The Path to More Profitable Commercial Solar Projects

In a financially constrained environment, how can you break away and achieve superior margins?

There are four key factors to consider when comparing different energy technologies over the system lifetime:

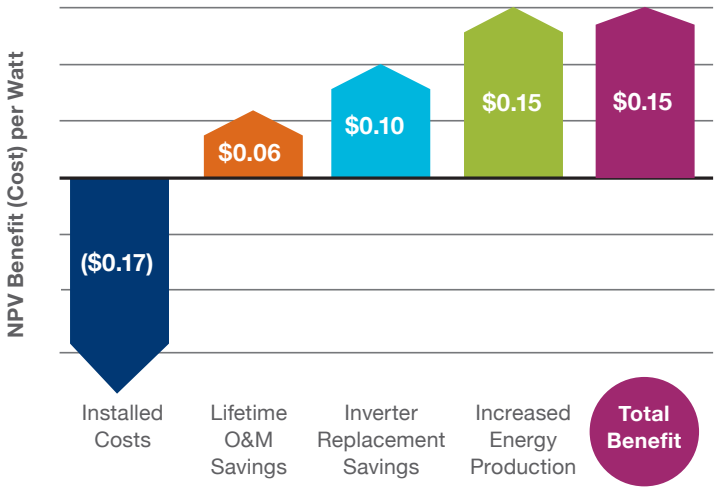
1. **System installed cost**
2. **Energy production**
3. **Inverter replacement**
4. **Operations and maintenance (O&M)**

1. System Installed Cost

Critical technology choices in a solar array have implications that ripple not only through other components, but also through the design, installation and labor costs. For Enphase, the Engineering Procurement and Construction (EPC) contractor only has to deal with an AC system which is simple to design and install. The microinverter cost is partially off-set by **the ease of design, and the labor savings.**

Enphase Outperforms Over Project Lifecycle

Based on standard 300kW system with a 20 year project life
Net Present Value (NPV) Cost/Benefit Difference Between Enphase and String Inverters



Source: "Enphase Simple Project Investment Comparison Tool" June 2015

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For example, you can have up to 48 C250 Microinverters per AC branch and fewer branches per system which means:

- Easier system design
- Reduced installation time

2. Energy Production

Increased lifetime production: Purchasing a solar system means investing in a lifetime of energy production. Choosing Enphase maximizes that energy production by delivering an **energy harvest boost of 3%–15%**[1] over a central or string inverter. More energy means higher cash flows over the long term and results in a faster ROI.

3. Inverter Replacement

According to NREL, string (including string with DC optimizers) or central inverter failures are one of the most frequent causes of PV system performance loss.[2] But at Enphase, we design reliable microinverters that last far beyond the typical 20 years project lifetime which means **up to 9 times lower equipment expense**[3] (inverter replacement cost) and smoother project cash flows, compared to string solutions. In addition, Enphase offers warranty periods of a minimum 10 years (up to 20 years) for commercial projects.

4. Operations & Maintenance

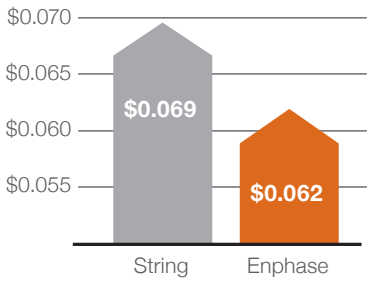
O&M can easily be overlooked when determining the underlying technology for a solar project. As an investment, it is critical to keep the system running and at peak performance so that you can gain maximum return on that investment. A highly reliable, distributed architecture means there is no single point of failure in an Enphase Energy-based system. With Enphase Enlighten Manager, our advanced remote monitoring system, any issues can be immediately diagnosed at the individual module level, and in many instances the microinverter can be remotely updated without rolling a truck.

This means an owner can **eliminate emergency truck rolls that are typically 30% of the cost for annual commercial O&M,**[4] and resolve any other system issues in a regularly scheduled site visit.

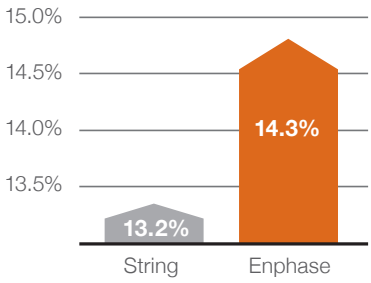
Safety: Of course working with Enphase, you can be assured you are not dealing with high-voltage DC power making the solar array safer than traditional string inverters.

Other Key Metrics

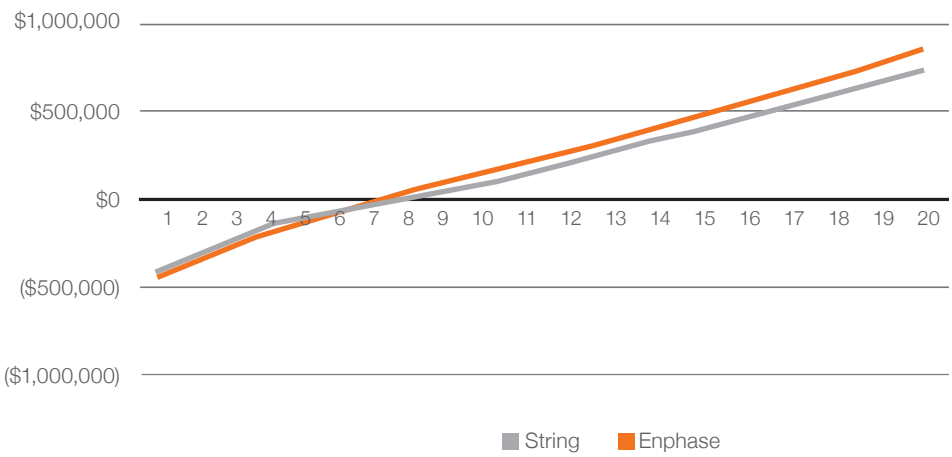
For the Owner
Levelized Cost of Energy



For the Financier
Internal Rate of Return



Cumulative Project Cash Flow Comparison



[1] Source: "Enphase Performance Technical Modeling Review" DNV-GL, December 2014

[2] Source: NREL "Best Practices in PV System Operations and Maintenance" March 2015

[3] Source: "Enphase Simple Project Investment Comparison Tool" June 2015"

[4] Source: Enphase 2015 internal study performed using data from actual O&M contracts.

To learn more about the Enphase Commercial Solutions visit **enphase.com/commercial**

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