There's a lot of discussion of how the private sector is supporting renewable energy, but it's almost all about power consumers like Apple and Walmart. But what about the companies who are selling the power?

As a first step to getting a better sense of where the utility industry is going, we accumulated some basic data about the top ten utilities by market value. It turns out that most of them are 50-60% reliant on fossil fuels, with a lot of the remainder coming from nuclear and hydro. However, there are important differences in the mix of gas and coal in generation, which matters a lot since coal-fired generators emit much more carbon per kilowatt. Full information about the power mixes and carbon reduction goals of these ten utilities is given at the end of this post.

I put some of the key information in tabular form in order to provide a better overview. This table shows how much power is generated from fossil fuels by the top ten utilities (ranked by market value). There was more fuel oil in use in some places than I expected. For convenience, I lumped coal and oil together as "very high carbon" sources (VHC) in the table.

Company	Fossil Fuel Use (VHC = Coal + Oil)	Carbon Goal
NextEra Energy	VHC 5.2% Gas 44.8%	67% cut from 2005 by 2025
Duke Power	VHC 22% Gas 39%*	Zero coal by 2035, 24 GW solar/wind by 2030, net zero emissions by 2050, including upstream and downstream emissions.
Southern Company	VHC 17% Gas 51%	Net zero by 2030, 50% cut from 2007 by 2030.
Dominion Energy	VHC 29% 42% Gas	Net zero by 2050, including downstream emissions and upstream emissions from suppliers
Excelon	VHC 4% Gas 27%*	Net zero emissions from operations, 50% cut from 2000 by 2030.
American Electric Power	VHC 45% Gas 28%	80% by 2050, 60% by 2030 (2000 baseline)
Xcel Energy	VHC 21% Gas 32%	87% cut 2030, zero coal by 2034

Public Service Ent. Grp.	VHC 22% Gas 38.5%	Net zero by 2030
Con. Ed.	30% gas of own generation; 50% from purchases	Net zero by 2050, 50% cut by 2030, and 100% clean energy by 2040
PG&E	12% from fossil fuels	50% renewables by 2030, 100% by 2040

*Percent for gas also included oil or oil co-fired

There's a lot these simple figures don't tell us: How much of these companies already cut emissions? Did the companies initiate plans to cut emissions or were they forced to do so by state law? How creative are they being in trying to meet their targets? But at least we now have a better sense of where as a group they are today and where they aim to go.

Sources and Complete Data

(thanks to Jetta Cook, Berkeley Law '22)

(1) NextEra Energy

Energy Mix (2020):
https://www.nexteraenergy.com/sustainability/overview/about-this-report/by-the-numbers.html

- Coal: 2.5%
- Natural Gas: 44.8%
- Nuclear: 10.6%
- Oil: 2.7%
- Solar: 10%
- Wind: 29.4%
- Landfill Gas: 0.005%

Carbon Reduction Goal: Reduce CO2 emissions rate by 67% by 2025 from an adjusted 2005 baseline.

https://www.nexteraenergy.com/pdf/2020%20NEE%20ESG%20Report.pdf (on page

13)

(2) Duke Energy

Generated Energy Mix (2020):
https://sustainabilityreport.duke-energy.com/introduction/duke-energy-at-a-glance/

- Natural Gas/Fuel Oil: 39%
- Nuclear: 37%
- Coal: 22%
- Hydro + Renewable: 2%

Carbon Reduction Goals: Close all remaining coal plants by 2035, and reach 24,000MW of solar and wind by 2030.

https://www.eenews.net/articles/duke-energy-plans-to-exit-all-coal-double-renewables/

On Duke's 2050 goal, including upstream emissions from energy it purchases as well as downstream emissions from customers, see https://www.utilitydive.com/news/dominion-to-expand-net-zero-carbon-reduction-goals-to-scope-2-and-scope-3-e/618762/

(3) Southern Company

Energy Mix (2020):
https://www.southerncompany.com/clean-energy/environment/energy-mix.html

- Natural Gas: 51%
- Nuclear: 17%
- Coal: 17%
- Renewables: 15%

Carbon Reduction Goals: Net zero GHG emissions by 2030. Interim goal of 50% reduction of 2007 GHG emissions by 2030.

https://www.southerncompany.com/clean-energy/net-zero.html

- They've reached this interim goal in 2020, with a 52% reduction of GHG emissions from 2007 levels.

(4) Dominion Energy

Energy Mix (2019):
https://www.dominionenergy.com/-/media/pdfs/global/2020-va-integrated-resource-plan.pdf?la=en&rev=fca793dd8eae4ebea4ee42f5642c9509

- Coal: 18%
- Nuclear 17%
- Natural Gas: 42%
- Pumped Storage: 9%
- Oil: 11%
- Renewable: 3%

Carbon Reduction Goals: Net-zero carbon monoxide and methane emissions by 2050

https://news.dominionenergy.com/2020-02-11-Dominion-Energy-Sets-New-Goal-of-Net-Zero-Emissions-by-2050

For the recent expansion to include upstream and downstream emissions, see https://www.utilitydive.com/news/dominion-to-expand-net-zero-carbon-reduction-goals-to-scope-2-and-scope-3-e/618762/

(5) Exelon:

Energy Mix:
https://www.exeloncorp.com/company/our-generation-fleet?sf209299157=1

- Nuclear: 61%
- Natural Gas: 21%
- Natural Gas & Oil: 6%
- Hydroelectric: 5%
- Oil: 4%
- Wind: 2%
- Solar: 1%

Carbon Reduction Goals: net-zero operations-driven emissions by 2050, with an interim goal of a 50% reduction by 2030.

https://www.exeloncorp.com/newsroom/exelon-utilities-announces-goal-to-achieve-net-zero-emissions-by-2050

(6) American Electric Power

Energy Mix: https://www.aep.com/about/businesses/generation

- Coal: 45%
- Natural gas: 28%
- Nuclear: 7%
- Hydro, wind, pumped storage, others: 17%
- Energy efficiency/demand response: 3%

Carbon Reduction Goals: Reduction of carbon emissions from generating facilities by 80% from 2000 levels by 2050. Interim goal of reducing 60% from 2000 levels by 2030.

https://www.aep.com/Assets/docs/AEP2018CleanEnergyFutureReport.pdf (page 5)

(7) Xcel Energy

Energy Mix (2020):
https://co.my.xcelenergy.com/s/energy-portfolio/power-generation

- Coal: 21%
- Natural Gas: 32%
- Nuclear: 13%
- Wind: 27%
- Solar: 3%
- Other Carbon Free: 4%

Carbon Reduction Plan: Reduce carbon emissions by 87% by 2030. Full coal retirement by 2034.https://co.my.xcelenergy.com/s/environment/clean-energy-plan

(8) Public Service Enterprise Group

Energy Mix (2020-21): https://www.pseg.com/envirolabel (pdf)

- Coal: 21.74%
- Natural Gas: 38.46%

- Hydro (large): 1.21%
- Nuclear: 33.55%
- Oil: 0.16%
- Renewable: 4.89%
    - Mostly wind (3.29%)

Carbon Reduction Goal: Net zero carbon by 2030. This was accelerated in 2021 from a 2050 goal after achieving a 54% reduction from 2005 levels in 2020.

https://nj.pseg.com/NewsRoom/NewsRelease254

(9) Con Ed.

Energy Mix (2019):

Con Ed's investor report gives slightly different figures on pp. 12 and 47; we used those on p. 12.
https://investor.conedison.com/static-files/b5d90c6c-e53d-47b6-89e9-5c10097095ae

Carbon Reduction goal: net-zero GHG emissions by 2050, with interim goals of 40% GHG reduction by 2030, and 100% clean energy by 2040.

https://cdnc-dcxprod2-sitecore.azureedge.net/-/media/files/coned/documents/our-energy-future/our-energy-projects/electric-long-range-plan.pdf?rev=89bd058650b141ad8eff99dea65875b8&hash=F0D8F26E4A8C10B8058B061F42765ECA (page 4, 30)

(10) PG&E.

Energy mix & Goals

"PG&E said that more than 88% of electricity used by its customers came from emissions-free resources, including nuclear and hydroelectric power as well as solar, wind, bioenergy and geothermal. Under the RPS, the 33% mandated goal rises to 50% by 2030 and to 100% by 2045."

https://www.energy-storage.news/california-utility-pge-says-batteries-will-help-it-me

et-renewable-energy-and-reliability-goals/