



## Margin Variance Analysis

### **How to Improve Your Business Results Significantly Using Margin Variance Analysis (MVA)?**

Is your refinery, petrochemicals or any other production plant making less actual financial margin than originally planned or aimed for?

Then execute a Margin Variance Analysis (MVA) which describes in detail WHERE exactly the deviation is caused. Is it a price effect, deviations in supply and/or demand, or the capacity of the process units, or ... all of the above?

See the first picture below how such a detailed analysis could look like. This example is for a typical refinery where the Gross Refinery Margin (GRM) is expressed in dollars per barrel crude oil intake. We used an existing local linear programming (LP) optimisation program to execute the calculations. The 0.40 \$/bbl margin gap between Actual and Plan can be explained by several contributors (in this example being Prices, Inventory, Logistics, Refinery Capability, Feeds Selection, Products Selection) whereof some (but not all) are controllable.

The remaining gap between Plan and Actual after accounting for the first six optimisation activities mentioned above is called 'Others / Unexplained' and accounts for planning tool inaccuracy and other not identified factors. The analysis also includes consideration of the results obtained and historic trend analysis (see the second picture below).

Identification, quantification, and historical trending of the value of each gap will help prioritise and guide

improvement efforts. It will also provide input and direction to management. Moreover, it will highlight where efforts might be targeted to provide higher robustness in premise accuracy, utilization, planning tool accuracy, trigger running sensitivities for future plans, etc.

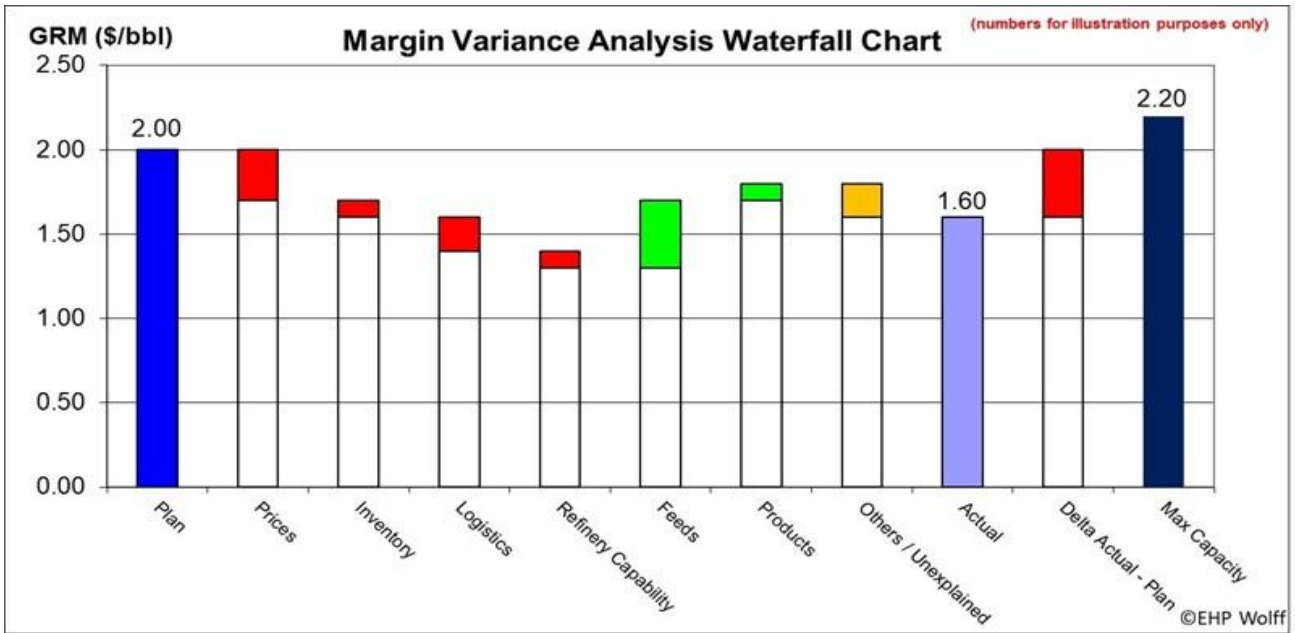
With an MVA executed you are in a much better position to take focussed corrective action, improve the planning process and consequently realise (much) more margin. For medium-size refineries up to several millions of dollars per year. The MVA report is an appropriate tool to inform higher management efficiently at the same time.

Margin Variance Analysis is often performed in conjunction with F&PYA (see separate dedicated flyer).

Note that MVA may also be applicable to other branches such as chemicals, utilities, pharmaceuticals and food & beverages. Especially where there are several types of feed with different price/quality ratios, such as crude oil & condensates (to a refinery), naphtha & gasoil (to a steam cracker), coal (to a power plant or gasifier), biomass (to a power plant or gasifier), milk to a cheese plant, ... etcetera.

MVA is best performed as a joint consultant – client team operation.

The author of this article has personally executed approximately 25 MVA studies and has over 30 years of experience in technical consultancy and operational auditing.



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