



City of Palm Desert

Resource Preservation and Enhancement Committee

Citywide Photovoltaic Project

February 24, 2025



PALM DESERT
CALIFORNIA



FOREFRONT
POWER



City Council Priorities

Energy & Sustainability

- Priority 1: The vision is to be a **responsible steward of the City's natural resources**. Priorities are to **reduce per-capita consumption of energy** and water, promote greater use of sustainable materials with an eye upon the needs of future generations
- Priority 2: **Promote greater usage of more sustainable materials**.
 - The well-being of future generations depends on a healthy environment.
 - Strategy: Develop policies and programs to **discourage waste**, **increase renewable energy production** and increase the use of environmentally responsible materials.
- Priority 3: Encourage all new construction to be **net zero energy in design**

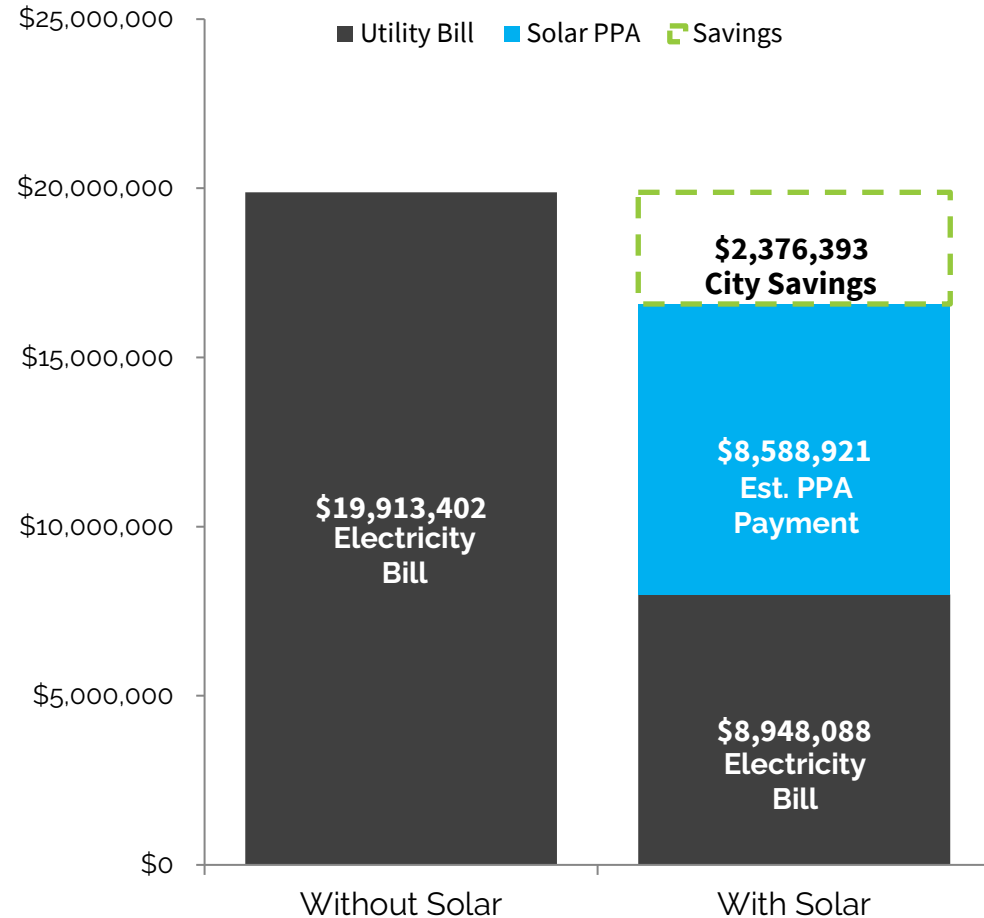




Benefits of the Power Purchase Agreement

- No upfront cost to City
- 0% Rate Escalator for 20 Years
- Electricity Rate Stability
- Monetize Federal Tax Credit
- Operations & Maintenance Included
- Guaranteed Performance
- Future Ownership Flexibility

Palm Desert City Est. PPA 20Y Savings



Civic Center (West) – 470kW

SYSTEM DESCRIPTION	
MODULE TYPE	Longi LR4-72HPH-435M
QUANTITY	1080
INVERTERS	(08) CPS SCA 50KTL-00-480-US (04) CPS SCA 80KTL-00-480-US
SYSTEM SIZE (DC)	469.80 kW
SYSTEM SIZE (AC)	390.00 kW
SYSTEM SIZE (AC-CEC)	432.36 kW-CEC
LAT/LONG	33.729351, -116.379432
AZIMUTH ANGLE	134°
TILT ANGLE	7°
SNOWLOAD	0 PSF
WINDSPEED	97 MPH
SEISMIC CATEGORY	D
TREES/LIGHT POLES	No tree removal/13
ADA SPACES/COVERED	7/2

NOTE: DESKTOP ANALYSIS OF TOPOGRAPHY AND TREE HEIGHTS WERE ASSUMED FOR THE DESIGNS. FINAL SYSTEM SIZE AND LOCATION WILL VARY BASED ON FURTHER DILIGENCE

MINIMUM CLEARANCE IS 10' UNLESS OTHERWISE SPECIFIED

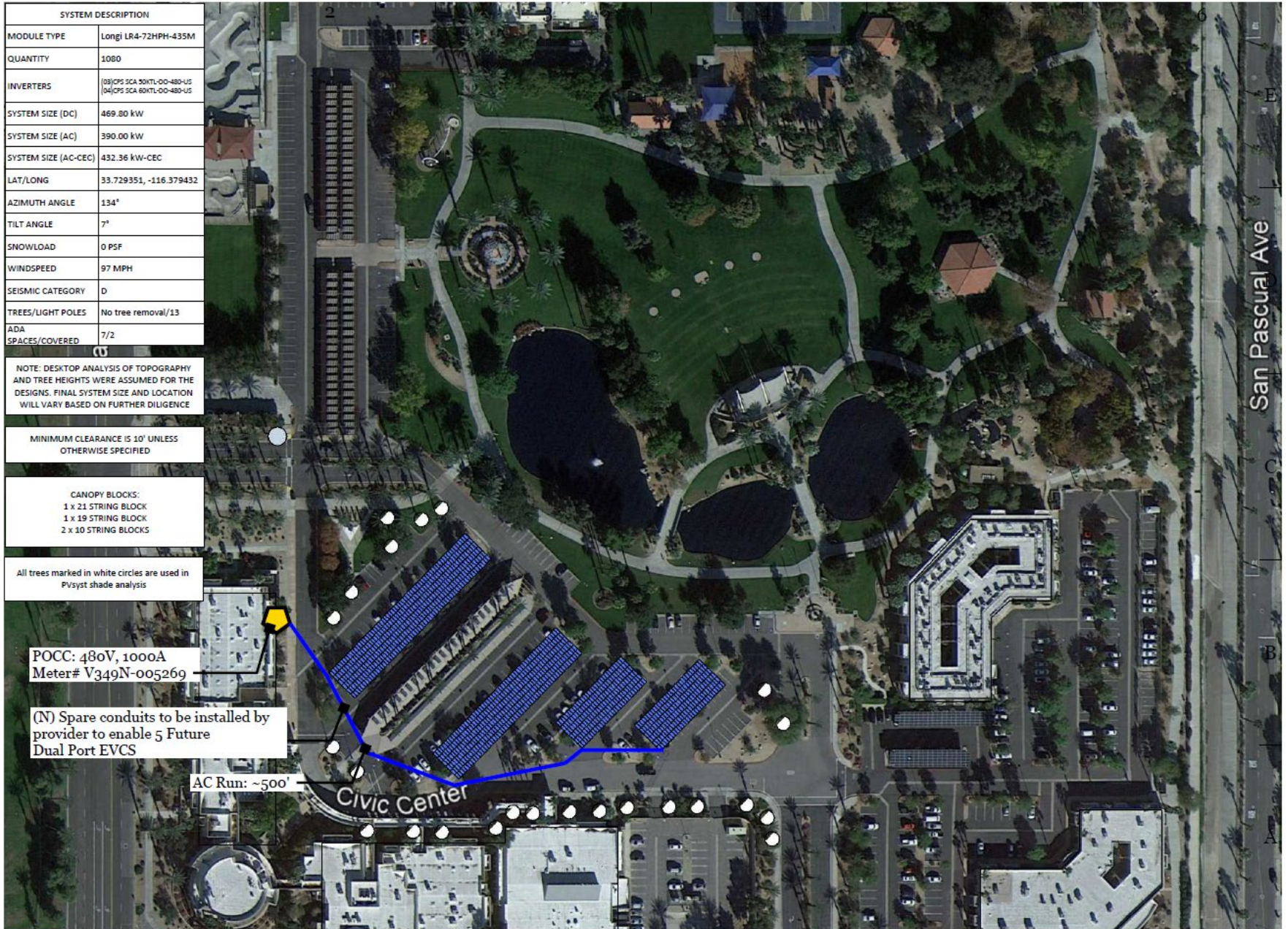
CANOPY BLOCKS:
1 x 21 STRING BLOCK
1 x 19 STRING BLOCK
2 x 10 STRING BLOCKS

All trees marked in white circles are used in Pvsyst shade analysis

POCC: 480V, 1000A
Meter# V349N-005269

(N) Spare conduits to be installed by provider to enable 5 Future Dual Port EVCS

AC Run: ~500'



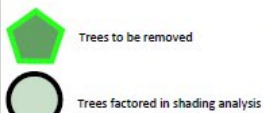
Civic Center (East) – 180kW

SYSTEM DESCRIPTION	
MODULE TYPE	Longi LR4-72HPH-435M
QUANTITY	414
INVERTERS	(03) CPS SCA 50KTL-00-480-US
SYSTEM SIZE (DC)	180.09 kW
SYSTEM SIZE (AC)	150.00 kW
SYSTEM SIZE (AC-CEC)	165.74 kW-CEC
LAT/LONG	33.729351, -116.379432
AZIMUTH ANGLE	270°
TILT ANGLE	7°
SNOWLOAD	0 PSF
WINDSPEED	97 MPH
SEISMIC CATEGORY	D
TREES/LIGHT POLES	~10/4
ADA SPACES/COVERED	5/0

NOTE: DESKTOP ANALYSIS OF TOPOGRAPHY AND TREE HEIGHTS WERE ASSUMED FOR THE DESIGNS. FINAL SYSTEM SIZE AND LOCATION WILL VARY BASED ON FURTHER DILIGENCE

MINIMUM CLEARANCE IS 12' UNLESS OTHERWISE SPECIFIED

CANOPY BLOCKS:
02 x 8 STRING BLOCKS
01 x 9 STRING BLOCK



(N) Spare conduits to be installed by provider to enable 2 Future Dual Port EVCS

AC Run: ~400'

Meter# 259000-023855

150 KVA, 480V to 240V
Step Down Transformer
Needed

Aquatic Center – 345kW

SYSTEM DESCRIPTION	
MODULE TYPE	Longi LR4-72HPH-435M
QUANTITY	792
INVERTERS	(05)CPS SCA 60KTL-00-US-480
SYSTEM SIZE (DC)	344.52 kW
SYSTEM SIZE (AC)	300.00 kW
SYSTEM SIZE (AC-CEC)	317.06 kW-CEC
LAT/LONG	33.729351, -116.379432
AZIMUTH ANGLE	90°
TILT ANGLE	7°, 5°
SNOWLOAD	0 PSF
WINDSPEED	97 MPH
SEISMIC CATEGORY	D
TREES/LIGHT POLES	~45/4
ADA SPACES/COVERED	8/3

NOTE: DESKTOP ANALYSIS OF TOPOGRAPHY AND TREE HEIGHTS WERE ASSUMED FOR THE DESIGNS. FINAL SYSTEM SIZE AND LOCATION WILL VARY BASED ON FURTHER DILIGENCE

MINIMUM CLEARANCE IS 13' UNLESS OTHERWISE SPECIFIED

CANOPY BLOCKS:
1 x 44 STRING BLOCK



Trees used in
shade analysis

(N) Spare conduits to be installed by
provider to enable 2 Future
Dual Port EVCS

AC Run: ~450'

POCC: 480V, 800A
Meter# V349N-018847



Aquatic Center – 345kW

Artists Center – 133kW

SYSTEM DESCRIPTION	
MODULE TYPE	Longi LR4-72HPH-435M
QUANTITY	306
INVERTERS	[01]CPS SCA 60KTL-00-US-480 [01]CPS SCA 60KTL-00-US-480
SYSTEM SIZE (DC)	133.11 kW
SYSTEM SIZE (AC)	110.00 kW
SYSTEM SIZE (AC-CEC)	122.50 kW-CEC
LAT/LONG	33.723020, -116.400378
AZIMUTH ANGLE	208°
TILT ANGLE	7°
SNOWLOAD	0 PSF
WINDSPEED	97 MPH
SEISMIC CATEGORY	D
TREES/LIGHT POLES	~15/2
ADA SPACES/COVERED	3/0

NOTE: DESKTOP ANALYSIS OF TOPOGRAPHY AND TREE HEIGHTS WERE ASSUMED FOR THE DESIGNS. FINAL SYSTEM SIZE AND LOCATION WILL VARY BASED ON FURTHER DILIGENCE

MINIMUM CLEARANCE IS 10' UNLESS OTHERWISE SPECIFIED

CANOPY BLOCKS:
1 x 10 STRING BLOCK
1 x 7 STRING BLOCK



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SAN FRANCISCO, CA 94104
(855) 204-5083
www.ForefrontPower.com

STAMP:

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CONSTRUCTION**

**City of Palm Desert
Art Museum**

72567 CA-111
Palm Desert, CA 92260

PROJECT NUMBER:
CA-22-0149

SHEET TITLE:
CONCEPTUAL LAYOUT

SHEET SIZE:
TABLOID 11" X 17"

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NO.	REVISION	DATE	INIT.

DATE: June.16.2022

DRAWN BY: RP

ENGINEER: RP

APPROVED BY:

PROJECT PHASE:
PRELIMINARY DESIGN

SCALE: 1" = 60'

SHEET NO:

CL-1

Artists
Center –
133kW



Desert Willow Golf Resort – 266kW

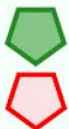
SYSTEM DESCRIPTION	
MODULE TYPE	Longi LR4-72HPH-435M
QUANTITY	612
INVERTERS	(2)CPS SCA 50KTL-00-US-480 (2)CPS SCA 60KTL-00-US-480
SYSTEM SIZE (DC)	266.22 kW
SYSTEM SIZE (AC)	220.00 kW
SYSTEM SIZE (AC-CEC)	245.01 kW-CEC
LAT/LONG	33.766176, -116.372699
AZIMUTH ANGLE	183°, 93°
TILT ANGLE	7°
SNOWLOAD	0 PSF
WINDSPEED	97 MPH
SEISMIC CATEGORY	D
TREES/LIGHT POLES	~15/4
ADA SPACES/COVERED	4/0

NOTE: DESKTOP ANALYSIS OF TOPOGRAPHY AND TREE HEIGHTS WERE ASSUMED FOR THE DESIGNS. FINAL SYSTEM SIZE AND LOCATION WILL VARY BASED ON FURTHER DILIGENCE

MINIMUM CLEARANCE IS 10' UNLESS OTHERWISE SPECIFIED

CANOPY BLOCKS:
1 x 14 STRING BLOCK
2 x 10 STRING BLOCKS

TREES MARKED IN GREEN ARE MODELED IN SHADE ANALYSIS ARE NOT TO BE REMOVED



TREES MARKED IN RED ARE PLANNED FOR REMOVAL



STAMP:

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**City of Palm Desert
Desert Willow Golf Resort**

38500 Portola Ave,
Palm Desert, CA 92260

PROJECT NUMBER:
CA-22-0166

SHEET TITLE:
CONCEPTUAL LAYOUT

SHEET SIZE:
TABLOID 11" X 17"

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NO.	REVISION	DATE	INIT.

DATE: Sep.15.2022

DRAWN BY: RP

ENGINEER: RP

APPROVED BY:

PROJECT PHASE:
PRELIMINARY DESIGN

SCALE: 1" = 80'

SHEET NO:

CL-1

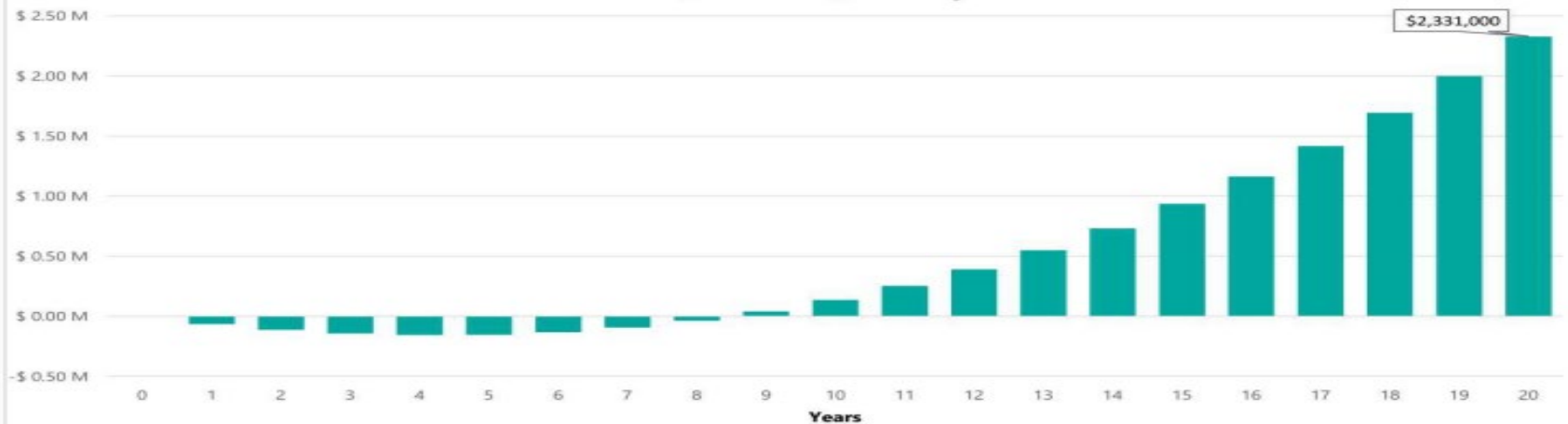
Cash Flow Analysis

Cash Flow Analysis of Solar PPA, PV Only

City of Palm Desert, 5 Sites, September 15 2022

PV								
A	B	C	D	E	F	G	H	I
Year	Estimated Utility Usage (kWh)	Estimated PV Production (kWh)	Annual Estimated Utility Cost w/o PV	Utility Energy Cost w/ PV	PV Operating Costs	PPA Payments	Net Annual Savings	Cumulative Project Cash Flow
0	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1	2,498,000	2,418,200	\$ 635,000	\$ 246,000	\$ 700	\$ 450,000	\$ (62,000)	\$ (62,000)
2	2,498,000	2,406,100	\$ 660,000	\$ 258,000	\$ 700	\$ 448,000	\$ (47,000)	\$ (109,000)
3	2,498,000	2,394,000	\$ 686,000	\$ 270,000	\$ 700	\$ 446,000	\$ (31,000)	\$ (140,000)
4	2,498,000	2,382,100	\$ 714,000	\$ 284,000	\$ 800	\$ 443,000	\$ (14,000)	\$ (154,000)
5	2,498,000	2,370,200	\$ 742,000	\$ 297,000	\$ 800	\$ 441,000	\$ 3,000	\$ (150,000)
6	2,498,000	2,358,300	\$ 772,000	\$ 311,000	\$ 800	\$ 439,000	\$ 21,000	\$ (130,000)
7	2,498,000	2,346,500	\$ 803,000	\$ 327,000	\$ 800	\$ 437,000	\$ 39,000	\$ (91,000)
8	2,498,000	2,334,800	\$ 835,000	\$ 342,000	\$ 900	\$ 435,000	\$ 57,000	\$ (34,000)
9	2,498,000	2,323,100	\$ 869,000	\$ 359,000	\$ 900	\$ 433,000	\$ 77,000	\$ 43,000
10	2,498,000	2,311,500	\$ 903,000	\$ 375,000	\$ 900	\$ 430,000	\$ 96,000	\$ 139,000
11	2,498,000	2,299,900	\$ 939,000	\$ 393,000	\$ 900	\$ 428,000	\$ 117,000	\$ 256,000
12	2,498,000	2,288,400	\$ 977,000	\$ 412,000	\$ 1,000	\$ 426,000	\$ 138,000	\$ 394,000
13	2,498,000	2,277,000	\$ 1,016,000	\$ 432,000	\$ 1,000	\$ 424,000	\$ 159,000	\$ 553,000
14	2,498,000	2,265,600	\$ 1,057,000	\$ 453,000	\$ 1,000	\$ 422,000	\$ 182,000	\$ 734,000
15	2,498,000	2,254,300	\$ 1,099,000	\$ 474,000	\$ 1,100	\$ 420,000	\$ 204,000	\$ 939,000
16	2,498,000	2,243,000	\$ 1,143,000	\$ 496,000	\$ 1,100	\$ 418,000	\$ 228,000	\$ 1,167,000
17	2,498,000	2,231,800	\$ 1,189,000	\$ 520,000	\$ 1,100	\$ 416,000	\$ 253,000	\$ 1,420,000
18	2,498,000	2,220,600	\$ 1,236,000	\$ 544,000	\$ 1,200	\$ 413,000	\$ 278,000	\$ 1,697,000
19	2,498,000	2,209,500	\$ 1,286,000	\$ 570,000	\$ 1,200	\$ 411,000	\$ 304,000	\$ 2,001,000
20	2,498,000	2,198,500	\$ 1,337,000	\$ 596,000	\$ 1,200	\$ 409,000	\$ 330,000	\$ 2,331,000

PPA Cumulative Cash Flow, Nominal \$, PV Only





Palm Desert City – Pricing & Savings

Site	PPA Escalator	Solar System Size (kW)	% Energy Offset	EVCS Readiness Conduit Included	Pre-Solar Utility Bill	Year 1 Savings	20 Year Savings
Civic Center West	0%	470	91%	5 Future Dual EVCS (10 Plugs)	\$235,282	(\$229)	\$1,238,791
Civic Center East	0%	180	99%	2 Future Dual EVCS (4 Plugs)	\$94,430	(\$9,731)	\$312,737
Aquatic Center	0%	345	100%	2 Future Dual EVCS (4 Plugs)	\$132,231	(\$19,954)	\$368,179
Artists Center	0%	133	91%	None	\$74,213	(\$14,361)	\$128,444
Desert Willow Golf Course	0%	266	91%	None	\$131,519	(\$16,089)	328,241
Total	0%	1,394	94%	-	\$667,674	(\$60,364)	\$2,376,392

- **On Site Solar Capacity**
 - 1,394kW across 5 Sites
- **No Upfront Cost**
- **Save**
 - +\$2.3M over 20 years
- **0% Rate Escalation for 20 Years**
- **Operation and Maintenance Included**
- **Solar Carport Structures**
 - Shaded Parking
 - New LED Lighting
- **Local Labor**
- **EVCS-Ready Infrastructure**
- **Sustainability**
 - Solar Renewable Energy Credits
- **Secured NEM 2.0**

Current Project Status



Statewide,
Competitive RFP



Solar Carports
+1.3MW PV



+\$2.3M Lifetime
Energy Savings



Turnkey Solutions
2024 Construction



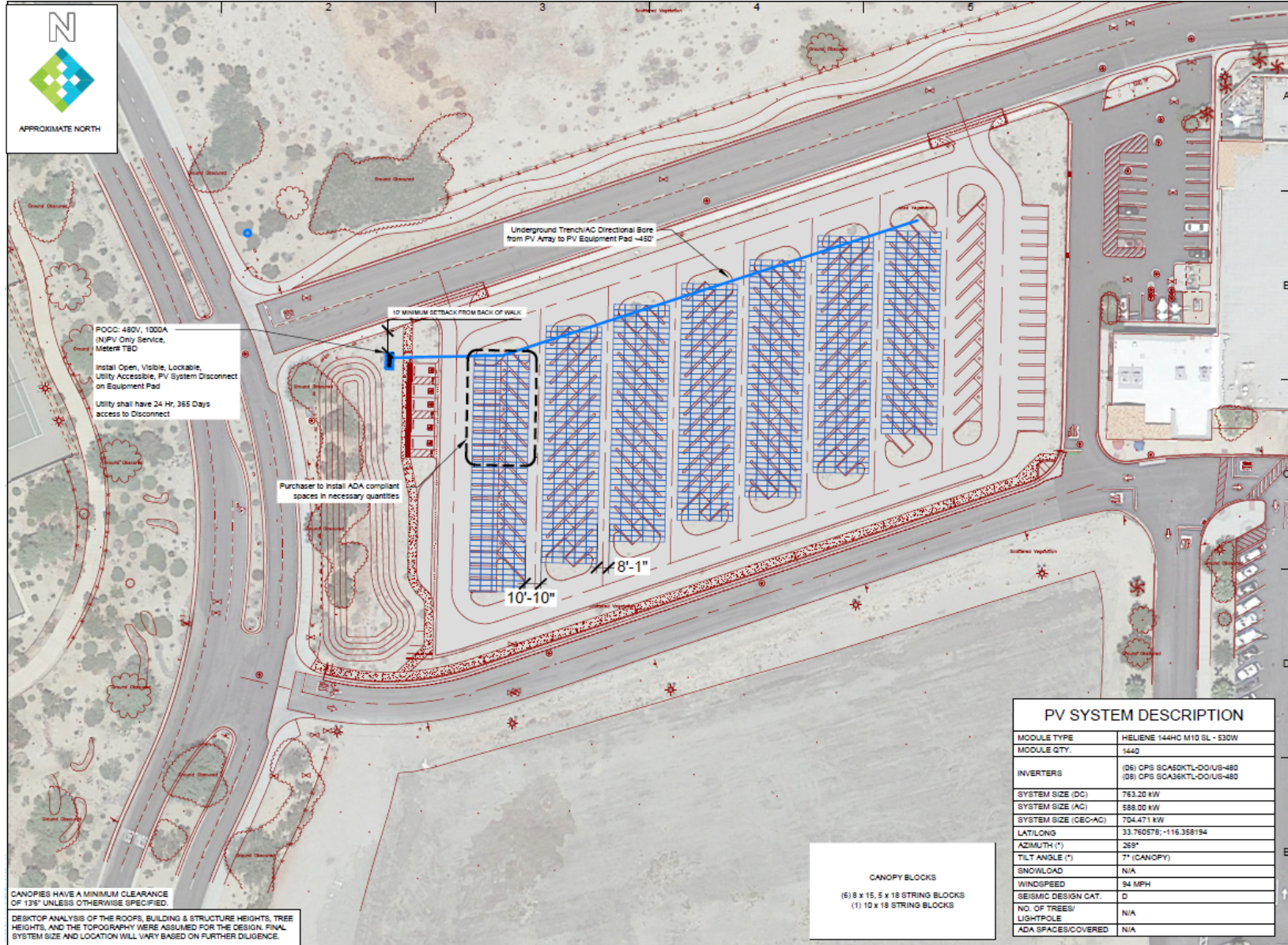
Secured NEM 2.0
Legacy Rates



Staff, Peer, Legal
Reviewed

- Contract approved by the City Council October 2022
- All 6 sites have an approved interconnect application
- Aquatic Center and Artists Center Complete
- Civic Center East & West, and Desert Willow Academy to be completed 2025
- Desert Willow Overflow lot to be completed 2026

Desert Willow Overflow Lot – 763kW



PV SYSTEM DESCRIPTION	
MODULE TYPE	HELIENE 144HC M10 SL - 530W
MODULE QTY.	1440
INVERTERS	(06) CPS SC450KTL-00/US-480 (08) CPS SC436KTL-00/US-480
SYSTEM SIZE (DC)	763.20 kW
SYSTEM SIZE (AC)	588.00 kW
SYSTEM SIZE (CEC-AC)	704.471 kW
LAT/LONG	33.760578; -116.358194
AZIMUTH (°)	255°
TILT ANGLE (°)	7° (CANOPY)
SNOWLOAD	N/A
WINDSPEED	94 MPH
SEISMIC DESIGN CAT.	D
NO. OF TREES/LIGHTPOLE	N/A
ADA SPACES COVERED	N/A

FOREFRONT POWER

FOREFRONT POWER LLC AND ITS AFFILIATES
100 MONTGOMERY ST. #725
SAN FRANCISCO, CA 94104
(415) 204-0263
www.ForefrontPower.com

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CITY OF PALM DESERT
DESERT WILLOW GOLF RESORT CLUBHOUSE - REMOTE

38995 DESERT WILLOW DR.
PALM DESERT, CA 92260

PROJECT NUMBER
CA-23-0030

SHEET TITLE
LAYOUT

SHEET SIZE
ANSI B
11" x 17"

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NO.	REVISION	DATE	INT.
1	PRELIM DESIGN	03.03.2024	RP
2	AC SIZE CHANGE	08.01.2024	RP
3	SURVEY	10.07.2024	JB
4	RECONFIGURE	10.18.2024	JB
4	GEN. LOC.	10.30.2024	JB

DATE: 03.03.2024

DRAWN BY: RP

ENGINEER:

APPROVED BY:

PROJECT PHASE: PRELIMINARY

SCALE: 1"=40'

SHEET NO.: CL