

Webinar: Gas Market Outlook - Navigating the Challenges

Key Takeaways

1 May 2020



Introduction

We would like to take the opportunity of thanking our eminent Panellists and Chairperson, PNGRB, for joining us for this webinar on the “Gas Market Outlook - Navigating the Challenges”. We are grateful to FIPI for partnering with us to bring this to our esteemed clients and friends in the industry. Would also like to thank all the participants for taking out their precious time to join us for this event.

We have put together this summary pack, which we hope you will enjoy going through, to refresh some of the key takeaways from this event.

At EY we would be happy to see how we can partner with you going forward to help solve the problems facing the industry - as we all seek to bounce back collectively from the Covid 19 challenge and emerge stronger and more resilient as an industry & country in the years ahead...

Warm regards,
Team EY !

Our Esteemed Panellists and Team FIPI & EY

Panellists

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Chairperson, PNGRB
- ▶ **Prabhat Singh**
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- ▶ **ES Ranganathan**
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EY Response Framework

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Key Messages

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Growth - of global gas demand +40-60% through 2040, gas supply to more than double

2

COVID accelerating changes - that were already happening; a more complex, liquid, oversupplied, and volatile market

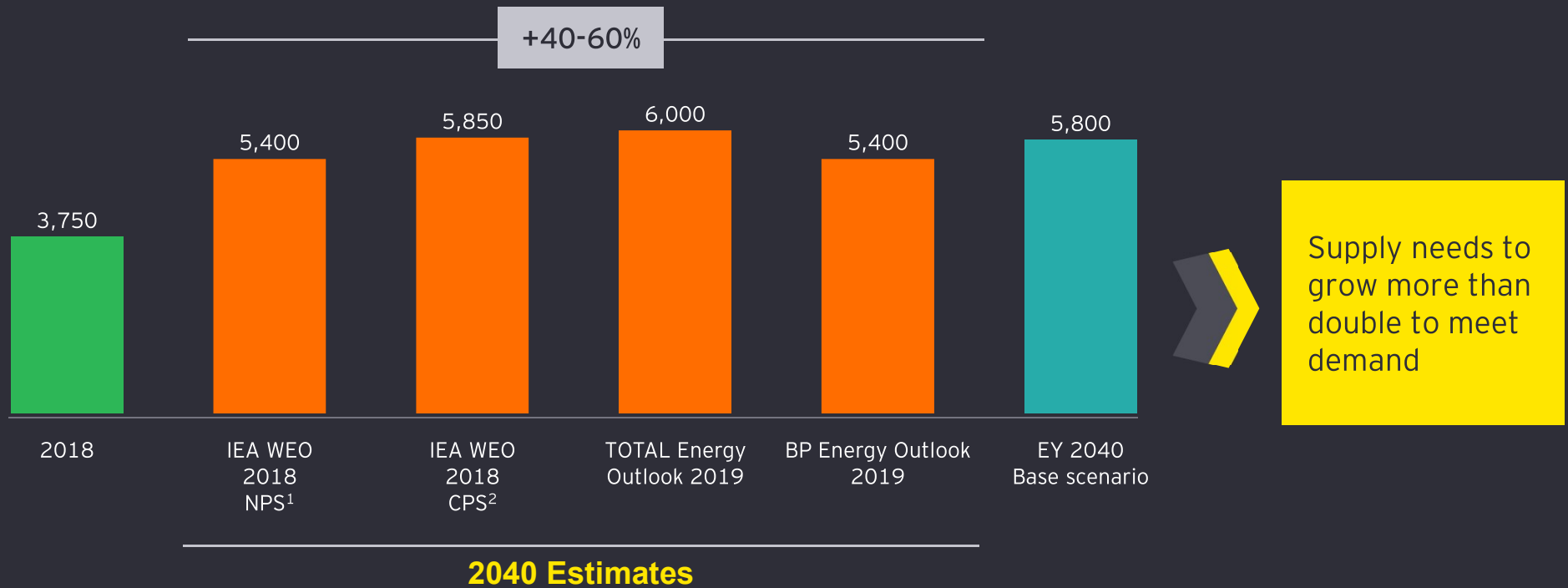
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Gas key for global players - taking bolder positions, accelerating trading, embracing energy transition in new Operating Models

All energy organizations project significant gas demand increase to 2040 - EY at the high end

Bcm (E)

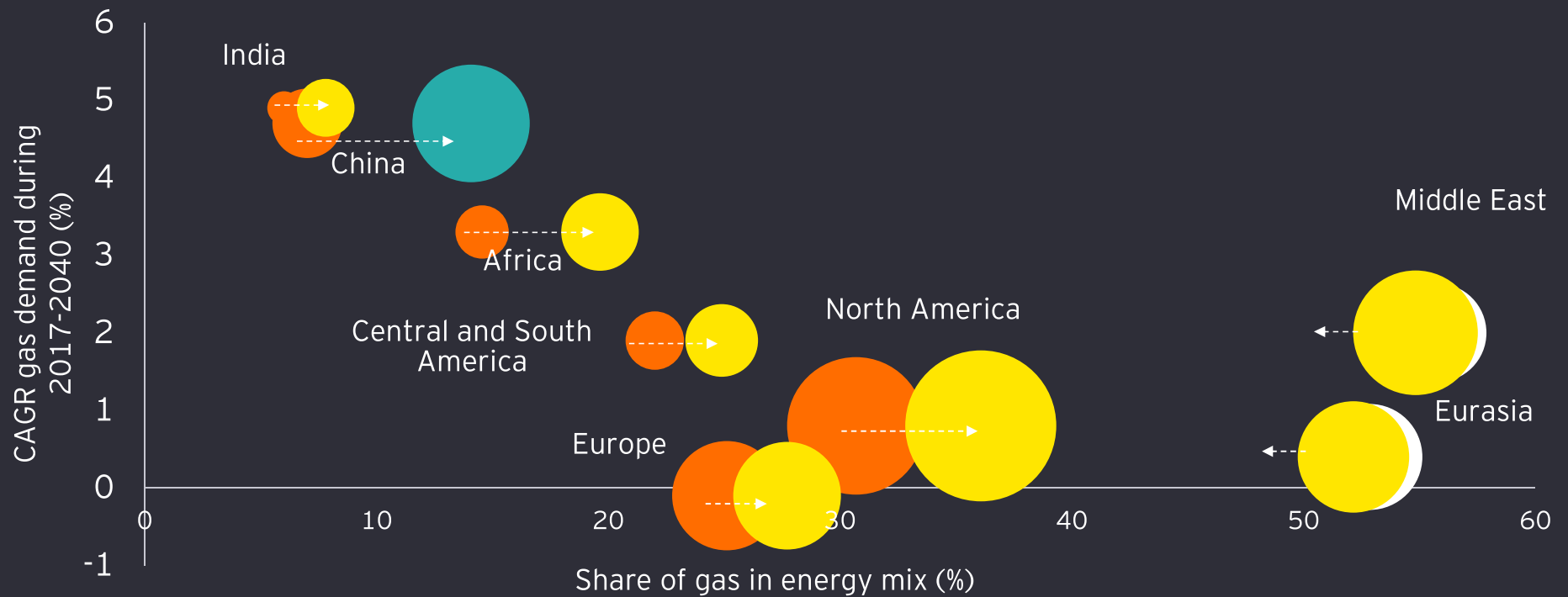
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1. New Policies Scenario; 2. Current Policies Scenario

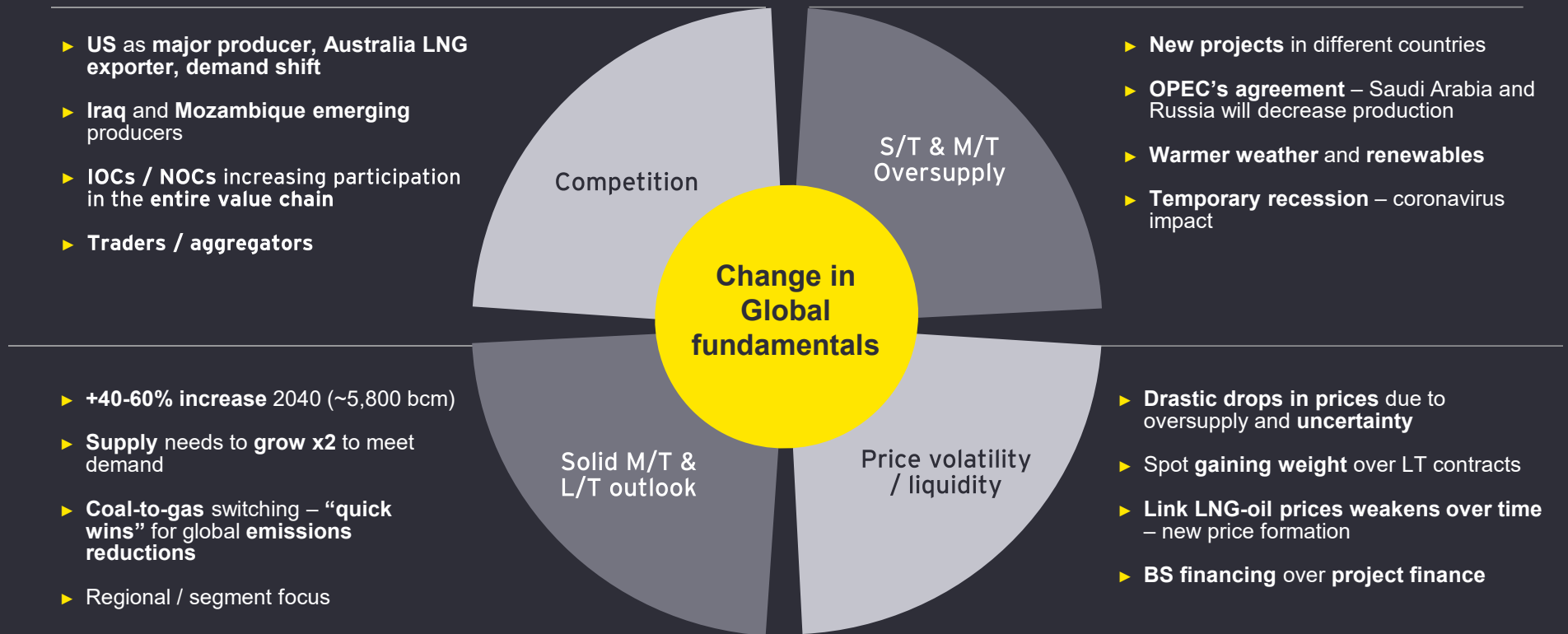
Source: IEA WEO 2018; BP Energy Outlook 2019; Total Energy Outlook 2019; EY

Gas will remain dominant where it is today, more relevant elsewhere - and grow anywhere



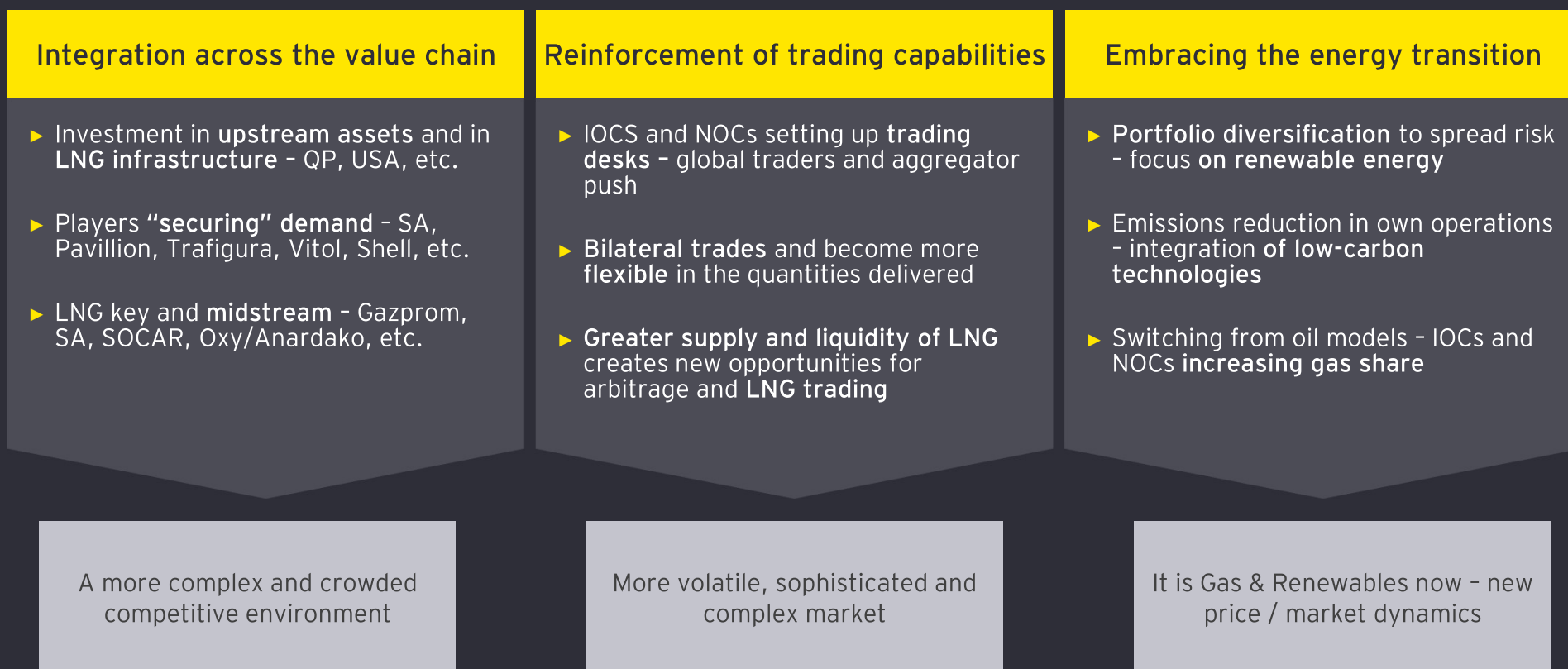
Source: IEA WEO 2018; EY

Beyond COVID-19, the global gas fundamentals are changing - faster than expected?



Source: EY

Main players are adapting their strategies to changing environment and adapting their whole Operating Model



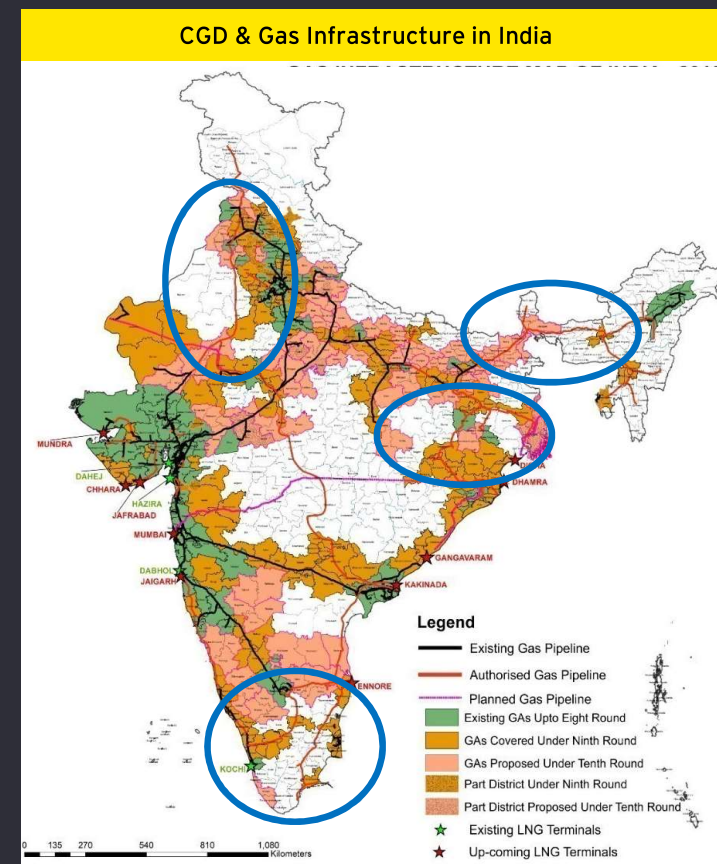
Source: EY

CGD and Gas Infrastructure in India - Current State of Play

- ▶ Presently, 90% of gas volumes are primarily sold in North and Western India - where transmission pipelines and gas sources are concentrated
- ▶ Current transmission pipeline network of c.17,000 Km, with nameplate capacity of c.400 MMSCMD
 - ▶ 11,000 Km of pipeline network, with a nameplate capacity of c.500 MMSCMD is under construction (regions circled blue)
- ▶ A snapshot of the current CGD network infrastructure has been provided in the table below:

Metrics (As of November 2019)	UoM	
PNG Connections	Million	5.6
CNG Stations	Number	1,838
CNG Vehicles	Million	3.5
Steel Pipeline Length	Inch - Km	50,216

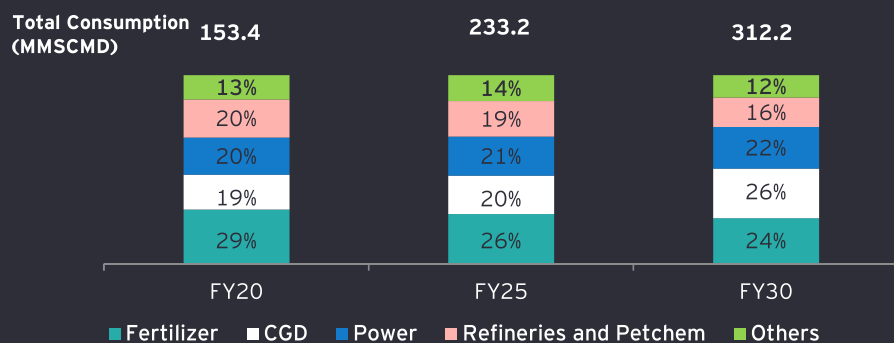
- ▶ Post 9th & 10th rounds, 136 new GAs are under implementation - Post full network rollout, CGD networks would cover ~53% of India's area and ~70% of the population



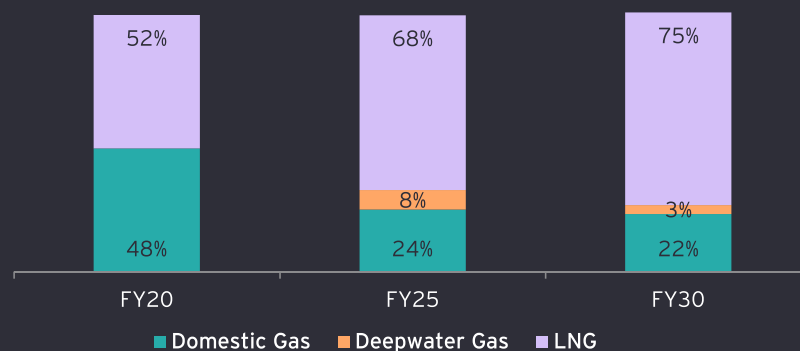
Source: Public Sources, PNGRB

India - Forecasted Gas Consumption and Supply

Domestic Consumption Projected (MMSCMD)



LNG Imports (MMSCMD)



- ▶ Indian gas consumption is expected to nearly double over the next 10 years - driven by CGD - share expected to rise to 26% as the market grows
- ▶ Domestic gas production (from existing and deepwater sources continues to be short of India's requirements - resulting in rise in LNG imports
- ▶ Utilization ramp up and removal of evacuation bottlenecks for existing terminals
- ▶ LNG regas capacity is expected to grow from 40 MTPA to 70 MTPA by FY30

Key Challenges

- 1 Domestic production and supply is expected to remain constrained
- 2 Pandemic Impact and Deep Recession - Recovery of gas demand and demand build up in short- medium term
- 3 Review of long term LNG contracts / Tenure of contracts to be modified / Force Majeure provisions
- 4 Pace of roll out of new GA's - time to return to normalcy, availability of materials and contract/construction manpower
- 5 Key learnings from the Remote functioning and clear need for technology (including Digital) - Fit For Future organizations

Source: PPAC, MoPNG stats, EY Analysis

Global & India Gas Outlook - Summary

Key Takeaways - Panel Discussion

Key Takeaways - Chairperson PNGRB

EY Response Framework

Select Q&A

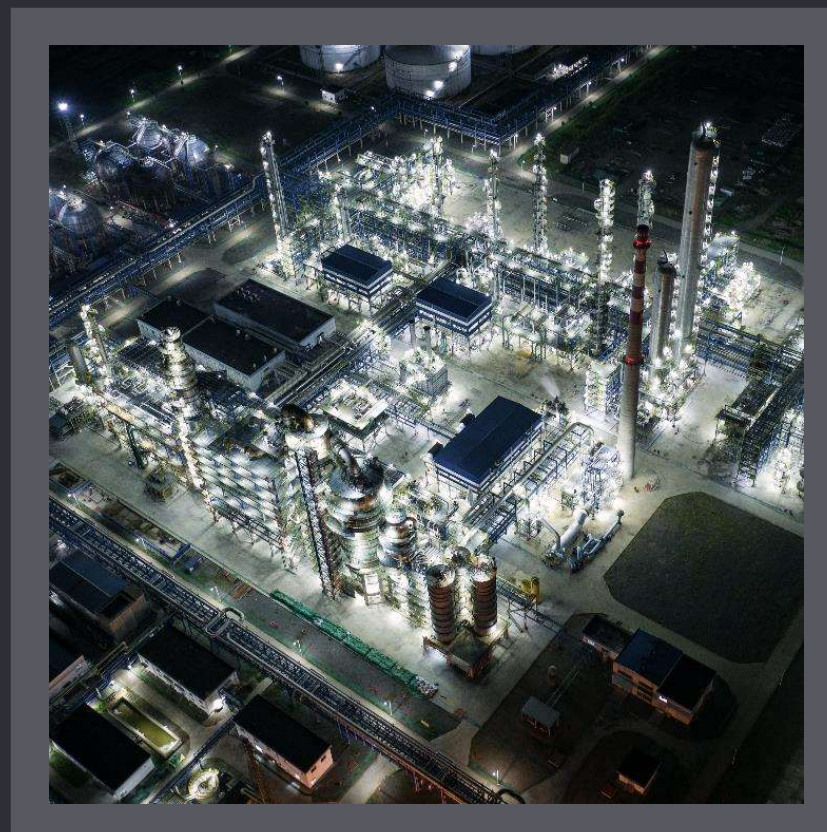


Panel Discussion - Key takeaways

- ▶ In providing you key takeaways from the panel discussion - we have refrained from summarizing comments by each participant - and tried to fit comments in a broad reference framework. Obviously, various comments by panellists were building upon observations made by earlier speakers and hence we have taken the liberty to convert these to bullet points that convey the essence.
- ▶ We have classified panellist comments in 3 broad buckets -
 - ▶ Industry Outlook
 - ▶ Current Challenges
 - ▶ Response & Recommendations
- ▶ Our apologies to the Panellists and participants if we have missed something that you thought was important !

Industry Outlook

- ▶ Global gas sector fundamentals remain strong
- ▶ Current global liquefaction capacity is at more than 400 mmt. Additional capacity of 900 mmt is at various stages of approval / development
- ▶ Future projects are expected to be balance sheet financed. This will also lead to consolidation in the industry
- ▶ Gas growth can be expected to follow same path as renewable energy
- ▶ India has / is augmenting its receiving facility (re-gas) capacity and transmission pipeline infrastructure - which augurs well for a larger role of gas in our PE mix - more so with surplus global gas supply and benign prices



Current Challenges

- ▶ Market will experience increasing share of spot and short term trades. LNG will continue to be a buyers' market.
- ▶ LNG suppliers' priorities are to place volumes in the market rather than defend prices.
- ▶ Short term demand destruction is acute. Demand recovery in other industrial segments expected soon, but MSME sector will take much longer
- ▶ Covid impact is not temporary and will result in lasting behavioural changes which will impact gas consumption
- ▶ Covid has created new business situations like force majeure with suppliers and major end users, cash flow challenges, vendors liquidity squeeze, enhanced working capital requirements, etc



Response & Recommendations

- ▶ Need for renegotiation of contracts - gas supply, AMCs, etc.
- ▶ Cash protection and judicious capex is very important. Need for efficient new technologies, digital technologies, remote working, cost management will be the new norms for the industry
- ▶ Gas and renewables can be packaged to form part of compulsory merit order despatch
- ▶ Gas sector needs a stimulus like inclusion of gas under GST, VAT rates to be cenvatable, and regulatory support for rationalization of pipeline tariffs
- ▶ Need for collaboration between CGD entities, Govt and Regulator to ensure speedy revival
 - ▶ CGD Policy to be adopted by States
 - ▶ Regulatory changes needed - change from "permissions" to "consent"



Global & India Gas Outlook - Summary

Key Takeaways - Panel Discussion

Key Takeaways - Chairperson PNGRB

EY Response Framework

Select Q&A



Key takeaways - Chairperson PNGRB

- ▶ Low gas prices provide liquid and solid fuel users to switch to gas
- ▶ In medium to long-term China will import more via transnational gas pipelines. This is good news for India as prices may remain soft
- ▶ Opportunity to de-regulate gas prices and marketing - in this benign price environment
- ▶ With environmental concerns gas will become a preferred fuel over Coal, Pet Coke and FO. CGD companies should focus on converting industrial users to gas
- ▶ PNGRB to go ahead with 11th round - public comments on regulations sought

- ▶ Key initiatives underway at PNGRB include:
 - ▶ Pipeline Tariff Reforms - study underway to arrive at best option (entry-exit, uniform etc) in consultation with stakeholders
 - ▶ Study underway to assess gas demand over next 20 years and develop a Visionary Gas Grid
 - ▶ Preparatory work completed by PNGRB on Gas Trading Hub - further work post GOI approval
 - ▶ Draft regulations being prepared to end marketing exclusivity of existing CGD companies to promote competition
- ▶ Pipeline access also needs to be more transparent so that industry can have more consumers & confidence in gas

Global & India Gas Outlook - Summary

Key Takeaways - Panel Discussion

Key Takeaways - Chairperson PNGRB

EY Response Framework

Select Q&A



EY Response Framework

1 Now



Provide an immediate response to the crisis by protecting staff. Optimize cash and costs to withstand a prolonged disruption due to lockdowns

2 Next



Address liquidity challenges and develop a response plan to return business to original levels. Reassure stakeholders to restore market confidence

3 Beyond



Fundamentally change the operating model and prepare for sustainable growth. Engage with all stakeholders to ensure the success of your vision

Market Volatility

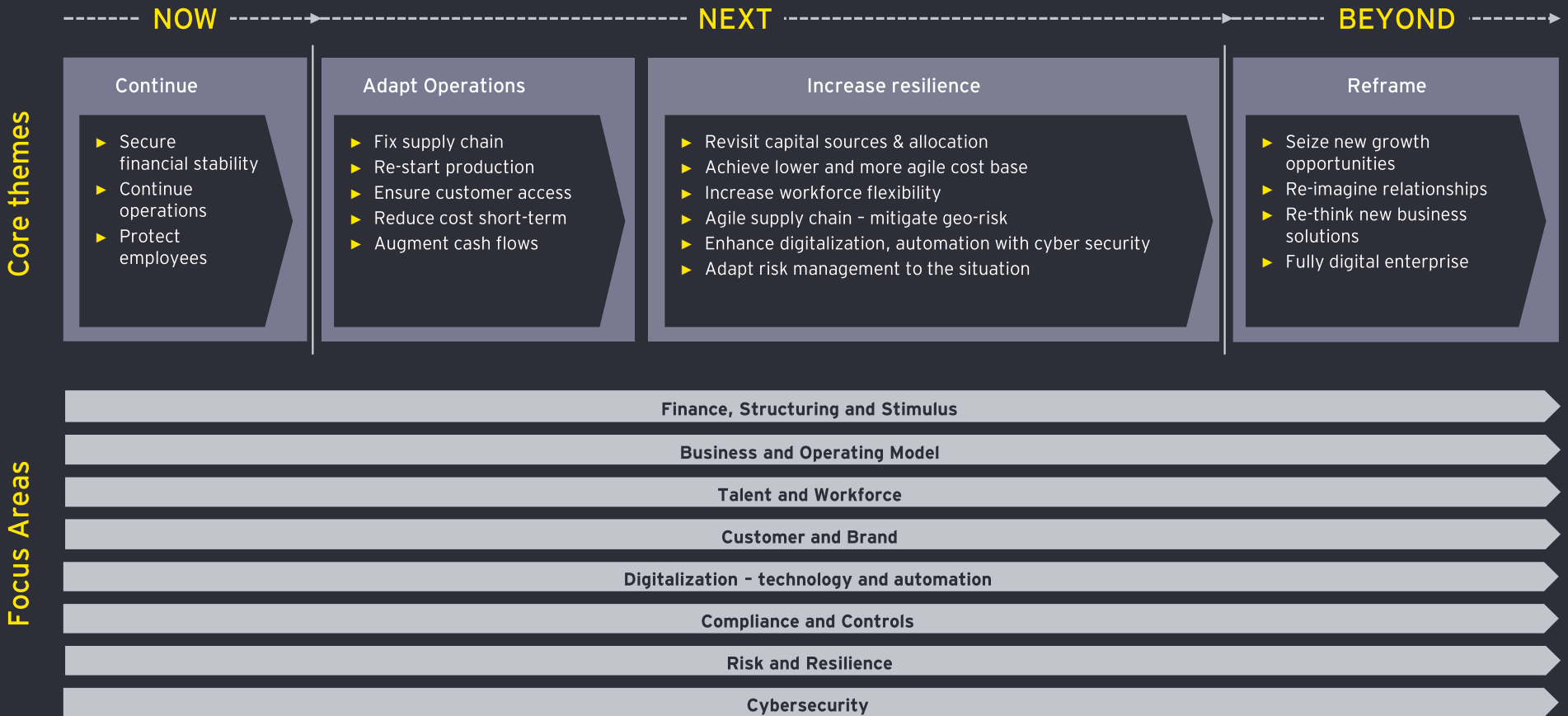
Earnings Impact

Potential Global Recession

Recovery

New normal

Enterprises will need to respond swiftly to adapt to the “New Normal” – Now, Next and Beyond



Cyber Security & Resilience

Challenges

Security & Privacy

- ▶ WFH led to new issues of access, authentication, authorisation
- ▶ Privacy control degrading leading to potential breaches
- ▶ Networks are under stress and being attacked
- ▶ Increased Ransomware attacks and increase in phishing

BCP / Resilience

- ▶ Current BCM, BCPs / DR plans found to be inadequate to handle prolonged type of pandemic exposures

Now

Next

Beyond

Response Plan

Have we:

- ▶ De-risked and checked for the security of WFH infrastructure ?
- ▶ Improved security detection controls and SOC Monitoring - VPN / perimeter?
- ▶ Carried out penetration Testing, Red-Teaming and Application Security Testing?
- ▶ Are we collaborating with industry CIOs and CISOs to understand current attack patterns and its mitigations?
- ▶ Cyber hygiene related education usage of technology for all WFH?

Have we:

- ▶ Conducted Data Privacy Impact and gap assessments & remediation steps?
- ▶ Automated and improvised Cyber Security Monitoring to extended to all assets?
- ▶ Conducted cyber security crisis drills / are we ready to face a ransomware attack?
- ▶ Developed framework to secure 3rd party connections
- ▶ Cyber Awareness Training & Awareness for enterprise employees and contractors

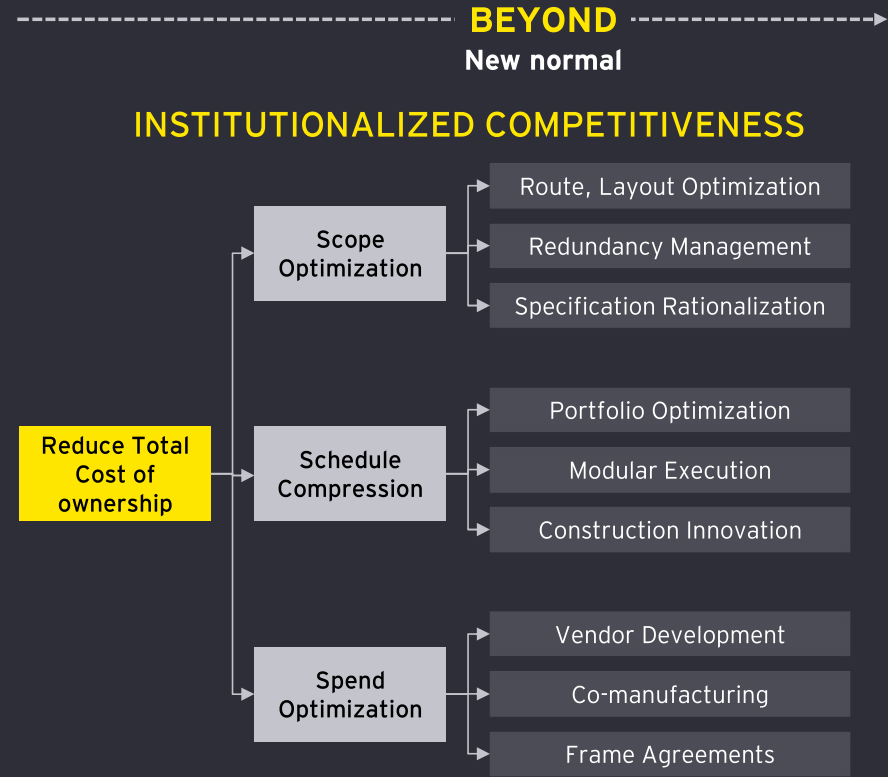
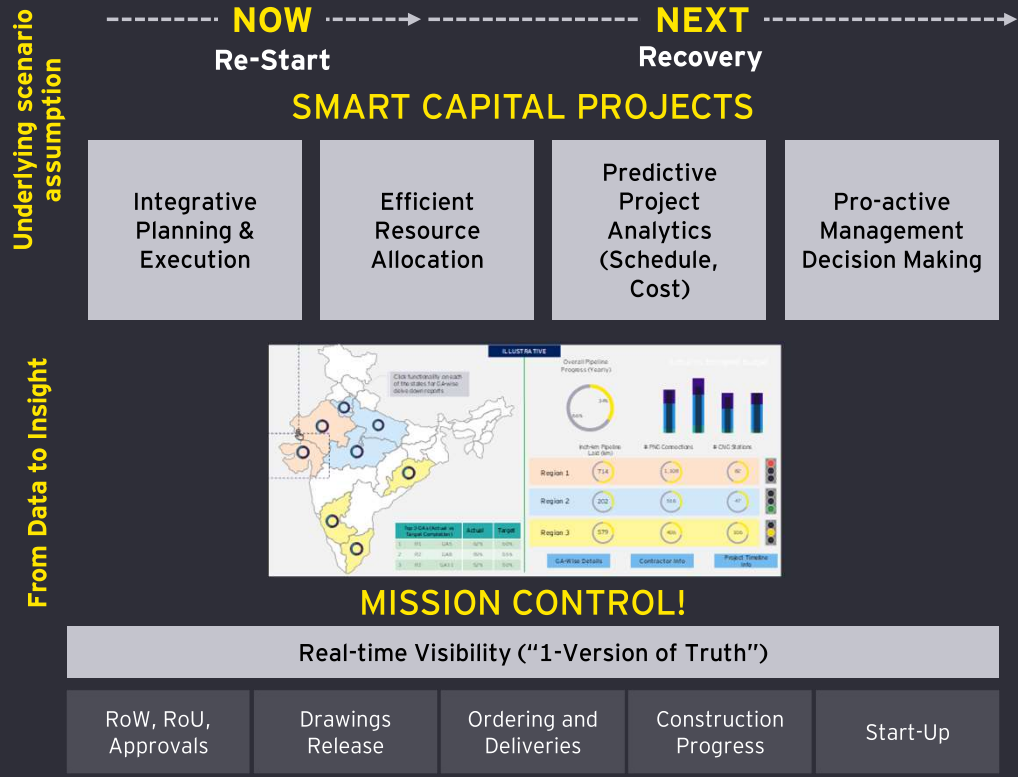
Have we:

- ▶ Considered Digital ID Architecture - NextGen Identity and access management?
- ▶ Identified "Crown Jewels" & assessing security controls around them?
- ▶ Conducted BIA driven BCP and Cyber resilience planning?
- ▶ Implemented Zero / Lean Trust Assessment' Framework?
- ▶ Challenging / certifying security awareness skills and competencies of our employees to withstand next generation attacks?

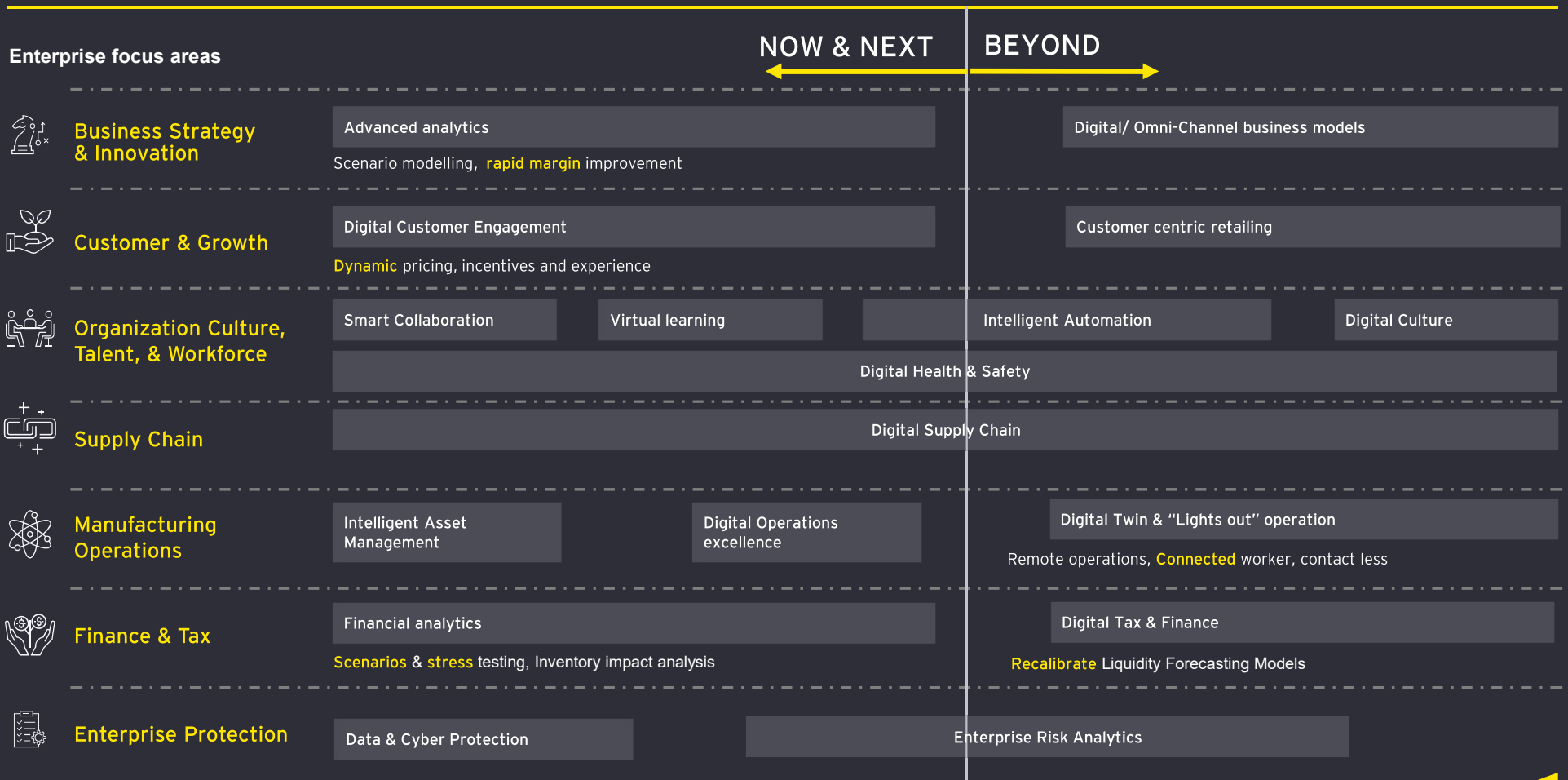
Smart Capex

Build Resilience "intelligently" into re-starting Capital Projects (NOW AND NEXT)

Institutionalized Cost Competitiveness as we drive Project Execution (BEYOND)



Leveraging digital and analytics to navigate through this crisis



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EY Response Framework

Select Q&A



Select Q&A

Question: What do you think will be the impact of low gas and oil prices on future LNG liquefaction projects & shale gas supply (associated gas)?

Answer - Victor Perez EY: In the near term, low LNG prices will enable some fuel-switching opportunities and LNG imports will contribute to LNG growth, but the structural and seasonal nature of natural-gas demand in many markets combined with falling overall energy demand, will limit any upside potential. Producers will face the risk of having to curb production levels - delays to the start-up of new LNG facilities for relieving market pressures and focusing on improving operational efficiencies instead of investing in infrastructure. US producers already appear to be affected (e.g. cancelled cargoes, capacity utilization at US plants fell to 60% in early March compared to annual average of 90%, etc.). Additionally, the switch from L/T contracts to more hub and spot procurement will reduce visibility on future revenues for large infrastructure and new financing structures would be necessary.

Question: The global supply balance should come from the major gas demand buyers on short/spot term basis, would China balance the market or Europe as in 2019 Europe was balancing? Do you believe China balancing the market vs Japan Korea and Europe?

Answer - Victor Perez, EY: Although the coronavirus outbreak has slumped global LNG consumption, suppliers are finding that the center of LNG demand has come back to where it was first hit: China. Over the past few weeks, Chinese buyers have become some of the most active in the Asian market - China's gas consumption is recovering, as coronavirus lockdown restrictions ease and factories ramp up their operations. Meanwhile, the coronavirus pandemic continues to severely disrupt demand in Europe, although showing signals of recovery with the first steps of de-escalation.

Question: In energy transition to renewable energy how bioenergy like biofuels, biogas will play a role? As many IOC's are thinking about renewables.

Answer - Victor Perez EY: Bioenergy has a significant untapped potential for driving the energy transition. Its share in the world's total renewables consumption is about 50% today - as much as hydro, wind, solar and all other renewables combined and it has huge prospects for future growth. Price wars and coronavirus have disrupted the O&G industry and there is a belief that demand could peak earlier than expected which is putting pressure on majors to adapt their fossil core fuel business even sooner and an increasing number of IOCs are addressing the energy transition. European IOCs are re-balancing their portfolios away from a traditional oil and gas model and investing in renewables technologies as part of a broader energy mix. In this context, American companies seem more willing to include biofuels in their strategies motivated with a more relevant presence of biofuels in national policies, subsidies are still necessary to make viable biofuel production at large scale.

Select Q&A (contd.)

Question: What do you see are the main threats to future gas demand growth?

Answer: Victor Perez, EY: There are different, but interrelated, macroeconomic and business environmental risks that may be considered:

- ▶ Temporary weakness in economic growth – intensified by Covid-19 crisis – in the USA, Europe and China will hit the demand. As reference, China suffered a reduction of -9% in LNG imports between January and February 2020
- ▶ Need of infrastructures – large investments, especially for LNG, as it requires large-scale shipping and costly liquefaction and regasification infrastructure. Currently facing Covid-19 pandemic, many projects are delayed
- ▶ New financing structures to provide visibility on revenues, different than L/T contracts due to the switch to spot markets
- ▶ Political risks – different actors with different objectives (Middle East tensions, US election cycle, etc.). Also, in many countries, specially gas-importers from Asia, gas need a supporting policy push in order to displace other energies such as coal.
 - It seems this trend to support “clean air” can be accelerated after Covid-19
- ▶ Price competitiveness – crucial to develop in price-sensitive markets, requiring enough and flexible supply from trade, and governments to create the conditions for competition and fair access

All these aspects can provide an opportunity for those companies with a fit operating model to capture maximum value from every molecule of gas

Question: What is your rough estimate of India gas demand getting back to the level of at least Feb 2020?

Answer: Rajeev Mathur, ED GAIL: Short-term outlook for Indian gas sector will largely depend on how swiftly government’s actions contain the coronavirus outbreak, rate of success, and how long the impact of COVID-19 will last on economic activities. Gas demand is expected to bounce back when people can return to work, but it is difficult to gauge when the factories and plants can return to full production. Although normalcy is expected in the major segments such as Fertilizer, Power and Refinery to reach Feb 2020 consumption level, however, MSME sector is expected to take longer time to return to business-as-usual mode. According to recent IEA study, global natural gas demand could decrease by 5% in 2020 wherein Natural gas consumption is expected to fall in every sector and region in 2020. In India, in mid-April a fall in sales of about 30% was witnessed since the imposition of a national lockdown, yet it is anticipated a recovery in the near term as consumption recovers in the fertiliser industry – the largest consumer of natural gas. According to various estimates available, it is expected that over 20% demand will be reduced in the lockdown period. Studies suggests that gas demand is expected to ramp up when industry will start to normalise after COVID 19 yet “New Normal” of natural gas demand is expected to be 10 -12% lower in next one year than the pre-lockdown period.

Q&A

Question: What do you see are the main threats to future gas demand growth?

Answer: Rajeev Mathur, ED GAIL: Gas is primarily an alternate fuel with lots of advantages over other fuels. Across the globe, power sector is the primary anchor consumer for gas sector. But in India, natural gas is forced to compete with cheap coal-based power due to unfavourable policy. Falling RE based power prices and development in battery storage is gradually emerging as a major threat to gas-based power sector.

Indian CGD sector has growth potential but domestic PNG can't compete with subsidized LPG due to initial high cost of installation. Also, Indian industrial consumers are used to low cost liquid and solid fuel (e.g. Coal, Petcoke, FO) and not willing to switch to cleaner fuel due to cheaper alternatives and high initial installation cost for industrial PNG. Focus on environmental pollution and the cost of externality generating due to the usage of polluting fuels may improve the bleak scenario of natural gas in Industry cluster. Further, LNG based heavy transportation also have huge potential but needs policy push in terms of tax incentives.

Slowdown of economic activity might be a dampener to the current infrastructure build drive and may threat future gas demand. India need favourable policy incentive for gas infrastructure developers including implementation of rationalized tariff mechanism for building nationwide gas infrastructure.

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