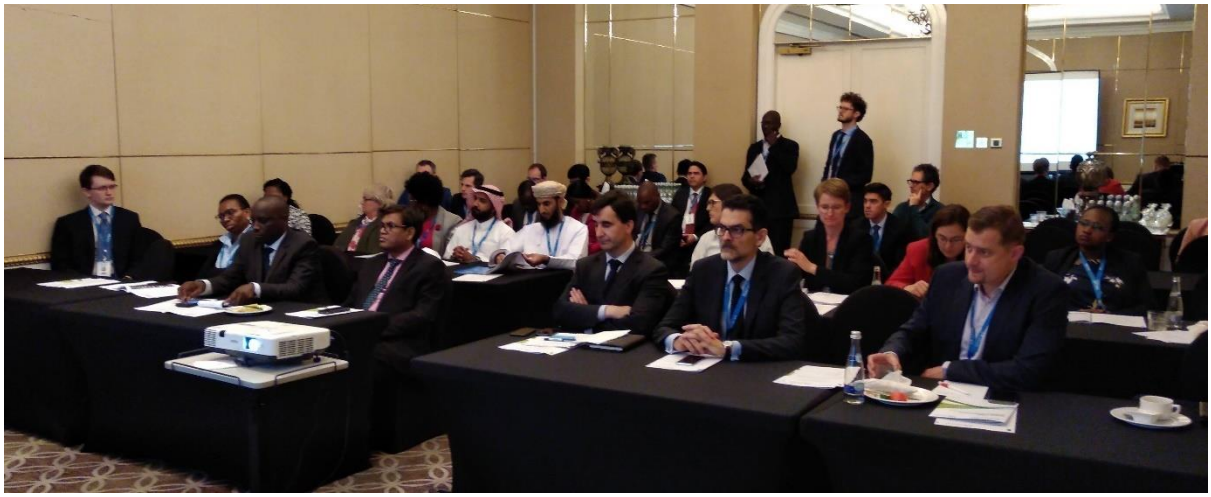
LTES LONG-TERM ENERGY SCENARIOS FOR THE CLEAN ENERGY TRANSITION
A CAMPAIGN OF THE CLEAN ENERGY MINISTERIAL

IRENA International Renewable Energy Agency

Proceedings - LTES campaign side event

Planning the clean energy transition: How long-term energy scenarios can support decision-makers

Date and time:	Wednesday, 26 June 2019, 13:15 – 14:40
Location:	Sheraton Corniche, Abu Dhabi
Participants:	40
Target audience:	Country delegates participating in the 17th IRENA Meeting of the Council



Background

IRENA is coordinating a group of leading government institutions from 11 countries, seven technical institutions/associations as well as other interested stakeholders and agencies as part of the "Long-term Energy Scenarios (LTES) for Clean Energy Transition" campaign, which is a workstream organised by the Clean Energy Ministerial (CEM). The campaign aims to promote the improved use of scenarios for the clean energy transition, enable the exchange of best practices and facilitate work to strengthen and broaden their use. The campaign has been running since May 2018 and has since organised a series of events and webinar sessions. More information on the LTES campaign can be found here.

In this side event, the main findings and recommendations from the first year of the LTES campaign were presented, followed by a series of country experiences on the use and development of long-term energy scenarios. IRENA then open the floor to seek feedback from the participants on how to expand this work on long-term energy scenarios beyond CEM to include IRENA member countries through its newly launched Energy Transition Scenario Network (ETS-Net) and other programmatic activities. The summary of first-year LTES campaign findings has been published and can be found here.

Session programme

The complete programme of the side event is detailed below:

Programme

Moderator:	Asami Miketa, Senior Programme Officer, IITC
13:15	**Introductory remarks** Dolf Gielen Director, IITC
13:20	**First-year LTES campaign findings** Pablo Carvajal Associate Programme Officer, IITC
13:30	**UK's experience in building and communicating scenarios** Simeon Agada Head of Clean Energy and Advanced economies, Department for Business, Energy and Industrial Strategy (BEIS), United Kingdom
13:40	**Building in-house scenario modelling capability for long-term energy scenarios** Karl Brownson Operations Advisor, Abu Dhabi Department of Energy, United Arab Emirates
13:50	**Floor interventions and discussion with the audience**
14:10	**Final remarks**
14:15	**End of meeting**

Summary of the discussion

Opening remarks

Dolf Gielen (Director IITC, IRENA) began by welcoming attendees and providing an overview of IRENA's CEM campaign on Long-term energy scenarios for the Clean Energy Transition (LTES campaign). Dr Gielen mentioned that the LTES campaign seeks to explore experiences on the use and development of scenarios, with the ultimate objective of underpinning good practices that can support the broader and improved use of scenarios for energy transition planning. He mentioned that there is a need to accelerate the transition, which is very positive overall, but it brings a series of uncertainties and challenges for energy planning and investment decision. The LTES campaign has had an incredible response during its first year of activities, reaching over 650 experts in a series of events held in many countries to exchange experiences. Also, it has established a successful webinar series with over 500 registrants. During his remarks, Dr Gielen mentioned that although the LTES campaign is only open to CEM member countries. IRENA is, therefore, looking to complement the LTES campaign with the Energy Transition Scenario Network (ETS-Net), which would have similar objectives as the LTES campaign but will be open to a broader audience – IRENA member countries and technical institutions supporting the government in energy planning. Dr Gielen finished his remarks by restating the two objectives of the session: 1. Present the First-year findings of the LTES campaign, and 2. Discuss with the audience on how IRENA should move forward with the ETS-Net.

Presentations

Moderator Asami Miketa (Senior Programme Officer, IRENA) welcomed the speakers and mentioned some background on the speakers and the relevance of their presentations. She mentioned that the United Kingdom has been an active member of the LTES campaign, and its approach to engaging various stakeholders in developing and communicating scenario results has been of much interest. Also, she mentioned that the efforts that the Department of Energy of Abu Dhabi has been carrying out to build in-house modelling capacity to develop long-term energy scenarios are quite rare to find at a sub-national level. Hence it would be valuable to listen to their experience in the matter of creating a modelling team.

Pablo Carvajal (Associate Programme Officer, IRENA) gave the first presenting on IRENA's behalf and presented a summary of the LTES campaign's first-year findings. He started by elaborating on the focus of the campaign and the mental model followed by the LTES campaign – energy models, support energy scenarios, which in turn support long-term energy policy making. However, he stressed that IRENA looks at developers and users of long-term energy scenarios as two different types of stakeholders, which have different challenges when faced with the complexities of the clean energy transition. Dr Carvajal provided some key insights on good practices identified during the campaign's activities and according to the three themes of the campaign: use, development and capacity building. More details on these can be found in the publication: "Long-term Energy Scenarios for the Clean Energy Transition - First-year campaign findings", published recently by IRENA. Dr Carvajal ended his presentation by presenting some quick country examples on how the UAE is communication scenarios to policymakers, Finland is expanding the border of its modelling exercises

to assess long-term policy and how CEM countries are in-sourcing and out-sourcing scenario building capacity.

Simeon Agada (Head of Clean Energy and Advanced Economies, BEIS, United Kingdom) presented on the UK's experience in building and communicating scenarios. Dr Agada began by mentioning that scenarios are a core part of policymaking in the UK. He highlighted that scenarios are only as good as the assumptions taken into consideration to assess a specific policy decision – energy demand forecasts, technology costs, project build rate, emissions intensity and policy constraints. Dr Agada also mentioned that scenarios allow for system-wide thinking, and gave an example on the impact of higher shares of renewables in the overall power system – while higher shares of variable renewable energy can lower electricity generation costs, it can increase the costs for system balancing and network reinforcement. He also mentioned that multiple what-if scenarios could be created with models to assess the technical trade-offs and financial implications of different policy decisions. Dr Agada stressed that long-term energy pathways must take into consideration the incremental cost for citizens, highlighting that it could be challenging to support the energy transition if it is likely to cost significantly more. Dr Agada ended his presentation with a series of lessons learned by the UK from the successful use of long-term energy scenarios: (1) Keep models as simple as possible, (2) Standardise structure to allow multiple users, (3) Have some in-house expertise (4) Keep the models up to date, and (5) Build in quality assurance.

Karl Brownson (Operations Advisor, Abu Dhabi Department of Energy) began by giving an overview of the Abu Dhabi Department of Energy (DoE), which was created only in 2018 and with one of its mandates being to coordinate the development and update of Abu Dhabi energy policy framework. He mentioned that Abu Dhabi's energy sector is government planned and hence, there is a government drive to build in-house modelling and policy development capability. The DoE has worked to establish a broad stakeholder network with Abu Dhabi's and the United Arab Emirate's leading institutions related to the energy industry. He mentioned this has been key to keep data updated and to promote a shared vision about the importance of energy planning. The DoE has developed the Integrated Energy Model, a tool that allows for annual forecasts (2016 to 2050) and is based on an energy balance principle (supply and demand), while scenarios are explored through modelling policy choices to understand the trade offs between key objective functions (i.e. constraints around cost, emissions, the security of supply). This tool has been developed by consultants in closerelationship and co-located with DoE staff. Mr Brownson narrated the journey in developing the modelling capability of the Abu Dhabi's Department of Energy, starting in September 2018 and throughout 2019. The first milestones were setting clear objectives, establishing an internal team and setting knowledge transfer as a key objective. Following steps included engaging stakeholders and identifying win-win benefits when they contributed with the DOE. In January 2019 the DoE Integrated Energy Model was launched at the World Future Energy Summit (WFES) along with the Energy Policy Framework . Now, modelling assumptions and results are being communicated to Government stakeholders for consultation plus a round of expert peer reviews are being held to help validate assumptions, scenarios and results. Mr Brownson finished his presentation by mentioning that the next steps are to have the DoE's own team update/refresh the model in-house and establish an annual timeline for key update activities and governance arrangements. The results obtained with the Integrated Energy Model will serve as the basis for the Abu Dhabi Energy Outlook 2050 publication.

Questions from the audience

Q: Michael Ahimbisibwe (Representative from Uganda) asked to the panellists how they deal with political interference in the assumptions considered in long-term energy scenarios. Also, how 'long' is 'long' term planning.

> **A: Simeon Agada** responded that indeed, models are only as good as the underpinning assumptions. He mentioned that politicians will interpret scenarios as they see fit, but it is the modeller's job to do his/her best to provide updated and reliable scenarios results for the discussions. He added that core assumptions could change over time (e.g. technology cost curves), and therefore, it is proper to expect that underlying conditions of a scenario are subject to change. He ended his answer, mentioning that transparency is vital and that in the UK, raw data (statistics) used for model exercises are published and freely available.
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> **A: Asami Miketa** commented that the usual horizon for long-term planning is 2040-2050. She also reiterated that the transparency issue is a recurring topic in the LTES campaign events – making available data and assumptions of scenarios.

Q: Gloria Mogombo (Representative from Zimbabwe) asked if there are any 'standard models' developing countries could use to start studying long-term plans. In particular, Zimbabwe wants to create a long-term integrated resource plan.

> **A: Asami Miketa** answered that multiple aspects need to be considered when deciding what model is suitable for a country, e.g. costs of the tool, local capacity, complexity, etc. She added that one of the insights that the LTES campaign will provide is what models participant countries are using.

Interventions from the floor

Birgitte Bay (Ministry of Energy, Utilities and Climate, Denmark) mentioned that there is a long tradition in Denmark in using scenarios for planning. She highlighted that this has been key for the current situation of Denmark with very high shares of renewables energies in the power sector (particularly wind), and also for raising ambitions even further. She ended her intervention by reiterating Denmark's support to IRENA and the LTES campaign.

Ruud Kempener (European Commission) mentioned that they use models to assess the evolution of the long-term energy system at the European level. He mentioned that due to quality assurance purposes, they have only been using one model. However, they are now developing a second model, which will be open source. Regarding the discussion on the validity of assumptions, he mentioned that previously the EC trusted to academia the development of assumptions for the modelling exercises, as to avoid any interference from the policy side, however, this resulted in scrutiny on how and why academics developed these assumptions. Nowadays, assumptions are developed by the EC and consulted among academia, NGOs and member countries; this has led to much more transparency. He highlighted that results, and assumptions are usually scrutinised separately, and the public will always complain about results, not reflecting assumptions.

Bilun Müller (Federal Ministry of Economic Affairs and Energy, Germany) mentioned that the horizon of 2050 is linked to the Paris Agreement goals that want to be reached. She mentioned that it is essential to consider society in scenario-building exercises and that there is social pressure to look into the future, for example, with the planned coal phase-out planned for Germany by 2038. She finished her intervention by mentioning that scenarios are a necessary tool to map the alternatives and challenges that policy decisions will bring in the future.

Mohammad Alauddin (Representative from Bangladesh) mentioned that the country has produced a Power Master Plan with an outlook to 2041 and that this document will be revised every 5 years due to the changing context in the country. He added that these good practices that IRENA is identifying through the LTES campaign will be beneficial for their future planning work.

Thabile Nkosi (Representative from Eswatini) shared the experience of the country, which has been developing scenarios with a 20-year horizon with an energy planning tool. It is mentioned that the process to build a scenario-based energy master plan was possible through a consultation process with stakeholders in government institutions and beyond. It was also mentioned that capacity building was crucial and that an energy planning team was created with members from different ministries, agencies, university, regulator and the utility to work on scenario building activities. The intervention finished mentioning that from the Energy Master Plan, a Short Term Power Generation plan (3-5 years) was developed focusing on the delivery of power from renewable energy (40MW Solar and 40MW biomass).

Mokgadi Modise (Representative of South Africa) commented on the challenges of communicating energy transition scenarios to the sectors that will be affected by the energy transition. Translating scenarios of coal phase-out in South Africa, for example, has a profound impact on the coal industry and the organised labour unions in the country. It is mentioned that scenarios messages need to be translated to target different levels of the population in different geographical locations and with different interests, both to people in the energy space as well as people outside. It was highlighted that the topic of job creation would be critical to support the transition. The intervention ended that the CEM LTES campaign has a limitation in terms of participating countries and that it would be good to reflect a broader set of countries that represent other countries in Africa and developing countries.

Final remarks

Dolf Gielen (Director IITC, IRENA) provided final remarks reflecting that energy scenarios is not only about the tool but is very much about the whole framework around the tool – how to use a modelling tool in each context. He added that there is general support to expand the LTES campaign to the Energy Transition Scenario Network, which will engage with the broader audience of IRENA's member countries.

For any questions or more information, please contact LTES@irena.org.