NET METERING

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Renewable Energy Management Bureau

e – POWER MO

e – Secure Mo
e – Safety Mo
e – Diskarte Mo

e – DISKARTE MO

- **What is the legal basis of Net Metering?**
- **What is Net Metering?**
- **Is Net Metering a Viable Investment?**
- **How to apply for a Net Metering agreement?**
- **What are the best practices for Net Metering?**

What is the LEGAL BASIS?

Section 7 of RA No. 9513 Implementing Rules & Regulations (IRR) defines:

- Net Metering is a consumer-based RE incentive scheme (net-user only)
- Purpose : to encourage end-users to participate in RE generation for own use
- Mandate : Upon request by distribution end-users, the DUs shall, without discrimination, enter into a net-metering agreements with qualified end-users who will be installing RE system, subject to technical and economic considerations

Power of Choice

What is the LEGAL BASIS?

Section 10 of R.A. 9513 and Section 7 of its Implementing Rules & Regulations (IRR) provides that the Energy Regulatory Commission (ERC), in consultation with National Renewable Energy Board (NREB), shall establish the net-metering interconnection standards and pricing methodology.

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What is the LEGAL BASIS?

- ERC Resolution No. 9, Series of 2013 - A Resolution Adopting the Rules Enabling the Net-Metering Program for Renewable Energy
- Components:
  - Rules Enabling the Net-Metering Program (Annex A)
  - Net-Metering Interconnection Standards (Annex A-1)
  - Net-Metering Agreement Template (Annex A-2)
- Approved on May 27, 2013
- Effectivity on July 24, 2013

What is Net Metering for RE?

- Refers to a RE system, appropriate for distributed generation, in which distribution grid user has a two-way connection to the grid and is only charged or credited, as the case maybe, the difference (net) between its import energy and export energy.

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What is the Net Metering for RE?

Distributed Generation

- Refers to a system of small generation entities supplying directly to the distribution grid, any one of which shall not exceed one hundred kilowatts (100 kW) in capacity, as defined in Section 4(j) of R. A. No. 9513.

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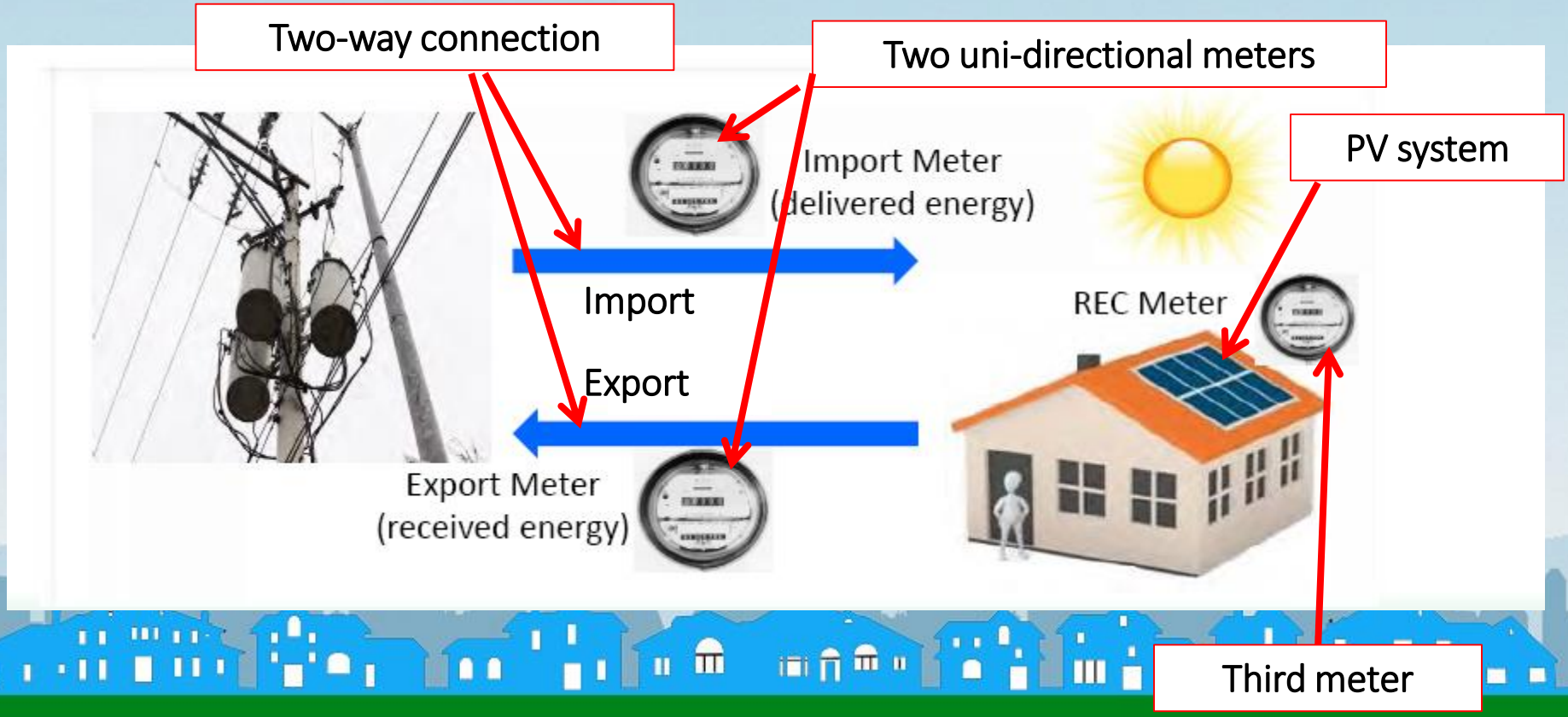
What is the Net Metering for RE?

Net Metering Set-up



What is the Net Metering for RE?

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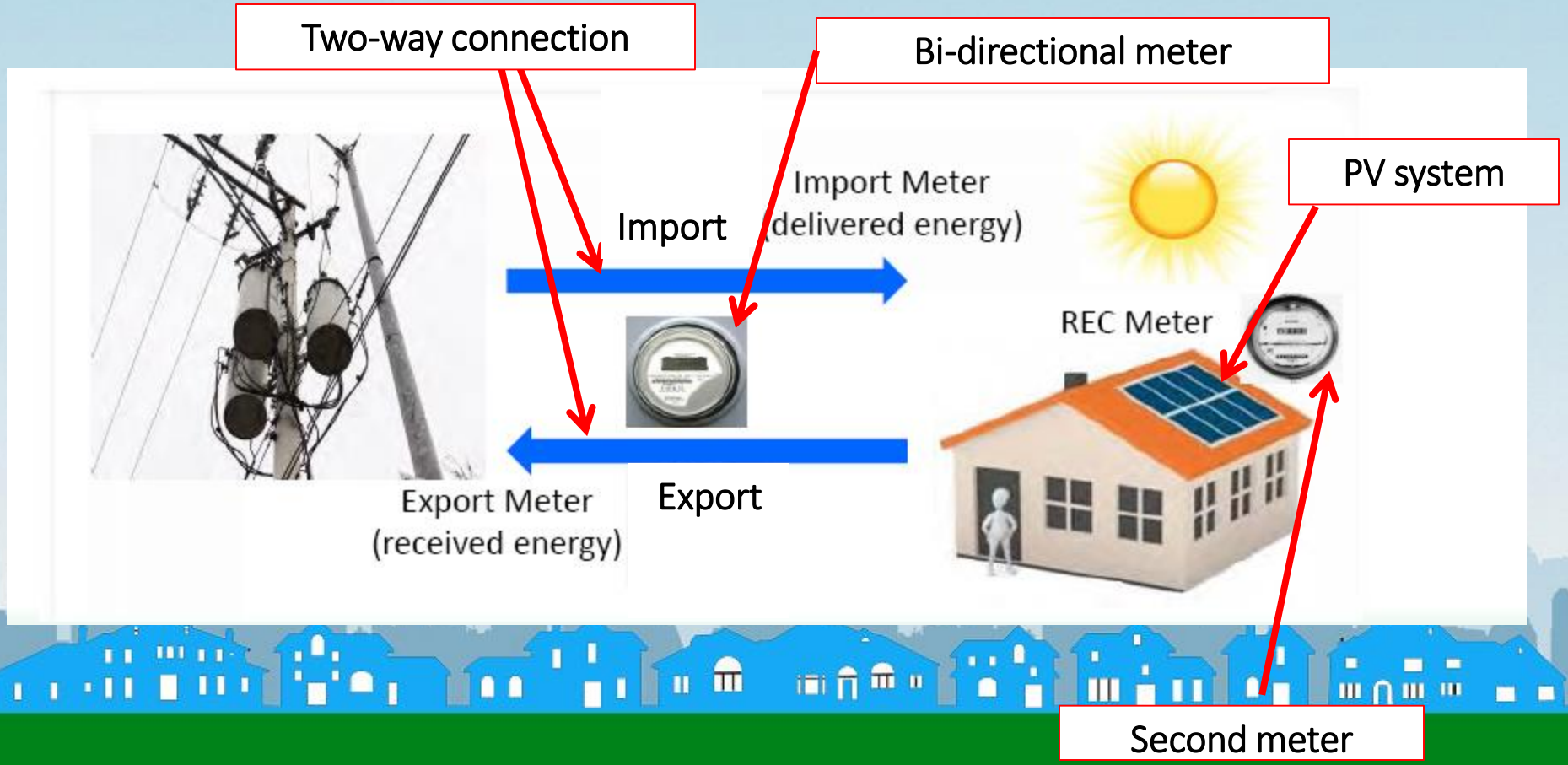

What is the Net Metering for RE?

Scope, Applicability, & Qualification

- Applicable to on-grid RE systems
- End-user should be in good credit standing in the payment of electric bills to the distribution utility (DU).
- RE systems such as wind, solar, biomass or biogas energy systems or such other RE systems capable of being installed within the qualified end-user's premises are eligible to participate in the net metering program.

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What is the Net Metering for RE?

Scope, Applicability, & Qualification

- The RE System must be compliant with the standards set in the Philippine Electrical Code (PEC), Philippine Distribution Code (PDC), Distribution Services and Open Access Rules (DSOAR) and the Net-Metering Interconnection Standards (NMIS).

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What is the Net Metering for RE?

Pricing Methodology

- Interim (temporary/provisional) pricing for export energy is the DU's monthly charge based on its blended generation cost.
- This cost shall be automatically included in the DU's total generation cost to be recovered from all its customers as part of the adjusted generation rate pursuant to Section 2 of ERC Resolution No. 19, Series of 2009

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What is the Net Metering for RE?

Net Metering Charge

- Net metering charge is equivalent to PhP/customer/month supply and metering rates; plus the ERC-approved PhP/kWh metering rate based on export energy.

- DUs may file for a different net metering charge, if necessary.

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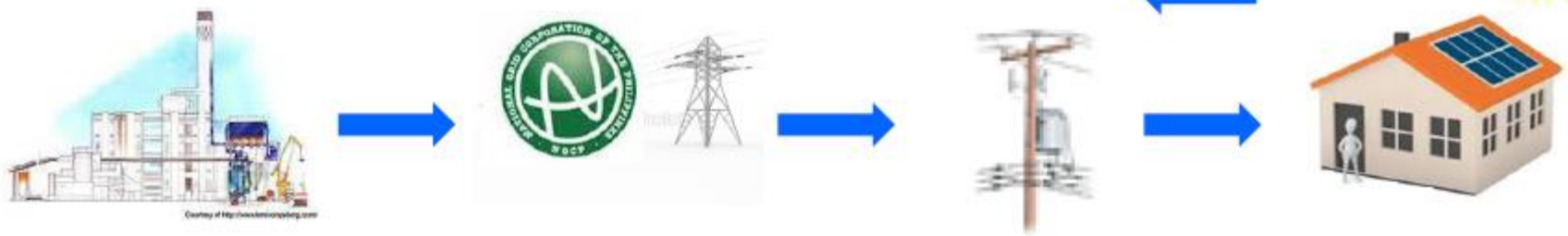
What is the Net Metering for RE?

Pricing Methodology

Export rate
P4.9101/kWH



Generation | Transmission | Distribution
SL: P0.85
DSM: P2.7843
Subs: P0.1071
Tax: P0.1381
UC: P0.1175

P4.9101 + P0.522 + = P9.4291/kWH

Import rate

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What is the Net Metering for RE?

Billing Charge

Billing Charge:

PhP for import energy

Less: PhP export energy

PhP credited in previous month

Net/Difference in Php (+ or -)

If positive: QE shall pay this amount to DU

If negative: DU shall credit this amount to QE's next bill

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Is it a Viable Investment?

ESTIMATED CAPACITY AND COSTS	
Capacity Factor (%)	16%
Number of hours per year (hr)	1,402
Rate/kWH (PhP)	12.00
Monthly Electric Bill (PhP)	9,000.00
Daily Electricity Consumption (kWh)	25
Percent Usage During the Day (%)	50%
Installed Cost (PhP/kW)	40,000.00

NO EXPORT GENERATION	
CAPACITY (kWp)	3.26
ANNUAL GENERATION (kWh)	4,562.50
Average Daily Generation (kWh)	12.50
TOTAL ANNUAL SAVINGS (PhP)	54,750.00
INITIAL INVESTMENT (PhP)	130,208.33
PAYBACK PERIOD (Year)	2.38

Is it a Viable Investment?

WITH EXPORT GENERATION	
Percent Generation Exported (%)	**10%**
Annual Exported Generation (kWh)	**456.25**
Remaining Annual Generation (kWh)	**4,106.25**
Average Blended Generation Cost (PhP/kWh)	**4.5378**
Annual Export Sales (PhP)	**2,070.37**
Annual Savings of Unexported Generation (PhP)	**49,275.00**
GROSS ANNUAL SAVINGS (PhP)	**51,345.37**
NET METERING CHARGES	
Fixed Export Metering Charge (PhP/customer)	**5.00**
Export Metering Charge/kWh (PhP)	0.3377
Total Export Metering Charge (PhP)	**154.08**
Fixed Export Charge (PhP/customer)	**16.73**
Monthly Net Metering Charges (PhP)	**175.81**
Annual Net Metering Charges (PhP)	**2,109.67**
NET ANNUAL SAVINGS (PhP)	**49,235.70**
PAYBACK PERIOD (Year)	**2.64**

Is it a Viable Investment?

WITH EXPORT GENERATION	
Percent Generation Exported (%)	**20%**
Annual Exported Generation (kWh)	**912.50**
Remaining Annual Generation (kWh)	**3,650.00**
Average Blended Generation Cost (PhP/kWh)	**4.5378**
Annual Export Sales (PhP)	**4,140.74**
Annual Savings of Unexported Generation (PhP)	**43,800.00**
GROSS ANNUAL SAVINGS (PhP)	**47,940.74**
NET METERING CHARGES	
Fixed Export Metering Charge (PhP/customer)	**5.00**
Export Metering Charge/kWh (PhP)	0.3377
Total Export Metering Charge (PhP)	**308.15**
Fixed Export Charge (PhP/customer)	**16.73**
Monthly Metering Charges (PhP)	**329.88**
Annual Net Metering Charges (PhP)	**3,958.58**
NET ANNUAL SAVINGS (PhP)	**43,982.17**
PAYBACK PERIOD (Year)	**2.96**

Is it a Viable Investment?

WITH EXPORT GENERATION	
Percent Generation Exported (%)	**50%**
Annual Exported Generation (kWh)	**2,281.25**
Remaining Annual Generation (kWh)	**2,281.25**
Average Blended Generation Cost (PhP/kWh)	**4.5378**
Annual Export Sales (PhP)	**10,351.86**
Annual Savings of Unexported Generation (PhP)	**27,375.00**
GROSS ANNUAL SAVINGS (PhP)	**37,726.86**
NET METERING CHARGES	
Fixed Export Metering Charge (PhP/customer)	**5.00**
Export Metering Charge/kWh (PhP)	0.3377
Total Export Metering Charge (PhP)	**770.38**
Fixed Export Charge (PhP/customer)	**16.73**
Monthly Net Metering Charges (PhP)	**792.11**
Annual Net Metering Charges (PhP)	**9,505.30**
NET ANNUAL SAVINGS (PhP)	**28,221.56**
PAYBACK PERIOD (Year)	**4.61**

Is it a Viable Investment?

MEASURES OF INVESTMENT	PERCENT OF EXPORTED ELECTRICITY									
	10	20	30	40	50	60	70	80	90	100
ANNUAL SAVINGS (PhP)										
No Export	54,750.00	54,750.00	54,750.00	54,750.00	54,750.00	54,750.00	54,750.00	54,750.00	54,750.00	54,750.00
With Export	49,235.70	43,982.17	38,728.63	33,475.10	28,221.56	22,968.02	17,714.49	12,460.95	7,207.41	1,953.88
% DECREASE	**10.07%**	**19.67%**	**29.26%**	**38.86%**	**48.45%**	**58.05%**	**67.64%**	**77.24%**	**86.84%**	**96.43%**
PAYBACK PERIOD (Years)										
No Export	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38
With Export	2.64	2.96	3.36	3.89	4.61	5.67	7.35	10.45	18.07	66.64
% INCREASE	**9.85%**	**19.59%**	**29.17%**	**38.82%**	**48.37%**	**58.02%**	**67.62%**	**77.22%**	**86.83%**	**96.43%**

What is the area requiremnt?

AREA REQUIREMENT

SOLAR CELL MATERIAL	MODULE EFFICIENCY (%)	REQUIRED SURFACE AREA PER KWp (m^2)
High performance silicon (rear contacts, HIT)	17-20	5-6
Monocrystalline Silicon	11-16	6-9
Polycrystalline Silicon	10-15	7-10
Thin-Film		
Copper-Indium-Selenide	6-11	9-17
Cadmium Telluride	6-11	9-17
Micromorphous Silicone	7-12	8.5-15
Amorphous Silicon	4-7	15-26

How to apply for a NM agreement?

Application for Interconnection

QE to send a letter requesting DU for interconnection.

DU to provide information to QE.

QE to complete and file an application.

ACKNOWLEDGE

D
results o

- ✓ Pro forma agreements
- ✓ Application form
  - Description of proposed connection
  - Relevant Standard Planning Data
  - Other data required by DU
  - Completion date
- ✓ Technical requirements
- ✓ Specifications
- ✓ Listing of certified equipment
- ✓ Application fee information
- ✓ Applicable rate schedules
- ✓ Metering requirements

DU to acknowledge within ten (**10**) business days from receipt.

DU, with QE to conduct on-site inspection.

What are the lessons learned?

- **Capacity – to optimize it, all generations must be consumed or minimize export of energy;**
- **Average load curve vs daily generation curve;**
- **No shading of the solar panels;**
- **Orientation of building; and**
- **Electricity rate from the DU/EC is relatively high.**

WHERE ARE WE NOW?

92% is in MERALCO

Average Size: 6.36 kWp

UPDATE ON NET-METERING AS OF 30 JUNE 2017

DUs	NO. OF CUSTOMERS	Capacity (kWp)
MERALCO	843	5366.89
VECO	31	184.06
CEBECO III	1	3.00
CEBECO I	5	84.00
DLPC	13	188.20
AEC	9	48.82
BATELEC I	1	10.00
PELCO II	6	39.00
LEYECO V	2	6.00
PANELCO	1	100.00
OEDC	2	16.73
Total	**914**	**6046.70**

WHERE ARE WE NOW?

- ERC - engaged a consultant to conduct a net-metering study (on pricing methodology) on July 2016

- The ERC came out with proposed amendments to the Net-Metering Rules in August 2016

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WHERE ARE WE NOW?

- The following were the current issues covered in the proposed Amendments:

  1. Whether or not the lifeline rate should apply to Qualified End-users.
  2. Whether the mechanism of merely accumulating the credits of net exports on the customer bill, is reasonable.

- The ERC will consolidate all amendments based on the study and the comments gathered.

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Thank You!

e-Diskarte Mo!
#KuryenteMo #eGenerateMo

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