

Mobilizing a Sustainable Recovery: SDGs, EGD, Recovery Fund

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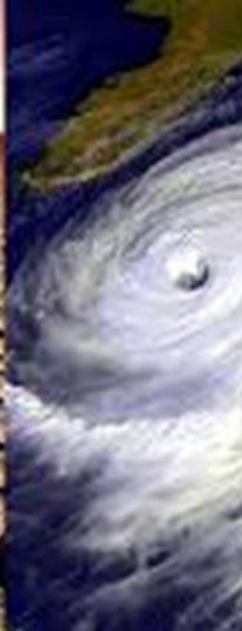
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THE CLIMATE EMERGENCY

Urgency of limiting global warming to +1.5C, beyond which the risk of drought, floods, extreme heat and poverty for hundreds of millions of people, will significantly increase.

The SDR 2019 proposes **SIX MAJOR TRANSFORMATIONS**

Leave No One Behind



1. Education, Gender, and Inequality

SDGs 1-5, 7-10, 12-15, 17



2 Health, Wellbeing, and Demography

SDGs 1, 2, 3, 4, 5, 8, 10



3. Energy Decarbonization and Sustainable Industry

SDGs 1-16



4. Sustainable Food, Land, Water, and Oceans

SDGs 1-3, 5, 6, 8, 10-15



5. Sustainable Cities and Communities

SDGs 1-16



6. Digital Revolution for Sustainable Development

SDGs 1.4, 7-13, 17

Circularity and Decoupling



What is the European Green Deal?

December 2019
#EUGreenDeal

The European Green Deal is about **improving the well-being of people**. Making Europe climate-neutral and protecting our natural habitat will be good for people, planet and economy. No one will be left behind.

The EU will:



Become climate-neutral by 2050



Protect human life, animals and plants, by cutting pollution



Help companies become world leaders in clean products and technologies



Help ensure a just and inclusive transition

“The European Green Deal is our new growth strategy. It will help us cut emissions while creating jobs.”

Ursula von der Leyen, President of the European Commission



“We propose a green and inclusive transition to help improve people’s well-being and secure a healthy planet for generations to come.”

Frans Timmermans, Executive Vice-President of the European Commission



93% of Europeans see **climate change** as a **serious problem**



93% of Europeans have **taken** at least one **action** to tackle climate change



79% agree that taking action on climate change will **lead to innovation**

What will we do?

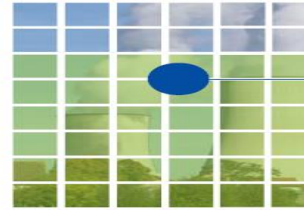
CLIMATE

The EU will be **climate neutral in 2050**. The Commission will propose a European Climate Law turning the political commitment into a legal obligation and a trigger for investment.

Reaching this target will require action by all sectors of our economy:

ENERGY

Decarbonise the energy sector



The production and use of energy account for more than **75%** of the EU's greenhouse gas emissions

BUILDINGS

Renovate buildings, to help people cut their energy bills and energy use



40% of our energy consumption is by buildings

INDUSTRY

Support industry to innovate and to become global leaders in the green economy



European industry only uses **12%** recycled materials

MOBILITY

Roll out cleaner, cheaper and healthier forms of private and public transport



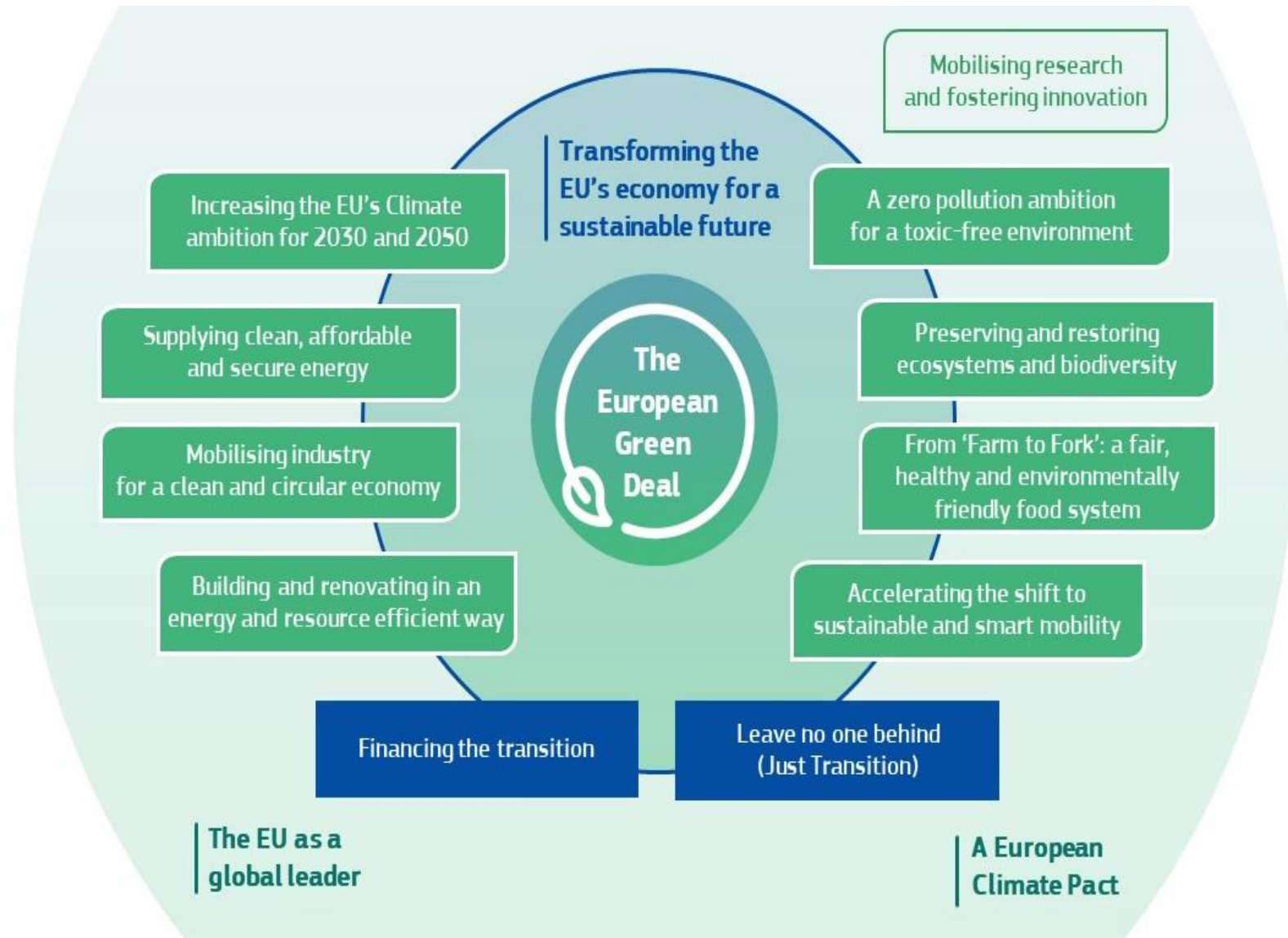
Transport represents **25%** of our emissions



The European Green Deal (EGD) – Overview

The policy areas that are covered from the EGD are:

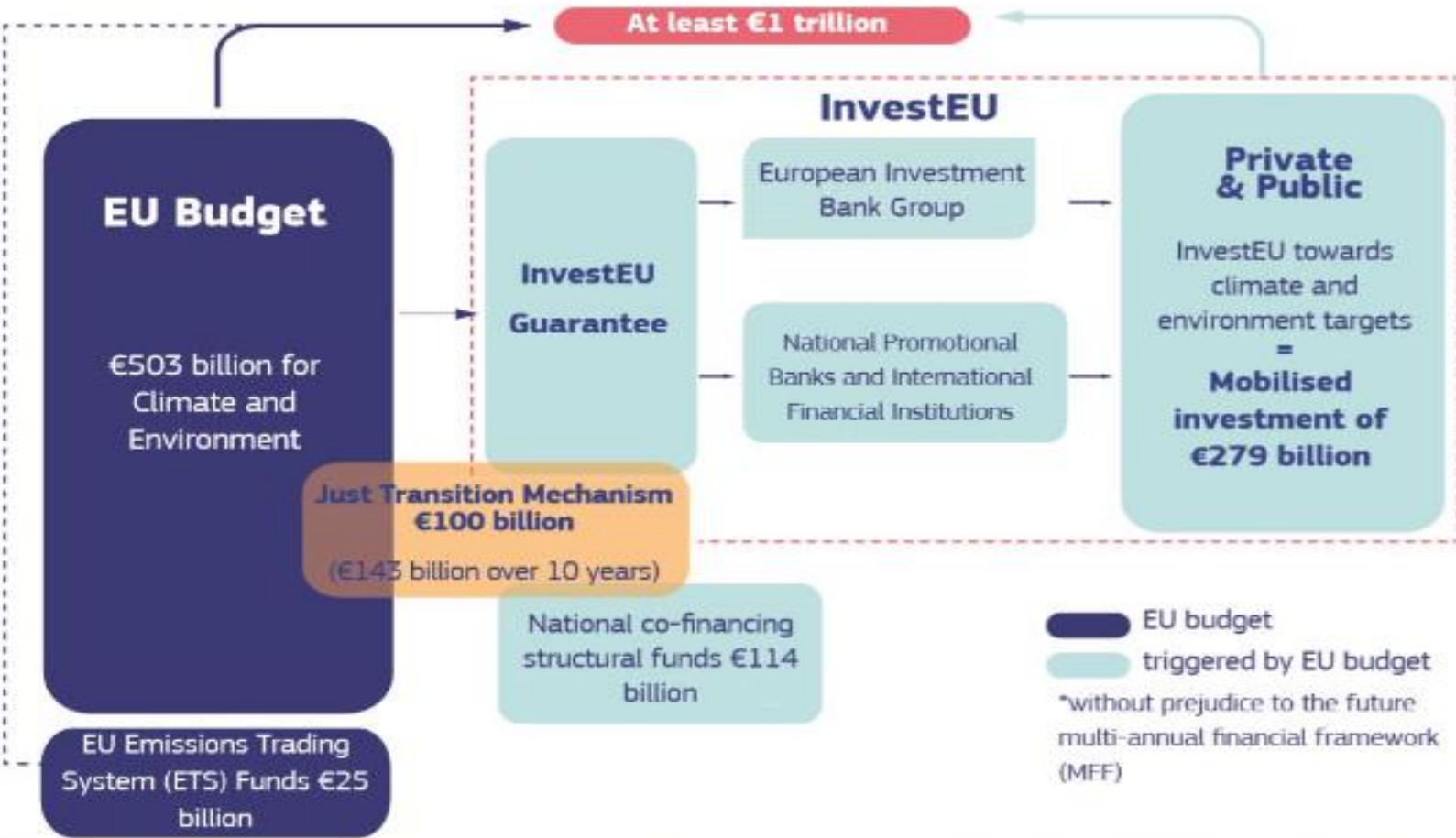
- ✓ Biodiversity
- ✓ From Farm to Fork
- ✓ Sustainable agriculture
- ✓ Clean energy
- ✓ Sustainable industry
- ✓ Building and renovating
- ✓ Sustainable mobility
- ✓ Eliminating pollution
- ✓ Climate action



How will the European Green Deal Investment Plan be financed?

How will the €1 trillion be mobilised?

WHERE WILL THE MONEY COME FROM?



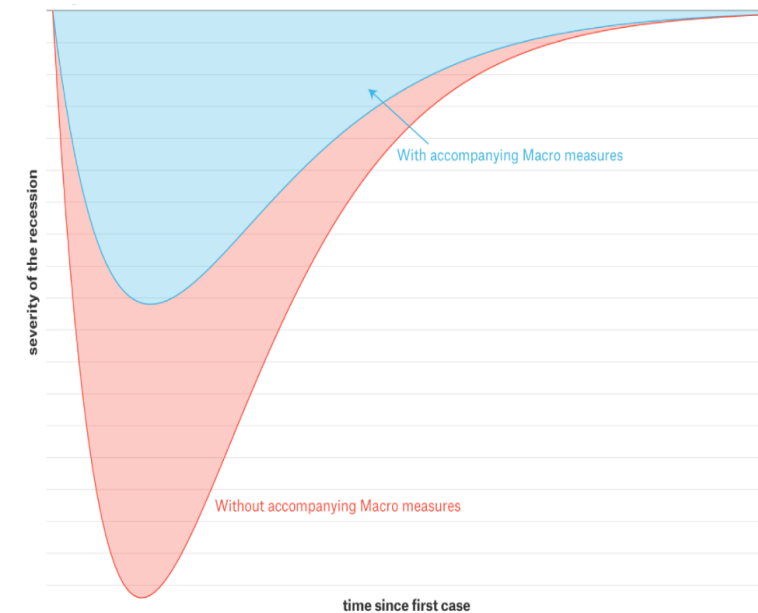
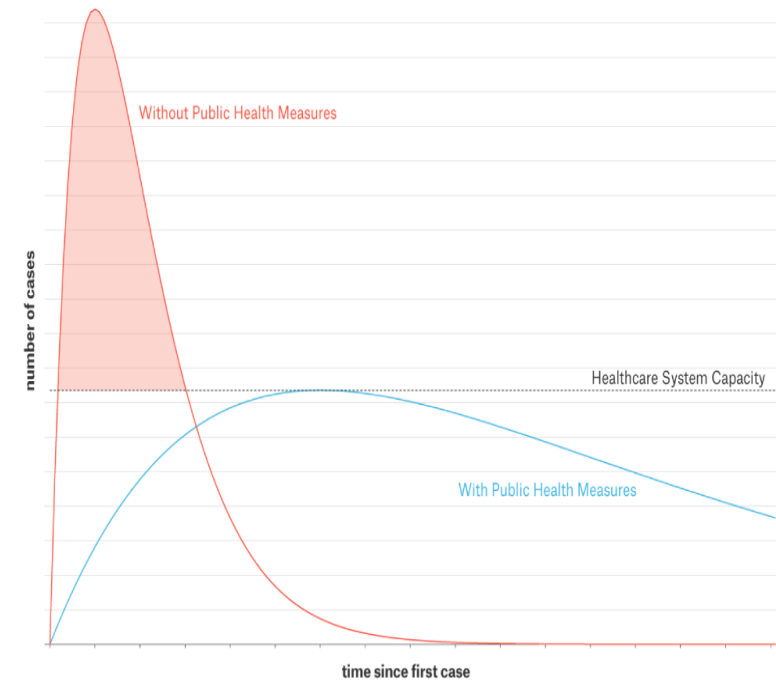
*The numbers shown here are net of any overlaps between climate, environmental and Just Transition Mechanism objectives.



Flattening the infection curve Steepens the macroeconomic recession curve

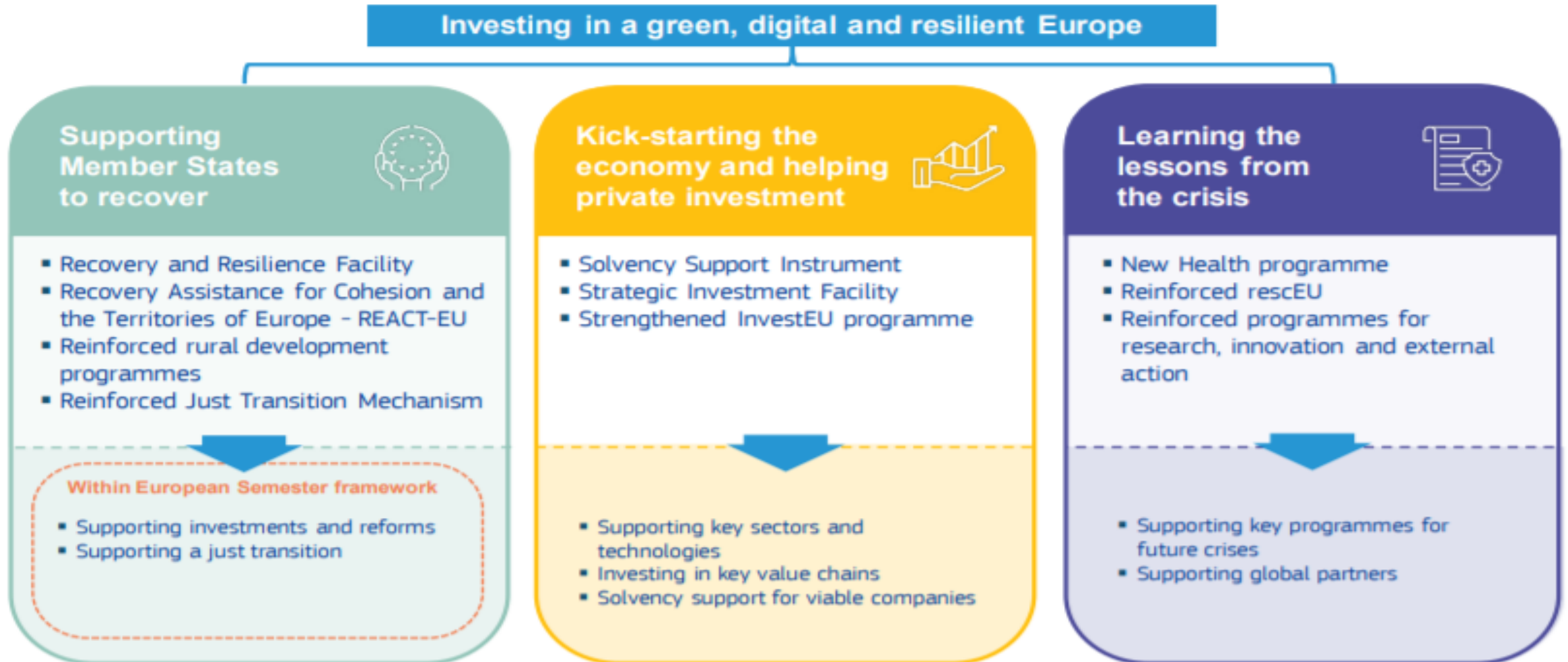
- Health-related measures aim to spread the pandemic out over time and buy time for drastically raising the capacity of the health-care sector.
- Strict isolation measures lead to the shutdown of the complex web of economic supply chains and socio-economic networks.
- How can we avoid the pandemic turn into a major economic and financial crisis that will long outlast the health crisis?
 1. Work force remains employed even if quarantined.
 2. Governments channel financial support to public and private institutions that support vulnerable citizen groups.
 3. SMEs be safeguarded against bankruptcy.
 4. Policies to support the financial system as nonperforming loans mount.
 5. Fiscal packages, comparable to the crisis related loss of GDP, will have to be financed by national debt.

Should we worry about the level of the debt? Yes, to the extent that is possible we want to avoid another debt crisis, but most importantly, we want to avoid an unsustainable recovery.



Recovery Plan and Next Generation EU – embedded within long-term EU budget.

- ✓ Next Generation EU to boost the EU budget with new financing raised on the financial markets for 2021-2024: €750 billion
- ✓ Reinforced long-term budget of the European Union for 2021-2027 (Multiannual Financial Framework (MFF)): €1.100 billion
- ✓ SURE (€100 billion) / ESM Pandemic Crisis Support (€240 billion) / EIB Guarantee Fund for Workers and Businesses (€200 billion): €540 billion



Financing the Recovery Plan

Commission issues bonds on the markets on behalf of the EU

Maturity varies from 3 to 30 years

Proceeds go to new MFF instruments or top-ups for (revamped) MFF programmes in the form of grants or budgetary guarantees.

Commission lends proceeds to EU countries under the Recovery and Resilience Facility to finance their reform and resilience plans in line with the objectives identified in the European Semester, including the Green and Digital transformation, the Member States' national energy and climate plans, as well as with the Just Transition plans.

Are We on Track ?

Globally,
Sustainability
Transition has
started!
BUT...

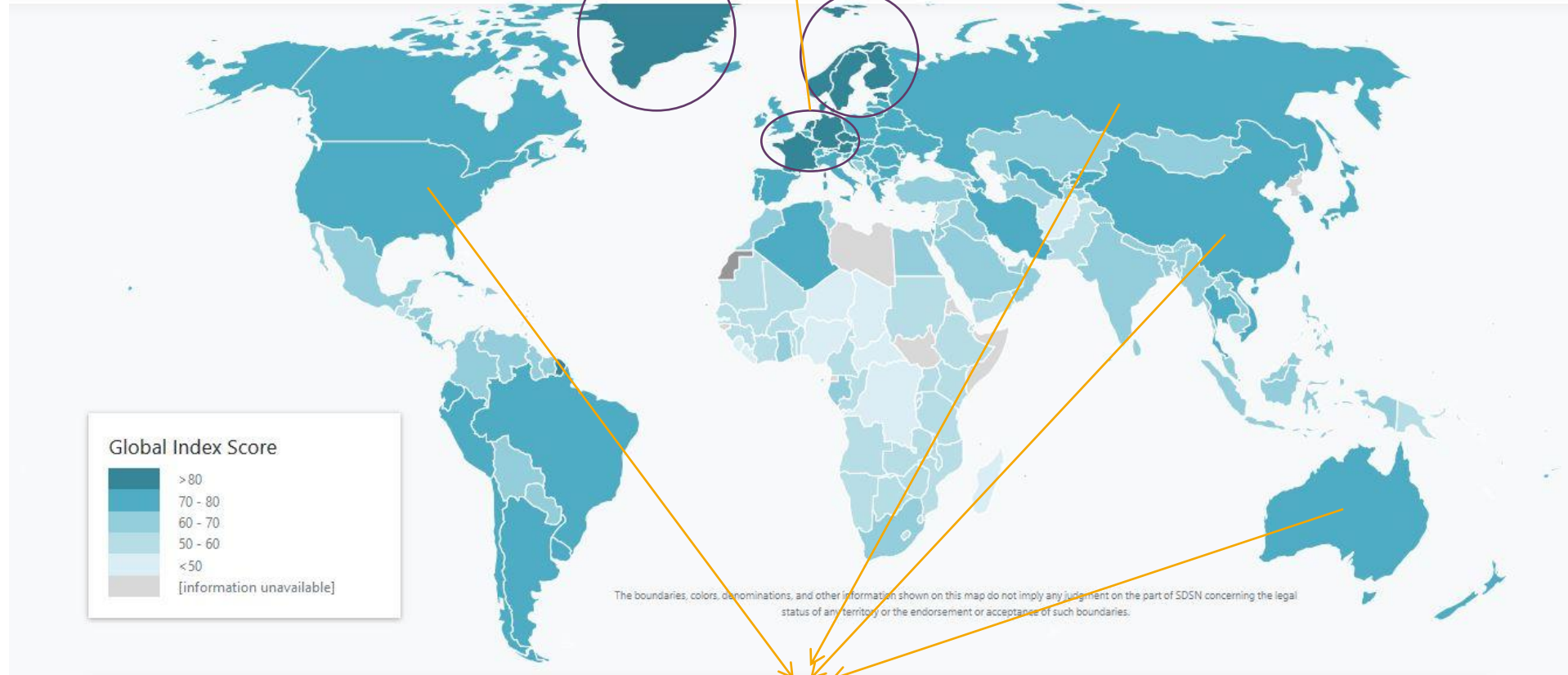


Right on track: Minority

Sustainable Development Report Dashboards 2019
Transformations to Achieve the Sustainable Development Goals

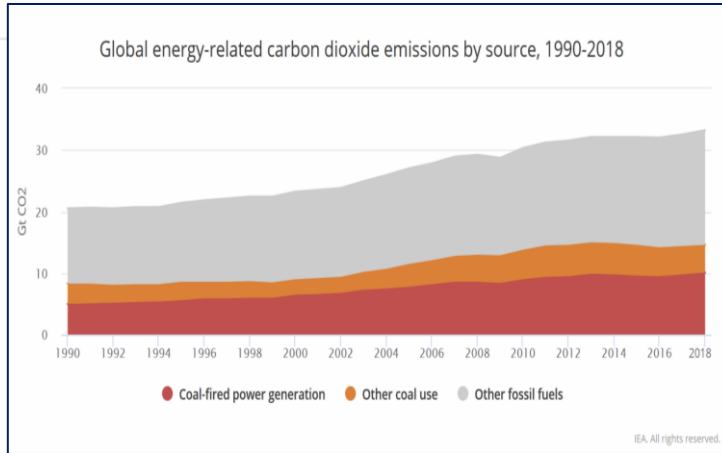


BertelsmannStiftung



Making Progress but not Fast Enough
2013-2018 collectively, the warmest years in modern record

The Supply-Side: Aggressive de-carbonization will be needed beyond 2030 to keep temperature increases below 1.5 C



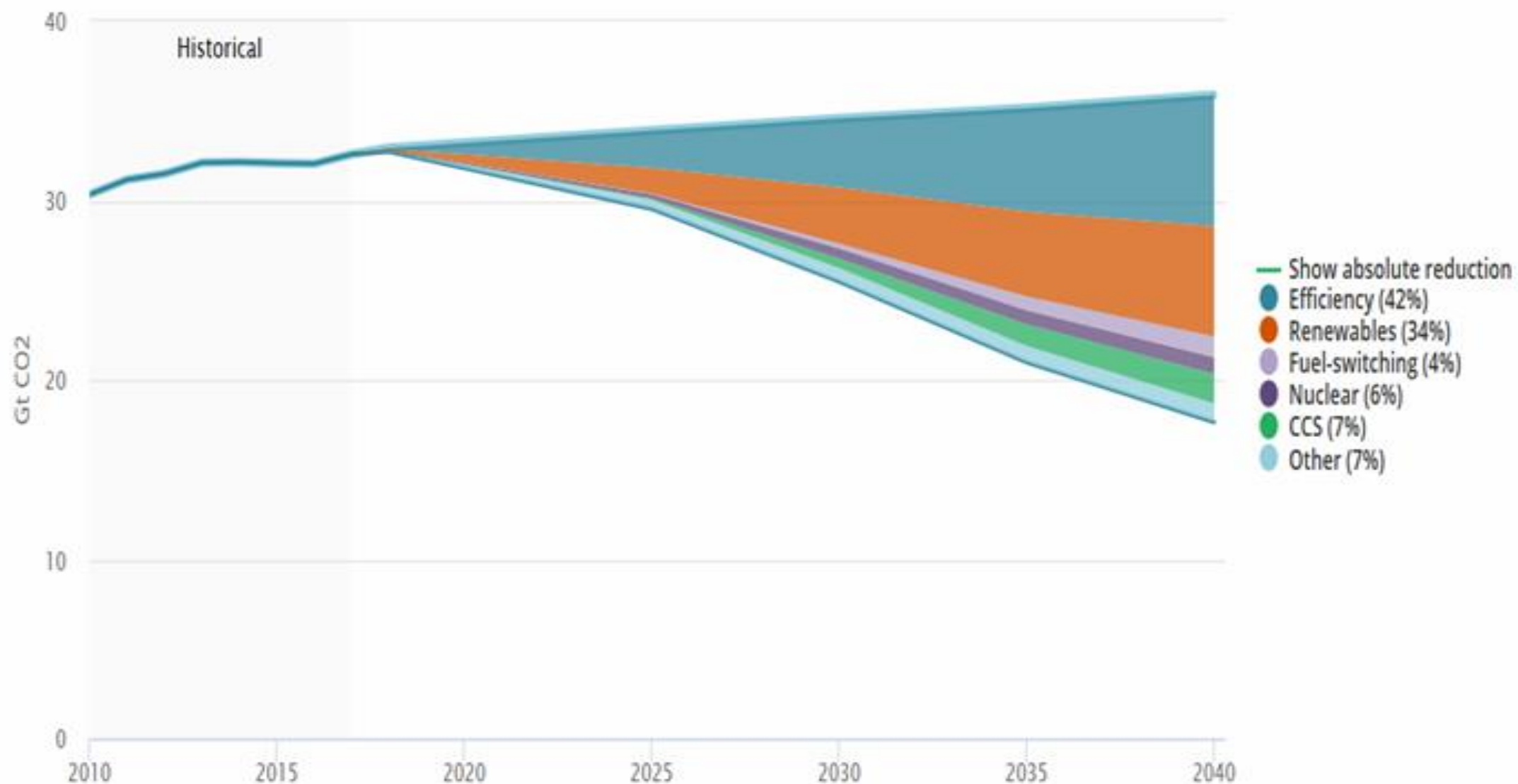
Now-2050: Global power demand will grow by 62%, equating to 1.5-2% per year.

- Renewables Consistently Cheaper than Fossil Fuels by 2020
- Energy storage installations increasing exponentially
- Strong energy efficiency improvements
- Large-scale carbon capture
- Transition to Circular Economy

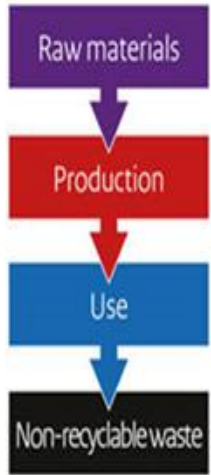
DEMAND

SUPPLY

Additional CO2 emissions reductions in the SDS vs. NPS



Linear economy



Reuse economy



Circular economy



Circular economy: based on principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.

By 2050 CE:

56% cut in EU emissions from heavy industry
 45% cut global emissions from steel, cement, plastic and aluminum products.

THE ECONOMIC BENEFITS

What are the macroeconomic impacts of shifting to a new economic model?

The circular economy has been gaining traction with business and government leaders alike. Their imagination is captured by the opportunity to gradually decouple economic growth from virgin resource inputs, encourage innovation, increase growth, and create more robust employment. If we transition to a circular economy, the impact will be felt across society. The slider below illustrates some of the potential macroeconomic benefits of shifting to a circular economy.

THE OPPORTUNITY FOR COMPANIES

How will companies benefit from the circular economy?

Businesses would benefit significantly by shifting their operations in line with the principles of the circular economy. These benefits include the creation of new profit opportunities, reduced costs due to lower virgin-material requirements, and stronger relationships with customers. The sliders below expand on these and more benefits.

THE OPPORTUNITY FOR INDIVIDUALS

What does the circular economy mean for individuals?

The circular economy will not only benefit businesses, the environment, and the economy at large, but also the individual. Ranging from increased disposable income to improved living conditions and associated health impacts, the benefits for individuals of a system based on the principles of circularity are significant.

ENVIRONMENTAL AND SYSTEM-WIDE BENEFITS

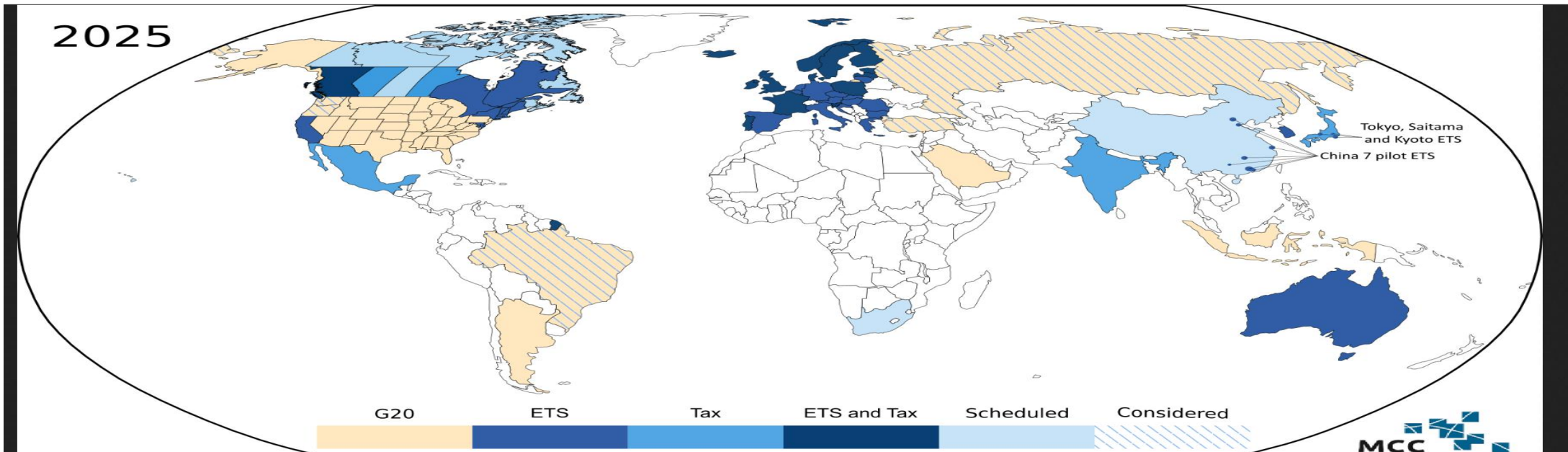
What impact will shifting to a circular economy have on the environment?

The potential benefits of shifting to a circular economy extend beyond the economy and into the natural environment. By designing out waste and pollution, keeping products and materials in use, and regenerating, rather than degrading, natural systems, the circular economy can be the mechanism by which we achieve global climate targets.

Demand Management

Information-Awareness-Education

Economic Instruments: CO2 taxes, ETS, REDD, Insurance, etc.



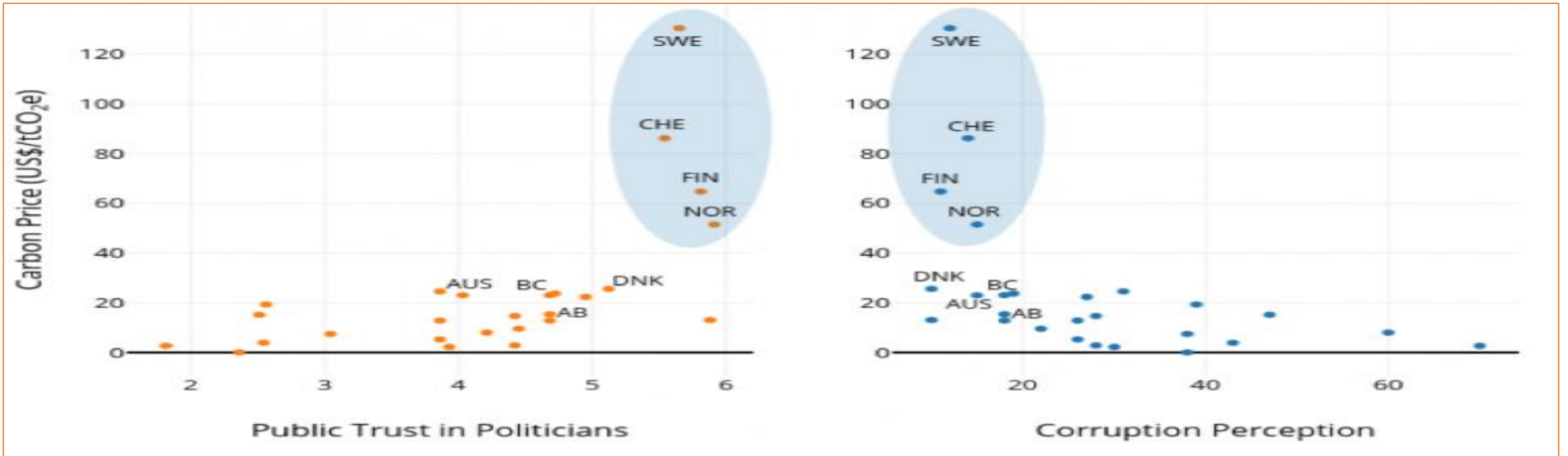
Over the last decade:

51 carbon pricing schemes have been implemented or are scheduled for implementation

25 of the 51 are in the form of ETS, predominantly introduced at the subnational level

26 of the 51 in the form of carbon taxes, mostly implemented at the national level.

Among the countries that have already submitted their Nationally Determined Contributions to the Paris Agreement, 88 countries have stated their intent to implement carbon pricing as part of their national climate policies



- High-Level Commission on Carbon Prices (2017) - achieving the goals of the Paris Agreement requires a carbon price of: \$40-\$80/tCO₂ by 2020, \$50-\$100/tCO₂ by 2030
- Currently, less than 20% of current global greenhouse gas emissions are covered by a carbon price and most prices are below the \$40-80/tCO₂ range.
- Ambitious carbon pricing often correlated with **high political trust** and **low corruption levels**. Finland, Norway, Sweden and Switzerland, are currently the only countries that have carbon prices above 40\$/tCO₂.
- If trust is low, revenue should be recycled using a transparent, trust-boosting strategy to enhance its acceptability.

- Efficient Pricing Tools: Designing revenue recycling mechanisms with an eye on **behavioral insights** and in accordance with **political context**.
- Carbon pricing necessary for decarbonization: not sufficient.
- Spill-over effects in R&D need to be addressed with targeted instruments.
- Public interventions necessary to transform existing infrastructure, for example electricity and transport sectors.



**ALL EYES ON CHINA AS NATIONAL
CARBON MARKET PLAN EMERGES
FROM THE HAZE**

The Energy Sector

The COVID-19 crisis is having a major impact across the energy sector and threatens to undermine efforts to accelerate clean energy transitions.



Energy Security. The crisis reminds us of electricity's indispensable role in our lives and highlights the critical value of electricity infrastructure and know-how. The crisis provides insights into how this role is set to expand and evolve in the future.

How Clean Energy Transitions can help kick-start economies

- **Ambitious agenda setting for job creation and climate change goals:** Modernizing energy systems can contribute to job creation and economic growth while also protecting the climate.
- **Public sector leadership on investing in clean energy:** Governments directly or indirectly drive more than 70% of global energy investments. At this time of crisis, their actions matter more than ever. Policy settings can actively steer energy-related investments onto a more sustainable path.
- **Making energy efficiency, renewables and battery storage central to economic recovery:** Stimulus programs in energy industries should be prioritized to support existing workforces, create new jobs and drive reductions in emissions.

IEA advices: Build on what you already have - and think big



- The clean energy investment push will need to be done on a major scale given the size of today's economic shock. Policies with existing legal and institutional structure are the easiest to scale up.
- Wind and solar are cost-competitive in large parts of the global energy system, but their continued growth still needs supportive policy frameworks (especially in the case of offshore wind, which is now ready for massive investment).
- Accelerating wind and solar PV can be pillars of post-pandemic stimulus efforts
- Important emerging technologies for clean energy progress - **lithium-ion batteries and hydrogen electrolysers** - have the potential to be the coming decade's breakout technologies.

Special Edition of the IEA's (with IMF) annual World Energy Outlook, 18 June 2020



- A set of targeted energy-related sector investment of 1 trillion a year over three years would:
 - Boost economic growth by 1.1 percentage points a year
 - Save or create 9 million jobs a year
 - Ensure 2019 was the definite peak of energy-related greenhouse gas emissions
- The \$1 trillion in annual investment required: public and private sources, and is equivalent to about 0.7% of global GDP.
- About 30% of that would come from governments, which amounts to less than 10% of the funds committed to coronavirus economic relief.
- The majority of private investment would flow into the industrial and buildings sectors, guided by public policy incentives or mandates. The economic impacts from Covid-19 have hit energy and related industries particularly hard.
- About 8% of their combined workforce, or 3.2 million people, have been or are at risk of being put out of work this year. Vehicle manufacturing faces the biggest hurdles (2 million jobs potentially at risk) followed by the oil-and-gas sector (more than 1.2 million jobs on the line). Global energy investment is projected to be down 20% for the year, and renewable power generation may be the only energy-related industry to grow this year.

Emissions: The history of 2008 financial crisis calls for caution!



- A pandemic-driven drop in emissions is almost certain this year but would be nothing to celebrate.
- From an emissions point of view, the recovery from the 2008 financial crisis was energy and carbon intensive. Although carbon dioxide (CO₂) emissions declined in 2009, they rebounded 2010 to the sharpest upswing in history, driven mainly by developing Asia.
- Hepburn et al. 2020: assess 196 stimulatory fiscal recovery policies implemented in response to GFC: 63 green, 117 colourless (maintain the status quo), 16 brown.
- **GFC experience shows that green stimulus policies have advantages over traditional fiscal stimulus. Green construction projects, such as insulation retrofits or renewable energy infrastructure, can deliver higher multiples due to reduce long-term energy costs and flow-on effects to the wider economy**

COVID-19 & CC Early Days: Global survey of fiscal recovery policies

Hepburn, O'Callaghan, Stern, Stiglitz, Zenghelis, 2020



- April 2020, 231 officials from finance ministry, central bank, other economists, representing 53 countries including all G20 nations, to ascertain their perspectives on COVID-19 fiscal recovery packages according to:
 - 'speed of implementation' from the time of legislation
 - 'long-run economic multiplier'
 - 'climate impact potential'
 - 'overall desirability' social, political, personal factors

Results suggest that experts think that climate-positive policies also offer superior economic characteristics.

Response to COVID19 pandemic vs. lack of effective action on climate change

- Climate change (CC) has the potential to end up killing more people than COVID-19, but the deaths reference hidden in the jargon as “increased frequency and severity of natural disasters” and is spread over decades.
- IPCC: global warming accelerate emergence of new viruses. Deforestation drives wild animals closer to human populations, increasing the likelihood that zoonotic viruses will make the cross-species leap.
- Effective policies against CC require international cooperation, which are more demanding than unilateral national policy decisions.
- Timing is also important. IPCC 2018 “the level and speed of the change needed, to successfully tackle the climate crisis, is unprecedented”. **Incremental changes will not be enough!**
- CC requires policy changes less disruptive, economically, socially and culturally, than those to tackle COVID-19.



Theory: Greenhouse Gas Emissions and Climate Change

Alter the intensity and frequency of natural disasters that are regulated by atmospheric and oceanic conditions

Yes: hurricanes and cyclones, droughts, floods, thunderstorms, wild fires, winter storms

No: volcanoes, earthquakes

Maybe: tornadoes (no decisive verdict yet)

...the financial crisis 2007-08, the refugee crisis, the climate crisis, the COVID-19 crisis....



- Attempting to face each new crisis with the same thinking that gave rise to the crisis itself, will fail to find a sustainable and resilient socio-economic- environmental pathway.
- **What is needed now is a fundamental transformation of economic, social and financial systems that will trigger exponential change in strengthening social, economic, health and environmental resilience. We need big thinking and big changes! We need Systems Innovation!**
- We can use the science -as we are using science currently for designing measures to restrain the diffusion of COVID19- :
 - Design economies that mitigate threats of climate change, biodiversity loss, pandemics.
 - Leverage the power of people to achieve the vision of prosperous, inclusive, climate and pandemic resilient society with a circular, net-zero emissions economy.

Guidelines for policymakers:

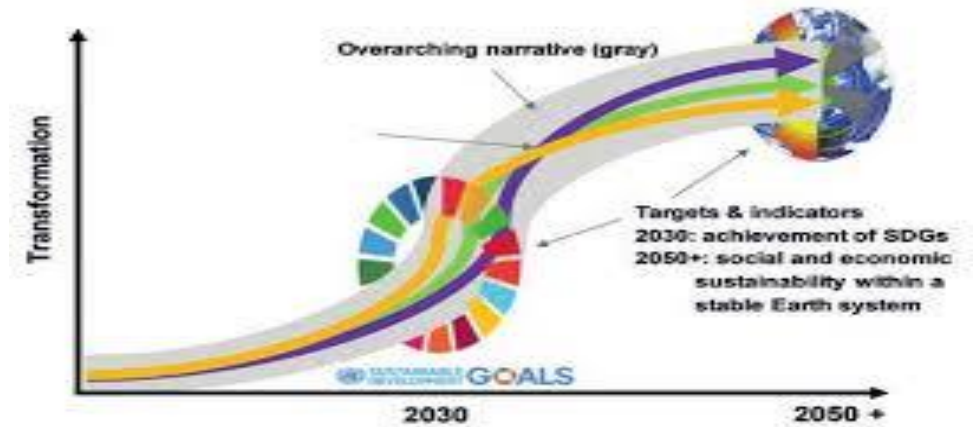
Fiscal recovery with high multiplier economic impact & high long-term positive climate impact.



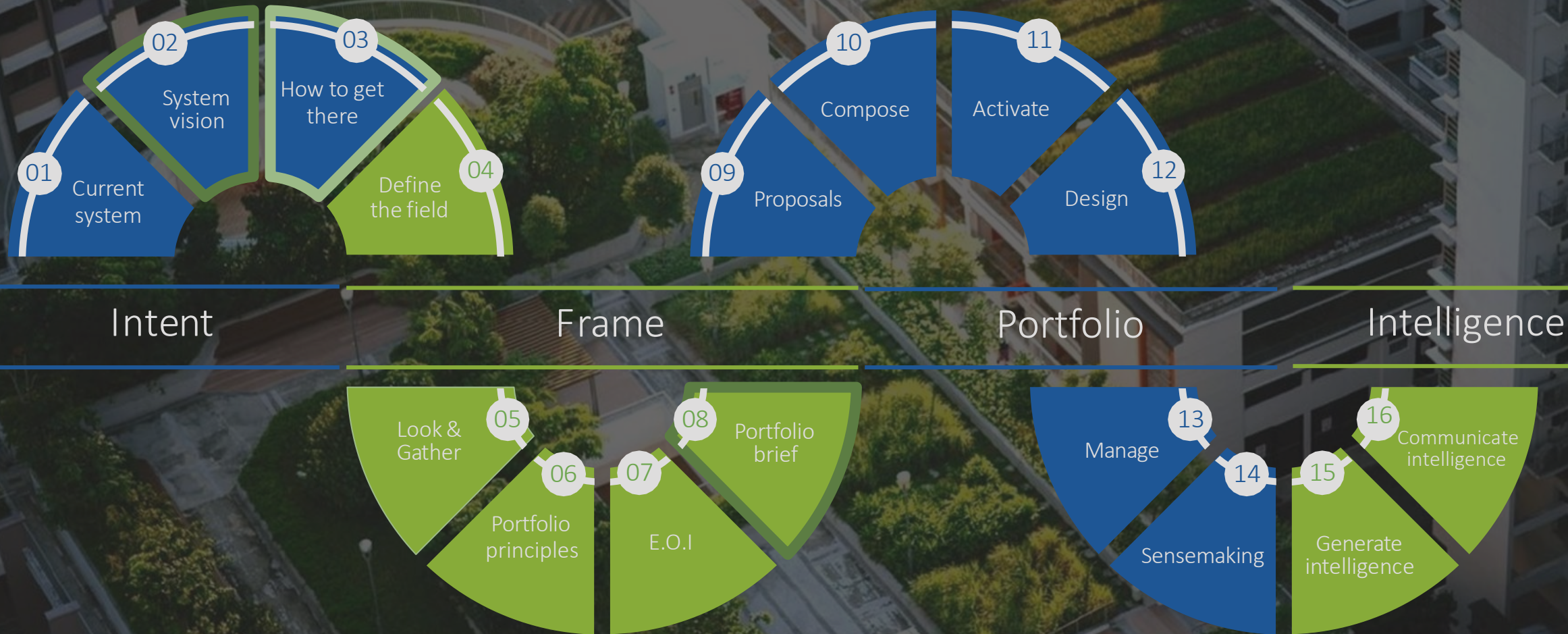
- Renewable energy assets, storage (including hydrogen), grid modernization and CCS technology
- Building efficiency spending for renovations and retrofits (improved insulation, heating, domestic energy storage systems)
- Investment in education and training to address unemployment from COVID-19 and structural shifts from decarbonization
- Natural capital investment for ecosystem resilience and regeneration including restoration of carbon-rich habitats and climate-friendly agriculture;
- Clean R&D spending.
- LMICs: Rural support scheme spending for sustainable agriculture, ecosystem regeneration, accelerating clean energy installations

Our Blueprint for Systemic Change: The SDGs and EGD

- We must start investing in what makes our socio-economic system resilient to crisis, by laying the foundation for a green, circular economy that is anchored in nature-based solutions and geared toward public wellbeing.
- Now is the time to usher in **systemic economic change** and the good news is that we have our blueprint: it's the combination of **UN Agenda 2030 (17 SDG)** and **European Commission's European Green Deal**.



System Innovation approach



Never Waste a Good Crisis!

- Economic crisis more severe than the 2008 financial crisis, and the decarbonization challenge is even more urgent.
 - Energy technologies: some vital components for building a clean energy future are more mature and ready to scale up.
-
- Embrace **EU taxonomy** for sustainable investments (2019)
 1. Control of the epidemic (contact tracers, testing, other public systems)
 2. Biomedical research (vaccines, drugs, diagnostics)
 3. Border security, safe travel, safe trade
 4. Renewable energy and circular economy (EGD)
 5. Food security and Smart Agriculture
 6. Promotion of European supply chains (ICTs, batteries, EVs, etc.)
 7. Secure ICT networks (privacy standards, 5G rollout, etc.) τεχνολογία πληροφοριών και επικοινωνιών
 - The transition should be inclusive and **"leave no one behind"**! finance should be directed to those that are sustainable, but also those who are willing to commit, and be monitored henceforth, to learning how to become sustainable.



Mobilizing Sustainability Transition

UN SDSN - ETI Climate KIC – ReSEES@AUEB

UN SDSN Greece projects



Mobilizing Sustainability Transition in Greece and Europe: Our Research and Education Activities

Research & Global Initiatives



Climate Change
Committee

Deep Demonstration Projects and Innovation Acceleration

Climate KIC
Programmes

Climate KIC
Projects

Education & Training



MSc in

**Law and Economics
in Energy Markets**

ΟΙΚΟΝΟΜΙΚΟ
ΠΑΝΕΠΙΣΤΗΜΙΟ
ΑΘΗΝΩΝ



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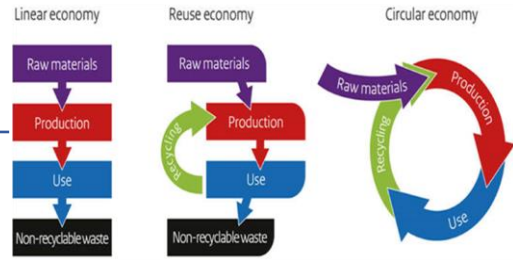
ΚΕΝΤΡΟ ΕΠΙΜΟΡΦΩΣΗΣ ΚΑΙ ΔΙΑ ΒΙΟΥ ΜΑΘΗΣΗΣ

<https://dz.aueb.gr/el/normal/Program/10045/ViewProgram>



Europe's Main Climate Innovation Initiative

C-KIC – DEEP DEMONSTRATION PROJECTS



Europe's Main Climate Innovation Initiative

C-KIC – PROGRAMMES

Accelerator

EIT Climate-KIC Accelerator is the only EU acceleration programme focused on climate impact by cleantech commercialisation

Transforming ideas into climate-positive businesses

- €550m+ raised investment
- 1000+ private sector partners
- 2500+ cleantech startups
- 33 startups supported by business angels

Pioneers Into Practice

A bold new opportunity to combine as a wonderful community of like-minded people and work in another country on something you care about. Worldwide at whatever stage of your career you're at.

- Placement (all expenses covered); Participation in an educational quest (two workshops and online thing); Training based on innovative methodologies developed within the KIC.
- Mentorship for improving ideas and skills.
- Participation in solving challenges in the real environment.
- Participate in international workshops.
- Develop international professional network.

Climathon

Climathon Cities 2019

- 113 cities
- 46 countries
- 6 continents
- +50000 participants

Climathon: Cities. Making. Solutions.

Senior UN SDSN WG on EGD Greek UN Initiative on CC effects on Cultural Heritage



UN SDSN Senior Working Group on the EGD
and the European Recovery Plan



New UN SDSN Global Initiatives

Global Roundtable for Sustainable Shipping



IPCC warned of unprecedented changes if we exceed 1.5 degrees of warming. Maritime transport emits around 940 million tonnes of CO₂ annually and is responsible for about 2.5% of global greenhouse gas (GHG) emissions (3rd IMO GHG study). These emissions are projected to increase significantly if mitigation measures are not put in place swiftly. According to the 3rd IMO GHG study, shipping emissions could under a business-as-usual scenario increase between 50% and 250% by 2050, undermining the objectives of the Paris Agreement. The **Global Roundtable for Sustainable Shipping** aims at bringing together shipowners, shipbuilders, technology developers and researchers, ports and policy makers, on innovation related to zero emissions shipping, from across the globe, to target net-zero emissions by 2050. It will be launched at a specific session on the zero-carbon ocean shipping at the two-day **COP 25 in Santiago, Chile** hosted by SDSN on December 9th & 10th 2019.

The UN SDSN 4-Seas Initiative



The UN SDSN 4-Seas is a Euro-Asian Initiative that aims to mobilizing science driven sustainable blue growth in the **Mediterranean Sea**, the **Black Sea**, the **Caspian Sea** and the **Aral Sea**, in order to protect the future state of global seas and oceans by providing a Blue Sustainability Transition Plan “from rivers to the oceans”.

The initiative is led by **SDSN Greece** and **SDSN Black Sea**, established leaders on research for the implementation of SDGs in rivers and wetlands, coastal zones, seas and oceans, shipping, marine transport, offshore energy production, fishing, aquaculture, marine litter, and relevant education and training.