TEESSIDE GAS CRACKING PROJECT AND GIVING AGED ASSETS A NEW LIFE

John Bruijnooge,
Site Director, SABIC Teesside Site

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CHEMISTRY THAT MATTERS™

AGENDA

1. About SABIC and our Teesside Site
2. Teesside Gas Cracking Project: Competitiveness in a Global Commodity Market
3. Asset Life Plans: Dealing with Aged Assets
4. The Future of SABIC on Teesside
5. Questions and Answers

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ABOUT SABIC AND OUR TEESSIDE SITE

SABIC: SAUDI BASIC INDUSTRIES CORPORATION

- Established in 1976, aiming to use natural gas emerging at oil wells
- Global leader (top 3-5) in diversified chemicals
- Produces basic chemicals, intermediates, plastics, fertilizers and steel
- Around 40,000 employees
- Operating in more than 50 countries
- Producing in North and South America, Europe, Middle-East and Asia
- Over 10,000 patents and operating eight world-scale R&D facilities
- 2015 Revenue: ~$40 billion, EBITDA: ~$12 billion

TEN YEARS OF SABIC ON TEESSIDE

SABIC acquires assets from Huntsman — 2006

Start-up 400kT LDPE plant — 2010

Decision to convert the Cracker to 100% gas (ethane) TGCP is born — 2012

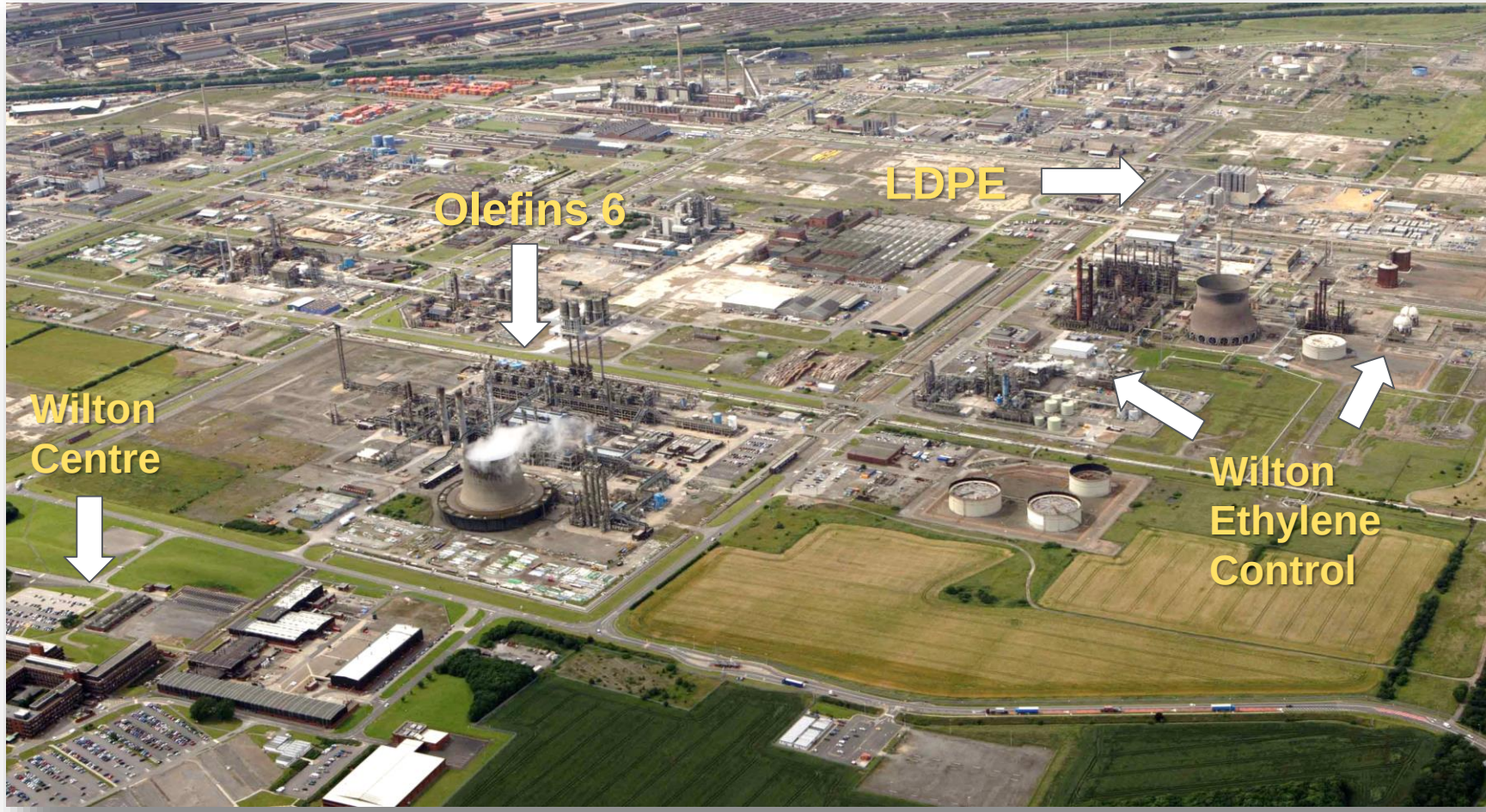
Phase 1 TGCP: 300kT ethane consumption — 2016

Phase 2 TGCP: 600kT ethane consumption — 2019/ 2020

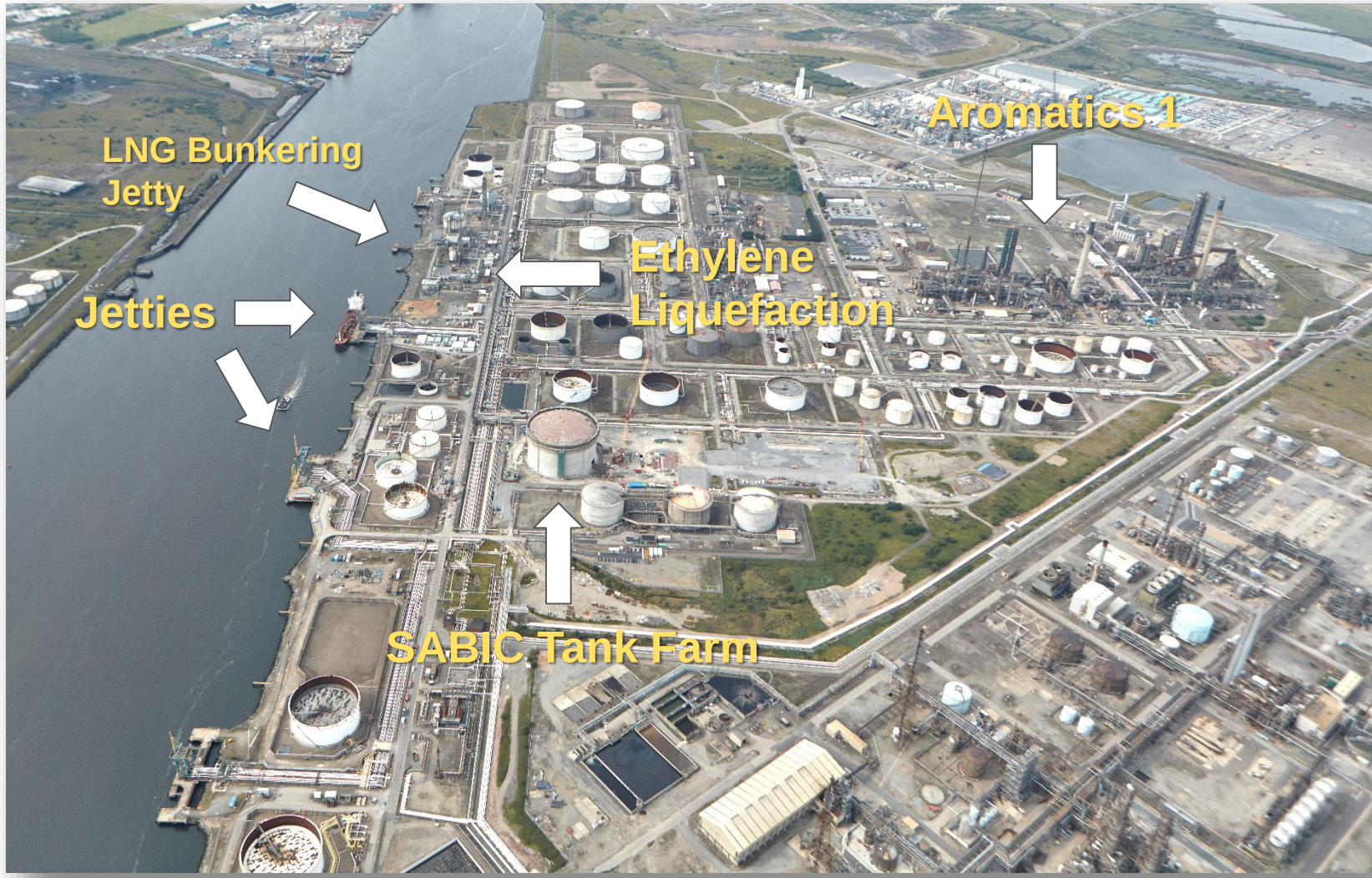
North Tees Site

Wilton Site

WILTON SITE OVERVIEW



NORTH TEES SITE OVERVIEW



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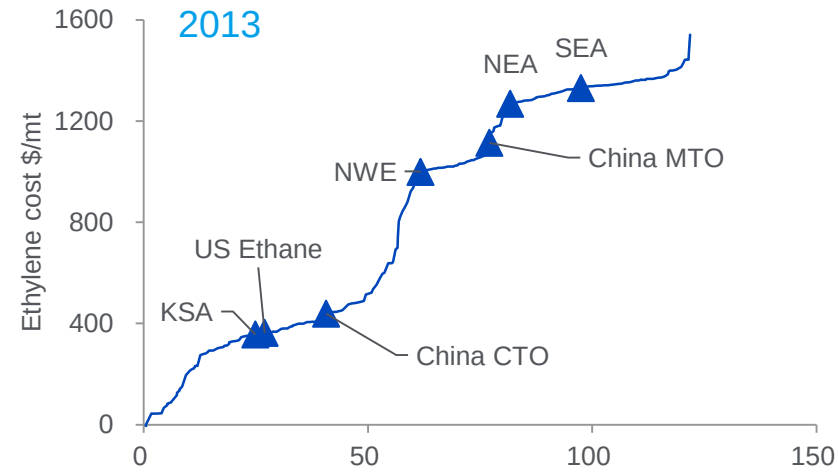
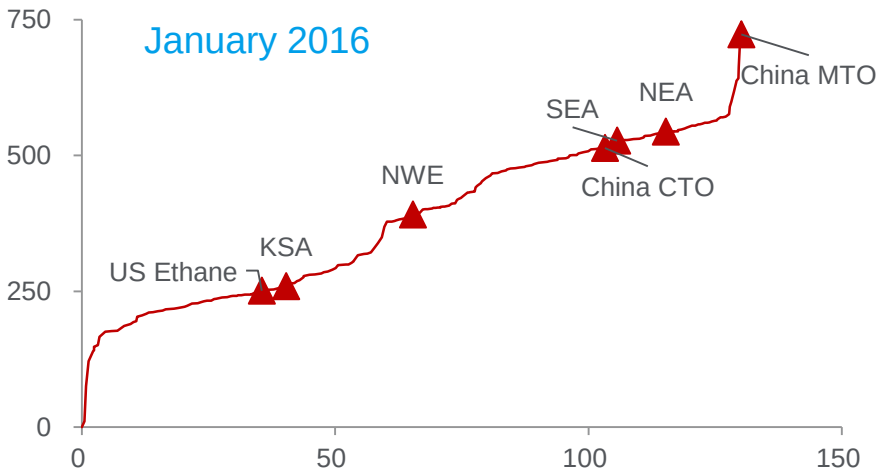
THE TEESSIDE GAS CRACKING PROJECT: COMPETITIVENESS IN A GLOBAL COMMODITY MARKET

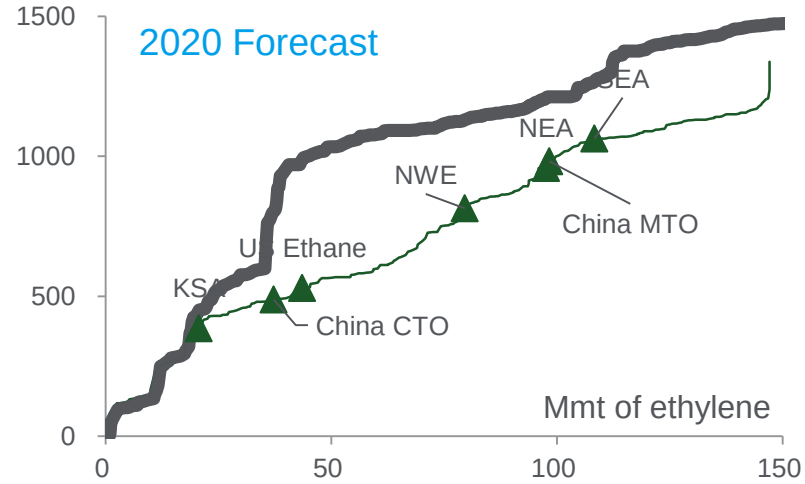
ETHYLENE COST CURVES

In the basic chemicals industry, feedstock cost drives competiveness

- 2013 Lowest cost in Middle-East and US → cheap gas
- 2016 Low oil price: cost curve flattened → oil-based producers can play again
- 2020 Forecast oil price back up, shale gas price not as low anymore





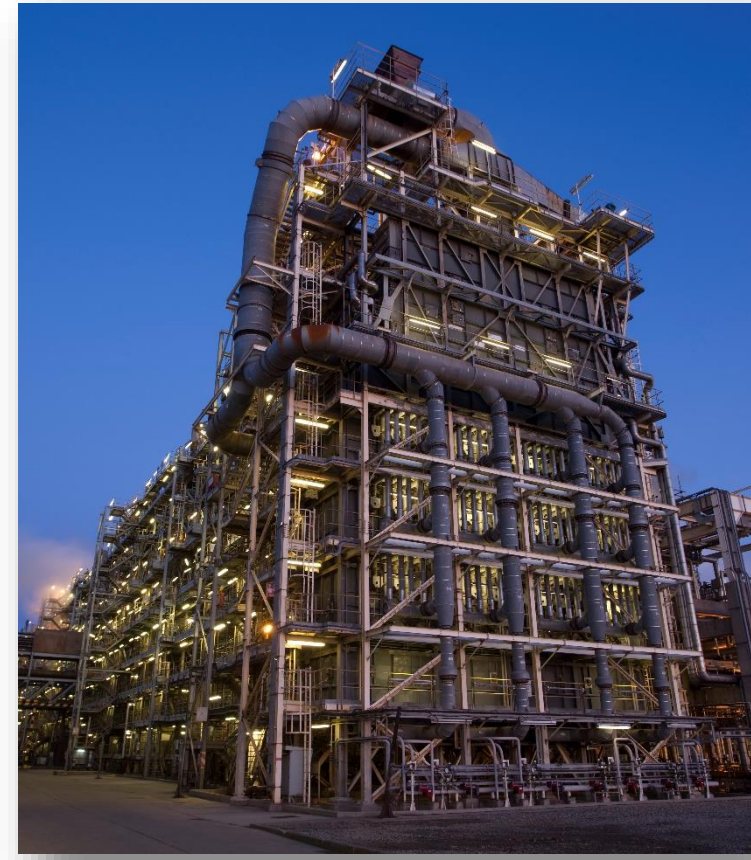


INTRODUCTION TO THE TEESSIDE GAS CRACKING PROJECT

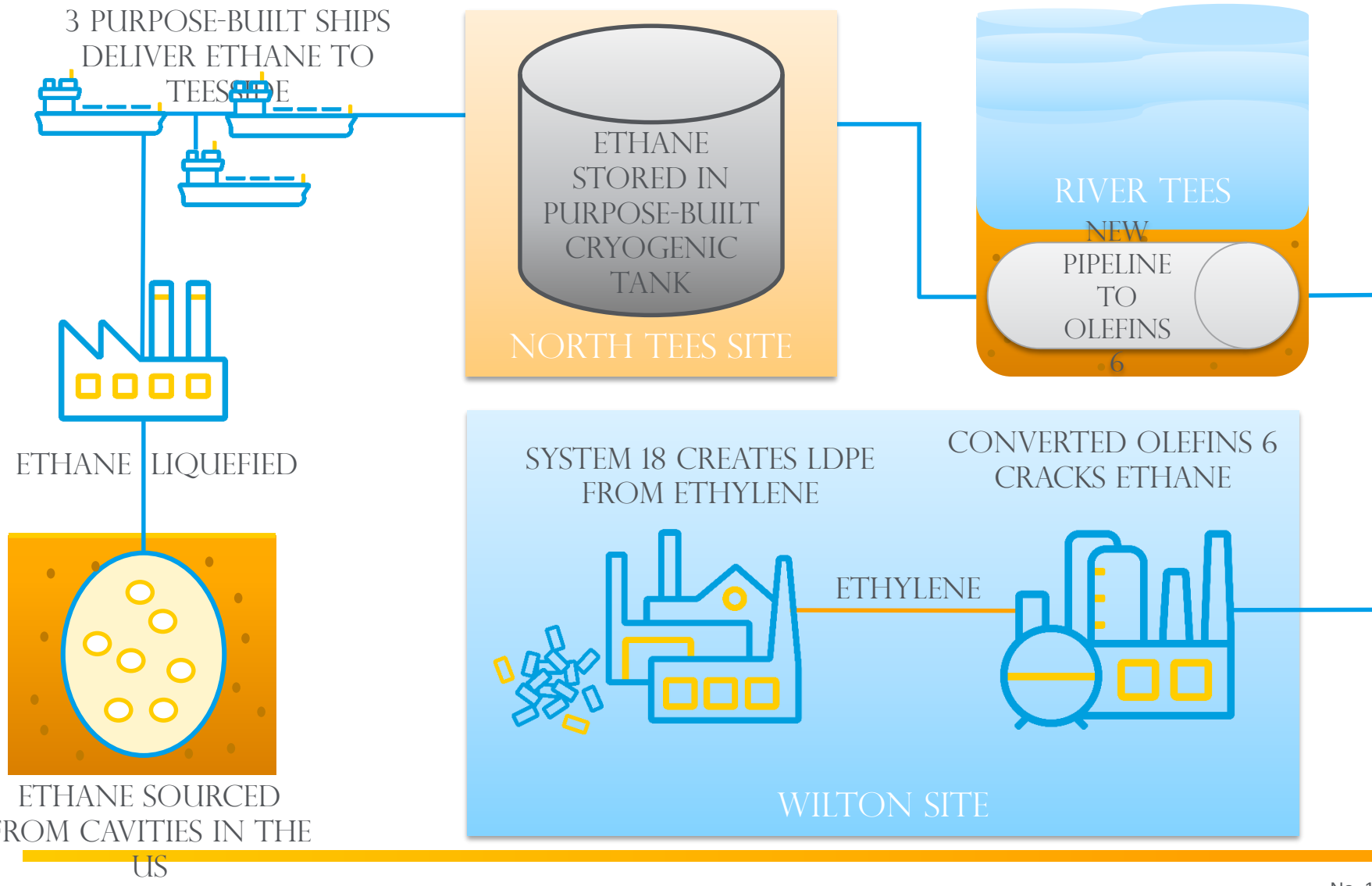
The Teesside Gas Cracking Project (TGCP) is part of SABIC's wider strategic investment plan. Phase 1 is due for completion at the end of 2016.

Olefins 6 is already a mixed-feedstock cracker, processing naphtha propane and butane.

TGCP will allow us to switch our primary feedstock to ethane, a cheaper alternative to naphtha, and produce some of the lowest cost-per-tonne ethylene in Europe.



TEESSIDE GAS CRACKING PROJECT OVERVIEW



TEESSIDE GAS CRACKING PROJECT: OUTSIDE BATTERY LIMITS

The Outside Battery Limits (OBL) scope of the project provides a new ethane import terminal and site utilities, including steam and air.

New flare stack

Ethane tank

New boiler

TEESSIDE GAS CRACKING PROJECT: INSIDE BATTERY LIMITS

The Inside Battery Limits (IBL) scope of the project covers the conversion of Olefins 6, including furnace modification, an ethane support structure and new DCS.

Ethane structure

Olefins 6 furnaces

Inside a converted furnace

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ASSET LIFE PLANS: DEALING WITH AGED ASSETS

DISINVESTMENT AND DEMOLITION

Olefins 5 Demolition

Central Control Disinvestment

Redundant pipework

Butadiene 2 Demolition

ASSET LIFE PLANS: DEALING WITH AGED ASSETS

- Life-Cycle-Management
  - Asset Life plans → APT tools
  - Fit-for-Purpose assessments
  - Risk-Based Inspection / Risk-Based Maintenance
  - Replace versus Fix and Continue
- System Level Reliability simulations → Monte Carlo Simulations
- Process Reliability Studies
- Redundancy management
  - Whole assets
  - In-between live assets

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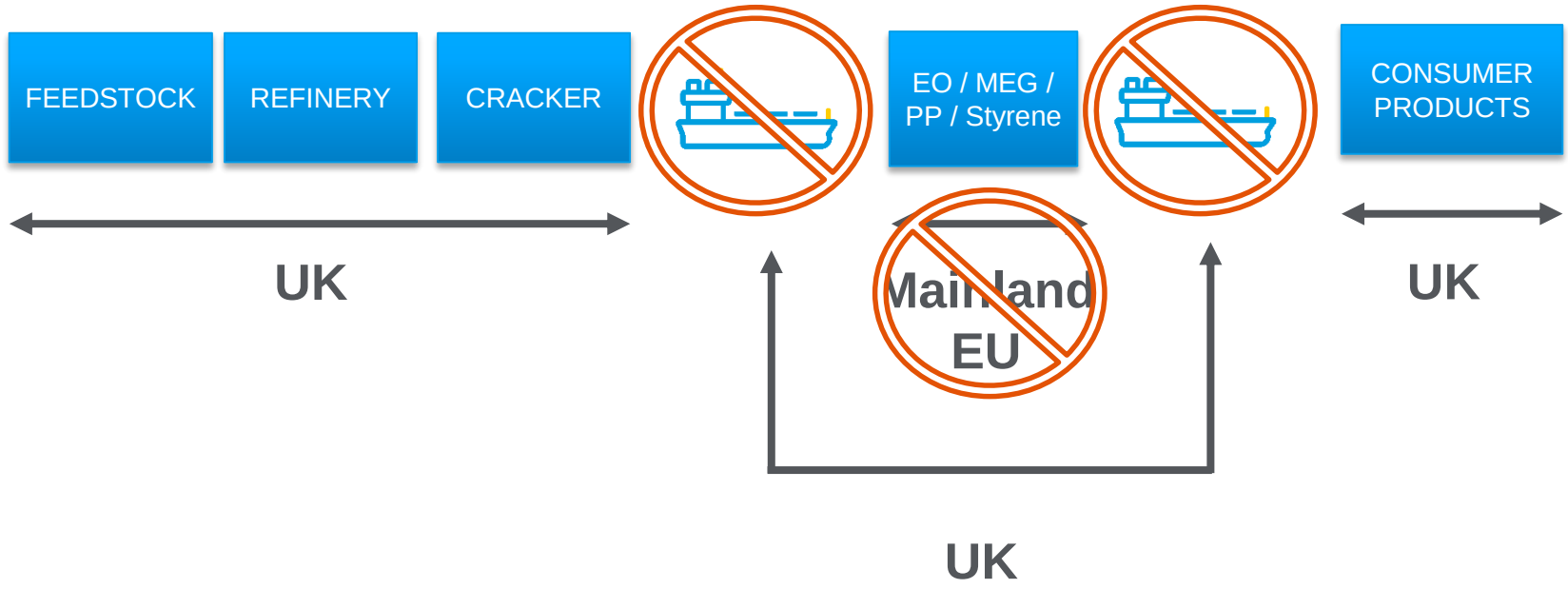
THE FUTURE OF SABIC ON TEESSIDE

OPTIONS BEYOND GAS CRACKING: INNOVATION

1. Underground Coal Gasification → Syngas to Olefins
   - Shale gas may become more expensive
   - Huge reserves still available in UK
   - New technology ready to gasify underground
   - Developing routes to move from CO to C2-C3 cheaply and cleanly

2. Waste to feedstock
   - UK still sends large volume of waste to landfill
   - ‘Classic’ recycling of waste = waste to energy → down-cycle
   - Higher value option: waste to feedstock
   - Corporate cooperation towards circular economy

OPTIONS BEYOND GAS CRACKING: VALUE CHAIN REBUILD



- Value Chain optimisation
- Sustainability, Energy efficiency
- Employment, direct and indirect

Thank you!

Any questions?