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Whitepaper 5G and Energy Use Case and Requirements Panel – Nov 9

Whitepaper 5G and Energy

Main families of use cases

- Metering for billing
- Power grid protection, control, and monitoring
 - Transmission and Distribution grid with demand side management (existing use-cases)
 - Self healing networks with fault location, isolation and power restoration
 - Integration of DER (Distributed Energy Resources)
 - Power quality (reactive power)
 - Micro grids, renewables, and storage (emerging use-cases)
 - Integration of DER on community level
 - Support of prosumers
 - Island / grid modes

Whitepaper 5G and Energy

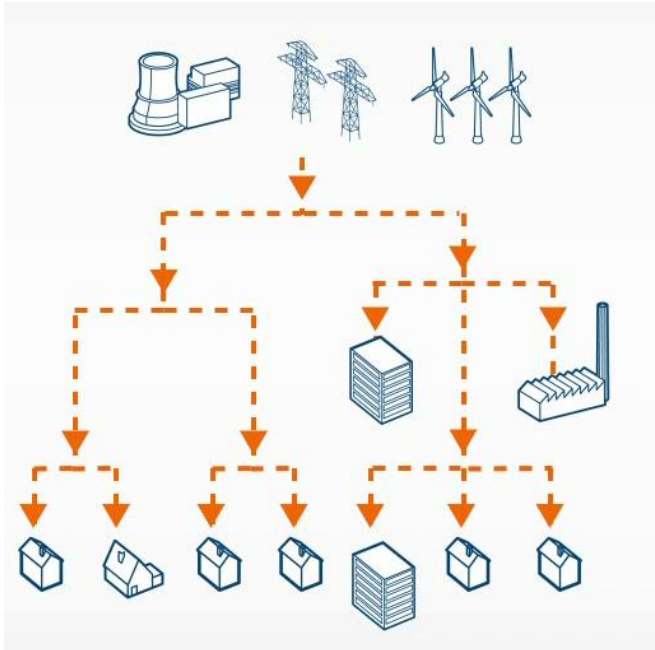
Table of Use cases and KPIs

Use case	KPI	Security	Target date
Metering	1 s 10 ⁻² 1 kbit/s/user 10 km ~10000 / km ²	Client authentication Authenticity Integrity Confidentiality	2020
Protection, control and monitoring for “Distribution” <ul style="list-style-type: none"> • Self healing networks • DER integration • Power quality 	50 ms 10 ⁻⁴ ~10 Mbit/s 100 km ~10 / km ²	Authenticity Integrity	2020
Protection, control and monitoring for “Transmission” <ul style="list-style-type: none"> • Self healing networks 	5 ms 10 ⁻⁵ (OF10 ⁻⁹) ~1 Gbit/s 1000 km <1 / km ²	Authenticity Integrity	+2020

Whitepaper 5G and Energy Evolving Grid

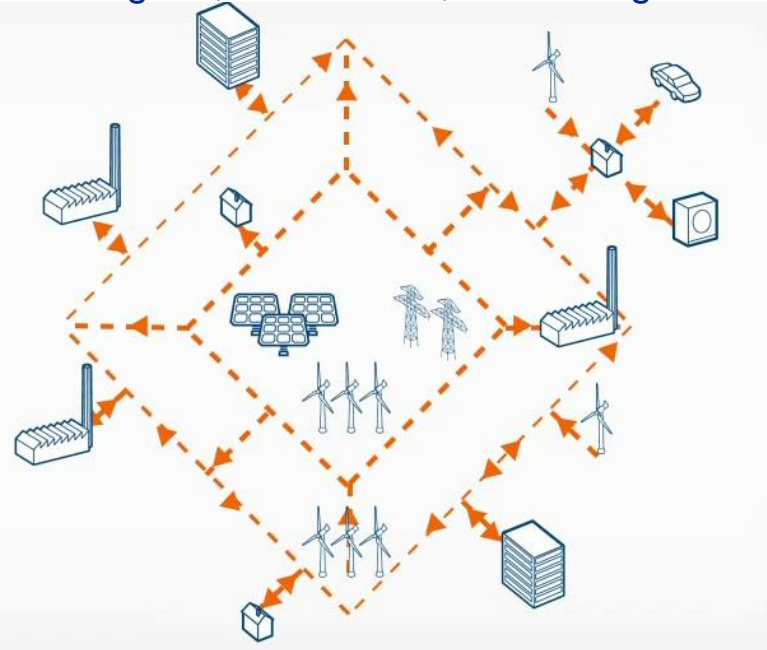
Traditional grid

Transmission and Distribution



New grid

Micro grids, renewables, and storage



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