Benton PUD Rooftop Solar
Frequently Asked Questions (FAQ)

Benton PUD strives to be our customers Trusted Energy Partner. We understand that you might have an interest in "going solar" in fact this is why Benton PUD initiated our Solar Connections program in 2014. As a community owned electric utility Benton PUD exists for the benefit of all of our customers, including those who are considering investing in their own electrical energy source. To assist customers with making a solar PV purchase decision we have provided the following list of key questions and answers that we believe you should consider. Please contact Benton PUD Solar Connections staff and/or visit Solar Connections on our website to get answers to other questions or concerns you may have prior to and during your communications with solar PV system vendors. https://www.bentonpud.org/Energy-Programs/Solar-Connections/Rooftop-Solar

I'm considering installing a solar PV system. Where do I start?

- Do your homework, and get balanced information from several sources. Talk to others who have PV systems. Additional resources we recommend are listed at the end of this document.
- Research and investigate the vendor such as online reviews from independent sources unaffiliated with the vendor. . We recommend getting cost estimates and quotes from multiple reputable, licensed, bonded and insured solar PV system vendors.
- Read and understand the contract details before you sign any contract. Verify if there are performance guarantees from the vendor regarding system performance over the life of the PV system.
- There are many factors to consider when installing a PV system. The Sections below provide important information related to both Financial and Operational impacts of a PV system.

Financial Information

Benton PUD recognizes many customers who install solar are not entirely motivated by their financial return on investment (ROI). If ROI is important to you and because ROI is so dependent on installed cost assumptions which can vary over a wide range, we recommend asking your solar installer to provide you with the financial analysis and underlying assumptions regarding costs and benefits to identify approximately how many years it will take you to recoup your financial investment.

If you are interested in calculating the payback timeline yourself a simple payback can be calculated in the way described below.

$$Simple\ Payback = \frac{Net\ Cost\ of\ Solar}{Estimated\ Annual\ Bill\ Savings}$$

How to Calculate Net Cost of Solar	*Example*
Total cost of Solar (based on 10kW and the average cost of solar in WA**)	$31,500
Less 30% Federal ITC (if applicable *)	$9,450
Net Cost of Solar *	**$22,050**

* Numbers do not represent actual costs.

** According to energysage.com as of January 2023 the average cost of solar in Washington State is $3.15 per watt.

How to Calculate Estimated Annual Bill Savings	*Example*
System Size	10 kW
Hours in a Year	8,760
Capacity Factor (according to NREL)	15%
Estimated Annual Production (Size X Hours X Capacity Factor)	13,140 kWh
Cost Per kWh (Benton PUD Residential Rate)	$0.0739
Estimated Annual Bill Savings (Production X Cost)	**$971.05**

To help understand the example above, the simple payback would be approximately 22 years.

1. **What have been historical electric utility bill increases and what does the future look like?**
   - Be watchful of claims that your PUD electric rates will escalate at 5% per year or higher. Contact us for our latest rate forecasts.
   - While rate forecasts may change due to changing conditions (such as legislative mandates or market conditions), here are some key figures for you to consider:
     - Since 2002, the average annualized increase has been 1.31% for Benton PUD customers
     - The September 2022 forecast indicates rate increases over the next five years will likely result in an annualized rate increase less than the 1.31% noted above.
   - Another factor you should consider is the amount of the monthly base charge shown on your bill. This base charge reflects fixed costs such as customer service and billing, administrative and general, and a minimum level of distribution infrastructure needed to serve a customer. The base charge cannot be avoided by a solar system installation as your household continues to use the electric system at night, on cloudy days, and to sell the excess energy back to the utility. As such, an analysis of cost savings should consider the amount of the monthly base charge which also may increase over time.

2. **What State and Federal Incentives are available?**
   - ***Washington Incentives***
     - Washington State sales tax exemption is available until December 31, 2029.
   - ***Federal Incentives***
     - The federal solar tax credit, officially known as the Solar Investment Tax Credit (ITC), is available until December 31, 2032, for up to 30% of the total system cost. The credit decreases in subsequent years – 26% for tax year 2033, 22% for tax year 2034 and expires December 31, 2034. See www.irs.gov, or contact your tax advisor for details.

3. **What are typical PV system installation costs?**
    - The installed system cost in our area varies, so we encourage you to get multiple bids.
    - According to energysage.com as of January 2023 the average cost of solar in Washington State is $3.15 per watt.

4. **What fee's are associated with installing a PV system?**
    - Solar Permitting fees (Generally through the city)
    - Electrical Permit Fees (L&I)
    - Benton PUD Net Meter Application Fee $100. The Net Meter Application Fee covers a small portion of the overall District administration labor costs to review and process each net meter application.
    - Benton PUD Net Meter Fee $335. The Net Meter Fee partially covers the cost of the production meter and labor to install the production meter.

5. **How does the energy produced from a PV system lower my electric bill?**
    - Benton PUD's Net Metering program conforms with state requirements. It lets you install a renewable energy system (solar panels or wind turbines) to offset your energy needs. You receive full retail rate credit each month for generation from your system. Excess generation at the end of each bill period is carried over to the next bill period as a credit. On March 31 of each year, any excess generation accumulated from the previous 12 months resets to zero.

6. **What other indirect costs might occur with a solar installation?**
    - ***Maintenance Costs***
        - Costs are variable and can be anything from a simple cleaning to replacing components that include inverters which are used to connect the panels to the grid.
    - ***Property Taxes***
        - A PV System may increase the taxable value of your home and raise your property taxes
    - ***Insurance***
        - A PV system may increase your homeowners insurance
    - ***Selling your house***
        - As you make your decision to install a PV system, keep in mind the average person moves about every 5-7 years
        - Check your solar contract to understand the terms and conditions related to a transfer of a leased solar system to a new home buyer. In some contracts, there may be requirements that must be satisfied prior to transfer.
        - In some cases, solar may increase the value of your home. Consult with a home Real Estate Appraiser.

- ***Finance rates***
    - If financing research the additional cost occurred over the life of the loan.
- ***PV System removal during reroof***
    - Consider the condition of your roof before installing. Replacing your roof in the next few years would require an additional expense of removing and reinstalling your solar system.
    - Consult with your roofing contractor regarding roof warranty and PV system installation.
- ***Upgrading your homes electric service panel***
    - You may need to have your solar installer or an electrician install a larger electric panel to meet the needs of your solar panels.

Operational Information

In addition to financial implications of a PV system, there are many operational factors to consider. Please read and understand the following information as you make your decision.

7. How long can I expect a PV system to last?

- Typical manufacture warranties are 25 year performance and 10-15 year equipment warranty for the panels. Microinverters are typically warrantied for 25 years, while string inverters are typically warrantied 10 years.
- Labor warranties vary by vendor and may cover workmanship defects typically up to one year but can extend for up to ten years.

8. What can I expect for power production from my solar PV system installation?

- The location and orientation to the sun of a PV system will significantly impact the amount of electricity generated. Typically, rooftops facing south have a greater production capacity than other roofs.
- Solar panels produce energy when the sun shines. They do not produce energy during the evening and produce less energy during the winter and on cloudy days. The average capacity factor (a percentage calculated by dividing the actual electricity output by the maximum possible output for a solar installation) in Benton PUD's service territory for rooftop PV systems is approximately 15% in the early years of operation for south facing unobstructed arrays.
- The production of a PV system degrades (declines) as the system ages. Panels lose about 0.5% of production capability each year.

9. Will PV systems keep the power on in my home during a power outage?

- Most grid-tied solar PV energy systems <u>will not</u> power your home during a power outage. There are two primary reasons that ordinary grid-tied solar will not work during a power outage:

- Solar power output from PV systems varies directly with sunlight levels. The electronics (inverter) that controls a grid-tied solar electric system adjusts the power output independent of a customer's constantly varying electrical loads in order to maximize solar energy production. A customer with a grid–tied solar PV system relies on importing/exporting some amount of power from/to the utility in order to make up the difference between solar energy production and the energy consumed by their own electrical loads.
- The inverter(s) associated with a grid-tied solar PV system must be Underwriters Laboratories (UL) listed with a safety feature that prevents feeding power back into the grid during an electric utility power outage. This ensures utility personnel responding to repair lines and equipment during power outages are not at risk of electric shock hazards caused by back feed of power from a customer's electrical generation equipment. Solar PV systems with UL 1741 listed inverters cannot operate independently from the power grid.

- To power your home during an electric utility outage requires the addition of large battery banks or a generator along with more advanced inverters and electrical switching equipment which increases the cost of the solar PV system substantially. While there are solar PV inverters that can produce limited amounts of power without batteries and independent of the power grid, they can only do this when the sun is shining.

10. Will my Homeowners Association allow a solar PV system installation?

- Check with your homeowners association (HOA) before installing your system. While HOAs can't prohibit installations, they can implement rules about system placement and other requirements. Washington State Law RCW 64.38.055 governs resident and HOA responsibilities regarding solar energy system installations.

Additional Resources

- Solar Washington – www.solarwa.org – Solar information specific to Washington State;
- National Renewable Energy Laboratory (NREL) – www.nrel.gov – PVWatts® PV production calculator
- U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy – Homeowner's Guide to Going Solar
- Federal Trade Commission – Solar power for your home
- Interstate Renewable Energy Council (IREC) – www.irecusa.org – Consumer Protection Checklist
- Engineering.com solar degradation rates
- Energysage.com – Washington State average cost of solar