Mitigation Working Group
GHG Accounting Guidance

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Constellation
Emilee van Norden
Principal Analyst, Clean Energy Policy

Greenhouse Gas Accounting and Reporting Frameworks

How is GHG emissions reporting done now?

- While there is no universal framework for state GHG reporting, we can use the GHG Protocol for guidance.
  - NGOs, government agencies, universities, cities, and organizations use the GHG Protocol.
  - 97% of S&P 500 companies that report emissions use the GHG Protocol.
- Under the GHG Protocol Corporate Standard, emissions sources are defined as either Scope 1, 2, or 3.
  - Scope 1: refers to emissions from sources a company owns or controls
  - Scope 2: includes emissions from purchased electricity, steam, heat and cooling. There are two methods for calculating Scope 2 emissions, also called "dual-reporting": **location-based** and **market-based**.
    - Under the **location-based** method, a reporter would multiply their energy consumption by the local grid emissions factor.
    - Under the **market-based** method, a reporter would calculate emissions based on the electricity and market-based instruments that they have chosen to purchase. This method includes energy attribute certificates (EACs) and supplier-specific emissions factors.
  - Scope 3 includes indirect emissions from a company's upstream and downstream activities.

Why review greenhouse gas accounting methodologies for electricity sector?

- Adopting best practice accounting methodologies provides transparency for stakeholders and increases validity of reporting.
- Established GHG reporting frameworks help chart a path towards long-term sustainability goals and ensure consistent and reliable reporting over time.

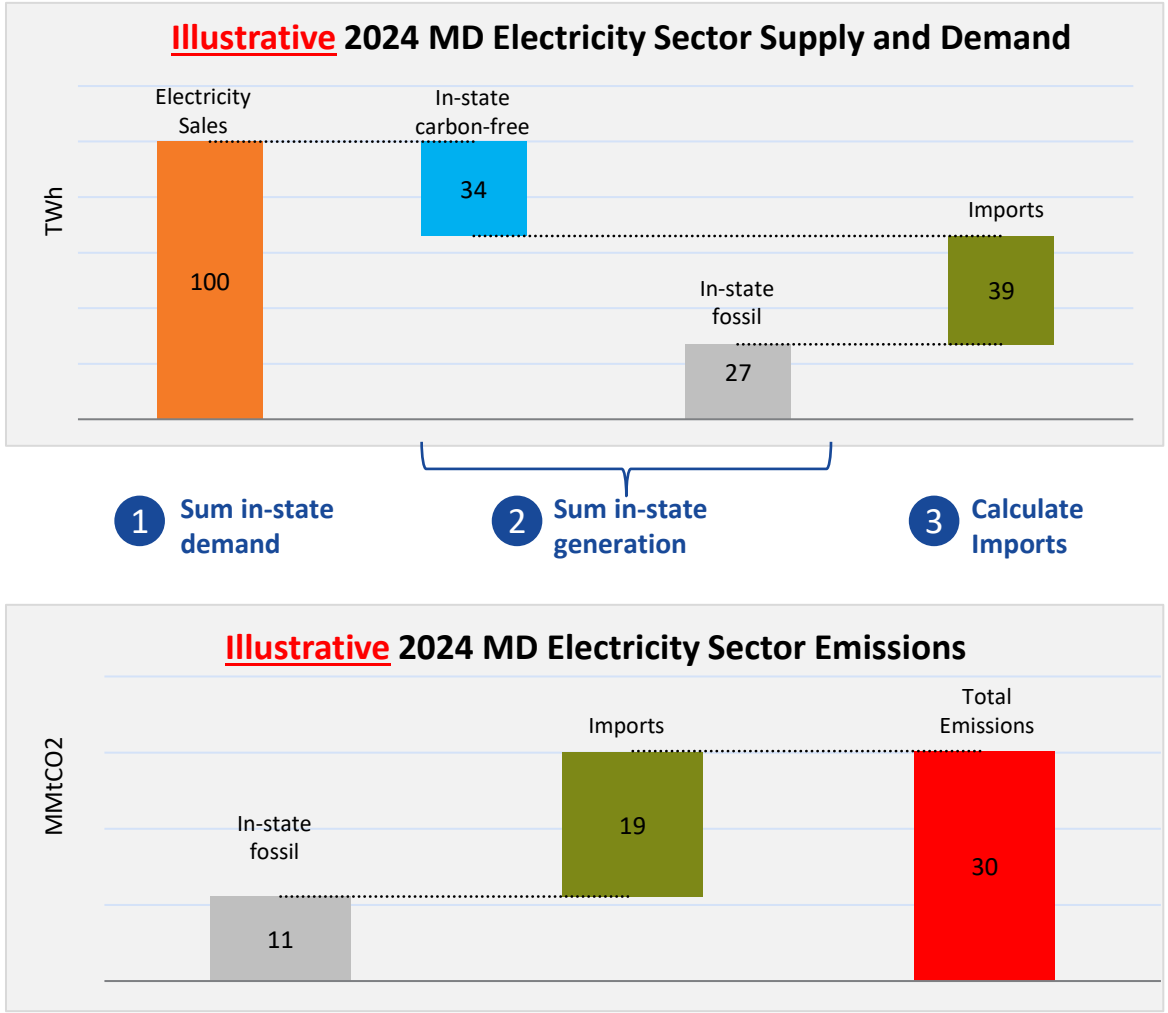
Status Quo Approach for Calculating Electricity Sector Emissions

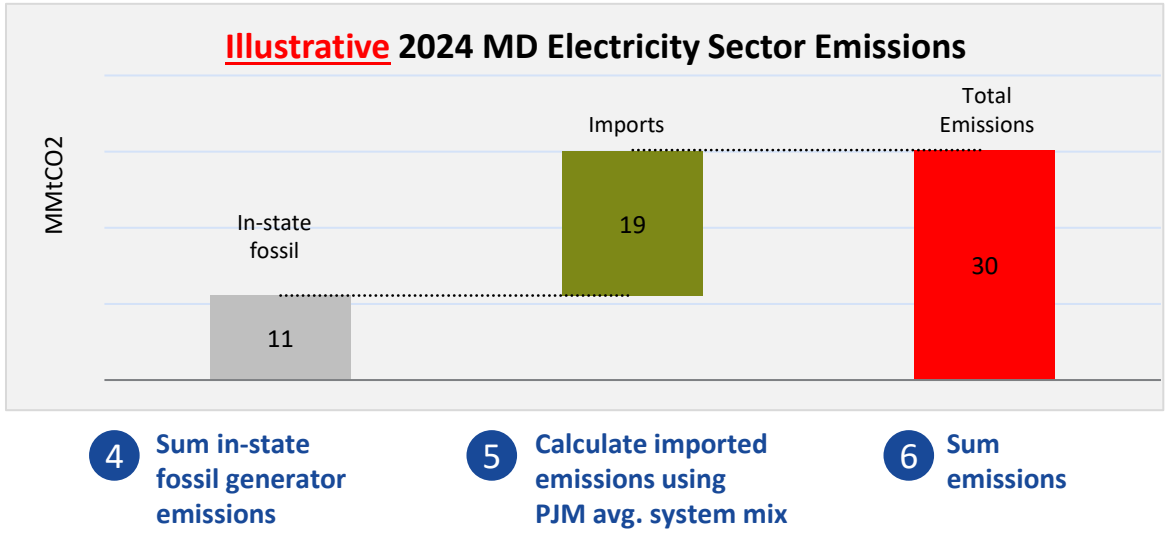
Electricity Supply and Demand

1. Determine total demand
   - Start with in-state electricity purchases
   - Add line losses
2. Determine total in-state generation by type
   - Sum all in-state carbon-free generation
   - Sum all in-state fossil generation
3. Calculate remaining electricity imports
   - Subtract in-state generation from total demand

Emissions

4. Calculate emissions from in-state fossil generation
5. Calculate import emissions
   - Apply PJM average system mix
6. Sum emissions from in-state generators and imports

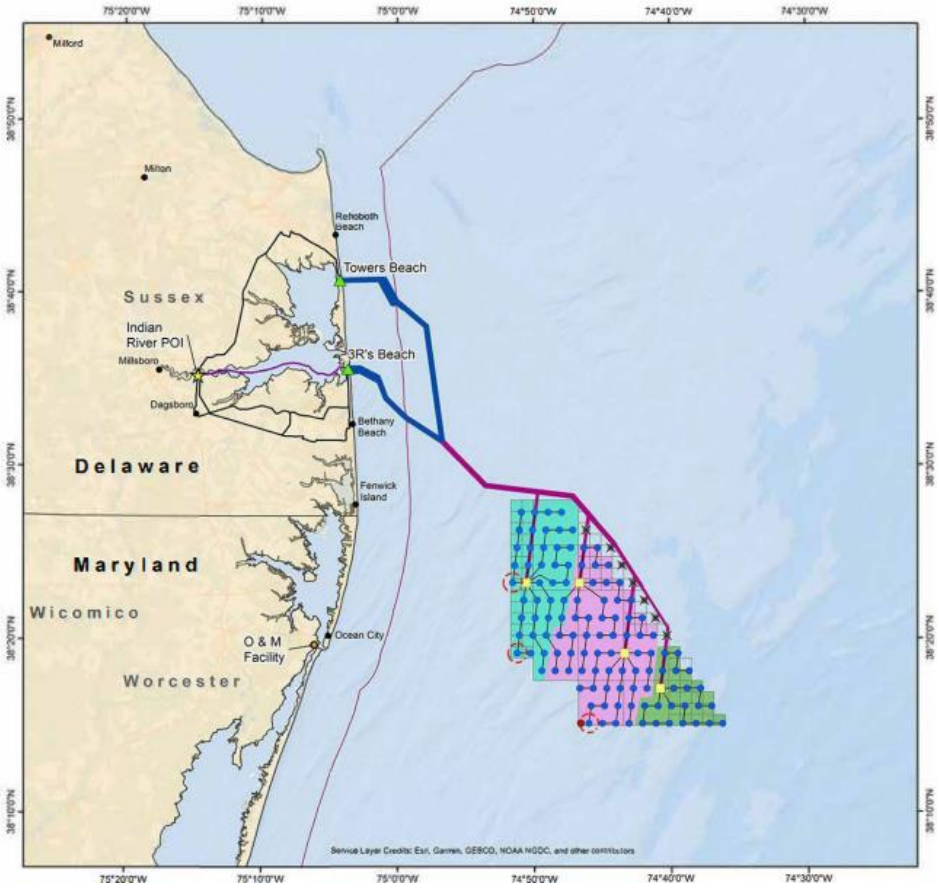




Issues with Status Quo Approach

- Maryland cannot directly take credit for out-of-state clean energy purchases.
  - The only way the generation from these resources can affect Maryland's inventory is by lowering the average emissions rate for the entire PJM system.
- As a result, none of the Maryland-supported offshore wind projects syncing in Delaware would count towards the state's GHG goals.
  - Maryland-supported offshore wind interconnecting in Delaware will not be reflected in Maryland's GHG inventory, creating a disconnect between GHG accounting and RPS treatment of offshore wind.
- Maryland claims credit for in-state nuclear generation without purchasing clean attributes.
- For imported power, Maryland uses PJM's average system mix which includes all clean generation in the PJM system, regardless of whether attributes are claimed by LSEs or other buyers.
  - Failure to take contracted clean generation into account creates credibility concerns. GHG reductions claims may be questioned due to EAC accounting uncertainties.

Offshore Wind Leasing Areas



The Maryland Outer Continental Shelf Lease Area shown above is divided into three development areas: MarWin Wind in green, Momentum Wind in magenta, and "future development" in blue. All three areas are leased by US Wind, which has been awarded OREC contracts corresponding to each.

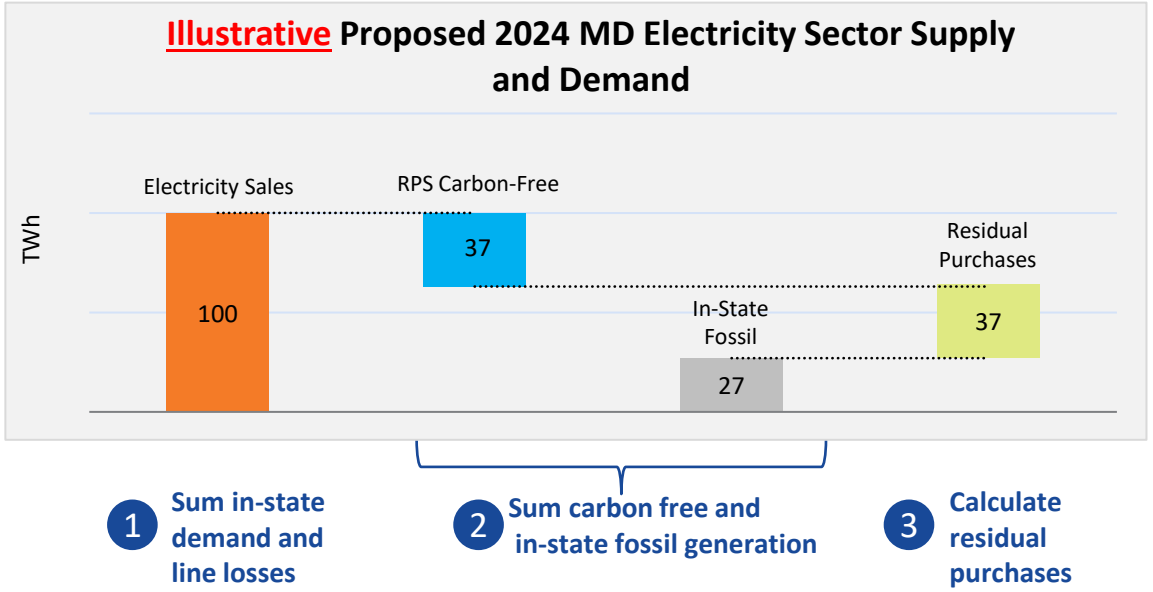
Proposed Approach

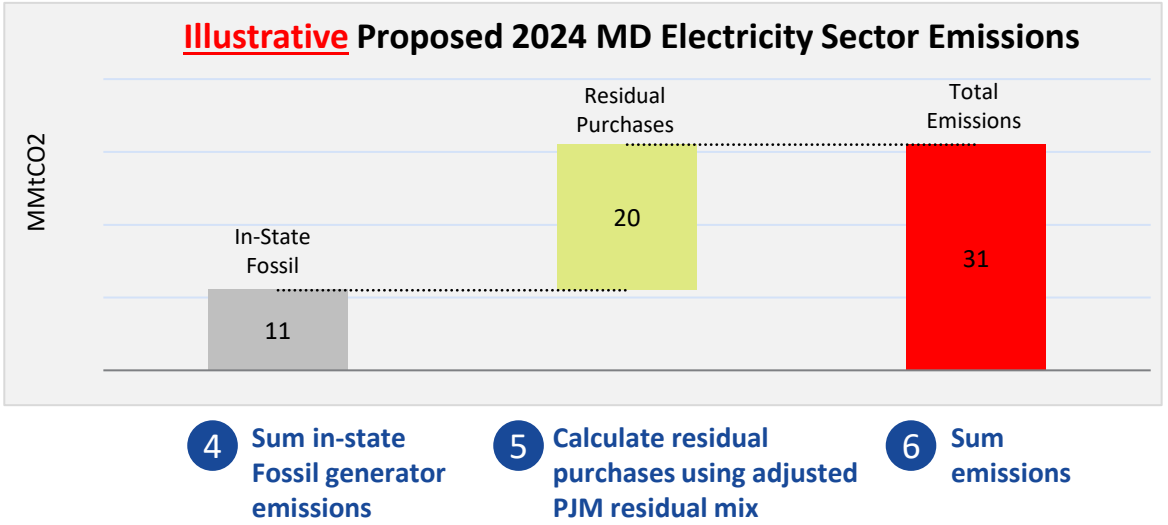
Supply and Demand

1. Determine total in-state demand
   - Start with in-state electricity purchases
   - Add line losses
2. Determine total carbon free and in-state fossil generation
   - Sum RPS carbon-free generation
   - Sum all in-state fossil generation
3. Calculate residual purchases
   - Subtract in-state fossil and carbon free gen. from demand

Emissions

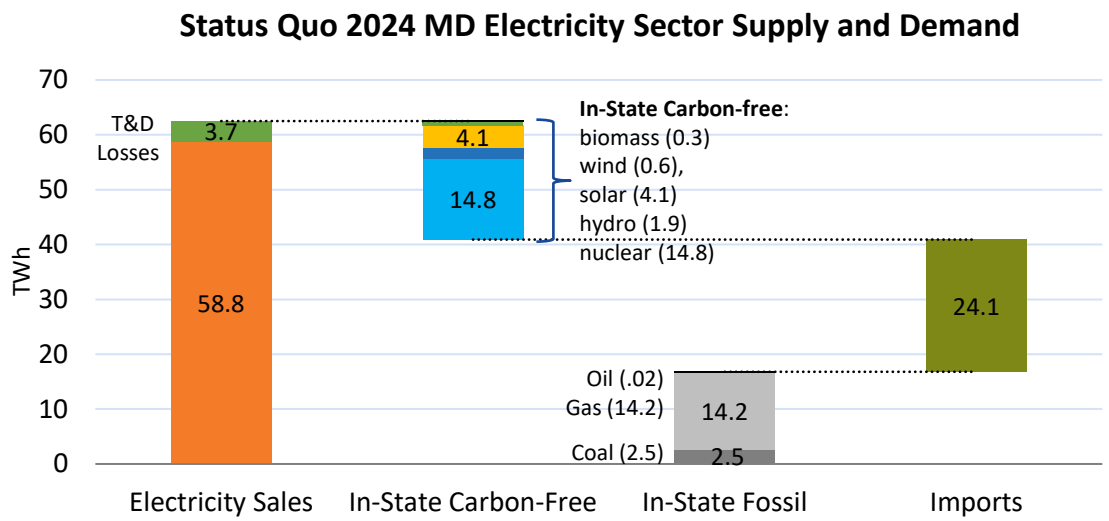
4. Calculate emissions from in-state generation
5. Calculate emissions from residual purchases
   - Apply adjusted PJM residual mix
6. Sum emissions from in-state fossil generators and the emissions from residual purchases

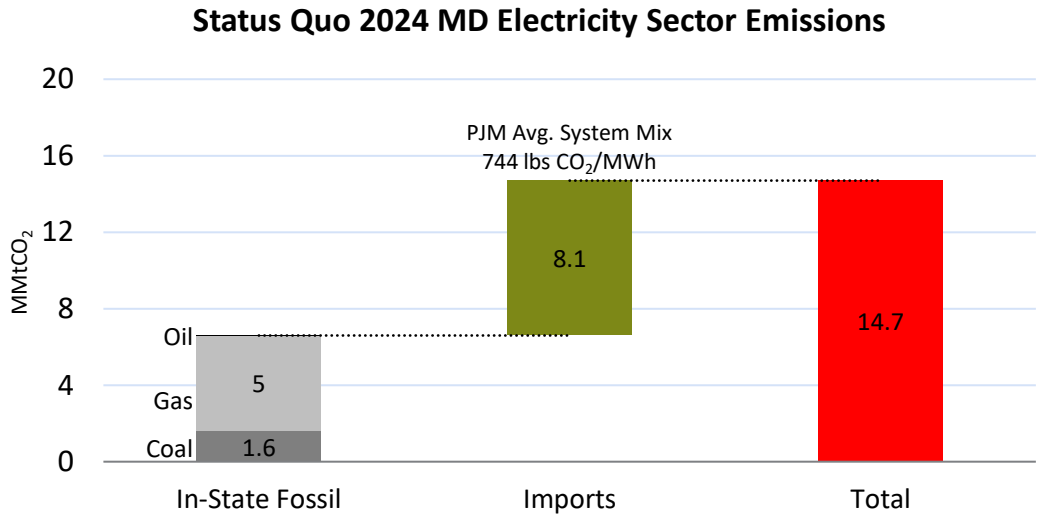




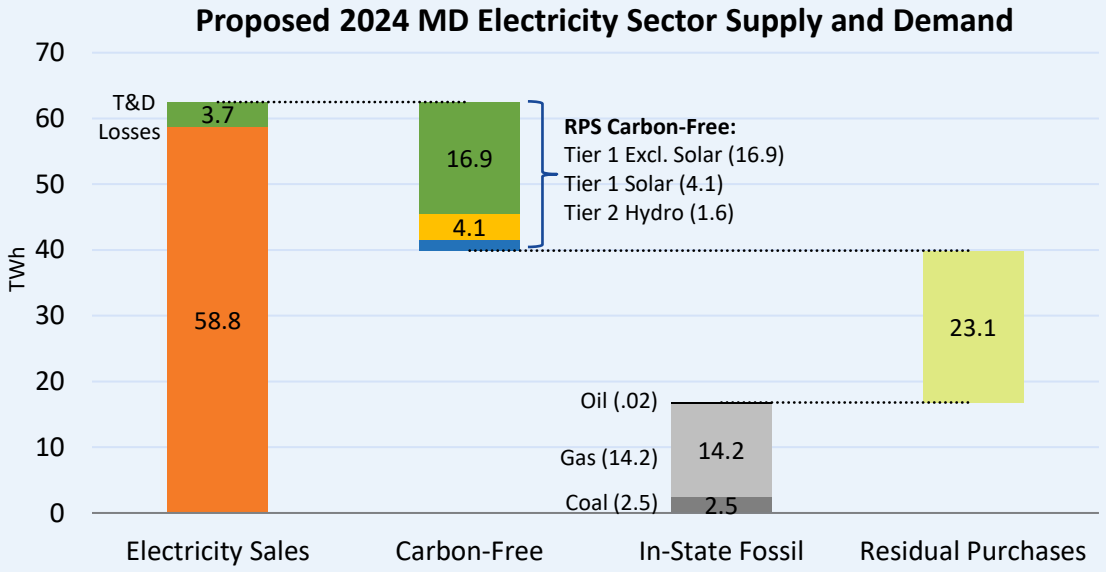
2024 Electricity Generation and Emissions

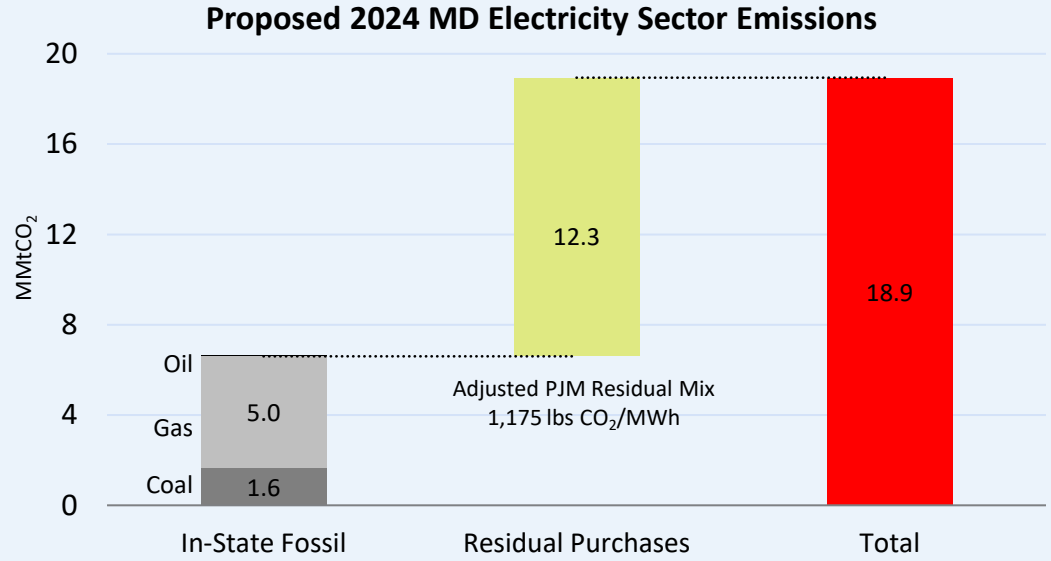
Status Quo





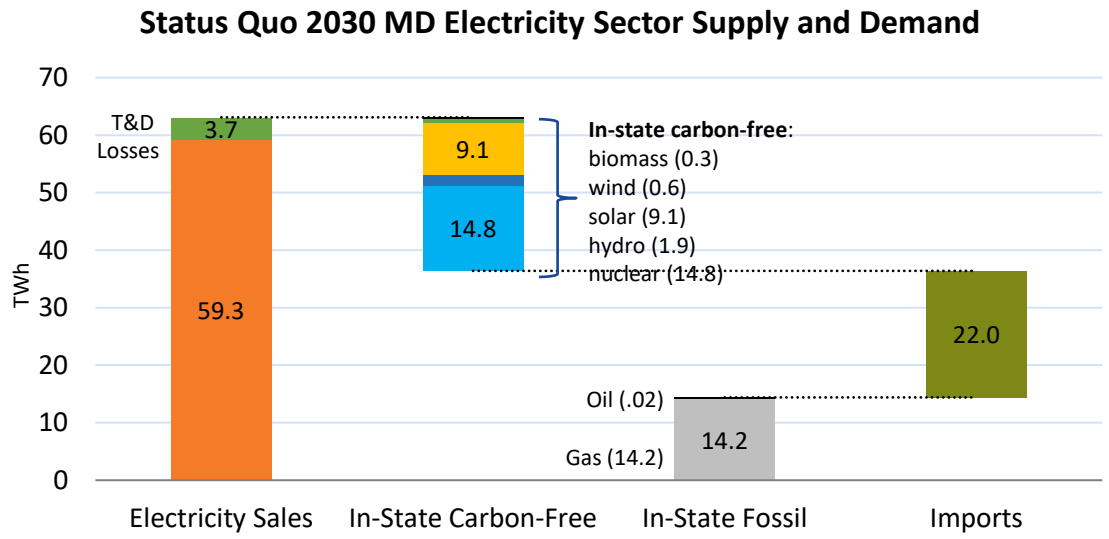
Proposed

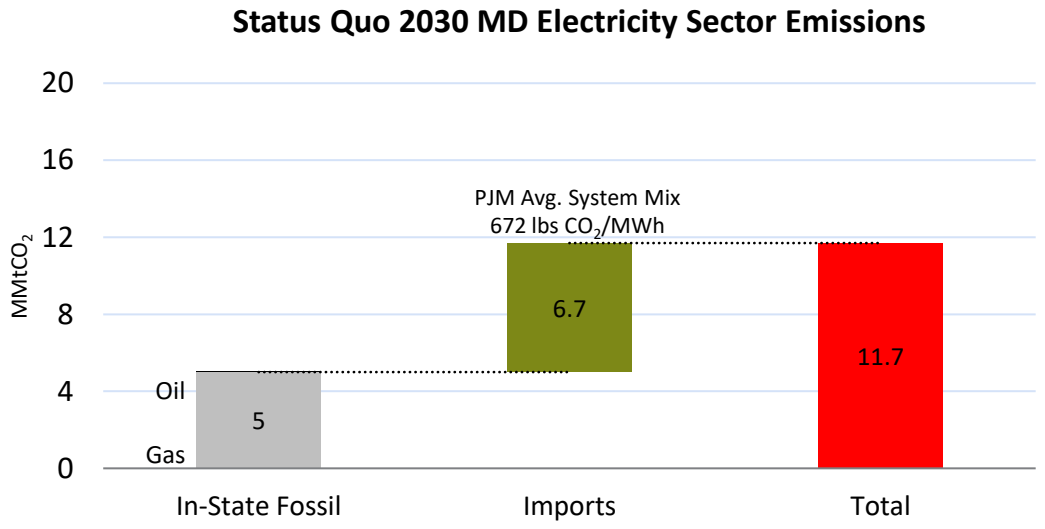




2030 Electricity Generation and Emissions

Status Quo





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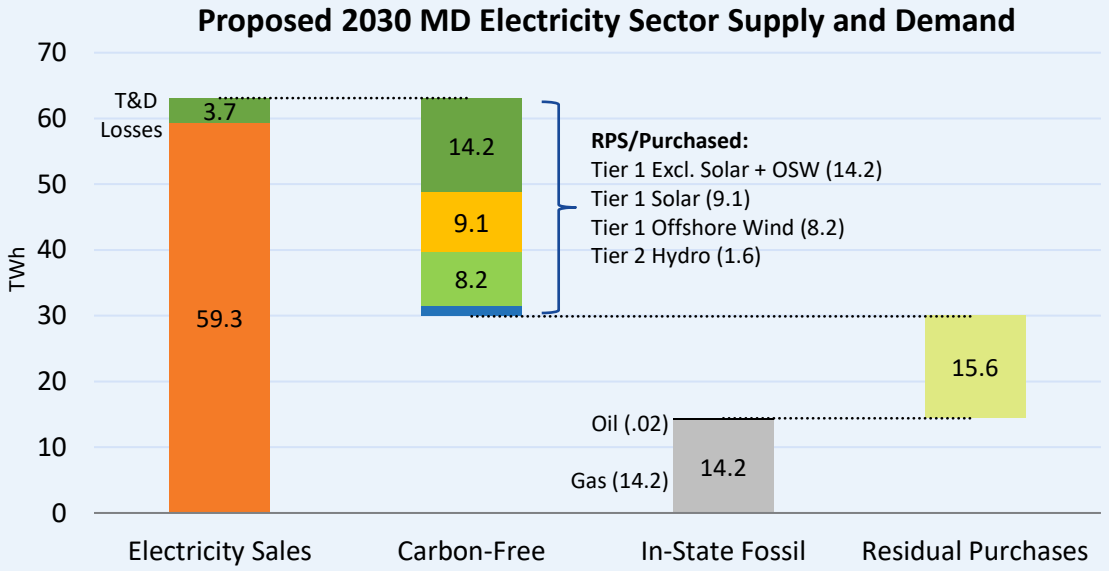

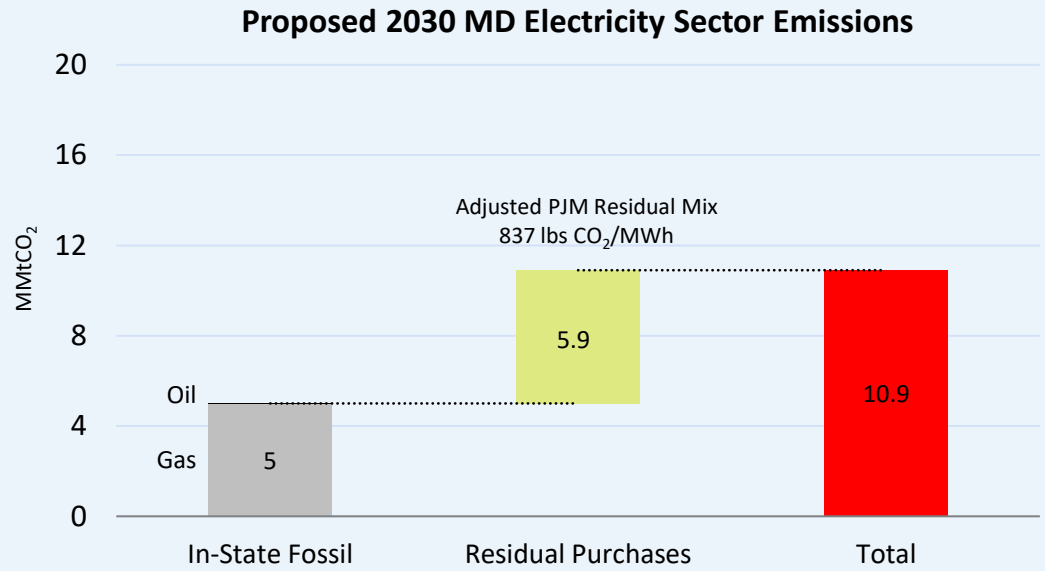

Building Upon Improved GHG Accounting

- Claiming clean energy without purchasing the attributes leads to double counting and undermines the legitimate efforts of other buyers.
  - Widespread adoption of the market-based approach strengthens the credibility and claims of all entities working towards their climate targets
- Adopting a market-based approach to GHG accounting brings Maryland's approach in line with its RPS and leads to defensible and more accurate GHG accounting claims.
  - Maryland already recognizes the importance of using EACs (e.g., RECs, ORECs, SRECs) for its clean energy commitment and claims.
  - GHG accounting is no longer dependent upon the physical interconnection point of a project, as long as attribute purchases from projects are located within the PJM footprint and purchased to meet MD state clean energy requirements
    - This allows for the flexibility of siting clean energy projects in the most favorable locations while still preserving deliverability.
    - The state receives credit for leadership in offshore wind development.
  - Incorporating EACs into GHG accounting opens the door to enhancing climate targets via a clean energy standard.