

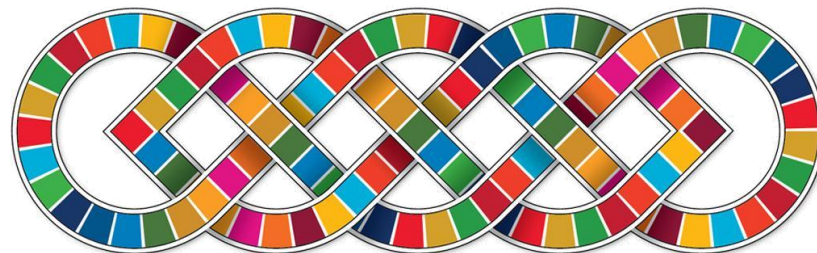


Picking the best performers in a world focused on sustainability

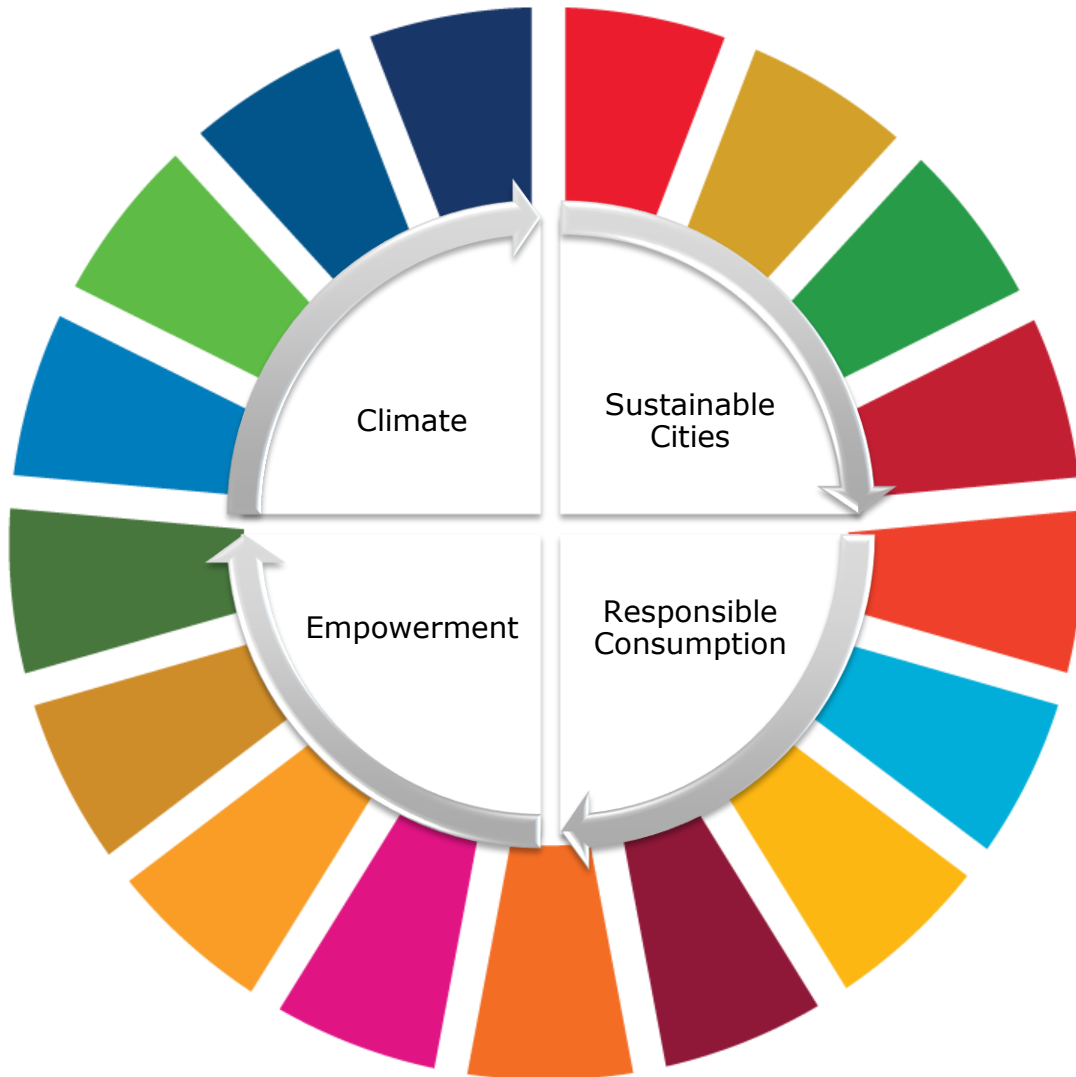
Storebrand Asset Management, 2019
Philip Ripman

The Sustainable Development Goals

- In 2015, countries adopted the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals and in 2016, the Paris Agreement on climate change entered into force, addressing the need to limit the rise of global temperatures.
- These 17 Goals build on the successes of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities.



Themes and investment opportunities



Climate

Companies that offer solutions to climate change issues through their products and services.

Sustainable Cities

Companies that are central to building sustainable cities.

Responsible Consumption

Companies that offer solutions to a more responsible consumption and a circular economy.

Empowerment

Companies that empower by inclusion, as a step to greater diversity and equality.

Climate

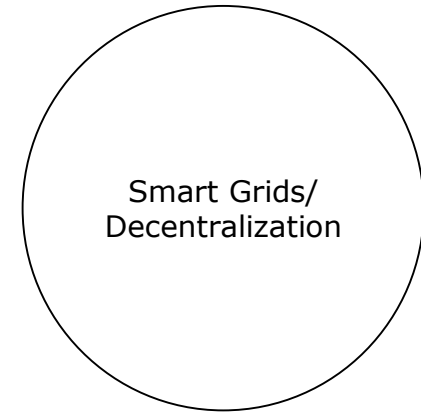
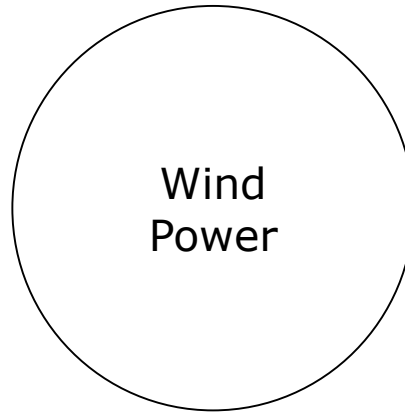
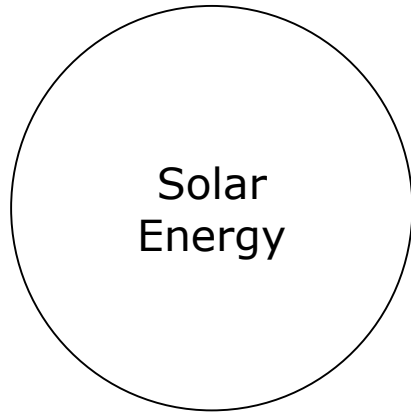
- Affordable and Clean Energy & Climate Action



- One in five people still lacks access to modern electricity
- 3 billion people rely on wood, coal, charcoal or animal waste for cooking and heating
- Energy is the dominant contributor to climate change, accounting for around 60 per cent of total global greenhouse gas emissions
- Reducing the carbon intensity of energy is a key objective in long-term climate goals.

Climate

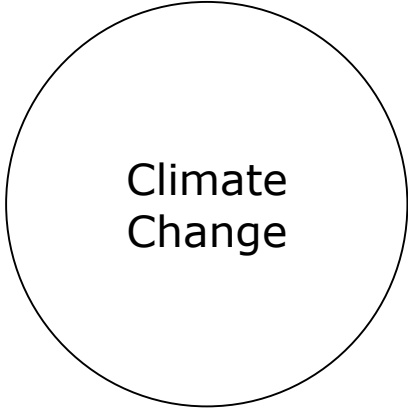
- Affordable and Clean Energy & Climate Action



- Investment in sustainable energy infrastructure to triple from \$400 billion to \$1.25 trillion p.a. by 2030.
- Solar power demand is likely to see 20-30% annual growth in emerging markets, as solar has become the cheapest power alternative in countries with a severe shortage of electricity.
- Global demand for onshore wind growing at a 7-8% CAGR through 2025, and 20% CAGR in offshore wind capacity*
- The residential ESS market is growing steadily, centering on the European market, where solar and other renewable energy supply is high. Market research agency B3 forecasts that the residential ESS market will be 1,259MWh (megawatt hours) this year and 1,889MWh in 2020, growing at an average annual rate of 15%.

Climate

- Regulatory and market drivers



Climate
Change

- Increasing commitments through the Paris agreement will be reflected in national and regional regulations



Air
Pollution

- Simple act of breathing is killing 7 million people a year and harming billions more
- 90% of world's children are breathing toxic air



Freshwater
Use

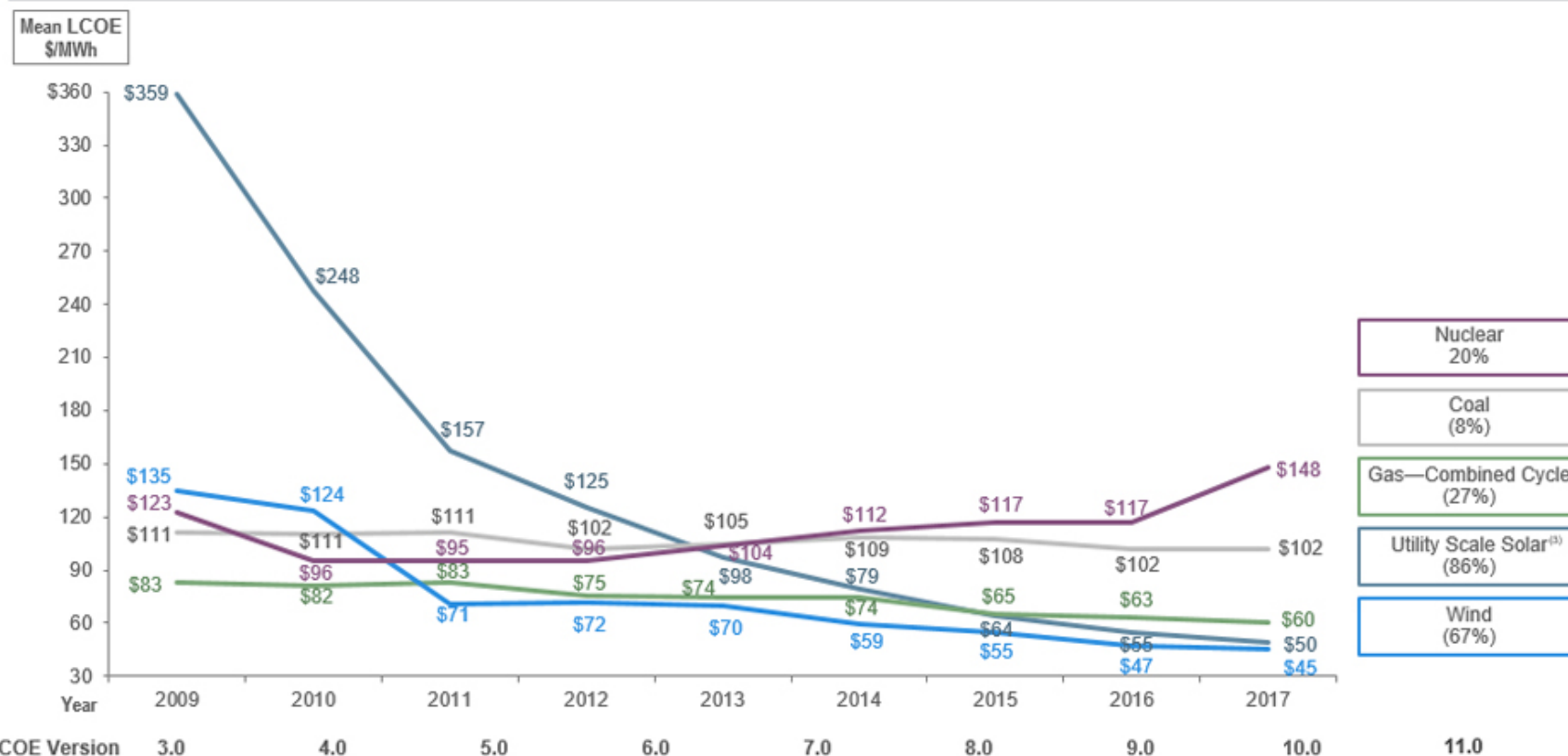
- By exchanging thermoelectric processes for renewables, could relieve considerable water stress in various regions/countries

Climate

- Cost of renewables

Summary Findings of Lazard's 2017 Levelized Cost of Energy Analysis⁽¹⁾

Selected Historical Mean LCOE Values⁽²⁾



Source: Lazard estimates.

Note: Reflects average of unsubsidized high and low LCOE range for given version of LCOE study.

(1) Primarily relates to North American alternative energy landscape, but reflects broader/global cost declines.

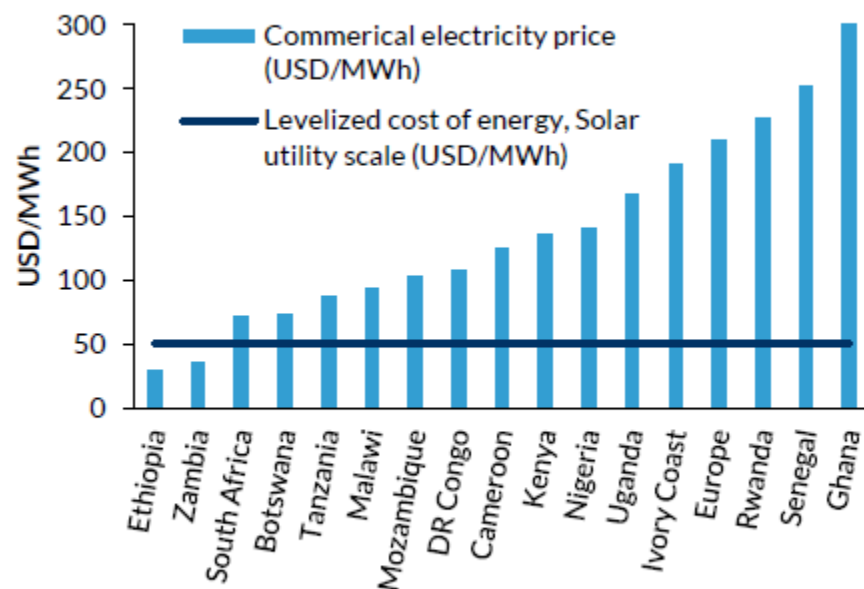
(2) Reflects total decrease in mean LCOE since the later of Lazard's LCOE—Version 3.0 or the first year Lazard has tracked the relevant technology.

(3) Reflects mean of fixed-tilt (high end) and single-axis tracking (low end) crystalline PV installations.

Climate

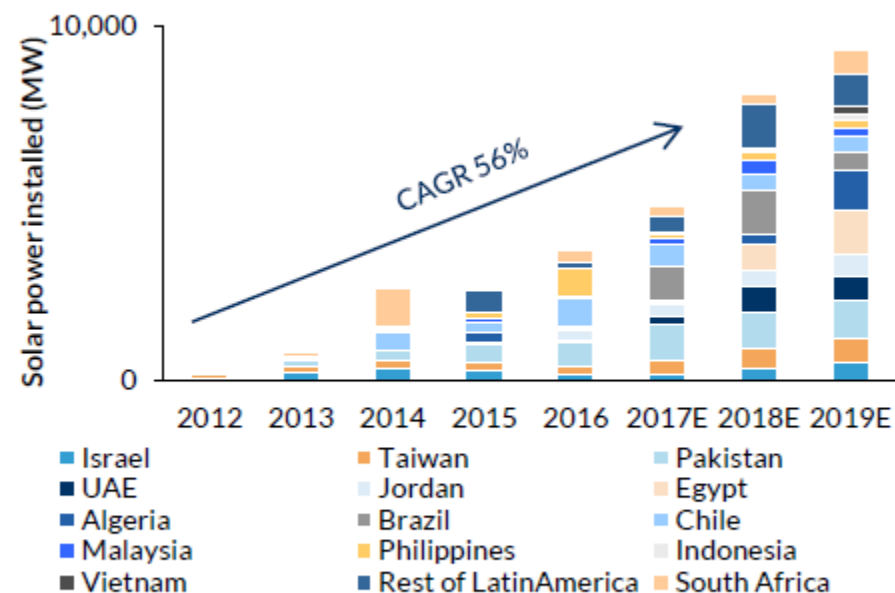
- Cost of renewables

Chart 1: Solar is competitive in emerging markets...



Source: Kepler Cheuvreux

Chart 2: ...and growth is likely to remain very high



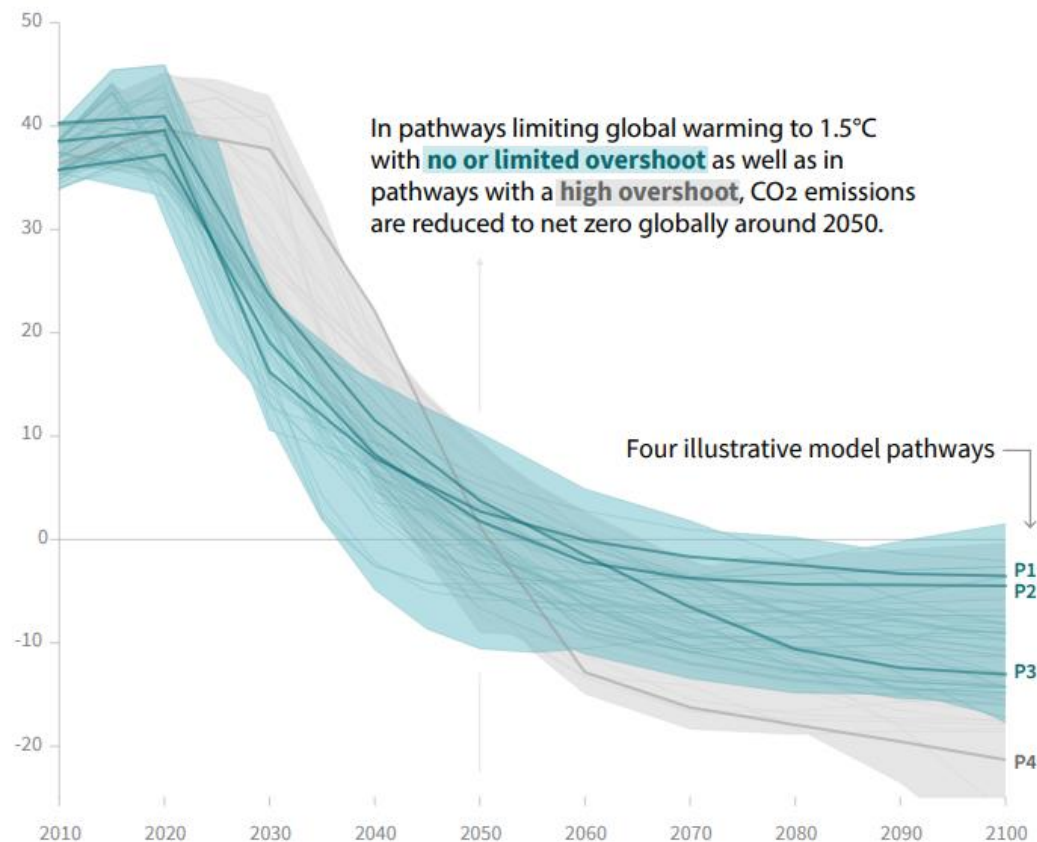
Source: Kepler Cheuvreux

Climate

- Climate change

Global total net CO₂ emissions

Billion tonnes of CO₂/yr



ipcc

INTERGOVERNMENTAL PANEL ON climate change

GLOBAL WARMING OF 1.5 °C

an IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty

Summary for Policymakers

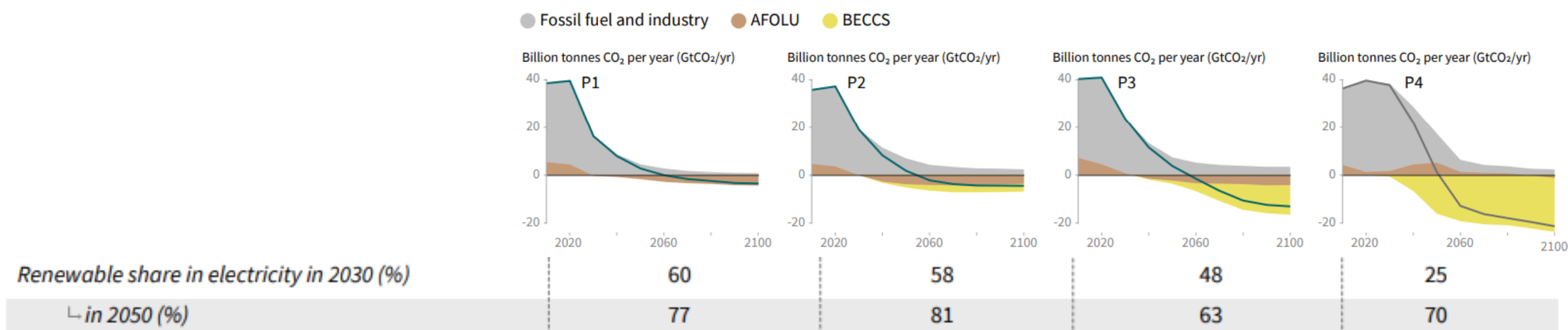
This Summary for Policymakers was formally approved at the First Joint Session of Working Groups I, II and III of the IPCC and accepted by the 48th Session of the IPCC, Incheon, Republic of Korea, 6 October 2018.

SUBJECT TO COPY EDIT



Climate

- Climate change



- While acknowledging the challenges, and differences between the options and national circumstances, political, economic, social and technical feasibility of solar energy, wind energy and electricity storage technologies have substantially improved over the past few years (high confidence). **These improvements signal a potential system transition in electricity generation**
- In 1.5°C pathways with no or limited overshoot, renewables are projected to supply 70–85% (interquartile range) of electricity in 2050 (high confidence).

Climate

- Air Pollution

Air pollution is the 'new tobacco', warns WHO head

Exclusive: Simple act of breathing is killing 7 million people a year and harming billions more, but 'a smog of complacency pervades the planet', says Dr Tedros Adhanom

● Dr Tedros Adhanom Ghebreyesus: Air pollution is the new tobacco. Time to tackle this epidemic



▲ Dr Tedros Adhanom Ghebreyesus speaks at a press conference in 2017. Photograph: Fabrice Coffrini/AFP/Getty Images



(c) Chris Pope

90% of world's children are breathing toxic air, WHO study finds

Report says air pollution is having a devastating impact on children worldwide, storing up a public health time bomb



▲ Children cover their face from air pollution in New Delhi, India. Photograph: Hindustan Times/Hindustan Times Via Getty Images

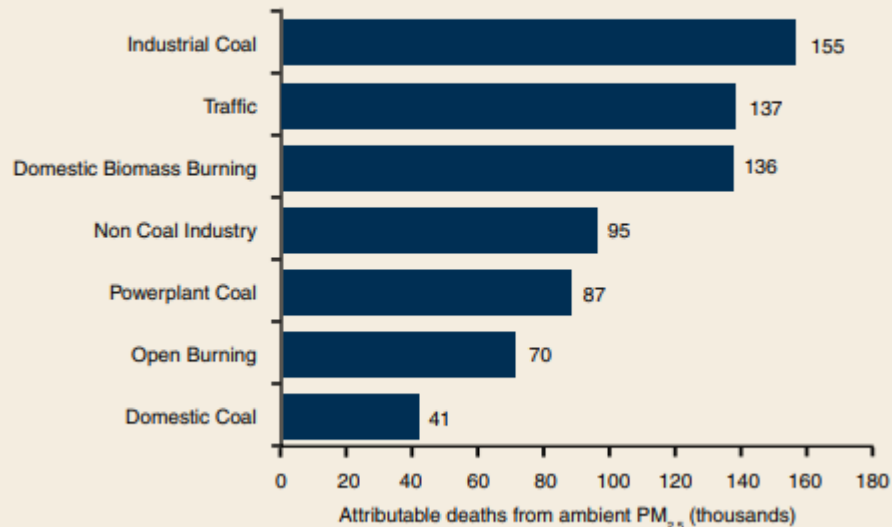
- Primary driver of regulation – from car free city centers to shutdown of coal fired power plants
- These effects are being felt today, vs. psychological driver – climate change

Climate

- Air Pollution

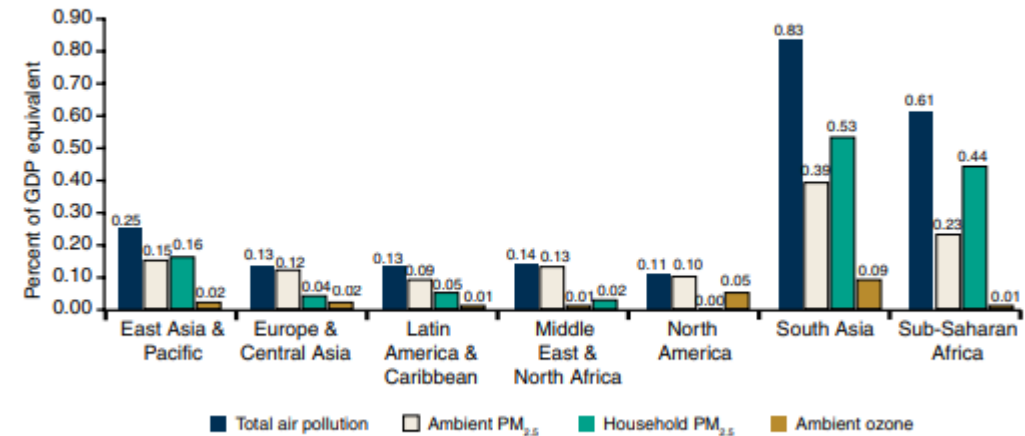
- Lost income for countries in South Asia from air pollution totaled more than \$66 billion in 2013, the equivalent of nearly 1 percent of GDP (figure 3.2).

FIGURE B4.3.1 Deaths Attributable to Ambient PM_{2.5} Pollution in China, by Source of Emissions, 2013



Source: GBD MAPS Working Group (2016).

FIGURE 3.2 Forgone Labor Output Due to Air Pollution by Region, 2013



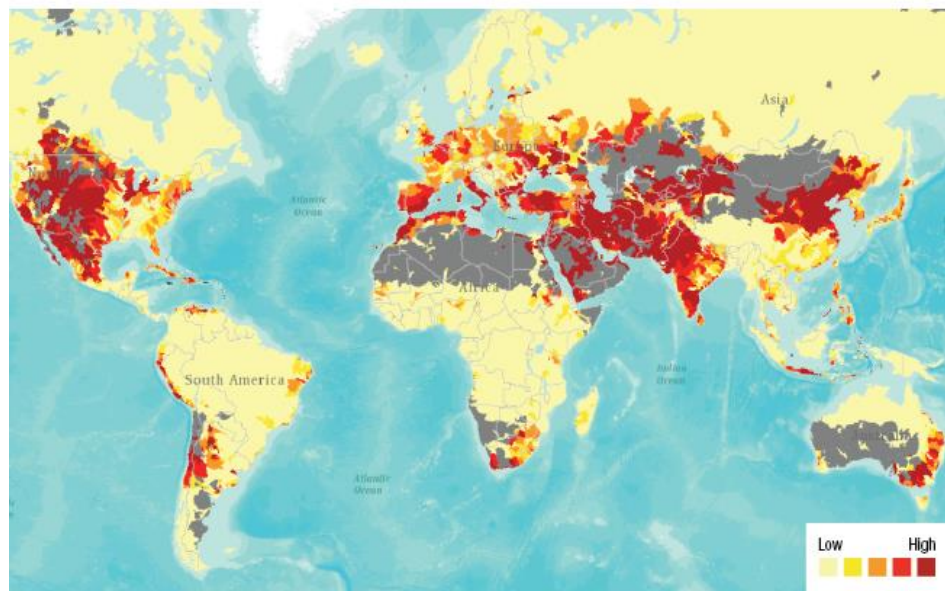
Sources: World Bank and IHME.

Note: Total air pollution damages include ambient PM_{2.5}, household PM_{2.5}, and ozone. GDP = gross domestic product.

Climate

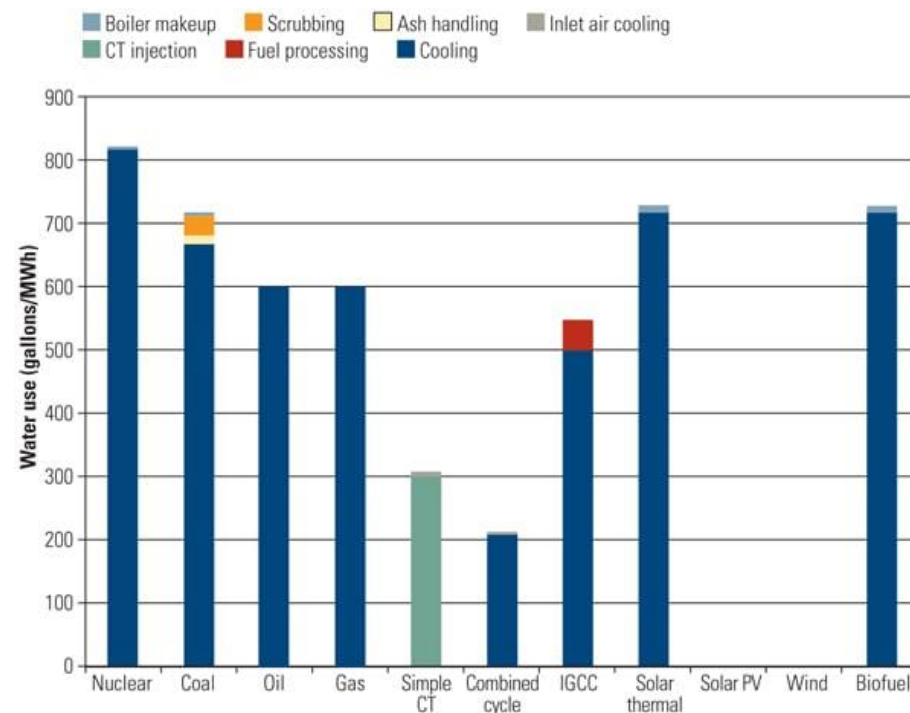
- Freshwater use

Projected Water Stress in 2030



Business as usual scenario
aqueduct.wri.org

AQUEDUCT™ WORLD RESOURCES INSTITUTE



- By replacing thermal electricity for renewables, can drastically reduce freshwater withdrawal
- Can be built in areas lacking access to freshwater

Climate

- Freshwater use

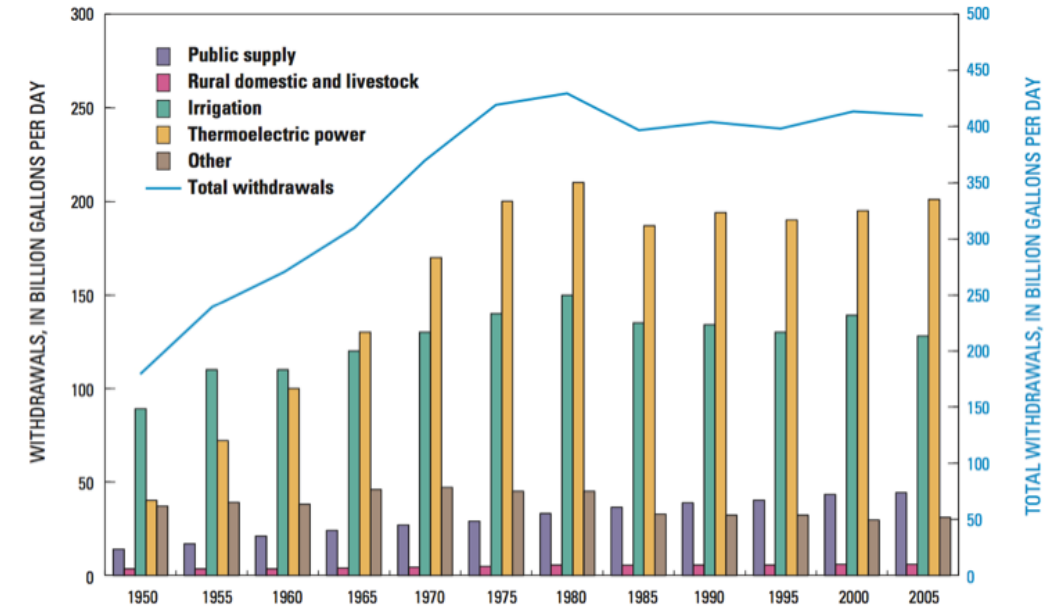
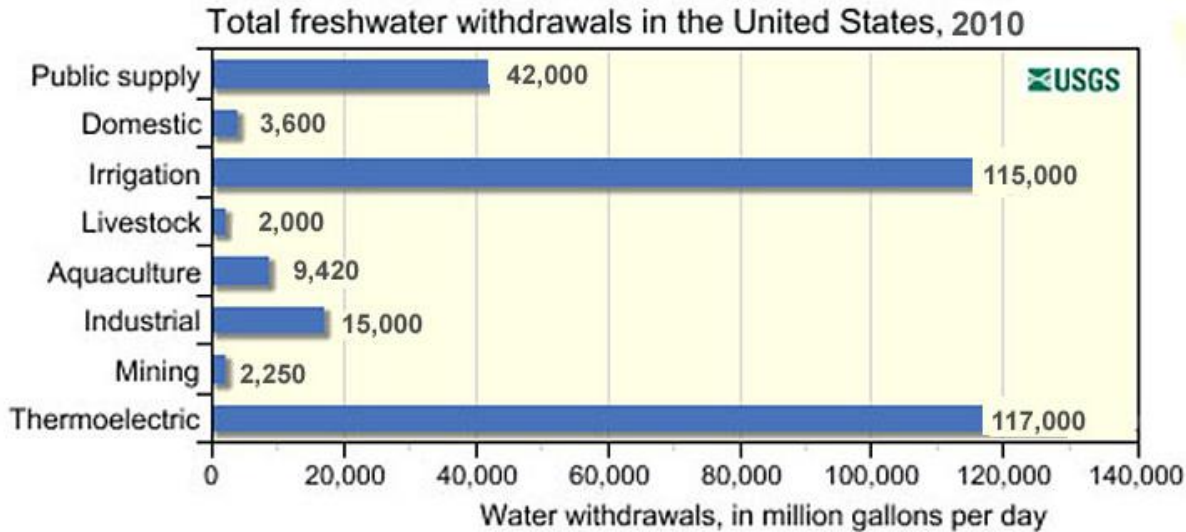


Figure 14. Trends in total water withdrawals by water-use category, 1950–2005.

- Varies between countries and regions
- Difference between usage and withdrawal – single use vs. closed loop
- Difficult to use saltwater due to rust process

Climate

- Scale of renewables

- The Longyangxia Dam Solar Park captured by Landsat 8 in April 2013 and again in January 2017.

Credit: [NASA Earth Observatory](#)

- The installation currently has the capacity to generate 850 megawatts of electricity, or enough to power roughly 140,000 U.S. homes.



Climate

- Solar and wind are complimentary

- More wind at night, and complimentary season cycles (more sun during summer).
- Combining solar photovoltaics and wind turbines at the same location can actually yield up to twice the amount of electricity as having either system working alone.

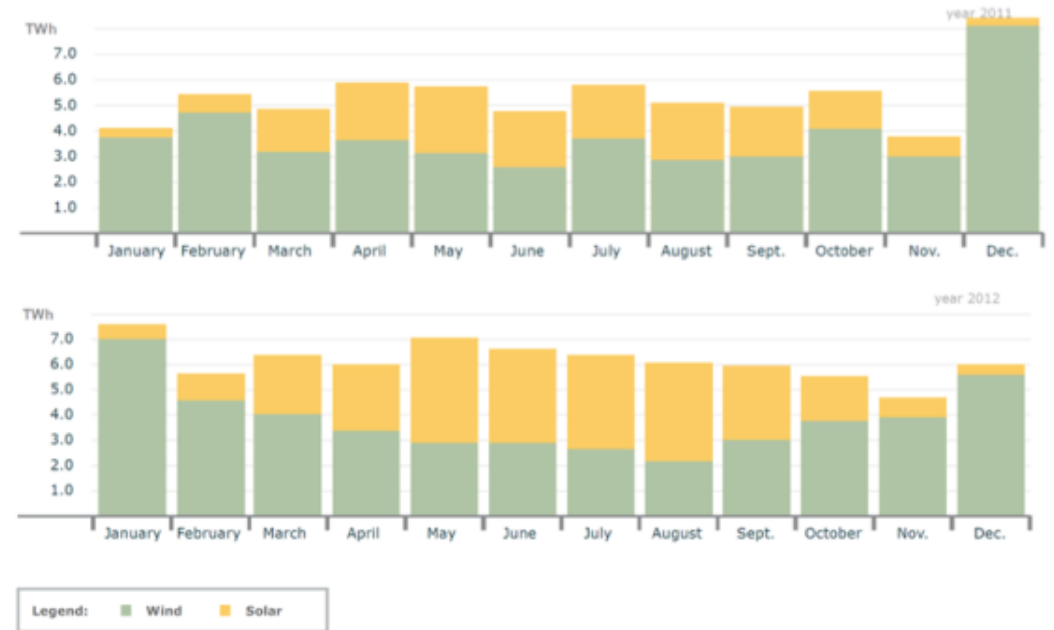


Figure 30: Monthly production of PV and wind power in 2011 and 2012 [ISE4].

TPI Composites

Themes

- Manufacturer of composite wind blades for the high-growth wind energy market
- Provides wind blades to some of the industry's leading OEMs such as: Vestas, GE, Siemens/Gamesa, Nordex, Senvion and ENERCON
- Applying advanced composites technology to production of clean transportation solutions, including electric buses


Strategy

- TPI's customers account for 99.8% of the U.S. onshore wind market and 54% of the global onshore market
- Vertically integrated OEMs have begun to outsource wind blade manufacturing due to: global talent constraints, the need for efficient capital allocation, the need to accelerate access to emerging markets, the need for supply chain optimization.

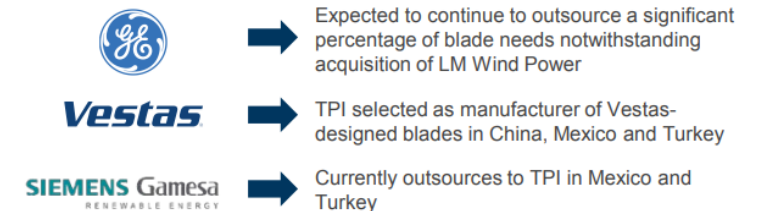
Wind Energy

TPI has manufactured over 42,000 wind blades since 2001 with an excellent field performance record in a market where reliability is critical to our customer's success. →

● ● ● ●



WIND ENERGY



Empowerment

– Access to finance, telecom and healthcare



- Up to 30 per cent of income inequality is due to inequality within households, including between women and men. Women are also more likely than men to live below 50 per cent of the median income
- Despite overall declines in maternal mortality in most developing countries, women in rural areas are still up to three times more likely to die while giving birth than women living in urban centers

Empowerment



- **Digital inclusions leads to financial inclusion which grants access to healthcare**

- 3.2 billion people are online
- 4 billion people remain offline, unable to participate and unaware of the opportunities
- 480 million already online people (through mobile phones) lack a bank account
- 520 million offline people have neither a mobile phone, or a bank account
- Half the world lacks access to essential health services

Empowerment







- **Digital inclusions leads to financial inclusion which grants access to healthcare**

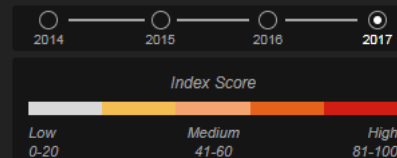
- Women on average are 14% less likely to own a mobile phone than men, which translates into 200 million fewer women than men owning mobile phones
- Women make up half the world's population and yet represent a staggering 70% of the world's poor
- Only 52 per cent of women married or in a union freely make their own decisions about sexual relations, contraceptive use and health care.

Empowerment

- Key enablers of mobile internet adoption

About the Index





-  View Global Scores
-  Country Specific
-  Single indicator
-  View Data

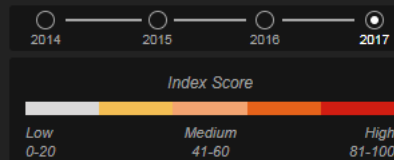


Empowerment

- Key enablers of mobile internet adoption

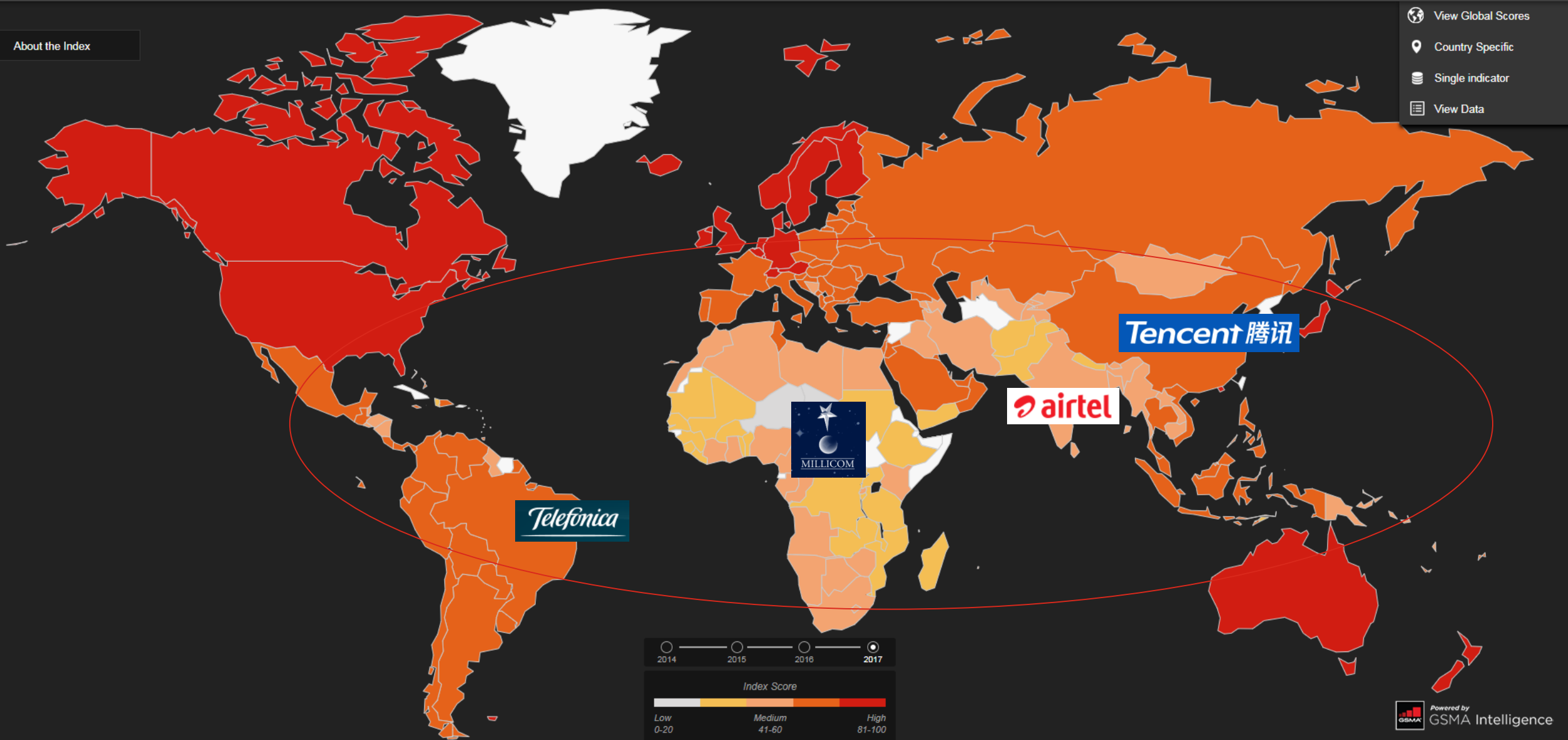
About the Index

-  View Global Scores
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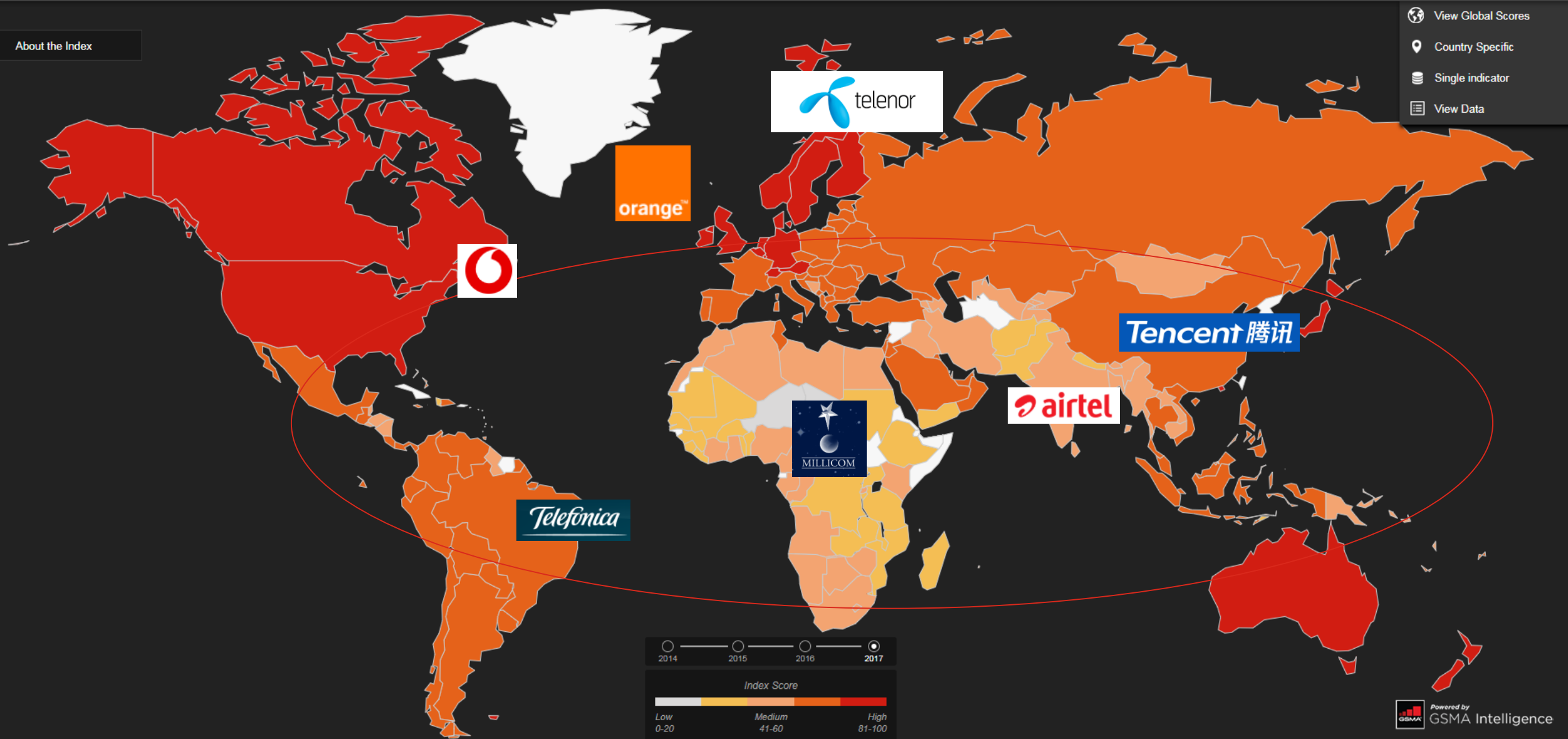
Empowerment

- Key enablers of mobile internet adoption



Empowerment

- Key enablers of mobile internet adoption

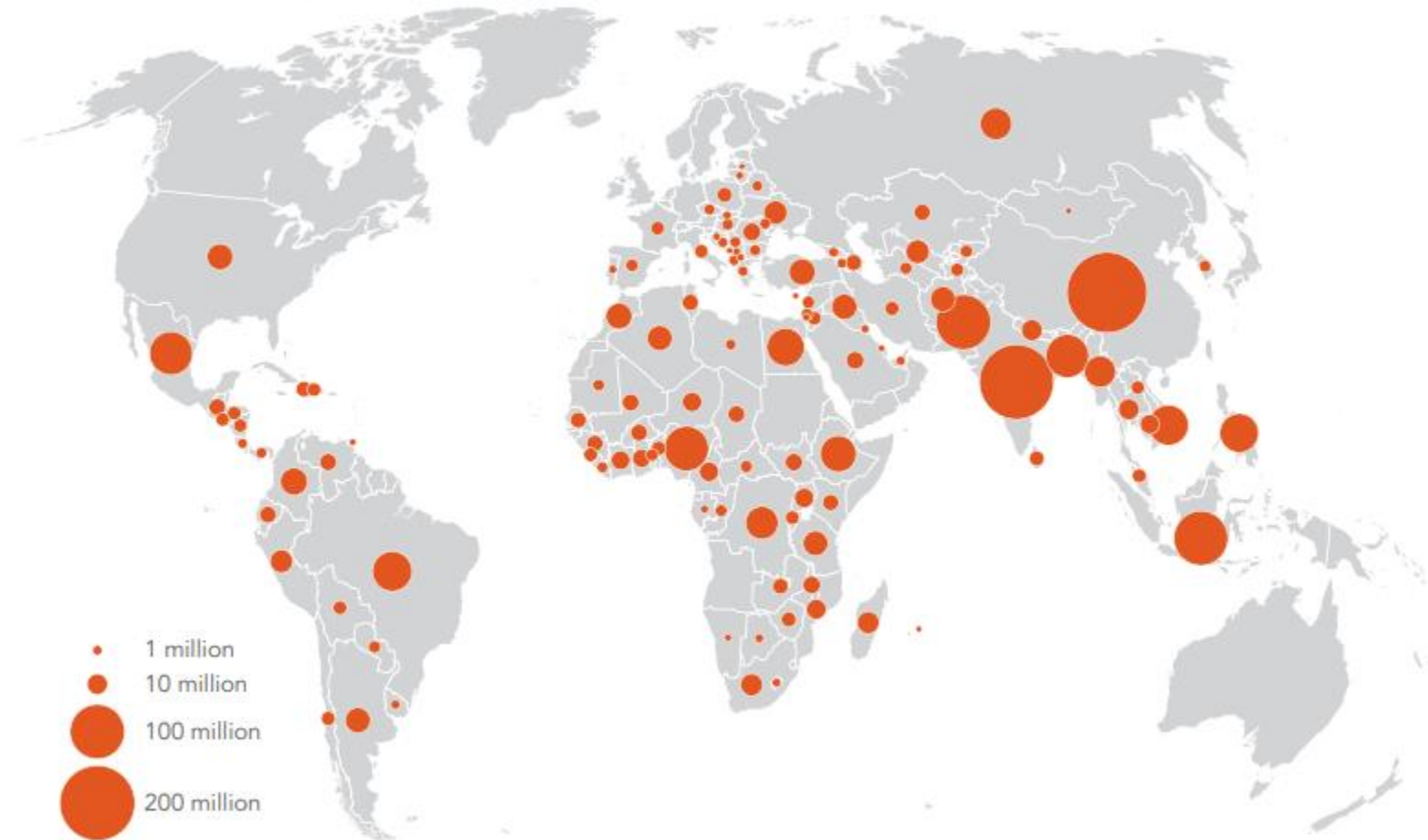


Empowerment

- Financial inclusion

Globally, 1.7 billion adults lack an account

Adults without an account, 2017



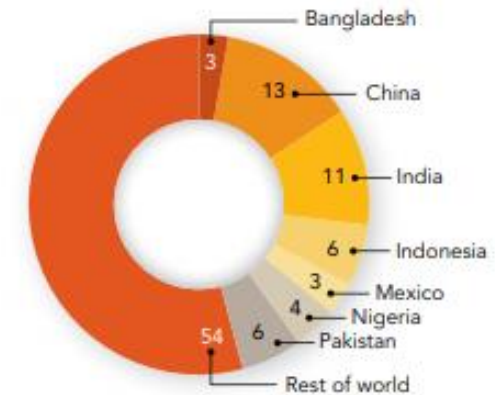
Source: Global Findex database.

Note: Data are not displayed for economies where the share of adults without an account is 5 percent or less.

FIGURE 2.1

Nearly half of all unbanked adults live in just seven economies

Adults without an account by economy (%), 2017



Source: Global Findex database.

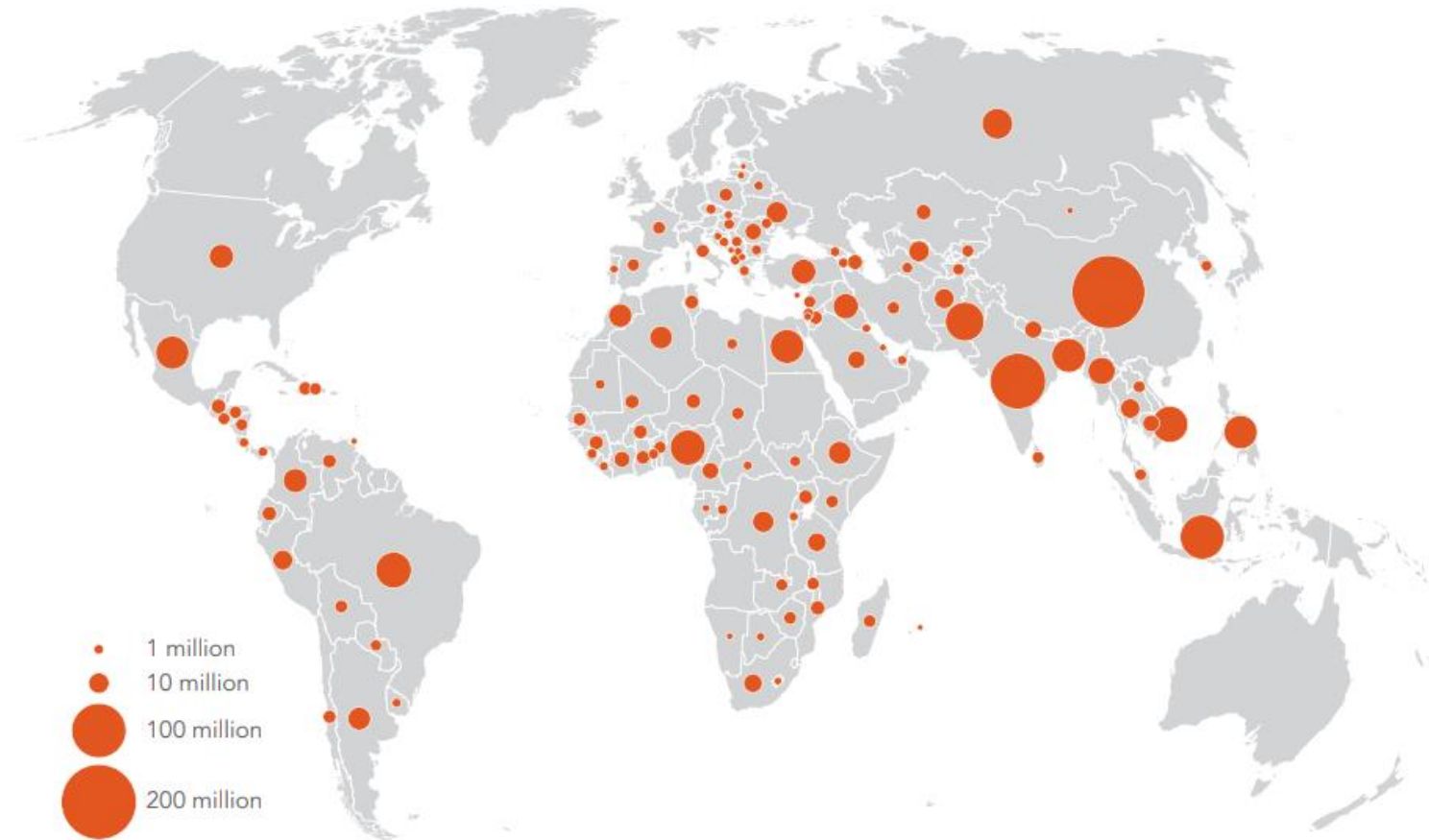
Empowerment

- Financial inclusion

MAP 0.4

Two-thirds of unbanked adults have a mobile phone

Adults without an account owning a mobile phone, 2017



Sources: Global Findex database; Gallup World Poll 2017.

Note: Data are not displayed for economies where the share of adults without an account is 5 percent or less.

Empowerment

- Financial inclusion

THE OPPORTUNITY - TURKEY

32%

of Turkish women participated in the labor force as of 2017, according to the World Bank.

53%

of women in Turkey had an account at a formal financial institution in 2017, Findex reported.

11%

of women in the country borrowed money from a formal financial institution in 2017, yet more than half of all Turkish women reported taking out a loan that year, Findex found.

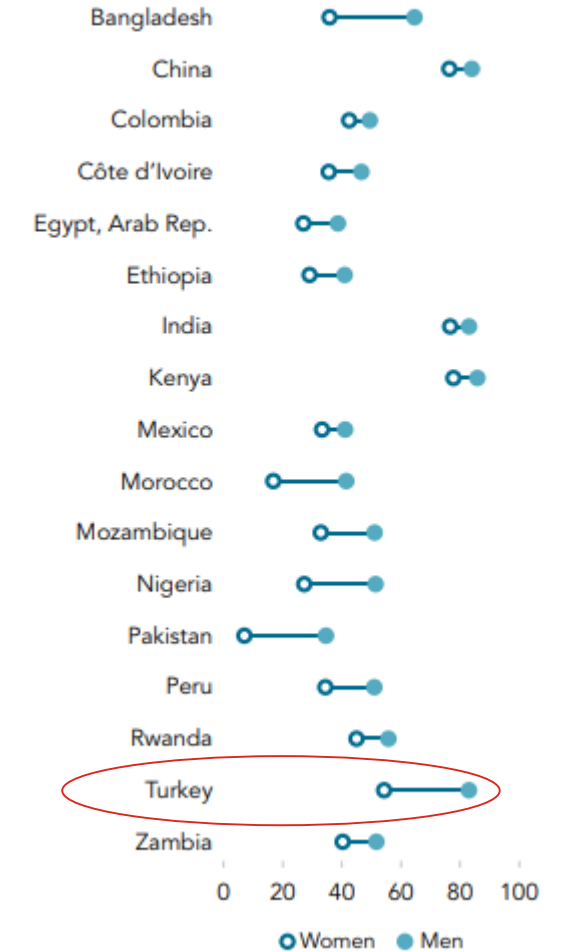
18%

of Turkish women saved at a bank in 2017, according to Findex, but 40% engaged in savings behavior of some sort that year.

FIGURE 1.7

The size of the gender gap in account ownership varies across economies

Adults with an account (%), 2017



Source: Global Findex database.

Access to healthcare

UNIVERSAL HEALTH COVERAGE

- ▶ All UN member states have agreed to try to achieve **universal health coverage** by 2030 as part of the Sustainable Development Goals (SDGs).

2030



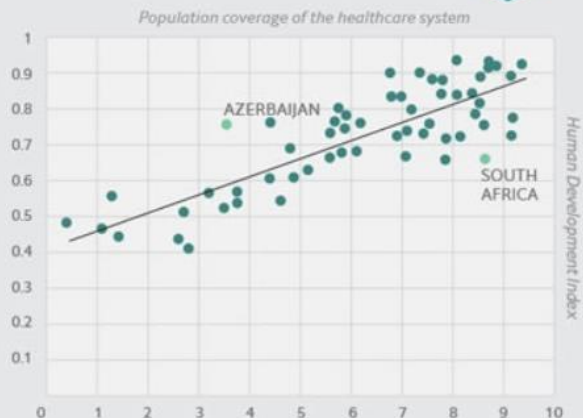
Extending universal health coverage can be a crucial part of improving access, but universal coverage does not mean universal access. For example, Indonesia is rolling out a universal health coverage programme, but some experts argue that the health system may be better off concentrating on primary care and care for the poorest, rather than trying to extend even a basic package of services to all the country's 250m people.

POPULATION COVERAGE AND HUMAN DEVELOPMENT

Population coverage of the healthcare system is strongly correlated with human development (health, education and income).

Outliers are Azerbaijan, where the level of population coverage is much lower than the level of human development would suggest, and South Africa, where the level of population coverage is much higher than the level of human development would suggest.

Correlation coefficient of 0.83
(with 1 = perfect positive correlation and 0 = no correlation)



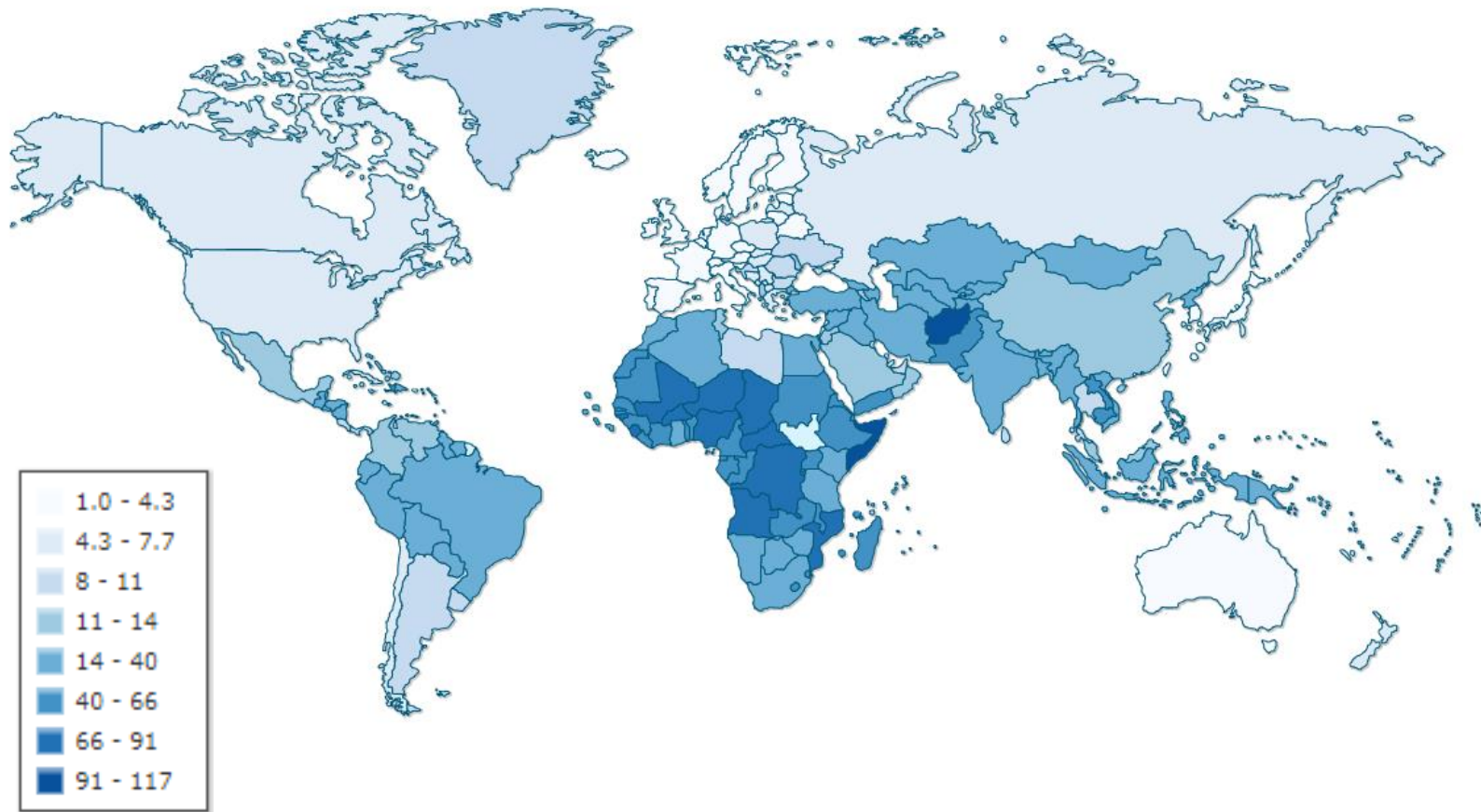
Digital Inclusion



Access to Healthcare

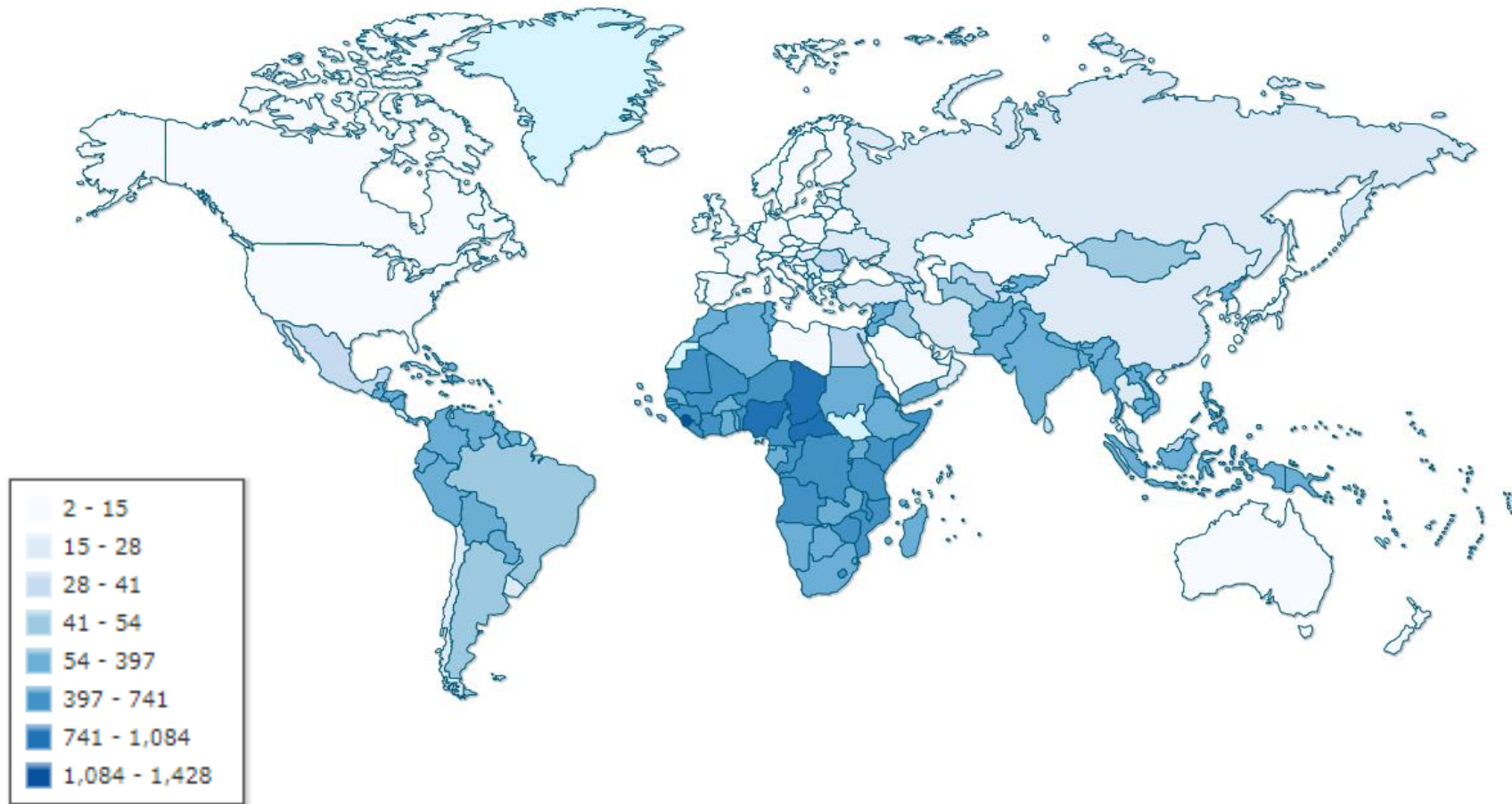
Financial Inclusion

Neonatal health



By 2030, end preventable deaths of newborns... to at least as low as **12 per 1,000** live births

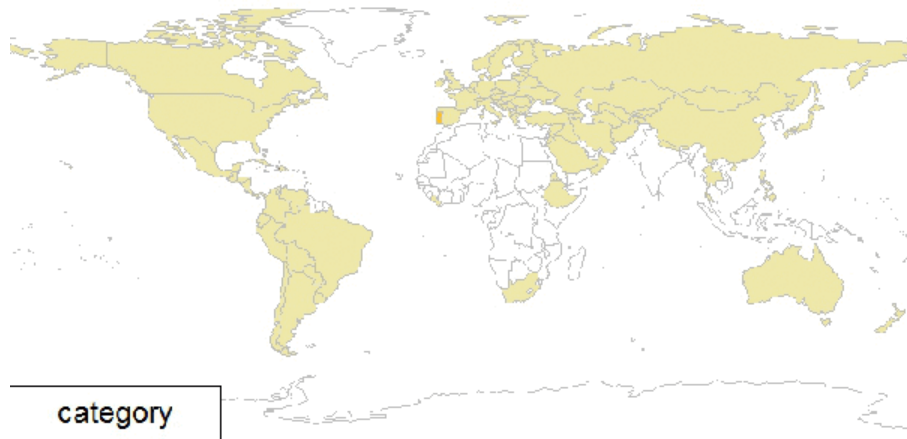
Maternal health



By 2030, reduce the global maternal mortality ratio to **less than 70 per 100,000 live births**

Infant mortality proxy

1946



map made using worldmap

CHILD AND MATERNAL HEALTH

Countries are moving towards high coverage rates in essential service areas, such as immunisation and facilities for births, but coverage for family-planning services is lagging behind.

62%

► 62% of countries provide measles immunisation for 90%+ of one-year olds.

68%

► In 68% of countries 90%+ of births are attended by skilled personnel.

7%

► But: only 7% of countries (China, Taiwan, the UK and Thailand) achieve 90%+ coverage in terms of access to modern methods for family planning.

- Strong predictor for coup d'état
- Infant mortality rate. Deaths of children under age 1 per 1,000 live births, relative to the annual global median, logged.
- This measure that primarily reflects national wealth but is also sensitive to variations in quality of life produced by things like corruption and inequality.
- Reducing infant mortality, can reduce the risk of a coup d'état.
- A coup is "the most blatant signal of democratic and human rights infringements".
- Coups also slow economic growth – 2% first year, 1-2% second year before normalizing in the third (GDP penalty).

Hologic, Inc.

Strategy

- Company focused on improving women's health and well-being through early detection and treatment

Thematics

- Key player for empowerment, focused on neo-natal and maternal health.
- Includes non invasive diagnostics for risks of early labour.
- International growth opportunity (today 75% US/25% OUS).

Risk

- Key industry issue is product safety, needs excellent governance.
- International growth strategy still at early stages.



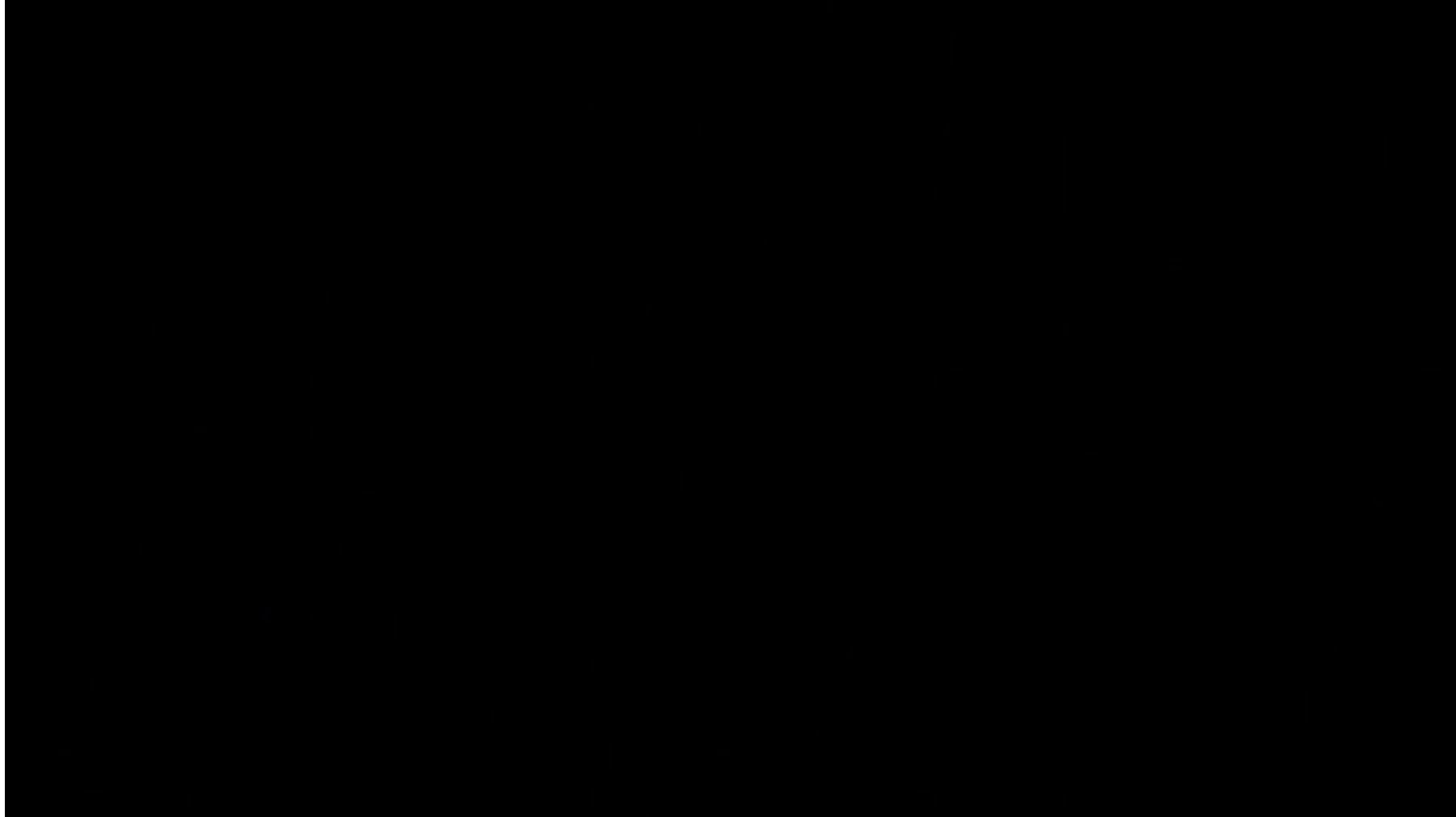
Responsible Consumption and Production

– Circular economy, sustainable products, eco-design

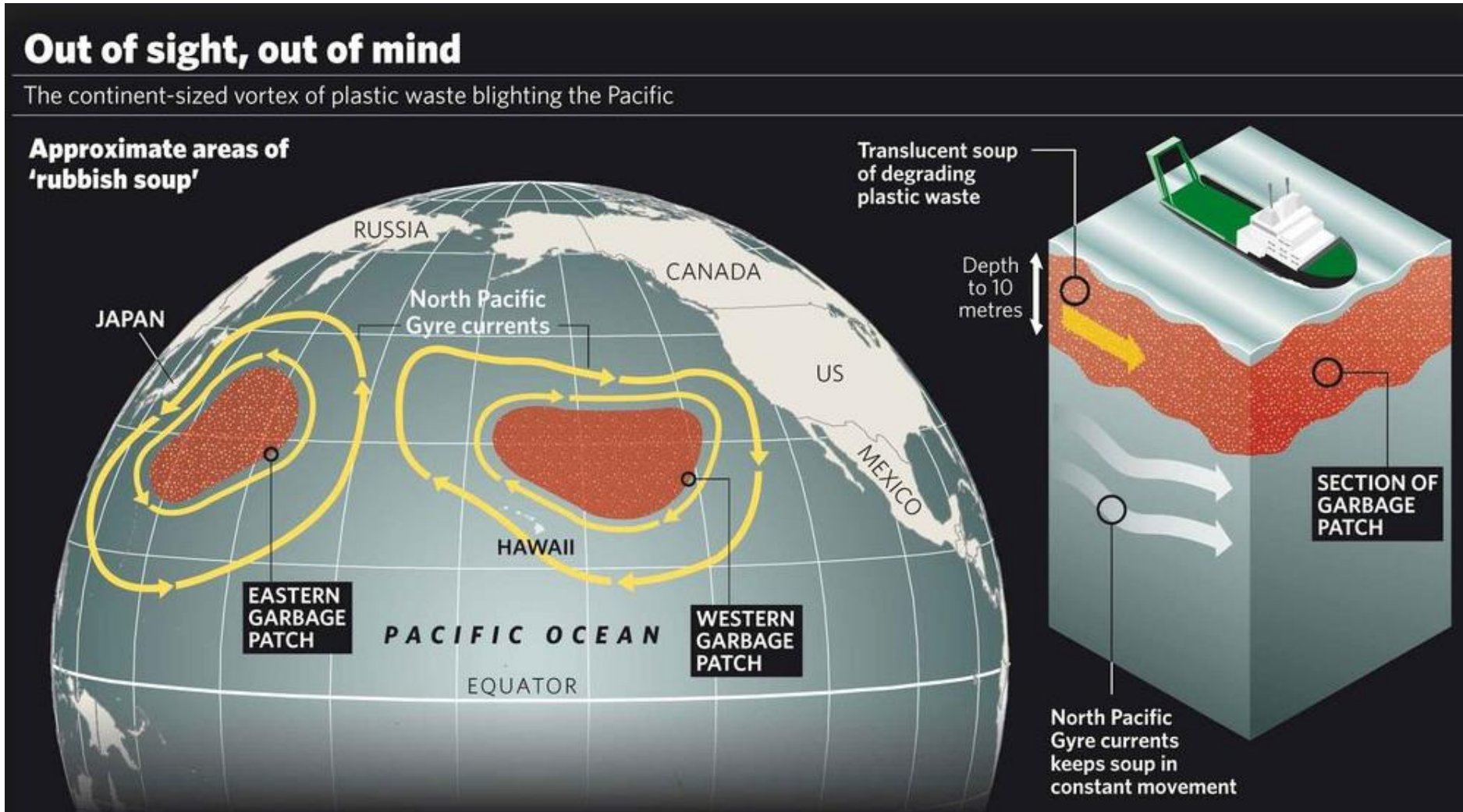


- Should the global population reach 9.6 billion by 2050, the equivalent of almost three planets could be required to provide the natural resources needed to sustain current lifestyles.
- If people worldwide switched to energy efficient lightbulbs, the world would save US\$120 billion annually.
- The food sector accounts for around 30 per cent of the world's total energy consumption and accounts for around 22 per cent of total Greenhouse Gas emissions.

Responsible Production & Consumption



Oceans & Garbage Patches

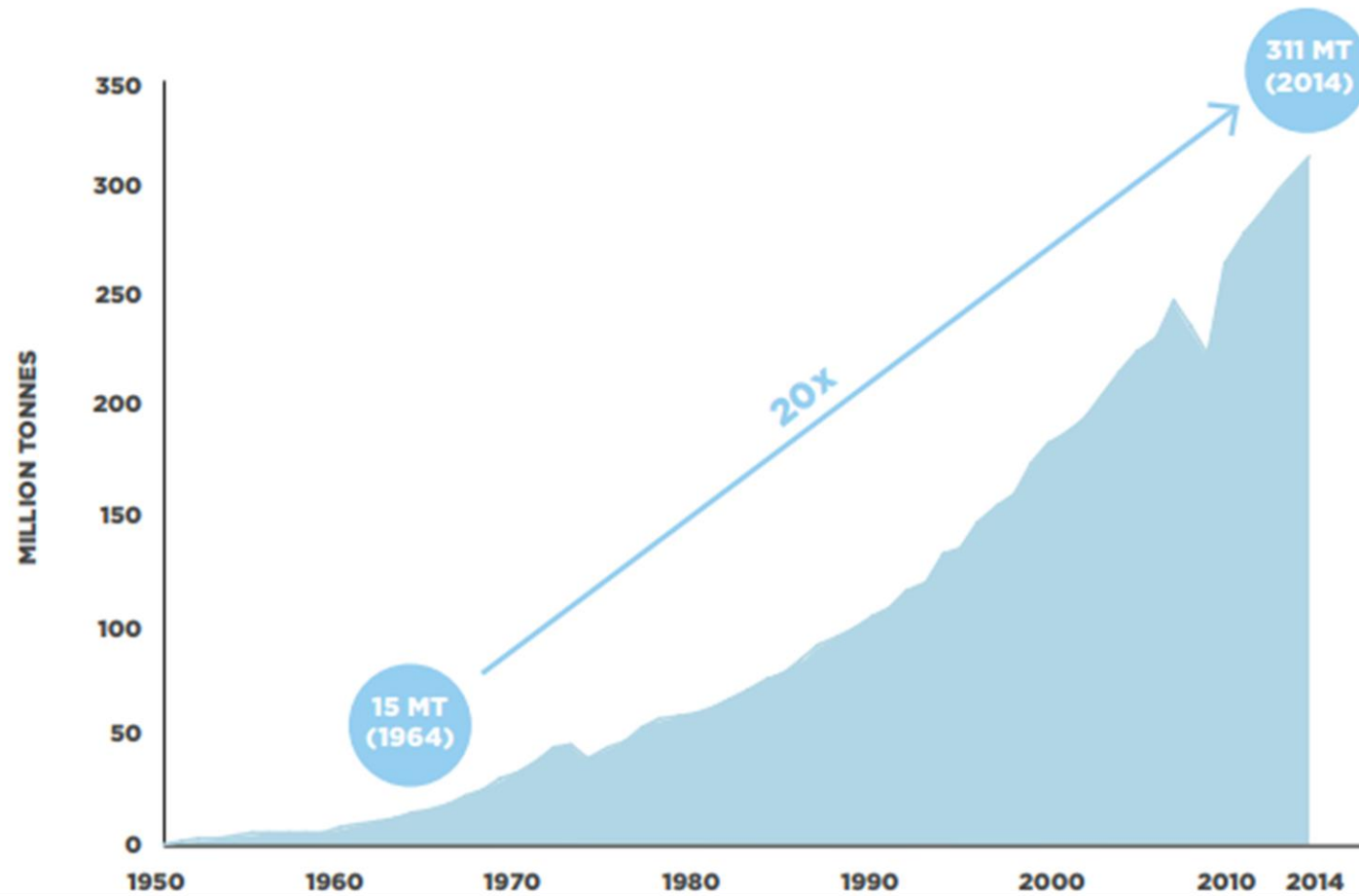


Oceans & Garbage

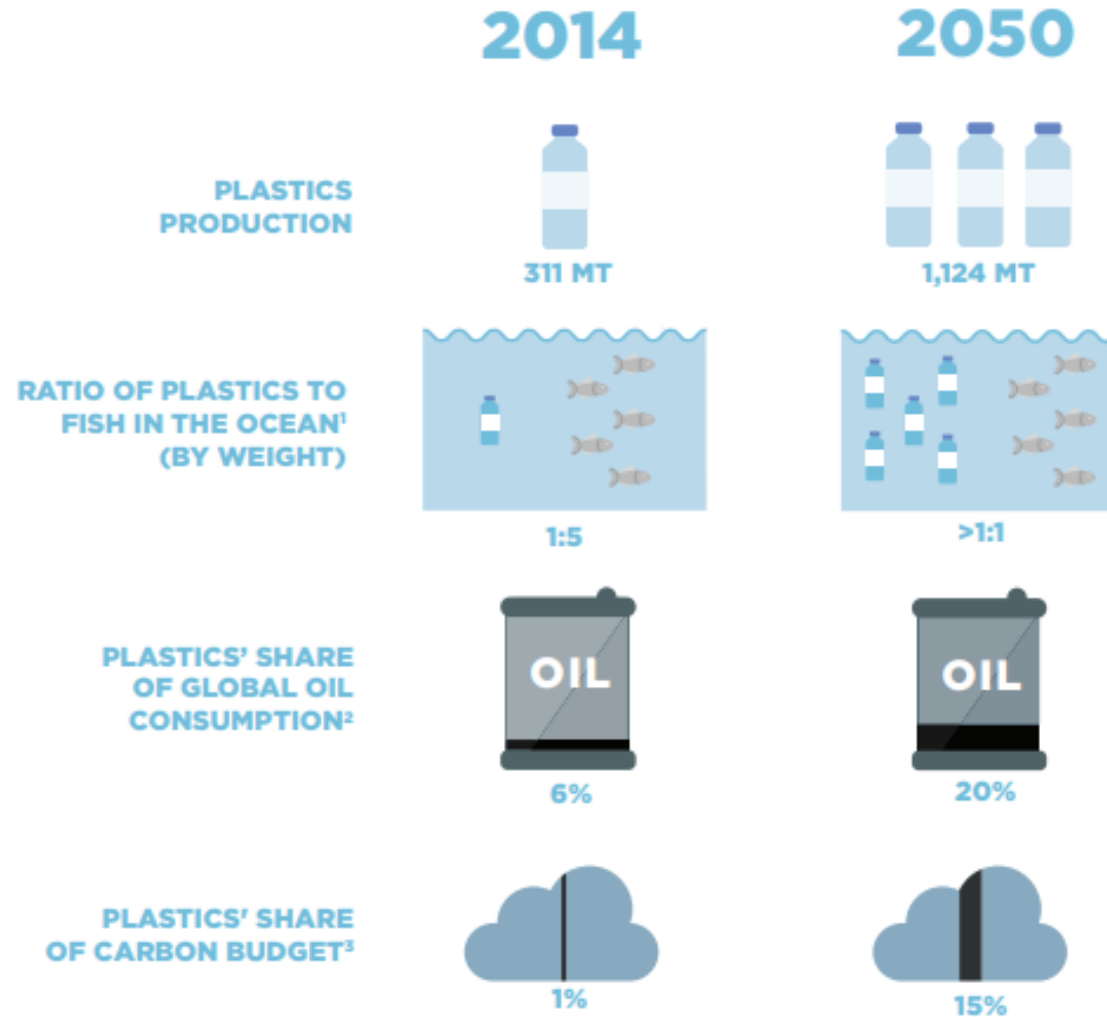


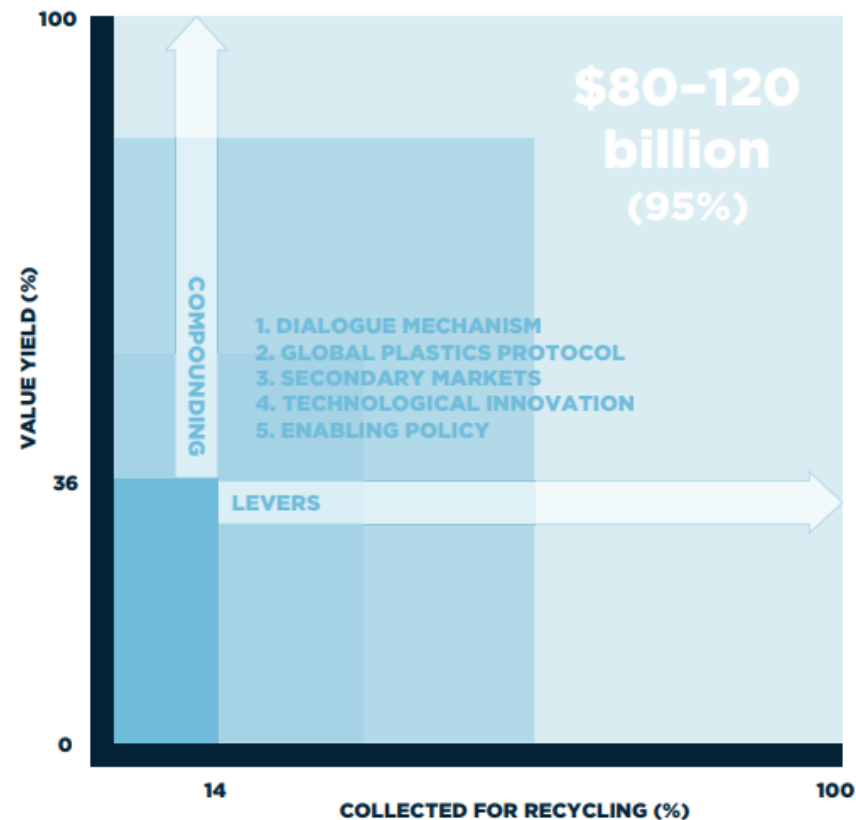
Plastic

Figure 1: Growth in Global Plastics Production 1950–2014



Plastic





LEADING THE RESOURCE REVOLUTION

Collection Solutions

Reverse Vending Material Recovery

Sorting Solutions

Food Recycling Mining

Tomra

Damian Carrington
Environment editor

@dpcarrington

Tue 27 Mar 2018 22:05 BST

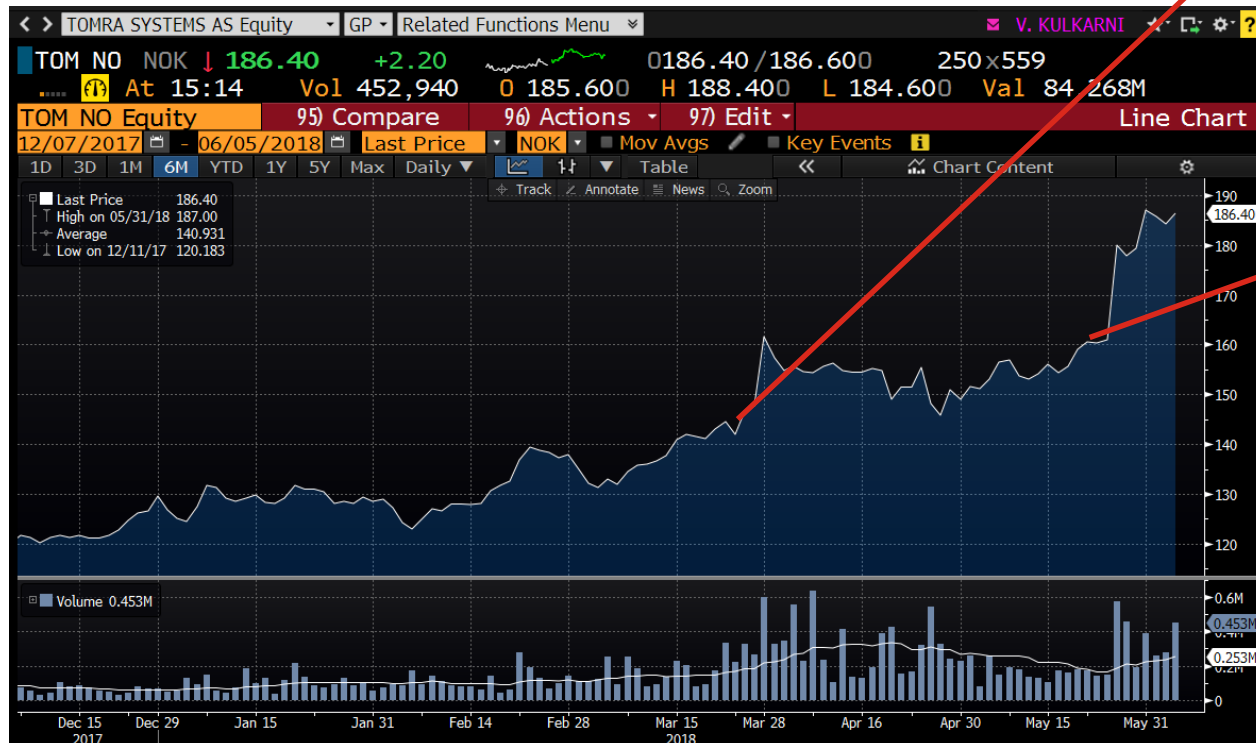


110,771

This article is over 2 months old

Bottle and can deposit return scheme gets green light in England

Consumers to receive small cash sum for returning plastic, glass and metal drinks containers



ENVIRONMENT MAY 28, 2018 / 2:43 PM / 8 DAYS AGO

EU moves to ban single-use plastics

Reuters Staff

2 MIN READ



BRUSSELS (Reuters) - The European Commission on Monday proposed banning single-use plastic products such as cotton buds and plastic straws and putting the burden of cleaning up waste on manufacturers in an effort to reduce marine litter.

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