



Request for Proposal (RFP)
LEAP model for the national energy plan

Institute for Essential Services Reform

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Jakarta Selatan

Indonesia

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OVERVIEW AND BACKGROUND

Institute for Essential Services Reform (IESR), a think tank based in Jakarta, Indonesia, has been working intensively to promote the acceleration of low carbon energy transition in Indonesia, through evidence-based policy advocacy. For the past 5 years, IESR also has been contributing significantly to promote energy transition discourse in Indonesia and has been working with national and local governments, associations, and civil society organizations to strengthen clean energy deployment in Indonesia.

Indonesia has ratified its commitment to the Paris Agreement through law no. 16/2016. As part of the mitigation action, Indonesia will increase its renewable energy development in accordance with National Energy Policy and Planning (*Kebijakan Energi Nasional/KEN* and *Rencana Umum Energi Nasional/RUEN*). According to the policy framework, Indonesia must achieve 23% renewable energy share in 2025 from the total energy mix which is double the current renewable energy mix (11.5% at the end of 2020). However, to comply with the Paris Agreement target, a higher penetration of renewable penetration, might be needed and therefore developed in this short span of time.

The existing RUEN was developed in 2017 using real data collected up until 2015 for several indicator such as socio-economic, energy, and environmental status. These data then were projected until 2050 by considering the existing and future policies at the time. However, looking at real data of these indicators until early 2021, it is clear there are discrepancies between the projected data in RUEN and the actual development. Additionally, there are number of policy developments between 2017-2020 that could significantly change the country's energy landscape and future development. As an example, given the massive renewable resources the country has, Indonesia has the potential to realize a more ambitious renewable energy mix target in its National Energy Plan. A roadmap to such ambitious target must be supported by a robust national energy plan to direct the energy market development in the right direction.

To provide a fact-based advocacy for reviewing the existing RUEN and projecting how does the current technological advances and policy development (both global and local) affect the country's energy system future development, IESR will conduct a national energy modelling using LEAP (Low Emission Analysis Platform). At the same time, building IESR team capacity for modelling energy plan would be needed to support future study and advocacy work.

1. PROJECT SUMMARY

This project will focus on three main deliverables:

1. Design and provide a LEAP model capable of producing similar results of the current national energy plan (RUEN) model for year 2020-2050. The model should have all the key assumptions in the main tree of LEAP (key assumptions, demand, transformation, and resources) as described in RUEN. The model shall also consider the upcoming technology and policy development in the energy sector such as the electric vehicle, hydrogen, synthetic fuel etc. The scenarios used in the model are subjects to discussion with IESR team and should consist of minimum three scenarios.
2. Write a narrative report summarizing the findings and analysis comparing the three different scenarios in the LEAP model.
3. Build IESR team capacity through workshop sessions on the following topics:



- a. LEAP modelling basic
- b. Produced LEAP model in the first deliverable
- c. NEMO (Next Energy Modeling system for Optimization)

The scenarios used in the first deliverable are subjects to discussion with IESR team and would include at the very least the following three scenarios:

- a. Business as Usual scenario (considering the current macroeconomic indicators, demographic and development until year 2020)
- b. Moderate scenario. The scenario would also be optimized based on cost of technologies
- c. Paris Agreement compliance scenario. The scenario would also be optimized based on cost of energy, and emission target to reflect the Paris Agreement compliance.

With this RFP, IESR is soliciting proposals from experts, or institution with extensive experience and portfolio in energy system modelling. IESR will evaluate all the proposals submitted. Following review of all proposals, IESR will select the experts/institutions that brings suitable expertise, most closely aligns with project objectives, and articulates a clear, achievable research plan to meet those objectives within the required timeframe.

2. PROPOSAL GUIDELINES

Proposals will be accepted until 10:00 p.m. Indonesian Western Standard Time (WIB, GMT+0700) on Friday, 26 March 2021. Any proposals received after this date and time will be regarded inadmissible. All proposals must be signed by an official agent or representative of the company submitting the proposal.

Main proposals should not be more than 10 pages in length. The annex of proposal should include following item:

- 1) brief company/institution profile.
- 2) the latest Curriculum Vitae (CV) of team leader. CV of other team member with relevant experience is optional.

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 briefly describe how the third deliverables (capacity building sessions) would be delivered.

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.

3. PROJECT PURPOSE AND DESCRIPTION

IESR would like to conduct a national energy plan modelling based on LEAP software. The model built will be able to reproduce the current RUEN results and able to simulate the Indonesia energy system that consider technological developments in the future that could enable Indonesia to meet the Paris Agreement target. These technological developments would include the electric vehicle, hydrogen, storage technology, fischer-tropsch fuel, electrification of industrial equipment, CCS etc. There would at least be three scenarios simulated in the model consisting of:

- a. Business as Usual scenario
An updated version of current national energy plan used in the previous RUEN but with more recent data that also consider impact of COVID-19 to the macroeconomic indicators used in the model
- b. Moderate renewable scenario
The scenario will be like the first scenario but with higher renewable energy supporting policy that would enable Indonesia to meet higher renewable energy mix than currently stated in RUEN. Further, the scenario would be optimized based on the least cost constraint. The optimization could use the NEMO or other proposed tool.
- c. Paris Agreement compliance scenario
A scenario where the energy development plan is evolving with the purpose of meeting the Paris Agreement target which will see a decline of carbon emission of the energy system before 2030 and moving toward net zero carbon by the 2050. Further, the scenario would be optimized based on the least cost constraint. The optimization could use the NEMO or other proposed tool.

IESR team would provide input to the scenario development (especially the second and third scenario). All the model and data (tree, branch, data, and assumptions) collected within the project timeframe would be handed over to the IESR team.

The minimum data, report, and model to be transferred to the IESR team are:

- Key assumptions data and its sources.
The historical data and projection used for the key assumptions should consist of primary and secondary data which are collected from credible sources.
- Demand, transformation, and resources data
The historical data and projection used for the demand, transformation and resources data shall use Indonesian specific secondary data.
- Assumptions and other data used, including the GHG emission and cost of technology
Assumptions could be made and should always be noted wherever the specific Indonesian data is unavailable (i.e., hydrogen, synthetic fuel, coal gasification data, technology cost etc.). Please provide the methodology used whenever adapting the non-Indonesian specific data to the model.
- LEAP model for Indonesia energy system with at least three scenarios already built.

The chosen partner shall also prepare a narrative report analyzing the LEAP model results and comparing the three scenarios which will be handed over to IESR team together with the model.

The minimum information to be included in the narrative report are:

- Model structure and methodology
- Summary of data sources and assumptions used
- An analysis comparing the three scenarios in the LEAP model on at least the following: energy mix, technology, GHG emission, and cost (energy system cost)

To further enable the IESR team to do its advocacy work, the chosen partner would also provide capacity building sessions. The sessions would be designed with the purpose of transferring the knowledge about the built national energy model and allowing the participating IESR team to do further analysis and development with the model.

The capacity building sessions should cover a minimum of 3 days of basic level and 4 days of intermediate level training sessions on LEAP. At the very least, the topics that would be covered in the capacity building sessions are:

- LEAP modelling basics (LEAP structure, LEAP capability as a modelling tool, constraint)
- Produced LEAP model in the first deliverable



- NEMO (introduction to NEMO, how to utilize it with the current LEAP model, how to do detailed planning, and cost benefit analysis for transition to a low-carbon economy)

The model, and report results will be used to support IESR’s advocacy work with relevant energy sector stakeholders, including the national government, local government, and private sector.

4. REQUEST FOR PROPOSAL AND PROJECT TIMELINE

Proposal Timeline:

Proposals will be accepted until 10:00 p.m. Indonesian Western Standard Time (WIB, GMT+0700), 26 March 2021. Kindly address Program Manager Energy Transformation IESR at deon@iesr.or.id for inquiries.

Evaluation of proposals will be conducted from 29 March through 1 April 2021. Follow up with the top three candidates will be conducted within this window to obtain any necessary clarification on items described within proposals.

The selection decision for the winning bidder will be made by 5 April 2021.

Upon notification, the contract negotiation with the winning bidder will begin immediately and must proceed extremely quickly to meet the project timeline.

Project Timeline:

The project must commence before 7 April 2021 and results of the project must be finalized no later than 25 June 2021.

A draft timeline is presented below. Internal changes may be made if mutually agreed.

Activity	Expected Timeline
<i>Collecting data for the key assumptions and sources</i>	7 April – 11 May 2021
<i>Discussion with IESR team on scenarios</i>	19 April – 11 May 2021
<i>Building the LEAP model</i>	30 April – 11 June 2021
<i>Idul Fitri holidays</i>	12 – 18 May 2021
<i>Capacity building sessions</i>	Proposed time between May-June 2021
<i>Results presentation, report & model handover to IESR team</i>	2 July 2021

Unless otherwise noted, work will be completed by the end of month identified above.

5. BUDGET

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).

NOTE: All costs and fees must be clearly described in each proposal.

6. BIDDER QUALIFICATIONS

Bidders should provide the following items as part of their proposal:



- Description of experience in LEAP and energy system modelling (experience in Indonesia energy system modelling would be beneficial)
- Examples of three or more similar projects conducted by you/your organization
- Anticipated resources you will assign to this project (total number, role, title, experience)
- Confirmation of timeframe for completion of the project
- Brief description on methodology and assumptions used

Bidders must submit a digital copy of their proposal via email to Program Manager Energy Transformation IESR at deon@iesr.or.id by 10:00 p.m. Indonesian Western Standard Time (WIB, GMT +0700) on 26 March 2021. Please include “RFP Response – LEAP” in the subject line.