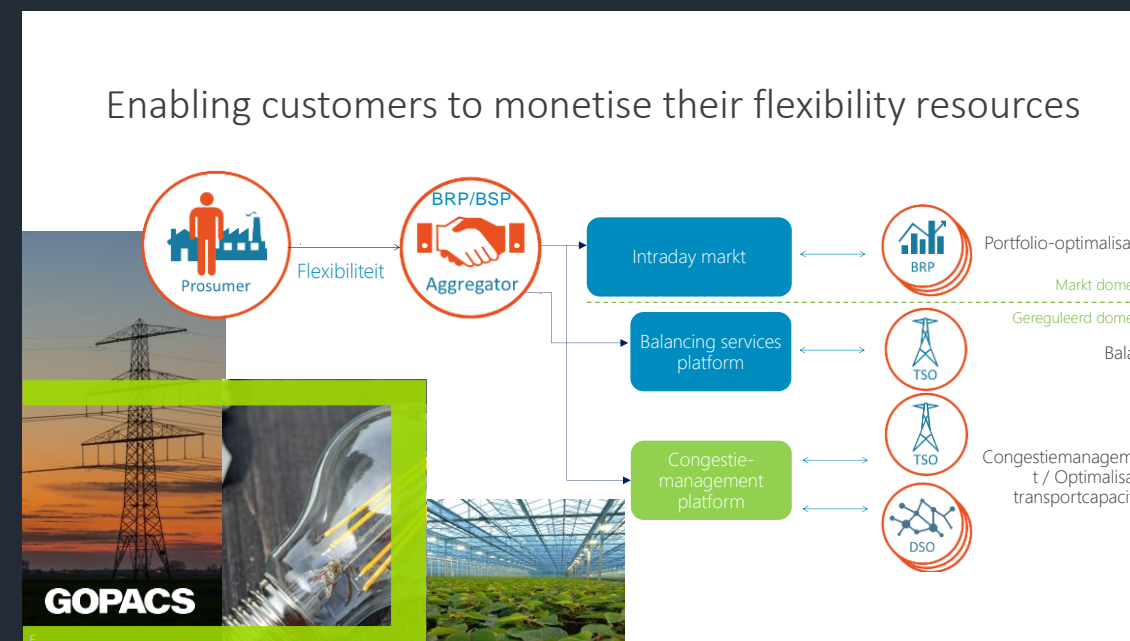


# Market Based flexibility for DSO's (challenges & solutions)

An update from the  
Netherlands







# Agenda



*Peter Hermans*

- 1. Context: What is happening in the Dutch market**
- 2. Market based flexibility for DSO's: where do we stand today ?**
- 3. Future Work Ahead**



# Agenda



**1. Context: What is happening in the Dutch market**

**2. Market based flexibility for DSO's: where do we stand today ?**

**3. Future Work Ahead**

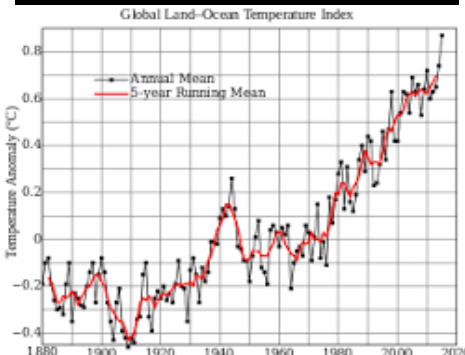






# Objectives of renewable electricity production up to 2030

Significant increase of wind and solar



Committed in National Climate agreement

Target 2030: 84 TWh in 2030 (= 300 PJ):

- Offshore Wind: 4,26 TWh (2019) to **49 TWh (2030)**

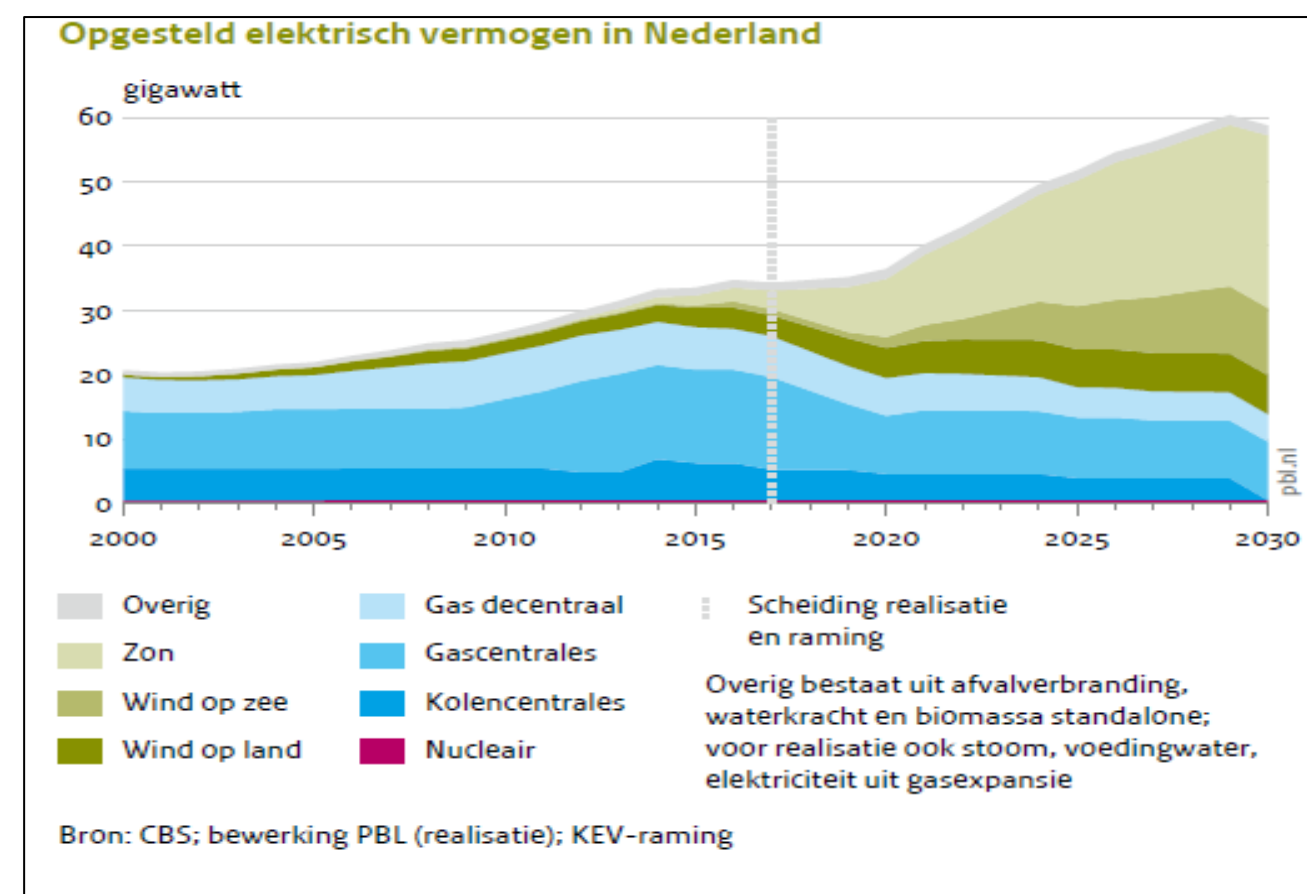
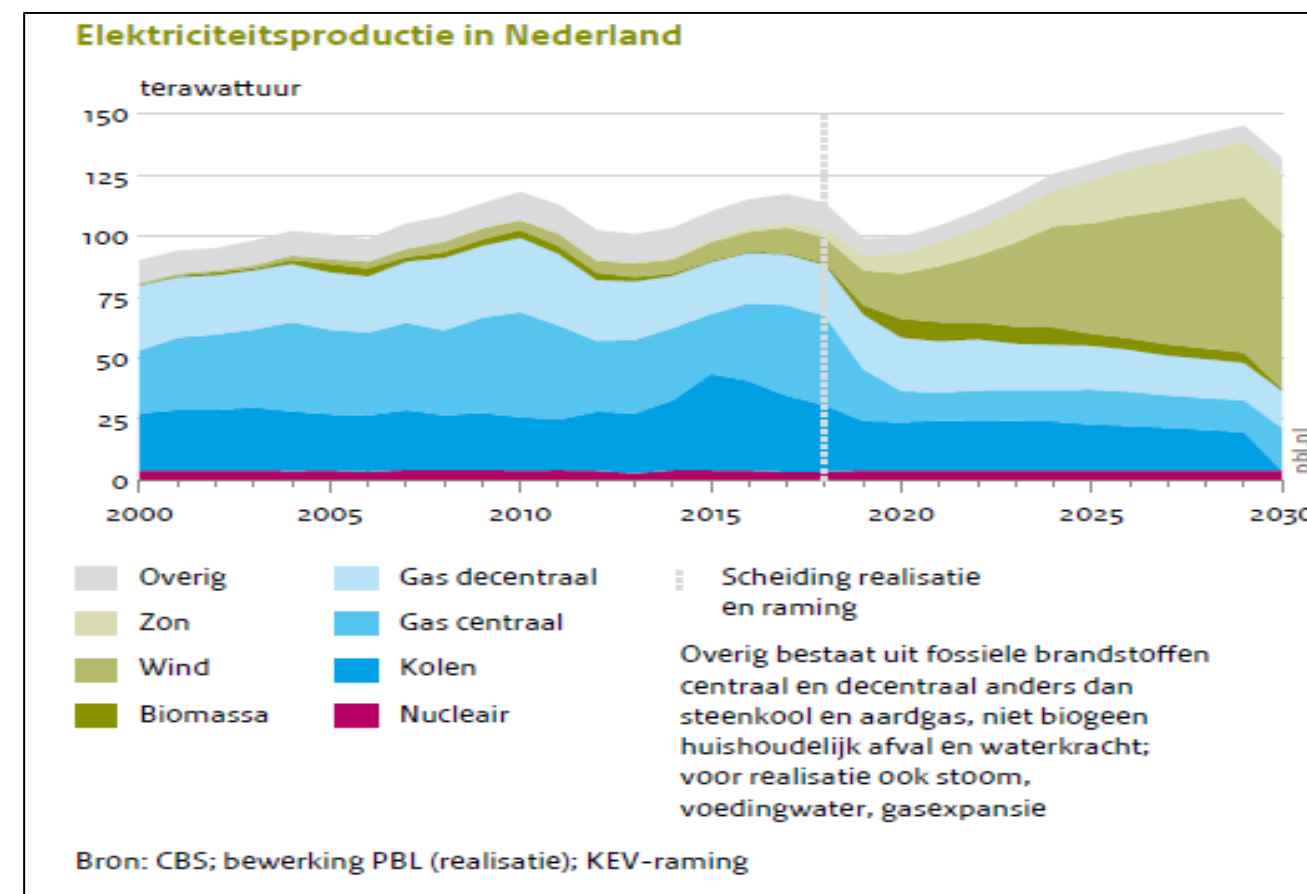
Installed Power in the North Sea:

2019:	1,0 GW
2023:	4,5 GW
2030:	11 GW
Perspective 2050	60 GW -> 255,6 TWh

- Renewable Energy on land van 16 TWh (2019) to **35 TWh (2030)**

Energy on land (wind & sun):

Wind on land:	3,7 GW ~ 12,0 TWh
Solar fields:	14,4 GW ~ 12,2 TWh
Solare rooftops PV:	12,7 GW ~ 10,8 TWh



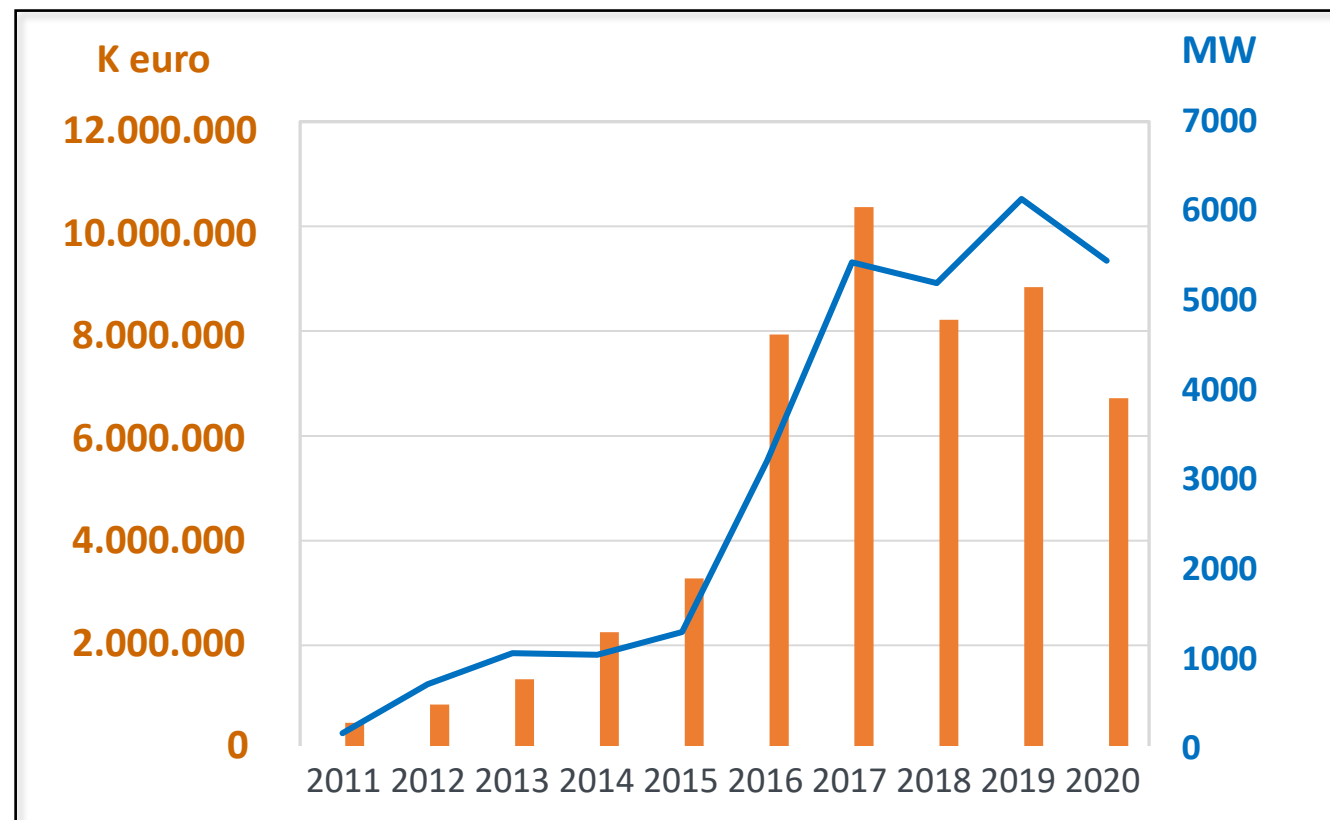




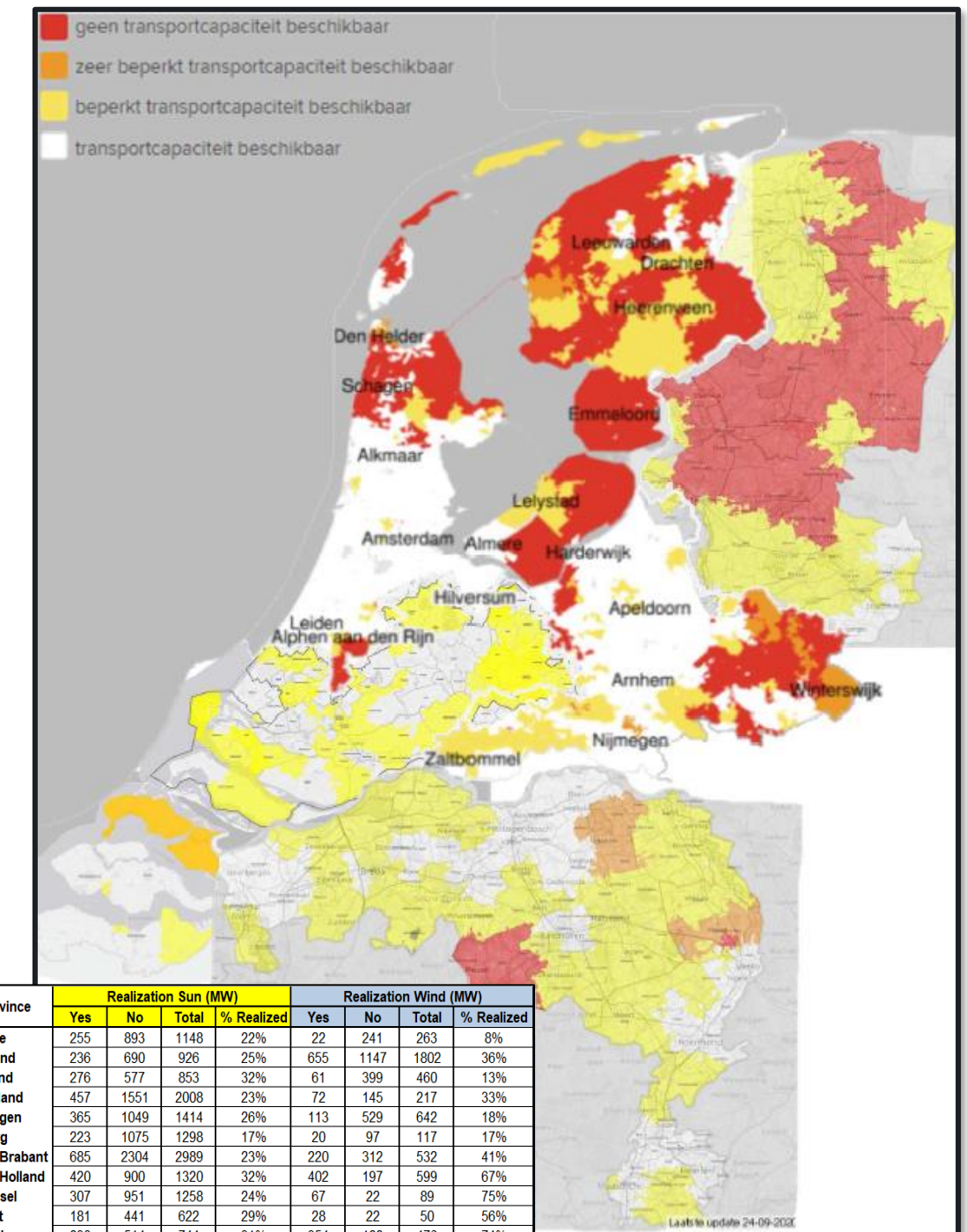
# National subsidizing schemes incentive uptake in DER (wind & solar)

... but its speed creates grid capacity issues

Subsidies in DER



Grid Capacity ( sept 2020)



Province	Realization Sun (MW)				Realization Wind (MW)			
	Yes	No	Total	% Realized	Yes	No	Total	% Realized
Drenthe	255	893	1148	22%	22	241	263	8%
Flevoland	236	690	926	25%	655	1147	1802	36%
Friesland	276	577	853	32%	61	399	460	13%
Gelderland	457	1551	2008	23%	72	145	217	33%
Groningen	365	1049	1414	26%	113	529	642	18%
Limburg	223	1075	1298	17%	20	97	117	17%
Noord Brabant	685	2304	2989	23%	220	312	532	41%
Noord Holland	420	900	1320	32%	402	197	599	67%
Overijssel	307	951	1258	24%	67	22	89	75%
Utrecht	181	441	622	29%	28	22	50	56%
Zeeland	230	514	744	31%	354	122	476	74%
Zuid Holland	384	1151	1535	25%	285	334	619	46%
<b>Total</b>	<b>4019</b>	<b>12096</b>	<b>16115</b>	<b>25%</b>	<b>2299</b>	<b>3567</b>	<b>5866</b>	<b>39%</b>

Source RVO (SDE+)

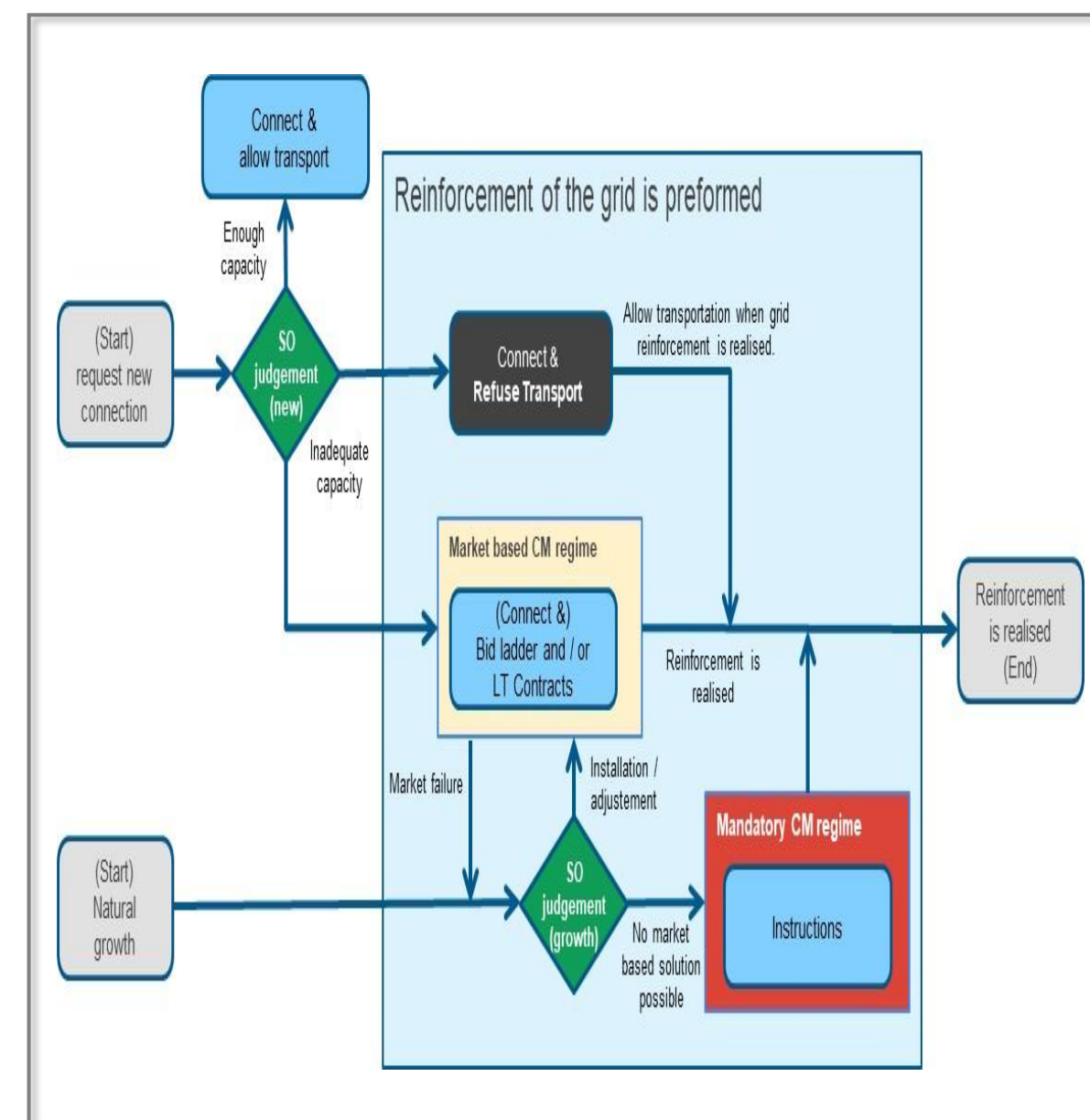
sept. 2020



# Some regulatory issues ....



- Grid capacity issues blocked some DSO's in connecting DER
- Based on existing Dutch law, the regulator (ACM) enforced continuation of connecting DER
- DSO went to public court and appeal was approved
- New Energy act, to solve the issue, is expected H2 2021
- DSOs & TSO submitted an update of the national code on congestion management, trying to clarify:
  - To receive approval of "first come first serve"
  - When is procurement of market based flex an option of mitigating congestion? (what are the conditions & boundaries)
  - When are, next to grid expansion, other instruments appropriate (enhanced connection agreements, new grid tariffs, curtailment)
- Fundamental market model issue on financials:
  - When do DSOs financially compensate the market (flex)?
  - When does the market pay for scarcity (economic principle)?



*Proces & assesment framework  
(draft national congestion management code)*



# Agenda

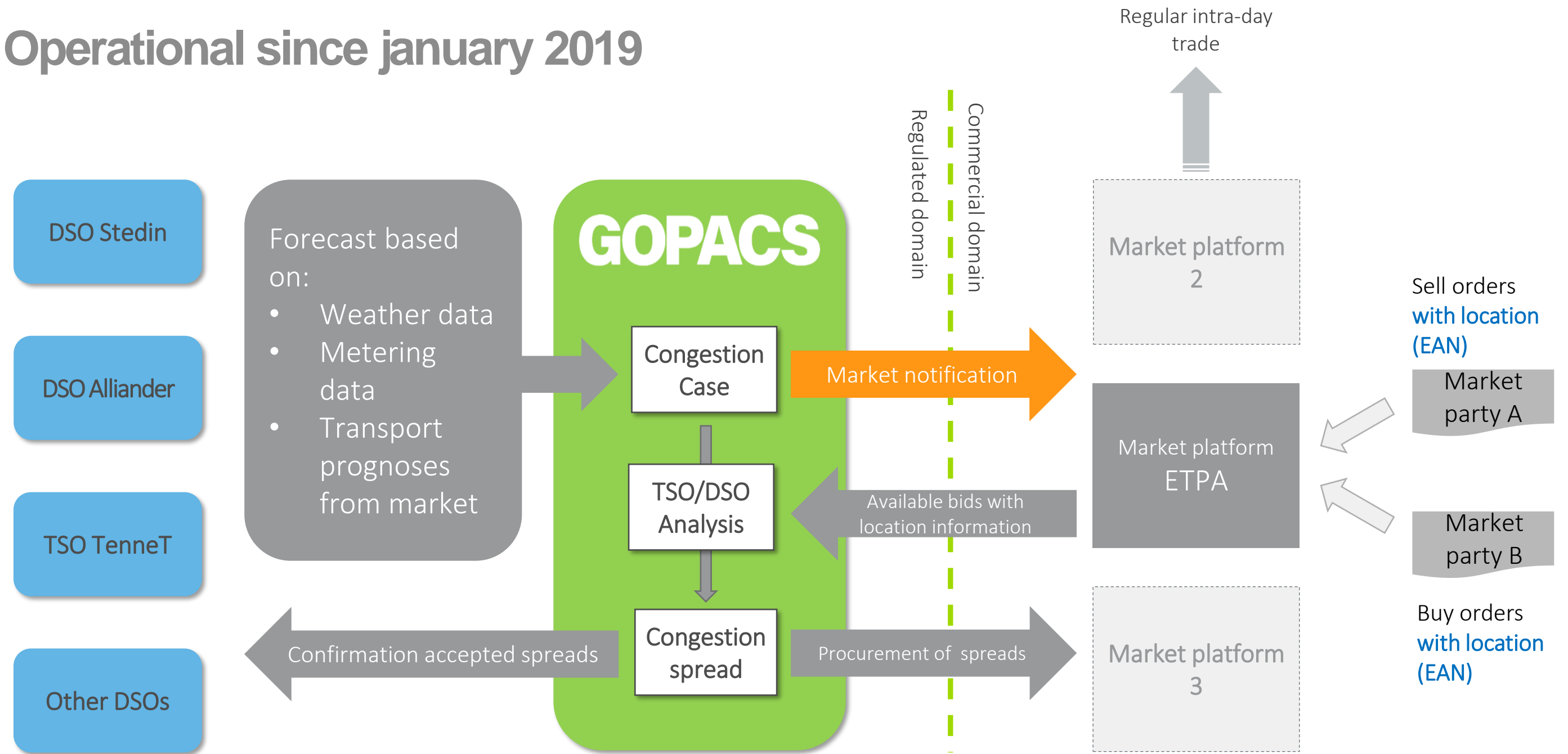
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# GOPACS: Grid Operator Platform in the Netherlands for market based congestion solutions

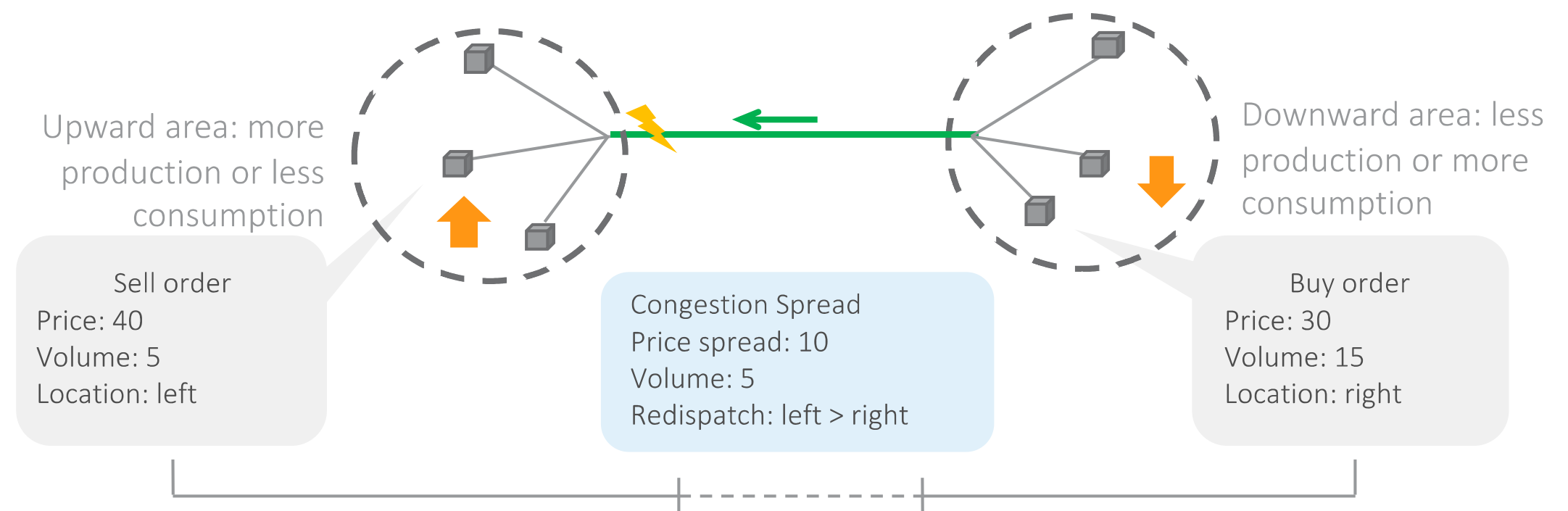
Operational since January 2019





# Product: Intraday Congestion Spread (IDCONS)

- Combination of intra-day bids on a market platform with location information that can be leveraged for redispatch:
  - buy-order from marketparties with a connection in the congested area
  - sell-order from marketparties outside the congested area.
- The price difference between the buy and sell orders (intra-day congestion spread) is paid by the grid operator. With this, the market platform matches the corresponding orders.
- No BRP license for DSOs needed, Balance Neutral, easy access for market parties through ID market integration





# The process in practice:

## 1. Preparation by market parties

- Access to wholesale ID trading platforms
- Sign-up to unlock orders with location for grid operators.
- Link to future flexibility register.

## 2. Identify congestion

- Analysis as part of daily forecasting by grid operator.
- Create a “congestion case” in the platform.

## 3. Request and filter orders from market platforms

- Publish a market notification
- Assess effectiveness and create spreads.

## 4. Activation validation and settlement

- Confirm buy to market platforms.
- Validation of delivery and settlement.





# Trend increasing demand for TSO congestion management

## Redispatch expenditures TenneT NL in recent years

2015 ~ 15 M€  
 2016 ~ 65 M€  
 2017 ~ 45 M€  
 2018 ~ 55 M€  
 2019 ~ 61 M€

**TSO as  
Market maker**

## Costs for using IDCONS for redispatch

Expenses				
Month	Stedin	Tenne T	Liaander	Westland Infra
2020 September	EUR 0	EUR 914009.21 9723.6 MWh	EUR 1840 8 MWh	EUR 0
2020 August	EUR 0	EUR 15755.83 101 MWh	EUR 0	EUR 0
2020 July	EUR 0	EUR 0	EUR 333 2.1 MWh	EUR 0
2020 May	EUR 0	EUR 39629.77 555.3 MWh	EUR 0	EUR 0
2020 March	EUR 0	EUR 507959.65 4555.9 MWh	EUR 0	EUR 0
2020 February	EUR 0	EUR 589970.8 4046.2 MWh	EUR 0	EUR 0
2020 January	EUR 0	EUR 1912340.27 11821 MWh	EUR 0	EUR 0

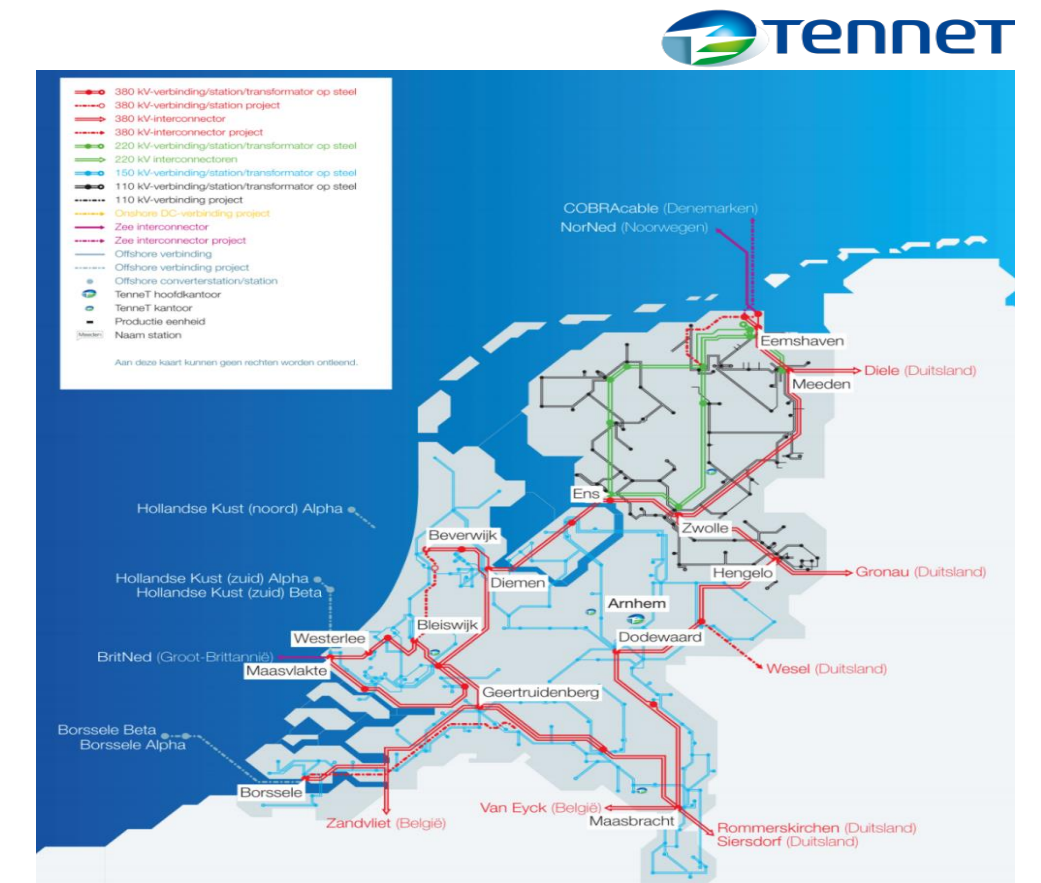
## Geographic needs

### Most frequent:

Buy orders (i.e. downward regulation) in areas:  
 Groningen, Friesland, Overijssel, Drenthe, Flevoland  
 (ten noorden Ketelmeer), on all voltage levels

Sell orders (i.e. upward regulation) in areas: Flevoland  
 (ten zuiden Ketelmeer), Gelderland, Utrecht, Noord-  
 Holland, Zuid-Holland, Zeeland, Brabant, Limburg on  
 all voltage levels

Current needs published: <https://gopacs.eu/marktberichten/>





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1. Context: What is happening in the Dutch market
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# Future work Ahead

## Regulatory

Solving the regulatory issues:

- Grid capacity issues & solutions in the new energy act
- Adopting the national code on congestion management
- Aliging grid expansion plans with:
  - *Regional Energy Strategies (RES) of municipalities*
  - *Subsiding schemes (SDE)*
- Implementing legislation on (cross sectoral) data exchange

## Market

- Implementing flexibility options (eg. storage solutions at PV fields)
- Improving BRP Day Ahead forecast data

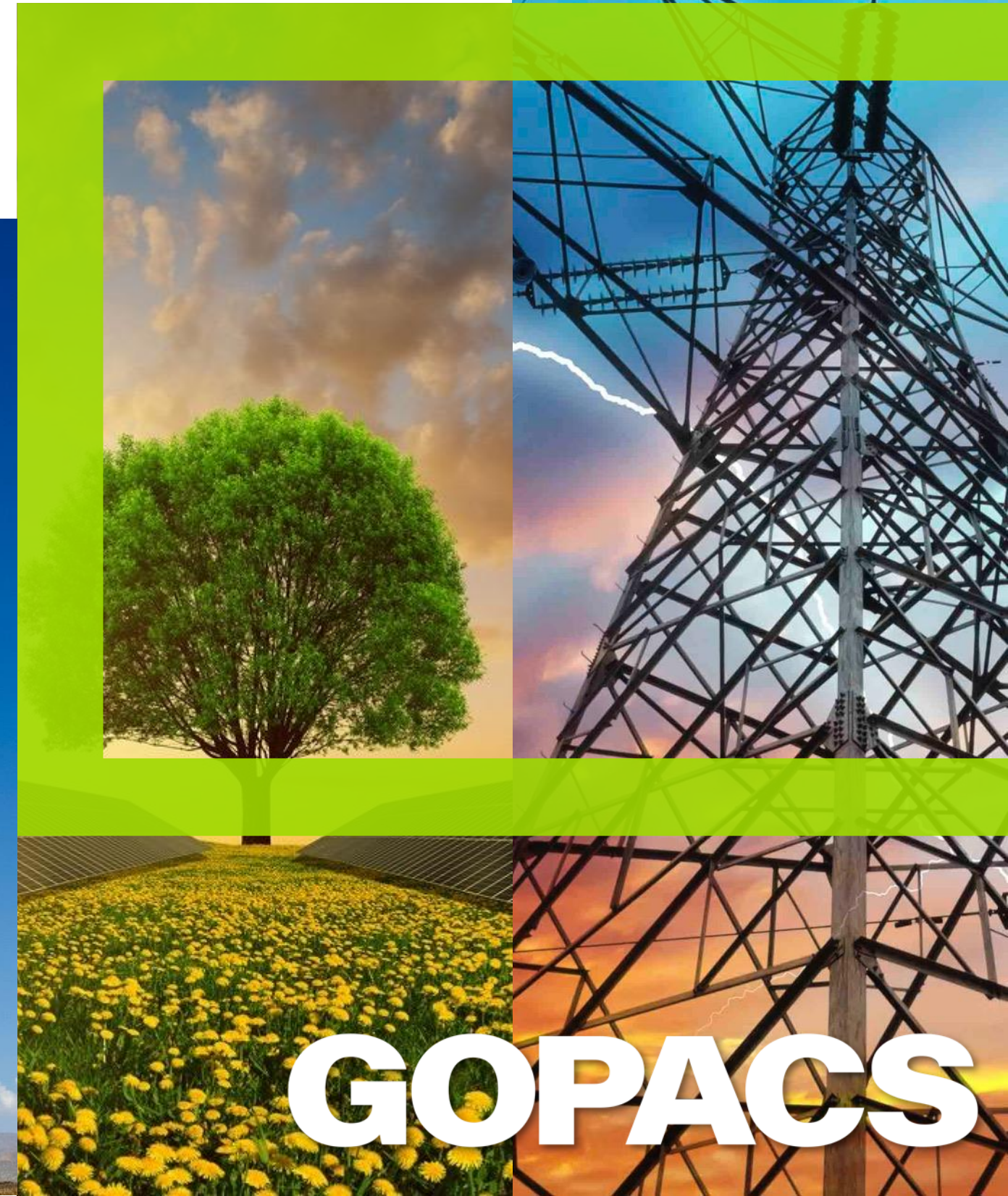
## DSOs & TSO (Tennet)

- DSO's: Implementing Day Ahead forecast capabilities (GLDPM)
- DSOs: implementing smart meter based allocation & time/usage based grid tariffs
- Tennet: implementing coordination functionality between balancing & congestion management of DSOs and TSO



Thank you

Questions ?



**GOPACS**



# Market Grid Interactions

will this be (part of) our evolving landscape ?

