

THE “SYSTE(M)ARKET”

EXECUTIVE SUMMARY

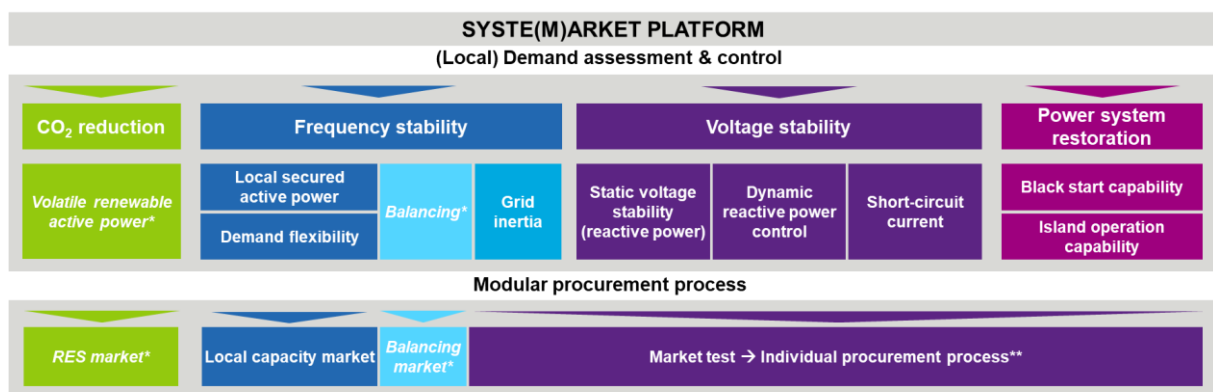
FEBRUARY 2022

The “Syste(M)arket” is a key instrument when it comes to achieving climate change objectives

Germany has set itself the objective of becoming climate-neutral by 2045, and Amprion has likewise committed itself to this objective. We believe that our concept of the “Syste(M)arket” can make a valuable contribution to the creation of a sustainable energy system and thus to achieving the country’s and our climate goals.

The “Syste(M)arket” is an integrated and at the same time modular market design, which is represented by an integrated demand assessment and procurement platform for ensuring system security and security of supply. This platform reflects all essential needs of our energy system in a transparent manner and coordinates their procurement process. Thus, it is a necessary addition to the existing spot and futures markets and will ensure the long-term realisation of essential demands of the energy system.

The “Syste(M)arket” as a platform with a coordination function



* Currently not considered due to the existing market framework

** In line with the processes currently developed for market-based procurement of non-frequency ancillary services

Fig. 1: Potential system needs

The “Syste(M)arket” create a holistic framework to increase transparency between the markets, to leverage synergy effects and to ensure a lack of any bias towards new technologies. It is up to the market participants to decide whether and with which technologies they will serve the technical need put out to tender. The “Syste(M)arket” platform bundles as many system needs as possible and ensures that they are available in sufficient quantity and long term.

The “Syste(M)arket” sets market incentives for system-serving investment decisions

Climate change and its consequences are requiring us to transform our energy system at an unprecedented rate while at the same time maintain the foundations of a secure energy supply. As we work to bring about climate neutrality, we are replacing central elements and former pillars of our energy system. Conventional power generation is rapidly being phased out and we will need to develop and install new types of power plants in the very near future in order to ensure a secure power supply as well as flexibility in the system. In view of the increasing level of utilisation of the grid infrastructure, new power plants and flexible loads must be located at the right locations in the grid if the system is to function reliably and effectively. The same applies to essential ancillary services, which today are for the most part provided by conventional power plants, often even inherently and free of charge. In future, increasing local demand for these ancillary services will also have to be covered, but by renewables, flexible consumers or storage facilities, for example.

In its current format, today’s market offers inadequate economic incentives to promote a design that serves the system and allows market participants to choose the best location for conducting their business. Today, the overall system costs (e.g. for grid expansion) are usually not adequately taken into account in the investment and operating decisions of market participants. The “Syste(M)arket” addresses this problem through the use of geographically and objectively differentiated payments and consequently generates market incentives that serve the system. Thus, its basic approach works similar to a central capacity market, but with a higher spatial granularity and enhanced by the consideration and implementation of ancillary services.

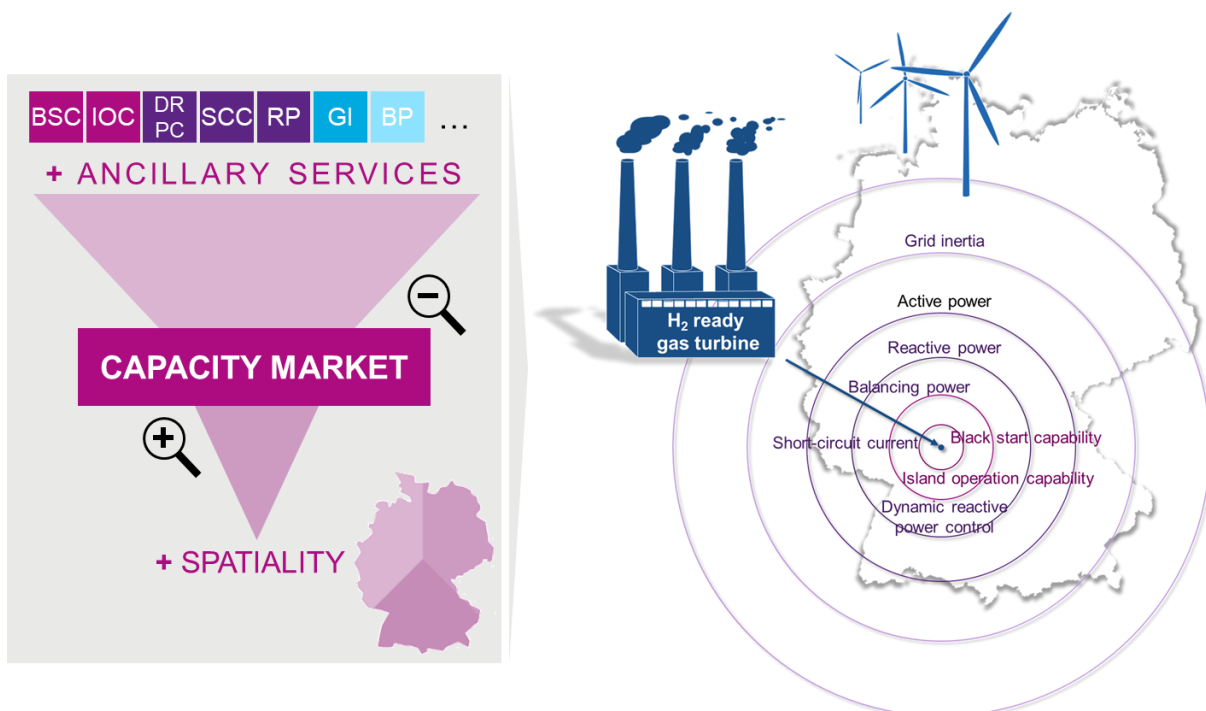


Fig. 2: Potential system needs

The “Syste(M)arket” is designed to be unbiased and be open to every new technology. Firstly, the needs of the system in order to maintain system security and security of supply are precisely determined (e.g. local reactive power demand or inertia). On this basis, the future, geographically differentiated requirements for each module of the “Syste(M)arket” are regularly and systematically quantified by the TSOs. Taking procurement and provision periods into account, the most effective and efficient procurement processes are then determined and implemented for each individual system need.

In the case of an investment decision on the construction of a power plant, for instance, the various payments made by the “Syste(M)arket” could positively influence whether this power plant is

- a) built at all (“Missing Money Problem”),
- b) built at the location where it offers genuine advantages from the system’s point of view,
- c) is designed such that it is also capable of covering other system needs.

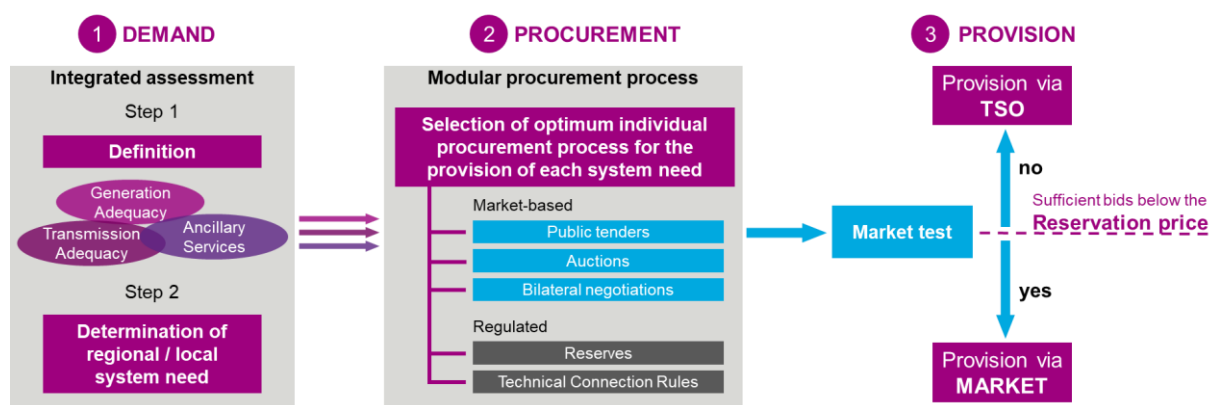


Fig. 3: “Syste(M)arket” concept

In this way, the “Syste(M)arket” ensures that sufficient potentials for the provision of each system need are available at the respective locations in order to guarantee secure operation of the power system at all times in the future. The introduction of this market design also prevents a further increase in economically less efficient reserves and instead directs investments to sustainable restructuring of the power system.

Diversity of system needs calls for individual procurement concepts

The diversity of the individual system needs necessitates individually tailored procurement procedures. “One-size-fits-all solutions” covering all system needs are therefore not efficient. In addition to direct provision by the respective transmission system operator, many system needs can in principle also be covered by market participants.

The procurement of the different system needs represents a central aspect of the “Syste(M)arket”. The optimum procurement procedure is selected individually and on the basis of different criteria, such as the homogeneity of the underlying market (available technologies and related costs), expected local market liquidity or the question as to whether related products are standardisable. The range of potential procurement procedures considered extends from public tenders and capacity payments for a defined technical attribute to the bilateral negotiation of individual contracts. However, the “Syste(M)arket” is only intended to provide market incentives for system needs that are fundamentally suitable for market-based procurement. Therefore, a preliminary assessment is required into the individual system needs to determine whether market-based procurement is possible from a technological, economic and operational point of view, or whether efficient market-based procurement can be ruled out in advance at the corresponding point in time. In the event of this assessment arriving at a negative result, the system need would be fulfilled directly by the TSO, for example, in the form of fully integrated network components (FINCs) or by extending the technical connection rules across all market participants. If market-based procurement for a particular system need is generally feasible, a corresponding procurement process is commenced. If, contrary to expectations, a local system need cannot be provided efficiently by the market participants under conditions more favourable than a predefined reservation price, or can be provided only partially, the TSO will cover the (remaining) demand. Consequently, the reservation price is based on the regulated costs of provision by the TSO.

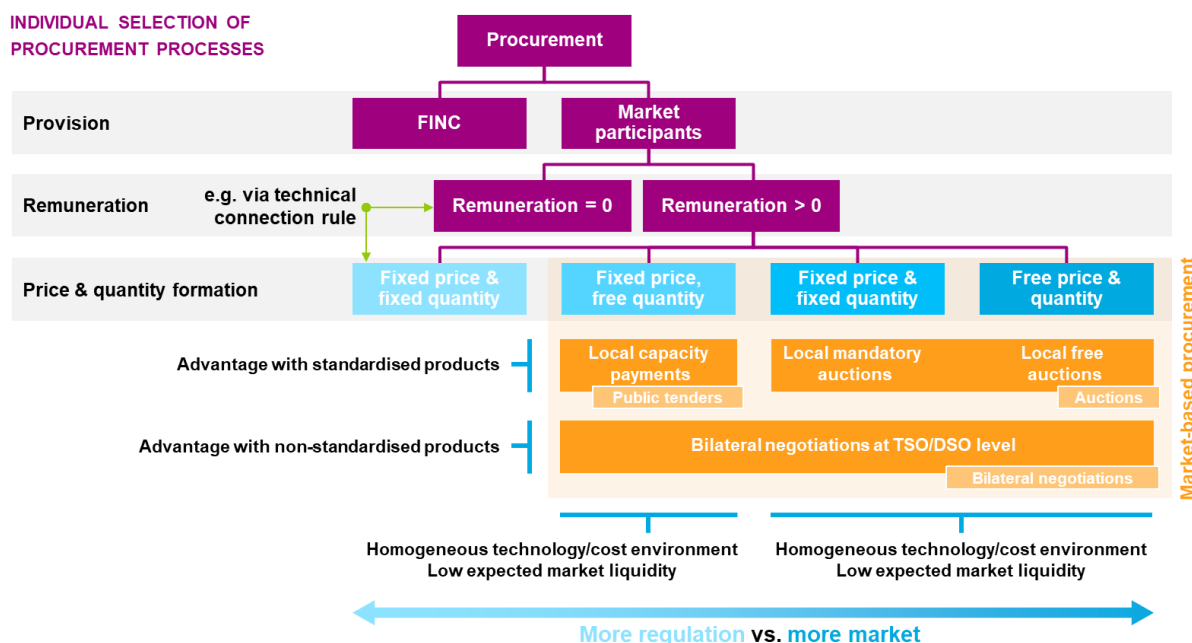


Fig. 4: Procurement options¹

This multi-stage process ensures that the market participants receive incentives for system-serving design and site selection and, at the same time, market-based procurement is limited to those system needs that can be efficiently provided by market participants.

¹ Adapted from: Effizienzprüfung marktgestützter Beschaffung von nicht-frequenzgebundenen Systemdienstleistungen (NF-SDL). Report as part of the project entitled “SDL-Zukunft” on behalf of the Federal Ministry for Economic Affairs and Energy, Germany. Amprion GmbH | February 2022