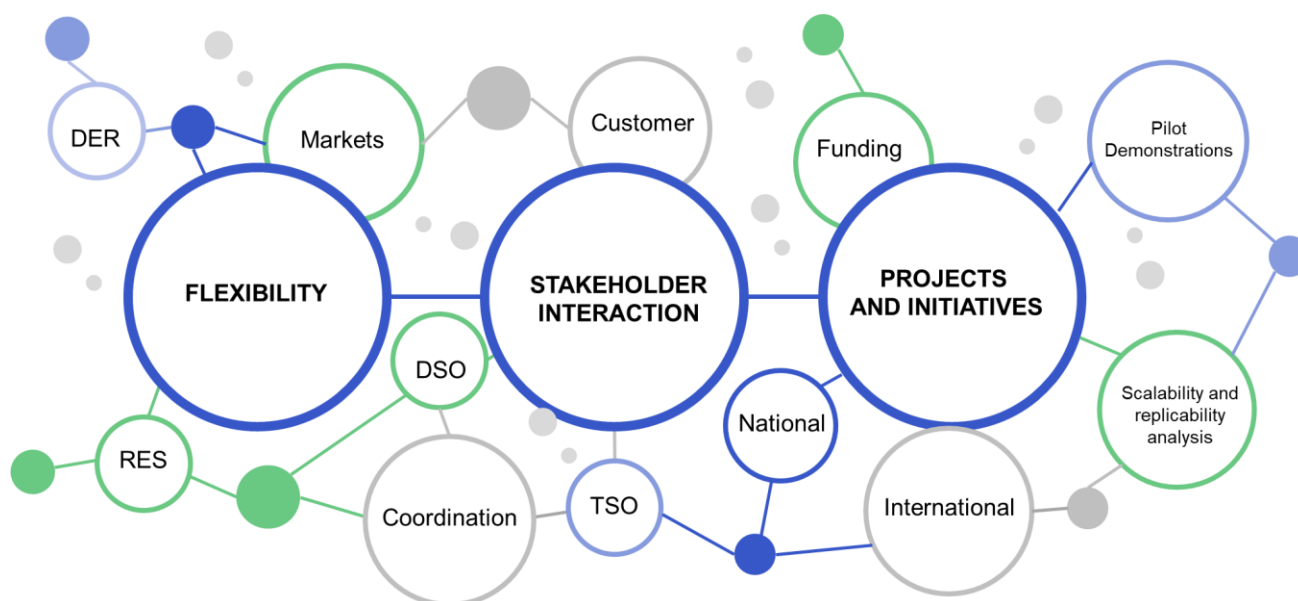


Flexibility harvesting and its impact on stakeholder interaction

Key messages

Introduction

The electrical energy system is transitioning in the way that electricity is generated, transmitted and distributed. Due to these changes, system operators are faced with various challenges (technical, ICT, regulatory and economic) to accommodate new technologies due to the drive toward modern power systems. However, these changes have also allowed for the increased opportunity for system development and the inclusion of new market players. Flexibility will provide network operators (together with other stakeholders such as prosumers, aggregators, etc.) with the possibility to increase the stability of the electrical system and ensure the safe, secure and reliable supply. Stakeholder interaction is key to facilitate and enable the integration and utilization of flexibility in future power systems.



Flexibility

Message 1: One universal definition for flexibility is required

- An agreed upon all-encompassing universal definition which can be recognised on a global scale is required.

Message 2: There is a high potential for increased load flexibility deployment

- Load flexibility has potential to be further deployed to provide distribution and local energy market services.

Message 3: Further investigation into DER characteristics is necessary

- There is a need to further study DER characteristics, e.g., rebound effects and granularity of control, to better understand their flexibility potential.

Stakeholder interaction

TECHNICAL AND ICT REQUIREMENTS

Message 1: The coordination between the DSOs and TSOs is crucial.

- The coordination between DSOs and TSOs is crucial for the safe, reliable, and cost-effective implementation of flexibility-based services.

Message 2: Coordination between operators requires that adequate information be shared.

- System observability, communication, data exchange and regulatory frameworks play a significant role in stakeholder interaction. Therefore, system enhancements should be made to facilitate the inclusions of devices and methods. This includes a universal standardized format to further enhance interaction (interoperability).

Message 3: Prioritization of smart meter roll-out

- Next-generation smart meters can act as an access point for behind-the-meter equipment capable of providing flexibility services. Next-generation smart meters, therefore, should have more technical capabilities.

STAKEHOLDER INVOLVEMENT AND REQUIREMENTS

Message 1: Increased (active) customer involvement is key.

- Increased (active) customer involvement is key to the successful operation of future networks. It is important to encourage increased awareness, acceptance, and customer responsibility as pillars for improved customer participation. These aspects should be considered within the regulatory framework.

Message 2: Increased stakeholder interaction and role definition is required.

- The increased integration of flexibilities calls for the increase in stakeholder interaction. Since a major barrier lies in that the roles and responsibilities of various stakeholders are not clearly defined, stakeholders should continue to define and develop a framework to provide clear guidance to facilitate the increased interaction among stakeholders.

Message 3: Stakeholders considered to be important flexibility providers.

- Industrial and commercial users are becoming increasingly important as flexibility providers in various countries. Local energy communities will also play an important role in the future.

FLEXIBILITY MARKETS

Message 1: Flexibility markets and new business models need to be developed.

- Flexibility markets need to be developed so that it enables different kinds of flexibility to participate under equal conditions. New business models need to be developed to motivate system users at different voltage levels to participate and provide flexibility services.

Message 2: Increase value stacking for all stakeholders.

- The concept of value stacking based on the design of joint products such that the same flexibility can be used simultaneously for different system needs should be further explored and developed.

Projects and initiatives

Message: Projects, especially those with pilot demonstrations, allow for the development of new concepts alongside real life implementation. These projects are highly valuable since they allow for the testing and evaluation (incl. simulated scalability and replicability analysis) of these concepts prior to large-scale rollout.