



RESPONSE TO ABP DG SYSTEM DESIGN CRITERIA FEEDBACK REQUEST

MAY 21, 2021

Thank you for the opportunity to provide feedback on distributed generation system design criteria for future ABP Blocks. ENGIE's comments pertain to Large DG Systems only. We are a developer and long-term owner/operator of commercial, industrial and public-sector solar PV.

- A. *System Efficiency as Compared to an Ideal System. One option would be to prohibit program participation from systems failing to meet a threshold efficiency standard. For example, if a system with a given location and size with an ideal azimuth and tilt would create 100 RECs per year, a system that creates less than 75 RECs per year would be prohibited from participation. Under this construct, the ideal system calculation for a given location would be performed automatically by the application portal using PVWatts data.*
- 1. Should an ABP system be compared to a system with an ideal azimuth and tilt for that system's location and be limited to a certain percentage of the production of an ideal system? If so, what would be an acceptable threshold percentage?*
 - 2. Rather than prohibiting participation, could a disclosure requirement scoring that system based on its percentage of optimal efficiency achieve the same goals?*

ENGIE Response:

PV Design Engineers are skilled professionals who are trained to design around a complex set of variables to optimize system production. Two of these variables are azimuth and tilt, but they are also looking at technology selection, building load and electrical configuration, interconnection-related issues, site impediments, O&M considerations, host preferences and an array of building code requirements. And – these variables change over time as technology evolves, practices improve, codes are amended, etc. It's important to note that optimal system design sometimes involves trade-offs. For example, designing around an ideal azimuth may render some space unusable, to the detriment of overall system production.

For these reasons, we advise against drawing bright lines around an "ideal" azimuth and tilt, and we don't imagine that it would be a productive use of the Agency or Program Administrator's time to diligence bespoke design decisions. ENGIE doesn't object to a concise disclosure requirement per se; our customers are always welcome to ask questions about the system design process and why we make the decisions we make.

As a side note, many of the ABP projects are third-party owned, with the PV system developer maintaining a long-term stake in its efficient design and operation. In these cases, the system developer/owner and off-taker's interests are very much aligned. There is a strong financial disincentive for a developer to deliver anything but a high quality, high-efficiency system. Long-term owners – and their financing partners - demand nothing less, and they provide their Design Engineers with the tools and training they need to produce the best systems possible.

B. *Capacity Factor. A project's capacity factor is used to calculate a project's REC delivery estimate, and thus its overall incentive value.*

1. *Should there be a minimum capacity factor for projects submitted?*
2. *Should an absolute range be drawn for each tracking type (fixed tilt, 1-axis tracking, 2-axis tracking)? If so, what range?*
3. *Alternatively, should capacity factors that deviate from the imputed PVWatts capacity factor by more than a certain percentage be disallowed? If so, what percentage?*

ENGIE Response:

For Questions 1 & 2, please see the response to Section A. The capacity factor is a function of the design and technology decisions that a PV Design Engineer makes in the service of optimizing system performance, so our response to Section A also applies here. For Question 3, PVWatts could be used as a sanity check, but know that other tools (ENGIE uses PVsyst, for example) offer dozens of customizable model inputs that allow for more granular design. Generally speaking, PVWatts and PVsyst should yield close enough capacity factors in most cases, though there may be perfectly reasonable explanations in circumstances where they diverge.

C. *Azimuth. Currently, ABP systems are not limited to any particular azimuth or azimuth range.*

1. *Should there be a required azimuth range for ABP systems? If so, what should that range be? (for example, should all of or portions of systems with an azimuth less than 90 degrees or greater than 270 degrees be prohibited?)*

ENGIE Response:

We can think of no good reason for a Large DG system to be oriented toward the northern 180 degrees. While we don't think an outright prohibition is necessary, we would not object to a disclosure flagging systems oriented less than 90 degrees or greater than 270 degrees.

D. *Payback Period for Purchased Systems*

1. *Should there be a maximum payback period for ABP systems? If so, how many years/months would constitute an unacceptable payback period?*
2. *Should an internal rate of return ("IRR") be allowed as a substitute for simple payback, and if so, what minimum IRR should be set?*

ENGIE Response:

A project's payback period, or IRR, is a function of the project's price vs the returns. The price is a function of site conditions, financing structure, technology selections, system type (e.g. carports vs. rooftops vs. ground mounts), labor choices, and other variables. The returns are a function of energy rate and tariff structure, but also of the building's load profile – whether solar is offsetting the monthly peak demand. Also - "returns," from a customer's perspective, need not be exclusively financial. Some customers are motivated to install onsite solar because of the "returns" to the environment, in the currency of lower greenhouse gas emissions. They may be motivated to make labor or technology decisions with paybacks in the currency of local union jobs vs. open shop jobs or domestic vs. foreign-made equipment. Whether a customer's payback period (or IRR) justifies a system purchase (or PPA or lease) is an individual decision based on a range of value judgements. As a rule of practice at ENGIE, we generally don't opine on a customer's return – we have learned from experience that our customers bring different models, assumptions, and objectives to the decision about executing a solar project. With this experience in mind, we believe that peeling back the layers of a customer's subjective decision falls outside of the Agency and Program Administrator's natural scope.

E. *Distributed Generation Disclosure Form. One or more of the items above might require additional disclosure language on the Distributed Generation Disclosure Form. Please specify to which version of the Distributed Generation Disclosure Form your comments relate in your submission (system purchase, lease, PPA, greater than 25kW)*

1. *Which, if any, of the criteria should be disclosed to customers through the Distributed Generation Disclosure Form if this/these condition(s) are understood by the Program to be sub-optimal?*

2. *Additionally, are there any elements of the Distributed Generation Disclosure Form that would benefit from reconsideration, possible removal, or should any additional information be included that is absent from the form?*

ENGIE Response:

Price and system production are key to a customer's decision to execute a solar project, and those elements are already included on the DG Disclosure Form. We do not object to adding additional disclosures to the existing form, as long as they address objective metrics. Azimuth, tilt, production, price, capacity factor all meet this criteria. Payback period and IRR do not.

F. Financing Structure

1. *Should any of the requirements contemplated herein vary based on financing structure (ownership vs. leases vs. PPAs)? Why might leases or PPAs be handled differently in protecting consumer interests?*

ENGIE Response:

As discussed in our response to Section A, project developers who are also long-term asset owners have every incentive to optimize production. The interests of the offtaker/consumer and the interests of the developer/owner are aligned in this respect. Installers who develop, build, and transfer projects to a customer to be the long-term system owner may not have the same direct financial interest in system efficiency and long-term performance, but we have no reason to believe that these are not also ethical companies with high quality business practices. The Large DG solar market is competitive, and consumers have choices about with whom they do business. We decline to offer a specific answer to this question, except to reiterate that we do not object to adding additional disclosures to the existing form.