

**SUMMARY**  
**High-level roundtable on**  
**Strengthening Energy Infrastructure Resilience**  
30<sup>th</sup> September 2025

The IEA convened a High-level Roundtable on Strengthening Energy Infrastructure Resilience, with a focus on extreme weather and natural hazards, on 30 September 2025. The meeting was held following a direct request at the Future of Energy Security Summit in April 2025 to advance this topic as a matter of high priority.

The event was opened by IEA Executive Director, Dr. Fatih Birol, and chaired by the Governments of France, Japan, Spain and the IEA. A special address was provided by Laurent Fabius, former Prime Minister of France and Chair of the Circle of COP Presidents. Norway's Minister of Energy Terje Lien Aasland, Lithuania's Minister of Energy Žygimantas Vaičiūnas, and Netherlands' Vice Minister of Economic Affairs and Climate Policy Michel Heijdra delivered keynote contributions. The event brought together nearly 90 delegations from more than 30 countries, representing governments, industry, regulators, insurers, investors, academia, and civil society.

- Delegates underscored that resilience is integral to energy security. While risks cannot be eliminated, the ability of energy systems to withstand shocks, absorb their impacts, and recover quickly is a critical component of security.
- It was recognised that all areas of the energy system face risks. Each location and asset type has unique vulnerabilities that must be addressed holistically.
- Natural hazards remain a perennial concern, with many countries citing intensified extreme weather linked to climate change.
- Delegates acknowledged that risks extend beyond natural hazards, with geopolitical, conflict-related and cyber threats posing additional challenges. There was a clear call to deepen understanding of which measures can strengthen resilience to natural disasters, while also enhancing resilience against other risks.
- The power sector was identified as particularly vulnerable, given that disruptions are immediate and highly consequential in an electrified and digitalised global economy.
- Many different approaches to enhance resilience were highlighted, but delegates agreed that more needs to be done. They stressed the value of sharing experiences across regions and welcomed the roundtable as the beginning of a sustained dialogue.
- There was broad agreement that “first line of defence” measures include better planning of energy systems, preparedness for disruptions, and improved monitoring and real-time situational awareness. These measures are often more cost-effective and provide synergies with wider energy security objectives.
- Delegates highlighted a range of physical and technological measures to harden and adapt systems. These included traditional approaches such as flood barriers and robust components, alongside newer technologies such as flexible grids, advanced sensors for monitoring and battery storage.
- Participants also emphasised opportunities to leverage advanced technologies, including real-time sensors, detection tools and artificial intelligence to cost-effectively enhance system responsiveness.

- Rapid response and recovery were highlighted as critical yet often overlooked aspects of resilience. Proposals included stockpiling critical components and pooling emergency response teams across regions.
- While priorities vary by region and system characteristics, delegates broadly agreed on universal measures: diversifying energy sources and locations, avoiding high-risk areas, and maintaining sufficient backup capacity or emergency supplies.
- Delegates articulated the value of a “no regrets” set of measures to prioritise actions that are low cost, broadly beneficial and supportive of energy security.
- Financing resilience was a recurring theme. Many delegates noted that most measures can be implemented at low additional cost, but uncertainties remain regarding their lifetime payback through avoided damages and disruptions. Delegates called for improved tracking of major events and associated costs, as well as assessing the costs and benefits of resilience measures. Approaches discussed included results-based regulations, new mechanisms to cover the costs of extreme weather and the integration of resilience into new energy infrastructure investments. Participants also highlighted the importance of development finance and the strong linkages to climate adaptation and mitigation agendas.
- Ten representatives from the insurance sector provided insights on evolving natural catastrophe insurance products for the energy sector. They noted strong interlinkages between insurability and investment decisions, citing challenges in regions facing mounting climate risks, particularly in hydropower. Insurance providers were recognised as critical partners in understanding evolving risks and costs, and delegates welcomed regular engagement with them.
- Discussions also covered the role of governments, regulators, and standards-setting bodies. Delegates suggested integrating resilience considerations into broader security and energy strategies. Regulators were identified as central to delivering improved outcomes while safeguarding affordability. Standards bodies can also play a role in embedding no-regrets, cost-effective updates into the design and deployment of energy equipment and infrastructure, and closer partnership with these entities was encouraged.
- Finally, participants discussed the importance of cross-sectoral and international cooperation. Delegates emphasised that coordination of approaches and standards is essential given the interconnected nature of energy systems.
- Delegates welcomed the IEA’s role in convening this meeting and encouraged future discussions. They pointed to future work the IEA could support on energy resilience, including mapping current risks, identifying “no-regrets” measures, expanding analysis of infrastructure exposure, sharing best practices, and supporting better data and tools to inform investment and financing decisions.
- Technical coordination with the regional energy market platforms, national security actors, and stakeholders in finance, insurance, and environment should also be considered.
- The Netherlands, as chair of the forthcoming IEA Ministerial, underscored that these areas could be taken forward as part of the IEA’s work programme, including the analytical and tracking activities suggested during the roundtable.