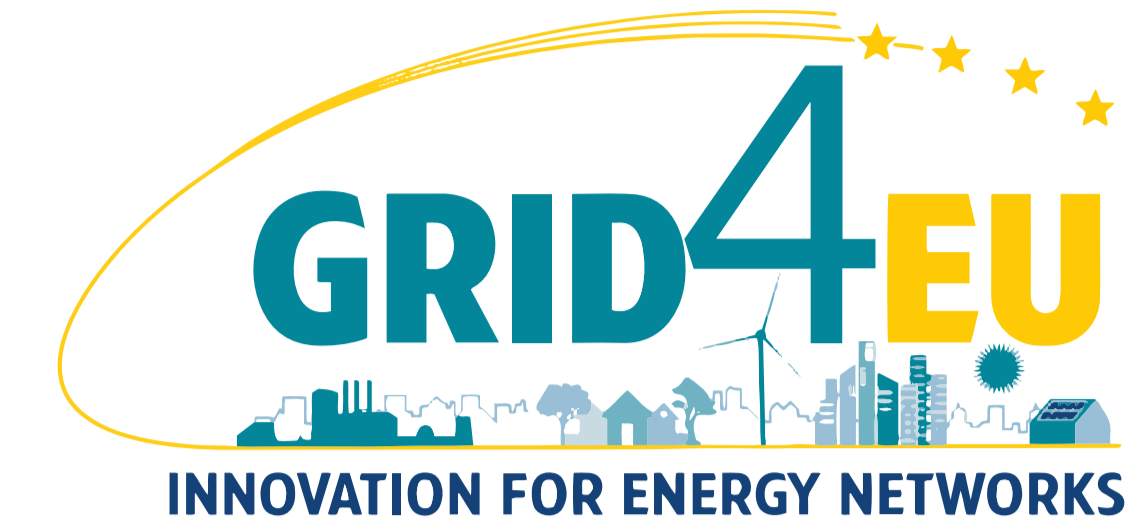
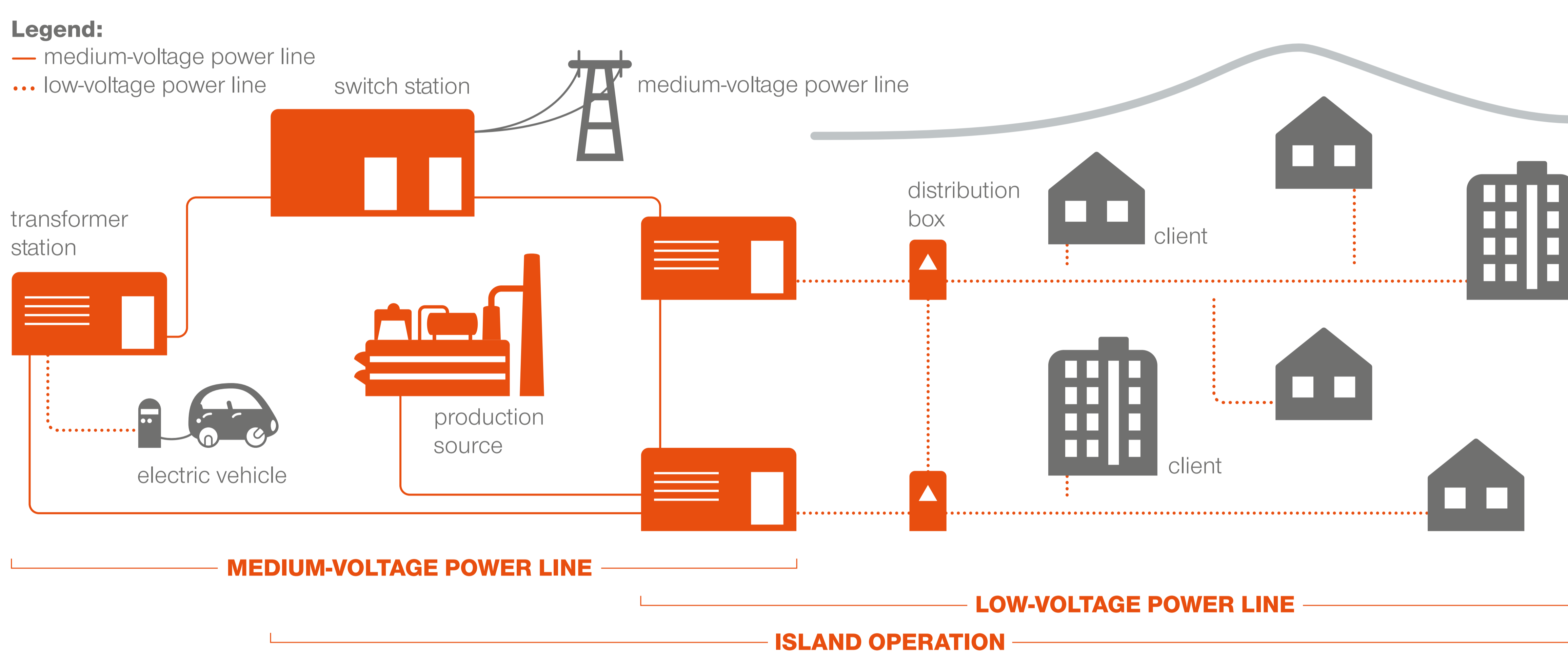


## SMART REGION



### Objective

**Implementation of new technologies to the distribution grid in Vrchlabí, improvements of the quality of power supply, increase reliability, reduction of blackout times and interruptions, and reduction of losses.**



### Description

#### Automated failure management on medium-voltage

In the case of failure in medium-voltage network, the mutual cooperation of IEDs guarantees localization and insulation of fault by the breaking switches in nearest disconnection points. Local SCADA will evaluate the event and will propose the manipulation sequence for new connection of the grid and will define the smallest sector affected by the outage. Decision on approval is always in operators competence.

#### Automated failure management on low-voltage

The goal of low-voltage automation is to reduce impacts to customers by automated failure management in the case of failure. This function is secured by determination of failure location and isolation thanks to remote controlled circuit breakers and load break switches installed in street cabinets.

#### Island operation

The combined heat and power (CHP) unit (1.6 MW) is connected in the area of low-voltage grid at the Liščí Kopec, which is capable of continuously supplying 1,800 clients in case of failure.

### Evaluation

#### Medium-voltage automation

This concept may be used after modifications in other DS locations.

#### Low-voltage automation

Due to the number of supplied clients and due to installation and operation maintenance cost it is not an efficient concept to be applied on a large-scale. An exception may be the application to meshed grid.

#### Island operation

Due to the large size of the island and stability in terms of power surges no expansion at the medium-voltage level is assumed.



CHP unit and island operation technology control system