Cedar Valley College

DALLAS COUNTY COMMUNITY COLLEGE DISTRICT

Onsite Solar Screening

TRACS

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Dallas County Community College District

DCCCD
One Vision and 7 Pathways: 85,000 students

Cedar Valley College Context

Cedar Valley College (CVC) is known as a Center of Excellence for Sustainability.

- Goals: reduce GHGs by 10% by 2020 and 50% by 2040
- Second Nature Climate Leadership Award Winner Finalist
- AASHE Campus Sustainability Achievement Award
- AACC Green Genome Award for Community Engagement

Feasibility study by National Renewable Energy Laboratory identified **onsite solar as best option.**

High wage green construction jobs are part of an emerging regional economic workforce development plan in Southern Dallas County.

Annual electricity usage: 9,100 MWh

Solar & CVC's Educational Programs

An onsite solar project can provide experiential learning in current and future courses and customized C.E. training for students interested in the following fields:

- Building Performance Technology
- LEED Building Certification Exam Preparation
- Business, Management and Marketing
- Accounting
- Solar Industry Sales and Technical Support with sister college
- Solar Photovoltaic and Hot Water System Installer with sister college

Building Community Support

CVC conducted broad stakeholder outreach and solicited feedback widely:

External Community

- Neighbors of CVC in the cities of Lancaster, Dallas, and Cedar Hill
- City of Dallas, Economic Development and Deputy Mayor Pro Tem Erik Wilson
- City Lancaster, Mayor Marcus Knight and Chamber of Commerce members
- Representative Helen Giddings
- Students of the University of North Texas / Dallas
- Oncore / Cavallo (local utility / energy supplier)

Campus Community

- DCCCD: Legal Services, Facilities, Purchasing, Sustainability, Strategic Initiatives
- Students
- Faculty
- Staff

Solar Benefits for CVC

- **Reduce electricity costs** for the next 20 years, based on various options presented by developers.
- Prepare students for **“green” jobs** through experiential instruction.
- **Engage** and create awareness in community.
- **Produce 100 % energy on campus**, reaching the **Greenhouse Gas reduction goal** for 2040.
- Bring **investment to South Dallas County** and support Dallas’ Grow South program.

3 Types of Solar Arrays

Mercer County Community College, NJ

1. Ground-mounted solar panels

Wake Tech Community College, NC

2. Roof-mounted solar panels

Community College of Baltimore County, MD

3. Carport-Mounted Solar Panels

Altenex Services to CVC

Altenex is serving as CVC's renewable energy advisor and agent, to provide these services:

- Evaluate previous feasibility study
- Identify optimal campus sites for solar
- Assess market supply for CVC solar project
- Model project economics
- Support CVC solar RFP
- Advise on solar provider selection
- Negotiate solar PPA with selected provider

ENERActive Solar Screening

ENERActive provided CVC with a preliminary solar site screening, in order to:

- Identify all potential solar sites
- Size arrays to match the generation volume
- Optimize siting for best economics

ENERActive's site screening process addresses:

- Assessment of opportunities for ground, roof, and canopy arrays
- Estimated system sizes
- Annual production estimates
- Number of panels
- Tilt degrees
- Azimuth degrees

ENERActive Solar Screening

Solar screening results.

Solar Array Location	Est. System Size [kW DC]	Est. Annual Production [kWh]	Number of Panels
Ground			
Southwest River Ground	2,987	4,402,355	11271
South Ground	2,350	3,462,983	8,866
North Ground	949	1,398,708	3,581
Roof			
Rooftop Solar - Bldg H & M	521	670,618	1,969
Parking			
S-1	919	1,253,605	2,874
S-2	692	940,661	2,163
S-3	590	775,509	1,845
W-1	678	930,011	2,121
TOTAL	**9,685**	**13,834,448**	**34,690**

ENERActive Solar Screening

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Aerial View of Potential Areas for Onsite Solar Panels

Solar Carports
Acres available for solar carports

W-1- 2.5 acres
S-2- 3.11 acres
S-3- 2.53 acres

Roof Mounted Solar
Sq. Ft. available for roof mounted solar

H- 2,000 sq. ft
M- 2,000 sq. ft

Ground Mounted Solar
Acres available for ground mounted solar

Southwest River Ground- 13.5 acres

South Ground -7.44 acres

North Ground- 3.4 acres

Buildings
Sq. Ft. available for future roof mounted solar

A- 5,000 sq. ft
B- 1,000 sq. ft
C- 5,000 sq. ft
D- 5,000 sq. ft
E- 5,000 sq. ft
F- 5,000 sq. ft
G- 5,000 sq. ft
L - 500 sq. ft

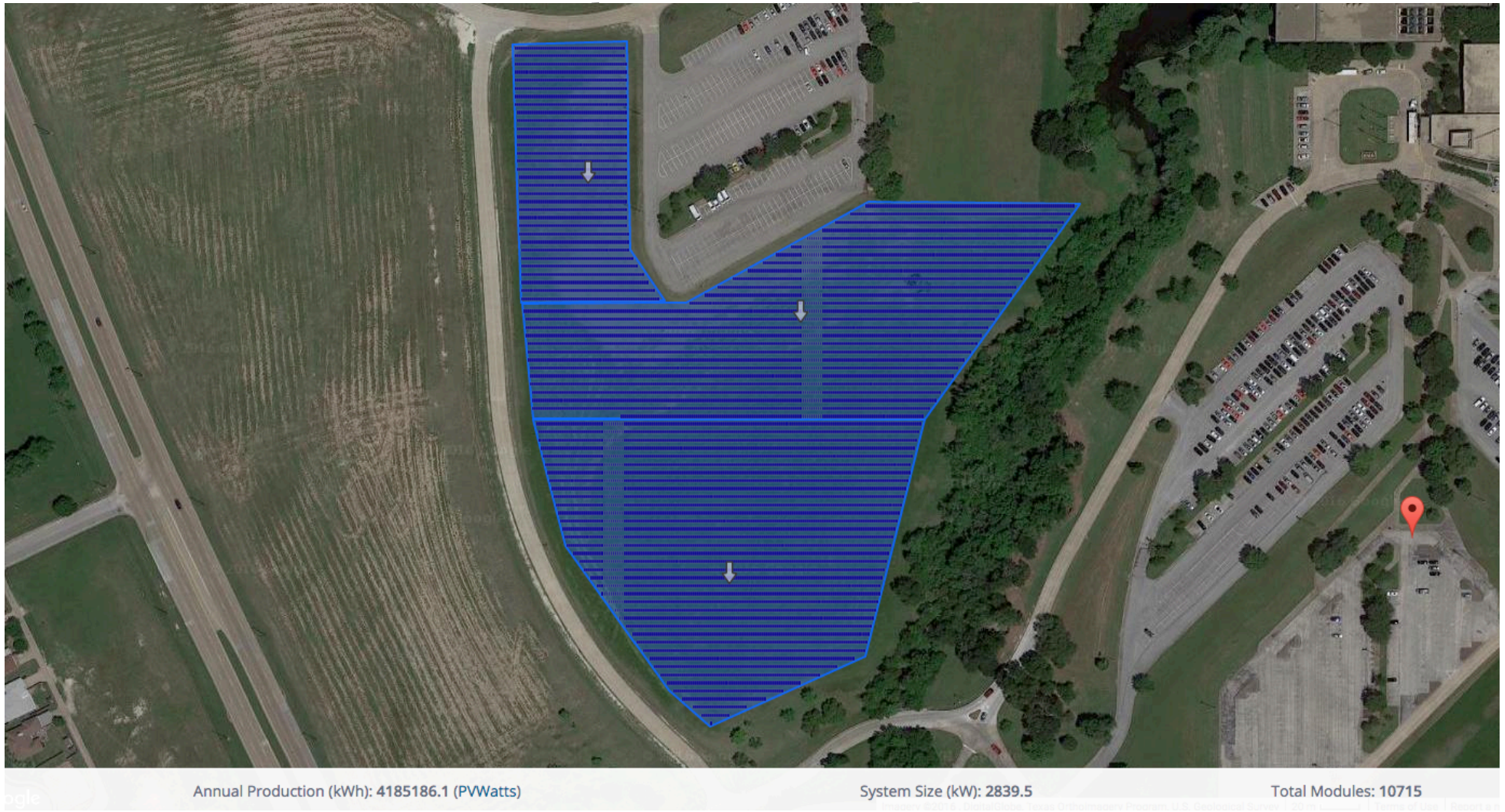
*approximate acreage calculated within accuracy permitted by google earth online measuring tools

Cedar Valley College
SUSTAINABLE COMMUNITIES INSTITUTE
Connecting People, Planet, & Economy

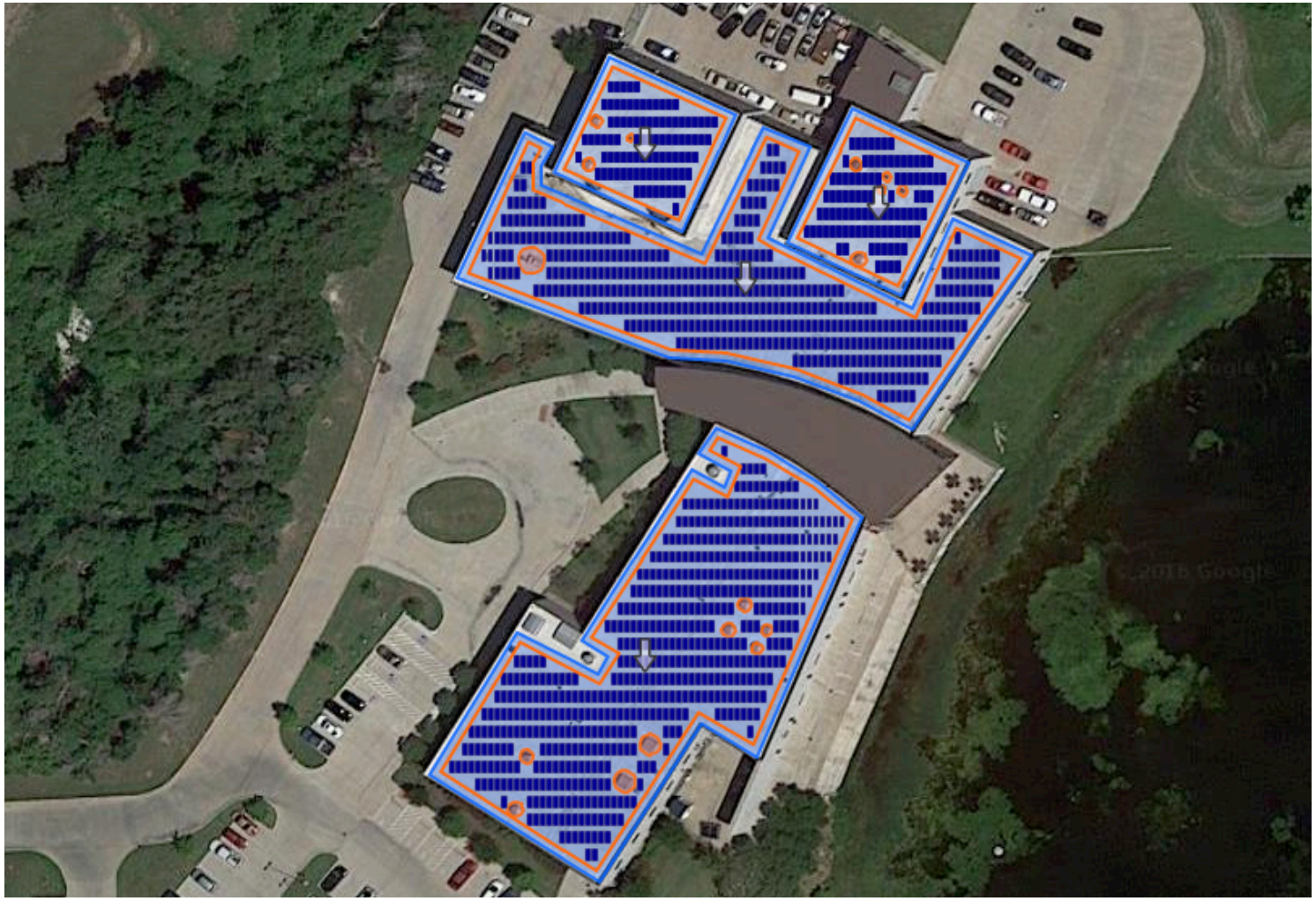
Legend

- Solar Carports
- Roof Mounted Solar
- Ground Mounted Solar
- Buildings
- CVC Perimeter

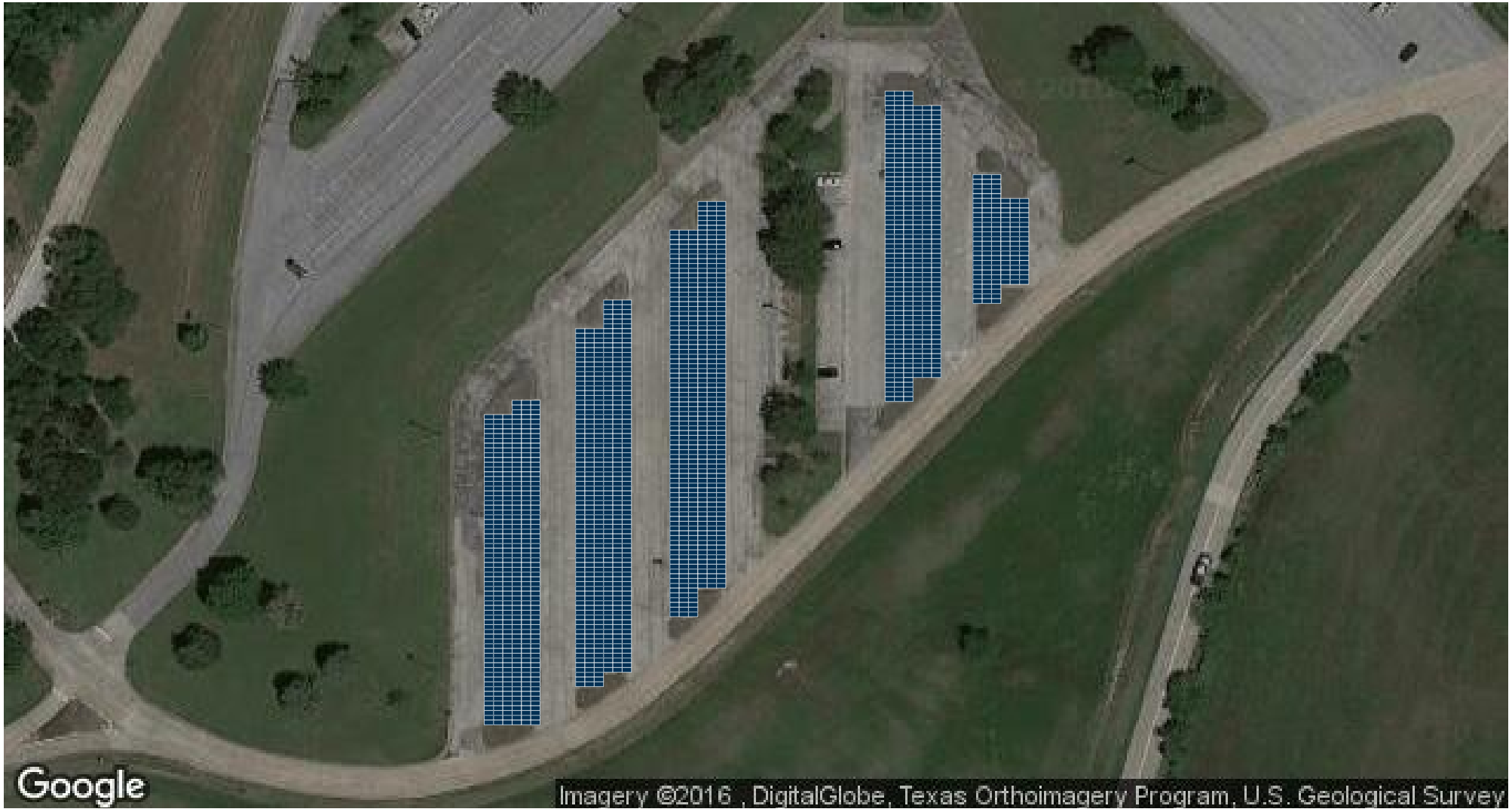
CVC Sample Ground-Mount Array



CVC Sample Roof-Mount Array

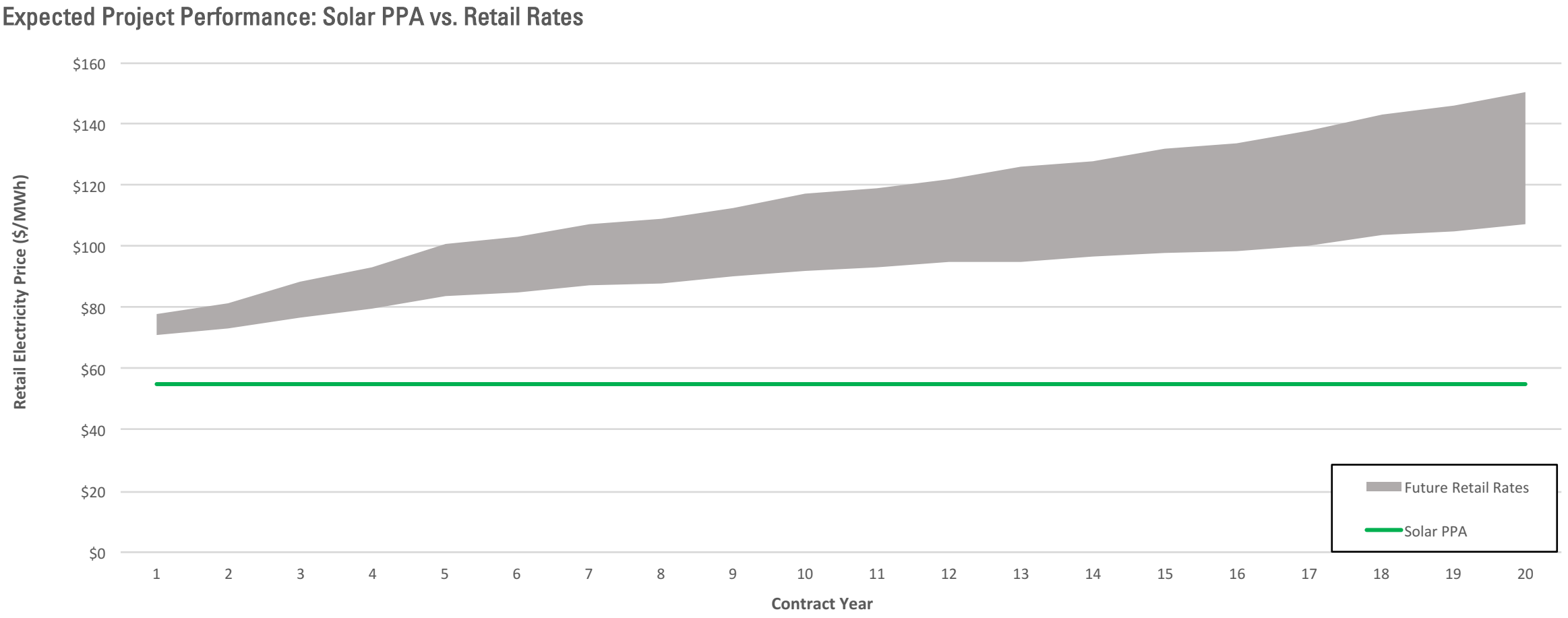


CVC Sample Canopy-Mount Array



Electricity Price Forecast Example

Using indicative pricing, CVC expects savings under a range of forecasted electricity pricing.



Project Savings Example

The following cash flows represent the savings associated with a 6MW PPA at $55/MWh for 20 years.

6 MW	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Sum	NPV
High Gas	$106 k	$124 k	$155 k	$176 k	$208 k	$218 k	$235 k	$243 k	$255 k	$274 k	$278 k	$290 k	$306 k	$309 k	$326 k	$329 k	$343 k	$364 k	$372 k	$388 k	$5.3 m	$1.9 m
Base Case	$90 k	$103 k	$126 k	$141 k	$165 k	$172 k	$186 k	$189 k	$200 k	$213 k	$215 k	$225 k	$231 k	$236 k	$248 k	$248 k	$259 k	$284 k	$291 k	$297 k	$4.1 m	$1.5 m
Low Gas	$75 k	$84 k	$101 k	$112 k	$131 k	$135 k	$146 k	$147 k	$156 k	$163 k	$167 k	$174 k	$173 k	$176 k	$181 k	$181 k	$186 k	$200 k	$204 k	$213 k	$3.1 m	$1.1 m

Next Steps

- CVC to select preferred sites
- Gain approval to issue RFP
- Analyze RPF results
- Conduct diligence on PPA providers
- Select provider
- Negotiate PPA terms
- Execute PPA
- Design and construct arrays

How Can Your Campus Do Onsite Solar?

In partnership with Altenex and ENERActive, AASHE is offering **cost-free support** for up to **five campuses** to develop and **implement on-campus solar** projects (or near campus).

Support will include:

- Site screening
- Stakeholder education
- RFP development
- Contract negotiation support

Apply online by March 17: http://greengigawatt.org/aashe-campus-project.php

Contact Info & Q & A

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