Request for Proposal (RFP)

Research Consultant for

Study on Green Hydrogen Production Potential: Kalimantan and Papua

Institute for Essential Services Reform

Tebet Timur Raya No.48B, Tebet

Jakarta Selatan

Indonesia

10 Juli 2025

Research Consultant for

Study on Green Hydrogen Production Potential: Kalimantan and Papua

1. Background

Indonesia has vast renewable energy potential that can be utilized not only for electricity generation but also for producing green hydrogen[1]. The utilization of green hydrogen in Indonesia holds strategic importance in supporting the decarbonization of hard-to-abate sectors, strengthening national energy security, and enabling renewable energy integration by serving as a flexible load and energy storage medium. Furthermore, green hydrogen presents an opportunity to expand access to clean energy in remote regions.

Given its wide range of potential applications, the Ministry of Energy and Mineral Resources (MEMR) projects that domestic demand for low-carbon hydrogen will increase significantly, reaching 11.7 million tons per year by 2060[2]. To meet this demand, Indonesia must optimize its abundant renewable energy resources as the primary source for low-carbon hydrogen production, particularly green hydrogen, as a replacement for grey hydrogen, which currently dominates domestic use. The period from 2025 to 2030 marks a critical phase for laying the foundation of Indonesia's hydrogen ecosystem, including the development of standards, regulations, and certification systems to support market growth.

To support Indonesia's readiness in meeting the growing demand for green hydrogen, a detailed and comprehensive mapping study of green hydrogen production potential is needed. This study will guide the development of green hydrogen production facilities, industrial hydrogen clusters, and efficient hydrogen distribution hubs. The mapping will integrate hydrogen demand analysis with an assessment of the economic potential of renewable energy sources to produce a more accurate and cost-based production potential map. Aligned with the national development planning agenda (RPJPN), this study will focus on two strategic regions for low-carbon hydrogen development in Indonesia: Kalimantan and Papua[3].

To address this need, IESR invites qualified experts to support a study that is expected to project the green hydrogen production potential based on the availability of renewable energy resources in Kalimantan and Papua. Additionally, it will identify locations with high renewable energy potential that are in close proximity to hydrogen demand centers, with the goal of enhancing distribution efficiency and optimizing the hydrogen supply chain.

---

[1] Ministry of Energy and Mineral Resources (ESDM). (2023). *Strategi Hidrogen Nasional.*
[2] Ministry of Energy and Mineral Resources (ESDM). (2025). *Peta Jalan Hidrogen dan Amonia Nasional.*
[3] Ministry of National Development Planning/Bappenas. (2024). *Rancangan Akhir Rencana Pembangunan Jangka Panjang Nasional 2025-2045.*

2. Objectives

The consultant is expected to support the IESR team in conducting a study on the green hydrogen production potential in Kalimantan and Papua. This study aims to ensure that the development of green hydrogen projects is more targeted, effective, and aligned with Indonesia's domestic potential and future needs. The objective of this study is to:

1. To analyze the green hydrogen production potential (through electrolysis) in two priority regions, Kalimantan and Papua, based on their renewable energy (RE) potential.
2. To identify potential locations for developing industrial hydrogen clusters, considering access to renewable energy sources and proximity to hydrogen markets/demand centers.
3. To estimate production capacity and infrastructure requirements to support the development of the green hydrogen supply chain in Kalimantan and Papua.
4. To assess the environment, social, and spatial planning aspect
5. To formulate recommendations for developing regional green hydrogen markets.

3. Scope of Work

In this project, the consultant will undertake the following key tasks.

1. Develop an inception report prior to the study, outlining key components such as the introduction, research questions, methodology, research process/plan, and timeline.
2. Literature review and Context Setting
    a. Review national and international literature related to green hydrogen production technologies, applications, and supply chains.
    b. Examine Indonesia's hydrogen policy direction and national targets.
    c. Hydrogen context to Kalimantan and Papua.
    d. Identify existing hydrogen production facilities that supply the needs of Kalimantan and Papua, including their locations, production capacities, and types of hydrogen produced.
3. Assessment of Renewable Energy and Water Resource Potential
    a. Map and assess the technical potential of renewable energy sources in Kalimantan and Papua. The renewable energy considered in this study is solar (on-shore and floating), wind (on-shore and off-shore), hydropower, geothermal, and waste biomass.
    b. Map and assess the availability of freshwater or alternative water sources for electrolysis processes.
    c. Estimate theoretical green hydrogen production (through electrolysis) capacity based on RE potential and water availability.
4. Hydrogen demand market in Kalimantan and Papua.
    a. Identify current and future demand for hydrogen (industrial, power sector, gas network, and transport) in Kalimantan and Papua. Conduct sectoral and spatial analysis of hydrogen demand centers.
    b. Map domestic and international trading ports.
    c. Map existing and projected industrial clusters relevant to hydrogen use.
5. Assess the hydrogen potential to meet hydrogen demand in Kalimantan and Papua.
    a. Analyze the spatial alignment of hydrogen supply and demand to identify feasible locations for hydrogen production facilities.
    b. Determine the available RE capacity for hydrogen production after meeting existing electricity

demand.

c. Assess the required electrolyzer type and capacity to utilize this potential, and estimate the corresponding water needs.
d. Estimate levelized cost of hydrogen (LCOH) for selected production sites (based on IESR's LCOH calculator).
e. Identify potential locations for hydrogen production areas/clusters through proximity analysis to ports and industrial zones.

6. Assess the technical, environmental, social, and spatial planning aspects supporting the hydrogen production site.
    a. Evaluate infrastructure needs and associated costs for hydrogen handling, storage, and transportation.
    b. Assess the environmental implications of developing hydrogen sites, including impacts on carbon emissions/climate change, water resources, land use, etc.
    c. Assess the social acceptance and potential impacts of future hydrogen projects at the selected sites, with consideration of the social dimensions relevant to SDG targets.
    d. Ensure alignment of future hydrogen project planning with land status and establish communication with relevant stakeholders.
    e. Support IESR in conducting workshops and disseminating project findings to stakeholders such as PLN, MEMR, Bappenas, PUPR, local governments, and others.
7. Recommendation for the hydrogen development roadmap
    a. Pathway to maximize the hydrogen market from these islands. Explore the regional, inter-island, and international market opportunities for hydrogen production in Kalimantan and Papua.
    b. Recommend priority project sites and infrastructure planning steps.
    c. Identify enabling conditions and policy mechanisms to support market and investment readiness.
8. Complete all deliverables as specified in Section 5 of this document.

4. Methodologies

The study is open to the methodology proposal proposed by the consultant that will be deeply discussed at the beginning of the study. The consultant is expected to give detailed methodologies for each scope of work. The consultant hired for this project will work collaboratively with the IESR Team. The expected methodology for the study is included but not limited to:

1. Desk-study for secondary data collection,
2. Geospatial modelling and overlay analysis,
3. Energy modelling,
4. Techno-economic analysis,
5. Site-survey and interview with regional stakeholders on selected hydrogen sites (Kalimantan and Papua),
6. FGD or IDI with stakeholders to validate the study findings.

5. Deliverables

The consultant is expected to submit the following deliverables throughout the course of the study. All final outputs must be submitted in **Bahasa Indonesia**, in an editable digital format, and professionally proofread.

Interim Deliverables

To ensure quality control and track progress, the following interim deliverables are expected:

1. **Inception Report**
   Submitted after the kick-off meeting, this report should outline the study methodology, work plan, timeline, and key points of coordination.
2. **Progress Report 1**
   A presentation slide deck summarizing preliminary findings and updates covering Scope 1, 2, and 3, to be presented during the first progress meeting.
3. **Progress Report 2**
   A second presentation slide deck capturing updated insights and draft outputs covering Scope 4 and 5, to be presented during the second progress meeting.
4. **Progress Report 3**
   A second presentation slide deck capturing updated insights and draft outputs covering Scope 6 and 7, to be presented during the second progress meeting.
5. **Preliminary Report**
   A draft version of the full report, including Scope 6, early analysis and complete structure for feedback prior to finalization.

Final Deliverables

At the end of the project, the consultant must submit:

1. **Database of Collected Information**
   A structured and organized dataset or spreadsheet compiling key data and references gathered throughout the study.
2. **Final Report**
   A final report covering all components of the scope of work, structured into the following recommended sections:
   a. Introduction
      - Background, objectives, methodology, and scope of work.

   b. Green Hydrogen Context
      - Green hydrogen supply chain.
      - Green hydrogen applications.
      - Green hydrogen production technologies.
      - Indonesia's policy direction and national targets.

   c. Renewable energy potential and water resources in Kalimantan and Papua
      - Technical and economic potential of RE resources.
      - Water resources for hydrogen production.
      - Theoretical green hydrogen production capacity.

d. Hydrogen demand analysis
   - Sectoral and spatial outlook of hydrogen demand in Kalimantan and Papua.
   - Identification and mapping of key demand centers and industrial clusters.

e. Green hydrogen market potential in Kalimantan and Papua
   - Clustering of hydrogen production sites and demand centers.
   - Techno-economic analysis on selected production sites.
   - Potential hydrogen industrial clusters.
   - Infrastructure and supply chain readiness.

f. Strategic Roadmap and Recommendations
   - Strategic regional market development in Kalimantan and Papua.
   - Timeline and implementation pathway.
     - Recommended priority sites and hydrogen clusters.
     - Infrastructure planning and enabling conditions.

The report should use APA 7th edition referencing, with a complete reference list included at the end.

6. Timeline

The project must commence in the **1st week of August 2025**, and the results of the project must be finalized no later than the **1st week of December 2025** as presented below. To track progress, it is suggested to have **biweekly meetings** between IESR and consultants. Moreover, consultants could provide a suggested timeline in completing the project as long as it is still in the period mentioned previously.

Activity/Deliverables	Description	Suggested Timeline	Payment Term
Kick off meeting of the project		**W1 August 2025**	
Inception Report	Outline detailed methodology, work plan, and preliminary desk research.	W2 August 2025	30%
Progress Report 1	Updated insights and draft outputs covering Scope 1, 2, and 3.	W1 September 2025	
Progress meeting 1		**W1 September 2025**	
Progress Report 2	Updated insights and draft outputs covering Scope 4 and 5.	W1 October 2025	
Progress meeting 2		**W1 October 2025**	**30%**
Progress Report 3	Updated insights and draft outputs covering Scope 6 and 7.	W2 November 2025	
Progress meeting 3		**W2 November 2025**	
Preliminary Report	A draft version of the full report.	W4 November 2025	

Finalization meeting of final report		**W4 November 2025**	**30%**
Final report and Handover		**W1 December 2025**	**10%***

**Final payment is subject to acceptance and approval of the final report.*

IESR team will be involved in supervision of the project and writing of the report, with some revisions and feedback given for the consultant to perform adjustments according to the contract

7. Required Skills and Experience

The qualifications of team consultant are as follows:

1. Led by a PhD degree in renewable energy, geoscience, geography, sustainable energy engineering, or relevant studies (Master's degree with extensive experience may also be considered).
2. A minimum of 3 years of experience for PhD (or 5 years for Master's degree) in related fields.
3. At least 2 years of professional experience in geospatial analysis using GIS software (e.g. ArcGIS, QGIS, etc.).
4. Demonstrated track record with renewable energy projects and/or economic estimation.
5. Previous experience and knowledge in green hydrogen is preferrable.
6. Working proficiency in English and Bahasa Indonesia.

This opportunity is open to **independent consultants** (with a supporting team) and **consulting firms based in Indonesia.**

8. Proposal Guidelines

All the bidding participants will expect to propose their proposals and required documents as part of IESR's commitment to encouraging openness and accountability in the bidding process, as follows:

8.1 Proposal

The potential service provider has to submit a proposal package, which consists of a technical proposal (background, task to be conducted, methodology, schedule), and a detailed cost proposal.

The annex of the proposal should include the following item:

1. Brief expert/company/institution profile.
2. The latest Curriculum Vitae (CV) of the team leader. CV of other team members with relevant experience is optional.
3. Relevant portfolio in conducting similar work or in a similar field.

Terms and conditions:

- If the individual/organization submitting a proposal must outsource or contract any work to meet the requirements, this must be clearly stated in the proposal. Additionally, costs included in proposals must include any outsourced or contracted work. Any outsourcing or contracting organization must be named and described in the proposal.
- Please describe the limitations and assumptions potentially used in the work.
- Please itemize all costs and include a description of associated services. Contract terms and conditions will be negotiated upon selection of the winning bidder for this RFP.

8.2 Mandatory required documents

1. Statement Letter of Compliance with Pre-Qualification Provisions
2. Statement Letter of Not Involvement in Prohibited Organizations
3. Statement Letter of Not Claiming Compensation
4. Business Entity Qualification Form
5. Statement Letter Not Under Court Supervision
6. Expression of Interest
7. Statement of Willingness to Deploy Personnel and Equipment
8. Statement of Overall Commitment
9. Field Capability Statement Letter
10. Statement of Authenticity of the Document
11. Integrity Pact

All required documents mentioned above can be downloaded through this link and should be completed in Bahasa Indonesia (s.id/documentsrfpcommsiesr).

All proposals must include proposed costs (in Indonesian Rupiah/IDR) to complete the tasks described in the project scope. Costs should be stated as one-time or non-recurring costs (NRC) and include tax. A more detailed proposal cost is encouraged to ease the selection process. The budget ceiling for this proposal is **IDR 400,000,000** for all costs required during the study period (including estimated travel cost and tax).

All required documents are expected to be received to IESR before 23:59 p.m. Indonesian Western Standard Time (WIB, GMT+7) on **Wednesday, July 23, 2025**. Any proposals received after this date and time will be regarded as inadmissible. The selection decision for the winning bidder will be made by **Wednesday, August 8, 2025**.

Bidders must submit a digital copy of their proposal via email to: Green Energy Transition Indonesia (GETI) Manager at erina@iesr.or.id, and cc to GETI Analyst at rheza@iesr.or.id, GETI Project Officer at alifiadarmayanti@iesr.or.id, IESR Senior Analyst at farid@iesr.or.id, IESR Research Coordinator at his@iesr.or.id, and MEL coordinator at deasy@iesr.or.id.

Please include **"RFP Response – Study on Green Hydrogen Production Potential"** in the subject line.

Contract negotiations with the winning bidder will commence immediately after selection.