

# ROYAL DUTCH SHELL PLC 2014 ANNUAL SRI EVENT TRANSCRIPT

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## 2014 ANNUAL SRI EVENT TRANSCRIPT

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**BEN VAN BEURDEN, CHIEF EXECUTIVE OFFICER OF ROYAL DUTCH SHELL PLC**  
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**ANGUS GILLESPIE, VICE PRESIDENT CO2 STRATEGY**  
**AND LORRAINE MITCHELMORE, EXECUTIVE VICE PRESIDENT HEAVY OIL**

### Ben van Beurden

Ladies and Gentlemen, it's good to be here today to talk to you about many of the sustainable development activities in Shell and to see so many of our socially responsible investors here at Shell Centre.

First, the disclaimer statement.

This is my first year attending this event, it's good that Shell has been hosting events like this for some eight years now and as CEO I'm looking forward to taking our thinking and engagement in this area forward.



Today's event is a part of our commitment to environmental, social and corporate governance matters at Shell. This annual roundtable is a cornerstone of our Socially Responsible Investor programme and we also have a corporate governance programme under this ESG header.

In that space, we have remuneration committee roadshows coming up next month, with Hans Wijers, from the Remuneration Committee. And our chairman has ongoing roadshows and engagements.

Today we're focussing on Shell's approach to sustainable development which runs across all our activities, and interacts with businesses, governments and civil society including non-governmental organisations, the NGOs. And we look at this on three levels:

The foundation of our approach is running a safe, efficient, responsible, and of course profitable business. This means having the processes in place to manage safety, environment and community involvement.

Secondly, we share wider benefits with the locations where we operate – the long term nature of our businesses means we can be a part of a community for decades. We help to develop local economies through employment, local sourcing, our tax dollars and royalties and we support community projects tailored to local needs.

Thirdly, we want to be part of shaping a more sustainable energy future. We see the challenge of providing more energy and cleaner energy which is required for economic development in the face of growing environmental pressures.



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The scale of these global challenges is immense and effective collaboration is needed to shape a sustainable energy future.

Let's move on to the agenda.

I'm pleased to have Chad Holliday here with me today. Many of you may know Chad from previous events. Chad is a non-executive director, the chair of the Corporate and Social Responsibility committee and a member of the Remuneration committee.

Chad and I will give you a presentation, followed by a session on Carbon management at Shell – an area I know all of you are interested in and I'll introduce that later. After these presentations there will be an opportunity for a Q&A with the whole group.

We'll then move into panels and let me introduce the team who will take those.

Marvin Odum is the Executive Committee member responsible for Upstream Americas. He is here to talk to you about the Gulf of Mexico, our Alaska program and Shell's tight gas and liquid rich shales business.

Lorraine Mitchelmore, Executive Vice President Heavy Oil, will join Marvin to take your questions regarding our Oil Sands operations.

We have Harry Brekermans, who runs our Upstream International Operated joint ventures. Harry can take questions on topics like Iraq, Brent decommissioning, North Sea asset integrity and Netherlands gas.

Harry is joined by Mutiu Sunmonu, the Managing Director of SPDC who is here again today to engage with you on what has been a challenging year in Nigeria.

This year we have Michiel Kool who heads Safety, Environment and Social Performance to talk to you about our achievements and challenges in this sphere; deepen with him on Asset integrity and on contractor safety.

Joining him is Rupert Thomas, VP Environment, who looks after a number of our key sustainability partnerships.

Angus Gillespie, our Vice President CO2 will also join this panel to deepen on any further questions you have around our CO2 management following the presentation and Q&A.

At the end of the panel sessions there is an informal lunch where you will have the chance to ask any other questions. With that let me hand over to Chad.

### Chad Holliday



Thanks Ben, and it's good to have the opportunity to meet with you all again today to talk about Shell's CSR performance.

I'll start by running you through the programme for the CSRC in 2013 and 2014

The CSRC is a board committee currently consisting of 3 members – myself, Gerrit Zalm and Sir Nigel Sheinwald who I'm pleased to say is here as well today so I encourage you to chat with him in the breaks.

We take an active role in assessing and advising the board of directors as well as in reviewing the policies and the conduct of the Shell Group of Companies with respect to the Shell general business principles. This includes sustainable development and the health,



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security, safety, environment and social performance policy, along with the Shell code of conduct.

Last year we visited Alaska and South Africa, two locations with strong potential for Shell, but not without challenge. In Alaska, we gained a good understanding of some of the safety and environmental challenges there are, as well as the opportunities for the company. We were able to meet with governments and local communities to see how the HSSE and social performance standards are being implemented in practice. In South Africa we engaged with stakeholders and focussed on understanding how future activities could encourage the development of local content and economy.

In 2014 we're heading to Western Canada to look at our onshore operations and our heavy oil operations. We'll also have the opportunity to deepen on the proposed Canada LNG development and monitor how HSSE and social performance is being incorporated throughout project development – including the early phases of a project.

Partnerships allow us to collaborate with recognized experts in environmental and social matters. During early stages of projects, these partnerships help us plan to reduce the impact of our operations. As the slide here shows, Shell has strong long term environmental partnerships with global reach. In 2013 we renewed 4-year partnership agreements with the IUCN, Wetlands International and Earthwatch. More recently we've extended our partnership with the Nature Conservancy by a further year.

Along with these global partnerships, we also enter into partnerships aimed at tackling specific issues. For example our joint industry initiative with the UN Development Programme to help alleviate the causes of piracy in Somalia. As a leader in shipping, Shell has operations taking place in some 130 ports and terminals around the world, managing 10 oil tankers and 43 LNG ships and on any one day having an interest in around 1500 chartered vessels and barges on the world's oceans and rivers. The project with the UNDP supports young people in Somalia to find long-term employment opportunities, providing a viable alternative way of life to piracy.

Shell is also a strong contributor to many cross industry bodies and an active participant in studies that help our industry develop sustainably. I am part of a number of bodies and working groups. These include the Commission for Economy and Climate here in London, a Study on Renewable Energy for the National Academies in the US and the UN Sustainable Energy for All body. I have firsthand experience of how beneficial these type of relationships can be.

Shell is a founding partner of the Centre for Sustainable Shale Development in the US, and our operating principles have been reflected in the CSSD's rigorous industry performance standards. This year the CSSD will audit and certify companies' compliance with those standards, and Shell is preparing for this process in 2014.

We're also participating in the EDF studies into methane emissions from natural gas production. These studies help our industry better understand the areas for improvement. The first phase of this study finished last year and provided information that well completions had lower emissions than previously estimated, but emissions from pneumatic controllers and equipment leaks were higher than previously thought. This information allows us to best target our efforts going forward.

Shell has a strong track record of transparency, and this is something the board is paying close attention to. The sustainability report, published this week, is a continuation of SD



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reporting we have been doing for 18 years now. We have also reported key information on Nigeria, Oil Sands and payments to governments on a voluntary basis for a number of years. You can get printed copies of these 2013 reports here today.

As part of our commitment to transparency we have also taken investors to see the challenges to our operations in the Niger Delta and visited our tight gas operations both in Haynesville, Louisiana in the US and in China. I was pleased to be able to speak with those of you who attended the China trip last year, I heard it was pretty cold over there at Changbei, but I hope you found the visit useful. Those of you who went to China will have seen firsthand the commitment that Shell has to Human Rights through our engagement to resolve local issues with our dedicated Community Liaison Officers.

Shell has a long history of working on Human Rights, with the Shell General Business Principles and our code of conduct providing the foundation for Human Rights at Shell. The UN Guiding Principles on Human Rights help us focus in on areas for potential issues and we have identified Contracting and procurement, HR, Security and Social performance as the focus for our approach.

Our Human Rights assessments are integrated into our existing systems, and processes. A cross functional working group of senior managers works in partnership with the Danish Institute for Human Rights who provide deep knowledge to guide our work in this area. Further cooperation in the industry group IPIECA helps the industry understand these challenges better.

With that let me hand back to Ben.

### **Ben van Beurden**

Thanks Chad.

This chart shows Shell's view on the energy demand outlook and it gives us a view of how the energy system might develop.

Energy demand doubles over the first half of the century and this would be met by rapid growth in both natural gas and renewable, with renewables starting from a low baseline.



A number of years ago, our scenarios team looked at how long it took for a new source of energy to become significant in the energy mix with significance determined at around 1% of market share. At the time of their analysis they determined that it took some 30 years to get to this 1%, showing that the energy system is slow to change and the huge lead times and investment that are needed to shape the energy system.

This fits into Shell's thinking on our business. We're following a consistent and long term strategy to grow our cash flow across the cycle and deliver competitive returns. Shell's focus on HSE and on technology are core strengths for the company. We are industry leaders in deep-water, in LNG and GTL, in technology and integration and large scale project management.



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We have some of the most talented people in our industry working at Shell and they are working on adding more value for shareholders. Our dividend track record is, I think, second to none, underlining our commitment to shareholders.

Potential new projects are tested using consistent and conservative macro assumptions and you'll hear more about that later on. We look for consistent high rates of return and long-term cash generation. We're putting a lot of emphasis on not only looking at the economics, but more fundamentally if the projects and portfolio are attractive from a scale and growth perspective, and if they are resilient to down-cycles, and of course non-technical risks, some of which we will discuss today.

We allocate capital on a global, thematic basis, and you can see the main categories here. The "engines" businesses, in Downstream and Upstream, are mature, and they provide strong free cash flow for our dividends and growth themes. The "growth priorities", deep-water and integrated gas, are where Shell has leadership positions in the industry and the "longer term" category covers potentially very large positions for Shell in the future, like resources plays, heavy oil and Iraq, where we need to be careful not to over-invest at too early a stage.

You also see here our 2014 organic capital spend cut another way. About 45% of the 2014 budget is on care and maintain activities, such as asset integrity programmes, maintenance, drilling near-field exploration, development of infill wells and a series of small growth projects in downstream. Returns on small projects are usually attractive, and delivered quickly. This 'care and maintain' spending is the major element of Shell's capex programme, and you might like to talk to Harry and Michiel about these activities. About \$11 billion of the spending, or some 30%, is targeted at larger post-FID growth projects, and the remainder, about 25% goes into longer term pre-FID options and exploration. These plays tend to get a lot of headlines, despite their lower weighting in the company.

Turning to safety.

Our goal is to have zero fatalities and no leaks or other incidents that harm our employees, contractors or neighbours. In 2013 Shell had the lowest injury rates we have ever recorded, as well as the lowest operational spill volume we have ever recorded, but we still, sadly, had 5 fatalities in our operations. We cannot be complacent in this area. We manage safety through rigorous processes and by embedding a safety culture in the daily activities of our workforce and I am personally looking to re-energise the commitment to our 12 life-saving rules through more staff engagement this year. We've reported our Tier 1 and Tier 2 process safety incidents again this year, and we are pleased to see a year on year improvement. We thoroughly investigate all these incidents to make sure learnings are shared to further improve our performance going forwards.

In 2013 around 200,000 contractors worked for Shell and accounted for 75% of the total working hours. With contractors as such a significant part of our work force, it is critical that the Shell safety culture extends to our contractor base and of course contract HSSE statistics are included in the figures we present in our reports.

We look at HSSE management of medium and high risk contracts throughout the contract cycle, from pre-qualification to enable a contractor to bid for a contract through evaluation during the contract award process and then after the contract award, through ongoing HSSE management of the contract. We pro-actively involve our contractors in Shell safety day events and they follow our mandatory 12 life-saving rules. This is a challenging area,



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given that we are dealing with third parties and different cultures but we are making good progress.

Moving on to the environment.

Global demand for water continues to grow, and the energy industry while not the largest user, is a major user of water resources. Shell looks at water use from a policy perspective, working to develop solutions with organisations such as the World Business Council for Sustainable Development and we work with IPIECA to develop industry specific water management guidance.

We also prepare water management plans to look at tailored and innovative ways to manage our water use. Green infrastructure, using natural resources to find solutions, includes using reed fields in Oman to filter produced water. This replaces using more energy intensive methods to pump this water back into the ground. In Dawson Creek, in Canada shales, we use "grey" infrastructure, partnering with the town council to build a waste water plant which then provides water both for public parks and sports fields and some of this water is also piped to Shell's natural gas operations at Groundbirch, reducing both trucking and the demand for fresh water.

We were part of a joint industry study, which released a report on natural systems in 2013 and recommended that green infrastructure be included in the training for engineers. Our scientists contributed to this work, published in Nature, alongside academics, The Nature Conservancy, Dow Chemical Company, Swiss Re and Unilever. Michiel and Rupert can talk to you in more detail about HSSE in their panel.

Now let me move on to a series of asset and country updates and you might like to deepen on this in the Q&A panels. Firstly Nigeria. The situation in Nigeria was challenging in 2013. Oil theft together with the NIMASA blockade reduced our production, and the bottom line impact on earnings was over \$800m and spills resulting from oil theft continued.

Security remained difficult and 16 staff, dependents and contractors, were kidnapped during 2013. The loss of production to theft averaged some 32,000 boe per day in 2013 and we lost additional production through deferment due to shut-in pipelines. The Nembe Creek Trunk Line pipeline, which was only commissioned in 2010, was shut down for more than six months a production deferment of 150,000 boe per day, in order to remove the numerous tapping points that thieves had attached to it, and to prevent the continued damage to the environment from these points.

You can see a tapping point attached to one of our smaller flowlines on this slide. Flaring was down again in Nigeria in 2013, and is down over 80% since 2004. While we've made significant progress in recent years, this 2013 reduction was largely as a result of reduced production last year. On oil spills we recorded fewer operational oil spills in 2013, but we still need to improve here, our Goal Zero applies equally to Nigeria as anywhere else in the company.

We worked hard to reduce the impact of spills as a result of sabotage - intensifying monitoring and inspection of our facilities and including daily overflights. We have also worked hard to remediate these spill sites. From known spill sites at the start of 2013, only 22 have yet to be remediated. During 2013 with greater access to Ogoniland - which we left in 1993 - we made progress against the recommendations of the UNEP report beginning our physical asset verification process. As part of this process we identified a



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further 125 sites requiring remediation, and for transparency we have added those on to each year's comparison in the bottom right chart.

We have a large footprint in Nigeria, spanning the SPDC joint venture, Nigeria LNG, and deep water. The strategic review we announced in 2013 will reduce the SPDC footprint with more asset sales. We plan to divest more onshore blocks in Nigeria, so we can concentrate on the gas value chain, LNG and deep water. We've sold assets for \$1.8 billion in the last few years, and we have further licences with 80 to 100 thousand boe per day of production for sale at the moment, in the east of the Delta.

This is not an exit from Nigeria, and we are still making selected growth investment onshore and the pace of these projects will be determined to a large extent by continued government funding. Let me update you that some of our associated gas projects such as Southern swamp and Forkados Yokri to reduce flaring are facing delays due to a shortfall in funding for the joint venture.

So to summarize, the situation does remain challenging. However, we are making progress with flares reduction and spills clean up, and we have a clear plan in place to reduce our footprint there, whilst at the same time fulfilling our commitments as a responsible operator.

Moving on to another area where we have seen portfolio development in 2013. We had two projects come on stream in Iraq in 2013.

The Basrah Gas Company and the Majnoon Oil Field. The Basrah Gas Company is the largest flare reduction programme in the world. It currently has the processing capacity for 500 mmscf of gas per day and the potential for continued expansion to 2 billion scf per day. This gas is sold to the local power generation market, and the natural gas liquids are sold in Iraq, mostly as bottled gas.

On the oil side. The Majnoon Oil development achieved first commercial production in late 2013, and this development was supported by strong local workforce, around 2,500 staff at peak. We are looking at ways for continued employment opportunities now the plant is up and running. We recognise there are challenges here with flaring, and currently we are working hard with the Government and regulators to find a path forward to use this associated gas, perhaps with a similar model to the Basrah Gas JV.

At the other end of the spectrum, the Brent field in the UK North Sea, this one is nearing the end of its producing life. We continue to progress our plans to safely decommission this field. In 2013 we awarded a contract for the removal of the topsides for all four of the platforms, and the steel jacket of the Brent Alpha platform. We continue to engage proactively on our plans and we are working to an aim of submitting our decommissioning plan to DECC later this year or early next.

Turning to another long life asset: the Groningen gas field, operated by the NAM joint venture with Exxon, and partnered with the Dutch government. Groningen has been producing gas for decades and it is a key field for Shell and the Netherlands. Following increased seismicity in the area, the Dutch government have proposed measures including reduced production, to address the issue and local residents' concerns. Shell supports NAM and respects the proposals outlined by the Minister in this important area.

Harry and Mutiu are here and can talk to you about these themes - Nigeria, Iraq, North Sea and Netherlands.



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Turning briefly to our upstream business in the Americas. Those of you who attended the management day will have heard Marvin speak about both our challenges and our success and potential here and I'm really pleased to have both Marvin and Lorraine here to discuss all aspects of this diverse business unit with you. Upstream Americas spans profitable and growing deep water and heavy oil businesses, and longer term potential in resources plays and arctic exploration.

On Alaska, let me simply reiterate what we said earlier this year. We are frustrated by the recent decision by the Ninth Circuit Court of Appeals in a six-year-old lawsuit against the government. The obstacles introduced by that decision makes it impossible to justify the commitment of cost, equipment and people needed to drill safely in Alaska this year. We will have to wait for the courts and the US administration to resolve this legal issue. Given all of this, we are not drilling in Alaska in 2014, and we are reviewing our options here.

Lorraine will be talking to you in a short while about the progress we're making with Quest, the industrial scale Carbon Capture and Storage operation in our oil sands in Canada and CCS is one of four ways we are addressing climate change and a low carbon future at Shell. With one third of global emissions coming from electricity generation, switching from coal to natural gas is a quick and affordable way to reduce emissions.

We also look at other areas where gas can reduce emissions, such as shipping where our Greenstream LNG-fuelled barge is quieter, produces fewer emissions and is more fuel efficient than regular barges. Energy efficiency is good business sense as well as an environmental focus area. We've seen this in absolute terms at our Pernis refinery where the use of software to identify and allow us to target areas of energy inefficiency helped reduce our energy costs year on year and we are applying the learnings elsewhere in our portfolio.

We have built a strong biofuels business. Our Brazilian sugarcane ethanol biofuels emit 70% less carbon compared to traditional automotive fuels and we also have a number of early stage R+D activities in "second generation" biofuels technologies.

I want to pause here by giving you an overview of Shell's portfolio of low carbon activities. It's important to stress the very long term nature of some of these activities and for many, it's simply too soon to say if there will be a commercial outcome for Shell. In areas like solar and wind, we are making sure we stay in touch with developments and can react quickly to changes. We have some existing commercial operations in these areas, but we are not actively expanding these.

In hydrogen, we have local opportunities partnering with automotive industry players, but this will be a slow build-up if and when markets develop. Our focus has been on ensuring a funnel of CCS projects to increase our experience and skill set, as well as building a biofuels business that is integrated into our marketing business. With that, let me move to the next session, where we will update you on carbon management at Shell and then we will take a Q&A.

This year, we have had many requests from shareholders to address the topic of carbon and climate change. Shell has a long history of leadership in CO2 and climate change and no matter what the current language around the issue is; Shell has a deliberate long term strategy and public advocacy position on climate change. I've brought here today three of my team to take you into more detail on the long term future of the energy system and the impacts it could have on our business. More importantly we want to give you concrete



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examples of how Shell is incorporating a very uncertain future around the regulatory response to climate change into future business decisions.

Jeremy Bentham, Vice President global business environment, who you met last year, will start with the wider energy system and our scenario approach.

Angus Gillespie, Vice President CO2 will then deepen on how Shell's portfolio fits into this uncertain future and on how we take investment decisions with respect to carbon.

I have also asked Lorraine Mitchelmore, our Executive Vice President Heavy Oil to give you an update on our CCS portfolio, and to give you a real world example of climate change uncertainty being factored into investment decisions.

Over to Jeremy.

### Jeremy Bentham

Shell has been doing scenarios for some 40 years now with our most recent versions launched last year. Our scenarios, Mountains and Oceans, explore two different futures, with varying take-up and differing speed of adoption of the various sources of energy.



In the Mountains top down world, the supply side rules and widescale development of shale gas, a declining demand for liquid fuels and early adoption of CCS all contribute to a "gas backbone" in the economy. Economic growth is moderated and renewables grow, but do not dominate the mix until much later in the century. With CCS, the electricity sector is de-carbonized in the 2060's.

In Oceans, empowered constituencies create growth, but new vested interests hinder policy progress until the stresses on food, water and energy lead to higher prices which in turn unlock new resources and drive efficiency. Liquid fuels and coal continue longer in an Oceans world, until solar takes over in the later part of the century and electricity is finally de-carbonized in the 2090's.

What you immediately notice by looking at the 2030 chart is that even with widely different assumptions, the energy system is too large to move quickly in any particular direction and only hints of the future mix begin to show in our scenarios with real change only occurring much later. Both of these scenarios face the reality of a population growing to some 9 billion and an expanding middle class who are joining the energy ladder.

The scenarios are not a prediction of likely events, but are plausible futures, nor are they developed with an end point in mind. What we as Shell take away from work like this is how to think through a very uncertain future.

What you see here are the carbon implications of our scenarios.

What you notice is that the Mountains world manages to reduce annual emissions earlier through coal switching to gas and early adoption of CCS. The major gains from solar in Oceans comes later and overall emissions from Oceans are higher than in Mountains with both overshooting 2°C.

Remember that it isn't really the annual emission levels that matter, but the volume under the curve that adds up to the "stock" of Carbon in the atmosphere – with most scientists, on a



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P50 basis, putting some 1,600 Giga tonnes of CO<sub>2</sub> "budget" left before 2100, or put another way, an atmospheric concentration of 450 parts per million CO<sub>2</sub> before we hit 2°C of climate change.

On the right hand side of the chart, we have the IEA scenarios which are more focused on the world to 2035. The IEA have a self explanatory scenario named current policies, a "new policies" scenario, which is similar to both Oceans and Mountains in the early years - and a "normative" 2°C scenario.

I say normative as this scenario is based on the premise of meeting 2°C and working backwards, where all the other scenarios on the chart are forward looking and start with today's realities as the starting point. When Shell plans, we plan for our businesses to be robust in a range of potential futures, not just for one potential outcome.

I'll ask Angus to take over here.

### Angus Gillespie

Thanks Jeremy, and let me pick up with the IEA scenarios.

On the left is the IEA current policies scenario broken out into energy sources and on the right the 450 ppm, or two degrees, scenario. The difference between these two represents a range of potential futures.



Shell has an SEC proved reserves life of 11.5 years. Beyond this we have further resources under construction as well as 2P and 2C resources that we may invest in at a later date.

Under the IEA current policies scenario, demand for oil and gas predictably is robust. But, more importantly, under the IEA 450 scenario the demand for gas actually increases. Demand is flat to slightly down for oil over the next 20 years.

In 2013, Shell for the first year produced more gas than oil, and our SEC proven reserves are more than 50% gas, the only major IOC whose are by the way.

We are used to making decisions in an uncertain world. We make investment decisions on a rolling basis the projects we have under construction now are relevant in the foreseeable future and the decisions we make 5 or 10 years from now will be made looking at what the supply and demand outlook is at that time and the actual regulatory environment we face.

Overall, Shell's proven reserves and a good portion of its future resources potential are relevant even in a 2°C world and as we will see, can stay competitive on a longer term basis versus the alternatives through technologies such as CCS.

Shell has been a long term advocate for robust carbon pricing and a global carbon trading system, with energy efficiency, renewables and carbon policy joined up in a co-ordinated fashion. The consequences of getting this wrong can mean vast subsidy dollars being spent and not making climate progress.

Let me make some comments about project economics and how carbon fits into that.



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Shell takes investment decisions based on uncertainty using discounted cash flow. In the carbon bubble debate, the focus is on two elements, the price of oil or gas, but mainly oil, as well as the price of carbon.

Actually for us, these are two of a number of uncertainties facing us when investing in a project. Some others are the capital costs to build major projects, future operating costs and the recovery factor, or in other words, "Are the resources there in the quantities we think they are?"

We evaluate each of these risks in different ways. For example, we use probabilistic analysis when evaluating recoverable resources. For prices we use a \$70-\$110 screening value for Brent oil and \$3-\$5 per mmbtu for Henry Hub gas. I am responsible for setting the carbon part of this framework. We use a screening value of \$40 per tonne of CO<sub>2</sub>.

When we look at an investment decision on a major project that either has a long life, or has a significant carbon footprint we go much deeper. We look at items like the current local regulatory environment and how that might evolve, the markets the products are being sold into and whether they might use low carbon fuel standards, as well as the technical mitigants like the cost to make a facility "CCS ready", co-generation or other efficiency options.

With our economics based on a \$40 per tonne carbon price, if the regulatory environment doesn't evolve quickly, we actually have carbon upside in our projects FID'd today.

I will be happy to deepen on the types of work we do on carbon sensitivities in the Q&A or the breakout sessions we have this afternoon and Lorraine in a minute will give you an example of this from her business.

Shell has made progress in the last decade on reducing our emissions but that progress is getting more difficult. Our refineries and chemical plants are becoming more efficient, but our upstream facilities will require increasing amounts of effort to just hold their current energy intensity levels.

An example of our efficiency drive is in our Haynesville tight gas operation, which I understand some of you visited a couple of years back. We improved the monitoring of one of our cooling systems there and were able to selectively stop half our air coolers saving some 30,000 tonnes of CO<sub>2</sub> emissions annually.

CCS will be a key technology in the future, enabling us to make changes in our emissions performance and more importantly the emissions of our customers in the power or transportation sector. In fact the IEA believe that if CCS moves from demonstration phase to widespread use quickly, global CO<sub>2</sub> emissions will be 15% lower by 2050. With that let me hand over to Lorraine.



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**Lorraine Mitchelmore**

Thanks Angus,

Sticking with CCS, I first wanted to give you an update on Shell's two major operated CCS projects.

Quest, in Canada, is currently under construction and on schedule for a 2015 completion. This will directly reduce our oil sands mine upgrader emissions by over 1 million tonnes per annum. This is compared to 5.6 mtpa of emissions from our oil sands operations overall and 3.3 mtpa from our upgrader in 2013.

The Albertan and Canadian governments have been strong supporters of Quest and Alberta has a functioning CO<sub>2</sub> market. This is an example for future projects worldwide.

We are making a lot of effort to get this right and have a heavy program of community engagement to accompany the more technical work, such as our DNV certification.

In the UK, earlier this year, we were proud to be selected by the Department of Energy and Climate Change to move our Peterhead CCS project into the Front End Engineering and Design phase.

This project, in partnership with SSE, aims to sequester 10 mln tonnes of CO<sub>2</sub> over its lifespan and if built, will be the world's first commercial scale CCS project combined with a gas fired power plant.

Besides Quest and Peterhead, we are partners in the Gorgon CCS project in Australia, the Mongstad CCS test centre in Norway and we own a CO<sub>2</sub> capture technology company, Cansolv, which is a leader in sulphur dioxide and carbon dioxide recovery technologies.

With this portfolio, we are building a skill set around carbon capture and storage to ensure that when the regulatory environment is conducive to its widespread adoption, we have a competitive advantage. I want to now turn to the latest FID or final investment decision in my portfolio, Carmon Creek.

Carmon Creek is an in-situ heavy oil project. Essentially we use steam to make heavy oil that is too deep to mine, viscous enough to flow to the surface, where we process it. Carmon Creek is an energy intensive project and it also has a long lifespan due to the large resource base.

We looked at various sensitivities to the base economics of the project from potential carbon legislation. We looked at scenarios based on current local regulation, strengthened local regulation, a low carbon fuel standard with a biofuel blending requirement, and also carbon prices which almost approach the levels needed to implement CCS. Angus or I can deepen on some of this in Q&A but on the slide you can see some of these sensitivities versus our base case of \$40 per tonne on the slide.

You will see that there is upside and downside potential in our carbon economics here. Remember that our economics are most sensitive to the cost/opportunities in the early years of a project.

These sensitivities also inform our plans for abatement options.



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For Carmon Creek we chose to build a co-generation facility that reduced overall emissions intensity by some 12% and actually with some 540 MW of power sales, provides a partial hedge against higher CO2 prices. In addition we chose to inject the acid gas produced into an underlying formation that further reduces emissions compared to the alternatives.

These risks and mitigation factors were all added into the larger set of potential risks and opportunities in the project, like recovery factors and capital costs, and the Executive Committee and Board then take a decision on whether to invest or not based on a worldwide view of Shell's opportunities and portfolio.

This is a concrete example of the deep thinking we do around the uncertainty in climate change legislation and actions we can take up front to mitigate potential impacts.

With that, our section of the presentation is over; Ben, back to you.

### **Ben van Beurden**

Thanks Lorraine.

Now, Chad and I will take your questions on how we look at many of these topics from the Executive Committee and the Board.

Lorraine, Jeremy and Angus can take more detailed questions on the future energy scenarios, carbon management and our heavy oil portfolio.



Let's keep this session at a fairly high level. We have three panels after the coffee break for much more detailed discussion later. Chad and I will join those as well as it helps us to know what is on your mind. With that, first question please.

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### ROYAL DUTCH SHELL PLC

April 10th 2014

[WWW.SHELL.COM/IR](http://WWW.SHELL.COM/IR)

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**Reserves:** Our use of the term “reserves” in this presentation means SEC proved oil and gas reserves.

**Resources:** Our use of the term “resources” in this presentation includes quantities of oil and gas not yet classified as SEC proved oil and gas reserves. Resources are consistent with the Society of Petroleum Engineers 2P and 2C definitions.

**Organic:** Our use of the term Organic includes SEC proved oil and gas reserves excluding changes resulting from acquisitions, divestments and year-average pricing impact.

**Resources plays:** our use of the term ‘resources plays’ refers to tight, shale and coal bed methane oil and gas acreage.

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