THE CHANGING REGULATORY LANDSCAPE OF HOUSEHOLD SELF-CONSUMPTION

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Outline

- Objectives of the analysis
- Building blocks of self-consumption compensation schemes
- Metering and billing arrangements
- Sell rate design
- Retail rate design
- Main insights from country case studies
- Conclusions and recommendations to EnC CPs

Objectives of the analysis

How do member states comply with regulatory requirements

Fair sharing of electricity system costs

Right to sell electricity at a price reflecting market value

What can be learnt from complying support systems

Incentives to facilitate further deployment

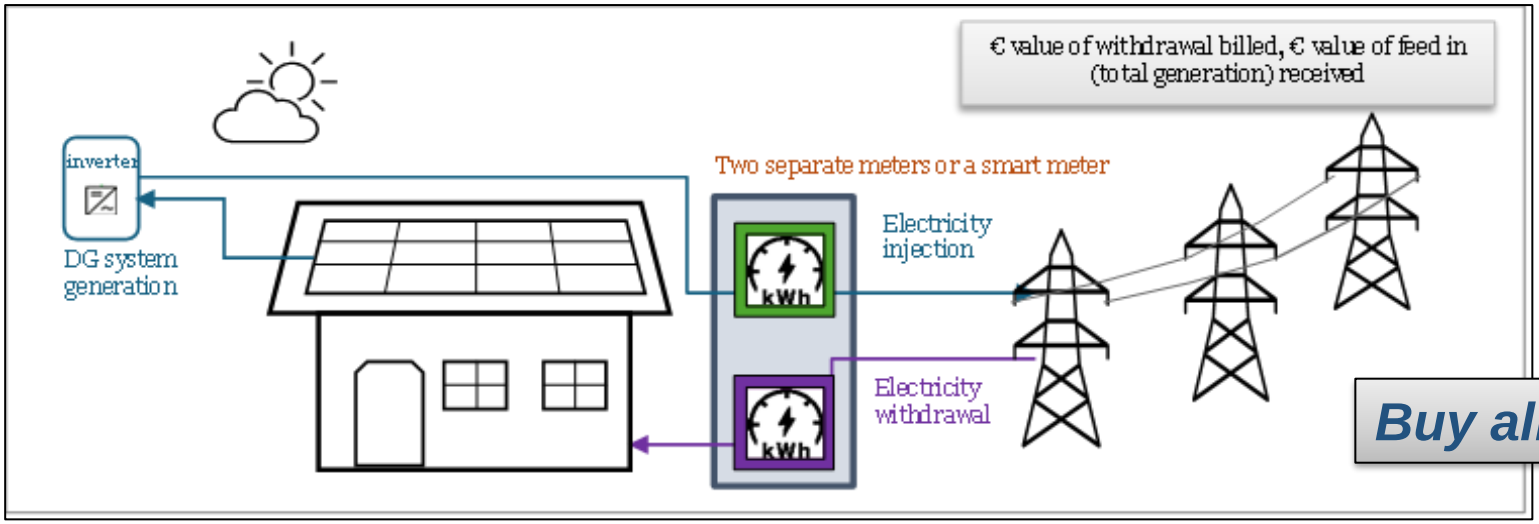
Facilitating adaption to market conditions and contribution to system stability

Elements of Compensation Mechanisms For Distributed Generation

COMPENSATION MECHANISM		
	Metering and billing arrangement	Net metering
		Net billing
		Buy all, sell all
		Separate metering and billing
	Sell rate design	• Price for injected electricity • System charges related to injection • Other (taxes, levies, etc.)
	Retail rate design	• Electricity fee • System charges • Other (taxes, levies, etc.)
	Other	Levies on self-consumption

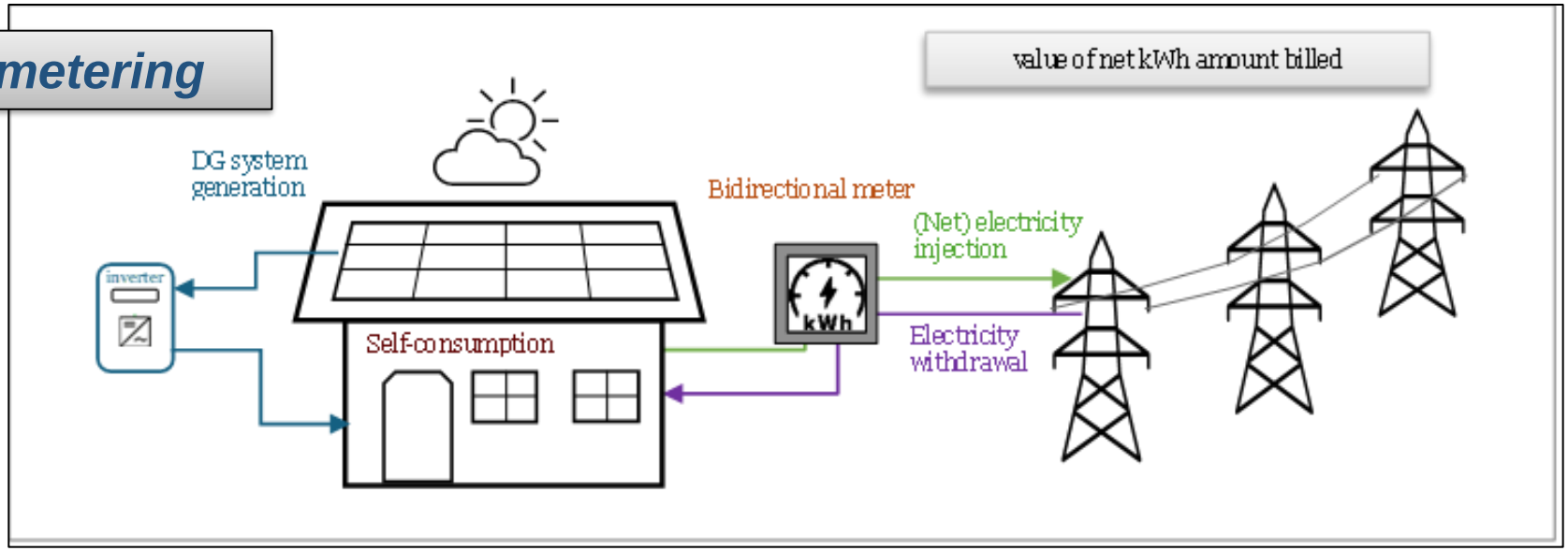
Based on Zineman et al. (2017)

Metering and billing arrangements 1



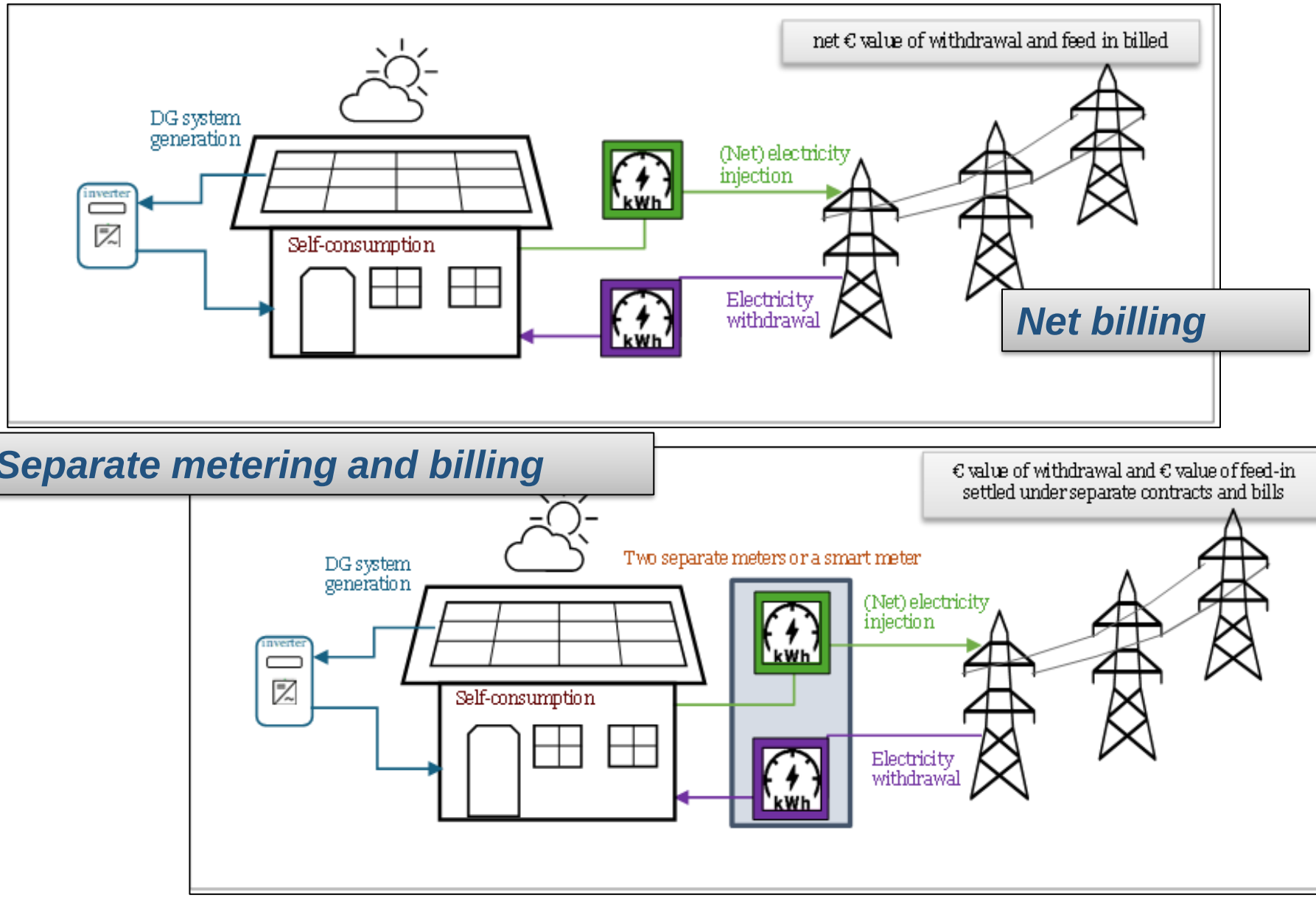
Buy all, sell all

Net metering



Graphs by REKK, based on Zineman et al (2017)

Metering and billing arrangements 2



Graphs by REKK, based on Zineman et al (2017)

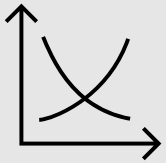
Meterign and billing arrangements in the analysed countries

Previous system	Country	New system
Net-metering	**Netherlands, Greece**	Not yet in fully in place
	Poland	Net-billing
	Hungary	Separate metering and billing
Net-billing	**Italy**	Separate metering and billing
Separate metering and billing	**Austria, Portugal, Germany, Denmark**	N/A
Other: no scheme	**Slovakia**	N/A

Sell rate design

Set by regulation - Static

- FIT (DE, GR)
- FIP (above 10 kW in AT)
- Fix, static (HU)
- No option to sell (under net-metering) (EL)



Set by regulation - Linked to market prices

- Hourly prices (DK, IT, PL)
- Average monthly market price (AT)
- Upper and/or lower limits (AT, IT)

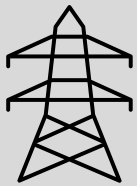
Agreed with the supplier/aggregator

- Households and suppliers agree (SK, NL)
- Aggregator (PT)

Charges on surplus electricity

- Grid tariffs and VAT on exported electricity (DK)
- Income tax above a certain threshold (several countries)

Retail rate design

Energy fees 	• Only static available for households: SK, HU • Static, variable and dynamic contracts available in other countries
Gird tariffs 	• Mostly capacity- and power-based • Static in HU, IT, NL, DE • Static and TOU in other countries • Locational differences in DE • Cost-reflective charges in PT
Other fees 	• VAT • RES / CHP / nuclear energy surcharge • community duty • social tariff • etc.

Other: charges on self-consumed electricity

Self-consumption is charged only in two cases

- In Denmark, availability tariff is charged for the opportunity to have electricity from the net.
- In Greece, the Public Service charge is levied on all consumption, including self-consumption.

Main insights 1

- All countries comply with the requirement of **sharing system costs**.
- The main goal of the compensation schemes is to **encourage self-consumption**, however,
  - in AT and DE selling the total amount of electricity is also possible
- Prosumers enter into **contracts** with their own suppliers or other entities
  - in some countries, selling is also a market-based activity (e.g. DK, PT, SK)
- **Retail price** system **does not differ** from that of regular consumers
- **No system fees for injection** (except DK, NL) – as opposed to the text of regulation

Main insights 2

- Countries made efforts to **ease administration** and **investment subsidies** (grants, tax reductions) are available in all countries (except DK)
  - additional support is still needed to maintain the dynamics of residential PV deployment
- **Scarce grid connection capacity** and grid congestion is a problem in all countries
- **Smart-meters are required** to be installed in almost all countries, however,
  - the sell rate and retail rate design does not encourage adjusting to market prices in all cases
- **PV+storage investments** are encouraged in many countries
- Legislation related to **new business models** is in place in almost all countries, but deployment rates differ

Recommendations to the Contracting Parties of the Energy Community

- **Simple, straightforward** self-consumption schemes make it easier for households to participate in the energy transition.
- The payback of PV investments is to be ensured by accompanying **subsidy programs** provided **regularly**.
- **Smart meters** are a precondition for continuous deployment - **costs** should be **socialized** for effective and rapid deployment.
- Sales **price risks** for household prosumers should be **mitigated**.
- TOU grid tariffs, preferential discrimination of prosumers, and certain technical considerations can help **mitigate grid connection issues**.
- **New market models** are beneficial for PV owners and help vulnerable customers.

Thank you for your kind attention!

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