A model of the ASEAN power grid

The Chair of Renewable and Sustainable Energy Systems and the Energy Research Group at TUMCREATE are developing a comprehensive energy model for ASEAN countries. The focus is on the electricity system. Key topics include reducing greenhouse gas emissions and integrating renewable energies into the system. As a key extension, in addition to the modeling in the urbs model generation, a model of electrical transmission will be developed in pandapower. The results from the urbs model will then be replicated in the pandapower model, and in particular, potential problems with electrical transmission that require an expansion of the power grid beyond the assumptions of the urbs model will be investigated.

The work consists of several steps:

1) Building an initial model based on the published data and Mr. Zhang's master's thesis.

2) Expanding the lines according to the specifications of the urbs model.

3) Selection and installation of potential HVDC lines, including their expected positive impacts.

4) Investigation of the key urbs results for technical feasibility.

5) Development of an expansion plan that allows for the renewable energy capacity determined in urbs.

The work requires a basic understanding of electrical energy transmission and, in particular, load flow calculations. Basic knowledge of Python is certainly also more than helpful.

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