



Breakthrough Energy  
Catalyst

# Breakthrough Energy Catalyst Foundation

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hosted by the European Commission, Innovation Fund Expert Group  
July 6, 2021

# Our Long-standing Partnership on Energy and Climate

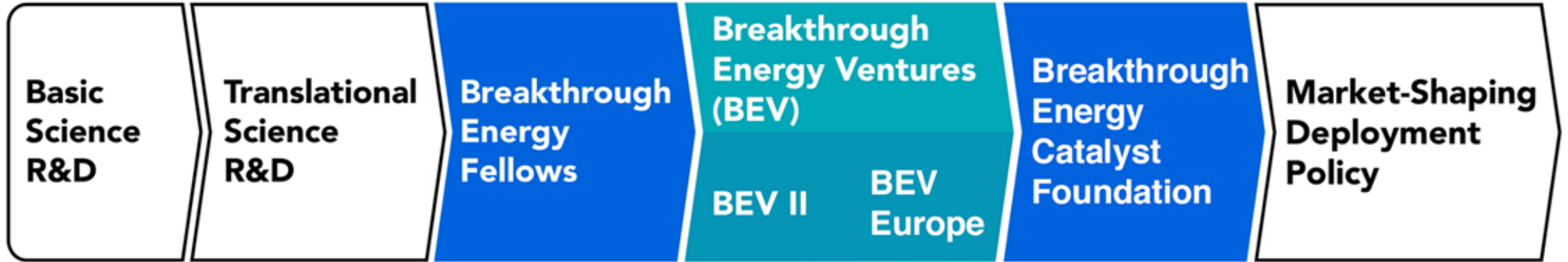


# At a Glance: Breakthrough Energy

## Research & Development

## Validation & Early Deployment

## Large Scale Deployment



# European Commission – Breakthrough Energy Catalyst Partnership



European Commission - Press release



**Commission and Breakthrough Energy Catalyst announce new partnership to support investments in clean technologies for low-carbon industries**

Brussels, 2 June 2021



Bloomberg Green

Finance

## EU Targets \$1 Billion for Clean Technology in Pact With Bill Gates

By [Ewa Krukowska](#)

June 2, 2021, 3:39 PM GMT+2

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Bill Gates' Breakthrough Energy partners with EC to drive innovation

AGRICULTURE | ELECTRIC POWER | ENERGY TRANSITION | OIL — 02 Jun 2021 10:21 UTC

### Bill Gates' Breakthrough Energy partners with EC to drive innovation

## EU and Bill Gates make joint push for \$1BN to accelerate clean tech

Natasha Lomas @riptari / 12:39 PM GMT+2 • June 2, 2021



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### €820M fund set up to bring down the price of clean energy

03 Jun 2021 | News

Bill Gates is teaming up with EU to finance large scale demonstration projects and boost the commercial prospects of green energy. It is hoped the initiative will attract wider private sector investment

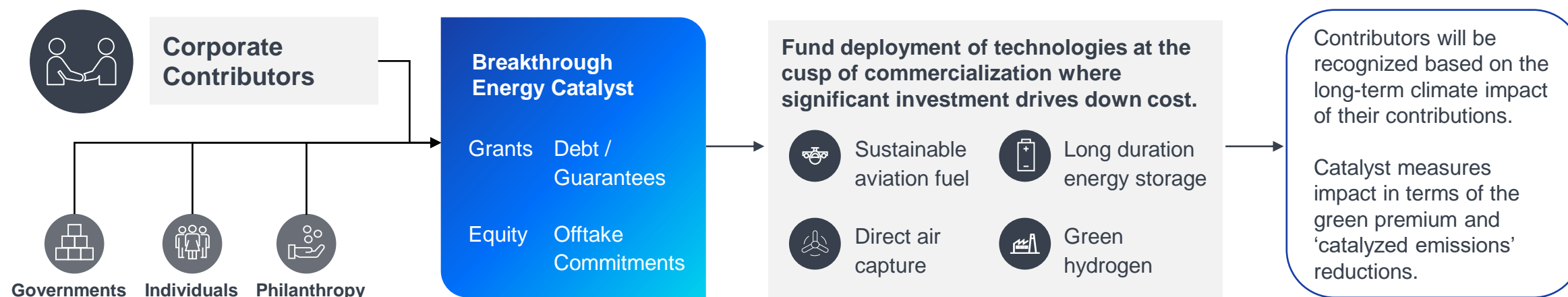
By [Goda Naujokaitytė](#)

# Breakthrough Energy Catalyst: Our Mission

Unlike many other opportunities in the climate space, Catalyst will help build the infrastructure the world needs to meet its climate goals. The program is designed to commercialize emerging low carbon technologies at scale to drive reductions in the green premium, reduce greenhouse gas emissions, and displace fossil-based technologies.

## Our execution plan

- ✓ Build a **coalition of diverse stakeholders** across the Breakthrough Energy Network including companies, governments, philanthropies, and individuals.
- ✓ Provide technical expertise to **select high-impact technologies** that accelerate reduction in the green premium and greenhouse gas emissions.
- ✓ Blend **low-cost financing** anchored by philanthropic capital and competitively-priced equity and debt in Catalyst-managed vehicles.
- ✓ Organize strategic partner **commitments to support product sales** via structured offtake subsidies.
- ✓ **Align funding with policy solutions** to maximize impact from investment and fill gaps where additional support is required.
- ✓ Measure and quantify reduction in green premium & emissions for capital invested through the **Catalyzed Emissions Reduction Framework**.

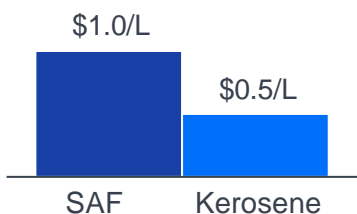


# Reducing the Green Premium

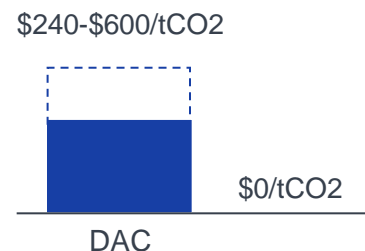
Getting to net-zero requires a broad set of technologies, however many of today's solutions are too expensive to compete with the fossil fuel incumbents that are cheaper, more efficient, and easier to produce. BE Catalyst will fund impactful technologies requiring investment to achieve commercialization and scale.

## Green Premium for Target Technologies

### Sustainable aviation fuel



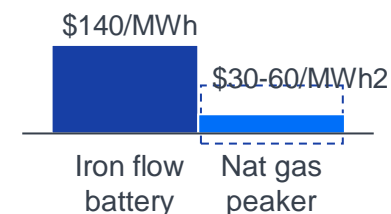
### Direct air capture



### Green hydrogen



### Long duration energy storage



■ Climate technology   ■ Fossil fuel incumbent technology

1 Initial focus technologies for Breakthrough Energy Catalyst | 2 Range reflective of regional (e.g. US vs. EU) and technology diversity

# The Challenge: Project Bankability

All three Catalyst technologies lack access to low-cost capital. Without additional support, they will not get investments they need to scale.

## Key bankability considerations



### Sustainable Aviation Fuels

**Uncompetitive price gap with Jet fuel** leading to lack of scalable demand and offtakes beyond CSR commitments

**Secure and cost-effective access to feedstock** remains a key challenge

**Upfront capex for some technical paths remain high** (e.g. municipal solid waste)

Potentially **higher cost of debt** due to **credit challenges** facing the aviation industry



### Green hydrogen

**Uncompetitive price gap with grey hydrogen** due to higher cost inputs and subscale technology

**Electrolysis remains a power intensive** process, leading to high project power costs

**Lack of scale in electrolyzers** production and tech leads to **high upfront capex costs**

**Insufficient transportation infrastructure** for plants located in renewable rich areas that are far from demand centers



### Direct Air Capture

**Lack of scalable commercial, non-subsidy revenue** case with regulatory credits remaining the primary source of revenue for many projects

DAC processes are highly energy intensive; **high power cost remains a key barrier to scalability**

**Nascency of technology** increases **upfront capital costs** as well as **overall insurance costs**



### Long Duration Energy Storage

**Uncompetitive price gap with fossil alternative** due to higher cost inputs and subscale technology

**Nascency of technology** increases upfront capital costs

**Lack of commercial performance data** affords limited visibility for traditional project finance players.

# Catalyst Suite of Capital Offerings

Catalyst can help improve the bankability of these projects. We can pull several levers to help access lower cost capital to fill the project-level funding gap.

	Lever	Description
<b>Grants</b>	<b>Revenue subsidies (e.g. contract for differences)</b>	Subsidize price of key project output to buy-down any green premium and improve bankability
	<b>Capex grants</b>	Grants administered upfront in a project to reduce capex costs
<b>Off-take</b>	<b>Direct off-take</b>	Directly provide off-take agreements for the project
	<b>Create aggregate demand program for project feedstock</b>	Create program that aggregates buying power across multiple projects within RFP for key and common input (e.g. feedstock for SAF projects) to reduce cost
<b>Low cost equity</b>	<b>Low cost equity, including first-loss</b>	Low cost and/or first loss equity to finance project costs, lower cost of capital, and de-risk project

## Offtake Agreement Negotiation

Once Catalyst has determined the optimal funding structure for projects, project developers will go out to secure offtake agreements from potential buyers. Catalyst applies corporate expression of interest at above market offtake prices to projects.



# Building a New Generation of Public-Private Partnership to Deliver the European Green Deal and a Sustainable, Job-Rich Recovery



## Build impactful projects in the EU

Several substantial green hydrogen, power-to-liquids, and sustainable aviation fuel projects will be deployed in the EU. These are aligned with the EU's Green Deal agenda and stated funding priorities.

All € contributed will go to project funding. Breakthrough Energy will cover program administration expenses.



## Crowd in private investment and maximize value

Your contributions will help catalyze the formation of corporate and philanthropic capital, further scaling technology deployment.

We also believe our project selection and funding process will maximize the value of demonstration € to rapidly drive down technology costs.



## Support European companies & build new industries

European companies are among the leaders in these target technologies, meaning this funding is likely to support innovations among European companies



## Access to BE technology expertise

Catalyst will bring deep expertise in emerging climate technologies and develop a network of leading developers.



## Reinvigorate Multi-lateral Processes

Catalyst is a tangible program that can strengthen ties across the Atlantic.

This can be a powerful signal to the global community that major geographies can join forces in the run-up to COP26 and as Mission Innovation is relaunched.



## Support global decarbonization efforts

Catalyst offers a unique way to support emerging technologies that will be needed across the globe to reach net-zero emissions.

**THANK YOU!**