

**NEA Engineering Company Limited (NEAEC) Call for: Application for Roster/Register of
Project Review Panel (International)**

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NEA ENGINEERING COMPANY LIMITED (NEAEC)

NEA Engineering Company Limited (NEAEC), Nepal is working on Detailed Engineering Study of few large hydro power projects including Phukot Karnali (480MW) PROR, Betan Karnali (442MW) PROR, Kimathanka Arun (450 MW) PROR and other similar projects for different developer Clients. The NEAEC wishes to receive the services of undermentioned Experts/Specialists, experienced in the design of large hydraulic infrastructure for the purpose of an International Expert Review (IER) on the Detailed Engineering Report (DER) of Betan Karnali PROR Hydroelectric Project. The NEAEC also plans to employ the above services as a part of Project Review Panel to review the Design Documents on behalf of its Clients to bring these Detailed Engineering Studies to International standards and satisfaction of Project Financiers.

Panel of International Experts (Foreign National or Non-resident Nepalese)

SN	Job Title	Scope of duties	Qualification
1.	Hydropower Engineer/ Project Technical Lead	<ul style="list-style-type: none"> • Review on conceptual layout of the given project • Location of Headworks, conveyance and powerhouse with respect to topography, geology & hydrology • Review/comments on planning & optimization of components and suggest measures to optimize project cost • Review and comments on civil drawings and specifications, feasibility studies, alternative analysis, design criteria and other overall Engineering aspects in accordance with international best practices • Reflect the optimal design in the cost estimates and tender documents. • Review/suggest measures(if any) to minimize cost of the specific components 	<ul style="list-style-type: none"> • M.Sc. or higher Degree in civil/water resources/ hydropower Engineering or as approved equivalent. • Minimum of 15 years of working experience out of which, 5 of those years having Int'l experience as hydropower projects abroad on projects of capacity more than 300MW during feasibility study and/or detailed engineering • Bachelor's Degree with more than 25 years specific experience.
2.	Dam Engineer/Designer	<ul style="list-style-type: none"> • Comment on type of dam selected, disposition of associated structures (spillways, intake, toe powerhouse, cofferdams, gates) based on ground conditions • Review on dam design criteria & loadings • Review on stability analysis, method, approach • Review/ on Dam Design • Comments/suggestions on construction method, flood handling during construction 	<ul style="list-style-type: none"> • Master's in Civil/Structural Engineering or Equivalent. • Extensive experience with Dam design in all aspects. • Minimum of 15 years of experience working on Engineering projects out of which, 5 years Int'l experience in hydropower projects in projects of capacity more than 300 MW during Detailed Engineering study. • Must have experience in project with Dam height 150 m or more.

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		<ul style="list-style-type: none"> • Review/suggest measures(if any) to minimize cost of the specific components 	<ul style="list-style-type: none"> • Bachelor's Degree with more than 25 years specific experience.
3.	Tunneling/Geology/Geotechnical Specialist	<ul style="list-style-type: none"> • Review investigation report pertinent to underground structures • Review/comments on planning of underground structures • Review design approach, methods and analysis • Apply quick analysis and check the support systems adopted for underground structure • Review specifications and construction plans • Review/suggest measures(if any) to minimize cost of the specific components 	<ul style="list-style-type: none"> • Minimum of an M.Sc. in Tunnel/Geotechnical Engineering or equivalent • Minimum of 15 years of working experience out of which, 5 years Int'l experience in design of tunnel and underground structures during Detailed Engineering study, preferably in hydropower projects.
4.	Structural Engineer	<ul style="list-style-type: none"> • Review the design approach and methods, loadings and their combinations applied based on the ground conditions • Review the structural analysis and design of super structure and foundation of project components such as intake, surge tank, Powerhouse Comments on gaps if any on analysis/design and suggest measure for improvement • Review comments on detailing, phasing of construction • Review and guide in the structural and foundation requirements and coordinate with all other design disciplines to provide a comprehensive design product conferring the site condition, and phasing of construction, etc. • Review/suggest measures(if any) to minimize cost of the specific components 	<ul style="list-style-type: none"> • Minimum Master's Degree in Civil/Structural Engineering or equivalent. • Minimum of 15 years of working experience out of which, 5 of those years having Int'l experience in structural design including 3D finite element analysis (FEA) linear and non-linear modelling and earthquake engineering analysis during Detailed Engineering study, preferably in hydropower projects.
5.	Headworks & Sediment Engineering Specialist	<ul style="list-style-type: none"> • Review planning of headworks and disposition of component structures • Review the sediment data and sediment load assessed • Review the compliance of performance standard of headworks, particularly on safety, sediment handling and sustainability of peaking reservoir • Review/suggest measures(if any) to minimize cost of the specific components 	<ul style="list-style-type: none"> • Minimum of an MSc in Water Resource/ Hydropower with specialization in Sediment Engineering/Handling • Minimum of 15 years of working experience out of which, 5 of those years having Int'l experience as Sediment management/Handling Expert in P/RoR projects during Detailed Engineering study preferably in hydropower projects.

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6.	Hydraulic Engineer	<ul style="list-style-type: none"> • Review the layout of structures with respect to hydraulics • Review the hydraulics of headworks, such as spillways, intake and energy dissipators • Review/comments on hydraulics of conveyance including hydraulic transients and surge analysis • Review/suggest measures(if any) to minimize cost of the specific components • 	<ul style="list-style-type: none"> • M.Sc. or higher Degree in Hydraulic Engineering/ Hydropower Engineering or equivalent. • At minimum of 15 years of working experience out of which, 5 of those years having Int'l experience in hydraulic design including computational flow dynamics (CFD) analysis of hydropower/similar projects of capacity more than 300MW medium/high head projects • Bachelor's Degree with more than 25 years and specific experience.
7.	Hydro-mechanical Engineer	<ul style="list-style-type: none"> • Review design and quality assurance of hydro-mechanical components in Interim Design Report • Review and prepare guidelines for design development and assist in providing technical aspects • Review design of Penstock, Gate and valve • Review of steel liner and similar components • Review/suggest measures(if any) to minimize cost of the specific components 	<ul style="list-style-type: none"> • Bachelor's Degree in Mechanical Engineering or equivalent. • Minimum of 15 years of experience in Engineering project out of which 5 years with Int'l experience as hydro-mechanical Engineering/expert in projects of capacity $\geq 100\text{MW}$ or ≥ 200 meters head.
8.	Electro-mechanical Engineer	<ul style="list-style-type: none"> • Review the sizes and dimensions assumed for the EM equipment in view of the physical restrictions of project site with input from Electrical Engineer • Review of methods of powerhouse electro-mechanical equipment installation works, considering the site conditions. • Review cost estimates for powerhouse mechanical equipment based on the construction schedule. • Review study report and give suggestions in all design criteria, parameters and standards, all major calculations and analysis including all the drawings prepared. • Review the implementation schedule for installation works of electric equipment. • Review the technical section for the electrical equipment and 	<ul style="list-style-type: none"> • Master's Degree in Mechanical Engineering, or other relevant subject. • Minimum of 15 years of experience in hydropower project out of which 5 years Int'l experience as electro-mechanical Engineering/expert in projects of minimum capacity $\geq 100\text{MW}$ and unit size, more than 50 MW. • Bachelor's Degree with more than 25 years specific experience

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		<p>transmission lines in the tender documents.</p> <ul style="list-style-type: none"> • Review the interfacing modality between EM and other Contractors in case of multi-contract construction mode with inputs from Contract Specialist. • Review/suggest measures(if any) to minimize cost of the specific components 	
9.	Contract Specialist	<ul style="list-style-type: none"> • Review all the contractual analysis required in the light of FIDIC clauses and technical specification, if available during the review period. • Review and comments on progress and performance to ensure goods and <i>services</i> confirming to the Contractual requirements. • Review and guides the study reports as EPC level design documents with respect to FIDIC clauses and technical specification, if available during the review period. • Review/suggest measures(if any) to minimize cost of the specific components • Review/suggest measures(if any) to minimize cost of the specific components 	<ul style="list-style-type: none"> • Bachelor's Degree in Engineering/contract management or equivalent • Experienced as contract expert in large scale projects manage by the FIDIC system of contract regulation. • Minimum 15 years of experience out of which 5 years Int'l experience. • Experience in arbitration of claims or complaint.
10.	Construction Planner	<ul style="list-style-type: none"> • Review overall planning of project components • Assess the construction methodology • Assess the production schedule of construction material and concrete • Assess the construction schedule proposed • Review and guide to optimize the overall Construction Schedule/time and optimize the overall cost • Review/suggest measures (if any) to minimize cost of the specific components • Review/suggest measures(if any) to minimize cost of the specific components 	<ul style="list-style-type: none"> • Bachelor's Degree in Engineering/contract management/Construction Planning or equivalent • Experience as contract expert in large scale projects. • Minimum 15 years of experience out of which 5 years having Int'l experience
11.	Powerhouse Planner	<ul style="list-style-type: none"> • Review the layout of powerhouse for given topography and geological settings • Review/suggest layout/disposition of powerhouse components and 	<ul style="list-style-type: none"> • Master's in Civil/Structural Engineering or Equivalent • Extensive experience with underground and surface Powerhouse design in all aspect. • At minimum of 15 years of experience working on

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		associated accessories minimizing powerhouse size/cost <ul style="list-style-type: none"> • Review/ suggest construction planning • Review/suggest measures to minimize cost of the specific components • Review/suggest measures(if any) to minimize cost of the specific components 	Engineering projects out of which, 5 years having Int'l experience in hydropower projects abroad on projects with involvement during feasibility study and Detailed Engineering study. <ul style="list-style-type: none"> • Bachelor Degree with more than 25 years specific experience.
12.	Electrical Engineer	<ul style="list-style-type: none"> • Review of methods of electrical equipment installation works, considering the site conditions. • Review cost estimates for electrical equipment based on the construction schedule. • Review study report and give suggestions in all design criteria, parameters and standards, all major calculations and analysis pertaining to electrical equipment including generator including all the drawings prepared. • Review the implementation schedule for installation works of electric equipment. • Review the technical section for the electrical equipment and transmission lines in the tender documents. 	<ul style="list-style-type: none"> • Minimum of Bachelor's Degree in Electrical Engineering, or other relevant subject. • Minimum of 15 years of experience in hydropower project out of which 5 years Int'l experience as electro-mechanical Engineering/expert in projects of minimum capacity $\geq 100\text{MW}$ and unit size, more than 50 MW. • Bachelor's Degree with more than 25 years specific experience
13.	Project Review Coordinator	<ul style="list-style-type: none"> • Manage and provide overall coordination among the international review panel during the design review 	<ul style="list-style-type: none"> • Minimum of Master's degree in engineering, management • Minimum of 15 years' experience in planning and design phase as technical lead or project management role preferably in international dams and hydropower projects. • Additional Project Management Professional training or certifications preferred
14.	Seismicity Specialist	<ul style="list-style-type: none"> • Review investigation report pertinent to underground structures • Review/comments on planning of underground structures • Review design approach, methods and analysis • Apply quick analysis and check the support systems adopted for underground structure • Review specifications and construction plans 	<ul style="list-style-type: none"> • Minimum of an M.Sc. in Geotechnical Engineering or equivalent • PhD preferred • Minimum of 10 years' of working experience including international experience in seismic review of large dam and hydropower projects during Detailed Engineering study.

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		<ul style="list-style-type: none"> Review/suggest measures (if any) to minimize cost of the specific components 	
15.	Design CADD Specialist	<ul style="list-style-type: none"> Responsible for checking the design using AutoCAD, AutoCAD Civil 3D and other 3D BIM tools to ascertain that the overall design is conflict free. Support other technical leads in quantify take off of civil, mechanical, and electrical quantities using 3D design tool during the detailed engineering review 	<ul style="list-style-type: none"> Minimum of an M.Sc. in Civil/Mechanical/Hydropower Engineering or equivalent Minimum of 15 years' experience as a senior designer during the feasibility and detailed engineering design phase of the dams, hydropower, and heavy civil engineering projects.
16.	QA/QC Specialist	<ul style="list-style-type: none"> Perform QA/QC review of the design review performed by other technical leads Responsible for making sure the review inputs provided by technical leads are consistent and coherent and help coordinate the conflicting review comments are resolved to have a robust design 	<ul style="list-style-type: none"> Minimum of an M.Sc. in Civil Engineering or equivalent Minimum of 15 years of working experience out of which, 5 years Int'l design review experience during Detailed Engineering study of dams, hydropower and other large water infrastructure projects.

Interested eligible and competent experts/specialists may obtain further information from NEAEC Website; www.neaec.com.np

Interested experts/specialists must submit their Curriculum Vitae along with the Expected Remuneration and facilities (hourly/daily/weekly/monthly) and other conditions of engagement to perform the services within 15 days from the first published date by E-mail or hard copy. The notice deadline may be rolled over automatically as per company need.

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