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.

Cautionary Note
The companies in which Royal Dutch Shell plc directly and indirectly owns investments are separate entities. In this presentation “Shell”, “Shell group” and “Royal Dutch Shell” are sometimes used for convenience where references are made to Royal Dutch Shell plc and its subsidiaries in general. Likewise, the words “we”, “us” and “our” are also used to refer to subsidiaries in general or to those who work for them. These expressions are also used where no useful purpose is served by identifying the particular company or companies. “Subsidiaries”, “Shell subsidiaries” and “Shell companies” as used in this presentation refer to companies over which Royal Dutch Shell plc either directly or indirectly has control. Companies over which Shell has joint control are generally referred to “joint ventures” and companies over which Shell has significant influence but neither control nor joint control are referred to as “associates”. In this presentation, joint ventures and associates may also be referred to as “equity-accounted investments”. The term “Shell interest” is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in a venture, partnership or company, after exclusion of all third-party interest.

This presentation contains forward-looking statements concerning the financial condition, results of operations and businesses of Royal Dutch Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management’s current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Royal Dutch Shell to market risks and statements expressing management’s expectations, beliefs, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as “anticipate”, “believe”, “could”, “estimate”, “expect”, “goals”, “intend”, “may”, “objectives”, “outlook”, “plan”, “probably”, “project”, “risks”, “schedule”, “seek”, “should”, “target”, “will” and similar terms and phrases. There are a number of factors that could affect the future operations of Royal Dutch Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this presentation, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell’s products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; and (m) changes in trading conditions. All forward-looking statements contained in this presentation are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Royal Dutch Shell’s 20-F for the year ended December 31, 2013 (available at www.shell.com/investor and www.sec.gov). These risk factors also expressly qualify all forward looking statements contained in this presentation and should be considered by the reader. Each forward-looking statement speaks only as of the date of this presentation, June 27, 2014. Neither Royal Dutch Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this presentation.

We may have used certain terms, such as resources, in this presentation that United States Securities and Exchange Commission (SEC) strictly prohibits us from including in our filings with the SEC. U.S. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website www.sec.gov. You can also obtain these forms from the SEC by calling 1-800-SEC-0330.
A TECHNICAL OVERVIEW OF RESOURCES PLAYS

ALISON GOLIGHER
EXECUTIVE VICE PRESIDENT

AL DUNLOP
OPERATIONS EXCELLENCE

UPSTREAM INTERNATIONAL RESOURCES PLAYS
LIQUIDS-RICH SHALE TO TIGHT/SHALE GAS

Conventional Oil & Gas
- Permeable Sandstone
  - Structurally Trapped Oil
  - Stratigraphically Trapped Oil
  - Low Permeability

Liquids-Rich Shale
- CBM
- Oil Window
  - Liquids-Rich Potential
  - Gas Window
  - Shale Gas Potential
  - Shale
  - Tight Sandstone

Legend:
- Gas
- Oil
- Water (Brine)
TIGHT GAS: THREE DIFFERENT TYPES

**Tight Gas**
- Occurs in ‘tight’ sandstone
- Low porosity = Little pore space between the rock grains
- Low permeability = gas does not move easily through the rock (less than .01 mD)

**Shale Gas**
- Natural gas trapped in very small pores and adsorbed on organic material
- Ultra-low permeability (.0001-.001 mD)
- Production via induced fractures

**Coalbed Methane**
- Natural gas in coal (organic material converted to methane)
- Permeability low
- Production via natural fractures (“cleats”) in coal
- Recovery rates low
TYPICAL TIMESCALE FOR DEVELOPMENT (GREENFIELD DEVELOPMENTS)

1. Idea: Data Gathering, Access Negotiation
   • Leasing, environmental assessment, permits and policies

2. Exploration Wells
   • Prove Up Play, Assess Mobility
   • Vertical wells; coring
   • Possible sidetracks; frac and test
   • 2-4 wells

3. Appraisal Wells
   • Assess Produce-ability
   • Assess Materiality
   • Assess Lateral Variability (sweet spots)
   • Horizontal wells across play area
   • Fracs and tests
   • 4-10 wells

4. Pilot
   • Assess Economic Viability
   • Pilot development in sweet spot area
   • 10-20 wells

5. Infrastructure
   • Gas Plants
   • Roads
   • Water Handling
   • Electrical Infrastructure

6. Harvest
   • Phased development, building out from initial development
   • Ongoing drilling
   • Pipelining
   • Keep infrastructure full
   • 50-250 wells per year/100s-1000s wells

7. Significant Time to prove play
   • Different from USA
   • Long producing life with ongoing investment in wells
   • Activities change through life span
   • Technology is key enabler to commercial viability

EXPLORATION | APPRAISAL | PILOT | DEVELOPMENT
**TIGHT/SHALE OIL AND GAS LIFECYCLE**

**Explore**

Q: Does the play exist/work?

**Appraise**

Q: Productivity?

**Pilot**

Q: Can we produce economically?

**Harvest**

Q: Can we reach sustainable economic production?

---

**Critical Success Factors for Tight/Shale Oil & Gas**

- Size, scale, number of wells, resources required
- Economics; minimal or positive market changes
- Recovery factor, optimal wells spacing, well design
- Facilities and water management, at each step
- Addressing non-technical risks; community support; strong, supportive regulation

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Explore Appraise Pilot Harvest

- Development well
- Development area varies with gas price, EUR, cost
Finding And Producing Tight/Shale Oil And Gas

www.youtube.com/watch?v=w9mmsekadgw
TYPICAL ASPECTS OF A DEVELOPMENT
## HOW WE OPERATE: OUR OPERATING PRINCIPLES

<table>
<thead>
<tr>
<th>Principle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SAFETY &amp; WELL INTEGRATION</strong></td>
<td>Shell designs, constructs and operates wells and facilities in a safe and responsible way.</td>
</tr>
<tr>
<td><strong>AIR</strong></td>
<td>Shell conducts its operations in a manner that protects air quality and controls fugitive emissions as reasonably practicable.</td>
</tr>
<tr>
<td><strong>FOOTPRINT</strong></td>
<td>Shell works to reduce its operational footprint.</td>
</tr>
<tr>
<td><strong>WATER</strong></td>
<td>Shell conducts its operations in a manner that protects groundwater and reduces potable water use as reasonably practicable.</td>
</tr>
<tr>
<td><strong>COMMUNITY</strong></td>
<td>Shell engages with local communities regarding socio-economic impacts that may arise from its operations.</td>
</tr>
</tbody>
</table>
GROUNDWATER PROTECTION: WELL INTEGRITY AND ISOLATION

- Groundwater protected by a series of physical barrier that last over the life of the well
- Casing is cemented in place to below the level of potable water before drilling proceeds
- Baseline data and monitoring of surrounding water wells
- Strong and fair regulation and enforcement capacity
- ... Moreover good groundwater protection is also good for minimising vents and maximising operational efficiency
FLUIDS USED IN SLICK WATER HYDRAULIC FRACTURING

Additives Might Include:
- Guar Gum / Hydroxyethyl Cellulose
- Ethylene Glycol
- Sodium / Potassium Carbonate
- Sodium Chloride
- Borate Salts
- Citric Acid
- N,n-dimethyl Formamide
- Glutaraldehyde
- Acid
- Petroleum Distillate
- Isopropanol
- Potassium Chloride

<table>
<thead>
<tr>
<th>Compound</th>
<th>Purpose</th>
<th>Common Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acids</td>
<td>Dissolves minerals and initiates fissures in rock (pre-fracture)</td>
<td>Swimming pool cleaner</td>
</tr>
<tr>
<td>Glutaraldehyde</td>
<td>Eliminates bacteria in the water</td>
<td>Disinfectant; Sterilizer for medical and dental equipment</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>Allows a delayed break down of the gel polymer chains</td>
<td>Table Salt</td>
</tr>
<tr>
<td>N, n-Dimethyl formamide</td>
<td>Prevents the corrosion of the pipe</td>
<td>Used in pharmaceuticals, acrylic fibers and plastics</td>
</tr>
<tr>
<td>Borate Salts</td>
<td>Maintains fluid viscosity as temperature increases</td>
<td>Used in hand soaps, laundry detergents &amp; cosmetics</td>
</tr>
<tr>
<td>Polyacrylamide</td>
<td>Minimizes friction between fluid and pipe</td>
<td>Water treatment, soil conditioner</td>
</tr>
</tbody>
</table>

≈99% Water And Sand
≈1% Additives
WATER MANAGEMENT

- Water is a critical aspect of any Tight/Shale Oil & Gas development
- Typically 5,000 to 20,000 m³ of water is required per well (about 2 to 8 Olympic-size swimming pools)
- Responsible sourcing, handling and disposal are essential
- Recycling is potentially an economic as well as environmental win
  - Significant reduction in freshwater consumption
  - Significant reduction in disposal costs

Groundbirch Projected Example

Sichuan Water Recycling

Use of flowback water
FUGITIVE EMISSIONS AND GREEN COMPLETIONS

- Significant focus on Greenhouse Gases from Tight/Shale oil and gas development
  - Fears over tank venting and leaks
  - Typically controlled by Vapour Recovery, Stabilization and Good Practice

- Flaring and Venting
  - Well startup/cleanup
  - CO2 vs. Methane

- Green Completions = Reduced Emissions Completions
  - Readily applied to Development asset
  - Less common in Exploration

Collaboration between University of Texas, EDF and 9 operators in USA allowed measurements to be taken from 190 onshore natural gas sites

Unprecedented measurements provide better understanding of Methane Emissions during Natural Gas Production

Photography by URS, Inc for the Cockrell School of Engineering at The University of Texas at Austin
PUBLIC AND COMMUNITY INVOLVEMENT

- Significant Public Concern around Tight/Shale Oil and Gas Developments
  - Water, Noise, Air Quality, Land Use, etc
- Successful Developments require ongoing drilling and development for 20-40 years
  - Good relationships with community is a must
  - CO2 vs. Methane
- Ongoing Dialogue
  - Communication Plans
  - Solicit Feedback and Listen
  - Respond with Credible Information
- Open Houses, Community Liaison Staff, Newsletters, Leadership Engagement, Advisory Panels, etc

Ukrainian NGOs and Media visit Shell site
Community engagement, Sichuan
Community engagement, Jinqiu
Community engagement, Jinqiu
TECHNOLOGY AND INTEGRATION

Technology Enablers

**Decrease Well Costs**
- Best in class drilling technologies - Drilling Automation & Well Manufacturing
- Rigs on skids
- Mud composition
- Fracturing techniques
- Multi-stage completions
- Micro seismic

**Increase Production**
- Integration of techniques
- Selecting the best areas
- Fracture prediction
- Rock property analysis
- Seismic evaluation
- Geomechanical analysis
- Geochemical analysis

**Reduce Footprint**
- Green Completions
- Multi well pads
- Light, noise inhibitors
- Green frac fluids
- Fluids recycle
- Pipeline water
- Novel stimulation technologies

**Technology and Integration**

- Proprietary Technology
- Shell Capabilities
- 3rd Party Products

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**WELL DESIGN**

**PAD DRILLING**

**FRACTURE PREDICTION**

**SEISMIC EVALUATION**

**NOVEL TECHNOLOGIES**

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DEVELOPMENT PACE

Canada: Groundbirch

- 8 years in development – good geology understanding
- Well developed pipeline infrastructure
- Developed rig and fraccing support industry
- Clear regulatory framework (water supply & disposal)

China: Jinqiu

- ~2 years in exploration phase of development
- Densely populated & developing legal framework
- Developing rig and fraccing support industry
- Water treatment solutions in development
- Limited gas transport infrastructure developed
TECHNOLOGY: THE FUTURE

**DECREASE COSTS**
- Drilling Automation

**INCREASE PRODUCTION**
- Fracture Prediction

**REDUCE FOOTPRINT**
- Fluid Recycling

- Well Manufacturing
- Geomechanical Analysis
- Piped water
WATER INTENSITY OF VARIOUS SOURCES OF ENERGY

* Irrigation & process water included
** Average is not available
*** Excludes upgrading to synthetic crude oil

ENVIRONMENTAL IMPACT: FUGITIVE METHANE

Study by the University of Texas at Austin in collaboration with the Environmental Defense Fund and 9 operators

Reason for the study:
- Wide variation in EPA national inventories
- Limited measured data
- Data better informs scientifically sound policies and regulations

Key findings:
- Measurements from 190 onshore natural gas sites in the US
- Total emissions similar to 2011 EPA national inventory
- Well completion emissions lower than previously estimated
- Emissions from pneumatic controllers and equipment leaks higher than EPA national emission projections

EPA Production Sector Methane Emissions

*Methane Emissions Difference (Gg/yr)

*6000 Gg/yr is 2% of the national greenhouse gas inventory
- Current data supports the policy arguments on climatic benefit of gas over coal; though most research have been based on the 2009-2010 EPA inventories with higher system-wide emissions
- Definitive answer once EDF series is completed for other segments of the natural gas value chain

Source: US EPA, UT/EDF Study, NPC (George et al), NREL (Logal et al), IDA (Weber et al), Cornell (Howarth et al), ANL (Burnham et al), NETL (Skone et al) and IEA
COMMUNITY RELATIONS

ENGAGEMENT

- A priority for Shell as a responsible operator
- Network of Community Liaison Officers supporting Shell operations in China
- Proactive engagement with fence line communities
- Standardising processes of land and issues management
- Form coordination teams with partners and local government

Road blockade, China
Zitong villagers perform lion dance to express thanks
Community engagement, Sichuan
Community engagement, Jinqiu
CHANGBEI: LOCAL CONTENT

- Local staffing:
  - 2005: 60% local project staff
  - 2013: 91% local project staff
  - Local staff in management positions

- Development program for both Shell and PetroChina staff

- Talent supply to other Shell and PetroChina projects – a training ground

- Trust relationship with Partner & Contractors as a foundation for success

- Respect for staff

- Strong working partnership on site and in office

---

**Chart:**

- Yulin local
- PetroChina contracted
- PetroChina secondees
- Shell local
- Shell expats

**Years:** 2004 - 2013
COMMUNITY DEVELOPMENT

- Detailed impact assessments
- Examples of co-operation:
  - Improved road ways
  - Upgraded irrigation systems
  - Shared equipment
  - Staff helping during irrigation season
PARTNERSHIPS AND TRANSPARENCY

Centre For Sustainable Shale Development

Strategic Partners made up of Foundations/NGO’s/Industry

- 15 Regional Performance Standards
- Air and Climate protection
- Surface and Ground Water Protection
- Voluntary Assessment/Certification Process (Q4 ’13/Q1 ’14)

www.sustainablesshelf.org

Transparency

- All Shell wells in the US and Canada (Alberta and British Columbia) report chemical use during Fraccing on the Fracfocus website
  - Shell supports legislation requiring suppliers of chemicals to disclose this information
- Active in industry organizations such as Shale Gas Europe and the OGP
  - Push for robust regulation
  - Transfer of best practice internationally

Fracfocus.org
ENGAGEMENT – RESOURCES PLAYS

Centre for Sustainable Shale Development (CSSD) recent developments

- 15 performance standards
  - Air + climate
  - Water + waste management
- Shell anticipates applying for certification and verification in 2014

Environmental Defense Fund (EDF) studies

- Phased studies
- Shell participated in studies on production
- Further EDF studies to come on
  - Gathering and processing
  - Transmission and storage
  - Local distribution
  - Natural gas vehicles and fuelling stations

Shell tight/shale oil + gas operating principles since 2011