

Inventory of key EU Governance Frameworks

Deliverable 5.2

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Abstract

This document outlines the development and structure of the EU Procedural Governance Inventory created within the scope of Work Package 5.2 of the 4i-TRACTION project. The inventory's objective is to present a list of the most important frameworks, institutions, and instruments that are relevant to procedural climate governance in the EU. Work package 5.2 specifically aims to establish connections between procedural governance entries and the project's '4i's (Integration, Infrastructure, Investment, and Innovation), thereby fostering a comprehensive understanding of the EU's governance landscape. The document also delineates the development process of the inventory, involving an iterative approach guided by expert input and quality checks. External stakeholders' feedback during a dedicated workshop finalised the inventory, which now serves as a foundational resource for forthcoming assessments within Work Package 5.3. This document serves as a supplementary companion to the inventory and thus intentionally omits excessive detail; additional details are presented in the annex, which includes the technical guidance document used to fill in the inventory.

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1. Background

The purpose of this document is to give a concise overview on the development and structure of the inventory created under work package 5.2., intentionally omitting excessive detail as it serves as a supplementary companion to the inventory. For a more comprehensive understanding, additional details are presented in the Annex, encompassing the technical guidance document.

1.1 Procedural climate governance

Achieving climate neutrality by 2050 requires a comprehensive and ambitious approach to EU policy and governance (Duwe, 2022; IPCC, 2022; Oberthür et al., 2023). Work Package 5 of 4i-TRACTION focuses specifically on analyzing and formulating policy recommendations for governance aspects related to a government's internal operations and policy-making behavior, as described by Bali et al. (2021, p. 298). Such '**procedural climate governance**' refers to the frameworks, policy instruments, and institutions that shape the decision-making process on climate-related matters and facilitate the EU's formulation and implementation of effective policies (see Figure 1). This includes among other things planning, expert advice, public participation, target setting, and mechanisms that enhance access to justice.

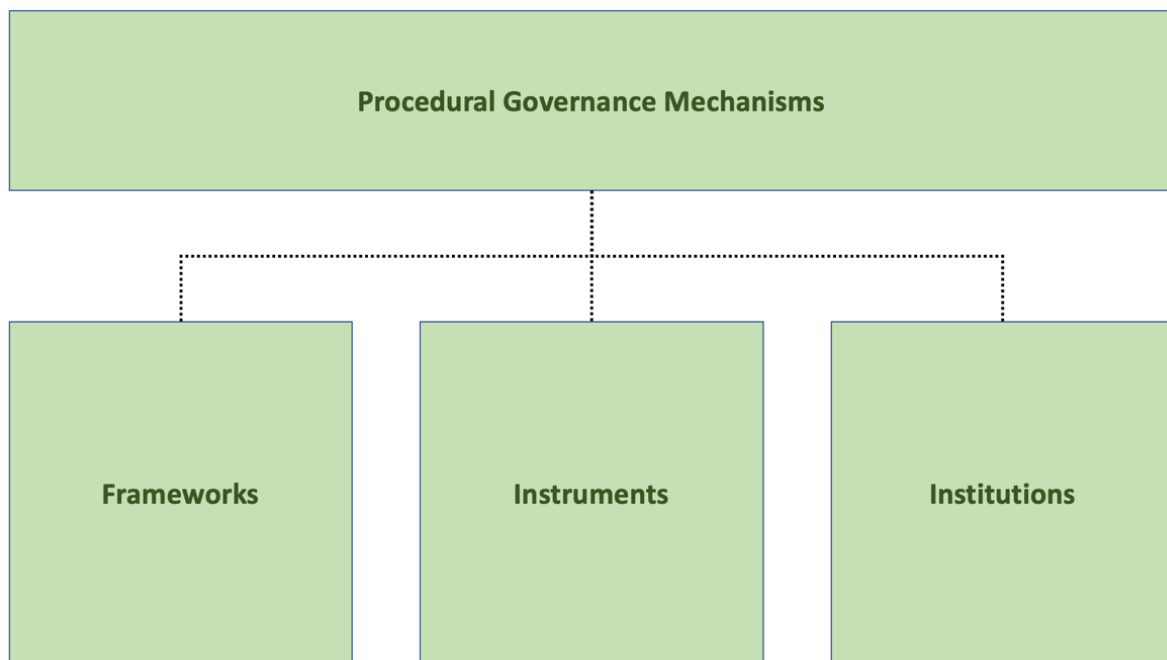


Figure 1 Sub-types of procedural governance mechanisms.

Note: There are three sub-types of procedural governance mechanisms: frameworks (overall systems providing structure and defining relationships); instruments (individual 'tools of government' with meant to carry out a specific governance task or function), and institutions (organisations aimed at organising governance activities) (Moore et al., 2023).

Procedural governance plays a crucial role in the EU's transition towards climate neutrality, working in synergy with a mix of 'substantive' climate mitigation instruments, such as the Effort Sharing Regulation, the EU Emissions Trading System, and emission limits for new cars, vans, and heavy-duty vehicles. Procedural mechanisms are equally vital as direct emission reduction measures. Without the latter, procedural governance would lack tangible impact on real-world emissions. Conversely, without procedural governance, there would be no structured mechanism for amending legislation, reviewing, and revising existing policies, conducting planning, or performing ex-post assessments on previous actions. Procedural and substantive governance function as an interconnected whole, mutually reinforcing each other in the pursuit of climate neutrality.

1.2 Task 5.2: Purpose and aim

This document provides a description of an EU Procedural Governance Inventory developed under task 5.2 of the 4i-TRACTION project. The objective of the inventory is to offer a list of the most important frameworks, institutions, and instruments that are relevant to procedural climate governance in the EU. It aims to establish connections between these entries and the relevant concepts of the 4i-TRACTION project, specifically focusing on procedural governance functions and their relevance to the '4i's' (Integration, Infrastructure, Investment, and Innovation). The list serves as a bridge between tasks 5.1 and 5.3 of the 4i-TRACTION project. Accordingly, the inventory's structure and categories are specifically designed to facilitate an assessment of the current EU landscape of procedural governance.

The inventory was implemented as an Excel sheet and organised using 'sections' and corresponding 'headings,' which are outlined in Table 1 below. Within some sections, there is a dedicated 'note' field that allows for additional information or justifications to be provided. Notably, the 'four I's' section also contains a note field for each heading. To ensure systematic data capture, a **Technical Guidance Document** (see Annex 1 Technical Guidelines) was produced with precise instructions for filling in each cell. The guidance document offered information to researchers on how to select options from drop-down menus, provide concise descriptions of 3-5 sentences, and adhere to specific guidelines and considerations when dealing with entries based on expert judgment.

One practical purpose of the EU Procedural Governance Inventory is to create a tool that can be used within the project context. While the inventory aims to be comprehensive, given the scope of the climate crisis and policy areas it touches, the 103 entries do not serve as an exhaustive list of all relevant governance mechanisms. For example, the inventory includes some institutions with broader mandates working on climate mitigation, e.g., the European Environment Agency or the European Economic and Social Committee but does not consider all institutions working on climate mitigation issues in the EU context. Nonetheless, the inventory plays a crucial role in assessing the status quo of climate-related EU procedural governance and contributing to the assessments conducted under Work Package 5. The assessments focus on specific governance

mechanisms and procedural governance functions; all of which are also included in the inventory. Ultimately, the inventory contributes to the Work Package’s overall objective to develop proposals for an EU climate governance framework that is suitable of delivering transformative change.

The inventory of key EU Governance Frameworks focuses mostly on procedural governance mechanisms. However, the Inventory also includes some key substantive governance mechanisms (CBAM, ETS, RED II), due to the importance of their underlying procedural components to the net zero project. The procedural components are integral to ensure effective implementation of the substantive mechanisms themselves. However, as checking every substantive climate mitigation measure exceeds the scope of this Work Package, the inclusion of the three above mentioned substantive mechanisms are an exception.

2. Inventory: Description and structure

The inventory consists of 103 entries. Where possible entries are sorted according to the overarching policy under which they fall, e.g., European Climate Law, European Green Deal. The cell of the overarching policy is highlighted in light blue¹. Those procedural governance mechanisms that are nested under the European Climate Law are listed below the entry of the ‘European Climate Law’ (see Figure 2).

Overarching policy	Procedural Governance mechanism
European Climate Law	
European Climate Law	2040 target setting process
European Climate Law	EU carbon budget (2030-2050)
European Climate Law	European Scientific Advisory Board on Climate Change
European Climate Law	Assessment of Union progress
European Climate Law	Assessment of consistency of Union measures
European Climate Law	Assessment of consistency of Commission proposals with the ECL
European Climate Law	Assessment of consistency of Member State measures with the ECL

Figure 2 Example of several entries belonging to the same overarching policy in the Procedural Governance Inventory.

As Figure 3 illustrates, the inventory is structured as follows: general information, legal information, the four ‘I’s, scope, procedural governance functions, and additional information. The columns under ‘general information’ cover information like the name of the ‘overarching policy’ (e.g., parent legislation, strategy document) and ‘procedural governance mechanism’. The columns under ‘legal information’ provide the reader with an understanding of the legal form and

¹ The colours might be distorted in the csv version, compared to the excel format.

the EUR-Lex technical reference². The 'four I's' are derived from the 4i-TRACTION framework: integration, innovation, infrastructure, and investment. 'Scope' covers the conventional economic sectors, energy, transport, buildings, industry, agri-food, waste, and carbon dioxide removal (CDR) as well as 'economy wide.' The procedural governance functions were developed under Work Package 5.1, based on a literature review (Moore et al., 2023). Additional columns include information on the entry creation, such as, the initials of the original author, 'date created, and 'link' to the official document if available.

The reasoning behind the content of a cell is described in the various 'notes' columns. Notably, the inventory provides the reader with information about the overall procedural governance landscape and sorts the mechanisms according to the above-mentioned categories. However, it does not assess or evaluate the entries based on their implementation effectiveness.

² Most entries include references to the key underlying document/website. All direct quotations or paraphrases of an entry referring to a certain passage in a document/website are referenced by page and/or article/paragraph. If not indicated otherwise, the underlying source of the content in a cell is the source indicated in column AQ.

Table 1 Structure and content of the inventory.

Section	Heading
GENERAL INFORMATION	Overarching policy
	Governance mechanism
	Short description
	Year
	Type
	Subtype
	Policy level
	Note
LEGAL INFORMATION	Legal form
	EUR-Lex reference
The FOUR 'I's'	Integration
	Innovation
	Infrastructure
	Investment
SCOPE	Economy-wide
	Energy
	Transport
	Buildings
	Industry
	Agri-food
	Waste
	Carbon Dioxide Removal (CDR)
PROCEDURAL GOVERNANCE FUNCTION	Access-to-Justice
	Advisory
	Decision making
	Implementation/enforcement
	Monitoring/evaluation
	Participation
	Planning
	Target setting
ADDITIONAL INFORMATION	Last edited by
	Original coder
	Date created
	Link(s)

3. Inventory: Development process

The inventory was developed through an iterative process based on expert input, consisting of two phases.

In the first phase, the lead expert for each 'I' filled in all those mechanisms they considered relevant for their respective 'I'. The process of filling in entries was guided by the Technical Guidance Document, but ultimately the experts relied on their own knowledge for the selection and assessment of the mechanisms.

Importantly, most entries are relevant to more than one 'I'. Therefore, the purpose of the second phase was to have each of the 4i leads perform a quality check for all entries with a rating for their 'I'. The guiding questions for the second phase were: Do I agree with this assessment? Would I add/change something? Additionally, the researchers also checked if entries currently rated 'zero' were missing a rating for their 'I', guided by the questions: Is this entry relevant to my 'I'? If yes, should I enter a score of 1 or 2?

The objective of this two-tier approach was to account for any possible errors of omission and to ensure the reliability of the data collection process. The inventory was finalised after external stakeholders provided feedback at a dedicated workshop organised by the Work Package 5 team. In the workshop, the stakeholders reflected on (1) the choice of entries for the inventory and their assessment, and (2) topics for further analysis, which were informed by the inventory.

Consequently, the inventory serves as a foundation for the assessments to be performed under work package 5.3, aiming to provide a sound basis for further analysis and decision-making.

4. References

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Annex 1 Technical Guidelines

4i-TRACTION: Task 5.2

Technical guidance for the inventory of governance mechanisms

This document serves as a guidance document for experts filling in the inventory developed under Work Package (WP) 5, task 5.2 of 4i-TRACTION.

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1. Objective

The objective of the inventory is to provide a list of the most important frameworks, institutions, and instruments that are relevant to **procedural climate governance** in the EU.

The inventory only covers documents currently in force and focused on mitigation. It does not cover non-mitigation policies, e.g., biodiversity-related policies climate adaptation policies. However, the selection of policies is not always as straight-forward, since the European Green Deal arguably all EU policies are somewhat climate mitigation related. To avoid inconsistencies, the main lens through which governance mechanisms were selected for the inventory was to focus on procedural mechanisms that were designed specifically for climate mitigation.

Work package 5 (WP5) largely analyses and creates policy recommendations for the areas of governance which deal with 'aspects of a government's own workings and policy-making behavior' (Bali et al., 2021, p. 298). Procedural governance includes key policy areas such as *inter alia* planning, expert advice, public participation, and access to justice.

The list captured by the inventory should serve as an intermediary between tasks 5.1 and 5.3. Hence, the inventory's structure and underlying categories are tailored to facilitate an assessment of the existing procedural governance landscape.

To best support the assessment, entries in the inventory should include precise information on the points raised under each section of this document. To capture information systematically, we specify in the following how the cell should be filled in, e.g., selecting from a drop-down menu, providing a 3-5 sentence description, etc, and provide specific guidance and considerations for entries that are based on expert judgement.

2. Inventory structure

The inventory will be implemented as an Excel sheet and structured around 'sections' and underlying 'headings' as shown in Table 1 below. Each section includes a dedicated 'note' field as a place to provide further information or justification; as an exception, the four 'I's' section includes a note field for each heading. The inventory also has additional fields to display the status for an entry and to track who adds and edits information (see *Status* and section *3.6 Additional information*).

Table 1: Structure and content of the inventory.

Section	Heading
	Status
GENERAL INFORMATION	ID number
	Main EU legislation
	Governance mechanism
	Short description
	Year
	Type
	Subtype
	Policy level
LEGAL INFORMATION	Legal form
	EUR-Lex reference
The FOUR 'I's'	Integration
	Innovation
	Infrastructure
	Investment
SCOPE	Economy-wide
	Energy
	Transport
	Buildings
	Industry
	Agri-food
	Waste
	Carbon Dioxide Removal (CDR)
PROCEDURAL GOVERNANCE FUNCTION	Access-to-Justice
	Advisory
	Decision making
	Implementation/enforcement
	Monitoring/evaluation
	Participation
	Planning
	Target setting
ADDITIONAL INFORMATION	Last edited by
	Original coder
	Date created
	Link(s)

In the following, we provide detailed guidance on how to fill out information under each section and heading of the inventory.

3. How to fill in the inventory

3.1 Status

Please select from the drow-down list the status of your entry. You can choose between:

'Done' (when the entry is completed)

'In progress' (when you are in the process of filling in the row)

'Suggested' (when you propose how to fill in the row and you want another researcher to provide feedback on your work OR you would like to suggest a new entry to be filled in). (Please make sure to mention in the 'Last edited by' column who added the feedback.)

3.2 General information

ID number: The first column assigns an ID number to each entry and serves two purposes: (1) a cross-reference in cases where the framework/instrument/institution is enshrined in or established within the context of a framework, e.g., NECPs are enshrined by the Governance Regulation. Second, to be able to sort entries accordingly.

Please provide a three-digit ID number for each entry. For entries that are not relevant to any frameworks, use a number starting with zero (as depicted in the example in Table below). In the 'notes' column, please briefly outline how the framework/instrument/institution is influenced by a framework where relevant. Please also indicate whether the governance mechanism is influenced by more than one framework. In the ID number column, please state the most important one.

Table 2: Example implementation of ID number.

Overarching policy	ID number	Governance mechanism
No overarching or parent legislation	000	...
	001	...

European Climate Law (ECL)	100	...
	101	e.g., 2040 target setting process

Governance Regulation	200	...
	201	e.g., NECPs

Overarching policy: Please fill in the policy (e.g., legislation, strategy) that the governance mechanism is nested in, e.g., European Climate Law, European Green Deal, Emissions Trading Directive.

Procedural governance mechanism: Please fill in the title of the procedural governance mechanism, e.g., for the European Climate Law, one would be the European Scientific Advisory Board on Climate Change. If the row is the entry for an overarching policy, please leave the cell blank (see Figure below).

Overarching policy	Procedural Governance mechanism
European Climate Law	
European Climate Law	2040 target setting process
European Climate Law	EU carbon budget (2030-2050)
European Climate Law	European Scientific Advisory Board on Climate Change
European Climate Law	Assessment of Union progress
European Climate Law	Assessment of consistency of Union measures
European Climate Law	Assessment of consistency of Commission proposals with the ECL
European Climate Law	Assessment of consistency of Member State measures with the ECL

Figure 1: Example of several entries belonging to the same overarching policy in the Procedural Governance Inventory.

Short description: Please give a short introduction to the framework/institution/instrument. You may answer the following guiding questions: What is its main objective? What does it provide? When was it created and through which body? Does it include climate policy targets? The information included in this box is intended as an overview and may be repeated later.

Year: Please indicate when the framework/institution/instrument entered into force. If it has not entered into force yet, please fill in the year it was adopted or established.

Type: Please select from the drop-down menu whether the item is a framework, institution, or instrument. If you are unsure how to classify your entry, please refer to Table.

An ‘instrument’ is a procedural policy instrument and describes ‘the techniques of governing that help define and achieve policy goals’ (Bali et al., 2021) (e.g., CAP Strategic Plans), commonly referred to as ‘mechanisms’. A ‘framework’ is an overarching policy document, law, or strategy that serves to set the agenda and guidelines for policymaking (e.g., EGD, European Semester); it can be made up of several instruments that, when combined, are set to achieve a common goal. In other words, a framework sets out the strategic of travel for climate policy and pathways for change. For example, a framework can organize or establish new institutions, put forward targets, and include accountability/transparency mechanisms. Following the same logic, Nash and Steuer (2019) describe framework legislation – one possible subtype of framework (‘type’) - as

“facilitat[ing] climate change mitigation by creating continuous policy processes whereby mechanisms for the reduction of GHG emissions are developed and implemented”. It can also think about a ‘framework’ as the entity where an instrument is nested. The third type describes ‘institutions’, organisations or programmes with their own set of rules and goals, such as the European Scientific Advisory Board on Climate Change.

Subtype: Please fill in the subtype for each type from the list below. Some examples of how to do so are presented in Table. Subtypes include, but are not limited to:

Table 3: Examples for governance mechanism types and subtypes.

Type	Subtypes
Framework	Legal framework (e.g., European Climate Law); Strategic framework (e.g., European Green Deal); Financial framework (e.g., Common Agricultural Policy); Procedural framework (e.g., Sustainable Finance Taxonomy)
Instrument	Plan/Strategy (e.g., National Energy and Climate Plans (NECPs)); Assessment (e.g., Assessment of Union progress under the European Climate Law); Process (e.g., 2040 target setting process); Dialogue (e.g., Multi-level energy and climate dialogue)
Institution	Advisory body (e.g., European Innovation Council Board); Coordination body (e.g., European Network of Transmission System Operators for Electricity (ENTSO-E))

This column is not mandatory because it may not make sense to include for all entries.

Policy level: Please fill in the policy level at which the framework/instrument/institution is mainly aimed at: either EU level (‘EU’), Member State level (‘MS’), or regional/local level (‘regional/local’). For some entries, several options might apply, like for the Long-Term Strategies (LTSs) that are aimed at both the EU level and at the Member States specifically. In this case, please fill in ‘EU/MS’.

Note ‘General information’: If the policy level is not EU, please specify which policy level it addresses instead, and how.

3.3 Legal information

Legal form: Please fill in the legal form of the framework/instrument/institution, e.g., EU Commission communication, directive, regulation, government submission. If multiple legal forms apply, please fill in ‘multiple’ and explain in the note under legal basis.

EUR-Lex Technical Reference: Please fill in the EUR-Lex Technical Reference for the legal basis, e.g., for the European Climate Law fill in ‘Regulation (EU) 2018/1999’.

Note 'Legal basis': Please specify further information of the legal basis, for example, by indicating a specific article or provision.

3.4 The 4 I's

3.4.1 General instructions

The category indicates if and how an entry is related to each of the four 'Is': Innovation, Infrastructure, Investment, and Integration. Thus, this section is the one that most requires the researcher to draw on their 4i-TRACTION knowledge. The researcher must rely on expert judgment to determine whether a given entry is relevant to each of the four 'Is'.

The assessment is mainly based on the content of the framework/instrument/institution, not so much the predicted outcome. Importantly, to account for some nuance in coverage, we propose the following ranking: 'Directly relevant' (2), 'Indirectly relevant' (1), 'Not relevant' (0). For each of the 4 'Is', you find a definition for each ranking level and an associated example in the text below.

You can fill in the inventory according to the following steps:

Step 1: We advise you to first check the objectives of the framework/instrument/institution you are looking at and identify whether they have an impact on one or several of the four 'Is'. You should be able to find the objectives in the regulation/communication/staff working document etc. The objectives might not be explicitly mentioned as such, which is why the researcher should rely on their expert judgement to determine them. Also, in the case of 'Integration', the term might not be explicitly stated in the objectives. If this occurs the researcher will have to make a judgement call.

Step 2: Rank your entry according to the description given in this document for each 'I' by filling in 2 for 'Directly relevant', 1 for 'Indirectly relevant', and 0 for 'Not relevant'.

'Directly relevant' means that the framework/instrument/institution has a direct impact on the respective 'I'. 'Indirectly relevant' implies an impact on the 'I', but its objectives do not directly aim to impact the 'I'. More specifically, the framework/instrument/institution either explicitly states that the I is an objective in a communication document or includes provisions that directly alter the aspects laid out for the 'I' in the 4i-TRACTION concept note. 'Not relevant' signifies no impact on an 'I'.

As a prompt for thinking about the four 'Is', we have included a brief introduction of each 'I' and its connection to 4i-TRACTION, based on the concept note (Görlach et al., 2022). The examples given for each level might also be helpful for the ranking exercise.

Step 3: Please indicate in the respective 'notes' box why you decided on a certain ranking for each of the four 'Is'. Briefly describe the objectives of your framework/instrument/institution and

how they are relevant or not relevant to each 'I'. The examples given for each section can serve as a guidance. The texts can be longer than for the other entries because we think that a detailed account of the ranking will be very helpful for the overall research process.

It is not mandatory to also explain how they touch on the procedural governance functions, but it would likely assist the research process.

Another reason why it is important to provide a careful explanation of the ranking in the 'notes' box, is that it can highlight nuances in the ranking. For example, the objectives of a framework are likely to be directly aimed at all four 'Is' because they are intended to be overarching, but they might not address an 'I' in the same depth as an instrument or institution.

Overarching policy	Procedural Governance mechanism	Integration	Note	Innovation	Note	Infrastructure	Note	Investment	Note
European Climate Law		2	NE: The	1	NK: Has	1	NK: Has	1	NK: Has
European Climate Law	2040 target setting process	1	NE: The	0		0		1	NE: The C

Figure 2: Example of how to fill in the '4 I' columns in the Procedural Governance Inventory.

3.4.2 Innovation

1) Innovation in 4i-TRACTION context

The research employs an innovation system perspective, including the policy context, to understand how actors active in the field shape innovation outcomes. For the policy context, this angle investigates not only classical innovation policies (e.g., RD&D policy), but also the broader framework conditions set in other fields of public policy.

'Innovation' refers to two areas.

First, it includes the area of technological innovation. This includes kickstarting targeted innovation processes in areas that still lack low-carbon solutions, accelerating learning curves of technologies to depress their costs and help their widespread diffusion, demonstrating and deploying technologies for which there is high confidence that they will reach maturity, and creating markets for innovative technologies, systems, and products.

Second, 'Innovation' also refers to business model innovation³. Business model innovation is closely linked to technological innovation in that it describes the way businesses reorganize themselves to create and deliver value in the low-carbon economy.

When filling in the entry in the inventory, please check the entry for the aims included under both 'technological innovation' and 'business model innovation'. Thinking about the three policy aims introduced under 'technological innovation' might prove particularly helpful.

Technological innovation

³ The Inventory does not consider innovations outside business sector (e.g. social innovations).

Because the time to deliver on the transformative innovation is limited with climate neutrality being achieved by 2050, the potential for some radical early-stage inventions is limited. This is why, when it comes to technological innovation, the focus should be on the following areas:

Focus on demonstration and deployment of technologies, for which there is high confidence that they will reach maturity.

Focus on creating markets for innovative technologies, techniques, systems, and products to enable their market entry (and public acceptance).

Focus on accelerating learning curves of technologies to make them affordable.

There are different types of policy instruments that can foster technological innovation.

These apply at different stages of the process from invention to commercialization, and will function differently, because they address different challenges and bottlenecks at these stages. Accordingly, typical **policy aims** to foster technological innovation include:

Stimulating and enabling inventions, e.g. through creating markets for innovative technologies to enable their market entry (and public acceptance)

Scaling up innovations and leading them to market maturity, e.g., by accelerating learning curves of technologies to make them affordable

Inducing innovation (sometimes indirectly), e.g., through regulatory standards, but do not have innovation as their unique or even main goal.

Business model innovation

Business model innovation refers to new ways that companies can create, deliver, or capture value. Examples include:

Changes to the production process that radically alter supply chains or extend producer responsibility (e.g., towards a circular economy, such as through closed-loop supply chains) (Carra and Magdani 2017).

Capitalizing on flexibility: The intermittent nature of renewable electricity generation places a higher premium on flexibility of demand. Using flexibility potentials can lower cost for transmission and backup. **This flexibility premium gives rise to new business models** (e.g., in the fields of (distributed) storage, pooling and flexibilization of demand).

Changing the product in such a way that **materials/GHG intensity is dramatically reduced** but the same consumer benefit is achieved. This includes instances where the physical production and delivery of a product is instead replaced with a service (e.g., materials as a service, mobility as a service, energy service companies), but also cases where pooling and sharing of goods can deliver the same benefit with less resource use. Business model innovation is often linked to enabling technological innovation, where new technological solutions enable new business models (e.g., battery technology and

IT enabling shared electrical mobility and mobility-as-a-service more generally). Business model innovation may also coincide with social innovation – as, for instance, in the case of peer-to-peer distributed energy trading, bringing together consumers and prosumers.

2) Assigning relevance

In the inventory, please fill in the suitable ranking number according to the descriptions. In the 'notes' box, please provide a brief description similar to the examples given below and answer the questions: How is the entry related to Innovation and why do you classify it as number #?

For the scope of 4i-TRACTION and the transformational challenge on innovation, the innovation system perspective will be analyzed in combination with the policy context. This also means that innovation policies are considered beyond the sector where technology will be deployed. When filling in the 'notes' cell, please also indicate whether you connect the entry to technological innovation or business innovation.

Not relevant = 0 = The objective of the framework/instrument/institution does not have an impact on innovation.

Example: The European Scientific Advisory Board on Climate Change was created as a point of reference on scientific knowledge relating to climate change by virtue of its independence and scientific and technical expertise. The main activities outlined in the 2023 work programme do not include any activities related to the three aims of policy instruments as outlined above (policy instruments aimed at stimulating and enabling inventions, policy instruments that scale up innovations and lead them to market maturity, and policy instruments that induce innovation).

Indirectly relevant = 1 = The objective of the framework/instrument/institution has an indirect impact on innovation.

Example: The Assessment of consistency of Union measures under the European Climate Law, which mandates that by September 30th, 2023, and every five years after that, the Commission assesses the consistency of 'Union measures' towards the climate neutrality goal (and on adaptation), has an indirect impact on innovation. Depending on the scope and methodological approach, the consistency assessment could consider policies aimed at innovation, especially within the context of the Innovation Fund.

Directly relevant = 2 = The objective of the framework/instrument/institution has a direct impact on innovation.

Example: The Sustainable Finance Taxonomy is a classification system that establishes a list of environmentally sustainable economic activities. It thereby plays a crucial role in scaling up investment in sustainable innovations in the EU. Because it provides companies, investors, and

policy-makers with appropriate definitions for which economic activities can be considered environmentally sustainable, it creates security for investors, helps companies to become more climate-friendly (business model innovation), and help shift investments to more sustainable options (scale-up of innovations). Thus, it exhibits a high potential to directly induce technological and business model innovation across sectors and on a large scale.

3.4.3 Infrastructure

1) Infrastructure in 4i-TRACTION context

Infrastructure, according to the 4i-TRACTION concept paper, covers changes in energy production, changes in energy demand and, for transport infrastructure (roads, railways, waterways), changing patterns in transport and mobility. It thus also refers to necessary supportive elements to achieve climate neutrality, such as networks, grids, and technology. It is particularly important in the context of the widespread electrification of end-uses, e.g., charging stations for electronic vehicles. Also, it is especially relevant in the reconfiguration of value chains towards a circular, low-carbon industry. Infrastructure must be able to accommodate larger volumes of electricity, which will be generated in a more intermittent and decentralized way, and overcome existing carbon lock-ins.

Urgent infrastructure challenges include the following:

First, infrastructure needs are driven by the transition from fossil to renewable energy production, with wind and solar energy expected to dominate the total energy mix. These are two energy sources that produce electricity only (although that can be converted to a gas or liquids), with strongly fluctuating production levels over time. There will be many more production locations, in different areas than with the current fossil-driven power plants. Therefore, production sites need to be connected to the electricity grid, and the electricity generated then needs to be transported to the end-users. Peak loads can be high due to the fluctuating production levels, which requires an adequately sized grid to avoid grid congestion, as well as a combination of storage and flexible load to absorb such peaks. Part of the electricity produced is likely to be converted to hydrogen, to allow for large-scale storage of the energy for times with lower production, and for cost-effective transport of large amounts of renewable energy. A hydrogen infrastructure needs to be developed for this, which may in part be based on the existing gas grids but will also require new pipelines.

Second, infrastructure is a key enabler for decarbonization of end-uses. Without the right infrastructure in place, the industry, transport and building sectors cannot decarbonize sufficiently to meet their climate goals. For example, the electrification of transport requires an extensive charging infrastructure network throughout Europe, a new infrastructure to supply large amounts of renewable electricity and/or green hydrogen to industry sites, or infrastructure for climate-neutral heating of the EU's buildings requires a technology infrastructure of heat pumps. In

addition, there will also be significant demand for carbon-neutral gases (green hydrogen, biomethane, etc.) and liquid fuels (synfuels, biofuels). These will be the most attractive option for applications that cannot be electrified, such as aviation, maritime shipping, some heavy-duty road transport, and the high-temperature heat demand from industry.

Benchmark scenario areas: What the climate-neutral EU infrastructure can look like

Electricity grid: The power grid needs to be expanded and strengthened to provide sufficient capacity to transport the electricity produced to the consumers, with special attention for cross-border connections as these are still weak in some regions within the EU. These end-users may provide demand flexibility and there will be storage capacity for grid balancing and temporary storage. Electrolysers will be integrated in the system to produce green hydrogen.

Hydrogen pipelines: A hydrogen grid will be needed throughout the EU, to connect electrolyser locations with end-users. Hydrogen storage will be integrated into this system. Hydrogen produced from renewable electricity is likely to become a key pillar of the energy system. It causes significant additional electricity demand due to conversion losses but allows long-term storage of the energy produced. In addition, hydrogen (or further processed products, e.g., ammonia) is an energy carrier that can be used to transport large amounts of renewable energy at lower cost than electricity, as a feedstock for carbon-neutral synthetic fuels, or as an input into low-carbon industrial production processes.

Gas pipelines: Some parts of the existing EU gas network will become obsolete over time, other parts may be used to transport renewable gases such as biomethane, hydrogen or synthetic gas based on green hydrogen. Natural gas use may still increase in parts of the EU (until 2030), as coal is phased out, but eventually will decline strongly.

Heat networks: District heating systems may be a cost-efficient option in part of the EU's densely populated municipalities. However, their use may be limited as energy efficiency measures will lower heat demand (e.g., building renovation and insulation) and a large part of low-temperature heat demand will be provided with electricity (heat pumps).

CO2 pipelines: CO2 infrastructure is needed to transport large volumes of captured CO2 to subsurface storage sites (CCS and BECCS) and to other industries that may use the CO2 for their production processes (CCU).

Transport infrastructure: The future transport sector requires a charging network for electric vehicles (passenger cars, busses, and light duty vehicles but also an increasing share of heavy-duty trucks), and for the remaining share of -heavy-duty vehicles perhaps a network for hydrogen (or hydrogen-based synthetic fuels) or overhead charging. It also needs infrastructure for synthetic (liquid) fuels for aviation and maritime shipping, which is likely to be based on the current fuel infrastructure. Rail transport may increase,

requiring expansion of the EU rail network (incl. for high-speed passenger and for goods transport) and reducing current barriers associated with border crossings due to different national material and safety standards. Spatial and urban planning may facilitate walking, cycling and public transport, reducing the role of cars for mobility. Infrastructure is needed on different levels, from local to trans-European. Furthermore, each type of infrastructure needs market regulation adjusted to its specific characteristics, regulating issues such as access, ownership, financing, and security of supply.

2) Ranking in the inventory

In the inventory, please fill in the suitable ranking number according to the descriptions. In the 'notes' box, please provide a brief description similar to the examples given below and answer the questions: How is the entry related to Innovation and why do you classify it as number #?

Not relevant = 0 = The objective of the framework/instrument/institution does not impact infrastructure.

Example: The objective of the CAP Strategic Plans is for EU countries take full advantage of the new CAP and its instruments to support farmers in the transition towards increased sustainability of food systems. This planning tool requires each Member State to formulate an intervention strategy explaining how each EU country will use CAP instruments to achieve the CAP objectives. These objectives are not aimed at infrastructure. However, it cannot be ruled out that some of the funds will go to infrastructure-related investment.

Indirectly relevant = 1 = The objective of the framework/instrument/institution has an indirect impact on infrastructure.

Example: The State of the Energy Union report focuses on reporting and monitoring activities and has published several packages of measures and regular progress reports. It highlights the challenges that the energy sector has faced in the past 12 months and the progress made in addressing both shorter-term issues and Europe's long-term climate goals. In particular, the latest report takes stock of the EU's energy policy response to the current energy crisis. Therefore, it performs the procedural governance function of 'monitoring' which is conducive to successful planning of transformative infrastructure. However, it does not directly foster the transformation of any of the benchmark areas because it does not lead to, e.g., an expansion of the electricity grid or deployment of heat pumps.

Directly relevant = 2 = The objective of the framework/instrument/institution has a direct impact on infrastructure.

Example: The institution European Network of Transmission System Operators for Electricity (ENTSO-E) is the association for the cooperation of the European transmission system operators

(TSOs). The 39 member TSOs representing 35 countries are responsible for the secure and coordinated operation of Europe’s electricity system. The ENTSO-E plays a central role in enabling Europe to become the first climate-neutral continent by 2050 by creating a system that is secure, sustainable, and affordable, and that integrates the expected amount of renewable energy. This endeavour requires sector integration and close cooperation among all actors. Legally mandated tasks include the development and implementation of standards, network codes, platforms, and tools to ensure secure system and market operation as well as integration of renewable energy as well as the coordination of the planning and development of infrastructures at the European level, e.g., through the Ten-Year Network Development Plans.

Therefore, the ENTSO-E is crucial for the climate-neutral development of the European electricity grid, the first of the benchmark areas mentioned in the previous section. It is a key enabler for solutions to both urgent challenges: the decarbonization of end-uses and the transition from fossil to renewable energy production and suitable storage capacity for grid balancing and temporary storage. Also, the ENTSO-E specifically addresses cross-border connections. In the context of infrastructure, the institution has strong implications for knowledge sharing, R&D, institutional networks and cooperation, legislative mandates, and path dependencies (e.g., there is not enough time until 2050 to build a new grid along with new ownership and supervising structures).

Another example would be the Trans-European Networks for Energy (TEN-E), a policy that is focused on linking the energy infrastructure of EU countries and exists under the ENTSO-E.

3.4.4 Investment

1) Investment in 4i-TRACTION context

To achieve transformative outcomes, there is an urgent need to **enlarge the view from the niche of green finance to overall finance and investment flows**. This means continuing to cover purely **green investment flows** (with policy instruments like labelling, including green bonds, benchmarks, taxonomy, and disclosure frameworks for the financial sector, including risk and alignment disclosures), but **also finance to carbon-intensive companies that seek to invest in their transformation** to ensure that the finance sector effectively acts as an enabler for transformative, structural changes in the real economy. This, however, is more difficult to identify and track, as there can be wide variety within the same sector, as companies vary deeply in how far they have accepted and embraced the transformation challenge. Financial actors have traditionally approached climate issues with a sectoral approach. But they need to build up a more granular perspective, that enables them to **analyse transition, adaptation abilities and willingness for each company**. However, the simple existence of better data on company strategies is unlikely to be enough to overcome the path dependencies within financial institutions themselves. Finance is a highly regulated space where financial risk management is the key concern. Internal procedures, incentives and governance structures of financial institutions are strongly influenced by existing financial regulation and need to be reconsidered if these path dependencies are to be overcome.

Moreover, in order to provide clear orientation to policy makers, companies as well as financial actors, a **better understanding of the investment gap** is needed between what are current climate-related public and private investment flows compared to necessary investment flows in order to put the economy on a clear transition pathway in line with climate goals. Tracking this investment gap is an early indicator for monitoring how well the economy is effectively transitioning. Investment flows into green assets and transition projects indicate future emission reductions, long before they can be registered in terms of operational infrastructure. The same is valid for investment flows in high-carbon assets. Persistent investments in maintaining or even extending high-carbon assets are early warning signs, that the transition is failing. In addition, the investment gap can clearly identify areas where more investment is needed and how much, thus providing useful insights for investors looking for climate-friendly investment opportunities.

Based on the explanations above, the investment and finance challenge in 4i-TRACTION will have the following **focus areas**:

Adopt a **more detailed and granular perspective**, beyond sectoral approaches currently pursued in financial regulation, and analysis of the implications of such a granular perspective.

Identify specific instruments with high transformative potential for mainstreaming climate issues in the financial sector.

Propose how the financial sector can contribute to the **exnovation/phase-out of incumbent fossil technologies**, and how exnovation and the stranding of assets may affect the financial sector.

Analyse to what extent financial regulators and supervisors in Europe have already incorporated climate issues under their existing mandates, and **where mandates would need to be revised/extended**.

Develop **options to improve the internal procedures, incentives, and governance structures of financial institutions** for integrating climate issues into their operations, how these are shaped by financial sector regulation, and how they may perpetuate existing path dependencies.

Identify existing investment flows in low-carbon, high-carbon and transition related activities and compare these with investment needs associated with national and European decarbonisation strategies.

2) Ranking in the inventory

In the inventory, please fill in the suitable ranking number according to the descriptions. In the 'notes' box, please provide a brief description similar to the examples given below and answer the questions: How is the entry related to Investment and why do you classify it as number #?

Not relevant = 0 = The objective of the framework/instrument/institution does not have an impact on investment.

Example: The Public Participation Directive allows for public involvement in the development of specific environmental plans and programs, and also amends Council Directives 85/337/EEC and 96/61/EC to improve public participation and access to justice. Thus, its objective is not aimed at investment as understood in 4i-TRACTION.

Indirectly relevant = 1 = The objective of the framework/instrument/institution has an indirect impact on investment.

Example: The Renewable Energy Directive (RED) II aims at keeping the EU a global leader in renewables and helping it to meet its emissions reduction commitments under the Paris Agreement. The directive sets the overarching European binding target for renewable energy and includes rules to ensure the uptake of renewables. While its objectives indirectly aim at stimulating investment in renewable energies and infrastructure, the RED does not directly address the finance sector as an effective enabler for transformative changes in the economy.

Directly relevant = 2 = The objective of the framework/instrument/institution has a direct impact on investment.

Example: The 2021 Renewed Sustainable Finance Strategy has effectively extended the mandates of the European Supervisory Authorities' (EBA, ESMA and EIOPA) to work on climate-related issues and integrate them in their operations. The Strategy also facilitates access to transition finance. Thus, it delivers on two important 4i-TRACTION focal points.

3.4.5 Integration

1) Integration in 4i-TRACTION context

Integration refers to two different kinds of integration: 'Integration' as sector coupling and 'Integration' as climate policy mainstreaming.

'Integration' as sector coupling

Sector integration describes the linking of different sectors through technological solutions. This occurs **horizontally across sectors** and **promotes synergies between sectors**. The connecting of technological developments in different sectors results in various governance, technological, regulatory and market challenges. A key example of sector integration is energy system integration, also known as sector coupling. This, according to the Commission's definition, means "the coordinated planning and operation of the energy system 'as a whole', across multiple

energy carriers, infrastructures, and consumption sectors” (European Commission 2020). Energy system integration hence means the linking of energy consuming sectors – such as buildings, industry and transport – with the power producing sector and also linking different energy sources.

The 4i-TRACTION project will look, for example, at how different countries are tackling sector integration as a vehicle of change, starting from **progress achieved in connecting electricity generation with storage**, but also **considering the effects of increased electrification in end uses** such as mobility, space heating or industrial processes.

Sector integration involves several governance and policy issues. In the literature, four key requirements have been identified for energy system integration in the EU, namely: **infrastructure planning especially with respect to electricity and gas infrastructure; reviewing system operation and market rules; development of coherent regulation; as well as research, development, demonstration, and deployment** (Olczak & Piebalgs, 2018). The EU Strategy for Energy System Integration, in turn, identifies the need for policies to promote a **level-playing field across all energy carriers** (European Commission 2020), as increased reliance on electricity may lead to competition between different users, thereby surfacing the question of how different electricity uses can be coordinated. The strategies also emphasize improved consumer information as well as the role of digitalization and innovation.

Sector integration will also require collaboration between the public and private sectors, and between different levels of government, from the EU to the national and local levels. Energy system integration will follow different pathways in different Member States, depending on their respective starting points and policy choices.

‘Integration’ as climate policy mainstreaming

Second, ‘Integration’ refers to climate policy integration, i.e., the systematic integration of climate policy objectives across different sectors and at multiple governance levels. These processes can also be described as ‘climate policy mainstreaming’. ‘Integration’ in the sense of mainstreaming climate policy objectives relates to **the need to systematically integrate climate considerations into different policies across various sectors at multiple levels of governance**. Integration of different policies towards a holistic vision is one of the rationales of the European Green Deal (van Nuffel et al. 2018). Climate policy integration can be advanced through different means. **At the procedural level, it is important that climate policy considerations be taken up during the policymaking process** (van Asselt, Rayner, and Persson 2015), **for example through climate impact assessments**. In its most advanced form, climate policy integration means that climate policy is given principled priority over other sectoral goals in all stages of the policy process (Dupont 2016). Challenges to climate policy mainstreaming include the lack of sustained political commitment to such mainstreaming in non-climate policy sectors, the lack of expertise and lack of resources (Runhaar et al. 2018). **Climate policy must penetrate deep into policies related to finance and investment, budget, trade and economic policy, industrial and competition policy, energy policy** and so on

– deep transformation will not be possible if core objectives of these policy fields remain at odds with the climate neutrality transition.

Vertical climate policy integration

Finally, integration, especially in a European context, refers to the multi-level nature of climate policymaking and ensuring that climate policy priorities and approaches at one level (e.g., national) align with those of another (e.g., EU). As opposed to integration as sector-coupling or mainstreaming, which both manifest horizontally across traditional policy fields, vertical integration brings in a multi-level governance perspective.

2) Ranking in the inventory

In the inventory, please fill in the suitable ranking number according to the descriptions. In the 'notes' box, please provide a brief description similar to the examples given below and answer the questions: How is the entry related to Investment and why do you classify it as number #?

Not relevant = 0 = The objective of the framework/instrument/institution does not have an impact on integration.

Example: The Research and Innovation Strategy is the overall strategy for research and innovation presented by the Commission's DG Research and Innovation for five-year periods. It focuses on how the DG will implement the goals set out by Commission leadership. It thus focuses on the work carried out by the DG and does not significantly contribute to integration as understood in 4i-TRACTION.

Indirectly relevant = 1 = The objective of the framework/instrument/institution has an indirect impact on integration.

Example: The objectives of the European Scientific Advisory board are indirectly aimed at integration, but this is not explicitly stated in the objectives. The main objectives outlined in the 2023 work programme are focused on providing scientific input and supporting the implementation of legislative files of the Fit for 55 package. However, they also intend to give input to the EU's energy network development planning process (TEN-E), which relies on sector coupling. The Advisory Board as an overarching body seeks to integrate climate policy advice at EU level, its pursuit of exchange with national counterparts targets vertical integration between the EU and its Member States. It has commented on trans-European networks in the context of the climate neutrality objective. Yet, the relevance of the Advisory Board to any of the 4i's more specifically depends on the focus of the annual work programme and could change over time.

Directly relevant = 2 = The objective of the framework/instrument/institution has a direct impact on integration.

Example: The NECPs are 10-year integrated national energy and climate plans that all EU countries need to submit and an example of climate policy mainstreaming and provides the opportunity to promote synergies between sectors. This approach requires a coordination of purpose across all government departments. It also provides a level of planning that facilitates public and private investment. Because all Member States are using a similar template, they can work together to make efficiency gains across borders.

Another example would be the framework RepowerEU that has the objectives to end the EU's dependence on Russian fossil fuels and tackling the climate crisis. The measures in the REPowerEU Plan respond to this ambition through increased targets in energy savings, diversification of energy supplies, and accelerated roll-out of renewable energy to replace fossil fuels in homes, industry, and power generation. It explicitly promotes sector coupling and climate policy mainstreaming across sectors.

3.5 Scope

3.5.1 General Instructions

The scope is based on the sectors for a net-zero future as defined by Ecologic Institute (Duwe et al., 2021). The only category that was added is 'waste'.

Sometimes several categories apply. For example, various categories apply in the case of 'RepowerEU', such as 'Economy-wide', 'Electricity', 'Energy', 'Buildings', and 'Industry'. However, the European Climate Law is only aligned with one category ('economy-wide') because it does not address any of the sectors singularly as a main objective. In principle, it is possible to tick 'yes' for all boxes, but it is unlikely that this will be the case for any framework/instrument/institution.

In the inventory, please indicate 'Yes' if the category applies to the you are looking at.

3.5.2 Sectors

Economy-wide: The framework/instrument/institution aims at the whole economy and does not narrow the scope down to one or several sectors. This is the case for, e.g., the European Climate Law and the Governance Regulation.

Energy: ... aims at a zero-carbon energy sector.

Transport: ... aims at emissions-free transportation.

Buildings: ... aims at creating emission-free buildings.

Industry: ...aims at the net-zero industrial transformation.

Agri-food: ... aims at a sustainable system of agriculture and food production and consumption.

Waste: ... aims at a sustainable waste system and supports the development of a circular economy.

Carbon Dioxide Removal (CDR): ... aims at CDR. Includes both natural and technical sinks.

3.6 Procedural governance functions

3.6.1 General instructions

The aim of this section is to identify procedural governance functions of each framework/instrument/institution in the inventory. In the inventory, please fill in 'Yes' in case a procedural governance function applies.

An instrument might perform a monitoring function with an overall framework. If this is the case, please indicate so in notes box to pursue cross-referencing in the Excel.

Section 7.6.2 provides examples for how procedural governance functions can be connected to each of the three types. Please note, that we did not include an example for each type per procedural governance function.

3.6.2 Procedural governance functions

Access-to-Justice

Access to justice is a fundamental right and a means by which civil society can ensure that obligations are met by governments, including the EU. Inventory entries related to this function provide access to outside groups, regulate legal standing and how the EU and its member states must respond (such as the Aarhus Regulation).

Examples of a framework/instrument/institution with A2J-related functions

Frameworks

- Aarhus Regulation

Instruments

- Requirement for NGO request for internal review (Aarhus, Art. 10)

Institutions

- EU Agency for Fundamental Rights (FRA)

Advisory

Advisory elements of the governance system integrate external and internal advice into the policy making process.

Examples of a framework/instrument/institution with advisory-related functions

Frameworks

- Governance Regulation (e.g., ESAB-CC)

Instruments

- ...

Institutions

- European Scientific Advisory Board on Climate Change

Decision making

Decision-making functions serve to set the 'rules of the game' on the adoption, modification, and removal of policy, namely how these changes can be made, and which individuals/groups are involved in the process.

Examples of a framework/instrument/institution with decision-making functions

Frameworks

- EU Treaties (co-decision)

Instruments

- EU Transparency Register

Institutions

- ...

Implementation/enforcement

Implementation and enforcement functions are a key stage of the policy cycle that translate the requirements in legislation into on-the-ground results.

Examples of a framework/instrument/institution with implementation-related functions

Frameworks

- ...

Instruments

- Infringement procedure
- ETS fines
- Effort sharing allocation transfers

Institutions

- ...

Monitoring/evaluation

Monitoring and evaluation functions analyze how policies work after adoption and evaluate whether their impacts are sufficient to meet policy objectives (Schoenefeld et al., 2021). Monitoring elements, embedded in many EU climate laws, can monitor both the underlying legislation and the substantive and procedural elements those laws create.

Examples of a framework/instrument/institution with monitoring/evaluation functions

Frameworks

- Governance Regulation

Instruments

- GHG monitoring
- Policy/measures monitoring
- Climate neutrality consistency checks
- Legislative impact assessments
- NECP review-and-recommendation

Institutions

- Climate department of European Environment Agency

Participation

Participation functions increase the input in policy making by the general public and stakeholders, aiming to increase the legitimacy of the process, improve policy by allowing for input from stakeholders, and raise awareness and political engagement. Participation-related inventory entries can be specifically focused on climate (European Climate Pact) or be more general in nature (the requirement for legislative public consultations).

Examples of a framework/instrument/institution with participation-related functions

Frameworks

- European Climate Pact

Instruments

- Multi-level Dialogues under the Governance Regulation

Institutions

- European Scientific Advisory Board on Climate Change

Planning

Planning functions are focused on short-, medium-, and long-term planning, allowing policy makers to consider potential alternative scenarios for both policy and emissions, map out the approach to reach policy objectives, and make assumptions explicit to help improve policy design and implementation. Planning-related inventory entries include the LTSs and NECPs, as well as less climate-centric processes such as the European Semester's National Reform Programmes.

Examples of a framework/instrument/institution with planning-related functions

Frameworks

- Governance Regulation

Instruments

- National Energy and Climate Plans
- National Long Term Strategies
- EU Hydrogen Strategy
- EU Mobility Strategy

Institutions

- ...

Target Setting

Policy targets – on greenhouse gas emissions, renewable energy, and other issues – play a key role in climate governance, setting the broad objectives around which more detailed policies are modified. Although broad targets have often been set at high political levels, especially by the

European Council, there are also several examples of more detailed target-setting approaches, such as the requirement in the ECL for the European Commission to propose a 2040 greenhouse gas reduction target.

Examples of a framework/instrument/institution with target-related functions

Frameworks

- 2030 Climate and Energy Framework
- European Climate Law

Instruments

- Intermediate target setting under the European Climate Law

Institutions

- European Scientific Advisory Board on Climate Change

'Note' column

Please describe in a few sentences how the objectives of the framework/instrument/institution are linked to the indicated procedural governance functions. For example, the European Scientific Advisory Board on Climate Change has the main objective to service as an Advisory to the EU institutions and the interested public on the path to climate neutrality. Thus, it targets the sectors Advisory, Monitoring, Evaluation, and Participation.

3.7 Additional information

Source

Fill in link

Author

Fill in person who created the entry.

Date created

Indicate date when entry was created.

Last revised

Indicate when entry was last revised and by whom.

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About the project

4i-TRACTION – innovation, investment, infrastructure and sector integration:
TRANSformative policies for a ClimaTe-neutral European UnION

To achieve climate neutrality by 2050, EU policy will have to be reoriented – from incremental towards structural change. As expressed in the European Green Deal, the challenge is to initiate the necessary transformation to climate neutrality in the coming years, while enhancing competitiveness, productivity, employment.

To mobilise the creative, financial and political resources, the EU also needs a governance framework that facilitates cross-sectoral policy integration and that allows citizens, public and private stakeholders to participate in the process and to own the results. The 4i-TRACTION project analyses how this can be done.

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