

1809797

by Lourens Brits

Submission date: 17-Mar-2023 02:16PM (UTC+0000)

Submission ID: 199685277

File name: 16633_Lourens_Brits_1809797_181701_547311384.pdf (585.32K)

Word count: 5942

Character count: 39024

Course : BSc (Hons) Electrical and Electronic Engineering
Module : SGEE6004 Engineering Management
Assignment : Strategic Management Issues
Name : Lourens Brits
University number : 1809797
Date submitted : 17/03/2023
Word count : 3201

Contents

Table of Tables	3
Table of Graphs	3
1. Executive Summary	4
2. Strategic Review	5
2.1 Introduction	5
2.1.1 Background	5
2.1.2 Purpose of Review	5
2.1.3 Vision Statement	5
2.1.4 Core Values	5
2.1.5 Historical Financial Performance and Influences	5
2.2 Internal Analysis	8
2.2.1 Operational Overview	8
2.2.2 SWOT Analysis	9
2.3 External Analysis	10
2.3.1 Competitive Landscape	10
2.3.2 PEST Analysis	10
3. Corporate Social Responsibilities	11
3.1 Macro-Economic Impact	11
3.2 Microeconomic Influences	14
4. Lean Manufacturing	14
5. Recommendation for Management Team	15
6. Company Vision Statement	16
7. Conclusions	16
8. References	17
9. Appendix	20

Table of Tables

Table 1 - Valero SWOT Analysis (Valero, 2022) 9

Table 2 - Valero Competitors (Mecrotrends, 2023)..... 10

Table 3 - Valero PEST Analysis (Valero, 2022)..... 11

Table 4 - Macroeconomic Influences (Gelder & Hittle, 2021) (Haggman, 2019) (Mohn, 2009)
(Reinsch & Reynolds, 2022) (Council on Foreign Relations, 2023)..... 12

Table 5 - Valero Environmental & Sustainability Projects (Valero, 2022)..... 13

Table of Graphs

Graph 1 - Valero Earnings vs. Average Oil Price (Macrotrends, 2023) (Berkshire Hathaway, 2022) 7

Graph 2 - Valero Earnings vs. Gasoline Price (Macrotrends, 2023) (Blum & Melvin, 2022)... 7

1. Executive Summary

A strategic review of Valero Energy was carried out, which examined the company's history, historical influences and how its strategies adapted to those influences to become the world's largest independent oil refiner. The analysis concluded that the company faced and overcame multiple threats through its unwavering commitment to utilising low-grade feedstocks to produce high-grade fuels.

To enable a further understanding of the factors which affect the company to be achieved, a thorough internal and external analysis was carried out using SWOT and PEST. The SWOT analysis showed that the company has many strengths attributable to its diverse product range and investments in renewable fuels.

Weaknesses were found to be industry-wide, including governmental legislation and a need for more technology improvements and investments. Various opportunities were elaborated upon, such as expanding its renewable fuels business to developing countries and further investment in reducing its climate impact.

Threats faced by Valero and the oil refining industry as a whole were found to be climate-related litigation, the electrification revolution and social perception, amongst others.

The external analysis concluded that Valero is the lowest-cost fuel producer amongst its peers, achieved through having the largest throughput capacity, high mechanical availability and the lowest number of employees.

Micro- and macroeconomic influences on Valero's corporate social policies were elaborated upon, and the following conclusions were made;

Macroeconomic influences included OPEC+ oil price manipulation, geo-political influences such as conflicts and conflict-related sanctions, supply chain disruptions and global pandemics. Various project investments were discussed, which aim to reduce the impact of these influences.

Microeconomic influences included localised public perception of the Valero brand and the strategies to improve it. Philanthropic and volunteerism culture, which has a beneficial impact on perception and further localised factors such as industrial action and skilled labour shortages, were elaborated upon.

Lean manufacturing initiatives and opportunities were examined. A recommendation was to incorporate methodologies such as Lean Six Sigma and Kaizen to reduce waste streams further and improve efficiency and productivity.

Finally, a review of Valero's corporate vision statement was carried out, where a recommendation was made for the company to create a mission statement.

2. Strategic Review

2.1 Introduction

2.1.1 Background

Valero Energy is the world's largest independent oil refiner, with fifteen refineries and 12 Ethanol plants throughout the US, Canada and the UK employing in excess of 10 000 people and is headquartered in San Antonio Texas (Valero , 2023). The company is ranked 30th on the fortune 500 list, with a net attributable income of \$11.5 Billion for 2022 (Berkshire Hathaway, 2022).

Valero has a diversified energy production portfolio which consists of the refining and refined product retail business, corn ethanol production, wind energy, renewable diesel, carbon capture and a network of strategic pipelines (Valero , 2023).

2.1.2 Purpose of Review

This review aims to understand the company's current and future financial sustainability, how energy crisis and governmental policies affect the business and the impact of micro & macroeconomic influences as well as whether lean manufacturing methods can improve the business.

2.1.3 Vision Statement

We are committed to advancing the future of energy through innovation, ingenuity and unmatched execution (Valero, 2022).

2.1.4 Core Values

Core values according to Valero Energy (2023);

- Safety
- Environment
- Communities
- Employees
- Stakeholders

Valero believes the core values, or interlocked guiding principles, mentioned above epitomises the way it operates by relentlessly pursuing excellence, maintaining the highest safety standards and by operating responsibly, ethically and with robust governance (Valero , 2023).

2.1.5 Historical Financial Performance and Influences

Valero Energy was created in 1980 as a corporate spin-off from LoVaca Gathering company under Alamo Valero Energy after lengthy litigation involving LoVaca defaulting on natural gas contracts during the 1970 US gas shortage (Rourke, 2023).

The company's refining sector beginnings were humble, starting with the part-acquisition of a small vacuum distillation and crude unit in Corpus Christi, Texas (Valero, 2023). Valero aimed to transform the Corpus Christi site into a state-of-the-art specialised refinery that produces high-octane fuels using crude oil atmospheric residuals, a by-product costing significantly less as feedstock (Rourke, 2023).

Valero and the oil industry as a whole faced multiple hurdles during the 1980's when crude oil prices dropped from \$31.77 per barrel in 1981 (due to OPEC oil embargos and price manipulation) to \$12.51 per barrel in 1986, plunging many operators, including Valero into huge debts (Livingston, 2020).

The slump in prices were due to non-OPEC oil field discoveries in addition to production increases, essentially flooding the market with crude oil (Gately, 1986)

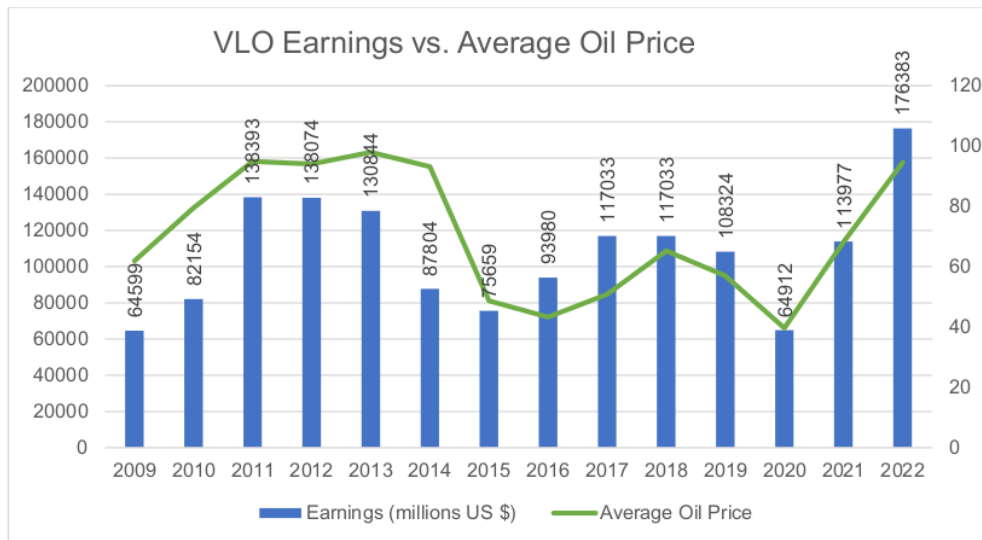
Further raw material price increases were attributed to the UK coal mine strikes of 1984 – 1985 (Gildea, 2022). British industry transitioned from using coal as fuel to using atmospheric residuals, driving the price up, which in turn greatly affected Valero's Corpus Christi refinery profit margins (Business, 2023)

The company stayed afloat due to its liquified natural gas business until the late 1980's at which point the decision was made to sell half of the LNG business as part of a restructuring move to reduce its ever-increasing debt and to concentrate on its refining endeavours. The oil refining climate improved significantly towards the end of the 1980's and into the 1990's (Business, 2023).

Between 1990 & 2011, Valero acquired 14 more refineries, 10 Ethanol plants and expanded its Valero branded wholesale retail network by around 4700 sites, thereby concreting its position as one of the United States' top refining and marketing companies (Valero, 2023).

From 2012 onwards, Valero invested heavily in renewables, including the Diamond Green Renewable Diesel joint venture, which currently produces 700 million gallons of renewable diesel annually and improved production at the ethanol plants, increasing annual capacity to 1.6 billion gallons annually (Valero, 2023).

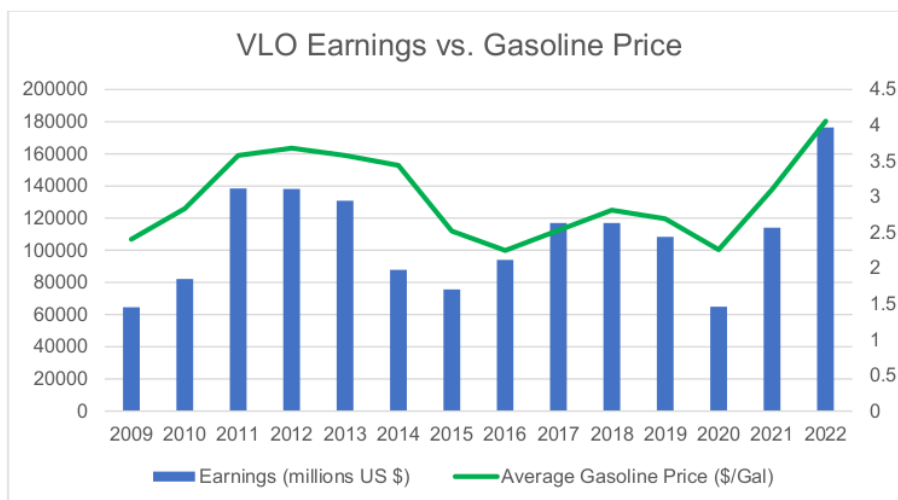
Graph 1 shows a sharp increase oil prices from 2009 to 2011, followed by a period of stability from 2011 to 2013, the increase is largely attributed to strong economic growth in the US and China, lower interest rates in European countries as well as conflict related supply disruptions from the Middle East oil producing states (Mead & Stiger , 2015).



Graph 1 - Valero Earnings vs. Average Oil Price (Macrotrends, 2023) (Berkshire Hathaway, 2022)

US Oil production and refining peaked in 2013, reducing its dependency on foreign crude and feedstocks. The overall production increases in OPEC countries, especially Saudi Arabia, resulted in an oversupply of crude and refined products, causing a 32% reduction in the oil price (Mead & Stiger, 2015).

From graph one, it is clear that the company's earnings closely follow the oil price trend line, where increases in oil prices result in higher earnings. By comparing the average gasoline prices for the same period with the company's earnings, the following observation can be made; when oil prices increase, fuel prices increase, therefore Valero's revenue and profits increase, where the opposite is generally applicable as well



Graph 2 - Valero Earnings vs. Gasoline Price (Macrotrends, 2023) (Blum & Melvin, 2022)

2020 show a 40% fall in earnings compared to 2019 which coincides with the Covid 19 pandemic.

Containment measures associated with this period resulted in an estimated 30% reduction in global oil demand. Simultaneously, historical supply regulatory agreements were not upheld, where members of the OPEC+ alliance failed to reduce oil production (Engebretsen, 2020).

Fuel prices fell at the same time due to the lack of demand from personal vehicle owner, air travel and international freight (Engebretsen, 2020).

Post pandemic earnings recovery is attributed to movement restrictions being lifted and air travel returning to normal which has caused the demand for oil and associated derivatives to increase. High coal and natural gas prices, due to the ongoing Russia/Ukraine conflict have resulted in many industries relying on burning Kerosene as an alternative fuel, further increasing demand (Tan, et al., 2021)

Valero has minimised the effects of current macro influences by ensuring capital expenditure is concentrated on efficiency and energy improvement projects such as the expansion of the Diamond green renewable diesel venture, investing in Co-generation plants as well as projects which aim to reduce production downtime due to maintenance, for example, dual process streams (Valero, 2022)

2.2 Internal Analysis

2.2.1 Operational Overview

Refining, Ethanol and renewable diesel operations are stable, and ongoing refinery optimisation projects are on course to increase efficiency, reduce costs and improve overall margins. Refinery utilisation is currently at 97%, up 23% from the lowest pandemic rates. The 55 000 barrel per day Port Arthur Coker unit is on schedule for start-up in mid-2023, which will increase refinery throughput and reduce maintenance-related losses (Valero, 2022).

2022 employee and contractor safety metrics are the best in the company's history, indicating a compelling commitment to a safe, reliable and environmentally responsible operating environment (Valero, 2022).

Net company income for 2022 is \$11.5 Billion (Valero, 2022).

2.2.2 SWOT Analysis

A SWOT analysis has been carried out, as shown in Table 1. By tabulating the strengths, weaknesses, opportunities and threats of a company, efficiency can be improved, objectives can be achieved, and brand relevance can be maintained (Indeed, 2022).

Strength	Weaknesses	Opportunities	Threats
Distribution Network	Governmental Policies and Regulations	Need for Greener / Renewable Fuels	Climate Change Litigation
Highly Skilled Workforce	New Technology Investment	Public Perception	Skilled Workforce Shortage
Vertical Integration	Low Global Presence	Sustainable Development	Electrification
Product Innovation	Social and Environmental Impact	Global Expansion for Renewable Fuels	Political Volatility
Reputable & Diversified Brand		Need for reliable low-cost fuels	Weather
Wide Product Range		Renewables Marketing	Reputation
High Efficiency Operations		Technology	Major Refiners

Table 1 - Valero SWOT Analysis (Valero, 2022)

This analysis shows that Valero has many strengths; its eight pipelines and significant fuel distribution networks in North America and the U.K. ensures that a broad customer base can access its products. Valero has incorporated a vertical integration market strategy, where it manages its own supply and distribution chains, which positions it as one of the top refiners in the U.S. Capital expenditure has been concentrated on projects that improve efficiency, reliability and profitability and on innovative projects to produce renewable, low-carbon fuels (Valero, 2022).

Weaknesses include industry-wide regulations which relate to climate change, emissions and fuel efficiency, which may reduce product demand. Further weaknesses include a low global presence and a slightly slower response to new technological advances (Valero, 2022).

Opportunities include expanding renewable, low-carbon fuels to developing countries and increasing global exposure. Technological advancement through investing in further efficiency and optimisation in the refining, renewable fuels and carbon capture sectors will benefit margins and social perception and reduce environmental impact (Valero, 2022).

There is a multitude of threats faced by Valero; these include further emissions litigation, volatile global markets affecting feedstock and operational energy prices. A negative environmental reputation can adversely affect product sales, company stocks and debt securities.

The inability to operate safely during severe weather events has a significant financial impact (Valero, 2022).

2.3 External Analysis

2.3.1 Competitive Landscape

Table 2 enables a comparison to be made between Valero and two competitors with similar refining capacities and market caps. From the comparison table, it is clear to see that Valero has the least number of employees and the largest refining capacity whilst accumulating only \$1 Billion less in revenue than the competitor with the largest market cap.

Company	Employees	Share Price (\$) Average	Market Cap (Billion \$)	Revenue (\$)	Refining Capacity (Barrels Per Day)
Valero	10 000	135	49.05	176.38 billion	3.20 million
Marathon petroleum	17 700	130	57.28	177.45 billion	3.06 million
Philips 66	14 000	101.02	46.96	169.99 billion	2.00 million

Table 2 - Valero Competitors (Mecrotrends, 2023)

The comparison shows that Valero's capital expenditure on efficient, optimised and safe operations positively impacts the business, ensuring it remains competitive.

Valero has best in class mechanical availability throughout its operations, this enables it to react to changing market conditions effectively. The mechanical availability is achieved through its rigorous operational excellence program.

2.3.2 PEST Analysis

This PEST analysis reviews key factors influencing Valero, enabling strategic planning review and amendments.

Table 3 shows the influence which affects Valero's operations.

A significant on a refinery's profit are governmental taxes designed to force industrial decarbonisation, referred to as UK ETS in the UK. The UK ETS has a variable price per tonne of carbon produced which has been as high as £69.15 per tonne in 2021. Refineries can produce up to two million tonnes of carbon per year, depending on various factors, which results in an unsustainable business margin (Tiseo, 2023).

Valero's mitigation policies include extensive carbon capture projects, switching to hydrogen for fuel gas applications and flare gas recovery, amongst others (Valero, 2022).

Political	Economic	Social	Technological
Oil Price Manipulation	Economic Stability	Education	Automation
Sanctions (Russia / Iran)	Global Exchange Rates	Culture	Competitor Developments
Governmental Stability	Skilled Workforce Shortage	Population Work Ethic	Electrification
Corruption	Inflation / Interest Rates	Population Perception	Cyber Security
Governmental Taxes	Energy Costs		
Minimum Wage Regulations	Pandemic		

Table 3 - Valero PEST Analysis (Valero, 2022)

3. Corporate Social Responsibilities

By integrating social and environmental concerns into business planning, decisions and operations, a balance can be achieved between economic, environmental and social necessities whilst ensuring stakeholder and shareholder expectations are met (UNIDO, 2022).

3.1 Macro-Economic Influences

Macroeconomic factors are defined by Bloomenthal (2022), as; “A macroeconomic factor is an influential fiscal, natural, or geopolitical event that broadly affects a regional or national economy”.

Table 4 show some of the significant macroeconomic influences that has an effect on Valero's Corporate Social Responsibilities.

OPEC is an intergovernmental organisation of 13 member-states holding more than 80% of the world's oil reserves. OPEC+, comprised of 10 more countries, including Russia, Mexico and Oman, is estimated to hold more than 80% of the world's oil reserves (Ellerbeck, 2022).

The OPEC+ countries manipulate the global oil price by reducing output when demand drops, ensuring a fair price for their product, similarly, they can reduce oil prices by increasing output (Ellerbeck, 2022).

Sanctions imposed on Russian oil, oil derivatives and natural gas have affected the global oil price and have caused a sharp increase to around \$130 per barrel. If further sanctions are approved, this could increase to \$150 per barrel (J.P. Morgan, 2022).

Geopolitical factors affecting oil prices, thereby affecting Valero, include middle eastern oil-producing countries' conflicts, rising tensions in the far east, particularly China and Taiwan, and ongoing pandemic restrictions affecting supply chains (Reinsch & Reynolds, 2022).

The skilled workforce shortage is affecting many employers globally; many factors are attributable to this situation, including diminishing birth rates and an ageing population, booming technical sectors and a legacy reluctance to increase wages (Franzino, et al., 2018).

Companies striving to improve efficiency and profitability through IIOT and Industry 4.0 utilisation face a heightened cyber security risk. Data syphoning, device hijacking and denial of service, amongst many others, can have extreme financial and safety implications for the oil and gas industry (Okeke, 2022).

Automobile electrification poses a long-term threat to fossil fuel producers. The EU has approved laws banning the sale of fossil fuel automobiles effective 2035 (Abnett, 2023).

Emissions-related legislation, taxes and penalties on operational and downstream emissions significantly impact producers' margins. Net zero goals set by various international agreements, such as the Paris Agreement, drive the need to reduce greenhouse gas emissions, invest in and increase renewable fuel production and improve process efficiency by incorporating lean manufacturing, amongst other methods (Redmond, et al., 2019).

Macroeconomic Influences		
Risk	Description	Elaboration
Political	OPEC+ Russian Sanctions	OPEC+ Countries have significant effects on oil prices. Russian oil & refined products sanctions.
Geopolitical	Instability - Inter / Intra-state conflict Climate Change Cyber security Regulatory Landscape Supply Chain Workforce	There are currently 10 conflict areas which impact global oil prices with the Russia / Ukraine war the most significant. Global aim to reduce CO2 / GHG Emissions. IIOT presents international cyber security risks. Far east Covid-19 restrictions. Skilled labour shortage
Supply / Demand	Global Pandemic Reactions Electrification	Pandemic related travel restrictions reduce product demand, supply usually unable to react to drop in demand. Combustion engine sales ban will reduce refined product demand.
Cost	Energy Cost Transportation Cost Emissions / Carbon Tax Inflation	High energy and transportation cost reduce margins significantly. Reduction in Ethanol blend subsidies High inflation could lead to a recession - reducing oil price

Table 4 - Macroeconomic Influences (Gelder & Hittle, 2021) (Haggman, 2019) (Mohn, 2009) (Reinsch & Reynolds, 2022) (Council on Foreign Relations, 2023)

Table 5 shows the Corporate Social Responsibility (CSR) policies that Valero has introduced and actions taken in recent years to reduce the impact of macroeconomic influences. A multi-

faceted approach has been taken, aiming to improve efficiency throughout all establishments and achieve best in class amongst peer groups (Valero, 2022).

Since the oil price collapse of 2014 (see Graph 1), Valero has adopted an approach focusing on production efficiency and using lower-grade feedstocks to produce high-quality fuel products. This approach ensures overheads are kept low whilst still operating safely, in addition to having the ability to use cheaper feedstocks during periods of high oil prices (Valero, 2023).

Valero has invested heavily in renewable fuels such as ethanol and diesel derived from recycled animal fats and is currently producing 1.6 billion gallons of ethanol and is on track to produce 1.2 billion gallons of renewable diesel by the end of 2023 (Valero, 2022).

Research, development and advancements in renewable propane, naphtha, arctic diesel, low-carbon hydrogen and sustainable aviation fuels aim to ensure Valero's refining portfolio is resilient in a low-carbon fuels marketplace (Valero, 2022).

Valero's approach to attracting and retaining a skilled workforce is to provide an extensive total wellness and rewards program, recruiting an ethnicity and gender-diverse workforce and providing educational incentives through university and college partnerships (Valero, 2022).

Environmental & Sustainability Projects 2020 - 2035		
Target	Implementation	Investment
GHG Emissions Target	On track to reduce & displace 100% GHG emissions by 2035	\$4.65 billion to date
Low Carbon Investments	70% of 2021/22 growth capital funds invested in low-carbon projects	
Carbon Sequestration	Large-scale pipeline project between 8 Ethanol plants to enable efficient carbon capture	
Renewable Diesel	High quality diesel fuel produced from waste oil products, such as used cooking oils, recycled animal fats. 2021 capacity - 690 million gallons per year / 2023 capacity expansion to 1.2 billion gallons per year.	
Research and Development	Low-carbon Hydrogen Renewable Propane Renewable Naphtha Sustainable Aviation fuel	
Vehicle Exhaust CO2 Capture	Supporting Southwest Research Institute in the development of filtration membranes to enable the capture of up to 90% of combustion engine CO2 emissions.	

Table 5 - Valero Environmental & Sustainability Projects (Valero, 2022)

3.2 Microeconomic Influences

Microeconomic influences on Valero include the consumer perspective on the fuels it produces, its environmental impact, and the benefit of its operations in the local communities. A sound reputation for supplying high-quality, low-carbon fuels whilst caring for the environment has been a significant driver in the company's marketing campaign (Valero, 2023).

In addition to the Valero Texas Open and Benefit for children raising \$209 Million since its conception, more than \$60 Million in charitable donations has been raised in 2022 to benefit the local communities in which it operates (Valero, 2022).

The marketing slogan "Quality Fuels – Guaranteed" on UK road tankers may aim to familiarise customers with the brand whilst still operating under the Texaco forecourt distribution brand. Although the Texaco brand has an excellent, longstanding reputation in the UK, the decision to rebrand to Valero may be a future strategy.

National industrial pay disputes have an impact on company operations, where access to sites is blocked, and large numbers of the workforce are not executing duties, increasing maintenance and project delays (Office For National Statistics, 2023).

4. Lean Manufacturing

Since its conception, Valero has pursued the ability to use low-grade feedstocks to produce high-quality fuels. This methodology has been a critical lean manufacturing technique enabling the company to be one of the world's lowest-cost fuel producers (Valero, 2022).

Process automation has been a critically advantageous lean manufacturing technique implemented by Valero. Industrial PLCs can improve process efficiency, safety and profitability by continually optimising temperatures, flows and reactions through intelligent instruments and incorporating online quality and purity analysers in the control loop (Knobelsdorff, 2022).

Refineries are high energy consumers whilst relying heavily on steam for various processes. Valero is strategically investing in LNG cogeneration units which reduces reliance on grid-supplied electricity and simultaneously produces large quantities of steam (Valero, 2022).

Further lean manufacturing techniques implemented by Valero include twin processing units, like the Porth Arthur Coking units, which allow maintenance to be carried out whilst the second unit is still in production. Projects like this have a significant initial expenditure, which is rapidly offset by maintenance-related downtime savings. (Valero, 2022).

The gasoline blend optimisation program recently commissioned at Pembroke Refinery showcases a lean manufacturing technique, resulting in a considerable strategic refining advantage. The optimisation project included upgrading the blend control system, installing highly accurate and reliable online hydrocarbon analysers and collecting large amounts of data for modelling. The resulting system enabled the company to reduce blend "give-away"

significantly, reduce gasoline storage capacity needed by several million barrels, and reduce demurrage costs. The system delivers better quality fuel at a faster rate whilst costing less (Scriven, et al., 2016).

Valero can incorporate Lean Six Sigma management philosophy in its supply chain, refining and distribution businesses. By setting extremely high objectives and collecting data from intelligent sensors, smart automation systems and interdepartmental cooperation, various waste streams can be eliminated, resulting in streamlined processes, increased efficiency and profits. The process is continuous and can be incorporated using the DMAIC approach; Define, Measure, Analyse, Improve, Control (Atanas, et al., 2016).

5. Recommendation for Management Team

A commitment to continual investment in renewable fuels and existing infrastructure efficiency improvement will benefit the company significantly and ensure its continual safe, profitable and sustainable operation.

Carbon capture plays a significant role in current and future refining margins; therefore, decarbonisation must be a priority and include carbon reduction projects such as fuel gas switch from LNG to hydrogen, flare gas recovery and a company-wide carbon capture program. The company would benefit significantly from captured carbon repurposing; investing in research and development of this developing technology now will ensure the company has a competitive advantage in the future.

Incorporating lean Six Sigma philosophies could enable a reduction in waste streams, improve efficiency and profitability and give the company a further competitive advantage in a market with inherently tight margins, which are susceptible to volatile markets and rapidly increasing legislation.

Valero has a highly skilled workforce; a bottom-up approach to implementation can be achieved by incorporating lean manufacturing training to continually improve skills and competency, in line with Kaizen philosophies. Implementation will require management commitment, leadership and motivation; once the business culture has adapted to a commitment to lean, an implementation team should be created which would evaluate current systems, identify value streams, initiate further skills training, redesign for waste reduction, create goals, incorporate Kaizen philosophies such as Jidoka (automation with human oversight) and finally establish continual evaluation and improvement philosophies.

6. Company Vision Statement

Valero's Vision statement (2022) – “we are committed to advancing the future of energy through innovation, ingenuity and unmatched execution”

Valero does not have a mission statement. The vision statement reiterates its commitment to operational excellence which has proven to be very successful, as well as its commitment to expanding and improving its renewables production and environmental initiatives.

The vision statement is succinct and encapsulates its current modus operandi; therefore, a conclusion can be made that it is sufficient for its current operating climate.

A recommendation would be for the company to create a mission statement that clearly defines its future operating strategy and how it envisions adoption to an ever-changing energy market significantly impacted by climate change.

7. Conclusions

The strategic review of Valero gave an understanding of how the company aggressively grew in its early years by acquiring a large number of refineries. There was a clear strategic shift in its operations as of 2011. Large investments were made in renewables, such as ethanol and renewable diesel and naphtha. In addition to expanding and marketing renewables, Valero has invested heavily in efficiency and productivity improvements across all its existing plants. This shows their commitment to refining in the midterm, as electrification and hydrogen powered vehicles are not yet a feasible investment for most developing countries.

Valero shows a commitment to operating in an environmentally and community driven manner through the various philanthropic and volunteering events it undertakes which has a positive effect on the way the public perceives it.

Macroeconomic influences were found to have various impacts on Valero on global and local scale, whereas microeconomic influences are predominantly influences which effect the company on a localised scale. Some factors were found to overlap.

For Valero to stay competitive and profitable, and operate in an environmentally friendly manner, carbon reduction, capture, and repurposing has to be a priority. Further operational improvements in efficiency and productivity can be achieved by including the Lean Six Sigma philosophies elaborated upon in the recommendations section.

Valero's vision statement and core values were found to be succinct, clear and more importantly relevant to its current and future operating strategy, with a recommendation to create a mission statement to clearly define its future strategy.

8. References

- Abnett, K., 2023. *Reuters - EU lawmakers approve effective 2035 ban on new fossil fuel cars*. [Online]
Available at: <https://www.reuters.com/business/autos-transportation/eu-lawmakers-approve-effective-2035-ban-new-fossil-fuel-cars-2023-02-14/>
[Accessed 05 03 2023].
- Aizarani, J., 2023. *Statista - Operating revenue of Valero Energy Corporation*. [Online]
Available at: <https://www.statista.com/statistics/218193/operating-revenues-of-valero-energy-corporation/>
[Accessed 15 02 2023].
- Atanas, J. P., Rodrigues, C. C. & Simmons, R. J., 2016. Lean Six Sigma Applications in Oil and Gas Industry: *International Journal of Scientific and Research Publications*, 6(5), pp. 540 - 544.
- Beattie, A., 2021. *Investopedia - 5 of the Biggest Risks Faced by Oil and Gas Companies*. [Online]
Available at: <https://www.investopedia.com/articles/fundamental-analysis/12/5-biggest-risks-faced-by-gas-and-oil-companies.asp>
[Accessed 03 03 2023].
- Berkshire Hathaway, 2022. *Valero Energy Reports 2022 Fourth Quarter and Full Year Results*. [Online]
Available at: <https://www.businesswire.com/news/home/20230125005843/en/Valero-Energy-Reports-2022-Fourth-Quarter-and-Full-Year-Results>
[Accessed 13 02 2023].
- Bloomenthal, A., 2022. *Investopedia - Macroeconomic Factor: Definition, Types, Examples, and Impact*. [Online]
Available at: <https://www.investopedia.com/terms/m/macroeconomic-factor.asp#:~:text=management%2C%20and%20analytics-,What%20is%20a%20Macroeconomic%20Factor%3F,just%20a%20few%20select%20individuals>
[Accessed 27 02 2023].
- Blum, J. & Melvin, J., 2022. *S&P Global Commodity Insights*. [Online]
Available at: <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/oil/062122-us-refining-capacity-falls-to-lowest-mark-in-8-years-amid-record-prices-eia>
[Accessed 18 01 2023].
- Business, R. f., 2023. *Valero Energy Corporation - Company Profile, Information, Business Description, History, Background Information on Valero Energy Corporation*. [Online]
Available at: <https://www.referenceforbusiness.com/history2/79/Valero-Energy-Corporation.html>
[Accessed 18 02 2023].
- Council on Foreign Relations, 2023. *Global Conflict Tracker*. [Online]
Available at: <https://www.cfr.org/global-conflict-tracker>
[Accessed 03 03 2023].
- eia, 2023. *U.S. Energy Information Administration*. [Online]
Available at: https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=p&s=emm_epm0_pte_nus_dpg&f=a
[Accessed 13 02 2023].
- Ellerbeck, S., 2022. *World Economic Forum - What is OPEC*. [Online]
Available at: <https://www.weforum.org/agenda/2022/11/oil-opec-energy-price/>
[Accessed 04 03 2023].
- Engbreetsen, R., 2020. *OECD - The impact of Coronavirus (Covid-19) and the global oil shock on the fiscal position of oil-exporting countries*. [Online]
Available at: <https://www.oecd.org/coronavirus/policy-responses/the-impact-of-coronavirus-covid-19-and-the-global-oil-price-shock-on-the-fiscal-position-of-oil-exporting-developing-countries-8bafbd95/>
[Accessed 22 02 2023].
- Franzino, M., Guarino, A. & Binvel, Y., 2018. *Korn Ferry - The \$8.5 Trillion Talent Shortage*. [Online]
Available at: https://www.kornferry.com/content/dam/kornferry/docs/article-migration/FOWTalentCrunchFinal_Spring2018.pdf
[Accessed 04 03 2023].
- Gately, D., 1986. *Lessons from the 1986 Oil Price Collapse*. [Online]
Available at: https://www.brookings.edu/wp-content/uploads/1986/06/1986b_bpea_gately_adelman_griffin.pdf
[Accessed 16 02 2023].
- Gelder, A. & Hittle, A.-L., 2021. *Wood Mackenzie - Oil markets: 5 things to look for*. [Online]
Available at: <https://www.woodmac.com/news/opinion/what-lies-ahead-for-the-oil-markets-in-2022-outlook/>
[Accessed 04 03 2023].
- Gildea, R., 2022. *The Miners' Strike of 1984-5: an oral history*. [Online]
Available at: <https://www.history.ox.ac.uk/miners-strike-1984-5-oral-history#tab-2838761>
[Accessed 17 02 2023].

GlobalData, 2023. *Valero Energy Corp: Competitors*. [Online]
Available at: <https://www.globaldata.com/company-profile/valero-energy-corp/competitors/>
[Accessed 01 03 2023].

Haggman, A., 2019. *WTW - 7 key geopolitical drivers impacting the energy industry*. [Online]
Available at: <https://www.wtwco.com/en-AU/insights/2019/05/7-key-geopolitical-drivers-impacting-the-energy-industry>
[Accessed 03 03 2023].

Hickin, P., 2022. *S&P GLOBAL - MAKE DECISIONS WITH CONVICTION*. [Online]
Available at: <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/petrochemicals/121422-ica-warns-of-higher-oil-price-risk-with-demand-outpacing-supply-in-2023#article0>
[Accessed 01 03 2023].

Indeed, 2022. *Purpose of a SWOT Analysis*. [Online]
Available at: <https://www.indeed.com/career-advice/career-development/purpose-of-swot-analysis>
[Accessed 18 02 2023].

J.P. Morgan, 2022. *The Russia-Ukraine Crisis: What Does It Mean For Markets*. [Online]
Available at: <https://www.jpmorgan.com/insights/research/russia-ukraine-crisis-market-impact>
[Accessed 04 03 2023].

KnobelsDorff, 2022. *5 ADVANTAGES OF INDUSTRIAL AUTOMATION*. [Online]
Available at: <https://knobelsdorffenterprises.com/5-advantages-of-industrial-automation/>
[Accessed 08 03 2023].

Livingston, A., 2020. *"All of the party was over": How the last oil bust changed Texas*. [Online]
Available at: <https://www.texastribune.org/2020/05/18/texas-oil-prices-1980s/#:~:text=A%20plunge%20in%20oil%20prices,a%20pandemic%20and%20economic%20crisis.&text=Of%20buildings%20in%20downtown%20Midland,during%20the%201987%20oil%20bust.>
[Accessed 16 02 2023].

Macrotrends, 2023. *Crude Oil Prices - 70 Year Historical Chart*. [Online]
Available at: <https://www.macrotrends.net/1369/crude-oil-price-history-chart>
[Accessed 15 02 2023].

Maxwell, D., 2022. *The impact of the skilled labour shortage*. [Online]
Available at: <https://www.sovereigninsurance.ca/advice-and-tools/hot-topics/the-impact-of-the-skilled-labour-shortage>
[Accessed 02 03 2023].

Mead, D. & Stiger, P., 2015. *The 2014 plunge in import petroleum prices*. [Online]
Available at: <https://opub.btu/volume-4/pdf/the-2014-plunge-in-import->
[Accessed 20 02 2023].

Macrotrends, 2023. *Revenue Trends - VLO, MPC, PSX*. [Online]
Available at: <https://www.macrotrends.net/stocks/stock-comparison?s=revenue&axis=multiple&comp=VLO:MPC:PSX>
[Accessed 26 02 2023].

Mohn, K., 2009. Energy economics. *Investment and uncertainty in the international oil and gas industry*, 31(2), pp. 240-248.

Office For National Statistics, 2023. *The impact of strikes in the UK: June 2022 to February 2023*. [Online]
Available at: <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/workplacedisputesandworkingconditions/articles/theimpactofstrikesintheuk/june2022tofebruary2023>
[Accessed 10 03 2023].

Okeke, F., 2022. *TechRepublic - Top 6 security risks associated with industrial IoT*. [Online]
Available at: <https://www.techrepublic.com/article/top-security-risks-industrial-iot/#:~:text=Device%20hijacking%20is%20one%20of,the%20sensors%20are%20connected%20to.>
[Accessed 05 03 2023].

Redmond, S., Watters, T. A. & Grande, M., 2019. *S&P Global - ESG Industry Report Card: Oil and Gas*. [Online]
Available at: <https://www.spglobal.com/en/research-insights/articles/esg-industry-report-card-oil-and-gas>
[Accessed 06 03 2023].

Reinsch, W. & Reynolds, G., 2022. *CSIS - Geopolitics of Oil and Inflation*. [Online]
Available at: <https://www.csis.org/analysis/geopolitics-oil-and-inflation>
[Accessed 03 03 2023].

Rourke, E., 2023. *Reference For Business - Valero Energy Corporation*. [Online]
Available at: <https://www.referenceforbusiness.com/history/Ul-Vi/Valero-Energy-Corporation.html>
[Accessed 16 02 2023].

Scriven, W., Martin, A. & Siever, D. S., 2016. *Hydrocarbon Processing - Utilize an optimizer to blend gasoline directly to ships*. [Online]
Available at: <https://www.hydrocarbonprocessing.com/magazine/2016/june-2016/special-report-processplant-optimization/utilize-an-optimizer-to-blend-gasoline-directly-to-ships>
[Accessed 10 03 2023].

Tan, F., Khasawneh, R. & Ghaddar, A., 2021. *Reuters - Global oil refiners crank up output as margins recover to pre-COVID levels*. [Online]
Available at: <https://www.reuters.com/business/energy/global-oil-refiners-crank-up-output-margins-recover-pre-covid-levels-2021-10-20/>
[Accessed 28 02 2023].

Tiseo, I., 2023. *Statista - UK-ETS carbon pricing in the United Kingdom 2022*. [Online]
Available at: <https://www.statista.com/statistics/1322275/carbon-prices-united-kingdom-emission-trading-scheme/#:~:text=The%20highest%20carbon%>
[Accessed 15 03 2023].

UNIDO, 2022. *United Nations Industrial Development Organisation - What is CSR*. [Online]
Available at: <https://www.unido.org/our-focus/advancing-economic-competitiveness/competitive-trade-capacities-and-corporate-responsibility/corporate-social-responsibility-market-integration/what-csr>
[Accessed 25 02 2023].

Valero , 2023. *Who We Are*. [Online]
Available at: <https://www.valero.com/about>
[Accessed 14 02 2023].

Valero, 2022. *2022 TCFD Report*. [Online]
Available at: <https://www.valero.com/sites/default/files/valero-documents/2022-TCFD-Report-FINAL-digital-spreads.pdf>
[Accessed 19 02 2023].

Valero, 2022. *Valero - ESG Report*. [Online]
Available at: https://www.valero.com/sites/default/files/valero-documents/ESG_Report%20August_2022_FINAL_SinglePages.pdf
[Accessed 02 03 2023].

Valero, 2022. *Valero Energy Reports 2022 Fourth Quarter and Full Year Results*. [Online]
Available at: https://www.valero.com/sites/default/files/valero-documents/VLO_4Q22_Earnings_Release.pdf
[Accessed 25 02 2023].

Valero, 2023. *Our History*. [Online]
Available at: <https://www.valero.com/about/our-history>
[Accessed 15 02 2023].

Zippia, 2022. *VALERO ENERGY COMPANY HISTORY TIMELINE*. [Online]
Available at: <https://www.zippia.com/valero-energy-careers-12276/history/>
[Accessed 15 02 2023].

9. Appendix

Earnings vs. Average Oil Price
(Macrotrends, 2023)
(Aizarani, 2023)

Year	Earnings (millions of US \$)	Average Oil Price
2009	64599	61.95
2010	82154	79.48
2011	138393	94.88
2012	138074	94.05
2013	130844	97.98
2014	87804	93.17
2015	75659	48.66
2016	93980	43.29
2017	117033	50.8
2018	117033	65.23
2019	108324	56.99
2020	64912	39.68
2021	113977	68.17
2022	176383	94.53

Earnings vs. Average gasoline price
(eia, 2023)
(Aizarani, 2023)

Year	Earnings (millions of US \$)	Average Gasoline Price (\$/Gal)
2009	64599	2.406
2010	82154	2.835
2011	138393	3.576
2012	138074	3.68
2013	130844	3.575
2014	87804	3.437
2015	75659	2.52
2016	93980	2.25
2017	117033	2.528
2018	117033	2.813
2019	108324	2.691
2020	64912	2.258
2021	113977	3.1
2022	176383	4.059

FINAL GRADE

GENERAL COMMENTS

Instructor

70/100

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11

PAGE 12

PAGE 13

PAGE 14

PAGE 15

PAGE 16

PAGE 17

GRADING FORM: CSG-RUBIC

LOURENS BRITS**70****RESEARCH-INFORMED LITERATURE**

Excellent research used to support background information and research for SWOT and PEST. Extensive list of referenced sources in Bibliography. Citations used to identify sources throughout but sentence structure needs to improve with use of citations as part of sentence instead of end loaded.

7**KNOWLEDGE AND UNDERSTANDING**

Excellent knowledge of company history and impact of macrolevel influences. Very good knowledge of issues and potential for future opportunities highlighted in SWOT and PEST analysis but could have drilled down into reasoning to link to strategies in more detail. Additional information for CSR and Lean manufacturing would provide a more in depth analysis of microlevel management of plant and

22

potential for improving economic position and linking strategy to mission and vision statements.

ANALYSIS

 Excellent analysis of stages of company development on global platform. Very good, detailed economic information.

13

PRACTICAL APPLICATION AND DEP.

 Very good use of research and experience to identify status and use of renewable fuels, etc. to meet government plans for fuel markets in UK and Europe. Excellent understanding of international OPEC influences on oil prices and impact from external geopolitical sources. Very good use of Table 5 to show link to mission and vision for future.

21

SKILLS FOR PROFESSIONAL PRAC.

 Excellent layout and details. Improve use of citations in sentence structure. Report lacks depth on Lean manufacturing processes.

7