Warranties and Exclusion of Liability

PETRONAS Chemicals Group Berhad ("PCG"), its subsidiaries and related corporations confirm that care has been taken in ensuring the accuracy and correctness of information, statements, text, articles, data, images and other materials contained and appearing in this presentation and the associated slides (hereinafter referred to as "the MATERIALS"). Accordingly PCG, its subsidiaries and related corporations and its or their directors, officers, employees, agents and advisers (hereinafter referred to as 'We') represent that, to the best of our knowledge and belief that the MATERIALS which are owned and directly related to us therein are accurate, correct and true.

The MATERIALS is not exhaustive. We do not assume any obligation to add, delete or make any changes to the MATERIALS and we may do so, if we feel necessary, without prior notice.

We expressly disclaim all liabilities whatsoever for any direct, indirect, special or consequential loss or damages howsoever resulting directly or indirectly from the access to or the use of this MATERIALS and the reliance on the MATERIALS contained herein. You should rely on your own evaluation and assessment of the MATERIALS in order to arrive at any decision. Any decision made by you based on the MATERIALS is your sole responsibility.

The MATERIALS may also contain information provided by third parties and we make no representation or warranty regarding the accuracy, reliability, truth and completeness of the said third parties’ information.

In no event would the MATERIALS constitute or be deemed to constitute an invitation to invest in PCG, its subsidiaries and related corporations or an invitation by PCG, its subsidiaries and related corporations to enter into a contract with you.

Forward Looking Statements and Associated Risks

The MATERIALS and related discussions, including but not limited to those regarding the petrochemicals environment, anticipated demand for petrochemicals, plant turnaround activity and costs, investments in safety and operational risk, increase in turnaround activity and impact on production, future capital expenditures in general, generation of future receivables, sales to customers, cash flows, costs, cost savings, debt, demand, disposals, dividends, earnings, efficiency, gearing, growth, strategy, trends, reserves and productivity together with statements that contain words such as "believe", "plan", "expect" and "anticipate" and similar expressions thereof may constitute forward looking statements.

Such forward-looking statements are subject to certain risks and uncertainties, including but not limited to, the economic situation in Malaysia and countries in which we transact business internationally, increases in regulatory burdens in Malaysia and such countries, changes in import control or import duties, levies or taxes in international markets or in Malaysia, and changes in prices or demand for products produced by us, both in Malaysia and in international markets, as a result of competitive actions or economic factors. Such forward looking statements are also subject to the risks of increased costs in related technologies and such technologies producing expected results, and performance by third parties in accordance with contractual terms and specifications.

Should one or more of these uncertainties or risks, among others, materialize, actual results may vary materially from those estimated, anticipated or projected. Specifically, but without limitation, capital costs could increase, projects could be delayed, and anticipated improvements in capacity or performance may not be fully realised. Although We believe that the expectations of management as reflected by such forward looking statements are reasonable based on information currently available, no assurances can be given that such expectations will prove to have been correct. Accordingly, you are cautioned not to place undue reliance on the forward looking statements. We undertake no obligation to update or revise any of them, whether as a result of new information, future events or otherwise.

This presentation and its contents are strictly confidential and must not be copied, reproduced, distributed, summarised, disclosed, referred or passed to others at any time without the prior written consent of PCG.
Presentation Outline

- PCG current competitive advantage and performance
- PCG’s next big growth project – RAPID
- RAPID further strengthens PCG as a key Asian player

1. Fully integrated facilities and infrastructure
2. Secure and competitive feedstock supply
3. Capacity growth with world scale plants
4. Portfolio expansion with leading edge technology
5. Strategically located
6. Greater market leadership
7. Attractive growth markets
8. Attractive returns

- Strong financials to fund growth projects and pay dividend
## Presentation Outline

- **PCG current competitive advantage and performance**
- **PCG’s next big growth project – RAPID**
- **RAPID further strengthens PCG as a key Asian player**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Fully integrated facilities and infrastructure</td>
</tr>
<tr>
<td>2.</td>
<td>Secure and competitive feedstock supply</td>
</tr>
<tr>
<td>3.</td>
<td>Capacity growth with world scale plants</td>
</tr>
<tr>
<td>4.</td>
<td>Portfolio expansion with leading edge technology</td>
</tr>
<tr>
<td>5.</td>
<td>Strategically located</td>
</tr>
<tr>
<td>6.</td>
<td>Greater market leadership</td>
</tr>
<tr>
<td>7.</td>
<td>Attractive growth markets</td>
</tr>
<tr>
<td>8.</td>
<td>Attractive returns</td>
</tr>
</tbody>
</table>

- **Strong financials to fund growth projects and pay dividend**
PCG remains resilient amidst challenging market conditions due to our competitive advantage

- Secure and competitive **feedstock** supply
  - Advantaged gas-based feedstock, second only to Middle East players

- Fully integrated **facilities and infrastructure**
  - Integration results in lower costs, optimum yields and greater flexibility

- Large scale and diversified **product portfolio**
  - Economies of scale and spread market risk

- Close to **key growth markets**
  - Optimize inventory and have competitive storage & distribution

- Established **market leader**
  - #1 for Methanol, #3 for MEG and #4 for Urea by production capacity
PCG’s growth strategy is to strengthen basic petrochemicals and diversify into specialties and solutions.
PCG has been investing to increase scale

Note: Not to scale, for illustrative purpose only
PCG is now operating at world class utilization rates
Presentation Outline

• PCG current competitive advantage and performance

• PCG’s next big growth project – RAPID

• RAPID further strengthens PCG as a key Asian player

1. Fully integrated facilities and infrastructure
2. Secure and competitive feedstock supply
3. Capacity growth with world scale plants
4. Portfolio expansion with leading edge technology
5. Strategically located
6. Greater market leadership
7. Attractive growth markets
8. Attractive returns

• Strong financials to fund growth projects and pay dividend
RAPID petrochemical projects are PCG’s next major growth plan
Presentation Outline

- PCG current competitive advantage and performance
- PCG’s next big growth project – RAPID
- RAPID further strengthens PCG as a key Asian player

1. Fully integrated facilities and infrastructure
2. Secure and competitive feedstock supply
3. Capacity growth with world scale plants
4. Portfolio expansion with leading edge technology
5. Strategically located
6. Greater market leadership
7. Attractive growth markets
8. Attractive returns

- Strong financials to fund growth projects and pay dividend
World scale, fully integrated project will be cost competitive

300 kbpd Crude Oil

Refinery

Naphtha

Steam Cracker

Propylene

Ethylene

Propylene

Butadiene

Supported by Ancillary Facilities

PCP
Pengerang Co-generation Plant

SPV2
Liquid Bulk Terminal

UIO
Utilities, Interconnecting & Offsite

PAMER
Raw Water Supply Project

RGT2
Regasification Terminal

ASU
Air Separation Unit

PENGERANG INTEGRATED COMPLEX (PIC)

Ethylene

Propylene

Butadiene

C2 Olefins

Commodities

C3 Olefins

Differentiated

C4 Olefins

Specialty Chemicals
Petrochemical projects benefit from secure and competitive feedstock supply

- Ethylene
- Propylene
- Butadiene

Secure and competitive feedstock

- Polymers
  - mLLDPE
  - HDPE
  - Flexi-PE
  - PP

- Glycols
  - MEG
  - DEG
  - TEG

- Elastomers
  - EPDM
  - ESBR
  - SSBR
  - HCBR
Capacity growth with world scale plants give low unit costs

<table>
<thead>
<tr>
<th>Company</th>
<th>Product(s)</th>
<th>Nameplate Capacity (tpa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRPC Polymers</td>
<td>Polypropylene</td>
<td>1,750,000</td>
</tr>
<tr>
<td></td>
<td>mLLDPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flexi-PE (under evaluation)</td>
<td></td>
</tr>
<tr>
<td>PRPC Glycols</td>
<td>EO (intermediate)</td>
<td>1,400,000</td>
</tr>
<tr>
<td></td>
<td>MEG, DEG, TEG</td>
<td></td>
</tr>
<tr>
<td>PRPC Elastomers</td>
<td>EPDM</td>
<td>350,000</td>
</tr>
<tr>
<td></td>
<td>ESBR, SSBR, HCBR</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>3,500,000</td>
</tr>
</tbody>
</table>

Olefins & Derivatives Nameplate Capacity\(^2\) (mil mt)

<table>
<thead>
<tr>
<th>Year</th>
<th>Capacity (mil mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>5.0</td>
</tr>
<tr>
<td>2015</td>
<td>5.0</td>
</tr>
<tr>
<td>2021</td>
<td>8.5</td>
</tr>
</tbody>
</table>

70% of the capacity is increased from 2010 to 2021.
Portfolio expansion with leading edge technology to broaden and deepen PCG sales

Portfolio Expansion with leading edge technology

Number of Products

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2015</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCG</td>
<td>31</td>
<td>29</td>
<td>44</td>
</tr>
<tr>
<td>RAPID</td>
<td></td>
<td></td>
<td>34</td>
</tr>
</tbody>
</table>

52% of products are PCG.

Existing PCG
- LDPE
- C4 LLDPE
- EO
- HDPE
- MEG
- DEG

RAPID
- C6 & metalloocene LLDPE (mLLDPE)
- Flexi PE
- Polypropylene (PP)
- EPDM
- SBR
- PBR

Source: Company Analysis,
Strategically located at the heart of key growth markets

Real GDP growth (2016-2017)

- ASEAN: 4.6%
- China: 6.4%
- India: 7.8%

Source: IHS
Greater market leadership by 2021

- **#1** producer of PP in Southeast Asia
- **#1** producer of MEG in Southeast Asia
- **#1** sole producer of EPDM in Southeast Asia

Source: Company Analysis, IHS, Fertecon
Attractive market with Asia’s middle class growing more than double by 2030

Asia Pacific Middle class Income Population\(^1\) (Million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Population (Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>530</td>
</tr>
<tr>
<td>2015</td>
<td>1,210</td>
</tr>
<tr>
<td>2020</td>
<td>1,740</td>
</tr>
<tr>
<td>2030</td>
<td>3,228</td>
</tr>
</tbody>
</table>

Polyester Production (Mil MT)

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (Mil MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>46</td>
</tr>
<tr>
<td>2015</td>
<td>63</td>
</tr>
<tr>
<td>2020</td>
<td>80</td>
</tr>
<tr>
<td>2030</td>
<td>100</td>
</tr>
</tbody>
</table>

Plastic Packaging Value (USD Billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Value (USD Billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>118</td>
</tr>
<tr>
<td>2015</td>
<td>153</td>
</tr>
<tr>
<td>2020</td>
<td>217</td>
</tr>
<tr>
<td>2030</td>
<td>439</td>
</tr>
</tbody>
</table>

Motor Vehicle Sales (USD Billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales (USD Billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>800</td>
</tr>
<tr>
<td>2015</td>
<td>950</td>
</tr>
<tr>
<td>2020</td>
<td>1100</td>
</tr>
<tr>
<td>2030</td>
<td>1500</td>
</tr>
</tbody>
</table>

Note: \(^1\)Middle Class Income population with daily income between USD 10 to USD 50
Source: IHS, Company Analysis
Packaging is the largest demand driver for polymers...

Polymer demand:
- Film and sheet (50% of PE, 24% of PP) includes food packaging, trash bags, stretch film, shrink film
- Blow molding and injection molding (25% of PE, 33% of PP) includes bottles, thin wall injection molding, auto parts
- Raffia (slit tape) (19% of PP) includes 25 kg shipping bags, flexible intermediate bulk containers (FIBC)

Source: IHS, Company analysis, REXAM, Nexant
... and packaging underpins robust demand growth in LLDPE, HDPE and PP

**LLDPE**
Unit: Mil Mt

- **2015**: 15
- **2020**: 15
- **2030**: 15

By 2030, a total of 35 world class LLDPE plants will be required to meet the demand.

**HDPE**
Unit: Mil Mt

- **2015**: 18
- **2020**: 18
- **2030**: 18

By 2030, a total of 40 world class HDPE plants will be required to meet the demand.

**PP**
Unit: Mil Mt

- **2015**: 33
- **2020**: 33
- **2030**: 33

- **2015**: 13
- **2020**: 25
- **2030**: 25

By 2030, a total of 50 world class PP plants will be required to meet the demand.

Source: IHS, Company analysis, REXAM, Nexant
The middle class will demand more cars... (1)

Source: MDPI (Aug 2014), World Bank, International Road Federation
The middle class will demand more cars...(2)

Source: IHS, Goldman Sachs (May 2015)
Growing auto demand is not only important for elastomers but increasingly PP as cars get lighter...

Note: ¹Elastomers consists of EPDM, SBR and PBR

Source: IHS, Nexant, Company Analysis
... leading to significant new PP and Elastomers capacities required

**PP**
Unit: Mil Mt

- 2015: 33
- 2020: 33
- 2030: 33

By 2030, a total of 50 world class PP plants will be required to meet the demand.

**Elastomers**
Unit: Mil Mt

- 2015: 5
- 2020: 2
- 2030: 4

By 2030, a total of 13 world class Elastomers complex will be required to meet the demand.

Note: 1Elastomers consists of EPDM, SBR and PBR
Source: IHS, Nexant, Company Analysis
Polyester demand:
- Still has >1.5x elasticity to world GDP
- PET bottle packaging continues to grow
- Clothing – substitution from cotton and other fibres
- Other niche but growing applications which require fibres, e.g. diapers, carpet, tyre cord, seat belts, etc.

Note: 1 ton of Polyester = 0.3 MEG + 0.9 PTA
Source: IHS, Nexant, Company Analysis
... resulting in a near doubling in global glycols demand

By 2030, a total of 18 world class MEG plants will be required to meet the demand

Note: 1 ton of Polyester = 0.3 MEG + 0.9 PTA
Source: IHS, Nexant, Company Analysis
RAPID will contribute positively to PCG’s financials

**Nameplate Capacity (mil mt)**

- 2014: 10.8
- 2021: 16.2
- Increase: 5.4 mil mt (50%)

**Net Tangible Assets (USD bn)**

- 2014: 6.5
- 2021: 10.4
- Other asset growth: 3.9 bn

**EBITDA (RM mil)**

- 2014: 4,644
- 2021: xx

*Note: Not to scale, for illustrative purpose only*

2014 MYR/USD = 3.50
Presentation Outline

• PCG current competitive advantage and performance
• PCG’s next big growth project – RAPID
• RAPID further strengthens PCG as a key Asian player

1. Fully integrated facilities and infrastructure
2. Secure and competitive feedstock supply
3. Capacity growth with world scale plants
4. Portfolio expansion with leading edge technology
5. Strategically located
6. Greater market leadership
7. Attractive growth markets
8. Attractive returns

• Strong financials to fund growth projects and pay dividend
PCG has strong capacity to finance projects whilst maintaining dividend policy of 50% payout

- RM9.3bn cash (Sep '15)
- EBITDA 2016-2019
- Debt up to 2x EBITDA
- Proj. Fin. up to 2x DSCR
- Starting cash
- Strong internal cash flow
- Untapped debt capacity
- Project finance capacity
- Taxes & dividends
- Other capex
- US$3.9bn investment
- Note: Not to scale, for illustrative purpose only
Presentation Outline

- PCG current competitive advantage and performance
- PCG’s next big growth project – RAPID
- RAPID further strengthens PCG as a key Asian player

1. Fully integrated facilities and infrastructure
2. Secure and competitive feedstock supply
3. Capacity growth with world scale plants
4. Portfolio expansion with leading edge technology
5. Strategically located
6. Greater market leadership
7. Attractive growth markets
8. Attractive returns

- Strong financials to fund growth projects and pay dividend
RAPID extends PCG market leadership, increases scale at low cost, and broadens portfolio with leading technology

- Secure and competitive **feedstock** supply
  - Advantaged gas-based feedstock, second only to Middle East players
  - Secure and competitive naphtha based feedstock, fully integrated into PIPC

- Fully integrated **facilities and infrastructure**
  - Integration results in lower costs and higher, stable margins

- Large scale and diversified **product portfolio**
  - Economies of scale and economies of scope
  - RAPID uses leading technology for existing and new products

- Close to **key growth markets**
  - Able to cut customer inventory requirements and ship product at short notice

- Established **market leader**
  - #1 choice for customers
  - #1 capacity in SEA for PP, MEG, EPDM, Methanol, Top 10 in other products
Thank You

For enquiries please contact us at:

PETRONAS Chemicals Group Berhad
Level 14, Tower 1, PETRONAS Twin Towers
KUALA LUMPUR CITY CENTRE,
50088 KUALA LUMPUR, MALAYSIA

petronaschemicals_ir@petronas.com.my
www.petronaschemicals.com.my