Abstract:

With the increasing complexity of real-world energy systems its modeling process becomes even more crucial when large-scale simulations are conducted. Being computational intensive and therefore requiring efficient simulation models a modeling scheme with a well-defined formal syntax definition is developed and together with its meta model proposed in this paper. This Universal Scheme for modeling Energy Systems (USES) is the preferred language for the power system simulation presented here as being part of our Scalable Electro-Mobility Simulation (SEMSim) platform. For investigating the impact of electro-mobility on the city infrastructure the transmission system of Singapore is described as real, data, and formal model, the first two based on USES.