

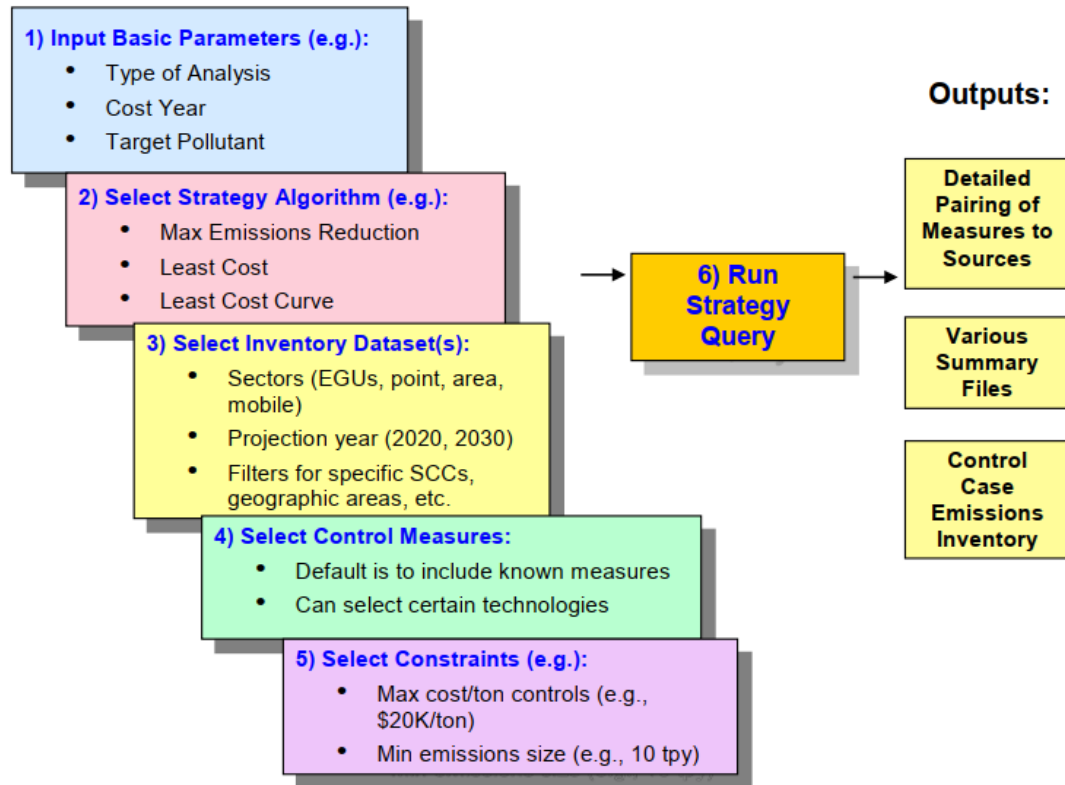
在这里, "sectors" 指的是不同类型的排放源数据集, 包括:

EGUs (电力生产单位)

point (点源)

area (区域源)

mobile (移动源)



CoST automatically generates three main outputs after each successful strategy run:

- Strategy Detailed Result
- Strategy Measure Summary
- Strategy County Summary

Each of these outputs is created as an EMF Dataset.

Strategy Detailed Result

The Strategy Detailed Result is the primary output from the control strategy. It is a table of emission source-control measure pairings, each of which contains information about the costs and emission reduction achieved for measures after they are applied to the sources.

Table 4. Columns in the Strategy Detailed Result

Column	Description
SECTOR	The source sector specified for the input inventory dataset.
CM_ABBREV	The abbreviation of the control measure that was applied to the source.
POLL	The pollutant for the source, found in the inventory
SCC	The SCC code for the source, found in the inventory
FIPS	The state and county FIPS code for the source, found in the inventory
PLANTID	For point sources, the plant ID for the source from the inventory.
POINTID	For point sources, the point ID for the source from the inventory.
STACKID	For point sources, the stack ID for the source from the inventory.
SEGMENT	For point sources, the segment for the source from the inventory.

ANNUAL_COST (\$)	<p>The total annual cost (including both capital and operating and maintenance) required to keep the measure on the source for a year.</p> <p>Default Approach (used when there is no cost equation, or inputs to cost equation are not available): Annual Cost = Emission Reduction (tons) x Reference Yr Cost Per Ton (\$/tons in 2013 Dollars) x Cost Yr GDP IPD / Reference Yr GDP IPD Annual Cost = 11.88 tons x \$159 x 94.814 / 106.929 = \$1,674.90</p>
ANN_COST_PER_TON (\$/ton)	<p>The annual cost (both capital and operating and maintenance) to reduce one ton of the pollutant.</p> <p>Ann_Cost_Per_Ton = Annual Cost (\$) / Emis Reduction (tons) Ann_Cost_Per_Ton = \$1,674.90 / 11.88 tons = \$140.98/ton</p>
ANNUAL_OPER_MAINT_COST (\$)	<p>The annual cost to operate and maintain the measure once it has been installed on the source.</p> <p>Default Approach (used when there is no cost equation, or inputs to cost equation are not available): = (Annual Cost – Annualized Capital Cost) = (\$1,674.90 - \$174) = \$1,500.90 Note: if the capital recovery factor was not specified for the measure, it would not be possible to compute Annualized Capital Cost or Annual O&M Costs</p>
ANNUAL_VARIABLE_OPER_MAINT_COST (\$)	<p>The annual variable cost to operate and maintain the measure once it has been installed on the source.</p> <p>Default Approach (used when there is no cost equation, or inputs to cost equation are not available): = blank (not calculated, no default approach available)</p>
ANNUAL_FIXED_OPER_MAINT_COST (\$)	<p>The annual fixed cost to operate and maintain the measure once it has been installed on the source.</p> <p>Default Approach (used when there is no cost equation, or inputs to cost equation are not available): = blank (not calculated, no default approach available)</p>

ANNUALIZED CAPITAL_COST (\$)	<p>The annualized cost of installing the measure on the source assuming a particular discount rate and equipment life.</p> <p>Annualized_Capital_Cost = Total Capital Cost x Capital Recovery Factor (CRF)</p> <p>Note: if the CRF is not available for the measure, it is not possible to compute the ACC or the breakdown of costs between capital and O&M costs.</p> <p>CRF = (Discount Rate x (1 + Discount Rate)^{Equipment Life}) / ((Discount Rate + 1)^{Equipment Life} - 1) CRF = (0.07 x (1 + 0.07)²⁰) / ((0.07 + 1)²⁰ - 1) = 0.0944</p> <p>Annualized_Capital_Cost = \$1,842.40 x 0.0944 = \$174</p>
TOTAL_CAPITAL_COST (\$)	<p>The total cost to install a measure on a source.</p> <p>Default Approach (used when there is no cost equation or cost equation inputs are not available): TCC = Emission Reduction (tons) x Reference Yr Cost Per Ton (\$/tons in 2013 Dollars) x Capital Annualized Ratio x Cost Yr GDP IPD / Reference Yr GDP IPD TCC = 11.88 tons x \$159 x 1.1 x 94.814 / 106.929 = \$1,842.40</p>
CONTROL_EFF (%)	The control efficiency of the measure being applied, stored in the measure efficiency record
RULE_PEN (%)	The rule penetration of the measure being applied, stored in the measure efficiency record, but could be overridden as a strategy setting (see the Measure Filtering section)
RULE_EFF (%)	The rule effectiveness of the measure being applied, stored in the measure efficiency record, but could be overridden as a strategy setting (see the Measure Filtering section)
PERCENT_REDUCTION (%)	<p>The percent by which the emissions from the source are reduced after the control measure has been applied.</p> <p>Percent reduction = Control Efficiency (%) x Rule Penetration (%) / 100 x Rule Effectiveness (%) / 100 = 99% x 100% / 100 x 100% / 100 = 99%</p>
ADJ_FACTOR	The factor that was applied by a control program to adjust the emissions to the target year.
INV_CTRL_EFF (%)	The control efficiency for the existing measure on the source, found in the inventory
INV_RULE_PEN (%)	The rule penetration for the existing measure on the source, found in the inventory
INV_RULE_EFF (%)	The rule effectiveness for the existing measure on the source, found in the inventory

Strategy Measure Summary

The Strategy Measure Summary output dataset is a table of emission reduction and cost values aggregated by the inventory sector (i.e., an EMF Sector), state/county FIPS code, SCC, pollutant, and control measure.

Table 5. Columns in the Strategy Measure Summary

Column	Description
SECTOR	The sector for the source (i.e., ptnonipm for the point non-ipm sector)
FIPS	The state and county FIPS code for the source
SCC	The SCC for the source
POLL	The pollutant for the source
CONTROL_MEASURE_ABBREV	The control measure abbreviation
CONTROL_MEASURE	The control measure name
CONTROL_TECHNOLOGY	The control technology that is used for the measure (e.g. Low NOx burner, Onroad Retrofit).
SOURCE_GROUP	The group of sources to which the measure applies (e.g. Fabricated Metal Products – Welding).
ANNUAL_COST	The total annual cost for the measure. This is calculated by summing the annual costs for the measure = sum(annual_cost)
INPUT_EMIS	The total of emissions entering the control measure. This is calculated by summing the input emissions for all sources that were controlled by this measure = sum(input_emis)
AVG_ANN_COST_PER_TON	The average annual cost per ton (\$/ton). This is calculated by dividing the total annual cost by the total emission reduction. = sum(annual_cost) / sum(emis_reduction)
EMIS_REDUCTION	The total reduction in emission in tons for the control measure
PCT_RED	The percent reduction (%) for all sources controlled by this measure. This is calculated by dividing the total emissions reduction by the total input emissions. = [sum(emis_reduction) / sum(input_emis)] x 100

Strategy County Summary

The Strategy County Summary output dataset is a table of emission reduction and cost values aggregated by inventory sector, county, and pollutant.

Table 6. Columns in the Strategy County Summary

Column	Description
SECTOR	The sector for the source (i.e., ptnonipm for the point non-ipm sector)
FIPS	The state and county FIPS code for the source
POLL	The pollutant for the source
INPUT_EMIS	The original inventory emission in tons for the county
EMIS_REDUCTION	The total emission reduction in tons for the county
REMAINING_EMIS	The remaining emissions after being controlled (in tons)
PCT_RED	The percent reduction for the pollutant
ANNUAL_COST	The total annual cost for the county. This is calculated by summing the annual costs for the county $= \text{sum}(\text{annual_cost})$
ANNUAL_OPER_MAINT_COST	The total annual operating and maintenance costs for the county. This is calculated by summing the annual operating and maintenance costs for the county $= \text{sum}(\text{annual_oper_maint_cost})$
ANNUALIZED_CAPITAL_COST	The total annualized capital costs for the county. This is calculated by summing the annualized capital costs for the county $= \text{sum}(\text{annualized_capital_cost})$
TOTAL_CAPITAL_COST	The total capital costs for the county. This is calculated by summing the total capital costs for the county $= \text{sum}(\text{total_capital_cost})$
AVG_ANN_COST_PER_TON	The average annual cost per ton (\$/ton). This is calculated by dividing the total annual cost by the total emission reduction for the county. $= \text{sum}(\text{annual_cost}) / \text{sum}(\text{emis_reduction})$