

Macroeconomic impact of stranded fossil fuel assets

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A new question on the horizon:

nature
climate change

LETTERS

<https://doi.org/10.1038/s41558-018-0182-1>

Macroeconomic impact of stranded fossil fuel assets

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Science & Environment

Carbon 'bubble' could cost global economy trillions

By Matt McGrath
Environment correspondent

1 hour ago



Reserves of oil and gas could rapidly become uneconomical to extract

A rapid reduction in demand for fossil fuels could see global losses of \$1-4 trillion by 2035 according to a new report.

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Fossil fuels

Fiona Harvey *Environment correspondent*

Mon 4 Jun 2018 16:00 BST



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'Carbon bubble' could spark global financial crisis, study warns

Advances in clean energy expected to cause a sudden drop in demand for fossil fuels, leaving companies with trillions in stranded assets



▲ A sudden drop in demand for fossil fuels could happen before 2035, a new study shows. Photograph: Florian Gaertner/Photothek via Getty Images

Plunging prices for renewable energy and rapidly increasing investment in low-carbon technologies could leave fossil fuel companies with trillions in stranded assets and spark a global financial crisis, a new study has found.

A sudden drop in demand for fossil fuels before 2035 is likely, according to the study, given the current global investments and economic advantages in a low-carbon transition.

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Global value at risk from climate change (and policy)



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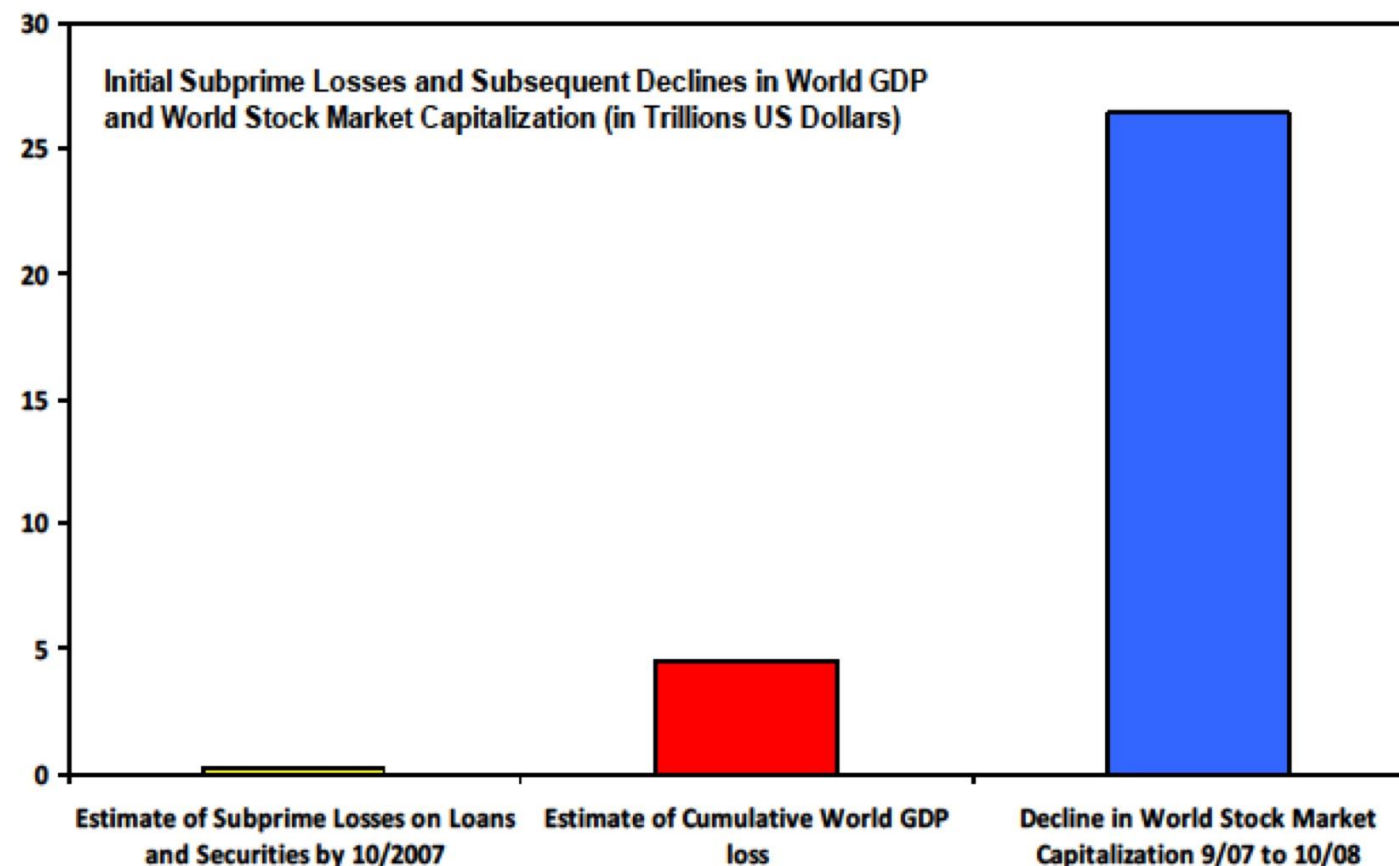
Table 1 | Absolute (first financial actor type to

	OC	(95
Fossil-fuel	31.1	6.0
(767)		
Utilities	19.3	3.7
(216)		
Energy-intensive	172	33.1
(3,956)		
Housing	13.2	2.5
(797)		
Transport	11.4	2.2
(224)		
Finance	127	24.1
(2,659)		
Other	142	27.1
(6,259)		

Numbers in brackets indicate the number of entities in each sector: Services; NFCs, Non-Financial Corporations

Stefano Battiston^{1*}, Antonio

Figure 1. Initial Subprime Losses and Declines in World GDP and World Stock Market Capitalization



Source: IMF Global Financial Stability Report; World Economic Outlook November update and estimates; World Federation of Exchanges.

portfolio) exposure of each

NFCs (14,851)	IFs (5,124)
377.30	549.85
8.06%	6.05%
93.09	249.32
1.99%	2.74%
1,408.65	2,701.69
30.08%	29.71%
146.72	189.36
3.13%	2.08%
106.67	173.02
2.28%	1.90%
702.44	1,532.08
15.00%	16.85%
1,847.40	3,698.41
39.46%	40.67%

ion Funds; OFSs, Other Financial

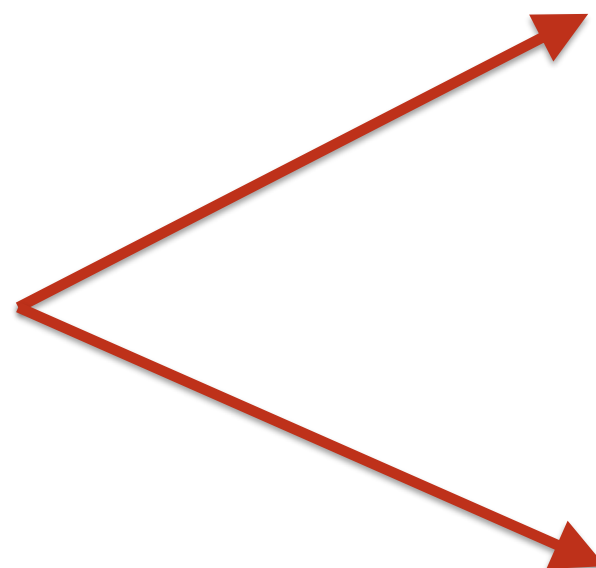
**What is the impact of the current technological trajectory
On the value of fossil fuel assets?**

Modelling technological change: FTT:Power (JF Mercure & P. Salas)

FTT is a family of micro-models of technology choice and substitution, given economic/policy context



t



$t + \Delta t$

Modelling technological change: FTT:Transport (JF Mercure & A. Lam)



t

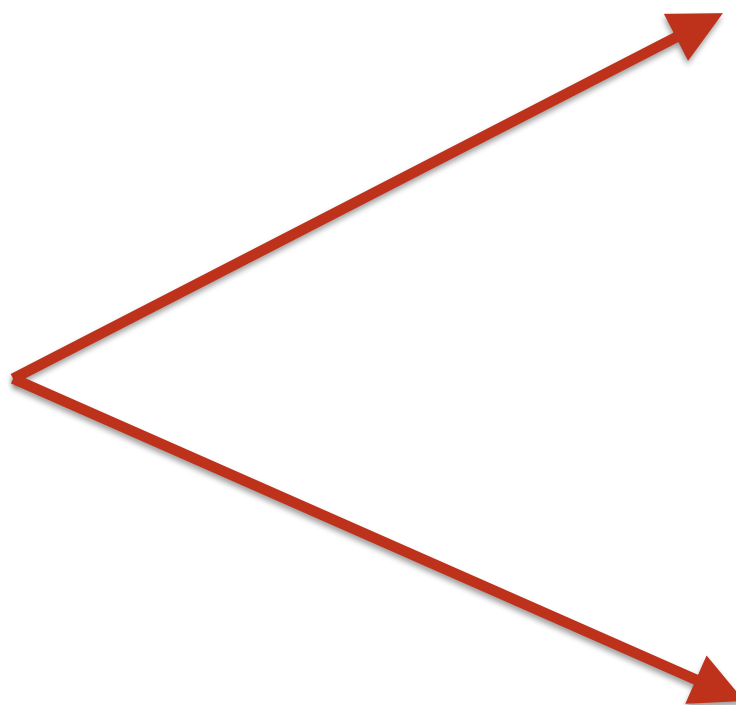


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Modelling technological change: FTT:Heat (F. Knobloch & JF Mercure)

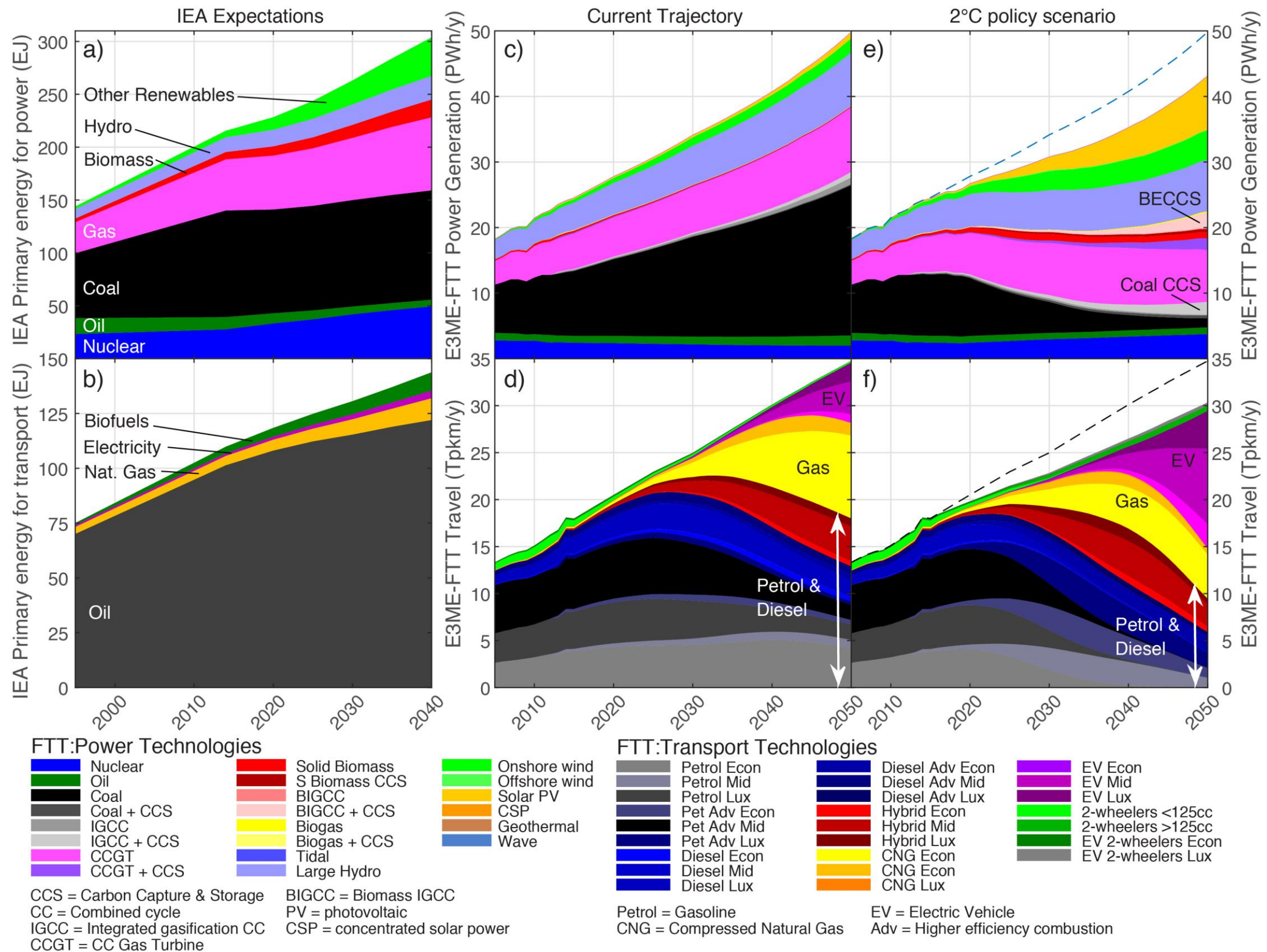


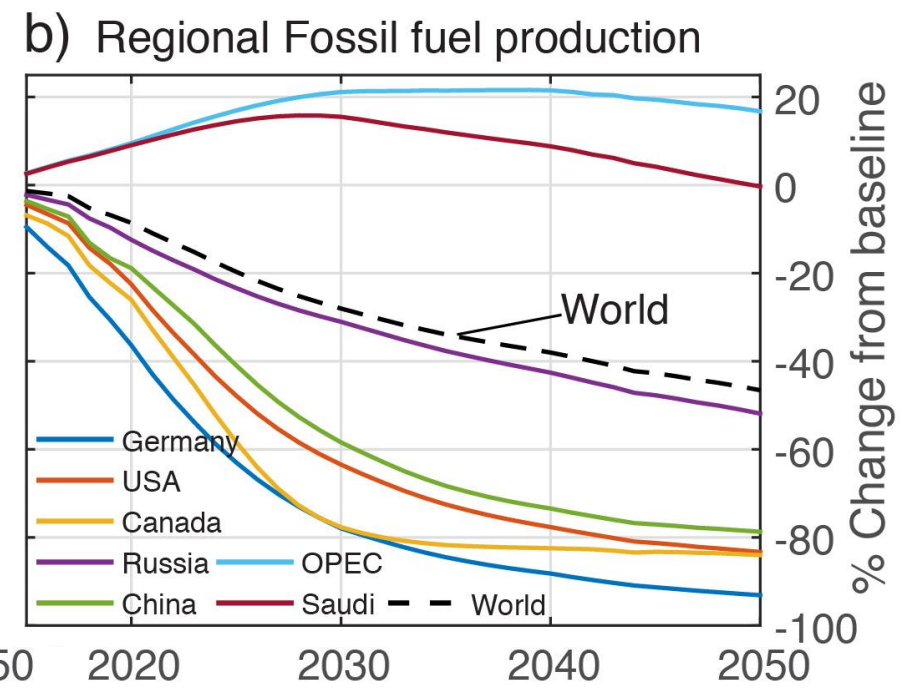
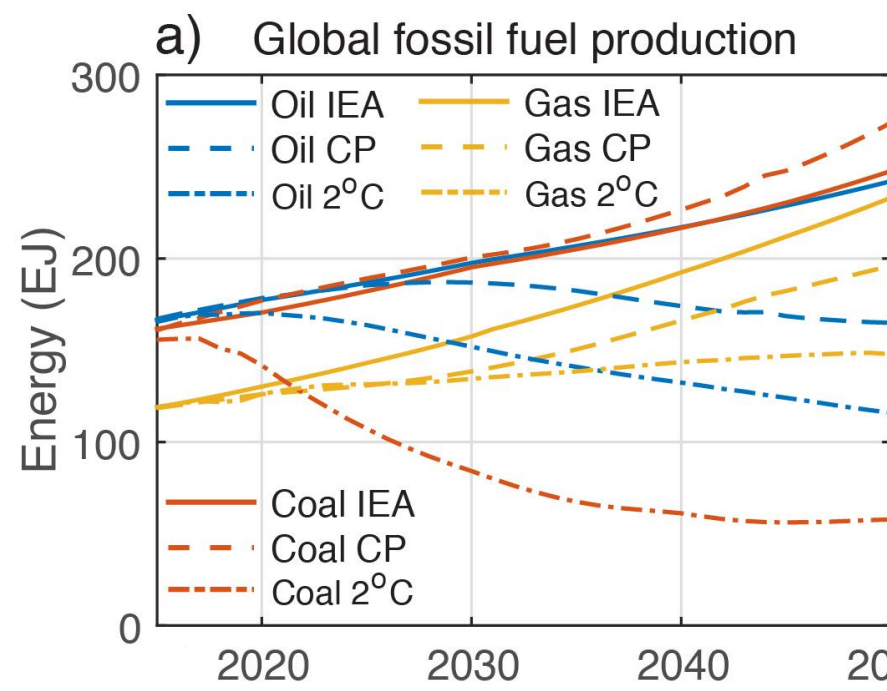
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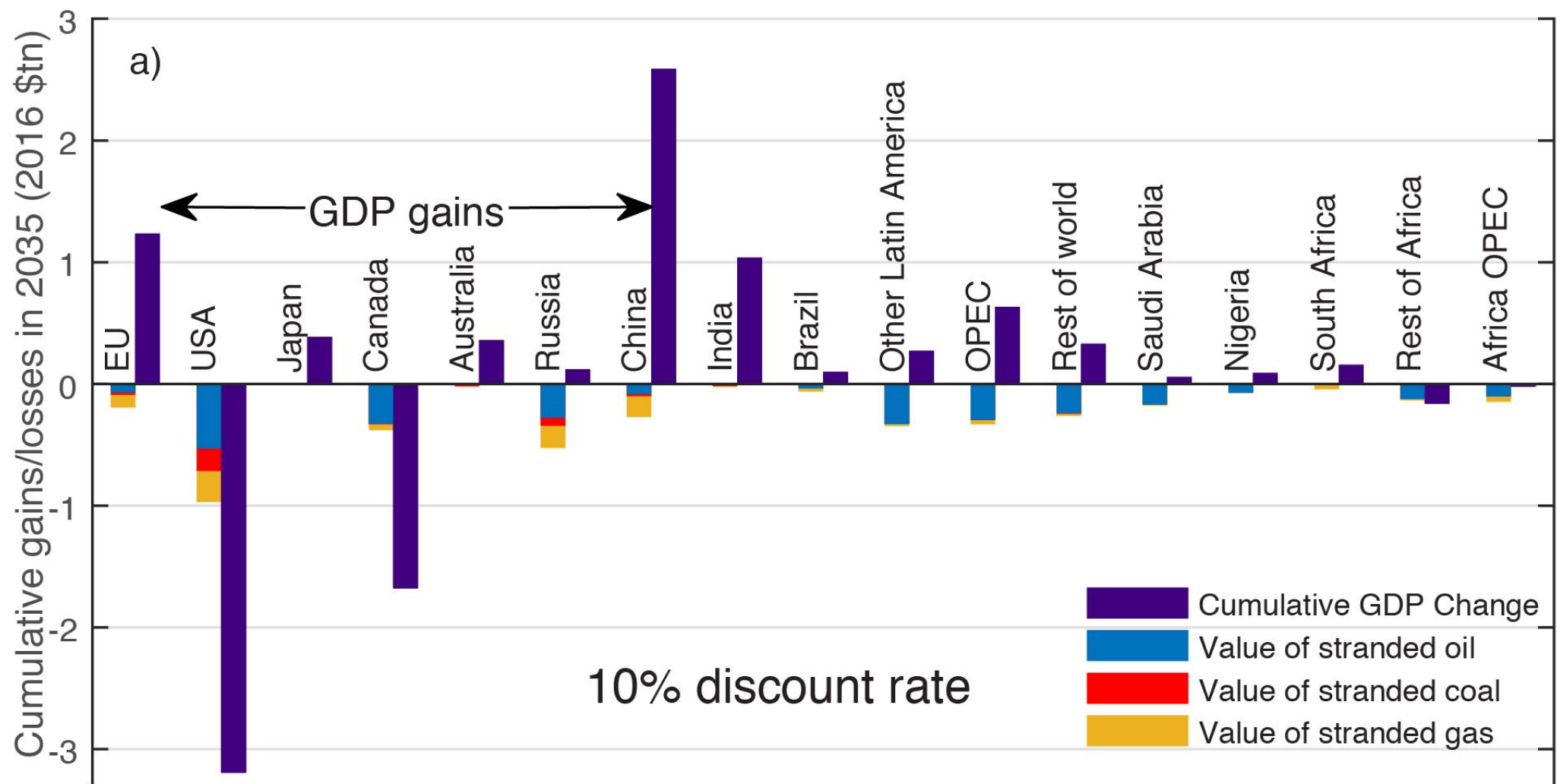


$t + \Delta t$

Expectations, current trajectory and Paris







Global financial losses of \$1-4tn
(discounted at 10%)
between now and 2035

Pulling out of the PA to avoid stranded Fossil fuel assets?

1. Importers are well off by remaining in
 - Remaining in the PA:
 - Benefit from low-carbon investment stimulus
 - Reduced expensive FF imports, redresses trade balance
2. High cost producers (USA, Canada) are **worse off if pulling out**
 - Remaining in the PA:
 - Close down FF industry
 - Benefit from low-carbon investment stimulus
 - Pulling out of the PA:
 - Priced-out by OPEC: still close down FF industry
 - No low-carbon investment stimulus
 - Priced-out by OPEC:
import FF instead, worsen trade balance

Next question:
What is the impact of stranded fossil fuel assets
On global financial stability?

Macroeconomic impact of stranded fossil fuel assets

Thank you!



Radboud University Nijmegen

