CLIMATE INVESTMENTS

OIL AND GAS CLIMATE INITIATIVE

OGCI Climate Investments

Investment & Collaboration Update

August 19, 2020

OUR MEMBER COMPANIES

bp Chevron eni equinor ExxonMobil OXY Occidental BR PETROBRAS REPSOL aramco TOTAL

OGCI CI is unique…

THE INITIATIVE: *LOWER CARBON VIA COLLECTIVE ACTION & PARTNERSHIPS*

CLIMATE INVESTMENTS: *DELIVERING LOWER CARBON VIA INVESTMENTS*

INVEST in innovative low-carbon technologies and solutions.

&

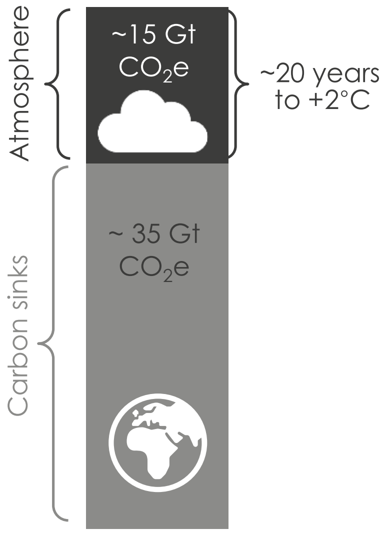
IMPLEMENT our solutions with OGCI members and our external network

⇒

IMPACT at global scale

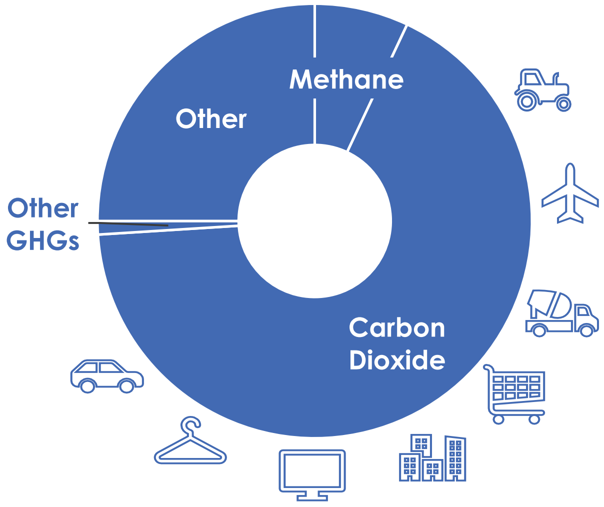
The climate challenge and CI focus

50 Gigatonnes MANMADE Greenhouse Gases (GHG)



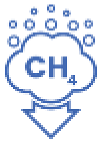
Source: IPCC (2014)

ENERGY & INDUSTRIAL ~3/4 OF MANMADE GHGs

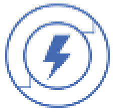


Source: Carbon Brief (2017) & IPCC (2014)

CLIMATE INVESTMENTS ($1B+)



Reduce methane emissions in oil & gas



Reduce carbon dioxide emissions in energy & industrial

Recycle & store carbon dioxide in energy & industrial (CCUS)

INVEST → DEPLOY → COLLABORATE

Source: IEA WEO 2018

OGCI Climate Investments: Outcome focussed portfolio

**Investments since Climate Week (Sept. 2019)*

OGCI CLIMATE INVESTMENTS
OIL AND GAS CLIMATE INITIATIVE

Methane Reduction

GHGSat	KAIROS AEROSPACE	SeekOps Inc.	ClarkeValve	Kelvin	Qnergy *
Global satellite remote sensing and emissions analysis for big leaks	Large-scale, cost-effective aerial surveys of sites to detect leaks	Drone and handheld detection and measurement of leaks	Shutter valves with low fugitives emissions for flow control	Intelligent control systems for methane emissions reduction	Remote power generation with compressed air, low emissions alternative to gas pneumatics

Carbon Dioxide Reduction

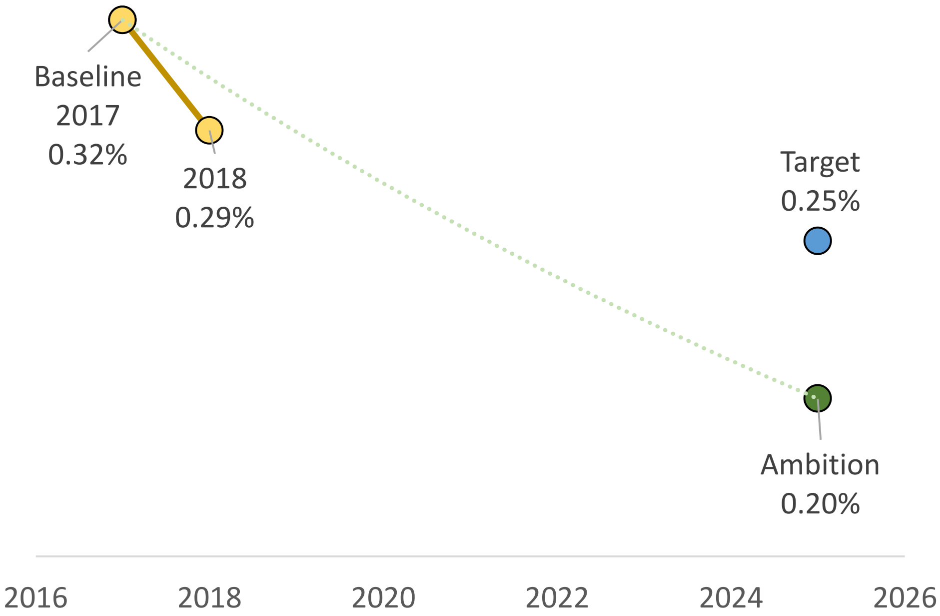
BOSTON METAL	norsepower	XL Fleet Electrification	achatesPOWER	75F	ONTRUCK *
Getting to carbon-free steel manufacturing	Modern mechanical sails providing propulsion power	Hybridization of medium-to heavy-duty fleet vehicles	Step change in engine efficiency	Smart controls enabling energy savings from heating, cooling and lighting	Freight and logistics route optimisation to reduce empty truck miles

Recycling Carbon Dioxide (CCUS)

Svante	SOLIDIA	ECONIC	Net Zero Teesside	WV RESOURCES	Elk Hills Carbon LLC *	Starwood Energy Elysian Ventures Carbon Capture Project *
Commercialising low-cost carbon capture	Using carbon dioxide to produce lower-carbon cement	Catalysts that incorporate carbon dioxide into polyols	Accelerating decarbonization in UK energy and industry	Capturing and storing carbon dioxide from fertilizer production	Capture on gas power and use of carbon dioxide for own EOR	One of the world's first large-scale commercial projects to capture carbon dioxide from a natural gas power plant

Reduce Methane Emissions

OGCI Collective Methane Intensity Target



Upstream operated domain. 2018 emissions = 1.93 mTCH4 (2.06 all domains)

IMPACT @ 0.25% INTENSITY IS REDUCTION OF

350,000 TONNES FROM OGCI

OR

25M TONNES FROM INDUSTRY

Reduce Carbon Dioxide Emissions

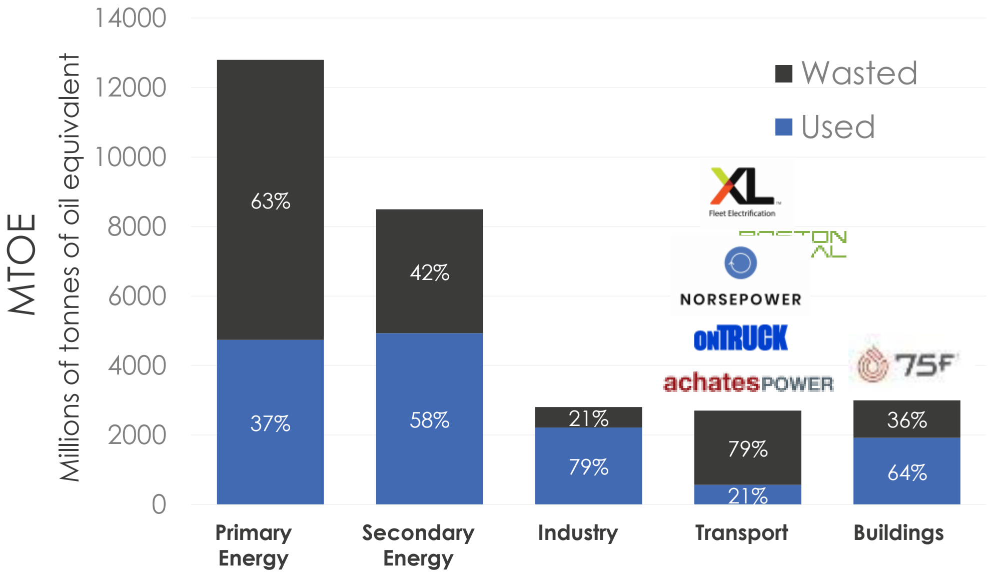
Investments to reduce CO_2 through energy efficiency

CHALLENGE

2/3

~2/3 primary energy is currently wasted

ENERGY EFFICIENCY: THE WORLD IN 2016 (40 % ABATEMENT REQUIRED TO -2°C)



Source: IEA WEO (2017) & Lawrence Livermore National Laboratory (2018)

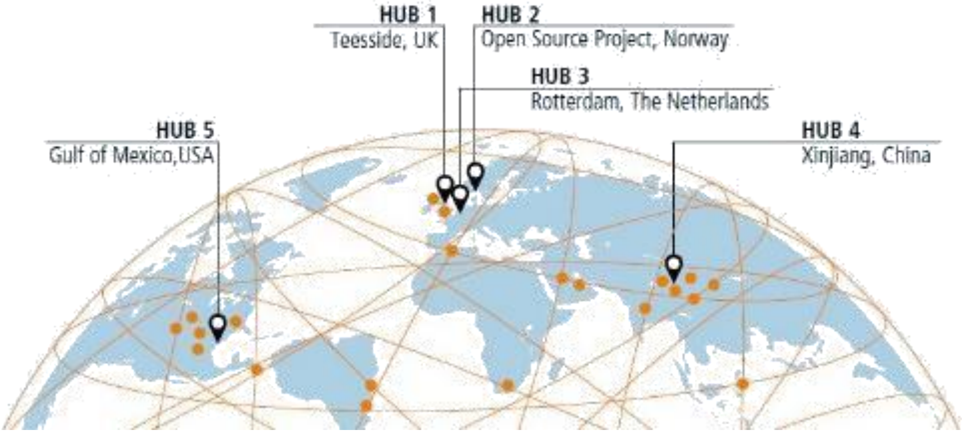
Secondary Energy*: comprises all fuels and electricity "ready to use" (i.e. available to the customer)

Recycle and Store Carbon Dioxide

(Carbon Capture, Utilisation & Storage)

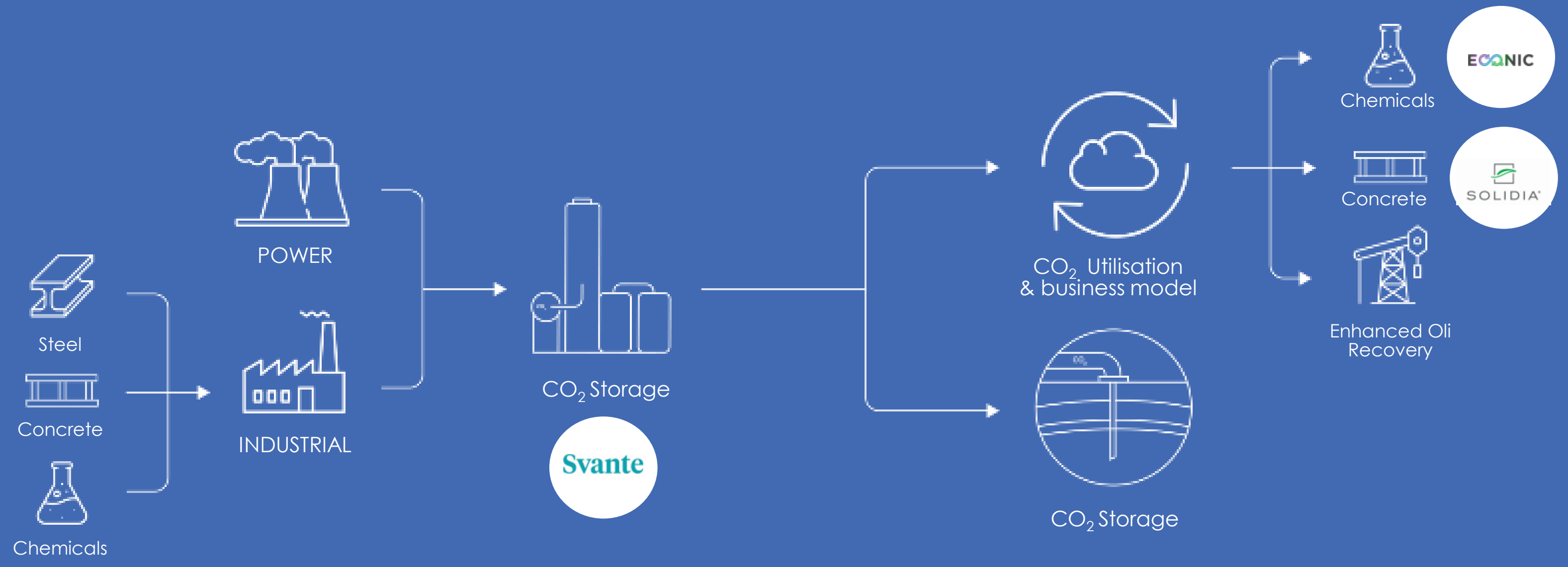
Carbon Capture, Utilisation & Storage Kickstarter

DEVELOP AT LEAST 5 CCUS HUBS VIA PRIVATE & PUBLIC PARTNERSHIPS WITH THE AMBITION TO ANNOUNCE MORE OVER THE COMING YEARS



GOAL TO KICKSTART A CCUS MARKET

Investments in CCUS technologies

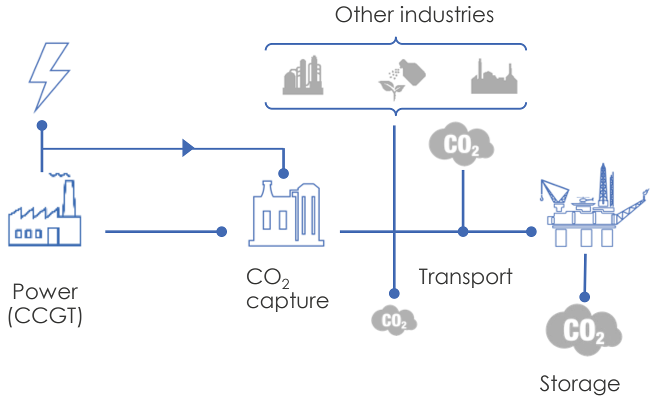


Investments in CO_2 capture & utilisation technologies
and in CCUS business models

CCUS projects investments details (1/2)

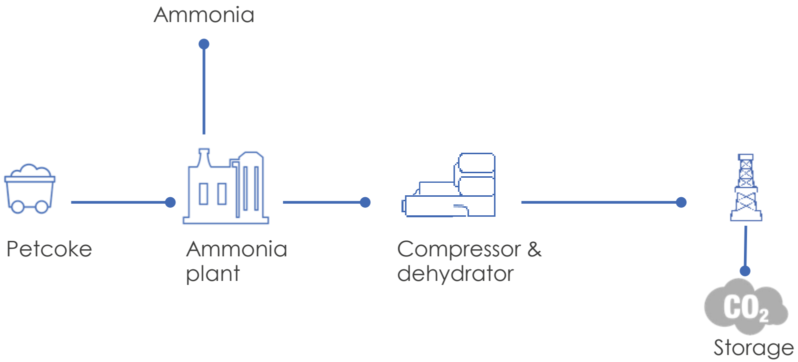
UK – Net Zero Teesside

- Greenfield project: **power & industrial**
- Potential impact **3-5 Mtpa**
- Start date ~ **mid-2020s**
- Policy structure: **hybrid**
- Partners : **5 OGCI companies**



USA (IN) – Wabash Valley

- Brownfield project: **industrial**
- Potential impact > **1.5 Mtpa**
- Start date ~ **2023**
- Policy structure: **45Q** + …
- Partners: **developers + DOE**



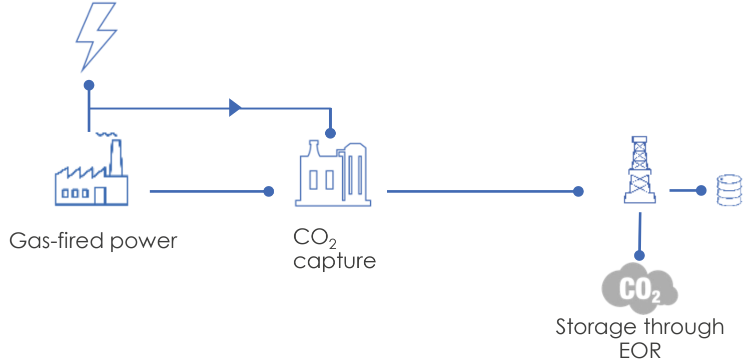
Impact of 4 projects approx. 9 Mtpa CO2e equivalent to taking 2 million cars off the road.

CCUS projects investments details (2/2)

USA (CA) – Elk Hills Power

Elk Hills Carbon LLC

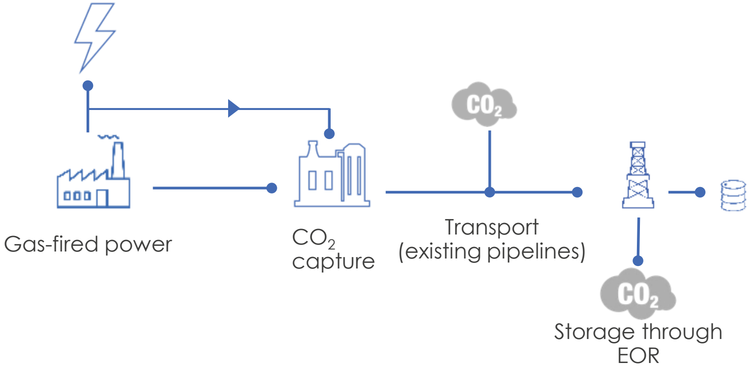
- Brownfield project: **Gas-fired power**
- Potential impact **> 1 Mtpa**
- Start date ~ **2024**
- Policy structure: **45Q, LCFS, Cap & Trade**
- Partners : **DOE, California Resources Corporation**



USA – Starwood Power

Starwood Energy
Elysian Ventures
Carbon Capture Project

- Brownfield project: **Gas-fired power**
- Potential impact **> 1.5 Mtpa**
- Start date ~ **2023**
- Policy structure: **45Q**
- Partners: **Starwood, Elysian**



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