

# Climate Change, Energy, and Environment Commission (C2E2)

Summary of January 23, 2023

## Hybrid Meeting

**Members Present:** Joan McIntyre (Chair), Carrie Thompson (Vice Chair), Jonathan Morgenstein, John Bloom, Mark Greenwood, Mikaila Milton, Kevin Vincent, Tim Effio, Majdi Shomali, Stephen D'Alessio,

**Members Present Virtually:** Cindy Lewin, Eric Gibbs

**Members Absent:** Joshua Griset, Gilbert Campbell

**Guests Present:** Holly Thompson (recent graduate), Rob Sandoli, (perspective Commission candidate).

**Guests Virtually:** Mary Glass (Chairperson of the Environmental Affairs Committee for the Civic Federation), Carly Macias (HDR), Brian Balchunas (HDR), Judy Collins (League of Women Voters Arlington), Ruth Woollett (Arlington County resident and Sierra Club Potomac River Group member), Steve Banashek (City of Alexandria resident and Sierra Club Potomac River Group member)

**Staff Present:** Rebecca Moser (DES), Demetra McBride (DES), Richard Dooley (DES), Mike Moon (DES Deputy Director), Hui Wang (DES-TEO), Pierre Holloman (DES Transit), Mary Strawn (Water Pollution Control Plant), Ryan Jones (DES-Transit)

### 1. Introductions and Public Comment

Mary Glass made a public comment. The Arlington County Civic Federation conducted an urban tree canopy study funded by private citizens. This work will update 2016 data that has been used for several years for planning and analysis. The consultant is coming to Arlington to present their preliminary findings to date, and there is a link to watch the seminar. The data distinguishes between trees and shrubs/green areas, and thus is more fine-tuned.

Another public meeting (hybrid) will be held in April 2023 to discuss the results and next steps.

Rebecca distributed the information Mary presented to C2E2.

### 2. C2E2 Leadership Chair & Vice Chair Vote

The Chair of the Commission nominated herself to serve a third year. The Commission voted and approved this nomination. There were no nominations for Vice Chair. The position will be served by the current Vice Chair until a replacement can be identified and approved.

### 3. November & December Meeting Minutes

Meeting minutes for November and December 2022 were reviewed and unanimously approved.

### 4. ARTBus Feasibility Study and Transition Plan

Arlington County staff announced that the Transit team will be prepared to present the Strategic Transit Plan to the Commission in February 2023 (next month).

Introduction: The ARTBus Feasibility study is part of a rolling transition plan. Arlington County expects clean transportation technologies and equipment to evolve rapidly.

The flexible approach supports continuous, well-informed decisions by the Board on the deliberate pathway to decarbonize the transportation network and to balance priority Community goals, including:

- Continuity, quality and reliability of service attainment of greenhouse gas emissions goals.
- Measurement that includes cradle to grave factors and externalities.
- Operational schedules and capacities for the MOF and our BEB charging infrastructure.
- Resiliency planning to test the potential for diversified fleet that adapts to critical challenges and furtherance of equity commitments to transit dependent populations.

**Phase 1:** Purchase 15 compressed natural gas (CGN) buses in 2023.

- 2010 NABI buses will not last to 2025 when the Arlington Operations and Maintenance Facility (AOMF) is available for battery electric buses (BEBs).
- Additional 15 remaining NABI buses that need to be replaced between now and 2028.
- Staff is researching to identify an interim source for renewable natural gas (RNG) for all new natural gas buses.
- Arlington's Water Pollution Control Plant upgrades anticipated by 2029
- The lead time for both types of zero emission buses is up to two years. CNG buses can be delivered quickly. AOMF will not be ready until 2025, so if electric buses were bought today, they cannot be ready to charge until the facility is up and running. Optimistic that the new CNG buses can be fueled with renewable natural gas (RNG), which would result in a decrease in emissions from those vehicles. First phase is ensuring that the quality of service is maintained.
- AOMF is currently under construction in Green Valley, making good progress.

**Phase 2:** Conduct BEB & Hydrogen Fuel Cell Buses (FCEB) pilot programs

- Many early adopters are exploring both BEB and FCEB vehicle technologies
- Pilot **four** BEBs in 2025
- Pilot **two-four** FCEBs in 2026
- These pilots will be conducted in 2025 and 2026 so that the new facility is ready to be able to charge the buses. The two pilots allow Arlington to do a side-by-side performance evaluation to see what will work best for the ART fleet.
- Conduct side-by-side evaluation to perform an "implementation pilot"

**Phase 3:** Depending on results of BEB and FCEB pilot programs:

- In 2028, begin replacing all vehicles with zero emissions vehicles:
  - 2:1 replacement ratio for BEB. A two to one replacement ratio was assumed to maintain ultimate flexibility for sending any bus out on any route as opposed to using only electric buses.
  - 1:1 replacement ratio for FCEB (hydrogen fuel cell electric bus). Did not assume a 1 to 1 replacement ratio based on modeling because the range of these buses was much greater.
- Use results of pilots to determine appropriate application of technology within the Arlington environment.
- Pilot buses will remain in the fleet for their useful life, not just a single year of operation, but for all 12 years.
- Continue partnership with Washington Gas to verify green hydrogen future availability. Several initiatives in the region to bring in one of the hydrogen hubs, funded by the Department of Energy.

\*Note: the study is a working document and will need to be updated as the technology advances. Conducted modeling for what is available to use in the market today because the County is unsure when market advancements will happen. Additionally, this study does not include any kind of service expansion,

which would lead to an increase in more facility charging space. This would be included in the planning process.

Tim: why would the County model cost decreases assumptions in green hydrogen but not battery density improvements?

Washington Gas is doing a pilot program with green hydrogen, with electrolysis, however this is not the same thing as making it green. However, Washington Gas said they will be generating 100% of the electricity used for electrolysis from solar and recs.

Greenhouse Gas (GHG) Emissions Reduction:

- Using RNG, 50% GHG emissions reduction achieved by 2026.
- 100% ZEB transition approaches 0 GHG emissions, but upstream emissions still exist.
- RNG buses considered to produce “negative emissions”, but tailpipe emissions are the same as CNG buses.

Procurement:

- ART will apply to DRPT for 15 CNG buses and 4 electric buses by February 1, 2023.
- These purchases will allow ART to maintain reliable ART operations and begin the ZEB Pilot Program in 2025.

Solids Master Plan includes a \$170 million upgrade at the Water Pollution Control Plant. Currently under design. A holistic process introduced that will provide beneficial resources in the form of both a solid, such as a potential solid amendment and a renewable natural gas, all of which is generated inside the County. Currently in negotiations with a vendor called Clean Energy to devise an agreement to provide an RNG product for the fleet as early as 2023, with the goal of having the buses currently purchased or proposed purchase in 2023 fueled by an RNG fuel source.

Additional notes from questions:

- There is an 18 to 24 month lead time to acquire buses. Purchases would have to be made mid-2023 to arrive by January 2025.
- Arlington County has not run this type of technology at this scale before, and thus the pilot will help inform what type of technology is best suited for the County. Every agency/jurisdiction has their own challenges and problems, and the industry itself is evolving very quickly.
- Have not engaged with Metro to share chargers because each bus make, model and manufacturer could require different charging technology. It is not consistent enough across the board to team up. Running different buses is a huge challenge.
- Jurisdictions are approaching the transition differently all across the board. Arlington would like to have first-hand experience, via the pilots, to understand what works best for the County. Additionally, the added wait time gives the technologies a couple years to evolve and continue to mature in the industry so that what is selected, will be more refined and hopefully have less kinks.
- The size of the service area doesn't matter as much as the mileage that the buses go on a daily basis. E.g. a bus could travel in a million little circles and cover over 200 miles, the buses have to be able to perform to that standard.

Draft ZEB report to be completed April 2023. This would include deeper analysis, surveys and the studies that are referenced.

Commissioners requested:

1. To include concerns about pilot in the ZEB report, such as what the County is hoping to learn from the pilots, and sensitivities around different functions. E.g. “How wrong could we be?” question.
2. Basic route block analysis that shows why a 2:1 bus replacement is necessary and understand what a current or 2025 model bus can handle. Commissioners requested additional analysis for

the 2:1 replacement, and note that it is simply inaccurate.

3. More clarity on the bus purchasing plan.

April 2023 comes up against the deadline to order buses.

## **5. Finalizing 2023 Work Plan**

There is an opportunity to state the Commission's bandwidth for any given topic/program area in the work plan.

Carrie: SPRC process to make Commission work more efficiently and hit the applicant early with the checklist may help the applicant addressing comments. Having comments at the beginning helps influence the process.

The commission reviewed and motioned to approve the 2023 Work Plan.

## **6. Letter Reviews – Arlington Career Center**

Commission noted that it is good to be specific in these letters. Charging infrastructure, not fully exhausted on-site solar, etc. EV chargers on-site is modern technology and highly educational for students. This is what's unique about Discovery Elementary School.

Add (+) one paragraph at the beginning, or the end, stating the students at the school are trained in these technologies and this is the future of energy.

The Commission reviewed and approved this letter.

## **7. Round Robin – Updates and Comments**

Several vacancies for the Commission coming soon.

Missing Middle – The County has not passed the amendment for the request to advertise. The Board is still hearing public comments.

County Manager's Budget meeting: there is a \$38 million shortfall. Budget will be released next month, with a decision in April.

Commission to think about reiterating the County purchasing zero-emission buses. Writing a letter in response to the ARTBus Feasibility Study. Kevin and John will draft this letter and address the assumptions and see the whole lifecycle cost estimates.

Meeting ended: **9:15 p.m.**