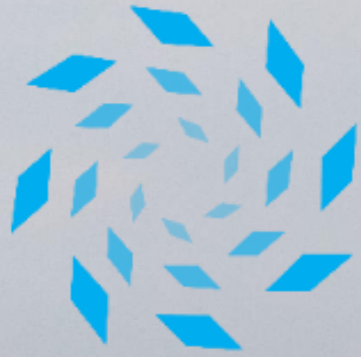




SUNFARMER

Technical & Commercial Challenges of Net Metering ON-GRID SOLAR PV SYSTEM

Presenter : Avishek Malla

About Us

- Established by **American and Nepali solar experts in 2014**
- **Nepal Government Pre-Qualified Company**
- **Market Leader** for On-grid systems
- Completed over **1,600 Solar Projects** all over Nepal



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Features of On-grid System

- Battery-less Solar System
- Seamless Integration with existing electrical infrastructure
- Clean , Safe and low cost commercial Electricity
- Export excess energy back to grid



Solar On-grid Rooftop History



In 2011,

- University of Applied Sciences and Arts of Southern Switzerland (SUPSI)
- Institute of Engineering, Nepal (IOE)
- Rural Integrated Development Service (RID)
- Nepal Electricity Authority (NEA) partners

to pilot 5 solar PV on grid rooftop grid connected
@ 1.1kWp solar on-grid systems at 3 sites.



Net Metering Policy 2018

The net metering policy 2018 –

- 0.5 to 10Kwp residential
- >10Kwp institutional
- >500kwp commercial
- Feed in tariff rate is NPR 7.3 / kWh
- >1MW is considered as utility scale

Emerging market solar PV On grid rooftop installation less than <10MWp



Government Promotion

- Upto 50% subsidy on loan interest for Institutional customers
- The subsidy was provided for last two years the fund is unavailable for this year



Nepal Solar PV On-grid Rooftop Potential



- World bank study report (2019) , the building rooftop area is >266 Million Sq meters
- 20 Out of 276 municipality has solar PV rooftop potential is >1.3 GWp



Spectrum of challenges

The challenges are across all the stakeholders –

- End users
- Financial institution
- Government
- Utility
- Project developer / EPC



Spectrum of challenges

End users

- Awareness of solar PV on grid system is extremely low
- Confidence on the technology is low due to low volume of installations
- Difficult in choosing credible installer or equipment
- Access to collateral free financing not available
- Long lead time for approval of net-metering agreement



Spectrum of challenges

Financial institution

- High interest rate – historically higher than auto/home loans
- Long lead time - Due diligence process
- Less than 10% of the banks have made lending to solar on grid PV
- Lack of loan product / awareness of solar PV
- Limited projects for historical records
- Un availability of dedicated RE credit fund



Spectrum of challenges

Government

- Varied year on year subsidy
- Lack of long term program for On grid PV
- Lack of awareness campaign for the end users



Spectrum of challenges

Utility

- Lead time for net metering connection is 2-3 months
- Limited awareness of net metering policies
- Un clarity in net metering billing formats
- Limited availability of net-meters for residential



Spectrum of challenges

Project developer / EPC

- Local measured Solar resource data is not available
- Logistic and supply is highly challenging as major components have to be imported and landlocked country
- Limited human resource with technical skills
- Project development cost is high
- Unavailability of Project financing / collateral free loans



Successful On-grid Projects



Steel Industries : 163 kWp On-Grid Solar PV System



Pharmaceuticals: 117 kWp On-Grid System with net metering



Hospital: 100 kWp Hospital Ac coupled Solar PV System



Drinking Water: 100 kWp On-Grid Water Pumping System



School: 40.96 kWp On-Grid solar system



School: 40.2 kWp On-Grid System with net metering



Hospital: 66.8 kWp On- Solar System with Net Metering



Cable Industries: 165.8 kWp On-Grid solar system

3.5MWp under Construction

Under Construction



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Let's **Emp**ower your business.

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