FTT Flex in modelflow

ib

# Define technologies

Two lists of technology are defined. They have the same content, but two lists are nessesary when the preferences between two tecknologies has to be compared.

Also one of the lists has a sublist called fosile. A sublist has to have the same number of elements as the main list. I can be used - among other things - to manage the the generations of equations and to do conditional sums:

Any number of technology can be specified (limited by the avaiable memory)

The time index is implicit.

# Preferences

Each technology is compared to all other based on the percieved costs and the preferences (choice likelihood) are calculated.

For all technologies

# Difusion

# Share dynamic

Here the shares are determined. Remember that if adjustment is used, it should be balances, that is the sum over all technologies should be 0.0

# Sigma

The percieved width in the choice function

# CO2 emission

# Capital Cost

The price of new technology falls in line with its accumulated use through a number of effects.

It depends in global accumulated production.

# Operating and maintenance Cost and dispersion

The price of new technology falls in line with its accumulated use through a number of effects.

It depends in global accumulated production.

# Fuel Cost and dispersion

The price of new technology falls in line with its accumulated use through a number of effects.

It depends in global accumulated production.

# Carbon Tax

# Total cost

# Imposing min and max shares

Sometime there can be constarint (min and/or max) on the shares (or the demand). To enforce constraints - a penalty is added to the percieved cost if the share violate the max constrain. - a deduction is subtracted from the cost if the shares violates the min constrain. .

One way to calculate the penalty would look like this:

However in order to get more numerical stability an equation which smooth out the logical expression: is used:

Also for the deduction we use a more smooth barriere:

These penalties and decustions are used to calculate the argumented costs, which enters the equation for prefereences ()

# Argumented cost

In order to impose the constraints a new cost measure is created. is used as input in the calculations of preferences

# Average cost

To feed into the main model the average cost is calculated. This is done on the actual cost, not the argumented cost which can deviate from the actual cost in order to impose constraints.

# Max cost

To feed into the main model the max cost is calculated. This is done on the actual cost, not the argumented cost which can deviate from the actual cost in order to impose constraints.

# Check, that the shares add up to one.

# Create the share for fosile fuels

This shows how to make conditional summations

# Create equations just for fosile fuels

This ilustrates how to make equations conditional on sublists