

# Roy B. Luck

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## Accomplished geoscientist, with commercial mindset and business acumen (MBA)

- Delivers recommendations to technical and/or management audiences; combines data analysis with mapping, reservoir modeling, and competitive intelligence ... *to inform investment decisions*
- Specialist in de-risking and field development planning for conventional/unconventional, deep water, and heavy oil assets; matured projects totaling ~4 Bboe 2P reserves and ~\$25B CAPEX to date
- ~25 yrs experience in upstream oil & gas with a ‘major’ (Shell), a ‘super-independent’ (ConocoPhillips), and smaller independents – including ~6 yrs as an expatriate in the Netherlands and Nigeria
- American Association of Petroleum Geologists (AAPG) Certified Petroleum Geologist #6521

## Key skills – combination of production geology, modeling, opportunity screening, and communication

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|--------------------------------------|---------------------------------|-----------------------------------|
| ✓ Oil/gas field development planning | ✓ Integrated reservoir modeling | ✓ Communication – written, verbal |
| ✓ Data integration and analysis      | ✓ Reservoir characterization –  | ✓ Coaching, and mentoring         |
| ✓ Opportunity screening              | seismic interpretation,         | ✓ Software – SLB PETREL; IHS      |
| ✓ Competitive Intelligence           | structural/sedimentary geology, | Kingdom/SMT, PETRA, REP,          |
| ✓ Oil/gas reserves assessment        | correlation/mapping             | MS Office                         |

## PROFESSIONAL EXPERIENCE

### Consulting Geoscientist

Q1/2016-present

#### Founder/Principal at APEX Subsurface Consulting, LLC (est. Q1/2021)

Consultancy marketed to global oil & gas, battery metals and geothermal energy industries ... assessing commercial potential and technical risk, from opportunity screening to project sanction and beyond

*“Working with energy producers to minimize subsurface risk, and maximize project value”*

- Interpreted seismic data and built static models for non-operated Lower Wilcox sub-salt oil fields in deep water Gulf of Mexico (Shenandoah/Monument), for development optimization, operator influence and reserves booking; Shenandoah is a flagship inboard Paleogene, with 100+ kbopd capacity
- Geomodeler and seismic interpreter for independent operator with assets offshore Niger Delta (brownfield, near-field/greenfield exploration targets), on long-term contract; built/maintained PETREL static models for dynamic simulation and field development planning; prepared material for marketing (farmout) efforts, including deterministic/probabilistic volume estimates
- Competitive intelligence consultant for lithium brine and geothermal projects
- Technical consultant (RPS Group); assessed potential and risks for oil fields in Mexico, Romania

### ConocoPhillips (Gulf Coast Business Unit) – Houston TX

2014-Q4/2015

**Staff Geologist**, Eagle Ford Development Spacing Pilot Team: Recommended aerial and vertical well placements and completions design for a 12-rig drilling program, totaling \$1.5B in annual CAPEX within 220,000-acre leasehold; communicated findings at regular management updates

- Identified key drivers for reservoir performance, in collaboration with teams in business unit and R&D; highlighted key uncertainties, and drafted 2015 geoscience work plan for 6 staff
- Correlated stratigraphy in PETREL project, and compiled petrophysical dataset to assess geomechanical impact on Stimulated Rock Volume (SRV) geometries that determine well count and spacing patterns
- Provided specialized training to geoscience/engineering staff on field trips

### Royal Dutch Shell (Upstream Americas, Deep Water) – Houston TX

2011-2014

**Senior Production Geologist**, geomodeler on multi-disciplinary Stones asset team. Informed decision makers at Select, Define and Sanction milestones for Stones Field, Shell’s flagship project in the Gulf of Mexico Lower Wilcox trend. Stones is the world’s deepest offshore oil production facility (9500’ water depth), producing first oil in 2016 (\$5+B CAPEX).

- Built/maintained geologic model of Stones Field, using seismic/wireline/core/outcrop data to stochastically populate depositional facies; collaborated with reservoir engineers to compile production forecasts and constrain sensitivities prior to project sanction
- Planned appraisal/development wells, and provided input for reserves estimates
- Organized reservoir modeling workshop to improve efficiency, by standardizing/streamlining deep water simulation workflows; secured executive sponsors and technical expert participation
- Assessed competitor acreage to advise management, participated in data rooms as buyer/seller

**Royal Dutch Shell (Projects & Technology, Front End Studies Americas) – Houston TX 2007-2011**

**Production Geologist** and internal consultant, supporting asset teams in Shell business units worldwide

- Matured development of \$8+B Peace River/Carmon Creek heavy oil project, in collaboration with Shell Canada staff; commercially-challenged project was sanctioned in 2013, and divested in 2017 as part of a \$7.5B oil sands package including steam flood and mining assets
  - Built ~500 mi<sup>2</sup> geologic model, delineated ‘sweet spot’ containing 3+ Bbbl resource based on rock/fluid properties and industry benchmark/analog data, evaluated steam drive (SD) and cyclic steam stimulation (CSS) development options
  - Screened heavy oil acreage in the Athabasca Oil Sands, identified acquisition targets
- Saved ~\$500+ million CAPEX by reducing well count for partner-operated, deep water Erha North Field Phase II development in Nigeria (first oil, 2015)
- Calculated gas reserves for Shell Canada, related to \$5.9B Duvernay Oil acquisition (2009); correlated stratigraphy, compiled volume maps using petrophysical attributes from 1000+ wells in Deep Basin
- Business Planner for VP E&P Studies (2009-2010); shared management initiatives with staff, tracked team performance, compiled competitive intelligence for deep water and Enhanced Oil Recovery (EOR)

**Royal Dutch Shell (Shell Nigeria Exploration & Production Company) – Lagos, Nigeria 2003-2007**

**Production Geologist**, sole geologist on multi-disciplinary EA asset team; EA is offshore Bayelsa State in the Niger Delta; it produced 125,000 bbl/d oil and 60 MMcf/d gas at the time

- Contributed to \$250M Phase II Field (Re-)Development Plan and presented proposals to JV partners including state-owned Nigerian National Petroleum Company
- Interpreted seismic dataset covering structurally-complex EA Field, built static models for dynamic simulation (incorporating sequence stratigraphy and geostatistical property distributions)
- Prepared materials for, and participated in, annual reserves audits
- Provided wellsite support for deep water exploration wells

**Royal Dutch Shell (Projects & Technology Applications/Research) – Rijswijk, Netherlands 2001-2003**

**Research Scientist/Geologist**

- **Algeria exploration** (2003); prepared Shell Exploration for new country entry and lease sale, by compiling geologic maps and regional cross-sections of Algeria highlighting reservoir/seal pairs
- **Water to Value team** (2001-2003); sole geologist on team dedicated to produced water management, covering activities ranging from waterflood simulation to water treatment and purification
  - Focal point for water re-injection studies at Nimr (Petroleum Development Oman) and Draugen (Norske Shell). Documented microseismic results, modeled induced fracture propagation
  - Wrote chapter about surveillance techniques for induced fractures, in-house Shell waterflood manual

**ADDITIONAL EXPERIENCE**

- **Graduate Teaching Assistant, The University of Texas at Austin**; prepared, taught and evaluated laboratory exercises in introductory geology and sedimentary geology
- **Graduate Research Assistant, The University of Texas at Austin**; conducted structural geology fieldwork in the Central Ranges of New Guinea, and the Sierra Madre Oriental of northeast Mexico
- **US Forest Service volunteer** (Salmon NF, Challis NF, ID); engaged mine operators to mitigate impact on salmon habitat, posted abandoned mine boundaries to enable contaminant investigation by EPA

**EDUCATION**

- **M.B.A., Texas A&M University** Mays School of Business (Executive MBA Program)
- **M.Sc. (Geological Sciences), The University of Texas at Austin**. Proposed emplacement and mineralization models for Grasberg copper/gold ore body in Indonesia; advisor, Dr. Mark Cloos
- **B.A. (Geology, departmental honors), Carleton College**, Northfield MN; National Merit Scholar

**Memberships** – American Assoc. of Petroleum Geologists (AAPG), Soc. of Petroleum Engineers (SPE), Soc. of Economic Geologists (SEG), Assoc. of International Energy Negotiators (AIEN), Geothermal Rising, Houston Geological Soc. (HGS), Geological Society of America (GSA)

**Interests** – communicating energy opportunities and challenges to general audiences, business/economics, modern history, landscape/nature photography