

**tsds**  
India's Telecom SDO

Telecommunications  
Standards Development  
Society, India

# TECH DEEP DIVE

TTDD 2023 CONFERENCE (6<sup>th</sup> EDITION)

**6G HORIZONS: CONVERGING TECHNOLOGIES  
FOR A CONNECTED SOCIETY**

 **Date:** 3-6 October 2023

**Conference Theme Session:**

**6<sup>th</sup> October 2023**

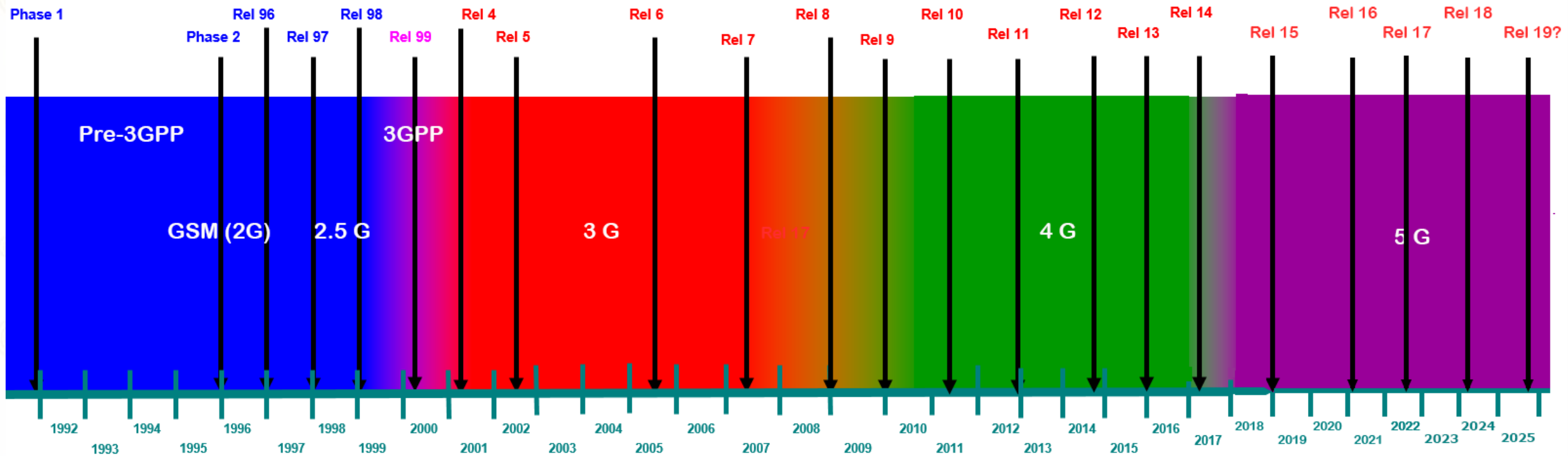
**3GPP Energy-Related Services in Release 18 and 19**

*by*

**Erik Guttman**

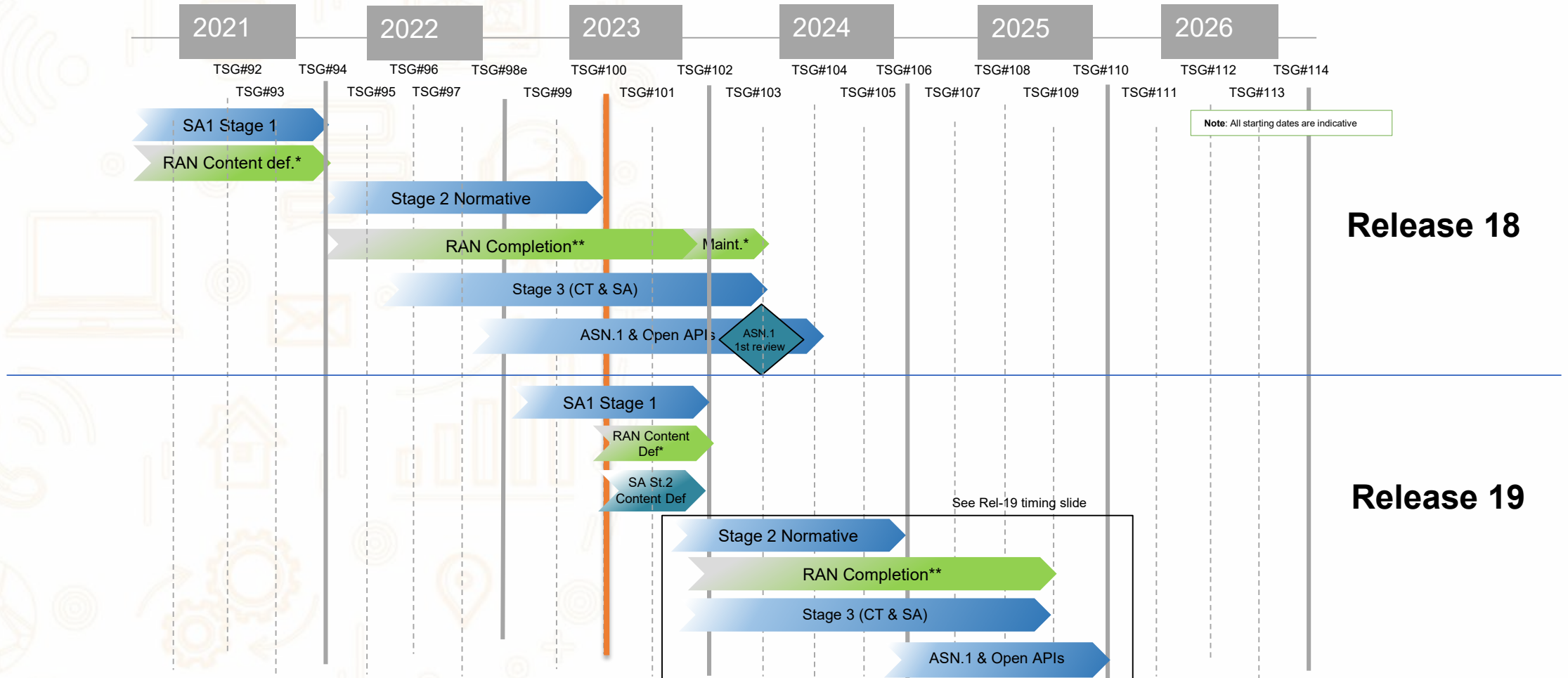
Samsung Electronics R&D Institute UK

# 3GPP – Generations of Standards



# 3GPP Status

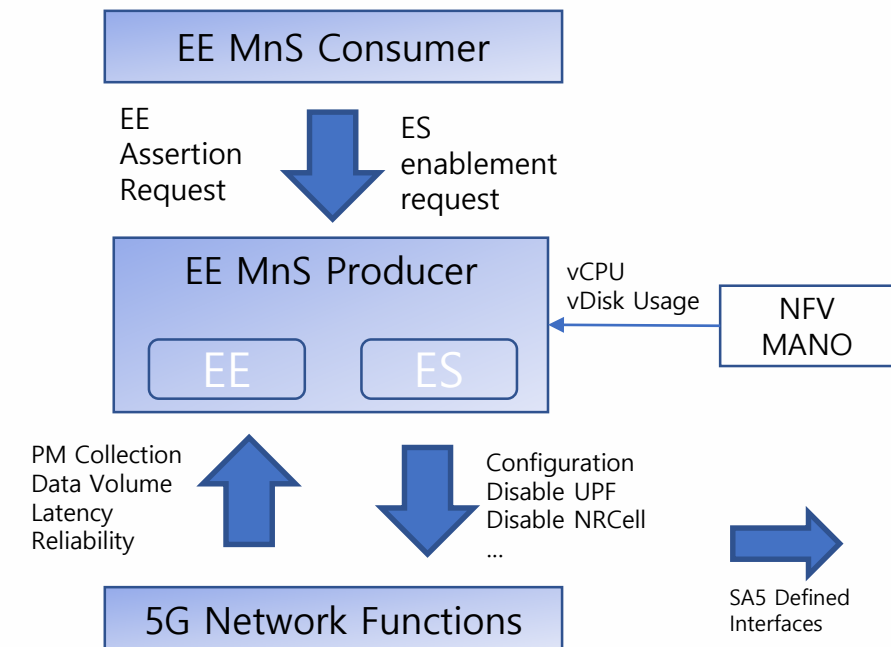
*While release 18 is ending, release 19 is beginning*



# 5G Energy efficiency and savings

## Release 15 onwards

- 5G Energy savings and efficiency, Release 16-18.
  - Defines a KPI to assess energy efficiency of the RAN, Core as well as network slices.
    - **ENERGY EFFICIENCY = Performance (data volume, reliability etc)/ Energy Consumption** (as per ETSI TC EE definition)
  - Collect energy efficiency related performance measurements(data volume etc).
  - Estimate Energy Consumption as per related measurements support from ETSI
  - Activation and deactivation of energy saving compensation procedures.
  - Measurement and control capabilities defined for the 5G RAN.
- Energy savings and efficiency capability study for Release 19
  - Refined granularity of measurement and reporting of energy consumption.
  - EE for container based VNFs and any other new EE KPI/measurement.
  - OAM Support for energy efficiency as a service criteria (see slide 6).
  - OAM support to new Rel-19 RAN energy saving features

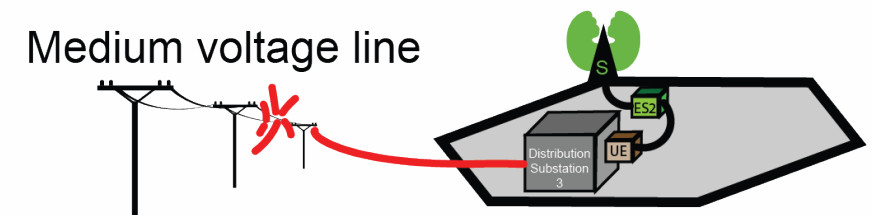
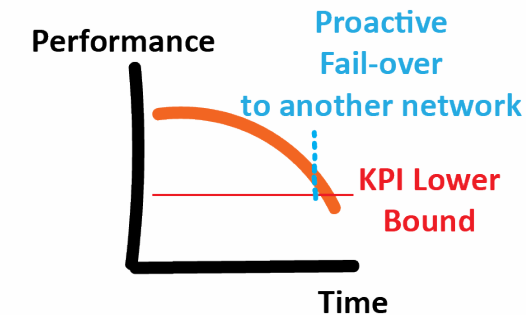
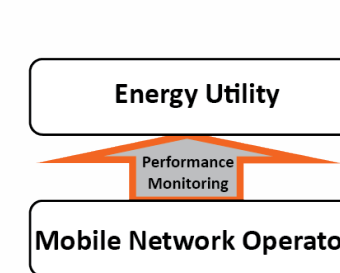




# Network Services and Operations for Energy Utilities

*A release 18 initiative*

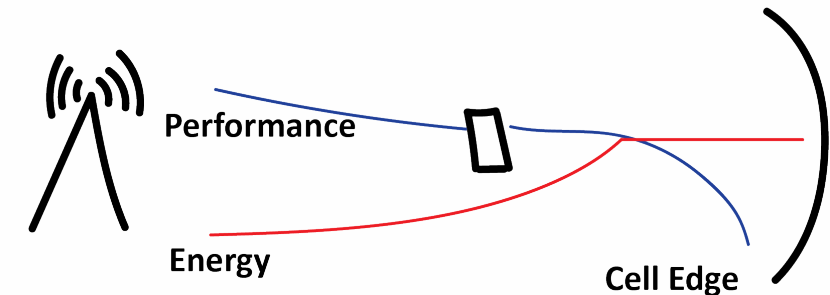
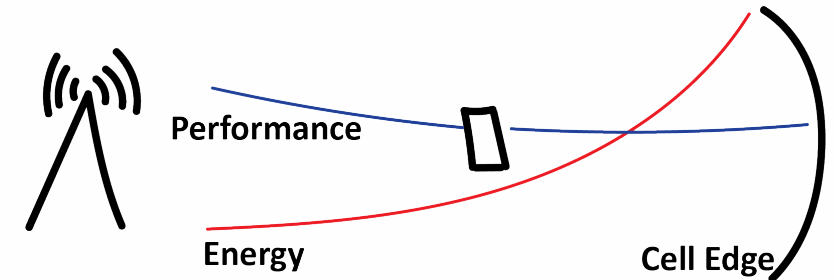
- Stage 1 requirements identified objectives to support energy utility distribution operations. Follow up work in Telecoms Management group, SA5, proceeding well.
  - Energy distribution availability is critical. So is communication to automate it.
  - Expose network performance information to enable rapid proactive change of communication system.
  - Support energy system recovery coordination.
    - Distribution service operators and mobile network operators can exchange information & prevent communication outages. This improve the availability of both systems!
- Additional work will be proposed in SA2 in Release 19 for ***improved availability of individual UEs serving distribution substations***, early 2024.



# Energy as a Service Criteria

## A Release-19 Initiative

- Energy Policies added, defining **maximum energy consumption rate** and **energy consumption credit limit**.
  - This reverses the tacit assumption that *performance is paramount, no matter how much energy it takes*.
  - Most service is 'best effort.' Now policies can determine how to limit energy use.
  - Exposure of energy use and energy credit limit events to 3<sup>rd</sup> parties.
- Work still underway to add requirements for exposure of **statistical data** on
  - Carbon emissions, Carbon intensity, Renewable energy use
- Study to begin in SA2 on these goals as well as impacts of energy efficiency on the network architecture and function.



Thank You

[erik.guttman@samsung.com](mailto:erik.guttman@samsung.com)