Synthesis Report of the "Eighth Roundtable Discussion on Strategic Energy Planning" (ICTP Trieste & Online, 17th June 2022)

July 2022

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1 Introduction

This synthesis report summarises the discussion and outcomes of the **Eighth Roundtable Discussion on Strategic Energy Planning (RD8)**, convened by the Climate Compatible Growth (CCG) programme, funded by the UK Foreign and Commonwealth Office (FCDO), and the OpTIMUS community of practice. RD8 was held on 17th June 2022 at the International Centre for Theoretical Physics (ICTP) in Trieste, Italy, and as an online event. It was arranged on the back of the **Joint Summer School on Modelling Tools for Sustainable Development**, a multi-donor training course on energy modelling for developing countries hosted by the ICTP.

The workshop was part of the **Roundtable Initiative on Strategic Energy Planning**, a global initiative focused on improving how development partners support energy systems modelling and planning in developing countries. The initiative's activities focus on four areas: 1) Harmonised engagement; 2) Capacity building through co-development; 3) Community platforms for data and tools accessibility; 4) Data, models and standards. The initiative is coordinated by EEG, a programme managed by Oxford Policy Management (OPM).

To promote harmonised engagement, the Roundtable process has developed the **'Key principles for improving the support to strategic energy planning in developing and emerging economies'**[1] (hereafter referred to as 'the Principles'). The Principles are a "code of conduct" for development partners to work collectively towards improved effectiveness of their support to country governments on strategic energy system planning. **Twenty-one high-profile organisations have already endorsed the Principles** (alphabetic order): Agence Française de Développement (AFD), African Development Bank (AfDB), Applied Research Programme on Climate Compatible Growth (CCG), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Applied Research Programme on Energy and Economic Growth (EEG), Applied Research Programme on Energy and Economic Growth (EEG), World Bank – Energy Sector Management Assistance Program (ESMAP), Fondazione Eni Enrico Mattei (FEEM), United Kingdom – Foreign, Commonwealth & Development Office (FCDO), Institut du Développement Durable et des Relations Internationales (IDDRI), International Renewable Energy Agency (IRENA), Swedish Royal Institute of Technology (KTH), Open Tools, Integrated Modelling and Upskilling for Sustainable Development Community of Practice (OpTIMUS), Netherlands – Environmental Assessment Agency (PBL), Politecnico di Milano, Regional Center for Renewable Energy and Energy Efficiency (RCREEE), Stockholm Environment Institute (SEI), The Bartlett Energy Institute – University College London (UCL), United Nations Development Programme (UNDP), United Nations Economic Commission for Africa (UNECA), United Nations Institute for Economic Development and Planning (UNIDEP), World Resources Institute (WRI).

The objective of the day was to follow up on some of the advances made by the Roundtable Initiative during the past six months. The event was attended by 34 representatives from 23 organisations, including donors, international organisations, research organisations/academia and the private sector. About 10 trainees from the ICTP summer school also attended as observers. A full list of participants is provided in Annex B.

The synthesis report is structured along with the sessions in the agenda (included in Annex A), as follows:

- Section 2: Update on the broader dissemination of the Roundtable Principles
- Section 3: Update on and transferrable lessons from the integration of the U4RIA data management goals in research and projects

[1] The Principles that the document advocates for strengthening the energy systems planning support to developing countries are: 1) National ownership; 2) Coherence and inclusivity; 3) Capacity; 4) Robustness of evidence, analysis and tools; and 5) Transparency and accessibility of planning inputs and outputs.

- Section 4: Preliminary lessons from the Trieste Summer School's design and running
- Section 5: Energy planning capacity building initiatives
- Section 7: Summary of key actions and recommendations.

2 Update on the broader dissemination of the Roundtable Principles

The RD8 was opened by Dr. Will Blyth, Senior Research Fellow at the FCDO, and Prof. Mark Howells, Team Leader of the CCG programme. They both congratulated the participants for keeping the Roundtable Initiative going and thanked the EEG programme that hosted the initiative's secretariat until March 2022.

After welcoming the attendees and introducing the agenda of the day, Luca Petrarulo, the Roundtable Coordinator from CCG, introduced played a **promotional video about the Principles** that was first screened at their official launch event on the side of COP26. The video, which is available on the EEG website, explains the importance of the Principles and shows the commitment of the endorsing organisations in effectively supporting strategic energy planning.

After playing the video, Luca explained that now that the Principles have been developed and endorsed by so many players in the strategic energy planning arena, **the Principles need to be widely disseminated to be known by other Development Partners (DPs) and, most of all, national energy stakeholders.** Indeed, feedback from national stakeholders is important to ensure that they agree with and own the Principles, so that they can push the DPs for their applications.

Luca then introduced the idea of a **webinar series** with the objective of: 1) Raising awareness about the Principles of national stakeholders; 2) Presenting real-life evidence of successes and failures in supporting strategic energy planning; and 3) Gathering feedback from beneficiary countries. The series will comprise four webinars, each on a specific Principle. Chairpersons and speakers from the Global South will be encouraged to showcase practical examples where the solutions advocated by the Principles have been applied in the countries. CCG is currently looking for suggestions on speakers from the other Roundtable partners. The full concept note of the webinar series is provided in Annex C.

Subsequently, Nicolina Lindblad from SEforALL provided a quick teaser of a **knowledge product** they have been working on that aims to be a guide in helping the international community when developing integrated energy plans. Nicolina invited others from the Roundtable Initiative to collaborate in the development of the guide so that it can reflect best-in-class expertise on integrated energy planning.

The floor was then opened to gather any feedback on the activities above and to discuss other potential ideas on communication products or activities. Mark Howells thought the webinar idea could be a powerful dissemination means for the Principles because **giving voice to** the experiences in building national strategic energy planning processes in **the Global South** could send a powerful message on the importance of national ownership of that process. Siraji Magaraluyima (Oxfam) pointed out how the issues of **energy access and energy poverty** are such important ones, particularly for Africa, that the energy transition challenge needs to be reframed / communicated in those terms to build ownership in African countries. **Capacity**

building is also another element that is crucial to build ownership of national stakeholders in strategic energy planning. Simon Trace (EEG) liked the idea of the webinar series. He also pointed out how, **in this initiative, we tend to tackle strategic energy planning mainly from the energy modelling aspect, but there is more than that.** He made the example of EEG-funded research from the University of Arizona in Sierra Leone looking at the concept of **social value of energy** (i.e. the net social and economic benefits derived from energy access minus the costs for tariffs, appliances etc.) and working with the government to collect and use data on the social value of energy, but not through modelling. Simon suggested being **more clear in the webinars and going forward in the Roundtable on whether we are merely talking about energy modelling or also broader approaches to planning.** Asami Miketa (IRENA) agreed with Simon and explained that IRENA is coordinating a Long-Term Energy Scenarios (LTES) network that focuses on scenarios and not models, and the governments in the LTES network use very different planning practices, not just modelling. IRENA has published a summary report with key contributions from different countries and a paper providing insights on planning for power system regulators. Reginald Mapfumo (ACCESS Coalition) recalled that there were **participatory methods** used by Practical Action in Southern Africa to enhance energy planning at local levels, which included the communities, local authorities and government entities working at a local level. This was done under the Energy Mindset Programme (in Mozambique, Malawi, Zimbabwe and Zambia) using a tool called **Community Based Planning (CBP).** In 2019 the Zimbabwe government launched the first ever Renewable Energy Policy, and they widely consulted with stakeholders in the 10 provinces in the country. This also included the local authorities and communities.

3 Update on and transferrable lessons from the integration of the U4RIA data management goals in research and projects

This session was chaired by Dr. Will Usher (KTH and CCG). It aimed at providing an update on and transferrable lessons from the application and refinement of the **U4RIA goals**, a series of principles, with the ambition to become standards for good, transparent and accessible energy data modelling and management, jointly developed by multiple organisations involved in the Roundtable Initiative. These are Ubuntu (community), Retrievability, Reusability, Repeatability, Reconstructability, Interoperability, and Auditability. The U4RIA goals are a way to operationalise the Roundtable Principles on robustness, transparency and accessibility of evidence.

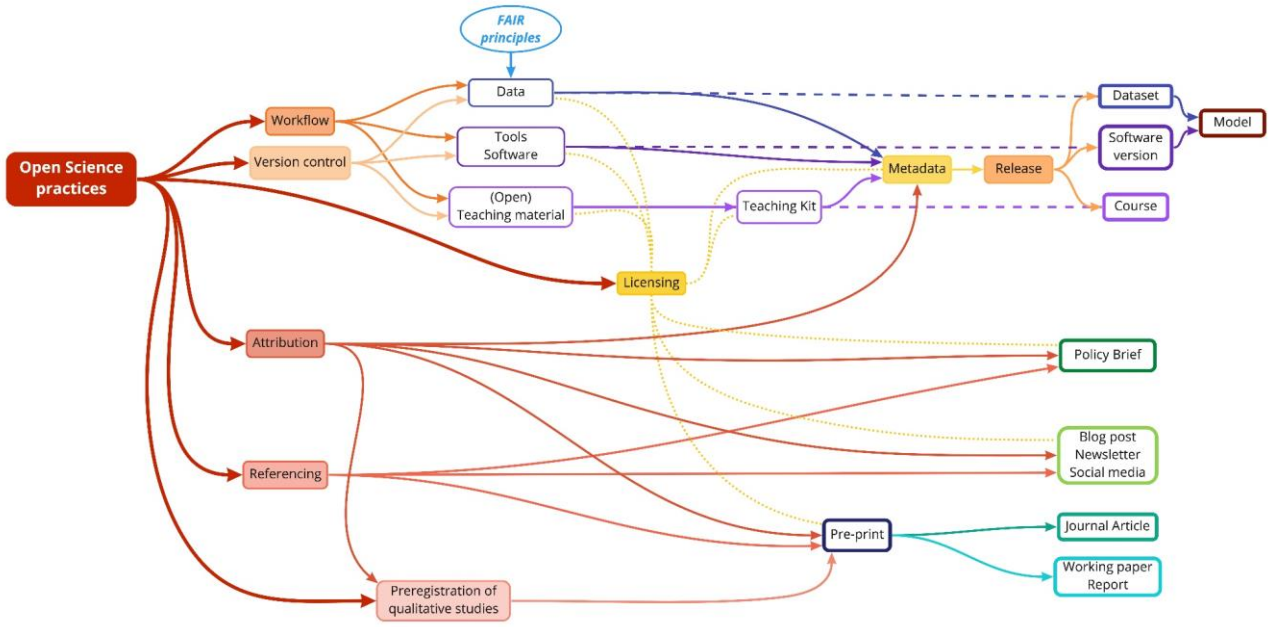
Mark Howells was given the floor to provide an update on different resources on U4RIA. A **research paper** to better define and describe the U4RIA goals is in the making and it is currently in the review process. The paper uses the case of Costa Rica, which has a very open national energy planning process based on transparent data and workflows. For example, they provide the underlying open access data and documentation on Github. Mark also explained that, because of the high level of transparency, Costa Rica has been able to request and access funds from International Finance Institutions, which is the subject of another paper that is under production. A **U4RIA online forum** was also created to post experiences and discuss aspects of the goals.

A template of Terms of Reference (ToR) Annex defining ways for modelling projects to align with the U4RIA goals was developed by EEG and taken on by GIZ in climate-economy modelling activities in the project "Policy Dialogue and Knowledge Management on Low Emission Development Strategies (DIAPOL-CE)". The ToR Annex template is included in Annex D for everyone to use.

Victoria Montenegro (GIZ) provided an update on the application of U4RIA in DIAPOL-CE, explaining that the ToR Annex template was used in procuring activities in Jordan, Rwanda and Uganda. The project has been quite successful on "ubuntu", whereby now there is a community of practice to develop the planning work in Uganda. This is an expert group composed of different members of the government and academia to discuss policy questions, defining scenarios, and the data collected. Concerning the "4RIA", they have also made progress: they have collected data from the official institutions, and they are based on very transparent documentation on data and sources in the **DIOM-X framework**, which is an all-in-one Excel-based tool with comprehensive metadata that will be handed over as a package to the political partner. The data to be used is also discussed and validated with the government. This is a process that takes time (perhaps one of the key challenges in applying U4RIA), but it should all pay back in the end with enhanced ownership and accountability. This is an ongoing process,s and GIZ will be happy to give further updates in the Roundtables to come.

Following that, Will Usher updated the audience on the work that CCG has been doing on integrating the U4RIA goals in the programme's research. The outputs produced will encompass several types of research products, including reports, datasets, teaching material, tools and models, journal articles etc. So, the CCG team wrote some **Data Curation Guidelines** to translate U4RIA into meaningful research practices and outputs. Figure 1 illustrates the open science practices treated in the CCG guidelines.

Figure 1. CCG Guidelines, Open Science practices: flow diagram (0.3)



Reference: Diagram by Beltramo, Agnese. (2022). CCG Guidelines, Open Science practices: flow diagram (0.3). Zenodo. https://doi.org/10.5281/zenodo.6378929 used under CC-BY-4.0 license

Other CCG initiatives related to implementing the U4RIA goals are producing a programme-wide database and setting up a Data Task Force.

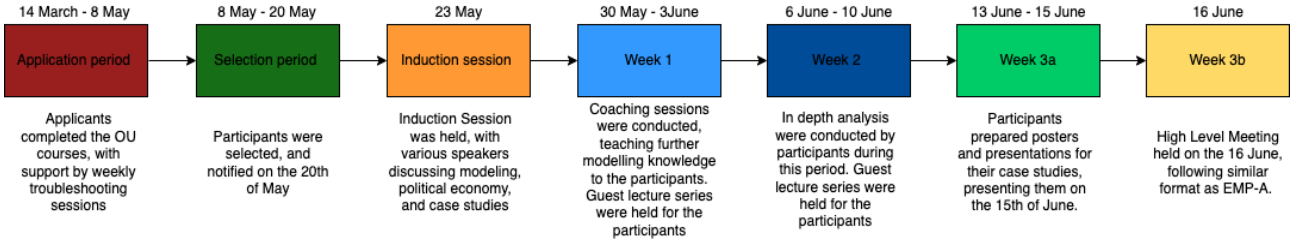
The discussion was then opened to the attendees. Will Usher wanted to know from GIZ what the main challenge in applying the U4RIA goals in their projects has been so far. Victoria Montenegro explained that for example with the community of practice, **it has been difficult to involve all the relevant stakeholders all the time because they are generally busy officials. The solution they found was to package the technical explanations from the experts in**

short videos, so that people could access them in their time and get familiar with the information on their computers first. However, to incentivise participation in the actual meetings, the videos are only shared with the expert group after the meetings. These videos are currently only internal to the experts' group, but they could be published with the model, so that they become like a guidebook and the modelling outputs are self-explanatory. Mark Howells also found the use of explanatory videos in training materials very useful, and in CCG, they have become an essential capacity-building and communication tool. Grace Ronoh (ACCESS Coalition) stressed the **need for more robust and up-to-date data for supporting the advocacy** of energy access and planning to the governments in Sub-Saharan Africa. She also emphasised the importance of capacity building and asked whether there should be more to be delivered than simple webinars. Will Usher reflected on Grace's comment by sharing that in the CCG's work in Kenya and Zambia, accessing robust and reusable data has been a key challenge. To address the issue, CCG will publish their database of datasets for these countries and ensure that all data they publish is available under an open license which allows re-use. Regarding capacity-building materials, CCG has published a number of openly licensed courses on different modelling approaches on Open Learn. Moreover, CCG put together a number of Energy & Transport Starter Data Kits, which include 48 African countries.

4 Preliminary lessons from the Trieste Summer School design and running

This session looked back at the design and running of the ICTP Summer School to summarise the key lessons learnt for future capacity-building initiatives. The session was chaired by Carla Cannone (CCG, Loughborough University), who first presented some slides with the feedback from the trainers and the trainees about the Summer School and then facilitated an open discussion among the roundtable participants. The full presentation is included in Annex E. Here some of the highlights are provided. The timeline of the Summer School is shown in Figure 2.

Figure 2. Timeline of the ICTP Summer School 2022



Based on the feedback received and lessons learnt from running the Energy Modelling Platform for Africa (EMP-A) in November-December 2021, several changes were made to the design of the ICTP Summer School 2022:

- **The Open University (OU) Courses were updated.** These are online courses that give an introduction and provide the skills to use the modelling tools used in the ICTP Summer School.
- **The completion of the relevant OU Course was made a pre-requisite to apply** for attending the Summer School. This was to motivate applicants and ensure they all had the same minimum level of knowledge at the start of the course. The result was that about 80% of participants declared to have at least an intermediate knowledge of energy modelling, compared to only less than 20% at the EMP-A 2021.

- **A Guest Lecture Series was introduced** during the last two weeks of the course, with several guest lectures hosted and delivered by external experts to all the School's attendees. This had the co-benefit of having exchanges between trainees from different course tracks.
- **The posters and presentations** prepared as final assignments during the School have all been **published on Zenodo** for full transparency and accessibility.
- **Training on the importance of political economy and energy scenarios** was introduced in the induction session.
- **The feedback survey this time was only open to those who completed an ICTP course**, i.e. who completed and presented their posters.

Trainees made the following suggestions about activities useful to follow up on the ICTP course:

- Set up a **LinkedIn Group** for the Summer School's alumni.
- Include **more case studies**.
- Set up **working groups** from the various countries that participated to: a) develop **starter data kits** for countries that currently do not have one; b) work on country-specific models and policy advice.
- Organise **virtual sessions every 3 months** for alumni to share how they are making use of the training experience and facilitate research and policy collaborations.
- Foster **interactive discussion**
- Deliver **in-depth sessions** on advanced constraints that could apply to the model.
- Disseminate **news of model updates**, and facilitate further contact with trainers
- **Develop a 'track joint' paper with the trainer** or continue to support trainees after the course to improve their case study until it gets 'paper ready' (journal or conference) or 'policy ready' (to be summarised in a report and have the results shared - workshops, seminars with stakeholders).

Trainers also provided feedback on the course design and implementation and some suggestions for improvement:

- **Online training is suitable for reaching more participants, but challenging for those in different (far) time zones**. In the MAED-EBS track, we had low participation, and this was one of the reasons
- **More hands-on tutorials with students are required**.
- **Retention of students**. Some students seem not to feel a large commitment to the work. This commitment could be improved with more personalised work with the trainers.
- **Organise Gather Town engagement**
- **Provide continual assistance for those who excelled**
- MAED: **make software easily accessible**. E.g., link for download or ability to make account for online version on the OU course/ generally. Currently, users need to email the IAEA. This is a very large barrier to entry, larger than it looks.
- MAED: Make it **compulsory for participants to join the morning troubleshooting** sessions.

After the presentation, an open discussion followed. Mark Howells shared some of the needs that he got from talking to the trainees: a) they need technical skills to work on modelling and using data for policy-making; and b) they need to engage with the rest of the international energy community to identify key resources and simply discuss and engage on the topic. In support of the technical needs, within the OpTIMUS community, there are some technical **Google Groups** on

each of the key models (OSeMOSYS, OnSSET, CLEW) with hundreds of people registered and hundreds of open discussions. For the need of engagement and a sense of community, OpTIMUS is thinking of setting up a **LinkedIn alumni group(s)** for those who completed the different training schools. There needs to be some thinking on whether and how to disaggregate the group, e.g. regionally. These groups would be primarily for policy-based discussion, not really technical ones, and would include info on the latest training events and publications.

Nicolina Lindblad (SEforAll) asked whether the ICTP course's organisers had unpacked the potential correlation between prior modelling experience and success rate. Mark Howells commented that, indeed, they have seen an improvement in the quality and rates of submission of research papers, although there is no systematic way of tracking this. Carla Cannone also pointed out that since the posters and presentations are on Zenodo, their referencing can be tracked. Prof. Taco Niet (Simon Fraser University) proposed to **carry out some data mining** to correlate the skills and background of trainees with their successful completion or incompletion of the Summer School. This would help identify key factors of success and failure, which can then be used to fill the gaps in the design of future capacity-building activities. Rudolf Yeganyan (CCG, Imperial College), who was one of the organisers of this and the previous OpTIMUS training course,s pointed out that the **main success factor that came out is time devotion** and overcoming time constraints would result in a higher success rate. Will Usher shared that the OU team in CCG is working on improving the courses, and the data mining could be useful to understand how to improve the online courses to increase the success rate of the training events. Rudolf Yeganyan remarked that video tutorials were reported to be very helpful and perhaps also lectures should be video recorded.

Ilse Berdellans-Escobar (IAEA) confirmed that having mandated trainees to complete the OU course beforehand improved the efficiency and effectiveness of the Summer School. She also mentioned that some trainees found it useful to complete more than one OU course before choosing their School's track. Rudolf Yeganyan agreed that OU courses helped a lot in going deeper into the content delivered in the ICTP Summer School. He then asked what else can now be provided to the growing community of **OpTIMUS courses' alumni or advanced users that need to capitalise from the knowledge acquired in producing research and policy outputs**.

5 Energy planning capacity-building initiatives

In this session, **the floor was open to several Development Partners to briefly present their capacity-building activities in the field of strategic energy planning** (the slides presented are included in Annex G)**.** Priority was given to those who had provided updates on their initiatives so that they were included in the "Energy Planning and Modelling Initiatives Database" of the Roundtable Initiative (see Annex F). Below is a summary of the activities presented. The order follows the presenting order during the workshop:

- **International Energy Agency (Darlain Edeme)**
    - **Data for an Affordable and Sustainable Energy System for sub-Saharan Africa.** The main activities of the programme include technical support and capacity reinforcement to selected sub-Saharan African countries to develop sustainable national energy information systems and energy modelling capability, to improve tracking against energy-related NDCs, SDGs, and other energy and climate policy goals, as well as long-term energy planning.

- **Data-Driven Electrification in Africa.** The grant envisages an approach aiming to: a) Improve coverage and quality of electricity access data; b) Make state-of-the-art geospatial modelling and data more actionable for countries to derive effective electricity access policies leveraging centralized and decentralized energy solutions.

- **World Resources Institute (Benson Ireri)**

  - **Energy Access Explorer: An Integrated, Inclusive, Data-driven Approach to Achieving Universal Access to Energy.** WRI and partners build the capacity of local stakeholders in an integrated, inclusive, data-driven approach to achieving universal access to energy. The Energy Access Explorer (EAE) is an online, open-source, interactive, geospatial platform that enables clean energy entrepreneurs, energy planners, donors, and development-oriented institutions to identify high-priority areas where energy access can be expanded. Beyond its visualisation and analytical capabilities, EAE functions as a dynamic geographic information system and data repository, which reduces software engineering and data transaction costs for both data providers and users. Its unique backend infrastructure comes with an easy-to-navigate Content Management System and allows administrative users with limited or no GIS and programming expertise to add data and metadata in a simple manner.

- **Sustainable Energy for All (Nicolina Lindblad)**

  - **SE4ALL is providing support to the Ministries of Energy in Rwanda, Nigeria and Malawi to develop on Integrated Energy Plans (IEPs)**, which provide an holistic approach with the integration of several energy system access such as access to electricity, clean cooking, and cold chain and storage for roll out of vaccines. The technical assistance (TA) can be customised, for example in Rwanda where they had already undertaken electricity access assessments and related policies, the TA was tailored to clean cooking, which leveraged the past effort on electricity access. This was a collaboration with the Universal Access Laboratory (see below). The work in Rwanda was built with the principle of reusability in mind so that the model can be used in other countries and contexts.

- **Universal Access Laboratory (UALab), Universidad Pontificia Comillas & Massachusetts Institute of Technology (Prof. Fernando de Cuadra García)**

  - **The UALab is a joint venture between MIT, Comillas IIT and Waya Energy.** They are involved in numerous electrification planning exercises, including the one in Rwanda presented by Nicolina. Their other activities are: financial plans and models, business models and regulations for DRE (including concessions' research, dissemination and implementation), capacity building, monitoring and evaluation models (develop an index of progress in electricity access at the country level).

- **International Atomic Energy Agency (Ilse Berdellans-Escobar)**

  - **The capacity-building group within the IAEA currently have 4 regional projects** active covering Africa, Latin America and the Caribbean, one specific for the English-speaking Caribbean islands, and Europe and Central Asia. The project for the anglophone Caribbean islands is their first CLEW project, and the idea is that the approach can be replicated for the Small Islands Developing States (SIDS) elsewhere.

- They also have **national cooperation projects** covering classic energy planning and also rural electrification (e.g. Guatemala) and CLEW (e.g. St. Lucia). Last year they carried out 35 capacity-building activities, all online. **The IAEA is one of the organisations that supported the ICTP Summer School with trainers and material.**

- **Modelling support to the development of the African Continental Power Systems Master Plan (CMP) – Partnership with IRENA.** African energy ministers tasked the African Union Development Agency (AUDA-NEPAD) to lead the development of the master plan. Following a two-year consultation process coordinated by the EU Technical Assistance Facility (TAF) for Sustainable Energy, the five African power pools selected IRENA and the IAEA to support the continent's modelling and capacity needs. The two organisations will lead the development of an electricity master plan that promotes access to affordable, reliable and sustainable electricity supplies across the continent.

- **GIZ (Victoria Montenegro)**

  - **Several activities ongoing, including:** Transport modelling in Jordan; Update of an energy-economy model in **Algeria**; Review of existing benchmark model in **Nigeria**; Energy-economy modelling in **Uganda** with capacity building; **GET.Invest** global project; Advisory for climate-resilient economic development project with a focus on adaptation in **Kazakhstan, Vietnam and Georgia**.

- **International Renewable Energy Agency (Asami Miketa)**

  - At IRENA, they work on two lines of work: 1) supporting countries in developing energy plans focusing on building institutional capacity and working directly with the government; 2) Sharing experience of governments in the energy planning process through the LTES network.

  - **Working with IAEA on the "Modelling support to the development of the African Continental Power Systems Master Plan (CMP)",** which is an initiative of the African Union Development Energy and the EU. We will have our first training with the Power Pools soon.

  - **Regional Model Analysis & Planning Support Programme: Central Africa Training.** In partnership with the CAPP, IRENA conducted several training events for implementing a Regional Africa Modelling Analysis & Planning Support Programme for Central Africa in 2020-21. The Programme delivered practical training and insights to the key staff of national energy institutions in the region on how to develop national generation capacity expansion scenarios to inform the energy planning process. A second phase of the programme will begin in 2022 to provide further training in support of capacity building for the development of an official regional master plan.

  - **Addressing Variable Renewable Energy in Long-term Planning in Arab Countries.** IRENA has engaged with the League of Arab States (LAS), the Regional Center for Renewable Energy and Energy Efficiency (RCREEE) and other key regional partners in the design and development of the Pan-Arab Clean Energy Initiative (PACE) initiative and its attached Action Plan.

  - **National Master Plan Development Support Programmes with Cameroon, Sierra Leone and possibly Mali.**

- **ACCESS Coalition (Grace Ronoh)**

  - **Working on developing energy delivery models in Kenya.** The work focuses on energy demand, in particular by investigating how local communities can be involved in the energy planning process, particularly by identifying, analysing and ranking communities' energy needs. This is accompanied by technical support to the county governments in preparing their energy plans.

  - **Supporting the Kenyan government in developing their Integrated Energy Planning framework.** This project involves a bottom-up approach by coordinating the county governments in developing their plans and bringing them together into one document on energy planning and implementation, like a guide on energy projects for the country. This model has now been replicated in **Ghana** and **Zimbabwe** as well.

  - **Collaborating with CCG to see how to bring together the national energy stakeholders in Kenya to create a single repository of energy data.**

- **Climate Compatible Growth Programme (Mark Howells)**

  - **Green Grids Initiative.** World's first open-source grid trade model, which will be released soon with a user-friendly interface.

  - **Starter Data Kits** (see Section 3). These are enough starter data to start a policy analysis and concessionary finance screening. These are available for 69 countries at the moment, and the next phase of expansion is opening now. Mark made an open call to anyone in the Roundtable to express their interest in collaborating in this activity.

The Roundtable Discussion was then closed.

6 Summary of key actions and recommendations

Table 1 below shows a list of all key actions and actionable recommendations that emerged from the Roundtable Discussion. CCG will own the overall coordination of their implementation, although each of them has an identified lead.

Table 1. Key actions and recommendations from the 8th Roundtable Discussion

Item	Description	Lead / Proposer	Action / Recommendation
1	Roundtable partners to provide suggestions for speakers for the webinar series on the Principles	Luca Petrarulo (CCG)	Action
2	Roundtable partners to express interest in collaborating with SE4ALL on developing a guide on	Nicolina Lindblad (SE4ALL)	Action

Item	Description	Lead / Proposer	Action / Recommendation
	best practices for developing integrated energy plans		
3	Ensure strategic energy planning is not reduced to energy modelling in the Roundtable's communication activities	Luca Petrarulo (CCG)	Recommendation
4	Carry out data mining to correlate the skills and background of trainees with their successful completion or incompletion of the Summer School	Taco Niet (SFU) / Rudolf Yeganyan (CCG)	Action
5	Reflect on the type of support needed by OpTIMUS courses' alumni in producing research and policy outputs	Rudolf Yeganyan (CCG)	Recommendation
6	Roundtable partners to express interest in collaborating on the starter data kits	Mark Howells (CCG)	Action
7	Consider and act on the recommendations received to improve future capacity-building programmes	Rudolf Yeganyan (CCG)	Action

Annex A Eighth Roundtable Discussion Agenda

Time (CEST)	Session
9:30 – 9:40	**Introduction** • Introductions and objectives of the day
9:40 – 10:10	**Update on the broader dissemination of the Roundtable Principles** • Presentation of Webinar Series idea • Discussion on ideas for communication pieces and events
10:10 – 10:45	**Update on and transferrable lessons from the integration of the U4RIA data management goals in research and projects** • Updates from GIZ, CCG and others on efforts on mainstreaming U4RIA • Discussion
10:45 – 11:00	**Coffee break**
11:00 – 11:25	**Preliminary lessons from the Trieste Summer School design and running** • Reporting from organisers about key lessons learnt • Open discussion on how to apply these and other lessons in future capacity building initiatives
11:25 – 11:55	**Energy planning capacity building initiatives** • Highlights from capacity building initiatives from the Roundtable Partners
11:55 – 12:00	**Summing up and closing remarks** • Summing up of action points from the day • Concluding remarks

Annex B List of attendees

List of participants: **Eighth Roundtable Discussion on Strategic Energy Planning**

Date and time: 17th June, 9:30 – 12:00 CEST

Location: International Centre for Theoretical Physics, Adriatico Guest House, Grignano, Trieste, Italy; Zoom online platform

No.	Name	Institution
1	Grace Ronoh	Access Coalition
2	Phil Mudavanhu	Action 24
3	Mariama Kamara	Access Coalition
4	Umar Sale Anka	Access Coalition
5	Brian Omenyi	Access Coalition
6	Helen (Xiangyang) Xu	Center for Resources and Environment, China University of Mining and Technology
7	William Blyth	Foreign, Commonwealth & Development Office (FCDO), UK
8	Anjana Das	Integrated Research and Action for Development
9	Victoria Montenegro	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
10	Anett Großmann	GWS (Institute of Economic Structures Research)
11	Frank Hohmann	GWS (Institute of Economic Structures Research)
12	Ilse Berdellans-Escobar	International Atomic Energy Agency (IAEA)
13	Roberta Quadrelli	International Energy Agency (IEA)
14	Darlain Edeme	International Energy Agency (IEA)
15	Naomi Tan	Imperial College, Climate Compatible Growth (#CCG)
16	Rudolf Yeganyan	Imperial College, Climate Compatible Growth (#CCG)
17	Asami Miketa	International Renewable Energy Agency (IRENA)
18	Daniel Russo	International Renewable Energy Agency (IRENA)
19	Emanuele Taibi	International Renewable Energy Agency (IRENA)
20	William Usher	KTH (Royal Institute of Technology)
21	Luca Petrarulo	Climate Compatible Growth (#CCG), Loughborough University
22	Mark Howells	OpTIMUS, Climate Compatible Growth (#CCG), Imperial College, Loughborough University
23	Carla Cannone	OpTIMUS, Climate Compatible Growth (#CCG), Loughborough University
24	Siraji Magaraluyima	Oxfam
25	Simon Trace	Oxford Policy Management (OPM)
26	Nishant Narayan	Sustainable Energy for All (SEforALL)

No.	Name	Institution
27	Nicolina Lindblad	Sustainable Energy for All (SEforALL)
28	Taco Niet	Simon Fraser University (SFU)
29	Mamahloko Senatla	Kumba Iron Ore
30	Fernando de Cuadra García	Universidad Pontificia Comillas (Universal Access Laboratory, MIT-IIT)
31	Alandra Champion	USAID / Power Africa
32	Albert Osueke	USAID / Power Africa
33	Clara Ivanescu	World Bank – Energy Sector Management Assistance Program (ESMAP)
34	Benson Ireri	World Resources Institute (WRI)

Annex C Concept note of the Webinar Series - Transforming the international support to strategic energy planning. Key principles for a more nationally-led, inclusive and transparent approach

Click on the image of the clip to open the PDF document.

Concept note

Webinar Series - Transforming the international support to strategic energy planning. Key principles for a more nationally-led, inclusive and transparent approach

Dates: September 2022

Location: Zoom or similar platform

Introduction

The Climate Compatible Growth (#CCG) programme, funded by the UK Foreign and Commonwealth Office (FCDO), and the OpTIMUS community of practice are glad to jointly organise the **webinar series "Transforming the international support to strategic energy planning. Key principles for a more nationally-led, inclusive and transparent approach".**

Strategic energy planning is an essential input to effective policy and investment decision-making for achieving the Sustainable Development Goal 7 of ensuring everyone has access to affordable, reliable, and modern energy services by the year 2030. Although the main stakeholders are government decision-makers (with inputs from civil society, the private sector and other energy sector actors), energy planning is often supported by a mix of bilateral and multilateral donors and Development Partners (DPs), with inputs from technical institutions and consultancy firms providing data and analysis using a variety of software tools and models, as well as varying degrees of capacity building. Nevertheless, current support for planning activities is too often ineffective at improving decision-making. In the past five years, several DPs and many others with relevant expertise have joined up in the **Roundtable Initiative on Strategic Energy Planning** and identified five **key principles** for the definition of a "Code of Conduct" for DPs to work collectively towards improved effectiveness of their support to country governments on strategic energy system planning:

> **National ownership.** Support country-led energy planning processes that work in partnership with key stakeholders* to achieve broad consensus on strategic objectives and plans. Help empower the relevant authorities at regional, national and subnational levels to rally stakeholders to implement the plan, and push back on proposals that do not align.
>
> **Coherence and inclusivity.** Assist Governments to ensure that strategic decisions taken in the energy sector are coherent with broader economic, social and environmental goals (including Sustainable Development Goals and Nationally Determined Contributions under the Paris climate change agreement) by committing to evidence-based, integrated and inclusive energy planning processes that lead to fair and technically sound energy development programmes.

* Key stakeholders are defined as governments, government agencies, consumers/citizens and civil society organisations, utilities, investors, project developers and international development partners.

Annex D Template to align Terms of References of projects to the U4RIA data and modelling transparency and management goals

Introduction

This document has been prepared by the Secretariat of the Roundtable Initiative on Strategic Energy Planning, in discussion with the UK FCDO funded programmes Energy and Economic Growth (EEG) and Climate Compatible Growth (CCG), and the OpTIMUS Community of Practice.

The purpose of this document is to provide donors, international organisations, development partners, and whoever else is going to commission activities involving strategic energy planning and modelling support to developing countries with a **practical way to embed sound data and modelling transparency and management practices**.

Below is an initial template that can be customised and finally included in the Terms of Reference of energy planning and modelling assignments to **align the data, metadata and models produced and treated with the principles of Ubuntu, Retrievability, Repeatability, Reconstructability, Interoperability and Auditability (U4RIA)**.

The different sections of the template refer to each of the U4RIA goals with the following specific objectives:

- **Ubuntu (community engagement):** knowledge and/or capacity about the data is left behind;
- **Retrievability:** the data are easily retrievable and openly accessible;
- **Repeatability:** the key features of the data, model, and modelling process are known;
- **Reusability:** the data are built on previous relevant modelling efforts, and are reusable by future modelling efforts;
- **Reconstructability:** the process to obtain the data can be reconstructed by a third party;
- **Interoperability:** output data can be compared and utilised using other models;
- **Auditability:** third parties are able to audit the data.

The template below has to be understood as an initial suggestion only and users will likely need to further tailor it to their project's circumstances and key aspects.

The document contains footnotes with some editor's comments that should be deleted before the document is included in Terms of References.

For any questions or further information, please contact eeg@opml.co.uk.

ANNEX X. SPECIAL REQUIREMENTS FOR DATA, METADATA AND MODELS

Property and Confidentiality of Data and Modelling Outputs

Data collected and deliverables produced under this TOR – including metadata, intermediate data and data collection and analysis methodologies – are the property of ["PROJECT OWNER"][2] and considered confidential information. The Consultant or vendor will protect the confidentiality of establishments and individuals participating in the provision of data or information at all stages. Exception to such protection of confidentiality is at the sole determination of ["PROJECT OWNER"], provided such an exception is allowed under applicable national laws. The Consultant or vendor will ensure that no data or related documentation collected or compiled under these TORs are distributed for commercial or non-commercial purposes to third parties, nor will they be used by the Consultant, firm, its staff or sub-contractors for purposes other than those expressly stated in these TORs, without the prior written approval of the ["PROJECT OWNER"].

Compliance with the U4RIA data and modelling principles

["PROJECT OWNER"] has been part of the process to define a set of principles to promote the robust, accessible and transparent delivery of energy modelling for policy support. Therefore, **all data collected and deliverables produced under this TOR must comply with the principles of Ubuntu, Retrievability, Repeatability, Reconstructability, Interoperability and Auditability (U4RIA)**, as illustrated below.

Ubuntu (Community Engagement)[3]

Under the provision of this TOR, the Consultant agrees, to the extent specifically agreed with ["PROJECT OWNER"], **to engage with the national and international energy planning and modelling community about the outputs and methodology produced under this TOR in one or more of the following ways:**

- **Peer review:** The output data and methodology used are reviewed by a group of national and international experts. Indication of the peer reviewers' names and the peer review process (including the comments received) must be documented and submitted to ["PROJECT OWNER"].
- **Presentation of final deliverables:** The output data and methodology used are presented to a list of relevant national and international stakeholders agreed with ["PROJECT OWNER"].
- **Internal capacity building:** The Consultant builds the capacity of the main governmental end-users in order to transfer the knowledge and ownership of the output data and methodology used. This should also involve regular interaction with the main end-users throughout the modelling process.

[2] **Editor's comment:** Please change everywhere in the document the reference to "["PROJECT OWNER"]" with the appropriate wording of the project outputs' "owner", according to your organisation and project's needs. Depending on the specificities of the case, this may be the Donor / Development Partner (e.g. UK FCDO, IRENA), the main government partner (Ministry of Energy), a third party or even a combination of those option.

[3] **Editor's comments:** 1) Peer review, presentation of the final deliverables and internal capacity building should be the minimum requirements to be U4RIA compliant. External capacity building, particularly of local academia, is highly encouraged, but not mandatory. 2) The text in the main body of the TOR will have to include specific activities of stakeholder engagement / research uptake that reflect these "Ubuntu" points.

- **External capacity building:** The Consultant builds the capacity of a list of relevant national and international stakeholders agreed with ["PROJECT OWNER"], in order to transfer the knowledge and ownership of the output data and methodology used.

Retrievability

In accordance with the "Key principles for improving the support to strategic energy planning in developing and emerging economies", ["PROJECT OWNER"] intends to make all data and other deliverables produced under these TOR publicly available, unless ["PROJECT OWNER"] believes that the public dissemination of the data will violate confidential information.[4]

In particular, ["PROJECT OWNER"] intends to upload all data and other deliverables produced under these TOR on the following open access platforms and websites:

- [LIST OF WEBSITES AND PLATFORMS]

The Consultant will provide advice to ["PROJECT OWNER"] on options for uploading all data and other deliverables produced under this TOR.

Repeatability

Essential metadata describing, *inter alia*, data in and out, model generators, model generated, processes followed, 'storage' of that information and related meta-information should be provided for all data products. Core metadata requirements for each data product are:

- Names and contacts of the authors/consultants and lead institution
- Problem or policy issue analysed
- Type of modelling framework (e.g. accounting, optimisation, simulation, etc.)
- Version of the software considered
- Available code base / instance of both the:
    - Software i.e. model generators (e.g. MAED, LEAP, OSeMOSYS, MESSAGE, MARKAL, MAPS, etc.) and
    - the country-specific model 'generated' and 'calibrated'
- Input data (plus related meta-information) to the model, scenario assumptions and the outputs obtained
- Techno-economic information and degree of detail of the energy system structure represented in the model (what components/technologies included and how they are interlinked)
- System boundaries and restrictions (technical, environmental, social) applied and why
- If applicable, policies evaluated, results interpreted, and policies formulated based on the results
- Sensitivity and uncertainty analyses carried out.

Reusability

It is important that the modelling outputs from this assignment build on previous relevant modelling efforts. In this regard,

[4] **Editor's comment:** Your legal department should consider tailoring this part according to the specific circumstances.

- on the one hand, ["PROJECT OWNER"] commits to share with the Consultant any relevant material in its knowledge and facilitate the Consultant's retrieval of previous relevant modelling outputs;
- on the other hand, the Consultant must document its efforts to retrieve and build on relevant modelling outputs, including by submitting a list of stakeholders contacted and data / material received.

In addition, the data and deliverables produced under this TOR should be provided in formats that allow as much as possible to be the basis for future modelling efforts. Therefore, data should be provided to ["PROJECT OWNER"] in at least one machine-readable, non-proprietary open file format that complies with the Open Definition. Tabular formats such as CSV and tab-delimited text, or geospatial formats such as Shapefile or GeoJSON satisfy this requirement. Excel, STATA, or other proprietary data formats may optionally be used in addition to at least one open format. PDF and Word are not acceptable formats for data.

Data should be provided according to recognized standards and encodings whenever possible. Data standards are available for many types of data; for instance, GTFS for transport data, or DDI for microdata. The Open Geospatial Consortium documents standards for a broad range of applications and disciplines.

Reconstructability

The Consultant should provide a clear description of the workflows to move from the modelling input to the output data, so that the process to obtain the output can be reconstructed by a third party. As a minimum, this will include:

- Reference(s) of the original input data, e.g. source name and author, publication date etc. – or no reference, i.e. the value is an assumption from the modeller
- Level of manipulation (e.g. single value from one source, calculation from multiple values from one source, calculation from multiple values from multiple sources)
- Type of manipulation (e.g. average, mean, straight interpolation etc.)
- Time series included, i.e. details of the years the final value refers to
- Further comments (including description of assumptions involved).

Interoperability

The modelling output data from this assignment should be delivered in a form that is conducive for their utilisation by other models with minimal manipulation. To achieve acceptable levels of interoperability, as a minimum, the Consultant commits to:

- Submit well documented or annotated copies of base data to be appropriately stored by ["PROJECT OWNER"]
- Ensure it is on accessible media
- Ensure that the required model version can be downloaded
- Made the data compliant with the Standard Interchange Formats [NAME AND LINK / REFERENCE OF THE SPECIFIC STANDARD INTERCHANGE FORMAT].

Auditability

It is important that all the previous U4RI principles are followed, so that a successful audit of the data and deliverables produced under this TOR can be carried out. ["PROJECT OWNER"] reserves the

right to include the compliance to the U4RIA principles as described in this Annex in an official audit and link the full or partial release of funding under this contract to the audit’s outcomes.

Annex E ICTP Summer School 2022: Lessons learnt & Future Work

Click on the image of the clip to open the PDF document.

Annex F Roundtable Initiative’s Energy Planning and Modelling Initiatives Database

Click on the image of the clip to open the Excel document.

16-7-2022_Energy planning and modellir

Annex G Slides on energy planning capacity building initiatives

Click on the image of the clip to open the PDF document.

Session 4

Energy planning support initiatives