# COA Cherry Hills 102.3 kW COA Cherry Hills Library, 6901 Barstow St NE, Albuquerque NM

## Report

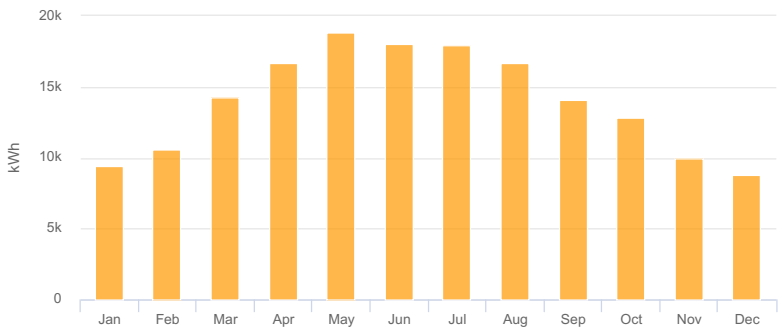
| | |
|---|---|
| Project Name | COA Cherry Hills Library |
| Project Address | 6901 Barstow St NE, Albuquerque NM |
| Prepared By | Zach Johnson<br>zach@sollunasolar.com |

## System Metrics

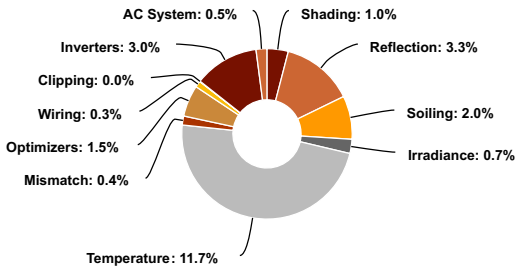
| | |
|---|---|
| Design | COA Cherry Hills 102.3 kW |
| Module DC Nameplate | 102.5 kW |
| Inverter AC Nameplate | 86.4 kW<br>Load Ratio: 1.19 |
| Annual Production | 168.1 MWh |
| Performance Ratio | 77.8% |
| kWh/kWp | 1,640.3 |
| Weather Dataset | TMY, ALBUQUERQUE, NSRDB (tmy2) |
| Simulator Version | 559293434c-36a84e2c72-edbe86706d-ee22b44d10 |

## Project Location


## Monthly Production




## Sources of System Loss




## Annual Production

| | Description | Output | % Delta |
|---|---|---|---|
| Irradiance (kWh/m²) | Annual Global Horizontal Irradiance | 2,047.5 | |
| | POA Irradiance | 2,109.5 | 3.0% |
| | Shaded Irradiance | 2,088.8 | -1.0% |
| | Irradiance after Reflection | 2,018.8 | -3.3% |
| | Irradiance after Soiling | 1,978.5 | -2.0% |
| | **Total Collector Irradiance** | **1,978.3** | **0.0%** |
| Energy (kWh) | Nameplate | 202,889.6 | |
| | Output at Irradiance Levels | 201,558.2 | -0.7% |
| | Output at Cell Temperature Derate | 178,036.3 | -11.7% |
| | Output After Mismatch | 177,294.5 | -0.4% |
| | Optimizer Output | 174,721.9 | -1.5% |
| | Optimal DC Output | 174,213.6 | -0.3% |
| | Constrained DC Output | 174,183.4 | 0.0% |
| | Inverter Output | 168,957.6 | -3.0% |
| | **Energy to Grid** | **168,112.9** | **-0.5%** |
| Temperature Metrics | | | |
| | Avg. Operating Ambient Temp | | 16.8 °C |
| | Avg. Operating Cell Temp | | 37.3 °C |
| Simulation Metrics | | | |
| | Operating Hours | | 4719 |
| | Solved Hours | | 4719 |

## Condition Set

| | |
|---|---|
| Description | Condition Set 1 |
| Weather Dataset | TMY, ALBUQUERQUE, NSRDB (tmy2) |
| Solar Angle Location | Meteo Lat/Lng |
| Transposition Model | Perez 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | Uploaded By | Characterization |
|---|---|---|
| CS3U 370MS 1000V (Canadian Solar Inc.) | HelioScope | CS3U-370MS_MIX_CSI_EXT_V6_52_2016Q4_A2.PAN, PAN |

**Component Characterizations**

| Device | Uploaded By | Characterization |
|---|---|---|

## Components

| Component | Name | Count |
|---|---|---|
| Inverters | SE43.2K (SolarEdge) | 2 (86.4 kW) |
| Strings | 10 AWG (Copper) | 18 (2,139.6 ft) |
| Optimizers | P700 (SolarEdge) | 144 (100.8 kW) |
| Module | Canadian Solar Inc., CS3U 370MS 1000V (370W) | 277 (102.5 kW) |

## Wiring Zones

| Description | Combiner Poles | String Size | Stringing Strategy |
|---|---|---|---|
| Wiring Zone | - | 7-16 | Along Racking |

## Field Segments

| Description | Racking | Orientation | Tilt | Azimuth | Intrarow Spacing | Frame Size | Frames | Modules | Power |
|---|---|---|---|---|---|---|---|---|---|
| Field Segment 1 | Flush Mount | Portrait (Vertical) | 8° | 180° | 0.1 ft | 1x1 | 30 | 30 | 11.1 kW |
| Field Segment 2 | Flush Mount | Portrait (Vertical) | 15° | 180° | 0.1 ft | 1x1 | 18 | 18 | 6.66 kW |
| Field Segment 3 | Flush Mount | Portrait (Vertical) | 15° | 269.302° | 0.1 ft | 1x1 | 18 | 18 | 6.66 kW |
| Field Segment 4 | Flush Mount | Portrait (Vertical) | 15° | 89.4133° | 0.1 ft | 1x1 | 18 | 18 | 6.66 kW |
| Field Segment 5 | Flush Mount | Portrait (Vertical) | 15° | 179° | 0.1 ft | 1x1 | 28 | 28 | 10.4 kW |
| Field Segment 6 | Flush Mount | Portrait (Vertical) | 15° | 180° | 0.1 ft | 1x1 | 35 | 35 | 13.0 kW |
| Field Segment 7 | Flush Mount | Portrait (Vertical) | 15° | 270° | 0.1 ft | 1x1 | 70 | 70 | 25.9 kW |
| Field Segment 8 | Flush Mount | Portrait (Vertical) | 15° | 90° | 0.1 ft | 1x1 | 34 | 34 | 12.6 kW |
| Field Segment 9 | Flush Mount | Portrait (Vertical) | 15° | 90° | 0.1 ft | 1x1 | 26 | 26 | 9.62 kW |

Detailed Layout