

Part 1

Business Overview

1. Policy and Business Overview

SPRC is one of leading petroleum product producers in Thailand and among the most efficient refineries in the Asia Pacific region, located in Map Ta Phut Industrial Estate, Rayong. We operate a complex refinery with a capacity of 165,000 barrels per day of crude oil. We successfully completed the Capacity Expansion Project to 175,000 barrels per day during 2019 Turnaround and Project Event. Our products include liquefied petroleum gas ("LPG"), polymer grade propylene ("PGP"), chemical grade naphtha, premium and regular grades of gasoline, jet fuel, diesel, fuel oil, and asphalt. We place our petroleum products primarily in Thai domestic market, mostly through Chevron, PTT and chemical products to petrochemical companies in Map Ta Phut Industrial Estate.

1.1 Vision, Mission, and Strategy

Our **Vision** is:

"One Family...Fueling the Future of Thailand"

Our **Mission** is:

"We are a highly engaged Family, dedicated to providing sustained superior returns to our shareholders through industry leading safe and reliable operations, producing quality products that exceed customer expectations, in harmony with our communities and the environment"

Strategy

SPRC intends to accomplish the Mission through the focus in three Key Result Areas; Operational Excellence, People and Stakeholders. The specific strategic objective on each of the Key Result Area are as follows:

1. **Operational Excellence:** Set the Global Standard for Operational Excellence
2. **People:** Set the Standard in Thailand as the Employer of Choice
3. **Stakeholders:** Set the Standard in Asia Pacific for Shareholder Return

At SPRC, we believe that nothing is more important than operating safely and reliably. We have a strong foundation of personal safety. Our first and foremost commitment is to the safety of our employees and contractors and to the safety of the surrounding community and environment. We work together as One Family with deep care and concern for all our employees, contractors, and stakeholders. Our operational excellence and process safety ensure minimal downtime and operational reliability. The top performance in availability and utilization enable us to focus on continuous margin improvement. Our high level of performance generates high margin and returns to shareholders.

SPRC is stepping toward ensuring business sustainability with stronger emphasis on SPRC strategic planning and more deliberately shape our future direction. We focus our evaluation of business strategies that enhances our competitiveness through a more diversified portfolio of products and shifting yield to more high value products, which in turn create and sustain good returns to our shareholders.

1.2 Development and Significant Changes

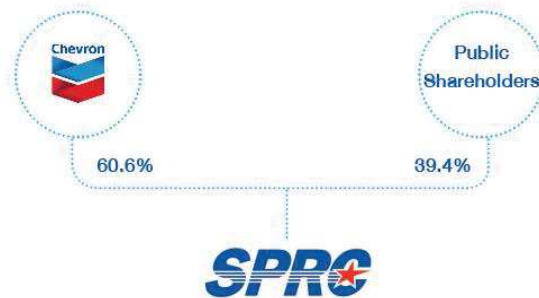
Our key accomplishments in 2019 include:

- Achieved 26.7 million man-hours without days away from work injury.
- Operated safely and reliably, with no shutdowns between planned turnarounds.
- Sustained high operational availability of 98.1%, first quartile Solomon Benchmark performance against peers in the Asia Pacific region.
- Continued crude slate optimization, with total of 25 different types of crude processed in this year. Of this, 4 of the crudes were new to SPRC, including a first cargo of US light tight oil for SPRC.
- Remained competitive with continuous margin improvement through Bottom Line Improvement Program (BLIP), \$2.34/bbl margin captured from good process and crude optimization.

- Successfully executed the largest and most complex Turnaround and Event Project in SPRC's history. The enhanced refinery, through our reliability and capacity upgrades from 165,000 to 175,000 barrels of crude per day, position us to better capture margin when market opportunities arise.

1.3 Shareholding Structure

Chevron is our major shareholder, holding 60.6% of share in SPRC. The present shareholding structure is as shown below.



1.4 Relationship with Major Shareholder

Chevron is one of world's leading oil and gas groups with over a century of experience worldwide. The long-standing relationship with Chevron and its connection bring SPRC the competitive advantage through providing competitively priced crude and feedstock supply, petroleum products sale agreements and access to proprietary technologies and systems.

2. Nature of Business

SPRC is one of the leading petroleum product producers in Thailand and among the most efficient refineries in the Asia Pacific region. We operated a complex refinery with a capacity of 165,000 barrels per day of crude oil. We successfully completed the 2019 Turnaround and Expansion project which increase the capacity to 175,000 barrels per day.

2.1 Product and Service

2.1.1 Crude and Product

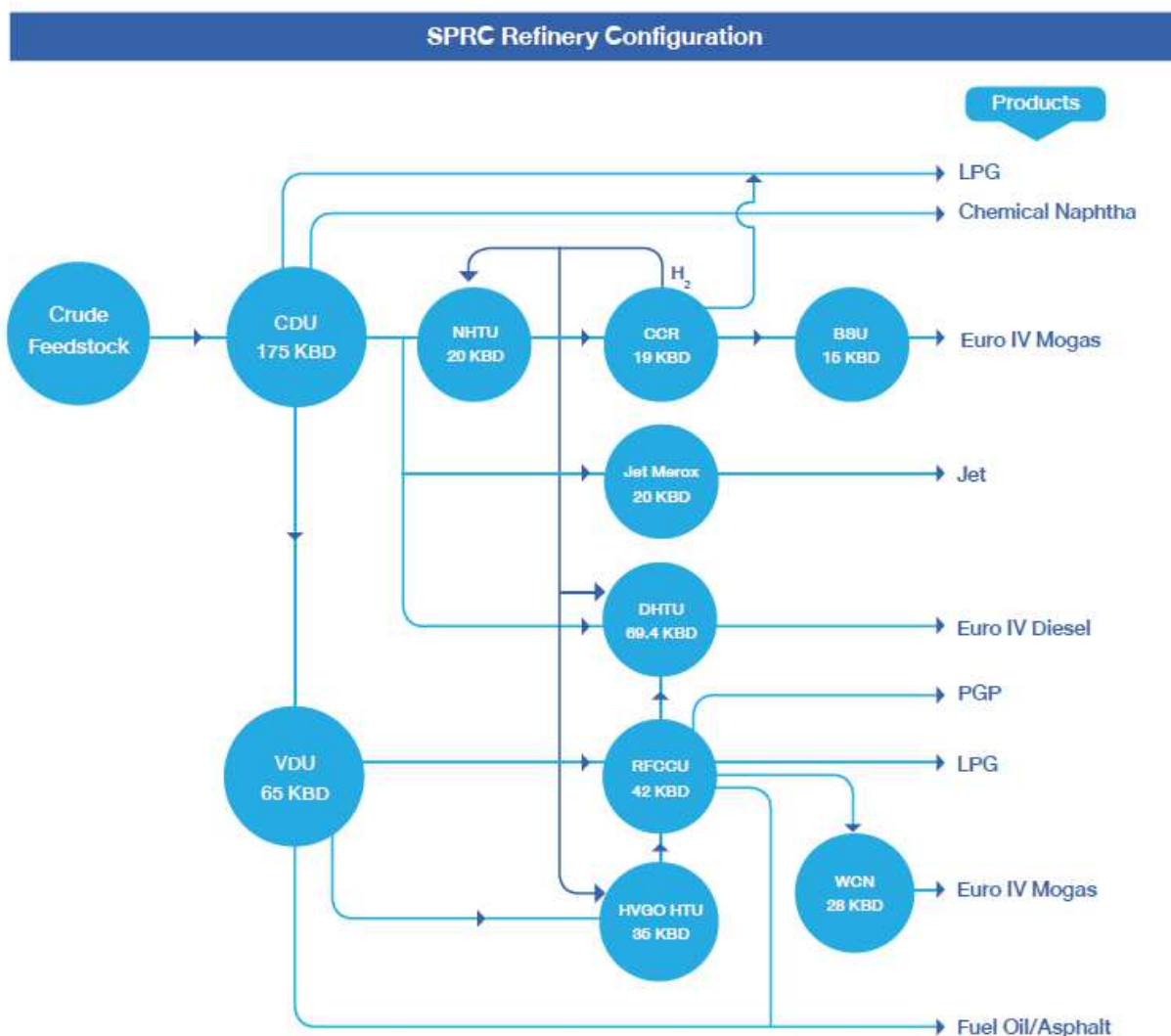
Our refinery is capable of processing a wide range of crude oil, which we typically source from the Middle East and the Far East. Our choice of feedstocks and product slate at any time depends on relative prices and yields. We decide on our product slate with input from our offtakers, based on our assessment of demand and projected prices for the various products that we can produce, typically around three months in advance of expected orders.

Our primary petroleum products from the distillation and conversion of crude oil are hydrocarbon fuels, which include LPG, premium and regular grades of gasoline, jet fuel, diesel, fuel oil and asphalt, as well as petrochemical feedstocks used in the petrochemical industry, which include PGP, LPG, chemical grade naphtha, mixed C4, reformat and sulfur.

2.1.2 Production Facilities and Processes

Our production facilities are located in Rayong province, approximately 200 kilometers to the southeast of Bangkok. Our refinery is a cracking refinery as compared to a hydroskimming refinery. Hydroskimming refineries are relatively low complexity refineries that have a significant amount of fuel oil yield. Cracking refineries are able to upgrade a significant portion of fuel oil into higher value transportation fuels such as gasoline, jet and diesel, providing a much higher margin than hydroskimming refineries.

The following diagram illustrates our refinery's configuration:



KBD = 1,000 barrels per day

Our refinery's main units comprise of the following (all capacity figures are given as of 31 December 2019):

- one Crude Distillation Unit ("CDU") that heats crude and then distills it, with a capacity of 175,000 barrels per day that uses crude oil as a primary feedstock and primarily produces LPG, naphtha, jet fuel, diesel and long residue;
- one Vacuum Distillation Unit ("VDU") that uses a vacuum to improve distillation of long residue from the CDU, with a capacity of 65,000 barrels per day, and primarily produces diesel, heavy and very heavy vacuum gas oil, fuel oil and asphalt.
- one Naphtha Hydrotreater Unit ("NHTU"), with a capacity of 20,000 barrels per day, which removes sulfur from heavy naphtha prior to feeding it to the continuous catalytic regeneration reformer;
- one Continuous Catalytic Regeneration Reformer ("CCR"), with a capacity of 19,000 barrels per day, which converts low-octane naphtha into high-octane reformate for production of various grades of unleaded gasoline;
- one Benzene Saturation Unit ("BSU") that reduces the benzene in reformate, with a capacity of 15,100 barrels per day;
- one Jet Merox Unit that treats jet streams from the CDU in order to produce jet fuel, with a capacity of 20,000 barrels per day;

- one Diesel Hydrotreater Unit (“DHTU”) that treats streams from the CDU, VDU and RFCCU to produce diesel, with a capacity of 69,400 barrels per day;
- one Residue Fluidized Catalytic Cracker Unit (“RFCCU”) that cracks petroleum hydrocarbons in order to convert heavy low value fractions of petroleum crude oils to more valuable and higher margin products, with a capacity of 42,000 barrels per day. The RFCCU operates in conjunction with one propane/propylene splitter that allows for the separation and production of polymer grade propylene (PGP), with a capacity of 6,400 barrels per day, as well as merox treating units designed to make LPG and gasoline products meet product specifications with a total capacity of 49,000 barrels per day;
- one Whole Cracked Naphtha Hydrotreater Unit (“WCN”) that treats gasoline from the RFCCU, with a capacity of 28,000 barrels per day; and
- one Heavy Vacuum Gas Oil Hydrotreater Unit (“HVGO HTU”) that removes sulfur and improves feed quality for the RFCCU, with a capacity of 35,00 barrels per day.

2.1.3 Overview of the Refinery Production Process

By heating crude oil to a certain temperature and sending it to the crude distillation unit, it is possible to separate crude oil into different fractions, each with its own boiling range. The crude distillation unit produces several streams that are utilized in the refinery to produce different petroleum products. The lighter boiling components rise up the crude distillation tower while the heavier boiling components fall to the bottom. As the lighter components pass up through the crude distillation tower, the oil’s temperature gradually drops and vapor is condensed. The distillation of oil vapors at different temperatures produces various petroleum products such as LPG, naphtha, jet fuel, and diesel. The heavier components are sent to the vacuum distillation unit which reduces the boiling point of the heavier components to facilitate the separation of diesel and heavy vacuum gas oil from residue. The residue from the vacuum distillation unit is used to produce fuel oil and asphalt. The heavy vacuum gas oil and very heavy vacuum gas oil are sent to the RFCCU.

The heavy vacuum gas oil from the vacuum distillation unit is fed to the heavy vacuum gas oil hydrotreater, which removes sulfur and improves feed quality for the RFCCU. The RFCCU converts streams from the vacuum distillation unit and the heavy vacuum gas oil hydrotreater unit that would otherwise be used to make lower value fuel oil into lighter, more valuable products such as LPG, gasoline and diesel by cracking, or breaking, large molecules into smaller molecules. Our RFCCU also upgrades a portion of the vacuum distillation unit residue and this allows our refinery to process lower cost, heavier crude oils. A dedicated distillation process is used to separate components into refinery fuel gas, PGP, LPG, gasoline, diesel, and a small amount of fuel oil. The gasoline from the RFCCU is treated in the whole cracked naphtha hydrotreater unit to meet Euro IV gasoline specifications.

Some of the lighter components from the crude distillation tower are sent to a series of towers called the light end recovery. The separated components consist of a refinery fuel gas, LPG, light naphtha and heavy naphtha. Light naphtha is sent to the gasoline-blending unit, or sold as chemical naphtha to petrochemical companies as ethylene cracker feedstock. Low octane heavy naphtha is routed to the naphtha hydrotreater to remove sulfur and then to the continuous catalyst regeneration reformer to boost its octane by changing the shape of the oil molecules to higher octane molecules. The reformed naphtha, or reformate, is sent to the benzene saturation unit which reduces benzene content in order to comply with Euro IV specifications. The product from the benzene saturation unit is used to blend different grades of unleaded gasoline.

The oil from one of the streams of the crude distillation unit is directed to the Jet Merox Unit to remove contaminants to produce jet fuel. Other streams from the crude distillation unit, the vacuum unit and the RFCCU are treated in the diesel hydrotreater unit to produce Euro IV diesel.

2.2 Competition

The refining industry in Thailand is highly competitive. There are seven refineries in Thailand and we principally compete with five other domestic petroleum refineries in Thailand, which are Thai Oil, Esso, Bangchak Petroleum, PTTGC, and IRPC. PTT, which is Thailand's largest oil and Gas Company, holds significant interests in three of our principal competitors: Thai Oil, PTTGC and IRPC.

2.2.1 Product Pricing

Most of the products sold through the offtake Agreement are benchmarked off the Mean of Platts Singapore, or MOPS. Thai domestic prices are adjusted from MOPS pricing with certain transportation, production, product quality, and market adjustments as appropriate.

Domestic sale prices of petroleum products sold outside of the Offtake Agreement are also market driven and are generally based on the monthly average of regional benchmark prices with certain adjustment for the applicable product in the month that they are sold. Our exports for petroleum products are also generally based on benchmark pricing, such as the price for the relevant product quoted on MOPS, plus or minus a premium or discount based on market conditions and negotiations with potential purchasers as well as differences in product quality and location.

2.2.2 Revenue structure

The following table sets forth the sales revenue and sales volumes of our various petroleum products for the periods indicated. Sales prices and revenue include excise taxes, oil fund, conservation fund and local taxes on fuels as required. These taxes are pass-through taxes that are sent on to the government.

Sale Revenue (in millions of US\$)	Year Ended December 31,								
	2019			2018			2017		
	Sales Revenue	Volume (thousand barrels)	US\$/bbl ^(a)	Sales Revenue	Volume (thousand barrels)	US\$/bbl ^(a)	Sales Revenue	Volume (thousand barrels)	US\$/bbl ^(a)
PGP	87.1	1,263	68.97	122.1	1,490	81.99	99.2	1,414	70.21
LPG	103.0	2,340	44.03	137.0	2,718	50.42	128.7	2,703	47.63
Light Naphtha	128.7	2,295	56.09	181.8	2,804	64.84	131.6	2,487	52.91
Gasoline	1,616.3	14,750	109.58	1,868.8	16,277	114.81	1,556.1	15,382	101.16
Jet Fuel	346.3	4,306	80.42	466.7	5,181	90.09	286.3	4,131	69.30
Diesel	2,393.8	21,381	111.96	2,694.6	23,464	114.84	2,053.0	22,148	92.69
Fuel Oil	254.8	4,373	58.25	437.7	6,855	63.84	349.4	7,221	48.38
Asphalt	43.3	770	56.31	49.5	825	60.01	55.5	1,232	45.07
Mix C4	92.9	1,828	50.83	125.8	2,247	55.99	115.6	2,533	45.64
Crude	29.6	427	69.19	0.3	5	72.17	0.9	16	54.45
Other ⁽¹⁾	295.9	4,218	70.16	354.1	5,015	70.61	232.6	4,226	55.06
Total Revenue	5,391.7	57,951	93.04	6,438.6	66,880	96.27	5,008.9	63,492	78.89

⁽¹⁾ Includes sulfur, reformat and products sold pursuant to our cracker feed exchange with PTT Global Chemical

⁽²⁾ Includes excise tax, energy conservation promotion fund, oil fuel fund and local taxes

We sell a significant portion of our petroleum products primarily through the Offtake Agreement that we have entered into with Chevron and PTT (PTT&PTTOR) and we sell our products both domestically and for export. From time to time, we also enter into a variety of short-term product sales agreements on a spot or term basis for the remaining petroleum products that are produced in our refinery.

Our top two customers are Chevron and PTT (PTT&PTTOR). The following table sets forth the percentage of total revenue accounted for by Chevron and PTT (PTT&PTTOR), respectively, for the periods indicated.

	Year Ended December 31,		
	2019	2018	2017
	% of Total Revenue		
Chevron	54.2	52.4	57.5
PTT&PTTOR	34.2	35.0	31.3
Others	11.6	12.6	11.2
Total	100.0	100.0	100.0

The following table sets forth our sales revenue for our petroleum products that are sold domestically as compared to export for the periods indicated. The domestic market is typically higher value than the export market.

	Year Ended December 31,					
	2019		2018		2017	
	Sales Revenue	% of Total Revenue	Sales Revenue	% of Total Revenue	Sales Revenue	% of Total Revenue
	(In millions of US\$, except for percentages)					
Petroleum Products						
Domestic	4,974.2	92.3%	5,728.7	89.0%	4,354.8	86.9%
Export	417.5	7.7%	709.9	11.0%	654.1	13.1%
Total revenue	5,391.7	100.0%	6,438.6	100.0%	5,008.9	100.0%

The following table sets forth our sales revenue for each of our petroleum products and such revenue as a percentage of our total revenue for the periods indicated.

Sale Revenue (in millions of US\$)	Year Ended December 31,					
	2019		2018		2017	
	Sales Revenue	% of Total Revenue	Sales Revenue	% of Total Revenue	Sales Revenue	% of Total Revenue
Polymer Grade Propylene	87.1	1.6%	122.1	1.9%	99.2	2.0%
Liquefied Petroleum Gas ⁽¹⁾	103.0	1.9%	137.0	2.1%	128.7	2.6%
Light Naphtha	128.7	2.4%	181.8	2.8%	131.6	2.6%
Gasoline	1,616.3	30.0%	1,868.8	29.0%	1,556.1	31.1%
Jet Fuel	346.3	6.4%	466.7	7.2%	286.3	5.7%
Diesel	2,393.8	44.4%	2,694.6	41.9%	2,053.0	41.0%
Fuel Oil	254.8	4.7%	437.7	6.8%	349.4	7.0%
Asphalt	43.3	0.8%	49.5	0.8%	55.5	1.1%
Mix C4	92.9	1.7%	125.8	2.0%	115.6	2.3%
Crude	29.6	0.6%	0.3	0.0%	0.9	0.0%
Others ⁽²⁾	295.9	5.5%	354.1	5.5%	232.6	4.6%
Total Revenue	5,391.7	100.0%	6,438.6	100.0%	5,008.9	100.0%

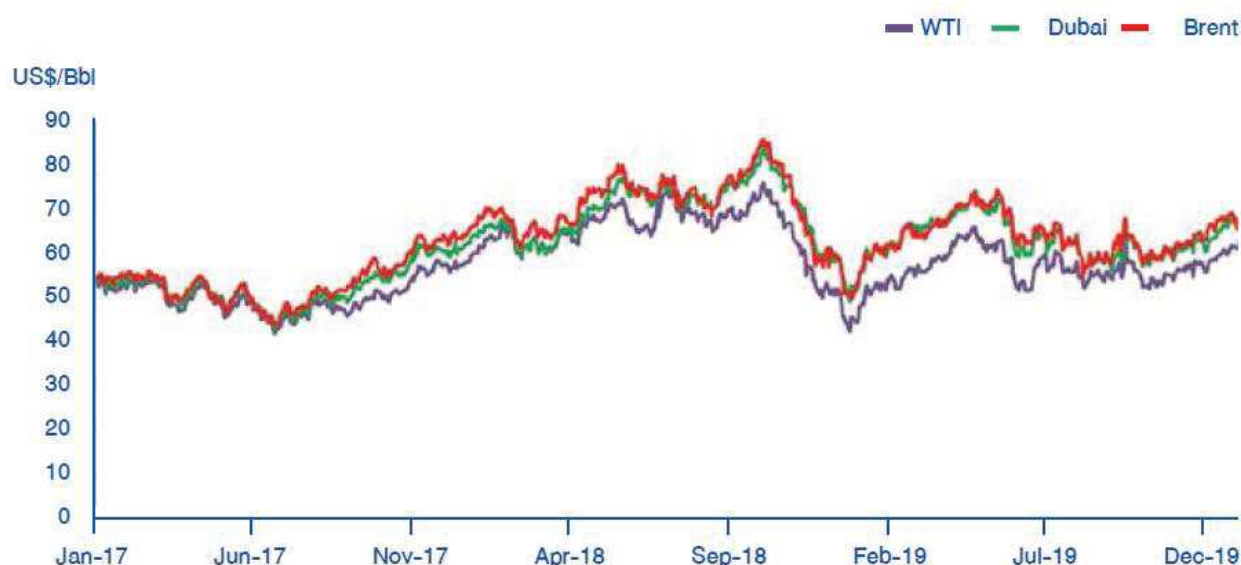
⁽¹⁾ Includes Government fuel subsidies

⁽²⁾ Includes sulfur, reformate and products sold pursuant to our cracker feed exchange with PTT Global Chemical

2.2.3 The Oil Refining Industry

2.2.3.1 Current Oil Price Environment

In 2019, crude prices were volatile with Dubai crude price moving between US\$51.85/bbl and US\$74.49/bbl. The average Dubai price in 2019 of US\$63.51/bbl was lower than 2018 average of US\$69.65/bbl, as a result from U.S. attempts to drive Iranian oil exports down to zero, OPEC supply cuts and Middle East tensions outweighed the U.S.-China trade dispute. Moreover, the attack on top oil exporter Saudi Arabia's oil facilities also threatens global oil supplies. In the fourth quarter 2019, average Dubai price was US\$62.08/bbl as freight rates to ship U.S. crude to Asia continued to surge, a possible delay in resolving the U.S.-China trade war and sharply rose in global oil inventories despite OPEC and its allies deepening their output cuts and slowing U.S. production growth. The U.S. crude oil stocks have reached low record stock levels at 430 million barrels at the end of December.



2.2.3.2 Oil Industry Outlook

The International Monetary Fund (IMF) has projected global growth at 3.3 percent for 2020 and 3.4 percent to 2021, reflecting primarily a projected improvement in economic performance in several emerging markets in Latin America, the Middle East, and emerging and developing Europe that are under macroeconomic strain. Over the medium term, growth in advanced economies is projected to remain subdued, reflecting a moderate pace of productivity growth and slow labor force growth as populations age.

For 2020, global oil demand growth forecast at 1.2 mb/d, unchanged from 2019 forecast growth. Faced with potential oversupply in early 2020, OPEC+ (a group of 24 oil producing nations, made up of the 14 members of OPEC, and 10 other non-OPEC members, including Russia) agreed to deepen existing cuts to 2.1 mb/d in 1Q20. The sharp drop in refining margins in November 2019 in all markets revealed the delicate balancing act between global crude oil and product markets.

Asian refined products demand growth is expected to weaken as the US-China trade conflict drags on, global demand remains weak and uncertainties with China's GDP growth in 2020 expected to further decelerate to 5.7%. Weak regional manufacturing activity also dragged Asian middle distillate demand growth to its slowest pace in five years but MGO demand from marine bunkers will keep the market tighter early in the year. Asian gasoline and naphtha demand growth will rise seasonally in January 2020 during the Lunar New Year period and demand for the petrochemical feedstock. Overall fuel oil (comprising of HSFO and VLSFO) demand use in the bunker sector is expected to trend lower as MGO penetration increases. Demand use in power generation is also expected to be a notch lower compared with a similar period last year owing to the restart of nuclear reactors in Japan and South Korea.

2.3 Product Supply and Service

2.3.1 Crude Oil Supply

The main feedstock used in our refinery production process is crude oil. We are capable of processing a wide range of crude oil, including crude oil from the Middle East, Far East and other regions. As our refinery has upgrading and conversion units, we are able to use a higher proportion of heavy sour crude from the Middle East, which has a higher sulfur content and is less costly than light sweet crude, to produce a product slate that matches customer demand. We use Chevron's global crude and feedstock procurement network, crude characterizations and proprietary linear program to optimize the quantity and type of crude oil and other feedstocks that serve as inputs in our refinery. This allows us to more precisely source, select and blend crude oil that enhances our gross refining margins while meeting customer demand. Our crude oil slate is determined after we decide on our product slate with input from our offtakers, based on our assessment of customer demand and projected prices for the various products that we can produce, typically around three months in advance of product sales. We input pricing and product demand information into Chevron's proprietary linear software, which takes into account our production processes and constraints, to determine the optimal blend of crude oil to purchase.

We source and purchase crude oil primarily through Chevron and PTT and their affiliates on credit terms that are in line with market practice.

2.3.2 Other Refinery Feedstocks and Raw Materials

We also purchase long residues and other feedstocks for processing in our refinery. We purchase such principal feedstock for our refinery primarily from Chevron under feedstock supply agreements. We use hydrogen to remove sulfur from our petroleum products as part of the hydrotreating process. We have entered into agreements with outside suppliers to provide supplemental hydrogen to our refinery.

2.3.3 Intermediate Products Exchange

We have entered into a cracker feed exchange with PTTGC where we supply heavy vacuum gas oil as supplemental feed to PTTGC's hydrocracker, and PTTGC supplies us with hydrocracker bottoms as a supplemental feed to the RFCCU. The objective of the exchange is to increase yields of higher value products at both our RFCCU and PTTGC's hydrocracker. Our facilities are located near to those of PTTGC's refinery, and the intermediate products exchange is accomplished through use of direct pipelines.

2.3.4 Catalysts

We use various types of catalysts in many of the major units in our refinery to facilitate reactions to improve product yields and product quality. Catalysts typically last from two to six years, depending on the type of catalyst used and the unit in which it is used. We evaluate and select catalysts based on their performance and price and the needs of our refinery. We typically purchase catalysts on a spot basis, based on technical and commercial considerations at the time. However, our Residue Fluidized Catalytic Cracker Unit requires continuous catalyst make-up, and we typically enter into term contracts for this continuous supply.

2.3.5 Flows and Storage

2.3.5.1 Crude Oil

We primarily receive crude oil shipments through a single point mooring system, that we own jointly with PTTGC, that permits us to receive shipments from very large crude carriers, or VLCCs, of up to 265,000 dwt capacity. VLCCs significantly reduce crude transportation costs from the Middle East and we also

take advantage of co-loading VLCCs with PTTGC in order to share these transportation costs. The co-loading also applies the Aframax size with other refineries to minimize freight cost when receiving crude in smaller shipment. We are also able to receive crude oil in smaller shipments through a pier in our marine terminal. This crude is delivered to storage tanks at the refinery through pipelines that connect directly to our refinery.

2.3.5.2 Product Distribution

The strategic location of our refinery in the Map Ta Phut Industrial Estate in Rayong provides us access to a convenient product delivery network that allows us to distribute our products in a cost effective manner via transmission pipelines, coastal vessels via our marine terminal, and trucks via our truck loading terminal, to Thailand's main demand clusters for petroleum products. In addition, several petrochemical companies that purchase products from our refinery are also located in the vicinity of the Map Ta Phut Industrial Estate. Our refinery is connected to the Thapline pipeline and our offtakers transport gasoline, jet fuel and diesel through it to distribution networks in the Bangkok area. We operate a booster pump, which is jointly owned with GC, to deliver products to the Thapline pipeline.

We also have a marine terminal with two piers to distribute products throughout Thailand. The main pier has five berths and is able to accommodate vessels of up to 80,000 dwt and is used for the distribution of petroleum products both domestically and to export markets as well as to receive domestic crude oil and other feedstocks. We also have a second pier that has two berths for the loading and distribution of LPG.

We also operate a truck loading terminal for our offtakers to facilitate the distribution of our petroleum products to the southeast and northeast of Thailand, within Rayong province and to the Indo-China export market, including Laos, Cambodia and Myanmar. Our truck loading terminal also contains an asphalt loading rack to distribute asphalt and we charge operating costs of the truck loading terminal to offtakers. We have installed a vapor recovery unit and bottom loading capabilities in our truck terminal to reduce VOC emissions at the terminal.

2.3.5.3 Storage

Our refinery has a total of 71 storage tanks and facilities to enable us to store feedstocks after delivery and before process, products before delivery and certain intermediate processing streams. We have an aggregate nominal crude oil storage capacity of approximately 4.9 million barrels, representing up to 29 days' supply of crude oil. Thai regulations require us to hold a legal reserve of crude oil equivalent to 6% of our annual sale of petroleum products domestically. Our product inventory increases and decreases from time to time reflecting timing of product deliveries and operational variations.

2.3.5.4 Environmental Matters

Our operations are subject to various environmental laws and regulations, including the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992), the Factory Act B.E. 2535 (1992) and Fuel Control Act B.E. 2542 (1999). In 1992, Thailand strengthened environmental laws and regulations in order to promote sustainable development and to better protect the natural environment. Environmental laws and regulations, among other matters, restrict the type, quantities and concentration of various substances that can be released into the environment. Our operations are also subject to laws and regulations relating to the generation, handling, storage and transportation of petroleum products, as well as the treatment of pollutants. These environmental laws and regulations, particularly those relating to waste management, air emissions and water discharged from our operations, affect our oil refining business. The primary governmental bodies which supervise the environmental aspect of our operations are the Office of Natural Resources and Environmental Policy and Planning under the Ministry of Natural Resources and Environment, the Pollution Control Department of the Ministry of Natural Resources and Environment, the Industrial Estate Authority of Thailand, the Industrial Works Department of the Ministry of Industry and the Department of Energy Business of the Ministry of Energy.

We have implemented various pollution control system and other environmental impact mitigation measures and monitoring program as required by applicable law, including applying advanced technologies to reduce emissions and conserve resources. Our refinery has implemented a high efficiency wastewater treatment system consisting of an oil and water separator that permits the recycling of oil, an induced air flotation unit that also improves oil and water separation, an equalization unit that mixes and controls the volume and concentration of contaminant and bio treaters that remove contaminants prior to discharging water. Our refinery has implemented solid waste management system to ensure that all types of wastes generated from SPRC sites are properly classified, handled and safely disposed of in compliance with Thai legislation and International agreements. We also applied 3Rs (Reduce, Reuse and Recycle) in the solid waste management. SPRC waste management focus to reduce or minimize the amount of waste generated and disposal in landfill by incorporating 3Rs wastes where possible, disposing the remainder in a safe and environmentally responsible and acceptable manner.

In year 2018, the government has announced the Enhancement and Conservation of National Environmental Quality Act (number 2) B.E. 2561 and Ministry of Industry has announced exception of non-hazardous waste movement permit requisition B.E. 2561

In year 2019, the government has announced the Notification of Natural Resources and Environment on EIA Monitoring Report Criteria, methodology and conditions which currently we have already complied with this regulation.

We conduct regular reviews aimed at achieving compliance with our environmental policies. We believe we are in compliance in all material respects with environmental laws and regulations applicable to us.

SPRC believes in maintaining a good balance between environmental stewardship, financial performance, and social development. We have incorporated this fundamental Sustainable Development belief into the way we do business. Several key Focus Areas for us to continuously improve our performance include Green House Gases Emissions, Air Emissions, Oil Spill Prevention and Response, Water Management and Waste Management.

3. Risk Factors

SPRC continuously improving our risk management process and embedding into our key business processes to make it as our continuous improving culture.

SPRC uses a robust work process to identify risk factors, develop risk assessments and mitigation plans to manage these risks. We attach great importance to identify risk factors from internal and external sources, which are aligned with our “Key Result Areas” KRA’s, Operation Excellence, Stakeholders and People. We utilize a risk assessment matrix (RAM) to assess and identify risks which require mitigation plans.

SPRC have the systematic monitoring mitigation plan and keep update on key risks. All risk factors and mitigation actions are reviewed quarterly with the Risk Management Committee which consists of the Chief Executive officer, the deputy Chief Executive Officer-Operation, the Supply Planning Manager and the Chief Financial Officer. We also review our risk mitigation plans and progress on mitigation plans with the Audit Committee on a quarterly basis.

In 2019, SPRC assessed for both internal and external risk factors covering with market or economic changing, digitalization, regulation changing, business competitors and operational activities. SPRC Corporate Risk are divided into five key risks and mitigation plans are developed to manage, minimize consequences of those risks and ensure that we can achieve the key result areas (KRA).

3.1 Strategic Risk

3.1.1 Refinery Competitive Position

SPRC strategy is to shut the whole facility in every 5-6 years period to do the full maintenance and inspection. This strategy supports SPRC to achieve high utilization, maximize the operational availability, and minimize the associated cost to have the units shutdown every few years. We have achieved almost 5.5 years since the last major turnaround in February 2014. This year SPRC do a major turnaround and inspection (T&I) to perform compulsory compliance inspections and equipment maintenance to make the units run reliable over the next 6 years cycle and take the opportunity to implement projects to improve safety, reliability, reduce energy consumption, enhance flexibility for optimization of crude supply, fuel oil freight optimization to minimize IMO impacts, and increase refinery capacity from 165,000 barrel/day to 175,000 barrel/day which will improve SPRC bottom line margin (BLIP) by incrementally increasing crude processing and downstream unit capacity. The material upgrading investment will support SPRC to minimize Operating Cost thru reduction of maintenance and inspection cost.

SPRC uses Solomon Associates refinery benchmarking services to help SPRC develop aspirational targets to improve our operating efficiency and competitiveness. SPRC has demonstrated sustained performance meeting our aspirational targets in utilization, efficiency and reliability, which are the first steps in being competitive. To provide continuous improvement in financial returns, SPRC has a Bottom Line Improvement Program (BLIP) which addresses margin improvement, People Efficiency & Waste Elimination (PEWE), Lean six sigma and oil loss control. We have effective work processes such as Advanced Optimization Studies (AOS) and Innovation Quests (IQ) to help identify ideas to enhance refinery optimization. SPRC also integrate sustainable development in our procedures and operational policy through management system in all area, for example, Environment, Health & Safety Management System, Hydrocarbon Management System, Asset Management System and Administration Management System to drive succession in our key result areas and be long timer competitiveness in refinery business.

SPRC has reviewed our long-term business strategy to capture and address future threat and opportunity which results from changes in energy business environment, evolving tread of the future energy by focusing on the next cycle of investment to ensure company can stay competitive and provide superior return to the shareholders.

For the future trend of digitalization, SPRC developed digitalization road map and starting implement new platform for system completion and turnover management system to support turnaround execution. Moreover, we developed application to strengthen Customer Satisfaction, increase efficiency and accuracy of product order management.

3.2 Laws and regulations relating to the environment or product specification requirements

SPRC closely monitors and follow up all information that relate with regulation or product specification changes. We have the working team to participate with the Federation of Thai Industry (FTI) where we work with other refineries to understand laws and regulations that may impact our business and advocate with the government as appropriate. This helps us develop mitigation plans to minimize potential risks from the regulations. The new regulations that relate with our business, for example, new global bunker fuel specifications from the IMO, EURO V fuels and future asphalt specifications are reviewed and assessed the economic feasibility to develop project opportunities or mitigation plans including follow up actions for each of these items to ensure these actions are completed as planned.

SPRC supplies products that meet or exceed customer requirements and expectations. We have a dedicated working team, the Crude to Customer Committee, to develop and implement effective work processes starting with crude buying and finishing with product delivery to the customers to meet both quality and quantity requirements. We have a robust work process to capture customers feedbacks and develop key supply performance indicator to ensure we meet both tangible and intangible requirements from the customers

3.3 Market risk

Refinery margins are primarily impacted by global crude and products market results from supply and demand, much of which are outside of SPRC's control. SPRC has put a focus on those areas which we can control, to improve our performance relative to the market and improve our competitiveness. As stated above, SPRC sets aspirational targets for Operational Excellence through safe and reliable operations, allowing us to maximize utilization of our assets, and maximize profit through our Bottom Line Improvement Program (BLIP). We always set challenging targets to increase our realized margin over benchmark margins, whether in a low or high margin situation, which improves SPRC's competitiveness.

3.4 Operational Risk

3.4.1 A significant interruption in the operations

SPRC has a strong "Incident and Injury Free" (IIF) culture. We commit to be incident and injury free in all our refinery's operation and cultivate IIF leadership in SPRC family, which is the key driver for our excellent safety and reliability performance. SPRC's strategic intent is to Set the Standard globally for Operation Excellence. We seek to continuously improve our performance, using benchmarking from Solomon Associates to set our targets.

SPRC continue drive an organizational efficiency through "Human performance" (HP) focus on reduce human error, the effectiveness of work process and enhance competency. This is one of the methods that support us to operate incident and injury free with the principle of the "Right Task, Right Way, Every Time". The Human Performance tool helps to identify and eliminate "error traps" from human mistakes and support our family to perform tasks in procedure or skill-based modes. Additional, SPRC develop all leaders to lead effective organization by execute leadership and competency development program to world class standard.

One of the key driver to be Operational Excellence is Process Safety Management (PSM) . SPRC has embedded process safety concepts into our Refinery Management System that consists of Hydrocarbon Management, Asset Management, Administrative Management, and Environmental, Health and Safety Management. These management systems provide policies, procedures and work instructions for all

areas of our business to ensure we operate incident and injury free. We also have V&V (verification and validation) program to strengthen PSM processes and ensure effectiveness of process safety safeguarding.

SPRC considered not only process safety but also cyber security. We performed Cyber Security assessment by 3rd party based on NIST Cyber Security Framework and develop action plans for further improvement. Moreover, we also accessed process control network (PCN) security by Chevron to ensure reliability and security of system.

SPRC also integrates Sustainable Development concepts with our “Key Result Areas” to ensure that our activities meet the expectations of all our stakeholders, including shareholders and the surrounding communities. SPRC received the CSR-DIW Continuous Award in 2019 for the 4th Consecutive Year which was granted by the Department of Industrial Works (DIW), Ministry of Industry. The CSR-DIW Continuous Award recognizes SPRC's commitment to social responsibility, quality of life of employees, communities and the environment that must grow and develop together.

3.5 Financial Risk

SPRC closely monitoring financial performance especially during volatile market. We had a low debt/equity ratio and we have effective systems in place to monitor our financial health, including cash flow projection, capital project expenditure and other activities. Our functional currency is US Dollars, as most of our revenues, costs and expense are based on US Dollars. This helps to reduce our exposure to interest rate and foreign exchange rate fluctuation.

4. Operating Asset

4.1 The Company's Major Assets

As of 31 December 2019, the company's property, plant and equipment, which the company has the right of ownership, and its net book value after accumulated depreciation as presented in the company's financial statement are as follows:

Major assets	Book value		Obligation
	US\$ million	Baht Million	
Land	73	2,228	No
Buildings	58	1,763	No
Refinery plant & machinery	2,062	62,545	No
Furniture, fixtures and equipment	74	2,241	No
Construction in progress	20	615	No
Total cost	2,288	69,391	
Less Accumulated depreciation	(1,408)	(42,705)	
Net book amount after accumulated depreciation	880	26,686	

4.1.1 Land

The company's refinery is located on its own land of approximately 1,200 rai in Map Ta Phut Industrial Estate. The company also leases certain parcels of land of approximately 109 rai for the operation relating to the refinery such as the company's product piers.

4.1.2 Refinery Plant and Machinery

The company has the right of ownership in the refinery plant and all machineries used in the company's refinery operation.

4.1.3 Detail of Insurance

The company's significant insurance policies include a "property all risks" policy, which includes coverage of material damage, machinery breakdown and business interruption for the refinery as well as the joint ownership interest in the single point mooring system. The company also carries third-party liability, marine cargo insurance and limited business interruption insurance. The company, insurance broker and shareholders review the company's insurance coverage periodically and the terms and conditions of the insurance policies are in accordance with industry norms and maintained at adequate levels.

All of the above insurance policies are subject to deductibles and are renewed annually. Some of the insurance coverage does not extend to war or acts of terrorism, among other exclusions.

4.1.4 Intangible Assets

As of 31 December 2019, the company's intangible assets and its net book value after accumulated amortization as presented in the company's financial statement are as follows:

Intangible assets	Book value	
	US\$ million	Baht Million
Computer Programs	14	423
Work in progress	0	3
Total cost	14	427
Less Accumulated amortization	(10)	(303)
Net book amount after accumulated amortization	4	124

4.1.5 Right for Use of Land in Map Ta Phut Industrial Estate and Long Term Lease

Agreement for Use of Land for industrial purpose in Map Ta Phut Industrial Estate

In 1992, the Company entered into an agreement with IEAT for the use of land for a period of 30 years from 20 November 1992 to 19 November 2022. Currently, it is approximately 34.5 rai which is used for the company's marine terminal and approximately 5 rai which is used for the product pipelines.

In addition, the Company has 2 agreements for land usage for other operations relating to IEAT

- The land for approximately 15 rai for a period from 20 November 1992 to 19 November 2022 which is used for the piperack and product pipelines, and
- Executed in 2019, the land for approximately 2.5 rai for a period from 1 January 2019 to 31 December 2021 which is used for the construction of anticorrosion system for the underground crude pipeline.

The Company has a plan to extend the agreements before they expire.

Long Term Lease

The company entered into a land lease agreement with IEAT dated 19 June 2007 for the refinery operation and power generation with an area of approximately 52 rai in IEAT area for a period of 30 years from 6 July 1995 to 5 July 2025.

4.2 Investment Policy in Subsidiaries and Associated Companies

As of 31 December 2019, the company has no investment in subsidiaries or associated companies so the company does not have an investment policy in subsidiaries and associated companies.

5. Legal disputes

As of 31 December 2019, there is no material litigation against the Company which could have a negative effect on our assets exceeding 5% of shareholder's equity. In addition, there is no lawsuit, which could have a significant effect on our business.

6. General information and other important information

6.1 General information

Name

Star Petroleum Refining Public Company Limited

Initial

SPRC

Business

Founded in 1992, SPRC is one of the leading petroleum product producers and oil refiner in Thailand and the Asia Pacific region.

SPRC owns and operates a complex refinery with a capacity of 165,000 barrels per day of crude oil. We successfully completed the capacity Expansion Project to 175,000 barrels per day during 2019 Turnaround and Event Project.

SPRC strategically located in Map Ta Phut, Thailand's premier petrochemicals hub and our key products consist of LPG, premium and regular grade of gasoline, jet fuel, diesel and fuel oil.

Our unique configuration and flexibility in production enables us to produce more gasoline compared to other Thai refineries.

Registration number

0107555000155

Address

No.1, I-3B Road, Map Ta Phut, Muang Rayong, Rayong 21150

Tel: +66 (0) 38 699 000

Fax: +66 (0) 38 699 999

Website

www.sprc.co.th

Listing Date

Trading commencement on 8 December 2015

Capital As of 31 December 2019**Registered Capital**

Baht 30,004,442,705

Comprising 4,335,902,125 fully paid-up common shares of Baht 6.92 per share

Number of Employees

503 persons (as of 31 December 2019)

Secondary Market

The Stock Exchange of Thailand (SET)

Investor Relations

Telephone number: +66 (0) 38 699 887

Web site: <http://investor.sprc.co.th>

Email: ir@sprc.co.th

Reference**Securities Registrar**

Thailand Securities Depository Co., Ltd.

93 Ratchadaphisek Road, Dindaeng, Bangkok 10400, Thailand

Tel: +66 (0) 2 009 9000,
+66 (0) 2 009 9999 (SET Contact Center)
Fax: +66 (0) 2 009 9991
Website: www.set.or.th/tsd
E-mail: SETContactCenter@set.or.th

External Auditor

PricewaterhouseCoopers ABAS Ltd.
15th Floor Bangkok City Tower, 179/74-80 South Sathorn Road, Bangkok 10120, Thailand
Tel: +66 (0) 2 844 1000
Fax: +66 (0) 2 286 5050

Other Services (Loss of Share Certificate, Change of Particulars in Securities Register, and Other Services)**Counter Service**

The Stock Exchange of Thailand Building, 1st Floor,
93 Ratchadapisek Road, Dindaeng, Bangkok 10400, Thailand
Tel : +66 (0) 2 009 9999 (SET Contact Center)

or

Office of Registration Services Thailand Securities Depository Company Limited (TSD)

The Stock Exchange of Thailand Building,
93 Ratchadapisek Road, Dindaeng, Bangkok 10400, Thailand
Tel: +66 (0) 2 009 9000,
+66 (0) 2 009 9999 (SET Contact Center)
Fax: +66 (0) 2 009 9991