Solar 101 for Businesses
June 12th, 2023

Hosted by Coles Jennings
Director of Corporate Sustainability
3 Things to Know Before You Go Solar

The Basics of Commercial Solar
Joe Moore, Tiger Solar

Financing Solar
Ethan Dunstan, UVA Community Credit Union

Solar Biz in Action
Kevin Powers, Powers Farm & Brewery
C3’s Mission

Our mission is to bring communities together to lead on climate.

At C3 we strive to help everyone see their part in the climate solution.
Basic truths about on-site solar

- It saves money on your power bill
- It costs money to install
- It reduces greenhouse gas emissions by replacing power from fossil fuels
- It is a long-lasting investment (20+ years)
- Most systems will pay for themselves over time (5-15 yrs)
- You can sell the "clean attributes" (SRECs)
#1: Know Your Why

So, what's your solar "why"?

- Return on investment?
- Hedge against rising energy costs?
- Reduce your emissions? By how much?
- Show your customers/employees?
- Make your property more marketable?

These answers vary for each organization, and inform key decisions on the path to solar.
#2: Solar’s Piece of the Climate/Energy Puzzle

On-site Solar is

- High impact - Top 10 climate solution per Project Drawdown
- Long term - rewards continue after ROI achieved
- Cash-positive - many buildings can offset 100% of their power

On-site Solar is not

- The only solution
- The cheapest solution
- The quickest solution (please, please program your thermostat!)

The takeaway? Make a reduction plan, with solar as a cornerstone.
Do your homework!

- Prioritize experience with similar projects
- ALWAYS get multiple quotes
- Ask for customer referrals
- Ask a neutral party to review your proposals

#3: Solar is a Business Relationship
#3: Solar is a Business Relationship

Do your homework!

- Know the key inputs
  - Energy cost rates
  - System cost ($/Watt)
  - Production rate (kWh/kWdc)
  - Rebates and credits
  - Monthly payment (if financing)
- Check for unreasonable assumptions
  - Example - energy rate increases
Commercial Solar: The Basics

Net Metering
Roof Considerations
Carports & Ground Mounts
Electrical Considerations
Incentives

Joe Moore
Director, Commercial Solar
Tiger Solar
A penny saved is BETTER than a penny earned!
Roof Considerations

Age
Roof Type
Orientation

Flat/Ballasted
Shingle
Standing Seam
Carports and Ground Mounts

**Carports**
More expensive due to structure
Dual use - shade + power

**Ground Mounts**
Takes up real estate
Maximum production
Electrical Considerations

- How many meters?
- Interconnection fees
- Net-metering limits

Transformer Size
Incentives

• ITC - 30% Federal Tax Credit
• ITC Adders
  ◦ 10% American-made panels*
  ◦ 10%-20% Low-income benefit
• USDA REAP Grant - up to 40%!
• SREC's
• Depreciation

*not yet verified
Commercial Solar: Financing

Financing

Conventional Solar Financing

Solar Tax Benefits

Tax Equity Solar Financing

Unique Options for Solar

Ethan Dunstan
SVP of Business Banking
UVA Community Credit Union
Financing 101

Primary Source of Repayment (Cash Flow)

Secondary Source of Repayment (Collateral)

Tertiary Source of Repayment (Personal Guaranty)
Conventional Solar Financing

- Considered Equipment Loan
- If Real Estate involved, can be much simpler with better terms
- Loan Term Matches Useful Life of Equipment
  - Typically 20 Years
- Fixed Interest Rate for 5 Years with adjustments every 5
- Debt Service Coverage of at least 1.25x all Business Debt
- 70-75% Loan-to-Value
Solar Tax Benefits

- Solar Investment Tax Credit (ITC)
- Solar Production Tax Credit (PTC)*
- Modified Accelerated Cost Recovery System (MACRS)
- Bonus Depreciation
- Property Tax Exemption/Credit
  - State requirement for systems < 25 kW
  - Larger systems - check with your locality!

*generally best only for large installations
## Solar Tax Benefits

<table>
<thead>
<tr>
<th>ITC</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
<th>Year 10</th>
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<tr>
<td>ITC</td>
<td>$300,000</td>
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<tr>
<td>Bonus depreciation</td>
<td>$340,000</td>
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<tr>
<td>5-year MACRS</td>
<td>$102,000</td>
<td>$163,200</td>
<td>$97,920</td>
<td>$58,752</td>
<td>$58,752</td>
<td>$29,376</td>
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<tr>
<td>Net impact of depreciation deductions</td>
<td>$92,820</td>
<td>$34,272</td>
<td>$20,563</td>
<td>$12,338</td>
<td>$12,338</td>
<td>$6,169</td>
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<tr>
<td>Total Tax Benefits</td>
<td>$392,820</td>
<td>$34,272</td>
<td>$20,563</td>
<td>$12,338</td>
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<td>$6,169</td>
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<tr>
<th>PTC</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
<th>Year 10</th>
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<tbody>
<tr>
<td>Electricity generation (kWh)\textsuperscript{a}</td>
<td>876,000</td>
<td>871,620</td>
<td>867,262</td>
<td>862,926</td>
<td>858,611</td>
<td>854,318</td>
<td>850,046</td>
<td>845,796</td>
<td>841,567</td>
<td>837,359</td>
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<tr>
<td>PTC\textsuperscript{b}</td>
<td>$24,090</td>
<td>$24,569</td>
<td>$25,057</td>
<td>$25,555</td>
<td>$26,063</td>
<td>$26,581</td>
<td>$27,109</td>
<td>$27,648</td>
<td>$28,198</td>
<td>$28,758</td>
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<td>Bonus depreciation</td>
<td>$400,000</td>
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<tr>
<td>5-year MACRS</td>
<td>$120,000</td>
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<td>$115,200</td>
<td>$69,120</td>
<td>$69,120</td>
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<tr>
<td>Net impact of depreciation deductions</td>
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<tr>
<td>Total Tax Benefits</td>
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<td>$64,889</td>
<td>$49,249</td>
<td>$40,070</td>
<td>$40,578</td>
<td>$33,839</td>
<td>$27,109</td>
<td>$27,648</td>
<td>$28,198</td>
<td>$28,758</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Assumes PV system performance degrades 0.5% per year.

\textsuperscript{b} Assumes the PTC increases at an inflation rate of 2.5% per year.

Graphic from the Office of Energy Efficiency & Renewable Energy
Tax Equity Solar Financing

- Private Business Invests in Solar Project
  - Typically Investment provides them some ownership percentage in the project itself and the revenue it generates
  - Almost always negotiation includes investor receiving 100% of the Tax Credits

- Tax equity investors receive ownership and tax benefits while Owners receive Financing Assistance and Potential Energy Savings
Other Unique Solar Financing

Commercial Property-Assessed Clean Energy (CPACE)
- Energy-specific financing vehicle
- Pay for upgrades with energy savings
- Secured to property, stays with building
- 100% up-front financing
- Long-term paybacks, up to 30 yrs
- Ask your locality!

Green Banks - coming soon to Virginia

Graphic from PACE Nation
Solar Biz in Action

About Powers Farm & Brewery

Our solar setup

"The money stuff"

Monitoring our footprint

Kevin Powers
Owner
Powers Farm & Brewery
Our Setup

22.4 kW, half rooftop, half pedestal (~19kW A/C)
   Would have preferred 100% rooftop
   Metal roof – did full weather sealing before install (~16’ x 44’ each)
   Installed by Virtue Solar

Net Metering (Dominion)
   Requires dedicated ag-use meter
   Literally nets in real time
   Cannot become a generator
The Money Part

$58,000 total install fee (2019) – look at price per kWh

Paid for:

- $14k REAP grant
- $17k Income Tax Credit
- $27k Bank loan, 7 year term – balance this with your utility bill
The Money Part

Fauquier County Property Tax Exclusion

- Note on zoning & permits
- Now fully exempt with new state laws (< 25 kW)

Batteries vs Grid

- Will you generate more than you use?
- Can you beat $12/mo in “grid fees”?
Solar Renewable Energy Certificates (SRECs)

- A state-by-state program, with quotes set for energy producers
- Credits are generated by solar power generation
- Must be sold through a broker
- The market price fluctuates

**Virginia SREC Pricing**

<table>
<thead>
<tr>
<th>Option</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mint &amp; Sell (spot market)*</td>
<td>2022 - $45.00 (high: $69.50, low: $45.00)</td>
</tr>
<tr>
<td></td>
<td>2023 - <strong>$55.00</strong> (trending down off of $60)</td>
</tr>
<tr>
<td>3-Year (2023-2025)</td>
<td>$41.00 (12-months paid in first payment)</td>
</tr>
<tr>
<td>5-Year (2023-2027)</td>
<td>$36.00 (12-months paid in first payment)</td>
</tr>
<tr>
<td>15-Year Upfront</td>
<td><strong>$155</strong> per kW DC</td>
</tr>
</tbody>
</table>

Prices per Sun Tribe Trading
Monitoring
Questions?
Want to go solar but need more help?

Join C3's webinar:
Before You Go Solar at Home

WITH TIGER SOLAR, LEAP, SOLAR UNITED NEIGHBORS, AND C3

WED. 6.28.23
12 - 1 PM

Register NOW to save your spot!