



## PRESS RELEASE

Pilot 2: Strengthening Finland's Energy Transmission Grid  
Against Extreme Weather  
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## Press release

In the wake of Finland's recorded hurricane-force winds, which reached record high values over 32 meters per second in Rauma and caused the collapse of two 400-kV power transmission towers, the need for resilient infrastructure has never been clearer.



Funded by the European Union's Horizon Europe program, the **RISKADAPT** project is tackling these urgent challenges. Pilot 2 of RISKADAPT is dedicated to shielding Finland's energy transmission grid against extreme Nordic winter conditions, characterized by severe winds, snow, and ice accretion. This work is part of Horizon Europe's mission to support innovation and create sustainable, resilient infrastructure across the EU.

### Key Highlights of Pilot 2

In collaboration with Fingrid (Finland's power transmission operator), ERRA, and the Finnish Meteorological Institute (FMI), the RISKADAPT project is addressing critical vulnerabilities in Finland's energy grid through:

- **Structural Analysis:** ERRA modeled and analysed the transmission towers of a selected power line provided by Fingrid. The risk of the towers was estimated under wind and icing hazards not only under the initial (as-built) situation but also degraded cases due to steel corrosion. Moreover, different innovative adaptation solutions for upgrading towers were evaluated. The adaptation solutions include the use Fiber-Reinforced Polymer (FRP) strips for strengthening vulnerable elements of existing towers or replace extremely deteriorated towers with new ones made by High Strength Steel (of class S460 or higher) that can provide similar or superior strength using at the same time less material leading to lower costs and environmental impact.
- **Climate Data Modeling:** FMI after analysing various climatic models and scenarios provides essential insights on the frequency and intensity of extreme weather phenomena such as high winds and/or snow/icing accretion. The climate data modeling is not limited only to historical (i.e., recorded) data but also in future climate projections up to the end of 21<sup>st</sup> century for various Green House Gas (GHG) emission scenarios. Finally, by elaborating advanced Computational Fluid Dynamic (CFD) techniques and data downscaling precise representation of the actual wind flows around the towers are possible leading to more accurate estimates of the towers' risk against extreme wind.
- **Sustainability and Risk Assessments:** Using RISKADAPT's integrated platform, the project will evaluate costs, along with the environmental (e.g., embodied emissions) and social impacts for each of the adaptation solutions, with ultimate scope to provide to stakeholders (e.g.,



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power transmission operators) as useful tool for decision making support in coping with climate change and the associated challenges posed on power grid.

The recent collapse of the power towers highlights the urgency of this work, demonstrating the escalating risks posed by climate change.

*“Horizon Europe projects like RISKADAPT represent a significant step forward in addressing climate-induced infrastructure vulnerabilities through cutting-edge research and applied engineering solutions. Pilot 2 exemplifies the fusion of technical innovation, advanced climate modeling, and risk analysis to develop actionable, scalable strategies for adapting critical power infrastructure to extreme weather conditions. By integrating engineering analysis, future climate projections, and sustainability assessments, this project offers stakeholders the tools they need to make informed decisions in protecting vital assets,”* said Stephanos Camarinopoulos, project coordinator of RISKADAPT.



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## PROJECT SUMMARY

RISKADAPT will provide, in close cooperation with the end-users/other stakeholders, a novel, integrated, modular, interoperable, public and free, customizable user-friendly platform (PRISKADAPT), to support systemic, risk-informed decisions regarding adaptation to Climate Change induced compound events at the asset level, focusing on the structural system. PRISKADAPT will explicitly model dependencies between infrastructures, which, inter alia, will provide a better understanding of the nexus between climate hazards and social vulnerabilities and resilience. Moreover, this project will identify gaps in data and propose ways to overcome them and advance the state of the art of asset level modelling through advanced climate science to predict Climate Change forcing on the structure of interest, structural analyses, customized to the specific structure of interest, that consider all major Climate Change induced load effects in tandem with deterioration, novel probabilistic environmental life cycle assessment (LCA) and life cycle cost (LCC) of structural adaptation measures and a new model to assess climate risk that will combine technical risk assessment with assessment of social risks. PRISKADAPT will provide values to a set of indicators for each asset of interest, quantifying primary parameters and impacts, in the form of a Model Information System (MIS) that will provide all required information for adaptation decisions. PRISKADAPT will be implemented in the case studies in the pilots that involve specific assets, however, it will permit customization with local values of parameters and data, so it can be applicable throughout Europe for Climate Change adaptation decisions involving assets of similar function, exposed to multiple climate hazards.

### Fast Facts:

Project number: 101093939

Starting date → 01.01.2023

Project information → 36 months | 17 partners | EU contribution 2.533.536,00 €

Coordinator → RISA Sicherheitsanalysen GmbH

Website → [www.riskadapt.eu](http://www.riskadapt.eu) LinkedIn → [RISKADAPT](#)

### Consortium Partners:

RISA Sicherheitsanalysen GmbH (RISA) | Ilmatieteen laitos (FMI) | Utrecht University (UU) | University of Groningen (RUG) | Federation of the European Precast Concrete Industry (BIBM) | Alma Mater Studiorum – Università di Bologna (UNIBO) | University of Stuttgart – Department of Lifecycle Engineering (USTUTT) | Univerza v Ljubljani (ULFGG) | RINA Consulting S.p.A. (RINA) | Tecnic Consulting Engineers (Tecnic) | Environmental Reliability & Risk Analysis (ERRA) | Region of Western Macedonia (RWM) | Municipality of Trieste (MTr) | Sustainable City Network (SCN) | Fingrid Oyj (Fingrid) | University of Hong Kong (UHK) | University of Birmingham (UOB)

### Contact:

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### Consortium:



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