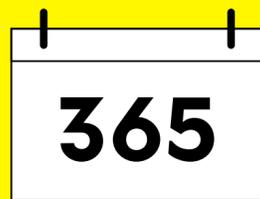# Problem
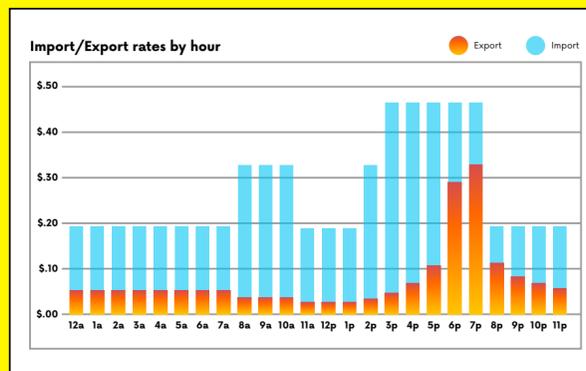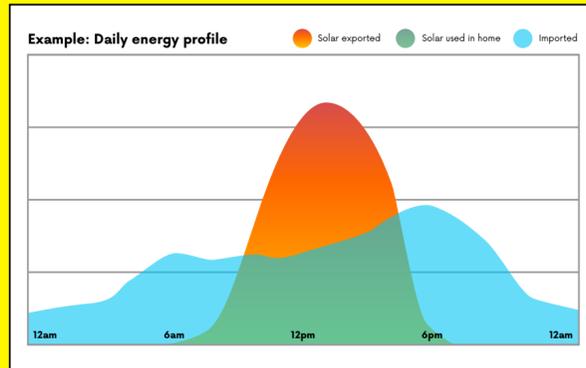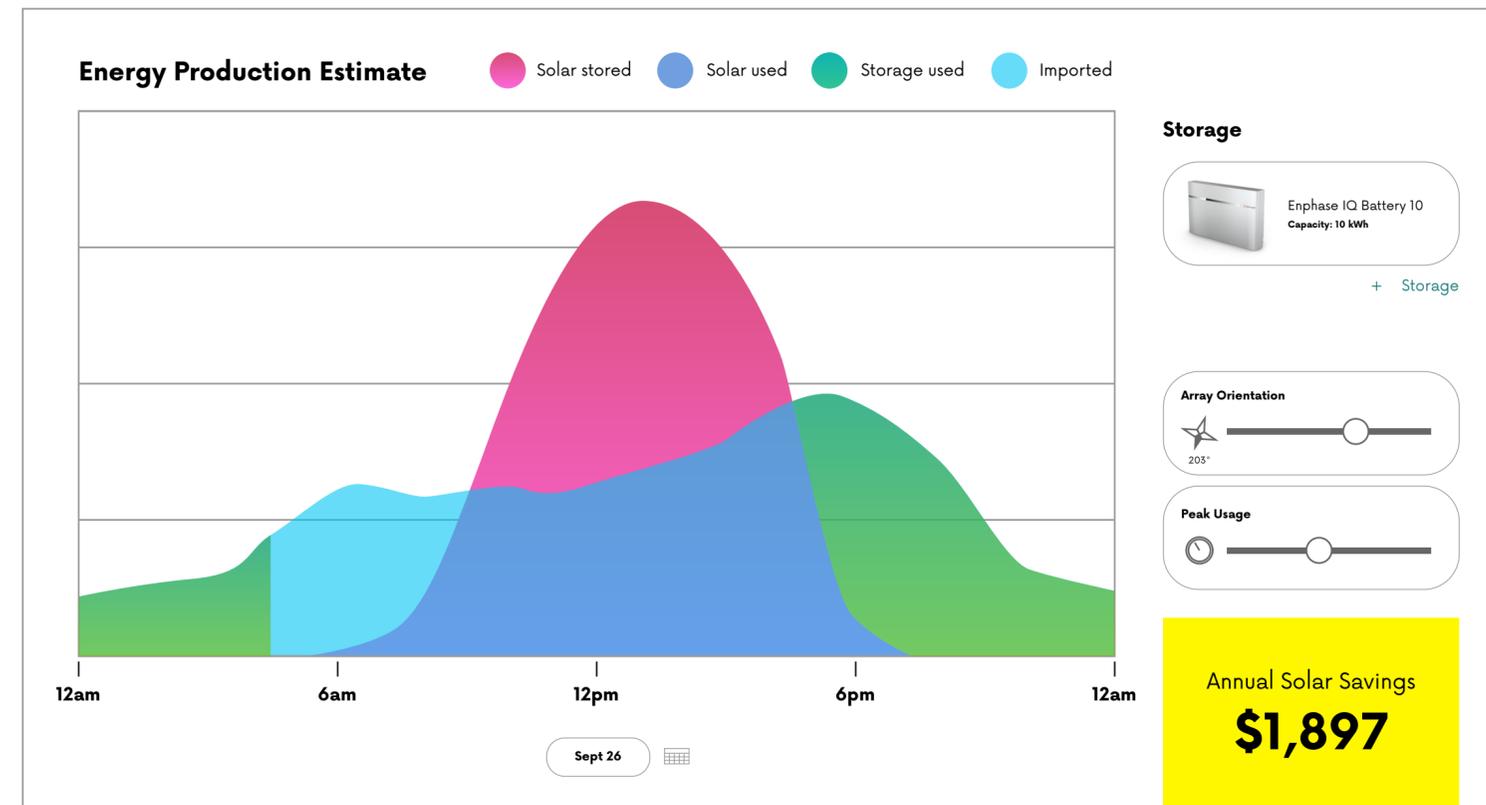
NEM 3.0 and other time-of-use billing programs make meaningful solar value propositions very hard to calculate

Example: Daily energy profile — Solar exported · Solar used in home · Imported

×

Import/Export rates by hour — Export · Import

×

365

——————

?!

Solution

Build better, customer-facing software systems to calculate solar production by the hour, and apply those crazy time-of-use rates!

Energy Production Estimate — Solar stored · Solar used · Storage used · Imported

Storage

Enphase IQ Battery 10
Capacity: 10 kWh

+ Storage

Array Orientation
203°

Peak Usage

Annual Solar Savings
$1,897

Conceptual UI showing daily NEM 3.0 offset
Not pictured: All the amazing, interactive visualizations we can do with a full year worth of hourly offset data

How do we get here?

1. Design PV arrays with system specs & orientation
2. Query system production monthly forecast (PVWatts)
3. Get local radiation history in 30-minute increments (NSRDB)
4. Average and overlay radiation data onto monthly production to extrapolate hourly PV generation
5. Query interval billing data (utility)
6. Average hourly interval usage history for full calendar year
7. Grab hourly import/export rates for calendar year and calculate value of imported and exported energy
8. Apply trimming from battery storage, nudge for behavior modification and panel orientation.

The Jigawatters

We're colleages at Jigawatt LLC and developers of Jigawatt Pro, a streamlined suite of solar design and quoting tools. We've been providing solar consultants with slick net metering forecasts–and dozens of other super useful functions–since 2018. With the California utilities' recent, protectionist "net billing" initiatives, we've recognized the need to fast-track a time-of-use calculator that's as user friendly as our existing tools. And then there's that whole variable rate thing...