AGENDA
GREENHOUSE GAS WORKING GROUP
October 26, 2023
3:00 P.M.
Village Hall, 850 Waukegan Road
Deerfield, IL 60015
Community Conference Room 206

1. Call to Order

2. Roll Call

3. Discussion and Review of 2021 GHG Baseline

4. Discussion of Energy (Electricity)
    - Residential Analysis / Feasibility Assessment
    - Review 'Big Idea' Concepts

5. Other Items for Discussion
    - DHS Solar Install

6. Approval of September 28, 2023 meeting minutes

7. Adjournment

GHG REDUCTION WORKING GROUP

OCTOBER 26, 2023

VILLAGE OF DEERFIELD

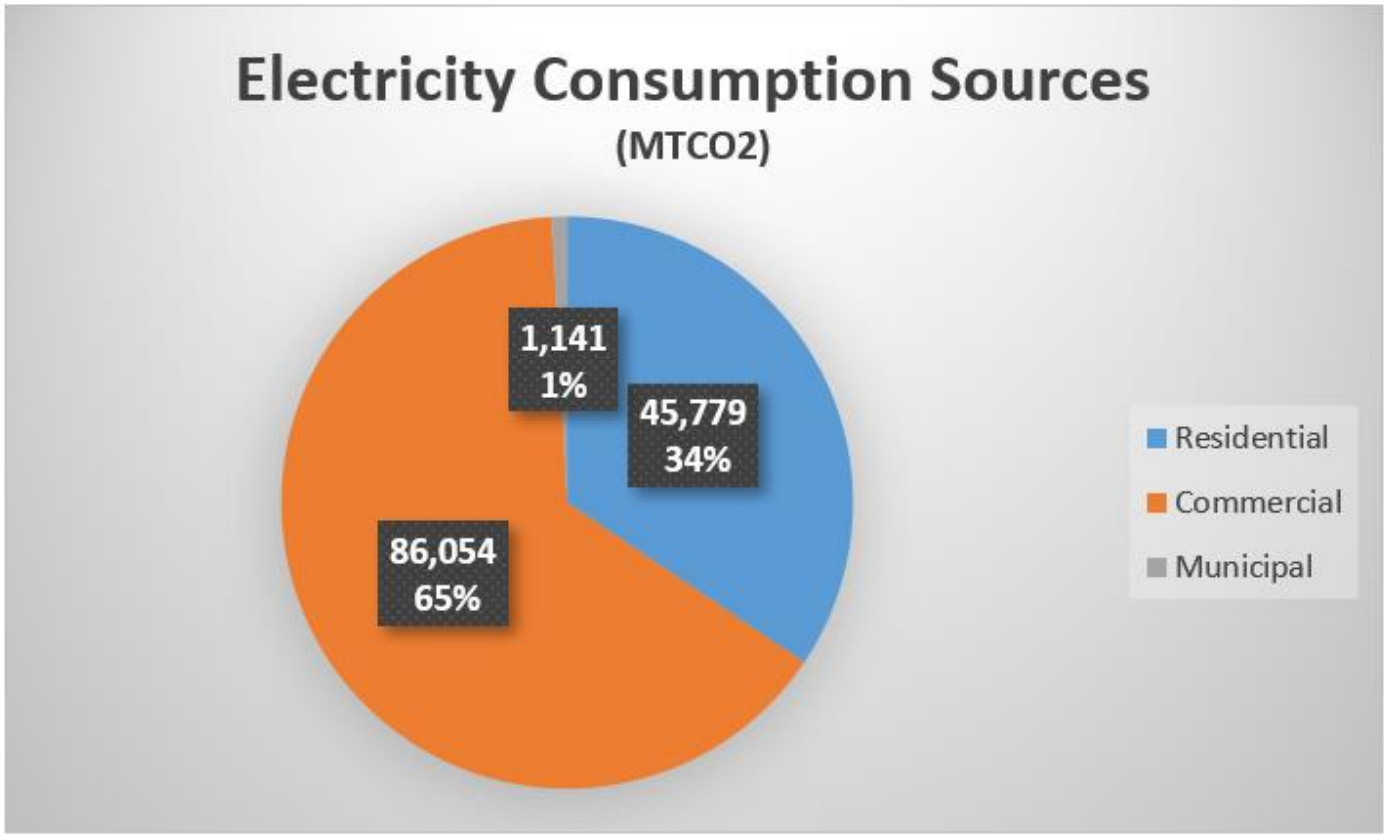
2017-2021 MTCO2 COMPARISON

Source	MTCO2 2017	Percent	MTCO2 2021	Percent		
Scope 1 (In Boundary)					DELTA #	% CHANGE
Natural Gas	60,185	14%	61,325	15%	1,140	2%
Transportation	45,750	11%	48,945	12%	3,195	7%
Scope 2 (Out of Boundary)						
Electricity	150,913	35%	131,833	33%	-19,080	-13%
Municipal Energy	2,184	1%	1,141	0.3%	-1,043	-48%
Scope 3 (Purchases: Goods & Services)						
Goods/Services*	116,000	27%	106,887	26%	-9,113	-8%
Food	42,185	10%	45,747	11%	(3,562)	8%
Waste	11,581	3%	9,284	2%	-2,297	-20%
TOTALS:	**428,798**	**101%**	**405,162**	**100%**	**23,636**	**-6%**

OBJECTIVES

- Understand Electricity Footprint Challenges
  - ➢ Analysis of Residential, Commercial and Municipal

- Agree on priority ideas and next steps
  - Review ‘Big Idea’ Concepts



Sector	kWh	MTCO2	%
Residential	81,209,442	45,779	34%
Commercial	152,653,339	86,054	65%
Municipal	2,024,883	1,141	1%
Total	235,887,664	132,974	

Residential Context

- Residential Target: 49,537,760 KWh
  End Of 2023 Offset Achieved: **2,169,200** KWh (4.38%)
  Balance of **47,368,560** KWh to find over 7 years

- Single residence contribution from each solar option:
  Community Solar: 6,375 KWh annually
  Lease Solar: 7,225 KWh annually
  Install Solar: 14,875 KWh annually

	End of 2023		
	#	%	KWh
Community Solar:	128	58.18%	979,200
Lease:	28	12.73%	238,000
Install/Own:	64	29.09%	952,000
Total:	220		2,169,200
Delta from target:			47,368,560
			4.38%

Note: Assumes 70/30 split on install v. lease.
Assumes 115% capacity on community solar, 125% capacity on lease, and 130% on install.

	End of 2023		
	#	%	KWh
Community Solar:	128	58.18%	979,200
Lease:	28	12.73%	238,000
Install/Own:	64	29.09%	952,000
Total:	220		2,169,200
Delta from target:			47,368,560
			4.38%

Option 1: Residential Opt-in/100%

- Solar “opt-in” adoption/100% of target:

	End of 2030: Custom					Yearly Additions		Yearly Savings	Viable Months	Monthly Additions	Current Monthly Rate	Delta
	# homes	KWh	%	New Homes	%	# homes	Additional KWh					
Community Solar:	5,750	43,987,500	89.84%	5,622	90.97%	803.14	6,144,043	$ 29,061.15	12	66.93	2.00	(64.93)
Lease:	500	4,250,000	7.81%	472	7.64%	67.43	515,829		7	9.63	0.86	(8.78)
Install/Own:	150	2,231,250	2.34%	86	1.39%	12.29	93,986		7	1.76	2.00	0.24
Total:	6,400	50,468,750		6,180		883	6,753,857					
Delta from target:	923	(930,990)										
	87.40%	101.88%				12.06%	13.63%					

- Requirements:
  - Massive increase in voluntary Community Solar adoption
  - 3x-4x increase in number of Solar permits/local install as compared in 2023 (best year)

- Questions/Reflections:
  - Are there ~650 (7.5% of all residences) viable new solar installs in DF?
  - Likelihood of increasing Community Solar adoptions from 1-2/month to ~65/month?
  - Can MC Squared handle ~65 new Community Solar adoptions every month for 84 months?

	End of 2023		
	#	%	KWh
Community Solar:	128	58.18%	979,200
Lease:	28	12.73%	238,000
Install/Own:	64	29.09%	952,000
Total:	220		2,169,200
Delta from target:			47,368,560
			4.38%

Option 2: Residential Opt-in/50%

- Solar "opt-in" adoption/50% of target:

	End of 2030: 50% of Target					Yearly Additions		Yearly Savings	Viable Months	Monthly Additions	Current Monthly Rate	Delta
	# homes	KWh	%	New Homes	%	# homes	Additional KWh					
Community Solar:	3,000	22,950,000	94.19%	2,872	96.86%	410.29	3,138,686	$ 14,845.89	12	34.19	2.00	(32.19)
Lease:	70	595,000	2.20%	42	1.42%	6.00	45,900		7	0.86	0.86	-
Install/Own:	115	1,710,625	3.61%	51	1.72%	7.29	55,736		7	1.04	2.00	0.96
Total:	3,185	25,255,625		2,965		424	3,240,321					
Delta from target:	4,138	(486,745)										
	43.49%	101.97%				5.78%	6.54%					

- Requirements:
  - Significant increase in voluntary Community Solar adoption
  - Maintain 2023 rate of Solar permits/local installs
- Questions/Reflections:
  - Are there ~90-95 (1.3% of all residences) viable **new** solar installs in DF?
  - Likelihood of increasing Community Solar adoptions from 1-2/month to ~32/month?
  - Can MC Squared handle ~32 new Community Solar adoptions every month for 84 months?
  - What options exist to find remaining ~20,000,000KWh?

	End of 2023		
	#	%	KWh
Community Solar:	128	58.18%	979,200
Lease:	28	12.73%	238,000
Install/Own:	64	29.09%	952,000
Total:	220		2,169,200
Delta from target:			47,368,560
			4.38%

Option 3: Change In State-Law "Opt-Out"

- Solar ~85% enrolment/100% of target:

	End of 2030: 85% Community Solar					Yearly Additions		Yearly Savings	Viable Months	Monthly Additions	Current Monthly Rate	Delta
	# homes	KWh	%	New Homes	%	# homes	Additional KWh					
Community Solar:	6,150	47,047,500	98.53%	6,022	100.00%	860.29	6,581,186	$ 31,128.82	12	71.69	2.00	(69.69)
Lease:	28	238,000	0.45%	-	0.00%	-	-		7	-	0.86	0.86
Install/Own:	64	952,000	1.03%	-	0.00%	-	-		7	-	2.00	2.00
Total:	6,242	48,237,500		6,022		860	6,581,186					
Delta from target:	1,081	(23,468,620)										
	85.24%	97.38%				11.75%	13.29%					

- Requirements:
  - Authority to conduct an 'opt-out' village-wide Community Solar program
  - Minimal install (not required due to Community Solar generation)
- Questions/Reflections:
  - What is legal path to achieve opt-out authority?
  - Will Trustees support the path to achieve authority?
  - Can MC Squared/Other establish a generation capacity over 7 years to meet this demand?
  - What additional negotiation leverage does this option bring? Better pricing? Commercial assistance?

Commercial/Municipal

- Commercial is 65% of total footprint
- Municipal is 1% of total footprint
- Can commercial and municipal sectors over-achieve?
- What's a realistic contribution?
- Can they over-achieve? What's a realistic contribution?
  - Example: Village analysis of PW and WRF achieved 600,000 kWh annually
  - Example: DHS Solar proposal achieves 1,821,000 kWh annually (400,000 sq. ft. rooftop)

Big Idea Concepts (reference memo)

- Opt-Out Community Solar
  - *Analysis: Timeframe (Long); Price (Reduction); Volume (Significant)*
- Community Driven Community Solar
  - *Analysis: Timeframe (Medium); Price (Reduction); Volume (Insignificant)*
- Opt-In Community Solar
  - *Analysis: Timeframe (Now); Price (Reduction); Volume (Insignificant)*
- Group Purchase: Rooftop Solar
  - *Analysis: Timeframe (Medium); Price (Reduction); Volume (Insignificant)*
- Adjust Municipal Electric Aggregation Supply Contracts
  - *Analysis: Timeframe (Long); Price (Increase); Volume (Significant)*
- Green Broker (commercial sector only)
  - *Analysis: Timeframe (Medium); Price (Neutral); Volume (Significant)*

Questions/Discussion/Next Steps?

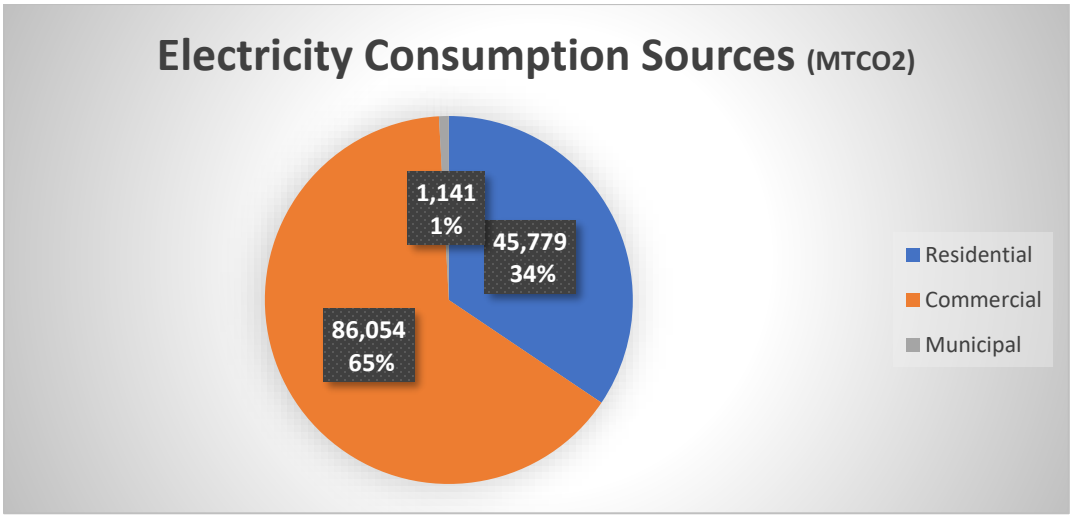
ELECTRICITY

'Big Idea' Concepts for the Focus Area: Energy

INTRODUCTION

The following are 'Big Idea' approaches to solve for a net-zero electricity footprint. The concepts offered below are an alternative to the electricity utility tax proposal described in the 2022 Climate Action Report. The concepts are tactics that could be implemented over the next 7 years in order to avoid the electric utility tax proposal. The tax could still be valuable as a 'last resort'. Staff suggests a portfolio approach that implements some or all of the following concepts. Each concept could be best analyzed by assessing its timeline, price, and volume (i.e. impact on MTCO2 reduction).

The 2022 electricity footprint totals 132,974 MTCO2 and comes from the following sources:



CONCEPTS

'OPT-OUT' COMMUNITY SOLAR

A change in State law is required in order for municipalities to implement an 'Opt-Out' Community Solar program. The new law would need to direct the Illinois Power Agency to drop the rule that every subscription needs to be signed by the consumer directly. Draft language is being proposed for the Spring legislative session. Municipalities should prepare letters of support to advance this legislative action. Perhaps regional councils of government, such as the Metropolitan Mayor's Caucus, are best suited to lead a broad effort. Notably, a local referendum is not a viable option to circumvent the current state law. If the law was change to allow for an 'Opt-Out' format, municipalities could achieve bulk enrollment by entering into new supply contracts. It is expected that this would result in a 90% participation rate immediately following the execution of a contract.

Analysis: Timeframe (Long) Price (Reduction) Volume (Significant)

'COMMUNITY DRIVEN' COMMUNITY SOLAR (within municipal boundaries) – The municipality can work to identify space for common solar installations such as large rooftops, parking lots, etc. The municipality would sub-lease this space long term to a developer. The developer could build, operate,

and manage tax incentives and the municipality would help the developer identify the subscribers. The State has capacity and (private) incentives available for these types of developments. The State's goal for the program is to get more community solar installations closer to the people it serves. A restriction of this program is that the community solar site must be located in the same county as the subscribers. A quick analysis reveals that a 100,00 sq. ft. rooftop may be able to produce 469,00 kWh annually. This is equal to serving 43 households annually (based on average annual residential household usage of 11,000 kWh).

Analysis: Timeframe (Medium) Price (Reduction) Volume (Insignificant)

'OPT-IN' COMMUNITY SOLAR (outside municipal boundaries – status quo)
This program currently exists and is an alternative to installing solar panels directly on an individual's property. The community solar farm can be located anywhere in the state of Illinois. Maximum capacity for a single site is restricted to 5 MW, which is equivalent to serving about 800 households. The incumbent program participants receive a 20% credit on the supply portion of their bill. New subscribers receive a 10% credit. 'Community Driven' Community Solar, discussed above, actually has better incentives for the developer if sites can be identified within the community.

Analysis: Timeframe (Available Now) Price (Reduction) Volume (Insignificant)

GROUP PURCHASE: ROOFTOP SOLAR INSTALLS
The municipality could issue a request for proposals with a declining price scale to identify a qualified rooftop solar installer and achieve economies of scale. The municipality would bring value by helping residents vet the installer. Additionally, through a declining price scale, the municipality would seek price reductions as more customers signed into contracts. For example, an installer would charge $X for the first 10 installs and $X-10% for the next 10 installs; and, $X-20% after 20 installs, etc.

Analysis: Timeframe (Medium) Price (Reduction) Volume (Insignificant)

ADJUST MUNICIPAL ELECTRIC AGGREGATION SUPPLY CONTRACT
The municipality could revise the current electricity aggregation supply contract to change the goals of the program. Currently, the program offers customers a 'ComEd price-match' and the municipality receives a $60,000 grant for the purposes of advancing sustainable initiatives. The energy supply is currently sourced through 'traditional' means and purchased from the supply grid through NIMEC. The program could be amended to require the purchase of 50% 'renewable energy', for example, rather than from the standard supply grid portfolio.

The municipality would need to find renewable supply by contracting with a large wind or solar farm directly. The municipality would purchase the supply from the renewable farm and then immediately assign it to our contracted supplier (i.e. MC Squared or others). The supplier would charge the customers for the price of the electricity accordingly; and, the municipality would keep the credit for the RECs that occurred from that transaction. In other words, the municipality would dictate to the supplier that the municipality is going to purchase 10-50% of the energy supply from this renewable source rather than from the grid and we get the credit for those RECs. In all likelihood this would eliminate the 'price-match' aspects of the current program (and cost residents more) but we could negotiate safeguards such as a price that never exceeds 10% of the ComEd default rate, so that place a limit on

price fluctuations. This would likely require a long-term deal with both the renewable wind/solar farm and the supplier (i.e. nothing less than five years).

Analysis: Timeframe (Long) Price (Increase) Volume (Significant)

GREEN BROKER (commercial sector only)

Note that the programs discussed above apply to residential and small business customers (i.e. less than 15 kWh annually) and are not applicable to most of the commercial sector. To offer a renewable electricity option to the commercial sector the municipality could hire a certified State of Illinois 'Green Broker'. The broker would be hired to establish and procure green energy pricing. The broker and municipality would create a website and conduct marketing to the commercial sector of the community. The website would be a portal for businesses to directly purchase green power supply.

The program would offer two benefits:

First, since the broker is hired by the municipality there would be no broker margin paid by the businesses when they make the green supply purchase. Many commercial businesses purchase RECs or green supply contracts through brokers currently, but the Village is unaware of the transaction taking place. Notably, a broker margin is often in the range of $5-9 per MWh. If the program is done right, it could result in businesses paying $5 per MWh for the green supply, but again there is no broker margin. In other words, businesses would achieve the lowest cost 'green supply contract' that they have ever seen and it may be comparable to the price of a traditional supply contract that would otherwise not include a green benefit.

Second, the municipality would be privy to the transaction and we could account for commercial sector REC purchases within our community. This approach requires a large degree of outreach and education.

Analysis: Timeframe (Medium) Price (Neutral) Volume (Significant)

CONCLUSION

The concepts described here are intended to advance discussion, analysis and debate at upcoming GHG Reduction Working Group meetings. These are alternative concepts to the electric utility tax proposal earmarked for RECs purchases that is already described in detail in the 2022 Climate Action Report. The concepts each have tradeoffs and benefits and this document is intended to help facilitate discussion and help the group decide on the best balance of the portfolio approach in order to achieve a net-zero electricity footprint by 2030.

Greenhouse Gas Reduction Ad Hoc Working Group
Meeting Minutes
September 28, 2023

A meeting of the Greenhouse Gas Reduction Ad Hoc Working Group was held on Wednesday, September 28, 2023 at 3:00 pm at Village Hall. Chairperson Mary Oppenheim called the meeting to order at 3:00 pm.

Present:
Trustee Mary Oppenheim, Chairperson
Camilla Dadey, Go Green Deerfield
Victoria Street, Executive Director, DBR Chamber of Commerce
Art Wilde, Go Green Deerfield

Absent:
Don Anderson, Sustainability Commission Chairperson
Elaine Jacoby, Village Trustee (arrived 3:08 pm)
Bill Mertes, Sustainability Commission

Also present:
Andrew Lichterman, Assistant Village Manager/Director of Community Development
Justin Keenan, Assistant to the Village Manager
Bob Phillips, Director of Public Works and Engineering
Dan Nakahara, Planner
Jessica Sciarretta, Administrative Intern

Public Comment

Andrew Worley complimented the group on the 2022 Climate Action Report and noted that he is an interested resident and willing to help. He has recently met with staff and is interested in learning more about the Group's work.

Business

1. Discussion and Review of 2021 GHG Baseline
Chairperson Oppenheim welcomed everyone and asked staff to review updates since the Group last met. Mr. Lichterman reviewed the March 1, 2023 staff memorandum to the Village Board, which summarized greenhouse gas reduction actions since the Climate Action Report ("Report") was approved. The summary included action items for several focus area of the Report including:
Energy

- Purchased 23,530,000 kWh's of Renewable Energy Credits
- Promoted Community Solar program and secured 114 subscribers or 782 kW of subscriptions
- Pursued Solsmart "Gold" designation
- Reduced base permit fees for solar panel installations

- Converted LED lights equal to reducing 25,560 kWh/year
- Participated in the Illinois Solar Tour
- Promoted ComEd Home Energy Assessments

Transportation

- Installed 5 EV charging stations
- Completed an Electric Fleet and Infrastructure Assessment
- Participated in Leaf Blower Committee

Waste

- Promoted compost education including giving away 6,000+ compost starter toolkits, providing composting services at several special events and consulting with District 109 schools.

Ecosystem

- Amended the Village's tree preservation ordinance
- Conducted a public tree survey
- Hosted tree education and water conservation programs
- Converted four acres of turf grass to native pollinator gardens
- Adopted the 2021 Illinois Energy Conservation Code

The Group reviewed the 2021 baseline data compared to 2017. It was noted the preliminary numbers indicate a 6% reduction over the 4 year period. The focus areas of electricity and waste has notable MTCO2 reductions, even though the Village's population increased. Electricity was reduced by 13%. The residential and commercial waste diversion rates increased 4% and 3%, to 37% and 15%, respectively. The potential impacts of COVID-19 and implementation of year-round curbside composting were discussed.

Staff was asked to review the baseline to incorporate compost and recycling MTCO2 sinking equivalents. Staff noted they will also review the impact of remote work on transportation.

2. Discussion and Review of 2021 GHG Baseline

The Group discussed the significance of electricity consumption on the carbon footprint and the challenges with the scale of the problem. It was noted that substantial action is need on the part of both residents and businesses. It was agreed that the current residential program offerings such as Community Solar and rooftop solar installations are beneficial but not easily scalable. Ms. Street noted the challenges with the business community are different and that landlord-tenant interest are not always aligned.

The Group agreed to further analyze electricity program offering and solutions at the next meeting. Staff will work with Mr. Worley to prepare slide demonstrating the practical challenges and possible paths forward to address the residential sector. Ms. Street noted that she could try and help identify a "green" leader in the business community and would consider a "green"

column in an upcoming newsletter. The Group would like to find renewable energy case studies for both the residential and commercial sector.

Adjournment

There being no further business or discussion, Commissioner Wilde moved to adjourn the meeting. Commissioner Dadey seconded the motion. The motion passed unanimously and the meeting was adjourned at 4:36 pm.

Respectfully submitted,

Andrew S. Lichterman
Assistant Village Manager / Dir. of Community Development