**BEFORE THE GUAM PUBLIC UTILITIES COMMISSION**


| | | |
|---|---|---|
| **IN THE MATTER OF:** | ) | **GPA DOCKET 20-09** |
| | ) | |
| **GUAM POWER AUTHORITY** | ) | |
| **PETITION FOR THE CREATION OF AN** | ) | **ORDER** |
| **ENERGY STORAGE RATE SCHEDULE** | ) | |

This matter comes before the Guam Public Utilities Commission ["PUC"] upon the PRELIMINARY ORDER signed by Chairman Jeffrey C. Johnson on November 2, 2021, in this Docket. A true and correct copy of said PRELIMINARY ORDER is attached hereto as Exhibit "1" and incorporated herein by reference.

On September 15, 2021, Guam Power Authority implemented a new Net Metering Program Interconnection Policy, AP-072. The policy imposed a new requirement that any new net metering customer must include battery storage or an Energy Storage System in their net metering systems.

In this Docket, 20-09, the PUC previously ordered that GPA may not, until certain prerequisites were met, require new net metering ["NM"] customers to include battery storage (i.e. Frequency Control Capability or an Energy Storage System (ESS)) in their systems. The PUC found that GPA had not justified such a requirement because it had not established "clear cost causation of NM customers impacting grid reliability." Before the PUC would consider such changes, GPA was required to complete certain studies, including a distribution system impact study and an independent study determining the cost of grid and other services used by NM customers, which identifies in detail the value of those services to the NM customers.[1]

In the PRELIMINARY ORDER, the Chairman found that GPA, by failing to conduct these studies prior to implementing the new policy and by not obtaining PUC review and approval for the new requirement, violated the PUC Order in GPA Docket 20-09. The Chairman also found that the PUC is required to approve rules and

[1] PUC Order, GPA Docket 20-09, dated April 29, 2021.

regulations for the Net Metering Program, including the implementation of Net Metering Program Interconnection Policies before policies such as AP-072 are effective.[2]

The PUC received three complaints concerning GPA's implementation of the New Net Metering Policy, AP-072. On November 2, 2021, the Chairman certified that the PUC action on this matter, as well as temporary suspension of the effectiveness of Policy AP-072, could not await further Commission action at the next scheduled meeting on December 2, 2021. He further determined that the implementation of this policy could harm businesses in the solar industry and have a detrimental impact on the government, commercial and residential market for solar energy.[3]

The Chairman of the PUC is authorized, pursuant to 12 GCA §12105(b), to discharge any of the duties of the Commission or to exercise its powers ("except a final determination affecting a public utility"), upon designation by the Commission. Prior to issuance of the Preliminary Order, all the Commissioners designated and authorized the Chairman to issue the Preliminary Order on behalf of the Commission, in accordance with Administrative Resolution dated April 11, 2003.

Having considered the PRELIMINARY ORDER of the Chairman dated November 2, 2021, and the recommendation of the ALJ, hereby **ORDERS** as follows:

1. The Chairman's PREMILINARY ORDER is hereby ratified and approved, and the Commission adopts said ORDER as its own.

2. The implementation of Policy No. AP-072, issued 08/04/2021 and effective on September 15, 2021, is suspended pending review by the Guam Public Utilities Commission.

3. The PUC shall conduct further proceedings in this Docket and will consider the three complaints regarding GPA Net Metering Program Interconnection Policy. GPA shall have an opportunity to demonstrate that it has complied with the requirements of the Order in this docket for approval of Policy AP-072, and to present any other evidence or arguments as to why it believes the policy should be approved.

---

[2] PRELIMINARY ORDER OF CHAIRMAN JOHNSON, at pgs. 3-4.
[3] Id., at p. 4.

4. The ALJ is ordered to undertake and carryout such further proceedings in this Docket as are appropriate and necessary.

.

**SO ORDERD** this 2nd day of December 2021.

Jeffrey C. Johnson
Chairman

Rowena E. Perez-Camacho
Commissioner

Joseph M. McDonald
Commissioner

Michael A. Pangelinan
Commissioner

Peter Montinola
Commissioner

Doris Flores Brooks
Commissioner

Pedro S.N. Guerrero
Commissioner

**BEFORE THE GUAM PUBLIC UTILITIES COMMISSION**

| | | |
|---|---|---|
| **IN THE MATTER OF:** | ) | **GPA DOCKET 20-09** |
| | ) | |
| **GUAM POWER AUTHORITY** | ) | |
| **PETITION FOR THE CREATION OF AN ENERGY STORAGE RATE SCHEDULE** | ) | **PRELIMINARY ORDER** |

## INTRODUCTION

This matter comes before the Guam Public Utilities Commission ["PUC"] upon the filing of three complaints against GPA concerning the implementation of a policy which requires, *inter alia*, that all new net metering customers must have battery storage systems as a part of their net metering systems. The complaints, by Micronesia Renewable Energy, Inc, the Office of Senator Clynton E. Ridgell, and Pacific Solar & Photovoltaics, Inc., are attached hereto respectively as Exhibits "1", "2", and "3".[1]

In general, the complaints allege that, effective September 15, 2021, GPA Management implemented a new policy, Net Metering Program Interconnection Policy AP-072 ["Policy AP-072"], that imposes substantial requirements upon new net metering customers, including a requirement that all new net metering customers must have battery storage (ESS) in their net metering systems. Their contention is that GPA did not have the authority to change the NEM policy and impose these requirements without prior PUC review and authorization.

The Administrative Law Judge of the PUC provided notice to GPA of the complaints and requested that GPA agree to suspend the effectiveness of the Policy AP-072 pending PUC review.[2] To date GPA has not responded to the ALJ's letter.

This Order is issued by the Chairman of the PUC, acting on behalf of the PUC, pursuant to 12 GCA §12105(b). The Chairman certifies that processing and resolution of this matter, as well as temporary suspension of the effectiveness of Policy AP-072, cannot

[1] See Exhibits 1, 2, and 3 attached hereto.
[2] See Letter from PUC ALJ Fred Horecky to GPA Legal Counsel Graham Botha dated October 27, 2021, attached hereto as "Exhibit "4".

await Commission action at the next scheduled meeting on December 2, 2021.

## BACKGROUND

GPA Management adopted its new Net Metering Program Interconnection Policy, AP-072, effective September 15, 2021.[3] There has never previously been any requirement that net metering customers include battery storage or ESS in their systems.

In this Docket, GPA Docket 20-09, the PUC previously ordered that GPA may not at the present time require new net metering customers to include battery storage (i.e., Frequency Control Capability or an Energy Storage System (ESS)) in their systems. In its Petition in this Docket dated March 10, 2020, GPA had requested that new net metering customers be required to install Frequency Control Capability/Energy Storage Systems (ESS) on new solar PV or wind systems; alternatively, new customers could pay an Energy Storage Rate to GPA.[4]

In its Resolution in support of GPA's Petition, the Guam Consolidated Commission on Utilities stated that, after June 1, 2020, "all new utility-scale, and NEM solar PV and wind turbine systems must have Frequency Control Capability or ESS in order to be tied to the island power grid."[5] The PUC denied GPA's requests to require new customers to install an Energy Storage System (batteries) or to pay a new Energy Storage Rate. The PUC found that GPA had not justified imposing a requirement that new customers have battery storage in their net metering systems. GPA had not established "clear cost causation of NM customers impacting grid reliability." GPA had not completed a distribution system impact study, an independent study determining the cost of grid services used by NM customers, and had not implemented a battery storage rebate program. A true and correct copy of the PUC Order dated April 29, 2021, is attached hereto as Exhibit "6 ".

---

[3] Net Metering Program Interconnection Policy AP-072, attached hereto as Exhibit "5".
[4] GPA Petition for Creation of New Energy Storage Rate, GPA Docket 20-09, dated March 10, 2020, at p. 1.
[5] Guam Consolidated Commission on Utilities Resolution No. 2020-01, Authorizing Management to Require All Future Utility-Scale and Net Energy Metering Solar Photovoltaic (PV) and Wind Turbine Systems to have Frequency Control Capability or Energy Storage System (ESS) in order to be Tied into Island Power, Grid, adopted February 21, 2020.

## DETERMINATIONS

GPA management did not seek the review or approval by PUC of Net Metering Program Interconnection Policy No. AP-072 prior to implementing the policy. From the inception of the Net Metering Program, the Guam Legislature placed the PUC in charge of promulgating the necessary rules and regulations for the implementation of the Net Metering Program. Public Law No. 27-132, enacted December 31, 2004, Section 2, states: "The Public Utility Commission shall promulgate all necessary rules and regulations to the implementation of the program within one hundred twenty (120) days from the enactment of this Act."

Since the commencement of the Net Metering Program, GPA has recognized that prior PUC review and approval is necessary for its Net Metering Program Interconnection Policy. The PUC is required to approve GPA's Standard Interconnection Agreement for Net Metering at facilities and the Net Metering Program Interconnection Policy. In its Order dated February 27, 2009, in Docket No. 08-10, the PUC approved GPA's initial Net Metering Interconnection Policy, AP-0, and the Interconnection Agreement, and even required GPA to make certain changes to the Net Metering Program Interconnection Policy. See Exhibit "7" attached hereto.[6] The Guam Public Utilities Commission is also authorized to approve the rate structure for the net metering program. 12 GCA §8506.

The PUC is responsible for the implementation of the rules and regulations for the Net Metering Program. Public Law 27-132. GPA Net Metering Program Interconnection Policy, AP-072, has not been reviewed or approved by the PUC. Such policy is not valid or effective and cannot require new customers to have battery or Energy Storage Systems. GPA Net Metering Program Interconnection Policy, AP-072, also violates the PUC Order in this Docket (Exhibit "6"). The Order prohibits GPA from requiring new customers to install Energy Storage Systems or batteries.

The PUC specifically found that a requirement for battery storage had not been

[6] PUC Order, Docket No. 08-10, In the Matter of Net Metering (pursuant to P.L. 27-132 and 29-62), dated February 27, 2009, attached hereto as Exhibit "7".

justified by a study or evidence demonstrating that net metering customers were responsible for instability to the power system.

Net Metering Interconnection Policy No. AP-072 cannot be implemented or be effective unless and until the PUC approves such Policy. GPA has implemented a policy, a requirement that all new systems have battery storage, which violates the present PUC Order in GPA Docket 20-09. Suspension of the Policy is justified, as the complainants have alleged that the requirement of battery storage for all new net metering systems would "kill the Government, commercial and …residential market for solar energy." Complainants have indicated a possibility that the policy could harm their businesses.

## CONCLUSION

The Guam Public Utilities Commission hereby issues the following PRELIMINARY ORDER in this Docket:

1. The implementation of Policy No. AP-072, issued 08/04/2021 and effective on September 15, 2021, is hereby suspended pending review by the Guam Public Utilities Commission.
2. The PUC shall conduct further proceedings in this Docket and will consider the three complaints regarding GPA Net Metering Program Interconnection Policy. GPA shall have an opportunity to demonstrate that it has complied with the requirements of the Order in this docket for approval of Policy AP-072, and to present any other evidence or arguments as to why it believes the policy should be approved.
3. The ALJ is ordered to undertake and carryout such further proceedings in this Docket as are appropriate and necessary.

Dated this 2nd of November, 2021.

Jeffrey C. Johnson
Chairman
Guam Public Utilities Commission

**Fred Horecky**

| | |
|---|---|
| **From:** | Jeff Voacolo <jvoacolo@micronesiarenewableenergy.com> |
| **Sent:** | Thursday, October 14, 2021 8:43 PM |
| **To:** | Fred Horecky |
| **Cc:** | Lou Palomo; Cynthia Brown |
| **Subject:** | Re: NEWLY APPROVED GPA NET POLICY PROGRAM |

Fred,

The industry was giving this NEM amendment without any notice of implementation. Are we expected to change our business model overnight. The battery requirement is extremely aggressive by any US stateside standard. To require the amount of backup kills the Government, commercial and really the residential market for solar energy. The price points do not work now at all. I believe this to be an unfair labor practice from the utility to place undue burden on a growing Industry that this government agency sees as a competitor to their business model. The utility is to help the community not place burden on the community,
Fred you know the law a lot better than we do and the way we are reading this is they do not have the authority to change the NEM without the PUC authority. I believe they are far exceeding their authority at a time when the community and the administration is sidetracked with a pandemic,

Thank you,

Jeff

On Thu, Oct 14, 2021 at 10:50 AM Fred Horecky <horeckylaw@teleguam.net> wrote:

> Hi Jeff:

EXHIBIT "1"

I will look into this matter. Can you let me know any specific objections you have to the Revised Net Metering Program?

Thank you.

Sincerely,

Fred Horecky

Chief Administrative Law Judge

Guam Public Utilities Commission

c/o Law Office of Frederick J. Horecky

643 Chalan San Antonio, Ste. 102B

Tamuning, Guam 96913

(w)646-8274/5

(f) 646-8403

horeckylaw@teleguam.net



**From:** Jeff Voacolo <jvoacolo@micronesiarenewableenergy.com>
**Sent:** Monday, October 11, 2021 9:10 AM
**To:** Frederick J. Horecky <horeckylaw@teleguam.net>
**Subject:** Fwd: NEWLY APPROVED GPA NET POLICY PROGRAM

Fred,

I do not believe this agency has the approving authority to change the NEM law without the PUC authority or review, am I correct with this assumption or not. This indirectly has a cost associated with solar energy customers,

Jeff

---------- Forwarded message ---------
From: Ariel D. Mata <admata@guamwa.com>
Date: Mon, Oct 11, 2021 at 8:43 AM
Subject: RE: NEWLY APPROVED GPA NET POLICY PROGRAM
To: Jeff Voacolo <jvoacolo@micronesiarenewableenergy.com>, Dianne Mayo <dmayo@generationrenewableinc.com>
Cc: Raul Encinas Braga <rebraga@generationrenewableinc.com>, Zelelor Sotelo <zsotelo@generationrenewableinc.com>

To All,

Good morning. Please find attached newly approved GPA Net Metering Program Interconnection Policy for your reference.

Best Regards,

**ARIEL MATA | Engineer III**

**GUAM POWER AUTHORITY | POWER TO SERVE**

P.O. Box 2977 Hagatna, GU 96932-2977

671.648.3158 | admata@guamwa.com

--

**Jeffrey Voacolo**

**Chief Operations Officer**

**Micronesia Renewable Energy, Inc**
**Physical Address: 177 ILIPOG Drive, Tamuning, Guam 96913**
**Mailing Address: P.O. Box 7810, Tamuning GU 96931**

**Office: 671-632-2613**
**Mobile: 671-487-3763**
**Email: jvoacolo@micronesiarenewableenergy.com**
**Website: www.micronesiarenewableenergy.com**

## Micronesia Renewable Energy, Inc

***Guam Physical Address:*** 177 IPILOG Drive, Tamuning Guam 96913

***Guam Mailing Address:*** PO Box 7810, Tamuning, Guam 96931

***Guam Office:*** 671-632-2613

***Saipan Mailing Address:*** PMB 80, PO Box 10001, Saipan MP 96950

***Saipan Office:*** 670-233-4673

***Website:*** *www.micronesiarenewableenergy.com*

--

Jeffrey Voacolo
Chief Operations Officer
Micronesia Renewable Energy, Inc
Physical Address: 177 ILIPOG Drive, Tamuning, Guam 96913
Mailing Address: P.O. Box 7810, Tamuning GU 96931
Office: 671-632-2613
Mobile: 671-487-3763
Email: jvoacolo@micronesiarenewableenergy.com
Website: www.micronesiarenewableenergy.com

## Micronesia Renewable Energy, Inc

***Guam Physical Address:*** 177 IPILOG Drive, Tamuning Guam 96913

***Guam Mailing Address:*** PO Box 7810, Tamuning, Guam 96931

***Guam Office:*** 671-632-2613

***Saipan Mailing Address:*** PMB 80, PO Box 10001, Saipan MP 96950

***Saipan Office:*** 670-233-4673

***Website:*** ***www.micronesiarenewableenergy.com***

**Clynton E. Ridgell**
Senator – 36th Guam Legislature
*Committee on Economic Development, Agriculture, Power and Energy Utilities, and the Arts*

October 15, 2021

**Transmitted via Electronic mail**
jbenavente@gpagwa.com

Mr. John M. Benavente
General Manager
Guam Power Authority
Gloria B. Nelson Public Service Building
688 Route 15, Suite 100
Mangilao, Guam 96913-6203

Håfa adai General Manager Benavente:

My office has received information provided by Assistant General Manager-Administration Beatrice P. Limtiaco regarding the Committee's inquiry into the recent revision of Guam Power Authority (GPA) AP-072, Net Metering Program Interconnection Program. Please extend the Committee's appreciation to her for providing the historical background behind the Rider's development to date.

The documents provided make clear the process to be followed when drafting, approving and transmitting this particular document for consideration by GPA senior management, the Consolidated Commission on Utilities (CCU), the general public, and the Guam Public Utilities Commission (GPUC). The process ultimately resulted in the GPUC issuing an order authorizing AP-072, effective June 04, 2020. However, the Committee finds this process was not followed when AP-072 was revised with an effective date of September 15, 2021. In particular, the GPUC was not asked to conduct its review and grant approval to the proposed revisions. Not seeking GPUC review and approval seemed unusual when CCU Resolution No. 2019-20 includes an excerpt from Docket No. 08-10 stating "The NM Rider may be amended or modified in the future by GPA, *with the approval of the Guam Public Utilities Commission*." Please provide the Committee with an explanation of why GPA did not seek GPUC approval prior to it being made effective by senior management.

The Committee notes the revisions to AP-072 include a *new* "#7.0 ENERGY STORAGE AND METERING" which, when coupled with the revision to the definition of "New System" under item 3.14, requires customers fitting the definition to have a GPA smart meter installed between the AC output of the inverter and the customer electric service panel, AND to require those same customers to install a battery system equal to or greater than the net metering system maximum output (kW). These revisions alone merit an opportunity for all affected parties and the GPUC to hear GPA's rationale for requiring such changes and to provide input on the changes. It was the Committee's understanding GPA Docket 20-09 was denied pending the completion of the studies ordered in Docket 19-04, and included in the GPUC order was a reference to GPA requiring the

238 Archbishop Flores St · Suite 906 – DNA Building · Hagåtña GU 96910
Phone: (671) 475-4983 · Fax: (671) 475-4768
clyntridgell@guamlegislature.org

EXHIBIT "2"

installation of a battery storage system. Including this requirement in AP-072 could be construed as GPA circumventing the GPUC order. The Committee would be interested in learning why GPA believes it can proceed with this requirement in the revised AP-072.

The Committee further notes section "6.0 INTERCONNECTION REQUIREMENTS" adds new items 6.2 through 6.6 to accommodate Customer Systems so GPA can install a second smart meter to monitor consumption, frequency and other related data. Again, all of these costs are to be borne by the customer without having an opportunity to review and comment on the proposed requirements.

The Committee requests GPA suspend the implementation of the revised AP-072 and continue with the version dated June 04, 2020 until such time as it has been agreed by the GPUC it does NOT need to entertain the proposed changes. Your cooperation in this regard would be appreciated.

Si Yu'os ma'âse',

Clynton E. Ridgell

cc: Dr. Jeffrey Johnson, Chairman, GPUC
Mr. Fred Horecky, Chief ALJ, GPUC

**Fred Horecky**

**From:** Simon Sanchez <gdcmgr@guamdrycleaners.com>
**Sent:** Saturday, October 23, 2021 12:55 AM
**To:** scott.hagen@pacificsolarguam.com
**Cc:** Vince J Sablan; John J Cruz, Jr.; Mata, Ariel D.; John M Benavente; Graham Botha; Francis J Iriarte; Jorna Ballon; Jennifer G Sablan; John J.E.. Kim; Lorraine Shinohar; Melinda Camacho; Tamra M Muna; rich bersamin; Jr, Simon R Camacho; Melissa C Uncangco; Pedro SN. Guerrero; Jeffrey Johnson; Joseph Duenas; William Hagen; James Paek; Pat Blas; jborja@gpagwa.com; t.hagen@guampestcontrol.com; horeckylaw@teleguam.net
**Subject:** Re: UL 1741 SB Requirement for Solar Inverters

GPA team: pls advise and respond. Were we still taking input while finalizing our policy? And since any policy can always be amended when good input is provided, can we respond specifically to Mr Hagen's concerns and input? I too was advised that GPA was working with Mr Hagen on his concerns and feedback. How were his issues and concerns reconciled with our policy? It's ok to disagree but at least we owe the parties who engage us a response to their concerns and input.

We are a publicly owned utility. Mr Hagen is also a shareholder. His company has always been collaborative with GPA even if we don't always agree. Utility scale and individual solar can and must co-exist to max our ability to reduce our dependency on fossil fuels and lower island energy costs. Stakeholders are owed a response to insure that we are not just talking to ourselves. No one has ALL the answers.

Ilekna si Simon

On Oct 22, 2021, at 10:36 AM, scott.hagen <scott.hagen@pacificsolarguam.com> wrote:

This message goes out to John Cruz, Vince Sablan and all others involved in deceiving me and wasting my time. All other can bear witness.

On September 22 you emailed me and attached an unsigned copy of a "pre-final draft" of the NEM policy (attached) and I was told it would be signed soon and I was asked to make comments (attached). As per the email thread below, we were still in discussions as of October 19. Today I received a signed copy of the NEM policy with an effective date of September 15 (attached). You lied to me. You wasted my time. You disrespected me. You treated me like I was some kind of fool.

The comments and suggestions made are very sound, rational and logical and are meant to benefit all parties. This is the assistance I've been providing to you and anyone from GPA who sought my assistance as the solar industry grew. I showed you the 1st solar net metered house and 1st commercial system. I showed you the 1st 3 phase 208V & 480V PV systems. I showed you the first Grid Tied PV system with battery back up. I showed you PV system web based monitoring and all the data that can be gathered. I even showed you that when GPA's solar farm dips, it causes a "hick-up" in the grid which then effects the PV systems throughout the island which then negatively effects the grid...and not the other way around. I pointed you to where you could seek further education and even brought solar educators to Guam to benefit all concerned. I help GPA answer questions from troubled customers who had PV systems installed by others. I've even briefed some

of you so you'd look educated prior to jumping into a meeting. I've always been available to you any day and any time. And I wont deny that several individuals within GPA have reciprocated with assistance to the best of their ability without jeopardizing their employment.

I don't think I will ever be able to believe that the information you give me or the words you say are the truth. I said it before and I'll say it again...GPA is gonna do whatever it wants to do...Regardless. You guys really know how to burn a bridge. From here on out it's strictly business. If it's not directly related to a NEM system we are processing or actively working on...I don't have time for you and neither does anyone working for my company. I'm not the type to go to the media or go against policy in protest and I'm a man of my word. Unless you raise the topic, this is the last you'll hear from me on the matter.

Some didn't need Covid to force us to wear a mask everyday....Some were already wearing a mask.

Take it easy.....

**Scott Hagen**
Pacific Solar & Photovoltaics, Inc.
389 Acho Latte Street, Dededo, GUAM 96929
Tel: 671-632-4002 Fax: 671-637-7996

<ATT00001.png>

---

**From:** Vince J Sablan <vsablan@gpagwa.com>
**Sent:** 10/19/21 9:40 AM
**To:** HAGEN TERESITA D <scott.hagen@pacificsolarguam.com>
**Subject:** FW: RE: UL 1741 SB Requirement for Solar Inverters

Hi Scott,

I tried to fix your email to not link to Teresita. It seems to want to link every time I email you. Hopefully it works now. I can't make 10am today. How about later today at 130pm or tomorrow at after 1030 am?

Thanks,

<image001.jpg>

**Vincent J. Sablan, P.E. | Engineering Supervisor**

**GUAM POWER AUTHORITY | POWER TO SERVE**

**P.O. Box 2977 Hagatna, GU 96932-2977**

671.648.3014 | vsablan@gpagwa.com
www.guampowerauthority.com

**From:** scott.hagen [mailto:scott.hagen@pacificsolarguam.com]
**Sent:** Monday, October 18, 2021 5:04 PM
**To:** Vince J Sablan <vsablan@gpagwa.com>
**Subject:** RE: RE: UL 1741 SB Requirement for Solar Inverters

Can you please fix my name in your email contacts database? It says Teresita. That's my mom's name.

Let's try for tomorrow, Tuesday, around 10ish.

**Scott Hagen**

Pacific Solar & Photovoltaics, Inc.

389 Acho Latte Street, Dededo, GUAM 96929

Tel. 671-632-4002 Fax: 671-637-7996

<ATT00001.png>

---

**From:** Vince J Sablan <vsablan@gpagwa.com>
**Sent:** 10/18/21 8:25 AM
**To:** HAGEN TERESITA D <scott.hagen@pacificsolarguam.com>
**Subject:** RE: RE: UL 1741 SB Requirement for Solar Inverters

**Scott,**

**Are you free this afternoon to talk? I'm working on a response to your comments at this time.**

**Thanks,**



| | |
|---|---|
| <image001.jpg> | **Vincent J. Sablan, P.E. \| Engineering Supervisor**<br>**GUAM POWER AUTHORITY \| POWER TO SERVE**<br>**P.O. Box 2977 Hagatna, GU 96932-2977**<br>**671.648.3014**<br>**\| vsablan@gpagwa.com www.guampowerauthority.com** |

**From:** scott.hagen [mailto:scott.hagen@pacificsolarguam.com]
**Sent:** Saturday, October 16, 2021 8:07 AM
**To:** John J Cruz, Jr. <jcruz@gpagwa.com>
**Cc:** Vince J Sablan <vsablan@gpagwa.com>
**Subject:** FW: RE: UL 1741 SB Requirement for Solar Inverters

John,

See below. Hawaiian Electric also "jumped the gun" with the UL1741 SB requirement. Based on what I've been told and what Ive shared with you; December 31, 2021 might still be too soon.

I never got a response to my comments on the NEM policy changes. Truly none is needed. GPA will do whatever it wants, whenever it wants, regardless. At least I can say "I tried ".


Scott Hagen

<image005.jpg>
Pacific Solar & Photovoltaics, Inc.

389 Acho Latte Street

Dededo, Guam 96929

o) 671-632-4002 m) 671-688-3080

e) scott.hagen@pacificsolarguam.com

www.pacificsolarguam.com


-------- Original message --------

From: DER-QUALIFY <der-qualify@hawaiianelectric.com>

**Date**: 10/16/21 7:42 AM (GMT+10:00)

**To:** scott.hagen@pacificsolarguam.com, DER-QUALIFY <der-qualify@hawaiianelectric.com>

**Cc:** 'Brian Gold' <bgold@solarsupply.com>, 'Ryan Miller' <rmiller@solarsupply.com>, 'Bill Hagen' <bill_hagen@hotmail.com>

**Subject: RE: UL 1741 SB Requirement for Solar Inverters**

Hi

We are still allowing srdv1.1 testing. We just sent an email out today. We still need to update our website.

**Reminder: SRD 1.1 certification will NOT be accepted after December 31, 2021**

**NOHEALANI HIRAHARA on behalf of der-qualify@hawaiianelectric.com**

Senior Program Manager, Customer Energy Resources-Operations

**<image006.jpg>**
PO Box 2750 / Honolulu, HI 96840

O: 808.543.4749

M: 808.227.2329

E: Nohea.Hirahara@hawaiianelectric.com

W: www.hawaiianelectric.com/DR

*Be Green. Print only when necessary!*

**From:** Scott Hagen <scott.hagen@pacificsolarguam.com>
**Sent:** Tuesday, September 28, 2021 8:04 PM
**To:** DER-QUALIFY <der-qualify@hawaiianelectric.com>
**Cc:** 'Brian Gold' <bgold@solarsupply.com>; 'Ryan Miller' <rmiller@solarsupply.com>; 'Bill Hagen' <bill_hagen@hotmail.com>
**Subject:** UL 1741 SB Requirement for Solar Inverters

**[This email is coming from an EXTERNAL source. Please use caution when opening attachments or links in suspiciou email.]**

Hafa Adai,

I am writing to ask if HECCO is currently enforcing UL 1741 SB for all new solar inverters. This is from the HECCO website: ***"Option 2 - SRD 2.0 - The latest certification requirement for IEEE 1547-2018, using the UL 1741 SB testing protocol with SRD V2.0. Nationally Recognized Testing Laboratory certificates for equipment must reference UL 1741 SB and the publication date."***

My understanding is that the majority of top brand inverter manufacturers have not tested to this UL standard yet. I was also informed that UL 1741 SB was only very recently published. I ask because the Guam Power Authority started to require this certification as of yesterday and I'm wondering if it is a bit premature.

Any insight you can provide would be helpful. Thanks.

**Scott Hagen**

**General Manager**

**389 Acho Latte Street, Dededo, Guam 96929**

**Tel: 671-632-4002 Fax: 671-637-7996**

**www.pacificsolarguam.com**

**www.youtube.com/pacificsolarguam**

**www.facebook.com/pacificsolarguam**

**<image007.jpg>**

<message-664955981.eml>
<message-664956447.eml>
<2021 June 28 NEM SOP Prefinal Draft_09 22 21.pdf>
<Pacific Solar_Response to Proposed GPA NEM Amdmts_V2_10 01 21.pdf>
<GPA Revised AP-072 Net Metering Program Interconnection Policy dated 9.15.20._.pdf>
<ATT00001.png>
<image001.jpg>
<image005.jpg>
<image006.jpg>
<image007.jpg>

# PUBLIC UTILITIES COMMISSION
## OF GUAM



Suite 207, GCIC Building
Post Office Box 862
Hagatna, Guam 96932
Telephone: (671) 472-1907
Fax: (671) 472-1917
Email: info@guampuc.com

Lourdes R. Palomo
Administrator



October 27, 2021

Graham Botha
Legal Counsel
Guam Power Authority

Dear Graham:

Recently GPA placed into effect its "NET METERING PROGRAM INTERCONNECTION POLICY, No. AP-072. This policy requires new metering customers to have battery storage systems. I have become aware of various complaints about the policy, from Scott Hagen, Jeff Voacolo, and Senator Clint Regel. Among other issues, they complain that the policy was placed into effect without any review or approval by the Guam Public Utilities Commission.

Public Law 27-132 requires that the PUC promulgate rules and regulations for the implementation of the net metering program. Public Law 29-62 states that the rate structure for the net metering program is subject to the approval of the PUC.

In its Order dated February 27, 2009, the PUC reviewed and approved the Standard Interconnection agreement for Net Metering Facilities and the Net Metering Program Interconnection Policy. See attachment hereto. The PUC also required certain changes in the Net Metering Interconnection Policy.

The original NET METERING PROGRAM INTERCONNECTION POLICY was reviewed and approved by the PUC before it became effective. The procedure previously followed regarding Net Metering Interconnection Policies suggests that the

current policy, AP-072, should be reviewed and approved by the PUC before it becomes effective.

Furthermore, in GPA Docket 20-09, the PUC did not approve GPA's request to require that new NM customers either be required to install an Energy Storage System on new solar installations or to pay an energy storage rate. See PUC Order, GPA Docket 20-09, dated April 29, 2021.

What I propose is that GPA and the PUC agree that the effectiveness of the Net Metering Program Interconnection Policy, AP-072, be suspended pending review by the PUC in a docket to be established. The PUC would then have a full opportunity to consider and research all relevant aspects of this matter. The new policy does represent a significant departure from the prior policy. It could have an impact on the business of the solar industry, and the industry should also have an opportunity to voice its concerns.

I would appreciate it if you could let me know by Friday noon (October 29, 2021) if GPA will agree to a suspension of the effectiveness of the new policy pending a final determination by PUC in the docket. Thank you, and please let me know if you have any questions in this regard.

Sincerely,

Frederick J Horecky

Frederick J. Horecky
Chief Administrative Law Judge

| GUAM POWER AUTHORITY<br>Authority Policy | No.: AP-072 | Issued: 08/04/2021 |
|---|---|---|
| | Prepared By:<br>V.J. SABLAN, P.E. Engineering Supervisor | |
| | Reviewed By:<br>J. G. ACOSTA, P.E. Engineering Manager | |
| Title: NET METERING PROGRAM<br>INTERCONNECTION POLICY | Concurred By:<br>JOHN J. CRUZ, P.E. AGM/ETS | |
| | Approved By:<br>J.M. BENAVENTE, P.E. General Manager | |
| Effective Date: 9/15/2021 Supersedes No. AP-072 Approved On 6/04/2020 | | Page 1 of 10 |

## 1.0 PURPOSE

The purpose of this document is to establish criteria and requirements for the safe and reliable operation of qualifying interconnected customer-owned generating facilities, as part of the Guam Power Authority's Net Metering Program in accordance with *Article 5, Chapter 8, Title 12 of the Guam Code Annotated.* GPA reserves the right to modify the net metering program requirements based on additional analysis and studies.

## 2.0 SCOPE

2.1 Customers are allowed to interconnect customer-owned generating facilities provided such customer-owned facilities are in compliance with this policy and do not exceed twenty-five (25) kW for GPA residential class customers and one-hundred (100) kW for GPA non-residential class customers.

2.2 The interconnected generating facility's primary purpose shall be to generate energy to serve all or a part of an individual customer's load. The generating facility shall be located on the customer's single contiguous property and shall not serve loads outside of the customer's single contiguous property.

2.3 A Net Metering Customer must comply with this policy, execute a "Standard Interconnection Agreement for Net Metering Facilities" with GPA, obtain all required Department of Public Works Permits, obtain GPA Engineering approval, and submit a GPA Inspection Report signed by an authorized Department of Public Works (DPW) Inspector before Parallel Operation of a Generating Facility with GPA's Distribution System.

2.4 The specifications and requirements listed herein are intended to mitigate possible adverse impacts caused by the Customer Facility on GPA equipment and personnel and on other GPA customers. This policy is not intended to address protection of the Customer Facility itself or its internal load. The Net Metering Customer is responsible for complying with the requirements of all applicable standards, codes, statutes and authorities to protect itself and its loads.

## 3.0 DEFINITIONS

3.1 **Net Metering:** Measuring the difference between the electricity supplied by a utility and the electricity generated by a qualifying customer-generator, which is fed back to the utility over the applicable billing period.

3.2 **Qualifying Capacity:** A qualifying customer generator is limited to the following, provided the rated capacity of the renewable generator does not exceed the customer-generator service entrance capacity, and

A. does not exceed twenty-five (25) kW for GPA customers under Rate Schedule "R"; and

B. does not exceed one-hundred (100) kW for non-residential class GPA customers.

3.3 **Application:** The notice provided by the Customer to GPA, which initiates the interconnection process.

3.4 **GPA Inspection Report:** Form provided by GPA and completed by the authorized Department of Public Works (DPW) Electrical Inspector having jurisdiction over the installation, indicating acceptance of construction.

3.5 **Net Metering Customer (Customer):** The person who owns and/or operates the customer generating facility interconnected to the GPA distribution system via a GPA meter.

3.6 **Qualifying Customer Generator:** A non-GPA owned equipment for producing electricity that uses fuel cells, microturbines, wind, biomass, hydroelectric, solar energy or a hybrid system consisting of these facilities, as its primary source of fuel.

3.7 **GPA Distribution System:** All GPA power facilities rated 15 kV and below by which GPA provides power service to customers.

3.8 **Net Metering/Customer Facility:** A qualifying customer generator located on the Customer's premises along with all facilities ancillary and appurtenant thereto, including interconnection equipment, which the Customer requests to interconnect to the GPA Distribution System.

3.9 **Island; Islanding:** A condition on GPA's Distribution System in which one or more Customer Generating Facilities deliver power to customers using a portion of GPA's Distribution System that is electrically isolated from the remainder of GPA's Distribution System.

3.10 **In-Service Date:** The date on which the Customer Facility is complete, inspection approval is received from DPW and the facility is ready for service, even if the facility is not placed in service on or by that date.

3.11 **Standard Interconnection Agreement for Net Metering Facilities:** An agreement for interconnection service, between the Net Metering Customer and GPA. The agreement also includes any amendments or supplements thereto entered into by the Net Metering Customer and GPA.

3.12 **Point of Common Coupling (PCC):** The point where the Net Metering Customer's local electric power system connects to the GPA distribution system. For overhead systems, the PCC is the weather head. For underground or hybrid installations, the PCC is the nearest GPA handhole or pad mounted transformer.

3.13 **Utility:** Guam Power Authority (GPA).

#3.14 **New System:** A New System includes any system that is: 1) a first-time installation; or 2) a legacy system that has been modified including but not limited to a) additional solar PV capacity, b) addition of batteries, and/or c) change of inverters.

#3.15 **Multi-Mode Inverter:** A multi-mode inverter is an inverter which operates in more than one mode; that is, it operates from the grid when available and off-grid mode when the grid is disconnected.

## 4.0 APPLICABLE CODES AND STANDARDS

The following codes and standards shall form a part of this policy, including the latest revisions with respect to material, design and tests.

4.1 IEEE 1547-2018 Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces

#4.2 IEEE Standard 1547.1- 2020 Conformance Test Procedures for Equipment Interconnecting Distributed Energy Resources with Electric Power Systems and Associated Interfaces

4.3 UL Standard 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems - Equipment shall be UL listed.

#4.4 UL Standard 1741 Supplement A (SA)

4.5 IEEE Standard 929-2000, IEEE Recommended Practice for Interface of Photovoltaic (PV) Systems.

4.6 ANSI Standard C37.90, IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus.

4.7 ANSI C84.1-2016 American National Standard for Electric Power Systems and Equipment—Voltage Ratings (60 Hz)

4.8 Equipment covered by this specification shall conform to all applicable industry standards including the 2020 National Electric Code (NEC), National Electric Safety Code (NESC), the Institute of Electrical and Electronics Engineers (IEEE), American National Standards Institute (ANSI), Underwriters Laboratories (UL) standards, ASTM, and ICEA.

4.9 All safety and operating procedures for joint use equipment shall be in compliance with the Occupational Safety and Health Administration (OSHA) Standard 29, CFR 1910.269 and equipment manufacturer's safety and operating manuals.

4.10 IEEE Standard 519-2014 IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power Systems

*4.11 Guam Power Authority System Improvement Plan for Renewables - Final Report June 6, 2018 Prepared by Electric Power Systems Consulting Engineers – Redacted Version.

4.12 Renewable Energy Interconnection Strategy – Final Report September 29, 2015 Prepared by TG Engineers, PC.

4.13 All local and federal building codes.

#4.14 California Rule 21

#4.15 Hawaiian Electric Rule 14H

#4.16 IEEE Standard 2030.5-2018 for Smart Energy Profile Application Protocol

#4.17 IEEE Standard 1815-2012 for Electric Power Systems Communications-Distributed Network Protocol (DNP3)

#4.18 NFPA 70: National Electrical Code 2020

## 5.0 GENERAL REQUIREMENTS

5.1 Any GPA Customer wishing to install a qualifying customer facility under this net metering program must first make application at any GPA Customer Services Office during normal business hours.

*5.2 Any Net Metering Facility desiring to interconnect with the GPA Distribution System or any modifications to an existing interconnection must meet all requirements of this interconnection policy in its most current approved version at

the time of interconnection or modification. GPA reserves the right to require the customer, at the customer's expense, to provide corrective action or additions to existing electrical facilities in the event that GPA or other Government Regulations are modified.

5.3 Opt-out customers are ineligible to participate in the net-metering program in accordance with the GPA Smart Meter opt Out Program Application Agreement.

5.4 The specifications and requirements listed herein shall apply generally to the Qualifying Customer Generator throughout the period encompassing the Net Metering Customer's installation, testing, commissioning, operation, maintenance, decommissioning and removal of said equipment. GPA may verify compliance at any time.

5.5 The Customer shall submit the site and electrical plans (minimum size 11" x 17") to GPA Engineering for review and approval.

5.6 All interconnection equipment must be approved by GPA prior to being connected to the GPA Distribution System and before parallel operation is allowed. Accordingly, the Customer shall submit equipment data sheets, electrical plans, a site plan, a completed Generator Qualifications sheet, and other technical information as may be requested by GPA Engineering for review and approval.

5.7 The Customer shall be responsible to obtain all required construction and operating permits for the installation of equipment on his property. The net-metering facility shall be approved and placed in-service only after all required documentation, permits, and Inspection Report have been received.

*5.8 GPA shall install, own, and maintain kilowatt-hour smart meters. The method of accounting for the electricity under net metering is with a single, bi-directional smart meter capable of measuring current and energy flow in two directions. A separate metering provision shall be provided by the customer to directly monitor the output of the grid tie DC/AC inverter. GPA will provide this meter also. The customer shall be responsible for providing the meter socket, conductors, and appurtenances in accordance with GPA Service Rules and Regulations.

5.9 Common labeling approved by GPA and in accordance with NEC requirements must be posted on the meter base, disconnects, and other pertinent equipment stating that generation is operating at or is located on the premises. Labeling shall include a sign, 4" wide by 2" tall, and black letters on a red background adjacent to or on the meter enclosure as directed by GPA Engineering stating that the facility is a "NET METERING CUSTOMER."

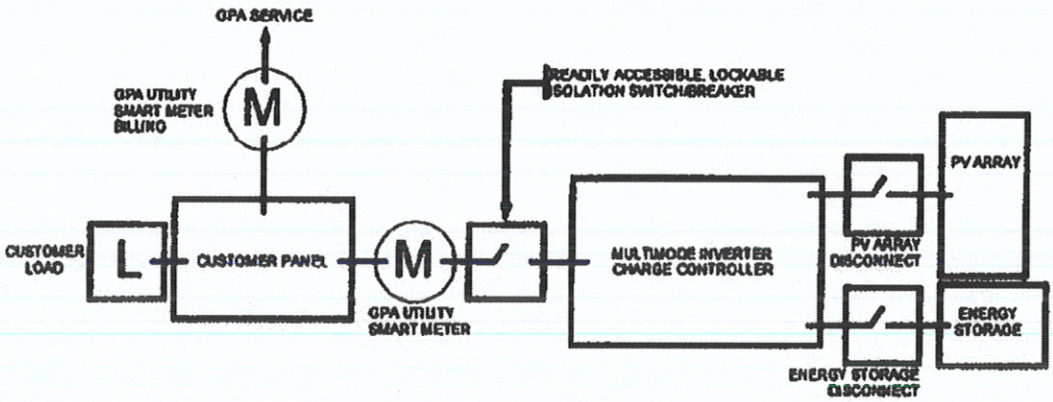
*5.10 At its discretion, GPA will reprogram or replace the smart meter(s), and provide inspections and approvals of the net metering facility.

*5.11 GPA will interconnect the facility at the Point of Common Coupling (PCC) after an authorized DPW Electrical Inspector signs the GPA Inspection Report indicating acceptance of construction on the customer premises. GPA final acceptance into the Net Metering Program is dependent on receiving the approved Inspection Report.

5.12 GPA's representative(s) shall have full and free access to the customer's premises at all reasonable times for the purposes of reading meters, inspections and repairs, installations or removal of the Authority's property, or for any other purpose incident to providing service.

5.13 All GPA costs including labor, equipment, and materials associated with interconnecting a net metering customer to the GPA Distribution system shall be borne by the customer. This includes costs for construction or upgrades of GPA's system as required to accommodate the Customer Facility. Additional charges incurred by GPA shall be determined by GPA and paid by the customer.

## 6.0 INTERCONNECTION REQUIREMENTS




TYPICAL ONE-LINE DIAGRAM

*6.1 Inverter

The Customer shall connect the load and generating equipment to the GPA source via a grid tie DC/AC or multi-mode inverter in accordance with applicable codes as illustrated in the Typical One-Line Diagram.

#6.2 Inverter Certification Requirements

The Customer Inverter must comply with IEEE 1547-2018, IEEE Standard 1547.1-2020, UL Standard 1741, and UL Standard 1741 Supplement A (SA). The Customer Inverter must have been tested and certified under the new UL testing protocol

known as UL 1741 Supplement A (SA).

#6.3 Inverter Application-Level Protocol Requirements

The Customer Inverter must support the application-level protocol IEEE 2030.5 (ZigBee SEP 2.0 Smart Energy Profile), but other application-level protocols may be used by mutual agreement of the parties including IEEE 1815/DNP3 for SCADA real-time monitoring and control. The Customer Inverter must have IEEE 2030.5 Communication Certification.

#6.4 Inverter Information Requirements

There are three types of information Customer Systems are required to send GPA:

1) Administrative Data – Customer system ID, system ratings, available functions
2) Monitored Data – Real-time measurements, state of readiness
3) Error conditions – Indication of any failure to comply with requirements within the agreed timeframe, alarms noting shutdown or failure to restart with the associated reason.

#6.5 Inverter Function Requirements

The Customer inverter must be certified to provide the inverter function listed in the Table below as a prior condition to interconnection to GPA's grid at no cost to GPA. GPA can require the Customer to configure these functions at anytime during the Customer's System is interconnected to GPA's Grid.

| Inverter Function | Compliance Date |
|---|---|
| Monitor Key DER Data | Effective Date of this Authority Policy |
| Low and High Voltage Ride Through | Effective Date of this Authority Policy |
| Low and High Frequency Ride Through | Effective Date of this Authority Policy |
| DER Disconnect/Reconnect | Effective Date of this Authority Policy |
| Limit Maximum Active Power | Effective Date of this Authority Policy |
| Soft Start Ramp Rate / Normal Ramp Rate | Effective Date of this Authority Policy |
| Frequency Watt | Effective Date of this Authority Policy |
| Volt Watt | Effective Date of this Authority Policy |
| Dynamic Volt/VAR | Effective Date of this Authority Policy |
| Anti-Islanding Protection | Effective Date of this Authority Policy |
| Scheduling Power Values and Modes | Effective Date of this Authority Policy |
| Non-Export | Effective Date of this Authority Policy |
| Set Active Power | TBD ** |
| Dynamic Reactive Support | TBD ** |

**12 months after approval of a nationally recognized standard

6.6 Non-Inverter Based Interconnection Requirements

The Application for such Interconnection requires more detailed GPA analysis, review, testing, and approval of the equipment proposed to be installed to ensure compliance with applicable standards. Customers proposing such interconnection may also be required to submit a power factor mitigation plan for GPA review and approval.

6.7 Isolation Switch

The Customer shall furnish and install on the Customer's side of the meter a UL approved safety disconnect switch/breaker which shall be capable of fully isolating the Customer's generator from the GPA electric system. The disconnect switch shall be located adjacent to GPA's meter or at a location approved by the GPA inspector and shall be provided with sealing provisions. The disconnect switch shall be accessible to GPA personnel at all times.

6.8 GPA shall have the right without compensation to disconnect the Customer Facility from GPA's system:

6.8.1 To maintain safe electrical operating conditions; or

6.8.2 In the event the Customer Facility does not meet required standards; or

*6.8.3 If at any time the Facility or aggregate of customer distributed generation systems facilities adversely affects GPA's operation of its electrical system or the quality of GPA's service to GPA customers; or

#6.8.4 In the event of excess renewable energy generation and light load conditions.

6.9 Voltage and Phasing

The nominal voltage and phase configuration of the Customer's generation must be compatible with GPA's system at the Point of Common Coupling (PCC).

6.10 In the event of a utility power outage, the net metering facility must be able to automatically disconnect from utility power to ensure power is not fed back into the GPA power grid. This is extremely important during restoration/ repair situations where power fed into the GPA grid poses a safety hazard to distribution crews working on the system and the community who may come in contact with downed

lines and equipment.

6.11 Protection Requirements

6.11.1 The protective functions and requirements of this policy are specifically designed to protect GPA's Distribution System and not necessarily the customer facility or loads connected to the customer facility. The customer shall be solely responsible for providing adequate protection for its facility.

6.11.2 The customer's protective devices shall not adversely impact the operation of other protective devices utilized on GPA's Distribution System.

6.11.3 A customer facility operating in parallel with GPA's Distribution System shall be equipped with the following protective features:

a. Over and under voltage and frequency trip functions with the following ride-through settings; and

| Description | Setpoints | | |
|---|---|---|---|
| | Voltage (PU) | Frequency (HZ) | Trip Time (Seconds) |
| Voltage | | | |
| Under | V < 0.88 | | 2 |
| Over | > 1.20 | | 0.16 |
| | 1.10 < V < 1.20 | | 2 |
| Frequency | | | |
| Under | | F < 57.0 | 0.16 |
| Over | | F > 63.0 | 0.16 |

**Ride Through Settings**

b. Voltage and frequency sensing and time-delay functions - Preventing the customer generator from energizing a de-energized GPA Distribution System and preventing the generator from reconnecting unless GPA's service voltage and frequency is within the range specified by ANSI C84.1-1995 Table 1 Range B (Voltage Range of 106 V to 127 V on a 120 V basis, inclusive, and a frequency range of 59.3 Hz to 60.5 Hz, inclusive, and is stable for at least 60 seconds); and
c. A function to prevent the customer facility from contributing to the formation of an unintended Island, and ceasing to energize the GPA Distribution System within two (2) seconds of the formation of an unintended Island; and
d. A function to automatically disconnect the customer facility from the

GPA Distribution System for sustained faults on GPA's Distribution System.

6.12 Interference

6.12.1 The Customer shall not operate a generating facility in parallel with GPA that superimposes a voltage or current upon GPA's Distribution System interfering with GPA operations, with service to GPA customers, or with communication facilities.

6.12.2 To eliminate undesirable interference, each Generating Facility shall meet the following criteria:

a. Voltage Regulation. The Generating Facility shall not actively regulate the voltage at the PCC while in parallel with GPA's Distribution System.
b. The Generating Facility shall not cause the service voltage at other customers to deviate outside the requirements of ANSI C84.1-1995, Range A (IEEE 1547-4.1.1).

6.12.3 If such interference occurs, the Customer must take corrective action at its own expense after being given notice and reasonable time to do so by GPA. If the Customer does not take corrective action in the time provided by GPA, or continues to operate the facility causing interference without restriction or limit, GPA may, without liability, disconnect the Customer Facility from GPA's Distribution System.

## #7.0 ENERGY STORAGE AND METERING

7.1 GPA requires new net metering systems as defined in 3.14 for GPA to install a GPA smart meter between the AC output of the inverter and the customer electric service panel. The placement of this meter will depend on the specifics of the NEM system configuration and interconnection. The Customer shall be responsible for providing and installing all required equipment necessary to allow installation of a GPA smart meter between the renewable generator and the customer electric service panel.

7.2 The net metering system inverter must be able to determine any significant drops in production at a rate of greater than ten percent within one minute of PV output and immediately command the energy storage system to output power to sustain the original PV power output for at least 15 minutes or until the solar output recovers whichever occurs first.

7.3 The battery system capacity (kW) should be equal to or greater than the net metering system maximum output (kW) at the AC output of the inverter.

7.4 The minimum energy capacity (kWh) should be equal to the battery system output capacity (kW) multiplied by 0.5 hours. For a 5-kW AC net metering system, the battery capacity should be capable of supplying 5 kW and 2.5 kWh.

7.5 Minimum battery system capacity and minimum battery energy capacity shall be computed using the methodology proposed by:

J. Marcos, O. Storkël, L. Marroyo, M. Garcia, E. Lorenzo. 2014. "Storage requirements for PV power ramp-rate control", Solar Energy, Volume 99, Pages 28-35, ISSN 0038-092X, https://doi.org/10.1016/j.solener.2013.10.037.

## *8.0 INTERCONNECTION STUDY

Upon receipt of an application for a Net Metering facility, GPA shall inform the customer if an interconnection study is required to determine whether or not the installation of the Customer Facility will have a significant impact on GPA's Distribution System, which may require additional equipment for the appropriate sizing of an Energy Storage System (ESS) or Battery Bank system for compensating the variability of PV power. Interconnection studies may include, but are not limited to, service studies, coordination studies and utility system impact studies.

8.1 GPA will advise the customer of the estimated additional cost of performing such study.

8.2 Upon payment by the customer of the estimated study costs, GPA will proceed with the interconnection study.

8.3 The Customer will not be allowed to interconnect to the GPA Distribution System until the findings of the study indicate interconnection will not be detrimental to the GPA system or mitigation measures are undertaken.

## 9.0 BILLING

9.1 In accordance with the Interim Net Metering Rider as adopted by the PUC under Docket 08-10, net metering customers shall be billed on a monthly basis energy charges applicable under the currently effective standard rate schedule and any appropriate rider schedules including the Levelized Energy Adjustment Clause and other clauses as well as surcharges. No excess energy credits shall reduce any fixed monthly customer charges, if any.

9.2 Monthly charges for energy to serve the customer's net or total load shall be determined according to GPA's standard service tariff under which the customer would otherwise be served, absent the customer electric generating facility. Energy charges under the customer's standard tariff shall be applied to the customer's net energy for the billing period to the extent that the net energy exceeds zero.

9.3 If the customer's net energy is zero or negative during the billing period, the customer shall pay only the non-energy charge portions of the standard tariff bill. If the customer's net energy is negative during a billing period, the customer shall be credited in the next billing period for the kWh difference. When the customer elects no longer to take service under this Net Metering Program, any unused credit shall revert to GPA. Excess electricity credits are not transferable between customers or locations.

9.4 In no event shall the excess credit from a single month be carried forward beyond 12 months as a credit against the current monthly bill. At the end of each calendar year, or in the event of termination of service, any excess kWh credits, if any, will be granted by the customer to GPA without compensation to the customer, effective January 1, 2021 per GPA Docket 20-06 to the PUC.

9.5 These methods are subject to modifications in order to comply with the latest rates established by the PUC, future GPA technical analysis, and new policies by the Consolidated Commission on Utilities (CCU).

## #10.0 FORBIDDEN PRACTICES USED TO INCREASE THE SIZE OF NET METERING SYSTEMS

10.1 GPA has noted that several customers have split their customer accounts at one premise into several new GPA accounts for the purpose of increasing the effective size of their net metering systems beyond the qualifying capacity. This practice is now forbidden.

10.2 If after initial installation, net metering customers are found to have increased their net metering systems beyond the qualifying capacity, GPA has the right to disconnect that customer from the system until the net metering system is brought back into conformance or the entire net metering system is isolated from the grid.

10.3 Any customer renewable energy generation systems above the qualifying capacity are to be completely isolated from the grid. Customers meeting the conditions listed under GPA Rate Schedule M will be placed on GPA Rate Schedule M.


**BEFORE THE GUAM PUBLIC UTILITIES COMMISSION**

| | | |
|---|---|---|
| **IN THE MATTER OF:** | ) | **GPA DOCKET 20-09** |
| | ) | |
| **GUAM POWER AUTHORITY** | ) | |
| **PETITION FOR THE CREATION OF AN** | ) | **ORDER** |
| **ENERGY STORAGE RATE SCHEDULE** | ) | |

## INTRODUCTION

This matter comes before the Guam Public Utilities Commission ("PUC") upon the Guam Power Authority ("GPA") Petition for the Creation of a new Energy Storage Rate Schedule.[1]

GPA seeks approval to create a new Energy Storage Rate schedule for Net Metering (NM) customers. Under GPA's petition, new NM customers would have the option to either install frequency control capability or an Energy Storage System (ESS) on any new solar photovoltaic ("PV") or wind turbine installation or opt to pay the Energy Storage Rate. GPA proposes the initial Energy Storage Rate to be set at $2.43 per kW per month. [2]

## BACKGROUND

On December 29, 2008, the PUC approved and adopted the current Interim Rider for Customer-Generator Energy Facilities, developed by both GPA and the Georgetown Consulting Group, Inc.[3] On February 27, 2009, the PUC approved and adopted GPA's Standard Interconnection Agreement for Net Metering Facilities, as well as GPA's Net Metering Program Interconnection Policy.[4] On December 10, 2015, the PUC approved and adopted a language change to the Net Metering Rider ("NM Rider") under "MONTHLY BILLING" to allow unused kWh credits to be carried forward each month until the end of a twelve (12) month period where the account would be "trued-up" and the customer could elect to have the credits carry forward or have GPA purchase the remaining credits at a one-to-one retail rate; if no election was made, GPA must credit the customer's account with any and all unused kWh credits.[5]

---

[1] GPA Petition for the Creation of a new Energy Storage Rate Schedule, GPA Docket 20-09, filed March 10, 2020.
[2] Id. at p. 5.
[3] PUC Decision and Order, GPA Docket 08-10, p. 2 (Dec. 29, 2008).
[4] PUC Decision and Order, GPA Docket 08-10, p. 1 (Feb. 27, 2009).
[5] PUC Decision and Order, GPA Docket 08-10, p. 7 (Dec. 10, 2015).



EXHIBIT "6"

In the December 29, 2008 Order, the PUC stated that "The NM Rider may be amended or modified in the future by GPA, with the approval of the Guam Public Utilities Commission (PUC)."[6] The Order also stated that "The NM Rider is available to all customers without limitation as to the aggregate capacity of Customer-Generator installations on the GPA System. However, at the time the number of Customer-Generators exceeds one-thousand (1000) customers this issue will be reviewed by the PUC and a determination made as to the continued offering of the NM Rider for new 'net metering' customers."[7]

GPA reached 1,000 NM customers in June 2016.[8] As of August 2018, GPA's NM customer total reached 1,764, which GPA calculated would result in an approximate annual subsidy of $3,456,653.00.[9]

On October 4, 2018, GPA filed a petition for Modification of Current NM Rider. GPA recommended a Value of Solar ("VOS") rate replace the current NM Rider[10]. GPA proposed there be a five-year phase in period, where the NM subsidy would be decreased until the new VOS rates would be in place. Per GPA, VOS rates would be established through the following process: "1) Reassess VOS rates each LEAC for Avoided Energy Value; 2) Reassess VOS rates for other VOS components as applies on a) an annual basis; b) periodic basis over a set number of years; and 3) whenever there are material changes to GPA's generation mix."[11]

After receiving GPA's petition on October 4, 2018, on behalf of the PUC, the Administrative Law Judge ("ALJ") of the PUC retained Daymark Energy Advisors ("Daymark") to conduct an independent review of GPA's application, review NM tariffs across the United States, and provide a report of findings and recommendations regarding whether GPA's proposed NM credit change should be approved. On May 30, 2019, the PUC issued the following ordering provisions[12]:

1. GPA's request to modify the current Net Metering Rider from providing retail rate for net metering credits to avoided cost for net metering credits, with a five-year phase-in approach, as set forth in its Petition, is denied.

2. The NM Rider cap is hereby amended to be changed from a customer cap of 1000

---

[6] PUC Order, GPA Docket 08-10, dated December 29, 2008, at Exhibit A, Paragraph 1.
[7] PUC Order, GPA Docket 08-10, dated December 29, 2008, at Exhibit A, Paragraph 3.
[8] Guam Consolidated Commission on Utilities Resolution No. 2018-17, Authorizing Management of the Guam Power Authority to File Net Metering Program Recommendations Addressing the Guam Public Utilities Commission Order Docket No. 08-10 (December 29, 2008), Exhibit A, Paragraph 3, adopted August 28, 2018, at p. 1.
[9] GPA Petition for Modification of Current Net Metering Rider, GPA Docket 19-04, filed October 4, 2018, at p. 1.
[10] Id.
[11] Id.
[12] PUC Order, GPA Docket 19-04, dated May 30, 2019.

net metering customers to an aggregate kW cap set at 10% of GPA's August 1, 2017 system peak demand of 261 MW.

3. GPA is ordered to complete the planned distribution system impact study and include in that study a balanced locational and full benefit-cost analysis of how distributed generation impacts the distribution system.

4. GPA is ordered to include a rebate program for battery storage in the DSM program and encourage solar providers to include storage with the solar systems and explain the benefits to customers.

5. Once the aggregate kW cap reaches 10% of GPA's August 1, 2017 system peak demand and GPA has conducted the distribution system impact study ordered above, the PUC will consider changes to the Interim NM Rider.

6. If GPA is concerned about lost revenue, it should provide evidence during its next filed base rate case.

On March 10, 2020, GPA filed a new petition with the PUC for the creation of a new energy storage rate schedule[13]. On behalf of the PUC, the ALJ of the PUC retained Daymark to conduct an independent review of GPA's application.

## DETERMINATIONS

The PUC Order in GPA Docket No. 19-04 required GPA to do the following:

- conduct a distribution system impact study, including a full benefit-cost analysis that analyzes the impact of distributed generation
- conduct an independent study determining the cost of grid services used by NM customers
- implement a battery storage rebate program[14]

As identified in Daymark's Review of Guam Power Authority Request for Approval of an Energy Storage Rate (the "Daymark Report"), GPA has hired Landis and Gyr to undertake a distribution system impact study and hired Utility Financial Service LLC to investigate rates associated with NM, including addressing rates that consider the locational value of solar and technically and economically feasible non-wires alternatives to solve distribution problems identified in the distribution study.[15] However, neither study has been completed to-date nor has GPA performed a full benefit-cost analysis. Finally, GPA did not implement a battery storage rebate

[13] GPA Petition for the Creation of a new Energy Storage Rate Schedule, GPA Docket 20-09, filed March 10, 2020
[14] PUC Order, GPA Docket 19-04, dated May 30, 2019
[15] Daymark Energy Advisors, Review of Guam Power Authority Request for Approval of an Energy Storage Rate, April 21, 2021, at p. 5.

program. The Daymark Report noted that GPA is not out of compliance in regard to the battery storage rebate program since the PUC Order in Docket No. 20-05 directed GPA to focus on other programs.[16]

In addition, the Daymark Report concluded that GPA did not properly determine the extent to which NM is causing grid issues and with this lack of support, it is difficult to accurately develop a charge designed to recover costs related to system issues caused by NM. Daymark noted: "Even if causation were established, the lack of a full benefit-cost analysis of NM does not allow NM benefits to offset such costs in a rate calculation"[17]. The Daymark Report also argues that system upgrade needs should be funded by all customers unless costs can clearly be assigned to the specific cost causers.[18]

GPA's Petition proposes that new NM customers either install frequency control capability, an ESS, or pay the Energy Storage Rate. However, as described in the Daymark Report, GPA remains vague and unclear about the specific requirements of installing frequency control capability or an ESS. In RFI 1-B, GPA states: "GPA will add or modify its requirements when it completes these studies", displaying a level of uncertainty that we find creates too much uncertainty for new NM customers. This uncertainty leaves new NM customers with only the choice to pay the Energy Storage Rate.[19]

The Daymark Report describes how in calculating the initial proposed Energy Storage Rate, GPA makes several unsupported assumptions. First, GPA arbitrarily assigns half of the revenue requirement for installing a battery system to NM customers without proving to what degree NM customers are causing grid issues. Then, GPA bases the billing determinant on current NM customers, not future NM customers. The Daymark Report suggest that if the PUC determines that an Energy Storage Rate for new NM customers is justified, GPA should be required to calculate a rate designed to recover costs directly related to those new NM customers. In addition, GPA should be required to specifically identify to what extent NM has caused system issues as compared to other causes.[20]

The ALJ conducted his own independent review of GPA's Petition, responses to requests for information, the Daymark Report, and public testimony. The ALJ filed his ALJ Report in this Docket on April 19, 2021. The ALJ concurs with the findings and recommendations of the Daymark Report. The ALJ report also notes that seven

---

[16] Id.
[17] Daymark Energy Advisors, Review of Guam Power Authority Request for Approval of an Energy Storage Rate, April 21, 2021, at p. 6
[18] Id.
[19] Id. at p. 7.
[20] Id. at p. 8.

witnesses, including members of the public, NEM customers, and solar industry representatives, testified against the proposal. The PUC also adopts the findings and conclusions of the ALJ Report.

## ORDERING PROVISIONS

After review of the record herein, GPA's Petition for creation of a new Energy Storage Rate Schedule, the ALJ Report, and the Daymark Report, for good cause shown, on motion duly made, seconded, and carried by the undersigned Commissioners, the Guam Public Utilities Commission **HEREBY ORDERS** that:

1. GPA's petition for the Creation of a new Energy Storage Rate Schedule is denied

2. Before petitioning for an alteration to the current NM compensation methodology, GPA must complete the studies as ordered in Docket 19-04:
    a. A planned distribution system impact study and include in that study a balanced locational and full benefit-cost analysis of how distributed generation impacts the distribution system.
    b. An independent study determining the cost of grid and other services used by NM customers, which identifies in detail the value of those services to the NM customers.

3. If in the future, GPA proposes a charge to NM customers related to NM customers' impact on the GPA electric system's reliability, GPA must establish clear cost causation of NM customers impacting grid reliability.

**[SIGNATURES TO FOLLOW ON NEXT PAGE]**

Dated this 29th day of April 2021.

Jeffrey C. Johnson
Chairman

Rowena F. Perez-Camacho
Commissioner

Joseph M. McDonald
Commissioner

Michael A. Pangelinan
Commissioner

Peter Montinola
Commissioner

Doris Flores Brooks
Commissioner

Pedro S.N. Guerrero
Commissioner

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION


IN THE MATTER OF:
NET METERING (pursuant to P.L. 27-132 and 29-62)

Docket No. 08-10

ORDER

This matter previously came before the Commission on December 29, 2008. The Commission Decision and Order on that date approved the Interim Net Metering Rider for Customer-Generator Energy Facilities. In paragraph 8 of its Decision and Order, the Commission requested that GPA prepare a draft Interconnection Agreement for Net Metering Facilities and submit such agreement to the PUC for review and approval. Appended hereto as Attachments *A* and *B* are the Standard Interconnection Agreement for Net Metering Facilities and Net Metering Program Interconnection Policy submitted by GPA. On February 17, 2009, the PUC's regulatory consultant, Georgetown Consulting Group, Inc. [GCG] submitted its Report on the GPA Net Metering Interconnection Agreement. [1] Therein GCG recommended approval, with the exception of the requirement that all design and construction drawings must be signed and stamped by a licensed Professional Engineer.

After consideration and review of the Standard Interconnection Agreement for Net Metering Facilities, and the Net Metering Program Interconnection Policy, made attachments *A* and *B* hereto, the Report of GCG, and for good cause shown and on motion duly made, seconded and carried by the affirmative vote of the undersigned Commissioners, the Commission hereby ORDERS that:

1. The Standard Interconnection Agreement for Net Metering Facilities and Net Metering Program Interconnection Policy are hereby adopted and approved by the Commission, subject to the exception indicated in paragraph 2 below.

2. In accordance with the recommendation of GCG, the requirement in paragraph 2 of the Standard Interconnection Agreement for Net Metering Facilities that "all design and construction drawings must be signed and stamped by a licensed Professional Engineer" shall be deleted. In addition, the requirement in paragraph 5.5 of the Net Metering Program Interconnection Policy, that the required construction drawings must be "signed and stamped by a licensed Professional Engineer having jurisdiction", shall also be deleted.

3. GPA shall include an indemnification clause in both the Interconnection Agreement and the Policy which requires that Net Metering Customers indemnify and hold GPA harmless from any claims, causes of action, damages, or any matter concerning or relating to the Customer's Net Metering Facility, operation of such facility, the interconnection agreement, or the interconnection to GPA's system.

[1] See GPA Net Metering Interconnection Agreement – Docket 08-10, submitted by Larry Gawlick to PUC Chairman Johnson on February 17, 2009.

EXHIBIT "7"

Dated this 27th day of February, 2009.

Jeffrey C. Johnson
Chairman

Joseph M. McDonald

Rowena E. Perez

Filomena M. Cantoria

Michael A. Pangelinan

# GUAM POWER AUTHORITY

ATURIDÅT ILEKTRESEDÅT GUAHAN
P.O.BOX 2977 • AGANA, GUAM U.S.A. 96932-2977


## STANDARD INTERCONNECTION AGREEMENT FOR NET METERING FACILITIES

THIS AGREEMENT is made and entered into on this day of_____, by _____ hereinafter called the NET METERING CUSTOMER, and the Guam Power Authority, hereinafter called GPA.

THE NET METERING CUSTOMER hereby applies for interconnection of a Qualifying Customer Generator up to 25 kW in capacity to the GPA Distribution System in accordance with GPA Service Rules and Regulations, rate schedules, and the GPA Net Metering Program Interconnection Policy (AP-0 _____). This Agreement shall be supplemental to GPA's standard "Application and Agreement for Electric Service."

The Guam Power Authority hereby agrees to interconnect the Net Metering Customer at the designated service location in accordance with applicable polices and regulations pursuant to the following conditions including those conditions provided in GPA's "Application and Agreement for Electric Service:"

1. **Application Fee** The Net Metering Customer shall be assessed a non-refundable application fee of $50 as part of this Standard Interconnection Agreement.

2. **Required Documentation** In accordance with the Authority Policy, attach all required documentation. All design and construction drawings must be signed and stamped by a licensed Professional Engineer.

3. **Safe Operations and Maintenance** The Net Metering Customer shall be fully responsible to operate, maintain, and repair the Generating Facility as required to ensure that it complies at all times with the GPA Authority Policy for Net Metering.

4. **Access** The Guam Power Authority shall have access to the metering equipment of the Generating Facility at all times. GPA shall provide reasonable notice to the Customer when possible prior to using its right of access.

5. **Disconnection** GPA may disconnect the Generating Facility in accordance with the GPA Authority Policy for Net Metering

6. **Billing** In accordance with the Interim Net Metering Rider as adopted by the PUC under Docket 08-10, net metering customers shall be billed on a monthly basis energy charges applicable under the currently effective standard rate schedule and any appropriate rider schedules including the Levelized Energy Adjustment Clause and other clauses as well as surcharges. No excess energy credits shall reduce any fixed monthly customer charges.
   a. Monthly charges for energy to serve the customer's net or total load shall be determined according to GPA's standard service tariff under which the customer

would otherwise be served, absent the customer electric generating facility. Energy charges under the customer's standard tariff shall be applied to the customer's net energy for the billing period to the extent that the net energy exceeds zero.

b. If the customer's net energy is zero or negative during the billing period, the customer shall pay only the non-energy charge portions of the standard tariff bill. If the customer's net energy is negative during a billing period, the customer shall be credited in the next billing period for the kWh difference. When the customer elects no longer to take service as a Net Metering Customer, any unused credit shall revert to GPA. Excess electricity credits are not transferable between customers or locations.

c. In no event shall the excess credit from a single month be carried forward beyond 12 months as a credit against the current monthly bill. At the end of each calendar year, or in the event of termination of service, any excess kWh credits, if any, will be granted by the customer to GPA without compensation to the customer.

7. **Indemnification** GPA shall not be liable directly or indirectly for permitting or continuing to allow the attachment of a Net Metering Facility, or for the acts or omissions of the customer Generator that causes loss or injury, including death, to any third party.

8. **Insurance** The Customer is not required to provide general liability insurance coverage as part of this Agreement.

9. **Limitation of Liability** Each party's liability to the other party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either party be liable to the other party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever.

10. **Termination** The agreement to operate in parallel may be terminated under the following conditions:

a. **By the Customer** By providing at least 60 days written notice to GPA

b. **By GPA** At any time by providing written notice to Customer if the Generating Facility fails to operate for any consecutive 12 month period or the Customer fails to remedy a violation or operates the net Metering Facility in a manner that is detrimental to GPA or its customers

c. **Permanent Disconnection** In the event this Agreement is terminated, GPA shall have the right to disconnect its facilities and/or direct the Customer to disconnect its Facility.

d. **Survival Rights** This Agreement shall continue in effect after termination to the extent necessary to allow or require either Party to fulfill rights or obligations that arise under the Agreement.

11. **Assignment/Transfer of Ownership of the Facility** This Agreement shall survive the transfer of ownership of the Generating Facility to a new owner when the new owner agrees in writing to comply with the terms of this Agreement and so notifies GPA.

12. **Contract Period** The Contract Period for service under this Agreement shall be one year and thereafter shall be renewed for successive one-year periods.

13. **Certification** By signing below, customer acknowledges and agrees to abide by the terms of this Agreement. Furthermore, customer certifies that the customer facility is a Net Metering Facility and meets the requirements established by the Guam Public Utilities Commission

_____
GPA Authorized Representative
(Print/Sign)

Date: _____

_____
Applicant
(Print/Sign)

SSN: _____

Date: _____

_____
Co-Applicant
(Print/Sign)

SSN: _____

Date: _____

Home Phone: _____

Work Phone: _____

**GPA CUSTOMER SERVICES DIVISION**
**NET METERING CUSTOMER INFORMATION**

Existing Account Number: _____

Applicant's Name: _____ Co-Applicant's Name: _____

Applicant's ID No: _____ Co-Applicant's ID No: _____

Home Phone No.: _____ Work Phone No.: _____

Mailing Address: _____

Service Location: _____

Please draw a map to your premises

## GENERATOR QUALIFICATIONS

**An application is a Complete Application when it provides all required applicable information. (Additional information to evaluate a request for interconnection may be required and will be so requested from the Applicant by GPA after the application is deemed complete).**

**Energy Source**

_____ Fuel Cells _____ Microturbines _____ Wind _____ Biomass _____ Hydroelectric

_____ Solar _____ Other (Please Specify)

Interconnection Customer or Customer-Site Load: _____ kW

Typical Reactive Load _____ kVAR

Maximum Physical Export Capability: _____ kW

**Generator (or Solar Collector)**

Manufacturer, Model Name & Number: _____

_____

Version Number: _____

Nameplate Output Power Rating in kW: _____

Nameplate Output Power Rating in kVA: _____

Rated Power Factor Leading: _____ Lagging: _____

Total Number of Generators in wind farm to be interconnected (if applicable):

_____ Elevation ____ Single phase ____ Three phase

**Inverter**

Manufacturer, Model Name & Number: _____

_____

**Interconnecting Circuit Breaker**

Manufacturer: _____ Type: _____

Load Rating (Amps): _____ Interrupting Rating (Amps): _____ Trip Speed (Cycles): _____

List components of the Net Metering Facility that are currently certified:

| | Equipment Type | Certifying Entity |
|---|---|---|
| 1. | _____ | _____ |
| 2. | _____ | _____ |
| 3. | _____ | _____ |
| 4. | _____ | _____ |
| 5. | _____ | _____ |

**Applicant Certification**

**I hereby certify that, to the best of my knowledge, all the information provided under Generator Qualifications is true and correct.**

**Signature of Applicant:** _____ **Date:** _____

**Installing Electrician:** _____

**License No.:** _____

**Home Phone No.:** _____ **Work Phone No.:** _____

**Mailing Address:** _____

| | | |
|---|---|---|
| GUAM POWER AUTHORITY<br>Authority Policy | No.: AP-0 | Issued: |
| | Prepared By:<br>M.R. CAMACHO, P.E. Mgr Engineering | |
| Title: NET METERING PROGRAM<br>INTERCONNECTION POLICY | Approved By:<br>J.C. FLORES, P.E. General Mgr | |
| Effective Date: Supersedes No. | | Page 1 of |

## 1.0 PURPOSE

The purpose of this document is to establish criteria and requirements for the safe and reliable operation of interconnected customer-owned generating facilities, as part of the Guam Power Authority's Net Metering Program in accordance with Public Laws 27-132 and 29-62.

## 2.0 SCOPE

2.1 Customers are allowed to interconnect customer-owned generating facilities with a capacity not to exceed 25 kW.

2.2 The interconnected generating facility's primary purpose shall be to generate energy to serve all or a part of the customer's load.

2.3 A Net Metering Customer must comply with this policy, execute a "Standard Interconnection Agreement for Net Metering Facilities" with GPA, receive GPA Engineering approval, and submit a GPA Inspection report signed by an authorized DPW Inspector before Parallel Operation of a Generating Facility with GPA's Distribution System.

2.4 The specifications and requirements listed herein are intended to mitigate possible adverse impacts caused by the Customer Facility on GPA equipment and personnel and on other GPA customers. This policy is not intended to address protection of the Customer Facility itself or its internal load. The Net Metering Customer is responsible for complying with the requirements of all applicable standards, codes, statutes and authorities to protect itself and its loads.

## 3.0 DEFINITIONS

3.1 **Net Metering:** Measuring the difference between the electricity supplied by a utility and the electricity generated by a qualifying customer-generator, which is fed back to the utility over the applicable billing period.

3.2 **Qualifying Capacity:** A qualifying customer generator that produces no more than 25 kW of energy.

CODE [illegible] ADDED

EXHIBIT "B"

3.3 **Application:** The notice provided by the Customer to GPA, which initiates the interconnection process.

3.4 **GPA Inspection Report:** Form provided by GPA and completed by the authorized Department of Public Works (DPW) Electrical Inspector having jurisdiction over the installation, indicating acceptance of construction.

3.5 **Net Metering Customer (Customer):** The person who owns and/or operates the customer facility interconnected to the GPA distribution system.

3.6 **Qualifying Customer Generator:** A non-GPA owned equipment for producing electricity that uses fuel cells, microturbines, wind, biomass, hydroelectric, solar energy or a hybrid system consisting of these facilities, as its primary source of fuel

3.7 **GPA Distribution System:** All GPA power facilities rated 15 kV and below by which GPA provides power service to customers.

3.8 **Net Metering/Customer Facility:** A qualifying customer generator located on the Customer's premises along with all facilities ancillary and appurtenant thereto, including interconnection equipment, which the Customer requests to interconnect to the GPA Distribution System.

3.9 **Island; Islanding:** A condition on GPA's Distribution System in which one or more Customer Generating Facilities deliver power to customers using a portion of GPA's Distribution System that is electrically isolated from the remainder of GPA's Distribution System.

3.10 **In-Service Date:** The date on which the Customer Facility is complete, inspection approval is received by DPW and the facility is ready for service, even if the facility is not placed in service on or by that date.

3.11 **Standard Interconnection Agreement for Net Metering Facilities:** An agreement for interconnection service, between the Net Metering Customer and GPA. The agreement also includes any amendments or supplements thereto entered into by the Net Metering Customer and GPA.

3.12 **Point Of Common Coupling (PCC):** The point where the Net Metering Customer's local electric power system connects to the GPA distribution system. For overhead systems, the PCC is the weather head. For underground or hybrid installations, the PCC is the nearest GPA handhole or pad mounted transformer.

3.13 **Utility:** Guam Power Authority (GPA).

## 4.0 APPLICABLE CODES AND STANDARDS

The following codes and standards shall form a part of this policy, including the latest revisions with respect to material, design and tests.

4.1 IEEE Std 1547-2003 Standard for Interconnecting Distributed Resources with Electric Power Systems

4.2 UL Standard 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems - Equipment must be UL listed

4.3 IEEE Standard 929-2000, IEEE Recommended Practice for Interface of Photovoltaic (PV) Systems

4.4 ANSI Standard C37.90, IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus

4.5 ANSI C84.1-1995 for Electric Power Systems and Equipment—Voltage Ratings (60 Hertz)

4.6 Equipment covered by this specification shall conform to all applicable industry standards including the National Electric Code (NEC), National Electric Safety Code (NESC), the Institute of Electrical and Electronics Engineers (IEEE), American National Standards Institute (ANSI), Underwriters Laboratories (UL) standards, ASTM, and ICEA

4.7 All safety and operating procedures for joint use equipment shall be in compliance with the Occupational Safety and Health Administration (OSHA) Standard 29, CFR 1910.269, the NEC, Washington Administrative Code (WAC) rules, the Washington Industrial Safety and Health Administration (WISHA) Standard, and equipment manufacturer's safety and operating manuals.

4.8 Power Quality. Installations shall be in compliance with all applicable standards including IEEE Standard 519-1992 Harmonic Limits.

4.9 All local and federal building codes

## 5.0 GENERAL REQUIREMENTS

5.1 Any GPA Customer wishing to install a qualifying customer facility under this net metering program must first make application at any GPA Customer Services Office during normal business hours.

5.2 Any Net Metering Facility desiring to interconnect with the GPA Distribution System or modify an existing interconnection must meet all general requirements, in their most current approved version at the time of interconnection. GPA

reserves the right to require the customer, at the customer's expense, to provide corrective action or additions to existing electrical facilities in the event that GPA or other Government Regulations are modified.

5.3 The specifications and requirements listed herein shall apply generally to the Qualifying Customer Generator throughout the period encompassing the Net Metering Customer's installation, testing, commissioning, operation, maintenance, decommissioning and removal of said equipment. GPA may verify compliance at any time.

5.4 The Customer shall conform to all applicable codes and standards as provided in Section 4.0 for safe and reliable operation.

5.5 The Customer shall submit construction drawings (minimum size 18" x 24"; maximum size of 30" x 42") to GPA Engineering for review and approval including a Site Plan, One Line Diagram, Electrical Load Calculations and other details as necessary signed and stamped by a licensed Professional Engineer having jurisdiction.

5.6 All interconnection equipment must be approved by GPA prior to being connected to the GPA Distribution System and before parallel operation is allowed. Consequently, the Customer shall submit equipment data sheets and other technical information to GPA for review and approval.

5.7 The Customer shall be responsible to obtain all required construction and operating permits for the installation of equipment on his property.

5.8 GPA shall install, own, and maintain a kilowatt-hour meter. The method of accounting for the electricity under net metering is with a single, reversible meter. The customer shall be responsible for providing the meter socket, conductors, and appurtenances in accordance with GPA Service Rules and Regulations.

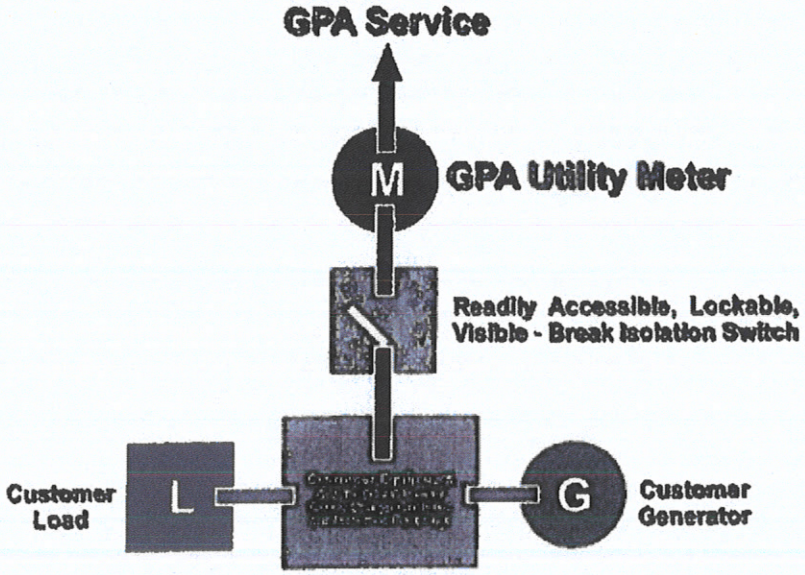
5.9 Common labeling approved by GPA and in accordance with NEC requirements must be posted on the meter base, disconnects, and other pertinent equipment stating that generation is operating at or is located on the premises.

5.10 The customer is required to coordinate closely with GPA Engineering for inspections and approvals of the net metering facility.

5.11 GPA will interconnect the facility at the Point Of Common Coupling (PCC) after an authorized DPW Electrical Inspector signs the GPA Inspection Report indicating acceptance of construction on the customer premises.

5.12 All costs including labor, equipment, and materials associated with interconnecting a net metering customer to the GPA distribution system shall be charged to the customer.

## 6.0 INTERCONNECTION REQUIREMENTS




**Sample One-Line Diagram**

6.1 Inverter

The Customer shall connect the load and generating equipment to the GPA source via a grid tie DC/AC inverter in accordance with applicable codes as illustrated in the Sample One-Line Diagram.

6.2 Visible - Break/Lockable Isolation Switch

6.2.1 The Customer shall furnish and install on the Customer's side of the meter a UL approved safety disconnect switch which shall be capable of fully isolating the Customer's generator from the GPA electric system. The disconnect switch shall be located adjacent to GPA's meter and shall be of the visible break type and placed in a metal enclosure with sealing provisions. The disconnect switch shall be accessible to GPA personnel at all times.

6.3 GPA shall have the right to disconnect the Customer Facility from GPA's system at the disconnect switch:

6.3.1 To maintain safe electrical operating conditions; or

6.3.2 In the event the Customer Facility does not meet required standards; or,

6.3.3 if the Facility at any time adversely affects GPA's operation of its electrical system or the quality of GPA's service to GPA customers.

6.4 Voltage and Phasing

The nominal voltage and phase configuration of the Customer's generation must be compatible with GPA's system at the Point of Common Coupling (PCC).

6.5 In the event of a utility power outage, the net metering facility must be able to automatically disconnect from utility power to ensure power is not fed back into the GPA power grid. This is extremely important during restoration/ repair situations where power fed into the GPA grid poses a safety hazard to distribution crews working on the system and the community who may come in contact with downed lines and equipment.

6.6 Protection Requirements

6.6.1 The protective functions and requirements of this policy are designed to protect GPA's Distribution System and not the customer facility or loads connected to the customer facility. The customer shall be solely responsible for providing adequate protection for its facility.

6.6.2 The customer's protective devices shall not adversely impact the operation of other protective devices utilized on GPA's Distribution System

6.6.3 A customer facility operating in parallel with GPA's Distribution System shall be equipped with the following protective features:

a. Over and under voltage trip functions; and
b. Over and under frequency trip functions; and
c. Voltage and frequency sensing and time-delay functions - Preventing the customer generator from energizing a de-energized GPA Distribution System and preventing the generator from reconnecting unless GPA's service voltage and frequency is within the range specified by ANSI C84.1-1995 Table 1 Range B (Voltage Range of 106 V to 127 V on a 120 V basis, inclusive, and a frequency range of 59.3 Hz to 60.5 Hz, inclusive, and is stable for at least 60 seconds); and
d. A function to prevent the customer facility from contributing to the formation of an unintended Island, and ceasing to energize the GPA Distribution System within two (2) seconds of the formation of an unintended Island.

e. A function to automatically disconnect the customer facility from the GPA Distribution System for faults on GPA's Distribution System.

6.7 Interference

6.7.1 The Customer shall not operate a generating facility in parallel with GPA that superimposes a voltage or current upon GPA's Distribution System interfering with GPA operations, with service to GPA customers, or with communication facilities.

6.7.2 To eliminate undesirable interference, each Generating Facility shall meet the following criteria:

a. Voltage Regulation. The Generating Facility shall not actively regulate the voltage at the PCC while in parallel with GPA's Distribution System
b. The Generating Facility shall not cause the service voltage at other customers to go outside the requirements of ANSI C84.1-1995, Range A (IEEE 1547-4.1.1)

6.7.3 If such interference occurs, the Customer must take corrective action at its own expense after being given notice and reasonable time to do so by GPA. If the Customer does not take corrective action in the time provided by GPA, or continues to operate the facility causing interference without restriction or limit, GPA may, without liability, disconnect the Customer Facility from GPA's Distribution System.

## 7.0 BILLING

7.1 In accordance with the Interim Net Metering Rider as adopted by the PUC under Docket 08-10, net metering customers shall be billed on a monthly basis energy charges applicable under the currently effective standard rate schedule and any appropriate rider schedules including the Levelized Energy Adjustment Clause and other clauses as well as surcharges. No excess energy credits shall reduce any fixed monthly customer charges, if any.

7.2 Monthly charges for energy to serve the customer's net or total load shall be determined according to GPA's standard service tariff under which the customer would otherwise be served, absent the customer electric generating facility. Energy charges under the customer's standard tariff shall be applied to the customer's net energy for the billing period to the extent that the net energy exceeds zero.

7.3 If the customer's net energy is zero or negative during the billing period, the customer shall pay only the non-energy charge portions of the standard tariff bill. If the customer's net energy is negative during a billing period, the customer shall

be credited in the next billing period for the kWh difference. When the customer elects no longer to take service under this Net Metering Program, any unused credit shall revert to GPA. Excess electricity credits are not transferable between customers or locations.

7.4 In no event shall the excess credit from a single month be carried forward beyond 12 months as a credit against the current monthly bill. At the end of each calendar year, or in the event of termination of service, any excess kWh credits, if any, will be granted by the customer to GPA without compensation to the customer.