

# The Journey to 30 Kg per Capita

Presentation by

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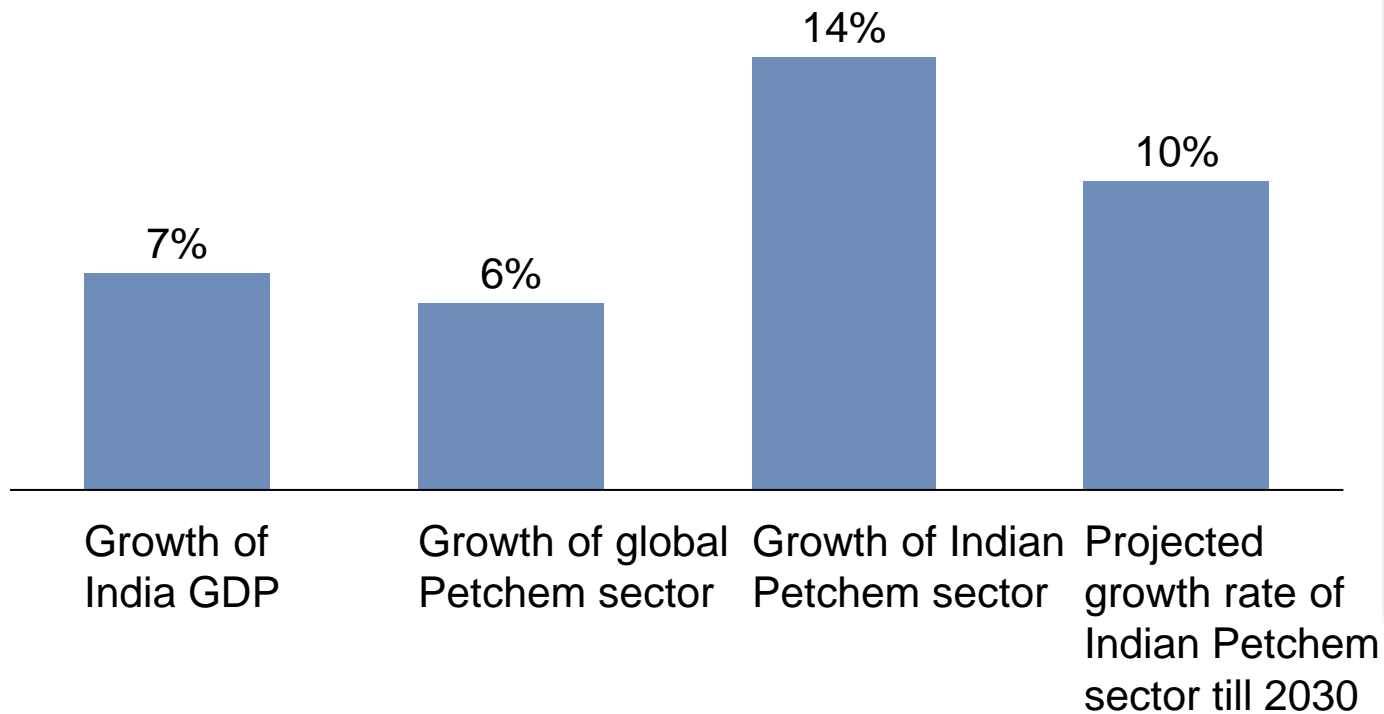
## Key Messages

- Petrochemicals can be a major national economic driver
- Petrochemicals will be attractive - and crucial - for oil refineries
- Tomorrow's petrochemicals sector will be very different from yesterday's
- Integrated planning and "plug and play" infrastructure necessary for 30 kg per capita
- Jurong Island model offers some learnings but India will need its own model

# Petchem can be a major growth driver

## One of the fastest growing sectors

Growth rate comparison  
percentage

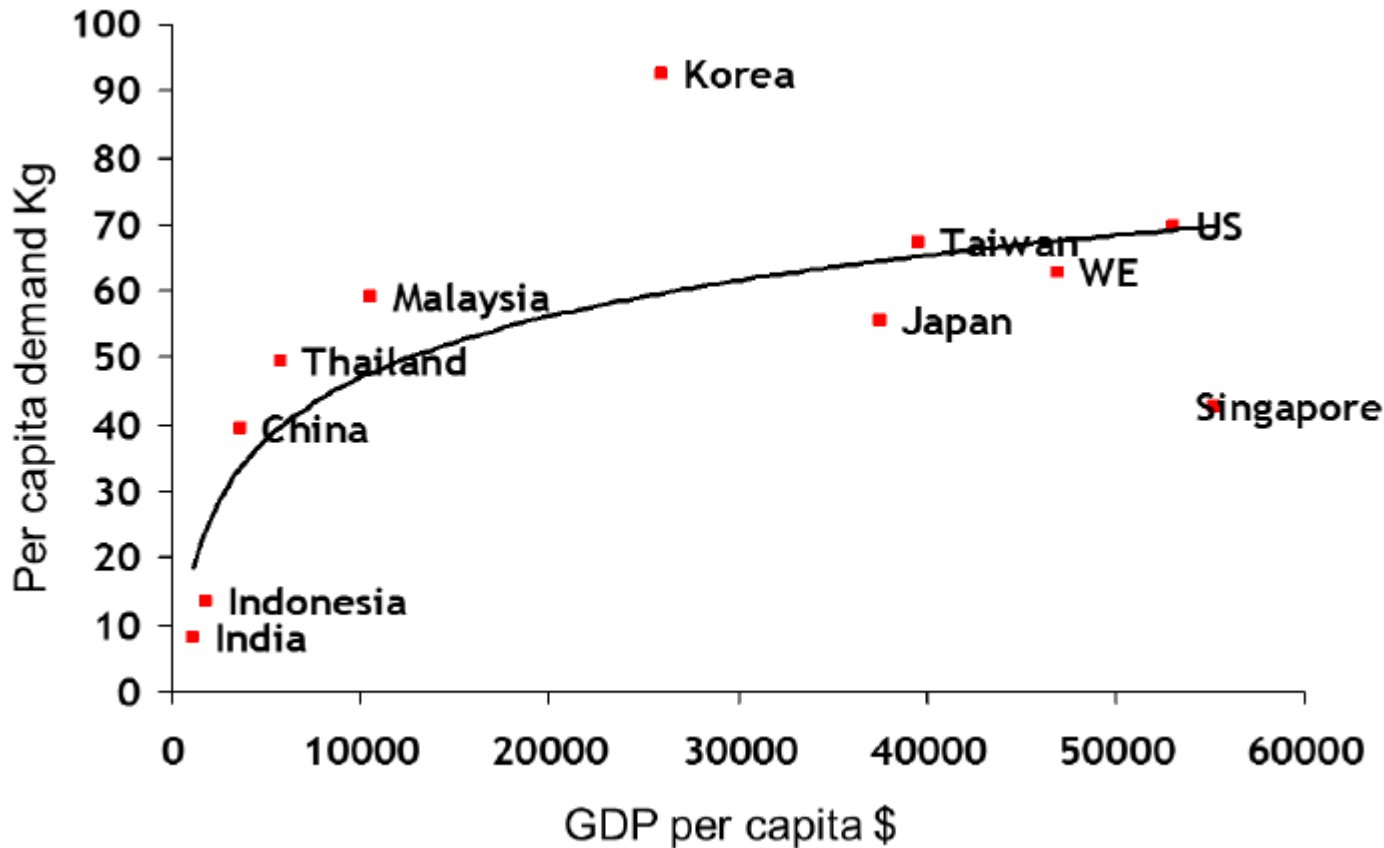


- **Rs 460,000 cr. market by 2030**
- **Attract total investments of Rs 250,000-400,000 cr.**
- **Potential to create 20-25 lakh new jobs**

Source: ASSOCHAM study on Indian Petrochemicals, AT Kearney Paper on India's Petrochemical Vision 2030

# Significant growth potential

## Per capita polymer consumption vs. per capita GDP (2016)



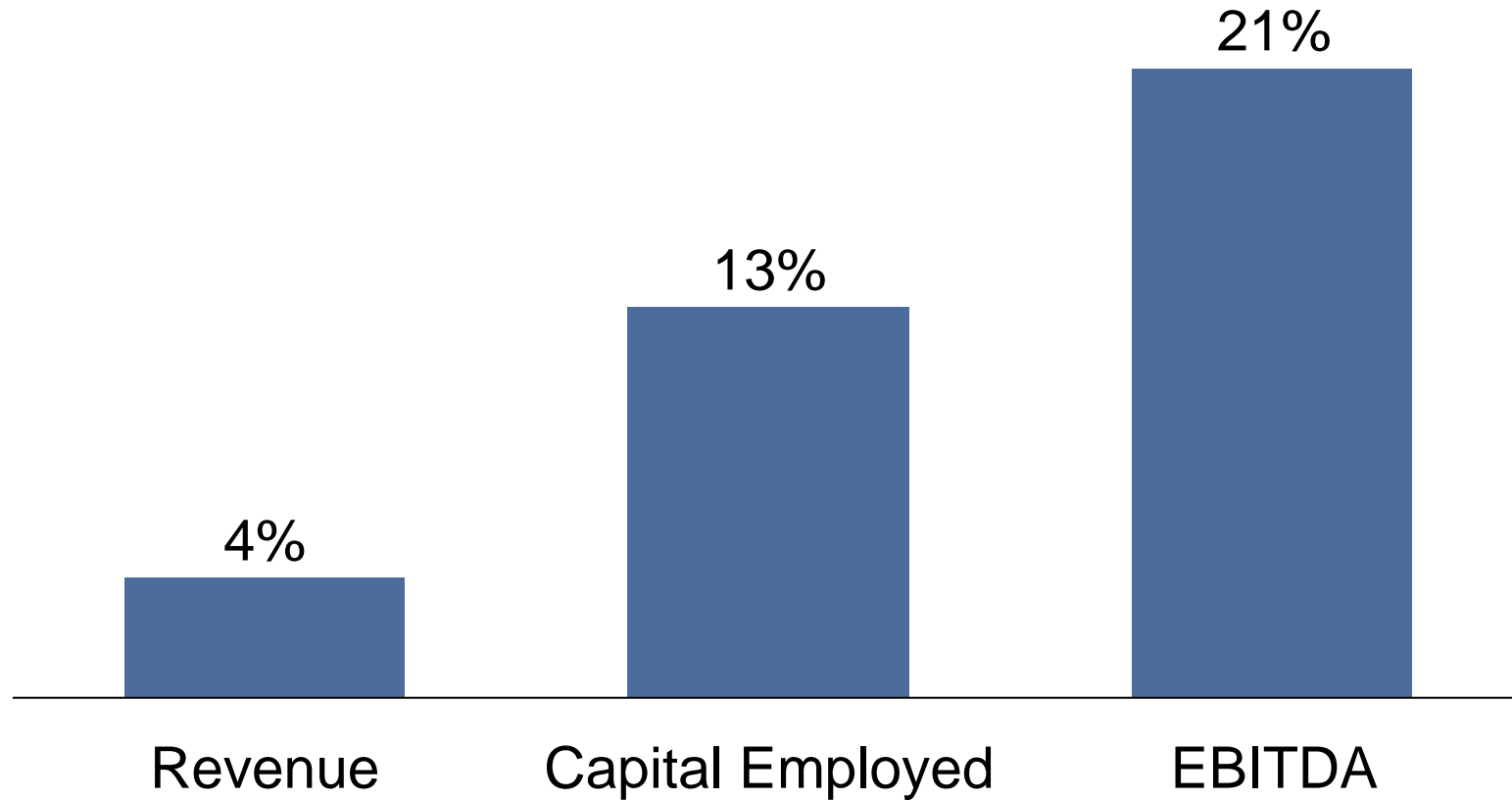
**30kg is just an interim target....potential is higher**

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## Petchem can drive refining profitability

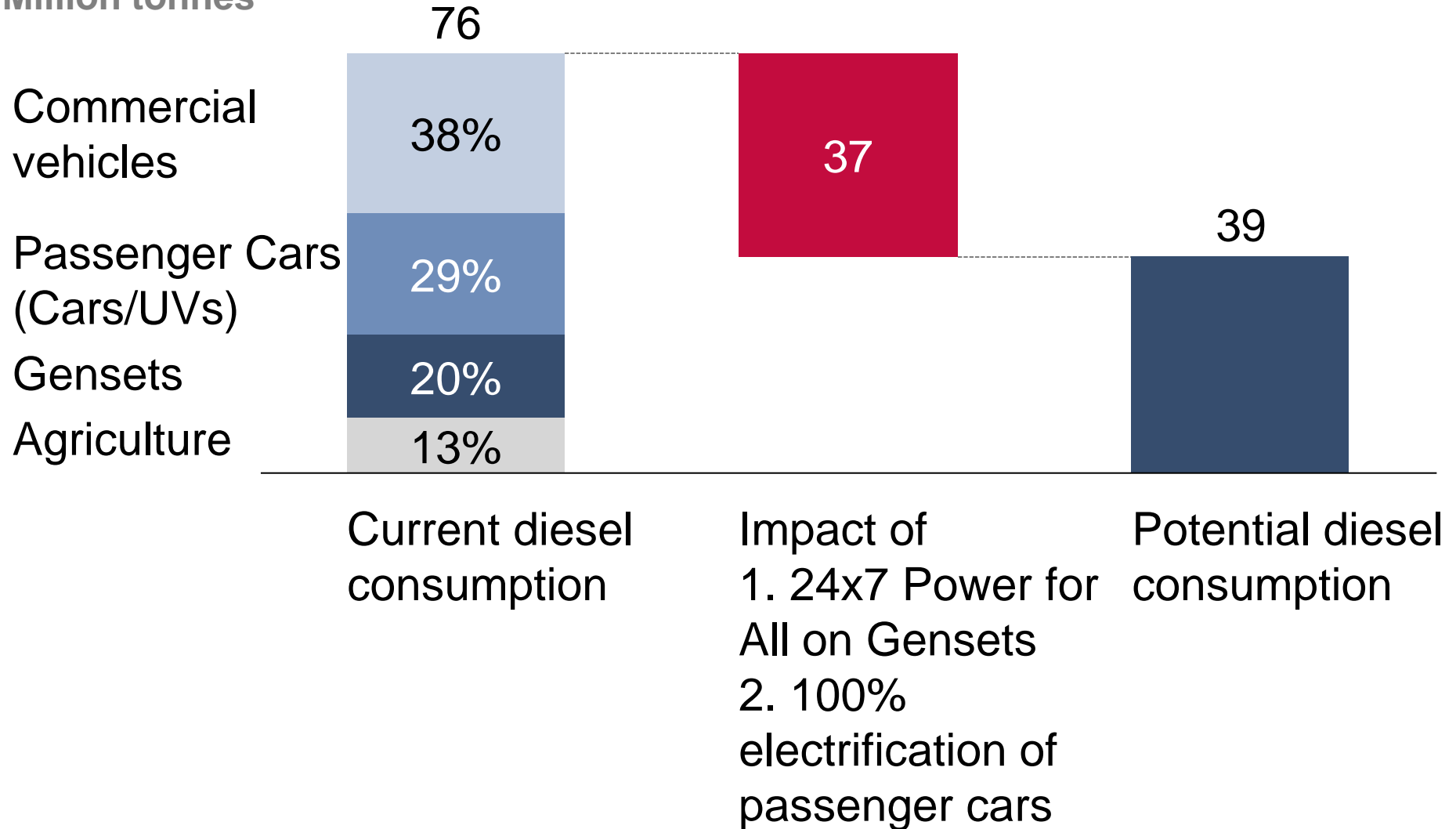
### Petchem contribution to IOCL's financial performance 2016-17 (percentage)



# Petchem will be crucial for refiners

## Impact of Govt. initiatives on diesel consumption

Million tonnes



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# Petchem of the future

Yesterday

Tomorrow

Single player

Multi player

Low priority for refineries

**#1 profit & investment driver** for refineries

Basic petchem building blocks

**Advanced, high tech and R&D** driven products

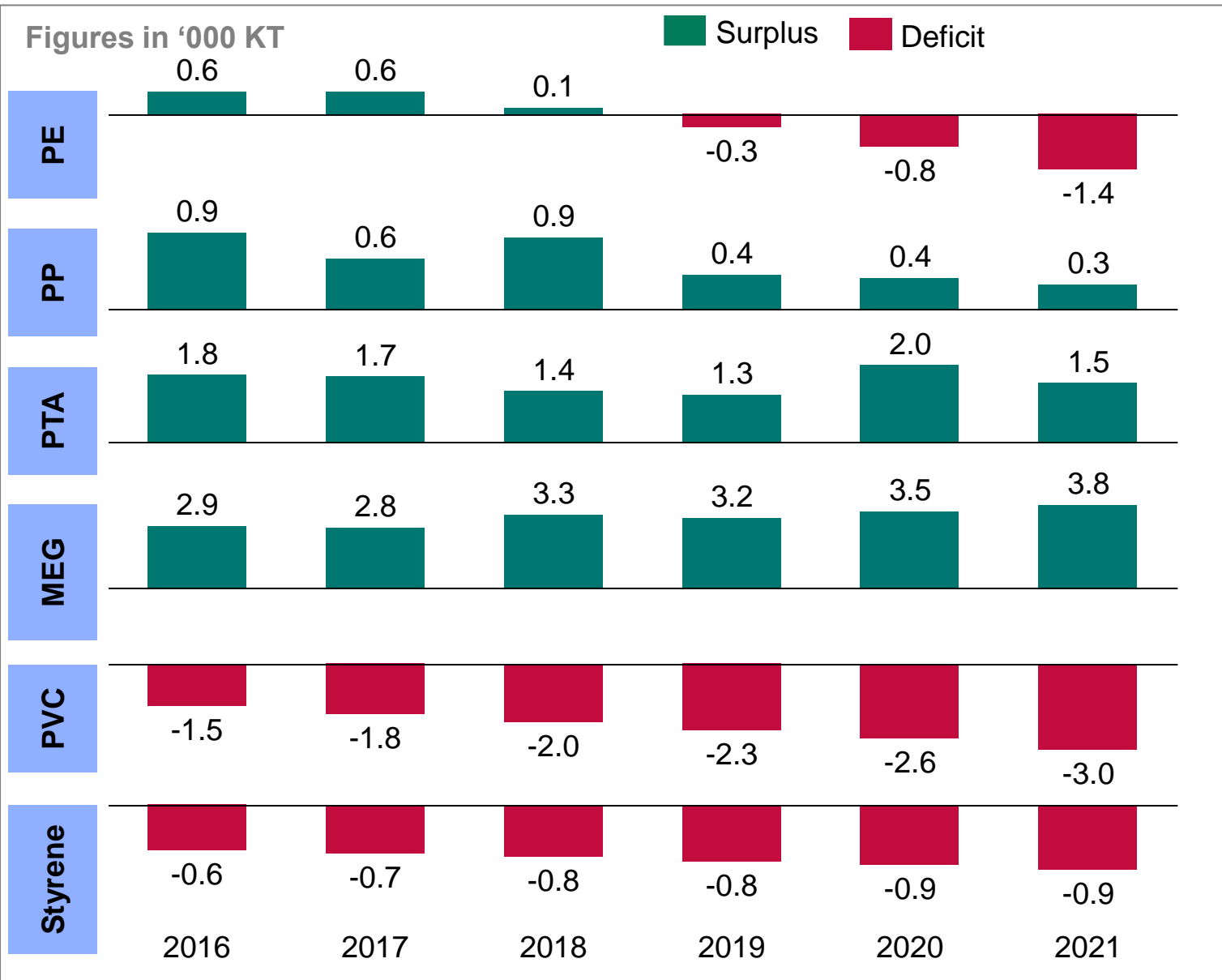
Chemicals expansion **independent of processing** facilities

**Integrated processing** facilities

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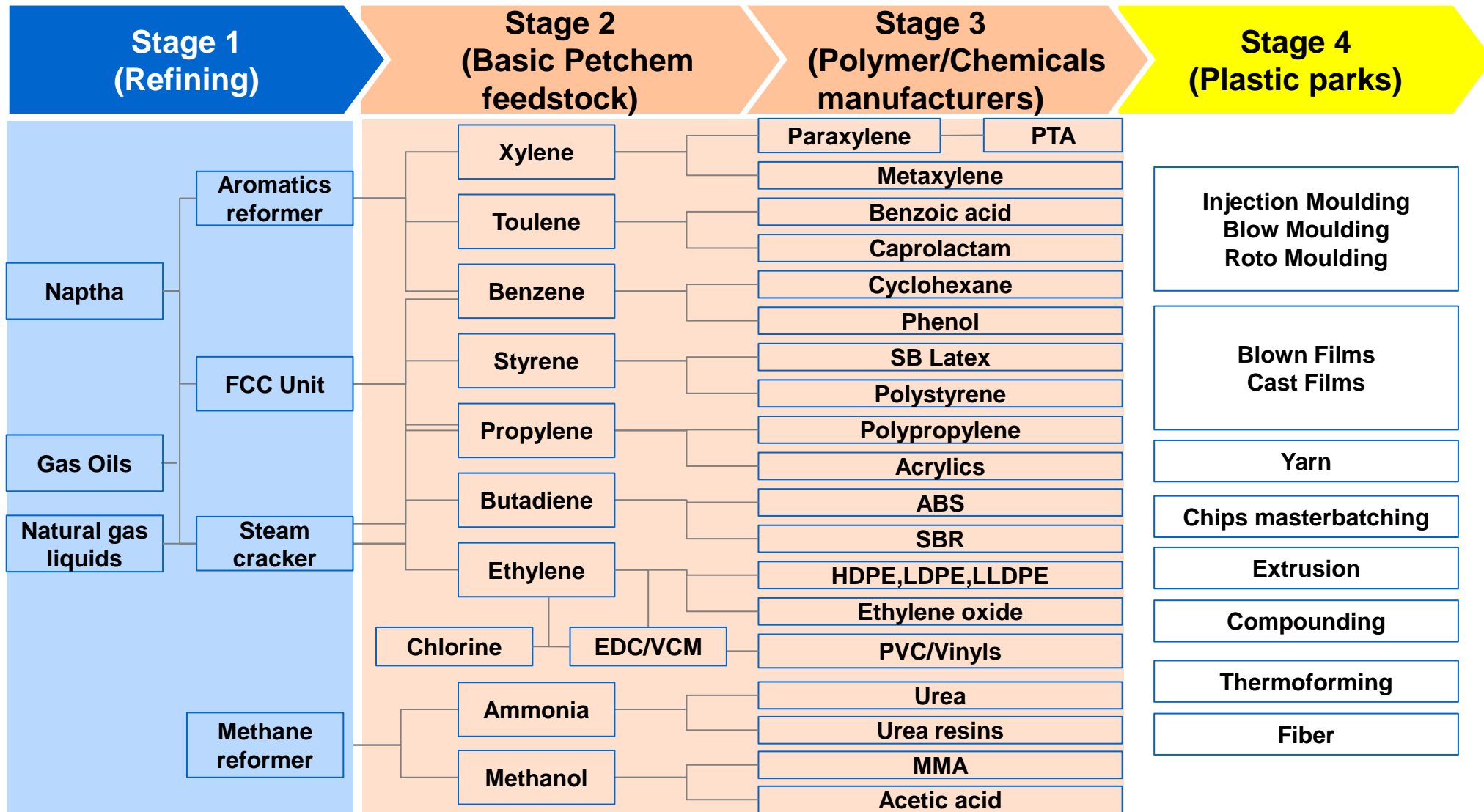
# Need for a national master plan



**National master plan to address:**

- Capacity
- Location
- Feedstock
- Integration

# Set up Integrated multi-player complexes



Common utilities facilities (power, steam, water, service corridors etc.)

# Provide “plug and play” common utilities infrastructure

## Energy

- Reliable and uninterrupted 24X7 power supply
- Process steam production and supply



## Water

- Processed water through desalination plants
- Waste water treatment facilities
  - Aerobic/anaerobic treatment
  - Moving bed/membrane bioreactor

## On-site Logistics and Services

- Specialised pipeline (e.g. cryogenic pipelines for ethylene and propylene)
- Cryogenic storage tanks

- **Capex lower by 25-30%**
- **Opex reduction due to economies of scale**

# Economic policy and investor promotion

Stakeholder	Role
<b>MoPNG/MoC</b>	<ul style="list-style-type: none"><li>■ Conduct investor roadshows and showcase pre-agreed package of incentives like<ul style="list-style-type: none"><li>➤ Tax/duties incentives</li><li>➤ Pre-invested infrastructure facilities</li></ul></li><li>■ Develop product master plan</li><li>■ Create feedstock policy</li></ul>
<b>State Govts.</b>	<ul style="list-style-type: none"><li>■ Provide “plug and play” land plots</li><li>■ Assist in approvals</li><li>■ Conduct investor promotion</li></ul>
<b>MoF/DIPP</b>	<ul style="list-style-type: none"><li>■ Provide necessary clearances through “single window”</li><li>■ Encourage foreign technology collaboration</li><li>■ Provide fiscal incentives</li></ul>

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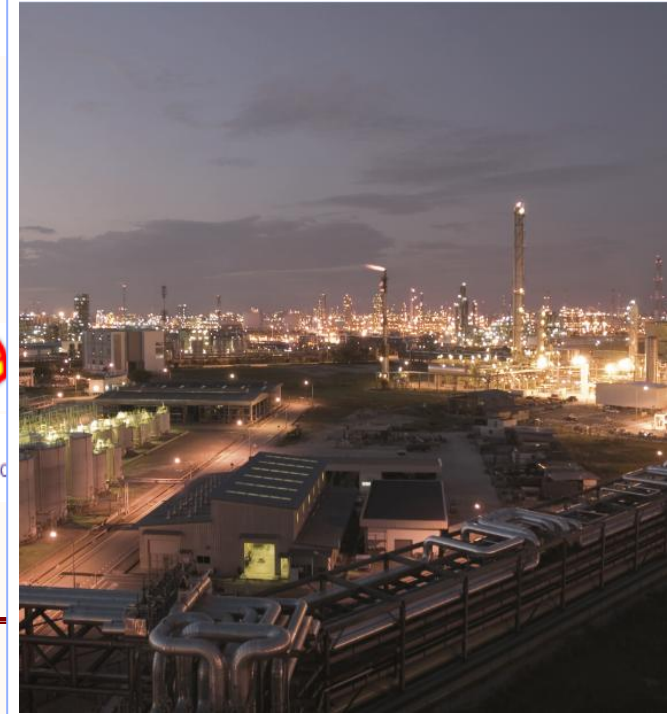
# Transformation of Jurong Island, Singapore



**1960s:**  
Seven small islands,  
housing sleepy  
fishing villages



**Mid-1990s:**  
Mid-reclamation



**Jurong Island today**  
Over 100 petrochemical  
and specialty chemical  
plants



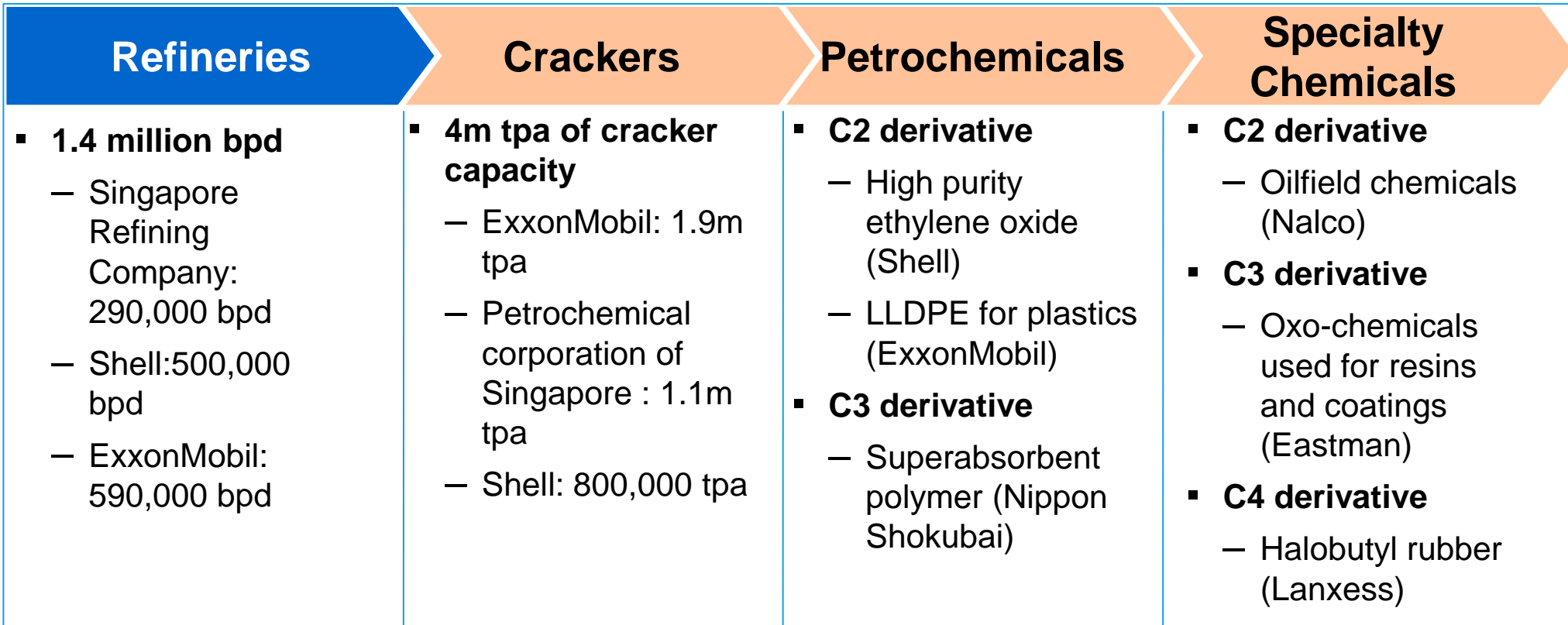


# Multi-customer business model

NON-EXHAUSTIVE



# Development of an integrated value chain



**Common utilities facilities (power, steam, water, service corridors etc.)**

- World's top 3 export refining centres
- More than 100 chemical and energy companies
- Workforce of more than 25,000 people (75% Singaporeans)

# Sembcorp's "plug and play" common utilities infrastructure

## Energy

- **1.2 GW** of power generation and retail
- **2500 tph** process steam production and supply
- **431 Bbtud** of natural gas import, supply and retail

## On-site Logistics and Services

- **25+ km** of Service corridor
- Hazardous waste incineration
- Chemical storage
- Asset protection



## Water

- **4500 MLD** of Industrial water
- **16 MLD** of Industrial wastewater treatment
- **40 MLD** of Reclaimed water

# How can Jurong model benefit India?

## Rapid investment and job creation

- Enable existing petrochemicals complexes to expand into multi-company sites within 2-3 years
  - Neutrality reassures new investors
  - Pre-investment provides confidence
  - Without compromising reliability
- Attract investment (FDI and domestic) and create jobs

## Launch new ambitious projects

- Allow new proposed petrochemicals complexes to take off quickly by improving their viability
- Allow oil companies to reduce capex outlay

## Global industry competitiveness

- Improve efficiency of invested capital
  - Maximise value extraction from every molecule
  - Better utilisation of boiler, turbines, water plants etc.
  - Greater operational efficiency due to transparency
- Ensure scalability and sustainability
- Allow chemical companies to focus on core business

## To summarise, 4 key success factors

KSFs	Description	Roles in India
<b>1 Product master plan</b>	<ul style="list-style-type: none"> <li>▪ Demand analysis</li> <li>▪ Clustering e.g., acrylics,</li> <li>▪ Feedstock policy</li> </ul>	<ul style="list-style-type: none"> <li>▪ MoPNG/DoC&amp;PC</li> </ul>
<b>2 Interconnected chemical plant ecosystems</b>	<ul style="list-style-type: none"> <li>▪ Feedstock supply</li> <li>▪ By-product offtake</li> <li>▪ Long term contracts</li> </ul>	<ul style="list-style-type: none"> <li>▪ PSUs (IOCL, BPCL etc.)</li> <li>▪ Private players (RIL, Haldia)</li> </ul>
<b>3 Cost effective, reliable common infrastructure</b>	<ul style="list-style-type: none"> <li>▪ Utilities</li> <li>▪ Logistics</li> <li>▪ Technology</li> </ul>	<ul style="list-style-type: none"> <li>▪ Various e.g. Sembcorp</li> </ul>
<b>4 Ease of doing business</b>	<ul style="list-style-type: none"> <li>▪ Approvals</li> <li>▪ Plug &amp; play plots</li> <li>▪ Fiscal benefits</li> </ul>	<ul style="list-style-type: none"> <li>▪ MoPNG/DoC&amp;PC</li> <li>▪ State Govt.</li> <li>▪ MoF/DIPP</li> </ul>

**Thank You**