

## MAKING SENSE OF SOLAR NUMBERS

The solar industry is rapidly changing. Drastic reductions in equipment costs, streamlining of permitting costs, innovative financing options, and unstable incentive programs all contribute to the changing economics of a solar project from year to year. Below are a few of the main points to pay attention to when evaluation solar proposal.

### **Are the financial model assumptions correct?**

**What was used for the cost of energy?** Does this match what the facility actually pays?

**What was used for an energy escalation rate?** Is this consistent with historic averages or future projections?

The energy escalation rate is a number that is often inflated to make proposals look more attractive. Most utilities publish historic averages. The Federal Energy Management Program also publishes an official rate. See the Commercial Electricity Cost Escalation Rates for 25 Year Analysis map for the latest numbers by region.

**Were the incentives applied correctly?** Do all of the incentive programs still exist and will they likely exist when the project is implemented? Will your project qualify?

Incentive programs change frequently in the solar world. Double check project developers have correctly applied all incentives. DSIRE is the best resource for up-to-date information. Also check with a utility representative to be sure programs are still accepting applications. More resources are available on the Utility Rates and Incentives page.

### **Are estimated production claims accurate?**

**For the quoted equipment and specific site conditions, are production claims supported by a third party energy model?**

The NREL In My Backyard (IMBY) tool estimates how much electricity a specific site can produce through solar. NREL's tool PV Watts Grid Data calculator uses hourly typical meteorological year weather data and a PV performance model to estimate annual energy production and cost savings for a crystalline silicon PV system. The NREL SAM tool also contains a sophisticated performance and financial model designed to facilitate decision-making for people involved in the renewable energy industry.

## **Is the project competitive?**

### **What is the Levelized Cost of Energy (LCOE)?**

The LCOE is a calculation of the cost of generating electricity at the point of connection to a load or electricity grid. It includes the initial capital, discount rate, as well as the costs of continuous operation, fuel, and maintenance. This type of calculation assists policy makers, researchers and others to guide discussions and decision-making. NREL has a handy calculator for determining the LCOE for any project.

Payback and return on investment (ROI) are also common ways to measure the economics of a project. These metrics are less applicable to PPAs and other third party financing models because the cost of the project is not paid by the host. These projects often see positive cash flow from day one. Responsible project development should include a full analysis of the net cost of the project claimed by the developer (much of which is often absorbed by tax payers through incentives) to promote the development of an efficient, functional solar market.

### **What is the Cost per Watt Installed (or cost per kWh produced)?**

Especially when complicated financing models are used, the cost per watt of solar installed may not be clearly presented. This can easily be determined by dividing the cost of the total project by the installed capacity of your panels. As the cost of solar decreases, this is an important number to pay attention to, to understand if your solar developer is delivering you the best value possible. The latest installed costs for solar in Minnesota can be found on NREL's Open PV Project Market Mapper. As costs for equipment drop and installation processes become more streamlined, solar consumers should see the price of solar continuously decrease in the coming years.

### **What is the cost of financing?**

Private developers may not have access to competitively priced financing. Local governments should explore how to leverage their access to low-cost financing to drive down the cost of installations or to get a more competitively priced PPA using a hybrid model.

### **Who holds the risk?**

Is the developer guaranteeing system performance? Who is responsible for fixing any issues with the system?