Case Study 1 - Italco (John's Project) Case Study 1 - Italco, Italco International 35th Street ,Al Garhoud UAE

Report

Project Name	Case Study 1 - Italco
Project Address	Italco International 35th Street ,Al Garhoud UAE
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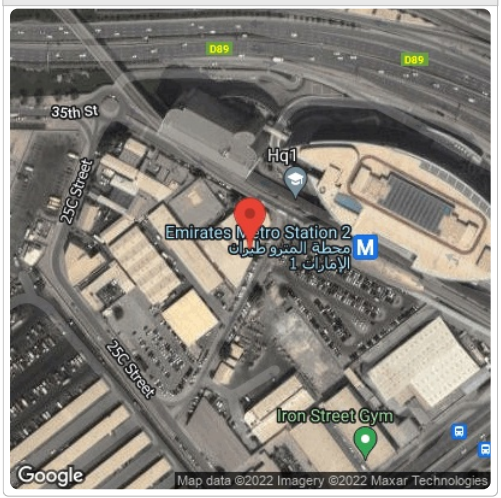
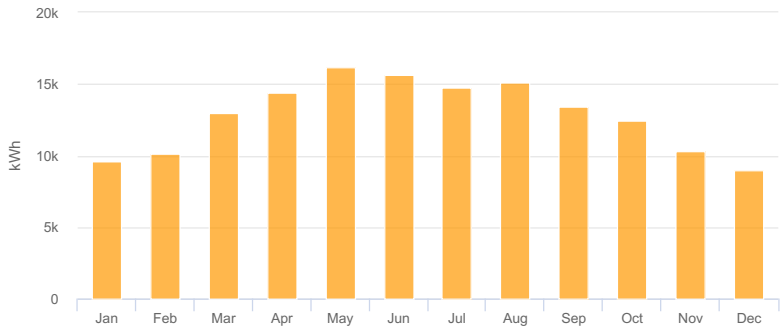
System Metrics

Design	Case Study 1 - Italco (John's Project)
Module DC Nameplate	96.0 kW
Inverter AC Nameplate	96.2 kW Load Ratio: 1.00
Annual Production	153.9 MWh
Performance Ratio	77.5%
kWh/kWp	1,603.5
Weather Dataset	TMY, 10km Grid, meteonorm (meteonorm)
Simulator Version	77eaf2cdb5-02f2a7f506-20068b956b-d70d5f9ff0

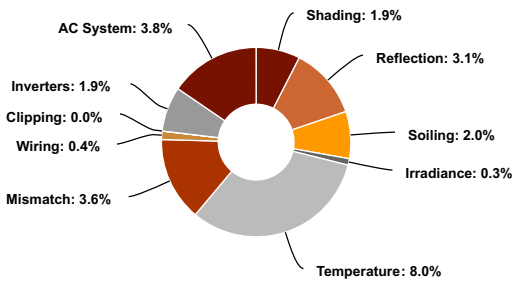
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	2,010.5	
	POA Irradiance	2,068.5	2.9%
	Shaded Irradiance	2,029.7	-1.9%
	Irradiance after Reflection	1,967.8	-3.1%
	Irradiance after Soiling	1,928.4	-2.0%
	Total Collector Irradiance	**1,928.1**	**0.0%**
Energy (kWh)	Nameplate	185,170.0	
	Output at Irradiance Levels	184,661.5	-0.3%
	Output at Cell Temperature Derate	169,859.7	-8.0%
	Output After Mismatch	163,800.5	-3.6%
	Optimal DC Output	163,215.7	-0.4%
	Constrained DC Output	163,215.5	0.0%
	Inverter Output	160,102.3	-1.9%
	Energy to Grid	**153,939.9**	**-3.8%**
Temperature Metrics			
	Avg. Operating Ambient Temp		30.3 °C
	Avg. Operating Cell Temp		40.8 °C
Simulation Metrics			
	Operating Hours		4595
	Solved Hours		4595

Condition Set

Description	Condition Set 1
Weather Dataset	TMY, 10km Grid, meteonorm (meteonorm)
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	Uploaded By	Characterization
TSM-DE09.08 400 (Trina Solar)	Folsom Labs	Spec Sheet Characterization, PAN

Component Characterizations

Device	Uploaded By	Characterization
Sunny Tripower 24000TL-US (SMA)	Folsom Labs	Modified CEC

Components

Component	Name	Count
Inverters	Sunny Tripower 24000TL-US (SMA)	4 (96.2 kW)
AC Panels	4 input AC Panel	1
AC Home Runs	12 AWG (Copper)	1 (215.2 ft)
AC Home Runs	1/0 AWG (Aluminum)	4 (578.0 ft)
Strings	10 AWG (Copper)	12 (1,281.1 ft)
Module	Trina Solar, TSM-DE09.08 400 (400W)	240 (96.0 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	5-23	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	10°	231.75562°	2.0 ft	2x12	10	240	96.0 kW

Detailed Layout