3GPP TSG RAN WG1 Meeting #88-Bis
Spokane, USA, 3/7 April 2017
Document for: Information
Source: Veolia

VEOLIA

R1-1706773

NB-IoT requirements to meet market objectives for Utilities and Water Metering

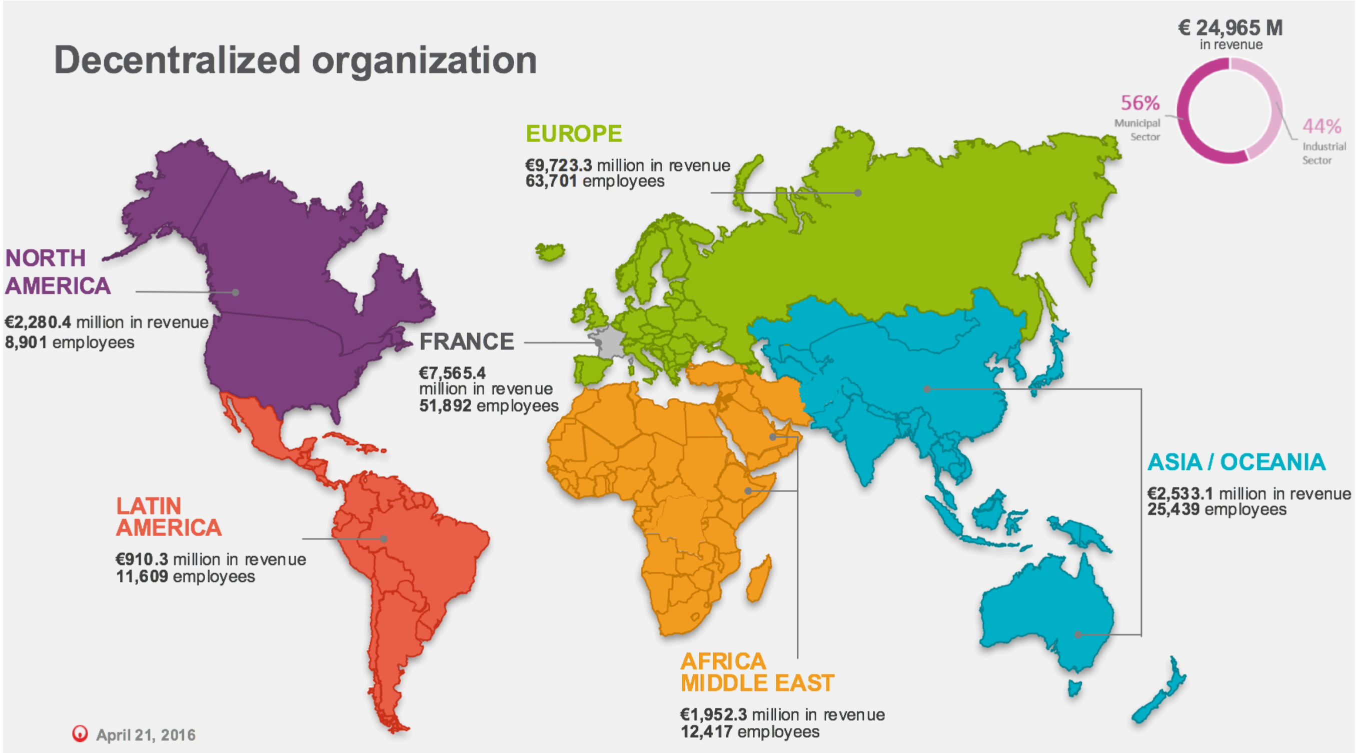
Smart city perspectives for utilities companies

Global Contracts over 50 countries for all SBU:

Smart City:

- Smart Water Metering
- Smart Waste Management
- Energy Efficiency Solutions

Millions of devices await to be connected.



Smart Water market opportunities

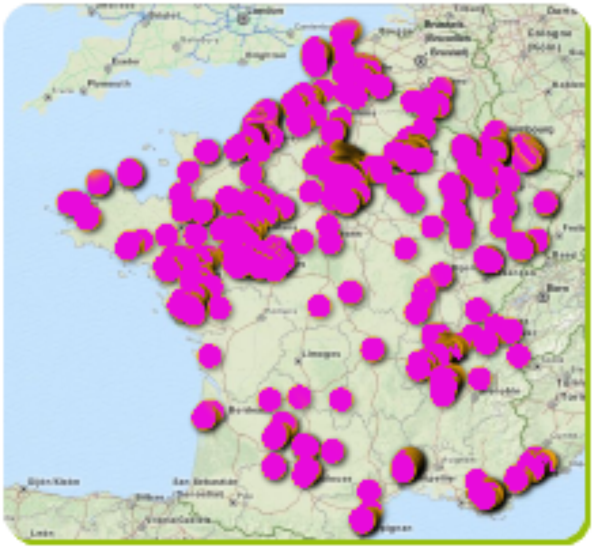
One example: *Veolia in FRANCE*

- ✓ Today + 2,000,000 automated water meters in service by VEOLIA

- ✓ 5,000,000 more automated water meters to connect in France

Opportunity window for NB-IoT

Key AMI* references – Smart Water Meters



- Paris area **580 000**
- Le Havre **100 000**
- Vendée Eau **65 000**
- Metz **32 000**
- Lyon **400 000**
- Perpignan **40 000**
- Montauban **40 000**

UTILITY USE CASES FOR IoT

Veolia designs, deploys and operates solutions for **water**, **waste** and **energy** management, participating in the sustainable development of cities and industries.

WATER

Management of the global water cycle,

WASTE

Liquid and solid non-hazardous and hazardous waste management

ENERGY

Energy efficiency, efficient management

WATER METERING IS THE MOST DIFFICULT USE CASE

Requirements:

- **15 years UE battery life**
- **100 bytes payload twice a day**
- **Non-latency sensitive**
- **Deep Indoor coverage**
- **164 dB MCL**

Business perspectives and standardisation

NB-IoT is a very promising technology with strong potential to address the smart metering and utilities cases.

Veolia is evaluating NB-IoT for its use cases using modules implementing Release 13.

Preliminary analysis showing that power consumption in NB-IoT Release 13 can be improved for some of the utilities use cases.

Further enhancements such as support of the new UE power class of 14dBm in Release 14 will improve the performances results of the power consumption.

Significant power consumption improvements have been proposed for the scope of Release 15 (RP-170852).

However, many calls for tenders are coming now for long term contracts.

Veolia Proposal: To consider Release 15 enhancements related to power management into Release 14 to make NB-IoT attractive for businesses current opportunities

Essential features for current market needs

Features in Release 15 scope addressing power consumption issues:

- Improved cell search and/or system information (at least MIB-NB) acquisition performance, for all operation modes.
- Further enhancement of quick release of RRC connection after the last data transmission.
- Relaxed UE monitoring for cell (re)selection e.g. by (re)configuration.
- Narrowband measurement accuracy improvements

Enhancements regarding power consumption will reinforce NB-IoT position among LPWAN protocols. The power consumption aspect has to be tackled quickly for NB-IoT to be in phase with utilities and smart cities markets.

Complementary feature to include in Release 15 scope:

- Support of NB-IoT as multi-hop relay. Introduce L3 relay node having RRC layer and lower, which acts as a small cell to the next hop and a UE to the previous hop, and has no support of S1 and X2 interfaces.

THANK YOU