



# Africa and the Energy Transition

**Investor  
Webinar**

July 2021

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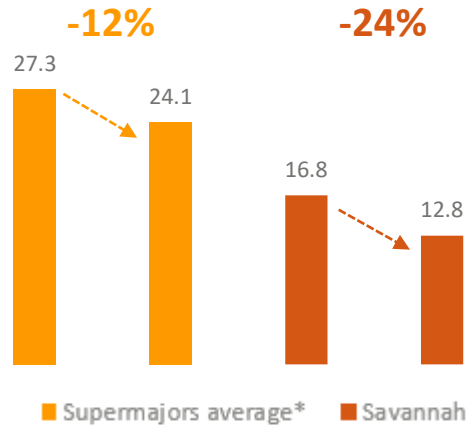
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# Sector leading ESG performance

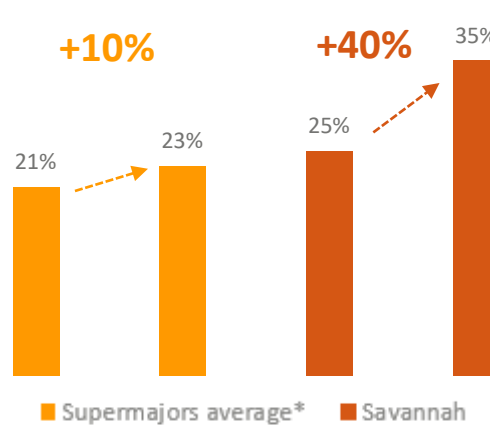


Savannah vs. Supermajors' carbon intensity (kg CO<sub>2</sub>e/boe)



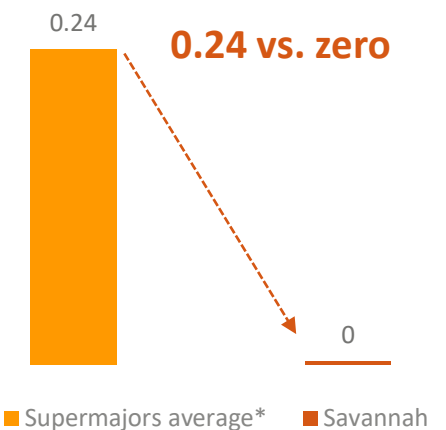
Source: Annual and Sustainability reports of BP, ConocoPhillips and Eni

Savannah vs. Supermajors' senior management female gender diversity (%)



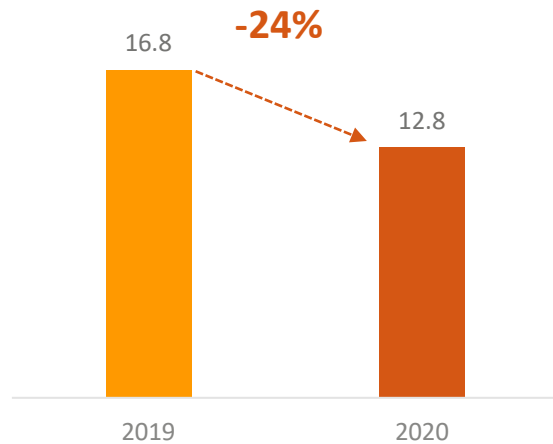
Source: Annual Reports of BP, Chevron, ConocoPhillips, Eni, ExxonMobil, Royal Dutch Shell and Total.

Savannah's Lost time injuries (per 200,000 hours worked)

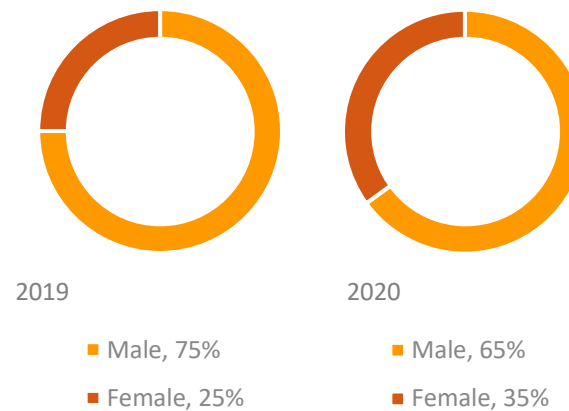


Source: Annual Reports of BP, Chevron, ConocoPhillips, Eni, ExxonMobil, Royal Dutch Shell and Total.

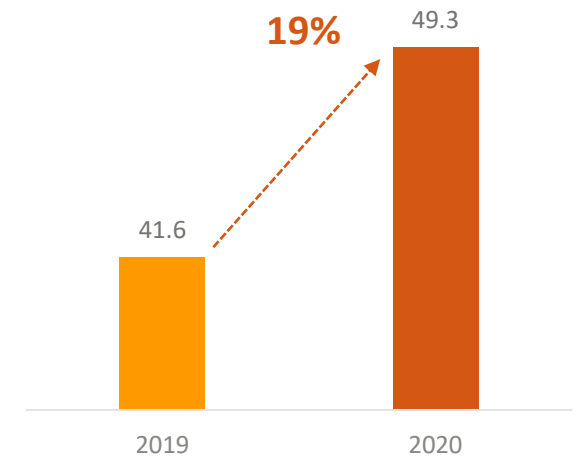
Savannah's carbon intensity (kg CO<sub>2</sub>/boe)



Savannah's senior management female gender diversity (%)



Savannah's Total Contributions (US\$m)\*



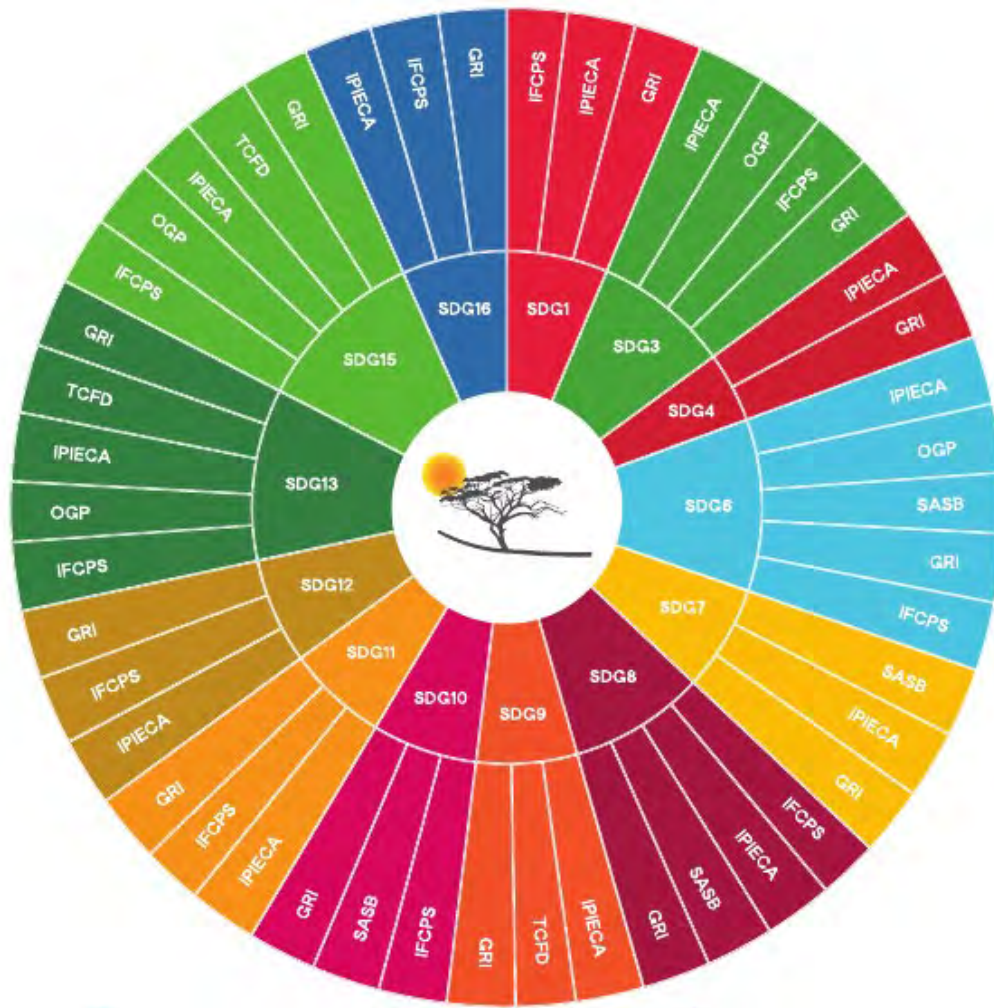
\*Note: Total contributions defined as payments to governments, employee salaries and payments to local suppliers and contractors

# Our refocused sustainability strategy



	1 Promoting Socio-economic prosperity	2 Ensuring safe and secure operations	3 Supporting and Developing our people	4 Respecting the environment
Material Issues	<ul style="list-style-type: none"> <li>Socio economic prosperity</li> <li>Tax transparency and contribution</li> <li>Community engagement and development</li> <li>Local content and responsible procurement</li> </ul>	<ul style="list-style-type: none"> <li>Health and safety</li> <li>Security and human rights</li> </ul>	<ul style="list-style-type: none"> <li>Workforce culture and engagement</li> <li>Training and development</li> <li>Diversity and equality</li> </ul>	<ul style="list-style-type: none"> <li>GHG emissions</li> <li>Biodiversity</li> <li>Water management</li> </ul>
Ambitions	<ul style="list-style-type: none"> <li>Make a positive difference to the socio- economic development of our host countries</li> <li>Build strong and meaningful relationships with our local communities based on mutual trust and benefit</li> <li>Enhance value creation potential by championing the development of local content</li> </ul>	<ul style="list-style-type: none"> <li>Continually prioritise and improve upon the safety and security of our work environment</li> </ul>	<ul style="list-style-type: none"> <li>Cultivate a winning and inclusive culture to position our employees and the business for success</li> <li>Recruit, develop and retain the best talent through our commitment to professional development</li> </ul>	<ul style="list-style-type: none"> <li>Deliver a cleaner performance by minimising our GHG emissions</li> <li>Monitor and manage our impacts on biodiversity and water</li> </ul>
SDGs				
2020 reporting metrics	<ul style="list-style-type: none"> <li>Total contributions</li> <li>Social impact investment</li> <li># of social impact projects</li> <li>Payments to local suppliers and contractors</li> </ul>	<ul style="list-style-type: none"> <li># of security/transport incidents</li> <li># of journeys safely managed</li> </ul>	<ul style="list-style-type: none"> <li># of employees</li> <li>Amount of training hours</li> <li>Gender diversity</li> <li>% of local employees</li> <li>Ethnicity statistics</li> </ul>	<ul style="list-style-type: none"> <li>Scope 1 GHG emissions</li> <li>Scope 2 GHG emissions</li> <li>Carbon intensity ratios</li> <li>UK Energy usage</li> </ul>

# Our new sustainability performance and reporting framework SAVANNAH ENERGY



- Strategy anchored around the 13 most relevant UN SDGs to Savannah
- Integrated with six additional sustainability reporting standards



- Rolling out new sustainability performance and reporting framework across the Group in 2021.
- Plan to provide measurable, verifiable and trackable performance metrics going forward and targets from 2022

## Introducing Dr Richard Norris



Currently Richard is a fellow of the Canadian Global Affairs Institute specialising in Energy Security, and is executive Chairman of Duna Energia in Brazil. He runs Pandreco Energy Advisors, a consultancy business advising banks, asset-managers and energy companies.

Recently Richard has presented to the UK's Parliamentary Group on Energy Studies as well as to the board of one of Africa's largest banks. He was a guest editor of the IEA "World Energy Investment Report 2021" published earlier this year.

Richard has a broad background covering engineering research, oil and gas operations, senior management roles in both executive and non-executive functions, debt and equity financing as well as personally investing in energy transition start-ups. He has worked extensively in and across emerging markets, speaks fluent French as well as modest Spanish and Portuguese.



# ENERGY AND DEVELOPMENT

Dr Richard Norris,  
Pandreco Energy Advisors

An African Perspective



# ENERGY AND DEVELOPMENT

18 Strategic Report

## Market context

Guest authored by Dr Richard Norris

## Development depends on energy

*“The problem with being at the top of the HDI ranking is that it is easy to forget how you got there and what maintains your quality of life.”*

### Executive summary

For over a century, industrialisation has used coal, oil and gas as the engines of growth and development, lifting entire regions far above subsistence levels. Whilst there is now a dramatic increase in the development of renewable energy technologies, the role of oil and gas will not be disrupted within the short time-frames. If we look beyond the headlines and focus on the majority of the world's population in emerging-market economies, a rapid energy transition is not taking place. In the meantime, access to cheap, reliable and local sources of energy are underpinning the economic development of billions of people, who aspire to education, healthcare, job opportunities as well as good government and good food – things that people in high-income countries take for granted. Investing in oil and gas in emerging markets, and in particular in Africa, is an essential step on the development pathway.



Dr Richard Norris

We are delighted that Dr Richard Norris has guest authored this section of our Annual Report. Dr Norris is a Fellow of the Canadian Global Affairs Institute and separately runs his consultancy firm, Pandreco Energy Advisors. He is a leading author and speaker on the role of energy in society and economics. He advises public and private bodies on macro strategy as well as on specific energy investments.

Dr Norris' career has spanned research (Imperial College/BP), operational experience (Elf Aquitaine/Total), management (Geopetrol/Candax), board roles (Candax/Eland PLC/Duna Energy), as well as debt financing (BNP Paribas/BTQ Pactual) and equity investments (Helios Investment Partners/BTQ Pactual and Family Offices). He holds a BSc in Geology, an MSc in Petroleum Geology and a PhD in Petroleum Engineering (Imperial College, London).

Please note that the opinions expressed in this Market Context section of the Annual Report are those of Richard Norris. They do not purport to reflect the opinions or views of the Company.

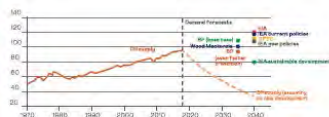


Savannah Energy PLC Annual Report and Accounts 2020

### Introduction

According to many headlines, the age of hydrocarbons is over, reserves and resources are “stranded”, and oil and gas companies must reinvent themselves or perish. Whilst the idea of Peak Demand (i.e. oil consumption will reach a peak and then start to decline) is very enticing, it distracts from the fact that we will continue to use oil and gas in large quantities for many decades, even in aggressive transition scenarios. Critically, as demand peaks and then wanes, so supply is assumed to be abundant; supply was so abundant in 2020 that the West Texas Intermediate oil price went briefly negative. In the rush to write off society's dependence on hydrocarbons, we overlook the awkward fact that existing oil fields decline or “deplete” year after year, much like how a balloon deflates as air escapes. This creates a significant gap between the future production of our existing oil and gas fields and the forecast requirements.

Oil “future production wedge”: demand vs existing field supply (million barrels per day)



Source: IPI Morgan, 2021 Annual Energy Paper

**“Development depends on energy, and the alternative to development is suffering; poverty, disease and death. Such conditions create instability and the potential for widespread violence. National security therefore requires developed nations to help increase energy production in their more populous developing counterparts.”**

Rhodes and Bellin<sup>1</sup>



Water well provided by Savannah in N'Gourti, Agadem, Niger





# MAGICAL THINKING



# SEEING THE LIGHT?



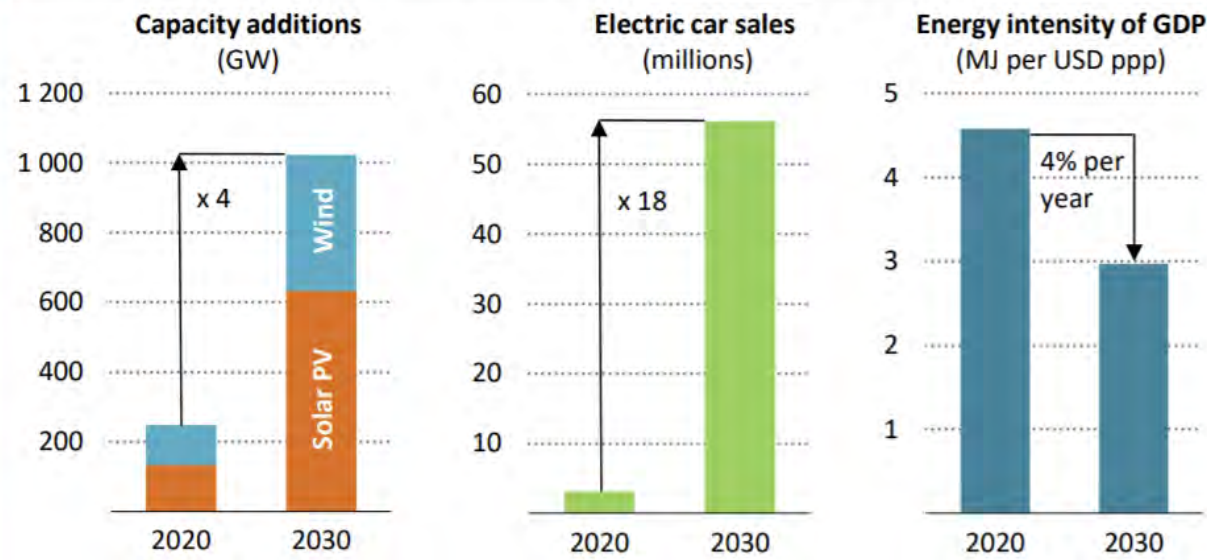
## *The Energy Transition:*

- *A transition from legacy fuels to renewables*
- *A transition out of energy poverty*



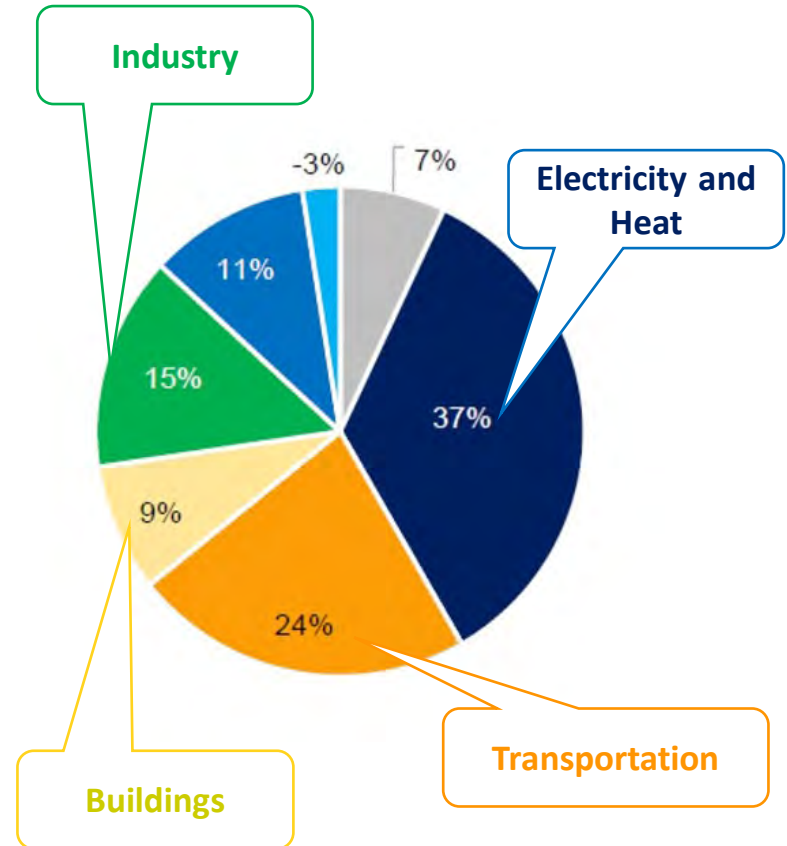
# ENERGY TRANSITION

Key clean technologies ramp up by 2030 in the net zero pathway



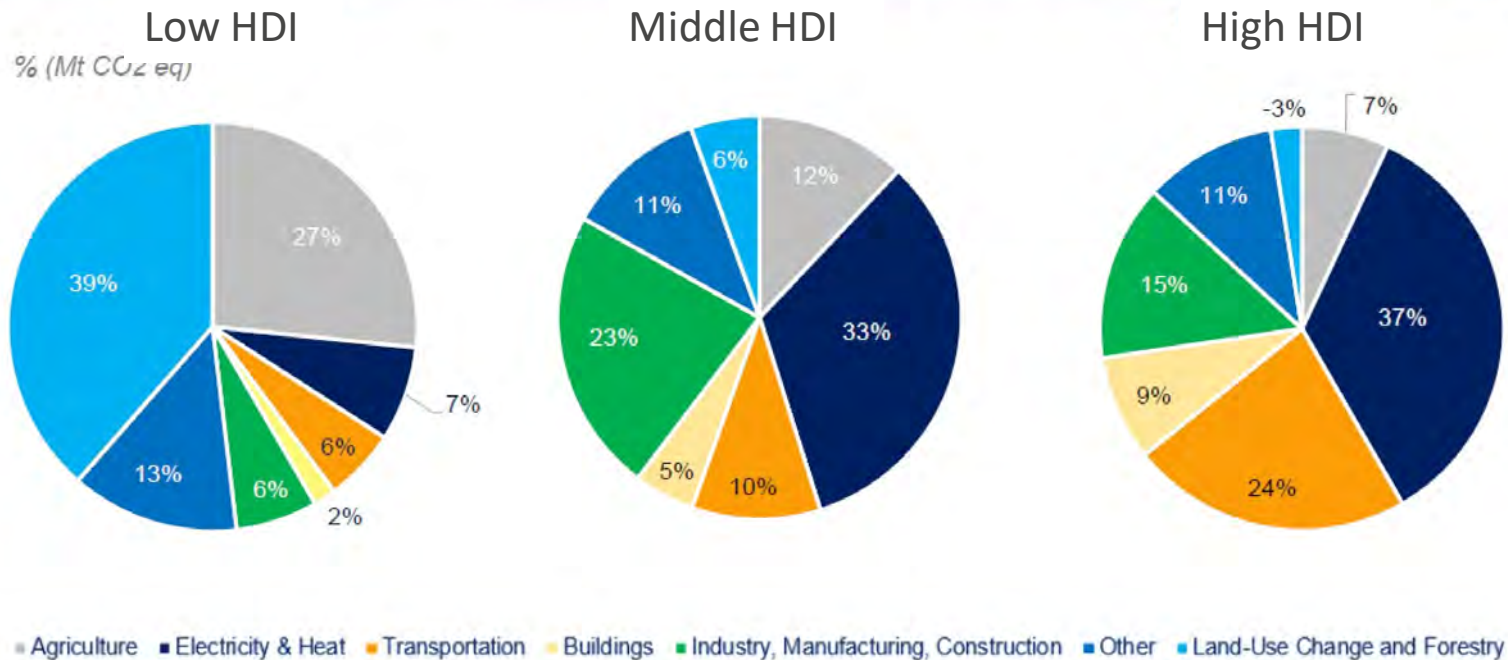
Note: MJ = megajoules; GDP = gross domestic product in purchasing power parity.

IEA Net Zero



# ELECTRICITY AND TRANSPORT

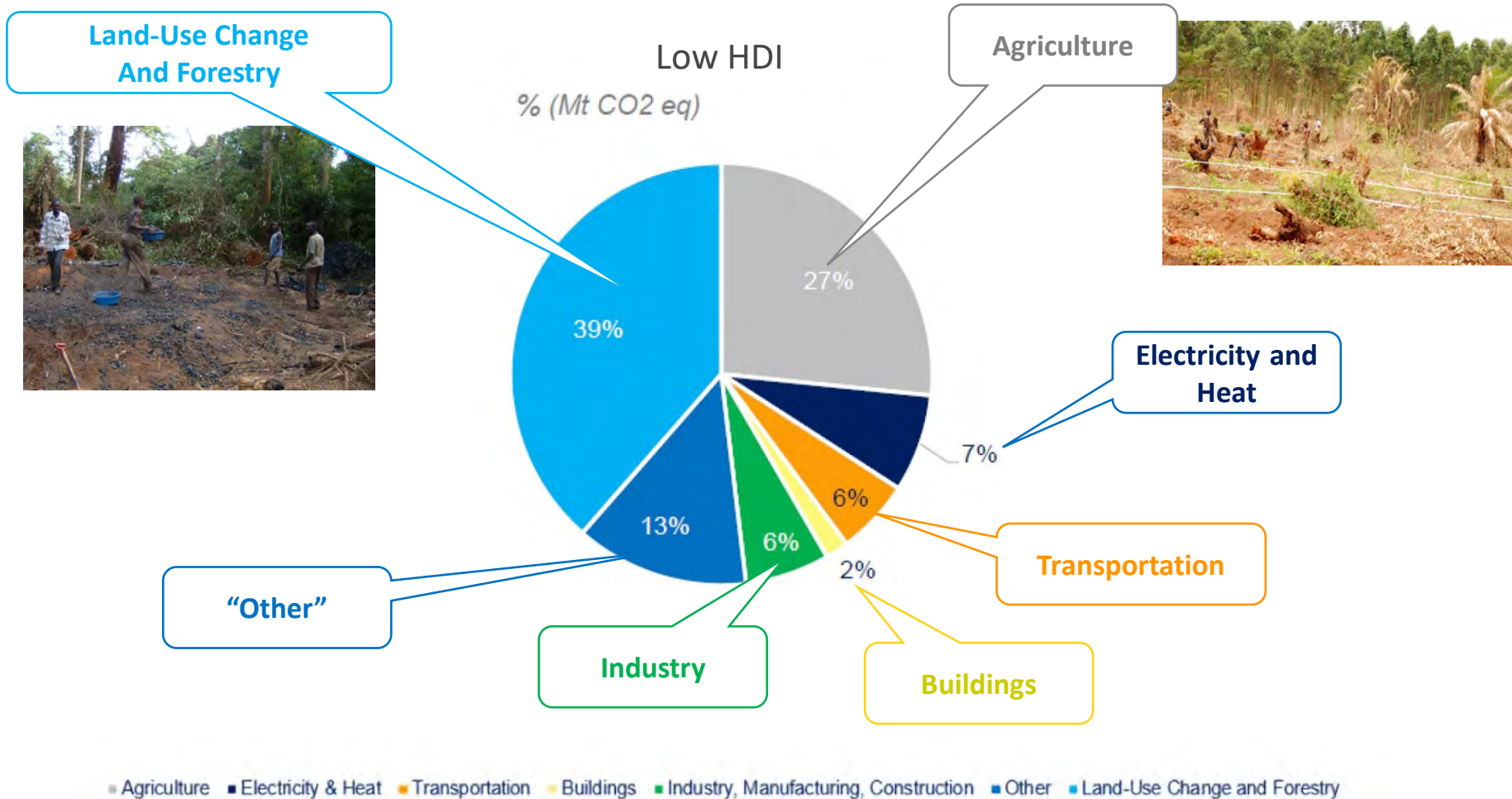
Global Greenhouse Gas Emissions by Sector, 2016



2016 data, sources: Climate Watch, World Resources Institute..



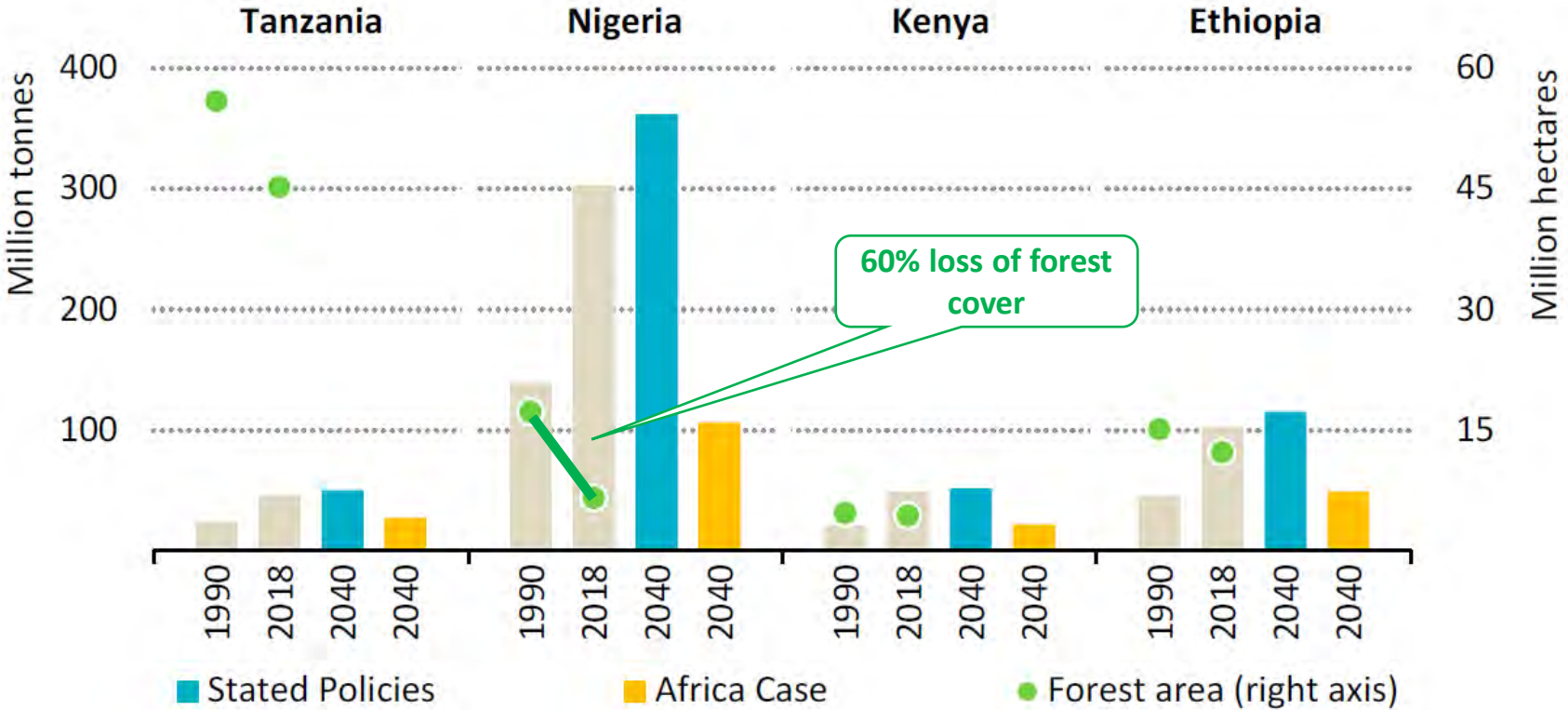
# ELECTRICITY AND TRANSPORT



2016 data, sources: Climate Watch, World Resources Institute..

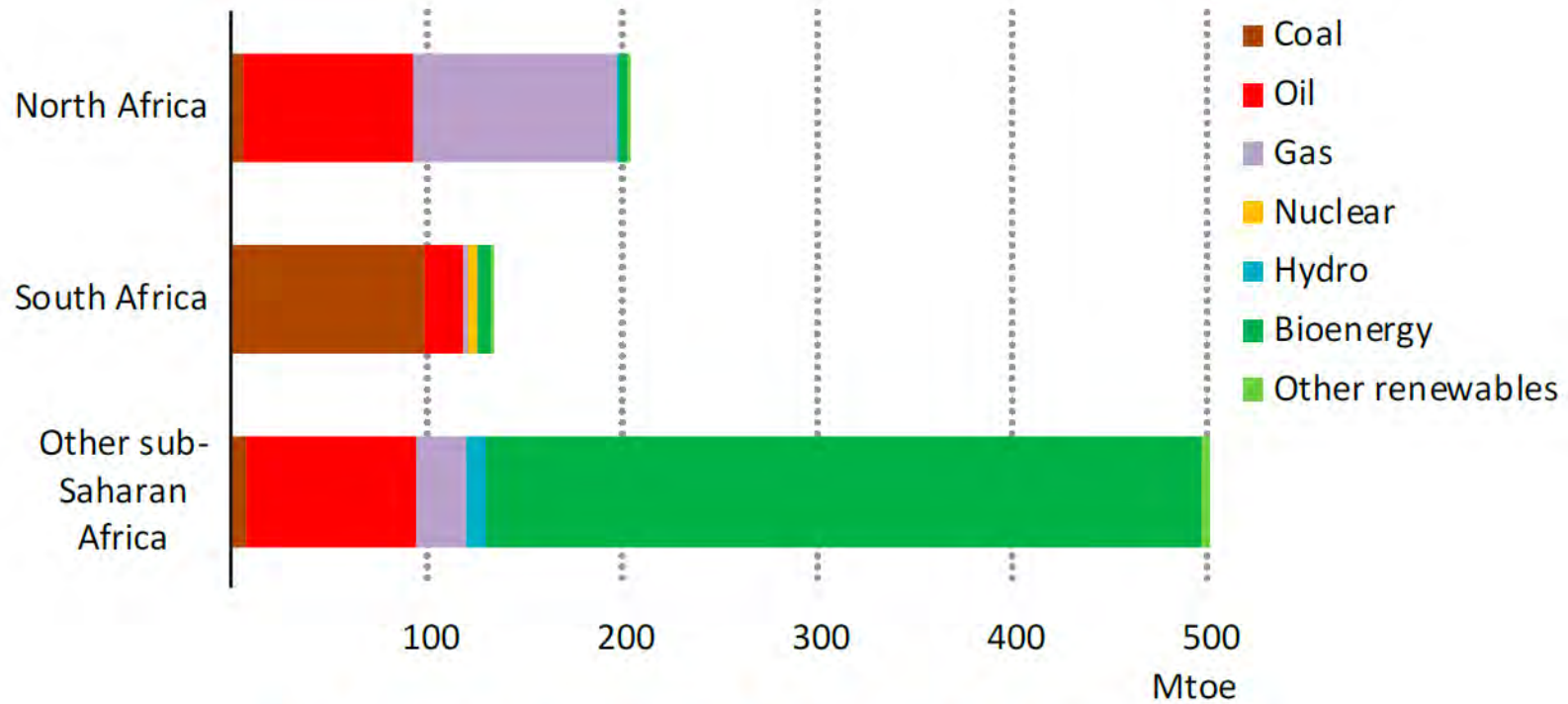


# “BIOMASS”



<https://www.iea.org/reports/africa-energy-outlook-2019>

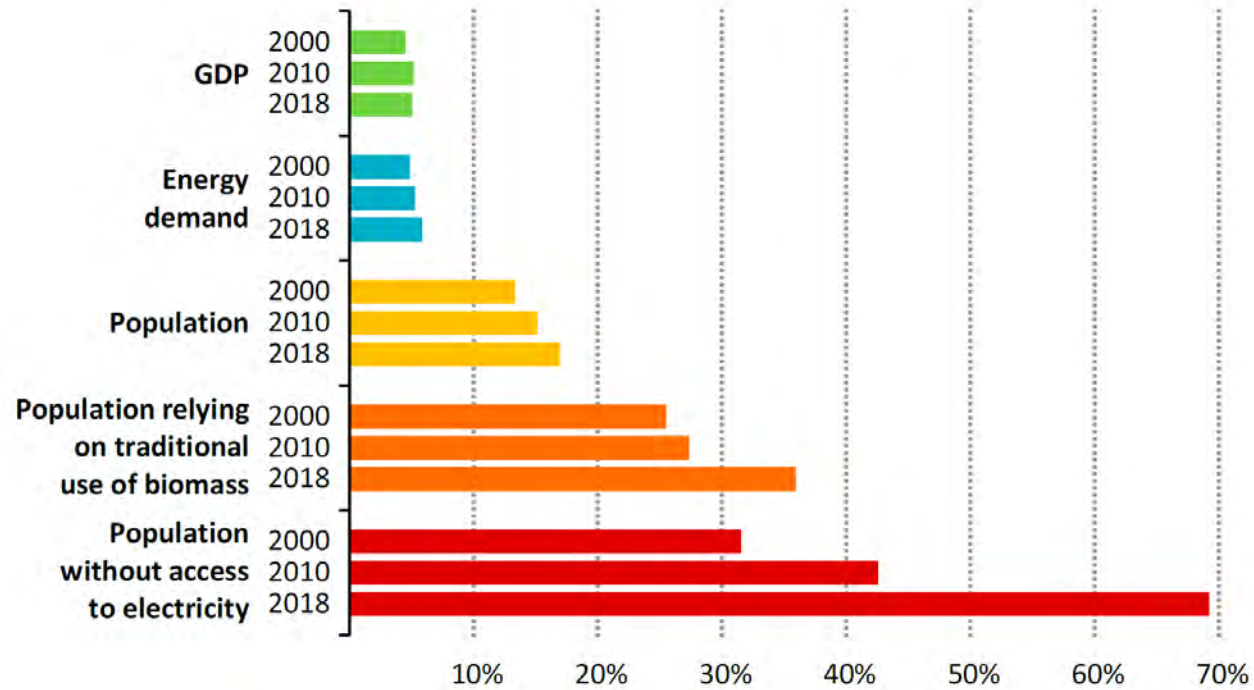




*With the exception of South Africa, the sub-Saharan Africa energy mix is dominated by solid biomass and oil*



# AFRICA ENERGY OUTLOOK

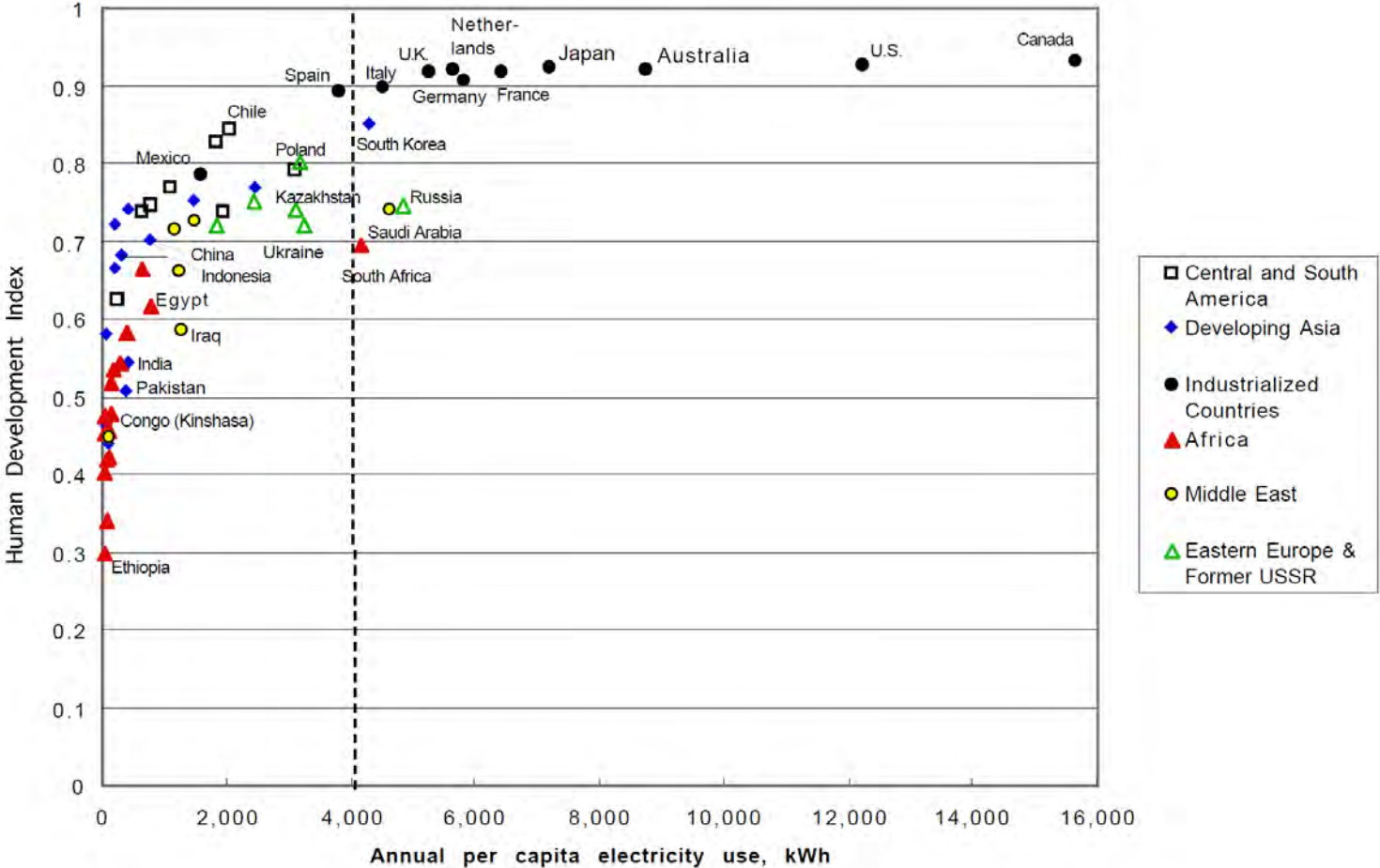


*Africa accounts for a low share of the world's energy demand and a high share of the population without access to modern energy services*





# THE IMPORTANCE OF ELECTRICITY



\*Pasternack 2010 <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.587.2237&rep=rep1&type=pdf>



# GAS TO POWER IN AFRICA

Electricity demand in Africa by scenario, 2018-2040



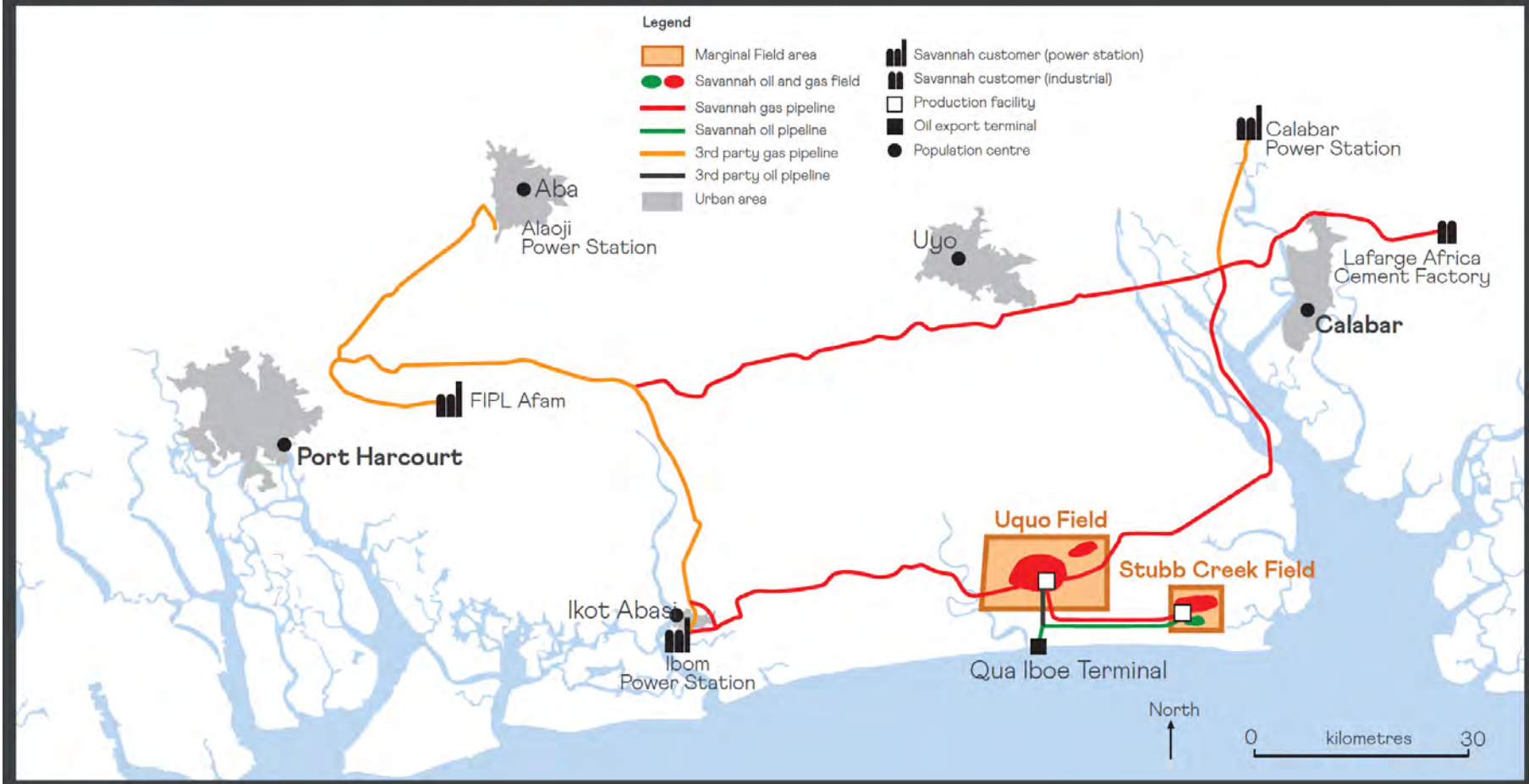
- Banning gas in Africa won't be effective in fighting climate change.
- The continent's energy needs are enormous and urgent.
- Climate resilience requires more energy, not less.
- Gas-fired power plants are modular and inexpensive.
- Gas is an ideal fuel for industry.
- The continent has plentiful gas.
- Higher income countries are expanding their use of gas.
- Intermittent renewables are essential, but they can't do it all.
- Gas pairs especially well with wind and solar as a technology and a financial model.
- Gas doesn't cause significant outdoor air pollution.
- Gas helps solve the indoor air pollution problem.
- Innovation can position gas to support a future zero-carbon energy system.

Text: World Economic Forum <https://www.weforum.org/agenda/2020/07/12-reasons-gas-africas-renewable-energy-future/>  
Image: IEA



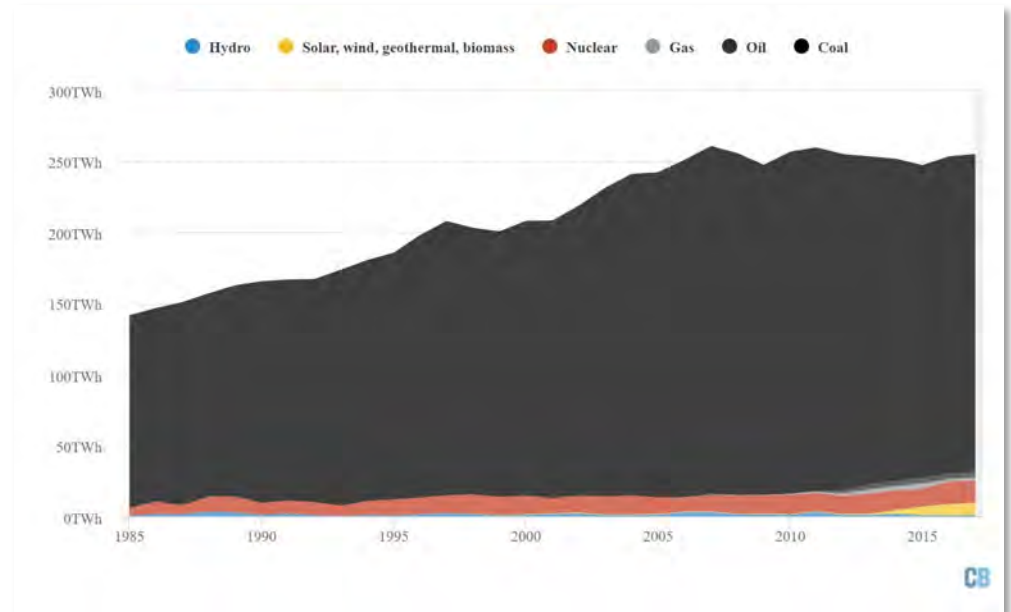
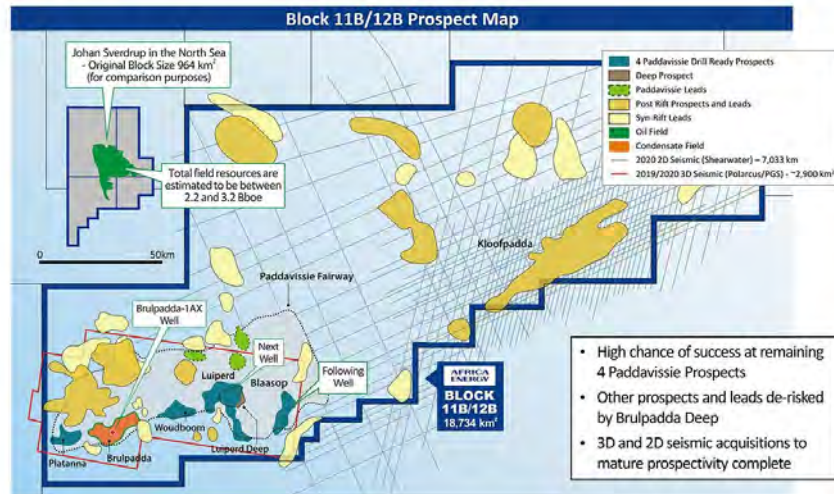
# GAS TO POWER

## Savannah's operations in South East Nigeria



# GAS TO POWER - RSA

## South Africa Block 11B/12B Huge Block with Plenty of Running Room



Gas still has 30% - 50% CO<sub>2</sub> emissions relative to coal, but is often considered a moral hazard not a partial solution.



# CUMULATIVE CO2 EMISSIONS

Who has contributed most to global CO<sub>2</sub> emissions?



**North America**  
457 billion tonnes CO<sub>2</sub>  
29% global cumulative emissions



**Asia**  
457 billion tonnes CO<sub>2</sub>  
29% global cumulative emissions



**EU-28**  
353 billion tonnes CO<sub>2</sub>  
22% global cumulative emissions

**Europe**  
514 billion tonnes CO<sub>2</sub>  
33% global cumulative emissions

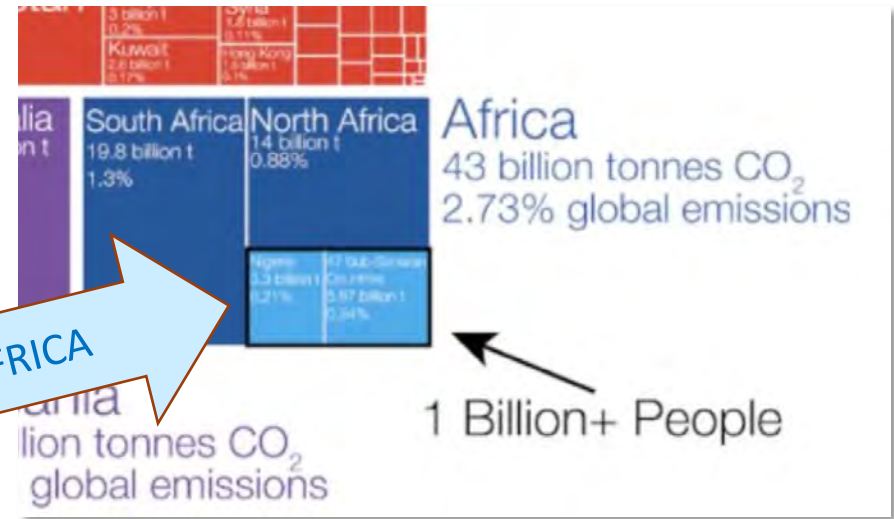
**Russia**  
101 billion tonnes  
6% global emissions

**South America**  
40 billion tonnes CO<sub>2</sub>  
3% global emissions

**India**  
48 billion t  
3%

**Oceania**  
20 billion tonnes CO<sub>2</sub>  
1.2% global emissions

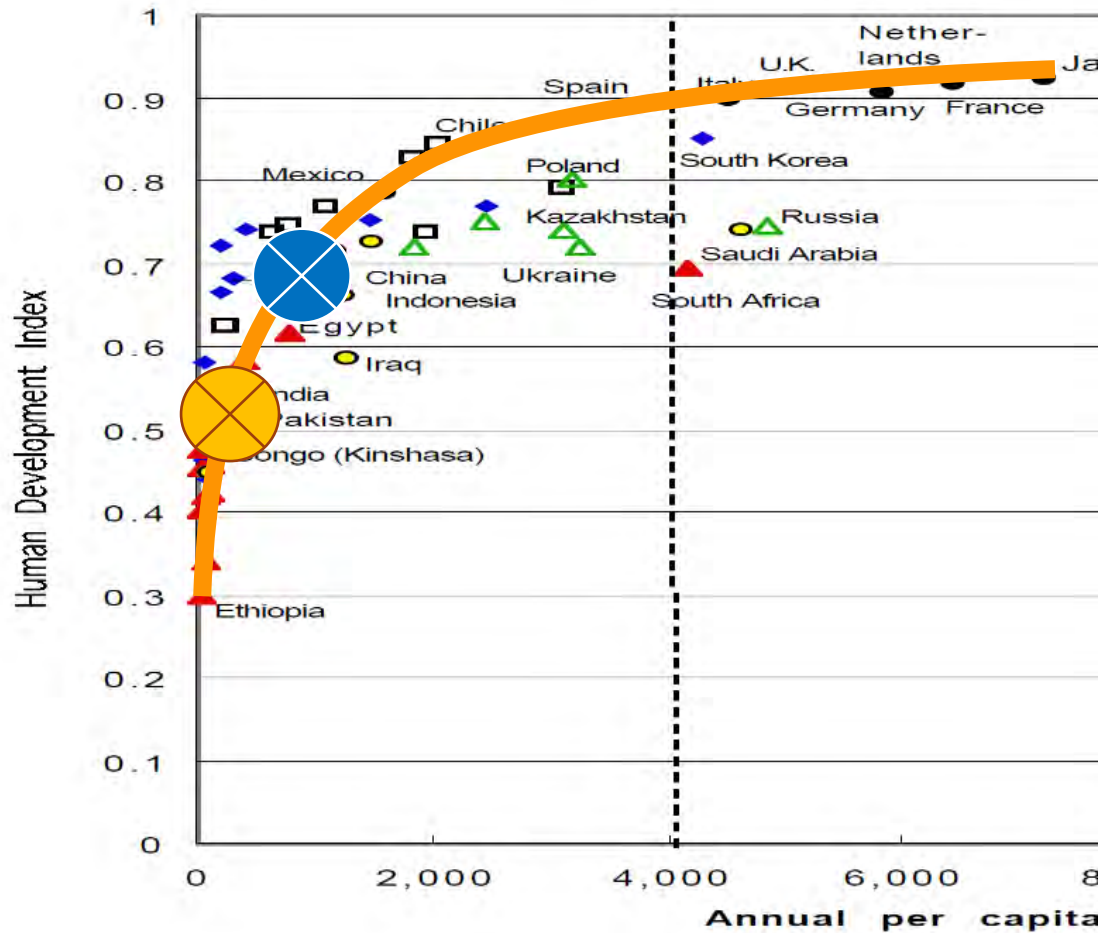
Africa  
43 billion tonnes CO<sub>2</sub>  
2.73% global emissions  
1 Billion+ People



Cumulative carbon dioxide (CO<sub>2</sub>) emissions over the period from 1751 to 2017. Figures are based on production-based emissions which measure CO<sub>2</sub> produced domestically from fossil fuel combustion and cement, and do not correct for emissions embedded in trade i.e. consumption-based. Emissions from international travel are not included.  
Figures for the 28 countries in the European Union have been grouped as the 'EU-28' since international targets and negotiations are typically set as a collaborative target between EU countries. Values may not sum to 100% due to rounding.  
Data source: Calculated by Our World in Data based on data from the Global Carbon Project (GCP) and Carbon Dioxide Analysis Center (CDIAC). This visualization has been adapted with permission by the Energy for Growth Hub based on the original work by OurWorldinData.org.



# TRIPLE SSH ELECTRICITY USING GAS



792 kWh/p  
Eq. Morocco (HDI 121) or  
Indonesia (HDI 107)  
\$3500 annual/per capita

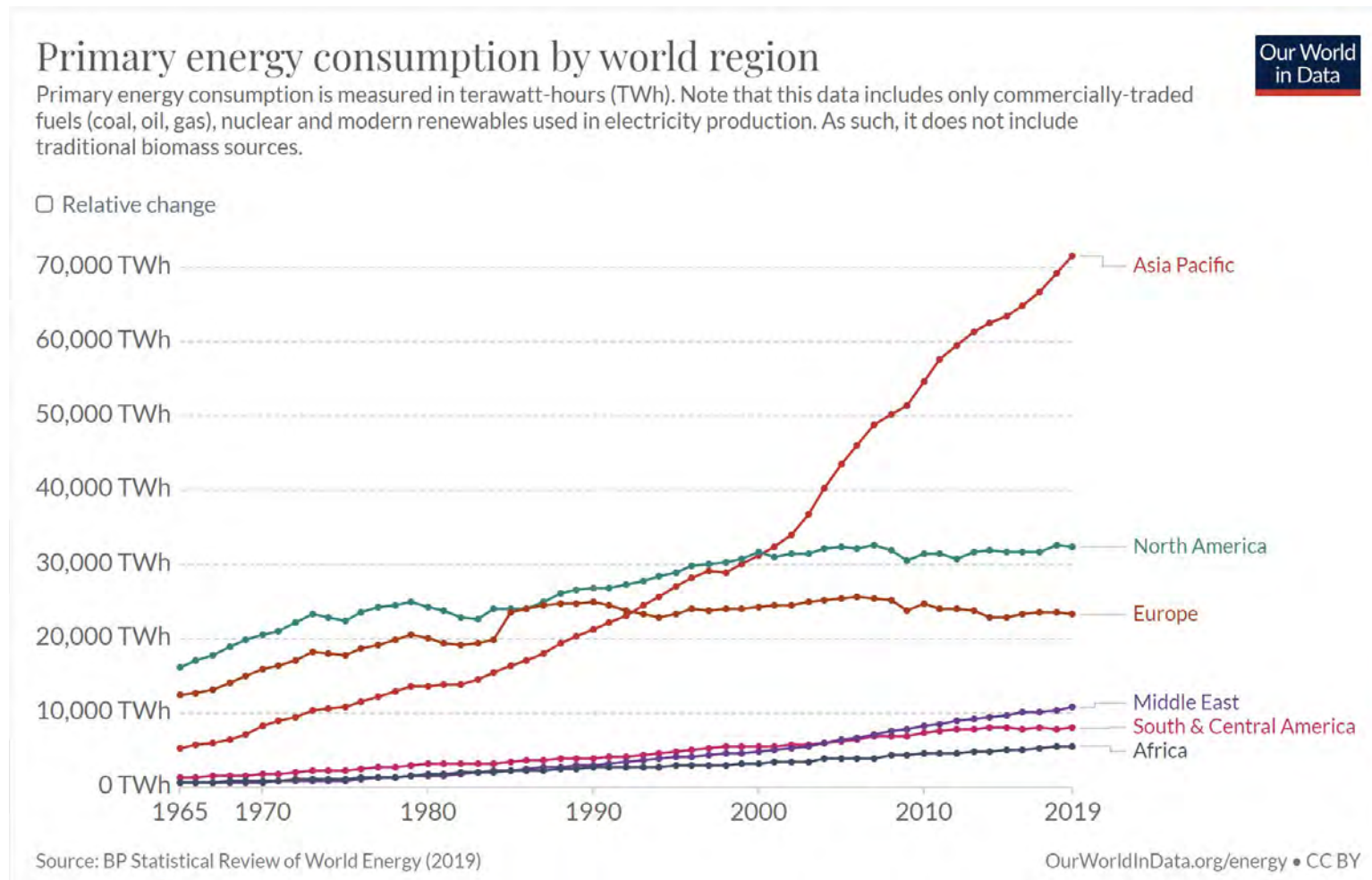
48 counties  
1 Billion+ people  
= +0.64% of global GHG

264 kWh/p  
Eq. Sudan (HDI 170) or  
Myanmar (HDI 147)  
\$1200 annual/per capita

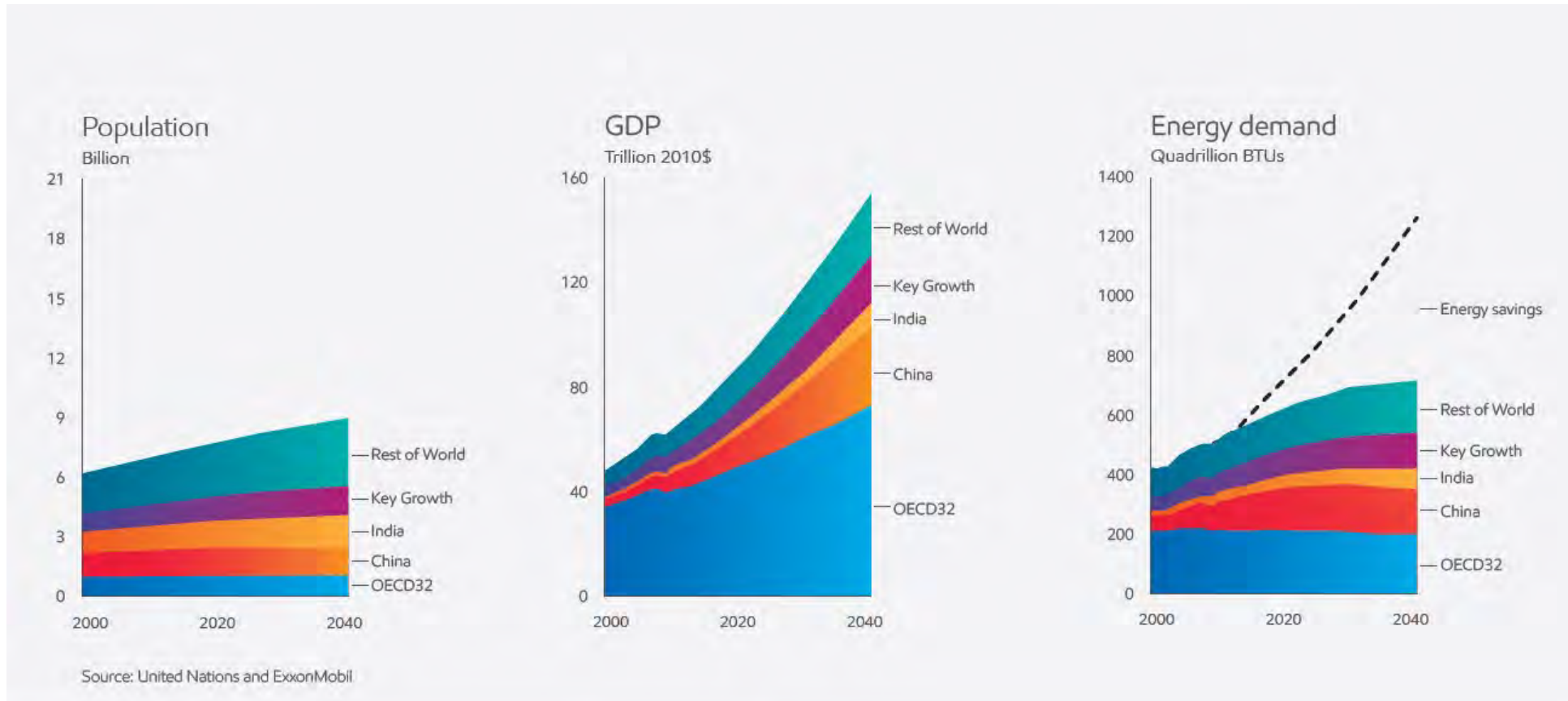
Pasternack 2010 <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.587.2237&rep=rep1&type=pdf>  
<https://www.energyforgrowth.org/blog/what-happens-to-global-emissions-if-africa-triples-down-on-natural-gas-for-power/>



# ASIA-PACIFIC, FOR NOW....

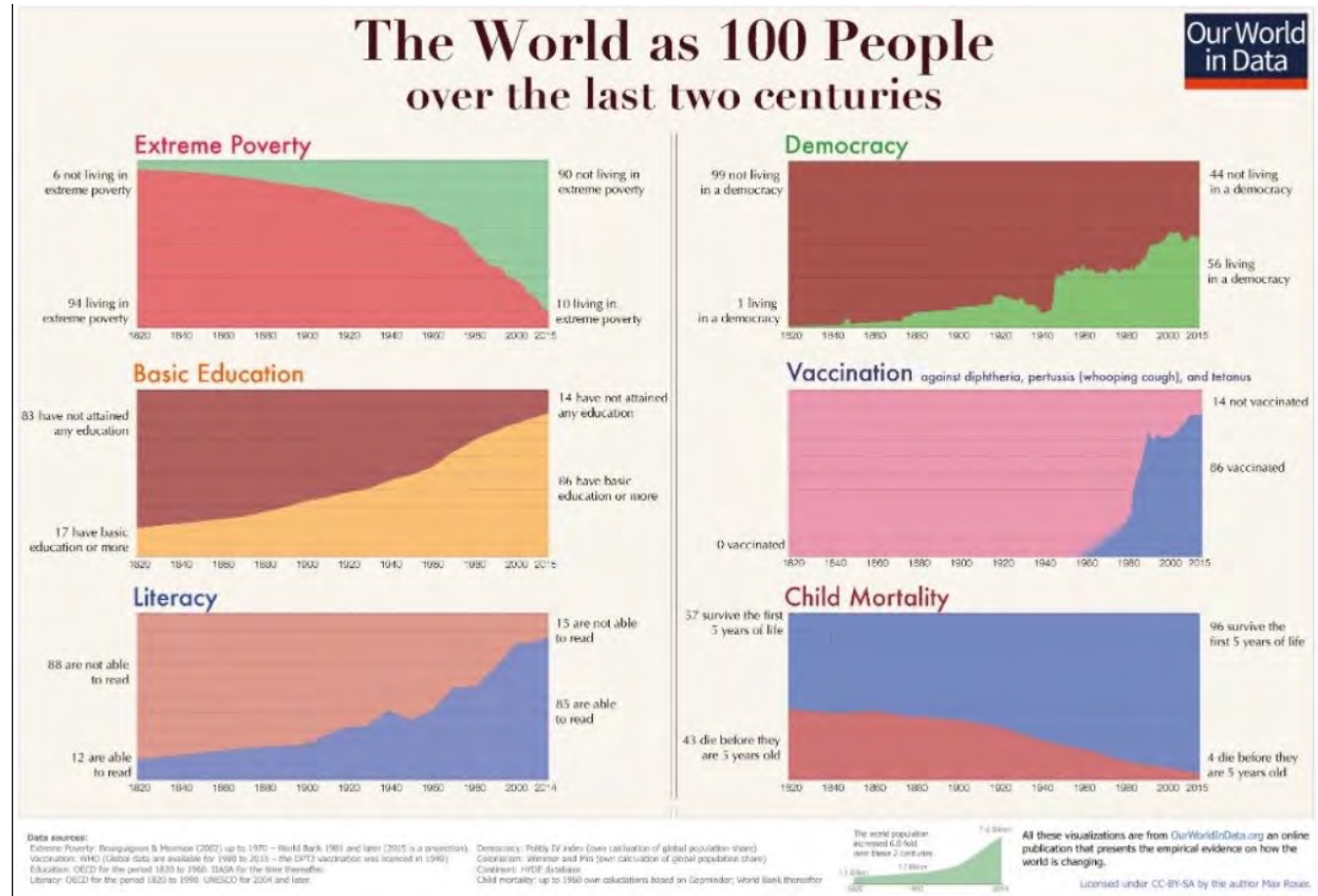
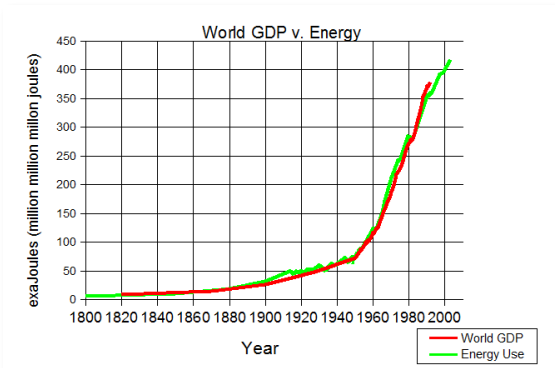


# POPULATION, GDP AND ENERGY



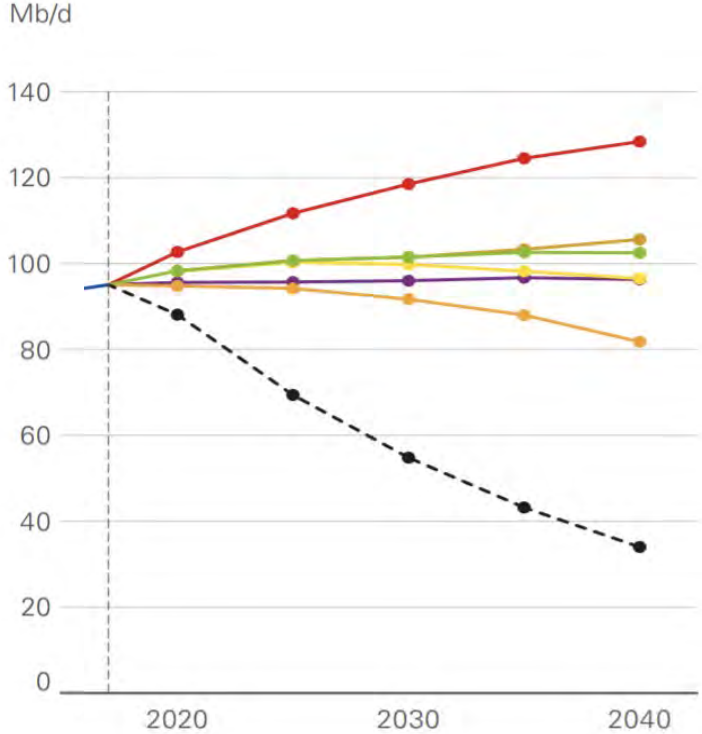


# ENERGY AND HUMAN DEVELOPMENT

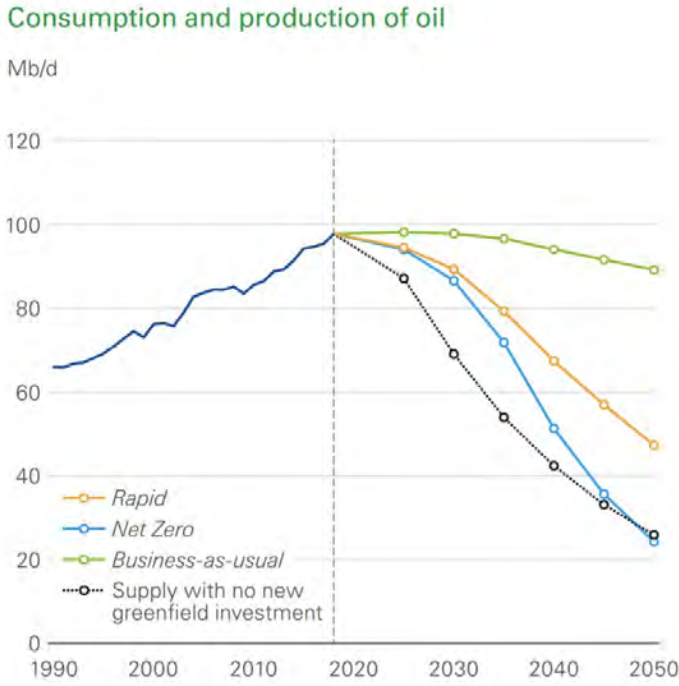


# BP FORECAST VS SCENARIOS

## 2019 Energy Outlook



## 2020 Energy Outlook



# SCENARIO VS FORECAST


## IEA MAY 2021

**The Guardian**

**No new oil, gas or coal development if world is to reach net zero by 2050, says world energy body**

The IEA undertook the report – the most comprehensive yet into the global requirements to meet the net zero emissions target – at the request of ...

1 week ago




**Reuters**

**End new oil, gas and coal funding to reach net zero, says IEA**

It sets out more than 400 milestones to achieving net zero in the report, intended to guide the next round of global climate talks in November in ...

Opinion · 6 days ago




**The New York Times**

**I.E.A. Climate Report Calls for End of New Oil and Gas Projects**

... that the International Energy Agency said Tuesday must be achieved for ... Now Mr. Biro's analysts are outlining in a report what looks like ...

1 week ago




## IEA JUNE 2021

**Oil Price**

**Oil Markets Baffled As The IEA Calls For More Production**

In its latest Monthly Oil Report, the IEA called on OPEC+ to increase production in order to counter higher demand in 2022. The agency claimed ...

11 hours ago




**The Guardian**

**World oil demand 'will rebound to pre-Covid levels by end of 2022'**

The IEA's had warned a year ago that the world's daily oil demand ... Opec+ slashed oil production at the start of the pandemic in 2020, and has ...

2 days ago




**Oil Price**

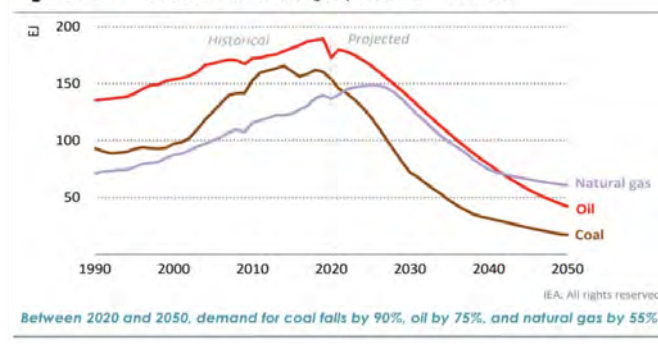
**IEA Tells OPEC To "Open The Taps"**

Oil prices declined on the news. Rystad: OPEC+ will have to loosen output limits. In early trading Friday, oil was back up, on positive economic ...

2 days ago



**Figure 3.2** ▶ Coal, oil and natural gas production in the NZE

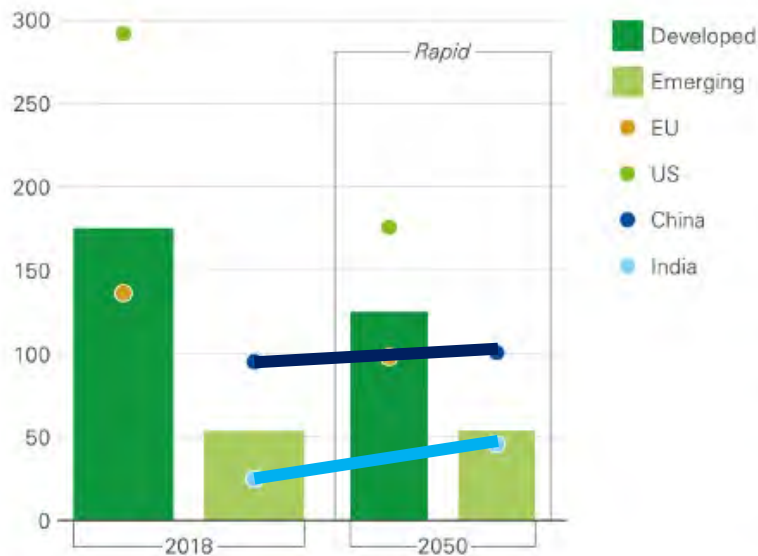


# THE IMPORTANCE OF FORECASTING

Global differences in energy consumption and carbon emissions narrow over the Outlook

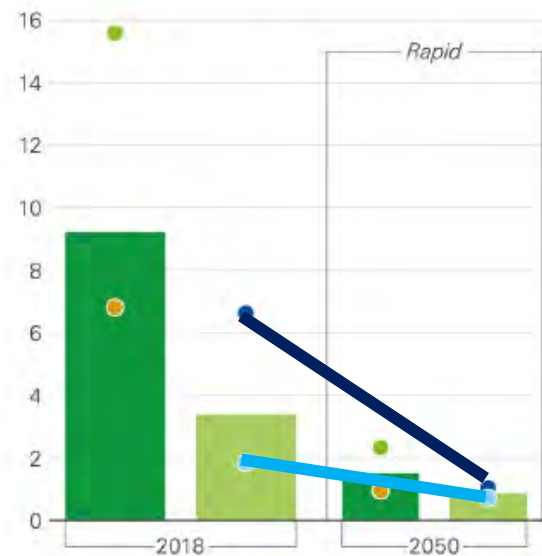
Energy consumption per head in *Rapid*

GJ per head



Carbon emissions per head in *Rapid*

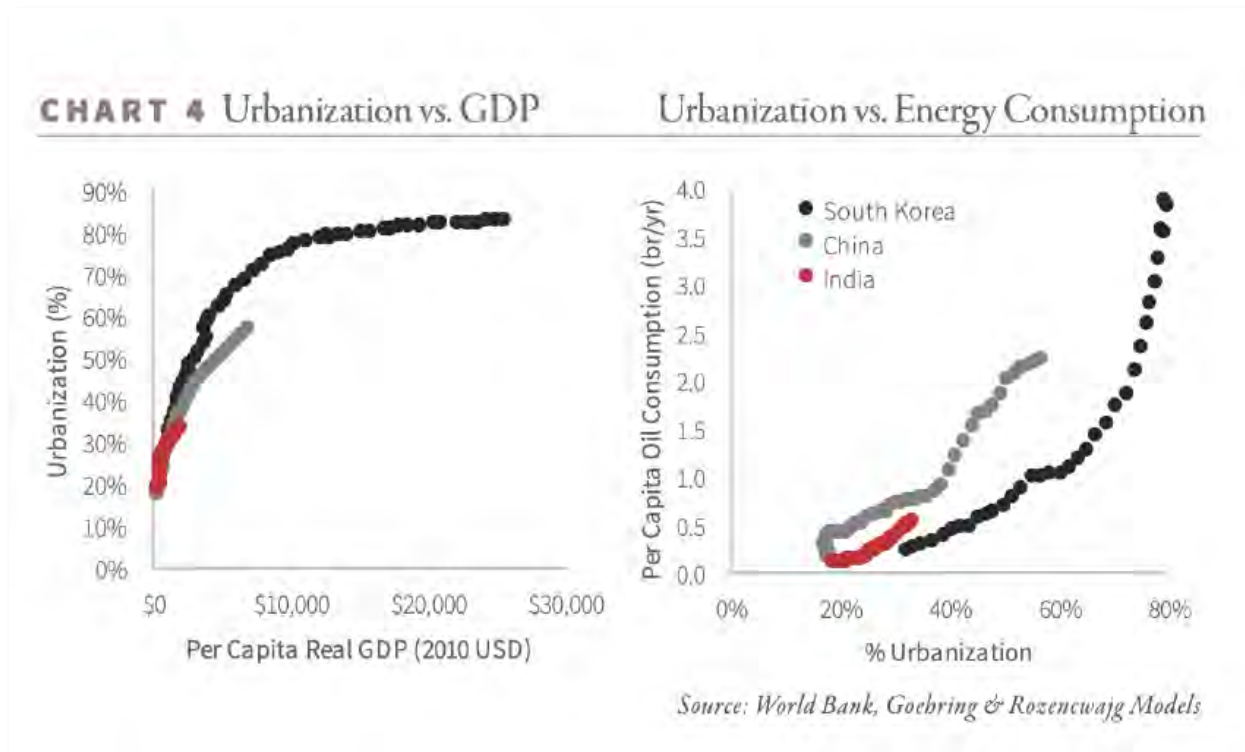
Tonnes of CO<sub>2</sub> per head



Source: BP



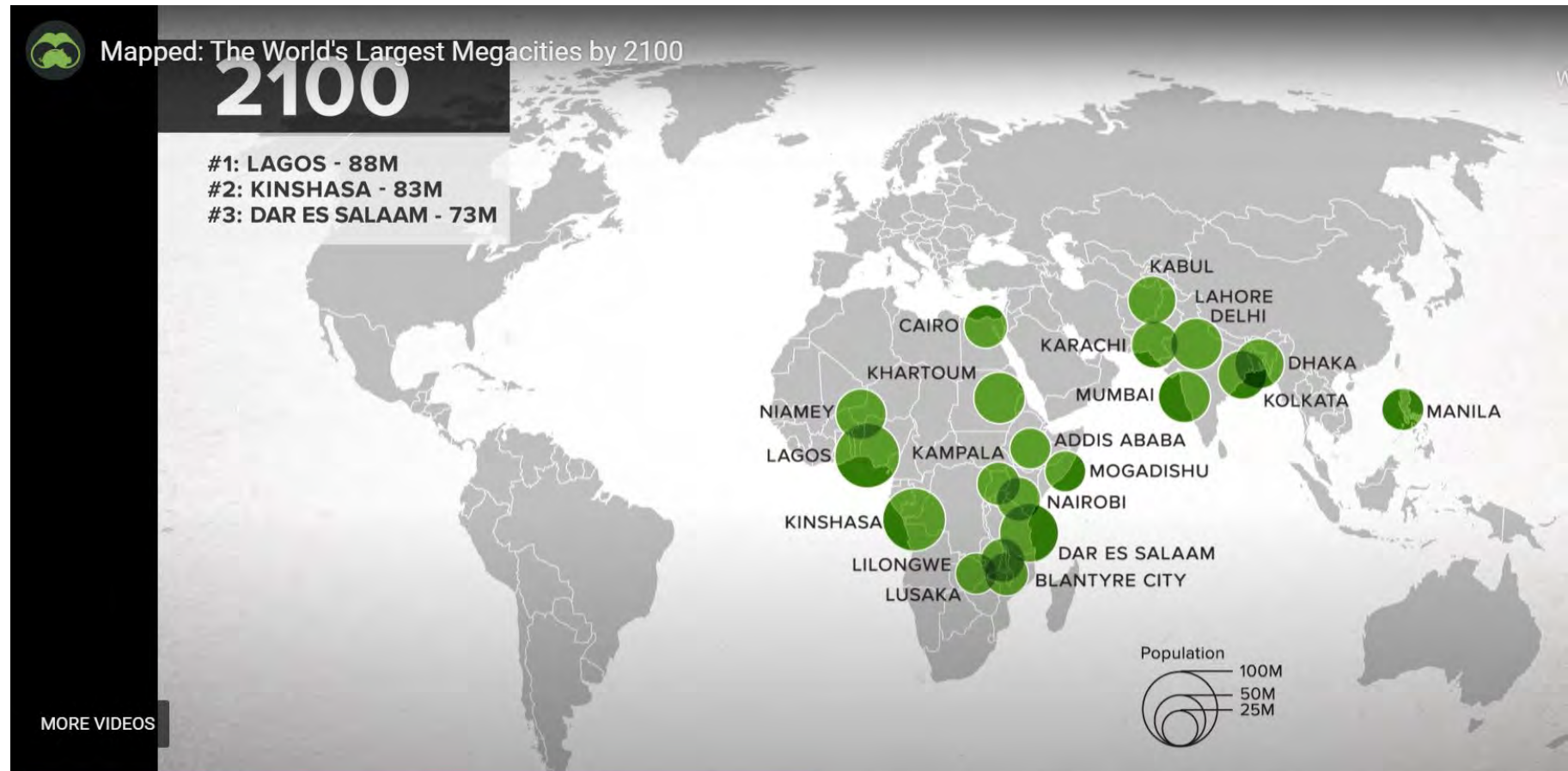
# A DIFFERENT PATHWAY ?



Open Insights Newsletter  
By HFI Research & Open Square Capital



# URBANIZATION AND ENERGY



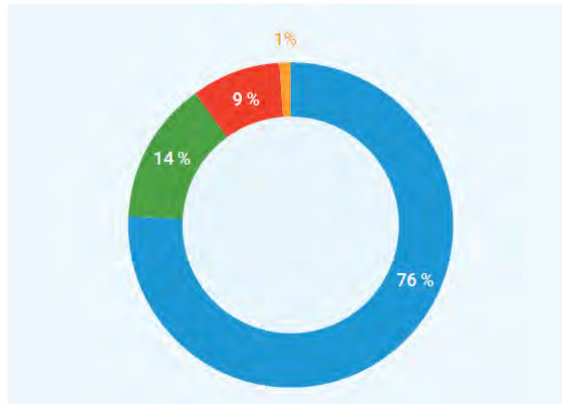
<https://www.visualcapitalist.com/worlds-20-largest-megacities-2100/>



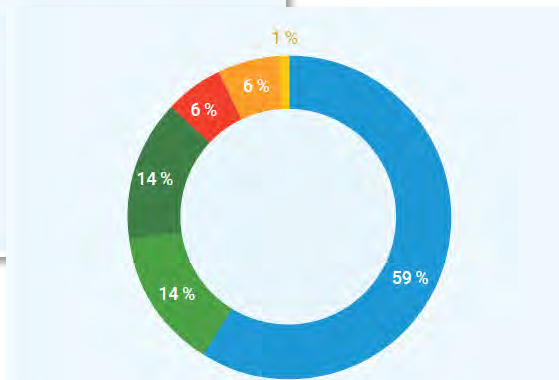
# STAKEHOLDERS AND VIEW-POINTS



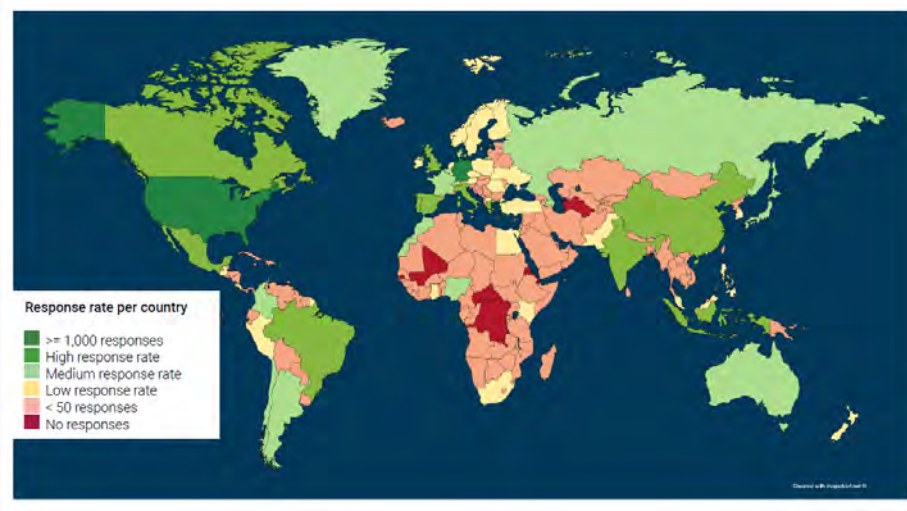
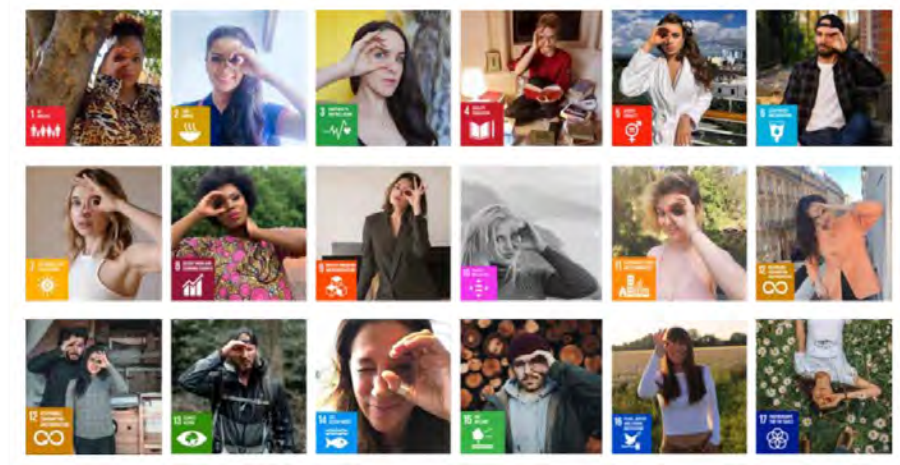
# UN 2018-19 "GLOBAL SURVEY"



- College / University
- High School
- Secondary
- Primary



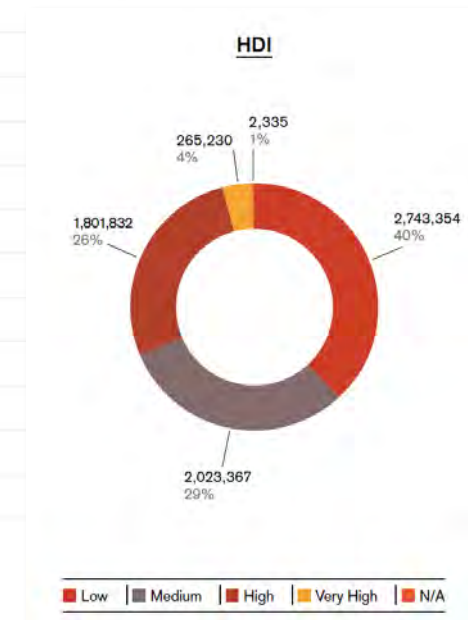
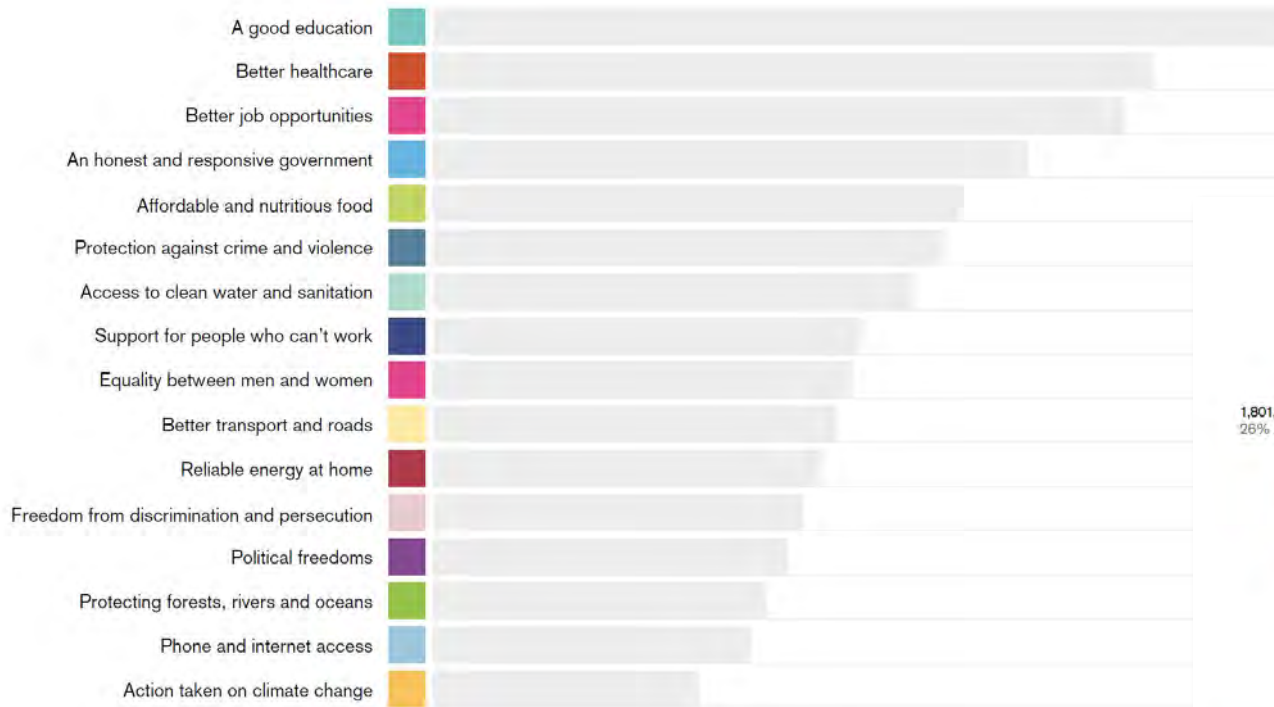
- Europe
- North America
- Asia Pacific
- Africa
- South America
- Middle East





# MY WORLD 2015

## This is what MY World voters want:



<https://www.un.org/youthenvoy/wp-content/uploads/2014/10/wethepeoples-7million.pdf>

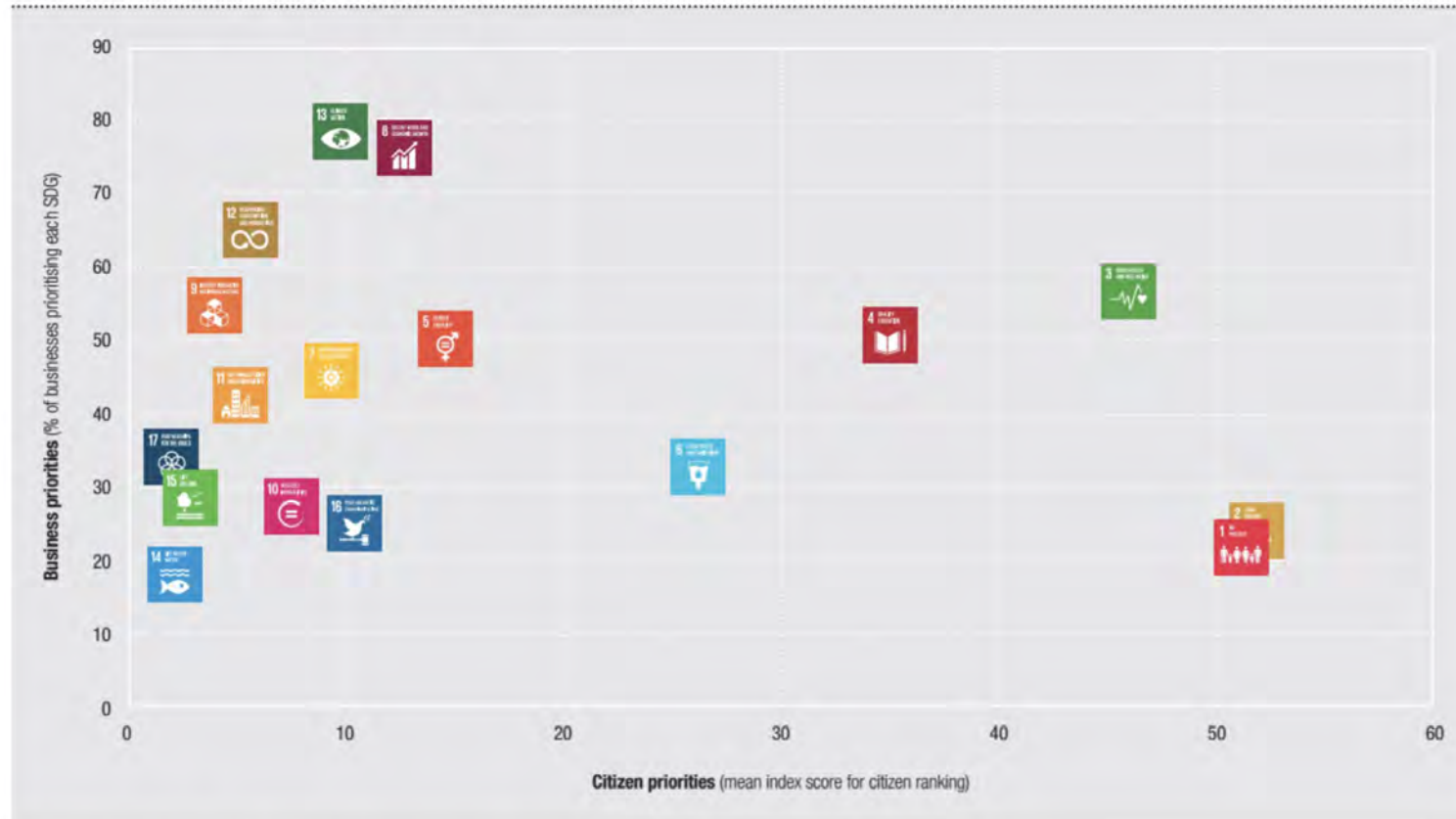


# UN SUSTAINABLE DEVELOPMENT GOALS



# UN SUSTAINABLE DEVELOPMENT GOALS

Figure 4: Business and citizen priorities



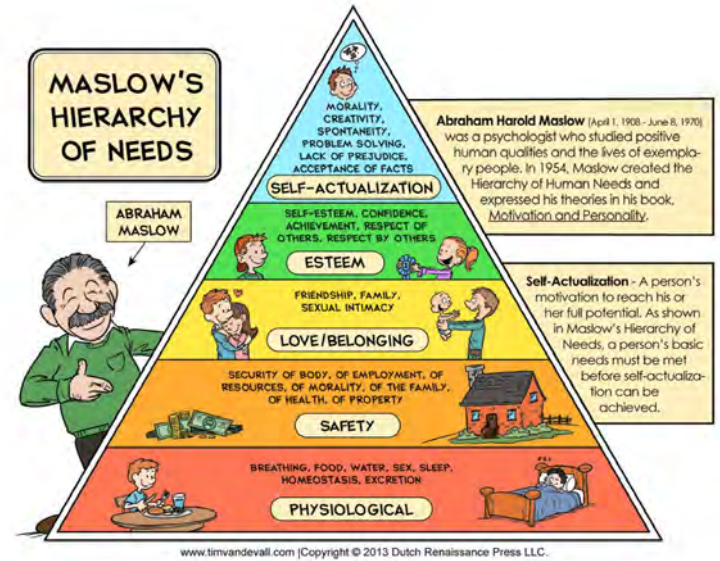
Source: PwC, SDG Reporting Challenge 2017

Base: Companies with priority SDGs (173); All citizen respondents (2563)

[https://pre-sustainability.com/legacy/download/Making-the-SDGs-relevant-to-business\\_public-version.pdf](https://pre-sustainability.com/legacy/download/Making-the-SDGs-relevant-to-business_public-version.pdf)



# SDGS HIERARCHY?



# UN SUSTAINABLE DEVELOPMENT GOALS

## 1 Promoting socio-economic prosperity

### Material issues

- Socio-economic prosperity
- Tax transparency and contribution
- Community engagement and development
- Local content and responsible procurement

### SDGs



## 2 Ensuring safe and secure operations

### Material issues

- Health and safety
- Security and human rights

### SDGs



## 3 Supporting and developing our people

### Material issues

- Workforce culture and engagement
- Training and development
- Diversity and equality

### SDGs



## 4 Respecting the environment

### Material issues

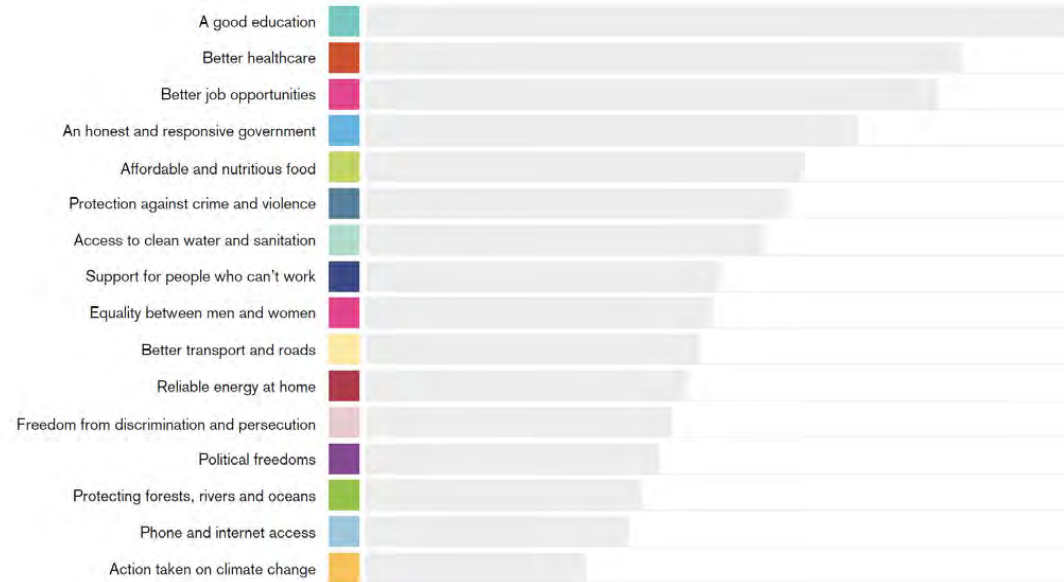
- GHG emissions
- Biodiversity
- Water management

### SDGs



# ALIGNMENT OF SDG GOALS

## This is what MY World voters want:



### SDGs



### SDGs



### SDGs

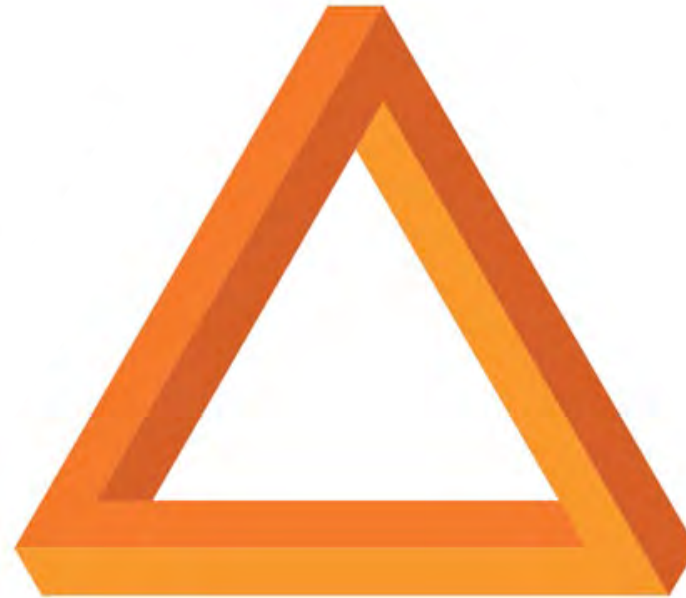


### SDGs



# THE ENERGY TRILEMMA

**Environmental  
Impact**

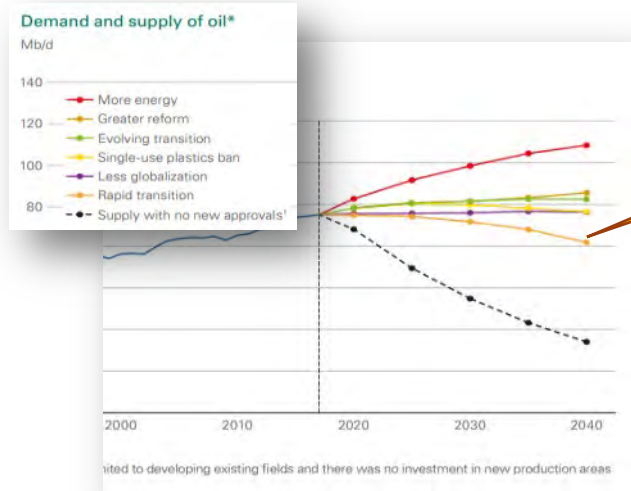


**Cost of  
Energy**

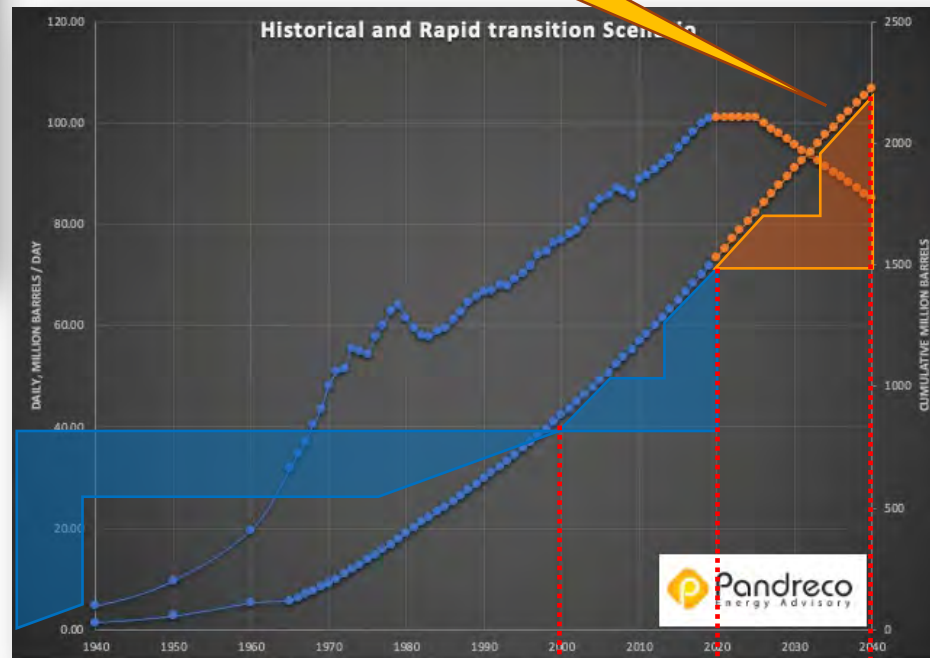
**Security  
Reliability  
Resilience**



# PEAK, MAYBE? GONE – NOT AT ALL



**BP 2019  
RAPID TRANSITION  
SCENARIO**

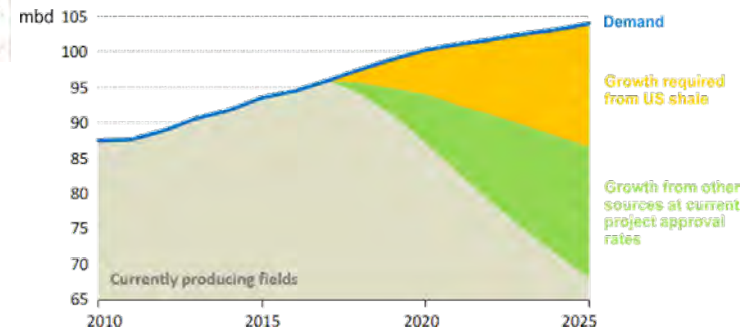
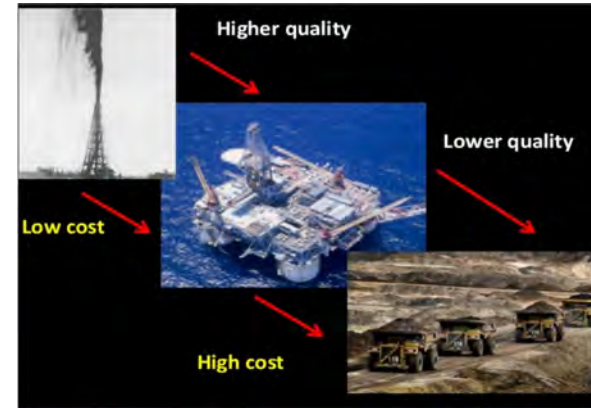
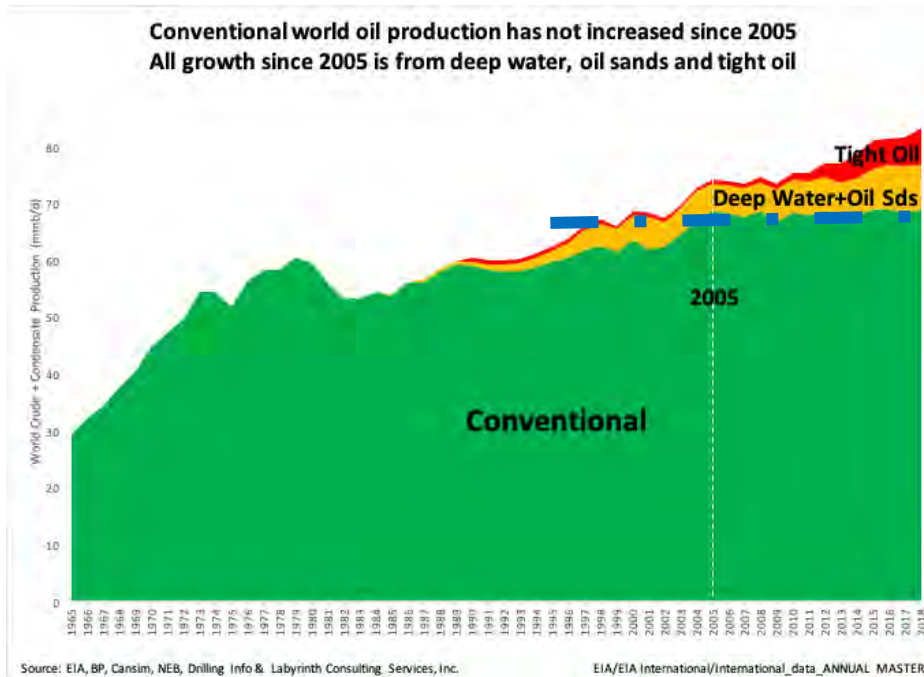


1860





# PEAK "CHEAP"



Data sources: Labyrinth Consulting, Nate Hagens and IEA



# NOT ACTIVISM, NOT AID. INVESTMENT



NJ Ayuk JD, MBA. • 1st  
Executive Chairman at African Energy Chamber  
1mo •

While on transit today in Rwanda four Norwegian and African Anti Oil Campaigners recognised me and they went after me. They called me Anti African and Imperialist enabler.  
So laughable. They want Africa to not produce oil and Gas when Norway is developing new fields.

- *"We will facilitate a future-oriented Norwegian oil and gas industry capable of delivering production with low emissions within the framework of our climate policy,"*
  - [Tina Bru, Minister of Petroleum and Energy of the centre right party.](#)
- *"We don't think that we should stop producing oil and gas now and leave it for Russia or Qatar to supply..."*
  - [Espen Barth Eide, the Labour party energy spokesman.](#)

### Human Development Index (HDI) Ranking

From the 2020 Human Development Report

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	Rank	Country	HDI value (2019)	Life expectancy at birth (years) SDG3	Expected years of schooling (years) SDG 4.3	Mean years of schooling (years) SDG 4.6	Gross national income (GNI) per capita (PPP \$) SDG 8.5
	181	Mozambique	0.456	60.9	10.0	3.5	1,250
	182	Burkina Faso	0.452	61.6	9.3	1.6	2,133
	182	Sierra Leone	0.452	54.7	10.2	3.7	1,668
	184	Mali	0.434	59.3	7.5	2.4	2,269
	185	Burundi	0.433	61.6	11.1	3.3	754
	185	South Sudan	0.433	57.9	5.3	4.8	2,003
	187	Chad	0.398	54.2	7.3	2.5	1,555
	188	Central African Republic	0.397	53.3	7.6	4.3	993
	189	Niger	0.394	62.4	6.5	2.1	1,201



# PARTING THOUGHTS

- Perception of the Energy Transition is partly a post-code lottery
- The African Energy Transition is a primarily a transition out of energy poverty
- Renewable energy sources will be (a small) part of the solution
- Africa's natural resources will be a big part of the solution
- Investing in development and growth is impact investing





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