**3GPP TSG-SA WG4 Meeting #132 S4-250812r02**

**Fukuoka, Japan, 19–23 May 2025**

**Source: Orange, Interdigital, Nokia**

**Title: New SID on Media Energy Consumption Exposure and Evaluation Framework phase 2**

**Document for: Approval**

**Agenda Item: 17.1**

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: Study on Media enerGy consumption exposuRE and EvaluatioN framework Phase 2

Acronym: FS\_Energy\_Ph2\_MED

Unique identifier:

{A number to be provided by MCC at the plenary}

Potential target Release: Rel-20

# 1 Impacts

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

# 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\* |

**\* Other = e.g. testing**

## 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| FS\_MediaEnergyGREEN | SA4 | 1030004 | Study on Media enerGy consumption exposuRE and EvaluatioN framework |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work/Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 1030044 | FS\_EnergyServ\_Ph2 (Study on Energy Efficiency as Service Criteria Phase 2) | Rel-20 Feasibility Study in SA1 identifying use cases, providing gap analysis and defining potential requirements regarding enhancement on energy as service criteria. |
| 1070051 | EnergyServ\_Ph2-REQ (Stage 1 for Energy Efficiency as Service Criteria Phase 2) | Rel-20 Work Item in SA1 identifying and providing Stage 1 requirements based on the results of the study regarding enhancement of energy efficiency of 5G network and application service enabler aspects. |
| 1050112 | EnergySys (Energy Efficiency and Energy Saving) | Rel-19 Work Item in SA2 specifying required enhancements on 5GS to improve energy efficiency and supporting energy saving in the network, for the following aspects, based on the conclusions in the TR 23.700-66. |
| 1070058 | FS\_EnergySys\_Ph2 (Study on Energy Efficiency and Energy Saving Phase2) | Rel-20 Feasibility Study in SA2 specifying further enhancements on 5GS to improve energy efficiency and energy saving in the network, taking the SA1 EnergyServ Phase2 requirements into consideration. |
| 1060007 | Energy\_OAM\_Ph3 (Energy efficiency and energy saving aspects of 5G networks and services) | Rel-19 Work Item in SA5 specifying the energy efficiency and energy saving aspects of 5G networks and services to implement normative work. |
| 1070002 | EnergySys (CT aspects of Energy Efficiency and Energy Saving) | Rel-19 Stage 3 Work Item in CT3/4 specifying the CT aspects of Energy Efficiency and Energy Saving to implement the stage 2 normative work. |

**Dependency on non-3GPP (draft) specification:**

N/A

# 3 Justification

The Release 19 feasibility study FS\_MediaEnergyGREEN recommends normative work addressing Key Issue #1 (Energy-related information exposure) based on the new availability in the 5G System of the Energy Information Function (EIF) as defined in TS 23.501 and TS 23.502, as well as the definition of two new entities, the *Energy Information AF (EIAF)* in the network and the *Energy Information Collector (EIC)* in the UE. However, because the capabilities and interfaces of the Energy Information Function (EIF) were not fully defined at the time of the FS\_MediaEnergyGREEN feasibility study, it was considered premature to initiate a new normative Work Item addressing Key Issue #1 directly after the end of this study.

In the meantime, the energy efficiency topic has been progressed in other 3GPP groups:

- SA1 has added new use cases and potential requirements in TR 22.883 and new requirements in TS 22.261 regarding enhancements on energy as service criteria.

- In the EnergySys normative Work Item, SA2 has now defined the basic stage 2 network elements for supporting the collection and calculation of energy saving and efficiency, and the exposure of network energy related information based on the new Energy Information Function (EIF). They also specified the enhancements for subscription to enable network energy savings as service criteria.

- SA5 in parallel has also started normative work on specifying the energy efficiency and energy saving aspects of 5G networks and services after concluding the study phase.

- CT3 and CT4 are progressing normative specification of the corresponding stage 3 aspects of Energy Efficiency and Energy Saving.

Because work of other 3GPP groups was not fully completed before the completion of the current version of TR 26.942, an update of the use cases, key issues, potential solutions and the description of the normative work associated is justified to take this new information into consideration. This update will also be an opportunity to address new key issues identified but not addressed during the phase 1 feasibility study, and to propose new potential solutions.

# 4 Objective

The main objectives of this study include:

1. Address, in the context of media delivery, the new Release 20 requirements in TS 22.261 on:

a. Energy-related information as a service criterion as required by clause 6.15a.2, including:

- The degradation of media delivery performance (e.g. adjustment of QoS, bit rate; deferring Background Data Transfers) in reaction to a change in the energy supply mix of the network, or in order to ration energy use, subject to operator policy, regulatory requirements and user consent.

- The means to target per-UE energy saving actions based on subscription policies, including blocking media delivery, subject to operator policy, regulatory requirements and user consent.

- The means to assist a Media Application Provider in identifying UEs to target with the aforementioned performance degradation and energy saving actions.

b. Energy-related information exposure to UEs and authorised third parties over specific time periods as required by clause 6.15a.5, subject to operator policy, regulatory requirements and user consent, including energy consumption by the serving network – and the equivalent carbon (CO2e) emissions – for the overall use of the media delivery service as well as for individual media application data flows.

2. Update or develop existing potential solutions and proposed normative work associated with the Key Issue on energy-related information exposure in media consumption context, with new elements added in 3GPP specifications such as TS 23.501, TS 23.502 or TS 23.503 including the Energy Information Function (EIF), efficient energy use and energy saving items.

3. Propose new potential solutions to phase 1 Key Issues on energy-related monitoring and measurement during media consumption, and evaluation frameworks for which no normative work has been identified.

4. Describe new Key Issues identified during phase 1 about:

a. Energy-related configuration by the media Application Service Provider: How can the Application Service Provider configure energy-related information collection and exposure?

b. AS energy management: How might the 5GMS AS (and equivalent functions of the RTC System) react to energy-related information shared by the network via the Energy Information AF instantiated in the 5GMS AF and/or the Energy Information Collector?

c. Client energy management: How might the 5GMS Client (and equivalent functions of the RTC System) react to energy-related information shared by the network?

 and propose potential solutions and normative work related to them. There are existing mechanisms in RTC or 5GMS allowing to optimize QoS during media consumption, it seems relevant to study if those mechanisms could also be relevant to optimize energy efficiency during media consumption.

NOTE: Measurement of UE energy-related information by a UE entity in the 5G System is not in scope of the study. UE energy-related information can still be used for example thanks to APIs available on some UE Operating Systems, but the fact that metrics differ from one UE OS to another has to be considered in their use.

# 5 Expected output and timescale

|  |
| --- |
| 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 |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| 26.942 | - Update use cases, key issues, potential solutions and the description of the normative work to take into consideration progress in TS 22.261, TS 23.501, TS 23.502 and TS 23.503.- Address new key issues identified during FS\_MediaEnergyGREEN, and propose new potential solutions to Key Issues for which no normative work has yet been identified. | SA#111 (March 2026) |  |

# 6 Work Item rapporteur(s)

Julien Lemotheux, Orange <julien.lemotheux@orange.com>

# 7 Work item leadership

SA4

# 8 Aspects that involve other WGs

The study will consider the work done by SA WG2 and WG5 regarding energy consumption measurement, information collection and energy saving, and reuse it as much as possible.

The study will consider work done in SA WG3 regarding user consent.

# 9 Supporting Individual Members

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| Supporting IM name |
| Orange |
| InterDigital |
| Nokia |
| Ateme |
| BBC |
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