SUCCESSFUL ISLANDING TESTS IN SIMRIS DURING 2 WEEKS

E.ON has during early 2018 tested two different islanding sequences on the Simris village network, under both unfavourable and favourable conditions. The overall objective was to run the microgrid in island mode 24/7 for one week. We're reporting here on two successful islanding sequences which have been of reduced duration, due to issues with the battery system.

The following tests have been performed:

- "Islanding was performed during one week in mid-March, from Monday through Friday between 8am and 4pm, under **unfavourable** weather conditions with cold temperatures resulting in high electric consumption by Simris' inhabitants coupled with low irradiation and wind speeds", says Alexandre Blondot, responsible for microgrid operation in the Local Energy System (LES) project in Simris.

Out of the 40 planned hours, the LES managed to stay in island mode for 34 hours and 50 minutes. The reason for the discrepancy was late starts or early stops due to low power production. No impact on the customer was observed as the microgrid was reconnected to the main grid automatically whenever the battery state of charge reached the preset lower threshold at 25% state-of-charge.

Before starting the second island mode the battery was recharged manually.

- "During a second test week in mid-April, from Monday through Friday from 8am to 8pm, comparable experiments were performed under more favourable conditions with higher temperatures, resulting on a globally lower village consumption, coupled with higher irradiation and wind speeds", says Alexandre.

Out of the 60 planned hours, the LES was in island mode for 61 hours and 26 minutes. No impact on the customer was observed. The transition from and to island mode has been performed seamlessly. It has been observed that the frequency and voltage levels have been more stable in island mode than in non-islanded mode.

Conclusions:

- The microgrid is behaving as expected, it works very well and has an even better electricity quality than the mainland grid
- The Microgrid has shown its readiness to cope with both favourable and unfavourable conditions

Next steps aim at testing demand side response which includes the active participating household assets and islanding during an extended period 24/7.