

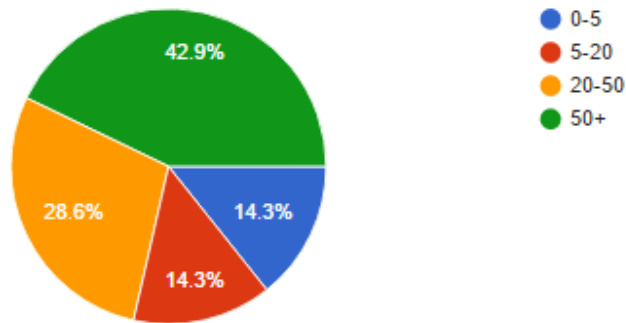
WIDRC Interconnection Practices Survey for Installers/Contractors Results

Survey conducted July, 2016

21 Responses

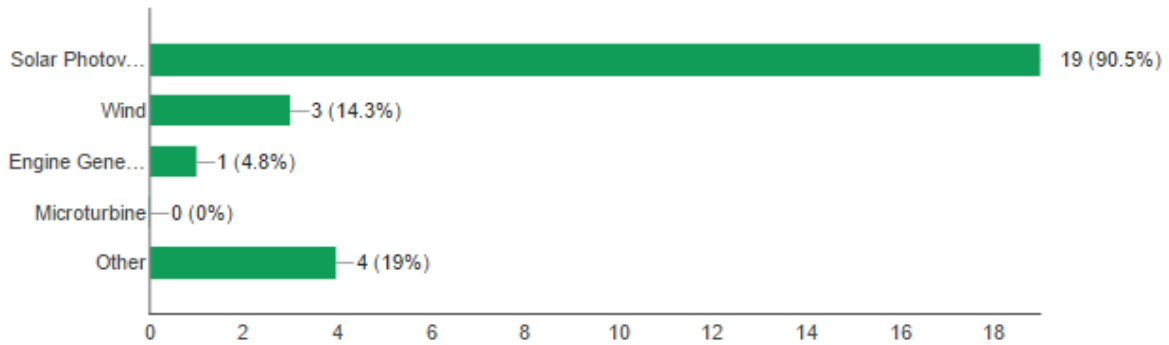
1. How many distributed generation installations have you worked on in Wisconsin?

(21 responses)



2. What types of distributed generation have you installed in Wisconsin?

(21 responses)

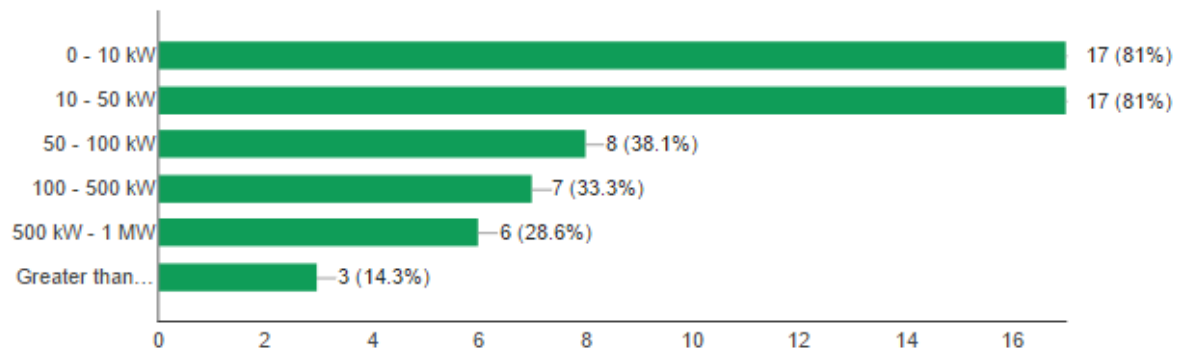


Q2. "Other" responses included:

- Hydro (1)
- Solar Thermal (1)
- Digester Biogas (1)
- Battery Backup (1)
- Off-grid PV (1)

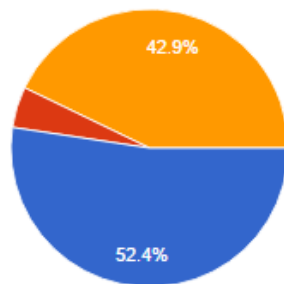
### 3. What sizes of distributed generation installations have you worked on in Wisconsin?

(21 responses)



### 4. Looking ahead, what types of newer distributed generation technologies do you personally expect to be working on in Wisconsin within the next 5 years?

(21 responses)



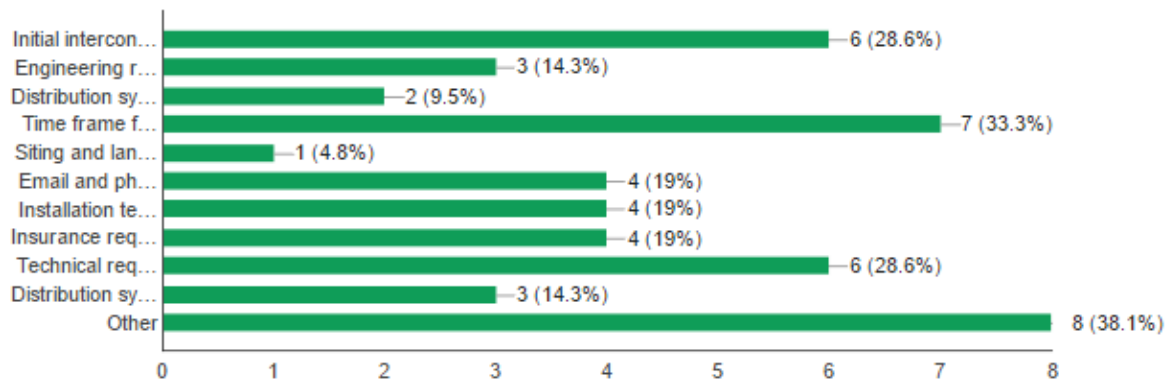
- I don't anticipate working on any different technologies than what I have already worked on in the past
- I anticipate working on new technologies. Please use the "other" line to describe these new technologies.
- Other

Q4. "Other" responses included:

- Energy storage (7)
- Micro-grids (2)
- Off grid (1)
- Optimizers (1)

## 5. Which of the following are the most difficult aspects of working with an electric provider on an interconnection?

(21 responses)



Q5 asked for respondents to choose up to 3 options. Answer options included:

- Initial interconnection application
- Engineering review
- Distribution system study
- Timeframe for interconnection
- Siting and land rights
- Email and phone communication with utility
- Installation testing
- Insurance requirements
- Technical requirements
- Distribution system relaying protection communication requirements
- Other

Q5. "Other" responses included:

- Haven't had any issues thus far
- We are a distributor
- Anti-solar attitudes & policies
- Over reach of Utility – They are not responsible for anything beyond "Service Point"
- Dual metering requirement - simply not necessary. They should simply use one bi-directional meter, but instead they try to drive up installation costs by requiring removal of customer's meter pedestal and replacement with a dual meter pedestal.
- Interconnection Costs
- Buyback rates
- Ensuring metering reprogramming/change out has occurred or work order has been completed. Some utilities won't do it before energizing system, some will, seems like an easy task that can be done right when an application is approved and shouldn't have to be something we ask for separately...

## 6. Have you experienced any delays during the interconnection process?

(21 responses)

No

No

no

No, we are a distributor

Unsure

YES, some utilities seem to be dragging their feet more than in the past.

Yes. Certificate of Insurance

Yes, Utilities often try and dictate how a system is installed. Beyond metering requirements they have no say. The inspector and codes do.

Yes; in getting responses from utility

Yes

Minimal, communication delay

Yes, dual metering requirement was not clearly stated during the application process, and caused later delays in project commissioning.

The process has evolved over time requiring more site visits by both the utility and installer adding only costs without value

Yes. Long lead time for utility equipment

Yes. I had a utility representative claim that the standard COI from a customer's insurance agent with the appropriate limits was inadequate to install a solar system. He insisted this right up to being contacted by the customer's lawyer.

Utilities typically have little idea what to do with small wind systems

Yes, documentation hiccups. Lack of consistency within a utility and especially utility to utility. New requirements every chance the utilities get, like the disconnect being within 10' of the meter. New requirement to show in your drawing that the disconnect is within 10' of the meter. Extensive steps and paperwork

Yes. Inverters are UL1741 listed and reduce total load of building. This should be fairly easy to approve.

Yes, with meter reprogramming. See answer for Other in #5.

Yes, for the most common systems, we can procure parts and install faster than application is processed.

yes because the utility is changing its protocol

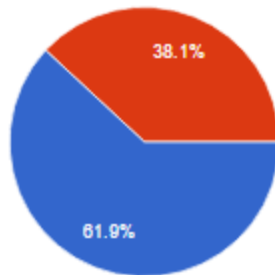
7. Was your interconnection application ever deemed incomplete after you first submitted it for approval?

(21 responses)

No
No
No
No
No
No
no
no
no
We are a Distributor
Unsure
YES, utility requirements change and we never get notified
Yes
NO
Yes. Additional information requested.
Yes. One utility required the use of their interconnection application form even though the content was identical to the PSC 6027 and their form was not a fillable pdf.
Yes, usually a misunderstanding on the part of the utility
Yes, didn't indicate on drawing that disconnect is within 10' of meter. Last year they didn't even require a lockable disconnect on residential projects! New requirements to include inverter and module specification sheets. Utility questioning code issues on the DC side, which has nothing to do with the AC connection to their system and should be the purvey of the AHJ.
Yes. For attachments.
Yes, despite providing all documentation to required contact, local utility office requests same documents that were originally provided.
yes but only few times

8. Did you research or otherwise know the characteristics of the distribution lines serving the locations of your installations prior to submitting your interconnection applications?

(21 responses)



- Yes, I generally know the characteristics of the distribution lines prior to submitting an application
- No, I usually do not know the characteristics of the distribution lines prior to submitting an application.

Why do you not know the characteristics of the distribution lines prior to submitting an application?

(8 responses)

sounds like a daunting task, probably a lot of back and forth communication with the utility

We area Distributor

We install only C&I systems which connect prior to a customers meter.

How would you?

The interconnection requirements limit the system size to be less than or equal to the load. Therefore, it is unlikely that the system would cause any need to analyze the distribution line capacity.

Information from utility not determined until line study.

The transformer size is not readily visible at the service.

It is not available as far as I know.

### 9. Do you believe you have experienced inconsistent application of interconnection procedures and technical standards on installations you have worked on?

(21 responses)



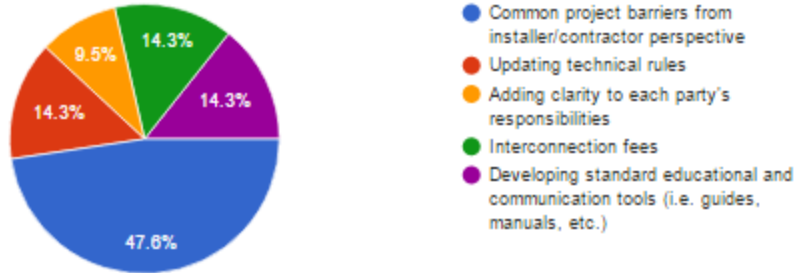
### Please explain how procedures and standards have not been uniformly applied.

(12 responses)

- Primarily metering changes.
- The requirements vary widely from one utility to the next.
- Net metering on multiple meter facilities are often fought.
- Pricing for same components/fees differs widely across utilities.
- engineers are all different on what they deem is necessary
- Different utilities have different interconnection requirements.
- Different forms, different inspection requirements
- Different utilities interpret the interconnection standards for their own service territories for their own benefit, usually to disuade the installation.
- See previous answers.
- Each utility and local AHJ have different expectations, understanding, and requirements. It is difficult to keep them all straight.
- With interconnection of small systems being routine, some utilities require separate meter which adds significant cost, with no benefit to consumer.
- They are labeling requirements and kwh meter requirements

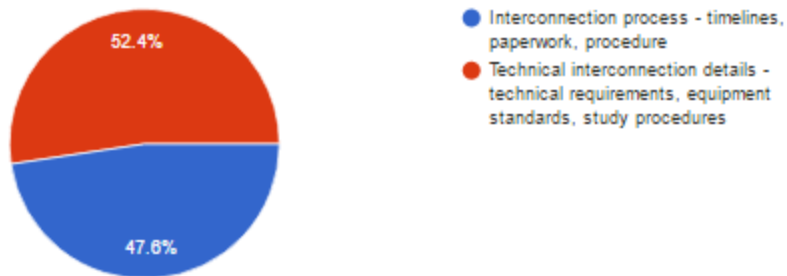
10. What would you most like to discuss or get more information about from the utilities?

(21 responses)



11. If you could spend time with utilities discussing one of the following, which would you choose?

(21 responses)





## 12. What improvements in the interconnection process would you suggest?

(21 responses)

make the application process online, get rid of email and paperwork

We are a distributor

Standardized metering and methods

Unsure

Standardized statewide process.

Standardized insurance requirements.

Less control from the utility. They simply supply power.

Overly high fees

Consistent application of the rules

Improved communication on approval and project clearance

Each utility should provide a simple list of equipment requirements immediately upon contact for a potential system. Specifically any metering requirements and sample one-line diagrams.

Implement two-way metering and load side connection

Eliminate the site commissioning process

Eliminate external disconnect

Interconnection costs should only be what is required to get the project online. Additional utility upgrades should not be added to the project costs.

Standardized rules across all IOUs and Coops

Less subjective manipulation of the interconnection process by the utility

The state PSC should enforce uniform progressive standards, and not let the utilities all do it on their own inconsistent way.

Quick approval to simple grid-tie UL1741 systems.

Consistent co-op rules

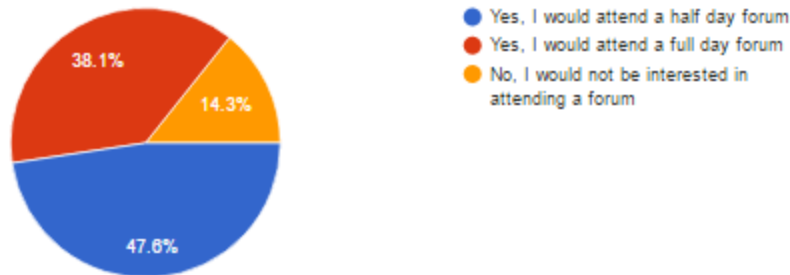
Metering requirements (one meter vs. multiple) should be standardized.

Streamline application process/timing for common systems.

better communication with the home owner from the utility

13. Would you be interested in attending an educational, information-sharing forum for electric providers and installers/contractors in Wisconsin regarding distributed generation interconnection?

(21 responses)



14. When is the best time to hold an educational, information-sharing forum for electric providers and installers/contractors in Wisconsin regarding distributed generation interconnection?

(21 responses)

