

INFORMATION SHEET

Accounting Approach for Electricity Sector Greenhouse Gas Mitigation Goals in the 2018 Pennsylvania Climate Action Plan Update

Why do we need to select an accounting approach for electricity sector greenhouse gas (GHG) mitigation goals for the Pennsylvania Climate Action Plan (CAP)?

There are three general ways that inventories and mitigation goals can account for electricity sector emissions:

1. **Generation-Based Accounting:** Account for emissions from in-state electricity generation, regardless of where that electricity is consumed (in-state or out-of-state)
2. **Consumption-Based Accounting:** Account for emissions from in-state electricity consumption, regardless of where that electricity is generated
3. **Dual Accounting:** Account for both emissions from in-state electricity generation and emissions from in-state electricity consumption beyond in-state generation levels

Selecting a single accounting approach ensures transparency and consistency when setting the GHG emissions baseline for the electricity sector and when tracking progress towards electricity sector GHG reduction goals (e.g., grid decarbonization and energy efficiency). A consistent approach also reduces the risk of double counting emissions and emission reductions.

What approach has been selected, and why?

The Analysis Team has selected Option #2, consumption-based accounting, for mitigation goal accounting. The reasons for selecting this approach include:

- **Pennsylvania is expected to remain a net exporter with little to no electricity imports.** As a result, electricity consumed within Pennsylvania is almost entirely sourced from within the state, which means electricity consumption is a reliable proxy for in-state emissions. Meanwhile, Pennsylvania's consumption drives only some of the emissions from in-state generation since Pennsylvania exports so much electricity generation to other states.
- **Consumption-based accounting increases the ability of Pennsylvania-specific actions to directly impact GHG emissions and reduces the ability for actions from other states to influence progress towards meeting GHG reduction goals.** This gives Pennsylvania leaders and citizens greater leverage to reduce GHG emissions towards meeting set goals. It also allows DEP to realize the benefits from strategies that target both electricity generation and electricity consumption.
 - o *Under a generation-based accounting approach, strategies that target in-state electricity generation would count towards emissions reductions, but strategies that target end-use electricity consumption would have little or no effect on emissions from in-state generation. Furthermore, under a generation-based approach, a reduction in end-use consumption could have results that offset any associated emission reductions (e.g., Pennsylvania could increase electricity exports to other states, a change generation mix could increase average emission rates).*

- *Under a dual accounting approach, a reduction in electricity consumption would not lead to a reduction in electricity sector emissions, as Pennsylvania generators could change their generation mix or export more electricity to other states in the PJM region.*
- **Consumption-based accounting aligns with recommendations from internationally recognized guidance (see below).**
- **This approach allows the modeling team to represent both total GHG emissions reductions from strategies, as well as the subset of emissions that will count directly towards the Pennsylvania mitigation goal.**
- **This approach allows the team to use a modeling-team-developed, Pennsylvania-specific GHG emission factor that will change over time as the carbon intensity of the grid changes with the implementation of new policies and programs (e.g., Solar Future). It captures the interactive effects of grid carbon intensity reductions and changes in end use energy consumption.**

How does this differ from GHG accounting in the Pennsylvania GHG inventory?

The Pennsylvania GHG inventory is generated using the U.S. EPA State Inventory Tool, which uses a generation-based approach. While the Tool calculates total statewide GHG emissions from electricity consumption, these emissions are not counted towards the statewide total. In other words, only Scope 1 emissions (e.g., direct fuel consumption for buildings and electricity generation) are counted towards the official inventory results, while Scope 2 emissions, or consumed electricity GHG emissions, are not.

The approach for electricity sector accounting in the Climate Action Plan accounts for Scope 2 GHG emissions, but is based on the premise that electricity consumption is sourced from generation in Pennsylvania. Therefore, a reduction in the carbon intensity of Pennsylvania's generation will result in a lower emission factor being applied to Scope 2 emissions from electricity consumption.

Why are we taking a different approach to electricity sector GHG accounting for the CAP mitigation goal than what is used for the Pennsylvania GHG inventory?

GHG accounting for inventories and mitigation goals is inherently different and does not need to use the same boundaries. Guidance (see references below) generally suggests that these boundaries and accounting principles should differ, as an inventory is intended to be comprehensive, while a mitigation goal may be bound by a specific sector or geography. More specifically, mitigation goal boundaries can be drawn to reflect the set of emissions that the organization or jurisdiction has the greatest ability to influence through mitigation activities.

What resources did the Analysis Team use in selecting the approach?

The Analysis Team used and considered a number of internationally-recognized resources in selecting this approach, including those listed below. The team also reviewed accounting methods used in select other states (e.g., California).

- [The Greenhouse Gas Protocol Series Policy and Action Standard](#) (World Resources Institute)
- [The Greenhouse Gas Protocol Series Mitigation Goal Standard](#) (World Resources Institute)
- [The Greenhouse Gas Protocol Series Global Protocol for Community-Scale Greenhouse Gas Emission Inventories](#) (World Resources Institute, C40 Cities, ICLEI)
- [The Greenhouse Gas Protocol Series Scope 2 Guidance](#) (World Resources Institute)