Congreso Mexicano del Petróleo

6 - 9 de julio, 2022
Villahermosa, Tab.

"Consolidando la Soberanía Energética con talento e innovación tecnológica"

Analyzing Latin America's value chains in upstream operations during times of external shocks

Ernesto Diaz | SVP RYSTAD ENERGY
Pietro A. Milazzo | VP NOCs Weatherford

Contenido

- **Upstream market update amid the current global crisis**
- **Regional drivers and challenges**
- **Value chains management and technology adoption**

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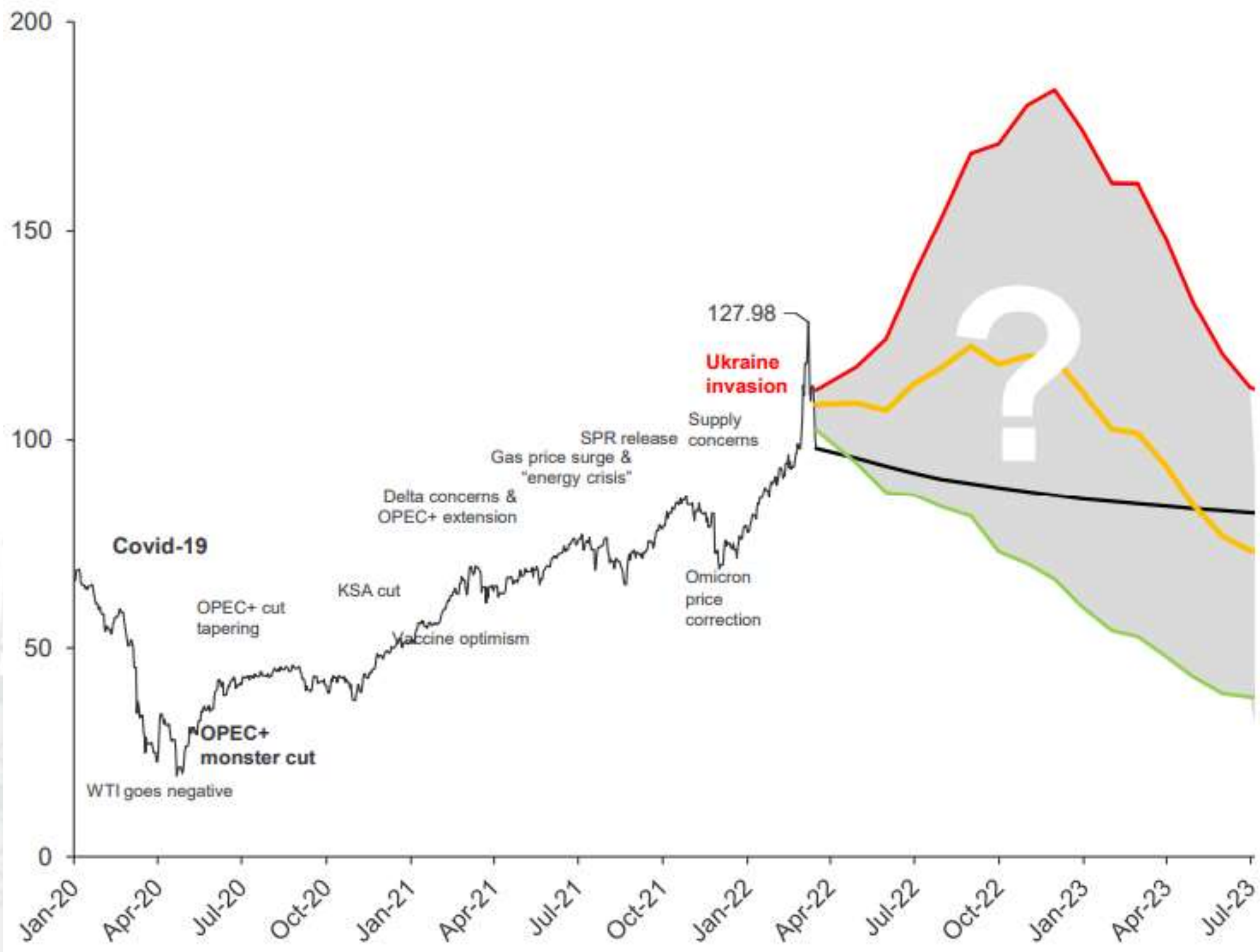
ICE Brent oil price evolution

USD$bbl



This scenario will destruct ~ 3 mbbld of oil demand by end 2023

High case assumes loss of 2.7 mbbld from Russia, with OPEC only responding in the form of current production guidance

Mid case assumes loss of ~2 mbbld from Russia, with OPEC only responding in the form of current production guidance

Low case assumes loss of ~1.2 mbbld from Russia, with OPEC mobilizing extra barrels while demand suffers from the war and current China situation

Aggregate Energy Spend

(Capex + Opex)
Billion USD$

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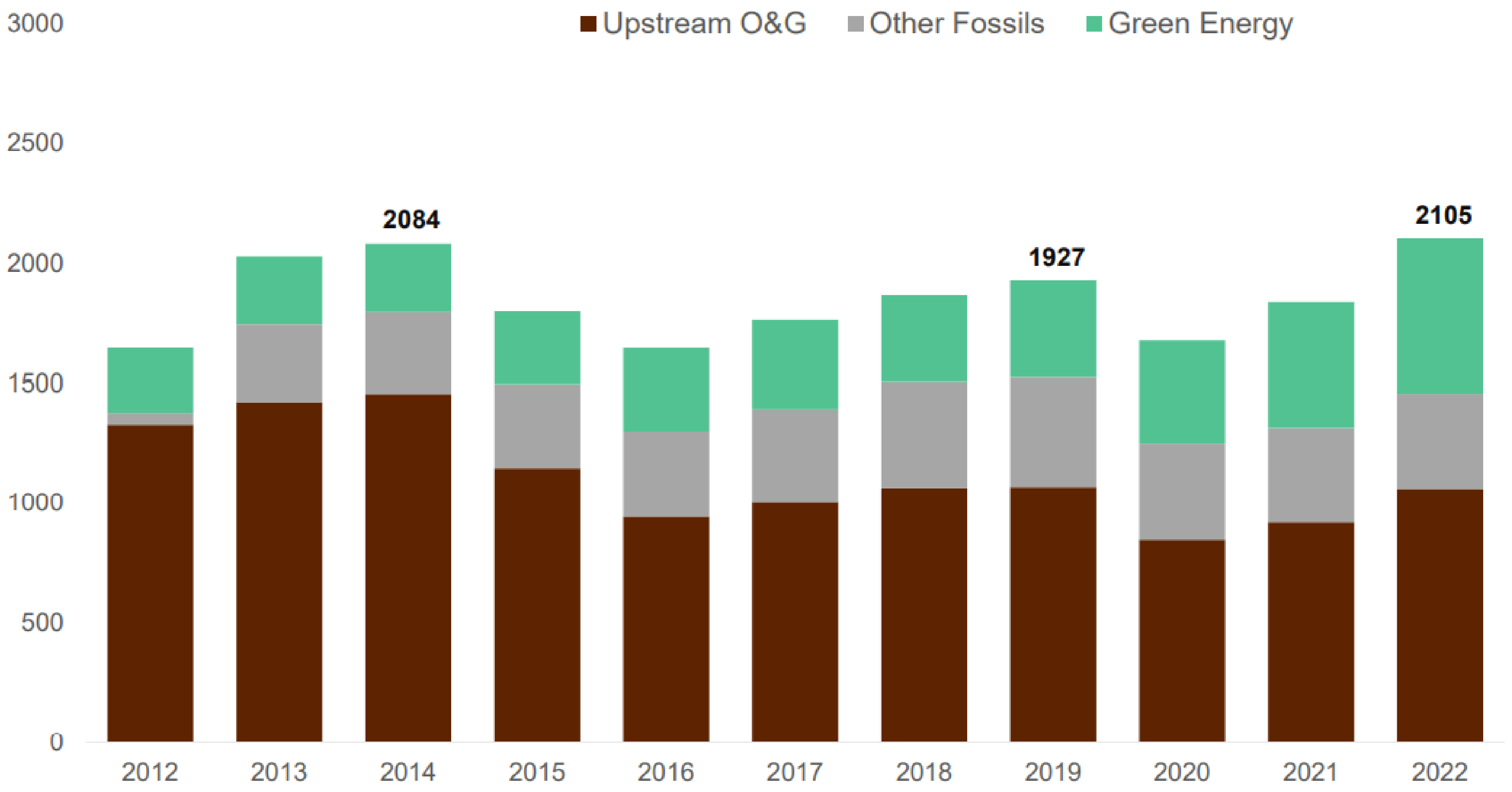
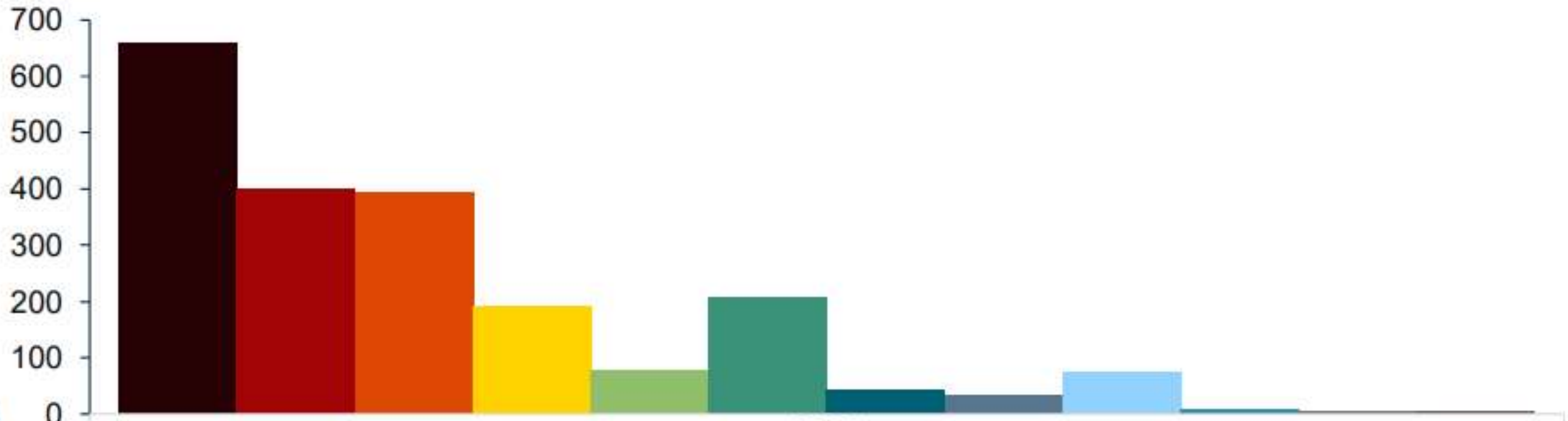


2022 Energy Spend by source

(Capex + Opex)

Billion USD$



Growth 2022 vs 2021

	2022
Oil (16%)	658.00
Gas & LNG (15%)	401.00
Other Fossils (0%)	396.00
Solar (64%)	191.47
Nuclear (-2%)	78.01
Onshore Wind (24%)	209.06
Offshore Wind (-15%)	43.79
Hydropower (-7%)	33.80
Batteries (29%)	75.00
Hydrogen (37%)	7.88
CCS (54%)	5.73
Geothermal (38%)	4.75

Global investments by supply segments

Billion USD$

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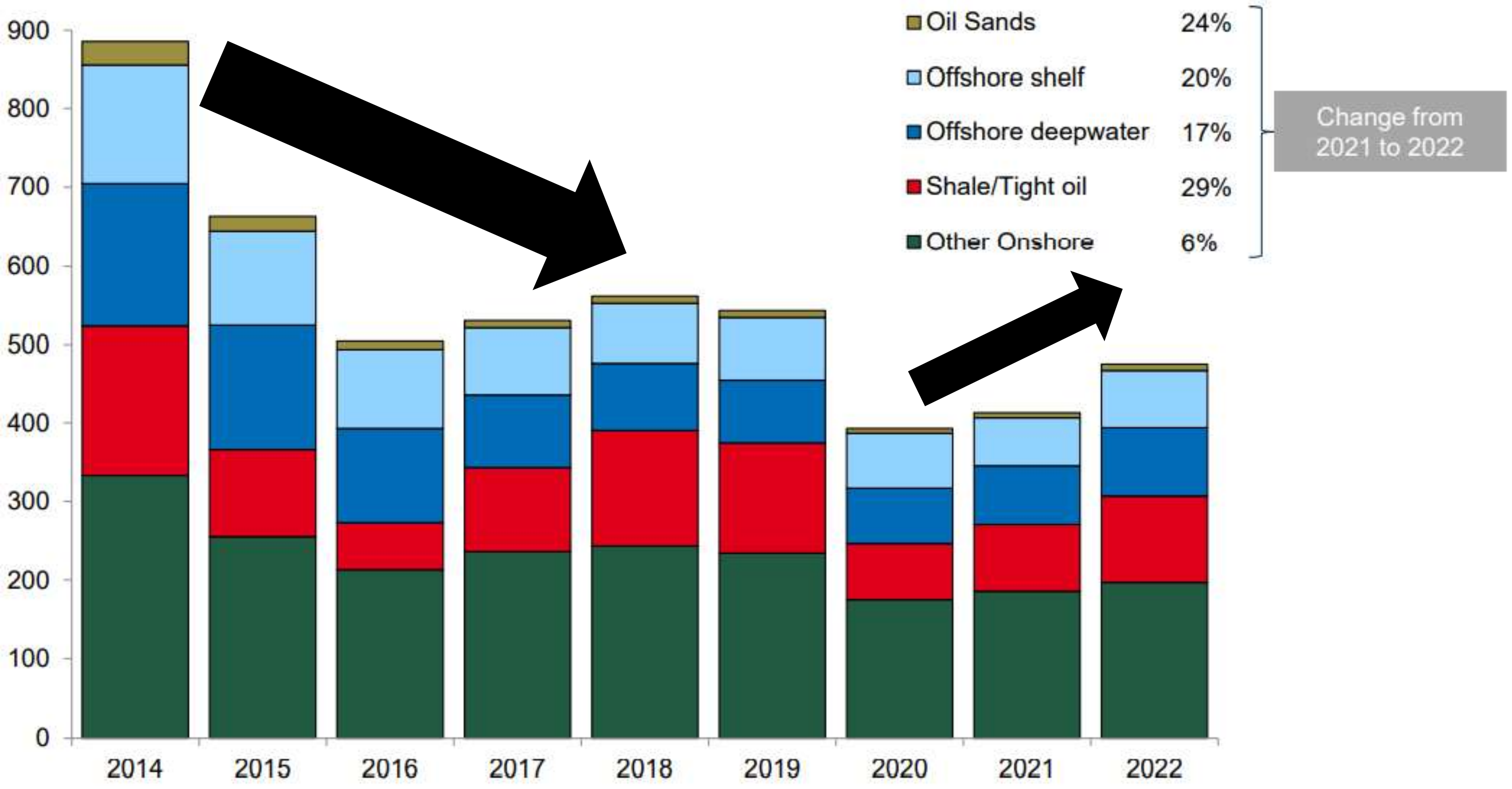

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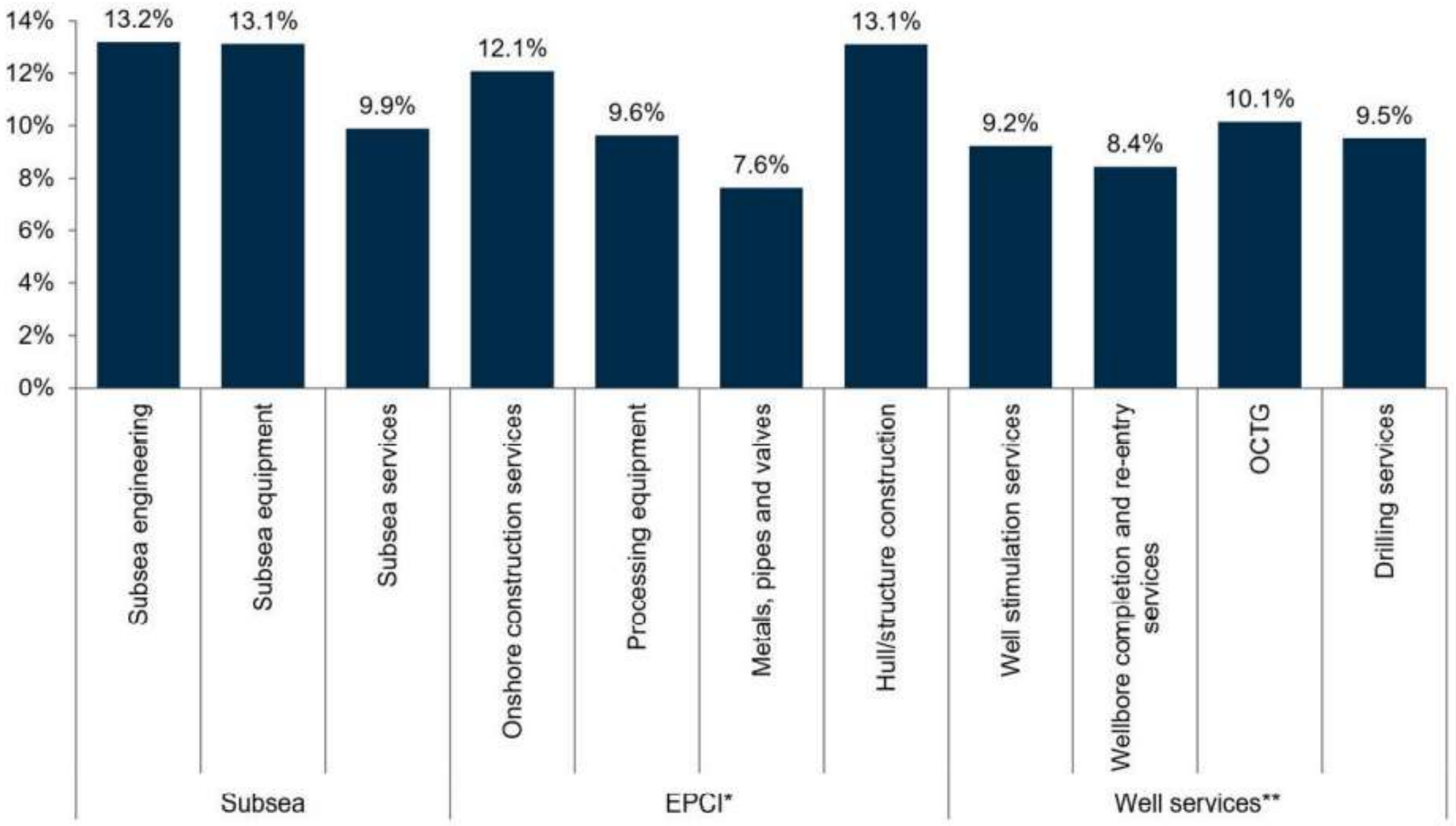
2022 service price inflation

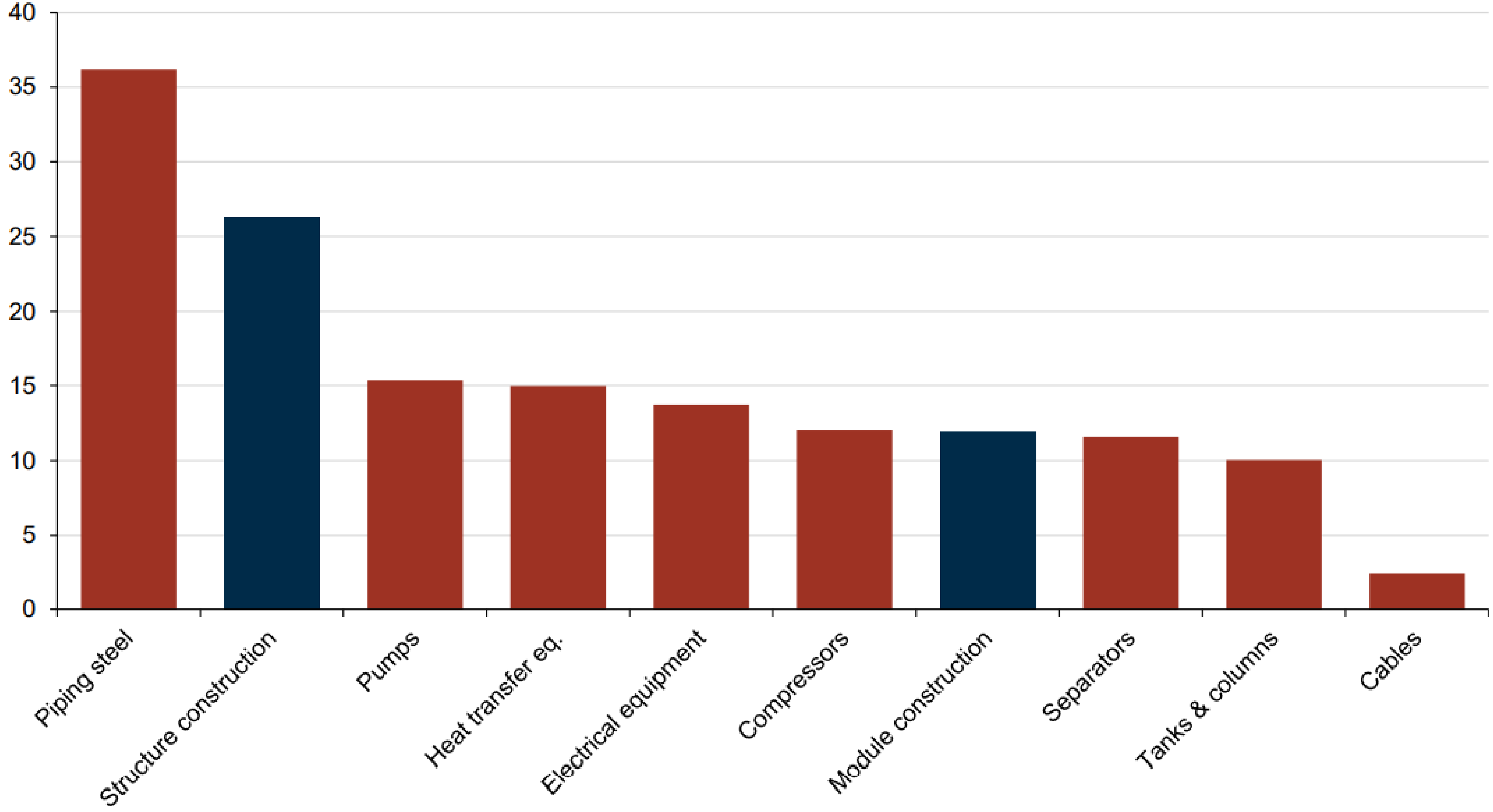
Percentage chance 2022 vs. 2021 @100 oil



*Global subsea and EPCI service price inflation; includes only selected EPCI service segments; ** Well services in the North American shale segment
Source: Rystad Energy Service Price Inflation dashboard

Underlying price drivers

Percentage increase from January to December 2021



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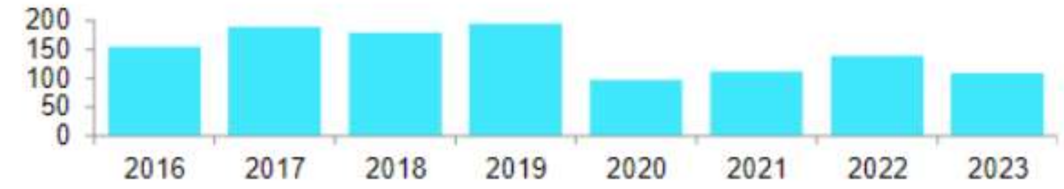
Regional Trends-Latin America

Executive Summary

Exploration

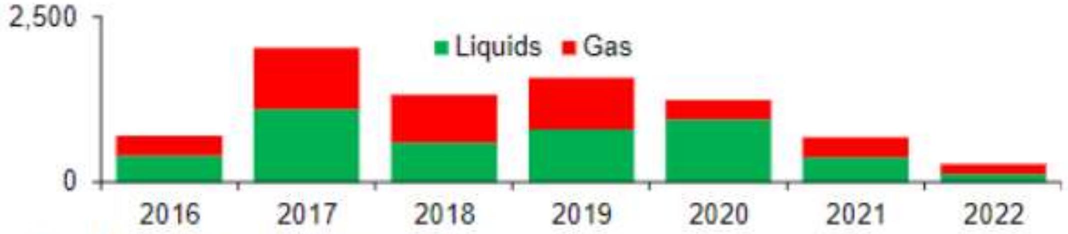
Exploration well count



Exploration activity concentrated in Brazil, Guianas, Mexico and Colombia

Discoveries

Yearly discovered resources in billion boe



Excluding Argentina shale, region, far from sustaining required reserve-replacement levels

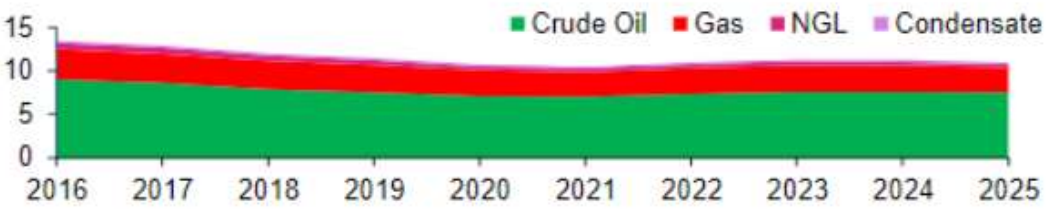
Investment

Total Investments (billion USD)

Steady declines from 2015 triggered by external supply-shock from 2014 and Venezuela. Post-Covid bump during 2022

Production

Total hydrocarbon production (million boe per day)



Decade-long decline in production easing via short/cycle greenfield field developments

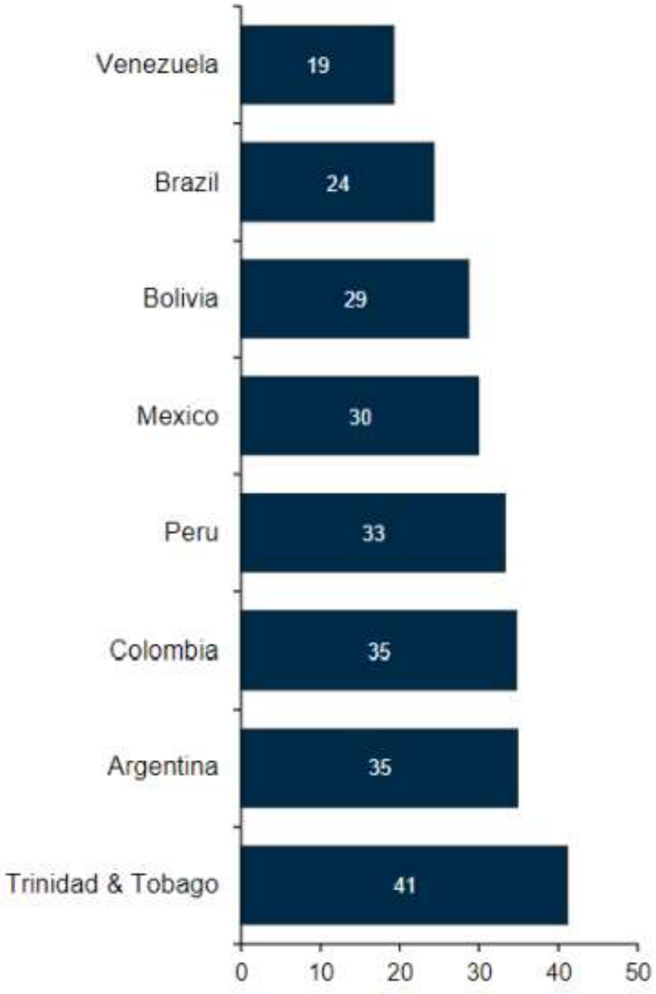
After-tax breakeven prices and IRR for New Projects

Fiscal Review

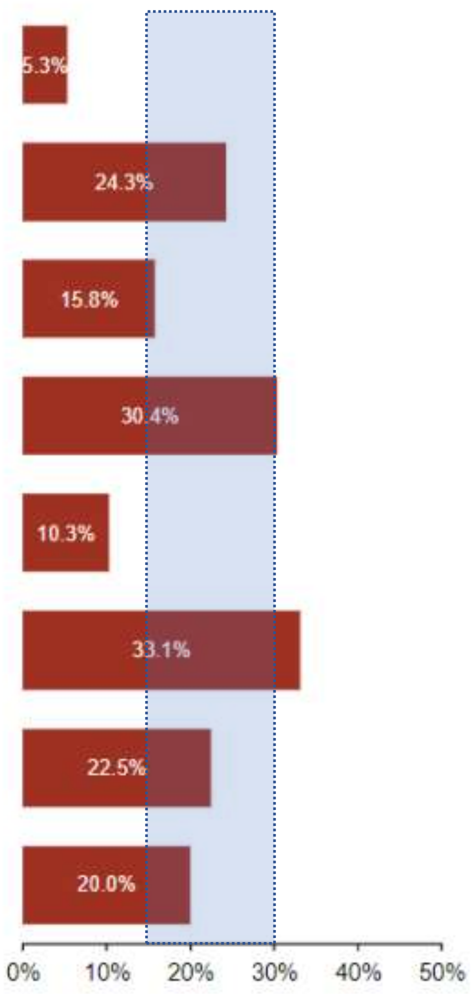
Cash flows and Govt take

Fiscal Regime

Calculated Brent project breakeven
USD per barrel



Estimated IRR for the project
Percentage



The Brent crude breakeven price is that Brent oil price in order to make the NPV equal to zero (assuming a 10% real discount rate in this case). The graph shows the Brent breakeven oil prices for projects in the respective countries with approval years 2022 to 2025.

On similar lines, the internal rate of return (IRR) for the countries varies as it is that discount rate at which the NPV of the included projects becomes zero.

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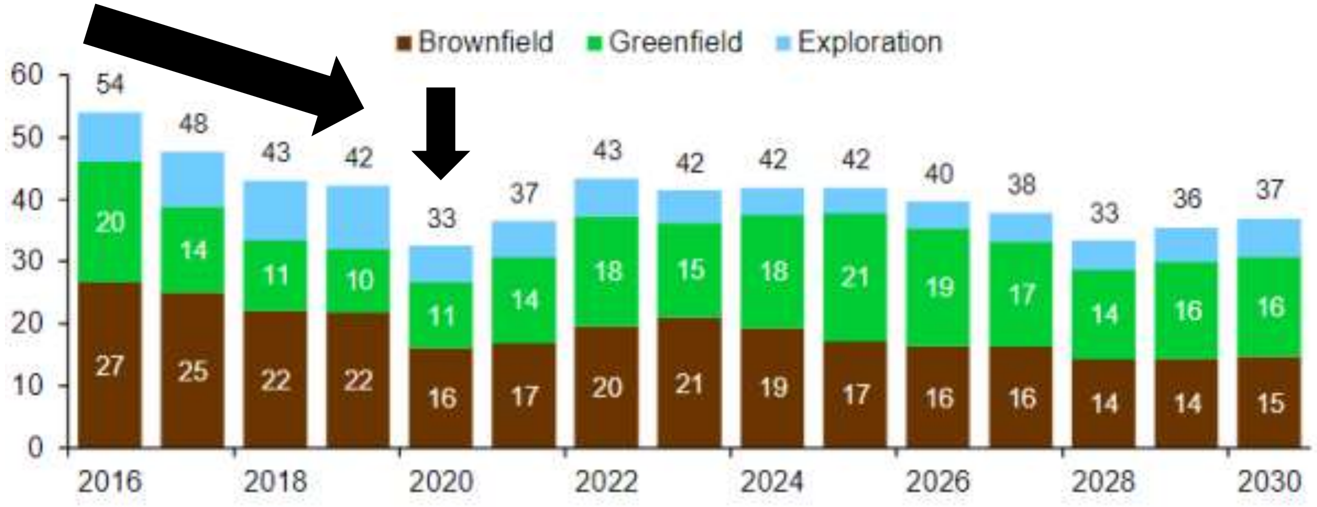
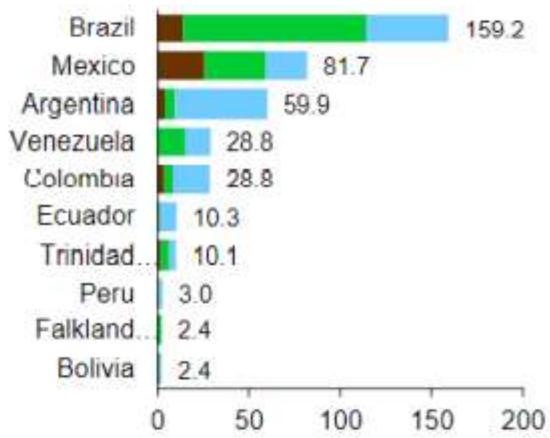
Investment Priorities

Billion USD$





- Deepwater Pre-salt Discoveries Development
- Mature-Field Redevelopment

- 20 priority projects mainly targeting JSK play (Shelf+Onshore)
- Exploration

- Shale Development
- Offshore Exploration

Rig Count Latin America - Drilling

Average Rigs Drilling per Month 2012 - 2022

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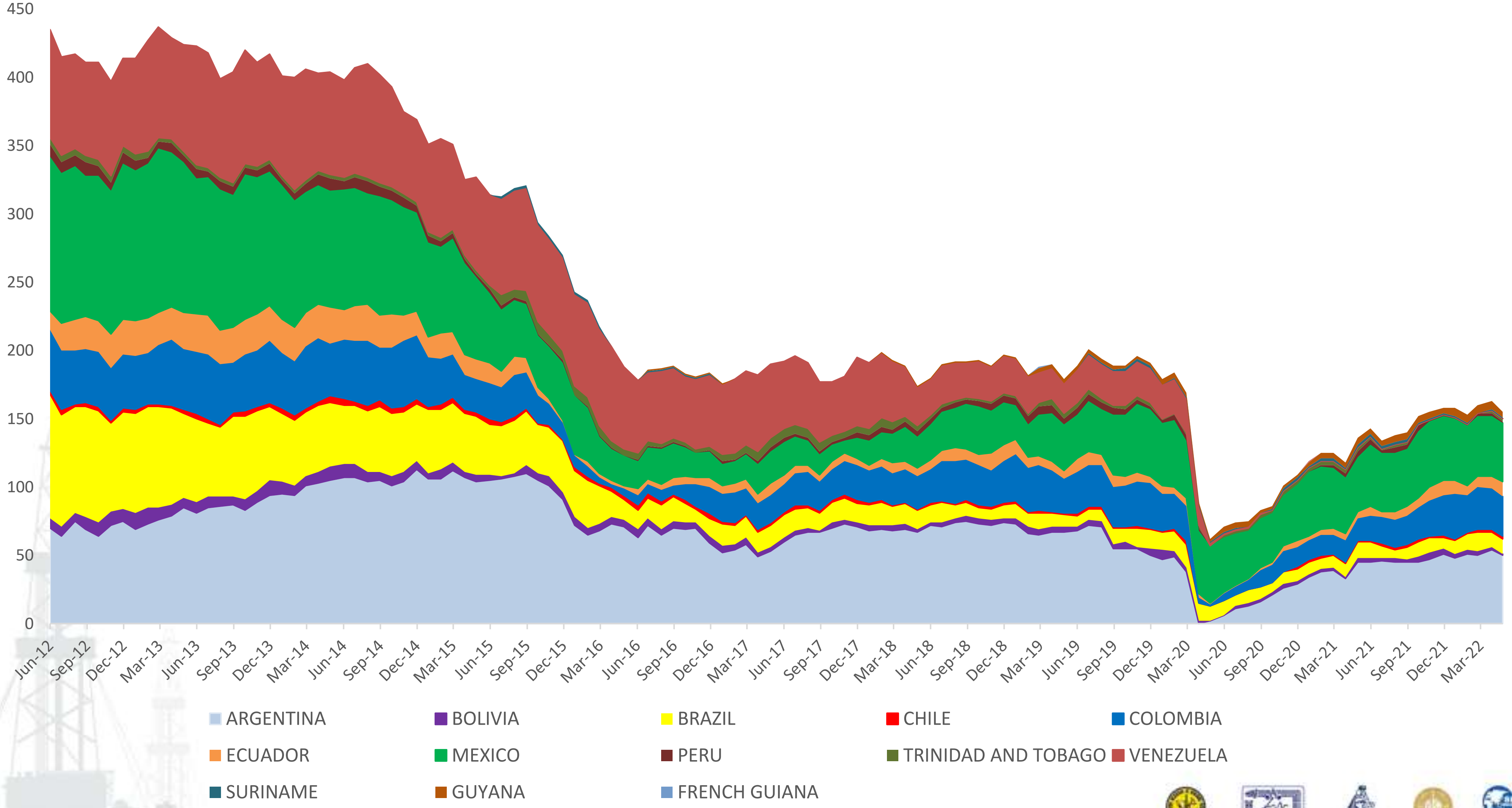
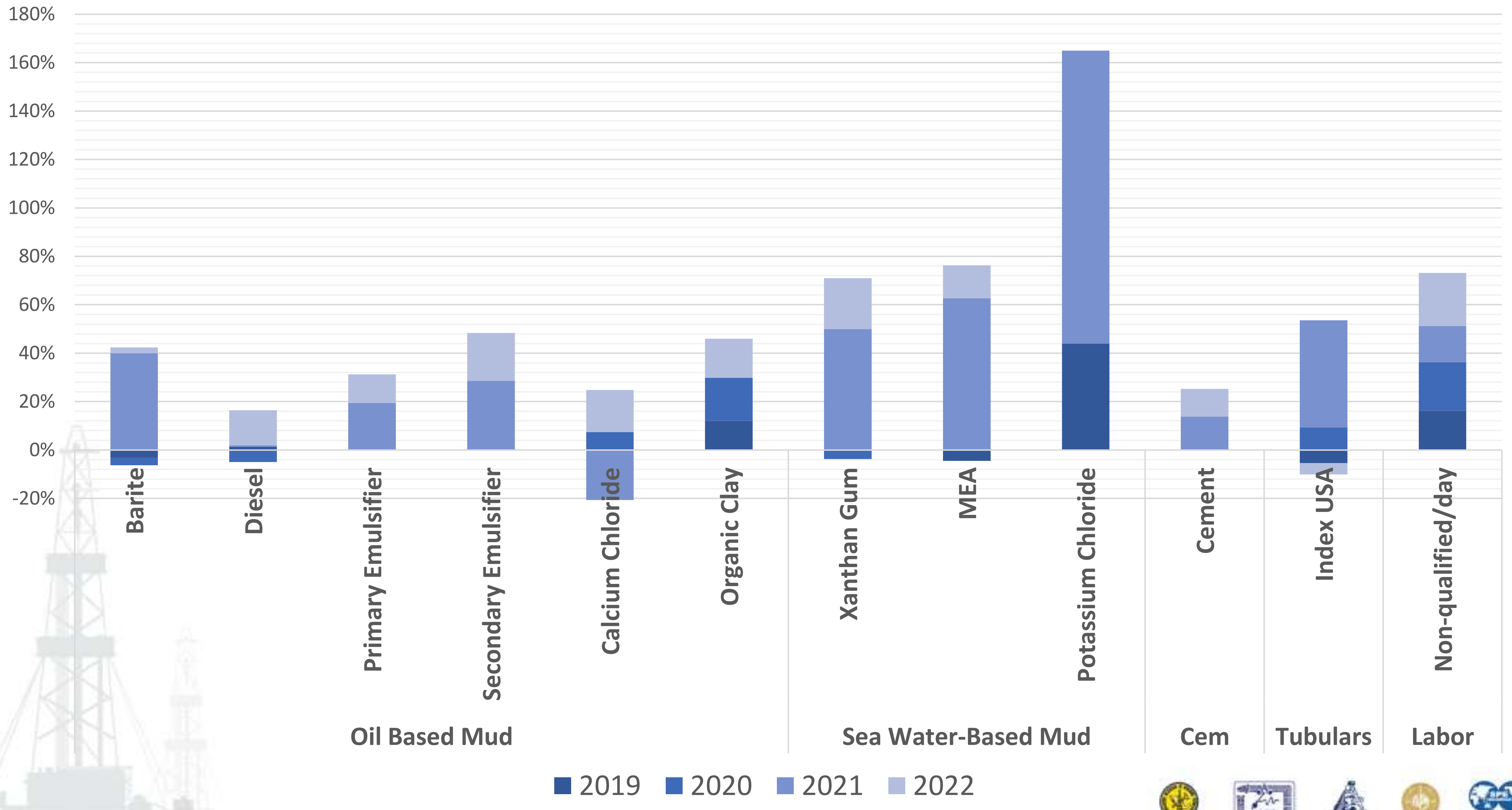


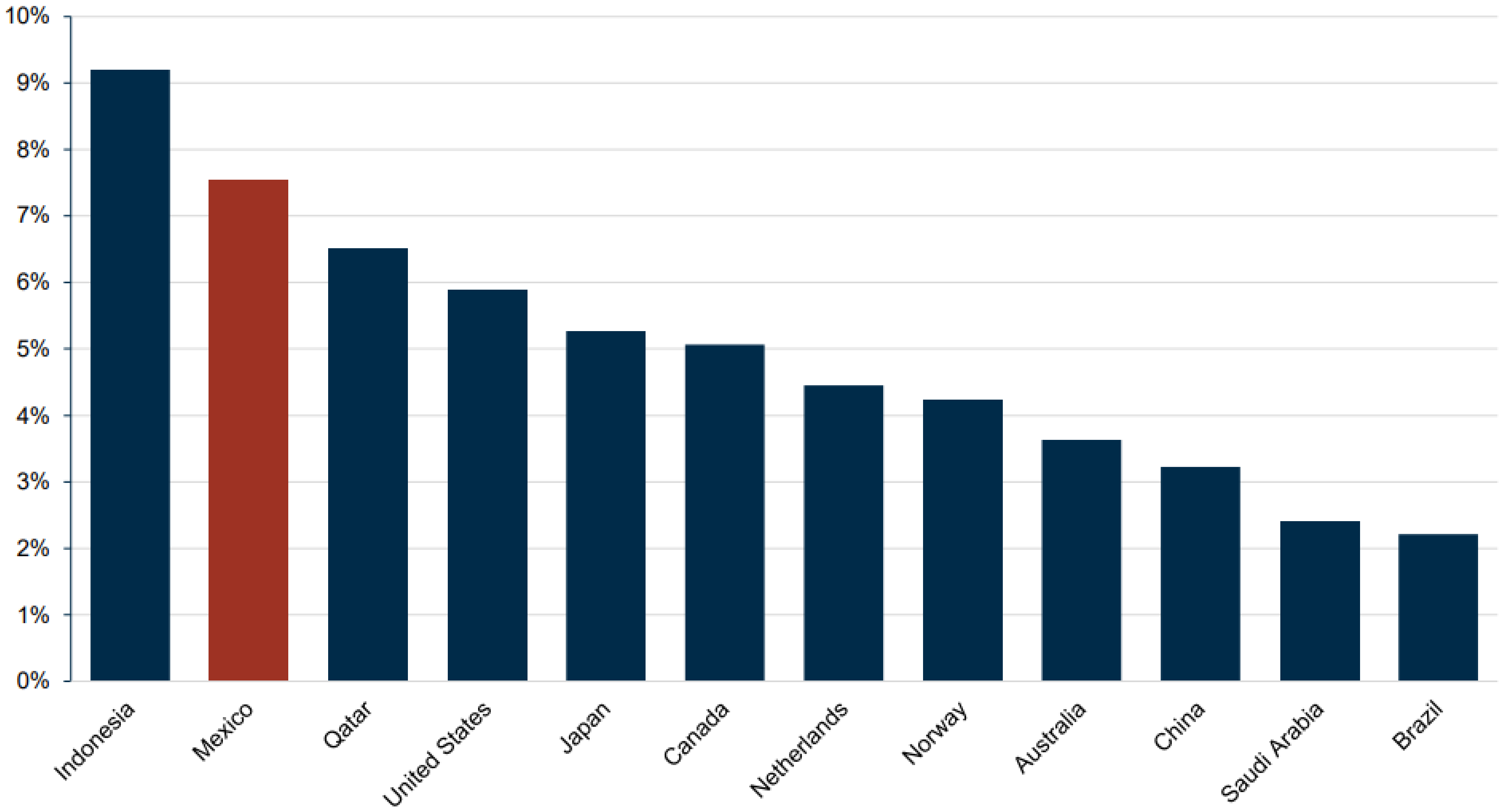
Mx Supplies Inflation 2019-22

% percent change



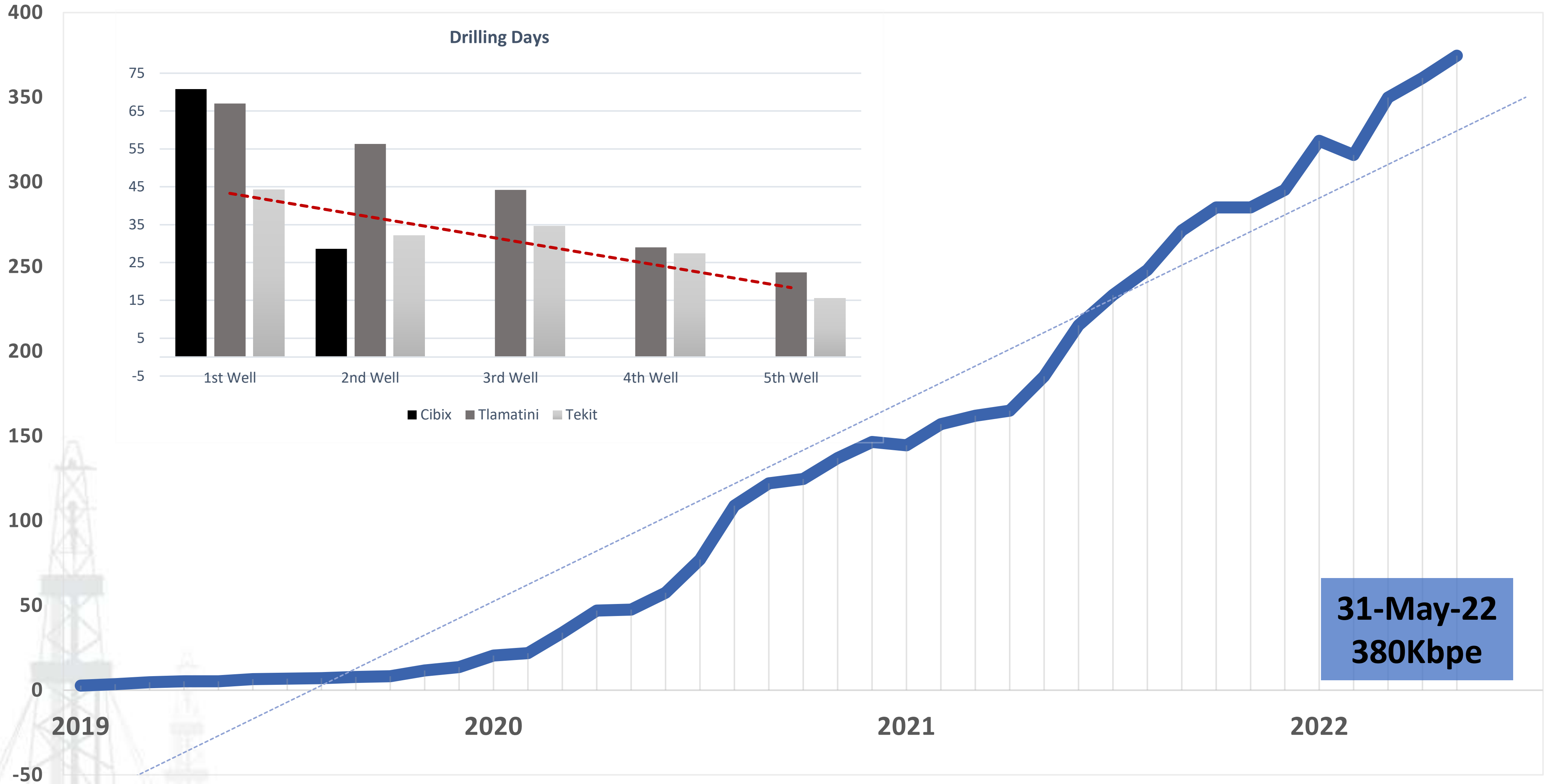
Truck driver labor rate 2019-2022

Percent change (each country in local currency)



PEMEX New Fields Production

Drilling days selected fields / Thousands of barrels oil equivalent



Source: PEMEX June 2022
https://www.pemex.com/ri/finanzas/Reporte

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Achieving Productivity Gains

Next Managed Pressure Applications

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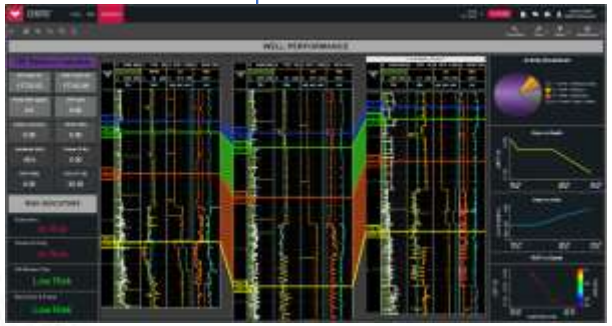
Digitally Enabled Offerings

Intelligent Managed Pressure System

Drilling & Well Construction

Digital & Automation Platforms



Performance Management Platform

REAL RESULTS

POKCHE - JSK MEXICO SHELF OIL

Intelligent MPD - Rotating Control Device W-780

Dynamic Pore Pressure and Formation Integrity Testing (DPPT and DFIT) enabled use of statically underbalanced mud system. Simplified lower well construction design combining 8-1/2" and 6-1/2" bit runs into one 1,000+mts section. Savings of 1,500 m^3 of OBM and 10 days of drilling operations per well

PRE-SALT BRAZIL DEEP WATER OIL

Microflux MPD control system – SeaShield Model 7875 – BTR/RCD

Over 10 years drilling the challenging depleted carbonates beneath the Pre-Salt allowed operator to master MPD technics such as constant bottom hole pressure (CBHP) and pressurized mud cap drilling (PMCD) reaching over 20,000-FT total depths

VACA MUERTA ARGENTINA SHALE OIL

VICTUS™ Intelligent MPD Various RCD Models

Achieved stable annular pressure profile control along with early detection and control of fluid influxes and losses while reducing mud density even through unstable intervals. Savings 15% of OBM cost and 1.5 drilling days per well

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Value Chains Options

how different operators are playing the environment

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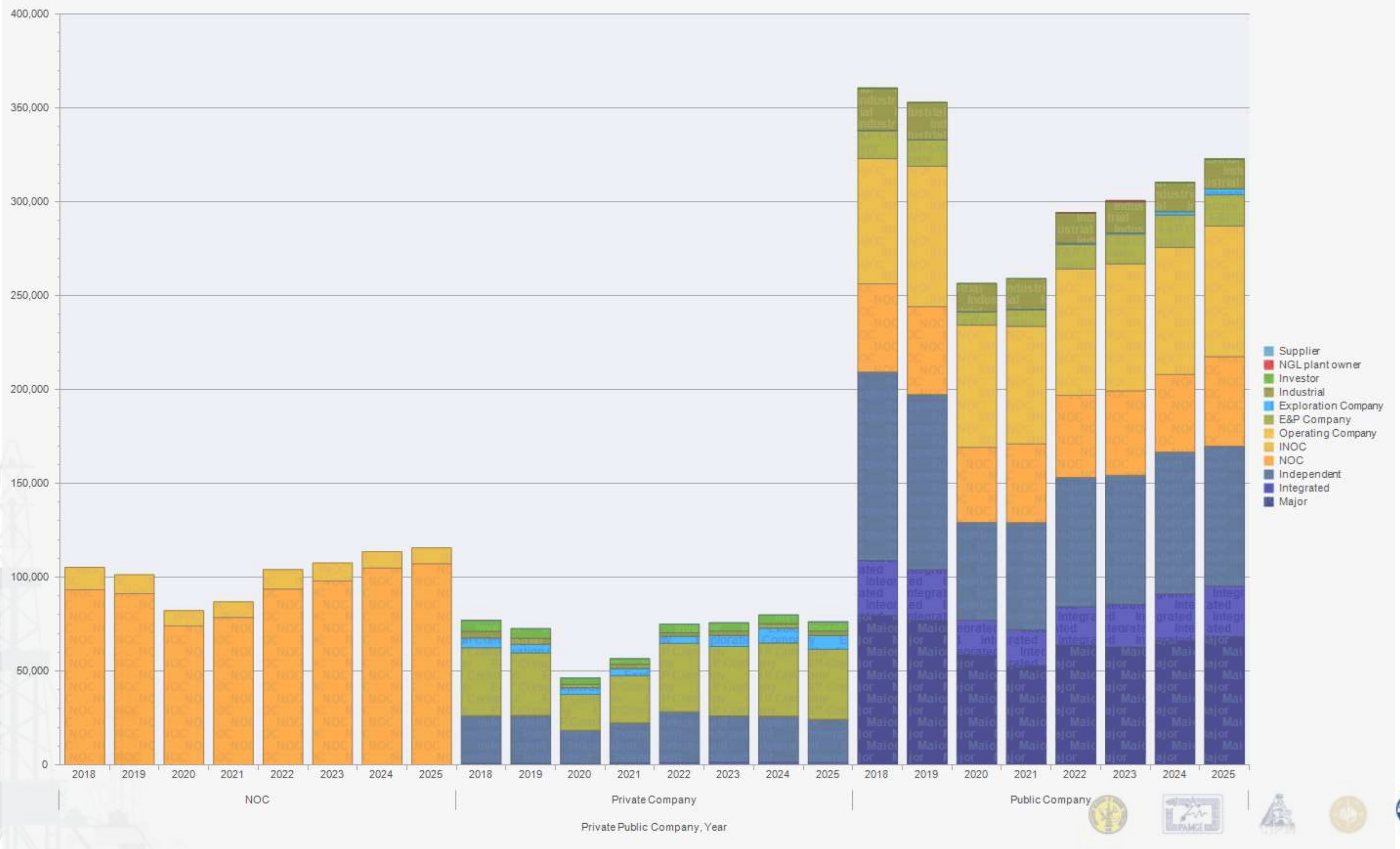

Gracias