RIVERSIDE COMMUNITY COLLEGE DISTRICT

District Budget Advisory Council Meeting

Friday, November 13, 2020 – Zoom Conference Call

Meeting ID: 970 8318 2523 - Passcode: 530603

1:00 p.m. - 3:00 p.m.

AGENDA

I. Welcome and Call to Order

II. Approval of Minutes

   A. October 16, 2020

III. Solar Planning Initiative (Guests: Hussain Agah, Mehran Mohtasham, DLR Group – Leigh Jones, Rod Oathout, and Sean Avery)

IV. State Budget Update

V. Budget Allocation Model

   A. FY 2021-22 Budget Development

   B. Unique Programs Exchange Rate Determination

   C. New Faculty Positions Allocation Methodology Development

   D. College Budget Allocation Model

   E. Strong Workforce Allocation Methodology

VI. DBAC Membership Update

VII. Next Meeting – Thursday, December 10, 2020

RIVERSIDE COMMUNITY COLLEGE DISTRICT
District Budget Advisory Council Meeting

Friday, October 16, 2020
2:00 p.m. – 4:00 p.m.

Zoom Conference Call Meeting Recording:
https://cccconfer.zoom.us/rec/share/YA9Rvf8OgzJQiVZghoT40x3g1xOdM7oVt0Gx9-INJnWT4HxkplwVg6KvVYcVLoy0.RrwDWfC_IaG5t3GF?startTime=1602882228000

MEETING MINUTES

Members Present

Aaron Brown	(District)
Majd Askar	(District)
Jennifer Floerke	(Moreno Valley College)
Nathaniel Jones	(Moreno Valley College)
Michael McQuead	(Moreno Valley College)
MaryAnn Doherty	(Moreno Valley College)
Michael Collins	(Norco College)
Quinton Bemiller	(Norco College)
Courtney Buchanan	(Norco College)
Andy Aldasoro	(Norco College)
Esmeralda Abajar	(Norco College)
Chip West	(Riverside City College)
Mark Sellick	(Riverside City College)
Liz Tatum	(Riverside City College)
Rachelle Arispe	(Recorder)

Members Not Present

Cyndi Gundersen	(District)
Ivan Hess	(Student)
Asatar Bair	(Riverside City College)
Elena Santa Cruz	(Riverside City College)

Guests

Wolde-Ab Isaac	(District)
Jeanie Kim-Han	(District)
Laurie McQuay-Peninger	(District)

I. CALLED TO ORDER
   A. By Aaron Brown

II. APPROVAL OF MINUTES
   A. Once a quorum was achieved, Collins moved and Aldasoro seconded approval of the minutes for September 11, 2020.

III. GUIDED PATHWAYS – AT SCALE
   A. Brown introduced Chancellor Isaac to discuss Guided Pathways.

B. Isaac wants the group to understand what the primary drivers are for the Strategic Plan at the district level and at the college level. The primary drivers are student access, success, and equity. The strategic framework that will achieve these goals is through Guided Pathways.
C. Isaac wants students to have more structure and a streamlined process. That way students can navigate their educational destination through the shortest possible path. The strategy of dividing the clustering of courses between the three colleges will help build on eliminating remediation and shortening the time for graduation. This will reduce a student's college journey by 50%.
D. Isaac said that the ultimate goal would be to teach double the number of students with the same budget – this is institutional effectiveness and efficiency. Isaac wants this infrastructure to be fully in place this fiscal year at all three colleges.
E. Isaac added that the first step to a clarified path is by providing students information on the majors and disciplines that we offer. Providing a guided path through our websites is an example. The second step is onboarding students through technology. Third, is by keeping students on the path through student engagement centers. Engagement centers would be costly, but case managers would be able to follow students to make sure they are on time and on target in terms of their travel through the success pathways. Last, we have to ensure that students are learning. This comes with a great degree of faculty development in the teaching and learning methodology; in having cultural sensitivity; and addressing issues that disproportionately affect some students.
F. Isaac continued to explain that it is not part of our strategic plans to save money (outside of a reasonable and prudent reserve). Money should not be sitting in holding accounts. Isaac reminded the group that the district office does not need money. The district office does not have students. The district office wants to ensure that whatever resources we have is used to establish the Guided Pathway. We must firmly establish the principle that planning drives resource allocation. The Resources allocated are a measure and check of accountability about the plan. If we have money sitting unspent, either the plan was not fully implemented or we have overestimated the cost of the activities to implement those plans.
G. Isaac explained that although we may not have all the money scale the Guided Pathway, every time there are savings, the colleges should be redirecting the money to the Guided Pathway. We could always put money into facilities, fixing parking lots, or adding something to the campuses, but the drivers to our strategic planning and highest priority is student access, success and equity.
H. Isaac added that he is also pushing the Vice Presidents of Academic Affairs to streamline their plans and to be aggressive in the way in which they guide the scaling of the Guided Pathway. Today, every grant that is being written is connected to the strategic plan. We are writing grants not only to the feds or the state but even to foundations. We are trying to bring all the resources we can, so that we can speed up the process of scaling the Guided Pathway.
I. McQuay-Peninger added that the Title 3 and Title 5 grants are opportunities that could assist with Guided Pathways. It is not prescriptive and it is not restricted to any specific activities which gives us a lot of latitude to do what we need to do. Title 3 and Title 5 are also great for developing technology which constructs the infrastructure for professional development for faculty and staff and can help in developing virtual platforms. This could serve students better. There will be a competition in two or three months for millions of dollars that each college can apply for in support of STEM.

J. Isaac continued that there are other kinds of grants that we should look for in terms of bridging us to the four-year universities – like the baccalaureate with UCR. The bridge is focused on keeping transfer students and to help them transfer. We should start looking for projects that could be funded, either through an NSF, Department of Commerce, Department of Health, and Foundations. Foundations are now very interested in the Inland Empire as they understand that only we can address the economic deprivation in this region. Therefore, any savings that we have should be used to support the scaling of the Guided Pathways. We are all united to make sure that we make the maximum amount of resources available.

K. Kim-Han added that the other arena is high school-to-college transition. We need to make sure that we are also connecting with the high school students and be able to smooth out that timeline to degree. Isaac continued that we have more than 3,000 students who are in dual enrollment. Students would finish at least one year of college while in high school, shortening their college path.

L. Isaac commented that we are consciously moving away from CTE programs that give entry level, minimum wage type jobs. We want high skill, high demand, and high paid skills. That way people can make a livable wage when they graduate. We do not want to spend our resources on propagating low wage jobs.

M. Isaac responded to an inquiry regarding how full scale implementation of the Guided Pathways would occur during the current situation with the pandemic. Isaac suggested that we could currently use resources to address access, equity and success by outreach support and engaging students to ensure we are strengthening the case management support system. Our colleges are below the 15% target for the first time in our history. African American females are currently disproportionately affected. Although, the nursing program is diversified, we still have Engineering and CTE STEM uneven in terms of gender.

IV. STATE BUDGET UPDATE

A. Brown briefly reviewed the California Community Colleges 2021-22 System Budget and Legislative Request handout.

B. Brown reminded the group that the allocations are predicated based on there being available funding. However, with the current economics as a result of the pandemic, the amount of funding could change.

C. Brown added that the CCCCO has $1.5 billion in deferrals for FY 2020-21 that potentially could be converted into actual budget cuts, depending on the way the economy goes. However, CCCCO is trying to make the case that the community college system is necessary for economic recovery or expansion, and that we are vital and we absolutely need to be funded.

D. No comments or questions were expressed from the group.

V. TAX REVENUE AND ANTICIPATION NOTE (TRAN)

A. Brown reminded the group that our share of apportionment at deferrals in the 20-21 budget is approximately $47 million. The deferrals will begin in February and will not be fully recovered until November. Therefore, in order to manage the significant dip in cash flow ($47 million represents over 20% of our total apportionment) we need to balance our internal borrowings with external borrowings in the form of a TRAN (Tax Revenue and Anticipation Note).

B. Brown provide the group a copy of a resolution that will be submitted to the Board of Trustees in November to get authorization on a "not-to-exceed" amount of $40 million of potential borrowing. The ultimate size of the borrowing is dependent upon what our cash flow projections turn out to be available funds that we have internally (general funds and other funds).
C. No comments or questions were expressed from the group.

VI. MEASURE C RECONCILIATION

A. Askar provided an update on the Measure C reconciliation of major projects, interest and other items. The reconciliation will be provided to the Board of Trustees in November for approval. There is a net project savings of $303,234 for the Student Services Building at RCC. Also identified was the Norco College shortfall in the amount of $2.6 million, moved from the Centrally Controlled funds to Norco College. Additionally, for FY 2019-20, $453,790 of interest was realized. The available funds will be reallocated to each of the colleges for additional projects.
B. No comments or questions were expressed from the group.

VII. BUDGET ALLOCATION MODEL

A. FY 2021-22 Budget Development
    1. Askar explained that she has asked the colleges to update the FTES cost worksheets for FY 2019-20. The prior year calculations need to be updated since the data will be used for FY 2021-22.
B. Unique Programs Exchange Rate Determination
    1. Phase III of the BAM will include a methodology for an exchange rate for Unique Programs such as Nursing and Ben Clark etc. A median district wide exchange rate is currently used for CTE, Liberal Arts and STEM.
    2. Brown and Askar prepared an initial proposal for the unique programs and will be providing the approach to the subgroup next week for discussion.
C. New Faculty Positions Allocation Methodology Development
    1. Phase III of the BAM will include a methodology for new faculty positions using the BAM as a basis. EMD information was provided to the subgroup to start conversations regarding a possible approach on a method. Adding additional principles for this method will also be discussed.
D. Strong Workforce Allocation Methodology
    1. Brown wants to make sure there is a districtwide allocation methodology for the Strong Workforce funding and other grants and categorical programs that are allocated to the district as a whole versus to each of the colleges. He wants to ensure that we are living to the principles of the BAM.
E. Jones inquired on allocating other funding sources beyond the general fund and incorporating those costs. Brown responded that we should apply the principles of the BAM. At this time Brown thinks non-resident tuition, lottery based on FTES, SSSP and Redevelopment Funds could be applicable.
F. Brown told the group the next DBAC meeting on November 13th will include a presentation on the Solar Planning Initiative and the costs of implementation. We will have to start strategizing about being able to fund this type of project.

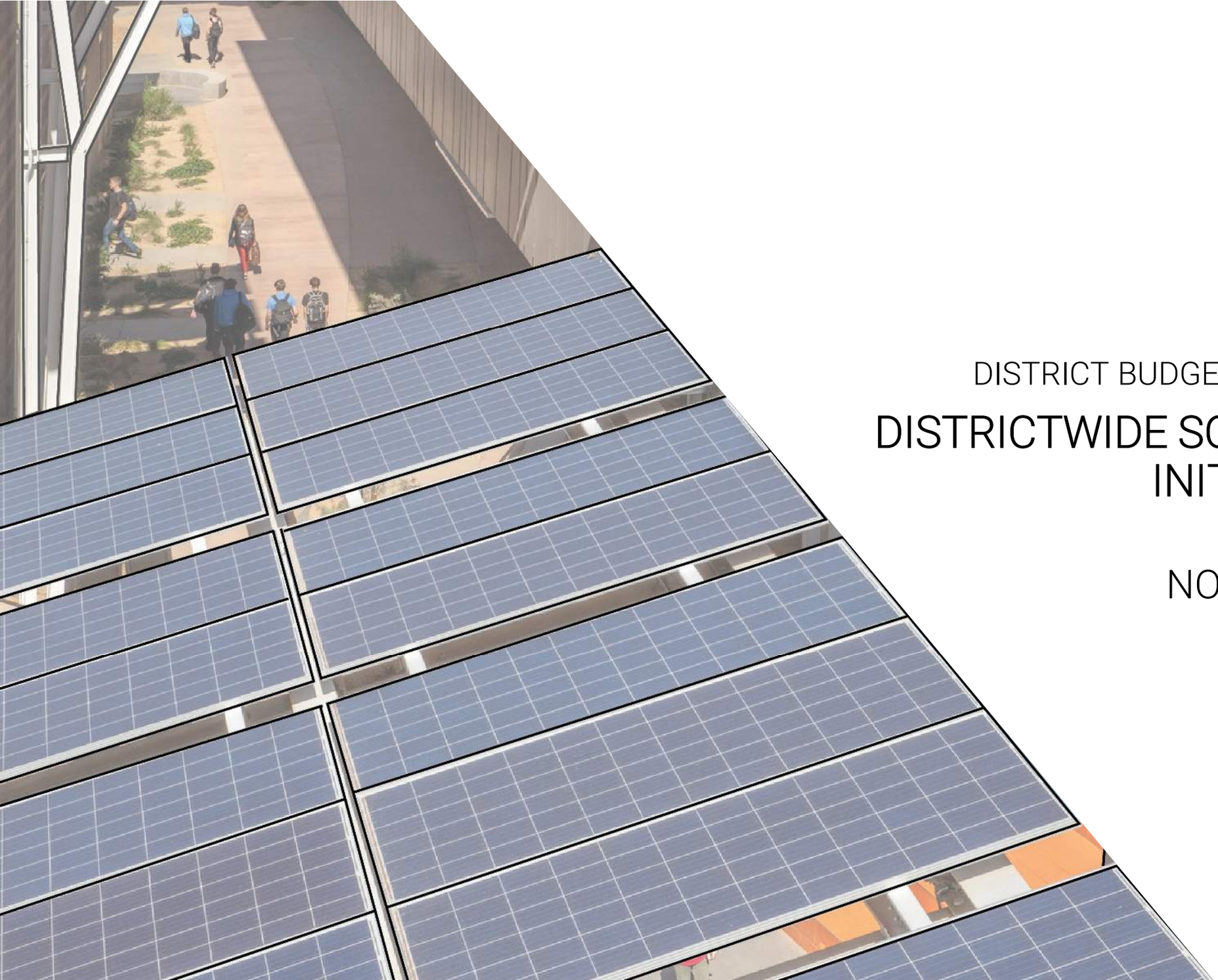
VIII. DBAC MEMBERSHIP - UPDATE

A. There are still two vacant positions for Moreno Valley College – MVC Academic Senate and a CSEA Representative.
B. Floerke responded that the senate has only received one volunteer which is a part-time senate representative. Brown responded that it is not specified in the membership by-laws if the member must be a full-time employee. Therefore, he will leave it up to the college to decide. Jones and Sellick indicated that since a part-time employee is not specifically excluded from the by-laws, it should not be an issue. Floerke said she would confirm the position next week with the part-time senate representative.
C. Aldasoro responded that the CSEA representative is still being worked out.

IX. NEXT MEETING

A. Next meeting scheduled for Friday, November 13, 2020.

X. MEETING ADJOURNED



RCCD
RIVERSIDE COMMUNITY COLLEGE DISTRICT

DISTRICT BUDGET ADVISORY COUNCIL

DISTRICTWIDE SOLAR PLANNING INITIATIVE UPDATE

NOVEMBER 13, 2020

DLR Group
Architecture Engineering Planning Interiors

AGENDA

1 INTRODUCTION

2 GOALS AND OBJECTIVES

3 PROJECT OVERVIEW

4 EDUCATION

5 PROGRESS

6 NEXT STEPS

RCCD
RIVERSIDE COMMUNITY COLLEGE DISTRICT

Energy and Solar Planning **Committee**

MORENO VALLEY COLLEGE

Dr. Nathaniel Jones, Vice President of Business Services

Brian Adair, Interim Facilities Director
Facilities

Dr. Fabian Biancardi, Professor, Political Science,
Humanities & Social Sciences

NORCO COLLEGE

Dr. Michael Collins, Vice President of Business Services

Steven Marshall, Facilities Director, Facilities

Jeff Buch, Maintenance Mechanic, Facilities

Monica Gutierrez, Professor, Biology, Math & Sciences

Quinton Bemiller, Associate Professor, Art

Jesus Vela, Associate Professor, Electrical Engineering & Info Tech.

Virgil Lee, Associate Professor, Chemistry Math and Science

Teresa Chihuahua, Student

RIVERSIDE CITY COLLEGE

Dr. Chip West, Vice President of Business Services

Robert Beebe, Director Facilities, M&O
Facilities

Tonya Huff, Associate Professor, Biology
Life Science

Garth Schultz, Associate Professor, Counseling
Counseling

John Taack, Maintenance Manager
Facilities

EvaDeshay Mayd, Student

Krystin Steranka, Assistant Director Facilities M&O

DISTRICT OFFICE

Hussain Agah, Associate Vice Chancellor
Facilities Planning & Development

Mehran Mohtasham, Director, Capital Planning
Facilities Planning & Development

Bart Doering, Facilities Development Director
Facilities Planning & Development

Susanne Ma, Director of IT
Infrastructure & Systems

Myra Nava, Facilities Planning Specialist
Facilities Planning & Development

Victor Bolanos, Help Desk Support Technician
Information Services

Goals and **Objectives**

Solar Planning Initiatives aligns with …

1. RCCD Board Policy 5775 Sustainability & Environmental Responsibility

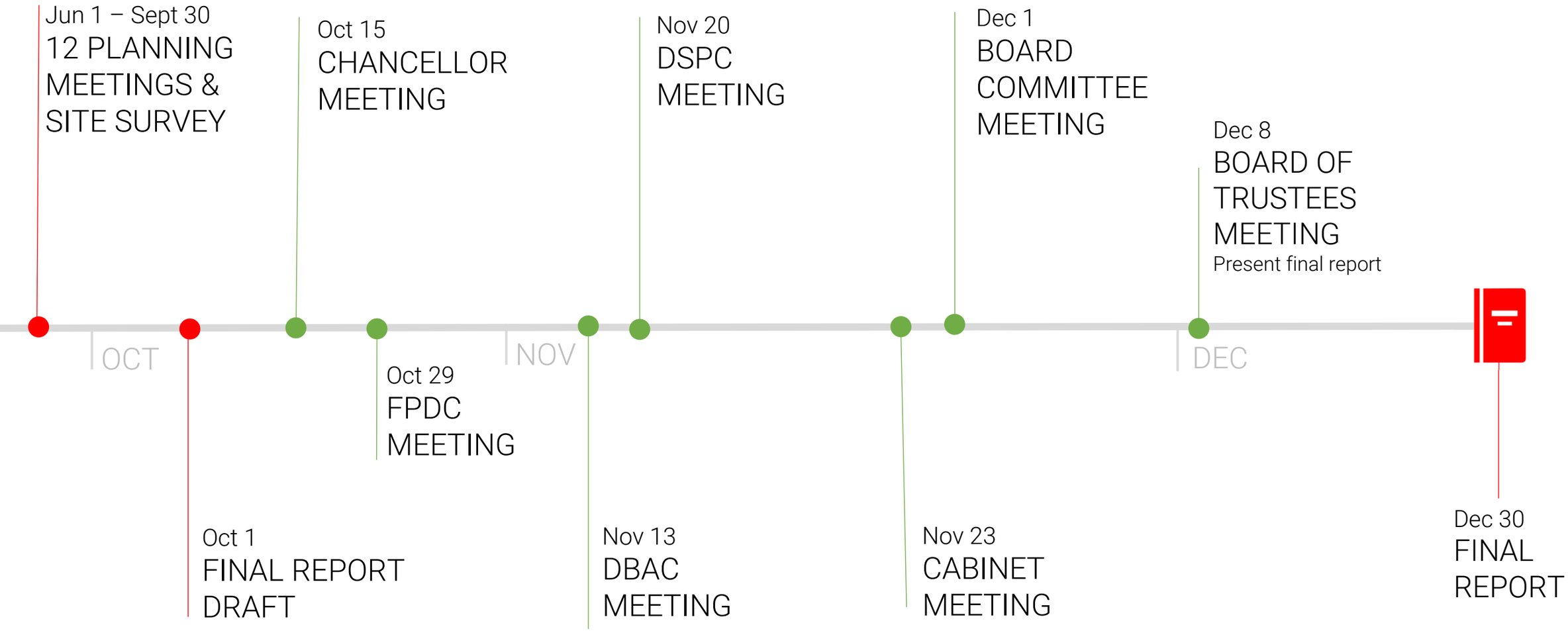
   - ✓ District recognizes its responsibility to exercise environmental stewardship
   - ✓ Minimize negative environmental impacts of activities under district control
   - ✓ Economically manage the use of buildings, land and natural resources

2. CCCCO BOG Climate Change and Sustainability Policy (May 2019) – one of its goals “increase renewable energy consumption to 25% by 2025 & 50% by 2030”

3. RCCD upcoming Sustainability Plan – Part of the Long-Term Capital Facilities Program (LTCFP)

4. College Facilities Master Plans

Project Schedule Timeline



RENEWABLES **IN CURRICULUM**

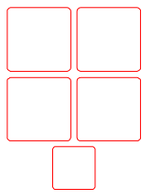
- Showcase of sustainability features
- Sustainability kiosk with web-based dashboard, mural and teaching area also engage students and community members
- Visible photovoltaic systems demonstrate on-site renewable energy production
- Practical, hands-on training opportunities

Methods to Consider **Renewable Delivery**

Purchase to **own** “loan option”

Traditional project delivery

- Less expensive life-cycle cost
- College responsible for construction
- More flexibility in future modifications



Power purchase **agreements** “PPA option”

Traditional solar delivery

Third party responsible for construction and O&M

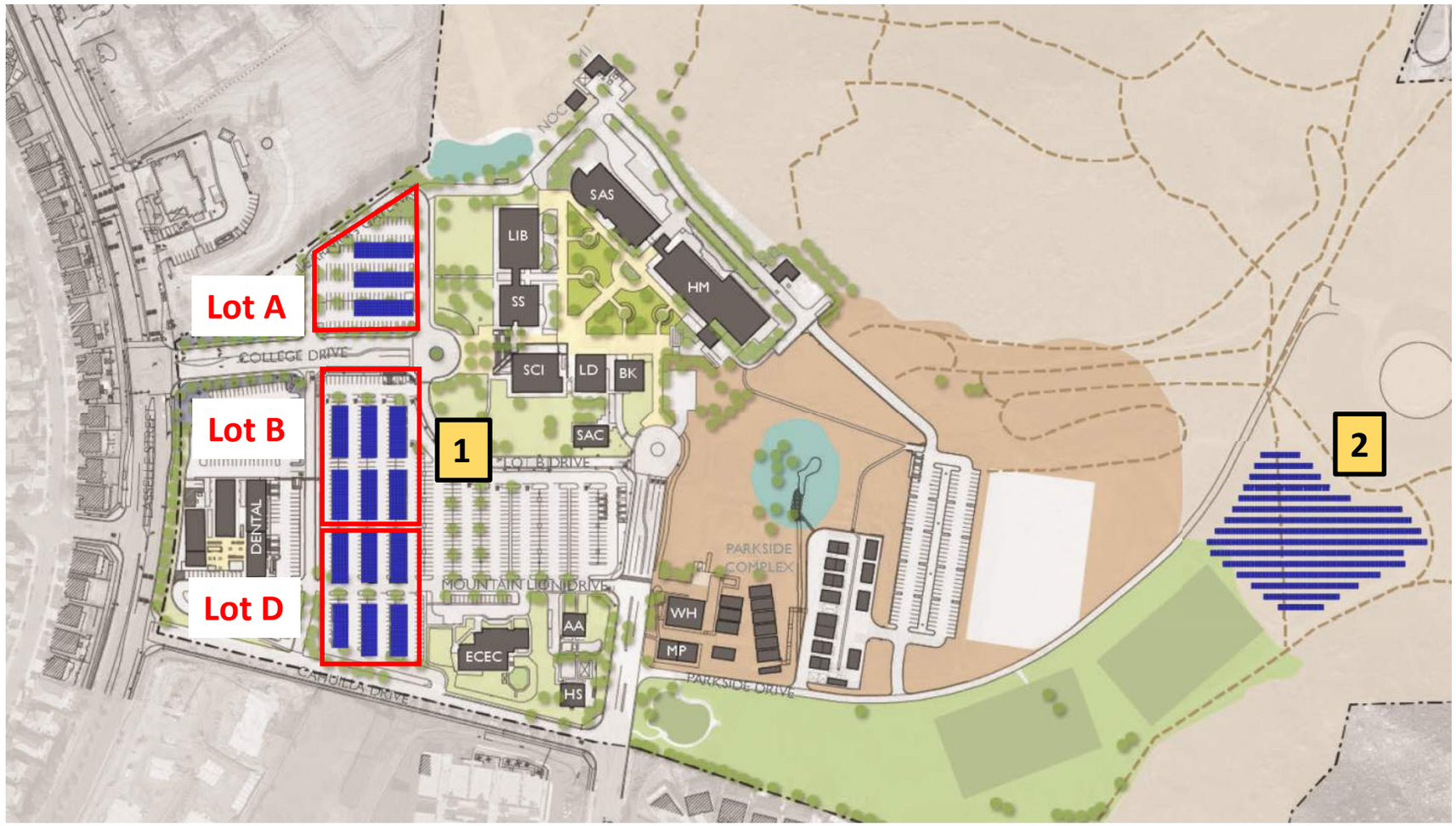
Third parties typically have better buying power

- Contractual terms are offer restrictions and penalties

PROGRESS – MORENO VALLEY COLLEGE

MORENO VALLEY COLLEGE

SOLAR ON **EXISTING CAMPUS**



ARRAYS OPTIONS

1. LOTS A, B, & D CARPORTS: 986 KW DC

2. GROUND MOUNT: 979 kW DC

Total

1.96 MW DC

MORENO VALLEY COLLEGE

BATTERY STORAGE **LOCATION**

Location of 400 kW battery storage and new interconnection switchgear

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **Net Zero**

1926kW Solar + 400kWh BESS

SOLAR ARRAYS

1. LOTS A, B, & D CARPORTS: 986 KW DC
2. GROUND MOUNT: 940 kW DC (REDUCED IN SIZE TO MAKE ZNE%

BESS

1. 12.47KV LOOP: 400 KW

FINANCIALS

- PROJECT COST: **$6,964,259**
- 25 YR CASH FLOW (LOAN @3%): **$(795,011)**
- 25 YR CASH FLOW (PPA): **$(1,994,121)**
- CARBON OFFSET (METRIC TONS): **2,414**
- CARS DRIVEN FOR ONE YEAR: **521**

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **50% Offset**

983kW Solar + 400kWh BESS

SOLAR ARRAYS

2. GROUND MOUNT: 983 KW DC (REDUCED TO ACHIEVE 50%)

BESS

1. 12.47KV LOOP: 400 KW

FINANCIALS

- PROJECT COST: **$3,886,061**
- 25 YR CASH FLOW (LOAN @3%): **$561,572**
- 25 YR CASH FLOW (PPA): **$(174,680)**
- CARBON OFFSET (METRIC TONS): **1,232**
- CARS DRIVEN FOR ONE YEAR: **266**

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

490kW Solar + 400kWh BESS

SOLAR ARRAYS

2. GROUND MOUNT: 490 KW DC (REDUCED TO ACHIEVE 25%)

BESS

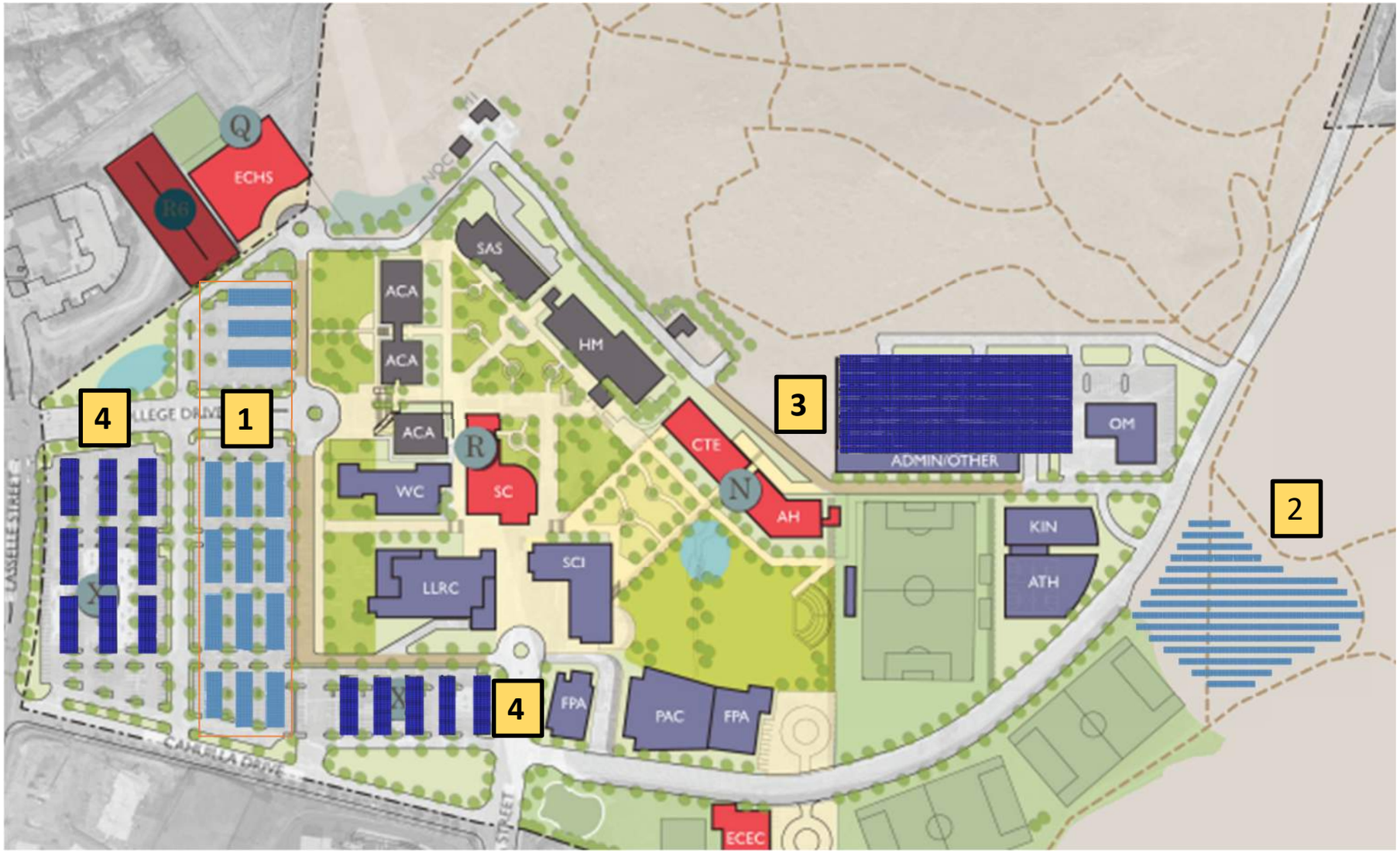
1. 12.47KV LOOP: 400 KW

FINANCIALS

- PROJECT COST: **$2,283,343**
- 25 YR CASH FLOW (LOAN @3%): **$1,267,901**
- 25 YR CASH FLOW (PPA): **$157,105**
- CARBON OFFSET (METRIC TONS): **616**
- CARS DRIVEN FOR ONE YEAR: **133**

MORENO VALLEY COLLEGE

SOLAR ON **FUTURE CAMPUS**



ARRAYS (CURRENT/**FUTURE**)

1. LOTS A,B,D CARPORTS: 986 kW DC
2. GROUND MOUNT: 979 kW DC
3. **PARKING STRUCTURE: 1.19 MW DC (FMP Phase 3 Part of Structure Design in 2031-32)**
4. **LOT B, C CARPORTS: 904 kW DC (FMP Phase 4, Demo Dental Bldg. in 2032-33)**

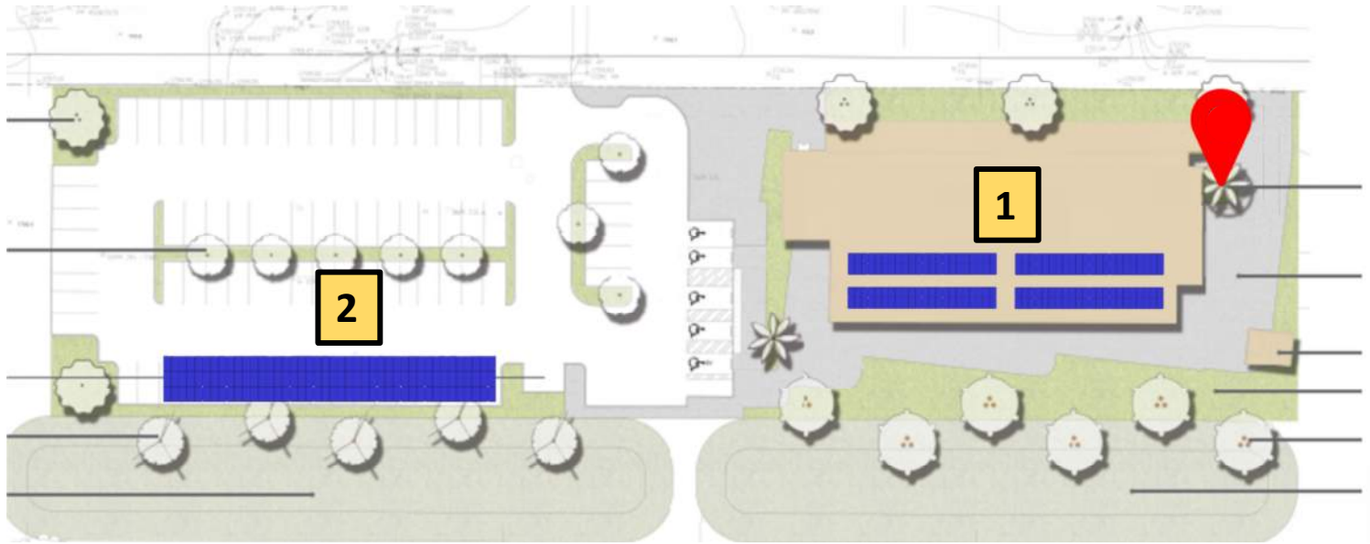
Total

4.06 MW DC

BEN CLARK TRAINING CENTER - SOLAR ON NEW BUILDING AND SITE

PV+ BESS Option: **Net Zero**

100kW Solar + 80kWh BESS



SOLAR ARRAYS

1. ROOFTOP: 50 KW DC
2. CARPORT: 60 kW DC

BESS

1. MAIN SERVICE: 50 KW

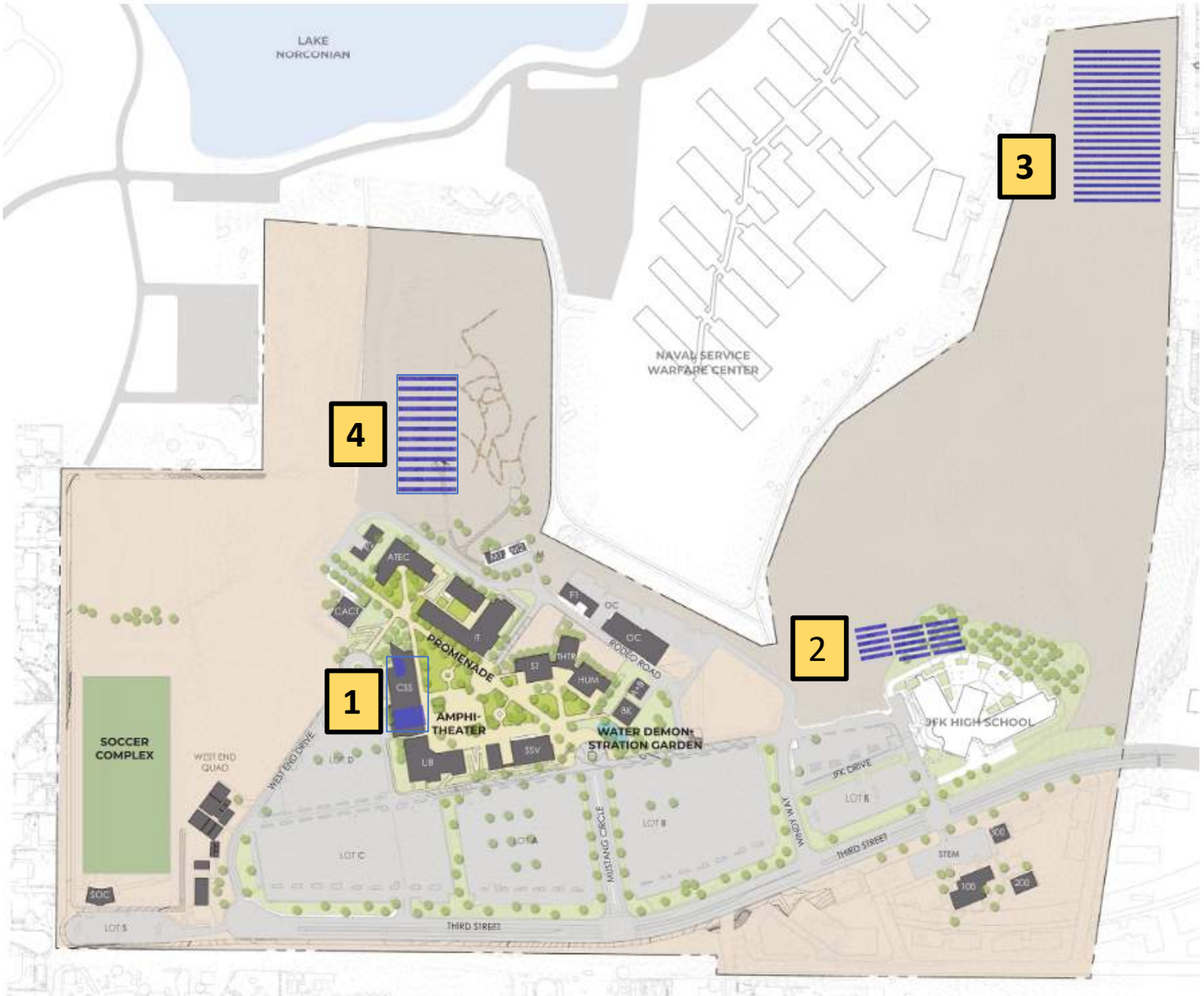
FINANCIALS

- PROJECT COST: **$510,334**
- 25 YR CASH FLOW (LOAN @3%): **$99,179**
- 25 YR CASH FLOW (PPA): **$90,434**
- CARBON OFFSET (METRIC TONS): **126**
- CARS DRIVEN FOR ONE YEAR: **28**

PROGRESS – NORCO COLLEGE

NORCO COLLEGE

SOLAR ON **EXISTING CAMPUS**



ARRAYS OPTIONS

1. CENTER FOR STUDENT SUCCESS BUILDING: 105kW
   A. ROOF: 70 KW DC
   B. CANOPY: 36kW DC

2. EAST GROUND MOUNT: 364KW DC

3. NE GROUND MOUNT: 1.63 MW DC

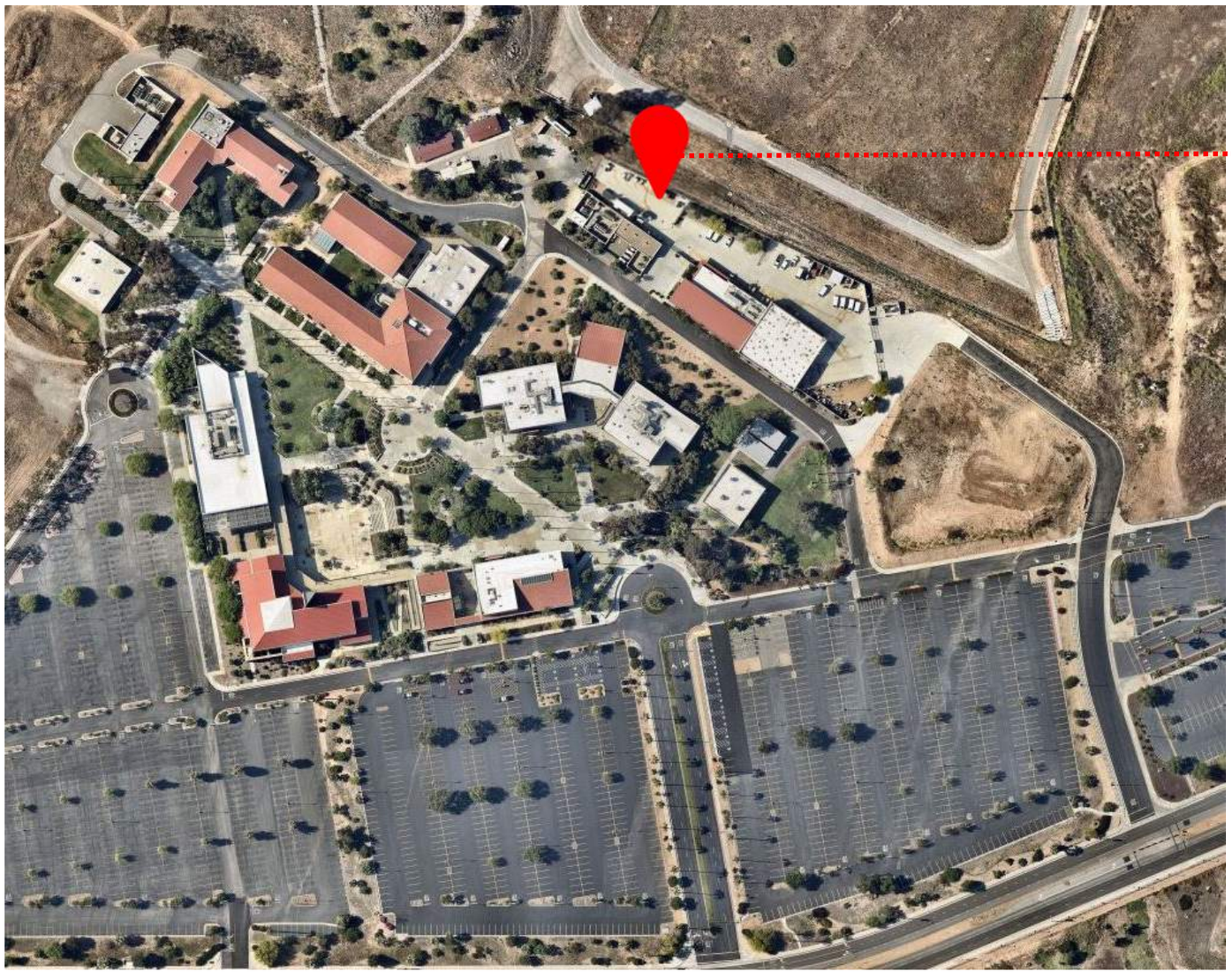
4. NORTH GROUND MOUNT: 505 kW DC

TOTAL

2,605 kW DC

NORCO COLLEGE

BATTERY STORAGE **ON EXISTING CAMPUS**



Location of 500 kW battery storage

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **Net Zero**

2135kW Solar + 500kWh BESS

SOLAR ARRAYS

3. NE GROUND MOUNT: 1630 KW DC
4. NW GROUND MOUNT: 505 KW DC

BESS

MAIN SERVICE: 500 KW

FINANCIALS

- PROJECT COST: **$6,727,375**
- 25 YR CASH FLOW (LOAN @3%): **$1,977,762**
- 25 YR CASH FLOW (PPA): **$(4,578,402)**
- CARBON OFFSET (METRIC TONS): **3077**
- CARS DRIVEN FOR ONE YEAR: **665**

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **50% Offset**

1060kW Solar + 500kWh BESS

SOLAR ARRAYS

3. NE GROUND MOUNT: 1060 KW DC (REDUCED IN SIZE SLIGHTLY TO GET TO 50%)

BESS

1. MAIN SERVICE: 500 KW

FINANCIALS

- PROJECT COST: **$3,776,223**
- 25 YR CASH FLOW (LOAN @3%): **$617,440**
- 25 YR CASH FLOW (PPA): **$(2,755,137)**
- CARBON OFFSET (METRIC TONS): **1378**
- CARS DRIVEN FOR ONE YEAR: **298**

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

530kW Solar + 500kWh BESS

SOLAR ARRAYS

4. NW GROUND MOUNT: 530 KW DC (INCREASED IN SIZE SLIGHTLY TO GET TO 25%)

BESS

1. MAIN SERVICE: 500 KW

FINANCIALS

- PROJECT COST: **$2,321,237**
- 25 YR CASH FLOW (LOAN @3%): **$805,214**
- 25 YR CASH FLOW (PPA): **$(2,057,178)**
- CARBON OFFSET (METRIC TONS): **689**
- CARS DRIVEN FOR ONE YEAR: **149**

NORCO COLLEGE

SOLAR ON **FUTURE CAMPUS**

ARRAYS OPTIONS CURRENT/**FUTURE**

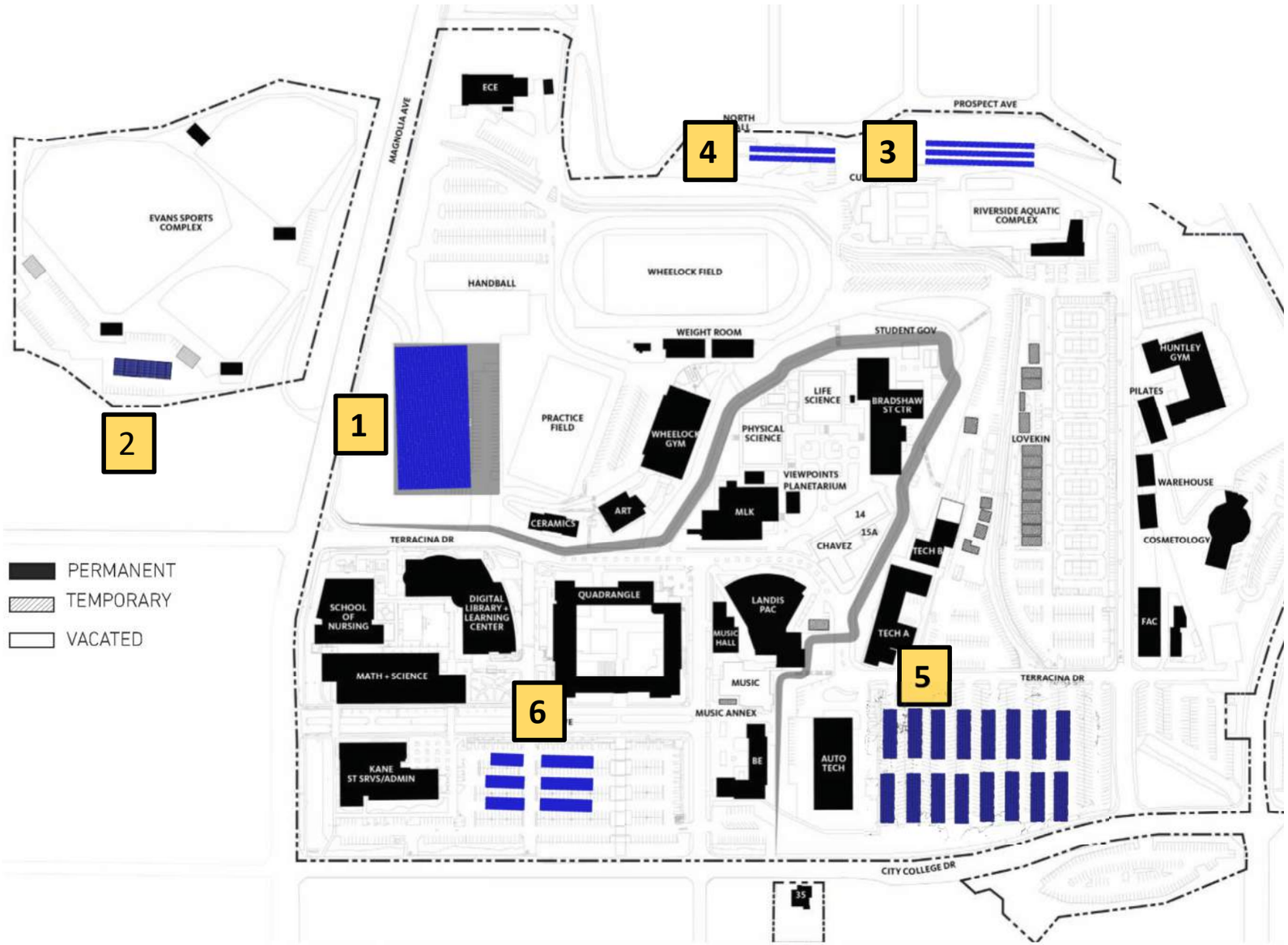
1. CENTER FOR STUDENT SUCCESS BUILDING
   A. ROOF: 70 kW DC
   B. CANOPY: 36kW DC
2. EAST GROUND MOUNT: 364 kW DC
3. NE GROUND MOUNT: 1.63 MW DC
4. ~~NORTH GROUND MOUNT: 467 KW DC~~ **DEMO**
5. **SE PARKING ARRAY (FMP Phase I, 2030-31): 652 kW DC**
6. **SW PARKING ARRAY (FMP Phase II, 2033-34): 642 kW DC**
7. **NORTH PARKING STRUCTURE (FMP Phase III, 2036-37): 700 kW DC**

Total
4,094 kW MW DC

PROGRESS - RIVERSIDE CITY COLLEGE

RIVERSIDE CITY COLLEGE

SOLAR ON **EXISTING CAMPUS**



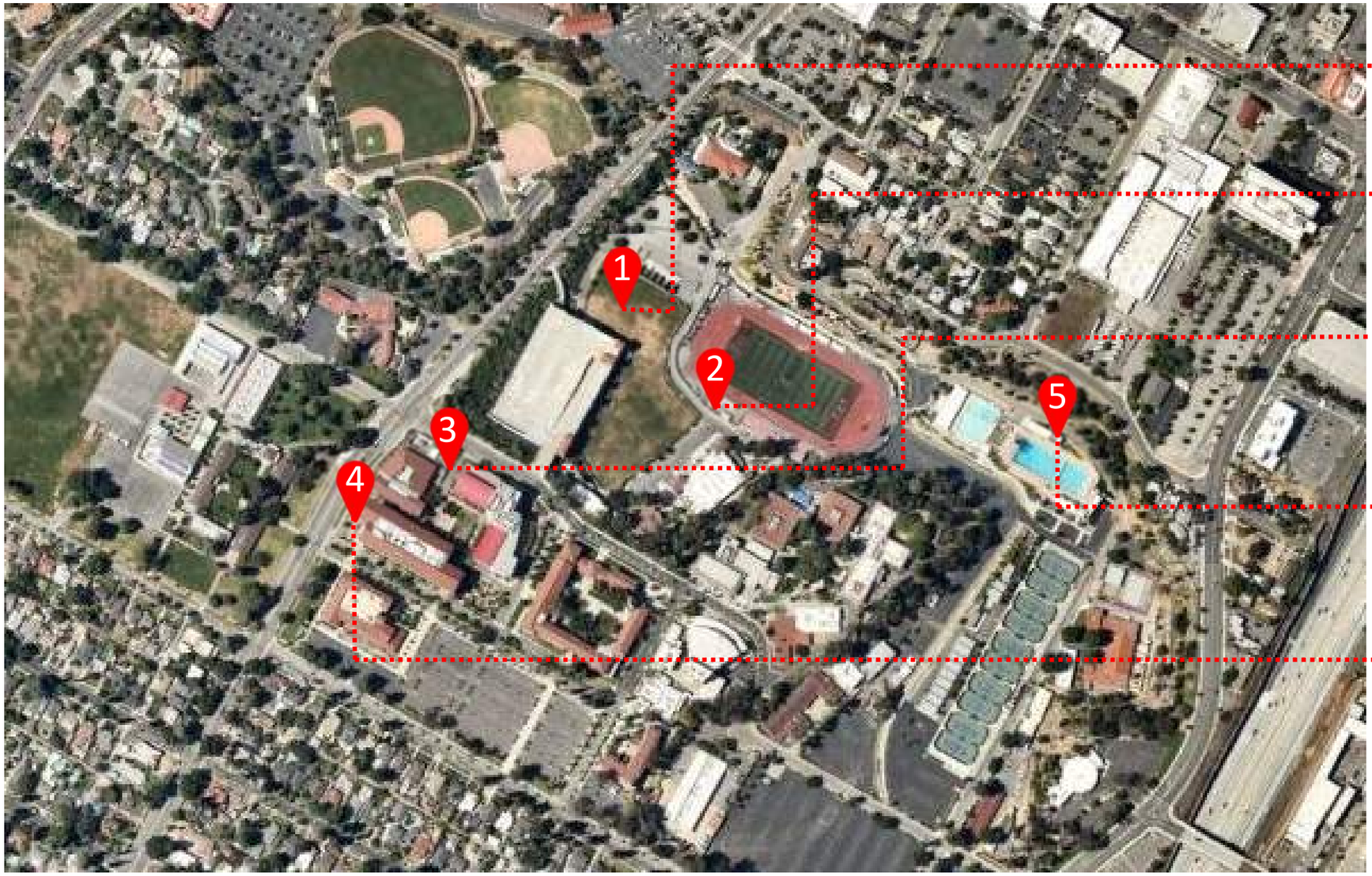
ARRAYS OPTIONS

1. PARKING STRUCTURE: 831 KW DC
2. EVANS PARKING: 66KW DC
3. RAC POOL: 194 kW DC
4. COLLEGE HOUSE: 102 KW DC
5. Lot E: 1.17MW DC
6. Lot C: 445 kW DC

Total
2,808 kW DC

RIVERSIDE CITY COLLEGE

BATTERY STORAGE **ON EXISTING CAMPUS**



MV Service Point
600 kW battery storage

Wheelock Field
200 kW battery storage

Digital Library
250 kW battery storage

Aquatics Complex
100 kW battery storage

Math and Science
300 kW battery storage

RIVERSIDE CITY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **42% Offset**

2808kW Solar + 1450kWh BESS

SOLAR ARRAYS

1. PARKING STRUCTURE: 831 KW DC
2. EVANS PARKING: 66KW DC
3. RAC POOL: 194 kW DC
4. COLLEGE HOUSE: 102 KW DC
5. Lot E: 1.17MW DC
6. Lot C: 445 kW DC

BESS

1. 12.47kV LOOP: 600 KW
2. WHEELOCK FIELD: 200 KW
3. DIGITAL LIBRARY: 250 KW
4. MATH AND SCIENCE: 300 KW
5. RAC POOL: 194 kW DC

FINANCIALS

- PROJECT COST: **$13,891,703**
- 25 YR CASH FLOW (LOAN @3%): **$2,640,497**
- 25 YR CASH FLOW (PPA): **$(10,323,828)**
- CARBON OFFSET (METRIC TONS): **3550**
- CARS DRIVEN FOR ONE YEAR: **767**

RIVERSIDE CITY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

1638kW Solar + 1450kWh BESS

SOLAR ARRAYS

1. PARKING STRUCTURE: 831 KW DC
2. EVANS PARKING: 66KW DC
3. RAC POOL: 194 kW DC
4. COLLEGE HOUSE: 102 KW DC
6. Lot C: 445 kW DC

BESS

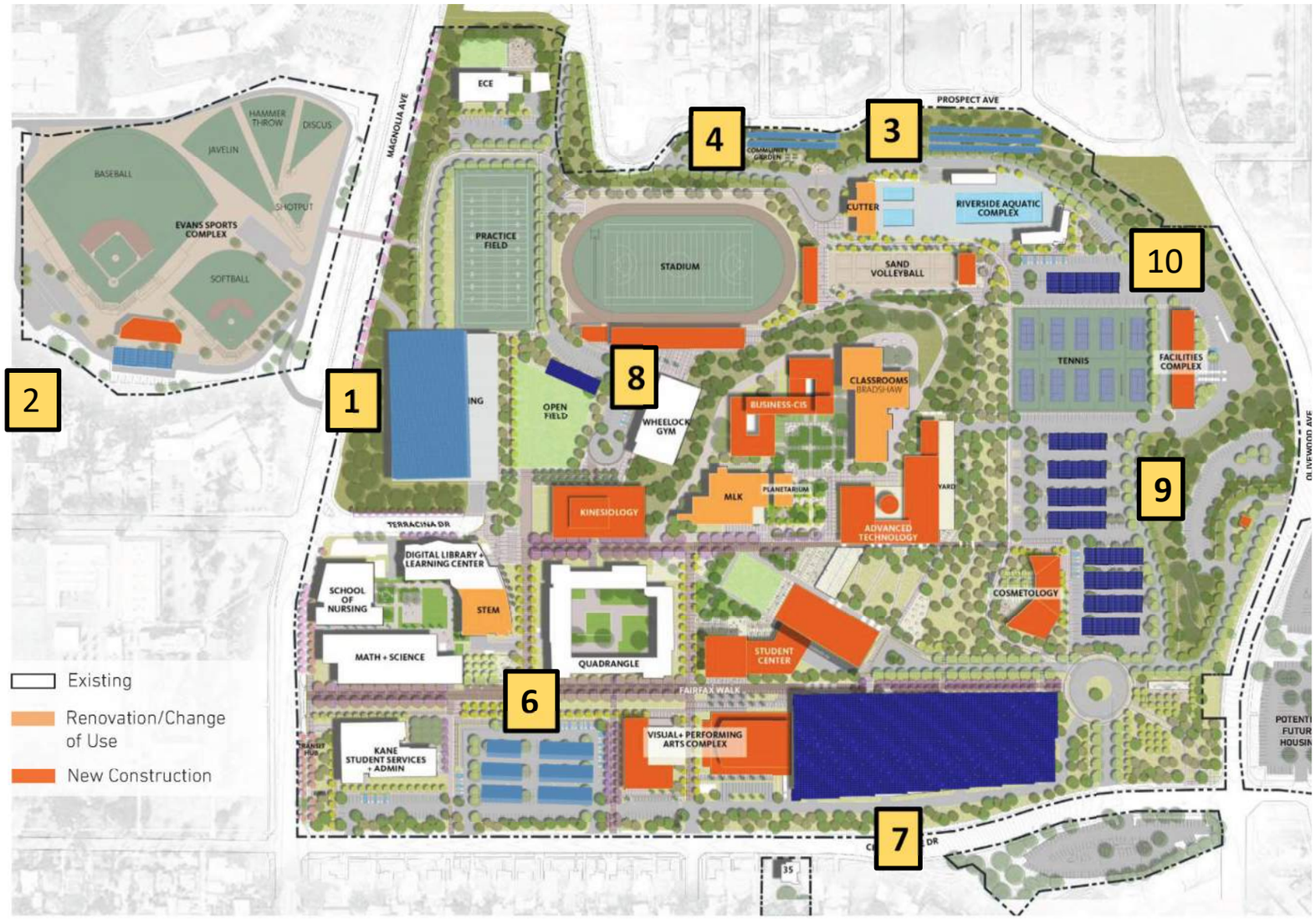
1. 12.47kV LOOP: 600 KW
2. WHEELOCK FIELD: 200 KW
3. DIGITAL LIBRARY: 250 KW
4. MATH AND SCIENCE: 300 KW
5. RAC POOL: 194 kW DC

FINANCIALS

- PROJECT COST: **$9,172,556**
- 25 YR CASH FLOW (LOAN @3%): **$2,752,308**
- 25 YR CASH FLOW (PPA): **$(7,253,026)**
- CARBON OFFSET (METRIC TONS): **2111**
- CARS DRIVEN FOR ONE YEAR: **456**

RIVERSIDE CITY COLLEGE

SOLAR ON **FUTURE CAMPUS**



ARRAYS OPTIONS (CURRENT/**FUTURE**)

1. PARKING STRUCTURE: 831 KW DC
2. EVANS PARKING: 66 KW DC
3. RAC POOL: 194 KW DC
4. COLLEGE HOUSE – 102 KW DC
5. NOT CONSIDERED
6. PARKING LOT C: 445 KW DC
7. **PARKING STR. 2 (FMP Phase II,2031-32): 1.68 MW DC**
8. **WHEELOCK GYM (FMP Phase II, 2033-34): 105 KW DC**
9. **PARKING LOT G (FMP Phase III, 2035-36): 697 KW DC**
10. **RAC PARKING (FMP Phase III, 2035-36): 87 KW DC**

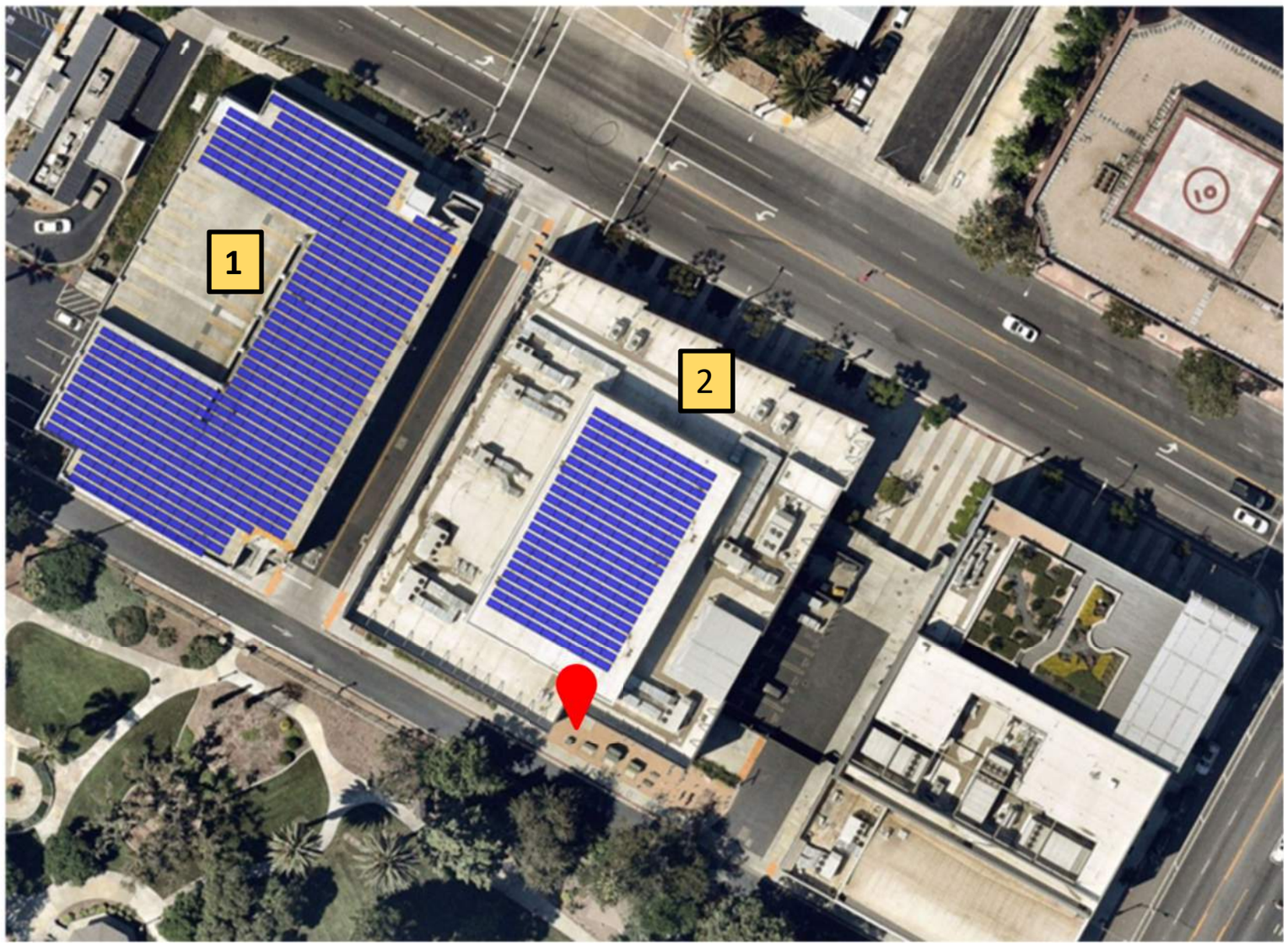
Total

4.30 MW DC

DOWNTOWN RIVERSIDE

PV+ BESS Option: **Combined**

Financials



SOLAR ARRAYS

1. PARKING STRUCTURE ARRAY: 194 KW DC
2. CSA BUILDING ROOF ARRAY: 76 KW DC

BESS

CSA BUILDING: 80 KW

FINANCIALS

- PROJECT COST: **$1,371,200**
- 25 YR CASH FLOW (LOAN @3%): **$179,139**
- 25 YR CASH FLOW (PPA): **$(1,102,206)**
- CARBON OFFSET (METRIC TONS): **323**
- CARS DRIVEN FOR ONE YEAR: **70**

Feasibility and Planning **Phase**

NEXT STEPS

EVALUATION DEVELOPMENT REFINE **FINALIZE**

1. Present and Review Recommendation at FPDC, DSPC, DBAC, BOT Committee meeting.
2. Finalize the Final Report incorporating the Solar Committee Feedback
3. Select Final Plan(s) based on DLR Recommendation and Solar Committee Feedback.
4. Provide Project Phasing and Schedule based on Recommended Projects/Options
5. Prepare RFQ/P’s.

Q + A

DLR Group
Architecture Engineering Planning Interiors

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **Net Zero**

1926kW Solar + 400kWh BESS

SOLAR ARRAYS

1. LOTS A, B, & D CARPORTS: 986 KW DC
2. GROUND MOUNT: 940 kW DC (REDUCED IN SIZE TO MAKE ZNE%

BESS

1. 12.47KV LOOP: 400 KW

FINANCIALS

- PROJECT COST: **$6,964,259**
- 25 YR CASH FLOW (LOAN @3%): **$(795,011)**
- 25 YR CASH FLOW (PPA): **$(1,994,121)**
- CARBON OFFSET (METRIC TONS): **2,414**
- CARS DRIVEN FOR ONE YEAR: **521**

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **Net Zero + BESS**

Financial Summary

Calculation Inputs and Assumptions	Net Zero + BESS Option
Array size (kW)	1926
BESS size (kW)	400
First year performance (kWhr)	3,414,811
Solar performance degradation	0.50%
Battery performance degradation	0%
First year cost avoidance (2021)	$ 220,957
Project cost	$ 6,964,259
Solar O&M costs	$ 12.50
BESS O&M costs	$ 7.50
Interest rate	3.00%
Term	25
Utility escalation	2.50%

Loan Option	Net Zero + BESS Option
Array size (kW)	1,926
BESS size (kW)	400
First year cash flow (loan option)	$ (113,655)
25-year accumulated cash flow (loan option)	$ (795,011)

PPA Option	Net Zero + BESS Option
Forecasted PPA rate	$ 0.14
PPA Escalation	0%
First year cash flow (PPA option)	$ (222,167)
25-year accumulated cash flow (PPA option)	$ (1,994,121)

Carbon Equivalence Reporting	Net Zero + BESS Option
First year performance (kWhr)	3,414,811
Carbon Offset (metric tons)	2,414
Cars Driven for One Year	521

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **Net Zero + BESS**

Financials – Loan Cash Flow

	A	B	C	D	E	F = (C+D+E)	G	H = (A-D)+B+G	J = (F-H)
Year	Cost avoidance	Loan Payment	Cost of Consumption	Cost of Demand	misc & taxes	Total Electric Cost w/o	Solar + BESS O&M Costs	Total Electric Cost w / solar	Difference
1	$ 313,362	$399,943	$ 112,383	$ 309,220	$ 91,474	$ 513,077	$ 27,075	$ 626,732	$ (113,655)
2	$ 320,064	$399,943	$ 115,193	$ 316,951	$ 93,761	$ 525,904	$ 27,481	$ 633,264	$ (107,360)
3	$ 326,911	$399,943	$ 118,072	$ 324,874	$ 96,105	$ 539,052	$ 27,893	$ 639,977	$ (100,925)
4	$ 333,906	$399,943	$ 121,024	$ 332,996	$ 98,507	$ 552,528	$ 28,312	$ 646,877	$ (94,349)
5	$ 341,052	$399,943	$ 124,050	$ 341,321	$ 100,970	$ 566,341	$ 28,736	$ 653,968	$ (87,627)
6	$ 348,353	$399,943	$ 127,151	$ 349,854	$ 103,494	$ 580,500	$ 29,167	$ 661,257	$ (80,757)
7	$ 355,812	$399,943	$ 130,330	$ 358,600	$ 106,082	$ 595,012	$ 29,605	$ 668,747	$ (73,735)
8	$ 363,433	$399,943	$ 133,588	$ 367,565	$ 108,734	$ 609,887	$ 30,049	$ 676,446	$ (66,558)
9	$ 371,220	$399,943	$ 136,928	$ 376,755	$ 111,452	$ 625,135	$ 30,500	$ 684,357	$ (59,223)
10	$ 379,175	$399,943	$ 140,351	$ 386,173	$ 114,238	$ 640,763	$ 30,957	$ 692,488	$ (51,725)
11	$ 387,302	$399,943	$ 143,860	$ 395,828	$ 117,094	$ 656,782	$ 31,422	$ 700,844	$ (44,062)
12	$ 395,606	$399,943	$ 147,456	$ 405,723	$ 120,022	$ 673,201	$ 31,893	$ 709,431	$ (36,230)
13	$ 404,090	$399,943	$ 151,143	$ 415,867	$ 123,022	$ 690,032	$ 203,732	$ 889,617	$ (199,585)
14	$ 412,758	$399,943	$ 154,921	$ 426,263	$ 126,098	$ 707,282	$ 35,427	$ 729,894	$ (22,612)
15	$ 421,615	$399,943	$ 158,794	$ 436,920	$ 129,250	$ 724,964	$ 35,959	$ 739,251	$ (14,287)
16	$ 430,663	$399,943	$ 162,764	$ 447,843	$ 132,482	$ 743,088	$ 36,498	$ 748,866	$ (5,777)
17	$ 439,909	$399,943	$ 166,833	$ 459,039	$ 135,794	$ 761,666	$ 37,046	$ 758,745	$ 2,920
18	$ 449,355	$399,943	$ 171,004	$ 470,515	$ 139,189	$ 780,707	$ 37,601	$ 768,896	$ 11,811
19	$ 459,006	$399,943	$ 175,279	$ 482,278	$ 142,668	$ 800,225	$ 38,165	$ 779,327	$ 20,898
20	$ 468,868	$399,943	$ 179,661	$ 494,335	$ 146,235	$ 820,231	$ 38,738	$ 790,043	$ 30,187
21	$ 478,944	$399,943	$ 184,153	$ 506,693	$ 149,891	$ 840,736	$ 39,319	$ 801,054	$ 39,682
22	$ 489,239	$399,943	$ 188,756	$ 519,360	$ 153,638	$ 861,755	$ 39,909	$ 812,367	$ 49,387
23	$ 499,758	$399,943	$ 193,475	$ 532,344	$ 157,479	$ 883,299	$ 40,507	$ 823,991	$ 59,308
24	$ 510,506	$399,943	$ 198,312	$ 545,653	$ 161,416	$ 905,381	$ 41,115	$ 835,933	$ 69,448
25	$ 521,488	$399,943	$ 203,270	$ 559,294	$ 165,451	$ 928,016	$ 41,732	$ 848,202	$ 79,813
									$ (795,011)

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **Net Zero + BESS**

Financials – PPA Cash Flow

	A	B	C	D	E	F	G = D - E - F	H = (A x B) + (A x C)	J = G + H	K = D - J
Year	PPA Rate ($/kWhr)	Solar Production (kWhr)	BESS Production (kWhr)	Historic Electric Cost w/o solar	Utility Value of Solar Production	Utility Value of Storage	Forecasted Electric Cost w / solar +BESS	PPA Payment	Electric Cost (Utility + PPA)	Difference
1	$ 0.140	3,414,811	410,400	$ 513,077	$ 220,957	$ 92,406	$ 199,715	$ 535,530	$ 735,244	$ (222,167)
2	$ 0.140	3,397,737	410,400	$ 525,904	$ 226,481	$ 94,716	$ 204,708	$ 533,139	$ 737,847	$ (211,943)
3	$ 0.140	3,380,748	410,400	$ 539,052	$ 232,143	$ 97,084	$ 209,825	$ 530,761	$ 740,586	$ (201,534)
4	$ 0.140	3,363,844	410,400	$ 552,528	$ 237,946	$ 99,511	$ 215,071	$ 528,394	$ 743,465	$ (190,937)
5	$ 0.140	3,347,025	410,400	$ 566,341	$ 243,895	$ 101,999	$ 220,448	$ 526,040	$ 746,487	$ (180,146)
6	$ 0.140	3,330,290	410,400	$ 580,500	$ 249,992	$ 104,548	$ 225,959	$ 523,697	$ 749,655	$ (169,156)
7	$ 0.140	3,313,639	410,400	$ 595,012	$ 256,242	$ 107,162	$ 231,608	$ 521,365	$ 752,973	$ (157,961)
8	$ 0.140	3,297,070	410,400	$ 609,887	$ 262,648	$ 109,841	$ 237,398	$ 519,046	$ 756,444	$ (146,557)
9	$ 0.140	3,280,585	410,400	$ 625,135	$ 269,214	$ 112,587	$ 243,333	$ 516,738	$ 760,071	$ (134,936)
10	$ 0.140	3,264,182	410,400	$ 640,763	$ 275,945	$ 115,402	$ 249,416	$ 514,442	$ 763,858	$ (123,095)
11	$ 0.140	3,247,861	410,400	$ 656,782	$ 282,843	$ 118,287	$ 255,652	$ 512,157	$ 767,808	$ (111,026)
12	$ 0.140	3,231,622	410,400	$ 673,201	$ 289,914	$ 121,244	$ 262,043	$ 509,883	$ 771,926	$ (98,725)
13	$ 0.140	3,215,464	410,400	$ 690,032	$ 297,162	$ 124,275	$ 268,594	$ 507,621	$ 776,215	$ (86,183)
14	$ 0.140	3,199,387	410,400	$ 707,282	$ 304,591	$ 127,382	$ 275,309	$ 505,370	$ 780,679	$ (73,397)
15	$ 0.140	3,183,390	410,400	$ 724,964	$ 312,206	$ 130,567	$ 282,192	$ 503,131	$ 785,322	$ (60,358)
16	$ 0.140	3,167,473	410,400	$ 743,088	$ 320,011	$ 133,831	$ 289,246	$ 500,902	$ 790,149	$ (47,060)
17	$ 0.140	3,151,635	410,400	$ 761,666	$ 328,011	$ 137,177	$ 296,478	$ 498,685	$ 795,163	$ (33,497)
18	$ 0.140	3,135,877	410,400	$ 780,707	$ 336,212	$ 140,606	$ 303,890	$ 496,479	$ 800,368	$ (19,661)
19	$ 0.140	3,120,198	410,400	$ 800,225	$ 344,617	$ 144,121	$ 311,487	$ 494,284	$ 805,770	$ (5,545)
20	$ 0.140	3,104,597	410,400	$ 820,231	$ 353,232	$ 147,724	$ 319,274	$ 492,100	$ 811,373	$ 8,857
21	$ 0.140	3,089,074	410,400	$ 840,736	$ 362,063	$ 151,417	$ 327,256	$ 489,926	$ 817,182	$ 23,554
22	$ 0.140	3,073,628	410,400	$ 861,755	$ 371,115	$ 155,203	$ 335,437	$ 487,764	$ 823,201	$ 38,554
23	$ 0.140	3,058,260	410,400	$ 883,299	$ 380,393	$ 159,083	$ 343,823	$ 485,612	$ 829,436	$ 53,863
24	$ 0.140	3,042,969	410,400	$ 905,381	$ 389,903	$ 163,060	$ 352,419	$ 483,472	$ 835,890	$ 69,491
25	$ 0.140	3,027,754	410,400	$ 928,016	$ 399,650	$ 167,136	$ 361,229	$ 481,342	$ 842,571	$ 85,445
										$ (1,994,121)

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **50% Offset**

983kW Solar + 400kWh BESS

SOLAR ARRAYS

2. GROUND MOUNT: 983 KW DC (REDUCED TO ACHIEVE 50%)

BESS

1. 12.47KV LOOP: 400 KW

FINANCIALS

- PROJECT COST: **$3,886,061**
- 25 YR CASH FLOW (LOAN @3%): **$561,572**
- 25 YR CASH FLOW (PPA): **$(174,680)**
- CARBON OFFSET (METRIC TONS): **1,232**
- CARS DRIVEN FOR ONE YEAR: **266**

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **50% Offset + BESS**

Financial Summary

Calculation Inputs and Assumptions	50% Off-Set + BESS Option
Array size (kW)	983
BESS size (kW)	400
First year performance (kWhr)	1,741,979
Solar performance degradation	0.50%
Battery performance degradation	0%
First year cost avoidance (2021)	$ 112,715
Project cost	$ 3,886,061
Solar O&M costs	$ 12.50
BESS O&M costs	$ 7.50
Interest rate	3.00%
Term	25
Utility escalation	2.50%

Loan Option	50% Off-Set + BESS Option
Array size (kW)	983
BESS size (kW)	400
First year cash flow (loan option)	$ (33,328)
25-year accumulated cash flow (loan option)	$ 561,572

PPA Option	50% Off-Set + BESS Option
Forecasted PPA rate	$ 0.14
PPA Escalation	0%
First year cash flow (PPA option)	$ (96,212)
25-year accumulated cash flow (PPA option)	$ (174,680)

Carbon Equivalence Reporting	50% Off-Set + BESS Option
First year performance (kWhr)	1,741,979
Carbon Offset (metric tons)	1,232
Cars Driven for One Year	266

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **50% Offset + BESS**

Financials – Loan Cash Flow

	A	B	C	D	E	F = (C+D+E)	G	H = (A-D)+B+G	J = (F-H)
Year	Cost avoidance	Loan Payment	Cost of Consumption	Cost of Demand	misc & taxes	Total Electric Cost w/o	Solar + BESS O&M Costs	Total Electric Cost w / solar	Difference
1	$ 205,121	$223,168	$ 112,383	$ 309,220	$ 91,474	$ 513,077	$ 15,281	$ 546,405	$ (33,328)
2	$ 209,671	$223,168	$ 115,193	$ 316,951	$ 93,761	$ 525,904	$ 15,510	$ 554,911	$ (29,007)
3	$ 214,324	$223,168	$ 118,072	$ 324,874	$ 96,105	$ 539,052	$ 15,743	$ 563,639	$ (24,587)
4	$ 219,081	$223,168	$ 121,024	$ 332,996	$ 98,507	$ 552,528	$ 15,979	$ 572,594	$ (20,066)
5	$ 223,946	$223,168	$ 124,050	$ 341,321	$ 100,970	$ 566,341	$ 16,219	$ 581,783	$ (15,442)
6	$ 228,919	$223,168	$ 127,151	$ 349,854	$ 103,494	$ 580,500	$ 16,462	$ 591,211	$ (10,711)
7	$ 234,005	$223,168	$ 130,330	$ 358,600	$ 106,082	$ 595,012	$ 16,709	$ 600,885	$ (5,873)
8	$ 239,205	$223,168	$ 133,588	$ 367,565	$ 108,734	$ 609,887	$ 16,960	$ 610,811	$ (923)
9	$ 244,522	$223,168	$ 136,928	$ 376,755	$ 111,452	$ 625,135	$ 17,214	$ 620,995	$ 4,140
10	$ 249,959	$223,168	$ 140,351	$ 386,173	$ 114,238	$ 640,763	$ 17,472	$ 631,445	$ 9,318
11	$ 255,518	$223,168	$ 143,860	$ 395,828	$ 117,094	$ 656,782	$ 17,735	$ 642,166	$ 14,615
12	$ 261,203	$223,168	$ 147,456	$ 405,723	$ 120,022	$ 673,201	$ 18,001	$ 653,167	$ 20,034
13	$ 267,016	$223,168	$ 151,143	$ 415,867	$ 123,022	$ 690,032	$ 152,714	$ 798,898	$ (108,867)
14	$ 272,959	$223,168	$ 154,921	$ 426,263	$ 126,098	$ 707,282	$ 20,561	$ 678,052	$ 29,230
15	$ 279,037	$223,168	$ 158,794	$ 436,920	$ 129,250	$ 724,964	$ 20,870	$ 689,965	$ 34,999
16	$ 285,252	$223,168	$ 162,764	$ 447,843	$ 132,482	$ 743,088	$ 21,183	$ 702,187	$ 40,901
17	$ 291,608	$223,168	$ 166,833	$ 459,039	$ 135,794	$ 761,666	$ 21,500	$ 714,727	$ 46,939
18	$ 298,106	$223,168	$ 171,004	$ 470,515	$ 139,189	$ 780,707	$ 21,823	$ 727,592	$ 53,115
19	$ 304,752	$223,168	$ 175,279	$ 482,278	$ 142,668	$ 800,225	$ 22,150	$ 740,792	$ 59,433
20	$ 311,547	$223,168	$ 179,661	$ 494,335	$ 146,235	$ 820,231	$ 22,483	$ 754,334	$ 65,897
21	$ 318,497	$223,168	$ 184,153	$ 506,693	$ 149,891	$ 840,736	$ 22,820	$ 768,228	$ 72,509
22	$ 325,603	$223,168	$ 188,756	$ 519,360	$ 153,638	$ 861,755	$ 23,162	$ 782,482	$ 79,272
23	$ 332,869	$223,168	$ 193,475	$ 532,344	$ 157,479	$ 883,299	$ 23,510	$ 797,107	$ 86,192
24	$ 340,301	$223,168	$ 198,312	$ 545,653	$ 161,416	$ 905,381	$ 23,862	$ 812,111	$ 93,270
25	$ 347,900	$223,168	$ 203,270	$ 559,294	$ 165,451	$ 928,016	$ 24,220	$ 827,504	$ 100,511
									$ 561,572

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **50% Offset + BESS**

Financials – PPA Cash Flow

Year	PPA Rate ($/kWhr)	Solar Production (kWhr)	BESS Production (kWhr)	Historic Electric Cost w/o solar	Utility Value of Solar Production	Utility Value of Storage	Forecasted Electric Cost w / solar +BESS	PPA Payment	Electric Cost (Utility + PPA)	Difference
1	$ 0.140	1,741,979	410,400	$ 513,077	$ 112,715	$ 92,406	$ 307,956	$ 301,333	$ 609,289	$ (96,212)
2	$ 0.140	1,733,269	410,400	$ 525,904	$ 115,533	$ 94,716	$ 315,655	$ 300,114	$ 615,769	$ (89,865)
3	$ 0.140	1,724,603	410,400	$ 539,052	$ 118,422	$ 97,084	$ 323,546	$ 298,900	$ 622,447	$ (83,395)
4	$ 0.140	1,715,980	410,400	$ 552,528	$ 121,382	$ 99,511	$ 331,635	$ 297,693	$ 629,328	$ (76,800)
5	$ 0.140	1,707,400	410,400	$ 566,341	$ 124,417	$ 101,999	$ 339,926	$ 296,492	$ 636,418	$ (70,077)
6	$ 0.140	1,698,863	410,400	$ 580,500	$ 127,527	$ 104,548	$ 348,424	$ 295,297	$ 643,721	$ (63,221)
7	$ 0.140	1,690,369	410,400	$ 595,012	$ 130,715	$ 107,162	$ 357,134	$ 294,108	$ 651,242	$ (56,230)
8	$ 0.140	1,681,917	410,400	$ 609,887	$ 133,983	$ 109,841	$ 366,063	$ 292,924	$ 658,987	$ (49,100)
9	$ 0.140	1,673,507	410,400	$ 625,135	$ 137,333	$ 112,587	$ 375,214	$ 291,747	$ 666,961	$ (41,827)
10	$ 0.140	1,665,140	410,400	$ 640,763	$ 140,766	$ 115,402	$ 384,595	$ 290,576	$ 675,170	$ (34,407)
11	$ 0.140	1,656,814	410,400	$ 656,782	$ 144,285	$ 118,287	$ 394,210	$ 289,410	$ 683,620	$ (26,838)
12	$ 0.140	1,648,530	410,400	$ 673,201	$ 147,892	$ 121,244	$ 404,065	$ 288,250	$ 692,315	$ (19,114)
13	$ 0.140	1,640,287	410,400	$ 690,032	$ 151,590	$ 124,275	$ 414,166	$ 287,096	$ 701,263	$ (11,231)
14	$ 0.140	1,632,086	410,400	$ 707,282	$ 155,379	$ 127,382	$ 424,521	$ 285,948	$ 710,469	$ (3,186)
15	$ 0.140	1,623,925	410,400	$ 724,964	$ 159,264	$ 130,567	$ 435,134	$ 284,806	$ 719,939	$ 5,025
16	$ 0.140	1,615,806	410,400	$ 743,088	$ 163,246	$ 133,831	$ 446,012	$ 283,669	$ 729,681	$ 13,408
17	$ 0.140	1,607,727	410,400	$ 761,666	$ 167,327	$ 137,177	$ 457,162	$ 282,538	$ 739,700	$ 21,966
18	$ 0.140	1,599,688	410,400	$ 780,707	$ 171,510	$ 140,606	$ 468,591	$ 281,412	$ 750,004	$ 30,704
19	$ 0.140	1,591,690	410,400	$ 800,225	$ 175,798	$ 144,121	$ 480,306	$ 280,293	$ 760,599	$ 39,626
20	$ 0.140	1,583,731	410,400	$ 820,231	$ 180,193	$ 147,724	$ 492,314	$ 279,178	$ 771,492	$ 48,738
21	$ 0.140	1,575,813	410,400	$ 840,736	$ 184,697	$ 151,417	$ 504,622	$ 278,070	$ 782,691	$ 58,045
22	$ 0.140	1,567,934	410,400	$ 861,755	$ 189,315	$ 155,203	$ 517,237	$ 276,967	$ 794,204	$ 67,551
23	$ 0.140	1,560,094	410,400	$ 883,299	$ 194,048	$ 159,083	$ 530,168	$ 275,869	$ 806,037	$ 77,261
24	$ 0.140	1,552,293	410,400	$ 905,381	$ 198,899	$ 163,060	$ 543,422	$ 274,777	$ 818,199	$ 87,182
25	$ 0.140	1,544,532	410,400	$ 928,016	$ 203,871	$ 167,136	$ 557,008	$ 273,690	$ 830,698	$ 97,317
										$ (174,680)

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

490kW Solar + 400kWh BESS

SOLAR ARRAYS

2. GROUND MOUNT: 490 KW DC (REDUCED TO ACHIEVE 25%)

BESS

1. 12.47KV LOOP: 400 KW

FINANCIALS

- PROJECT COST: **$2,283,343**
- 25 YR CASH FLOW (LOAN @3%): **$1,267,901**
- 25 YR CASH FLOW (PPA): **$157,105**
- CARBON OFFSET (METRIC TONS): **616**
- CARS DRIVEN FOR ONE YEAR: **133**

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset + BESS**

Financial Summary

Calculation Inputs and Assumptions	25% Off-Set + BESS Option
Array size (kW)	491
BESS size (kW)	400
First year performance (kWhr)	870,990
Solar performance degradation	0.50%
Battery performance degradation	410,400
First year cost avoidance (2021)	$ 92,406
Project cost	$ 2,283,343
Solar O&M costs	$ 12.50
BESS O&M costs	$ 7.50
Interest rate	3.00%
Term	25
Utility escalation	2.50%

Loan Option	25% Off-Set + BESS Option
Array size (kW)	491
BESS size (kW)	400
First year cash flow (loan option)	$ 8,495
25-year accumulated cash flow (loan option)	$ 1,267,901

PPA Option	25% Off-Set + BESS Option
Forecasted PPA rate	$ 0.16
PPA Escalation	0%
First year cash flow (PPA option)	$ (56,259)
25-year accumulated cash flow (PPA option)	$ 157,105

Carbon Equivalence Reporting	25% Off-Set + BESS Option
First year performance (kWhr)	2,612,969
Carbon Offset (metric tons)	1,847
Cars Driven for One Year	399

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset + BESS**

Financials – Loan Cash Flow

	A	B	C	D	E	F = (C+D+E)	G	H = (A-D)+B+G	J = (F-H)
Year	Cost avoidance	Loan Payment	Cost of Consumption	Cost of Demand	misc & taxes	Total Electric Cost w/o	Solar + BESS O&M Costs	Total Electric Cost w / solar	Difference
1	$ 148,763	$131,128	$ 112,383	$ 309,220	$ 91,474	$ 513,077	$ 9,141	$ 504,582	$ 8,495
2	$ 152,194	$131,128	$ 115,193	$ 316,951	$ 93,761	$ 525,904	$ 9,278	$ 514,116	$ 11,788
3	$ 155,704	$131,128	$ 118,072	$ 324,874	$ 96,105	$ 539,052	$ 9,417	$ 523,892	$ 15,159
4	$ 159,296	$131,128	$ 121,024	$ 332,996	$ 98,507	$ 552,528	$ 9,558	$ 533,917	$ 18,610
5	$ 162,972	$131,128	$ 124,050	$ 341,321	$ 100,970	$ 566,341	$ 9,702	$ 544,198	$ 22,143
6	$ 166,734	$131,128	$ 127,151	$ 349,854	$ 103,494	$ 580,500	$ 9,847	$ 554,740	$ 25,759
7	$ 170,583	$131,128	$ 130,330	$ 358,600	$ 106,082	$ 595,012	$ 9,995	$ 565,551	$ 29,461
8	$ 174,523	$131,128	$ 133,588	$ 367,565	$ 108,734	$ 609,887	$ 10,145	$ 576,637	$ 33,251
9	$ 178,555	$131,128	$ 136,928	$ 376,755	$ 111,452	$ 625,135	$ 10,297	$ 588,004	$ 37,130
10	$ 182,680	$131,128	$ 140,351	$ 386,173	$ 114,238	$ 640,763	$ 10,451	$ 599,661	$ 41,102
11	$ 186,903	$131,128	$ 143,860	$ 395,828	$ 117,094	$ 656,782	$ 10,608	$ 611,615	$ 45,167
12	$ 191,224	$131,128	$ 147,456	$ 405,723	$ 120,022	$ 673,201	$ 10,767	$ 623,873	$ 49,329
13	$ 195,645	$131,128	$ 151,143	$ 415,867	$ 123,022	$ 690,032	$ 126,150	$ 751,664	$ (61,633)
14	$ 200,171	$131,128	$ 154,921	$ 426,263	$ 126,098	$ 707,282	$ 12,821	$ 651,060	$ 56,222
15	$ 204,802	$131,128	$ 158,794	$ 436,920	$ 129,250	$ 724,964	$ 13,013	$ 664,303	$ 60,661
16	$ 209,542	$131,128	$ 162,764	$ 447,843	$ 132,482	$ 743,088	$ 13,208	$ 677,883	$ 65,206
17	$ 214,392	$131,128	$ 166,833	$ 459,039	$ 135,794	$ 761,666	$ 13,407	$ 691,808	$ 69,858
18	$ 219,356	$131,128	$ 171,004	$ 470,515	$ 139,189	$ 780,707	$ 13,608	$ 706,086	$ 74,621
19	$ 224,437	$131,128	$ 175,279	$ 482,278	$ 142,668	$ 800,225	$ 13,812	$ 720,728	$ 79,497
20	$ 229,636	$131,128	$ 179,661	$ 494,335	$ 146,235	$ 820,231	$ 14,019	$ 735,741	$ 84,489
21	$ 234,957	$131,128	$ 184,153	$ 506,693	$ 149,891	$ 840,736	$ 14,229	$ 751,136	$ 89,600
22	$ 240,403	$131,128	$ 188,756	$ 519,360	$ 153,638	$ 861,755	$ 14,443	$ 766,922	$ 94,832
23	$ 245,976	$131,128	$ 193,475	$ 532,344	$ 157,479	$ 883,299	$ 14,659	$ 783,109	$ 100,189
24	$ 251,680	$131,128	$ 198,312	$ 545,653	$ 161,416	$ 905,381	$ 14,879	$ 799,708	$ 105,673
25	$ 257,518	$131,128	$ 203,270	$ 559,294	$ 165,451	$ 928,016	$ 15,102	$ 816,728	$ 111,288
									$ 1,267,901

MORENO VALLEY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset + BESS**

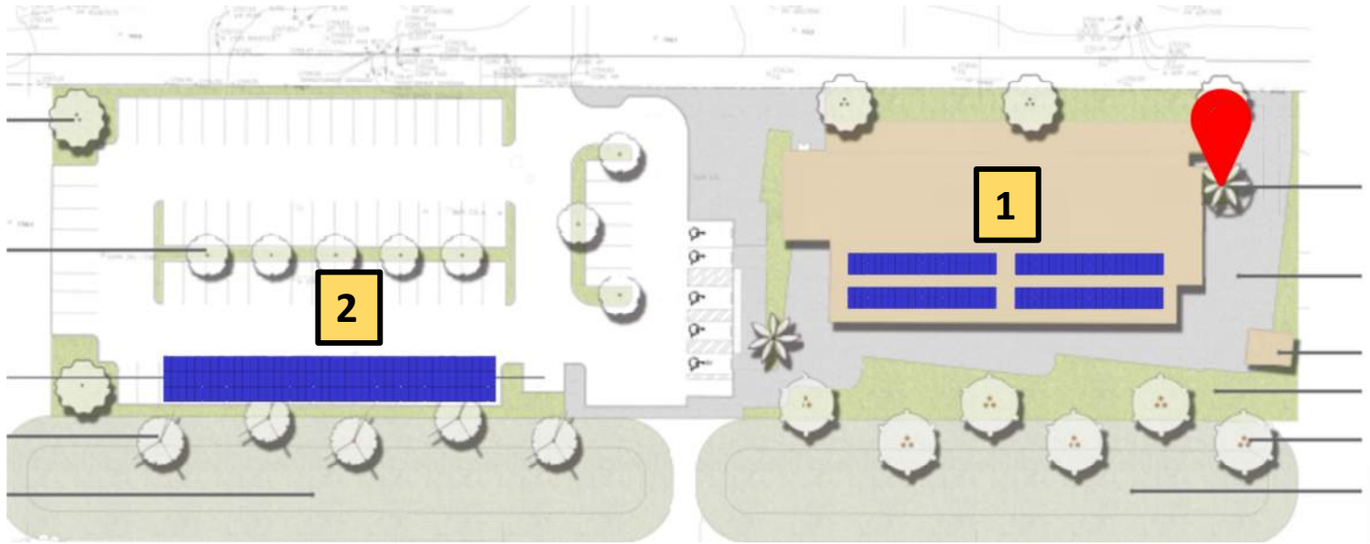
Financials – PPA Cash Flow

	A	B	C	D	E	F	G = D - E - F	H = (A x B) + (A x C)	J = G + H	K = D - J
Year	PPA Rate ($/kWhr)	Solar Production (kWhr)	BESS Production (kWhr)	Historic Electric Cost w/o solar	Utility Value of Solar Production	Utility Value of Storage	Forecasted Electric Cost w / solar +BESS	PPA Payment	Electric Cost (Utility + PPA)	Difference
1	$ 0.160	870,990	410,400	$ 513,077	$ 56,358	$ 92,406	$ 364,314	$ 205,022	$ 569,336	$ (56,259)
2	$ 0.160	866,635	410,400	$ 525,904	$ 57,767	$ 94,716	$ 373,422	$ 204,326	$ 577,747	$ (51,843)
3	$ 0.160	862,301	410,400	$ 539,052	$ 59,211	$ 97,084	$ 382,757	$ 203,632	$ 586,389	$ (47,338)
4	$ 0.160	857,990	410,400	$ 552,528	$ 60,691	$ 99,511	$ 392,326	$ 202,942	$ 595,268	$ (42,741)
5	$ 0.160	853,700	410,400	$ 566,341	$ 62,208	$ 101,999	$ 402,134	$ 202,256	$ 604,390	$ (38,049)
6	$ 0.160	849,431	410,400	$ 580,500	$ 63,764	$ 104,548	$ 412,187	$ 201,573	$ 613,761	$ (33,261)
7	$ 0.160	845,184	410,400	$ 595,012	$ 65,358	$ 107,162	$ 422,492	$ 200,893	$ 623,386	$ (28,374)
8	$ 0.160	840,958	410,400	$ 609,887	$ 66,992	$ 109,841	$ 433,054	$ 200,217	$ 633,272	$ (23,384)
9	$ 0.160	836,754	410,400	$ 625,135	$ 68,666	$ 112,587	$ 443,881	$ 199,545	$ 643,425	$ (18,291)
10	$ 0.160	832,570	410,400	$ 640,763	$ 70,383	$ 115,402	$ 454,978	$ 198,875	$ 653,853	$ (13,090)
11	$ 0.160	828,407	410,400	$ 656,782	$ 72,143	$ 118,287	$ 466,352	$ 198,209	$ 664,561	$ (7,779)
12	$ 0.160	824,265	410,400	$ 673,201	$ 73,946	$ 121,244	$ 478,011	$ 197,546	$ 675,557	$ (2,356)
13	$ 0.160	820,144	410,400	$ 690,032	$ 75,795	$ 124,275	$ 489,961	$ 196,887	$ 686,848	$ 3,183
14	$ 0.160	816,043	410,400	$ 707,282	$ 77,690	$ 127,382	$ 502,210	$ 196,231	$ 698,441	$ 8,841
15	$ 0.160	811,963	410,400	$ 724,964	$ 79,632	$ 130,567	$ 514,766	$ 195,578	$ 710,344	$ 14,621
16	$ 0.160	807,903	410,400	$ 743,088	$ 81,623	$ 133,831	$ 527,635	$ 194,928	$ 722,563	$ 20,525
17	$ 0.160	803,863	410,400	$ 761,666	$ 83,663	$ 137,177	$ 540,826	$ 194,282	$ 735,108	$ 26,558
18	$ 0.160	799,844	410,400	$ 780,707	$ 85,755	$ 140,606	$ 554,346	$ 193,639	$ 747,985	$ 32,722
19	$ 0.160	795,845	410,400	$ 800,225	$ 87,899	$ 144,121	$ 568,205	$ 192,999	$ 761,204	$ 39,021
20	$ 0.160	791,866	410,400	$ 820,231	$ 90,096	$ 147,724	$ 582,410	$ 192,362	$ 774,773	$ 45,458
21	$ 0.160	787,906	410,400	$ 840,736	$ 92,349	$ 151,417	$ 596,970	$ 191,729	$ 788,699	$ 52,037
22	$ 0.160	783,967	410,400	$ 861,755	$ 94,657	$ 155,203	$ 611,895	$ 191,099	$ 802,993	$ 58,762
23	$ 0.160	780,047	410,400	$ 883,299	$ 97,024	$ 159,083	$ 627,192	$ 190,472	$ 817,663	$ 65,635
24	$ 0.160	776,147	410,400	$ 905,381	$ 99,449	$ 163,060	$ 642,872	$ 189,847	$ 832,719	$ 72,662
25	$ 0.160	772,266	410,400	$ 928,016	$ 101,936	$ 167,136	$ 658,944	$ 189,227	$ 848,170	$ 79,846
										$ 157,105

BEN CLARK TRAINING CENTER - SOLAR ON NEW BUILDING AND SITE

PV+ BESS Option: **Net Zero**

100kW Solar + 80kWh BESS



SOLAR ARRAYS

1. ROOFTOP: 50 KW DC
2. CARPORT: 60 kW DC

BESS

1. MAIN SERVICE: 50 KW

FINANCIALS

- PROJECT COST: **$510,334**
- 25 YR CASH FLOW (LOAN @3%): **$99,179**
- 25 YR CASH FLOW (PPA): **$90,434**
- CARBON OFFSET (METRIC TONS): **126**
- CARS DRIVEN FOR ONE YEAR: **28**

MORENO VALLEY COLLEGE - SOLAR ON BEN CLARK TRAINING CAMPUS

PV+ BESS Option: **Combined**

Financials

Calculation Inputs and Assumptions	BCTC - COMB Solar + BESS
Array size (kW)	100
BESS size (kW)	50
First year performance (kWhr)	178412
Solar performance degradation	0.50%
Battery performance degradation	0%
First year cost avoidance (2021)	$ 27,603
Project cost	$ 510,334
Solar O&M costs	$ 12.50
BESS O&M costs	$ 7.50
Interest rate	3.00%
Term	25
Utility escalation	2.50%

Loan Option	BCTC - COMB Solar + BESS
Array size (kW)	100
BESS size (kW)	50
First year cash flow (loan option)	$ (3,329)
25-year accumulated cash flow (loan option)	$ 99,179

PPA Option	BCTC - COMB Solar + BESS
Forecasted PPA rate	$ 0.16
PPA Escalation	0%
First year cash flow (PPA option)	$ (8,143)
25-year accumulated cash flow (PPA option)	$ 90,434

Carbon Equivalence Reporting	BCTC - COMB Solar + BESS
First year performance (kWhr)	178,412
Carbon Offset (metric tons)	126
Cars Driven for One Year	28

Cost avoidance data based on forecasted energy use

MORENO VALLEY COLLEGE - SOLAR ON BEN CLARK TRAINING CAMPUS

PV+ BESS Option: **Combined**

Financials – Loan Cash Flow

	A	B	C	D	E	F = (C+D+E)	G	H = (A-D)+B+G	J = (F-H)
Year	Cost avoidance	Loan Payment	Cost of Consumption	Cost of Demand	misc & taxes	Total Electric Cost w/o	Solar + BESS O&M Costs	Total Electric Cost w / solar	Difference
1	$ 27,603	$29,307	$ 12,419	$ 31,047	$ 10,556	$ 54,022	$ 1,625	$ 57,351	$ (3,329)
2	$ 28,208	$29,307	$ 12,729	$ 31,823	$ 10,820	$ 55,373	$ 1,649	$ 58,121	$ (2,748)
3	$ 28,827	$29,307	$ 13,048	$ 32,619	$ 11,090	$ 56,757	$ 1,674	$ 58,912	$ (2,155)
4	$ 29,459	$29,307	$ 13,374	$ 33,434	$ 11,368	$ 58,176	$ 1,699	$ 59,723	$ (1,547)
5	$ 30,106	$29,307	$ 13,708	$ 34,270	$ 11,652	$ 59,630	$ 1,725	$ 60,557	$ (927)
6	$ 30,766	$29,307	$ 14,051	$ 35,127	$ 11,943	$ 61,121	$ 1,751	$ 61,413	$ (292)
7	$ 31,442	$29,307	$ 14,402	$ 36,005	$ 12,242	$ 62,649	$ 1,777	$ 62,292	$ 358
8	$ 32,132	$29,307	$ 14,762	$ 36,905	$ 12,548	$ 64,215	$ 1,803	$ 63,194	$ 1,021
9	$ 32,838	$29,307	$ 15,131	$ 37,828	$ 12,862	$ 65,821	$ 1,831	$ 64,121	$ 1,700
10	$ 33,560	$29,307	$ 15,509	$ 38,774	$ 13,183	$ 67,466	$ 1,858	$ 65,072	$ 2,394
11	$ 34,297	$29,307	$ 15,897	$ 39,743	$ 13,513	$ 69,153	$ 1,886	$ 66,049	$ 3,104
12	$ 35,051	$29,307	$ 16,295	$ 40,737	$ 13,850	$ 70,882	$ 1,914	$ 67,052	$ 3,830
13	$ 35,822	$29,307	$ 16,702	$ 41,755	$ 14,197	$ 72,654	$ 23,725	$ 89,864	$ (17,210)
14	$ 36,610	$29,307	$ 17,120	$ 42,799	$ 14,552	$ 74,470	$ 2,299	$ 69,466	$ 5,004
15	$ 37,416	$29,307	$ 17,548	$ 43,869	$ 14,915	$ 76,332	$ 2,333	$ 70,557	$ 5,775
16	$ 38,239	$29,307	$ 17,986	$ 44,966	$ 15,288	$ 78,240	$ 2,368	$ 71,677	$ 6,564
17	$ 39,081	$29,307	$ 18,436	$ 46,090	$ 15,671	$ 80,196	$ 2,404	$ 72,826	$ 7,370
18	$ 39,942	$29,307	$ 18,897	$ 47,242	$ 16,062	$ 82,201	$ 2,440	$ 74,007	$ 8,195
19	$ 40,822	$29,307	$ 19,369	$ 48,423	$ 16,464	$ 84,256	$ 2,476	$ 75,218	$ 9,038
20	$ 41,721	$29,307	$ 19,853	$ 49,634	$ 16,875	$ 86,363	$ 2,514	$ 76,462	$ 9,900
21	$ 42,641	$29,307	$ 20,350	$ 50,874	$ 17,297	$ 88,522	$ 2,551	$ 77,740	$ 10,782
22	$ 43,581	$29,307	$ 20,859	$ 52,146	$ 17,730	$ 90,735	$ 2,590	$ 79,051	$ 11,684
23	$ 44,542	$29,307	$ 21,380	$ 53,450	$ 18,173	$ 93,003	$ 2,628	$ 80,397	$ 12,606
24	$ 45,525	$29,307	$ 21,914	$ 54,786	$ 18,627	$ 95,328	$ 2,668	$ 81,779	$ 13,549
25	$ 46,529	$29,307	$ 22,462	$ 56,156	$ 19,093	$ 97,711	$ 2,708	$ 83,197	$ 14,514
									$ 99,179

MORENO VALLEY COLLEGE - SOLAR ON BEN CLARK TRAINING CAMPUS

PV+ BESS Option: **Combined**

Financials – PPA Cash Flow

	A	B	C	D	E	F	G = D - E - F	H = (A x B) + (A x C)	J = G + H	K = D - J
Year	PPA Rate ($/kWhr)	Solar Production (kWhr)	BESS Production (kWhr)	Historic Electric Cost w/o solar + BESS	Utility Value of Solar Production	Utility Value of Storage	Forecasted Electric Cost w / solar +BESS	PPA Payment	Electric Cost (Utility + PPA)	Difference
1	$ 0.160	178,412	45,000	$ 54,022	$ 16,572	$ 11,032	$ 26,419	$ 35,746	$ 62,165	$ (8,143)
2	$ 0.160	177,520	45,000	$ 55,373	$ 16,986	$ 11,307	$ 27,079	$ 35,603	$ 62,683	$ (7,310)
3	$ 0.160	176,633	45,000	$ 56,757	$ 17,411	$ 11,590	$ 27,756	$ 35,461	$ 63,218	$ (6,461)
4	$ 0.160	175,750	45,000	$ 58,176	$ 17,846	$ 11,880	$ 28,450	$ 35,320	$ 63,770	$ (5,594)
5	$ 0.160	174,871	45,000	$ 59,630	$ 18,292	$ 12,177	$ 29,162	$ 35,179	$ 64,341	$ (4,711)
6	$ 0.160	173,996	45,000	$ 61,121	$ 18,749	$ 12,481	$ 29,891	$ 35,039	$ 64,930	$ (3,809)
7	$ 0.160	173,126	45,000	$ 62,649	$ 19,218	$ 12,793	$ 30,638	$ 34,900	$ 65,538	$ (2,889)
8	$ 0.160	172,261	45,000	$ 64,215	$ 19,698	$ 13,113	$ 31,404	$ 34,762	$ 66,166	$ (1,950)
9	$ 0.160	171,399	45,000	$ 65,821	$ 20,191	$ 13,441	$ 32,189	$ 34,624	$ 66,813	$ (992)
10	$ 0.160	170,542	45,000	$ 67,466	$ 20,696	$ 13,777	$ 32,994	$ 34,487	$ 67,481	$ (14)
11	$ 0.160	169,690	45,000	$ 69,153	$ 21,213	$ 14,121	$ 33,819	$ 34,350	$ 68,169	$ 984
12	$ 0.160	168,841	45,000	$ 70,882	$ 21,743	$ 14,474	$ 34,664	$ 34,215	$ 68,879	$ 2,003
13	$ 0.160	167,997	45,000	$ 72,654	$ 22,287	$ 14,836	$ 35,531	$ 34,080	$ 69,610	$ 3,044
14	$ 0.160	167,157	45,000	$ 74,470	$ 22,844	$ 15,207	$ 36,419	$ 33,945	$ 70,364	$ 4,106
15	$ 0.160	166,321	45,000	$ 76,332	$ 23,415	$ 15,587	$ 37,329	$ 33,811	$ 71,141	$ 5,191
16	$ 0.160	165,490	45,000	$ 78,240	$ 24,001	$ 15,977	$ 38,263	$ 33,678	$ 71,941	$ 6,299
17	$ 0.160	164,662	45,000	$ 80,196	$ 24,601	$ 16,376	$ 39,219	$ 33,546	$ 72,765	$ 7,431
18	$ 0.160	163,839	45,000	$ 82,201	$ 25,216	$ 16,786	$ 40,200	$ 33,414	$ 73,614	$ 8,587
19	$ 0.160	163,020	45,000	$ 84,256	$ 25,846	$ 17,205	$ 41,205	$ 33,283	$ 74,488	$ 9,768
20	$ 0.160	162,205	45,000	$ 86,363	$ 26,492	$ 17,636	$ 42,235	$ 33,153	$ 75,387	$ 10,975
21	$ 0.160	161,394	45,000	$ 88,522	$ 27,154	$ 18,076	$ 43,291	$ 33,023	$ 76,314	$ 12,208
22	$ 0.160	160,587	45,000	$ 90,735	$ 27,833	$ 18,528	$ 44,373	$ 32,894	$ 77,267	$ 13,468
23	$ 0.160	159,784	45,000	$ 93,003	$ 28,529	$ 18,992	$ 45,482	$ 32,765	$ 78,248	$ 14,755
24	$ 0.160	158,985	45,000	$ 95,328	$ 29,242	$ 19,466	$ 46,619	$ 32,638	$ 79,257	$ 16,071
25	$ 0.160	158,190	45,000	$ 97,711	$ 29,973	$ 19,953	$ 47,785	$ 32,510	$ 80,295	$ 17,416
										$ 90,434

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **Net Zero**

2135kW Solar + 500kWh BESS

SOLAR ARRAYS

3. NE GROUND MOUNT: 1630 KW DC
4. NW GROUND MOUNT: 505 KW DC

BESS

MAIN SERVICE: 500 KW

FINANCIALS

- PROJECT COST: **$6,727,375**
- 25 YR CASH FLOW (LOAN @3%): **$1,977,762**
- 25 YR CASH FLOW (PPA): **$(4,578,402)**
- CARBON OFFSET (METRIC TONS): **3077**
- CARS DRIVEN FOR ONE YEAR: **665**

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **Net Zero**

Financial Summary

Calculation Inputs and Assumptions	Net Zero + BESS
Array size (kW)	2135
BESS size (kW)	500
First year performance (kWhr)	3,925,644
Solar performance degradation	0.50%
Battery performance degradation	0%
First year cost avoidance (2021)	$ 395,270
Project cost	$ 6,727,375
Solar O&M costs	$ 12.50
BESS O&M costs	$ 7.50
Interest rate	3.00%
Term (years)	25
Utility escalation	2.50%

Loan Option	Net Zero + BESS
Array size (kW)	2135
BESS size (kW)	500
First year cash flow (loan option)	$ (21,504)
25-year accumulated cash flow (loan option)	$ 1,977,762

PPA Option	Net Zero + BESS
Forecasted PPA rate	$ 0.12
PPA Escalation	0%
First year cash flow (PPA option)	$ (179,231)
25-year accumulated cash flow (PPA option)	$ (4,578,402)

Carbon Equivalence Reporting	Net Zero + BESS
First year performance (kWhr)	4,351,979
Carbon Offset (metric tons)	3077

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **Net Zero**

Financials – Loan Cash Flow

	A	B	C	D	E	F = (C+D+E)	G	H = (A-D)+B+G	J = (F-H)
Year	Cost avoidance	Loan Payment	Cost of Consumption	Cost of Demand	misc & taxes	Total Electric Cost w/o	Solar + BESS O&M Costs	Total Electric Cost w / solar	Difference
1	$ 395,270	$386,339	$ 112,383	$ 309,220	$ 91,474	$ 513,077	$ 30,435	$ 534,581	$ (21,504)
2	$ 403,500	$386,339	$ 115,193	$ 316,951	$ 93,761	$ 525,904	$ 30,892	$ 539,635	$ (13,731)
3	$ 411,903	$386,339	$ 118,072	$ 324,874	$ 96,105	$ 539,052	$ 31,355	$ 544,843	$ (5,791)
4	$ 420,483	$386,339	$ 121,024	$ 332,996	$ 98,507	$ 552,528	$ 31,826	$ 550,210	$ 2,318
5	$ 429,242	$386,339	$ 124,050	$ 341,321	$ 100,970	$ 566,341	$ 32,303	$ 555,740	$ 10,601
6	$ 438,186	$386,339	$ 127,151	$ 349,854	$ 103,494	$ 580,500	$ 32,788	$ 561,439	$ 19,060
7	$ 447,319	$386,339	$ 130,330	$ 358,600	$ 106,082	$ 595,012	$ 33,279	$ 567,312	$ 27,700
8	$ 456,643	$386,339	$ 133,588	$ 367,565	$ 108,734	$ 609,887	$ 33,779	$ 573,362	$ 36,525
9	$ 466,163	$386,339	$ 136,928	$ 376,755	$ 111,452	$ 625,135	$ 34,285	$ 579,595	$ 45,539
10	$ 475,884	$386,339	$ 140,351	$ 386,173	$ 114,238	$ 640,763	$ 34,800	$ 586,017	$ 54,746
11	$ 485,809	$386,339	$ 143,860	$ 395,828	$ 117,094	$ 656,782	$ 35,322	$ 592,633	$ 64,149
12	$ 495,943	$386,339	$ 147,456	$ 405,723	$ 120,022	$ 673,201	$ 35,851	$ 599,448	$ 73,753
13	$ 506,291	$386,339	$ 151,143	$ 415,867	$ 123,022	$ 690,032	$ 243,986	$ 814,065	$ (124,034)
14	$ 516,857	$386,339	$ 154,921	$ 426,263	$ 126,098	$ 707,282	$ 40,049	$ 616,813	$ 90,469
15	$ 527,645	$386,339	$ 158,794	$ 436,920	$ 129,250	$ 724,964	$ 40,650	$ 624,308	$ 100,656
16	$ 538,660	$386,339	$ 162,764	$ 447,843	$ 132,482	$ 743,088	$ 41,259	$ 632,027	$ 111,062
17	$ 549,908	$386,339	$ 166,833	$ 459,039	$ 135,794	$ 761,666	$ 41,878	$ 639,975	$ 121,691
18	$ 561,392	$386,339	$ 171,004	$ 470,515	$ 139,189	$ 780,707	$ 42,506	$ 648,160	$ 132,547
19	$ 573,119	$386,339	$ 175,279	$ 482,278	$ 142,668	$ 800,225	$ 43,144	$ 656,589	$ 143,636
20	$ 585,093	$386,339	$ 179,661	$ 494,335	$ 146,235	$ 820,231	$ 43,791	$ 665,267	$ 154,963
21	$ 597,320	$386,339	$ 184,153	$ 506,693	$ 149,891	$ 840,736	$ 44,448	$ 674,203	$ 166,533
22	$ 609,805	$386,339	$ 188,756	$ 519,360	$ 153,638	$ 861,755	$ 45,115	$ 683,404	$ 178,351
23	$ 622,553	$386,339	$ 193,475	$ 532,344	$ 157,479	$ 883,299	$ 45,792	$ 692,876	$ 190,422
24	$ 635,570	$386,339	$ 198,312	$ 545,653	$ 161,416	$ 905,381	$ 46,478	$ 702,629	$ 202,753
25	$ 648,862	$386,339	$ 203,270	$ 559,294	$ 165,451	$ 928,016	$ 47,176	$ 712,668	$ 215,347
									$ 1,977,762

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **Net Zero**

Financials – PPA Cash Flow

	A	B	C	D	E	F	G = D - E - F	H = (A x B) + (A x C)	J = G + H	K = D - J
Year	PPA Rate ($/kWhr)	Solar Production (kWhr)	BESS Production (kWhr)	Historic Electric Cost w/o solar	Utility Value of Solar Production	Utility Value of Storage	Forecasted Electric Cost w / solar +BESS	PPA Payment	Electric Cost (Utility + PPA)	Difference
1	$ 0.120	3,925,644	513,000	$ 513,077	$ 280,425	$ 72,981	$ 159,671	$ 532,637	$ 692,308	$ (179,231)
2	$ 0.120	3,906,016	513,000	$ 525,904	$ 285,998	$ 74,806	$ 165,100	$ 530,282	$ 709,616	$ (183,712)
3	$ 0.120	3,886,486	513,000	$ 539,052	$ 291,683	$ 76,676	$ 170,693	$ 527,938	$ 727,356	$ (188,305)
4	$ 0.120	3,867,053	513,000	$ 552,528	$ 297,480	$ 78,593	$ 176,455	$ 525,606	$ 745,540	$ (193,013)
5	$ 0.120	3,847,718	513,000	$ 566,341	$ 303,392	$ 80,557	$ 182,391	$ 523,286	$ 764,179	$ (197,838)
6	$ 0.120	3,828,480	513,000	$ 580,500	$ 309,422	$ 82,571	$ 188,506	$ 520,978	$ 783,283	$ (202,784)
7	$ 0.120	3,809,337	513,000	$ 595,012	$ 315,572	$ 84,636	$ 194,804	$ 518,680	$ 802,865	$ (207,853)
8	$ 0.120	3,790,291	513,000	$ 609,887	$ 321,844	$ 86,752	$ 201,292	$ 516,395	$ 822,937	$ (213,050)
9	$ 0.120	3,771,339	513,000	$ 625,135	$ 328,240	$ 88,920	$ 207,974	$ 514,121	$ 843,510	$ (218,376)
10	$ 0.120	3,752,482	513,000	$ 640,763	$ 334,764	$ 91,143	$ 214,855	$ 511,858	$ 864,598	$ (223,835)
11	$ 0.120	3,733,720	513,000	$ 656,782	$ 341,418	$ 93,422	$ 221,942	$ 509,606	$ 886,213	$ (229,431)
12	$ 0.120	3,715,051	513,000	$ 673,201	$ 348,203	$ 95,758	$ 229,241	$ 507,366	$ 908,368	$ (235,167)
13	$ 0.120	3,696,476	513,000	$ 690,032	$ 355,124	$ 98,151	$ 236,756	$ 505,137	$ 931,078	$ (241,046)
14	$ 0.120	3,677,994	513,000	$ 707,282	$ 362,182	$ 100,605	$ 244,495	$ 502,919	$ 954,355	$ (247,072)
15	$ 0.120	3,659,604	513,000	$ 724,964	$ 369,380	$ 103,120	$ 252,464	$ 500,712	$ 978,214	$ (253,249)
16	$ 0.120	3,641,306	513,000	$ 743,088	$ 376,722	$ 105,698	$ 260,668	$ 498,517	$ 1,002,669	$ (259,580)
17	$ 0.120	3,623,099	513,000	$ 761,666	$ 384,209	$ 108,341	$ 269,116	$ 496,332	$ 1,027,736	$ (266,070)
18	$ 0.120	3,604,984	513,000	$ 780,707	$ 391,845	$ 111,049	$ 277,813	$ 494,158	$ 1,053,429	$ (272,722)
19	$ 0.120	3,586,959	513,000	$ 800,225	$ 399,633	$ 113,826	$ 286,766	$ 491,995	$ 1,079,765	$ (279,540)
20	$ 0.120	3,569,024	513,000	$ 820,231	$ 407,576	$ 116,671	$ 295,983	$ 489,843	$ 1,106,759	$ (286,528)
21	$ 0.120	3,551,179	513,000	$ 840,736	$ 415,677	$ 119,588	$ 305,472	$ 487,701	$ 1,134,428	$ (293,691)
22	$ 0.120	3,533,423	513,000	$ 861,755	$ 423,938	$ 122,578	$ 315,239	$ 485,571	$ 1,162,788	$ (301,034)
23	$ 0.120	3,515,756	513,000	$ 883,299	$ 432,364	$ 125,642	$ 325,293	$ 483,451	$ 1,191,858	$ (308,559)
24	$ 0.120	3,498,177	513,000	$ 905,381	$ 440,957	$ 128,783	$ 335,641	$ 481,341	$ 1,221,655	$ (316,273)
25	$ 0.120	3,480,686	513,000	$ 928,016	$ 449,721	$ 132,003	$ 346,292	$ 479,242	$ 1,252,196	$ (324,180)
										$ (4,578,402)

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **50% Offset**

1060kW Solar + 500kWh BESS

SOLAR ARRAYS

3. NE GROUND MOUNT: 1060 KW DC (REDUCED IN SIZE SLIGHTLY TO GET TO 50%)

BESS

1. MAIN SERVICE: 500 KW

FINANCIALS

- PROJECT COST: **$3,776,223**
- 25 YR CASH FLOW (LOAN @3%): **$617,440**
- 25 YR CASH FLOW (PPA): **$(2,755,137)**
- CARBON OFFSET (METRIC TONS): **1378**
- CARS DRIVEN FOR ONE YEAR: **298**

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **50% Offset**

Financial Summary

Calculation Inputs and Assumptions	50% Off-set + BESS Option
Array size (kW)	1060
BESS size (kW)	500
First year performance (kWhr)	1,949,032
Solar performance degradation	0.50%
Battery performance degradation	0%
First year cost avoidance (2021)	$ 205,961
Project cost	$ 3,776,223
Solar O&M costs	$ 12.50
BESS O&M costs	$ 7.50
Interest rate	3.00%
Term (years)	25
Utility escalation	2.50%

Loan Option	50% Off-set + BESS Option
Array size (kW)	1060
BESS size (kW)	500
First year cash flow (loan option)	$ (27,898)
25-year accumulated cash flow (loan option)	$ 617,440

PPA Option	50% Off-set + BESS Option
Forecasted PPA rate	$ 0.13
PPA Escalation	0%
First year cash flow (PPA option)	$ (107,856)
25-year accumulated cash flow (PPA option)	$ (2,755,137)

Carbon Equivalence Reporting	50% Off-set + BESS Option
First year performance (kWhr)	1,949,032
Carbon Offset (metric tons)	1378
Cars Driven in a Year	298

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **50% Offset**

Financials – Loan Cash Flow

	A	B	C	D	E	F = (C+D+E)	G	H = (A-D)+B+G	J = (F-H)
Year	Cost avoidance	Loan Payment	Cost of Consumption	Cost of Demand	misc & taxes	Total Electric Cost w/o	Solar + BESS O&M Costs	Total Electric Cost w / solar	Difference
1	$ 205,961	$216,860	$ 112,383	$ 309,220	$ 91,474	$ 513,077	$ 16,999	$ 540,975	$ (27,898)
2	$ 210,428	$216,860	$ 115,193	$ 316,951	$ 93,761	$ 525,904	$ 17,254	$ 549,590	$ (23,686)
3	$ 214,994	$216,860	$ 118,072	$ 324,874	$ 96,105	$ 539,052	$ 17,513	$ 558,431	$ (19,379)
4	$ 219,660	$216,860	$ 121,024	$ 332,996	$ 98,507	$ 552,528	$ 17,775	$ 567,504	$ (14,976)
5	$ 224,429	$216,860	$ 124,050	$ 341,321	$ 100,970	$ 566,341	$ 18,042	$ 576,815	$ (10,474)
6	$ 229,302	$216,860	$ 127,151	$ 349,854	$ 103,494	$ 580,500	$ 18,313	$ 586,371	$ (5,871)
7	$ 234,283	$216,860	$ 130,330	$ 358,600	$ 106,082	$ 595,012	$ 18,587	$ 596,177	$ (1,165)
8	$ 239,373	$216,860	$ 133,588	$ 367,565	$ 108,734	$ 609,887	$ 18,866	$ 606,241	$ 3,646
9	$ 244,575	$216,860	$ 136,928	$ 376,755	$ 111,452	$ 625,135	$ 19,149	$ 616,569	$ 8,565
10	$ 249,891	$216,860	$ 140,351	$ 386,173	$ 114,238	$ 640,763	$ 19,436	$ 627,168	$ 13,595
11	$ 255,325	$216,860	$ 143,860	$ 395,828	$ 117,094	$ 656,782	$ 19,728	$ 638,045	$ 18,737
12	$ 260,879	$216,860	$ 147,456	$ 405,723	$ 120,022	$ 673,201	$ 20,024	$ 649,207	$ 23,994
13	$ 266,554	$216,860	$ 151,143	$ 415,867	$ 123,022	$ 690,032	$ 183,815	$ 824,153	$ (134,121)
14	$ 272,355	$216,860	$ 154,921	$ 426,263	$ 126,098	$ 707,282	$ 23,082	$ 674,869	$ 32,413
15	$ 278,284	$216,860	$ 158,794	$ 436,920	$ 129,250	$ 724,964	$ 23,428	$ 686,969	$ 37,996
16	$ 284,343	$216,860	$ 162,764	$ 447,843	$ 132,482	$ 743,088	$ 23,779	$ 699,385	$ 43,704
17	$ 290,536	$216,860	$ 166,833	$ 459,039	$ 135,794	$ 761,666	$ 24,136	$ 712,126	$ 49,540
18	$ 296,866	$216,860	$ 171,004	$ 470,515	$ 139,189	$ 780,707	$ 24,498	$ 725,200	$ 55,507
19	$ 303,335	$216,860	$ 175,279	$ 482,278	$ 142,668	$ 800,225	$ 24,865	$ 738,616	$ 61,609
20	$ 309,947	$216,860	$ 179,661	$ 494,335	$ 146,235	$ 820,231	$ 25,238	$ 752,382	$ 67,848
21	$ 316,705	$216,860	$ 184,153	$ 506,693	$ 149,891	$ 840,736	$ 25,617	$ 766,508	$ 74,228
22	$ 323,613	$216,860	$ 188,756	$ 519,360	$ 153,638	$ 861,755	$ 26,001	$ 781,004	$ 80,751
23	$ 330,673	$216,860	$ 193,475	$ 532,344	$ 157,479	$ 883,299	$ 26,391	$ 795,877	$ 87,421
24	$ 337,889	$216,860	$ 198,312	$ 545,653	$ 161,416	$ 905,381	$ 26,787	$ 811,140	$ 94,241
25	$ 345,264	$216,860	$ 203,270	$ 559,294	$ 165,451	$ 928,016	$ 27,189	$ 826,801	$ 101,215
									$ 617,440

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **50% Offset**

Financials – PPA Cash Flow

	A	B	C	D	E	F	G = D - E - F	H = (A x B) + (A x C)	J = G + H	K = D - J
Year	PPA Rate ($/kWhr)	Solar Production (kWhr)	BESS Production (kWhr)	Historic Electric Cost w/o solar	Utility Value of Solar Production	Utility Value of Storage	Forecasted Electric Cost w / solar +BESS	PPA Payment	Electric Cost (Utility + PPA)	Difference
1	$ 0.130	1,949,032	513,000	$ 513,077	$ 139,227	$ 72,981	$ 300,869	$ 320,064	$ 620,933	$ (107,856)
2	$ 0.130	1,939,287	513,000	$ 525,904	$ 141,995	$ 74,806	$ 309,104	$ 318,797	$ 636,456	$ (110,552)
3	$ 0.130	1,929,590	513,000	$ 539,052	$ 144,817	$ 76,676	$ 317,559	$ 317,537	$ 652,367	$ (113,316)
4	$ 0.130	1,919,942	513,000	$ 552,528	$ 147,695	$ 78,593	$ 326,240	$ 316,282	$ 668,677	$ (116,149)
5	$ 0.130	1,910,343	513,000	$ 566,341	$ 150,630	$ 80,557	$ 335,153	$ 315,035	$ 685,394	$ (119,053)
6	$ 0.130	1,900,791	513,000	$ 580,500	$ 153,624	$ 82,571	$ 344,304	$ 313,793	$ 702,528	$ (122,029)
7	$ 0.130	1,891,287	513,000	$ 595,012	$ 156,677	$ 84,636	$ 353,699	$ 312,557	$ 720,092	$ (125,080)
8	$ 0.130	1,881,830	513,000	$ 609,887	$ 159,791	$ 86,752	$ 363,344	$ 311,328	$ 738,094	$ (128,207)
9	$ 0.130	1,872,421	513,000	$ 625,135	$ 162,967	$ 88,920	$ 373,247	$ 310,105	$ 756,546	$ (131,412)
10	$ 0.130	1,863,059	513,000	$ 640,763	$ 166,206	$ 91,143	$ 383,413	$ 308,888	$ 775,460	$ (134,697)
11	$ 0.130	1,853,744	513,000	$ 656,782	$ 169,509	$ 93,422	$ 393,850	$ 307,677	$ 794,846	$ (138,064)
12	$ 0.130	1,844,475	513,000	$ 673,201	$ 172,879	$ 95,758	$ 404,565	$ 306,472	$ 814,718	$ (141,516)
13	$ 0.130	1,835,253	513,000	$ 690,032	$ 176,314	$ 98,151	$ 415,566	$ 305,273	$ 835,085	$ (145,054)
14	$ 0.130	1,826,077	513,000	$ 707,282	$ 179,819	$ 100,605	$ 426,858	$ 304,080	$ 855,963	$ (148,680)
15	$ 0.130	1,816,946	513,000	$ 724,964	$ 183,393	$ 103,120	$ 438,451	$ 302,893	$ 877,362	$ (152,397)
16	$ 0.130	1,807,861	513,000	$ 743,088	$ 187,038	$ 105,698	$ 450,353	$ 301,712	$ 899,296	$ (156,207)
17	$ 0.130	1,798,822	513,000	$ 761,666	$ 190,755	$ 108,341	$ 462,570	$ 300,537	$ 921,778	$ (160,112)
18	$ 0.130	1,789,828	513,000	$ 780,707	$ 194,546	$ 111,049	$ 475,112	$ 299,368	$ 944,823	$ (164,115)
19	$ 0.130	1,780,879	513,000	$ 800,225	$ 198,413	$ 113,826	$ 487,987	$ 298,204	$ 968,443	$ (168,218)
20	$ 0.130	1,771,974	513,000	$ 820,231	$ 202,356	$ 116,671	$ 501,203	$ 297,047	$ 992,654	$ (172,424)
21	$ 0.130	1,763,115	513,000	$ 840,736	$ 206,378	$ 119,588	$ 514,770	$ 295,895	$ 1,017,471	$ (176,734)
22	$ 0.130	1,754,299	513,000	$ 861,755	$ 210,480	$ 122,578	$ 528,697	$ 294,749	$ 1,042,907	$ (181,152)
23	$ 0.130	1,745,528	513,000	$ 883,299	$ 214,663	$ 125,642	$ 542,993	$ 293,609	$ 1,068,980	$ (185,681)
24	$ 0.130	1,736,800	513,000	$ 905,381	$ 218,930	$ 128,783	$ 557,668	$ 292,474	$ 1,095,704	$ (190,323)
25	$ 0.130	1,728,116	513,000	$ 928,016	$ 223,281	$ 132,003	$ 572,732	$ 291,345	$ 1,123,097	$ (195,081)
										$ (2,755,137)

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

530kW Solar + 500kWh BESS

SOLAR ARRAYS

4. NW GROUND MOUNT: 530 KW DC (INCREASED IN SIZE SLIGHTLY TO GET TO 25%)

BESS

1. MAIN SERVICE: 500 KW

FINANCIALS

- PROJECT COST: **$2,321,237**
- 25 YR CASH FLOW (LOAN @3%): **$805,214**
- 25 YR CASH FLOW (PPA): **$(2,057,178)**
- CARBON OFFSET (METRIC TONS): **689**
- CARS DRIVEN FOR ONE YEAR: **149**

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

Financial Summary

Calculation Inputs and Assumptions	25% Off-set + BESS Option
Array size (kW)	530
BESS size (kW)	500
First year performance (kWhr)	974,516
Solar performance degradation	0.50%
Battery performance degradation	0%
First year cost avoidance (2021)	$ 139,471
Project cost	$ 2,321,237
Solar O&M costs	$ 12.50
BESS O&M costs	$ 7.50
Interest rate	3.00%
Term (years)	25
Utility escalation	2.50%

Loan Option	25% Off-set + BESS Option
Array size (kW)	530
BESS size (kW)	500
First year cash flow (loan option)	$ (4,207)
25-year accumulated cash flow (loan option)	$ 805,214

PPA Option	25% Off-set + BESS Option
Forecasted PPA rate	$ 0.15
PPA Escalation	0%
First year cash flow (PPA option)	$ (80,533)
25-year accumulated cash flow (PPA option)	$ (2,057,178)

Carbon Equivalence Reporting	25% Off-set + BESS Option
First year performance (kWhr)	974,516
Carbon Offset (metric tons)	689
Cars Driven in a Year	149

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

Financials – Loan Cash Flow

	A	B	C	D	E	F = (C+D+E)	G	H = (A-D)+B+G	J = (F-H)
Year	Cost avoidance	Loan Payment	Cost of Consumption	Cost of Demand	misc & taxes	Total Electric Cost w/o	Solar + BESS O&M Costs	Total Electric Cost w / solar	Difference
1	$ 139,471	$133,304	$ 112,383	$ 309,220	$ 91,474	$ 513,077	$ 10,374	$ 517,284	$ (4,207)
2	$ 142,617	$133,304	$ 115,193	$ 316,951	$ 93,761	$ 525,904	$ 10,530	$ 527,121	$ (1,217)
3	$ 145,835	$133,304	$ 118,072	$ 324,874	$ 96,105	$ 539,052	$ 10,688	$ 537,208	$ 1,843
4	$ 149,126	$133,304	$ 121,024	$ 332,996	$ 98,507	$ 552,528	$ 10,848	$ 547,553	$ 4,974
5	$ 152,493	$133,304	$ 124,050	$ 341,321	$ 100,970	$ 566,341	$ 11,011	$ 558,163	$ 8,178
6	$ 155,937	$133,304	$ 127,151	$ 349,854	$ 103,494	$ 580,500	$ 11,176	$ 569,043	$ 11,457
7	$ 159,459	$133,304	$ 130,330	$ 358,600	$ 106,082	$ 595,012	$ 11,344	$ 580,200	$ 14,812
8	$ 163,062	$133,304	$ 133,588	$ 367,565	$ 108,734	$ 609,887	$ 11,514	$ 591,643	$ 18,244
9	$ 166,748	$133,304	$ 136,928	$ 376,755	$ 111,452	$ 625,135	$ 11,687	$ 603,377	$ 21,757
10	$ 170,517	$133,304	$ 140,351	$ 386,173	$ 114,238	$ 640,763	$ 11,862	$ 615,411	$ 25,352
11	$ 174,374	$133,304	$ 143,860	$ 395,828	$ 117,094	$ 656,782	$ 12,040	$ 627,752	$ 29,030
12	$ 178,318	$133,304	$ 147,456	$ 405,723	$ 120,022	$ 673,201	$ 12,221	$ 640,408	$ 32,794
13	$ 182,353	$133,304	$ 151,143	$ 415,867	$ 123,022	$ 690,032	$ 154,149	$ 795,132	$ (105,100)
14	$ 186,480	$133,304	$ 154,921	$ 426,263	$ 126,098	$ 707,282	$ 14,716	$ 668,822	$ 38,460
15	$ 190,702	$133,304	$ 158,794	$ 436,920	$ 129,250	$ 724,964	$ 14,937	$ 682,503	$ 42,461
16	$ 195,021	$133,304	$ 162,764	$ 447,843	$ 132,482	$ 743,088	$ 15,161	$ 696,532	$ 46,556
17	$ 199,438	$133,304	$ 166,833	$ 459,039	$ 135,794	$ 761,666	$ 15,388	$ 710,919	$ 50,746
18	$ 203,958	$133,304	$ 171,004	$ 470,515	$ 139,189	$ 780,707	$ 15,619	$ 725,673	$ 55,035
19	$ 208,580	$133,304	$ 175,279	$ 482,278	$ 142,668	$ 800,225	$ 15,853	$ 740,802	$ 59,423
20	$ 213,309	$133,304	$ 179,661	$ 494,335	$ 146,235	$ 820,231	$ 16,091	$ 756,316	$ 63,914
21	$ 218,147	$133,304	$ 184,153	$ 506,693	$ 149,891	$ 840,736	$ 16,333	$ 772,226	$ 68,510
22	$ 223,095	$133,304	$ 188,756	$ 519,360	$ 153,638	$ 861,755	$ 16,578	$ 788,541	$ 73,214
23	$ 228,157	$133,304	$ 193,475	$ 532,344	$ 157,479	$ 883,299	$ 16,826	$ 805,271	$ 78,027
24	$ 233,336	$133,304	$ 198,312	$ 545,653	$ 161,416	$ 905,381	$ 17,079	$ 822,428	$ 82,954
25	$ 238,634	$133,304	$ 203,270	$ 559,294	$ 165,451	$ 928,016	$ 17,335	$ 840,021	$ 87,995
									$ 805,214

NORCO COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

Financials – PPA Cash Flow

	A	B	C	D	E	F	G = D - E - F	H = (A x B) + (A x C)	J = G + H	K = D - J
Year	PPA Rate ($/kWhr)	Solar Production (kWhr)	BESS Production (kWhr)	Historic Electric Cost w/o solar	Utility Value of Solar Production	Utility Value of Storage	Forecasted Electric Cost w / solar +BESS	PPA Payment	Electric Cost (Utility + PPA)	Difference
1	$ 0.150	974,516	513,000	$ 513,077	$ 69,614	$ 72,981	$ 370,482	$ 223,127	$ 593,610	$ (80,533)
2	$ 0.150	969,643	513,000	$ 525,904	$ 70,997	$ 74,806	$ 380,101	$ 222,396	$ 608,450	$ (82,546)
3	$ 0.150	964,795	513,000	$ 539,052	$ 72,408	$ 76,676	$ 389,967	$ 221,669	$ 623,661	$ (84,610)
4	$ 0.150	959,971	513,000	$ 552,528	$ 73,847	$ 78,593	$ 400,088	$ 220,946	$ 639,253	$ (86,725)
5	$ 0.150	955,171	513,000	$ 566,341	$ 75,315	$ 80,557	$ 410,468	$ 220,226	$ 655,234	$ (88,893)
6	$ 0.150	950,395	513,000	$ 580,500	$ 76,812	$ 82,571	$ 421,116	$ 219,509	$ 671,615	$ (91,115)
7	$ 0.150	945,643	513,000	$ 595,012	$ 78,339	$ 84,636	$ 432,038	$ 218,797	$ 688,405	$ (93,393)
8	$ 0.150	940,915	513,000	$ 609,887	$ 79,896	$ 86,752	$ 443,240	$ 218,087	$ 705,615	$ (95,728)
9	$ 0.150	936,211	513,000	$ 625,135	$ 81,484	$ 88,920	$ 454,731	$ 217,382	$ 723,256	$ (98,121)
10	$ 0.150	931,530	513,000	$ 640,763	$ 83,103	$ 91,143	$ 466,516	$ 216,679	$ 741,337	$ (100,574)
11	$ 0.150	926,872	513,000	$ 656,782	$ 84,755	$ 93,422	$ 478,605	$ 215,981	$ 759,871	$ (103,089)
12	$ 0.150	922,238	513,000	$ 673,201	$ 86,439	$ 95,758	$ 491,005	$ 215,286	$ 778,867	$ (105,666)
13	$ 0.150	917,626	513,000	$ 690,032	$ 88,157	$ 98,151	$ 503,723	$ 214,594	$ 798,339	$ (108,307)
14	$ 0.150	913,038	513,000	$ 707,282	$ 89,909	$ 100,605	$ 516,768	$ 213,906	$ 818,297	$ (111,015)
15	$ 0.150	908,473	513,000	$ 724,964	$ 91,696	$ 103,120	$ 530,148	$ 213,221	$ 838,755	$ (113,790)
16	$ 0.150	903,931	513,000	$ 743,088	$ 93,519	$ 105,698	$ 543,871	$ 212,540	$ 859,724	$ (116,635)
17	$ 0.150	899,411	513,000	$ 761,666	$ 95,377	$ 108,341	$ 557,947	$ 211,862	$ 881,217	$ (119,551)
18	$ 0.150	894,914	513,000	$ 780,707	$ 97,273	$ 111,049	$ 572,385	$ 211,187	$ 903,247	$ (122,540)
19	$ 0.150	890,439	513,000	$ 800,225	$ 99,206	$ 113,826	$ 587,193	$ 210,516	$ 925,828	$ (125,603)
20	$ 0.150	885,987	513,000	$ 820,231	$ 101,178	$ 116,671	$ 602,381	$ 209,848	$ 948,974	$ (128,743)
21	$ 0.150	881,557	513,000	$ 840,736	$ 103,189	$ 119,588	$ 617,959	$ 209,184	$ 972,698	$ (131,962)
22	$ 0.150	877,149	513,000	$ 861,755	$ 105,240	$ 122,578	$ 633,937	$ 208,522	$ 997,016	$ (135,261)
23	$ 0.150	872,764	513,000	$ 883,299	$ 107,332	$ 125,642	$ 650,325	$ 207,865	$ 1,021,941	$ (138,643)
24	$ 0.150	868,400	513,000	$ 905,381	$ 109,465	$ 128,783	$ 667,133	$ 207,210	$ 1,047,490	$ (142,109)
25	$ 0.150	864,058	513,000	$ 928,016	$ 111,640	$ 132,003	$ 684,373	$ 206,559	$ 1,073,677	$ (145,661)
										$ (2,057,178)

RIVERSIDE CITY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **42% Offset**

2808kW Solar + 1450kWh BESS

SOLAR ARRAYS

1. PARKING STRUCTURE: 831 KW DC
2. EVANS PARKING: 66KW DC
3. RAC POOL: 194 kW DC
4. COLLEGE HOUSE: 102 KW DC
5. Lot E: 1.17MW DC
6. Lot C: 445 kW DC

BESS

1. 12.47kV LOOP: 600 KW
2. WHEELOCK FIELD: 200 KW
3. DIGITAL LIBRARY: 250 KW
4. MATH AND SCIENCE: 300 KW
5. RAC POOL: 194 kW DC

FINANCIALS

- PROJECT COST: **$13,891,703**
- 25 YR CASH FLOW (LOAN @3%): **$2,640,497**
- 25 YR CASH FLOW (PPA): **$(10,323,828)**
- CARBON OFFSET (METRIC TONS): **3550**
- CARS DRIVEN FOR ONE YEAR: **767**

RIVERSIDE CITY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **42% Offset**

Financial Summary

Design Option	42% Off-set + BESS
Array size (kW)	2808
BESS size (kW)	1450
First year performance (kWhr)	5,021,479
Solar performance degradation	0.50%
Battery performance degradation	0%
First year cost avoidance (2021)	$ 752,964
Project cost	$ 13,891,703
Solar O&M costs	$ 12.50
BESS O&M costs	$ 7.50
Interest rate	3.00%
Term (years)	25
Utility escalation	2.50%

Loan Option	42% Off-set + BESS
Array size (kW)	2808
BESS size (kW)	1450
First year cash flow (loan option)	$ (90,782)
25-year accumulated cash flow (loan option)	$ 2,670,497

PPA Option	42% Off-set + BESS
Forecasted PPA rate	$ 0.15
PPA Escalation	0%
First year cash flow (PPA option)	$ (404,148)
25-year accumulated cash flow (PPA option)	$ (10,323,828)

Carbon Equivalence Reporting	42% Off-set + BESS
First year performance (kWhr)	5,021,479
Carbon Offset (metric tons)	3550
Cars Driven for One Year	767

RIVERSIDE CITY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **42% Offset**

Financials – Loan Cash Flow

	A	B	C	D	E	F = (C+D+E)	G	H = (A-D)+B+G	J = (F-H)
Year	Cost avoidance	Loan Payment	Cost of Consumption	Cost of Demand	misc & taxes	Total Electric Cost w/o	Solar + BESS O&M Costs	Total Electric Cost w / solar	Difference
1	$ 752,964	$797,771	$ 1,155,989	$ 410,527	$ 233,296	$ 1,799,812	$ 45,975	$ 1,890,594	$ (90,782)
2	$ 769,023	$797,771	$ 1,184,889	$ 420,790	$ 239,128	$ 1,844,807	$ 46,665	$ 1,920,220	$ (75,413)
3	$ 785,429	$797,771	$ 1,214,511	$ 431,310	$ 245,107	$ 1,890,927	$ 47,365	$ 1,950,634	$ (59,707)
4	$ 802,189	$797,771	$ 1,244,874	$ 442,093	$ 251,234	$ 1,938,201	$ 48,075	$ 1,981,858	$ (43,657)
5	$ 819,311	$797,771	$ 1,275,996	$ 453,145	$ 257,515	$ 1,986,656	$ 48,796	$ 2,013,912	$ (27,256)
6	$ 836,803	$797,771	$ 1,307,895	$ 464,474	$ 263,953	$ 2,036,322	$ 49,528	$ 2,046,818	$ (10,496)
7	$ 854,672	$797,771	$ 1,340,593	$ 476,085	$ 270,552	$ 2,087,230	$ 50,271	$ 2,080,600	$ 6,630
8	$ 872,928	$797,771	$ 1,374,108	$ 487,988	$ 277,316	$ 2,139,411	$ 51,025	$ 2,115,279	$ 24,132
9	$ 891,578	$797,771	$ 1,408,460	$ 500,187	$ 284,249	$ 2,192,896	$ 51,790	$ 2,150,879	$ 42,017
10	$ 910,632	$797,771	$ 1,443,672	$ 512,692	$ 291,355	$ 2,247,719	$ 52,567	$ 2,187,425	$ 60,293
11	$ 930,097	$797,771	$ 1,479,764	$ 525,509	$ 298,639	$ 2,303,912	$ 53,356	$ 2,224,941	$ 78,970
12	$ 949,984	$797,771	$ 1,516,758	$ 538,647	$ 306,105	$ 2,361,509	$ 54,156	$ 2,263,453	$ 98,057
13	$ 970,300	$797,771	$ 1,554,677	$ 552,113	$ 313,757	$ 2,420,547	$ 512,841	$ 2,760,858	$ (340,311)
14	$ 991,057	$797,771	$ 1,593,544	$ 565,916	$ 321,601	$ 2,481,061	$ 62,661	$ 2,350,436	$ 130,625
15	$ 1,012,263	$797,771	$ 1,633,382	$ 580,064	$ 329,641	$ 2,543,087	$ 63,601	$ 2,392,197	$ 150,891
16	$ 1,033,928	$797,771	$ 1,674,217	$ 594,566	$ 337,882	$ 2,606,664	$ 64,555	$ 2,435,063	$ 171,602
17	$ 1,056,062	$797,771	$ 1,716,072	$ 609,430	$ 346,329	$ 2,671,831	$ 65,523	$ 2,479,064	$ 192,767
18	$ 1,078,675	$797,771	$ 1,758,974	$ 624,665	$ 354,987	$ 2,738,627	$ 66,506	$ 2,524,229	$ 214,398
19	$ 1,101,779	$797,771	$ 1,802,948	$ 640,282	$ 363,862	$ 2,807,092	$ 67,504	$ 2,570,588	$ 236,504
20	$ 1,125,384	$797,771	$ 1,848,022	$ 656,289	$ 372,959	$ 2,877,270	$ 68,516	$ 2,618,173	$ 259,097
21	$ 1,149,500	$797,771	$ 1,894,223	$ 672,696	$ 382,283	$ 2,949,202	$ 69,544	$ 2,667,016	$ 282,185
22	$ 1,174,140	$797,771	$ 1,941,578	$ 689,514	$ 391,840	$ 3,022,932	$ 70,587	$ 2,717,150	$ 305,782
23	$ 1,199,314	$797,771	$ 1,990,118	$ 706,752	$ 401,636	$ 3,098,505	$ 71,646	$ 2,768,608	$ 329,897
24	$ 1,225,034	$797,771	$ 2,039,871	$ 724,420	$ 411,677	$ 3,175,967	$ 72,721	$ 2,821,425	$ 354,542
25	$ 1,251,313	$797,771	$ 2,090,867	$ 742,531	$ 421,969	$ 3,255,367	$ 73,812	$ 2,875,637	$ 379,730
									$ 2,670,497

RIVERSIDE CITY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **42% Offset**

Financials – PPA Cash Flow

	A	B	C	D	E	F	G = D - E - F	H = (A x B) + (A x C)	J = G + H	K = D - J
Year	PPA Rate ($/kWhr)	Solar Production (kWhr)	BESS Production (kWhr)	Historic Electric Cost w/o solar	Utility Value of Solar Production	Utility Value of Storage	Forecasted Electric Cost w / solar +BESS	PPA Payment	Electric Cost (Utility + PPA)	Difference
1	$ 0.150	5,021,479	1,487,700	$ 1,799,812	$ 358,705	$ 213,524	$ 1,227,583	$ 976,377	$ 2,203,960	$ (404,148)
2	$ 0.150	4,996,372	1,487,700	$ 1,844,807	$ 365,834	$ 218,862	$ 1,260,111	$ 972,611	$ 2,259,059	$ (414,252)
3	$ 0.150	4,971,390	1,487,700	$ 1,890,927	$ 373,105	$ 224,333	$ 1,293,489	$ 968,864	$ 2,315,536	$ (424,608)
4	$ 0.150	4,946,533	1,487,700	$ 1,938,201	$ 380,521	$ 229,942	$ 1,327,738	$ 965,135	$ 2,373,424	$ (435,223)
5	$ 0.150	4,921,800	1,487,700	$ 1,986,656	$ 388,083	$ 235,690	$ 1,362,882	$ 961,425	$ 2,432,760	$ (446,104)
6	$ 0.150	4,897,191	1,487,700	$ 2,036,322	$ 395,797	$ 241,583	$ 1,398,943	$ 957,734	$ 2,493,579	$ (457,257)
7	$ 0.150	4,872,705	1,487,700	$ 2,087,230	$ 403,663	$ 247,622	$ 1,435,945	$ 954,061	$ 2,555,918	$ (468,688)
8	$ 0.150	4,848,342	1,487,700	$ 2,139,411	$ 411,686	$ 253,813	$ 1,473,912	$ 950,406	$ 2,619,816	$ (480,405)
9	$ 0.150	4,824,100	1,487,700	$ 2,192,896	$ 419,868	$ 260,158	$ 1,512,870	$ 946,770	$ 2,685,312	$ (492,415)
10	$ 0.150	4,799,980	1,487,700	$ 2,247,719	$ 428,213	$ 266,662	$ 1,552,844	$ 943,152	$ 2,752,444	$ (504,726)
11	$ 0.150	4,775,980	1,487,700	$ 2,303,912	$ 436,724	$ 273,328	$ 1,593,859	$ 939,552	$ 2,821,255	$ (517,344)
12	$ 0.150	4,752,100	1,487,700	$ 2,361,509	$ 445,404	$ 280,162	$ 1,635,944	$ 935,970	$ 2,891,787	$ (530,278)
13	$ 0.150	4,728,339	1,487,700	$ 2,420,547	$ 454,256	$ 287,166	$ 1,679,125	$ 932,406	$ 2,964,081	$ (543,534)
14	$ 0.150	4,704,698	1,487,700	$ 2,481,061	$ 463,284	$ 294,345	$ 1,723,432	$ 928,860	$ 3,038,184	$ (557,123)
15	$ 0.150	4,681,174	1,487,700	$ 2,543,087	$ 472,492	$ 301,703	$ 1,768,892	$ 925,331	$ 3,114,138	$ (571,051)
16	$ 0.150	4,657,768	1,487,700	$ 2,606,664	$ 481,883	$ 309,246	$ 1,815,535	$ 921,820	$ 3,191,992	$ (585,327)
17	$ 0.150	4,634,480	1,487,700	$ 2,671,831	$ 491,460	$ 316,977	$ 1,863,394	$ 918,327	$ 3,271,791	$ (599,960)
18	$ 0.150	4,611,307	1,487,700	$ 2,738,627	$ 501,228	$ 324,902	$ 1,912,497	$ 914,851	$ 3,353,586	$ (614,959)
19	$ 0.150	4,588,251	1,487,700	$ 2,807,092	$ 511,190	$ 333,024	$ 1,962,878	$ 911,393	$ 3,437,426	$ (630,333)
20	$ 0.150	4,565,309	1,487,700	$ 2,877,270	$ 521,350	$ 341,350	$ 2,014,570	$ 907,951	$ 3,523,361	$ (646,092)
21	$ 0.150	4,542,483	1,487,700	$ 2,949,202	$ 531,712	$ 349,884	$ 2,067,606	$ 904,527	$ 3,611,445	$ (662,244)
22	$ 0.150	4,519,770	1,487,700	$ 3,022,932	$ 542,280	$ 358,631	$ 2,122,021	$ 901,121	$ 3,701,732	$ (678,800)
23	$ 0.150	4,497,172	1,487,700	$ 3,098,505	$ 553,057	$ 367,596	$ 2,177,851	$ 897,731	$ 3,794,275	$ (695,770)
24	$ 0.150	4,474,686	1,487,700	$ 3,175,967	$ 564,049	$ 376,786	$ 2,235,132	$ 894,358	$ 3,889,132	$ (713,164)
25	$ 0.150	4,452,312	1,487,700	$ 3,255,367	$ 575,260	$ 386,206	$ 2,293,901	$ 891,002	$ 3,986,360	$ (730,993)
										$ (10,323,828)

RIVERSIDE CITY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

1638kW Solar + 1450kWh BESS

SOLAR ARRAYS

1. PARKING STRUCTURE: 831 KW DC
2. EVANS PARKING: 66KW DC
3. RAC POOL: 194 kW DC
4. COLLEGE HOUSE: 102 KW DC
6. Lot C: 445 kW DC

BESS

1. 12.47kV LOOP: 600 KW
2. WHEELOCK FIELD: 200 KW
3. DIGITAL LIBRARY: 250 KW
4. MATH AND SCIENCE: 300 KW
5. RAC POOL: 194 kW DC

FINANCIALS

- PROJECT COST: **$9,172,556**
- 25 YR CASH FLOW (LOAN @3%): **$2,752,308**
- 25 YR CASH FLOW (PPA): **$(7,253,026)**
- CARBON OFFSET (METRIC TONS): **2111**
- CARS DRIVEN FOR ONE YEAR: **456**

RIVERSIDE CITY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

Financial Summary

Design Option	25% Off-set + BESS
Array size (kW)	1638
BESS size (kW)	1450
First year performance (kWhr)	2929196
Solar performance degradation	0.50%
Battery performance degradation	0%
First year cost avoidance (2021)	$ 528,197
Project cost	$ 9,172,556
Solar O&M costs	$ 12.50
BESS O&M costs	$ 7.50
Interest rate	3.00%
Term (years)	25
Utility escalation	2.50%

Loan Option	25% Off-set + BESS
Array size (kW)	1638
BESS size (kW)	1450
First year cash flow (loan option)	$ (29,913)
25-year accumulated cash flow (loan option)	$ 2,752,308

PPA Option	25% Off-set + BESS
Forecasted PPA rate	$ 0.16
PPA Escalation	0%
First year cash flow (PPA option)	$ (283,935)
25-year accumulated cash flow (PPA option)	$ (7,253,026)

Carbon Equivalence Reporting	25% Off-set + BESS
First year performance (kWhr)	2929196
Carbon Offset (metric tons)	2111
Cars Driven for One Year	456

RIVERSIDE CITY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

Financials – Loan Cash Flow

	A	B	C	D	E	F = (C+D+E)	G	H = (A-D)+B+G	J = (F-H)
Year	Cost avoidance	Loan Payment	Cost of Consumption	Cost of Demand	misc & taxes	Total Electric Cost w/o	Solar + BESS O&M Costs	Total Electric Cost w / solar	Difference
1	$ 528,197	$526,760	$ 1,155,989	$ 410,527	$ 233,296	$ 1,799,812	$ 31,350	$ 1,829,725	$ (29,913)
2	$ 539,789	$526,760	$ 1,184,889	$ 420,790	$ 239,128	$ 1,844,807	$ 31,820	$ 1,863,599	$ (18,791)
3	$ 551,639	$526,760	$ 1,214,511	$ 431,310	$ 245,107	$ 1,890,927	$ 32,298	$ 1,898,346	$ (7,419)
4	$ 563,753	$526,760	$ 1,244,874	$ 442,093	$ 251,234	$ 1,938,201	$ 32,782	$ 1,933,990	$ 4,210
5	$ 576,136	$526,760	$ 1,275,996	$ 453,145	$ 257,515	$ 1,986,656	$ 33,274	$ 1,970,554	$ 16,102
6	$ 588,794	$526,760	$ 1,307,895	$ 464,474	$ 263,953	$ 2,036,322	$ 33,773	$ 2,008,061	$ 28,261
7	$ 601,735	$526,760	$ 1,340,593	$ 476,085	$ 270,552	$ 2,087,230	$ 34,279	$ 2,046,535	$ 40,695
8	$ 614,963	$526,760	$ 1,374,108	$ 487,988	$ 277,316	$ 2,139,411	$ 34,794	$ 2,086,002	$ 53,409
9	$ 628,486	$526,760	$ 1,408,460	$ 500,187	$ 284,249	$ 2,192,896	$ 35,316	$ 2,126,486	$ 66,411
10	$ 642,311	$526,760	$ 1,443,672	$ 512,692	$ 291,355	$ 2,247,719	$ 35,845	$ 2,168,013	$ 79,705
11	$ 656,444	$526,760	$ 1,479,764	$ 525,509	$ 298,639	$ 2,303,912	$ 36,383	$ 2,210,611	$ 93,300
12	$ 670,891	$526,760	$ 1,516,758	$ 538,647	$ 306,105	$ 2,361,509	$ 36,929	$ 2,254,307	$ 107,202
13	$ 685,661	$526,760	$ 1,554,677	$ 552,113	$ 313,757	$ 2,420,547	$ 449,575	$ 2,711,221	$ (290,674)
14	$ 700,760	$526,760	$ 1,593,544	$ 565,916	$ 321,601	$ 2,481,061	$ 44,226	$ 2,351,287	$ 129,774
15	$ 716,196	$526,760	$ 1,633,382	$ 580,064	$ 329,641	$ 2,543,087	$ 44,890	$ 2,398,541	$ 144,546
16	$ 731,977	$526,760	$ 1,674,217	$ 594,566	$ 337,882	$ 2,606,664	$ 45,563	$ 2,447,011	$ 159,654
17	$ 748,110	$526,760	$ 1,716,072	$ 609,430	$ 346,329	$ 2,671,831	$ 46,246	$ 2,496,728	$ 175,103
18	$ 764,603	$526,760	$ 1,758,974	$ 624,665	$ 354,987	$ 2,738,627	$ 46,940	$ 2,547,724	$ 190,903
19	$ 781,465	$526,760	$ 1,802,948	$ 640,282	$ 363,862	$ 2,807,092	$ 47,644	$ 2,600,032	$ 207,060
20	$ 798,703	$526,760	$ 1,848,022	$ 656,289	$ 372,959	$ 2,877,270	$ 48,359	$ 2,653,686	$ 223,584
21	$ 816,327	$526,760	$ 1,894,223	$ 672,696	$ 382,283	$ 2,949,202	$ 49,084	$ 2,708,720	$ 240,482
22	$ 834,344	$526,760	$ 1,941,578	$ 689,514	$ 391,840	$ 3,022,932	$ 49,821	$ 2,765,168	$ 257,763
23	$ 852,765	$526,760	$ 1,990,118	$ 706,752	$ 401,636	$ 3,098,505	$ 50,568	$ 2,823,068	$ 275,437
24	$ 871,597	$526,760	$ 2,039,871	$ 724,420	$ 411,677	$ 3,175,967	$ 51,326	$ 2,882,457	$ 293,511
25	$ 890,852	$526,760	$ 2,090,867	$ 742,531	$ 421,969	$ 3,255,367	$ 52,096	$ 2,943,372	$ 311,995
									$ 2,752,308

RIVERSIDE CITY COLLEGE - SOLAR ON EXISTING CAMPUS

PV+ BESS Option: **25% Offset**

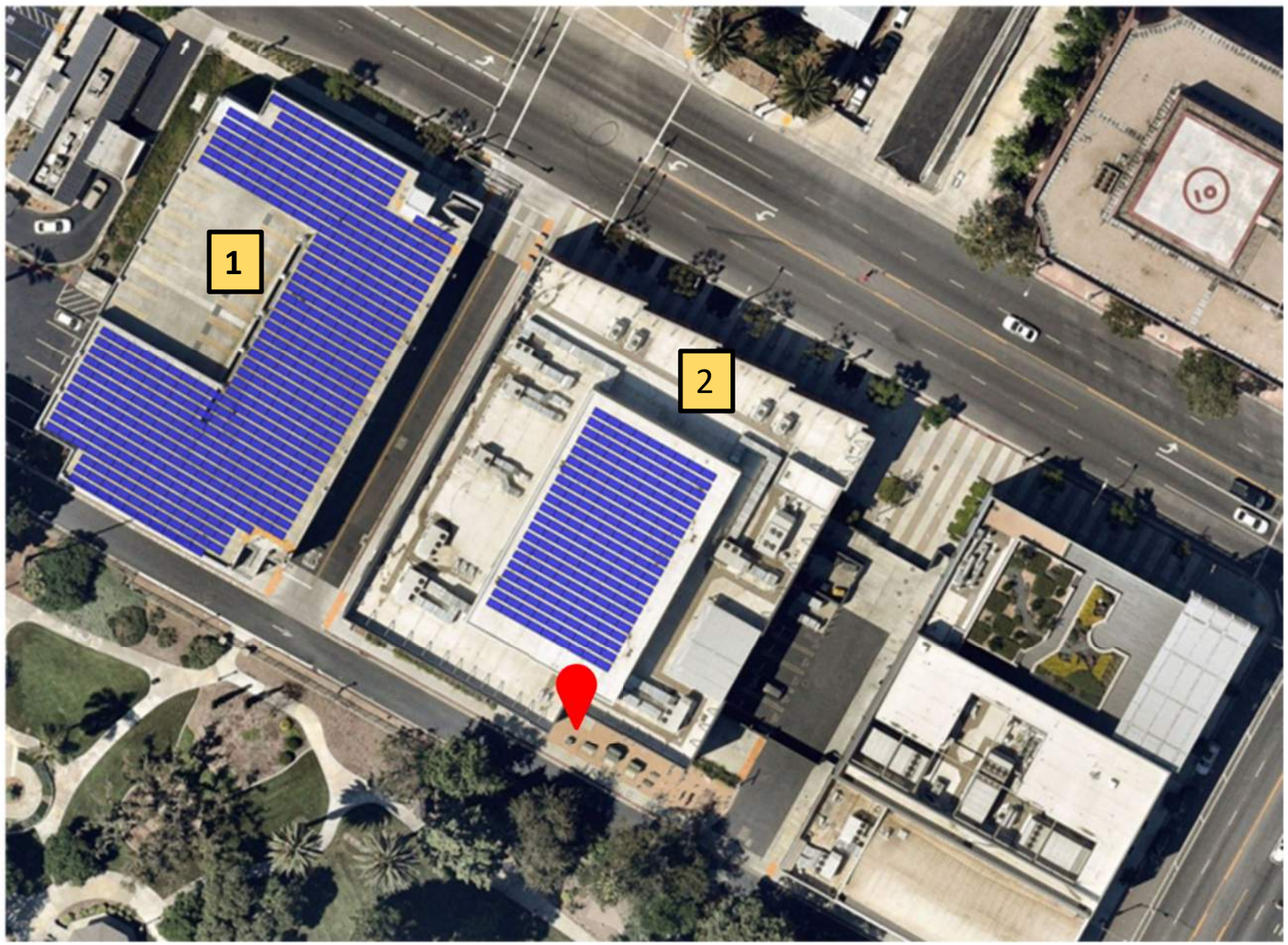
Financials – PPA Cash Flow

	A	B	C		D	E	F	G = D - E - F	H = (A x B) + (A x C)	J = G + H	K = D - J
Year	PPA Rate ($/kWhr)	Solar Production (kWhr)	BESS Production (kWhr)	misc & taxes	Historic Electric Cost w/o solar	Utility Value of Solar Production	Utility Value of Storage	Forecasted Electric Cost w / solar +BESS	PPA Payment	Electric Cost (Utility + PPA)	Difference
1	$ 0.160	2,929,196	1,487,700	$ 233,296	$ 1,799,812	$ 209,245	$ 213,524	$ 1,377,044	$ 706,703	$ 2,083,747	$ (283,935)
2	$ 0.160	2,914,550	1,487,700	$ 239,128	$ 1,844,807	$ 213,403	$ 218,862	$ 1,412,542	$ 704,360	$ 2,135,841	$ (291,034)
3	$ 0.160	2,899,978	1,487,700	$ 245,107	$ 1,890,927	$ 217,645	$ 224,333	$ 1,448,949	$ 702,028	$ 2,189,237	$ (298,309)
4	$ 0.160	2,885,478	1,487,700	$ 251,234	$ 1,938,201	$ 221,970	$ 229,942	$ 1,486,289	$ 699,708	$ 2,243,968	$ (305,767)
5	$ 0.160	2,871,050	1,487,700	$ 257,515	$ 1,986,656	$ 226,382	$ 235,690	$ 1,524,583	$ 697,400	$ 2,300,067	$ (313,411)
6	$ 0.160	2,856,695	1,487,700	$ 263,953	$ 2,036,322	$ 230,881	$ 241,583	$ 1,563,858	$ 695,103	$ 2,357,569	$ (321,247)
7	$ 0.160	2,842,412	1,487,700	$ 270,552	$ 2,087,230	$ 235,470	$ 247,622	$ 1,604,138	$ 692,818	$ 2,416,508	$ (329,278)
8	$ 0.160	2,828,199	1,487,700	$ 277,316	$ 2,139,411	$ 240,150	$ 253,813	$ 1,645,448	$ 690,544	$ 2,476,921	$ (337,510)
9	$ 0.160	2,814,058	1,487,700	$ 284,249	$ 2,192,896	$ 244,923	$ 260,158	$ 1,687,815	$ 688,281	$ 2,538,844	$ (345,947)
10	$ 0.160	2,799,988	1,487,700	$ 291,355	$ 2,247,719	$ 249,791	$ 266,662	$ 1,731,266	$ 686,030	$ 2,602,315	$ (354,596)
11	$ 0.160	2,785,988	1,487,700	$ 298,639	$ 2,303,912	$ 254,756	$ 273,328	$ 1,775,828	$ 683,790	$ 2,667,372	$ (363,461)
12	$ 0.160	2,772,058	1,487,700	$ 306,105	$ 2,361,509	$ 259,819	$ 280,162	$ 1,821,529	$ 681,561	$ 2,734,057	$ (372,547)
13	$ 0.160	2,758,198	1,487,700	$ 313,757	$ 2,420,547	$ 264,983	$ 287,166	$ 1,868,399	$ 679,344	$ 2,802,408	$ (381,861)
14	$ 0.160	2,744,407	1,487,700	$ 321,601	$ 2,481,061	$ 270,249	$ 294,345	$ 1,916,467	$ 677,137	$ 2,872,468	$ (391,408)
15	$ 0.160	2,730,685	1,487,700	$ 329,641	$ 2,543,087	$ 275,620	$ 301,703	$ 1,965,763	$ 674,942	$ 2,944,280	$ (401,193)
16	$ 0.160	2,717,032	1,487,700	$ 337,882	$ 2,606,664	$ 281,098	$ 309,246	$ 2,016,320	$ 672,757	$ 3,017,887	$ (411,223)
17	$ 0.160	2,703,446	1,487,700	$ 346,329	$ 2,671,831	$ 286,685	$ 316,977	$ 2,068,169	$ 670,583	$ 3,093,334	$ (421,503)
18	$ 0.160	2,689,929	1,487,700	$ 354,987	$ 2,738,627	$ 292,383	$ 324,902	$ 2,121,342	$ 668,421	$ 3,170,668	$ (432,041)
19	$ 0.160	2,676,480	1,487,700	$ 363,862	$ 2,807,092	$ 298,194	$ 333,024	$ 2,175,874	$ 666,269	$ 3,249,934	$ (442,842)
20	$ 0.160	2,663,097	1,487,700	$ 372,959	$ 2,877,270	$ 304,121	$ 341,350	$ 2,231,799	$ 664,128	$ 3,331,183	$ (453,913)
21	$ 0.160	2,649,782	1,487,700	$ 382,283	$ 2,949,202	$ 310,165	$ 349,884	$ 2,289,153	$ 661,997	$ 3,414,462	$ (465,261)
22	$ 0.160	2,636,533	1,487,700	$ 391,840	$ 3,022,932	$ 316,330	$ 358,631	$ 2,347,971	$ 659,877	$ 3,499,824	$ (476,892)
23	$ 0.160	2,623,350	1,487,700	$ 401,636	$ 3,098,505	$ 322,617	$ 367,596	$ 2,408,292	$ 657,768	$ 3,587,319	$ (488,815)
24	$ 0.160	2,610,233	1,487,700	$ 411,677	$ 3,175,967	$ 329,029	$ 376,786	$ 2,470,152	$ 655,669	$ 3,677,002	$ (501,035)
25	$ 0.160	2,597,182	1,487,700	$ 421,969	$ 3,255,367	$ 335,568	$ 386,206	$ 2,533,593	$ 653,581	$ 3,768,927	$ (513,561)
											$ (7,253,026)

DOWNTOWN RIVERSIDE

PV+ BESS Option: **Combined**

Financials



SOLAR ARRAYS

1. PARKING STRUCTURE ARRAY: 194 KW DC
2. CSA BUILDING ROOF ARRAY: 76 KW DC

BESS

CSA BUILDING: 80 KW

FINANCIALS

- PROJECT COST: **$1,371,200**
- 25 YR CASH FLOW (LOAN @3%): **$179,139**
- 25 YR CASH FLOW (PPA): **$(1,102,206)**
- CARBON OFFSET (METRIC TONS): **323**
- CARS DRIVEN FOR ONE YEAR: **70**

DOWNTOWN RIVERSIDE

PV+ BESS Option: **Combined**

Financial Summary

Design Option	Combined DT Solar + BESS
Array size (kW)	266
BESS size (kW)	80
First year performance (kWhr)	456,374
Solar performance degradation	0.50%
Battery performance degradation	0.00%
First year cost avoidance (2021)	$ 89,996
Construction cost	$ 1,371,200
Solar O&M costs	$ 12.50
BESS O&M costs	$ 7.50
Interest rate	3.00%
Term (years)	25
Utility escalation	2.50%

Loan Option	Combined DT Solar + BESS
Array size (kW)	266
BESS size (kW)	80
First year cash flow (loan option)	$ (11,848)
25-year accumulated cash flow (loan option)	$ 179,139

PPA Option	Combined DT Solar + BESS
Forecasted PPA rate	$ 0.18
PPA Escalation	0%
First year cash flow (PPA option)	$ (32,268)
25-year accumulated cash flow (PPA option)	$ (1,102,206)

Carbon Equivalence Reporting	Combined DT Solar + BESS
First year performance (kWhr)	456,374
Carbon Offset (metric tons)	323
Cars Driven for One Year	70

PV+ BESS Option: **Combined**

Financials – Loan Cash Flow

	A	B	C	D	E	F = (C+D+E)	G	H = (A-D)+B+G	J = (F-H)
Year	Cost avoidance	Loan Payment	Cost of Consumption	Cost of Demand	misc & taxes	Total Electric Cost w/o	Solar + BESS O&M Costs	Total Electric Cost w / solar	Difference
1	$ 72,623	$80,545	$ 1,155,989	$ 410,527	$ 233,296	$ 1,799,812	$ 3,925	$ 1,811,660	$ (11,848)
2	$ 74,122	$80,545	$ 1,184,889	$ 420,790	$ 239,128	$ 1,844,807	$ 3,984	$ 1,855,215	$ (10,407)
3	$ 75,653	$80,545	$ 1,214,511	$ 431,310	$ 245,107	$ 1,890,927	$ 4,044	$ 1,899,864	$ (8,937)
4	$ 77,215	$80,545	$ 1,244,874	$ 442,093	$ 251,234	$ 1,938,201	$ 4,104	$ 1,945,636	$ (7,435)
5	$ 78,810	$80,545	$ 1,275,996	$ 453,145	$ 257,515	$ 1,986,656	$ 4,166	$ 1,992,557	$ (5,902)
6	$ 80,438	$80,545	$ 1,307,895	$ 464,474	$ 263,953	$ 2,036,322	$ 4,228	$ 2,040,658	$ (4,336)
7	$ 82,100	$80,545	$ 1,340,593	$ 476,085	$ 270,552	$ 2,087,230	$ 4,292	$ 2,089,968	$ (2,738)
8	$ 83,796	$80,545	$ 1,374,108	$ 487,988	$ 277,316	$ 2,139,411	$ 4,356	$ 2,140,516	$ (1,105)
9	$ 85,528	$80,545	$ 1,408,460	$ 500,187	$ 284,249	$ 2,192,896	$ 4,421	$ 2,192,335	$ 561
10	$ 87,296	$80,545	$ 1,443,672	$ 512,692	$ 291,355	$ 2,247,719	$ 4,488	$ 2,245,456	$ 2,263
11	$ 89,101	$80,545	$ 1,479,764	$ 525,509	$ 298,639	$ 2,303,912	$ 4,555	$ 2,299,911	$ 4,000
12	$ 90,943	$80,545	$ 1,516,758	$ 538,647	$ 306,105	$ 2,361,509	$ 4,623	$ 2,355,735	$ 5,774
13	$ 92,824	$80,545	$ 1,554,677	$ 552,113	$ 313,757	$ 2,420,547	$ 34,301	$ 2,442,570	$ (22,022)
14	$ 94,744	$80,545	$ 1,593,544	$ 565,916	$ 321,601	$ 2,481,061	$ 5,207	$ 2,472,070	$ 8,991
15	$ 96,704	$80,545	$ 1,633,382	$ 580,064	$ 329,641	$ 2,543,087	$ 5,285	$ 2,532,214	$ 10,873
16	$ 98,705	$80,545	$ 1,674,217	$ 594,566	$ 337,882	$ 2,606,664	$ 5,365	$ 2,593,870	$ 12,795
17	$ 100,748	$80,545	$ 1,716,072	$ 609,430	$ 346,329	$ 2,671,831	$ 5,445	$ 2,657,074	$ 14,757
18	$ 102,833	$80,545	$ 1,758,974	$ 624,665	$ 354,987	$ 2,738,627	$ 5,527	$ 2,721,866	$ 16,761
19	$ 104,962	$80,545	$ 1,802,948	$ 640,282	$ 363,862	$ 2,807,092	$ 5,610	$ 2,788,286	$ 18,807
20	$ 107,135	$80,545	$ 1,848,022	$ 656,289	$ 372,959	$ 2,877,270	$ 5,694	$ 2,856,374	$ 20,896
21	$ 109,354	$80,545	$ 1,894,223	$ 672,696	$ 382,283	$ 2,949,202	$ 5,779	$ 2,926,173	$ 23,029
22	$ 111,619	$80,545	$ 1,941,578	$ 689,514	$ 391,840	$ 3,022,932	$ 5,866	$ 2,997,724	$ 25,207
23	$ 113,931	$80,545	$ 1,990,118	$ 706,752	$ 401,636	$ 3,098,505	$ 5,954	$ 3,071,073	$ 27,431
24	$ 116,291	$80,545	$ 2,039,871	$ 724,420	$ 411,677	$ 3,175,967	$ 6,043	$ 3,146,265	$ 29,703
25	$ 118,701	$80,545	$ 2,090,867	$ 742,531	$ 421,969	$ 3,255,367	$ 6,134	$ 3,223,345	$ 32,022
									$ 179,139

PV+ BESS Option: **Combined**

Financials – PPA Cash Flow

	A	B	C	D	E	F	G = D - E - F	H = (A x B) + (A x C)	J = G + H	K = D - J
Year	PPA Rate ($/kWhr)	Solar Production (kWhr)	BESS Production (kWhr)	Historic Electric Cost w/o solar	Utility Value of Solar Production	Utility Value of Storage	Forecasted Electric Cost w / solar +BESS	PPA Payment	Electric Cost (Utility + PPA)	Difference
1	$ 0.180	456,374	82,080	$ 2,033,051	$ 53,751	$ 10,902	$ 1,968,397	$ 96,922	$ 2,065,319	$ (32,268)
2	$ 0.180	454,092	82,080	$ 2,083,877	$ 54,820	$ 11,175	$ 2,017,882	$ 96,511	$ 2,116,952	$ (33,075)
3	$ 0.180	451,822	82,080	$ 2,135,974	$ 55,909	$ 11,454	$ 2,068,610	$ 96,102	$ 2,169,875	$ (33,902)
4	$ 0.180	449,563	82,080	$ 2,189,373	$ 57,020	$ 11,740	$ 2,120,612	$ 95,696	$ 2,224,122	$ (34,749)
5	$ 0.180	447,315	82,080	$ 2,244,107	$ 58,154	$ 12,034	$ 2,173,920	$ 95,291	$ 2,279,725	$ (35,618)
6	$ 0.180	445,078	82,080	$ 2,300,210	$ 59,310	$ 12,335	$ 2,228,566	$ 94,888	$ 2,336,719	$ (36,508)
7	$ 0.180	442,853	82,080	$ 2,357,715	$ 60,488	$ 12,643	$ 2,284,584	$ 94,488	$ 2,395,137	$ (37,421)
8	$ 0.180	440,639	82,080	$ 2,416,658	$ 61,691	$ 12,959	$ 2,342,008	$ 94,089	$ 2,455,015	$ (38,357)
9	$ 0.180	438,435	82,080	$ 2,477,075	$ 62,917	$ 13,283	$ 2,400,875	$ 93,693	$ 2,516,390	$ (39,316)
10	$ 0.180	436,243	82,080	$ 2,539,002	$ 64,167	$ 13,615	$ 2,461,219	$ 93,298	$ 2,579,300	$ (40,298)
11	$ 0.180	434,062	82,080	$ 2,602,477	$ 65,442	$ 13,956	$ 2,523,079	$ 92,906	$ 2,643,783	$ (41,306)
12	$ 0.180	431,892	82,080	$ 2,667,539	$ 66,743	$ 14,305	$ 2,586,491	$ 92,515	$ 2,709,877	$ (42,339)
13	$ 0.180	429,732	82,080	$ 2,734,227	$ 68,070	$ 14,662	$ 2,651,495	$ 92,126	$ 2,777,624	$ (43,397)
14	$ 0.180	427,584	82,080	$ 2,802,583	$ 69,423	$ 15,029	$ 2,718,131	$ 91,739	$ 2,847,065	$ (44,482)
15	$ 0.180	425,446	82,080	$ 2,872,647	$ 70,802	$ 15,405	$ 2,786,441	$ 91,355	$ 2,918,241	$ (45,594)
16	$ 0.180	423,318	82,080	$ 2,944,463	$ 72,209	$ 15,790	$ 2,856,464	$ 90,972	$ 2,991,197	$ (46,734)
17	$ 0.180	421,202	82,080	$ 3,018,075	$ 73,645	$ 16,184	$ 2,928,246	$ 90,591	$ 3,065,977	$ (47,902)
18	$ 0.180	419,096	82,080	$ 3,093,527	$ 75,108	$ 16,589	$ 3,001,830	$ 90,212	$ 3,142,627	$ (49,100)
19	$ 0.180	417,000	82,080	$ 3,170,865	$ 76,601	$ 17,004	$ 3,077,260	$ 89,834	$ 3,221,192	$ (50,327)
20	$ 0.180	414,915	82,080	$ 3,250,137	$ 78,124	$ 17,429	$ 3,154,584	$ 89,459	$ 3,301,722	$ (51,585)
21	$ 0.180	412,841	82,080	$ 3,331,390	$ 79,676	$ 17,864	$ 3,233,849	$ 89,086	$ 3,384,265	$ (52,875)
22	$ 0.180	410,776	82,080	$ 3,414,675	$ 81,260	$ 18,311	$ 3,315,104	$ 88,714	$ 3,468,872	$ (54,197)
23	$ 0.180	408,723	82,080	$ 3,500,042	$ 82,875	$ 18,769	$ 3,398,398	$ 88,344	$ 3,555,594	$ (55,552)
24	$ 0.180	406,679	82,080	$ 3,587,543	$ 84,522	$ 19,238	$ 3,483,783	$ 87,977	$ 3,644,483	$ (56,941)
25	$ 0.180	404,646	82,080	$ 3,677,231	$ 86,202	$ 19,719	$ 3,571,310	$ 87,611	$ 3,735,596	$ (58,364)
										$ (1,102,206)

DBAC MEMBERSHIP

District Office

Vice Chancellor, Business and Financial Services – Chair (Aaron Brown)
Director, Business Services (Majd Askar)
CSEA Representative (Cyndi Gundersen)

District

DAS President**(Jennifer Floerke)
ASRCCD Representative (Ivan Hess)

Riverside City College

Vice President, Business Services (Chip West)
RCCAS President** (Mark Sellick)
Faculty Lead*** (Asatar Bair)
CSEA Representative (Elena Santa Cruz)
MLA or CSEA Representative* (Liz Tatum)

Moreno Valley College

Vice President, Business Services (Nathanial Jones)
MVCAS President**(Angela Thomas)
Faculty Lead***(Michael McQuead)
CSEA Representative (VACANT)
MLA or CSEA Representative* (MaryAnn Doherty)

Norco College

Vice President, Business Services (Michael Collins)
NCAS President** (Quinten Bemiller)
Faculty Lead*** (Courtney Buchanan)
CSEA Representative (Andy Aldasoro)
MLA or CSEA Representative* (Esmeralda Abejar)

Notes:

1. Vice Chancellor, Director of Business Services, Vice Presidents of Business Services positions are permanent members of the Council.
2. All other members commit to serving a minimum of two year terms.
3. Vice Chancellor votes on recommendations only in the event of a tie.
4. District Academic Senate (DAS) will appoint the District wide representative.
5. *College Presidents will appoint MLA or CSEA representatives.
6. **College Academic Senate (AS) Presidents will appoint faculty representatives.
7. ***Faculty Leads represent relevant area in Strategic Planning.
8. Student Trustee will appoint the student representative.
9. Members may send proxies to DBAC meetings.

Updated 11/13/2020