UNFCCC COP27 SIDE EVENT: 12/11 2022
15:00-16.30 Room: Memphis (Blue Zone)

Local Climate Sustainable Energy Solutions in Global Stocktake (GST) Why, How and From Where

Welcome by the organisers INFORSE – SusWatch Kenya, - INSEDA - SE

Moderator: Judit Szoleczky, INFORSE, Santosh Patnaik, CANSA

East Africa:

Promoting local solutions as important climate and development solutions in East Africa

Mary Swai, TaTEDO, INFORSE-East Africa, Tanzania (@)

Launch: 100 % Renewables Scenario – Uganda

Richard Kimbowa, UCSD, INFORSE East Africa Chair (@)

Local Solutions in GST, 100 % Renewables Kenya
Key Message from East Africa

Nobert Nyandire, Suswatch Kenya

Europe: Paris compatible scenarios for reducing emissions with transition to 100% RE, EE, sufficiency, key message for GST from Europe

Gunnar Boye Olesen, Sustainable Energy, Denmark INFORSE-Europe

South Asia:

Promoting local activities in South Asia supported by eco-village development initiatives *Anzoo Sharma,CRT Nepal*

Successes with local solutions in South Asia & their promotion

Sanjiv Nathan, INFORSE South Asia & INSEDA, India

Launch of database, documenting successful local solutions

Abdul Arif, Grameen Shakti, Bangladesh

Local Solutions in the GST, Why and How

Dumindu Herath, IDEA, Sri Lanka

Comments:

Stephen Nzioka, Ministry of Energy, Dep. RE Kenya
Dr. Thusitha Sugathapala, Delegation of Sri Lanka

Dialogue, Conclusion

Proceedings: https://www.inforse.org/cop27.php

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Local Climate - Sustainable Energy Solutions in Global Stocktake (GST), Why, How and from Where

Launch: Scenario and Proposals for Transition to 100% Renewable Energy in Uganda, ending Unsustainable Wood Fuel and other Biomass Consumption, and replacing Fossil Fuels

Kimbowa Richard

Programme Manager- Uganda Coalition for Sustainable Development (UCSD) Chair – INFORSE East Africa

EASE-CA- NGO East Arica Cooperation Project Supported by CISU, Denmark

Uganda Coalition for Sustainable Development (UCSD) is a **network of more than 40 NGOs** dedicated to coordinate advocacy and lobby work around issues and commitments made by world governments towards sustainable development since 2004.
Mission: Contribute to sustainable development through follow up of the Johannesburg Summit outcomes and subsequent global declarations in Uganda

UCSD is national coordinator of **INFORSE** and currently, **UCSD is Partner in NGO Cooperation Project**: *EASE-CA Project - East African Civil Society for Sustainable Energy & Climate Action in East Africa* that seeks to promote sustainable energy and climate solutions, supported by CISU Denmark

One of the 5 main activities of the project is to develop and promote strategies and scenarios for 100% renewable energy for Kenya and Uganda.

Project partners

Objective of the Study

Assess the current national renewable energy situation, and energy efficiency potentials, the future demands with a continued economic growth in Uganda, and to combine the information to formulate a 100% renewable energy scenario and plan until 2050, that can inform the on-going national renewable energy-related policy processes.

Methodology of the Study

- Literature review - available written national information such as reports, policy, strategies, plans, statistics, and others
- key informant interview, virtual and physical Consultations conducted with government ministries, agencies, academia, private sectors and CSOs
- Energy Modelling - use of INFORSE's spread sheet model for development of energy balances 2000 – 2050 and the Energy Plan model with analysis of variations hour by hour of energy flows and of costs for the years 2030 and 2050.

Estimated Renewable Electricity Potential

Energy Source	Estimated Renewable Electrical Potential (MW)
Hydro	4100 large and 400 MW small
Geothermal	1500
Biomass cogeneration	1650
Solar	no practical limit
Wind	at least 500

****Biomass** is the leading type of energy used in Uganda, constituting about 94% of the total energy consumed in the country incl. rural industries; and its trade contributes to the rural economy in terms of employment, rural incomes and tax revenue.

Despite the many alternative energy sources available, both rural and urban population heavily relies on biomass energy, especially for cooking, due to its accessibility and affordability

Summary for 100% Renewable Energy Plan for Uganda

- The plan gives an overview of the Uganda's situation regarding energy supply and demand, and presents a scenario on how Uganda can move into a **100% renewable energy economy by 2050**; and, at the same time move from a low income country into a middle income country - as well as **reduce biomass use for energy to sustainable levels**
- **Uganda has vast potentials for renewable energy**, which give a good basis for realizing a development as described in the 100% renewable energy scenario
- Future energy costs for the **Business as Usual** (**BAU) and 100% RE Scenarios** are estimated
- This has been analysed based of official forecasts of technologies for renewable energy and for future costs of fuels, without the present (2022) price hikes in fossil fuels
- The results are that the **economy in the 100% renewable energy scenario is much better than the BAU scenario with lower energy costs** and gradually less and less need for imports of fossil fuels into Uganda

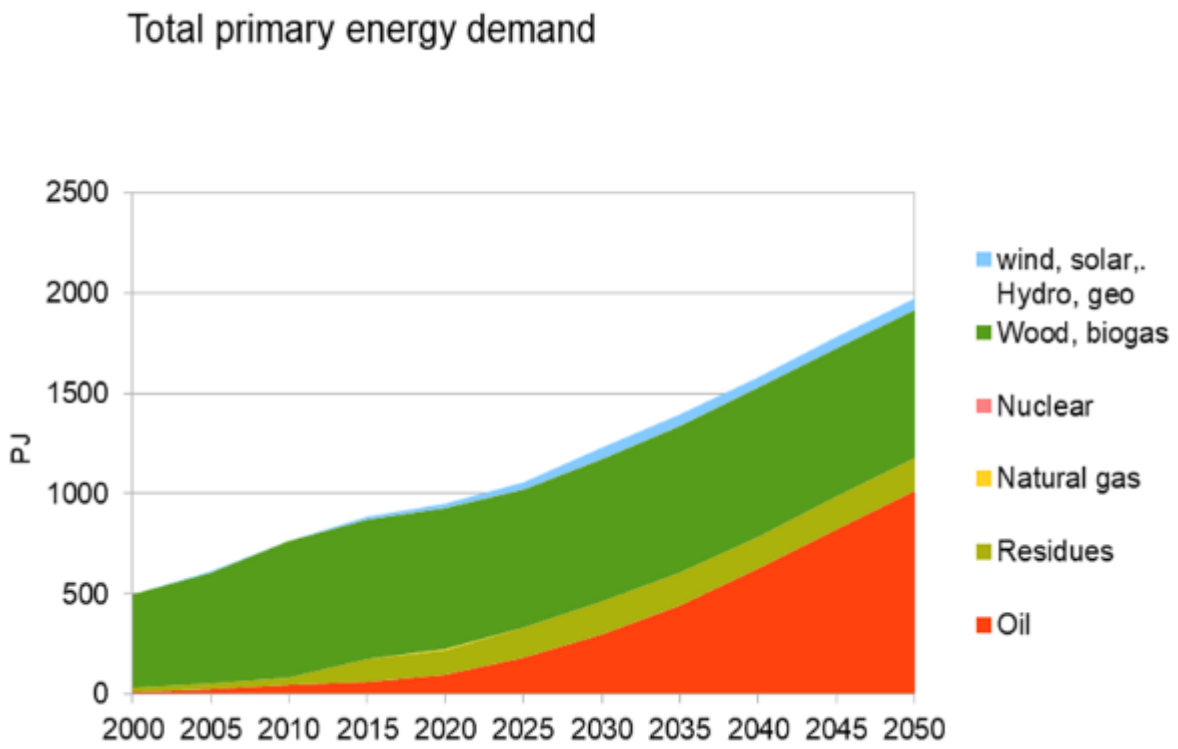
Biomass Use is Currently Beyond Sustainability Limit

- Currently, pine trees (33%), eucalyptus (50%) and cypresses (17%) are the main sources of hardwood plantation in the country
- The total standing biomass stock is estimated to be 284.1 million tons with a potential sustainable biomass supply of 45 million tons
- Nevertheless, the sustainable wood that is within reach for biomass supply stands at 26 million tons, and this can only meet about 59% of the total demand of 44 million tons per year.
- Apart from the sugar companies that utilise their sugarcane residue to generate electricity and heat, the use of other biomass such as coffee husks, rice husks etc. has not been fully explored in Uganda.

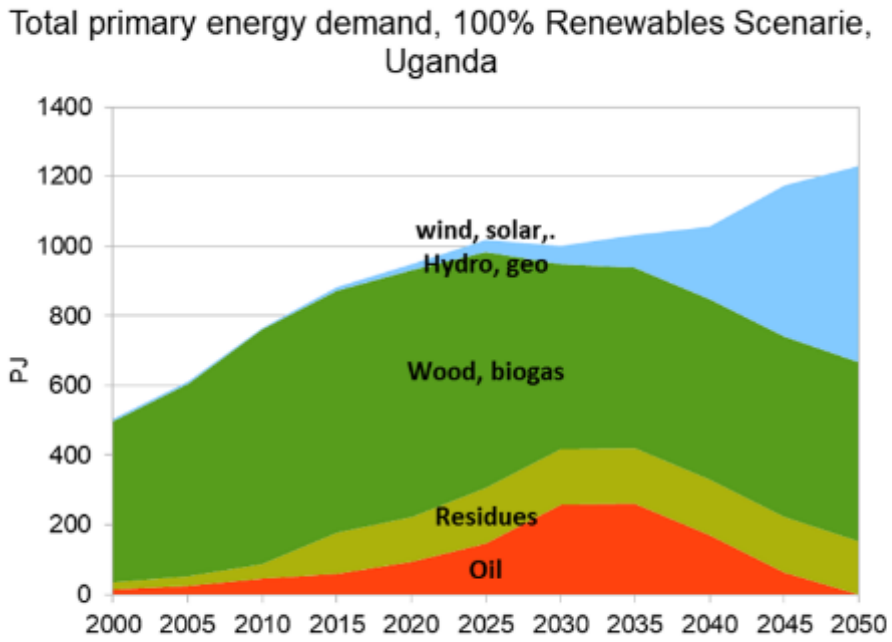
Uganda's Demand for Energy – Important Assumptions

- **Population grows**, from 45M today, to an expected 100M by 2050
- **GDP continue to grow, 5%/year is expected**. Then GDP will be 4.3 times bigger in 2050 than in 2020
- **Demand for cooking, transport, light, industry** etc. will **grow in proportion with population and GDP**. With the governments ambitious plan of universal electricity access by 2030, household electricity demand will grow fast 2020 - 2030
- **Increasing energy efficiency** will limit growth in energy demand for cooking, transport, light, industry etc.; but energy demand will still grow
- **With new, efficient technology**, large demands for fuel can be replaced with much smaller demands for electricity: smart cooking, electric vehicles etc.
- **For sustainable development**, Uganda requires a **steady supply of energy that is environmentally friendly, affordable and reliable**. The **basis for the scenarios** in this report is that the **demands for energy services will increase in line with population growth and in tandem with the Country's medium and long term development objectives as enshrined in and NDPIII and Vision 2040.**

Total Primary Demand



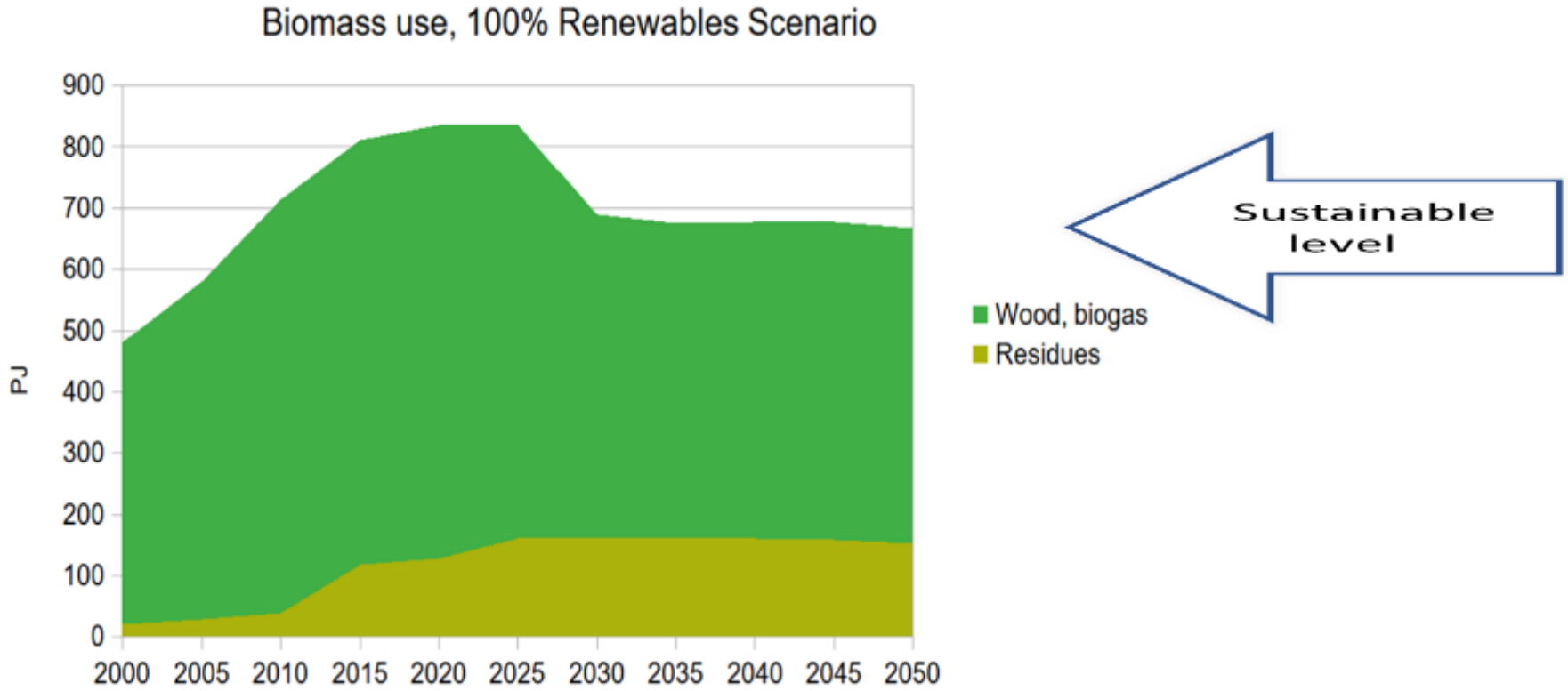
Business As Usual Scenario



!00 % RE Scenario: For geothermal electricity production only is included not waste heat

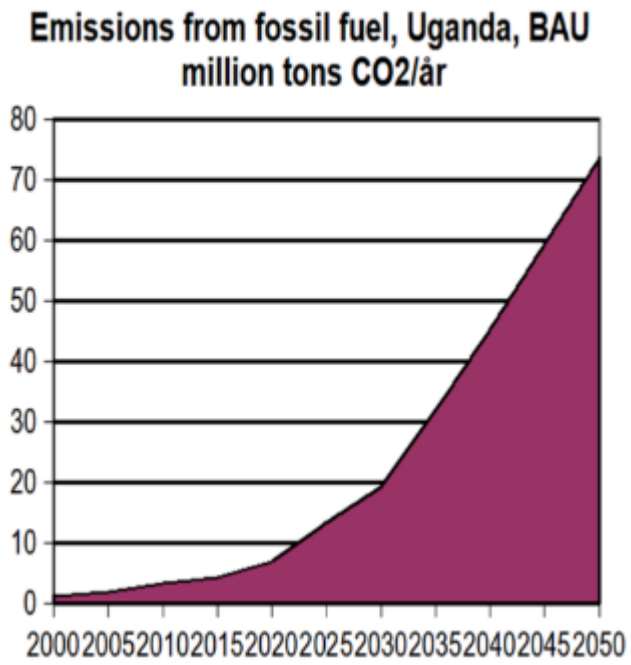
Biomass Sustainability

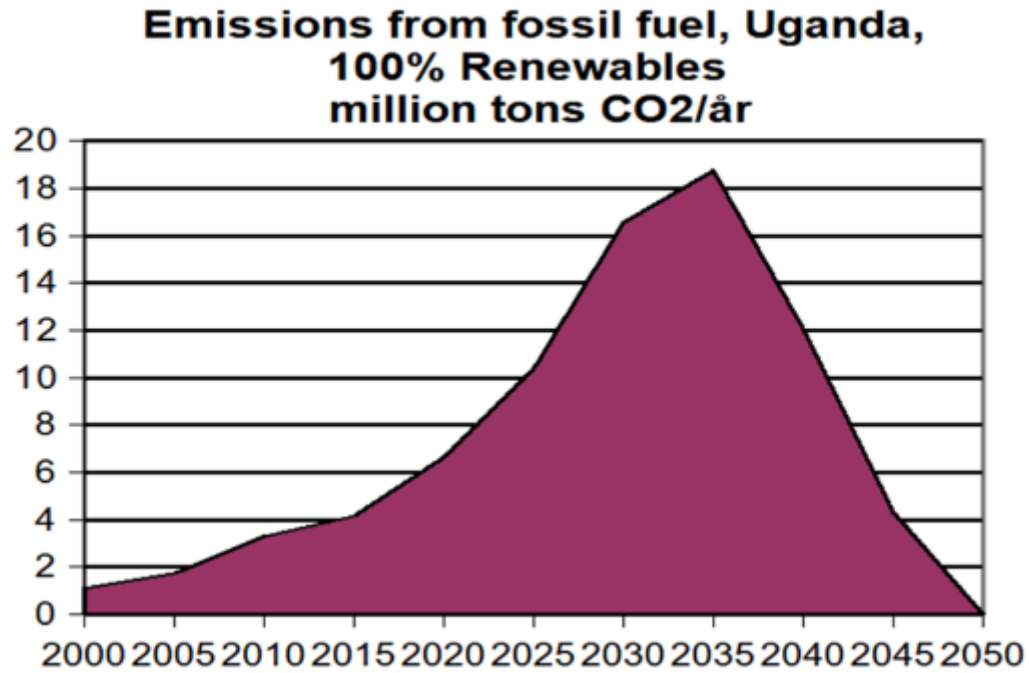
Uganda is using more wood than its sustainable level, leading to deforestation (BAU). In the 100% renewable energy scenario, this demand is reduced to the sustainable level



CO2 Emissions from Energy

CO2 emissions from fossil fuels are small today, but growing. In the BAU scenario they will continue to grow, while in the 100% renewable energy scenario, they will gradually be reduced until 2050.





Net emissions from unsustainable biomass use is much higher than emissions from fossil fuels. In the 100% renewable energy scenario, the net biomass emissions will be brought to zero by 2030 by **tree planting, and the efficient cooking and heating technologies** (new, efficient technology, etc.)

Super efficient domestic and Institutional Cookstoves

Electric vehicles are coming fast

- Companies like Zembo & Bodawerk are promoting e-bikes in Uganda..

800 USD, 50-100 km/charge

350 USD, 25 km/charge

1150 USD, 180 km/charge

Prices from New Delhi, INDIA

https://www.zigwheels.com

Improved Institutional Cookstoves

Electric Pressure Cooker

Thank you

More information:

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Report: 100 % Renewable Energy Scenario in Uganda (first version) available at www.ugandacoalition.or.ug and at www.inforse.org/africa/Vision2050.htm

Direct link to pdf:
www.inforse.org/africa/pdfs/PUB_Plan_for_100_Renewable_Energy_Scenario_Uganda.pdf