



CHEVRON NIGERIA LIMITED

(R.C. 6135)

Operator of the NNPC/Chevron Joint Venture



TENDER OPPORTUNITY PROVISION OF WORLD CLASS RESERVOIR STUDIES (CALL-OUT) TO SUPPORT EXPLORATION AND DRILLING OPERATIONS NipeX Tender Number: CNL.00000172

INTRODUCTION:

Nigerian National Petroleum Corporation (NNPC) / Chevron Nigeria Limited (CNL) joint venture invites interested and pre-qualified companies for provision of Services listed under 'Scope of Work/Service Requirements' which will be carried out in respect of NNPC/Chevron Nigeria Limited 2018 - 2021 Oil and Gas Wells Drilling, Completions and Workovers for Offshore and Onshore Operations. Availability to commence provision of Services is required for an anticipated Commencement Date: first (1st) Quarter of 2019 with a Primary Term of two (2) Years with a possible Optional Term of one (1) Year.

SCOPE OF WORK:

- Interested Applicants must be able to provide reservoir modeling/ forecasting services to selected JV assets through coordination by of CNL ARTS RC group to assess:
 - Preparation of new Field Development Plans
 - Identification of new infill drilling opportunities
 - Identification of field performance improvement opportunities through well performance optimization, fluid lifting optimization and field level performance de-bottlenecking
 - Identification of improved recovery methods (secondary and tertiary) and associated benefits in terms of asset value
- Studies will typically consist of one of the following three types (Type and number of studies will be determined at commercial stage):
 - Type One: Green field (No or minimal production), few wells (<10 typically).
 - Type Two: Brown field: up to 15 years of production, typically 10 to 20 wells.
 - Type Three: Mature brown field: More than 15 years of production, typically 20+ wells.
- Scope of work has two main high-level components that requires proper interaction and integration:

Earth Modelling:

- Data management and transfer
- Detail data analysis and quality assurance and control
- Build detailed initial model using appropriate geostatistical techniques
- Static model and history matching be data driven of very detailed demonstration of analysis done and evaluation carried out
- Define key uncertainty ranges and automated workflow for HCIP uncertainty assessment
- Provide a range of final static models that capture technical sound connectivity and HCIP ranges for probabilistic simulation relative to Society of Petroleum Engineers methods estimating and auditing standards for reserves
- Jointly with CNL reservoir simulation SMEs from CNL ARTS Group, get a final buy-in from the CNL Asset Team.

Reservoir Simulation:

- Participate in creating a record of available and used input data (MDT/RFT, PVT, etc.) with the appropriate Asset Team guided by the CNL ARTS Group and get it signed off by the Asset Team.
- Provide preliminary dynamic data validation with Asset Team guided by the CNL ARTS Group Focal Person and get it signed off by CNL Asset Team.
- Generate the appropriate production data cross-plots, determine appropriate limits in pressure and well phase cumulative production for the history matching portion of the work. Determine possible dual or single completion wells at fault or with questionable allocation guided by the CNL ARTS Group Focal Person and Asset Team rep and get it signed off by the Asset Team.
- Generate preliminary Material Balance model using MBAL or similar tool for models with multiple fault blocks look for evidence of leakage across faults.
- Run a series of mid case models at multiple scales provided by the earth scientist. Determine optimum scale guided by the CNL ARTS Group Focal Person.
- Run and history match the all-low-level, all-high-level and all mid-level cases to determine the ranges
- Run a series of screening models (folded Plackett-Burman design) for multiple development scenarios without optimization. Driven by CNL ARTS Group Focal Person, find the heavy hitters on the history match as well as the desired outputs (fluids in place and reservoir recovery). Provide data for possible rebuild of the static models for the final stage.
- Run a series of final models (D-Optimal design) for multiple development scenarios with and without optimization guided by the CNL ARTS Group Focal Person. Multiple development scenarios may include base case (as-is), gas-lift, Waterflood and EOR. This effort will be guided by Asset Team and CNL ARTS Group Focal Person. Identify and optimize potential in-fill opportunities guided by the CNL ARTS Group Focal Person.
- Jointly with Earth Scientist pick a low case, mid-case and high-case model. Verify that opportunities indicated by the stochastic assessment still hold. Demonstrate assumptions used and present detailed understanding of the basis and results for the models generated. Guided by CNL ARTS Focal Person and the CNL Asset Team representative, optimize gas-lift, waterflood or EOR performance when required.
- Jointly with CNL earth model SMEs and the CNL ARTS Group focal person, get a final buy-in from the Asset Team.

For study types 2 and 3 only:

- Generate preliminary Material Balance model using MBAL or similar tool for models with multiple fault blocks, look for evidence of leakage across faults.
- Generate the appropriate production data cross-plots, determine appropriate limits in pressure and well phase cumulative production for the history matching portion of the work. Determine possible dual or single completion wells at fault or with questionable allocation guided by the CNL ARTS Focal Person and CNL Asset Team representative and get it signed off by the Asset Team.
- Run and history match the all-low-level, all-high-level and all mid-level cases to determine the ranges for history-match parameters and resulting forecasts.

Deliverables:

- Detailed documentation of static and simulation models including all the steps and thought process for the model generation and forecasting.
- Detailed documentation of the history matching process including the end results and how-to steps (for study types 2 and 3 only).
- Detailed documentation of uncertainty ranges and responses in the form of tornado and Pareto charts.
- Complete set of static and simulation models in Petrel and INTERSECT formats.
- Final report delivered to CNL as a word and PowerPoint document containing the required deliverables in an editable format. This written final report must be suitable for reserves audits and implementation of recommendations. Soft and Hard copies will be submitted in line with Chevron documentation standards.

MANDATORY TENDER REQUIREMENTS:

- To be eligible for this tender exercise, interested bidders are required to be pre-qualified in the NipeX Joint Qualification System (NJQS) database Category **3.02.19 (Sub-Surface Geophysical & Reservoir Studies & Consultancy)**. All bidders who are pre-qualified and "live" in this category by the bid close date stated in this advert will receive the Invitation to Technical Tender (ITT).
- To determine if you are pre-qualified and view the product/service category you are listed for: Open <http://vendors.nipexjqs.com> and access NJQS with your log in details, click on Products/Services tab to view your status and product codes.
- If you are not listed in the product service category you are registered with DPR to do business, please contact NipeX office at 8-10 Bayo Kuku Street, Ikoyi Lagos with your DPR certificate as evidence for verification and necessary update.
- To initiate and complete the NJQS prequalification process, access www.nipex-ng.com click on services tab followed by NJQS registration.
- To be eligible, all interested bidders must comply with the Nigerian Content requirements in the NipeX system.

NIGERIAN CONTENT REQUIREMENTS:

CNL is committed to the development of the Nigerian Oil and Gas business in accordance with the Nigerian Oil and Gas Industry Content Development Act 2010 (NOGICD Act) enacted by the Federal Government of Nigeria in April 2010.

Pursuant to the enactment of the NOGICD Act, the minimum Nigerian Content in any project, service or product specification to be executed in the Nigerian Oil and Gas Industry shall be consistent with the levels set in the schedule of the NOGICD Act and any other target as may be directed by the Nigerian Content Development and Monitoring Board (NCDMB).

Interested bidders shall comply with the provisions of the NOGICD Act and all applicable regulations. Bidders that do not meet the Nigerian Content criterion will not be allowed to participate in the next tender stage

The following are the Nigerian Content requirements bidders are expected to comply with in their technical bid submission.

- Demonstrate that the entity is a Nigerian Indigenous Company, or Nigerian Indigenous Company as the contracting entity in genuine alliance or joint venture with foreign company with details on scope and responsibilities of parties for this work. Such companies must show evidence of joint venture binding agreement duly signed by the CEO of both companies including evidence or plans of physical operational presence and set-up in Nigeria.
- Furnish details of company ownership and shareholding structure; submit clear photocopies of your CAC Forms CAC 2, CAC 7.
- Provide evidence of what percentage of 1) your key management positions is held by Nigerians and 2) what percentage of the total work force are Nigerians; show overall percentage of work to be performed by Nigerian resources relative to total work volume.
- Provide a Nigerian Content Plan providing a detailed description of the role, work scope, man-hours and responsibilities of all Nigerian companies and personnel that would be involved in executing the work; provide details of Nigerian Content focal point or manager.



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- State proposed total scope of work to be conducted by Nigerian personnel (whether contracted directly or under subcontract agreements) with names and addresses including evidences of well-equipped offices and workshop; attach past experience of such patronage.
- Specific to this project, provide detailed plan for staff training and development on engineering, project management and procurement (including all software to be used, number of personnel, name of organization providing such training and evidence of past training record) for Nigerian personnel including description of any specific programs in place for transfer of technology and skills to indigenous businesses and Nigerians over the next five (5) years.
- Provide evidence of domiciliation of project management and procurement centers in Nigeria with physical addresses (not P.O. Box).
- Location of in-country facilities, (Equipment, Storage, Workshops, repair & maintenance facilities and testing facilities).
- Provide details of any other Nigerian content initiative your company is involved in.
- Provide evidence of MOU with OGTAN registered trainer to conduct classroom module of training and on the job attachment.
- Provide human capacity building development plan including budget which must be a minimum of 10% of project man-hours or cost. Training will be targeted at developing capacity other than bidder's personnel. Trainees will be nominated from a database maintained by NCDMB and the services of OGTAN registered trainers utilized to cover classroom modules.
- All bidders for a project/contract/service with a completion period of 12 months or more are required to submit as part of the Nigerian Content requirement, a signed Memorandum of Agreement (MOA) between it and one of the research and development (R&D) Clusters established by the Nigerian Content Development and Monitoring Board (NCDMB). The MOA shall be relevant to the project and shall

indicate how the bidder intends to use the relevant R&D Clusters during project execution.

CLOSE DATE:

Only bidders who are pre-qualified and "live" with NJQS Product/Category **3.02.19 (Sub-Surface Geophysical & Reservoir Studies & Consultancy)** by **16:00 Hours, November 30, 2018** being the advert close date shall be invited to submit technical bid.

Additional information:

1. Intending bidders eligible for this tender opportunity are expected to be prequalified in NJQS under the above product/service categories.
2. The ITT and any further progression of this tender shall be via NipeX.
3. All costs incurred by interested bidders in preparing and processing NJQS prequalification shall be solely for the interested bidders' accounts.
4. This advertisement shall neither be construed as any form of commitment on the part of CNL to award any contract to any company and or associated companies, sub-contractors or agents, nor shall it entitle prequalified companies to make any claims whatsoever, and/or seek any indemnity from CNL and or any of its partners or affiliates by virtue of such companies having been prequalified in NJQS.
5. The tendering process shall be the NNPC contracting process requiring pre-qualified companies to submit technical tenders first. Following a technical review, only technically and financially qualified bidders will be requested to submit commercial tenders.
6. CNL will communicate only with authorized officers of the pre-qualifying companies and NOT through individuals or Agents.

Please visit NipeX portal at www.nipex-ng.com for this advert and other information.

Management
Chevron Nigeria Limited, 2 Chevron Drive, Lekki Peninsula, P.M.B. 12825, Lagos.

ES/NCDMB/CERT/CNL-ADV/0210/1800/TSD/WORLD CLASS RESERVOIR STUDIES (JV)