**3GPP TSG-SA WG6 Meeting #49-e S6-22xxxx**

**e-meeting, 16th – 25th May 2022 (revision of S6-22xxxx)**

**Title: LS on DN energy efficiency data analytics**

**Response to:**

**Release: Rel-18**

**Work Item: FS\_ADAES**

**Source:** **SA WG6**

**To: SA WG5, SA WG1**

**Cc:**

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**Attachments:** None

# 1 Overall description

SA6 is investigating the Application Data Analytics Enablement service (ADAES) as part of a Release 18 Study Item (FS\_ADAES, TR 23.700-36), to provide application-layer and edge related analytics to vertical customer / 3rd party application service providers. ADAES can be seen as an AF which can be deployed by the MNO, a trusted 3rd party (e.g. edge/cloud provider), or by the vertical customer.

In SA6 #48-e (S6-220860), it was proposed to discuss a key issue related to the DN energy efficiency calculation and analysis at the ADAE layer. The energy efficiency for a DN can relate to the per EAS/AS energy efficiency as well as the per EDN / platform energy efficiency. Such metric can be derived based on analyzing the performance/data volumes of the edge/cloud platform capabilities (e.g. EES/EAS, abstracted network services) as well as the expected energy consumption for a DN/EDN which can be due to the EES/EAS vCPU usage, the API invocations (for edges services produced or consumed by the EDGE platform) and other energy consumptions (e.g HW/NFVI layer).

In telco cloud environments (in ICT domain), the energy measurement for the ICT equipment can be supported by a Remote Management Server (RMS) which can provide energy metering from 3rd party perspective and can also provide energy data analysis services which include various reports, with database management, and potential correlation services to understand the power consumption structure and optimization possibilities and progress [see ETSI ES 202 336-12 V1.2.1, ETSI ES 202 336-1]. Based on ETSI ES 202 336-12, non-real time energy analytics services for ICT equipment have been shown out of scope (Figure 4 of ETSI ES 202 336-12 v1.2.1). Such analytics services could be discussed in SA6 and could help providing energy related data and/or analytics for the ICT equipment (edge/cloud platform) and the application servers hosted at the platform in a unified and standardized manner.

Based on the above description, SA6 would like to ask SA5 view on whether such potential capability is overlapping with current or planned SA5 activities. In particular, SA6 would like to ask SA5 the following:

**Q1**: Is SA5 defining Energy Efficiency (EE) KPIs for the enablement layer functions (like EDGEAPP, SEAL) and EE KPIs for the 3rd party applications / edge applications? If the answer is yes, how SA5 is expected to derive requirements for defining such EE KPIs?

**Q2**: Does MDAS or any other management service provide analytics/data on EE for the edge/cloud resources?

**Q3**: If the answer to Q2 is yes, is the exposure of energy data/analytics to 3rd party / applications defined as part of SA5, and what parameters are expected to be exposed?

**Q4**: Is the understanding of SA5 that the energy measurement and analytics for external DNs / 3rd party applications lies within the coverage of SA5; hence any mechanism needs to be specified there?

Based on the above description, SA6 would also like to ask SA1 whether requirements for energy analytics for application layer entities edge/cloud resources are within scope of the proposed Rel-19 study New SID on service enhancement of Energy Efficiency (FS\_ServiceEE)

# 2 Actions

**To SA5**

**ACTION:** SA6 kindly asks SA5 to provide feedback on the above questions (Q1-Q4)

**To SA1**

**ACTION:** SA6 kindly asks SA1 whether requirements for energy efficiency analytics for application layer entities and edge/cloud resources are within scope of the proposed Rel-19 study on service enhancement of Energy Efficiency (FS\_ServiceEE)

# 3 Dates of next TSG SA WG 6 meetings

SA6#49-bis-e 22nd June – 1st July 2022 e-meeting

SA6#50-e 22nd August – 31th August 2022 e-meeting