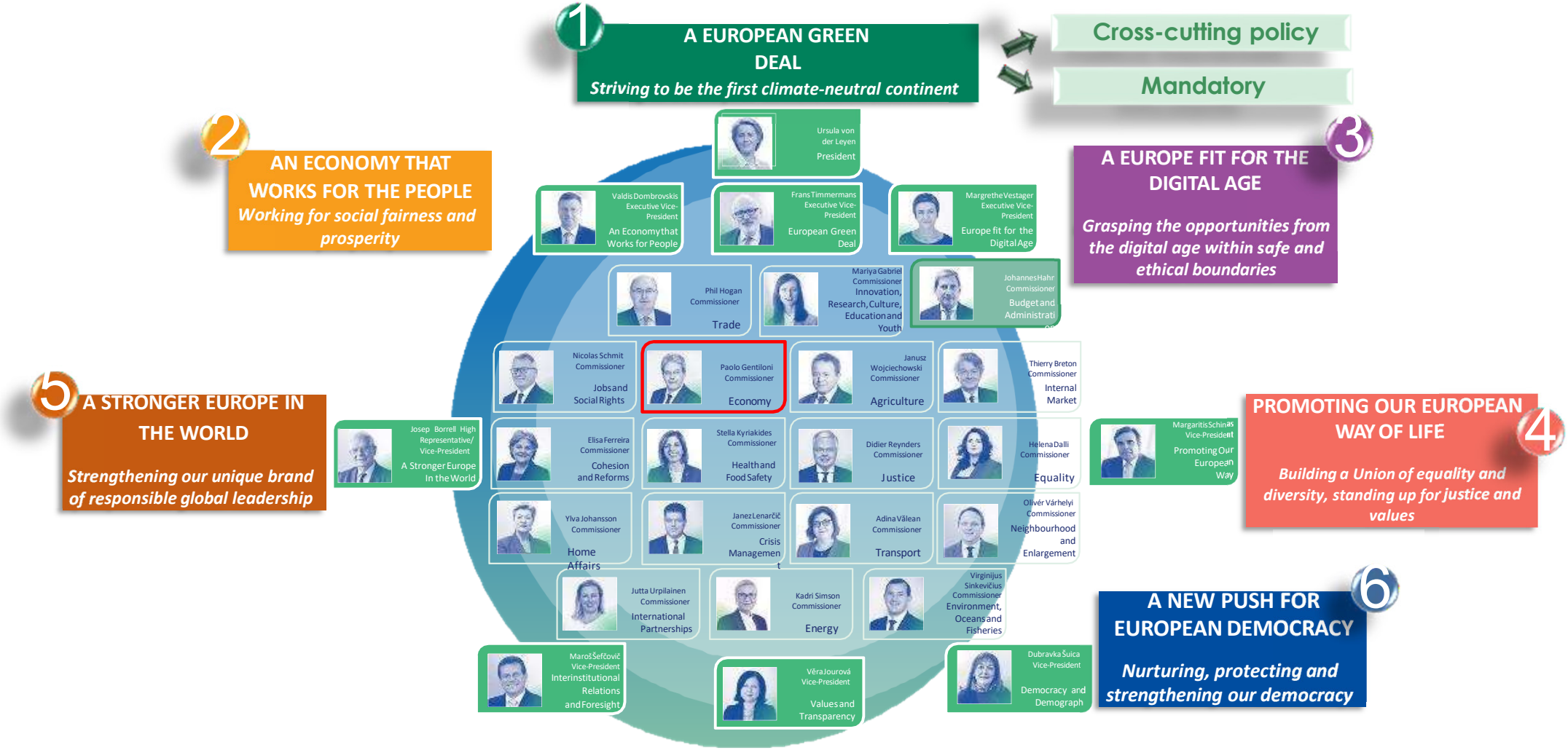
RESEARCH & INNOVATION
TO DRIVE THE
GREEN DEAL
#EUGreenDeal
#ResearchImpactEU
European
Commission

European Commission policies: the six ambitions for Europe

Ursula von der Leyen (DE, EPP) has presented her political guidelines that focus on 6 headline ambitions for Europe over the next five years and well beyond:



European Green Deal: Improving the well-being of people.

The European Green Deal Target

Climate change and environmental degradation are an existential threat to Europe and the world. To overcome these challenges, Europe needs a new growth strategy that transforms the Union into a modern, resource-efficient and competitive economy where:

- ❑ **there are no net emissions of greenhouse gases by 2050**
- ❑ **economic growth is decoupled from resource use**
- ❑ **no person and no place is left behind**

"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

Become climate-neutral by 2050

Protect human life, animals and plants, by cutting pollution

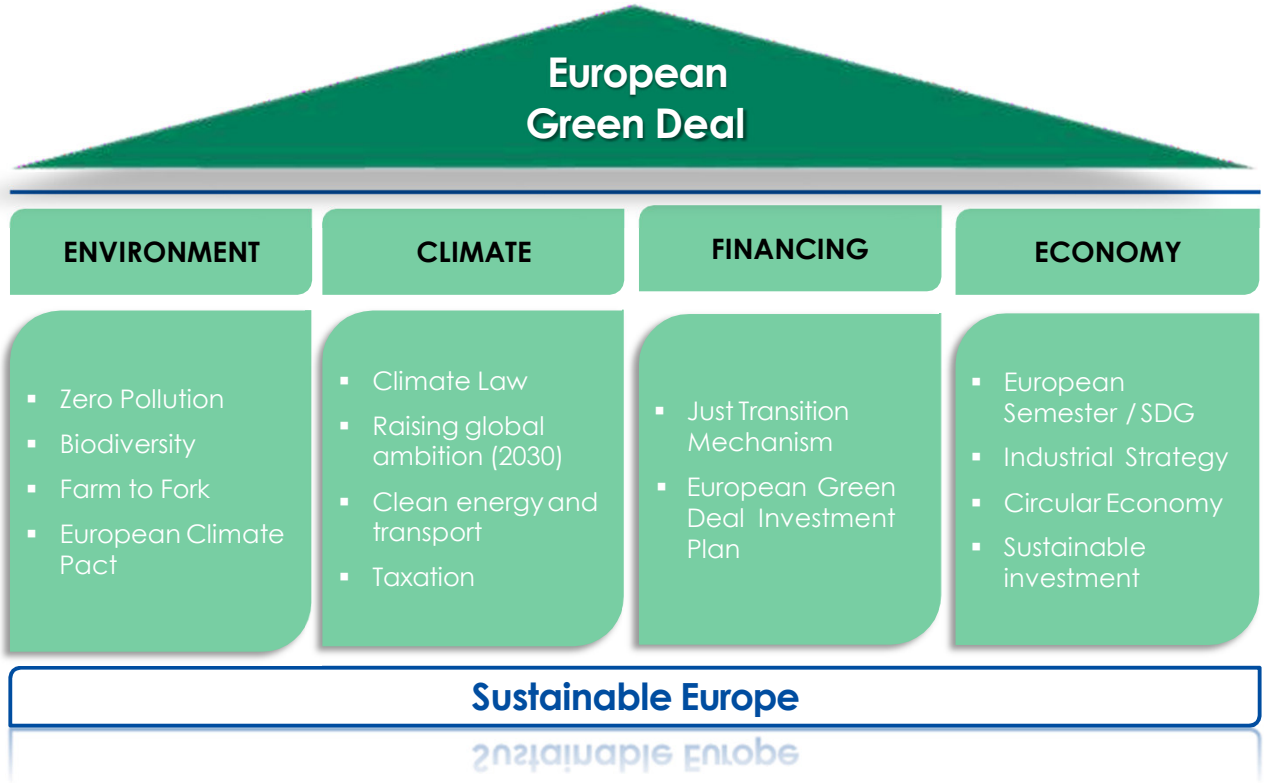
Help companies become world leaders in clean products and technologies

Help ensure a just and inclusive transition

The European Green Deal structure

The new Commission placed at the centre of its priorities the need to take immediate and drastic actions to fight climate change and to make **Europe climate-neutral by 2050**

The European Green Deal is a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use

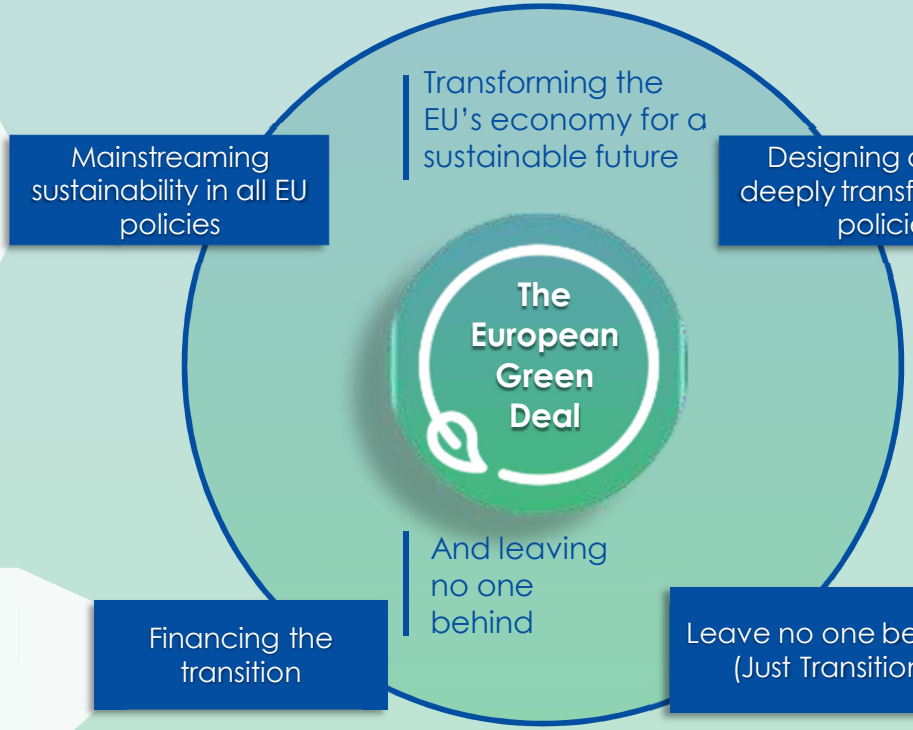


The long term vision

The Commission has already set out a clear vision of how to achieve climate neutrality by 2050. This vision should form the basis for the long-term strategy that the EU will submit to the United Nations Framework Convention on Climate Change in early 2020.

MOBILISING RESEARCH AND FOSTERING INNOVATION

- At least **35% of Horizon Europe funding** for climate solution
- Four "**Green Deal missions**" (related to climate change, oceans, cities and soil)
- **Partnerships** with industry and Member States
- Role of **European Institute of Innovation and Technology**
- Role of **European Innovation Council**
- **Data and digital infrastructure** in support of ecological transition



- Increasing the EU's Climate ambition for **2030 and 2050**
- Supplying clean, affordable and secure **energy**
- **Mobilising industry** for a clean and circular economy
- Building and renovating in an **energy and resource efficient way**
- A **zero pollution** ambition for a toxic-free environment
- Preserving and restoring **ecosystems** and **biodiversity**
- From '**Farm to Fork**': a fair, healthy and environmentally friendly food system
- Accelerating the shift to sustainable and **smart mobility**

- **New Green Deal Call under Horizon 2020 worth €1 billion**
- Part of the European Green Deal Investment Plan – mobilising at least **€1 TRILLION of public and prive investments**
- Major cross-cutting call to provide innovative solutions, demonstrate tangible results and reassure citizens that action is underway

To "leave no-one behind," the commission proposes a '**Just Transition Mechanism**' to help regions most heavily dependent on fossil fuels. The proposed **€100bn instrument has 3 legs:**

- A just transition fund that will mobilise resources from the EU's regional policy budget;
- The "InvestEU" programme, with money coming from the European Investment Bank;
- EIB funding coming from the EU bank's own capital.

Designing a set of deeply transformative policies

- Increasing the EU's Climate ambition for 2030 and 2050
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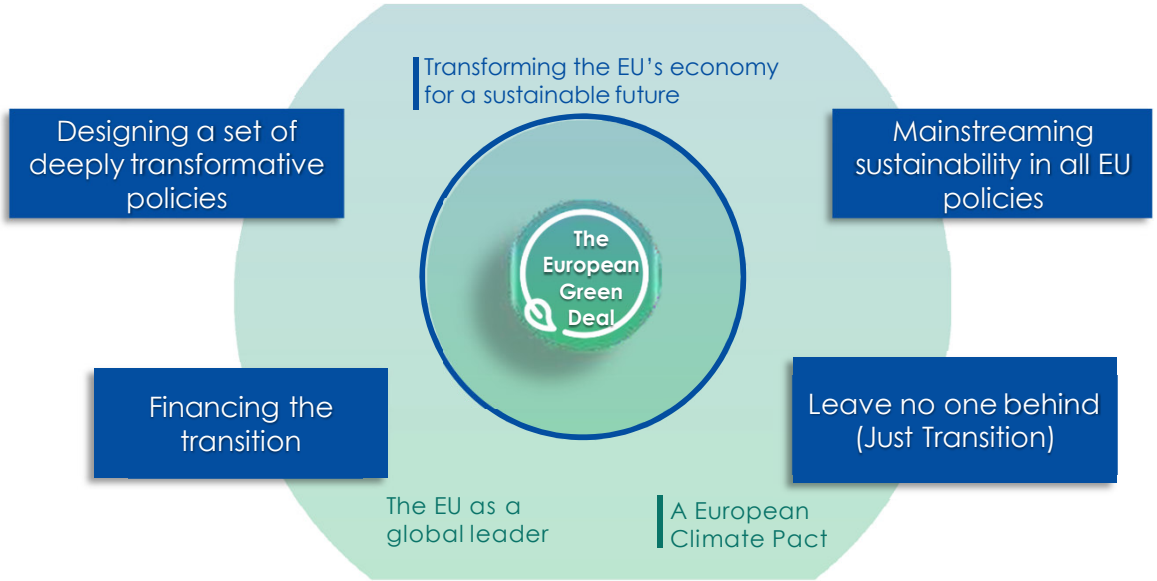
New measures on their own will not be enough to achieve the European Green Deal's objectives. In addition to launching new initiatives, the Commission will work with the Member States to step up the EU's efforts to ensure that current legislation and policies relevant to the Green Deal are enforced and effectively implemented.



Designing a set of deeply transformative policies

Increasing the EU's Climate ambition for 2030 and 2050

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Decarbonising the EU's energy system is critical to reach our climate objectives.

Key Principles:

Prioritise energy efficiency and develop a power sector based largely on renewable sources

Secure and affordable EU energy supply

Fully integrated, interconnected and digitalised EU energy market

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

17.5% of the EU's gross final energy consumption came from renewable sources in 2017

- **Interconnect energy systems** and better link/integrate renewable energy sources to the grid
- Promote innovative technologies and **modern** infrastructure
- **Boost energy efficiency** and **eco-design** of products
- **Decarbonise the gas sector** and promote **smart integration** across sectors
- **Empower consumers** and help Member States tackle energy poverty
- **Increase cross-border and regional cooperation** to better share clean energy sources
- Promote EU energy standards and technologies at **global level**
- Develop the full potential of Europe's **offshore wind** energy

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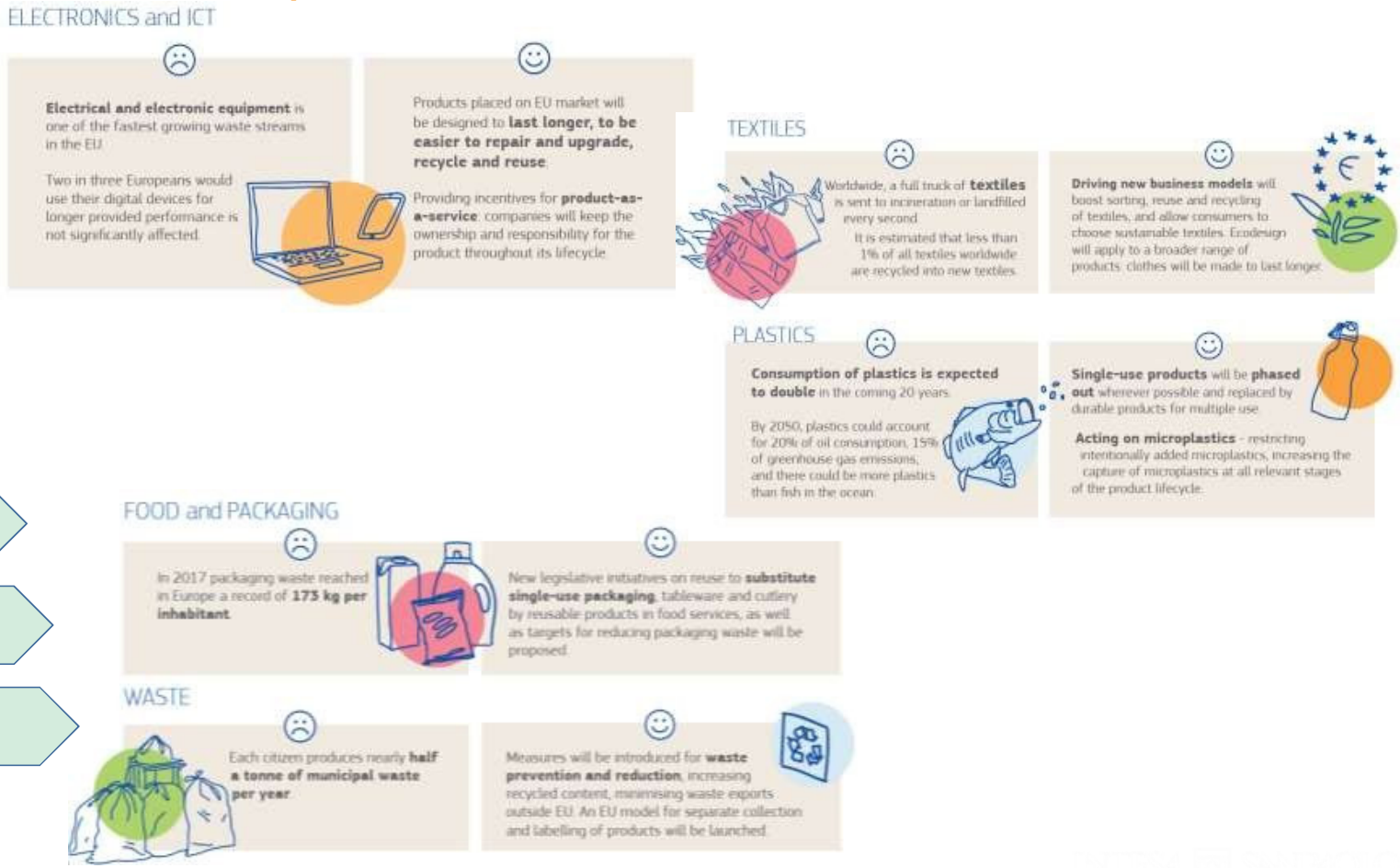
changing the way we consume and the way we produce



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Start a 'renovation wave'

The construction, use and renovation of buildings require significant amounts of energy and resources, such as sand, gravel and cement.

Buildings account for **40%** of energy consumed

Source: Eurostat, Energy balances 2019 edition, final energy consumption in year 2017.

The current rates of renovation of public and private buildings should at least double

Better energy performance of buildings

- Prices of different energy sources should incentivise **energy-efficient buildings**
- Design of buildings should be in line with the **circular economy**
- Increased **digitalisation**
- More **climate-proofing** of buildings
- Strict enforcement of rules on **energy performance of buildings**

Designing a set of deeply transformative policies

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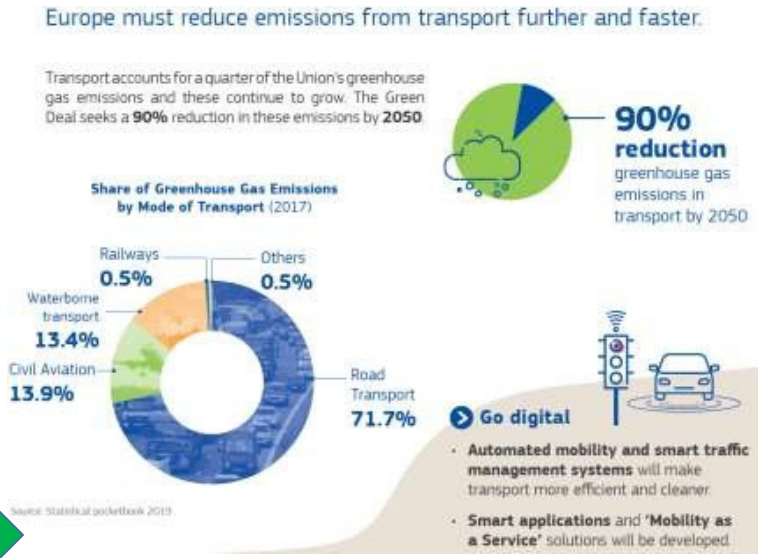

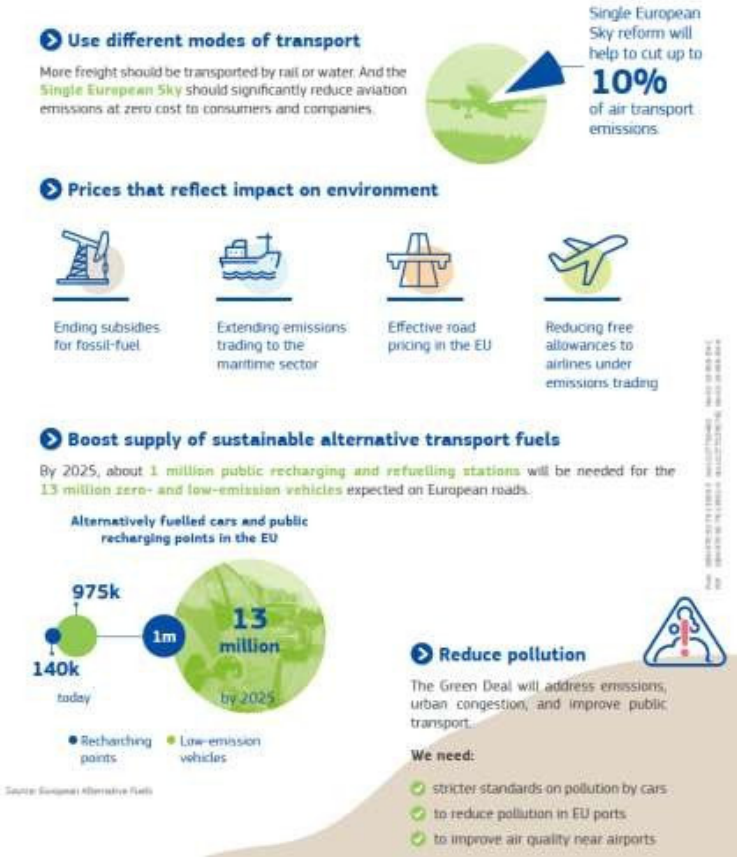

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Moving towards a more healthy and sustainable EU food system, a corner stone of the European Green Deal

The use of pesticides in agriculture contributes to pollution of soil, water and air. The Commission will take actions to:

- ✓ **reduce by 50%** the use and risk of chemical pesticides by 2030.
- ✓ **reduce by 50%** the use of more hazardous pesticides by 2030.

The **excess of nutrients** in the environment is a major source of air, soil and water pollution, negatively impacting biodiversity and climate. The Commission will act to:

- ✓ **reduce nutrient losses by at least 50%**, while ensuring no deterioration on soil fertility.
- ✓ **reduce fertilizer use by at least 20%** by 2030.

Antimicrobial resistance linked to the use of antimicrobials in animal and human health leads to an estimated 33,000 human deaths in the EU each year. The Commission will **reduce by 50% the sales of antimicrobials for farmed animals and in aquaculture by 2030.**

Organic farming is an environmentally-friendly practice that needs to be further developed. The Commission will boost the development of EU organic farming area with the aim to achieve **25% of total farmland under organic farming by 2030.**

Designing a set of deeply transformative policies

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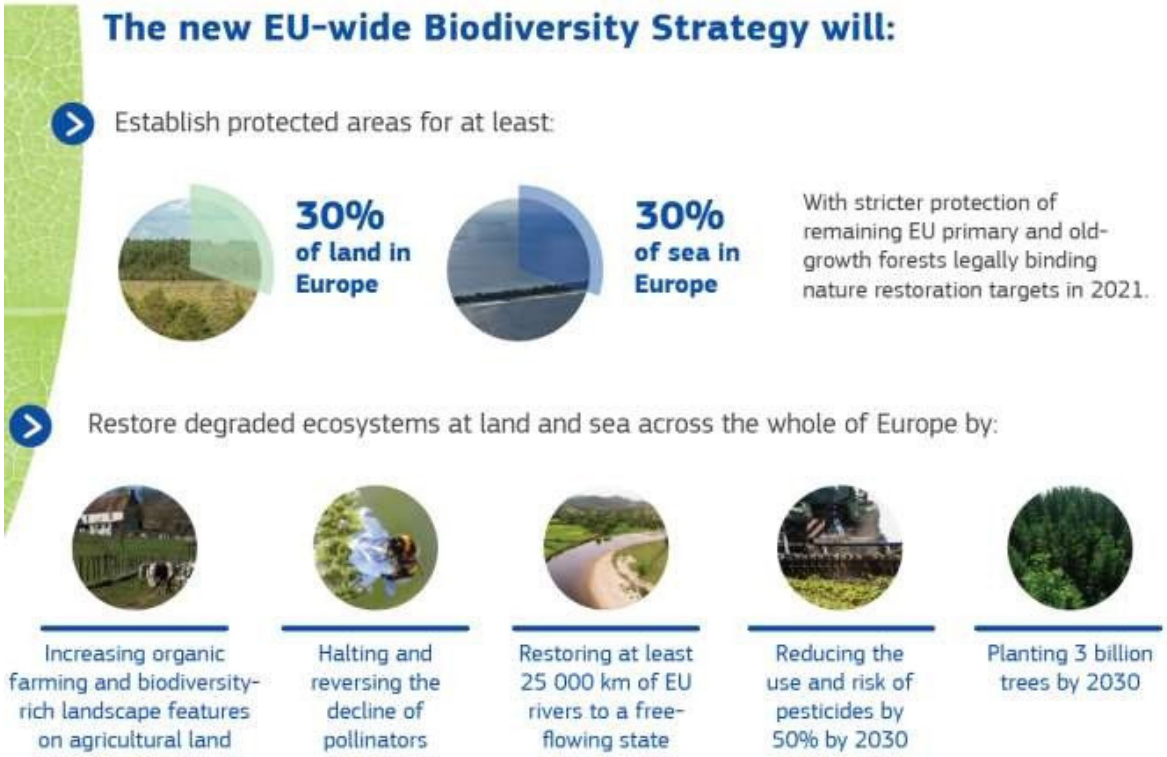

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The European Green Deal in H2020

PREMISE

The need for **immediate** and **drastic** actions against climate change has also been explicitly acknowledged by the leaders of the EU Member States.

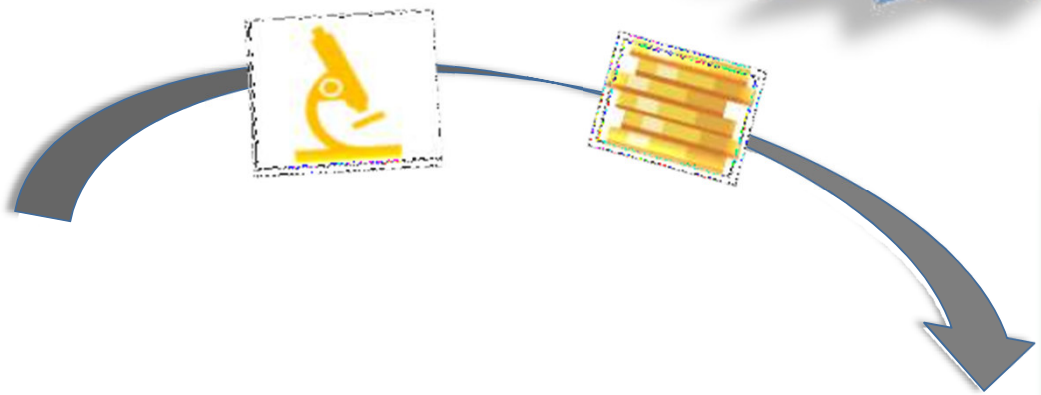
The EC announced in its Communication on the European Green Deal Investment Plan the launching of a **new call in support of the European Green Deal** thus demonstrating the contribution of research and innovation to this central priority of the new Commission.

The call is part of the **Horizon 2020** work programme for 2020

A EUROPEAN GREEN DEAL

Striving to be the first climate-neutral continent

Budget:
€ 983 M

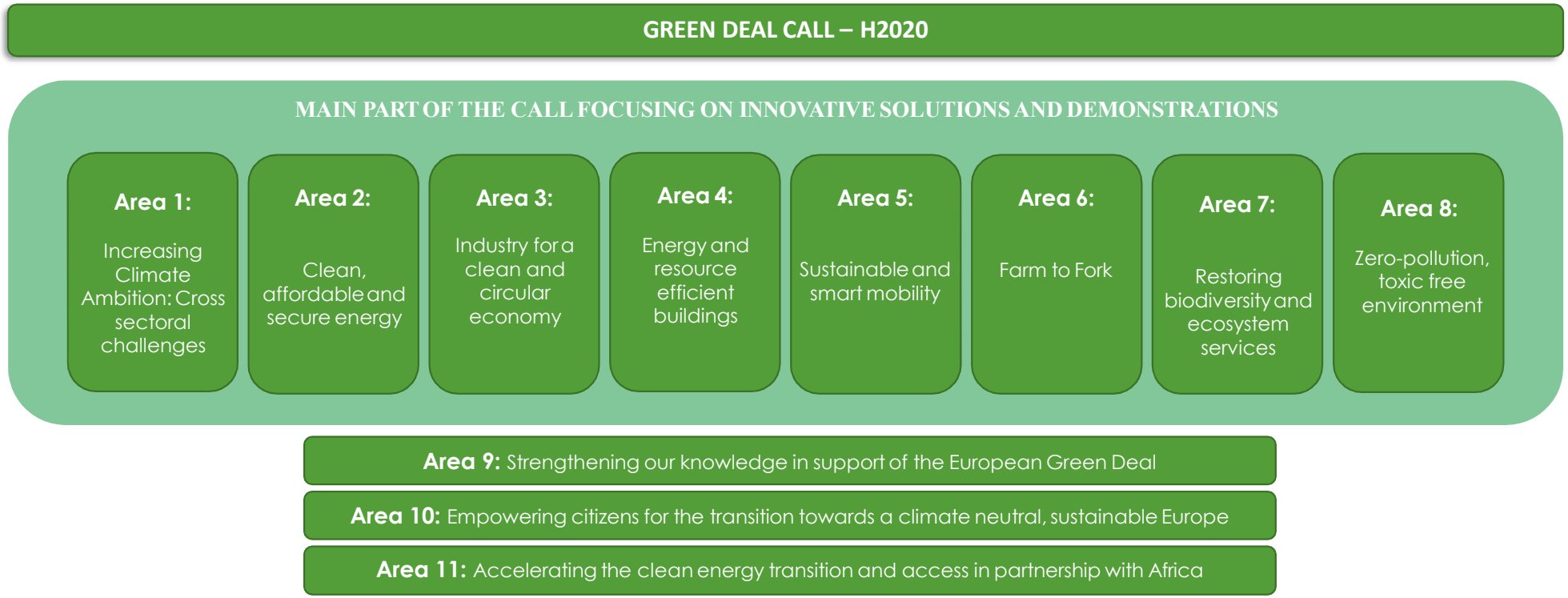


WORK PROGRAMME FOR 2020

HORIZON 2020

The “European Green Deal” call in Horizon 2020

The proposed call is different in structure and approach from previous Horizon 2020 calls. **It seeks to respond to the urgency** of the current situation and the ambition of the new Commission. It will seek to demonstrate the key ability of R&I to provide concrete solutions addressing the **8 European Green Deal work streams**, within a relatively short time frame.

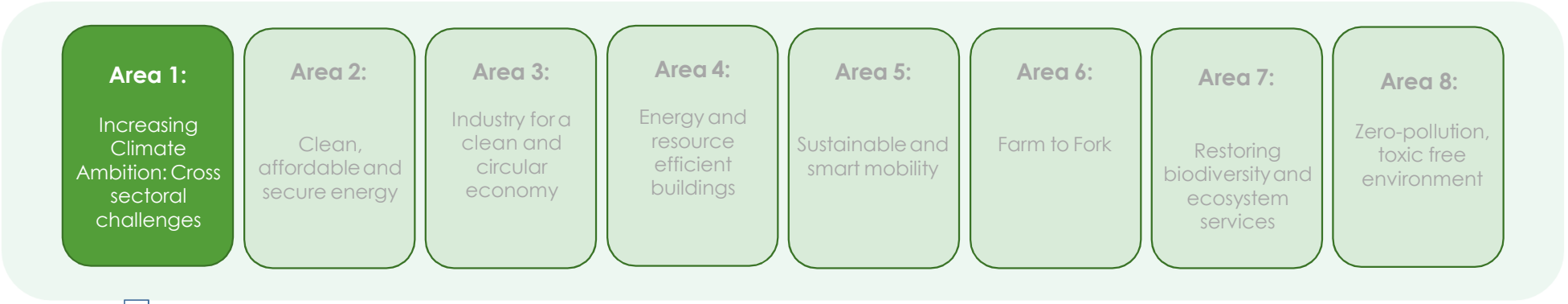


More info at: https://ec.europa.eu/info/research-and-innovation/strategy/european-green-deal/call_en

Topics for GREEN DEAL call 2020

AREA OF THE CALL	TITLE OF TOPICS	NUMBER OF TOPICS
Area 1: Increasing Climate Ambition: Cross sectoral challenges	Preventing and fighting extreme wildfires with the integration and demonstration of innovative means Towards climate-neutral and socially innovative cities Climate-resilient innovation packages for EU regions	3
Area 2: Clean, affordable and secure energy	Innovative land-based and offshore renewable energy technologies and their integration into the energy system Develop and demonstrate a 100 MW electrolyser upscaling the link between renewables and industrial applications Accelerating the green transition and energy access Partnership with Africa	3
Area 3: Industry for a clean and circular economy	Closing the carbon cycle to combat climate change Demonstration of systemic solutions for the territorial development of circular economy	2
Area 4: Energy and resource efficient buildings	Building and renovating in an energy and resource efficient way	1
Area 5: Sustainable and smart mobility	Green airports and ports as hubs for sustainable and smart mobility	1
Area 6: Farm to Fork	Testing and demonstrating systemic innovations for sustainable food from farm to fork.	1
Area 7: Ecosystems and Biodiversity	Restoring biodiversity and ecosystem services	1
Area 8: Zero-pollution, toxic free environment	Innovative, systemic zero-pollution solutions to protect health, environment and natural resources from persistent and mobile chemicals Fostering regulatory science to address chemical and pharmaceutical mixtures: from science to evidence-based policies	2
Area 9: Strengthening our knowledge in support of the EGD	European Research Infrastructures capacities and services to address European Green Deal challenges Developing end-user products and services for all stakeholders and citizens supporting climate adaptation and mitigation A transparent and accessible ocean towards a Digital Twin of the Ocean	3
Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe	European capacities for citizen deliberation and participation for the Green Deal Behavioural, social and cultural change for the Green Deal Enabling citizens to act on climate change and environmental protection through education, citizen science, observation initiatives, and civic involvement	3
Area 11: International cooperation	Foreseen!	
Total number of topics		**20**

The “European Green Deal” call in Horizon 2020: the topics

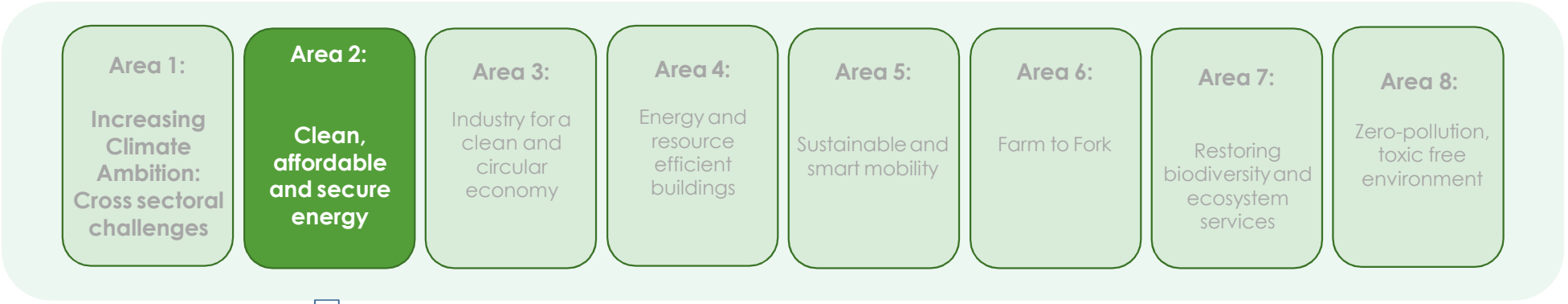


Topic 1: Preventing and fighting extreme wildfires with the integration and demonstration of innovative means (LC-GD-1-1-2020)

Topic 2: Towards climate-neutral and socially innovative cities
LC-GD-1-2-2020

Topic 3: Climate-resilient innovation packages for EU regions
LC-GD-1-3-2020

The "European Green Deal" call in Horizon 2020: the topics

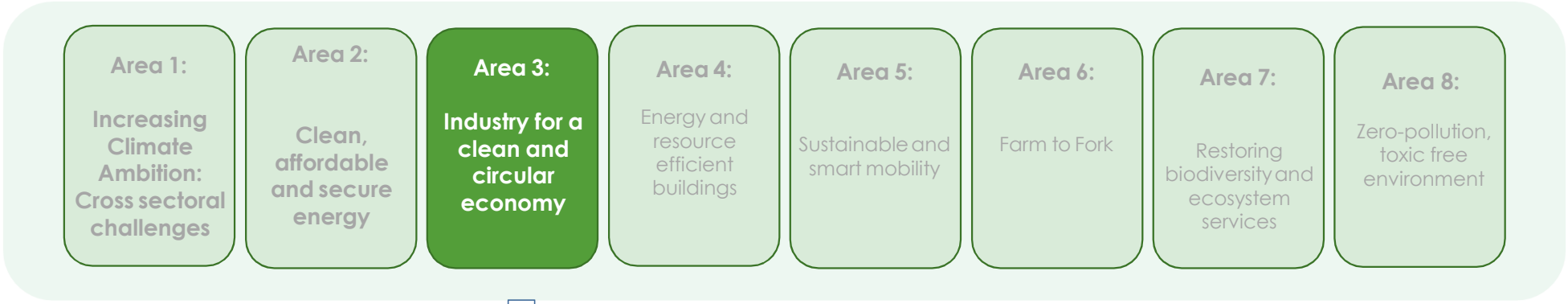


Topic 1: Innovative land-based and offshore renewable energy technologies and their integration into the energy system
(LC-GD-2-1-2020)

Topic 2: Develop and demonstrate a 100 MW electrolyser upscaling the link between renewables and industrial applications
(LC-GD-2-2-2020)

Topic 3: Accelerating the green transition and energy access Partnership with Africa
(LC-GD-2-3-2020)

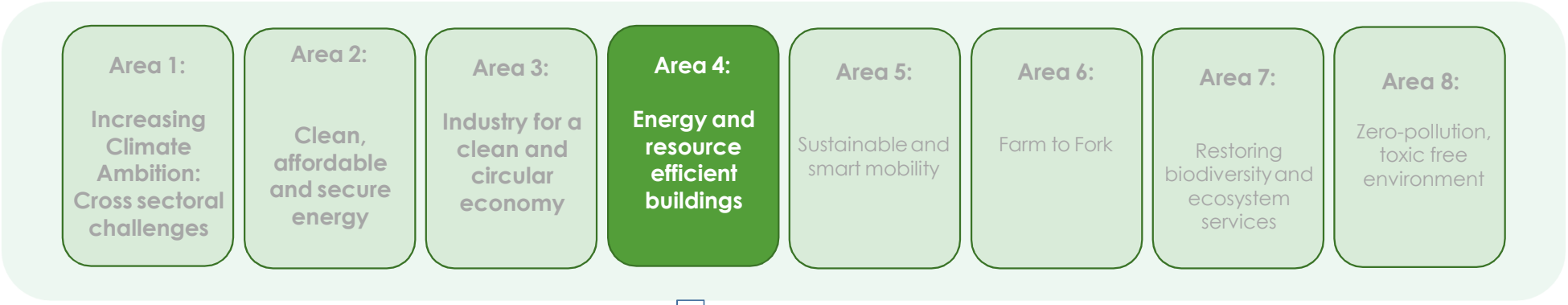
The “European Green Deal” call in Horizon 2020: the topics



Topic 1: Closing the industrial carbon cycle to combat climate change – Industrial feasibility of catalytic routes for sustainable alternatives to fossil resources (LC-GD-3-1-2020)

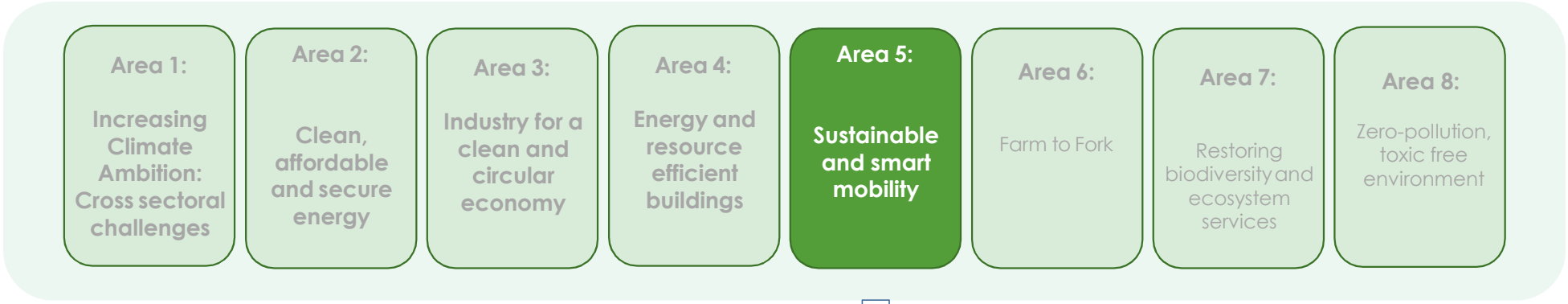
Topic 2: Demonstration of systemic solutions for the territorial deployment of the circular economy (LC-GD-3-2-2020)

The “European Green Deal” call in Horizon 2020: the topics



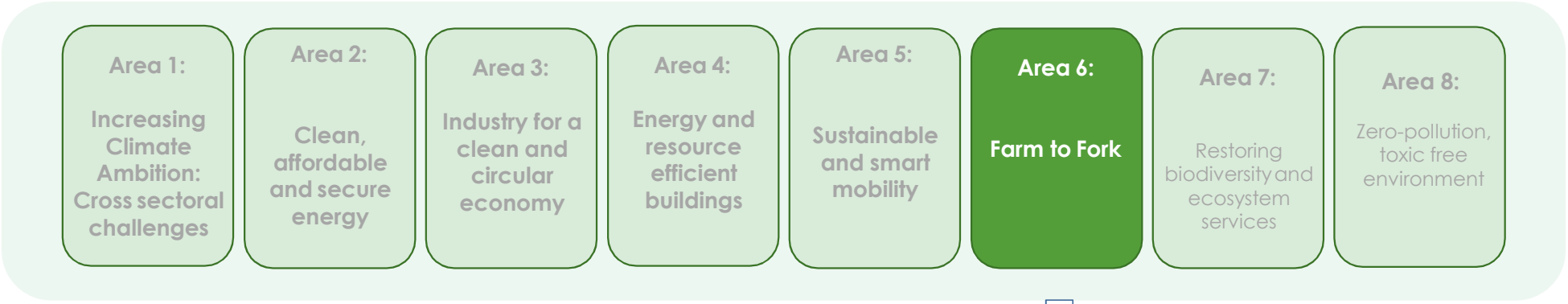
Topic 1: Building and renovating in an energy and resource efficient way
(LC-GD-4-1-2020)

The “European Green Deal” call in Horizon 2020: the topics



Topic 1: Green airports and ports as hubs for sustainable and smart mobility
(LC-GD-5-1-2020)

The “European Green Deal” call in Horizon 2020: the topics



Topic: Testing and demonstrating systemic in support of the Farm-to-Fork strategy
(LC-GD-6-1-2020)

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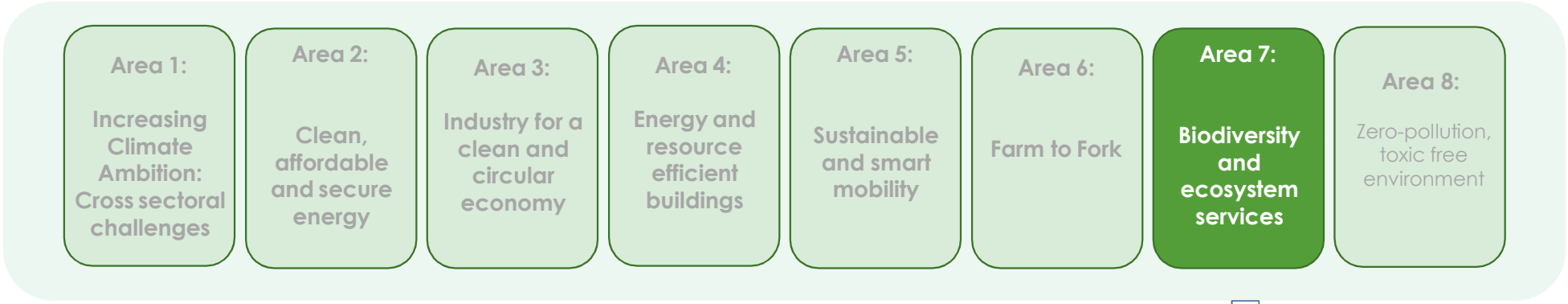
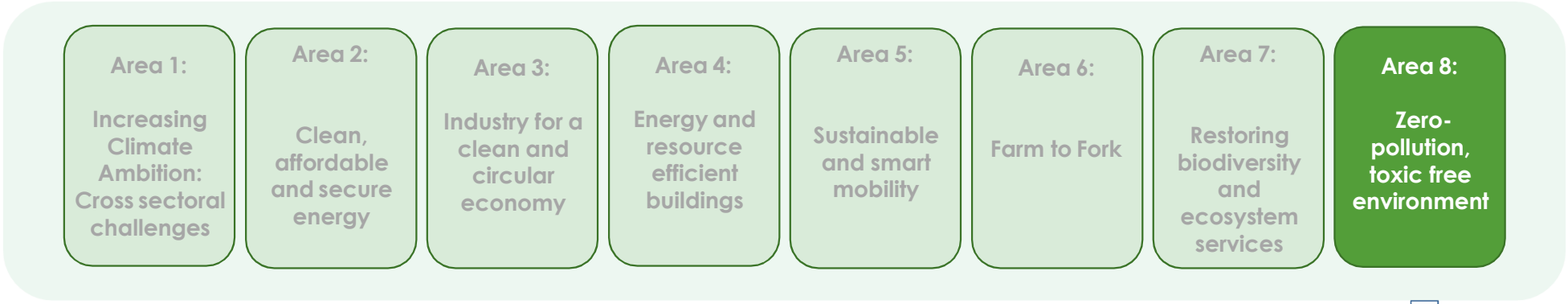


Topic: Restoring biodiversity and ecosystem services (LC-GD-7-1-2020)

The “European Green Deal” call in Horizon 2020: the topics



Topic 1: Innovative, systemic zero-pollution solutions to protect health, environment and natural resources from persistent and mobile chemicals
(LC-GD-8-1-2020)

Topic 2: Fostering regulatory science to address chemical and pharmaceutical mixtures: from science to evidence-based policies
(LC-GD-8-2-2020)

The “European Green Deal” call in Horizon 2020: the topics

Area 9: Strengthening our knowledge in support of the European Green Deal

Topic 1:European Research Infrastructures capacities and services to address European Green Deal challenges (LC-GD-9-1-2020)

Topic 2: Developing end-user products and services for all stakeholders and citizens, supporting climate adaptation and mitigation (LC-GD-9-2-2020)

Topic 3: Transparent &Accessible Seas and Oceans: Towards a Digital Twin of the Ocean (LC-GD-9-3-2020)

The “European Green Deal” call in Horizon 2020: the topics

Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe

Topic 1:European capacities for citizen deliberation and behavioural change for the Green Deal (LC-GD-10-1-2020)

Topic 2: Behavioural, social and cultural change for the Green Deal (LC-GD-10-2-2020)

Topic 3: Enabling citizens to act on climate change, for sustainable development and environmental protection through education, citizen science, observation initiatives, and civic engagement (LC-GD-10-3-2020)

The “European Green Deal” call in Horizon 2020: the topics

Area 11: Accelerating the clean energy transition and access in partnership with Africa

It was foreseen in 2020 GD call.
Should be in next framework programme

AREA1

Topic 2: Towards climate-neutral and socially innovative cities

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

What is at stake:

- Cities occupy 2% of the planet's landmass, consume over 65% of the world's energy and account for more than 70% of the global CO_2 emissions
- Cities and local communities can benefit from social innovation and EU R&I towards the transition to climate neutrality, leaving no one behind
- 75% of the European citizens live in cities and possibly 80% by 2050: Cities will play a crucial role in reaching the targets of the Green Deal

Objective of the topic: to support cities into using Green Deal-targeted social and technological innovation to co-create, test and implement holistic & integrated solutions with citizens and trigger changes in social practices and behaviour

Targeted Impacts:

- Climate neutrality by 2030 of the participating cities (and districts)
- Empower cities and local communities through social innovation to cross social tipping points and make the Green Deal happen
- Mobilise the demand (citizens' needs) to lead the transition to climate neutrality

Proposed activities:

- Support the development of climate action plans in cities (and local communities)
- Combine existing results of EU R&I with social innovation, and take advantage of the digital transformation to co-create and test solutions with local communities, including changes in social practices and behavior
- Establish a one-stop shop in partner cities to help them implement their climate action plans
- Support twinning and mentoring on Green Deal objectives between cities from different countries and different sizes and creating a European ecosystem of social innovation hubs and local communities making the Green Deal happen
- Support large scale pilots of systemic solutions combining technological, social, cultural, regulatory and/or financial aspects, inspired by good practices available at local, national and/or European level

AREA1 Topic 3: Climate-resilient innovation packages for EU regions

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

What is at stake:

- Every half-degree of global warming may inflict a new order of magnitude of harmful consequences on planetary health, economic and social cohesion. We need radical and transformative ways of building resilience to climate variability and change.

Objective of the topic: scaling up and demonstrating systemic, integrated solutions and technologies at a large scale is the way forward to trigger behavioral changes. Solutions that combine technological, business, governance, environmental and social innovation will contribute to the development of adaptation pathways tailored to the most vulnerable regions and communities to climate change.

Targeted Impacts:

- Accelerate transformative change across all regions and sectors of society
- Massive increase of community resilience and capacities to cope with unavoidable effects of climate change
- Specific EU Green Deal targets: *EU Adaptation Strategy – EU Forest Strategy – Farm to Fork Strategy*

Proposed activities:

Development of region-specific portfolios of solutions for climate action may include:

- **increase water efficiency in regions and enhanced planning for floods and droughts;**
- adapt to temperature increase with sustainable cooling solutions that decrease energy demand and reduce fatalities during heatwaves
- nature-based adaptation solutions for coastal defence infrastructures
- insurance innovations that incorporate a dynamic, long-term, and adaptive view of climate risk into modelling and pricing
- support to the development of coherent policy frameworks at regional level that give priority to the implementation of urgent and no-regret adaptation actions

AREA4

Topic: Building and renovating in an energy and resource efficient way

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

Objective of the topic:

To design and construct new or retrofit existing buildings as zero-emission/zero- pollution, positive energy powerhouses. The multiplication of such buildings in green neighborhood "living labs" with additional urban functionalities (e.g. shared EV charging facilities) will enable the market and consumer uptake potential of the innovations.

Targeted Impacts:

- To accelerate the diffusion of the high efficiency zero-emission/zero-pollution, sustainable technologies and innovations needed for the full decarbonisation of the building sector. This will increase incentives for investment and economies of scale bringing down costs for all and it will create new business models and services, new usages, changed behavior.
- To enable an energy transition corresponding to a 'just transition' in the building sector, ensuring a healthy and safe living environment while supporting an increase of renovation rates. **Most importantly, leading to highly energy and resource efficient, cheaper to run "green neighborhoods" – a crucial advantage for the least well-off who can not afford to live in an energy inefficient way.**

Proposed activities:

- Scalability design of positive energy neighborhoods well embedded in the spatial, economic, technical, environmental and social context of the sites
- High energy efficiency building designs (incorporating thermal design and orientation), adapted to local environments; highly efficient building operation.
- **Innovative and more energy efficient integrated renewable electricity technologies in the buildings and urban service facilities.**
- **Innovative and sustainable highly energy and cost efficient RES heating and cooling solutions.**
- **Energy storage systems (e.g. using second life batteries from electric vehicles) without limiting the use of living space (e.g. neighbourhood optimized storage).**
- **Digital technologies for system monitoring at neighbourhood scale, as well as digital solutions to increase energy efficiency of building systems' and appliances' operation.**
- Education and training for sustainability, conducive to competences and positive behaviour/good habits for a resource efficient and environmentally respectful energy use.
- Accelerating innovation spread through involvement of the whole buildings value chain and coordination on standards and regulatory aspects for efficiency of buildings and heating and cooling technologies.

AREA6

Topic: Testing and demonstrating systemic innovations for sustainable food from farm to fork

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

Full title : "From farm to fork: testing and demonstrating high impact innovations to address food system challenges in a place-based context."

Targeted Impacts:

An Innovation Action (IA), that calls for demonstration projects to test, pilot and showcase place-based, innovative system solutions to **4 pressing food systems' challenges**, and resulting in 4 targeted impacts:

- (a) achieving climate neutral farms, and/or b) achieving climate neutral food businesses;
- reduction of pesticides, antimicrobials, fertilizers and harmful nutrients, towards zero pollution
- reduction of food loss and waste
- shifting to sustainable and healthy diets, sourced from land and sea.

Projects will:

1. maximise synergies and minimise trade-offs between the three dimensions of sustainability (social/health, climate/environmental and economic) & respect planetary boundaries.

2. address one of the 4 challenges & integrate the following elements:
   - Systemic approach at the basis of a plan to tackle the challenge: from identifying drivers and root causes of systemic challenge to assessing impact of solutions
   - Multi-actor approach, engaging partners to co-create, test and demonstrate solutions
   - Most appropriate mix of innovations: technologies, business models, governance models, and social innovations, taking into account the place- based context
   - An action plan for communication and engagement, in and beyond the regions where the activities take place

AREA10

Topic 3: Enabling citizens to act on climate change and environmental protection through education, citizen science, observation initiatives, and civic involvement

Area 9: Strengthening our knowledge in support of the EGD

Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe

Area 11: International cooperation

The aim of this call topic is to empower and directly involve citizens in realising their personal impact on climate and the environment thus leading to a change in their behaviour, reducing their personal carbon footprint and taking action at societal level towards a more sustainable future.

Targeted Impacts:

- Improved citizens' engagement in addressing climate change and other human-induced actions harming the environment
- Strengthened climate issue awareness of new generation through education
- Accelerated change of citizen's behavior towards more sustainable patterns.
- Increased citizens empowerment in monitoring climate parameters through sharing the wealth of data they collect with their wearables

Proposed activities:

- Establish a competence framework on climate change and Green Deal implementation, which will serve as a reference tool for the MS, stakeholders, and NGOs to empower citizens to become engaged actors in the Green Deal. Concrete implementation of this framework will be encouraged on demonstration sites (e.g. in schools, universities and identified education communities).
- Engage citizens and education systems on climate-related issues, biodiversity, marine pollution and sustainable food through e.g. the European Ocean Literacy platform, the European Atlas of the Seas, citizen science, civic consortia, deliberative democracy initiatives, businesses, NGOs and municipalities
- Collect environmental data through individual devices (personal wearable sensors, app registering consumer behavior on carbon footprint, extreme weather community app, marine litter watch, etc.)
- Involve citizens in realizing their own environmental impact and empower them with concrete advice for behavioral change

Possible topics for Green Deal call

The call will largely finance innovation and demonstration projects (**Innovation Actions**): 12 IA, 8 RIA and 2 CSA

Area of the call	Link to topic
Area 1	Increasing Climate Ambition
Area 2	Clean, affordable and secure energy
Area 3	Industry for a clean and circular economy
Area 4	Energy and resource efficient buildings
Area 5	Sustainable and smart mobility
Area 6	Farm to Fork
Area 7	Ecosystems and Biodiversity
Area 8	Zero-pollution, toxic free environment
Area 9	Strengthening our knowledge in support of the EGD
Area 10	Empowering citizens for the transition towards a climate neutral, sustainable Europe

Timetable

3 June 2020
Deadline for giving your online feedback for the call

mid-September 2020
Formal adoption of Green Deal call as amendment to Horizon 2020 work programme 2018-20

mid-September 2020
Publication and opening of the call

22-24 September 2020
Opportunity to find potential project partners at the EU R&I Days

26 January 2021
Deadline for submitting project proposals

BUSINESS CASE

How to prepare a good proposal?

1. Evaluation Process – basic principles and timeline
2. Before you start - tips and lessons learnt

1 Evaluation Process: basic principles and timeline

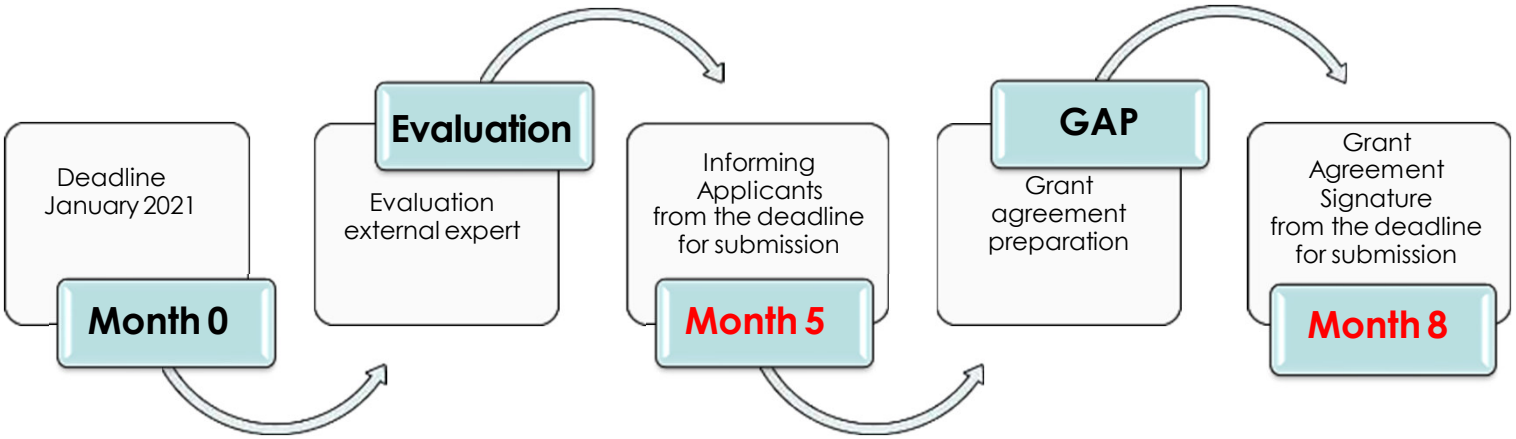
H2020 Type of Actions

	RIA	IA	CSA
	Research Innovaction Action	***Innovaction Action***	***Coordination and Support Action***
Activities funded	Action consisting of activities aiming at establishing new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution.	Action primarily consisting of activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services.	Action that improve skills, mobilise large – scale investments or facilitate EU policy implementation
Funding rate	EU funding rate:100%	EU funding rate:70% 100% for non-profit legal entities	EU funding rate:100%
Beneficiaries	Minimum 3 established in different EU Member States or in associated countries	Minimum 3 established in different EU Member States or in associated countries	Minimum 1 established in EU Member States or in associated countries

1 Evaluation Process: basic principles and timeline

Timeline

H2020 – Green Deal Calls



1 Evaluation Process: basic principles and timeline

Award criteria

RIA/IA

Excellence

- Clarity and pertinence of the **objectives**
- Soundness of the **concept**, and credibility of the proposed **methodology.**
- Extent that proposed work is beyond the **state of the art**, and demonstrates **innovation potential** (e.g. ground-breaking objectives, novel concepts and approaches, new products, services or business and organisational models)
- Appropriate consideration of **interdisciplinary** approaches and, where relevant, use of stakeholder knowledge and **gender dimension in research and innovation content**

Impact

- The extent to which the output of the project would contribute to each of the expected **impacts** mentionned in the work programme under the **relevant topic.**
- Any substantial impacts not mentioned in the WP, that would enhance innovation capacity; create new market opportunities, strengthen competitiveness and growth of companies, address issues related to climate change or the environment, or bring other important benefits for society.
- Quality of proposed measures to **exploit** and **disseminate** the project results (including management of IPR), and to manage research data where relevant); **communicate** the project activities to different target audiences

Implementation

- Quality and effectiveness of the **work plan**, including extent to which the **resources** assigned to work packages are **in line with their objectives and deliverables**
- Appropriateness of **management structures** and **procedures**, including risk and innovation management
- Complementarity of the participants and extent to which the consortium as whole brings together the necessary expertise
- Appropriateness of the allocation of tasks, ensuring that all participants have a valid role and adequate resources in the project to fulfill that role

1 Evaluation Process: basic principles and timeline

Award criteria

CSA

Excellence

- Clarity and pertinence of the **objectives.**
- Soundness of the **concept.** and credibility of the proposed **methodology.**
- Quality of the proposed **coordination** and/or **support measures.**

Impact

- The extent to which the output of the project would contribute to each of the expected **impacts** mentioned in the work programme under the **relevant topic.**
- Quality of proposed measures to:
  - **exploit** and **disseminate** the project results (including management of the IPR), and to manage research data where relevant;
  - **communicate** the project activities to different target audiences.

Implementation

- Quality and effectiveness of the **work plan**, including extent to which the **resources** assigned to work packages are **in line with their objectives and deliverables.**
- Appropriateness of **management structures** and **procedures**, including risk and innovation management.
- **Complementarity of the participants** and extent to which the consortium as whole brings together
- the necessary expertise.
- **Appropriateness of the allocation of tasks**, ensuring that all participants have a valid role and adequate resources in the project to fulfill that role.

2 Tips and lessons learnt

The timing

Call open - From 22 September 2020
To 26 January 2021

Start early – a good proposal needs time and evolution

2 Tips and lessons learnt

Quality = key to success

Demonstrate WHAT – WHY – HOW!

An **excellent idea** is the basis of a good proposal but is **not sufficient**….

The **expected impacts and implementation aspects are as important!**

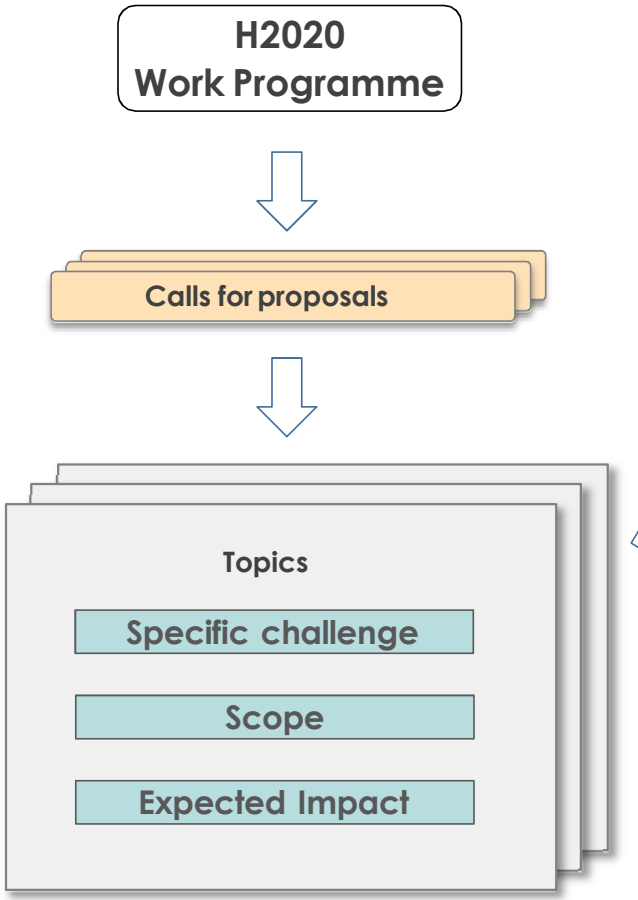
The proposal should **excel in each single criterion!**

Be specific in your objectives and expected impacts and clearly demonstrate how you aim to implement and sustain them

2 Tips and lessons learnt

Carefully read the Call topics text and additional documents

Proposal should answer scope and expected impacts of the Call topic



The 'problem'

Identifies the aspects of the challenge that needs to be tackled.

WP text does not outline the expected solutions to the problem, nor the approach to be taken by the applicant

The 'problem in detail'

Provides **more details on the specific challenge** by specifying the problem described

The 'change' to be achieved

Provides a broad **description of what is the impact to be achieved through the project(s) to be funded.**

The **dissemination and exploitation** of future research results are vital for the impact

2 Tips and lessons learnt

Quality = key to success

Proposals have

2 parts

Both parts need to be assessed

Page limitation: 50 or 70 pages for Part B

(excessive pages made invisible)

Part A

General Information – Abstract

Participants and contacts

Budget

Ethics

Call specific question – Open Research Data Pilot

Part B

Section 1: Excellence (objectives; relation to WP; concept & approach; ambition)

Section 2: Impact (expected impacts; measures to maximize impact which include dissemination & exploitation of results and communication activities)

Section 3: Implementation (work plan; management structure & procedures; consortium; resources)

Section 4: Members of the consortium

Section 5: Ethics and security

Thank you for you attention!

ANNEX

AREA2

Topic 1: Demonstration of innovative critical technologies to enable future large-scale deployment of offshore renewable energy technologies (with the possibility to address also hydrogen applications)

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

To decarbonise Europe, **clean renewable power production** must become the main source of energy. A Clean planet for all, provides estimates for the offshore wind capacity in Europe of 240-440 GW by 2050.

What is at stake:

This increase would represent a paradigm shift in the European energy system and require a modern infrastructure to transport offshore renewable energy power to onshore, including through the **option of power-to-X**. This buildout needs to be attained while also protecting the environment and biodiversity and **securing a just transition, all while ensuring cost-efficiency**.

Objective of the topic: There is a need for more efficient and cost-effective technologies using wind, wave and/or tidal resources, considering the potential of the different European sea basins.

Targeted Impacts:

- To accelerate the future roll-out of large-scale deployment of offshore renewable energy, considering market perspective and social, environmental and economic impacts.
- To accelerate the development of innovative critical offshore technologies for the realization of a clean renewable power production system needed to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050.
- To increase incentives for investment and economies of scale in offshore bringing down costs and it will create new business models and services

Proposed activities:

Demonstration of critical offshore renewable energy innovations at sea considering the efficiency, reliability and sustainability that is needed in all areas of the offshore renewable energy system notably:

- **Offshore renewable energy power generating systems:** innovative large scale integrated systems, floaters and substructures, mooring and anchoring systems specifically conceived for floating offshore considering the varied subsea conditions for floating offshore systems.
- **Grid infrastructure**: demonstration of innovative High Voltage Direct Current (HVDC) technologies and systems (like multi-vendor Multi Terminal HVDC (MT HVDC) systems, grid forming converter, and DC circuit Breaker); for floating renewable energy technologies innovative dynamic inter-device/inter-array cables and connections to converter stations at sea or offshore hubs have to be considered.
- **Power to X /storage systems:** innovative storage and/or green power to X (including hydrogen) systems to maximise the use of offshore resources. It shall address at least the offshore renewable energy power generating systems and the related energy system integration requirements, and may address grid infrastructure and/or power to X/storage systems.

Proposals shall address marine spatial planning (making multi-use of the seas possible), industrial design and manufacturing processes, installation methods, transport and operation & maintenance and supply chains.

AREA2

Topic 2: Develop and demonstrate a 100 MW electrolyser upscaling the link between renewables and industrial applications

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

Demonstrate energy system integration through hydrogen: produce hydrogen from RES and use it in a commercial/industrial application (e.g. chemical or petrochemical industry)

Targeted Impacts:

- Establish a European industry capable of developing a nove100MW electrolyser using a European valuechain
- Increase the efficiency of the **electrolyser** reaching an energy consumption of 49 (ALK) to 52 (PEM) kWh/kg H2 at nominal power
- Increase the current density to 1A/cm2 (ALK) or 3A/cm2 (PEM) and delivery pressure to 30 bar
- Reduce the plant's footprint by 30% thanks to the larger modules and the plant layout as well as the higher current densities
- Reduce the electrolyser CAPEX by 20% down to €480/kW and €700/kW for Alkaline and PEM electrolysers respectively

Proposed activities:

1. Develop modules of 4-5 MW (or larger) with reduced balance of plant, managing efficiently the input power, the output hydrogen streams and the heat flows, while ensuring the reliability of the system and reducing the footprint
2. Assemble the modules into a 100MW electrolyser system
3. Test and demonstrate the 100MW electrolyser in real life conditions, operating flexibly to harvest maximum renewable power and provide grid-balancing services, and supplying renewable hydrogen to a commercial/industrial application
4. Assess the performance and the durability of the electrolyser operating dynamically
5. Address potential safety issues

AREA3

Topic 1: Closing the industrial carbon cycle to combat climate change renewable energy driven reduction of CO_2 using innovative catalytic materials and technologies

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

Energy intensive industries, such as steel, chemicals and cement are key to Europe's economy, but they account for 20% of the EU's greenhouse gas emissions.

R&I is proposed on innovative catalytic materials and technologies using renewable energy driven conversion of CO2 emissions into fuels, polymers and chemicals.

Targeted Impacts:

- Demonstrate technical and economic viability of renewable energy driven conversion of CO2 as feedstock, at pilot plant level, to produce climate-neutral fuels, polymers and chemicals.
- Affordable and efficient production, storage and distribution of renewable energy carriers.
- Significant reduction of industrial CO2 emissions (~200 Mt p.a. by 2050).
- Improvement of air quality by reducing the direct flue gas emissions.
- Contribution to industrial circularity and to meet the GHG emissions reduction target for 2030 and climate neutrality by 2050

Proposed activities:

Develop and deploy highly innovative catalytic materials and renewable energy driven technologies for the production of synthetic fuels, polymers and chemicals from industrial waste gas emissions (CO and CO streams)

- with a 50% increase in the overall efficiency compared to the state-of-the-art
- at a sufficiently large scale with a demonstrated cost effectiveness
- with a demonstrated exploitability of the developed technology through the full value chain

AREA3

Topic 2: Demonstration of systemic solutions for the territorial deployment of the circular economy

- Area 1: Increasing Climate Ambition: Cross sectoral challenges
- Area 2: Clean, affordable and secure energy
- **Area 3: Industry for a clean and circular economy**
- Area 4: Energy and resource efficient buildings
- Area 5: Sustainable and smart mobility
- Area 6: Farm to Fork
- Area 7: Restoring biodiversity and ecosystem services
- Area 8: Zero-pollution, toxic free environment

Objective of the topic

- ✓ Build sustainable, regenerative and just circular economy to reconcile with the limits and boundaries of our planet;
- ✓ focus on local and regional levels as suitable for closing material loops and creating sustainable circular ecosystems;
- ✓ **demonstrate concrete systemic solutions for the territorial deployment of the circular economy in at least three territorial clusters in Europe;**
- ✓ **facilitate their replication.**

Targeted Impacts:

Demonstrate R&I systemic solutions for the territorial deployment of the circular economy at the level of governance closest to citizens:

- increase the clusters' overall resource efficiency and reduce GHG emissions;
- increase circularity in clusters' key economic sectors;
- **create jobs and new business opportunities.**

Replication:

- lay the foundation for systemic solutions for the territorial deployment of circular economy in other areas;
- multiply the territorial economic, social and environmental benefits provided by each cluster to achieve policy targets at national and European level.

Proposed activities:

- engage, train, support, coordinate and facilitate the cooperation between key actors constituting each cluster: administrations, industry (including SMEs), scientific community and civil society;
- develop and demonstrate science, technology, governance, economic, social and environmental solutions to increase the circularity in key economic sectors such as waste, water, food, feed, wood, terrestrial and aquatic bio-based value chains, textile, plastics, electrical and electronic equipment, construction and buildings;
- ensure the exchange of relevant information and experiences within and across clusters and also with other actors not involved in the proposals.

Criteria:

- ❑ sustainability, inclusiveness, and social justice at the heart of each systemic solution;
- ❑ replicability potential of each solution is essential;
- ❑ totality of the territorial clusters should reflect a geographical spread within Europe and should be of different sizes and socio-economic structures;
- ❑ **TRL 7-8 at the end of the project.**

AREA4

Topic: Building and renovating in an energy and resource efficient way

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

Objective of the topic:

To design and construct new or retrofit existing buildings as zero-emission/zero- pollution, positive energy powerhouses. The multiplication of such buildings in green neighborhood "living labs" with additional urban functionalities (e.g. shared EV charging facilities) will enable the market and consumer uptake potential of the innovations.

Targeted Impacts:

- To accelerate the diffusion of the high efficiency zero-emission/zero-pollution, sustainable technologies and innovations needed for the full decarbonisation of the building sector. This will increase incentives for investment and economies of scale bringing down costs for all and it will create new business models and services, new usages, changed behavior.
- To enable an energy transition corresponding to a 'just transition' in the building sector, ensuring a healthy and safe living environment while supporting an increase of renovation rates. **Most importantly, leading to highly energy and resource efficient, cheaper to run "green neighborhoods" – a crucial advantage for the least well-off who can not afford to live in an energy inefficient way.**

Proposed activities:

- Scalability design of positive energy neighborhoods well embedded in the spatial, economic, technical, environmental and social context of the sites
- High energy efficiency building designs (incorporating thermal design and orientation), adapted to local environments; highly efficient building operation.
- **Innovative and more energy efficient integrated renewable electricity technologies in the buildings and urban service facilities.**
- **Innovative and sustainable highly energy and cost efficient RES heating and cooling solutions.**
- **Energy storage systems (e.g. using second life batteries from electric vehicles) without limiting the use of living space (e.g. neighbourhood optimized storage).**
- **Digital technologies for system monitoring at neighbourhood scale, as well as digital solutions to increase energy efficiency of building systems' and appliances' operation.**
- Education and training for sustainability, conducive to competences and positive behaviour/good habits for a resource efficient and environmentally respectful energy use.
- Accelerating innovation spread through involvement of the whole buildings value chain and coordination on standards and regulatory aspects for efficiency of buildings and heating and cooling technologies.

AREA5

Topic: Green airports and ports as hubs for sustainable and smart mobility

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

Large-scale, real-life demonstrations of green airports, maritime and inland ports

Targeted Impacts:

- **Accelerated deployment of sustainable alternative fuels (including advanced biofuels, hydrogen, ammonia), electromobility, energy storage and waste heat recovery in ports and airports**
- On-site clean energy / fuel production and distribution (particularly green hydrogen and electricity) and increased alternative (bio-) fuel supply, on site electricity generation with refueling and re-charging capabilities
- **Zero-emission ports and airport operations by 2030**
- Reduced waterborne and aviation transport emissions and improved air quality at ports and near airports
- **Energy-efficient port and airport operations and buildings, green logistics, integration with other low-emission transport modes**
- Reduced emissions for cities and improved city integration for ports and airports

Proposed activities:

- **Pilot/demo plants of zero-emission energy production and supply at ports and airports (electricity, hydrogen, sustainable alternative fuels)**
- On-shore supply systems, storage, distribution and power/re-charging/alternative re-fuelling infrastructure for aircrafts and ships
- Large-scale, real-life high TRL demonstrations of green maritime and inland ports, of different sizes, across 3 airport dimensions: transport; energy supply; terminals
- Integration with operations and green logistics, innovative construction, dredging, infrastructures, effective and green land use
- **New tools and optimisation mechanisms for multimodal access, passenger and freight flows into / out of ports and airports, facilitating access and reducing traffic from / to the city**
- Non-technological framework conditions, new multi-actor governance and investment analyses

AREA6

Topic: Testing and demonstrating systemic innovations for sustainable food from farm to fork

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

Full title : "From farm to fork: testing and demonstrating high impact innovations to address food system challenges in a place-based context."

Targeted Impacts:

An Innovation Action (IA), that calls for demonstration projects to test, pilot and showcase place-based, innovative system solutions to **4 pressing food systems' challenges**, and resulting in 4 targeted impacts:

- (a) achieving climate neutral farms, and/or b) achieving climate neutral food businesses;
- reduction of pesticides, antimicrobials, fertilizers and harmful nutrients, towards zero pollution
- reduction of food loss and waste
- shifting to sustainable and healthy diets, sourced from land and sea.

Projects will:

1. maximise synergies and minimise trade-offs between the three dimensions of sustainability (social/health, climate/environmental and economic) & respect planetary boundaries.

2. address one of the 4 challenges & integrate the following elements:
   - Systemic approach at the basis of a plan to tackle the challenge: from identifying drivers and root causes of systemic challenge to assessing impact of solutions
   - Multi-actor approach, engaging partners to co-create, test and demonstrate solutions
   - Most appropriate mix of innovations: technologies, business models, governance models, and social innovations, taking into account the place- based context
   - An action plan for communication and engagement, in and beyond the regions where the activities take place

AREA7

Topic: Restoring biodiversity and ecosystem services

- **Area 1:** Increasing Climate Ambition: Cross sectoral challenges
- **Area 2:** Clean, affordable and secure energy
- **Area 3:** Industry for a clean and circular economy
- **Area 4:** Energy and resource efficient buildings
- **Area 5:** Sustainable and smart mobility
- **Area 6:** Farm to Fork
- **Area 7:** Restoring biodiversity and ecosystem services
- **Area 8:** Zero-pollution, toxic free environment

Test, demonstrate and promote systemic solutions for up-scaling the restoration of biodiversity and ecosystem services

Targeted Impacts:

- Tested up-scaling of large-scale and urgent restoration actions on the ground, to prepare resilient ecosystems and their services at sea and on land
- Restoration actions are implemented which will enhance natural carbon sinks and reduce the effects of emissions, locally reverse biodiversity decline and improve the delivery of a range of ecosystem services (in the short- to long-term)
- Nature-based solutions are adapted, integrated and demonstrated in governance, financing, public procurement, economic development, infrastructure and regional strategic landscapes
- Demonstration of how restoration activities enable sustainable, climate-smart, inclusive, transformative approaches
- Value created for communities affected by transformative change through the restoration of their degraded terrestrial and marine environment
- Showcase how massive restoration can help enabling transformative change including of social and behavioural factors, which will be beneficial for biodiversity

Proposed activities:

- Restore degraded ecosystems at sea and on land at large scale
- Test innovative methods for upscaling restoration
- Replicate deployment of restoration towards resilient ecosystems and their services at regional, national and cross-border levels
- Address barriers to the implementation of nature-based solutions
- **Showcase in practice how to maximize synergies and avoid trade-offs between priorities for restoring biodiversity, mitigating and adapting to climate change**
- Support the development of specific demand and supply chains in restoring ecosystems
- Work for communities in transition affected by transformative change through the restoration of their degraded terrestrial and marine environment
- **Developing answers on how to frame transformational change, which supports a just transition by investing in nature, to explicitly help vulnerable regions and communities to improve their resilience when rapid changes in climate and environment, economies and social conditions occur.**
- Generate knowledge on how enabling transformative change can be beneficial for biodiversity and climate change, and bring this information into IPBES (Intergovernmental Science Policy Platform on biodiversity and Ecosystem) and IPCC (Intergovernmental Panel on Climate Change) processes

AREA8

Topic 1: Innovative, systemic zero-pollution solutions to protect health, environment and natural resources from persistent and mobile chemicals

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

The Zero Pollution Ambition for a Toxic-free Environment calls for rapidly addressing the risks posed by very persistent chemicals.

Objective of the topic:

This call topic aims at demonstrating innovative solutions to protect health, environment and natural resources from persistent and mobile chemicals, such as PFAS, a group of thousands of manmade chemicals that are widely used in various consumer and industrial products, to which citizens are exposed.

Targeted Impacts:

- Better understanding of a persistent pollution problem of human and environmental health relevance
- Better remediation and detection technologies
- Data for risk assessment, made accessible to policy making and risk communication

Proposed activities:

- **Research and development of remediation technologies of contaminated soil and water for persistent and mobile substances;**
- New methods to measure persistent and mobile chemicals in different media;
- Develop and carry out environmental and human (bio)monitoring of persistent and mobile substances;
- **Gather toxicity and toxico-kinetic information in order to allow characterising all risks to human health;**
- Develop best practices for the management of waste containing persistent and mobile substances

AREA8

Topic 2: Fostering regulatory science to address chemical and pharmaceutical mixtures: from science to evidence-based policies

Area 1: Increasing Climate Ambition: Cross sectoral challenges

Area 2: Clean, affordable and secure energy

Area 3: Industry for a clean and circular economy

Area 4: Energy and resource efficient buildings

Area 5: Sustainable and smart mobility

Area 6: Farm to Fork

Area 7: Restoring biodiversity and ecosystem services

Area 8: Zero-pollution, toxic free environment

The new Chemicals Strategy for Sustainability, proposed under the EGD, calls for the regulatory framework to rapidly act on the risks (underestimated) posed by combination effects of different chemicals to better protect both citizens and the environment against hazardous substances.

Objective of the topic:

This call topic aims at demonstration studies to show how innovative solutions can be **applied in risk assessment to identify, prevent and manage harmful co- exposures to industrial chemicals and pharmaceuticals.**

Targeted Impacts:

- Identification of most commonly encountered mixtures, their impacts on different parts of the ecosystem and human health, and implementation of solutions to reduce the most critical exposures;
- More targeted and innovative risk assessment of mixtures of chemicals and pharmaceuticals to better assess their presence in drinking water, soil, food and feed.

Proposed activities:

- Demonstration of innovative solutions to quantify and prevent the most harmful co-exposures to industrial chemicals and pharmaceuticals.
- Advanced solutions for the establishment of causality between co-exposures and effects
- Development of targeted and non-targeted high-throughput technologies for screening, and advanced bioinformatics approaches, such as artificial intelligence and other data mining methodologies, to identify the most representative real-life mixture scenarios in humans
- Identification of lead components in mixtures, responsible for the impact on human health and the ecosystems

AREA9

Topic 1: European Research Infrastructures capacities and services to address European Green Deal challenges

Area 9: Strengthening our knowledge in support of the EGD

Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe

Area 11: International cooperation

Mobilisation and advancement of world-class capacities and resources such as those offered by European Research Infrastructures (RIs) **for energy storage and climate/environment observation.**

Targeted Impacts:

- Enabling breakthrough research and innovation in energy storage across the whole value chain and with a life-cycle approach
- Anchoring European RIs in an efficient and competitive research and industrial ecosystem for energy storage
- Strengthening the observation and monitoring of GHG emissions, ultrafine particles and air quality, in particular in and around urban areas
- Providing evidence for the development of sustainability strategies, taking also account of impacts on health
- Advanced, optimised and harmonised research services and data to address Green Deal objectives
- New advanced skills to exploit the most advanced instruments and resources for R&I addressing Green Deal challenges

The activities will focus on:

- Transnational and virtual access to advanced R&I infrastructures, including users' training and scientific and technical support and data analysis to accelerate the transition toward a decarbonised energy/transport EU system
- **Provision of integrated and customised services and innovative solutions for the observation and monitoring of GHG emissions, ultrafine particles and air quality, in particular in and around urban areas: interoperable data, tools/equipment and models for the scientific community and public authorities/decision makers**
- Development of synergies between research infrastructures and relevant local, European and global initiatives in different disciplinary areas, including health and social sciences

AREA9

Topic 2: Developing end-user products and services for all stakeholders and citizens, supporting climate adaptation and mitigation

Area 9: Strengthening our knowledge in support of the EGD

Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe

Area 11: International cooperation

Provide more detailed information in space and time, relevant to **real-world decision-makers to identify which modes of production, consumption and ifestyle are compatible with climate resilience** and pathways achieving climate neutrality by 2050.

Targeted Impacts:

- Improved delivery of climate service delivery in the last mile of the value chain, across the priority sectors of the European Green Deal
- Increased accessibility of information on climate effects to citizens
- Improved quality of data and information on climate adaptation and mitigation
- Well characterised social and behavioural factors necessary for the climate transition
- Improved climate adaptation and mitigation solutions enabling overcoming societal and economic barriers
- Better informed citizens and stakeholders on options for climate action in their own communities, regions and sectors
- More opportunity for stakeholders to test adaptation/mitigation solutions on the ground

Proposed activities:

- Advancing climate science and models, and downscaling their findings to improve their user relevance
- Delivering the next-generation of climate services for end users (buildingon GEOSS and Copernicus services, in collaboration with ESA).
- Testing these services on demonstrations sites with the provision of guidance services.
- Making the above findings accessible to the public, going beyond existing tools in both scientific robustness and user relevance.
- Synthesising this knowledge by bridging the gap between the expert tools already generated by European science, and the stakeholders who are making decisions today that will both affect and be affected by climate change and its impacts.
- **Converting the mitigation pathways that are compatible with our climate goals into clear information on how production, consumption, infrastructure and lifestyle need to change**.

AREA9

Topic 3: A transparent and accessible ocean towards a Digital Twin of the Ocean

Area 9: Strengthening our knowledge in support of the EGD

Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe

Area 11: International cooperation

Objective of the topic:

This topic supports the development of an EU integrated digital ocean, building on existing Copernicus, EMODNET, ERICs assets, addressing concrete cases in local or regional sea basins, and demonstrating their usefulness with regard to several of the Green Deal priorities

Targeted Impacts:

- Societal awareness and greater private and citizen engagement promoting cocreation of solutions with Member States
- Increased purposeful observation and modelling capacity and data sharing
- Higher integration of existing EU assets (data, techs, infras)
- Fact-based decision-making and implementation of legal requirements,
- Shared responsibility (gov, industry, citizens) to monitor and ensure sustainable marine economic activities and exploitation of ecosystem services (fishing, aquaculture, transport, offshore energy, …)
- Allow assessments of ecosystems and habitats and development of biodiversity conservation strategies
- Achievements of Green Deal objectives with the help of digital tools in coastal areas and over ocean

Proposed activities:

- **Digital interactive replicas of the oceans and seas**
- Build on the integration of existing EU leading-edge capacities in ocean observation, forecasting and data warehousing with innovative IT technology
- Concrete cases in local or regional sea basins, demonstrating the use of digital twins with regard to several of the Green Deal priorities, integrated into national infrastructures
- Concrete cases: infrastructure vulnerability, development of mitigation, adaptation and replacement plans to deal with climate risks, optimisation of emergency responses to severe events, sustainable fishing, aquaculture, transport, offshore energy, …
- **Continuous, timely, transparent monitoring**
- Identification and digital testing of possible solutions, what-if scenarios
- **Cover the whole knowledge value chain: sensors, modelling, big data and AI applications, user-based services**

AREA10

Topic 1: European capacities for citizen deliberation and participation for the Green Deal

Area 9: Strengthening our knowledge in support of the EGD

Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe

Area 11: International cooperation

This topic covers two sub-areas: itizen deliberation and behavioural change with one project expected to be funded in each area..

Targeted Impacts:

- Ownership and engagement from people across Europe through citizen deliberation
- Behaviour change at both individual and collective levels through behavioural research
- Structured expertise, research and practice networks of the highest ethical and methodological standards across Europe on the above.

Proposed activities:

Projects retained will:

- Establish transnational networks of experts, researchers and practitioners
- Implement deliberation processes and behavioural research on priority issues to deliver on the Green Deal
- Ensure balanced overall coverage of EU and associated countries, associating national/local governments and administrations
- Establish independent boards of guarantors to ensure scientific soundness, ethical and unbiased character of these activities.

AREA10

Topic 2: Behavioural, social and cultural change for the Green Deal

Area 9: Strengthening our knowledge in support of the EGD

Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe

Area 11: International cooperation

This topic covers two sub-areas: itizen deliberation and behavioural change with one project expected to be funded in each area..

Targeted Impacts:

- Ownership and engagement from people across Europe through citizen deliberation
- Behaviour change at both individual and collective levels through behavioural research
- Structured expertise, research and practice networks of the highest ethical and methodological standards across Europe on the above.

Proposed activities:

Projects retained will:

- Establish transnational networks of experts, researchers and practitioners
- Implement deliberation processes and behavioural research on priority issues to deliver on the Green Deal
- Ensure balanced overall coverage of EU and associated countries, associating national/local governments and administrations
- Establish independent boards of guarantors to ensure scientific soundness, ethical and unbiased character of these activities.

AREA10

Topic 3: Enabling citizens to act on climate change and environmental protection through education, citizen science, observation initiatives, and civic involvement

Area 9: Strengthening our knowledge in support of the EGD

Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe

Area 11: International cooperation

The aim of this call topic is to empower and directly involve citizens in realising their personal impact on climate and the environment thus leading to a change in their behaviour, reducing their personal carbon footprint and taking action at societal level towards a more sustainable future.

Targeted Impacts:

- Improved citizens' engagement in addressing climate change and other human-induced actions harming the environment
- Strengthened climate issue awareness of new generation through education
- Accelerated change of citizen's behavior towards more sustainable patterns.
- Increased citizens empowerment in monitoring climate parameters through sharing the wealth of data they collect with their wearables

Proposed activities:

- Establish a competence framework on climate change and Green Deal implementation, which will serve as a reference tool for the MS, stakeholders, and NGOs to empower citizens to become engaged actors in the Green Deal. Concrete implementation of this framework will be encouraged on demonstration sites (e.g. in schools, universities and identified education communities).
- Engage citizens and education systems on climate-related issues, biodiversity, marine pollution and sustainable food through e.g. the European Ocean Literacy platform, the European Atlas of the Seas, citizen science, civic consortia, deliberative democracy initiatives, businesses, NGOs and municipalities
- Collect environmental data through individual devices (personal wearable sensors, app registering consumer behavior on carbon footprint, extreme weather community app, marine litter watch, etc.)
- Involve citizens in realizing their own environmental impact and empower them with concrete advice for behavioral change

AREA11

Topic: Accelerating the green transition and energy access Partnership with Africa

Area 9:
Strengthening our knowledge in support of the EGD

Area 10:
Empowering citizens for the transition towards a climate neutral, sustainable Europe

Area 11:
International cooperation

- All areas and topics of the Green Deal call are open to international cooperation. In addition to embedding international cooperation to the other topics, a separate topic is proposed with a focus on clean energy solutions in Africa and the Mediterranean.
- Reflecting the geopolitical ambition of this Commission and its renewed commitment towards Africa1 and its neighbour countries, this topic will provide impetus to the diffusion of innovative solutions to Africa and the Mediterranean, supporting their carbon and energy transition and the potential global impact towards carbon neutrality.
- Activities under this topic will include the setting up of dedicated platforms for supporting demonstration of clean energy transition involving a variety of public and private stakeholders at the national and local level while partnering with their counterparts from EU Member States.