October 14, 2024

Creating Energy-Resilient Tribal Facilities with Distributed Energy Resources

Sponsored by:

U.S. Department of Energy Grid Deployment Office

Creation Energy

Empowering the energy transition

Table of Contents

I. Purpose of this Guide

- Intended audience: Tribes interested in using BIL Sec 40101(d) funding to install back-up battery power systems.
- The U.S. Department of Energy's Grid Deployment Office has contracted with Creation Energy to provide no-cost technical assistance to tribes to help them:
  - Apply for BIL Sec 40101(d) funding using streamlined templates
  - Provide Standard Equipment that has been tested and certified to work effectively together.
  - Provide tools to appropriately size the necessary equipment to provide back-up power to facilities for defined durations.
  - Provide Standard Engineering designs for the inverter, battery and optional load management panels for facilities. These designs were created to provide the opportunity for the facility to add solar at the same time or in the future without the need for additional inverters or other equipment, just the solar equipment tied into the inverters of these designs.
  - Provide building surveys that can be filled out by the Tribe, or their designated representatives, to apply the standard engineering designs to their specific facility.
  - Connect tribes with engineering firms who can finalize specific designs, create permitting packages (if required), complete interconnection agreements with the utility and recommend installation companies for the install of the equipment (note: the cost of procurement and installation is not covered by Creation Energy; BIL 40101(d) funds can be used towards the cost of installing the back-up power systems. Other funding sources must be used to cover the cost of design, procurement or installation of solar systems as this is not an eligible use of BIL 40101(d) funds. DOE and the Alliance for Tribal clean energy have additional programs that could be utilized for solar being added to these back-up power systems. However, again, these designs have been specifically crafted to simplify the addition of solar to any facility.
- This process was developed in cooperation with the Iowa Tribe of Oklahoma's application for 40101(d) funds.
- How to use this guide:
  - Tribes who have not yet applied for 40101(d) funding:
    - This guide provides guidance beginning with the Pre-Award application through installation.
    - Starting in Section III, each Tribe will need to complete the forms to apply for funding. These forms are partially filled out, and a full pre-approved project narrative, are included to simplify the entire process.
  - Tribes who have applied for 40101(d) funding and are interested in using their 'banked funds' and future funds to install these back-up power systems will need to file a new project narrative prior to proceeding with the post award documentation for this specific project approach.

II. Overview of BIL Sec. 40101(d) Grid Resilience Formula Grant Program

The U.S. Department of Energy's Grid Deployment Office manages the Grid Resilience State and Tribal Formula Grants supported by the Bipartisan Infrastructure Law (BIL). These grants provide non-competitive funding to states (including U.S. Territories) and Indian tribes to improve the resilience of their electric grids. The National Energy Technology Laboratory administers the grants under BIL provision 40101(d). The program is designed to strengthen and modernize America's power grid against wildfires, extreme weather, and other natural disasters that are exacerbated by the climate crisis.

The program distributes funding to states, territories, and federally recognized Indian tribes, including Alaska Native Regional Corporations and Alaska Native Village Corporations, over five years based on a formula that includes factors such as population size, land area, probability and severity of disruptive events, and a locality's historical expenditures on mitigation efforts. The states, territories, and Indian tribes then select a diverse set of projects, with priority given to efforts that generate the greatest community benefit providing clean, affordable, and reliable energy.

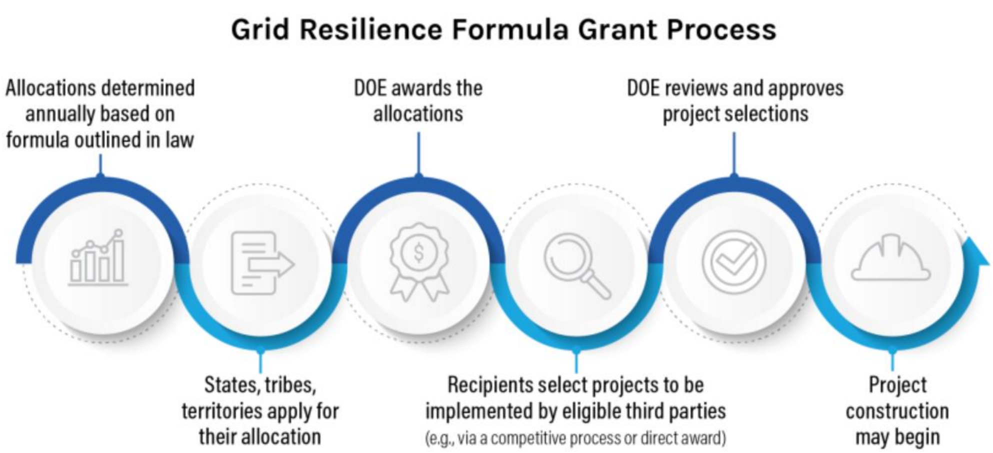
III. Application Information for Grant

Background Information

Creation Energy (CE), the Department of Energy (DOE) and the National Energy Technology Laboratory (NETL) have created resources that provide an overview of the Grant and application process (see below)

CE Presentations

- Public Hearing Presentation
- Overview of 40101d Formula Grant Allocations



DOE and NETL Grant Application Resources

DOE (Department of Energy) and NETL (National Energy Technology Laboratory) resources that provide an overview of the Program and Application Process:

- Funding Opportunity Announcement Webinar
- Main **NETL** Website
- **NETL** Grid Resilience State and Tribal Formula Grant
- **DOE** Grid Resilience State/Tribal Formula Grant

Pre-Award Application Forms and Templates

Application for the Grid Resilience State and Tribal Formula Grant requires applicants to fill out and submit Pre-Award documents.

The table below provides information for each form required in the grant application process. Blank versions of the forms can be found on the NETL Application Forms and Templates page here. DOE and NETL recommend that each Tribe always use the most current blank forms available on the NETL website to ensure correct forms are utilized in this process. These pre-filled forms provide you the baseline information and guidance for this pre-defined project and can be found here: Pre-Award Application Forms and Templates.

Completed forms should be submitted through FedConnect. Any questions regarding the application should also be submitted through FedConnect (you will need to register and log in)

Important: remember to review the file names of each document before submitting your application! File names must match the required format to be accepted. The correct file name structure can be seen in the "File Name" column of the Pre-Award Application Forms and Templates table (link above).

For additional information and assistance, contact the DOE's Grid Deployment Office at GDOTribalAssistance@hq.doe.gov

Application Document Type: Name and description of the required document

File Name: Every document must be submitted with the correct file name; this column shows the required name for each document. *Wherever you see the words "Applicant Name," replace that text with the actual name of your tribe*. Please note that some files are required to be sent as pdf's, whereas others can be sent as documents. If a file name ends with .pdf, it must be sent as a pdf, if it ends with .doc it can be sent as a Word document.

Link to Form: Click on the underlined text to view a template of the form or document. We have provided as much of the required information as we can, but there will still be some sections that must be completed by you. Please review all fields carefully!

Information: Information that can help with the form completion process will be available here. Click on the underlined text to view the resource.

Tips: We've added additional tips to help you out

Application Document Type	File Name	Link to Form	Information	Tips
Application for Federal Assistance (SF-424) The SF-424 is the financial form used when requesting the federal allocation from the Grid Resilience State and Tribal Formula Grant.	Applicant Name SF424**.pdf**	SF-424 Form	SF-424 Example SF-424 Instructions	This form can only be viewed with Adobe Acrobat Reader. Click on the form link, download the form from the browser, and open the downloaded file in Adobe.
Program Narrative This document describes the plan for project development, including the objectives and metrics, criteria, methods, funding distribution, equity approach, technical assistance and administration, and evidence of public notice and hearing.	Applicant Name Program Narrative **.doc** or **.pdf**	Program Narrative	Program Narrative Instructions	Download **Program Narrative** doc and replace highlighted text with your own. **Program Narrative Instructions** doc provides more detailed instructions for each section.

Environmental Questionnaire (NEPA) The environmental questionnaire included in the application is only for the technical assistance and administrative activities associated with the grant. Additional project-specific environmental questionnaires will be required when projects are approved.	Applicant Name Env**.pdf**	Environmental Questionnaire Form	N/A	The first page is pre-filled but you will need to replace [NAME OF TRIBE] with the actual name of your tribe. Then, proceed directly to the last page and fill out Section III, Certification by Proposer.
SF-LLL Disclosure of Lobbying Activities This disclosure form should be completed by the grant applicant to disclose any lobbying activities. If there are no lobbying activities, please print, "No lobbying activities" in Section 10.a.	Applicant Name SF-LLL**.pdf**	SF-LLL Form	SF-LLL Instructions SF-LLL Example	**SF-LLL Form** and **SF-LLL Example** will need to be downloaded and opened with Adobe Acrobat Reader. This form is minimally pre-filled as most of the required information will be unique to each applicant.
Designation Letter, Head of Government Letter OR Tribal Council Resolution This document is required to verify that an application is submitted by the designated applicant.	Applicant Name Designation Letter**.pdf**, Applicant Name Head of Government**.pdf**, OR Applicant Name Tribal Council Resolution**.pdf**	Individual ANC Designation Letter Individual Head of Tribal Government Letter		Only ONE document should be submitted for this section.

		Tribal Council Resolution Letter		
Pre-Award Information Sheet This document includes information that will verify eligibility.	Applicant Name Pre-Award Info**.doc**	Pre-Award Information Sheet		Replace all red text. This document is optional.
Cost Match Information Sheet Information regarding the source of the 15% cost match for the grant applicant is required.	Applicant Name Cost Match Info**.pdf**	Cost Match Information Form	Cost Match Guidance Sheet Third Party Cost Match Commitment Letter Example	

Post-Award Forms and Templates

All recipients of the Grid-Resilience State and Tribal Formula Grant are required to complete the following steps pursuant to the schedule that will start after grant is awarded:

1. Register for a kick-off meeting. The NETL Project Kickoff Meeting Registration Page provides details on how to register for a kick-off meeting.
2. Build your project/sub-award notification package, which should be emailed directly to your NETL Federal Project Officer.
3. Fill out Project Management Reporting Documents and submit them through the EERE-PMC Portal.
4. Fill out Award Management Documents and submit as needed.
5. Fill out Closeout Documents and submit at the conclusion of the Grid Resilience State and Tribal Formula Grant award.

For all of the above documents and forms, please refer to the table on the following page or go here: Post-Award Forms and Templates.

For more information regarding Post Award documentation, resources and blank forms are available on the NETL Website.

Document Type: Name and description of the required document

File Name: *Wherever you see the words "Applicant Name," replace that text with the actual name of your tribe.* Please note the file type (.pdf, .doc, .xlsx, etc.)

Link to Form: Click on the underlined text to view a template of the form or document. We have provided as much of the expected responsive information as we can, but there are some sections that will be unique to each Tribe and must be completed by you. In some areas, we have provided Notes to help inform the proposed response – and these Notes should be deleted from the final document(s) before submission. It is very important that you review all responses carefully to be sure they are correct for your circumstances!

Information: Information that can help with the form completion process will be available here. Click on the underlined text to view the resource.

Tips: We've added additional tips to help you out

Step 1: Kick-Off Meeting

Register for a kick-off meeting here.

Document Type	File Name	Link to Form
40101(d) Kickoff Presentation All recipients of the Grid Resilience State and Tribal Formula Grant are required to participate in a Kick-Off Meeting after receiving their award.	Applicant Name Kickoff Presentation**.ppt** OR **.pdf**	Example Kickoff Presentation

Step 2: Resilience Project Notification Documents

Use these forms to build your project/sub-award notification package.

Email the completed forms directly to your NETL Federal Project Officer.

Document Type	File Name	Link to Form	Tips
Resilience Project/Subaward Notification Submit this project notification template for each planned sub-award	Applicant Name Resilience Project/Subaward Notification**.pdf**	Resilience Project/Subaward Notification Form *if Tribe is Eligible Entity* Resilience Project/Subaward Form *if Utility is Eligible Entity*	A Tribe may be an eligible entity to perform the proposed project if (1) it has generation it currently operates (such as rooftop solar or backup generators); and (2) it exports energy to its local electric provider (such as excess solar energy. If not, the Tribe will need to partner with its local electric provider or other "eligible entity" as defined by program requirements. Please use the top form if *tribe* is the eligible entity, and the bottom form if the *utility* is the eligible entity
Secretarial Eligible Entity Designation Request If applicable, use this template if your sub-awardee is not an eligible entity as defined in the program requirements	Applicant Name Secretarial Eligible Entity Designation Request**.doc** or **.pdf**	Secretarial Eligible Entity Designation Request Form	May not be required. Please note that an entity that does not sell **any** electricity or that sells more than 4 million MWh/Y will be required to provide a 100% cost match rather than a 33% cost match.
Environmental Questionnaire (NEPA) Complete and submit this form with project specifics so the NETL Federal Project Officer can request a NEPA Categorical Exclusion (CX) determination.	Applicant Name Environmental Questionnaire.doc or .pdf Applicant Name EQ Map**.png** or **.jpg** or **.jpeg**	Environmental Questionnaire *if Tribe is Eligible Entity*	For the map attachment(s), Google Earth is recommended to provide sufficient detail for project location(s). The DOE NEPA compliance team may

Adequate map(s) must be provided to show the proposed work area.	Applicant Name EQ Letter of Permission.**pdf** or **.doc**	Environmental Questionnaire *if Utility is Eligible Entity*	require a permission letter for work being performed in national & state parks and historic districts.
SF-424 Budget Justification Workbook Use this workbook to provide a detailed breakdown of the cash or cash value of all cost match proposed.	Applicant Name SF-424 Budget Justification.**xlsx** or **.pdf**	SF-424 Budget Justification Workbook	Instructions are at the top of the first document tab (Instruction and Summary).
Cost Match Commitment Letter Statement from the eligible entity committing to meet the project cost match (100% or 1/3) as required in IIJA Section 40101(h).	Applicant Name Cost Match Commitment Letter.**doc** or **.pdf**	Cost Match Commitment Letter *if Tribe is Eligible Entity* Cost Match Commitment Letter *if Utility is Eligible Entity*	Please use the top document if *tribe* is the eligible entity, and the bottom document if the *utility* is the eligible entity.
Foreign National Participation If applicable, complete these two forms for Foreign National project participation.	Applicant Name Foreign National Participation Document.doc or .pdf	Foreign National Participation Form Request for Unclassified Foreign	These may not be required.

	Applicant Name Request for Unclassified Foreign National Access.doc or .pdf	National Access Form	

Step 3: Project Management Reporting Documents

Use these documents to comply with quarterly and annual reporting requirements associated with your award.

All project management reporting documents should be submitted to the EERE-PMC Portal

Note: The last column, Due Dates, advises on when each of these documents should be submitted.

Document Type	Link to Form	Information	Tips	Due Dates
Financial Report (SF-425) The Financial Report is used by recipients to submit reports on their grant's financial progress.	Financial Report SF-425 Form		This form can only be viewed with Adobe Acrobat Reader. Click on the form link, download the form from the browser, and open the downloaded file in Adobe.	Semi-Annually & Final
Project Management Plan (PMP)/ Quarterly Progress Report The Project Management Plan is used by	PMP/Quarterly Progress Report Workbook	PMP/Quarterly Progress Report Instructions Guidance for	Refer to "Overview" tab for a summary of the workbook. Start entering	Due within the first 90 days of award and quarterly thereafter (due

recipients to report on the progress of their projects.		Bipartisan Infrastructure Law Grid Resilience Formula Grant Metrics	information in the yellow highlighted cells in the Recipient and Project tabs.	on January 30, April 30, July 30 and October 30). The same form should be summitted each time, but with appropriate updates added to meet reporting requirements.
Annual Program Metrics and Impact Report The Annual and Program Metrics and Impact Report is used by recipients to report on the impact of their projects.	Annual Program Metrics and Impact Report (**more** than 500k) Annual Program Metrics and Impact Report (**less** than 500k)	Annual Program Metrics and Impact Report Instructions	Refer to "Overview" tab for a summary of the workbook. Start entering information in the yellow highlighted cells in the Recipient and Project tabs.	Yearly (due each year by December 30th)

Step 4: Award Management Documents

These resources are for managing the Grid Resilience State and Tribal Formula Grant program awards.

Note: last column, Due Dates, advises on when each of these documents should be submitted.

Document Type	Link to Form	Tips	Due Dates
Annual Allocation Request (SF-424) Submit this form yearly to request additional funds once an initial application has been submitted.	Annual Allocation Request (SF-424) Form	These forms can only be viewed with Adobe Acrobat Reader. Click on the form link, download the form from the browser, and open the downloaded file in Adobe.	Annual
SF-428 Tangible Personal Property Report	SF-428 Tangible Personal Property Report		Submit this document as needed when personal property must be dispositioned
SF-428C Tangible Personal Property Report and Disposition Request Report	(SF-428C) Tangible Personal Property Report - Disposition Request Report		Submit this document as needed when personal property must be dispositioned

IV. Survey Form, Meter Data and Battery Design Tool

Overview and Pricing

Creation Energy, DOE and/or the Tribal Alliance for Clean Energy will support any Tribe who has applied for and received 40101(d) grant funding to complete the full application process and guide the effort necessary for surveys and engineering on their potential buildings. For any tribe that has been approved for funding, Creation Energy will work with the tribe and Greenlancer to support how to complete their survey form and how to engage with Greenlancer to complete final designs. Greenlancer is a firm designed to work in all 50 states and coordinates with the appropriate engineering resources to complete the survey and design process to produce any necessary permit packages and interconnection agreements with the local utility. This service can be accomplished for a fixed price (see list below).

For an additional price (see list below), Greenlancer can provide a full solar design for the building. Please note that 40101(d) *grant funds may not be used for the solar design service* as this grant does not allow any generation and services to support generation. If the Tribe does not wish to pay for a full solar design, the final design package for each building will have a detailed description of the amount of solar capacity that can be added to each of the inverters that are being installed with the battery equipment.

Resiliency Grant Service Description	**Pricing***
Engineering Design: Battery & Inverter Install (& Load Management Panel if this option is selected). Note: Surveys must be completed by the Tribe, or their designated representative, for Greenlancer to complete these designs.	$260.00
Electrical Engineering & Permit Package (*if permits are required*)	$245.00 - $255.00
Interconnection Agreement with Utility	$350.00

*Pricing as of June 2024, subject to change

Solar Service Description (Cannot be paid for in Grant)	**Pricing***
Engineering Design: Solar addition to design	$190.00
Structural Engineering : Rooftop Solar Review	$255.00
Structural Engineering: Ground Mount	$385.00 - $425.00
Interconnect Agreement with utility (if done separately at a different time)	$350.00

*Pricing as of June 2024, subject to change

Commercial Building Survey Form

The image below is the first page of the Greenlancer Solar Commercial Site Survey Form. The entire Greenlancer Solar Commercial Site Survey Form can be found here; it includes the survey form, additional resources, examples and checklist.

For instructions, field support, or assistance with this form, please contact Greenlancer per the contact information provided in Section VII below.

GREENLANCER™

COMMERCIAL SITE SURVEY FORM

Project Name: ....

BUILDING INFORMATION

Customer First Name: ....

Customer Last Name: ....

Address: ....

City, State, Zip: ....

Are you required to go out for bid on this project? ○ Yes ○ No

Can you select a solar design & engineering partner without a public RFP process? ○ Yes ○ No

CONTRACTOR INFORMATION

Company Name: ....

Phone: ....

Address (Street, City, State, Zip): ....

....

License Numbers: ....

....

Project Manager Information:

First Name: ....

Last Name: ....

Phone: ....

ROOF & STRUCTURAL INFORMATION

Roof Material:

Please select the appropriate roof material from the options below.

- ☐ (Asphalt) shingles
- ☐ Composite Roof
- ☐ Corrugated Metal
- ☐ Flat Tile
- ☐ W-Tile
- ☐ EPDM with Gravel Ballast
- ☐ Standing Seam Metal
- ☐ Clay S-Tile
- ☐ Rubber Membrane
- ☐ Other:______________

Structure Type:

Please select the appropriate Structure Type from the options below.

- ☐ Truss (Wood)
- ☐ Metal I-Beam Supported
- ☐ Steel Trusses
- ☐ Knee Wall
- ☐ Knee Wall + Collar Tie
- ☐ Collar Tie (Wood)
- ☐ Single Span Rafter (Wood)
- ☐ Wood beam Supported

Other: ....

Rafter / Support Size:

○ 2x4 ○ 2x6 ○ 2x8 ○ 2x10 ○ Other: ________________

Rafter / Support Spacing:

Please select the typical distance between each rafter (in inches).

○ 12" ○ 14" ○ 16" ○ 24" ○ 48" ○ Other: ________________

Application Type:

Please select the appropriate racking application types.

○ Tilt-Up ○ Flush-Mount ○ Integrated Racking ○ Carport

○ Flat Roof Ballasted ○ Flat Roof Attached ○ Ground Mount

Attachment Type:

For Roof Installations Only.

○ Flashed L-Foot ○ Tile Hook ○ Standoff ○ Chemcurb

○ Standing Seam Clamp ○ Corrubracket ○ None (Ballasted)

○ Other:______________

Racking and Attachment Information:

Racking Mftr: ....

Racking Model #: ....

Attachment Mftr: ....

Attachment Model #: ....

Foundation Type:

For Ground Installations Only.

○ Helical Pile ○ Driven Pile ○ Drill & Pour ○ Earth Screw

○ Concrete Pad ○ Concrete Pad Helical Pile

○ Concrete Pad Driven Pile ○ Not Applicable ○ Other:__________

Residential Building Survey Form

The image below is the first page of the Greenlancer Residential Site Survey Form. This form is a tool for documenting project, structural, and electrical information for your residential site. The entire form can be found here.

For instructions on how to fill out this form, please see the Instruction Sheet section in the following section.

GREENLANCER™ Project Name: ....

Site Survey in 1 2 3

①Project Info→ ②Structural Info→ ③Electrical Info

PROJECT INFORMATION

ASTERISK COLOR CODE KEY

* = Required Field * = Account Preference

HOMEOWNER INFORMATION

First Name:*

Last Name:*

Address:*

City, State, Zip:*

Project's Assessor's Parcel #:

CONTRACTOR INFORMATION

Company Name:*

Phone:*

Address (Street, City, State, Zip):*

License Numbers:*

PROJECT MANAGER

First Name:*

Last Name:*

Phone:*

Application Type:*

Please select the appropriate racking application types.

- ○ Tilt-Up ○ Flush-Mount ○ Integrated Racking
- ○ Flat Roof (Use 2b on pages 8 and 9 instead)
- ○ Ground Mount (Use 2c on pages 10 and 11 instead)

AHJ INFORMATION

AHJ Name:*

Utility Name:*

Special AHJ/Utility Requirements (If Known)

Snow & Wind Loads (If Known)

Snow Load:

Wind Load:

Project (Site) Photos Checklist:

*Photos will be used to understand site conditions and project site and are **essential to generate an accurate permit package.***

- ○ Utility Meter Location (Zoomed out View)*
- ○ Main Service Panel Location*
- ○ Close-up of Main Service Panel Label*
- ○ Close-up of Main Breaker
- ○ Close-up of Main Breaker Label
- ○ Sub-Panel Main Breaker (If used)
- ○ Sub-Panel Location (If used)
- ○ Subpanel Location (If used)
- ○ Close-up of Sub-Panel Breaker Label
- ○ Proposed Inverter Location (Zoomed out View)
- ○ Array Location(s) (if possible)
- ○ Entire Roof with Obstructions (If possible)
- ○ Ground Mount Location (If applicable)
- ○ Rafter/Truss Size and Spacing (Show tape mesure in photo if possible)
- ○ Attic Space - Show existing roof rafter/truss for each roof structure (Show tape measure if possible)*

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Meter Data Request Form

Meter data is used to determine battery sizing and is required for each building. This data can be obtained from the local utility per the process described in this section.

General Guidelines for Requesting Meter Data

Historical meter data, at least one complete calendar years' worth, is needed to meaningfully analyze the use of energy for a residence or facility. With energy usage data in hand, analysis can be completed to appropriately size the back-up power system for defined grid outage durations.

When attempting to size batteries or solar photovoltaic systems for sufficient capacity and optimal impact, a years' worth of 1 hour data is needed. This type of data is referred to as "8760 data" (for the 8760 hours in a typical year).

To use the associated Excel spreadsheet, Battery Sizing Tool workbook, enter the 8760 data for your facility's or residence's meter. Based on this annual energy usage profile, the optimal battery size can be determined based on the 8760 information.

To request meter data from your utility company, you can follow these steps:

1. **Identify Your Utility Company**: Make sure you know the name of your utility company and have your residence or facility's meter number(s) handy. All information needed for the data request will be on your utility bill including customer/account number, meter number and service address.
2. **Visit the Utility Company's Website**: Most utility companies have websites where you can access your account information. This can typically be found on the utility bill or a quick internet search. Look for a section on the website that deals with meter readings or historical usage data.
3. **Contact Customer Service**: If you don't have access to the website or you can't find the information you need on the website, look for a customer service phone number or email address on the utility bill. Contact them and ask for the historical meter data. Be sure to provide your meter number and specify the year(s) you're interested in. This should include the most recent complete year at a minimum.
4. **Formal Request**: If necessary, you may need to submit a formal written request. This should include your name, address, meter number(s), and the specific data you're requesting. You may also need to provide a reason for your request. Sample written requests are provided in the next section for your use.
5. **Follow Up**: After you've submitted your request, be sure to follow up if you don't hear back within a reasonable amount of time.

Remember, the process may vary depending on your utility company and local regulations. It's always a good idea to check the specific procedures of your utility company. If you have difficulties, don't hesitate to contact their customer service for assistance. They are there to help you.

Please note that some utility companies may charge a fee for this service, especially for large amounts of historical data. Be sure to ask about any potential charges when you make your request.

Sample Written Request for Meter Data

The following sample letter can be used to request meter data:

Subject: Request for Meter Data

Dear [Utility Company],

I hope this message finds you well. My name is [Your Name] and I am a customer of your utility services at the following address: [Your Address].

I am writing to formally request the meter data for my account. Specifically, I am interested in obtaining at least one full calendar year of hourly meter data.

The details of my account are as follows:

- Account Number: [Your Account Number]
- Service Address: [Your Service Address]
- Meter Number: [Your Meter Number]

I understand that this data is critical for understanding my energy usage patterns and for making informed decisions about energy management at my property.

I kindly request that the data be provided in a digital format, such as a CSV or Excel file, for ease of analysis.

Thank you in advance for your assistance with this matter. I look forward to your prompt response.

Best regards,

[Your Name]
[Your Contact Information]

You can download a copy of this letter by clicking here.

Battery Design (Sizing) Tool

The Battery Sizing Tool workbook can be used to calculate the number of battery units needed to cover a specific grid outage duration.

There are two inputs: the amount of solar that will be generated on average at a given location, and the annual energy consumption of the site. If there will be no solar, the input is zero. Energy consumption for the year is obtained from the meter data request above. With these inputs we calculate how many HomeGrid units would be needed to cover a 3-hour and 8-hour grid outage. Note: we consider one HomeGrid unit to be a 38.4kWh 8-stack battery unit.

This workbook is split into four tabs:

Overview

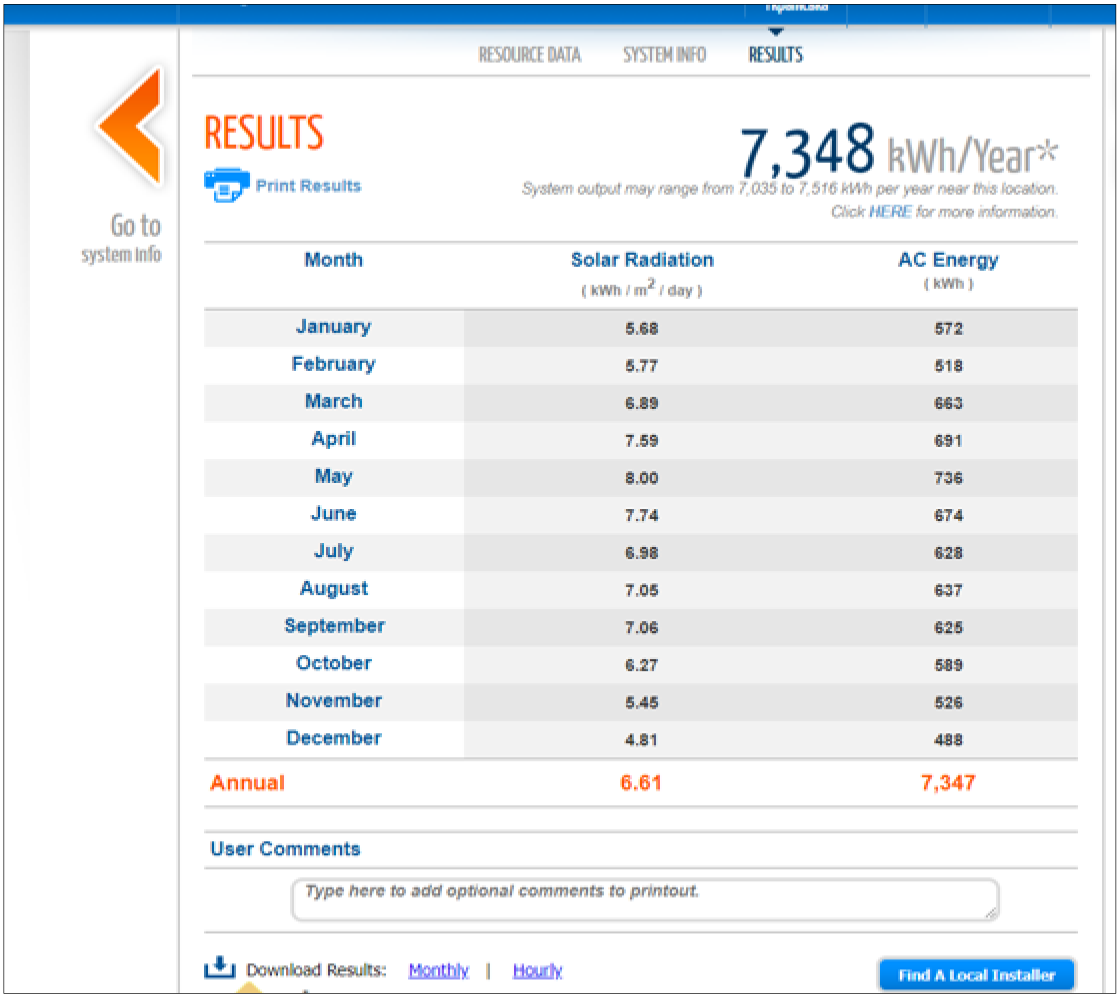
Summary and instructions.

PVWatts

This is where you input the amount of solar that will be generated at a given geolocation.

If you want to include a solar array in the battery sizing analysis, use the NREL PVWatt Calculator by following this link and entering the location and technical details of your array.

On the results page (screenshot below for reference), click on the “Hourly” link and save the file it provides to you. You can then cut and paste those results into the “PVWatts” tab of the Battery Sizing Tool workbook. The default data in the PVWatts tab is just a sample and should be entirely replaced by your results.



Month	Solar Radiation (kWh / m^2 / day)	AC Energy (kWh)
January	5.68	572
February	5.77	518
March	6.89	663
April	7.59	691
May	8.00	736
June	7.74	674
July	6.98	628
August	7.05	637
September	7.06	625
October	6.27	589
November	5.45	526
December	4.81	488
Annual	6.61	7,347

Image description: screenshot of NREL's PVWatts Calculator, results page. Sample data.

Meter Data 8760

Input the previous energy consumption (8760) of the site. There are 8760 hours in a year and the meter data request form provides the appropriate request to obtain this data from your utility.

In the "Meter Data 8760" tab of the Battery Sizing Tool workbook, you will need to enter the one-hour meter data for your site in column C. The default data in this column is just a sample; your data should replace it.

These inputs allow the number of HomeGrid battery units needed to cover either an 8-hour or 3-hour outage (with and without solar) to be determined.

Note: if you need to get this data from your utility, we recommend using the sample Written Request for Meter Data (in the section above).

Battery Sizing

This tool combines the meter data and the solar data to determine the load summaries.

Column F combines the meter data (8760) and the solar data (PVWatts) to determine the load on the site. This is also where the 8-hour and 3-hour load summaries are calculated. In turn, this allows the number of batteries to be calculated to cover that load.

V. Standard Equipment

This is the standard equipment that will be utilized in the standard designs. For each of the equipment items listed below, click on the links to access the content.

One inverter and one battery represent "One Unit" in the standard designs below.

Sol-Ark 15kW Hybrid Inverter

Click on the links below to access the content.

- Sol-Ark Home Energy Solutions Brochure
- 15K-2P Certifications
- 15K-2P EMI Lab Test Report
- 15K-2P Spec Sheet
- 15K-2P User Manual

HomeGrid 38.4 kWh (8 stack) Battery Unit

Click on the links below to access the content.

- Product Training
- Stack'd Series Spec Sheet

SPAN Panel (optional)

The SPAN Panel is a 32 breaker panel for load management/monitoring.

- Spec Sheet
- Owner's Manual

Solar Design (optional)

A solar design will optimize the capacity for existing inverter/battery design. Note: it is not grant funded.

Mission Solar Panel

- Spec Sheet

IronRidge Solar Racking

- Aire System Data Sheet
- Aire System Installation Manual
- Aire System Tech Brief

- Florida Product Approval for Aire Flush Mount

VI. Standard Engineering Designs

As you complete the battery sizing analysis, you will determine the number of units (inverter plus battery) that are required to provide the necessary back-up power for your facility. These standard designs below have been completed to illustrate how 1 to 10 units can be installed based on the need for your facility. They identify the necessary equipment specifications, and the electric connections required for the equipment.

Once the number of units have been determined with the battery sizing tool, a survey must be completed for your facility and provided to Greenlancer with the number of units required. Greenlancer will then be able to complete the specific design for your facility per the process described in Section VII.

Standard Engineering Designs 1-10

Click on design to view pdf

Design I

Design II

Design III

Design IV

Design V

Design VI

Design VII

Design VIII

Design IX

Design X

Design considerations have been supplied in each design if the batteries and electrical bus duct work would need to be installed outside, versus inside, of your facility.

VII. Equipment Procurement and Contact Information

Per the information above, your final designs, permits and interconnection requests are complete, and you are ready to procure the equipment for your project. Creation Energy has worked with all the equipment suppliers and defined ABC Supply as the material logistics coordinator. Your final design from Greenlancer will specify the equipment required for your project. You will need to contact ABC Supply to set up your account in their system and they will provide you support for ordering and delivery for your equipment. This structure allows you to directly procure all the resiliency equipment for the final designs.

Greenlancer (Survey and Engineering Final Design)

David DiRado ddirado@greenlancer.com	David will provide you support to fill out the survey forms, help you coordinate with resources to perform surveys for you if you would prefer and then work with your surveys to provide you final engineering design, permit packages and interconnection agreements.

ABC (Equipment Supply and Delivery)

Anthony Romero Business Development Manager of Renewable Energy Cell: 830.259.7703 anthony.romero@abcsupply.com **Rob Smith** Business Development Manager – Renewable Energy Cell: 910-352-1739 rob.smith@abcsupply.com	Visit the ABC Supply Co Website for information on this company. Contact Anthony or Rob to get equipment pricing once you have your final design from Greenlancer.

HomeGrid & Lithion (Battery)

Will Georgi wgeorgi@lithionbattery.com **Homegrid Sales Team** HGOrders@Lithionbattery.com	Will can provide answers to any technical product questions and support you with the ABC ordering and delivery process if required.

Sol-Ark (Inverter)

Mark Crinella Mark.Crinella@sol-ark.com	Mark can provide answers to any technical product questions and support you with the ABC ordering and delivery process if required.

If you desire to engage Greenlance to provide you with solar designs for your project (COSTS NOT COVERED BY THE RESILIENCY GRANT), the suppliers listed below will be used for your solar equipment.

IronRidge (Solar Racking Equipment)

Carlos Jerez Director of Sales, Central US carlos.jerez@ironridge.com **Iron Ridge Customer Service** customerservice@ironridge.com	Carlos can provide answers to any technical product questions and support Greenlancer with the appropriate solar racking system for your facility. In addition, he can help you with the ABC ordering and delivery process if required.

Mission (Solar Panels)

Modular solar provider in the US that has clean poly and no Chinese touch points or force labor concerns. Every module comes out of San Antonio, TX. OCI is Mission's parent company.

Chris Leinweber **cleinweber@missionsolar.com**	Documentation available at www.missionsolar.com Chris can provide answers to any technical questions and support you with the ABC ordering and delivery process if required.

VIII. Standard Permitting docs for each design (if required)

Greenlancer supports creating the permitting documents as part of the final specific design process. We understand that many Tribal authorities are not required to file these permits for this work and each Tribe can work with Greenlancer to determine if these permit documents are required.

IX. Utility Interconnection information

As there is no standard form of interconnection for the utility industry, it is not possible to provide a standard set of information or documents in this guide. Greenlancer supports filling out the interconnection documents as part of the final specific design process based on the local utility requirements for interconnection. This step is very important as the back-up power system can inject energy into the power grid and this can be a life-threatening safety concern for utility workers. The interconnection process establishes the rules and equipment the local utility requires to safely interconnect your back-up power system to their grid.

An Interconnection Agreement Sample is provided here but please note that all utilities have their own Interconnection Agreements and you will need to work with Greenlancer so they can acquire the appropriate forms and provide the required equipment on their design and complete the application.

X. Contracts

Greenlancer, HomeGrid and Sol-Ark all have a national set of installers for both the battery/inverter and also solar systems. As part of the final specific design process, Greenlancer and/or the equipment suppliers will provide a list of possible installation groups so these installation companies can provide their contracts for your installation requirements. There are no ‘standard agreements’ for installation, like there are no ‘standard interconnection agreements’. However, Creation Energy, DOE and the Alliance for Tribal Clean Energy are available to review and support your review, of these contracts if you would like.