

- JCM Model Projects -

Installation of Solar PV Systems

1 March 2017

Tokyo

Minako Sasaki

Institute for Global Environment Research

International Division



P R O D U C I N G
T H E F U T U R E

Copyright © Pacific Consultants Co., LTD.

Contents

1. Company Profile
2. Track Record of Pacific Consultants
3. Project Examples
4. Case Studies
5. Conclusions

PRODUCING
THE FUTURE
PRODUCING
THE FUTURE
PRODUCING
THE FUTURE
PRODUCING
THE FUTURE

1. Company Profile (1/2)



1. Company Profile (2/2)

Experts in Climate Change

Institute for Global Environment Research

1. Climate Change Policy

Assessment and analysis of climate change policies and international negotiations

2. Climate Change Adaptation

Development of strategies to cope with global warming

3. Climate Change Mitigation

Feasibility study and implementation of greenhouse gas emission reduction projects

2. Track Record of Pacific Consultants (1/2)

Recent Projects

- ◆ Implementation of JCM Model Projects: 9 projects to date
- ◆ Project finding and feasibility study for JCM in Bangladesh, Cambodia, Indonesia, Laos, Maldives, Palau, Thailand, Vietnam, Chile, Costa Rica, Mexico, Peru, Ethiopia, Kenya
- ◆ Development of methodology and PDD for JCM projects:
- ◆ Rooftop and ground mount solar power, Small hydropower and Biomass cogeneration
- ◆ Technical and commercial due diligence assistance for JCM grant program (separate from Model Projects Program)

2. Track Record of Pacific Consultants (2/2)

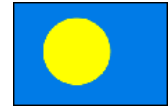
Status of JCM Model Projects

◆ Total GHG emission reduction 65,700 tCO₂/year

| | Country | Project | Status | | | | |
|---|------------|------------------------------|--------|-----|-----|-----|-----|
| | | | (a) | (b) | (c) | (d) | (e) |
| 1 | Palau | Rooftop solar: 371kW | █ | █ | █ | █ | █ |
| 2 | Maldives | Rooftop solar: 185kW | █ | | | | |
| 3 | Palau | Rooftop solar: 155kW | █ | █ | █ | █ | |
| 4 | Palau | Rooftop solar: 446kW | █ | █ | █ | █ | █ |
| 5 | Thailand | Rooftop solar: 995 kW | █ | █ | █ | | |
| 6 | Ethiopia | Biomass cogeneration: 13.2MW | █ | | | | |
| 7 | Bangladesh | Ground mount solar: 50 MW | █ | | | | |
| 8 | Kenya | Mini-hydro: 6 MW | █ | | | | |
| 9 | Kenya | Ground mount solar: 991kW | █ | █ | █ | | |

(a) Project commencement (b) Procurement and installation (c) Project operation
 (d) Validation/JCM registration (e) Verification/Credit issuance

3. Project Examples (1/7)



Palau



Warehouse / Commercial Building (371kW)

3. Project Examples (2/7)



Maldives



School Classrooms (185kW)



3. Project Examples (3/7)



Palau



Schools Gymnasiums
(155kW)

3. Project Examples (4/7)



Palau



Warehouse / Shop / Shop
(446kW)



3. Project Examples (5/7)



Thailand

Office Building and Factory (995kW)

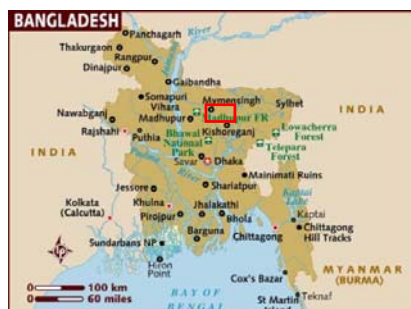


3. Project Examples (6/7)



Bangladesh

IPP (50 MW)

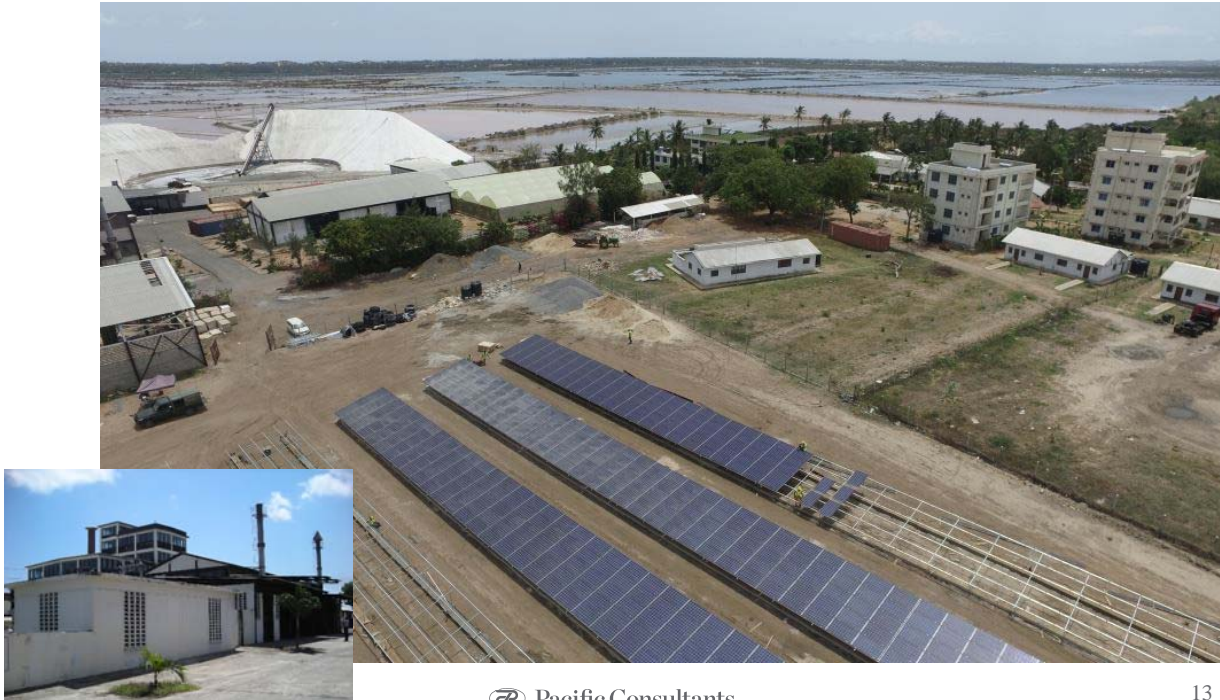


Source: lonely planet



Kenya

Salt Factory (991kW)



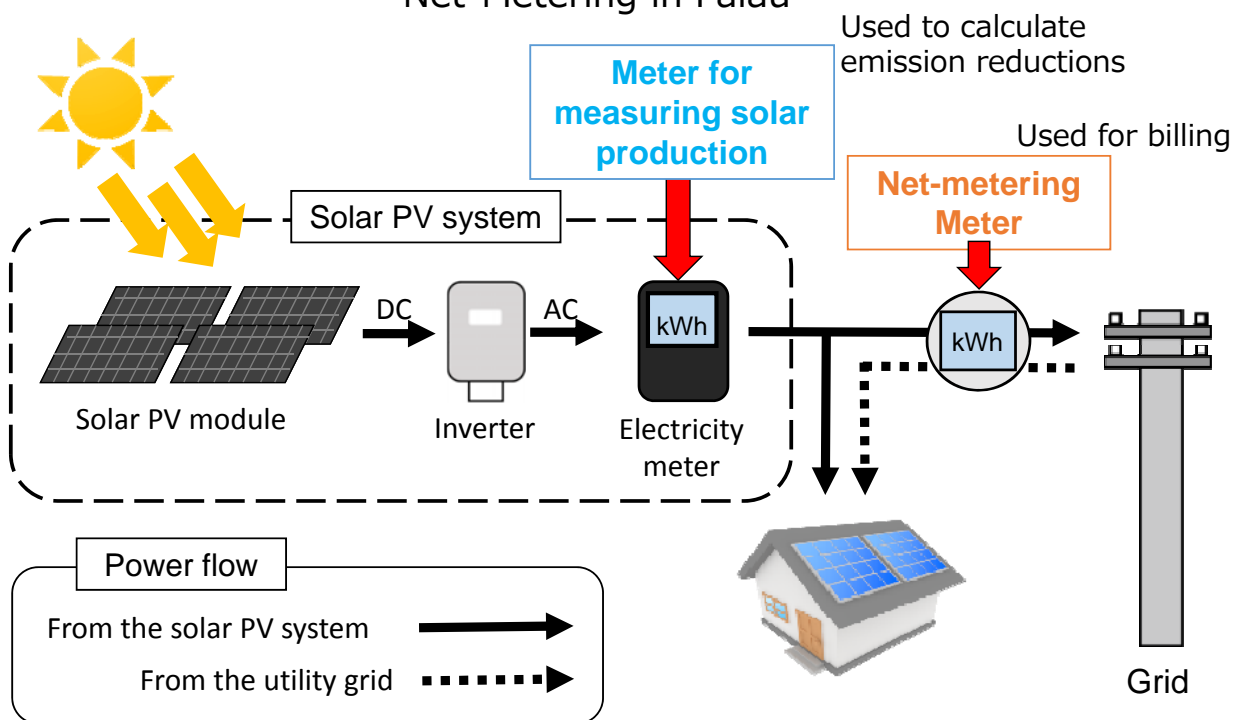
Pacific Consultants

13

Copyright © Pacific Consultants Co., LTD.

4. Case Studies (1/5): Palau

Net-Metering in Palau



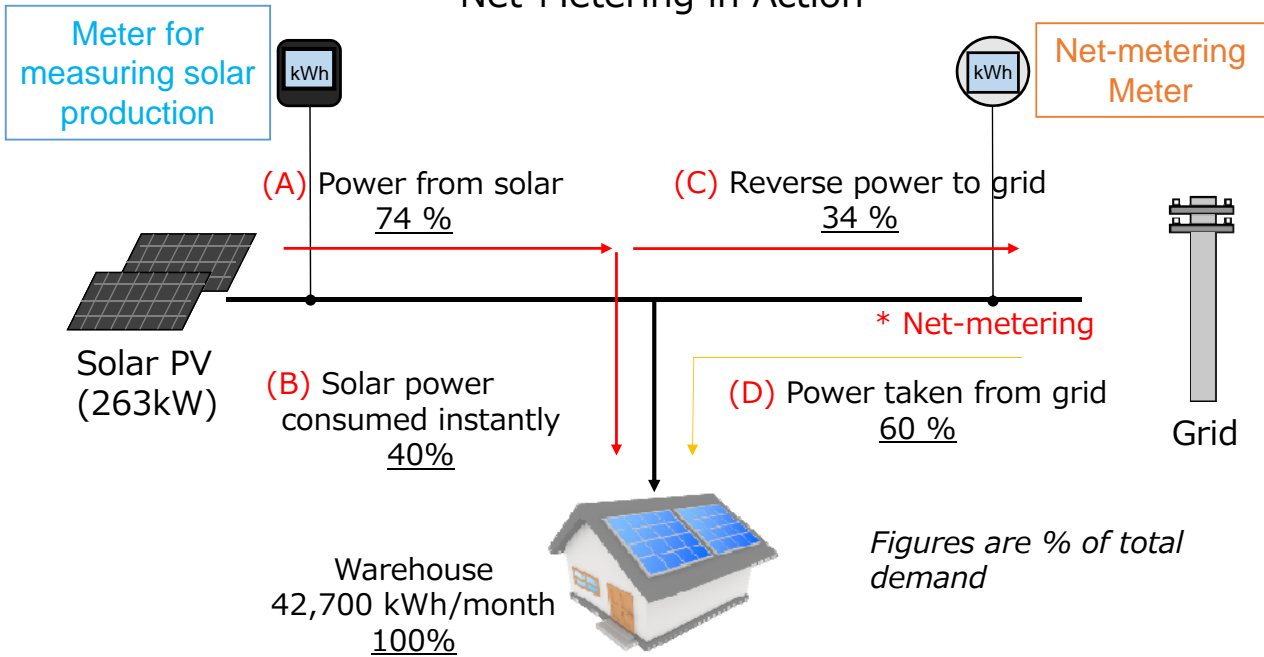
Pacific Consultants

14

Copyright © Pacific Consultants Co., LTD.

4. Case Studies (2/5): Palau

Net-Metering in Action

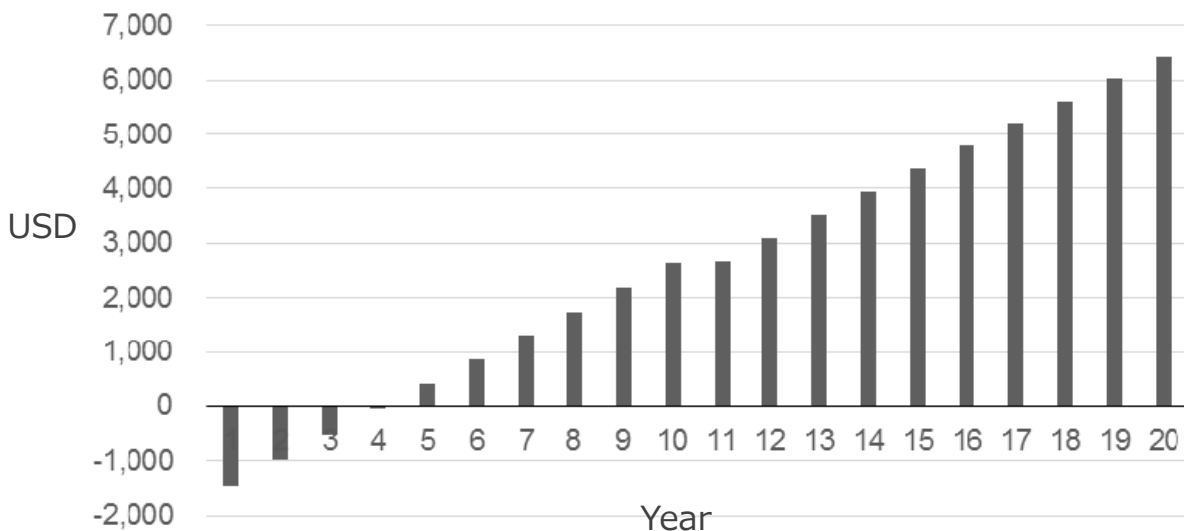


- ◆ Excess power is reversed into grid and credited to consumer (C)
- ◆ Consumer can off-set grid power consumption (D) with reversed power (C)
- ◆ Consumer only pay (D)-(C) to power company

15

4. Case Studies (3/5): Palau

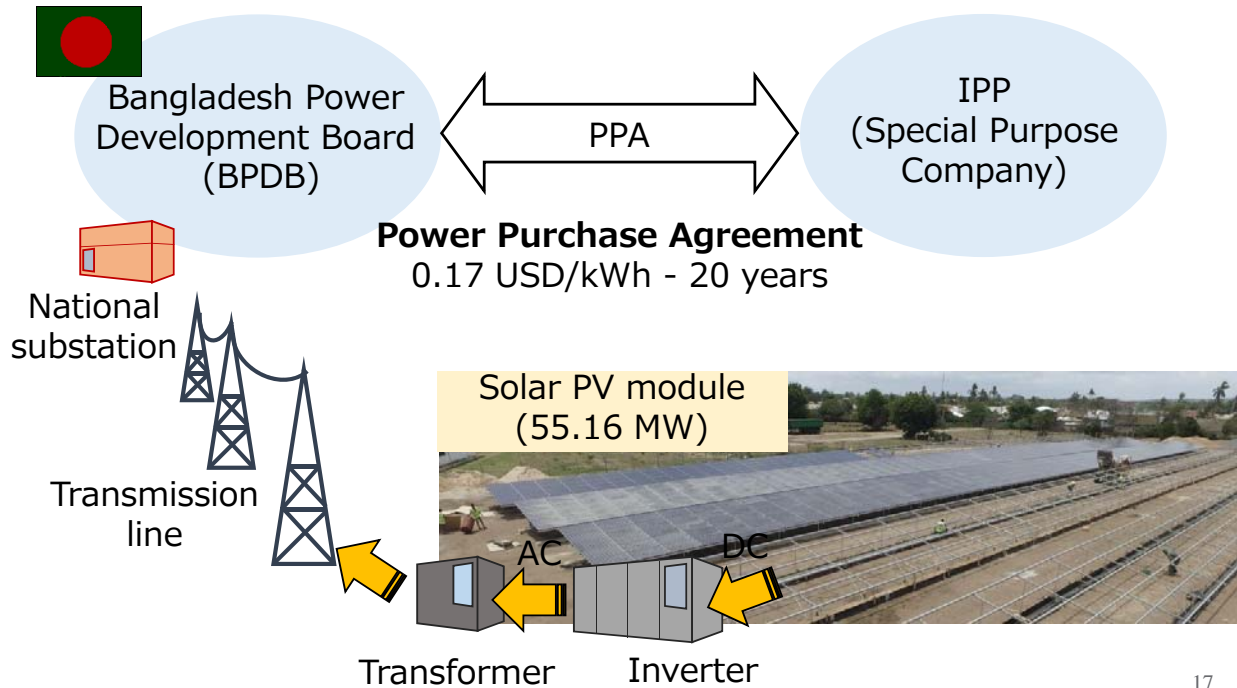
Benefit of installing solar PV system under net-metering



- ◆ Power cost savings: Power production x Electricity rate = 486 (USD/kW/year)
- ◆ Investment: EPC cost - 50% JCM finance = 1,500 (USD/kW)
- ◆ Return on Investment: 3.1 years

4. Case Studies (4/5): Bangladesh

IPP (Independent Power Producer)



17

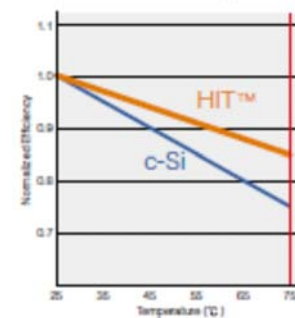
Copyright © Pacific Consultants Co., LTD.

4. Case Studies (5/5): Bangladesh

Benefits

- ◆ Use of high-efficiency solar PV modules with superior performance even at high temperatures
- ◆ Attention and momentum to conclude the PPA negotiations

Temperature vs. efficiency



Source: Manufacturer's brochure

Challenges

- ◆ Timeline:
JCM Model Project financing term vs PPA negotiation

5. Conclusions

Appealing features of supports for JCM

- ◆ Financing Program shortens ROI and encourages investment in low-carbon technologies
- ◆ It boosts host country's policies on renewable energy
- ◆ Means provided by Japanese government promotes turning model projects into real JCM projects
i.e. assistance on development of methodology and PDD

Recommendations to expand JCM

- ◆ Institutional development and promoting understanding on renewable energy by host country
e.g. net-metering, FIT, preferential taxation
- ◆ Making requirements of JCM Financing Program friendlier
e.g. fiscal year budget policy, liability period, responsibility of Japanese party etc.

Thank you so much for
allowing us to make a presentation.