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Calculating Blending Profitability

By Ara Barsamian

In the current uncertain economic environment, it is extremely important to determine how much money, if any, you make on every barrel of blended product.

The basic principle is simple: for every blend batch, the profit is:

Profit of Blend Batch = (Product Batch size X Selling Price) – Sum (Blend Component Volume X Component Price)

The selling price for a refinery is the price you get from your commercial/logistics/supply and trading department or Planning and Economics department. For a trader, it is approximating prices by interpolating between regular and premium prices from e.g., Platt's or OPIS, etc.

Blend component prices can come from two different sources: either from a refinery LP monthly run marginal price, or as a trader, the price paid for the purchased components.

It is amazing how many people do not do this trivial calculation, and do not include it in monthly Blending Key Performance Indicators reports ... people are still debating that the prices are not correct; so what? Instead of squabbling over precision, at least you'll get an indication of roughly where you are in the economics of the operation, and concentrate on fixing meaningful problems to increase profit.

Instead, we still are wasting time and economic improvement opportunity by showing physical blend octane or RVP giveaway as we did 30 or 40 years ago ... which are economically small compared with getting the wrong average monthly refinery LP recipes or incorrect short term planned recipes. Remember that the flexibility to "trade horses" is at the refinery LP level, or if you have one, at the multi-blend, multi-time period optimization level, not at the single blend level where we are "stuck" by the constraints inherited from planning ... so what we need to think about is avoid grabbing a potential measly 2 to 3 M\$ in physical giveaway vs. potentially 10 to 20M\$ or more at the planning level!

Ara Barsamian has over 30 years of experience in blending (crude, mogas, distillate, fuel oil, lubes), oil movements & storage (OM&S), crude handling logistics, refinery tank farm sizing studies, refinery supply chain management, NIR analyzers, and master plan/automation benefits studies for major process plants and hydrocarbon storage facilities. Please contact Jerry Lacatena (jlacatena@carmagen.com) if you'd like more information on Carmagen's expertise in this area.

Upcoming Training Courses being held in Rockaway, NJ

- Course 1302, *Relief System Design*, May 4-6, 2010
- Course 607, *Design and Maintenance of Above-ground Atmospheric Storage Tanks*, May 18-20, 2010

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Work Highlights

Fired Equipment



Performed engineering design audit of the contractor's

and vendor's activities on a grass roots steam reformer and waste heat recovery unit for a European refiner. Identified cases where the proposed designs could have led to reliability issues after the unit was in service (e.g., questionable design details specified for refractory-lined furnace outlet headers and inlet piping systems). Recommendations were made to change these designs to others that have proven reliability.