



**Policy Guidelines  
on the Grid Integration of Prosumers**

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- **ECDSO-E Study – May 2017**
- **Athens Forum presentation – June 2017**
- **Athens Forum conclusions – EnC Secretariat to prepare PG**
- **European Commission – Best Practices on Renewable Energy Self Consumption**
- **PG Draft – December 2017**
- **PG publication – February 2018**

# Self-consumption – Key aspects

- #1–Legal and regulatory framework**
- #2–Technology and capacity criteria**
- #3–Self-consumption commercial scheme**
- #4–Excess energy treatment**
- #5–Grid Costs**
- #6–VAT and other taxes and levies**
- #7–Imbalance settlement**
- #8–Grid connection**



# Self-consumption – Definitions

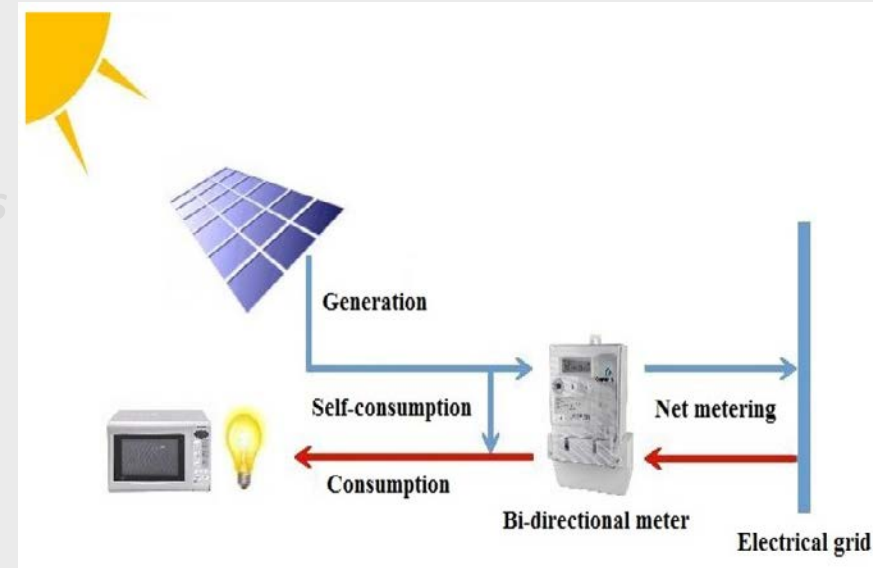
- **“Self-consumption”** is the consumption of an electricity consumer with an installed distributed generation system intended for his/her own or on-site consumption and entitled to receiving remuneration for the non-consumed electricity fed into to the grid
- **“Net metering”** is a regulatory framework under which the excess electricity injected into the grid can be used later to offset consumption in the period when onsite renewable generation is absent or not sufficient, where the excess energy value is equal to the retail electricity price
- **“Net billing”** is a regulatory framework under which the excess electricity injected into the grid can be used later as a monetary credit to offset the costs of electricity withdrawn in the period when onsite renewable generation is absent or not sufficient, where the excess energy value is lower than the retail electricity price.

The neologism **“prosumer”** refers to an electricity consumer that produces part of his/her electricity needs from his/her own power plant and uses the distribution network to inject excess production and to withdraw electricity when self-production is not sufficient to meet his/her own needs.



# Self-consumption – Key aspects

- #1–Legal and regulatory framework**
- #2–Technology and capacity criteria**
- #3–Self-consumption commercial schemes*
- #4–Excess energy treatment*
- #5–Grid Costs*
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# Key aspects – List of recommendations

Legal and regulatory framework	Technology and capacity criteria	Imbalance settlement	Grid connection
General principles	Technology criteria	Balance responsibility	Electricity metering
Cost reflectivity	Installed capacity criteria	Exemption criteria	Single phase installations
Consumer categories	Capacity limitation	Standardized profiles	Connection procedure and DSO authorization
Subsequent legislative changes		Standard balance responsibility	
VAT legislation		Imbalance settlement	
Support			
Commercial arrangement			
Energy statistics			

# Self-consumption – Key aspects

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# Key aspects – List of recommendations

Self-consumption commercial schemes	Excess energy treatment	Grid costs	VAT and other taxes and levies
Scheme selection	Excess energy remuneration	General	General
Overall impact assessment	Valuation method	DSO's cost recovery	VAT
Net billing advanced arrangements	No double incentives for prosumers	Cost reflectiveness	Other taxes and levies
Net billing gradual implementation	Time of use price differentiation	Grid tariffs for prosumers	
Third party ownership	Excess energy counterparty - Standard supply arrangement	Grid tariffs for prosumers with storage systems	
Monetary credit treatment in specific situations	Excess energy counterparty - Net billing scheme		



# #3 Self-consumption commercial schemes

## Net metering

- Grid capacity used for free for total generated electricity
- Excess energy value equal to the retail electricity price - No incentive for demand side response
- Temporary solution applicable when LCOE are at the level of the retail electricity prices
- Likely overcompensation

## Net billing

- Prosumers charged for grid costs
- Value of excess energy lower than the value of self consumed energy
- Market oriented business model
- Prosumer's revenues based on market conditions

## Scheme selection

For **households and small commercial prosumers**, it is recommended to apply the **net billing scheme** for energy delivery, preferably with monthly invoicing. One year is deemed to be an optimal credit compensation period.

For **industrial and large commercial consumers** with own generation installations, the **standard supply arrangement** should be applied with separate invoicing of the electricity supplied and of the electricity injected to the grid respectively.

# #4 Excess energy treatment

## Excess energy treatment:

- A number of methods available
- From no compensation at all to the retail electricity price
- Market oriented solution preferable
- Counterparty – regulated or market mechanisms

<b>Valuation method</b>	Having regard to the current level of market development in EnC CPs, it is recommended to set the excess energy value at the <b>level of the energy component of the retail electricity price</b> , also taking into account incurred <b>reasonable costs of energy transactions</b> and distribution system operators' (DSOs) benefits <b>related to network losses reduction</b> .
<b>Excess energy counterparty</b> <b>Standard supply arrangement</b>	During the initial phase, <b>the supplier or other corporate body</b> (e.g. system operator, market operator, specific support system operator, etc.) should be obligated to purchase the excess energy under predefined conditions. Once the electricity market reaches a sufficient degree of liberalization, for this category of prosumers it is possible to leave the excess energy purchase and valuation to market mechanisms.
<b>Excess energy counterparty</b> <b>Net billing scheme</b>	If a net billing scheme is applied, the <b>prosumer's supplier is by default</b> in charge of purchasing the excess energy fed from households and small commercial prosumer installations.

# #5 Grid costs

## Grid costs – underlying principles:

- Cost reflectivity
- DSO Cost recovery
- No cross subsidization among network users
- No impact on network capacity dimensioning

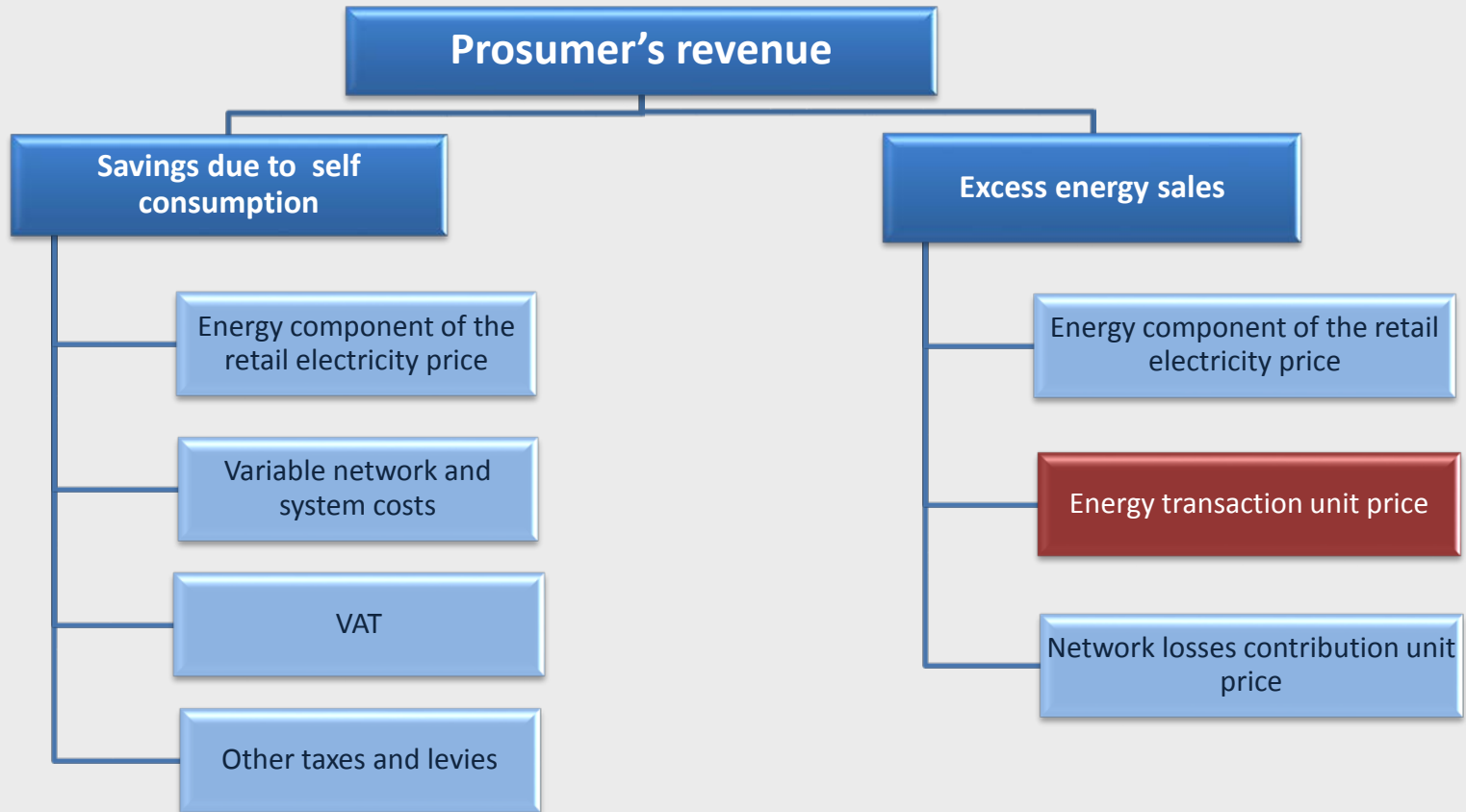
<b>Cost reflectiveness</b>	To avoid cross-subsidization, design of grid tariffs should preserve the principle of cost reflectivity and <b>prosumers should pay the appropriate share of grid costs as the other non-producing consumers of the same category.</b>
<b>DSO's cost recovery</b>	<b>Specific tariff rates for prosumers</b> , as a separate subclass(es) of network users, are deemed to be a proper solution to <b>mitigate DSO's risk related to cost recovery</b> , raised due to decreased consumption.
<b>Grid tariffs for prosumers</b>	The prosumer should be charged for network use through <b>capacity and volumetric tariffs, which are specifically designed for the prosumer</b> subclass of network users. The <b>capacity tariff's weight</b> in total grid costs <b>should be increased</b> as they should reflect fixed network and system costs to deliver the requested capacity at the prosumer's connection point. On the other side, <b>volumetric tariffs should be proportionally decreased</b> to reflect variable network and system costs.

# #6 VAT and other taxes and levies

## Impact on the public tax authorities:

- Initial taxes raised in the year of installation
- VAT not charged on netted consumption
- Other public taxes to be included in long term cash flow analyses
- Economic analyses – usually simplified - do not include a number of benefits regarding the GHG emissions, energy security, health and wellbeing, energy affordability, job creation etc.

<b>General</b>	<b>Individual households may be empowered</b> to take a more active role and contribute to power system sustainability and other energy policy goals <b>only if the netting scheme is allowed</b> for their DG installations.
<b>VAT</b>	<b>VAT legislation should not be rigid</b> in order to <b>prevent invoicing based on the net difference</b> between energy delivery and injection, thus allowing small customers and the whole system to exploit energy, environmental and social benefits accrued from properly designed self-consumption schemes.
<b>Other taxes and levies</b>	<b>Prosumers should not be entirely exempted from the payment of other taxes and levies</b> for the self-consumed electricity.



The background is a satellite-style image of the Earth at night, showing city lights. Overlaid on this are numerous glowing blue lines that curve and connect across the globe, representing a global energy network or data flow.

*Thank you  
for your attention!*

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