A Case for Renewable Energy for Uganda
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Why the 100% RE for Uganda by 2050?

- UCSD is preparing a 100% Renewable Energy Scenario Report as part of the EASE CA Project (work in progress)

- Status:
  - Biomass use must be reduced, in particular wood to stop deforestation. Biomass (wood, etc.) resource is with sustainable use around 26 mio. ton/year of wood + residues, is currently overused.
  - Proportion of the Uganda’s pop. with primary reliance on clean fuels and technology stands at only 0.6 per cent
  - Country projects to reverse this to 60 per cent electricity connectivity access by 2027 (huge undertaking that can be harnessed thru early promotion of RE options below)
  - Potential for RE is high
    - Geothermal power 1500 MW, not developed today
    - Solar power > 150,000 MW, less than 100 MW developed today (a large part off-grid)
    - Hydro power 4800 MW, 930 MW developed today
    - Wind power, around 600 MW, maybe more
Uganda’s Demand for Energy – Important Assumptions (based on the ongoing process to prepare 100% RE Scenario)

• 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.
Rationale for the 100 % RE pathway for Uganda

• Absence of sufficient choice in accessing adequate, affordable, reliable, quality safe and environmentally friendly energy services to support economic and human development) requires substantive synchronized efforts to fully implement the SDGs (reducing poverty and hunger, improved health, water and sanitation, education, climate action, reversing biodiversity loss, etc.)

• Therefore, 100% RE is also a step towards:
  o Responding to Uganda’s own National Development Plan (NDP III for the period 2020/21 – 2024/25) (‘fulcrum’ to implement the set 18 Programmes in this Plan)
  o The on going green recovery (COVID19) efforts
  o Raising ambition in Uganda’s climate plan (NDC) especially the adaptation actions and strengthening / building resilience of communities that heavily rely on biomass as sole source of household and commercial energy, cushioning nature-based activities incl. small holder & rain-fed agric.
  o The SE4ALL Initiative
Looking ahead: How to work towards a 100% renewable development

- Efficient cooking - key
- Make charcoal production much more efficient, from <15% today to 33%
- Expand solar power to 50,000 MW
- Expand geothermal power to 1500 MW
- Expand hydro to 4500 MW
- Expand windpower to 600 MW
- Expand electric interconnectors to 3,000 MW capacity
- Change transport gradually to electricity, hydrogen and new fuels
- Biomass power plants to balance demand and supply
Conclusion

• It is a **PLUS to scale up Decentralized Renewable Energy** (DRE) as part of Uganda’s energy share — addresses Sustainable Development Goals (SDG7) as well as other SDGs to transform our world on education, maternal health, provision of clean and safe water, among others.

• RE especially DRE, has huge potential to **leap-frog rural development** through value addition in **agriculture**, securing longer working hours for **health centres and schools**, creating **employment opportunities**, among others.
Thank You for Listening!

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