



#### Primary Risks

In the near-term, we anticipate accelerated declines in mature fields as the chief risk for sustained production. Gross oil production from the Rubiales Field – one of the largest producing onshore oil fields in South America - is expected to be roughly halved by mid 2016 from ~200 mboe/d in 2013 at which point Pacific Rubiales' contract will not be renewed. In our view, longer-term production growth will suffer from a decline in near-term exploration spend particularly in offshore/unconventional, further pushing out the timeline for the potential of frontier plays. Upside to our production estimates would likely entail a faster than anticipated adoption/execution of EOR techniques and infrastructure build-out in the Llanos Basin.

- a) In the near-term, accelerated declines from major plays represents the primary risk. Gross oil production from the Rubiales Field – the largest producing onshore oil field in South America - is expected to be roughly halved by mid 2016 from ~200 mboe/d in 2013 at which point Pacific Rubiales' contract will not be renewed. While a potential agreement is still possible between Ecopetrol and Pacific Rubiales or another third-party entity, a significant amount of capital investment is still required to build/re-build infrastructure around the play. In our view, the required levels of capital investment and broader security concerns represent headwinds to a more aggressive adoption of EOR techniques in the play.
- b) Long-term production growth challenged from a decline in near-term exploration spend particularly in offshore and unconventional plays. DB estimates Ecopetrol upstream capex lower ~17.5% YoY in 2015 (largely exploration-driven) while Pacific Rubiales upstream spend is expected lower 55% (largely exploration and some production facilities-driven). A further delay in the addressing the county's reserve life through the drill-bit, will place the focus back on mitigating against field declines.
- c) Sustaining production levels longer-term will be challenged by infrastructure/logistical bottlenecks persist: The 'heaviness' of the oil fields of the Llanos Basin present significant strains on the current infrastructure build-out in Colombia. Not only is pipeline takeaway capacity necessary to transport the crude to coastal export terminals, but facilities are required to blend the crude (API of ~12.5 for the Rubiales field) to a level acceptable for pipeline flow. Identification and integration of diluent and light oil sources for blending is also required. While the recent integration of light oil producing fields has provided a fairly economical solution to the blending challenge, the scalability of the solution is unclear and the alternative (importing of naphtha for use as diluent) likely too expensive particularly at lower commodity prices. Further, in the Rubiales field (and exhibited at Quifa as well) delays surrounding water disposal licensing has also significantly curtailed growth (4Q14 production for Rubiales was ~170 mboe/d, a 15% drop from 2013 levels) as production was capped until licensing was obtained.