**3GPP TSG-SA2 Meeting #170 *S2-25xxxxx***

**Gothenburg, Sweden, August 25-29 2025**

**Source: Nokia**

**Title: KI#1: proposed agreement of principles**

**Document for: Approval**

**Agenda Item: 20.4.1**

**Work Item / Release: FS\_EnergySys\_Ph2 / Rel-20**

*Abstract: This document proposes to agree principles for KI#1*

# 1. Introduction

The topic of enhancement of EIF exposure of energy consumption information has already progressed significantly and it is possible now to start discussing principles for agreement and areas that deserve further discussion.

It proposes that the EIF exposure API is enhanced with the information defined Solution 1 (Energy consumption percentile (or percentile band), Energy consumption per bit). The rational is that absolute information is not very useful in certain cases as it is important to assess the relative consumption among UEs and also the a measure of the how efficient the energy consumption is in terms of energy consumption per bit transmitted, which also can further help within the same percentile bands further differentiate the UEs consumption data for possible reporting/analysis and action.

It is also useful (at least for exposure or for NF selection in order e.g. to work out the energy priority of a UPF) to gather data on whether the energy used is renewable or not as proposed in solution 8,9,22 or the percentage of renewable energy. However, SA5 has not yet concluded on providing the Renewable Energy Ratio KPI and it is part of potential Rel-20 outcomes. So, this topic needs to be placed in topics for further consideration.

Solution attempting to only focus the energy consumption reported on the “variable” part induced by the data volume transmitted need to be further discussed as:

For the solution 10 and 11 exploring the “variable” consumption only approach it should be discussed what is the domain of application. In addition:

Solution 10 seems to imply that it is possible to sample data at different time, e,g. when in a second time the Data volume is greater than a previous time, and by subtraction eliminate the fixed consumption part. While this sems attractive and not require OAM to provide the fixed consumption data, it is also not sure whether the fixed consumption part never fluctuates, and end up generating a negative consumption result unexpectedly…. In short this could be a strategy to be used but it is difficult to see it normatively proposed in 3GPP. Solution alternative considering using MOD operator may also need to be evaluated to avoid negative values but still the values obtained need to be assessed carefully.

Solution 11 proposes that OAM (or maybe by configuration) provides a nominal value of the idle energy consumption or an estimated value. This solution depends on this being provided to EIF by OAM and needs further discussion.

The enhancement of the EIF API to expose additional information related to contributors in terms of energy consumption, e.g. in addition to energy consumption information for UE#1, information that Application a, Application\_c and Application\_b are the top contributing application that consumed energy by UE#1 in a descending order as in solution 12 can be further considered once the need of this information is clarified for exposure to a AF/NF consumer (e.g. is it useful as analytics information? is it useful to trigger the right actions in the system?). Also, this could be directly proportional to the consumed data volume so is this also a data volume ranking? If so is this information akin to reporting data volume ranking of the applications?

# 2. Text Proposal

It is proposed to capture the following changes in TR 23.700-67.

\* \* \* \* First change (all new Text) \* \* \* \*

### 7.1.1 Agreed Principles for KI#1

The following principles are agreed for KI#3:

- The EIF exposure APIs are updated to also considered the additional event IDs as in Table 6.1.2-1 of solution documented in clause 6.1

\* \* \* \* Second change (all new Text) \* \* \* \*

### 7.2.1 Topics for further consideration for KI#1

The following principles are for further consideration for KI#1

- The EIF exposure APIs are updated to also provide renewable energy information

- Enhancements of the formulas to remove the non-data-consumption-related energy consumption from the exposed energy consumption information (i.e. consumption without the “fixed” consumption component), including discussing what the domain of application of the information without the “fixed” energy consumption component is.

- The enhancement of the EIF API to expose additional information related to contributors in terms of energy consumption, e.g. in addition to energy consumption information for UE#1, information that Application\_a, Application\_c and Application\_b are the top contributing application that consumed energy by UE#1 in a descending order as in solution 12.

\* \* \* \* End of change \* \* \* \*