



01 September 2021

MEMORANDUM NO. 2021-36

TO : ALL ELECTRIC COOPERATIVES

SUBJECT : RENEWABLE ENERGY DEVELOPMENT PLAN

In support of the DOE envision to attain 35% of Renewable Energy share in the Energy Mix by 2030 (Sec. 7, Rule 2; DOE Circular No. DC2017-12-0015), all ECs are enjoined to properly plan and schedule the sourcing of renewable energy to preempt over-contracting of power supply while complying with the Renewable Portfolio Standards (RPS), Green Energy Option Program (GEOP), and other regulatory compliances.

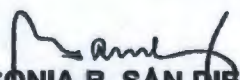
Hence, all electric cooperatives are advised to adopt the attached Renewable Energy Development Plan Template. We will conduct an orientation/workshop on the proper renewable energy sourcing and scheduling with the use of the aforesaid template. The virtual orientation/workshop is scheduled on **10 September 2021 at 10:00 AM** via Zoom application with the following details:

ID: 828 3569 3844

Passcode: 260749

Please send your attendance confirmation to corplanreppdd@yahoo.com not later than 09 September 2021. For inquiries, you may contact Ms. Diane Maala via viber at numbers 09177069112.

Thank you and we look forward to your participation.


SONIA B. SAN DIEGO

OIC - Administrator

NATIONAL ELECTRIFICATION
ADMINISTRATION
Office of the Administrator



NEA-OA267576 09/03/2021

cc: TEREDD
DOE-OSC

RENEWABLE ENERGY DEVELOPMENT PLAN (REDP)

General Instructions

To avoid overcontracting of PSA, RECs shall only be purchased from RE Market (REM) and or sourced from Eligible RE Plants including EC-Owned Embedded Generation Facilities (EGF); Green Energy Option Program (GEOP); and RE Facilities for Own Use (RE-OU) in case the Uncontracted Demand indicates positive value (uncontracted value) only and intended to be sourced from RE Resource.

Notes and Assumptions

1. Demand Forecast

- a. Projected Demand - refer to approved DDP/PSPP.
- b. Concentrated Load / Spot Load - refers to consumers class of service that requires big load demand normally commercial or industrial establishments. If Concentrated / Spot Load is not included in the Projected Demand, it must be included in the overall Demand Forecast. Concentrated / Spot Load shall be based on sound judgement to avoid over-contracting of power supply. Commercial or industrial establishments requiring power supply must be investigated from the records of the Municipal/City Planning Office.

2. Contracted Demand

Refer to approved DDP/PSPP.

3. Under Competitive Selection Process (CSP)

The power requirement being procured through Competitive Selection Process to supplement the overall power demand of EC.

4. Uncontracted Demand

The residual value of the Forecast Demand less the sum of the Contracted Demand and Demand Under Competitive Process. Uncontracted Demand must be segregated into BaseLoad, Intermediate, and Peak Load requirements.

5. RPS Requirements

5.1 REC Shortfall (MWh)

RECs needed to comply with the Annual requirements of the EC. The compliance of EC shall come from (1) PSA; (2) NM; (3) RE-OU; (4) GEOP; (5) REM; and (6) FiT. Refer to approved RPS Requirements. Refer to approved RPS requirements.

5.2 Eligible RECs

a. Purchase from the RE Market

RECs purchased from REM.

b. PSA from Eligible RE Plants

RECs from eligible RE Facilities, including but not limited to owned and operated by ECs (Sec. 10(b), Rule III; DC2013-07-0015 (IRR RA 10531) and embedded generators, that has PSA with the EC. In the calculation of capacity and energy for Hydro EGF, it shall be based on Flow Duration Curve (FDC), for Solar EGF shall be based on Irradiation Analysis, and the generated capacity and energy of other RE technologies shall be determined using industry standard practice and procedures.

c. Green Energy Option Program (GEOP)

RECs generated from the energy supplied to the end-users under the GEOP. Provided, that the corresponding energy shall also be added into the Net Energy Sales of the EC for the calculation of its RPS requirement (Sec. 15b, DOE Circular No. DC2018-07-0019).

d. RE Facility for Own Use (RE-OU) - RECs from RE Facilities, including but not limited to Self-Generating Facilities (SGF), installed in the end-user's premises for own-use and synchronized to the DU's system which have been properly measured (metered). Provided, that the corresponding energy shall also be added into the Net Electric Sales of the EC for the calculation of its RPS Requirement (Sec. 153; DOE Circular No. DC2017-12-0015).

e. Net Metering (NM)

RECs from Net Metering arrangement ≤ 100 KW which have been properly measured (metered). Provided, that the corresponding energy shall also be added into the Net Electric Sales of the EC for the calculation of its RPS Requirement (Sec. 153; DOE Circular No. DC2017-12-0015).

Total- Eligible RECs

Represents the sum of RECs on a particular year coming from Eligible RE-based generating facilities. Hence, $RECs_n + NM_n + RE-OU_n + GEOP_n + REM_n + FiT_n$

5.3 Net-Shortfall / Surplus (MWh)

The shortfall of REC requirements in MWh for a particular year represented by negative value and or surplus REC requirements in MWh for particular year represented by positive value.

RENEWABLE ENERGY DEVELOPMENT PLAN (REDP)

Demand / Supply Scenario

Description	2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		
	(MW)	(MWh)	(MW)	(MWh)	(MW)	(MWh)	(MW)	(MWh)	(MW)	(MWh)	(MW)	(MWh)	(MW)	(MWh)	(MW)	(MWh)	(MW)	(MWh)	(MW)	(MWh)	
1 Forecasted Demand																					
a. Projected Demand	19.01	97,159	20.04	102,658	21.05	108,154	22.05	113,651	23.04	119,151	24.00	124,656	24.96	130,171	25.89	135,700	26.81	141,248	27.71	146,820	
b. Concentrated / Spot Load																					
Cagwait Hospital												2.00	11,467	2.00	11,467	2.00	11,467	2.00	11,467		
Total-Forecasted	19.01	97,159	20.04	102,658	21.05	108,154	22.05	113,651	23.04	119,151	24.00	124,656	24.96	141,638	27.89	147,167	28.81	152,715	29.71	158,287	
2 Contracted Demand																					
a. GNPk	13.00	112,320	13.00	112,320	13.00	112,320	13.00	112,320	13.00	112,320	13.00	112,320	13.00	112,320	13.00	112,320	13.00	112,320	13.00	112,320	
b. TSI	5.00	43,200	5.00	43,200	5.00	43,200	5.00	43,200	5.00	43,200	5.00	43,200	5.00	43,200	5.00	43,200	5.00	43,200	5.00	43,200	
c. KEGI	5.46	80	5.46	80	5.46	80	5.46	80	5.46	80	5.46	80									
d. PSALM																					
Total-Contracted Demand	23.46	155,600	23.46	155,600	23.46	155,600	23.46	155,600	23.46	155,600	18.00	155,520	18.00	155,520	18.00	155,520	18.00	155,520	18.00	155,520	
3 Under Competitive Selection Process (CSP)																					
a. Baseload	-																				
b. Intermediate	-																				
c. Peak Load	-																				
Total-Under Competitive Selection Process (CSP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4 Total-Uncontracted Demand	(4.45)	(3.42)	(2.41)	(1.41)	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)	6.00	8.96	9.89	10.81	11.71	11.71	11.71	11.71	11.71	11.71	
a. Baseload											0.54	3.50	4.43	5.35	6.25	6.25	6.25	6.25	6.25	6.25	
b. Intermediate																					
c. Peak Load											5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	
5 RPS Requirements																					
5.1 REC Shortfall (MWh)						154	5,110	6,754	8,514	10,390	12,379	14,479	16,935								
5.2 Eligible RECs																					
a. Purchased from the RE Market																					
b. PSA from Eligible RE Plants																					
(Embedded Generation Facility)		Capacity		Energy																	
Hydro EGF		2.40		12,852								2.40	12,852	2.40	12,852	2.40	12,852	2.40	12,852	2.40	12,852
Solar EGF (Note: Only 30% capacity efficiency)		3.00		4,504								0.90	4,504	0.90	4,504	0.90	4,504	0.90	4,504	0.90	4,504
Hydro EGF		2.00		10,710											2.00	10,710	2.00	10,710	2.00	10,710	
c. Green Energy Option Program (GEOP)																					
d. RE Facility for Own Use (RE-OU)																					
e. Net Metering (NM)																					
Total- Eligible RECs												3.30	17,356	3.30	17,356	5.30	28,066	5.30	28,066	5.30	28,066
5.3 REC Net-Shortfall / Surplus (MWh)						(154)	(5,110)	(6,754)	(8,514)	(10,390)	(12,379)	(14,479)	(16,935)								
6 Shortfall (Grid)	(4.45)	(3.42)	(2.41)	(1.41)	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)	6.00	8.96	9.89	10.81	11.71	11.71	11.71	11.71	11.71	11.71	

Load Factor 0.6636

Cells highlighted with colors shall be filled-in manually by EC

RENEWABLE ENERGY DEVELOPMENT PLAN (REDP)
 Rate Impact Simulation on the Overall Rates of Electric Cooperative

Charges	Without EGF		With EGF				Weighted Average	
	Cost of Power (2020)		Cost of Power (2020)		Hydro EGF		Cost of Power	
	Unit Cost (PhP / KWh)	Total Cost (Ph P / yr)	Unit Cost (PhP / KWh)	Total Cost (Ph P / yr)	Unit Cost (PhP / KWh)	Total Cost (Ph P / yr)	Unit Cost (PhP / KWh)	Total Cost (Ph P / yr)
a. Generation Charge								
. Capital Recovery Fee					4.8746			
. Fixed-O&M Fee					0.5030			
. Variable-O&M Fee					0.5203			
. Fuel Fee					0.0000			
Generation Charge	5.2300	680,795,485.11	5.2300	613,579,525.11	5.8978	75,798,898.17	5.2959	689,378,423.28
b. Transmission Charge	0.8627	112,298,712.24	0.8627	101,211,291.84	0.0210	269,892.00	0.7796	101,481,183.84
c. System Loss Charge	0.7526	97,966,860.82	0.7526	88,294,445.62	0.0369	474,090.50	0.6819	88,768,536.12
d. Metering Service Charge	0.4569	59,475,230.81	0.4569	53,603,152.01	0.1000	1,285,200.00	0.4217	54,888,352.01
e. Value Added Tax								
. Generation	0.5880	76,540,677.87	0.5880	68,983,701.87	0.0000	-	0.5299	68,983,701.87
. Transmission	0.0844	10,986,451.04	0.0844	9,901,742.24	0.0000	-	0.0761	9,901,742.24
. System Loss	0.0853	11,103,605.14	0.0853	10,007,329.54	0.0037	47,409.05	0.0772	10,054,738.59
Effective Cost of Power	8.0599	1,049,167,023.03	8.0599	945,581,188.23	6.0594	77,875,489.73	7.8624	1,023,456,677.96
Variance					2.0005		0.1975	25,710,345.07

Power Utilization				
DDP/PSPP 2027	KW	KWh	% Utilization	Remarks
Total Energy Demand	24,955	130,171,221	100.00%	
a. Generation Mix	22,555	117,319,221	90.13%	
b. Hydro DGF	2,400	12,852,000	9.87%	

Note: Edit to actual Cost of Power (Without EGF and With EGF), Weighted Average Cost of Power, and Power Utilization

RENEWABLE ENERGY DEVELOPMENT PLAN (REDP)

Procurement Plan

RE Resource	Type	Minimum MW	Minimum MWh/yr	PSA Start	PSA End	Publication
Hydro EGF	Base	2.40	12,442	1/1/2027	1/1/2052	10/1/2021
Solar EGF	Daytime Peak	3.00	5,508	1/1/2027	1/1/2052	10/1/2021
Hydro EGF	Base	2.00	10,710	1/1/2029	1/1/2054	10/1/2022