NEWGEN

NEWGEN “New generation of HVDC insulation materials, cables and systems”

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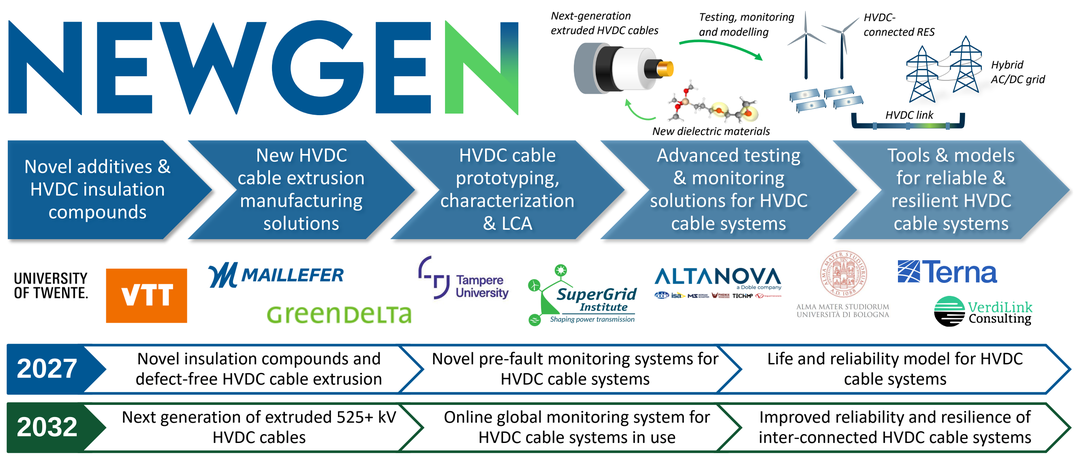
Objective

The overall objective of the project NEWGEN is to develop and demonstrate new insulation materials, cable manufacturing solutions, online condition monitoring technologies, and comprehensive life and reliability modelling tools for next-generation of extruded high voltage direct current (HVDC) cables and cable systems, thereby fostering the reliability and resilience of the inter-connected European HVAC/-DC transmission grids..

Concept

NEWGEN delivers new space charge mitigating additives for extruded HVDC insulation materials, as well as new industrial cable extrusion solutions for defect-free and cost-effective manufacturing of next generation thermoplastic HVDC cables. Moreover, NEWGEN will provide online global condition monitoring and novel pre-fault detection methods and instruments for assessing the health status of extruded HVDC cable systems, as well as comprehensive tools and models for the evaluation of life and reliability of extruded HVDC cable systems (cable, joints and terminations) under realistic operation conditions within HVAC/-DC grids (model demonstration via grid-simulations).



NEWGEN project concept and impact in short-term (2027) and long-term (2032).

General approach

The new sustainable insulation materials and extrusion technologies are not limited to any specific insulation compound or HV cable manufacturer, but rather the results will impact the whole European HV cable industry for reaching the next generation of reliable-by-design extruded HVDC cables. Moreover, the NEWGEN innovations for online condition monitoring and reliability modelling of HVDC cable systems will allow European transmission system operators (TSOs) to perform comprehensive monitoring and proactive maintenance for their HVDC cable system assets.

Impact

Extruded HVDC cables will be a key technology moving into the future, expanding their utilization to higher power transmission capacity and ensuring their reliable operation over the expected lifetime of up to 40 years still requires new technological innovations.

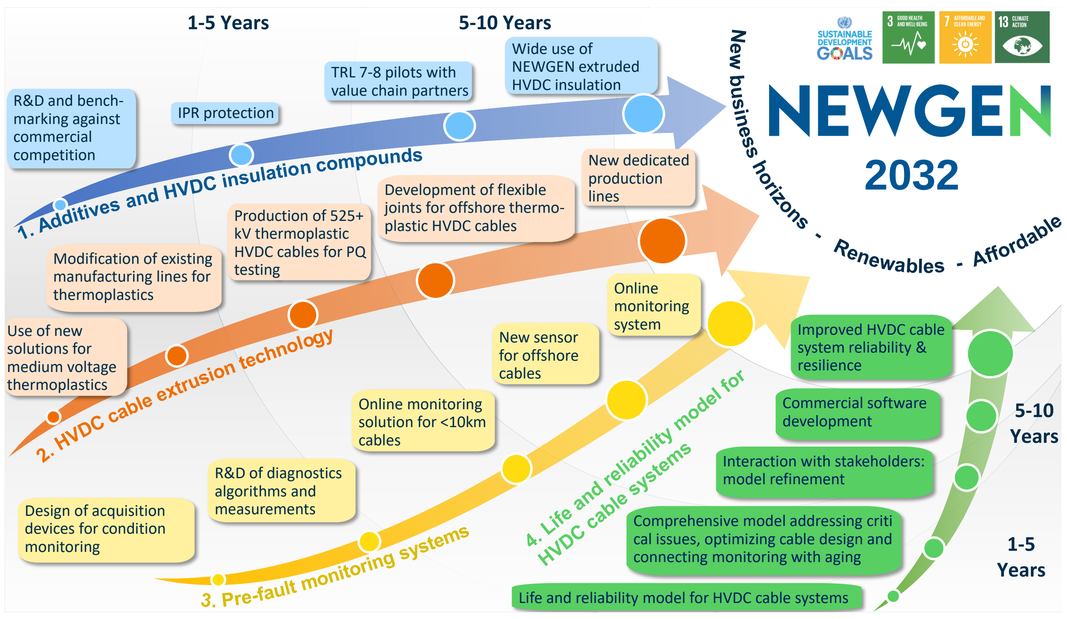


Illustration of the timelines of NEWGEN Impact Pathways.

Consortium

NEWGEN is gathering a multidisciplinary consortium composed by 10 partners from 5 different European countries (Finland, Italy, Netherlands, Germany & France). The consortium has four industrial partners, two small and medium-sized enterprises (SMEs), one research and technology organization (RTO) and three Universities. In addition, several external Advisory Board (AB) members will be committed to the project.

Partners

- VTT Technical Research Centre of Finland, Finland
- University of Twente, The Netherlands
- Maillefer, Finland
- Greendelta, Germany
- Altanova, Italy
- University of Bologna, Italy
- Tampere University, Finland
- Supergird Institute, France
- Terna, Italy
- CLIC, Finland

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