

COMMUNITY CLIMATE
COLLABORATIVE

Solar 101 for Businesses

June 12th, 2023



Hosted by Coles Jennings

Director of Corporate Sustainability

Today's Game Plan

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

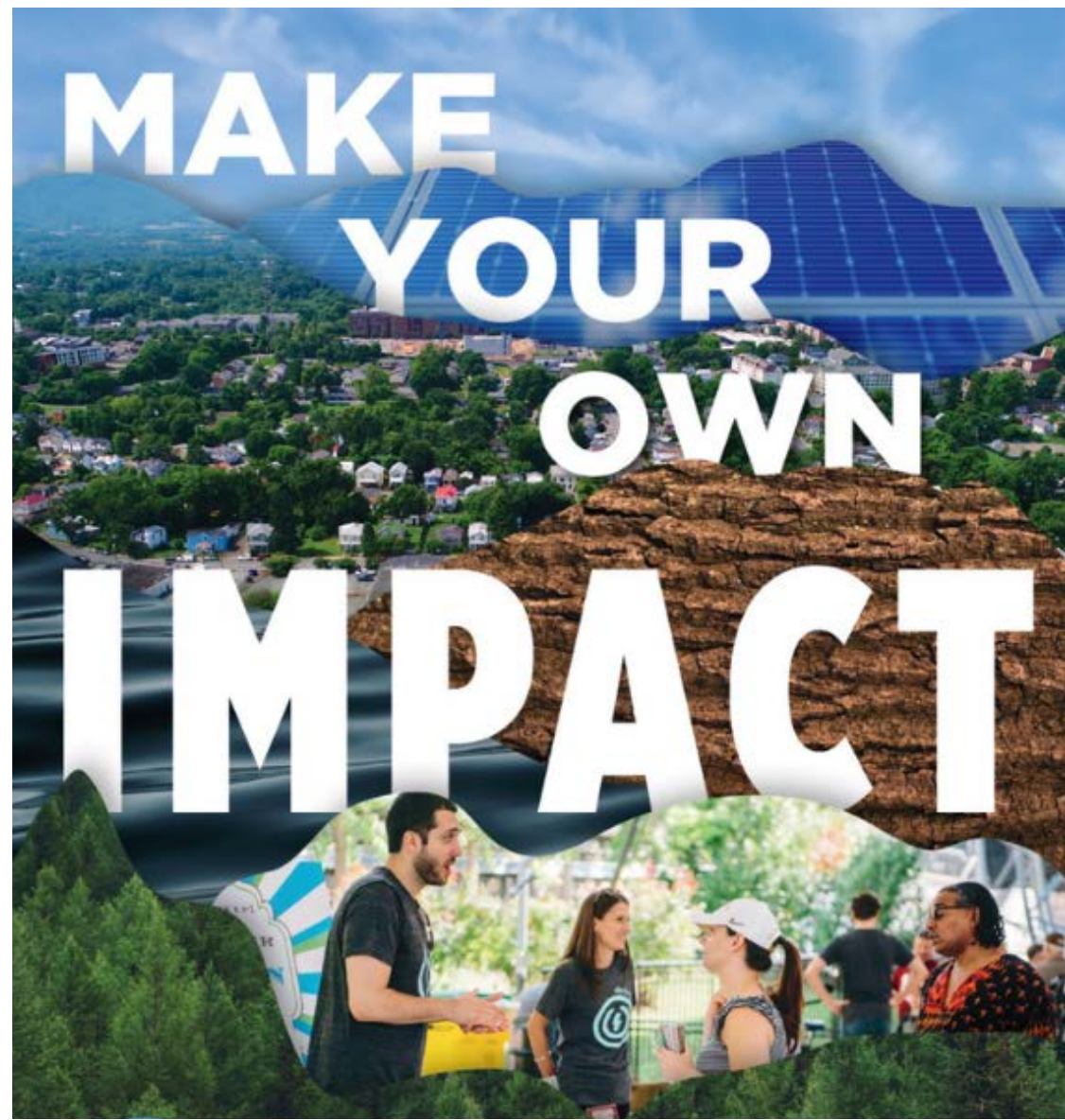
Kevin Powers, Powers Farm & Brewery

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.





#1: Know Your Why

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.

#3: Solar is a Business Relationship

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

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

Net Metering

Before Solar

Billing and Payment Summary

Due Date: Nov 05, 2021

Total Amount Due: \$ 221.04

To avoid a Late Payment Charge of 1.5% please pay by Nov 05, 2021.

Previous Amount Due: \$ 339.05
Payments as of Oct 13: \$ 339.05CR

For service emergencies and power outages please call 1-866-DOM-HELP (1-866-366-4357). Visit us at www.dominionenergy.com.

Meter and Usage

Current Billing Days: 28

Billable Usage
Schedule GS-1 09/13-10/11
Total kWh 1989

Measured Usage
Meter: 09/13-10/11
Current Reading 29471
Previous Reading 27482
Total kWh 1989

Usage History

Mo	Yr	kWh
Oct	20	2153
Nov	20	2099
Dec	20	2908
Jan	21	3307
Feb	21	3569
Mar	21	3397
Apr	21	2379
May	21	2056
Jun	21	2516
Jul	21	2767
Aug	21	2546
Sep	21	2915
Oct	21	1989

Explanation of Bill Detail

Customer Service 1-866-DOM-HELP (1-866-366-4357)

Previous Balance 339.05
Payment Received 339.05CR
Balance Forward 0.00

Non-Residential (Schedule GS-1) 09/13-10/11
Distribution Service
Basic Customer Charge 10.78
Distribution Service kWh 35.11
Electricity Supply Svc (ESS)
Generation 86.85
Transmission 23.39
Fuel 40.67
Non-Bypassable Charges
Rider CE Clean Energy Projects 0.30
Rider RPS Renewable Energy Pgm 0.36
Rider PIPP Universal Service Fee 0.05
Sales and Use Surcharge 0.41

State/Local Consumption Tax 3.12
STAUNTON Utility Tax 20.00
Total Current Charges 221.04

Total Account Balance 221.04

View payment options, request service changes and enroll in eBill at www.dominionenergy.com, search: Manage Your Account



Jan 13, 2023

Billing and Payment Summary

Due Date: Feb 07, 2023

Total Amount Due: \$ 11.51

To avoid a Late Payment Charge of 1.5% please pay by Feb 07, 2023.

Previous Amount Due: \$ 13.07
Payments as of Jan 13: \$ 13.07CR

For service emergencies and power outages please call 1-866-DOM-HELP (1-866-366-4357). Visit us at www.dominionenergy.com.

Meter and Usage

Current Billing Days: 31

Billable Usage
Schedule GS-1 12/11-01/11
Total kWh 0

Measured Usage
Meter: 12/11-01/11
CyOvr Prev Yr 4085
Total kWh Del 2647
Total kWh Rec 623
Total kWh 0
CyOvr Cur Yr 0
Demand 12.00

Usage History

Mo	Yr	kWh
Jan	22	2816
Feb	22	3406
Mar	22	1450
Apr	22	77
May	22	0
Jun	22	0
Jul	22	0
Aug	22	0
Sep	22	0
Oct	22	0
Nov	22	0
Dec	22	0
Jan	23	0



Explanation of Bill Detail

Customer Service 1-866-DOM-HELP (1-866-366-4357)

Previous Balance 13.07
Payment Received 13.07CR
Balance Forward 0.00

Non-Residential (Schedule GS-1) 12/11-01/11
Distribution Service
Basic Customer Charge 10.78

STAUNTON Utility Tax 2.29
Rider VCR 2023 Credit 1.56CR
Total Current Charges 11.51

Total Account Balance 11.51



A penny saved is BETTER than a penny earned!

Roof Considerations

Age

Roof Type

Orientation



Carports and Ground Mounts

Ground Mounts

Takes up real estate
Maximum production



Carports

More expensive due to structure
Dual use - shade + power



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



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

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
ITC	ITC	\$300,000									
	Bonus depreciation	\$340,000									
	5-year MACRS	\$102,000	\$163,200	\$97,920	\$58,752	\$58,752	\$29,376				
	Net impact of depreciation deductions	\$92,820	\$34,272	\$20,563	\$12,338	\$12,338	\$6,169				
	Total Tax Benefits	\$392,820	\$34,272	\$20,563	\$12,338	\$12,338	\$6,169	\$0	\$0	\$0	\$0
PTC	Electricity generation (kWh) ^a	876,000	871,620	867,262	862,926	858,611	854,318	850,046	845,796	841,567	837,359
	PTC ^b	\$24,090	\$24,569	\$25,057	\$25,555	\$26,063	\$26,581	\$27,109	\$27,648	\$28,198	\$28,758
	Bonus depreciation	\$400,000									
	5-year MACRS	\$120,000	\$192,000	\$115,200	\$69,120	\$69,120	\$34,560				
	Net impact of depreciation deductions	\$109,200	\$40,320	\$24,192	\$14,515	\$14,515	\$7,258				
	Total Tax Benefits	\$133,290	\$64,889	\$49,249	\$40,070	\$40,578	\$33,839	\$27,109	\$27,648	\$28,198	\$28,758

a Assumes PV system performance degrades 0.5% per year.

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

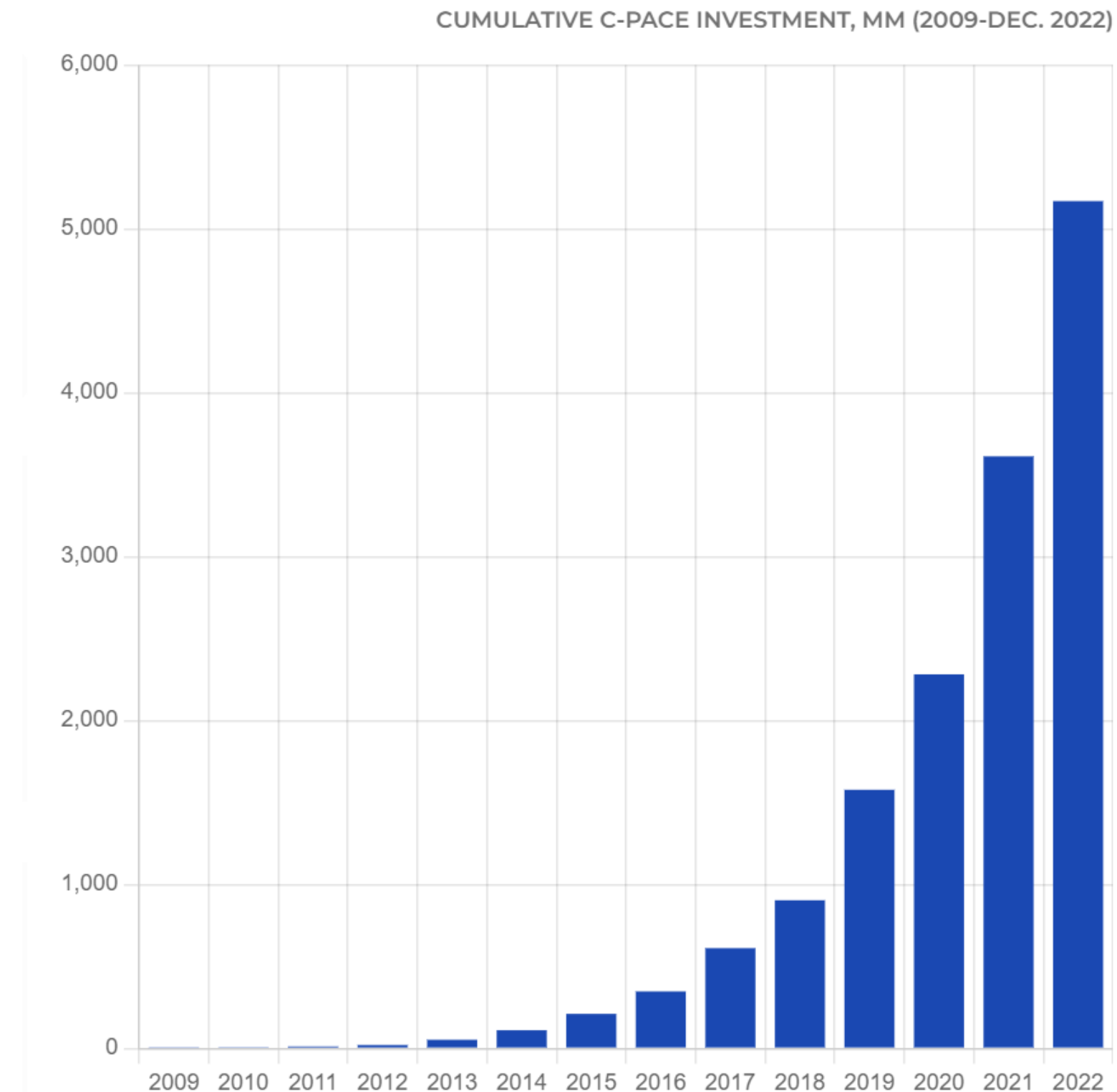
Other Unique Solar Financing

Commercial Property-Assessed Clean Energy (C-SPACE)

- 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

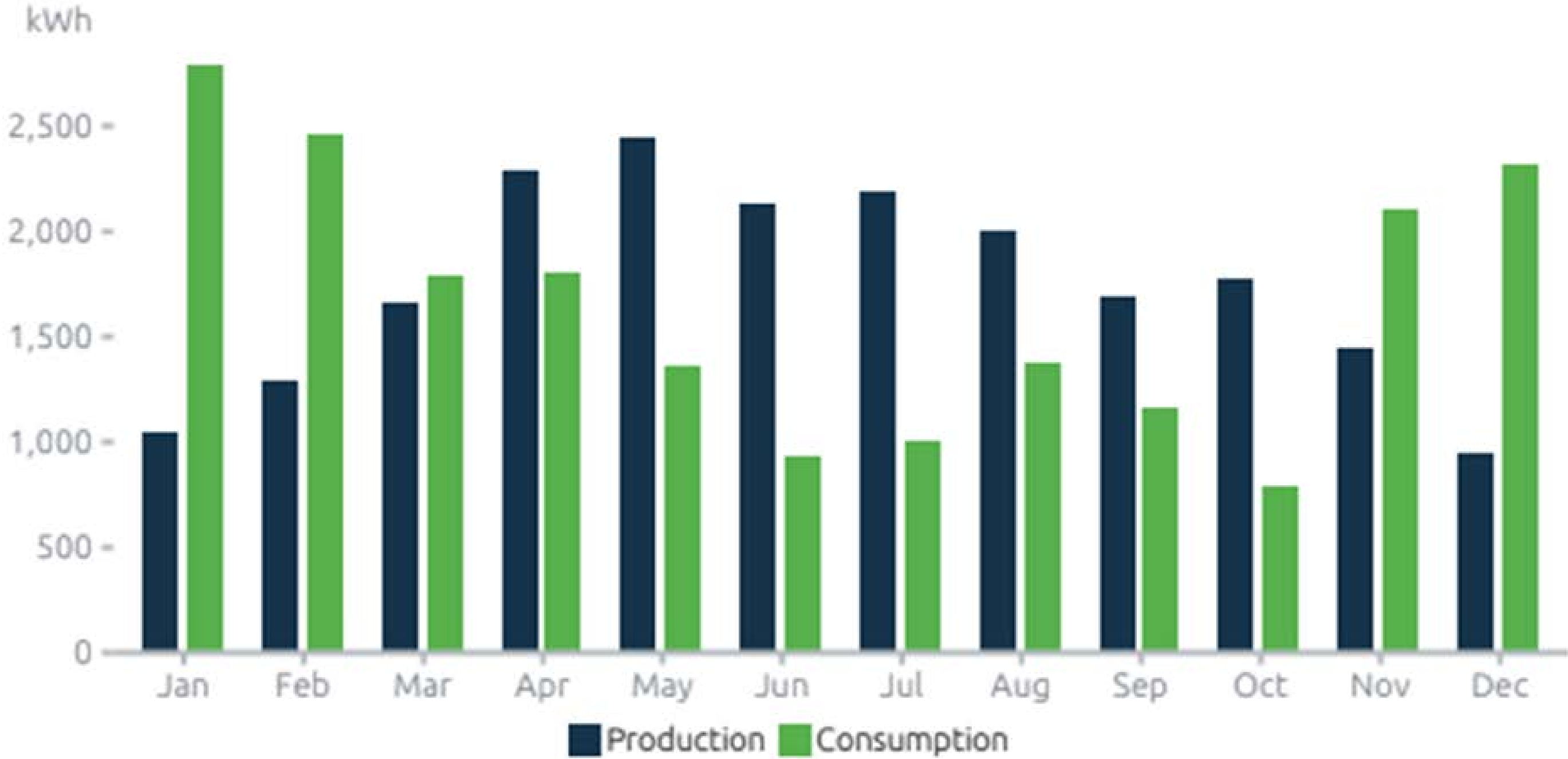
Net Metering (Dominion)

Requires dedicated ag-use meter

Literally nets in real time

Cannot become a generator

Production and Consumption











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"?

Explanation of Bill Detail

Customer Service		1-866-DOM-HELP (1-866-366-4357)
Previous Balance	6.81CR	
Payment Received	0.00	
Balance Forward		6.81CR
<i>Non-Residential (Schedule GS-1)</i>		<i>04/22-05/23</i>
Distribution Service		
Basic Customer Charge		10.78
FAUQUIER Utility Tax		1.08
Rider TRCR Credit		20.58CR
Rider VCR 2022 Credit		1.10CR
Total Current Charges		9.82CR
Total Account Balance		16.63CR

View payment options, request service changes and enroll in eBill at www.dominionenergy.com, search: Manage Your Account

SRECs

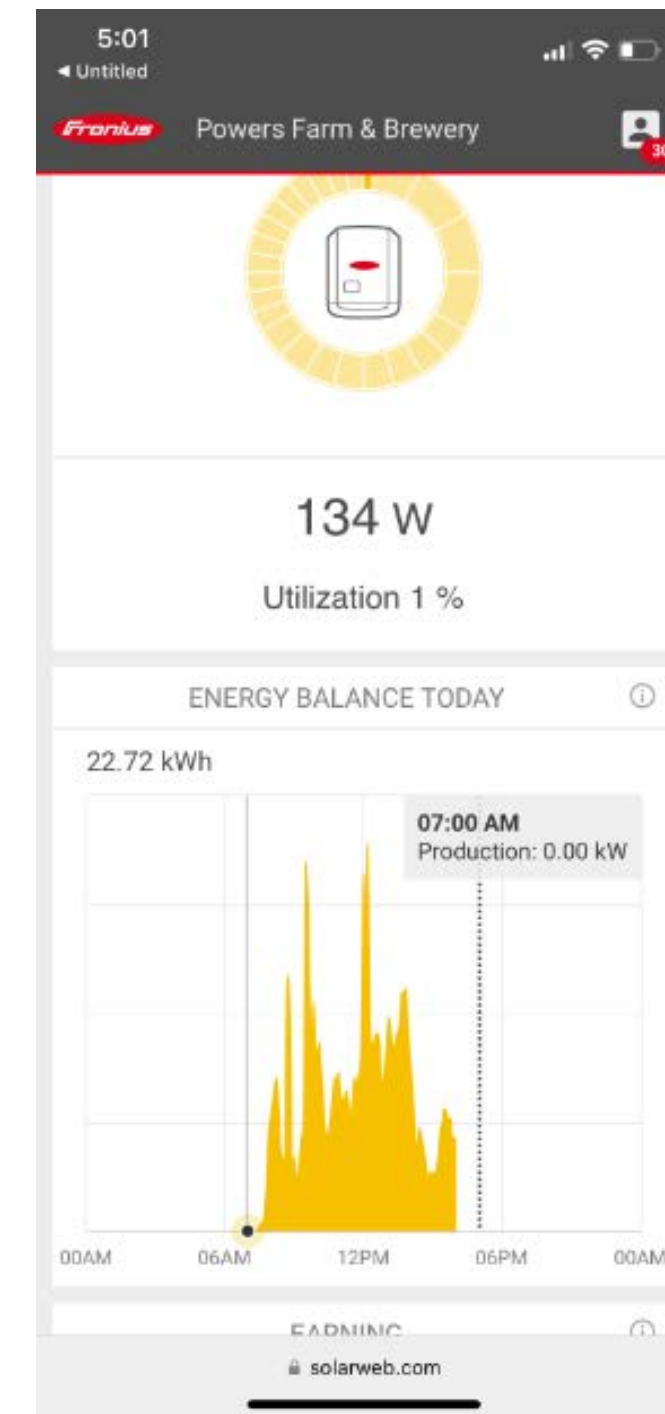
Solar Renewable Energy Certificates

- 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

Option	Price
Mint & Sell (spot market)*	2022 – \$45.00 (high: \$69.50, low: \$45.00) 2023 – \$55.00 (trending down off of \$60)
3-Year (2023-2025)	\$41.00 (12-months paid in first payment,
5-Year (2023-2027)	\$36.00 (12-months paid in first payment
15-Year Upfront	\$155 per kW DC

Monitoring





Questions?



Make Your Own Impact

JUNE MEET UP!

THURSDAY, JUNE 22
5-6:30 PM

Kardinal Hall

Free appetizers
Beer on tap
Community conversations
Good times!



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!