Einladung zu einem Promotionsvortrag

Vortragender:	Marcel Klaes, M.Sc.
Thema:	**On the Identification and Analysis of ICT-Induced Stability Risks in Cyber-Physical Energy Systems**
Inhalt:	Considering the increasingly complex task of coordinating modern generation and consumption assets in power grids, emerging ICT-based stability risks for cyber-physical energy systems (CPESs) must be addressed. The work this presentation is based on does so by identifying cyber-physical services as the main drivers of interdependence first. It then provides a general approach on how to assess such a service's dependency on data in general and its sensitivity towards the high-level ICT error categories "latency", "data loss", and "data corruption", in particular. Based on these results, the service states "normal", "limited", and "failed" are introduced to summarise the findings in an abstract and more widely applicable as well as comparable manner. These aggregated service states are required as additional inputs for the main method which determines how disturbances propagate through modern CPESs. This method is first presented with a focus on static stability and is later extended to also incorporate dynamic stability phenomena. The resulting disturbance propagation, combined with the service states and the ENTSO-E state description for power systems, can be used to derive a summarising state trajectory which helps compare different CPES layouts and control designs concerning their stability qualitatively. Finally, an alternative approach to also quantify the stability of CPESs based on the disturbance propagation is presented.
Termin:	Dienstag, 18.06.2024 um 15:00 Uhr
Ort:	Institut ie3, Martin-Schmeißer-Weg 12, Raum 2.7 (Zoom-Link)

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