

# RIETI BBL Seminar Handout

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## **“Voice Through Divestment”**

**November 22, 2022**

**Marco BECHT**

<https://www.rieti.go.jp/jp/index.html>

# Voice Through Divestment

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# Motivation

Financial economists (and many investors) oppose divestment

- A. Limited impact on share prices and the cost of capital
- B. Engagement (voting) is more effective than divestment

Yet,

**1552**

Institutions Divesting

**Global  
Fossil Fuel  
Divestment  
Commitments  
Database**

[COMMITMENTS](#) [REPORT: INVEST-DIVEST 2021](#) [ABOUT](#) [CONTACT](#)

<https://divestmentdatabase.org>

**The database of fossil fuel  
divestment commitments  
made by institutions  
worldwide**

[VIEW DATABASE](#)



# Voice Through Divestment

- Paper argues and shows that go fossil free is a social movement
- Divestment is a “moral outrage” narrative
- Its impact stems from threatening the licence to operate
- Impact extends beyond fossil fuel companies to all high carbon emitters (spillover)

## Today

- Fossil free divestment has morphed from a narrative to a risk management argument
- Risk averse investors should conditionally divest, e.g. by investing in net-zero indexes

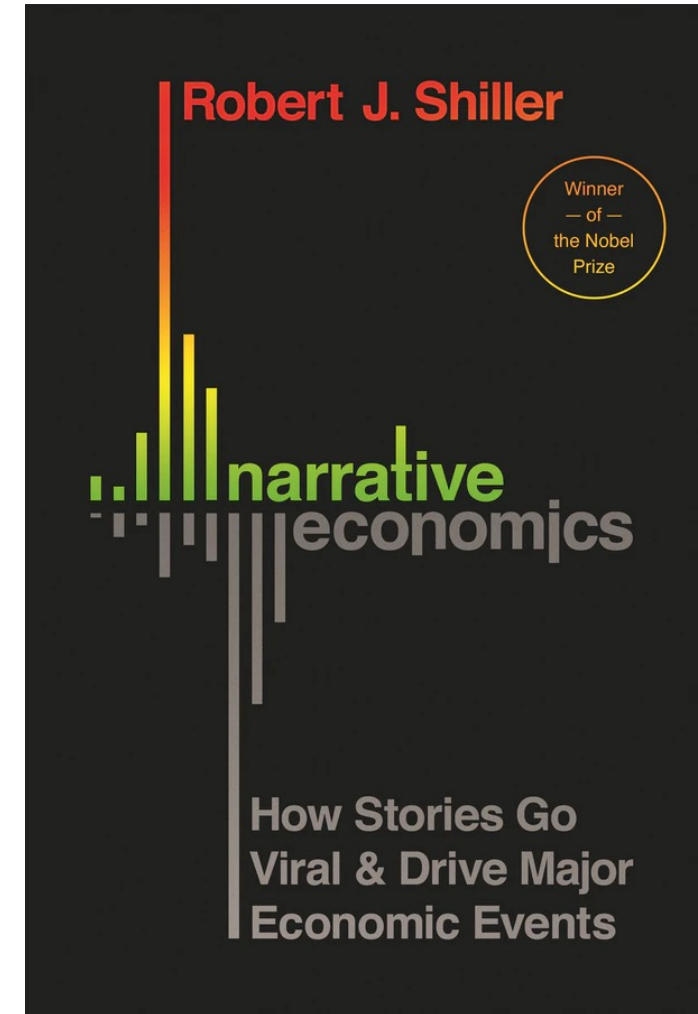
# Outline

1. Economics narratives (Shiller 2017)
2. The 350 ppm / carbon budget / divestment narrative
3. The go fossil free divestment movement on Twitter
4. The divestment pledges database
  - a. Divestment pledges on Twitter
  - b. The impact of divestment pledges that went "viral" on stock prices
5. Summary and Conclusions
6. Implications for Japan

# Economic Narratives

# Narrative Economics (and Finance)

- Shiller, R.J., 2017. Narrative Economics. American Economic Review 107, 967–1004.  
<https://doi.org/10.1257/aer.107.4.967>
- Bénabou, R., Falk, A., Tirole, J., 2018. Narratives, Imperatives, and Moral Reasoning (Working Paper No. 24798), Working Paper Series. National Bureau of Economic Research. <https://doi.org/10.3386/w24798>
- Shiller, R.J., 2019. Narrative economics: how stories go viral & drive major economic events. Princeton University Press, Princeton.

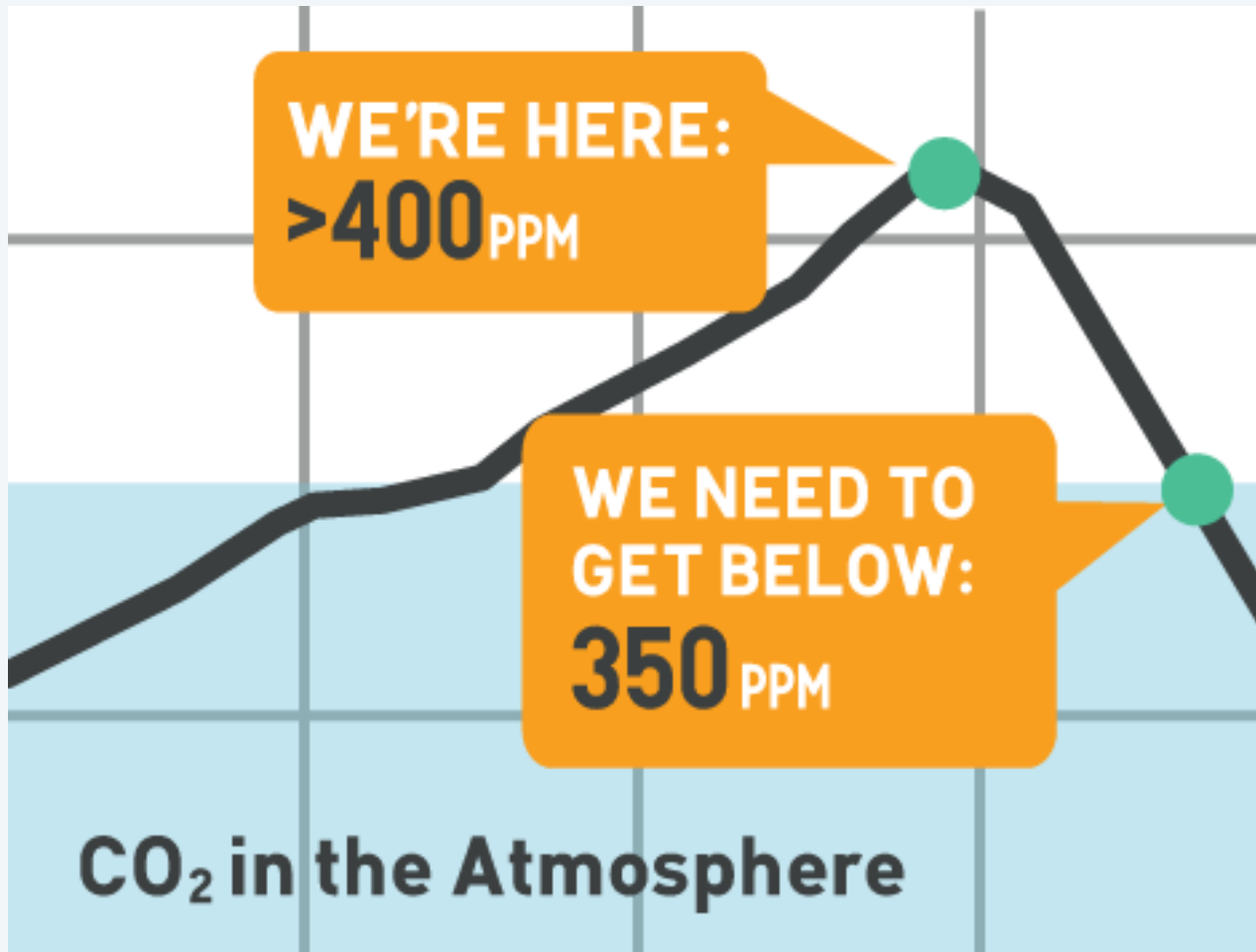


## Narrative: Definition

- Shiller (2017, pg. 968) defines “the term narrative to mean a **simple story or easily expressed explanation of events that many people want to bring up in conversation or on news or social media** because it can be used to stimulate the concerns or emotions of others, and/ or because it appears to advance self-interest. To be stimulating, **it usually has some human interest either direct or implied.**”
- “It is not generally a researched story, and may have glaring holes, as in urban legends. The form of the narrative varies through time and across tellings, but **maintains a core contagious element**, in the forms that are successful in spreading.”
- “Why an element is contagious, when it may even “**go viral**,” may be hard to understand, unless we reflect carefully on the reason people like to spread the narrative. **Mutations** in narratives spring up randomly, just as in organisms in evolutionary biology, and when they are contagious, the mutated narratives generate seemingly unpredictable changes in the economy.”



# The Fossil Free Divestment Narrative



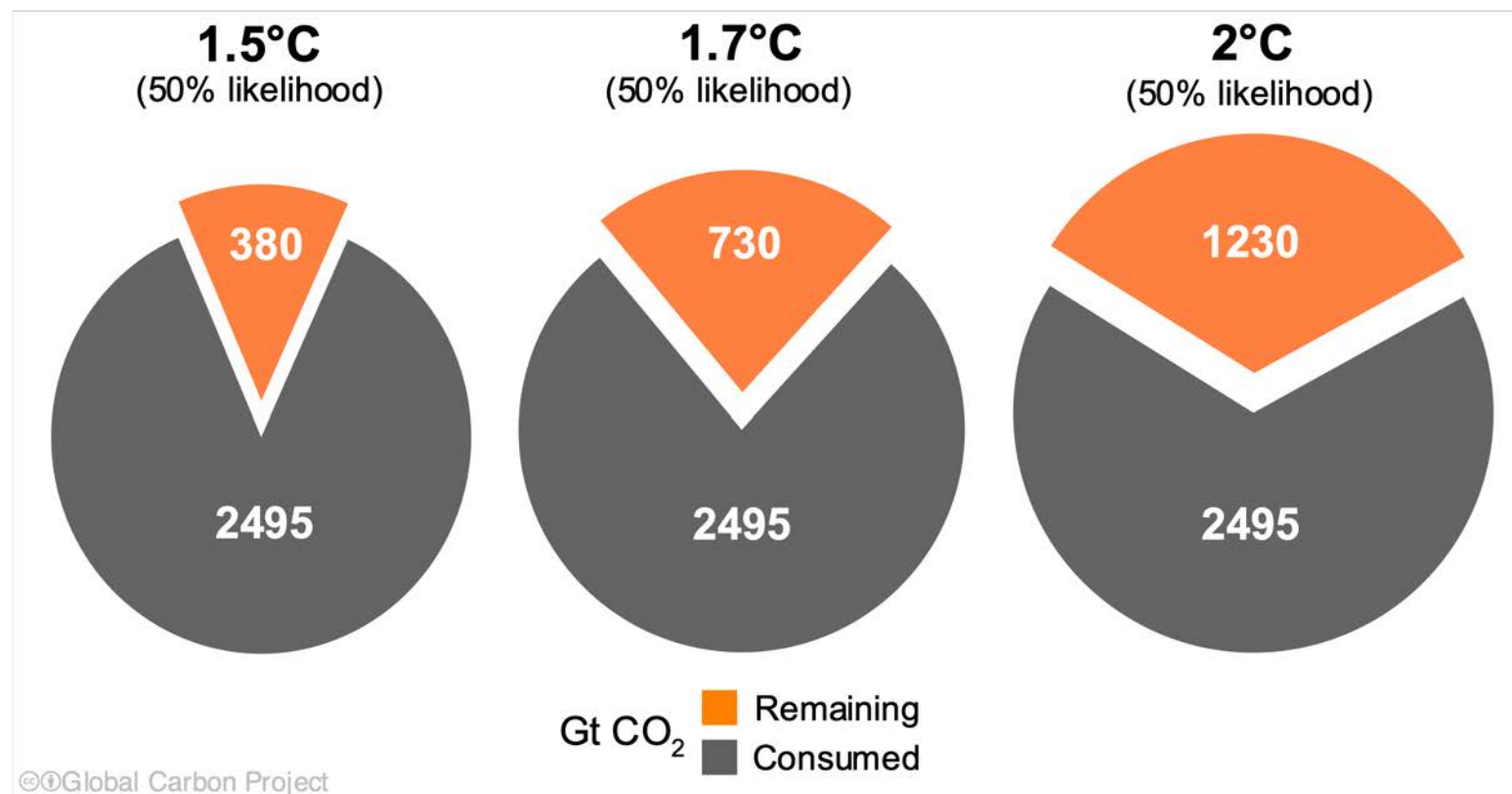
“If humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, paleoclimate evidence and ongoing climate change suggest that CO<sub>2</sub> will need to be reduced from [current levels] to **at most 350 ppm.**”

Hansen, J., Sato, M., Kharecha, P., Beerling, D., Berner, R., Masson-Delmotte, V., Pagani, M., Raymo, M., Royer, D.L., Zachos, J.C., **2008**. Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim? The Open Atmospheric Science Journal 2, 217–231.

Source: <https://mn350.org/understanding350/>

# Remaining carbon budget

The remaining carbon budget to limit global warming to 1.5°C , 1.7°C and 2°C is 380 GtCO<sub>2</sub>, 730 GtCO<sub>2</sub>, and 1230 GtCO<sub>2</sub> respectively, equivalent to 9, 18 and 30 years from 2023. 2610 GtCO<sub>2</sub> have been emitted since 1750



The remaining carbon budgets are updated from IPCC AR6 WG1 Chapter 5 by removing additional historical emissions since 1 January 2020. Quantities are subject to additional uncertainties e.g., future mitigation choices of non-CO<sub>2</sub> emissions  
Source: IPCC AR6 WG1; [Friedlingstein et al 2022](#); [Global Carbon Budget 2022](#)

# Global Warming's Terrifying New Math

Three simple numbers that add up to global catastrophe – and that make clear who the real enemy is

By **BILL MCKIBBEN** 



Illustration by Edel Rodriguez

“At this point, effective action would require actually keeping most of the carbon the fossil-fuel industry wants to burn safely in the soil, not just changing slightly the speed at which it’s burned.”

”So pure self-interest probably won’t spark a transformative challenge to fossil fuel. But moral outrage just might – and that’s the real meaning of this new math. It could, plausibly, give rise to a real movement.

**“Once, in recent corporate history, anger forced an industry to make basic changes. That was the campaign in the 1980s demanding divestment from companies doing business in South Africa.”**

““The end of apartheid stands as one of the crowning accomplishments of the past century,” as Archbishop Desmond Tutu put it, “but we would not have succeeded without the help of international pressure,” especially from “the divestment movement of the 1980s.”

# New York Times – “The Divestment Brigade”

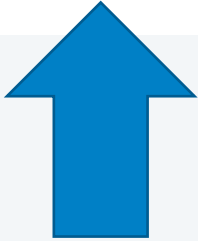
December 2012

ENERGY & ENVIRONMENT

## To Stop Climate Change, Students Aim at College Portfolios

Students are demanding that university endowment funds rid themselves of coal, oil and gas stocks in hopes of bringing climate change onto the national political agenda.

By Justin Gillis



Students in Minneapolis, seeking steps to cut atmospheric carbon levels to 350 parts per million, known as the safe level. Stephen Maturen for The New York Times

PRINT EDITION The Divestment Brigade | December 5, 2012, Page B1



# The Fossil Free Divestment Movement

## ▲ What are we asking for, and who are we asking?

**Divest:** We want institutional investors, our town, city or state pensions and other public funds, to immediately freeze any new investment in fossil fuel companies, and divest from direct ownership and any commingled funds across all asset classes including fossil fuel public equities and corporate bonds within 5 years.

We do recommend a complete exclusion of ALL fossil fuel investment. However, we acknowledge that it might be difficult to identify the entire fossil fuel chain and therefore we suggest using the [200 publicly-traded companies list](#). This list includes the vast majority of traded coal, oil, and gas companies and ranks them by their amount of reserves.



<https://gofossilfree.org/not-a-penny-more/>

Screenshot April 2022

# The Carbon Underground 200™

The World's Top Publicly-Listed Fossil Fuel Reserve Owners

**The operational standard for divesting and being fossil free.**

The Carbon Underground 200 identifies the top global publicly-owned coal, oil, and gas reserves owners ranked by the carbon emissions embedded in their reserves.



### Coal 100

The Carbon Underground Coal 100 covers 98% of reported proven and probable coal reserves owned by publicly-listed companies.



### Oil & Gas 100

The Carbon Underground Oil and Gas 100 covers 98% of reported proven gas reserves and 97% of proven oil reserves held by publicly-listed companies.



# Data and Methodology



# Data and Methodology

## 1. Tracking the Go Fossil Free Divestment Movement

- Twitter accounts, network analysis
- Time series of tweet volume

## 2. Tracking Divestment Pledges

- Global Divestment Databases: who divests?; cumulative count
- Twitter accounts: tweet volume and virality

## 3. Stock Price Impact (event study)

- Carbon Underground 200
- Fossil fuel companies that might be divested that are not on the carbon underground list
- Companies in other industries with high scope 1, 2 and 3 emissions (cement, airlines etc.)

# Tracking the Fossil Free Divestment Movement

# The 350 Divestment Movement on Twitter: Database Construction

- Iterative method
  - Start with main (official) accounts of
    - 350.org : @350
    - Go Fossil Free (a 350.org project): @Divest, @FossilFree
  - Obtain followers and following
  - Consolidate into one list of handles and drop duplicates
  - 2<sup>nd</sup> Round
- Download all tweets for each node in the movement





...



Following

**350 dot org** 

@350

We're an international movement of ordinary people working to end the age of fossil fuels and build a world of community-led renewable energy for all.

 Everywhere  [350.org](https://350.org)  Joined March 2008

**19.6K** Following **393.1K** Followers

# THE FLAG, THE CROSS, AND THE STATION WAGON

On Sale 05/31/22





...



Following

**Bill McKibben** 

@billmckibben

Author, Educator, Environmentalist and founder of [350.org](https://350.org) and [ThirdAct.org](https://ThirdAct.org).  
Opinions all my own, and expressed at greater length at [billmckibben.substack.com](https://billmckibben.substack.com)

 Vermont  [billmckibben.com](https://billmckibben.com)  Joined February 2009

**1,413** Following **396.6K** Followers



# Fossil Free Divest (a 350 project)



The profile picture shows a group of people holding a banner that reads "DISCLOSE. DIVEST. REINVEST." and "PRESIDENTS BACOW AND SALOVEY: OUR FUTURE DEMANDS ACTION NOW". The banner is white with orange and black text. The profile picture is a circular logo with an orange background and a black diamond shape in the center. The diamond contains the text "DIVEST HARVARD" and "CLIMATE JUSTICE NOW".

**Fossil Fuel Divest Harvard** ♦  
[@DivestHarvard](#)

We made Harvard University commit to divestment from fossil fuels. Now, the fight continues for endowment and climate justice.

📍 Cambridge, MA 🔗 [DivestHarvard.com](https://divestharvard.com) 📅 Joined September 2012

2,996 Following 9,266 Followers



The profile picture shows a group of people holding a banner that reads "DISCLOSE. DIVEST. REINVEST." and "PRESIDENTS BACOW AND SALOVEY: OUR FUTURE DEMANDS ACTION NOW". The banner is white with orange and black text. The profile picture is a circular logo with a white background and a black 'X' shape in the center. The 'X' contains the text "FOSSIL FREE" and "YALE".

**Fossil Free Yale**  
[@FossilFreeYale](#)

Students for endowment justice. We demand that [@Yale](#) cancel its holdings in Puerto Rico's debt and divest from fossil fuels. Follow [@YaleEJC](#), we are part of it!

📍 New Haven, CT 🔗 [endowmentjustice.wixsite.com/yaleejc](https://endowmentjustice.wixsite.com/yaleejc)  
📅 Joined January 2013

720 Following 3,614 Followers

## Network and Tweets

- Network analysis
  - Number of nodes and density of the network
  - Which nodes are central?
- Creation of nodes over time
- Hashtags used
- Evolution of tweets over time

# Network Analysis

- Number of Nodes: 504
- Highly connected
  - Reciprocity ( $A \rightarrow B$ ): 36.1%
  - Transitivity ( $A \rightarrow B \rightarrow C$ ): 41%

# Centrality: Top Twenty Nodes

Measured by percentage inclusion in all shortest paths

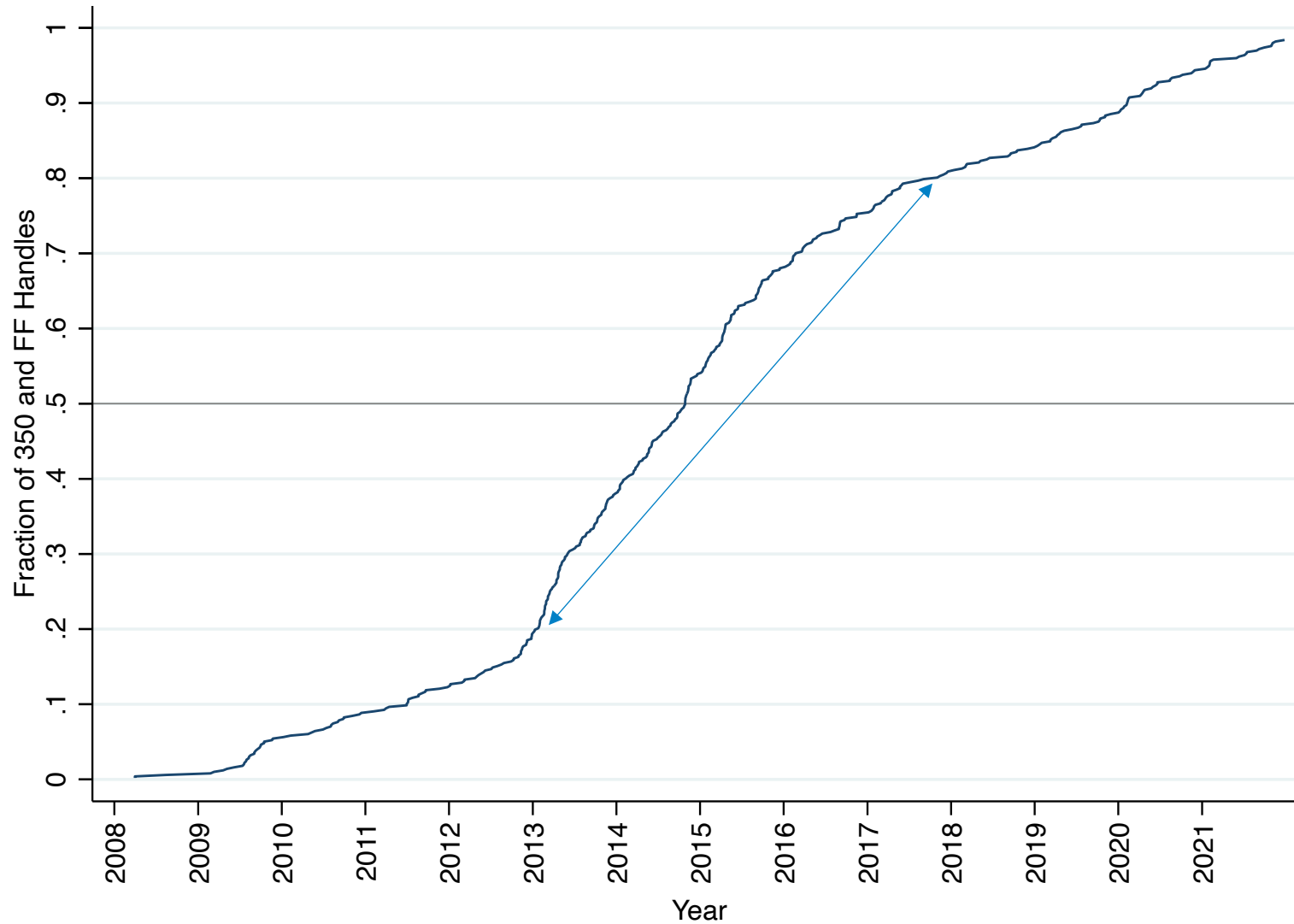
Centrality of Nodes: Degree (out-in), Included in Shortest Path (“between”, percent of all paths)

Rank	@Handle	Out	In	Between		Rank	@Handle	Out	In	Between
1	nyudivest	171	144	4.4%		11	BestToDivest	50	132	1.2%
2	DivestHarvard	91	119	3.2%		12	FossilFreeSWK	56	94	1.1%
3	350	99	92	2.1%		13	divestumass	84	101	1.0%
4	FossilFreeMIT	155	89	2.1%		14	DivestVU	103	82	1.0%
5	divesthackney	81	131	2.0%		15	350Australia	60	60	0.9%
6	DivestDE	30	139	2.0%		16	massdivest	50	61	0.9%
7	DivestFund	93	98	1.9%		17	350Vermont	73	62	0.9%
8	divestinvestorg	88	72	1.6%		18	DivestMcGill	137	82	0.8%
9	DivestSmith	113	76	1.5%		19	DivestNobel	34	57	0.8%
10	UKDivest	31	55	1.4%		20	MPDivest	55	46	0.7%

Shortest path is the shortest path between any two nodes. Degree is the number of “in” or “out” connections of any one node.



# Creation of Handles over Time

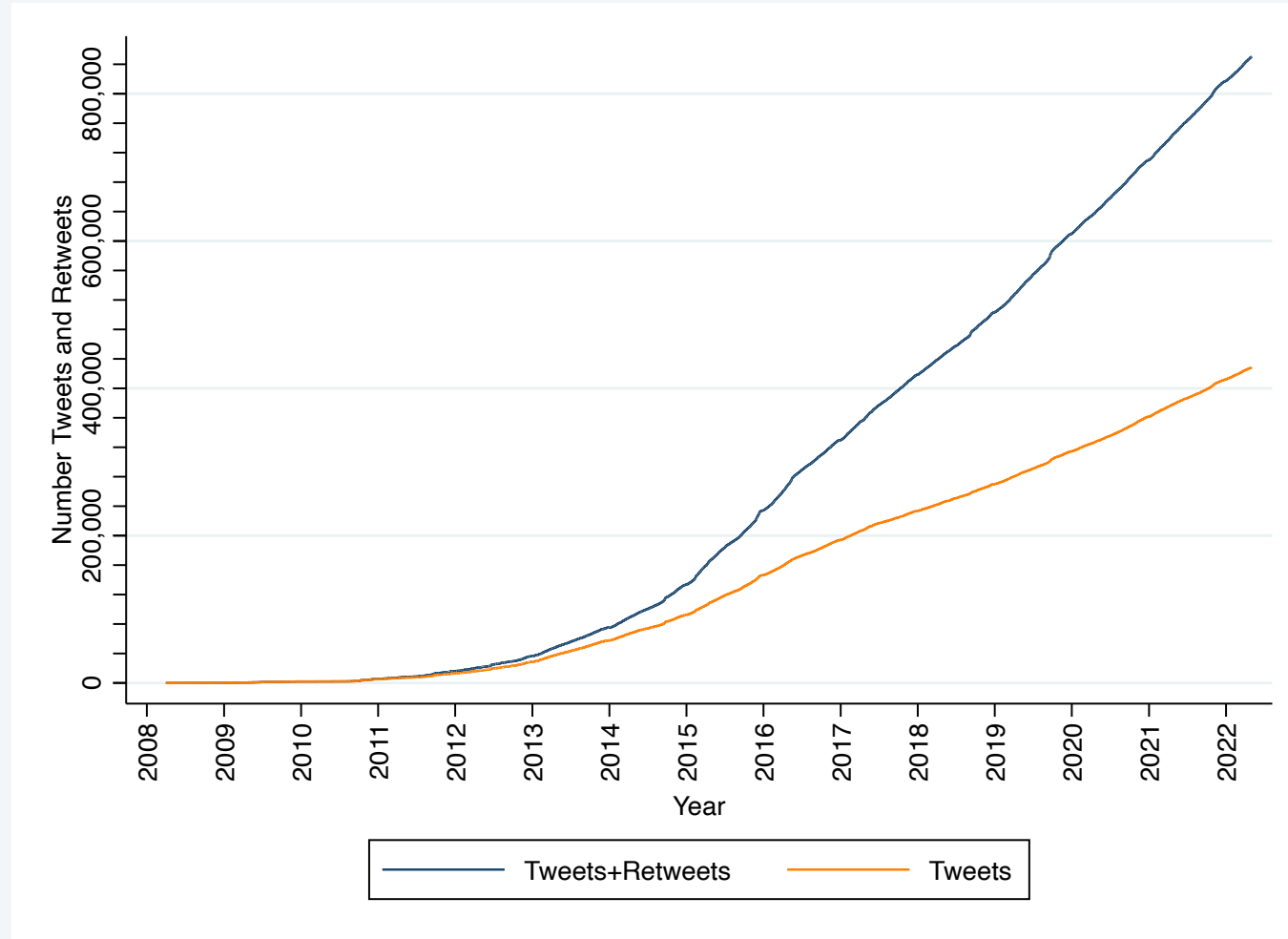


60% of the handles were added between 2013 and 2018.

## Most frequently used Hashtags

	350.org		Go Fossil Free	
Rank	#	Count	#	Count
1	climate	19,105	<b>divest</b>	10,867
2	climatechange	18,191	<b>divestment</b>	7,095
3	actonclimate	8,620	<b>fossilfree</b>	5,741
4	keepitintheground	7,267	climatechange	3,339
5	climatestrike	6,916	climate	3,327
6	auspol	6,619	fossilfuels	2,133
7	<b>fossilfree</b>	6,602	fossilfuel	1,946
8	nokxl	6,502	keepitintheground	1,893
9	coal	5,992	<b>divestnow</b>	1,730
10	<b>divest</b>	5,871	mapoli	1,230
11	stopadani	5,294	actonclimate	1,121
12	climateaction	4,569	fracking	910
13	greennewdeal	4,106	coal	902
14	<b>divestment</b>	4,041	cop21	853
15	nodapl	3,956	climateemergency	809
16	stopline3	3,797	nodapl	797

# Cumulative Number of Tweets and Retweets



	Divest	FF	Climate
Year			
2008	0	1	43
2009	0	1	680
2010	0	22	1,275
2011	3	177	3,655
2012	438	2,046	6,392
2013	6,431	4,996	11,047
2014	9,767	8,435	18,532
2015	19,310	14,543	35,674
2016	11,225	10,983	31,359
2017	8,982	10,455	26,568
2018	6,821	14,096	34,330
2019	6,047	13,350	51,129
2020	5,756	12,190	29,104
2021	8,427	20,309	37,703
2022	2,754	6,679	10,496
Total	85,961	118,283	297,987

The number of divestment tweets (including retweets) from the movement peaks in 2015.

# Tracking the Divestment Pledges

## Full List

Show 50 entries

Search:

Institution	TYPE OF INSTITUT...	COUNTRY	TYPE OF DIVESTM...	WEBSITE	ANNOUNCEMENT
350.org	NGO	USA	FOSSIL FREE	<a href="#">WEBSITE</a>	<a href="#">INFO</a>

**1552**

Institutions Divesting

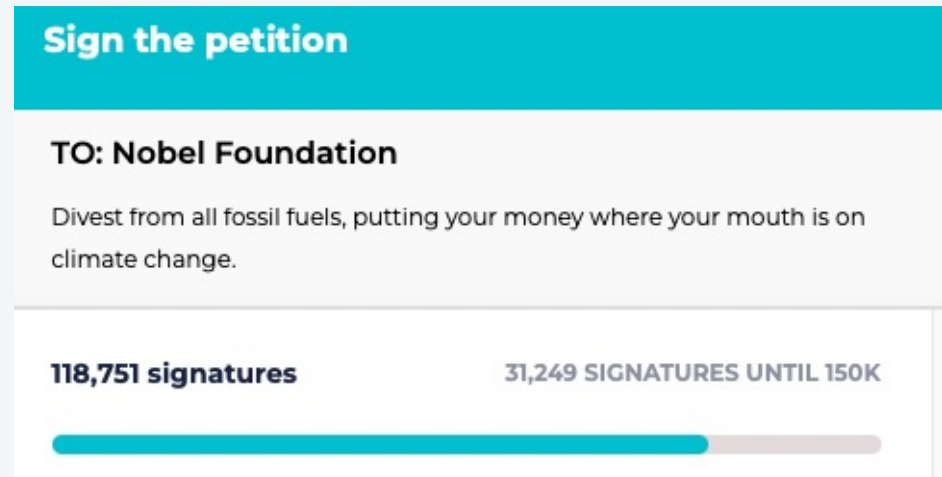
(as of 15 Nov 2022)

## Notable Divestment Commitments



# Divestment Campaigns Example: @DivestNobel

- Decentralised
- Ideal targets: Prestigious, high-reputation institutions
- Resistance reinforces the narrative and awareness



30 April 2022

## FREQUENTLY ASKED QUESTIONS

### ▲ **What do you have against the Nobel Foundation?**

We actually really love and respect the Nobel Prize. Our aim is to get large institutions to publicly announce that they are taking a moral stand against fossil fuels, thus taking away a piece of their social license to operate.

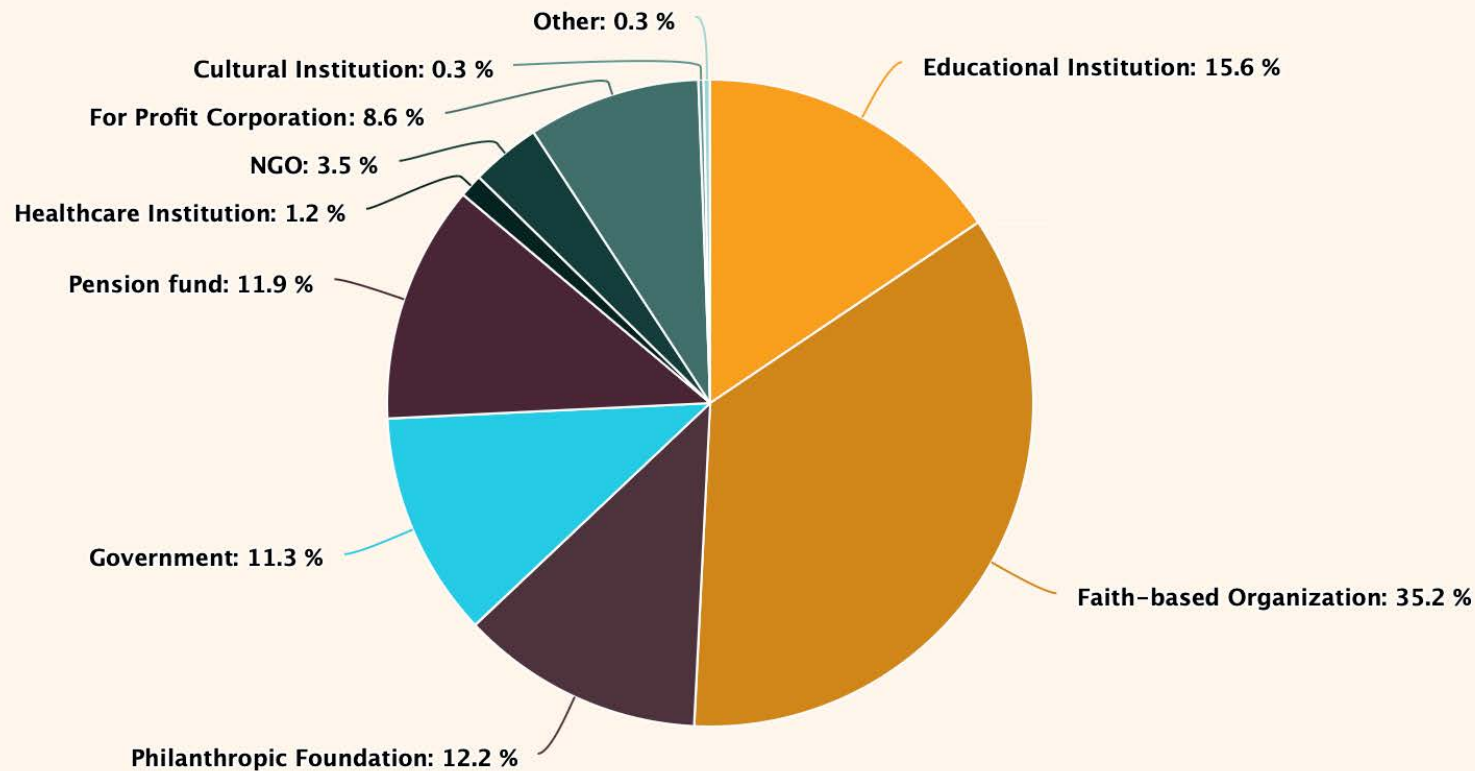
### ▲ **...but why Nobel then as opposed to any other institution?**

Nobel is seen by the public, and politicians (and us!), as a guiding light, showing the way forward for humanity. As such, we do not believe investments in fossil fuel companies, which are fuelling the climate crisis, are compatible with the foundation's core aim: to bestow prizes upon those whose work is of the greatest benefit for mankind.

<https://gofossilfree.org/se/divest-nobel/#faq>



## What kinds of institutions are divesting?



Source: <https://divestmentdatabase.org>



# Divestment Pledges: Global Divestment Commitments Database (GDCCD)

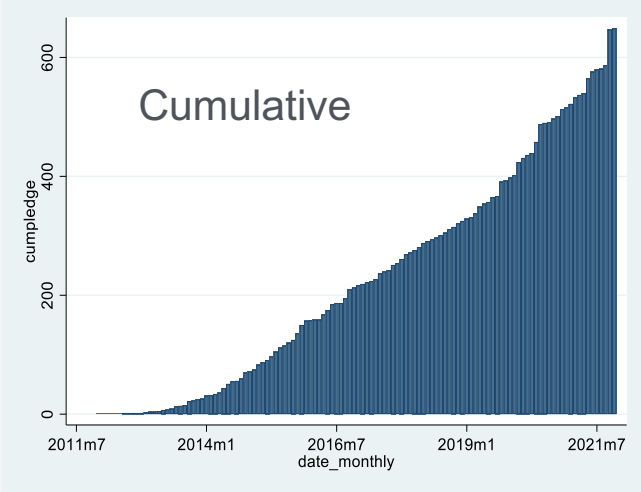
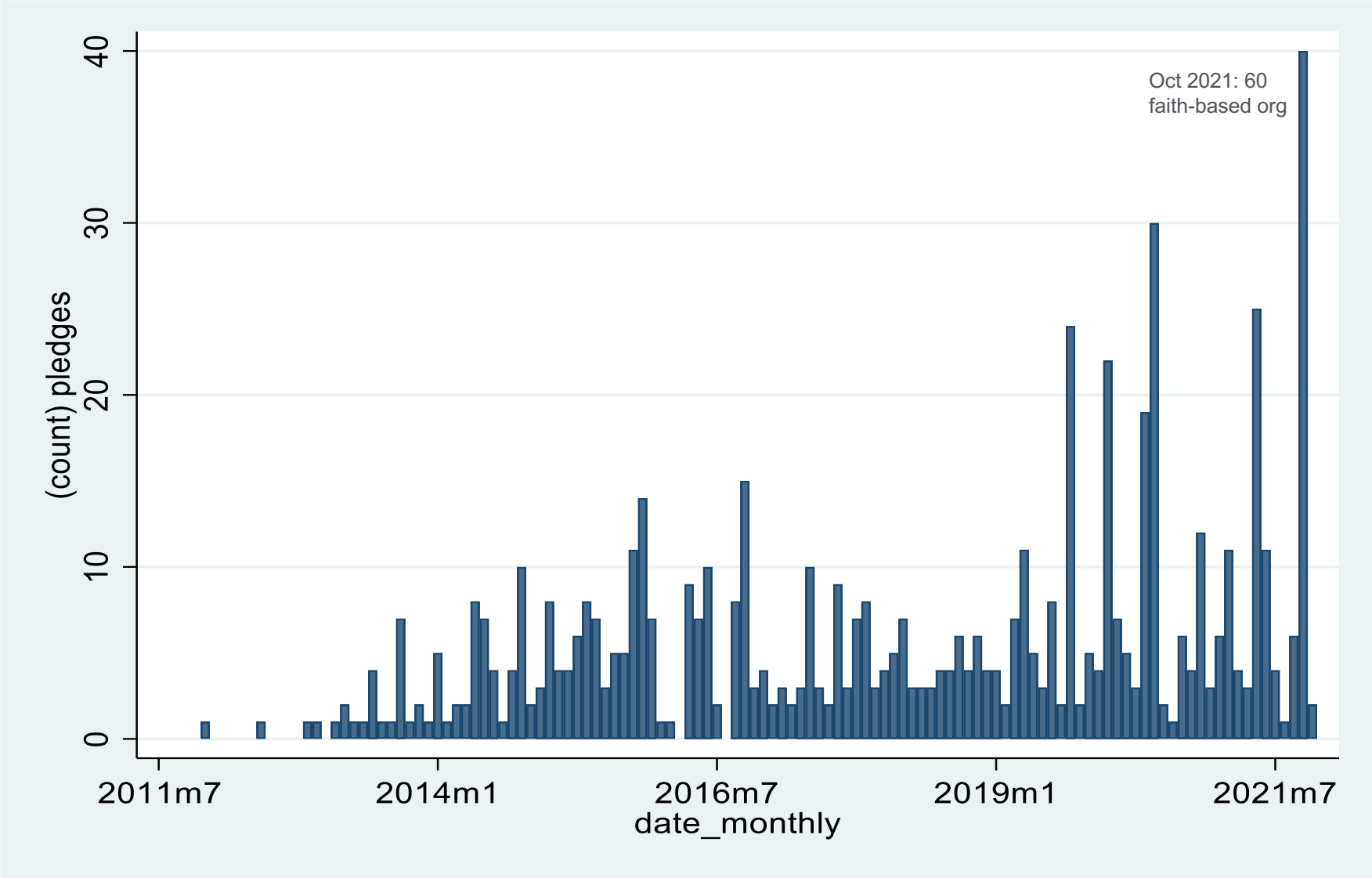
- Two downloads of database
  - July 2021 – contained dates
  - December 2021 – no dates
- Manually checked and confirmed divestment commitment dates
  - Press releases
  - Newspaper article mentions
  - Other referenced documents
- Twitter
  - Manually identified Twitter handles of divesting institutions
  - Extract all Tweets from divesting institutions; filter by divestment keywords
  - Extract all Tweets mentioning divesting institutions and divestment keywords

# Divestment Pledges

## *Descriptive Analysis*

- How many pledges were there?
- Who has made pledges?
- How have pledges evolved over time?
- What has been the social media impact of the pledges (virality)

# Divestment Pledges Over Time



Total: 649 pledges  
with announcement  
dates

Median: 4 pledges per  
month

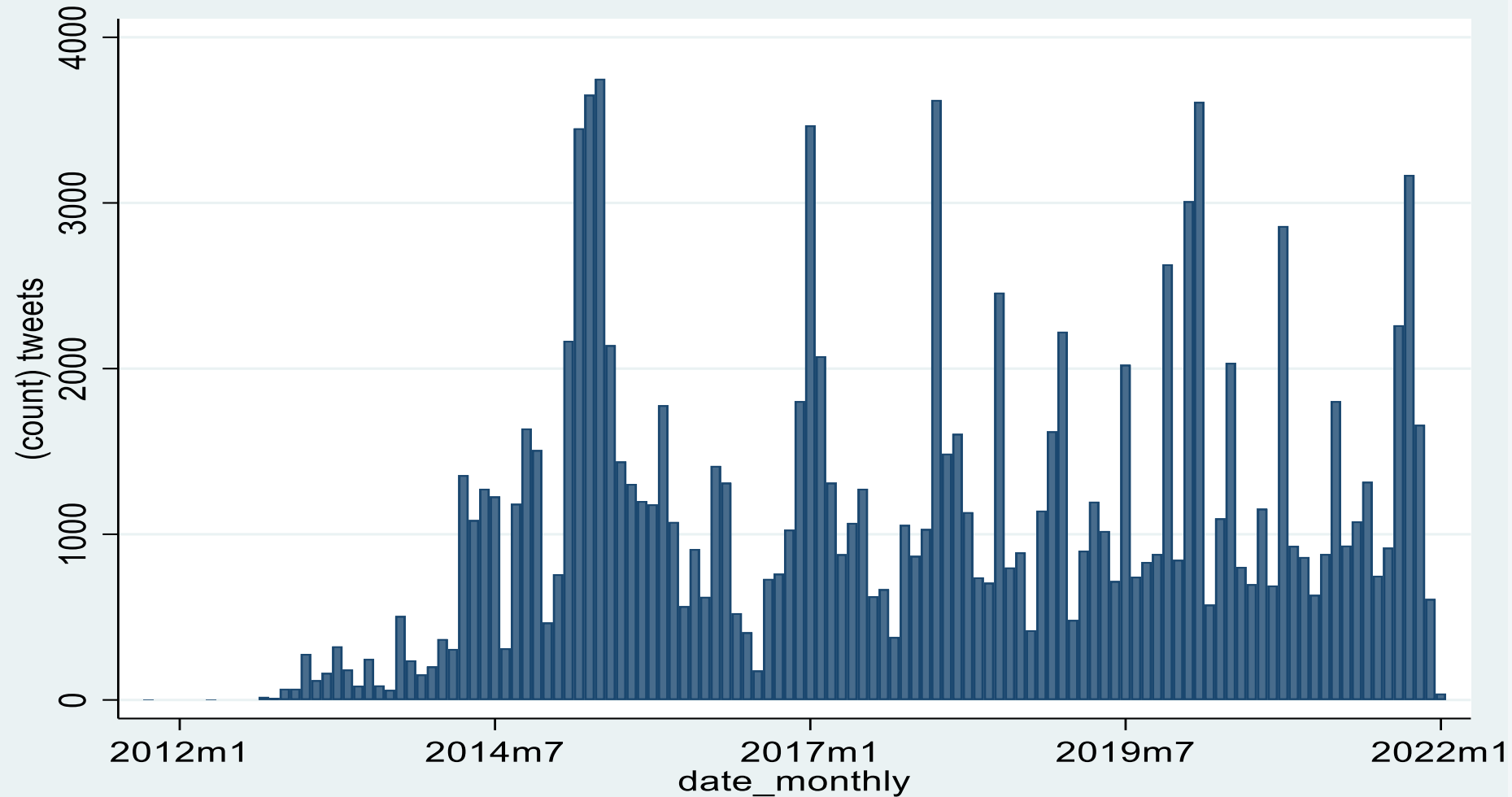
# First 10 Divestment Pledges

Divesting institution	Type of organization	Announcement date
Hampshire College	Educational Institution	01-Dec-11
City of Oakland, CA	Government	14-Jun-12
Unity College	Educational Institution	01-Nov-12
Massachusetts United Church of Christ	Faith-based Organization	10-Dec-12
City of Santa Monica, CA	Government	26-Feb-13
United Church of Christ, Minnesota Conference	Faith-based Organization	05-Mar-13
Trinitarian Congregational United Church of Christ, Warwick, Massachusetts	Faith-based Organization	10-Mar-13
Uniting Church, New South Wales & ACT, Australia	Faith-based Organization	16-Apr-13
City of Richmond, CA	Government	07-May-13
First Parish Church UU, MA	Faith-based Organization	02-Jun-13

# Top-20 Divestment Pledges (by number of tweets and retweets)

Divesting institution	Type of organization	#tweets
Guardian Media Group	For Profit Corporation	21711
Trocaire	Philanthropic Foundation	7169
Harvard University	Educational Institution	7096
BlackRock Investments management	For Profit Corporation	3948
University of Cambridge	Educational Institution	3398
California State Teachers' Retirement System (CalSTRS)	Pension Fund	3014
UniSuper	Pension Fund	2444
Bill & Melinda Gates Foundation	Philanthropic Foundation	2289
University of Edinburgh	Educational Institution	2152
Natural Resources Defense Council	NGO	2113
Earthjustice	NGO	2000
Strathclyde Pension Fund	Pension Fund	1995
Yale University	Educational Institution	1846
California Public Employees' Retirement System (CalPERS)	Pension Fund	1675
Friends of the Earth	NGO	1515
University of Manchester	Educational Institution	1509
Georgetown University	Educational Institution	1494
Stanford University	Educational Institution	1488
British Medical Association	Healthcare Institution	1395
Wallace Global Fund	Philanthropic Foundation	1353

# Fossil Free Divestment Campaign Timeline (number of tweets and retweets)



Total: 127,929 climate-related divestment tweets (from or about divesting institutions)

*Twarc commands:*

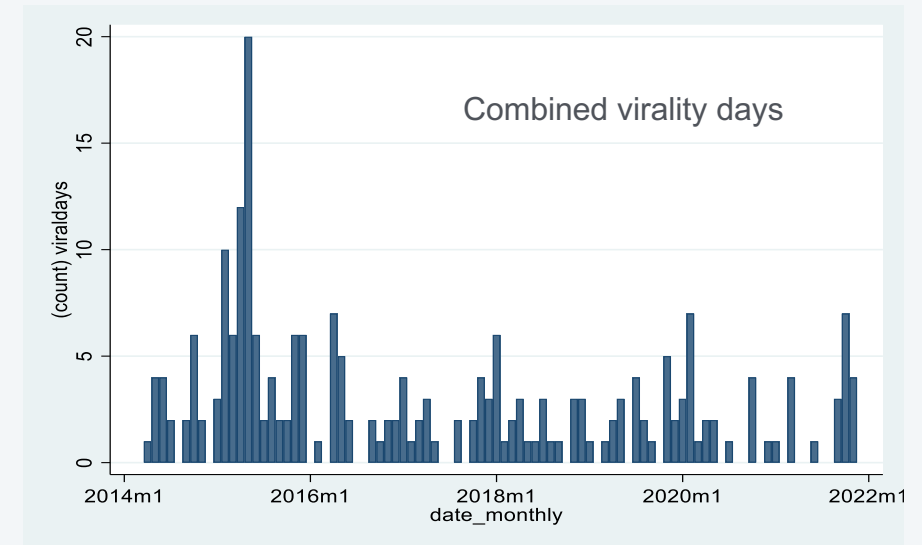
*twarc2 search --archive "from:DI (divest OR divestment OR fossilfree OR fossilfuel OR fossilfuels OR KeepitintheGround OR fossil)" , and*

*twarc2 search --archive "@DI (divest OR divestment OR fossilfree OR fossilfuel OR fossilfuels OR KeepitintheGround)"*

*Only climate-related divestment tweets included: divest\* AND (fossil or climate or keepitintheground or coal or greennewdeal or 350ppm or fridaysforfuture or cop21 or cop26)*

# Social Media Impact of the Divestment Pledges

- **Divestment campaign virality**
  - Combines number of tweets (including retweets) (*#tweets*) per day, number of followers (in thousands) for users that tweeted (*#followers*) about divesting institutions
- ***Virality Dummy*** equal to one for days that are in **the top decile of both** variables, *#tweets* and *#followers*.
  - **323 days** are 'viral'
- ***Combined Virality Dummy*** equal to one for tweet-based viral days with at least one divestment pledge announcement in the past 7 days.
  - **231 days** are 'viral', according to the divestment campaign activity on Twitter AND divestment pledge announcements.
- **top-30 combined virality days** according to the number of tweets (above 300 tweets per day) for event study.



# Impact on Stock Prices



# Target Groups

## Carbon Underground 200

- 2011 Carbon Tracker list: assumed in application until 2014
- FFI list December 2014-2019: assumed in application until December of the next year
- Fossil Free Funds lists available monthly starting April 2020

Result: Divestment target database 2011-2021

## Fossil fuel companies

- Brown companies not included in the Carbon Underground 200

## High Carbon Emitters

- Companies in high carbon emissions sectors (cement, airlines)
- Not divested but should be affected if divestment narrative impacts social licence

## High Carbon Emitters ('Dirty' Industries)

Top-10 industries by emissions, according to Bolton & Kacperczyk (JFE 2021)

GIC 6 (Table 6 of BK)	Current GIC-6 code	Industry Name
69	551050	Independent Power & Renewable Electricity Products
65	551010	Electric Utilities
18	203020	Airlines
67	551030	Multi-utilities
6	151040	Metals & Mining
2	101020	Oil, Gas & Consumable Fuels
17	203010	Airfreight & Logistics
4	151020	Construction Materials
7	151050	Paper & Forest Products
3	151010	Chemicals

*Note: BK sample includes only US companies*

# Fossil Fuel Companies

Oil, Gas &  
101020 Consumable  
Fuels

10102010 Integrated Oil & Gas

10102020 Oil & Gas Exploration & Production

10102030 Oil & Gas Refining & Marketing

10102040 Oil & Gas Storage & Transportation

10102050 Coal & Consumable Fuels

# Event Study (US companies; top-30 viral days, excluding overlaps)

Market-adjusted model (market index: MSCI AC World)

	CAAR [-1;+1]	CAAR [-1;+3]	CAAR [-3;+3]	Number of Events	Unique companies (US)
Carbon Underground 200 [1]	-1.10%	-1.54%	-1.71%	850	60
Fossil Fuel Companies [2]	-0.69%	-1.18%	-1.51%	3968	257
High Carbon Emitters [3]	-0.30%	-0.53%	-0.64%	5090	288
[1] vs. [2] (p-value)	<i>0.051</i>	<i>0.195</i>	<i>0.524</i>		
[1] vs. [3] (p-value)	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>		
[2] vs. [3] (p-value)	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>		

Notes:

Carbon Underground 200 - CU200 companies in GIC 101020 industry

Fossil Fuel Companies - companies in GIC 101020 industry, excluding CU200

High Carbon Emitters - companies in other 9 dirty industries, excluding CU200

*Results are similar with S&P500 as the market benchmark.*

Top viral days	#tweets
01-Oct-20	1105
10-Jan-18	933
07-Feb-20	860
12-Jul-18	738
01-Apr-15	692
17-Jan-17	691
02-Jul-14	521
01-May-15	495
17-Jul-19	490
10-Sep-21	485
13-Feb-15	484
25-Nov-19	411
30-Jan-19	397
18-Oct-21	390
26-Oct-21	386
22-Apr-15	361
22-Sep-14	354
13-Jan-20	350
31-Mar-15	339
08-Oct-14	335
05-Jul-19	332
05-Nov-15	315
25-May-16	301

# Why does Voice Through Divestment have Impact?

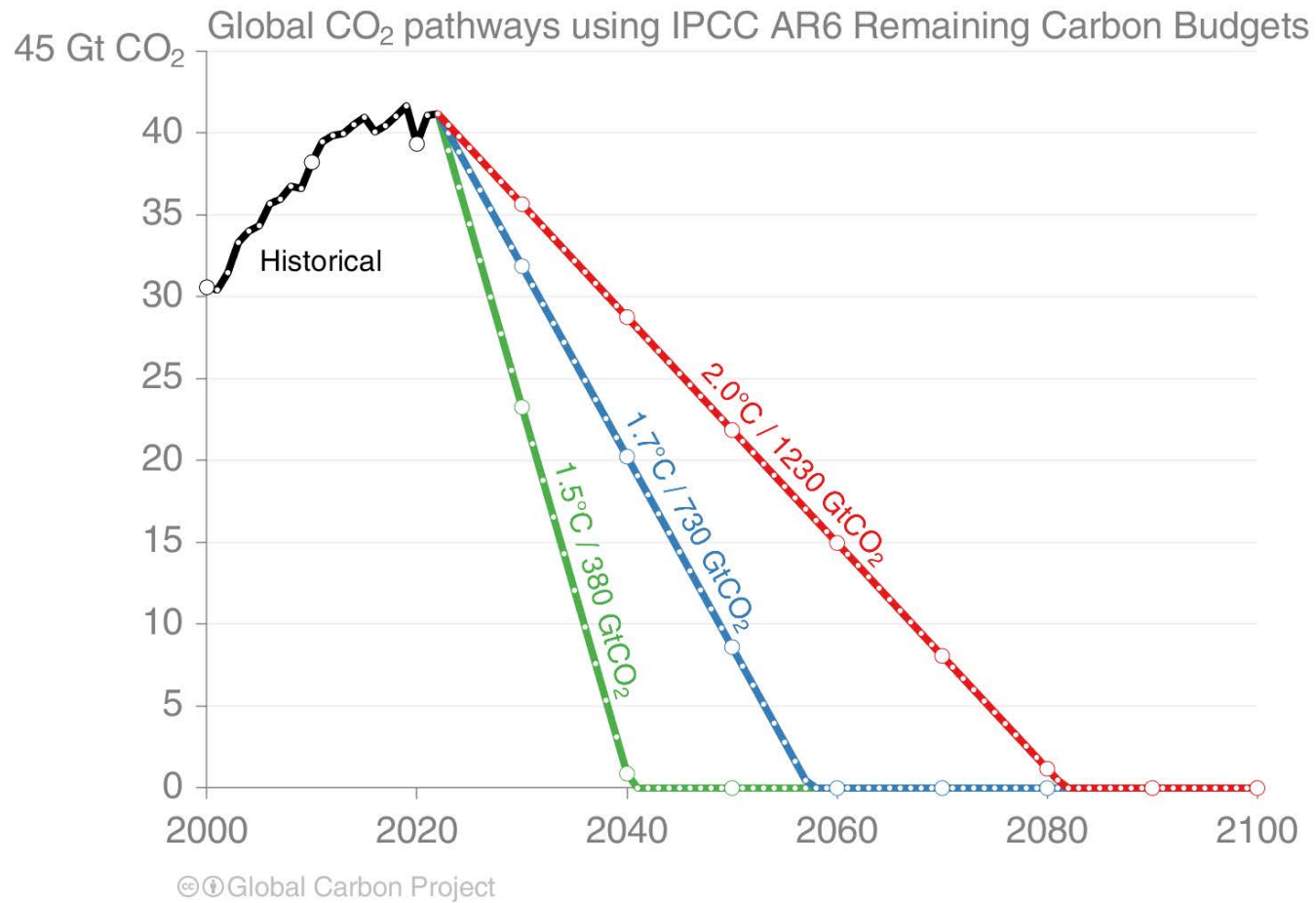
## Countries Started to Make Net-Zero Pledges only in 2014

Status Year	ISO	Country Name	End Target	Target Year	Target Status	Real GDP
2014	SUR	Suriname	Net zero		Achieved (self-declared)	10B
2015	LIE	Liechtenstein	Emissions reduction target	2030		
2015	FIN	Finland	Climate neutral	2035	In policy document	305B
2015	VEN	Venezuela	Emissions reduction target	2030	In policy document	
2015	KGZ	Kyrgyzstan	Other	2050	In policy document	35B
2015	FSM	Micronesia	Net zero	2050	Proposed / in discussion	less than 1B
2015	SMR	San Marino	Emissions reduction target	2030	In policy document	2B
2015	TKM	Turkmenistan	Other	2030	In policy document	76B
2016	DMA	Dominica	Emissions reduction target	2030	In policy document	1B
2016	DJI	Djibouti	Reduction v. BAU	2030	In policy document	6B
2016	BWA	Botswana	Emissions reduction target	2030	In policy document	42B
2017	EGY	Egypt	Other	2030	In policy document	1,388B
2017	SRB	Serbia	Emissions reduction target	2030	In policy document	117B
2017	AZE	Azerbaijan	Emissions reduction target	2030	In policy document	161B
2018	GNQ	Equatorial Guinea	Emissions reduction target	2050	In policy document	26B
2018	ERI	Eritrea	Net zero	2050	Proposed / in discussion	
<b>2018</b>	<b>SWE</b>	<b>Sweden</b>	<b>Net zero</b>	<b>2045</b>	<b>In law</b>	<b>618B</b>

Source: <https://zerotracker.net>

# Remaining carbon budget

Global CO<sub>2</sub> emissions must reach zero to limit global warming



Source: [Friedlingstein et al 2022](#); [Global Carbon Project 2022](#)

## Carbon Pledges and Commitments: Largest 20 Countries by GDP

Status Year	ISO	Country Name	End Target	Target Year	Target Status	Real GDP
2020	CHN	China	Carbon neutral(ity)	2060	In policy document	27.3E+12
2021	USA	United States of America	Net zero	2050	In policy document	23.0E+12
<b>2020</b>	<b>XXX</b>	<b>European Union</b>	<b>Climate neutral</b>	<b>2050</b>	<b>In law</b>	21.7E+12
2021	IND	India	Net zero	2070	Declaration / pledge	10.2E+12
<b>2021</b>	<b>JPN</b>	<b>Japan</b>	<b>Net zero</b>	<b>2050</b>	<b>In law</b>	5.4E+12
<b>2021</b>	<b>RUS</b>	<b>Russian Federation</b>	<b>Carbon neutral(ity)</b>	<b>2060</b>	<b>In law</b>	4.8E+12
<b>2021</b>	<b>DEU</b>	<b>Germany</b>	<b>Climate neutral</b>	<b>2045</b>	<b>In law</b>	4.6E+12
2021	IDN	Indonesia	Net zero	2060	Proposed / in discussion	3.6E+12
2020	BRA	Brazil	Carbon neutral(ity)	2050	Declaration / pledge	3.4E+12
<b>2020</b>	<b>FRA</b>	<b>France</b>	<b>Net zero</b>	<b>2050</b>	<b>In law</b>	3.4E+12
<b>2020</b>	<b>GBR</b>	<b>United Kingdom</b>	<b>Net zero</b>	<b>2050</b>	<b>In law</b>	3.3E+12
2021	ITA	Italy	Climate neutral	2050	In policy document	2.7E+12
	MEX	Mexico	Carbon neutral(ity)	2050	Proposed / in discussion	2.6E+12
2021	TUR	Turkey	Net zero	2053	In policy document	2.6E+12
<b>2021</b>	<b>KOR</b>	<b>South Korea</b>	<b>Net zero</b>	<b>2050</b>	<b>In law</b>	2.3E+12
<b>2021</b>	<b>CAN</b>	<b>Canada</b>	<b>Net zero</b>	<b>2050</b>	<b>In law</b>	2.0E+12
<b>2021</b>	<b>ESP</b>	<b>Spain</b>	<b>Climate neutral</b>	<b>2050</b>	<b>In law</b>	1.9E+12
2021	SAU	Saudi Arabia	Net zero	2060	In policy document	1.8E+12
2021	AUS	Australia	Net zero	2050	In policy document	1.4E+12
	POL	Poland	Emissions reduction target	2030	In policy document	1.4E+12

Source: <https://zerotracker.net>



## Summary and Conclusion

- Fossil fuel divestment pledges have been an effective form of voice:
  - Fossil fuel divestment is a narrative;
  - Fossil fuel divestment pledges went viral and had an impact on stock prices;
  - The impact was largest for the fossil fuel sector, but extended to all top carbon emitters;
  - Evidence is consistent with temporal and cross-section distribution of carbon premium;
  - The highest impact pledges preceded net-zero pledges from countries;
- Fossil fuel divestment has evolved from a “moral outrage” narrative to a risk-management issue, which in turn is supported by a narrative (#carbonbubble; #StrandedAssets):
- Ethics motivated divestment pledges have already achieved impact; the fossil free movement continues, but the focus has shifted to new tactics, tools and narratives.

# Japan

- Net-Zero by 2050 enshrined in law
- Two recorded investment pledges from Japan by asset managers
- Why are students in Japan not more engaged?
- There are numerous institutions that could be targeted
- For example ...



- In any case, risk averse investors should make conditional divestment pledges