Appendix B

Charge Questions

Chapter 2: Energy
General Charge Questions
1. What are your overall impressions of the clarity of this section?
2. What recommendations do you have to add to or improve the overall transparency, completeness, consistency and accuracy of this chapter?

3. <u>Data availability.</u> Please address the following questions for each inventory source:
 	
    a. For each of the categories, are there additional relevant data sources that are not currently included, but could be incorporated into this analysis?
    b. For national level datasets that are currently used, are you aware of other comparable datasets of activity, emission factor, or emissions data that are available at the State, county, or zip-code levels?

4. <u>Uncertainty.</u> Currently uncertainty ranges are not included for the state level estimates. Please provide feedback on what qualitative and quantitative information would be useful. Timeseries Coverage. Currently State data covers 1990-2019 consistent with the 2021 National GHG Inventory, and inclusive of most known baseline periods for climate policy. Subsequent publications of this data will also strive to maintain this consistency with the National Inventory. As state-specific input datasets are not always available over the entire timeseries, understanding which years may be more important can help us to better prioritize our backcasting and methodological efforts across the time series. EPA appreciates feedback on which, if any years should be prioritized for future State-level estimates (e.g., 2000 and later, 2005 and later, 2010 and later, or the full time series).
5. <u>Key Categories</u>. EPA anticipates prioritizing methodological refinements for more significant categories to make efficient use of available resources over time. EPA appreciates feedback on which categories are more relevant for further refining for the sector you are reviewing.

6. <u>Data Presentation and Usability</u>.
 	
    a. Are there other ways the state-level emissions data could be presented to facilitate their use (e.g., in the EPA GHG Inventory Data Explorer available online at: https://cfpub.epa.gov/ghgdata/inventoryexplorer/)?
        i. Related to the level of category/gas aggregation or disaggregation?
        ii. Are there specific categories where further data disaggregation could be helpful?
        iii. What data format would best facilitate the use of the state-level emissions data (e.g., .xlsx download, etc.)?
    b. What additional datasets or information could be provided to help increase the usability of the state-level emissions data?

Combustion Charge Questions

Fossil Fuel Combustion

1. Some fuels have differences in consumption data between the aggregated State-level totals and national totals. The current approach is to use data from the national *Inventory* in those cases. Are there other approaches that could be taken? Do you know of cases where others have dealt with the differences in the totals, and if so how?

2. Consistent with the IPCC Guidelines, we have adjusted fuel consumption totals in the energy sector to account for consumption in the IPPU sector. In some cases, this step could lead to a negative emission total for a State if the subtracted amount (as determined from the assumed distribution) was greater than consumption data from the State Energy Data System (SEDS). This outcome was corrected to zero if that was the case, but are there other approaches for correcting for that difference?

3. Consistent with the national Inventory, the default approach taken here was to allocate transportation sector CO_2 emissions based on FHWA fuel use/sales by State. For some States, this may not be accurate because fuel sold in a State may be combusted in other States. Another option is to use vehicle miles traveled (VMT) data by State but that approach does not factor in vehicle fuel economy. Are there other alternative or complementary approaches to allocate transportation fuel across States, including VMT data and other sources (e.g., NEI – based on county-level fleet and activity data to generate a bottom-up inventory) that EPA should consider? If so, what data sources exist to help with that alternative approach? Would it be helpful to present transportation sector emissions using multiple approaches in future inventories?

4. Mobile source non-CO_2 emissions are allocated across States based on vehicle-miles-traveled data while mobile source CO_2 emissions were allocated based on fuel sales, as mentioned above. Is there an issue with using two different methodologies for mobile source CO_2 vs. non-CO_2 State splits?

5. Several fuels have variable C factors over time including coal, natural gas, gasoline, and diesel fuel. Those fuels might also have variable C factors across areas/States. Are data available to build out State-specific C factors for the fuels with variable C contents? If so, could it be done in a way that the State-level total emissions still matched up to the national total emissions for those fuels?

6. Geothermal emissions could be allocated by the type of geothermal production per State (because different types have different emissions factors) if that data are available. Is there more information on State-level geothermal emission factors and production?

Non-Energy Uses (NEU) of Fossil Fuels

1. For petrochemical feedstocks, non-energy use (NEU) of natural gas is allocated across States based on petrochemicals emissions data per State from the IPPU adjustments, while other fuels are allocated based on the underlying SEDS data. Allocating across States based on the underlying SEDS data ensures there are no States where NEU use is larger than original SEDS data and there are no zeros associated with subtracting NEU (it is not an issue for

natural gas because use is so high overall compared with NEU use). Could different approaches be used or can the petrochemical data be used without resulting in negative use?

Incineration of Waste

1. Waste incineration emissions are calculated based on the combustion of fossil components of both municipal solid waste (MSW) and tires. However, emissions are disaggregated to Sates based only on MSW tonnage. Are there approaches or data available to disaggregate emissions based on waste category (e.g., MSW combustion vs. tire combustion)?

International Bunker Fuels

1. The approach used to allocate jet fuel bunker fuels by State is currently based on the total amount of jet fuel used by State which could potentially lead to an over- or under-estimation for some States of bunker fuel emissions. Are there other more accurate approaches to allocate jet fuel bunker data across States as opposed to the percentage of jet fuel total use? For example, using Federal Aviation Administration flight level data on departures and destinations or assuming based on States with international airports and flights?

Wood Biomass and Biofuels Consumption

1. What recommendations do you have to add to ensure high-quality state-level estimates consistent with the national *Inventory*? (*Cf.* General Chapter Charge Questions 1-5)

Fugitive Charge Questions

Coal Mining

1. Do you have any comments specific to the methodology and emission estimates for active coal mines and abandoned coal mines?

2. Are you aware of any State datasets that may be useful in helping to refine emission estimates for abandoned coal mines, including State-level datasets addressing recovery of methane from abandoned mines?

Abandoned Underground Coal Mines

1. What other relevant data sources could be included? If data are used at the national level, are you aware of other comparable data sources at the State level?

Petroleum Systems and Natural Gas Systems

1. Are there relevant dataset(s) that could be used to replace or supplement the data currently used to allocate petroleum and natural gas system emissions to the state level? Particularly, state or detailed location information on gathering and boosting stations, processing plants, and transmission and storage stations?

2. Are there additional Greenhouse Gas Reporting Program (GHGRP) data that could be used to allocate natural gas and petroleum emissions to each State?

3. Are you aware of any State datasets that may be useful in helping to refine emission estimates for abandoned wells, including State-level datasets addressing plugging status of abandoned wells?

4. Are there particular sources for which State-level regulatory or voluntary programs result in large differences in emission rates between states? Are state-specific data sets available for those sources?

Abandoned Oil and Gas Wells
1. What other relevant data sources could be included? If data are used at the national level, are you aware of other comparable data sources at the State level?

Chapter 3: IPPU

General Charge Questions
1. What are your overall impressions of the clarity and transparency of this section?
2. What recommendations do you have to add to the overall completeness and accuracy of this chapter?

3. Data availability. Please address the following questions for each inventory source:
 	
    a. For each of the categories, are there additional relevant data sources that are not currently included, but could be incorporated into this analysis?
    b. For national level datasets that are currently used, are you aware of other comparable datasets of activity, emission factor, or emissions data that are available at the State, county, or zip-code levels?

4. Uncertainty. Currently uncertainty ranges are not included for the state level estimates. Please provide feedback on what qualitative and quantitative information would be useful. Timeseries Coverage. Currently State data covers 1990-2019 consistent with the 2021 National GHG Inventory, and inclusive of most known baseline periods for climate policy. Subsequent publications of this data will also strive to maintain this consistency with the National Inventory. As state-specific input datasets are not always available over the entire timeseries, understanding which years may be more important can help us to better prioritize our backcasting and methodological efforts across the time series. EPA appreciates feedback on which, if any years should be prioritized for future State-level estimates (e.g., 2000 and later, 2005 and later, 2010 and later, or the full time series).
5. Key Categories. EPA anticipates prioritizing methodological refinements for more significant categories to make efficient use of available resources over time. EPA appreciates feedback on which categories are more relevant for further refining for the sector you are reviewing.

6. Data Presentation and Usability.
 	
    a. Are there other ways the state-level emissions data could be presented to facilitate their use (e.g., in the EPA GHG Inventory Data Explorer available online at: https://cfpub.epa.gov/ghgdata/inventoryexplorer/)?
        i. Related to the level of category/gas aggregation or disaggregation?
        ii. Are there specific categories where further data disaggregation could be helpful?

iii.   What data format would best facilitate the use of the state-level emissions data (e.g., .xlsx download, etc.)?   b. What additional datasets or information could be provided to help increase the usability of the state-level emissions data?

Minerals Charge Questions

Cement Production

1. Are you aware of data on State-level clinker production for the full 1990-2019 time series? If not, is there any surrogate data that could be used (e.g., facility production capacity, utilization rates by facility or State) for 1990–2019 that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

Lime Production

1. Are you aware of state-level data on lime production (activity data) by type (e.g., high-calcium quicklime; dolomitic quicklime, high-calcium, hydrated; dolomitic, hydrated; dead-burned dolomite; CO_2 captured for use in onsite processes) for some or all of the 1990–2019 time series? If not, is there any surrogate data (e.g., facility production capacity, utilization rates by facility or State) for 1990–2019 that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

2. Based on analysis of Greenhouse Gas Reporting Program data, it appears that most facilities that manufacture beet sugar and lime, as well as a few lime manufacturing facilities capture CO_2 for use in onsite processes. Are you aware of any information why lime producing facilities capture CO_2 for use in onsite processes, any trends in this practice during the 1990–2019 time series (e.g., have facilities increased or decreased adoption of this practice during the time series), or whether the amount of CO_2 captured is proportional to the amount of lime produced or some other metric? Are you aware of any data on the amount of CO_2 captured onsite per facility or State for 1990–2009?

3. For some States and years (Colorado for 2010–2015, Idaho for 2011 and 2019, and Nebraska for 2010–2014), calculations using GHGRP data on emissions and CO_2 captured for onsite processes yielded small but erroneous negative emissions. EPA zeroed emissions for those States and years and plans to adjust calculations so that State emissions totals match national emissions. Do you have any general feedback on this approach?

Glass Production

1. Are you aware of state-level data on glass production or the amount of carbonate (i.e., limestone, dolomite, soda ash) consumed for glass production by State (activity data) for some or all of the 1990–2019 time series? If not, can you share any state-level surrogate data (e.g., more complete data on glass facilities by State, amount of glass products by type [i.e., containers, flat (window) glass, fiber glass, and specialty glass]) for 1990–2019 that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

Other Process Uses of Carbonates

1. Are you aware of state-level data on the consumption of limestone and dolomite for the iron and steel sector for the 1990–2019 time series? If not, can you share any state-level surrogate data for 1990–2019 that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends from carbonate consumption by the iron and steel sector?

2. Are you aware of state-level data on the consumption of soda ash (not associated with glass manufacturing) for the 1990–2019 time series?

3. Are you aware of any state-level data on limestone and dolomite consumption for flux stone, flue gas desulfurization systems, chemical stone, mine dusting or acid water treatment, acid neutralization, and sugar refining activities for the 1990–2019 time series?

CO_2 Consumption

1. Are you aware of other data on the consumption of CO_2 by State for the 1990–2019 time series?

Chemical Charge Questions

Ammonia Production

1. Currently, production capacity is used as a surrogate for state-level ammonia production for 1990–2009. In the absence of ammonia production by State in more recent years, are you aware of other surrogate data (e.g., facility utilization rates by State) that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

Urea Consumption for Nonagricultural Purposes

1. Are you aware of state-level data on urea consumption for nonagricultural purposes (activity data) for some or all of the 1990–2019 time series?

Nitric Acid Production

1. Are you aware of state-level data on nitric acid production (activity data) for some or all of the 1990–2009 time series? We currently use production capacity as a surrogate for nitric acid production by State for 1990–2009. We know that the production capacity data used for this State inventory calculation are incomplete for 1990–2009. Are you aware of more complete data on facility production capacity by State?

2. Are you aware of state-level data other than facility production capacity (e.g., utilization rates by facility or State, information about abatement technology installations and use per facility) for 1990–2009 that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

Adipic Acid Production

1. Are you aware of any other state-level data on adipic acid production (activity or emissions data) for some or all of the 1990–2019 time series?

Caprolactam, Glyoxal, and Glyoxylic Acid Production

1. Are you aware of state-level data on caprolactam production or emissions for some or all of the 1990–2009 time series? We currently use production capacity as a surrogate for caprolactam production by State. Are you aware of more complete data on facility production capacity or actual production by State? Are you aware of better surrogate data other than

facility production capacity (e.g., utilization rates by facility or State, information about abatement technology installations and use per facility) that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

Carbide Production and Consumption

1. Are you aware of state-level data on SiC production (activity data) for the 1990–2019 time series? Are you aware of other data to refine accuracy of the estimation of SiC consumption by State for the 1990–2019 time series?

2. Are you aware of information that can help us improve the accuracy of production in the two States where SiC facilities are located?

Titanium Dioxide (TiO$_2$) Production

1. Are you aware of data on TiO$_2$ production (activity data) by State for the 1990–2009 time series? Please share any other surrogate data than facility production capacity or more data by State (e.g., facility utilization rates by facility or State) for 1990–2009 that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends.

Petrochemical Production

1. Are you aware of data on petrochemical production by type by State for the 1990–2019 time series? Is there any other surrogate data by State or facility (e.g., facility production capacity; utilization rates by facility or State; timing of facility expansions, openings, and temporary or permanent closures) for the full 1990–2019 time series that could address data gaps and refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

Phosphoric Acid Production

1. Are you aware of state-level data on phosphoric acid production (activity data) for the 1990–2009 time series? Is there any other surrogate data or information (e.g., timing of facility expansions and temporary or permanent closures, origin of phosphate rock used in facilities) by State or facility for 1990–2019 that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

HCFC-22 Production

1. For the years 1990–2009, there are significant uncertainties in the allocation of national-level U.S. emissions to individual facilities and States, particularly for the five HCFC-22 production facilities that closed before 2003 and for which production capacity data are therefore not available. Are you aware of any more complete sources of production capacity or other relevant historical data?

2. Do you have recommendations for how to refine the methodology to more accurately estimate emissions from HCFC-22 production over the time series?

Metals Charge Questions

Iron and Steel and Metallurgical Coke Production

1. Are you aware of state-level data on iron and steel production (activity data) by category (i.e., sinter production, iron production, pellet production, steel production, other activities) for

some or all of the 1990–2019 time series? In the absence of steel production by State, are you aware of better surrogate data that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

2. Are you aware of information to better allocate basic oxygen furnace and electric arc furnace production by State for 1990–2009?

Ferroalloy Production

1. Are you aware of state or facility-level data on ferroalloy production (activity data) for the 1990–2019 time series? Is there any other surrogate data (e.g., facility production capacity, utilization rates by facility or State) for 1990–2019 that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

Aluminum Production

1. Are you aware of data available to incorporate differences in emissions between smelters based on technology type? Is there any other surrogate data or emission sources that could be used to allocate national total aluminum production emissions across States?

Magnesium Production and Processing

1. Are you aware of state or facility-level magnesium production or capacity data (or surrogate data) for the 1990–2019 time series?

2. Are you aware of information on the location (by State) of magnesium production and processing facilities or information on the location (by State) of magnesium production and processing facilities by process type?

Lead Production

1. Are you aware of state or facility-level data on primary or secondary lead production (activity data) for the 1990–2019 time series? Is there any other surrogate data (e.g., primary or secondary production capacity by facility or State) for 1990–2009 that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

Zinc Production

1. Are you aware of state or facility-level data on zinc production (activity data) by unit type (i.e., electrothermic furnace, Waelz kiln, other furnaces, and flame reactor units) for the 1990–2019 time series? Is there any other surrogate data (e.g., total number of zinc facilities by State, production capacity by unit type and by facility or State) or other data by State (e.g., utilization rates by facility or State) for 1990–2009 that could refine this State inventory calculation to enhance accuracy and consistency of State GHG emissions and trends?

Product Charge Questions

Electronics Industry

1. Are you aware of State- or facility-level capacity data or other state-level surrogate data (e.g., sales data) for PV manufacturing for 1990–2006 that could be used to refine the allocations of emissions by State? Is there any surrogate data (e.g., sales data by State) by State for semiconductor or MEMS manufacturing for 1990–2007 that could be used to refine the allocations of emissions by State?

Substitution of Ozone-Depleting Substances

1. Are you aware of bottom-up modeling data that are available by State? Is there any surrogate data other than population data that could be used to disaggregate the emissions of substitutes for ozone-depleting substances?

Electrical Transmissions and Distribution

1. Are you aware of state-level electrical transmission and distribution equipment data (e.g., nameplate capacity by State) or other data for 1990–2019 (or part of the time series) that could refine this State inventory calculation to reflect State trends in emissions more closely? Is there any other surrogate data (e.g., State population data) to enhance accuracy and consistency of State GHG emissions and trends than the current data being used (transmission mile data by State)?

N₂O from Product Use

1. Are you aware of state-level data on N_2O usage for medical and dental anesthesia, food processing propellant and aerosols, sodium azide production, or other applications (e.g., fuel oxidant in auto racing, oxidizing agent in blowtorches) for some or all of the 1990–2019 time series? Is there any other surrogate data (e.g., State population data) that could be used to enhance accuracy and consistency of State GHG emissions and trends other than the current data (transmission mile data by State)?

Chapter 4: Agriculture

General Charge Questions

1. What are your overall impressions of the clarity and transparency of this section?

2. What recommendations do you have to add to the overall completeness and accuracy of this chapter?

3. Data availability. Please address the following questions for each inventory source:

    a. For each of the categories, are there additional relevant data sources that are not currently included, but could be incorporated into this analysis?

    b. For national level datasets that are currently used, are you aware of other comparable datasets of activity, emission factor, or emissions data that are available at the State, county, or zip-code levels?

4. Uncertainty. Currently uncertainty ranges are not included for the state level estimates. Please provide feedback on what qualitative and quantitative information would be useful. Timeseries Coverage. Currently State data covers 1990-2019 consistent with the 2021 National GHG Inventory, and inclusive of most known baseline periods for climate policy. Subsequent publications of this data will also strive to maintain this consistency with the National Inventory. As state-specific input datasets are not always available over the entire timeseries, understanding which years may be more important can help us to better prioritize our backcasting and methodological efforts across the time series. EPA appreciates feedback on which, if any years should be prioritized for future State-level estimates (e.g., 2000 and later, 2005 and later, 2010 and later, or the full time series).

5. Key Categories. EPA anticipates prioritizing methodological refgeninements for more significant categories to make efficient use of available resources over time. EPA appreciates

feedback on which categories are more relevant for further refining for the sector you are reviewing.

6. Data Presentation and Usability.

    a. Are there other ways the state-level emissions data could be presented to facilitate their use (e.g., in the EPA GHG Inventory Data Explorer available online at: https://cfpub.epa.gov/ghgdata/inventoryexplorer/)?

        i. Related to the level of category/gas aggregation or disaggregation?

        ii. Are there specific categories where further data disaggregation could be helpful?

        iii. What data format would best facilitate the use of the state-level emissions data (e.g., .xlsx download, etc.)?

    b. What additional datasets or information could be provided to help increase the usability of the state-level emissions data?

Livestock Charge Questions

Enteric Fermentation

1. Are there other/newer data sources or methods, particularly at the State level, that EPA should be aware of and consider in calculating these emissions? Especially for:

- Dry matter/gross energy intake;
- Annual data for the digestible energy (DE) values (expressed as the percent of gross energy intake digested by the animal), CH_4 conversion rates (Ym) (expressed as the fraction of gross energy converted to CH_4), and crude protein values of specific diet and feed components for foraging and feedlot animals;
- Monthly beef births and beef cow lactation rates;

Weights and weight gains for beef and dairy cattle.

2. Are State-specific diet data available to EPA to enhance characterization of diet differences across livestock types and U.S. States?

3. For the enteric fermentation source category and the Cattle Enteric Fermentation Model (CEFM), are the various regional designations of U.S. States (as presented in Annex 3.10 of the GHG *Inventory*) used for characterizing the diets of foraging cattle appropriate? The CEFM is used to estimate cattle CH_4 emissions from enteric fermentation and incorporates information on livestock population, feeding practices, and production characteristics.

Manure Management

1. Are there other/newer data sources, particularly at the State-level, that EPA should be aware of and consider in calculating these emissions? Especially for the following:

- waste management system data, particularly seasonal changes in emissions from different waste management systems;
- maximum methane-producing capacity;
- volatile solids and nitrogen excretion rates; and

measured emission estimates (by waste management system) to help refine estimates of methane conversion factors.

Agricultural Soil Management Charge Questions
1. What are your overall impressions of the clarity and transparency of this section?
2. What recommendations do you have to add to ensure high-quality state-level estimates consistent with the national *Inventory*?

Other Charge Questions
Rice Cultivation
1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5)*
Liming
1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5)*
Urea Fertilization
1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5)*
Field Burning of Agricultural Residues
1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5)*

Chapter 5: LULUCF
General Charge Questions
1. What are your overall impressions of the clarity and transparency of this section?
2. What recommendations do you have to add to the overall completeness and accuracy of this chapter?

3. Data availability. Please address the following questions for each inventory source:
     a. For each of the categories, are there additional relevant data sources that are not currently included, but could be incorporated into this analysis?
     b. For national level datasets that are currently used, are you aware of other comparable datasets of activity, emission factor, or emissions data that are available at the State, county, or zip-code levels?

4. Uncertainty. Currently uncertainty ranges are not included for the state level estimates. Please provide feedback on what qualitative and quantitative information would be useful. Timeseries Coverage. Currently State data covers 1990-2019 consistent with the 2021 National GHG Inventory, and inclusive of most known baseline periods for climate policy. Subsequent publications of this data will also strive to maintain this consistency with the National Inventory. As state-specific input datasets are not always available over the entire timeseries, understanding which years may be more important can help us to better prioritize

our backcasting and methodological efforts across the time series. EPA appreciates feedback on which, if any years should be prioritized for future State-level estimates (e.g., 2000 and later, 2005 and later, 2010 and later, or the full time series).

5. <u>Key Categories</u>. EPA anticipates prioritizing methodological refinements for more significant categories to make efficient use of available resources over time. EPA appreciates feedback on which categories are more relevant for further refining for the sector you are reviewing.

6. <u>Data Presentation and Usability</u>.

    a. Are there other ways the state-level emissions data could be presented to facilitate their use (e.g., in the EPA GHG Inventory Data Explorer available online at: https://cfpub.epa.gov/ghgdata/inventoryexplorer/)?
        i. Related to the level of category/gas aggregation or disaggregation?
        ii. Are there specific categories where further data disaggregation could be helpful?
        iii. What data format would best facilitate the use of the state-level emissions data (e.g., .xlsx download, etc.)?
    b. What additional datasets or information could be provided to help increase the usability of the state-level emissions data?

Forest Lands and Lands Converted to Forest Land

Forest Land Remaining Forest Land

1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5)*

Land Converted to Forest Land

1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5)*

Agricultural Lands (Croplands and Grasslands)

1. What are your overall impressions of the clarity and transparency of this section?

2. What recommendations do you have to add to ensure high-quality state-level estimates consistent with the national *Inventory*?

Wetland and Lands Converted to Wetlands

Wetlands Remaining Wetlands

1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5)*

Land Converted to Wetlands

1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5)*

Peatlands Remaining Peatlands

1. Are there state-level data available on the application ("consumption") of peat, including the state of use and the horticultural/landscaping use?
2. Are there data sources that could support EPA determining the quantity of peat harvested per hectare and the total area undergoing peat extraction?

Settlements and Lands Converted to Settlements

Settlements Remaining Settlements

1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5) NB:* Emissions estimates are not yet available.

Changes in Carbon Stocks in Settlement Trees

1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5)*

N2O Emissions from Settlement Soils

1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5) NB:* Emissions estimates are not yet available.

Changes in Yard Trimmings and Food Scrab Carbon Stocks in Landfills

1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5)*

Land Converted to Settlements

1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5) NB:* Emissions estimates are not yet available.

Other Lands and Lands Converted to Other Lands

1. What recommendations do you have to add to ensure high quality state level estimates consistent with the national *Inventory*? *(Cf. General Charge Chapter Questions 1-5)*

Chapter 6: Waste

General Charge Questions

1. What are your overall impressions of the clarity and transparency of this section?

2. What recommendations do you have to add to the overall completeness and accuracy of this chapter?

3. <u>Data availability.</u> Please address the following questions for each inventory source:

    a. For each of the categories, are there additional relevant data sources that are not currently included, but could be incorporated into this analysis?

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5. <u>Key Categories</u>. EPA anticipates prioritizing methodological refinements for more significant categories to make efficient use of available resources over time. EPA appreciates feedback on which categories are more relevant for further refining for the sector you are reviewing.

6. <u>Data Presentation and Usability</u>.

   a. Are there other ways the state-level emissions data could be presented to facilitate their use (e.g., in the EPA GHG Inventory Data Explorer available online at: https://cfpub.epa.gov/ghgdata/inventoryexplorer/)?
         i. Related to the level of category/gas aggregation or disaggregation?
         ii. Are there specific categories where further data disaggregation could be helpful?
         iii. What data format would best facilitate the use of the state-level emissions data (e.g., .xlsx download, etc.)?
   b. What additional datasets or information could be provided to help increase the usability of the state-level emissions data?

Solid Waste Management

MSW Landfills

1. Data Questions

   a. Are there datasets for individual States' landfill gas (LFG) recovery activity?
   b. Are there data available for open dumpsites in the U.S. territories?

2. The current method makes some simplifying assumptions and includes uncertainties in the allocation of national-level U.S. emissions to States (e.g., recovery rates are the same for all States and match the national recovery rate). Are there alternative assumptions or different datasets that would improve the accuracy of MSW landfill estimates? Do you have recommendations to refine the methodology to estimate emissions over the time series more accurately?

Industrial Landfills

1. Do you have recommendations to refine the methodology to estimate emissions over the time series more accurately?

Composting

1. Data Questions

   a. Is the assumption that Alaska has no commercial composting operations correct?
   b. Are there any data about composting in U.S. territories?

Are there any State-level data sources that describe composting activity over time?

Stand-Alone Anaerobic Digestion

1. Do you have or know of any State-level data for counts of operational anaerobic digesters (processing food waste) by year?

2. Are there any facility-specific data sources we could use to fill data gaps on the quantity of waste processed by stand-alone digesters for any and all years of the 1990–2019 time series?

Wastewater Management

1. The following national average parameters were used to estimate emissions by State, with State populations used to proxy the distribution of domestic emissions and State-level production data (if available) used to proxy the distribution of industrial emissions. Please comment if you believe States would differ significantly from the national averages for the following parameters and, if so, whether there are State-specific data sources for EPA to consider:
   - wastewater outflow
   - biological oxygen demand (BOD), total N, and chemical oxygen demand (COD) concentration in untreated wastewater
   - BOD:COD ratios for industrial wastewater
   wastewater treatment unit operations in use at centralized domestic treatment plants or at industrial plants

2. Are there domestic or industrial wastewater treatment operations present on other Pacific islands for industrial sectors included in the national *Inventory?*

3. For each of the wastewater treatment and discharge subcategories listed for this category, is there any information that was not considered on available State-level data sources with regional or other disaggregated information on emissions?

Domestic

1. The following national average parameters were used to estimate domestic wastewater treatment emissions by State. Please comment on whether you think that States would differ significantly from the national averages for the following parameters and, if so, are there State-specific data sources for EPA to consider:
   - discharge of publicly owned treatment works (POTWs) to impaired waterbodies and nonimpaired waterbodies
   - discharge of POTWs to reservoirs, lakes, and estuaries
   - consumed protein

percentage of the population on septic (versus centralized treatment)

Industrial – Pulp and Paper

1. Pulp and paper wastewater flows were estimated using EPA's Enforcement and Compliance History Online (ECHO) datasets. Do you have any reason to believe that States' pulp and paper wastewater information is underrepresented in ECHO? If so, do you have an alternative, publicly available pulp and paper wastewater dataset by State?

2. Currently, a single year, 2019, is used to estimate the distribution of national estimates to each State and territory for every year of the time series. Is there reason to believe States' pulp and paper manufacturing operations have changed significantly since 1990? If so, are there data sources to quantify those changes?

3. Data for pulp and paper manufacturing for U.S. territories are limited in the ECHO dataset. Are there resources to help estimate a time series of production data for pulp and paper wastewater flows? Or are there territory-level data on the number of pulp and paper plants in each U.S. territories?

Industrial – Meat and Poultry

1. Currently, a single year, 2019, is used to estimate the distribution of national estimates to each State and territory for every year of the time series. Is there reason to believe States' meat and poultry processing operations have changed significantly since 1990? If so, are there data sources to quantify those changes?

2. Data for meat and poultry processing for U.S. territories are not captured in the USDA dataset. Are there resources to help estimate a time series of production data for poultry (broilers, turkeys, chicken), beef and calves, hogs, and sheep (lamb and mutton), for example, live weight killed, number of head slaughtered?

Industrial – Fruits and Vegetables

1. Currently, a single year, 2017, is used to estimate the distribution of national estimates to each State and territory for every year of the time series. Is there reason to believe States' fruit and vegetable processing operations have changed significantly since 1990? If so, are there data sources to quantify those changes?

2. Data for fruit and vegetable processing for U.S. territories are not captured in the USDA dataset. Are there resources to help estimate a time series of territory-level production data for fruits and vegetables, for example, canned and frozen processed vegetables, potato production, noncitrus fruits, and citrus production?

Industrial - Ethanol

1. Ethanol production for each State was estimated using the Energy Information Administration (EIA) SEDS dataset. Do you have any reason to believe that States' information is underrepresented in the SEDS dataset? If so, do you have an alternative, publicly available ethanol production dataset by State?

2. Data for ethanol production for U.S. territories are limited in the SEDS dataset. Are there resources to help estimate a time series of production data for ethanol production?

3. What other relevant data sources could be included? If data are used at the national level, are you aware of other comparable data sources at the State level?

Industrial - Petroleum

1. Petroleum production for each State was estimated using EIA's Petroleum Administration for Defense Districts production and State-level operating capacity datasets. Do you have any

reason to believe that States' information is underrepresented in the EIA datasets? If so, do you know of an alternative, publicly available petroleum refining production dataset by State?
2. Do you have any concerns about using operating capacity to estimate petroleum production by State is not a good method? If so, would you suggest an alternative method?
3. Data for petroleum refining for U.S. territories are limited in the EIA dataset. Are there resources to help estimate a time series of territory-level production data for petroleum production?

Industrial – Breweries

1. Brewery production, and by extension brewery production emissions, for each State was estimated using the Alcohol and Tobacco Tax and Trade Bureau (TTB) taxable production dataset. • The TTB dataset is based on taxable production/volume. Is there any reason why taxable production from breweries may be underrepresented by State and therefore potentially underrepresent total emissions? If so, do you know of an alternative dataset or assumption? • The TTB dataset provides production data from 2008 to the present. The 2008 values were used as a proxy for 1990–2007 values. Is there reason to believe States' brewery production has significantly changed over that time period? If so, do you have an alternative, publicly available State-level brewery production dataset (i.e., barrels produced), or suggestions for alternative data to use as a proxy?
2. Data for brewery production for U.S. territories are limited in the TTB dataset. Are there resources to help estimate a time series of territory-level production data for brewery production (i.e., barrels produced)?