# Design 2__11.30.18

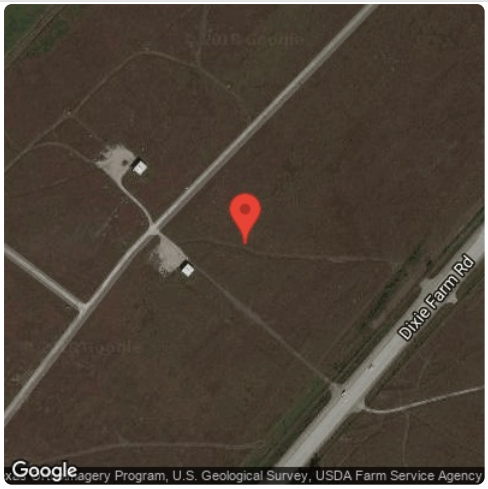
## Report

| | |
|---|---|
| Project Name | |
| Project Address | |
| Prepared By | |

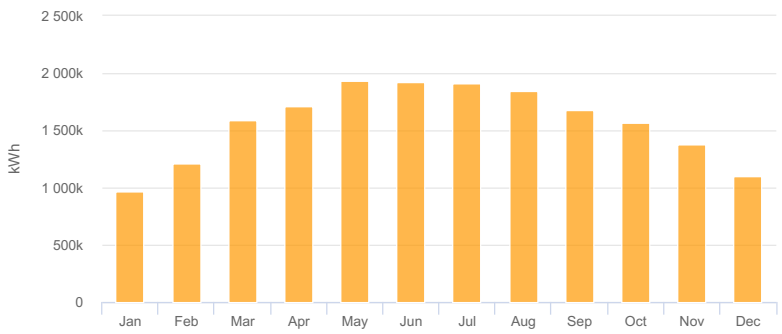
## System Metrics

| | |
|---|---|
| Design | Design 2__11.30.18 |
| Module DC Nameplate | 12.7 MW |
| Inverter AC Nameplate | 10.2 MW<br>Load Ratio: 1.25 |
| Annual Production | 18.80 GWh |
| Performance Ratio | 82.7% |
| kWh/kWp | 1,483.2 |
| Weather Dataset | TMY, 10km Grid (29.55,-95.25), NREL (prospector) |
| Simulator Version | 212e67341e-e58d14f505-620990be7f-36adbd849d |

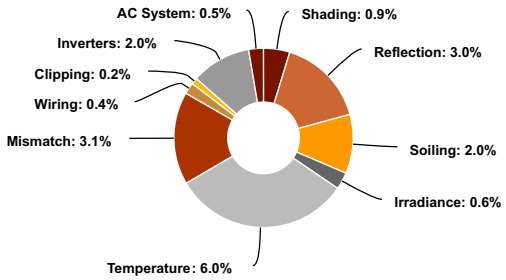
## Project Location




## Monthly Production




## Sources of System Loss




## Annual Production

| | Description | Output | % Delta |
|---|---|---|---|
| Irradiance (kWh/m²) | Annual Global Horizontal Irradiance | 1,674.9 | |
| | POA Irradiance | 1,793.9 | 7.1% |
| | Shaded Irradiance | 1,778.0 | -0.9% |
| | Irradiance after Reflection | 1,724.5 | -3.0% |
| | Irradiance after Soiling | 1,690.1 | -2.0% |
| | **Total Collector Irradiance** | **1,690.0** | **0.0%** |
| Energy (kWh) | Nameplate | 21,430,692.2 | |
| | Output at Irradiance Levels | 21,307,355.1 | -0.6% |
| | Output at Cell Temperature Derate | 20,028,083.2 | -6.0% |
| | Output After Mismatch | 19,399,781.1 | -3.1% |
| | Optimal DC Output | 19,325,136.4 | -0.4% |
| | Constrained DC Output | 19,283,484.5 | -0.2% |
| | Inverter Output | 18,893,000.0 | -2.0% |
| | **Energy to Grid** | **18,798,500.0** | **-0.5%** |
| Temperature Metrics | | | |
| | Avg. Operating Ambient Temp | | 23.0 °C |
| | Avg. Operating Cell Temp | | 31.6 °C |
| Simulation Metrics | | | |
| | Operating Hours | | 4696 |
| | Solved Hours | | 4696 |

## Condition Set

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Description | Condition Set 1 | | | | | | | | | | | |
| Weather Dataset | TMY, 10km Grid (29.55,-95.25), NREL (prospector) | | | | | | | | | | | |
| Solar Angle Location | Meteo Lat/Lng | | | | | | | | | | | |
| Transposition Model | Perez Model | | | | | | | | | | | |
| Temperature Model | Sandia Model | | | | | | | | | | | |
| Temperature Model Parameters | Rack Type | a | b | Temperature Delta | | | | | | | | |
| | Fixed Tilt | -3.56 | -0.075 | 3°C | | | | | | | | |
| | Flush Mount | -2.81 | -0.0455 | 0°C | | | | | | | | |
| Soiling (%) | J | F | M | A | M | J | J | A | S | O | N | D |
| | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Irradiation Variance | 5% | | | | | | | | | | | |
| Cell Temperature Spread | 4° C | | | | | | | | | | | |
| Module Binning Range | -2.5% to 2.5% | | | | | | | | | | | |
| AC System Derate | 0.50% | | | | | | | | | | | |
| Module Characterizations | Module | Characterization | | | | | | | | | | |
| | CS6U 345M (Canadian Solar) | Spec Sheet Characterization, PAN | | | | | | | | | | |
| Component Characterizations | Device | Characterization | | | | | | | | | | |
| | Sunny Tripower 24000TL-US (SMA) | Modified CEC | | | | | | | | | | |

## Components

| Component | Name | Count |
|---|---|---|
| Inverters | Sunny Tripower 24000TL-US (SMA) | 422 (10.2 MW) |
| Strings | 10 AWG (Copper) | 2,110 (532,964.1 ft) |
| Module | Canadian Solar, CS6U 345M (345W) | 36,736 (12.7 MW) |

## Wiring Zones

| Description | Combiner Poles | String Size | Stringing Strategy |
|---|---|---|---|
| Wiring Zone | 12 | 5-19 | Along Racking |

## Field Segments

| Description | Racking | Orientation | Tilt | Azimuth | Intrarow Spacing | Frame Size | Frames | Modules | Power |
|---|---|---|---|---|---|---|---|---|---|
| Field Segment 1 | Fixed Tilt | Portrait (Vertical) | 15° | 180° | 10.0 ft | 2x14 | 1,016 | 28,448 | 9.81 MW |
| Field Segment 2 | Fixed Tilt | Portrait (Vertical) | 15° | 180° | 10.0 ft | 2x14 | 296 | 8,288 | 2.86 MW |

## Detailed Layout