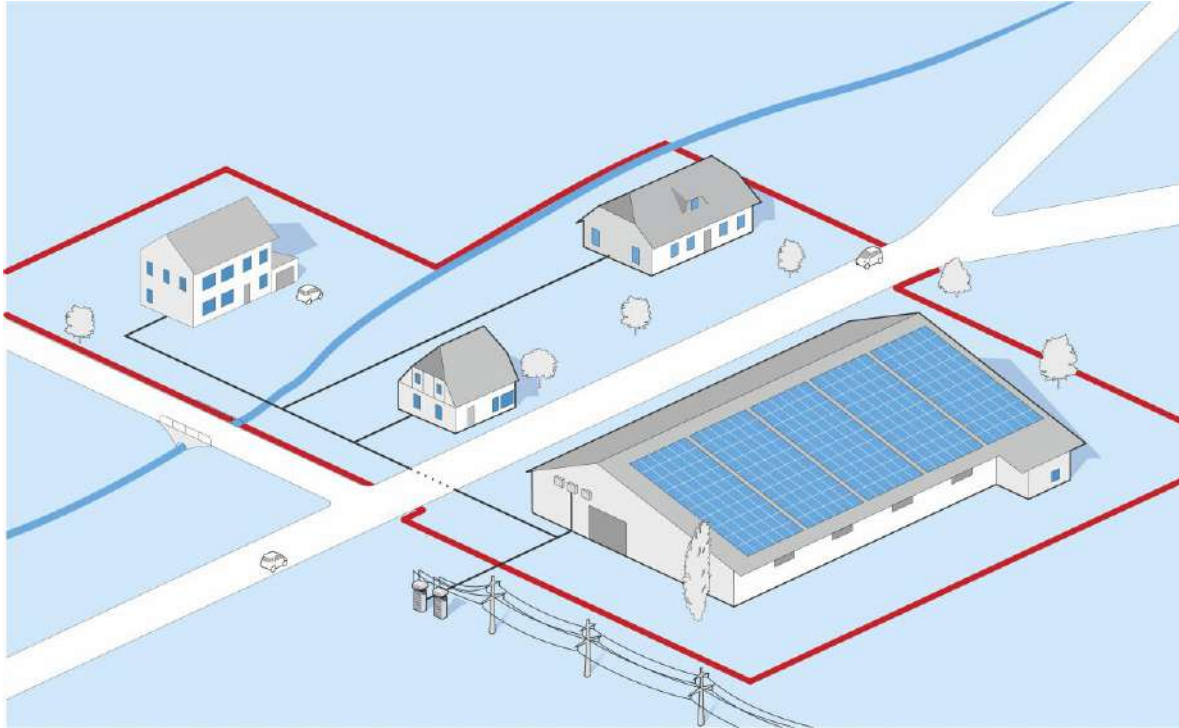


ZEV stands for “Zusammenschluss zum Eigenverbrauch”, in English self-consumption consortium SCC

Possible for:

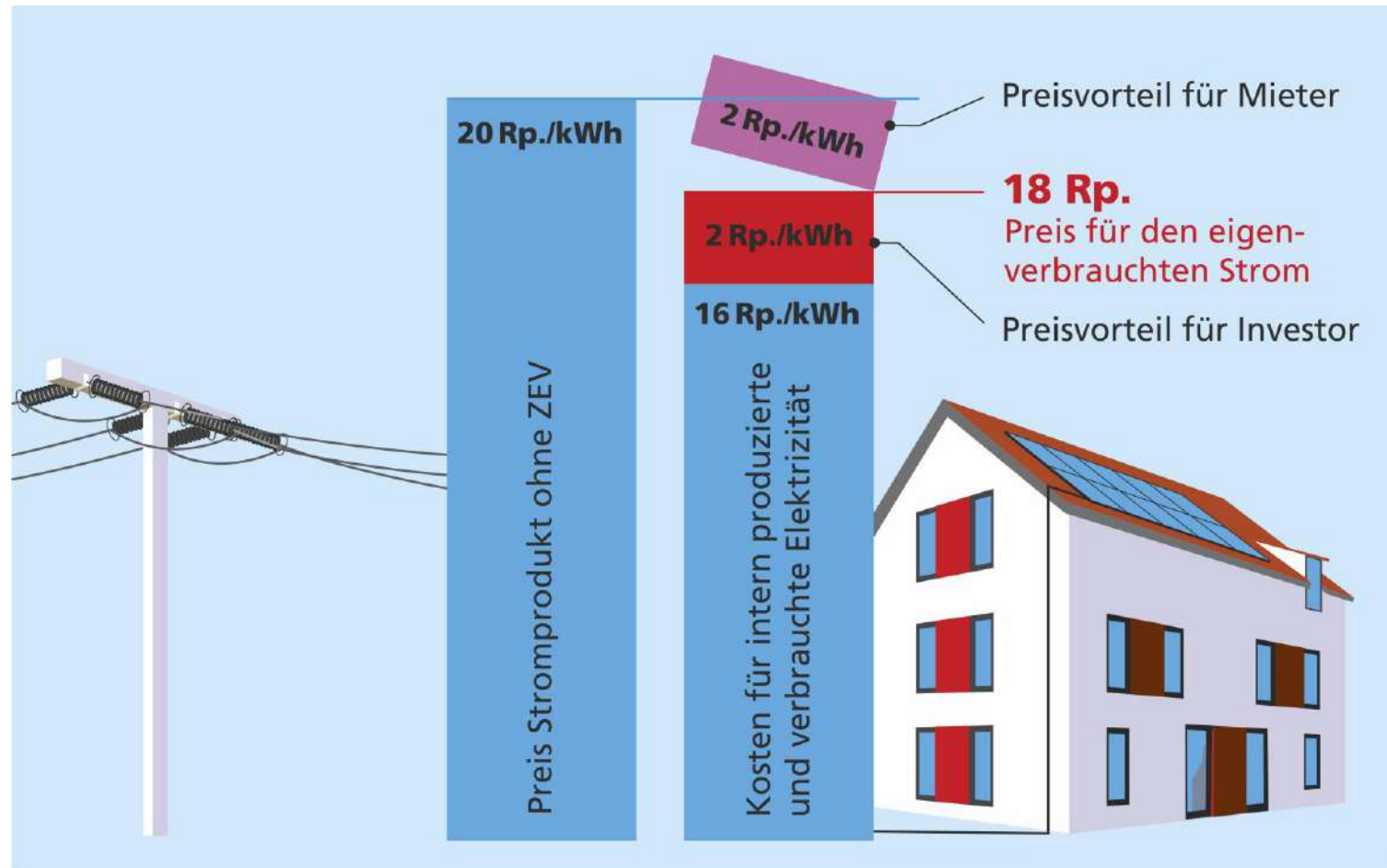
- one or several buildings
- one or several building owners
- rented or owner-occupied homes

Conditions to create a SCC (ZEV)



- The involved properties must be adjacent to each other, roads/rivers may be crossed.
- There must be one grid connection point only.
- The use of the public grid is not allowed.
- The PV nominal power must be at least 10 % of the nominal power of the connection point to the public grid.

Solar power price calculation for tenants



For rented dwellings there are prescriptions regarding the price for the kWh delivered to the members of the SCC:

- no higher cost compared to the kWh price paid without SCC
- Limited return on investment, actually 2 %
- $\frac{1}{2}$ of difference can be added to the solar power price

Motivation to go for self consumption of PV Power

- Consumer prices (tariffs) for electricity in households in Switzerland are typically above 0.20 Euro/kWh.
- The tariffs for the delivered power back to the grid is low, actually around 0.07 Euro/kWh.
- Based on the low interest rates, life cycle cost of PV electricity is lower than 0.15 Euro/kWh.
- The creation of SCC helps to increase self-consumption in many cases.
- A SCC with an annual electricity consumption of > 100 MWh/year gets direct access to the electricity market.

Experiences, Difficulties

Due to the new opportunities a significant market share is expected. So far ~400 (20 MW) implemented SCC (another 300 planned).

However, there are some barriers where improvements are proposed:

- The very low limit for the return on investment stops many investors.
- In built urban areas, the transformation of an existing distribution grid to become part of the SCC is not possible up to now, see the following example.

Example 1: Supply with branch connection in the street

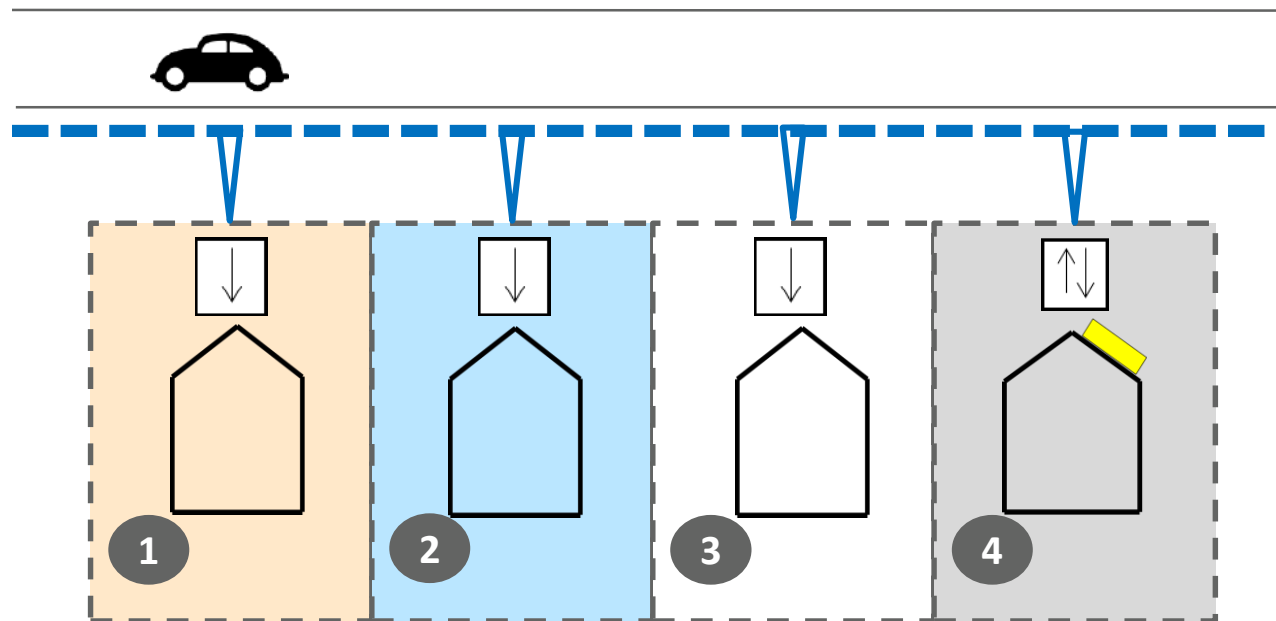


Figure: BKW

- A SCC over 4 properties shall be realised.
- PV is installed on the roof of house Nr. 4.
- The cable in the street belongs to the public grid, it cannot be used by the SCC.
- How to proceed?

Example 1: Theoretical solution

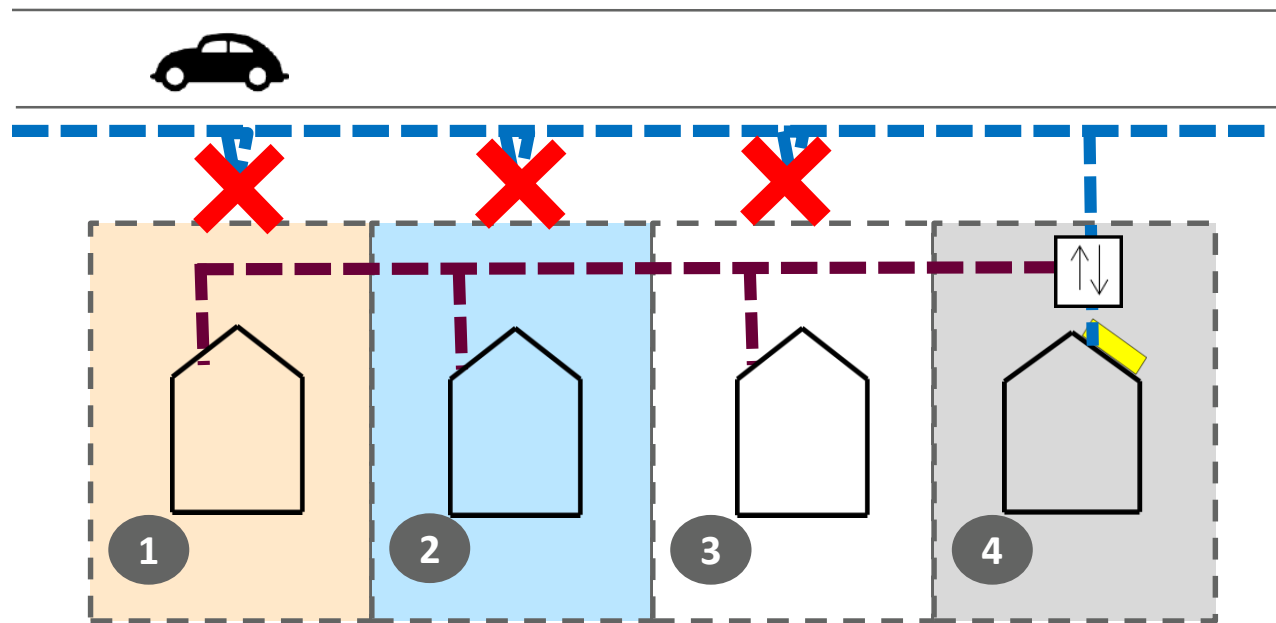


Figure: BKW

- A new distribution line as house installation would be necessary.
- The existing supply cables would have to be dismantled.
- Costs were too high, project was stopped.

Example 2: Distribution cable on private ground

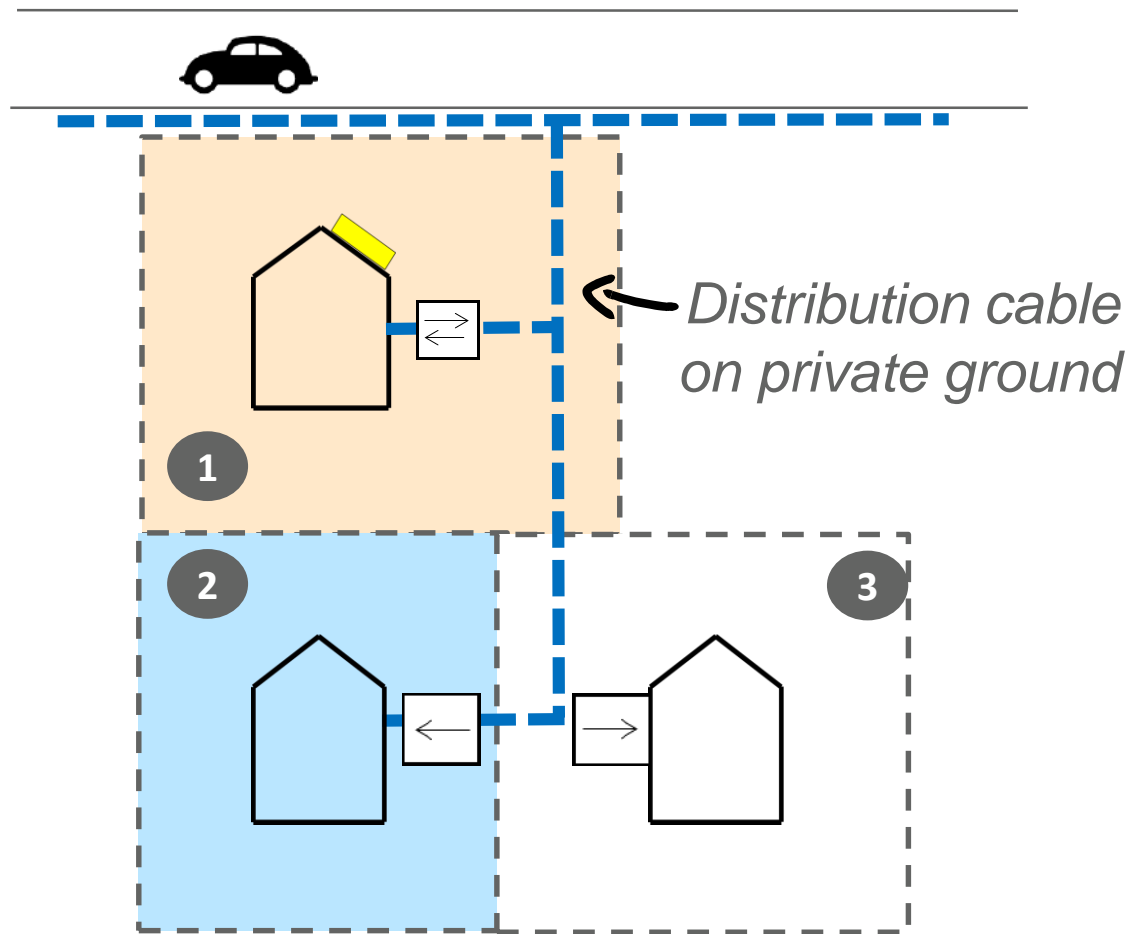


Figure: BKW

- In initial position there were 3 connection points between the utilities and the occupants of the three buildings.
- To realise a SCC, there must be one connection point.
- How to proceed?

Example 2: One new single connection point

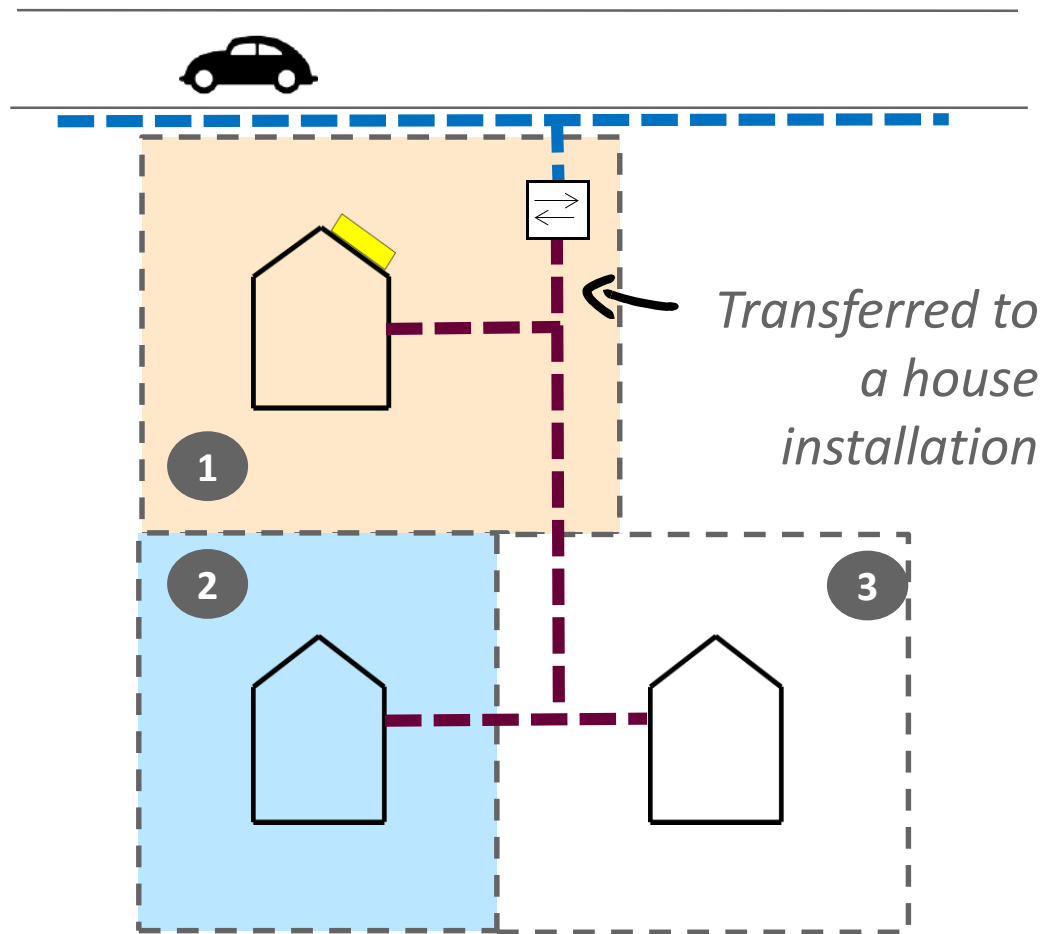


Figure: BKW

- Transferring the distribution cable into a house installation is, under circumstances and with adequate technical adaptations, possible.
- The investments for the new installations have to be paid by the SCC.

Examples



Visualization of Papillon Neighbourhood in Niederwangen BE. © Genossenschaft Fambau
60 flats, 157 kW PV, 70% self-consumption rate



Sentmatt Neighbourhood, Obfelden. © Halter Immobilien AG
119 flats, Hybrid collectors, 30% autonomy rate



Erlenmatt Ost, Basel. © ADEV
200 flats, 580 kW PV



4 multi-family houses in Möriken.
© Setz Architektur
36 flats, 160 kW PV

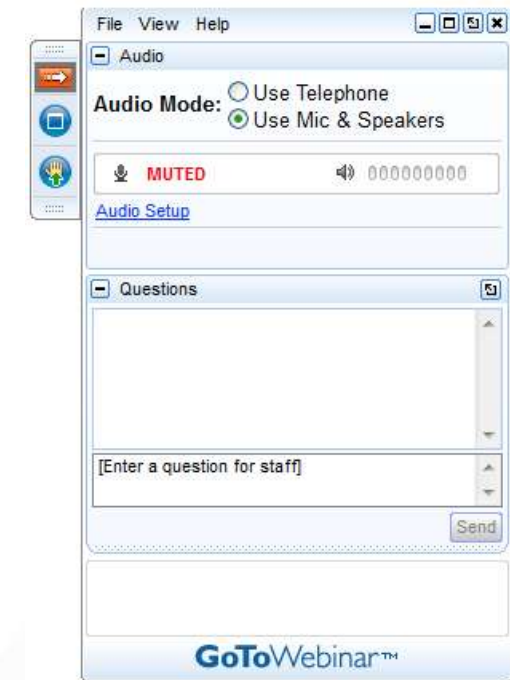
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Q&A session

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Unwrapping the Clean Energy Package

Collective self-consumption models

Experience from Greece: the virtual net-metering model



HELLENIC ASSOCIATION OF PHOTOVOLTAIC COMPANIES

Stelios Psomas

Policy Advisor, HELAPCO

SolarPower Europe Webinar, 23.5.2019

The regulatory framework

2013: Introduction of a Net-Metering scheme

2016: Introduction of Virtual Net-Metering scheme

2018: Introduction of Energy Communities

2019: Collective Net-Metering (combination of Energy Communities and Virtual Net-Metering)

Overall presentation of the scheme

The Net-Metering scheme

The excess energy from a PV installed at the premises of a consumer is injected into the grid and can be used at a later time to offset consumption during times when onsite PV generation is not available or not sufficient. Netting period is 3 years. Any excess energy that has been injected into the grid and has not been netted when closing these 3-years-long periods is not compensated.

Net-Metering contract is valid for 25 years.

Max PV system capacity: 20 kWp for residential systems

1 MWp for commercial systems

Smaller limits for islands with autonomous grids.

Overall presentation of the scheme

The Net-Metering with storage scheme

The storage unit is operated with the aim to increase the self-consumption rate of produced PV energy, so that the energy absorbed by the consumer from the grid decreases. Due to the fact that “Regulated Charges” are mainly volumetric-based and they are imposed in the volume of energy absorbed, the prosumers can achieve an extra reduction to their bill.

Storage capacity is currently limited to 30 kVA.

Max PV system capacity: 20 kWp for residential systems

1 MWp for commercial systems

Smaller limits for islands with autonomous grids.

Overall presentation of the scheme

The Virtual Net-Metering scheme

Extension of Net Metering from one to multiple consumption points. The energy produced by a PV plant is used to offset multiple energy bills. Production and consumption facilities are within confined boundaries and they may belong to one single person-entity (or to multiple people-entities who have formed an Energy Community).

Only public entities and professional farmers can make use of the Virtual Net-Metering scheme as single persons/entities. All others can use this scheme only by forming an Energy Community.

Max PV system capacity: 1 MWp

Smaller limits for islands with autonomous grids.

Grid fees and other charges

Savings for prosumer Net-Metering case	
Competitive charges (energy related)	100%
Regulated charges	
Grid fees	Depending on self-consumption rate
Partly imposed charges	Depending on self-consumption rate
Fully imposed charges	Zero benefit for prosumer

Example: if self-consumption rate is 35%, the prosumer saves 100% of Competitive Charges for the energy produced by PV, 35% of grid fees and 35% of partly imposed charges.

Grid fees and other charges

Savings for prosumer Virtual Net-Metering case	
Competitive charges (energy related)	100%
Regulated charges	
Grid fees	Depending on self-consumption rate for the consumption point where the PV system is installed, but zero benefit for other related consumption points
Partly imposed charges	Depending on self-consumption rate for the consumption point where the PV system is installed, but zero benefit for other related consumption points
Fully imposed charges	Zero benefit for prosumer

Support schemes available

Energy Communities have a priority when they apply for a Grid Connection offer, Environmental Permits, and they are exempted from certain taxes and fees related to authorisation.

Grants up to 60% have been promised for Energy Communities, but no concrete proposal as yet.

A max of €25 million is expected to be dedicated for this reason.

No lower/higher limits of projects known so far.

Contractual relationship between actors and metering

In the case of Virtual Net-Metering, the person-entity signing the 25-year long contract with a Power Provider, declares which consumption points are included in the scheme.

In the case of Energy Communities, they also declare the desired consumption points. Apart from the consumption points related to their members, Energy Communities have the right to declare consumption points where poor and unprivileged people live, so that they can also benefit from the Virtual Net-Metering scheme.

The Energy Community has the right to change these declared consumption points if, for example, a member leaves the Community, by simply declaring a new list of consumption points.

Poor record so far

Although the framework legislation is in place for a few years now, the relevant procedures are moving quite slowly.

Since the beginning of the Virtual Net-Metering scheme, 177 applications (13.5 MWp) have been filed to the Grid Operator as of April 2019.

Only 15 systems (0.28 MWp) were actually connected as of April 2019.

No actual example yet of Energy Communities for collective self-consumption.

Examples of collective Net-Metering

Example 1

Ten families form an Energy Community and install a PV system at a nearby field in order to cover their needs.

The Virtual Net-Metering scheme applies and since the PV plot is not a consumption point, the benefit of the shareholders is limited to the so called Competitive part of their bill, i.e. they save something in the order of 8-9 eurocents per kWh produced by the PV system.

Examples of collective Net-Metering

Example 2

Six families living in an apartment building form an Energy Community and install a PV system on the building roof in order to cover their needs.

The Virtual Net-Metering scheme applies and assuming that the PV is directly connected to a meter serving one of the apartments, this consumption point saves all the Competitive Charges plus part of the Regulated Charges (i.e. overall it saves something in the order of 11-12 eurocents per kWh), while the benefit for the rest of shareholders is limited to the so called Competitive part of their bill, i.e. they save something in the order of 8-9 eurocents per kWh produced by the PV system.

Examples of collective Net-Metering

Example 2 (continued)

Had these six families chosen to proceed with the normal Net-Metering scheme instead of the collective one, they would have saved more money as they would only pay part of the Regulated Charges.

Proposal: In the case of apartment buildings where the tenants want to make use of a collective self-consumption scheme, Regulated Charges for every Consumption point should be similar to the ones applied in the normal Net-Metering scheme. The building should also be considered a de facto Energy Community, without the need to be registered as such, thus avoiding unnecessary bureaucracy.

Nothing is more powerful than an idea whose time has come



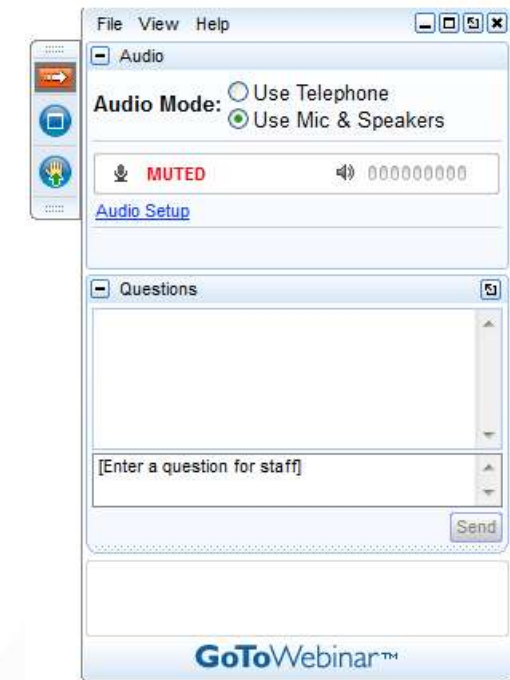
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