# Celay CELAY, 20.553204689804407, -100.79294056258342

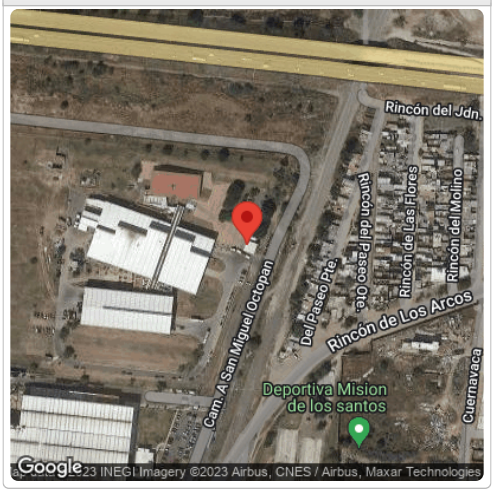
## Report

| | |
|---|---|
| Project Name | CELAY |
| Project Address | 20.553204689804407, -100.79294056258342 |
| Prepared By | Andrea Moysen sergio.velazquez71x@gmail.com |

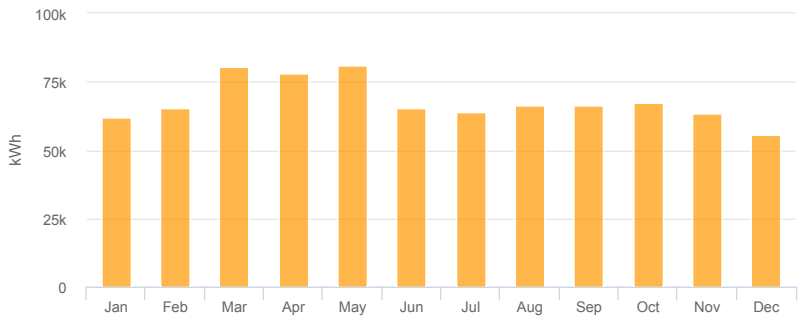
## System Metrics

| | |
|---|---|
| Design | Celay |
| Module DC Nameplate | 500.0 kW |
| Inverter AC Nameplate | 425.0 kW<br>Load Ratio: 1.18 |
| Annual Production | 815.1 MWh |
| Performance Ratio | 75.7% |
| kWh/kWp | 1,630.3 |
| Weather Dataset | TMY, 10km Grid, meteonorm/nrel medium resolution (meteonorm) |
| Simulator Version | 7775c238ad-4d3541e201-fe6a049ac2-80a92caeed |

## Project Location

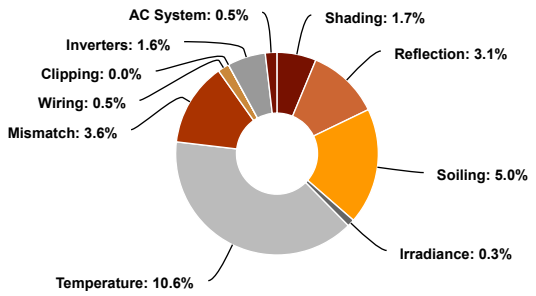



## Monthly Production




| Month | GHI (kWh/m²) | POA (kWh/m²) | Shaded (kWh/m²) | Nameplate (kWh) | Grid (kWh) |
|---|---|---|---|---|---|
| January | 149.1 | 158.8 | 157.4 | 71,999.1 | 62,188.9 |
| February | 161.5 | 169.0 | 167.5 | 77,045.5 | 65,181.3 |
| March | 207.7 | 212.8 | 211.0 | 97,499.2 | 80,375.4 |
| April | 209.3 | 210.1 | 207.0 | 95,643.6 | 78,269.4 |
| May | 225.0 | 222.6 | 216.5 | 100,081.9 | 81,017.4 |
| June | 181.5 | 178.7 | 172.2 | 79,290.2 | 65,434.3 |
| July | 174.0 | 172.1 | 166.4 | 76,509.3 | 63,851.9 |
| August | 176.6 | 176.3 | 172.4 | 79,351.1 | 66,457.8 |
| September | 170.7 | 173.2 | 171.0 | 78,854.0 | 66,141.4 |
| October | 168.8 | 175.2 | 173.5 | 79,760.7 | 67,379.7 |
| November | 153.5 | 163.0 | 161.7 | 74,102.8 | 63,249.1 |
| December | 132.0 | 141.4 | 140.1 | 63,949.6 | 55,542.4 |

## Sources of System Loss



## Annual Production

| | Description | Output | % Delta |
|---|---|---|---|
| Irradiance (kWh/m²) | Annual Global Horizontal Irradiance | 2,109.7 | |
| | POA Irradiance | 2,153.1 | 2.1% |
| | Shaded Irradiance | 2,116.7 | -1.7% |
| | Irradiance after Reflection | 2,050.6 | -3.1% |
| | Irradiance after Soiling | 1,948.1 | -5.0% |
| | **Total Collector Irradiance** | **1,948.0** | **0.0%** |
| Energy (kWh) | Nameplate | 974,086.9 | |
| | Output at Irradiance Levels | 970,987.6 | -0.3% |
| | Output at Cell Temperature Derate | 868,210.4 | -10.6% |
| | Output After Mismatch | 836,978.8 | -3.6% |
| | Optimal DC Output | 832,875.3 | -0.5% |
| | Constrained DC Output | 832,858.2 | 0.0% |
| | Inverter Output | 819,185.1 | -1.6% |
| | **Energy to Grid** | **815,089.2** | **-0.5%** |
| Temperature Metrics | | | |
| | Avg. Operating Ambient Temp | | 21.9 °C |
| | Avg. Operating Cell Temp | | 41.8 °C |
| Simulation Metrics | | | |
| | Operating Hours | | 4613 |
| | Solved Hours | | 4613 |

## Condition Set

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Description | Condition Set 1 | | | | | | | | | | | |
| Weather Dataset | TMY, 10km Grid, meteonorm/nrel medium resolution (meteonorm) | | | | | | | | | | | |
| Solar Angle Location | Meteo Lat/Lng | | | | | | | | | | | |
| Transposition Model | Hay Model | | | | | | | | | | | |
| Temperature Model | Diffusion Model | | | | | | | | | | | |
| Temperature Model Parameters | Rack Type | | $U_{const}$ | | $U_{wind}$ | | | | | | | |
| | Fixed Tilt | | 29 | | 0 | | | | | | | |
| | Flush Mount | | 15 | | 0 | | | | | | | |
| | East-West | | 29 | | 0 | | | | | | | |
| | Carport | | 29 | | 0 | | | | | | | |
| Soiling (%) | J | F | M | A | M | J | J | A | S | O | N | D |
| | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Irradiation Variance | 5% | | | | | | | | | | | |
| Cell Temperature Spread | 4° C | | | | | | | | | | | |
| Module Binning Range | -2.5% to 2.5% | | | | | | | | | | | |
| AC System Derate | 0.50% | | | | | | | | | | | |
| Module Characterizations | Module | | Uploaded By | | Characterization | | | | | | | |
| | JAM72S30-550/MR (1000V) (JA Solar) | | HelioScope | | Spec Sheet Characterization, PAN | | | | | | | |
| Component Characterizations | Device | | Uploaded By | | Characterization | | | | | | | |
| | MAX 75KTL3 LV (220V) (Growatt) | | HelioScope | | Spec Sheet | | | | | | | |
| | MAX 125KTL3-X MV (Growatt) | | HelioScope | | Spec Sheet | | | | | | | |

## Components

| Component | Name | Count |
|---|---|---|
| Inverters | MAX 75KTL3 LV (220V) (Growatt) | 4 (300.0 kW) |
| Inverters | MAX 125KTL3-X MV (Growatt) | 1 (125.0 kW) |
| Home Runs | 1/0 AWG (Copper) | 8 (119.6 m) |
| Home Runs | 4/0 AWG (Copper) | 2 (43.9 m) |
| Combiners | 4 input Combiner | 2 |
| Combiners | 5 input Combiner | 3 |
| Combiners | 8 input Combiner | 4 |
| Combiners | 9 input Combiner | 1 |
| Strings | 10 AWG (Copper) | 64 (2,769.0 m) |
| Module | JA Solar, JAM72S30-550/MR (1000V) (550W) | 909 (500.0 kW) |

## Wiring Zones

| Description | Combiner Poles | String Size | Stringing Strategy |
|---|---|---|---|
| Wiring Zone | 12 | 7-14 | Along Racking |
| Wiring Zone 2 | 12 | 10-20 | Along Racking |

## Field Segments

| Description | Racking | Orientation | Tilt | Azimuth | Intrarow Spacing | Frame Size | Frames | Modules | Power |
|---|---|---|---|---|---|---|---|---|---|
| Field Segment 1 | Flush Mount | Portrait (Vertical) | 4.5° | 185° | 0.0 m | 1x1 | 448 | 448 | 246.4 kW |
| Field Segment 2 | Flush Mount | Portrait (Vertical) | 10° | 5° | 0.0 m | 1x1 | | | 0 |
| Field Segment 4 | Fixed Tilt | Portrait (Vertical) | 10° | 5° | 0.0 m | 1x1 | | | 0 |
| Field Segment 5 | Flush Mount | Portrait (Vertical) | 4.5° | 185° | 0.0 m | 1x1 | 271 | 271 | 149.1 kW |
| Field Segment 6 | Flush Mount | Portrait (Vertical) | 10° | 5° | 0.0 m | 1x1 | | | 0 |
| Field Segment 6 | Flush Mount | Portrait (Vertical) | 4.5° | 185° | 0.0 m | 1x1 | 190 | 190 | 104.5 kW |
| Field Segment 7 | Flush Mount | Portrait (Vertical) | 10° | 5° | 0.0 m | 1x1 | | | 0 |

Detailed Layout