

Venezuela Petroleum Industry in light of Global Energy Transition

Investing in the Future

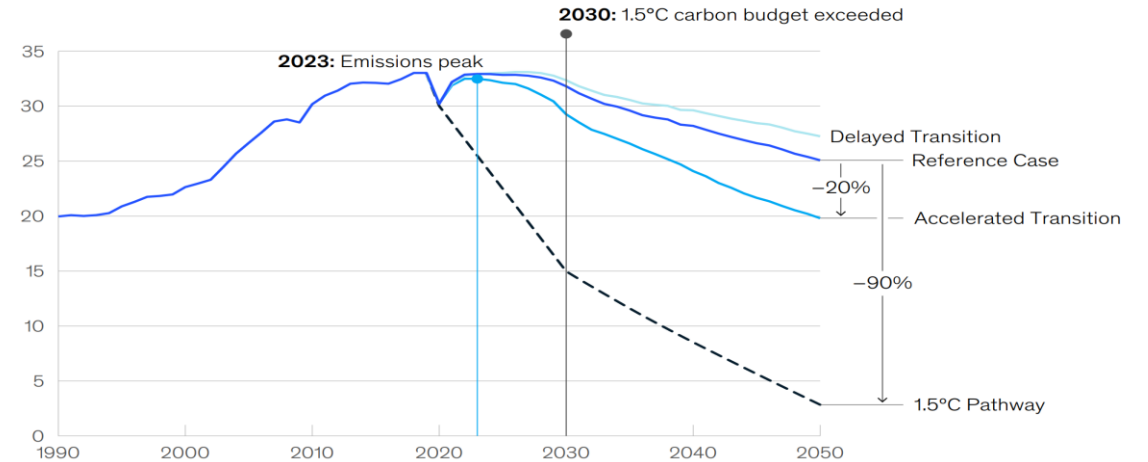
IESA Conference
August 20, 2021

Topics	<ul style="list-style-type: none"> • Global Energy Transition to Zero Emissions, Energy Transition and Climate Change • What is the future of Petroleum Industry, particularly oil? • Investments in the Petroleum Industry • Venezuela’s Economic Recovery through Petroleum Sector • Economic modeling the Recovery of Venezuela’s Economy
Key Messages	<ul style="list-style-type: none"> • Achieving only a 1.5^o Celsius temperature increase by 2050, the world still requires 40 MMBOPD • US petroleum industry will be under-funded, OPEC will have most of the production capacity • Venezuela economy can recover through Petroleum Sector and Green Energy • Venezuela will continue to be a major player in global Petroleum Sector regardless of the global energy transition • Venezuela will attract investment in Petroleum Sector far more than any other country in Latin America • A Private-Public Partnership in Venezuela is fundamental the country’s Economy Recovery
Next Steps	<ul style="list-style-type: none"> ▪ Venezuela should Develop a Plan for Hybrid Energy, Petroleum and Green Energy Sectors ▪ Attract Investors using Private-Public Partnerships ▪ Increase Human Resources capabilities and capacity, Technology Advancement

The Paris Agreement (French: Accord de Paris) is an international treaty on Climate Change which was adopted in 2015. It covers climate change mitigation, adaptation, and finance. The Agreement was negotiated by 196 parties at the 2015 United Nations Climate Change Conference near Paris, France. The Paris Agreement was opened for signature on 22 April 2016 (Earth Day) at a ceremony in New York.

In the Reference Case, the global carbon budget for 1.5°C Pathway is exhausted by 2030

Global energy-related CO₂ emissions, GtCO₂ p.a.

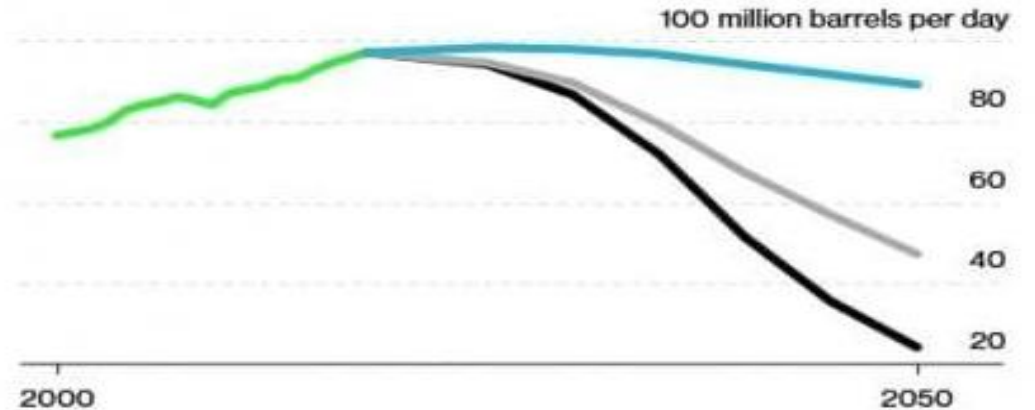


Source: McKinsey Energy Insights Global Energy Perspective 2021, December 2020

Calling the Top

Global oil demand in three scenarios

Historical Net Zero Rapid Business-as-usual

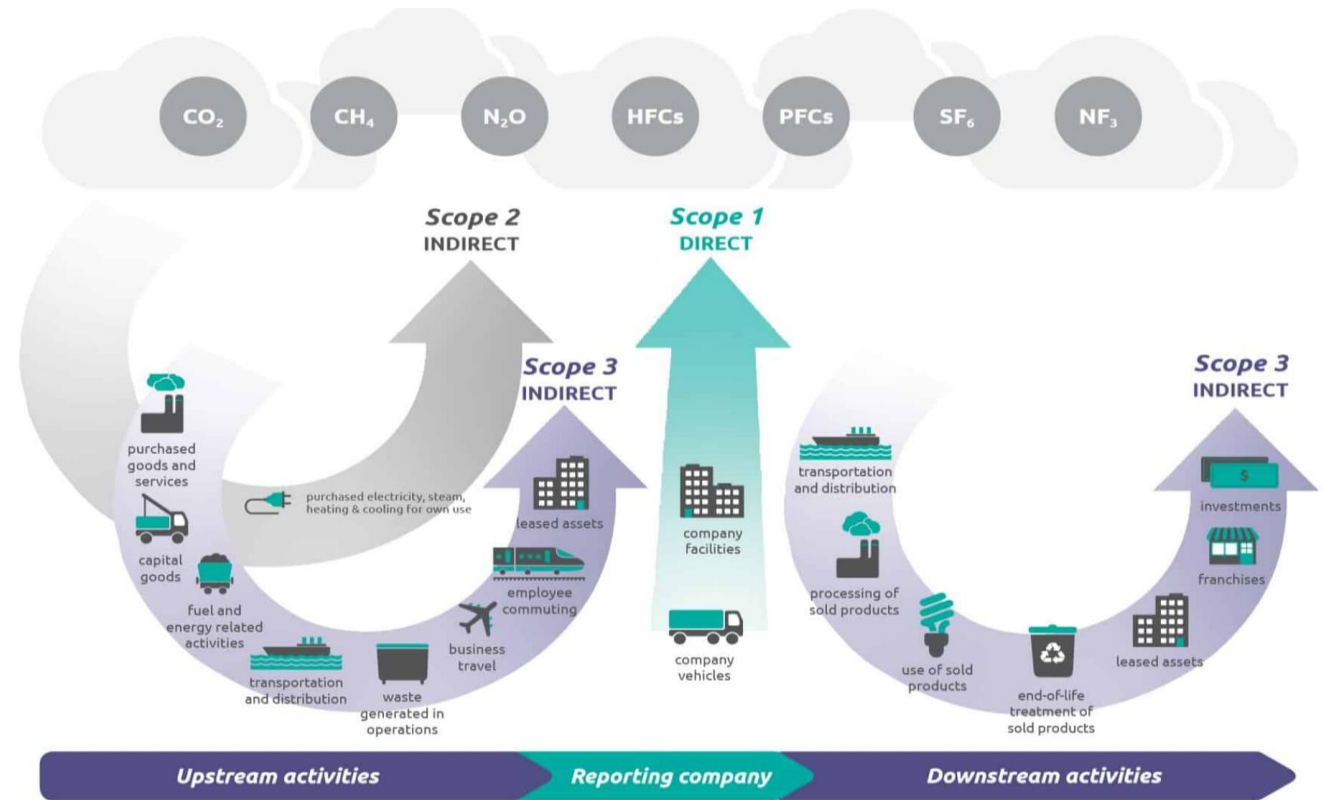


Source: BP

Scope 1 – All Direct Emissions from the activities of an organization or under their control. This includes fuel combustion on site such as gas boilers, fleet vehicles and air conditioning leaks.

Scope 2 – Indirect Emissions from electricity purchased and used by the organization. Emissions are created during the production of the energy that is eventually used by the organization.

Scope 3 – All Other Indirect Emissions from activities of the organization occurring from sources that they do not own or control. These are usually the greatest share of the carbon footprint covering emissions associated with business travel, procurement, waste and water.



Source: [GHG Protocol](#)

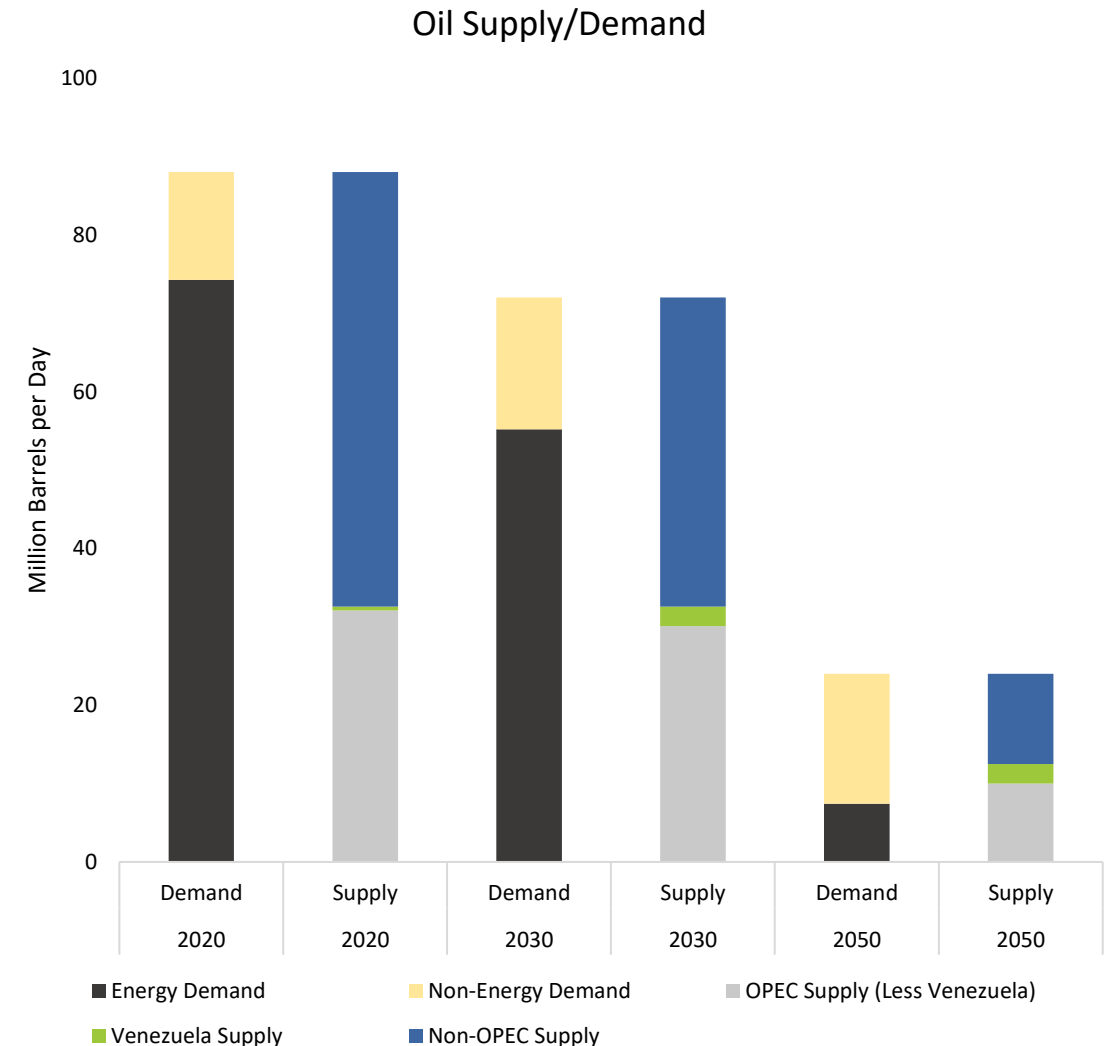
IEA's Net Zero by 2050 - A Roadmap for the Global Energy Sector:

Global oil demand declines gradually but never falls to zero.

- By 2050, 70% of oil use is in applications such as chemical feedstocks and in lubricants, paraffin waxes and asphalt where the fuels are not combusted. The balance of demand largely comes where substitution is impossible such as aviation fuel.

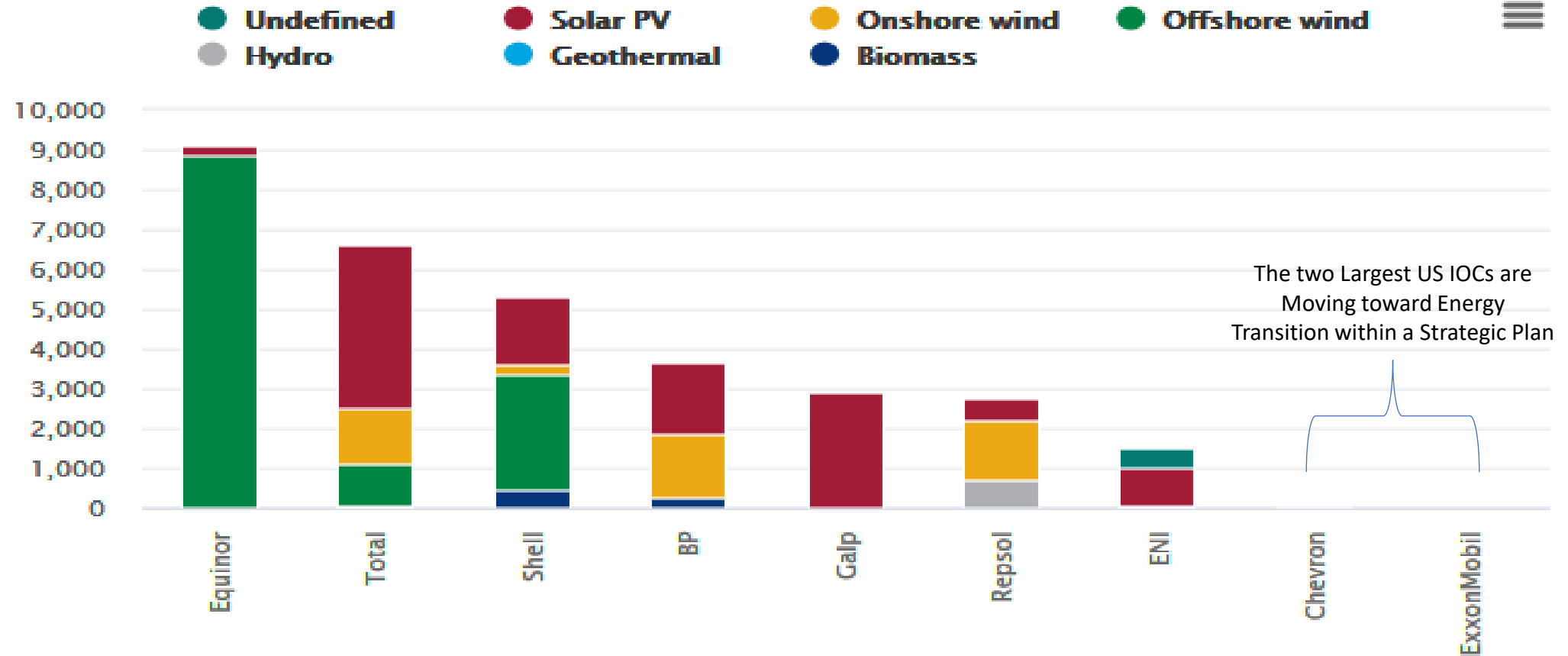
Oil supply become increasingly concentrated in a small number of low-cost producers.

- OPEC's share of global oil supply grows from around 37% in recent years to 52% in 2050, a level higher than at any point in the history of oil markets.
- We expect Venezuela **to retake then** grow its market share to 10%, anticipating that the U.S. will prefer Venezuelan production for national security reasons.



We are seeing a Shift in Investment from the Petroleum sector to Green Energy

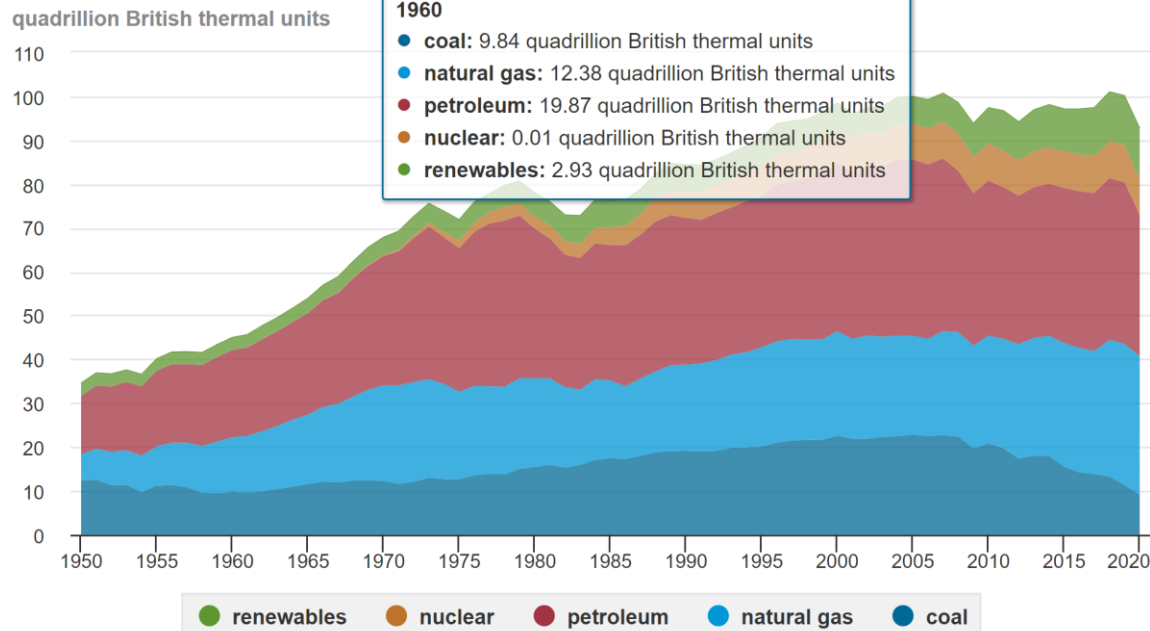
Majors' renewables net operational and development capacity (by equity)



Source: Wood Mackenzie, Energy Transition Practice

Energy Transition is being accomplished via Incentives and Mandates

U.S. primary energy consumption by major sources, 1950-2020

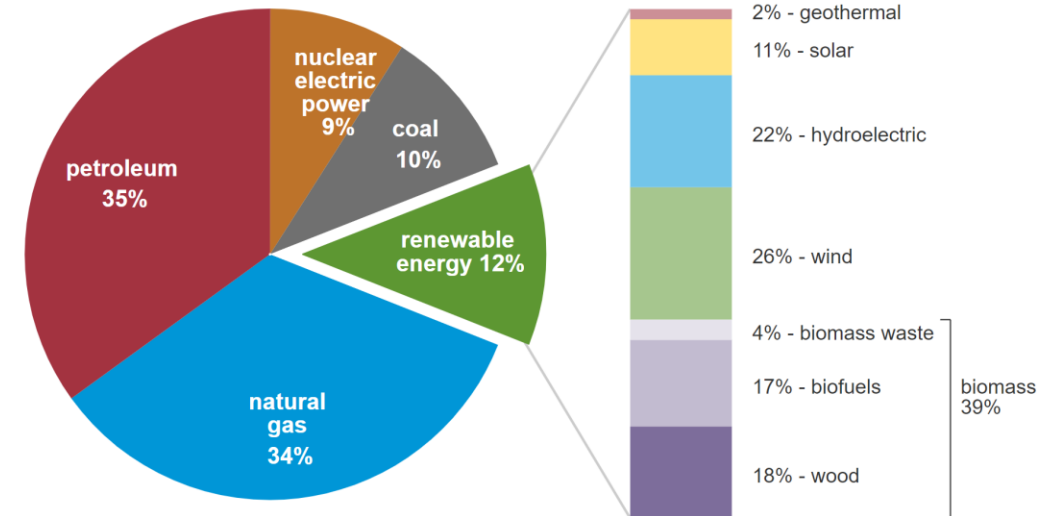


Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3, April 2021, preliminary data for 2020

U.S. primary energy consumption by energy source, 2020

total = 92.94 quadrillion British thermal units (Btu)

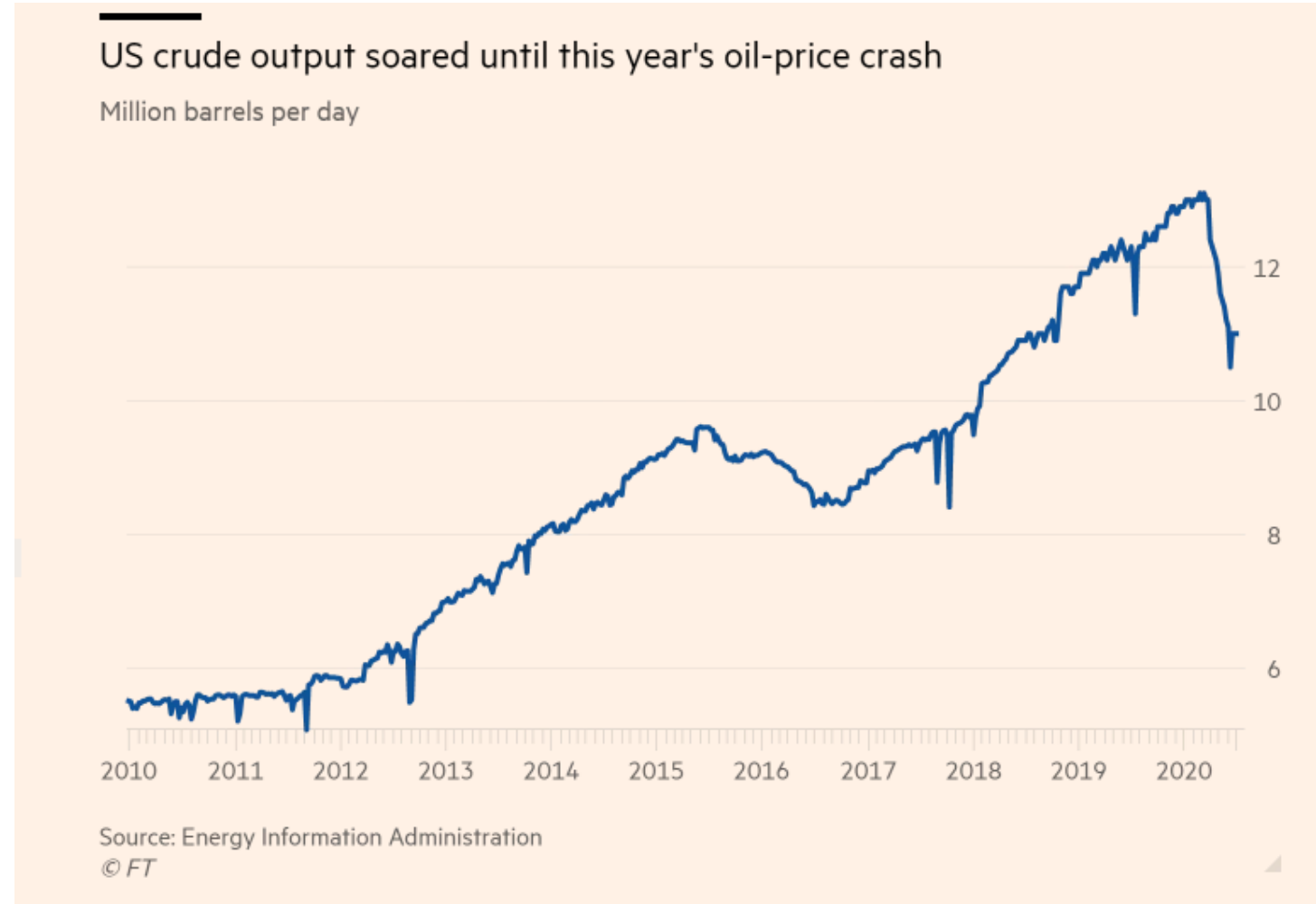
total = 11.59 quadrillion Btu



Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3 and 10.1, April 2021, preliminary data
 Note: Sum of components may not equal 100% because of independent rounding.

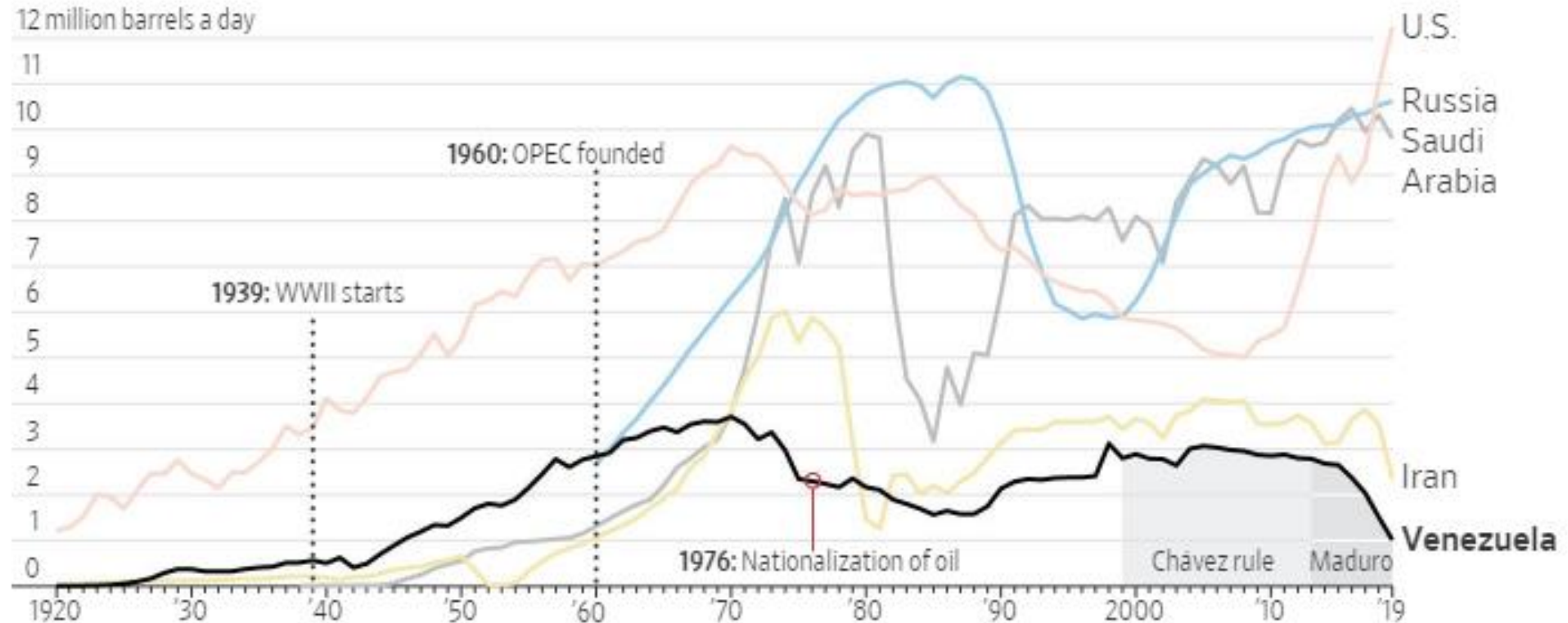
A lack of Investment and Targeted CO₂ Emission Standards for 2050 has taken a toll

- Regulatory and Policy Impacts
- Reduction in Investment
- Diversification by Energy Companies
- Technology Investment in other areas
- Subsidies by the US government for Non-Petroleum Energy making them more affordable



OPEC will be able to Monetize their Resources at a Faster Rate than others
Venezuela will have 10% of the market share

Crude oil production



Sources: CEIC Data; Energy Information Administration (U.S.)

- Global demand will reach, then top pre-Covid levels by the end of 2021
- Oil Demand will increase by 500 MBOPD per year until 2030
- Lack of Investment by non-OPEC countries will put more pressure on the Supply
- OPEC will respond by Increasing Supply and Maintaining Global Economic Growth
- Venezuela will be a Key Player in this Increased Supply

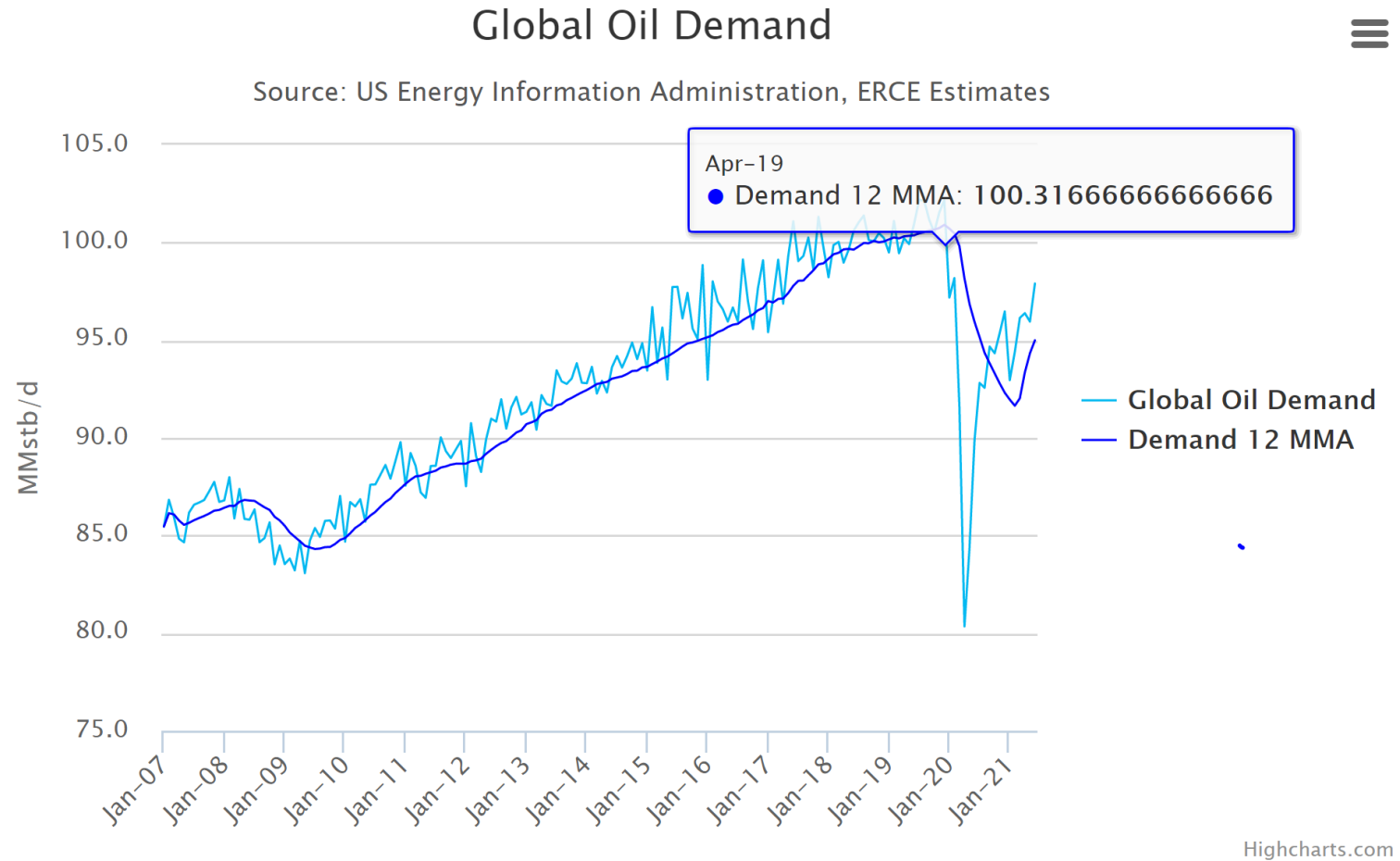
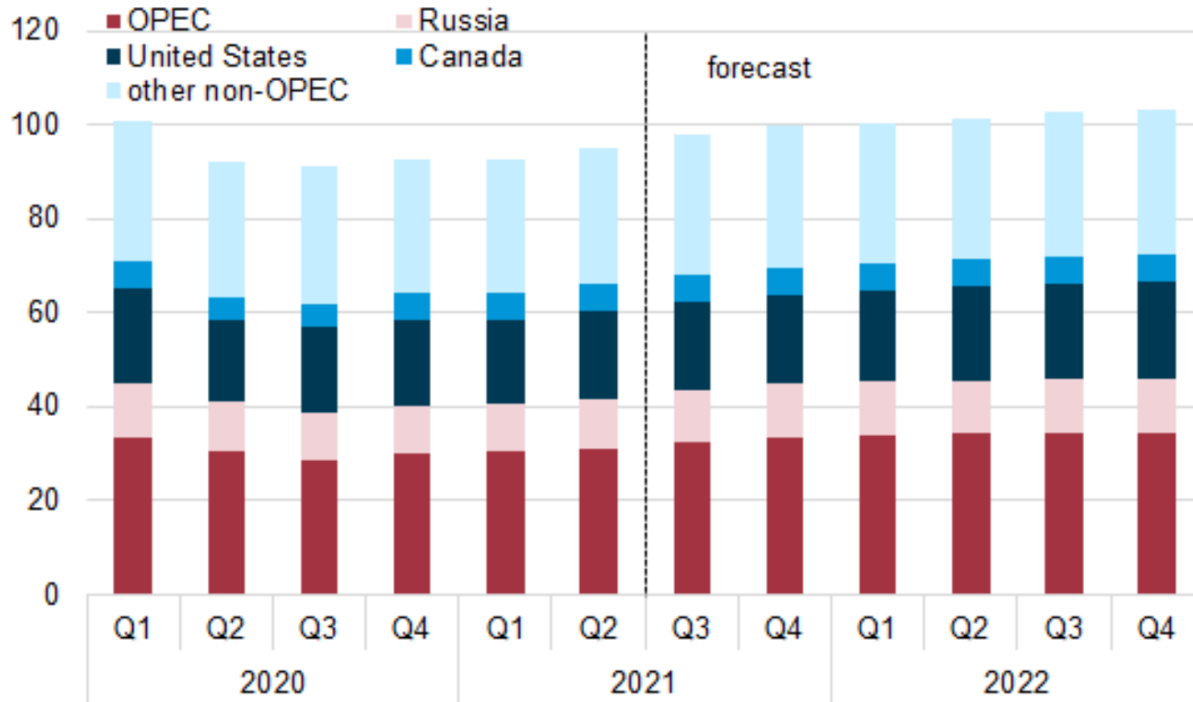
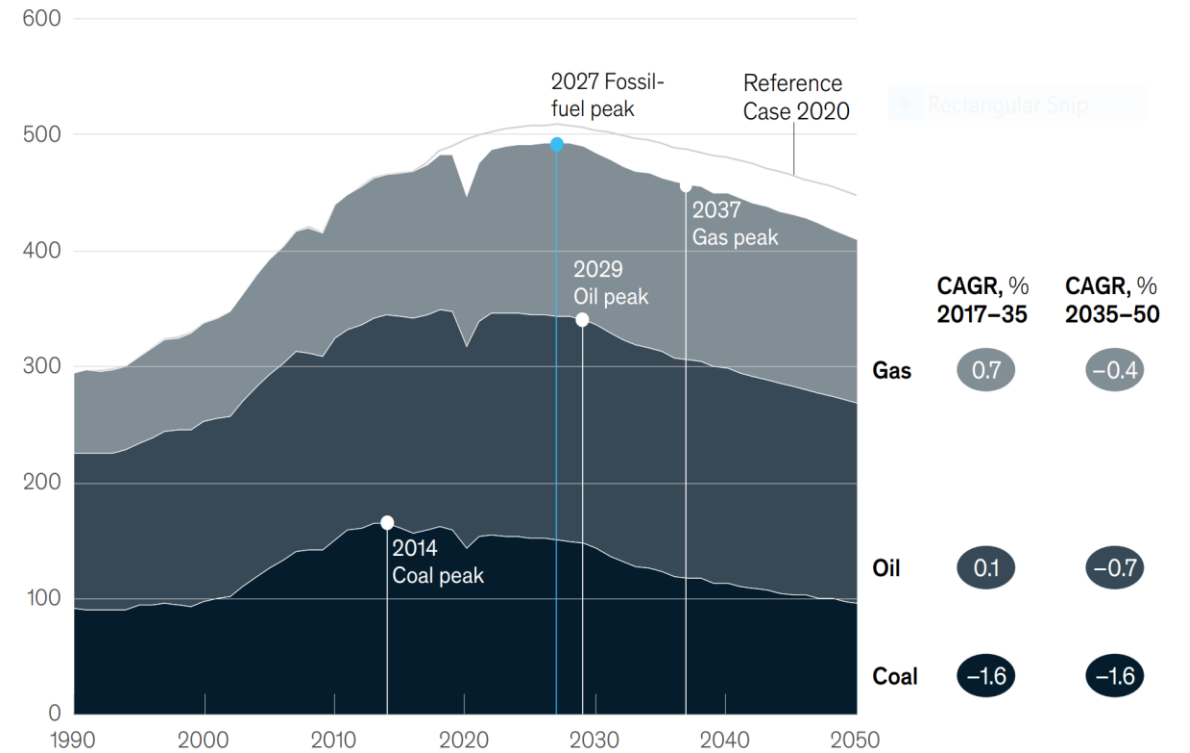


Figure 1. World petroleum liquids production forecast
million barrels per day



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, August 2021

Primary energy demand per fossil fuel, million TJ



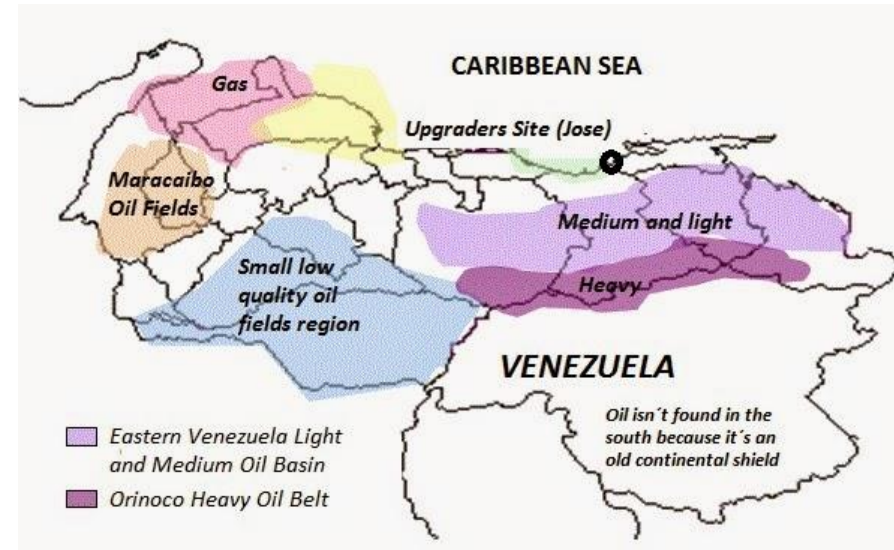
Source: McKinsey Energy Insights Global Energy Perspective 2021, December 2020

Venezuela is rich in resources and can meet local, region and global energy demand

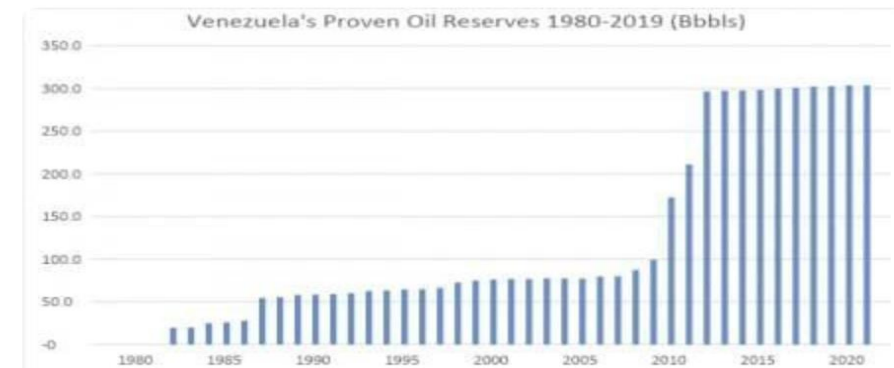


Venezuela has the Largest Resource Base which can be Monetized

- Large Petroleum Basins containing both Oil and Gas
- Large, Existing Infrastructure across Upstream, Midstream and Downstream
- Close Proximity to the Largest Market – the USA
- Will be part of Future Petroleum Demand at a Sustainable Supply of 2.5 – 3.0 MMBOPD



Venezuela's Proven Oil Reserves 1980-2019 (billion barrels).



3P Statistical Survey 2020.

Venezuela can Recover Production Rapidly and Meet Paris Acord and Climate Changes Targets

- Faja Projects can Jump-Start the Production
- Using existing New Technology, additional Upgraders are Not Required
- Venezuela has Low Development Cost and Low Operating Cost
- Infrastructure is Available and Accessible
- Private and Public Funds will be Participating
- Creates Significant Jobs, both Direct and Indirect with the expansion
- Will be able to Minimize Carbon Foot Print
- Will be able to Integrate Green Energy into the Operation



Faja JV projects

Asset	Partners	Peak planned production (kb/d)
Carabobo Project 1	Repsol (11), ONGC(11), Oil India (3.5), IOC (3.5)	400
Carabobo Project 3	Chevron (34), Japanese consortium (5), Suelopetrol(1)	400
Junin 5	Eni (40)	240
Junin 6	Rosneft (32), Gazprom (8)	450
Petro San Felix	N/A	160
Petrocedeno	Total (30.30), Statoil (9.70)	180
Petrolera Sinovensa	CNPC (40)	300
Petromonagas	Rosneft (40)	150
Petropiar	Chevron (30)	180
San Cristobal	ONGC (40)	60

Source: Wood Mackenzie

PdVSA holds remaining stake in each project.

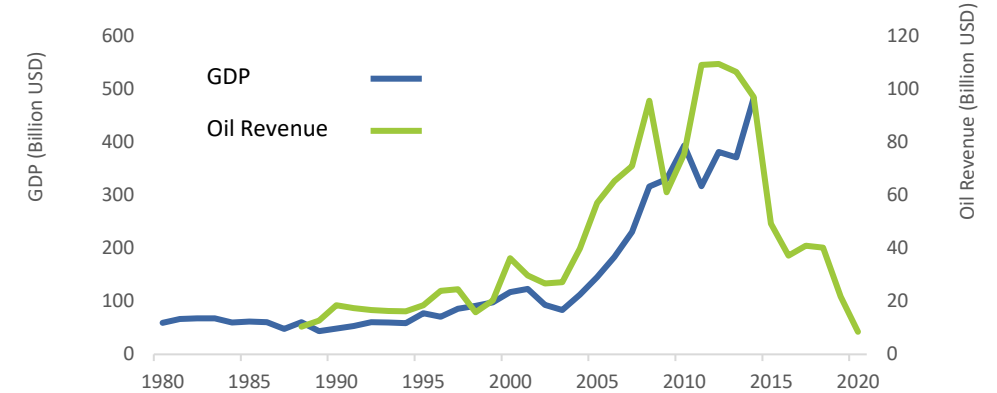
A Historical Perspective

- Venezuela's GDP has long demonstrated a strong relationship to oil revenue.
- Oil has represented between 69% and 96% of total exports, with an average of 85% since 1980⁽¹⁾.

An Industry Perspective

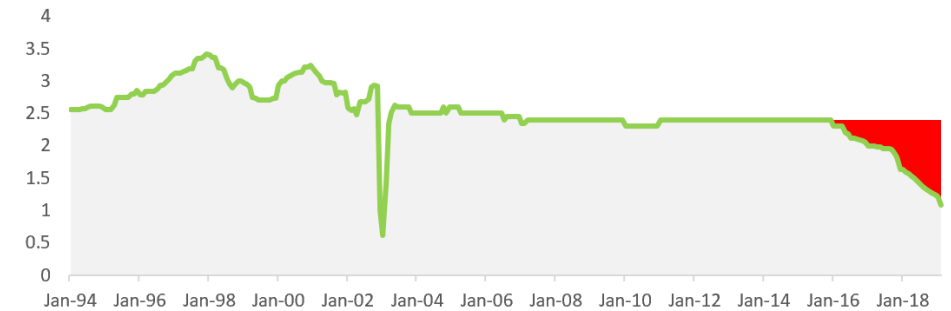
- Venezuela has a low breakeven price of ~20/bbl⁽²⁾, placing it in the second quartile, behind Saudi Arabia and Iran.
- Venezuela also has the world's largest proven oil reserves, over 300 Bn bbls.

Oil Revenue to GDP Comparison



Source: Federal Reserve Bank of St. Louis, U.S. Energy Information Administration

Venezuela Monthly Oil Production (MMBLD)



Source: U.S. Energy Information Administration

⁽¹⁾ Source: Organization of Petroleum Exporting Countries.

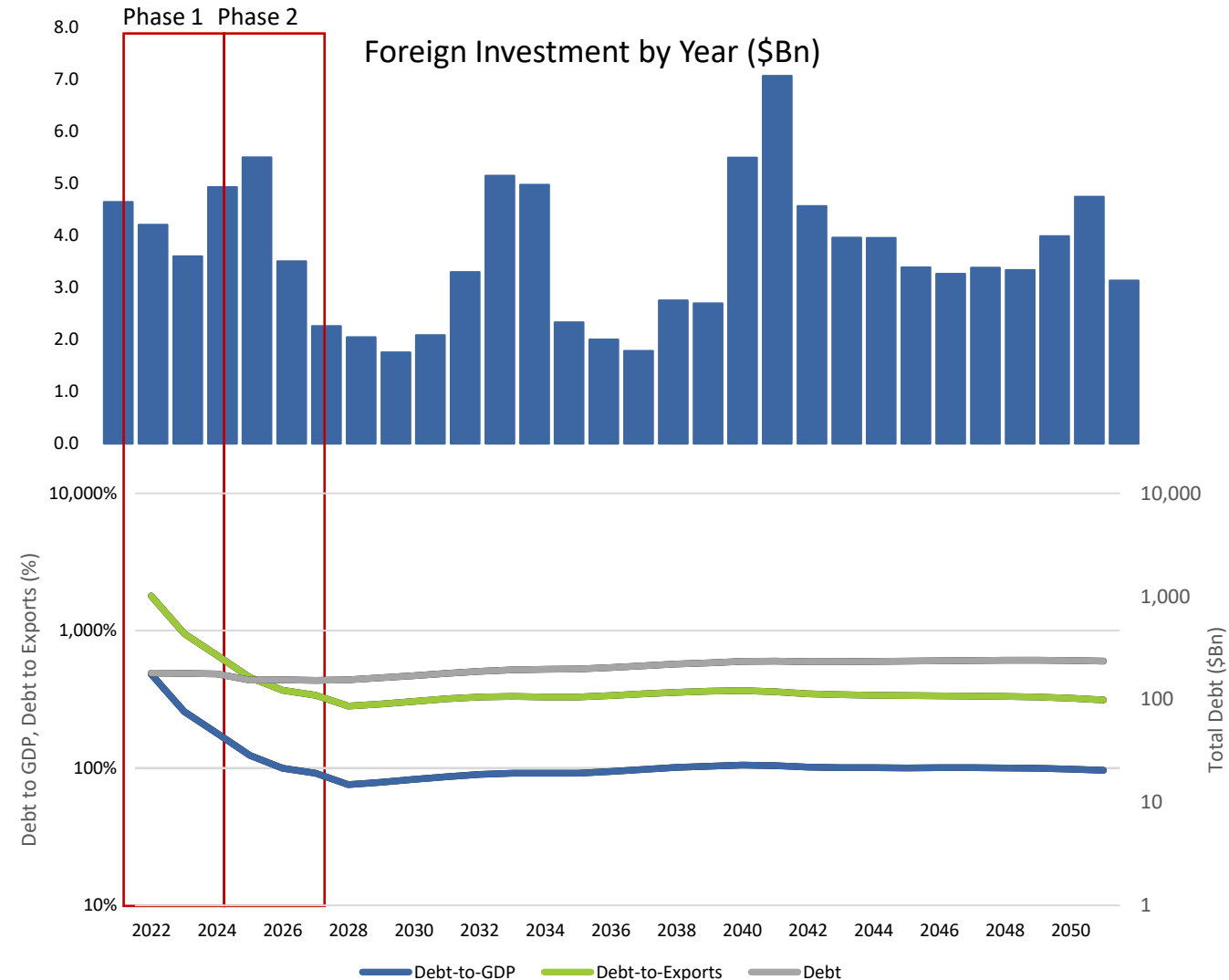
⁽²⁾ Source: Wood Mackenzie

Our Plan turns-around Venezuela's Economy by Rebuilding Oil Production

	PRE-LAUNCH	1st WAVE (Years 0-3)	2nd WAVE (Years 4-6)	Steady State (Years 6+)
Defining Characteristics	Sanctions in place.	Initial public-private partnership investments begin to increase production; employment rises.	Address Existing Debt. Employment reaches a 10-year high and GDP returns to historic levels.	GDP and employment continue to grow. Country begins energy transition.
Production Characteristics	Existing production impaired by sanctions.	Oil production begins increase towards 1.5 MMBOPD.	Additional investments drive production towards pre-sanction levels.	Country maintains production at 2.5 – 3.0 MMBOPD.
Oil Production (MMBOPD)	0.5	1.2	2.0	2.5
GDP (Bn USD)	37	98	166	245
Foreign Direct Investments (Bn USD)	??	13	14	64

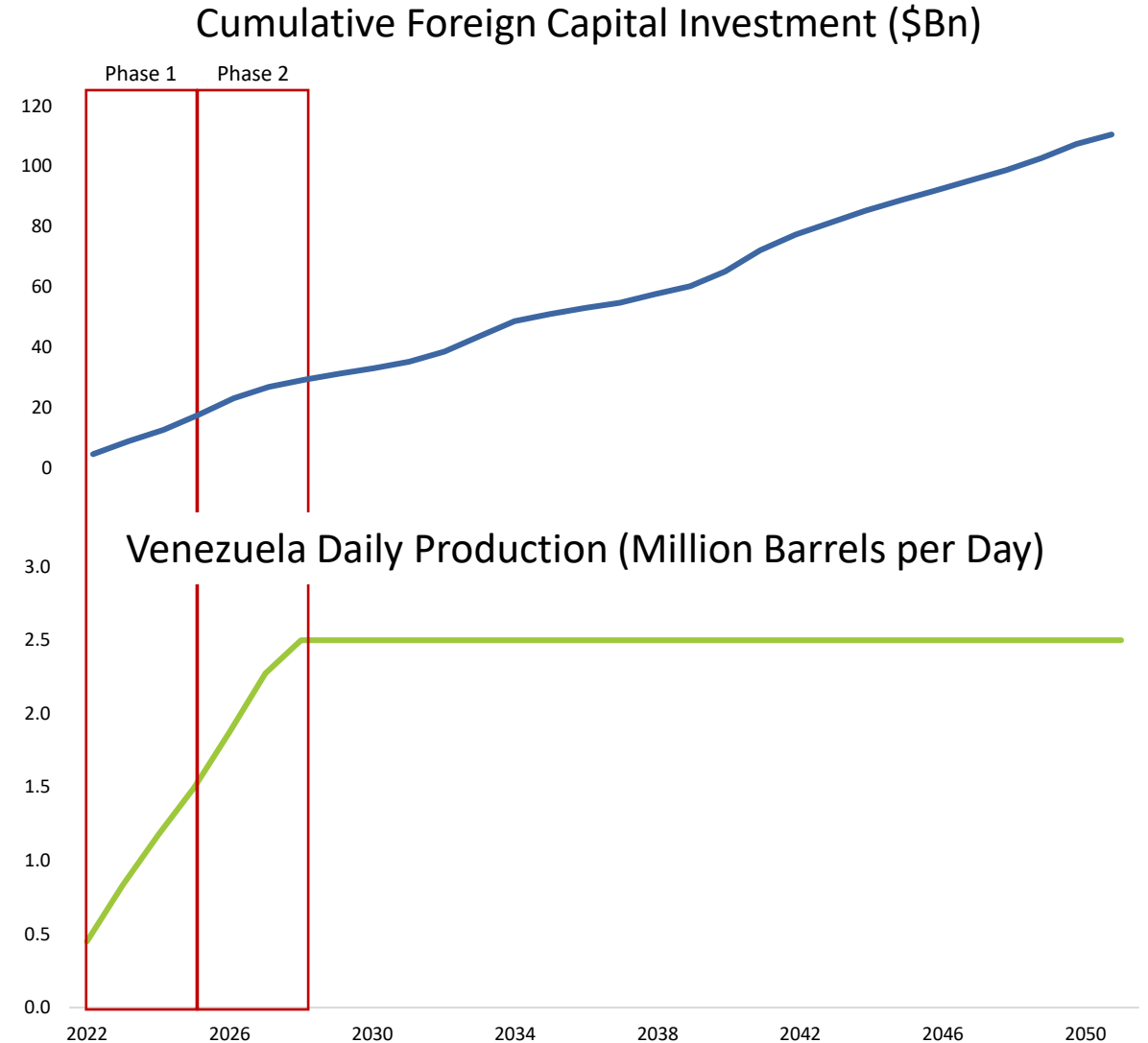
Phased Approach Brings Rapid Improvement to Country's Finances

- Phase 1: Initial Foreign Capital Investment of \$12 Bn occurs
- Phase 2: Investment enables the country to improve its fiscal standing; further outside investment continues to stabilize the economy and nation as a whole
- Additional benefit from investment is jump-starting Venezuela's "Green-Fund" which could see value approaching \$1.5 Bn by 2027; this dedicated money will help the nation accelerate its Green Energy Transition



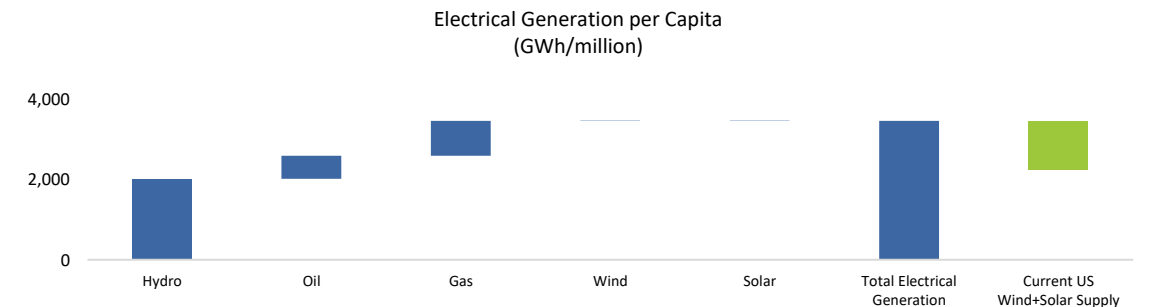
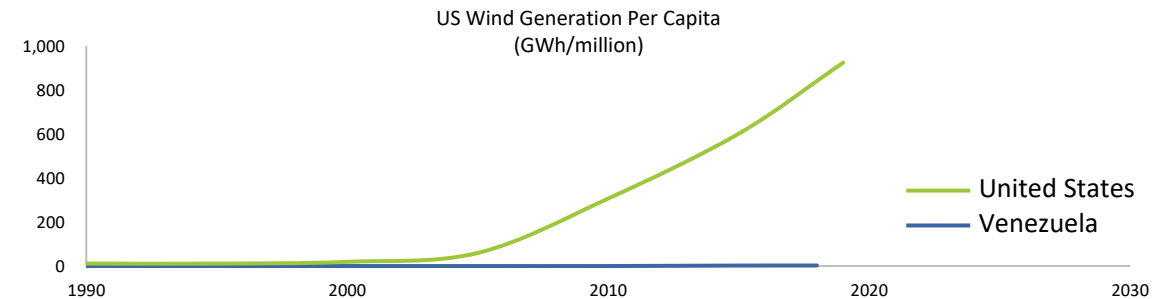
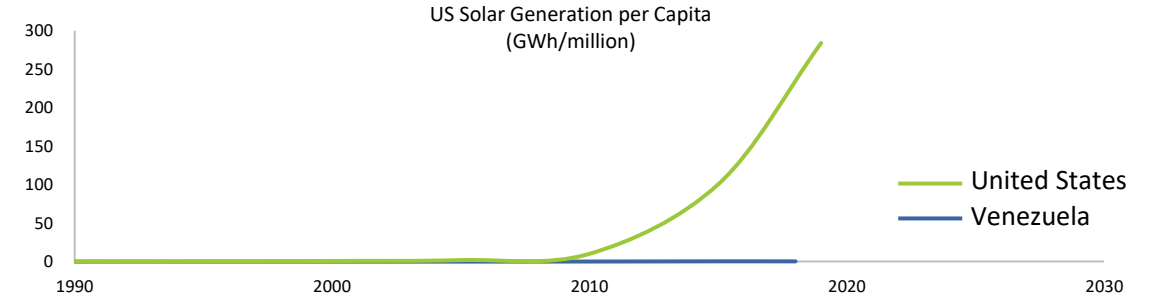
Assuming a \$50 Flat Base Case

- We expect oil production to jump 3X to over 1.5MMbopd in less than four years (Phase 1) and expect peak oil production at 2.5MMbopd in as few as three more years (Phase 2).
- Incremental oil exports during the first Phase 1 generate over \$43 Bn off free cashflow to Venezuela (including PDVSA):
 - Public-private partnerships invest \$12 Bn and initially carry PDVSA;
 - Reinvested operating cashflow ensure the continuation of recovery.
- Incremental oil exports during Phase 2 generate over \$93 Bn of free cashflow to Venezuela (including PDVSA).
- During Phase 2, we expect the country enacts a comprehensive plan to address its debt.
- Once peak oil production is achieved, debt falls to sustainable levels below 3X exports and 70% of GDP.
- GDP grows initially to ~\$100Bn and subsequently to ~\$200Bn, including the expected \$0.25 multiplier impact on non-oil exports and \$0.50 multiplier assumed for each \$1 of cumulative foreign direct investment.



Venezuela can become a Regional Green Energy Leader as it works towards Net-Zero

- With new wind and solar investments and building on existing hydro power capacity, renewables can jump from about 60% today to 90 – 100% of electrical generation within Venezuela.
- The United States has seen rapid growth in both Solar Photo-Voltaic and Wind electrical generation over the past 10-29 years with no noticeable slowing of the trend. This can be happen in Venezuela.
- Assuming electrical needs per capita in Venezuela remain constant, it is possible that electrical generation from oil and gas can be phased out with renewable energy solutions as Venezuela replicates the US growth trajectory of solar and wind.
- Additional polices such as ending routine flaring, utilizing natural gas to replace diesel/oil engines and, implementing carbon capture and sequestration (CCS) can all lead to reducing carbon intensity in the country.



Source: IEA Electricity Information 2020, World Bank.

- The Climate Change focus is a reality and needs to be addressed
- Europe has been in forefront of Energy Transition from regulatory and investment
- The US is moving in the same direction as Europe
- The 2050 target for Net Zero Carbon Emissions is not doable, and global economy will continue to depend upon petroleum when recognizing population growth. Presently, 40% of the world population is using wood or solid fuel for cooking and over 750 Million people are without access to electricity.
- Energy Companies are Responding to the Policy Makers as well as following the Paris Accord
- Venezuela is Best Situated with All Resources – Oil, Gas, Renewables, Solar, and Wind – to Lead the Americas in Energy Production for the Future

