**3GPP TSG-SA WG4 Meeting #128S4-241034\_r01**

**Jeju, South Korea, 20 May - 24 April 2024**

**Source: Samsung Electronics Co., Ltd.**

**Title: [FS\_MediaEnergyGREEN] Use case on green energy based real time communication**

**Spec: 3GPP TR 26.942 v0.1.1**

**Agenda item: 8.10**

**Document for: Agreement**

**1. Introduction**

The first objective of the FS\_MediaEnergyGREEN study includes the following text:

- Refine relevant SA1 use cases (5.5, 5.8, 5.9, 5.10 and 5.14) in TR 22.882 in the SA4 context.

This contribution presents a use case as a refinement of the SA1 use case in clause 5.12 of TR 22.882.

**2. Discussion**

Clause 5.12 of TR 22.882 describes a “Use case on supporting communication service with best-effort renewable energy consumption”, where a mechanism to include the ratio of renewable energy as part of charging information a main criteria for supporting such a green service.

Although not specifically referenced, we believe the use case in clause 5.12 to be of direct relevance to SA4.

In this document we present a refined use case based on the above, in the SA4 context.

**3. Proposal**

It is proposed to agree the following changes to 3GPP TR 26.942 v0.1.1.

\* \* \* First Change \* \* \* \*

4.3 Use cases

### 4.3.2 Green energy based real time communication

Pre-conditions:

The "green real-time communication service" described ensures that QoS level criteria continues to be met (i.e., there is no trade-off between energy efficiency and service quality) since the usage of renewable energy is just a best effort attempt.

Details:

1, An MNO offers a "green real-time communication service", which User B subscribes to in order to save our planet.

2. The MNO monitors the supply of energy for its 5G System, including the energy ratios used by its different entities (e.g. Network Functions). Energy ratios may be classified as the ratio of renewable energy, including the different types of green/renewable energy as well as non-renewable energy which make up the total supply of energy.

3. Regarding the monitoring of the supply of energy for its 5G System, the MNO may also receive the following from its energy supplier: the amount of spare energy available to the operator stored in its energy supply, by energy type, from previously produced energy. The MNO may also receive a forecast of future energy supply from its supplier.

4. In addition to the status of its supply of energy by type, the MNO may also monitor and consider the status of its demand of energy by type (by each of its different entities), by other users and/or other consumers of energy in its 5G System.

5. For the "green real-time communication service", User B has a certain amount of energy credit available to him/her for the consumption such a service.

6. The rate of deduction of energy credit for the "green real-time communication service" is dependent on the energy status of the MNO (based on its current, stored and forecast energy status).

7. Energy credit deduction may be dependent on the ratio of the types of energy available to the MNO, e.g., more energy credit is deducted per time unit when a more environmentally *unfriendly* energy source is being used.

8. As well as energy credit deduction, User B may also receive energy credit during usage of the service, e.g., if a green energy source is being used, dependent on the MNO’s service policy.

9. The energy status of the MNO may be made known to User B’s UE and/or to the User B (as types of selectable energy sources), either before, during and/or after service usage (e.g., as continuous data, or as a report).

10. The energy credit “price” for the service may be made known to the User’s UE and/or the User also either before, during and/or after the service.

11. The user should be able to know the amount of energy credit left available to him/her throughout the service.

12. The QoS for the service is assumed to be the same, independent of the green energy status of the operator, although some operators may provide differentiated QoS per energy source in order to control green energy demands by users.

Potential requirements include:

Req.1: The introduction of user media service based on energy credit as a charging unit.

Req.2: Energy credit consumption/accumulation rate is decided by the operator, where the consumption/accumulation rate is factored by the energy status of the operator, in relation to the amount and type of energy being consumed by the user for the service, in particular the QoS required for the media service.

Req.3 Energy credit rates are determined and reported to UE at the beginning of the service (provisioning), and may be dynamically updated throughout the media service, factoring in QoS changes during the media service.

Req.4 User energy credit usage status is reported to the UE.

Req.5 Energy status and usage maybe also be reported to the UE.

\* \* \* End of Changes \* \* \* \*