**3GPP TSG-SA5 Meeting #156 *S5-244486***

**, Netherlands, –**

**Source: Nokia**

**Title: New SID on Charging Aspects of Energy Efficiency/Energy Saving**

**Document for: Approval**

**Agenda Item: 7.2**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: New SID on Charging Aspects of Energy Efficiency (EE) and Energy Saving (ES)

Acronym: FS\_ESEE\_CH

Unique identifier: TBD

Potential target Release: *Rel-19*

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  |  |  | x |  |
| No | x | x | x |  |  |
| Don't know |  |  |  |  | x |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

###  This work item is a …

|  |  |
| --- | --- |
| x | Study  |
|  | Normative – Stage 1 |
|  | Normative – Stage 2 |
|  | Normative – Stage 3 |
|  | Normative – Other\* |

### 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 870022 | Enhancements on EE for 5G networks | The Rel-17 work item in SA5 on 5G energy efficiency. |
| 940036 | Study on new aspects of EE for 5G networks Phase 2 | The Rel-18 study in SA5 on 5G energy efficiency and energy saving. |
| 940037 | Enhancements of EE for 5G Phase 2 | The Rel-18 work item in SA5 on 5G energy efficiency and energy saving. |
| 960019 | Study on Energy Efficiency as service criteria | The Rel-19 study in SA1 describes use cases and potential requirements in relation with this study. |

# 3 Justification

This study item aims to study how to integrate into the Charging Domain in order to support EE/ES.

S5-243008 was agreed and approved on 3GPP SA5 #155 and 3GPP SA #104, leading to “EnergySys\_CH” focusing on (per network slice):

* specify the charging principles, charging requirement and message flow.
* specify the corresponding enhancements to charging information, open API and CDR ASN.1.

For supporting Energy Efficiency KPI as defined in 3GPP TS28.554 clause 6.7 and “energyEfficiency” service profile attributes as specified in 3GPP TS28.541

Nevertheless, the scope above defined is quite limited taking in account 3GPP SA1 requirements, and 3GPP SA2 and SA5 studies. Following, the 3GPP SA5 #155 Breakout Session (S5-243261) it was also agreed the need on dedicating effort for studying EE/ES requirements so it can be supported by Charging

The following requirements were already described in S5-241833, nevertheless, is important to point out that the following SA1 Requirements are in normative work (3GPP TS 22.261 clause 6.15a) and required to be addressed

* Req #1: Associate energy consumption information with charging information or apply energy credit limit policy

“Subject to operator’s policy, the 5G system shall support a means to associate energy consumption information with charging information based on subscription policies for services without QoS criteria. It is assumed charging events are assigned a corresponding energy consumption and this is compared against a policy of energy credit limit.” Clause 6.15a.2.2

* Req #2: Report energy related information as part of charging information

“The 5G system shall provide a mechanism to include Energy related information as part of charging information.” Clause 6.15a.2.2

* Req #3: Support different charging mechanisms based on the different energy states

“The 5G system shall support different charging mechanisms based on the different energy states of network elements and network functions.” Clause 6.15a.3

* Req #4: Collect charging information associated with serving UEs of other operators for the purpose of saving energy

“Subject to regulatory requirements and operators’ policies, the 5G system shall enable an operator to temporarily serve UEs of other operators within a geographical area for the purpose of saving energy of the other operators. It is assumed that the 5G system can collect charging information associated with serving UEs of other operators.” Clause 6.15a.6

The study 3GPP SA2 TR 23.700-66 conclusion will also need to be considered from the charging framework's perspective.

Therefore, it shall be evaluated the necessity of supporting EE/ES by CHF, taking in consideration the above listed requirements, and conclusions from 3GPP TR 23.700-66.

# 4 Objective

The objective of the study is to:

* WT-1: Identify new charging scenarios and requirements for supporting EE/ES.
* WT-2: Define the level of granularity (e.g. NF, UE, Network Slice) to be supported by CHF which shall support EE/ES related functionalities for charging scenarios.
* WT-3: Study the potential charging solutions in order to support EE/ES.

## TU estimates and dependencies

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Work Task ID** | **TU Estimate****(Study)** | **TU Estimate****(Normative)** | **RAN Dependency****(Yes/No/Maybe)**  | **SA Dependency****(Yes/No/Maybe)** | **Non-3GPP Dependency** |
| WT-1 | 2 | 0 | No | No | No |
| WT-2 | 1 | 0 | No | No | No |
| WT-3 | 2 | 0 | No | No | No |

NOTE: TU estimate for Normative stage to be defined in a later stage

**Total TU estimates for the study phase: 3**

**Total TU estimates: 3**

# 5 Expected Output and Time scale

|  |
| --- |
| New specifications {One line per specification. Create/delete lines as needed} |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
| Internal TR | TR 28.xxx | Study on Charging Aspects for Energy Efficiency/Energy Saving | *TSG SA#105**(Dec 2025)* | TSG SA#105 (Dec 2025) | Not yet available  |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
|  |  |  |  |
|  |  |  |  |

# 6 Work item Rapporteur(s)

Not yet Available

# 7 Work item leadership

SA5

# 8 Aspects that involve other WGs

SA2 (3GPP TR 23.700-66 Updates)

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| Nokia |
| MATRIXX |
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