Over the last 40 years, numbers of extreme weather events have tripled: studies are currently under way for new solutions and innovative measures to improve the security of Italy's strategic energy infrastructures

TACKLING CLIMATE CHANGE: TERNA, RSE AND ARERA TAKE ACTION TO SUPPORT THE RESILIENCE OF THE ELECTRICITY SYSTEM

The methodology for the *Resilience Plan* to increase the reliability and sustainability of the Italian transmission grid was presented today in a public webinar

The areas of Italy most at risk have been identified as highest priority for intervention, with forecasting models, sensors, IoT and grid upgrades to benefit businesses and citizens alike

Rome, 5 May 2021 – Terna, the company that manages the Italian electricity transmission grid; RSE, the company centred on the development of research activities in the energy sector; and ARERA, the Italian Regulatory Authority for Energy, Networks and Environment presented, during a public webinar today, the new methodology for the Resilience Plan for the national electricity transmission grid, with the objective of increasing the safety, reliability and sustainability of the country's strategic energy infrastructures, which are frequently exposed to increasingly intense and widespread extreme weather events.

The number of significant natural events worldwide has tripled over the last 4 decades: Italy alone has also seen a significant increase in severe weather events, with often catastrophic effects which affect Italy's transmission system. Thus, in line with indications from ARERA included in Resolution 64/2021, Terna launched its first consultation ever (open until 13 May 2021) with the goal of gathering opinions on an innovative methodology for estimating resilience indicators in order to identify actions needed to minimise the vulnerability of infrastructure subject to extreme weather events and increase the security of the electricity service, and the area itself, for businesses and citizens.

The new methodology, which comes following a full year's work, establishes criteria by which to identify works aimed at increasing the strength and resilience of the electricity transmission grid over the coming years, and was introduced and explained by **Stefano Saglia** and **Luca Lo Schiavo**, a member of the Board and Deputy Director of ARERA's Energy Infrastructure and Unbundling Department respectively; **Francesco Del Pizzo**, Terna's Grid Development Strategies and Dispatching Manager; and **Maurizio Delfanti**, RSE's Chief Executive Officer. **Marilena Barbaro**, Energy Infrastructure Regulation Manager of the Ministry of Ecological Transition, and **Gilberto Dialuce**, former Director General for infrastructures and safety of energy and geomineral systems of the Ministry of Ecological Transition also took part in the project.

The study, coordinated by Terna and RSE consists of 3 main guidelines, which analyse the frequency and extent of extreme weather events, their impact on grid infrastructure and the type of assets affected, identifying a series of specific interventions to minimise the risk of electricity service outages. The key works include preventive actions to reduce assets' exposure to severe weather events; solutions to reduce the time needed to restore assets following outages; and predictive monitoring activities to anticipate critical weather situations which could affect the grid. Terna has already made plans to lay new power lines of underground cables, as well as upgrading, laying or rebuilding existing power lines as needed, taking specific risk mitigation measures such as the installation of anti-rotation devices to prevent the formation of ice sleeves on conductors, and implementing emergency plans with tools and equipment to facilitate service restoration, such as special instruments and generators. This will also include predictive models for increasingly detailed and precise infrastructure monitoring using innovative sensors, IoT and big data analysis.

The study is a result of Terna and RSE's wide-ranging approach in analysing and identifying the infrastructure's vulnerability curves (i.e. estimates of the probability of components breaking under direct and indirect stress), starting with the mapping of the grid and identifying the portions at greatest risk from strong winds, ice and snow. Finally, historical weather correlations made it possible to more accurately assess the probability of multiple contingencies, taking climate change into account: this allowed the areas of Italy most at risk of failure in the face of adverse weather events, and the areas with the highest priority for intervention, to be identified.

CONTACTS

ARERA - Media Relations
Tel. +39 06 69733437
e-mail comunicazione@arera.it

TERNA - Media Relations
Tel. +39 06 83139081
e-mail ufficio.stampa@terna.it

RSE - Communication
Tel. 329 207 8122
e-mail stefania.ballauco@rse-web.it