

 Brochure

Aspen GDOT™

for Refineries



Improve margins with a proven technology that vertically integrates planning, scheduling, and advanced process control in closed loop. Dynamically optimize multiple process units in real time, beat the plan, and make plants more capable.

Benefits

- Minimize product giveaway
- Increase throughput
- Improve yields
- Reduce specific energy

Key Capabilities

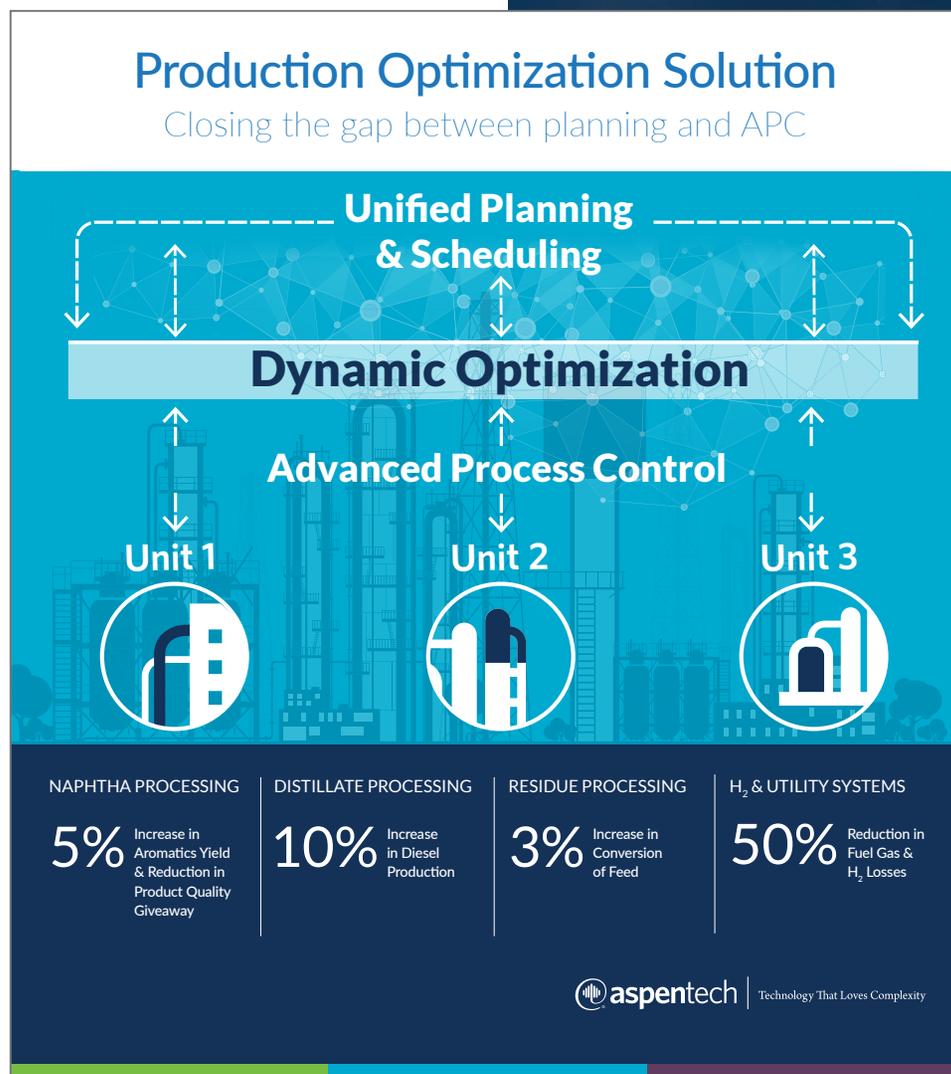
- Optimizes multiple process units in real time
- Aligns planning and scheduling with APC
- Patented dynamic data reconciliation technology
- Preconfigured flowsheet-based modeling environment

Closing the Gaps Between Planning and Actual Operations

A key to AspenTech's production optimization solution is the unique and proven Aspen Generic Dynamic Optimization Technology (GDOT). Aspen GDOT™ aligns planning and scheduling objectives by dynamically optimizing and coordinating multiple process units in real time to ensure the best site-wide economic results consistently and on a minute-by-minute basis.

Energy companies are continuously faced with the challenge of reducing margin leakage that occurs between various levels of production execution — from production planning and scheduling to actual operations. Aspen GDOT addresses these challenges by using an innovative modeling and optimization approach that combines fundamental planning models with dynamic APC models. This unique approach uses a model that is consistent in material and quality balances while incorporating dynamic models from the APC layer. This results in the ability to have consistent models, economics and objectives between offline planning and online optimization.

Aspen GDOT models include dynamics of the system enabling the optimizer to run at higher frequencies, manage inventories and take advantage of valuable frequent feedback from the plant. It also does not have to wait for units to be at a steady state to perform optimization.



Large Scope of Optimization

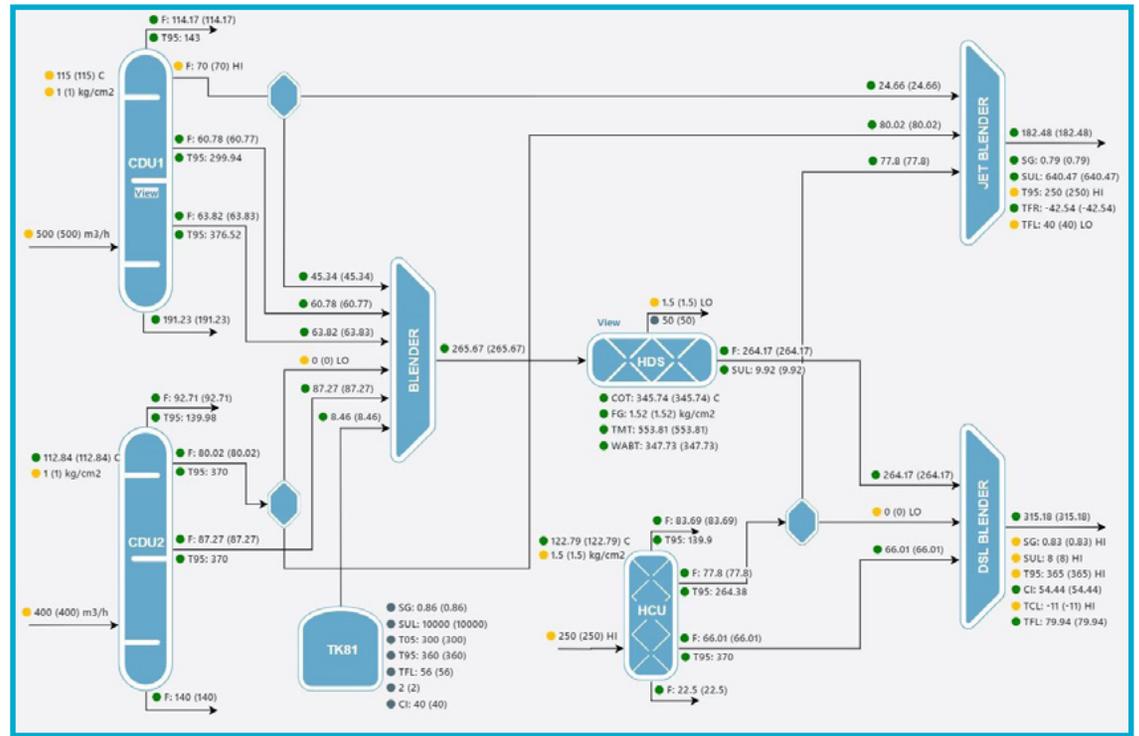
Aspen GDOT's innovative modeling approach enables online optimization of broad envelopes covering multiple process units within a refinery. Typical optimization envelopes for refining include middle distillates, naphtha, residue processing, and hydrogen & utility systems. Over the past two decades, Aspen GDOT has delivered significant benefits to numerous global companies through real-time, multi-unit optimization.

Consistency with Planning and APC Models

Aspen GDOT combines fundamental models from planning with empirical APC models, while preserving model consistency. This helps to close the gap between plan and actual by aligning planning/scheduling objectives and economics with actual operations.

Automatic Model Adaptation in Closed Loop

Aspen GDOT's patented dynamic data reconciliation technology continuously keeps models up to date and in line with actual performance of the units. One of the product's main benefits is a low model maintenance requirement, which enables GDOT models to be managed by existing APC resources.



Online, real-time optimization of Aspen GDOT Middle Distillate envelope.

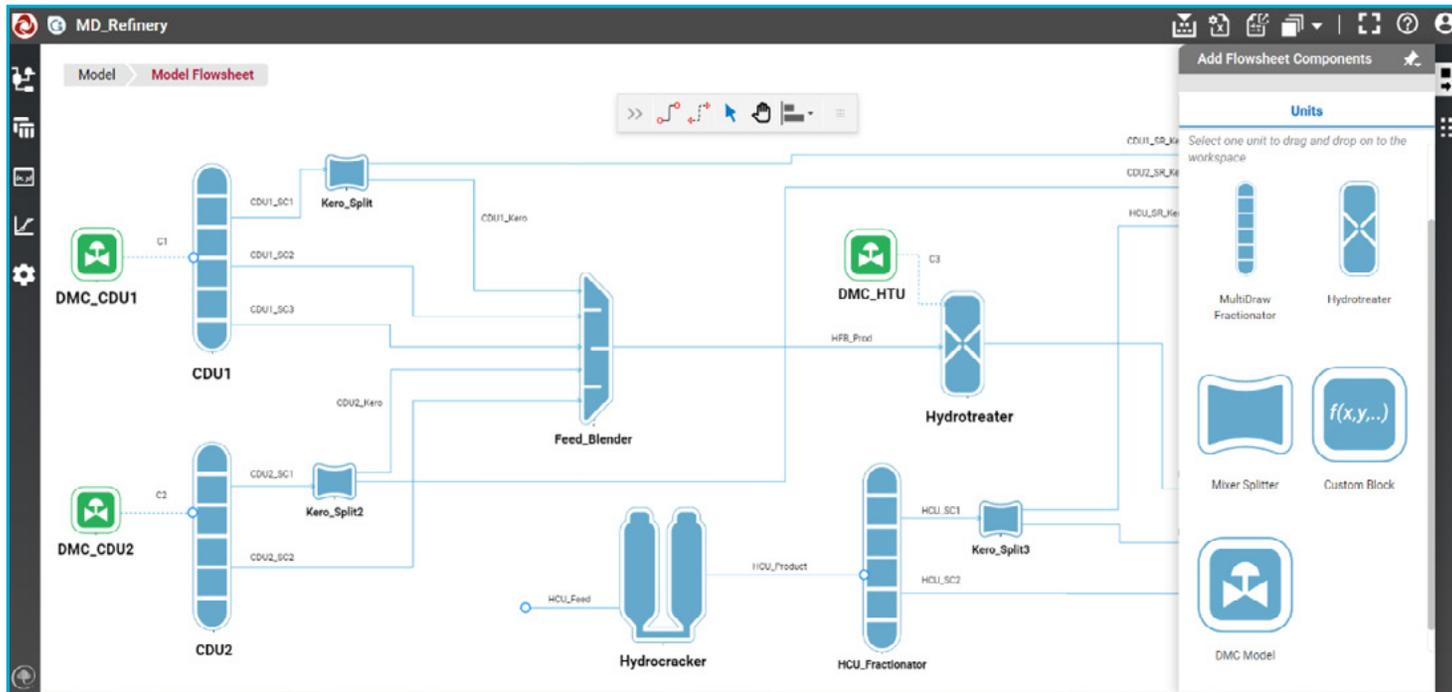


Unified GDOT Builder: An intuitive, Flowsheet-based Modeling Environment

Aspen Unified GDOT Builder's intuitive, web-based flowsheet environment simplifies model-building, deployment and maintenance. Benefits of this new environment include improved usability via simple drag-and-drop of blocks from a component library into the model flowsheet. This reduces the skillset required for building and maintaining models enabled by visual checks and balances in a flowsheet view. Aspen GDOT has standard templates that cover large envelopes for petroleum refining, including middle distillates, naphtha envelope, and conversion units.

Aspen Unified GDOT Builder also supports direct import of Aspen DMC3 APC models into the flowsheet environment making it easier to maintain consistent models and strategy between GDOT and APC layers. In addition, GDOT model maintenance is made easy during any updates to Aspen DMC3 models.

Aspen Unified GDOT Builder enables online GDOT reconciled data to be available to Aspen Unified PIMS, providing planners with a more accurate view of current unit performance and actual constraints.



Aspen Unified GDOT Builder enables improved usability with an intuitive flowsheet environment.

Customer Success with Aspen GDOT

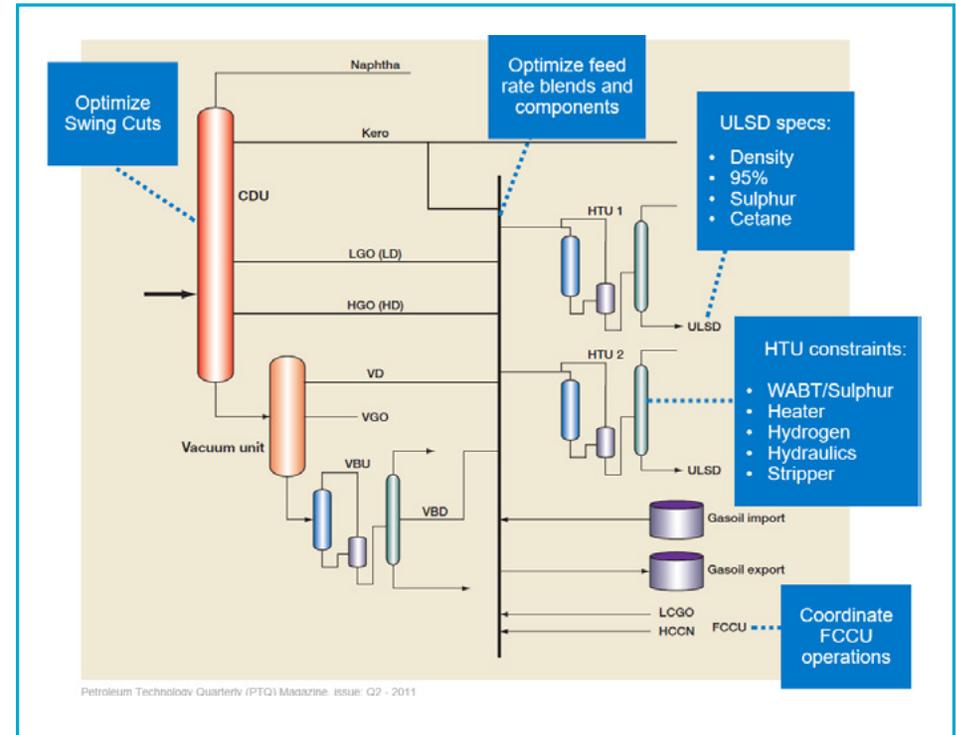
Aspen GDOT has been widely used by many global companies. Customers who have implemented Aspen GDOT and enabled a closed loop real time solution report minimizing product giveaway, increasing throughput, and making plants more capable.

At the 220,000 barrels per day Pembroke oil refinery, Aspen GDOT realized an increase of 10% middle distillate production and overall benefits valued at \$10 million, with project payback achieved in a few weeks. The majority of the benefits were achieved by coordinating several underlying APC controllers to optimize cut points of primary producers, feed blend components to individual HTUs, reactor parameters and import streams. The result was a significant increase in ULSD production and reduction in product quality giveaways.

A refinery leader explained that the system “allows operational instructions and strategies to be consistently implemented, minute by minute, day and night, driving the units toward more profitable operation and improving the competitive position of the refinery.”

Conclusion

Aspen GDOT is the key to production optimization, enabling companies to close the gap between planning, scheduling, and operations. By coordinating multiple process units in closed loop and optimizing broad envelopes in real time, Aspen GDOT helps plants run to the limits of performance 24x7, to increase throughput and reduce margin leakage.



About Aspen Technology

Aspen Technology (AspenTech) is a leading software supplier for optimizing asset performance. Our products thrive in complex, industrial environments where it is critical to optimize the asset design, operation and maintenance lifecycle. AspenTech uniquely combines decades of process modeling expertise with machine learning. Our purpose-built software platform automates knowledge work and builds sustainable competitive advantage by delivering high returns over the entire asset lifecycle. As a result, companies in capital-intensive industries can maximize uptime and push the limits of performance, running their assets safer, greener, longer and faster. Visit [AspenTech.com](https://www.aspentech.com) to find out more.

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