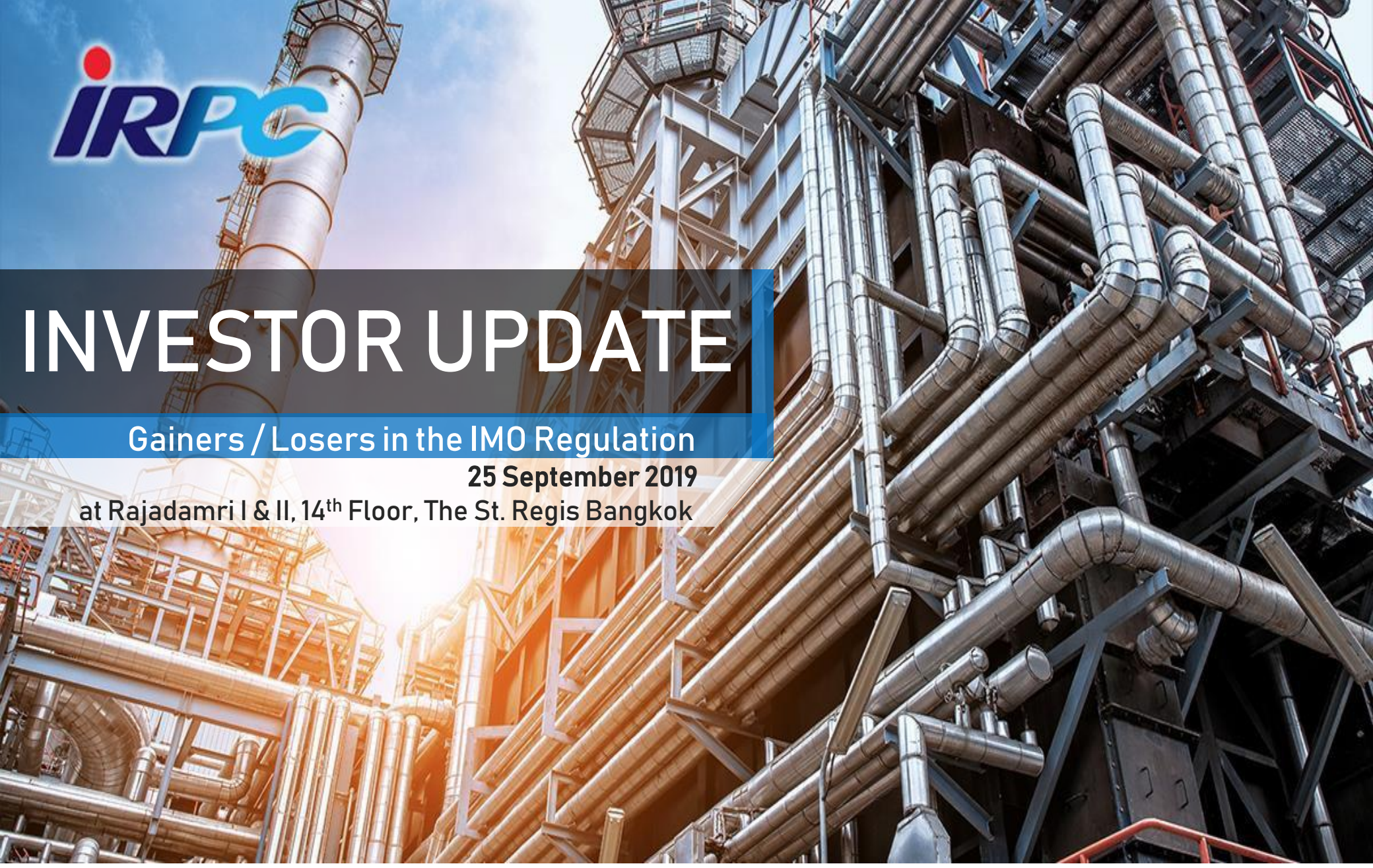


INVESTOR UPDATE

Gainers / Losers in the IMO Regulation

25 September 2019

at Rajadamri I & II, 14th Floor, The St. Regis Bangkok

MEMBER OF
Dow Jones Sustainability Indices
In Collaboration with RobecoSAM

SAM Sustainability Award Gold Class 2019

SAM Sustainability Award Industry mover 2019

Krungsri Corporate Day

IRPC Public Company Limited

Company Profile

Performance Highlight

Projects Update

Strategic Direction

IMO New Regulation

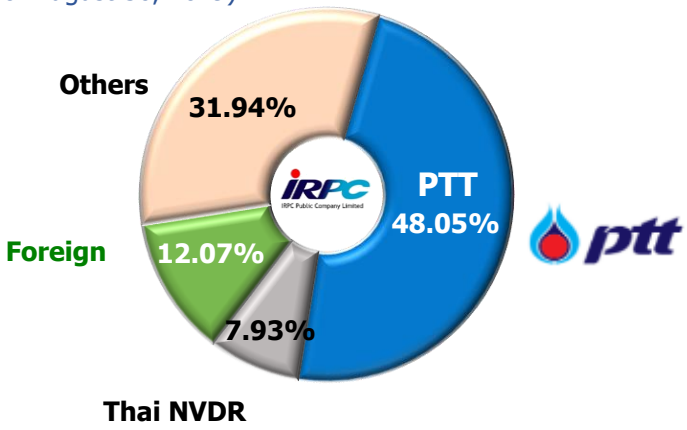
Appendix

- Dividend Payment
- CAPEX Plan
- Financial Position
- Financial Performance
- History
- Turnaround Plan 2019

Introduction to IRPC
Integrated Petrochemical Complex

Shareholding Structure*

Market Cap. : 80,920 MB
(as of August 30, 2019)



*Note: as of Feb 2019

Operational & Strategic Relationships with PTT Group

Crude Procurement & Credit Term
- PTT secures 100% crude procurement for IRPC at the market price
- Receive 60 days credit term from PTT

Product Swaps and Off-takes
- Petroleum Product off-take and swap agreement with PTT group on arm-length basis

Financial and Risk Control Systems
- Strong support of credit facilities from PTT thru Intercompany Borrowing & Lending (ICBL) program
- IRPC are under umbrella of PTT group's central treasury management framework

Complex & Facilities

- **Integrated petrochemical complex:** Upstream to downstream in a single complex
- **Locate in Industrial Area**: Eastern Seaboard Area of Thailand, 200 km. from Bangkok and 30 km. from Map Ta Phut Industrial Area
- **Facility Support**:
  - Deepest sea port
  - Tank Farm and Power Plant
  - Thailand's main coastal highway

Credit Rating

Fitch Ratings	**A(tha)** Stable Outlook
Moody's	**Ba1** Positive Outlook
Standard & Poor's Ratings Services	**BB+** Positive Outlook

Petroleum and Petrochemical Capacity

IRPC Core Business

Petroleum

Unit: KBD

- **Refinery** ***215***
  - *LPG*
  - *Naphtha*
  - *Gasoline*
  - *Diesel*
  - *Fuel Oil*

Unit: KTA

- **Lube Base** ***920***
  - *Lube Base Oil*
  - *Asphalt*

Crude Refining Capacity

215 KBD

Petrochemical

Unit: KTA

- **Olefins** ***1,221***
  - *Ethylene*
  - *Propylene*
  - *Butadiene*
- **Aromatics** ***367***
  - *Benzene*
  - *Toluene*
  - *Mixed Xylene*
- **Styrenics** ***260***
  - *EBSM*
- **Polyolefins** ***915***
  - *HDPE*
  - *PP*
- **Polystyrenics** ***352***
  - *ABS*
  - *PS*
  - *EPS*

Petrochemical Capacity

- Monomer 1,848 KTA
- Polymer 1,267 KTA

3,115 KTA

Facilities & Utilities

Deep Sea Port

Freehold Land
4,750 Acres
(~12,000 Rais)

Utilities
5 Depots,
307 MW Power plant

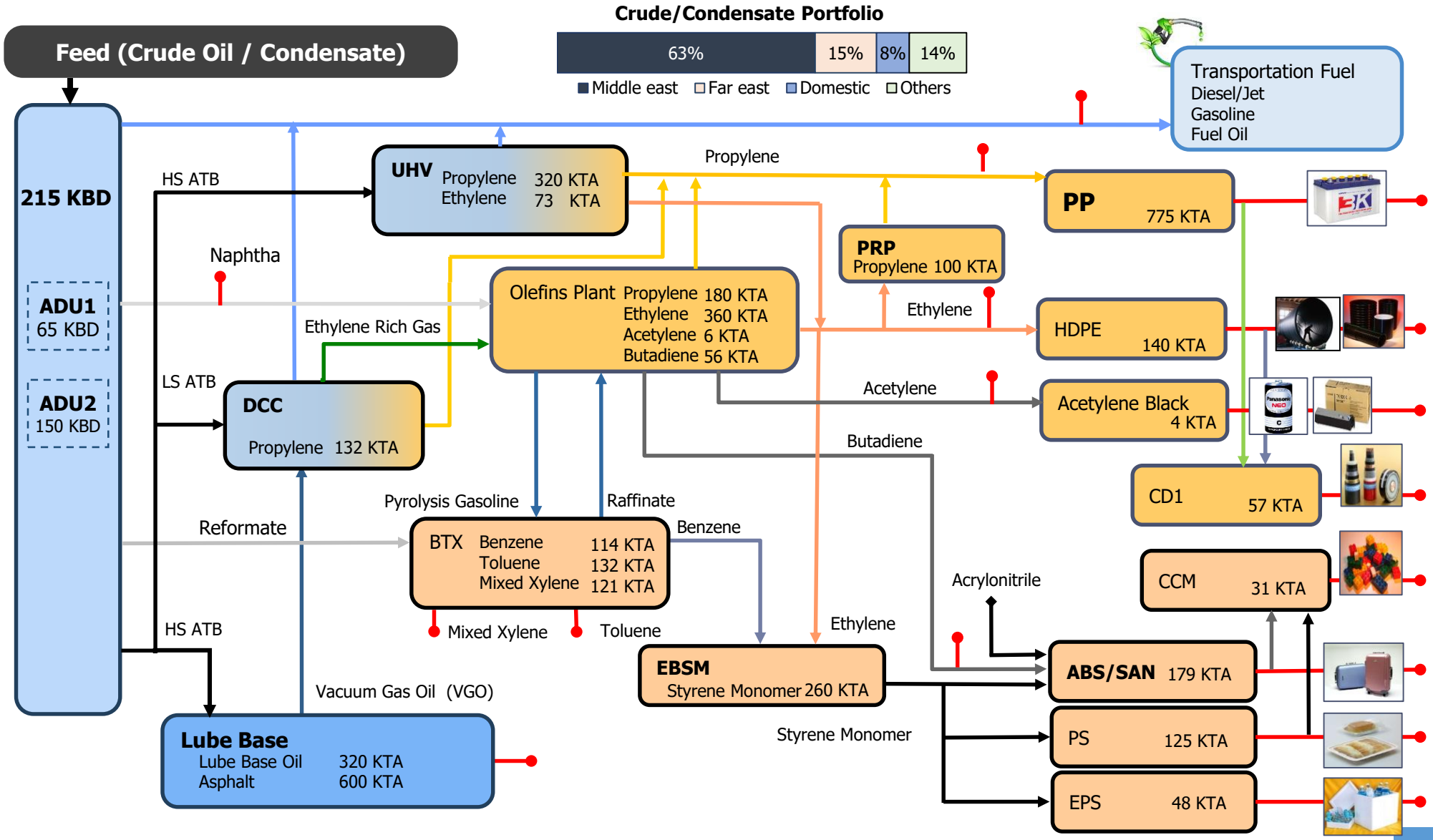
IRPC's Profile

IRPC Public Company Limited

1	**Integrated Petrochemical Complex & Product Diversification**	▪ **Refinery Capacity : 215 KBD** (crude distillation unit) ▪ **Petrochemical Capacity : 3,115 KTA** (Olefins, Aromatics, Styrenics, Polyolefins, Polystyrenics)
2	**Remarkable Position in ASEAN Polymer Market**	▪ **PP 3rd largest in South-East Asia:** 775 KTA ▪ **HDPE pipe grade 140 KTA** ▪ **ABS 179 KTA: The Largest producer in Thailand**
3	**The largest lube base oil capacity in Thailand**	▪ **Lube base oil : 320 KTA** ▪ **Asphalt : 600 KTA**
4	**Sustained earnings from facility and utility businesses**	▪ **Power & Utility business : ~ 1.0 $/bbl to GIM** ▪ **Additional contribution from utility JV starting from 2018** ▪ **Stable income from Port and Tank business**
5	**Specialty Petrochemical to capture higher margin**	▪ **51% of specialty petrochemical portfolio** ▪ **PPC to add more specialty Petrochemical Products** ▪ **Specialty : 10-20% higher margin vs Commodity**

Petroleum and Petrochemical Value Chain

Optimized Configuration & Product Diversification



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Projects Update

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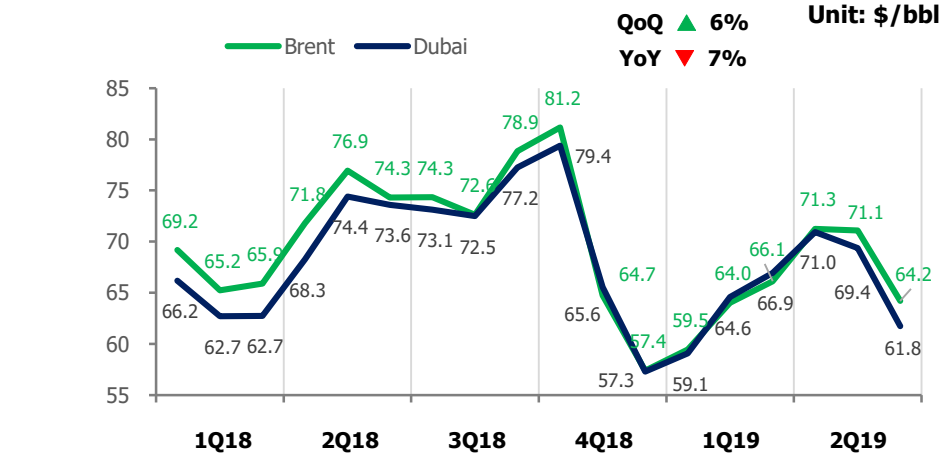
Key Drivers

2018: Maintained high margin through projects completion amid volatile crude oil price

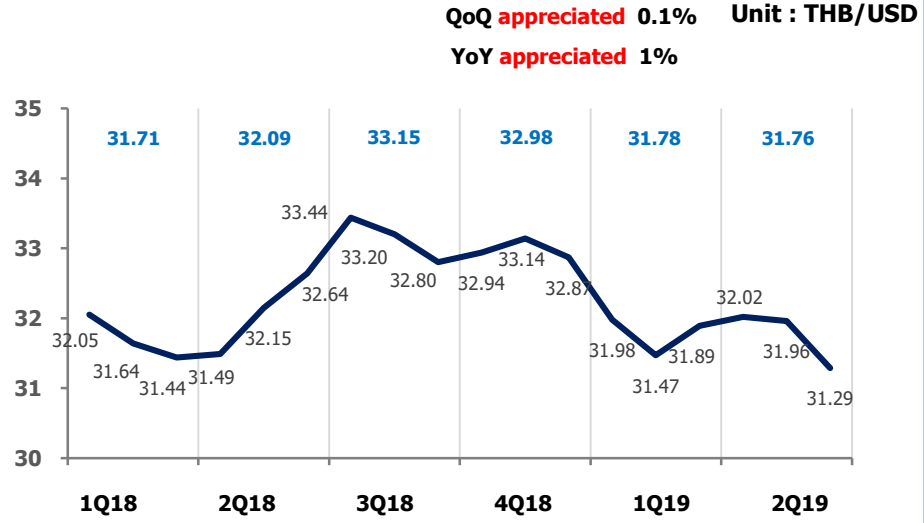
1H19: Petchem spread has dropped as U.S.-China Trade War

Dubai Crude Oil Price (avg.)

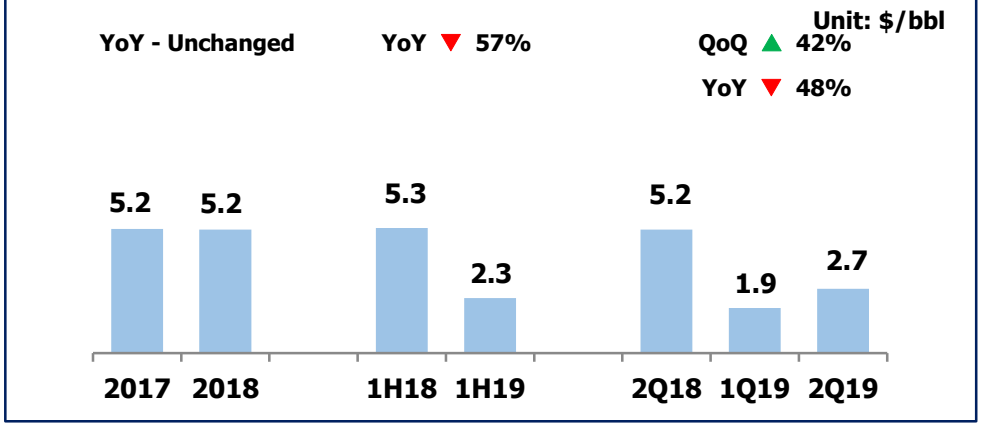


	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19
Brent (Avg)	66.8	74.4	75.3	67.8	63.2	68.8
Dubai (Avg)	63.9	72.1	74.3	67.4	63.5	67.4

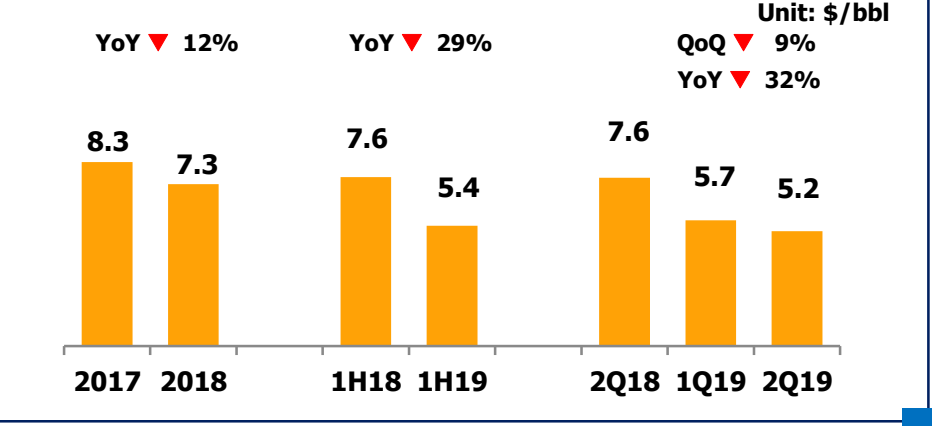
Foreign Exchange (avg.)



Gross Refining Margin (GRM)



Product to Feed Margin (PTF)



Key Performance

2018 : Better operating income from higher U-Rate despite crude premium increased

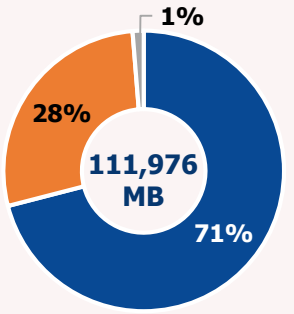
1H19 : Soften performance as weaken products spread & RDCC planned shutdown

	2017	2018	1H18	1H19	2Q18	1Q19	2Q19
Dubai (Avg.) Unit: $/bbl	53.2	69.4	68.0	65.5	72.1	63.5	67.4
Crude Run (KBD)	180	208	211	203	210	200	206
Net Sales (net excise tax) Unit: MB	197,594	258,919	125,855	111,976	65,367	54,274	57,702
YoY / QoQ	YoY ▲ 31%		YoY ▼ 11%		QoQ ▲ 6% YoY ▼ 12%		
Market GIM ($/bbl)	14.5	13.6	14.0	8.9	13.86	8.68	9.11
Net Stock G/(L)($/bbl)	1.0	(0.5)	2.0	1.0	3.61	1.26	0.82
Acct. GIM ($/bbl)	15.5	13.1	15.9	9.9	17.47	9.94	9.94
EBITDA Unit: MB	20,420	18,344	12,551	4,659	7,162	2,355	2,304
YoY / QoQ	YoY ▼ 10%		YoY ▼ 63%		QoQ ▼ 2% YoY ▼ 68%		
Net Profit Unit: MB							
Net Income	8,621	11,354	4,702	6,801	2,166	4,050	507
Operating NI	8,859	7,735		660		153	20
				(630)		(650)	
YoY / QoQ	YoY ▼ 32%		YoY ▼ 90%		QoQ ▲ 231% YoY ▼ 87%		

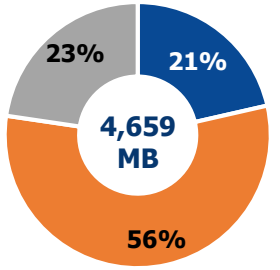
Performance by Business

1H19

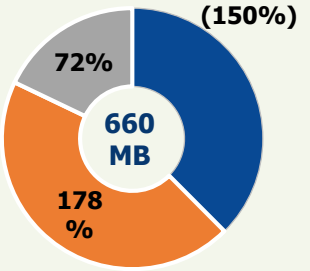
Net Sales (net excise tax)



EBITDA



Net Profit



Petroleum Petrochemical Utilities & Others

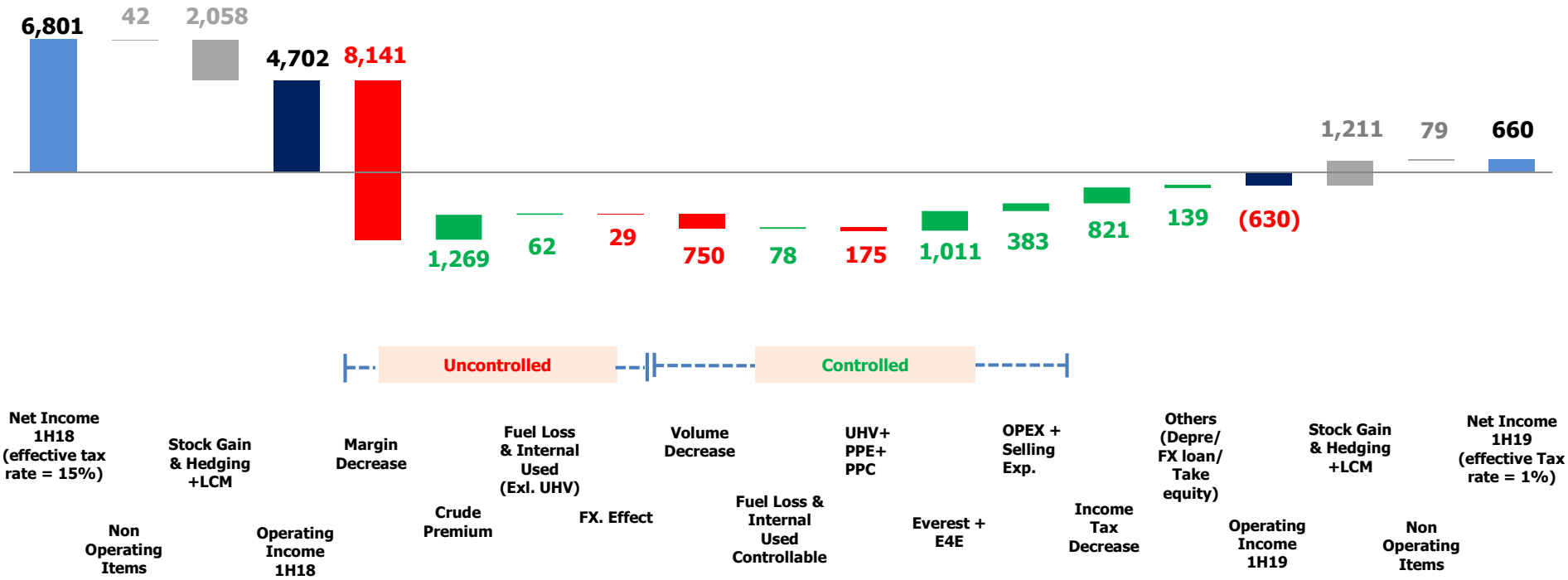
Operating Net Income: 1H19 vs 1H18

According to lower spread & RDCC planned shutdown led to lower operating income

Unit: MB

6,801 → Net Income ▼ 90% → 660

4,702 → Operating Income ▼ 113% → (630)



Everest+E4E Project Highlight

1H19: Everest+E4E contributed 51% of plan

Unit : MB of EBIT

Everest	2018 Actual	1H19 Actual	2019 (Plan)
Key Area			
Operations Area	4,276	1,897	4,441
Integrated Supply Chain	1,821	1,007	2,455
Commercial Area	1,444	1,374	1,822
Procurement Area	31	-	-
Corporate Area – Non HR	397	167	406
Corporate Area - HR	1	-	-
Total Everest	**7,970**	**4,445**	**9,124**
Everest Forever (E4E)	**1,397**	**1,250**	**2,085**
Total Everest + E4E	**9,367**	**5,695**	**11,209**

51% of Plan

Company Profile

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Projects Update

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UHV project : Major CAPEX

Improve product yield and earnings

UHV

Upstream project for Hygiene & Value-added Products

Objective : Upgrade low value to high valued-added products

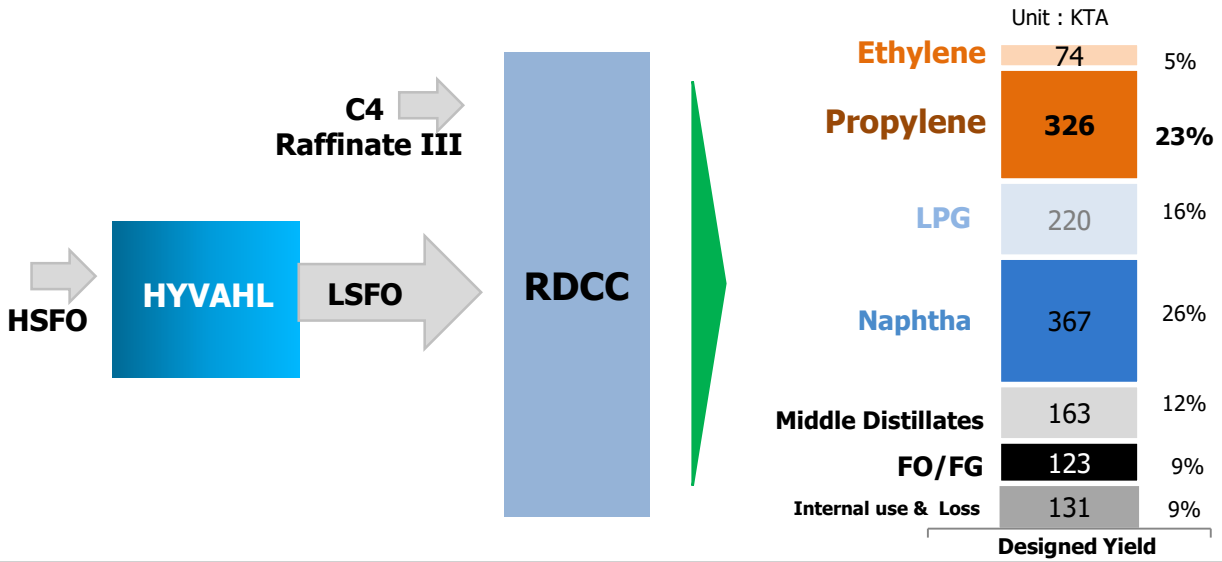
Investment : $ 1.1 bn

COD : Jul. 2016

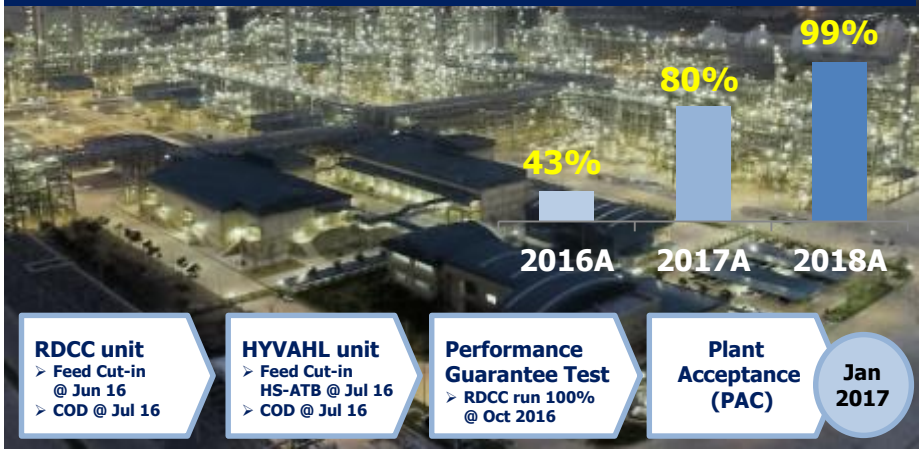
Benefit : GIM 1.5-2.0 $/ bbl

Assumption : Spread propylene to FO ~ **500-600** $/ton

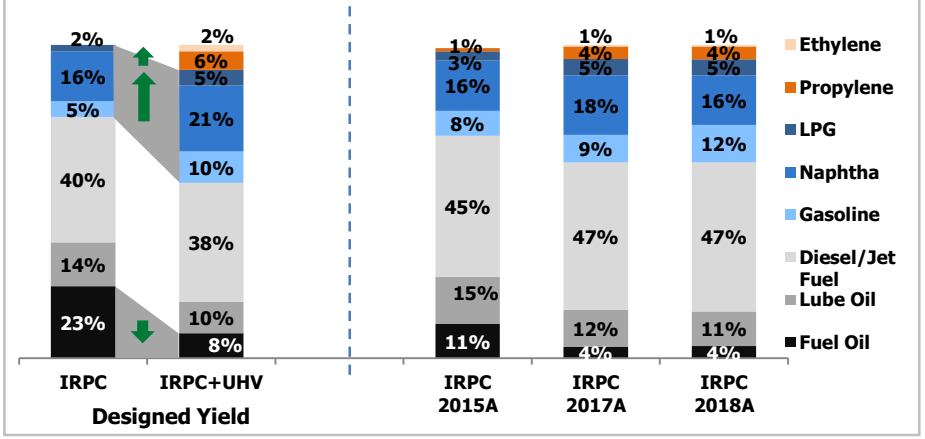
Flow Diagram



Upgrade to High Valued-Added products



IRPC's refined Production Yield



PPE&PPC Benefit Enhancement

Fulfill UHV benefits thru higher margin on PPE & PPC

PP Expansion and PP Compound Project

PP Expansion Project (PPE)
- Licensor : Novolen
- Capacity : 160 KTA
- PMC : Foster Wheeler,
- EPC : Sinopec

- CAPEX : $ 236 mn
- GIM 0.8-1.0 $/bbl
- COD : 4Q17

PP Compound & Specialties (PPC)
- Licensor : JPP
- Capacity : 140 KTA
- PMC : Foster Wheeler
- EPC : Sinopec

Total PP 775 KTA in 2017

PP Existing 475 KTA | **PPE 160 KTA** | **PPC 140 KTA**

Random PP
- Pipe grade
- Hygiene

Super Clear PP
- Container box
- Medical Device

Block-CO PP
- Household Material
- Heavy-duty

HOMO PP
- Film application
- Fiber grade

PP Specialty
- Frozen food packaging
- Lamination
- Health care

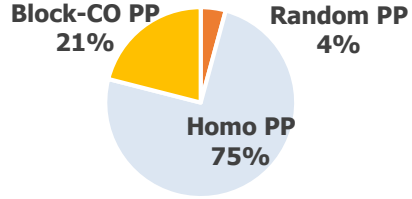
PP Compound
- Automotive: pumper, instrument panel, etc

Lower cost : PPC production by Inline process technology

Note: Cost Saving
- No Packing & Logistic
- No 2nd Extruder Process

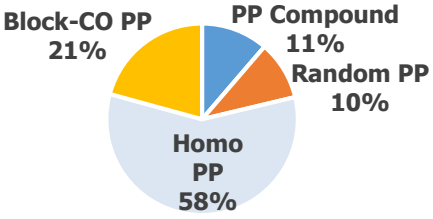
PP Marketing Strategy : Sales Plan

Y2017



Volume: 600 Ktons

Y2022

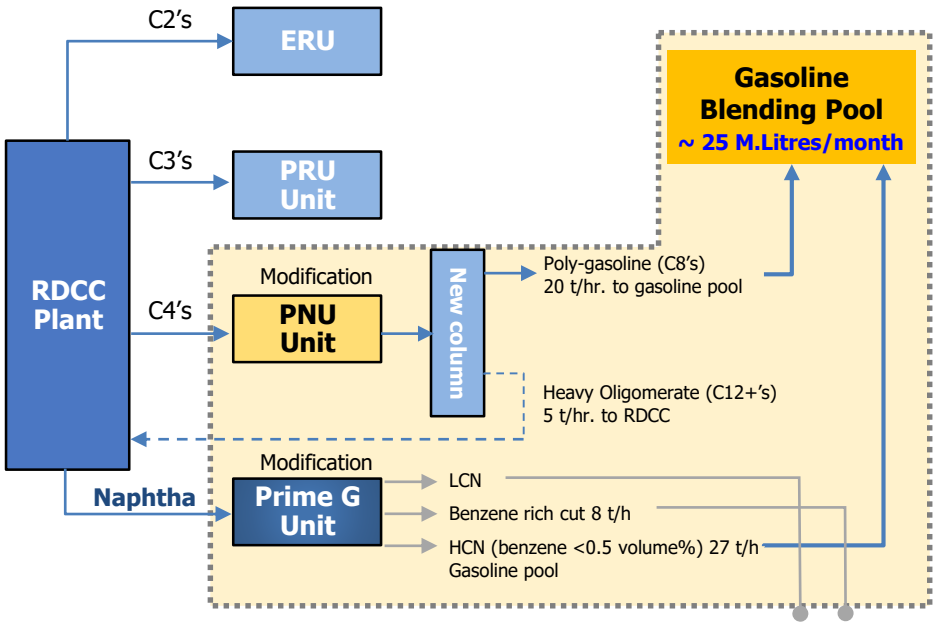


Volume: 760 Ktons

Project Update

Gasoline Max. : Better than target, Cat. Cooler construction on schedule

Gasoline Maximization Project



ERU – Ethylene Recovery Unit
PNU – Naphtha Oligomer Unit
PRU – Propane-Propylene Splitting Unit
Prime G – Naphtha Hydro-treating Unit

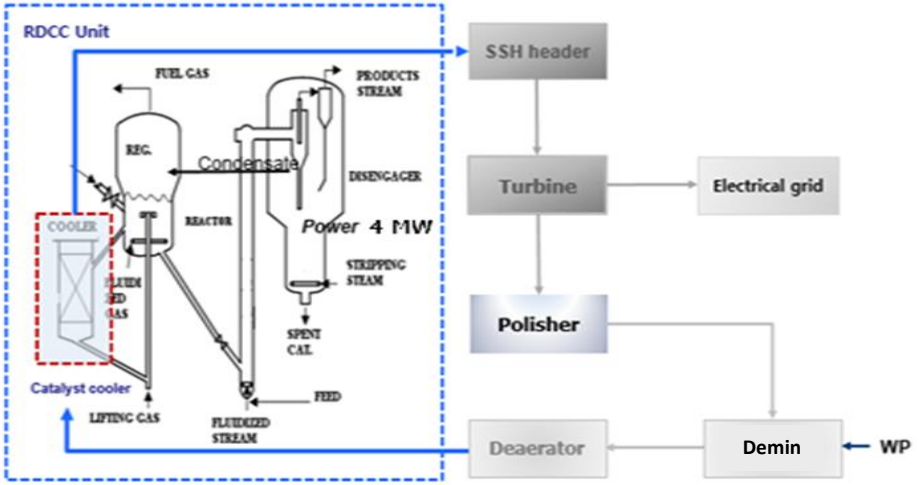
CAPEX : 724 MB
IRR : ~ 80%
Benefit : ⬆ GIM: 0.4$/bbl
COD : Nov.2017
Results:

- Gasoline volume increase 40 mn liters per month, higher than target of 25 mn liters

UHV Catalyst Cooler in RDCC plant

Project Objective :

- Crude selection ➔ more heavy crude
- More electricity & steam



Note: 3 tie-in points of catalyst cooler project are included in 2017 Turnaround

CAPEX : ~ 1,320 MB
IRR : ~ 35%
Benefit : ⬆ GIM: 0.3$/bbl
Construction Progress : 99% (As of July 19)

- Complete run performance guarantee process on 27 April 2019 (Phase I)
- Progress : Commissioning test Generator 4 MW.
- COD : May 2019 (Phase I-Catalyst Cooler)
- COD : End of Aug 2019 (Phase II-Generator)

Project Update : Benefit Tracking

IRPC Public Company Limited

UHV	Gasoline Maximization	PP expansion	PP Compound	Catalyst Cooler
▪ Upgrade low value to high value-added products ▪ 2016 U-Rate: 43% ▪ CAPEX : ~ $ 1.1 bn ▪ ⬆ GIM 1.5-2.0 $/bbl	▪ Increase UHV benefit ▪ Maximize Gasoline Yield ▪ Reduce Thailand import ▪ CAPEX : 724 MB ▪ Capacity: 40 mn litre/month ▪ ⬆ GIM 0.4$/bbl	▪ Capacity:160 KTA ▪ CAPEX : 3,248 MB ▪ ⬆ GIM 0.4$/bbl	▪ Capacity: 140 KTA ▪ CAPEX : 5,323 MB ▪ ⬆ GIM 0.4$/bbl	▪ UHV value added ▪ Flexibility of crude selection ▪ ⬆ Utility from cracking heavy crude molecule ▪ CAPEX : ~ 1,320 MB ▪ COD : ~ May 2019 ▪ ⬆ GIM 0.3$/bbl
COD : Jul. 16	COD : Nov. 17	COD : Sept. 2017	COD : Dec . 2017	MC : Feb 19 COD Plan : End 1Q19

UHV & UHV value added & PPE & PPC

Total Benefit to GIM: $/bbl

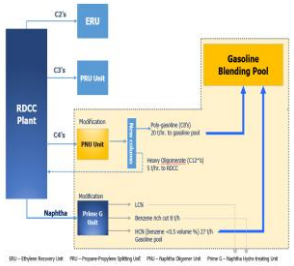
Benefit to GIM Unit: $ per bbl	UHV	Gas Max.	PPE	PPC	Cat. Cooler
	2017: 1.35 $/bbl 2018: 1.51 $/bbl 2019F: 1.70 $/bbl	2017: 0.06 $/bbl 2018: 0.44 $/bbl 2019F: 0.40 $/bbl	2017: 0.13 $/bbl 2018: 0.43 $/bbl 2019F: 0.22 $/bbl	2017: - 2018: 0.18 $/bbl 2019F: 0.17 $/bbl	2018: - 2019F: 0.3 $/bbl

2017: 1.54$
2018: 2.56$
2019F: 2.79$

2016 | **2017** | **2019**

UHV Project

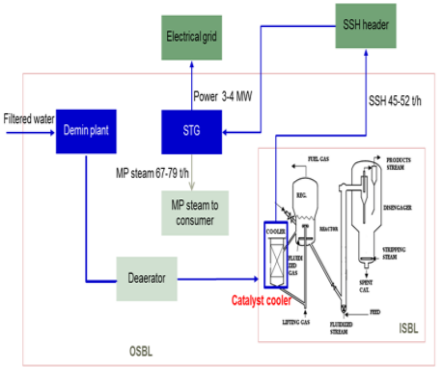
Gasoline Max. Project



PP Expansion Project (PPE)

PP compound & specialties (PPC)

Catalyst Cooler Project



Company Profile

Performance Highlight

Projects Update

Strategic Direction

IMO New Regulation

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IRPC Strategic Roadmap to 2020

Power of Growth, Power of Digital & Power of People: "GDP"

IRPC Public Company Limited

BIG — Revenue Growth : 5%
EBITDA Growth : 10%

STRONG — 1st Quartile ROIC in Petroleum and Petrochemical Industry

LONG — Member of DJSI Emerging Markets Universe

PHOENIX

- Operational Efficiency Improvement
- Asset Utilization Enhancement
- Product and Service Improvement
- Capacity and Products Expansion

Other Projects Completion

Capacity	Before	After
CHP I		
• Electricity	108 MW	307 MW
• Steam	200 T/hr	664 T/hr
PRP	312 KTA	412 KTA
EBSM	200 KTA	260 KTA

OPerational EXcellence · COMmercial EXcellence · irpc DELTA · HR EXcellence

Margin Improvement

- Operational Excellence
- Commercial Excellence
- Procurement & HR Excellence

Benefit +135 MUSD

EVEREST

Incremental Margin and Organization Health

- Capability Building
- Owner mindset & Performance Orientation
- Cultural Changes

Capacity	Before	After
Propylene (UHV)	412 KTA	732 KTA

Fully Integrated PP

Capacity	Before	After
PP (PPE&PPC)	475 KTA	775 KTA

POWER GDP

- **G** Power of Growth
- **D** Power of Digital
- **P** Power of People

2010 · **2014** · **2016** · **2018** · **2020 ROIC 14%**

iSPIRIT

- Individual Ownership
- Synergy
- Performance Excellence
- Innovation
- Responsibility for Society
- Integrity & Ethics
- Trust & Respect

GDP: From Aspiration to Execution

Power Three : 3 Pillars for achieve Top Quartile in 2020

Power of Growth (G)

- **MARS** — Maximum aromatics for competitiveness
- **E4E** — 100 MUSD — Everest forever for sustainable growth
- **GALAXY** — 100 MUSD — Growth by M&A
- **RDeX** — Drive R&D excellence

Power of Digital (D)

IRPC 4.0 — 100 MUSD

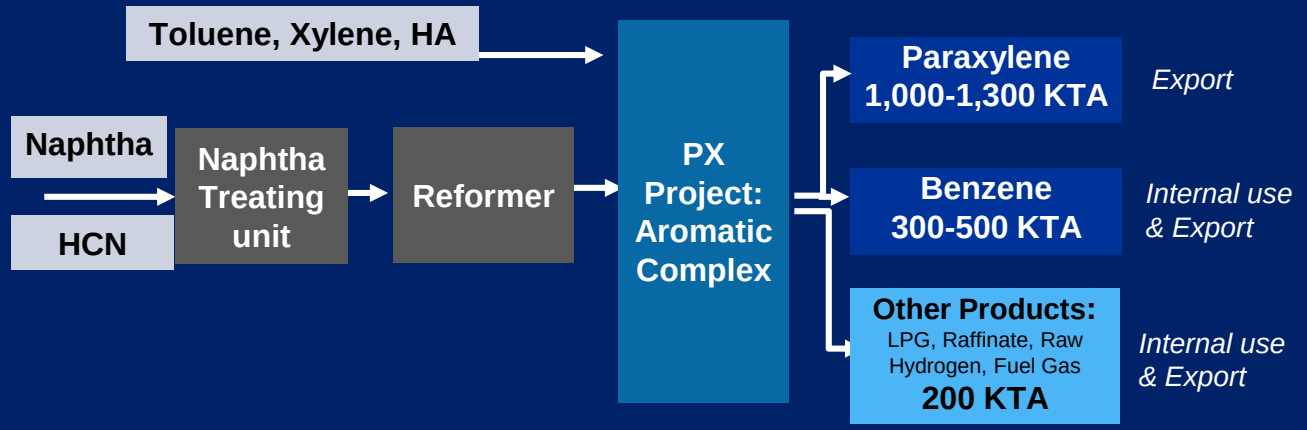
- **OPS 4.0** Smart Operation (AI)
- **ISC 4.0** Integrated Supply Chain
- **CCM 4.0** Customer Centric Digital
- **PRO 4.0** Lean procurement
- **ERP 4.0** ERP Transformation

Power of People (P)

- **IRPC DNA** — Truly embed and live the **IRPC DNA**
- Develop next generation of Top **30 leaders**
- Continue to establish lean, fit-for-purpose **organization**

Maximum Aromatics Project : MARS
To increase Petrochemical Yield

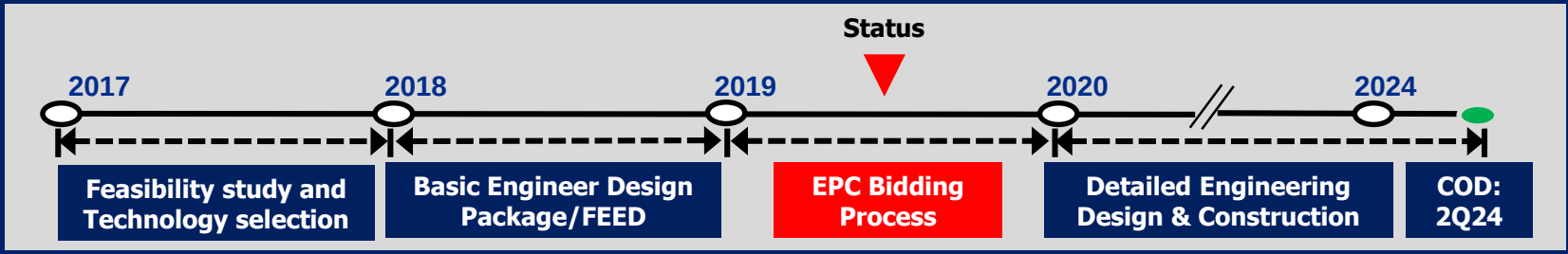
CAPEX: $1.1 bn - $1.3 bn **IRR 14%-16%**



Key Rational

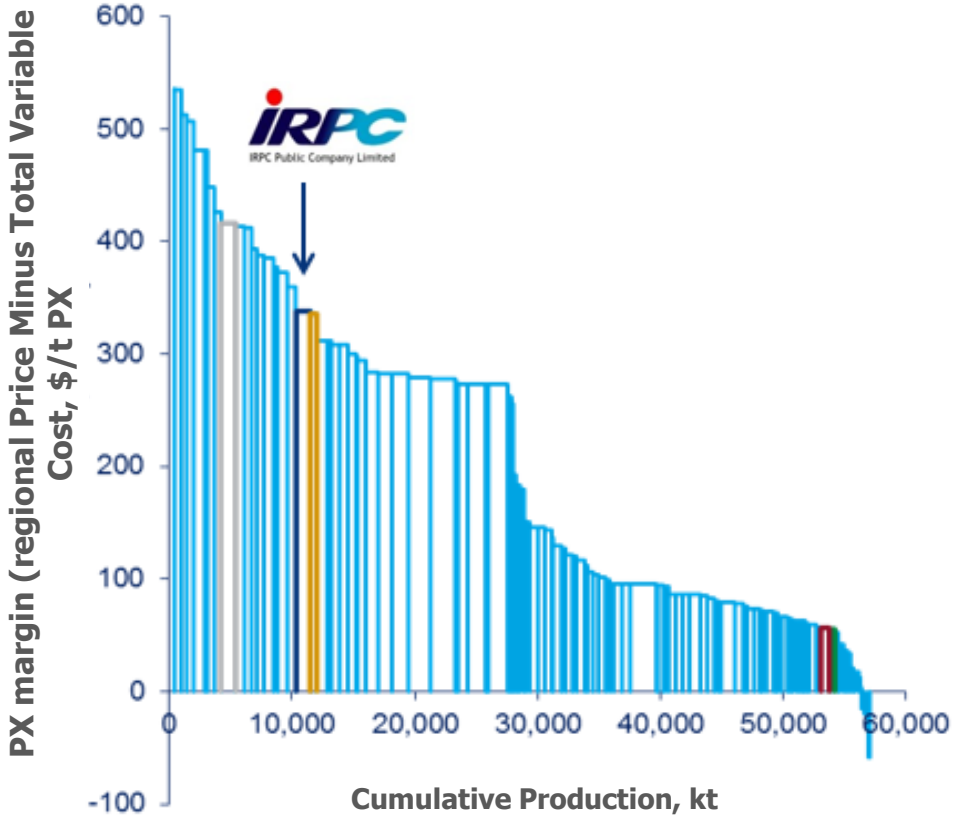
- Utilize excess Naphtha /Toluene/Xylene as feedstock to maximize PX and BZ products
- Cost competitiveness thru new technology
- Affirmed PX demand growth: CAGR: 4% - 5%

Existing + UHV Petrochemical Yield 17% >> Petrochemical Yield 27%

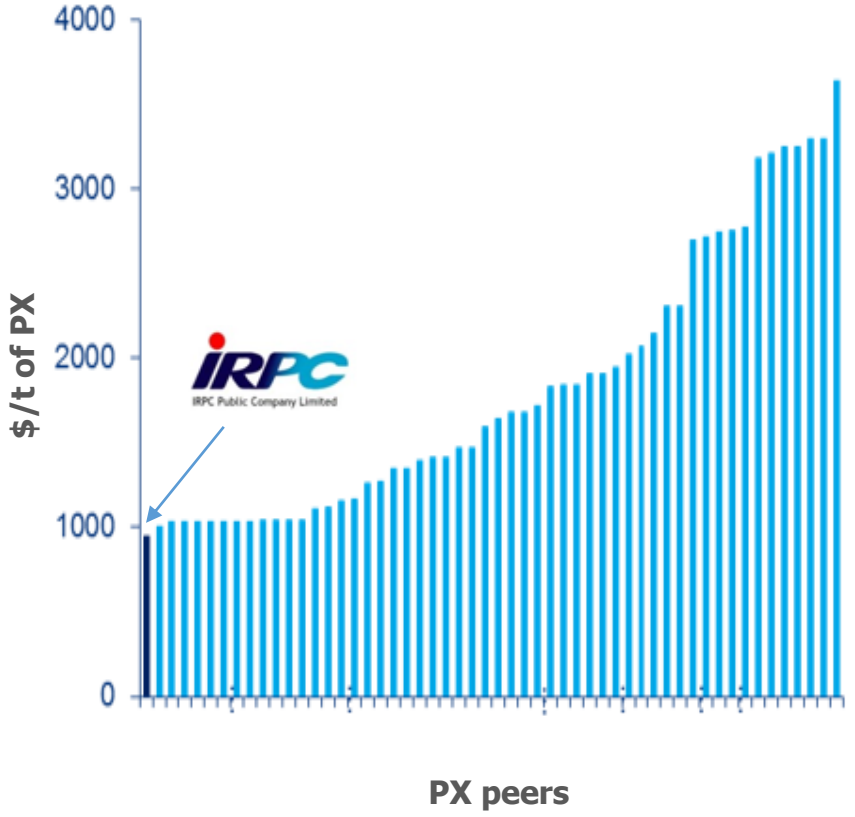


Paraxylene competitiveness in global top 25%

Production Global Margin Curve, Mixed Calculation 2023



Raw Material Cost, Northeast Asia/Southeast Asia + Middle East, Mixed Calculation 2023



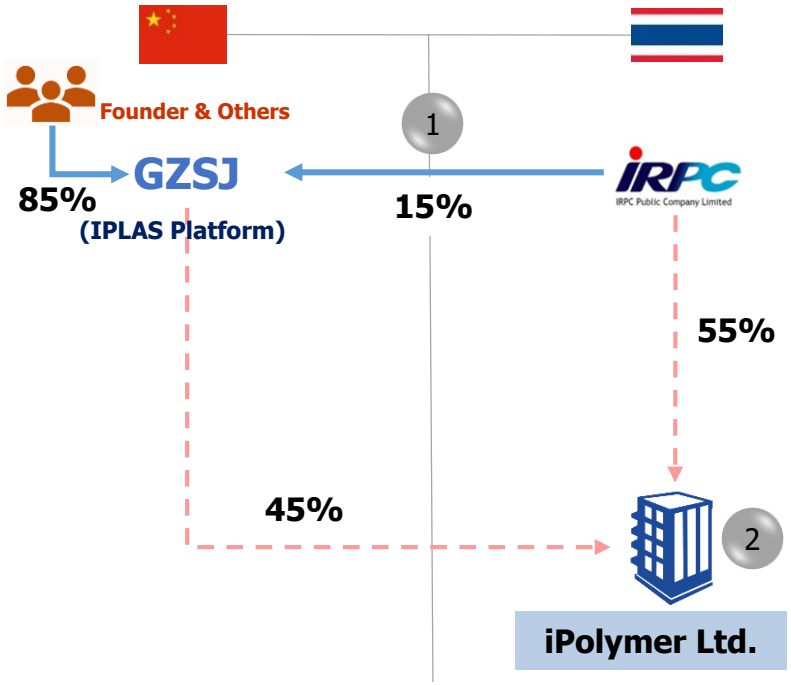
Source : Wood Mackenzie Chemicals, November 2018

M&A under "Galaxy" project
Investment in plastic product E-commerce business

Benefit

- New market and distribution
- Leverage know-how
- Big data analytic

Shareholding Structure



E-commerce Platform : one stop service provider

- Provide **market place** for supplier and buyer focusing in SME
- Service **logistic** as option for buyers and be included in prices
- Service **credit term** thru interest charged in prices
- Provide **Technical service solution** by the experts

1 E-commerce Platform – in China

- **Company**: Guangzhao Saiju Performance Polymer Ltd (GZSJ), China
- **Business**: E-commerce platform for variety of plastic products under "IPLAS" platform
- **Website**: www.isuwang.com & www.suwen8.com
- **Investment size**: ~ 650 MB
- **Status:** Approved to be a new shareholder by MOC. in May 2019 and MIIT. in July 2019

2 E-commerce Platform – in Thailand

- **Company**: iPolymer Company Limited
- **Business**: E-commerce platform in Thailand focusing in plastic and chemical products
- **Website**: www.plastket.com
- **Investment size**: ~ 120 MB
- **Status:** Fully paid-up capital in Aug 2019

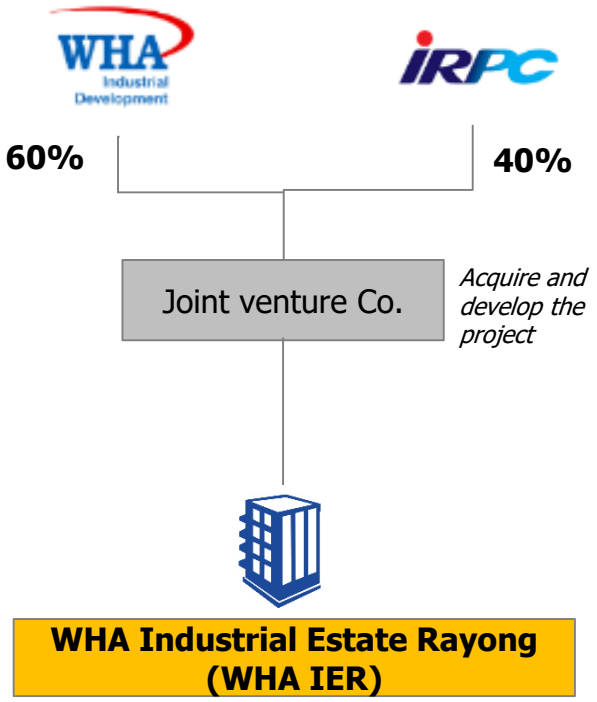
M&A under "Galaxy" project
JV with WHA

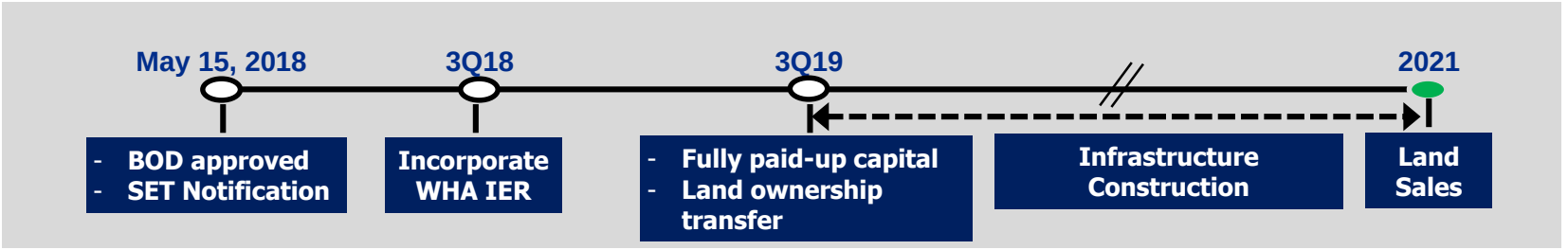
G

WHA Industrial Estate Rayong

- **Objective:**
  - ❑ Develop and operate industrial estate
  - ❑ To monetize Ban Khai assets
  - ❑ Focus on "Strategic SME for EEC"
- Incorporate the joint venture company, named **"WHA Industrial Estate Rayong Co.,Ltd."**
- **Total land area**: ~ 2,152 Rais
- **Location:** Ban Khai District, Rayong
- **Registered capital:** 650 MB
- **IRR:** 12.5%
- **Progress:**
  - ❑ Fully Paid-up capital in 3Q19
  - ❑ Land ownership transfer to WHA IER in 3Q19

Shareholding Structure



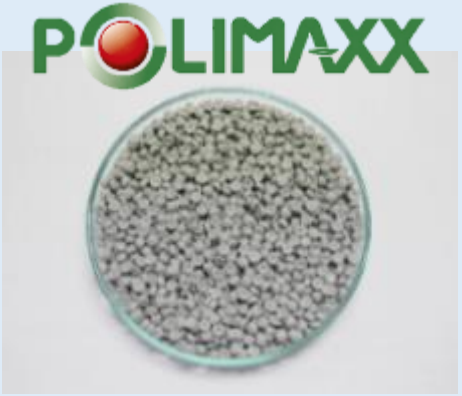


Floating Solar Pontoon

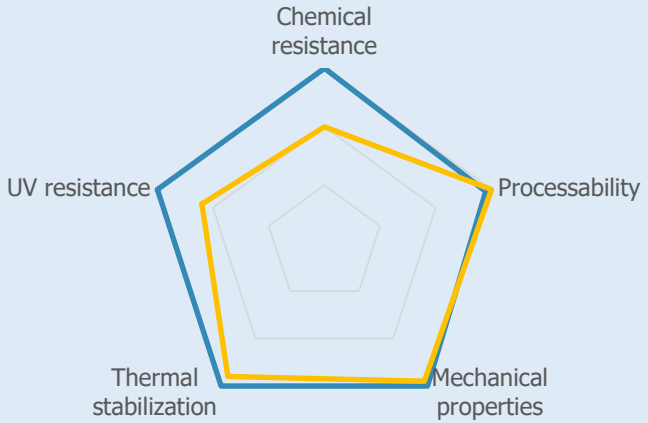
G

Make Specialty Materials for Niche Market to enhance Performance

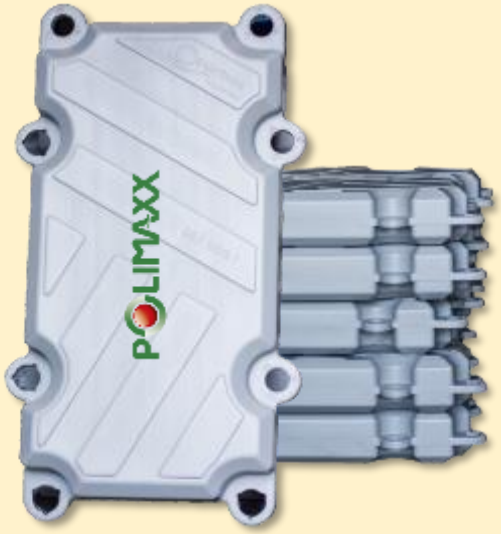
Material



POLIMAXX P301GR HDPE



Application



Floating Solar Pontoon

- **Less heat absorption than black objects**
- **Increase efficiency of solar PV panel (overall power)**

Projects

IRPC Floating Solar Power at Rayong Site

12.5 MW

Under Construction Projects

Customer: Suntara

5.1 MW

PP Compound for EV Car

IRPC Public Company Limited

G

Make Specialty Materials for Niche Market to enhance Performance

Material

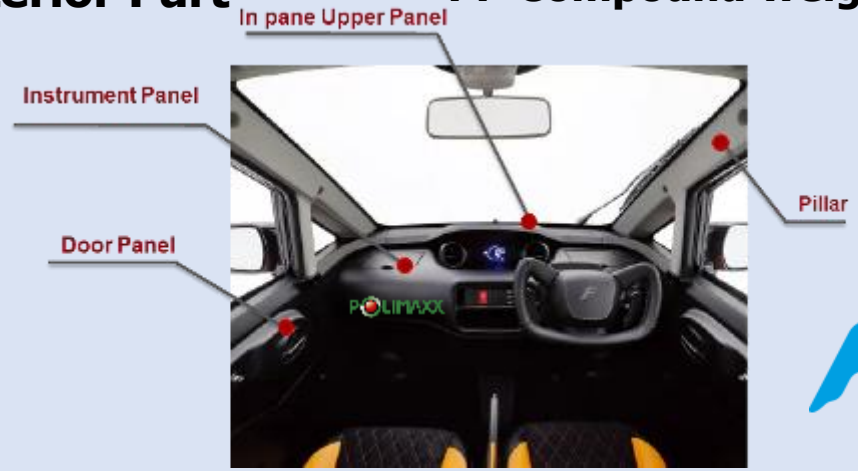
POLIMAXX

- *High weather resistance*
- *Good UV resistance*
- *High mechanical property*
- *Good processability*

Application

Exterior Part — PP Compound weight 20 kg/car

Interior Part — PP Compound weight 4 kg/car

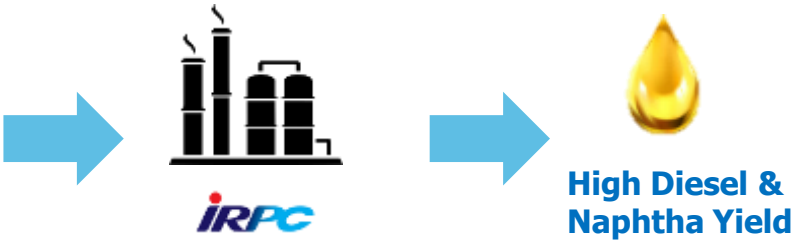


Foмм
First One Mile Mobility

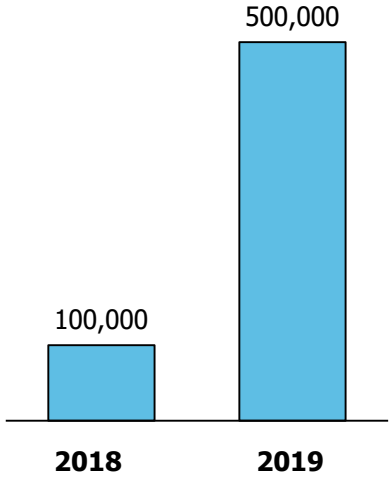
Waste Oil Management – green feed stocks

Waste Crude Production

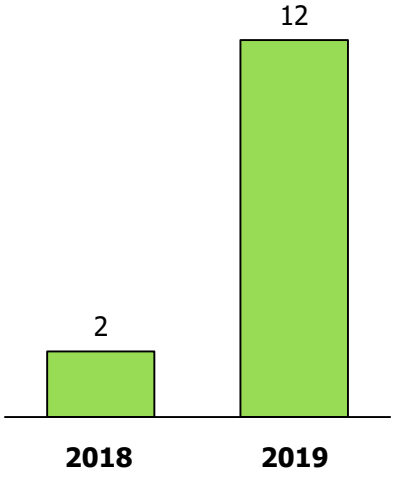
Waste Tire + Plastic	Pyrolysis System	Pyrolysis Oil
The main raw material is waste tires and plastic.	Pyrolysis system is safe, purify, energy saving and require low maintenance with max oil to 80-90%	Converted to fuel, carbon black



Waste Crude Volume, Liter/Month



Benefit, MB/ Year



IRPC 4.0

Developing implementation plan through IRPC supply chain

D

Supply	Production/ operation	Distribution	Customer	Market/ Competitor
I1 - Crude selection	O1 - EKON$	C4 - End-to-end CRM	C2 - Customer industry platform	
O8 - Crude blending optimization	O2 - Mass balance reconciliation system	C5 - B2B portal	C6 - Market & competitors intelligence	
P1 - Spend cube analytics / SRM	O4-O5 Rotating Machine PM	O3 - Utility demand forecasting	C1 - Advanced pricing algorithm	
P3 - Demand planning (non-HC)	O6 - Catalyst lifecycle prediction	P2 - Advance material mgmt.	C3 - Big data analytics to predict demand	
P4 - Process workflow re-design	O10 - Maintenance advanced scheduler	O12 - Smart operator app & wearable safety device		

Collaboration platform with cross function team: Continuous interaction feedback from client

I2 - Collaborative asset tech. platform

I3 - Control tower decision making

E1 - SAP revisit

E2 - Tech function

E3a - Data governance / Reporting & big data analytics

Digital Organization

Data Lake

Robust ERP Backbone

Secured Technology

Agile Way of Work

Strategic Initiative – IRPC 4.0

To reach 100 MUSD benefit within 2 years

D

Target

DAI: Digital Assessment Index >>

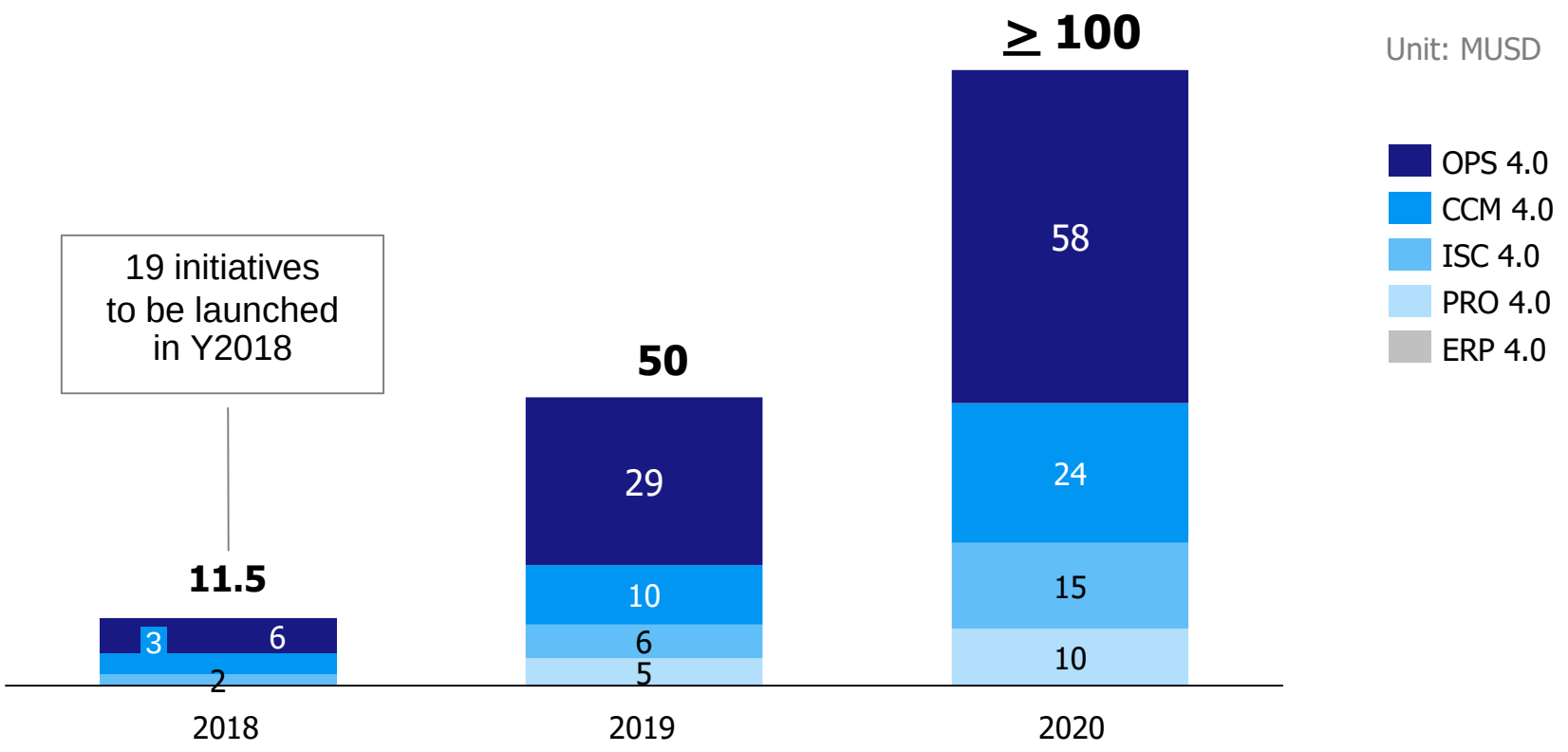
Digital passive

24

Digital leader

81

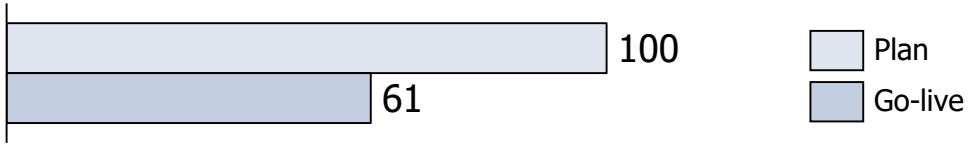
'Improve DAI to be digital leader'



IRPC 4.0 – Be implemented as planned

D

Overall project is on plan, 60% of initiatives on launched



€KONS

A tool optimizes key economics through refinery & petrochemical operations

- *Select KPIs for each plant*
- *Link operational KPI's to cash*
- *Set limits and targets*
- *Display real-time information*
- *Clear visualization*

Timeline :
Completed in Jun-19

Pricing Algorithm

Predictive analytics engine to optimize on price and volume sold to customers

Key updates:
Algorithm & frontend developed and fully tested in market
Handover from vendor for frontend completed for customer

Timeline :
Completed in May-19

Spend Cube

Assessing spending tool - on what you are buying, who is buying it and from whom

Key updates:
Empower the team to drive benefit through various change management program

Timeline :
Completed in 2Q19

Control Tower

End-to-end visualization dashboard to enhance decision making across value chain

Key updates:
Working closely with data owner to prepare backend integration
Executive dashboard to leverage on selective operational use cases

Timeline :
Go-live in 4Q19

Power of People
IRPC New DNA

P

Following orders	Individual Ownership
Process-oriented	Result-Oriented
Promise but delay	Promise and Deliver
Business as usual	Continuous Improvement
Silo-based	Do Things Together
Biased reward	No Bias
Too many commentators	Actively Solve The Problem

IRPC Next Move

- ❑ Away from mass production
- ❑ Customer centric : To be Solution Provider
- ❑ Explore Business Opportunity to set up local compounding facility in AEC market e.g. Vietnam, Indonesia
- ❑ Focus on Specialty products ~ 60-70% of Petrochem. Portfolio

- ❑ Form Strategic Partnership for PPC with Japanese partners to penetrate Automotive OEMs
- ❑ Business Collaboration with Strategic partners (NAL) for ABS

- ❑ Launch New Green Products(3Rs) to capture New Eco Market trend
- ❑ Increase market share in high value Hygiene & Health Care and Medical applications
- ❑ Penetrate Li-battery and Lead acid battery separators by special UHMWPE

- ❑ Grey HDPE for Floating solar pontoon
- ❑ ACB for Lithium battery
- ❑ Compounding material for Automotive
- ❑ Chlorine pipe, Marine pipe
- ❑ PE Adhesive
- ❑ Anti-dripping, Processing aid

Company Profile

Performance Highlight

Projects Update

Strategic Direction

IMO New Regulation

Appendix

- Dividend Payment
- CAPEX Plan
- Financial Position
- Financial Performance
- History
- Turnaround Plan 2019

2020 IMO Regulations :
The most significant change in fuel specifications for a decade

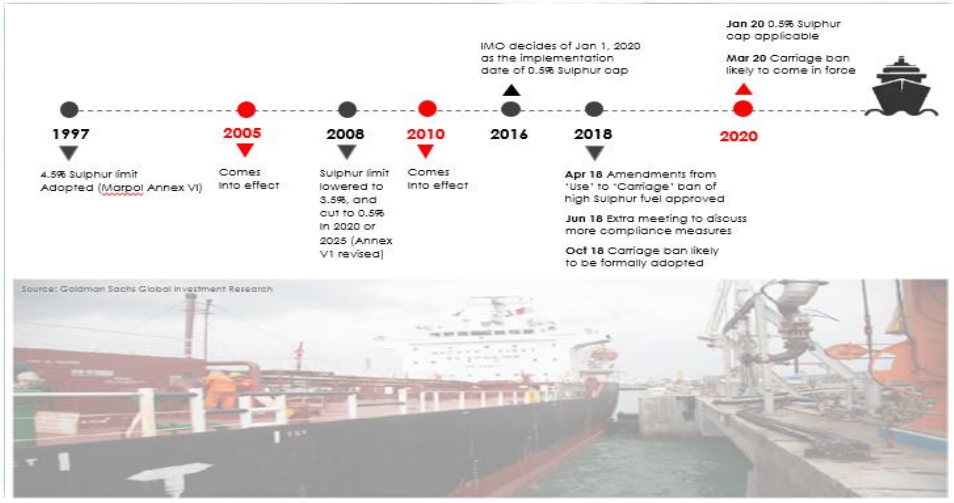
2020 IMO Regulations

IMO

What is it?

The IMO's current limit on sulphur content for ships' fuel oil is 3.50% m/m (mass by mass). The new global limit for fuel oil on board (both on main and auxiliary engines and boilers) will be 0.50% m/m and will apply on and after 1 Jan 2020.

IMO Timeline



The Options for The Shipping Industry

- Install scrubbers
- Switch to LNG
- Burn compliant fuel : switch to low sulphur fuels such as MGO
- Waivers/ Non-compliance

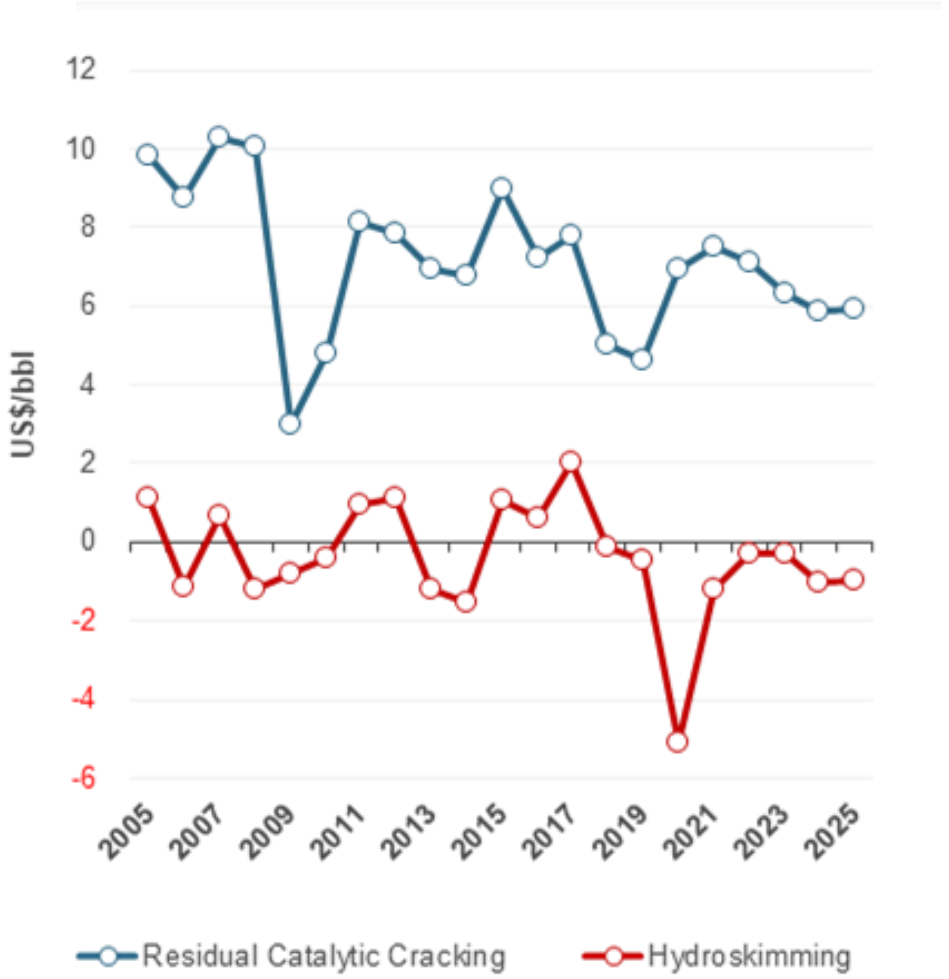
Refinery Options

- Change the type of crude they process
- Develop new blends / Formulations
- Invest in conversion / Desulfurization capacity
- Find a new home for HSFO

2020 IMO Regulations :
Potential impact from IMO regulations in 2020

Asian Product Crack Outlook

Asian Refining Margins Outlook



Source: Platts | FGE

2020 IMO Regulations :
Who will be affected by IMO 2020?

Global Bunker Fuel Demand Distribution

Positive

- Complex Refiners
- Industrial Customers
- Scrubber Suppliers
- Hydrogen Suppliers

Negative

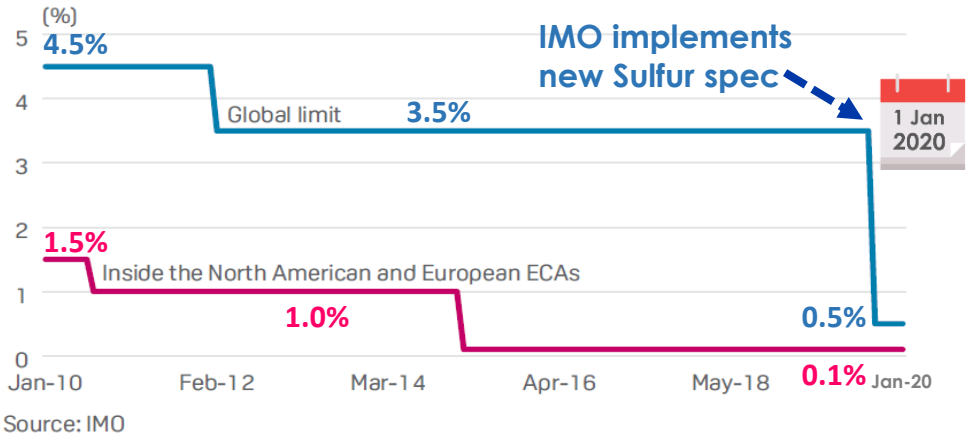
- Fuel Consumers
- Heavy Crude Suppliers
- Waterborne Importers
- Shipping Companies

Refinery Regulation Concern

IMO regulations to start in 2020 which benefit to LS refinery as IRPC

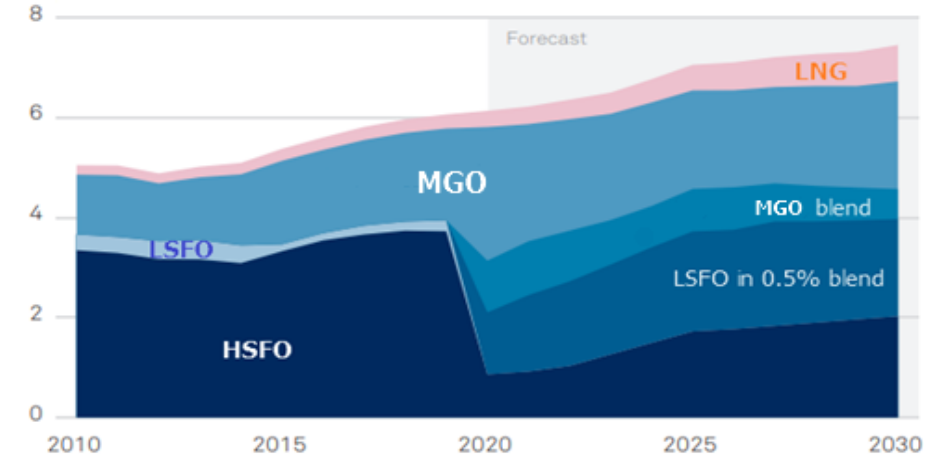
Timeline of Changes in Sulfur Emission Regulation

IMO to cut global SF limits from marine fuels : 3.5%➔ 0.5%



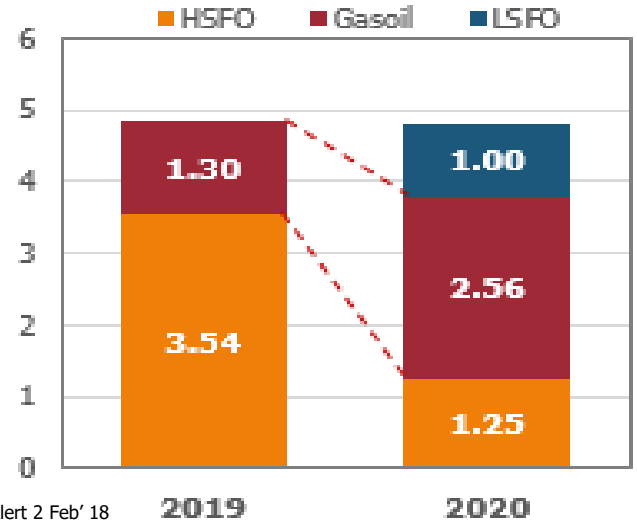
Source: IMO

Global Bunker Fuel Demand, MMBD



Source: S&P Global Platts Analytics

Global Bunker Demand, MMBD



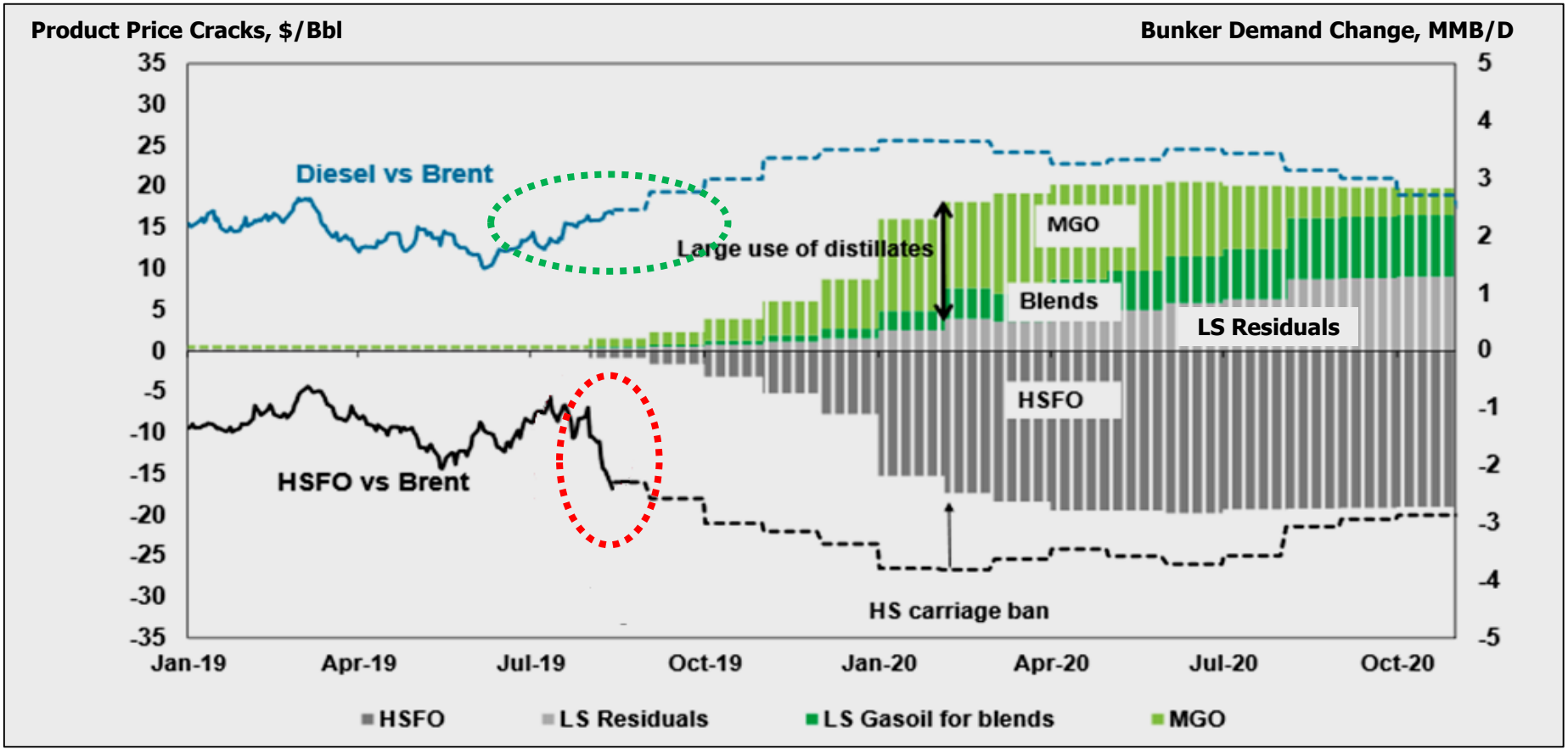
Source: FGE's Flash Alert 2 Feb' 18

Consequence Effects

- Demand of gasoil for marine (MGO) bunker blending support gasoil spread,
- It is expected gasoil-FO spread will increase from 15-18$/bbl to 35 - 40$/bbl
- Though, lower fuel oil price bring back power generation demand
- Higher gasoil price and lower fuel oil price support light crude demand and push Dated/Dubai spread from 2$/bbl to 7$/bbl

Positive impact from IMO

IMO 2020 is now starting to affect markets

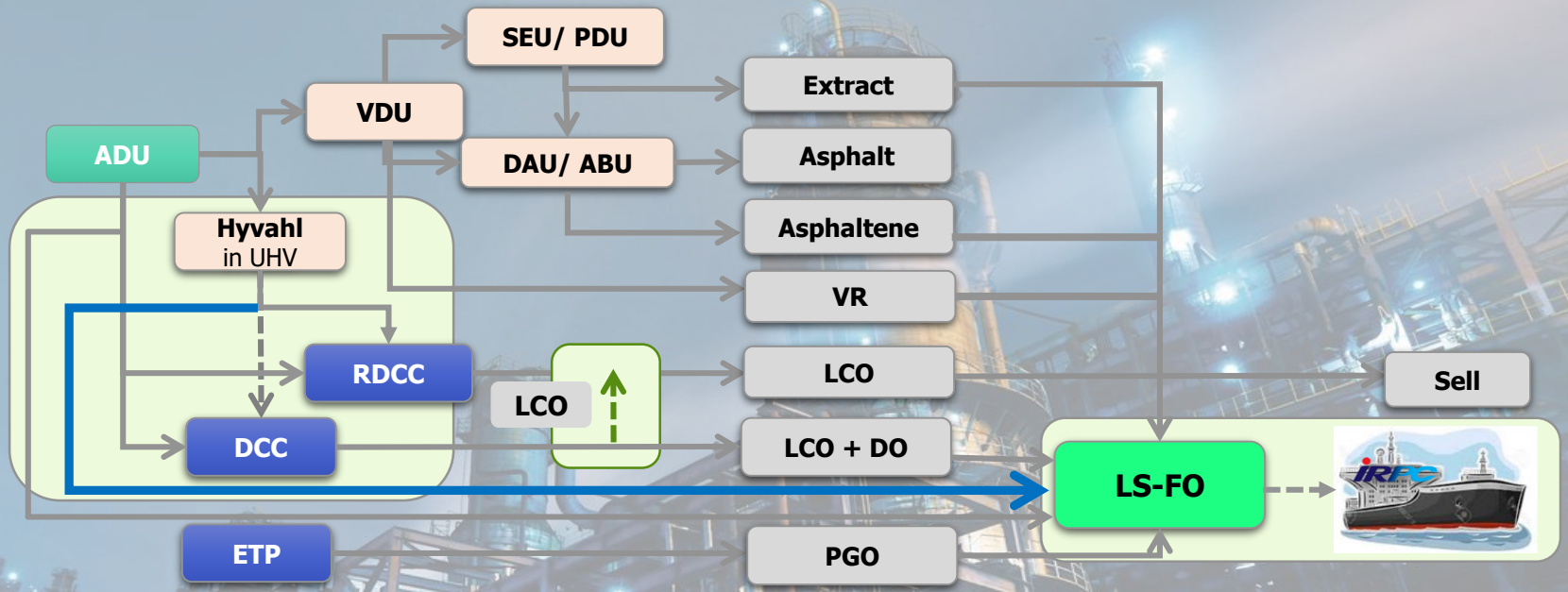


Source: S&P Global Platts Analytics, Aug 2019

- ❑ IMO has started to drive HSFO spread lower, it will fall further when demand fully shifts to LSFO
- ❑ The distillate cracks are expected to gradually increase. They will spike once MGO demand pick up
- ❑ Gasoil – HSFO spread will increase significantly after new IMO spec change fully implemented

E4E : Initiatives Project :
Capture more benefit thru LSFO project

Low Sulfur Fuel Oil Project



- ❑ **CAPEX** : ~3MUSD (modify pipeline)
- ❑ **Production** : ~ 40-60 KT per month
- ❑ **Margin improved** : ~ 0.45$/bbl or
  (LSFO - HSFO) ~ 40 MUSD per year
- ❑ **MC** : **End of May 2019**
- ❑ **First Shipment** : **July 2019**
- ❑ **Targeted Year** : Y2020 & Y2021

IRPC Timeline of Key Events

1st shipment of low sulphur fuel oil (LSFO) for bunker

1997
4.5% Sulphur limit Adopted (Marpol Annex VI)

2005
Comes Into effect

2008
Sulphur limit lowered to 3.5%, and cut to 0.5% In 2020 or 2025 (Annex V1 revised)

2010
Comes Into effect

2016
IMO decides of Jan 1, 2020 as the implementation date of 0.5% Sulphur cap

2018
Apr 18 Amendments from 'Use' to 'Carriage' ban of high Sulphur fuel approved

Jun 18 Extra meeting to discuss more compliance measures

Oct 18 Carriage ban likely to be formally adopted

2019
Jul 19 : IRPC 1st Shipment

2020
Jan 20 0.5% Sulphur cap applicable

Mar 20 Carriage ban likely to come in force

Source: Goldman Sachs Global Investment Research

Company Profile

Performance Highlight

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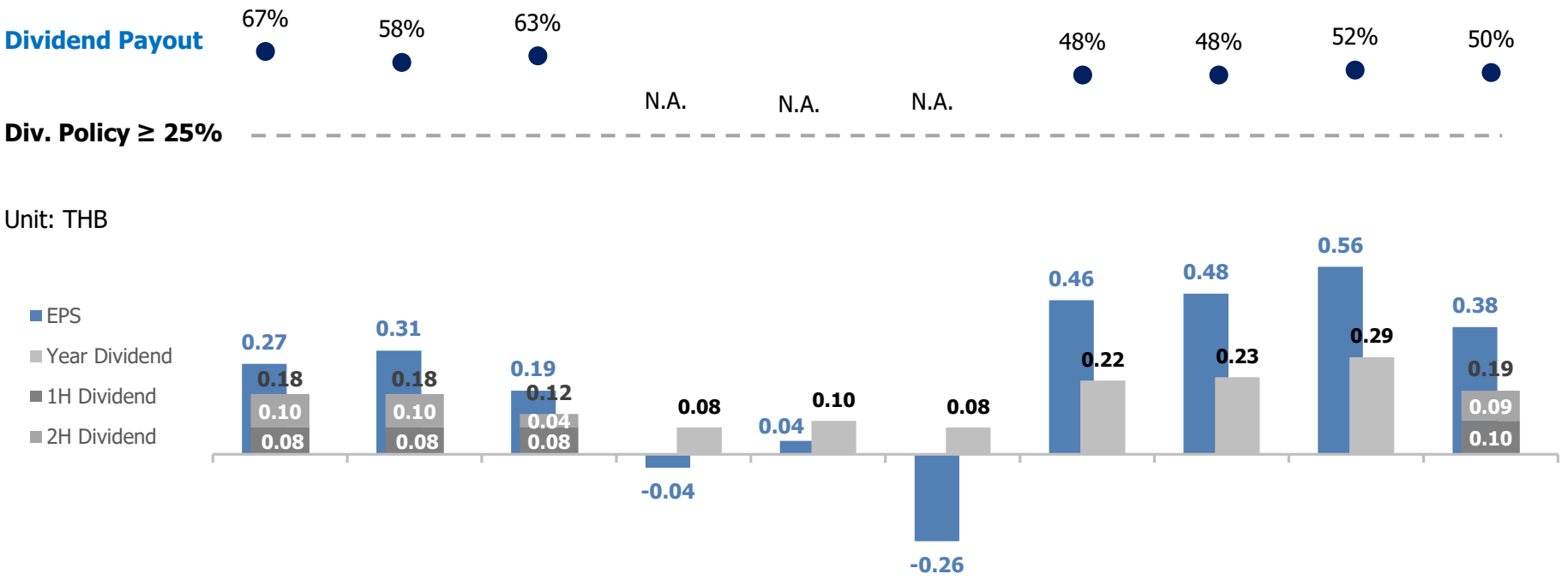
Appendix

- Dividend Payment
- CAPEX Plan
- Financial Position
- Financial Performance
- History
- Turnaround Plan 2019

Dividend Policy & Payment

IRPC is firmly committed to pay dividend at no less than 25% of net income

IRPC pay at 48-67% payout ratio with average dividend yield of 3.5%



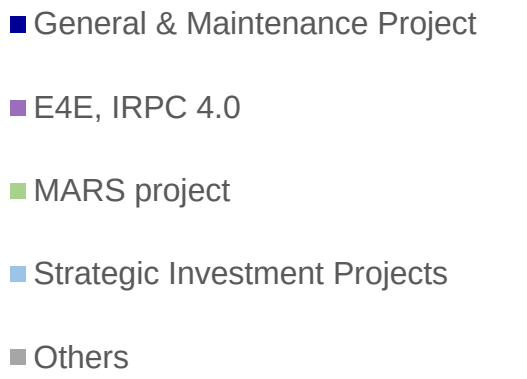
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Dividend Yield	4.1%	2.8%	2.9%	1.9%	3.1%	2.6%	5.1%	4.8%	4.1%	3.3%
Share Price [1]	4.38	6.50	4.08	4.12	3.26	3.06	4.30	4.80	7.05	5.75

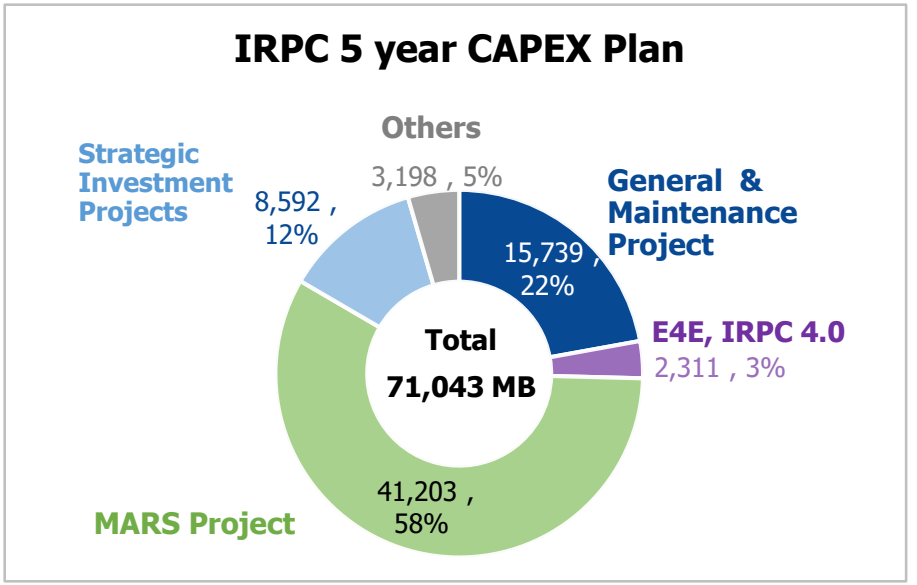
Note: [1] Closing price at the end of period

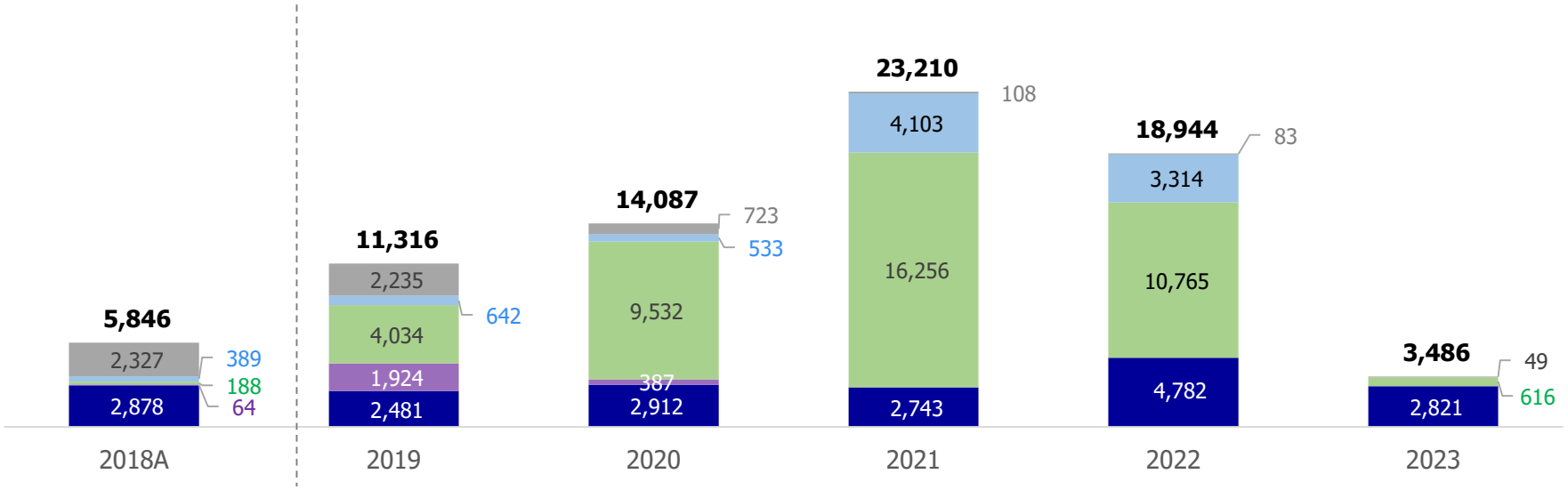
CAPEX Plan in 2019 – 2023

Bt 71 bn* committed CAPEX

Unit: MB





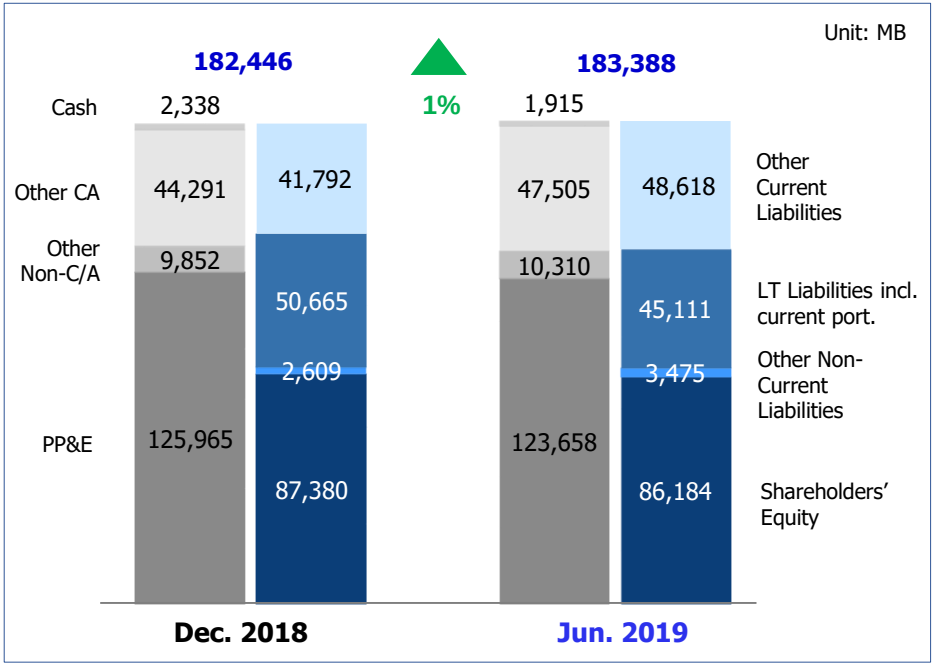


* Excluding capex for investment opportunities of Bt 34 bn

Financial Position

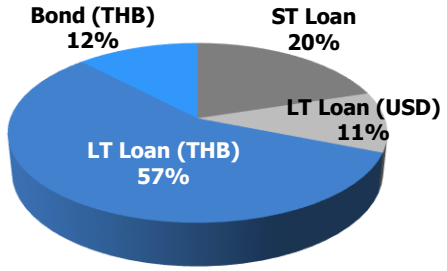
Net D/E dropped as a result of lower LT loan

Statements of Financial Position



Debt Profile

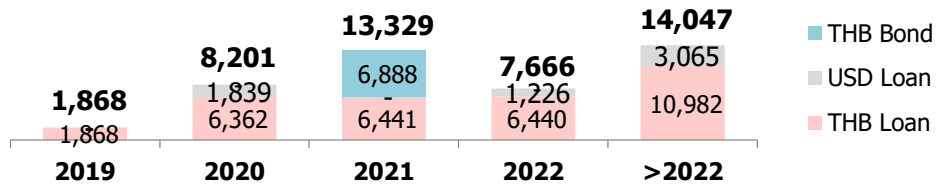
Net Debt = 54,596 MB



Interest Rate		Currency	
Float	88%	THB	73%
Fixed	12%	USD	27%

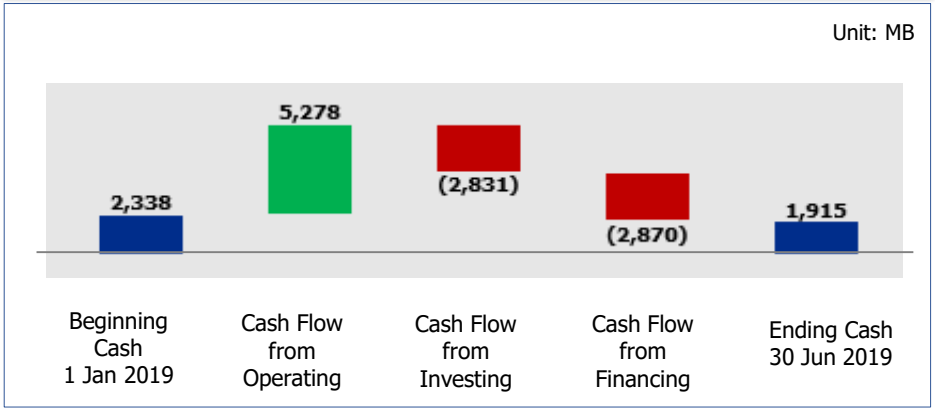
Ex. Rate = 30.92 Baht/$

Maturity of Long-term Debt

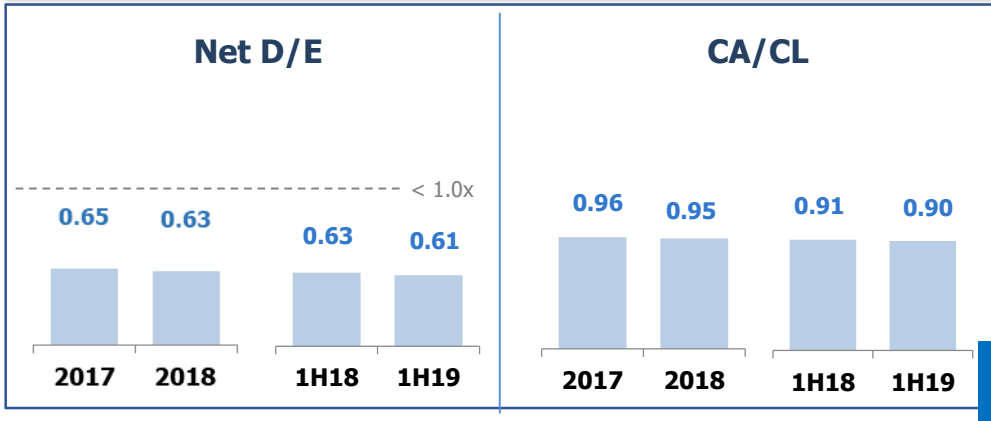


Remark: Long-term debt as at 30 June 2019

Cash Flow



Financial Ratios



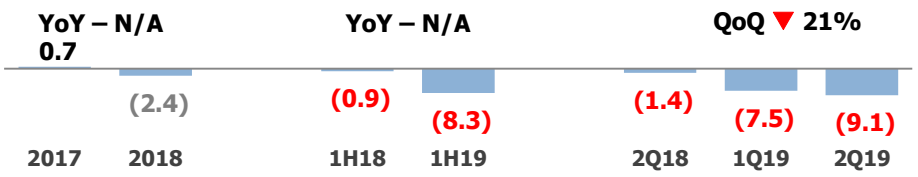
Petroleum Spread

IRPC Public Company Limited

Refinery Spread

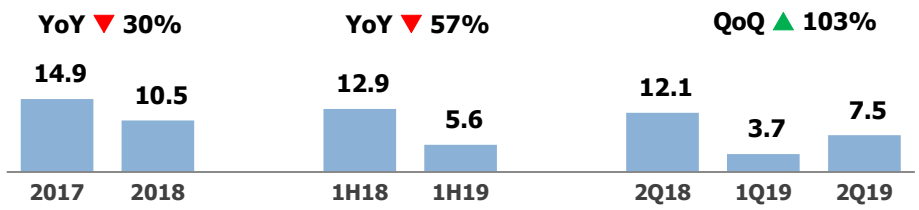
Naphtha - Dubai

$/BBL



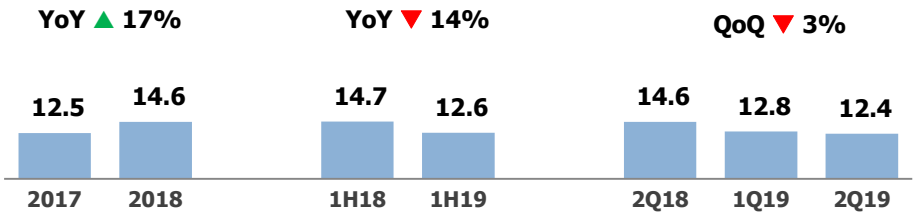
ULG 95 - Dubai

$/BBL



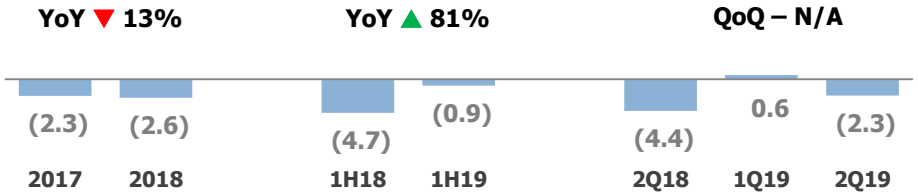
Gas oil - Dubai

$/BBL



HSFO - Dubai

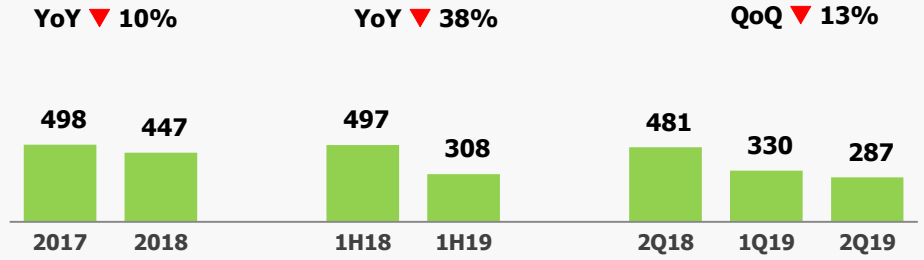
$/BBL



Lube Base Spread

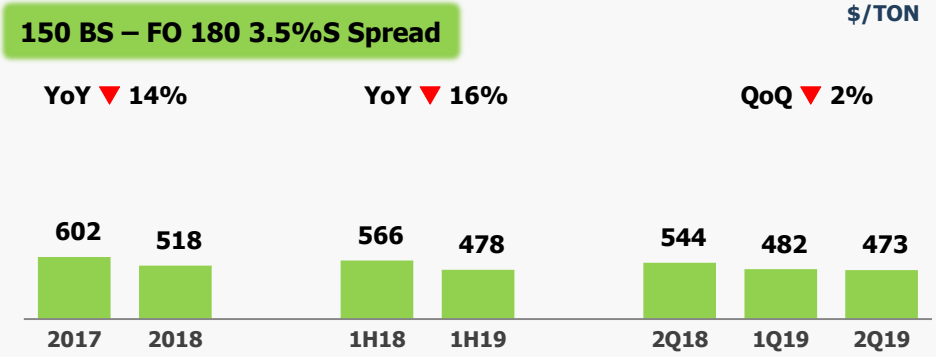
500SN – FO 180 3.5%S Spread

$/TON



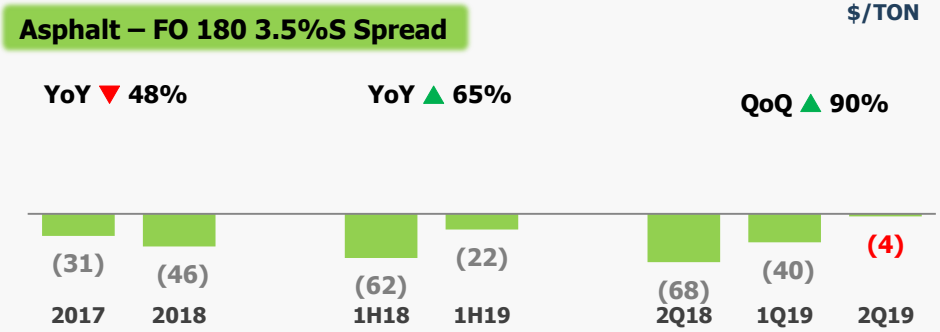
150 BS – FO 180 3.5%S Spread

$/TON



Asphalt – FO 180 3.5%S Spread

$/TON

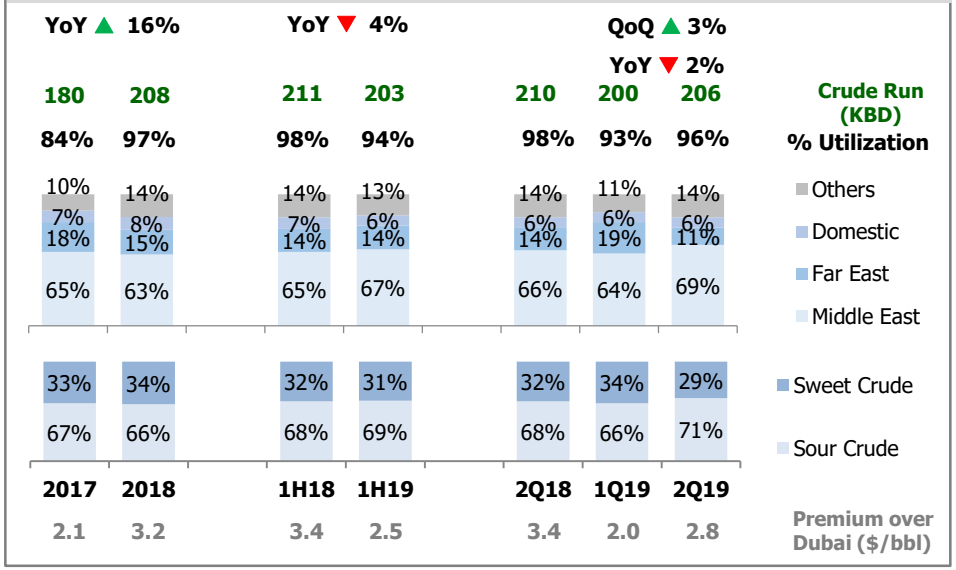


Petroleum Business

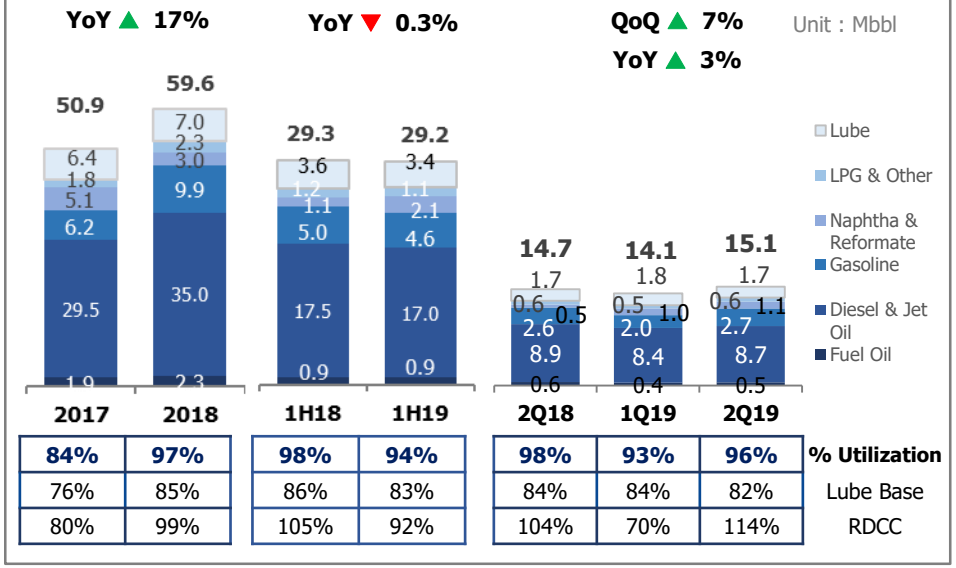
2018: Higher crude run after 2017 major turnaround

1H19 : Weaker products spread & RDCC planned shutdown led to lower GRM

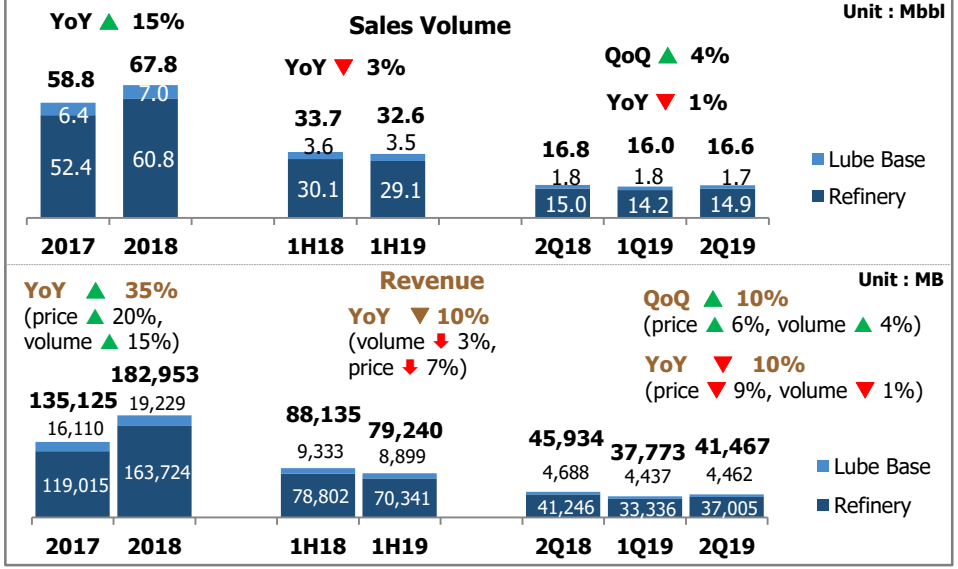
Crude Intake



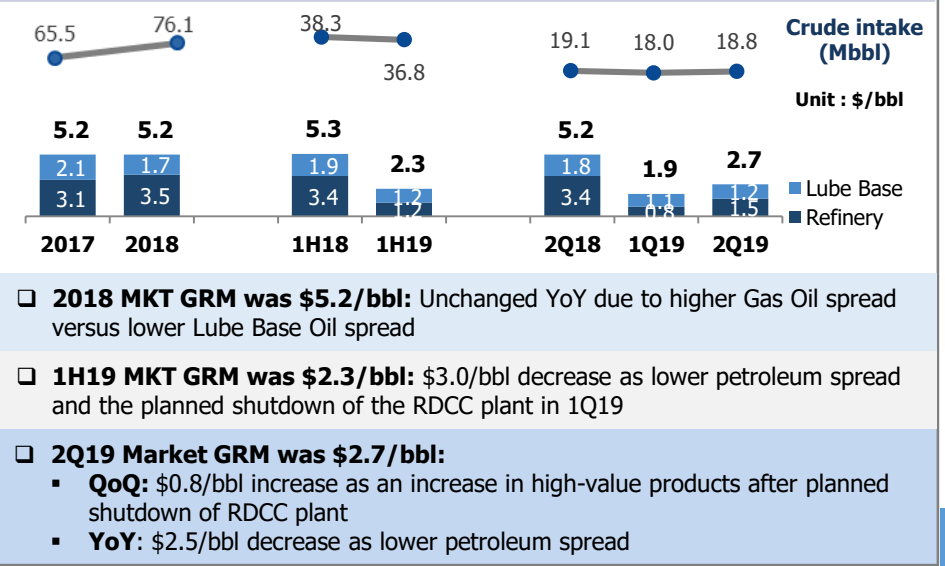
Refinery Production



Sales Volume & Revenue



Market GRM



- **2018 MKT GRM was $5.2/bbl:** Unchanged YoY due to higher Gas Oil spread versus lower Lube Base Oil spread
- **1H19 MKT GRM was $2.3/bbl:** $3.0/bbl decrease as lower petroleum spread and the planned shutdown of the RDCC plant in 1Q19
- **2Q19 Market GRM was $2.7/bbl:**
  - **QoQ:** $0.8/bbl increase as an increase in high-value products after planned shutdown of RDCC plant
  - **YoY:** $2.5/bbl decrease as lower petroleum spread

Petrochemical Spread

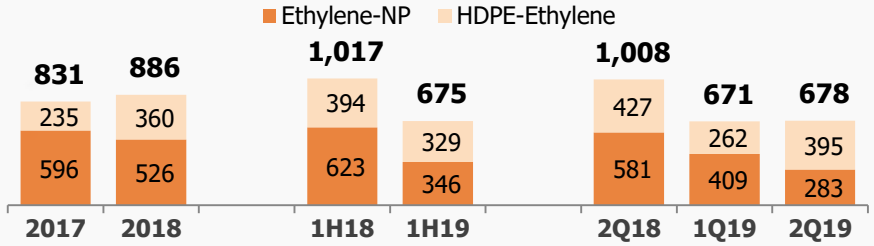
IRPC Public Company Limited

Olefins

HDPE-Ethylene –Naphtha Spread

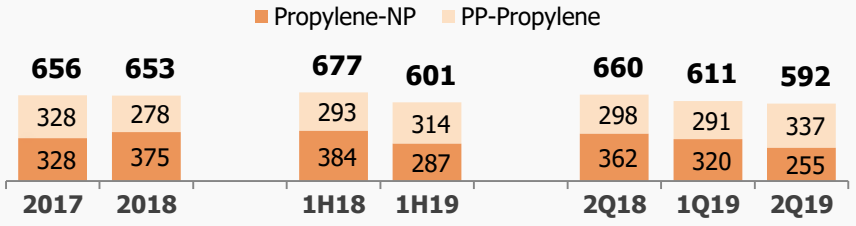
$/TON

YoY ▲ 7% YoY ▼ 34% QoQ ▲ 1%



PP-Propylene –Naphtha Spread

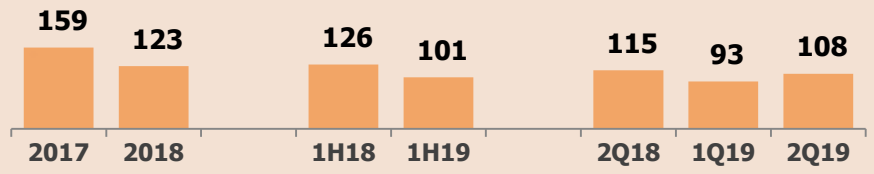
YoY - Stable YoY ▼ 11% QoQ ▼ 3%



Aromatics

Toluene – Naphtha Spread

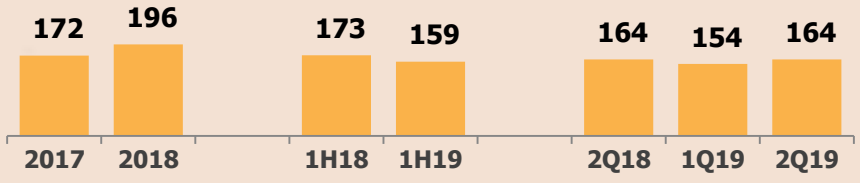
YoY ▼ 23% YoY ▼ 20% QoQ ▲ 16%



MX – Naphtha Spread

$/TON

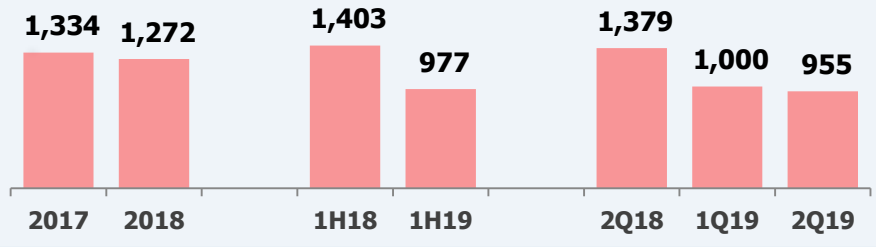
YoY ▲ 14% YoY ▼ 8% QoQ ▲ 6%



Styrenics

ABS –Naphtha Spread

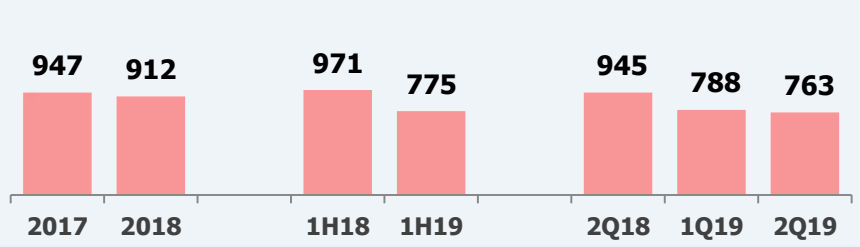
YoY ▼ 5% YoY ▼ 30% QoQ ▼ 5%



PS –Naphtha Spread

$/TON

YoY ▼ 4% YoY ▼ 20% QoQ ▼ 3%

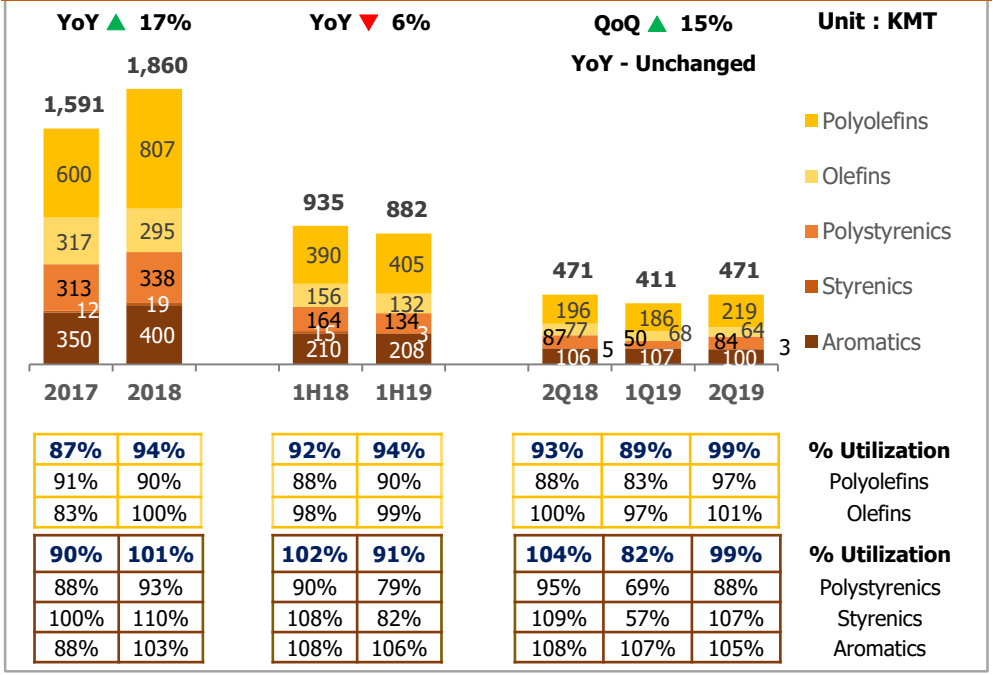


Petrochemical Group

2018: dropped PTF as the decline in petchem. spread vs better product yield after projects completion

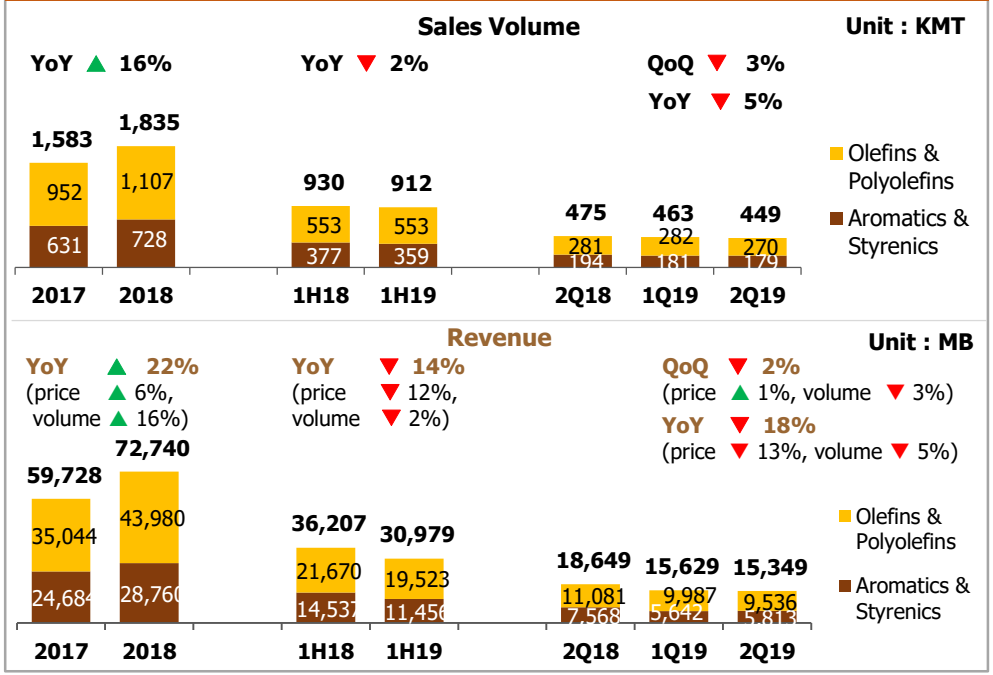
1H19 : Products spread reduction caused the decrease PTF

Production

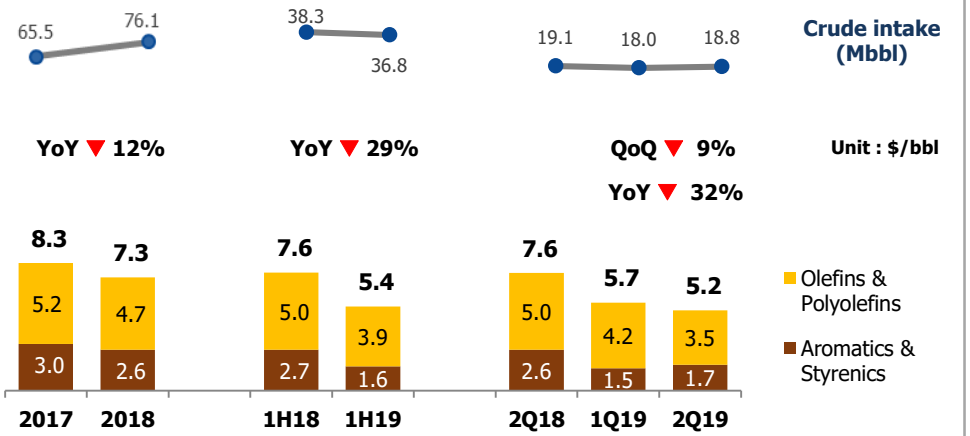


% Utilization	2017	2018	1H18	1H19	2Q18	1Q19	2Q19
Polyolefins	87%	94%	92%	94%	93%	89%	99%
Olefins	91%	90%	88%	90%	88%	83%	97%
	83%	100%	98%	99%	100%	97%	101%
% Utilization	90%	101%	102%	91%	104%	82%	99%
Polystyrenics	88%	93%	90%	79%	95%	69%	88%
Styrenics	100%	110%	108%	82%	109%	57%	107%
Aromatics	88%	103%	108%	106%	108%	107%	105%

Sales Volume and Revenue



Market PTF



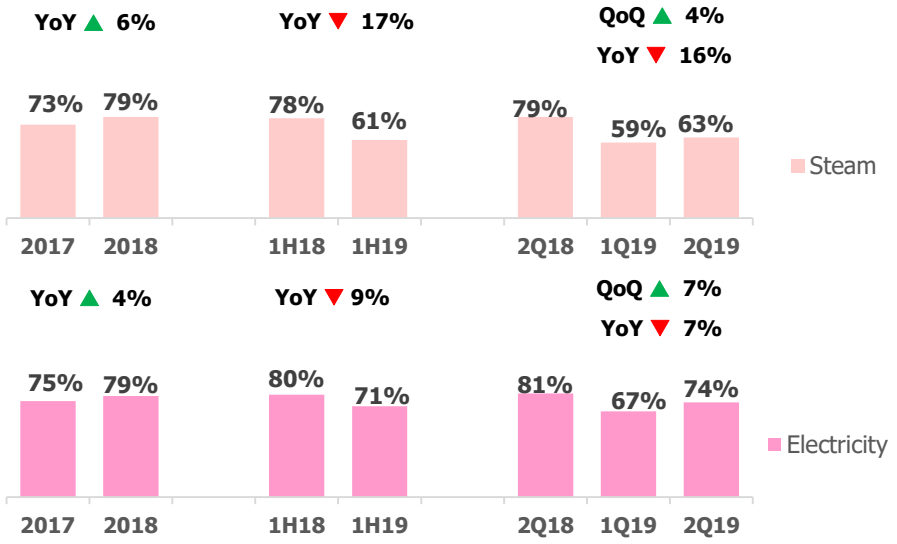
- **2018 : Petrochemical revenue was Bt 73 bn**
  - **YoY :** 22% increase from 6% price increase & 16% vol. increase (major TA in 1Q17)
- **2018 Market PTF was $7.3/bbl:**
  - **YoY :** $0.9/bbl decrease as lower products spread
- **1H19 : Petrochemical revenue was Bt 31 bn**
  - **YoY :** 14% decrease from 12% price decrease & 2% volume decrease
- **1H19 Market PTF was $5.4/bbl:**
  - **YoY :** $2.2/bbl decrease due to lower products spread as impact of trade war
- **2Q19 : Petrochemical revenue was Bt 15 bn**
  - **QoQ :** 2% decrease from 1% price increase vs 3% vol. decrease
  - **YoY :** 18% decrease from 13% price decrease & 5% vol. decrease
- **2Q19 Market PTF was $5.2/bbl:**
  - **QoQ :** $0.5/bbl decrease as lower products spread vs increase high-value products yield
  - **YoY :** $2.4/bbl decrease as lower products spread

Power & Utility

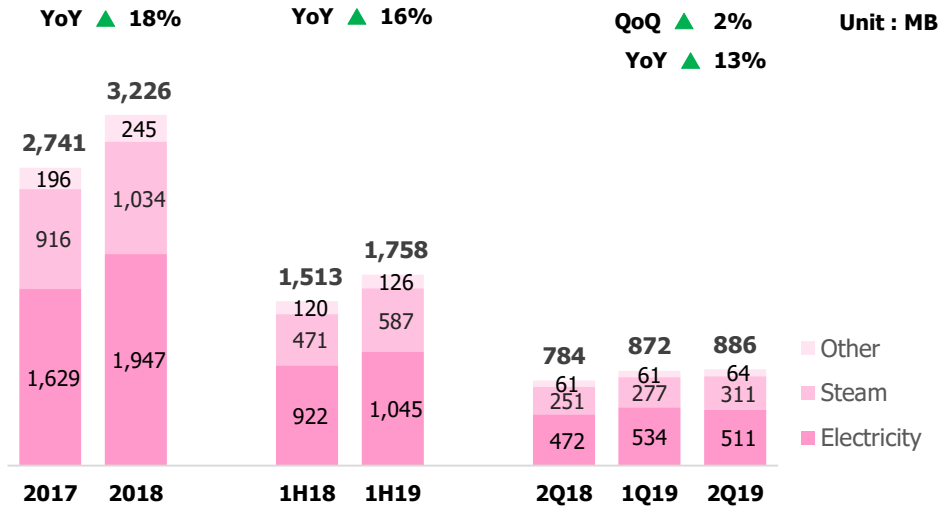
2018: Increasing revenue of Power & UT resulted from high production vol. after major TA

1H19: U-Rate of power & utility declined owing to the planned shutdown of RDCC & petchem plants

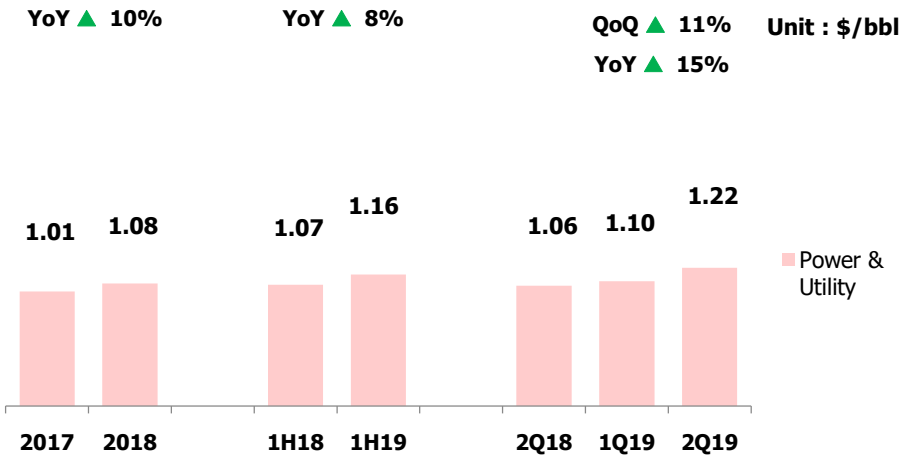
Utilization Rate



Revenue



GIM



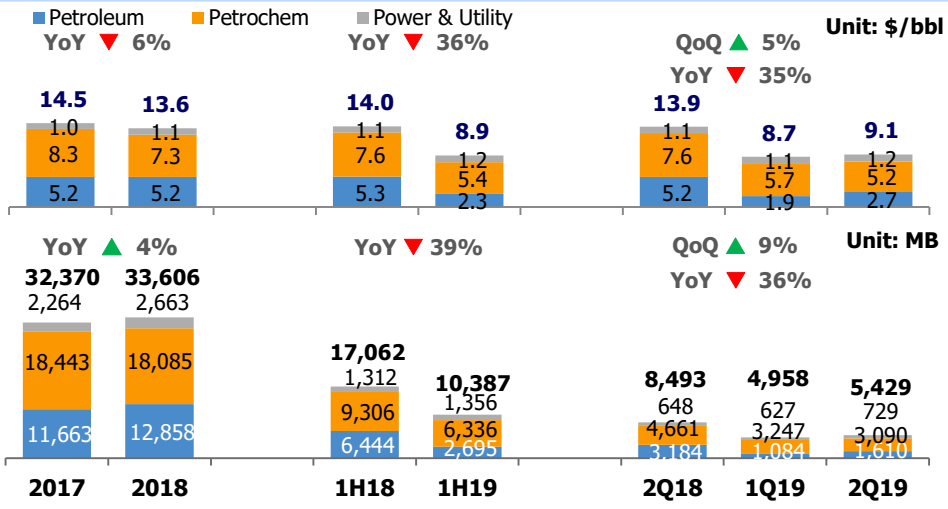
- **2018 U-Rate of Electricity was 79%; ▲ 4%**
  2018 U-Rate of Steam was 79%; ▲ 6%
  - **YoY :** increase from higher production volume after major TA in 1Q17
- **2018 : Power & Utility revenue was 3,226 MB**
  - **YoY :** 18% increase from higher crude run
- **1H19 U-Rate of Electricity was 71%; ▼ 9%**
  1H19 U-Rate of Steam was 61%; ▼ 17%
  - **YoY :** decrease due to the planned shutdown of RDCC & petchem plants in 1Q19
- **1H19 : Power & Utility revenue was 1,758 MB**
  - **YoY :** 16% increase from higher sales vol. & avg. selling prices of power & utilities
- **2Q19 U-Rate of Electricity was 74%; ▲ 7% QoQ**
  2Q19 U-Rate of Steam was 63%; ▲ 4% QoQ
  - **QoQ :** increase owing to RDCC, Petrochemical plants' maintenance shutdown during 1Q19
- **2Q19 : Power & Utility revenue was 886 MB**
  - **QoQ :** 2% increase mainly from steam sales vol. increase
  - **YoY :** 13% increase because of higher sales vol. & avg. selling prices of power & utility

Gross Integrated Margin (GIM)

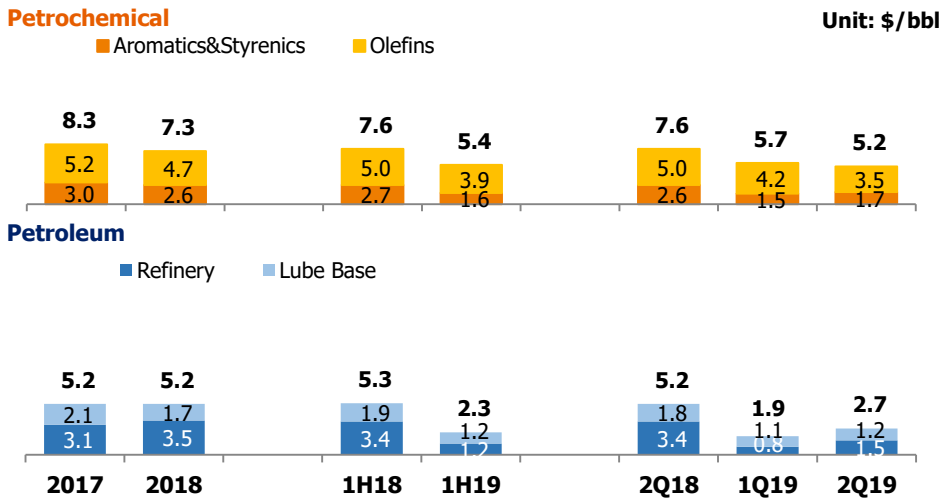
2018: Higher crude premium & stock loss caused lower Acc. GIM

1H19 : Falling of Mkt GIM owing to weaker products spread

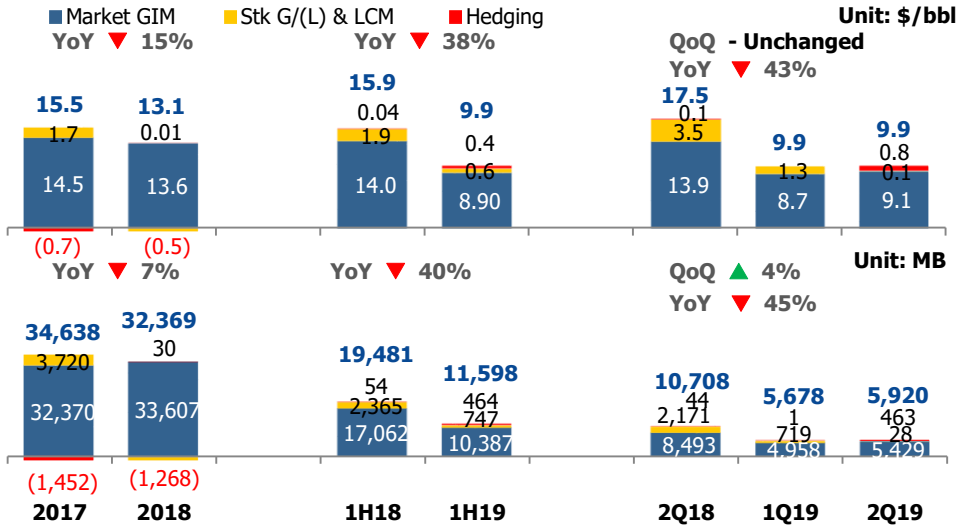
Market GIM



Market GIM by business



Accounting GIM



Market GIM

- **2018 Market GIM was $13.6/bbl:** ⬇ $0.9/bbl from 2017
  - Due to higher crude premium and lower products spread offsetting by better product yield after the COD of projects
- **1H19 Market GIM was $8.9/bbl:** ⬇ $5.1/bbl from 1H18
  - Due to lower spread & RDCC planned shutdown VS lower crude premium
- **2Q19 Market GIM was $9.1/bbl,**
  - **QoQ**: ⬆ $0.4/bbl due to higher ULG95&Asphalt spread & resuming operation of RDCC VS higher crude premium
  - **YoY**: ⬇ $4.8/bbl due to lower spread VS lower crude premium

Accounting GIM

- **2018 Acct GIM was $13.1/bbl:** ⬇ $2.4/bbl from 2017 due to $1.5 higher stock loss and $0.9/bbl lower of market GIM
- **1H19 Acct GIM was $9.9/bbl:** ⬇ $6.0/bbl from 1H18 due to $5.1/bbl lower market GIM & $0.9/bbl lower stock gain
- **2Q19 Acct GIM was $9.9/bbl,**
  - **QoQ**: stable due to $0.4/bbl higher of market GIM VS $0.4/bbl lower stock gain
  - **YoY**: ⬇ $7.6/bbl due to $4.8/bbl lower market GIM & $2.8/bbl lower stock gain

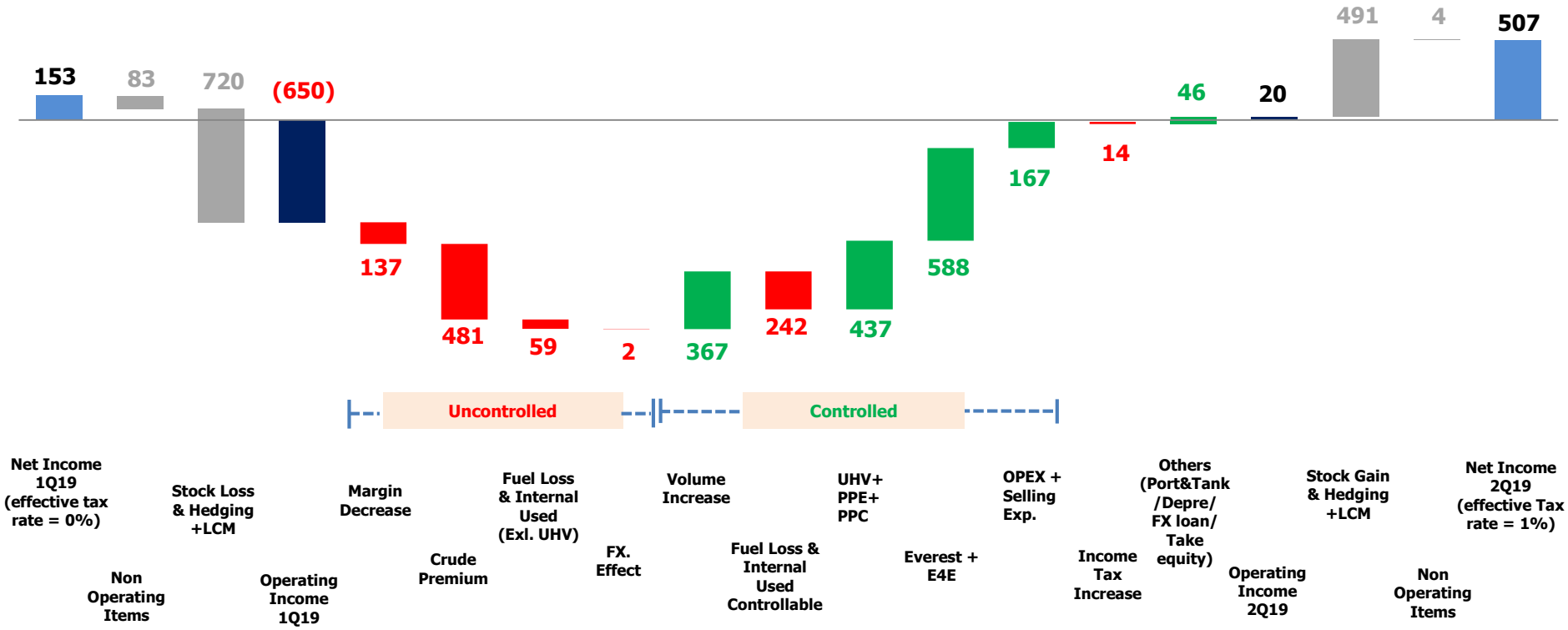
Operating Net Income: 2Q19 vs 1Q19

Resuming RDCC operation plus projects led to better operating income

Unit: MB

153 → Net Income ▲ 231% → 507

(650) → Operating Income ▲ 103% → 20



Important Events in History

HISTORY

1978
Founded by "Leophairatana" Family as TPI

1982

Operated first LDPE plant in SEA

1995

IPO

1997

Debt Moratorium

2000

- Increased refinery capacity from 65 kbd to 215 kbd
- Entered Rehabilitation Plan

2003

MOF was appointed as plan administrator

2004

Restructuring Plan was approved

2005

Successful Rehabilitation → new major shareholders:
- PTT 31.5%
- Gov't (Vayupak) Fund 10%
- Gov't Saving Bank 10%
- Gov't Pension Fund Group 10%

2006
Exited from Rehabilitation plan and Registered as IRPC Plc.

KEY MILESTONES OF THE DECADE

2009
Business Improvement under Phoenix Project

2011

Commenced operation of Combined Heat and Power Project (CHP I)

2013
- Efficiency improvement#1 under "DELTA" Project
- Capacity Increase: ABS/SAN to 179 KTA

2015
Efficiency improvement#2 : Launched "EVEREST" project

2016

- **Commenced UHV project in July 2016**

2017

- **Commenced PPE project in Sept. 2017**
- **Commenced PPC project in Dec. 2017**

2018
- Launched "GDP" project : **G**rowth, **D**igital, **P**eople

UHV: Upstream Project for Hygiene and Value Add Products

IRPC Turnaround Plan 2019

Unit: Day

	Plant	2019												2019
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Petroleum	ADU1								19					19
	ADU2													0
	DCC													0
	RDCC	28												28
	LUBE										15			15
Petrochemical	EBSM			30										30
	HDPE		15											15
	PP	12												12
	ABS/SAN		47											47
	PS			13										13

Thank You

IRPC Public Company Limited

Investor Relations Contact: ir@irpc.co.th

Tel. +662-765-7380, Fax. +662-765-7379

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