**Test System Description**

The 4-grid test system and the 3-grid test system are designed based on [A-1] and [A-2], respectively. The former consists of four grids, each with five nodes and of roughly equal size, while the latter consists of three grids, each with six nodes and decreasing in size.



Fig. A. Network connection.

**Reference**

[A-1] Y. He, H. Zhong, G. Ruan, B. Zhou, S. Lu, and Y. Zhuo, “Multi-Area Asynchronous Grid Operation with Frequency Reserve Sharing,” IEEE Trans. Power Syst., pp. 1–13, 2024, doi: 10.1109/TPWRS.2024.3382288.

[A-2] A. Tosatto, G. S. Misyris, A. Junyent-Ferré, F. Teng, and S. Chatzivasileiadis, “Towards Optimal Coordination Between Regional Groups: HVDC Supplementary Power Control,” IEEE Trans. Power Syst., vol. 37, no. 1, pp. 402–415, Jan. 2022, doi: 10.1109/TPWRS.2021.3086764.