

# **“5 minutes for my book”**

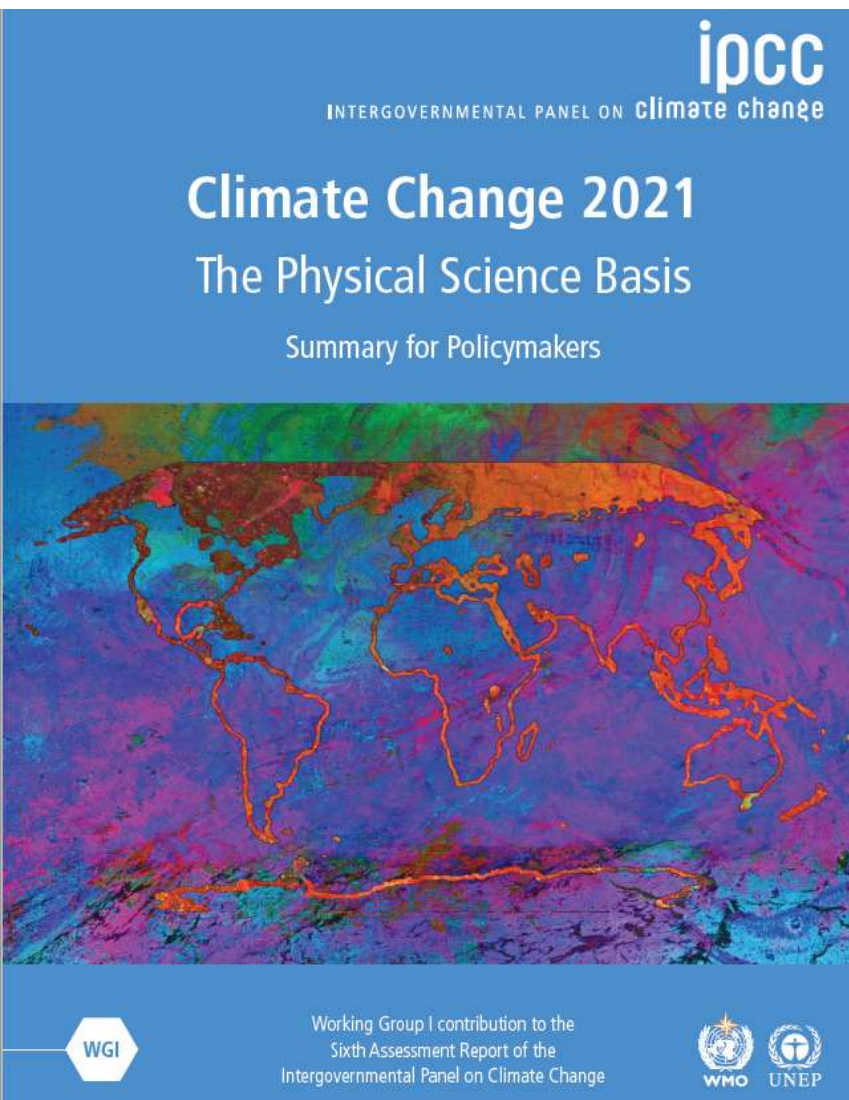


[@weeneekoess](#)

[Werner Koessler | LinkedIn](#)

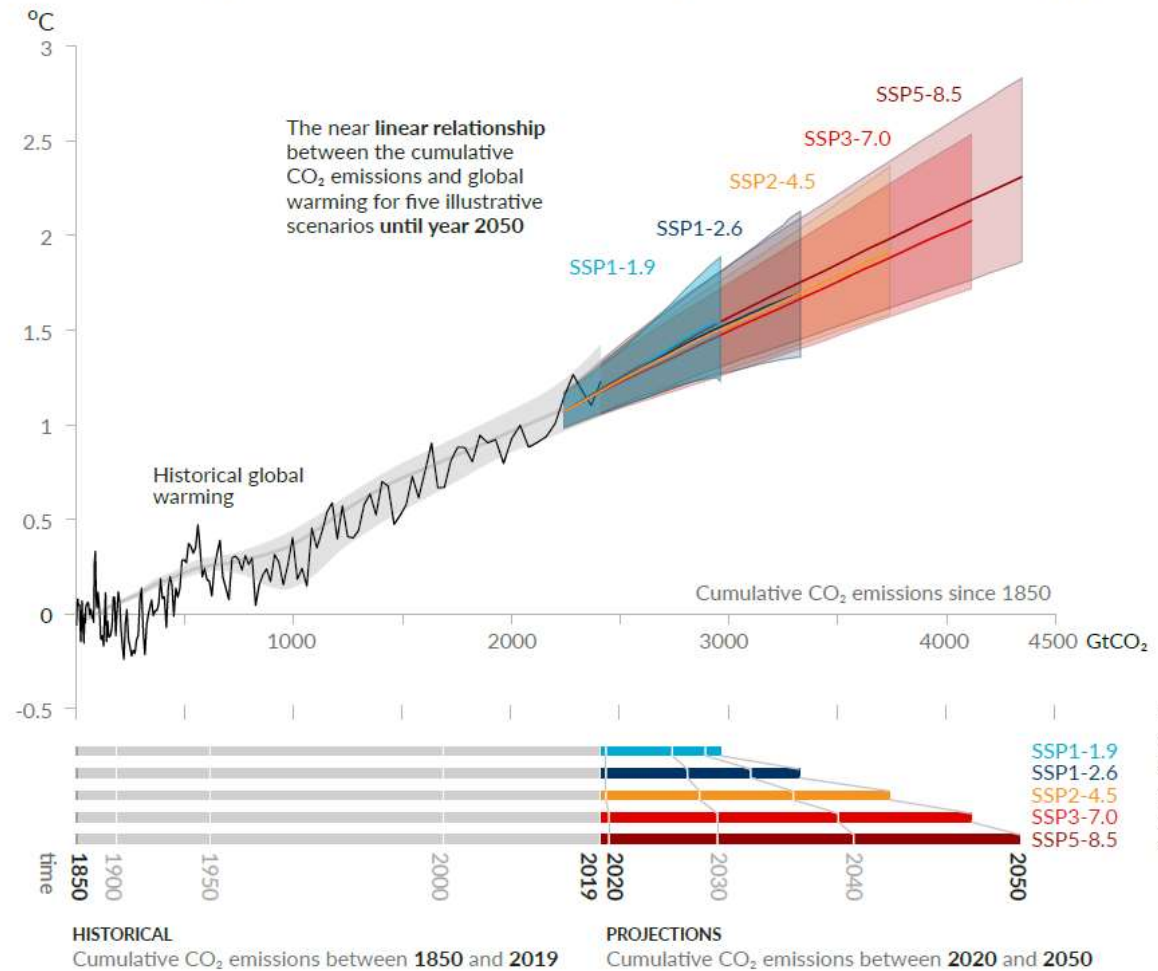
[koessler-sustainability-consulting](#)





## Every tonne of CO<sub>2</sub> emissions adds to global warming

Global surface temperature increase since 1850-1900 (°C) as a function of cumulative CO<sub>2</sub> emissions (GtCO<sub>2</sub>)



SWAROVSKI



# Energy efficiency in buildings



**Collectively, buildings in the EU are responsible for 40% of energy consumption and 36% of greenhouse gas emissions, which mainly stem from construction, usage, renovation and demolition.**

# Renovating buildings for greener lifestyles

---



Renovating our homes and buildings will save energy, protect against extremes of heat or cold and tackle energy poverty.

The new Social Climate Fund will support EU citizens most affected or at risk of energy or mobility poverty. It will help mitigate the costs for those most exposed to changes, to ensure that the transition is fair and leaves no one behind.

It will provide EUR 72.2 billion over 7 years in funding for renovation of buildings, access to zero and low emission mobility, or even income support.

In addition to homes, public buildings must also be renovated to use more renewable energy, and to be more energy efficient.

The Commission proposes to:

- require Member States to renovate at least 3% of the total floor area of all public buildings annually
- set a benchmark of 49% of renewables in buildings by 2030
- require Member States to increase the use of renewable energy in heating and cooling by +1.1 percentage points each year, until 2030





**Concrete construction "offsets around one half" of emissions caused by cement industry says IPCC**

Nearly three-quarters of total global GHGs (73.2%) come from the energy sector (electricity, heat and transport)<sup>4</sup>.



# Cleaning our energy system

---



Reducing greenhouse gas emissions by at least 55% by 2030 requires higher shares of renewable energy and greater energy efficiency.

The Commission proposes to increase the binding target of renewable sources in the EU's energy mix to 40%. The proposals promote the uptake of renewable fuels, such as hydrogen in industry and transport, with additional targets.

In addition, reducing energy consumption is essential to bring down both emissions and energy costs for consumers and industry. The Commission proposes to increase energy efficiency targets at EU level and make them binding, to achieve by 2030 an overall reduction of 36-39% for final and primary energy consumption.

**40%**

new renewable energy target for 2030

**36-39%**

new 2030 energy efficiency targets for final and primary energy consumption



# Energy system of the future

## AVOID



**Efficiency increase**



**Technology shift**



**Fuel or power source switch**

## REUSE OR STORE



**Recycling and remanufacturing**



**Carbon capture and use or storage**

## OFFSET OR COMPENSATE



**Offsetting**

**1** Optimize logistics network to minimize distances traveled

**2** Optimize material handling through intermodal transportation

**3** Replace conventional fossil-energy-based power with renewables

**4** Deploy energy monitoring and a management system to reduce consumption

**5** Apply operational excellence levers to reduce scrap and other waste



**6** Establish a closed-loop system to recycle and reproduce parts and products

**7** Replace high-emission processes and technology with low-emission processes and technology

**8** Produce the equivalent of a new product by reusing parts from used and returned products (remanufacturing)

**9** Optimize the energy efficiency of equipment and buildings (including heat recovery)

**10** Replace truck transportation with rail or ship transportation

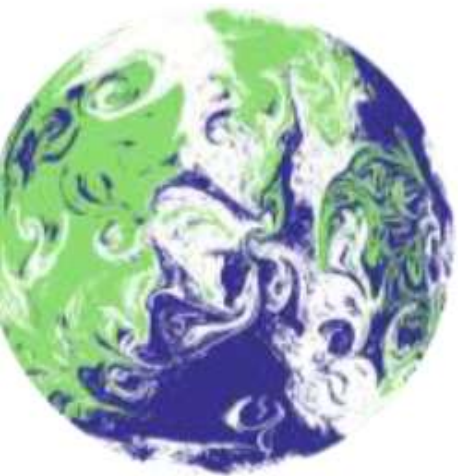
**14** Compensate for carbon emissions through offsetting measures such as reforestation

**13** Capture process-related carbon byproducts, and reuse them in chemical processes

**12** Use 3D printing to minimize material waste, packaging, and transport emissions

**11** Replace fossil-based fuels with biofuels, biomass, or other fuels





**UN CLIMATE  
CHANGE  
CONFERENCE  
UK 2021**

IN PARTNERSHIP WITH ITALY

# **Energy Transition Council – Summary Statement**

## **The Council agreed to explore specific opportunities for collaboration in areas including:**

- a) Making clean power technologies the preferred option for countries investing in new power generation, with the aim of doubling the rate of investment in clean power by 2030.
- b) Developing policy and regulatory frameworks to attract the private sector to help deliver and finance these investment needs.
- c) Supporting people and communities heavily reliant on the coal economy to make a secure and just transition to clean power and other economic opportunities, ensuring that no one is left behind.
- d) Enabling the delivery of SDG7, harnessing centralised and decentralised clean energy solutions to achieve universal access to sustainable, affordable, modern energy by 2030, increase energy efficiency, and maximise the wider development benefits of the energy transition.

# The impact of energy transition on industrial value chains

## Different view points: Transition and Dependency

### Transition is of interest because:

potential to avoid risks and cost implications of fossil fuel price fluctuations and regulatory changes; attract customers, partners, and employees interested in corporate responsibility; drive corporate growth by keeping pace with competitors.

### Improvement of supply chain by:

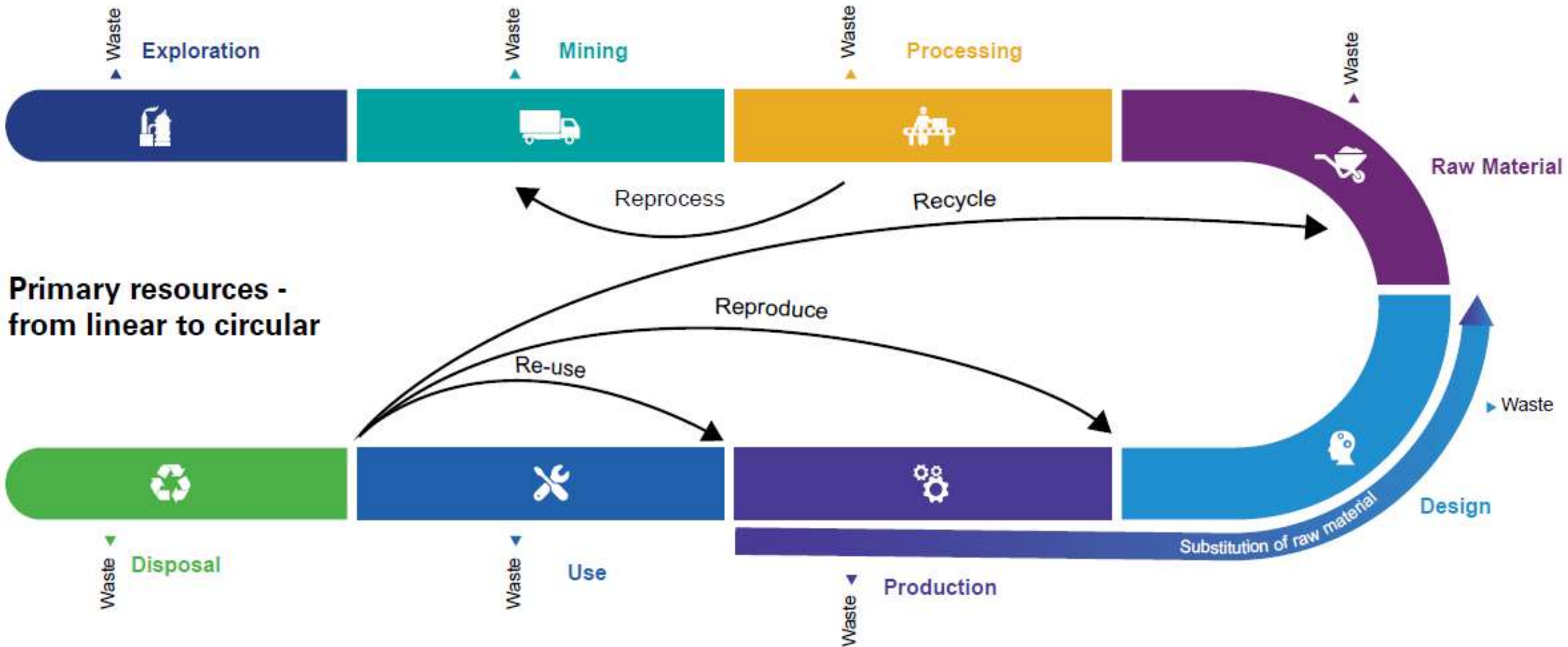
decreasing long-term costs, providing price stability, mitigating future regulatory risk, enhancing brand value, driving new revenue, and improving employee engagement.

### But opens another dependency:

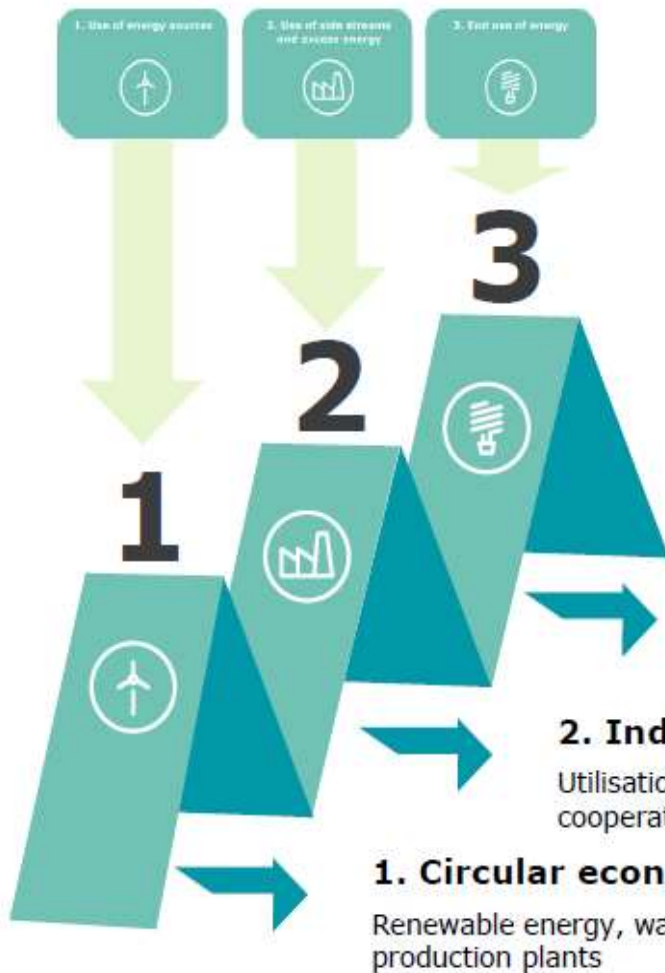
requires careful upfront feasibility assessment, based on availability of resources and infrastructure, investment strategy and financial return, and secondary considerations such as reputation enhancement



# Resource scarcity



# 3 Principles of CE in the energy industry



How is the energy system optimized from a circular economy perspective?

## Circular economy tactics of the energy industry

*Circular economy in the energy industry can be categorized into the circular economy of energy production, circular economy established through cooperation with other actors and circular economy of the customer interface.*

### 3. Circular economy in the customer interface

Demand response, two-way district heat, energy-as-a-service, energy efficiency of the end user

### 2. Industrial symbiosis and municipal-level circular economy cooperation

Utilisation of the energy industry's and other industries' excess energy and side streams, municipal and industrial cooperation

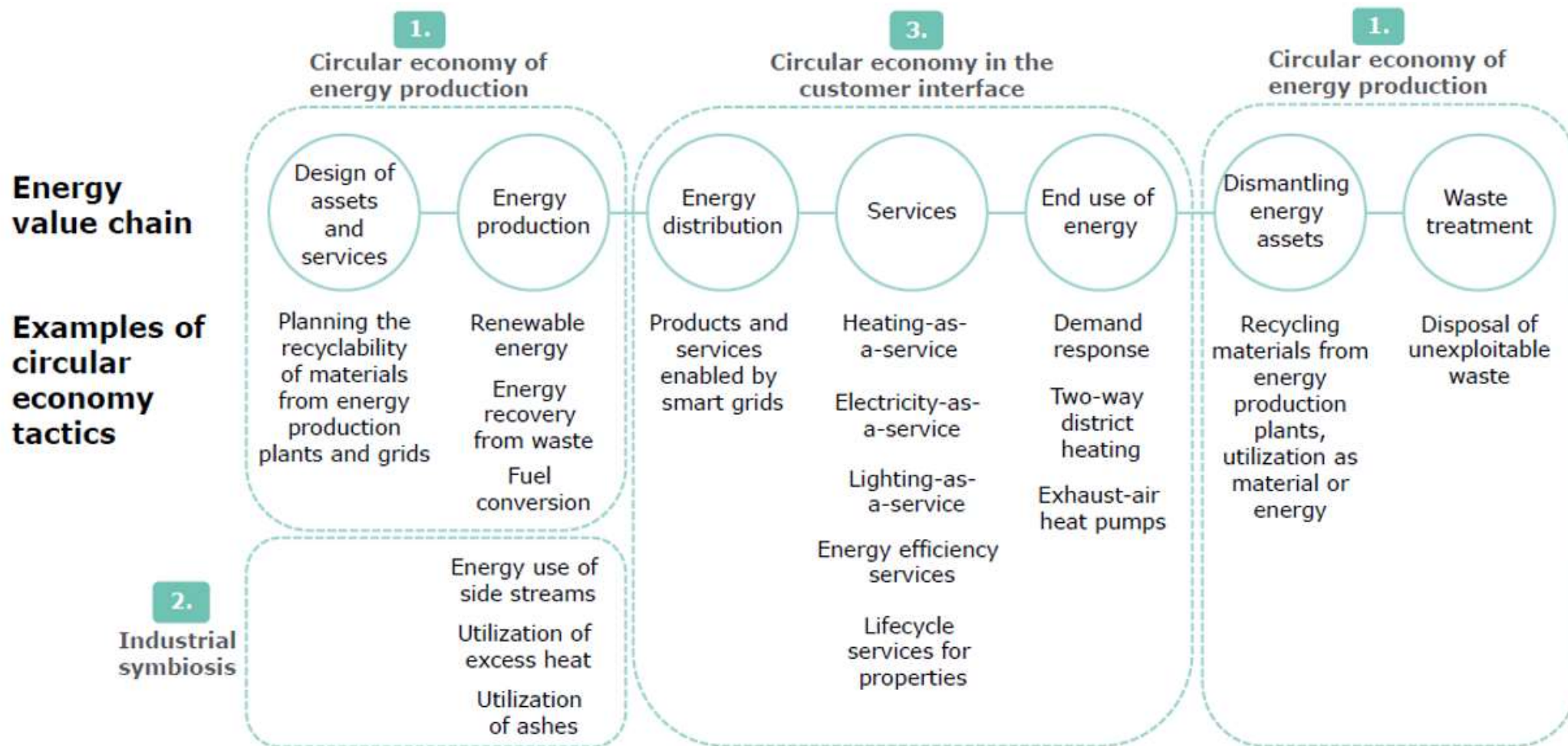
### 1. Circular economy of energy production

Renewable energy, waste-to-energy, fuel conversion, recycling the materials from energy production plants

SWAKOVOK



# Circular economy in the energy industry



Sources: Circular economy in the energy industry – Deloitte Oy for Finnish Energy  
 © 2018 Deloitte Oy, Group of Companies.

SWAROVSKI



HOW CAN WE BEGIN TO

**RETHINK**

INDUSTRY INTO ONE THAT IS  
RESTORATIVE AND REGENERATIVE?







**VACLAV  
SMIL**

“There is no author whose  
books I look forward to  
more than Vaclav Smil.”

—BILL GATES

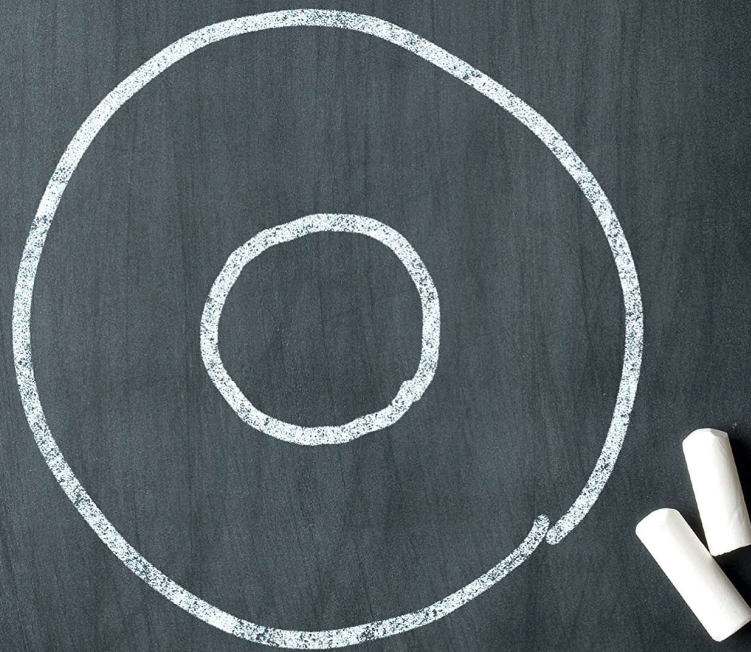
**GROWTH**

**FROM MICROORGANISMS TO MEGACITIES**



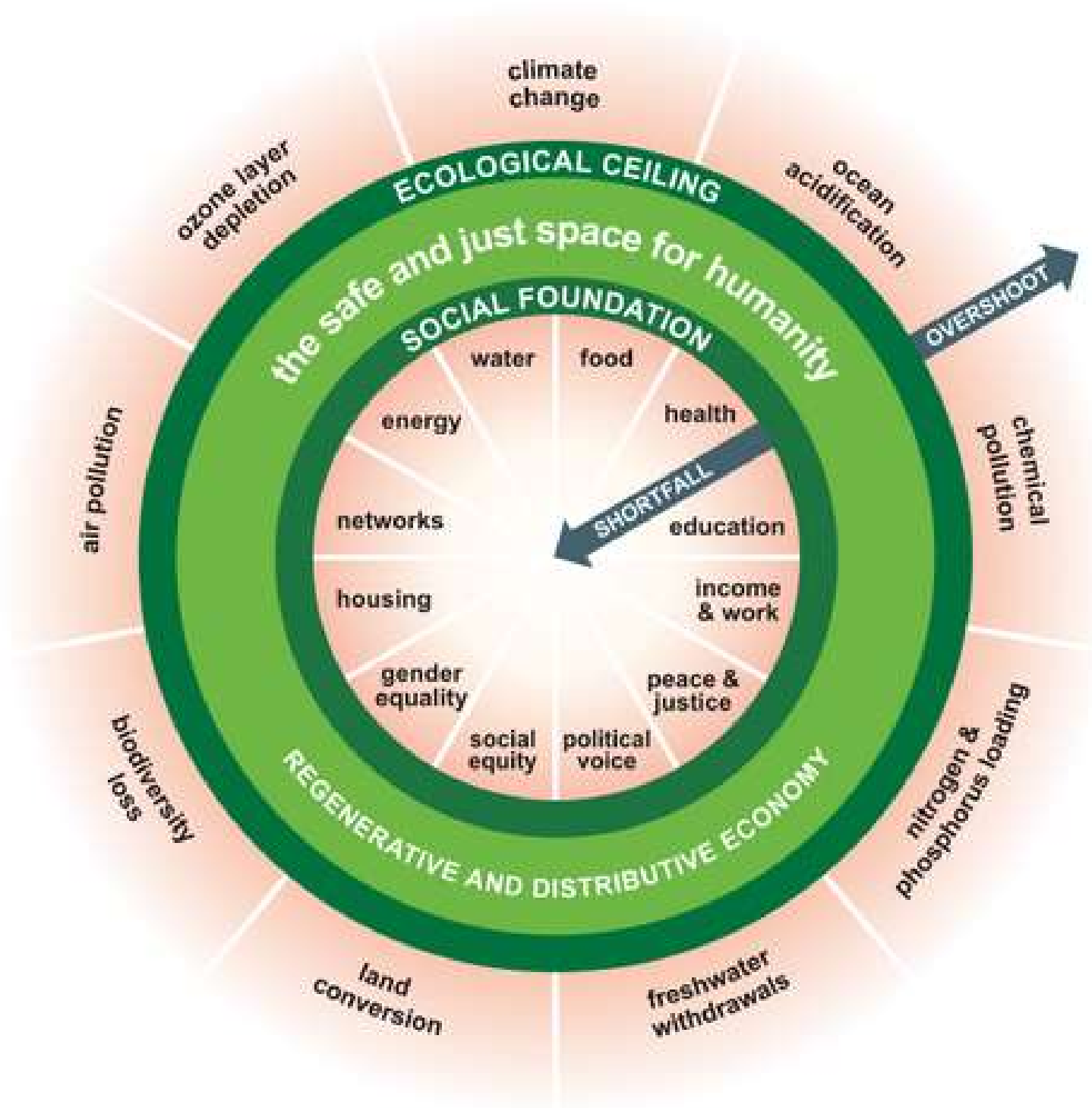
# DOUGHNUT ECONOMICS

Seven Ways to Think Like a  
21st-Century Economist



KATE RAWORTH

'I read this book with the excitement that the people of his  
day must have read John Maynard Keynes's *General Theory*.  
It is brilliant, thrilling and revolutionary.' George Monbiot





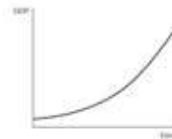
## Seven ways to think like a 21st century economist

### Seven Ways to Think:

### From 20th-Century Economics

### To 21st-Century Economics

#### 1. Change the Goal

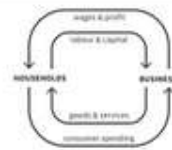


GDP



the Doughnut

#### 2. See the Big Picture



self-contained market



embedded economy

#### 3. Nurture Human Nature

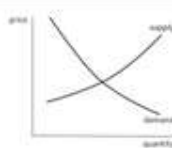


rational economic man

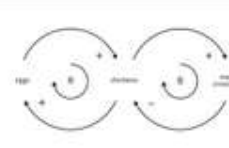


social adaptable humans

#### 4. Get Savvy with Systems



mechanical equilibrium

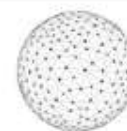


dynamic complexity

#### 5. Design to Distribute



growth will even it up again

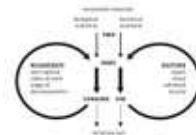


distributive by design

#### 6. Create to Regenerate



growth will clean it up again

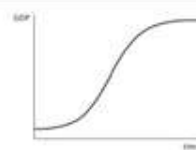


regenerative by design

#### 7. Be Agnostic about Growth



growth addicted



growth agnostic

THINKING,  
FAST AND SLOW



DANIEL  
KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS



GREEN

SWANS



THE COMING  
BOOM IN  
REGENERATIVE  
CAPITALISM

JOHN ELKINGTON

FOREWORD BY PAUL POLMAN

# BEYOND

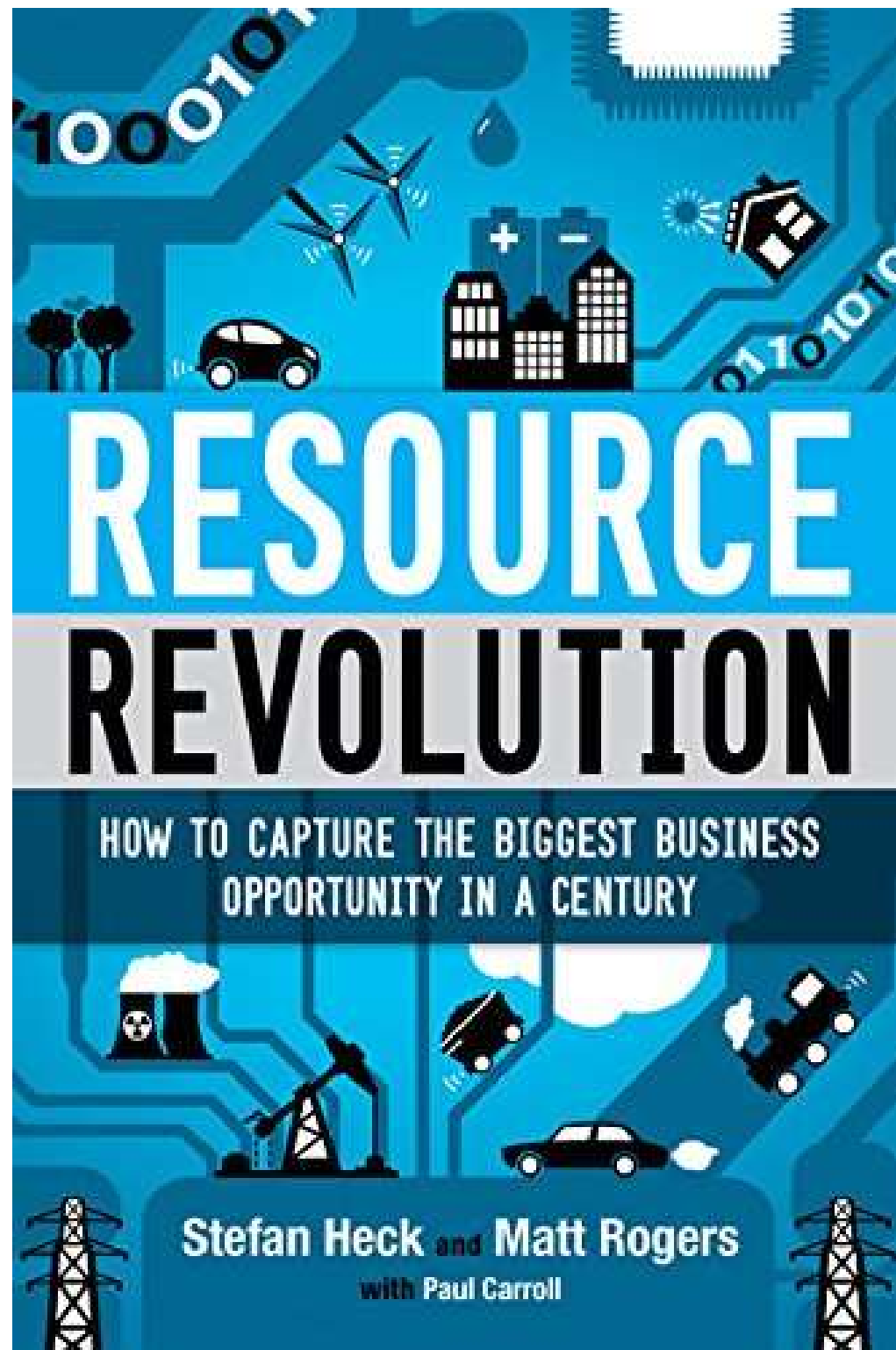
Nine Strategies *for* Thriving  
*in an* Era of Social Tension,  
Economic Nationalism,  
*and* Technological Revolution

---

Arindam Bhattacharya  
Nikolaus Lang • Jim Hemerling

# GREAT





# RESOURCE REVOLUTION

HOW TO CAPTURE THE BIGGEST BUSINESS  
OPPORTUNITY IN A CENTURY

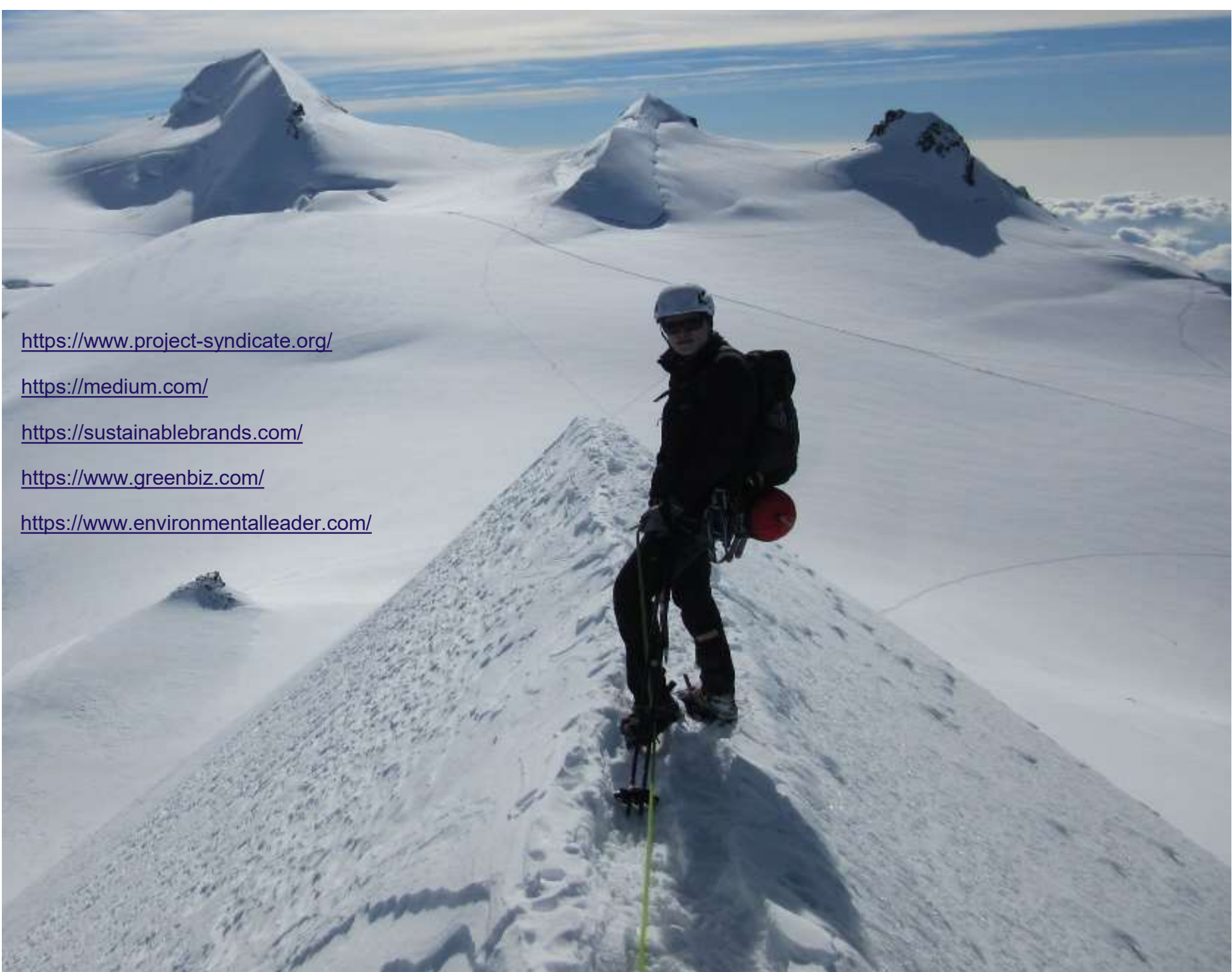
Stefan Heck and Matt Rogers  
with Paul Carroll

NEW YORK TIMES BESTSELLER

# DRAWDOWN

THE MOST COMPREHENSIVE  
PLAN EVER PROPOSED TO  
REVERSE GLOBAL WARMING  
EDITED BY PAUL HAWKEN





<https://www.project-syndicate.org/>

<https://medium.com/>

<https://sustainablebrands.com/>

<https://www.greenbiz.com/>

<https://www.environmentalleader.com/>