Energy storage for 5G and beyond

ICT Energy Online Event 2021

Magnus Tanzbro Ericsson 2021-05-18

5G for the user

GSM

4G

Massive IoT

SMART BUILDING

LOGISTICS, TRACKING AND FLEET MANAGEMENT

SMART METER

SMART AGRICULTURE

Critical IoT

5G

AUTONOMOUS CAR

TRAFFIC SAFETY & CONTROL

APPLICATION TROL

REMOTE MANUFACTURING, TRAINING, SURGERY

Enhanced Broadband

Smartphones

Home, Enterprise, Venues, Mobile/Wireless/Fixed

Non-SIM devices

4k/8k UHD, Broadcasting, VR/AR,

LOW COST, LOW ENERGY
SMALL DATA VOLUMES
MASSIVE NUMBERS

ULTRA RELIABLE
VERY LOW LATENCY
VERY HIGH AVAILABILITY

5G – Expectations from the user

- Mobile Internet as fast as Fiber connection (1-100 Gbit)
- **Latency (<1ms)**
- **Reliability** → Energy storage

Rural Telecom site

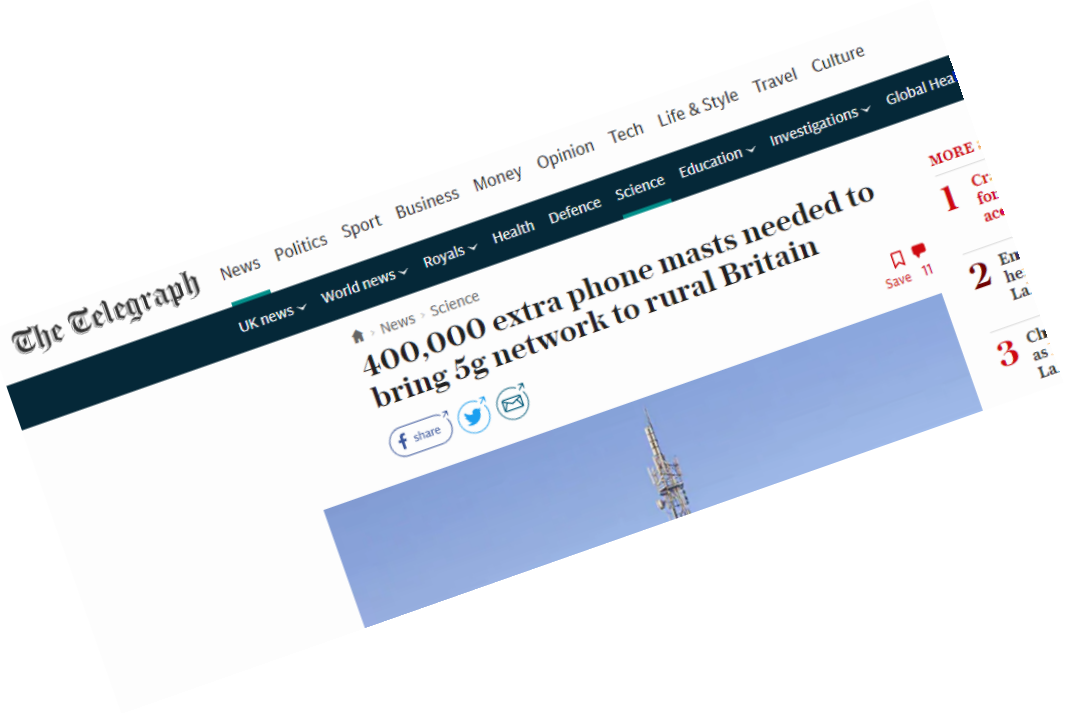
- Typical Lead acid batteries -48V
- Current infrastructure
- Price is crucial
- Less Energy /delivered bit

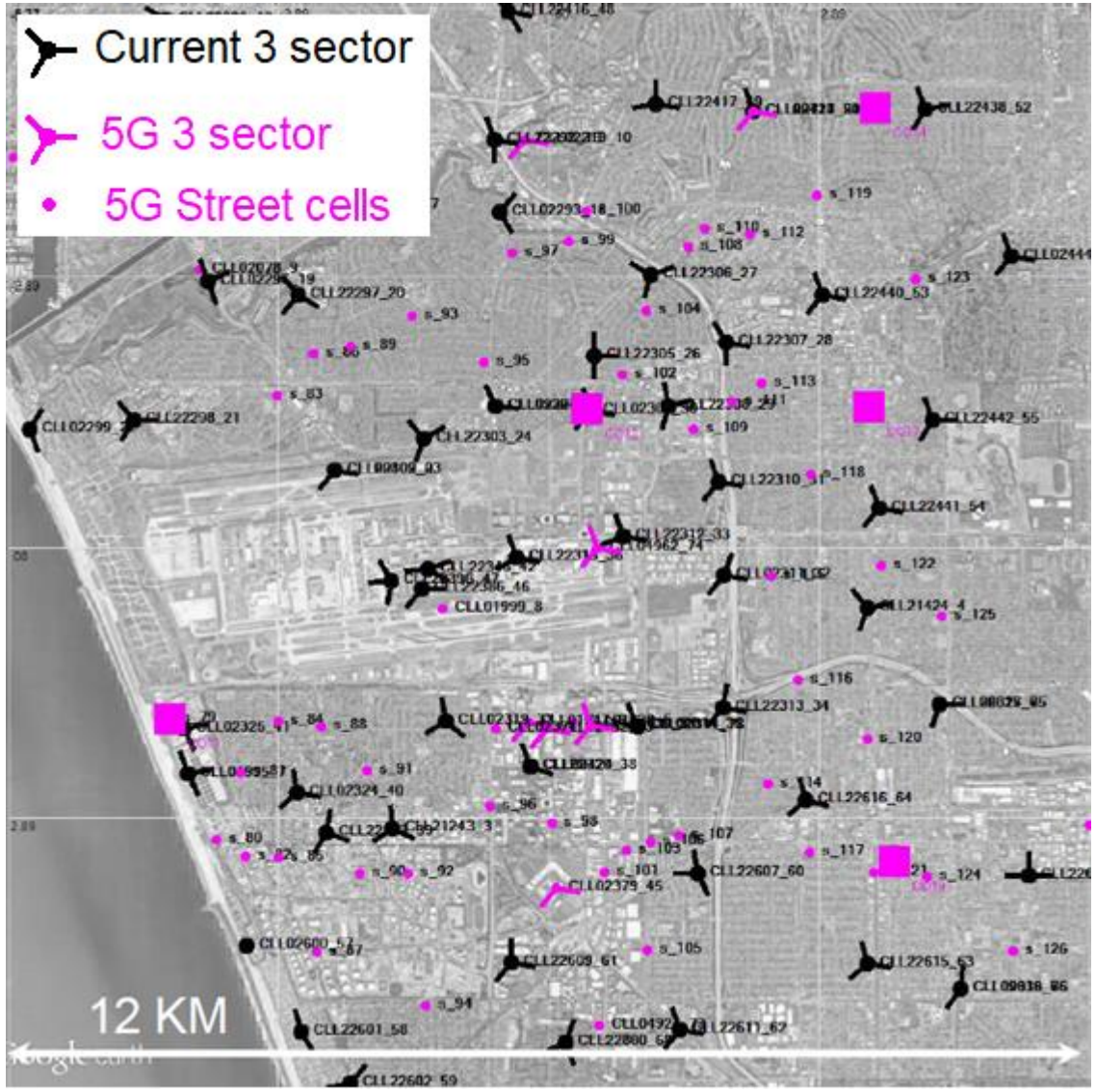
Zero footprint sites

5G Street solutions

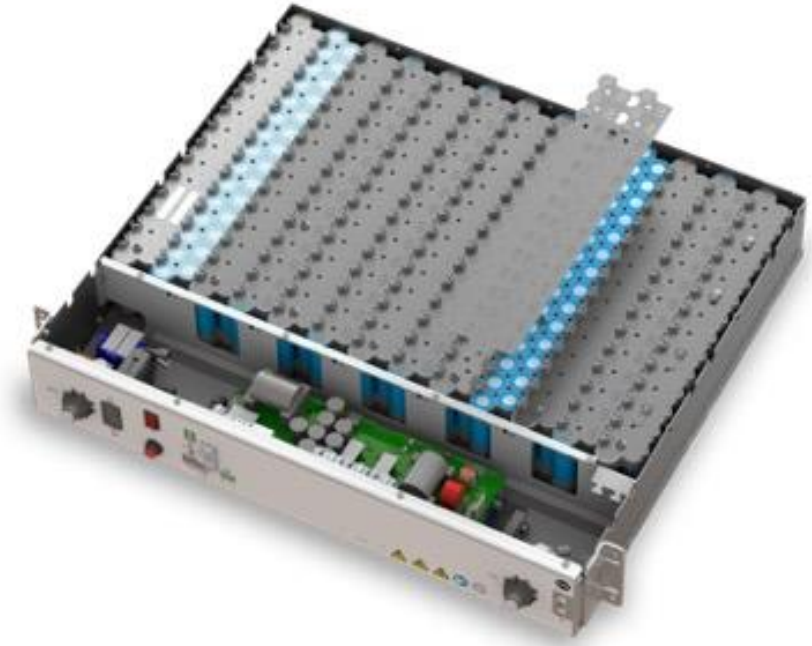
Increased number of sites

- Los Angeles (mixed topology)
- Currently covered by 56 Macro sites
- Planned infill with 75 Street cells (low power)



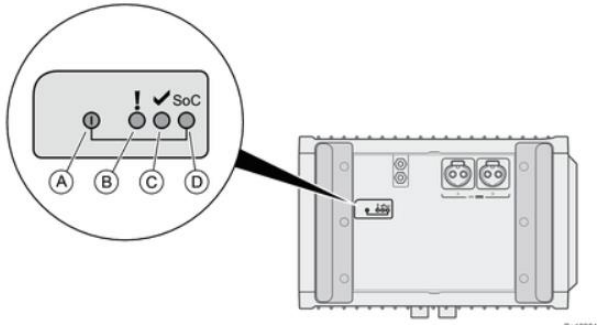


Reliable battery back-up

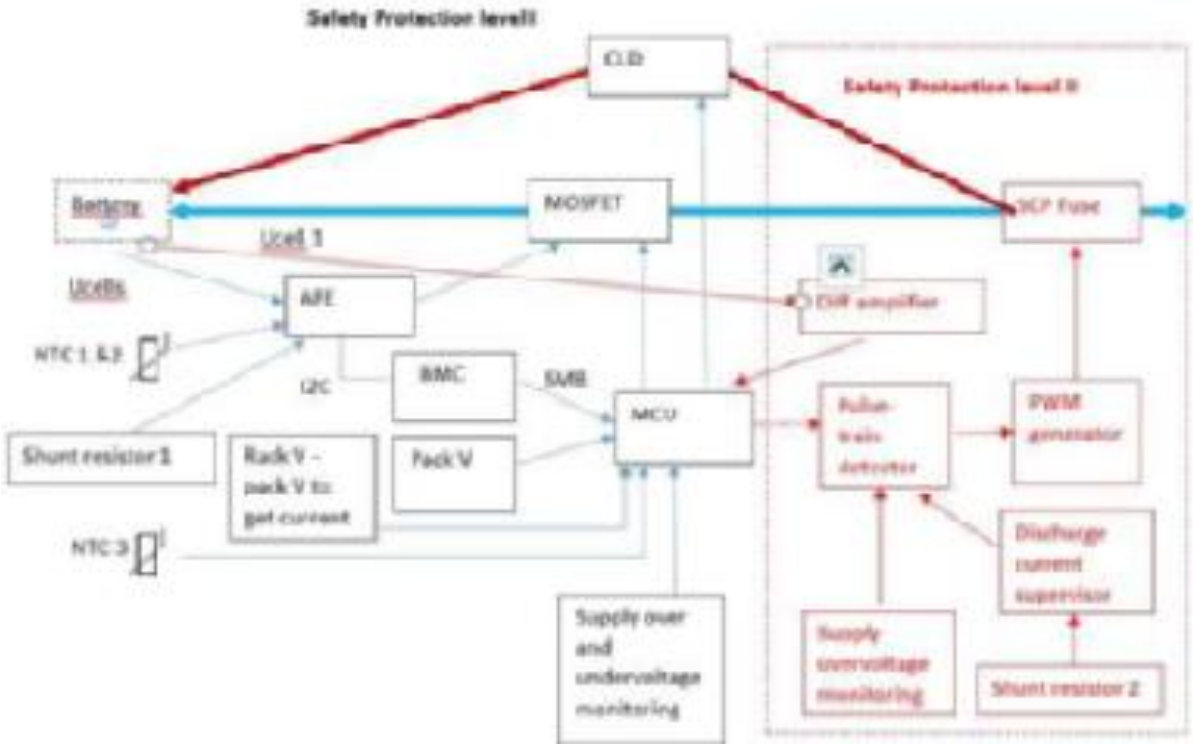


5G Rail Batteries

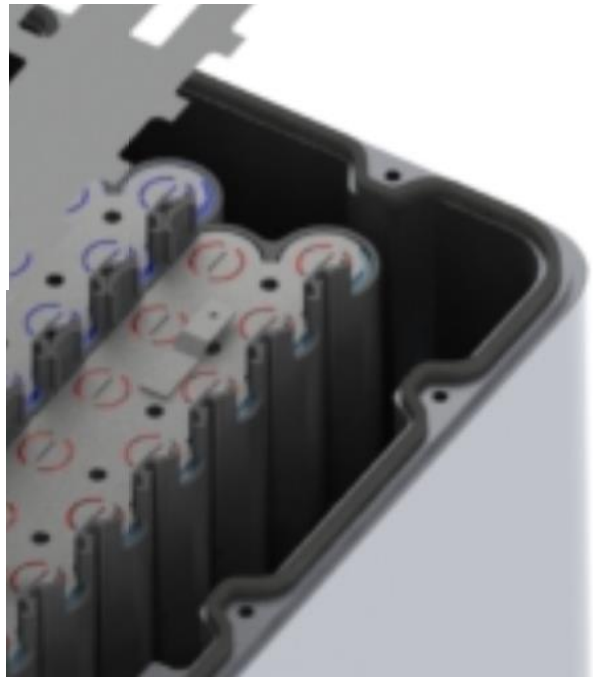
6313	6312
— - 48V	— - 48V
— 43 Ah (35,4Ah)	— 8 Ah (6,4 Ah)
— Max 2300W	
— 50 min@2000W	— 10 min@2000W
— - 40ºC to +60ºC	
— 10 years lifetime	
— 18650 NMC cells	
— Energy cell	— Power cell
— SOC status	
— 14S17P	— 14S4P
— Parallelable	



Challenges and solutions



- Safety standard (UL1973)
- IP 65
- Environmental requirements
  - Temperature
  - EMC environment, Lightning



Power & Backup Beyond 5G

— Reliability
— Increased power demand
— More decentralization
— New battery chemistries
— Supercapacitors
— Peak shaving
— Higher efficiency
— High voltage batteries (HVDC)
— Backup for Small site

Questions ?