3GPP SA WG1 Meeting #97e S1-220075r7

Electronic Meeting, 14 - 24 Feb 2022 (revision of xx-yyxxxx)

**Source: China Mobile**

**Title: New SID on service enhancement of Energy Saving**

**Document for: Approval**

**Agenda Item: 4**

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 service enhancement for Energy Efficiency

Acronym: FS\_ServiceES

Unique identifier:

Potential target Release: Rel-19

# 1 Impacts

{For Normative work, identify the anticipated impacts. For a Study, identify the scope of the study}

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

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a

|  |  |
| --- | --- |
|  | Feature |
|  | Building Block |
|  | Work Task |
| X | Study Item |

## 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

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

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work /Study Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 870021 | Study on new aspects of EE for 5G networks | This study considered related topics to those of this study. |
| 810023 | Energy Efficiency of 5G | This study considered related topics to those of this study. |
| 760064 | Study on system and functional aspects of Energy Efficiency in 5G networks | This study considered related topics to those of this study. |
| 710049 | Study on Energy Efficiency Aspects of 3GPP Standards | This study considered related topics to those of this study. |
| 940036 | Study on new aspects of EE for 5G networks Phase 2 | This study considered related topics to those of this study. |
| 940037 | Enhancements of EE for 5G Phase 2 | This study considered related topics to those of this study. |
| 940080 | Study on network energy savings | This study considered related topics to those of this study. |

# 3 Justification

Our earth is facing a very critical time in controlling the carbon releasing. Carbon green and carbon neutral are very heat concepts which were raised these days. In the European Green Deal, it states that Europe is “Striving to be the first climate-neutral continent”, and China has also set the goal of reaching emission peak in 2030 and achieving carbon neutral in 2060. So, carbon-neutral is the shared goal of global, and we also need to consider enhancing energy efficiency to reduce the carbon emission in communication field.

In 5G there are many types of connectivity and access, which brings complexity to the network architecture on the one hand, but also provides more possibilities to achieve energy efficiency on the other hand. With the technology and connectivity flexibility energy efficiency should be evaluated as one of the decision criteria for connection, route and resource selection. This should be analysed for network with multiple transmission paths involving different technologies or frequency bands but also for multi-hop networks to optimise route selection.

Satellite access has become an important role in mobile communication. For some regions where both satellite and terrestrial coverage exist, energy saving should be taken as a dimension while doing the network routing path and related KPIs about satellite and terrestrial integrated network should be considered in order to do the trade-off between user experience and the energy efficiency.

In ETSI, GSMA and 3GPP, there were many reports, studies, specifications related to energy efficiency. And now there are ongoing R18 studies on energy efficiency in both SA5 and RAN. In SA1, it’s better we could have a study on analysing different scenarios and generate requirements in what’s more to support energy efficiency in different service scenarios. It is worth to consider how to deliver services with energy efficiency as a service criteria, associated with user preferences. The studies of SA, SA5 and RAN and especially ongoing work on energy efficiency will be taken into account as the starting point of this study in SA1.

# 4 Objective

This study is aiming at identifying use cases, providing gap analysis and defining potential requirements in the following aspects regarding enhancement on energy efficiency of 5G network.

The objectives include:

* Study use cases related to enhancement on energy efficiency of 5G network and potential requirements, e.g.
  + Support energy efficiency in 5G through new approaches to delivering services (e.g. adding energy efficiency as a selection criteria).
  + Support energy consumption framework and optimally use different communication capabilities of the 5G system taking into account energy consumption and efficiency, latency, data rate.
* Other aspects include security, charging and privacy.

# 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 |
| TR |  | Study on service enhancement of Energy Saving | SA#97 (Sept 2022) | SA#98 (Dec 2022) | Xiaonan Shi |

|  |  |  |  |
| --- | --- | --- | --- |
| 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)

Xiaonan Shi, CMCC, shixiaonan@chinamobile.com

# 7 Work item leadership

SA1

# 8 Aspects that involve other WGs

SA2, SA5, RAN.

# 9 Supporting Individual Members

{At least 4 supporting Individual Members are needed. There is an expectation that these companies will provide resources to progress the work. Note that having 4 supporting companies is a necessary but not sufficient condition: the usual TSG approval process by consensus is needed for the WID approval}

|  |
| --- |
| Supporting IM name |
| China Mobile |
| Asia Info |
| CAICT |
| Deutsche Telekom |
| Samsung |
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