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Flexibility for Grids and the EU Target Model

CEEM Conference: The market architecture for enhancing flexibility provision in the European electricity sector

Paris, 16 April 2019

Tim Schittekatte

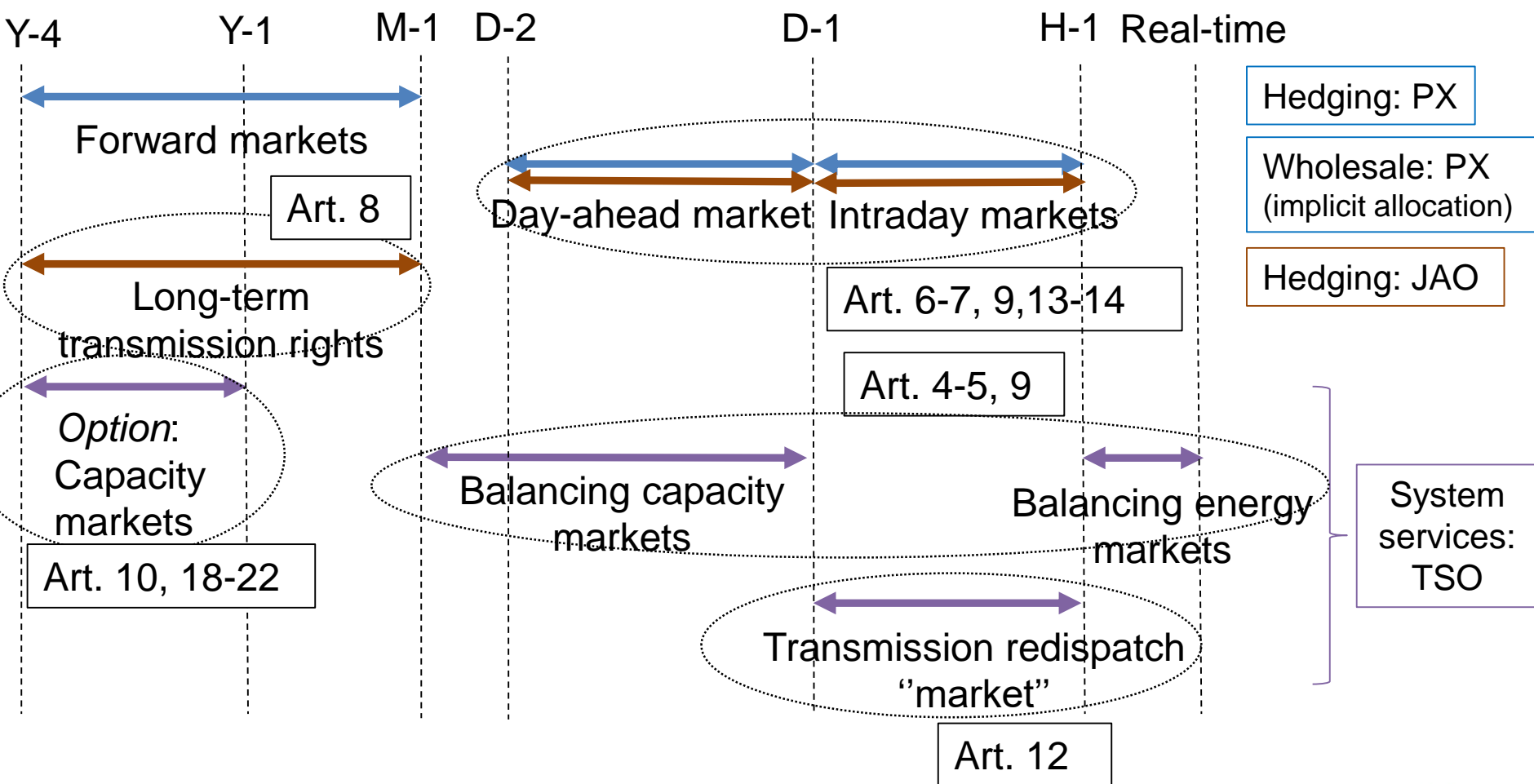
Outline

- Bigger picture - EU target model and CEP (e-Reg)
- New kid on the block– Flexibility markets for grids:
 - Context
 - Clearing the fog: illustration of four projects
 - Summarizing the projects in six questions

The EU target model and the CEP (e-Reg)

Current landscape- Sequence of EU markets

Impact Clean Energy Package (e-Reg)



Current landscape- Sequence of EU markets

Flexibility and the Clean Energy Package

Recent past, most discussion about:

- 1/ Updating existing markets to better value flexibility:
 - E.g. fixing wholesale markets: finer granularity (time and space)
- 2/ Lowering entry barriers existing markets to get cheaper flexibility
 - E.g. opening up balancing markets and redispatch markets

Today and in the near future?

- 3/ Creation new markets to match new flexibility needs with new providers:
 - E.g. flexibility procurement for distribution gridsbut also markets for non-frequency ancillary services

Flexibility for grids: context

New players in new markets

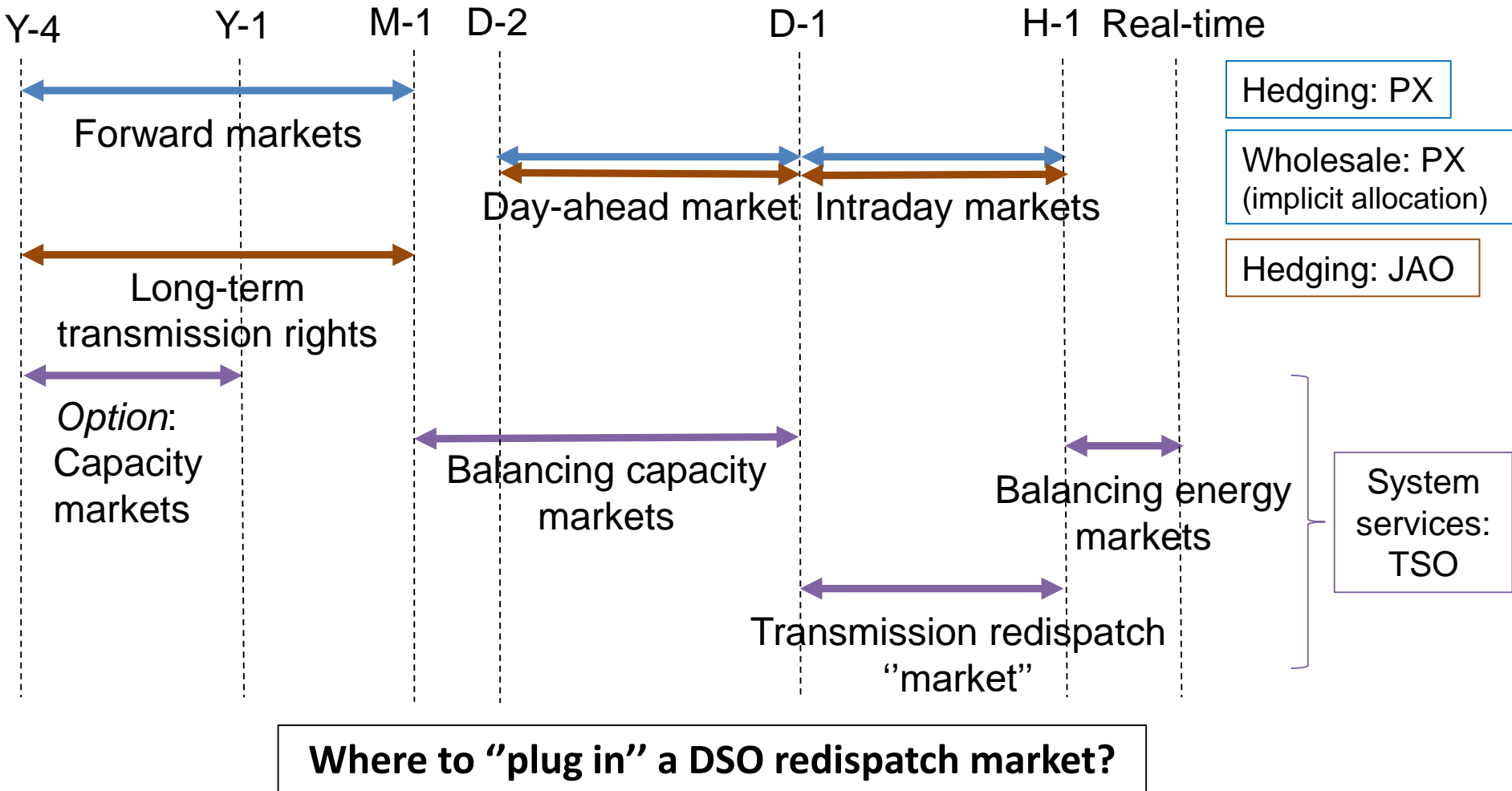
Article 32

Incentives for the use of flexibility in distribution networks

1. Member States shall provide the necessary regulatory framework to allow and incentivise distribution system operators to procure *flexibility services, including congestion management in their service area*, in order to improve efficiencies in the operation and development of the distribution system. In particular, regulatory frameworks shall ensure that distribution system operators to procure services from resources such as distributed generation, demand response or storage and consider energy efficiency measures, *when such services cost-effectively* supplant the need to upgrade or replace electricity capacity and which support the efficient and secure operation of the distribution system. *Distribution system operators shall procure these services according to transparent, non-discriminatory and market based procedures unless regulatory authorities have established that the procurement of such services is economically not efficient or if this leads to severe market distortions or to higher congestions.*

Proposal for a Directive of the European Parliament and of the Council on common rules for the internal market in electricity (recast)

Current landscape- Sequence of EU markets



Remark 1: markets are not the only way for DSOs to access flexibility

Distribution Systems Working Group

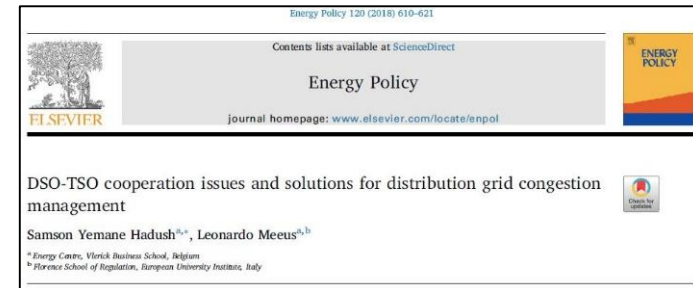
Flexibility Use at Distribution Level

A CEER Conclusions Paper

- **Rules-Based Approach** – codes and rules, which impose detailed flexibility requirements.
- **Network Tariffs** – tariff structures may be designed to encourage network users to alter their behaviour for a more efficient use of the distribution network.
- **Connection Agreements** – DSOs could reach arrangements with customers for the provision of flexibility where a Member State considers this an appropriate measure.
- **Market-Based Procurement** – DSOs can explicitly procure flexibility that benefits the grid services from the market(s). The flexibility could be procured via (bilateral) contracts or in a short-term market, e.g. via a platform or other forms of interfaces, given there is enough liquidity and arrangements for the market-based procurement do not unduly distort markets and comply with unbundling rules.

In examining these different models, CEER agrees with many respondents that market-based procurement is the preferred option because the procurement of flexibility on a competitive basis would be efficient as long as markets for the provision of flexibility that benefit the network are liquid and comply with unbundling rules. Clear requirements for the bilateral contracts need

Remark 2: Redispatching is not first best

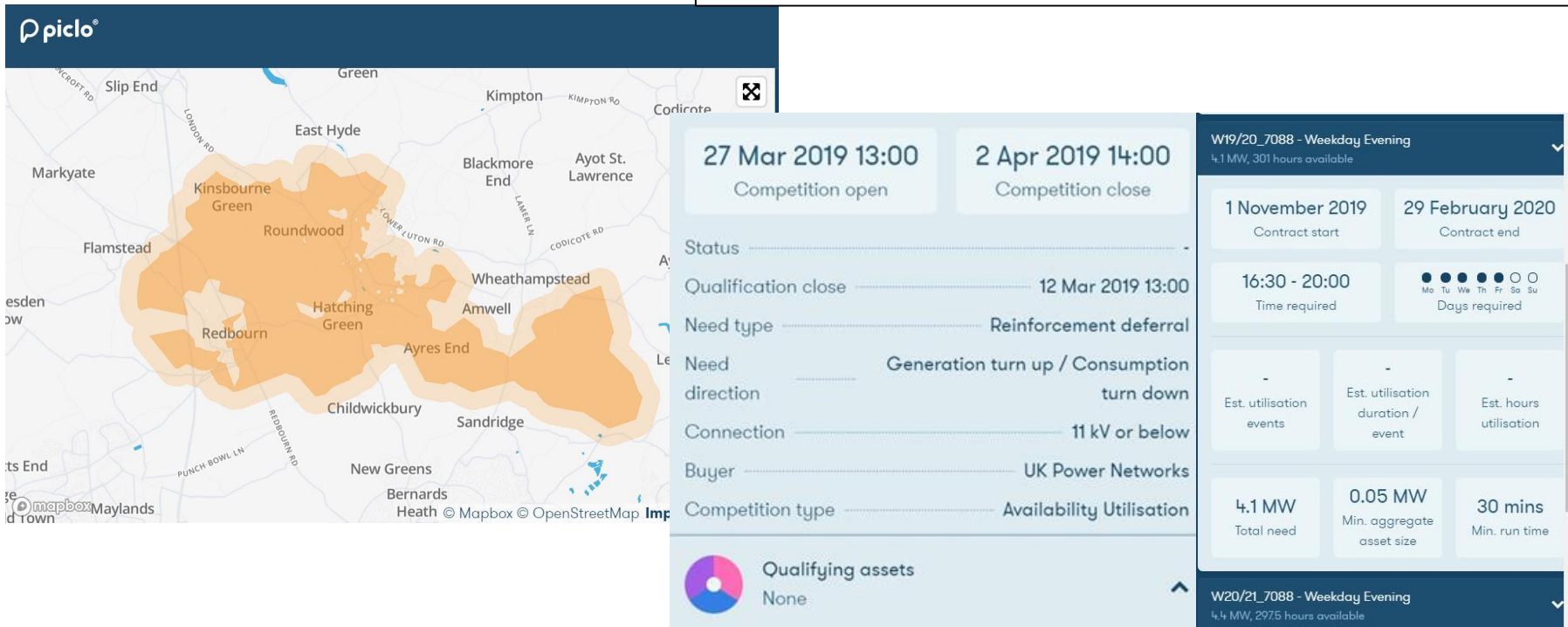


Clearing the fog: Illustration of 4 projects implementing 'flexibility markets'

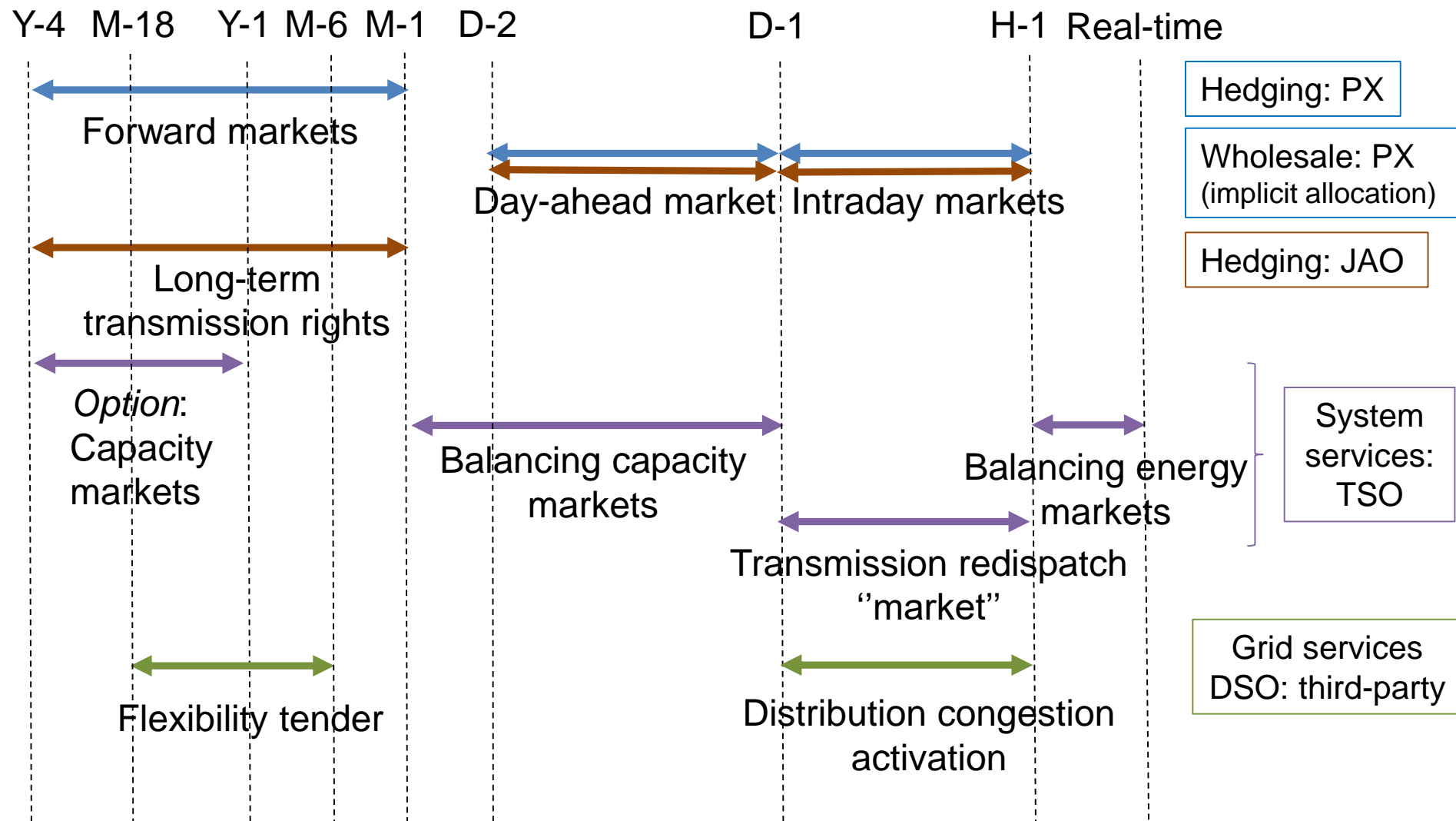
Option 1: Separate service – Contracting: long term flexibility tender + activation

NEWS TECH NETWORKS

UKPN's second flexibility tender to launch under 'online dating' Piclo Flex platform



Future landscape- Piclo Flex



Option 2: Separate service – a short-term (independent) flexibility market



The structure of the enera flex market

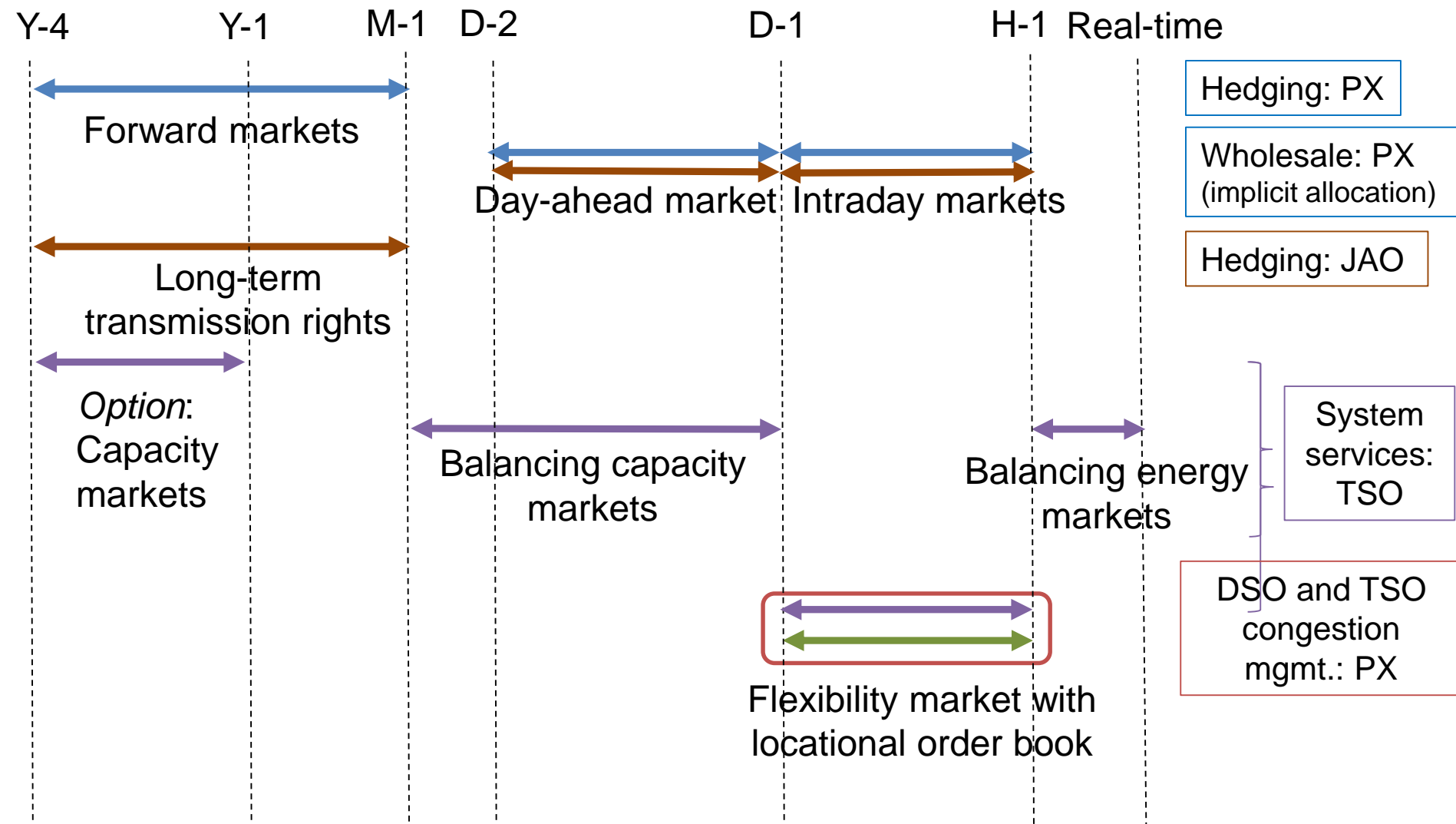
In the enera model region, local flexibility markets should bring together the local flexibility needs of network operators and the available flexibility potential of the region.

The European power exchange EPEX SPOT will operate the enera flex market on the same infrastructural basis as the existing intraday market. Comparable market processes, such as the start of trading at 3 pm on the day before and the end of trading five minutes before the start of delivery and the trading of 15-minute and 1-hour products, have very limited market entry barriers for (intraday) marketers. They can therefore rely on existing processes, roles and interfaces. Furthermore, EPEX SPOT, as the marketplace operator, guarantees the completely fair and non-discriminatory processing of all orders as well as the anonymisation of all trades.

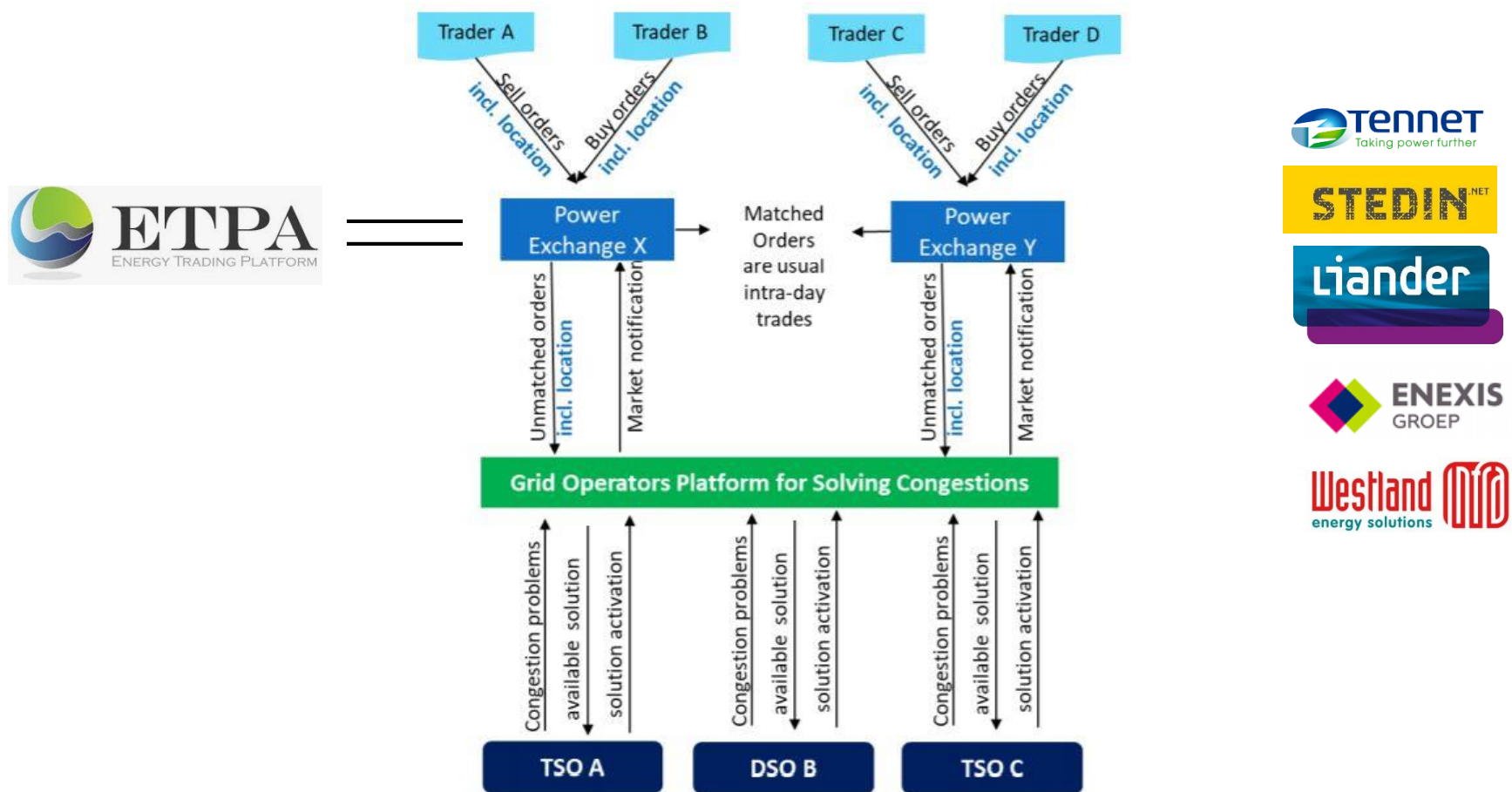
Only network operators can adjust their demand bids on the basis of their projected demand for flexibility, which makes the enera market a single-buyer market.



Future landscape- Enera

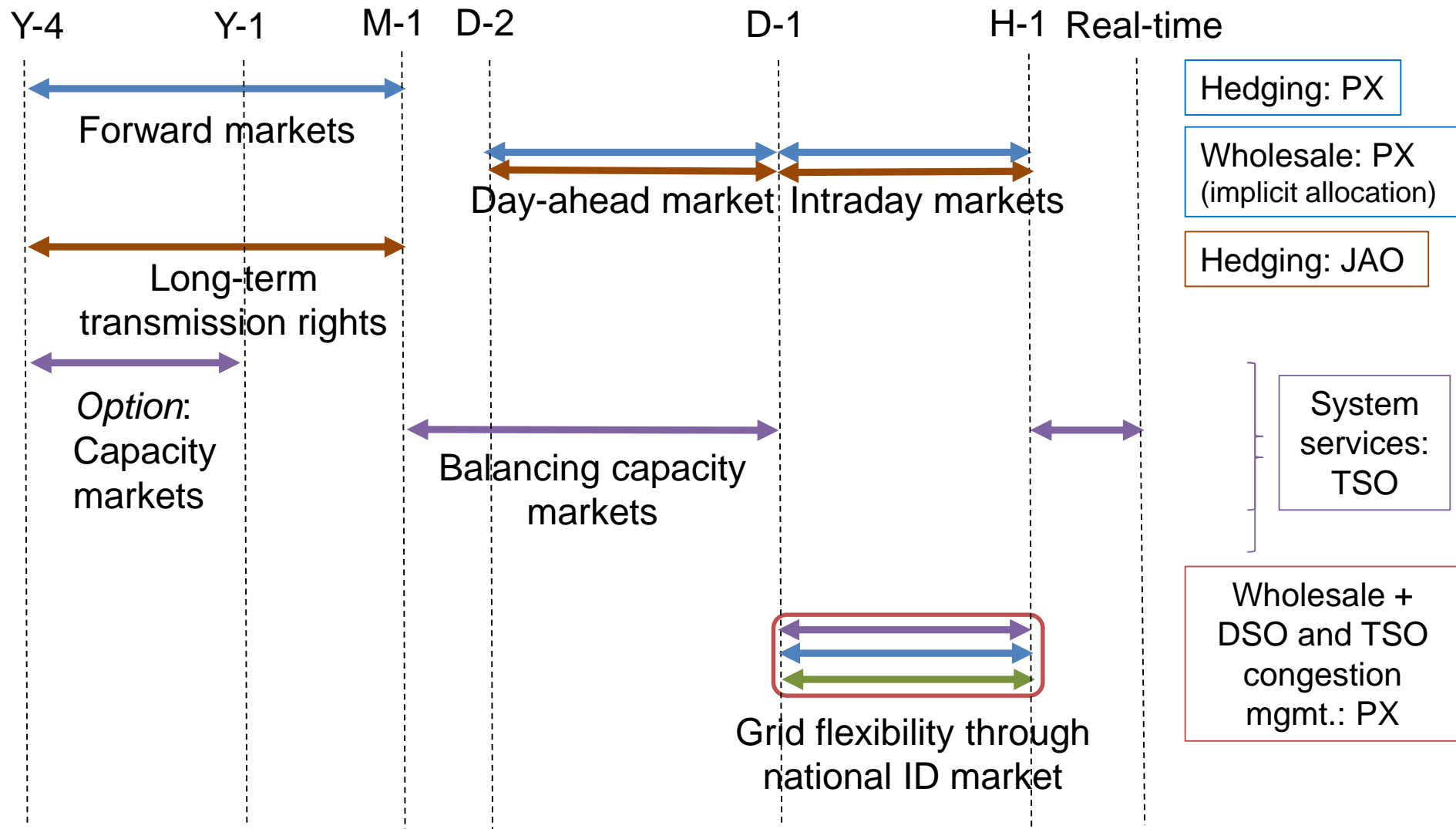


Option 3: Integrated- Add-on to a local wholesale market (ID)

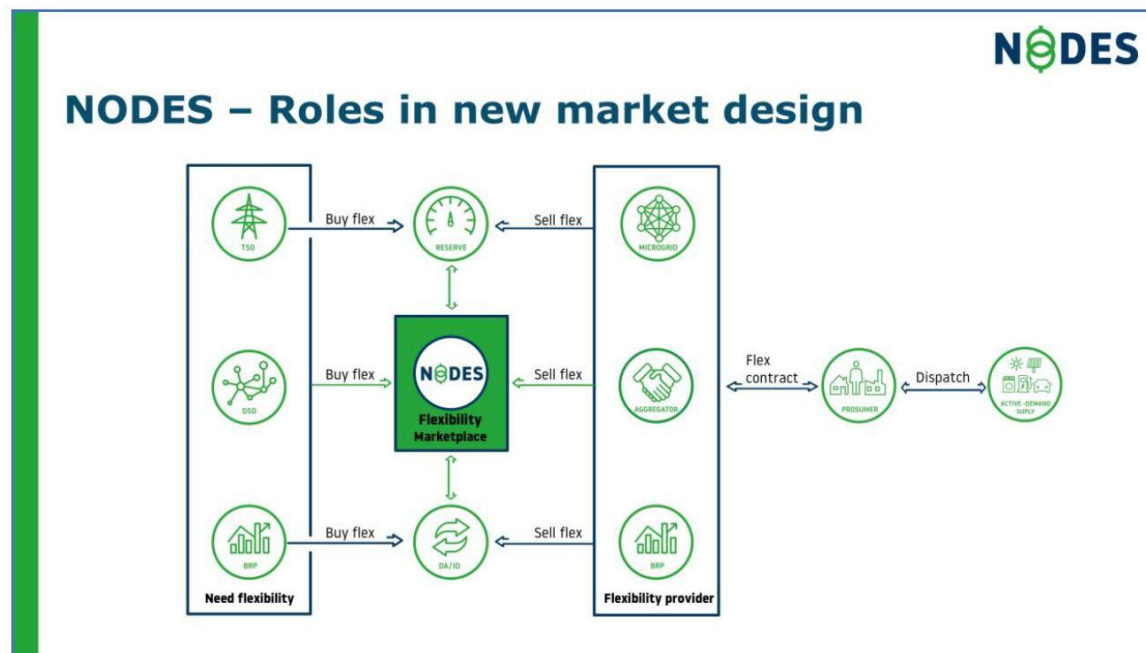


GOPACS is zelf geen marktplatform, maar het maakt gebruik van bestaande marktplatforms. ETPA is het eerste (intraday) marktplatform dat is aangehaakt op GOPACS. Zij brengen via hun marktplatform buy orders en sell orders samen en geven geschikte intraday orders door aan GOPACS, het netbeheerdersplatform. Als deze orders voorzien zijn van locatiegegevens en concreet bijdragen aan het kosteneffectief oplossen van congestie in het net, dan betalen de netbeheerders de spread zodat alsnog een match tot stand komt.

Future landscape- GOPACS



Option 4: Integrated -Flexibility market integrated with other existing markets

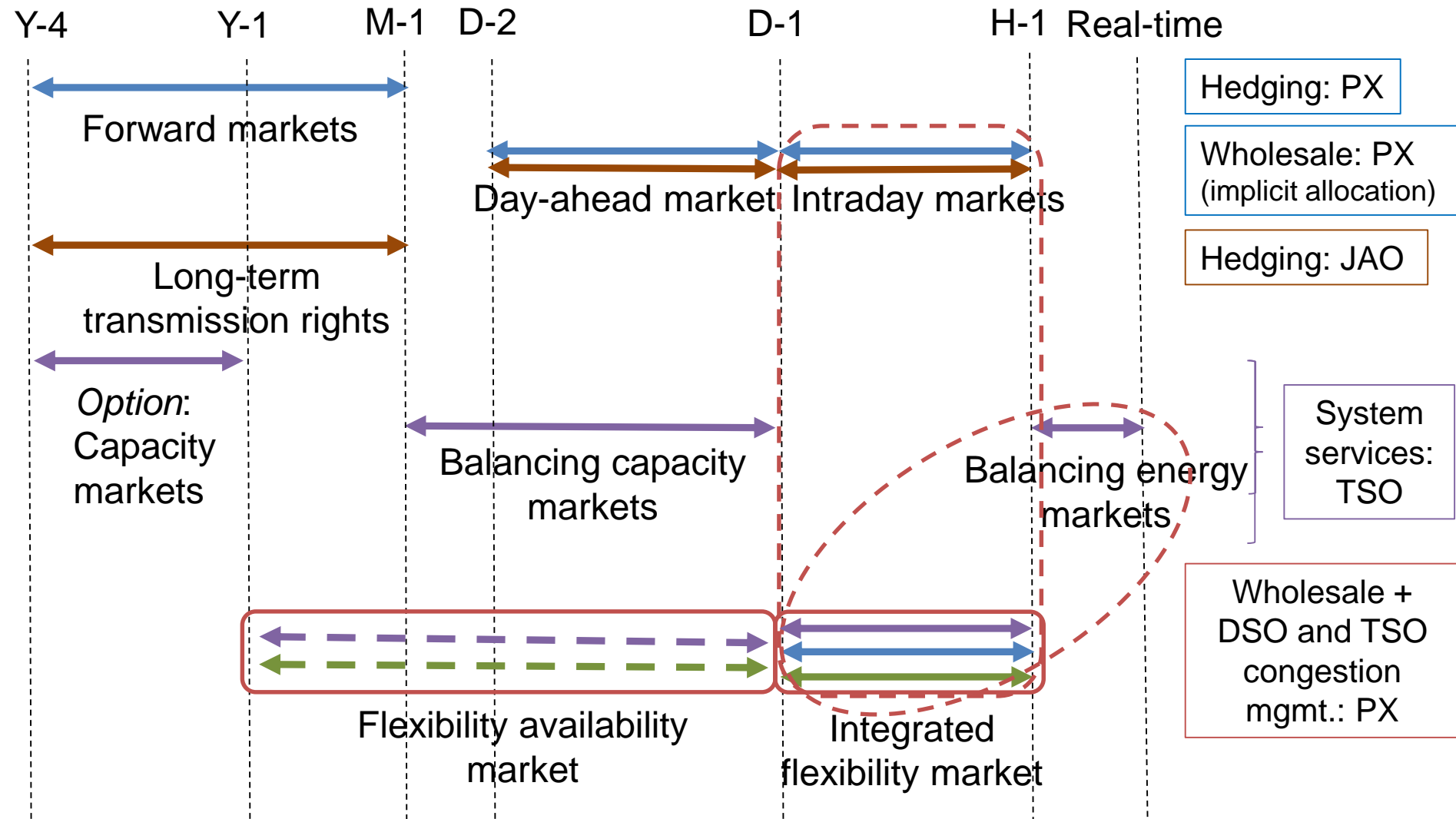


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This is illustrated in figure 3 below. All flexibility assets need to be tagged with their location. As an example: in one pilot both meter-ID and GPS coordinates were used. Another alternative is the postal code. All flexibility within a Grid Location (GL) can be aggregated by the flexibility provider to one or more offers into NODES. The TSOs or the DSOs are free to decide how granular they want the offers, i.e.

For the majority of operating hours during a year the flexibility is not needed locally at the actual GL – often it is needed only a few hundred hours a year. But it can still have a value in the rest of the system, for balancing purposes by the TSO or in the ID market for the BRPs. NODES will establish an interface that makes the flexibility available for these markets.

Future landscape- NODES



Summarizing the projects: six key questions

Summarizing six key questions

Trends and differences

	YES	NO	
1. Is the flexibility market integrated in the existing sequence of electricity markets?	GOPACS and NODES	Piclo Flex and Enera	Difference
2. Is the flexibility market operator a third party?	All projects. GOPACS is not a market platform operator but an intermediary. Currently, the market platform is ETPA.	/	Trend
3. Is there a reservation payment?	Piclo Flex	Enera, GOPACS and NODES (all projects envision to integrate reservations)	Difference
4. Are products standardised in the flexibility market?	Piclo Flex, Enera and GOPACS (IDCONS)	NODES	Difference
5. Is there TSO-DSO cooperation for the organisation of the flexibility market?	GOPACS (TSO and DSOs use the same intermediary). Enera and NODES (soon the TSO will be active on the same platform).	Piclo Flex is solely a DSO platform	Difference
6. Is there DSO-DSO cooperation for the organisation of the flexibility market?	Piclo Flex (6 DSOs), Enera (2 DSOs), GOPACS (4 DSOs) and NODES (one DSO per installation but soon more will join)	/	Trend



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