

National O&G 2016 Base Year and Future Year Emission Inventory Outline

1. Scope
 - a. Sources:
 - i. Point and nonpoint
 - ii. Oil and gas wellsite development and production, gas gathering, gas treatment, oil tank batteries
 - b. Base year: 2016
 - i. Potential methods:
 1. Scaling from 2014 NEI based on activity
 2. Re-run nonpoint tool with updated O&G activity and select emission factor input updates
 1. GHGRP 2016 updates
 2. Target input factor updates based on survey
 - c. Future years: 2023 and 2028
 - i. Potential O&G forecast methods:
 1. Texas method emphasis on Hubbert's model¹
 2. Carry forward basin-level historical trends
 3. Implement RFD/EIS activity (where available)
 4. EIA Annual Energy Outlook scaling similar to previous EPA modeling platforms
 - ii. Develop menu of options by state based on most reliable and easily accessible datasets
 - d. Schedule: completion in 10-12 months
 - e. Deliverables:
 - i. Initial scoping memoranda
 1. Base year
 1. Survey approach
 2. Inventory development
 2. Future year inventory development
 - ii. Interim deliverables to be identified in initial scoping memoranda
 - iii. Final deliverables
 1. Base year emission inventory, including ancillary spatial surrogate and speciation files.
 2. Future year emission inventory, including ancillary spatial surrogate and speciation files.
2. 2016 base year inventory development
 - a. Point

¹ https://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5821199776FY1212-20120831-erg-forecasting_oild_gas_activities.pdf

- i. Evaluate changes in emissions and activity from 2011 to 2014
 - 1. If emissions changes generally track activity changes, scale point sources with change in 2014 to 2016 activity data
 - 2. If emissions changes do not track activity changes, determine and apply alternative method
- b. Nonpoint (note: need to plan carefully to limit scope to feasible effort)
 - i. Update inputs based on 2016 GHGRP data (2014 inventory is based on 2014 GHGRP inputs)
 - ii. Determine which 5-10 source categories to re-estimate for 2016
 - 1. Focus re-estimation on categories with high degree of uncertainty and substantial emission inventory impact
 - 1. Key issues to consider: high emitters/fat-tails, change in equipment from conventional to unconventional production
 - 2. Perform literature and inventory review to identify potential categories
 - 1. Reference documents: High emitter/fat-tails journal articles, Dale Wells NEI Presentation, OKDEQ emission inventory
 - 3. Focus on basin specific equipment operations
 - 4. Focus effort on most important basins by state
 - 1. Group basins to streamline efforts to the extent that groupings do not substantially compromise emission inventory inputs
 - 1. Address whether basins intersected by a state boundary need to be distinguished (e.g., Permian)
 - iii. Re-estimate 2016 base year inventory for 5-10 source categories
 - 1. Survey approach
 - 1. User-friendly online survey platform
 - 2. Direction on and review of survey by S/L/Ts in which recent surveys have been conducted
 - 3. S/L/Ts are responsible for updating inputs, or 2014 emission factors will not be changed
 - 4. Survey inputs will be aligned with capability to develop new control scenarios
 - 2. Analyze survey results and compile inventory inputs
 - 3. Develop 2016 inventory based on survey results
 - iv. Forecast remaining source categories from 2014 NEI based on estimated activity and control changes from 2014 to 2016 by basin

3. Future year 2023 and 2028 forecast (note: need to plan carefully to limit scope to feasible future year projection and control approach)
 - a. Normal and high commodity price scenarios
 - b. Key considerations
 - i. Equipment specific forecasts
 1. Associate equipment types with specific O&G metrics (oil production, gas production, water production, well count, spud count)
 1. Implement basin specificity for equipment type associations, if warranted
 - ii. Basin specific forecast factors
 - iii. Controls
 1. Apply controls resulting from federal regulations at basin level
 2. To the extent feasible, incorporate S/L/T controls