

Energy Transition and LatAm's Vast Resources

Stuck with expensive oil after “Peak Demand”? Or no worries?

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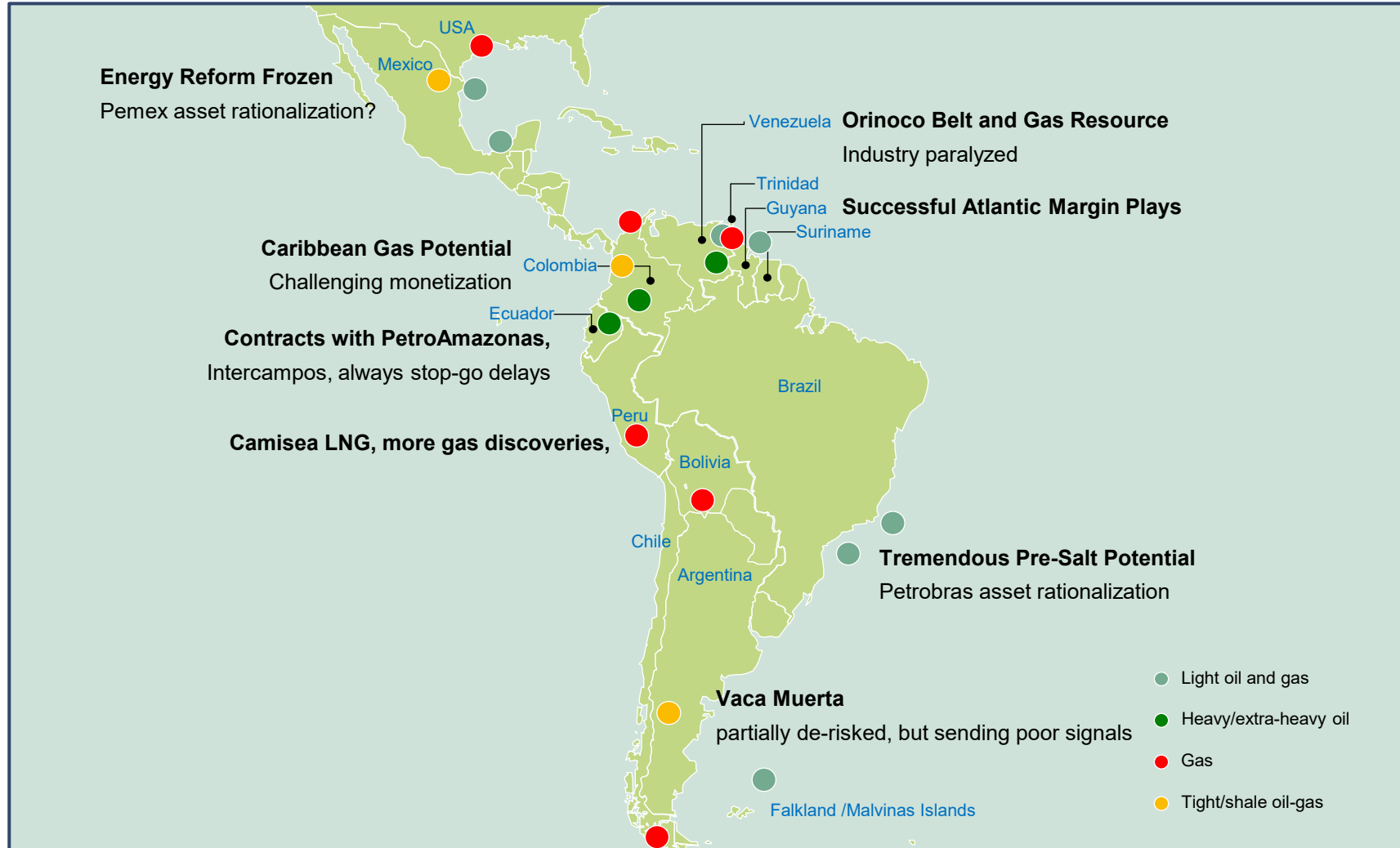
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LatAm's Resource Potential

Significant Hydrocarbon Potential in a variety of Basins/Plays



Source: Plata Energy

North Cone Trends

Guyana-Suriname Boom, Mexico was the New Star, when Venezuela?



Sources: WoodMac, Plata Energy

South Cone Trends

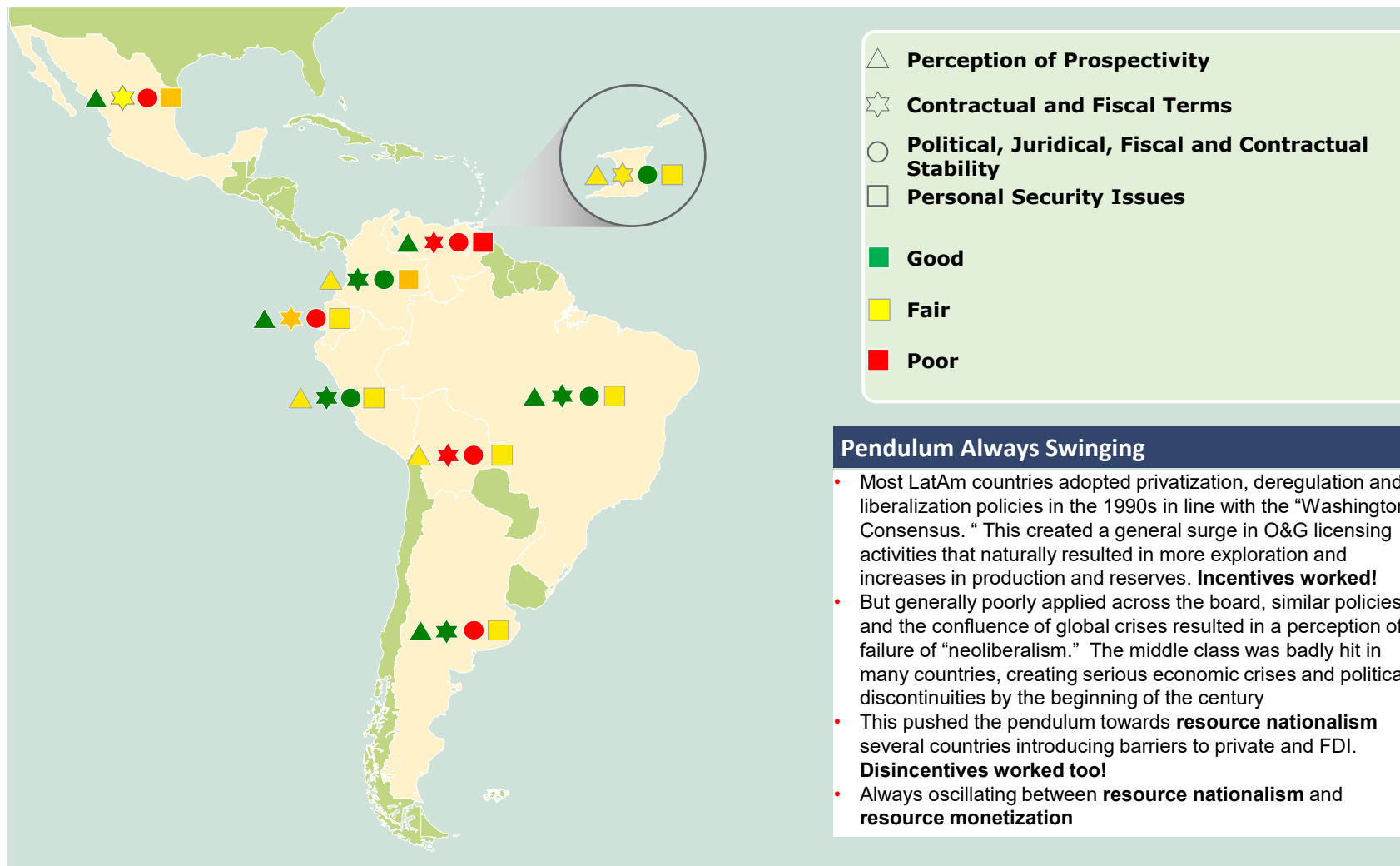
Pre-Salt and Vaca Muerta, the big Resource Plays

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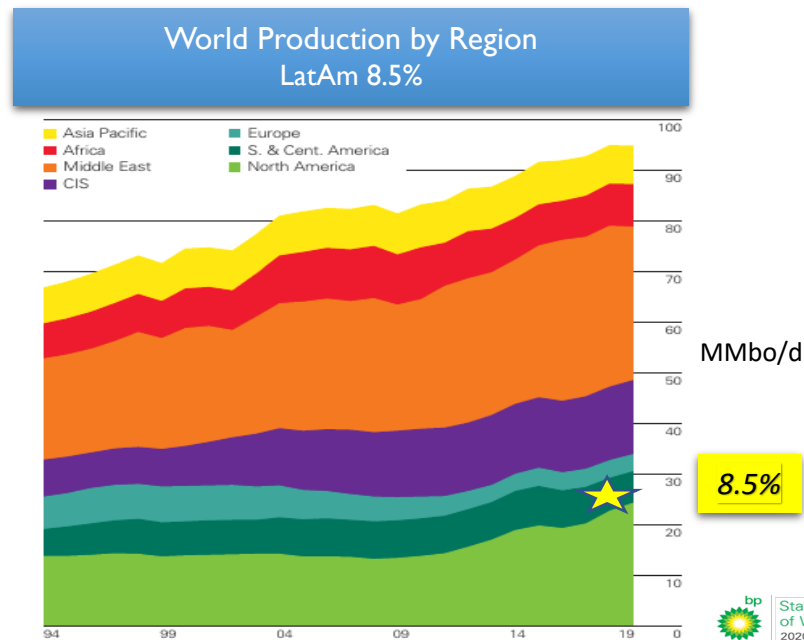


Sources: Wood Mac, Plata Energy



Comparative Production and Reserves

Disproportionate Reserves/Production, even with overstated Venezuela



Proven Reserves

	World	LatAm [#]	% of World	Venezuela	% of LatAm
Oil (Bbo)	1,734	330	19%	304 (*)	92%
Gas (Tcf)	7,019	288	4%	222	77%

(#) Including Mexico

(*) >220 Bbo in the Orinoco Tar Belt, likely grossly overstated.

Likely < 90 Bbo. If so, 200 Bbo is still 12% of World's, And R/P is 67y

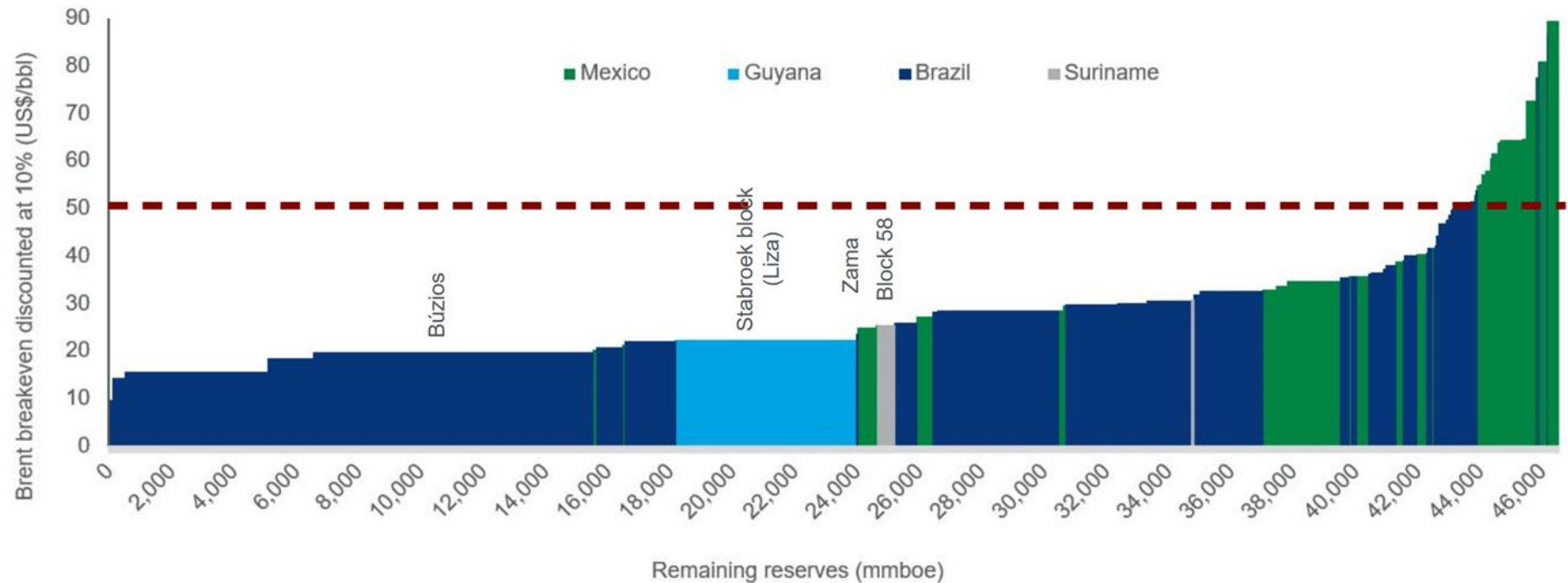
- World oil production 95.1 MMbo/d: 50 y
- LatAm oil production 8.1 MMbo/d: **111y**
- Unproven oil 126 Bbo
- Unproven gas 679 Tcf

- LatAm's onshore reserves dominated by heavy an ultra-heavy oil
- What would happen if Energy Transition happens?

LatAm Offshore Oil is Still Mostly Commercial

43 Bboe in FID priority list with breakeven < \$50/bo

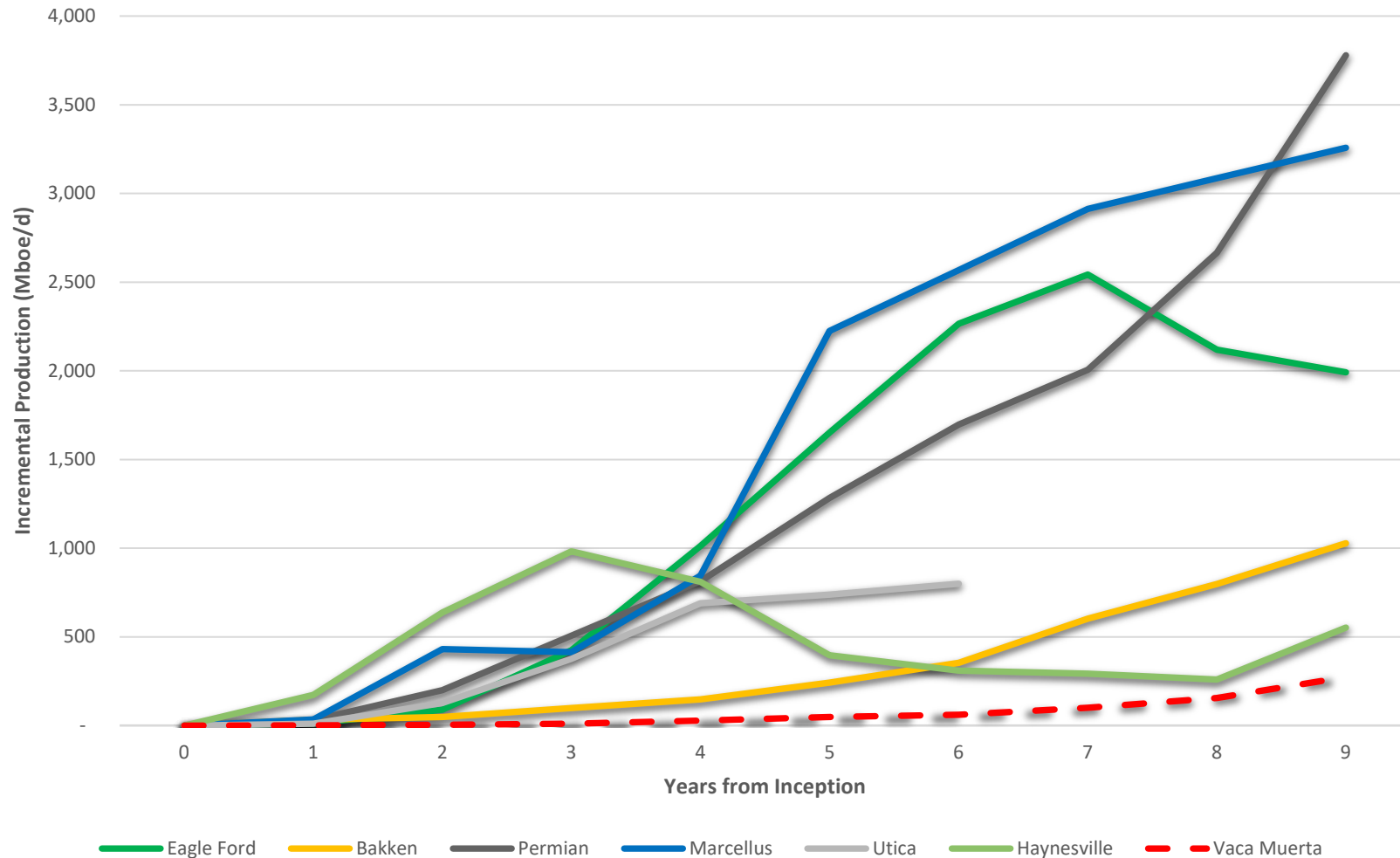
Point-forward breakeven and remaining reserves for Brazil, Guyana, Mexico and Suriname



Best LatAm Unconventional is Growing Too Slowly

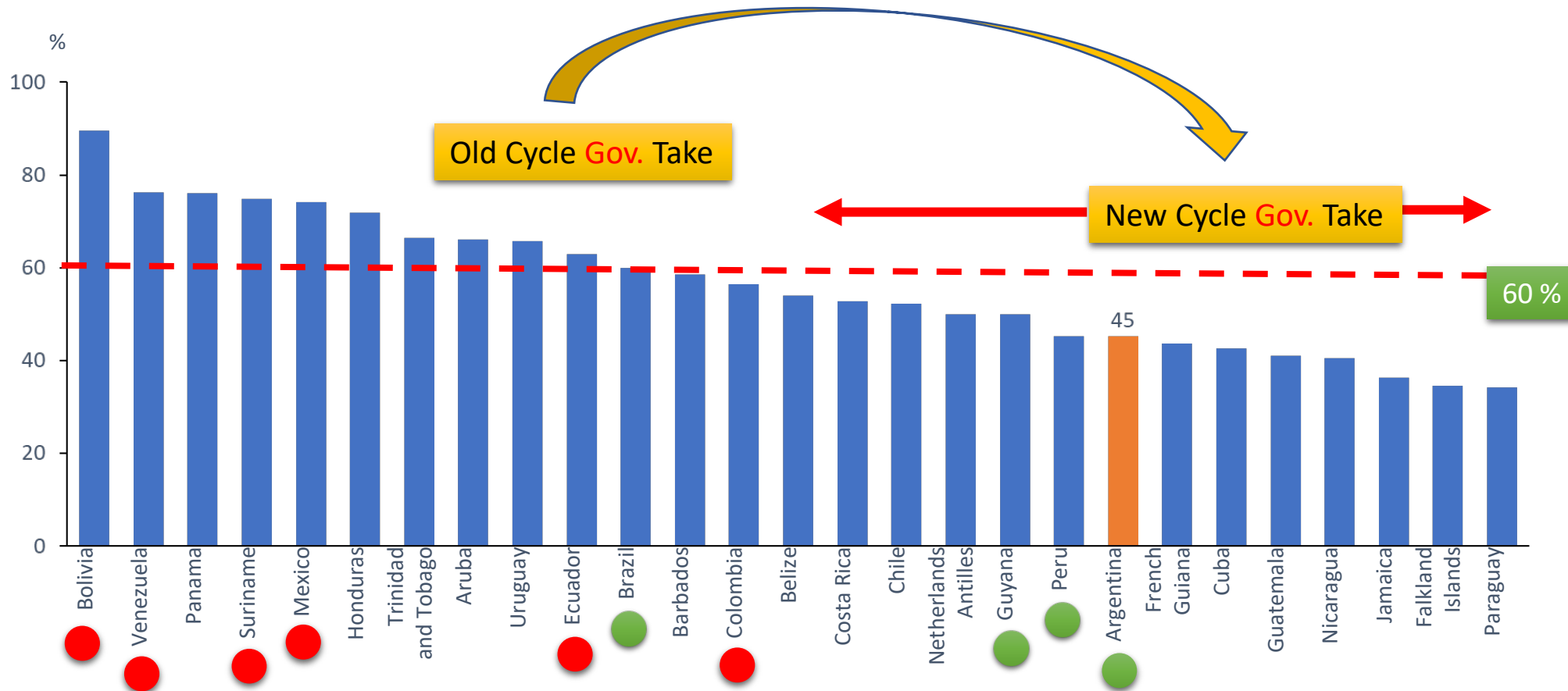
Vaca Muerta ain't in Texas

Shale Play Ramp-Ups



Government Take not too Welcoming

Bolivia, Venezuela, Suriname, México, Ecuador & Colombia should reconsider
Argentina should offer more macro and O&G framework stability

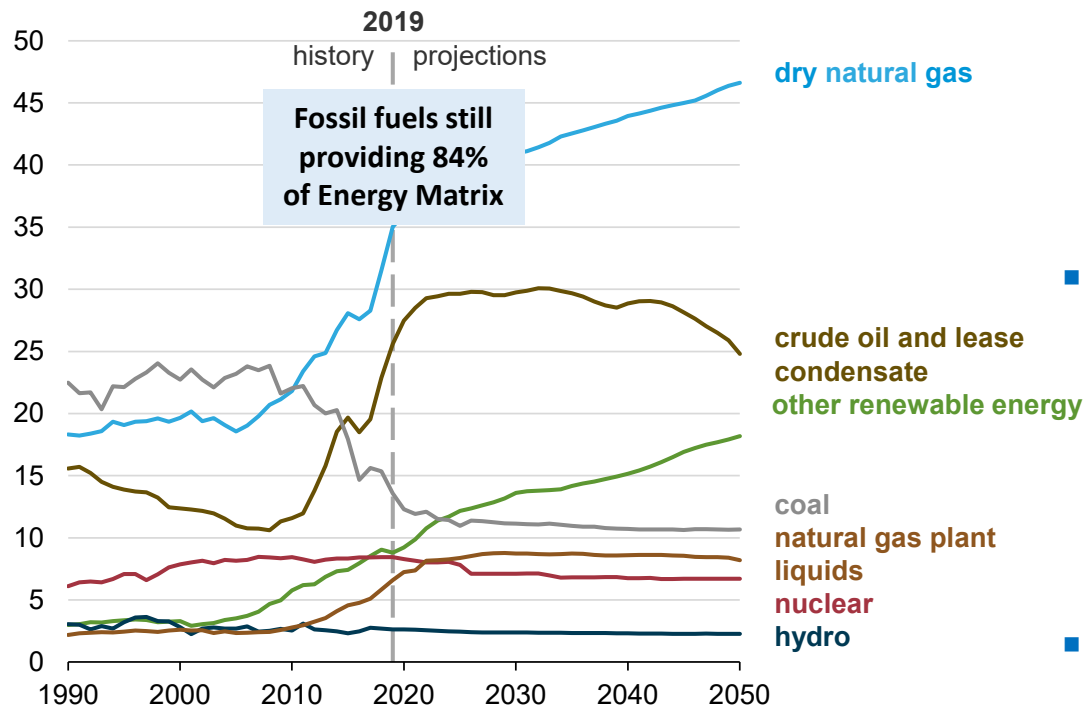


Source: IHS (2020)

New Energy Economy?

Faster than we thought? Or still “magical thinking”?

Energy production (AEO2020 Reference case)
quadrillion British thermal units



Source: EIA (2020)

- Our gas should be the transition fuel
- Solar and Wind could provide 30% of all generation (80% of growth) by 3030 → diversify supply technologically and geographically, many more actors, less geopolitics, less volatility?
- Penetration of solar and wind is making their prices drop. Offshore wind attracting big capital at cagr 17% and solar growing at 12%. But what about their physical boundaries?
- Fact: China makes 72% of solar modules, 69% of Lithium batteries and 45% of wind turbines, and controls the refining of Cobalt and Lithium. Building electric-car infrastructure...

- Europe under political pressure to transition. EU wants to cut greenhouse gas emissions by 55% from 1990 levels in the next decade. Germany 80% renewable power by 2050
- Renewables' surplus could feed **Green** hydrogen, a balancing-peak shaving tool. Huge push for Green Hydrogen in Australia and Europe (circa 60 GW in project pipeline). Negligible in the Americas (1 GW)
- Unilever removing petrochemicals from its home cleaning products by 2030 (not just an internal combustion issue, a petrochemicals issue too...)
- Shell, Repsol, Equinor, BP: net-carbon neutral by CCS (carbon capture and storage): Capture CO₂, use in EOR, embed in concrete and in polyurethanes
- Are shareholders ready to commit? BP's stock sunk to a 25-year low after publication of its Net Zero Target. Vision, or premature enthusiasm?
- Reality doesn't really matter; perception matters

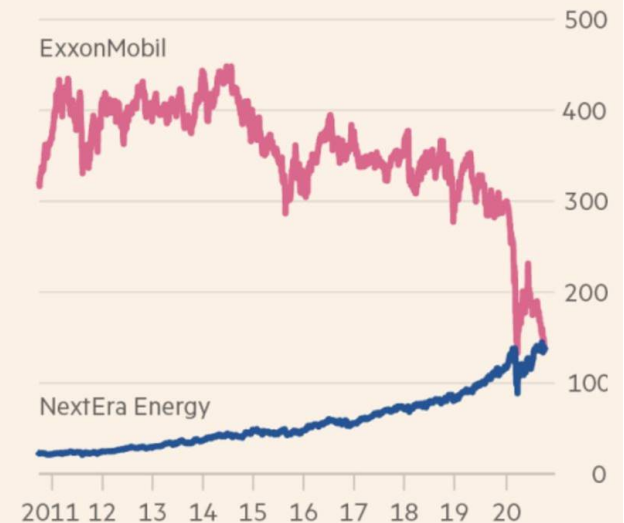
Clean-Energy Industry Picking Momentum

Will CCS save us, or is Oil&Gas going out of fashion?

- No such pressure in the Americas (Chevron, ExxonMobil, Latin NOCs)...yet.
- However, Biden wants to spend 2 tr\$ decarbonizing America...
- Clean power stocks up 45% by mid Sep
- ExxonMobil out of DOW (joined in 1928). NextEra catches-up with ExxonMobil.
- Shale Revolution losing its luster?
- Oil stocks: damned if you do (BP), damned if you don't (XOM)?

Renewables leader eclipses largest oil major

Market capitalisation (\$bn)



Source: S&P Global Market Intelligence
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Peak Oil is now about Peak Demand

LatAm's procrastination stocked now unmonetizable resources?



- Solar, Wind and Batteries have robust physical limits, but what if a new disruptive technologies emerge?
- LatAm would be slow into the Energy Transition because they have too much hydrocarbon to burn. But what if it happens? What about export surpluses? What about prices? Will the State or the Consumers subsidize our industry?
- Heavy oil, expensive unconventional oil, running out of fashion?
- Venezuela in chaos. Argentina and Ecuador dragged their feet. México had a good thing going-on, and elected to just shoot itself in the foot
- The cruise ship is leaving, and they are still at home packing the ski gear? Or is there's really nothing to worry about?

Wake-up Call? Or is it Alarmist Hype?

Should LatAm governments gamble with their resources?

“The Stone Age didn't end for lack of stone, and the Oil Age will end long before the world runs out of oil”

These words have been credited to Ahmed Zaki Yamani, former Minister of Oil of Saudi Arabia.

Perhaps petroleum-rich countries in LatAm should hedge their bets and start thinking about that.



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