

US EPA ARCHIVE DOCUMENT



# Current Methods in Cost Analysis

Understanding the approach for estimating compliance costs for OAQPS rules

Presentation to the Ozone Transport Commission  
September 28<sup>th</sup>, 2012

# What Types of Cost Analyses are Done by OAQPS?

- Costs of emissions control
  - Add-on controls (e.g., incinerators, fabric filters, scrubbers)
  - Work or management practices (e.g., closing lids on degreasers, sealing leaks from pipes at chemical plants (LDAR))
- Cost of administration
  - Cost of monitoring, inspection, recordkeeping, and reporting (and testing). All of these activities are for proving compliance. These costs are included in Supporting Statements and ICRs that are in EPA rules
  - In addition, the costs of State, local and Federal government efforts in obtaining compliance also estimated and shown in Supporting Statements and ICRs

# Why Have Cost Analyses (besides the obvious)?

- Legal reasons
  - EPA is required by various legislative provisions and executive orders to examine costs of compliance with legislation (including permit requirements).
  - Legislative requirements include
    - provisions of implementation of NAAQS (Title I of CAA),
    - considerations of going “beyond MACT floor” (Title III),
    - Section 812 (benefit-cost study of CAA)
    - Paperwork Reduction Act (cost of administrative work)
    - Unfunded Mandates Reform Act (cost to States and Local authorities of carrying out Federal requirements)
- Executive Order requirements
  - EO 12866 calls for calculations of costs to compare to benefits for “economically significant” rules (>\$100 million annually for either annual costs or benefits)

# Who Does Cost Analyses in OAR?

- OAQPS prepares cost analysis for:
  - The Air Economics Group (AEG) prepares costs analyses for NAAQS RIAs (e.g., PM and ozone), and related rules (NAAQS implementation).
    - AEG uses the Control Strategy Tool (CoST), a control strategy tool that can estimate emission reductions and costs for non-EGU point and area source control strategies, and mobile sources (with help from OTAQ)
  - AEG doesn't prepare cost analyses for all rules and programs, but does provide guidance for OAQPS (and others) on cost estimation techniques and tools
  - Other divisions conduct cost analyses for their programs (e.g. SPPD for the MACTs, RTRs, and NSPS, AQPD for their permit cost reviews)
- Costs for mobile source rules and programs are estimated by OTAQ
- Costs for EGU rules and programs are estimated using IPM, and this is done by OAP's CAMD
  - E.g., MATS, CSAPR

# Cost Analysis Basics

- Two major categories of costs:
  - Capital
  - Annual
- Capital costs represent those costs for an initial (up-front) investment (e.g. costs incurred when purchasing control equipment, or a monitor, or hardware/software for keeping up with paperwork)

# Cost Analysis Basics (cont'd)

- Capital costs also includes land, start-up expenses, and auxiliary equipment (e.g., ductwork) – refer to appendix for details
- Annual costs includes those costs that occur over the life of the investment. These can include: labor, energy, taxes, materials, and cost of capital recovery (related to depreciation). Appendix provides more details.
- Annual costs are the sum of capital recovery costs and operating and maintenance (O&M) costs.
  - Capital recovery costs require knowledge of the equipment life and interest rate. EPA uses 7% as the main interest rate for annualizing capital costs though 3% is also called for in econ. significant rules as stated in OMB guidance (Circular A-4).
- Control costs are usually the great majority of the costs of compliance with a rule, but administrative costs can sometimes be large
  - This statement is generally true for rules issued by OAQPS, especially HAP rules prepared by SPPD
- Sensitivity analysis may be used to assess control cost uncertainty

# Cost Guidance

- A major cost guidance text is the EPA Air Pollution Control Cost Manual (formerly the OAQPS Control Cost Manual). The Manual covers the design of and costs to build and operate many types of add-on controls (e.g., incinerators, baghouse, condensers).
- The Manual is commonly relied upon by others in OAQPS, in EPA, and among State regulators and industry for answering control cost questions. Found in hard copy and on the Web (<http://www.epa.gov/ttn/catc> )



# CoST – Software for Control Strategy and Cost Analysis

- Primarily developed for performing Regulatory Impact Analyses (RIAs) for National Ambient Air Quality Standards (NAAQS)
- Supports preparation and analysis of future year emission control strategies for point (primarily non-EGU), area, and mobile sources
- EPA recognizes that CoST could be useful to State/local agencies for preparing control strategies as part of SIPs, but funding is not currently available to support this effort
- CoST provides estimates of the emissions reductions and costs associated with:
  - the target pollutant (e.g., NO<sub>x</sub> or VOC for Ozone NAAQS Analyses)
  - co-impacts of the selected measures on other criteria pollutants
  - Control measures and documentation are publicly available and are available at <http://www.epa.gov/ttn/ecas/cost.htm>.
  - Peer reviewed in 2010; final report not complete yet

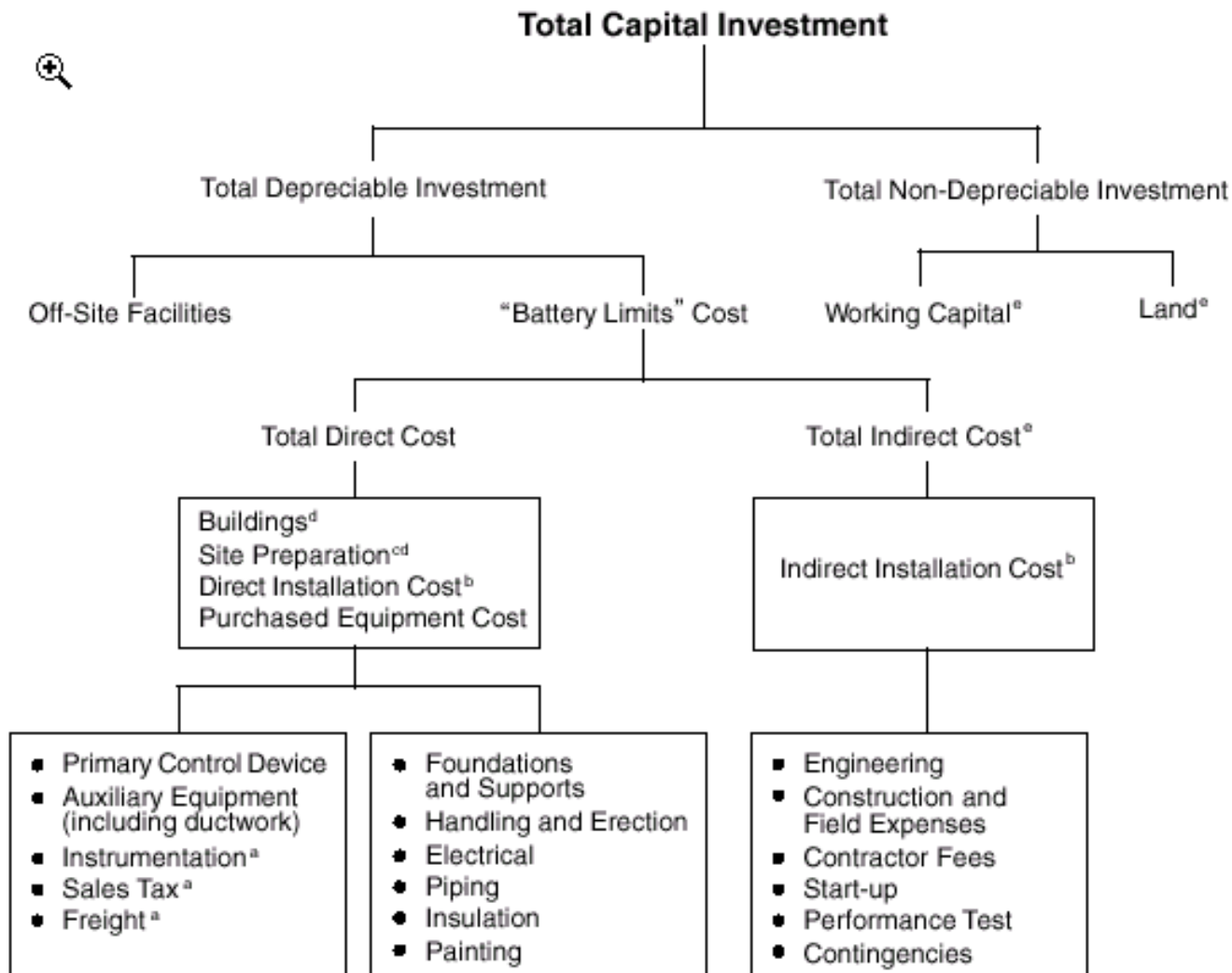
# Summary

- OAQPS conducts various types of cost analyses in response to regulatory needs for the programs it is responsible for. AEG conducts some of OAQPS's cost analyses, and provides guidance on virtually all of them.
- Costs are estimated for legal and executive order reasons as well as the clear need to estimate the impacts of a regulation.
- Costs come in two major types: capital and annual. Capital costs are one-time in nature; annual costs are those that reoccur over the life of the control.
- The EPA Air Pollution Control Cost Manual provides guidance for estimating these costs, and answering questions about these costs.
- For Additional Information Please Contact:

Larry Sorrels, Economist  
sorrels.larry@epa.gov

# Appendix

**Figure 2-1: Elements of Total Capital Investment**



**Figure 2-2: Elements of Total Capital Investment**

