

Title of speech "Distributed Power Generation with CHP-Systems, the Chance to Control the Network Stability of High-Percentage Renewable Power Networks"

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The use of renewable energies is sensible in any case on the one hand to preserve conventional energy resources and on the other hand to reduce greenhouse gases. The EU has already introduced specific measures to attain the goals of Kyoto. The implementation of these measures will then be regulated by legislative measures and guidelines in the individual countries. In Germany this is, for example, the EEG; in Austria that part of renewable energies in the network is regulated through EIWOG. The guiding principle of all this legislation is the preferential treatment (purchasing obligation or recovery tariff regulation, respectively) of electricity stemming from renewable sources. This way is necessary because the production costs of electricity from renewable sources are generally higher than those of conventional electricity production costs. The grid-connected generation of PV (photovoltaic) electricity (tariff 50.87 Cent/kWh) can be designated as the most extreme example of preferential treatment. A more exact look at the quality of this electricity (availability at specific times) shows, however, that electricity generated from PV cells is only sensible regarding the reduction of CO₂ emissions. For a network provider this electricity must be regarded as the worst quality because its supply is in no way in conformance with network load requirements. When viewed along these lines, wind power looks much better, conventional water power (e.g. use of storage capabilities from the run of river plants) already has a high standard of quality, and electricity from storage power stations is rated very highly. High amounts of renewable electricity in networks can lead to not inconsiderable stability problems. Therefore, to keep a network stable, a sufficient amount of potential for stabilizing power for primary and secondary control is necessary.

Jenbacher AG, as the developer of highly effective CHP plants, has made its goal to optimize especially the potentials of modern gas engines also in the sense of stabilization of electricity networks. Fully regulated island operation with modern gas engine CHP plants can already be presented in a load range of 40 – 110 %. The resultant heat can be stored relatively easily in a heat accumulator, so that the overall efficiencies can be fully maintained, i.e. the electricity produced in modern CHP plants can be rated similarly to the electricity generated in large diesel generator sets.

In the sense of the attainment of the goals specified in Kyoto, the electricity produced in CHP plants therefore ideally supplements the electricity generated in wind power and PV plants. Besides natural gas plants that applies as well to all gases coming from renewable sources (biogases, synthesis gases, etc.). Further aspects to be considered are the local requirements for optimization of network operation as well as energy management, where here a very effective contribution can be made by CHP plants.