

38. Costs

Overview

Target

This view is intended to provide outputs on total cost over time due to new vehicle registrations as well as fuel consumption. Non-motorized transport (NMT) and pipelines modes are excluded.

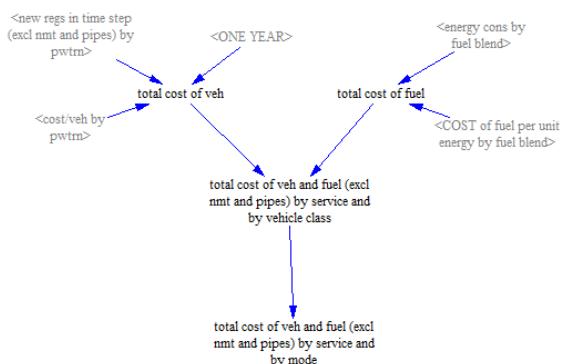
Structure

The left part of the view calculates the cost associated to the new vehicle registrations in each time step taking into account of the inputs on cost by powertrain and the new vehicle registrations.

The right part of the view deals with the cost of fuel by fuel blend. This is related to the total energy consumption of the vehicle stock.

Both costs together lead to the total cost by vehicle class located in the middle of the view, which is then aggregated at the mode level (Figure 38.1).

Figure 38.1 Vensim sketch of the view "costs"



Detailed description of the view

Inputs

The number of newly registered vehicles, disaggregated by powertrain, is calculated in the view "vehicles by age". The cost of these vehicles is stored in the variable "COST/VEH BY PWTRN". The latter is located in the view "vehicle cost (input)" and contains information (user inputs) on the costs per vehicle for new vehicle registrations over time by powertrain technology.

The annual energy consumption of the whole vehicle stock, disaggregated by vehicle class and fuel blend, is calculated in the view "energy cons by age". The cost of the fuel per unit energy is introduced exogenously by the user ("User inputs (over time)" sheet of the ForFITS Excel file).

Outputs

The total cost of vehicles by powertrain is the product of the new vehicle registrations and the respective vehicle purchase cost.

The total cost of fuel by fuel blend is the product between the total energy consumption and the fuel cost per unit energy.

The cost of vehicles is aggregated at the vehicle class level summing up across the technologies, while the cost of fuel is obtained also at the same level of detail after aggregating across the different fuel blends. The total cost, including fuel and vehicles, is finally calculated for each mode.

These outputs are reproduced in the graphs of the view "outputs (cost)".