

Enerji Piyasalarında Gelecek 10 yıl

Barış Sanlı
barissanli.com

21 Ocak 2021 - İTÜ

Sorular

- Petrol fiyatları nasıl oluşur?
 - Örnek çalışma: Negatif petrol fiyatları
- Yenilenebilirdeki başarı nasıl oldu?
 - Örnek çalışma: Tesla ve ötesi
- Küresel enerji yönetimi
 - Örnek çalışma: OPEC ve Ticaret Şirketleri

Gelecek soruları

- Fosil yakıtların sonu mu geldi?
- İklim deęişikliği neden yavaşlamıyor?
- Hidrojen gelecekte olacak mı?
- Enerji-jeopolitik ilişkisi kopuyor mu?
- Enerji dönüşümü için tüm araçlara sahip miyiz?

Soru 1: Petrol fiyatları nasıl oluşur?

BIST 100 ↑ 1.569,35 % 0.28

USD/TRY ↓ 7,4118 % -0.8

EUR/TRY ↓ 8,9751 % -1.03


EUR/USD ↓ 1,2107 % -0.17

FAİZ 14,78 0,00

ALTIN/ONS ↑ 1.868,39 % 1.53






BRENT ↑ 55,91 % 0.02


KA BIDEN: ABD'Yİ BİR ARAYA GETİRECEĞİM

Bloomberg 

TV RADYO

HABERLER TARIM FINTECH ENERJİ EKONOMİ VERİLERİ KRİPTO PARA GÖRÜŞ VİDEO YAYIN AKIŞI

PARA AL SAT  BCH Bitcoin Cash  XMR Monero  EOS Eos  LINK Chainlink  DASH Digital Cash

 Biden dönemi

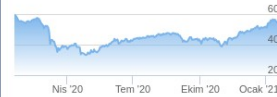
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VİDEOLAR & İNFOGRAFLIKLAR

Istanbul 5° **VIESSMANN**

Borsa | Döviz | **Emtia** | Faiz

55,91 % 0.02



ALTIN/ONS	1.868,16	27,88	%1,52
ALTIN/GR SPOT	444,90	3,209	%0,73
GÜMÜŞ ONS	25,8394	0,61	2,44
BRENT	55,90	0	%0
WTI PETROL	53,22	0,24	0,45

Okumalar

- CFTC – Interim staff report

- https://www.cftc.gov/media/5296/InterimStaffReportNYMEX_WTICrudeOil/download

- **Negatif Petrol Fiyatları : Süreç, Dinamikler ve Manipulasyon şüphesi**

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<http://barissanli.com/calismalar/2020/20200510-negatifpetrolfiyati.pdf>

CL=F

- Brent ne?
- \$/bbl neden?
- Kağıt petrol
- Teslim

Crude Oil Feb 21 (CL=F)

NY Mercantile - NY Mercantile Delayed Price. Currency in USD

☆ Add to watchlist

53.28 +0.30 (+0.57%)

As of 2:29PM EST. Market open.

Summary

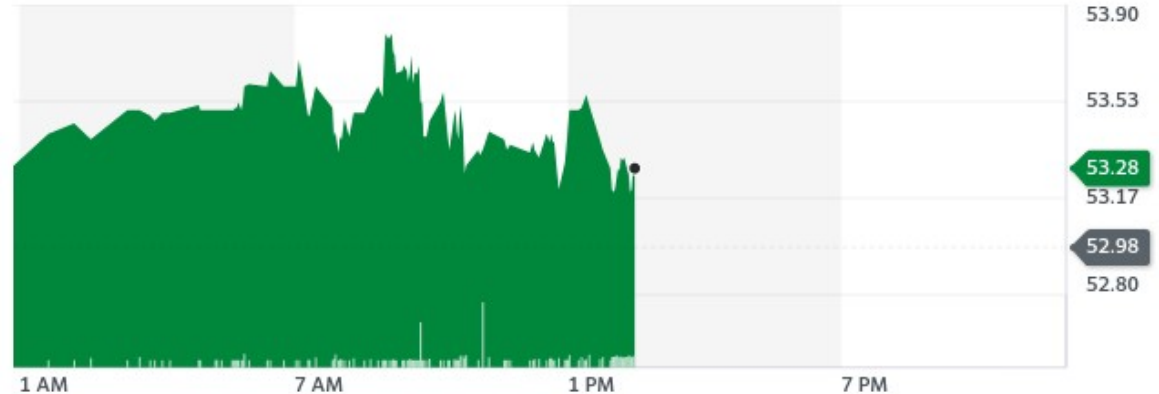
Chart

Historical Data

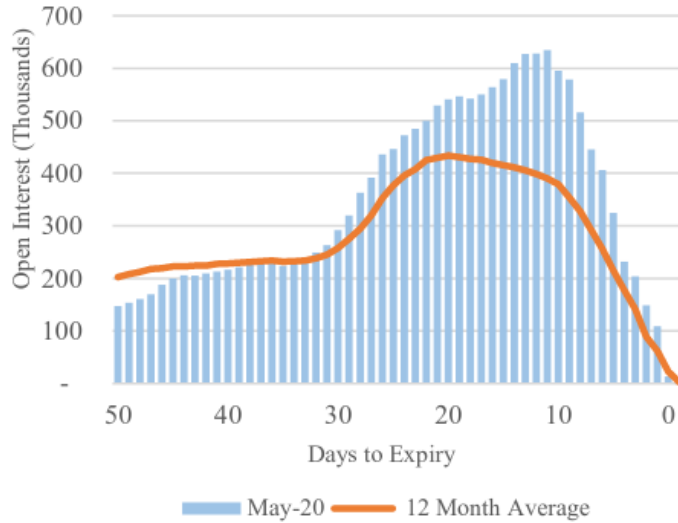
Futures

1D 5D 1M 6M YTD 1Y 5Y Max

Full screen

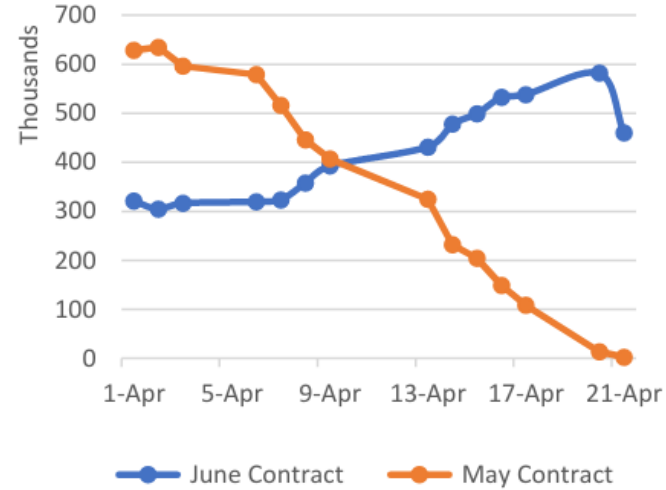


Gelecek petrol kontratları



Note: OI is the number of WTI Contracts outstanding (1 contract = 1,000 barrels of crude)

Figure 6: May Contract OI vs. 12-Month Average.
Source: CFTC



Note: OI transition from the near month May Contract to the June Contract.

Figure 7: May vs. June Contract OI Transition.
Source: CFTC

Mayis Teslim Kontrat

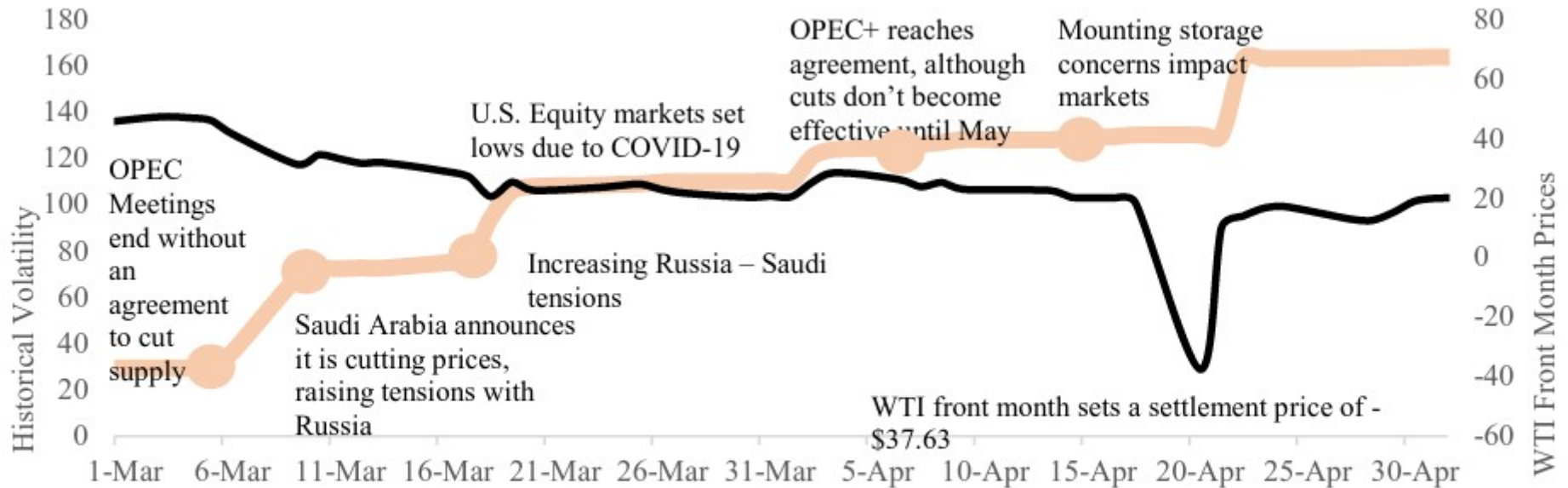
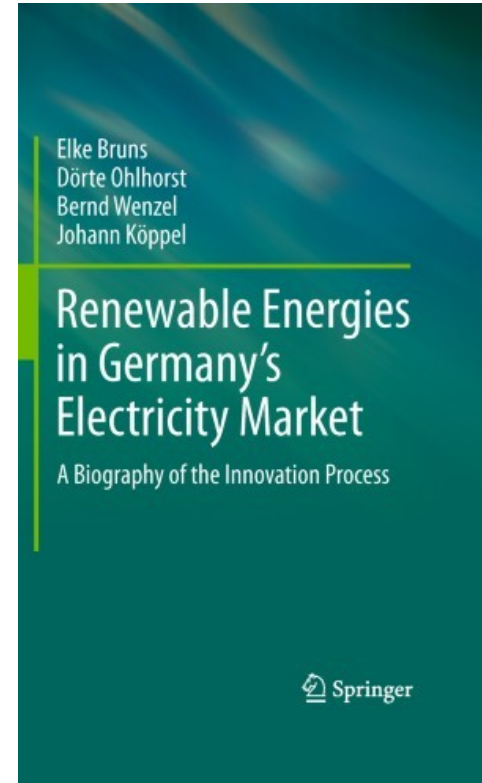
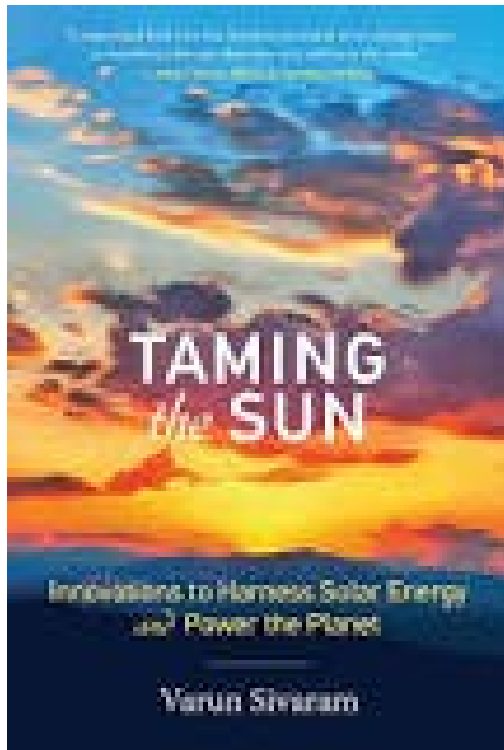


Figure 1: May Contract Performance during March and April 2020. Source: CFTC

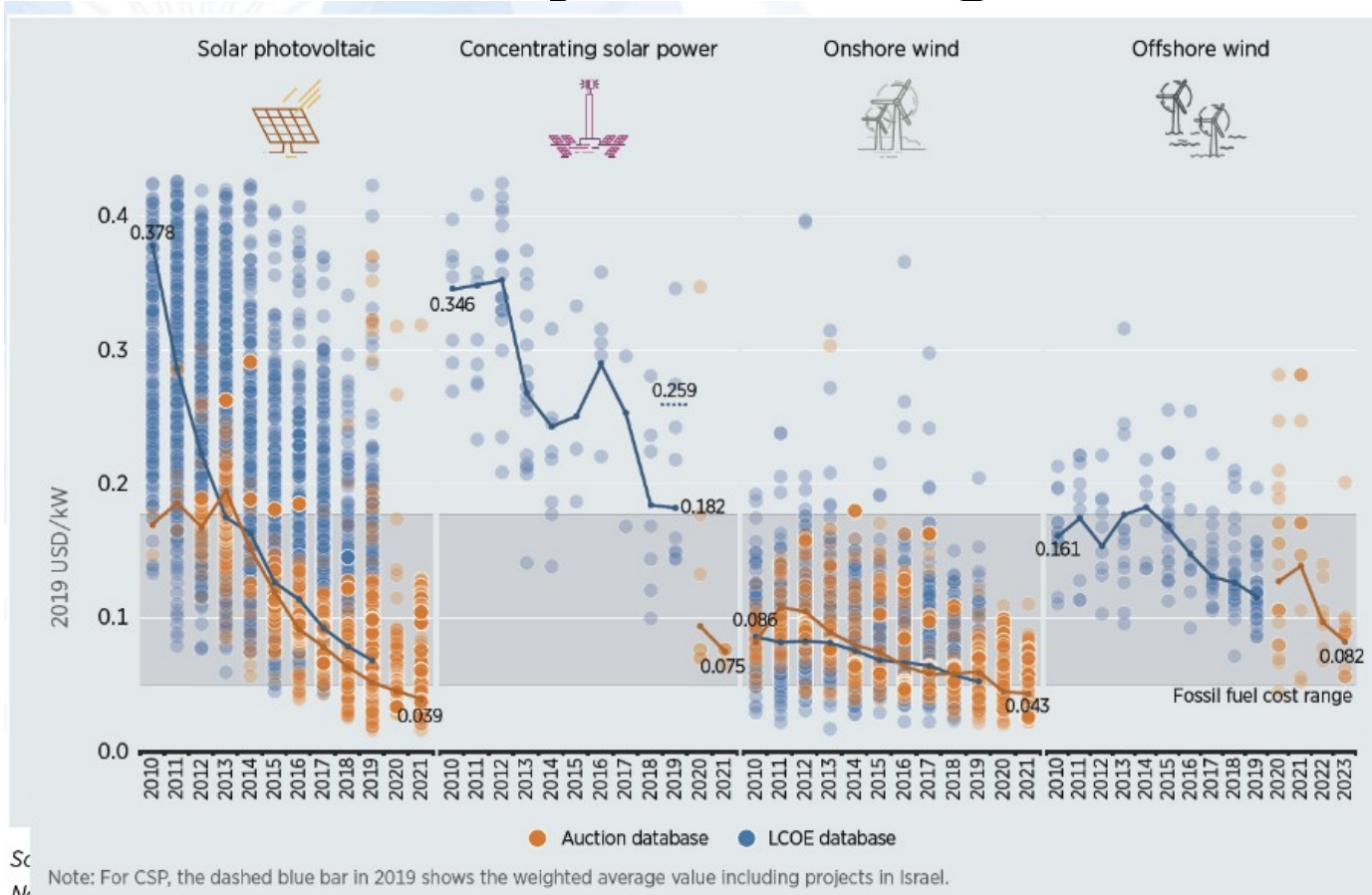
- Soru 2: Yenilenebilirdeki başarı nasıl oldu?



Okuma



Güneş mi rüzgar mı?





Yeni bir teknoloji mi?

- Laboratuvarda yenilik?
- Üretimde yenilik?
- Ölçekte artış?
- Teknolojik sıçrama?
- Çin -devlet sübvansiyonları



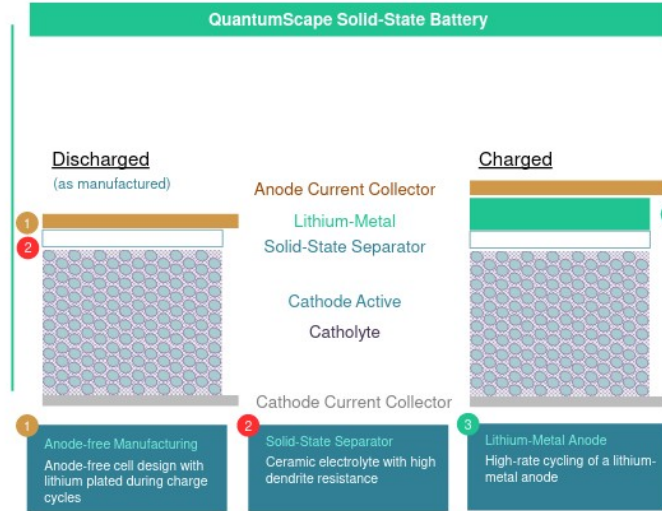
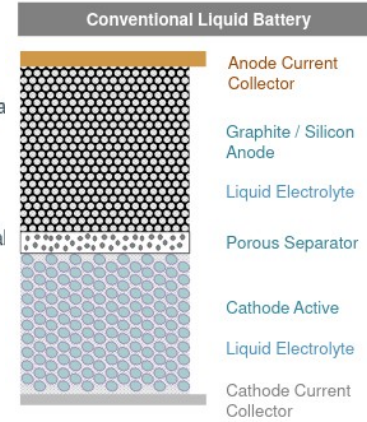
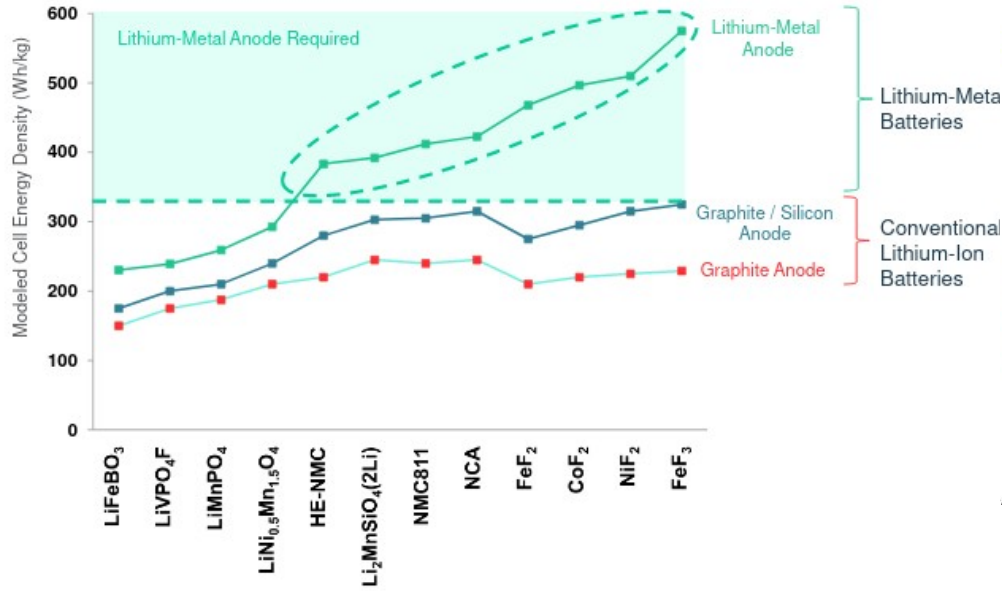
Tesla'nın son yatırımcı sunumu

FIVE AREAS OF FOCUS

Area of Improvement	Description	Range Increase*	\$/kWh Cost Reduction*	\$/GWh Capex Reduction*
Cell Design 	<ul style="list-style-type: none"> After considering every form factor and cell size across quantifiable factors, we deemed 80 mm height by 46 mm diameter cylindrical to be best These dimensions maximize vehicle range (pack level energy density) while minimizing manufacturing and product cost The challenge is that large diameter cylindrical cells easily overheat during supercharging We identified a tab-less design solution to resolve the overheating challenge and simplify manufacturing 	16%	14%	7%
Cell Factory 	Electrode <ul style="list-style-type: none"> Current electrode production process involves mixing liquids with cathode or anode powders and using massive machinery to coat and dry electrode New process allows going directly from cathode or anode powder to an electrode film 	0%	18%	34%
	Winding <ul style="list-style-type: none"> Larger cells improve winder productivity Incorporates our tab-less design 			
	Assembly <ul style="list-style-type: none"> Large cells moving at high speed with simplification in process steps enables a single production line to have 20 GWh of capacity 			
	Formation <ul style="list-style-type: none"> Leveraging our power electronics to densify and reduce costs of the final charging and testing step of millions of cells 			
Anode Material 	<ul style="list-style-type: none"> Silicon is a better anode material than graphite - stores 9x more lithium, but silicon expansion brings challenges Silicon used in anodes today is highly engineered and expensive Raw silicon with our coating design will cost just \$1.20/kWh Expansion of silicon is managed by stabilizing surface and by creating an elastic binder network 	20%	5%	4%
Cathode Material 	<ul style="list-style-type: none"> We are taking a diversified cathode approach to maximize available supply options: all usable in our 4680 cells We are planning to manufacture cathode in-house, using far less water and reagents in a simplified production process Focus on local sourcing for each cell factory to avoid unnecessary transportation cost Actively pursuing pathways to vertically integrate lithium production for a portion of supply 	4%	12%	16%
Cell-Vehicle Integration 	<ul style="list-style-type: none"> Current EV design: cells to modules, modules to battery pack, battery pack to vehicle Future EV design: cells directly integrated into vehicle body with giga castings Battery is no longer carried as "luggage", will provide new utility as a load-bearing frame element This unlocks high-efficiency factories and mechanical structures— best manufacturability, weight, range and cost 	14%	7%	8%
Projected Total Improvement		54%	56%	69%

Katı hal pilleri?

And Lithium metal anode requires a solid-state separator



- Soru 3: Kresel enerji ynetimi ve kurumları

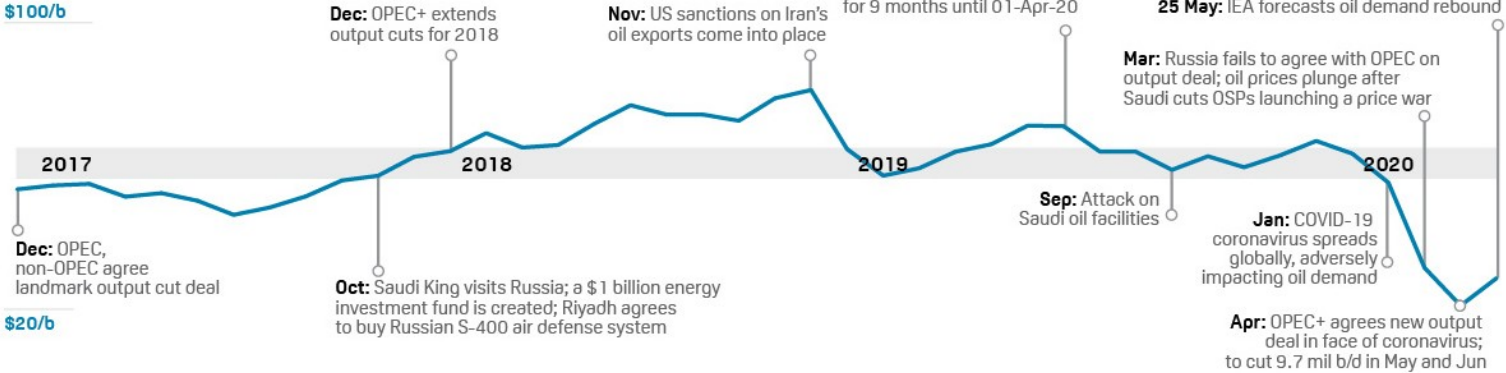


OPEC neyin kısaltması?

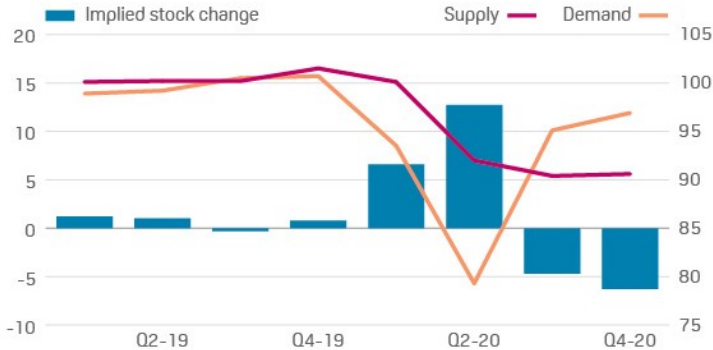
- OPEC
- IEA
- Energy Charter
- IRENA
- IEF

OPEC+ tarihce

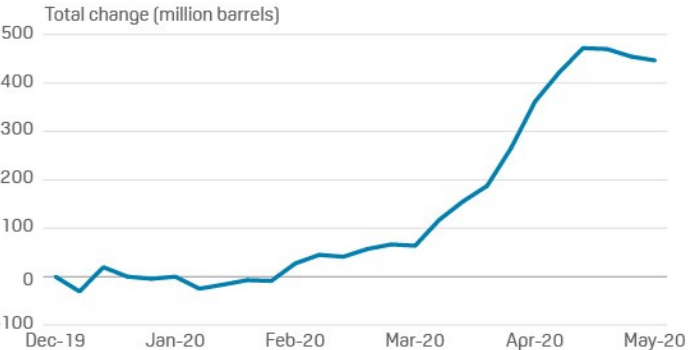
OPEC+ vs BRENT CRUDE



WORLD OIL DEMAND/SUPPLY BALANCE (million b/d)

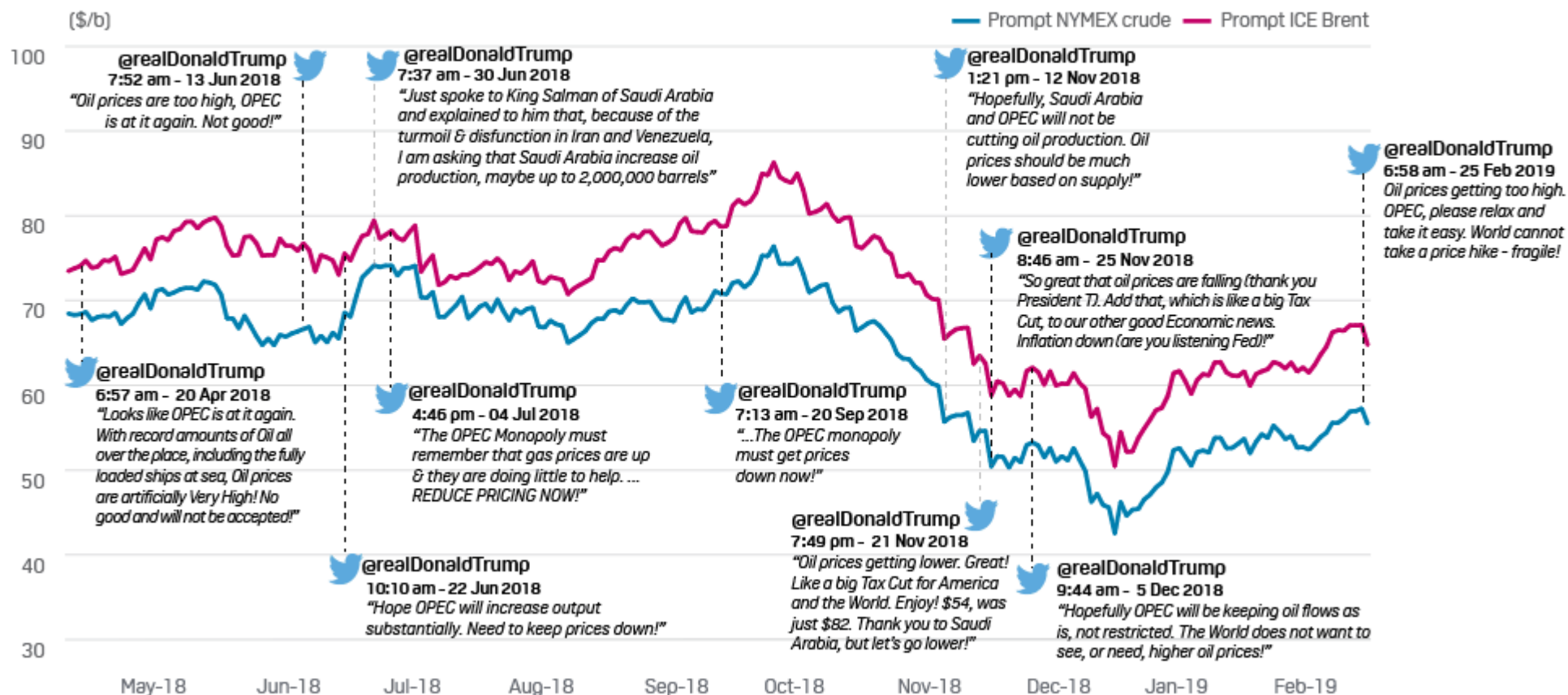


CRUDE OIL INVENTORIES SURGE AS DEMAND FALTERS

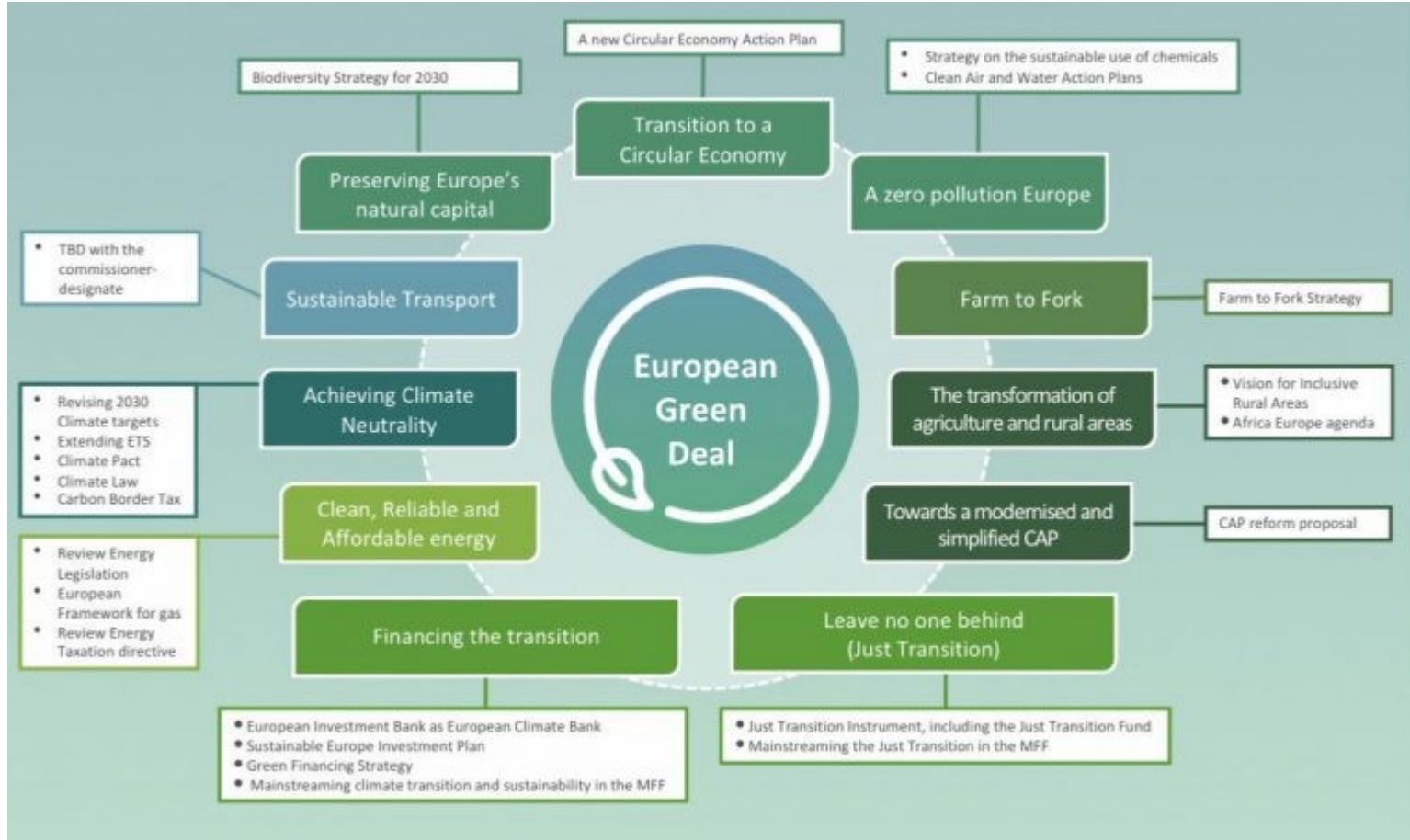


US OIL DIPLOMACY BY TWEET

US President Donald Trump's latest tweet aimed at OPEC comes as ICE Brent crude futures were inching closer to \$70/b amid output cuts by Saudi Arabia and other producers, while US sanctions restrict oil flows from Iran and Venezuela.

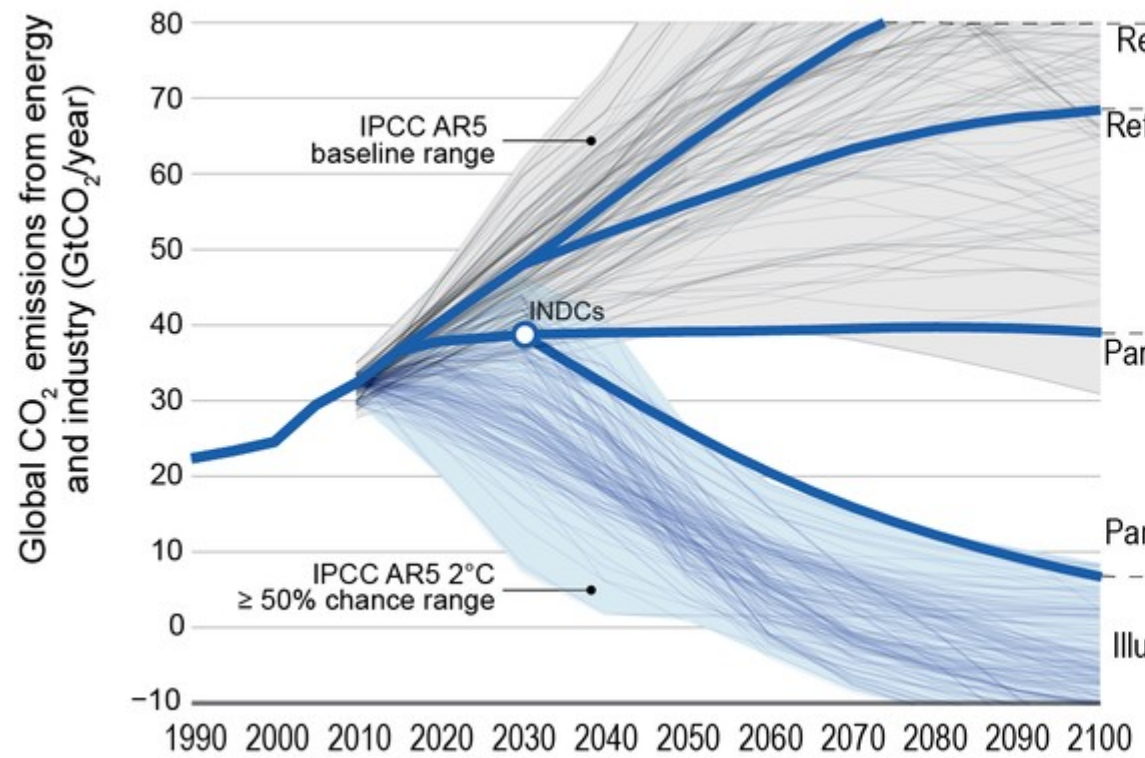


AB Yeşil Mutabakat

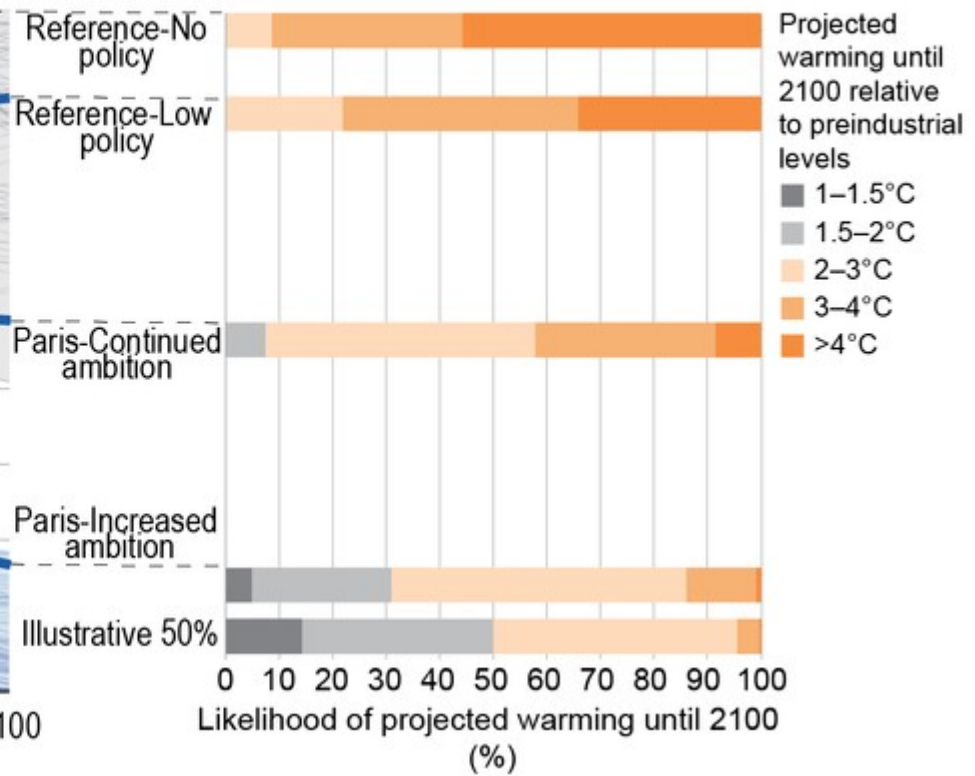


IPCC ve gelecek

(a) Emissions pathways



(b) Temperature probabilities

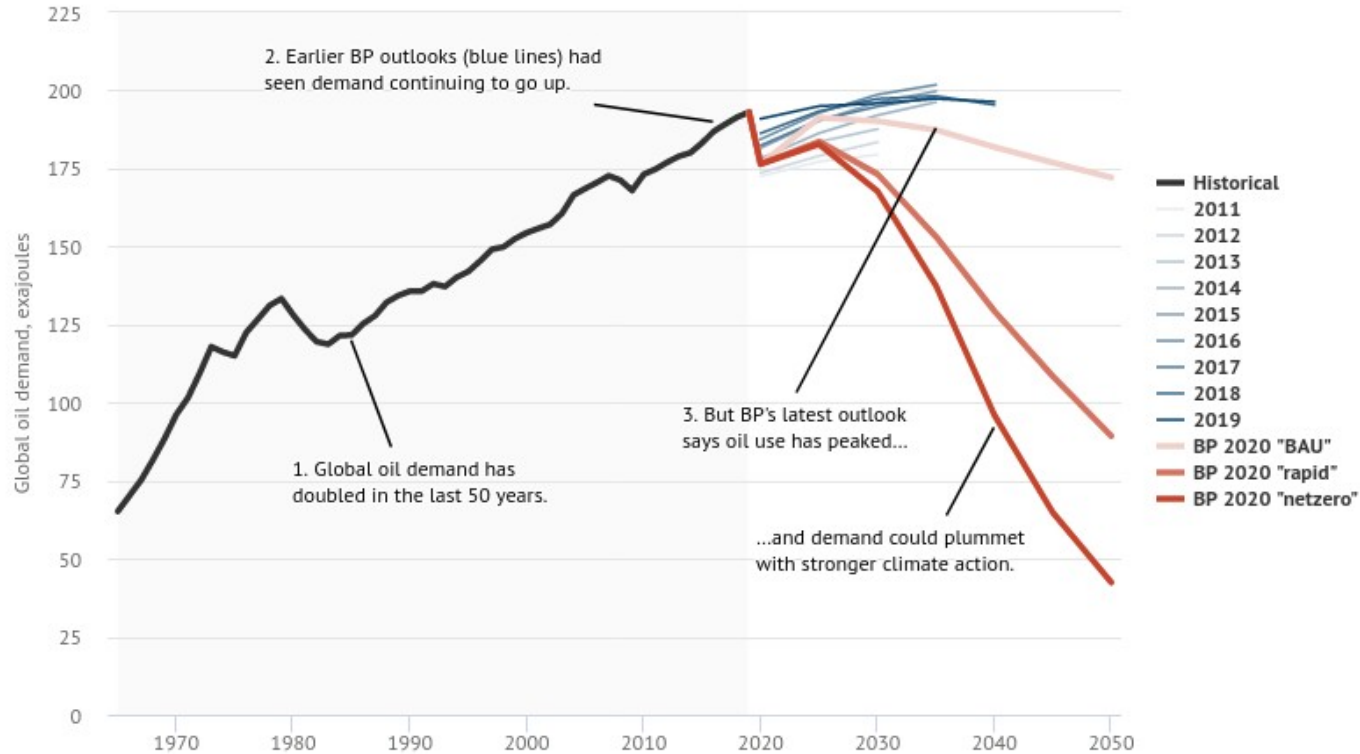


Gelecek soruları

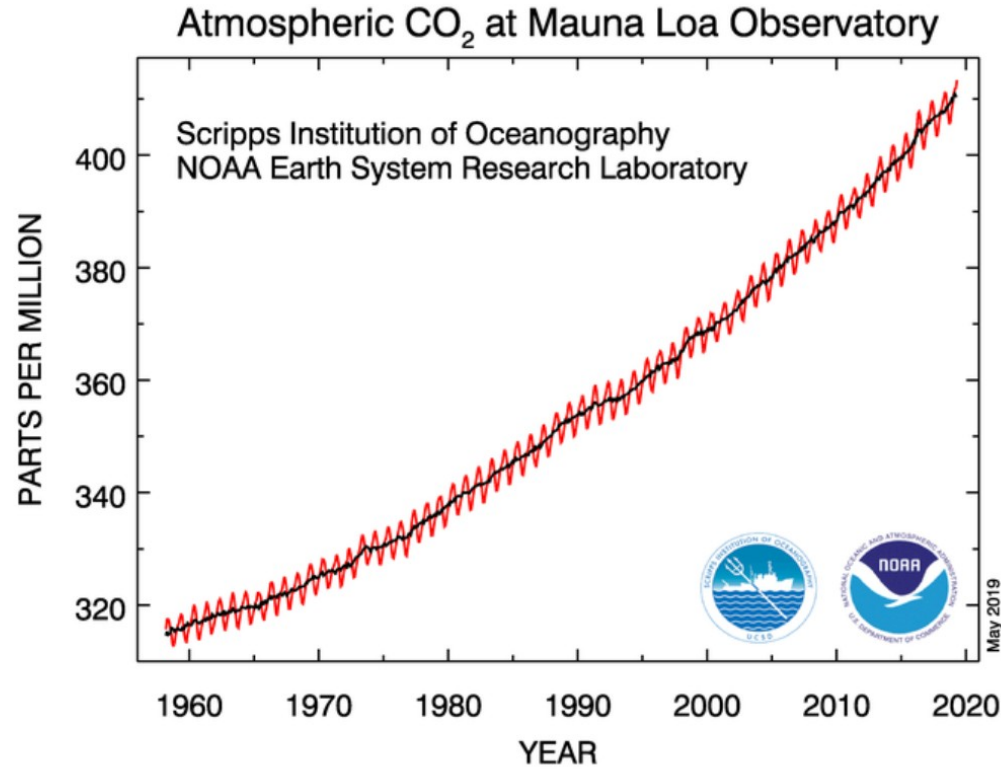
• Soru 1: Fosil yakıtların sonu mu geldi?

BP now concedes that oil demand has already peaked – and could soon plummet

Last year's outlook had seen peak oil still being 15 years away



- Soru 2: İklim değışikliđi neden yavaşlamıyor?



<https://research.noaa.gov/article/ArtMID/587/ArticleID/2461/Carbon-dioxide-levels-hit-record-peak-in-May>

- Soru 3: Hidrojen gelecekte olacak mı?



- Soru 4: Enerji-jeopolitik iliřkisi kopuyor mu?



The Economist

- Soru 5: Enerji dönüşümü için tüm araçlara sahip miyiz?

Mitsubishi Heavy to build biggest zero-carbon steel plant

Austrian test facility to run on hydrogen when it goes online next year



Teşekkürler