

- ZeoNet Inc, was formed in 2000 to provide focused expertise to the Oil & Gas Industry through a network of seasoned professionals.
- These experts bring a combined mature experience in key work processes such as value chain planning and optimization, performance monitoring, process engineering, asset scheduling and logistics, etc.
- They offer functional and technical experience and knowhow to implement/support commercial software applications such as linear programs, scheduling systems, real time optimization and material balance reconciliation systems.
- ZeoNet has worked with a multitude of operating companies but has also been contracted by integrators to supplement large transformation projects. Example: TOTAL, CITGO, KNPC, PDVSA, Shell, Sinopec, Monroe Energy, Chevron, Husky Oil, Cenovus, Suncor; as well as: Accenture, Wipro, Booz Allen, Deloitte.
- Work has ranged from diagnostic, roadmap, single system implementation to large improvement programs.
- In 2014, ZeoNet was able to develop PMRC, a long-time aspiration from the founder Ronald Jammur, aimed at providing a comprehensive but pragmatic solution to increase visibility of important information about plans, targets and actual operation. It was designed to:
 - bring one version of the truth integrated access to plans, schedules, targets, refinery production/consumption and process unit yields
 - Complement information with invent information captured during meetings and related to key asset and materials
 - Automate tedious and time-consuming tasks such as lookback, backcast and LP tuning so that they could be sustainably performed
 - Provide a collaborative environment for decision making at the hydrocarbon supply level
 - Provide a functioning platform, easy to implement, straight forward to maintain, that could be the launching point for predictive analytics, machine learning and overall artificial intelligence algorithms,
- Since 2014, it has been used in many manufacturing sites; it is the only platform of its kind with considerable interest from majors and small refiners alike, It can run locally or on the client cloud or on ZeoNet cloud (Azure, AWS) and has numerous endorsements by system integrators and AI companies.

Game Changer Connection of People & Data

3 to 4 Months for First Use


Products Supply Trading & Logistics


Asset Operation


Feedstock Supply Trading & Logistics


Headquarters/Value Chain

Hydrocarbon Demand/Supply

- Actual vs Plan
- Margin Monitoring
- Constraints Monitoring
- Lost Profit Analysis
- Pricing Monitoring

Manufacturing

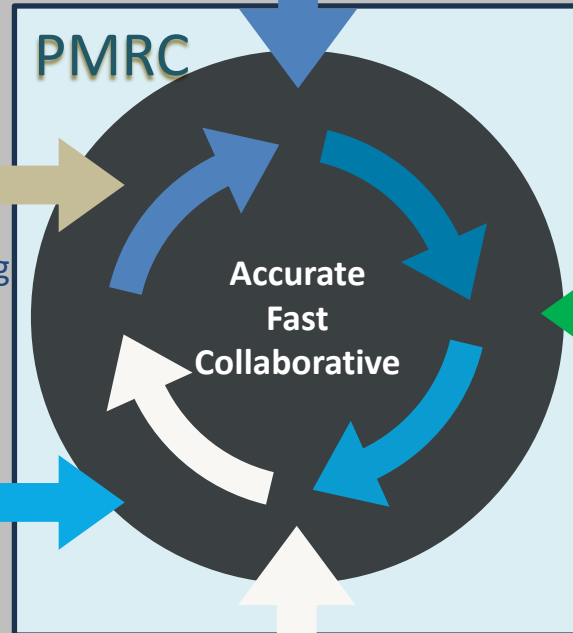
- Actual vs Plan vs Schedules
- Daily Target Review/Tracking
- Events Recording
- LP Model Tuning
- Unit Health Monitoring
- Constraints Management

Feedstock Supply

- Actual vs Plans
- Crude Value & Feedstock Quality Monitoring
- Constraints Monitoring

Asset Network Optimization

- Network level Use Cases Through Common Views and Collaborative Tools



- Out of the Box Collaboration
- Custom Monitoring
- Simple Master Data Update
- PowerBI Integration

Performance Monitoring and Reporting Center (PMRC):

- Actual operation and commercial performance integrated with updated targets
- Built by oil & gas functional experts (planning, operation, scheduling, trading, material balance, engineering, reliability)
- Improved through years of applied use cases
- Modern & secure architecture (local or cloud)
- Connecting functional applications (LP optimization, simulation, yield accounting, real time historians, Excel based applications, etc.)

Work Process Lifecycle Integration (Pre to Post Operation)

What Happened?

- One common view of performance (yields, qualities, process variables)
- Events captured and digitalized
- Actions logged
- Material balances reconciled
- Lookback and backcast automated
- AI enabling platform

What Needs to Happen?

- Plans are visible: first pass, official, sensitivity cases, revised...
- Schedules used for end of period estimates...
- Instructions and target changes are saved and easy to view real time
- Meetings become decision centers where relevant information can be accessed on the fly

Key Illustrative Views

Charges & Yields X Monitoring Plan X

LP constraints monitoring 1/10/2023 12:00 AM

T1 1/9/2023 6:00 PM 1/10/2023 12:00 AM

T2 1/9/2023 12:00 AM 1/10/2023 12:00 AM

Constraint Monitoring Plan

Activity	CDU 1 Flows
Param Name	Value T1 Value T2 Current Manual Limit Instruction Daily Target Target Manual
Crude Oil Feed	51.8 52.0 nolonger valid we can go higher cut rate to 45. 47.4 50.5 40
Crude Feed Plan Range	37.5 50.5
ATB Feed	-0.5 -0.5 0.0 0.3
ATB Plan Range	0.2 2.5

Backcast X Monitoring Plan X Maint Activities X Production Book X Refinery Dashboard X Indicative Gross Revenue X Case Comparison Set Up X


Margin and Fence Line X

Retro	Monthly PMRC	Constrained	Replan	Original	Comment
Base Op. Margin	1,892.75	1,513.23	1,554.46	1,402.78	
Loss Effect	0.00	0.00	0.00	0.00	
Yields	0.00	0.00	0.00	0.00	
Qualities	0.00	0.00	0.00	0.00	
Capacities	0.00	0.00	0.00	0.00	
Miscellaneous	0.00	0.00	0.00	0.00	
Unexplained	120.48	41.23	-151.68	0.00	

Crude Units were limited due to the reformer shut down and excessive pressure, compounded by the high temperature of this summer. add any comment...

replan only made 40 k more

Backcast Waterfall



The LP case margin is higher than actual (monthly price) which is typically a good sign; however, this difference is a bit high and can indicate an overstatement of liquid yield by the LP.

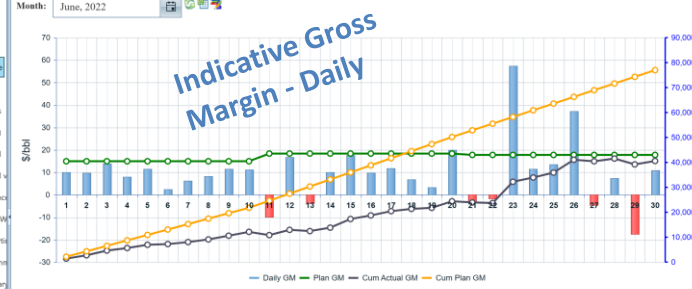
Name	Desc.	Type	Priority	Owner	Status	Comment	StartTime	EndTime	ExpectedEndTime	Entity
Study Hydrofiner Impact on Crude Units	Find solution to Crude limit due to reformers SD	Backcast	Medium	Backcast Team	Open	To see in backcast report	6/1/2022 12:00:00 AM		8/1/2021 12:00:00 AM	Equipment

SDV X Monitoring Plan X Maint Activities X Production Book X Refinery Dashboard X Indicative Gross Revenue X

Profit and Loss X

Month: June, 2022

Indicative Gross Margin - Daily



Date: June 30, 2022

Feedstocks (Actual \$88.42 Plan \$ 88.14)

Product	Flag	Actual Volume(M3pd)	Planned Volume(M3pd)	Flag	Selected Day Price(\$)	Planned Price(\$)	Flag	MTD Actual Volume(M3pd)	MTD Planned Volume(M3pd)
Crudes (Heavy)		-335	-39,050		\$78.17	\$79.36		-34,472	-37,391
Crudes (Light)		-129,370	-95,955		\$89.17	\$91.68		-94,543	-97,714
Other Feedstocks		3,091	-10,071		\$118.82	\$106.80		-7,638	-11,268
Total		-136,614	-145,076					-136,653	-146,373

LVR Waterfall X

Date: Wednesday, January 23, 2016

LP Target Vol% vs Actual



Loss Liquid Recovery

Charges & Yields X

Date: Friday, March 31, 2023 Data Status: Reconciled Validate

Units Actual vs Plan

Unit Name	CHG Flag	Actual Charge (M3pd)	Actual Production (M3pd)	Planned Charge (M3pd)	Planned Production (M3pd)	Capacity (M3pd)	Actual Liquid Recovery (%)	Planned Liquid Recovery (%)	MTD CHG	Monthly Actual Charge (M3pd)	Monthly Planned Charge (M3pd)	Monthly Actual Production (M3pd)	Monthly Liquid Recovery (%)	Mass Recovery (%)	Loss Flag
CDU1		53,274	53,201	49,785	50,454	50,000	99.86%	101.34%		49,854	49,785	50,177	100.65%	99.99%	
CDU2		21,711	21,591	21,848	21,703	22,000	99.45%	99.34%		20,983	21,848	20,832	99.28%	100.00%	
CDU3		64,592	66,186	60,947	60,551	70,000	102.47%	99.35%		64,433	60,947	65,100	101.04%	100.01%	
NHT1		37,594	36,719	26,659	26,659	40,000	97.67%	100.00%		39,173	26,659	38,587	98.50%	100.01%	
NHT2		12,814	12,864	16,373	16,440	20,000	100.39%	100.41%		14,118	16,373	14,187	100.48%	100.01%	
NA SPLITTER		32,711	32,804	26,659	26,659	35,000	100.28%	100.00%		33,696	26,659	34,871	103.49%	100.00%	
REF1		3,212	2,840	NA	NA	10,000	88.42%	NA		6,537	NA	5,801	88.75%	99.99%	

Reconciliation X

Friday, December 1, 2023 Sunday, December 31, 2023

Check Data Reconcile Data Reconcile Trial

Data Status:

- Period LVR = 97.58%
- Theoretical LVR = 99.87%
- => In Range [96.87, 102.87]

LVR test before reconciliation

Configuration Parameters	Fenceline Data	Stream Data	Unit Data	KPIs	Unit Recovery	Raw Matrix	Rec Matrix				
Material	Description	Flag	Imbalance	Fence Line	Refinery =>	CV1	CV2	NHT	REF3	DCU2	DCU3
Feedstocks	Domestic										
Generic Crude Oil	0		0	0	=>	-97.989	-46,816	0	0	0	0
Bakken (COG) Austin	127		0	-15,427	-15,427	=>	0	0	0	0	0
WTI Midland	74		0	-20,795	-20,795	=>	0	0	0	0	0
WTI Cushing	80		0	-2,124	-2,124	=>	0	0	0	0	0