

Members of the Group Carbon Steering Committee

Group Carbon Steering Committee Meeting Agenda 17th July 2019, 15.00 – 17.00

The following sets out the agenda for discussion, actions from prior meetings, draft agendas for future sessions and list of attachments.

Agenda

1. Introduction, safety moment, action review (5 mins) – Gardiner H
2. Group context (45 mins) – Dominic E
 - o November event outline – Dominic E & David B
 - o Potential ambition – Dominic E & Gardiner H
 - o Paris consistency – Nick L
 - o Flexibility and Agility project update – Nick L
3. Carbon intensity project results (15 mins) – Nick L
4. Staff low carbon engagement (15 mins) – Alex K
5. Business updates (3 x 10 mins)
 - o Upstream – Dave K
 - o Downstream – Andrea A
 - o IST – Paul L
6. AOB (10 mins) – All

Attachments:

- Group context
- My ALC (staff low carbon engagement) update
- Business updates:
 - o Upstream
 - o Downstream
 - o IST

Gardiner Hill

July 2019

Actions from prior meetings

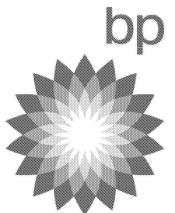
MEETING	ACTION	WHO	DATE	Status / RAG
Feb-19	Future targets: review SER forecasts and determine if an update to the SER target is appropriate; and develop associated communications approach	Gardiner Hill / Alex Kerst	End Q2	Review done, comms approach in progress, update in Sep
Feb-19	Advocacy: Provide an update on BP's approach to advocacy on low carbon initiatives and areas for further engagement	Paul Jefferiss	July meeting	In progress
Dec-18	Carbon risk management and governance frame: further develop current concept and propose approach	Steve Wackerle / Gardiner Hill	2Q 2019	Done, risk workshop in July
Dec-18	Carbon intensity of sales: develop a view of the carbon intensity of products sold	Gardiner Hill / Nick Lawson	2Q 2019	Done, results to be presented in June
Dec-18	Carbon reduction activities: ensure carbon abatement option evaluation considers and captures both the value created and emissions reductions (within reasonable boundaries of materiality)	Andrea Abrahams / Dave King / Alex Kerst	2Q 2019	Done

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Carbon Steering Committee – Overview of draft calendar and agendas look ahead

24 Sep-19	22 Nov-19
<ul style="list-style-type: none">• Context• RIC performance updates, SER assurance, ACB link and narrative• Carbon neutral aspiration update and future targets• November investors event	<ul style="list-style-type: none">• Context• November investors event feedback• RIC performance updates• ALC update• Carbon disclosure TCFD

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Group context

November event outline / Paris consistency / Flex and Agility

Carbon Steering Group, July 2019

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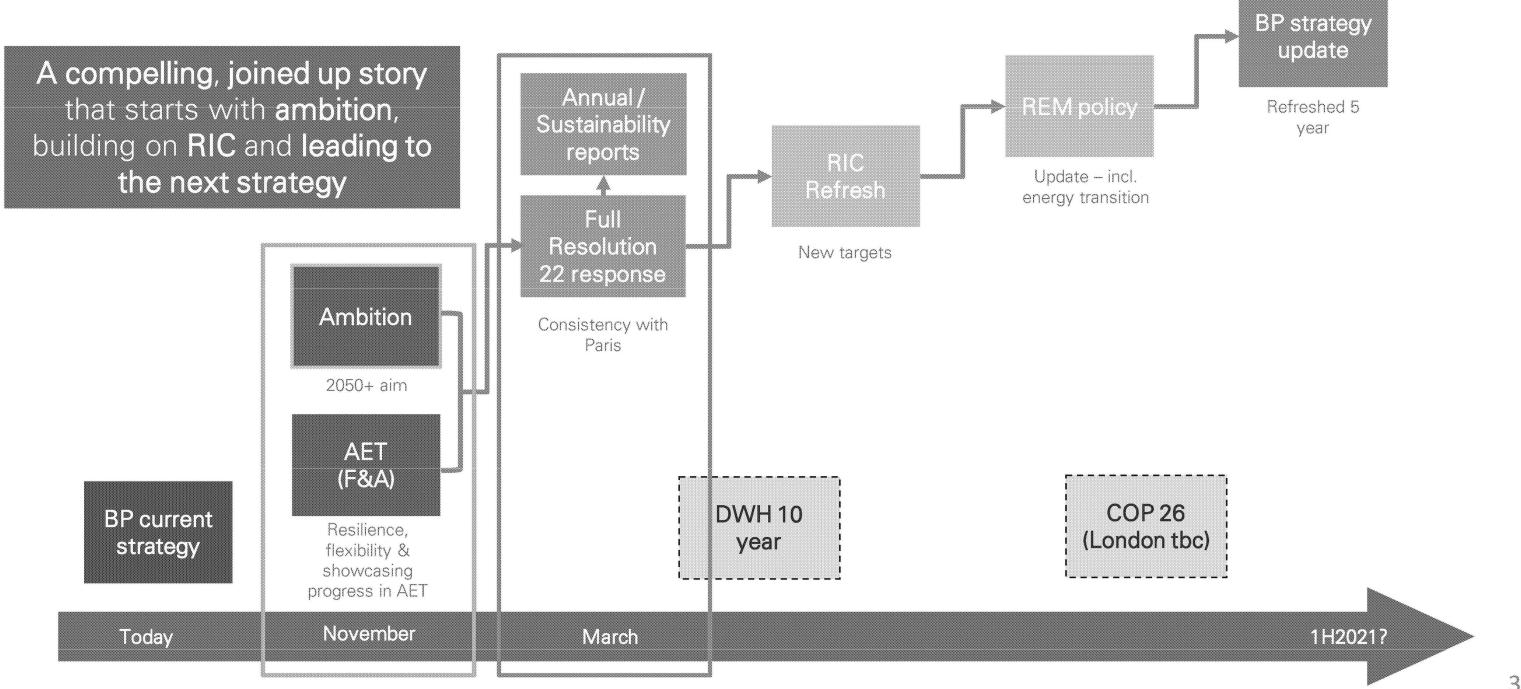
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1. November event

Carbon Steering Group, July 2019

Proposed engagement schedule



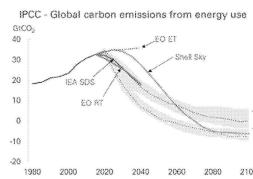
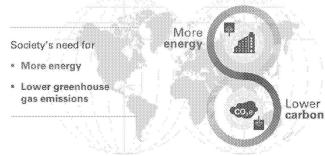


November event – provisional content areas

1. Global & Energy Context

Purpose: BP's role in the world

Energy Transition: how BP sees it evolving and potential pathways to achieve Paris



2. BP's Ambition

Setting out BP's long-term direction

Defining success in the Energy Transition



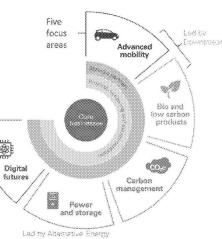
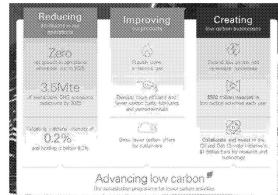
3. BP's Approach

'RIC' – targets & frame for AET activity

Strong and resilient core business and scaling new businesses

Agility & flexibility of capital frame

Investments consistent with Paris



4. Demonstrating progress

Committing significant resources, partnering & leveraging to make an significant impact

Delivering new value and building resilience

Venturing & Launchpad

Progress on multiple fronts – showcasing examples

lightsourcebp
bp chargemaster

Launchpad StoreDot

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2. Paris consistency

Carbon Steering Group, July 2019

The Paris goals

Temperature goal

- Hold “the increase in the global average temperature to **well below 2°C** above pre-industrial levels”
- Pursue efforts “to limit the temperature increase to **1.5°C**.”

Article 2.1(a) of The Paris Agreement

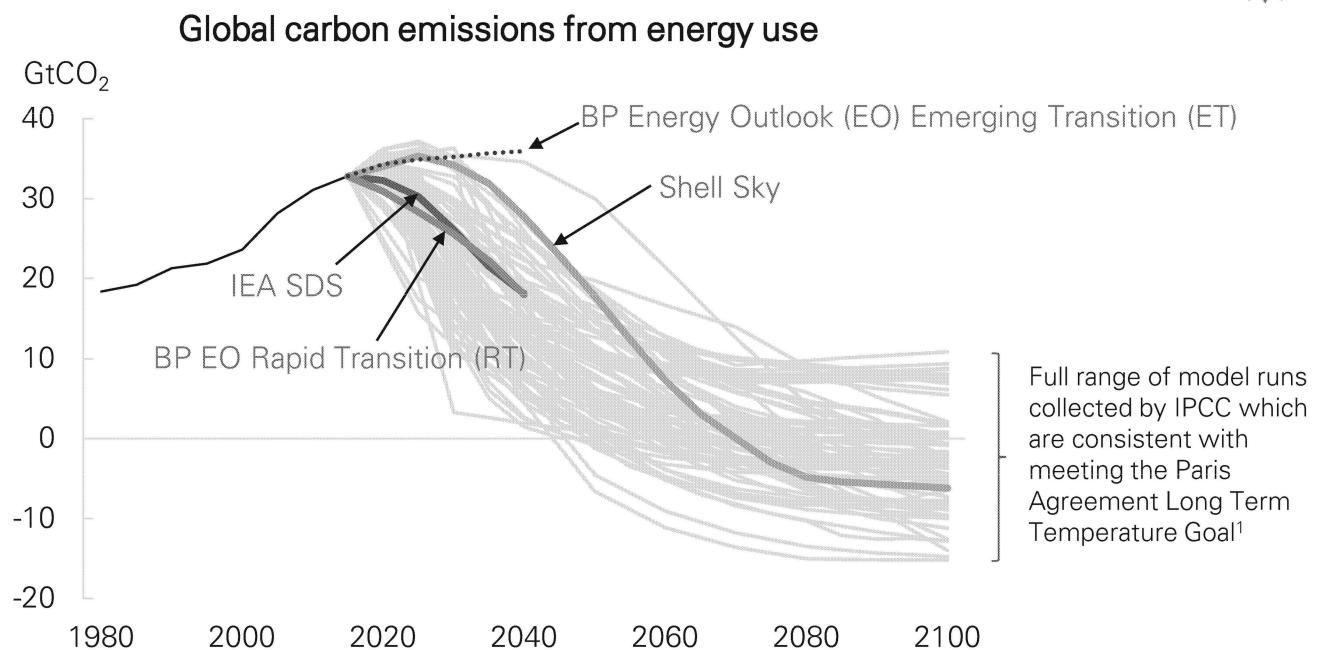
“Net zero” goal

- “aim to reach global peaking of greenhouse gas emissions as soon as possible”
- “achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century”

Article 4.1

- There are many routes to get from **the temperature outcomes targeted by the Paris goals to potential levels of global oil and gas use**, and each step introduces a range of uncertainty
- **The IPCC summarises some of the possible pathways** that could achieve the **Paris goals**, with the associated **emissions reductions** and implied **changes in technology and oil & gas use**
- Consistency with the **Paris goals** can only be assessed in the context of the wide **range of possible pathways**

Scenarios and the Paris goals

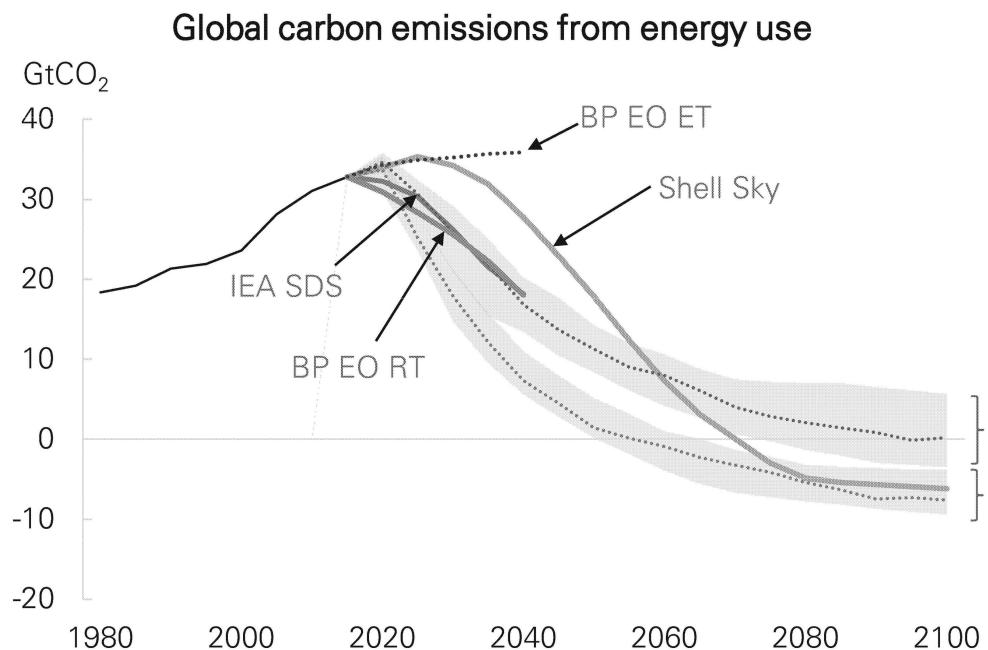


1. i.e. at least keep global average temperature rise below 2°C with 66% probability

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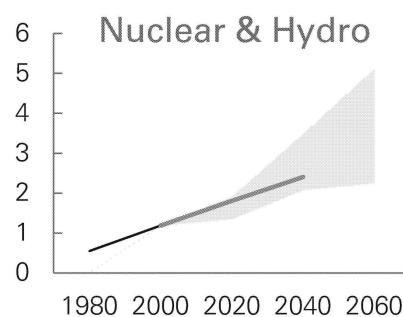
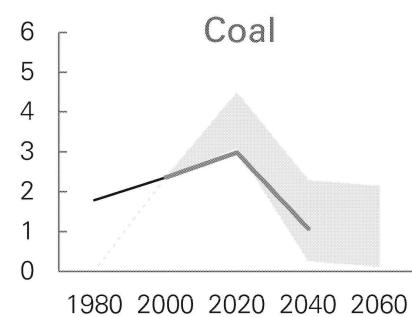
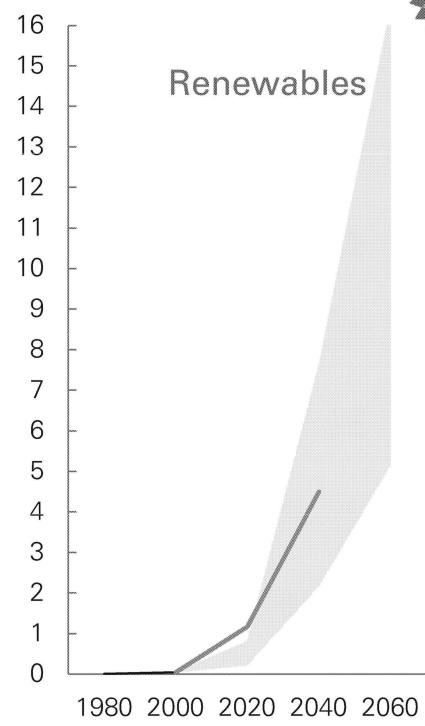
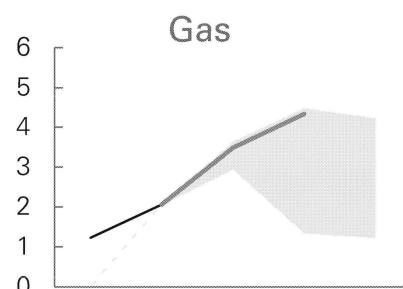
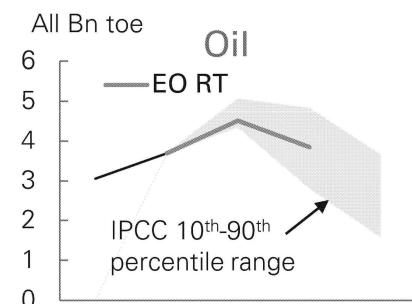
Scenarios and the Paris goals



The full IPCC range shown on the previous slide can be split into two sub-sets of scenarios, representing different degrees of ambition in limiting global warming. This chart shows the interquartile range and the median for each sub-set:

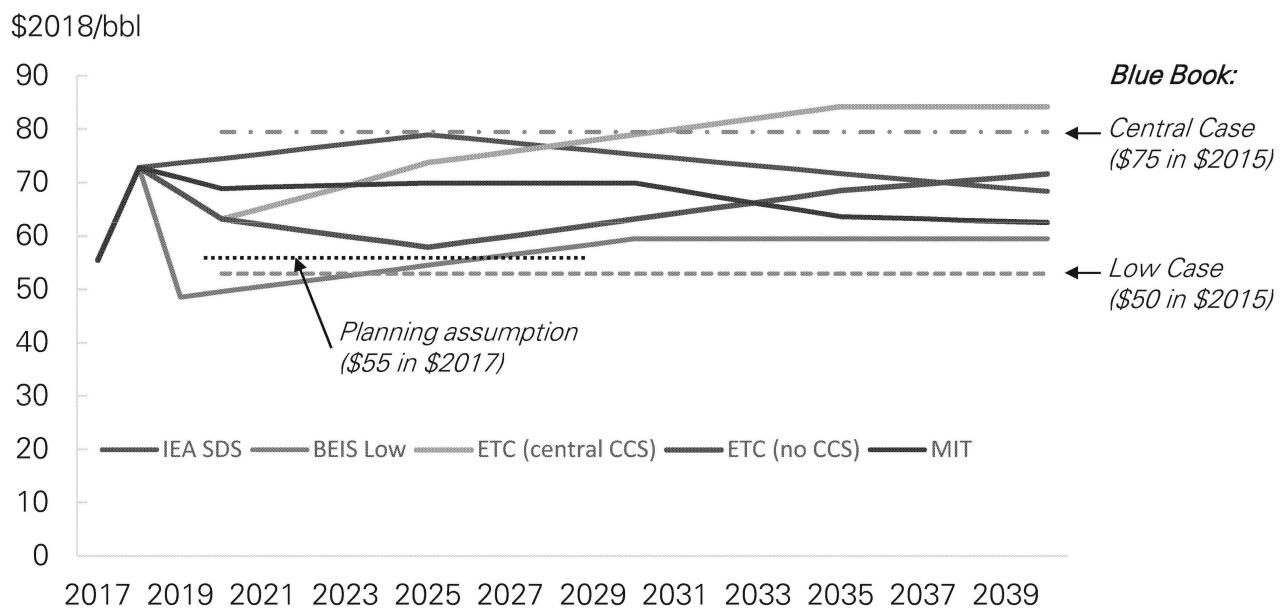
} "Well below 2°C"
 } "Below 1.5°C, with no or low overshoot"

Range of energy consumption in "well below 2°C" scenarios



Oil prices in Paris consistent scenarios

Crude oil prices in scenarios consistent with meeting Paris goals (well below 2C scenarios) appear in line with the Blue book assumptions



We are consistent with Paris for these reasons...



- Our strategy is **flexible and adaptable** to a range of energy and market scenarios.
 - This flexibility avoids the pitfalls of setting a fixed course based on a single view of the future, and allows BP to **adjust to the pace and direction of the transition as it unfolds**.
 - We effectively **turn over the balance sheet in around 9 years**.
- The **4 pillars of the strategy** – growing gas and low cost/high margin oil; market-led downstream growth, venturing and low carbon; modernisation – all serve to **meet the dual challenge** of more energy with fewer emissions.
 - The IEA, in a scenario consistent with Paris, suggests **the world could still be relying on around 70 million barrels of oil per day in 2040** to meet its energy needs.

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3. Flexibility & Agility

Carbon Steering Group, July 2019

BP's Flexibility & Agility project

Demonstrating BP's ability to navigate the Energy Transition



In the context of the Energy Transition and the Paris Goals, project established to determine how:

- a) BP evaluates internally & reports externally on the flexibility and resilience of current & future portfolio
- b) its business model provides strategic agility to sustain existing businesses and develop new lower carbon businesses

The project will:

- In part, be used to address key elements of the Climate Action 100+ Shareholder Resolution
- Develop content for inclusion in an external report to be launched in Q4 2019
- Identify internal processes and toolkits that exist or may need to be supplemented or created

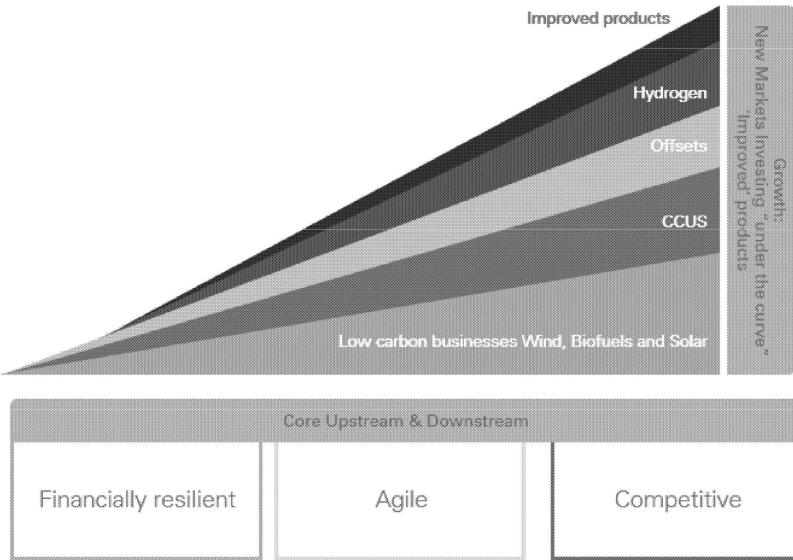
Timeline overview

CA 100+	ET / BOARD	ET / BOARD	CA 100+	INVESTOR EVENT
15 July	18 / 25 July	9 / 26 Sept*	Late Oct/Nov	Mid-Nov (TBD)
<ul style="list-style-type: none"> Short briefing on direction of approach with core CA100+ group 	<ul style="list-style-type: none"> Review of key F&A concepts / analysis & beliefs with ET & Board Review of content for November event with ET & Board 	<ul style="list-style-type: none"> Full review of key elements of analysis and draft external materials Blue book price review Event update plan and comms update 	<ul style="list-style-type: none"> Short briefing on event and content 	<ul style="list-style-type: none"> Agility and Flexibility report SRI event Comms (internal & external)

*There is a further ET meeting on Oct 16, which could be used to provide a further update.

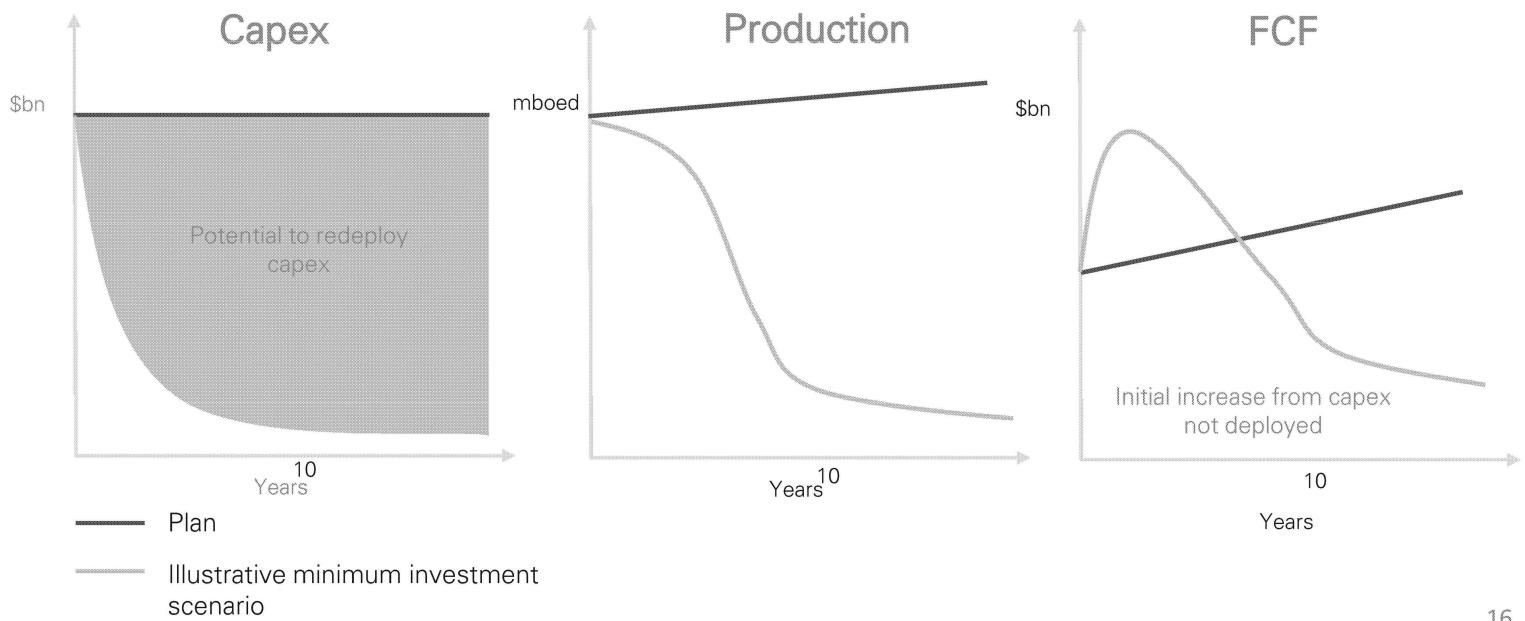


A strong core needed on which to build new low and zero carbon energy businesses



- **Strong Financial Frame** to deliver **financial stability** while supporting low-carbon investment
- **Organisational mindset** that values new enterprise and integrated energy solutions
- **Re-engineered Capital Framework** to effectively redeploy future capital and resources into **new low carbon businesses**

We have flexibility in our capital frame to redeploy
(illustrative based on real data)



Evaluating investments consistency with Paris Goals: approach in overview



Resolution: *“Capital Expenditure: how the Company evaluates the consistency of each new material capex investment, including in the exploration, acquisition or development of oil and gas resources and reserves and other energy sources and technologies, with (a) the Paris Goals and separately (b) a range of other outcomes relevant to its strategy”*

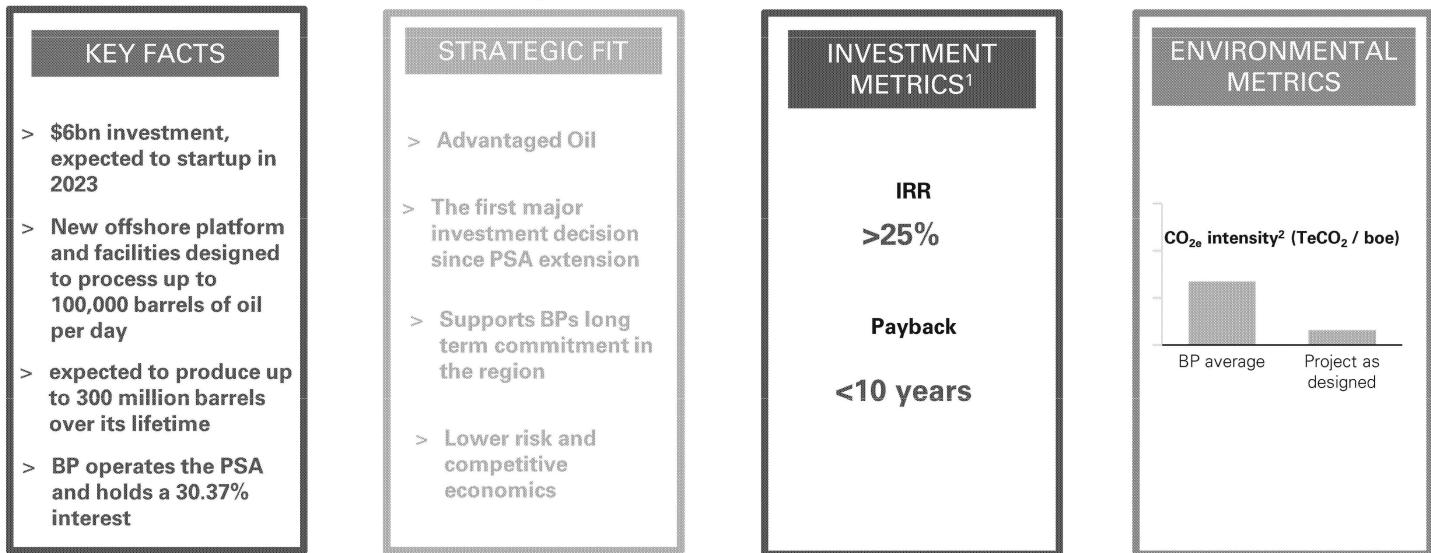
Proposed approach - new investments evaluated considering a number of factors, including:

- Material defined as >\$250m capex
- Economic in demand and price environment consistent with Paris goals (Blue book price range, carbon pricing and GIAAP sensitivities allow for this)
- Shorter payback investments or de-risked for any longer-dated
- Carbon profile (in the context of the portfolio):
 - supports reduction in BP's average operating carbon intensity; and / or
 - Offers lower carbon products
 - Uses / will use other carbon nets (e.g. offsets)

Example of potential disclosure: Azeri Central East (ACE)



These are the potential lenses for Upstream investments that we will need to provide. Further work is underway to fully define the external presentation.



1. Based on BP's cost of capital and base case price assumptions. Payback is undiscounted

2. BP average is BP net intensity average in 2018

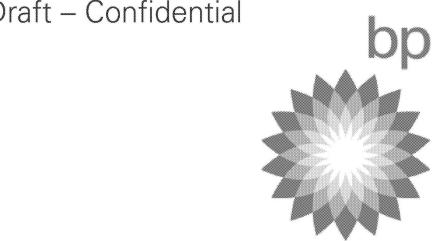
November Investor AET event
Overview of draft content and messaging

Contents	Content owner	SPA for gathering info	Key messages
1 Context			
Purpose	David Bickerton	Alice Revels	Set out BP's role in the world
Dual Challenge / Paris goals	David Bickerton	Alice Revels	Challenge facing the world and we need to tackle together
Energy Transition	Spencer Dale	Alice Revels	This a transition; varying geographies will have different approaches and move at different speeds
World Potential pathways (IPCC)	Paul Appleby	Alice Revels	Multiple pathways and ways to achieve the Paris goals
Potential energy system pathways	Dominic Emery	Alice Revels	We see the potential energy system pathways evolving through the transition see a route to get there
Strategy (current)	Dominic Emery	Alice Revels	BP's current strategy designed to be supportive of Paris goals and build options
2 Long term ambition			
Set out BP's long-term ambition in the Energy transition	Geoff Morrell/David Bickerton/Dominic Emery	Gardiner Hill	BP sees a role in leading the transition
Defining success in the Energy Transition	Geoff Morrell/David Bickerton/Dominic Emery / Craig Marshall	Gardiner Hill	Success for BP in the energy transition but all sectors, governments and society
3 BP's AET frame			How are we currently set up to advance the energy transition & consider consistency with Paris
RIC framework	Alice Revels	Alice Revels	Recap of the RIC; frame for setting out our short-terms targets on reduce and developing new lower carbon businesses / offerings
Use of scenarios in strategy setting	Paul Appleby	Nick Lawson	Scenarios help us navigate the path forwards – we need to plan and be flexible to a number of paths the world could take
Evaluation process & criteria (EEM, GIAAP?)	Paul Appleby	Nick Lawson	We have internal processes that allow us to assess value, risk and make choices across a range of scenarios (including those consistent with Paris goals)
Evaluation over different time-frames	Paul Appleby	Nick Lawson	We see the Transition occurring at different speeds and in different ways across the globe. Respecting this we will need different approaches for different markets and will consider our investments in light of this
Define consistency with Paris at Group level	Paul Appleby	Nick Lawson	Paris requires significant emissions reductions but IPCC 2C models assume through the Energy Transition oil and gas will be needed to varying degrees Renewables, Biofuels, Hydrogen, CCUS, land carbon and EVs will all play a key role going forwards
Upstream perspective	Brian Povey	Nick Lawson	Upstream oil and gas needed in short to medium term and in longer term to develop low carbon alternatives; need to address operational emissions, ensure competitive/advantaged, portfolio choices & build the new lower carbon offerings out
Downstream perspective	Richard Bartlett	Nick Lawson	Downstream business needed to meet customers' needs and provide the energy solutions through the Energy Transition. Short – medium term growth in certain markets of traditional fuels, increase efficiency of existing fuel slate (cleaner + more mpg),

Contents	Content owner	SPA for gathering info	Key messages
			growth in lubes, petchems and bio/sustainable plastics. Moving to a decarbonisation/sustainable fuels (biojet; EVs; gas;), circular economy, etc.
Supporting governments	TBD	TBD	Developing the capabilities and offerings to support governments achieve their low carbon ambitions
Partnerships	TBD	TBD	Partnerships represent a key way we can drive and deliver our business across the Energy Transition
4 Resilience / strength of existing 'core'			Existing business is well positioned to be highly competitive, flexible, agile and so providing the foundations for success throughout the Energy Transition
Upstream	Brian Povey	Nick Lawson	Highly competitive focused on advantaged options (moving down the cost of and carbon supply curve); balanced portfolio; mixed geographies/fuel mix /price exposure, etc; strong FCF generative; good payback & returns; capex flexibility
Downstream	Richard Bartlett	Nick Lawson	Highly competitive focused on advantaged options (moving down the cost of supply curve); balanced portfolio (strong lubes & petchems businesses); mixed geographies/product slate/price exposure, etc; strong FCF generative; good payback & returns; capex flexibility
Technology?	Steve Cook	Nick Lawson	Supporting the core businesses remain advantaged
Capex Allocation?	Keith Westhead	Nick Lawson	Describe Group capex allocation process? Describe capex flexibility
5 Evaluation of investments in 'core' business vs Paris goals			<p>To ensure we are moving in the right direction and our 20 year + investments will be viable in a Paris consistent world – we are evaluating projects to ensure they are robust in the Energy Transition and support our direction of travel</p> <p>Note this is an evolving process and we are adding to it as we understand the area better</p>
Approach (material investments, criteria, price decks used, supply, demand approach)	Nick Lawson / Brian Povey / Keith Westhead	Nick Lawson	Define what we mean by material (>\$250m), Consider core investments in the context of supply / demand / price / risk across a range of scenarios and different time-frames and support reduction of carbon (below current BP average);
Provide details for each project/ 1 or 2 e.g.s	Brian Povey / Richard Bartlett	Nick Lawson	Show how we evaluate our material investments with a couple of examples with some key metric: (Returns, payback at varying price points?; Stress-testing for carbon pricing?; (Scope 1&2 – Carbon intensity of projects vs BP average & industry averages?)
Set these in the context of portfolio?	Brian Povey	Nick Lawson	Set out how this contributing toward a more robust lower carbon portfolio
Different Hurdle rates?	TBD	TBD	(Reference other approaches we are developing? E.g. differentiated hurdle rates for projects with different profiles?)
6 Advancing the Energy Transition approach			BP is Advancing the Energy Transition, committing significant resources and creating value

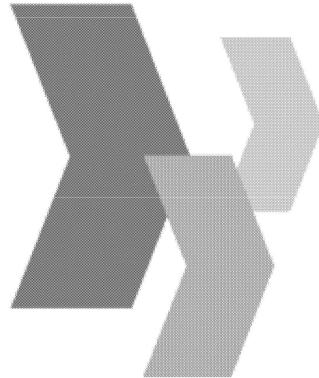
Contents	Content owner	SPA for gathering info	Key messages
Clarify investment in Energy Transition – Today = \$500m + other activities + growth; Future = \$1bn+?	Anna Floyer-lea	Nick Lawson	\$500m is only part of the story. We are investing across the business up to almost \$1bn (fully built up NEF + growth =~\$700m + Upstream / Downstream in business activity and \$100m fund); (In future we are committed to support scale up and the investments in the right opportunities, which we could easily expect to exceed [\$1bn]?)
Clarify financing & approach to leverage partnerships & other external funding (e.g.s Lightsource (\$7bn), etc.)	AE approach: James Primrose / Nick Wayth Venturing: Steve Cook	Nick Lawson	Capex is not only way to measure investment and impact. We are adopting multiple approaches including partnerships, venturing and
BP Launchpad	Steve Cook	Nick Lawson	Organisationaly we are supporting the scale up new low carbon businesses and technologies to support the core by creating BP Launchpad. This provides the right platform to enable success across the scale up of some of our activities.
7 RIC progress			Making real progress all areas of 'RIC' and value in a low carbon being created
Reduce - progress updates	Alex Kerst	Gardiner Hill	Good progress across the Reduce targets; explain the \$100M fund and process; highlight any significant examples
Improve – Biofuels	Richard Bartlett	Nick Lawson	We are a leading coprocessor of bio and increasing our volumes of bio fuels; als
Improve – Biojet progress	Richard Bartlett (Paul Beckwith)	Nick Lawson	We are a leading Biojet provider and investing significantly in developing new sustainable sources of Biojet (e.g. Fulcrum – potentially provide detail here)
Improve – Petchems / Lubes	Richard Bartlett	Nick Lawson	Leading edge of low carbon petchems / lubes products (e.g. PTair, Castrol Edge Bio, etc.) and developing positions recycled plastics (e.g. Virent)
Improve – offsets ?	Andrea Abrahams / Enric Arderiu Serra / Paul Jefferiss	Nick Lawson	Elaborate on our commitment to Natural carbon solutions Target Neutral?
Create – solar case study?	James Primrose Guest speakers: Paul McCarthy? Nick Boyle?	Nick Lawson / Alice Revels	Progress to date, low carbon power enabled (GW), investment approach, partnerships, business model, value created, what BP brings to the table (government relationship, real partner vs VC backing)
Create – EV charging	Richard Bartlett	Nick Lawson	Progress to date, positioning for the future (e.g. Ultra-Fast charging) and mobility solutions
Create – Wind? Case study?	James Primrose	Nick Lawson / Alice Revels	Progress to date, GW enabled, investment approach, partnerships, business model de-risked, value created?
Create – biofuels	James Primrose	Nick Lawson / Alice Revels	Progress to date, expansion proposals?
Reduce – CCUS	Martin Towns	Gardiner Hill	Experience in Algeria and supporting UK in delivery of Clean Energy project
Other – Calysta?	Steve Cook?	Nick Lawson	Also making innovative investments in areas that require existing production

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My Advancing Low Carbon – staff engagement

Update for Carbon Steering Group, July 2019



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Context

- All parts of BP are **embracing the energy transition**. RIC provides a strategic frame for BP's low carbon activities across its businesses.
- A strong appetite to help to get **BP staff more involved in the energy transition** is evident, e.g. from carbon strategy workshops held in April.
- **Numerous staff engagement activities are already underway**, highlighting the need to drive integration, effective implementation, remove overlaps and address resourcing / budget issues.
- A **low carbon culture** and getting employees involved in a more personal way is **consistent with BP's commitment to advance the energy transition**.
- Through 'My Advancing Low Carbon', we want to **support and encourage our people** to take action in their day-to-day lives.

Scope of activities

In scope – initiatives and ideas relating to individual actions:

- ✓ Reduce carbon emissions or other environmental impacts of our people – at our workplaces, in our communities and in our day-to-day lives
- ✓ Improve our people's knowledge and understanding of climate change and related sustainability issues, in particular circularity and water
- ✓ Get our people involved in the energy transition at an individual rather than business level

Out of scope – initiatives and ideas relating to business activities:

- ✗ Reduce BP's operational emissions
- ✗ Improve BP's products
- ✗ Create new low carbon businesses

How My ALC is organised

My ALC (working title) aims to engage **our people** in the **energy transition**.

We want to do this by encouraging and supporting everyone at BP to take action in their **day-to-day lives**, providing **resource** for key projects, **eliminating duplication** and building **greater connectivity** across the Group.



Progress to date

- A **Steering Committee** led by Alex Kerst (Group Strategy) has been set up
- We have been integrating and supporting a number of ideas:
 - **Personal carbon offsets** – pilots in UK, USA, Germany via HR benefits selection; exploring possibility of matching by BP Foundation
 - **Business travel offsets** – exploring possibility for BP to offset emissions
 - **Energy transition app** – aiming to educate and highlight areas where BP employees can make a positive impact and get involved in the transition
 - **Lower carbon offices**, such as the One Young World “Low Carbon Culture” competition
- Working on **comms plan** with support from C&EA, targeting **One Young World Summit** in October to announce personal and business travel offsets initiatives

Members of the Carbon Steering Group Committee

Upstream Context – July 2019.

2019 Performance (up to end May 2019)

- Upstream was able to deliver **circa 800kte SERs by the end of 2Q 2019**, mostly attributed to Angola delivering 700kte SER through their flare reduction program and other projects.
- We have line of sight of a total of **1.0Mte SER to end 2019**. This means that Upstream will deliver >3.0Mte SER by end 2019, ahead of our planned delivery in 2025.
- The other projects that contributed to SERs in 2019 to date included:
 - Green completion of KZN-402 in Oman
 - Water Injection Pump Efficiency in Angola Block 31
 - ACG Phase 1 pilot replacement resulting in more efficient fuel consumption
 - Switch over of power supply in contractor camp to electrical power in Oman operations.
- At end May 2019, Upstream Methane Intensity of <0.2% and Flaring Intensity of <1.32 te/mboe are on track for full year delivery.

- BPX will continue to provide at least 70kte SERs in 2019, from projects started in 2018, and continue to explore opportunities for even more SERs within the business.
- At the end of 1Q 2019, GHG emissions are forecast to be **0.1Mte above the 2015 baseline**.
- With the “carry forward” of the **2018 1.0Mte below 2015 baseline** into 2019, the Upstream is forecast to be (net) 0.9Mte below the 2015 baseline by end 2019.

2019 Plans

\$100M Carbon Fund

- By end May 2019, fifty (50) projects were submitted in cMore from across the Upstream and, in addition to the first three that were approved for funding, i.e. GCI camera installation for methane management in Alaska and Trinidad and installation of line from DPCU stabilizer feed drum to fuel gas system at Sangachal Terminal (which will eliminate flaring of ~0.8 mmscfd), three additional projects have been approved for funding:
 - **Tangguh Advanced Process Control** will result in an overall 3% reduction of Regeneration Gas Flowrate. This project has an estimated worst case \$/tonne outcome of **\$10 per tonne of CO2**.
 - **PSVM Power Supply Reliability Improvement** – The purchase and installation of a new GT will address the inherent flaws in the existing GTs, improve reliability in power supply and ensure sufficient power to maintain production and avoid flaring. The worst case \$/tonne outcome of **\$20 per tonne of CO2**.
 - **PSVM Spare Low-Pressure Gas Compressor** – This spare LPGC will mitigate the business impact from extended loss of the LGPC train. Daily business losses from LPGC downtime due to unplanned maintenance activities are estimated to be around 15 mmscfd flared and approximately 1,000 barrels of condensate lost from this event. The worst case \$/tonne outcome of **\$20 per tonne of CO2**.

Upstream Low Carbon Workstreams

- Three teams, staffed from across the Regions, have been established to progress projects that will determine our longer-term Upstream strategy:
 - **Project 1: Carbon neutrality ambition** – led by Martin Snodgrass and supported by Gordon Birrell and Nigel Jones
 - **Project 2: Transition to a resilient portfolio – investment choices** – led by Ruth Garratt and supported by Andy Hopwood and Nigel Jones
 - **Project 3: Low carbon operations** (electrification, renewables, energy efficiency) – led by Tamara Holmgren and supported by Fuzzy Bitar and Tony Brock.

- GHG forecast re-built using 2QPF 2019 data - trajectory is for significant growth through the mid-2020s driven by the start-up of the major projects
- While Upstream will deliver its Sustainable Emissions Reduction target ahead of the 2025 target, it is **off-track for delivering Zero Net Growth without offsets by 2025.**
- **A decision support paper is currently being prepared** which will outline the Upstream approach to achieving ZNG in light of these new data, including use of offsets.

Updates from RP/HoF Meeting

- At the recent RP/HoF Meeting of May 15th, 2019, our discussion helped to further define how we will progress an even faster energy transition to a low carbon future in the Upstream. We are building alignment around the possibility of our Upstream operations becoming carbon neutral in the future – and possibly carbon negative if we can progress CCUS at pace.
- There are four (4) areas where we can make a difference now:
 - **Progress SERs in every region** – Please encourage your teams to apply to \$100m Carbon Fund via cMore to fund small/medium emissions reducing projects. These projects will be evaluated on a \$/tonne to ensure efficient spend. To meet our net zero emissions growth target, our 2025 SER ambitions and delivery will need to be much bolder.
 - Progress installing **continuous, low cost methane detection and measurement at every gas processing site in the Upstream**. If you do not already have funded plans in place for a Rebellion GCI camera, please develop a costed proposal for inclusion in your regional 2020 budget.
 - Where appropriate, consider introducing **zero carbon power options** to our existing operations and future projects.
 - Review cold vents in your facilities and determine if there is an alternative way to appropriately dispose of gas.
- Further updates include:
 - Nader Zaki with GPO is in the process of defining a project to **solve the venting of Tangguh reservoir CO₂**. A planning workshop will be held in September to review the possible project options, conduct economic evaluations and select a reference case to progress into Concept Development.
 - Work is already progressing in the Upstream HSE Team to codify how we will **manage carbon in our Operating Management System (OMS)** and our supporting business processes by the end of 2019.

- We are looking to take an active role in a **clean energy park gas project which involves CCS at scale**. The dimensions of that active role are currently being defined.
- As mentioned by Bernard in his recent note to staff, we will be reaching out to **low-carbon champions in each region and function** to create a network of people who can share learnings between each other and the broader organization.
- In the RP/HoF meeting, Nader Zaki, Felipe Arbelaez, Stephen Willis, Starlee Sykes, Janet Weiss, David O'Connor, Alan Haywood (Paul Lantero) volunteered to support our work to transition to a lower carbon future and this support is deeply appreciated.

Technology

FLIR and providence Photonics QL320

- The QL 320 was successfully deployed on the North Sea Clair Facility in March.
- Six (6) additional units have been purchased and are to be deployed across Upstream Regions such as AGT, Trinidad, Indonesia and Oman.

Rebellion Gas Cloud Imaging (GCI) camera

- The Cassia-C project in Trinidad has selected the GCI camera to deliver continuous monitoring for methane on this new facility.
- We will deploy the GCI camera at the Beachfield Terminal in Trinidad and in Alaska in 3Q 2019.

SeekOps drone sensor

- SeekOps sensor on a long-range drone was successfully flown offshore to the Claire Ridge Facility in the North Sea in June 2019, detecting methane signatures along the path (both ways) above background levels but not within circa 40ft of the top deck.
- Flight had to be aborted when UHF (radio) signal was lost for >15 sec, per CAA requirements. Satellite signal continued.
- Plans are being progressed to complete these measurements during the summer months.

Mantis Camera with VISR technology

- The Mantis camera and VISR technology was successfully deployed in Angola (GtP) in May 2019 to test the efficiency of the flare combustion. Results indicate that for high flaring rates, combustion efficiency was quite high (very near 100%) while for flaring rates closer to purge rates, the combustion efficiency was lower, i.e. in the range of 94% to 96%.
- Plans are being progressed to have this technology deployed in AGT, Oman and Indonesia before the end of 2019, pending approval (from the US Government) for use in these Regions.

Xpansiv

- Upstream have **commenced two Proof of Concept trials:**
 - AGT Shah Deniz Alpha
 - BPX South Haynesville.
- The objective of the trials will be to test the digitization of energy-production data into digital feedstock on Xpansiv's platform.
- There is the possibility that the trial in BPX could include trading of digital feedstock – and we are in discussions with IST and BPX about this.

Karen Ragoonanan-Jalim
On behalf of **Dave King**

July, 2019.

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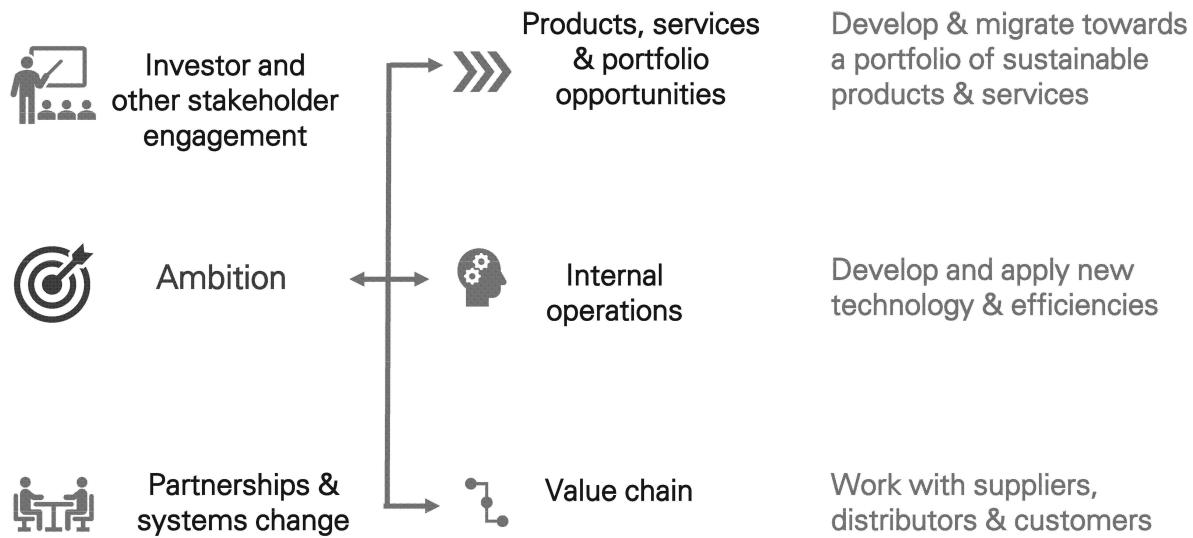
D-AET Group Carbon Steerco update

17th July 2019

Downstream Energy Transition Unit
Andrea Abrahams

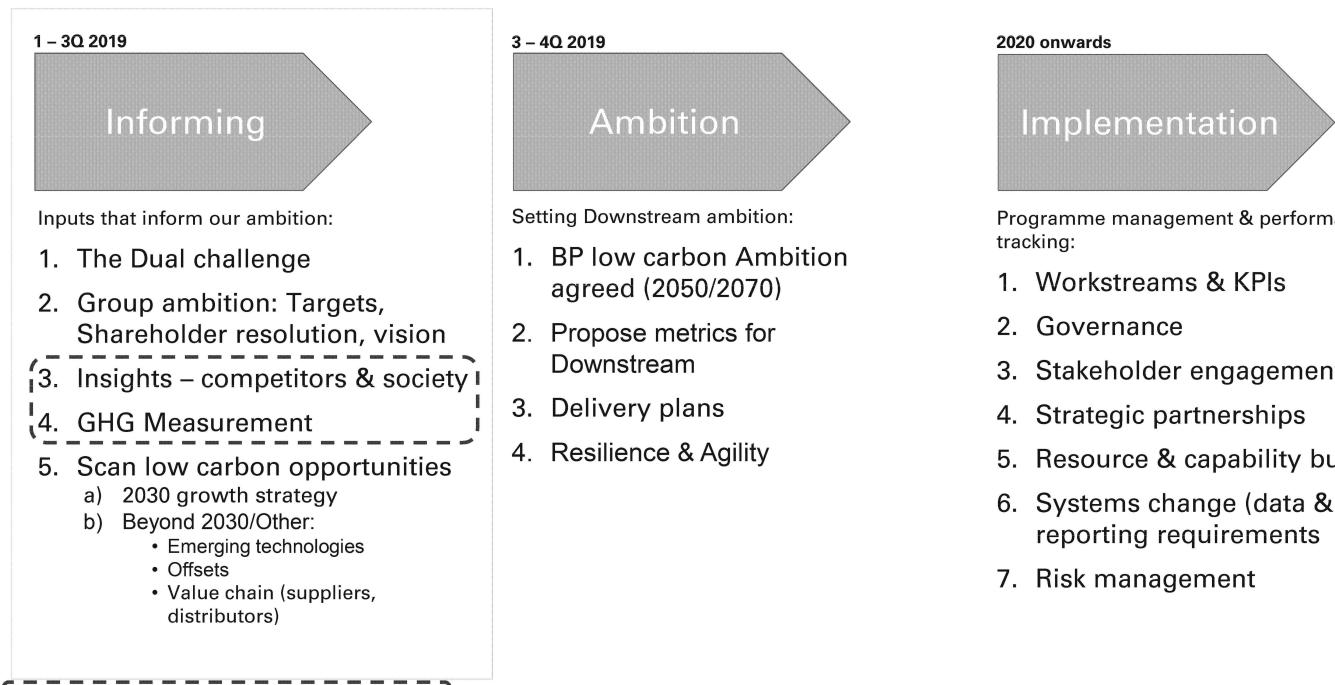


BP carbon reduction ambition





Process to develop the carbon lens into our strategy....





Insights from external Carbon Advisory Panel (June meeting)

- BP is at a 'fork in the road' – need a new way to connect / new narrative
- Investors and activists will keep scrutiny levels high - commitments & pace
 - NGO's stepping down from BPTN – '**canary in the coal mine**'
- Commitment to move to **net zero** – nothing else will be heard
- Make better use of **Target Neutral** name/brand - it's Paris 'net zero' aligned
- Publicise the **deliberation** around the dual challenge
- BP needs to be an '**agitator**' for **system change** – a vigorous proponent of a better future
- Take on the big game changers and own them to the end...e.g.
 1. Price on carbon - form a business coalition - lead, push hard
 2. Consumer behaviour change (e.g. become a carbon 'coach', make reducing carbon accessible and fun with rewards)
 3. CCUS



Insights – CAPs study underway to learn from industry

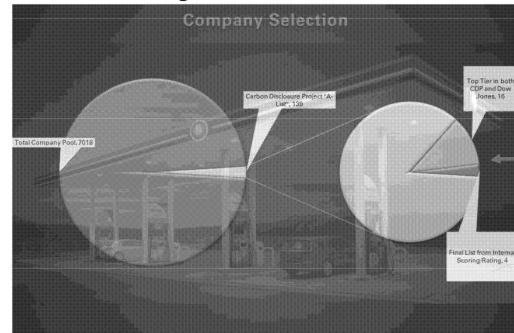
Career Accelerator programme (CAPs) Team: Charl Du Plessis; Elizabeth Jackson; Julia Klimczak; Jose Garcia-Broch

Study Objective: Conduct research on current corporate carbon and sustainability strategies of “best in class companies” for input into development of a Downstream Carbon Strategy

Timeline:

10-Apr-19 - 23-Apr-19	23-Apr-19 - 07-May-19	07-May-19 - 28-May-19	28-May-19 - 12-Jun-19	12-Jun-19 - 16-Jul-19	16-Jul-19 - 31-Jul-19
DEVELOP PROJECT CHARTER	RESEARCH ON SUSTAINABILITY INDEXES AND APPLICABLE SCORING CRITERIA	DEVELOPMENT OF INTERNAL RANKING CRITERIA AND SCORING MATRIX	COMPLETE FINAL COMPANY RANKING	DEEP DIVE EVALUATION	DEVELOP AND PRESENT FINAL RECOMMENDATIONS
15-Apr-19	22-Apr-19	29-Apr-19	06-May-19	13-May-19	20-May-19
10 April 2019				27-May-19	03-Jun-19
				10-Jun-19	17-Jun-19
				24-Jun-19	01-Jul-19
				08-Jul-19	15-Jul-19
				22-Jul-19	29-Jul-19
				31 July 2019	

Status: Focusing of Efforts



- Pool: CDP and/or the Dow Jones Sustainability index = 7,018.
- Filtered to 139: companies rated as “A-List”
- Filtered to 16: companies both Top Tier DJSI and CDP A list
- Scoring and Validation Metrics: evaluate progress on Carbon Transformation.

Business Model	Future Strategy			Operations Optimization			Self Driven Change			New Business		
	Employee Engagement	Client Goals	Regulatory & Engagement	Transformation of Processes	Efficiencies Offering	Capex level for optimization	Research focus*	Employee Engagement	New Products	Investment	Regulatory Strategy	Success ratio
Siemens	5	5	4	4	4	5	4	4	2	2	5	4
Naturgy	5	4	4	4	4	3	3	5	4	3	4	1
LG	4	4	4	3	4	4	4	5	4	3	3	3
Signify	4	3	5	4	4	4	3	4	3	4	4	2
Engie	3	3	5	3	4	4	3	4	1	5	1	1
Cisco	3	4	3	4	3	4	3	3	4	3	3	3
Unilever	4	2	5	2	5	3	2	3	3	4	5	1
Engie	5	2	5	2	5	3	2	3	3	4	5	1
DSM	4	2	5	2	5	3	2	3	4	5	1	1
Pirelli	4	3	3	4	3	3	3	4	2	5	2	3
Sumitomo Forestry	3	3	3	2	3	3	2	2	3	3	2	2
Owens Corning	5	2	4	2	3	2	1	1	2	3	5	1
Waste Management	5	1	6	1	3	3	1	1	1	1	4	4
Stockland	3	1	2	2	1	2	1	1	2	1	3	1
DSM	1	1	2	1	1	1	1	2	1	4	3	1
Hyundai	3	1	2	2	1	2	1	1	3	3	1	1
UBS	3	0	0	0	0	0	0	0	0	0	0	0

Companies sorted by the aggregated average of Future Strategy, Ops Optimization and Self Driven Change scoring.

- Final selection of 3 companies for holistic strategy deep dive: **Siemens**, **Naturgy**, **Engie**
- Aspects of 3 other companies highlighted for review: **LG**, **Unilever**, **Electrolux**

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Next Steps and Deliverables

Evaluate selected companies to identify:

- Successful strategies that we may be able to adopt
- Learnings on implementation plans & employee engagement.
- Methodologies implemented to ensure company-wide transformation

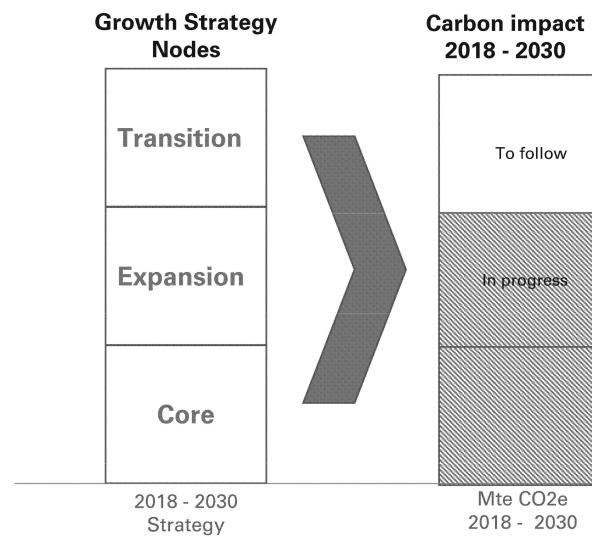
A final recommendation: processes to enhance BP's strategy for sustainable energy transition.

Given these challenges, work is underway to calculate the carbon impact of products*...



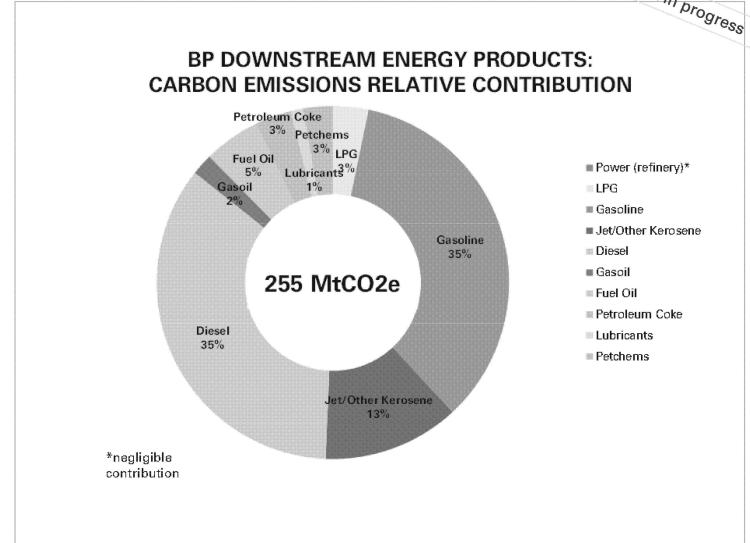
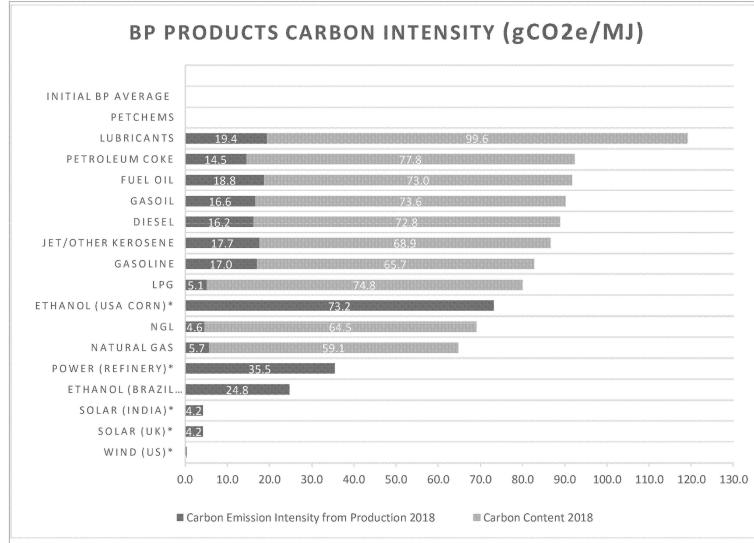
3 step process:

1. Calculate the carbon impact of the current business (2018 baseline)
2. Calculate the carbon impact of the 2030 Growth Strategy (refer slide 32)
3. Calculate any additional carbon reduction opportunities not currently in the 2030 Growth strategy (refer list pg 27,28)





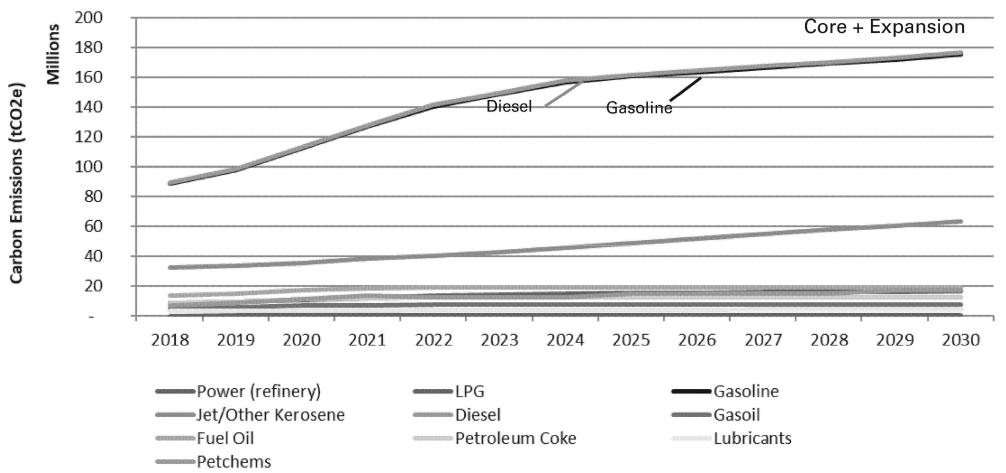
Product: Using the Group work on product intensity, we've modelled Downstream product emissions*...



...and the profile of emissions by product* out to 2030



Absolute Product Carbon Emissions Forecast: All Products


NB – Methodology notes:

1. Current view shows Core + Expansion and not Transition growth nodes.
2. GHG Profile to 2030 is created using RCOP and not sales volumes apart from Petchems and Lubes

3. Gasoline/diesel have the same profile as they have similar emissions in 2018 and are both forecast using retail RCOP growth

* Product Emission is defined as production + combustion by end user



Product end-use emissions meeting: Summary notes and actions (21 June)

1. Language

- What is the correct language ("end-use" vs "Scope 3")?
- We shouldn't seek to deflect it - need an alternative way of talking about the issue, that is uniform across Group, and is consistent with our Downstream marketing.
- We shouldn't seek to "beat Shell" in big positioning.

2

Redacted - First Amendment

3. Measurement - Downstream view

- Don't include operational emissions in carbon intensity measure as covered separately
- Don't take lifecycle approach (much of lifecycle out of our control e.g. final disposal/end use of lubes & Petchems)
- One key purpose of the metric is to show progress – must be able to move it!
- Probably not one UBER metric but various covering energy products, non-energy products and potentially services (e.g. EV charging displacing fuel; lubes % re-refined etc)
- Linking carbon to RCOP is challenging e.g. because RCOP moves

4. Inform through data – need to complete analysis of carbon lens on growth strategy

5. Offsets – what role do offsets play? Inform through two lenses – value creation and Group (targets/forestry etc). Action: strategy meeting on offsets & scale opportunities

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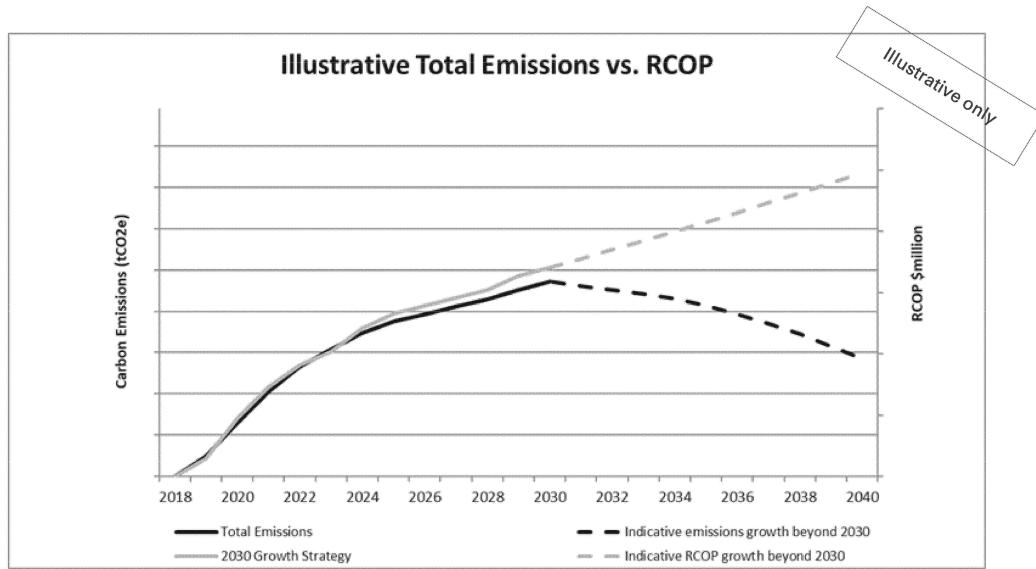
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On completion of the GHG measurement, we will be able to illustrate the carbon profile relative to RCOP

As Downstream's low carbon businesses grow, it is anticipated that a wedge will start opening up between RCOP and GHGs





Next steps and Key milestones – draft for discussion

July

Aug

Sept

Oct

Nov

Dec

- SET Update (12 July) – Group ambition & D/s carbon lens
- Res 22: Internal Report- Energy product intensity
- F&AR Draft 1 from Downstream (22 July)
- ET (18 July) – F&AR, consistency with Paris; ambition; scope 3; external transparency timeline
- Carbon Profile complete for 2030 Growth strategy (core + expand + transition)
- SET: Role of Offsetting (incl. Doughnut; Rome)
- R22: Proposed Metric: Energy Product
- Carbon sensitivity analysis & proposed metrics for Downstream
- F&AR Draft 2 from Downstream (15 Aug)
- Board: D/s 2030 Growth Strategy
- ET & Board - F&AR report first version
- SET: Carbon Advisory panel
- Shareholder event (2H Nov)
 - Resilience
 - Ambition

Jan 2020

Feb

March

F&AR: Flexibility and Resilience report

- Res 22 Response
- Consistency with Paris
- RIC Refresh – new targets

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11

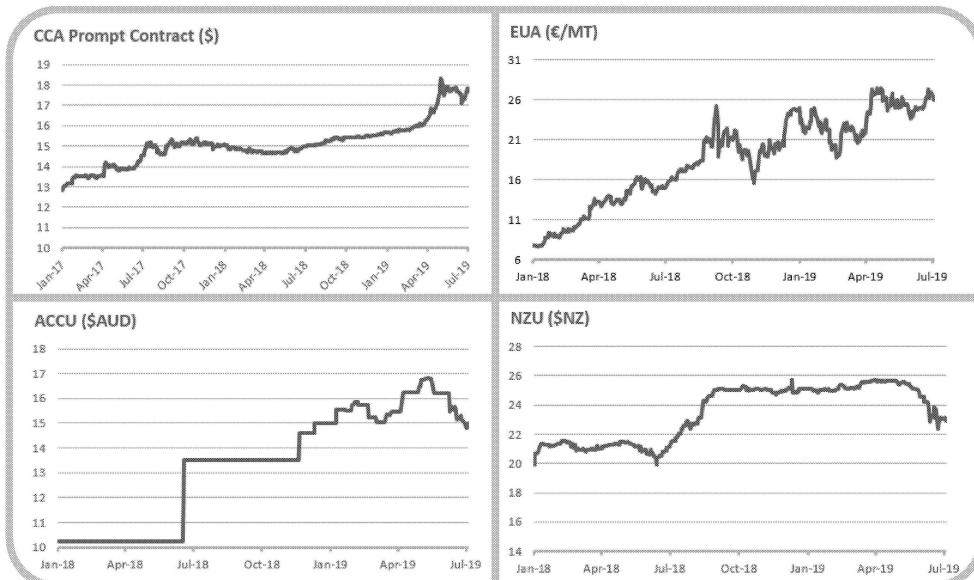
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Members of the Group Carbon Steering Committee

Business Update - IST

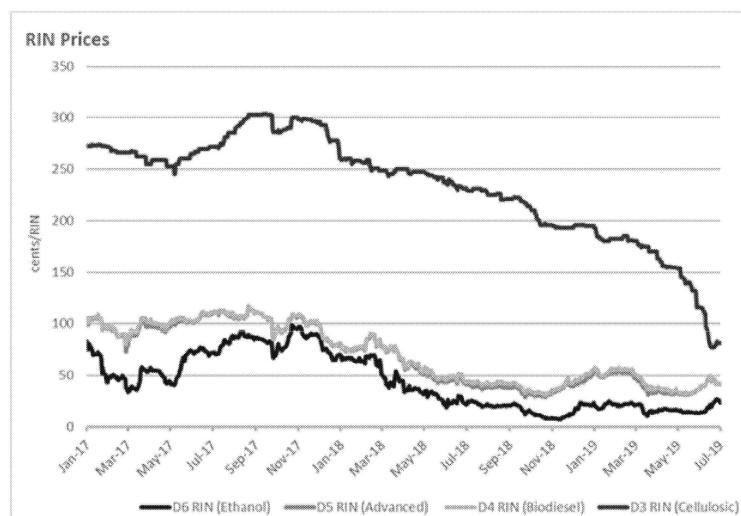
Global Carbon Pricing – Market Update

- EUA prices rose more than 200% over the course of 2018 with a continued bullish view in 2019 due to the tighter market balance which is partly a result of constant reserve withdrawals. The added influence of an increase of speculative players in the market have added to the price volatility.
- California Carbon Allowances (CCAs) were relatively subdued throughout most of 2018 but became volatile in 2019 with prices recently trading well above auction floors. Similar to the EUA market, the increase is largely attributed to increased buying from managed money participants as evidenced by increased open interest and trading volumes.
- ACCU and NZU prices have dropped in the last 3 months primarily due to regulatory developments.



US Renewable Fuel Standard Market Update- RINs

RINs pricing declined through much of 2018-19 primarily due to bearish fundamentals. The EPA issued 1.8 billion RINs of small refinery exemptions (more than 10% of the total obligation), which reduced the demand for all classes of RINs. RIN prices have found support recently on rumors that the EPA will not be as generous with these exemptions in the future. On July 5th, the EPA proposed a 2020 renewable volume obligation of 20 billion gallons which is essentially flat to 2019 requirements.



IST Business Development Activities

Emerging Carbon Markets (ECM) / Project Silva

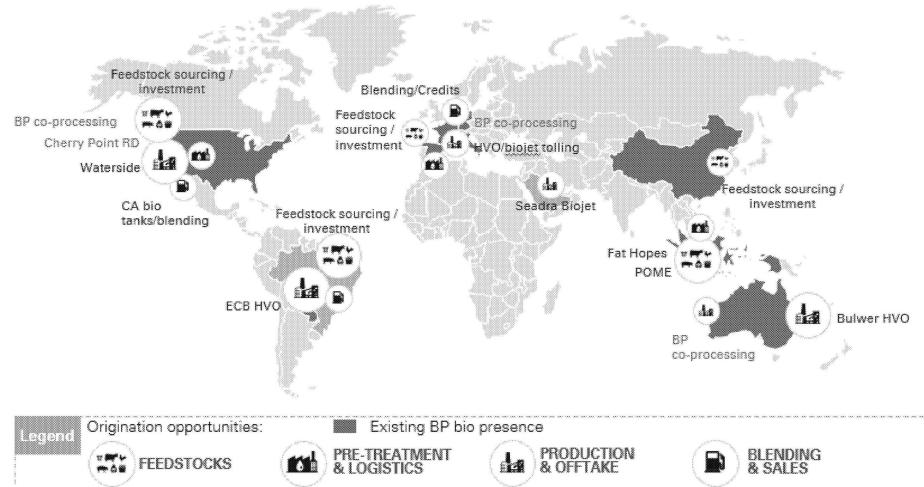
- In April of 2019, the IST Commitments Committee endorsed the ECM business case which is charged with securing up to 20 Mtco2e with a maximum of 5 Mtco2e limit in any single country. Initial target markets include Colombia, South Korea, South Africa, Mexico, Brazil, Indonesia, Canada and the United States.
- The ECM book will support Project Silva objectives described below:
 - Pursue a staged land-based carbon investment strategy to provide advantaged offset supply for trading and to support other parts of the 'Reduce Improve Create (RIC)' framework
 - Consider the use of land-based offsets to maintain a flat operated emissions profile for BP Group out to 2025.
- In July of 2019, endorsement was received to move forward with establishing a strategic alliance with a carbon management firm in Colombia.

Carbon Offset Natural Gas rollout

- IST is in the process of finalising the product details of Carbon Offset Natural Gas (CONG). CONG will include the contracting and delivery of natural gas along with a BP commitment to retire a predefined volume of offsets. Currently targeting August 2019 for product launch.
- The overall goal of CONG is to create a sustainable margin that differentiates BP via a scalable model that enables our customers to easily contract for carbon offsets alongside their energy purchases.

Bio-fuels Business Development

- As part of the 2019 IST Oil Strategy Refresh, IST's Global Distillate/Fuel Oil Book has identified significant growth potential from investing throughout the biofuels value chain
- In May of 2019, BP and NEXT Renewable Fuels announced a long term supply agreement which represents the largest single renewable feedstock sourcing agreement contracted for a RD facility.



GEP/BPX Browse LNG

- Upstream and IST have formed a joint working group to develop a carbon offset strategy to address a range of positions from compliance to carbon neutrality.
- Potential hedge pathways will be developed using a combination of instruments and strategies, including accessing existing domestic carbon offsets and partnering with NGOs and Governmental partners to develop long term carbon offset initiatives.