2015 digital map one-liner

**Technology Deployment**

Alaska

Alaska BP is the largest gross producer of oil in Alaska and operates 12 oil fields on the North slope, including the supergiant Prudhoe Bay.

Canada

Developing energy from Canada’s oil sands, the third-largest crude reserves in the world, as well as exploring offshore frontiers in the Beaufort Sea Arctic and Nova Scotia.

North America

Top-quality unconventional business, leveraging decades of ‘know-how’ in drilling and completions at scale.

Gulf of Mexico

Largest leaseholder in the deepwater Gulf of Mexico, owning more than 650 gross blocks in water depths of 1,200 feet or greater.

Trinidad & Tobago

Huge gas business, averaging approximately two billion standard cubic feet daily sold each day. Increasingly, production is moving subsea and into deepwater.

Brazil

BP holds a diverse portfolio in Brazil, with 27 exploration and production licenses, onshore and offshore, in seven different basins.

North Sea

Maximizing recovery from this maturing basin with world-class imaging, reservoir management and enhanced oil recovery.

Norway

New offshore projects and keen focus on life of field extension, push BP Norge’s plans out to 2050.

Algeria

Major gas business, with two large gas developments – in Salah (dry gas) and in Amenas (wet gas) – both in partnership with Sonatrach and Statoil.

Egypt

Sustaining oil production plateau in the Gulf of Suez and opening up a new deepwater gas business in the Nile Delta.

Iraq

In partnership with Iraqi State Oil Marketing Organization and CNPC, BP is aiming to almost treble output from the supergiant Rumaila to 2.8 million barrels per day.

Azerbaijan

BP, with partners, is developing the giant high pressure Shah Deniz gas field and moving into the next phase of development of the supergiant oil field ACG.

Oman

Full Field development of giant Khazzan tight gas field will involve drilling 300 wells over 15 years, to deliver plateau production of a billion cubic feet gas per day.

Angola

200,000 barrels per day from BP’s operated and non-operated deepwater and ultra deepwater fields. BP is also exploring pre-salt plays in the Kwanza Basin.

**Technology Projects**

Red = spelling error on the digital map that need to be updated

**Advanced Seismic Imaging**

*ISS*®

Multiple sources acquiring seismic simultaneously, with noise distortion processed out

*ISSN*™

Multiple sources working independently but recorded continuously

Full Waveform Inversions

High-resolution velocity model-building through inversion of entire 3D data sets

Multi-Azimuth Seismic

Illuminates target from different azimuths with multiple surveys over the same area

Wide Azimuth Towed Streamer

Receivers illuminated with multiple sources to survey from many azimuths and offsets

Ocean Bottom Nodes

Seabed receivers enable surveys around facilities and high density survey configurations

Seismic ~~Simulations~~ Modeling

Synthetic data generation to support data acquisition, processing and analysis

4D Seismic

Reservoir monitoring to detect gas and fluid changes over time

**BP Well Advisor**

Casing Running Console

Detects changes in observed friction between casing and the wellbore

BOP Monitoring

Remote monitoring of BOP health and valves performance, with control systems diagnostics beyond rig site

Pressure Testing

Real-time display, interpretation and documentation of positive well barrier pressure tests

Rigsite Fluid Management

Early warning indicators for potential lost circulation and well control issues

No Drilling Surprises

Key subsurface and hazardous risks identified from offset wells, updated in real time during drilling operations

Cementing

Real-time cement placement and centralizer stand-off analysis, with verification of cement well barriers to reduce zonal isolation events

~~Data Quality Console~~

Delete

ROP Optimization

Maximizing drilling efficiency in hard rock environments

~~Completions (Makeup Torque)~~

Delete

~~Tripping~~

Delete

**Beyond Sand Control**

Downhole Sand Management

Proprietary software to support optimal completion design selection and define well operating parameters

Sand Consolidation

Adds strength to weak rock formation to increase productivity from sand-prone wells

**Enhanced Oil Recovery**

Designer Gas®

Miscible gas injection to displace oil from the rock, often alternated with water injection to improve sweep, can improve recovery by 6% to 10% over base waterflooding. Lean gas such as methane, vaporizes oil from the rock surface and carries it to production wells, before being recycled

Bright Water®

Bright Water® is a submicron thermally activated particle that expands reducing the flow in thief zones and diverting injection water into poorly swept areas of the reservoir, thereby increasing oil recovery

*Designer Water*® EOR - *LoSal*® EOR

A breakthrough reduced salinity waterflooding technology that significantly increases compared to conventional waterflooding

Designer Water® EOR - Polymer Flood

The polymer particles flow with the water and warm up as they pass through the reservoir.

Digital Rocks

Application of image-based modeling and simulation techniques to derive reservoir rock properties

**Field of the Future® Technology**

Production Management Advisor

Integrated real-time information system to optimize short and long term hydrocarbon value

Operations Advisor

Analysis and intelligent alters management system, with condition-based monitoring and pro-active risk management

Distributed Temperature Sensing

Provides a near real-time view of how fluids such as oil, gas and water enter wells from different reservoir units, without the need for costly well interventions and production shut-downs

~~Sensor CoE~~

Delete

Advanced Collaborative Environments (ACE)

Enables people to work collaboratively regardless of distance, encouraging more efficient decision making, enhanced productivity and improved operational performance

**Facilities & Integrity**

Highly Reliable Chemical Injection

Efficient, reliable application of chemical barriers, supported by BP’s Chemical Management Suite to track performance

Guided Wave Inspection System

An inspection technique that offers rapid screening of long lengths of pipework for corrosion and other defects

EMAT Inspection

Electromagnetic acoustic transducers provide a permanent image of the entire inspection segment

Digital Radiography

An inspection technology for subsea environments, an alternative to traditional pipeline inspection gauges, or 'pigs'.

Corrosion & Erosion Modeling

State-of-the-art integrity monitoring and control system models that inform decision making in corrosion monitoring and management.

Subsea Pumping

Used to raise the rate of recovery, extend the duration of the peak production plateau and reduce the final abandonment pressure, increasing total recovery

Subsea Metering

Combine flow- and composition-sensing elements and apply empirical flow modeling algorithms to infer the flow rates of oil, water and gas in the production stream

Subsea Processing

Enables the development of smaller fields that were previously considered uneconomical by tying them back to hub facilities miles away

Project 20K™

20K technologies will unlock the next wave of deepwater resources, trapped in ultra-high pressure reservoirs

**Unconventional Reservoirs**

Geo-Engineered Completion Optimization

Proprietary integrated seismic, petrophysics, geomechanics and reservoir modelling tool to optimize well and field design to maximize economic recovery from unconventionals

~~Hardrock Drilling~~

Delete

Tight Gas

Full range of Upstream Technologies, seismic, reservoir management, drilling, completions and operations applied to unconventional, low permeability rocks