

Venezuela's Oil Industry: Managing the collapse, but increasing opportunities

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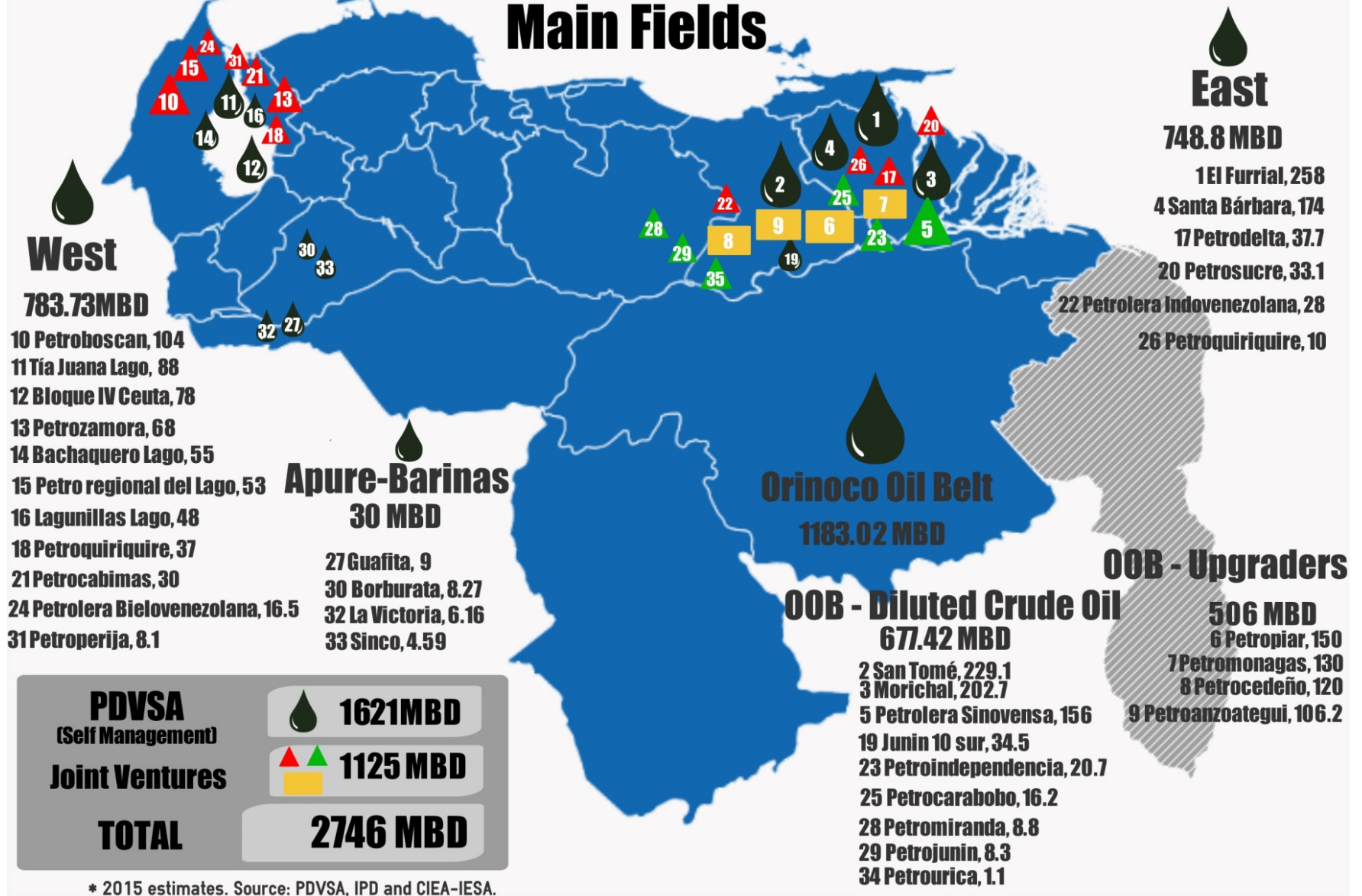
Venezuela's oil industry key trends

- Production (2.2 mbd) declining for almost two decades (-35% from peak), but collapsing in 2016 (-12%).
- Net exports (1.5 mbd) declined faster than exports (exports down/imports up for domestic market and diluents >200 tbd). About 400 tbd to China and 60 tbd to agreements. Cash flow from less than 1 mbd. Exports to the US significantly declined (-7%) in 2016 to a 25 year low.
- PDVSA's own-production fall is the source of the collapse (-47% from peak), JVs have actually gone up (+62% since 2009).
- Conventional production has been collapsing since 2009 (-36%), Orinoco Oil Belt was increasing until 2015 (+30% since 2009). Production getting heavier (>60% H-XH). Still new projects in OOB producing less than 200 tbd, less than 20% of the original target. Upgraders 500 tbd (100 tbd below capacity). Blending is what grows.
- PDVSA faces severe cash-flow problems, which got much worse with price collapse (-\$7-9 bn. in 2016). Oil rigs in operation declined significantly in 2016 (-23%).
- Pretax break evens are competitive at current prices. Post-tax OOB new projects are not. FX rate issues cloud analysis of costs. Above ground risks are very high.

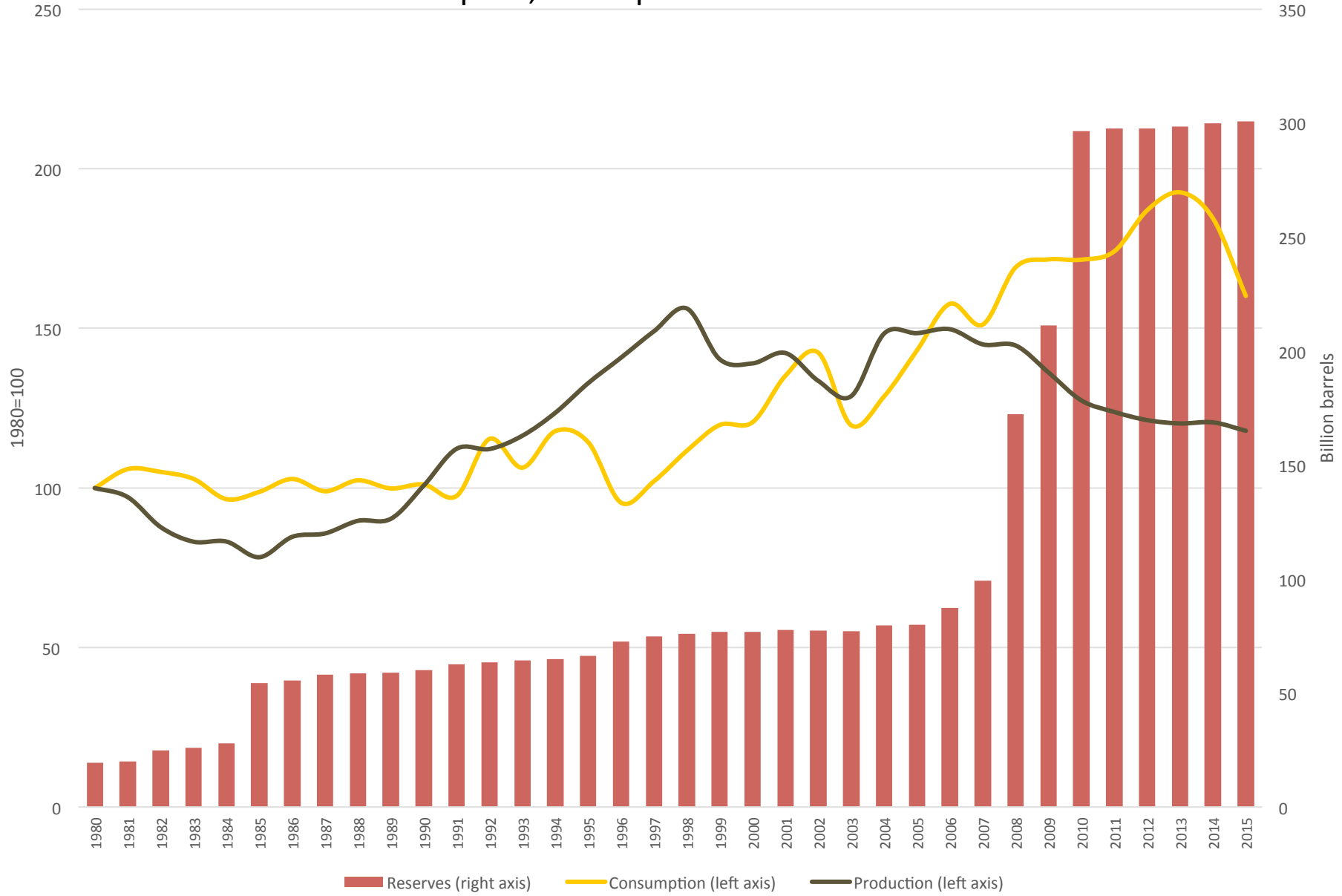
Official oil reserves: 300 bb of which 41 bb conventional and 259 XH

OIL PRODUCTION (2015)

Main Fields

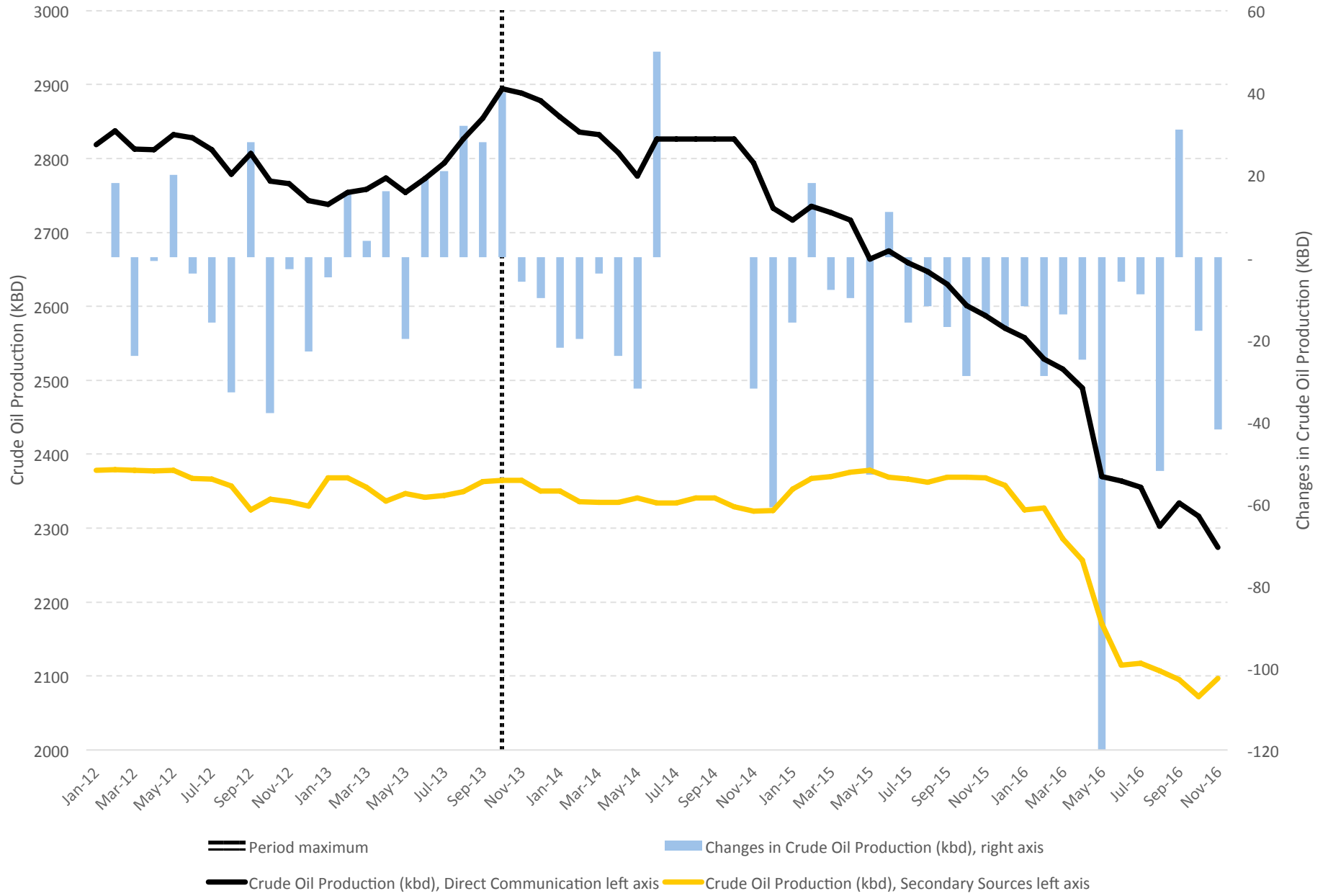


Unconventional reserves added, domestic consumption increased until 2013 and then collapsed, net exports declined faster.



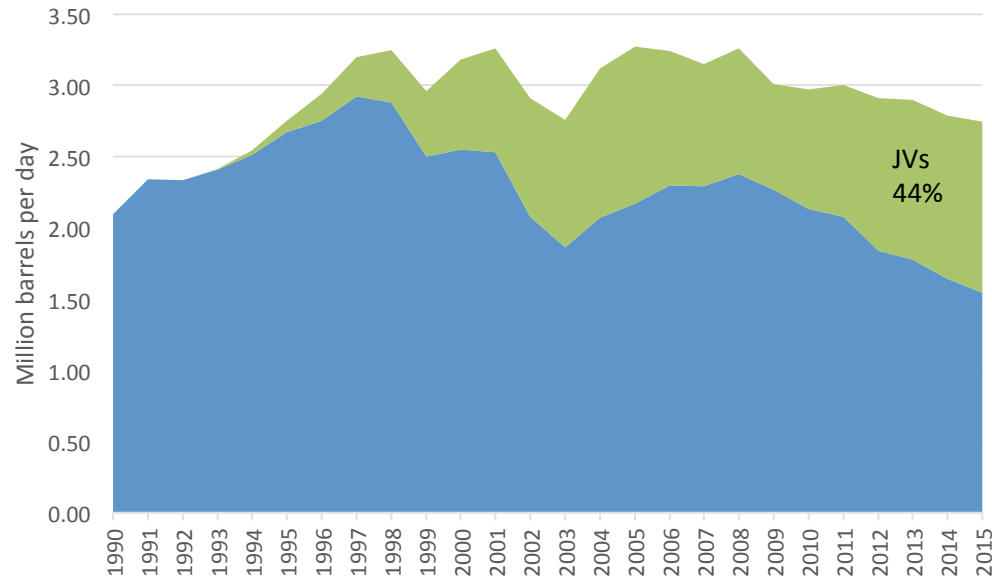
Source: BP SRWE 2016

Venezuela: Monthly Crude Oil Production



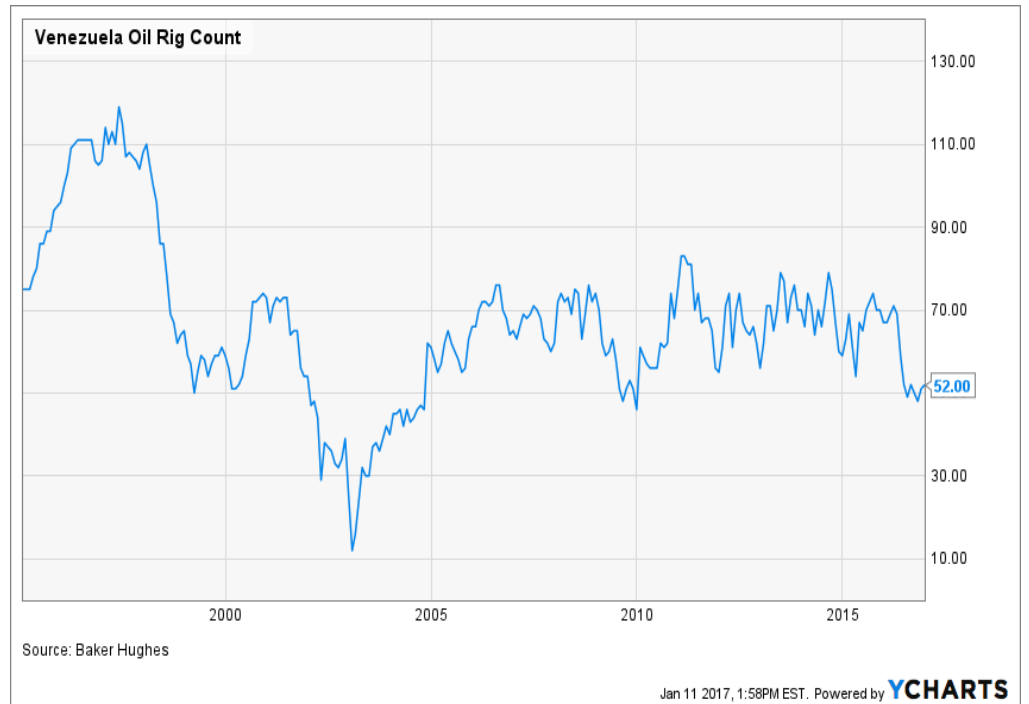
Source: OPEC Monthly Oil Market Report, various years

PDVSA's production collapse (-47% from peak in 1997), JVs increase (+62% since 2009)



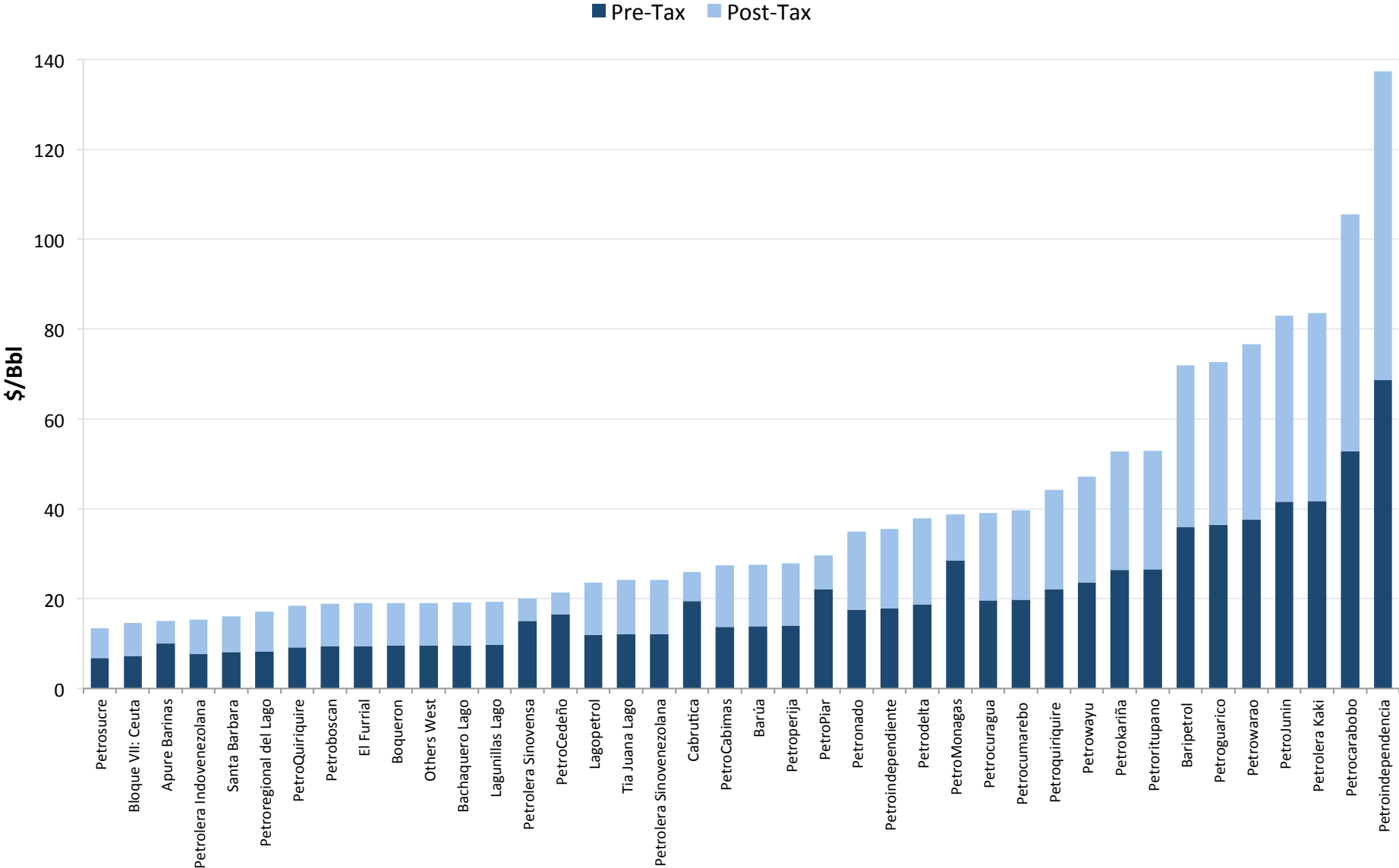
Source: PDVSA

■ PDVSA ■ Joint Ventures



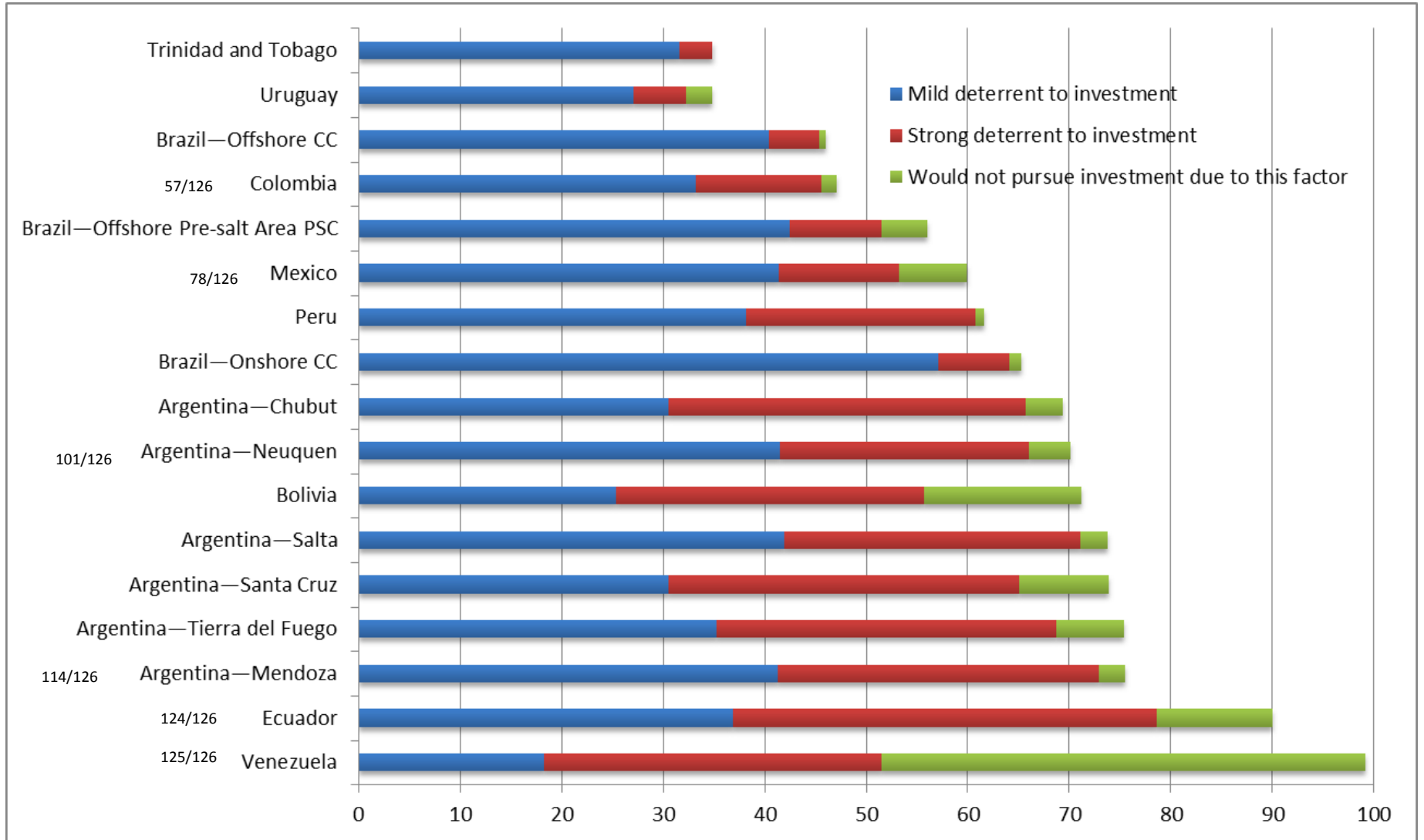
Source: Baker Hughes

Venezuela's pretax break-evens (at a reasonable FX) are below current prices



Source: Wood Mackenzie

Fraser Institute Global Petroleum Survey 2015: Policy perception index



Challenges and policy outlook

- Massive policy failure due to a mix of ideology, incompetence, short-term horizons, and the incentives provided by the price and investment cycles.
- Future: unconventional (extra-heavy), conventional enhanced oil recovery, and offshore-gas.
- Main constraints: cash flow, operational, and HR limitations of PDVSA, but also wider institutional context.
- Oil institutional and regulatory framework could limit potential expansion. Lacks flexibility and requires excessive government control.
- Overall national policy, macro, and political environment. Regulatory and political risks. Political instability. Lack of political and social consensus over oil policy a problem in the long run.
- A liberalization cycle is ongoing and there are structural reasons for it to last. Specially with an opposition led government. But oil prices, ideology, regime change, and political stability could limit the impact.
- Pragmatism has increased in the last 5 years, as new investments are needed (given that production and prices collapsed). But very limited results. Increasing desperation.
 - Pragmatism: JV loan contracts (Chevron Boscan, etc.), windfall taxes and FX, PERLA Gas project (\$5 bn. , 9.5 tcf, 400 mcf to max 1.2 bcf), gas exports to Trinidad, recent contracts with service companies, talk about returning small service companies to private owners, and pragmatic change in OOB strategy.
 - Desperation: sale of Petromonagas and Mariscal Sucre to Rosneft, recent contracts with service companies, bond swaps and loans, CITGO guarantee, etc.