Paper 0169 – INTERACTION BETWEEN SHORT-TERM AND SEASONAL STORAGES IN A RENEWABLE POWER SYSTEM

Christoph GROISS
Salzburg Netz GmbH – Austria
cristhoph.groiss@salzburgnetz.at

Walter SCHÄFFER
Salzburg Netz GmbH - Austria
walter.schaffer@salzburgnetz.at

Wolfgang GAWLIK
TU Wien - Austria
wolfgang.gawlik@tuwien.ac.at

Introduction
Currently the annual electricity consumption in Austria is about 70 TWh with a share of renewable generation of about 70%. This paper deals with a future scenario heading towards a fully renewable power supply. Here the focus is the interaction between short term storages with long term storages.

Optimisation of storage operation
The optimisation model output for the state of charge of pumped storage hydroelectricity (PSH) and storage hydroelectricity (SH) is shown. The storage capacity of seasonal storage is 3.5 TWh which is filled by natural inflow during summer months.

Additional long term storages
When adding power-to-gas units to a highly renewable energy system, the full load hours of short term storages are doubled. During summer months, the PSH balance the generation surplus, so that the P2G systems are operated with a constant maximal power.

Conclusions
In Austria a significant increase of the share of renewable generation is possible. Additional long term storages (like power-to-gas) are not competing with existing short term storages. Both are required for a highly renewable energy system.