STATE OF THE REGULATED PETROLEUM INDUSTRY 2019-20

Oil & Gas Regulatory Authority
Government of Pakistan


O G
R A
GUARDING PUBLIC INTEREST

Report on State of the Regulated Petroleum Industry

20 19 20


Compliance
REQUIREMENTS
RULES
ORDINANCE
STANDARDS
SAFETY
POLICY GUIDELINES
LICENCE CONDITIONS
REGULATIONS

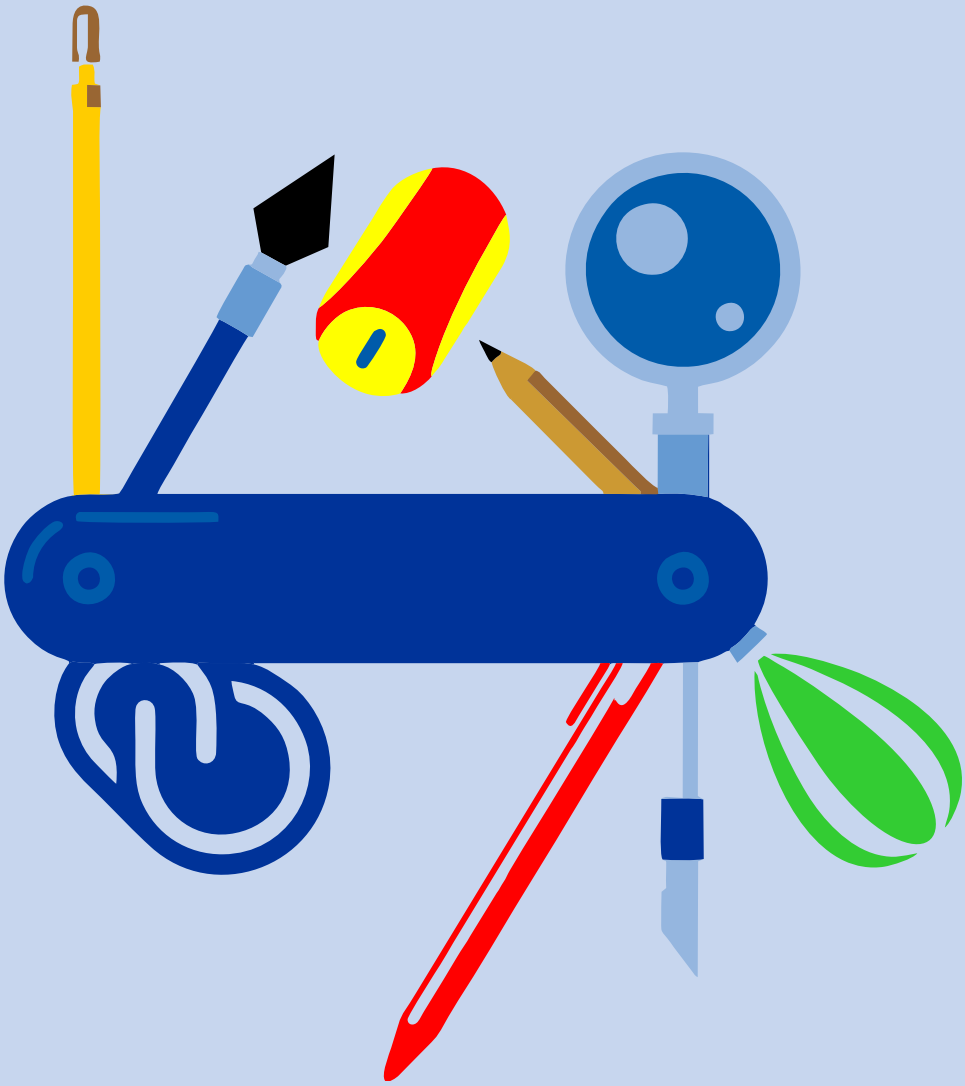
THEME

COMPLIANCE

"Compliance to regulatory framework is a process aimed at putting in place the tools and measures necessary to ensure adherence with the Ordinance, Rules, Regulations, Standards, Policy Guidelines etc. that govern the regulated activity operations of the petroleum industry. Implementation of regulatory framework necessitates monitoring with a view to providing safe, reliable and quality services to the consumers by licensees. The process involves self-regulation as well as regulatory oversight by OGRA to ensure level playing field."

MISSION STATEMENT

"Safeguarding public interest through efficient and effective regulation in the midstream and downstream petroleum sector."



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Executive Summary

Oil & Gas Regulatory Authority (OGRA) presents its "State of the Regulated Petroleum Industry" Report for fiscal year 2019-20 in pursuance of Section 20 (1) (b) of the OGRA Ordinance, 2002. OGRA was established under the OGRA Ordinance in March, 2002 with expressed objectives of fostering competition, increasing private investment and ownership in midstream and downstream petroleum sector and protecting public interest through effective and efficient regulation.

Oil

Oil Sector of Pakistan has faced major challenges due to unprecedented crisis emanating from the COVID-19. Import of crude oil and petroleum products declined by 26.42 percent and 7.60 percent to 6.77 million tons and 8.10 million tons respectively during FY 2019-20 as compared to previous year's import of 9.21 million tons and 8.77 million tons. Accordingly, Refineries' production has declined by 20.43 percent to 9.86 million tons as compared to 12.38 million tons and consumption by 11.98 percent to 17.63 million tons as compared to 20.03 million tons in FY 2018-19. PARCO holds its position at the top among all local refineries in production of petroleum products during FY 2019-20 with 29 percent share (2.85 million tons) of total production, followed by BPPL with 22 percent (2.13 million tons), ARL & NRL at 16 percent (1.56 million tons) each and PRL with 12 percent (1.21 million tons).

The product-wise production shows that HSD had the highest share of 40 percent (3.79 million tons) in total refineries production, followed by FO with over 23 percent (2.22 million tons) and MS around 21 percent (1.98 million tons) during FY 2019-20. These three POL products accounted for around 85 percent (7.99 million tons) share in total refineries' production.

The consumption of petroleum products in power sector suffered a huge decline of 43.5 percent to 1.52 million tons during FY 2019-20 as compared to 2.76 million tons during FY 2018-19 due to the shifting of power generation from Furnace Oil to RLNG, followed by Government, where consumption declined by 10 percent, transport by 5.6 percent and industry 5.5 percent.

In marketing arena, energy products have witnessed a change in the market share as compared to previous year. PSO being the major shareholder with the highest market share, gained around 3 percent (from 41 percent to 44 percent) during FY 2019-20, Hascol lost around 4 percent market share from 10 to 6 percent.

Port handing facilities for petroleum products and crude oil in the country comprises of 03 Seaports, two in Karachi i.e., Keamari (KPT) and Port Qasim (PQA) with combined operational capacity of 33 million tons per annum and third is Single Point Mooring (SPM) with installed capacity of 12 million tons per annum owned and operated by Byco. Keamari is the largest among all operating with three oil piers having combined installed capacity of 24 million tons per annum.

Natural Gas

Natural gas is a major contributing fuel in country's energy mix. The demand for natural gas particularly by Residential, Fertilizer and Power sectors has also increased over the years causing more pressure on limited indigenous gas supplies. The indigenous gas production declined by 10 percent during the year to 2,138 MMCFD from 2,379 MMCFD last year whereas gas consumption has declined by 6 percent to 3,714 MMCFD from 3,969 MMCFD during the same period. The deficit between production and consumption was partially met through RLNG import, whose share in natural gas supplies has increased from 27 percent to 29 percent during current financial year.

The country has a huge transmission network of 13,452 Km and distribution network of 177,029 Km gas pipelines providing natural gas to domestic, industrial, commercial and transport sectors. The gas utility companies expanded their transmission and distribution network to cater the demand of its new consumers. SNGPL and SSGCL have extended their transmission network by 190 Km and 72 Km respectively during FY 2019-20. Similarly, SNGPL

extended its distribution network by 5,731 Km and SSGCL by 527 Km during the same period.

SNGPL has connected 271,228 new consumers during FY 2019-20 reaching to 7.0 million total consumers on its network. Whereas SSGCL has added 95,011 new connections making a total of 3.1 million consumers on its network. Overall, there were10.12 million natural gas consumers in the country by the end of financial year 2019-20.

The main consumer of natural gas was power sector, consuming 33 percent (1,198 MMCFD), followed by domestic sector with 24 percent (888 MMCFD), fertilizer, 21 percent (779 MMCFD), General Industry, 9 percent (327 MMCFD) and captive power, 8 percent (290 MMCFD) of the total gas consumed during FY 2019-20.

The province-wise gas consumption shows that Punjab's share was 56 percent (1,471 MMCFD), Sindh 33 percent (874 MMCFD), KP, 9 percent (249 MMCFD) and Balochistan, 2 percent (48 MMCFD) of total gas consumption during the year under review.

Natural gas supply during the year was 4,052 MMCFD mainly contributed by the major gas fields i.e.Mari, Sui, Uch, Qadirpur, Kandhkot and Maramzai etc. Out of total supplies, 1,057 MMCFD of gas was supplied by the gas fields/producers directly to their consumers and the remaining through gas utility companies.

Sindh's share in gas supply was 45 percent (1,344 MMCFD), whereas KP, Balochistan and Punjab supplied 12 percent (368 MMCFD), 11 percent (335 percent) and 3 percent (91 MMCFD) respectively. The remaining 29 percent (857 MMCFD) of gas supplied was imported LNG.

The demand - supply gap during FY 2019-20 was 1,349 MMCFD, which is expected to rise to 4,229 MMCFD by FY 2030-31.

LPG

LPG share in country's primary energy supplies is around one percent. The current size of LPG market is around 1,149,352 MT/Annum which is 8.28 percent higher as compared to last year's 1,061,448 MT/Annum. Major increase in LPG consumption of around 19 percent (from 415,368 to 492,968 M. Tons) was observed in commercial sector, followed by domestic sector which increased by 6 percent (from 445,497 to 472,056 M. Tons) during FY 2019-20 as compared to FY 2018-19. LPG consumption in industrial sector declined by 8 percent (from 200,583 to 184,328 M. Tons) during the same period.

Refineries, gas producing fields and imports are three main sources of LPG supply in the Country. Refineries and gas fields production accounted for 68 percent of LPG consumption whereas the rest 32 percent was imported during FY 2019-20. LPG supplies increased by 4 percent during FY 2019-20 mainly on account of 39 percent increase (from 252,467 to 350, 096 M. Tons) in LPG imports as compared to last year. Whereas, supplies from refineries and fields declined by 20 percent (from 201,322 to 161,434 M.Tons) and 2 percent (from 607,108 to 593,061 M. Tons) respectively during the same period.

There were 11 LPG producers, 208 LPG marketing companies, having more than 7,400 authorized distributors by the end of FY 2019-20. Further, there were 22 operational LPG auto refuelling stations within the country. OGRA has also pre-qualified 56 LPG equipment manufacturing companies as authorized manufacturer of LPG equipment

LNG

Liquefied Natural Gas (LNG) is natural gas that is cooled and converted into liquid at a temperature of -162°C (−260°F) and at atmospheric pressure. Liquefaction reduces the fuel volume by about 600 times and allows it to be stored and transported in specially designed vessels.

In an effort to bridge the widening natural gas demand - supply gap in the country, the first LNG re-gasification terminal was commissioned in March 2016 and the second LNG terminal was commissioned in April 2018. GoP has mandated the state-owned companies i.e. Pakistan State Oil (PSO) and Pakistan LNG Limited (PLL) to

import LNG on behalf of the Government of Pakistan. PSO has signed a Government to Government contract with Qatar Gas for a period of 15 years whereas PLL has shorter-term LNG contracts with Gunvor and Shell. LNG imports during FY 2019-20 declined by 5 percent quantum-wise to 857 MMCFD from 901 MMCFD in FY 2018-19, but its share in overall natural gas supplies has increased from 27 percent last year to 29 percent currently.

CNG

OGRA has played a vital role in the promotion of CNG in transport sector and setting of higher standards for safe operation of CNG Stations. The use of CNG as an alternate fuel in transport sector has helped in reducing the air pollution to a considerable extent which also includes excessive suspended particulate matter (SPM) emitted from the public transport as well as private vehicles. Natural gas consumption in transport sector has gradually declined over the years due to dwindling indigenous gas production. During FY 2019-20, natural gas consumption in transport sector has declined from 178 MMCFD in FY 2018-19 to 127 MMCFD in FY 2019-20.

OGRA has always given priority to safety and quality with regard to certification of local and foreign CNG equipment. Further, in order to promote indigenous production of CNG equipment, the Authority has granted permission for manufacturing/ assembling of CNG Compressor, Dispenser and conversion kits for vehicles subject to conformity of the laid down international technical standards.

ایگزیکٹوسمری

آئل اینڈ گیس ریگولیٹری اتھارٹی (اوگرا)، اوگرا آرڈیننس 2002 کے سیکشن (b)(1)20 کے تحت مالی سال 20-2019 کیلئے اپنی ''سٹیٹ آف دی ریگولیٹڈ پٹرولیم انڈسٹری'' رپورٹ پیش کرتی ہے۔ اوگرا کا قیام مارچ 2002 میں اوگرا آرڈیننس کے تحت لایا گیا تھا جس کا مقصد پٹرولیم کے شعبے میں مسابقت اور نجی شعبے کی سرمایہ کاری کا فروغ اور موثر ریگولیشن کے ذریعے مفاد عامہ کی حفاظت ہے۔

آئل

پاکستان میں تیل کے شعبے کو کورونا وائرس کی عالمی وباء کے سبب غیر معمولی مسائل کا سامنا رہا ہے۔ مالی سال 20-2019 میں خام تیل اور دیگر پٹرولیم مصنوعات کی درآمدات 26.42 فیصد اور 7.60 فیصد کی کمی سے 6.77 ملین ٹن اور 8.10 ملین ٹن بالترتیب رہیں جبکہ گزشتہ سال میں یہی درآمدات 9.12 ملین ٹن اور 8.77 ملین ٹن تھیں۔ لہذا، ریفائنریوں کی پیداوار 20.43 فیصد کی کمی سے گزشتہ مالی سال 19-2018 میں 12.38 ملین ٹن کے مقابلے میں 9.86 ملین ٹن رہی اور کھپت 11.98 فیصد کمی سے گزشتہ سال 20.03 ملین ٹن کے مقابلے میں 17.63 ملین ٹن رہی۔ مالی سال 20-2019 میں مقامی ریفائنریوں میں سب سے زیادہ پیداوار پارکو کی رہی جس کی پیداوار مجموعی پیداوار کا 29 فیصد (2.85 ملین ٹن) تھا اسکے بعد بی پی پی ایل کی پیداوار 22 فیصد کے ساتھ (2.13 ملین ٹن)، اے آر ایل اور این آر ایل دونوں میں ہر ایک 16 فیصد (1.56 ملین ٹن) اور پی آر ایل کی پیداوار 12 فیصد (1.21 ملین ٹن) تھی۔

مالی سال 20-2019 میں ریفائنریوں کی پیداوار میں مصنوعات کے اعتبار سے ہائی سپیڈ ڈیزل کا تناسب 40 فیصد (3.79 ملین ٹن) کے ساتھ سب سے زیادہ تھا اسکے بعد ایف او 23 فیصد سے زائد کے ساتھ (2.22 ملین ٹن) اور ایم ایس تقریباً 21 فیصد کے ساتھ (1.98 ملین ٹن) تھے۔ یہ تینوں پٹرولیم، آئل اور لبریکنٹس کی مصنوعات ریفائنریوں کی مجموعی پیداوار کا 85 فیصد (7.99 ملین ٹن) رہیں۔

مالی سال 20-2019 میں توانائی کے شعبے میں پٹرولیم مصنوعات کی کھپت میں واضح کمی واقع ہوئی۔ توانائی کے شعبے میں پٹرولیم مصنوعات کی کھپت 43.5 فیصد کمی سے 1.52 ملین ٹن رہی جو گزشتہ سال یعنی 19-2018 میں 2.76 ملین ٹن تھی۔ اسکی ایک بڑی وجہ حکومت کا توانائی کی پیداوار کو فرنس آئل سے آر ایل این جی پر منتقل کرنا ہے اور حکومت کی کھپت میں 10 فیصد کمی ہوئی، ٹرانسپورٹ کے شعبے میں 5.6 فیصد اور صنعت کے شعبے میں 5.5 فیصد کمی واقع ہوئی۔

مارکیٹنگ کے شعبے میں پٹرولیم کی مصنوعات کے تناسب میں گزشتہ سال کے مقابلے میں تبدیلی واقع ہوئی۔ مالی سال 20-2019 میں پی ایس او مارکیٹ کا سب سے بڑا شیئر ہولڈر تھا جس کے شیئرز میں 3 فیصد اضافہ ہوا (41 فیصد سے 44 فیصد) جبکہ ہسکول کے مارکیٹ شیئر میں 4 فیصد کمی واقع ہوئی (10 فیصد سے 6 فیصد)

ملک میں پٹرولیم مصنوعات اور خام تیل کے انتظام کی حامل تین بندرگاہیں ہیں جن میں دو کراچی میں یعنی کیماڑی اور پورٹ قاسم ہیں جن کی مشترکہ آپریشنل صلاحیت 33 ملین ٹن سالانہ ہے اور تیسری بائیکو کی ملکیتی اور زیر انتظام 12 ملین ٹن صلاحیت کی حامل سنگل پوائنٹ مورنگ ہے۔ کیماڑی تین پشتوں کے ساتھ 24 ملین ٹن سالانہ کھپت کے ساتھ سب سے بڑی آپریشنل بندرگاہ ہے۔

قدرتی گیس

قدرتی گیس ملک کی توانائی کی ضروریات پوری کرنے میں انتہائی اہمیت کی حامل ہے۔ گزشتہ کچھ عرصے میں گھریلو صارفین، کھاد بنانے والی کمپنیوں اور بجلی کے شعبے کی جانب سے قدرتی گیس کی مانگ میں خاطر خواہ اضافہ ہوا ہے جس کی بدولت گیس کی مقامی رسد کو کافی دباؤ کا سامنا ہے۔ گیس کی مقامی پیداوار 10 فیصد کمی سے 2,138 ایم سی ایف ڈی رہی جو گزشتہ سال 2,379 ایم سی ایف ڈی تھی جبکہ اسی عرصے میں گیس کی کھپت 6 فیصد کمی سے 3,714 ایم سی ایف ڈی رہی جو گزشتہ سال 3,969 ایم سی ایف ڈی تھی۔ گیس کی پیداوار اور کھپت میں فرق کو آر ایل این جی کی درآمد سے پورا کیا گیا جس کا موجودہ مالی سال میں قدرتی گیس میں شیئر 27 فیصد سے بڑھ کر 29 فیصد ہو گیا ہے۔

ملک میں گیس کی ترسیل کا 13,452 کلومیٹر اور تقسیم کا 177,029 کلومیٹر پر محیط گیس پائپ لائنز کا وسیع نیٹ ورک ہے جس کے ذریعے سے گھریلو، صنعتی، تجارتی اور نقل و حمل کے شعبے کو قدرتی گیس فراہم کی جا رہی ہے۔ گیس یوٹیلیٹی کمپنیوں نے گیس کے نئے صارفین کی مانگ کو پورا کرنے کیلئے اپنے ترسیل اور تقسیم کے نیٹ ورک کو پھیلایا ہے۔ ایس این جی پی ایل اور ایس ایس جی سی ایل نے مالی سال 20-2019 کے دوران اپنے ترسیلی نیٹ ورک میں 190 کلومیٹر اور 72 کلومیٹر کا بالترتیب اضافہ کیا ہے۔ اسی طرح، اسی مدت کے دوران ایس این جی پی ایل نے اپنے ڈسٹری بیوشن نیٹ ورک میں 5,731 کلومیٹر اور ایس ایس جی سی ایل نے 527 کلو میٹر کا اضافہ کیا ہے۔

مالی سال 20-2019 میں ایس این جی پی ایل کے صارفین میں 271,228 نئے صارفین کا اضافہ ہوا ہے جس سے اس کے کل صارفین کی تعداد 70 لاکھ ہو گئی ہے۔ جبکہ ایس ایس جی سی ایل کے صارفین میں 95,011 نئے صارفین کا اضافہ ہوا ہے جس کے بعد اس کے مجموعی صارفین کی تعداد 31 لاکھ ہو گئی ہے۔ ملک بھر میں مالی سال 20-2019 کے اختتام تک قدرتی گیس کے مجموعی صارفین کی تعداد 1 کروڑ 12 لاکھ ہے۔

مالی سال 2019-20 میں قدرتی گیس کا مرکزی صارف توانائی کا شعبہ رہا ہے جس نے مجموعی کھپت کا 33 فیصد (1,198 ایم ایم سی ایف ڈی) استعمال کیا ہے اسکے بعد گھریلو صارفین 24 فیصد (888 ایم ایم سی ایف ڈی) کھاد کا شعبہ (779 ایم ایم سی ایف ڈی)، مجموعی صنعت 9 فیصد (327 ایم ایم سی ایف ڈی) اور کیپٹو پاور نے 8 فیصد (290 ایم ایم سی ایف ڈی) قدرتی گیس استعمال کی ہے۔

زیر جائزہ سال کے دوران گیس کی مجموعی کھپت کا 56 فیصد (1,471 ایم ایم سی ایف ڈی) پنجاب، 33 فیصد (874 ایم ایم سی ایف ڈی) سندھ، 9 فیصد (249 ایم ایم سی ایف ڈی) خیبر پختونخوا اور 2 فیصد (48 ایم ایم سی ایف ڈی) بلوچستان نے استعمال کیا ہے۔

زیر جائزہ سال کے دوران گیس کی ترسیل 4,052 ایم ایم سی ایف ڈی رہی جس میں زیادہ تر ترسیل ماری، سوئی، اوچ، قادر پور اور مرمزئی گیس فیلڈز وغیرہ سے ہوئی۔ مجموعی ترسیل میں سے 1,057 ایم ایم سی ایف ڈی گیس، گیس فیلڈز/ پروڈیوسرز نے براہ راست اپنے صارفین کو ترسیل کی جبکہ بقیہ گیس یوٹیلیٹی کمپنیز کی جانب سے ترسیل کی گئی۔

گیس کی ترسیل میں 45 فیصد (1,344 ایم ایم سی ایف ڈی) سندھ کا حصہ ہے جبکہ خیبر پختونخوا، بلوچستان اور پنجاب کا 12 فیصد (268 ایم ایم سی ایف ڈی) 11 فیصد (335 ایم ایم سی ایف ڈی) اور 3 فیصد (91 ایم ایم سی ایف ڈی) بالترتیب حصہ ہے۔ بقیہ 29 فیصد (857 ایم ایم سی ایف ڈی) گیس کی طلب درآمد شدہ ایل این جی کے ذریعے پوری کی جاتی ہے۔
سال 2019-20 میں طلب اور رسد کا خلا (1,349 ایم ایم سی ایف ڈی) تھا جب کہ مالی سال 31-2030 میں خلا (4,229 ایم ایم سی ایف ڈی) تک پہنچ جانے کی توقع ہے۔

ایل پی جی

ملکی توانائی میں ایل پی جی کا حصہ 1 فیصد ہے۔ ایل پی جی مارکیٹ کا اس وقت حجم 1,149,352 میٹرک ٹن سالانہ ہے جو گزشتہ سال 1,061,448 میٹرک ٹن سالانہ کے مقابلے میں 828 فیصد زیادہ ہے۔ مالی سال 20-2019 میں مالی سال 19-2018 کے مقابلے میں ایل پی جی کی کھپت میں زیادہ تر اضافہ تقریباً 19 فیصد (415,368 میٹرک ٹن سے 492,968 میٹرک ٹن) تجارتی شعبے میں دیکھنے میں آیا اسکے بعد گھریلو صارفین میں 6 فیصد (445,497 سے 472,056 میٹرک ٹن) اضافہ ہوا۔ اسی مدت کے دوران صنعتی شعبے میں ایل پی جی کی کھپت میں 8 فیصد (200,583 سے 184,328 میٹرک ٹن) کمی واقع ہوئی۔

ملک میں ایل پی جی فراہمی کا ریفائنریز، گیس پیداواری فیلڈز اور درآمدات بڑے ذرائع ہیں۔ مالی سال 20-2019 کے دوران ایل پی جی کھپت کا 68 فیصد ریفائنریوں اور گیس فیلڈز سے پورا کیا گیا جبکہ 32 فیصد درآمد کی گئی۔ مالی سال 20-2019 میں ایل پی جی کی ترسیل میں 4 فیصد اضافہ ہوا جس کی بنیادی وجہ ایل پی جی کی درآمد میں گزشتہ سال کے مقابلے میں 39 فیصد (252,467 سے 350,096 میٹرک ٹن) اضافہ ہے۔ جبکہ اسی مدت میں ریفائنریوں اور گیس فیلڈز سے 20 فیصد (201,322 سے 161,434 میٹرک ٹن) اور 2 فیصد (607,108 سے 593,061 میٹرک ٹن) بالترتیب کمی واقع ہوئی۔

مالی سال 20-2019 کے اختتام تک ملک میں 11 ایل پی جی پروڈیوسرز، 208 ایل پی جی مارکیٹنگ کمپنیاں مع 7,400 سے زائد ڈسٹری بیوٹرز تھے۔ مزید کہ، ملک میں 22 اپریشنل ایل پی جی آٹوری فیولنگ سٹیشنز تھے۔ اوگرا نے 56 ایل پی جی ایکوپمنٹ مینوفیکچرنگ کمپنیوں کو ایل پی جی ایکوپمنٹ کا مجاز مینوفیکچرر کے طور پر پری کوالیفائیڈ کیا ہے۔

ایل این جی

ایل این جی ایسی قدرتی گیس ہے جسے منفی 162 ڈگری سینٹی گریڈ (منفی 260 فارن ہائیٹ) اور فضائی دباؤ پر ٹھنڈا کیا جاتا ہے اور مائع حالت میں تبدیل کیا جاتا ہے۔ مائع حالت کی وجہ سے اسکے فیول حجم میں تقریباً 600 گنا تک کمی ہوتی ہے جس کی وجہ سے اسے سٹور کیا جاسکتا ہے خصوصی ویسلز میں اسکی ترسیل کی جاسکتی ہے۔

ملک میں قدرتی گیس کی طلب و رسد کے بڑھتے ہوئے خلاء کو پُر کرنے کیلئے پہلا ایل این جی ری گیسیفکیشن ٹرمینل مارچ 2016 میں اور دوسرا ایل این جی ٹرمینل اپریل 2018 میں قائم کیا گیا۔ حکومت پاکستان نے سرکاری کمپنیوں یعنی پاکستان سٹیٹ آئل (پی ایس او) اور پاکستان ایل این جی لمیٹڈ (پی ایل ایل) کو اختیار دیا ہے کہ وہ حکومت پاکستان کی جانب سے ایل این جی کی درآمد کرسکیں۔ پی ایس او نے ایل این جی کی درآمد کیلئے سرکاری سطح پر قطر گیس کے ساتھ 15 سال کیلئے معاہدہ کر رکھا ہے جبکہ پی ایل ایل نے ایل این جی کے لئے مختصر مدت کیلئے شیل اور گنور کے ساتھ معاہدہ کر رکھا ہے۔ مالی سال 20-2019 کے دوران ایل این جی کی درآمد 5 فیصد کمی کے ساتھ 857 ایم ایم سی ایف ڈی رہی جو مالی سال 19-2018 میں 901 ایم ایم سی ایف ڈی تھی، لیکن قدرتی گیس کی مجموعی ترسیل میں اس کا حصہ گزشتہ سال 27 فیصد سے بڑھ کر 29 فیصد ہوگیا ہے۔

سی این جی

اوگرا نے ٹرانسپورٹ کے شعبے میں سی این جی کے استعمال کو نہ صرف فروغ دیا ہے بلکہ سی این جی سٹیشنز کے اپریشنز میں حفاظت کے اعلیٰ معیار کو بھی یقینی بنایا ہے۔ ٹرانسپورٹ کے شعبے میں سی این جی کے متبادل ایندھن کے طور پر استعمال سے فضائی آلودگی میں خاطر خواہ کمی واقع ہوئی ہے۔ ٹرانسپورٹ کے شعبے میں قدرتی گیس کی کھپت میں گزشتہ کچھ عرصے کے دوران کمی واقع ہوئی ہے جس کی بنیادی وجہ گیس کے مقامی وسائل میں کمی ہے۔ مالی سال 20-2019 کے دوران ٹرانسپورٹ کے شعبے میں قدرتی گیس کی کھپت میں 178 ایم ایم سی ایف ڈی سے 127 ایم ایم سی ایف ڈی کی واقع ہوئی ہے۔

اوگرا نے مقامی اور بین الاقوامی سی این جی ایکوپمنٹ سے متعلق حفاظت اور معیار کو ہمیشہ ترجیح دی ہے۔ ملک میں سی این جی ایکوپمنٹ کی مقامی طور پر تیاری کیلئے اوگرا نے گاڑیوں کے سی این جی کمپریسر، ڈسپنسر اور کنورژن کٹس کی بین الاقوامی ٹیکنیکل معیار کو مدنظر رکھتے ہوئے مینوفیکچرنگ/ اسمبلنگ کی اجازت دی ہے۔


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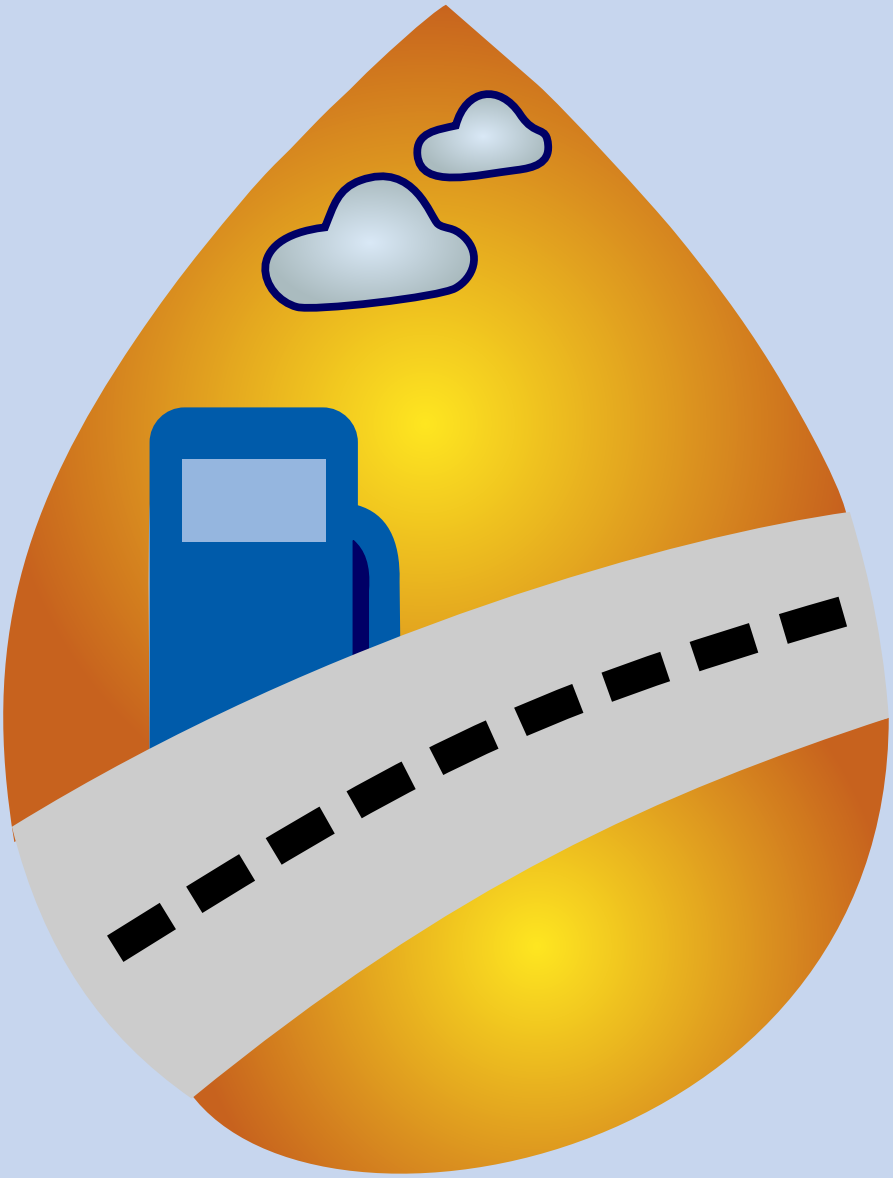


OIL

2. Oil Sector

2.1 Sectoral Consumption of Petroleum Products

The consumption of petroleum products (both energy and non-energy) declined by 11.98 percent to 17.63 million tons during FY 2019-20 as compared to previous year's consumption of 20.03 million tons **(Table 2.1**).

Table 2.1: Sectoral Consumption of Petroleum Products

(Million Tons)

Sector	MS + HOBC + 100 LL	High Speed Diesel	Kerosene	Aviation Fuel	Furnace Oil	Light Diesel Oil	Total Energy	Total Non Energy	Grand Total
Transport	7.48	6.09	0.00	0.29	0.00	-	13.86	0.13	**13.99**
Power	-	0.01	-	-	1.51	-	1.53	0.00	**1.53**
Industry	0.02	0.38	0.01	-	0.82	0.00	1.22	0.11	**1.34**
Government	0.02	0.15	0.04	0.17	0.00	0.00	0.37	0.07	**0.44**
Domestic	-	-	0.05	-	0.00	-	0.05	0.00	**0.05**
Agriculture	-	-	-	-	-	0.01	0.01	-	**0.01**
Overseas/Export	-	0.01	-	0.24	0.03	-	0.28	-	**0.28**
Total FY 2019-20	**7.51**	**6.63**	**0.09**	**0.70**	**2.37**	**0.02**	**17.32**	**0.31**	**17.63**
Total FY 2018-19	**7.69**	**7.36**	**0.10**	**0.98**	**3.54**	**0.03**	**19.69**	**0.35**	**20.03**
Growth (%)	**(2.30)**	**(9.89)**	**(13.51)**	**(28.36)**	**(33.03)**	**(22.26)**	**(12.03)**	**(8.92)**	**(11.98)**

(Source: OCAC)

The consumption of petroleum products in power sector has suffered a huge decline of 43.5 percent to 1.53 million tons during FY 2019-20 as compared to 2.76 million tons during FY 2018-19, followed by Government where consumption declined by 10 percent, 5.6 percent in transport and 5.5 percent in industrial sector. Product wise analysis reveals that consumption of Furnace Oil (FO) decreased by 33.18 percent, HSD 9.89 percent, Aviation Fuel 17.47 percent, and Kerosene by 13.51 percent in FY 2019-20 as compared to last year. **Fig 2.1** illustrates the sector-wise consumption of petroleum products, in FY 2019-20 and **Fig 2.2** shows sectoral consumption over the past five years.

Fig 2.1: Sectoral Share in Consumption of Petroleum Products during 2019-20

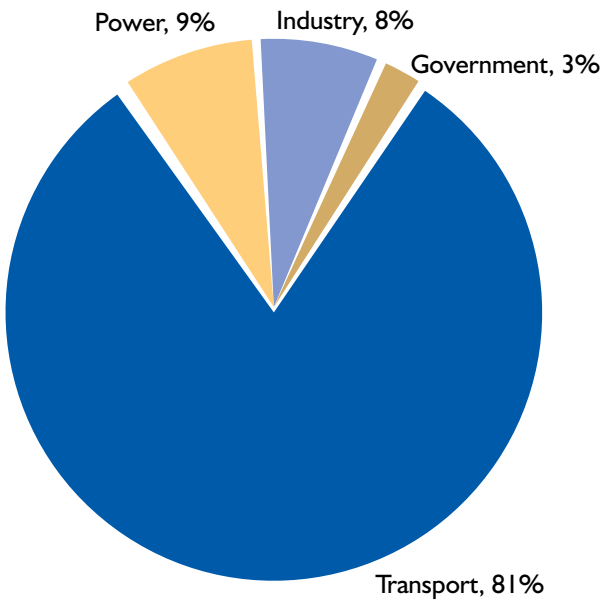


Fig 2.2: Sectoral Consumption of Petroleum Products

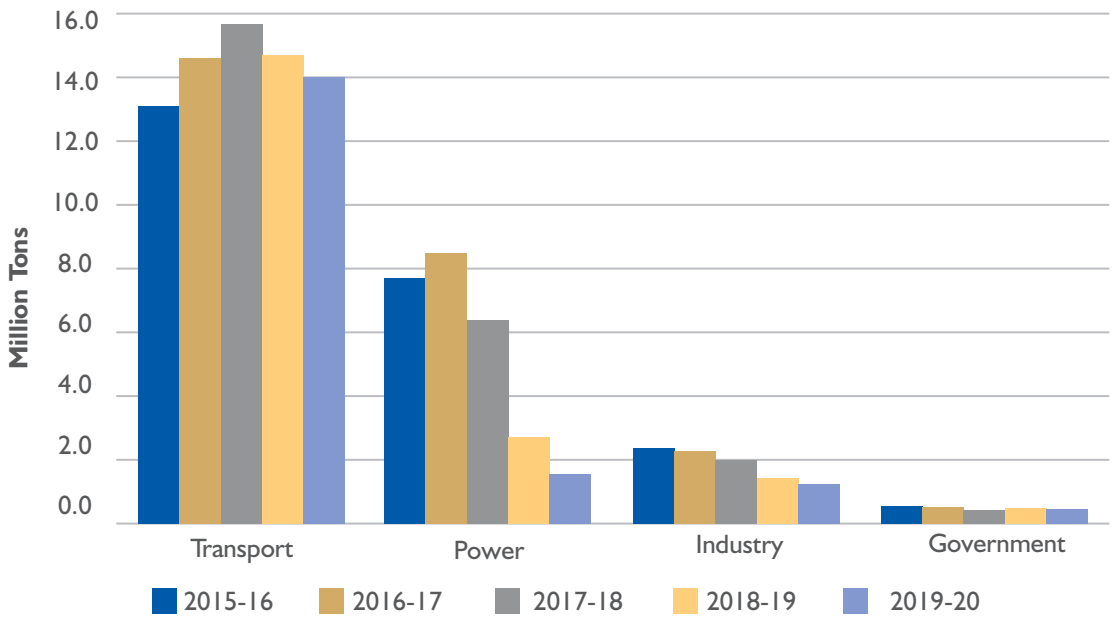
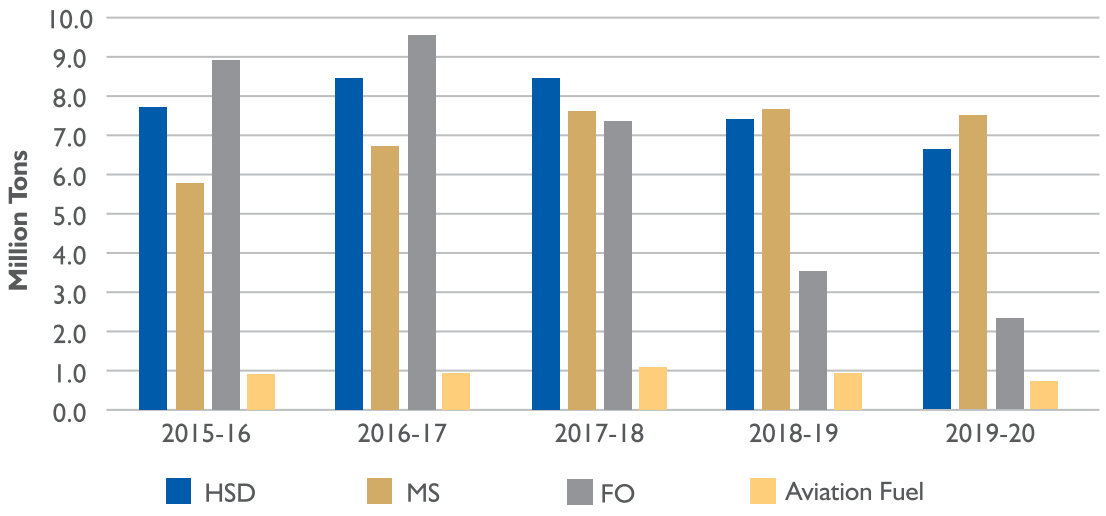


Fig 2.3 shows the consumption trend of various major POL products i.e. Motor Spirit, High Speed Diesel, Furnace Oil and Aviation Fuel. MS consumption indicates a slight decrease during FY 2019-20 in comparison to last year. Further, consumption of HSD and FO also declined during FY 2019-20 as compared to FY 2018-19. Jet Fuel shows slight decrease in consumption during the same period.

Fig 2.3: Consumption of Petroleum Products



(Source: OCAC)

2.2 Market Share

Table 2.2 gives the detail of product-wise sales by OMCs for energy products, wherein PSO is at top for all products except 100 LL, followed by mixed leads by OMCs in various POL products.

Table 2.2: Product-wise Sales by OMCs during FY 2019-20

(Million Tons)

Product	PSO	TPPL	APL	SPL	GO	Hascol	BPPL	BEE	Others	Total
MS	2.89	0.99	0.67	0.83	0.69	0.54	0.26	0.19	0.40	**7.45**
HOBC (95/97 RON)	0.02	0.01	0.00	0.01	0.00	0.00	-	-	0.00	**0.06**
HSD	3.04	0.68	0.64	0.46	0.57	0.48	0.35	0.18	0.24	**6.63**
FO	1.09	0.09	0.42	0.00	-	0.07	0.42	0.04	0.23	**2.37**
JP-1	0.52	-	0.01	0.02	-	-	-	-	0.00	**0.55**
Kerosene	0.06	0.01	0.02	-	-	-	0.00	-	-	**0.09**
LDO	0.01	0.00	0.01	-	-	-	0.00	-	0.00	**0.02**
100 LL	-	-	-	-	-	-	-	-	0.00	**0.00**
Total	**7.62**	**1.78**	**1.76**	**1.33**	**1.26**	**1.09**	**1.03**	**0.41**	**0.88**	**17.17**

(Source: OCAC)

The market share of PSO remained at the top, as usual, with 44.4 percent of the total energy supply (**Fig 2.4**). It was followed by TPPL with 10.4 percent, APL, 10.3 percent, SPL, 7.7 percent & GO, 7.4 percent. **Figs 2.5** and **2.6** show the market share of PSO and other OMCs respectively in energy product.

Fig 2.4: OMCs' Market Share During FY 2019-20

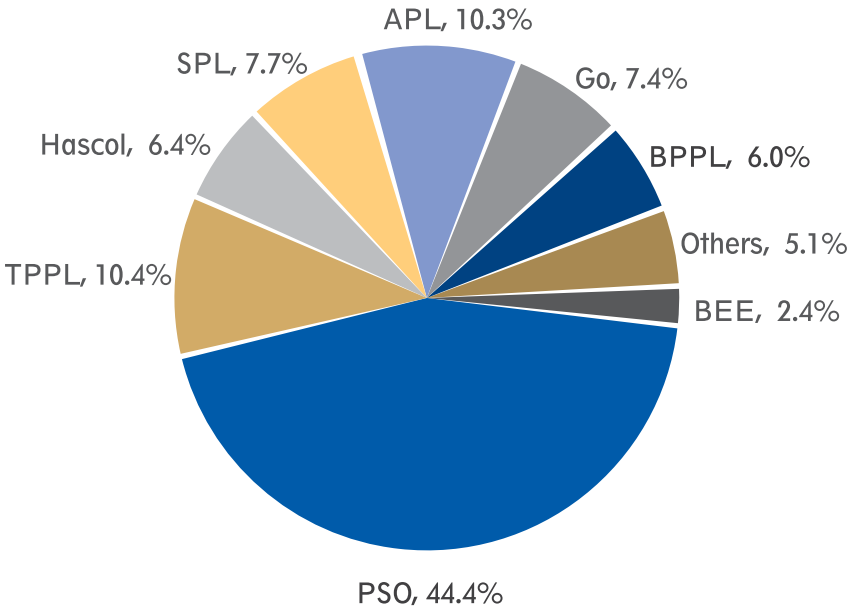


Fig 2.5: PSO's Market Share in Energy Products Over the Years

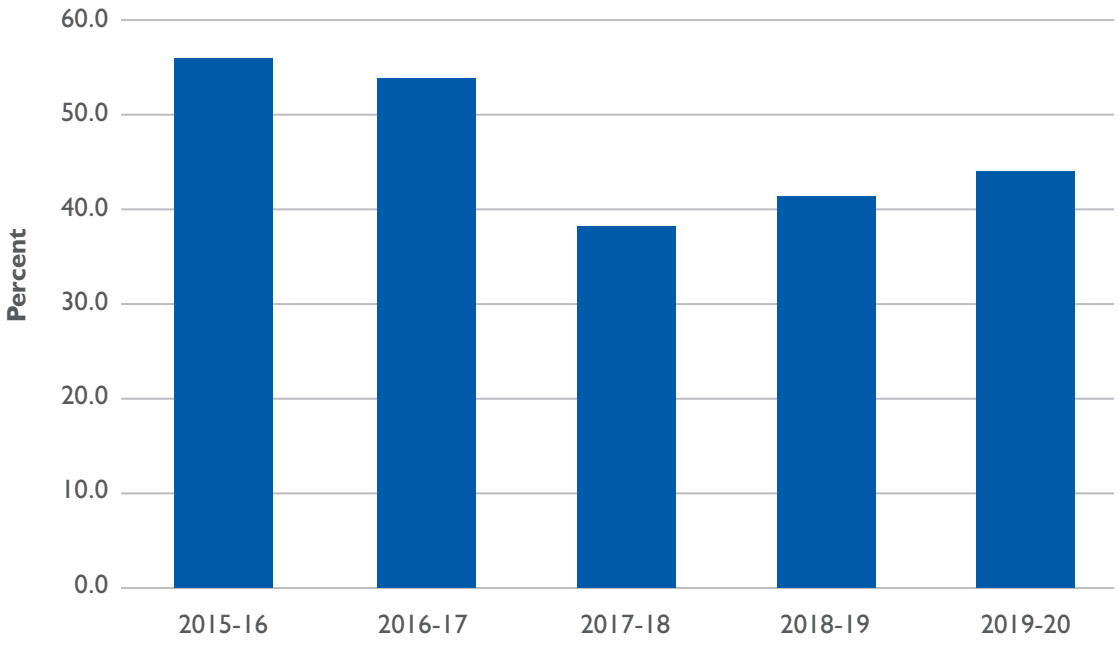
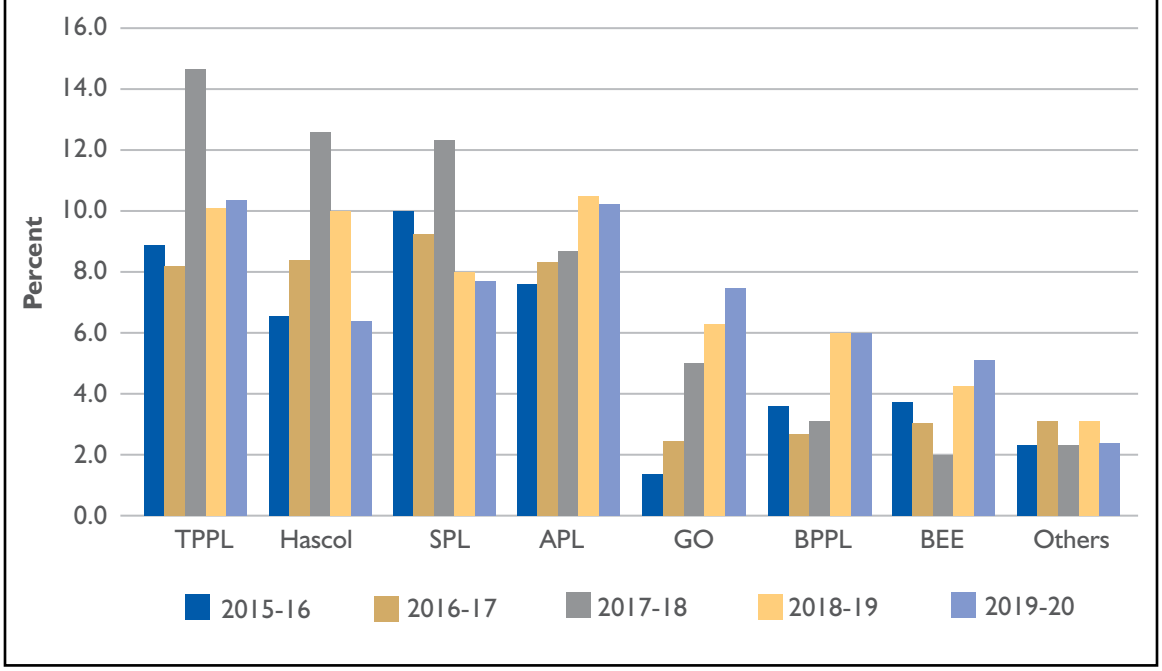


Fig 2.6: OMCs' Market Share in Energy Products



(Source: OCAC)

2.3 Refineries' Production

Refineries' total production (energy & non-energy) has declined by 20.4 percent to 9.85 million tons during FY 2019-20 as compared to 12.4 million tons in FY 2018-19 as given in **Table 2.3**. The refineries' share in production during FY 2019-20 has been shown in **Fig 2.7** and the same over the years in **Fig 2.8**.

Table 2.3: Refineries' Production & Growth during FY 2019-20

(Million Tons)

Refinery	Energy Products	Non-Energy Products	Total (2019-20)	Total (2018-19)	% Growth / (Decline)
PARCO	2.79	0.07	**2.85**	**3.78**	**(24.5)**
NRL	1.33	0.23	**1.56**	**2.04**	**(23.5)**
PRL	1.21	0.00	**1.21**	**1.50**	**(19.7)**
ARL	1.50	0.06	**1.56**	**2.14**	**(26.8)**
BPPL	2.10	0.02	**2.13**	**2.33**	**(8.7)**
ENAR	0.27	0.00	**0.27**	**0.31**	**(12.3)**
Dhodak	0.26	0.02	**0.27**	**0.29**	**(5.4)**
Total	**9.45**	**0.41**	**9.85**	**12.39**	**(20.43)**

(Source: OCAC)

PARCO was the major contributor in POL production with 29 percent share followed by BPPL with 22 percent, ARL and NRL with 16 percent each during FY 2019-20.

Fig 2.7: Refineries' Share in Production during FY 2019-20

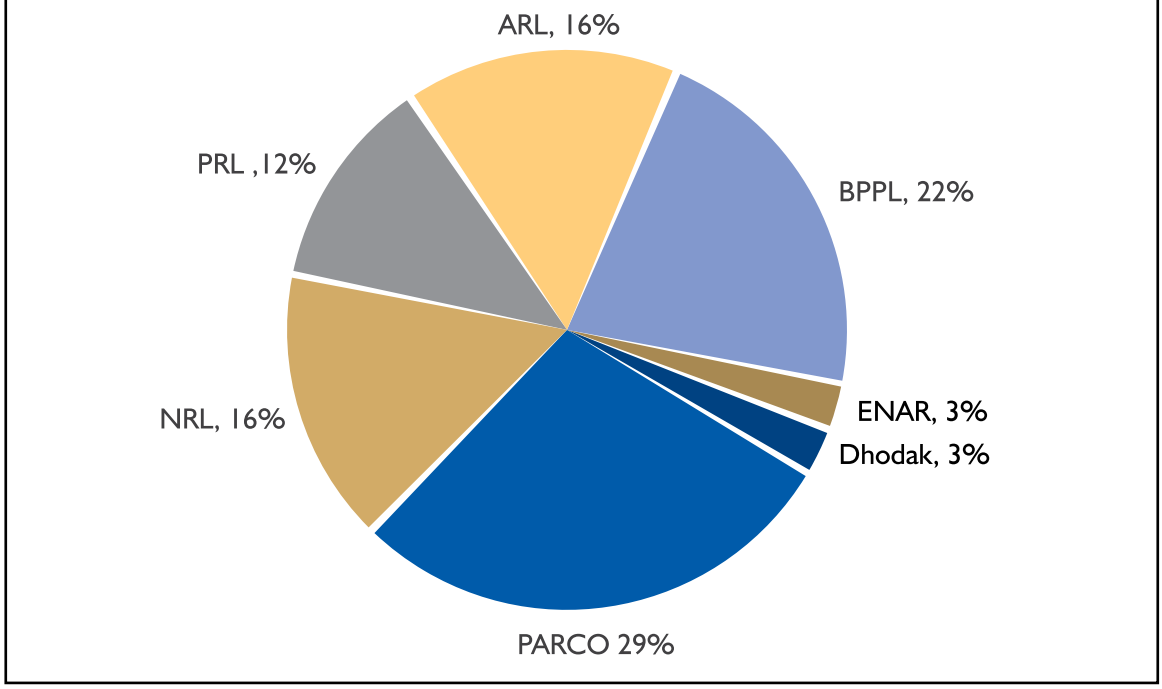
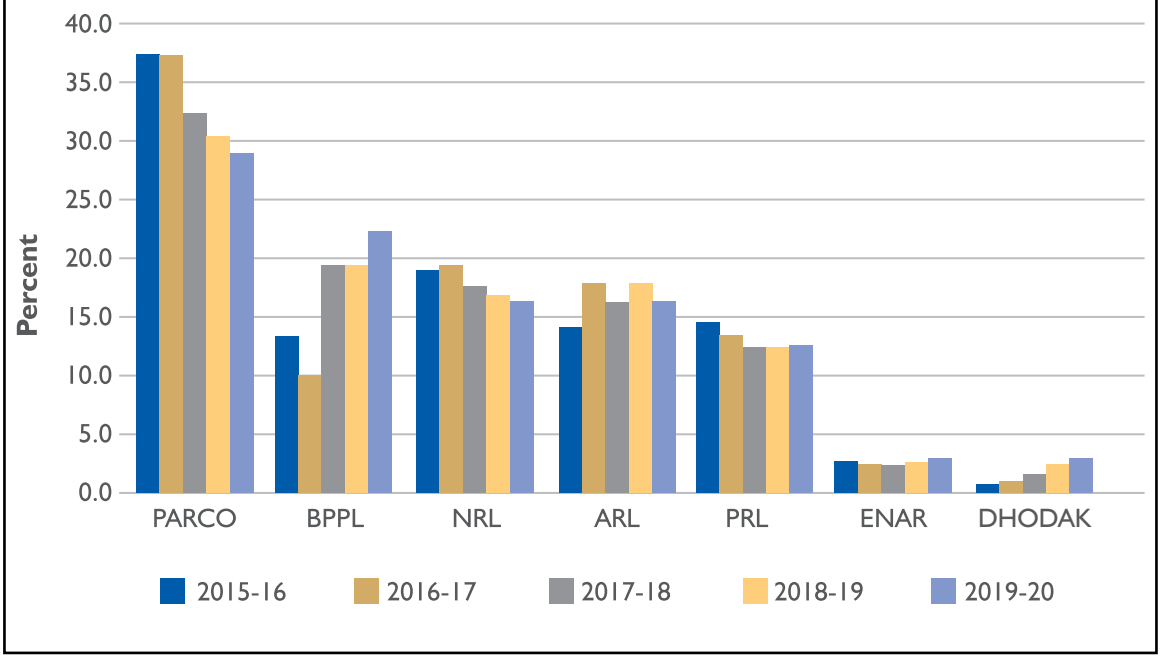


Fig 2.8: Refineries' Share in Production Over the Years



(Source: OCAC)

Table 2.4 gives the detail of the production of energy products by refineries which reveals that PARCO is at top for all products except naphtha. **Figs 2.9** and **2.10** show production trend and share in production respectively over the years.

Table 2.4: Product-wise Production during FY 2019-20

(Million Tons)

Product	PARCO	BPPL	ARL	NRL	PRL	ENAR	Dhodak	Total
Aviation Fuel	0.25	0.01	0.14	0.08	0.07	0.02	0.00	**0.56**
Furnace Oil	0.53	0.69	0.30	0.30	0.32	0.09	0.00	**2.22**
HSD	1.22	0.90	0.48	0.63	0.51	0.05	0.00	**3.79**
Kerosene	0.02	0.00	0.04	0.00	0.01	0.01	0.00	**0.08**
LDO	0.01	0.01	0.01	0.00	0.00	0.00	0.00	**0.02**
LPG	0.09	0.04	0.00	0.01	0.02	0.00	0.26	**0.41**
MS	0.66	0.40	0.49	0.20	0.22	0.00	0.00	**1.97**
Naphtha	0.00	0.07	0.04	0.11	0.06	0.11	0.00	**0.38**
Total	**2.79**	**2.10**	**1.50**	**1.33**	**1.20**	**0.27**	**0.26**	**9.45**

(Source: OCAC)

Fig 2.9: Product-wise Production by Refineries

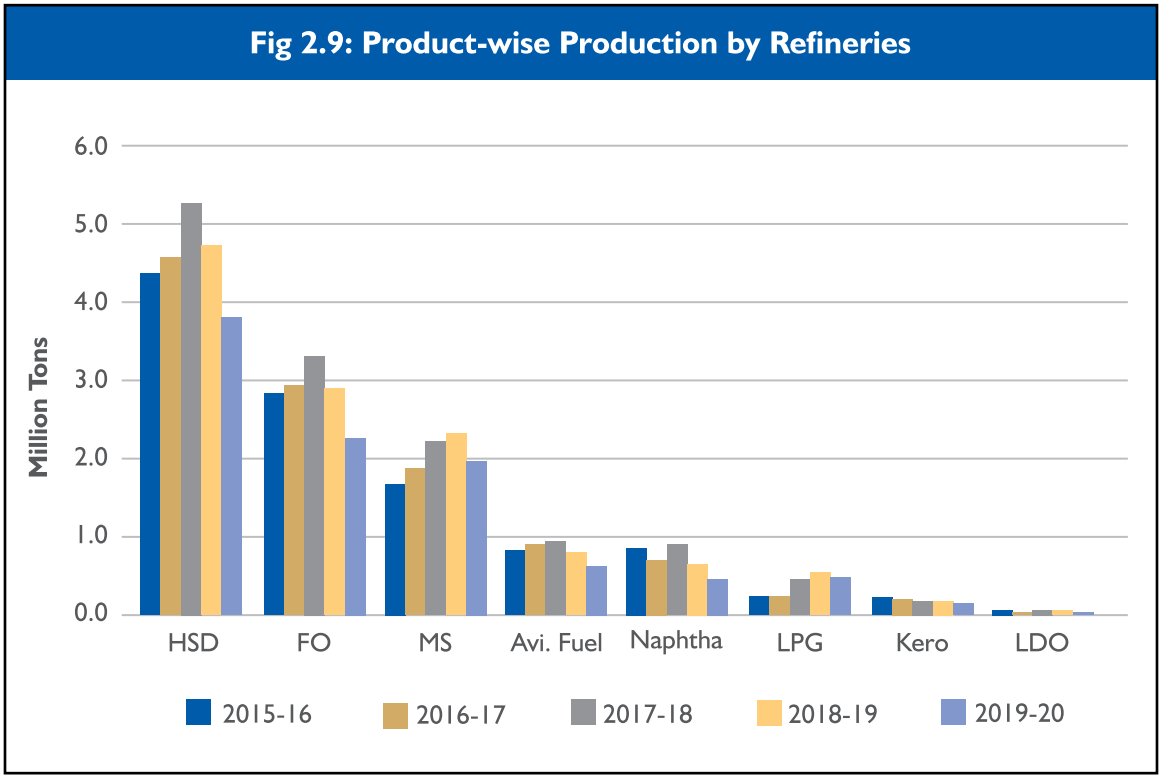
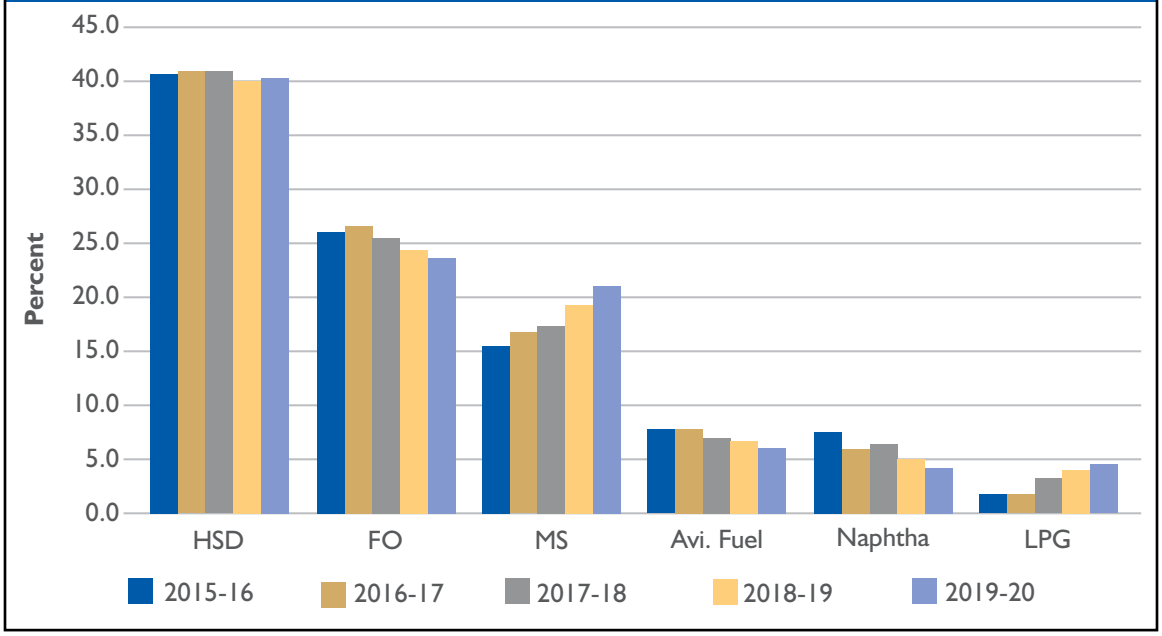


Fig 2.10: Product-wise Share in Production of Refineries



2.4 Port Handling Facility for Petroleum Products/Crude Oil

Pakistan is a net oil importing country meeting over 80 percent of its total oil needs through imports. Port handing facilities for petroleum products and crude oil in the country comprises of 03 seaports, out of which two are in Karachi i.e., Keamari (KPT) and Port Qasim (PQA), and one is Single Point Mooring (SPM) owned and operated by Byco. The combined operational capacity of Keamari (KPT) and Port Qasim (PQA) is 33 million tons per annum (TPA), whereas SPM has installed capacity of 12 million tons per annum. Keamari is the largest among all, operating with three oil piers having combined capacity of 24 million TPA. Port/Pier-wise capacity utilization during FY 2019-20 against the installed capacity is given in **Table 2.5**.

Table 2.5: Available Port Infrastructure in Pakistan for Oil Imports

Oil Pier	Operational Capacity (Million Tons per Annum)	Quantity Handled (Million Tons)
Karachi Port Trust (KPT)		
OP-I	8.0	3.7
OP-II	8.0	4.8
OP-III	8.0	0.0
Port Qasim Authority (PQA)		
FOTCO	9.0	4.9
Single Point Mooring (SPM)		
Byco	12.0	2.0
Total	**45.0**	**15.4**

(Source: OCAC)

2.5 Major Oil Pipelines

The details of major petroleum products transporting pipelines are given in **Table 2.6**.

Table 2.6: Major Petroleum Pipelines in Pakistan

Pipeline	Diameter (Inches)	Length (Km)	Capacity (Million Tons Per Annum)
Port Qasim-Mehmood Kot Line HSD Main Line from PAPCO WOTS-1(Port Qasim) to PAPCO WOTS-3 (Mehmood Kot)	26	786	12
Mehmood Kot- Faisalabad- Machike (MFM) Line a. HSD/Kero Main Line from Mehmood Kot to Fasialabad b. HSD/Kero Main Line from Mehmood Kot to Machike	(i) 18 (ii) 16	(i) 284 (ii) 79.3	7.5
Asia Petroleum Limited HUBCO FO Pipeline	14	82	3.2

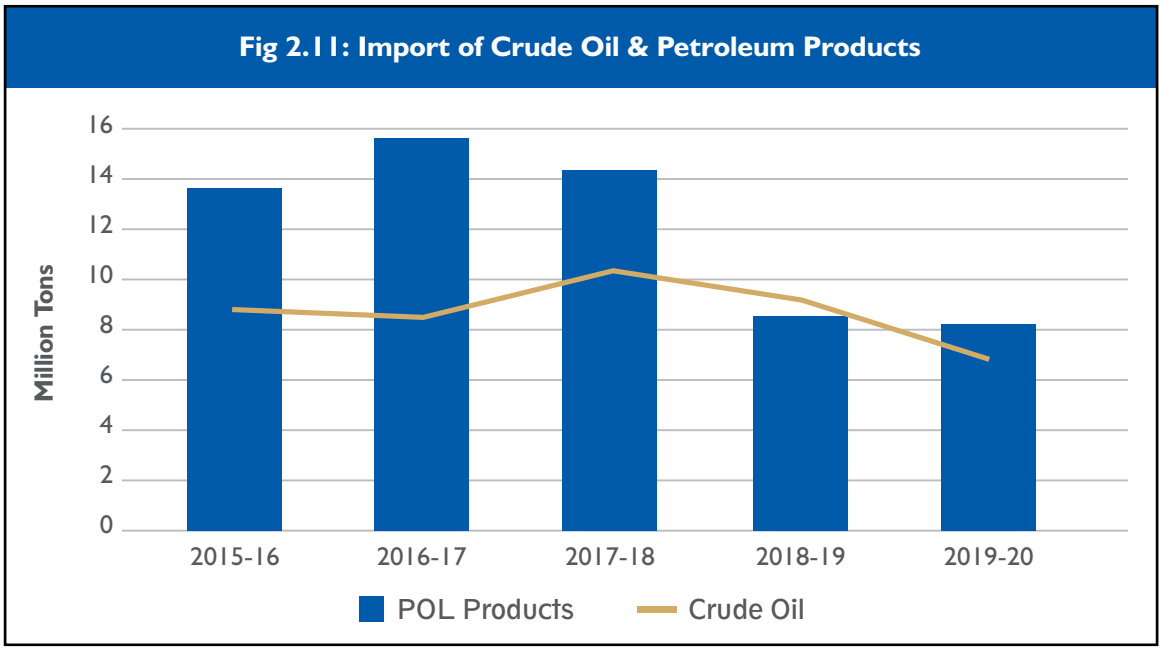
(Source: OCAC)

During FY 2019-20, the capacity utilization of WOP remained 28.6 percent, while thier MFM utilized 31.3 percent. Whereas, the APL could utilise only 2.4 percent of their installed capacity. The reason behind this shortfall has been the reduced consumption of Residual Fuel Oil (RFO) by HUBCO due to a paradigm shift in GoP policy towards increased utilization of cost-efficient fuels like LNG and other alternate sources of power generation instead of RFO.

2.6 Import of Crude Oil /Petroleum Products

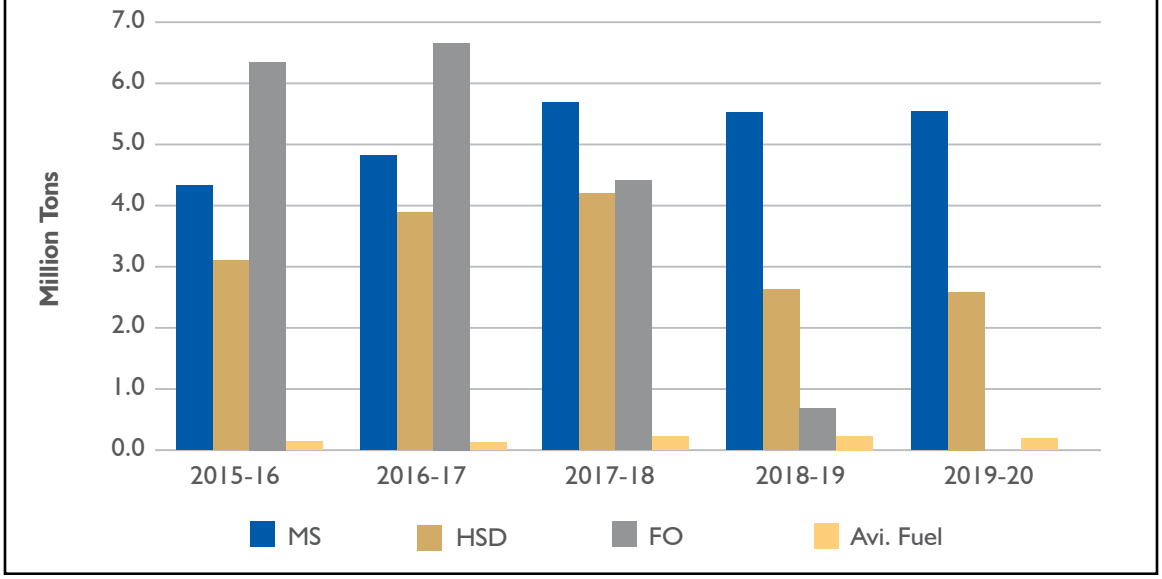
Import of crude oil declined by 26.42 percent during FY 2019-20 to 6.77 million tons from 9.21 million tons in FY 2018-19 whereas the import of finished petroleum products declined by 7.60 percent to 8.10 million tons from 8.77 million tons during the same period. **Fig 2.11** shows the trend of import of crude oil and POL products over the years.

Fig 2.11: Import of Crude Oil & Petroleum Products



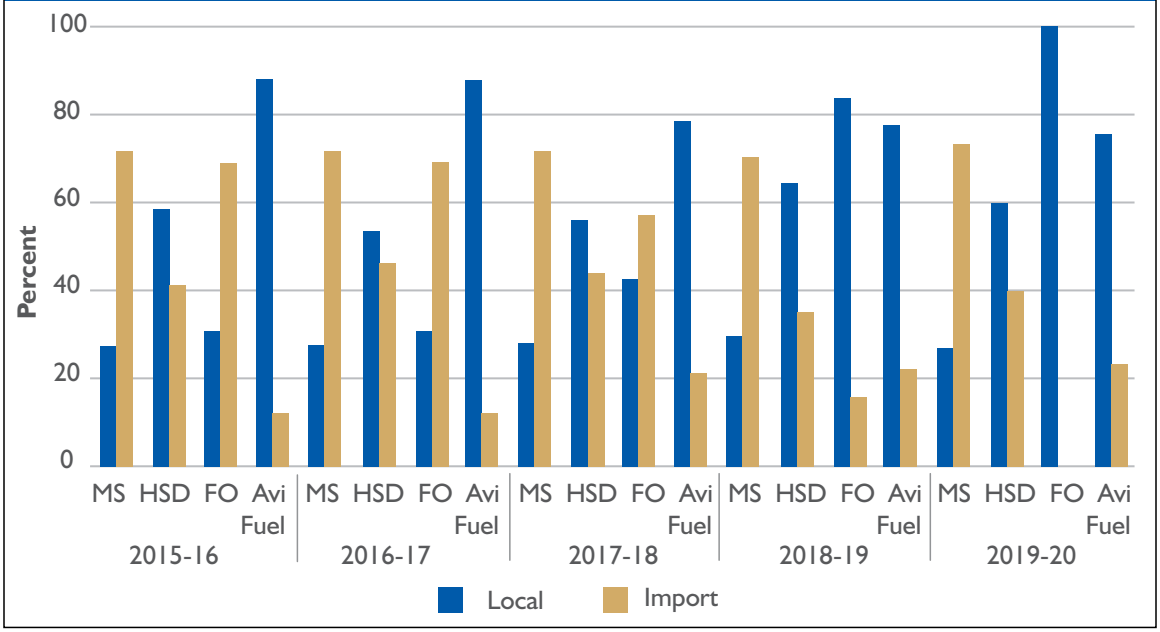
During FY 2019-20, the import of POL products declined from 8.77 million tons to 8.10 million tons as compared to FY 2018-19. The import of FO declined from 0.55 million tons to zero, HSD from 2.59 million tons to 2.51 million tons and Aviation Fuel from 0.22 million tons to 0.17 million tons as compared to FY 2018-19. Import of MS witnessed a slight increase i.e. from 5.40 million tons to 5.42 million tons. **Fig 2.12** shows the trend of import of main POL products over the years.

Fig 2.12: Import of POL Products



The share of imports in MS and HSD consumption has increased from 70 and 35 percent in FY 2018-19 to 73 and 40 percent respectively in FY 2019-20. In Aviation Fuel consumption, the share of import has slightly increased from 22 percent to 23 percent during the same period. The local production met all the requirements of FO and no imports were made during FY 2019-20. **Fig 2.13** shows the trend of imports and local refineries production in main POL products consumption.

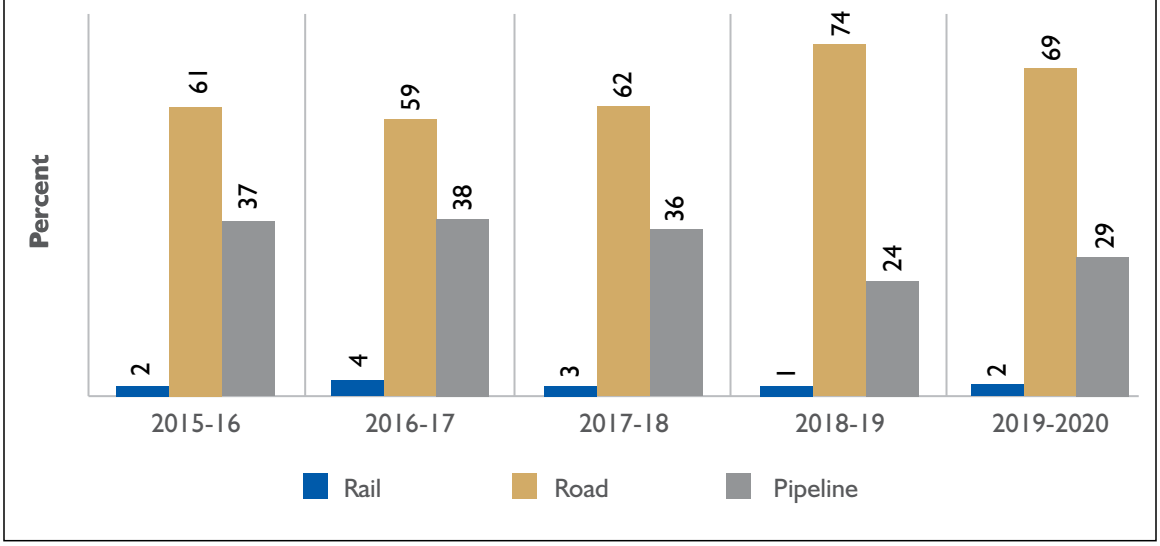
Fig 2.13: Share of Local & Imported Products in POL Consumption



2.7 Oil Movement

The aggregate movement of petroleum products has decreased by 11.4 percent to 22.66 million tons during FY 2019-20 as compared to 25.57 million tons in FY 2018-19. Road transportation has major share of 69 percent (15.66 million tons) followed by pipeline 29 percent (6.64 million tons) and rail 2 percent (0.35 million tons) as shown in **Fig 2.14**.

Fig 2.14: Mode-wise Movement of Oil

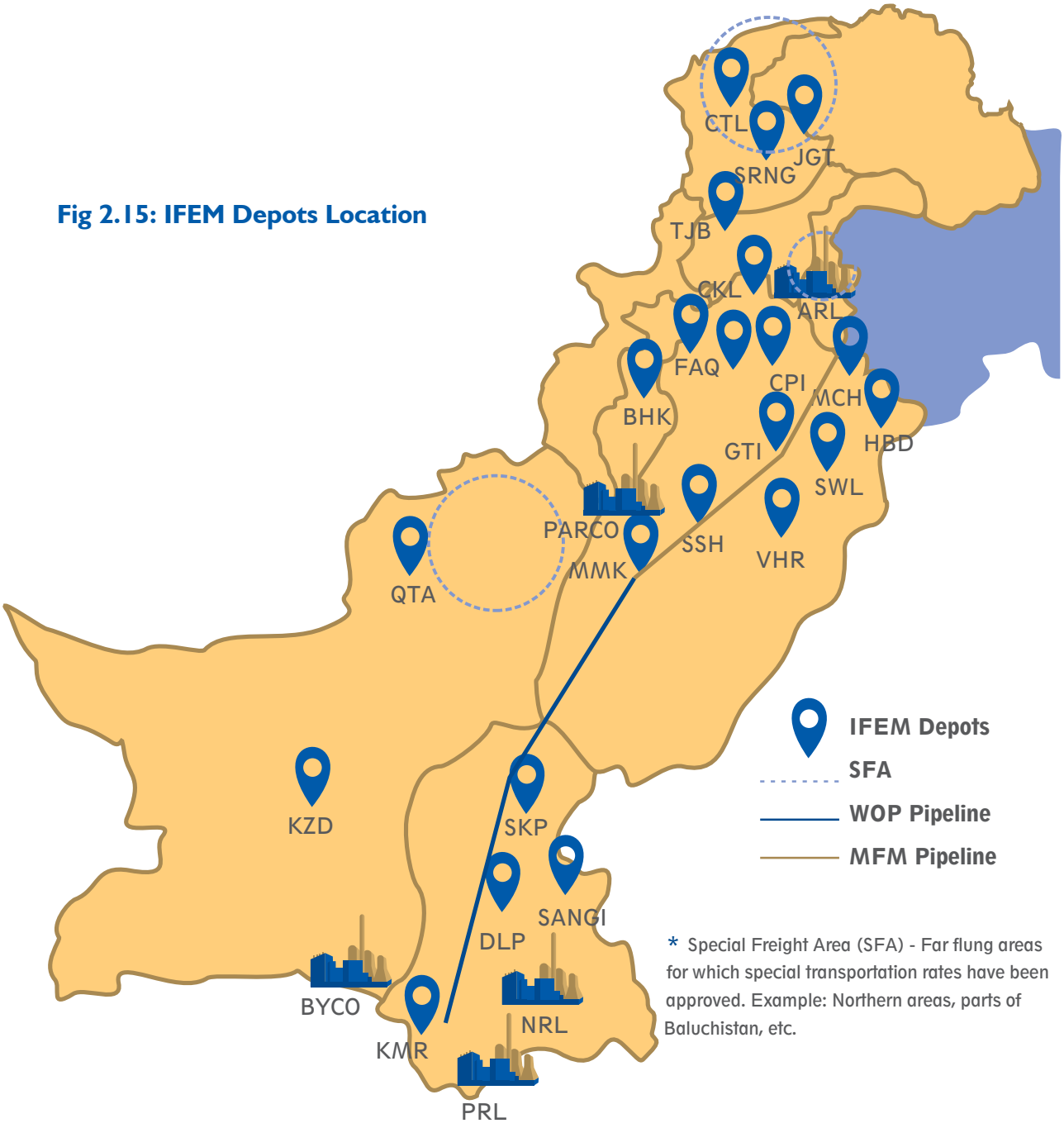


(Source: OCAC)

2.8 Inland Freight Equalization Margin (IFEM) Depots

IFEM mechanism is used to equalize prices of fuel products at 22 depots spread throughout the country despite disparity in transportation cost. Secondary freight in special areas (Chitral, Gilgit Baltistan, AJK and some parts of Balochistan) is also picked up through IFEM mechanism to provide relief to the consumers of special areas. **Fig 2.15** shows the IFEM depots' locations.

Fig 2.15: IFEM Depots Location



* Special Freight Area (SFA) - Far flung areas for which special transportation rates have been approved. Example: Northern areas, parts of Baluchistan, etc.

NATURAL GAS

3. Natural Gas Sector

Natural Gas has been a major energy source for economic growth of the country and still has a share of approximately 36 percent in commercial energy supplies/consumption followed by Oil having share of 25 percent in country's energy mix. Pakistan has a well-established and a huge network of gas pipelines for transportation and distribution of natural gas to domestic, industrial, commercial and transport sectors. Natural gas is comparatively clean source of energy; hence it contributes in controlling environmental degradation. There is a significant rise in demand of gas by residential / domestic consumers owing to price differential and easy availability vis-a-vis other competing fuels, i.e. LPG, fire wood and coal. Domestic consumers are continuously being added to gas network owing to launching of new housing societies. The positive growth of sectors, such as power, commercial and fertilizer has resulted in natural gas availability constraint, as per unit production cost of power plants using Furnace Oil is high, therefore Government has switched power plants mainly on gas. The increase in demand of natural gas will amplify further in the next coming years. The GoP has initiated various measures to bridge the gap between demand and supply which include the incentivizing of local gas production, import of natural gas in the form of Liquefied Natural Gas (LNG) and development of cross-country pipelines from Iran and Turkmenistan. Construction and operation of two LNG Handling Terminals each having re-gasification capacity of around 650 MMCFD at Karachi Port are major milestones achieved to mitigate gas shortage in the Country. The share of RLNG, in the overall gas supply during FY 2019-20 has increased to 29 percent of total natural gas availability in the country. During FY 2019-20, total supply of natural gas in the country, including imported RLNG, has reached 4,052 MMCFD.

3.1 Regulatory Regime Overview

The regulatory functions of natural gas sector were transferred to OGRA on March 28, 2002 with the objective to break the public sector monopoly, open the natural gas transmission, distribution to private sector, promote as well as enhance competition in the midstream & downstream petroleum sector. OGRA has been performing following functions pertaining to the natural gas sector: -

- Grant of licences for the regulated gas sector.
- Formulation of rules, regulations and procedures for the conduct of licensees.
- Determination of revenue requirement petitions of SNGPL & SSGCL.
- Monitoring and enforcement of rules, regulations and applicable licence conditions.
- Pipeline capacity allocation.
- Licensing of low pressure (flare) gas.
- Licensing for transmission, distribution and sale of RLNG.
- Approval of Gas Sales Agreements (GSAs) for supply of gas between the gas producers and gas companies /consumers.

So far, OGRA has issued the licences pertaining to the regulated gas sector to companies as given in **Appendix-I**.

3.2 Profile of Licensees

3.2.1 Sui Southern Gas Company Limited (SSGCL)

SSGC is Pakistan's leading natural gas utility company engaged in the transmission and distribution of gas to around 3 million domestic, commercial and industrial customers located in its franchise areas of Sindh and Balochistan.

As a customer centric organization, SSGC provides clean and affordable fuel to around 3 million domestic, 24 thousand commercial and 4 thousand plus industrial customers. As a downstream company, SSGC purchases natural gas from more than 24 gas fields, operated by upstream local and multinational exploration and production companies.

The Company comes under the umbrella of the Ministry of Energy (MoE) (Petroleum Division). It is managed by an autonomous Board of Directors for policy guidelines and overall control, with a Managing Director, managing day to day affairs.

SSGC's transmission and distribution network stretches across 4,126 Km and 47,520 Km, respectively. The Company's core business includes transmission, distribution and sale of natural gas, design and construction of transmission and distribution projects and transmission of Re-gasified LNG on the directives of MoE. Amongst the Company's non-core businesses are the sale of Liquefied Petroleum Gas (LPG), Natural Gas Liquid and Condensate and manufacturing of domestic gas meters.

The Company also runs a subsidiary company by the name of SSGC-LPG (Pvt.) Ltd. which is engaged in marketing and distribution of LPG across the country. Since 1975, SSGC has been productively running Pakistan's only Meter manufacturing plant that meets the needs of all its domestic customers.

The Company is served by several nerve centres or headquarters, strategically located in different locations of Sindh and Balochistan. These headquarters ensure optimum gas transmission and compression, from the fields to customers in their respective regions.

SSGC runs its own state of the art bill printing facility that prints more than 650 pages per minute. Over the years, SSGC has emerged as one of Pakistan's IT enabled companies through constant technological enhancement. Many of these solutions including the Geographical Information System (GIS) have been devised in-house.

Table 3.1: Pattern of Shareholding in SSGCL as of June 30, 2020

Categories of Shareholders	Percentage Shareholding
President of Pakistan	53.18
Individuals	11.26
Investment Companies	0.12
Insurance Companies	8.15
Joint Stock Companies	1.73
Financial Institutions	7.28
Mutual Fund	3.03
Charitable Trusts	0.11
Leasing Companies	0.002
Foreign Companies	4.02
Others	11.12
Total	**100.00**

(Source: SSGCL)

3.2.2 Sui Northern Gas Pipelines Limited (SNGPL)

Sui Northern Gas Pipelines Limited (SNGPL) was incorporated as a private limited company in 1963 and converted into a public limited company in January 1964 under the Companies Act 1913, now the Companies Act, 2017, and is listed on the Pakistan Stock Exchange (PSX).

The company took over the existing Sui-Multan System (217 miles of 16 inch and 80 miles of 10 inch diameter pipelines) from Pakistan industrial Development Corporation (PIDC) and Dhulian-Rawalpindi-Wah System (82 miles of 6 inch diameter pipeline) from Attock Oil Company Limited. The Company's commercial operations commenced by selling an average of 47 MMCFD gas in two regions viz. Multan and Rawalpindi, serving a total number of 67 consumers.

SNGPL is the largest integrated gas company serving more than 7.043 million consumers in North Central Pakistan through an extensive network in Punjab, Khyber Pakhtunkhwa and Azad Jammu & Kashmir. The Company has over 56 years of experience in operation and maintenance of high-pressure gas transmission and distribution system. It has also expanded its activities as Engineering, Procurement and Construction (EPC) Contractor to undertake planning, designing and construction of pipelines, both for itself and other organizations.

Table 3.2: Pattern of Shareholding in SNGPL as of June 30, 2020

Categories of Shareholding	Percentage Shareholding
The President of Islamic Republic of Pakistan	31.68
Public Sector Companies and Corporations	18.55
Banks, Development Finance Institutions, Non-Banking Finance Companies, Insurance Companies, Takaful, Modarabas and Pension Funds	16.72
General Public (Local + Foreign)	8.84
Mutual Funds	8.34
Associated Companies, Undertakings and Related Parties	5.01
SNGPL Employees Empowerment Trust	4.32
Foreign Companies	3.87
Joint Stock Companies	1.02
All Others	1.65
Total	**100.00**

(Source: SNGPL)

3.2.3 Mari Petroleum Company Limited

Mari Petroleum is an integrated exploration and production company, currently managing and operating Pakistan's largest gas reservoir (in terms of remaining reserves) at Mari Gas Field, Daharki, Sindh.

Mari Petroleum with 19 percent market share, is the third largest gas producer in the Country with cumulative daily production of 100,000 barrels of oil equivalent. The Company's exploration and production assets are spread across all the four provinces of Pakistan. The Company enjoys the highest exploration success rate of 70%, much higher than industry average of 33% (national) and 25% (international). At the same time, it is the most cost efficient E&P Company in the Country with lowest operating cost of under 10% of gross sales. The Company plays a pivotal role in ensuring food security of Pakistan as more than 90% urea production in the Country is based on MPCL supplied gas. The Company also supplies gas for power generation and domestic consumers. To its credit, Mari Petroleum has the unique record of maintaining uninterrupted gas supply to its customers from Mari Field for the last fifty years without availing even the permitted outages.

Mari Petroleum is an ISO certified company for Quality, Environment, Information Security, Occupational Health & Safety, and has achieved Advanced Level in ISO Certification for Social Responsibility.

Mari Petroleum is a blue-chip company at the stock exchange. The Company regularly wins awards and accolades from various independent bodies not only for its financial and operational performance and reporting but also for its management, HR, HSE, and CSR practices.

Principal Business Activities: Mari Petroleum is primarily an exploration and production company in the upstream segment of petroleum industry. Its principal business activities include oil and gas exploration, drilling, field development, production and distribution of hydrocarbons (including natural gas, crude oil, condensate and LPG) as well as provision of E&P related services on commercial basis.

Major Brands, Products and Services: MPCL is a major producer of natural gas. It also produces crude oil, condensate and LPG. All products of the company are generic and are supplied to midstream and downstream customers without any specific brand name. The Company also provides 2D/3D seismic data acquisition, seismic data processing, and drilling services.

Major Customers/Markets: The gas produced by the company is supplied to fertilizer manufacturers, power generation and gas distribution companies, while crude oil and condensate are supplied to refineries for further processing. The company only caters to local customers with no activity in the export market.

Market Share

Product	Total Output	MPCL's Output	MPCL's Share
Gas (MMCF)	1,317,033	255,387	19.4%

Source: Pakistan Petroleum Information Service by LMKR on behalf of DGPC. Based on the data for FY 2019-20.

Future Plans

The company is steadily expanding its operations and building its human, financial, technical, intellectual and social capitals to fuel and sustain its growth in the coming years.

Mari Field has been the mainstay of the company's production and revenues since inception and is expected to remain so in the coming years. Therefore, a significant portion of the company's efforts and resources will be focused on Mari Field.

The Company has already extended the HRL production plateau till 2023 and is undertaking studies to come up with viable plan to further extend the plateau beyond that period. The Company will undertake development of Goru-B and Tipu reservoirs to enhance overall Field production. The Company has undertaken capital projects to process off-spec gas from HRL, Goru-B and Tipu and convert it to spec-gas for injecting in the national gas grid. The Company is also laying a gas pipeline to connect Mari Field Central Manifold with SNGPL valve assembly to have flexibility to produce and sell more gas. Simultaneously, the Company will carry out further exploration activities in the Mari area on priority with an aim to discover more hydrocarbon resources, which could be immediately brought on stream by utilizing existing infrastructure.

Infrastructure-led investments have a very high rate of return. It is therefore hoped that the exploration and development projects in Mari Field will yield significant value to the Company for passing-on to its stakeholders.

The Company has completed its ground-breaking seismic exercise in Bannu West Block and is currently preparing to drill first exploratory well in the area. The Company is also vigorously pursuing seismic campaign in Block-28 in Balochistan for its fast-track completion. Put together, these two blocks are strategic and have the potential to significantly enhance the Company's reserves-base with expected production commencement in 2024-25.

The Company has signed PCAs/ELs over Wali West and Taung Blocks, which it won in the block bidding round held in 2018. Wali West and Bannu West are contiguous and will provide excellent synergy in terms of geological, operational and commercial aspects. Similarly, Taung Block is in close vicinity of gas infrastructure network, which in case of success would facilitate early gas production.

The Company is continuously evaluating farm-in opportunities in overseas exploration as well as producing assets with upside potential. The Company submitted an application for an offshore block in Abu Dhabi. This block is in the most prospective area of the world and hydrocarbon discovery that will augment the Company's reserves-led growth strategy. This project will also serve as stepping stone for the Company's internationalization efforts.

Seismic data acquisition capacity of MSU has been enhanced with raising of third seismic crew and addition of 2 more used land drilling rigs. Enhanced capacity of Mari Services Division coupled with track-record of successfully undertaking seismic and drilling projects in security sensitive areas of the Country will help the Company to win projects of other E&P companies.

The Company is continuously scanning for opportunities in near-core and non-core sectors and a number of projects are at different stages of evaluation. These projects are crucial to realization of the Company's vision of becoming an integrated energy company with presence in multiple sectors across different jurisdictions.

Going forward, the Company will continue aggressive exploratory efforts in existing blocks, maintain uninterrupted supply of hydrocarbons to its downstream customers, while at the same time explore farm-in and selected farm-out options, acquisition of international blocks, and selected diversification projects.

Table 3.3: Pattern of Shareholding as of June 30, 2020

Categories of Shareholding	Percentage Shareholding
Fauji Foundation	40.00
Oil & Gas Development Company Ltd.	20.00
Government of Pakistan	18.39
General Public	21.61
Total	**100.00**

(Source: MPCL)

Table 3.4: Regulated Gas Sold by MPCL to its Customers during FY 2019-20

Name of Purchaser, Field and Province			Gas Volume	Heating Value
Customer	**Field**	**Province**	**MMSCFD**	**BTU/SCF**
EFL	Mari	Sindh	185.17	722.00
FFC-I & II	Mari	Sindh	174.40	733.00
FFC-III	Mari	Sindh	90.17	733.00
FFCL (Fatima)	Mari	Sindh	101.16	724.00
Wapda (GENCO-II)	Mari	Sindh	45.69	724.40
SSGCL	Mari	Sindh	0.99	726.58
FPCDL	Mari	Sindh	33.83	531.72

PFL	Mari	Sindh	21.41	857.45
SSGCL	Sujawal	Sindh	16.56	1,054.56
	Zarghun	Balochistan	4.86	949.78
	Hala	Sindh	5.50	1,028.00
SNGPL	Koonj	Sindh	0.260	868.71
SNGPL	Kalabagh	Punjab/KP	1.93	1,124.67
Others	-	Punjab/KP	0.69	1,146.00
		Total	**682.63**	-

(Source: MPCL)

3.2.4 Pakistan Petroleum Limited (PPL)

Pakistan Petroleum Limited is a pioneer in natural gas industry in Pakistan and has been a front-line player in the fields of exploration, development and production of oil and natural gas resources since 1950. As a major supplier of natural gas, the Company supplies approximately 20 percent of the country's total natural gas in addition to producing substantial quantities of crude oil, natural gas liquids, liquefied petroleum gas and barytes.

The Company currently operates producing fields at Sui, Kandhkot, Adhi, Mazarani, Chachar, Adam, Adam West, Fazl X-1, Shahdadpur, Shahdadpur East and Shahdadpur West while Kabir & Dhok Sultan are on-going Extended Well Test (EWT). In addition, the Company has working interests in 23 partner-operated producing fields/EWT.

Operational Performance during FY 2019-20

Seismic Activities:

During the year, in-house processing of 674 line Km 2D and 1,796 Sq. Km 3D seismic data was completed.

Drilling Activities:

The company drilled 19 wells in FY 2019-20, in which 08 wells were drilled in PPL operated fields during the year. The Company is setting new records in drilling; Adhi South-3 well was completed in a record time of 52 days realizing considerable savings.

Production:

Production of hydrocarbons during FY 2019-20, including the Company's share from joint operations:

Product	Units	Production
Natural Gas	MMscfd	777

Discoveries:

During FY 2019-20, PPL announced Two (02) discoveries, one (1) in operated areas and one (1) in partner operated areas:

Discoveries During FY 2019-20

Operated Areas	Partner Operated Areas
Morgandh X-1 (Margand)	Bitro X-1 (Latif)

Table 3.5: Pattern of Shareholding as of June 30, 2020

Categories of Shareholding	Percentage Shareholding
Government of Pakistan	67.51
PPL Employees Empowerment Trust	7.35
Others	25.14
Total	**100.00**

(Source: Pakistan Petroleum Limited)

Table 3.6: Regulated Gas Sold from PPL's Gas Fields during FY 2019-20

Name of Purchaser	Province	Volume (MMcfd)
SSGCL	Balochistan	107.70
SNGPL	Balochistan	198.71
SSGCL	Sindh	50.35
SNGPL	Sindh	32.03
SNGPL	Punjab	20.26
GENCO	Sindh	110.40
Others	Sindh/Punjab	0.63

Note: Gross sales represent PPL share only

(Source: PPL)

3.2.5 Oil & Gas Development Company Limited (OGDCL)

OGDCL, is the leading E&P player in the country, with the largest share of exploration acreage, production and reserves base. Since its inception, OGDCL has come a long way and overcome many challenges – from acquiring and sustaining its position as a self-financing entity to making a transition in corporate culture as that of a Public Limited Company listed on Pakistan Stock Exchange and also internationally, on the London Stock Exchange.

OGDCL was initially created under an Ordinance in 1961, as a Public Sector Corporation and was converted from a statutory Corporation into a Public Limited Company w.e.f October 23, 1997. Currently, Government of Pakistan is holding 74.98% of total equity in the Company.

Exploration and Development Activities

OGDCL's exploration acreage stood at 79,994 Sq. Km as of June 30, 2020 representing the largest exploration

area held by any E&P company in Pakistan. Exploration portfolio constitutes forty-four (44) owned and operated joint venture exploration licences in addition to holding working interest in seven (7) blocks operated by other E&P companies.

OGDCL during FY 2019-20 acquired 3,407 Line Km of 2D seismic data, which represents 79 percent of total 2D seismic data acquisition in the Country. Moreover, 5,582 Line Km of 2D and 4,977 Sq. Km of 3D seismic data was processed/reprocessed using in-house resources.

In addition to the above, OGDCL spud twenty-five (25) wells comprising fifteen (15) exploratory/appraisal wells, five (5) development wells and five (5) re-entry/side track wells. Furthermore, drilling and testing of fourteen (14) wells from previous fiscal years have also been completed, whereas total drilling recorded during the year was 60,753 meters.

Discoveries

OGDCL's exploratory efforts to find new reserves during the year yielded five (5) oil and gas discoveries with expected cumulative daily production potential of 28 MMcf of gas and 892 barrels of oil. These discoveries were: Chanda-5, Togh-1 (Lumshiwal), Togh-1 (Hangu) in district Kohat, KP province, Pandhi-1 in district Sanghar and Metlo-1 in district Khairpur, Sindh province. Preliminary reserve estimates of these discoveries are 49 billion cubic feet of gas and 1.5 million barrels of oil (combined 10 MMBOE).

Production

OGDCL being the market leader in E&P sector of Pakistan is making all out efforts to augment oil and gas production from owned and operated joint venture fields. In this pursuit, fourteen (14) operated wells were injected in the production gathering system which cumulatively yielded gross crude oil and gas production of 243,983 barrels and 6,709 MMCF respectively. The Company's production during the year FY 2019-20 contributed around 45 percent, 29 percent and 34 percent towards the Country's total oil, natural gas and LPG production respectively.

During the year ended June 30, 2020 OGDCL's average daily net saleable crude oil, gas and LPG clocked at 36,073 barrels, 893 MMCF and 739 Tons respectively. Moreover, to arrest natural decline and sustain production from mature fields, the Company carried out a total of 110 well work-overs (7 with rig and 103 rig-less). Likewise, to induce improvement in the current well flow parameters, pressure build-up survey jobs were completed at producing fields; Bobi, Chanda, KPD-TAY, Nashpa and Uch-I & II.

Future Outlook

OGDCL expects that in the long term, once the world economy recovers from the effect of pandemic COVID-19, the oil demand and price will rebound. Meanwhile, the Company will continue to invest in seismic data acquisition, processing/reprocessing of seismic data and drilling campaigns including commercial feasibility of Shale gas.

On the production front, OGDCL will continue to utilize advance technology, improve recovery factors to achieve production improvements. Likewise, completion of ongoing development projects (Nashpa Compression, Qadirpur Compression and Uch Compression) will serve to enhance oil, gas and LPG production in the coming years. In order to diversify its portfolio risk, the Company will continue to seek viable farm-in/farm-out opportunities as well as acquisition of concessions both in domestic and international markets. The Company being a socially responsible citizen will always be at the forefront to support the government and nation in the testing times while exhibiting respect and care for the environment and society in the most transparent and efficient manner.

OGDCL's pattern of shareholding is given in **Table 3.7** and details of regulated gas sold during FY 2019-20 are shown in **Table 3.8**.

Table 3.7: Pattern of Shareholding as of June 30, 2020

Categories of Shareholding	Percentage Shareholding
Government of Pakistan	67.48
OGDCL Employees Empowerment Trust	10.05
Privatization Commission of Pakistan	7.50
Public Sector Companies & Corporations	0.73
Banks, Financial Institutions, etc.	3.49
Mutual Funds	2.36
Foreign Investors	4.89
General Public (Local)	2.35
Others	1.16
Total	**100.00**

(Source: OGDCL)

Table 3.8: Regulated Gas Sold by OGDCL during FY 2019-20

Name of Customers	Province	Volume (MMCFD)
SNGPL	KP, Sindh, Punjab and Balochistan	325.33
SSGCL	Sindh	223.42
Engro Fertilizers Ltd.	Sindh	11.08
Uch Power Ltd.	Balochistan	282.44
Fauji Kabirwala Power Company Ltd.	Punjab	1.22
	Total	**843.49**

(Source: OGDCL)

3.2.6 Fauji Fertilizer Company Limited (FFCL)

In view of a national vision to acquire self-sufficiency in fertilizer production in the Country, Fauji Fertilizer Company Limited (FFC) was incorporated in 1978 as a joint venture with investment of USD 330 million, between Fauji Foundation (a charitable trust founded in 1954 and one of the Pakistan's largest conglomerates with a 44% shareholding in FFC), and Haldor Topsoe A/S of Denmark. The present share capital of the Company stands above 12.72 billion rupees.

FFC is the largest urea manufacturer in Pakistan and a leading national enterprise with global outlook, effectively pursuing multiple growth opportunities, maximizing returns to the stakeholders, remaining socially and ethically responsible.

FFC is operating three large scale urea plants with an aggregate design capacity of over 2 million metric tons per annum. FFC operates the largest fertilizer marketing network for both FFC and Fauji Fertilizer Bin Qasim Limited (FFBL) products with around 50% market share under its brand "SONA" which means gold.

The Company holds diverse investment portfolio comprising Fertilizer, Renewable Energy, Cement, Food & Financial Services Sectors. The Company is listed on Pakistan Stock Exchange (PSX) and stands high amongst the largest corporate entities of the Country. Its securities are one of the lucrative scrips on the Stock Exchange and has figured prominently amongst the top 25 Companies on Pakistan Stock Exchange being declared FIRST nine times. Besides, being one of the largest contributor to national exchequer (a contribution of US$ 14.33 billion since inception), FFC plays a prominent role in the areas of education, health, disaster relief and environment as part of Corporate Social Responsibility (CSR) activities. Company is determined to incorporate United Nation Global Compact (UNGC) principles into its strategy and governance for business sustainability.

Internationally, FFC is well recognized as a member of International Fertilizer Association (IFA), Arab Fertilizer Association and UN Global Compact USA.

Financial and Operational Performance

FFC was able to achieve its major targets for 2019 in terms of manufacturing and distribution cost, in addition to earning highest ever revenue from Sona Urea of Rs 88.02 billion besides earning record investment income of Rs 5.67 billion.

The Company recorded net of tax profit of Rs. 17.11 billion, 19 percent above net earnings of last year. Company's manufacturing facilities achieved a combined capacity utilization of 122 percent translating into aggregate Sona urea production of 2,492 thousand tons, only 1 percent lower than 2018 mainly due to higher number of downtime days caused by extended maintenance of Plants during 2019.

Sona urea off-take was recorded at 2,467 thousand tons, only 2 percent lower than last year. DAP market however, remained depressed during the year due to low demand compared to previous years and off-take of 237 thousand tons was recorded during the year compared to 480 thousand tons marketed last year.

Table 3.9:FFC's Pattern of Shareholding as of June 30, 2020

Categories of Shareholding	Percentage Shareholding
President of Islamic Republic of Pakistan	0.70
Farhad Shaikh Mohammad	0.16
Fauji Foundation	10.18
Committee of Administration Fauji Foundation	34.17
Executives	0.04
Public Sector Companies and Corporations 10.87	0.04
Banks, Development Finance Institutions, Non-Banking Finance Companies, Insurance Companies, Takaful, Modarabas and Pension Funds	7.61
Mutual Funds	3.33
General Public (Local + Foreign)	21.69
Foreign Companies	7.48
Others	3.77
Total	**100.00**

(Source: Fauji Fertilizer Company Limited)

Table 3.10: Detail of Regulated Gas Purchased by FFCL during FY 2019-20

Name of Supplier and Field	Province	Volume (MMCFD)	Volume (Billion Btu)
Mari Petroleum Company Ltd. (Mari Gas Field)	Sindh	265	70,553

(Source: Fauji Fertilizer Company Limited)

3.2.7 Fatima Fertilizer Company Limited

Fatima Fertilizer Company Limited (Fatima) is a joint venture between two major business groups in Pakistan namely, Fatima and Arif Habib Group, with its head office located in Lahore. The fertilizer complex, producing mixed fertilizer products, is a fully integrated production facility, located at Saidabad, District Rahim Yar Khan. The foundation stone was laid on April 26, 2006 by the then Prime Minister of Pakistan. The Complex has a dedicated gas allocation of 110 MMCFD from Mari Gas Field and has 56 MW captive power plants in addition to off-sites and utilities. Commercial production commenced on July 01, 2011. The Complex, at its construction peak, engaged over 4,000 engineers and technicians from Pakistan, China, USA, Japan and Europe. The Complex had an initial annual design capacity of:

- 500,000 Metric Tons of Urea
- 420,000 Metric Tons of Calcium Ammonium Nitrate (CAN)
- 360,000 Metric Tons of Nitro Phosphate (NP)

The Ammonia plant was re-vamped to enhance its capacity by 10 percent along with an improvement in the energy index and reliability at a cost of US$ 58 million in 2015. In 2016, the CAN plant capacity was enhanced through an in-house modification, yielding an additional 22,000 MT production per annum. In 2017, Advanced Process Control project, the first of its kind in Pakistan, was implemented at the Ammonia Plant, further enhancing capacity and improving the energy index by 1.5 percent. In 2019, NP Plant was de-bottlenecked to enhance its capacity via Rock Phosphate Route by 10 percent i.e., an annual rise of 39,600 MT at a cost of US$ 2.5 million. Further to that Phosphoric Acid addition scheme revamped production capacity of NP Plant by further 12 percent i.e., an annual rise of 48,500 MT of product at a cost of US$ 3.6 million. Net annual rise in NP Plant capacity is ~22 percent i.e. annual rise of ~ 81,000 MT.

The Complex is housed on 1,086 acres of land which provides modern housing for its employees with all necessary facilities, including a well-managed school, a medical centre and a large number of sports facilities.

In 2015, the Company acquired a Urea manufacturing facility capable of producing 445,000 metric tons Urea annually located near Chichoki Mallian at Shiekhupura Road, Pakistan.

Table 3.11: Pattern of Shareholding as of June 30, 2020

Categories of Shareholding	Percentage Shareholding
Directors, Chief Executive Officer and their Family Members	28.68
Associated Companies	42.45
Sponsors	15.92
Executives	0.02
Public Sector Companies and Corporations	0.09
Foreign Companies	0.24

Categories of Shareholding	Percentage Shareholding
General Public (local)	2.74
General Public (foreign)	0.03
Banks/ DFI/NBFI/Insurance Companies/Modarabas/Pension Funds etc.	4.21
Mutual Funds	0.47
Others	5.15
Total	**100.00**

(Source: Fatima Fertilizer Company Limited)

Table 3.12: Detail of Regulated Gas Purchased by Fatima during FY 2019-20

Name of Supplier and Field	Province	Volume (MMSCFD)
Mari Petroleum Company Limited (MPCL)	Punjab	101
Fatima Fertilizer Company Limited Fatimafert- Sheikhupura Plant (Formerly DH Fertilizer)		
Sui Northern Gas Pipelines Limited (SNGPL)	Punjab	17.42

(Source: Fatima Fertilizer company Limited)

3.2.8 Foundation Power Company (Daharki) Limited (FPCDL)

Fauji Foundation got registered with *Private Power and Infrastructure Board* (PPIB) for setting up a 185 MW Gas Based Power Plant in Daharki in April 2004. Foundation Power Company Daharki Limited (FPCDL) was formally incorporated in November 2005. The Foundation Stone of the Plant was laid down by the then President of the Islamic Republic of Pakistan on 24th May, 2007. The Plant is located at Daharki, District Ghotki of Sindh on National Highway at the border of Sindh and Punjab. Construction work at the Site commenced in October 2007 under M/s Doosan Heavy Industries and Construction Company of South Korea. The approved Project cost was approximately US$ 217 million and it was financed by a consortium of 12 local banks, led by Askari Bank Limited. FPCDL is owned by Daharki Power Holdings Limited, British Virginia Island (BVI), the first offshore venture of Fauji Foundation.

The installed Combined Cycle Power Plant (Gas Turbine of General Electric, USA & Steam Turbine of Fuji, Japan) has a gross output of 185 MW. It employs modern technology, compliant to contemporary international as well as environment friendly standards. It functions on the low BTU gas, supplied from Mari Petroleum Company's Deep Well No. 6, located at 15-Km from the Plant site. The low BTU gas, which is otherwise unsuitable for domestic use, is thus optimally used as well as affords economical production of electricity.

The Plant was commissioned on 16th May, 2011 and ever since then, by the Grace of Almighty Allah, the Plant is fully operational, providing electricity in the National Grid at 90 percent availability, throughout the year, with an energy efficiency index of 46 percent and ranked quite high in Economic Despatch Order List of NTDC for IPPs. The production of the cheap electricity by Plant is sufficient to illuminate 250,000 urban homes or meet the needs of 70 medium sized industrial units or 1,500 small to medium size villages.

FPCDL Power Plant is operationally managed by a reputed International Organization M/s KEPCO KPS Plant Services since its commissioning. The Plant bears certification of ISO 9001, 14001 & BS OHSAS 18001. The Registered Office of the Company is at Fauji Towers, 68 Tipu Road, Chaklala, Rawalpindi.

Company's Operational Performance during FY 2019-20

FPCDL's Power Plant operated at optimal efficiency with high availability factor of over 92.28 percent and average efficiency of 45.83 percent. However, Plant load factor remained 54 percent. The electricity units dispatched during the year were 0.847 Billion KWh. The reduction in electricity units was primarily due to reduced load demand by NTDC viz a viz demand deficit at Country level. There was no incident related to HSE and the Company proficiently met all the KPIs as per dictates of its Power Purchase Agreement (PPA).

Table 3.13: Pattern of Shareholding in FPCDL as of June 30, 2020

Categories of Shareholding	Percentage Shareholding
Daharki Power Holdings Limited	99.99

Table 3.14: Detail of Regulated Gas Purchased during FY 2019-20

Name of Supplier and Field	Province	Volume (MMCFD)	Volume (BTU/SCF)
Mari Petroleum Company Ltd.	Sindh	65	531.9

(Source: FPCDL)

3.2.9 Central Power Generation Company Limited (CPGCL)

Central Power Generation Company Limited (CPGCL) is a Public Limited Company with its registered office at WAPDA House, Lahore. The Company was incorporated in October 1998, got the certificate of commencement of business in December 1998 and started commercial operation in March 1999. The Company owns, operates and maintains three Thermal Generation Power Houses with its total installed capacity of 2502.94 MW. These three (03) Power Plants are located at Guddu, Quetta and Sukkur. The installed capacities of these individual Power Plants are;

- TPS (Guddu): 2,402 MW
- TPS (Quetta): 50.94 MW
- TPS (Sukkur): 50.00 MW

Total: 2,502.94 MW

Table 3.15: Pattern of Shareholding of CPGCL as of June 30, 2020

Categories of Shareholding	Percentage Shareholding
Individuals	0.01
President of Pakistan	99.99
Total	**100.00**

Table 3.16: Detail of Regulated Gas Purchased during FY 2019-20

Name of Supplier and Field	Province	Volume (MMCFD)	Volume (BTU/SCF)
PPL (Kandhkot-I & III Gas Field)	Sindh	105.26	819.00
SNGPL (Kandhkot-II Gas Field)	Sindh	24.34	818.19
MPCL (Mari Shallow Field)	Sindh	45.53	664.10
Total		**175.13**	-

(Source: CPGCL)

3.3 Gas Transmission & Distribution Infrastructure

The licensed gas companies submit their Revenue Requirement Petitions to OGRA, and subsequently, on the basis of determinations done by OGRA, the Gas Companies carry out extensions to their gas network which enables them to provide gas facility to its consumers.

3.3.1 SNGPL Transmission Infrastructure

SNGPL has undertaken an extension of 190 Km in its transmission network during FY 2019-20. The major segments of the SNGPL transmission network along with their current capacity utilization are given in **Table 3.17**. The total transmission network of SNGPL as of June 30, 2020 is given in **Table 3.18**.

Table 3.17: SNGPL's Capacity Utilization of Transmission System

(MMCFD)

Transmission Network Segment	Available Capacity as of June 30, 2019	%age of [1] Capacity Utilization	Available Capacity as of June 30, 2020	%age of [1] Capacity Utilization
Sui - Bhong	400	110	400	96
Sawan - Qadirpur	1,510	75	1,510	71
Qadirpur - Bhong	1,860	75	1,860	68
Bhong - AC4	2,070	80	2,070	76
AC4 - AV22[2]	2,000	81	1,950	79
AV22 - Multan[2]	1,800	75	1,850	81
Multan - AV29[2]	1,750	81	1,820	79
AV29 - Sahiwal - Lahore	950	76	950	89
AV29 - Faisalabad[3]	770	89	990	60
Faisalabad - Lahore	500	64	500	50
Faisalabad - Galli Jagir	350	33	350	73
Wah - Nowshera[4]	110	178	110	181
Wah - Abbottabad	94	77	94	88
Gurguri - Kohat - Ismailkot	315	108	315	108
FC1 (Dhullian) - C6 (Galli Jagir)	314	26	314	50
Nowshera - Mardan	75	109	110	76

1. Percentage of capacity utilization is computed w.r.t. available capacity.
2. Capacities of these pipeline segments have been revised due to change in relevant compression infrastructure.
3. Capacity of this segment increased after commissioning of additional loop pipelines.
4. With start / increase in gas supply from MOL's CPF, gas is flowing in reverse direction from Ismailkot /Nowshera towards Wah.

(Source: SNGPL)

Table 3.18: Details of SNGPL Transmission Network as of June 30, 2020

Particulars	Diameter (inch)													
	3"	4"	6"	8"	10"	12"	16"	18"	20"	24"	30"	36"	42"	Grand Total (KM)
Punjab	0.24	4.43	140.70	1,752.03	571.37	322.48	1,208.56	725.95	59.35	1,040.46	789.09	837.58	17.13	**7,469.36**
KP	-	-	57.79	708.59	133.00	209.06	139.66	-	-	167.85	-	-	-	**1,415.94**
Others	-	2.41	-	17.35	5.50	4.50	55.79	11.25	37.80	239.76	86.73	54.95	186.64	**702.68**
Total	**0.24**	**6.84**	**198.49**	**2,477.97**	**709.87**	**536.04**	**1,404.01**	**737.20**	**97.15**	**1,448.07**	**875.82**	**892.53**	**203.77**	**9,587.98**

(Source: SNGPL)

3.3.2 Compression Facilities in SNGPL's Transmission System

SNGPL has 69 compression units with a total capacity of 226,200 brake horsepower (bhp). SNGPL's compression system details are given in **Table 3.19**.

Table 3.19: Compressor Stations on SNGPL Transmission System as of June 30, 2020

Compressor Station/ Location	Number of Units		Total Installed Power (bhp)	
	30-06-2019	30-06-2020	30-06-2019	30-06-2020
AC-0 (Sui)	4	4	11,000	11,000
AC-IX (S) (Bhong) Distt R.Y.Khan	7	7	35,040	35,040
AC-IX (Q) (Bhong) Distt R.Y.Khan	5	4	24,920	20,220
AC-IX (LNG) (Bhong) Distt R.Y.Khan	4	4	17,400	17,400
AC-4 (Uch Sharif) Distt Bahawalpur	8	10	47,020	47,020
AC-6 (Multan)	9	10	40,620	45,320
AC-8 (Faisalabad)	6	4	20,200	18,200
BC-1 (Manawala) Distt Shaikhupura	7	7	7,000	7,000
CC-1 (Haranpur) Distt Jehlum	4	7	4,000	7,000
CC-3 (Gali Jagir) Distt Attock	6	6	12,000	12,000
FC-1 (Dhulian) Distt Attock	7	6	7,000	6,000
Total	**69**	**69**	**226,200**	**226,200**

Note: Centaur T-4700 relocated from Compressor Station AC-IX (Q) to AC-6 A.
2 Nos. Saturn T-1000 relocated from Compressor Station AC-8 to CC-1.
Saturn T-1000 relocated from Compressor Station FC-1 to CC-1.

3.3.3 SSGCL Transmission infrastructure

The details of SSGCL transmission network and compressor stations are given in **Tables 3.20 to 3.23**.

Table 3.20: SSGCL Transmission Network Commissioned during FY 2019-20

Segment	Dia	Length
	(Inch)	(Km)
Sindh		
A New Pipeline Commissioned from POD Rehman to Neigh MVA	12″	46
A New Pipeline Commissioned from POD Ayesha to POD Golarchi	8″	26
	Total	**72**

(Source: SSGCL)

Table 3.21: SSGCL's Capacity Utilization of Transmission Network

(MMCFD)

Transmission Network Segment	Available Capacity as of June 30, 2019	Utilization % age	Available Capacity as of June 30, 2020	Utilization % age
16 Dia. Indus Left Bank Pipeline (ILBP) Nawabshah-Karachi Terminal	80	-	80	-
24″/20″Dia. Kadanwari Pipeline Kadanwari -Malir-Karachi	180	-	180	-
20″/18″Dia. Indus Right Bank Pipeline (IRBP) Dadu-Malir-Karachi	400	-	400	-
12″/18″/20″ Dia. Quetta Pipeline Jacobabad Quetta	90	-	90	-
18" Dia.18 Km Abbe-gum to Mach Loopline	7	-	7	-
18″X 31 Km Dingra-Sibi,18″X15 Km Mach-Kolpur Loopline	10	-	10	-
24″X 30 Km Loopline from Gokart to Abbegum	6	-	6	-
18″ Dia. Badin Pipeline Badin-Hyderabad	200	-	200	-
24″ Dia.X116 Km Loopline from Sind University to FJFC offtake	60	-	60	-
24″ Dia.15 Km Masu-HQ3	40	-	40	-
24″ Dia.X 84 Km HQ2-TandoAdam	85	-	85	-
24″ Dia.X 34 Km Loopline from Tando Adam to Masu	23	-	23	-

Transmission Network Segment	Available Capacity as of June 30, 2019	Utilization % age	Available Capacity as of June 30, 2020	Utilization % age
24"Dia.X 200 Km Bajara-Karachi Loopline	240	-	240	-
18" X 18 Km Loopline (Dhadar to Gokart)	36	-	36	-
12" X 23 Km re-routing 24" X 34 Km Shikarpur to Jacobabad Loop line	32	-	32	-
12"X60 KM HQ-Quetta - Zargun Line	25	-	25	-
Total Capacities for SSGC (A)	**1,514**	**91**	**1,514**	**81**
Transmission Network Contracted for transporting 3rd party gas.	-	-	-	-
18" Dia. Pirkoh Pipeline (OGDC) Pesh Bogi-Pirkoh.	35	-	35	-
16" Dia. ILBP (SNGPL) Hassan -Sui	30	-	30	-
20" Dia. IRBP (Reverse Flow to SNGPL) Dadu-Sui	170		170	-
16" ILBP reverse flow providing regulation between 20" Dia. IRBP & 16" Dia ILBP at RSI	10	-	10	-
Total Contracted Network (B)	**245**	**100***	**245**	**100***
RLNG-2 Pipeline (C)	**1,200**	**-**	**1,200**	**49**
SSGC Total Available Transmission Network Capacity (A+B)	**2,959**	**-**	**2,959**	**-**

*Capacities are subject to changes based on input/output pressures of the segment/transmission pipeline network. Utilization % age of each pipeline segments could not be calculated due to integrated transmission network and connection of more than one gas fields and gas sales meter station at a single line.
Transported gas volumes are being utilized between SSGCL and SNGPL.
(Source: SSGCL)

Table 3.22: Compressor Stations in SSGCL Transmission System as of June 30, 2020

Compressor Station Location	Size and Number of Units		Total Installed Power (bhp)	
	30.06.2019	30.06.2020	30.06.2019	30.06.2020
Shikarpur	120 MMCFD per Unit	120 MMCFD per Unit	11,600	11,600
	2 Units Installed	2 Units Installed	-	-

Compressor Station Location	Size and Number of Units		Total Installed Power (bhp)	
	30.06.2019	30.06.2020	30.06.2019	30.06.2020
Hyderabad	120 MMCFD per Unit	120 MMCFD per Unit	17,400	17,400
	3 Units Installed	3 Units Installed	-	-
Sibi	60 MMCFD per Unit	60 MMCFD per Unit	9,400	9,400
	2 Units Installed	2 Units Installed	-	-
HQ-2	120 MMCFD per Unit	120 MMCFD per Unit	11,600	11,600
	2 Units Installed	2 Units Installed	-	-
	200 MMCFD per Unit	200 MMCFD per Unit	46,800	46,800
	6 Units Installed	6 Units Installed	-	-
		Total	**96,800**	**96,800**

(Source: SSGCL)

Table 3.23: Details of SSGCL Transmission Network as of June 30, 2020

Province	Diameter (inch)									
	6"	8"	12"	16"	18"	20"	24"	30"	42"	Grand Total (Km)
Sindh	36	26	220	536	669	762	721	9	371	3,350
Balochistan	-	-	371	22	301	82	-	-	-	776
Total	**36**	**26**	**591**	**558**	**970**	**844**	**721**	**9**	**371**	**4,126**

(Source: SSGCL)

3.3.4 Independent System Infrastructure

A number of natural gas customers (fertilizer and power plants etc.) in the country are supplied with gas through independent/ dedicated pipelines. Details of such pipelines connecting the gas fields to their respective consumers are given in **Table 3.24.**

Table 3.24: Independent System Infrastructure

Pipeline Operator	Segment	Diameter	Length
FFCL	Mari to Fauji Fertilzer 1	16	48
FFCL	Mari to Fauji Fertilizer 2	14	48
FFCL	Mari to Fauji Fertilzer Mirpur Mathelo	16	15
ECPL	Mari to Engro Chemical	10, 12	9, 9
CPGCL	Mari to Guddu Thermal Power Station	20	60

Pipeline Operator	Segment	Diameter	Length
CPGCL	Kandhkot to Guddu Thermal Power Station	16	50
CPGCL (WAPDA)	SNGPL's Compresstion Station at Sui Field to Guddu Thermal Power station	16	56
OGDCL	Uch Field to Uch Power Plant	26	47
OGDCL	Nandpur Pinjpir to FKPCL	12	16
Tullow	Sara/Suri Field to CPGCL Pipeline near Mari Well No.6	8	33
FFCL	Mari to Fatima Fertilzer	20	47
FPCDL	Mari to Foundation Power Company Ltd (Dharki)	20	15
ETPL	ETPL Jetty to SSGCL's tie in point at SMS Pakland.	24 & 42	6 & 18
Engro Fertilizers Ltd. (EFL)	Reti Maru (OGDCL) Field to Engro's Battery Limits at Dharki	10	26
Fauji Oil Terminal and Distribution Company Ltd. (FOTCO)	For Transmission of RLNG from Pakistan Gas Port Consortium Ltd. (PGPCL) Terminal to SSGC's Tie in Point Located at Port Qasim, Karachi.	30	13.3
Pakarab Fertilizers Limited	Mari Gas Fields to PFL by using SNGPL System (SNGPL's Muhammadpur valve assembly)	16	24

3.3.5 SNGPL & SSGCL Distribution Mains and Service Lines

The Gas Companies are involved in supplying of gas to distant localities / customers, wherever it is economically viable and technically feasible.

SNGPL and SSGCL added 5,731 Km and 527 Km respectively in their respective distribution network during FY 2019-20. Region-wise and diameter-wise breakdown of SNGPL and SSGCL distribution networks, as of June 30, 2020, are given in **Tables 3.25** and **3.26** respectively.

Table 3.25: SNGPL's Distribution Network-Cumulative Length (KM) as of June 30, 2020

Punjab														
Region/Size	**3/4″**	**1″**	**1-1/4″**	**1-1/2″**	**2″**	**4″**	**6″**	**8″**	**10″**	**12″**	**16″**	**18″**	**24″**	**Total**
Islamabad	2,132	2,669	2,065	8	2,201	1,323	476	137	45	13	24	2	20	**11,115**
Rawalpindi	2,191	1,887	1,622	0	2,358	1,103	431	185	63	58	34	0	0	**9,932**
Bahawalpur	1,065	1,398	961	0	1,199	652	228	133	108	39	0	0	0	**5,783**
Gujrat	975	779	1,441	0	1,213	768	284	211	8	6	0	0	0	**5,685**
Sahiwal	1,037	1,042	1,875	0	1,195	626	322	179	48	0	0	0	0	**6,324**

Punjab														
Sheikhupura	1,394	605	1,114	0	943	805	303	269	40	18	11	5	0	**5,507**
Sargodha	1,418	431	1,553	0	1,077	971	226	69	8	27	2	0	0	**5,782**
Faisalabad	2,875	2,689	3,884	0	2,748	1,520	822	489	102	41	27	0	0	**15,197**
Lahore	3,971	7,543	1,835	12	3,781	1,277	567	169	48	152	175	28	31	**19,589**
Multan	2,436	972	2,729	0	3,846	2,676	661	259	65	69	12	0	0	**13,725**
Gujranwala	1,873	1,894	1,974	0	2,427	1,525	435	240	11	0	42	6	0	**10,427**
Sialkot	944	846	1,181	0	1,244	764	212	115	52	3	0	0	0	**5,361**
Sub-total, Punjab	**22,311**	**22,755**	**22,234**	**20**	**24,232**	**14,010**	**4,967**	**2,455**	**598**	**426**	**327**	**41**	**51**	**114,427**
KP														
Peshawar	2,180	2,283	641	0	2,495	1,592	762	250	190	64	59	8	0	**10,524**
Mardan	1,028	1,215	1,366	0	1,415	831	262	181	14	15	0	0	0	**6,327**
Abbottabad	750	1,159	769	0	999	453	224	131	90	30	4	0	0	**4,609**
Sub-total, KP	**3,958**	**4,657**	**2,776**	**0**	**4,909**	**2,876**	**1,248**	**562**	**294**	**109**	**63**	**8**	**0**	**21,460**
Total SNGPL	**26,269**	**27,412**	**25,010**	**20**	**29,141**	**16,886**	**6,215**	**3,017**	**892**	**535**	**390**	**49**	**51**	**135,887**

(Source: SNGPL)

Table 3.26: SSGCL's Distribution Network – Cumulative Length (KM) as of June 30, 2020

Region / Size	Sindh									
	1"-2"	3"	4"	6"	8"	10"	12"	16"	Others	**Total**
Sindh (Interior)	9,375	15	3,732	1,860	513	33	62	17	7,060	**22,667**
Karachi	5,172	-	833	491	640	15	186	100	9,248	**16,685**
Sub-total	**14,547**	**15**	**4,565**	**2,351**	**1,153**	**48**	**248**	**117**	**16,308**	**39,352**
Region / Size	**Balochistan**									
Balochistan	3,458	-	1,252	413	504	6	48	112	2,375	8,168
Grand Total	**18,005**	**15**	**5,817**	**2,764**	**1,657**	**54**	**296**	**229**	**18,683**	**47,520**

(Source: SSGCL)

Distribution Network (Km) - Polythene Pipe

Region	Sindh					
	20mm	40mm	63mm	125mm	180mm	Total
Sindh (Interior)	649	884	845	253	16	**2,647**
Karachi	835	1,031	1,785	477	269	**4,397**
Sub-Total, Sindh	**1,484**	**1,915**	**2,630**	**730**	**285**	**7,044**
Region	**Balochistan**					
Balochistan	164	33	389	95	6	**687**
Grand Total	**1,648**	**1,948**	**3,019**	**825**	**291**	**7,731**

(Source: SSGCL)

3.3.6 Customers Addition to Gas Network

The total number of new gas consumers added during FY 2019-20 is given in **Table 3.27** and cumulative number of consumers (country-wide) as of June 30, 2020 in **Table 3.28**.

Table 3.27: Number of Consumers Added / (Disconnected) during FY 2019-20

Sector	SNGPL			SSGCL				(SNGPL + SSGCL)
	Punjab & AJK	KP	Total SNGPL	Sindh (Interior)	Karachi	Balochistan	Total SSGCL	Total
Domestic	230,039	40,019	**270,058**	27,276	60,838	7,161	**95,275**	**365,333**
Commercial	946	163	**1,109**	(116)	(215)	(15)	**(346)**	**763**
Industrial	56	5	**61**	7	77	(2)	**82**	**143**
Total	**231,041**	**40,187**	**271,228**	**27,167**	**60,700**	**7,144**	**95,011**	**366,239**

(Source: SNGPL & SSGCL)

Fig 3.1: Addition in Gas Consumers

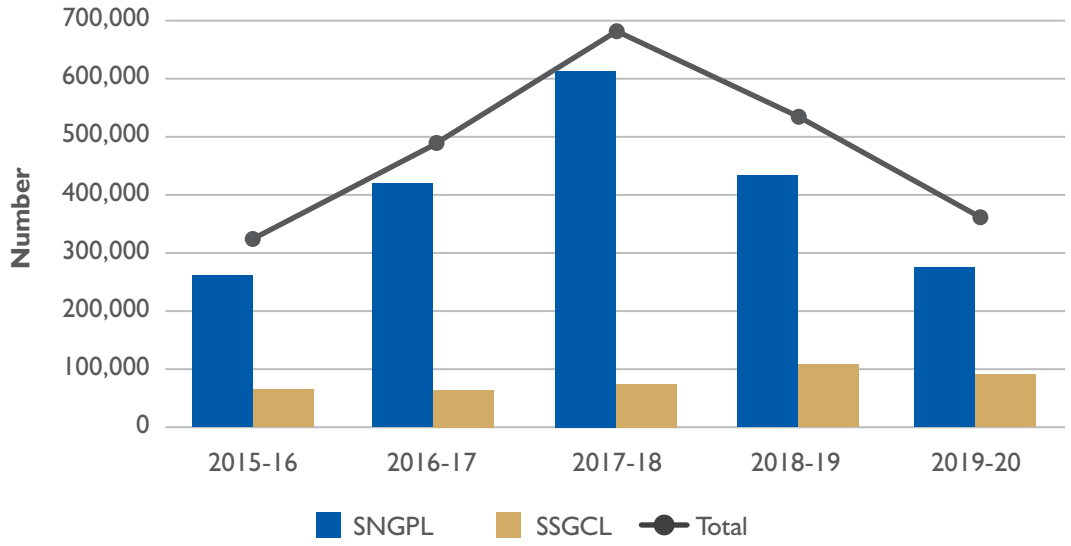


Table 3.28: Number of Consumers (Cumulative) as of June 30, 2020

Sector	SNGPL			SSGCL				(SNGPL + SSGCL)
	Punjab & AJK	KP	Total SNGPL	Sindh Interior	Karachi	Balochistan	Total SSGCL	Total
Domestic	6,054,018	917,180	**6,971,198**	874,483	1,928,800	282,303	**3,085,586**	**10,056,784**
Commercial	54,879	10,084	**64,963**	4,181	17,305	2,765	**24,251**	**89,214**
Industrial	6,142	844	**6,986**	652	3,643	57	**4,352**	**11,338**
Total	**6,115,039**	**928,108**	**7,043,147**	**879,316**	**1,949,748**	**285,125**	**3,114,189**	**10,157,336**

(Source: SNGPL & SSGCL)

3.4 Natural Gas Consumption and Production

3.4.1 Gas Consumption

Natural gas consumers are categorized into residential, commercial and industrial sectors. The industrial sector includes the power, cement, general industry, fertilizer and transport sectors. The demand for gas increases considerably during the winter season, consequently, Gas Utility Companies, in accordance with the priorities set by GoP, curtail gas supply to different sectors. The residential (domestic) sector remains at the top priority of the gas companies for maintaining gas supply, as per the GoP's Natural Gas Load Management Policy.

Table 3.29: Sector-wise Gas Consumption during FY 2019-20

(MMCFD)

Sector	SNGPL System	SSGCL System	Independent System	Total Country	Percentage Share (Net of Own Use & Losses)
Residential	604	284	0	888	24
Commercial	48	26	0	74	2
General Industry	180	147	0	327	9
Fertilizer	143	53	583	779	21
Cement	0	0	0	0	0
Captive Power	110	180	0	290	8
Power	530	194	474	1,198	33
Transport	88	39	0	127	3
Sub-total	**1,703**	**923**	**1,057**	**3,683**	**100**
Own use	33	0	0	33	-
T&D Losses	170	198	0	368	-
Grand Total	**1,906**	**1,121**	**1,057**	**4,084**	**-**

Total SSGCL volume excludes 34 MMCFD volume due to JJVL shrinkage and RLNG Swap

(Source: SNGPL SSGCL and Independent Systems)

Fig 3.2: Sector-Wise Share in Gas Consumption During FY 2019-20

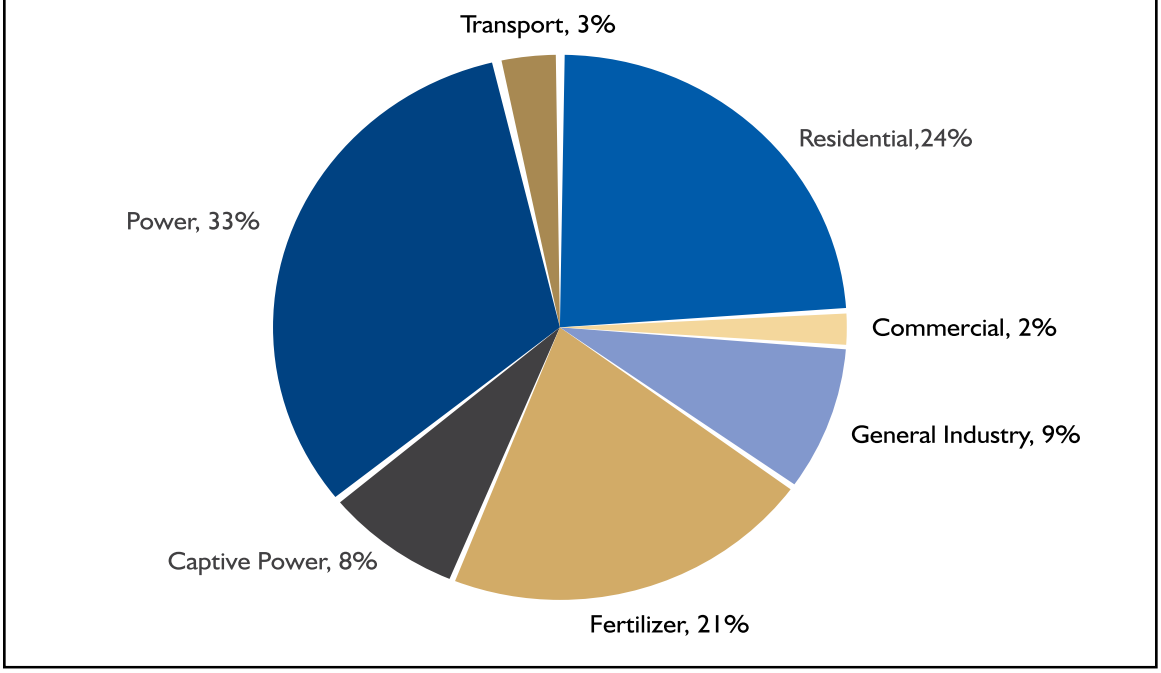


Fig 3.3: Sector-Wise Gas Consumption

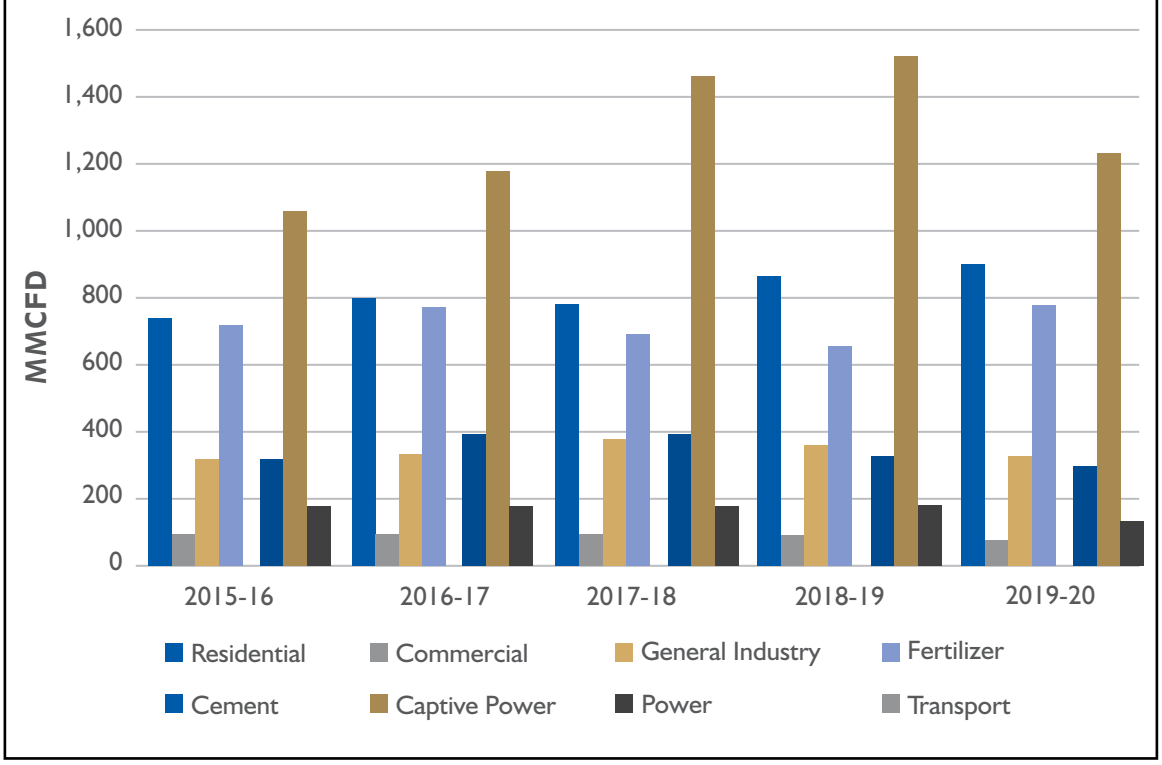
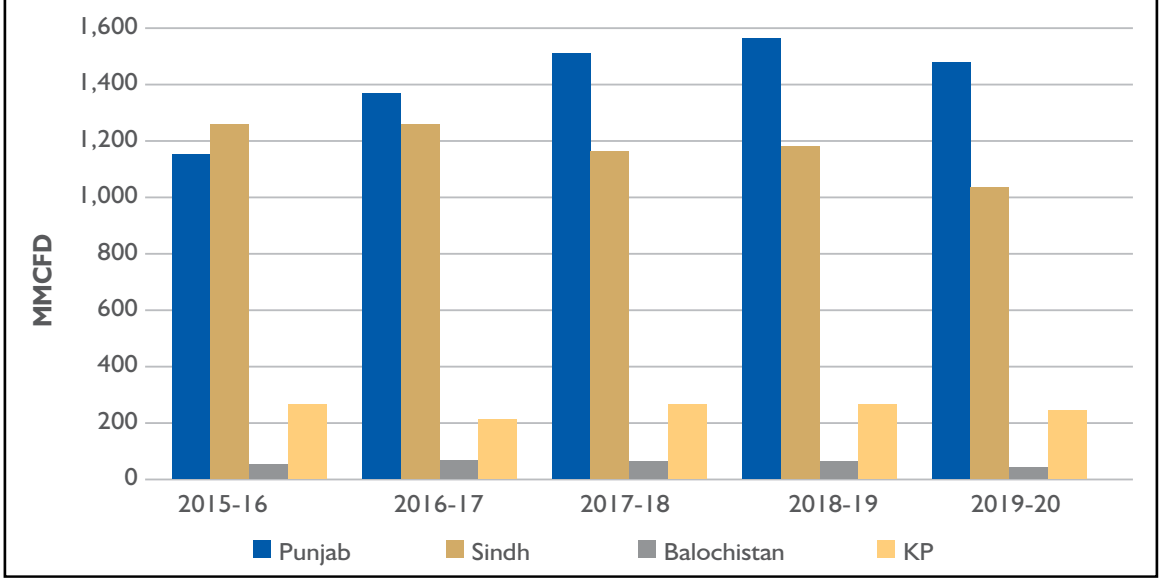


Table 3.30: Province-wise Gas Consumption during FY 2019-20 (SNGPL & SSGCL Systems only)

Province	Consumption (MMCFD)		Percentage Share	
	2018-19	2019-20	2018-19	2019-20
Punjab	1,591	1,471	51	52
Sindh	1,180	1,061	38	37
Balochistan	65	48	2	2
Khyber Pakhtunkhwa	273	249	9	9
Total	**3,109**	**2,829**	**100**	**100**

(Source: SNGPL & SSGCL)

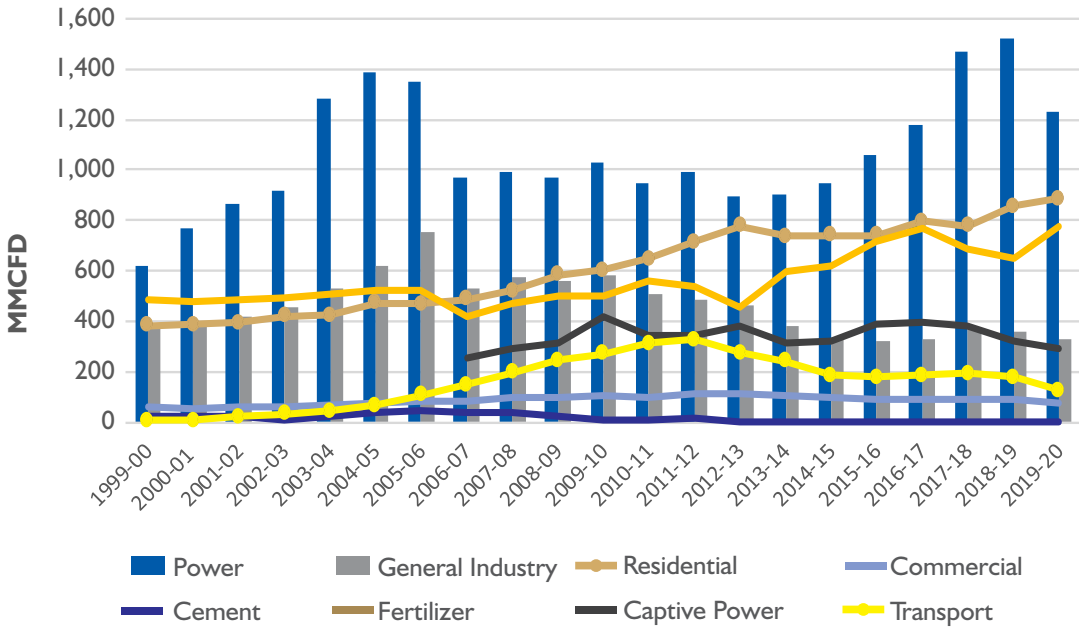
Fig 3.4: Provice-Wise Gas Consumption (SSGCL & SNGPL)



3.4.2 Sectoral Gas Consumption – Over the Years

Natural gas demand in the country has been increasing day by day. Some 20 years back, in 1999-00, overall consumption of natural gas in the country was around 1,950 MMCFD whereas the same has increased to 3,683 MMCFD in FY 2019-20. Natural gas consumption consolidated sectoral growth from 1999-00 to 2019-20 is shown in **Fig 3.5.**

Fig 3.5: Sectoral Gas Consumption Trend



Source: For FY 1997-98 to 2004-05, Pakistan Economic Surveys. For 2005-06 onwards OGRA's Annual Reports

3.4.3 Gas Supplies

The natural gas is produced from the gas fields located in the provinces of Pakistan. The natural gas supply in the Country has reached to 4,052 MMCFD. The major gas fields of the country include Mari, Sui, Uch, Qadirpur, Kandhkot, Maramzai. In addition, Pakistan is importing LNG since 2015 whereby the RLNG has contributed significantly in mitigating the natural gas shortage in the Country. During FY 2019-20, around 29 percent of the country's gas supplies were met through the imported RLNG. In this regard, the data related to imported and province-wise natural gas supplies to the Gas Utility Companies including RLNG share is given in **Table 3.31**. The field-wise natural gas and RLNG supplies to SNGPL, SSGCL and Independent systems are given in **Table 3.32**.

Table 3.31: Province-wise and Imported RLNG Supplies to SNGPL and SSGCL during FY 2019-20

(MMCFD)

Province	Gas Supply
Punjab	91
Balochistan	335
Sindh	1,344
Khyber Pakhtunkhwa	368
RLNG	857
Total	**2,995**

Fig 3.6: Provincial and RLNG Share in Gas Supplies to Gas Utility Companies During FY 2019-20

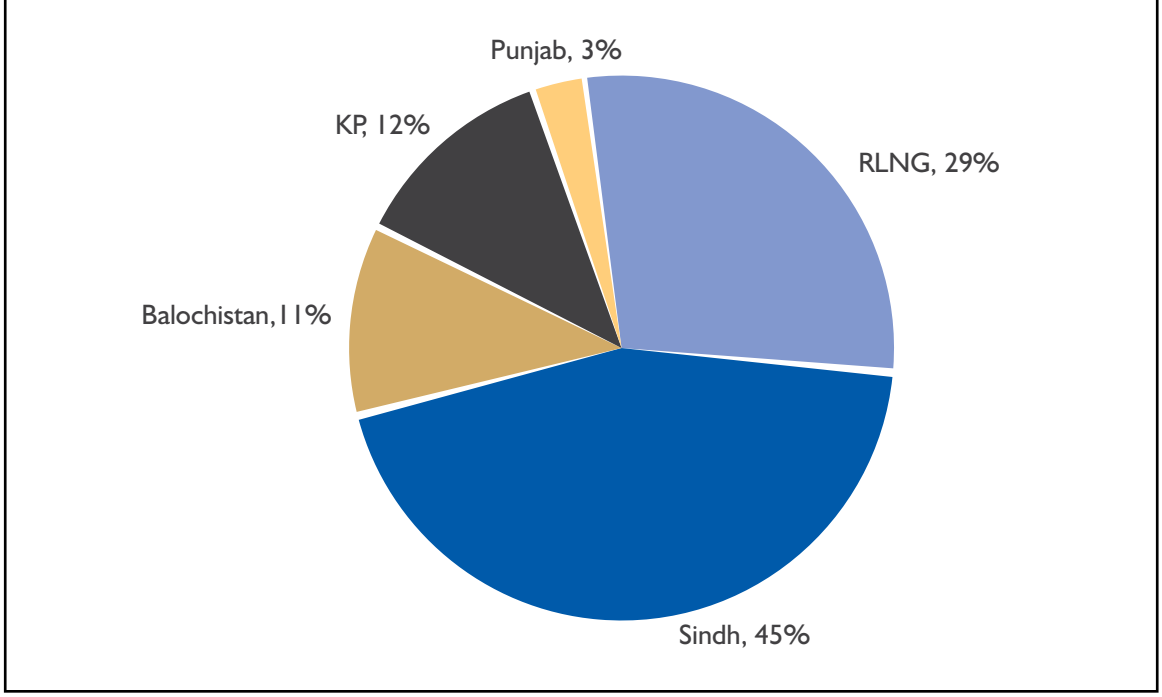


Table 3.32: Field-wise Natural Gas and Imported RLNG Supplies to SNGPL, SSGCL and Independent System

SNGPL

Gas Field	2018-19			2019-20		
	Calorific Value (BTU/SCF)	(BBTU/D)	(MMCFD)	Calorific Value (BTU/SCF)	(BBTU/D)	(MMCFD)
Balochistan						
Loti	838	12	15	835	12	14
Pirkoh	840	0	0	834	0	0
Sui	957	205	215	957	189	198
Sub-total, Balochistan	**-**	**218**	**230**	**-**	**201**	**212**
KP						
Chanda	1,149	6	6	1,139	8	7
Makori	1,033	0	0	1,034	0	0
Makori East	1,033	69	66	1,034	62	60
Makori Deep	1,033	4	4	1,035	12	12
Manzalai Cpf	1,058	23	22	1,056	25	23
Mela	1,146	9	8	1,147	8	7
Mamikhel	1,058	21	20	1,055	13	12
Maramazai	1,046	136	130	1,046	123	118
Nashpa	1,051	89	85	1,049	78	75
Tolanj	1,009	6	6	1,012	3	3
Tolanj West	1,009	9	9	1,011	7	7
Mardankhel	1,058	45	42	1,057	47	45
Dhok Hussain	-	-	-	984	0	0
Togh I	-	-	-	1,092	0	0
Sub-total, KP	**-**	**418**	**398**	**-**	**386**	**368**

Punjab						
Adhi	1,077	65	60	1,077	56	52
Dakhni	1,064	17	16	1,062	16	15
Dhodak	1,144	1	1	1,143	1	1
Dhullian	1,073	1	1	1,074	0	0
Meyal	1,073	1	1	1,080	1	1
Pariwali	1,068	3	3	1,073	3	3
Pindori	1,138	0	0	1,126	0	0
Ratana	1,123	0	0	1,126	0	0
Ratana Meyal	1,067	3	3	1,072	0	0
Sadkal	1,171	1	1	1,177	1	0
Salsabeel	999	5	5	998	4	4
Salsabeel Chiltan	867	0	0	-	-	-
Soghari	1,064	6	6	1,062	8	7
Jhandial	1,067	7	6	1,072	4	3
Kalabagh	1,112	4	4	1,118	4	3
Sub-total, Punjab	**-**	**114**	**107**	**-**	**98**	**91**
Sindh						
Badar	574	10	17	574	9	16
Chachar	809	2	3	850	1	1
Hasan.B-22	697	4	6	715	2	3
Kandhkot	819	51	62	816	19	23
Qadirpur (Proc)	876	146	167	875	129	148
Qadirpur (Raw)	837	30	36	836	22	26
Qadirpur (Perm)	692	31	45	684	17	24
Sawan	1,006	18	18	1,011	17	17
Tajjal	1,006	1	1	1,011	0	0
Zamzama (SNGPL)	797	14	18	798	8	11

Koonj	864	0	0	869	0	0
Mari Engro	724	65	89	724	70	97
Latif	1,006	19	18	1,011	12	12
Sub-total, Sindh	-	**391**	**480**	-	**307**	**379**
Total	-	**1,141**	**1,214**	-	**993**	**1,050**
RLNG	**1048**	**1,064**	**900**	**1055**	**1,025**	**857**
Total SNGPL (A)	-	**2,205**	**2,115**	-	**2,018**	**1,907**

SSGCL

Gas Field	2018-19			2019-20		
	Calorific Value (BTU/SCF)	(BBTU/D)	(MMCFD)	Calorific Value (BTU/SCF)	(BBTU/D)	(MMCFD)
Balochistan						
Sui	954	100.3	105.1	957	103.1	107.7
Zargoon	950	13.4	14.1	953	14.1	14.8
Sub-total, Bal0chistan	-	**113.7**	**119.2**	-	**117.2**	**122.5**
Sindh						
Kandhkot	800	1.2	1.5	820	1.3	1.5
Mazarani	1,027	3.8	3.7	1,030	3.4	3.3
Badin	1,138	28.8	25.3	1,090	43.6	40
Bhit	949	133.3	140.4	957	119.3	124.7
Kadanwari	1,002	43.6	43.5	1,000	28.7	28.7
Miano	1,000	35.6	35.6	1,004	26.1	26
Sawan	1,006	15.7	15.6	1,011	9.4	9.3
Zamzama	799	10.7	13.4	794	8.5	10.7
Khipro/Mirpur Khas	990	357	360.7	972	297.6	306.1
TAY / Dars	1,034	61.5	59.5	1,027	49	47.7
Hundi Sari	917	1.1	1.2	923	1.2	1.3
Mari	700	0.7	1	727	0.7	1
Bobi	1,100	4.4	4	1,121	3.7	3.3

Hassan /SNGPL Towns (Ghotki,Rustam, Sher Ali, Ubaro, Chouniko)	872	4.1	4.7	866	3.8	4.4
Badin-IV South (Ayesha, Ayesha North & Aminah)	-	-	-	969	6.3	6.5
Adam-X	1,046	15.9	15.2	1,038	16.5	15.9
Pakhro/Noorai Jagir	1,000	0.2	0.2	1,032	4.8	4.7
Latif	1,000	12	12	1,017	12.2	12
Pashaki deep & Kunnar deep	1,025	141.4	137.9	1,026	126.9	123.7
Sujawal/Sujjal	1,051	16.4	15.6	1,054	15.5	14.7
Sinjhoro	1,013	30.6	30.2	1,027	26.8	26.1
Nur Bagla field	2	5.2	4.8	1,080	2.7	2.5
Kirther (Rehman) EWT	836	13.8	16.5	838	19.7	23.5
Maher/Mubarak Block	1,074	8.7	8.1	1,083	14.3	13.2
Rizq - EWT	934	14.2	15.2	938	13.7	14.6
JakhroDachrapur/Gopang	1,083	2.6	2.4	1,094	1.8	1.6
Gambat	953	51.2	53.7	918	61.8	67.3
Bitro	-	-	-	1,000	4.4	4.4
Sofiya/Chutto/Aqeeq/ Britism/Mitha	-	25.5	23.3	1,085	20.5	18.9
Kotri	-	-	-	943	3.3	3.5
Thal	-	-	-	1,000	3.6	3.6
Sub-total, Sindh	**994**	**1,039.20**	**1,045.20**	**986**	**951.1**	**964.7**
Total SSGCL (B)	**990**	**1,152.90**	**1,164.40**	**983**	**1,068.32**	**1,087.23**

Independent System

Producer / Field	2018-19	2019-20
Mari Petroleum Ltd. (Mari Gas Field, Sindh)	582	652.827
OGDCL (Uch Gas Field, Baluchistan)	307	282.44
OGDCL (Nandpur Gas Field, Punjab)	4	1.22
OGDCL (Guddu Block, Sindh)	11	11.08

PPL (Kandhkot, Sindh)	136	110.4
Total Independent System (C)	**1,040**	**1,057**
Total Country Wide Supplies (A+B+C)	**4,319**	**4,052**

(Source: SNGPL, SSGCL, Mari Petroleum Company Ltd, OGDCL, PPL)

Province wise gas production / supplies and imported RLNG to Gas Utility Companies is shown in **Fig 3.7** and their respective share is shown in **Fig 3.8.** Sindh stood as the major supplier with a contribution in gas supply of around 45 percents while Balochistan, KP and Punjab followed with shares of 11 percent, 12 percent and 3 percent respectively. While the share of RLNG, in the overall gas supply, has increased to 29 percent.

Fig 3.7: Gas Supply to Gas Utility Companies

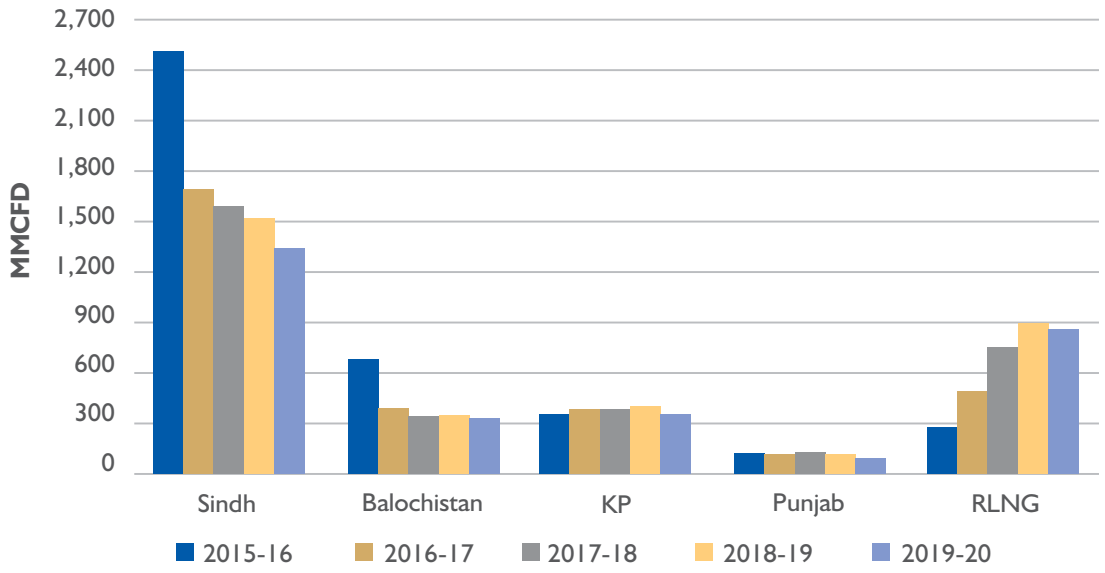
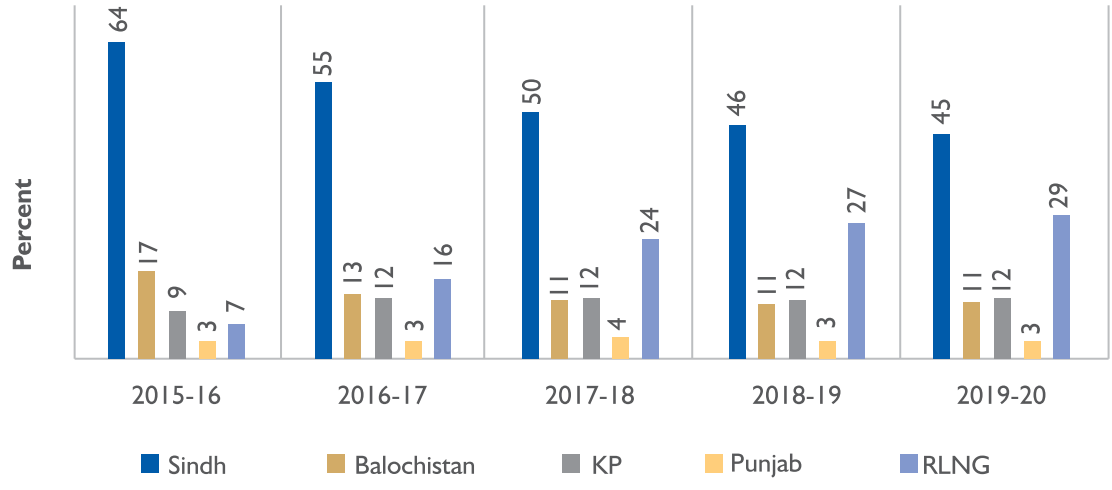


Fig 3.8: Provincial and RLNG Share in Gas Supply Sources

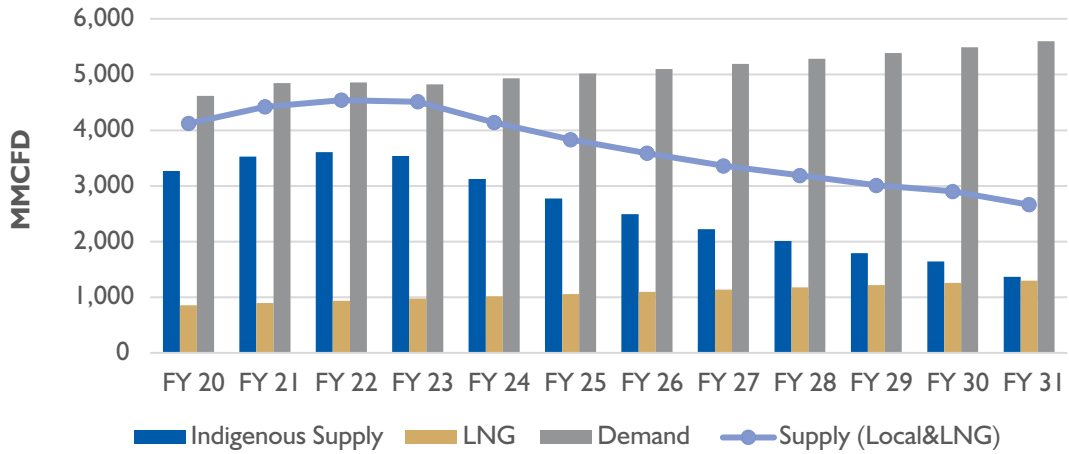


3.5 Future Outlook for Natural Gas Sector

Demand Forecast

Both the Gas Utility Companies have added more than 0.3 million domestic, commercial and industrial consumers, in their respective systems, during FY 2019-20. Consumer addition is increasing the gap between demand and supplies, day by day. Especially in winter, the gas demand further increases and as a result the GoP is being forced to curtail supplies to various sectors. Demand - Supply scenario of natural gas (indigenous sources) for the next eleven (11) years is given in **Appendix-II.** The gap between demand of natural gas and supplies indigenous, imported natural gas and LNG is given in **Appendix-III.** The gas demand - supply forecast for indigenous sources and LNG supply is shown in **Fig 3.9.**

Fig 3.9: Gas Demand - Supply Forecast



3.6 Consumer Gas Pricing

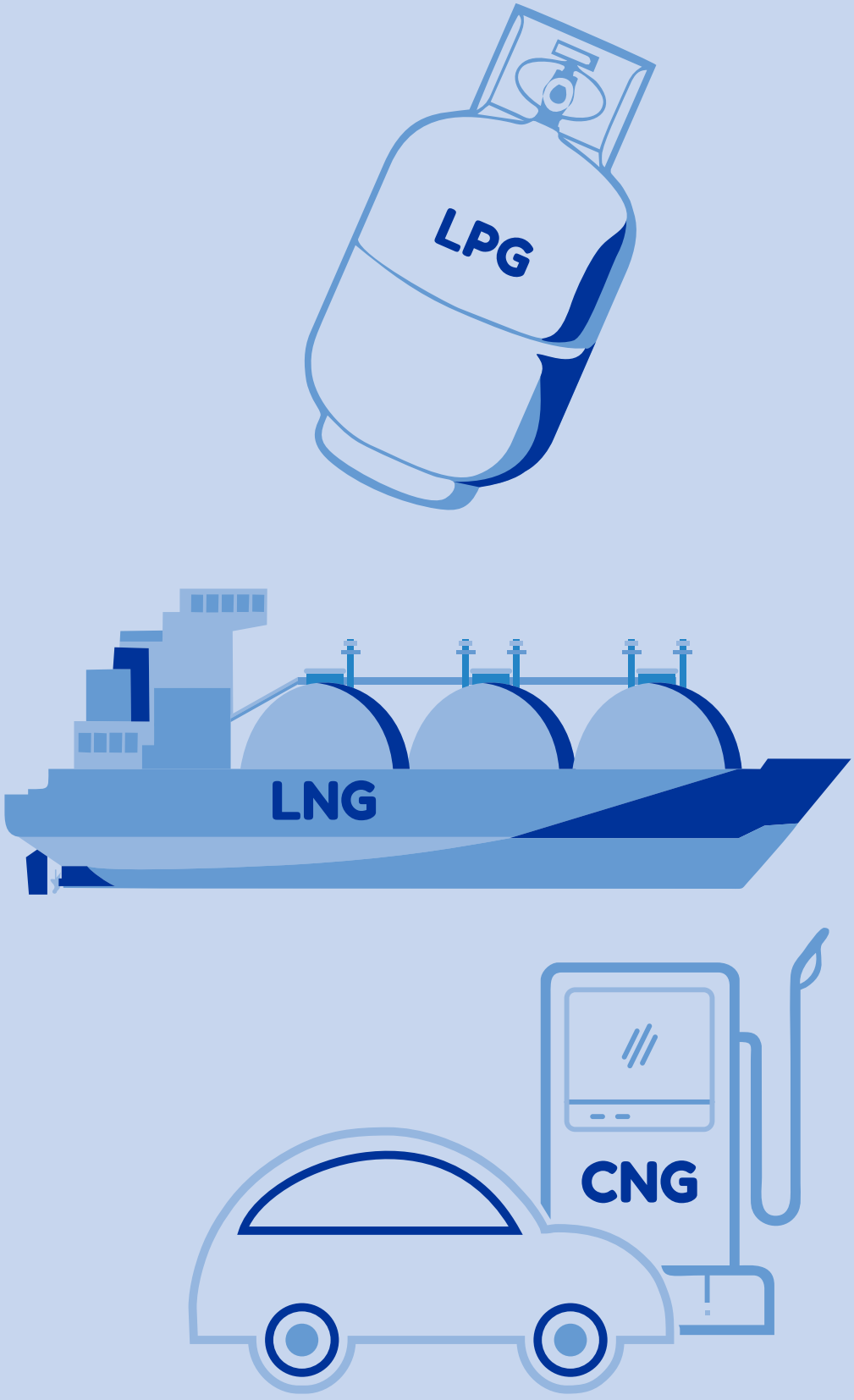
Based on the revenue requirement of the gas companies, OGRA determines the prescribed price (i.e. price to be retained by the Companies) for each category of consumers. The two gas utilities, SNGPL and SSGCL, supplying gas to consumers in their operational areas. The Government fixes consumer gas prices and as a matter of policy, maintains them at a uniform level throughout the country. Therefore, the cost of supplying gas to customers at various locations is not accounted for and, regardless of the difference in cost due to location, all consumers within the same category pay a uniform price. The two utilities, SNGPL and SSGCL, are supplying gas to consumers in their operational areas and all consumers within the same category pay a uniform price. Gas tariffs for various consumer segments for FY 2019-20 are given in **Appendix-IV**. The Consumer Price of Natural Gas in Pakistan comprises of the prescribed price for the gas companies and Gas Development Surcharge (GDS).

OGRA fixes the 'prescribed price' for the gas utilities after conducting public hearings where stakeholders express their views. Also, a thorough analysis is carried out in terms of prudence and rationale for revenue and capital expenditures.

The Prescribed Price includes the following Elements:

- Producer gas prices, which are linked with international prices of crude oil and HSFO
- Transmission and distribution costs
- Depreciation
- Return to SNGPL and SSGCL (17.43% on net operating fixed assets)

OGRA had introduced incentive oriented efficiency benchmarks so as to curtail the gas utilities' uneconomical costs and to benefit the poor natural gas consumers. OGRA advises the revenue requirement of each utility and the prescribed prices to the Federal Government. The Government then determines the consumer prices for various categories of the consumers, after adjusting cross subsidy or GDS and advises the same to OGRA for notification in the Official Gazette of Pakistan.


LPG
LNG
CNG

LPG, LNG & CNG

4. Liquefied Petroleum Gas (LPG)

Overview

Local Production meets around 68 percent of the LPG consumed within the country, whereas the rest is imported. Refineries, Gas Producing Fields and Imports are three main sources of LPG supply in the Country. LPG is gradually becoming popular domestic fuel among people who live in far-flung areas and where the natural gas infrastructure does not exist. In the current energy scenario, LPG is the most viable alternative in the winters to cater for the demand supply gap of natural gas network. LPG is rapidly becoming significant component of energy mix since the same provides a cleaner alternative in comparison to biomass and dung especially in those locations where natural gas network is not available.

The current size of LPG market is around 1,149,352 Metric Tons/Annum. It is primarily meant to supply for the domestic fuel requirement especially in natural gas starved areas and in peak shaving times in the urban territories. The use of LPG as domestic fuel shall deter deforestation in hilly areas and shall provide a comparatively healthier and hygienically safe alternative to the common citizens. GoP has taken a policy decision to allow use of LPG in the automotive sector to share the burden with conventional auto fuels. Subsequently, OGRA has laid down an elaborated regulatory framework for supply of LPG to the vehicles.

View of a LPG Plant

Currently, in Pakistan vast majority of poor people are relying on conventional fuels like coal, firewood, kerosene and biomass etc. with biomass playing main role among all conventional energy supply sources. For convenience, cleanliness, and public health, natural gas and LPG are by far the preferred fuels, followed by kerosene, which is a close substitute of LPG.

LPG consumption has increased during the current year and around 350,096 M.Tons of LPG has been imported during FY 2019-20. Enhanced supply of LPG through additional local production as well as import of LPG is a key to bridge the gap between demand and supply and to stabilize the LPG consumer prices especially during the winter season.

OGRA has simplified LPG licensing procedures, thereby strengthening the supply infrastructure and promoting an environment conducive to investment and competition.

The regulatory issue confronting OGRA is to prevent illegal business of LPG which includes illegal decanting of LPG, cross filing and shifting of LPG from one vessel/ bowser to another without adequate safety measures. OGRA on regular basis directs LPG companies to exercise adequate control to ensure complete and comprehensive safe practices throughout the LPG supply chain i.e. from LPG producers to the LPG marketing companies and authorized distributors to the end consumers. Appropriate stern action against defaulting companies is also initiated by OGRA wherever non-conformance is observed.

As of June 30, 2020, there were 11 LPG producers, 208 LPG marketing companies operating in the country, having more than 7,400 authorized distributors. Further, there were 22 operational LPG auto refuelling stations within the country.

Moreover, from 2008 onwards, OGRA started registration of LPG equipment manufacturing companies for the purpose to eradicate substandard manufacturing, sale and use of LPG equipment. So far, OGRA has pre-qualified 56 LPG equipment manufacturing companies as authorized manufacturer of LPG equipment.

4.1 LPG Consumption

During FY 2019-20, LPG consumption stood at around 3,140 tons per day. **Table 4.1** gives a regional/sectoral consumption summary of LPG for FY 2019-20 in the country. LPG consumption has increased by 8.2 percent compared to last fiscal year.

Table 4.1: LPG Regional/Sectoral Consumption during FY 2019-20

Regions/Sectors	Domestic	Commercial	Industrial	Total
Islamabad Federal Capital Area	8,974	10,627	5,388	24,989
Punjab	225,494	325,626	134,881	686,002
Sindh	32,155	60,220	32,602	124,977
KP	68,461	36,698	2,953	108,113
Balochistan	8,347	14,199	7,061	29,606
Northern Area	52,472	14,614	0	67,087
FATA	29,968	11,658	99	41,725
AJK	46,185	19,325	1,345	66,854
Total (M.T)	**472,056**	**492,968**	**184,328**	**1,149,352**
Daily Tonnes	**1,290**	**1,347**	**504**	**3,140**

Source: LPG Marketing Companies Reports

Fig 4.1: Sectoral Consumption of LPG

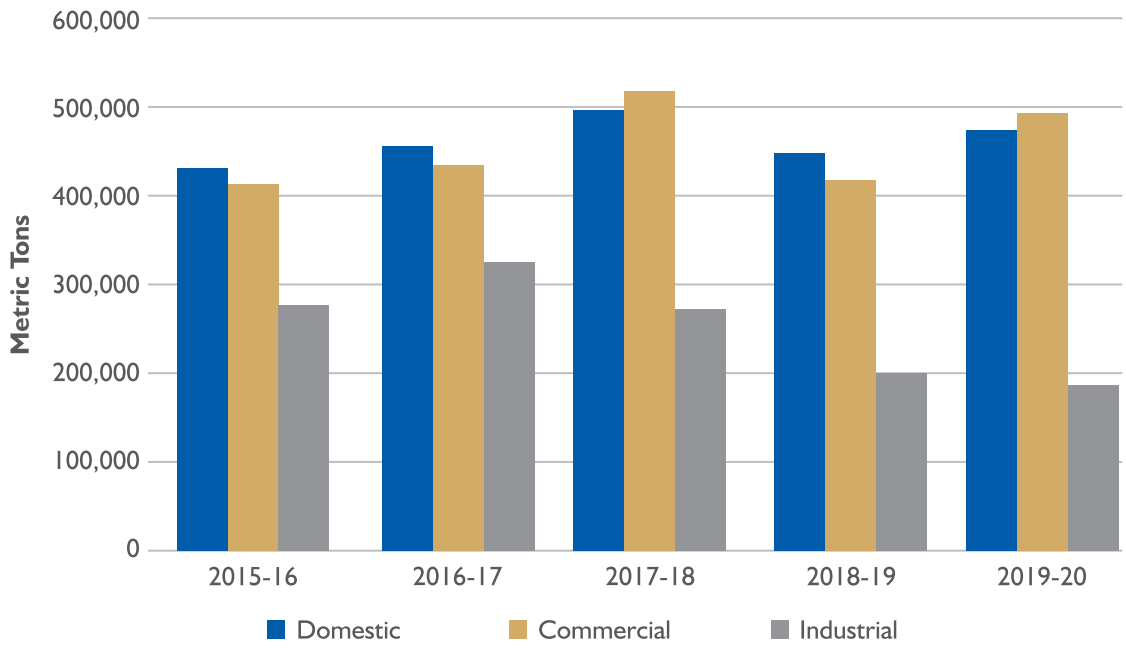
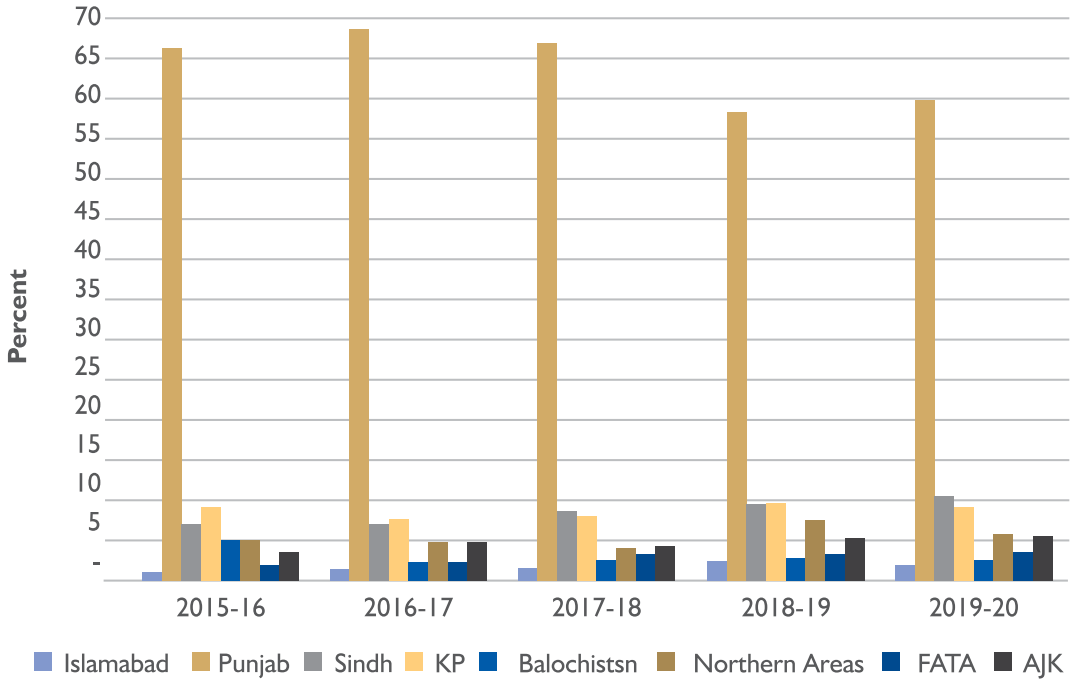


Fig 4.2: Regional Share in LPG Consumption



4.2 LPG Supplies

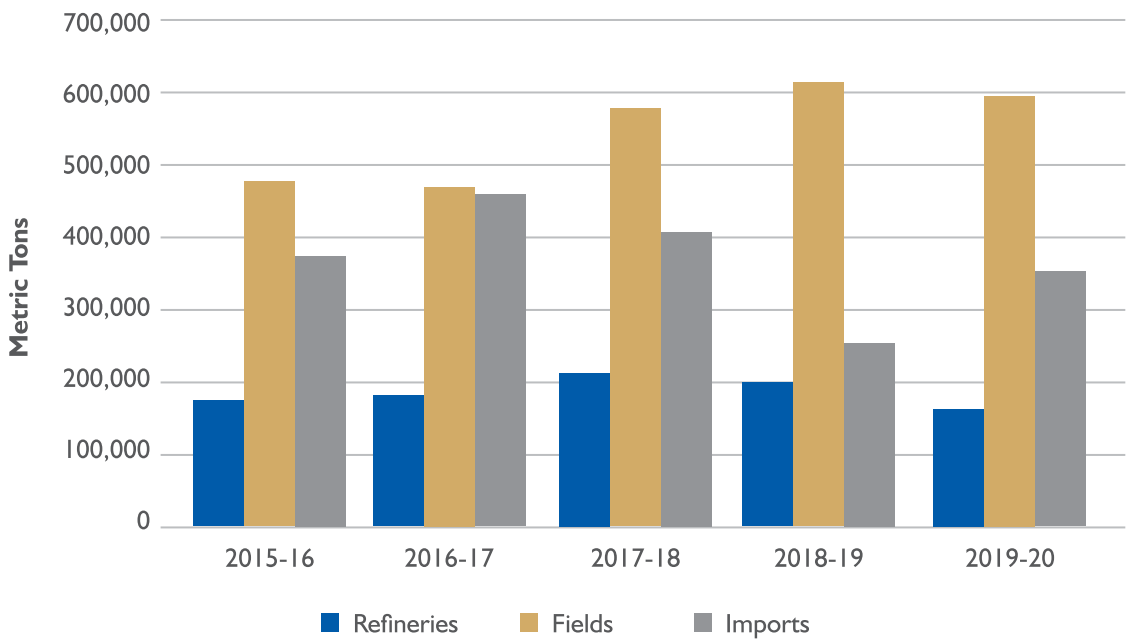
Currently, LPG supplies are being met through three sources: refineries, gas producing fields and imports. The actual supply from refineries/producing fields is presented in **Table 4.2** and the respective share of each supply source in the total countrywide supply is shown in **Fig 4.3.**

Table 4.2: LPG Supply during FY 2019-20

Sector	Annual (Tons)	Daily (Tons)
Refineries		
Attock Refinery Limited	3,983	11
Pakistan Refinery Limited	15,237	42
National Refinery Limited	6,228	17
Pak Arab Refinery Company Limited	97,553	267
Byco Petroleum Pakistan Limited	38,433	105
Refineries' Sub-total	**161,434**	**441**
Fields		
OGDCL	226,752	620
UEPL (Naimat Basal)	11,929	33
JJVL (On behalf of SSGCL)	90,078	246
POL (Mayal-Pindori)	14,183	39
PPL	84,027	230
MOL Pakistan	166,093	454
Fields' Sub-total	**593,061**	**1,620**
Total Production (Refineries + Fields) (M.T)	**754,495**	**2,061**
LPG Import (M.T)	**350,096**	**957**
Total Supply (Production + Import) (M.T)	**1,104,591**	**3,018**

Source: LPG monthly production reports of producers

Fig 4.3: LPG Supply Sources



LPG Storage Tanks

5. Liquefied Natural Gas (LNG)

Liquefied Natural Gas (LNG) is natural gas that is cooled and converted into liquid at a temperature of -162°C (−260 °F) and at atmospheric pressure. Liquefaction reduces the fuel volume by about 600 times and allows it to be stored and transported in specially designed vessels. LNG gets a higher reduction in volume as compared to compressed natural gas (CNG), in a way that the volumetric energy density of LNG is greater than that of CNG. This offers a great advantage in terms of its transportation over long distances.

In Pakistan, there has been a continuous increase in energy supply - demand gap and growth in demand for natural gas has outpaced the growth in supply which has resulted in shortfall. Although strategic location

of Pakistan carries tremendous opportunities for ensuring its security of energy supplies through different interstate gas pipelines but due to geopolitical reasons none of the gas pipeline has matured.

In an effort to bridge the widening natural gas demand supply gap in the country, the first LNG re-gasification terminal was commissioned in March 2016 and the second LNG terminal was commissioned in April 2018. GoP has mandated the state-owned companies i.e. Pakistan State Oil (PSO) and Pakistan LNG Limited (PLL) for the import of LNG on behalf of the Government of Pakistan. PSO has signed a Government to Government contract with Qatar Gas for a period of 15 years whereas PLL has shorter-term LNG contracts with Gunvor and Shell.

Keeping in view the energy requirements of the country, the first LNG policy was introduced in the year 2006, with the objective to optimize the primary energy supply mix; maximization of the utilization of energy resources; enhancement of private sector participation; development of energy infrastructure and human resource. The said policy was modified in year 2011 to attract more investment; accelerating the pace of implementation to ensure delivery of LNG on fast track basis.

OGRA performs its functions under the OGRA Ordinance, 2002. OGRA in exercise of its powers conferred by section 41 of the OGRA Ordinance, 2002 promulgated the OGRA (LNG) Rules, 2007. These rules regulate the activities of construction, production operation, processing, testing, storage, transportation, re-gasification, filling, marketing, and distribution of LNG. These rules define the requirements to obtain a licence for the above stated regulated activities outlying the format of application and required information from the licensee. Further, modification, extension, revocation, renewal of the licenses, inspections / audit of LNG terminals are also dealt under the said Rules. The status of LNG Licenses so far issued by OGRA is given at **Appendix-V**.

Engro Elengy Terminal Limited (EETL)

EETL established its LNG re-gasification terminal at Port Qasim Karachi. The LNG is being imported by the GoP through Pakistan State Oil Company Limited and EETL is providing the re-gasification services at a tolling tariff. The Licence for Operation of LNG Terminal was granted on 18th March 2016. SSGC has hired the re-gasification capacity of EETL's LNG Terminal for which both Parties have signed the LNG Services Agreement.

Night View of Engro's LNG Terminal at Port Qasim Karachi

PGP Consortium Limited (PGPCL)

PGP Consortium established Pakistan's second LNG re-gasification terminal at Port Qasim Karachi. The LNG is being imported by the GoP through Pakistan LNG Limited and PGPCL is providing the re-gasification services

at a tolling tariff. The Licence for Operation of LNG Terminal was granted on 03rdApril 2018. PLTL has hired the capacity of PGPCL's LNG terminal and both parties have signed the Operations and Services Agreement.

View of PGP Consortium's LNG Terminal at Port Qasim, Karachi

Global Energy Infrastructure Pakistan Limited & Global Energy Infrastructure Limited (GEIP/GEIL)

GEIP/GEIL was granted Licence for Construction of LNG Terminal on 03rd October 2011 for an integrated project. The Licensee couldn't complete construction within the given time period. Later, upon the request of the Licensee and on completion of all requisite formalities, the timeline for project completion and Financial Close achievement was extended vide Authority's Decision dated 23rd September 2016. The Authority vide it's another decision on 02nd May 2019, has allowed the project developer to achieve Financial Close by 30th March 2020 and complete LNG Terminal Construction till March 2022. The company applied for another extension in March 2020 which may be considered by the Authority after PQA approval on the same has been updated.

Tabeer Energy Private Limited (TEPL)

TEPL applied for grant of Provisional Licence in March 2018 and upon completion of all pre-requisites, Provisional Licence was granted for a period of one year on 17th August 2018 under Rule 33 of OGRA (LNG) Rules, 2007. TEPL applied for extension of a period in Provisional licence for one (01) year on 23rd July, 2019 which was subsequently extended vide letter dated 5th November 2019 till 17th August 2020. The company has applied for the Construction Licence on 15th November 2019.

Energas Terminal Private Limited (ETPL)

Energas applied for grant of Provisional Licence on 30th November 2017. Provisional Licence was granted for a period of one year on 3rd April 2018 under Rule 33 of OGRA (LNG) Rules, 2007. ETPL applied for extension in period of provisional licence for one (01) year on 11th March 2019 which was subsequently granted vide letter dated 19th August 2019 till 02nd April 2020 after fulfilment of requisite formalities. The company has applied for the Construction Licence on March 19 2020.

Daewoo Gas Private Limited (DGPL)

Daewoo Gas has applied for a provisional licence for setting up of the land-based LNG handling platform at berth No. 03 at Gwadar Port. They intend to build a land-based LNG handling platform, transferring LNG from LNG Carrier to LNG Containers for distribution onwards through trucks.

LNG Easy Private Limited (LEPL)

LEPL has applied for a provisional licence, they plan to use berth No. 18 to 20 for import of LNG cargo in ISO containers/Cryogenic bowsers filled at source ports overseas and through LNG bulk breaking operations using Mobile Filling Platform (MFP) to fill ISO Containers/Cryogenic bowsers at Karachi port Trust (KPT) for further distribution mainly to Off-Grid customers.

LNG Terminal Access Rules and Code

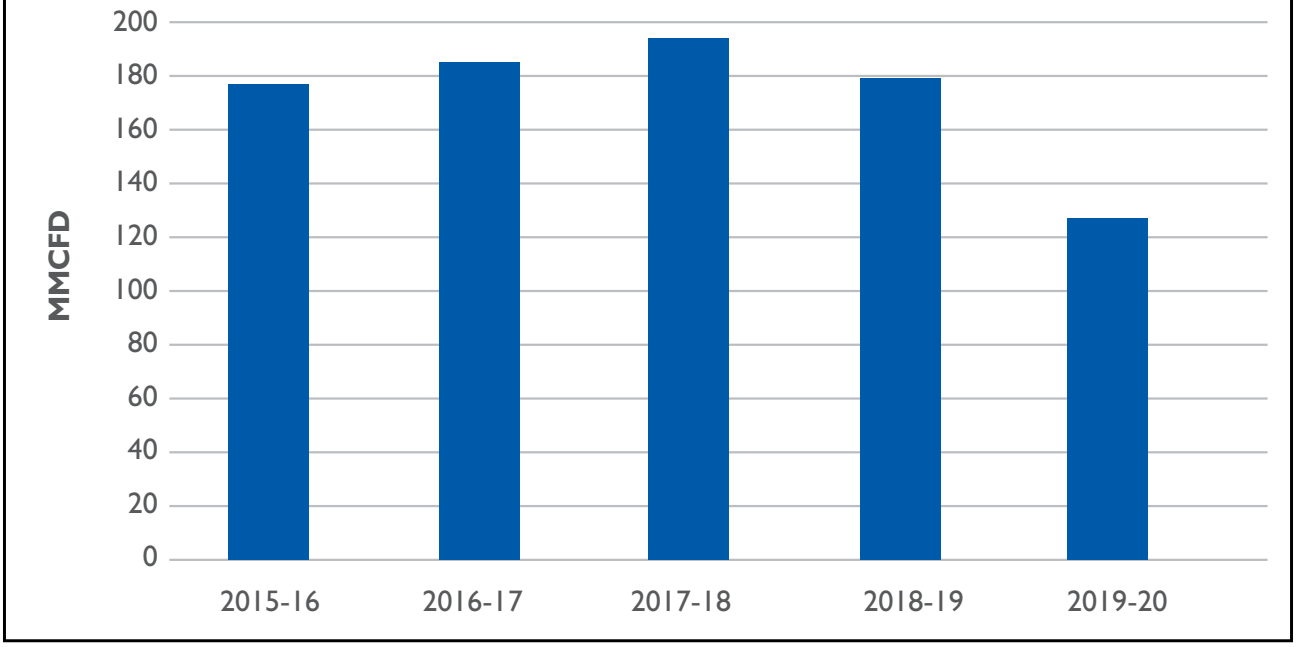
OGRA has drafted LNG Terminal Access Rules and LNG Terminal Access Code which shall play a pivotal role in liberalization of LNG/ RLNG market of the country. LNG Terminal Access Rules are guiding principles whereas the LNG Terminal Access Code provide standard terms and conditions that will govern the relationship of the parties to access arrangement.

The Third-Party Access Rules shall help promote the development of competitive gas market by establishing uniform principles, ensure transparency, fair and non-discriminatory practices in all transactions concerning use of Re-gas terminals while ensuring safe and reliable supply of gas thus promoting country's economic growth.

6. Compressed Natural Gas (CNG)

CNG was introduced by the Government in the year 1992 as an alternate fuel for automobiles to reduce environmental degradation and save foreign exchange. The CNG (Production & Marketing) Rules, 1992 were framed to regulate construction as well as operational phases of CNG refuelling stations. GoP imposed ban on issuance of new CNG provisional licenses across the country in 2008. Since then no new licenses have been issued for establishment of CNG stations across the country except Balochistan where the ban was lifted till 2011. Nevertheless, at present no new CNG license (s) are being issued.

Fig 4.4: Gas Consumption in Transport Sector



APPENDICES

Appendix-I

List of Natural Gas/ RLNG Licences Issued as of June 30, 2020

S/N	Company	Type of Licence	Date of Issue	No of Licences
1.	Sui Northern Gas Pipelines Ltd. (SNGPL)	1. Transmission, Distribution, and Sale of Natural Gas in the Punjab, KP, AJK, FATA and some parts of Sindh	September 3, 2003	2
		2. Gas Storage Facility at Lilla Town, Punjab	April 30, 2008	
2.	Sui Southern Gas Company Ltd. (SSGCL)	Transmission, Distribution, and Sale of Natural Gas in Sindh and Balochistan	September 3, 2003	1
3.	Mari Petroleum Company Ltd. (MPCL)	Sale of Natural Gas to; • Fauji Fertilizer Company Ltd. (FFCL) • Engro Chemicals Pakistan Ltd. (ECPL) • Central Power Generation Company Ltd. (CPGCL) • Any other retail consumer with prior approval of the Authority	August 11, 2004	1
4.	Pakistan Petroleum Ltd. (PPL)	Sale of Natural Gas to Central Power Generation Company Ltd. (CPGCL)	November 23, 2004	1
5.	Oil and Gas Development Company Ltd. (OGDCL)	1. Transmission and Sale of Natural Gas to Uch Power Plant 2. Sale of Natural Gas to Fauji Kabirwala Power Company Ltd. 3. Sale of Natural Gas to Altern Energy	December 30, 2004	3
6.	Fauji Fertilizer Company Ltd. (FFCL)	Transmission of Natural Gas	April 7, 2005	1
7.	Engro Chemicals Pakistan Ltd. (ECPL)	Transmission of Natural Gas	April 7, 2005	1
8.	Central Power Generation Company Ltd. (CPGCL)	Transmission of Natural Gas	April 14, 2005	1
9.	Fatima Fertilizer Company Ltd. (FFCL)	Transmission of Natural Gas	April 16, 2007	1
10.	Foundation Power Company Ltd. (FPCL)	Transmission of Natural Gas	August 27, 2007	1

11.	Star Power Generation Ltd. (SPGL)	Transmission of Natural Gas	January 30, 2008	I
12.	Engro Fertilizers Ltd.	Transmission of Natural Gas	June 13, 2014	I
13.	OGDCL	Sale of Natural Gas from Reti Meru Gas Field	June 26, 2014	I
14.	OGDCL	Sale and Transmission of Natural Gas from UCH-II.	June 26, 2014	I
15.	ETPL	Transmission of Natural Gas from LNG receiving Terminal at Port Qasim (Karachi) to SSGC's Transmission Line Injection Point.	July 2, 2014	I
16.	Universal Gas Distribution Company (Pvt.) Ltd. (UGDCL)	Sale of Natural Gas (RLNG) to OGRA's Licensed CNG Stations.	February 22, 2016	I
17.	Fauji Oil Terminal and Distribution Company Ltd. (FOTCO)	Licence to undertake Transmission of Natural Gas, which incorporates Construction and Operation of natural gas pipeline (30" x 13.3 km long) along with ancillary / connected facilities for the purpose of transmission of natural gas from proposed Pakistan Gas Port Consortium Ltd. (PGPCL) Terminal to SSGC's tie in point located at Port Qasim, Karachi.	December 21, 2016	I
18.	Pakistan LNG Ltd.	Licence to undertake the regulated activity of Sale of Natural Gas / RLNG.	October 31, 2017	I
19.	Inter State Gas Systems Ltd. (ISGSL)	Licence to undertake the construction and operation of Natural Gas Pipeline Projects, i.e. Iran-Pakistan (IP), Turkmenistan-Afghanistan-Pakistan-India (TAPI) and North South Gas Pipeline Projects (NSGP).	January 28, 2019	I
20.	Trafigura Pakistan (Pvt) Ltd.	Licence for the sale of natural gas/ RLNG to various consumers in the Country.	May 23, 2019	I
21.	Pakarab Fertilizers Ltd.	Licence for construction and operation of pipeline for transmission of natural gas.	October 7, 2019	I

Appendix-II

Demand - Supply Scenario with Indigenous Natural Gas

Projected Demand

(MMCFD)

SNGPL												
Sector	**FY-20 (Actual)**	**FY-21**	**FY-22**	**FY-23**	**FY-24**	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**
Residential	613	644	676	710	745	782	821	863	906	951	999	1,048
Commercial	48	49	50	51	52	53	54	55	56	57	59	60
General Industries	172	175	179	183	186	190	194	198	202	206	210	214
Fertilizer	143	92	92	92	92	92	92	92	92	92	92	92
Cement	1	15	15	15	15	15	15	15	15	15	15	15
Captive Power	111	113	115	118	120	123	125	128	130	133	135	138
Power	529	590	490	356	356	356	356	356	356	356	356	356
Transport	88	89	90	91	92	92	93	94	95	96	97	98
Total	**1,705**	**1,767**	**1,707**	**1,616**	**1,658**	**1,703**	**1,750**	**1,801**	**1,852**	**1,906**	**1,963**	**2,021**
SSGCL												
Domestic	269	276	284	291	299	307	315	324	333	341	351	360
Commercial	31	32	33	34	36	37	39	40	42	44	45	47
Power	246	246	246	246	246	246	246	246	246	246	246	246
Fertilizer	51	52	53	53	54	54	55	55	56	56	57	57
Industrial	377	388	399	411	424	436	450	463	477	491	506	521
CNG	63	63	64	65	65	66	67	67	68	69	69	70
Total	**1,037**	**1,057**	**1,079**	**1,100**	**1,124**	**1,146**	**1,172**	**1,195**	**1,222**	**1,247**	**1,274**	**1,301**

Independent System												
Companies	**FY-20 (Actual)**	**FY-21**	**FY-22**	**FY-23**	**FY-24**	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**
Uch Power Plant	282	353	360	360	360	339	312	287	264	244	224	206
Fauji Kabirwala PCL	1.2	0	0	0	0	0	0	0	0	0	0	0
CPGCL	380	380	380	380	380	380	380	380	380	380	380	380
Foundation Power Co. Ltd	65	65	65	65	65	65	65	65	65	65	65	65
Fauji Fertilizer	268	280	280	280	280	280	280	280	280	280	280	280
Fatima Fertilizer	72.9	75	75	75	75	76	76	76	76	76	76	76
Fatima Fertilizer (Captive Power)	10.6	10.7	10.7	10.7	10.7	10.9	10.9	10.9	10.9	10.9	10.9	10.9
Engro (Fertilizer)	223	234	236	236	236	236	236	236	236	236	236	236
Engro (Power)	45	63	63	63	63	63	63	63	63	63	63	63
Engro (Captive)	13	21	22	22	25	25	25	28	28	28	28	28
Total	**1,361**	**1,481**	**1,491**	**1,491**	**1,494**	**1,474**	**1,447**	**1,425**	**1,402**	**1,382**	**1,362**	**1,344**
Total Country Demand	**4,103**	**4,305**	**4,277**	**4,207**	**4,276**	**4,323**	**4,369**	**4,421**	**4,476**	**4,535**	**4,599**	**4,666**
UFG, RLNG Req, Internal consumption, Shrinkage	**513**	**545**	**583**	**619**	**656**	**694**	**732**	**772**	**810**	**850**	**890**	**931**
Total Demand (Inclusive of UFG, GIC etc.	**4,616**	**4,850**	**4,860**	**4,826**	**4,932**	**5,017**	**5,101**	**5,193**	**5,286**	**5,385**	**5,489**	**5,597**

Sector wise Total Demand of the Country												
Sector	**FY-20 (Actual)**	**FY-21**	**FY-22**	**FY-23**	**FY-24**	**FY-25**	**FY-26**	**FY-27**	**FY-28**	**FY-29**	**FY-30**	**FY-31**
Domestic	882	920	960	1,001	1,044	1,089	1,136	1,187	1,239	1,292	1,350	1,408
Commercial	79	81	83	85	88	90	93	95	98	101	104	107
Industrial	549	563	578	594	610	626	644	661	679	697	716	735
CNG	151	152	154	156	157	158	160	161	163	165	166	168
Power	1,548	1,697	1,604	1,470	1,470	1,449	1,422	1,397	1,374	1,354	1,334	1,316
Fertilizer	758	733	736	736	737	738	739	739	740	740	741	741
Cement	1	15	15	15	15	15	15	15	15	15	15	15
Captive Power	135	145	148	151	156	159	161	167	169	172	174	177
Total Demand	**4,103**	**4,305**	**4,277**	**4,207**	**4,276**	**4,323**	**4,369**	**4,421**	**4,476**	**4,535**	**4,599**	**4,666**
UFG, RLNG Req, Internal consumption, Shrinkage	513	545	583	619	656	694	732	772	810	850	890	931
Total Demand	**4,616**	**4,850**	**4,860**	**4,826**	**4,932**	**5,017**	**5,101**	**5,193**	**5,286**	**5,385**	**5,489**	**5,597**
Committed and Anticipated Supplies												
SNGPL	1,050	1,158	1,091	954	749	664	609	520	442	347	298	231
SSGCL	1,161	1,087	1,167	1,160	1,018	861	732	643	584	534	495	341
Independent	1,056	1,279	1,348	1,423	1,356	1,252	1,152	1,062	985	915	853	796
Total Country Supply	**3,267**	**3,524**	**3,606**	**3,537**	**3,123**	**2,777**	**2,492**	**2,225**	**2,011**	**1,796**	**1,646**	**1,369**
Committed and anticipated Supply	**3,267**	**3,524**	**3,606**	**3,537**	**3,123**	**2,777**	**2,492**	**2,225**	**2,011**	**1,796**	**1,646**	**1,369**
Total Demand	**4,616**	**4,850**	**4,860**	**4,826**	**4,932**	**5,017**	**5,101**	**5,193**	**5,286**	**5,385**	**5,489**	**5,597**
Gap	**1,349**	**1,326**	**1,255**	**1,289**	**1,809**	**2,241**	**2,609**	**2,968**	**3,275**	**3,589**	**3,844**	**4,229**

Source: SNGPL, SSGCL, Independent systems (Central Power Generation Company Limited, Fauji Fertilizer company Limited, Fauji Kabirwala Power Company Limited, Fatima Fertilizer Company Limited, Foundation Power Company Limited)

Appendix-III

Demand Supply Scenario with Indigenous and Imported Natural Gas

(MMCFD)

Description	FY-20 (Actual)	FY-21	FY-22	FY-23	FY-24	FY-25	FY-26	FY-27	FY-28	FY-29	FY-30	FY-31
Committed & Anticipated supply (Indigenous)	3,267	3,524	3,606	3,537	3,123	2,777	2,492	2,225	2,011	1,796	1,646	1,369
LNG Supply	857	897	937	977	1,017	1,057	1,097	1,137	1,177	1,217	1,257	1,297
Iran- Pakistan Pipeline	-	-	-	-	-	-	263	750	750	750	750	750
TAPI	-	-	-	-	971	1,236	1,342	1,342	1,342	1,342	1,342	1,342
North South Gas Pipeline Project	-	-	-	-	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Total Supply (Indigenous & Imported)	**4,124**	**4,421**	**4,543**	**4,514**	**6,311**	**6,270**	**6,394**	**6,654**	**6,480**	**6,305**	**6,195**	**5,958**
Total Demand	**4,616**	**4,850**	**4,860**	**4,826**	**4,932**	**5,017**	**5,101**	**5,193**	**5,286**	**5,385**	**5,489**	**5,597**
Gap without IP, TAPI, NSGP,LNG	**1,349**	**1,326**	**1,255**	**1,289**	**1,809**	**2,241**	**2,609**	**2,968**	**3,275**	**3,589**	**3,844**	**4,229**
Gap with IP, TAPI, NSGP,LNG	**492**	**429**	**318**	**312**	**-1,379**	**-1,252**	**-1,293**	**-1,461**	**-1,194**	**-920**	**-705**	**-360**

Appendix-IV

1. Sui Northern Gas Pipelines Limited.
2. Sui Southern Gas Company Limited.

	Particulars	w.e.f. July 01, 2019 Rs./MMBTU Sale Price
(I)	**Domestic Consumers:**	
	a) Standalone Meters	
	b) Mosques, Churches, Temples, Madrassas, other Religious Places and Hostels attached thereto;	
	Upto 0.5 hm^3 per month	121.00
	Upto 1 hm^3 per month	300.00
	Upto 2 hm^3 per month	553.00
	Upto 3 hm^3 per month	738.00
	Upto 4 hm^3 per month	1,107.00
	Above 4 hm^3 per month	
	The billing mechanism will be revised so that benefit of one previous/preceding slab is available to domestic consumer (residential use).	
	Minimum Charges	**Rs. 172.58 per month**
	c) Government and semi-Government offices, Hospitals, Clinics, Maternity Homes, Government Guest Houses, Armed Forces messes, Langars, Universities, Colleges, Schools and Private Educational Institutions, Orphanages and other Charitable Institutions along-with Hostels and Residential Colonies to whom gas is supplied through bulk meters including Captive Power. The tariff for captive gas use in this category will be charged as pe captive power category i.e. Rs. 1,021 per MMBTU.	
	All off-takes at flat rate of	780.00
	Minimum Charges	**Rs. 3,900.00 per month**
(II)	**Special Commercial Consumers (Roti Tandoors)**	
	Upto 0.5 hm^3 per month	110.00
	Upto 1 hm^3 per month	110.00
	Upto 2 hm^3 per month	220.00
	Upto 3 hm^3 per month	220.00
	Above 3 hm^3 per month	700.00
	Minimum Charges	**Rs. 172.58 per month**
(III)	**Commercial:**	
	All establishments registered as commercial units with local authorities or dealing in consumer items for direct commercial sale like cafes, bakeries, milk shops, tea stalls, canteens, barber shops, laundries, hotels including hotel industry, malls, places of entertainment like cinemas, clubs, theaters and private offices, corporate firms, etc.	
	All off-takes at flat rate of	1,283.00
	Minimum Charges	**Rs. 6,415.00 per month**
(IV)	**Ice Factories:**	
	All off-takes at flat rate of	1,283.00
	Minimum Charges	**Rs. 6,415.00 per month**

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(V)	**General Industries:**	
	All consumers engaged in the processing of industrial raw material into value added finished products irrespective of the volume of gas consumed but excluding such industries for which a separate rate has been prescribed.	
	All off-takes at flat rate of	1,021.00
	Minimum Charges	**Rs. 36,449.70 per month**
(VI)	**Registered Manufacturers or Exporters of Five Zero-Rated Sectors and their Captive Power namely: Textile (including jute) Carpets, Leather, Sports and Surgical Goods.**	
	All off-takes at flat rate of	786.00
	Minimum Charges	**Rs. 28,060.20 per month**
(VII)	**Captive Power:**	
	Captive Power plant/unit means an industrial undertaking/unit carrying out the activity of power production (with or without co-generation) for self-consumption and/or for sale of surplus power to a Distribution Company or bulk-power consumer.	
	All off-takes at flat rate of	1,021.00
	Minimum Charges	**Rs. 36,449.70 per month**
(VIII)	**CNG Stations:**	
	All off-takes at flat rate of	1,283.00
	Minimum Charges	**Rs. 45,803.10 per month**
(IX)	**Cement Factories:**	
	All off-takes at flat rate of	1,277.00
	Minimum Charges	**Rs. 45,588.90 per month**
(X)	**Fertilizer Factories:**	
a.	**On SNGPL System**	
i.	**Pak American Fertilizer Company Ltd., Daudkhel.**	
a.	For gas used as feed stock for fertilizer	
	All off-takes at flat rate of	300.00
b.	For gas used as fuel for generation of electricity, steam and for usage of housing colonies.	
	All off-takes at flat rate of	1,021.00
ii.	**Dawood Hercules Chemicals Ltd., Chichoki Mallian, Sheikhupura District:**	
a.	For gas used as feed stock for fertilizer	
	All off-takes at flat rate of	300.00
b.	For gas used as fuel for generation of electricity, steam and for usage of housing colonies.	
	All off-takes at flat rate of	1,021.00
iii.	**Pakarab Fertilizers Ltd., Multan.**	
a.	For gas used as feed stock for fertilizer	
	All off-takes at flat rate of	300.00
b.	For gas used as fuel for generation of electricity, steam and for usage of housing colonies.	

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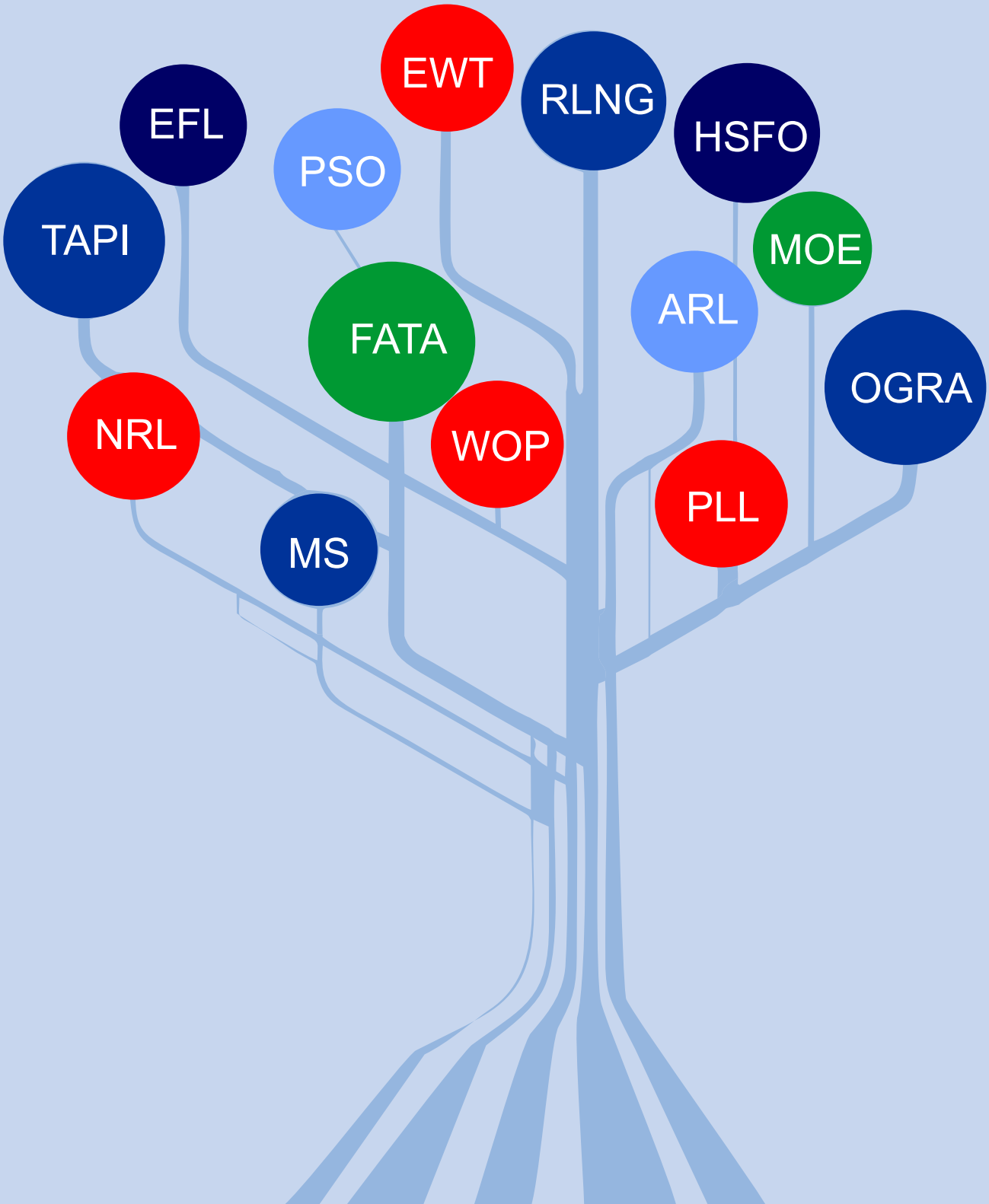
	All off-takes at flat rate of	1,021.00
iv.	**Pak-China Fertilizer Ltd./Hazara Phosphate Plant Ltd., Haripur.**	
a.	For gas used as feed stock for fertilizer	
	All off-takes at flat rate of	300.00
b.	For gas used as fuel for generation of electricity, steam and for usage of housing colonies.	
	All off-takes at flat rate of	1,021.00
v.	**Hazara Phosphate Fertilizer Plant Ltd., Haripur:**	
a.	For gas used as feed stock for fertilizer	
	All off-takes at flat rate of	300.00
b.	For gas used as fuel for generation of electricity, steam and for usage of housing colonies.	
	All off-takes at flat rate of	1,021.00
vi.	**Engro Fertilizer Company Ltd.**	
a.	For gas used as feed stock for fertilizer	
	All off-takes at flat rate of	$ 0.70
b.	For gas used as fuel for generation of electricity, steam and for usage of housing colonies.	
	All off-takes at flat rate of	1,021.00
b.	**On SSGCL System**	
	Fauji Fertilizers Bin Qasim Ltd.	
a.	For gas used as feed stock for fertilizer	
	All off-takes at flat rate of	300.00
b.	For gas used as fuel for generation of electricity, steam and for usage of housing colonies.	
	All off-takes at flat rate of	1,021.00
(XI)	**Power Stations (WAPDA's and KESC's Power Stations):**	
i.	**WAPDA's and KESC's Power Stations and other Electricity Utility Companies.**	
	All off-takes at flat rate of	824.00
	Minimum Charges	**Rs. 29,416.80 per month**
ii.	**WAPDA's Gas Turbine Power Station, Nishatabad, Faisalabad.**	
	All off-takes at flat rate of	824.00
	Fixed Charges	**Rs. 975,000 per month**
iii.	**Liberty Power Ltd.'s Gas Turbine Power Plant (Phase1) at Dharki:**	
	All off-takes at flat rate of	1,295.88
	w.e.f 01.01.2020	1,221.78
	Minimum Charges	**Rs. 44,972.79 per month**
(XII)	**Independent Power Producers:**	
	All off-takes at flat rate of	824.00
	Minimum Charges	**Rs. 29,416.80 per month**

Appendix-V

Status of LNG Licenses so far issued by OGRA

(MMCFD)

Project Developer	License Issuance Date	Type of Licence	Project Structure	Status of Licence	Terminal Capacity
Engro Elengy Terminal Limited (EETL)	18-Mar-2016	Operation Licence	Un-Bundled	Operational since 29 March 2015 for 20 Years	600-690
PGP Consortium Limited (PGPCL)	3-Apr-2018	Operation Licence	Un-Bundled	Operational since 4 January 2018 for 20 Years	600-750
Global Energy Infrastructure Pakistan Limited & Global Energy Infrastructure Limited (GEIP & GEIL)	2-May-2019	Construction Licence	Integrated	Extension in Project Completion Timelines for Construction Licence granted for LNG Integrated Project at Port Qasim, Karachi.	9
Energas Terminal (Pvt.) Limited (ETPL)	3-Apr-2018	Provisional Licence	Integrated	Construction Licence Application under Review	750-1000
Tabeer Energy (Private) Limited (TEPL)	17-Aug-2018	Provisional Licence	Integrated	Construction Licence Application under Review	750-1000


EWT
RLNG
EFL
HSFO
PSO
TAPI
MOE
ARL
FATA
OGRA
NRL
WOP
PLL
MS

ABBREVIATIONS & ACRONYMS

Abbreviations & Acronyms

AJK	Azad Jammu and Kashmir
APL	Attock Petroleum Limited
ARL	Attock Refinery Limited
BBL	Barrel
BBTU	British Thermal Unit
BEEL	Be Energy Limited
Bhp	Brake horsepower
BPD	Barrel Per Day
BPPL	Byco Petroleum Pakistan Limited
BTU/Scf	British Thermal Unit/Standard Cubic Feet
BVI	British Virginia Island
CAN	Calcium Ammonium Nitrate
CMS	Consumer Meter Station
CNG	Compressed Natural Gas
CPGCL	Central Power Generation Company Limited
CSR	Corporate Social Responsibility
DAP	Di-ammonium Phosphate
D&P	Development and Production
DFIs	Development Finance Institutions
DGPC	Directorate General Petroleum Concessions
DGPL	Daewoo Gas Private Limited
E&P	Exploration and Production
ECPL	Engro Chemicals Pakistan Limited
EETL	Engro Elengy Terminal Limited
EFL	Engro Fertilizer Limited
EPC	Engineering, Procurement and Construction
ETPL	Energas Terminal Private Limited
EWT	Extended Well Test
FATA	Federally Administered Tribal Areas
FFBL	Fauji Fertilizer Bin Qasim Limited
FFCL	Fatima Fertilizer Company Limited
FFCL	Fauji Fertilizer Company Limited
FFF	Fauji Fresh n Freeze Limited
FKPCL	Fauji Kabirwala Power Company Limited
FO	Fuel Oil/Furnace Oil
FOTCO	Fauji Oil Terminal & Distribution Company
FPCDL	Foundation Power Company Dharki Limited
FY	Fiscal Year/Financial Year
GDCL	Gaseous Distribution Company Private Limited
GDS	Gas Development Surcharge

GIS	Geographical Information System
GoP	Government of Pakistan
GOPL	Gas & Oil Pakistan Limited
HOBC	High Octane Blending Component
HR	Human Resource
HSD	High Speed Diesel
HSE	Health, Safety and Environment
HSFO	High Sulphur Furnace Oil
IFA	International Fertilizer Association
ILBP	Indus Left Bank Pipeline
IP	Iran Pakistan Gas Pipeline
IRBP	Indus Right Bank Pipeline
ISGSL	Inter State Gas Systems Limited
ISO	International Organization for Standardization
JJVL	Jamshoro Joint Venture Limited
JP	Jet Propellant
JV	Joint Venture
KEPCO	Korea Electric Power Corporation
KERO	Kerosene Oil
KESC	Karachi Electric Supply Company
KM	Kilometer
KP	Khyber Pakhtunkhwa
KPI	Key Performance Indicator
KPS	Korea Plant Service & Engineering
KPT	Karachi Port Trust
KWh	Kilowatt-hour
LDO	Light Diesel Oil
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MFM	Mehmood Kot- Faisalabad- Machike
MFP	Mobile Filling Platform
MMBOE	Million Barrels of Oil Equivalent
MMCFD	Million Cubic Feet per Day
MPCL	Mari Petroleum Company Limited
MS	Motor Spirit
MSU	Mari Seismic Services Unit
MT/M.Ton	Metric Ton
MW	Megawatt
NBFIs	Non-Bank Financial Institutions
NGL	Natural Gas Liquids
NP	Nitrogen Phosphate
NRL	National Refinery Limited

NSGP	North South Gas Pipeline Project
NTDC	National Transmission & Dispatch Company
OCAC	Oil Companies Advisory Council
OGDCL	Oil and Gas Development Company Limited
OGRA	Oil and Gas Regulatory Authority
OHSAS	Occupational Health Safety Assessment Series
OMC	Oil Marketing Company
PARCO	Pak-Arab Refinery Company Limited
PCA	Petroleum Concession Agreement
PGCPL	Pakistan Gas Port Consortium Limited
PIDC	Pakistan Industrial Development Corporation
PLTL	Pakistan LNG Terminals Limited
POL	Pakistan Oilfields Limited/Petroleum Oil Lubricant
PPA	Power Purchase Agreement
PPIB	Private Power and Infrastructure Board
PPL	Pakistan Petroleum Limited
PQA	Port Qasim Authority
PRL	Pakistan Refinery Limited
PSO	Pakistan State Oil
PSX	Pakistan Stock Exchange
RFO	Residual Fuel Oil
RLNG	Re-gasified Liquid Natural Gas
Rs.	Rupees
SNGPL	Sui Northern Gas Pipelines Limited
SPM	Single Point Mooring/Suspended Particulate Matter
Sq. Km	Square Kilometer
SSGCL	Sui Southern Gas Company Limited
T&D	Transmission and Distribution
TAPI	Turkmanistan - Afghanistan - Pakistan - India Gas Pipeline
TPA	Tons Per Annum
TPPL	Total-PARCO Pakistan Limited
TPS	Thermal Power Station
UEPL	United Energy Pakistan Limited
UFG	Unaccounted for Gas
UGDCL	Universal Gaseous Distribution Company Limited
UNGC	United Nation Global Compact
USA	United States of America
WAPDA	Water and Power Development Authority
WOP	White Oil Pipeline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