3GPP TSG SA WG 4 Meeting 124 TDoc S4-230959

**Berlin, Germany, 22nd – 26th May 2023**

**Title: DRAFT** LS on 3GPP work on Energy Efficiency

**Response to:** LS S5-232903 on 3GPP work on Energy Efficiency from SA5

**Release:** 3GPP Rel-18

**Work Item:** EE5GPLUS\_Ph2

**Source:** 3GPP SA4

**To:** 3GPP SA5, 3GPP TSGs SA, RAN, CT

**Cc:** 3GPP WGs SA1, SA2, SA3, SA6, RAN1, RAN2, RAN3, RAN4, CT1, CT3, CT4

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**Attachments:** None

# 1 Overall description

SA4 fully supports SA5’s and 3GPP’s overall efforts addressing energy efficiency and the ongoing climate emergency.

#### SA4 Scope Technical Response

**In regard to the following Action Item from SA5:**

*• Please correct and/or complement the table present in the attached document if and where deemed appropriate,*

*• Please keep SA5 informed in case of new Rel-18 SI/WI addressing energy efficiency and/or energy saving and/or digital sobriety, so that SA5 can maintain such information for the Rel-18 or later release timeframe.*

**SA4 has the following response on our SA4 Work/Study Items:**

While 3GPP SA4 work is often guided by metrics and KPIs related to power-savings, implementation constraints, and aspects related to general efficiency for media services, SA4 currently does not have any Rel-18 work items specifically focusing on energy-efficiency or the climate emergency. We will continue to study what can be done with existing specifications and design future ones with such design considerations in mind. We will update SA5 and 3GPP as needed.

**To further enhance this work,**

SA4 suggests that SA5 clarify that the work on Energy Efficiency also includes measurement and evaluation of UE performance.

#### Wider considerations on Energy Efficiency and the Climate Emergency

*The following considerations go beyond SA4’s scope but were felt important to share as background to inform and encourage more attention and work on this important issue in 3GPP. While we recognize and encourage the work that is already done on energy efficiency and/or energy saving and/or digital sobriety, we would like to promote a wider discussion on the topic for a broad engagement within 3GPP.*

In support of this work, SA4 is discussing the following:

1. A proposal to modify the 3GPP Work Item Description and Specification templates to include a clause on “Impact on Climate” or “Impact on energy efficiency and/or energy saving and/or digital sobriety” that would identify and collect relevant information. The end goal is to have the new clause be a consideration similar to the way “Security” is considered in any 3GPP effort or feature. To enable this, SA4 is considering to study developing guidelines on how this new clause would be populated. The hope is that such a clause may increase the awareness and considerations for any climate impact where this applies, while we hope it would not become a platform for *green washing*.
2. A request for more details on 3GPP/SA5 Rel-18 work item focus on:
   1. What can be done now with options/settings in the implementation and deployments of already existing specifications.
   2. What more we can do in Rel-18.
   3. Extending this work to a broader and perpetual Work Item in every release from Rel-18 onwards or an introduce an umbrella work item like the “TEI” that encourages all the 3GPP WGs to develop features to address the climate emergency and tracking these features.
3. A proposal that builds on the efforts in the SA1 Study on Energy Efficiency as service criteria (FS\_EnergyServ) to develop technology to achieve energy savings and other green objectives potentially at the expense of some level of degradation of QoE. To provide truly effective solutions, networks and devices should be equipped with technologies that enable operating points that can trade-off some level of QoE and other KPIs for energy efficiency and other green objectives, i.e., providing the 3GPP equivalents of “a bicycle option, instead of automobile transportation” for users.
4. Continue to investigate how we can address the above issues as part of our regular work program.

**Reasons**

#1: Energy efficiency is a very important aspect, but just one component of all the work needed to address the climate emergency. For example, the Next Generation Alliance whitepaper on Green G [1] identifies many other aspects that would be important for 3GPP to consider if we are serious about addressing the on-going emergency.

#2: The time to take effective action on the climate emergency is now. We cannot only wait for the impact of Rel-18 and future releases. Figure [2] and Figure [3] from the Sixth Assessment Report from the United Nations Panel on Climate Change [4] illustrate how we have *only 7 years left until 2030 to significantly change* the trajectory of Nationally Determined Contributions (NDCs) of Green House Gas (GHG) emissions to avoid causing irreversible damage to our ecosystems. Subfigure a) of Figure [2] illustrates the current trajectory if we do not make any significant changes while subfigures b)-e) of Figure [2] describe some of the impact to global systems (e.g., with high confidence we will cause permanent and irreversible damage to warm water coral systems).

#3: In support of Digital Sobriety (DS) it is important to also provide service users the option to trade-off some quality of experience in order to achieve a more positive impact for the environment. It is unreasonable and destructive to give the impression that one can always do what is really needed to make an impact without making any compromises/concessions. Giving service providers and users the option to choose trade-off operating points is necessary to enable everyone to play their part in this global effort.

#4: Given the variety and depth of the additional issues to be investigated, SA4 wants to do more study to understand whether our work can potentially move the needle on solving the climate emergency. We sincerely want to solve the issues and do not want to enable *green washing* which is not only distracting to finding true solutions, it can give the wrong impression that all the world is doing everything it can, and that we are on track to solve the climate emergency (which is quite the opposite of the United Nations Panel’s assessment). Finding truly impactful green solutions will also become very important to our industry as regulatory bodies, such as the United States Securities and Exchange Commission (U.S. SEC), are currently considering rules that would require corporations to include their impact on the climate in their earnings reports and disclosures [5].

# 2 Actions

**To** 3GPP SA5, 3GPP TSGs SA, RAN, CT

**ACTION:** 3GPP SA4 asks SA5 to:

1. Note SA4’s reply that there is currently no work on energy efficiency.
2. Consider SA4’s suggestion that the work on Energy Efficiency also includes measurement and evaluation of UE performance.

**ACTION:** 3GPP SA4 asks SA, RAN, and CT to note the SA4 wider considerations on energy efficiency and the climate emergency and provide, any feedback, input, or support if there is interest.

# 3 Dates of next TSG SA WG 4 meetings

SA4#125 21 – 25, August, 2023 Gothenburg, Sweden

SA4#126 13 – 17, November, 2023 Chicago, IL, USA

# 4 References

[1] Next Generation Alliance whitepaper on Green G**.** https://www.nextgalliance.org/white\_papers/green-g-the-path-towards-sustainable-6g/

[2] Figure SPM.3 | Synthetic diagrams of global and sectoral assessments and examples of regional key risks. https://www.ipcc.ch/report/ar6/wg2/figures/summary-for-policymakers/figure-spm-3

[3] Figure SPM.5 | Climate resilient development (CRD) is the process of implementing greenhouse gas mitigation and adaptation measures to support sustainable development.https://www.ipcc.ch/report/ar6/wg2/figures/summary-for-policymakers/figure-spm-5

[4] “Climate Change 2022: Impacts, Adaptation, and Vulnerability” from the Sixth Assessment Report of The United Nations Intergovernmental Panel on Climate Change (UNIPCC). https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/

[5] Climate and ESG Risks and Opportunities, https://www.sec.gov/sec-response-climate-and-esg-risks-and-opportunities