INNOVATIVE FINANCING MODELS FOR RENEWABLE ENERGY PROJECTS

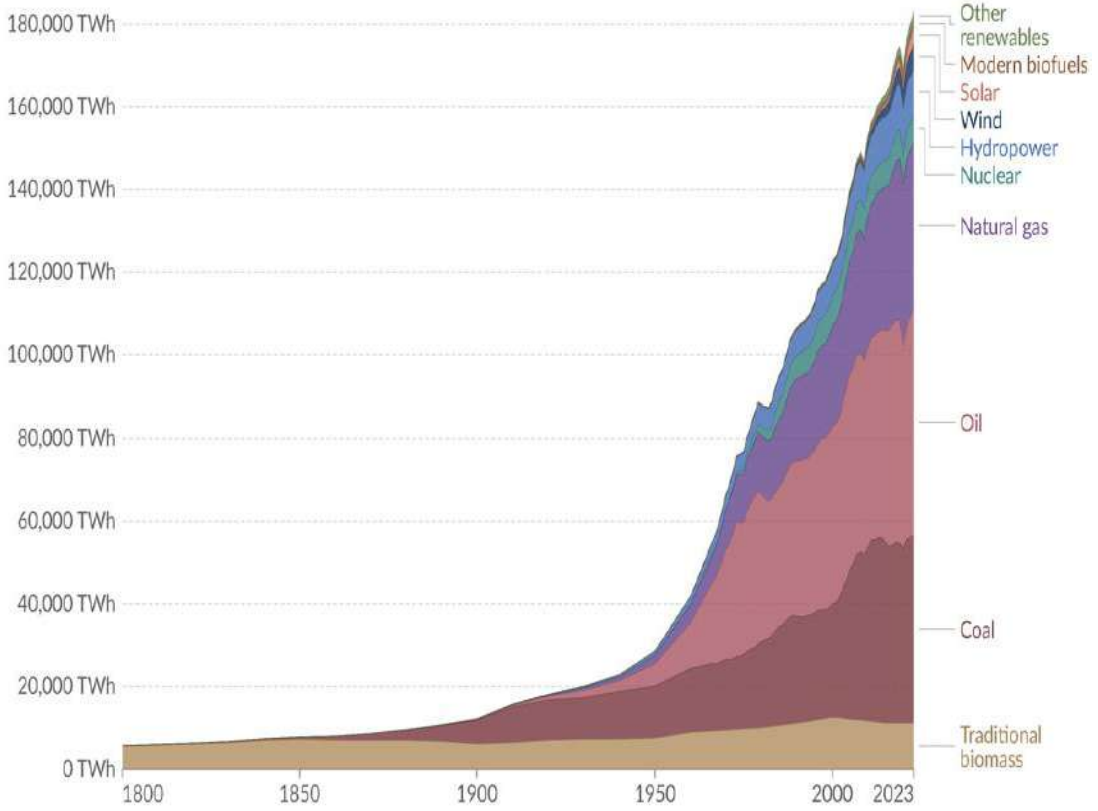
PRESENTED AT A ONE DAY CONFERENCE UNDER THE THEME "ENERGY TRANSTION IN THE EYES OF A UGANDA"

INTRODUCTION

Demand for energy is growing across many countries in the world, as people get richer, and populations increase.

Growing energy consumption makes the challenge of transitioning our energy systems away from fossil fuels towards low-carbon sources of energy more difficult:

new low-carbon energy must meet this additional demand *and* try to displace existing fossil fuels in the energy mix.



Constraints to energy transition

- Constraints to energy transition emanate from the supply and demand side
- The supply side constraints include:
  - High upfront costs of investment in renewable energy generation and transmission;
  - Policy and regulatory constraints to RE investments
- The demand side constraints include:
  - The high poverty rate especially in SSA;
  - Limited access to financing;
  - Limited access to national grid
  - The housing tenor among others.

Renewable Electricity Production Market Development Approach

- Two main approaches have been used to promote the production of electricity from renewable energy sources:
  - The first is based on the system of purchase obligation by distributors of RE electricity at a displayed and "guaranteed price".
  - The second is based on the guarantee of market share through goals set by government mandate or quota.

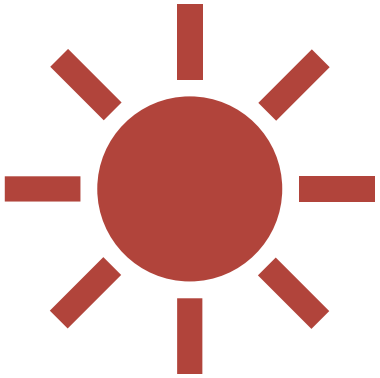
These objectives are to be achieved through bidding for concessions production of renewable sources and / or the creation of a green certificate market from green electricity quotas imposed on national electricity producers.

Regulatory instruments applicable to RE

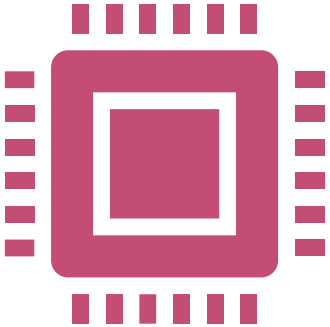
Feed-In Tariff – FIT. The government sets a price that is guaranteed for a certain period during which electricity producers can sell electricity from renewable sources and fed into the grid.

Net Metering. allowing the two-way flow of electricity between the electricity distribution network and the client's personal production

Objective requirements available for REs



Quotas - Renewable Portfolio Standard – RPS- A minimum percentage of production sold, or installed capacity must be provided through renewable energy.



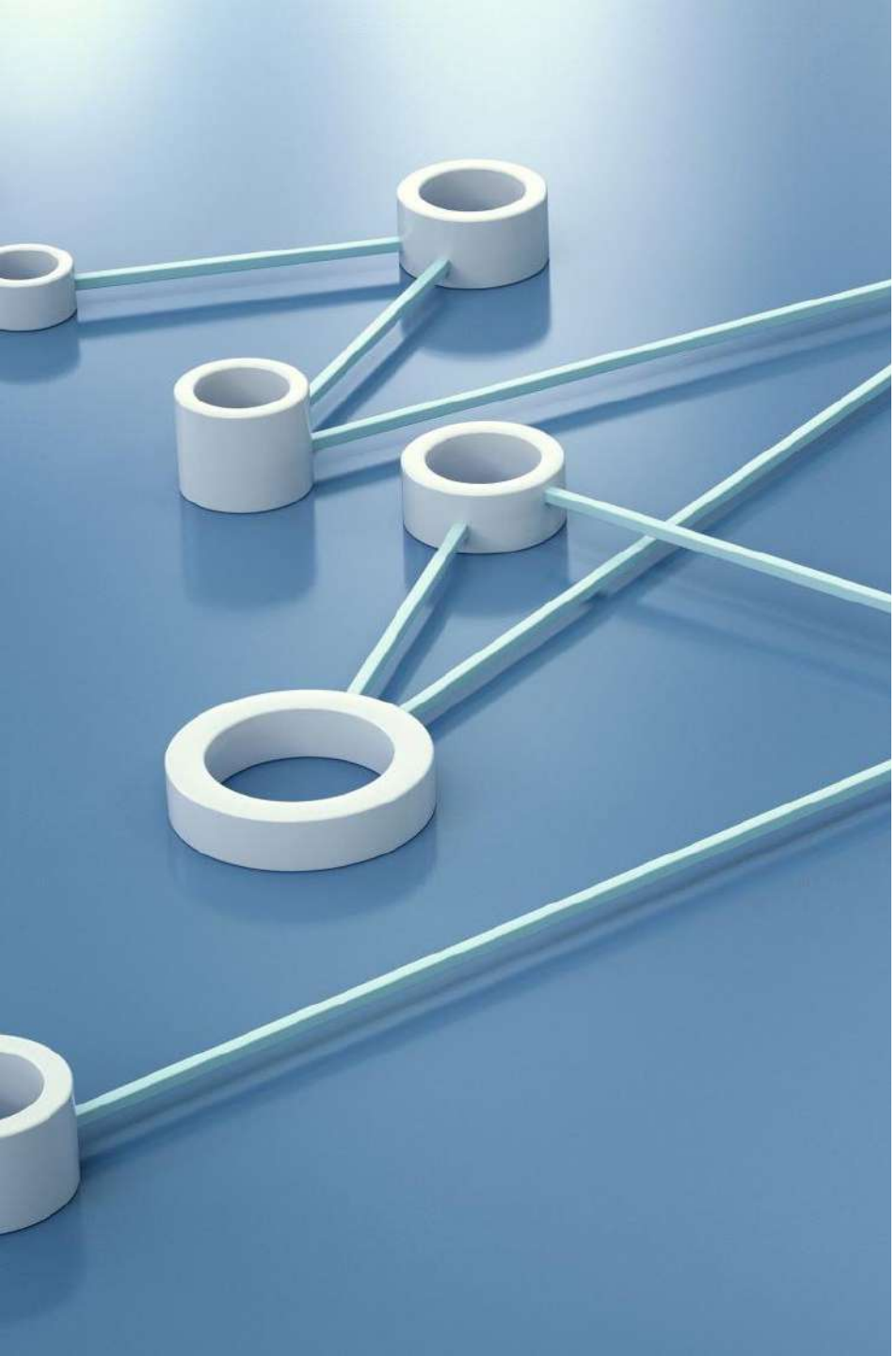
Tradable Renewable Energy Certificate – REC- The quota instrument is often backed by a system of green certificates, which are titles given to produce renewable electricity. These certificates can be traded on national markets first, but also internationally.

Incentive systems in renewable energy

- **Tax incentives-** Several tax incentives conducive to the emergence of renewable energy can be implemented focusing on reducing costs and improving the relative competitiveness of renewable energy technologies. These can be:
  - Indirect tax benefits
  - Direct tax benefits

- **Public subsidy-** These are incentives in the form of direct grants to investments in renewable installations.

- **Specific funding mechanisms.** in addition to the public subsidy, the mechanisms often rely on credit systems which duration is long enough to be adapted to the ability of household's payment.



Innovative financing mechanisms for RE

- Innovative mechanisms are often an appropriate combination of different incentives coupled with a multi-stakeholders institutional organization.

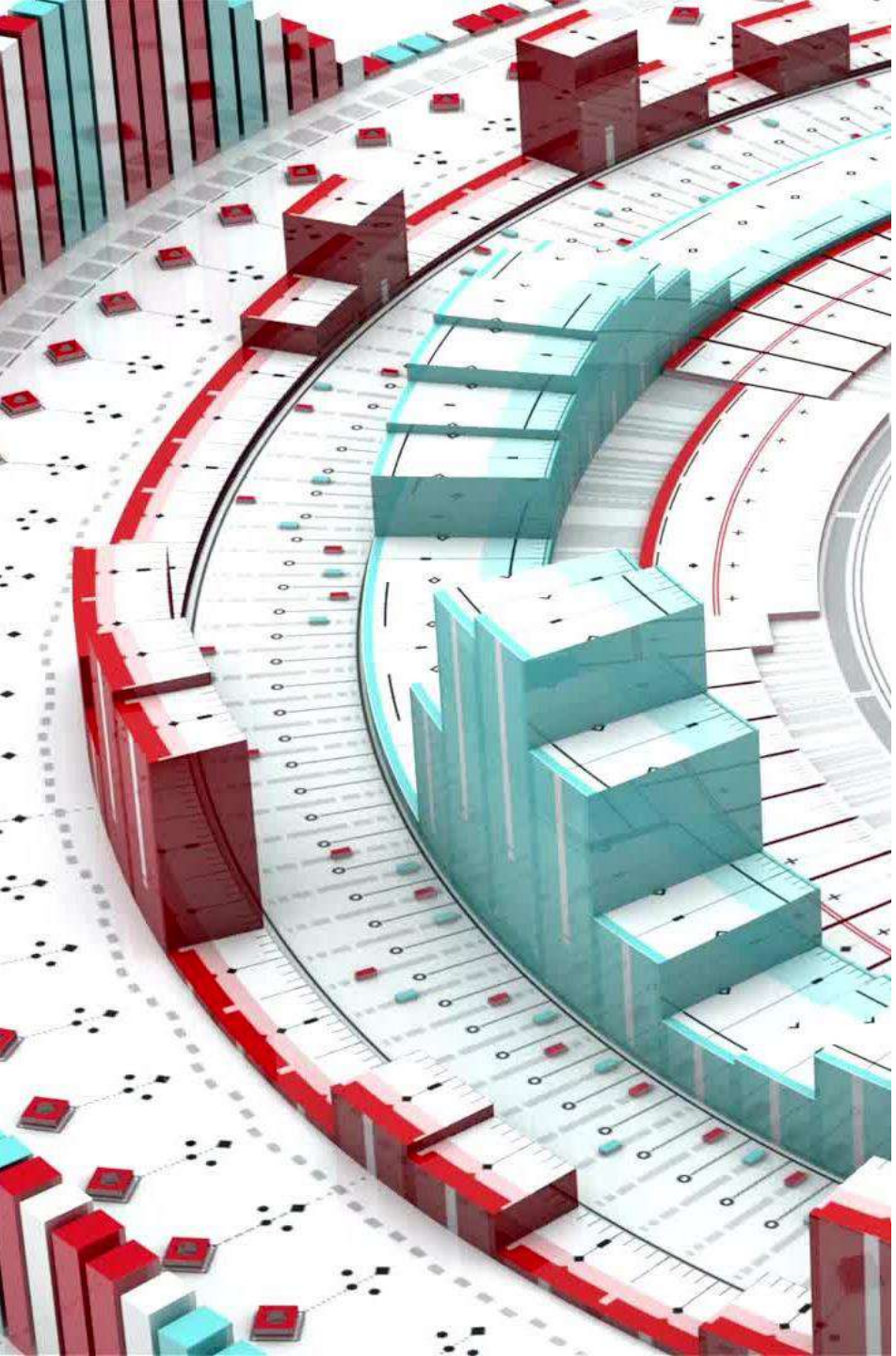
- such mechanisms are relatively recent and are observed in very few countries. Uganda also begun to think about the implementation of such mechanisms

Notable actions to support the innovative financing mechanism in Uganda

- Formation of the Uganda Energy Credit Capitalization Company (UECCC).
- The Company's main objective is to provide financial, technical and other support for Renewable Energy Projects and Programmes.
- UECCC provides credit support for renewable energy specially the following'
  - Solar loan program
  - Connection loan program
  - Biogas loan program

Financing within the Public Private Partnership

- Project funding or finance Project involves collecting, combining, and organizing the various funds contributions necessary to large-scale investments



Clean development mechanism

- The clean development mechanism (CDM) was established by the Kyoto Protocol in December 1997. Among the three mechanisms of flexibility, CDM is the only one to involve developing countries.

- Through this mechanism, an economic operator in an industrialized country, may buy emission reductions generated by a project, from an economic operator in a developing country, according to a well-defined process

Financing options in Uganda's Public Investment Financing strategy

Programme	Programme Objectives	Most preferred financing option
Sustainable energy development	Increase access and utilization of electricity	i. Sukuk Bond ii. Loans iii. Government revenues
	Promote utilization of energy efficient practices and technologies	i. Government revenues ii. Grants iii. Climate Finance
	Increase generation capacity of electricity	i. Government revenues ii. Loans iii. Public Private Partnerships iv. Infrastructure Bond
	Increase adoption and use of clean energy	i. Government revenues ii. Grants iii. Climate Finance

Good practice that can be adopted in Uganda

Measures	Advantages	Drawbacks
• **Development Approach**		
Feed In Tariff FIT)	• Strong political signal • Good promotional tool • Management Ease • Transparency	• Difficulty to control the market if prices are too high (bubble effect) • Difficulty to make bear additional cost by electricity consumers in low consumption base • Strong reluctance of electrical distributors
(Net Metering)	• Easy to implement and manage • Less costly to the State • Can lead afterwards to a system of feed-in tariff • Transparency	• Does not ensure good attractiveness if energy rates are low • Market skimming since economically attractive for consumers with high tariff bands • Reluctance of electrical distributors
System of Green Quotas and Certificates	• Strong political signal policy in relation to distributors	• Mandatory measure resented by distributors • Conflict sometimes with the requirements of financial stability of distributors • Need for quotas monitoring system • Difficulties in establishing a national market of green certificates in small countries

• Incentive Systems		
Indirect Tax Benefits	• Easy to implement • Low pressure on public finances	• Low political visibility • Low efficiency in the case of the existence of the informal market • Difficulty in applying concerning the cost of services (installation, distribution)
Direct Tax Benefits	• Strong political signal • Low pressure on public finances (excluding tax credit)	• System does not allow a swift reduction in the prices of the installations market • Low efficiency in the case where the rate of tax avoidance is high • Complexity of implementation and management (high transaction costs) • Pressure on public finances in the event of tax credit system
Public Investment Subsidy to Users	• Strong political signal • Immediate effect on reducing investment costs for users • Good communication tool • Stimulator effect on offer	• Inflation measure, in case of grant over-sizing • Pressure on public finances • Weak sustainability, if sustainability measures are not considered • High transaction costs
Specific Loan System	• Reduces the constraint of users investment capacity • Ability to neutralize loan repayments through the gain on the electricity bill • Mobilization of the banking sector • Good communication tool	• Exclusion of the unbanked population • Transaction costs and high payment default risk

Interest Rate Subsidy to Users	• Good communication tool • Improves profitability for the user	• Pressure on public finances • High transaction costs • Weak sustainability, if sustainability measures are not considered • Distortion of the financial market
Dedicated Loan Line	• Enables to solve the problem of financial resources upstream • Mobilization of the banking sector	• Process of line implementation often long • Problem of covering exchange risk
User Loan Guarantee System	• Allows easy access to loans • Stimulating effect for banks	• Implementation complexity • Risk of drift and complacency on collection