



A Yokogawa Company

MaximusTM

Integrated Production Modelling Software

Maximus is a modern, purpose built tool for compositional thermal hydraulic steady state simulations of pipeline networks, including reservoirs, wells, chokes, flowlines and a wide range of processing equipment.

Single branch steady state simulations, network sensitivity studies or Integrated Production Models; Maximus offers great functionality and ease of use to improve the work flow of any flow assurance or production forecasting study.

Rigorous Physics; Maximus applies Process Engineering levels of fidelity to Integrated Production Modelling (IPM), making the results more compatible with a wide range of engineering disciplines.

Faster and More Robust; Modern numerical methods that allow larger and more complex networks to be simulated in detail.

Better Work Flow; Maximus is designed by consultants for consultants, making integration with other engineering disciplines and quality assurance easier than ever before.

MaximusTM

Integrated Flow Assurance Modelling

Forecasting and Flow Assurance

Maximus can be used as both as a production forecaster and a flow assurance tool on projects; i.e. it predicts the revenue forecast whilst simultaneously predicting temperatures, pressures, velocities and compositions of a network as all of these can be critical inputs to the investigation of the technical feasibility of a critical development concept. Dozens of projects around the world, from one well tiebacks to multi-billion dollar LNG systems are benefiting from using Maximus this way.

The Maximus Advantage

More accurate production forecasts; subsea facilities back pressures are calculated using accurate bathymetries, compositions, temperatures, water flow rates and state of the art multiphase models such as OLGA-S and LedaPM.

Optimising the design faster; by speeding up the techno-economic investigation, projects can evaluate more alternatives more rigorously in the same time frame.

A better representation of processing equipment; consultants and vendors of onshore and subsea well head processing technology have selected Maximus for a range of projects as it represents the effects of their technology on the whole production system better than simpler modelling approaches.

Avoiding under engineered solutions; catch costly technical issues early in design that would otherwise be missed until detailed design.

RIGHTSIZE THE FIRST TIME INTEGRATED PRODUCTION MODELLING

Subsea to Topsides to Onshore
Assure Feasibility
More Accurate Forecasting

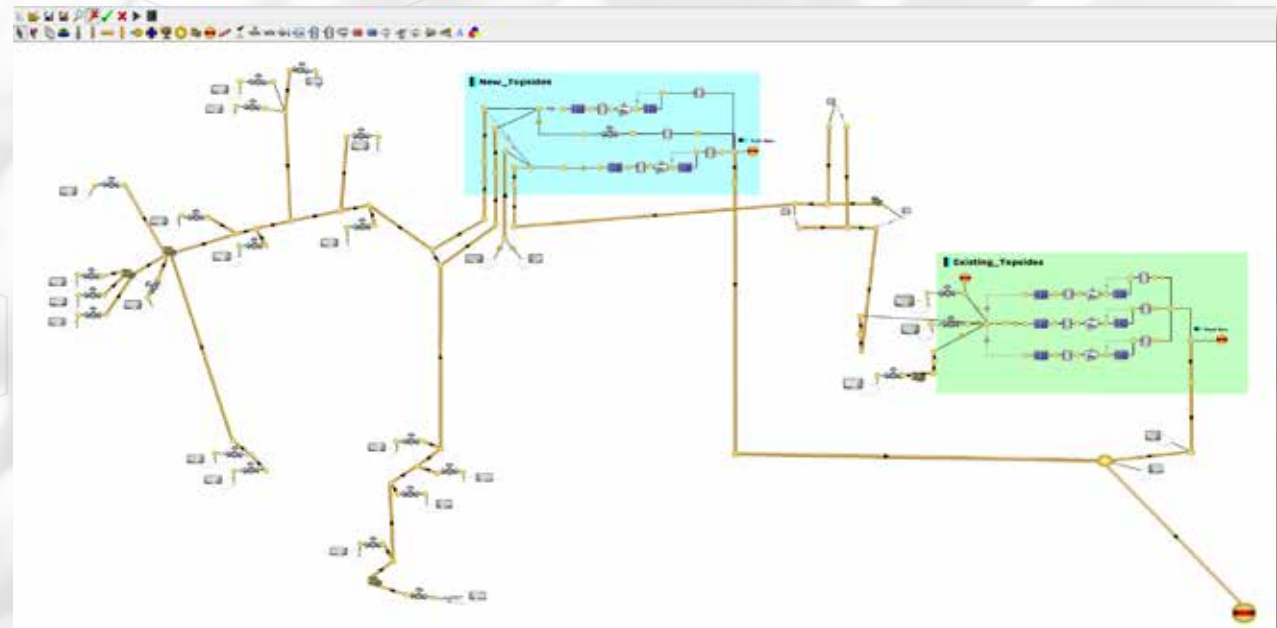
One Tool Does the Job of Many
Mass, Energy and Momentum
Interface to Any Reservoir

Optimise Complex Networks
Increase Production
Control Costs
Improve Forecasting

Optimise Lifecycle CAPEX/OPEX
Avoid Regret Capital
End of Life Scenario Planning

PRODUCE THE LIMIT

LIFE OF FIELD



Avoiding over engineered solutions; develop fit for purpose concepts without excessive design margins accumulating between engineering disciplines.

Hence, Maximus is ideal for designing production and injection systems, allowing engineers to rigorously investigate high tech (DEH, subsea compression, gel injection) and conventional (MEG, wet insulation, gas lift, etc) production and flow assurance technologies throughout life.

Modularised Features

Maximus Base is for snapshot sensitivity studies of networks with up to 50 objects (see diagram below).

Large Network Option is for networks with more than 50 objects.

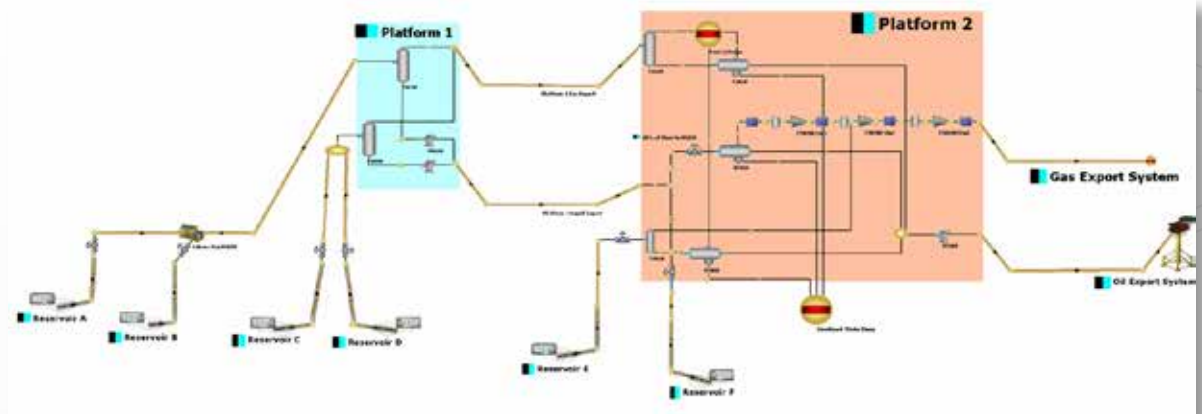
Field Planning Option with table models and/or tank models to represent reservoirs throughout the Life of Field (LoF).

Open Interface allows you to control Maximus from other software, such as Excel spreadsheets or macros.

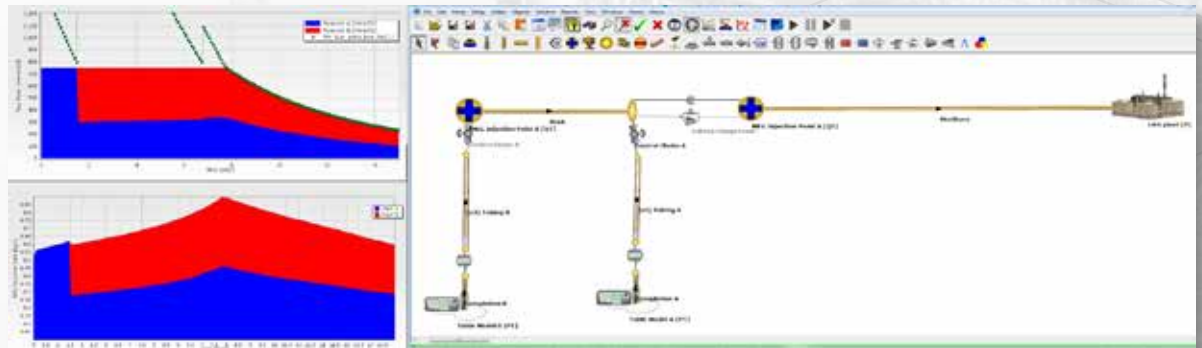
Black Oil or Compositional using Infochem's Multiflash with or without hydrates or wax phases.

LedaPM 2 and 3 Phase and OLGA-S 2 and 3 Phase modules are also available.

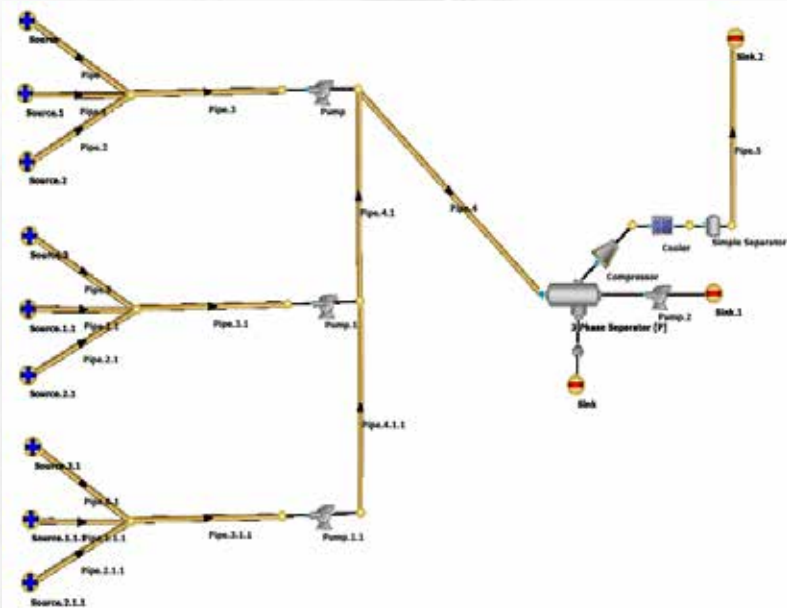
Pipelines and Topsides



Subsea Processing



Onshore Tight Gas and Coal Bed Methane Systems



How Else Could You Use Maximus?

Delaying CAPEX; Add logic to switch on compressors, pumps, pipelines, wells, etc only when they are required to calculate how long they can be delayed for.

Gas Lift / Production Allocation; An optimisation method is provided, which users can tailor to their system.

Water Injection Systems; Predict required pump characteristics for a given injection profile or, max rate for a given pump curve.

Interfacing with Third Party Software via Open Interface.

Chemical Injection Systems; Predict the life of field demand and simulate the hydraulics of MEG, methanol, xylene injection systems, etc.

Polymer Flood EOR Gel Injection; Non-Newtonian flow models in network.

Carbon Capture and Storage Developments; Model compression, injection network, JT effect across chokes, etc.

Gas Storage; Gas injection to, and production from, tank models for reservoirs.

Liquid Hydrocarbon Export Systems; Storage, Pumping and Offloading Cycles, Slackline Operation.

Generating OLGA / LedaFlow Tab Files; For any composition anywhere in the network, at any point in time to speed up the build time of transient models.

Predicting Hydrates and Wax Temperatures; Of sample compositions and blends via user friendly links to Infochem's Multiflash.

Cold Flow Technologies; Predict the effect of hydrate slurries on production profiles.

KBC has a unique focus on: Quality. Innovation. Support. Value.

All of these areas of focus are backed up by our industry-leading consulting capabilities to help provide answers for our diverse clients. In addition, world class technical support is available to all of our customers under a maintenance agreement.

Although Maximus is a standalone product for flow assurance and integrated production modelling studies, it is designed to work seamlessly with the other tools in the KBC Upstream software suite. Most notably Multiflash, the best-in-class PVT Simulator, and Petro-SIM, the industry-leading process simulation platform.



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