



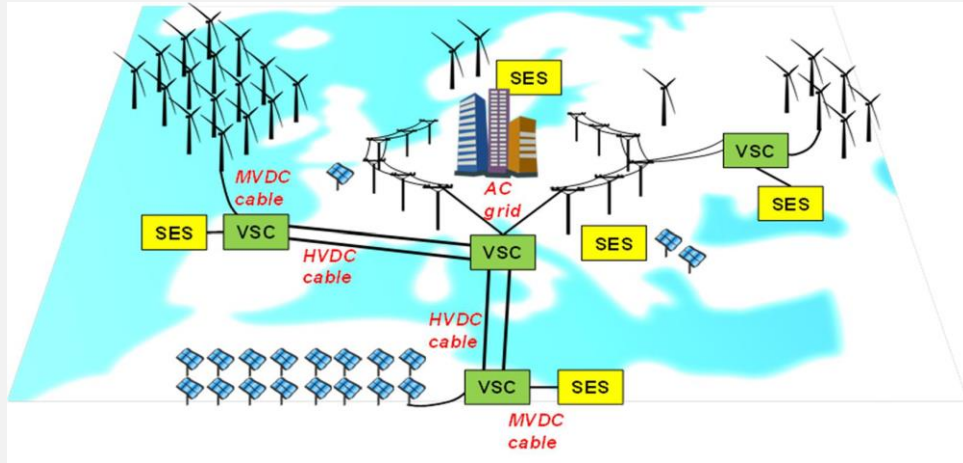
# GRIDABLE

Plastic nanocomposite insulation material enabling reliable integration of renewables and DC storage technologies in the AC energy grid

## GRIDABLE RATIONALE

GRIDABLE, which was launched in 2017 to deliver results in manufacturing and characterization of LV-MV capacitors and MV-HV cables for DC application in the energy smart grid.

The innovation is in the use of nanostructured materials based on PP/SiO<sub>2</sub> compounds



## To enable charge suppression in recyclable PP based materials

The aim of GRIDABLE is to develop PP/SiO<sub>2</sub> nanocomposites with proper nanoparticle functionalization and dispersion, demonstrating the improvements this novel material can bring to the state of the art of HVDC cables and DC capacitors insulation. In HVDC cables PP/SiO<sub>2</sub> are to replace current technology based on not recyclable XLPE manufacturing, **significantly lowering the total energy consumption** of the PP/SiO<sub>2</sub> processing. While in DC capacitors the benefit is to reduce the thickness of PP film by using the potentially more reliable nanocomposite film. This would allow to **make smaller capacitors, which brings relevant savings.**

## FACTS:

- 4-year project
- 8.3 million Euros (including partner contribution)
- 9 partners from 6 countries

- 4 Industrial Partners
- 1 Consulting firm
- 3 Universities
- 1 Research Institution



European Union



GRIDABLE received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 720858 (Call NMBP-18-2016)



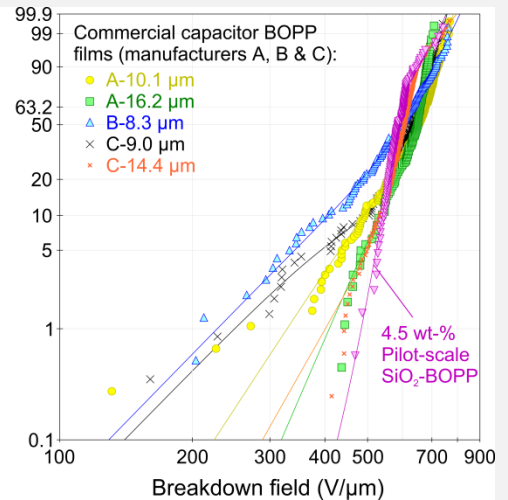
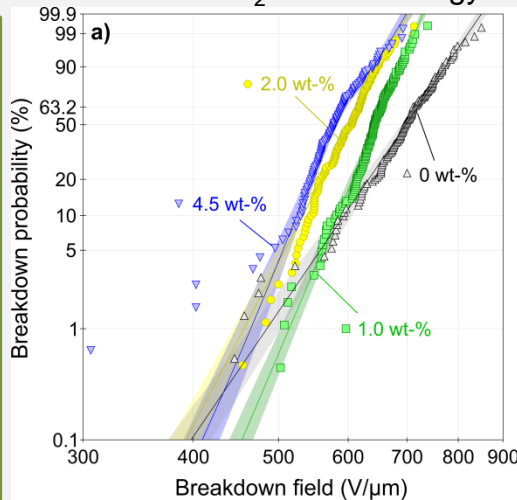
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Plastic nanocomposite insulation material enabling reliable integration of renewables and DC storage technologies in the AC energy grid

## GRIDABLE activities

- **Development of proprietary SiO<sub>2</sub>/PP compounds for LV-MV capacitors and MV-HV cables.**
- **Manufacturing and characterization of LV-MV capacitors and MV-HV cables for DC application, based on innovative SiO<sub>2</sub>/PP technology.**

The electrical properties of GRIDABLE PP-SiO<sub>2</sub> Compounds, show improved breakdown strength, with respect to commercial unfilled BOPP capacitors, thanks to better space charge distribution of nanofilled PP films for capacitors.



## The GRIDABLE model

Functionalised SiO<sub>2</sub>/PP compounds will be produced

GRIDABLE Portfolio will be developed to comprehend target demo prototypes

- ✓ LV-MV capacitors for Wind Energy and Solar applications
- ✓ MV-HV cables for DC application

- **Technical- economic analyses** of the whole technology chain will be done with reference to **target applications**, by considering both the commercialisation of LV-MV capacitors and MV-HV cables for DC application through industrial partners.

*Compound pilot plant by Softer and Terichem, application testing by GE and Nexans.*