**5G: FROM MYTH TO REALITY**

**VIRTUWIND**

Virtual and programmable industrial network prototype deployed in operational wind park

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**Objectives**

The EU project VIRTUWIND will demonstrate the technical and economic benefits of introducing an open, modular and secure control infrastructure for the wind energy industry. Following are the 5 key objectives of VIRTUWIND:

1. Realize industrial-grade Quality of Service (QoS) for intra-domain Software Defined Networking (SDN) solution
2. Guarantee inter-domain QoS for SDN based multi-operator ecosystem
3. Reduce time and cost for service provisioning and network maintenance
4. Assure security-by-design for the SDN and Network Function Virtualisation (NFV) ecosystem
5. Field trial of intra- and inter-domain SDN and NFV prototype

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**Impact**

Wind energy is one of the most cost-effective renewable technologies in terms of the cost per kWh of electricity generated and it is measured as Levelized Cost of Electricity (LCOE):

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\text{LCOE} = \frac{\text{Lifetime cost}}{\text{Lifetime Electricity Production}}
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The main goal of VIRTUWIND is to adapt SDN as per requirements in industrial networks by developing novel SDN-based mechanisms to reduce CAPEX and OPEX and thereby reduce the LCOE of wind energy.

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**BUDGET**

Total cost: €6,344,331
Funding: €4,874,902

**TIMETABLE**

Starting date: 01/07/2015
Duration: 36 months

This project has received funding from the European Union’s Horizon 2020 research and innovation programme.

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**Challenges**

VIRTUWIND will overcome a number of identified challenges, including:

- Secure and reliable access to equipment at remote installations.
- Individual access control for multiple stakeholders.
- Lowering costs during deployment of network infrastructure.
- Scalable industrial network management solutions.
- Effective deployment of network services.

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**Scope**

The VIRTUWIND project investigates the use of SDN & NFV to address the stringent requirements of industrial domains. VIRTUWIND will develop and demonstrate a SDN & NFV ecosystem in real wind parks, as a representative use case of industrial networks, providing industrial-grade QoS.

Based on an open, modular and secure framework, VIRTUWIND envisions lower capital expenditure (CAPEX) and operational expenditure (OPEX) costs in industrial network infrastructures.

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**Wind park network as representative industrial network**