

# Strengthening Capacity of Power Sector Practitioners in the Indo-Pacific Region: Technical Workshop under the Quad Infrastructure Coordination Group (QICG)

## Outcome Document



## Overview

Most of the Indo-Pacific region's power infrastructure is highly prone to climate and weather changes including "areas that are flood prone, low-lying, drought prone, and highly exposed to severe storms"<sup>1</sup>. From fuel mining to low voltage distribution to consumers, climate change can affect the the entire power supply chain, impacting dependent infrastructure systems such as telecommunications, health and Water Supply and Sanitation (WASH), affecting communities<sup>2</sup>. Some key challenges in the Indo-Pacific region include Lack of robust and granular data, inadequate forecasting models, widespread social vulnerability, and locally associated risks and issues with compliance. There is however a scope for mainstreaming resilience into power infrastructure systems in the Indo-Pacific region. This can be made possible through better forecasting models for reducing climate risks, improved resilience at asset and system level, and building capacity of practitioners and policy makers and financing infrastructure resilience in the power sector.

## Context

The Coalition for Disaster Resilient Infrastructure (CDRI), in collaboration with the Ministry of External Affairs, Government of India, conducted a 4-days Technical Workshop under the aegis of the Quad Infrastructure Coordination Group (QICG). Organized as part of India's Quad Presidency, with the support of the Ministry of External Affairs' Indian Technical and Economic Cooperation (ITEC) Programme, the theme of the workshop was, "Strengthening Capacity of Power Sector Practitioners in the Indo-Pacific Region"



Over 60 high-level Power sector delegates and experts from 18 countries from the Indo-Pacific region and Quad countries participated in the workshop. Experts and speakers from institutions that participated included the Ministry of Power, India, Central Electricity Authority of India, Central Power Research Institute , National Power Training Institute , Power Grid Corporation of India Limited , Grid Controller of India Limited , Power Research & Development Consultants Pvt. Ltd, and the Indian State of Odisha's Grid Corporation of Odisha, Tata Power Central Odisha Distribution Limited; National Renewable Energy Laboratory and Electric Power Research Institute) from the USA; Department of Foreign Affairs and Trade from Australia; the Embassy of Japan and Japan International Cooperation Agency.

This workshop was a follow-up to the two-day virtual workshop on the same theme held between 31 January 2023 - 01 February 2023, but this time with a greater focus on improving governance of the power infrastructure sector. The 2023 workshop had brought together over 25 participants from across 9 countries of the Indo-Pacific region, including utility companies, power sector professionals, and national disaster management agencies. The 2023 workshop focused on short-term measures in the process of building resilient power infrastructure including disaster preparedness, recovery and reconstruction, as well as social and community resilience. Deliberations in both workshops comprised exchange of good practices and case studies and solutions for improving on risk assessment, access to data, resilience planning and financing.

<sup>1</sup> ADB. (2012). Climate Risk and Adaptation in the Electric Power Sector.

<sup>2</sup> Hallegatte, S., Rentschler, J. and Rozenberg, J. (2019). Lifelines: The Resilient Infrastructure Opportunity. Sustainable Infrastructure;. © Washington, DC: World Bank. <http://hdl.handle.net/10986/31805> License: CC BY 3.0 IGO.

The workshop comprised three Sessions] during which the power sector professionals from Indo-pacific region shared their insights, experiences and possible solutions for building resilience of the Power Sector.

### Session 1

Aimed at understanding the current scenario and effects of physical and climate risk on the power infrastructure sector in the Indo-Pacific region, good practices and solutions, and implementation enablers and barriers and tools and technologies.

### Session 2

focused on assessing various climate vulnerabilities of the power infrastructure sector and various mitigating measures in the region, addressing power infrastructure risks, interdependency risk identification and management, tools and criticality analysis.

### Session 3

Enabled participants to evaluate various avenues of financing mechanisms and regulatory frameworks for climate proofing of power infrastructure through discussing investment prioritization, energy transition, resilience integration in legal and regulatory frameworks and innovative financing options.

CDRI presented the fully probabilistic model-based data platform – the Global Infrastructure Risk Model and Resilience Index (GIRI), the Odisha Power Sector study, the Infrastructure for Resilient Island States (IRIS) programme and the DRI Connect.

- GIRI was introduced to the participants to provide them an understanding of hazards and risks in their region currently and in the future. This also showcased the potential of the platform to be scaled up and widely adopted by practitioners for the power sector in their countries.
- For the IRIS programme, the second round of proposals was introduced especially to the SIDS nations participants from 8 SIDS Countries to encourage them to apply
- Participants were encouraged to join the Community of Practice for Power Sector Practitioners in the Indo-Pacific Region on the DRI Connect platform to continue engagement on power sector resilience.

Photos from the Workshop in New Delhi, India





## Key Recommendations

The key recommendations that emerged from the Workshop include:

- **Conduct Holistic Planning:** Adoption of a whole-of-system and asset lifecycle-centric approach, and integrating resilience in planning and management of power infrastructure systems.
- Consideration of multiple hazards while planning for resilience, keeping in mind cost-effectiveness of solutions through a Cost-Benefit Analysis exercise.



## Resilience Risk Assessments

- **Conduct** a historical and forward-looking analysis, with creation of performance metrics and addressal of threat and risks.
- **Account for risks** (including climate risks) and evaluate vulnerability and criticality analysis bi-directionally, incorporating variable external risks.
- **Promote** targeted investments backed by resilience metrics, to improve data availability and standards.
- **Designing** Standard Operating Procedures and conduct mock drills.

## Evidence-based Decision Making and Investments

- Always **keep communities in mind** as they are the end users of energy systems.
- Apply mixed methodologies for planning, integrating quantitative and qualitative methods and consider all types of adaptive pathways in decision-making
- Demonstrate **demonstrate** strong technical leadership while using model-informed scenarios for decision-making.
- **Refer to** early warning systems (EWS), energy disaster information and data models such as CDRI's GIRI model as they are useful for evidence-based decision-making and predictive management when addressing current and future risks.
- **Promote** institutional resilience through capacity building Infrastructure professionals (upskilling and reskilling)
- **Maintain** inventory of assets and leverage technology for retrofitting, predictive maintenance and geo-mapping, reviewing design standards and strengthening Business Continuity Management Plans.