About

Provide general information regarding the described key performance indicator (KPI).

Name of KPI *Provide a meaningful, descriptive name for the KPI (e.g., primary energy savings).*	Network latency
Symbol of KPI *Provide the symbol used to refer to this KPI (e.g., E_{tot}, CTR).*	Td
Contextual information *Add any information relating this KPI to a specific use case, test case or system configuration.*	This KPI is indicative of the network latency present in power system communications between substations and control centres.

Classification

Describe the KPI.

Group	☐ economic ☐ **technical** ☐ environmental ☐ other, please specify:
Domain	☐ electrical storage ☐ thermal storage ☐ electrical network ☐ thermal network ☐ energy conversion device ☐**ICT**
Definition incl. justification *Provide a textual description of the KPI. What does it do and what is it good for? Also explain other*	This KPI is indicative of the network latency present in power system communications between substations and control centres. The KPI is measured in milliseconds as the round-trip time for a single TCP/IP packet to travel back and forth from the substation gateway to the control centre.

parameters that the KPI / design parameter depends on.	
Significance *Provide an explanation of the significance of the KPI. Why is it important?*	This KPI is an important performance metric for power system communication networks. It is directly indicative of network performance and how network characteristics can affect the studied applications.
Calculation *Specify how the KPI is calculated (mathematical equation). Please use in this definition the KPI symbol defined above, e.g.,* $E_{tot} = f(a, b, c)$.	
Strengths and weaknesses *What aspects are covered well by the KPI? What aspects does it not cover well?*	
Scoring / categorization *What values of the KPI are typically considered good or bad?*	Depending on applications. Acceptable: 10 to 50ms High: >100 ms

Data requirements

This section provides additional information about what data is required to calculate the KPI.

Expected data source *Where do you usually get the data from to calculate this KPI (in real life)?*	
Data collection interval *When collecting data to calculate the KPI, how many measurements do you need? And with which time resolution?*	
Expected reliability *How reliable is the typically available data for calculating the KPI?*	

Additional Information

Provide any other additional information here.

Similar / related KPIs	Packet loss, delay variation, bandwidth utilization, jitter, round-trip time (RTT)
Related publications	Zhang, Chuan-Ke, et al. "Delay-variation-dependent stability of delayed discrete-time systems." *IEEE Transactions on Automatic Control* 61.9 (2015): 2663-2669 Hutter, Gérard. "Planning for risk reduction and organizing for resilience in the context of natural hazards." *German Annual of Spatial Research and Policy 2010*. Springer, Berlin, Heidelberg, 2011. 101-111
Additional comments	The KPI is dependent on the design of the experiment and its purposes e.g. monitoring and detection, service delivery and recovery. An acceptable level of KPI should be defined by comparing normal operations and disruptive events. It should be noted that network latency implies the time from sending endpoint to the receiving endpoint e.g. sending a package from A to B, whereas the round-trip time (RTT) includes processing delay e.g. network delay from A to B and back.