

Tips & Tricks

Master planning by the best of LP model

Most refiners around the world using LP models as one of the important tools for their production planning activities to answer the optimization quests for crude selection, mode of operations, products quality & blending including the plant utilization etc.. For Master Planning study, many also use LP models to identify the economics incentives for each investment options and business opportunity. Study team need to have thorough understanding how to translate business aspiration, economics driven, commercial situation etc. to LP model configuration to ensure the model would effectively respond to the most optimal & feasible solutions.



Prerequisite

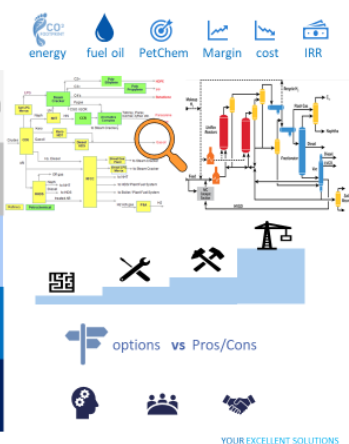
Identify business aspiration

Know process technology & configuration

Understand the model

Identify / Choose options

Get agreed assumption



There are major areas that are needed for conducting the master planning study:

Business aspiration is the initial source of information. For example: some business wants to eliminate fuel oil, some wants to explore the cheaper feedstock, some want to strive for petrochemical and polymer, some might want to enhance product quality or niche market etc..

Nowadays, **Green and Clean trend** could also lead business investment in to renewal energy related, recycling business, and carbon footprinted reduction etc..

Process technology knowledge of the study team is essential to realize which process technology could support the business aspiration, what could be the opportunities to enhance the returns, what would be limitations and challenges in product quality including SHE, how many options do they might have and what would be operational and enterprise risk etc..

Competent LP modeler who is capable to translate the key process technology parameters to LP model configuration. LP modeler shall work closely with the experience team to carry out LP modelling, running several operating scenarios and **investment options**. Result interpretation would identify the pros/cons of each options which is necessary for decision making to the next step of the study.

Engagement of stakeholders within the organization such as process technologist, commercial, project team including operations even strategy department to get the **agreed basis assumption** to ensure the best fit for purpose, marketing of the new products, additional production, feedstock availability, price forecast, and even site selection etc. of which related to investment cost and operational philosophy of the new investment options. In addition, the study team should also consider to engage process licensors, technical & commercial experts including engineering company for relevant information required for the study.

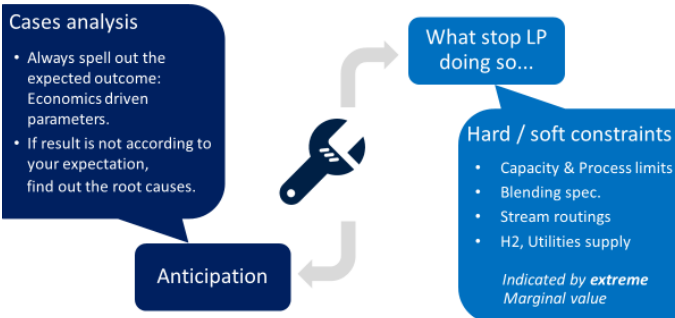
LP model using for production planning might not suite for master planning purpose. Too many limitations to fit with the day-to-day operation might constrain the long term opportunity. LP model validation should be considered prior tuning to serve the addition of investment with relevant information such as process data with key parameters, integration with the existing and future business including commercial data i.e. price forecast, demand - supply assumption and product quality.

LP result would also help determining utilities consumption, emission control including Hydrogen and Sulphur balance and how challenges and opportunities respond to the business aspiration and economics driven. Anticipation of LP output would urge the study team asking questions when the result not follow expectation. "What if" scenarios could do furthermore optimization.

Tips



Tricks Study result



Sometimes (may often) that the result is not according to what we have expected. Case analysis is always necessary deep into, "initial" correctness of data, streams routing up to excessive limitation or freedom vs technology requirement and reality. For example, the investment study result shows very high rate of return, but subject to a single feedstock availability. Several scenarios would help ensuring of the result robustness.

Master Planning is the dynamic activities that should be reviewed regularly, says every 3-5 years because of the change of economics driven, policy, regulations, technology and product quality and even the transform of people life style resulting to the shift in demand - supply of the current and new products entry.



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