

ICTP JOINT SUMMER SCHOOL FOR **SUSTAINABLE DEVELOPMENT | 2023**

Preliminary Results of Optmization- Ethiopia case

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1. Context

- Ethiopian Power system is highly dominated by hydro
- The system is affected by rainfall variability due to climate change
- Energy security is high agenda of the Government
- The country has substantial

2. Aim

The aim of the study is to introduce energy • mix in the Ethiopian Energy System for energy security of the country.





- renewable energy resources like Geothermal, Wind, solar.
- Reducing the share of hydro in the energy mix is a policy direction.

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otherm

Water

Wind

Sola

Produ

Figure #. Caption.



3. Methods & Scenarios

Commercial lectricity Demand

Residential ectricity Dema

Industrial octricity Dema



Annual Capital Costs

BAU









Elec 001

Elec 002

Elec 003





5. Policy insights, conclusions and future work

- Diversification of energy sources is essential to build resilient energy system
- The initial cost of geothermal is relatively high however it is ultimately cost effect than the BAU.
- The participation of the private sector in the power generation significantly leverages the government effort of generation diversification

Future Work

- Clean the story of the scenarios
- Analyzing scenarios

6. References

Ref :-Ministry of water and energy

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A Cost-benefit analysis of Policy, Programs and Projects (C3PO) that is Retrievable, Reusable, Repeatable, Reconstructible, Interoperable and Auditable (u4RIA)