

Date: 26 February 2025

Request for Expression of Interest (EOI)

Power Sector Resilience Study in Chile

Coalition for Disaster Resilient Infrastructure (CDRI) invites an Expression of Interest (EOI) from eligible consulting agencies for a study titled “Power Sector Resilience Study in Chile”.

The objectives, scope of work, deliverables, reporting, supervision, etc. are mentioned in the **Terms of Reference (ToR)**.

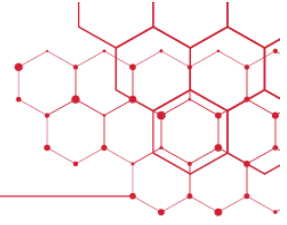
Interested agencies should provide information in the format given in **Annexure 1**, demonstrating that they have the required qualifications and relevant experience to perform the services.

The shortlisting and eligibility criteria are given in the Information for agencies and ToR.

Agencies submitting an EOI may be required to present their proposals before the shortlisting process. Shortlisted agencies will be invited to submit their technical and financial bids in the Request for Proposal (RFP) stage. The final selection of the agency/consulting firm will be based on the Quality and Cost-Based Selection (QCBS) method.

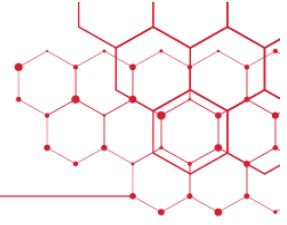
Interested consultants may obtain further information and may also give their comments on the objectives and scope of work at the email addresses below.

The EOIs (*not more than 40 pages*) have to be submitted electronically to **E-mail: tender.projects@cdri.world by 23:59 hrs (IST) on 26 March 2025** in PDF format.



I. INFORMATION FOR THE CONSULTANT

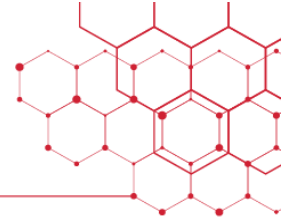
Client Name	Coalition for Disaster Resilient Infrastructure (CDRI)
Brief description of the required services	Considering the impacts of disasters and climate change on power infrastructure, CDRI intends to undertake a comprehensive and scientific study to assess the state of power infrastructure in Chile and develop a roadmap for building resilient power infrastructure for both present and future needs. (Refer to ToR, Section 4)
List and description of expected outputs to be delivered	Deliverables are listed under the ToR.
Nodal person	Mr. Deepak Rawat Designation: Senior Specialist Procurement E-mail: tender.projects@cdri.world Queries, if any, can be shared on the above-mentioned email ID until 17 March 2025.
Location of work	Chile
Expected duration of work	12 months
Criteria for Preliminary Examination of EOI	<ul style="list-style-type: none"> - Relevant experience of the Agency - Relevant experience of the proposed Team Leader - Proposed Team Composition - Overall experience of the agency - Documents of registration/incorporation in the country of origin - Agency not blacklisted by any Govt. institution
Criteria for essential eligibility/qualification	<ul style="list-style-type: none"> - The agency must have experience of at least 10 years in conducting similar research studies for National/Sub-national Governments or Agencies/Departments, multilateral and Bilateral agencies. - Demonstrated experience in developing frameworks on infrastructure resilience at global and national scales will be an added advantage. - An agency with prior experience in conducting technical/ research studies on planning/ design/ standards/ mitigation/ damage assessment/ resilience frameworks for power infrastructure assets will be given priority. - The agency should have a team of experienced professionals from relevant fields relating to the subject matter of the proposed study. The agency should engage an adequate team of professionals having expertise in power infrastructure (generation, transmission, distribution, demand management), disaster preparedness, emergency management, economic and financial analysis, design of DSS tools <p>In addition, the consulting organization or joint venture should meet the following requirements:</p>



	<ul style="list-style-type: none"> a. The consulting organization must demonstrate experience in at least two (2) consulting contracts related to the above assignment and the requested outcomes of this consultancy that were executed in the last five (5) years, each contract for not less than US\$ 150,000. b. Proven experience and knowledge of disaster risk, climate change, and the power sector in the Americas, as well as experience working in South America, are required. c. Proven experience in producing high-quality reports that can be published by Multilateral agencies. d. Demonstrated experience in dealing with relevant industry stakeholders and policy, legal and regulatory aspects of the power sectors in Chile and Latin America region. e. Demonstrated experience in cost-benefit analysis, financial instrument and business development, and similar work in the context of the above assignment. f. Demonstrate experience in power system planning & design, utility planning, and advisory, including at transmission, sub-transmission, and distribution g. The consulting organization will integrate a team of professional experts with relevant experience for this consultancy and will propose a director to coordinate this consultancy with the CDRI team.
Who can apply	Proposals are invited from institutions/organizations only.

Note:

1. CDRI or any of its designates reserves the right to cancel this request for EoI and/or invite afresh with or without amendments, without liability or any obligation for such request for EoI and without assigning any reason. Information provided at this stage is indicative and CDRI reserves the right to amend/add further details in the EoI.
2. The EOI is not an offer and is issued with no commitment. CDRI reserves the right to withdraw EOI and or vary any part thereof at any stage. CDRI further reserves the right to disqualify any bidder, should it be so necessary at any stage.



II. TERMS OF REFERENCE (ToR)

Power Sector Resilience Study in Chile

1. Context

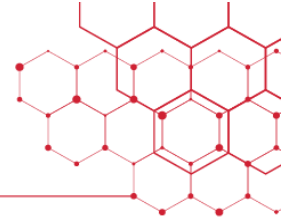
The power sector in Chile faces multiple threats from natural hazards and climate change, in particular geological events. Greater resilience to the power sector impacts will be essential to the technical and economic viability of the power sector and its ability to cost-effectively meet the rising energy demands driven by global economic and population growth.

Given its geographical and geological characteristics, the Chilean territory is exposed to various natural hazards, such as earthquakes, tsunamis, sea surges, volcanic eruptions, and extreme hydrometeorological events that in turn cause floods and mass movements, inter alia. Its territory is also exposed to anthropic events, such as forest fires and other biological events that alter ecosystems and compromise community's livelihoods. The foregoing briefly accounts for the diversity and complexity of risk scenarios to which populations, infrastructure, and livelihoods are exposed.

Due to its location on the eastern border of the Pacific Fire Belt, Chile has one of the highest volcanic and seismic activities in the world, due to the presence of the Andean Volcanic Arch and the largest diversity of seismic sources. It is also one of the OECD member countries most exposed to disasters of natural origin, with 54% of its population, and 12.9% of its total surface exposed to three or more hazards (Dilley, 2015).

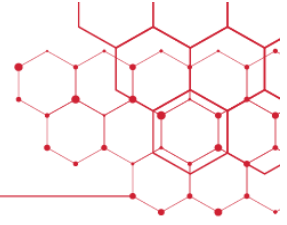
MAIN DISASTERS AND HAZARDOUS EVENTS IN CHILE (2001-2017)

2001	2002	2005	2006	2007	2008	2010
High-plateau summer rainfall January 8 Arica and Parinacota through Antofagasta Regions.	Forest fire Reserva Forestal Malleco January 20 La Araucanía Region	Forest fire Torres del Paine February 17 Magellan and Chilean Antarctic Region	Frontal System July 10 Valparaíso through La Araucanía Regions	Earthquake Aysen April 21 Aysén del General Carlos Ibáñez del Campo Region	Eruption Llama Volcano January 1 La Araucanía Region	Earthquake Cauquenes February 27 El Maule Region
	Frontal System June 2 Atacama through La Araucanía Regions	Frontal system May 10 Metropolitan Region of Santiago through Aysén del General Carlos Ibáñez del Campo Regions		Earthquake Tocopilla November 14 Antofagasta Region	Eruption Chaitén Volcano May 2 Los Lagos Region	Large-scale drought 2010-2015 The Atacama through Los Lagos Regions
		Earthquake Tarapacá June 13 Tarapacá Region			Frontal System August 24 El Maule through Los Ríos Regions	



2011	2012	2014	2015	2016	2017
Eruption Puyehue-Caulle Volcanic Complex June 4 Los Ríos Region	Landslide Río Las Minas March 12 Magellan and Chilean Antarctic Region	Earthquake Iquique April 1 Tarapacá Region	Forest fire Canelillo/Valdés January 11 Maule Region	Frontal system April 14 Valparaíso through Libertador General Bernardo O'Higgins Regions	Forest fire January 2 Valparaíso through La Araucanía Regions
Forest fire Torres del Paine December 27 Magellan and Chilean Antarctic Region	High-plateau Summer Rainfall March 14 Arica y Parinacota through Tarapacá Regions	Forest fire Camino La Pólvora, Vertedero El Molle April 12 Valparaíso Region	Eruption Villarrica Volcano March 3 La Araucanía Region	Earthquake Chiloé December 25 Los Lagos Region	Landslide San José de Maipo February 25 Metropolita n Region
Forest fire Pichiqueime December 30 Bío-Bío Region			Forest fire Curva El Parque March 13 Valparaíso Region		Frontal system May 11 Atacama through Valparaíso Regions
			Landslide Antofagasta and Atacama March 25 Antofagasta through Atacama Regions.		Landslide Villa Santa Lucía December 16 Los Lagos Region
			Eruption Calbuco Volcano April 22 Los Lagos Region		
			Landslide Tocopilla August 5 Antofagasta Region		
			Earthquake Illapel September 16 Coquimbo Region		

All the previous disasters and hazardous events impacted in different ways the reliability, security, and normal operation of the power system.



2. Background of study

The consequences of the Chilean geographical and geological characteristics are manifested in dimensions and scales that impact the whole society and compromise the country's development, thus leading to the challenge and permanent opportunity to learn from experience and promote a prospective approach to disaster risk management.

Each year between 1980 and 2011, Chile sustained average losses of about 1.2% of its GDP due to disasters of natural origin (UNISDR, 2015). The possibility of frequently sustaining large damages and losses in human, economic, and financial terms is one of the most serious challenges faced by Chile.

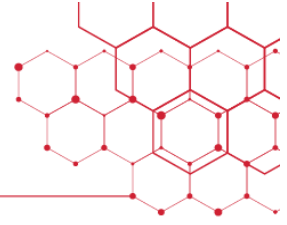
Given the high percentage of supply interruptions attributable to natural causes, the government of Chile recognizes the need to understand the root causes for these interruptions and to learn from the experience of past events in order to define a roadmap toward improving the resilience of their power infrastructure systems to make them resilient to existing and future hazards.

The Ministry of Energy has recently advanced by performing valuable analyses that can serve as the basis for this collaboration. The three main studies to be considered are described below.

- Assessment of the effects of climate change on the projection of national energy demand in 2020 (GIZ & Ministry of Energy, 2022)¹: The purpose of this study is to incorporate climate change impacts on energy demand modelling and forecasting in the Chilean energy planning process. The impacts of climate change on energy systems are diverse. A bibliographical review shows that the effects of climate change on energy supply have been well explored. However, given that the effects of climate change on energy demand are less direct, they have not been studied in the same depth.
- Climate-resilient infrastructure analysis for the energy sector (GIZ & Ministry of Energy, 2023)²: The objective of this study is to provide an analysis of the current state of preparedness of strategic energy infrastructure to moderate potential damages or to benefit from opportunities associated with climate change.
- Analysis and development of a technical proposal for quantitative impact indexes in the national energy system in the face of natural and exacerbated threats produced by climate change (Ministry of Energy, 2023): The objective is to propose, simulate, and project vulnerability and resilience indexes for energy infrastructure (electricity and fuels) for the year 2060 in the face of hazards exacerbated by climate change.
- Development of a study that perfects the system of quantitative indexes of the impacts of the climate crisis on the Chilean national energy system (GIZ and Ministry of Energy, 2024): Its objective was to improve on the first proposal of indicators developed in 2023 by the same institutions. Here, greater scope and strengthening of the proposal of indicators by energy segment and subsectors is achieved, as well as a cost-benefit analysis and a visualization of the indicators in Tableau.

¹ Available here: <https://energia.gob.cl/pelp/cambio-climatico-y-calidad-del-aire>

² Available here: https://www.energypartnership.cl/fileadmin/user_upload/chile/media_elements/Studies/Informe_final___Analisis_de_resiliencia___GIZ_EP_ChileAI_emaniamania_ISBN.pdf



In addition, it has published its Sectoral Plan for Adaptation to Climate Change³ mandated by Law No. 21,455 and is developing its Sectoral Plan for Disaster Risk Management mandated by Law No. 21,364.

3. Objectives of the Proposed Study

The study's overall goal is to improve the resilience of power infrastructure in Chile (and other similar geographies) to disasters and climate change consequences, by increasing awareness and improving understanding of risk management among power sector stakeholders, as well as improving their capacity to take adaptive actions to mitigate these risks and cope with the impacts of future extreme events.

4. Scope of Work & Deliverables

Natural hazards are among the leading causes of power outages around the world.⁴ The impacts of hazards have demonstrated the need for a thorough understanding of the power infrastructure system and the measures taken to reduce the impacts of natural hazards. This study will look at all aspects of the power system infrastructure, as well as all stakeholders and user groups, considering all supply chain segments, including fossil fuel supply, generation, transmission, distribution, and consumer.

The study is divided into three tasks based on the above output to enable the country's electricity infrastructure to be improved and made resilient to impacts of hazards.

Key tasks-

The consultants will conduct detail reliability and resiliency assessment of Chile's power infrastructure and will look at the various aspects of the system and aim to do the following:

4.1 Task I: Understand the exposure of power sector assets to natural hazards and climate change.

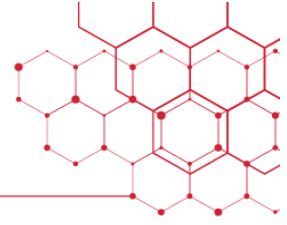
It is important to identify and understand the natural hazard exposure. The study will use hazard data and findings from existing sources to infer the multi-hazard risk of direct losses to power infrastructure in the country. The task will analyse the entire power system, network design, system planning criteria (like load limit, etc.), and reliability criteria used in Chile, to carry out a criticality analysis and identify the most critical combination of assets that need to be hardened or made redundant to improve system reliability and resilience.

The first task will include the following activities-

- a. Conduct an in-depth study of (existing) historical data on multi-hazards, exposure and vulnerabilities, and projections of future/emerging risks for the power sector. Based on the progress developed in the study including analysis and development of a technical proposal for quantitative impact indexes in the national energy system in the face of natural and exacerbated threats produced by climate change (Ministry of Energy, 2023) and the study that perfects the system of quantitative indexes of the impacts of the climate crisis on the Chilean national energy system (GIZ and Ministry of Energy, 2024).
- b. Compile a comprehensive map of historical natural hazard data and its impact on the power sector infrastructure in Chile. Based on the progress of the Geographic Information System for Energy Risk Management (SIGGRE, for its initials in Spanish), of the Ministry of Energy, a

³ Available here: https://energia.gob.cl/sites/default/files/documentos/20241213_proyecto_definitivo_plan_sectorial_energia_13_dic.pdf

⁴ Stronger Power: Improving Power Sector Resilience to Natural Hazards. Washington, D.C.: World Bank Group.



platform that has information regarding both electricity and fuel infrastructure, as well as tsunami flood risk layers, volcanic risk layers, density of forest fire occurrence. In addition to other risk layers and tools that SENAPRED has.

- c. Identify the major cause of power system failures due to the natural hazards events from past incidents.
- d. Identify exposed power sector assets due to natural hazards and climate change.
- e. Evaluate the risks and exposure over the short, medium, and long term and create risk maps.
- f. Propose criteria for the identification of critical infrastructure in the energy sector, considering the impact that the unavailability of this infrastructure could imply for final customers and national essential services. Although there is currently a list of critical infrastructure, it is necessary to refine the criteria that define a facility as critical.

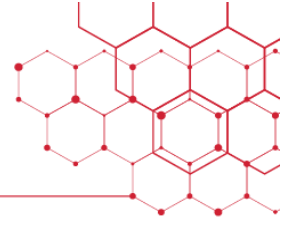
4.2 Task II: Measure the risk and vulnerabilities for all the components of power supply chain segments and determine the cost of natural hazards.

Power sector vulnerability can be characterized as a function of the sensitivity and recoverability of an asset and the power system to the natural hazard to which they are exposed.

The second task will include the following activities:

- a. Methodology to measure risk, vulnerabilities and resilience of power sector infrastructure concerning the different natural hazards including climate change within the different value chains of the power sector. Based and the study that Perfects the system of quantitative indexes of the impacts of the climate crisis on the Chilean national energy system (GIZ and Ministry of Energy, 2024). Furthermore, the CDRI's Odisha project⁵ can serve as a reference for developing the methodology.
- b. Identify typologies for different risks to components and networks within different value chains of the power sector infrastructure including power infrastructure proposed to achieve the net-zero transition.
- c. Assess potential cost benefits of increased resiliency, including disaster risk reduction in Chile's power sector.
- d. Assess vulnerabilities, while considering possible changes in deployed assets and systems.
- e. The analysis will include zone-wise estimation and probabilistic or deterministic (scenario-based) analysis of the risk of direct losses to all current and future components of the power infrastructure, depending on the availability of data.
- f. Review of resilience metrics used in the energy industry, to identify which would be the most appropriate to apply in Chile, with the purpose of identifying vulnerable areas, infrastructure that must be reinforced, and location of energy infrastructure, among others.

⁵ [https://cdri.world/upload/pages/1804897762250303_202407180637power-sector-policy-brief%20\(odisha\).pdf](https://cdri.world/upload/pages/1804897762250303_202407180637power-sector-policy-brief%20(odisha).pdf)



- g. Review the planning, design, permitting, and management stages/ standards of power infrastructure in the country and assess their current and potential resilience.

4.3 Task III: Develop a roadmap and recommendations for improving resilience in the existing and future power infrastructure.

A complete assessment of vulnerability and the direct and indirect costs will provide an understanding of the broad range of issues that will inform the choice of resilience measures and recommendations and the analysis of their costs and benefits.

Further, this task will focus on recommending a range of resilience measures, including hardening (e.g., engineering changes, elevating, retrofitting, or upgrading); new construction or relocation; policy, planning, and operations; smart grid technology such as improved observability and controllability of the grid through communications and monitoring; ecosystem-based approaches; and risk transfer (e.g., indemnity insurance). The list of possible measures should also consider potential transformation in the future electricity system.

The third task will include the following activities-

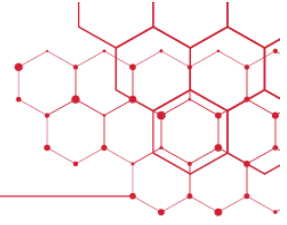
- a. Identify gaps in the existing system/proposed power infrastructure plan concerning local needs, governance, regulations, global best practices, and literature and propose a course of action to address the identified gaps.
- b. Identify and assess current and projected vulnerability to climate threats and propose appropriate recommendations.
- c. Review the planning, design, permitting, and management stages/ standards of power infrastructure in the country and assess their current and potential resilience.
- d. Identify entry points for mainstreaming climate resilience considerations in current institutional and regulatory systems and provide specific recommendations for legislative and regulatory amendments.
- e. Prioritisation of infrastructure components having high criticality and high vulnerability to various hazards to which they are exposed. Create an asset prioritization matrix to support decision-making on investment in reconstruction, retrofitting, or relocation.
- f. Based on the prioritization matrix, identify and estimate investments needed to meet reliability and resiliency requirements.
- g. The Consultant will organize a workshop with government representatives, consortium partners, and private sector partners to validate the Draft Final Report. The report shall be refined and finalized as appropriate based on the feedback received during the workshop.

The Ministry of Energy of Chile and SENAPRED shall provide the data on hazards, exposure, and vulnerability to the consultant for analysis. The consultant shall analyze the provided data to build an understanding of the needs with regard to power infrastructure resilience and make recommendations.

4.5 Expected Deliverables

The expected set of deliverables includes:

- a. Inception Report: This report will be developed within the first 45 days after the contract is awarded. It will identify and compile relevant literature on power infrastructure in Chile from



various sources, including the agency's own research, materials shared by the ministry, and inputs from stakeholders. Additionally, the report will include the work plan, outline the overall study framework (i.e., methodology), and present the initial results from Task 1.

- b. Inception Meeting (In Chile) : The workshop will bring together key stakeholders to discuss the preliminary results of the project and outline the next steps for upcoming deliverables
- c. Task 1 Report: The results of the Task 1 should be compiled and designed into a comprehensive report.
- d. Task 2 Report: The results of the Task 2 should be compiled and designed into a comprehensive report.
- e. Task 3 Report: The results of Task 3 should be compiled and designed into a comprehensive report.
- f. Policy brief & Annexure: A policy brief should be developed and designed to compile the key results and recommendations from the Task 1, 2, and 3 reports. It should include short-term, medium-term, and long-term action plans for key decision-makers in the power ministries. Additionally, the policy framework should outline the methodology followed for the study, ensuring that other geographic regions facing similar challenges can adopt the approach and develop their own roadmaps. The annexure should contain a detailed asset-wise classification derived from the study, enabling the relevant ministry to take appropriate steps as recommended in the reports.
- g. Dissemination Workshop (In Chile): Present the findings in a well-structured presentation during the workshop. The three reports, policy brief, and annexure will be officially shared with all attendees.

4.5.1 Deliverables Review

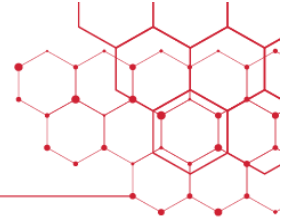
Reporting will take place over multiple drafts, each reviewed by the Steering Committee. The Agency will be expected to incorporate the committee's inputs into clear and well-structured reports that effectively address the questions posed. The reports should adhere to the publication quality criteria and style followed by CDRI, which will be shared with the Agency.

5. Confidentiality and sensitivity

CDRI is a partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions. The projects undertaken by CDRI are for scientific inquiry to build resilient infrastructure. Further, the Agency shall agree that power infrastructure are sensitive assets and house sensitive information with regards and must ensure confidentiality. Further, the Agency shall not promote or publish findings of the report that may, directly or indirectly, affect the sensitivity and confidentiality during or after the project.

6. Timeline and Payment Schedule

- 1. The estimated project duration is **twelve months**.
- 2. In case of delays in any intermediate milestones, the research agency agrees to deploy additional resources and efforts to recover delays.



3. The interested agency shall be free to propose delivery milestones and corresponding payment schedules as per their understanding of the project requirements given in the ToR. However, the payment schedule shall explicitly mark the percentage budget proposed for the various components. The tentative composition for the cost breakup of the project is given below (Refer to Table. 1)
4. The budget and milestones should account for workshops/stakeholder consultation meetings required for User need assessment and other activities proposed in TOR.

Table 1: Deliverables, Timelines (*Calendar days)

Sr. No.	Project component	Deliverable	Timeline* (T= project start)
1	Project inception report	Inception report describing the scope, types of data available, approach, project milestones and timeline, workshops, responsibility matrix, project risk, and their mitigation plans.	T + 45 days
2	Inception Meeting	Inception meeting for sharing the preliminary results from the project and discussing how the project would be moving forward.	T + 65 days
3	Task 1 Report	As per Section 4.1	125 days
4	Task 2 Report	As per Section 4.2	185 days
5	Task 3 Report	As per Section 4.3	305 days
6	Policy Brief & Annexure	As per Section 4.5 (f)	335 days
7	Dissemination Workshop	Dissemination workshop for sharing learnings with key stakeholders/ representatives from government and private sector	365 days

7. Staffing Requirements

The Agency submitting the proposal should have the requisite expertise, qualifications, and minimum experience as given in the table below. If all the required skills are not available within the institute/ firm, it is encouraged to associate with other institutes/ firms. Appropriately curated consortiums of academic institutions/ think-thanks/ firms are appreciated to fulfil the entire gamut of requirements.

CVs of key experts will be used for the evaluation of Technical Bids. Any additional CVs shall not be considered in the assessment of the Technical Proposal. However, the Agency must propose a complete team that will work on the project. The Agency can use additional personnel (apart from the Proposed Team) as required to achieve the project's aims. CDRI reserves the right to seek more details regarding the qualifications and experience of the key experts, including samples of previous works.

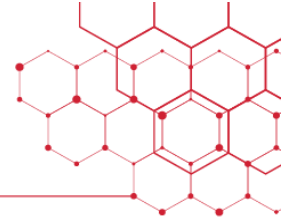


Table 2: List of Key Experts to work on the project

Team Composition	Expertise	Qualifications in relevant fields with weightage	Minimum Years of relevant work experience
1. Team Leader (Power Infrastructure Expert)	Relevant experience in power system design, power reliability and management, regulation, and related fields. Background in disaster management/ infrastructure resilience. Prior working experience in Cambodia and ministries would be desirable.	PhD and/or Masters in electrical engineering/Power Systems Engineering or related field.	10 years
2. Power System Planning and Operations Expert	Relevant experience in power system planning, operations, and analysis; development of transmission/distribution lines/corridors, substation facilities, RE projects, etc., Background in disaster management/ infrastructure resilience preferred.	PhD and/or Masters in electrical engineering / Power Systems Engineering or related field.	10 years
3. Power Regulatory Expert	Relevant experience in Regulatory, Policy, Tariff, and Commercial matters pertaining to Generation, Transmission and Distribution Utilities. Background in disaster management/ infrastructure resilience preferred.	PhD and/or Masters in Finance/Power Management, Chartered accountant, or related field.	10 years
4. Disaster and Climate Risk Management Expert	Relevant experience in disaster and climate risk identification/evaluation, reduction, mitigation and adaptation, and resilience building, preferably working in power infrastructure space.	PhD and/or Masters in environmental science, Climate Change, Engineering, Disaster Risk Management, or a related field.	7 years
5. GIS Expert	Experience in GIS and its applications in Disaster/Climate Risk Assessment. Experience with geospatial information technology, Disaster Risk Management, and spatial database management. Work experience in the power infrastructure space is desired.	PhD and/or Masters in Geography, Geo-informatics, Engineering, Disaster Risk Management, Climate change, Environmental Science, or a related field.	10 years

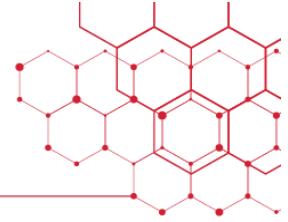
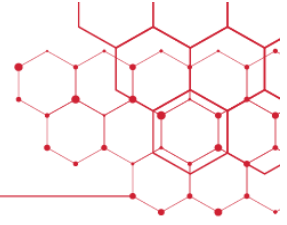


Table 3: Additional Experts/Consultants

These experts will be engaged on an as-needed basis for the project; however, Personnel No. 6 and Personnel No. 8 should be mandatory, along with the key experts for the project.

Team Composition	Expertise	Qualifications in relevant fields with weightage	Minimum Years of relevant work experience
6. Power Sector Standards Experts	<p>In-depth knowledge of electrical codes and standards (both Chilean and international).</p> <p>Experience of working in Chile and knowledge of the country's energy sector.</p> <p>Excellent Spanish communication skills (oral and written).</p>	PhD and/or Masters in master's in electrical engineering/ Power Systems Engineering or related field.	10 years
7. Energy Economist	<p>Relevant experience in fields of energy markets, regulatory policies, economic analysis and/or financing of energy systems, energy management, and process engineering sector particularly in the field of implementation of high-impact, cost-effective energy management and process engineering solutions</p>	PhD and/or Masters in Electrical/Power Engineering and/or Energy Economics or a related discipline	10 years
8. Risk Analysis Experts	<p>Relevant experience in in disaster and climate risk identification/evaluation, reduction, mitigation and adaptation and resilience building, preferably worked in power infrastructure space.</p> <p>Experience of working in Chile and knowledge of the country's energy sector.</p> <p>Excellent Spanish communication skills (oral and written).</p>	PhD and/or Masters in environmental science, Climate Change, Engineering, Disaster Risk Management, or a related field.	7 years
9. Governance/Public Policy Implementation Expert	<p>Relevant experience in the development and implementation of public policy, experience in policy analysis, and drafting. Background in disaster management/ infrastructure resilience preferred.</p>	PhD and/or Masters in Public Administration, Public Policy, Policy Management, or related subject	10 years

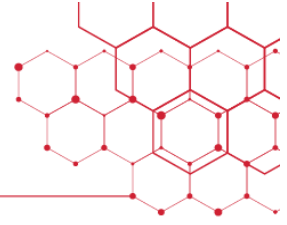


Apart from the experts listed in Tables 2 and 3, the agency must hire staff to monitor and coordinate the day-to-day activities of the project. While these personnel do not need to be included in the team profile submitted for evaluation, their costs should be accounted for in the agency's quoted cost.

If all the required skills are not available within an organization, they are encouraged to associate with other partners, including local experts/organizations. Appropriately curated consortiums are appreciated to fulfill the requirements of project objectives. CVs of the Key Experts will be used for the evaluation of Technical Bids. Consultants are to use any additional personnel (apart from the Proposed Team) as required to achieve the aims of the project. The CDRI reserves the right to seek more details regarding the qualifications and experience of the key experts.

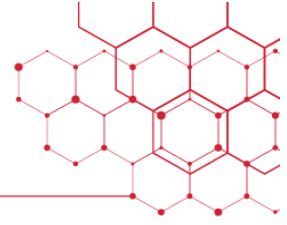
8. Additional Information

1. Please note that CDRI may facilitate the process of data collection and meetings with the requisite stakeholders, but the primary responsibility for these will lie with the Agency.
2. The Agency will propose a standard form for the Project Management Report (PMR) in their proposal.
3. The Agency shall report and communicate the status and products of the project to the CDRI representative via a written PMR on the first business day of each month after the project's initiation.
4. There will be quarterly Project Meetings following project initiation. An inception report should be provided at the first Project Meeting. All the quarterly reports and the PMRs should be communicated in English language.
5. The Agency will closely interact and report to the Client's team that will accept the deliverables.
6. The CDRI will not be providing any facilities to the Agency for this project.
7. Licensing: All data procured and developed for this project will be done on behalf of the CDRI. The intent is that the data shall be licensed to allow for free access and distribution in a manner that follows the Open Database License (ODbL). The license includes the right of the CDRI (and sub-licensees) to freely access and distribute data.
8. All work products created or produced by the Agency under the ToR shall be considered the property of CDRI. Accordingly, the Agency will not own work products created under the ToR, nor possess particular or exclusive usage rights to those work products, and may not use the work products in any manner apart from the ToR except as per the written authorization of CDRI.
9. The Agency must ensure the protection and confidentiality of private and/or legally protected information and data created under this project.
10. The Agency must ensure the security of data and information in accordance with international and local legislation and practices.
11. Information and data created according to the ToR should follow internationally accepted standards and practices. In addition, the methods and procedures used in producing information and data consistent with the ToR should follow prevailing scientific standards, techniques, and professional ethics regarding objectivity and independence.



12. The Agency must provide documentation of the methodologies used to generate data created or produced under the ToR, including metadata for all data files.
13. All data and work products created under the ToR shall be transmitted in their entirety and promptly to the Client via commonly used electronic formats appropriate to the information or data. In addition to the structures defined above, other data examples include tabular data should be transmitted in Microsoft Excel, DBF, or CSV format; textual information should be transmitted in Microsoft Word or TEXT format.
14. After the inception stage, the Agency shall prepare a detailed schedule and task-flow diagram, which depicts the interrelationship of various tasks in the assignment and depicts how they lead to completing the different tasks. The Team Leader/Project Manager of the Agency will be the principal contact and is expected to be available during project implementation. The Agency shall be responsible for all aspects of the performance of services as outlined in the ToR.
15. The ownership of the raw data collected by the Agency during the study and the deliverables, including documents, maps, images, processed data, etc. will rest with CDRI. The Agency will keep the data and work products/outcome documents confidential. Dissemination of the outputs/outcomes/reports/framework/tools will require the written authorization of the CDRI.
16. Any other related information specific to the study/assignment necessary to be furnished to all the bidders.
 - a. The cost of logistics for organizing Workshops/stakeholder consultancy to complete the scope of work will vary based on the mode of workshops (online or in-person). Thus, the logistics costs of the workshops will be reimbursed as per actual.

[Note: Logistics does not include the Agency's staff time, or resource persons, or coordination. For web-based meetings, this does not include the cost of purchase of hardware or software, only services if any.]



III. Annexure 1

Format for submitting consultant information

1. Name of Agency
2. Contact Information including Address, Phone Number, and Email ID
3. Name and contact details of Nodal person
4. Year of establishment of the Agency
5. Registration/ Incorporation details
6. Self-certification for not being blacklisted/debarred by any Govt. Institution
7. A brief write-up about the Agency
8. Year-wise annual turnover details for the last 3 financial years with supporting documents
9. Any documents in support of the above or eligibility criteria mentioned in the EoI
10. Overview of proposed team leader and team composition based on the understanding of ToR
11. Brief overview of the proposed methodology and possible innovation or enhancement of scope
12. List of completed projects of a similar nature and a brief description of services performed.

Name of Client	Title of Project	Sponsoring Agency	Date of award and date of completion	Cost of Project	Brief description of relevance to the current project

13. Any other supporting documents
