Economics

Reservoir Management | Economics

Reservoir management aims at maximizing the value of a hydrocarbon reservoir for all its producing life, from the discovery phase à to the abandonment operations.

The economic value of a development project is affected by many factors, and the general tasks for its economic analysis require:

- Setting an economic objective, which is based on the company's economic criteria
- Formulating scenarios for project development
- Collecting production, operation and economic data
- Making economic calculations
- Making risk analysis and choosing optimum project.

Because the economic outcome of the project strongly depends on the relationship between revenue and capital+operating costs, one of the main reservoir management task is the implementation of all the actions able to maximize the "Net Present Value (NPV)"of the investment; NPV, in fact, is considered one of the most significant criterion for evaluating the economics of a project.

Other important economic indicators that can be considered are: internal rate of return, profit-to-investment ratio, etc. In all cases, their choice is referred to the top management functions.

Once the criteria are defined, they can be applied to a range of possible operational strategies that should include assessment of both tangible and intangible factors.

Some strategies include the production acceleration, increase of recovery, lowering operating costs, etc., but in all cases, the reservoir management team is expected to generate reliable production forecasts using a variety of reservoir exploitation schemes that yield a range of recoveries.

Uncertainty analysis is usually performed to determine the most likely value of a project; this analysis must cover both technical (e.g. well productivity, reservoir geology, etc.) and economic uncertainties (e.g. future oil/gas prices, cost inflation, etc.).

Political issues deserve also a lot attention, and a risk analysis associated with them must be always carefully performed with the help, for instance, of international institutions or research centers specialized in strategic studies.