# Ocean Charter School

## EV Chargers / Solar Electricity Proposals

Contact: Tim Garlick, garlick@soe.ucsc.edu

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# About Tim

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# Who am I?

- Parent of Dashiell (7th, Bearden), Jora (4th, Rosy) and Sachi (2nd, Kristen)
- Spouse of Ms. Tan (Handwork)
- Background in tech

# Why am I involved?

- President of our condominium building's HOA
- Our HOA is participating in the LADWP EV charging program (plans for 66 chargers submitted, awaiting selection in lottery), gave me the idea for OCS
- Strong advocate of going green and of Ocean Charter School
- I'm happy to coordinate and manage both projects, so minimal time needed by our busy OCS administrators.

Contact: garlick@soe.ucsc.edu, 310-384-0982

## EV Chargers

Install 44 Electric Vehicle (EV) chargers in staff garage at no cost to OCS

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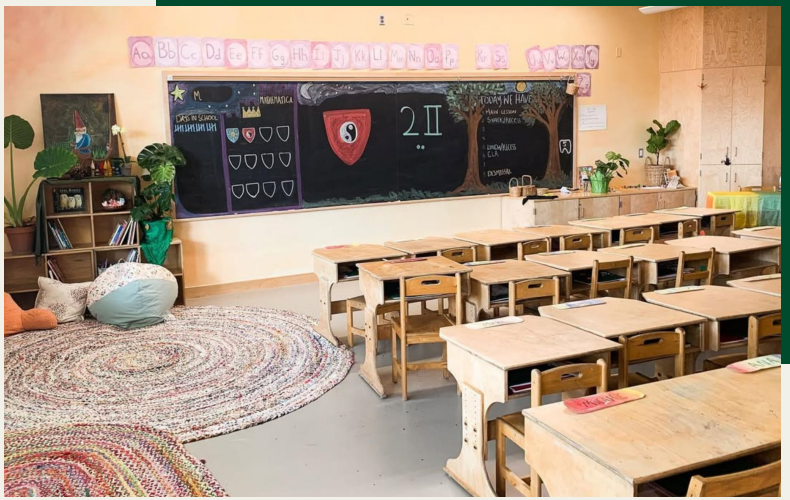
# Benefits



### Zero Capital Cost to Ocean Charter

LADWP program pays to install up to 80 EV chargers (we qualify for 44). Costs are covered by LADWP.

### Employee Benefit, Staff Retention

EV usage is growing, and free or low-cost charging while at work is a great benefit for staff.

### OCS Has Full Control Over Charger Usage

We set the charging rate for the end-user. Board can choose for charging to be free (to teachers) as a benefit, actual-cost, or profit.

Contact: Tim Garlick, garlick@soe.ucsc.edu

# LADWP EV Program

- LADWP covers cost of installing EV chargers in multi-use buildings (apartments, condos, schools)
- Projects are awarded through a lottery for available funds
  - LADWP has repeatedly renewed the program but no guarantee it will continue
  - Typically there have been 3-4 funding rounds / lotteries per year
  - January lottery pushed to “Q1” (likely March)
- Vendor (Chargie) captures the rebate and uses it to install chargers at little or no cost to customer
- Chargie did an initial site survey and confirmed:
  - Rebates are sufficient to install 44 chargers at no cost to OCS
  - Building electrical infrastructure appears sufficient to supply 44 chargers (will be confirmed in engineering phase)

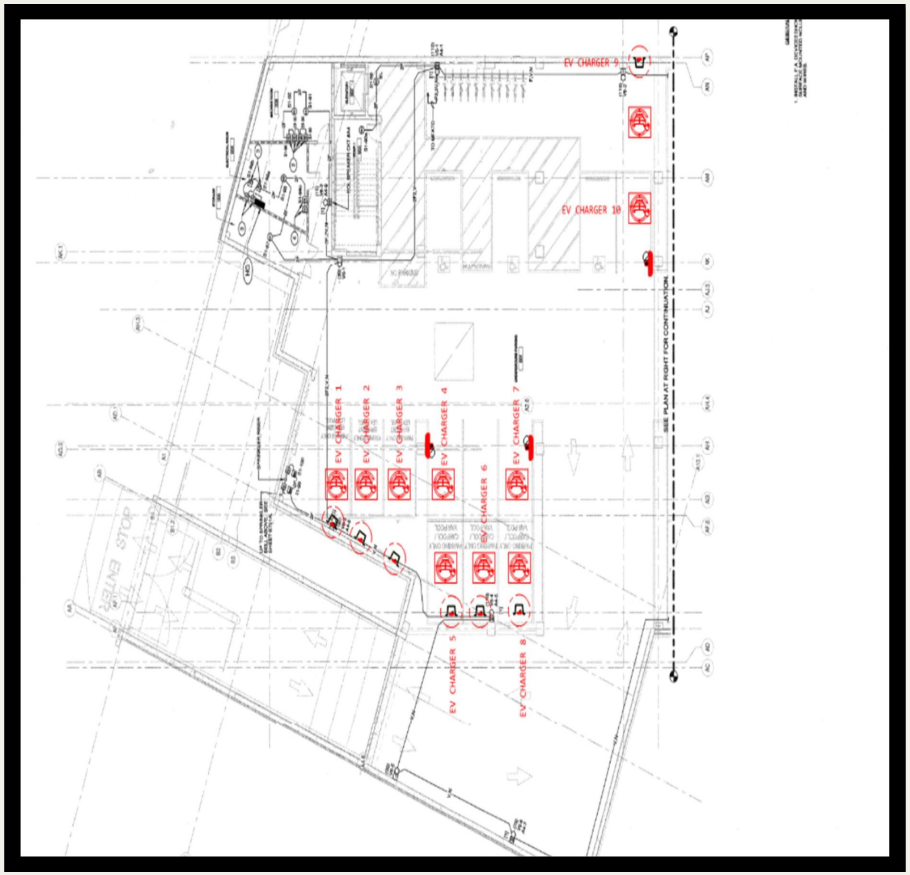
Contact: Tim Garlick, garlick@soe.ucsc.edu

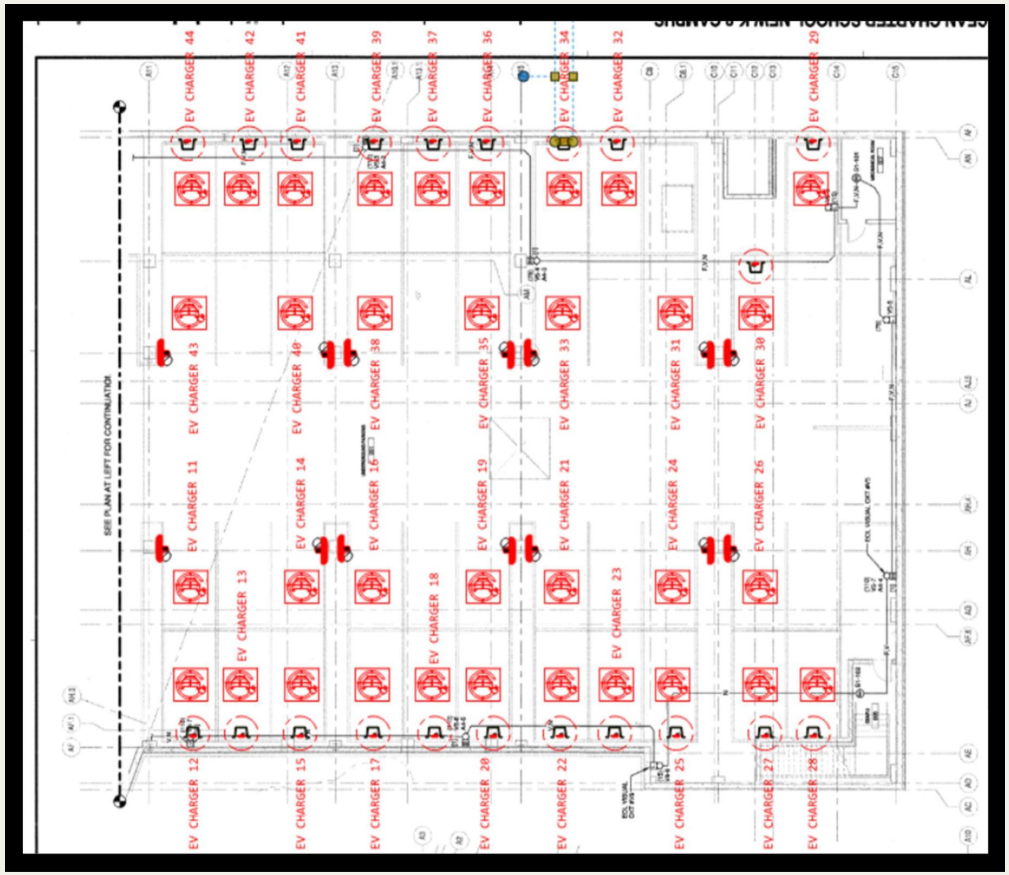
# Partner: Chargie

- Installs and maintains EV chargers
- Installs cellular extender to provide Internet access for chargers in garage
- Supplies and maintains management software which is managed and configured by OCS
- 3-Year EV equipment warranty covers maintenance, repair, replacement
- After warranty period, OCS could incur costs if units fail or are damaged

Contact: Tim Garlick, garlick@soe.ucsc.edu

# Projected Garage EV Locations

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# How EV System Works

- Once installed, OCS has full control over EV software management system
- Each user registers for a Chargie account if they want to charge vehicle
  - No cost to register
  - No monthly fee
  - Pay as you go through mobile app (if not set to free)
- Chargie fee is $.10/kWH to cover their software and maintenance costs
  - Formerly was $5/month per user, but competition drove price down
  - Other vendors fees are comparable
- OCS sets charging rates:
  - No charge, provides EV charging as a low-cost employee benefit
  - Charge actual LADWP cost (see solar project) + Chargie's $.10
  - LADWP electric cost + Chargie's $.10 + profit

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# EV Project Timeline

**Site Survey**

Initial plan, review of electric capabilities (**DONE**)

**Preliminary Agreement**

OCS signs preliminary agreement, **no binding commitment at this point**. This has been submitted to OCS admin for signing.

**Chargie Engineering**

Chargie engineering team designs system, provides First Amendment and SOW with formal agreement, costs (if any)

**First Amendment**

Specific costs (if any). **OCS commits to project, binding agreement.** If OCS later withdraws, must repay Chargie costs; project submitted to LADWP lottery

**Installation**

If chosen in lottery, installation is scheduled. If not chosen, project is rolled into next round

Contact: Tim Garlick, garlick@soe.ucsc.edu

# Chargie Contact

| | |
|---|---|
| Contact | Khristian Guillory |
| Website | chargie.com |
| Phone | (661) 345-0766 |
| Email | khristian.Guillory@chargie.com |

## Solar Electricity

Install solar panels on roofs at OCS to supply power

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# Benefits

**Lower or Eliminate Electricity Costs**

Depending on option chosen, OCS can significantly reduce or eliminate electricity costs

**Maintain Power During outages (w/batteries)**

Option to maintain power during routine or catastrophic outages (eg. earthquakes, assuming no damage), requires battery storage

**Savings Increase Over Time**

Electric rates are conservatively projected to rise 5-10%/year, while our solar costs will be mostly fixed

Contact: Tim Garlick, garlick@soe.ucsc.edu

# Partner: E-Venture / LITUS

1) Spun off from Chargie which now focuses on EV charger installations
2) Decades of solar systems experience
3) Provided a proposal for OCS with four options:
    - Feed-in-Tariff – E-Venture leases OCS roof space and pays us a flat yearly amount
    - Lease Option – OCS leases system from E-Venture which owns system
    - Cash Option – OCS owns system (purchased with cash up front)
    - Finance Option – OCS owns system (financed with a loan)

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# Approximate Solar Panel Locations

- For illustration purposes only
- On-site inspection not yet done
- They were informed that gym was engineered to support solar panels
- Had access to single-line construction plans / blueprints
- Appears to be sufficient roof space to supply all of OCS electrical needs
- Requires engineering design to verify
- Image reflects Full system, however Admin building will be excluded in both scenarios


Contact: Tim Garlick, garlick@soe.ucsc.edu

# Cost/Savings Notes (1)

Before reviewing the four options, note the following:

- Estimated two system sizes (solar systems output direct current or DC):
  - Gym: 171 kWDC
  - Full: 373 kWDC
- Yield: (after converting to AC for wall socket power)
  - Small: 1,629 kWh
  - Full: 3542 kWh
- Supply vs. OCS Usage:
  - Gym Only: Generates about half our usage
  - Full System: Generates a bit more than current usage
- Conservatively assumes LADWP rates increase 5% per annum
- OCS consumes ~317k kWh per year, costing ~$86,000/year at current rates

# Cost/Savings Notes (2)

- “ITC %” in tables is the amount of the federal Investment Tax Credit
  - Tax credits are paid directly to an entity even if they owe no taxes.
  - OCS should be able to claim ITC (need to verify with OCS accountant / tax advisor.)
  - Federal ITC is 30% of system cost but LA County is designated an “energy community” under the 2022 Inflation Reduction Act, so it’s 40%.
- Cash flow numbers are net LADWP cost (“Energy Savings”)
- Estimated yearly maintenance costs (cash, finance options): $5000 (based on labor so will increase a small amount yearly)
- Tables assume ITC rebate (where applicable) received by OCS in second year

# Option 1 – Feed-in-Tariff

- In this option, E-Venture installs, owns and operates the system
- E-Venture pays a flat yearly rate to OCS to lease OCS rooftop space
- Payment to OCS is $6,844/year (Gym) / 14,904 (Full), which is the maximum OCS cash flow
- 20-year lease
- OCS not entitled to and cannot claim the ITC
- Cumulative 20-year cash flow to OCS: $136,880 (Gym) / $298,080 (Full)
- Break-even: Never (payments slightly offset LADWP electric cost)

Benefits of this option: there are no upfront costs, and no need to obtain financing. Disadvantages are that lease payments are small, fixed, and do not cover all of OCS's LADWP charges.

Contact: Tim Garlick, garlick@soe.ucsc.edu

## Feed-in-Tariff - Gym Only

| | |
|---|---|
| System Size (kWDC) | 171.1 |
| Yield (kWh) | 1,629 |
| Blended Energy Savings ($/kWh) | $0.193 |
| Degradation (%) | 0.5% |
| Utility Rate Increase (%) | 5.0% |
| Estimated Build Cost ($/W) | $2.96 |
| ITC (%) | 40% |
| Federal Tax Rate | 0% |
| State Tax Rate | 0% |

| Year | Project Cost | Lease Payment | Energy Savings | ITC Direct Pay | - | Annual Cash Flow | Cumulative Cash Flow |
|---|---|---|---|---|---|---|---|
| 0 | - | - | - | - | - | - | - |
| 1 | - | $6,844 | - | - | - | $6,844 | $6,844 |
| 2 | - | $6,844 | - | - | - | $6,844 | $13,688 |
| 3 | - | $6,844 | - | - | - | $6,844 | $20,532 |
| 4 | - | $6,844 | - | - | - | $6,844 | $27,376 |
| 5 | - | $6,844 | - | - | - | $6,844 | $34,220 |
| 6 | - | $6,844 | - | - | - | $6,844 | $41,064 |
| 7 | - | $6,844 | - | - | - | $6,844 | $47,908 |
| 8 | - | $6,844 | - | - | - | $6,844 | $54,752 |
| 9 | - | $6,844 | - | - | - | $6,844 | $61,596 |
| 10 | - | $6,844 | - | - | - | $6,844 | $68,440 |
| 11 | - | $6,844 | - | - | - | $6,844 | $75,284 |
| 12 | - | $6,844 | - | - | - | $6,844 | $82,128 |
| 13 | - | $6,844 | - | - | - | $6,844 | $88,972 |
| 14 | - | $6,844 | - | - | - | $6,844 | $95,816 |
| 15 | - | $6,844 | - | - | - | $6,844 | $102,660 |
| 16 | - | $6,844 | - | - | - | $6,844 | $109,504 |
| 17 | - | $6,844 | - | - | - | $6,844 | $116,348 |
| 18 | - | $6,844 | - | - | - | $6,844 | $123,192 |
| 19 | - | $6,844 | - | - | - | $6,844 | $130,036 |
| 20 | - | $6,844 | - | - | - | $6,844 | $136,880 |

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## Feed-in-Tariff - Full System

| | |
|---|---|
| System Size (kWDC) | 372.6 |
| Yield (kWh) | 1,629 |
| Blended Energy Savings ($/kWh) | $0.193 |
| Degradation (%) | 0.5% |
| Utility Rate Increase (%) | 5.0% |
| Estimated Build Cost ($/W) | $3.06 |
| ITC (%) | 40% |
| Federal Tax Rate | 0% |
| State Tax Rate | 0% |

| Year | Project Cost | Lease Payment | Energy Savings | ITC Direct Pay | – | Annual Cash Flow | Cumulative Cash Flow |
|---|---|---|---|---|---|---|---|
| 0 | – | – | – | – | – | – | – |
| 1 | – | $14,904 | – | – | – | $14,904 | $14,904 |
| 2 | – | $14,904 | – | – | – | $14,904 | $29,808 |
| 3 | – | $14,904 | – | – | – | $14,904 | $44,712 |
| 4 | – | $14,904 | – | – | – | $14,904 | $59,616 |
| 5 | – | $14,904 | – | – | – | $14,904 | $74,520 |
| 6 | – | $14,904 | – | – | – | $14,904 | $89,424 |
| 7 | – | $14,904 | – | – | – | $14,904 | $104,328 |
| 8 | – | $14,904 | – | – | – | $14,904 | $119,232 |
| 9 | – | $14,904 | – | – | – | $14,904 | $134,136 |
| 10 | – | $14,904 | – | – | – | $14,904 | $149,040 |
| 11 | – | $14,904 | – | – | – | $14,904 | $163,944 |
| 12 | – | $14,904 | – | – | – | $14,904 | $178,848 |
| 13 | – | $14,904 | – | – | – | $14,904 | $193,752 |
| 14 | – | $14,904 | – | – | – | $14,904 | $208,656 |
| 15 | – | $14,904 | – | – | – | $14,904 | $223,560 |
| 16 | – | $14,904 | – | – | – | $14,904 | $238,464 |
| 17 | – | $14,904 | – | – | – | $14,904 | $253,368 |
| 18 | – | $14,904 | – | – | – | $14,904 | $268,272 |
| 19 | – | $14,904 | – | – | – | $14,904 | $283,176 |
| 20 | – | $14,904 | – | – | – | $14,904 | $298,080 |

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# Option 2 – Lease System

- In this option, E-Venture installs, owns and operates the system
- OCS leases the system from E-Venture
- OCS not entitled to and cannot claim the ITC (claimed by E-Venture)
- OCS lease payments to E-Venture increase 2%/year
- Yearly cash flow grows approx 3+%/year (difference between lease and LADWP increases)
- Leasing fee continues for 30+ years
- Cumulative 30-year net cash flow to OCS: $1,620,310 (Gym) / $3,528,502 (Full)
- Break-even: Year 1

Benefits of this option: there are no upfront costs, and no need to obtain financing. A disadvantage is that perpetual lease costs limit cash flow over time.

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## Lease - Gym Only

| | |
|---|---|
| System Size (kWDC) | 171.1 |
| Yield (kWh) | 1,629 |
| Blended Energy Savings ($/kWh) | $0.193 |
| Degradation (%) | 0.5% |
| Utility Rate Increase (%) | 5.0% |
| Estimated Build Cost ($/W) | $2.96 |
| ITC (%) | 40% |
| Federal Tax Rate | 0% |
| State Tax Rate | 0% |

| Year | Project Cost | Lease Payment | Energy Savings | ITC Direct Pay | – | Annual Cash Flow | Cumulative Cash Flow |
|---|---|---|---|---|---|---|---|
| 0 | – | – | – | – | – | – | – |
| 1 | – | ($40,945) | $53,787 | – | – | $12,842 | $12,842 |
| 2 | – | ($41,764) | $56,207 | – | – | $14,443 | $27,285 |
| 3 | – | ($42,599) | $58,736 | – | – | $16,137 | $43,422 |
| 4 | – | ($43,451) | $61,380 | – | – | $17,928 | $61,351 |
| 5 | – | ($44,320) | $64,142 | – | – | $19,821 | $81,172 |
| 6 | – | ($45,207) | $67,028 | – | – | $21,821 | $102,994 |
| 7 | – | ($46,111) | $70,044 | – | – | $23,934 | $126,927 |
| 8 | – | ($47,033) | $73,196 | – | – | $26,163 | $153,091 |
| 9 | – | ($47,974) | $76,490 | – | – | $28,517 | $181,607 |
| 10 | – | ($48,933) | $79,932 | – | – | $30,999 | $212,606 |
| 11 | – | ($49,912) | $83,529 | – | – | $33,617 | $246,224 |
| 12 | – | ($50,910) | $87,288 | – | – | $36,378 | $282,602 |
| 13 | – | ($51,928) | $91,216 | – | – | $39,288 | $321,889 |
| 14 | – | ($52,967) | $95,321 | – | – | $42,354 | $364,243 |
| 15 | – | ($54,026) | $99,610 | – | – | $45,584 | $409,827 |
| 16 | – | ($55,107) | $104,092 | – | – | $48,986 | $458,813 |
| 17 | – | ($56,209) | $108,777 | – | – | $52,568 | $511,381 |
| 18 | – | ($57,333) | $113,672 | – | – | $56,339 | $567,720 |
| 19 | – | ($58,480) | $118,787 | – | – | $60,307 | $628,027 |
| 20 | – | ($59,649) | $124,132 | – | – | $64,483 | $692,510 |
| 21 | – | ($60,842) | $129,718 | – | – | $68,876 | $761,386 |
| 22 | – | ($62,059) | $135,556 | – | – | $73,497 | $834,883 |
| 23 | – | ($63,300) | $141,656 | – | – | $78,355 | $913,238 |
| 24 | – | ($64,566) | $148,030 | – | – | $83,464 | $996,702 |
| 25 | – | ($65,857) | $154,691 | – | – | $88,834 | $1,085,536 |
| 26 | – | ($67,175) | $161,652 | – | – | $94,478 | $1,180,014 |
| 27 | – | ($68,518) | $168,927 | – | – | $100,409 | $1,280,423 |
| 28 | – | ($69,888) | $176,529 | – | – | $106,640 | $1,387,063 |
| 29 | – | ($71,286) | $184,472 | – | – | $113,186 | $1,500,249 |
| 30 | – | ($72,712) | $192,774 | – | – | $120,062 | $1,620,310 |

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## Lease - Full System

| | |
|---|---|
| System Size (kWDC) | 372.6 |
| Yield (kWh) | 1,629 |
| Blended Energy Savings ($/kWh) | $0.193 |
| Degradation (%) | 0.5% |
| Utility Rate Increase (%) | 5.0% |
| Estimated Build Cost ($/W) | $3.06 |
| ITC (%) | 40% |
| Federal Tax Rate | 0% |
| State Tax Rate | 0% |

| Year | Project Cost | Lease Payment | Energy Savings | ITC Direct Pay | – | Annual Cash Flow | Cumulative Cash Flow |
|---|---|---|---|---|---|---|---|
| 0 | – | – | – | – | – | – | – |
| 1 | – | ($89,165) | $117,130 | – | – | $27,965 | $27,965 |
| 2 | – | ($90,948) | $122,401 | – | – | $31,452 | $59,417 |
| 3 | – | ($92,767) | $127,909 | – | – | $35,142 | $94,559 |
| 4 | – | ($94,623) | $133,665 | – | – | $39,042 | $133,601 |
| 5 | – | ($96,515) | $139,680 | – | – | $43,165 | $176,766 |
| 6 | – | ($98,445) | $145,965 | – | – | $47,520 | $224,286 |
| 7 | – | ($100,414) | $152,534 | – | – | $52,119 | $276,405 |
| 8 | – | ($102,423) | $159,398 | – | – | $56,975 | $333,380 |
| 9 | – | ($104,471) | $166,571 | – | – | $62,100 | $395,480 |
| 10 | – | ($106,560) | $174,066 | – | – | $67,506 | $462,985 |
| 11 | – | ($108,692) | $181,899 | – | – | $73,208 | $536,193 |
| 12 | – | ($110,865) | $190,085 | – | – | $79,219 | $615,412 |
| 13 | – | ($113,083) | $198,638 | – | – | $85,556 | $700,968 |
| 14 | – | ($115,344) | $207,577 | – | – | $92,233 | $793,201 |
| 15 | – | ($117,651) | $216,918 | – | – | $99,267 | $892,468 |
| 16 | – | ($120,004) | $226,680 | – | – | $106,675 | $999,143 |
| 17 | – | ($122,404) | $236,880 | – | – | $114,476 | $1,113,618 |
| 18 | – | ($124,853) | $247,540 | – | – | $122,687 | $1,236,306 |
| 19 | – | ($127,350) | $258,679 | – | – | $131,329 | $1,367,635 |
| 20 | – | ($129,897) | $270,320 | – | – | $140,423 | $1,508,058 |
| 21 | – | ($132,494) | $282,484 | – | – | $149,989 | $1,658,047 |
| 22 | – | ($135,144) | $295,196 | – | – | $160,051 | $1,818,099 |
| 23 | – | ($137,847) | $308,480 | – | – | $170,632 | $1,988,731 |
| 24 | – | ($140,604) | $322,361 | – | – | $181,757 | $2,170,488 |
| 25 | – | ($143,416) | $336,867 | – | – | $193,451 | $2,363,939 |
| 26 | – | ($146,285) | $352,026 | – | – | $205,742 | $2,569,680 |
| 27 | – | ($149,210) | $367,868 | – | – | $218,657 | $2,788,338 |
| 28 | – | ($152,195) | $384,422 | – | – | $232,227 | $3,020,565 |
| 29 | – | ($155,238) | $401,721 | – | – | $246,482 | $3,267,047 |
| 30 | – | ($158,343) | $419,798 | – | – | $261,455 | $3,528,502 |

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# Option 3 – Cash Purchase

- In this option, OCS purchases and owns the system
- Estimated upfront cost is $506,804 (Gym) / $1,140,156 (Full)
- Estimated upfront *net* cost after ITC is $304,118 (Gym) / $685,094 (Full)
- E-Venture installs, and maintains (under separate contract) the system ($4500-$5000/year)
- Cumulative 30-year cash flow to OCS: $2,977,240 (Gym) / $6,461,661 (Full)
- Break-even: Year 6 (Gym) / Year 5 (Full)

Benefits of this option: no financing costs, highest 30-year cash flow.
A disadvantage is the need to pay $507k–$1.14m cash for the system up front (before ITC credit which will come back to OCS when filed).

Contact: Tim Garlick, garlick@soe.ucsc.edu

## Cash Purchase - Gym Only

| | |
|---|---|
| System Size (kWDC) | 171.1 |
| Yield (kWh) | 1,629 |
| Blended Energy Savings ($/kWh) | $0.193 |
| Degradation (%) | 0.5% |
| Utility Rate Increase (%) | 5.0% |
| Estimated Build Cost ($/W) | $2.96 |
| ITC (%) | 40% |
| Federal Tax Rate | 0% |
| State Tax Rate | 0% |

| Year | Project Cost | – | Energy Savings | ITC Direct Pay | – | Annual Cash Flow | Cumulative Cash Flow |
|---|---|---|---|---|---|---|---|
| 0 | ($506,884) | – | – | – | – | ($506,884) | ($506,884) |
| 1 | – | – | $53,787 | $202,754 | – | $256,540 | ($250,344) |
| 2 | – | – | $56,207 | – | – | $56,207 | ($194,136) |
| 3 | – | – | $58,736 | – | – | $58,736 | ($135,400) |
| 4 | – | – | $61,380 | – | – | $61,380 | ($74,020) |
| 5 | – | – | $64,142 | – | – | $64,142 | ($9,879) |
| 6 | – | – | $67,028 | – | – | $67,028 | $57,149 |
| 7 | – | – | $70,044 | – | – | $70,044 | $127,194 |
| 8 | – | – | $73,196 | – | – | $73,196 | $200,390 |
| 9 | – | – | $76,490 | – | – | $76,490 | $276,880 |
| 10 | – | – | $79,932 | – | – | $79,932 | $356,812 |
| 11 | – | – | $83,529 | – | – | $83,529 | $440,341 |
| 12 | – | – | $87,288 | – | – | $87,288 | $527,629 |
| 13 | – | – | $91,216 | – | – | $91,216 | $618,845 |
| 14 | – | – | $95,321 | – | – | $95,321 | $714,166 |
| 15 | – | – | $99,610 | – | – | $99,610 | $813,776 |
| 16 | – | – | $104,092 | – | – | $104,092 | $917,868 |
| 17 | – | – | $108,777 | – | – | $108,777 | $1,026,645 |
| 18 | – | – | $113,672 | – | – | $113,672 | $1,140,317 |
| 19 | – | – | $118,787 | – | – | $118,787 | $1,259,104 |
| 20 | – | – | $124,132 | – | – | $124,132 | $1,383,236 |
| 21 | – | – | $129,718 | – | – | $129,718 | $1,512,954 |
| 22 | – | – | $135,556 | – | – | $135,556 | $1,648,509 |
| 23 | – | – | $141,656 | – | – | $141,656 | $1,790,165 |
| 24 | – | – | $148,030 | – | – | $148,030 | $1,938,195 |
| 25 | – | – | $154,691 | – | – | $154,691 | $2,092,886 |
| 26 | – | – | $161,652 | – | – | $161,652 | $2,254,539 |
| 27 | – | – | $168,927 | – | – | $168,927 | $2,423,466 |
| 28 | – | – | $176,529 | – | – | $176,529 | $2,599,994 |
| 29 | – | – | $184,472 | – | – | $184,472 | $2,784,466 |
| 30 | – | – | $192,774 | – | – | $192,774 | $2,977,240 |

| | |
|---|---|
| 20-Year IRR | 19.3% |
| 30-Year IRR | 20.2% |

Contact: Tim Garlick, garlick@soe.ucsc.edu

## Cash Purchase - Full System

| | |
|---|---|
| System Size (kWDC) | 372.6 |
| Yield (kWh) | 1,629 |
| Blended Energy Savings ($/kWh) | $0.193 |
| Degradation (%) | 0.5% |
| Utility Rate Increase (%) | 5.0% |
| Estimated Build Cost ($/W) | $3.06 |
| ITC (%) | 40% |
| Federal Tax Rate | 0% |
| State Tax Rate | 0% |

| Year | Project Cost | – | Energy Savings | ITC Direct Pay | – | Annual Cash Flow | Cumulative Cash Flow |
|---|---|---|---|---|---|---|---|
| 0 | ($1,140,156) | – | – | – | – | ($1,140,156) | ($1,140,156) |
| 1 | – | – | $117,130 | $456,062 | – | $573,192 | ($566,964) |
| 2 | – | – | $122,401 | – | – | $122,401 | ($444,563) |
| 3 | – | – | $127,909 | – | – | $127,909 | ($316,654) |
| 4 | – | – | $133,665 | – | – | $133,665 | ($182,989) |
| 5 | – | – | $139,680 | – | – | $139,680 | ($43,310) |
| 6 | – | – | $145,965 | – | – | $145,965 | $102,656 |
| 7 | – | – | $152,534 | – | – | $152,534 | $255,189 |
| 8 | – | – | $159,398 | – | – | $159,398 | $414,587 |
| 9 | – | – | $166,571 | – | – | $166,571 | $581,157 |
| 10 | – | – | $174,066 | – | – | $174,066 | $755,224 |
| 11 | – | – | $181,899 | – | – | $181,899 | $937,123 |
| 12 | – | – | $190,085 | – | – | $190,085 | $1,127,208 |
| 13 | – | – | $198,638 | – | – | $198,638 | $1,325,846 |
| 14 | – | – | $207,577 | – | – | $207,577 | $1,533,423 |
| 15 | – | – | $216,918 | – | – | $216,918 | $1,750,341 |
| 16 | – | – | $226,680 | – | – | $226,680 | $1,977,021 |
| 17 | – | – | $236,880 | – | – | $236,880 | $2,213,901 |
| 18 | – | – | $247,540 | – | – | $247,540 | $2,461,441 |
| 19 | – | – | $258,679 | – | – | $258,679 | $2,720,120 |
| 20 | – | – | $270,320 | – | – | $270,320 | $2,990,439 |
| 21 | – | – | $282,484 | – | – | $282,484 | $3,272,923 |
| 22 | – | – | $295,196 | – | – | $295,196 | $3,568,119 |
| 23 | – | – | $308,480 | – | – | $308,480 | $3,876,598 |
| 24 | – | – | $322,361 | – | – | $322,361 | $4,198,959 |
| 25 | – | – | $336,867 | – | – | $336,867 | $4,535,827 |
| 26 | – | – | $352,026 | – | – | $352,026 | $4,887,853 |
| 27 | – | – | $367,868 | – | – | $367,868 | $5,255,721 |
| 28 | – | – | $384,422 | – | – | $384,422 | $5,640,142 |
| 29 | – | – | $401,721 | – | – | $401,721 | $6,041,863 |
| 30 | – | – | $419,798 | – | – | $419,798 | $6,461,661 |

| | |
|---|---|
| 20-Year IRR | 18.8% |
| 30-Year IRR | 19.7% |

Contact: Tim Garlick, garlick@soe.ucsc.edu

# Option 4 – Finance System (1)

- In this option, OCS uses financing to purchase and own the system
- Cash flow model assumes 8.5% on a 15-year fixed-rate note
- Loan is for full amount, then paid down when ITC received back from federal government
- E-Venture can work through their channel to arrange financing if desired or OCS can secure financing separately

Contact: Tim Garlick, garlick@soe.ucsc.edu

# Option 4 – Finance System (2)

- Estimated system's net cost after ITC, and with loan interest is $573,769 (Gym) / $1,290,584 (Full)
- E-Venture installs, and maintains (under separate contract) the system ($4500-$5000/year)
- Cumulative 30-year cash flow to OCS: $2,707,602 (Gym) / $5,855,170 (Full)
- Break-even: Year 1 (Gym and Full)

Benefits of this option: no large upfront costs, second highest 30-year cash flow after cash option. A disadvantage is the need to obtain financing which can take 30-90 days

Contact: Tim Garlick, garlick@soe.ucsc.edu

## Cash Purchase with Financing - Gym Only

| | |
|---|---|
| System Size (kWDC) | 171.1 |
| Yield (kWh) | 1,629 |
| Blended Energy Savings ($/kWh) | $0.193 |
| Degradation (%) | 0.5% |
| Utility Rate Increase (%) | 5.0% |
| Estimated Build Cost ($/W) | $2.96 |
| ITC (%) | 40% |
| Interest Rate (%) | 8.5% |
| Term (Years) | 15 |

| Year | Project Cost | Financing Payments | Energy Savings | ITC Direct Pay* | – | Annual Cash Flow | Cumulative Cash Flow |
|---|---|---|---|---|---|---|---|
| 0 | – | – | – | – | – | – | – |
| 1 | – | ($61,039) | $53,787 | $202,754 | – | ($7,252) | ($7,252) |
| 2 | – | ($36,624) | $56,207 | – | – | $19,584 | $12,331 |
| 3 | – | ($36,624) | $58,736 | – | – | $22,113 | $34,444 |
| 4 | – | ($36,624) | $61,380 | – | – | $24,756 | $59,200 |
| 5 | – | ($36,624) | $64,142 | – | – | $27,518 | $86,718 |
| 6 | – | ($36,624) | $67,028 | – | – | $30,405 | $117,123 |
| 7 | – | ($36,624) | $70,044 | – | – | $33,421 | $150,544 |
| 8 | – | ($36,624) | $73,196 | – | – | $36,573 | $187,116 |
| 9 | – | ($36,624) | $76,490 | – | – | $39,867 | $226,983 |
| 10 | – | ($36,624) | $79,932 | – | – | $43,309 | $270,292 |
| 11 | – | ($36,624) | $83,529 | – | – | $46,906 | $317,197 |
| 12 | – | ($36,624) | $87,288 | – | – | $50,664 | $367,862 |
| 13 | – | ($36,624) | $91,216 | – | – | $54,592 | $422,454 |
| 14 | – | ($36,624) | $95,321 | – | – | $58,697 | $481,151 |
| 15 | – | ($36,624) | $99,610 | – | – | $62,987 | $544,138 |
| 16 | – | – | $104,092 | – | – | $104,092 | $648,230 |
| 17 | – | – | $108,777 | – | – | $108,777 | $757,007 |
| 18 | – | – | $113,672 | – | – | $113,672 | $870,678 |
| 19 | – | – | $118,787 | – | – | $118,787 | $989,465 |
| 20 | – | – | $124,132 | – | – | $124,132 | $1,113,597 |
| 21 | – | – | $129,718 | – | – | $129,718 | $1,243,316 |
| 22 | – | – | $135,556 | – | – | $135,556 | $1,378,871 |
| 23 | – | – | $141,656 | – | – | $141,656 | $1,520,527 |
| 24 | – | – | $148,030 | – | – | $148,030 | $1,668,557 |
| 25 | – | – | $154,691 | – | – | $154,691 | $1,823,248 |
| 26 | – | – | $161,652 | – | – | $161,652 | $1,984,901 |
| 27 | – | – | $168,927 | – | – | $168,927 | $2,153,827 |
| 28 | – | – | $176,529 | – | – | $176,529 | $2,330,356 |
| 29 | – | – | $184,472 | – | – | $184,472 | $2,514,828 |
| 30 | – | – | $192,774 | – | – | $192,774 | $2,707,602 |

| | |
|---|---|
| 20-Year IRR | 282.6% |
| 30-Year IRR | 282.6% |

Contact: Tim Garlick, garlick@soe.ucsc.edu

## Cash Purchase with Financing - Full System

| | |
|---|---|
| System Size (kWDC) | 372.6 |
| Yield (kWh) | 1,629 |
| Blended Energy Savings ($/kWh) | $0.193 |
| Degradation (%) | 0.5% |
| Utility Rate Increase (%) | 5.0% |
| Estimated Build Cost ($/W) | $3.06 |
| ITC (%) | 40% |
| Interest Rate (%) | 8.5% |
| Term (Years) | 15 |

| Year | Project Cost | Financing Payments | Energy Savings | ITC Direct Pay* | – | Annual Cash Flow | Cumulative Cash Flow |
|---|---|---|---|---|---|---|---|
| 0 | – | – | – | – | – | – | – |
| 1 | – | ($137,297) | $117,130 | $456,062 | – | ($20,167) | ($20,167) |
| 2 | – | ($82,378) | $122,401 | – | – | $40,023 | $19,856 |
| 3 | – | ($82,378) | $127,909 | – | – | $45,531 | $65,387 |
| 4 | – | ($82,378) | $133,665 | – | – | $51,287 | $116,674 |
| 5 | – | ($82,378) | $139,680 | – | – | $57,302 | $173,976 |
| 6 | – | ($82,378) | $145,965 | – | – | $63,588 | $237,564 |
| 7 | – | ($82,378) | $152,534 | – | – | $70,156 | $307,720 |
| 8 | – | ($82,378) | $159,398 | – | – | $77,020 | $384,740 |
| 9 | – | ($82,378) | $166,571 | – | – | $84,193 | $468,933 |
| 10 | – | ($82,378) | $174,066 | – | – | $91,689 | $560,621 |
| 11 | – | ($82,378) | $181,899 | – | – | $99,522 | $660,143 |
| 12 | – | ($82,378) | $190,085 | – | – | $107,707 | $767,850 |
| 13 | – | ($82,378) | $198,638 | – | – | $116,261 | $884,111 |
| 14 | – | ($82,378) | $207,577 | – | – | $125,200 | $1,009,310 |
| 15 | – | ($82,378) | $216,918 | – | – | $134,541 | $1,143,851 |
| 16 | – | – | $226,680 | – | – | $226,680 | $1,370,530 |
| 17 | – | – | $236,880 | – | – | $236,880 | $1,607,410 |
| 18 | – | – | $247,540 | – | – | $247,540 | $1,854,950 |
| 19 | – | – | $258,679 | – | – | $258,679 | $2,113,629 |
| 20 | – | – | $270,320 | – | – | $270,320 | $2,383,949 |
| 21 | – | – | $282,484 | – | – | $282,484 | $2,666,433 |
| 22 | – | – | $295,196 | – | – | $295,196 | $2,961,628 |
| 23 | – | – | $308,480 | – | – | $308,480 | $3,270,108 |
| 24 | – | – | $322,361 | – | – | $322,361 | $3,592,469 |
| 25 | – | – | $336,867 | – | – | $336,867 | $3,929,336 |
| 26 | – | – | $352,026 | – | – | $352,026 | $4,281,363 |
| 27 | – | – | $367,868 | – | – | $367,868 | $4,649,230 |
| 28 | – | – | $384,422 | – | – | $384,422 | $5,033,652 |
| 29 | – | – | $401,721 | – | – | $401,721 | $5,435,372 |
| 30 | – | – | $419,798 | – | – | $419,798 | $5,855,170 |

| | |
|---|---|
| 20-Year IRR | 211.6% |
| 30-Year IRR | 211.6% |

Contact: Tim Garlick, garlick@soe.ucsc.edu

# Solar Project Timeline (Milestones)

**Letter of Intent**

OCS signs 90-day letter of intent. Cannot go with another vendor; preliminary engineering work commences.

**Installation or Lease Agreement**

OCS signs binding installation agreement (cash or finance purchase) or lease agreement (feed-in-tariff or lease options)

**Development**

Design, engineering, and permitting done. Typically ~120 days.

**Installation**

Approximately 60-90 days. If we decide to move forward in Q1, we should be able to schedule install during 2025 Summer break.

**Commissioning**

System enabled and monitored for 30 days. Any issues are resolved.

Contact: Tim Garlick, garlick@soe.ucsc.edu

# E-Venture Contact

| | |
|---|---|
| Contact | Matt Diminich |
| Website | eventure.solutions |
| Phone | (631) 972-7205 |
| Email | matt@eventure.solutions |

# The children thank you for considering their future

Contact: Tim Garlick, garlick@soe.ucsc.edu