

# Voltec 385

Bourse de Travail, 26 Rue Jean Baptiste Clément 08000 Charleville Mézières

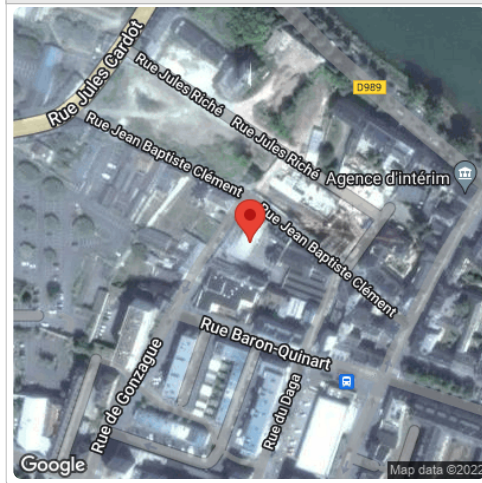
## Report

Project Name	Bourse de Travail
Project Address	26 Rue Jean Baptiste Clément 08000 Charleville Mézières
Prepared By	Iman Abdallah iman_1818@hotmail.com

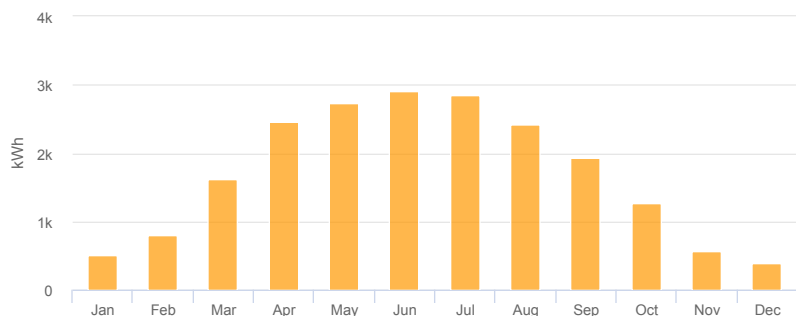
## System Metrics

Design	Voltec 385
Module DC Nameplate	21.2 kW
Inverter AC Nameplate	16.0 kW Load Ratio: 1.33
Annual Production	20.47 MWh
Performance Ratio	83.8%
kWh/kWp	966.6
Weather Dataset	TMY, 10km Grid, meteonorm (meteonorm)
Simulator Version	7e6fd0e96f-ab174a2b51-4024cb65de-07f77f23f7

## Project Location

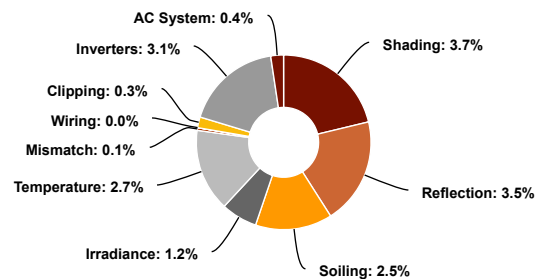


## Monthly Production



Month	GHI (kWh/m <sup>2</sup> )	POA (kWh/m <sup>2</sup> )	Shaded (kWh/m <sup>2</sup> )	Nameplate (kWh)	Grid (kWh)
January	22.3	29.9	26.6	527.2	507.1
February	35.6	44.0	41.6	827.5	799.2
March	75.1	88.9	85.7	1,711.7	1,629.2
April	123.0	134.5	130.8	2,611.7	2,459.6
May	149.5	153.7	149.8	2,992.3	2,730.4
June	163.5	165.1	160.8	3,209.8	2,913.2
July	159.8	162.4	158.0	3,150.9	2,854.4
August	129.3	138.0	134.2	2,680.7	2,421.7
September	95.6	108.0	104.6	2,087.5	1,931.1
October	57.3	71.3	67.8	1,350.6	1,261.0
November	24.4	33.7	30.1	597.0	564.3
December	17.8	24.6	21.0	415.1	397.4

## Sources of System Loss



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,053.3	
	POA Irradiance	1,154.1	9.6%
	Shaded Irradiance	1,111.1	-3.7%
	Irradiance after Reflection	1,072.7	-3.5%
	Irradiance after Soiling	1,045.8	-2.5%
	Total Collector Irradiance	1,046.4	0.1%
Energy (kWh)	Nameplate	22,162.0	
	Output at Irradiance Levels	21,901.6	-1.2%
	Output at Cell Temperature Derate	21,314.9	-2.7%
	Output After Mismatch	21,296.2	-0.1%
	Optimal DC Output	21,296.2	0.0%
	Constrained DC Output	21,222.2	-0.3%
	Inverter Output	20,554.2	-3.0%
	Energy to Grid	20,468.7	-0.4%
Temperature Metrics			
Avg. Operating Ambient Temp		12.6 °C	
Avg. Operating Cell Temp		20.3 °C	
Simulation Metrics			
Operating Hours		4609	
Solved Hours		4609	

📦 Components		
Component	Name	Count
Inverters	IQ7A-72-2-US (208V) (2019) (Enphase)	55 (16.0 kW)
AC Branches	1000 MCM (Aluminum)	2 (154.9 m)
Module	Voltec Solar, TARKA 126 VSBD 385 (385W)	55 (21.2 kW)

☁ 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
	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	3.00%											
Module Characterizations	Module					Uploaded By		Characterization				
	TARKA 126 VSBD 385 (Voltec Solar)					HelioScope		Spec Sheet Characterization, PAN				
Component Characterizations	Device		Uploaded By				Characterization					

### Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	1-2	Along Racking

### Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Portrait (Vertical)	15°	209.0308°	1.0 m	1x1	41	41	15.8 kW
Field Segment 2	Flush Mount	Portrait (Vertical)	35°	215.97397°	1.0 m	1x1	9	9	3.47 kW
Field Segment 3	Flush Mount	Portrait (Vertical)	40°	36.56037°	1.0 m	1x1			0
Field Segment 4	Flush Mount	Portrait (Vertical)	25°	297.09113°	1.0 m	1x1			0
Field Segment 5	Flush Mount	Portrait (Vertical)	30°	207.27292°	1.0 m	1x1			0
Field Segment 6	Flush Mount	Portrait (Vertical)	30°	26.446133°	1.0 m	1x1			0
Field Segment 7	Flush Mount	Portrait (Vertical)	40°	299.72363°	1.0 m	1x1			0
Field Segment 8	Flush Mount	Portrait (Vertical)	20°	22.113697°	1.0 m	1x1			0
Field Segment 9	Flush Mount	Portrait (Vertical)	30°	24.701668°	1.0 m	1x1			0
Field Segment 10	Flush Mount	Portrait (Vertical)	20°	25.858994°	1.0 m	1x1			0
Field Segment 11	Flush Mount	Landscape (Horizontal)	18°	201.3832°	1.0 m	1x1	5	5	1.93 kW
Field Segment 12	Flush Mount	Landscape (Horizontal)	36°	200.99063°	1.0 m	1x1			0
Field Segment 13	Flush Mount	Landscape (Horizontal)	18°	203.60501°	1.0 m	1x1			0
Field Segment 14	Flush Mount	Landscape (Horizontal)	20°	301.00058°	1.0 m	1x1			0
Field Segment 15	Flush Mount	Landscape (Horizontal)	30°	291.1711°	1.0 m	1x1			0
Field Segment 16	Flush Mount	Landscape (Horizontal)	29°	116.35915°	1.0 m	1x1			0
Field Segment 17	Flush Mount	Landscape (Horizontal)	28°	110.67552°	1.0 m	1x1			0
Field Segment 18	Flush Mount	Landscape (Horizontal)	20°	297.03632°	1.0 m	1x1			0
Field Segment 19	Flush Mount	Landscape (Horizontal)	16°	118.28401°	1.0 m	1x1			0

Detailed Layout

