Logistics Solution for Nustar Energy

Challenge

NuStar Energy operates one of the world's largest liquid terminal and pipeline networks in the United States, Canada, Mexico, the Netherlands, the United Kingdom and Turkey. Nustar's network consists of 8,417 miles/13,467 kilometers of pipeline and 90 terminal and storage facilities with a combined storage of over 94 million barrels/11.2 million cubic meters. Additionally, NuStar energy operates its own two asphalt refineries with a combined output of 118,500 barrels per day/15,500 metric tons per day.

Until recently, NuStar (then called Valero, L.P.) was the logistics branch of Valero Energy, a refiner with 15 refineries and a combined throughput of 2.9 million daily barrels/380,000 daily metric tons. It was NuStar's task to supply these refineries with storage and movement of its crude, intermediate and finished products, much like many integrated oil companies today. As part of Valero's business strategy, NuStar was separated from Valero and is now a logistics provide to other companies as well, a common trend in the North American market.

This divestiture set NuStar upon a path in which it began an aggressive expansion beginning in 2003. At that time, NuStar began to acquire other storage and pipeline operators and soon realized that its existing ERP solution, while working adequately in the refining market, was not adequate for a logistics provider. Its existing ERP solution lacked the specific scheduling and logistics

EMERSON

capability that companies that store and transport liquid hydrocarbons require. Additionally, NuStar was seeking an affordable solution that would let it continue adapt and grow into new and changing markets. NuStar was seeking an application that would become the cornerstone of its business, helping it to manage:

- Planning and nominations
- Operational Scheduling for pipelines, vessels, trucks and rail
- Ticketing for multiple commodities, including component based ticketing
- Liquids Inventory Management
- Contract Administration for terminals and pipelines
- Billing for liquids storage and movement
- Reporting

Solution

After a search that included many of the world's leading ERP providers, NuStar found its solution in Synthesis®. NuStar realized that a system like Synthesis, which was specifically developed for the logistic providers of the oil industry, was the best fit for its needs. Additionally, this system could seamlessly integrate with the leading ERP systems, flow measurement and automation systems, thereby streamlining the workflow. The system further assisted to increasing the bond between NuStar and its stakeholders in a tangible manner through web portals which it uses to communicate with its customers and internally.

Synthesis is a complete order to cash system for the liquid logistics industry. It is a system that helps with the commercial aspects of operating logistics assets. The diagram below shows where Synthesis resides in the enterprise systems landscape.
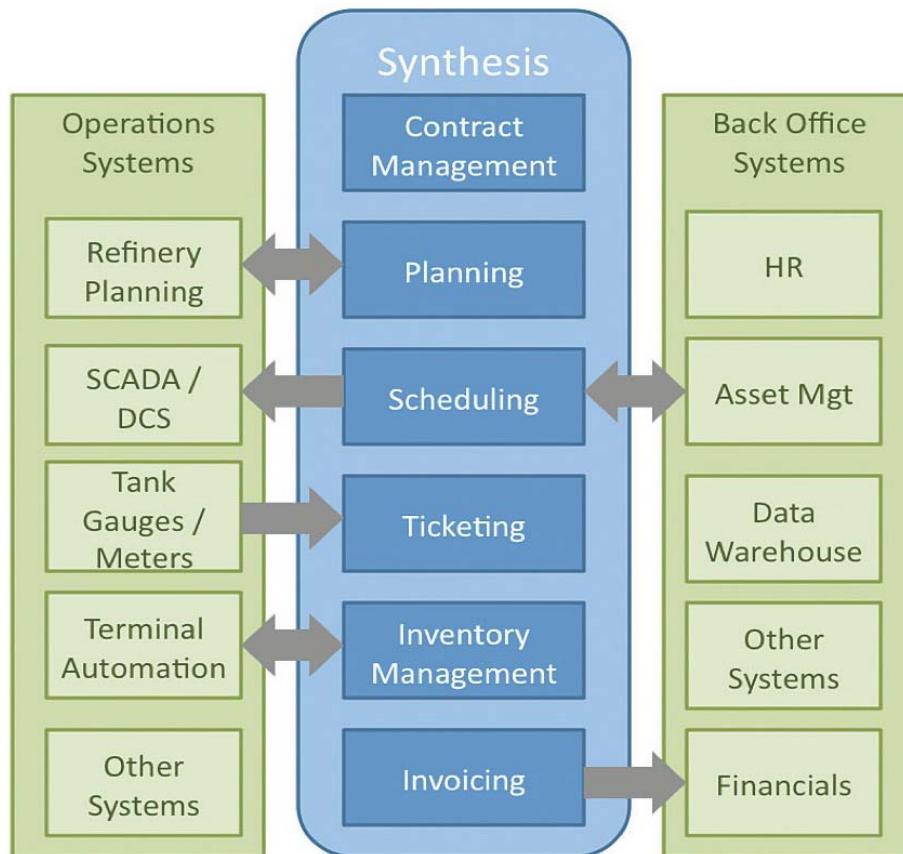

Figure 1. Synthesis Solution Footprint

Synthesis customers have experienced a reduction in their monthly closing from 6 days to 2 days while other customers have increased throughput rates by 25%. Due to better planning capability and when orders are integrated through to invoices, all processes in a terminal's workflow are streamlined and simplified. Not only does Buckeye have more capability than before; they also have more time to focus on doing what they do better.

Synthesis User Figures

- More than 82 pipelines
- More than 225 terminals
- More than 14 ports and 8 refineries
- More than 5,000-strong user base

> *"We look forward to a continued working relationship with Emerson (formerly Energy Solutions Int'l.). Emerson has shown us a commitment to our partnership backed by a sound technology platform that gives us confidence that they can support our needs now and in the future".*
>
> *Vice President of Information Technology*
> *NuStar Energy*

Key Capabilities

Some of the core functions of the Synthesis Terminal solution include:

Module	Feature/Function	Description
Contract Management	Manage Contracts	Ability to set up Mercantile, Buy/Sell, Storage, Transportation, and Association Contracts
	Contract Terms	Includes the ability to manage contract terms, including the contract party, transport, drop locations, load/delivery windows, Import duties, commissions, payment terms, and other terms
	Contract Segments	Includes the ability to identify multiple segments/movements per contract
	Document Management	Document storage and filing associated with the contract
	Contract Approval	Contract approval workflow
	Contract Charges	A detailed and flexible charge structure to support storage and transportation contracts; includes all details associated with charges for storing or transporting volumes
Orders & Planning	Inventory Requests	Ability to create and manage any inventory request resulting in the movement of inventory, such as nominations, reconsignments, and product transfers
	Customer Portal	Customer portals through which customers can access critical data and submit requests
Scheduling	Truck and Rail Scheduling	Provides the ability to schedule rail cars and trucks, including unit trains
	Vessel & Barge Scheduling	Provides the ability to schedule barges and vessels, including spot and time chartered
	Dock Scheduling	Jetty/dock scheduling in a graphical and tabular manner
	Demand Forecasting	Manages demand and uses a combination of historical averages or user defined volumes to populate demand forecasts that are used in inventory projections

Module	Feature/Function	Description
Scheduling	Inventory Forecasting	Inventory forecasts by terminal, pipeline, tank or groups of locations; integrated with the Synthesis scheduling features and inventory so that forecasts are updated each day with actual inventory levels
Inventory Management	Book Inventory Summary	A configurable summary of all book inventory positions, consisting of opening book inventory, receipts, deliveries, loadings, transfers, adjustments, over/shorts, and closing (total) volumes
	Close Accounting Process	Workflow to support an orderly and chronogically correct closing process
	Physical Inventory Summary	Summary of physical inventories on hand
	Inventory Gain/Loss Summary	Outlines the differences between volumes received and gained over a particular time period and highlights
	Terminal Tank Inventories	Administer the physical tank volumes
	Tickets (Measurements)	Tank and meter tickets that are standards compliant capable of calculating net volumes
Terminal and Pipeline Activity	Search Movement Tickets	Search, filter and view any movement ticket within the system
	Enter a Movement Ticket	Provides the ability to manually enter a ticket, if electronic tickets are not available
	Meter Provings	Administer meter provings
	Enter Product Rebrand/Regrade	When inventory is rebranded or regarded, this feature lets the user change the grade on the inventory
	Search Component Analysis	Search and view component analysis for LPG or NGL
	Add Component Analysis	Manually add a new component analysis for LPG or NGL
	Summary of Operations	Provides the ability to book inventory to a particular stockholder, if tickets do not already contain this information
Rack Activity	Loading Summary	Provides an overview into all truck activity and truck tickets and rail, or Bills of Lading (BOLs)
	Search BOL	Provides a portal through which individual BOLs may be searched, filtered, and exported
	Add Manual Delivery BOL	Provides ability to add a BOL manually. Most BOLs will be generated by an external Terminal Automation System, but this functionality allows for manual entry of a BOL
	Add Receipt Bill of Lading	Ability to add a BOL that is a receipt into the terminal or refinery
	Edit BOL	Provides ability to edit a BOL
	Print and Export BOLs	Streamlines the printing functionality and provides tools to allow users to export large numbers of BOLs with ease
Billing & Invoicing	Tariff Maintenance	Ability to create and maintain tariffs, including terminal specific requirements such as joint tariffs, tiered tariffs, incentive tariffs and such
	Transportation and Storage Charges	Create charges for transportation, storage and other services that logistics providers encounter. This includes charges for additives, handling of product, activities such as transfers, heating and blending, and approximately 150 other logistics specific charges
	Price Based Charges	Charges based on price of crude or product, such as price per barrel
	Quality Based Charges	Charges for superior or inferior qualities (such as sulphur content or gravity/density)

Module	Feature/Function	Description
Marine	Terminal Dashboard	Dashboard / portal that provides an overview into critical information occurring at the marine terminal, such as dock/jetty status, demurrage status, inbound/outbound traffic, dock utilization, and other information
	Vessel Scheduling	Schedule vessels and barges, including a variety of search capabilities, views, and filters
	Dock (Jetty) Scheduling	Schedule docks (jetties) using a Gantt chart with relevant information necessary to assign vessels to jetties, including drag and drop capability or data manipulation using a tabular display
	Dock Events & Time Log	Electronic time log capturing all arrival and departure events associated with the vessel turnaround, including estimated and actual cargo events and times
	Shore Plan	Ability to capture equipment assignments, such as tanks and lines used during transfer of cargo
	Demurrage Worksheet	Worksheet used to manage demurrage estimates, including deductions, time changes to the demurrage worksheet and tracking of whether demurrage claim has been paid

Table 1. Synthesis Functionality

Results

By selecting Synthesis as its order to cash solution for its company, NuStar Energy has a fully integrated management information system that helps keep its costs low, increase its throughput and keep its customers happy.

NuStar has continued to grow over the years. Additionally, they did not require any additional staff or other resources to manage the additional assets in the system. NuStar thus realized its goal of having a system that accommodates their growth while keeping costs low.

Benefits Realized

Do More with Less

By providing extensibility, configurability and flexibility NuStar is able to do more with its existing resources. Since selecting Synthesis, NuStar has increased its numbers of terminals by nearly 50% and has also increased its number of pipelines significantly – all without any additional resources required to manage these assets from an IT or administrative perspective. Other customers have reduced the amount of time and resources spent on administrative tasks by over 30%.

Do It Better

With tools to enhance the monthly closing process, Synthesis customers have experienced a reduction in their monthly closing from 6 days to 2 days while other customers have increased throughput rates by 25%. Due to better planning capability and when orders are integrated through to invoices, all processes in a terminal's workflow are streamlined and simplified. Not only does NuStar have more capability than before; they also have more time to focus on doing what they do better.

Make Customers Happier

Using the Synthesis portal, Synthesis customers will be able to submit orders, view inventory, tickets, BOLs, invoices, reports, and scheduled movements online. Your customers are sure to improve their experience with you.

NuStar Partners continues its rapid growth. Today, NuStar is one of the fastest growing terminal and pipeline operators in North America and Synthesis continues to support their efforts.

Find us around the corner or around the world

For a complete list of locations please visit us at www.EmersonProcess.com/Remote

Global Headquarters
North America and Latin America
Emerson Process Management
Remote Automation Solutions
6005 Rogerdale Road
Houston, TX, USA 77072
T +1 281 879 2699
F +1 281 988 4445

www.EmersonProcess.com/Remote

Europe
Emerson Process Management
Remote Automation Solutions
Unit 8, Waterfront Business Park
Dudley Road, Brierley Hill
Dudley, UK DY5 1LX
T +44 1384 487200
F +44 1384 487258

Middle East and Africa
Emerson Process Management
Remote Automation Solutions
Emerson FZE
PO Box 17033
Jebel Ali Free Zone - South 2
Dubai, UAE
T +971 4 8118100
F +1 281 988 4445

Asia Pacific
Emerson Process Management
Asia Pacific Private Limited
Remote Automation Solutions
1 Pandan Crescent
Singapore 128461
T +65 6777 8211
F +65 6777 0947

Find us in social media

RemoteAutomationSolutions

Emerson_RAS

Remote Automation Solutions Community

Remote Automation Solutions

Remote Automation Solutions

EMERSON™

EMERSON. CONSIDER IT SOLVED.™