FLOW: An ORNL Simulation Platform

Juan J. Ferrada, PhD

Process Engineering Research Group
Nuclear Science and Technology Division
Oak Ridge National Laboratory

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FLOW FEATURES and Versions

Windows Version

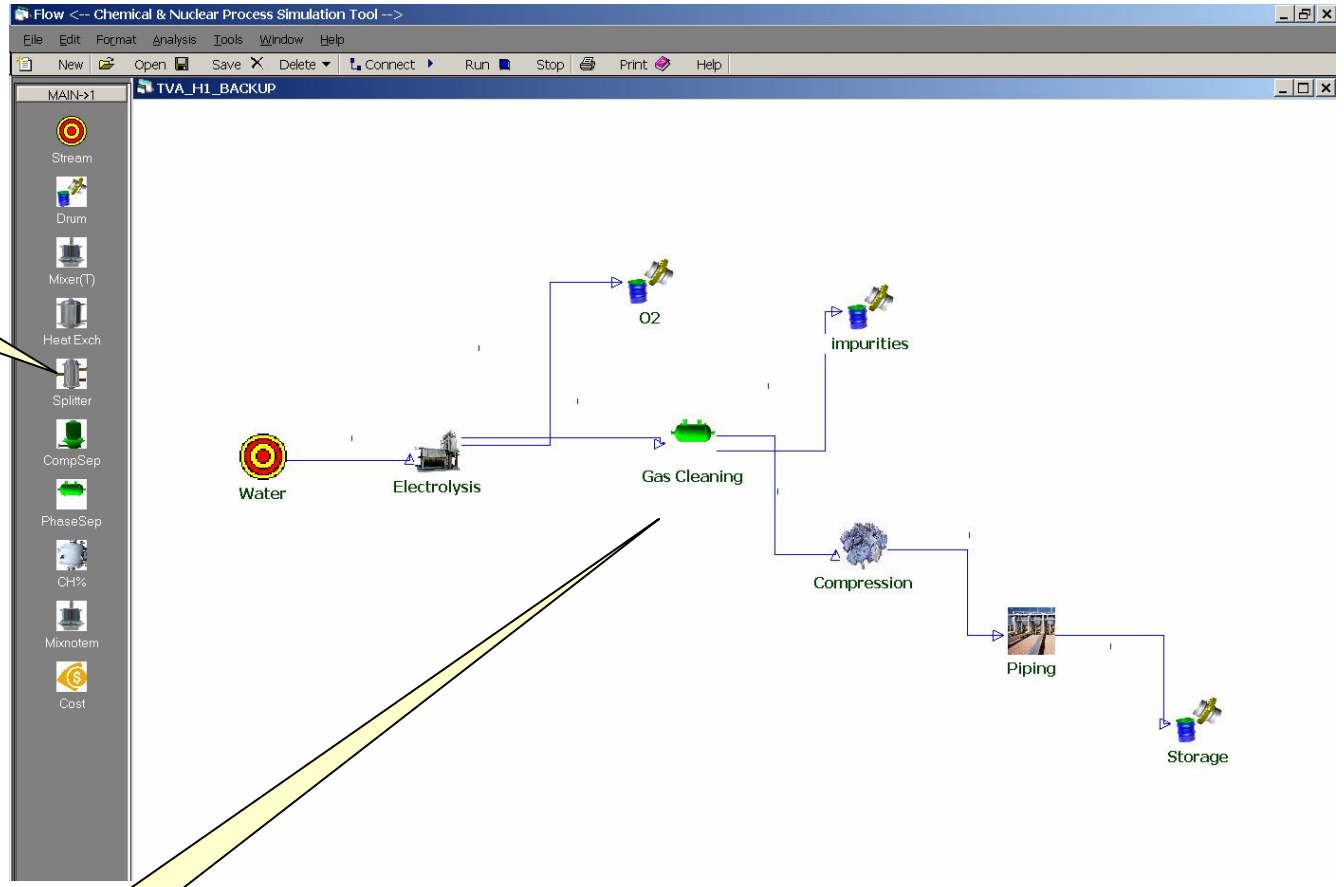
- Flowsheet Development
  - ✓ Process simulation
  - ✓ Cost simulation
  - ✓ Decision Points
  - ✓ Risk simulation
- Sensitivity Analysis
- Uncertainty Analysis

DOS Version

- Flowsheet Development
  - ✓Process simulation
  - ✓Cost simulation
  - ✓Decision Points
  - ✓Risk simulation
- Sensitivity Analysis
- Uncertainty Analysis
- Aggregation
- Dynamic Recalculation

FLOW Windows Version – Process Flow Sheet Set-up

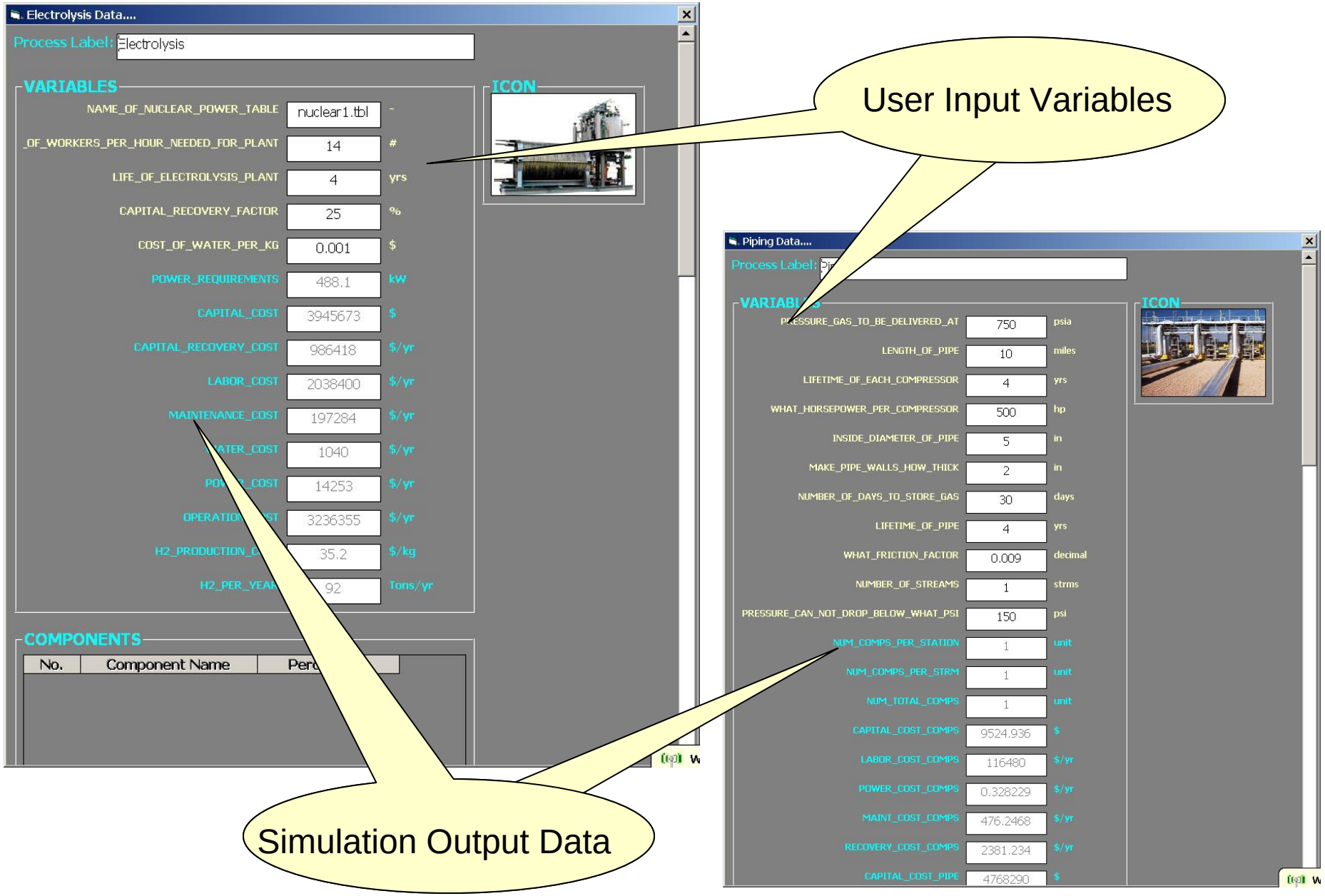
Process Icons,
May include process models
Decision elements,
Cost calculations
Risk calculations
Models written in Python



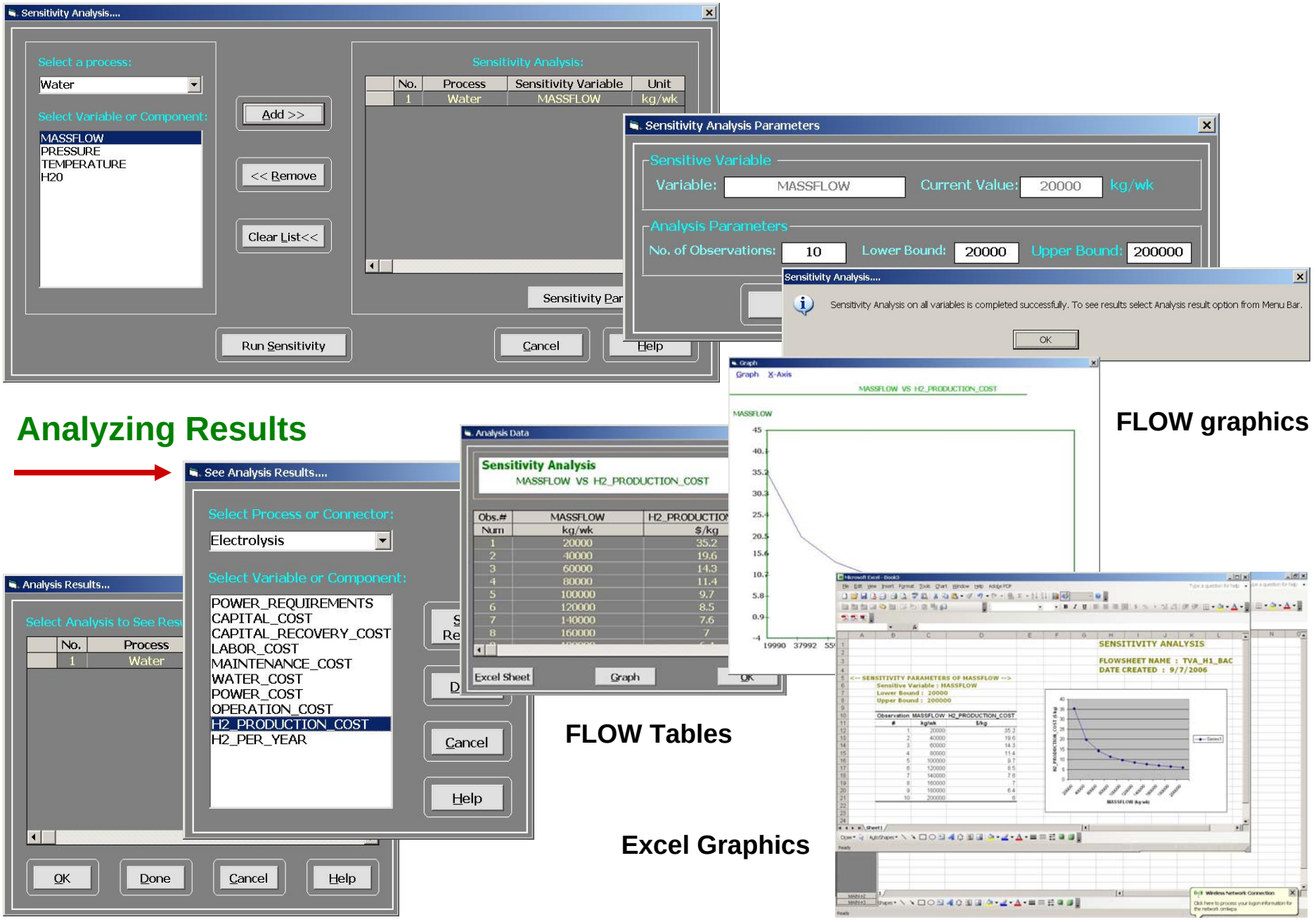
(Representation of a Hydrogen Production System)

Process Flowsheet

Examples of Screen Input Variable and Output Data

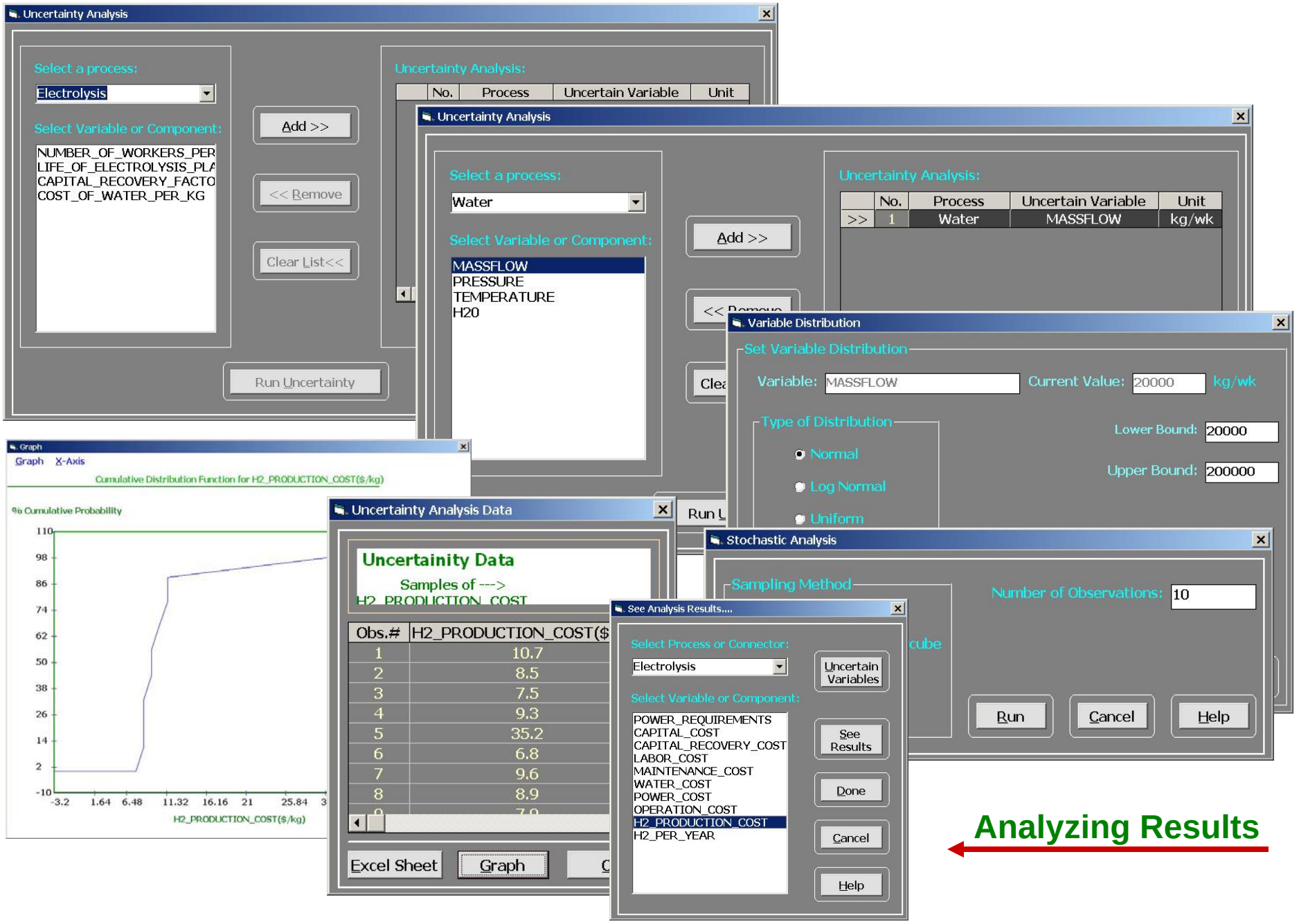


Setting up Sensitivity Analysis



Analyzing Results

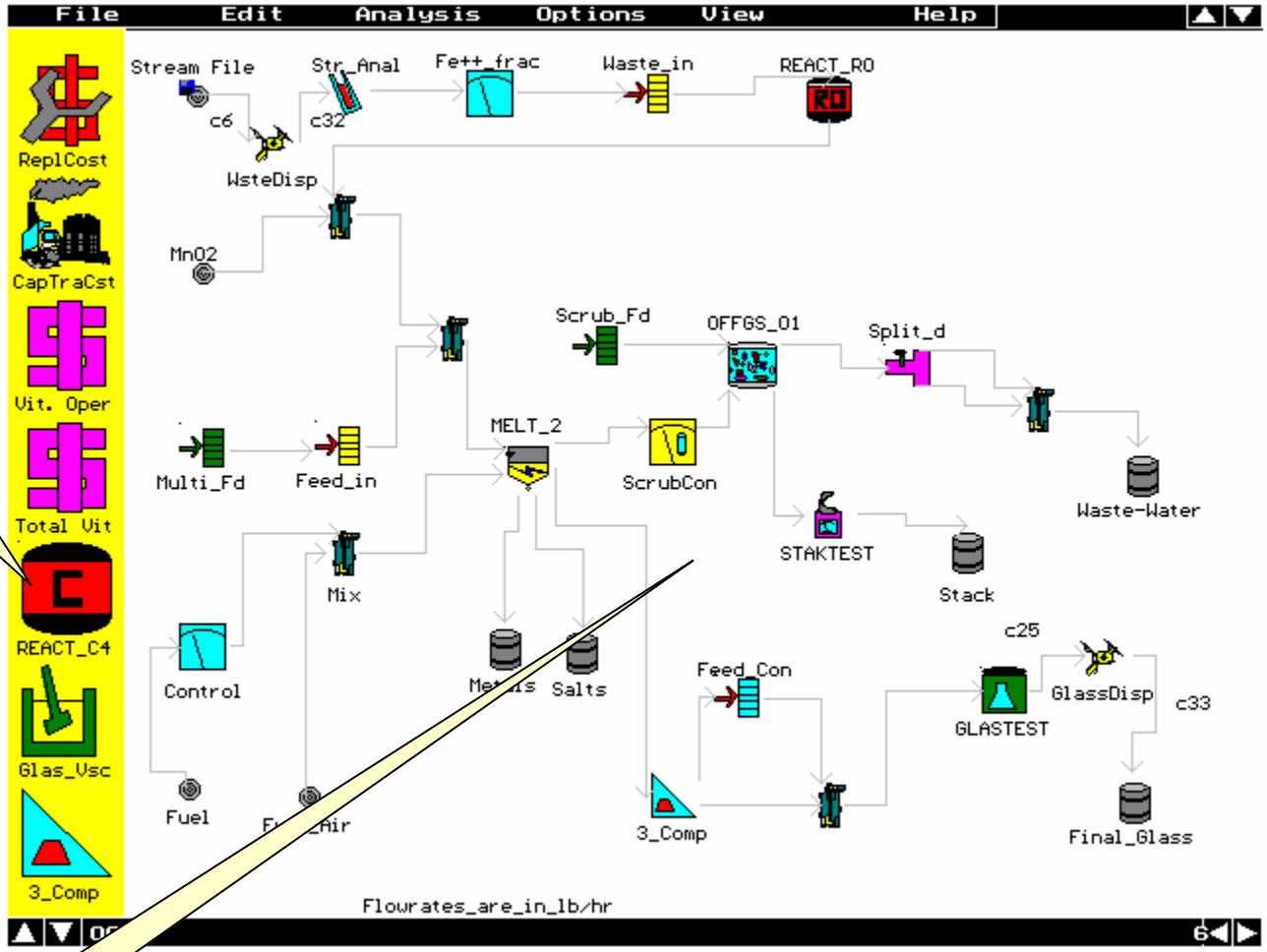
Setting Up Uncertainty Analysis



Analyzing Results

FLOW DOS Version – Process Flow Sheet Set-up

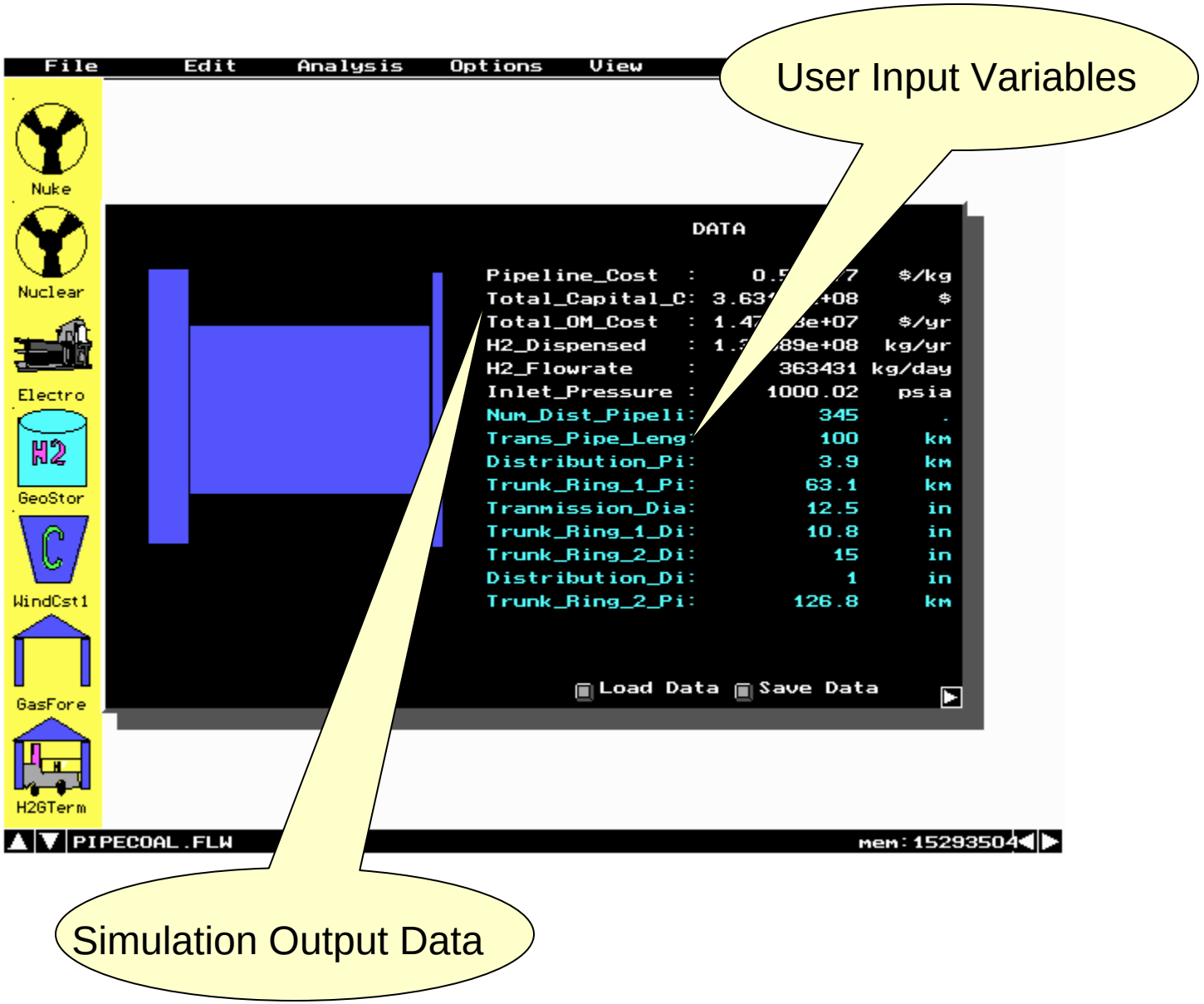
Process Icons,
May include process models
Decision elements,
Cost calculations
Risk calculations
Models written in Python



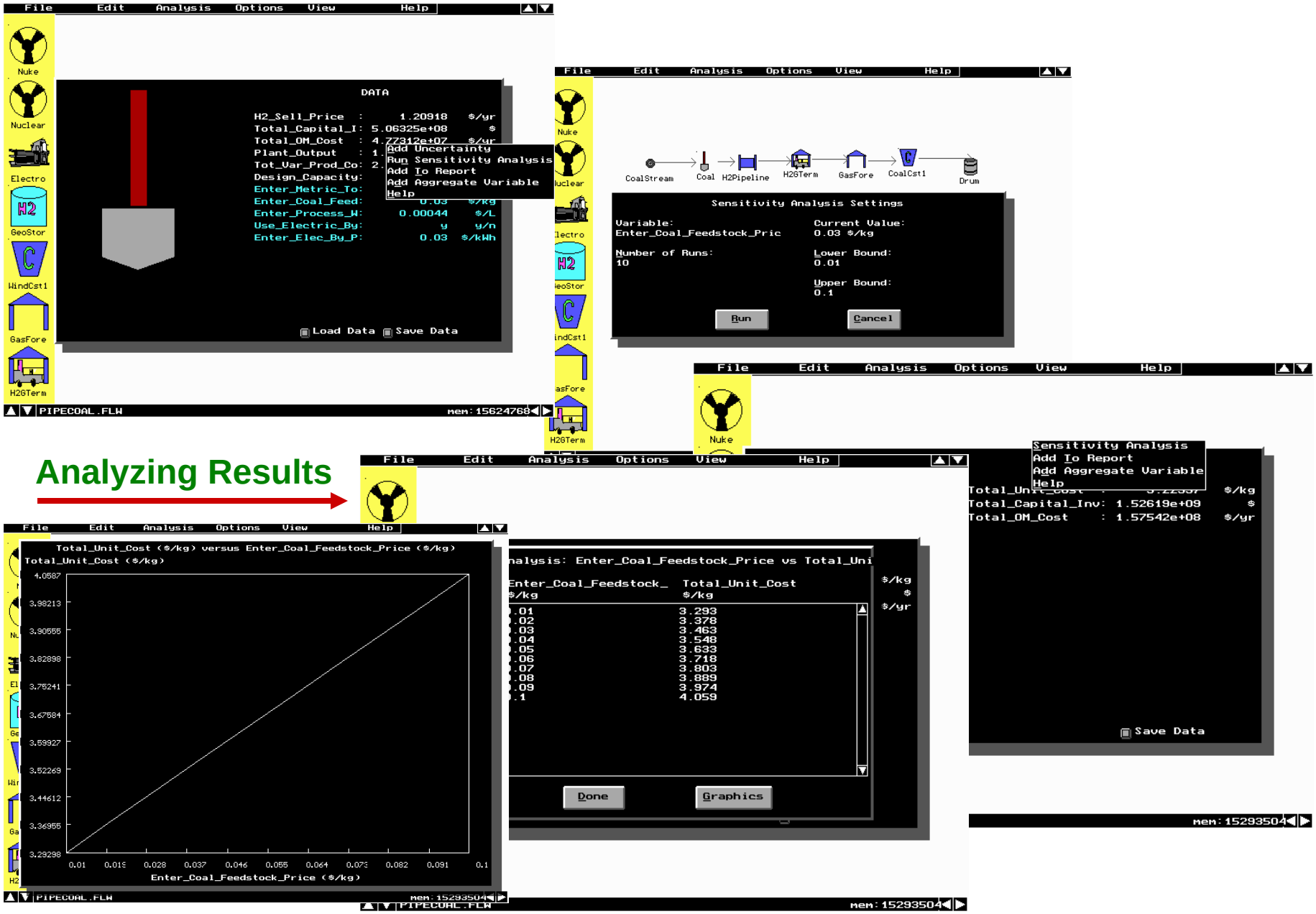
Process Flowsheet

(Representation of a mixed waste vitrification system)

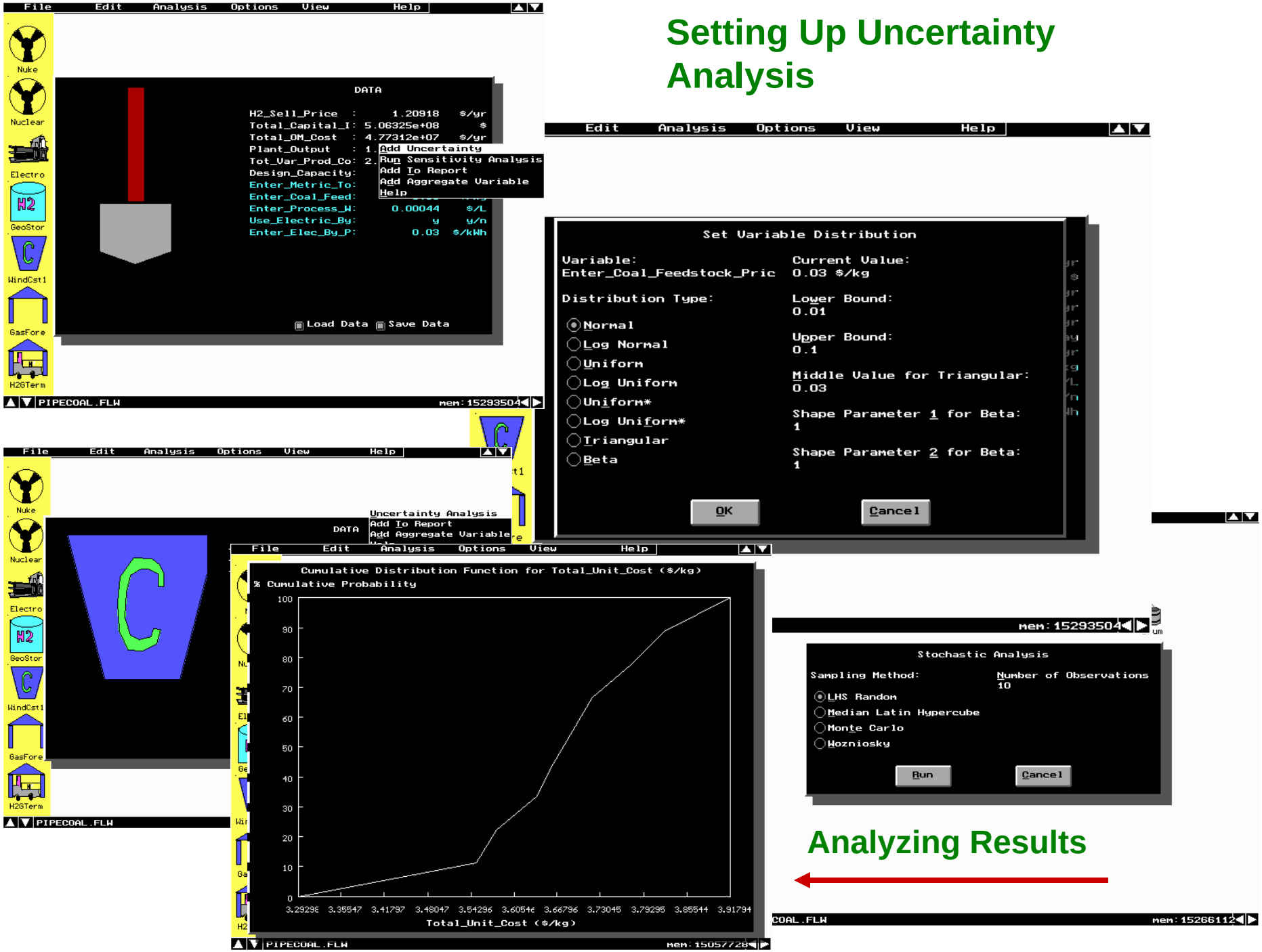
Examples of Screen Input Variables and Output Data



Setting up Sensitivity Analysis

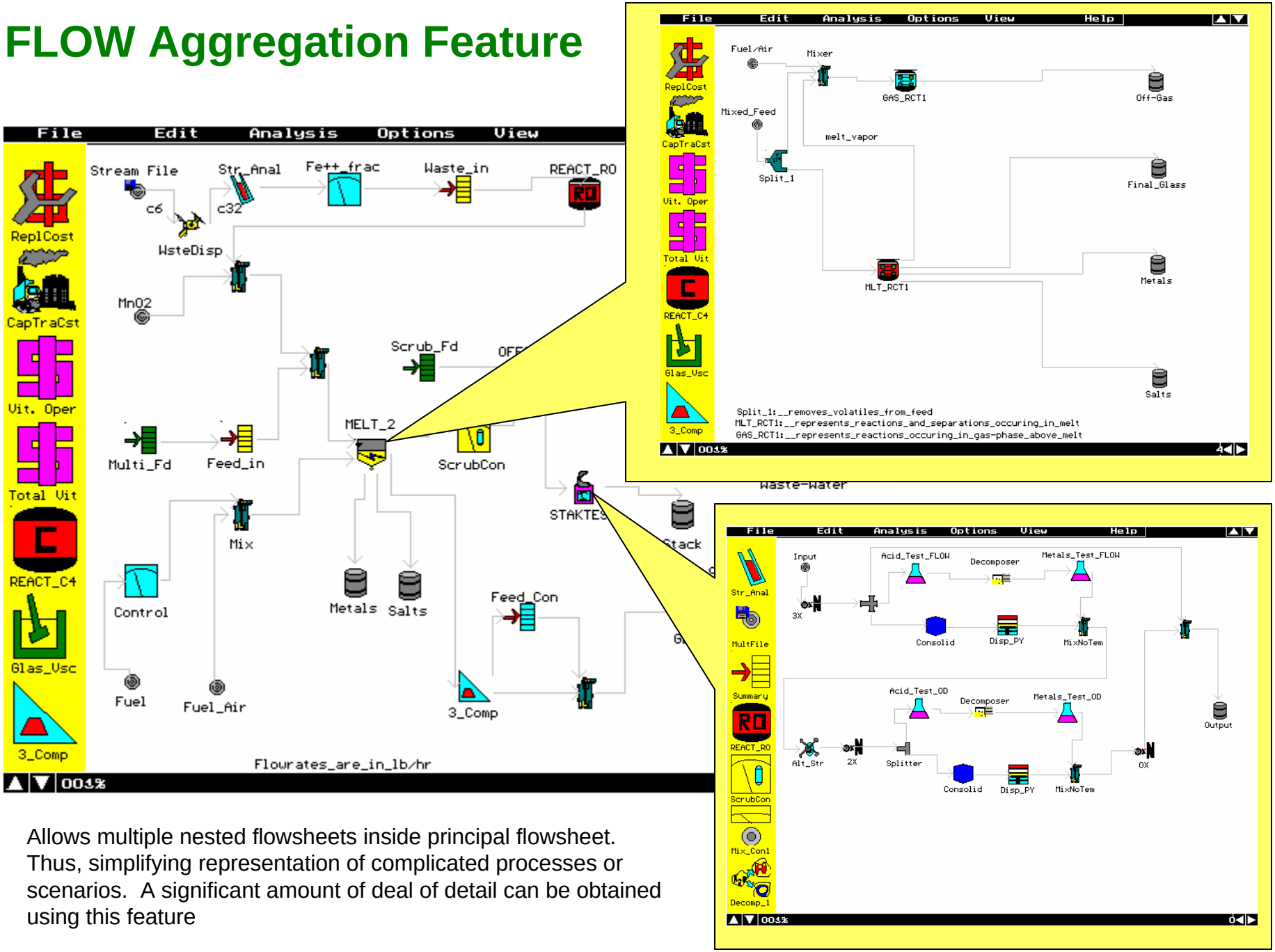


Setting Up Uncertainty Analysis



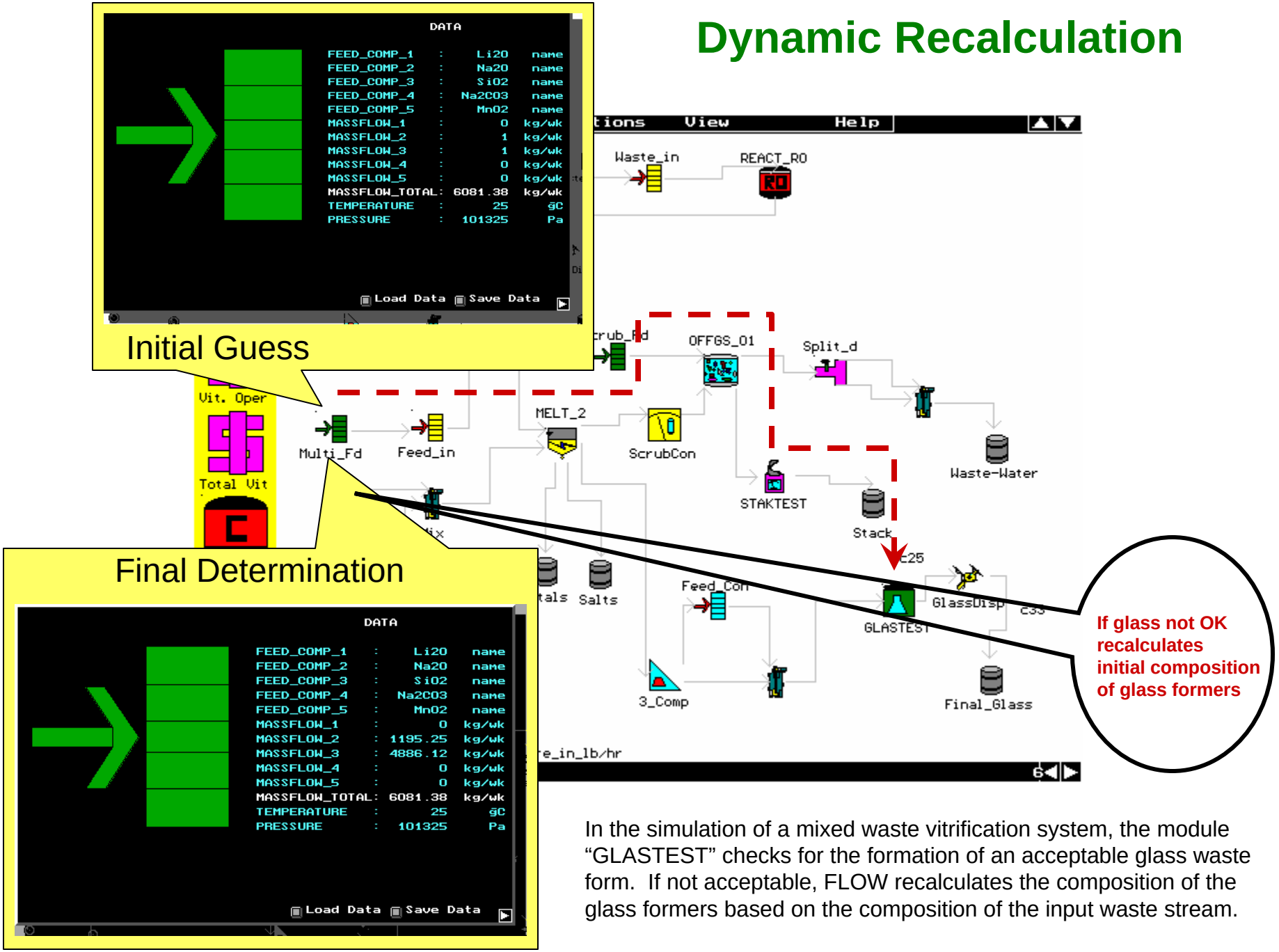
Analyzing Results

FLOW Aggregation Feature



Allows multiple nested flowsheets inside principal flowsheet. Thus, simplifying representation of complicated processes or scenarios. A significant amount of deal of detail can be obtained using this feature

Dynamic Recalculation



In the simulation of a mixed waste vitrification system, the module “GLASTEST” checks for the formation of an acceptable glass waste form. If not acceptable, FLOW recalculates the composition of the glass formers based on the composition of the input waste stream.