



Request for Proposal (RFP)
**National Road Transportation Decarbonization Modelling -
System Dynamics Model Development**

Institute for Essential Services Reform

Jln. Tebet Timur Raya No. 48b

Jakarta Selatan

Indonesia

22 September 2025

RFP No.	1318/IESR/IX/PM-EST/ADM-RFP/2025
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Proposal due date and time	12 October 2025
Anticipated Award Date	22 October 2025
Contact Person/Department	Rifki Pradityo rifki@iesr.or.id Energy System Transformation Program

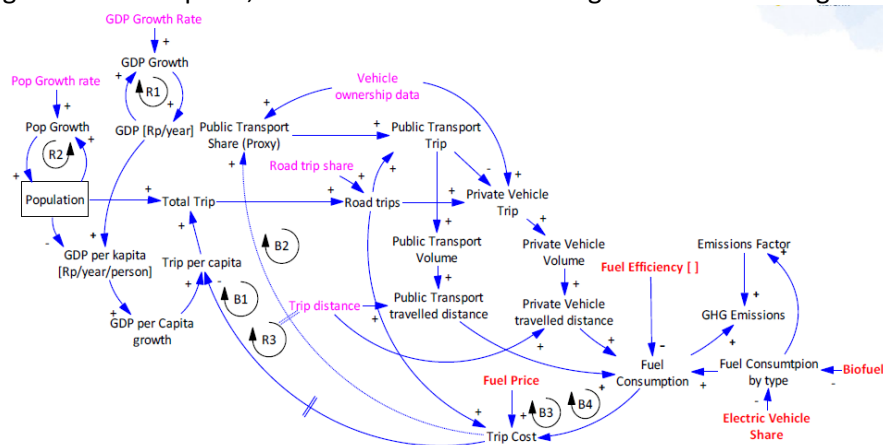
1 Introduction and Executive Summary

1.1 Background

Indonesia has ratified its commitment to maintain global temperatures below 1.5 °C, which is in line with the Paris Agreement and it is solidified through Law No. 16/2016 about Ratification Of The Paris Agreement To The United Nations. Even though the Indonesian government has set its Enhanced NDC targets (43.20% reduction in emissions by 2030 compared to BAU conditions with international support and net-zero emissions in 2060), these targets are still not enough to meet the goals of the Paris Agreement. The energy sector is projected to dominate Indonesia's emissions in the future.

The transportation sector is Indonesia's largest energy demand sector, consuming more than 2.4 million TJ in 2022 (Zahari and McLellan, 2024), replacing the industrial sector as the largest sector consuming energy since 2014. Of this, road transportation consumes 85% of the energy, with 70% attributed to passenger transportation and the rest for freight. In regard to the greenhouse gas (GHG) emissions, Indonesia's transportation sector emitted around 202 million tonnes in 2024 (IESR, 2025). Having a similar rate to fuel consumption, road transportation modes contributed around 90% of total transportation sector emissions, followed by the air and maritime transportation sectors, while accounting for roughly 25% of Indonesia's total emissions.

A few years back, IESR had already built a system dynamics model that figures the pattern of passenger transportation. The model integrates quantitative and qualitative approaches, simulating the impact of various policies. The model is based on the mobility trips and people's decision in selecting their mode of transport. The amount of mobility demand growth is influenced by the GDP and total population, while the travel costs would impact the growth negatively. The number of total trips were then defined into two main modal shares: (1) the ownership of private vehicles and (2) the usage of the public transport system. Those two categories were then becoming the basis of conversion to calculate the emission through fuel consumption, both in terms of diesel and gasoline. See the Figure below.



Source: IESR, 2023

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IESR would like to improve the existing model in order to cover the road transportation decarbonization comprehensively. The road transportation modes must consider freight/logistics transportation, which are indicated to have contributed significantly to greenhouse gas (GHG) and pollutant emissions. As freight transport was 90% dominated by trucking (GIZ, 2021), it was globally estimated to be around 44% of the GHG emissions in 2017. Meanwhile, the electrification of the HDV potentially provides a significant contribution to the emission reduction target by 20,68%, higher than other fuel technologies adoption: Alternative fuel HDV (6,05%), and Fuel cell HDV (2,22%). Unfortunately, no target yet indicated for truck electrification adoption in Indonesia, as reflected in other national electric vehicle modes target such as electric motorcycles (13 million units), cars (2 million units), and buses (90% of public transport fleets) by 2030 (WRI, 2024).

In parallel, the high dependency level to road-based logistics transportation compared to rail-based freight transport also makes it more concerning. The condition shift to rail freight transportation can also be one of the utilities to allow the emission reduction target, as it provides only a quarter to third of GHG emissions produced by trucks ([World Bank, 2022](#)). As per a study by GIZ (2019), the lack of marketing and policy of rail freight services in Indonesia becomes the primary cause of the poor and inefficient rail freight services that leads to lack of interest of the stakeholders and actors to utilize rail as the primary freight transportation. It comprised 0.2% (in tons-kilometer) of market share for rail freight services in 2018 (Mulyono, 2018).

IESR is conducting a study to develop a framework that addresses the transportation decarbonization opportunities through a system dynamics model. In line with our commitment and the aforementioned opportunities and challenges, this study is expected to understand more comprehensively the opportunities of multipathway transport decarbonization in Indonesia upon the national electric vehicle (EV) adoption as well as rail-based mass transport improvement, both in terms of passenger and logistics transportation. This study is expected to commence on 3 November 2025 and finish on 31 March 2026. Other information and details can be found in the following sections. This study expects the data collection, both primary and secondary, to take place as the basis of model validation and refinement according to the latest updated database in Indonesia.

1.2 Project Overview/Scope Summary

IESR is looking for partners with extensive experience and portfolios, capable of carrying out a system dynamic modelling on **National Road Transportation Decarbonization Modelling – System Dynamics Model Development**. The study will have two (2) main scopes: freight transport and passenger transport. Both are the scope of land-transport, which therefore maritime-borne and air-borne transport are not included.

At present, IESR does not have a freight transport model; this component will need to be developed from the ground up. As for passenger transport, IESR already has an existing model for both National and Regional models, which will need to be updated and incorporated with the expansion of the system dynamics framework.

The main objective of this study is to develop comprehensive land transportation GHG emission system dynamic models that incorporate both passenger and freight transport activities. This means also developing a freight transport behavior model. The details of aims and objectives are as follows:

a) Land borne freight transport

1. Identify the current modal share of freight transport, including road-based (truck) and rail-

based (logistic train) systems.

2. Model the freight transport existing demand and supply behavior
3. Model the mode-shift mechanism from road to rail, considering both supply and demand perspectives.
4. Develop a road-based logistics transport fleet decarbonization model (i.e. electricity or biofuel)

b) Land borne passenger transport:

1. Update IESR's existing electric vehicle (EV) model to accommodate the potential recent change behavior found from IESR study (e.g. after sales value)
2. Expand the mode-shift mechanism which is currently only limited to buses. The mode-shift mechanism is expected to also include rail, applied to both intercity (national model) and intracity (Jakarta model) contexts. The mode-shift mechanism is expected to be retrofitted into the current models.

c) Integrating land-based freight and passenger transport into one land-based transport emission model

2 Scope of Work and Deliverables

2.1 Detailed Project Description

The project will be implemented in three main, interrelated tasks:

2.1.1 Stage 1a: FGDs and/or interviews with responsible actors to map the current state of both passenger and freight transport landscape, with following requirements:

- Freight transport sector:
 - Conduct at least one (1) Focus Group Discussions (FGDs) and/or interviews with relevant and necessary stakeholders to map the current state of the freight transport sector.
 - Identify key characteristics of the freight transport landscape necessary for freight model development and data collection.
- Passenger transport sector:
 - Identify the modal shift mechanism for shifting to passenger rail transport through the FGDs and/or interview
 - Assess the current state of electric vehicle (EV) adoption and behavior for passenger transport development and data collection.
- Freight and passenger transport integration:
 - Map relevant policies for both passenger and freight transport to feed into the model exercise

2.1.2 Stage 1b: Concept model and data source explanation

- Sharing ideas of the existing system dynamic model between IESR and the consultant. This process is to understand the clear expectations of the procuring entity regarding how the model must be taken up to. The consultant's understanding of the relevant practical knowledge is expected in the discussions.
- Design the model plot in accordance with the results and insights obtained from discussions, FGDs and interviews, ultimately the possibility of model refinement, enhancement, and updating.

2.1.3 Stage 2: Data collection

- Identify and define the data types required for the modelling work.
- Collect secondary data from existing sources and conduct primary data collection through surveys (preferably face-to-face offline methods, for instance roadside interviews and traffic counting, if necessary, etc) in various location and cities across Indonesia that best represent the data needed for model development.
- Consolidate, clean, and organize the collected data to ensure seamless integration into the modelling framework.

2.1.4 Stage 3: Model Development

A system dynamics model will be developed to cover both freight and passenger transport, including:

a) Freight Model

- Develop a freight demand model. The model probably would need to come from the commodity type to map the current freight demand, depending on what data is available. The final result of the demand model is the origin–destination (OD) matrix and the total volume in terms of ton-km. The model would be at the national-level scale.
- Classify freight transport modes into categories: Heavy-Duty Vehicles (HDV – large trucks), Light-Duty Vehicles (LDV – vans, small trucks), Motor couriers, and Rail
- Incorporate mode choice mechanisms, particularly road-to-rail transitions.
- Build a sub-model for the adoption of electric trucks, identifying drivers and barriers influencing operators' decisions.

b) Passenger Model

- Expand the existing EV adoption model, including analysis of gaps, challenges, and opportunities.
- Model the behavior and role of public charging infrastructure (SPKLU–SPBKLU) and its impact on EV adoption decisions.
- Integrate intercity rail (existing passenger National level model) into the system dynamics model, mapping its activities and interactions.
- Integrate intracity rail (existing passenger Jabodetabek level Model) into the model framework.
- Expand the existing passenger transport model (currently limited to buses) to include rail options for modal shift analysis.

2.1.5 Stage 4: Final report and model finalization

a) Model Integration and Final Reporting

- Integrate the freight and passenger sub-models into a unified system dynamics model for holistic analysis.
- Final report written and approved by IESR

2.2 Specific Services/Products Required

- a) System dynamic model package
- b) Interim report for interim check-in in the presentation format
- c) Final technical report about model development, in presentation and report format.

It should be noted that the services and products in this project are the intellectual property of IESR. Therefore, the consultant is prohibited from using any products derived from this project for other

purposes.

2.3 Reporting Requirements and Project Timeline

The interim report should be submitted in PPT format, while the final deliverables must be provided in both PPT and Word formats, supported with visuals. These should be prepared within the restricted time window outlined below.

- **Research commencement:** The research must be commenced on 3 November 2025
- **Milestones and progresses:** Please see the details below. Agreed-upon periodical progress meetings will be scheduled to ensure the process goes smoothly.
- **Research finalization:** the results of the project must be finalized no later than 31 March 2026.

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

Deliverables and/or Milestones	Timeline	Payment term
RFP publication	22 September 2025	
RFP deadline submission	12 October 2025	
Proposals evaluation	13 – 22 October 2025	
Clarification meeting	22 – 24 October 2025	
Winner Announcement	27 October 2025	
Contract Finalization and Project Kick-Off	27 – 31 October 2025	
Stage 1: <ul style="list-style-type: none"> • FGD and interview with responsible actors • Concept model and data source explanation 	3 November – 12 December 2025 (1.5 months)	Term 1 (30%)
Stage 2: Primary & secondary data collection	8 December – 31 January 2025 (2 months)	Term 2 (20%)
Stage 3: Model development & improvement: <ul style="list-style-type: none"> • Model alignment results with data collected • Model update and check-in 	2 February – 20 March 2026 (1.5 months)	Term 3 (30%)
Stage 4: Technical model reporting and final presentation	16 March – 31 March 2026 (2 weeks)	Term 4 (20%)

A regular (weekly or biweekly) coordination and report meeting would be conducted between IESR and the selected consultant. Unless otherwise noted, work should be completed by the date identified above.

During the project execution process, the selected bidder must proceed with the agreed methodology they proposed and IESR will act as reviewer and timeline keeper.

3 Payment Terms

After the completion of each project stage, the consultant must submit the corresponding deliverables to IESR in accordance with the agreed scope for that stage. The submission must be in the format(s) specified in the Scope of Work and Reporting Requirements. It should also include all supporting data, analysis, and documentation necessary for IESR to review and verify the deliverables.

Upon submission, IESR will review the deliverables to ensure they meet the quality standards and requirements set forth in the contract. Once the deliverables are accepted, IESR will prepare and provide official minutes of the handover, signed by both parties as confirmation of receipt and

acceptance.

Following acceptance, the consultant must submit all required administrative documents, including but not limited to the official invoice for the agreed payment term and any additional forms or compliance documents as specified in the contract.

Upon receipt of complete and accurate administrative documentation, IESR will process the payment corresponding to that project stage within seven (7) calendar days, in accordance with the agreed payment schedule.

4 Proposal Requirements and Submission Instructions

4.1 Proposal requirements

All bidders are expected to submit their:

- Main proposal, and
- Statement letters. Consists of 11 letters, all formats can be found in: <https://bit.ly/IESRBidderStatementLetter>
- Digital copy of the company's Taxpayer Identification Number (NPWP) card; or, in the case of an individual or team that is not a registered company, a digital copy of the individual's NPWP card.
- Bank statement (*rekening koran*)
- The company's certificate (*akta perusahaan*), company profile, and portfolio; or, in the case of an individual or team that is not a registered company, the team's résumé and/or portfolio.
- The main proposal is expected in PDF format, written in English/Bahasa Indonesia with no certain formats (margin and font) specified as long as the whole information is clearly stated and delivered not exceeding 15 pages in length, excluding the annex.

4.2 Required content

The proposal should cover the following items:

- Executive Summary, the value proposition of your expertise/institution/company can be included in this section or in a separate section.
- Contextual overview of the RFP – The bidder's understanding to the RFP
- Proposed methodology / solutions (including plans to obtain data and information)
- Detailed project timeline and work plan
- Project management and team organization, including brief description of each team member's role, tasks, and responsibilities.
- Bidders should provide a description of experience in a similar domain of analysis related landscapes in Indonesia is advantageous, especially related to the battery technology industry and ecosystem for both national and global would be beneficial.
 - Team composition and qualifications**
Bidders are required to provide a detailed description of their team composition, including the academic qualifications and/or professional experience of each member. The required qualifications and experience for each role can be met through either relevant academic background or professional experience, as specified in the table below:

No	Role	Academic qualifications	Experiences
1	Team Leader	Holds a Master's degree or PhD	Preferably has 5 years of professional

		in a relevant field such as civil engineering, transport planning/ engineering, economics, development studies, industrial engineering, statistics, urban planning, or other disciplines relevant to the project.	experience for a Master's graduate or 3 years of experience for PhD , including leading multi-disciplinary teams or similar projects.
2	Survey Lead	Holds at least a bachelor's degree in a relevant field such as civil engineering, transportation engineering, transport planning, or other disciplines relevant to the project.	Preferably 5 years of professional experience relevant to the respective project domain and including leading survey teams in similar projects. Involvement in the freight domain will be an additional value.
3	Model Lead	Holds at least a bachelor's or master's degree in a relevant field, such as economics, statistics, civil engineering, industrial engineering, urban planning model, or other disciplines relevant to the project.	Preferably 5 years of professional experience in system dynamics model development with experience in transportation context. Freight context would be an additional value.
4	Assistant(s) - <i>consultant to decide</i>	Holds at least a bachelor's degree in a relevant field.	Preferably experienced in system dynamic modelling and/or transport surveying activities.

- *Organogram*

The bidder shall provide a clear and well-structured organogram, preferably showing separate teams for the *survey lead* and the *model lead*. The organogram must include all proposed personnel, their designated positions, and a brief outline of their respective responsibilities, including the assistants. IESR does not restrict the number of assistants needed deployed in this study

- *Outsourcing 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 itemize all costs and include a description of associated services. Contract terms and conditions will be negotiated upon the selection of the winning bidder of this RFP.

- *Additional requirements*

- Anticipated resources: Provide details on the total number of resources you will assign to this project including their role, titles, and experience.
- Project timeline: Confirmation of timeframe for completion of the project, outlining



how you will meet the deliverables within the allocated time, including detailed of task descriptions in each deliverable

- Methodology and assumptions: A brief description of the methodology and assumptions used

g) Detailed pricing proposal

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). A more detailed proposal is encouraged to ease the selection process. The budget ceiling for this proposal is **IDR 750.000.000** for all costs (including operational cost for data collection activities) required through the study **including necessary taxes**.

Any additional costs (travel, FGD, etc) required to complete the work can be identified and estimated in the budget. This information would be treated as additional information for IESR to evaluate the robustness of methodologies. However, these additional costs would be covered in-hand by IESR and would be excluded from the final contract value.

NOTE: All costs and fees must be clearly described in each proposal and should be separated into each item and scope of work.

- h) Assumptions (if the bidder has any suggestions in activities, methodology, etc. beyond specified in RFP)
- i) Risk management plan (shall the consultant meet foreseen and unforeseen occurrences)
- j) Annex should include the following items:
 - Brief company/institution profile
 - The latest Curriculum Vitae (CV) of the team leader and all proposed team members with relevant experience.
 - Provide 3 or more previous projects that are similar in scope of nature, conducted by your organization.
- k) **Mandatory requirement:** Individuals or organizations applying must have permission to work in Indonesia in accordance with the regulations of the Indonesian government

All documents submitted must be signed by an official agent or representative of the company submitting the proposal. Upon receipt of the proposal, IESR will evaluate all the proposals and if clarification is required, a meeting may be held during the evaluation process before the winner is announced.

Bidders must submit these documents via email to Program Manager Energy System Transformation at deon@iesr.or.id and cc to ninette@iesr.or.id, rifki@iesr.or.id, rahmi@iesr.or.id, faris@iesr.or.id, and ilham@iesr.or.id, no later than **12 October 2025, 23:59 PM** Indonesian Western Standard Time (WIB, GMT+7). Any bidders fail to meet this specific deadline; their participation will not be taken into the evaluation process. Please include "RFP Response – Consultancy Services for National Road Transportation Decarbonization Modelling" in the subject line.

5 Evaluation Criteria and Selection Process

With this RFP, IESR is soliciting proposals from consultants with extensive experience and portfolios in developing complex and thorough economic impact assessment. IESR will evaluate all the proposals submitted. After reviewing all proposals, IESR will select the consultants that bring suitable expertise, most closely align with project objectives, and articulate a clear, achievable research plan to meet

those objectives within the required timeframe. The selected bidder shall complete the work in accordance with IESR standards and the terms outlined in the submitted proposal.

All proposals received within the permitted deadline while fulfilling all requirements including statement letters and other necessary administrative documents will be evaluated and assessed by IESR team evaluators. Each individual team member has the same capacity and authority while assessing the proposals (no single team member is more powerful nor significant than other team members). Thus to ensure the evaluation process runs smoothly and maintains integrity, their profiles and information will remain confidential and will not be disclosed.

5.1 Evaluation Criteria

While assessing the proposal document, certain categories are considered as the basis of the evaluation process. Sub-items define the maximum score of each category with 100 as the top score, whilst the category will account for the total score based on established percentage, as follows:

No	Item	Max score
Project context (25%) <i>max score: 100</i>		
1	Overview RFP context – Project understanding	60
2	Company expertise (including experience and qualifications)	40
Technical Proposal (40%) <i>max score: 100</i>		
3	Proposed methodology	40
4	Project deliverables	30
5	Project management and team organization including brief description of each team member role and tasks/responsibilities taken. Compatibility between members' experience/qualification with their task allocation.	30
Pricing proposal (15%) <i>max score: 100</i>		
6	Proposed budget (Technical and non-technical)	60
7	Team member working allocation (Man-days)	40
Appendices: previous projects and studies (20%) <i>max score: 100</i>		
8	Organization experience on working with relevant project	40
9	Resume of team leader and each team member: Member experience on working with relevant project	40
10	Experience on working with IESR (organization and team)	10
11	Experience on working with project which has similar budget	10

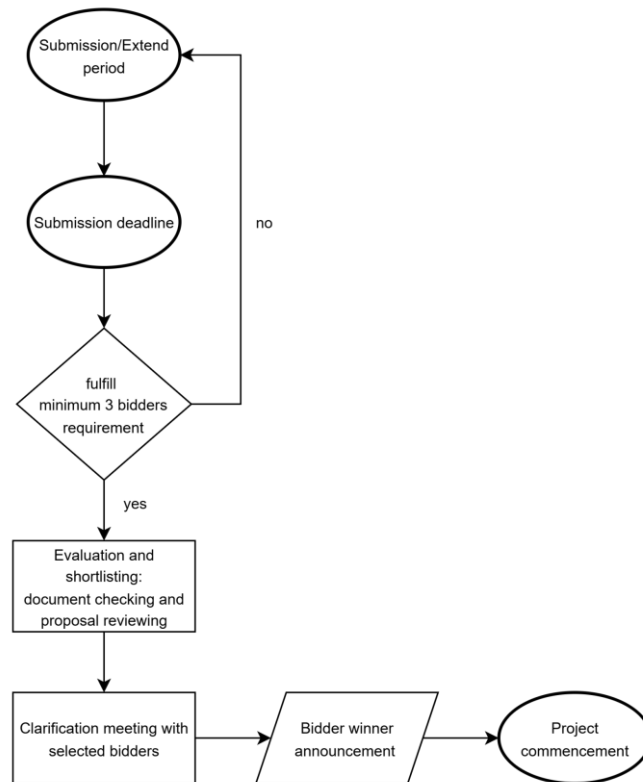
5.2 Selection Process

After the submission deadline, all bidders whose proposals have been reviewed and shortlisted as meeting the criteria and IESR's standards will receive confirmation via email to proceed to the clarification meeting. This meeting is scheduled to take place approximately 2-3 days after the RFP period closes.



Bidders who have submitted the required administrative documents and whose proposals align with the study objectives will present and clarify their proposals to the IESR team bidding evaluation members. The session will cover, but is not limited to, methodologies, assumptions, data collection processes, and any other relevant activities related to the project. A mutually agreed schedule for the meeting will be confirmed in advance.

The winning bidder will be announced approximately 3-5 days after the clarification sessions conclude, via email and the IESR website. In short, the selection and evaluation process are as shown below:



The selected bidder is the most qualified and responsive proposer whose proposal is deemed to be in the best interest of IESR as the procuring entity, based on the stated criteria in this RFP document. All decisions and assessments made by IESR during the RFP selection and evaluation processes are final and cannot be interfered with by any external parties.

6 Terms and Conditions

6.1 Confidentiality and Proprietary Information

All information and documents submitted during this RFP process will become the exclusive property of IESR. All proprietary and confidential information will not be shared to unauthorized parties, handled with care by IESR, and used exclusively for this RFP evaluation process.

6.2 Bidder selection, contract negotiation, and terms of agreement

Upon winning bidder notification, the contract negotiation between IESR and the selected Consultant will begin immediately and must proceed quickly to meet the project timeline. IESR will immediately prepare the contract document in communication with the selected consultant, shall any necessary



information be provided. The document then must be signed by both parties prior to the kickoff meeting. The contract document will regulate all rights and obligations of both parties, with reference to the RFP document, consultant proposals, and other agreements that have been mutually agreed upon. It will cover the scope of work & deliverables, agreed timeline, payment terms and requirements, contract value, and other confidential information. All terms and conditions within the contract document must be kept confidential by both parties, unless the disclosure is required pursuant to process of law. Disclosing or using this information for any purpose beyond the scope of this Agreement, or beyond the exceptions set forth above, is expressly forbidden without the prior consent of the 1st Party.

6.3 Disclaimers

IESR as the procuring entity reserves the right to reject any or all proposals if any requirements were found inadequate and/or even if fraud was potentially indicated. This might lead to the inadmissible participation of the bidders, promptly disqualified from the evaluation process, and might even potentially get ruled out from participating in future procurement processes for an indeterminate period, subject to the discretion of the contracting authority. IESR has also all the rights to waive informalities, and/or free to negotiate with the selected bidders.

While IESR has no obligation to award a contract if no bidders comply with the specific standards and requirements and/or less than minimum required bidders. Neither IESR has an obligation to be involved in any proposal preparation process by the bidders (e.g involvement in proposal pricing costs, technical proposal, or any other relevant processes). In the event of such occurrence, IESR reserves the right to initiate a re-bidding process or suspend the procurement process indefinitely, at its sole discretion.

6.4 Governing law

This service procurement process shall be governed by and constructed in accordance with the laws of the Republic of Indonesia from the beginning of the RFP publication until the handover of the final report. Any dispute of difference whatsoever arising out of or in connection during this service procurement process shall be submitted to Pengadilan Tinggi Negeri Jakarta Selatan, Indonesia, in accordance with and subject to the law of Republic of Indonesia.

7 Inquiries And Communications

Shall the bidder find any ambiguity or need any clarification to this RFP document, please find our contact person via email to:



Rifki Pradityo

rifki@iesr.or.id

**Sustainable Mobility and Transport Analyst
Energy System Transformation Program**

Any changes, amendments, and clarifications to the RFP will be issued as formal addenda and distributed to all bidders.

8 Acknowledgement

Reviewed by:	Approved by:
<p></p> <p><small>31AFD421-80CA-4550-9306-F3B3576E6E22</small></p> <p>Deon Arinaldo Program Manager Energy System Transformation IESR</p>	<p></p> <p><small>77ACB4D9-78F2-4431-8689-2FB1FC2C57C3</small></p> <p>Kharina Dhewayani Operational Manager IESR</p>