INEOS

- who are they and what do they want? -

Yorkshire Speakers Tour February 2018

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ISSUE BRIEF MAY 2017

The Trans-Atlantic Plastics Pipeline:

How Pennsylvania's Fracking Boom Crosses the Atlantic

America's oil and gas rush is now coming to Europe, polluting both sides of the pond, contributing to climate change and threatening coastal wildlife. Over the past decade, the US fossil fuel industry has surged by employing new techniques and technologies that combine horizontal drilling and hydraulic fracturing (or fracking) to extract oil and gas from shale and other underground rock formations. Fracking, which causes many negative public health and environmental impacts, injects large quantities of water, sand and chemicals under high pressure to release oil or gas tightly held in rock layers.[1]

The boom, combined with low-priced fossil fuel-based natural gas, also spawned a resurgence in North American petrochemical and plastics manufacturing — and the pollution that comes with it.[2] Wall Street investor-funded US fracking produced an oversupply of cheap gas and ethane in the past few years.[3] The volume of gas pumped out of US wells has risen by one-third, and the industrial price for gas fell by half over the same period from 2007 to 2016.[4] Collapsing prices undermined the profitability of oil and gas companies, but all that additional gas has been a boon to the US plastics industry.[5]

Ethane is a hydrocarbon present in gas and raw material for petrochemical manufacture to its low costs, in 2012 chemical companies aggressively investing in petrochemical export facilities to capitalise on the ethane than four years later, ethane derived from gas was exported to Europe for the first

The new ethane export route connects fracking with European petrochemical The Europe-bound ethane is produced by the US oil and gas companies CONS Range Resources, and is carried by Su East pipeline to its Marcus Hook expo Philadelphia. From there, large vessels ships" carry the ethane more than 5,6 across the Atlantic Ocean to ethane and Scotland owned by Ineos, a Euro company founded by billionaire Jim crackers turn ethane into ethylene of finished petrochemicals — such a

In May 2017, Ineos' Grangemouth in Scotland had a substantial ethyl the evacuation of employees, scra responders and caused the lockdo elementary school.[5] The resurgen

ISSUE BRIEF OCTOBER

Chemical Billionaire's Bid for Fossil Fuel Empire:

Ineos Corporate Profile

Executive Summary

For the past decade, the United States has pursued a failed experiment in natural gas extraction known as hydraulic fracturing, or fracking. Fracking injects large volumes of water, sand and chemicals deep underground, at extreme pressure, to create fractures in targeted rock formations to release the oil and gas. The fossil fuel industry touts fracking as a revolutionary technology that could deliver huge volumes of cheap, clean energy.

But the fracking boom has been an environmental catastrophe in the United States. The fracked gas and oil industry has polluted the water supplies of heavily drilled communities, produced massive volumes of toxic waste, caused earthquakes and imperiled vital aquifers from poorly constructed gas wells; meanwhile, oil and gas operations have become the second greatest global source of the potent greenhouse gas methane, threatening the climate and the planet.[1]

The private and secretive chemical company Ineos has been leading the charge to bring this environmentally destructive method to the United Kingdom (UK) and mainland Europe. The petrochemical conglomerate was rapidly assembled by its founder, James (Jim) **Ratcliffe, who has amassed a fortune during Ineos' rise to become one of the world's largest petrochemical companies.**

Now, Ratcliffe intends to use the same corporate strategy to push into oil and gas extraction. Already, Ineos has a foothold in the UK oil and gas sector. Ineos is keeping fossil fuels alive by doubling down on dirty manufacturing and fracking, and not the clean renewable energy future that the UK and the world needs.

Ineos kept a low profile during its rapid ascent, and it continued to do so even as the company became the biggest player in the UK fracking industry. Few people **know about Ineos' corporate history, checkered environmental record[2] and relentless pursuit of profits.** In 2010, the *Financial Times* reported that Ineos has been "a near-impenetrable business that, in spite of its size, divulged few details of its operations".[3]

The fracking "revolution" that Ineos promotes is a return to the past, where corporate executives profited off of environmentally destructive extraction and generation of dirty energy.

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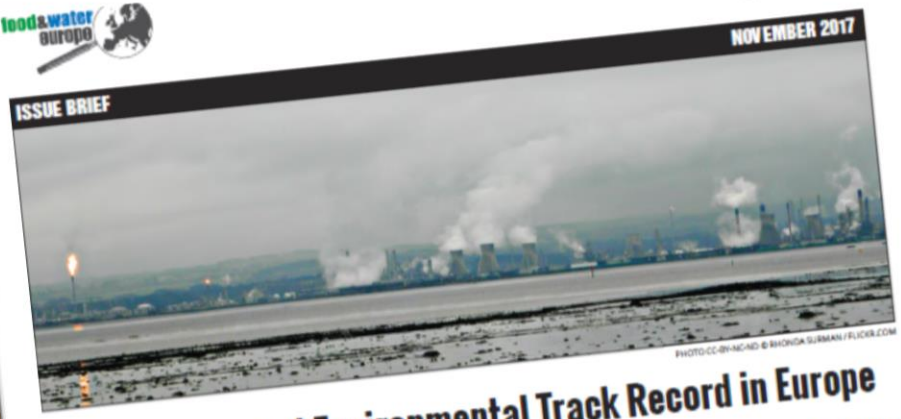
ISSUE BRIEF NOVEMBER 2017



Ineos' Chequered Environmental Track Record in Europe

The petrochemical company Ineos is transforming into a dominant UK fossil fuel firm with oil and gas extraction, storage, processing and pipeline assets. Since its 1998 inception, Ineos has rapidly assembled a sprawling corporate empire by snapping up chemical factories and companies. But it also has garnered a chequered environmental record in its aggressive climb to become one of the world's largest chemical conglomerates.

Ineos' current drive to use hydraulic fracturing, known as fracking, to drill for shale gas across the UK brings into sharp focus the company's questionable environmental record. In 2014, Ineos announced a planned £640 million investment to "kick start a shale gas revolution", according to *The Guardian*.[1] By 2017, Ineos was by far the biggest holder of UK shale licences.[2] Fracking injects large volumes of water, sand and chemicals deep underground, at extreme pressure, to create fractures in targeted rock formations to release the oil and gas.

Fracking has become an internationally recognised threat to human and planetary health and safety. In 2012, the United Nations Environment Programme (UNEP) issued a "Global Alert" on fracking. According to UNEP hydraulic fracking may result in "unavoidable environmental impacts", even if unconventional gas is extracted properly.[3] In the United States, the fracked gas and oil industry has polluted the water supplies of heavily drilled communities, produced massive volumes of toxic waste, caused earthquakes and imperiled vital aquifers from poorly constructed gas wells; meanwhile, oil and gas operations have become the second greatest global source of the potent greenhouse gas methane, threatening the climate and the planet.[4]

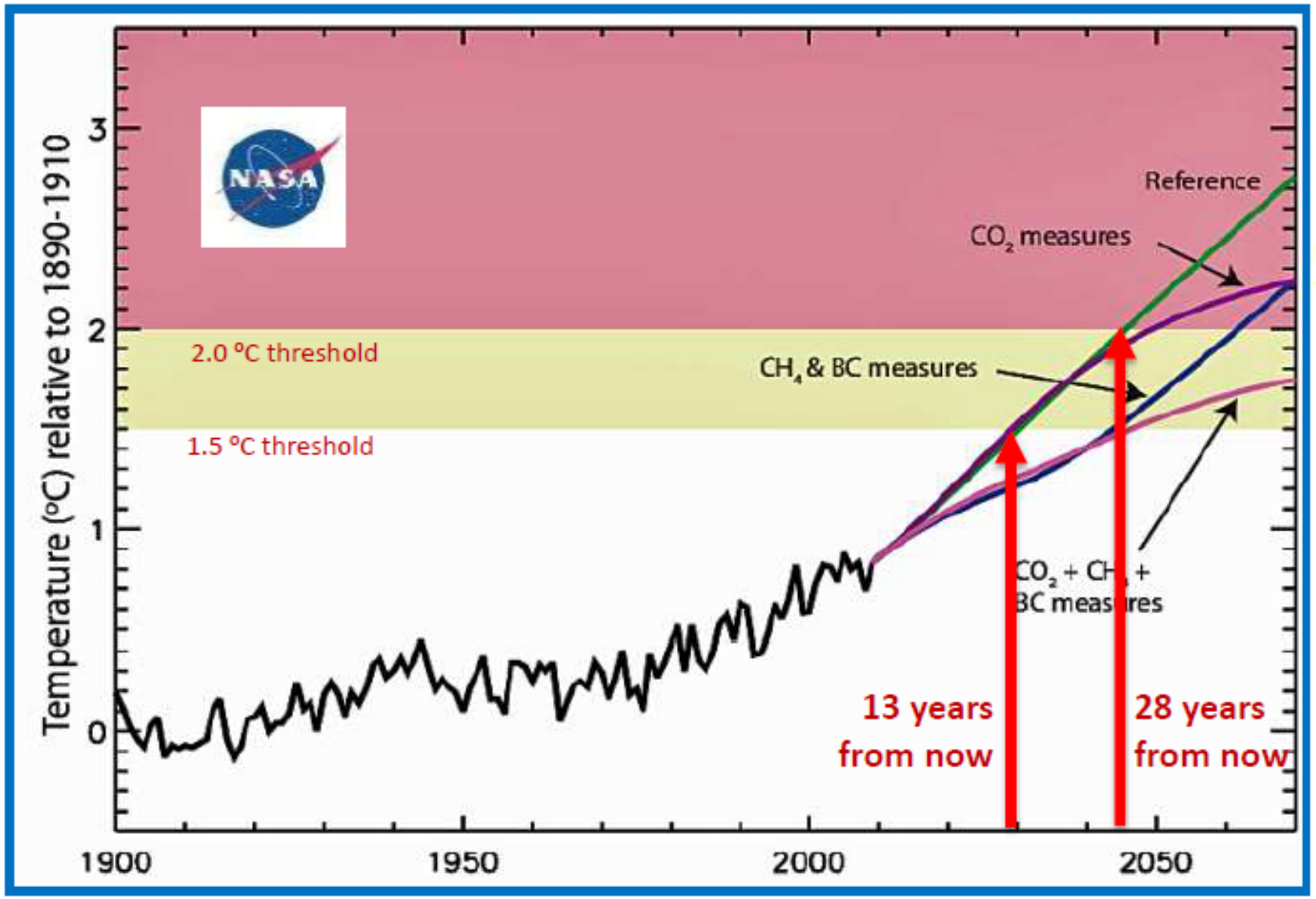
Ineos downplays the environmental risks of fracking, despite the fact that the company has never drilled a producing oil or gas well in the UK.[5] Ineos has operated chemical plants for nearly two decades, but in that short time many of its facilities have been bedeviled by environmental problems. Its dozens of manufacturing facilities across Europe have been responsible for releases of toxic chemicals, leaks, fires and explosions that have endangered workers, communities and the environment.

Food & Water Europe examined Ineos' European environmental record, including government and media reports of its plants in the UK, Belgium, Franc Germany, Italy, Norway and Sweden, and found that many of the facilities had accidents, safety lapses,

Source: https://www.foodandwatereurope.org/reports/

CLIMATE IMPACT OF GAS

Conventional gas: 3.6%-5.4% methane loss
Unconventional gas: up to 12%
→ Need to tackle CO2 AND methane emission

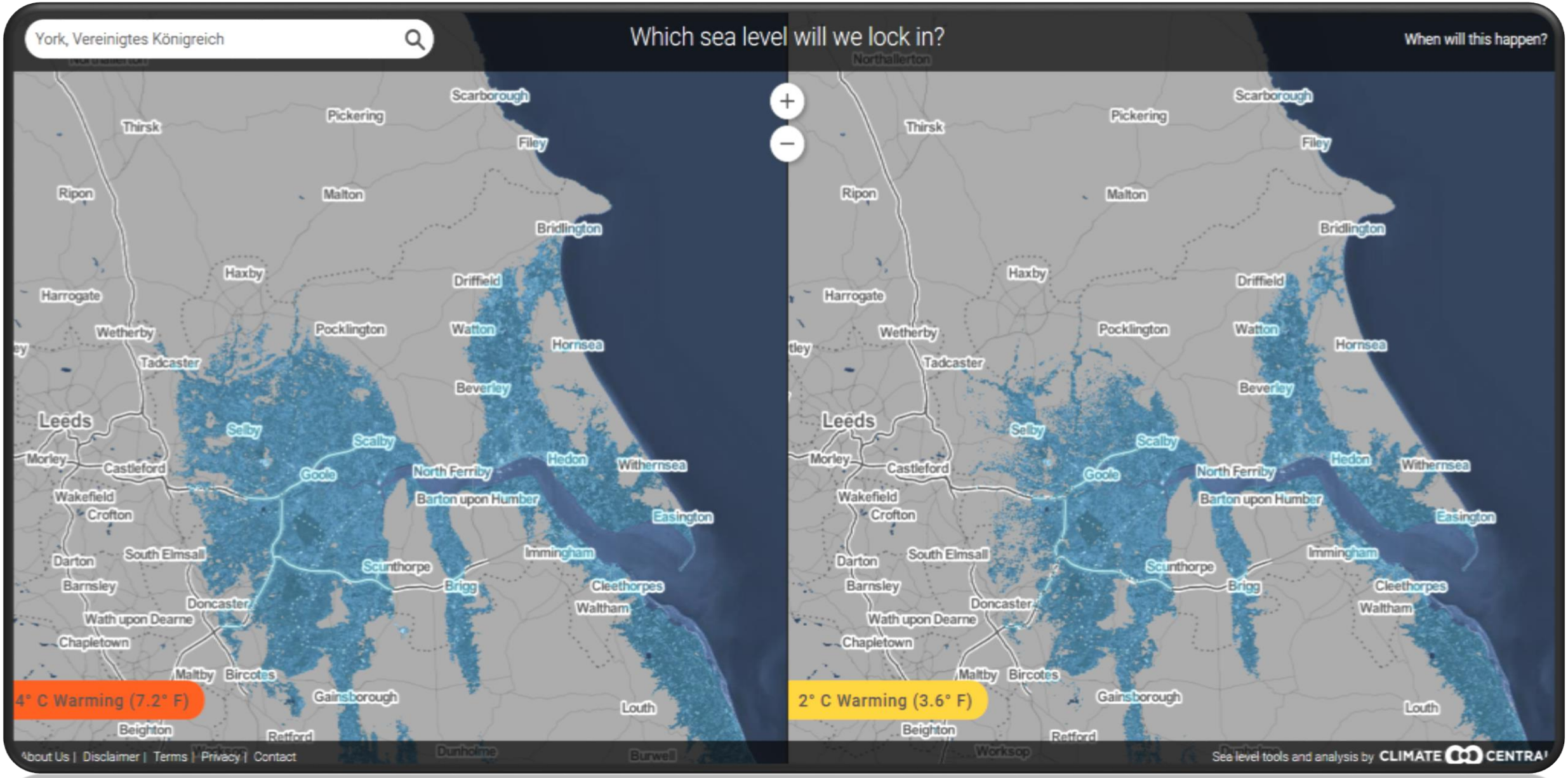


Shindell et al. 2012, *Science*

Source: howarthlab.org
https://thinkprogress.org/natural-gas-no-climate-benefit-b9118a087875/
https://news.stanford.edu/news/2014/february/methane-leaky-gas-021314.html

Sea level rising impacts in parts of Yorkshire

Source: http://sealevel.climatecentral.org/



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Source: https://www.ineos.com/inch-magazine/articles/issue-12/ineos-to-build-huge-butane-storage-tank/

- ***Gas is INEOS' lifeblood. Without competitively-priced gas, its ability to compete with the best of the world is doomed. That's why it is acting now.***

Source: http://www.ukoog.org.uk/onshore-extraction/uses

UKOOG, representative body for the UK onshore oil and gas industry on the natural gas uses in the UK: ***„the energy-intensive and petrochemicals sectors require certainty that energy and feedstocks will be secure and competitive in the medium term; without that certainty it is likely that these sectors will decline, reducing our manufacturing capacity further … „gas is also a key component in the manufacture of fertilisers … and with up to 90% of the costs … coming from natural gas, a cheap supply is essential for its production".***

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1. Corporate History & Profile

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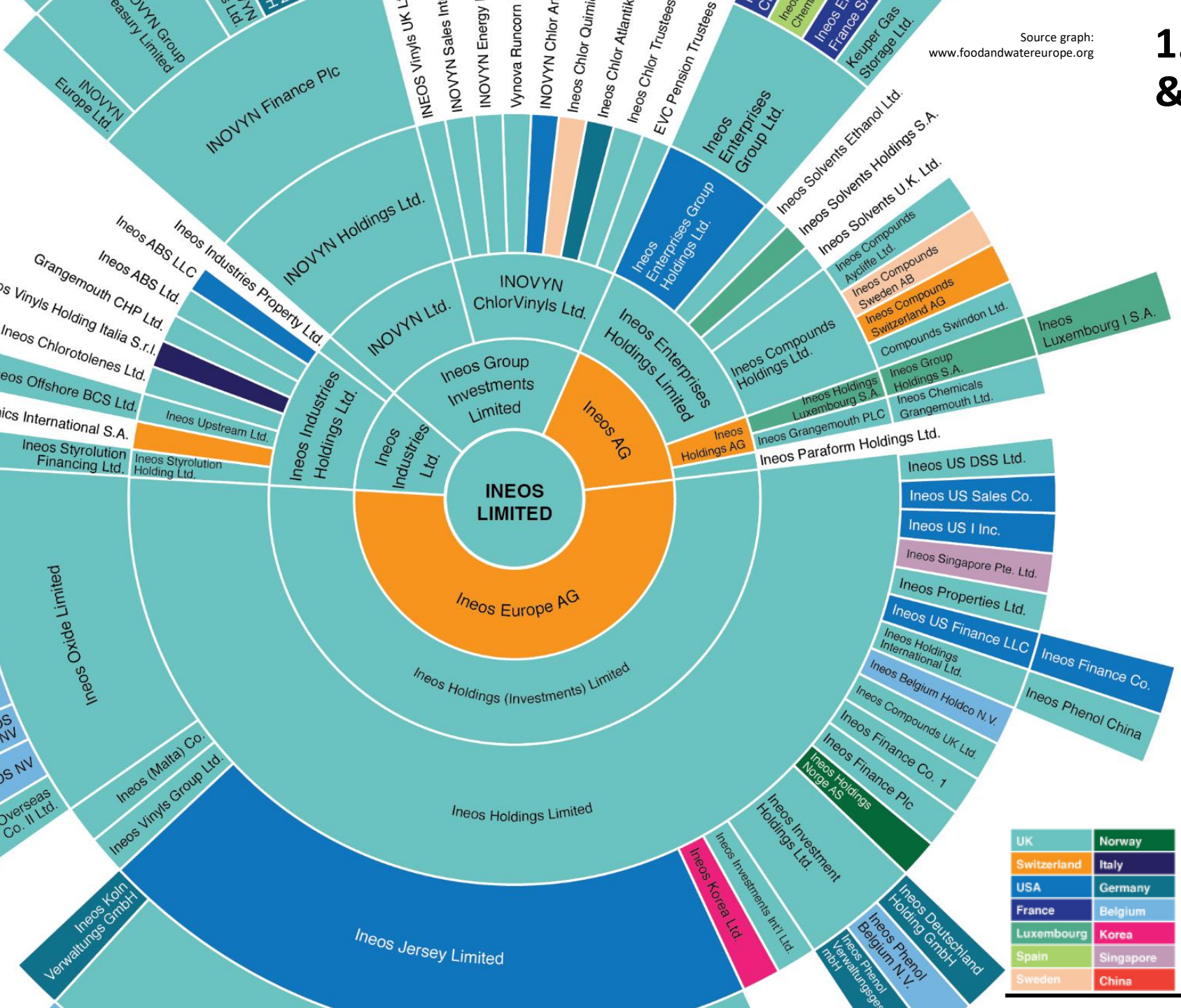
1.1 Structure & Owners

Source graph:
www.foodandwatereurope.org



Source pictures:
www.ineos.com

Billionaire, Founder & Chairman
Jim Ratcliffe: 61.8 percent (as of late 2016) - has the power to elect all directors, change management and approve any acquisitions or divestitures

Director of Ineos
Andrew Carrie: 19.2 percent

Finance Director
John Reece: 19.0 percent

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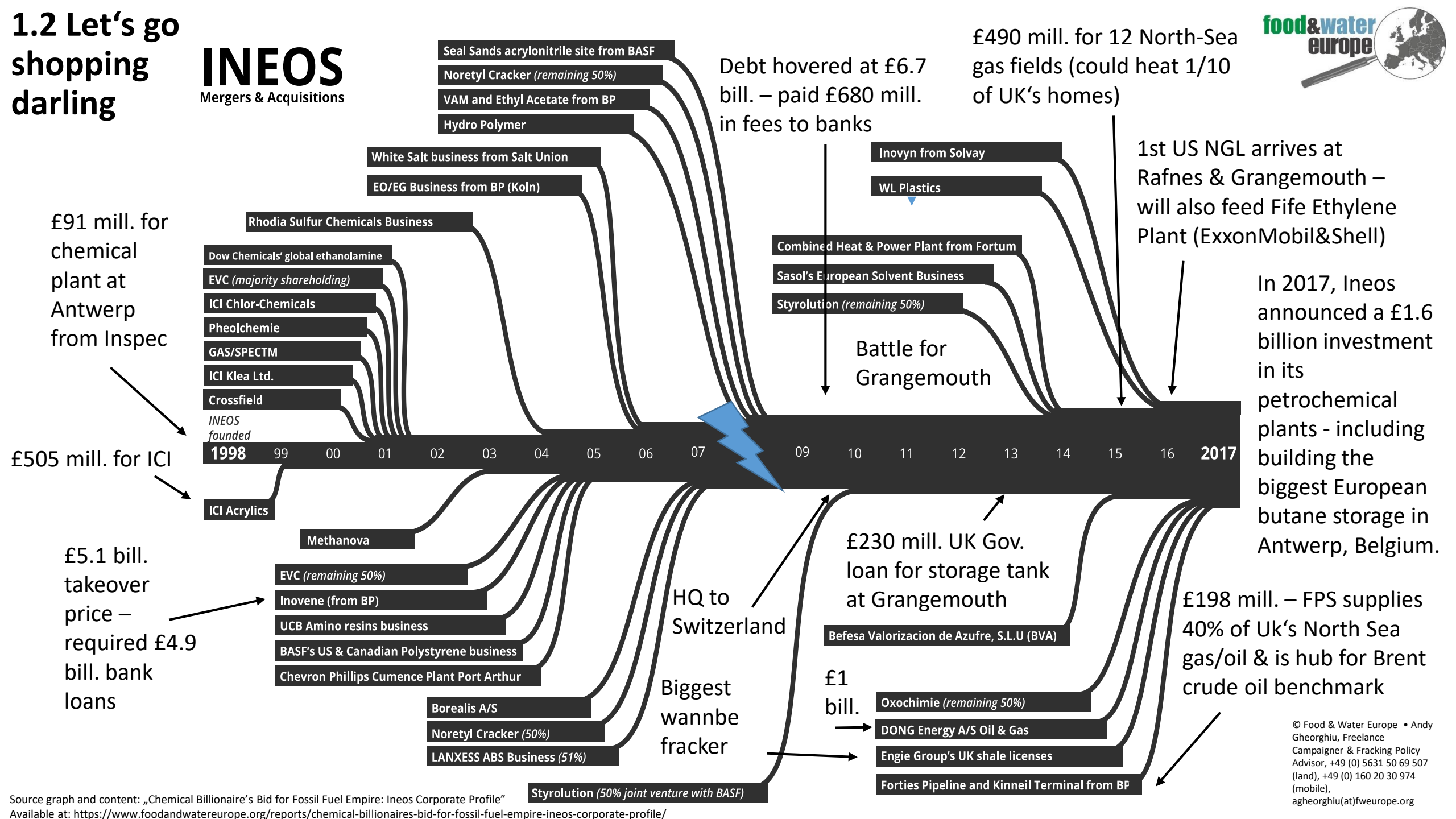
1.2 Let‘s go shopping darling

INEOS
Mergers & Acquisitions



£91 mill. for chemical plant at Antwerp from Inspec

£505 mill. for ICI

£5.1 bill. takeover price – required £4.9 bill. bank loans

Debt hovered at £6.7 bill. – paid £680 mill. in fees to banks

Battle for Grangemouth

HQ to Switzerland

Biggest wannbe fracker

£1 bill.

£490 mill. for 12 North-Sea gas fields (could heat 1/10 of UK‘s homes)

1st US NGL arrives at Rafnes & Grangemouth – will also feed Fife Ethylene Plant (ExxonMobil&Shell)

£230 mill. UK Gov. loan for storage tank at Grangemouth

In 2017, Ineos announced a £1.6 billion investment in its petrochemical plants - including building the biggest European butane storage in Antwerp, Belgium.

£198 mill. – FPS supplies 40% of Uk‘s North Sea gas/oil & is hub for Brent crude oil benchmark

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Source graph and content: „Chemical Billionaire’s Bid for Fossil Fuel Empire: Ineos Corporate Profile”
Available at: https://www.foodandwatereurope.org/reports/chemical-billionaires-bid-for-fossil-fuel-empire-ineos-corporate-profile/

1.3 Manufacturing sites worldwide

MAP 2: Ineos' global footprint

Table 2. Manufacturing sites by country

Country	Manufacturing Sites	Percent
EUROPE	**43**	**60.6%**
Germany	10	14.1%
Belgium	8	11.3%
UK*	7	9.9%
France	5	7.0%
Italy	3	4.2%
Norway	3	4.2%
Spain	3	4.2%
Sweden	2	2.8%
Netherlands	1	1.4%
Switzerland	1	1.4%
NORTH AMERICA	**20**	**28.2%**
United States	17	23.9%
Canada	2	2.8%
Mexico	1	1.4%
ASIA	**8**	**11.3%**
India	5	7.0%
South Korea	2	2.8%
Thailand	1	1.4%

** UK facilities does not include five offshore drilling platforms.*

SOURCE: Food & Water Europe analysis of Ineos plant locations.

18,500 employees at 181 sites wordlwide

INEOS Group BUSINESSES

PETROCHEMICALS

INEOS Enterprises
- INEOS Baleycourt
- INEOS Calabrian
- INEOS ChloroToluenes
- INEOS Compounds
- INEOS Melamines
- INEOS Paraform
- INEOS Salt
- INEOS Solvents
- INEOS Sulphur Chemicals

INEOS Nitriles
INEOS Olefins & Polymers Europe
INEOS Olefins & Polymers USA
INEOS Oligomers
INEOS Oxide
INEOS Phenol
INEOS Polyolefin Catalyst
INEOS Styrolution
INOVYN

OIL AND GAS

INEOS Breagh
INEOS DeNoS
INEOS FPS
INEOS Shale
INEOS Trading & Shipping

AUTOMOTIVE

INEOS Automotive

Source: https://www.ineos.com/

Source table: https://www.foodandwatereurope.org/reports/chemical-billionaires-bid-for-fossil-fuel-empire-ineos-corporate-profile/

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1.4 Manufacturing sites in Europe

MAP 1: Ineos Manufacturing Sites in Europe

Table 1. European Chemical Authority assessment of chemicals used by Ineos[11]

Chemical	Flammability	Human health risk
acetone	highly flammable	causes serious eye irritation
acetonitrile	highly flammable	harmful if swallowed or inhaled
ammonia	flammable	toxic if inhaled
benzene	highly flammable	may cause genetic defects or cancer
butadiene (1,3-butadiene)	extremely flammable	may cause genetic defects or cancer
ethylene	extremely flammable	
hydrogen cyanide	extremely flammable	fatal if swallowed, inhaled or comes into skin contact
propylene oxide (2-methyloxirane)	extremely flammable	may cause genetic defects or cancer
vinyl chloride (chloroethylene)	extremely flammable	may cause cancer; suspected of causing genetic defects; harmful if swallowed

Source map and table: „Chemical Billionaire's Bid for Fossil Fuel Empire: Ineos Corporate Profile"
Available at: https://www.foodandwatereurope.org/reports/chemical-billionaires-bid-for-fossil-fuel-empire-ineos-corporate-profile/

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2. Environmental Record

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2.1 Jim Ratcliffe about the environmental record (and the environment)

The "symbiotic relationship between the local community and the chemical plant" is important because "occasionally things go wrong and you need, they need, you know we need their sort of sympathy from time to time"

"It is like a puncture in your car – occasionally you get a puncture and occasionally we have an accident in chemicals."

"Man has damaged a lot of the environment around the world, in one way or the other, and there is a sort of uniqueness about places which are untouched by humans, and I think that inherently there will be a value, because people like to go to places where the landscape is untouched."

Sources: „Ineos Chequred Environmental Track Record in Europe" www.foodandwatereurope.org
http://icelandmag.is/article/british-billionaire-now-one-icelands-largest-landowners-owns-03-entire-island

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2.2 Occasional punctures (Part I)

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Year	Accident/Violation	Plant in
2002	**Explosion** at phenol plant resulted in an estimated £6.6 million in total damages and a **four-month shutdown**	USA
2002	**Explosion and fire** at the Zwijndrecht plant **(two workers hospitalized)**	Belgium
2006 & 2007	**Fires** at the Doel and Feluy plants	Belgium
2007	**Oil spill** at Grangemouth **polluted** several square miles of the **Firth of Forth**	UK
2008	**Uncontrolled crude oil release** at Grangemouth after over-pressurised pipeline sprayed flammable oil that could have caused explosion	UK
2008	**Leak from an ethylene pipe ignited** at petrochemical complex in Cologne; **biggest fire since WWII** (1,200 fire fighters battled the blaze)	Germany
2009	**Fire** at Rafnes facility (ethylene from a leaking valve caught fire - **one worker hospitalized) / oil leakage (200 – 400 litres) created oil film on the coast**	Norway
2009	**Fire** at Lavéra Naphtachimie – caused by hydrocarbon leak (**two workers hospitalized**) / **Facility shut down** a month later **after steam pipe ruptured** (causing ethylene leak)	France
2009 – 2011	**Ammonia leak (injured two workers)**, gas leaks and cooling tower **fire**	Germany
2009	**Spill of** 7.5 litres of acetone cyanohydrin (**highly toxic chemical** used in plastics manufacturing) at Green Lake, Texas **(killed thousands of fish)**	USA

Source : „**Ineos' Chequered Environmental Track Record in Europe**" Available at: https://www.foodandwatereurope.org/reports/ineos-chequered-environmental-track-record-in-europe/

2.2 Occasional punctures (Part II)

Year	Accident/Violation	Plant in
2006 – 2017	**Rupture discs to relieve over-pressure** (at least 11 times; **including windows shaking explosions and flames as tall as a house**) – **14 workers hospitalized in an 2017 rupture disc incident**	Germany
2010	**Releasing of 56 tonnes of particle-laden gases and steam into the air** from Aycliffe plant – left white dust containing PVC and vinyl chloride (harmful if swallowed) on nearby homes & gardens	UK
2010	Kept plastics pressure vessel in operation months after regulators demanded that it be shut down for **failing to meet safety standards**	Sweden
2012	**Pipe burst** at Runcorn complex; **spilling** 3.8 tonnes **of caustic soda** while loading a ship (1/4 went **into Manchester Canal**)	UK
2012	**Release of chorine gas (1st poison gas used in WWI)** led to immediate shut-down of plant in Wilhelmshafen	Germany
2012	**Leak of toxic gas boron trifluoride** (can be fatal if inhaled, may explode if heated) led to the closing of three access roads to Feluy plant – two workers hospitalized	Belgium
April 2014 – March 2017	**Noncompliant with** a **major environmental regulation** (for example US Clean Air Act) **for at least one three-month period** (12 of 14 Ineos plants in the USA)	USA
2014	**Butane gas leak at Grangemouth – Ineos asked police to close roads and schools to keep children indoors**	UK

Source : „**Ineos' Chequered Environmental Track Record in Europe**" Available at: https://www.foodandwatereurope.org/reports/ineos-chequered-environmental-track-record-in-europe/

2.2 Occasional punctures (Part III)

Source : „**Ineos' Chequered Environmental Track Record in Europe**" Available at: https://www.foodandwatereurope.org/reports/ineos-chequered-environmental-track-record-in-europe/

Year	Accident/Violation	Plant in
2014	**Hydrated lime spill** at Runcorn incinerator site – required decontamination and **treatment for 20 workers**	UK
2015	**Hydrogen cyanide leak** in Port Lavaca, Texas (**led to death of a worker**)	USA
2015	**Pipeline leak released 15 kilograms of propylene gas** (extremly flammable) at the Sarralbe facility, **forcing the evacuation of 19 people**	France
2016	**Cable fire started by leaking gas** – required plant at Moers to be shut down	Germany
2017	**Ethylene gas leak at Grangemouth – complex partly evacuated; Ineos asked police to close roads and schools to keep children indoors** (more than 40 fireworkers were deployed)	UK
2017	**Hydrocarbon tank fire** at Sarralbe facility **– three workers hospitalized**	France
…	**…it must be feared that this list will continue to grow …**	
Final note:	**Former Ineos plant in Porto Torres on Sardinia was embroiled in a long-standing lawsuit over illegal chemical dumping, but in the end Ineos was not held accountable**. The former Ineos Vinyls Italia case involved the dumping of large quantities of toxic chemicals into the Gulf of Asinara. **In 2007, Ineos sold its ethylene-PVC plant in Porto Torres. In 2009, the families of 40 workers that died of cancers they attributed to their chemical plant employment in Porto Torres sued companies including Ineos for alleged violations of environmental standards and for contaminating the community with benzene, heavy metals, chloridesand dioxins.**	

2.3 Fines & Costs: Ineos

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Year	Fines/Costs	Accident	Country
2003 – 2016	**£3 million**	**Fines for environmental, health and workplace safety violations**	USA
2008	**£42 million**	**Costs in damage to petrochemical plant** at Cologne, lost productivity and decontamination: Biggest fire since WWII in Cologne (leak from an ethylene pipe ignited at petrochemical complex)	Germany
2008	**£100,000**	**Fine for criminal safety breach** at Grangemouth (crude oil release after over-pressurised pipeline sprayed flammable oil that could have caused explosion)	UK
2010	**£16,000**	**Fine for releasing of 56 of particle-laden gases and steam into the air** from the Aycliffe plant in Newton	UK
2010	**£1,800**	**Actual fine for keeping a plastics pressure vessel in operation months after regulators demanded that it be shut down for failing to meet safety standards** – Sweden‘s Work Environment Authority (WEA) **threatened to fine Ineos a record of £1.3 million**	Sweden
2012	**£195,000**	**Fine for violation of permits at Runcorn complex after previously receiving three warnings about water discarges**: pipe burst, spilling 3.8 tonnes of caustic soda while loading a ship (1/4 went into Manchester Canal)	UK
2015	**£114,000**	**Fine for hydrogen cyanide leak** in Texas (led to the death of a worker)	USA
2015	**£300,000**	**Costs to cover** an **unnamed and undescribed „environmental incident“** at Runcorn complex	UK

Source : „**Ineos' Chequered Environmental Track Record in Europe**" Available at: https://www.foodandwatereurope.org/reports/ineos-chequered-environmental-track-record-in-europe/

2.4 Fines & Costs: US partners of Ineos

Year	Fines/Costs	Accident	Company
2002 – 2015	**$390,000**	**Fines for offshore drilling, environmental, health or workplace safety and railroad safety violations**	Mitchell/Devon Energy
2005 - 2016	**$21 million**	DEP (Pennsylvania Department of Environment) **fines for environmental, health and safety violations**	Range Resources
2005 – 2016	**$224,350**	DEP **fines for environmental, health and safety violations**	Consol Energy
2006 – 2016	**$53 million**	**Costs for property damages** according to Pipeline and Hazardous Materials Safety Administration (PHMSA)	Sunoco (Energy Transfer Partners)
2018	**$12.6 million**	**Fines for numerous and constant permit and environmental violations since the beginning of the construction of the Mariner East 2 pipeline** (one of the largest civil penalties collected in a single settlement)	Sunoco (Energy Transfer Partners)

Ineos: "*Experts from Mitchell Energy, the company credited with perfecting shale gas extraction in the USA are now working for us.*"

Sources: „**Ineos' Chequered Environmental Track Record in Europe**" Available at: https://www.foodandwatereurope.org/reports/ineos-chequered-environmental-track-record-in-europe/
https://stateimpact.npr.org/pennsylvania/2018/02/08/sunoco-to-resume-work-pay-12-6-million-for-mariner-east-2-pipeline-violations/
https://www.ineos.com/businesses/ineos-shale/why-shale-gas/

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3. Fracking & Plastic

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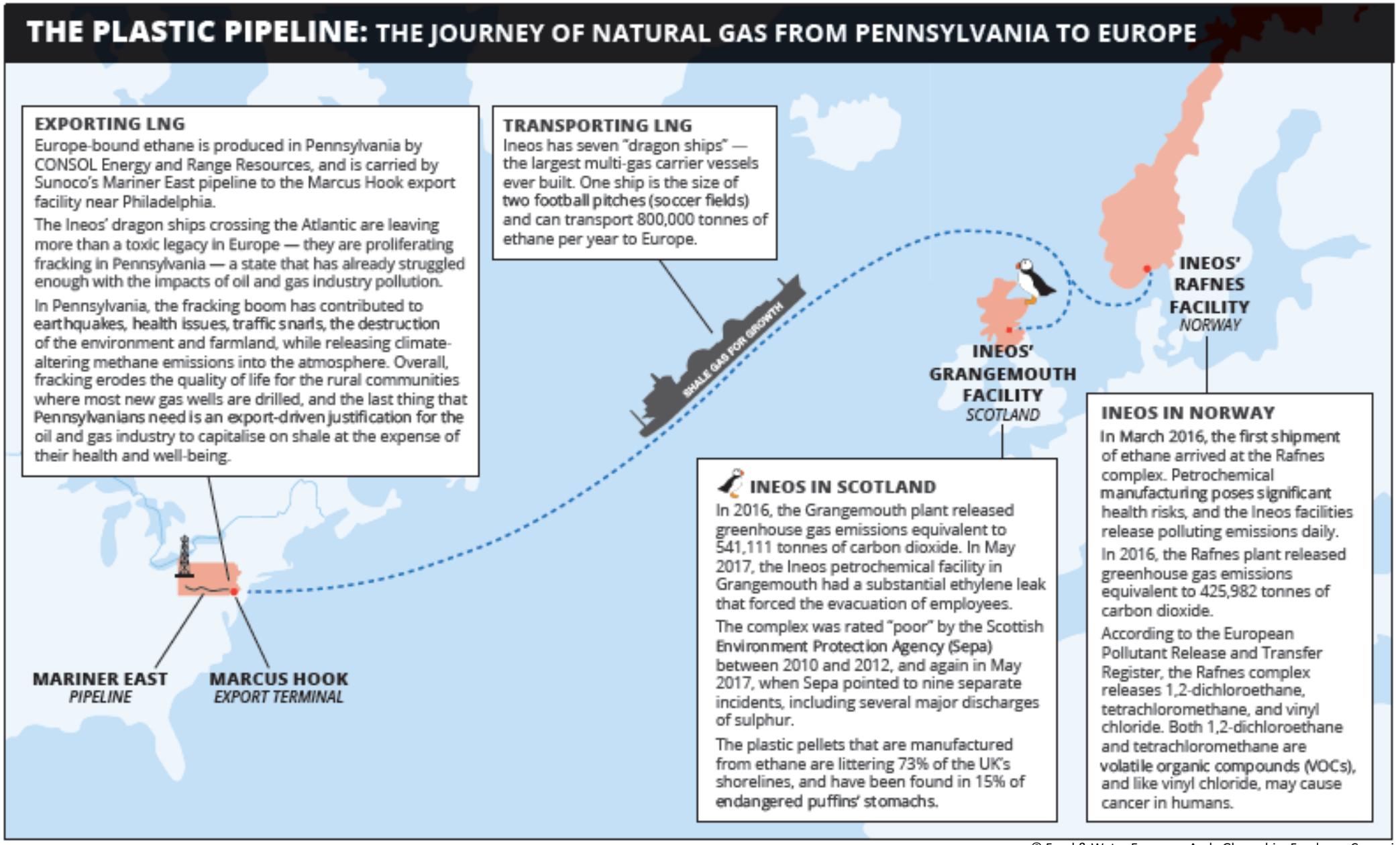
3.1 Trans-Atlantic Plastic Pipeline



Source: Food & Water Europe, The Trans-Atlantic Plastics Pipeline: How Pennsylvania'S Fracking Boom Crosses the Atlantic. Link: https://www.foodandwatereurope.org/wp-content/uploads/2017/06/FoodWaterEuropePlasticsPipelineissueBriefJune62017.pdf

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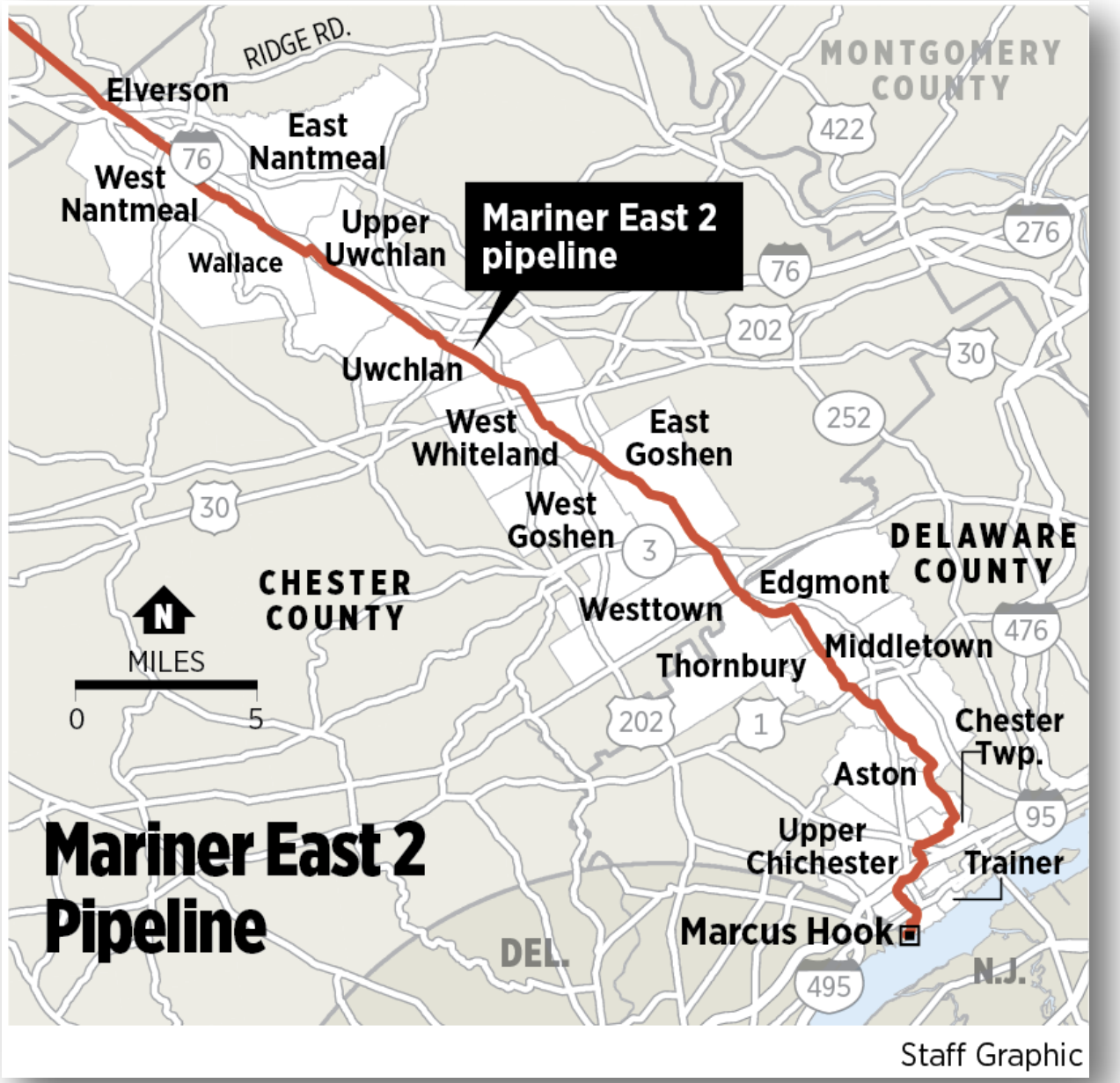
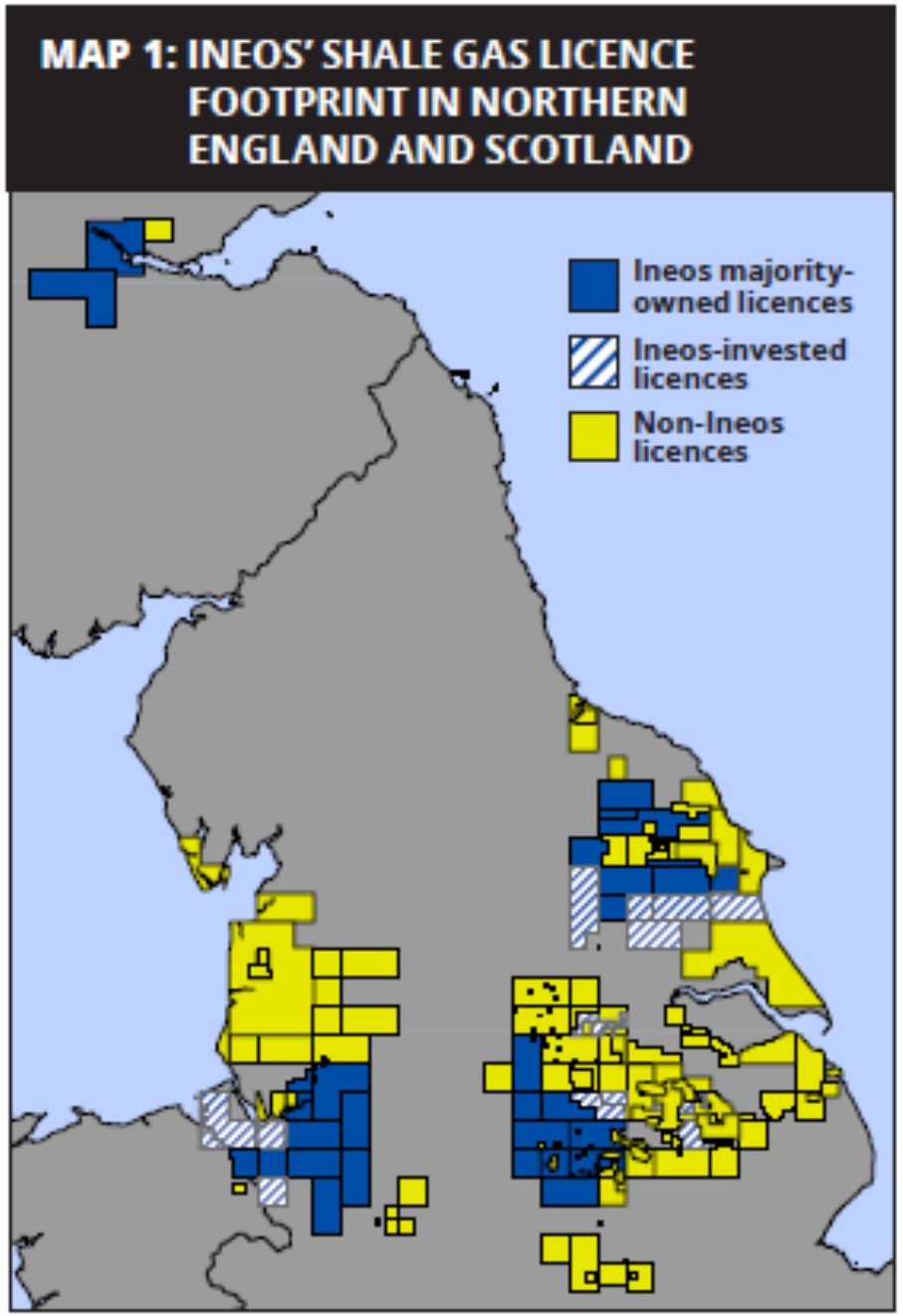
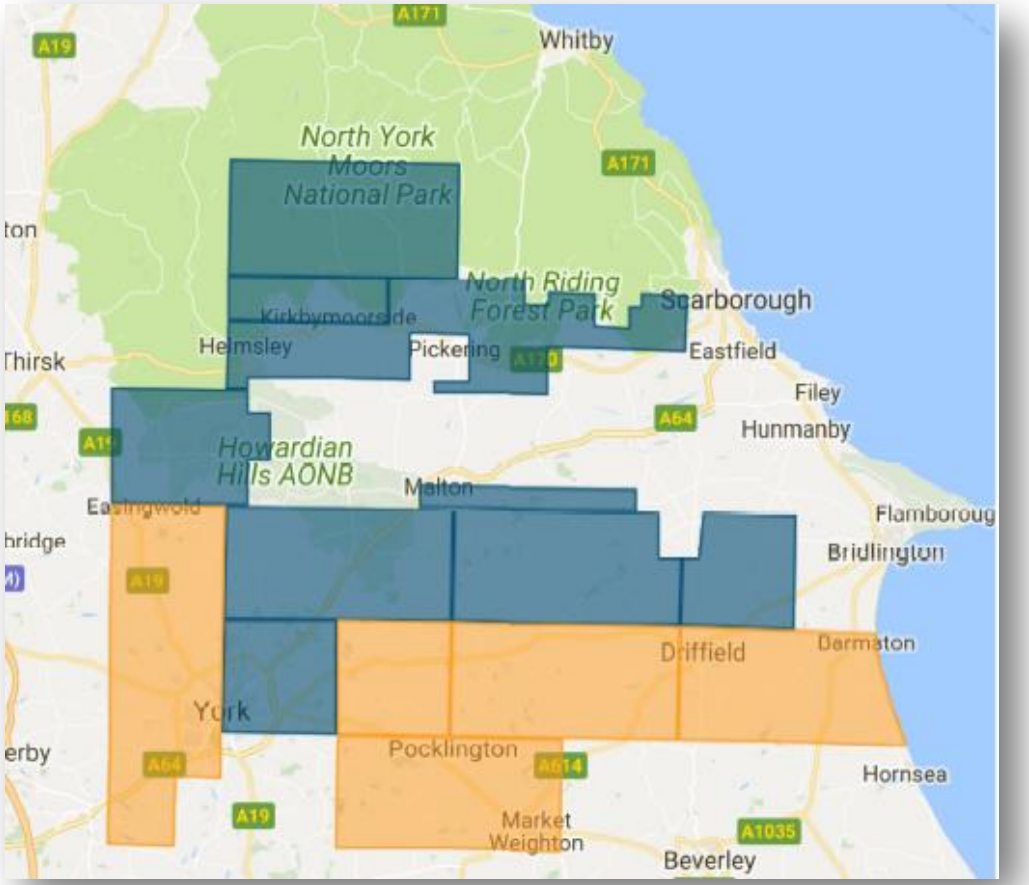
3.2 Mariner East 2 Pipeline



Source: http://media.philly.com/images/Mariner+East+2+pipeline_400-01.png

3.3 Biggest wannabe-fracker





Source: Ineos Shale UK Map. Available at: www.ineos.com

By 2017, Ineos was
by far the biggest holder of UK shale licences. It held exploration licences covering over 1.2 million acres in Cheshire, East Midlands, South and North Yorkshire and Scotland.

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Source : „**Ineos' Chequered Environmental Track Record in Europe**" Available at: https://www.foodandwatereurope.org/reports/ineos-chequered-environmental-track-record-in-europe/

Annual report and financial statements
Registered number 9121775
31 December 2016

Results and dividends

The loss on ordinary activities before taxation was £12,155,379 *(2015: loss of £11,617,000)*. The directors do not propose the payment of a dividend *(2015: £ nil)*.

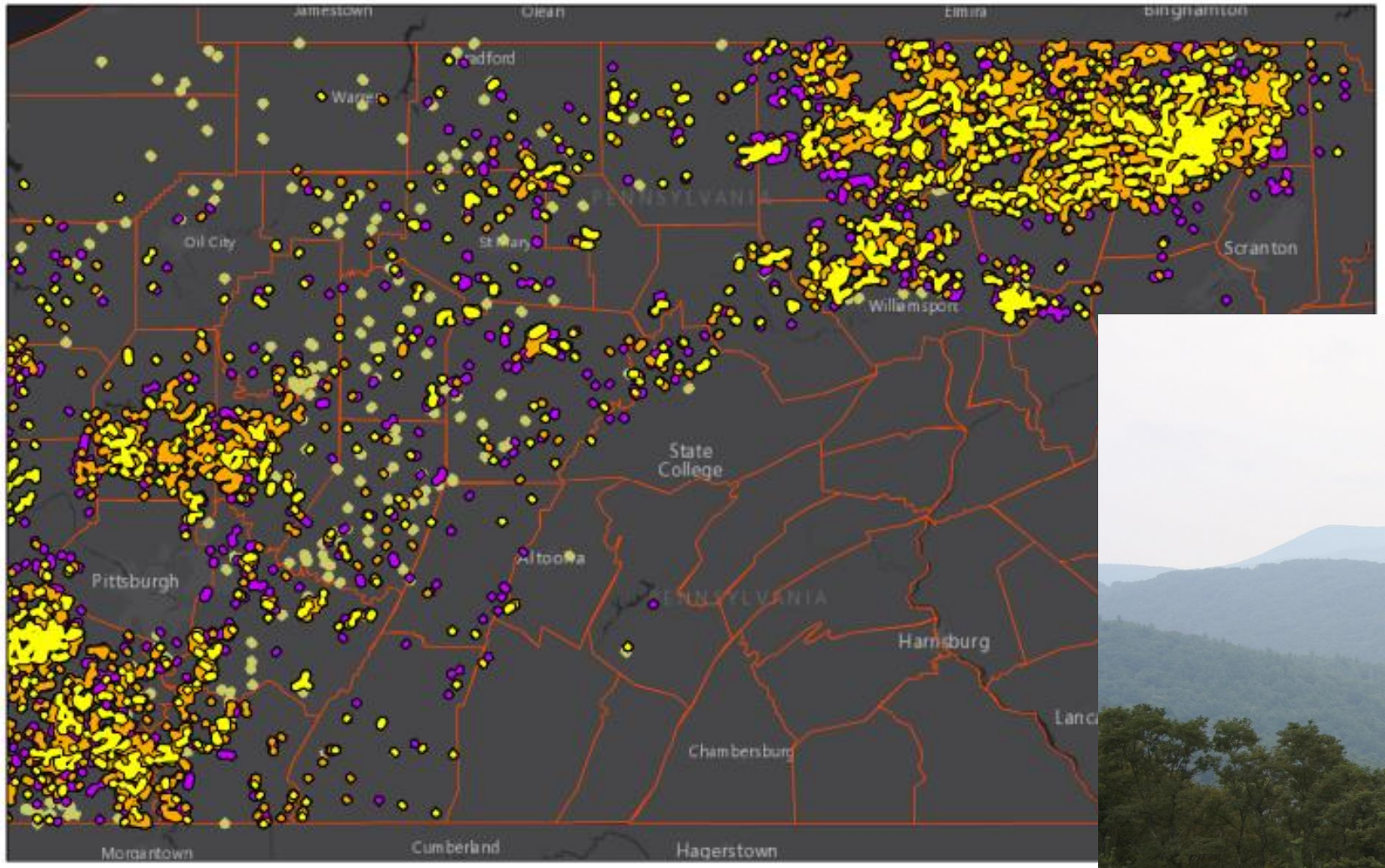
3 Staff numbers and costs

There were no employees with contracts of employment in the name of the company during the year (2015: none).

Financial risk management

The Company's operations expose it to a variety of financial risks that include the effects of credit risk, liquidity risk and interest rate risk. The Company has in place a risk management programme that seeks to limit the adverse effects on the financial performance of the Company where appropriate. The Company is funded internally by the INEOS group and therefore has no direct exposure to liquidity or debt market risk. Interest rate exposures are managed on a group basis and are fully disclosed in the consolidated financial statements of INEOS Industries Limited.

3.4 Fracking in Pennsylvania



Source: https://www.fractracker.org/map/us/pennsylvania/

Over 10,000 shale wells drilled between 2005 and 2016 – caused over 3,100 environmental, health and safety violations

Symbiosus 15:57, 28. Mstvj 2007 (CEST) - Christian von Montfort, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=12309768

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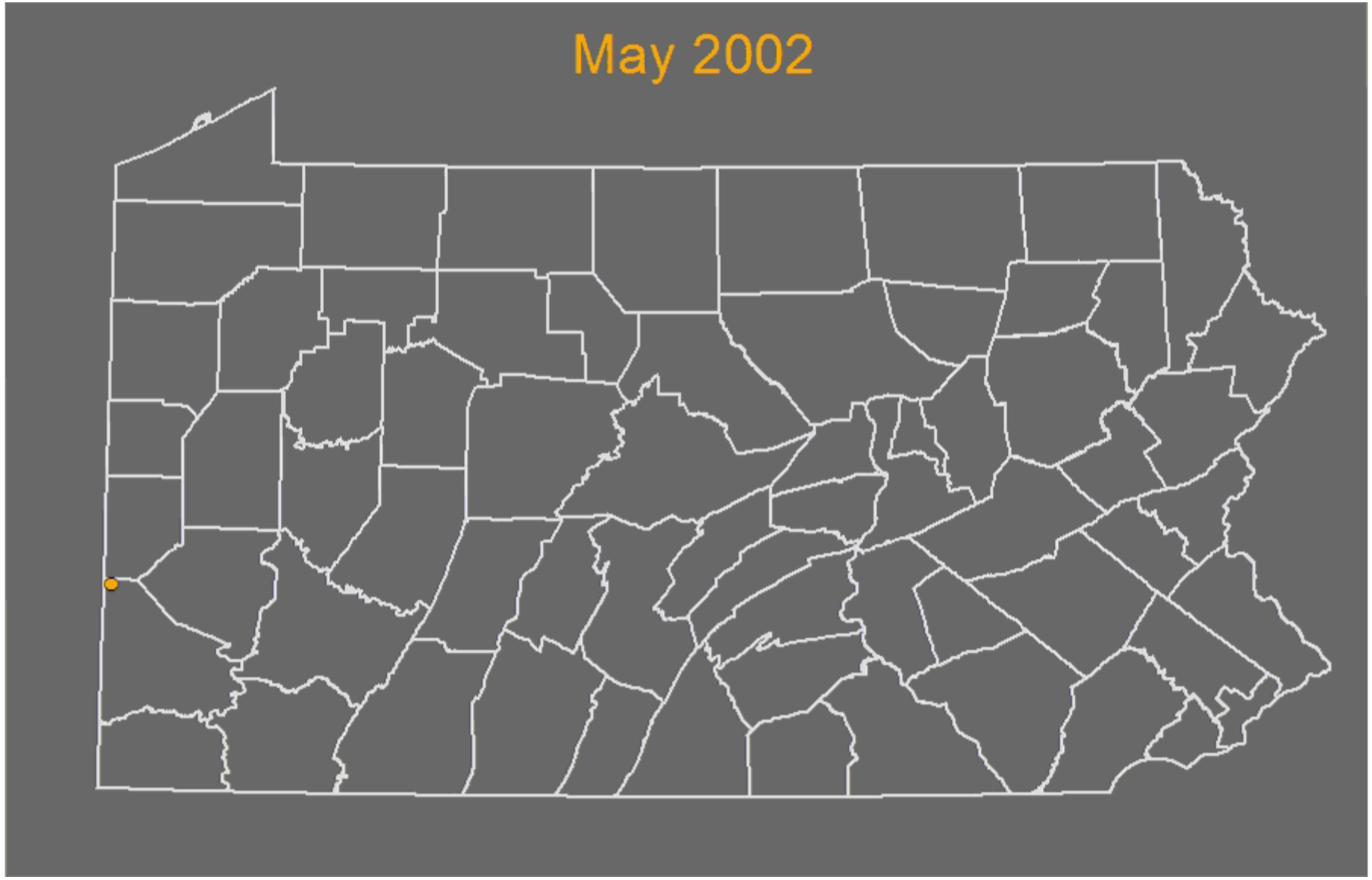
3.5 Fracking in Pennsylvania – just imagine this is your area …



Source: https://www.fractracker.org/a5ej20sjfwe/wp-content/uploads/2017/03/PA-GIF-2002-17.gif/

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3.6 Plastics: Impacts on oceans, shores, animals and our food-chain

- 2015 study: nearly 200 coastal countries generated over 275 million tonnes of **plastic waste** in 2010 — and **as much as 4.8 million to 12.7 million tonnes ended up in the oceans**
- 2013/2015/2017 studies: **sea salt is contamined by plastic around the world**
- 2017 study: **plastic fibres have been found in tap water around the world**
- 2017: **plankton caught on camera eating plastic**

- 2017 study: **plastic** – mainly in the form of nurdles – **has littered 73 percent of UK's 279 shorelines**
- **Firth of Forth beaches** and old fishing towns **have been polluted by large amount of nurdles**
- **15 percent of endangered puffins** in the area **contain nurdles in their stomachs**

Sources: http://science.sciencemag.org/content/347/6223/768
https://www.theguardian.com/environment/2017/sep/08/sea-salt-around-world-contaminated-by-plastic-studies
https://www.theguardian.com/environment/2017/sep/06/plastic-fibres-found-tap-water-around-world-study-reveals
Food & Water Europe, The Trans-Atlantic Plastics Pipeline: How Pennsylvania'S Fracking Boom Crosses the Atlantic. Link: https://www.foodandwatereurope.org/wp-content/uploads/2017/06/FoodWaterEuropePlasticsPipelineissueBriefJune62017.pdf

We have to stop
#IneosVthePeople
and
together we will stop
#IneosVthePeople!

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