



SCOPING STUDIES

A Simulus scoping study delivers a rapid outcome with multiple scenarios and analysis of the total project, not just the process plant. We provide the information for early optimisation of the project flowsheet, plant throughput and thus project NPV.

We answer the following questions typically asked by project financiers:

- What will it cost to develop?
- What will cost to operate?
- How much power and water does it need?
- What other inputs are needed?
- What are the environmental factors to consider?

Simulus' philosophy is to address the economic evaluation of a mining project as early as possible. From preliminary drilling and metallurgical testing results, we start looking into development scenarios and narrowing down the viable options. We start with a simulation model for the project, not just the plant. By integrating the process modelling with operating and capital cost estimation, multiple diverse scenarios can be evaluated in hours rather than weeks or months. The information feeds back to decision making through drilling and test design, and gives early warning of the key economic issues and risks. The Simulus system thus gives clients the fastest path to a realistic NPV and rate of return.

The project model includes equipment sizing calculations, plant layout information, buildings and infrastructure rules and operating cost inputs such as manning schedules. This rigorous, bottom-up approach keeps the estimate as transparent as possible from the outset, and avoids nasty surprises when moving into the more detailed phases of study. Once your specific flowsheet is established, multiple scenarios can be rapidly prepared. The model is run for the chosen scenario, all equipment is resized by the simulation and the link into the capital estimate provides a revised cost. The information feeds directly into the financial model to show the impact on cash flow, present value and rate of return.

The simulation outputs a full equipment list, electrical load list and operating cost drivers. The equipment list is used to prepare a 3D visualisation of the layout with major equipment items, pipe rack locations and buildings shown. The equipment list and electrical load list are linked into the capital estimation database to prepare the capital estimate. Civil, structural, electrical, piping, valving and instrumentation costs are automatically factored from the equipment details.

The increased detail also lets you better track and control changes in the capital cost of your project over time. Input costs which are likely to change as a function of time can be clearly identified and adjusted in the estimate, rather than being hidden amongst factored costs. Options assessments are also more meaningful

when there is a clear basis for comparison.

Simulus has a well established reputation as process specialists, but we also take a multi-disciplinary approach. Coordination with mining, geology, infrastructure, and environmental studies is integral to a Simulus scoping study. We strive for faster response to changing conditions, flexibility to client requests, and ultimately better communication of engineering results.

Overall, a Simulus scoping study delivers you:

- Process design criteria
- Process flow diagrams
- Mass and energy balance
- Residues and effluents list
- Plant 3D model showing major equipment items
- Capital cost supported by
 - Sized mechanical equipment list
 - Electrical load list
 - Equipment installation hours
 - Current equipment cost database and vendor enquiries where required
- Operating cost
- Economic evaluation and sensitivity analysis
- Project report and development recommendations
- The confidence to proceed with your project in the right direction



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