\Orchestrating a brighter world NEC

3GPP TSG RAN Rel-19 workshop RWS-230139

Taipei, June 15 - 16, 2023

Agenda item: 5. Specific RAN1/2/3-led Rel-19 topics

Network Energy Saving (NES) enhancement

NEC

© NEC Corporation 2023

Motivation for NES enhancement in Rel-19

- The new work item on Network Energy Savings (NES) for NR is ongoing in Rel-18, based on the study captured in TR38.864
- A number of technology components to enable Network Energy Savings for NR were studied during the study item but were dropped during the creation of the WID for Rel-18 NES for NR, due to the consideration of the limited TU allocated by the responsible RAN WGs
- It is proposed to continue the work on NES for NR in Rel-19 based on the study and the selected scope of the objectives as shown at next slide

© NEC Corporation 2023

Scope of the objectives for NES enhancement in Rel-19 (1)

- SSB/SIB-less operation
  - Extend the support of SSB/SIB-less operation for the scenario of non co-located deployment, based on the Rel-18 SSB/SIB-less operation assuming co-located deployment between NES cell and anchor cell.
  - Support of the cell's NES operation with adaptation of the transmission of SIB/SSB.
    - The cell in NES operation can omit its transmission of SSB/SIB
    - Support of the cell's NES operation with adaption of SSB/SIB including on-demand request based transmission of SSB and system information
    - This work should be based on the Rel-18 outcome of SSB/SIB-less SCell operation for inter-band CA for FR1 and co-located cells.
  - Support of UE's uplink wake-up signal (WUS) to request transitioning of a cell from no or reduced transmission/reception activity to active transmission or reception of a channel/signal.
    - A gNB can transit to become active for transmitting or receiving a channel/signal upon receiving WUS from the UE
    - The UE WUS may be used to trigger the cell's SSB/SIB transmission.
    - Both UEs in RRC_CONNECTED state and UEs in IDLE/INACTIVE state need to be considered for the transmission of uplink WUS.

© NEC Corporation 2023

Scope of the objectives for NES enhancement in Rel-19 (2)

- Time domain solutions
  - Adaptation of transmission/reception of common channels/signals, e.g., paging/cell common PDCCH, and/or the periodicity/availability of uplink random access resources as studied during Rel-18
  - Adaptation of transmission/reception of UE specific channels/signals during NES mode, to reduce or omit time occasions for the UE specific resources (including UE specific PDCCH, PUCCH/PUSCH, etc.) during low activity/non-active periods of the cell, as studied during Rel-18
  - Study the impact on UEs in IDLE/INACTIVE due to cell DTX/DRX, which is out of the scope of Rel-18 NES for NR.

© NEC Corporation 2023

Summary

- On top of the Rel-18 NES functions, further enhancement should be discussed and introduced with referring to the outcome of the SI.
- Main scope will be:
  - Extension of SSB/SIB-less operations,
  - Time domain solutions, e.g. adapting transmission/reception of common channels/signals, UE specific channels/signals during NES mode , Cell DTX/DRX impact to UE in IDLE/INACTIVE

© NEC Corporation 2023

\Orchestrating a brighter world

NEC