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educational, scientific
and cultural
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energy agency

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SMR.1524 - 4

College on Evaluation of Energy Technologies and Policies for Implementation of Agenda-21

10 - 28 November 2003

Advanced Features of MESSAGE: Multi Region

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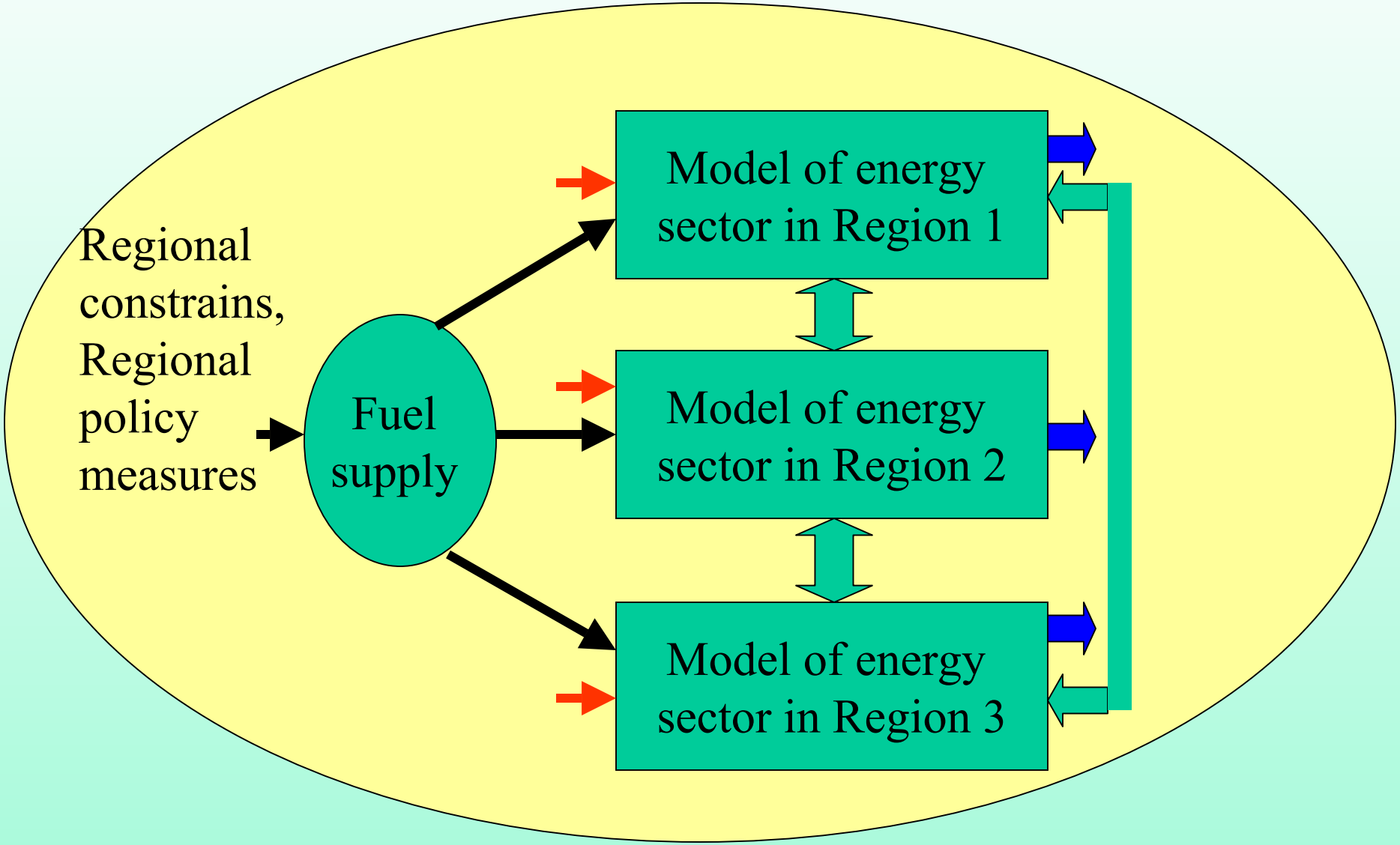
Advanced Features of MESSAGE: Multi region

A.Galinis

Structure of the multi-regional model



Application of the Multi-Regional model

For representation of different continents or country groups in the World energy model;

For representation of different countries in multi-country energy model;

For representation of different regions in the country energy model;

For representation of different energy systems (Oil supply, gas supply, electricity supply and others) in country energy model;

For other purposes.

Advantages of Multi Regional model

Structure of Multi Regional model better corresponds to reality;

Model of each region may be prepared and calibrated separately;

Particular expert can work with model of particular region (preparation calibration);

Easier calibration because model of single region is less complicated;

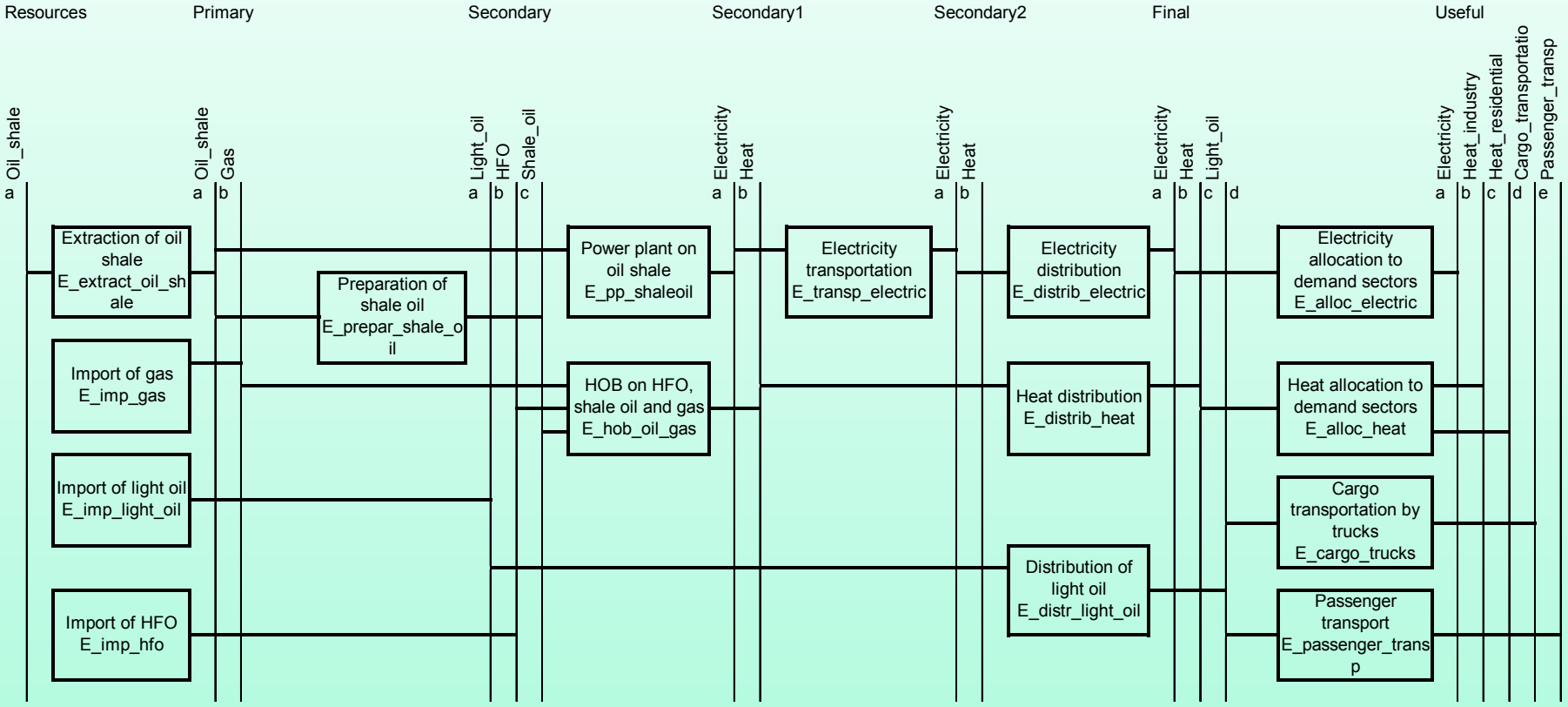
Shorter computation time during calibration of model of particular region;

Assumed energy system. (Main components)

Region 1: (Estonia)	Mining of oil shale; Production of shale oil; Power plant on oil shale; Heat only boiler on liquid fuel and gas; Import of various fuels; Electricity and heat transport and distribution; Cargo and passenger transportation; Demand of electricity, heat in industry, heat in household, cargo transportation, passenger transportation.
Region 2: (Latvia)	Hydro power plant; CHP on HFO and gas; Heat only boiler on liquid fuel and gas; Import of various fuels; Electricity and heat transport and distribution; Cargo and passenger transportation; Electricity import. Demand of electricity, heat in industry, heat in household, cargo transportation, passenger transportation.
Region 3: (Lithuania)	Refinery; Thermal power plant on HFO and gas with possibility to install FGD; Nuclear power plant; Heat only boiler on liquid fuel and gas; Import of various fuels; Electricity and heat transport and distribution; Demand of electricity, heat and light oil products.

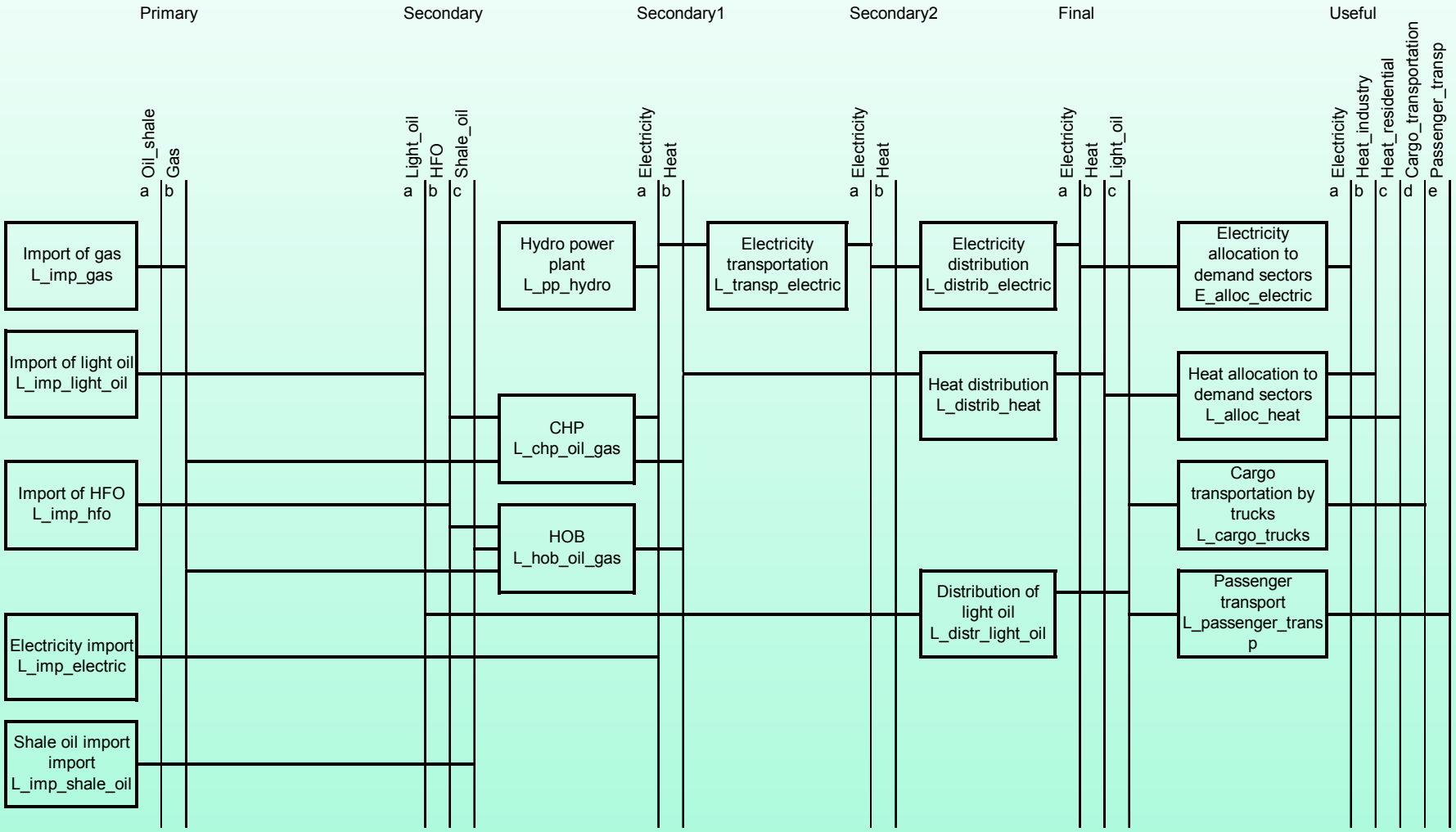
Network of energy system in Region 1

Estonia



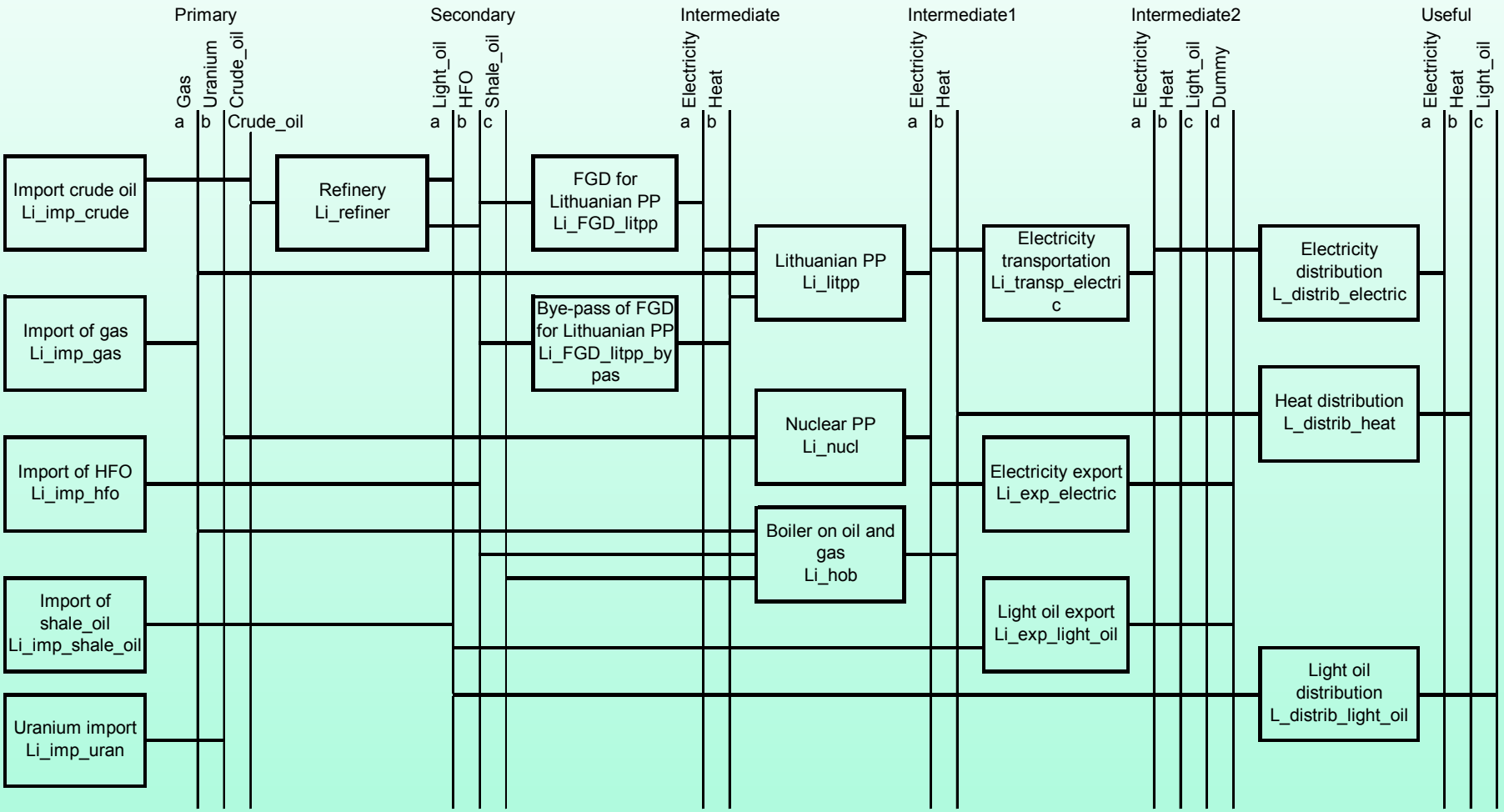
Network of energy system in Region 2

Latvia

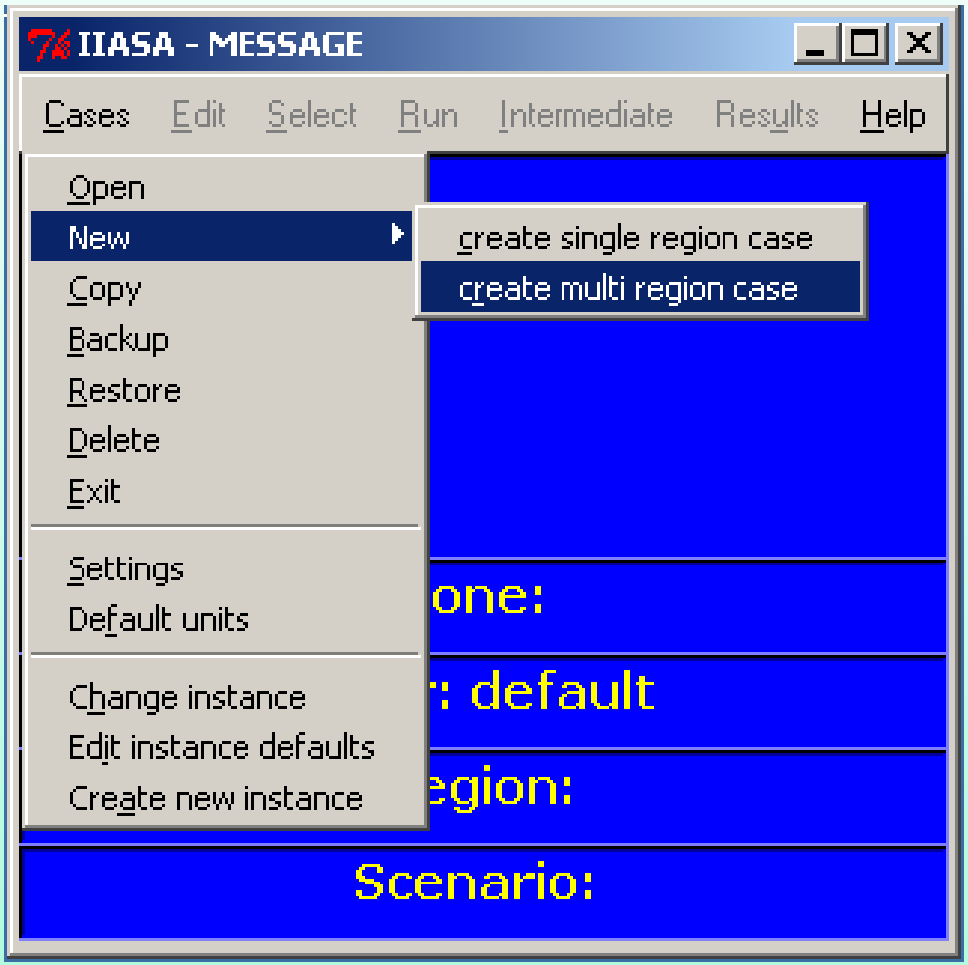


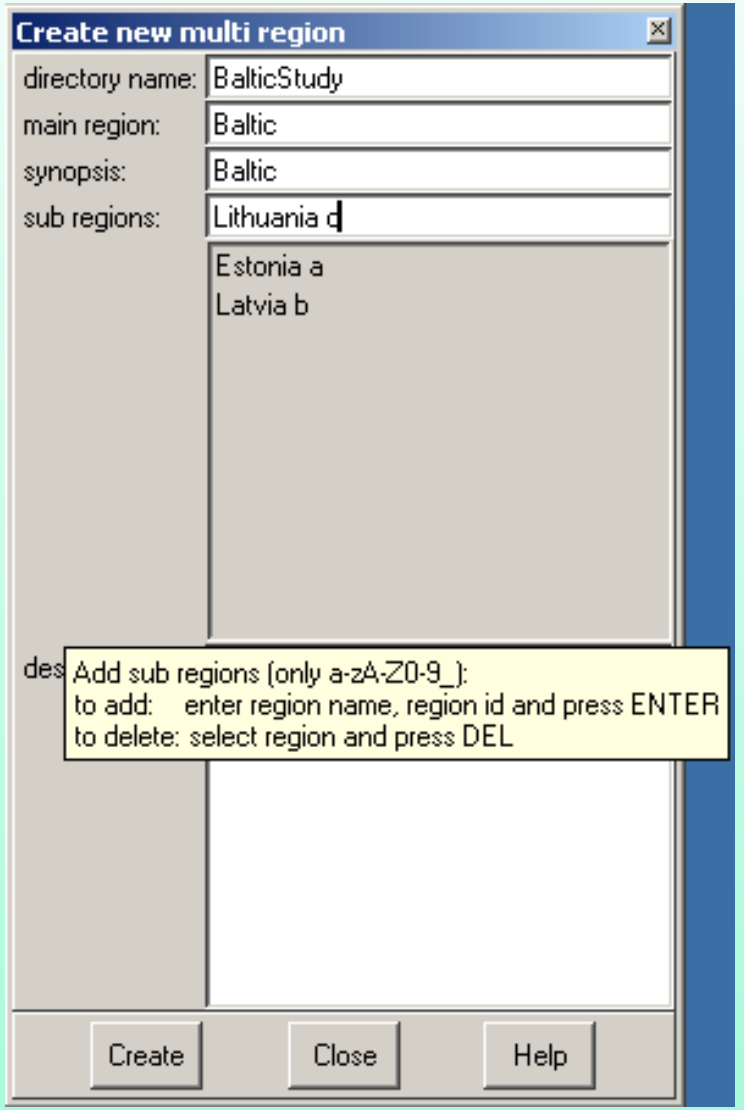
Network of energy system in Region 3

Lithuania

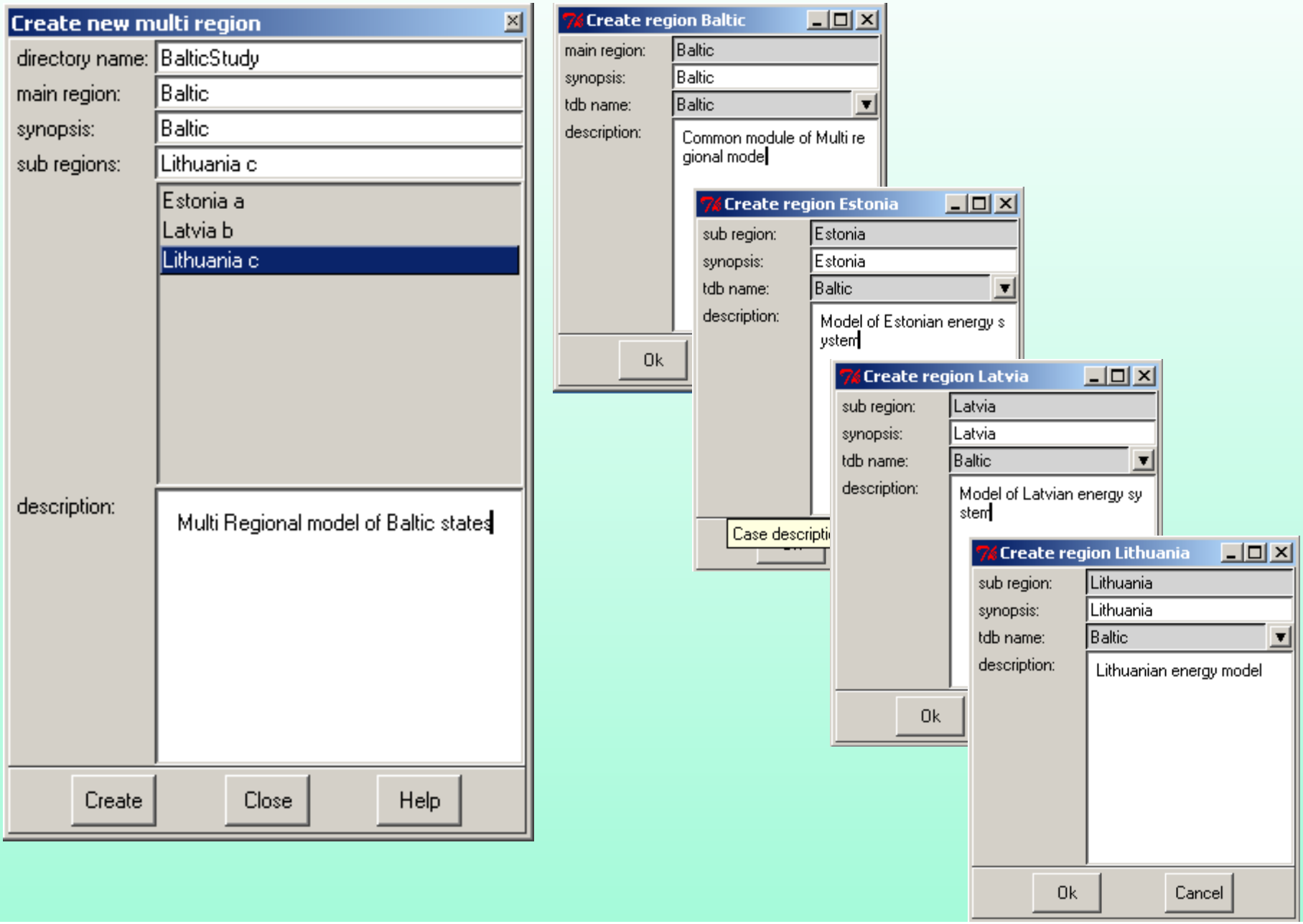


Creation of Multi Regional model (1)

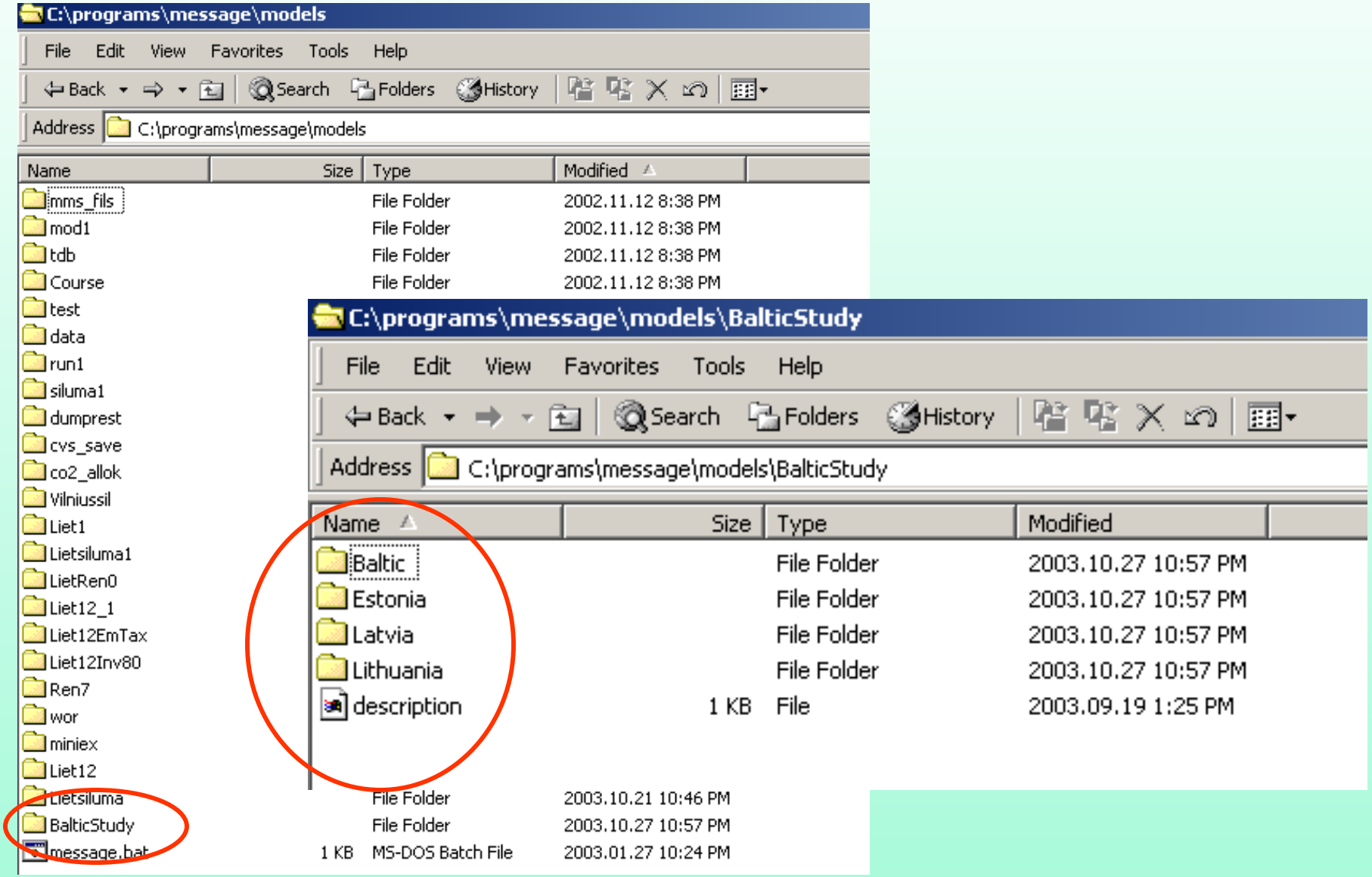




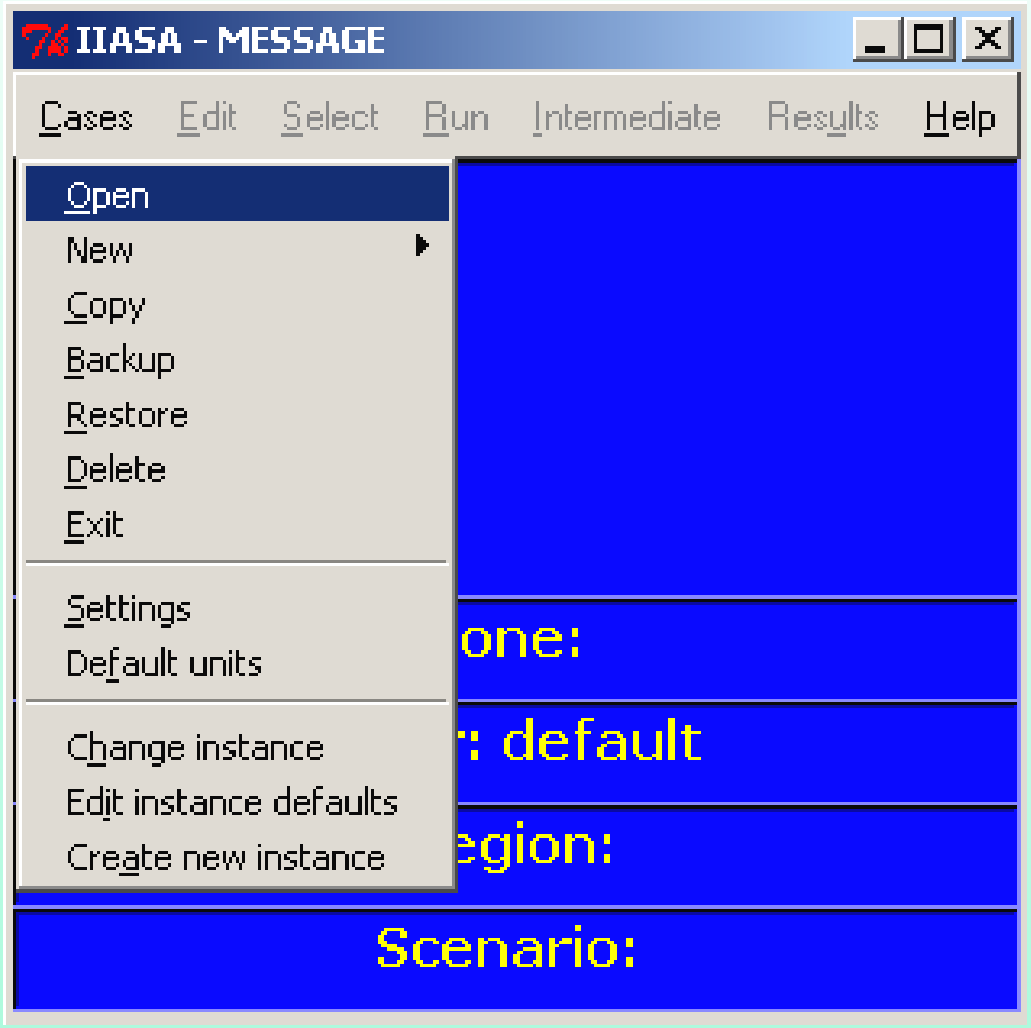
Creation of Multi Regional model (2)

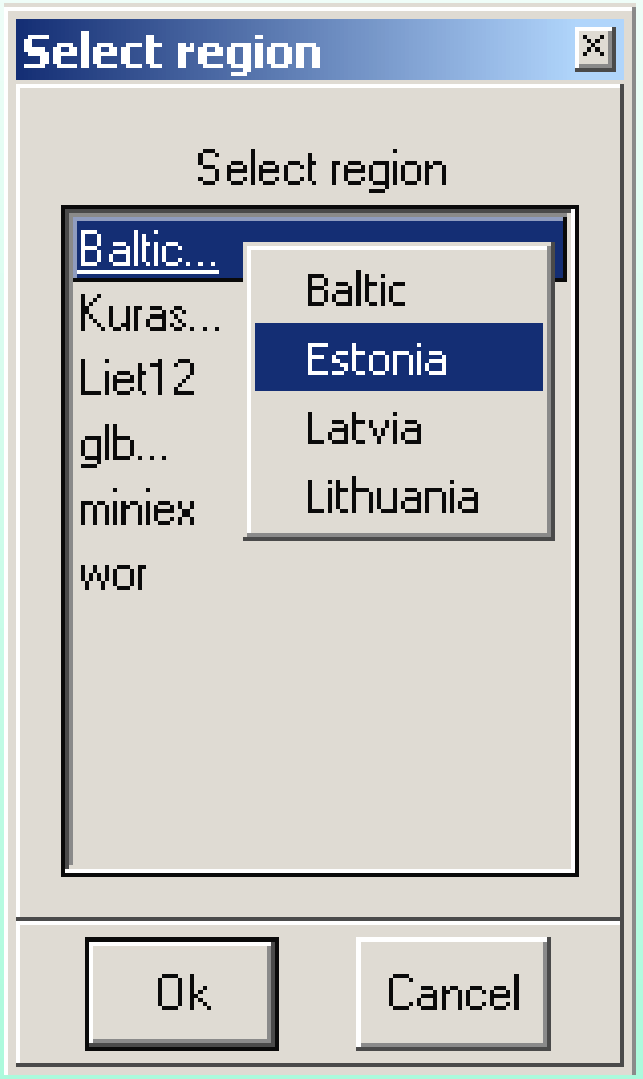


Files of Multi Regional model

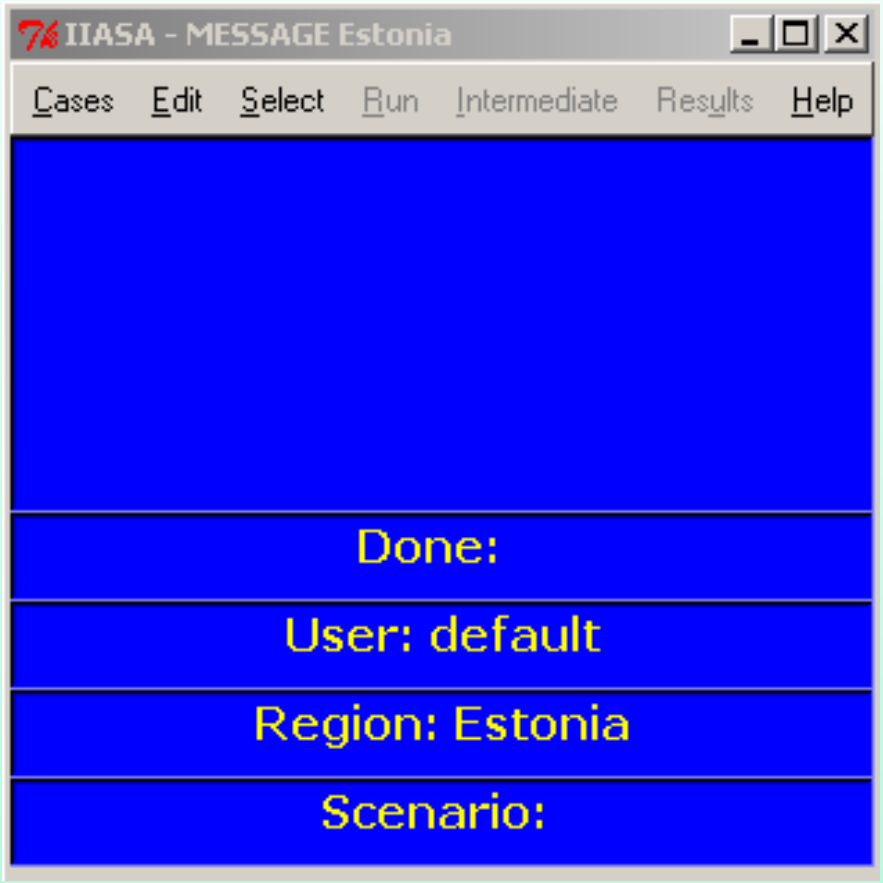


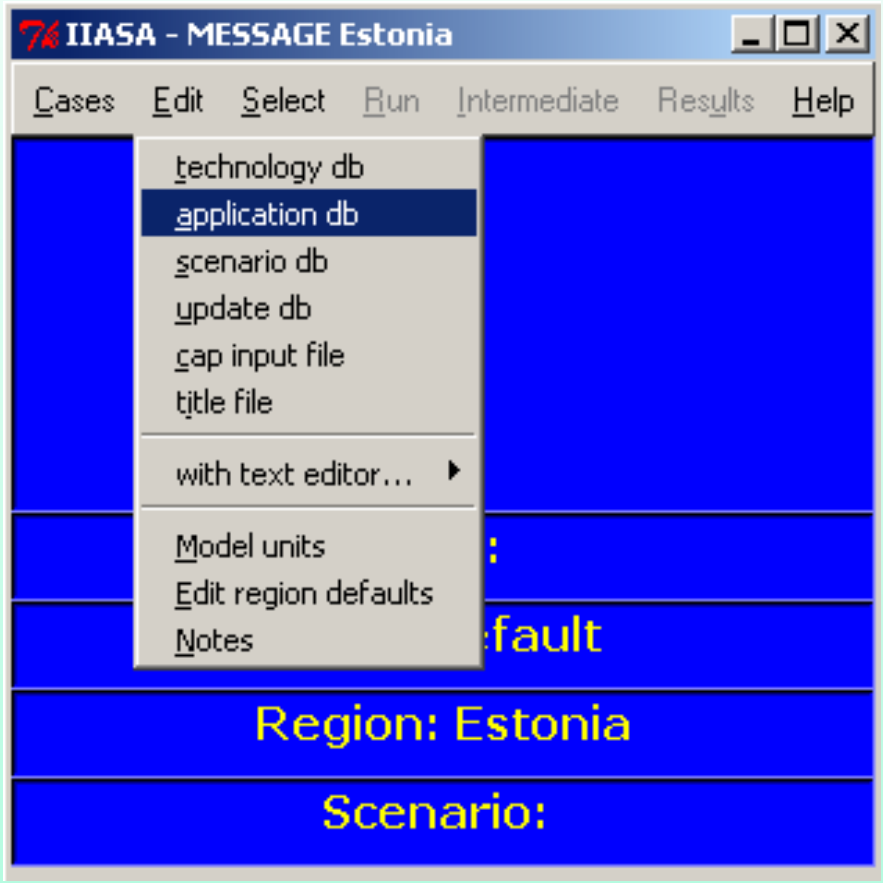
Access to the created Multi Regional model



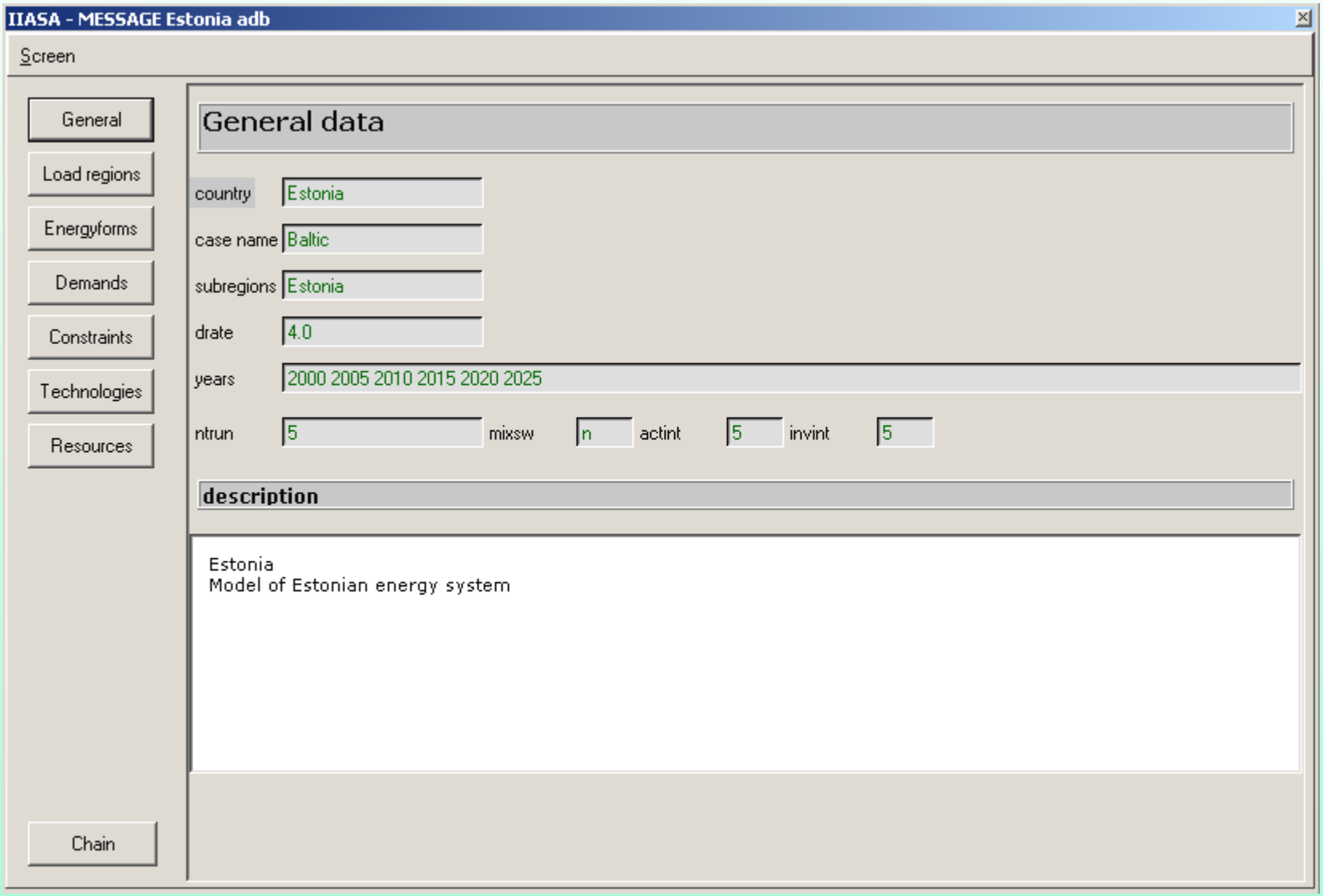


Access of data base of Multi Regional model (1)





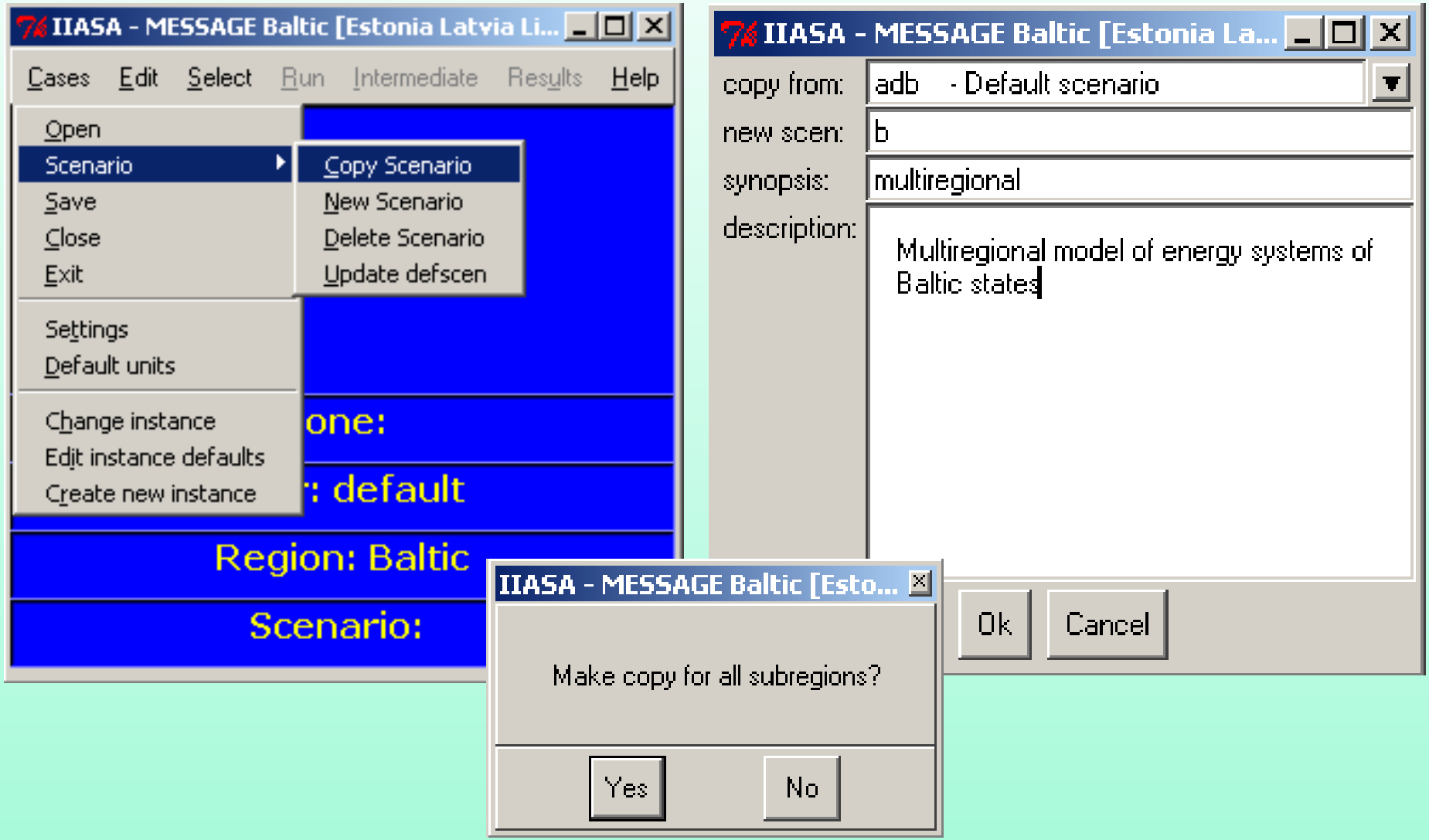
Access of data base of Multi Regional model (2)



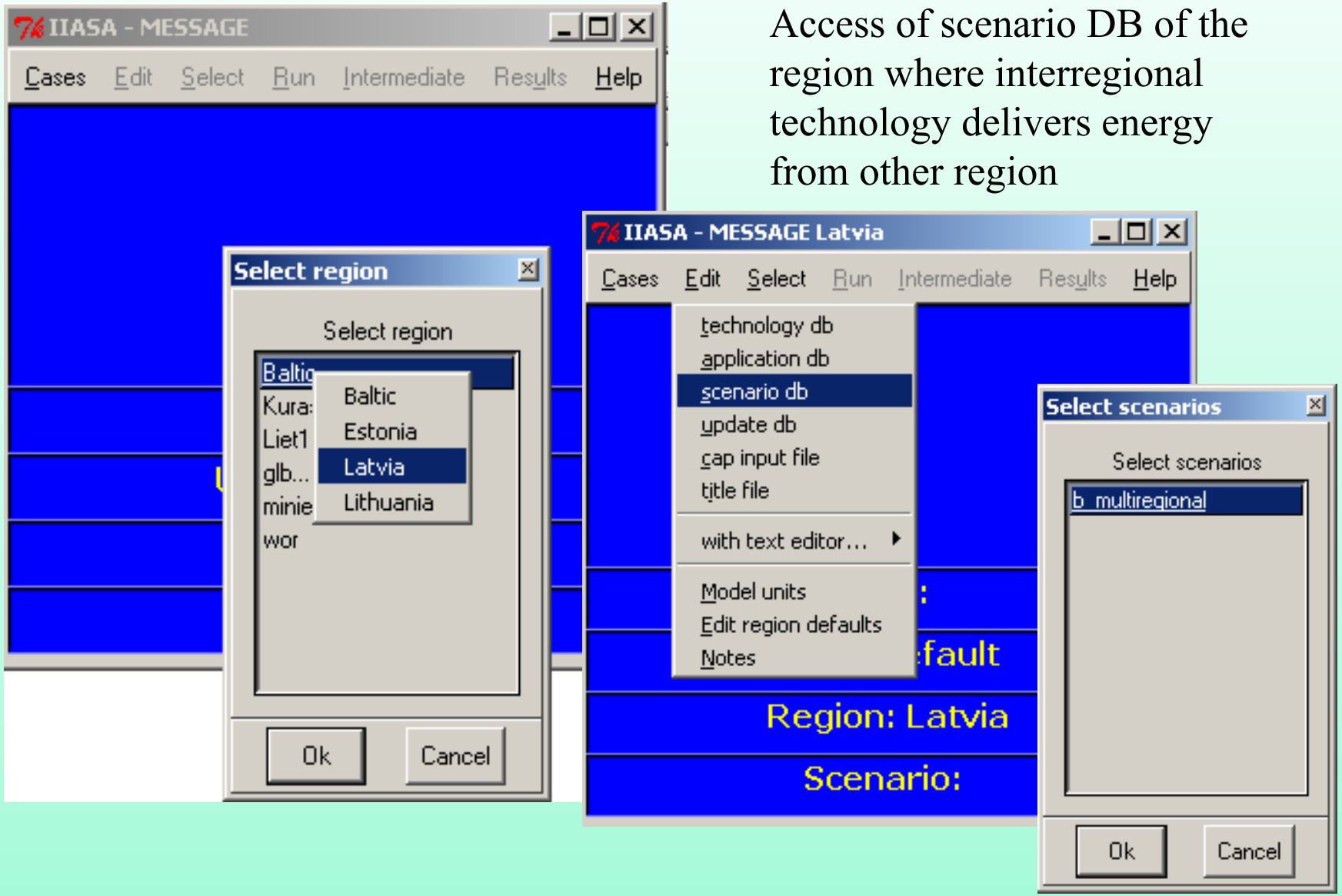
Links between regions

See Microsoft Excel schema.xls file sheet 2

Preparation of multi regional scenario

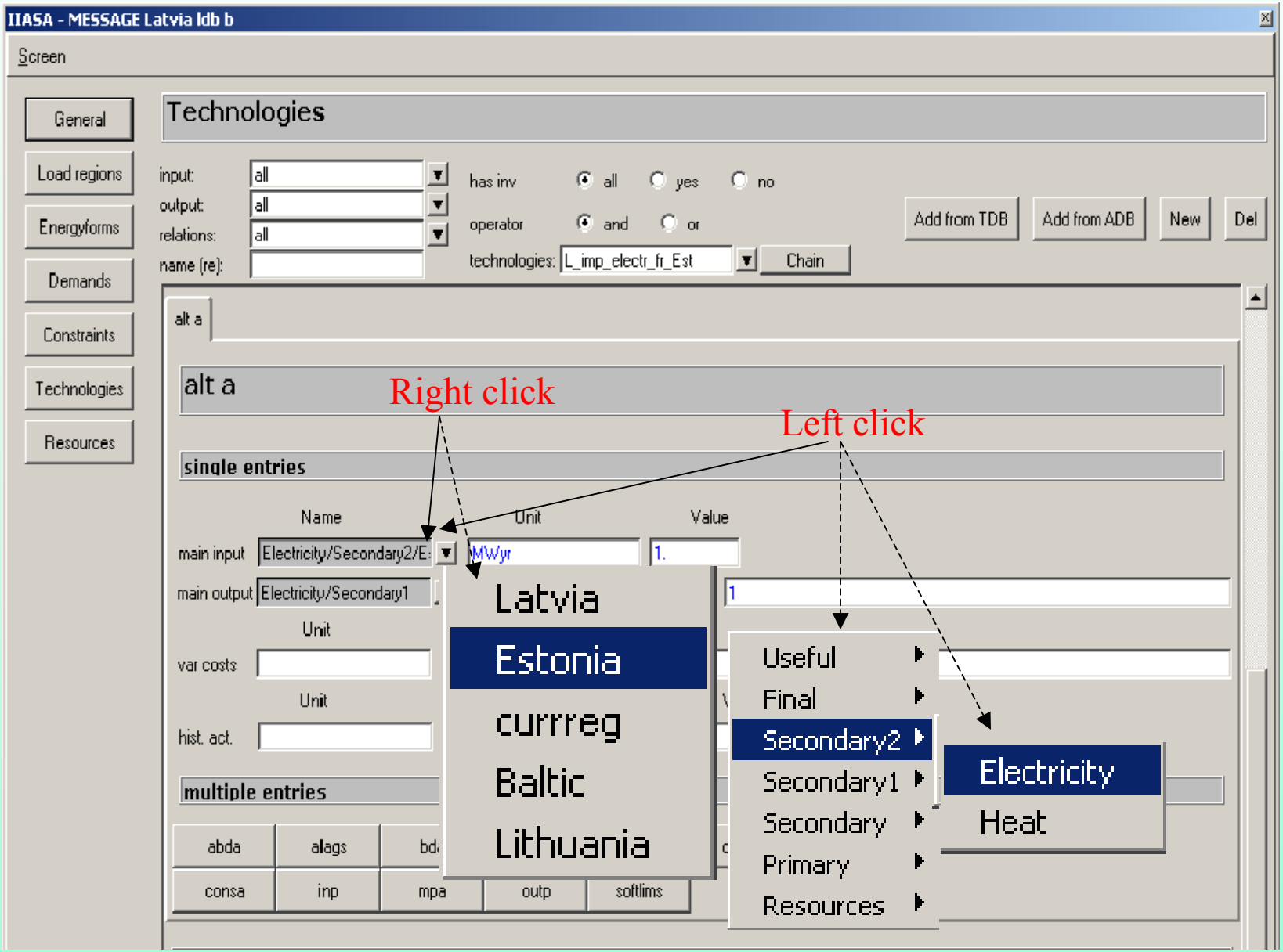


Introduction of interregional technologies (1)

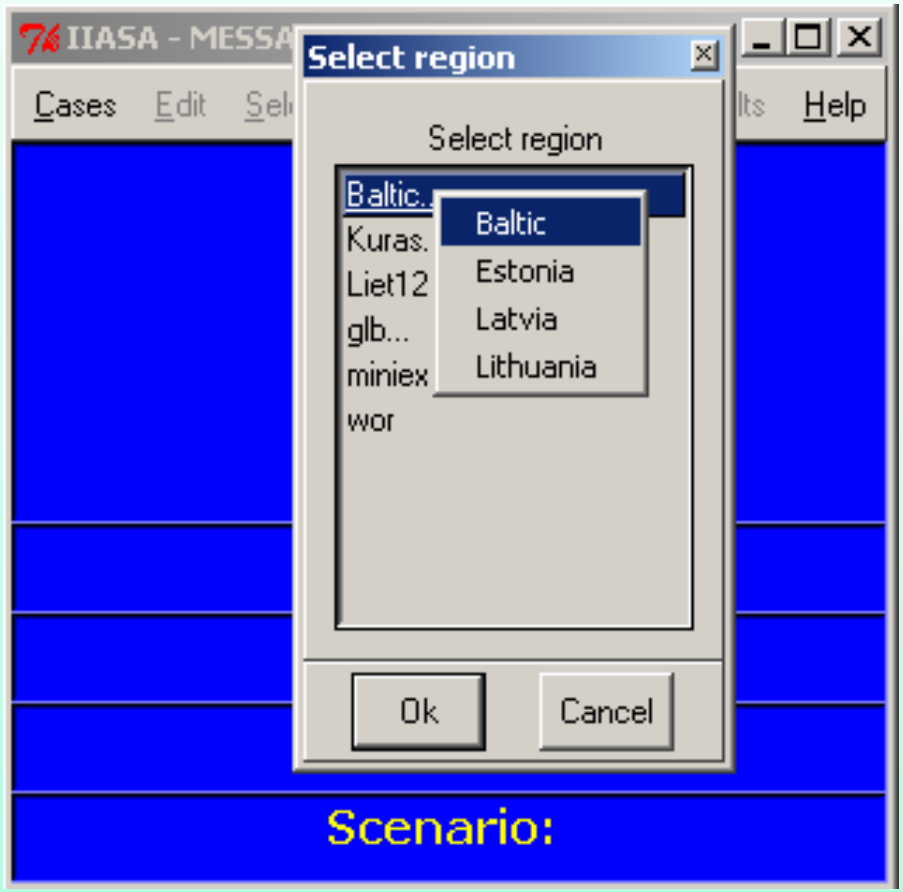


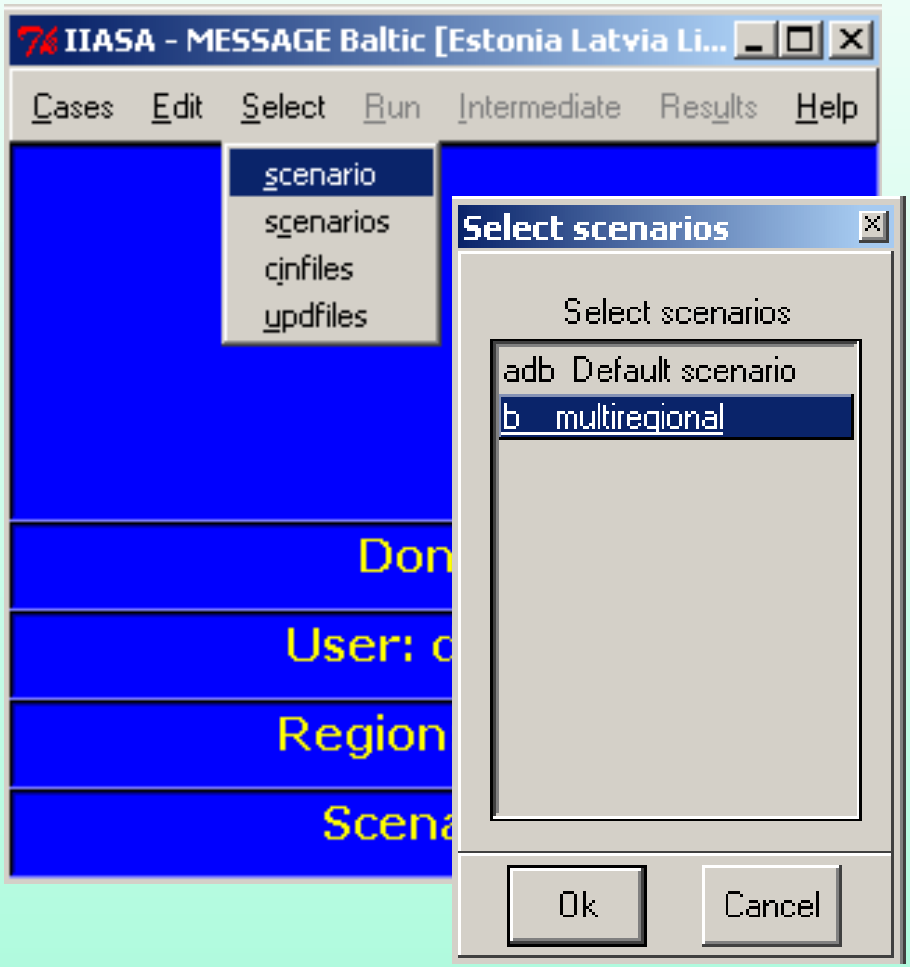
Access of scenario DB of the region where interregional technology delivers energy from other region

Introduction of interregional technologies (2)

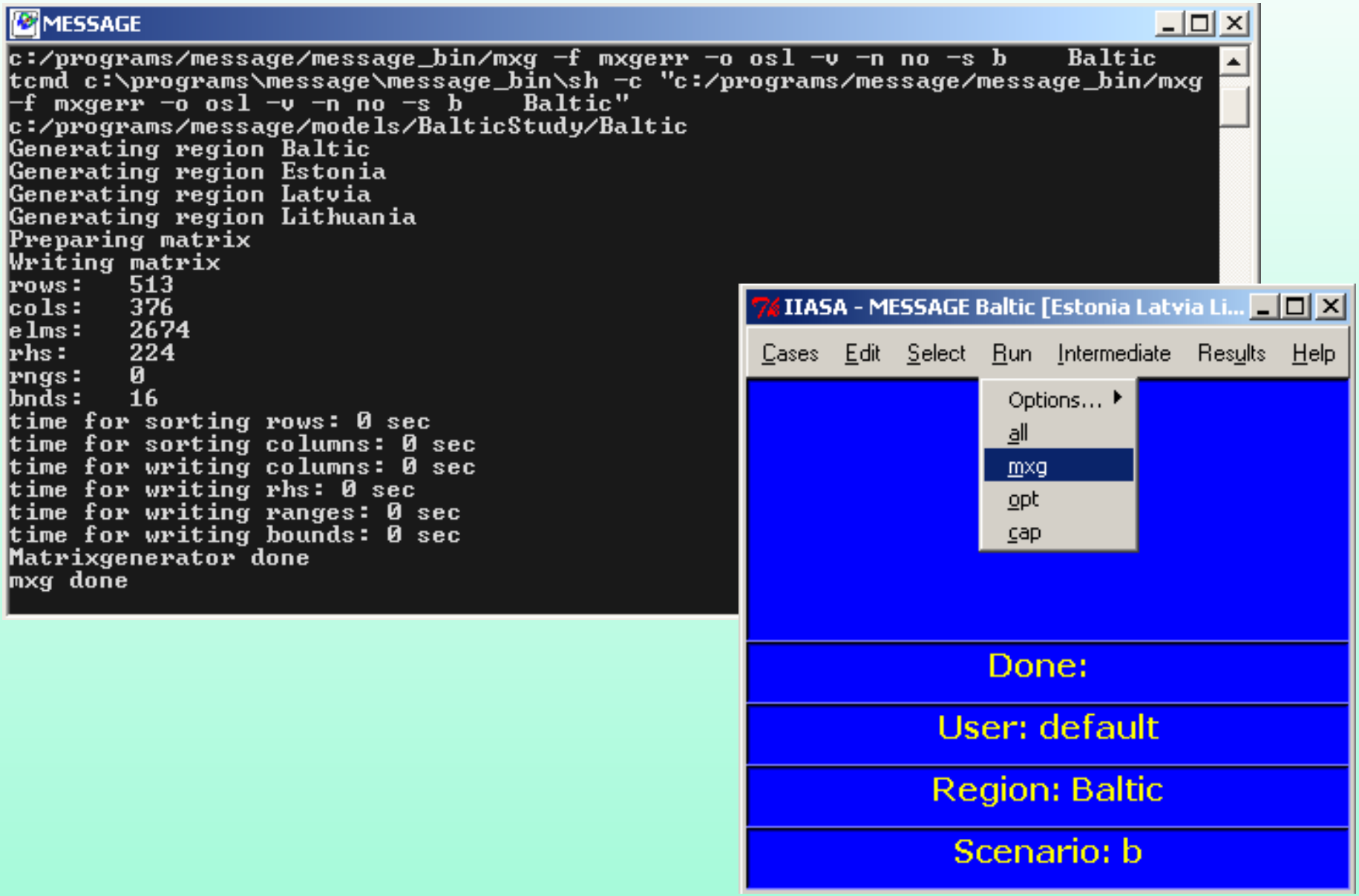


Run of the Multi Regional model (1)





Run of the Multi Regional model (2)



Review of results of Multi Regional model