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Exploration Strategy and Regional Petroleum Potential of the South Caspian Basin

Initial access to the offshore Azerbaijan South Caspian opportunity in the early-mid 90s by Foreign Operating Companies (FOCs) was development-led into the Gunashli-Chirag-Azeri(GCA). BP coupled this dev-led entry with access to exploration-led opportunities for business build. For exploration, a modern regional seismic grid coupled with an up-to-date view of the petroleum system indicates the presence of large 4-way dip closed structural traps containing a variety of Pliocene age fluvio-deltaic reservoirs (Productive Series) in communication with a prolific mature Oligo-Miocene age source rock. Rapid sedimentation has led to overpressured mudstones, providing for vertical petroleum migration and sealing.

This generic description of the petroleum system can be viewed in terms of six playfairways in the basin, reflecting the diversity of fluvial sand reservoir provenances during the Pliocene and contrasting sealing mechanisms. Within these playfairways, common risks exist, and BP followed an exploration access strategy focused on avoiding risk dependency and building a material portfolio in different highgraded playfairways. As each playfairway is tested, opportunities within the same playfairway see regional risk reduction or increment.

The HP drilling environment is highly challenging, characterised by rapid pressure ramps within intra-formational shale seals coupled with variable, often extreme, pressure regressions in the Productive Series sands. This led to high-spec rig requirements in an isolated (from global) rig market and difficult-to-drill wells with high drilling costs. Hence, it has proven necessary to match a balanced exploration strategy with a rig-time access strategy to build a co-ordinated approach to testing the opportunities in the South Caspian.