Renewables, gas and decarbonizing U.S. power

New York Energy Forum

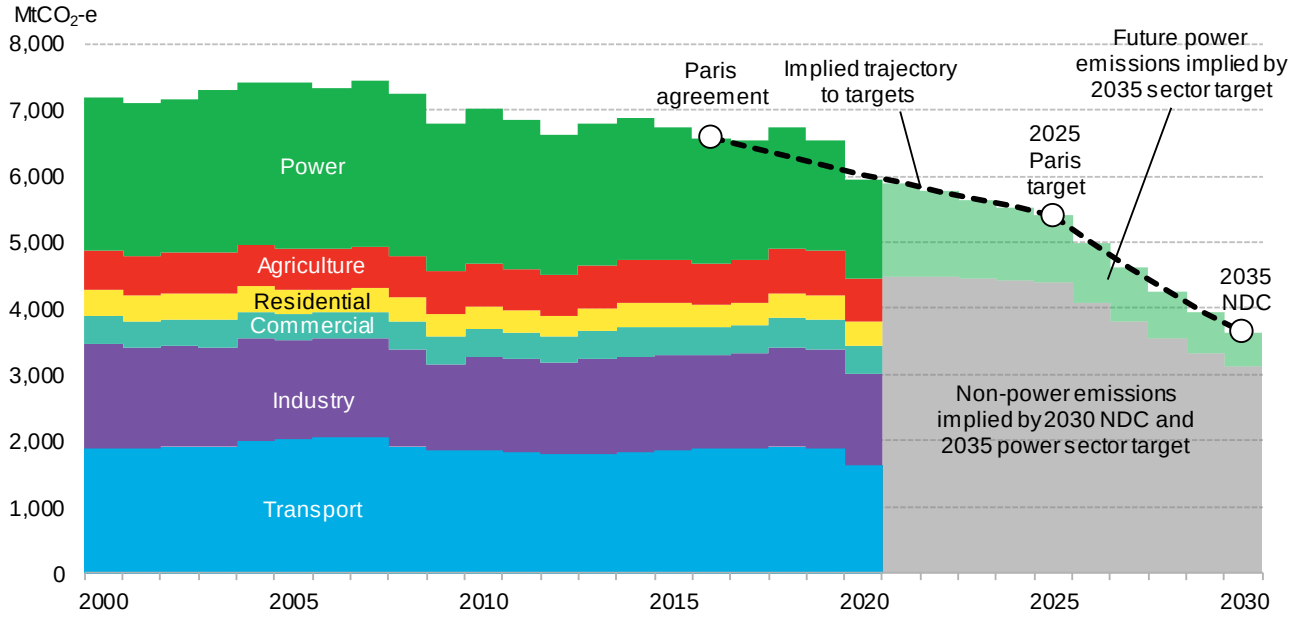
Tom Rowlands-Rees

May 18, 2021

BloombergNEF

U.S. economy-wide emissions

Historic and future, assuming various targets are achieved



Source: EIA, EPA, BloombergNEF

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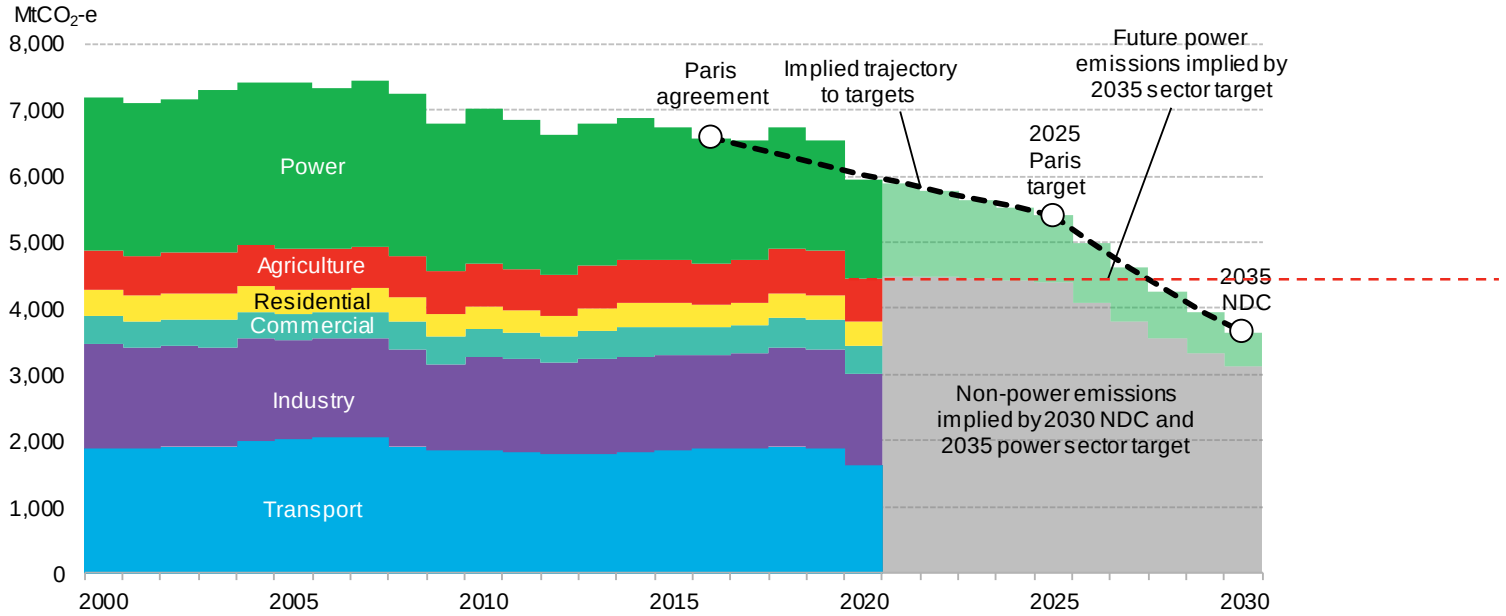

Source: EIA, EPA, BloombergNEF

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The U.S. and Europe
The story of the 2010s

The U.S. and Europe
The story of the 2010s

U.S. power generation

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The U.S. and Europe
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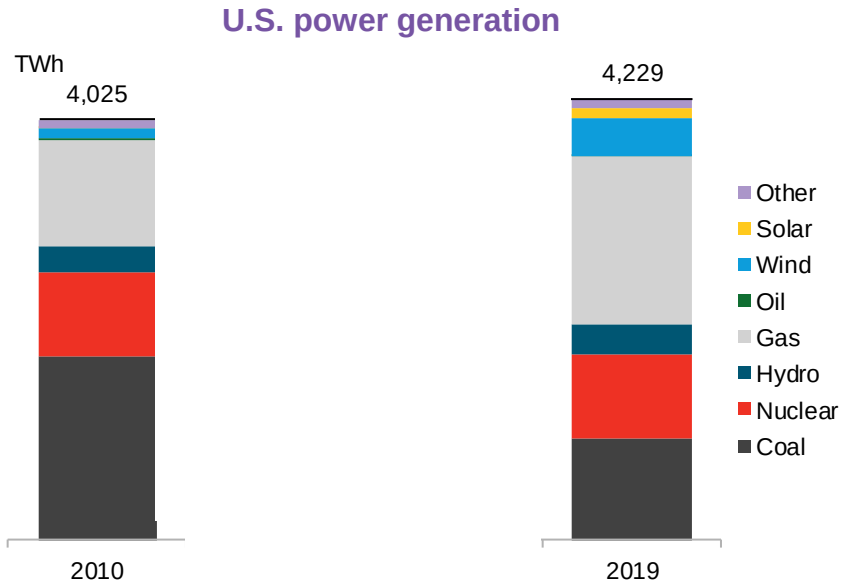

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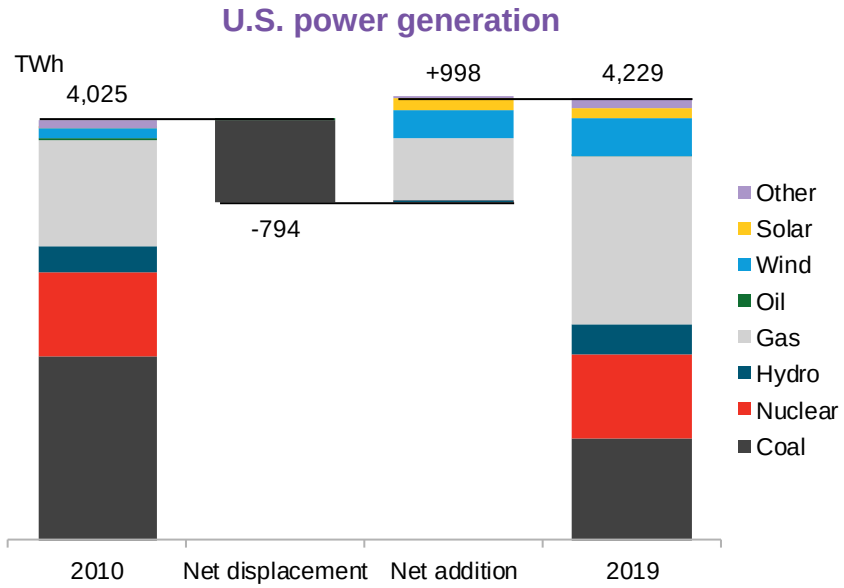

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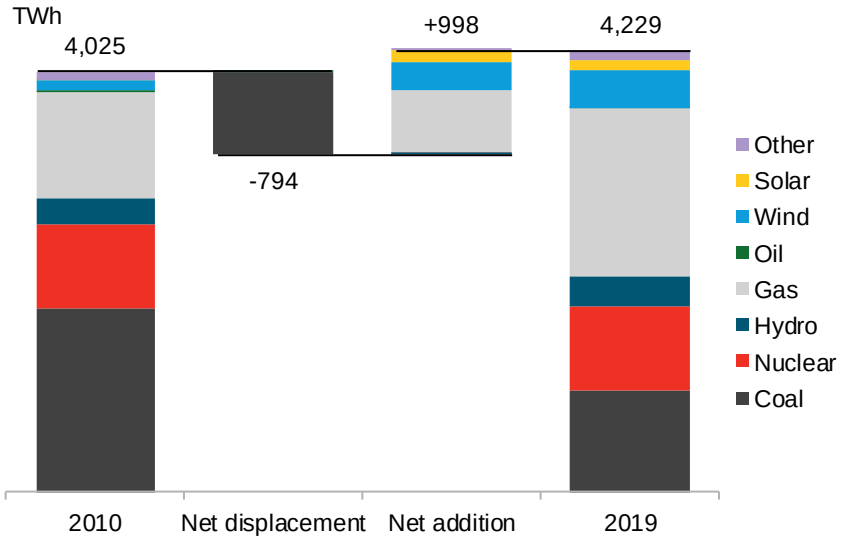

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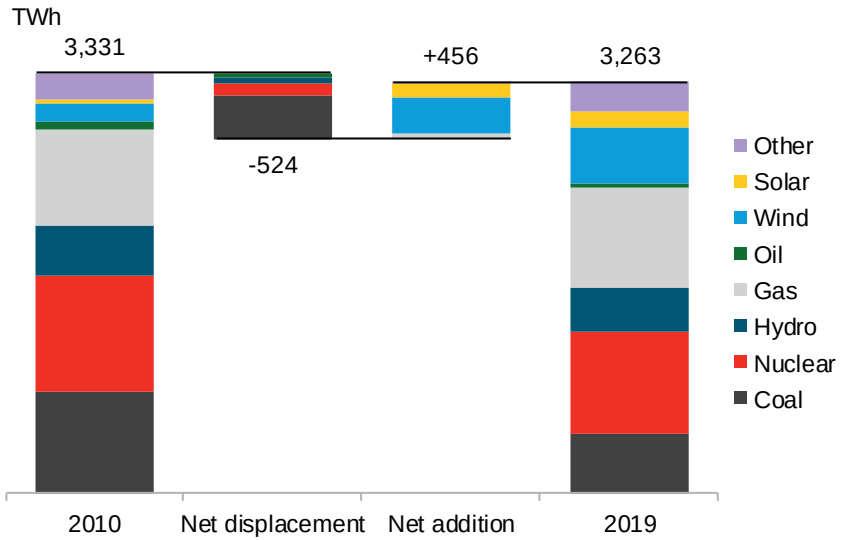
EU power generation



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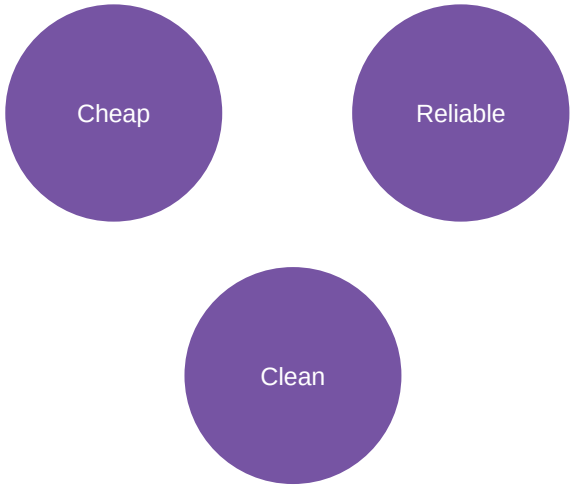
The classic power trilemma

Ideally power should be…



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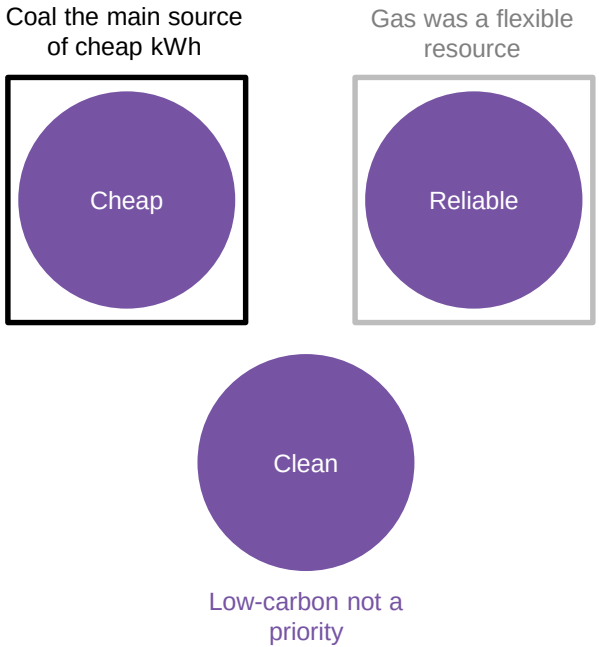

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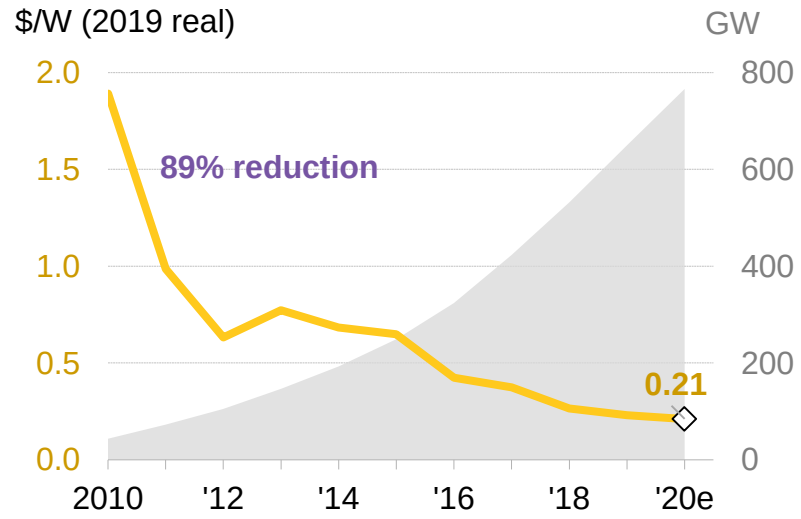
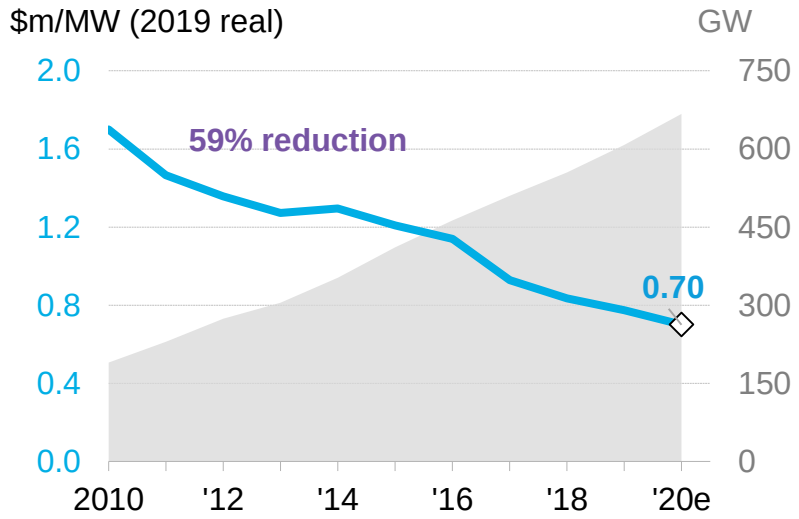
Economies of scale have driven down the cost of renewables dramatically

PV module price and cumulative installed capacity



Onshore wind turbine price and cumulative installed capacity



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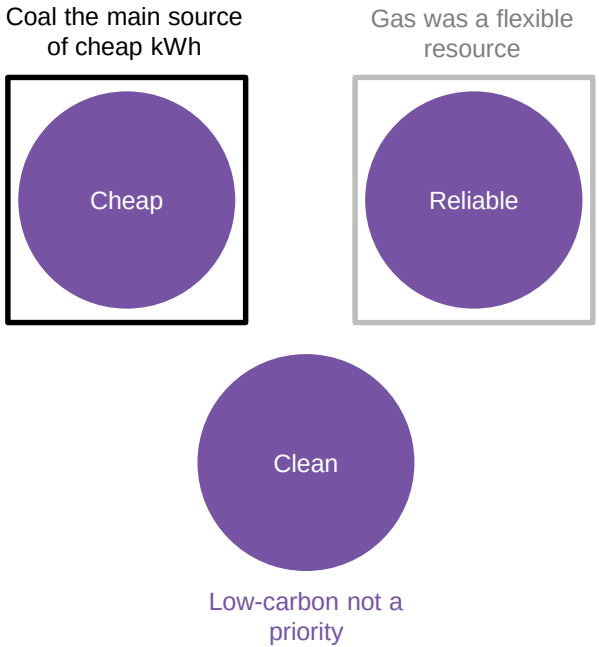

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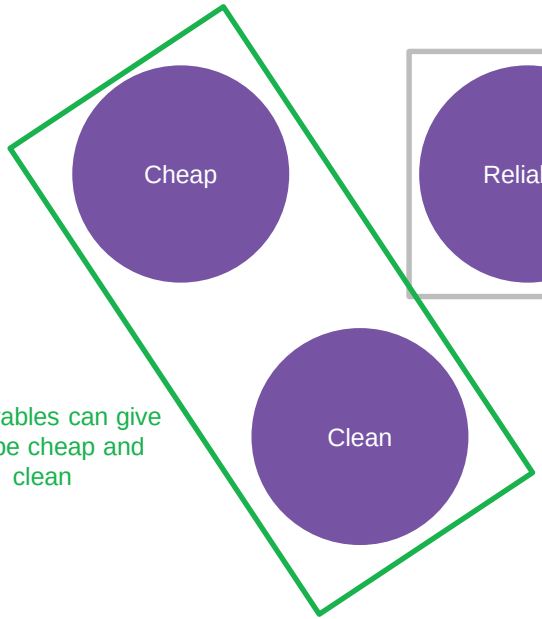
The transition of the 2010s **(Europe)**



Gas remains a marginal part of the energy system

Renewables can give Europe cheap and clean

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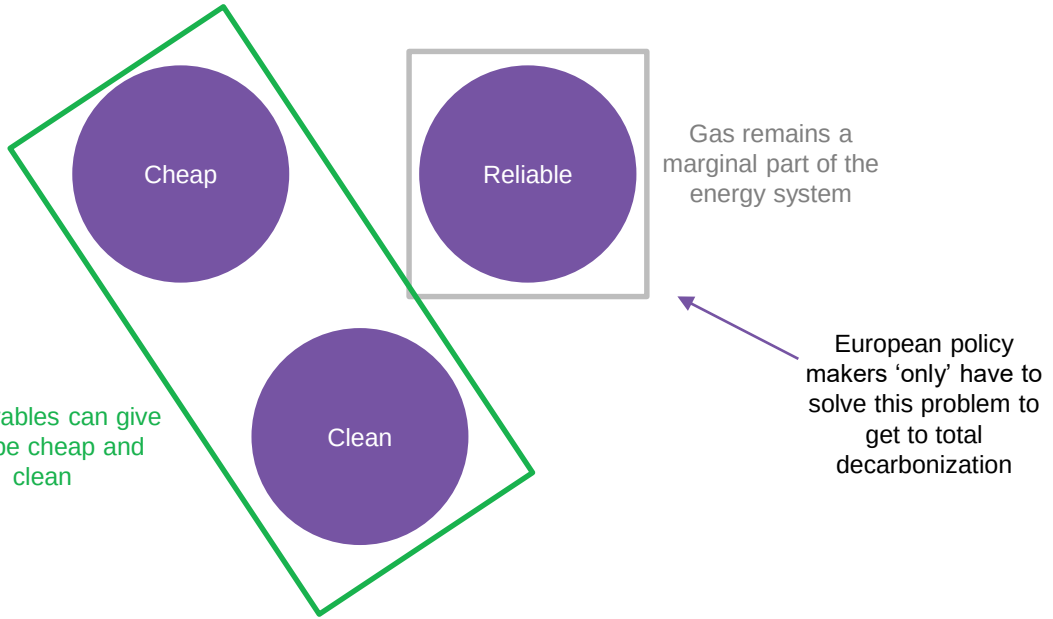

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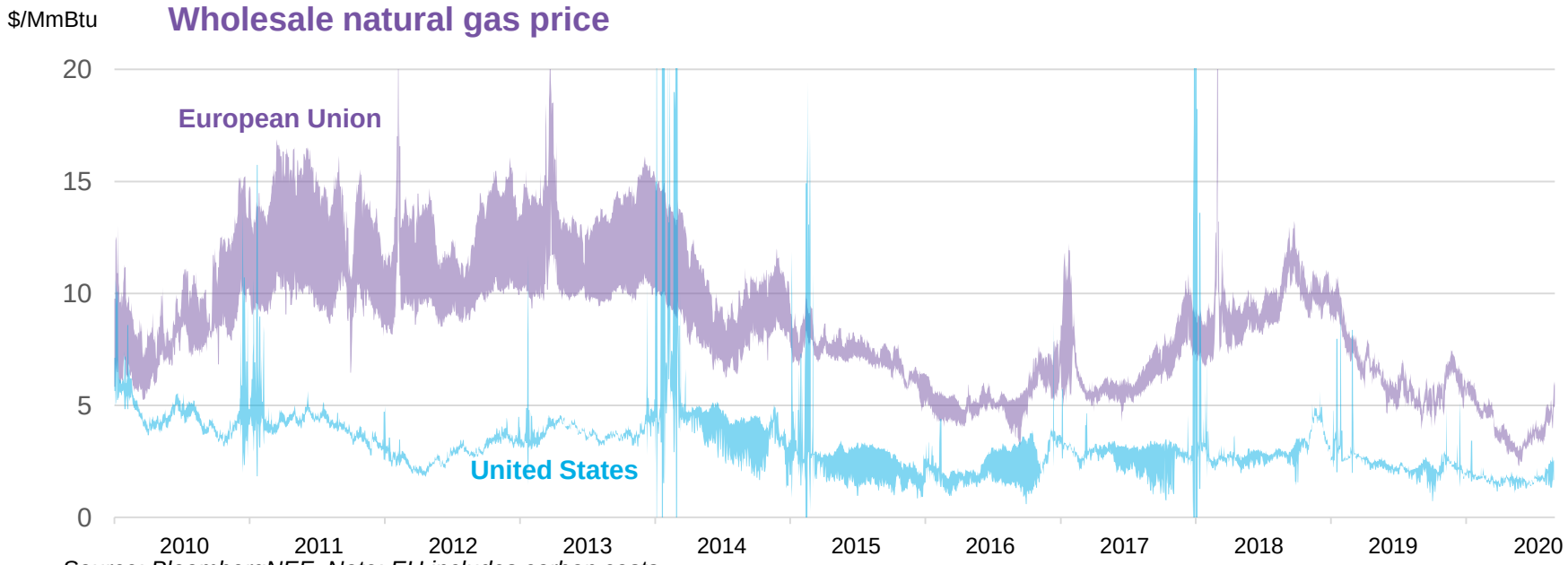
A decade of gas prices in Europe and the U.S.



Source: BloombergNEF. Note: EU includes carbon costs

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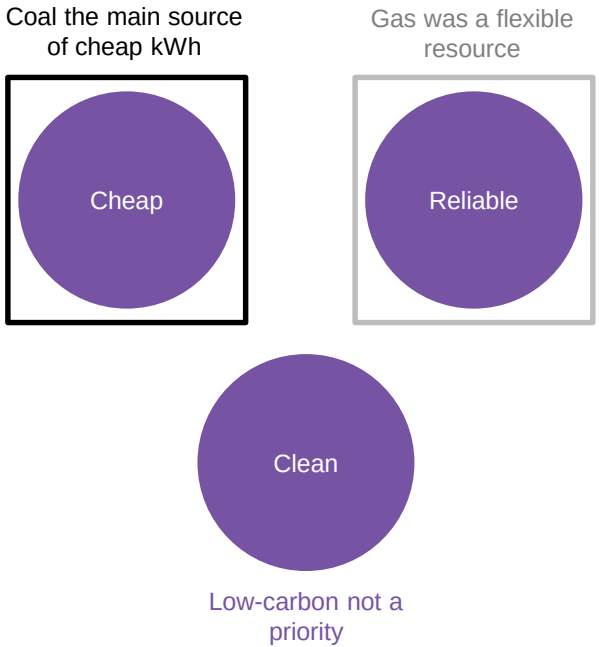

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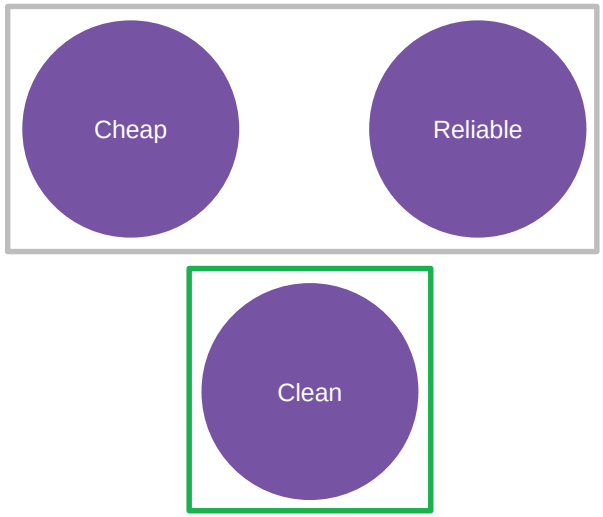

Gas solves the problem of cheap AND reliable

Renewables only give the U.S. clean

BloombergNEF

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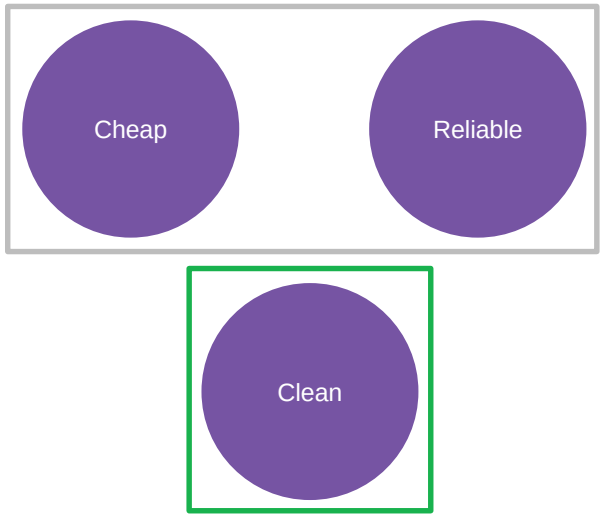

Gas solves the problem of cheap AND reliable

U.S. policy makers face a bigger challenge than their European counterparts if they're serious about decarbonization

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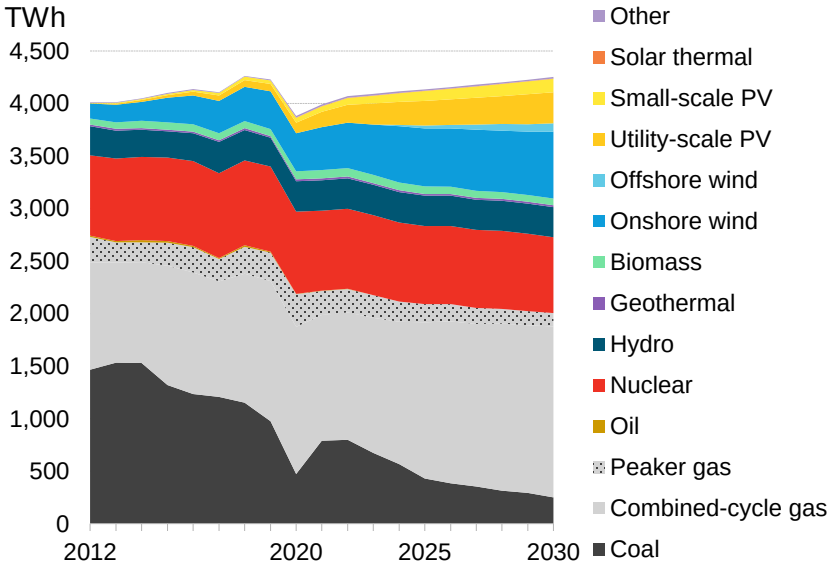
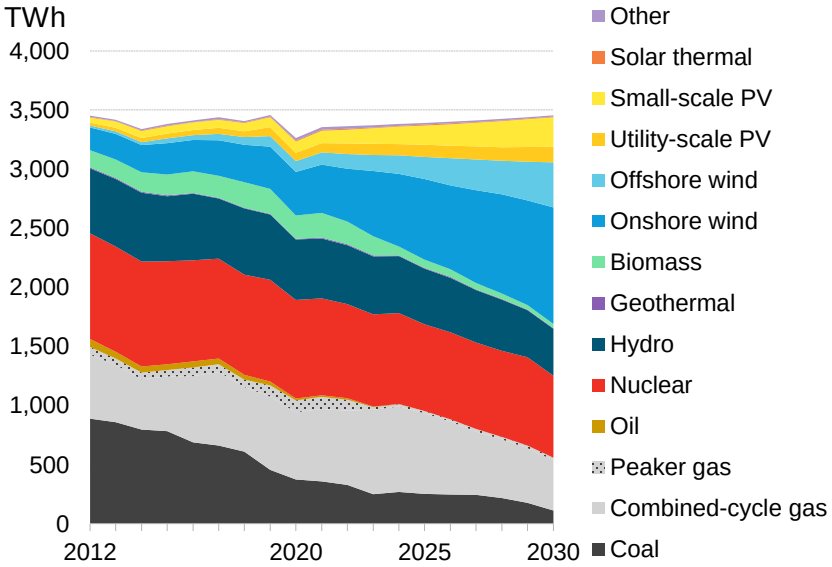
Contrasting outlooks for power in the U.S. and Europe

U.S.



Europe



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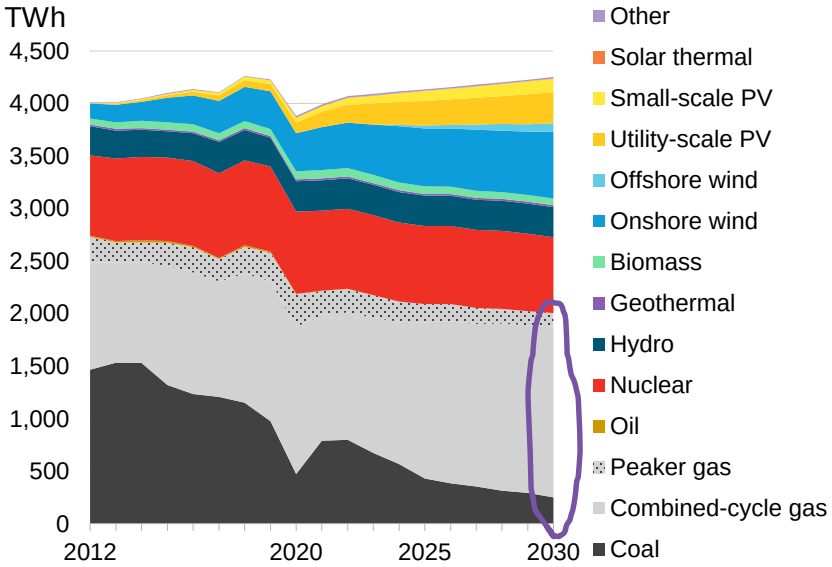

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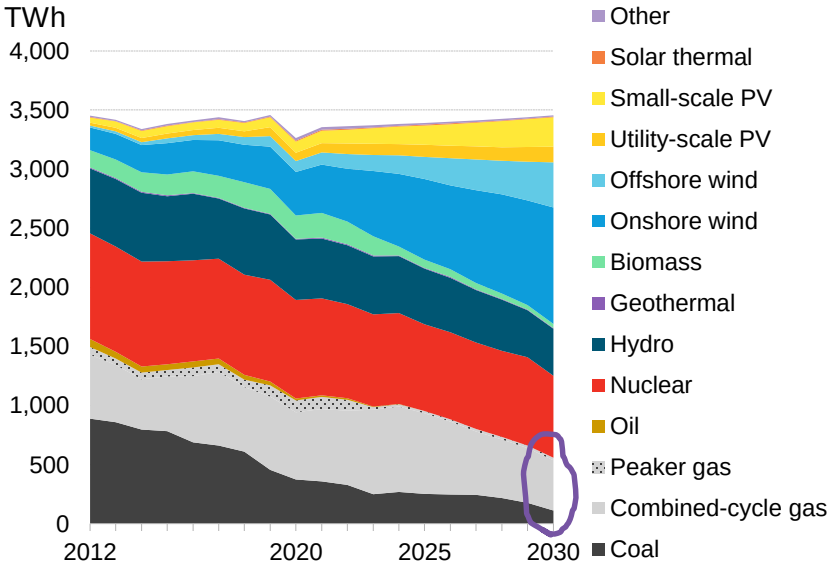

Source: BloombergNEF

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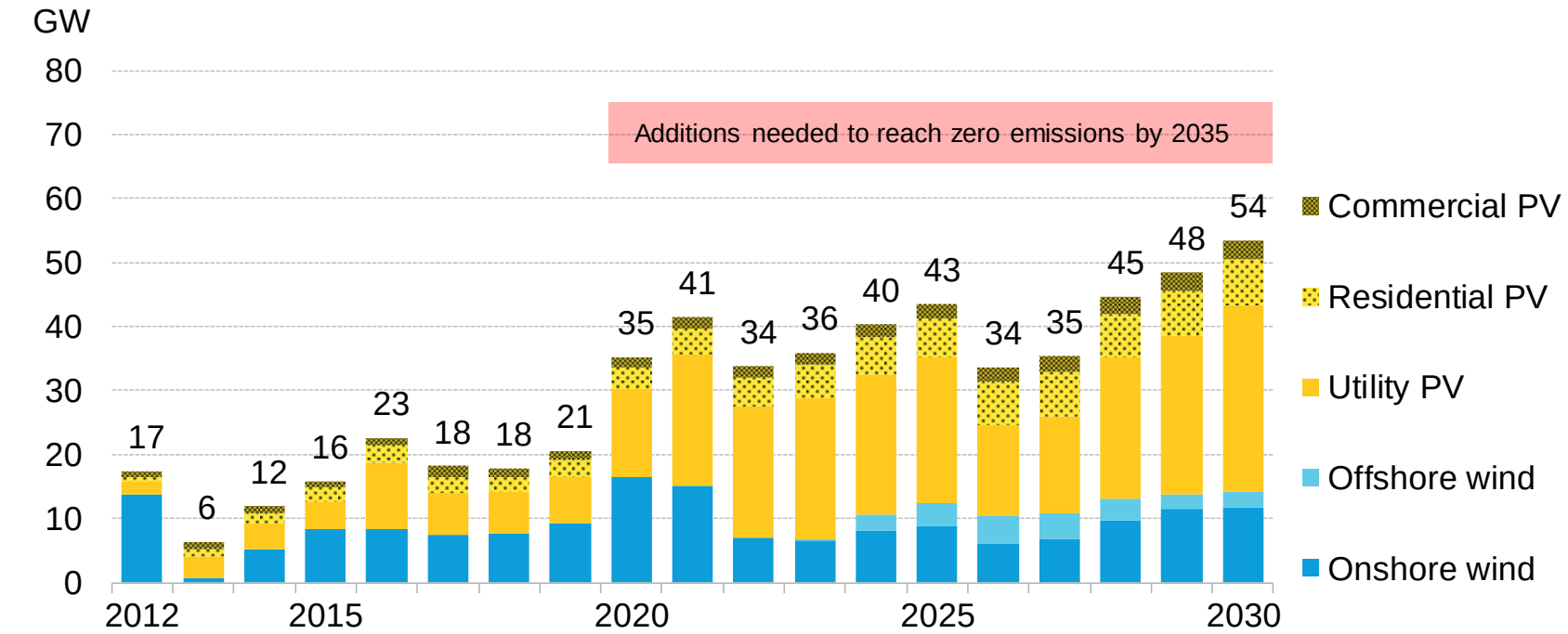
U.S. wind and solar additions



Source: BloombergNEF

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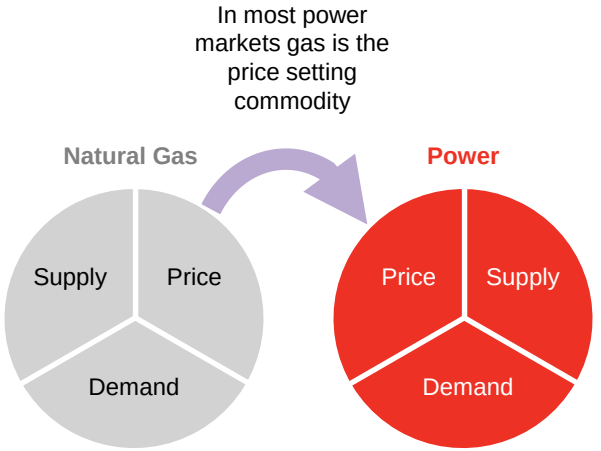
Why is U.S. gas so cheap?
And will it always be that way?

The oil-gas-power nexus



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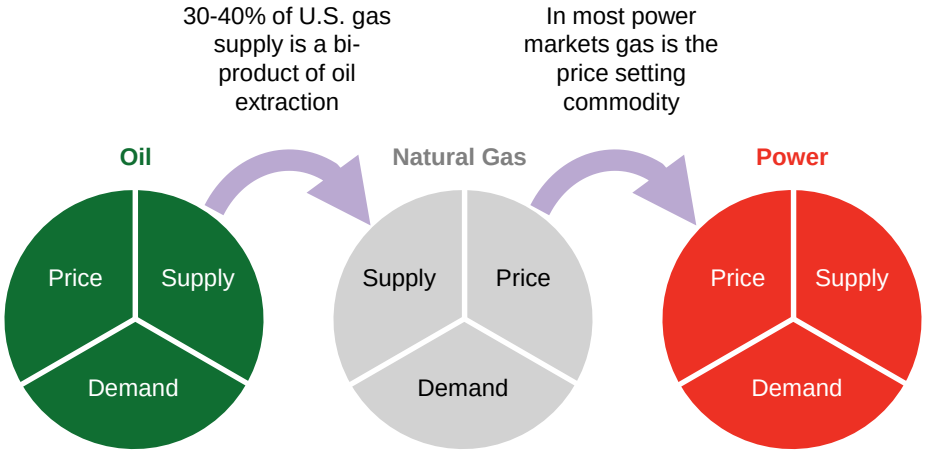

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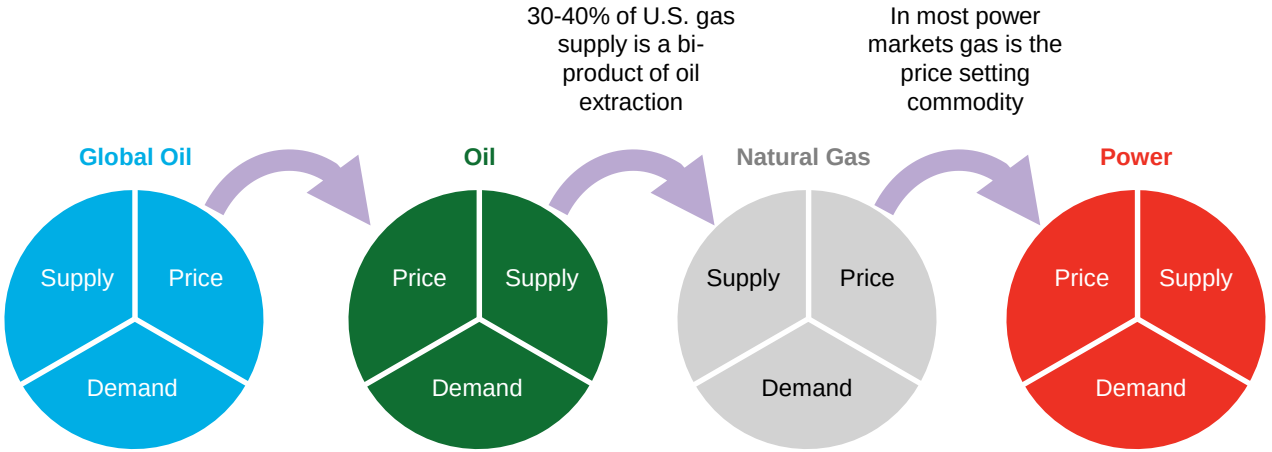

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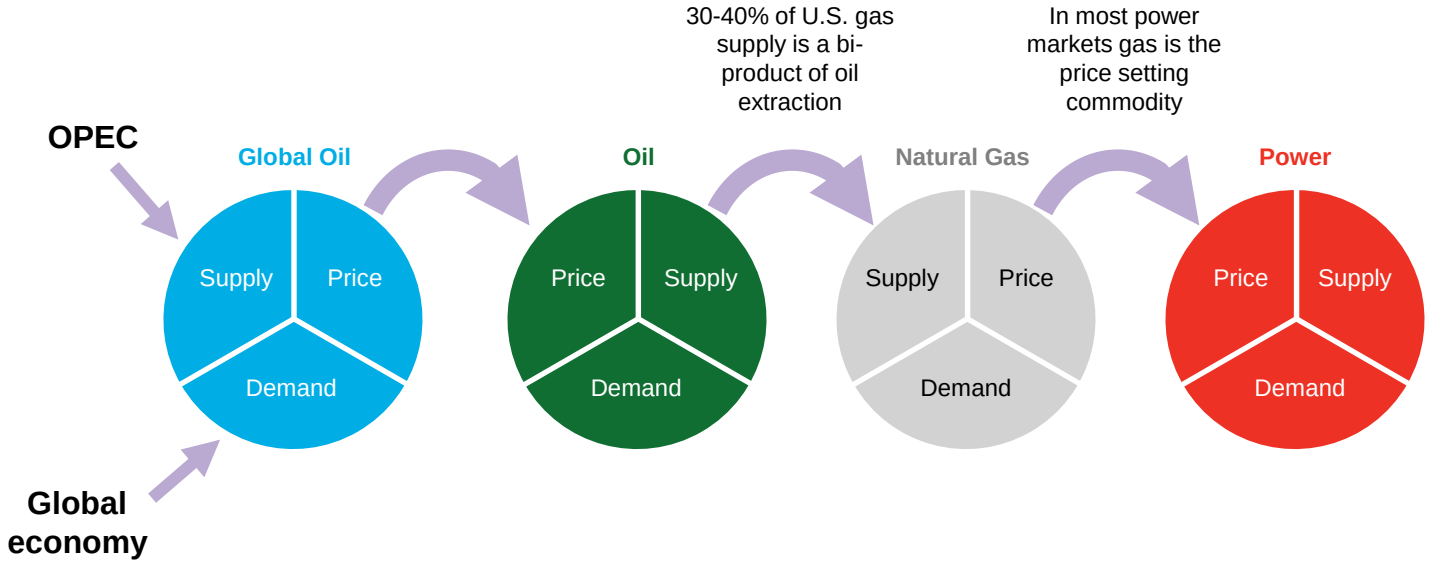

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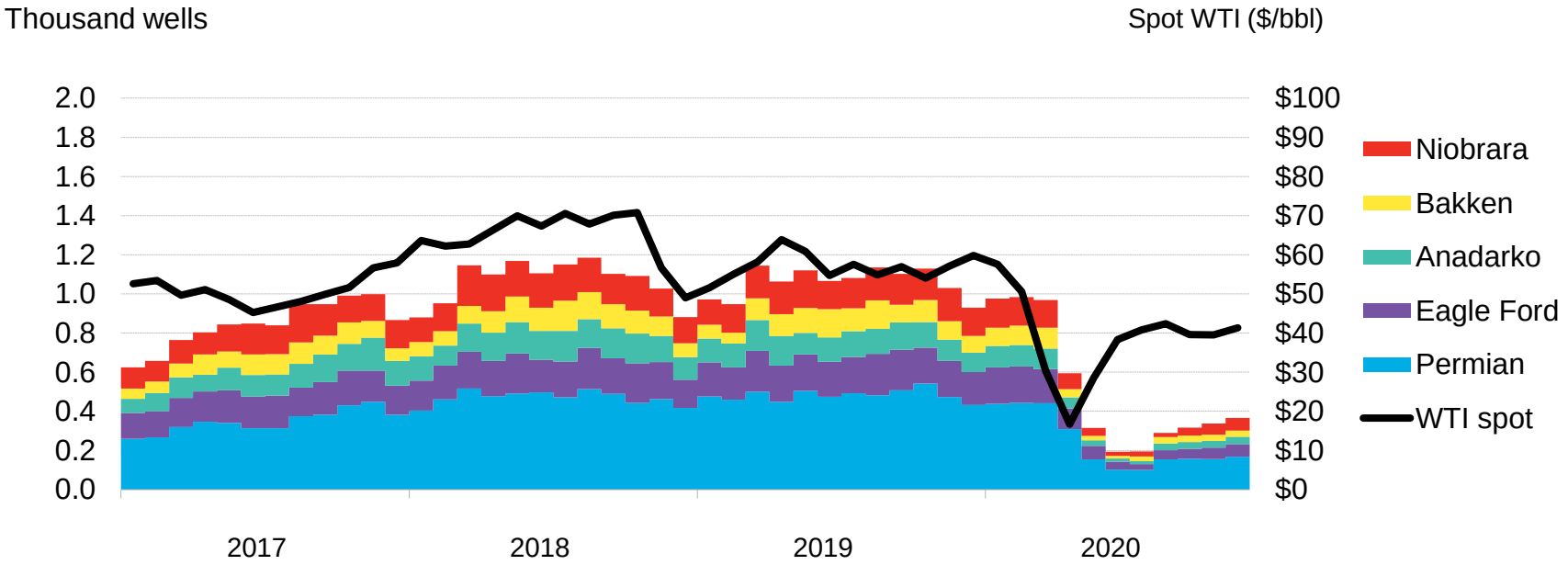
Well completions and WTI oil price



Source: U.S. Energy Information Administration, BloombergNEF

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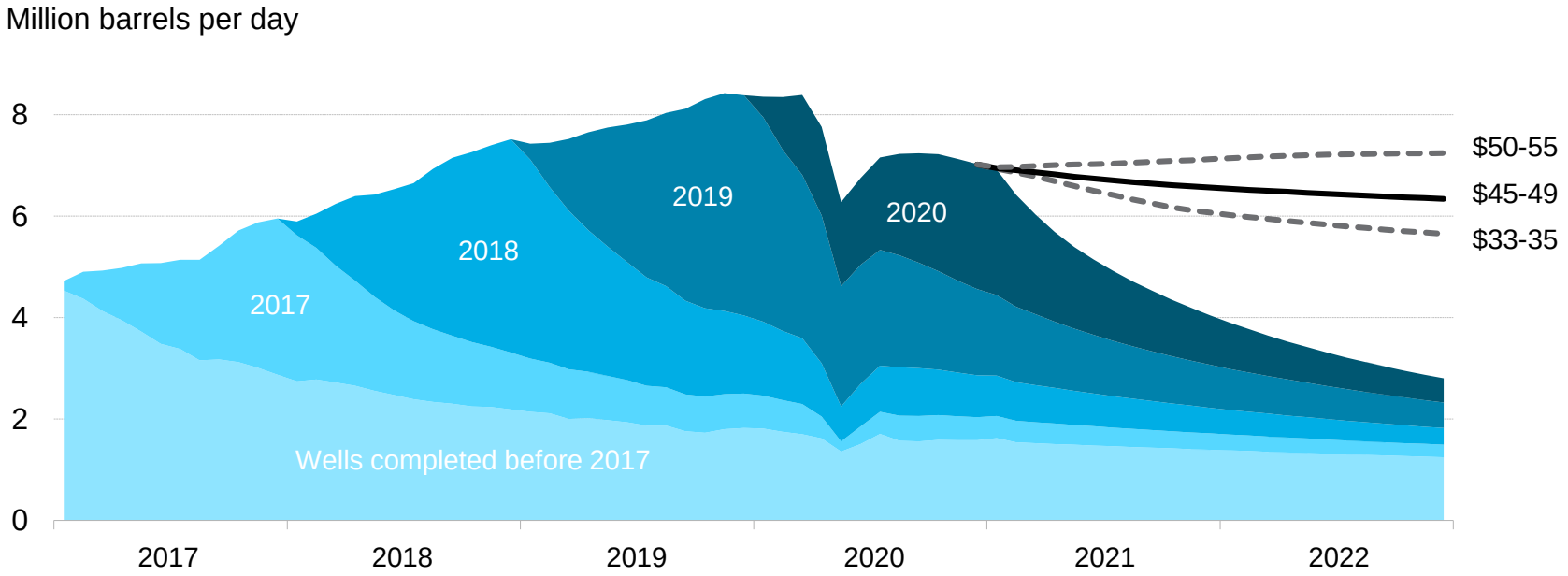
Shale oil production outlook



Source: Enervus, BloombergNEF estimates. Note: $-values indicate price per barrel of under different scenario assumptions

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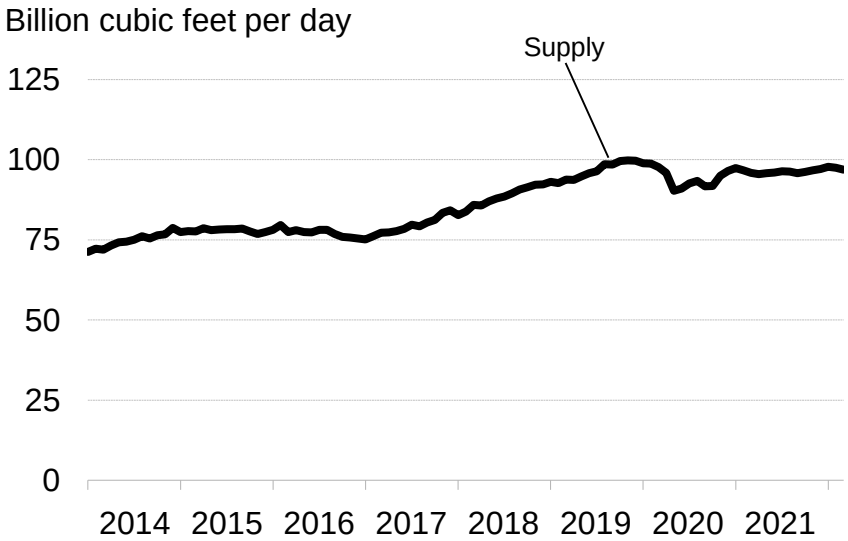
Could the U.S. run out of gas in early 2022?

U.S. natural gas demand-supply balance



Source: BloombergNEF Note: 2021 data in both charts represent our base scenario

BloombergNEF

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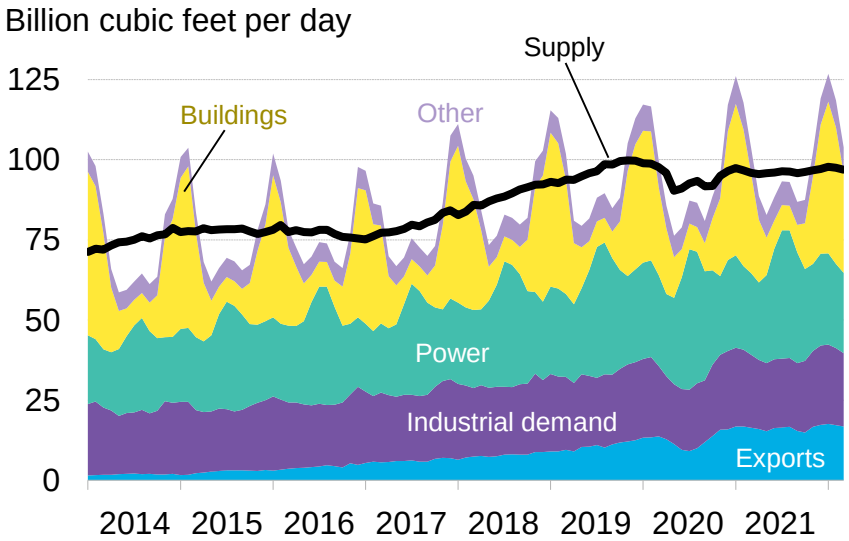

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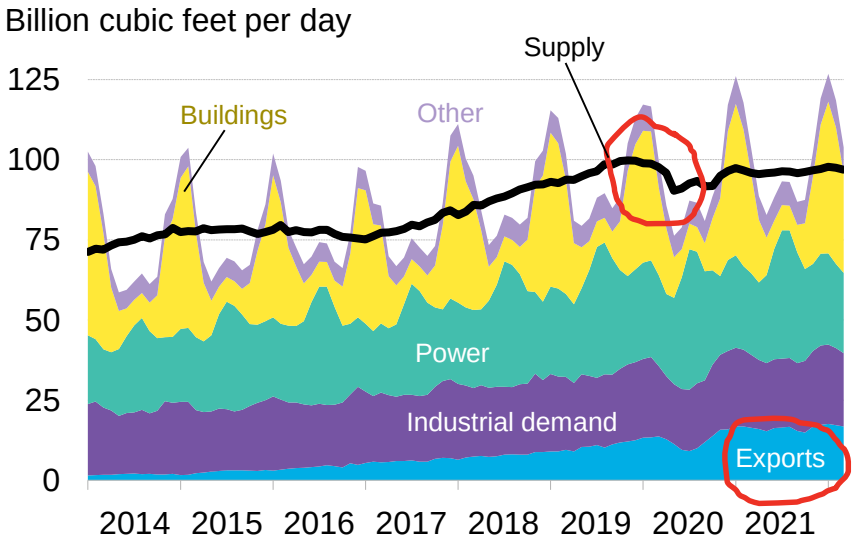

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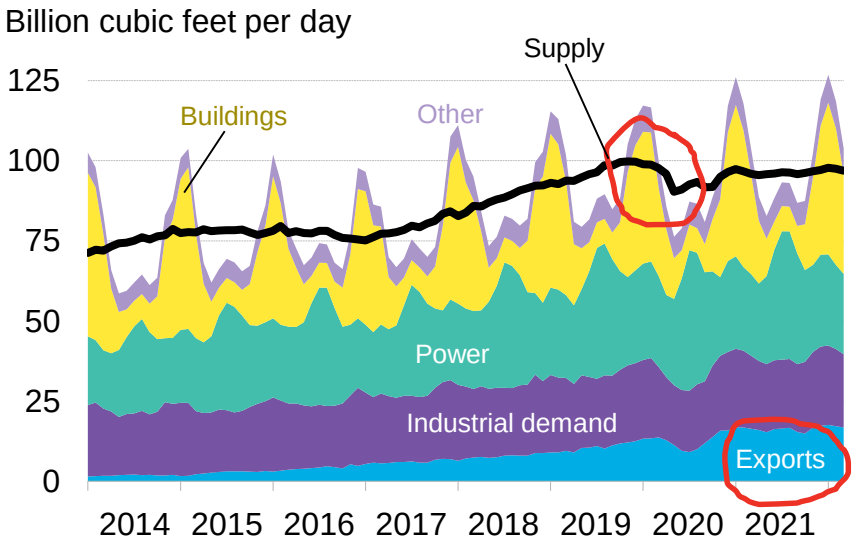
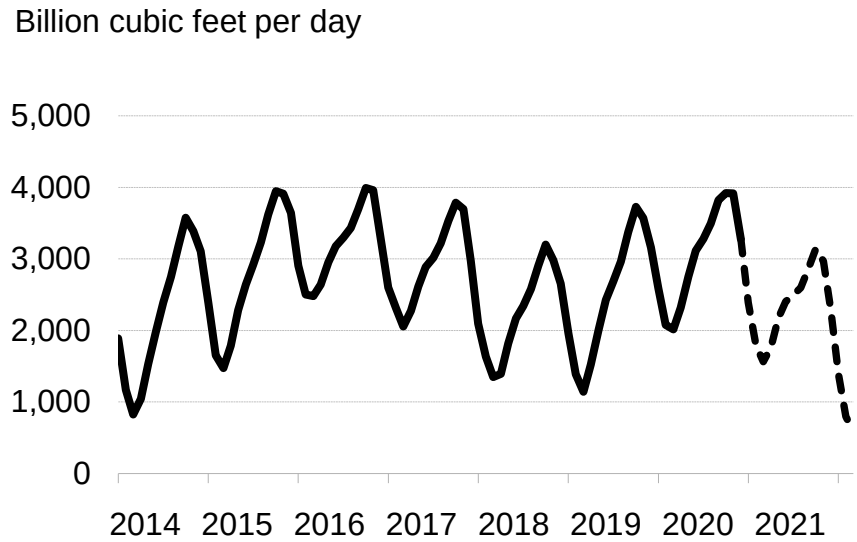


U.S. natural gas storage level



Source: BloombergNEF Note: 2021 data in both charts represent our base scenario

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What policies can help?
And which are realistic?

Strengths and weaknesses of assorted policy levers for incentivizing wind and solar build

Ready to go
Politically viable
Targeted
Incentivize clearly
Federally applicable

Source: BloombergNEF Green = Strength, Yellow = Neutral, Red = Weakness

Strengths and weaknesses of assorted policy levers for incentivizing wind and solar build

	Carbon policies	
	Tax	Market
Ready to go		
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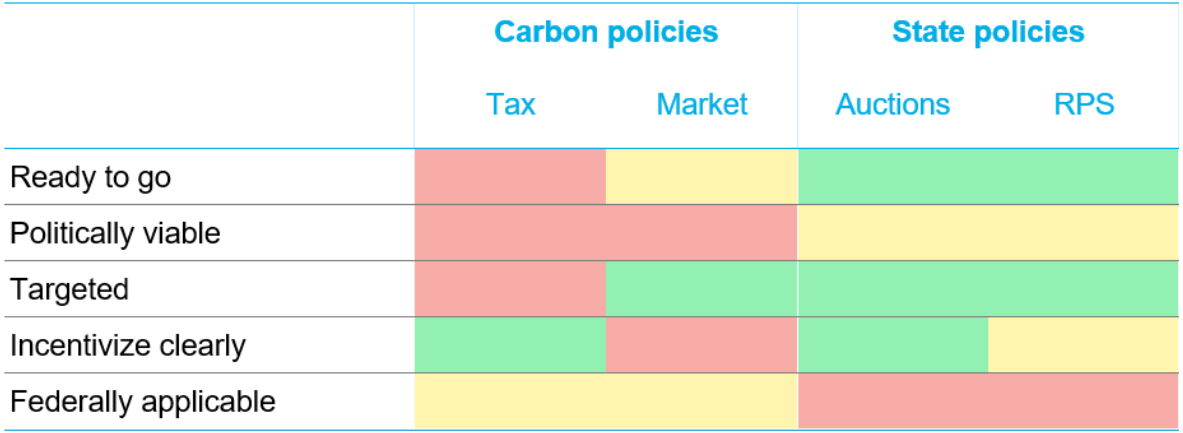

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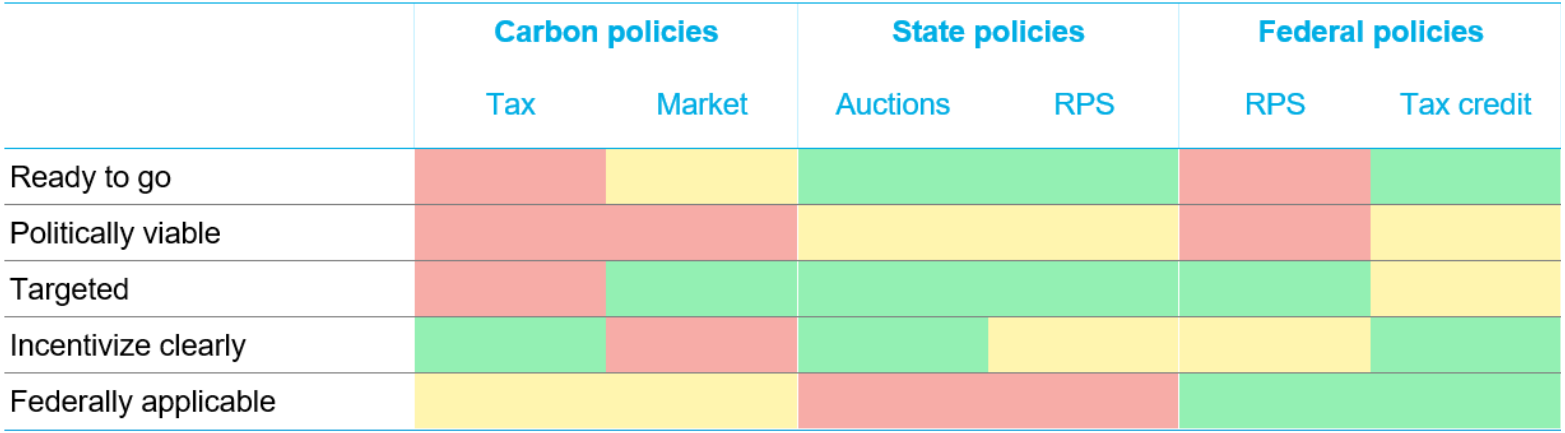

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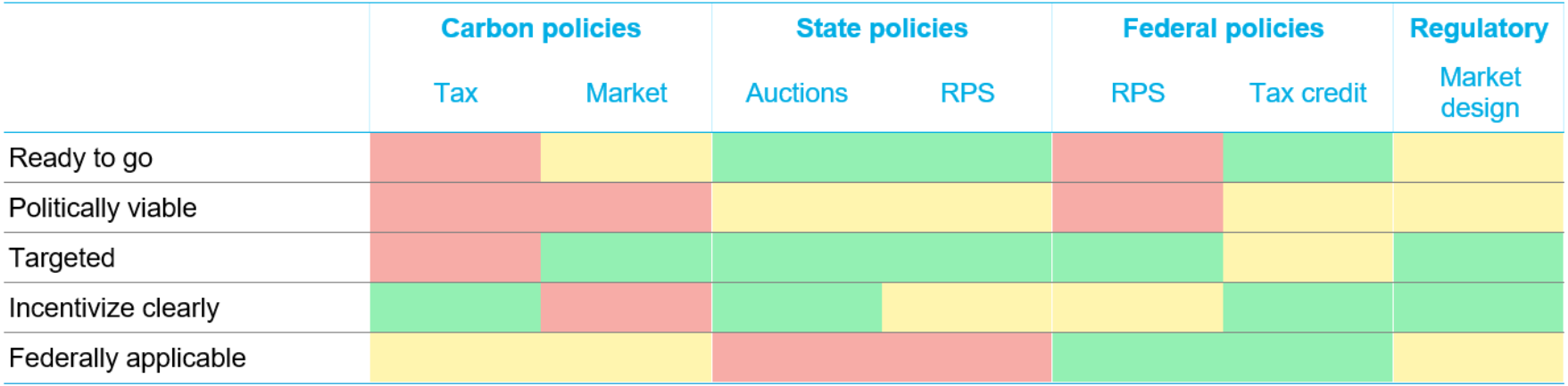

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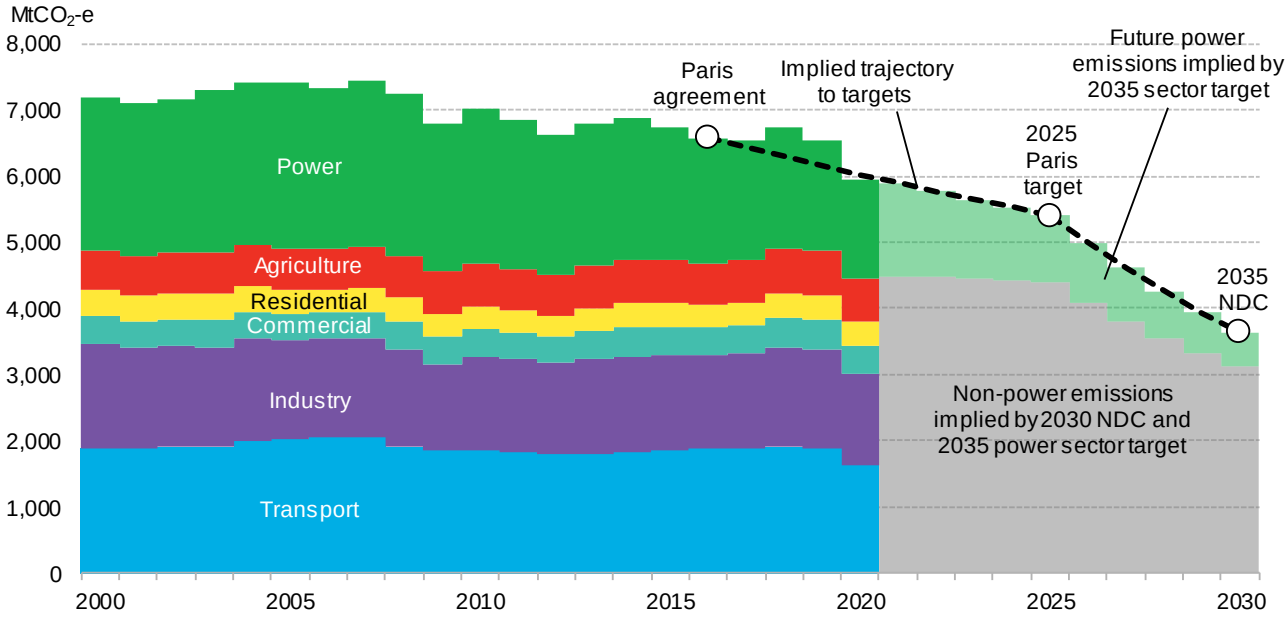
Going back to the big picture…

U.S. economy-wide emissions

Historic and future, assuming various targets are achieved



Source: EIA, EPA, BloombergNEF

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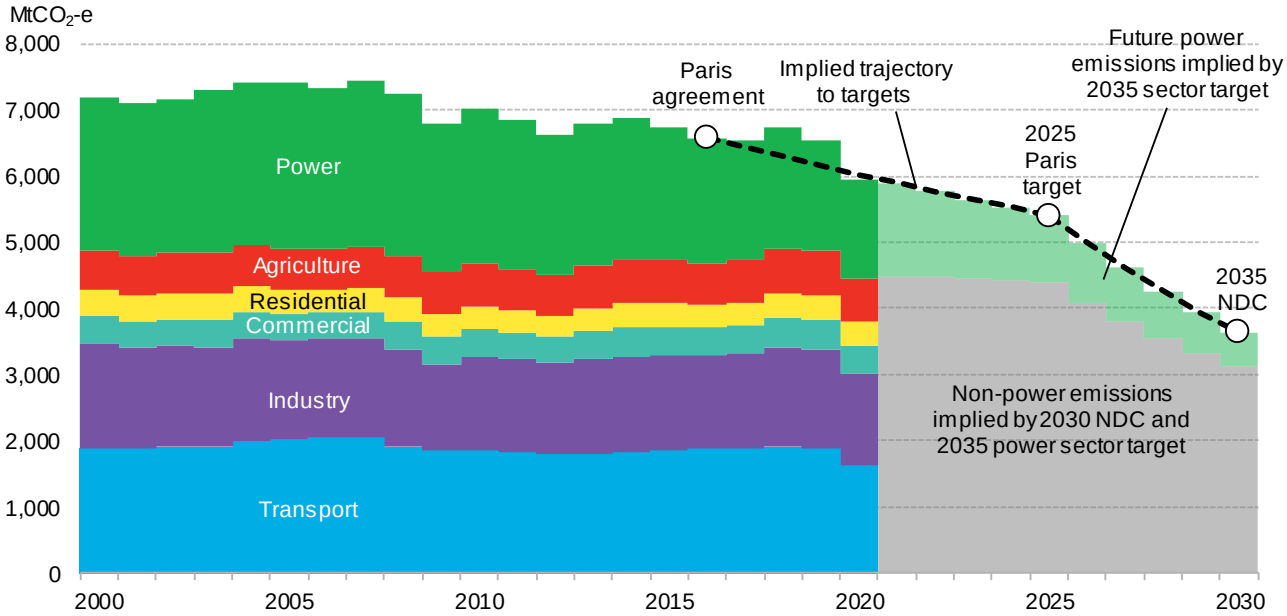

Decarbonizing power is the first and 'easiest' leg of the decarbonization journey…

Source: EIA, EPA, BloombergNEF

BloombergNEF

U.S. economy-wide emissions

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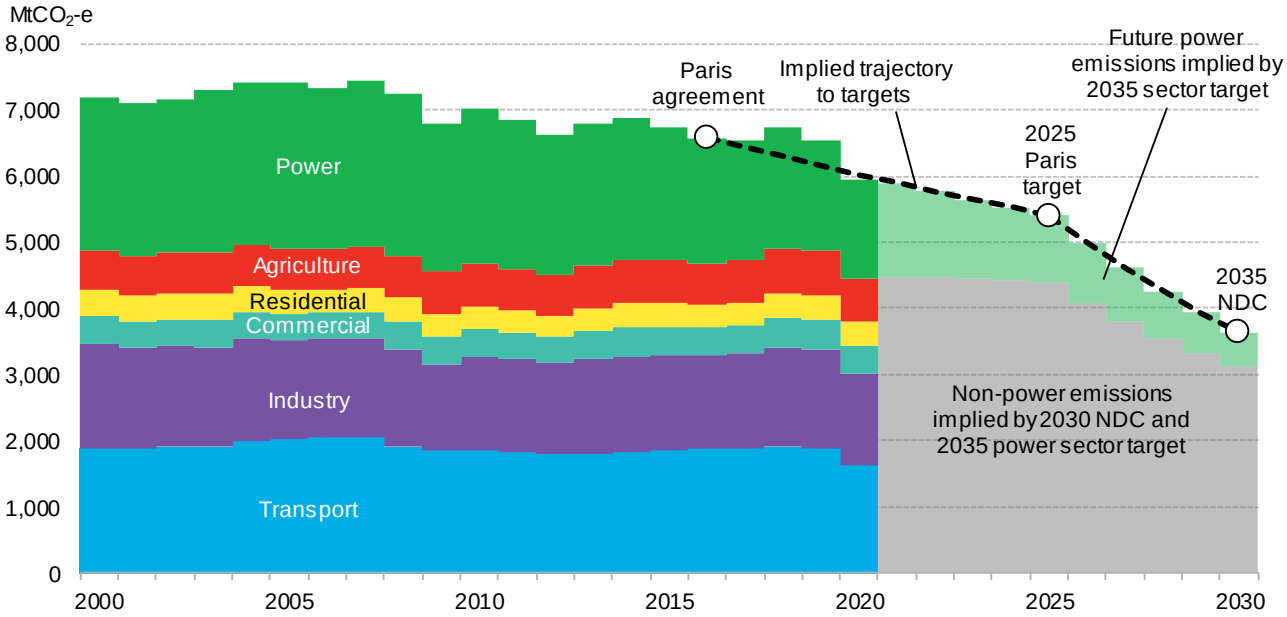

Decarbonizing power is the first and 'easiest' leg of the decarbonization journey…

…and I've been speaking about the first and 'easiest' step of that journey

Source: EIA, EPA, BloombergNEF

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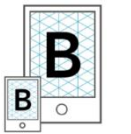

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