

**Education and training of engineers for a
high-octane production environment**

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INEOS Grangemouth

EPC Congress April 2009



INEOS Overview

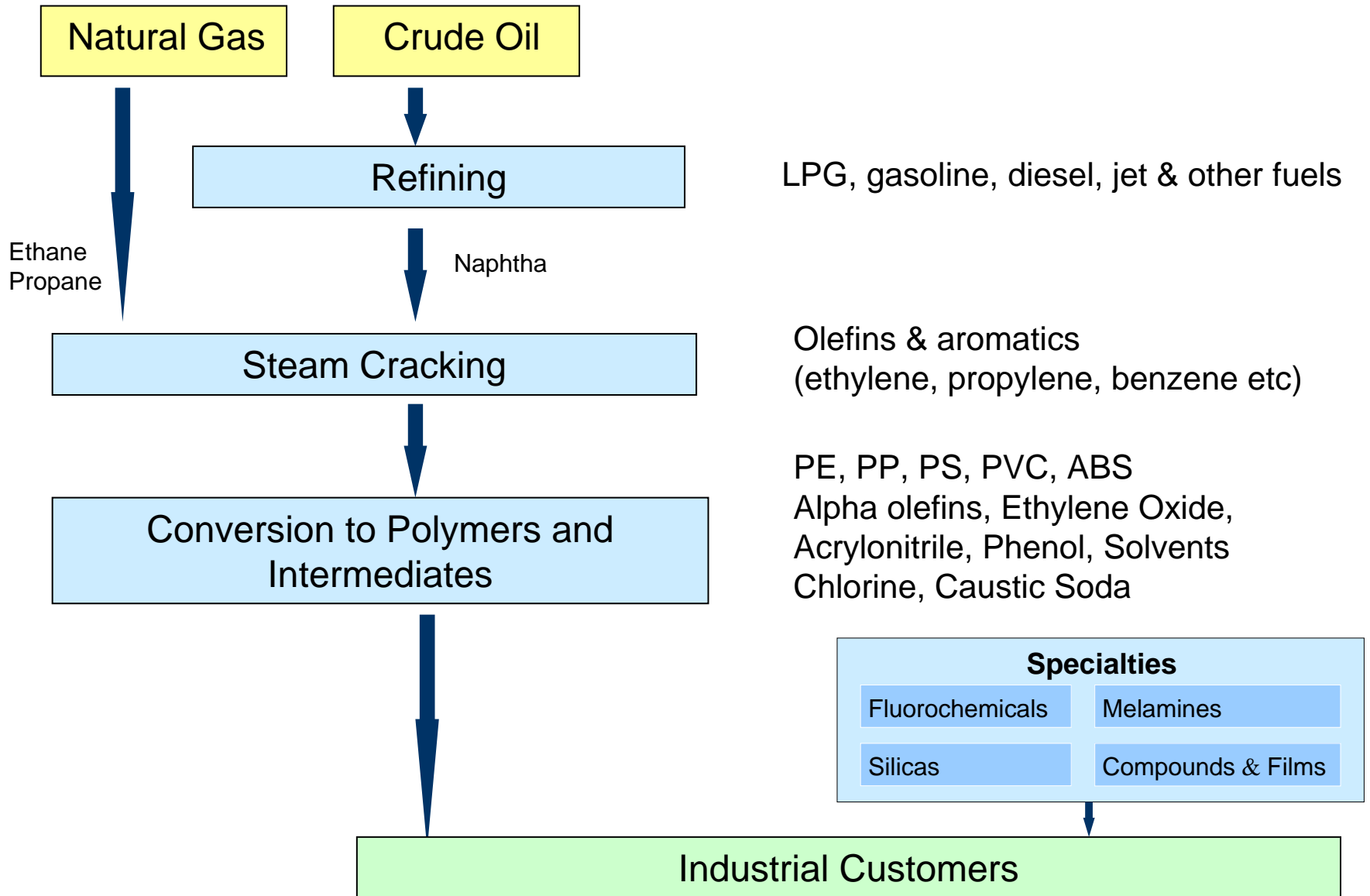
INEOS Background

- 2008 Sales approx \$48bn
- 16,000 employees*
- 4,500 employee shareholders
- 70 manufacturing sites worldwide*
- 40 million tonnes of chemicals capacity
- 20 million tonnes of refinery products (400,000 bbls/day)
- **3rd largest chemical company globally**
 - *Largest refinery in Southern France*
 - *Largest refinery in North Britain*
 - *Largest Olefin producer in Europe*

* *excl. joint ventures*

INEOS is a Vertically Integrated Company

Refining, Petrochemical and Specialty Chemical Operations



INEOS Philosophy

- Safety, Health & Environment are our top priority
- Focus on EBITDA, growth, fixed costs
- Focus on top quartile economics
- Share rewards
- Entrepreneurial
- Acquisitive
- Tight cash management
- Anti bureaucracy, centralisation, politics
- Long-term view
- No external private equity

Grangemouth Complex

**INEOS
Refinery**

**INEOS
Petrochemicals
Plants**

**Calor
Gas**

**GE
Plastics**

**BP
Kinneil**

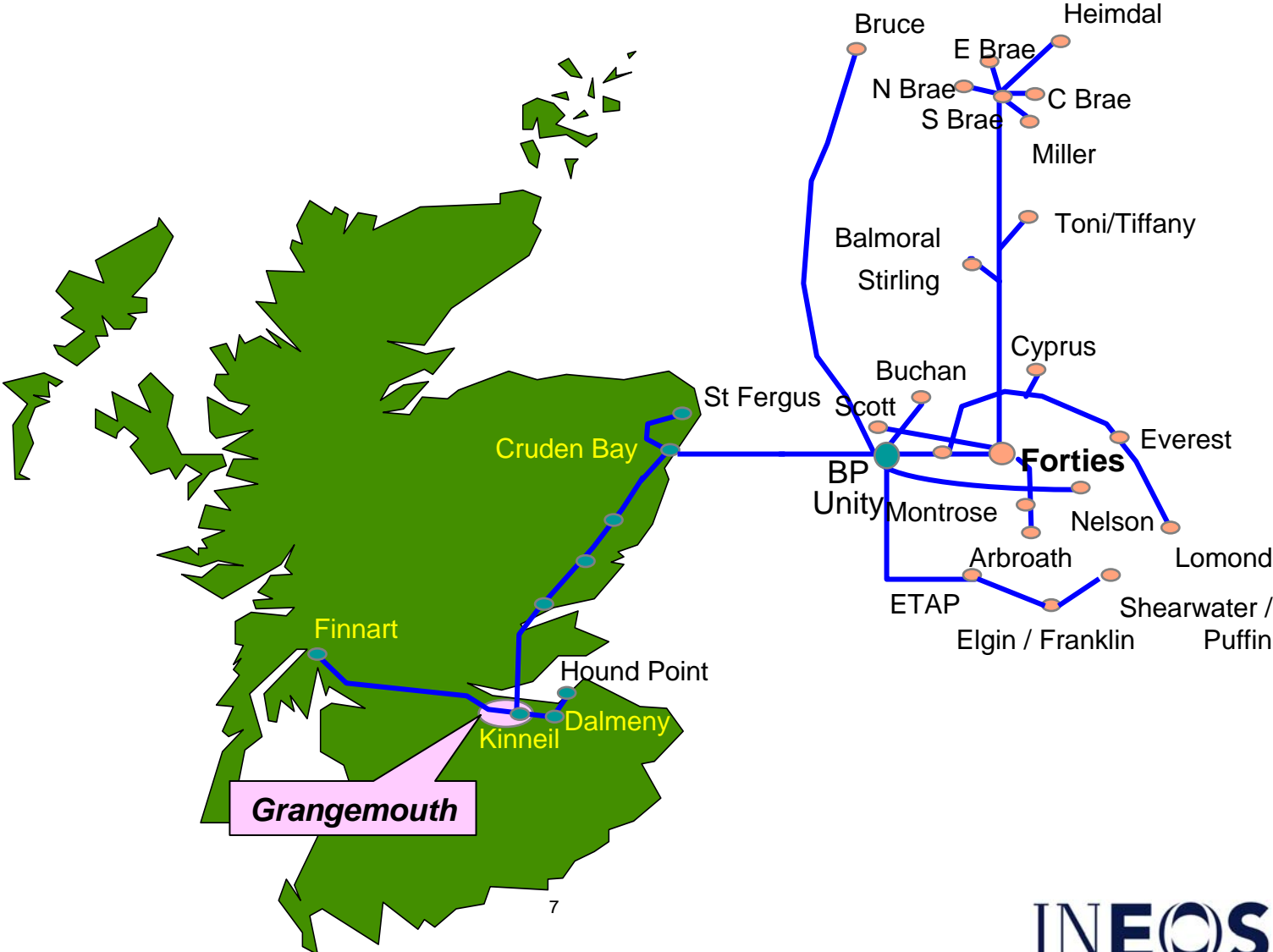
**Polimeri
Europa**

Rohm & Haas

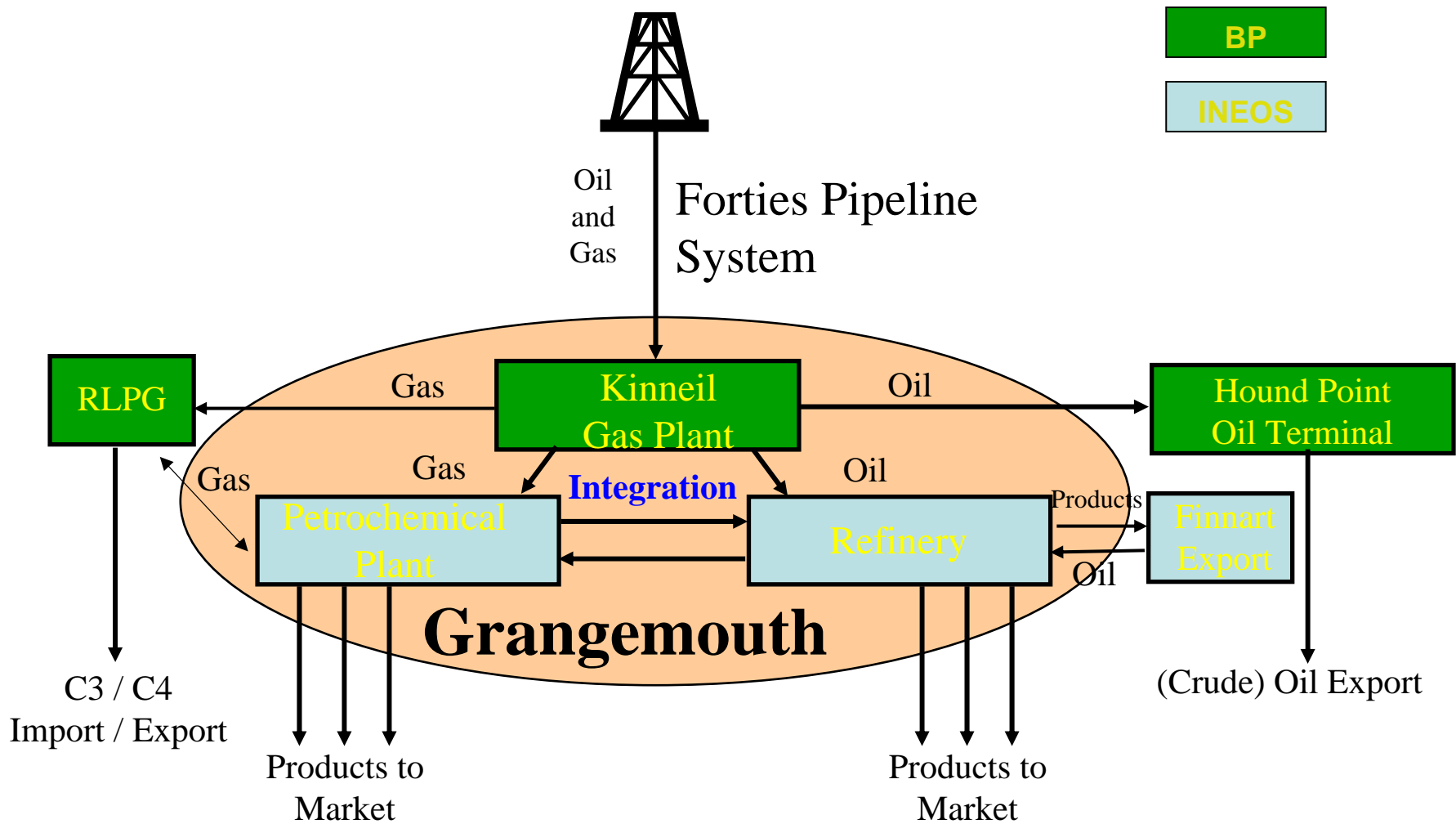
**Local
Housing**



Forties Pipeline System



Grangemouth Configuration



Grangemouth



- 1700 acre site
 - 4000 kilometre of pipework
 - 9m litres of clean fuel per year
 - 1 million tonnes of chemicals per year
- 1400 direct employees incl.
 - 99 apprentices
 - 18 graduates in development programs
- Estimated 7000 indirect jobs supported in Central Scotland
- Generate £4.0bn turnover
- Export £2.0bn sales



Education and training of engineers for a
high-octane production environment
Engineers of the Future



INEOS

Our Shopping List i.e. Customer Requirements

- Our Sites need
 - Engineering Graduates
 - Chemical, Mechanical, Electrical & Instrument
 - Capable of reaching Chartered Eng. Status in 4 years
 - Technical expertise in the Process Industry – **problem solving**
 - People Managers, from technicians to professional staff
 - Financial/Commercial Awareness

- Our Businesses need
 - Graduates with analytical skills – **problem solving**
 - Commercial, Sales, Marketing, Financial
 - Could be Engineers – but 2x training load



- Most of all we need speed to the Market Place
 - Do a Job from Day 1



Engineering Graduates—Speed to market place?

What do we mean?

- Deep understanding of **our** plants from day 1
- Risk Assessment— **our daily life** —starts day 1
 - Hazops, Work Place Take Five, Safe Systems of Work,
 - Safety Rules
 - Environmental rules
- Industry Standards
 - BSi, DIN, ANSI
 - Inches, psig, feet/second, gallons, barrels, etc etc
- Legislation
 - COMAH, IPC, Employment, H&S at Work
- Social Skills
 - Team Work, Leadership, Communication, Report Writing, Verbal Feedback, Hard Edge, Community Involvement



Traditional Route

- School to University
- Graduate with 2/1 or better
- Join Process Industry
- 4 year 'apprenticeship'
- Year 1 & 2 training, Year 3& 4 -- 50%effective
- Cost to train (Salary, NI, Bonus, Pension etc) ---- £170K+



Alternative Route

- 5 year sponsored training
 - 2 year accelerated apprenticeship
 - Master Degree after 5 years
 - Work experience on Site
 - On plant
 - Working with INEOS staff
 - Utilising INEOS processes and systems
 - Working to the Site/ Industry standards
 - Part of a team
 - Understand the role/job



Alternative Route

How can it Happen?

- Partnership
 - **Industry**
 - Provides the money (with help from Government)
 - Provides the work placements
 - Provides the Industry Knowledge
 - **Local College**
 - Provides the practical , hands on , basic apprenticeship skills
 - Takes the students to HNC level and SVQ3
 - Employees the Students
 - **University**
 - Develop the Academic ability via the Masters Degree



Alternative Route

What's In It for Every one?

- **Student** – paid to train and study followed by a higher starting salary
- **College and University** – more income and close links with Industry
- **Industry** – A graduate able to do the job on day 1 at half the training cost of the traditional route.

Alternative Route

Will It Work?

- We will know in 4 years time
- Currently about to end the first year of our pilot
- We are recruiting our second batch now
- So far – It's going Ok
- Who's Involved? ----



Engineers of the Future

Leading the Way

If you're thinking about a career in engineering think about this

Engineers of the Future is a bespoke five-year company-sponsored programme aimed at talented students interested in a career in Mechanical, Chemical, Electrical and Electronic Engineering.

It offers the unique opportunity to combine vocational training and an M.Eng Degree with hands-on industrial experience at INEOS' Grangemouth site.

Throughout your course, you will be sponsored by INEOS, one of the world's largest petrochemical companies. Not only will they pay your university course fees, you'll also receive a salary while you are working towards your qualification!

You will study initially at Forth Valley College completing a Modern Apprenticeship in Engineering and a Higher National Diploma. From there you will progress to a Masters Degree in Engineering at Heriot-Watt University - one of the UK's leading universities for business and industry.

You will need a passion for the subject and a minimum of 3 Highers at Grade B or above - 2 of which must be Maths and Physics.

Interested?
Of course you are!

To apply online, visit:
www.forthvalley.ac.uk
or call: (01324) 403272



INEOS



**Business to College Awards
Innovation Category Winners
2009**

Engineers of the Future

- Bespoke training programme
- Award winning
- Five year company sponsored
- Masters Degree qualification
- Site-based experiences from 'day one'
- Unique partnership with Forth Valley College and Heriot-Watt University

INEOS

View from the students

Alternative Route

Question



We have thought of one alternative to the issue of getting graduates to the market place on day one

What is your alternative?