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FINANCING OFF-GRID RENEWABLE ENERGY SYSTEMS

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Outline

- **Introduction**
- **Bank's Interventions**
- **Obstacles to off-grid systems**
- **Reversing the trend**
- **Conclusions and Way Forward**



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Introduction

- Energy is one of the top priority sector of Bank's intervention
- ADB has made significant investments to improve the access
 - Rural electrification study
 - Access development study
 - Rural electrification projects
- Although off-grid solutions were recommended in the studies, most of the projects implemented are grid extension
- Why?
- How to break the trend?



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Bank's interventions

- In the past, the Bank's interventions in off-grid connectivity projects were limited to the electrification of rural schools, health centers, etc. as part of larger rural development projects
- The Bank has more recently been involved in developing off-grid systems to power households and local businesses in rural areas
- One example is the ongoing Senegal Rural Electrification Project, which involves among others the installation of 6 mini-grids and 177 solar Photovoltaic (PV) systems in rural areas



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Bank's Interventions



Senegal Rural Electrification Project

- The project is structured as a Public Private Partnership (PPP), using a concession model with Output Based Aid (OBA) capital subsidy
- A subsidy is provided to the concessionaire through the Agence Sénégalaise d'Électrification Rurale (ASER) to enable him to recover his investment through regulated tariffs over time
- The winning bidder for a concession is the firm that offers to provide the most number of connections in the first three years for a pre-determined subsidy amount
- The Bank is financing part of the concession subsidies

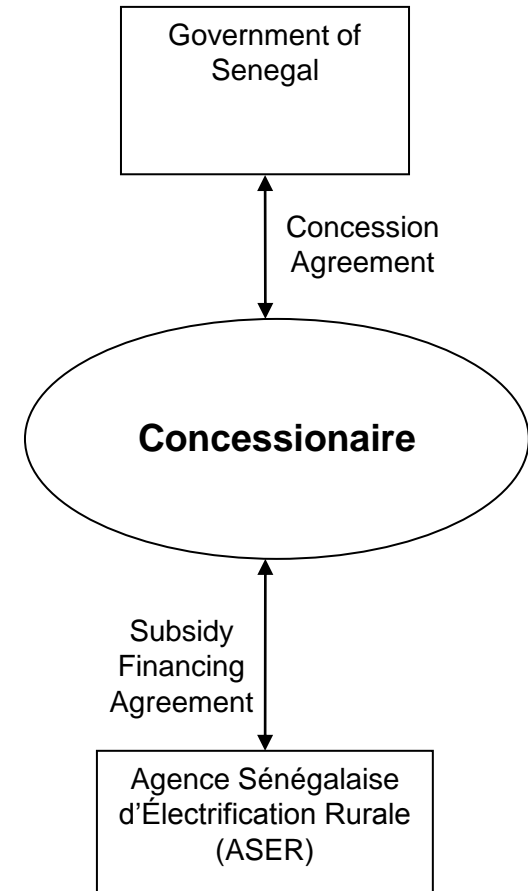


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Bank's Interventions



Senegal Rural Electrification Project





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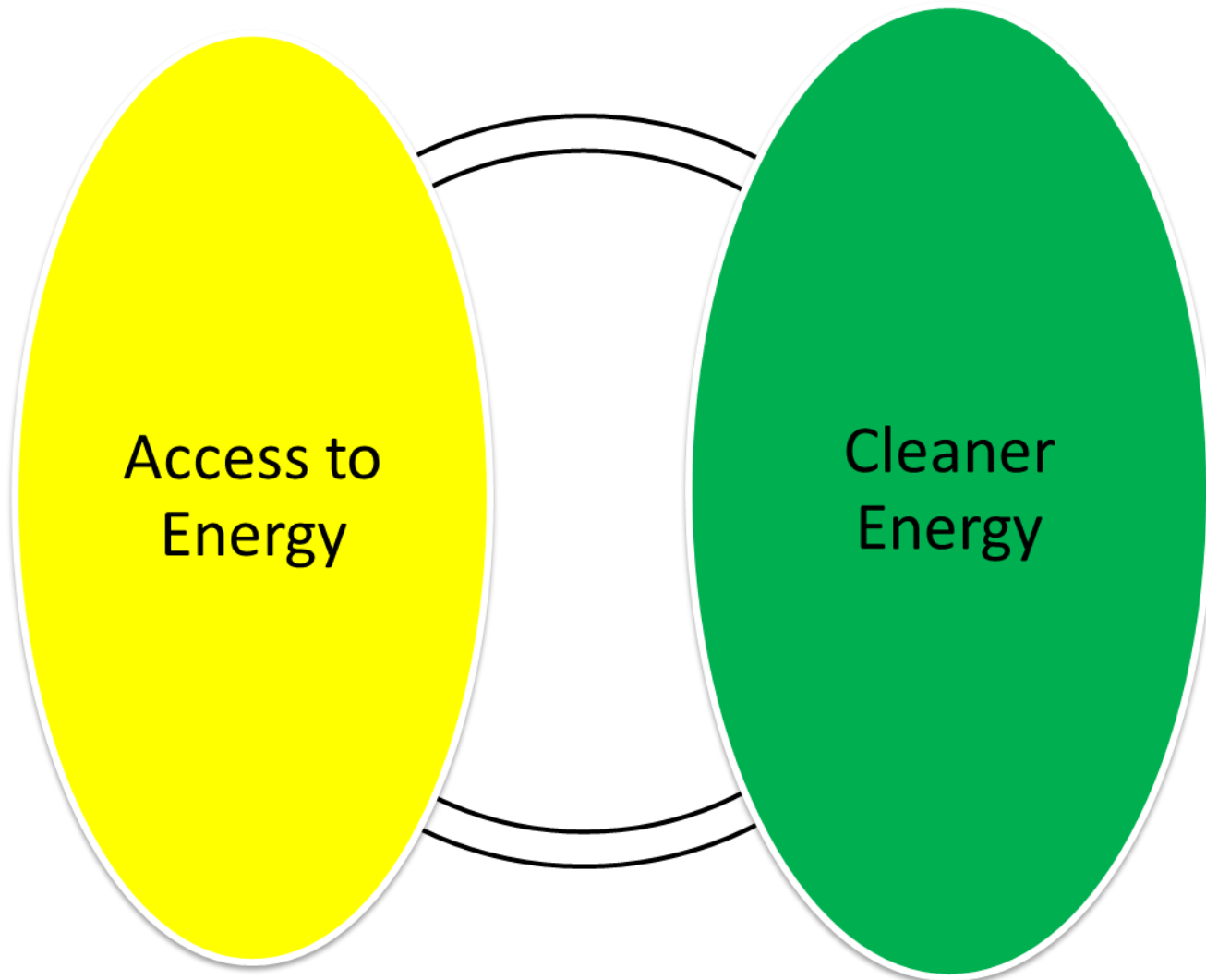
Obstacles to funding and implementing off-grid systems

- **Project Size:** off-grid projects are relatively small in nature, hence high administrative costs ;
- Despite significant and continuous drop, **High investment costs :** subsidies required
- **Lack of public support :** high taxation ; studies recommendations for off-grid systems are not acted
- **Project Ownership:** local involvement and participation is essential. Each project is a case.
- **Community Awareness:** education, training and information



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Reversing the trend ; Bank's strategy





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Reversing the trend



Scale-up Renewable Energy Program (SREP)

- The Bank has recently been involved in the development of the Scale-up Renewable Energy Program (SREP) Investment Plans for Kenya and Mali. Those Investment Plans foresee the financing of hybrid mini-grids
- Hybrid mini-grids rely on a combination of different but complementary decentralized energy generation systems based on a mixture of renewable and conventional energy sources
- Hybrid mini-grids are a cost-effective solution for remote communities where they increase access to electricity without undermining the fight against climate change



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Reversing the trend



SREP Hybrid Mini-grid Kenya

- The Government of Kenya has initiated a programme incorporating solar Photovoltaic (PV) and wind systems in existing off-grid diesel power plants in arid and semi-arid areas
- Hybrid mini-grids will replace the unsustainable off-grid diesel power plants, which are costly and not environmentally friendly
- SREP funds will be used to scale up the ongoing Government programme
- The private sector will be invited to participate in the programme and benefit from feed-in-tariffs



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Reversing the trend



SREP Hybrid Mini-grid Mali

- The project aims at increasing the share of renewable energy sources in existing isolated grids and building new hybrid mini-grid systems in rural areas
- It is expected that about 35 localities will benefit from the project
- The project will include capacity building and training activities for rural populations, local private sector companies/initiatives and relevant Government agencies



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Reversing the trend

- Draw the lessons from the Rural electrification project in Senegal and replicate it ?
- Integrating rural electrification component in transmission project including off-grid solution (compensation measures)



Conclusions and Way Forward

- Off-grid systems can be a cost-effective means of supplying affordable and reliable power to rural communities
- However, such systems require sustainable forms of financing to make them bankable and affordable for end-users
- The Bank has supported such projects by financing subsidies for long-term concessions and mobilizing climate funds
- Moving forward, from the lessons learnt, it is paramount, while designing such projects, to:
 - Obtain local buy-in : Communities and Governments
 - Engage the private sector
 - Educate and train the different stakeholders



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Thank you

