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SUCCESS IN THE FACE OF ADVERSITY

Ten years ago, the Town Councils of Antigonish, Berwick and Mahone Bay foresaw a future with significantly higher energy costs and tighter carbon constraints. We are now living in that once-predicted world. To best prepare your towns and citizens, Councils approved in 2013 the creation of the Alternative Resource Energy Authority. Councils tasked AREA to be the driving force behind municipal collaboration aiming to source cleaner and cheaper electricity while bringing the other municipal electric utilities into the fold to preserve cohesion. Despite the unprecedented challenges over the past two years faced by all global organizations and energy consumers, your towns continue to reap significant reward from the decision to establish AREA. As much as this report showcases the results of AREA's recent performance, the Town Councils must be recognized for a decade of dedicated effort, dynamic decision making and leadership, all on behalf of your citizens. It has not been an easy year and it is necessary to remind ourselves that we achieve these significant results collectively.

This Annual Report highlights the rewards of the prudent risk management strategy and entrepreneurial spirit of previous and current councils. The 23.5MW, ten turbine Ellershouse Wind Farm was on time and budget and has consistently met the financial performance expectations set at the time of the investment decision. AREA's customers are the only electric utilities in Nova Scotia to meet the 2020 40% Renewable Energy Standard, achieving such status two years earlier than required. Despite the current inflationary pressure on materials and labour, AREA is keeping the Community Solar Gardens on track. These projects will further protect the Towns and your citizens from unprecedented market energy and carbon costs, bringing the local renewable supply to 55% for our portfolio. Without AREA, your citizens would be consuming less than 30% renewable energy and be substantially more exposed to the long-term effects of the recent quadrupling cost of fossil fuels. Other suppliers of wholesale electricity place their hopes in large, risky projects in far away lands, while your towns have promoted local, rural economic development for the benefit of Nova Scotians.



It is no secret that imported power prices have risen so greatly that they are not attractive for 2023 supply, but times like these showcase the value of our collaboration and our commitment to retaining capable staff. AREA received a commendation from the Minister of Natural Resources and Renewables this Summer for its exhaustive effort and creativity while seeking alternate green energy supplies for the municipal electric utilities. No stone was left unturned as AREA applied for 5-years of Back-Up/Top-Up Service to hedge costs when import prices were low (rejected by NSPI in 2020), attempted to negotiate with existing wind energy facilities coming off long-term contracts, attempted to restart an idled waste biomass power plant and continued to push for imported renewable energy supplies. In the end, the Province's regulatory intervention created a suitable path for a return to the Municipal Tariff while AREA, the Towns and their municipal electric utilities accelerate the decarbonization plan as described in this report.

Each of AREA's 2023 activities is designed to increase citizen benefit from their town's continued ownership of its municipal electric utility and its ownership stake in AREA. In addition to delivering the Community Solar Gardens, managing the Ellershouse Wind Farm and executing the decarbonization plan, AREA will (i) work with the Towns, under Mahone Bay's leadership, to restart the HOME program, (ii) shop for opportunistic imports, similar to 2018 and 2019 activity, and evaluate import opportunities for 2024 and 2025 and (iii) deliver the exciting outcomes referenced in our Board approved Shared Solar business plan, to increase the dividend that AREA pays to the Towns.

AREA is also providing significant support to ensure the financial and operational stability of the various municipal electric utilities including rate studies, general rate applications, succession planning and the ever-complex relationship with NSPI. We will be reviewing AREA and municipal electric utility organizational structures in 2023 to assess the merits of various utility management concepts for the Towns to consider.

As evidenced by securing the \$16 million for Community Solar Gardens, AREA, as a municipal clean energy corporation, is strategically positioned to capture increasing public funding for well-developed clean energy infrastructure projects. The Department of Natural Resources and Renewables staff confirm that AREA's funding submissions are the most comprehensive and most impactful, achieved by meshing our industry insight with our bespoke municipal clean energy project development strategy. This positioning enhances the financial performance of the various decarbonization initiatives. AREA and the Towns were unable to secure funding application assistance from the market in 2022 and therefore, this funding support function will be a focus realm for AREA in 2023.

We have much yet to achieve together, which requires us to draw upon our collaborative foundation while we navigate the entrepreneurial-municipal spectrum. In 2022, AREA demonstrated its ability to adapt to challenging market contexts and ensure benefit for the municipal electric utilities, the Towns and its citizens. It is now time to fully decarbonize the supply of electricity to our towns and help our citizens transition all their energy requirements to renewable electricity. AREA remains the vehicle to best achieve this objective, with the following performance and planning information underpinning this conclusion.

Aaron, Lenta and Andrew

THE NUMBERS

\$8.8 MILLION
DIVIDENDS
PAID TO TOWNS

+6,700
UTILITY CUSTOMERS

7 YEARS
OF OPERATION

\$51 MILLION
IN TOTAL ASSETS

MILLIONS of
WHOLESALE POWER SAVINGS

10 TURBINES
23.5 MW

84%
CLEAN ENERGY

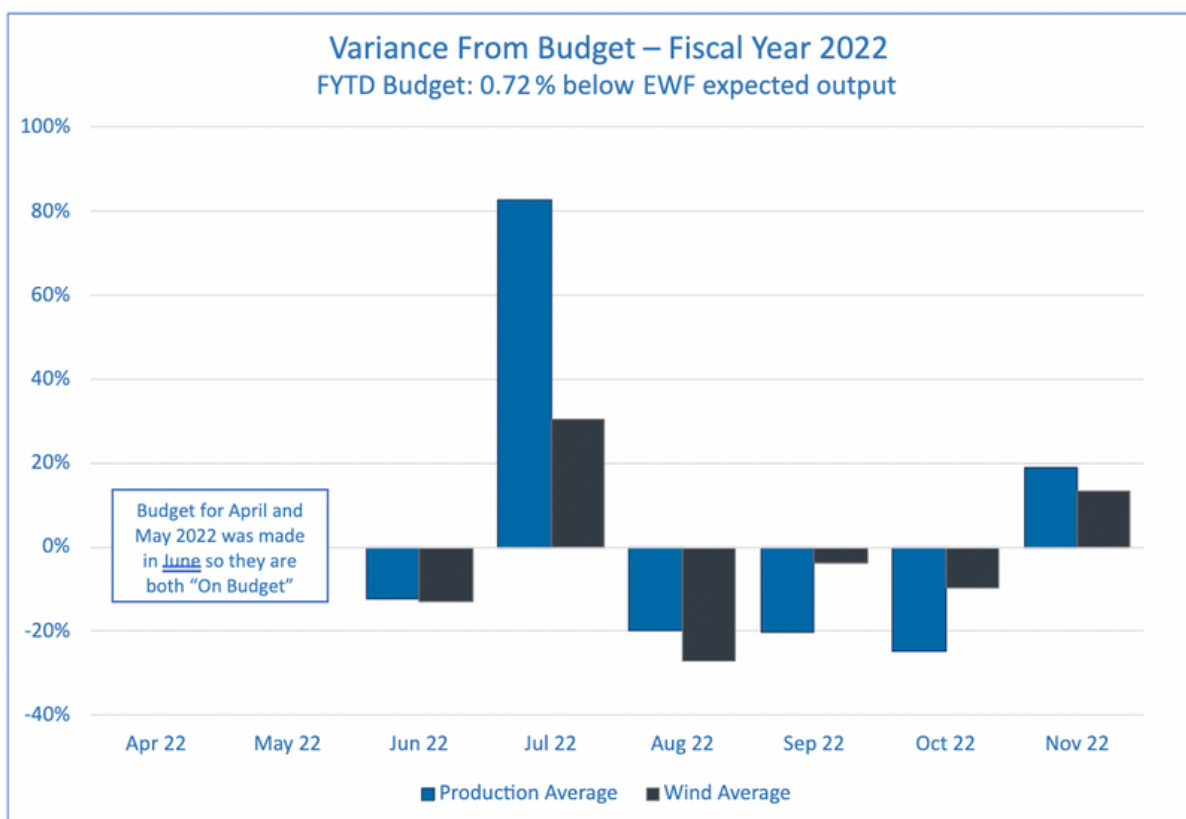
315,410
SAVED tCO_{2eq}

~\$23.3 MILLION

TOTAL BENEFIT TO TOWNS & MEUS



The Ellershouse asset remains healthy and operationally sound. All spare parts, as previously recommended by Strum Engineering, are now either stocked or expected by December. The remedial substation work, suggested by Cormorant after its 2020 substation maintenance work, has been completed by Strum. The chart below illustrates that fiscal year-to-date electricity production is slightly below budget, by about half a percent. Enercon is exceeding contractual performance. As per the contract, Enercon provided a small rebate this fiscal given prior year's uptime miss on Phase 1. We made it through Hurricane Fiona without losing site power - we were curtailed, then restored within 16 hours, likely making Ellershouse the first wind farm to return to service post Fiona. AREA staff are also pursuing operational collaboration opportunities with local, larger industry players to position ourselves ready for supplier component disruption or in a worst-case scenario, supplier bankruptcy.



NSPI curtails wind farm production in the Province from time to time when high wind generation corresponds to Provincial electrical demand in the range of 800MW-1000MW. Ellershose experienced 75 of these occurrences so far in this Fiscal. Since the last report, AREA and NSP's System Operator successfully tested the exporting of energy to avoid curtailments on November 3rd and 30th, 2022. The energy was sold to NBPower, with whom negotiations for otherwise-curtailed and exported wind energy are ongoing. AREA successfully registered the Ellershose Wind Farm in Maine's market for renewable energy certificates. There remain a few kinks to iron, and we will only have certainty with NBPower once they confirm their operational systems can easily accommodate our exports (expected by end of January). AREA is pursuing other export and domestic opportunities to manage curtailments.

Ellershose experienced scheduled downtime on August 30 for substation work, coinciding with a low wind, zero production period. The only other production hit was related to Fiona, with \$16,000 of lost generating opportunities, which AREA staff consider downtime and not curtailment. We consider any downtime and curtailment as delayed, instead of lost, energy because the turbines have a lifetime measured in MWh, not in years. AREA previously stated that whatever production is not realized this year will be extracted at the end of the turbine's economic lifetime; however, the net present value of the delayed realization of profit is what motivates us to seek alternatives for today.



DECARBONIZATION PROGRESS

AREA advanced its wholesale electricity decarbonization plan in 2022 by adjusting to volatile and costly energy markets. For context, AREA secured Low Carbon Communities funding in December 2021 to study various pathways to 100% renewable energy supply and establish the development foundation for clean capacity projects. However, sky high fossil fuel costs drove up both local and import electricity markets for the foreseeable future, making cost-effective and clean energy the priority focus. The results of using time series analysis techniques to study various renewable energy supply portfolios clearly shows that AREA and the MEUs should maximize incremental wind deliveries as soon as possible. AREA subsequently negotiated with industry and secured Council approvals on such an arrangement – achieving 100% NS-based renewable energy by the start of 2026, four years ahead of the 80% Provincial deadline. AREA will be using Low Carbon Communities funding to establish a budget and action plan for expanding AREA's existing Ellershouse substation to accommodate the incremental wind.

AREA has maintained focus on clean capacity concept given our expectation that such will eventually be required, regardless of BUTU costing assumptions. AREA continues to perform necessary development steps to ensure the biofuel gensets initiative is ready if the financial benefits of our collective wind assets are not recognized by the UARB in the BUTU capacity costing formula. BDRae confirmed that ample biofuel supplies are locally available, with a high degree of confidence of suitability with used gensets. AREA hired Toromont to use industry best practices for an upcoming 100% biofuel test in Berwick's 500kW genset before the end of January 2023. Remaining Low Carbon Communities funding will be used to design and cost the biofuel handling systems up to genset intake. We are also watching the cost and performance of battery energy storage systems in Summerside and Saint John before AREA or the MEUs consider the role of such technology in our decarbonization plans. We are, however, eager to review the final time series results which will determine the maximum capacity we can secure from batteries inside our decarbonized wholesale electricity supply portfolio.

The proposed assets qualify for funding programs like the Smart Renewables and Electrification Pathways Program (continuous intake), the Canadian Infrastructure Bank (continuous intake) and Investing in Canada Infrastructure Program – sub-stream Climate Change Mitigation (on timelines as defined by the province). AREA will have preliminary conversations with each program administrator and mesh that feedback with the conclusions of our analytical work, resulting in a streamlined, prioritized funding/financing action plan. AREA has a proven track record working collaboratively with Provincial staff to secure federal funding for clean energy projects in NS, as evidenced by our Community Solar Gardens. Regardless of attitudes towards government grants, the funding is available, and if not secured by AREA, it will go to other towns and regions. The Province is cheering local success as noted in their Low Carbon Communities evaluation criteria.



HOME PROGRAM

heatpumpprogram.ca

AREA launched the Heat pump Options Made Easy (HOME) program in October 2020 during the height of the Covid-19 pandemic. Initially, there was a lot of interest in the program; however, the program faced several obstacles: Covid restrictions, supply chain delays and complicated federal incentives.

The HOME program provides customers with a simple, cost-effective, hassle-free solution that enables customer ownership of heat pumps. MEU customers prefer a one-stop-shop heat pump program to address the typical end-user conversion barriers of financing, contractor management, equipment selection and ongoing care.

In answer to this, AREA created partnerships for the financing aspect of the program and the administration for a seamless, one-stop-shop program with a single customer interface without requiring MEU or town staff administrative or operational assistance. Customers pay a single monthly payment that includes the hardware and bi-annual cleaning and maintenance, plus customer care for ten years.

We have heard from our customers that they expect a robust support system and easy-to-reach assistance. After over two years of operation, it is the right time for a complete program review to identify potential improvements and expansion possibilities. Subsequently, the Town of Mahone Bay dispatched staff on behalf of the AREA group to investigate FCM funding to review the HOME program. Through the FCM, further funding might be available to implement the identified improvements and expand the program. Standard energy consumption, conversion rates and profitability suggest that the HOME program already generates income for our MEU collective for the installations enabled by the program.

Despite the challenges, the program has benefited the towns and encouraged the transition to heat pump technology.

COMMUNITY SOLAR

AREA and the towns have a proven track record of taking a leadership position in the adoption of renewable energy and the fight against climate change. Our experience in successfully delivering 20 solar projects for rural municipalities across the province through the Solar for Community Buildings Program, positioned AREA to develop the most significant community solar project in Canada. The 9MW of community solar photovoltaic gardens currently under construction, will affordably increase and diversify the use of renewable energy in the Towns while providing Utility customers with equitable access to renewable energy regardless of their housing situation (renters vs homeowners) or access to capital to install rooftop solar.

AREA's meticulous project management procedures result in cost savings and timeline decreases. An example of this is AREA's decision to purchase modules and inverters ahead of construction to bring price security to the project and to ensure timely delivery in a market where supply delays have become the norm. This proactive decision avoided the 35% increase in cost that AREA would have been exposed to, had we delayed the purchases. Over the past 11 months AREA successfully negotiated construction contracts with our general contractor GP Joule and the medium voltage contractor K-Line. These contracts bring price predictability to large parts of the projects and the ability to procure materials ahead of time.

AREA is very thankful that Lenta Wright filled an unexpected and critical human resource gap that presented early in 2022. Her ability to quickly establish holistic project understanding and subsequently drive performance on the diverse project activities should be recognized. Lenta developed and maintained strong relationships with contractors, municipal staff, Councils and the public, all necessary to manage these challenging projects in unprecedented circumstances. Her commitment to the success of our Community Solar Gardens continues to be extraordinary.

These three projects are the first utility-scale renewable energy projects done within the borders of our towns and as expected, we faced some resistance from a handful of citizens. The opposition by a few residents to proposed developments in their local area is not a new reaction, people often object to developments close to them but will tolerate and even support the same development if it were built further away. During the development and construction of the Ellershouse wind farm, AREA experienced similar opposition and successfully navigated such.



Mahone Bay Solar Garden



Berwick Solar Garden

Together with the towns, AREA addressed the concerns of citizens and delivered the facts of the projects and their development. Although it is not possible to satisfy all the needs of the citizens, AREA develops these projects with environmental considerations and acumen. The need to make room for these projects might alarm some residents, however; once the projects are completed, it will not only deliver the clean energy as promised, but also enhance and conserve the sites they are occupying.

Construction is well underway on all three sites and our current projection is that all three solar plants will be operational in Q4 of 2023. After the winter break, electrical and mechanical work will begin, with the last big component namely the transformers arriving in mid-summer. AREA's focus will remain on delivering these projects on time and within budget, amid significant price pressures and supply chain delays.

After receiving funding for these projects by demonstrating proof of concept, the Province of Nova Scotia announced a "Community/Shared Solar Program" restricting eligibility to select ownership types, including municipalities, selling clean energy into the provincial power grid from projects of similar size to our Community Solar Gardens.



Antigonish Solar Garden

1118 FOUNDATIONS
INSTALLED

5936 PANELS
INSTALLED

ELECTRIC VEHICLE CHARGERS

This initiative portrays AREA and the Towns' forethought regarding the best way to reach net-zero carbon emissions in their MEUs, on the grid and on the streets. It is nearly as important to support the decarbonization of motor vehicles as it is to reduce carbon emissions of the grid, and the towns have identified an efficient way to incrementally do both. By providing the communities with charging stations, more citizens will feel more comfortable in investing in electric vehicles in the towns, reducing range anxiety. This creates a greater level of inclusivity, accessibility, and convenience for people who want to support environmental causes in the Towns of Mahone Bay, Antigonish, and Berwick.

Usage Summary Jan - Nov 2022

1581

CHARGING
SESSIONS

3591

CHARGING
HOURS

\$5477

CHARGING
REVENUE

20495

kWh
OF CHARGING

Mahone Bay

508

CHARGING
SESSIONS

975

CHARGING
HOURS

\$1451

CHARGING
REVENUE

5696

kWh
OF CHARGING

Antigonish

737

CHARGING
SESSIONS

2027

CHARGING
HOURS

\$3142

CHARGING
REVENUE

11024

kWh
OF CHARGING

Berwick

336

CHARGING
SESSIONS

589

CHARGING
HOURS

\$884

CHARGING
REVENUE

3775

kWh
OF CHARGING

40 CHARGING
STATIONS

5 COMMUNITIES

25 LOCATIONS