**3GPP TSG-SA5 Meeting #140-e** ***S5-216265***

**e-meeting, 15 - 24 November 2021**

**Source: China Mobile**

**Title: pCR 28.104 Add MDA assisted energy saving**

**Document for: Approval**

**Agenda Item: 6.4.18**

# 1 Decision/action requested

***In this box give a very clear / short /concise statement of what is wanted.***

# 2 References

[1] 3GPP TR 28.809 “Management and orchestration; Study on enhancement of Management Data Analytics (MDA)”.

# 3 Rationale

This pCR is to add the description, use case and requirements of MDA assisted energy saving, which is based on the clause 6.6.1 in TR 28.809[1].

# 4 Detailed proposal

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| **1st Modified Section** |

## 7.2 MDA capabilities

### 7.2.4 MDA assisted Energy Saving

#### 7.2.4.1 Description

This MDA capability is to provide energy saving analytics.

#### 7.2.4.2 Use cases

Operators are aiming to reduce the power consumption of 5G networks through energy saving management solutions, so as to reduce operating expense. Activating the energy saving mode of the NR capacity booster cell is one of the widely used base station energy saving solutions. As more NR base stations are deployed, such as small base stations with a large number of MIMO in high frequency bands, energy saving becomes more urgent and challenging.

The energy saving mode of the target cell can be activated if the traffic load is lower than a certain threshold, and the load of the cell will be transferred to other candidate cells. The energy saving mode will be terminated if it is detected that additional capacity is needed. Under the energy saving state, the required network performance and network experience should also be guaranteed. Therefore, it is important to formulate appropriate energy saving policies (start time, dynamic threshold setting, base station parameter configuration, etc.).

To achieve an optimized balance between the energy consumed and the network performance, MDA can be used to provide the recommended energy saving policies. MDA can analyze various performance measurements (PM data, MR data, DPI performance data, etc.) to provide analysis results of the network status. MDA can also provide predictions related to traffic load trends based on historical load and other related information. AI/ML technologies could be introduced for traffic prediction and energy saving policies.

If necessary, MDA could provide corresponding recommended actions of energy saving.

#### 7.2.4.3 Requirements

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| **Requirement label** | **Description** | **Related use case(s)** |
| REQ-ES\_MDA-CON-1 | MDA for energy saving shall be able to provide the target cell candidates which could satisfy the conditions set for energy saving mode activation. | MDA assisted Energy Saving |
| REQ-ES\_MDA-CON-2 | MDA for energy saving shall be able to provide the network status analysis and traffic load predictions based on the required data (performance measurements, historical load data, etc.). | MDA assisted Energy Saving |
| REQ-ES\_MDA-CON-3 | MDA for energy saving shall be able to provide the recommended energy saving policies (start time, dynamic threshold setting, base station parameter configuration, etc.) with the guarantee of network performance and network experience.  | MDA assisted Energy Saving |

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| **End of Modified Sections** |