Oxy’s Digital Transformation

Occidental Petroleum Corporation
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Use of non-GAAP Financial Information
This presentation includes non-GAAP financial measures. You can find the reconciliations to comparable GAAP financial measures on the “Investors” section of our website.
Agenda

• Introduction

• Oxy’s Journey to Digital Transformation

• Re-Imagined Oilfield (RIO) – What’s Next

• Driving Value Through Data Analytics
Differentiated Value-Based Approach

- More Oil
- Less Cost
- Better Inventory

Creating shareholder value over the long-term

- Culture of innovative technology and process
  - Subsurface characterization
  - Integrated development planning
  - Oxy Drilling Dynamics
  - Innovative facility designs
  - Long-term base management
  - Enhanced reservoir recovery

- Early adoption of external trends
  - Big data, analytics, and mobile workforce
  - Multi-lateral wells (SL2)
  - Crude export facility

- Innovative cost efficiency strategies
  - Logistic and Maintenance hubs
  - OBO portfolio and investments
Oxy Permian

- Largest operated position in the Permian
- Exceptional subsurface characterization
- Proven value based development approach
- Improving through unique technology advancements

### Oxy Permian Business Overview

<table>
<thead>
<tr>
<th></th>
<th>Net Acres</th>
<th>Operated Wells*</th>
<th>2016 Net Production Mboed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources – Unconventional Areas</td>
<td>1.4</td>
<td>5,150</td>
<td>124</td>
</tr>
<tr>
<td>Enhanced Oil Recovery Areas</td>
<td>1.1</td>
<td>19,310</td>
<td>145</td>
</tr>
<tr>
<td><strong>Oxy Permian Total</strong></td>
<td><strong>2.5MM</strong></td>
<td><strong>24,460</strong></td>
<td><strong>269</strong></td>
</tr>
</tbody>
</table>

### Permian Basin Industry Production

- **10,000 mi² 3D seismic**
- **130,000 mi² 2D seismic**
- **~10,000 gross OBO wells**
- **250 OBO wells since 2015**

*Gross Oxy operated wells including producers and injectors, and idle wells.
**Source: Wood Mackenzie 2016 production, 3/2/17, company NWI% production rates, operators shown represent ~85% of Permian Basin daily production.*
Our Journey to Digital Transformation

Production Optimization
- Institutionalized Processes and Tools
- Single reporting repository
- Focus on analysis and decision making

Consolidated ERP Systems
- Integration of operational, technical and financial data
- Global Supply Chain
- Single Chart of Accounts

Technical Data Management
- Technical Data Consolidation
- Global Well Naming Convention

Field Automation
- Standardized End Devices
- Segregation of Automation Network
- Secured Remote Access to Real time Data
- Process Historian

Next Generation Production Optimization
- Real time Data Historian
- Predictive Analytics
- Advanced Surveillance

- Smart Oilfield
- Edge Computing
- Internet of Things
- Cloud and Mobility
- Big Data and Analytics
- Cognitive Service and Machine Learning
- UAV
- Virtual Reality
Capturing and Executing Innovative Ideas

**Strategic Innovation**

- Innovate in Core
- Think Differently
- Follow Faster

**Oxy’s Innovation Process**

A flexible system that flows, changes form in real time, and seeks the most natural path to its destination.

**Current Innovation Pipeline Statistics and Results**
RIO Technology Project - Production Technician Digital Twin

Map View

Real-time Alarms

Route – Main Screen

Production Screen

Trend Screen

71 Mobile Applications

Ensuring employees have control where it matters most
Data Science – Going Beyond Interesting

Data Collection & Profiling
- Data Preparation & Tagging
- Data Quality & Cleaning
- Data Forensics & Profiling

Insight & Recommendations
- Visualization
- Benchmarking
- Exploitation & Exploration

Statistical Methods
- Bayesian Analysis
- Survival Analysis
- Uncertainty Analysis
- Design of Experiment
- Statistical Learning (Machine Learning)
- Spatial/Temporal Analysis

Computational Methods
- Numerical and stochastic Simulation
- Signal Processing
- Network Analysis

Optimization
- Computational Intelligence
- Natural Language Processing
- Image/Voice Processing
- Data Structure & Classical Algorithms

Artificial Intelligence

Key Levers
- University Partnerships
- O&G Industry Research
- Outside Industry Research
- Commercially Viable Algorithms
- Vendors
- IT

Data Management
Driving Value @ the Bit

@Bit + @Target

- Predicts bit location using physics + machine learning
- Calculates dogleg severity, build/turn rate, motor yield

@ Target Algorithm

- Determines optimum build & turn rate, sliding and rotating lengths to reach target point
- Minimizes loss of weight on bit, tortuosity, drilling time, dogleg severity

Max DLS limit = 11 degrees
Max DLS limit = 14 degrees
Max DLS limit = 24 degrees
Driving Value @ the Reservoir

Steam/Water/CO2

- Leverage field data and new data sources
- Optimize over larger areas
- Integrates w/existing workflow
- Significantly lower computational costs

Target=$100MM

Field decisions that optimize daily total field production

Reservoir & Operational Facilities

- Optimizer
- High Speed, Low Fidelity Reservoir Models
- Historical/field data to calibrate and quantify uncertainty

Maximize NPV honoring economic, operating, and well constraints by generating thousands of what-if scenarios
Driving Value @ the Well

Lift System Diagnostic/Optimization

- Leverages artificial intelligence and pattern recognition
- Proprietary deviated well algorithms based on mechanical engineering+applied mathematics

Upcoming Opportunities

- Text and image analytics of unstructured data to drive efficiencies with chemical treatments, safety, failure detection, etc.
- Survival and risk analysis to identify odds of failure in advance.
- Combine maintenance cost factors and risk of failures to optimize preventative maintenance.
Q&A