

## Rwanda National Model Analysis & Planning Support Programme

### Workshop 4 – Finalisation of alternative national scenarios and sensitivity analysis using SPLAT-MESSAGE

In partnership with:

**Danish Energy Agency (DEA), Japan MOFA through the Accelerated Partnership for Renewables in Africa (APRA)**

**26 January - 30 January 2026 - Venue: Virtually, Kigali, Rwanda - Language: English**

#### Overview

This final technical workshop of the Rwanda National Model Analysis and Planning Support Programme brings together the national modelling team to finalise power supply scenarios, undertake sensitivity analyses, and consolidate results to support policy-relevant decision-making. Building on the achievements of the previous sessions, the workshop will focus on finalising the national scenarios, using insights from sensitivity analysis to validate and compare alternative pathways, and advancing the update of Rwanda's 2025 Least Cost Power Development Plan (LCPDP).

Participants will engage in practical, hands-on exercises using the SPLAT-MESSAGE modelling platform to test key assumptions and assess sensitivities, including regional dynamics and cross-border considerations, resulting in robust, analytically sound power sector pathways. Through this process, the programme aims to strengthen Rwanda's institutional capacity for advanced energy planning, enhance evidence-based decision-making, and contribute to the country's long-term vision for a secure, resilient, and sustainable energy future.

By the end of this workshop, participants will have:

- **Validated and finalised national reference scenario:** Reviewed and finalised the national power system model and reference scenario, ensuring consistency with historical data, policy objectives, and planning assumptions.
- **Validated and finalised alternative Scenarios:** Strengthened capacity to finalise and compare credible alternative power supply scenarios in the SPLAT-MESSAGE platform.
- **Completed sensitivity analysis:** Assessed the robustness of scenarios through targeted sensitivity analyses on key assumptions, including demand growth, technology costs, resources and policy constraints.

Day	Date	Thematic Focus
Day 1	Monday, 26 January	Programme review and validation of all national scenarios
Day 2	Tuesday, 27 January	Presentation and discussion on designing sensitivities
Day 3	Wednesday, 28 January	Hands-on sensitivity analysis and implementation related to technology evolution and fuel prices
Day 4	Thursday, 29 January	Hands-on sensitivity analysis and implementation related to hydro variability and project delays
Day 5	Friday, 30 January	Wrap-up, resolving outstanding issues and way forward

## Agenda

Day	Time (GMT)	Session Title and Objectives	Speaker/Facilitator
Monday 26/01	09:45 – 10:00	Participants joining the session	
	10:00 – 10:10	Opening and introduction of the workshop	Ministry of Infrastructure; IRENA
	10:10 – 10:20	Introduction of the participants and logistics	Jovine Nsekanabanga (REG)
	10:20 – 10:40	Strategic context: review of programme progress, milestones, and workshop objectives	Nolwazi Khumalo (IRENA)
	10:40 – 11:00	Country expert presentations: feedback from last consultative sessions, progress review of national models and key findings	Rwanda national working team
	11:00 – 11:20	Virtual group photograph and coffee break	All
	11:20 – 12:30	Technical discussion: recap of scenario definitions, storylines and results (CMP baseline vs national reference vs alternatives) - Review national scenario design focus on capacity/energy mix, trade, emission, and cost trajectories)	Emmanuel Guemene (IRENA), Rwanda national working team,
	12:30 – 14:00	Lunch break	
	14:00 – 15:45	Continued technical discussion and review of SPLAT results of all scenarios  Hands-on group session: adding new scenarios and implementation of changes	Emmanuel Guemene (IRENA), All
	15:45 – 16:00	End-of-Day Synthesis and Outlook for the Following Day	Emmanuel Guemene (IRENA), All Nolwazi Khumalo (IRENA)
Tuesday 27/01	09:45 – 10:00	Participants joining the session	

Day	Time (GMT)	Session Title and Objectives	Speaker/Facilitator
	10:00 – 11:00	<p>Expert Presentation: Key factors of least cost expansion</p> <ul style="list-style-type: none"> <li>- Role of variable renewables as low-cost resource</li> <li>- Role of inter-region resource complementarity to improve energy security.</li> <li>- Role of cross-border trade in lowering operational costs</li> <li>- Role of storage in improving system flexibility</li> </ul> <p>Open Discussion</p>	Nolwazi Khumalo (IRENA), All
	11:00 – 11:15	Coffee break	
	11:15 – 12:30	<p>Expert Presentation: sensitivity analysis in long-term energy planning (Introduction)</p> <ul style="list-style-type: none"> <li>- Objectives and factors for sensitivity analysis</li> <li>- Examples and good principles to identify/shortlist sensitivity parameters</li> </ul>	Nolwazi Khumalo (IRENA) Emmanuel Guemene (IRENA), All
	12:30 – 14:00	Lunch break	
	14:00 – 15:45	Technical discussion: implementing sensitivities of interest; and share their merits of evaluation	Emmanuel Guemene (IRENA), Nolwazi Khumalo (IRENA), All
	15:45 – 16:00	End-of-day synthesis and outlook for the following Day	Emmanuel Guemene (IRENA), Nolwazi Khumalo (IRENA), All
Wednesday 28/01	09:45 – 10:00	Participants joining the session	
	10:00 – 11:00	<p>Introductory working session: implementing sensitivities related to fuel prices; technology evolution</p> <ul style="list-style-type: none"> <li>- Significance of sensitivity parameters;</li> </ul>	Emmanuel Guemene (IRENA), Nolwazi Khumalo (IRENA), All

Day	Time (GMT)	Session Title and Objectives	Speaker/Facilitator
		<ul style="list-style-type: none"> <li>- Overview of various sensitivities possible;</li> <li>- Tips on designing appropriate/plausible sensitivities</li> </ul>	
	11:00 – 11:15	Coffee break	
	11:15 – 12:30	Hands-On Group Session: <ul style="list-style-type: none"> <li>- Preparing and visualizing fuel price and technology evolution and</li> <li>- Run sensitivities across all scenarios in SPLAT</li> </ul>	Emmanuel Guemene (IRENA), Nolwazi Khumalo (IRENA), All
	12:30 – 14:00	Lunch break	
	14:00 – 15:45	Continued Hands-On Group Session: Create, run & analyze fuel price sensitivity in SPLAT	Emmanuel Guemene (IRENA), Nolwazi Khumalo (IRENA), All
	15:45 – 16:00	End-of-Day Synthesis and Outlook for the Following Day	Emmanuel Guemene (IRENA), Nolwazi Khumalo (IRENA), All
Thursday 29/01	09:45 – 10:00	Participants joining the session	
	10:00 – 11:00	Introductory working session: implementing sensitivities around hydro availability <ul style="list-style-type: none"> <li>- Significance of sensitivity parameters: normal hydro, dry year, wet year and</li> <li>- Tips on designing appropriate/plausible sensitivities</li> </ul>	Emmanuel Guemene (IRENA), Nolwazi Khumalo (IRENA), All

Day	Time (GMT)	Session Title and Objectives	Speaker/Facilitator
	11:00 – 11:15	Coffee break	
	11:15 – 12:30	Hands-on group session: designing sensitivities around 'delay in key projects' <ul style="list-style-type: none"> <li>- Significance of sensitivity parameter;</li> <li>- Tips on designing appropriate &amp; plausible sensitivities</li> </ul>	Emmanuel Guemene (IRENA), Nolwazi Khumalo (IRENA), All
	12:30 – 14:00	Lunch break	
	14:00 – 16:00	Continued hands-on group session: Comparison of sensitivities/alternative scenarios' results and implementation of changes if required  End-of-Day Synthesis and Outlook for the Following Day	Emmanuel Guemene (IRENA), Nolwazi Khumalo (IRENA), All
Friday 30/01	09:30 – 10:00	Participant joining the session	
	10:00 – 11:00	Hands-on group session for scenario implementation and results review: time for the team to address any remaining issues or unfinished work from the prior days	Emmanuel Guemene (IRENA), Nolwazi Khumalo (IRENA), All
	11:00 – 11:15	Coffee break	

Day	Time (GMT)	Session Title and Objectives	Speaker/Facilitator
	11:15 – 11:45	Continued hands-on group session for scenario implementation and results review <ul style="list-style-type: none"> <li>- Next milestones of LCPDP modelling team until national consultative workshop, presentations</li> </ul>	Emmanuel Guemene (IRENA), Nolwazi Khumalo (IRENA), All
	11:45 – 12:30	Towards sustainable governance of national planning: Major lessons learnt (open discussion) <ul style="list-style-type: none"> <li>- Discuss the strengths and challenges of the operational scheme adopted for national project and is it scalable/repeatable for future purposes.</li> <li>- Topics may cover, but not limited to, the stakeholder engagement approach for data collection and reviews, model update tracking approach, data management approach etc. Setting Expectations and building the roadmap for update for LCPDP 2025</li> </ul>	Nolwazi Khumalo (IRENA)

## Detailed overview

### **Day 1: Monday 26 January 2026 – Programme review and validation of all national scenarios**

- Brief recap of the programme status
- Enable participants to review and validate all national scenarios and key generation or transmission options through hands-on, scenario-based analysis
- Strengthen capacity to assess SPLAT results by comparing CMP baseline, national reference and alternative scenarios against established least-cost drivers

### **Day 2: Tuesday 27 January 2026 – Presentation and discussion on designing sensitivities**

- Introduce the objectives, approaches, and good practices for sensitivity analysis in energy planning, including the identification and shortlisting of key sensitivity parameters
- Build technical capacity to design robust and plausible sensitivities in SPLAT, with a focus on fuel price, technology evolution, project delay and hydro availability assumptions

### **Day 3: Wednesday 28 January 2026 – Hands-on sensitivity analysis and implementation related to technology evolution and fuel prices**

- Enable participants to create, run, and analyse sensitivity and alternative scenarios in SPLAT, and interpret results to understand system impacts and uncertainties
- Present and discuss approaches to designing sensitivities related to fuel prices and technology evolution, highlighting the significance of these parameter and good practices for defining plausible assumptions

### **Day 4: Thursday 29 January 2026 – Incorporating Hydro Variability and Project Delays through Sensitivity Analysis;**

- Present and discuss approaches to designing sensitivities around hydro variability, highlighting the significance of this parameter and good practices for defining plausible assumptions
- Strengthen technical understanding through discussion and hands-on design of sensitivities related to delays in key generation and transmission projects, with emphasis on the African context

### **Day 5: Friday 30 January 2026 – Consolidation, resolving outstanding issues and way forward**

- Define next steps and planning needs, identifying required decisions, and coordinating follow-up support.
- Define expectations and develop a structured roadmap for the update of Rwanda's LCPDP 2025.