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Project overview

NEWGEN Project public presentation
18.1.2023

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NEWGEN project, Grant Agreement N° 101075592

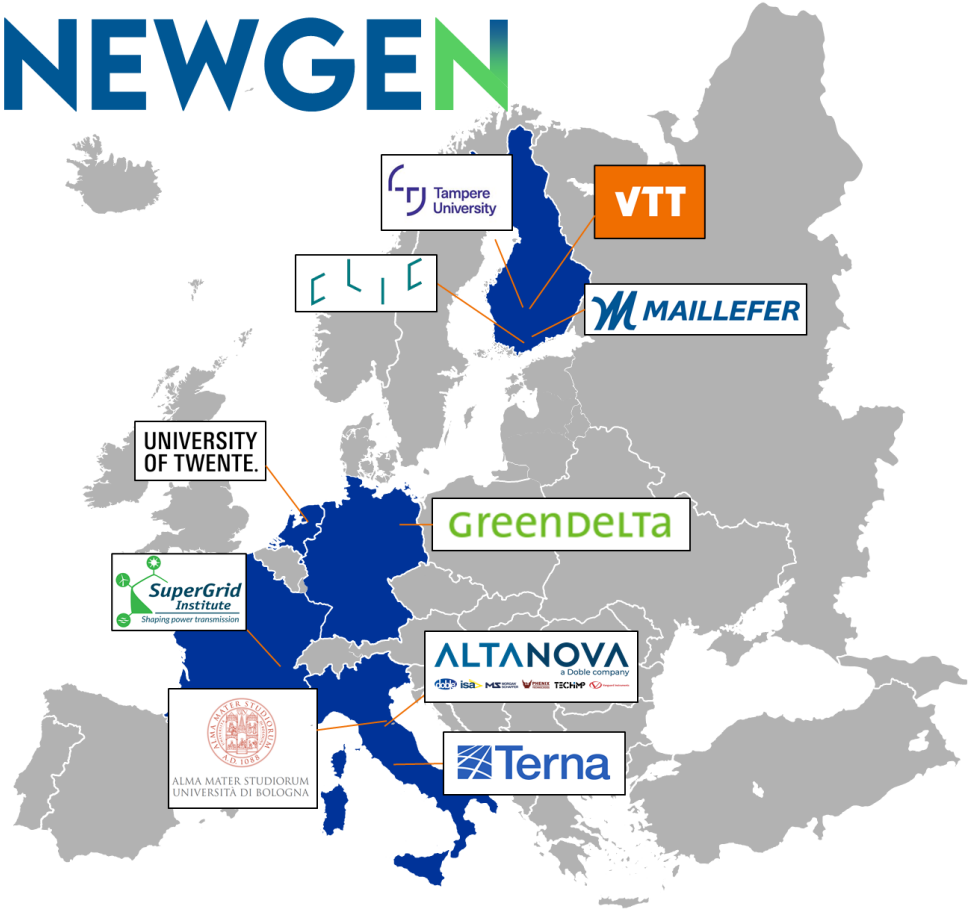
NEWGEN in a nutshell

Research and innovation action:
- Aim for TRL 5-6

Project duration 48 months:
- 1.10.2022 – 30.9.2026

10 Partners:
- 5 EU countries

Budget:
- 7.6 M€ EU funding



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NEWGEN answers to EU call

Electricity system reliability and resilience by design: High-Voltage, Direct Current (HVDC)-based systems and solutions

Expected Outcomes:

1) HVDC technologies allowing the integration of large share of renewables while concurrently addressing the security of supply.

2) HVDC interconnections can act as a firewall blocking the spread of disturbances while permitting the interchange of power.

3) Mastering HVDC technologies will open new business horizons for European companies in the global clean energy markets.

4) Increased electricity system reliability and resilience.

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Concept

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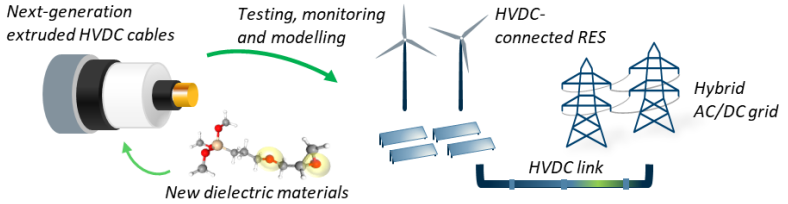

Novel additives & HVDC insulation compounds → New HVDC cable extrusion manufacturing solutions → HVDC cable prototyping, characterization & LCA → Advanced testing & monitoring solutions for HVDC cable systems → Tools & models for reliable & resilient HVDC cable systems

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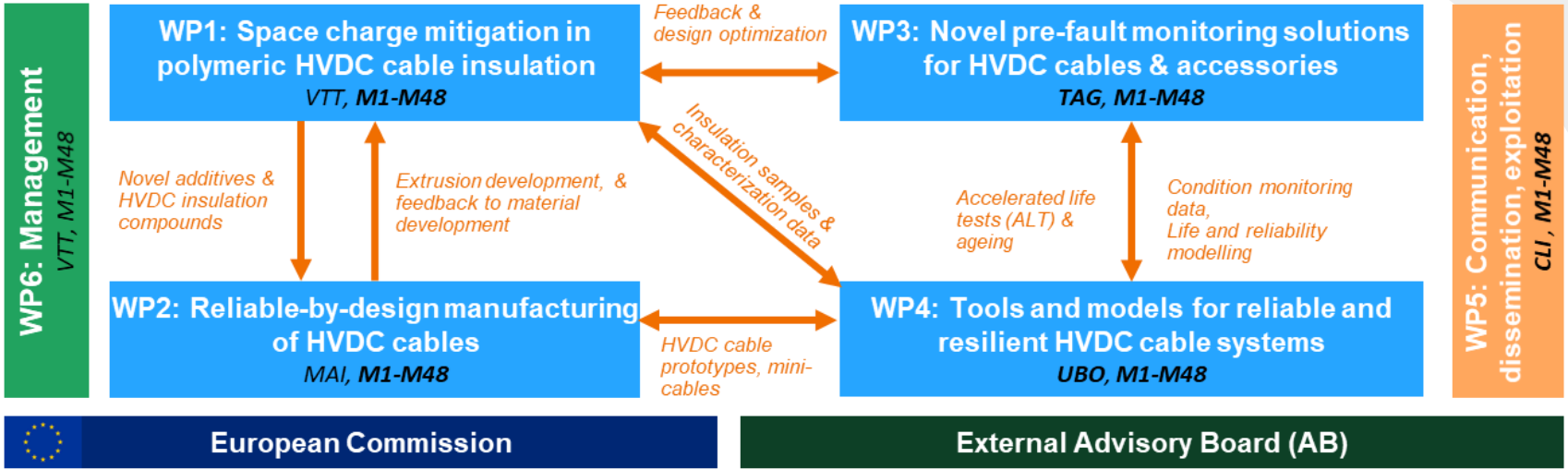
2027	Novel insulation compounds and defect-free HVDC cable extrusion	Novel pre-fault monitoring systems for HVDC cable systems	Life and reliability model for HVDC cable systems
2032	Next generation of extruded 525+ kV HVDC cables	Online global monitoring system for HVDC cable systems in use	Improved reliability and resilience of inter-connected HVDC cable systems

Work Packages



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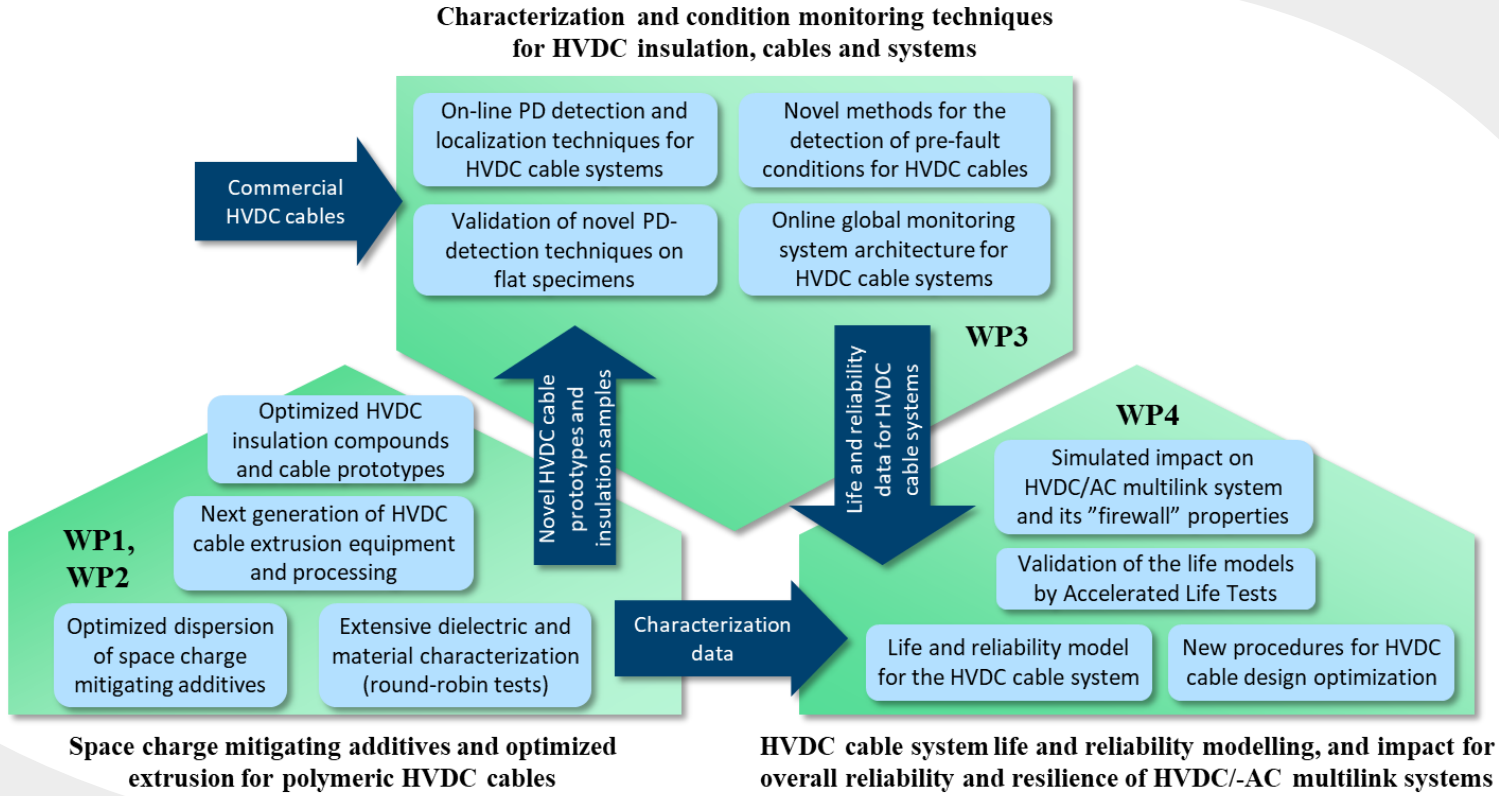
Concept



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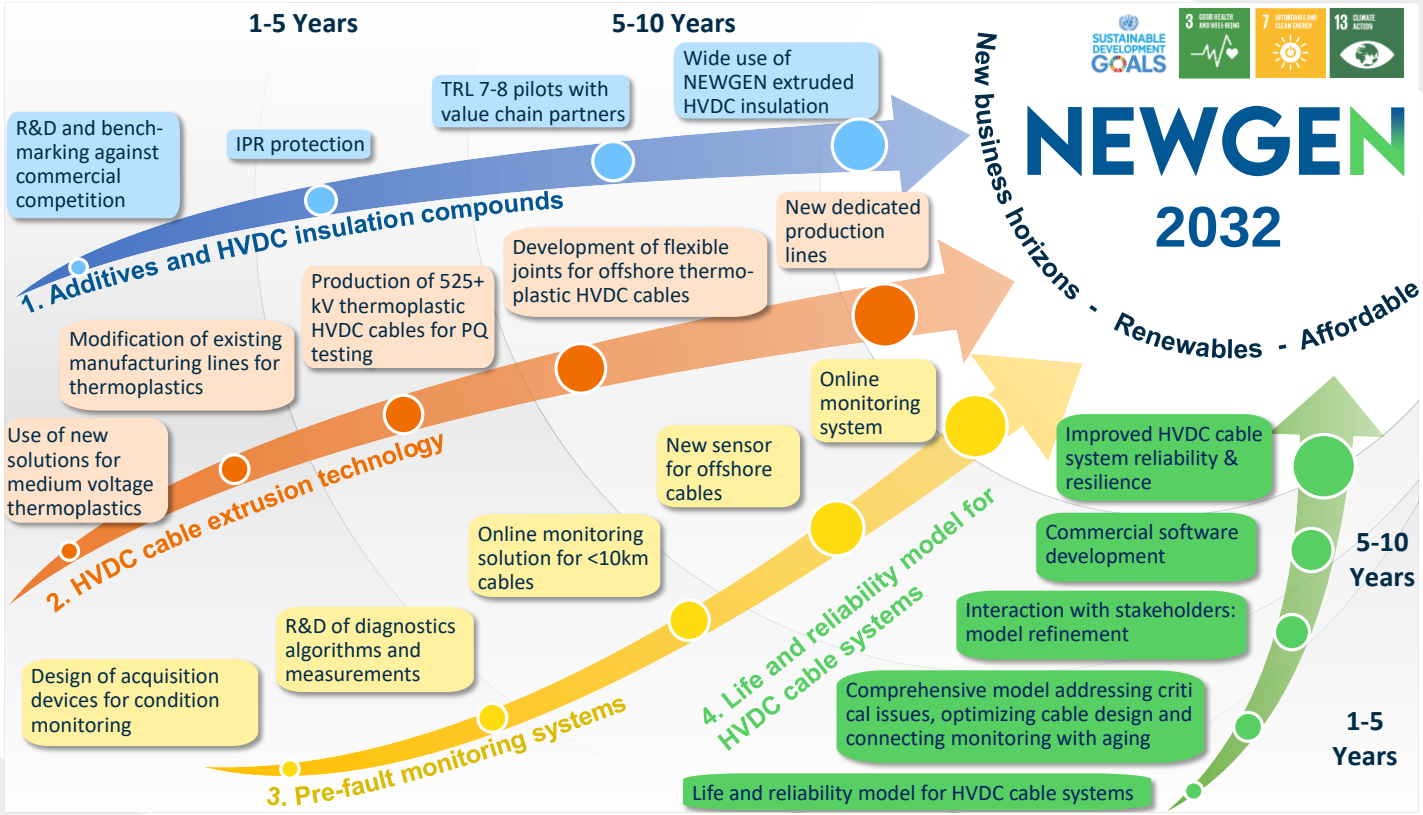
Long term goals & impact



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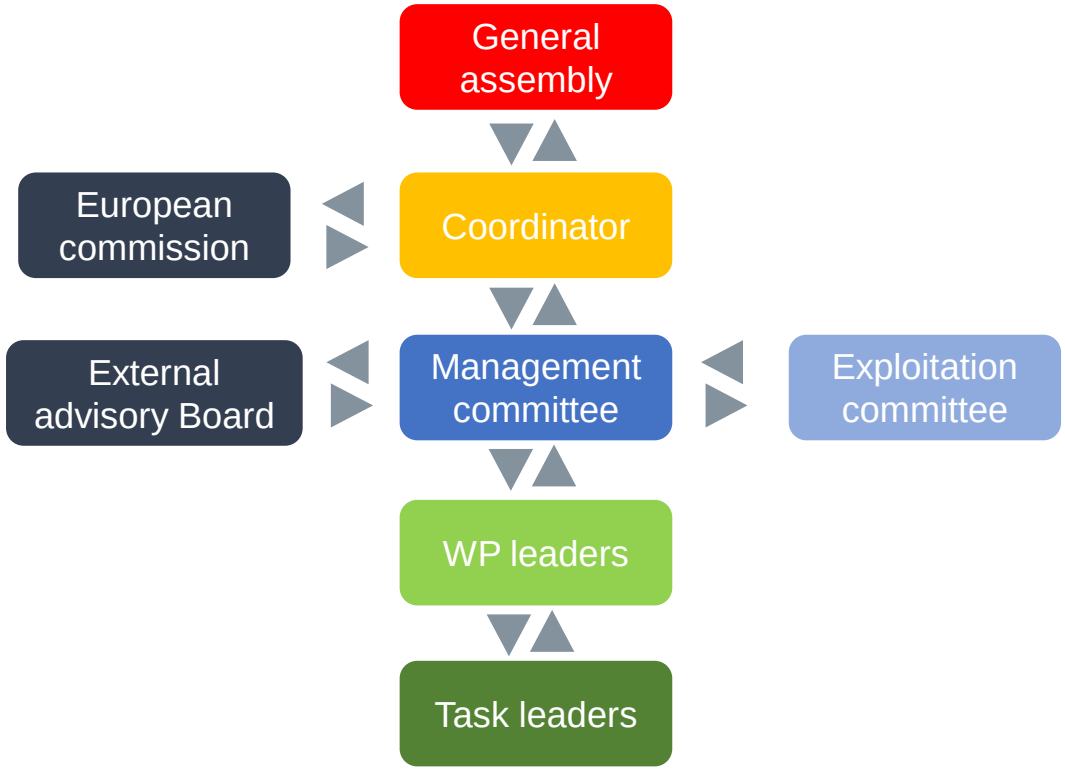
Milestones

MS#	Milestone name	WPs	Due	Means of verification
MS1	Management, dissemination and exploitation plans established	WP5, WP6	M6	Reports ready on time.
MS2	Relationship between pre-fault monitoring data and life model	WP3, WP4	M15	ALT protocols planned and test routines established.
MS3	Initial short-term dielectric characterization data (conductivity, PEA, DBS etc.) for life models	WP1	M16	Inter-laboratory dielectric testing procedures established and data provided for life models
MS4	Reference cable prototype samples ready	WP2	M18	Pilot scale PE and PP based ref. cable samples produced and fulfilling quality requirements.
MS5	Validation of HVAC PD detection methods for HVDC	WP3	M18	PD detection for flat samples and minicables available and initial tests done.
MS6	Additives exhibit good dispersion and show route to space charge mitigation in insulation matrix	WP1	M24	Verification of dispersibility and space charge mitigation from mini- and pilot-scale samples
MS7	Sustainability checkpoint	WP2	M24	Preliminary LCA results for selected materials and extrusion technology.
MS8	Leakage current measurement system lab validation	WP3	M24	Prototype validated in optical lab
MS9	Cable life model ready for validation	WP4	M24	Model is capable of analyzing the various service stresses
MS10	Novel additives and insulation matrices selected for HVDC cable prototype demonstrator	WP2	M32	Additives meet the required performance and are up-scalable for HVDC cable prototype trials
MS11	Full cable system life model ready for implementation into grid simulations	WP4	M40	Comprehensive life model of cable system is completed

Management structure



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