



Renewable Energy Action Plan

Oxford County Council Presentation

2022-08-10

Agenda

- Purpose of the REAP
- Goals & Objectives
- Existing Solar Portfolio
- Development Approach
- Technologies
- Implementation & Outcomes
- Financial Impact
- Questions

Purpose of the REAP

- Focus on municipal renewable energy generation and energy conversion
- Identification of projects that jointly increase the County's generation portfolio, as well as reduce GHG emissions through use of alternate energy sources
- 10-year planning horizon for capital planning purposes
 - >\$1M target for annual spend to align with past years
 - >Refresh to take into consideration emerging technologies that may not be viable today

Purpose of the REAP



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- Complimentary to the County's *Green Fleet Plan* and *Energy Management Plan* to progress the County organization's contribution to the Community 100% RE goals

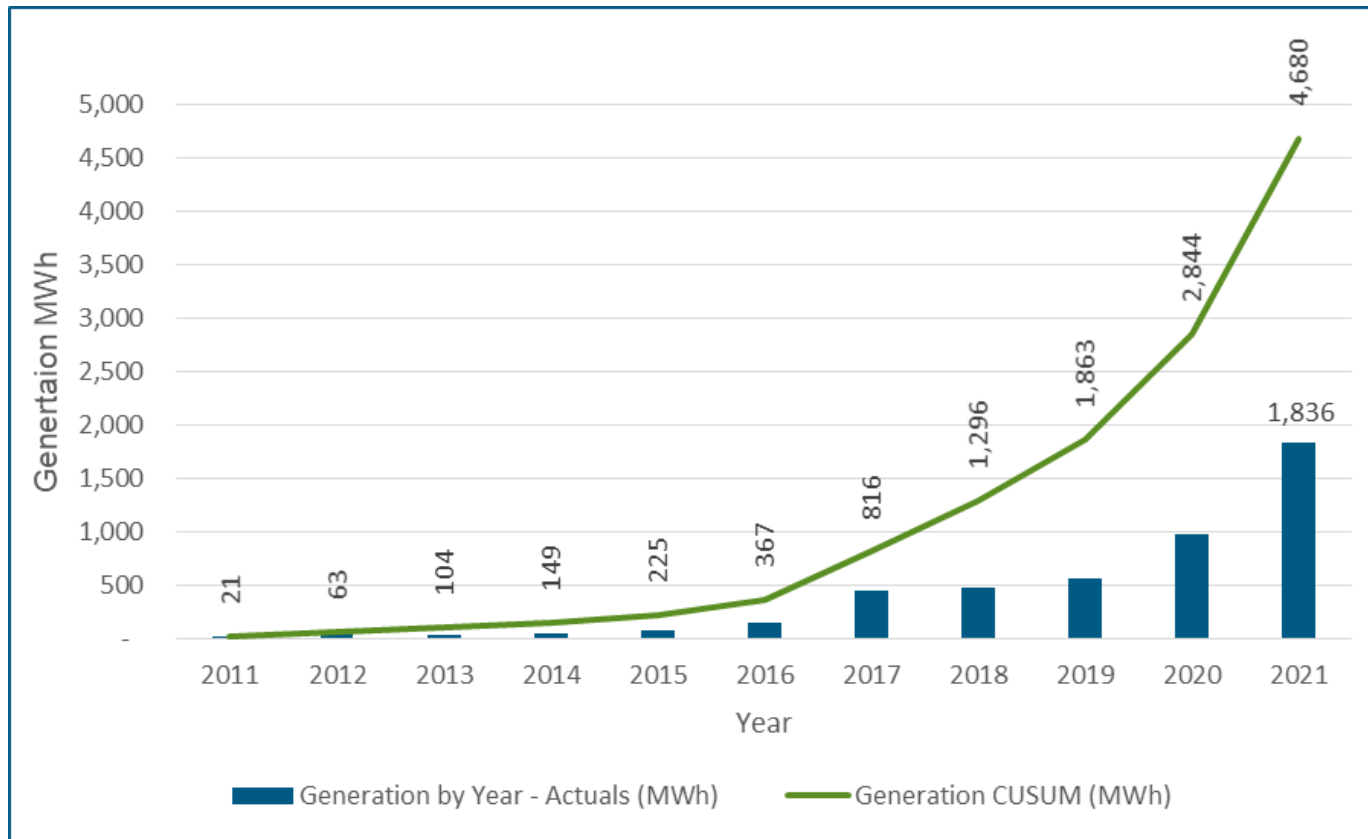
Goals & Objectives

- Alignment with the targets set out in the 100% RE Plan

Year	Total Reduction of GHG Emissions	Renewable Energy Mix Target	Renewable Energy Purchased Mix Target
2015	-	-	5.5%
2020	3.2%	5.3%	6.1%
2025	14.1%	11.7%	7.3%
2030	25.0%	19.5%	15.6%
2035	36.0%	29.1%	10.4%
2040	46.9%	41.4%	12.7%
2045	57.8%	57.8%	15.6%
2050	68.7%	80.3%	19.7%

Existing Solar Portfolio

- 18 solar PV sites currently in place, 3 more coming online in 2022



Development of REAP

- Engaged two consultants to complete site screening for project potential
 - > One focused on solar PV to progress the existing portfolio
 - > Second focused on other RE systems not as familiar to the County
- 14 different technology configurations were reviewed and assigned a score based on performance, cost and ability to implement
- Approximately 100 different systems were identified across 40+ sites

Development of REAP

- Council-approved evaluation was completed with 10 weighted criteria, which helped to balance performance with costs
- Projects were selected and prioritized in a manner to balance the following items:
 - > Maintain annual investment of \$1M to align with past commitments
 - > Explore, test and implement new technologies not familiar to the County
 - > Continue growth of the existing solar PV portfolio
- Plan includes total of 23 projects implemented over 10 years

REAP: Preferred Technologies

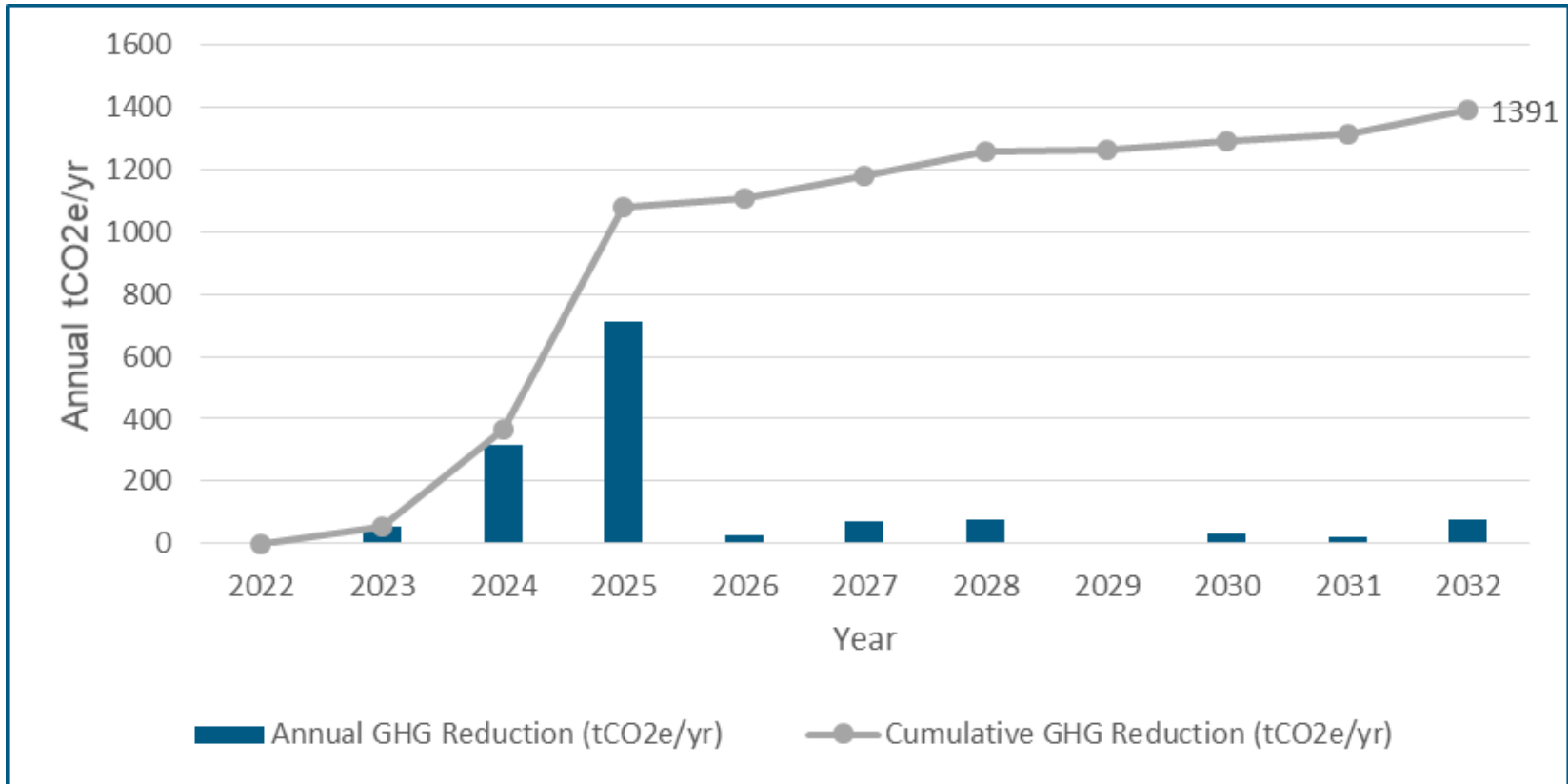
1. Solar PV (rooftop)
2. Solar PV (ground mount)
3. Solar PV (parking lot canopy)
4. Solar Thermal for Domestic Hot Water
5. Solar Thermal for Ventilation Air
6. Geothermal Heat Pumps for Space Heating and Cooling
7. Air Source Heat Pumps for Space Heating and Cooling
8. Air Source Heat Pumps for Domestic Hot Water
9. Rooftop Units with Heat Pumps
10. Wind
11. Biogas
12. Wood Pellet Boiler
13. Waste Heat Recovery
14. Small Hydro

REAP Implementation Outcomes (10 year)

Project	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
364 Athlone Solar PV											
Thamesford WWTP Solar PV											
WDSK Biogas Utilization											
OCWFM Flare Preliminary Energy Study											
59 George Johnson Wood Pellet Boilers											
135 Carroll Solar PV											
300 Juliana GSHP*											
WDSK Patrol Wood Pellet Boilers											
Highland Patrol Solar PV											
16 George Solar PV											
415 Hunter GSHP											
410 Buller GSHP											
Ingersoll WWTP Heat Recovery											
82 Finkle Solar PV											
Springford Solar PV											
Woodstock Patrol Solar PV											
Drumbo Patrol Solar PV											
Springford Wood Pellet Boiler											
742 Pavey Solar PV											
377 Mill Street ASHP											
70 Maria Solar PV											
221 Thames Solar PV											
742 Pavey Wood Pellet Boilers											
Annual Budget (Million)	\$0.14	\$0.90	\$1.32	\$7.42	\$0.97	\$1.83	\$1.59	\$0.71	\$0.86	\$0.90	\$0.66

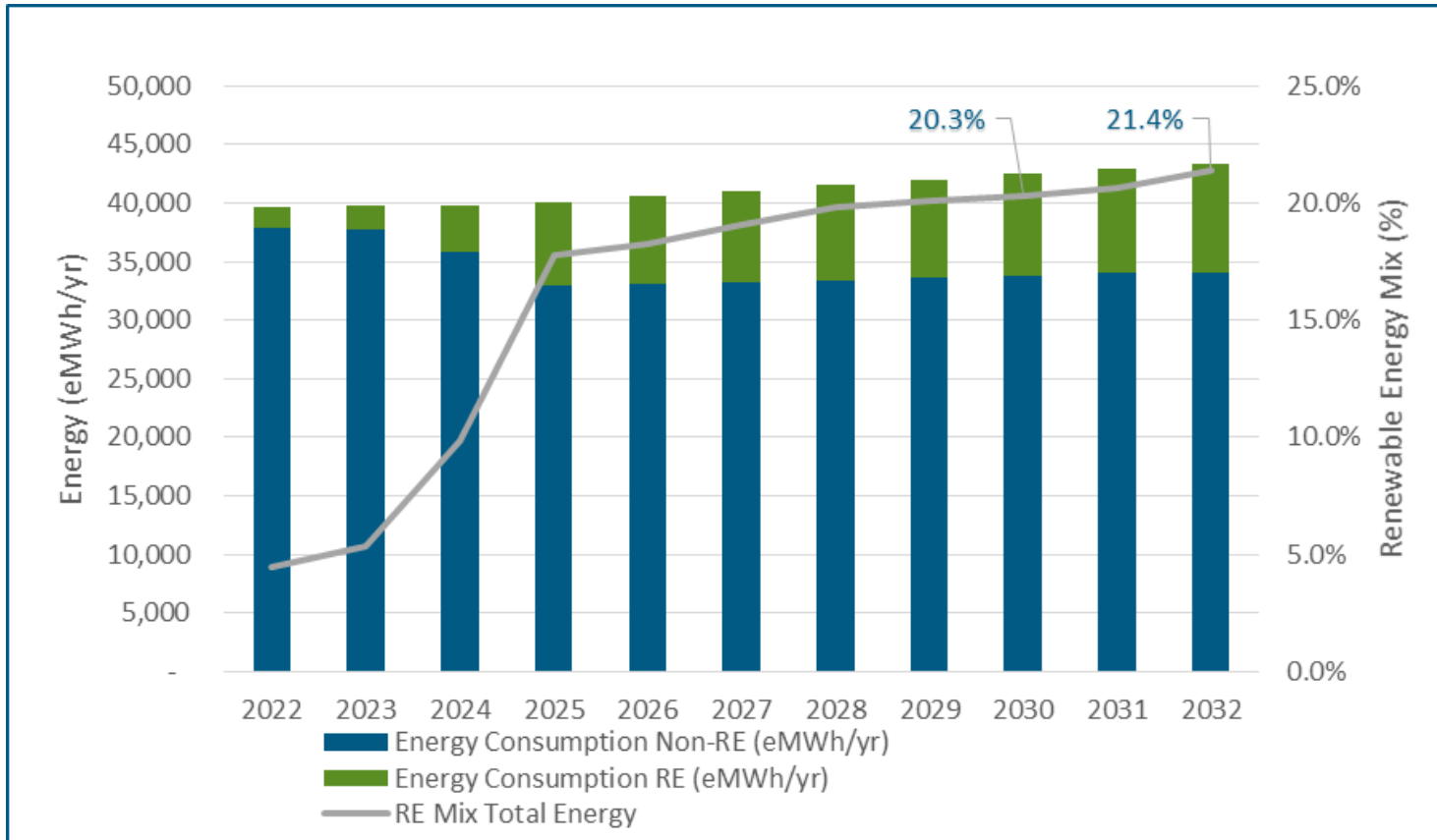
REAP Implementation Outcomes (10 year)

- Projected GHG reduction of 34.4% (2030 goal of 25%)



REAP Implementation Outcomes (10 year)

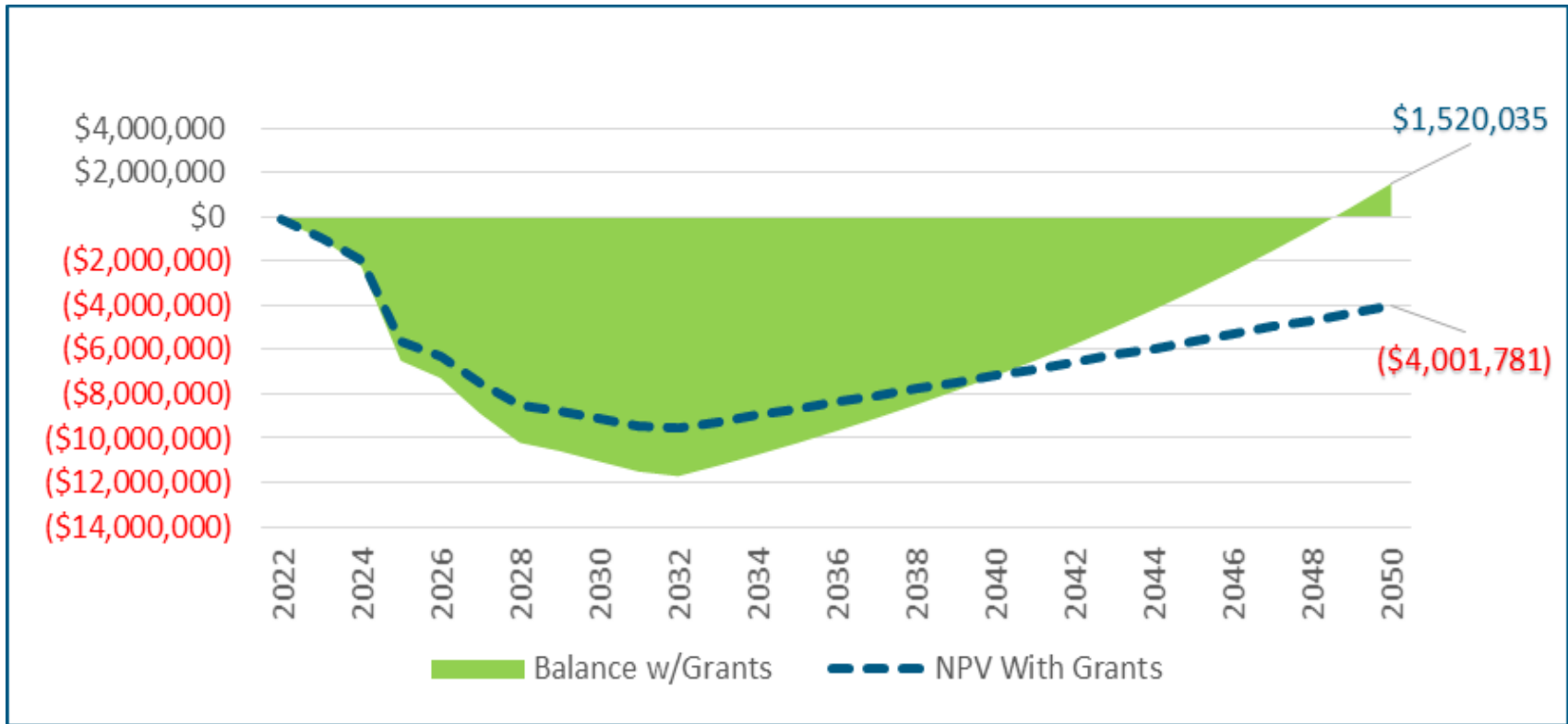
- Projected RE mix of 21.4% (2030 goal of 19.5%)



REAP Financial Impact (10 year)

Year	Capital Cost (PV)	Capital Cost (FV)	Operational Impact (FV)
2022	\$135,000	\$135,000	\$0
2023	\$899,300	\$899,300	(\$45,052)
2024	\$1,289,500	\$1,315,290	(\$77,853)
2025	\$7,127,500	\$7,415,451	(\$154,523)
2026	\$913,100	\$968,989	(\$188,449)
2027	\$1,690,000	\$1,829,310	(\$227,844)
2028	\$1,440,000	\$1,589,876	(\$271,969)
2029	\$630,100	\$709,595	(\$337,354)
2030	\$748,800	\$860,136	(\$389,078)
2031	\$765,000	\$896,319	(\$430,611)
2032	\$550,000	\$657,301	(\$451,086)
Total	\$16,188,300	\$17,276,567	(\$2,573,818)

Financial Impact



Project Financial Review

135 Carroll Solar PV	
Implementation	2023/2024
Capital Cost Estimate	\$144,440 (\$142,000 PV)
GHG Reduction	1.9 tCO2e/yr
Renewable Energy Utilized	61.9 MWh/yr
Equity Payback	15 Years
30 Year NPV/ MIRR	\$45,000 / 5.4%

Future Outlook

- This plan sets concrete objectives and puts the County organization on track to achieve its portion of the 100% RE goals
- More work will be needed in future iterations to continue to move both the organization and community towards the 2050 targets
- Look for opportunities to influence regulatory constraints (ie. Virtual Net-Metering, third party generation agreements, etc.)
- Energy reporting and progress will be presented to Council in Q1 2023

Questions