

## Informational Guide for On-Site Generation (Distributed Generation)

This informational guide is intended to help residential and small business customers who are considering installing electric generation (wind, solar, biomass, etc.) on their property. This document is for informational purposes only and use of the guide is voluntary. Following are the topics covered:

1. Before You Begin
2. Distributed Generation Checklist
3. Choosing a Dealer or Equipment
4. Finance Options
5. Informational Links

### 1. Before You Begin

**Assess Your Goals.** Are you exploring on-site generation because you are primarily interested in reducing your energy usage or are you interested in using more or only renewable energy?

- If you are primarily interested in reducing your energy usage, consider an energy efficiency audit and implementing the recommendations. An energy audit may uncover energy efficiency improvements to help you reduce your electric usage and potentially allow you to install a smaller distributed generation system. Contact your utility to get more information about its energy efficiency programs.
  - Alliant Energy - <http://www.alliantenergy.com/SaveEnergyAndMoney/>
  - MidAmerican - [http://www.midamericanenergy.com/ee/ia\\_res.aspx](http://www.midamericanenergy.com/ee/ia_res.aspx)

If you are served by an electric cooperative or municipal utility, you should find contact information for your utility on your electric bill. Links to the individual utility Web sites can be found on the associations' Web pages below:

- Iowa Association of Electric Cooperatives - <http://www.iowarec.org/about/links/>
- Iowa Association of Municipal Utilities - <http://www.iamu.org/map.cfm>
- If you are interested in increasing the amount of renewable energy on the utility grid, you can voluntarily contribute to the development of renewable energy through the utilities' Alternative Energy Purchase Program, also known as green pricing programs. Contact your utility to get more information. Also see Iowa Code § 476.47 (<https://www.legis.iowa.gov/docs/code/476.47.pdf>) for more information.
- If you are interested in producing your own electricity and having a distributed generation system on your property, the rest of this guide will help you with that process. Please keep in mind that **Iowa law requires that the distributed generation system owner notify the interconnected utility prior to installing a distributed generation system.**

**Review Legal Requirements.** In order to ensure there are no legal barriers to your proposed distributed generation system, ask the local planning and zoning commission or city officials to identify applicable zoning ordinances and building permit requirements. You should also consult your attorney to determine if your property is covered by restrictive covenants or easements that affect the installation or if there are other legal issues.

**Review Insurance Issues.** Discuss liability coverage and insurance needs with your insurance agent and review the applicable insurance requirements with your utility.

## 2. Distributed Generation Checklist

### **Gather Information.**

- Gather your historical electrical usage for your property and the utility rates charged and paid from your utility bills or contact your utility to request copies.
- Review information to become familiar with the technology and terminology.
  - Iowa Energy Center - <http://www.iowaenergycenter.org/renewable-energy/>
  - U.S. Department of Energy - <http://www.energy.gov/energysaver/articles/planning-home-renewable-energy-systems>
  - Database of State Incentives for Renewables and Efficiency - <http://www.dsireusa.org>
- Check out the following links to see the energy potential of your site. Note that the location of your system can have significant impacts on its generation potential.
  - Wind calculator - <http://www.iowaenergycenter.org/wind-calculator-tool/>
  - Solar calculator - <http://www.iowaenergycenter.org/solar-calculator-tool/>

**Solicit and Compare Quotes from Dealers/Installers.** (See the Choosing a Dealer and Equipment section for additional guidance.)

**Select Your Dealer/Installer.** (See the Choosing a Dealer and Equipment section for additional guidance.)

- Your qualified dealer/installer should be able to help you with the remaining areas of the checklist. You will have legal obligations with regard to your facility, so you should make sure you are fully aware of your obligations.

### **Consider Costs.**

- Identify federal, state, and utility incentives. Also, refer to the Database of State Incentives for Renewables and Efficiency. <http://www.dsireusa.org>
  - Look at finance/ownership options. (See the Finance Options section for more information.)
    - Purchase/Own
    - Lease
    - Third-Party Power Purchase Agreement
  - Check with your accountant, tax advisor, attorney, or finance professional to ensure that the incentives and financing options are right for you.
  - Calculate the estimated simple payback period.

$$\frac{\text{Total Initial Cost (including interconnection costs)}}{\text{(Annual Energy Cost Savings – Annual Operating Costs)}} = \text{Payback (in years)}$$

Review assumptions used for the following:

- Cost of the system (include equipment, installation, interconnection, and incentive assumptions).
- Energy cost savings assumptions (electric rate,<sup>1</sup> utility assumptions (e.g., net metering)).
- Annual operating costs (insurance, maintenance, etc.).

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<sup>1</sup> Understand that electric rates are dynamic and that some fixed aspects of rates may not be offset by a distributed generation system. Future utility rates are difficult to predict and have significant impact when evaluating a quoted price and any projected savings.

## 2. Distributed Generation Checklist (continued)

### **Review and Understand Requirements for Utility Interconnection.**

- Contact your utility to discuss distributed generation systems, project plans, utility policies, and interconnection. Review interconnection requirements, safety, and any special permits that may be required. Iowa law requires that the distributed generation system owner notify your electric utility at least 30 days before installing a distributed generation system.

- Review the Iowa Utilities Board's Interconnection Rules.  
(Please note that not all utilities are subject to these rules)

<https://www.legis.iowa.gov/law/administrativeRules/rules?agency=199&chapter=45&pubDate=07-23-2014>

- Review the Iowa Utilities Board's Cogeneration and Small Power Production Rules.  
(Please note that not all utilities are subject to these rules)

<https://www.legis.iowa.gov/law/administrativeRules/rules?agency=199&chapter=15&pubDate=12-10-2014>

- Plan that the state of Iowa or the applicable local authority will require a construction permit and an inspection upon completion. Your electric utility may also require verification that the system meets applicable standards prior to authorizing your system to operate.

### 3. Choosing a Dealer and Equipment

There are many "how-to" guides for purchasing solar, wind, or other distributed generation systems. To ensure you get the system that best meets your needs, be diligent in your research and ask questions. Remember that dealers operate independently from your utility.

#### **Get a Written Project Proposal from Multiple Dealers and Compare.**

- Make sure the estimates are for the same type and size of system.
- The proposal should include detailed costs and other information (including hardware, installation, connection to the grid, permitting, sales tax, equipment warranty expense, expected life, and ongoing maintenance requirements and costs).
- The proposal should also include an estimate of how much of your electric needs the system will provide and the general time periods during which the electricity will be produced.

#### **Get a Dealer's Qualifications (in writing) Related to a Specific Product/System.**

- Can the dealer comply with all the technical requirements included in the utility's Standard Distributed Generation Interconnection Agreement?
- Can the dealer comply with applicable state and local building codes and arrange for any necessary code inspections with respect to this installation?
- Are there any pending complaints or active judgments or liens against the dealer?
  - Contact the Better Business Bureau.
  - Contact the Attorney General Consumer Protection Division at (515) 281-5926 or (888) 777-4590.
- Ask for references and check them. Look at other facilities installed by the dealer.
- Does the dealer have insurance and what does it cover?
- Does the dealer guarantee his work and what are the terms of any guarantee?
- Is the dealer familiar with your utility's policies on interconnection, net metering, or utility buy-back (avoided cost) rates?
- Is the dealer aware of any incentives that may be available for the system?
- Ask about maintenance of the system, training to operate the system, and how you will be able to monitor the system's performance.

#### **For Solar, Ask:**

- What type of roof preparation is needed, and what condition does the roof need to be in for a roof mount?
- Who is responsible for repairs if there are structural damages resulting from the installation?
- Who is responsible for removal and reinstallation of the system when your roof needs to be replaced or repaired?

**Beware of Scams.** Be wary of door-to-door solicitations, requests for verbal agreements, high-pressure sales tactics, demands for cash or large down payments, or scare tactics.

**Review and Compare Options.** Make notes and keep records of any representations made by the dealer.

#### **Consider the Warranty Associated with the Specific Equipment Manufacturer. Ask:**

- Who is responsible for equipment replacement while the hardware is under warranty?
- If there is a hardware warranty issue, who is responsible for the costs of removing the old equipment and installing the replacement equipment?
- Who provides notice, when must it be given, and what other provisions apply if the installer or inspector needs access to your home?

## 4. Finance Options

Compare the costs to own a distributed generation system versus the costs of a lease or a third-party power purchase agreement.<sup>2</sup>

### **Purchase/Own**

- A distributed generation system is a long-term investment. When you own the system, you assume the responsibility of operating and maintaining the system.
- Consider whether to purchase the distributed generation system by:
  - o Paying for the system up front or
  - o Financing the system through a bank or other financial institution.

### **Lease**

- Leases typically require less capital investment up front. The customer simply rents the system from a company for a fixed monthly payment for a period of time no matter how much electricity the system generates each month. The monthly lease payment may escalate with time. You may or may not be responsible for operation and maintenance costs. There may also be lease-to-own options. You should review the terms of any lease agreement carefully to make sure you understand your rights and obligations, as well as the services provided by the Lessor.

### **Third-Party Power Purchase Agreement**

- In a third-party power purchase agreement a third-party developer owns and operates the system on a customer's property. That customer purchases the system's electric output for a period of time and at a price (typically per kWh) specified in the agreement.

### **Considerations for a Lease or a Third-Party Power Purchase Agreement**

- Who owns any renewable energy credits or certificates<sup>3</sup> associated with the system? (Renewable energy credits may decrease your costs if you own them and can use them or sell them.)
- Who receives any tax credits or other incentives?
- Will the installation affect my property taxes?
- Who pays the taxes on it, including any increase in property taxes?
- What happens to the lease and the installation if the property is sold?
- Can a system be bought before the end of the agreement/lease?
- Who owns a leased system at the end of the agreement/lease?
- Is the product and performance of the product specified in the agreement/lease?
- Does the agreement specify who is responsible for system maintenance?
- Does the monthly fee or price per kWh increase over time?
- If I do not own my distributed generation system, will I be compensated for any excess power generated?
  
- For solar, ask: Who pays to remove the system and repair the roof (if repairs are necessary) at the end of the agreement/lease?

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<sup>2</sup> The third-party power purchase agreement refers to a situation where the facility is owned by a third party who sells the output to the customer under a power purchase agreement. This is a different scenario from one in which the customer owns the facility and sells the output to the interconnected utility under a power purchase agreement.

<sup>3</sup> Renewable Energy Credits/Certificates (RECs) represent the environmental, social, and other non-power attributes of renewable electricity generation. The RECs are tradable or can be sold separately from the electricity associated with the renewable generation.

## 5. Informational Links

### General Information

Iowa Energy Center	<a href="http://www.iowaenergycenter.org/">http://www.iowaenergycenter.org/</a>
U.S. Department of Energy	Guide to Purchasing Green Power: <a href="http://www.epa.gov/greenpower/documents/purchasing_guide_for_web.pdf">http://www.epa.gov/greenpower/documents/purchasing_guide_for_web.pdf</a>
North American Board of Certified Energy Practitioners	To see if your installer is certified: <a href="http://www.nabcep.org/">http://www.nabcep.org/</a>
Attorney General	To file a consumer complaint: <a href="http://www.state.ia.us/government/ag/file_complaint/index.html">http://www.state.ia.us/government/ag/file_complaint/index.html</a>
State Fire Marshal Division	Licenses Electrical Contractors: <a href="http://www.dps.state.ia.us/fm/electrician/index.shtml">http://www.dps.state.ia.us/fm/electrician/index.shtml</a>
Iowa Economic Development Authority	Energy Programs: <a href="http://www.iowaeconomicdevelopment.com/Programs/Energy">http://www.iowaeconomicdevelopment.com/Programs/Energy</a> Combined Heat and Power: <a href="http://www.iowaeconomicdevelopment.com/Energy/CHP">http://www.iowaeconomicdevelopment.com/Energy/CHP</a>
Iowa Utilities Board	Interconnection Rules: <a href="https://www.legis.iowa.gov/law/administrativeRules/199_chapter45">https://www.legis.iowa.gov/law/administrativeRules/199_chapter45</a> Cogeneration and Small Power Production Rules: <a href="https://www.legis.iowa.gov/law/administrativeRules/199_chapter15">https://www.legis.iowa.gov/law/administrativeRules/199_chapter15</a>

### Utility Information

Utility information can be obtained from the utility's tariff or by contacting the utility directly. Aside from the links below, you can also search the utility's Web site by using key words such as: net metering, payment for excess generation, energy efficiency, and interconnection or distributed (or customer-owned) generation.

Alliant Energy (Interstate Power and Light Company) (800) 255-4268	Home page: <a href="http://www.alliantenergy.com/">http://www.alliantenergy.com/</a> Energy Efficiency: <a href="http://www.alliantenergy.com/SaveEnergyAndMoney/">http://www.alliantenergy.com/SaveEnergyAndMoney/</a> Customer-Owned Generation: <a href="http://www.alliantenergy.com/sellmypower">http://www.alliantenergy.com/sellmypower</a> or (800) 972-5325 Second Nature Program: <a href="http://www.alliantenergy.com/SecondNature/index.htm">http://www.alliantenergy.com/SecondNature/index.htm</a>
MidAmerican Energy Company (888) 427-5632	Home page: <a href="http://www.midamericanenergy.com/">http://www.midamericanenergy.com/</a> Energy Efficiency: <a href="http://www.midamericanenergy.com/ee/">http://www.midamericanenergy.com/ee/</a> Distributed Generation: <a href="http://www.midamericanenergy.com/environment7.aspx">http://www.midamericanenergy.com/environment7.aspx</a> Renewable Advantage Program: <a href="http://www.midamericanenergy.com/wind_advantage.aspx">http://www.midamericanenergy.com/wind_advantage.aspx</a>
Iowa Association of Electric Cooperatives	<a href="http://www.iowarec.org/about/links/">http://www.iowarec.org/about/links/</a> (The association site should have links to the individual rural electric cooperative Web sites)
Iowa Association of Municipal Utilities	<a href="http://www.iamu.org/map.cfm">http://www.iamu.org/map.cfm</a> (The association site should have contact information for the individual municipal utilities)

### Incentive Information

The list below is not meant to be a comprehensive list of all incentives available in Iowa. Please check with your dealer, utility, or legal or tax professional to see if other incentives are available.

Database of State Incentives for Renewable Energy	<a href="http://www.dsireusa.org/incentives/index.cfm?state=IA&amp;re=0&amp;ee=0&amp;spv=0&amp;st=0&amp;srp=1">http://www.dsireusa.org/incentives/index.cfm?state=IA&amp;re=0&amp;ee=0&amp;spv=0&amp;st=0&amp;srp=1</a>
Iowa Solar Energy System Tax Credits	<a href="https://tax.iowa.gov/solar-energy-system-tax-credits">https://tax.iowa.gov/solar-energy-system-tax-credits</a>
Iowa Renewable Energy Tax Credit	<a href="http://www.state.ia.us/government/com/util/energy/renewable_tax_credits.html">http://www.state.ia.us/government/com/util/energy/renewable_tax_credits.html</a>