



RENEWABLE FUELS AND BIOENERGY FOR A  
LOW-CARBON EUROPE -  
ACCELERATING THE IMPLEMENTATION OF  
THE SET-PLAN ACTION 8

## Mobilizing resources and enabling policies for the scale up and deployment of emerging technologies

Event 'Bioenergy and renewable fuels  
projects for the revamping of the SET Plan'

6/6/2023



## Mobilizing resources and enabling policies for the scale up and deployment of emerging technologies

*Moderator: Patrik Klintbom*

Results from SET4BIO project and key policy recommendations

*Elina Mäki*

Funding and financing opportunities for bioenergy and renewable fuels

*Judit Sandquist*

Q&A





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## Results from SET4BIO project and key policy recommendations

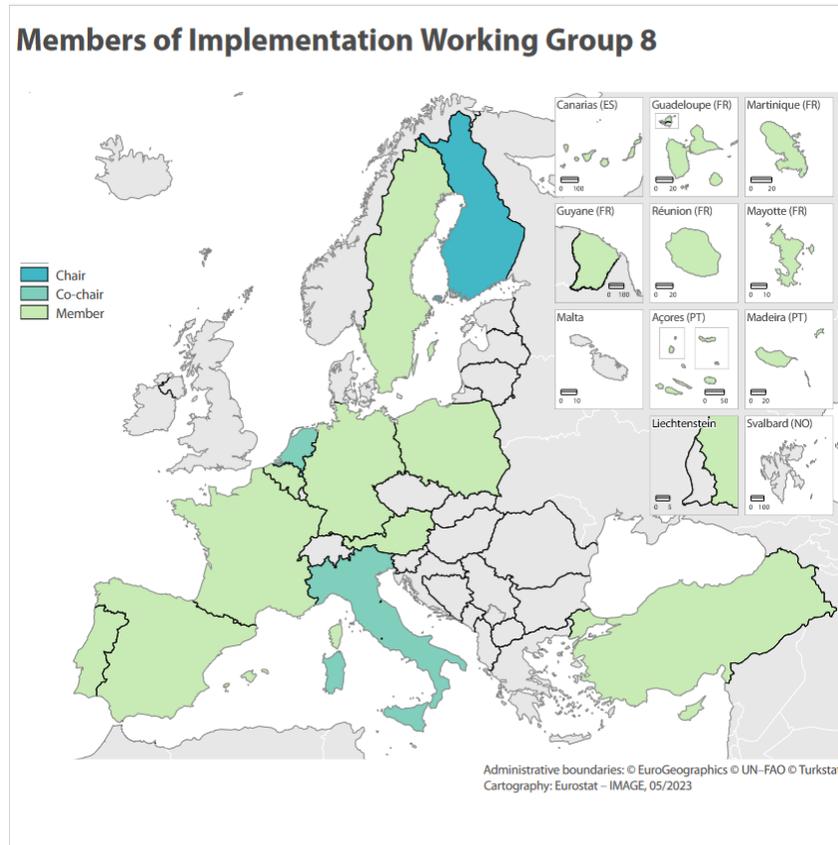
ETIP-B side event, 6th June, 2023

Prepared by Elina Mäki, VTT and  
Patrik Klintbom, RISE



## SET Plan and Implementation Plan 8 on Renewable fuels and bioenergy

- Temporary Working Group established in 2017 to define strategic targets, R&I activities, and the Implementation Plan
- Implementation Working Group 8 established in 2019 with the mission to implement the Plan
- Strategic areas:
  - Advanced biofuels
  - Other renewable and gaseous fuels
  - Renewable hydrogen
  - Bioenergy
  - Intermediate bioenergy carriers
- Strategic targets for 2030:
  1. Improving the performance of renewable fuels and bioenergy production in terms of yield and efficiency
  2. Reducing the GHG emissions along the value chains
  3. Reducing the costs of processes and products



Member countries: Austria, Belgium, Cyprus, Finland (chair), France, Germany, Italy (co-chair), Poland, Portugal, Spain, Sweden, the Netherlands (co-chair), and Turkey



## SET4BIO - Renewable Fuels and Bioenergy for a Low-Carbon Europe - accelerating the implementation of the SET Plan Action 8

### THE OBJECTIVE

To support the full execution of the Implementation Plan of Action 8 (IP8), *Bioenergy and Renewable Fuels for Sustainable Transport*, i.e., both for research and innovation lines and large-scale projects, **acting as competence centre for the Implementation Working Group (IWG8)** and proposing solutions and pathways to overcome the essential barriers associated to IP8.

Start	1.3.2020
End	31.8.2023
Funding	Horizon 2020
Call	LC-SC3-JA-2-2019 Support to the realisation of the Implementation Plans of the SET Plan
Total budget	1 M€



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 884524

## SET4BIO approach

### SET4BIO STRATEGY



Activating the stakeholders - direct involvement of both industrial stakeholders and the Member States representatives



Mobilizing resources - outlining a roadmap to fund and finance the bioenergy and renewable fuels projects

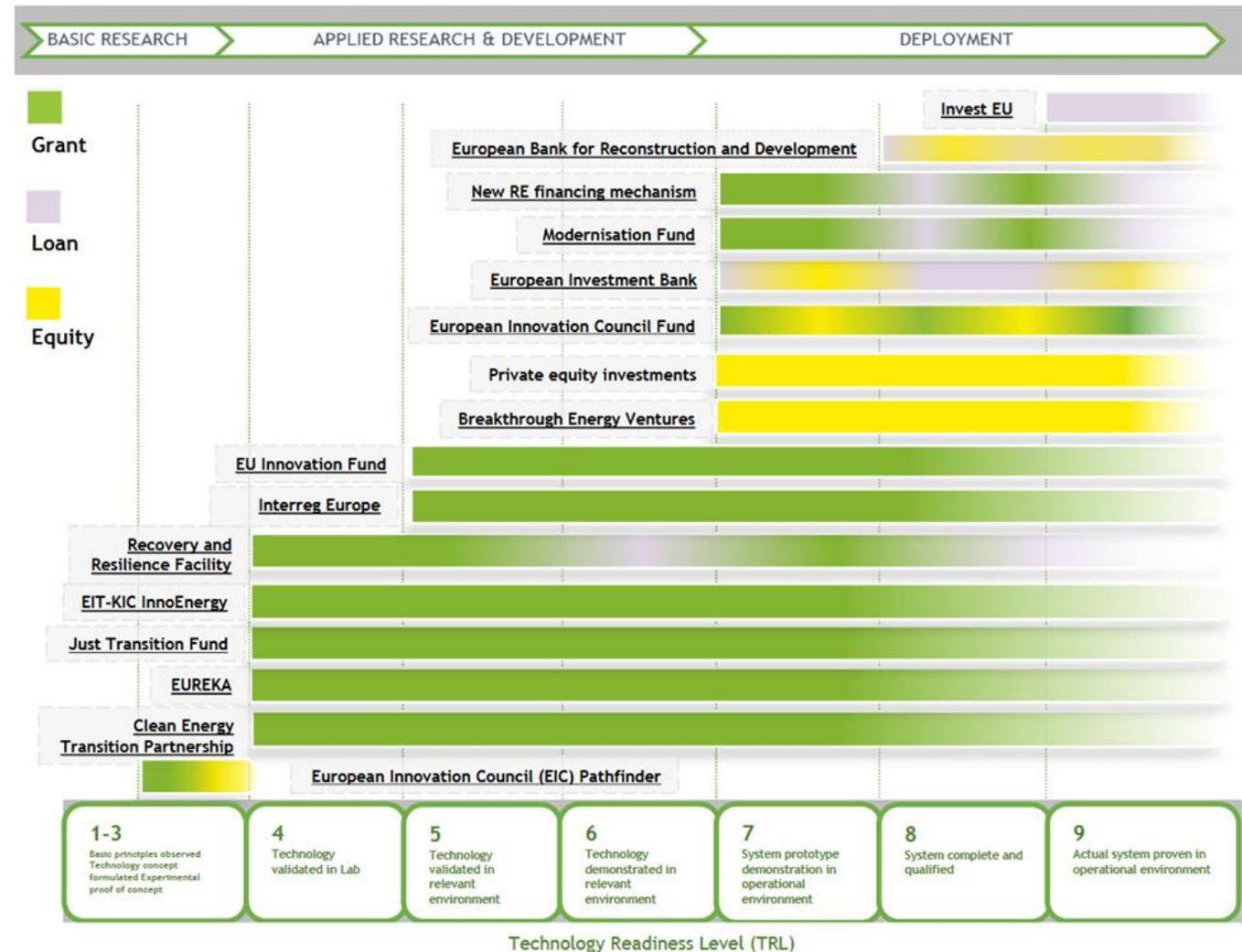


Stimulating innovation - launching Innovation Challenges for getting hold of new business models, technologies and processes



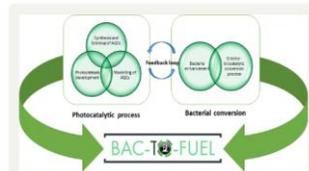
## Funding and financing roadmaps to trigger new initiatives and investment structures

- Mapping national and EU funded projects
  - 317 national projects
  - 39 EU projects
- Identifying and analyzing public funding opportunities on national and EU level
- Providing information of private financing opportunities for project developers



# Innovation Challenges to stimulate development

- Innovation Challenge ran as a one-year process in 2021 with seven participating teams
- Next Challenge in June 2023



**BAC-TO-FUEL**  
Ethanol production  
Supporting the challenge of reducing GHG emissions: Ethanol production from renewable H<sub>2</sub> and CO<sub>2</sub>  
[Read more](#)



**BiOCORE**  
Biogas  
The game changer for the energy transition and future net-zero energy systems by unlocking the full potential of biogas  
[Read more](#)

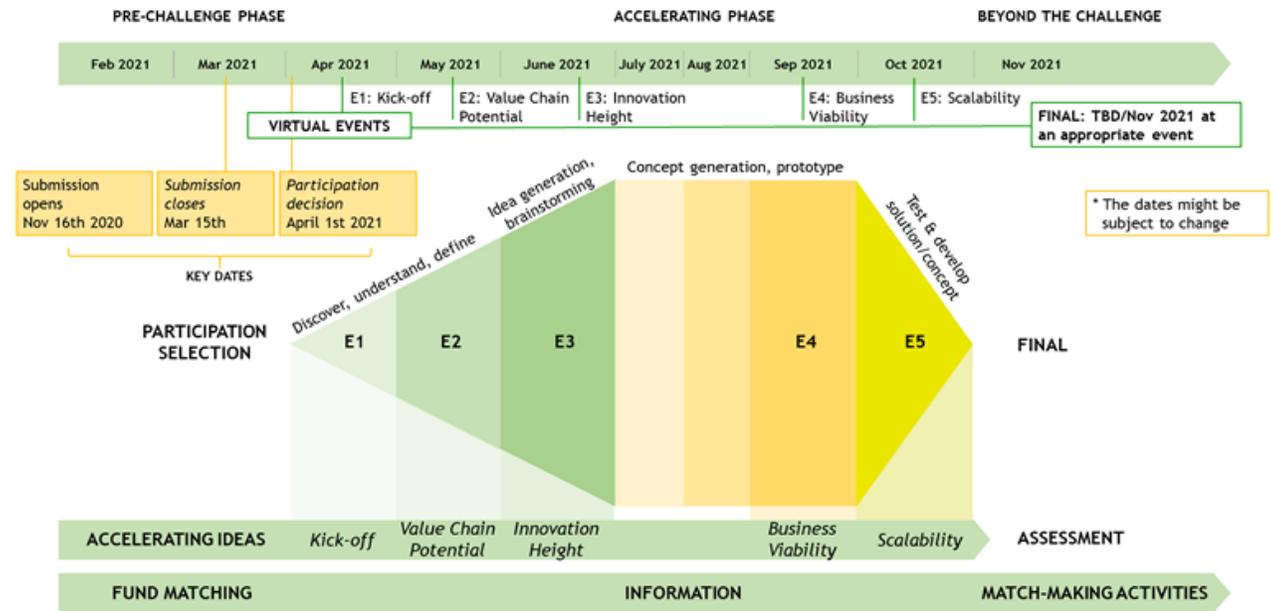


**FlexMethanol**  
Methanol synthesis  
Less emissions, more solutions  
[Read more](#)



**Fuel and Combustion Laboratory (FCL)**  
Biomass combustion  
Pay attention, tar-rich gasification is not the problem anymore!  
[Read more](#)

## THE CHALLENGE PROCESS



Solution development  
**ACCELERATION**  
via 5 virtual events

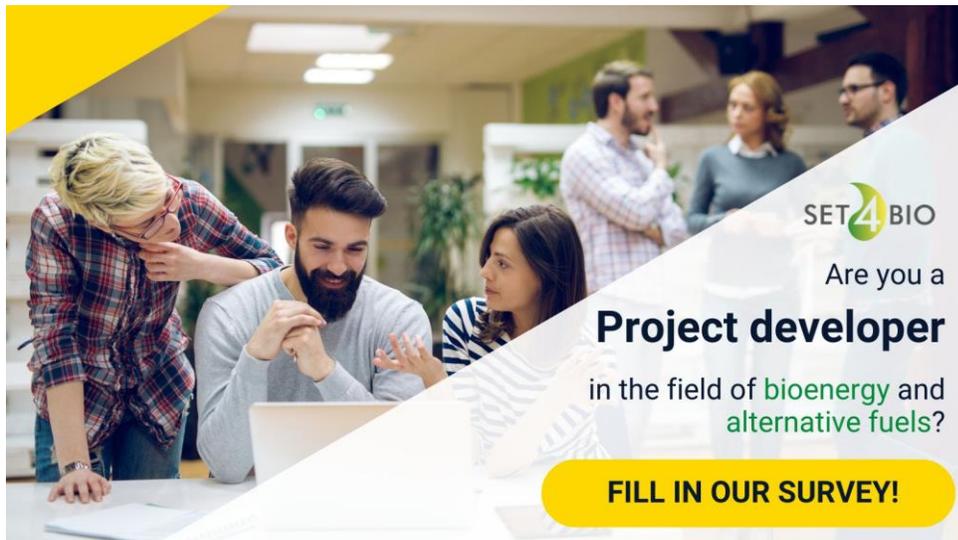
**MATCHING**  
the solution with  
funding opportunities

Solution  
**ASSESSMENT**  
with a final demo day



## Support for project developers to realize project ideas

- Brokerage events to match project developers with funding opportunities
- Guide for project implementation support programs



## Industry priorities and funding opportunities for bioenergy and biofuels

27<sup>th</sup> June 2022

12:30 - 17:15

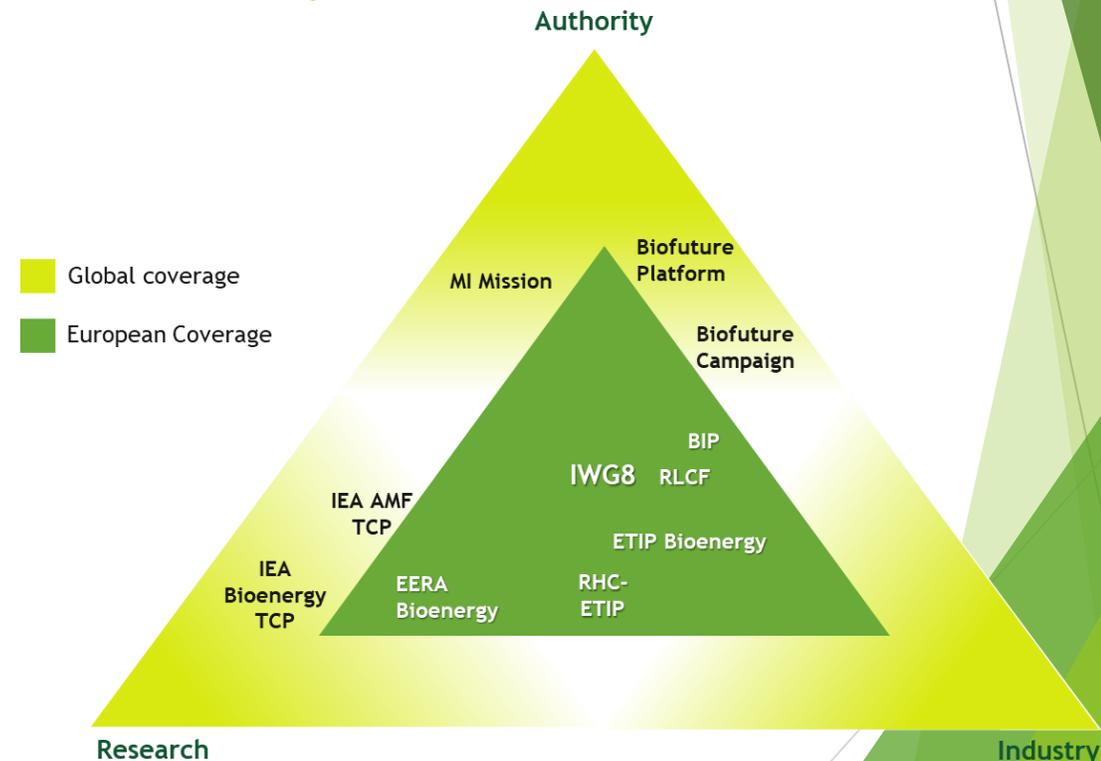
Venue: Silversquare Europe, room The Parliament, Square de Meeûs 35, - 1000 Brussels - Belgium

Registration link

[SET4BIO stakeholder workshop and brokerage event \(trippus.se\)](https://trippus.se)

## Global Outlook

- To identify and position platform and initiatives, review actions and targets, and seek options for collaboration
- Identification and analysis of global and European platforms and initiatives:
  - 22 related to bioenergy and renewable fuels
  - 12 related to clean hydrogen
- Report to be published soon





# SET4BIO Policy recommendations

## SET4BIO Policy recommendations

### 1. Align RDI strategies and funding programs on national and EU level and with industry

- Alignment of national and European RDI strategies as well as SET-Plan, while keeping the national interests
  - Further strengthen partnerships, such as CET Partnership
- Consistency in funding of high TRL solutions
- Information exchange and coordination between national funding strategies and agencies
- Alignment of research and industry funding priorities

## SET4BIO Policy recommendations

### **2. Harmonize data collection to facilitate monitoring and assessment of RDI contribution to targets**

- Countries record and store data differently, making monitoring of IP8 progress challenging
- Develop SET Plan wide taxonomy and make use of existing databases
- Important to:
  - Create transparency in progress monitoring of energy technologies and facilitate corrective actions in research policies
  - Improve monitoring and coordination between the Member States
  - Support coordination between Implementation Plans, especially related to cross-cutting topics (e.g., hydrogen)
  - Increase visibility and usability of data, e.g., best practices of funding mechanisms

## SET4BIO Policy recommendations

### 3. Support innovation actions throughout the TRL scale

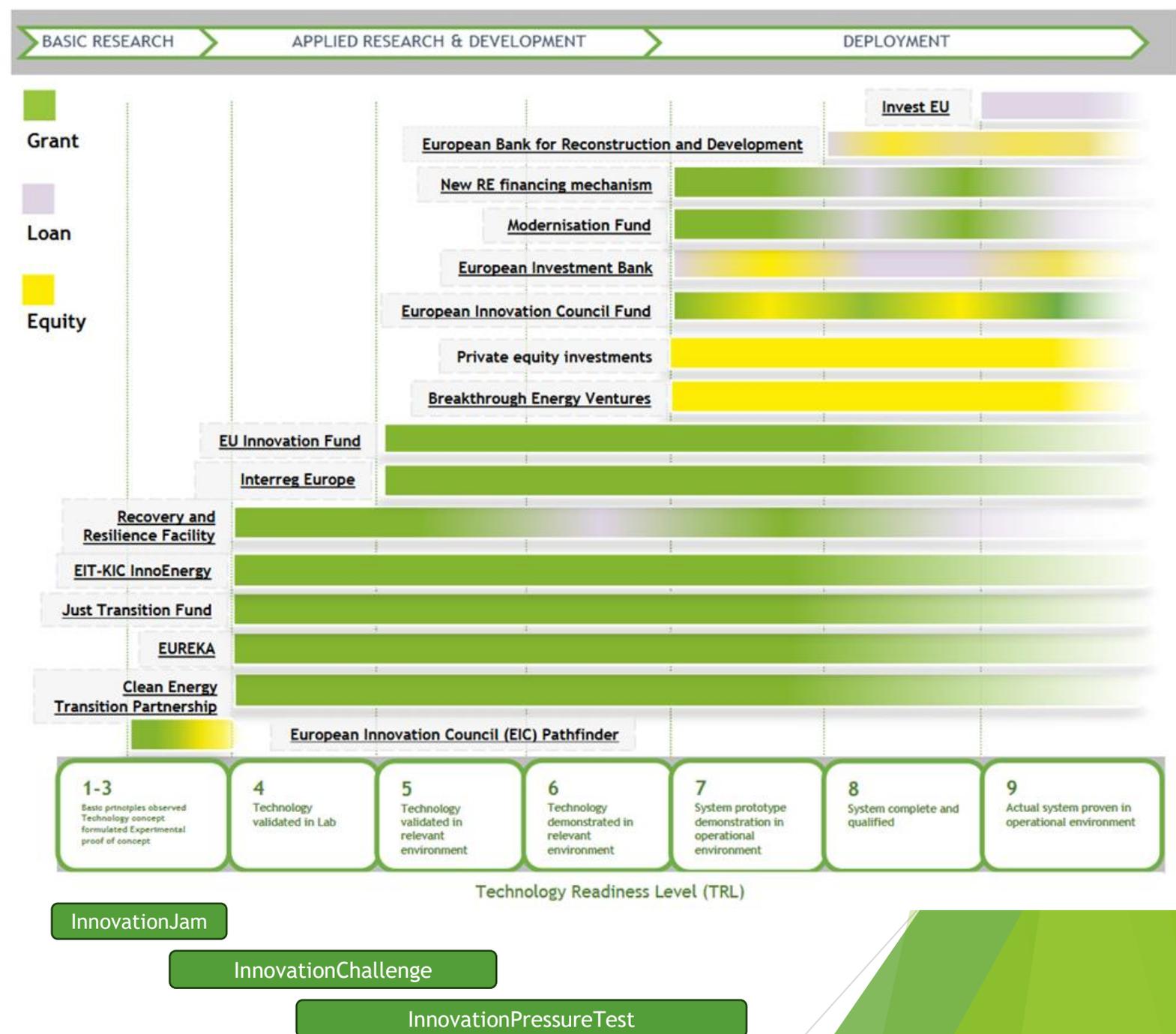
- Support programs can help bridging the gaps between different TRL levels, especially needed at high TRL to support scale-up and commercialization
- In addition to funding and financing, support programs can be based on technical, regulatory, and market knowledge and validation support
  - Develop support programs at national level, align with funding opportunities
  - Make existing programs visible at national and EU level
- A strong open innovation community is needed to foster innovation and collaboration at higher level



## SET4BIO proposes three contest schemes to catalyze innovations throughout the TRL scale:

- InnovationJam: a scheme to rapidly source and stimulate innovative concepts (TRL1-3)
- InnovationChallenge: a scheme to accelerate innovative concepts to prototypes (TRL3-5)
- InnovationPressureTest: a scheme to check the relevance and reliability of the evolving technology - from prototype to solution (TRL4-7)

## Contest schemes



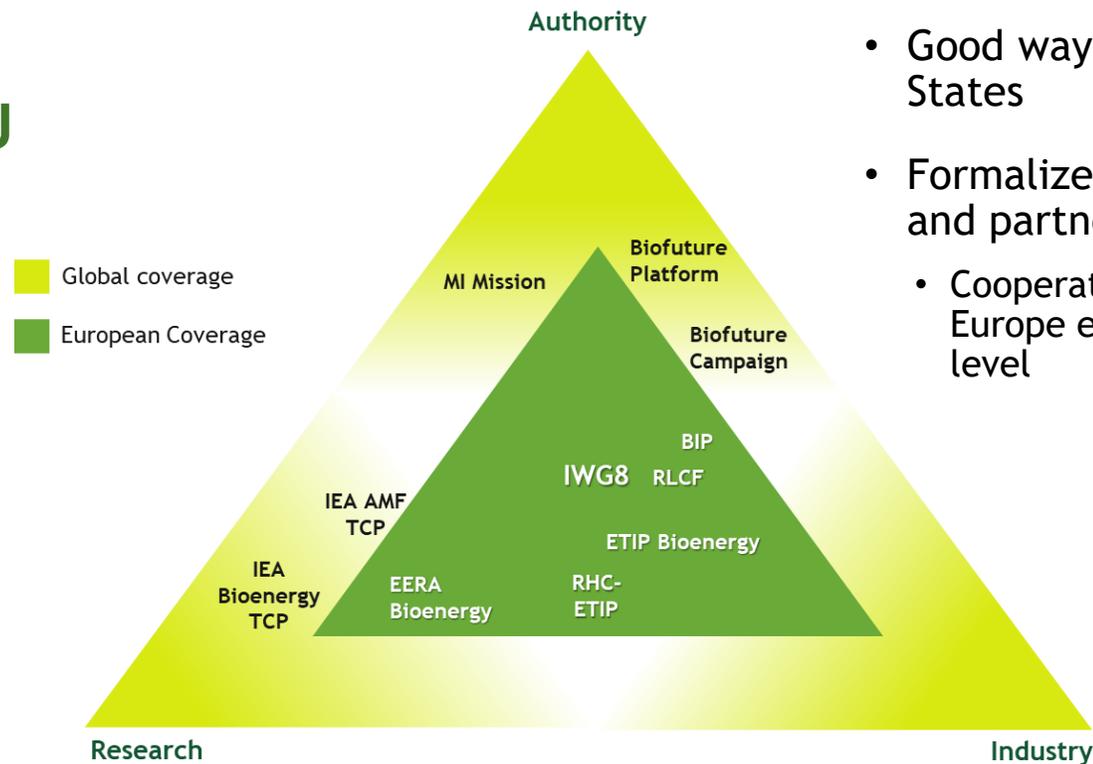
## SET4BIO Policy recommendations

### 4. Clear, stable and predictable framework to guarantee the market pull

- Recommended to analyze the **combined effect of all the policies concerning renewable fuels and bioenergy** and possible side effects
  - Make sure that market actors can grasp the combined effect
  - Risk of delayed investments if not understood or seen as too complicated
- Coordinated and informed processes for implementation of directives throughout Member States
- Focus so far on TRL - consider also e.g., Commercial Readiness Index (CRI) and Societal Readiness Level (SRL) as crucial elements for market uptake

## SET4BIO Policy recommendations

### 5. Enhance complementary collaboration at EU and global level



- Many platforms and initiatives with different geographical focuses, scopes (value chains, end-use sectors), dialog levels, and stakeholders exist
- Good way to engage the Member States
- Formalize the collaboration structures and partnerships
  - Cooperation between platforms in Europe exists - strengthen also on global level



Thank you for your attention!

Project Partners



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[www.set4bio.eu](http://www.set4bio.eu)



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## Funding and financing opportunities in Europe Results from the SET4Bio project

ETIP-B side event, 6th June, 2023

Prepared by Judit Sandquist and Paola Mazzucchelli



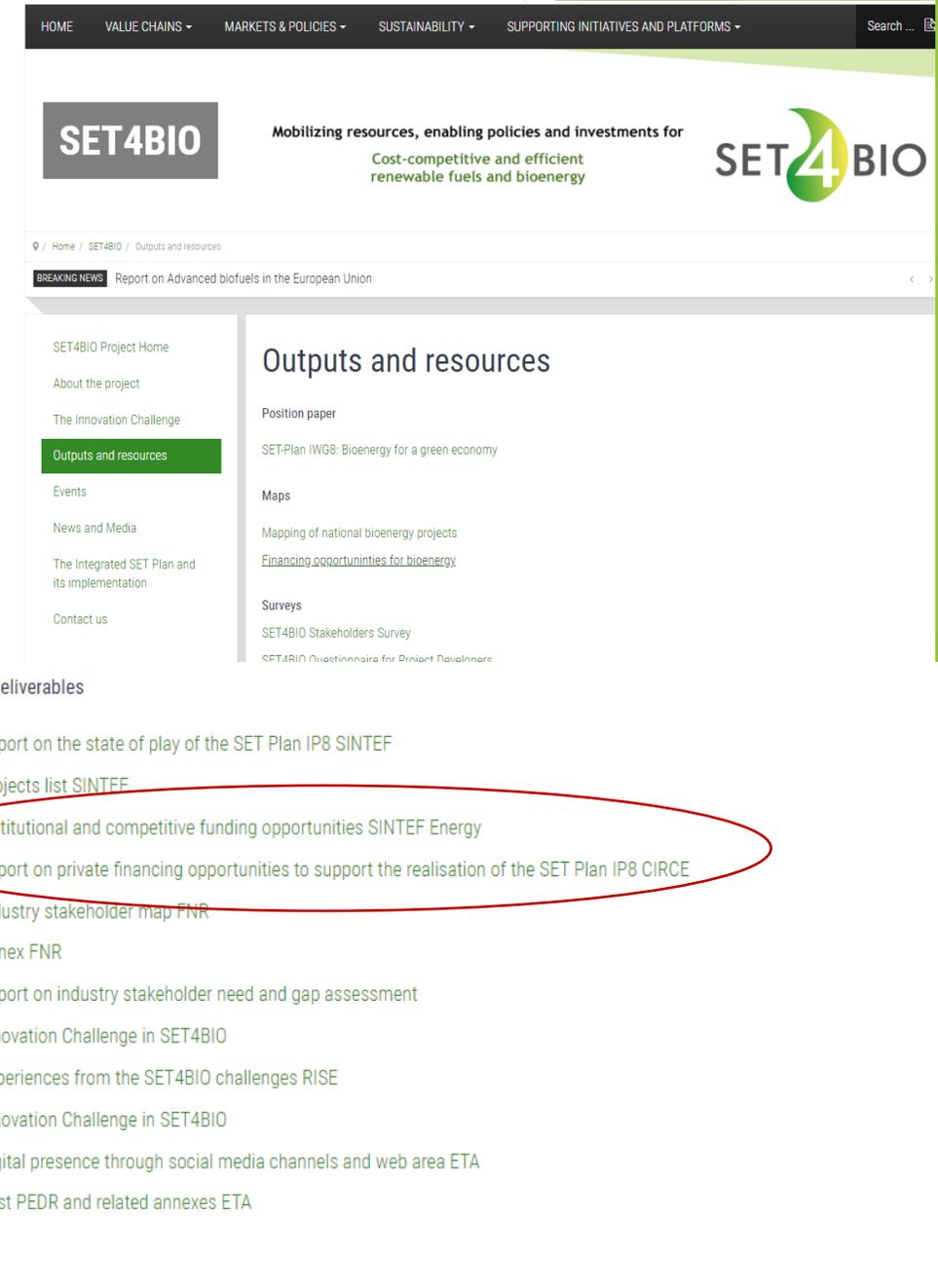
## WP objectives, tasks and timeline

The overall objective of WP1 is to **identify the most promising funding and financing mechanisms** to realize the SET Plan Implementation Plan 8 (IP8), and to **create awareness of funding needs and challenges** among key stakeholders. This involves to:

- Develop a consolidated overview of major ongoing and recently finished (within the last two years) national and European R&I projects contributing to the execution of IP8 with focus primarily on funding aspects.
- Identify national and trans-national public funding opportunities for the execution of the R&I activities of IP8.
- Support alignment of national funding strategies, funding roadmaps and programmes among national funding agencies (competitive public funding) and research organisations (institutional public funding) to support the implementation of the R&I activities of IP8 both financially and governmentally.
- Identify national and trans-national private financing opportunities for the execution of the R&I activities of IP8.

## SET4Bio results

- Two reports, deliverables in the SET4Bio project:
  - Public (D1.2) and private (D1.3) funding opportunities in the EU and IWG8 member countries
  - The reports have been regularly updated
  - Final update: after the EUBCE conference (end of June)
- Interactive map on relevant projects
- Fact sheets on private funding instruments



HOME VALUE CHAINS MARKETS & POLICIES SUSTAINABILITY SUPPORTING INITIATIVES AND PLATFORMS Search ...

**SET4BIO** Mobilizing resources, enabling policies and investments for Cost-competitive and efficient renewable fuels and bioenergy SET4BIO

Home / SET4BIO / Outputs and resources

**BREAKING NEWS** Report on Advanced biofuels in the European Union

SET4BIO Project Home  
About the project  
The Innovation Challenge  
**Outputs and resources**  
Events  
News and Media  
The Integrated SET Plan and its implementation  
Contact us

**Outputs and resources**

Position paper  
SET-Plan IWG8: Bioenergy for a green economy

Maps  
Mapping of national bioenergy projects  
[Financing opportunities for bioenergy](#)

Surveys  
SET4BIO Stakeholders Survey  
SET4BIO Questionnaire for Private Development

**Public deliverables**

D1.1 Report on the state of play of the SET Plan IP8 SINTEF

D1.1 Projects list SINTEF

**D1.2 Institutional and competitive funding opportunities SINTEF Energy**

**D1.3 Report on private financing opportunities to support the realisation of the SET Plan IP8 CIRCE**

D2.1 Industry stakeholder map FNR

D2.1 Annex FNR

D2.2 Report on industry stakeholder need and gap assessment

D3.1 Innovation Challenge in SET4BIO

D3.2 Experiences from the SET4BIO challenges RISE

D3.4 Innovation Challenge in SET4BIO

D6.2 Digital presence through social media channels and web area ETA

D6.3 First PEDR and related annexes ETA

## Funding types

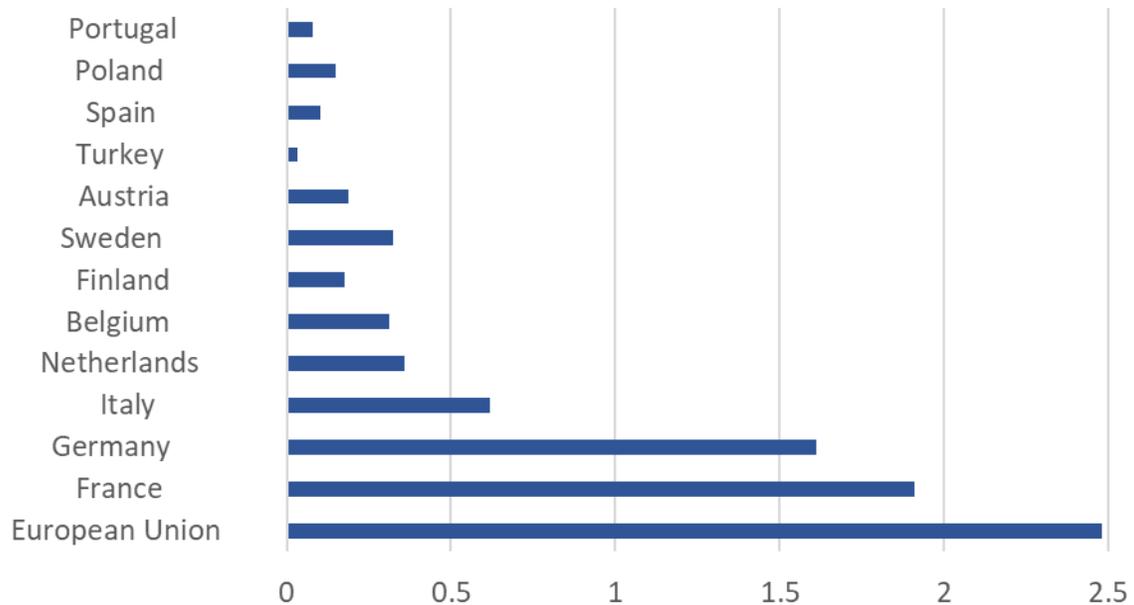
- **Public**
  - Institutional: Long-term financing given to universities and research organizations based on certain criteria (size, publication, students, etc.)
  - Competitive: Short term funds, financing projects or project consortia. Application must be submitted which is evaluated. The evaluation is not only based on the scientific quality but on relevance too - how well it fits to the strategies of the funding part/country (described in the call)
  - In Europe, public funds are available for lower TRL projects (up to TRL6)
- **Private**
  - Grants: process and rules similar to "competitive" above (Invest EU)
  - Equity investment: investment is made into a company or business, medium-long term. Investors are usually following up and require a return on the investment. Venture capital is an example for start-ups
  - Loan: loan of the money, the recipient will have debt and need to pay interest until the loan is repaid.
  - Private funds can finance the entire TRL range (more relevant for higher TRLs)



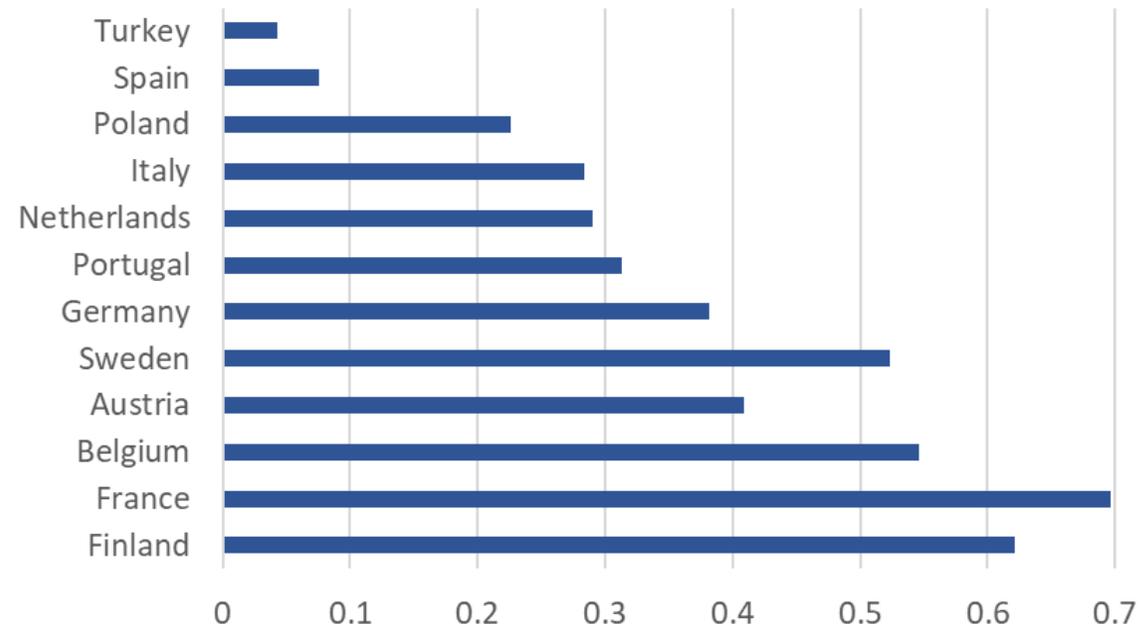
## Public funding opportunities in IWG8 member states

## Public Energy R&D budget - Data reported to IEA

Total public energy RD&D budgets by country for 2021 or latest available year (billion USD)



RD&D budget per thousand unit of GDP



## Public funding in the EU

- Horizon Europe, 2021-2027 with 96.9 bill Euro
- The Recovery and Resilience Facility
  - Temporary instrument
  - Enabling green and digital transitions in the member states
  - Strong ties to REPowerEU
  - 385 bill Euro loans + 338 bill Euro in grants to invest in reforms and projects
  - The MS apply for funds and report to the EU, and they manage the investments in own country to achieve the goals
- European Regional Development Fund (ERDF), to correct imbalances between regions (managed at country level)
  - 2021-2027 it will enable investments in a smarter, **greener**, more connected and more social Europe that is closer to its citizens.



## MS funding: Institutional

- Long-term financing from the relevant ministries to universities or research institutes
- The funding criteria can include publication rate, innovativeness, contribution to GHG reduction
- The funding criteria are updated in every 1-5 years

## MS funding: competitive

- Short term funding given to projects or project consortia
- Call → application → evaluation → contract → funding → evaluation
- Often managed by the national research funding institutions (Research councils)
  - The budget is set by the government
  - Depending on the countries' structures, funds can be acquired from multiple organizations
  - The research programs are often aligned with the European strategies, but in many cases not with each other.
- Multiannual framework programs updated typically every 4-5 years
- In many countries additional instruments are available to access larger European or private funding instruments:
  - Counseling and guidance
  - Financial support for writing proposals

## Results: The efficiency of IP8 implementation

### Challenges: Lack of alignment of the funding instruments

- The countries develop their own strategy
- The strategy is often aligned with the European strategies, but the extent is different. No alignment with other countries' strategies
- However, most of the countries have measures to avoid fragmentation and loss of information
- Inconsistencies in funding, especially at higher TRL levels

### Proposed solution:

- Alignment of the national and European strategies as well as SET-Plan, while keeping the national interests
- Working together for a common goal at country level

## Results: Fragmented Europe

### Challenges: Countries, regions, and the number of funding agencies

- National and regional funding agencies - cooperation, monitoring? Alignment of the strategies?
- The different value chains might belong to different funding agencies
- Information is stored at several entities of the given country

### Proposed solution:

- Alignment of the regional and national funding strategies as well as SET-Plan, while keeping the regional interests
- Tighten the cooperation and keep each other (at least) informed if the programs are developed by several funding agencies or ministries

## Results: Data availability

### Challenges: Impossible to monitor progress of IP8 (and possibly other IPs)

- The countries record and store the data differently
- Data is not available or not exclusive for only IP8 relevant budgets
  - Merged with other energy forms - data covers several value chains, also VCs not included in IP8
  - Bioenergy and hydrogen value chains can be separated - data covers fewer value chains
- Data can be fragmented - information is stored at several entities of the given country

### Proposed solution:

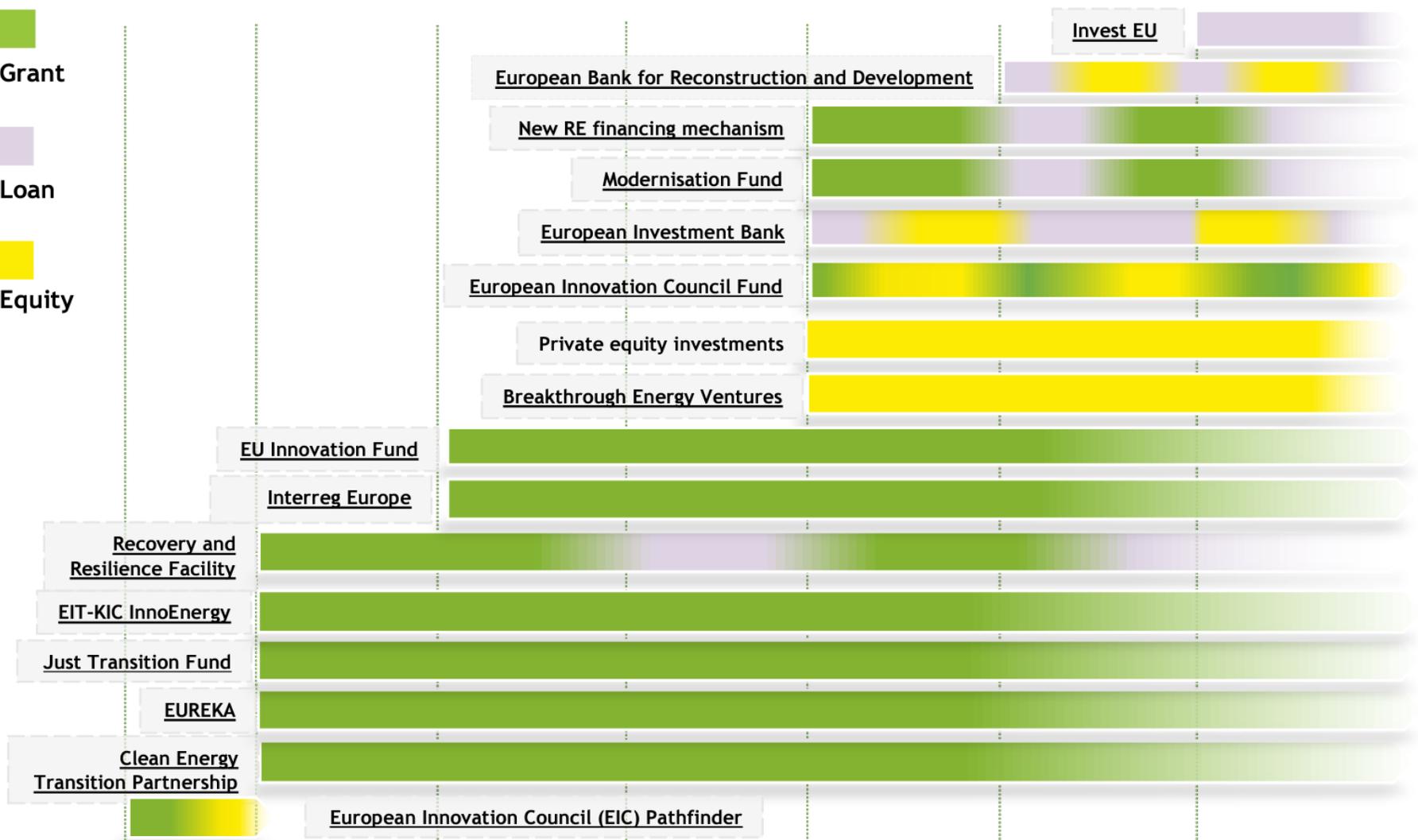
- Centralized database for all IPs - any overlaps? How to avoid the extra administration?



## Private funding opportunities in the EU



- Grant
- Loan
- Equity



Technology Readiness Level (TRL)

## One factsheet per identified instrument

- Short description
- How to apply
- Covered topics (technology focus)
- Typology of funded projects (TRL)
- Funding range
- Timing/availability
- Duration of investment
- Conditions/requirements
- Contacts
- Examples

The provided information aims at helping Project developers at easily finding the most appropriate funding instruments, based on basis Project information.



Thank you for your attention!

Project Partners



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## SET4BIO at EUBCE

Room: **ROOM BIANCA**

Date: **Tuesday, 06 June 2023**

Time: **17:30 – 18:30 CEST**

Session code **3BO.15**

Market implementation, investments & financing

### Acceleration of implementation by valorisation of bioresources

**SET4BIO – A framework to Accelerate Bioenergy and Biofuels Solutions across Europe and beyond**

*Short Introductory summary*

SET4BIO aims to support the implementation of the SET Plan Action 8 – Renewable Fuels and Bioenergy and its targets defined in the Implementation Plan 8 (IP8). Its support strategy is built on three pillars: activating the stakeholders, mobilising resources and stimulating innovation. To put these pillars into action, SET4BIO has developed an implementation toolbox consisting of the following measures: mapping of EU and national bioenergy and biofuels projects across European countries, a mapping of financing opportunities available for bioenergy and biofuels, a global outlook on platforms and initiatives in the field of IP8, and an Innovation Challenge to spur innovative ideas in the bioenergy and renewable fuels sector.

**Presenter**



**PATRIK KLINTBOM**

RISE

*Presenter's biography*

Chair ETIP Bioenergy

**'Best practices and  
recommendations for project  
implementation support  
programmes'**  
on 7 June 11:30-12:00  
at Live Stage at EU project area  
at EUBCE



## SET4BIO Innovation Challenge Light

- 27 June 2023 / 13:00 - 17:30 (CET)
- Online event
- More information soon at SET4BIO website:  
[www.etipbioenergy.eu/set4bio](http://www.etipbioenergy.eu/set4bio)

### Draft Agenda

- 🕒 13:00- 18:00 Plenum and possibility for 1:1
  - 🕒 13:00 - 14:00 Welcome and Introduction to Innovation Challenge
    - Foresight Bioenergy and Biofuels 2050  
Johan Granberg, RISE Research Institutes of Sweden
    - Key Policy Recommendations from SET4BIO for Bioenergy and Biofuels  
Elina Mäki, VTT
    - Industry Needs  
TBD
  - 10 minutes break*
  - 🕒 14:10 - 15:10 Pitch sessions
  - 🕒 15:10 - 15:55 Interactive workshop in Industry needs
  - 5 minutes break*
  - 🕒 16:00 - 17:00 Feedback session
  - 🕒 17:00 - 18:00 Optional 1:1 meetings with our experts



Thank you

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