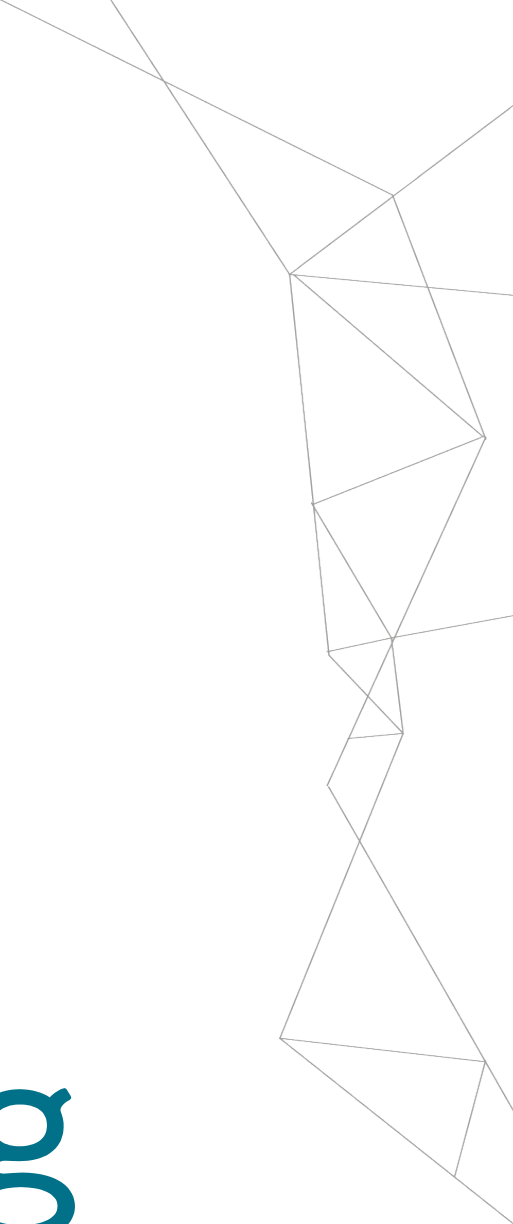# Platform for Flexibility Services

ETIP SNET Northern Region Workshop

Kalle Kukk
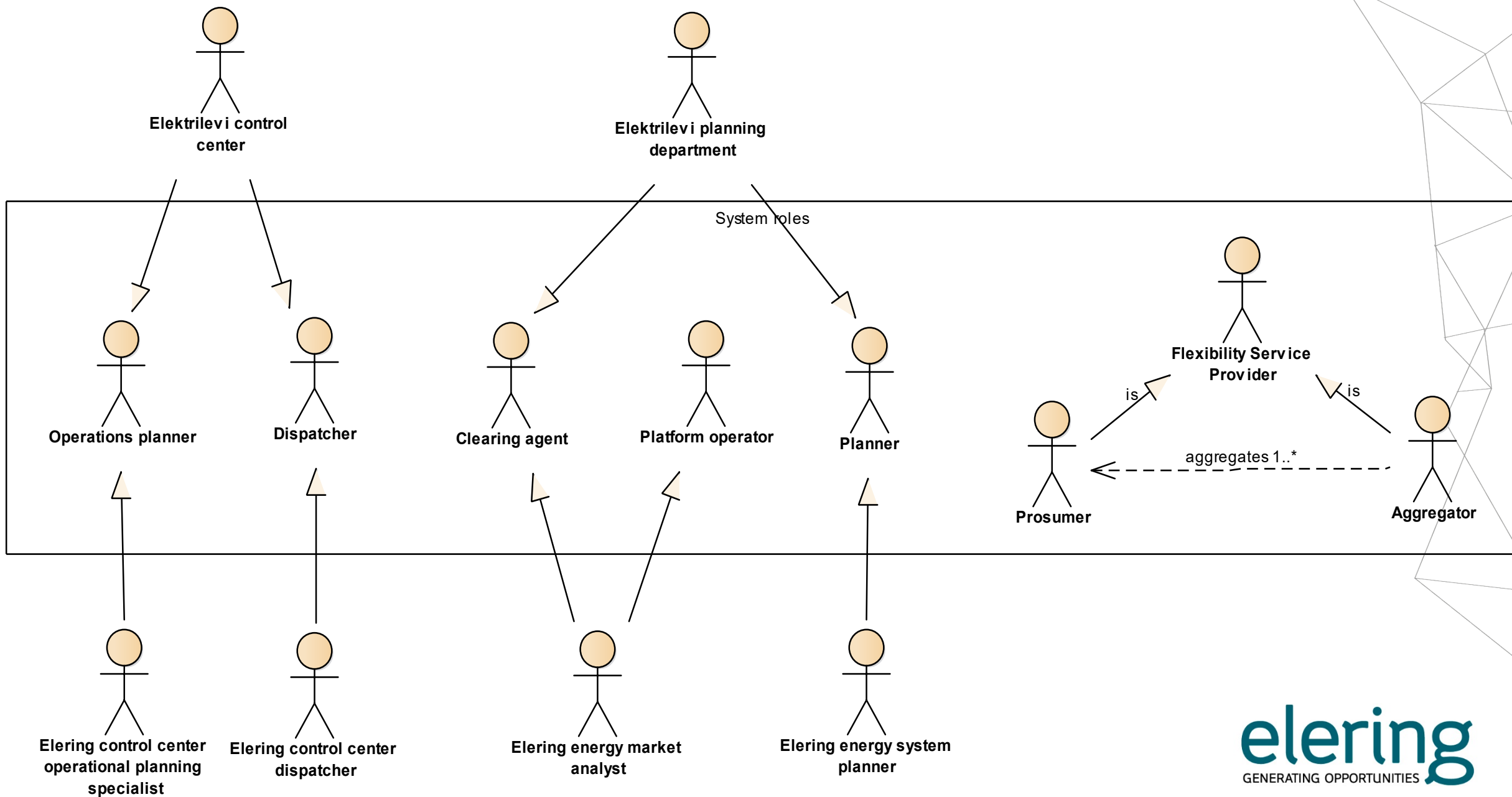
4 October 2018

elering
GENERATING OPPORTUNITIES

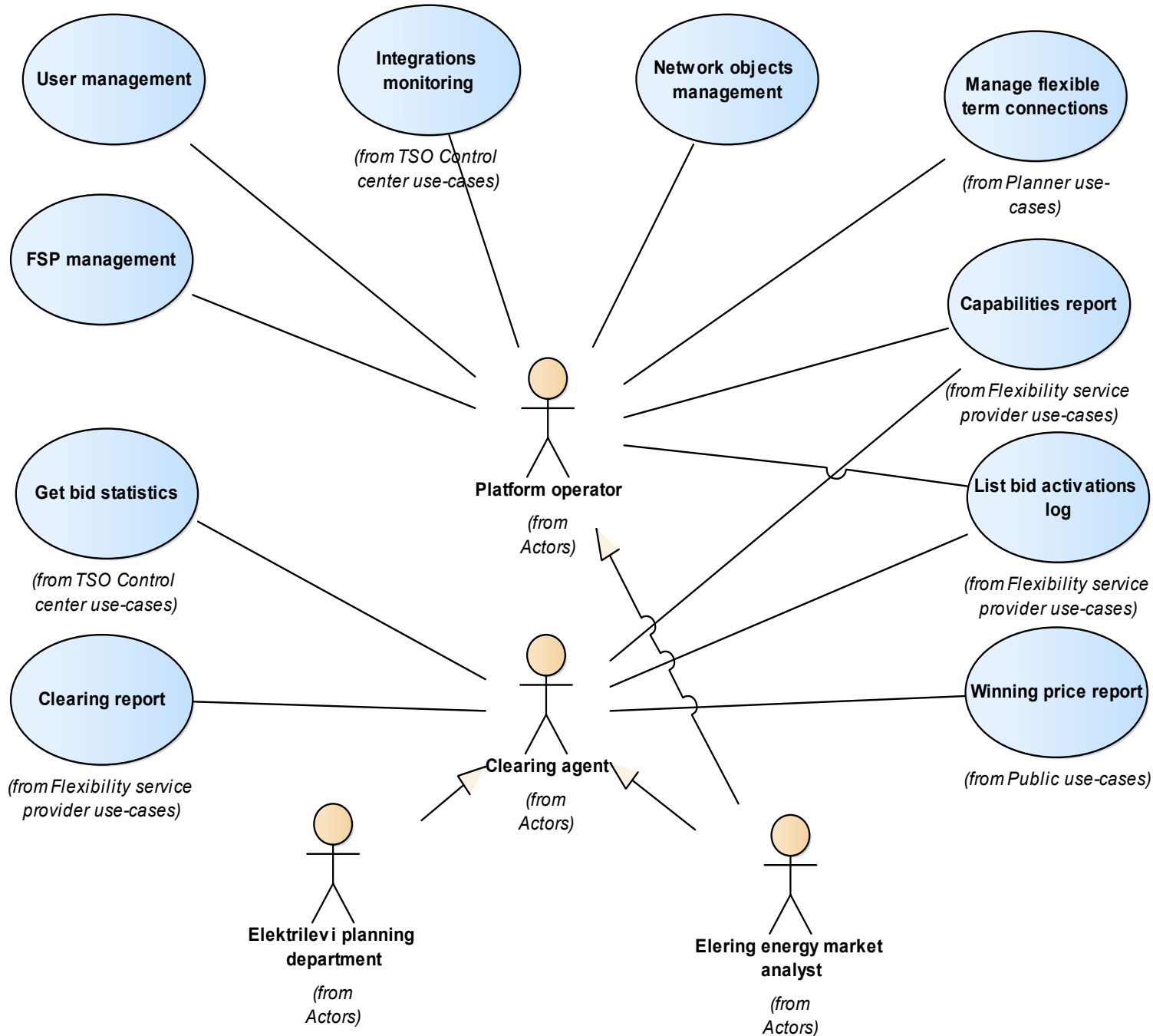# Initial purpose of the project, i.e. expected results

- Develop **a single flexibility services marketplace** along with a **trading platform** for key stakeholders that after the successful implementation of PoC can be scaled across the Estonian market;
- Develop a unified set of technical procedures to manage grid and system limitations via the aggregated control of consumption and / or generation across the distribution and transmission network;
- Utilize flexibility services as viable means to tackling grid congestions.

Flexibility platform

Flexibility platform PoC aka the system refers to a trading platform on which flexibility bids from flexible resources, connected to the distribution and the transmission grid, are collected. Both TSO and DSO have full visibility on all bids, while in future aggregators may have more access to each-other's bids for mutual trading purposes. From the available flexibility, the involved TSO and DSOs can activate and deactivate the flexibility they need. In addition, future looking inquiries can be made for planning purposes. The system enables grid operators to make sure that the activation of procured flexibility by one operator would not harm grid operation of others by setting blockings on active bids. A warning mechanism has been designed to mark and indicate the changing grid objects and topology.

uc Organization to roles

Elektrilevi control center

Elektrilevi planning department

System roles

Operations planner

Dispatcher

Clearing agent

Platform operator

Planner

Flexibility Service Provider

is

is

Prosumer

aggregates 1..*

Aggregator

Elering control center operational planning specialist

Elering control center dispatcher

Elering energy market analyst

Elering energy system planner

4

uc Platform operator use-cases

User management

Integrations monitoring
(from TSO Control center use-cases)

Network objects management

Manage flexible term connections
(from Planner use-cases)

FSP management

Capabilities report
(from Flexibility service provider use-cases)

Platform operator
(from Actors)

Get bid statistics
(from TSO Control center use-cases)

List bid activations log
(from Flexibility service provider use-cases)

Clearing report
(from Flexibility service provider use-cases)

Clearing agent
(from Actors)

Winning price report
(from Public use-cases)

Elektrilevi planning department
(from Actors)

Elering energy market analyst
(from Actors)

elering
GENERATING OPPORTUNITIES

Flexibility service provider use-cases

- + Answer flexibility inquiry
- + Capabilities report
- + Clearing report
- + Create flexibility bid plan
- + List bid activations log
- + List flexibility inquiries
- + Update flexibility bid plan

Prosumer use-cases

- + Apply to become FSP
- + Find aggregators

Aggregator use-cases

- + Add prosumer to my list
- + List my prosumers
- + Remove prosumer
- + Update prosumer

Control center use-cases

- + Activate flexibility bid
- + Blockings management
- + Deactivate flexibility bid
- + Get bid statistics
- + Integrations monitoring
- + Recommendations management

Planner use-cases

- + Add inquiry
- + List flexibility bids
- + Manage flexible term connections
- + Remove inquiry
- + Update inquiry
- + Warnings management

Platform operator analyst use-cases

- + FSP management
- + Network objects management
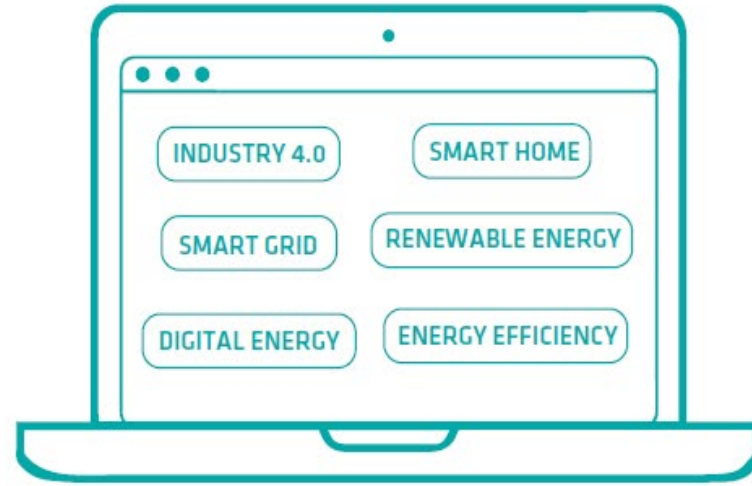- + Perform activations audit
- + User management

Public use-cases

- + Get list of aggregators
- + Get Nordpool price info
- + Get weather info
- + Winning price report

elering
GENERATING OPPORTUNITIES

Needs for future R&I activities

- From national to European: EU-SysFlex
  - EU-SysFlex: <u>Data exchange</u> necessary for single TSO-DSO flexibility platform
  - INTERRFACE: <u>Regional</u> (FIN-EST-LAT) <u>marketplace</u> for flexibility trading

➢ Flexibility products
➢ Marketplaces
➢ Easy access to market for flexibility providers
➢ TSO-DSO coordination
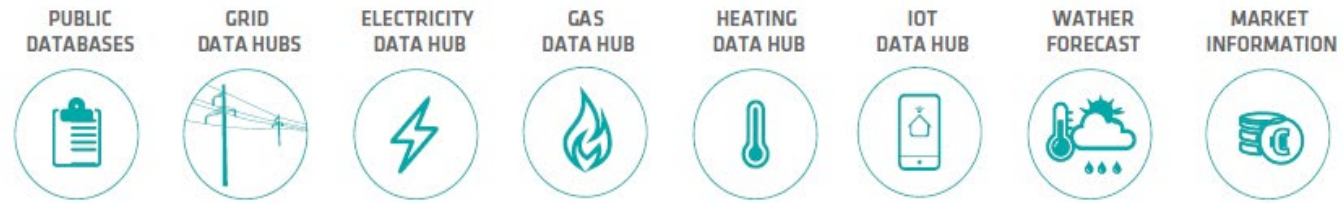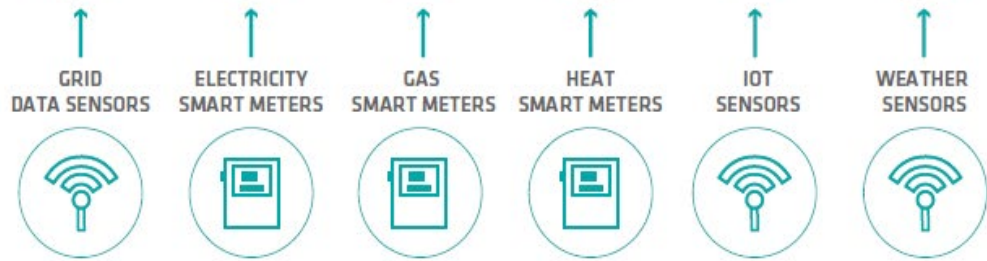➢ Data exchange models, standards, security
➢ Data privacy

elering
GENERATING OPPORTUNITIES

APPLICATIONS

INDUSTRY 4.0   SMART HOME

SMART GRID   RENEWABLE ENERGY

DIGITAL ENERGY   ENERGY EFFICIENCY

DATA EXCHANGE LAYER

estfeed

e elering
App store and data access management

DATAHUBS

PUBLIC DATABASES   GRID DATA HUBS   ELECTRICITY DATA HUB   GAS DATA HUB   HEATING DATA HUB   IOT DATA HUB   WATHER FORECAST   MARKET INFORMATION

SENSORS REAL TIME DATA

GRID DATA SENSORS   ELECTRICITY SMART METERS   GAS SMART METERS   HEAT SMART METERS   IOT SENSORS   WEATHER SENSORS

Lessons learned

- **NEUTRALITY.** Parties operating flexibility market/platform must be independent from market interests.
- **CUSTOMER PERSPECTIVE.** Think interests of end-customers not only needs of Network operators, suppliers, BRPs.
- **TSO-DSO COORDINATION.** Fragmentation of flexibility market must be avoided.
- **DATA MANAGEMENT.** Well-arranged data exchange is precondition. We can rely on our Estfeed experience.
- **EUROPEAN FOCUS.** We aimed at prototype in part of Estonia in the beginning but had cross-border challenge in mind. Therefore, all documentation in English already!

elering
GENERATING OPPORTUNITIES

Thank you!

Kalle Kukk

kalle.kukk@elering.ee