August 2024

The Dual Challenge
Confronting Energy & Climate

OpenMinds

BAIN & COMPANY

OpenMinds Identity

OUR MISSION

Less emissions. More energy.

Accelerate progress against the Dual Challenge by 203X

- 100+ volunteer experts

- 501(c)(3)

- Disciplined non-partisan selection process

- 360° systems engineering approach

WHAT MAKES US UNIQUE

Energy AND climate

Cross-functional expert team
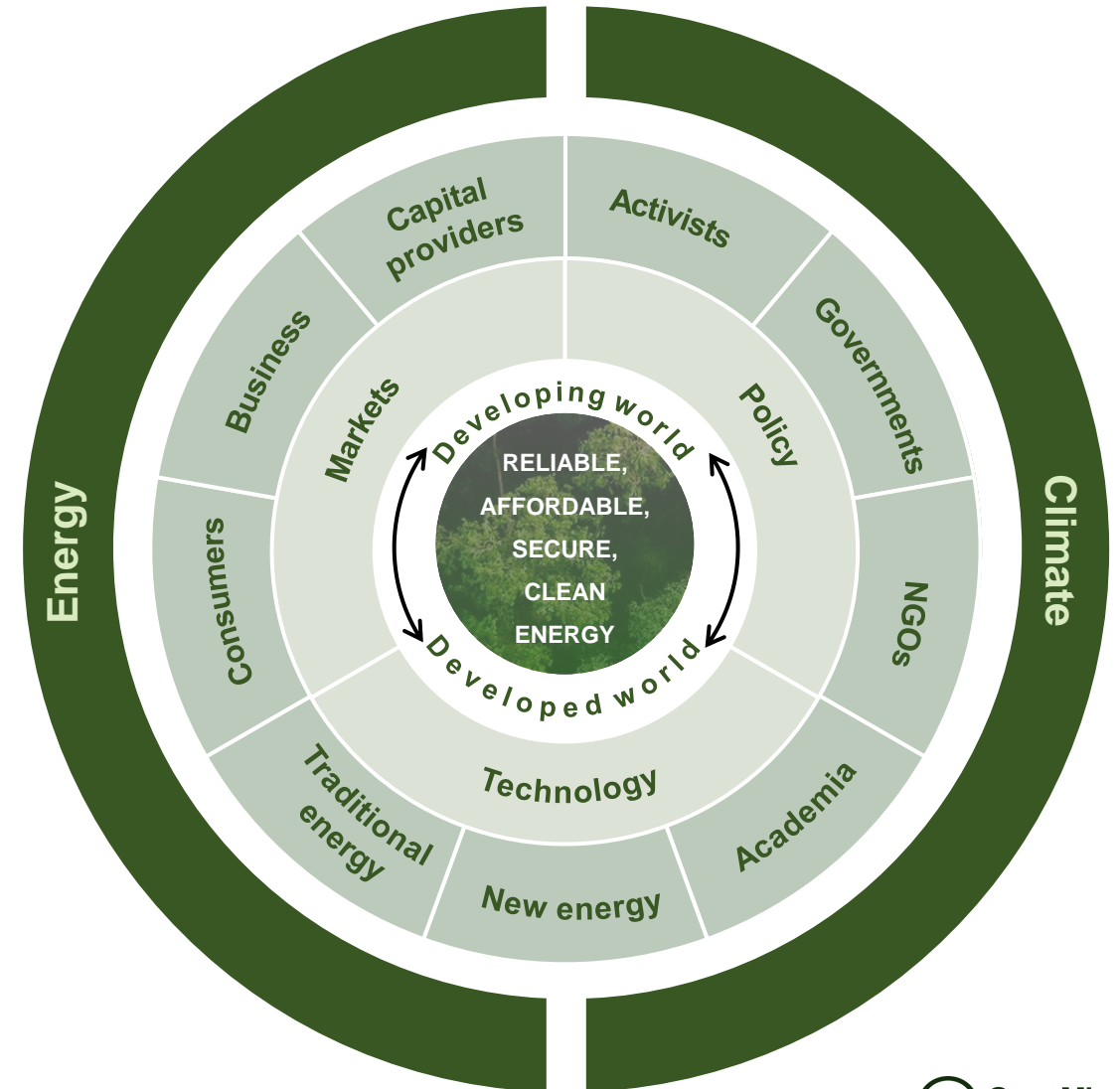
Detailed solutions framework

Impact progress by 203X

OpenMinds' Solution Approach

We believe that addressing the Dual Challenge requires us to work together in a **non-partisan** manner across **diverse** fields, industries, and geographies

The OpenMinds Team

OPENMINDS

Industry	Role and company
Ms. Bridgitt Arnold	VP of Communications, Google
Mr. John Arnold	Founder & CEO, Arnold Ventures
Mr. John Berger	Founder & CEO, Sunnova Energy International
Mr. Scott Brown	Founder and Chairman, New Energy Capital
Dr. Barbara J. Burger	Corporate Graduate, Energy Director, Advisor and Innovator
Mr. Adrian Corless	CEO, CarbonCapture
Mr. Ted Craver	Former Chair, President, & CEO, Edison International
Mr. Michael DeBock	Vice President of Origination, NextEra Energy
Ms. Jayshree Desai	CFO, Quanta Services, Inc.
Mr. Bob Flexon	Chairman, PG&E
Mr. Jon Goldberg	Founder and CEO, Carbon Direct
Mr. Thad Hill	CEO, Calpine
Ms. Vicki Hollub	President & CEO, Oxy
Ms. Phoebe Ho-Stone	CCS Development Planner, ExxonMobil Low Carbon Solutions
Mr. Aaron Jagdfeld	CEO, Generac Power Systems
Mr. Mateo Jamarillo	Co-Founder & CEO, Form Energy Inc
Mr. Sanjeev Krishnan	Chief Investment Officer and Senior Managing Director, S2G
Mr. Tim Latimer	Co-Founder & CEO, Fervo Energy
Mr. Steve Lockard	Chairman, TPI Composites
Mr. Thomas McAndrew	Founder & CEO, Enchanted Rock
Dr. Shannon Miller	Founder & CEO, Main Spring Energy
Mr. Stan Miranda	Founder & Chairman, Partners Capital
Mr. Nate Nickerson	Comms and Public Affairs Partner, DCVC
Ms. Lara Poloni	President, AECOM
Ms. Rachael Porter	CMO, Oxy
Mr. Miguel Prado	CEO, energyRE
Ms. Heather Redman	Co-Founder & Managing Partner, Flying Fish Partners
Ms. Starlee Sykes	CEO, Archaea Energy at BP
Mr. Dan Tishman	Chairman & Principal, Tishman Realty & Construction
Mr. Ignacio (Nacho) Torras	President & CEO, Tricon
Ms. Jessica Uhl	President, GE Vernova
Mr. Al Vickers	COO, Grid United
Mr. Andy Waite	Managing Partner - SCF Partners
Mr. Daniel Weiss	Co-Founder and Managing Partner, Angeleno Group
Mr. Jason Wells	President & CEO, CenterPoint Energy
Mr. Darryl Willis	Corporate VP of Energy & Resources Industry, Microsoft
Dr. Mike Witt	VP & Chief Sustainability Officer, Northrop Grumman

Academia	Role and Company
Dr. Steven Barrett	Regius Professor of Engineering, Cambridge University
Dr. Naomi Boness	Managing Director, Stanford Natural Gas Initiative and Stanford Hydrogen Initiative
Dr. Neil Fromer	Executive Director of Programs, Resnick Sustainability Institute
Mr. Sam Hall	MBA Candidate, MIT Sloan School of Management
Mr. Britt Harris	Former CEO & CIO, UTIMCO
Mr. Ira Joseph	Global Fellow CGEP, Columbia University
Ms. Daniela Marin	PhD Candidate, Stanford University
Dr. Kenneth Medlock III	Senior Director, Center for Energy Studies at Rice University's Baker Institute
Dr. Dava Newman	Director, MIT Media Lab
Dr. Jonas Peters	Director, Resnick Sustainability Institute
Dr. Minoo Rathnasabapathy	Research Lead, Future Worlds, MIT Media Lab
Dr. Peter Schlosser	Vice President - Global Futures Initiative Vice Provost - Arizona State University
Mr. Ben Soltoff	Ecosystem-Builder/Entrepreneur in Residence, MIT's Martin Trust for MIT Entrepreneurship
Dr. Scott Tinker	Director, Bureau of Economic Geology at the University of Texas
Dr. Maya Tolstoy	Dean of the College of the Environment, University of Washington

Policy / Influence	Role and Company
Mr. Jason Bordoff	Professor & Founding Director, Center on Global Energy Policy, Columbia University
Mr. David Crane	Under Secretary for infrastructure, United States Department of Energy
Dr. Reginald DesRoches	President, Rice University
Mr. Hal Harvey	Founder, Energy Innovation
Mr. Mac Heller	Documentary Film Producer
Mr. John Hickenlooper	Former Governor and Current US Senator, State of Colorado
Mr. Joe Kennedy III	President, Citizens Energy
Mr. Robert Johnston	Executive Director, Columbia Center on Global Energy Policy
Ms. Janet Napolitano	Former President, University of California System

Policy / Influence	Role and Company
Mr. Rob Shepardson	Co-Founder, SS+K
Mr. Lenny Stern	Co-Founder, SS+K

NGO	Role and Company
Dr. Doug Arent	Executive Director, Strategic Public Private Partnerships, NREL
Mr. Armond Cohen	Executive Director, Clean Air Task Force
Ms. Karlynn Cory	Group Manager - Community Energy Transitions, NREL
Ms. Myrtle Dawes	CEO, Net Zero Technology Centre
Mr. Jason Grumet	CEO, American Clean Power Association (ACP)
Ms. Jennifer Layke	Global Director – Energy, World Resources Institute
Mr. Tom Light	President & CEO, Aviation Climate Taskforce
Dr. Lara Pierpoint	Director of Early Climate Infrastructure, Prime Coalition
Mr. David Pruner	Executive Director, TEX-E
Mr. Larry Selzer	President & CEO, The Conservation Fund
Dr. Cyrus Wadia	CEO, Activate
Mr. Brady Walkinshaw	CEO, Earth Alliance
Mr. Kurt Waltzer	Former CEO, Clean Air Task Force

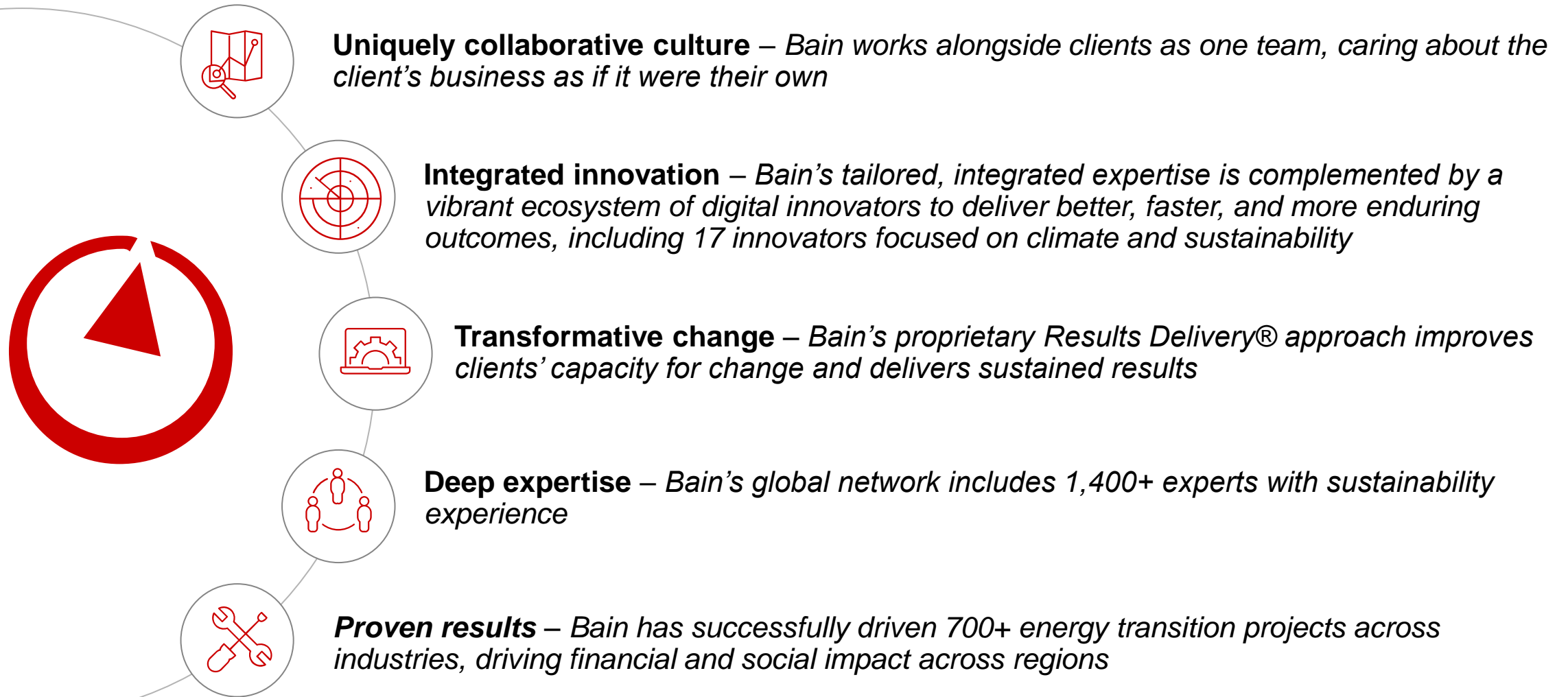| Hosts	Role and Company
Mr. David Baldwin	OpenMinds Co-Founder	Partner, SCF Partners
Mr. Jeff Katz	Founding Chairman & CEO, Orbitz / Journera
Ms. Maire Baldwin	Board Director, Permian Resources
Ms. Mara Abbott	Chief of Staff, OpenMinds
Mr. James Baird	Associate Partner, Bain & Company
Mr. Jason Corzine	President & CEO, Telluride Foundation
Mr. Julian Critchlow	Advisory Partner, Bain & Company
Mr. Grant Dougan	Partner, Bain & Company
Ms. Emily Emmett	Partner, Bain & Company
Mr. Peter Guarraia	Partner, Bain & Company
Mr. Preston Henske	Partner, Bain & Company
Ms. Cate Hight	Partner, Bain & Company
Mr. Fred Kittler	Co-Founder and Managing Director, Firelake Capital Mgmt.
Ms. Dianne Ledingham	Advisory Partner, Bain & Company
Mr. Paul Major	Board Member & Manager, Paradox Community Trust
Mr. Joseph Scalise	Partner, Head of Global Energy & Natural Resources Practice, Bain & Company
Mr. Crosby Scofield	Partner, Vinson and Elkins
Ms. Erika Serow	Partner and CMO, Bain & Company
Mr. Michael Short	Partner, Bain & Company

… and many more

Partnership with Complementary Strengths

OpenMinds has a diverse, non-partisan network of climate & energy leaders and a focus on impact by 203X…

…Bain supplements with global scale, deep industry expertise, and advanced analytics capabilities

OpenMinds

https://openminds203x.org/

BAIN & COMPANY

OpenMinds

Overview of Bain's Energy Transition Capabilities

Uniquely collaborative culture – *Bain works alongside clients as one team, caring about the client's business as if it were their own*

Integrated innovation – *Bain's tailored, integrated expertise is complemented by a vibrant ecosystem of digital innovators to deliver better, faster, and more enduring outcomes, including 17 innovators focused on climate and sustainability*

Transformative change – *Bain's proprietary Results Delivery® approach improves clients' capacity for change and delivers sustained results*

Deep expertise – *Bain's global network includes 1,400+ experts with sustainability experience*

Proven results – *Bain has successfully driven 700+ energy transition projects across industries, driving financial and social impact across regions*

OpenMinds

DISCUSSION AGENDA

The Dual Challenge: An Overview

Energy is fundamental to human wellbeing and flourishing…

… but our primary energy sources, fossil fuels, are also the principal source of human greenhouse gas emissions, which **cause global warming**

The tension between energy supply and climate change presents the **Dual Challenge**

This is a **global** problem of enormous **scale and complexity**, and addressing it will require us to balance **competing priorities**

OpenMinds

Energy Drives Human Well Being and Longevity

Global energy consumption
PETAWATT-HOURS

Global GDP
TRILLIONS OF CONSTANT 2011
INTERNATIONAL USD, PPP ADJUSTED

~8x Approximate increase in the world population

~3x Approximate increase in average life expectancy

Global GDP

Global energy consumption

Energy axis: 200, 150, 100, 50

GDP axis: 150, 100, 50

Years: 1800, 1850, 1900, 1950, 2000, 2019

World population

1.0B → 7.8B

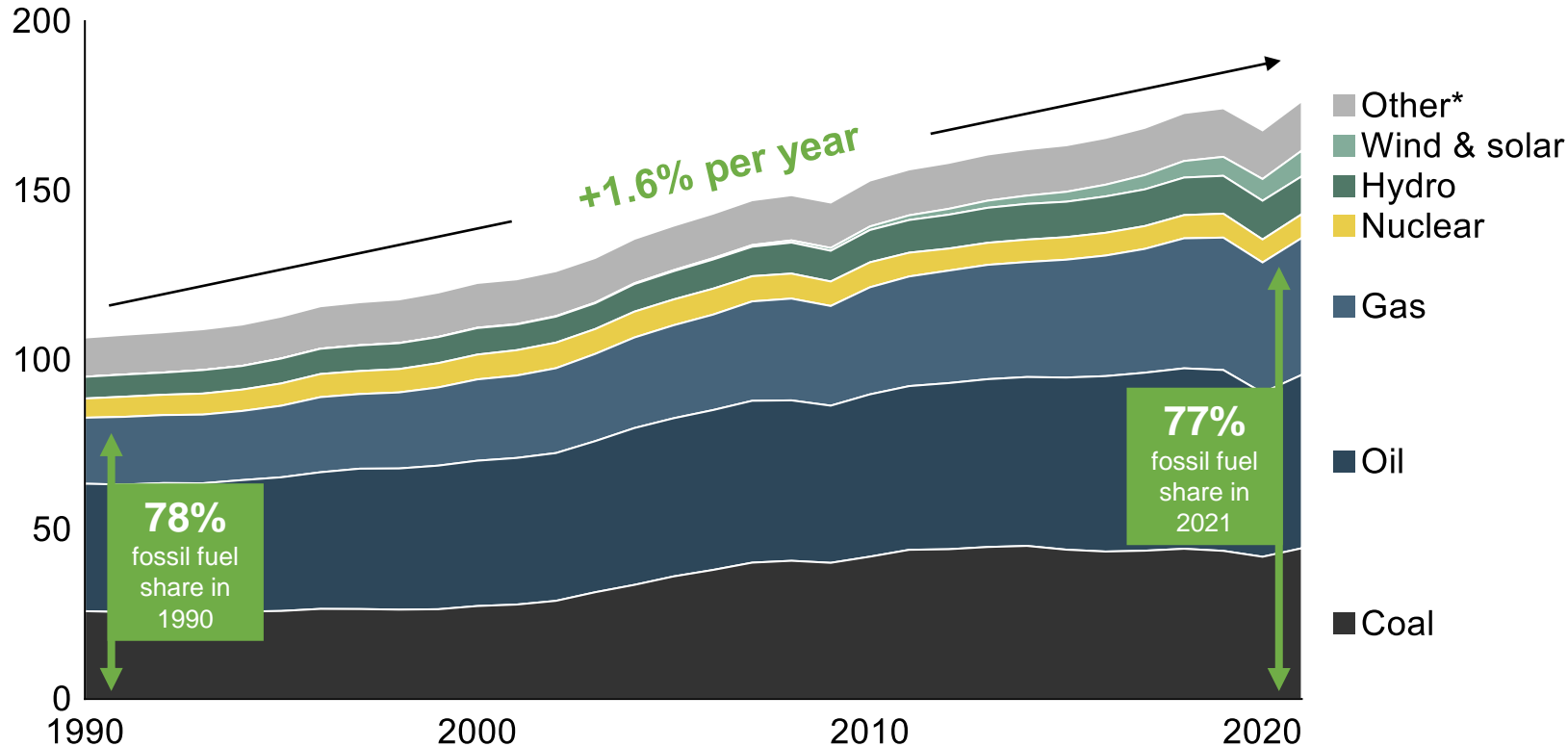**Average life expectancy**

29yrs. → 73yrs.

Note: GDP is adjusted for purchasing power parity. Sources: Bain & Company analysis; BP Statistical Review of World Energy 2021; Vaclav Smil, *Energy Transitions: Global and National Perspectives,* 2017; Maddison Project Database, version 2020. Bolt, Jutta and Jan Luiten van Zanden (2020), "Maddison style estimates of the evolution of the world economy. A new 2020 update"; World Bank; Our World in Data

Growth in Energy Consumption

Global primary energy consumption by source
(measured in petawatt-hours)

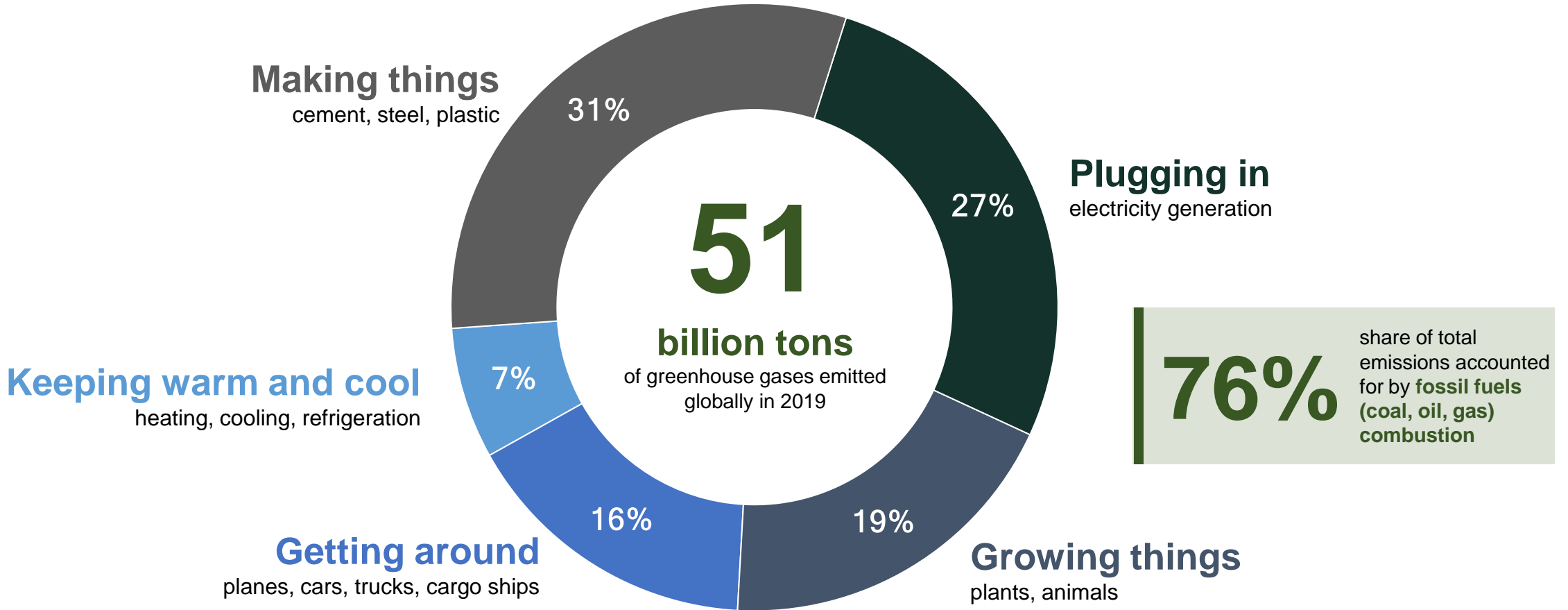+1.6% per year

78% fossil fuel share in 1990

77% fossil fuel share in 2021

Legend: Other*, Wind & solar, Hydro, Nuclear, Gas, Oil, Coal

	% of total		Share of 1990-2021
	1990	**2021**	**demand growth**
Other*	11%	8%	4%
Wind & solar	0%	4%	11%
Hydro	6%	6%	7%
Nuclear	5%	4%	2%
Gas	18%	23%	30%
Oil	35%	29%	19%
Coal	24%	25%	27%
	100%	100%	100%

Note: * Other includes traditional biomass, biofuels, and other renewables
Source: BP Statistical Review of World Energy, 2022; Vaclav Smil, *Energy Transitions: Global and National Perspectives* (2017); Our World in Data
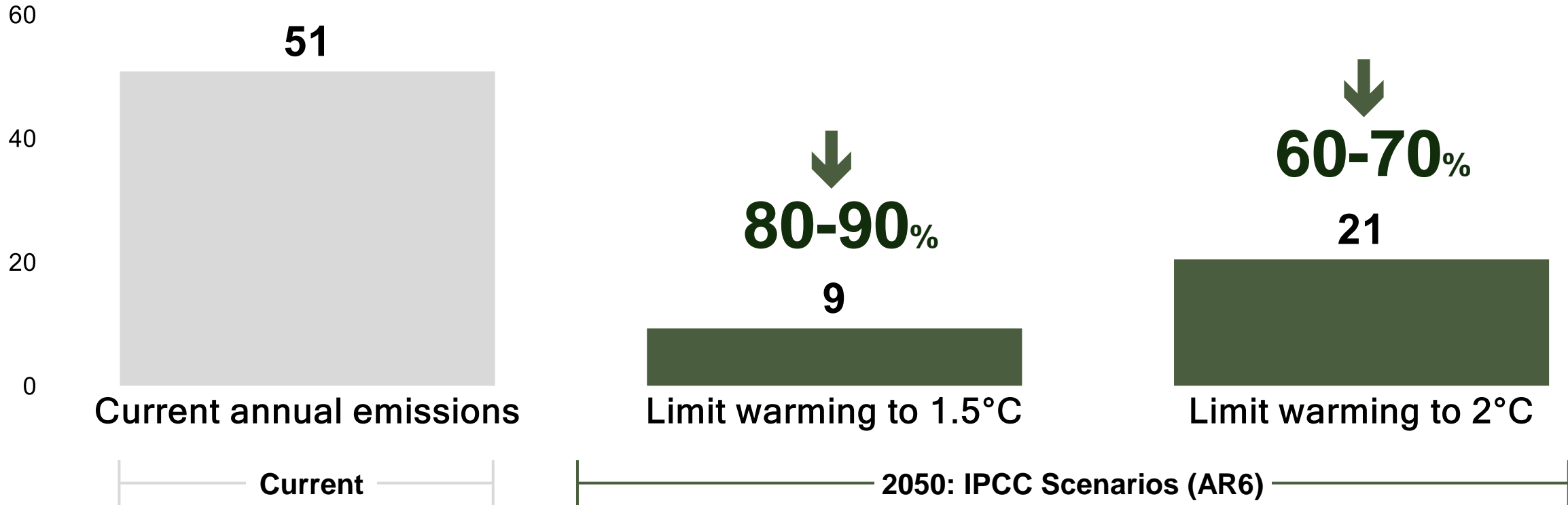
Human Activities Driving Greenhouse Effect

Making things
cement, steel, plastic

31%

Plugging in
electricity generation

27%

51

billion tons
of greenhouse gases emitted
globally in 2019

Keeping warm and cool
heating, cooling, refrigeration

7%

16%

Getting around
planes, cars, trucks, cargo ships

19%

Growing things
plants, animals

76% share of total emissions accounted for by **fossil fuels (coal, oil, gas) combustion**

Note: Emissions measured in tons of CO_2-equivalent and include carbon dioxide, methane, nitrous oxide, and f-gases
Source: Bill Gates, *How to Avoid a Climate Disaster* (2021)

Required Emissions Reduction

THE DUAL CHALLENGE

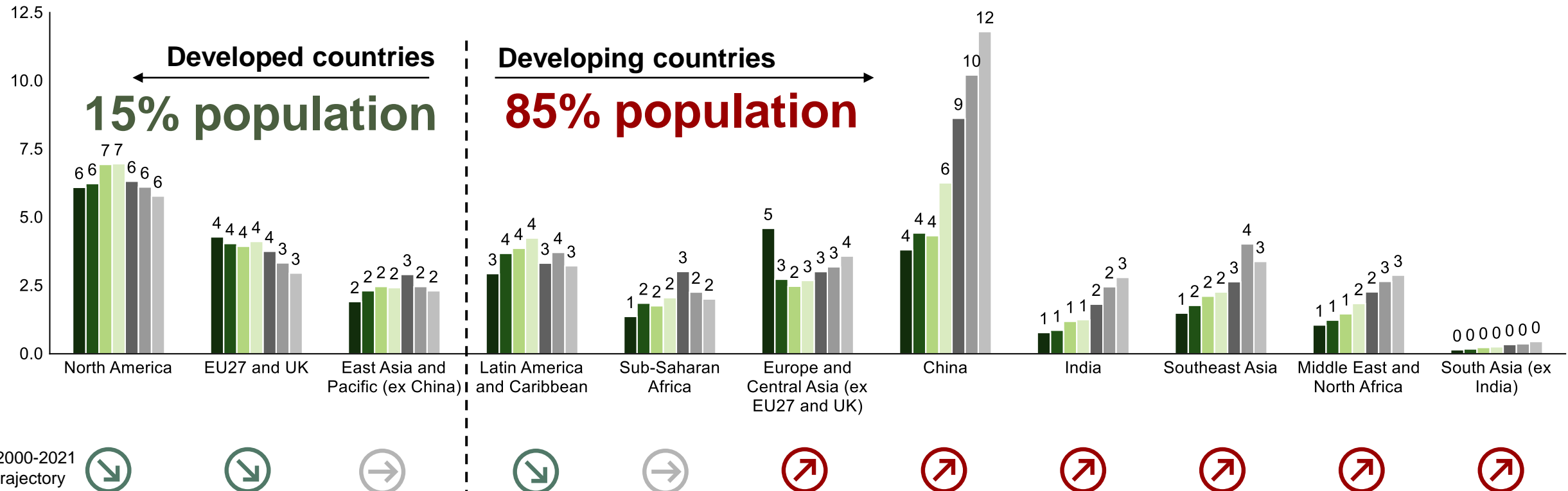**Global greenhouse gas emissions**

(measured in billions of tons of CO_2-equivalent)

Bar chart values:
- Current annual emissions: **51**
- Limit warming to 1.5°C: **9** (↓ **80-90%**)
- Limit warming to 2°C: **21** (↓ **60-70%**)

Y-axis: 0, 20, 40, 60

X-axis groupings:
- **Current** — Current annual emissions
- **2050: IPCC Scenarios (AR6)** — Limit warming to 1.5°C, Limit warming to 2°C

Note: 1.5°C scenario refers to "Limit warming to 1.5 ° C (>50%) with no or limited overshoot" scenario in IPCC; 2 ° C scenario refers to "Limit warming to 2 ° C (>67%)" scenario. ">50%" and ">67%" refer to probability of reaching scenario should emissions reduction targets be reached. Source: IPCC, Sixth Assessment Report (AR6), Climate Change 2022: Mitigation of Climate Change – Summary for Policymakers, Table SPM.1 (2022); Climate Action Tracker (updated Nov 2021); Our World in Data

A Two-Track World on Emissions

Annual CO_2 emissions by country or region[1]
(measured in billions of tons of CO_2)

Legend: 1990 | 1995 | 2000 | 2005 | 2010 | 2015 | 2021

Developed countries — **15% population**

Developing countries — **85% population**

2000-2021 trajectory

Categories (left to right): North America | EU27 and UK | East Asia and Pacific (ex China) | Latin America and Caribbean | Sub-Saharan Africa | Europe and Central Asia (ex EU27 and UK) | China | India | Southeast Asia | Middle East and North Africa | South Asia (ex India)

Note: (1) Emissions are production-based and include emissions from energy and land-use change
Source: Bain & Company analysis; Our World in Data; Global Carbon Project

Transitions Take Decades

Years until supplying 25% of global primary energy supply

(share of global primary energy supply)

1840

1915

1930
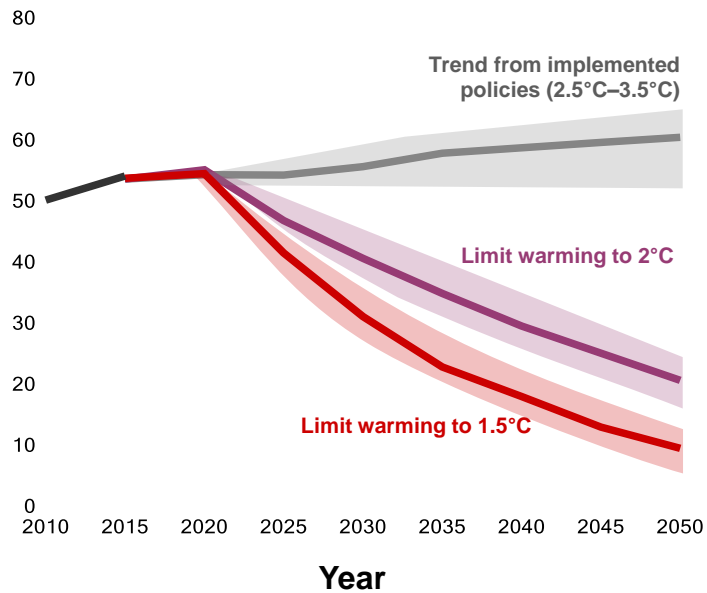
2015

Coal

Crude oil

Natural gas

Wind & solar
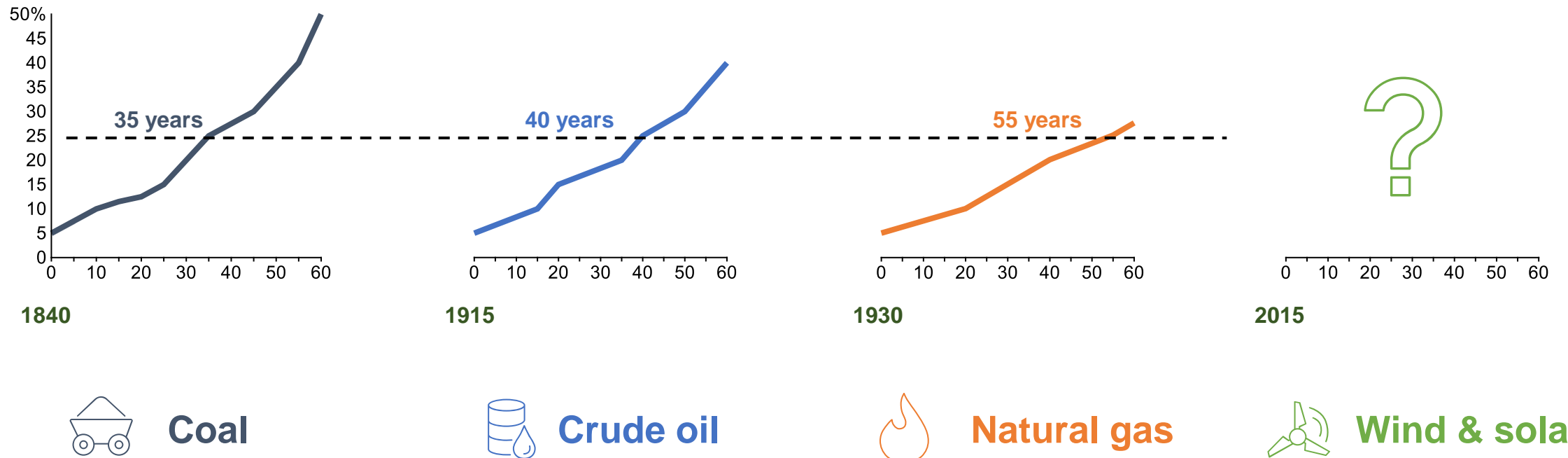
Note: Based on time from 5% to 25% of global energy supply
Source: Vaclav Smil, *Energy Transitions: Global and National Perspectives* (2017)

The Core of the Dual Challenge

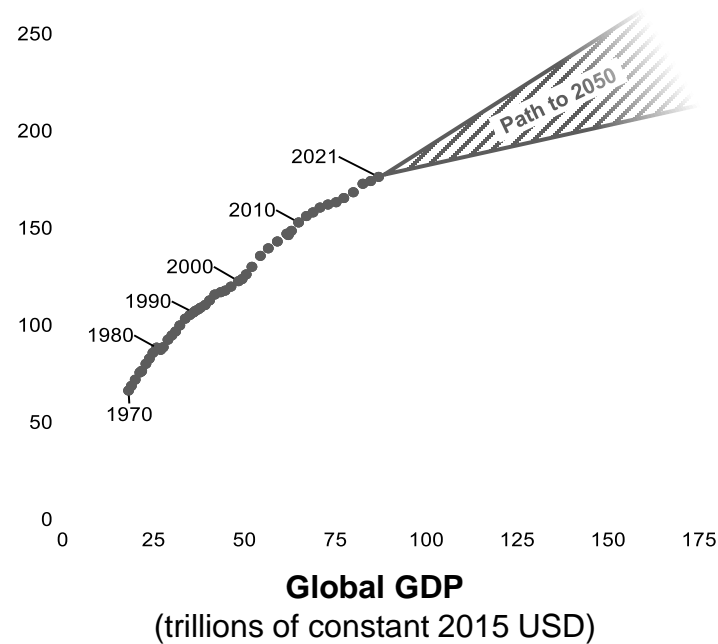## Emissions Must Decline ▶ Energy Will Grow ▶ The Dual Challenge

Global annual greenhouse gas emissions
(gigatons of CO_2-equivalent)

Trend from implemented policies (2.5°C–3.5°C)

Limit warming to 2°C

Limit warming to 1.5°C

Year

Global primary energy demand
(petawatt-hours)

Path to 2050

2021
2010
2000
1990
1980
1970

Global GDP
(trillions of constant 2015 USD)

Global primary energy demand
(petawatt-hours)

Path to 2050

2021
2010
2000
1990
1980
1970

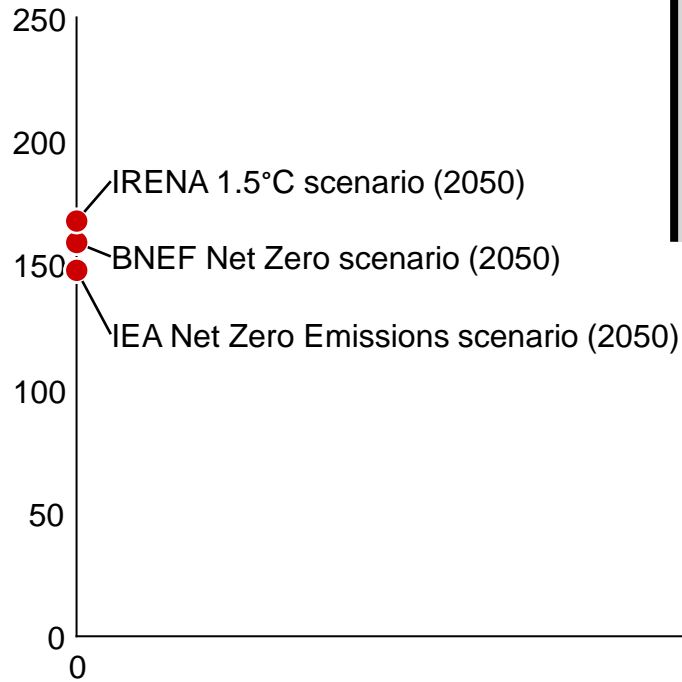**Global CO_2 emissions**
(gigatons)

Note: Warming figures in left-side emissions chart are relative to the preindustrial period and reflect projected warming level by 2100 in each scenario; bold lines in emissions chart represent median estimate, and shaded regions reflect a range from the 25th to 75th percentile. Emissions in right-side chart reflect global CO_2 emissions inclusive of land use change and exclude non-CO_2 emissions like methane.
Sources: IPCC, Sixth Assessment Report; World Bank; Global Carbon Project; BP Statistical Review of World Energy, 2022; Bain & Company analysis

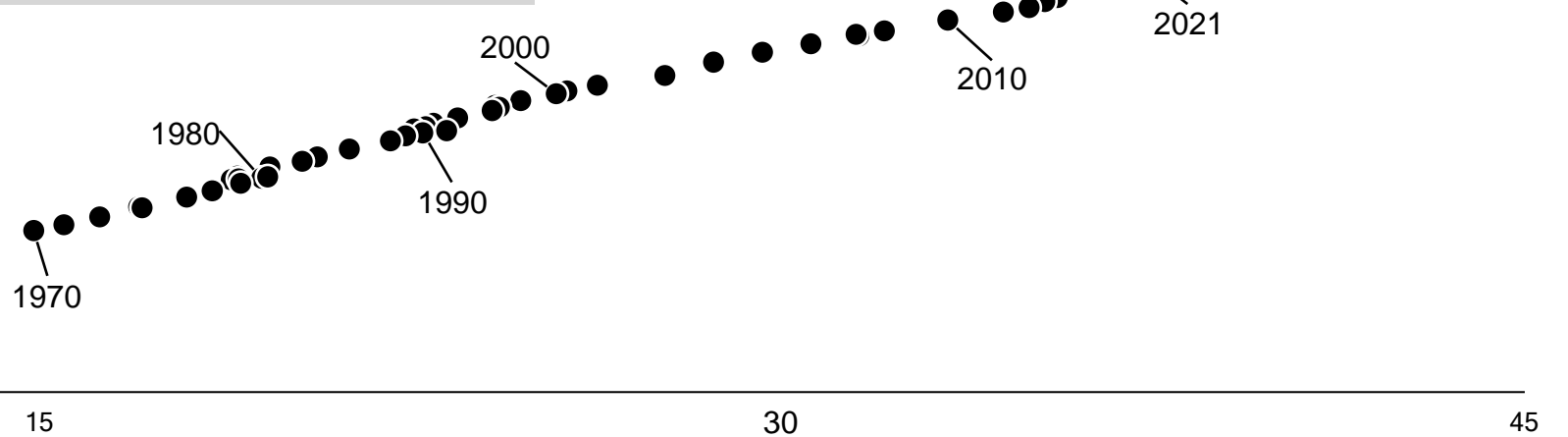# The Line?   Needs to Bend… Quickly!

THE DUAL CHALLENGE

Global primary energy demand
(petawatt-hours)

Demographic and economic backdrop for 2021-2050 period	
1.7B	projected population growth[2]
>2X	projected real GDP growth, or 2.8% p.a.[3]

IRENA 1.5°C scenario (2050)

BNEF Net Zero scenario (2050)

IEA Net Zero Emissions scenario (2050)

2000

1980

1990

2010

2021

1970

GLOBAL CO₂ EMISSIONS[1]

(gigatons of CO_2)

(Scatter plot: y-axis "Global primary energy demand (petawatt-hours)" from 0 to 250; x-axis "Global CO₂ Emissions" from 0 to 45. Red points near x=0 labeled IRENA 1.5°C, BNEF Net Zero, IEA Net Zero scenarios; black points trending upward from 1970 to 2021.)

Note: (1) CO₂ emissions exclude land use change and exclude non-CO₂ emissions like methane; (2) UN median fertility scenario; (3) GDP expressed in 2021 USD in purchasing power parity terms via IEA; (4) IEA STEPS scenario temperature estimate range reflects 33-67% confidence interval. Source: IEA; BP Statistical Review of World Energy, 2022; BNEF; IRENA; Resources for the Future

OpenMinds

Our Solutions Approach

SOLUTIONS

1 **Where are emissions coming from?**

Understand energy sources, consumption patterns, and emissions to spot crucial action areas

2 **What are the tradeoffs of each solution?**

Identify and systematically evaluate a long list of potential technical solutions

3 **What is the most efficient pathway?**

Identify the solutions with the highest potential for impact through 203X

4 **How do we drive impact globally?**

Assess solution feasibility at a country-level, based on varying resources and priorities, to calibrate deployment rates

Accelerate progress against the Dual Challenge by 203X

Analysis of Emissions and Energy Consumption

Energy and Emissions

By source \ By end use	Industry — Iron/steel, (petro)chemical, machinery, construction, etc.			Transport — Road, aviation rail and pipeline			Buildings — Residencial and commercial buildings			Agriculture — Agriculture and fishing			Other — Non-specified and non-energy sources			Total	
	Energy	Emission	En/Em	Energy	Emission	En/Em	Energy	Emission	En/Em	Energy	Emission	En/Em	Energy	Emission	En/Em	Energy	Emission
ENERGY																	
Electricity/heat	**18%**	**12%**	-	**<1%**	**0%**	-	**20%**	**12%**	-	**1%**	**1%**	-	**2%[1]**	**7%[2]**	-	**42%**	**32%**
Coal	8%	8%	● (low)	<1%	0%	● (low)	9%	8%	● (low)	<1%	<1%	● (low)	<1%	5%	● (low)	18%	21%
Oil products and oil	<1%	<1%	● (mod)	-	-	-	<1%	<1%	● (mod)	-	-	-	-	-	-	<1%	1%
Natural gas	4%	3%	● (mod)	-	-	-	5%	3%	● (mod)	-	-	-	<1%	1%	● (mod)	10%	7%
Bio/waste[6]	<1%	<1%	● (low)	-	-	-	1%	<1%	● (low)	-	-	-	-	-	-	2%	2%
Nuclear	3%	<1%	● (mod)	-	-	-	3%	<1%	● (high)	-	-	-	-	-	-	6%	<1%
Renewables[7]	2%	<1%	● (mod)	-	-	-	2%	<1%	● (high)	-	-	-	<1%	<1%	● (high)	5%	<1%
Direct combustion	**14%**	**13%**	-	**22%**	**17%**	-	**14%**	**6%**	-	**<1%**	**<1%**	-	**8%[3]**	**7%[4]**	-	**58%**	**44%**
Coal	6%	6%	● (low)	-	-	-	1%	<1%	● (mod)	-	-	-	<1%	1%	● (low)	7%	7%
Oil products and oil	2%	2%	● (low)	20%	16%	● (mod)	2%	1%	● (mod)	<1%	<1%	● (low)	6%	5%	● (mod)	31%	24%
Natural gas	5%	3%	● (mod)	<1%	<1%	● (low)	5%	2%	● (mod)	-	-	-	1%	1%	● (low)	12%	6%
Bio/waste	1%	2%	● (low)	<1%	1%	● (low)	6%	3%	● (mod)	-	-	-	-	-	-	8%	6%
NON-ENERGY																	
Industrial processes	-	6%	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-	N/A	N/A	6%
Agriculture	-	-	N/A	-	-	N/A	-	-	N/A	-	12%	N/A	-	-	N/A	N/A	12%
Other	-	-	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	7%[5]	N/A	N/A	7%
Total	**32%**	**31%**		**22%**	**17%**		**34%**	**18%**		**2%**	**13%**		**10%**	**21%**		**100%**	**100%**

Key impact areas

- **A** — **Electricity** generation from **fossil fuels**
- **B** — Oil and oil products for **transportation**
- **C** — Energy usage in **buildings**
- **D** — **Fugitive emissions**
- **E** — **Industrial processes**
- **F** — **Energy supply needs to expand in a lower carbon manner to support economic growth in the developing world**
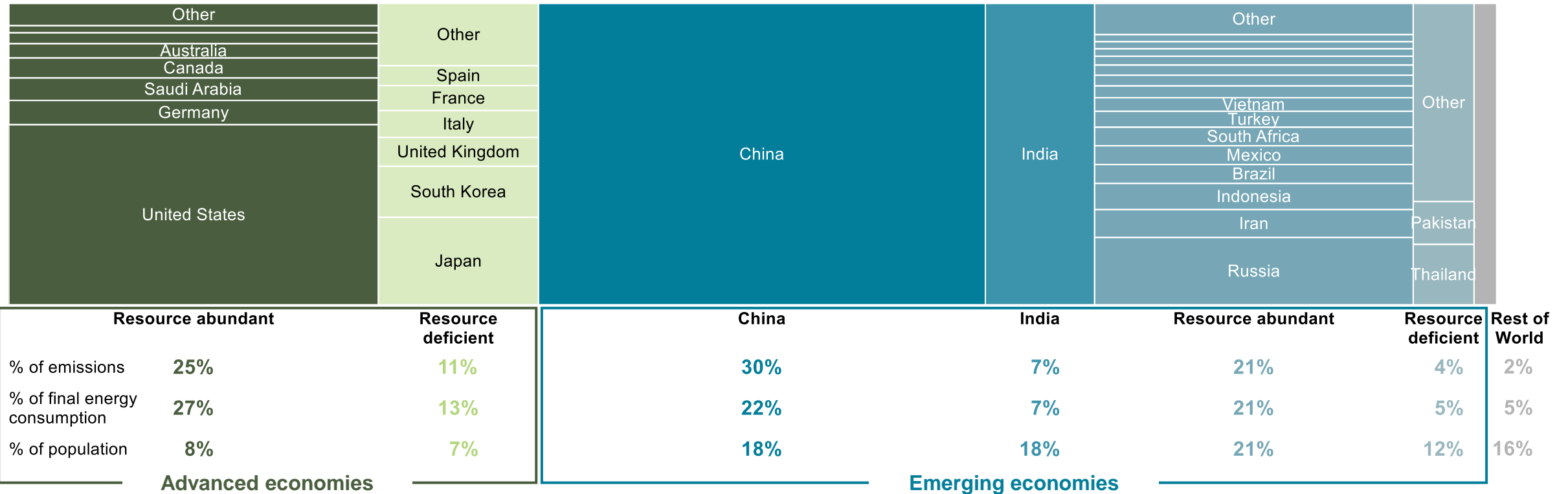
Legend:
- ☐ Key impact areas
- ● High Energy/Emissions ratio
- ● Moderate Energy/Emissions ratio
- ● Low Energy/Emissions ratio

Note: Data reflected above is for 2019. Energy data reflects primary energy and emissions data reflects greenhouse gas emissions in terms of CO_2 equivalent. 1: Electricity/heat going to non-specified and non-energy uses, 2: Unallocated fuel combustion for electricity, 3: Energy going to non-specified and non-energy uses, 4: Emissions from energy production and fugitive emissions, 5: Emissions from LUCF and food waste (6%), 6: Includes traditional biomass and animal materials/waste 7: Includes geothermal, solar/tide/wind, and hydro, CO_2 equivalent includes methane and nitrous oxide emissions. **Figures are directional.**
Sources: IEA, WRI, Climate Watch, German Environment Agency; EIA

Emissions and Energy Consumption by Country Archetype

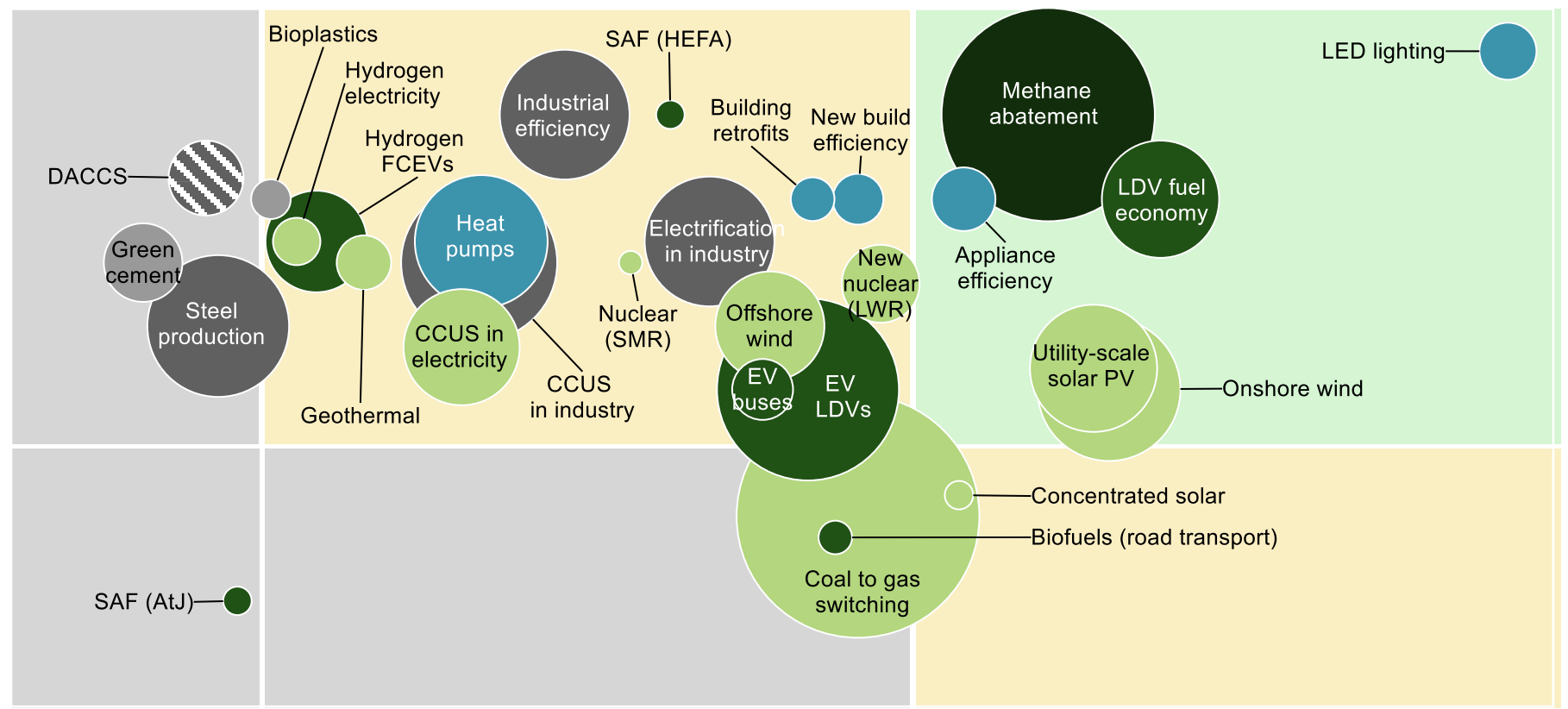**Total emissions by archetype**

Percent of CO_2 emissions – 2019

Other

Australia
Canada
Saudi Arabia
Germany

United States

Other

Spain

France

Italy

United Kingdom

South Korea

Japan

China

India

Other

Vietnam
Turkey
South Africa
Mexico
Brazil
Indonesia
Iran

Russia

Other

Pakistan

Thailand

	Resource abundant	Resource deficient	China	India	Resource abundant	Resource deficient	Rest of World
% of emissions	25%	11%	30%	7%	21%	4%	2%
% of final energy consumption	27%	13%	22%	7%	21%	5%	5%
% of population	8%	7%	18%	18%	21%	12%	16%

Advanced economies

Emerging economies

Note: Countries are grouped into archetypes by level of development and resource abundance, CO_2 emissions includes land use, land use change and forestry and excludes non-CO2 emissions like methane
Source: Flourish, Global Carbon Atlas, OWID, IEA, EuroMonitor, EIA, World Bank

Prioritization of Potential Solutions

Note: Abatement potential refers to medium-term annual CO_2e emissions reduction; building efficiency and retrofits refers to insulation and HVAC only; DACCS abatement potential virtually infinite; industrial efficiency includes solutions such as waste to heat recovery; renewable solutions include battery component in cost and abatement potential; geothermal represents enhanced geothermal systems; assumes methane has global warming potential 30 times that of CO_2
Source: IEA; IRENA; Goldman Sachs; Project Drawdown; OpenMinds research and lit. scan

Our Top 10 Solutions

'Top 10' solutions

Prioritized set of solutions with high viability and sufficient technological and economic readiness to "bend the curve" by 203X

Big 4 opportunities

Abating methane emissions from energy	Renewables (i.e., solar and wind)	Coal-to-X switching	CCUS in electricity and industry
Transportation energy efficiency	Industrial efficiency and electrification	Electric LDVs	Heat pumps
		New and existing nuclear	Buildings efficiency

Other important solutions

Solutions that **may be critically important** but are assessed as having less overall impact potential by 203X relative to our list of 'top 10' solutions

Behavioral change	Adaptation		
Distributed generation	Green steel and cement	Nature-based solutions	Hydrogen
LED lighting	Direct air capture	Geothermal	Circular economy

We are considering whether and how to incorporate these more fully into our efforts

Impact of Implementing Key Solutions

/ PRELIMINARY

Projected emissions impact

Global annual net GHG emissions

GIGATONS OF CO_2E PER YEAR

FORECAST

65

60

55

50

2020   2025   2030   2035
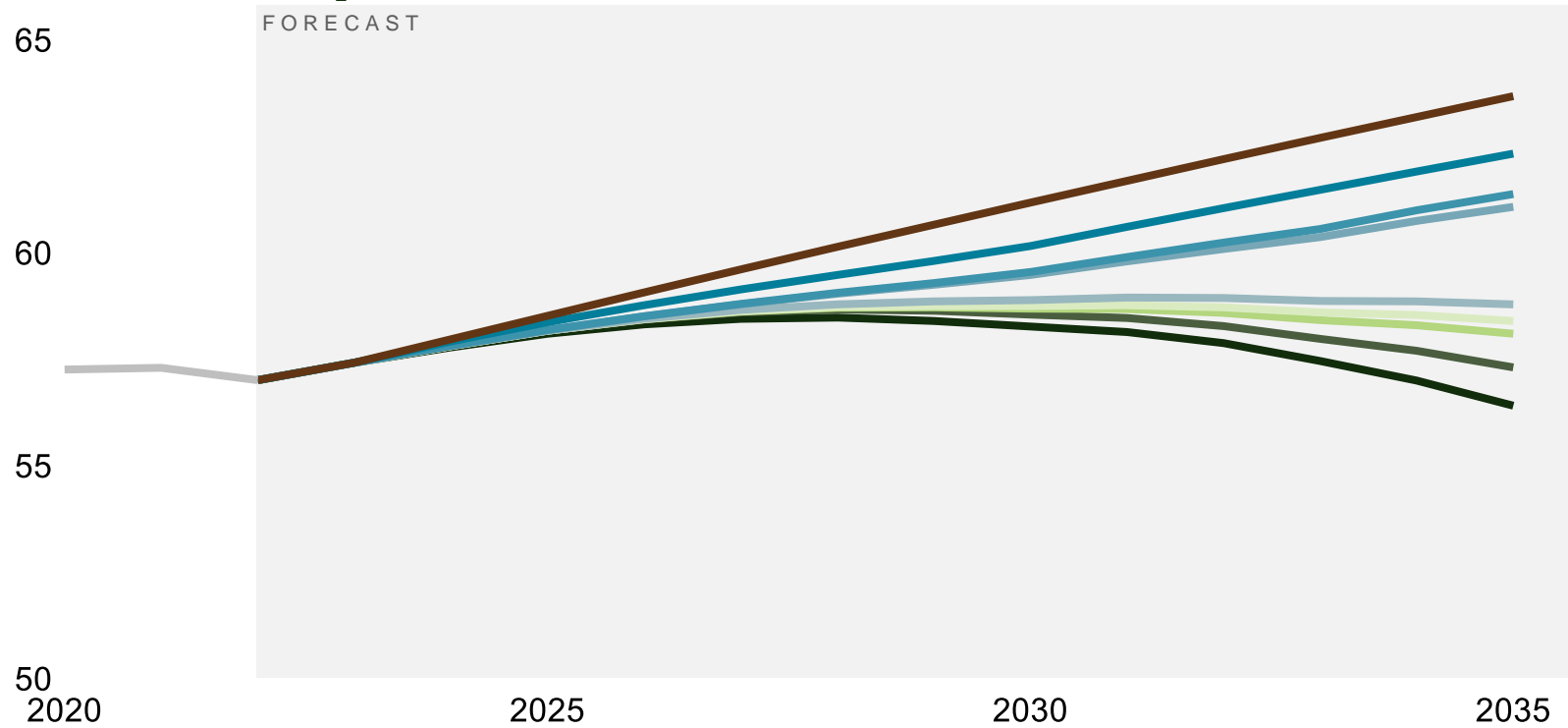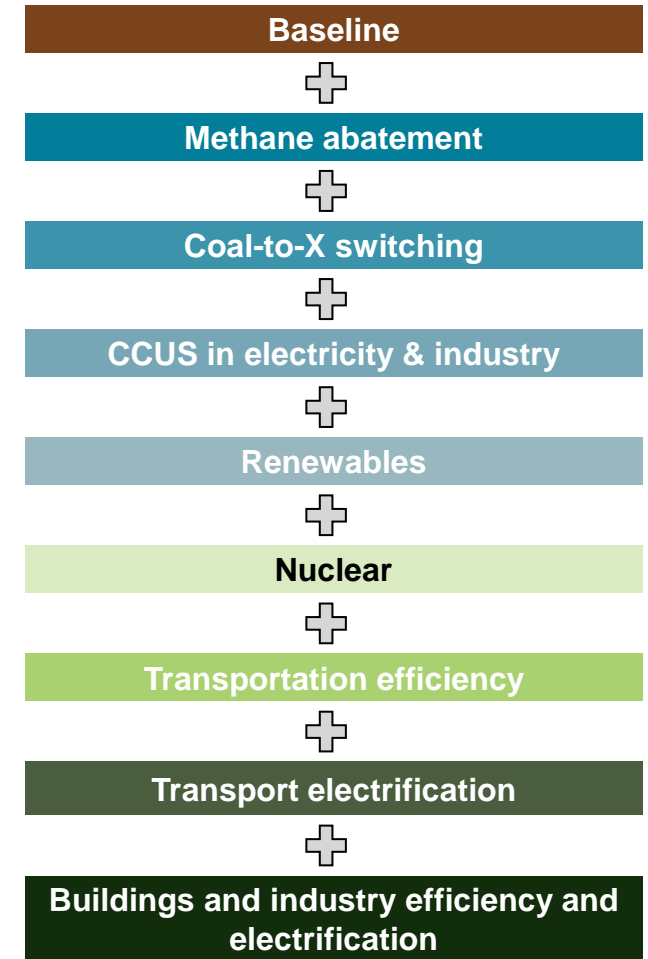
Source: Climate Interactive

Baseline

➕

Methane abatement

➕

Coal-to-X switching

➕

CCUS in electricity & industry

➕

Renewables

➕

Nuclear

➕

Transportation efficiency

➕

Transport electrification

➕

Buildings and industry efficiency and electrification

DISCUSSION AGENDA

01

An Introduction
to OpenMinds

02

Defining the
"Dual Challenge"

03

Confronting the
"Dual Challenge"

04

OpenMinds Strategy
and Path Forward

OpenMinds Strategy

Mission	**Less emissions. More energy. Accelerate progress against the Dual Challenge by 203X**
2035 Goals	**[10%] lower emissions, [10%] more energy against current baseline**
Ambition	**Activate OpenMinds' network of experts to drive collaboration and near-term impact on the Dual Challenge**

Where to Play
Areas of focus

- Early US focus; later expansion
- Initial objectives:
  - Decarbonize generation
  - Expand energy infrastructure
  - Enable future leaders

How to Win
Sources of advantage

- "Uncommon table" of top climate AND energy experts
- Non-partisan position/peer-review mechanism
- Data-driven model of "success for the US"
- Professional communications expertise
- Asset-light model, minimizing donor influence

Geographies

Phase 1 (2024-2027)   *Phase 2 (2027-2030)*   *Long-term (2030+)*

Accelerate progress in the US

EU / UK team

Asia / other team

OpenMinds

Phase 1 (2024-27): Address the Dual Challenge in the US

Impact Steering Committees

GENERATION

INFRASTRUCTURE

1 **Decarbonizing Generation**

Accelerate decarbonization while meeting rapidly growing power needs by advancing abundant, low-carbon firm power

2 **Connecting America**

Enable key decision-makers to rapidly expand infrastructure such as electric transmission

3 **Developing NextGen Leaders**

Empower the next generation of climate and energy leaders by identifying, equipping, and connecting them with expertise and resources to succeed

4 **Communicating to Accelerate Impact**

Build the OpenMinds brand and provide balanced and compelling communication resources and tools

OpenMinds

① Decarbonizing Generation

Mission

ENABLE key players **TO** accelerate decarbonization of power generation **BY** deploying innovative, fit-for-purpose approaches to identify and overcome current hurdles

2024 Objectives

- Aggregate generation planning scenarios to identify critical assumptions; challenge these with transparent scenarios for a range of outcomes; and quantify the value of key collaboration opportunities

- Accelerate deployment of identified opportunities (e.g., CCUS, methane abatement, scaled renewables) to advance abundant, low-carbon firm power in key regions, technologies, and supply chains in the US, initiating work on 1-2 opportunities where bottlenecks are inadequately addressed

Steering Committee

Steve Lockard
Chairman
TPI Composites

Kurt Waltzer
Principal
Energy Systems
Innovation
Consulting

Co-leaders

Dr. Doug Arent
Executive Director,
Strategic PPPs
NREL

Thad Hill
CEO
Calpine

Stan Miranda
Founder & Chairman
Partners Capital

Jessica Uhl
President
GE Vernova

Myrtle Dawes
CEO
Net Zero
Technology Centre

Mateo Jamarillo
CEO
Form Energy

Dr. Jonas Peters
Director
Resnick Sust.
Institute, Caltech

Jason Wells
CEO
CenterPoint Energy

Michael DeBock
VP of Origination
NextEra Energy

Thomas McAndrew
Founder & CEO
Enchanted Rock

Heather Redman
Co-Founder &
Managing Partner
Flying Fish Partners

Darryl Willis
Corporate VP of Energy
& Resources Industry
Microsoft

Jon Goldberg
Founder & CEO
Carbon Direct
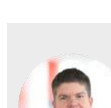
Grant Dougans
Partner
Bain & Company

Preston Henske
Partner
Bain & Company

Bain leads

Erika Serow
Partner and CMO
Bain & Company

Rob Shepardson
Founding Partner
SS+K

Communications map

(2) **Connecting America**

Mission

ENABLE key decision makers **TO** accelerate the development of infrastructure such as electric transmission in the US **BY** shaping key stakeholders' and the public's understanding through non-partisan, data-based insights and messaging

2024 Objectives

- Shape US dialogue on infrastructure beginning with electric transmission through **non-partisan, data-based, easy-to-understand perspectives**
- Provide relevant insights to **policy makers on federal, regional, and state levels**
- Identify and communicate **community engagement best practices** to help de-bottleneck projects

Steering Committee

Larry Selzer
President & CEO
The Conservation Fund

Scott Brown
Chairman
New Energy Capital Partners

Co-leaders

John Arnold
Co-Founder, Arnold Ventures
Board Member, Meta

Jayshree Desai
CFO
Quanta Services, Inc.

Joe Kennedy
President
Citizens Energy

Al Vickers
COO
Grid United

Armond Cohen
Executive Director
Clean Air Task Force

Bob Flexon
Chair, PG&E
Director, ERCOT

Miguel Prado
CEO
EnergyRe

Daniel Weiss
Co-Founder & Managing Partner
Angeleno Group

Ted Craver
Board and advisory roles
Duke Energy, Bain & Co, Wells Fargo, Blackstone

Vicki Hollub
President and CEO
Oxy

Dan Tishman
Chairman & Principal
Tishman Realty & Construction

Michael Short
Partner
Bain & Company

Cate Hight
Partner
Bain & Company

Bain leads

Jeff Katz
Co-Founder
OpenMinds

Communications map

OpenMinds

3

Developing NextGen Leaders

Mission

ENABLE the next generation of climate and energy leaders **TO** confront the Dual Challenge **BY** identifying, equipping, and connecting them with expertise and resources to succeed

2024 Objectives

- Launch first **cohort of the NextGen program**, including first round of **student-led impact projects**

- Build the foundation to **expand and sustain the NextGen program** over time

Steering Committee

Dr. Minoo Rathnasabapathy
Program Lead
Future Worlds, MIT Media Lab

Dr. Naomi Boness
Managing Director Stanford Natural Gas and Hydrogen Initiatives

Dr. Robert Johnston
Executive Director CGEP, Columbia University
Co-leaders

Dr. Neil Fromer
Executive Director Resnick Sustainability Institute, California Institute of Technology

Dr. Shannon Miller
Founder & CEO Mainspring Energy

Dr. Cyrus Wadia
CEO
Activate

Phoebe Ho-Stone
CCS Development Planner, ExxonMobil Low Carbon Solutions

David Pruner
Executive Director TEX-E

Dr. Mike Witt
Chief Sustainability Officer Northrop Grumman

Ira Joseph
Global Fellow CGEP, Columbia University

Ben Soltoff
Entrepreneur in Residence MIT's Martin Trust Center for Entrepreneurship

Dianne Ledingham
Advisory Partner Bain & Company

Bain lead

Sam Hall
MBA Candidate MIT

Daniela Marin
PhD Candidate Stanford University

Student representatives

Brady Walkinshaw
CEO
Earth Alliance

Communications map

2024 NextGen Cohort

Frank Agwuncha
Columbia University
Masters – Sustainability management

Ines Azoy-Parravano
University of Michigan
Bachelors – Computer science

Sam Hall
MIT
MBA – Energy & climate technology

Hillary McKenzie
University of Michigan
MBA/MS – Sustainability

Yogi Nishanth
Harvard University
Masters – Sustainability ALM

Cameron Andrews
University of Texas
MPA – Policy

David Brown
MIT
MBA – Entrepreneurship

Tam Kemabonta
Arizona State University
PhD – Sustainable energy

Hannah Mae Merten
Harvard University
MBA/Masters – Public policy

Oyindamola Pedro
MIT
MBA – Sustainable fuels

Edward Apraku
Stanford University
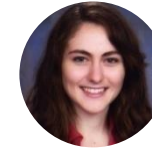PhD – Environmental engineering

Dennis Cha
Harvard University
MBA – Energy transport

Vivek Kesireddy
Texas A&M
PhD – Petroleum engineering

Hannah Murdoch
Stanford University
MBA/MS – Environment & resources

Kimberly Sinclair
University of Washington
PhD – Earth and space sciences & astrobiology

Ainee Athar
Stanford University
MBA/MSc – Environmental resources

Anita Chandrahas
Harvard University
Post-doctoral fellowship – Biomedical science

César Lasalde-Ramírez
Caltech
PhD – Energy storage

Kristina Nabayan
Columbia University
PhD – Materials science & engineering

Amanda Studebaker
Stanford University
MBA/MS – Environment & resources

Thaissa Avena da Cruz Antunes
Columbia University
MPA – Development practice

Debjyoti Chatterjee
UT Austin
PhD – Electrical & computer engineering

Daniela Marin
Stanford
PhD – Chemical engineering

Ian Naccarella
Harvard University
MBA – Electric vehicles

Andrew van Baal
University of Michigan
MS – Sustainable systems

Victor Awosiji
Stanford University
PhD - Earth & planetary sciences

Isabelle Dunning
Columbia University
MS – Sustainability management

Karina Masalkovaite
Stanford University
PhD – Materials science & engineering

Bianca Derya Neumann
University of Potsdam
MA – Political science, environmental policy

Yingxiao Zhang
University of Michigan
PhD – Climate sciences & engineering

OpenMinds

4

Communicating to Accelerate Impact

Mission

Formulate an OpenMinds model, state-of-the-art Comms team, toolkit, and tactics to build the OpenMinds brand (i.e., leader in analytics, collaborative problem solving, implementation for impact, etc.) and be a key voice/source for content for our audience

2024 Objectives

- Improve the website to improve "salience" and visitor-growth, and build our toolkit (i.e., brand guideline, content packages, etc.)
- Define and convey to OpenMinds participants who our audience is and the key channels we will reach them through
- Create wireframes of "playbooks" to be used by other SteerCo's to communicate their impact with internal and external stakeholders

Steering Committee

Jeff Katz
Co-Founder
OpenMinds

Rob Shepardson
Founding Partner
SS+K

Nate Nickerson
Comms and Public
Affairs Partner
DCVC

Co-leaders

Bridgitt Arnold
Vice President of
Communications
Google

Brady Walkinshaw
CEO
Earth Alliance

Rachael Porter
CMO
Oxy

Dr. Maya Tolstoy
Dean of UW College of
the Environment

Erika Serow
Partner and CMO
Bain & Company

Bain lead

We look forward to staying in touch!

Learn more about OpenMinds, the Dual Challenge, and our Top 10 solutions

OpenMinds

David Baldwin
Co-founder, OpenMinds
dbaldwin@scfpartners.com

Jeff Katz
Co-founder, OpenMinds
jgkatz@me.com

https://openminds203x.org/

OpenMinds

OpenMinds

Solving for the
Dual Challenge.