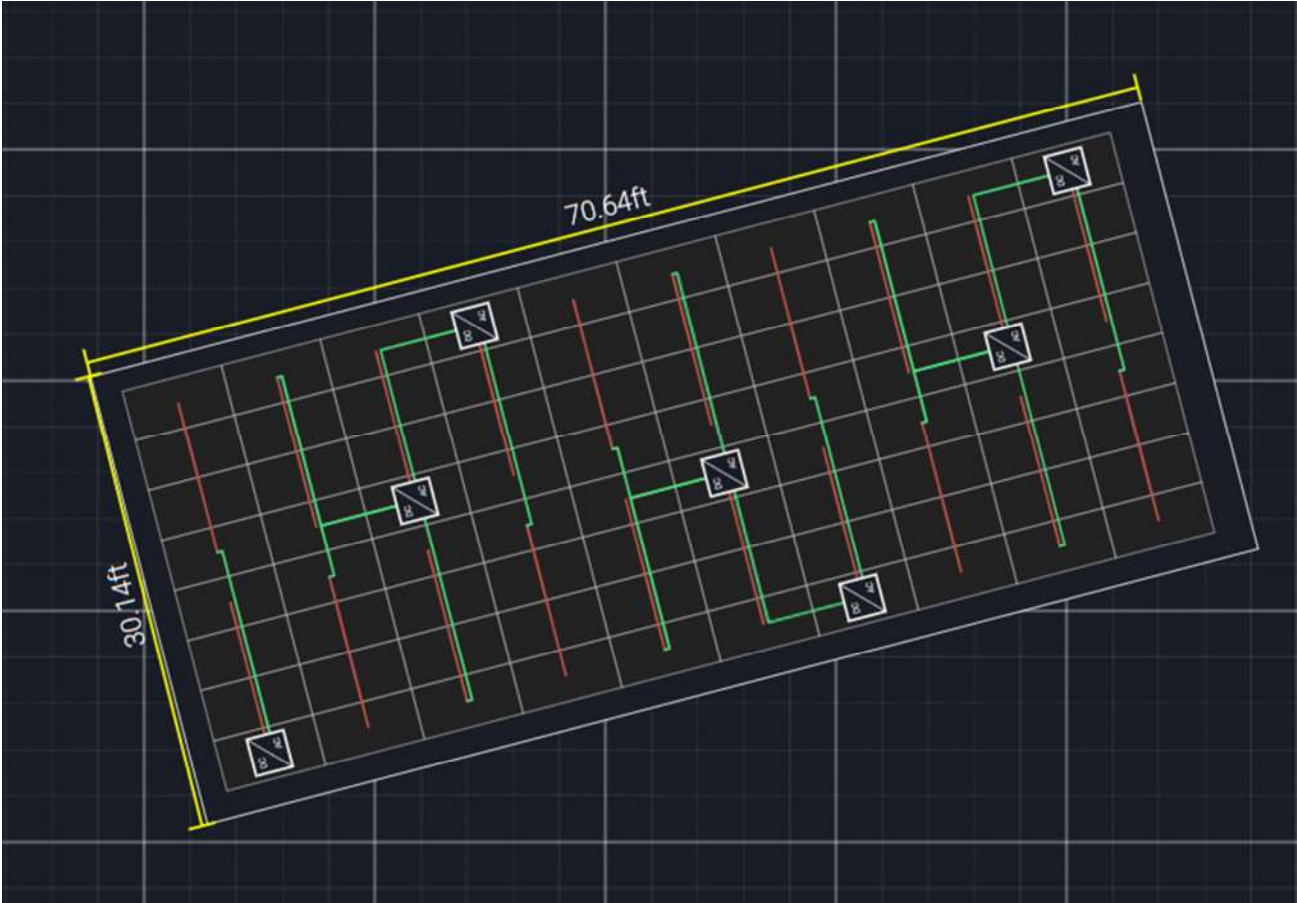


Attachment 5– Simulated Power Production for Both Sites

Waterford HS Solar Shade Structure:



System size = 32kW

No tilt and no shading

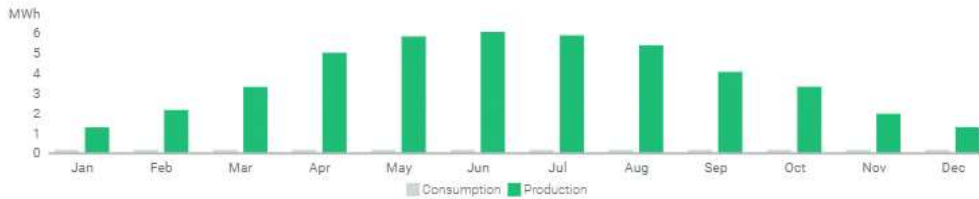
LG 400W panels, Sunny Boy 5.0kW string inverters

ANNUAL PRODUCTION

45,475 kWh
Energy

0%
Energy Offset

MONTHLY PRODUCTION

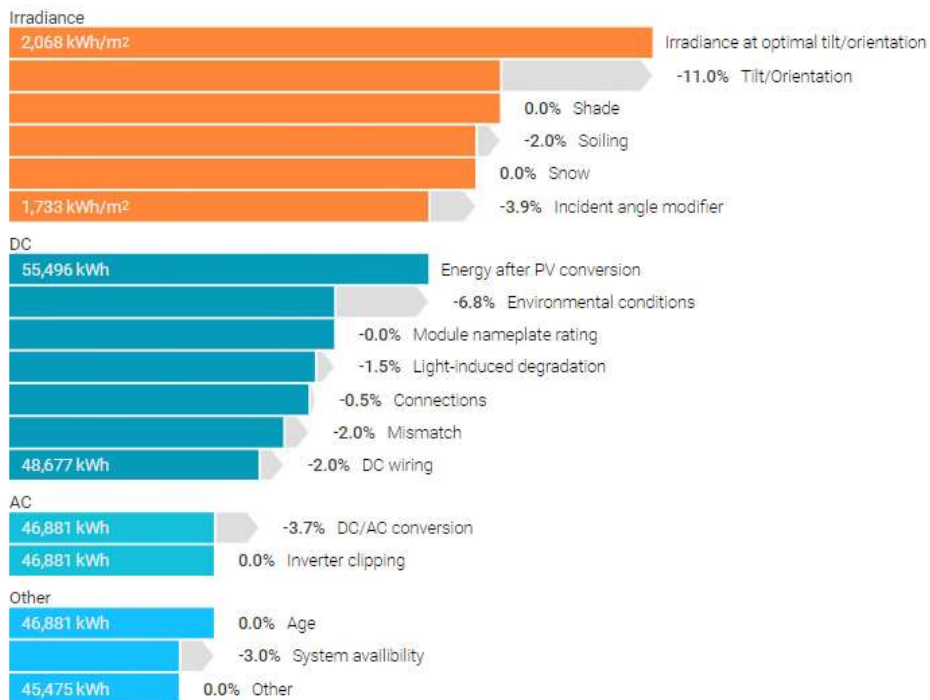


HIDE ADVANCED ^

Yield
1,421 kWh/kWp

Performance Ratio
0.819

SYSTEM LOSSES



This is the same result as original location since it's still just a flat roof with no shading only ~70ft to the north. Orientation doesn't matter when flat.

Waterford HS with tilt at 15°:



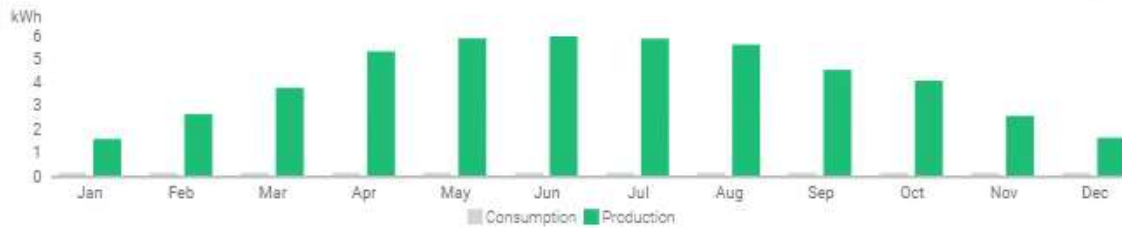
Note: solar shade structure location is approximate.

ANNUAL PRODUCTION

49,780 kWh
Energy

0%
Energy Offset

MONTHLY PRODUCTION



HIDE ADVANCED 

Yield

1,556 kWh/kWp

Performance Ratio

0.819

SYSTEM LOSSES

Irradiance

2,068 kWh/m²

Irradiance at optimal tilt/orientation

-3.2% Tilt/Orientation

0.0% Shade

-2.0% Soiling

0.0% Snow

1,899 kWh/m²

-3.3% Incident angle modifier

DC

60,804 kWh

Energy after PV conversion

-6.9% Environmental conditions

-0.0% Module nameplate rating

-1.5% Light-induced degradation

-0.5% Connections

-2.0% Mismatch

53,271 kWh

-2.0% DC wiring

AC

51,320 kWh

-3.7% DC/AC conversion

51,320 kWh

0.0% Inverter clipping

Other

51,320 kWh

0.0% Age

49,780 kWh

-3.0% System availability

0.0% Other

~9.5% increase in production with this tilt.

Notes on orientation:

Per research here: <https://www.solarpowerrocks.com/solar-basics/which-direction-should-solar-panels-face/>

And here: <https://www.solarpaneltilt.com/>

The optimal orientation **for maximum annual energy production** is facing true South at your latitude*0.76 + 3.1°. For Waterford CA that comes out to about 31°. However, as noted before by orienting West you can shave more off the afternoon peak demand.