**REMI E3+ (Standard)**

* 160 detailed industries
* Energy and Environment related policy variables are “Featured” on the policy variable navigation screen
* Detailed policy variables available for modeling several types of power plant construction and corresponding operations and maintenance spending[[1]](#endnote-1)
* Social cost policy variables for modeling social costs associated with five types of emissions[[2]](#endnote-2)
* Carbon tax scenario provides structure and organization for modeling carbon tax policies[[3]](#endnote-3)
* Includes “command line interface” feature to allow integration with third-party energy models[[4]](#endnote-4)

**REMI E3+ with Emissions Module**

* 160 detailed industries
* Energy and Environment related policy variables are “Featured” on the policy variable navigation screen
* Detailed policy variables available for modeling several types of power plant construction and corresponding operations and maintenance spendingi
* Social cost policy variables for modeling social costs associated with five types of emissionsii
* Carbon tax scenario provides structure and organization for modeling carbon tax policiesiii
* Includes “command line interface” feature to allow integration with third-party energy modelsiv
* Forecast results include Energy Consumption (by energy sector and type in quadrillion Btu) and Carbon Dioxide Emissions (by energy sector and type in million metric tons)[[5]](#endnote-5)
* Ability to view/modify Energy Parameters used in the model[[6]](#endnote-6)
* Btus consumed per $ of output by energy sector and type
* CO2 emissions per Btu by energy sector and type
* Industries assigned to energy sectors
* Social cost per ton ($/ton) by type of pollutant (carbon dioxide (CO2), sulfer dioxide (SO2), nitrogen oxides (NOx), fine particulate matter (PM2.5), and particulate matter (PM10))

1. Sample spending patterns for new power generation plant construction and associated O+M were created from literature review of similar studies done previously. The user is encourage to create a detailed custom policy variable to represent the specific spending associated with the actual project being modeled if sufficient data is available. [↑](#endnote-ref-1)
2. Social costs for pollutants are “costs that reflect environmental and human health damages independent of and in addition to the direct and secondary economic impacts” and come from a study by The Brattle Group that references the Interagency Working Group on Social Cost of Carbon, United States Government as the source for carbon costs, and the “Hidden Cost of Energy: Unpriced Consequences of Energy Production and Use” by the National Research Council as the source for SO2, NOx, PM2.5, and PM10. These costs are multiplied by the quantity of tons entered by the user in the selected policy variable, and converted to a change in the Non-Pecuniary (Amenity) Aspects policy variable which represents a quality of life measure used in the model’s economic migration equation. An amenity increase, for example, is perceived as a real compensation gain that makes the region more attractive, so a greater number of economic migrants move in. [↑](#endnote-ref-2)
3. Key policy variables to be considered for a carbon tax policy study are identified. [↑](#endnote-ref-3)
4. E3+’s command mode function is designed to support calls made to E3+ by other applications. The command line interface can accept policy variables from files, run a simulation or control forecast with the imported changes, export the results, and exit automatically. [↑](#endnote-ref-4)
5. Energy Consumption by Sector and Source and Energy-Related Carbon Dioxide Emissions by Sector and Source data from the Energy Information Administration’s Annual Energy Outlook (currently by Major Region and projected to 2050) are used to calculate the Btu per Real Output (Btu/Q) and Energy-Related Carbon Dioxide Emissions per btu of Energy Consumption by Sector and Source (CO2/Btu) parameters used by the model to forecast CO2 emissions. [↑](#endnote-ref-5)
6. Users are able to modify parameter assumptions in order to update with local or project-specific data. [↑](#endnote-ref-6)