Maximizing Value by Adapting International Standards and Advanced Technologies (PV)

PARAS KARKI, SUNFARMER

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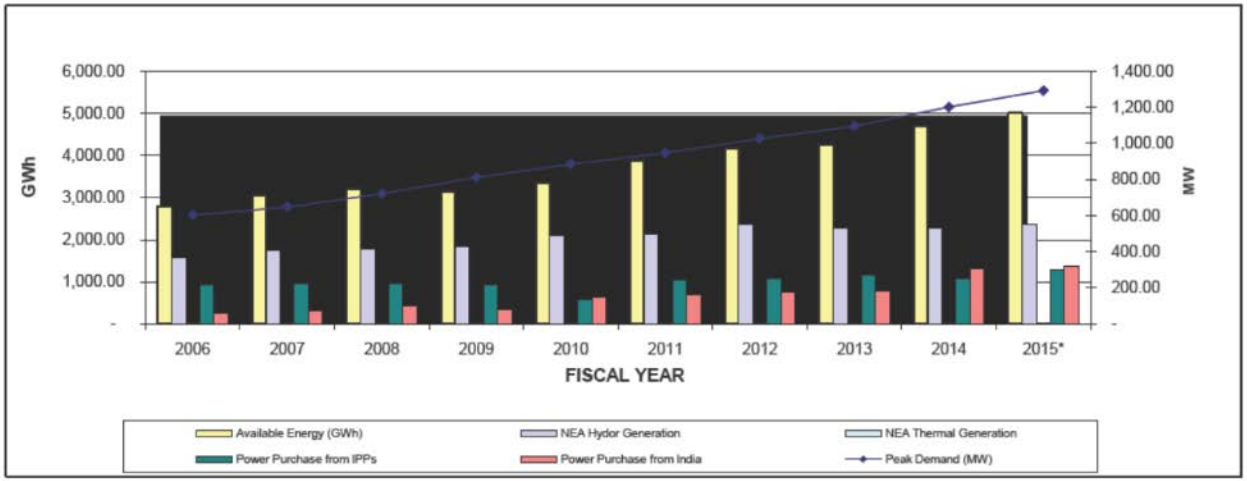
Electricity Demand



- Electricity demand has reached about 1300MW
- Electricity consumption increase at a rate of approximately 9 % per year
- Currently having loading shedding of 10hs per day
- All most all, hydro is major source of electricity
- Solar is only about 0.02%

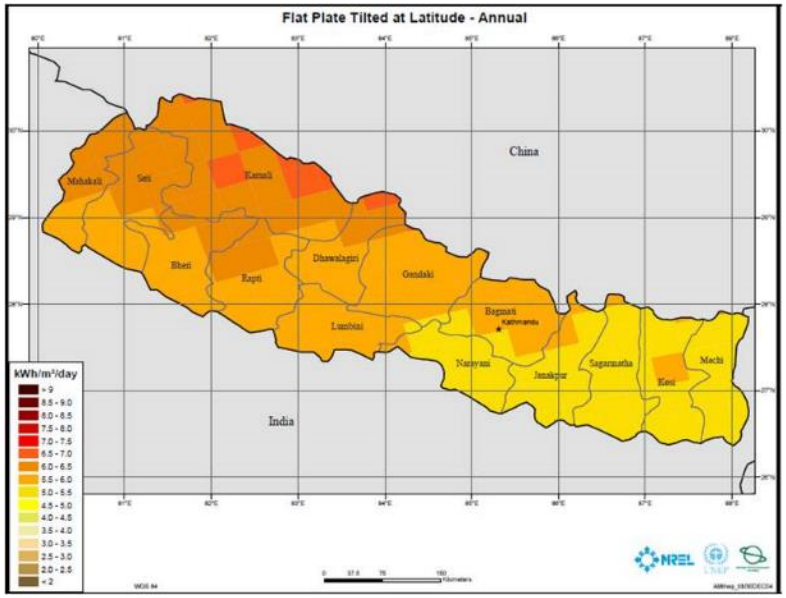
Source: NEA report

Potential of Renewable energy

- 2,100 MW of solar PV
- 716 MW of wind
- 42,133 MW of hydro.
- At a capacity factor of 17 percent, solar facilities would generate 3,127 GWh
- At a capacity factor of 30 percent, those wind would generate 1,882 GWh
- At a capacity factor of 60 percent, those hydro would generate 221,451 GWh

Source: World Bank, energypedia

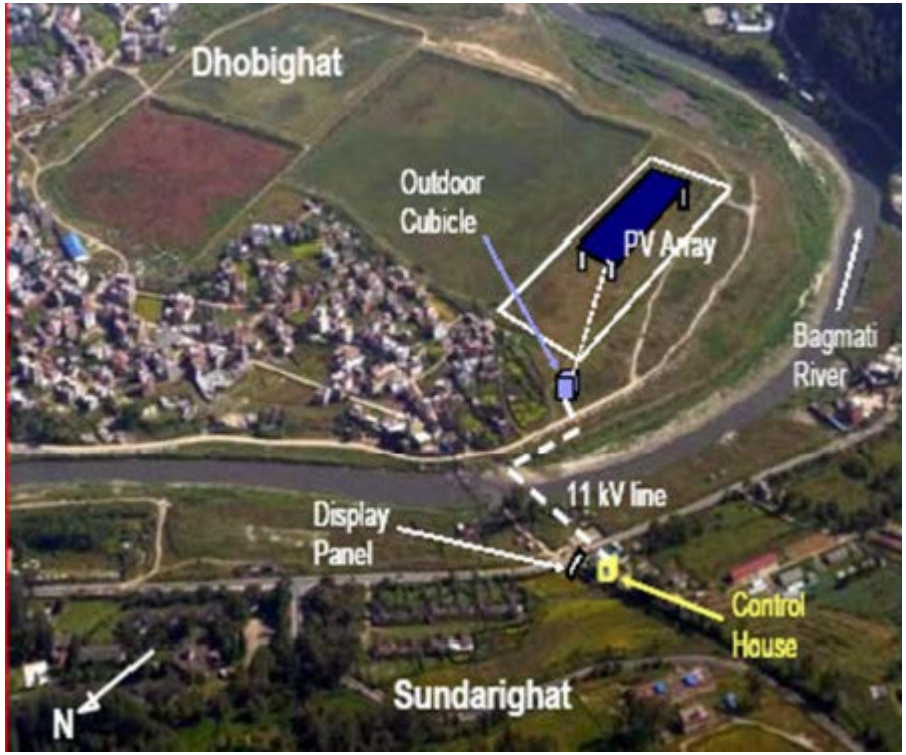
Solar PV system in Nepal



- 3.6 to 6.2 kWh of solar radiation per square meter per day
- Roughly 300 days of sun a year, making it ideal for solar energy
- 943 medium-size solar PV units provide 1.2 MWp of electricity for the communications sector.
- Solar lanterns, popularly known as solar tuki, with 155,000 units in use as of 2010 constituting 737 kWp of capacity.
- 225,000 of solar home systems are used throughout Nepal across 2600 villages with an output of 5.36 MWp

Source: NREL, AEPC, energypedia

Solar PV system in Nepal



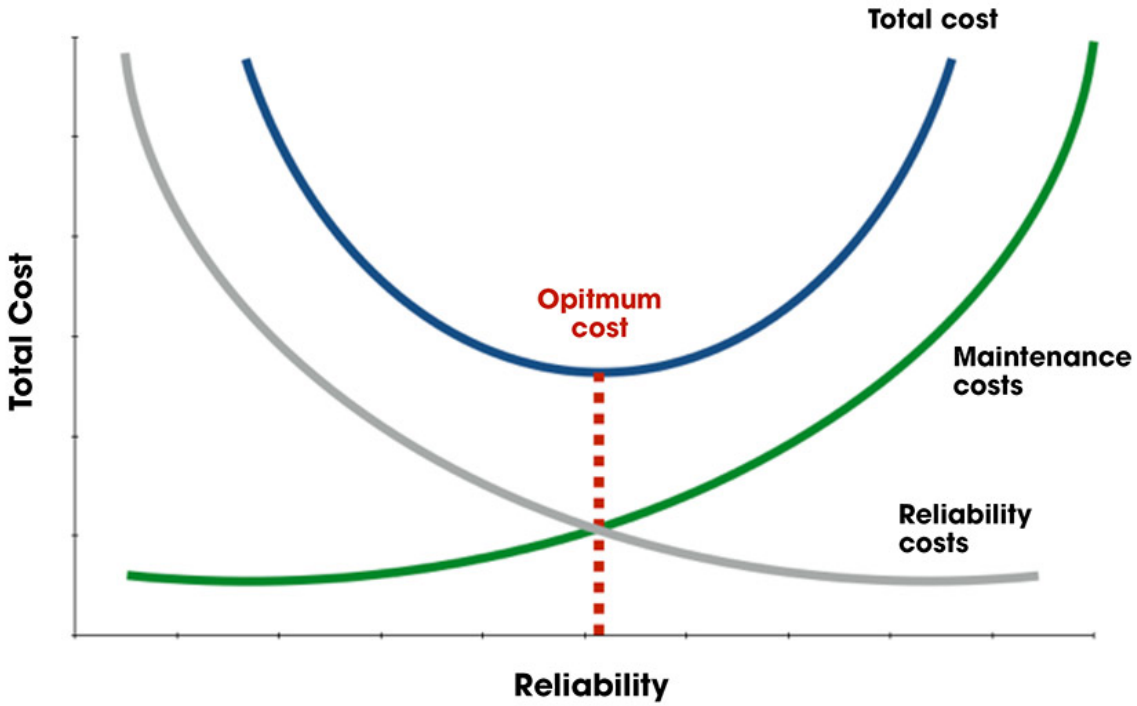
Source: JICA

Problem: Value?

Some of PV system's Value (Reliability, cost, profit, benefits etc.) is not worth it due to

- Improper design
- Improper energy Audit
- Bad selection of technologies
- High operation and Maintenance Cost

Solution: Reliability vs Cost

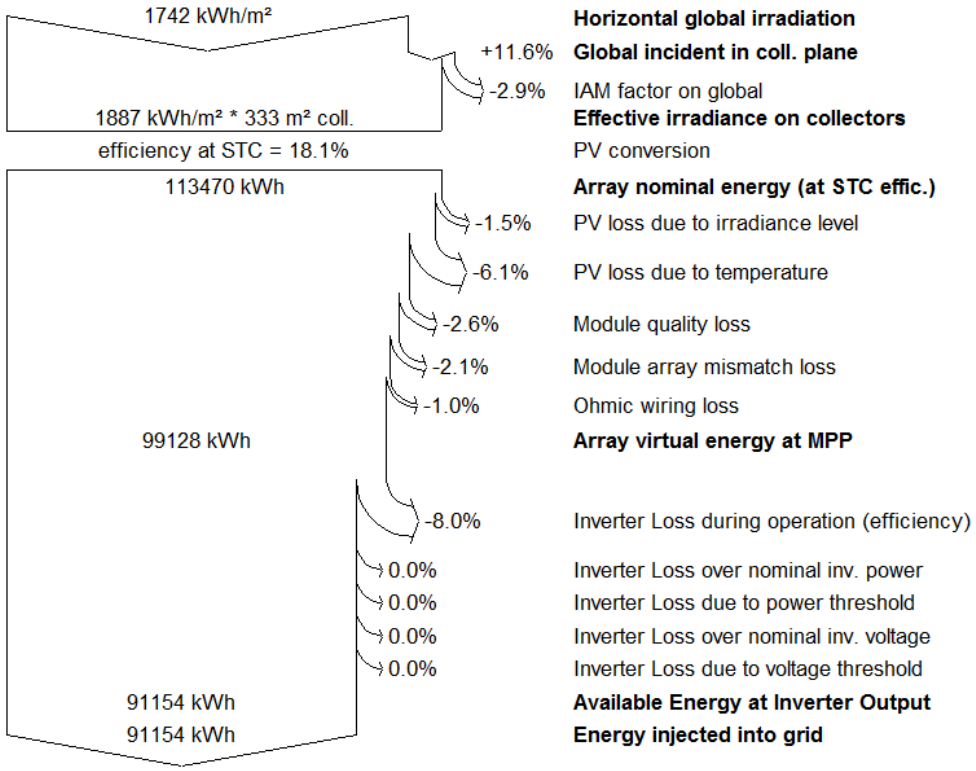


Use of the proper tools during the proper life cycle phase will help to minimize total cost and maximize of value of the system

Solution: Advanced Technologies

1. Energy Audit technologies and understanding electrical components
2. Maximizing The Total Energy Output From A Solar Project
3. System Mounting Technology
4. Storing Technologies
5. Monitoring Technology

Solution: Design tools and Guideline



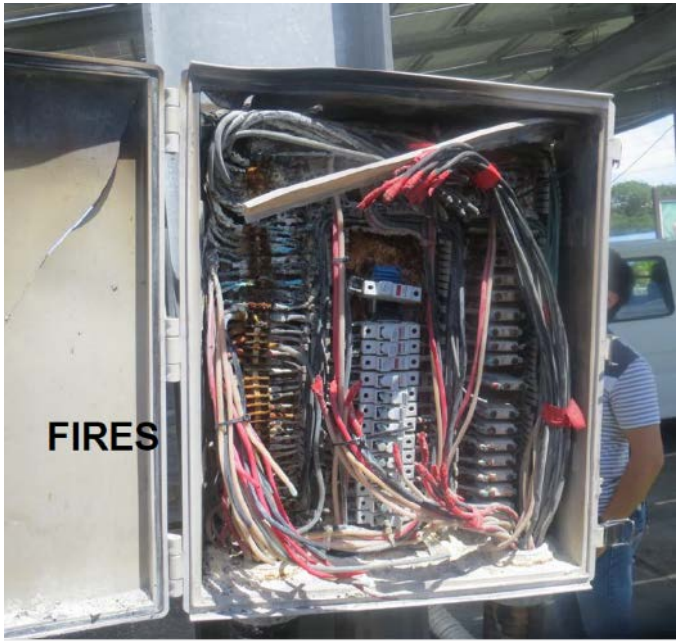
Source: PV syst

Solution: proper design

High Efficient Silicon	Conventional Silicon	Thin Film
		
NPV = $590,000 (Gross price = $4.0MM)	**NPV = $375,000** (Gross price = $2.4MM)	**NPV = $367,000** (Gross price = $1.9MM)

Source: Sun Power, US

Solution: Installation Guideline



Solution: Operation and Maintenance Guideline

Conclusion

With proper guidelines, better selection of technologies, design method, the reliability of the solar PV system can be increased with minimal increase in cost. As a result end consumer can be benefited and get the return vale of the solar PV system

Thank You

ANY QUERIES?