

**MEETING MINUTES OF THE HYBRID MEETING**  
**ARLINGTON COUNTY C2E2 ENERGY COMMITTEE**  
**6/12/2024**

The **C2E2 ENERGY COMMITTEE** convened its hybrid meeting online and in Room 100-Birch (2100 Clarendon Blvd.) at **7:00 PM** on **June 12, 2024**.

**PRESENT**

Doug Snoeyenbos  
Elizabeth Whitney  
Kip Malinosky  
Scott Brideau  
Greg Brozak  
Rick Keller  
John Bloom  
Kevin Vincent  
Stephanie Burns  
Rob Sandoli

**PRESENT (VIRTUALLY)**

Jonathan Morgenstein, joined from his workplace with US DOE

**ABSENT**

Scott Dicke  
Claire Noakes  
Scott Sklar

**STAFF**

Demetra McBride  
Rich Dooley

**GUESTS**

Cindy Lewin

## SUMMARY OF PRESENTATIONS/DISCUSSIONS

### 1. Review/approve meeting agenda and May meeting summary (7:00) – Doug Snoeyenbos

- Doug welcomed everyone to the meeting
- The June meeting agenda was approved. The May meeting summary was corrected to note that no one from the County staff or an environmental group came to the ColPike meeting; see p. 3 of the meeting summary. The corrected meeting summary was approved.

### 2. Public Comment (7:05)

- None

### 3. Models for advanced nuclear deployment and [nuclear power for data centers](#) (7:10) – Todd Flowers, Director of Business Development, Dominion Energy

- E. Whitney welcomed the guest speakers and provided background on how she came to meet the Dominion Energy representatives.
  - She had asked Dominion Energy if someone could brief the EC about SMRs and what Dominion Energy thinks about the technology. That is the focus of our meeting with Dominion Energy tonight.
- Todd Flowers has been with Dominion Energy for 26 years and is a Nuclear Engineer. His current role involves leading the development or acquisition of various energy technologies to meet the growing energy demands of Dominion Energy's customers.
- Gaston Arioiz and Peggy Fox from Dominion Energy also joined Todd tonight.
- Todd explained his role and how Dominion Energy develops new power stations around the Commonwealth.
- Todd provided a presentation (Attachment 1).
- Todd noted the load forecast from Dominion Energy's customers. Data centers, electrification of homes, and the deployment of EVs are all leading to a growing electricity demand.
- Load growth is ~ 5% per year.
- Dominion Energy has a [2023 IRP](#). 6-18 new SMRs are included in the new nuclear forecast through 2048.
  - Oct. 15 of this year they will have a new IRP. It may show an increase in SMRs in that forecast, given an increased PJM load forecast.
- Factory-fabrication leads to precision of parts for SMRs.
- D. Snoeyenbos asked if any SMRs were operating in the US.
  - Todd noted that some SMRs are under construction, for example, the Terra Power project started in Wyoming last week. Some SMRs are under construction in Canada.
  - No SMRs are operating today.
- D. McBride asked about Dominion Energy's partners and whether an SMR would experience interconnection issues similar to the problems we see with inverters and solar PV
  - An inverter is not needed because the SMR generator would produce power at alternating current
  - Dominion Energy is working with multiple players – major players in the SMR sector.

- SMRs are dispatchable – they can be modulated based on the need of the grid.
- Capacity factor is 95%; they operate 95% of the time, vs. solar PV which operates about 24% of the time.
- SMRs electrical power output is about 1/3 of a typical existing Dominion Energy nuclear reactor.
- US DOE is helping to finance advanced nuclear reactor technology research.
  - Dominion Energy is looking at both light water reactor designs and non-light water reactor designs.
- Dominion Energy is now looking for 200 acres+ with good infrastructure and connection to the grid transmission network to deploy SMRs
- E. Whitney asked if Dominion Energy is looking at sites that could qualify for IRA benefits, e.g., for areas that used to be a coal mine.
  - Yes – they are considering those.
- Right now, based on today’s information, the 1<sup>st</sup> Dominion Energy SMR could be placed into service as soon as the end of 2033. The NRC process is a lengthy one.
  - There is pending legislation to reduce the time for those NRC processes.
- D. McBride noted an IEEE report on SMRs. What is Dominion Energy’s take on that article?
  - Todd said that yes, there are delays on SMR project deployments. Interest rates have increased since the projects were designed, plus Covid delayed projects.
- E. Whitney asked about the recent legislation and what it allows Dominion Energy to do.
  - Todd noted SB 454 – Sen. Marsden – passed this past legislative period - would allow Dominion Energy to petition the SCC to recover in a near-real-time basis early development costs for SMR development. That includes design engineering, procurement of long-lead items. SCC can determine if those costs are prudent and in the customers’ best interest.
- R. Sandoli asked the amortization schedule that is possible.
  - Dominion Energy would look to file for SMR riders and to recover costs in that rate year.
- Dominion Energy may pursue DOE loans that could offset costs for SMR development which could reduce costs to Dominion Energy customers.
- G. Brozak asked about the sizing of SMRs. Why is Dominion Energy building such large SMRs as opposed to smaller options (referred to as “microreactors”).
  - Given the substantial load demands, Dominion Energy is looking at GW-scale of new energy. A single data center campus may need as much as 2 GW of energy.
- K. Malinosky – noted that we know quite a bit about renewable energy, vs. 10 years from now for SMRs to be deployed. How is a learning curve for SMRs going to develop in the time we need?
  - To Dominion Energy it is more than just a learning curve. There are other economies of scale in addition to a learning curve. DOE through the ARDP program is funding for SMR research and Dominion Energy hopes to learn from those current/early efforts.
  - Todd noted it takes 7 years to get a solar PV system approved and operational for a project that covers 1,000 acres.
  - J. Morgenstein asked how much of that 7 years is due to PJM review delays.
  - Todd said that yes – that is a primary driver. There are also local permitting delays that cause that 7-year timeframe. Local permitting staff often do not have the expertise to

review and approve such complex and large projects and that permitting process may take several years.

- D. Snoeyenbos asked about the nuclear waste – what is done with that?
  - Todd likes to call it “used nuclear fuel.” Dominion Energy would store it on-site, just like they do now with their larger nuclear power plants.
- S. Burns – I went to a conference Monday about SMRs. Is higher-quality uranium needed for SMRs?
  - The term “higher quality uranium” is not quite right. However, there are some SMR designs that require High-Assay Low-Enriched Uranium (HALEU), and the supply chain has not been fully developed to support the significant use of HALEU that may be needed.
- J. Bloom noted that SMRs are a dispatchable resource. Given SMR’s relatively high cost, is it more likely that SMRs would cover base load?
  - Todd explained that yes - initial SMRs would likely cover base load and run 100% of the time. Further down the road, additional SMRs could be dispatchable and not operate 100% of the time.
  - Todd noted how SMRs could be used to flatten out the Duck Curve that California experiences now.
- D. McBride noted the relicensing of larger nuclear power plants. Do you think smaller SMRs have a similar lifespan, and will SMRs undergo a similar relicensing process similar to larger nuclear power plants?
  - Todd said that SMRs would follow the same licensing window: 40 years initial license with two or more 20-year extensions.
- D. McBride asked about jobs and diversity of the jobs
  - Todd said the greatest need is welders, instrumentation and control technicians, and trades people to get into the nuclear industry to meet those needs. Dominion Energy is already working with the industry to increase the number of people qualified to do that work.
- After Todd’s presentation, the EC members expressed interest in what fuel supply will be used to power the data centers that will be built and operating before 2033.

**4. Issue updates: solar RE tax exemption; EV ordinance update; APS curriculum letter, BEBs for APS (8:00) – Doug Snoeyenbos**

- D. Snoeyenbos provided issue updates.
- One permit has been submitted for the Solar PV real estate tax exemption.
- The EV ordinance is being updated. County staff are currently focused on the CIP budget.
- The APS curriculum letter is on D. Snoeyenbos’s computer. It will be done in time for the next C2E2 meeting (June 24).
  - K. Malinosky noted that the Superintendent has been told about the importance of sustainability and climate change. APS plans to develop a Climate Action Plan.
  - D. McBride noted the CIP presentation given yesterday. Afterward, the JFAC representative referred to a study that the projected number of surplus seats in APS schools were slated to go up. So, instead of investing in new schools, it may make more sense to improve existing schools.

- D. Snoeyenbos is presenting to the Arlington Dems on July 10, which would need to move the EC meeting to July 17. In addition, Scott Sklar cannot meet in the evening, but he could make a morning meeting.
  - He made a motion to move the meeting to the morning of July 17. The Motion carried unanimously. Rich will reschedule the meeting and send out that Calendar invite.

**5. Monthly Update from AIRE Team (8:20) - Rich Dooley**

- R. Dooley presented the update to the EC (Attachment 2).
- D. Snoeyenbos asked about the next steps for the GBIP.
  - D. McBride noted that outreach was still going on. EcoAction asked to meet with the County team – tentatively scheduled for July 11. The guess is that we would likely close out the outreach this Fall. We would then conduct the internal discussions about what we heard from the community, groups and other stakeholders.
  - In addition, County staff are pursuing funds, e.g., CPRG grants, to pay for training for what is planned as new in the GBIP, e.g., how to build a PHIUS building.
- J. Bloom noted the the LRCC project as part of the CIP presentation. A PPA was slated to go to the CB in July. The amount of solar PV was reduced.
  - D. McBride said that it was reduced due to safety concerns by ACFD.
  - J. Bloom also noted in the CIP presentation that the resiliency hub planned for the LRCC could take up the \$2.5M from the budget being provided for the Climate Action Fund (CAF).
- E. Whitney asked what project attributes are needed to qualify for spending from the CAF.
  - D. McBride said we do not know what those attributes are. DES submits our project ideas to CMO, and then it is out of our hands. It is in the County Manager’s budget.
- R. Sandoli surmised there are no restrictions on how the CAF money is used. Perhaps we should have C2E2 submit a letter recommending what the CAF should be spent on, for instance, projects that actually reduce GHGe.

**6. Green Building Incentive Program (GBIP) (8:50) – Doug Snoeyenbos**

- D. Snoeyenbos noted the complexity of the issue and proposed GBIP upgrade plan. He appreciated the ability to let the process not be rushed.
- D. Snoeyenbos asked about funding of a pilot project.
  - D. McBride noted that the process is modular, e.g., we can roll out training first. We made the approach flexible in terms of years (five) and the ability to cap funding to go toward the effort each year over that timeframe.
- S. Brideau noted that the latest LEED Platinum building is the Nature Conservancy HQs in Ballston.
- Solar at Cardinal APS is on, so there are ten APS buildings with solar PV.

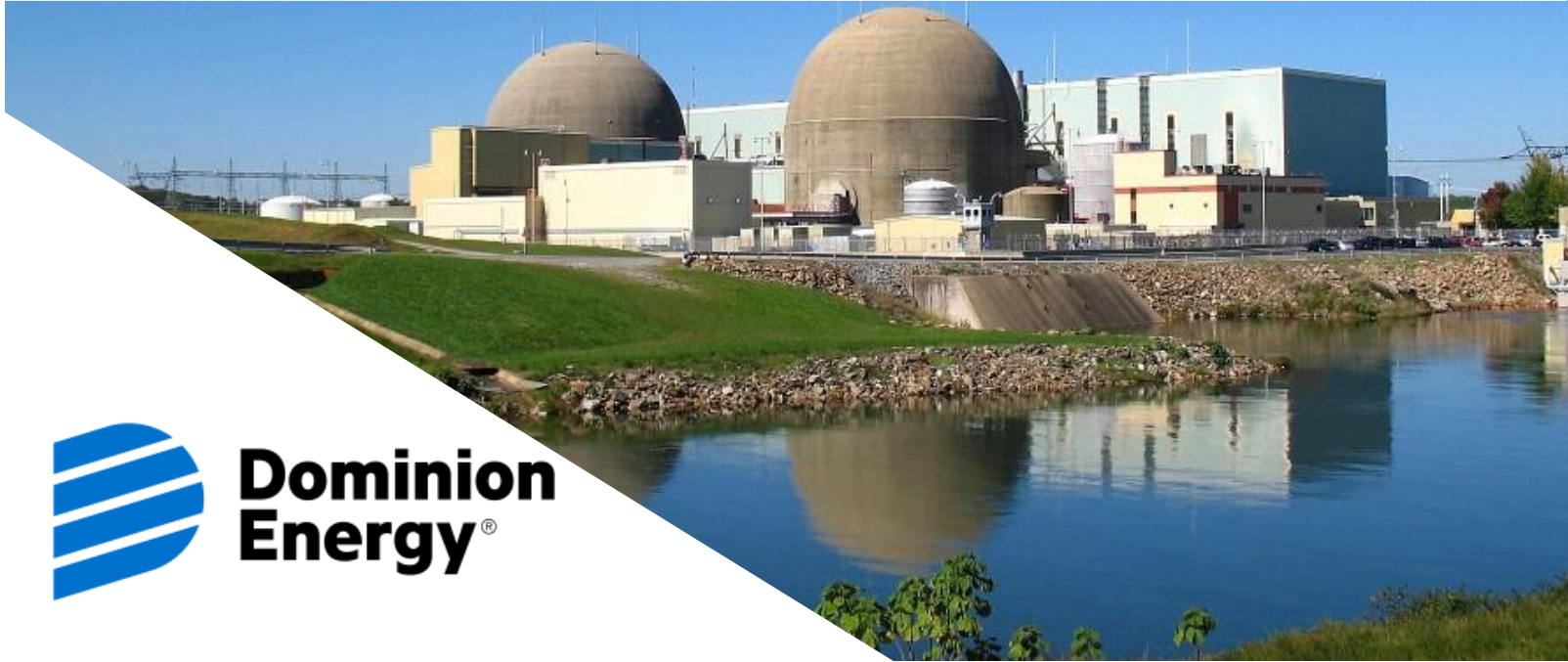
**7. Adjourn (9:00)**

- The meeting adjourned at 9:05 pm.

ATTACHMENT 1  
DOMINION ENERGY PRESENTATION ON SMRs

# Arlington County Commission on Climate Change, Energy, and Environment

June 12, 2024



**Dominion  
Energy**<sup>®</sup>

# Power Generation Overview

## Regulated Business Development

Execute the Company's Energy Growth Plans  
Pursue Emerging Generation Technologies  
Develop Reliable, Affordable, Increasingly Clean Projects

## Current Generation Types

Wind (Onshore & Offshore)

Battery Storage

- Lithium Ion

- Other Technologies, including Long -Duration Storage

Solar

- Utility Scale – Transmission Connected

- Distributed Scale – Distribution Connected

**Nuclear**

- Small Modular Reactors (SMRs)**

Gas

- Combustion Turbines / Combined Cycle



# Virginia Clean Economy Act

**100% zero-carbon** generation by the end of 2045 with critical protections for **reliability** and low-income customers

**75%** of RECs from Virginia facilities starting in 2025

Significant development of zero-carbon resources (**24 GW** by 2035)

**16.1 GW** solar/onshore wind

Includes **1.1 GW** of solar  $\leq$  3 MW per project  
65% company-owned, 35% PPAs  
200 MW on previously developed sites

Interim goals (cumulative):

3,000 MW by 2024

6,000 MW by 2027

10,000 MW by 2030

16,100 MW by 2035

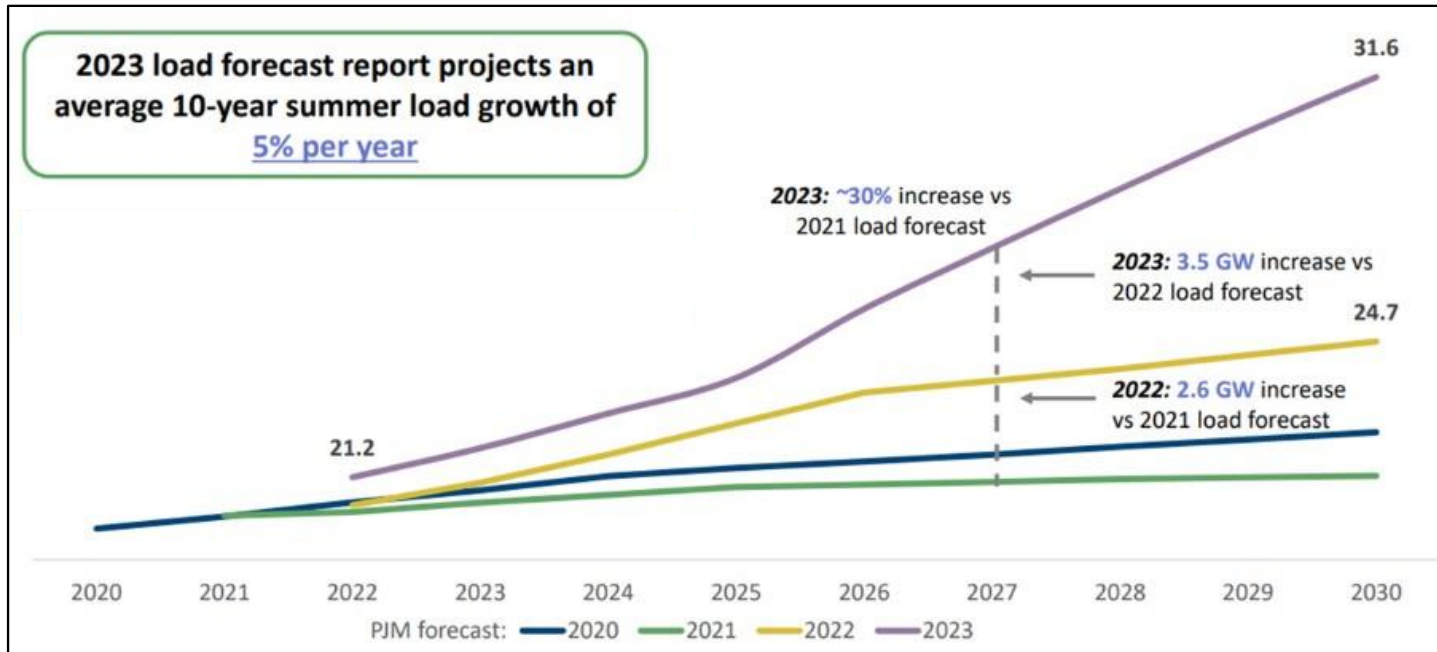
**5.2 GW** offshore wind (**3 GW** by 2027)

**2.7 GW** energy storage



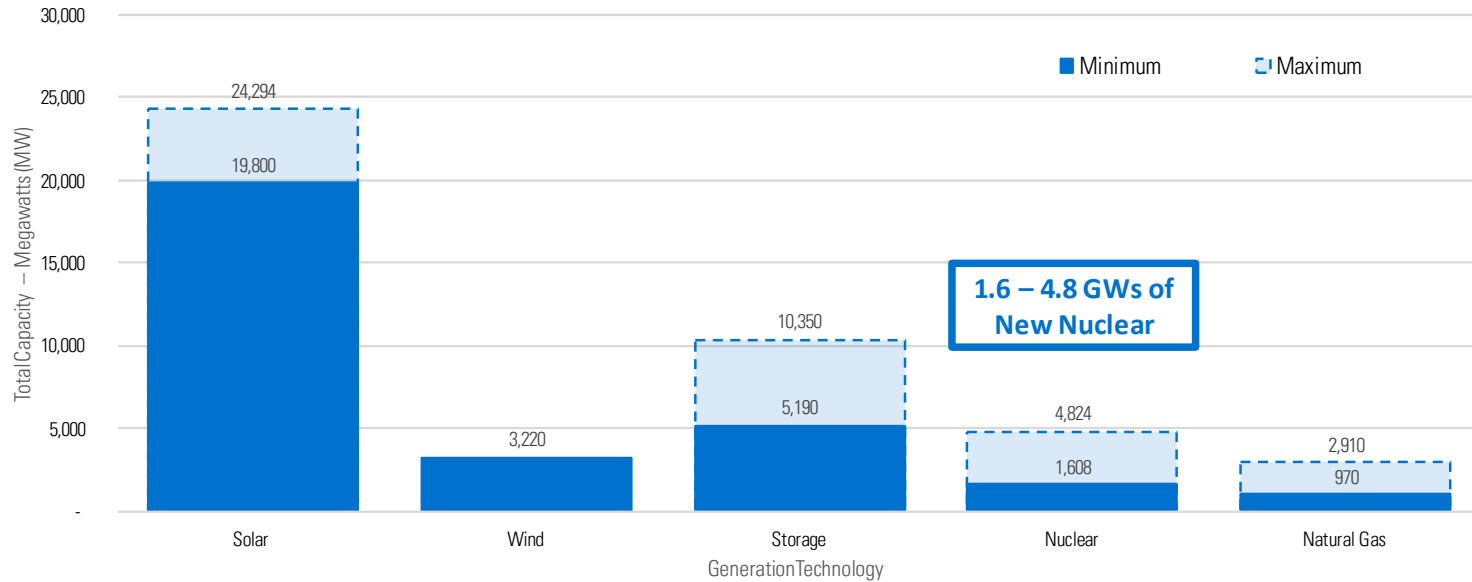


# 2023 Integrated Resource Plan



# Integrated Resource Plan

2023 IRP – New Generation Capacity through 2048



# What are Small Modular Reactors (SMRs)?



## Small

- Physically a fraction of the size of a conventional nuclear power reactor.
- The electrical power output of an SMR is typically less than 300 MWs.
- The modular design and small size lends itself to having multiple units on the same site.

## Modular

- Making it possible for systems and components to be factory -assembled and transported as a unit to a location for installation.
- Results in economies of series production and short construction times.

## Reactors

- Harnessing nuclear fission to generate heat to produce energy.
- Builds upon nuclear power generation technology, which was first established in the 1950s.
- Fundamental design changes and new technological improvements enhance safety and security.

# Drivers and Benefits of SMRs



## Business/Customer Drivers

Complementary to Renewables  
Reliable  
Economic  
Variable Output  
Diversity of Power Supply



## Economic Development

Job Creation  
Deployment of New Advanced Technologies  
Expansion of Local Industry



## Siting & Construction Considerations

Risk Reduction  
Scale  
Siting Flexibility

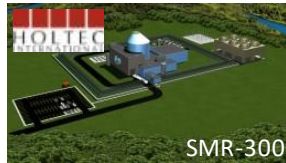
## How do SMRs compare with the existing units at Dominion Energy nuclear power stations?

	Typical Existing Dominion Energy Reactors	General SMR Characteristics
Electrical Power Output	~900 MW electric per unit	~300 MW electric per unit
Site Footprint	> 1,000 acres	50 - 70 acres depending on technology (entire site)
Emergency Planning Zone	10 mile radius	Site boundary*
Emergency Power Requirements	Redundant safety-related diesel generators	No safety-related backup power required
Staffing requirements	~1,000 personnel	~100 personnel

\*subject to approval by NRC of methodologies

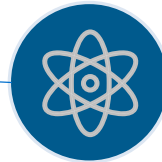


# Various SMR Technologies in Development



Potential SMR technologies offer a varying range of technological advantages.

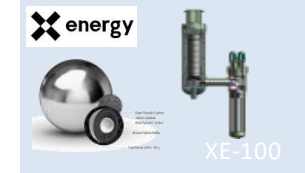
Light Water Technologies



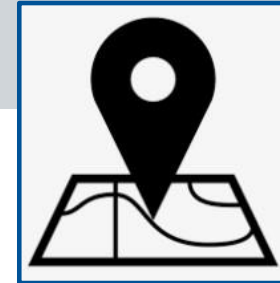
Non-Light Water Technologies

## Technologies in Development

- Light water more closely resemble the existing commercial nuclear fleet.
- Non-light water technologies build on years of experience, research, and other noncommercial applications.



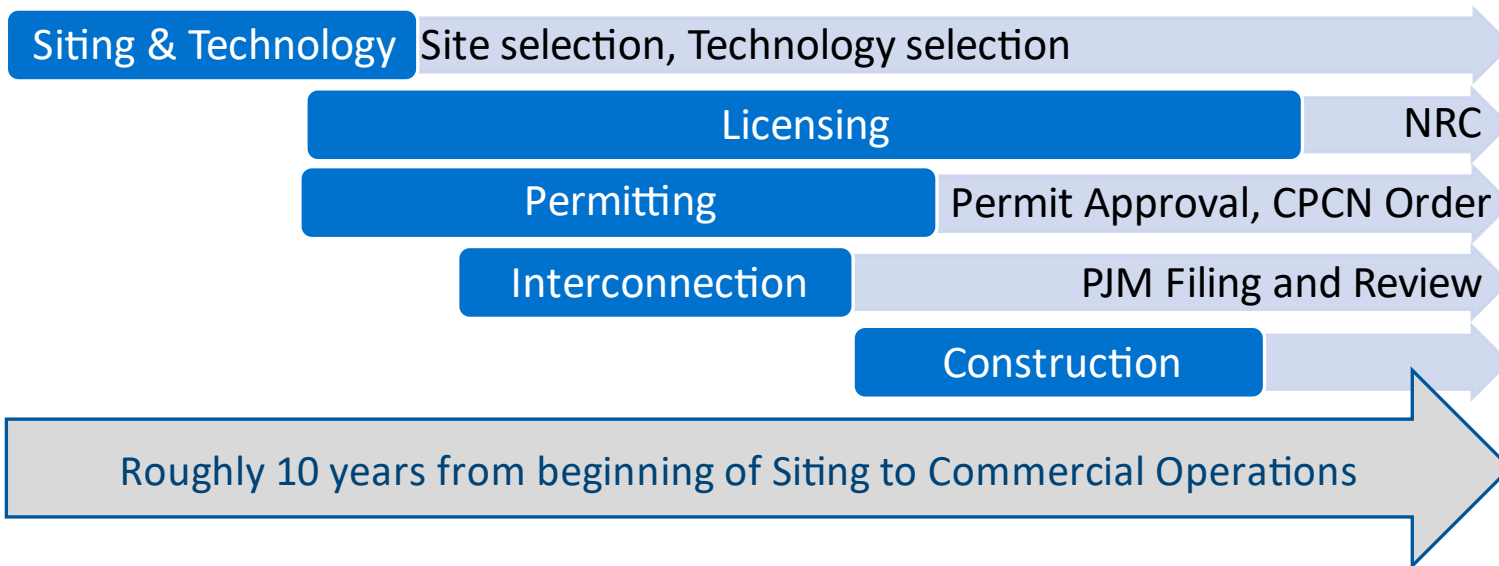
# SMR Siting Considerations



## Categories used to assess multiple criteria:

- Site Size (buildable footprint)
  - Accommodation of multiple SMRs
- Site Repurposing
  - Existing infrastructure
- Electric Transmission
  - Existing Interconnection
  - Transmission Congestion
- Permitting Risk
  - Zoning, local permitting (Conditional Use Permit or Special Exception Permit)
- Site Environmental
  - Wetlands/Streams
  - Floodplain
  - Threatened and Endangered Species Review
  - Cultural resources (archaeological, architectural)
- Water Withdrawal Capabilities/Rights
- Site Development & Construction
  - Grading
  - Construction/Equipment Access
- Security
- Environmental Justice Considerations

# General SMR Deployment Timeline



*The 1<sup>st</sup> SMR could be placed in service as soon as the end of 2033*





## Todd Flowers

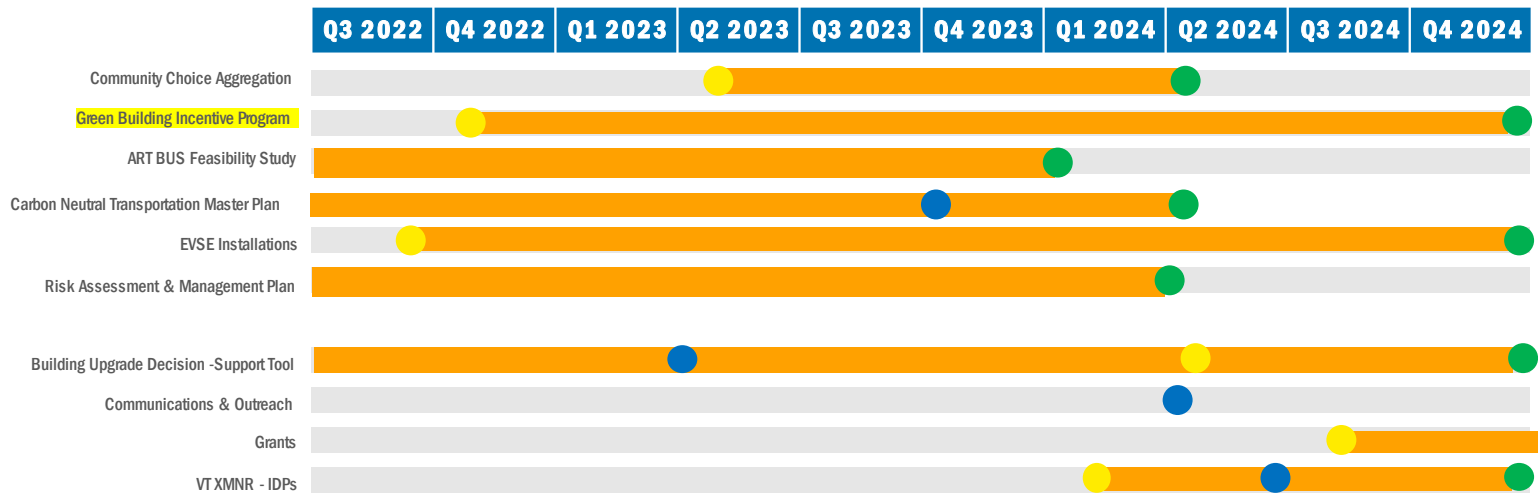
Director Business Development  
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**ATTACHMENT 2**  
**AIRE PROGRAM UPDATE**

# Progress Report on AIRE Key Actions



Start ● In progress ■ Key Milestone ● Estimated Completion ●

Note: Years listed on these slides are Calendar Year (CY), not Fiscal Year.

# Progress Report Notes

## Amendments:

- **Community Choice Aggregation (CCA):** Work start 10-16-2023; CAO/DES returned to Board Closed Session April 2024.
- **GBIP:** Board 2x2s; Review with C2E2/EC May 25-2024. Internal and external engagement commenced in April.
- **ARTBus Feasibility Study:** Study completed Nov 2023. 2nd order of 8 BEB buses submitted to Commonwealth for continued grant funding; staff is also reviewing potential federal grant opportunities.
- **Carbon Neutral Transportation Master Plan:** CMO and Board 2x2 reviews completed. Staff is working with Kimley Horn to 1) complete the related 5 Year Action Program and 2) submit a Round 3 CFI Grant.
- **EVSE Installations:** County staff continue to install EVSE for County fleet and public facing EV chargers; preparing Round 3 CFI grant application.
- **Risk Assessment & Management Plan:** RAMP webpage being finalized; review presentation to C2E2 May-2024.
- **Building Upgrade Decision-Support Tool:** Tool is being used by the County staff. **Phase II for additional facilities, measures and enhanced metrics to the Tool kicked off in June 2024**
- **Communications & Outreach:** Released the 2nd edition of the [ACCELERATE report](#) on 3/27/24; Team is developing key events/initiatives for FY 25 to drive behavioral change and market transformation; CPC working with schools
- **Grants:** Plan is to launch EPA EJ G2G Energy project in June 2024, begin to design bike voucher pilot Summer 2024. CB reports going forward for June 2024.
- **VT XMNR & IDPs:** Paul, Vicky, Scott Sklar, and Rich presented GBIP and CEP information to VT XMNR student cohort in May; possible student Independent Development Projects (IDPs) as follows