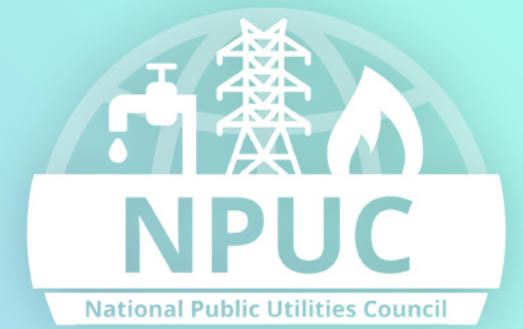


Annual Utility Decarbonization Report 2024



Brought to you in partnership with
Revised edition published December 2024.



Foreword

For the third year, the Annual Utility Decarbonization Report evaluates and ranks the leading U.S. investor-owned utilities based on their decarbonization efforts.

And this year, for the first time, it includes industry spotlights on public utilities and natural gas providers, shedding light on their progress and responsibility in lowering emissions.

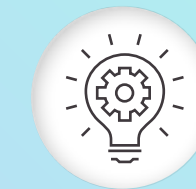


As the utility sector continues on the critical path to decarbonization, collaboration across all types of utilities—investor-owned, public, and gas—is paramount.

A pragmatic approach to a changing fuel mix must be adopted, all the while putting emphasis on:



Impact reporting



Technology investment



Workforce development

Each sub-sector, therefore, has the opportunity to play a vital role in shaping a sustainable future for the U.S. and beyond, with the success of the transition hinging on the ability of these entities to work together.

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The Context

The energy landscape in which utilities operated in 2022–2023.

The Decarbonization Landscape

Decarbonizing an energy system that has been dominated by fossil fuels for decades is no easy feat.

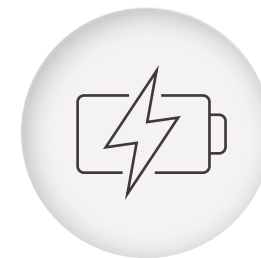
Since the inception of the Annual Utility Decarbonization Report in 2022, we've witnessed U.S. investor-owned utilities (IOUs) demonstrate innovation in this endeavor.

There remain, however, significant challenges in the path forward, especially within the context of an uncertain political and regulatory environment. Here are some of them.



01

Technological
Costs & Availability



02

Intermittency
of Renewables



03

Regulatory &
Policy Barriers



04

Aging & Insufficient
Transmission
Infrastructure



05

Socio-Economic
Divide



06

Workforce &
Skill Gaps

Looking Back At 2022–2023

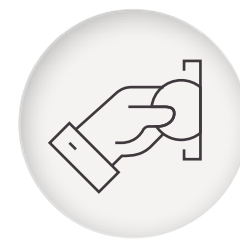
Even within the context of the present challenges, the past two years have been a period of change and transformation for the U.S. utilities sector, driven by a confluence of factors including the rising effects of climate change, technological advancements, and regulatory shifts.

Here are some highlights.

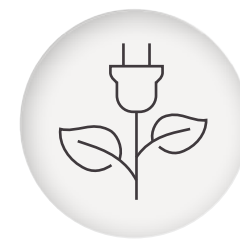
REGULATORY & POLICY LANDSCAPE

The First Year of the Inflation Reduction Act (IRA)

The first year* of the IRA led to some incredible developments in the U.S., including:



\$278B
In Investments



272
New Clean
Energy Projects



170,606
New Clean
Energy Jobs

Some of the largest announced IRA funding programs to date are the **National Clean Investment Fund**, which provides clean technology financing to the private sector, and the **Solar for All program**, which provides grants to low-income and disadvantaged communities to install solar panels.

*As of July 25, 2023

Source: Climate Power,¹ The White House²

REGULATORY & POLICY LANDSCAPE

State-Level Climate Policies on the Rise

State governments have been implementing bolder policies to promote decarbonization.



Renewable Portfolio Standards (RPS) & Clean Energy Standards (CES)

Several states, such as Minnesota and Michigan, have expanded their RPS and/or implemented CES, requiring utilities to procure more electricity from renewable sources.



Bolder Targets

Several states, such as Delaware and Colorado, are setting more ambitious emissions reduction goals across their power sectors and beyond.



Building on the IRA

Many states are developing strategies to leverage and build on IRA funding. Certain programs allow stacking of IRA and state-level funding, while others are developed to match funds or support recipients access IRA funds.

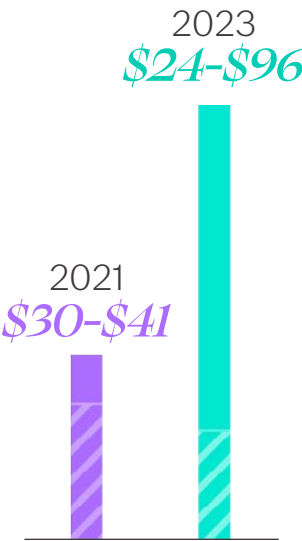
Source: DSIRE Insight³

MARKET TREND

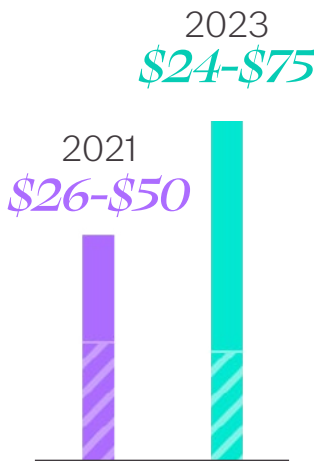
Cost Pressures for Renewables

While onshore wind and utility-scale solar power still have the **lowest levelized cost of electricity** (LCOE) in the U.S., inflation and supply chain issues have put cost pressures on renewables in 2022–2023. As a result, the average unsubsidized LCOE for onshore wind and solar PV has risen for the first time since 2009.

Solar PV LCOE Unsubsidized



Onshore Wind LCOE Unsubsidized



Rising costs have kept large, well-funded companies leading the growth of the country's renewable assets, while smaller companies face higher barriers to entry.

Source: Lazard⁴

MARKET TREND

Distributed Energy Resources (DERs) & Virtual Power Plants (VPPs)

As electricity demand surges in the U.S. and conventional fossil fuel power plants retire, VPPs are emerging as a solution.

VPPs aggregate DERs—small, decentralized energy sources like solar panels and batteries—into a coordinated network that functions as a large power plant. By doing so, VPPs can enhance the integration of renewable energy into the grid and offer greater demand flexibility.

In 2022–2023, several states including Colorado and California have taken steps to investigate and implement VPPs. Many utilities have also proposed programs to aggregate DERs, potentially representing a shift towards more decentralized, flexible, and sustainable energy systems in the long run.

Source: U.S. Department of Energy,⁵ DSIRE Insight³



The 2024

U.S. Utilities Decarbonization Index

An evaluation of the state of decarbonization
across the largest U.S. investor-owned utilities.

Methodology & Changes ————— 08

Decarbonization Index ————— 10

Metric Breakdown ————— 12

Yearly Progression ————— 28

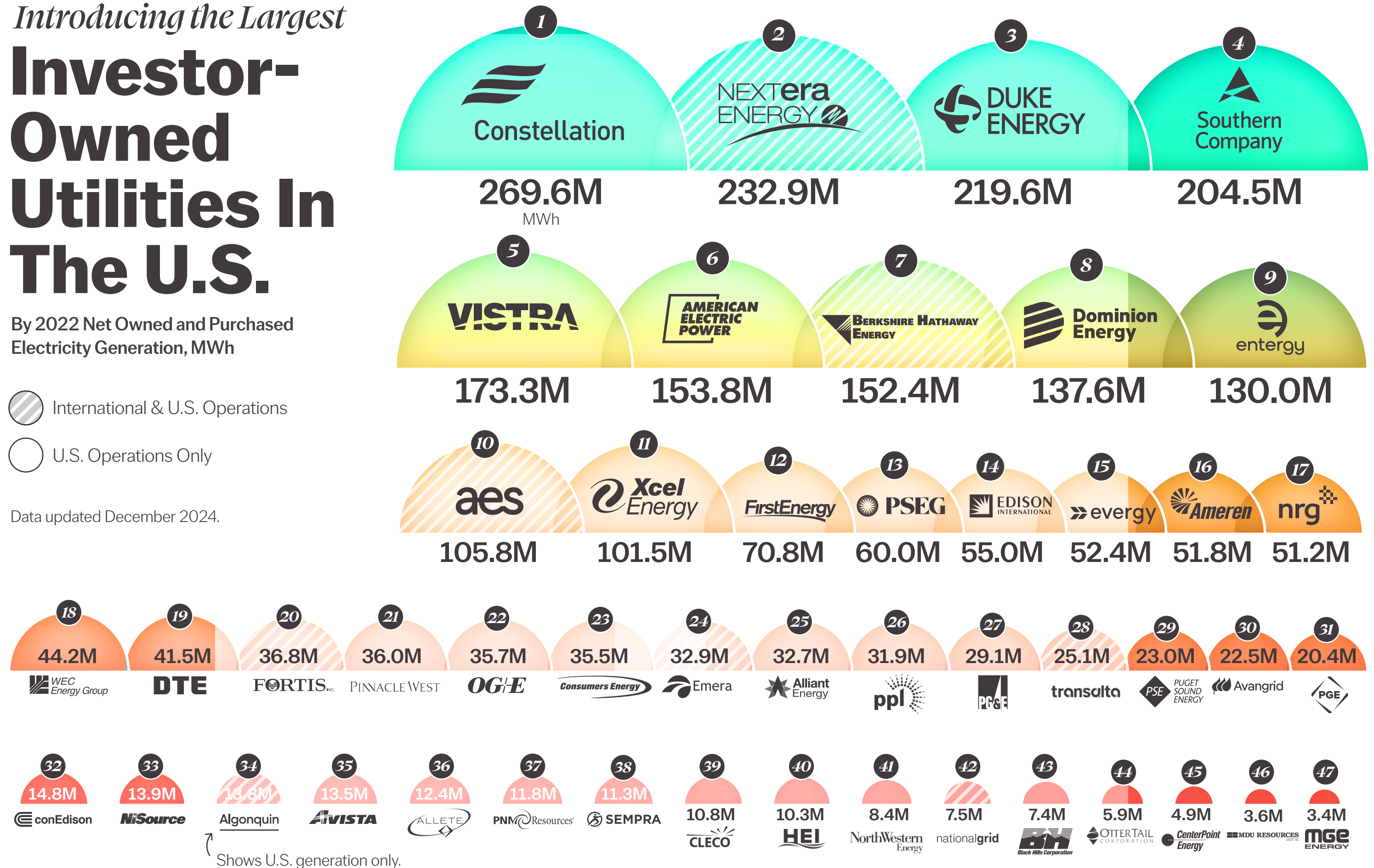


Introducing the Largest Investor-Owned Utilities In The U.S.

By 2022 Net Owned and Purchased Electricity Generation, MWh

-  International & U.S. Operations
-  U.S. Operations Only

Data updated December 2024.



Shows U.S. generation only.

Methodology

How The Utility Decarbonization Index Is Scored

The 2024 Annual Utility Decarbonization Index uses the latest* available data (2022) at the time of collection (December 2024†) to track the decarbonization progress of the 47 largest U.S. investor-owned utilities (IOUs) using the following six metrics.

Its aim is to rank companies, not based on how close they are to net zero, but how well they are doing in their efforts to get there in comparison to the others.

*IOUs were ranked by owned and purchased generation in MWh, combined. Utilities with less than two million MWh of owned generation were excluded from the report.

† The original edition of this report was published September 2024, using data from June 2024.



Metric 01
Fuel Mix

The share of carbon-free sources in a company’s owned generation mix (nuclear and renewables)

=

Owned net generation from carbon-free sources

Total owned net generation

Metric 02
CO₂ Emissions Intensity

The amount of CO₂ emitted per megawatt-hour of electricity generated and purchased

=

Total CO₂ emissions from owned and purchased generation

Total owned and purchased net generation

Metric 03
Total CO₂ Emissions

Absolute CO₂ emissions from owned and purchased electricity generation

=

Sum of CO₂ emissions from owned and purchased energy generation

Metric 04
CO₂ Emissions Per Customer

CO₂ emissions from owned and purchased electricity generation per customer

=

Total CO₂ emissions from owned and purchased generation

Total residential customer equivalent (RCE)

Metric 05
Decarbonization Goals

An evaluation of a company’s interim greenhouse gas reduction goal, ultimate net-zero target, and reported progress

=

Comparative ranking against identified baselines (See next page)

Metric 06
Carbon-Free Investment

The share of planned capital expenditure (CAPEX) for electricity generation allocated to carbon-free sources

=

Planned CAPEX for carbon-free generation

Total planned CAPEX for generation

How The Index Has Changed In 2024

In an effort to continually improve the Decarbonization Index and remain up-to-date with industry trends and best practices, the 2024 Decarbonization Index methodology has evolved from previous years.

Unreported Data

2023

Companies that did not report data for certain calculations were excluded from that metric, and their total decarbonization score was an average of five or fewer metrics, as opposed to all six.

2024

The 2024 report assigns a score of zero where numbers are unreported in order to emphasize the importance of sustainability reporting.

Metric 4 Emissions Per Customer

2023

Total CO₂ emissions from owned and purchased generation

Total number of retail, commercial, and industrial customers

2024

Total CO₂ emissions from owned and purchased generation

Total residential customer equivalent (RCE)

To account for the different electricity needs of residential, commercial, and industrial customers, the updated metric uses residential customer equivalent (RCE), where each commercial customer is equivalent to seven residential customers and each industrial customer is equivalent to 89 based on national averages.

Metric 5 Decarbonization Goals

2023

This metric tracks each utility’s interim and long-term emissions reduction goals against a baseline (as indicated below, which receives a 50% score of 2.5), and the rest are comparatively scored based on their ambition.

Baseline

► **Interim goal**
A 50% emissions reduction by 2030

► **Ultimate goal**
Net zero by 2050

2024

The updated metric now includes emission scopes in baseline targets and adds a third variable: reported progress toward net zero.

Baseline

► **Reported progress**
Minimum 38% reduction in all scopes between 2005–2022 or 45% reduction in scopes 1 & 2 between 2005–2022

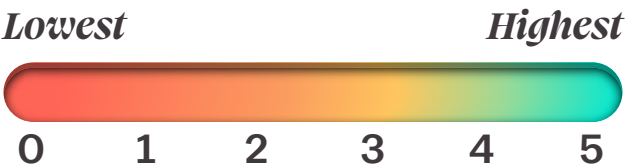
► **Interim goal**
A 50% reduction in scope 1 & 2 emissions and minimum 20% reduction in scope 3 emissions by 2030

► **Ultimate goal**
Net zero scope 1 & 2 emissions and a minimum 70% reduction in scope 3 emissions by 2050

The 2024

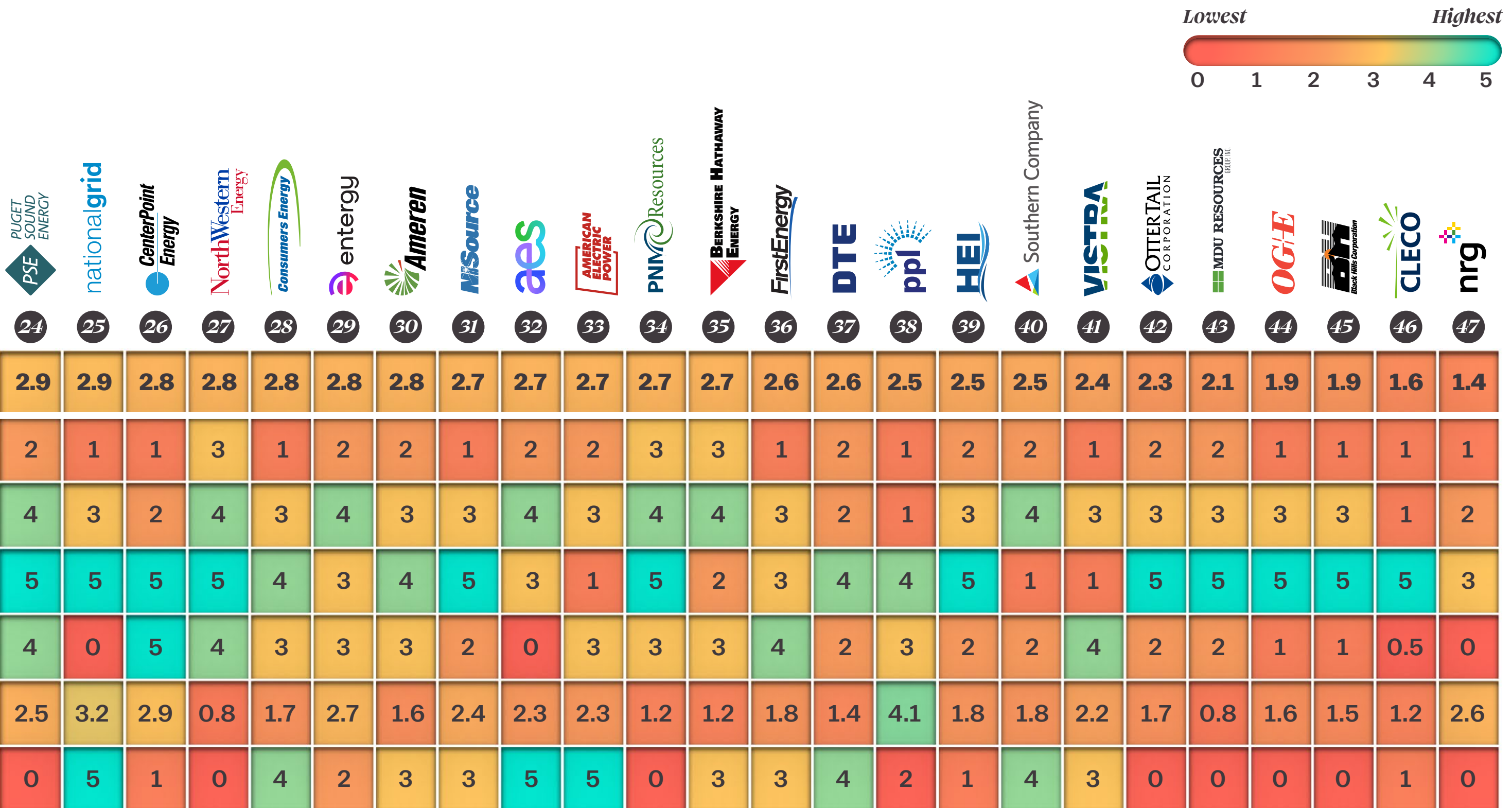
Utility Decarbonization Index

IOUs are evaluated against six metrics based on their 2022 reports, which are averaged to find their overall decarbonization score.



		                      																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Overall Score		4.8	4.6	4.6	4.4	3.7	3.6	3.6	3.5	3.5	3.4	3.4	3.3	3.3	3.2	3.2	3.2	3.2	3.2	3.2	3.0	3.0	3.0	2.9
Fuel mix score	01	5	5	5	5	3	4	4	3	1	3	2	1	1	2	1	1	2	3	2	3	3	3	2
CO ₂ emissions intensity score	02	5	5	5	5	5	5	3	5	5	4	4	4	4	3	4	3	4	4	4	3	4	4	4
Total CO ₂ emissions score	03	5	5	5	5	3	5	5	5	5	3	5	5	5	5	5	5	5	4	5	4	5	1	5
CO ₂ emissions per customer score	04	5	5	4	5	4	4	5	5	5	3	3	4	4	3	2	3	0	3	3	2	4	3	1
Decarbonization goals score	05	3.8	2.7	3.3	1.5	2.0	1.8	1.5	2.8	2.8	2.7	1.3	1.8	2.6	2.4	2.4	2.3	3.2	2.0	1.9	1.9	1.7	2.7	2.6
Carbon-free investment score	06	5	5	5	5	5	2	3	0	2	5	5	4	3	4	5	5	5	3	3	4	0	4	3

This page presents the top 23 companies by ranking. Data updated December 2024.



This page presents the bottom 24 companies by ranking. Index rates parent companies only. Data updated December 2024.

Metric 01

Fuel Mix

Measures the share of carbon-free owned electricity generation in each utility’s portfolio.

Key Takeaways

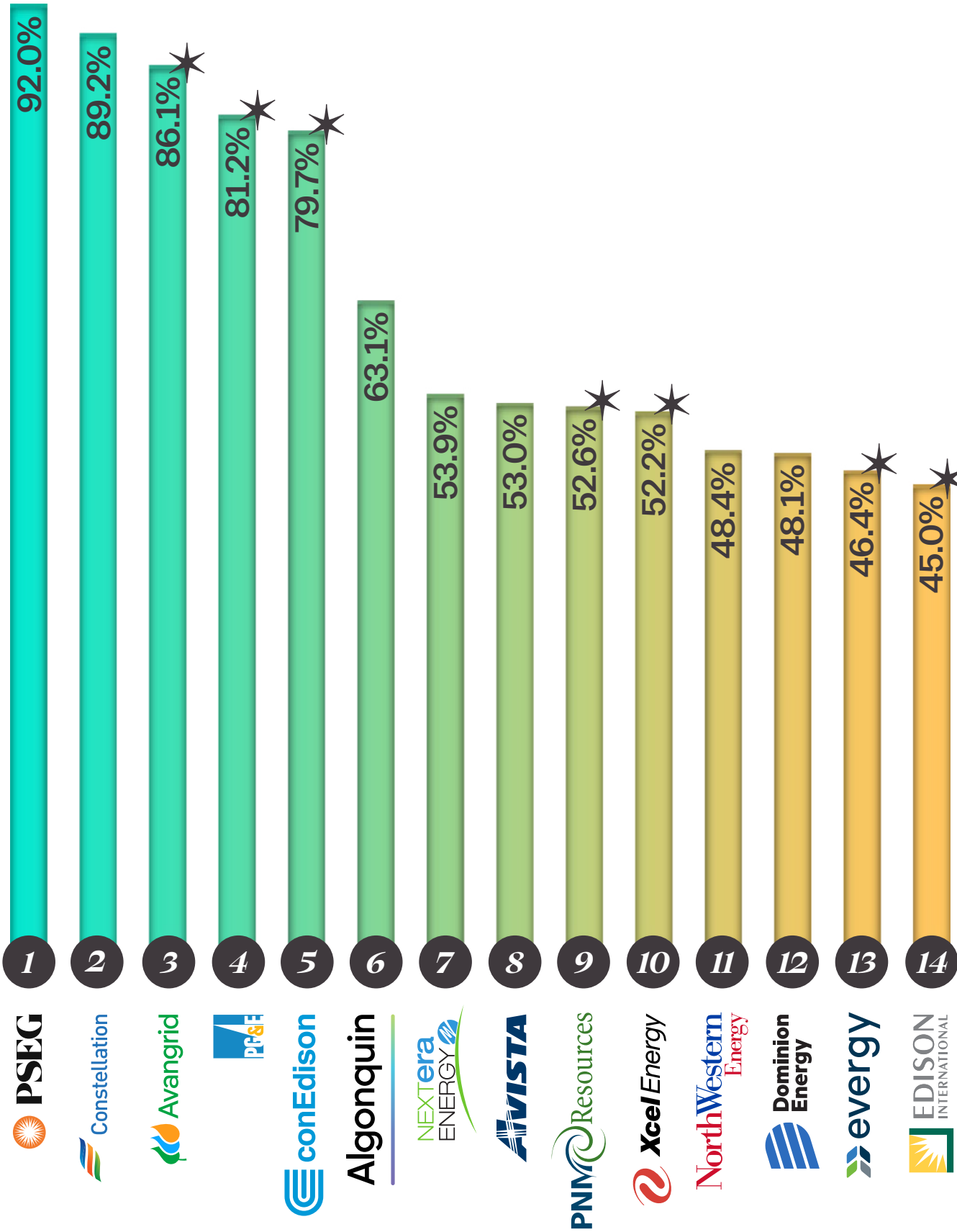
- ▶ Total electricity generation and its sources are virtually unchanged from 2021, with fossil fuels still making up around 60% of the total 2.4 billion MWh of generation.
- ▶ Coal’s share in the total electricity mix persisted in 2022, as natural gas prices increased in the wake of Russia’s invasion of Ukraine.
- ▶ The number of IOUs with clean generation over 80% (i.e. a score of 5) doubled year-over-year, moving from 2 to 4.

Share of Carbon-Free Sources in Owned Electricity Generation

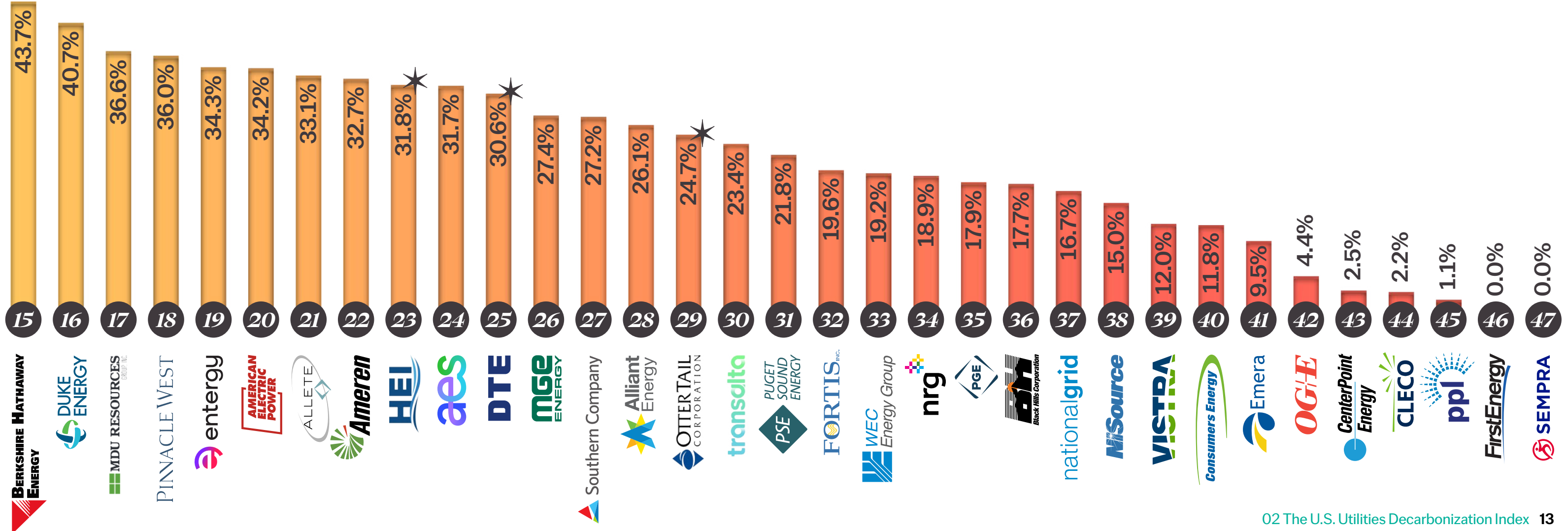
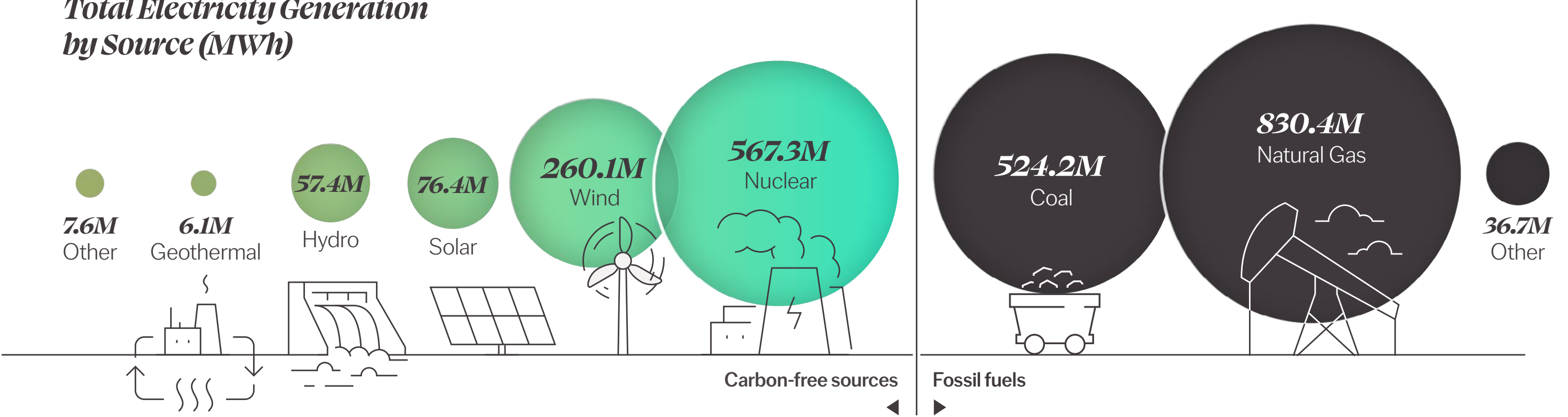
Nuclear & Renewables

	Score
Greater than 80%	5
60–80%	4
40–60%	3
20–40%	2
Less than 20%	1

★ Includes purchased power



Total Electricity Generation
by Source (MWh)



Metric 02

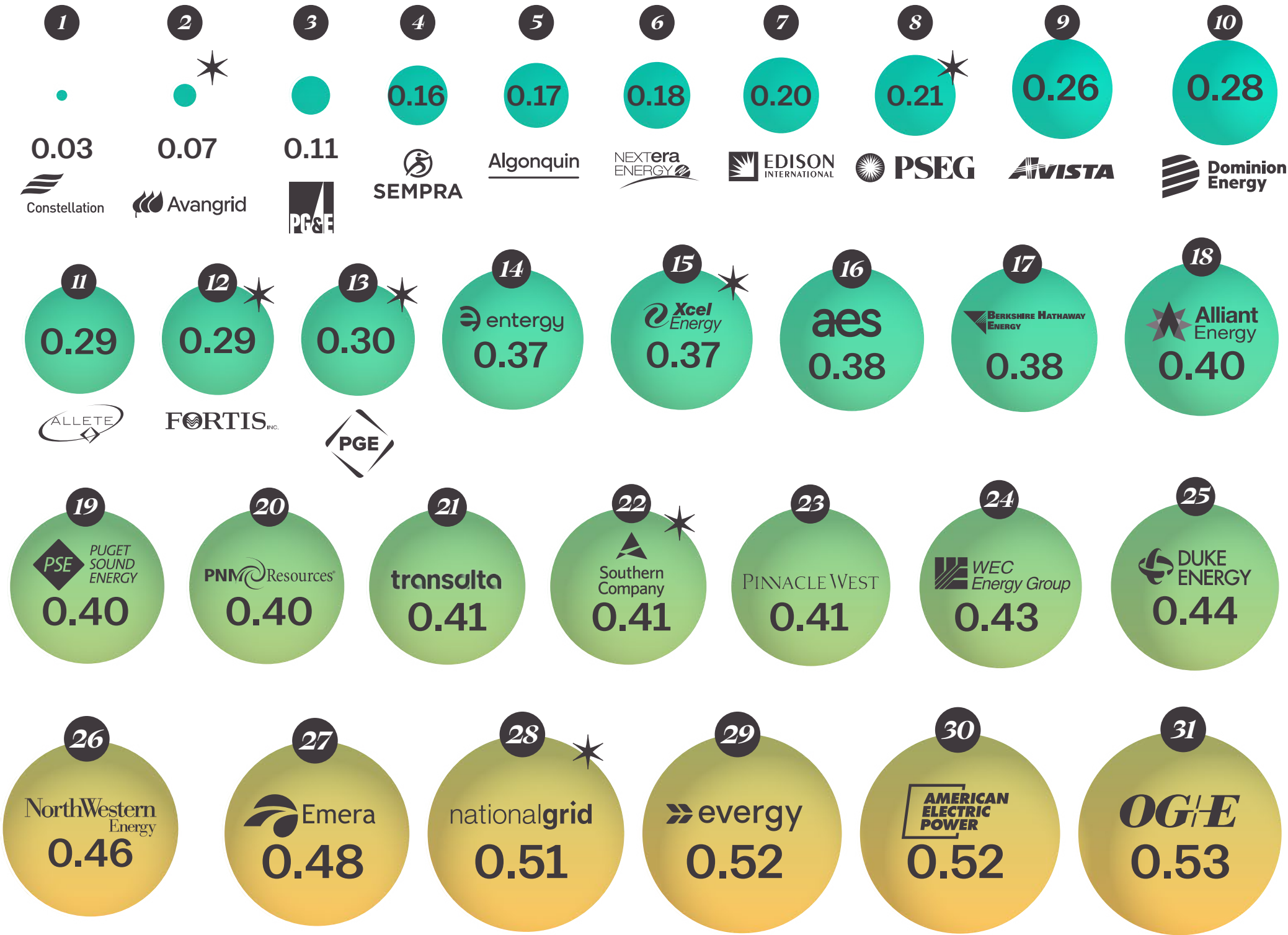
Emissions Intensity

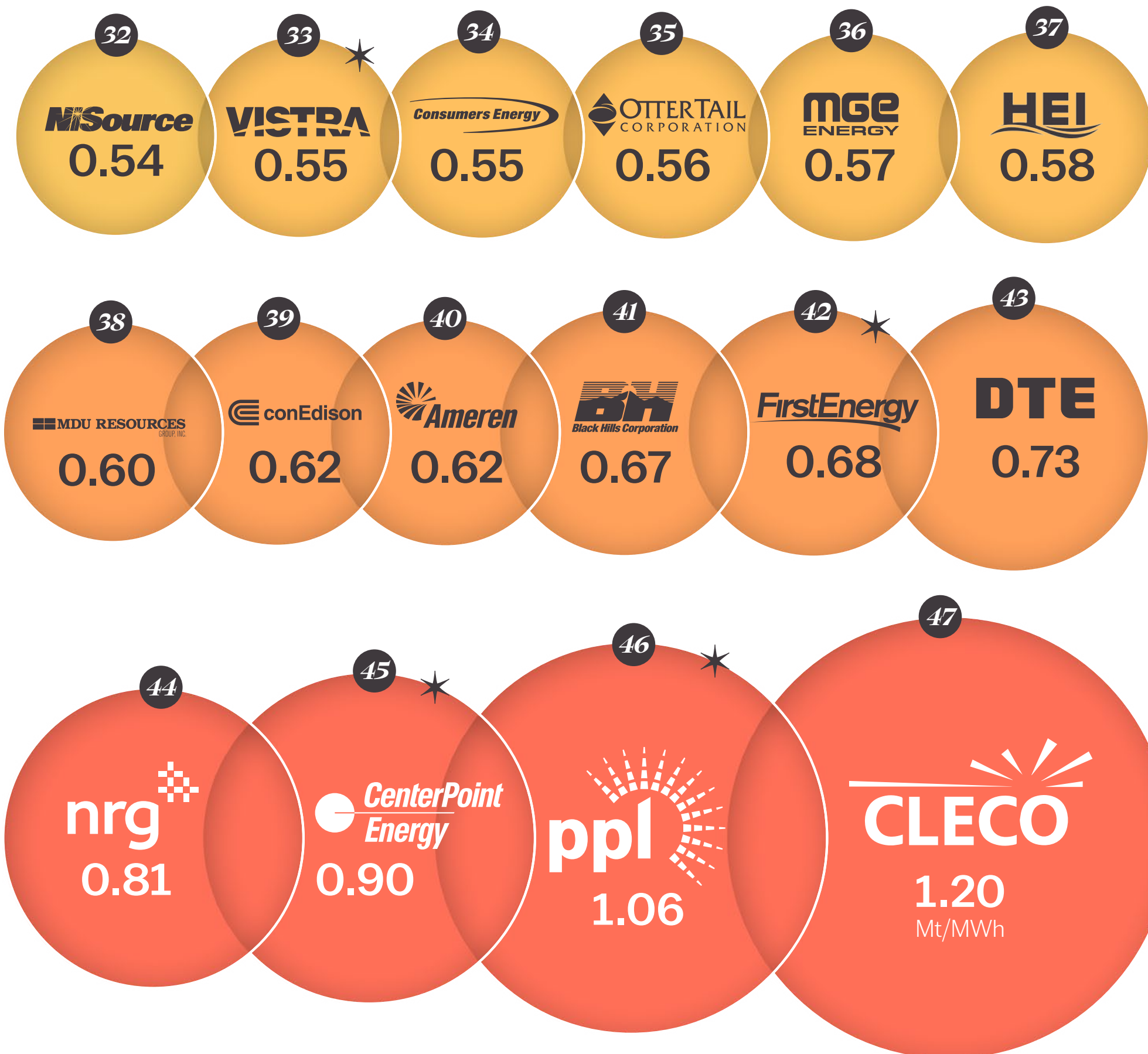
Measures how many metric tons of CO₂ each utility emits per MWh of owned and purchased electricity generation.

Score	
Less than 0.23 metric tons/MWh	5
0.23–0.47 metric tons/MWh	4
0.47–0.70 metric tons/MWh	3
0.70–0.93 metric tons/MWh	2
Greater than 0.93 metric tons/MWh	1

★ Represents CO₂-equivalent emissions
Data updated December 2024.

Metric Tons of CO₂ Per MWh of Owned & Purchased Generation





Key Takeaways

- Progress on emission intensity is essentially flat, year-over-year, up 0.03% from 2021.
- The top three IOUs with the lowest emission intensities,

1  Constellation

2  Avangrid

3  PG&E

all rely on carbon-free sources for 80% or more of their owned electricity generation.

Metric 03

Total CO₂ Emissions

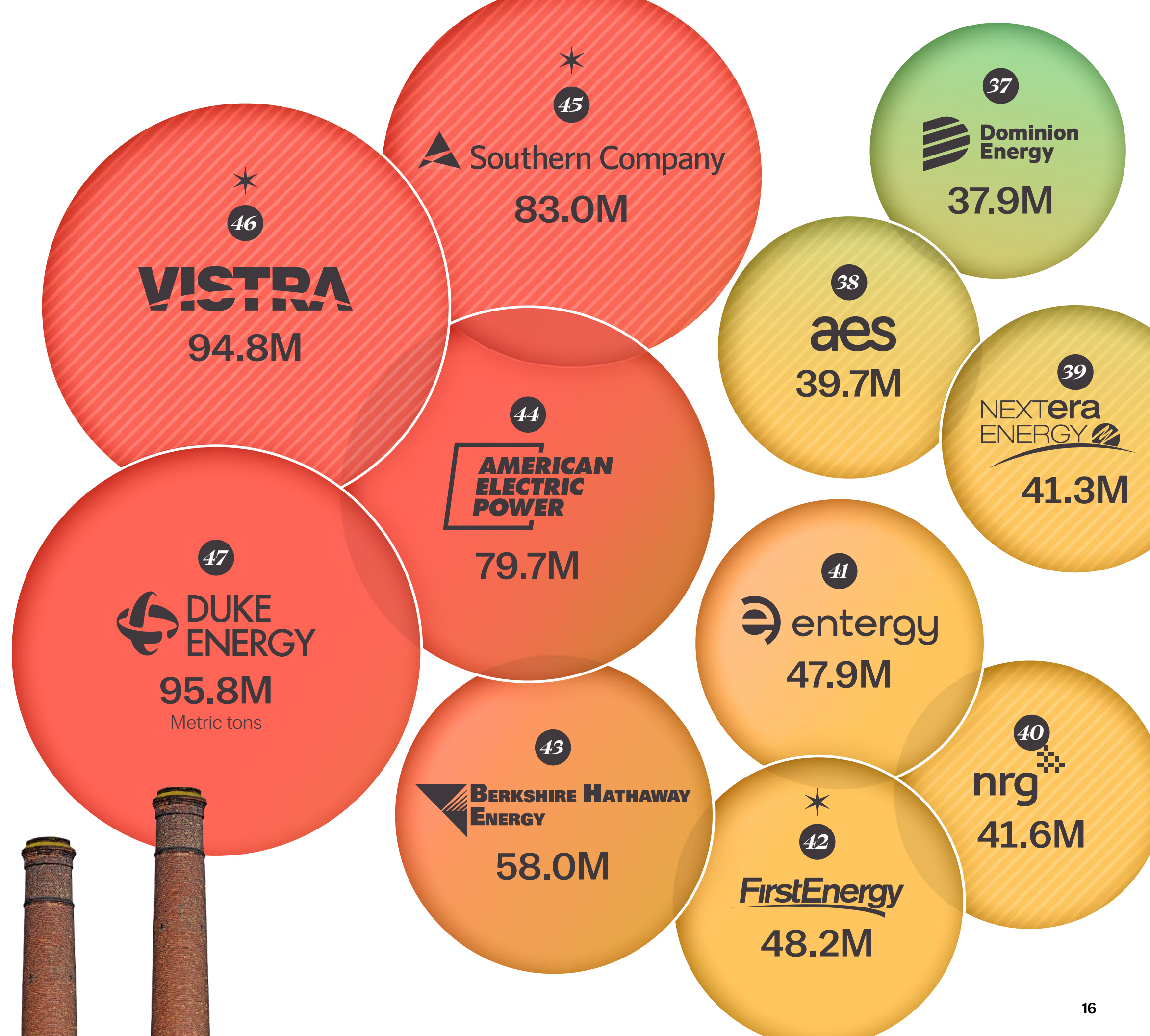
Measures each utility’s absolute CO₂ emissions from owned and purchased electricity generation.

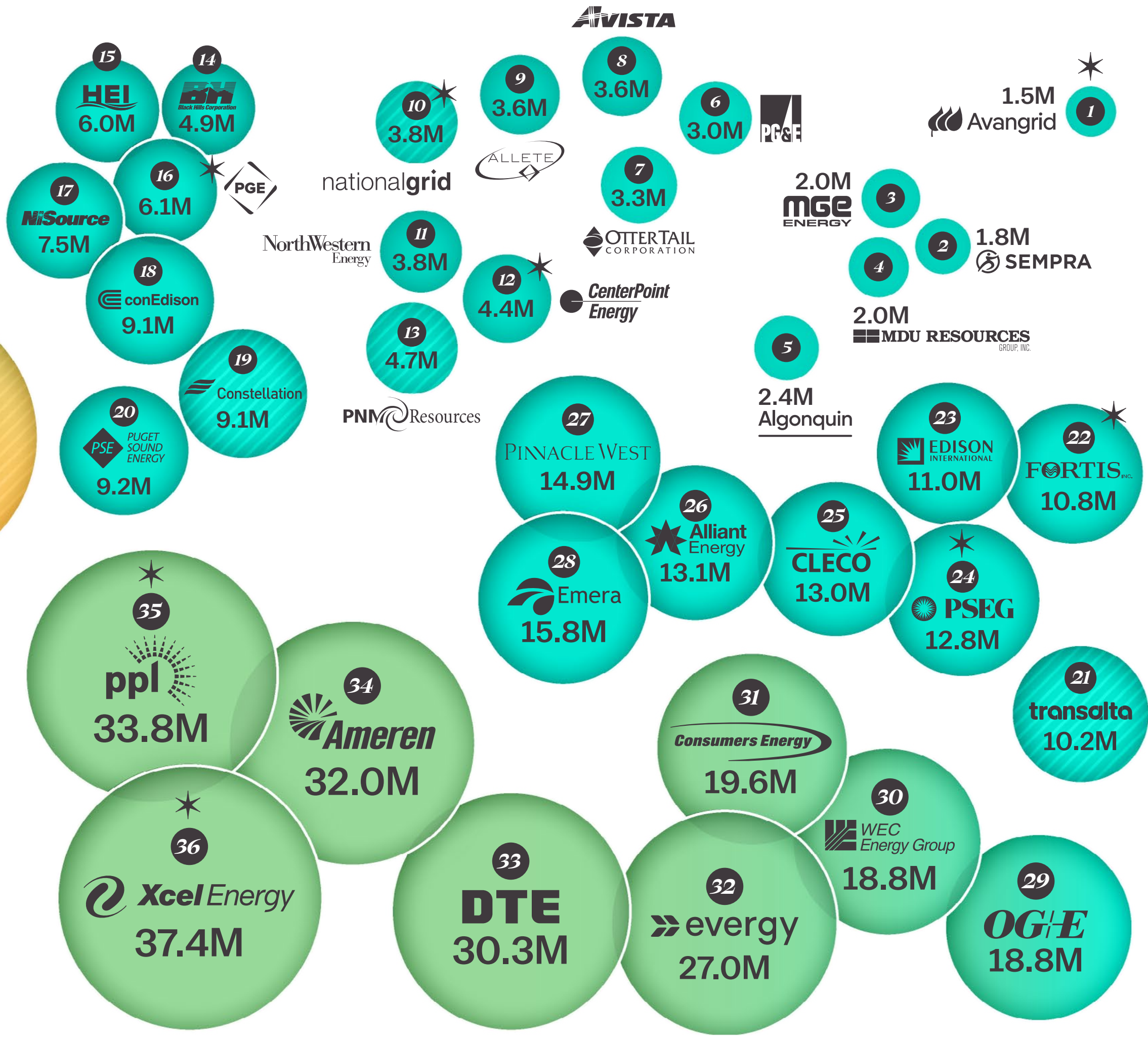
Metric Tons of CO₂ Emissions From Owned & Purchased Generation

	Score
Less than 18.9M metric tons	5
18.9–37.7M metric tons	4
37.7–56.6M metric tons	3
56.6–75.5M metric tons	2
Greater than 75.5M metric tons	1

★ Represents CO₂-equivalent emissions

▨ Does not report purchased power emissions





Key Takeaways

► Total emissions from all IOUs increased from 1,046 billion metric tons of CO₂ to 1,078 billion year-over-year, representing a 3% rise.

- 1 DUKE ENERGY
- 2 VISTRA
- 3 Southern Company
- 4 AMERICAN ELECTRIC POWER
- 5 BERKSHIRE HATHAWAY ENERGY

Total emissions from the top 5 emitting IOUs are up 9% year-over-year.

► Duke Energy is now the top emitter, moving from 77 to 96 million metric tons between 2021–2022.

Metric 04

Emissions Per Customer

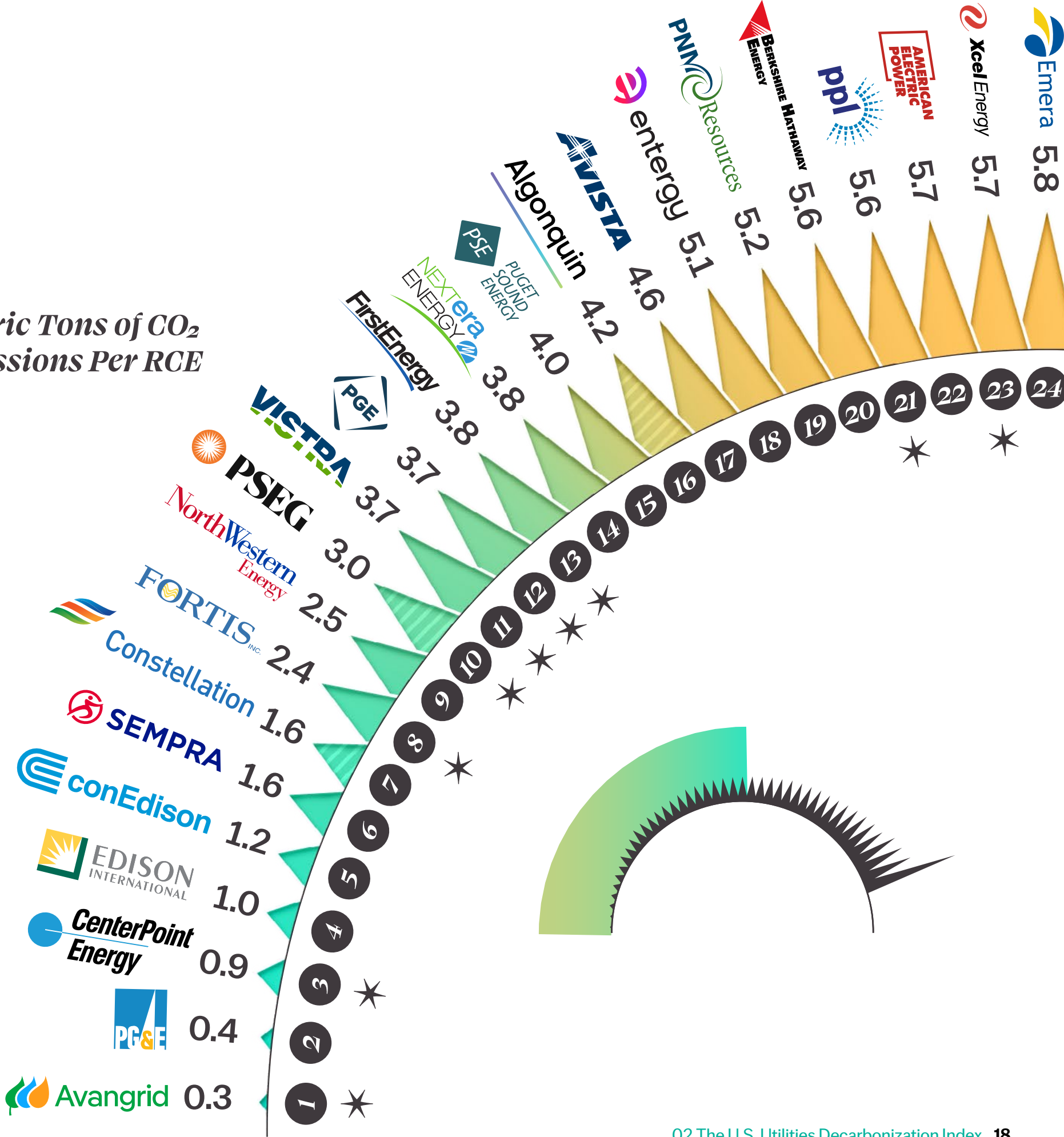
Measures how many metric tons of CO₂ each IOU emits per residential customer equivalent (RCE) from their owned and purchased generation.

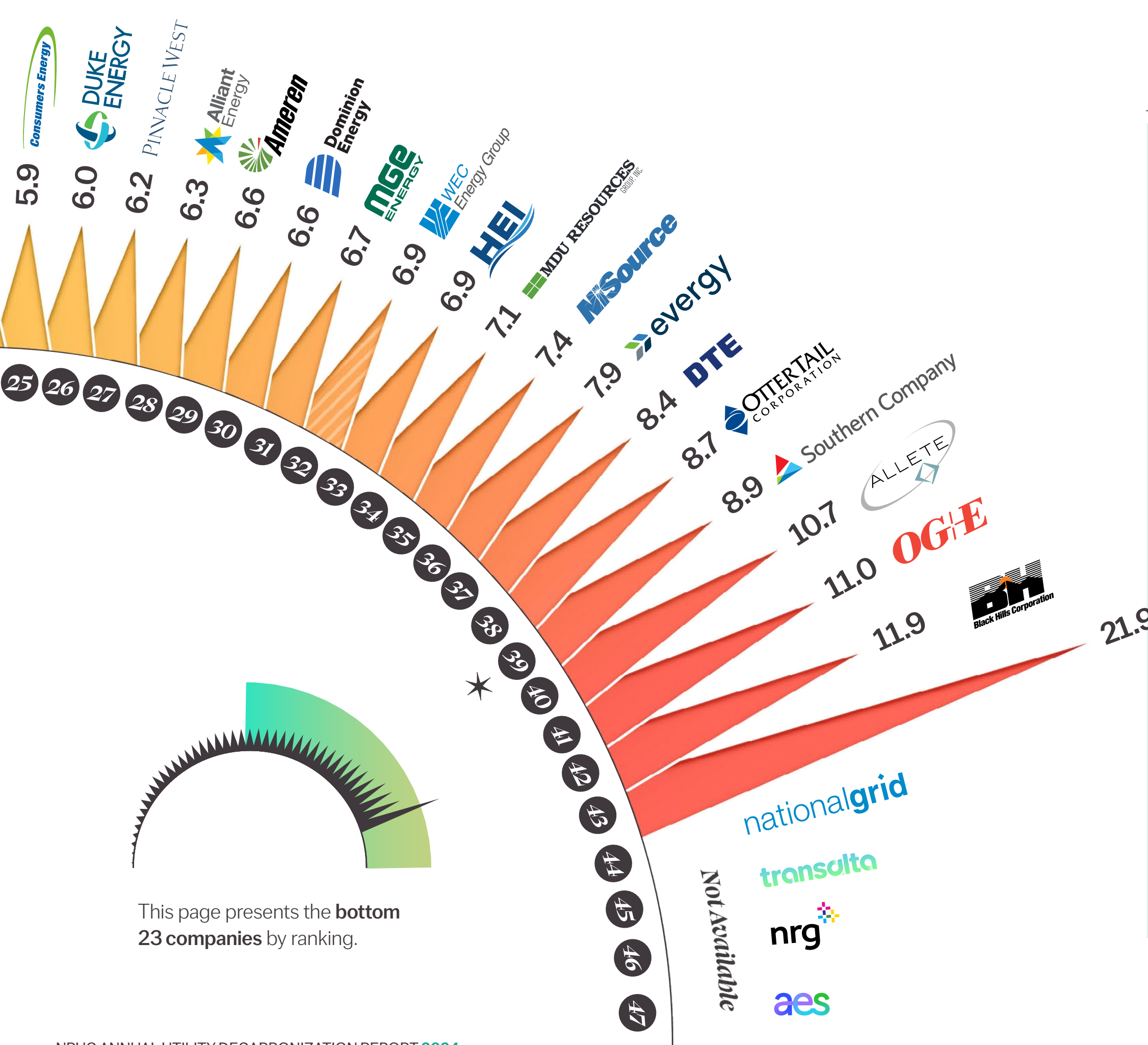
Each commercial customer is equivalent to seven residential customers and each industrial customer is equivalent to 89 based on national averages.

	Score
Less than 2.3 metric tons	5
2.3–4.6 metric tons	4
4.6–6.9 metric tons	3
6.9–9.2 metric tons	2
Greater than 9.2 metric tons	1

- ★ Represents CO₂-equivalent emissions
- ⦿ Reports commercial and industrial customers as one number. RCE calculation assumes all as commercial

Metric Tons of CO₂ Emissions Per RCE





This page presents the **bottom 23 companies** by ranking.

Key Takeaways

- ▶ On average, the IOUs included in this metric emitted 5.7 metric tons of CO₂ per RCE in 2022.
- ▶ The top two companies for this metric,
 - 1 Avangrid
 - 2 PG&E
 generate 80% or more of their electricity from carbon-free sources.
- ▶ Cleco's emissions per RCE is an outlier and was excluded when determining quintiles in order to avoid skewed scoring.
- ▶ In general, factors such as energy mix, generation efficiency, demand-side management, purchased power, and transmission/distribution losses can all contribute to how an IOU ranks for this metric.

Metric 05

Decarbonization Goals

Tracks each utility’s interim greenhouse gas reduction goal, ultimate net-zero target, and reported progress toward net zero. Companies aligned to the baseline receive a 50% score of 2.5, and the rest are comparatively scored based on their ambition and progress.

☒ Included ☐ Not included or differentiated

Baselines

REPORTED PROGRESS

A 38% reduction in all scopes between 2005–2022

or

A 45% reduction in scopes 1 & 2 between 2005–2022

INTERIM GOAL

A 50% reduction in scope 1 & 2 emissions and minimum 20% reduction in scope 3 emissions by 2030

or

A 70–80% reduction in scope 1 & 2 emissions by 2030
(No mention of scope 3)

ULTIMATE GOAL

Net zero scope 1 and 2 emissions and a minimum 70% reduction in scope 3 emissions by 2050

	REPORTED PROGRESS	INTERIM GOAL	ULTIMATE GOAL	Score
 1	Scopes included ▼57% 2010–2021 123	▼70% by 2030 123	▼100% by 2050 123	4.1
 2	▼39% 2015–2022 123	▼50% by 2030 123 ▼25% by 2030 123	▼100% by 2040 123	3.8
 3	▼49% 2005–2022 123	Not available 123	▼100% by 2030 123	3.3
 4	▼12% 2018–2023 123	▼80% by 2030 123 ▼38% by 2033 123	▼100% by 2050 123	3.2
 5	▼66% 2015–2022 123	▼75% by 2026 123	▼100% by 2045 123	3.2
 6	▼27% 2019–2022 123	Not available 123	▼100% by 2035 123 ▼20% by 2035 123	2.9

☒ Included
 ☐ Not included

Scope 3 emissions fell by 16% between 2022–2023

Scope 1 emissions increased by 8% between 2021–2022

Scope 3 goals apply to business travel only

		REPORTED PROGRESS	INTERIM GOAL	ULTIMATE GOAL	Score
		Scopes included			
	7	▼3% 2020–2023 ☒ ☒ ☒	▼80% by 2030 ☒ ☒ ☒	▼100% by 2045 ☒ ☒ ☒	2.8
	8	▼34% 2015–2021 ☒ ☒ ☒	▼50% by 2030 ☒ ☒ ☒	▼100% by 2050 ☒ ☒ ☒	2.8
	9	▼28% 2015–2022 ☒ ☒ ☒	Not available ☒ ☒ ☒	▼100% by 2050 ☒ ☒ ☒	2.7
	10	▼26% 2000–2023 ☒ ☒ ☒	▼50% by 2030 ☒ ☒ ☒	▼100% by 2050 ☒ ☒ ☒	2.7
	11	▼44% 2005–2022 ☒ ☒ ☒	▼50% by 2030 ☒ ☒ ☒	▼100% by 2050 ☒ ☒ ☒	2.7
	12	▼47% 2005–2022 ☒ ☒ ☒	▼55% by 2030 ☒ ☒ ☒	▼100% by 2050 ☒ ☒ ☒	2.7
	13	▼25% 2010–2022 ☒ ☒ ☒	▼80% by 2030 ☒ ☒ ☒	▼100% by 2040 ☒ ☒ ☒	2.6
	14	▼42% 2014–2022 ☒ ☒ ☒	▼50% by 2025 ☒ ☒ ☒	▼100% by 2050 ☒ ☒ ☒	2.6
	15	▼64% 2005–2022 ☒ ☒ ☒	▼80% by 2035 ☒ ☒ ☒	▼100% by 2040 ☒ ☒ ☒	2.6
	16	Not available ☒ ☒ ☒	▼100% by 2030 ☒ ☒ ☒	▼30% by 2030 ☒ ☒ ☒	2.5

☒ Included ☐ Not included

	REPORTED PROGRESS	INTERIM GOAL	ULTIMATE GOAL	Score
	Scopes included			
 17	▼ 58% 2005–2022 123	▼ 90% by 2030 123	▼ 100% by 2040 123	2.4
 18	▼ 39% 2005–2023 123	▼ 80% by 2030 123	▼ 100% by 2050 123	2.4
 19	▼ 45% 2005–2022 123	▼ 80% by 2030 123	▼ 100% by 2050 123	2.4
 20	▼ 62% 2005–2023 123	▼ 80% by 2030 123	▼ 100% by 2045 123	2.3
 21	▼ 12% 2019–2022 123	▼ 75% by 2030 123	▼ 100% by 2050 123	2.3
 22	▼ 47% 2005–2023 123	▼ 55% by 2025 123	▼ 100% by 2050 123	2.3
 23	▼ 45% 2010–2020 123	▼ 60% by 2030 123	▼ 100% by 2050 123	2.2
 24	▼ 25% 2005–2022 123	▼ 70% by 2025 123	▼ 100% by 2045 123	2.0
 25	▼ 53% 2005–2022 123	▼ 80% by 2030 123	▼ 100% by 2050 123	2.0
 26	▼ 44% 2005–2022 123	▼ 70% by 2030 123	▼ 100% by 2045 123	1.9

Applies to emission rate

☒ Included ☐ Not included

		REPORTED PROGRESS	INTERIM GOAL	ULTIMATE GOAL	Score		
		Scopes included					
Pinnacle West	27	▼36% 2005–2023 123	▼70% by 2032 123	▼100% by 2050 123	1.9		
HEI	28	▼22% 2005–2022 123	▼70% by 2030 123	▼100% by 2045 123	1.8		
Fortis Inc.	29	▼20% 2019–2021 123	▼75% by 2035 123	▼100% by 2050 123	1.8		
Removed their interim goal in 2023		FirstEnergy	30	▼84% 2005–2022 123	Not available 123	▼100% by 2050 123	1.8
Algonquin	31	▼31% 2017–2020 123	▼26% by 2023 123	▼100% by 2050 123	1.8		
Southern Company	32	▼47% 2007–2022 123	▼50% by 2030 123	▼100% by 2050 123	1.8		
Plans for 100% clean electricity and carbon neutral natural gas by 2045		Avista	33	▲4% 2005–2022 123	▼30% by 2030 123	Not available 123	1.7
Interim goal applies to methane emissions from natural gas deliveries only		Consumers Energy	34	▼32% 2005–2022 123	▼100% by 2030 123	▼100% by 2050 123	1.7
Otter Tail Corporation	35	▼43% 2005–2022 123	▼50% by 2025 123	▼97% by 2050 123	1.7		
Ameren	36	▼32% 2020–2022 123	▼60% by 2030 123	▼100% by 2045 123	1.6		

☒ Included
 ☐ Not included

Reports nearly 90% carbon-free generation in 2023

Plans to exit all coal generation by 2031

		REPORTED PROGRESS	INTERIM GOAL	ULTIMATE GOAL	Score
		Scopes included			
OG+E 37	OG+E	▼40% 2005–2022 1 2 3	▼50% by 2030 1 2 3	▼95% by 2050 1 2 3	1.6
	Constellation 38	Not available 1 2 3	▼65% by 2030 1 2 3	▼100% by 2040 1 2 3	1.5
	conEdison 39	▼41% 2007–2022 1 2 3	Not available 1 2 3	▼100% by 2040 1 2 3	1.5
		▼28% 2007–2022 1 2 3			
		▼21% 2014–2022 1 2 3			
	BH 40	▼33% 2005–2022 1 2 3	▼40% by 2030 1 2 3	▼70% by 2040 1 2 3	1.5
	DTE 41	▼32% 2005–2022 1 2 3	▼65% by 2028 1 2 3	▼100% by 2050 1 2 3	1.4
	Alliant Energy 42	▼38% 2005–2022 1 2 3	▼50% by 2030 1 2 3	▼100% by 2050 1 2 3	1.3
	CLECO 43	▼22% 2021–2023 1 2 3	▼60% by 2030 1 2 3	▼100% by 2050 1 2 3	1.2
	PNM Resources 44	▼31% 2005–2022 1 2 3	Not available 1 2 3	▼100% by 2040 1 2 3	1.2

☒ Included ☐ Not included

REPORTED PROGRESS

INTERIM GOAL

ULTIMATE GOAL

Score

Plans to retire all coal and natural gas plants by 2050

BERKSHIRE HATHAWAY ENERGY

45

▼27%
2005–2022

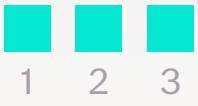
Scopes included



▼50%
by 2030



▼100%
by 2050



1.2

MDU RESOURCES GROUP, INC.

46

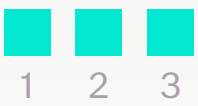
▼39%
2005–2022



▼45%
by 2030



Not available



0.8

NorthWestern Energy

47

▼1%
2018–2022



Not available



▼100%
by 2050



0.8

▼26%
2018–2022



Key Takeaways

- ▶ 66% of the included IOUs have not factored Scope 3 emissions into their decarbonization goals.
- ▶ While many companies report the yearly progression of their emissions, many do not report progress within the context of their set decarbonization goals.

Metric 06

Carbon-Free Investment

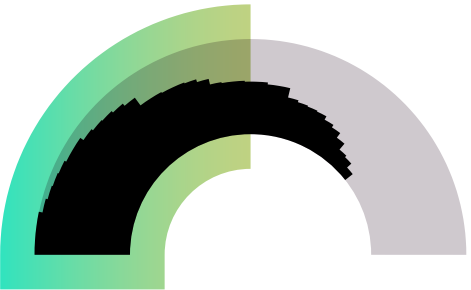
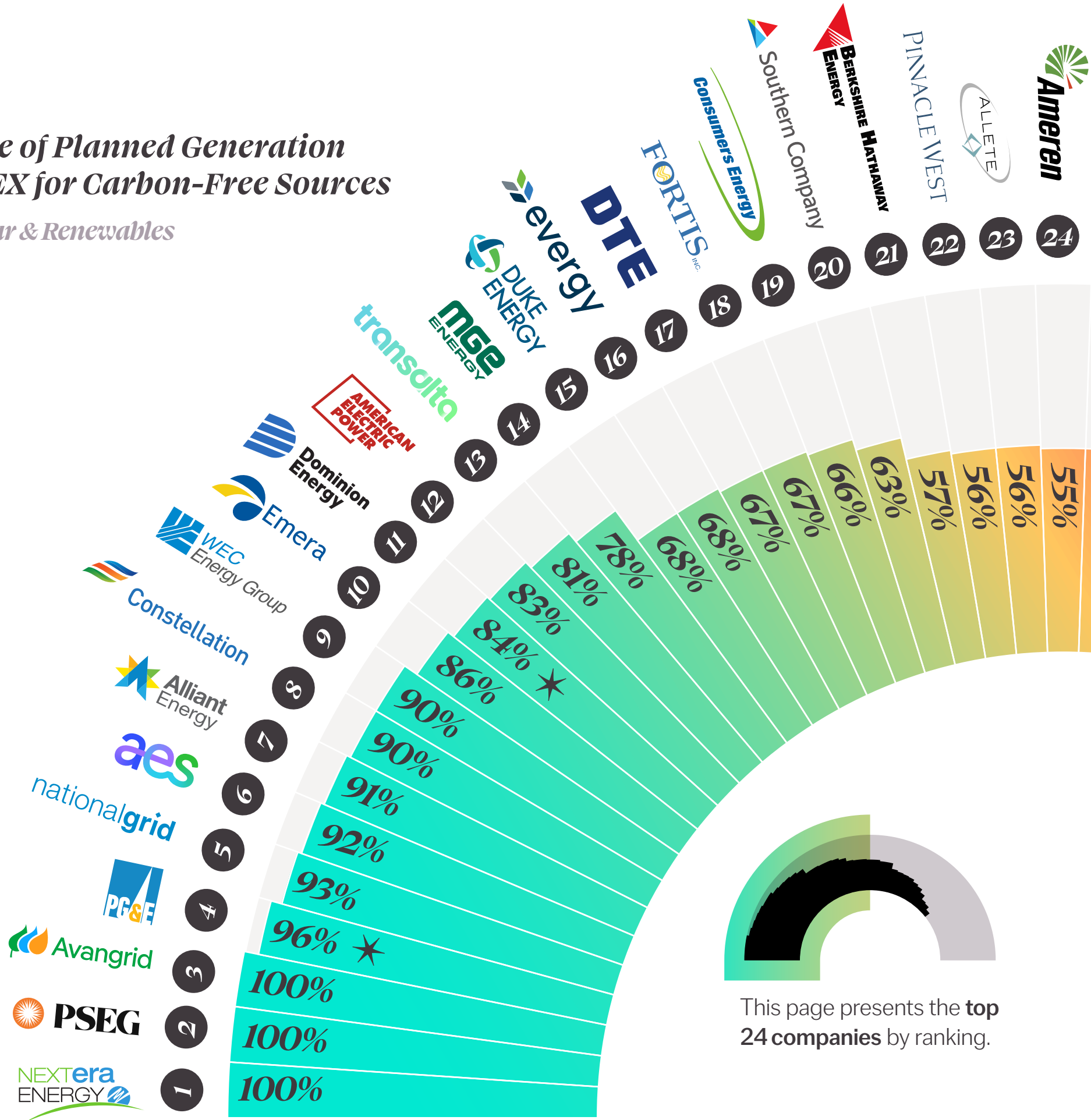
Measures the share of each utility’s planned capital expenditure (CAPEX) for carbon-free electricity generation.

	Score
Greater than 80%	5
60–80%	4
40–60%	3
20–40%	2
Less than 20%	1

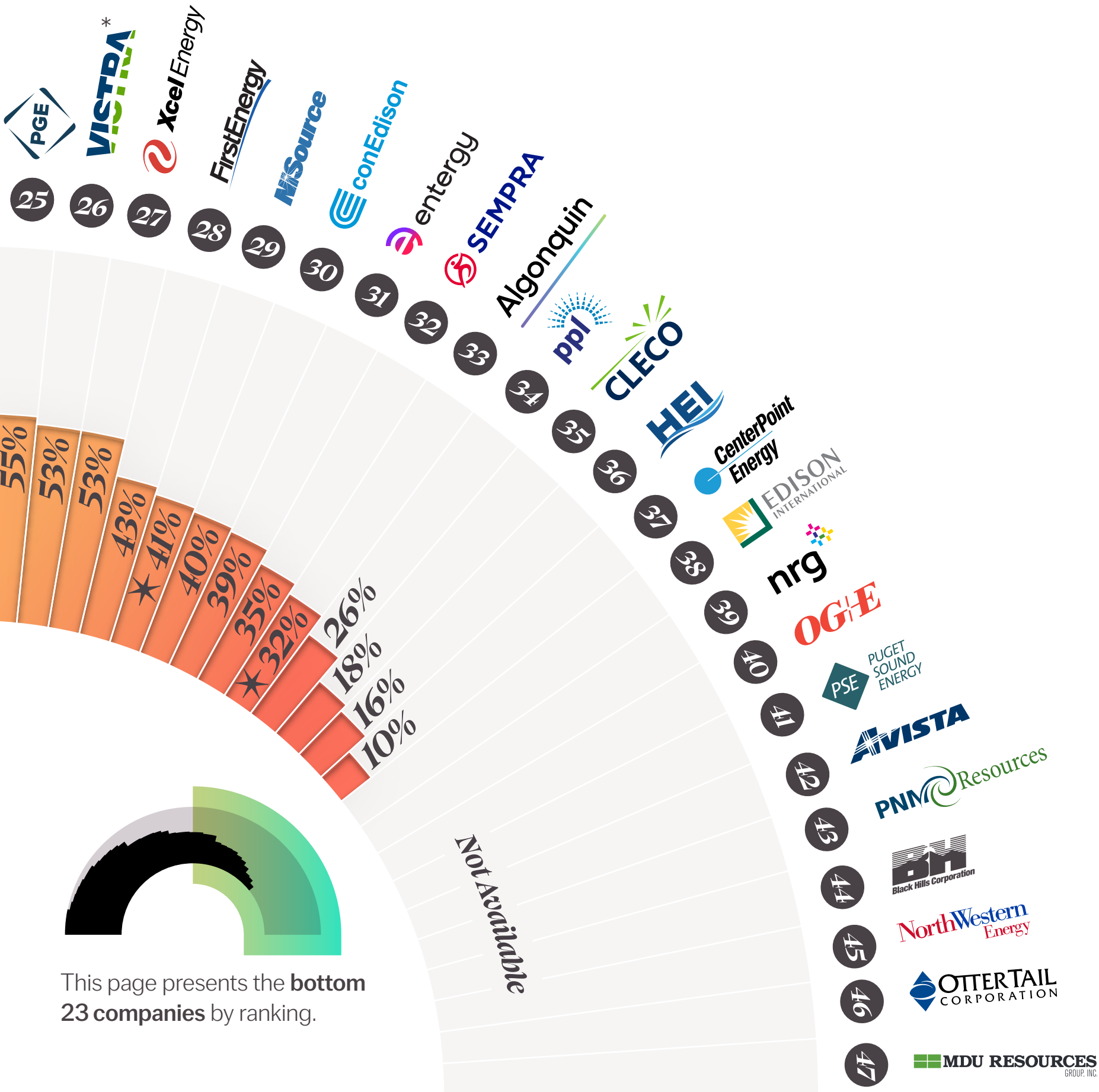
★ Planned CAPEX unreported, shows 2022 realized CAPEX
Data updated December 2024.

Share of Planned Generation CAPEX for Carbon-Free Sources

Nuclear & Renewables



This page presents the **top 24 companies** by ranking.



This page presents the **bottom 23 companies** by ranking.

Key Takeaways

- ▶ Almost two-thirds of reported CAPEX was allocated to carbon-free sources in 2022, up slightly from 63% in 2021.
- ▶ CAPEX for electricity generation is the least-reported metric in the Decarbonization Index.

Nonetheless, there has been a slight improvement in reporting year-over-year:



10 companies
did not report in 2022 (2024 report)



12 companies
did not report in 2021 (2023 report)

*Some nuclear spend is included in fossil fuel spend.

Yearly Progression

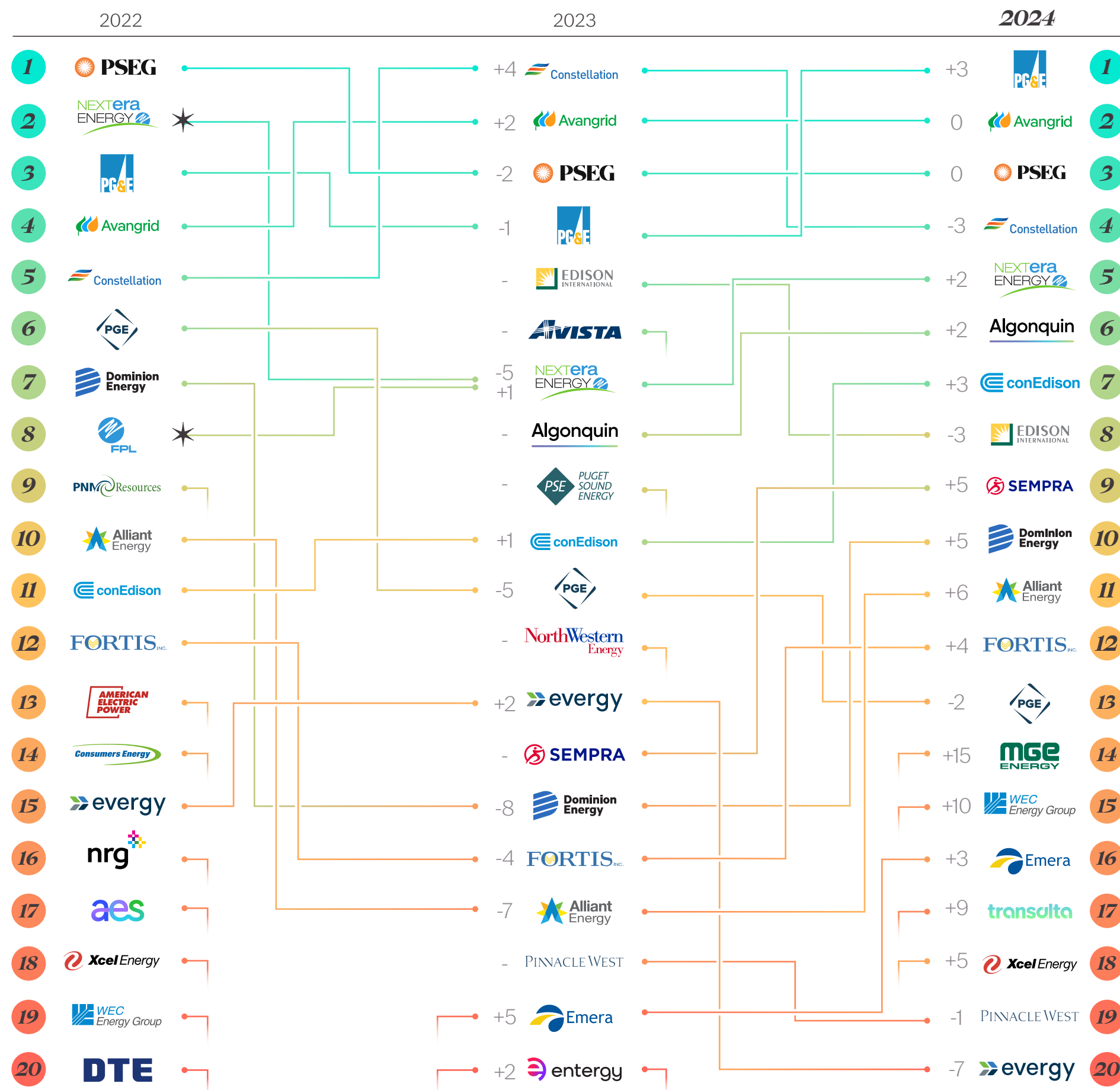
A key goal of the Index is to provide an independent, outside assessment of U.S. utilities' decarbonization efforts, and to hold them to account for emissions reduction commitments, but it is also to celebrate the progress made on their clean energy transition.

The very first Decarbonization Index in 2022 focused solely on parent companies, and in 2023 was expanded to include even more utilities. This year, in 2024, the Index was updated yet again to further refine the methodology used.

Notwithstanding these updates, here is how the Index rankings have changed for the top 20 companies, year-over-year.

★ NextEra Energy Resources and Florida Power and Light are subsidiaries of NextEra Energy.

Data updated December 2024.



The U.S.

Utilities Impact Report Card

Why impact reporting is paramount and the state of reporting across U.S. investor-owned utilities.

Relevance & Methodology ————— 30

Impact Report Card & Key Takeaways ————— 33

Regulatory & Policy Landscape Deep Dive ————— 37



What Is Impact Reporting?

Impact reporting is an emerging field within accounting that focuses on measuring and reporting the social, environmental, and economic impacts of an organization's activities.

It goes beyond traditional financial accounting by incorporating non-financial metrics that reflect the broader consequences of business operations on stakeholders and the environment.

The goal is to provide a more comprehensive view of an organization's performance and its contribution to sustainable development.



While there are different frameworks of impact reporting, disclosures are generally made up of the three following components:

Materiality Assessments

Explanation of how the company determines the materiality of environmental, social, and governance (ESG) factors.

Description of the governance processes in place to oversee ESG disclosures.

Narrative Disclosures

Qualitative information to provide context and insights into quantitative ESG metrics.

Discussion of the company's ESG strategies, goals, and performance against those goals.

Climate-Related Financial Risks

Detailed disclosures on how climate-related risks and opportunities are identified, assessed, and managed.

Impact of climate-related risks on the company's strategy, business model, and financial planning.

Scenario analysis, including the resilience of the company's strategy under different climate-related scenarios.

Source: Motive Power⁶

Why Is It Important?

According to expert organizations, such as the Climate Disclosure Project and the IFRS Foundation, these disclosures are crucial for several reasons:

*Market
Transparency
& Efficiency*

Misinformation, or a lack of information, can cause investors and other stakeholders to incorrectly price or value assets, resulting in misallocation of capital and market inefficiencies.⁷

*Enhanced
Reputation*

By participating in globally recognized disclosure frameworks, companies can enhance trust through transparency and address growing public concerns about climate issues.⁸

*Accountability &
Risk Management*

Uncovering company-specific inefficiencies, risks, and performance can guide strategic planning and risk management. Remember: What gets measured gets done!⁷

*A Level
Playing Field*

Established disclosure frameworks allow companies, investors, and other stakeholders to have access to globally comparable information, which can support the tracking and benchmarking of progress and the correct allocation of capital.⁹

*Future-Proof
Businesses*

Capturing and reporting impact metrics can allow companies to leverage data to get money, make money, and save money.⁶

Did you know?

Impact accounting can enable utilities to document and justify investments in cost-effective energy efficiency initiatives.

Since 2010, utilities have consistently reported that the average cost of saving electricity through efficiency programs is significantly lower than generating new power, averaging around 3 cents per kilowatt-hour.

Source: Berkeley Lab¹⁰

*Better Information,
Better Decisions.*



Methodology

How The Impact Report Card Is Scored

The Impact Report Card evaluates whether each utility publicly disclosed the following information in 2022.

Scope 3 Emissions

Indirect value chain emissions from upstream and downstream operations (17 categories in total).

Projected Energy Mix

The projected share of each energy source in a utility’s owned generation mix.

Water Withdrawal

The amount of fresh water withdrawn for electricity generation and other operations.

Waste Generation

The amount of waste generated during electricity generation and other operations.

Scope 1 Emissions

Direct emissions resulting from owned or controlled sources.

Scope 2 Emissions

Indirect emissions resulting from the consumption of purchased electricity, heat, or steam.

Political Contributions

Financial donations made by the company to political candidates, parties, or advocacy groups.

This year’s report includes several new metrics that align with internationally recognized disclosure frameworks.

New in 2024

Assessment of Climate-Related Risks

The potential negative impacts of climate change on the utility, including physical and transitional risks.

New in 2024

Strategy for Mitigating and Adapting to Risks

The utility's plans to reduce emissions to lessen climate change (mitigation) and enhancing their capacity to manage and recover from its impacts (adaptation).

New in 2024

Strategy for Achieving Decarbonization Targets

The utility's plans to walk the talk when it comes to their announced decarbonization targets.

New in 2024

Progress Toward Decarbonization Targets

Advancement made in reducing emissions, reported within the context of announced decarbonization targets.

New in 2024

Workforce Development Efforts

Initiatives aimed at equipping employees with the necessary skills and knowledge to participate in and support the clean energy transition.

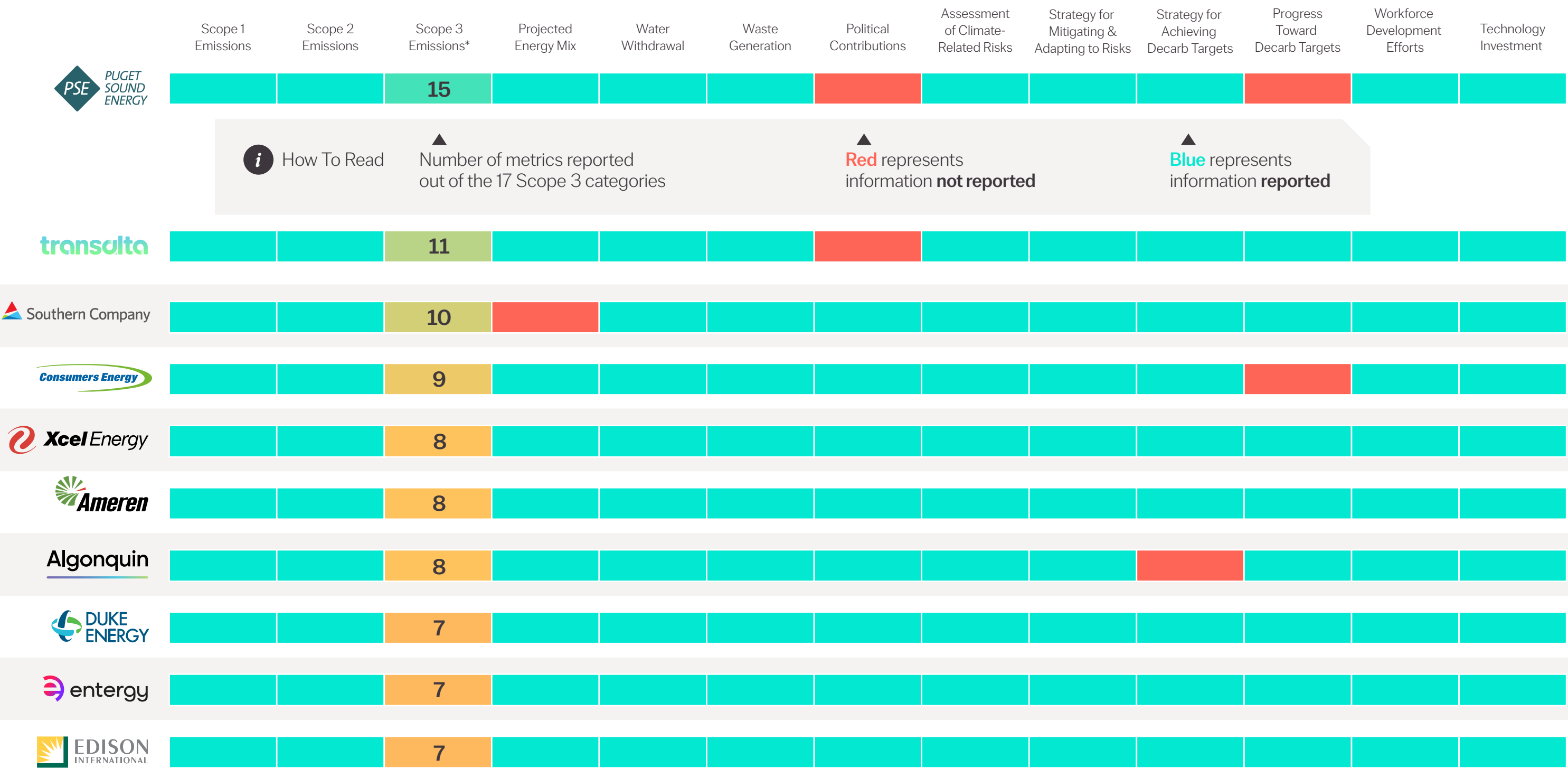
New in 2024

Technology Investment

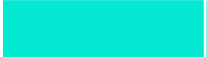
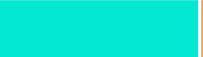
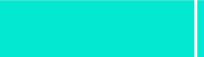
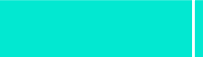
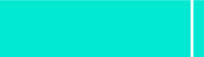
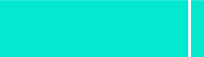
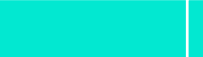
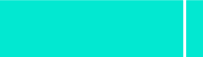
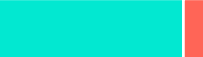
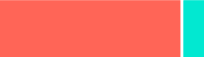
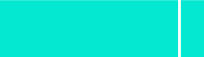
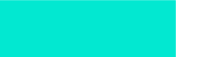
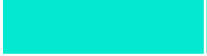
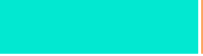
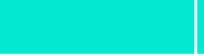
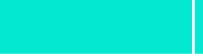
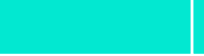
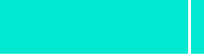
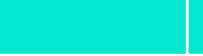
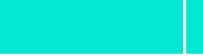
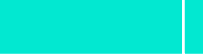
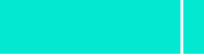
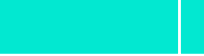
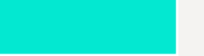
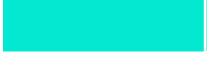
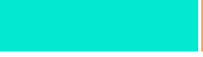
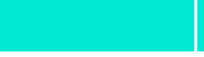
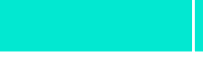
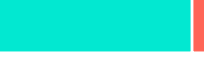
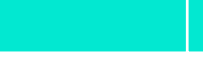
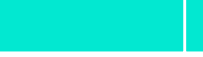
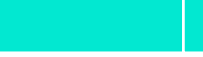
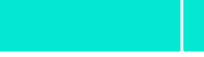
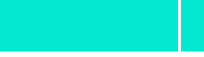
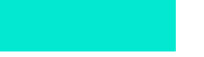
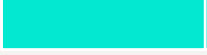
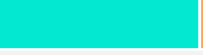
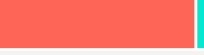
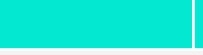
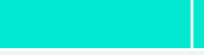
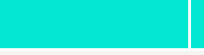
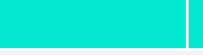
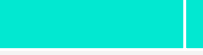
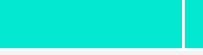
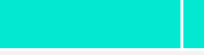
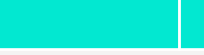
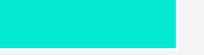
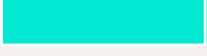
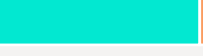
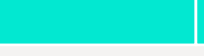
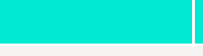
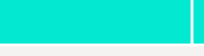
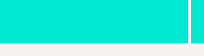
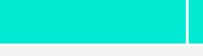
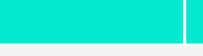
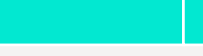
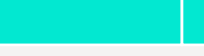
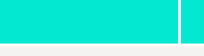
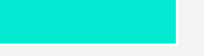
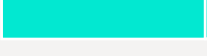
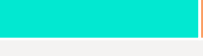
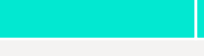
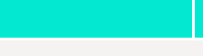
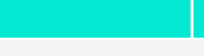
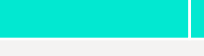
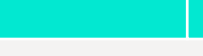
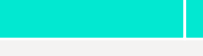
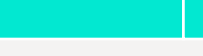
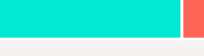
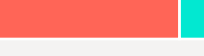
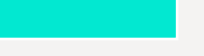
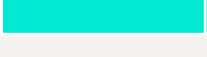
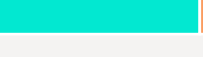
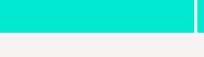
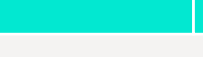
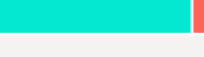
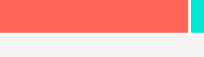
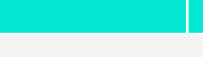
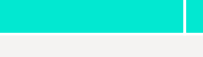
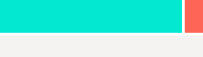
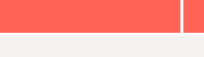
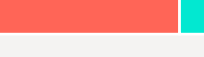
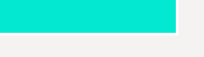
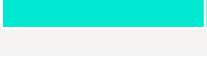
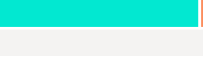
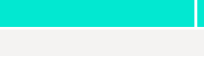
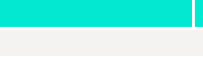
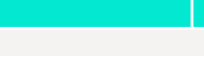
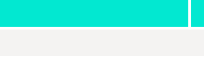
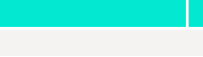
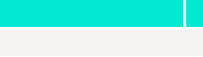
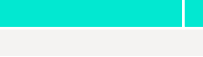
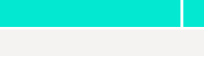
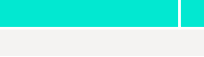
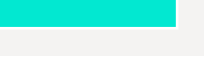
How resources are allocated toward the research, development, and deployment of innovative technologies that facilitate the clean energy transition.

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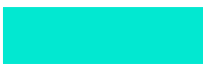
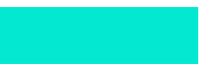
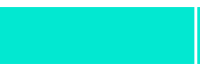
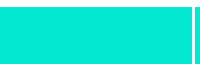
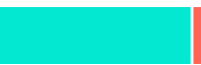
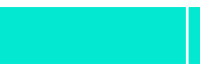
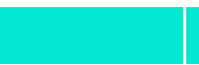
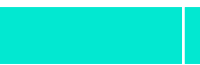
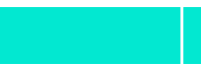
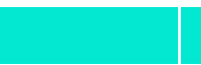
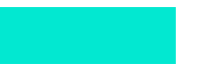
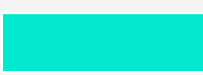
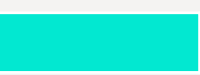
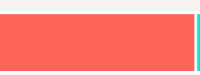
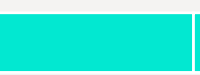
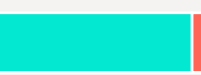
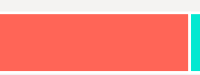
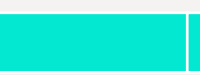
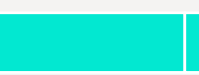
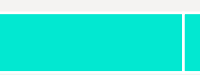
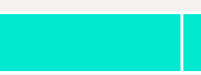
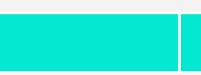
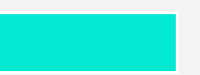
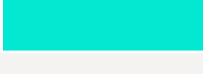
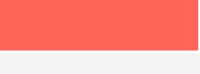
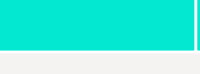
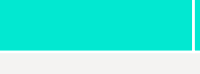
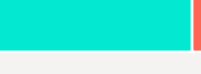
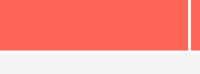
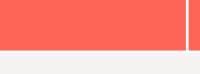
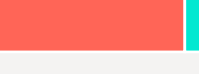
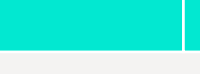
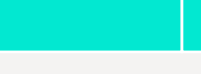
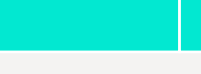
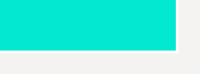
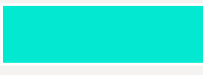
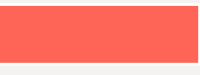
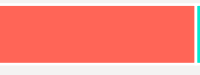
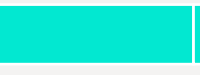
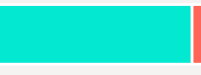
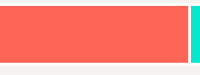
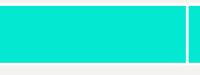
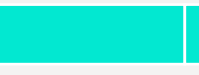
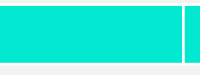
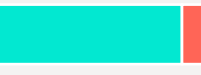
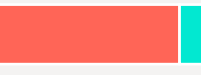
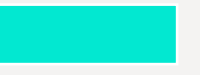
The Impact Report Card evaluates whether each utility publicly disclosed the following metrics in 2022. The red indicators represent information that a utility has failed to report.



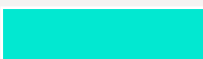
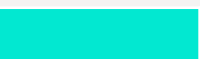
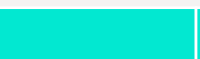
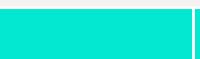
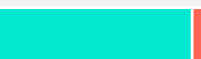
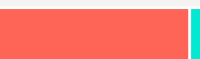
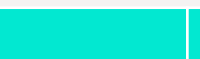
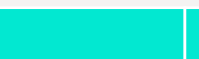
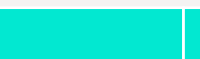
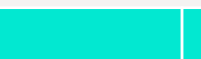
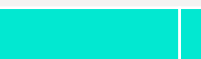
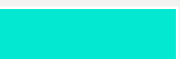
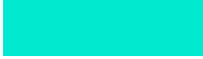
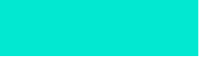
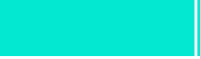
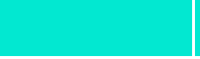
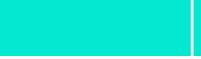
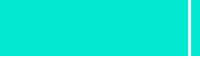
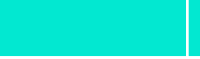
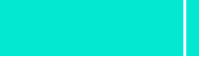
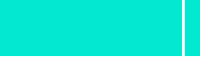
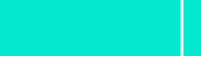
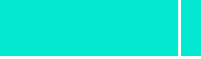
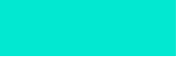
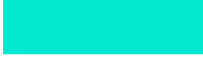
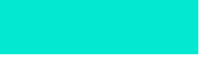
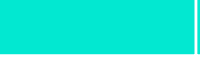
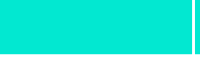
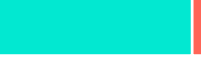
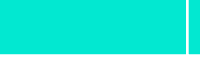
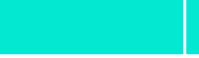
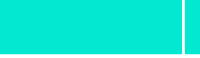
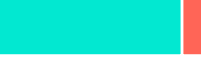
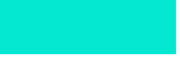
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	Scope 1 Emissions	Scope 2 Emissions	Scope 3 Emissions*	Projected Energy Mix	Water Withdrawal	Waste Generation	Political Contributions	Assessment of Climate-Related Risks	Strategy for Mitigating & Adapting to Risks	Strategy for Achieving Decarb Targets	Progress Toward Decarb Targets	Workforce Development Efforts	Technology Investment
PINNACLE WEST			6 										
nationalgrid			6 										
aes			5 										
AMERICAN ELECTRIC POWER			5 										
PF&E			5 										
Avangrid			5 										
Constellation			4 										
VISTRA			4 										
DTE			4 										
FORTIS INC.			4 										
ppl			4 										
BH Black Hills Corporation			4 										
NEXTERA ENERGY			3 										
Dominion Energy			3 										

 = Reported  = Not Reported

	Scope 1 Emissions	Scope 2 Emissions	Scope 3 Emissions*	Projected Energy Mix	Water Withdrawal	Waste Generation	Political Contributions	Assessment of Climate-Related Risks	Strategy for Mitigating & Adapting to Risks	Strategy for Achieving Decarb Targets	Progress Toward Decarb Targets	Workforce Development Efforts	Technology Investment
 FirstEnergy			3 										
 SEMPRA			3 										
 HEI			3 										
 PSEG			2 										
 evergy			2 										
 Emera			2 										
 conEdison			2 										
 NiSource			2 										
 mge ENERGY			2 										
 BERKSHIRE HATHAWAY ENERGY			1 										
 nrg			1 										
 OG+E			1 										
 PGE			1 										
 ALLETE			1 										

 = Reported  = Not Reported

	Scope 1 Emissions	Scope 2 Emissions	Scope 3 Emissions*	Projected Energy Mix	Water Withdrawal	Waste Generation	Political Contributions	Assessment of Climate-Related Risks	Strategy for Mitigating & Adapting to Risks	Strategy for Achieving Decarb Targets	Progress Toward Decarb Targets	Workforce Development Efforts	Technology Investment
			1 										
			1 										
			1 										
			0 										
			0 										
			0 										
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**Impact Report
Card Takeaways**

- ▶ Reported progress toward decarbonization goals are often vague and lack key details.

Many IOUs provide limited updates in the context of their goals, forcing stakeholders to calculate emission reductions from fragmented data.
- ▶ In 2022, over 50% of IOUs reported less than four scope 3 emission metrics, showing an improvement from 2021 (60%).

Nonetheless, more efforts are needed from utilities—and quickly—as mandatory scope 3 emission reporting is expected to be implemented in the near future.
- ▶ The level of detail and comprehensive-ness of climate-related risk assessments and adaptation strategies vary significantly across IOUs.

A Deep Dive Into The **Regulatory & Policy Landscape Of Impact Reporting**

Here are some recent changes to impact reporting regulations, policy, and frameworks in 2024.

Task Force on Climate-Related Financial Disclosures (TCFD)

The TCFD was established in 2015 to improve and increase reporting of climate-related financial information around the world.

Having fulfilled its mandate, the TCFD was disbanded in late 2023, with the IFRS Foundation now taking over the monitoring of climate disclosure progress.⁷

California Climate Accountability Package

California's Senate Bills 253 and 261, known as the Climate Accountability Package, now require large businesses operating in the state to disclose both their greenhouse gas emissions and the financial risks they face due to climate change.

These bills were signed into law in November 2023 and are first of their kind in the U.S.¹¹

U.S. Securities & Exchange Commission Disclosure Enhancement (SEC)

SEC disclosure rules ensure that investors have access to essential information before participating in the stock market.

As of March 2024, public companies in the U.S. are required to report on how climate change impacts their business, finances, and strategy for the first time.¹²

EU Corporate Sustainability Reporting Directive (CSRD)

In January 2023, CSRD went into effect in the EU. The initiative mandates a standardized format for reporting on environmental and social metrics, including governance, human rights, and climate change.¹³

The CSRD supersedes the Non-Financial Reporting Directive and significantly expands the number of companies affected, from 11,700 to nearly 50,000.¹⁴

New In 2024

A Look At Public And Gas Utilities

For the first time, the Annual Decarbonization Report features industry spotlights on public utilities and natural gas providers.

While their inclusion is less uniform than that of IOUs due to limited data availability, it underscores that IOUs are not alone in the fight toward decarbonization.



Publicly-owned electricity providers and gas utilities are vital contributors to the nation's energy mix, serving millions of consumers.

By including them in this report, we aim to present a more comprehensive view of the energy industry and identify areas where further progress is needed.

This is particularly important for gas utilities, which will continue to influence the U.S. fuel mix for years to come. As they do, a pragmatic approach will be essential in balancing cleaner fossil fuels, nuclear energy, and renewables.





The U.S.

Public Utility Spotlight

An analysis of the fuel mix among the largest U.S. public utilities.

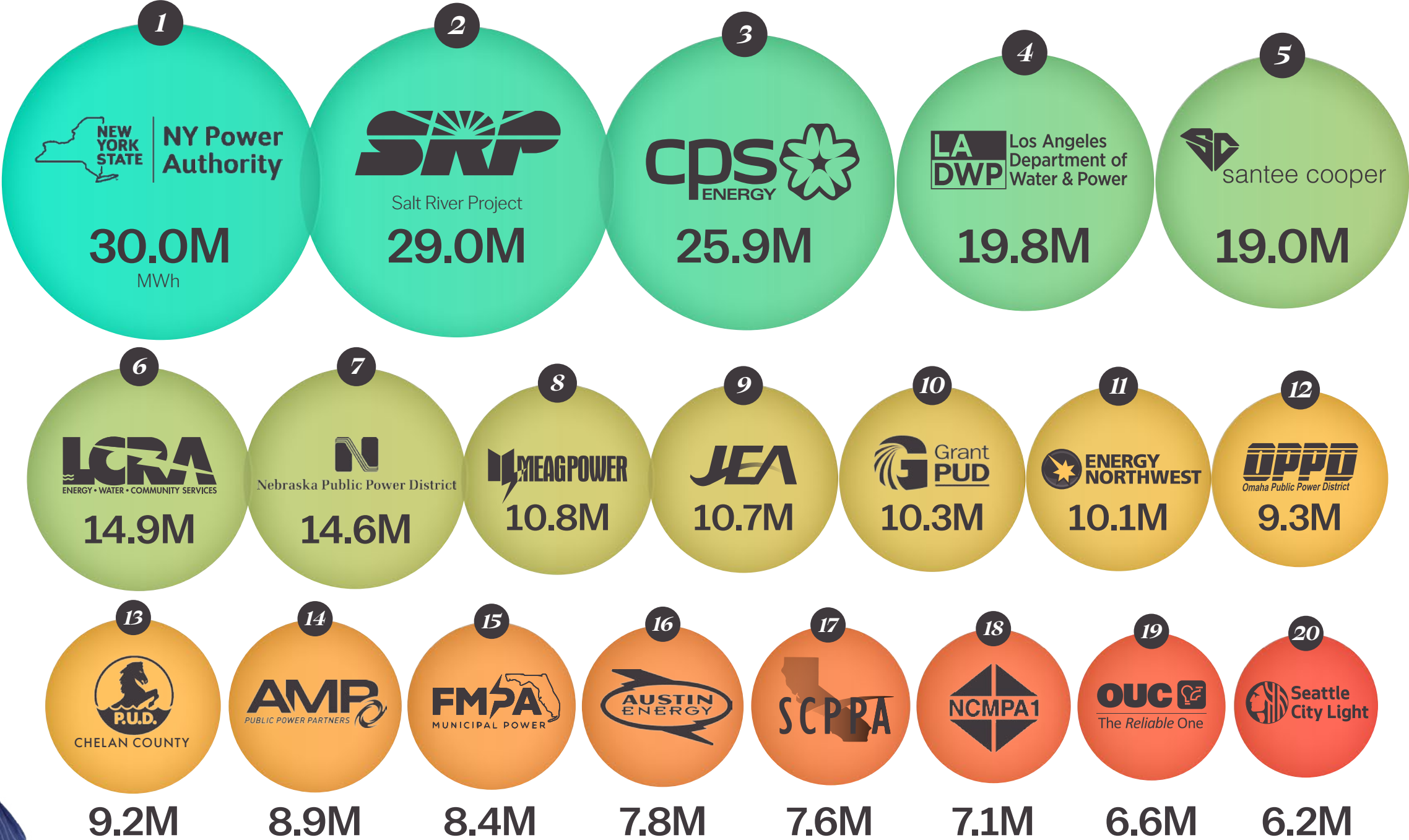
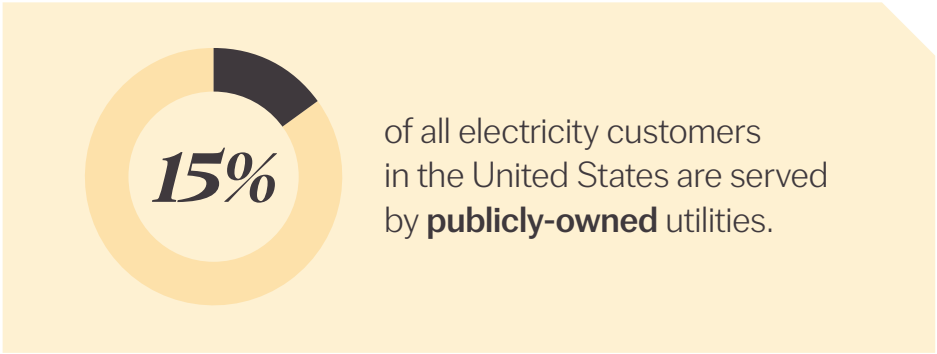
Fuel Mix Ranking ————— *41*

Introducing The Largest
**Publicly Owned
Utilities In The U.S.**

By 2022 Net Electricity Generation, MWh

Public power utilities are electricity providers that are divisions of local governments and owned by the communities they serve.¹⁵

They are highly localized, not-for-profit, and an important part of local economies.



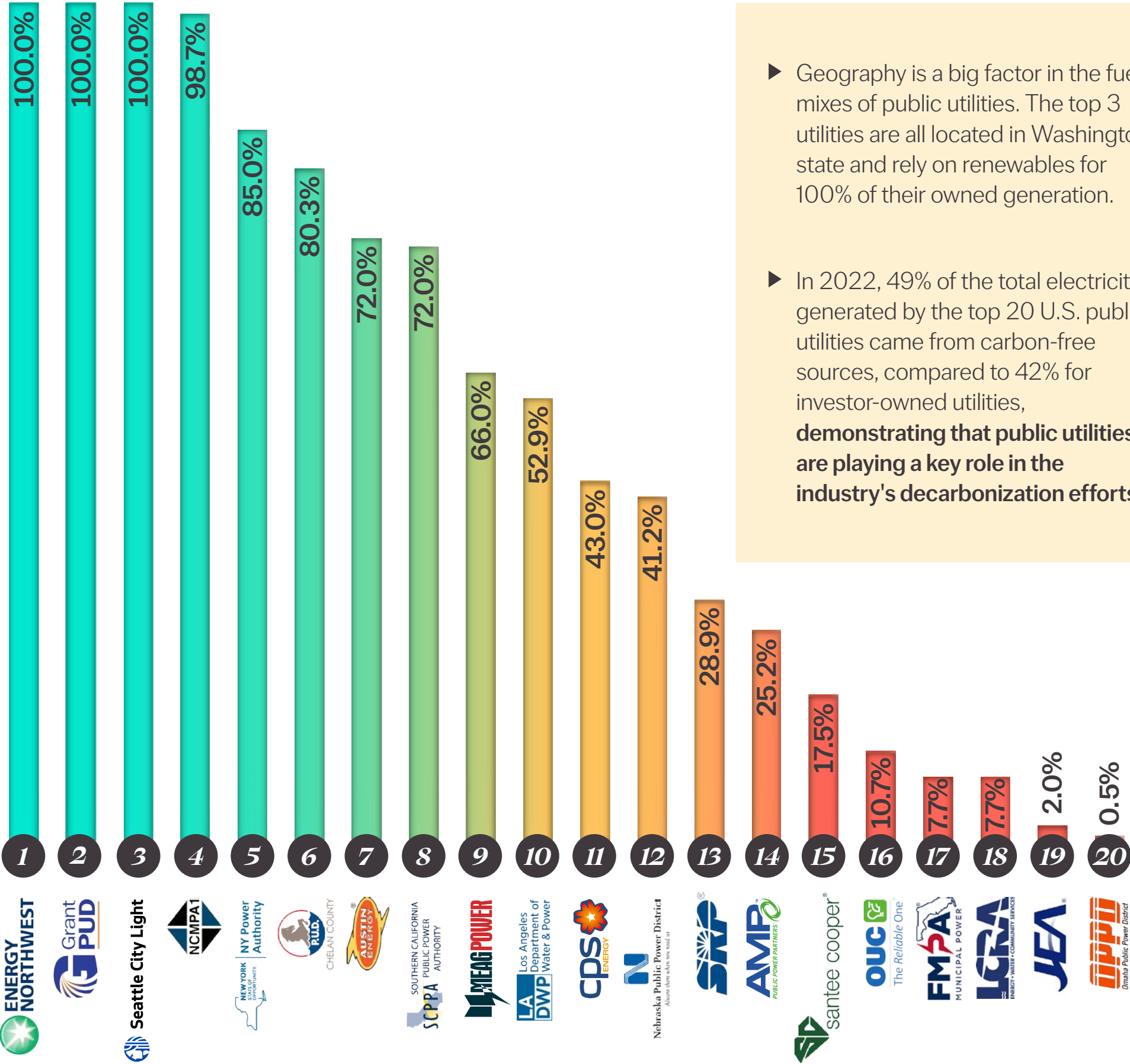
Source: American Public Power Association¹⁶

U.S. Public Utilities

Fuel Mix Ranking

Share of Carbon-Free Sources
in Owned Electricity Generation
Nuclear & Renewables

	Score
Greater than 80%	5
60–80%	4
40–60%	3
20–40%	2
Less than 20%	1



Key Takeaways

- ▶ Geography is a big factor in the fuel mixes of public utilities. The top 3 utilities are all located in Washington state and rely on renewables for 100% of their owned generation.
- ▶ In 2022, 49% of the total electricity generated by the top 20 U.S. public utilities came from carbon-free sources, compared to 42% for investor-owned utilities, **demonstrating that public utilities are playing a key role in the industry's decarbonization efforts.**

Source: Public utility websites and reports

The U.S. **Gas Utility Spotlight**

The role gas utilities can play in decarbonization and analysis of emissions from the largest U.S. gas utilities.

GHG Emissions Ranking ————— 45



Gas Utilities

In The Context Of Decarbonization

The height of this cube would be nearly 12x taller than the world's tallest building.

Even though natural gas is often touted as clean burning and as a transition fuel for many hard-to-abate sectors like shipping, its outsized role in the U.S. economy resulted in 1,774 million metric tons of CO₂ emissions in 2023.¹⁸

Until a complete transition to carbon-free energy sources is achieved, reducing these emissions will be essential for U.S. climate goals. This can be supported through:

Natural gas is an integral part of the U.S. economy.

In 2022, the fossil fuel accounted for 1/3 of U.S. total primary energy consumption, equivalent to roughly 32.3 trillion cubic feet of natural gas.¹⁷

2,717 ft
Height of Burj Khalifa

31,847 ft
Height of natural gas cube consumed in the U.S. in 2022



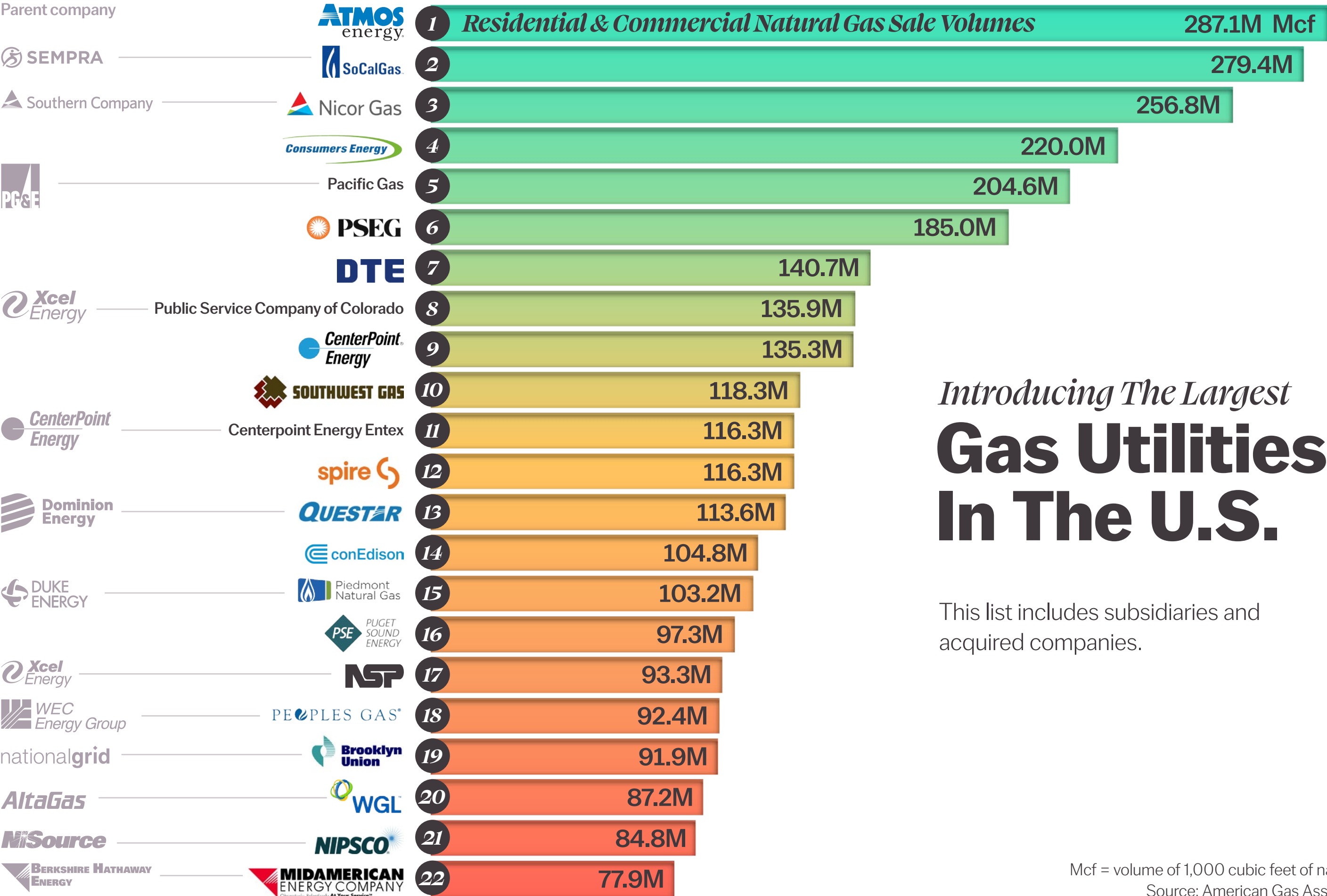
Carbon capture and storage technologies



Reducing methane leaks



Blending natural gas with renewable gases like hydrogen or biogas



Introducing The Largest

Gas Utilities In The U.S.

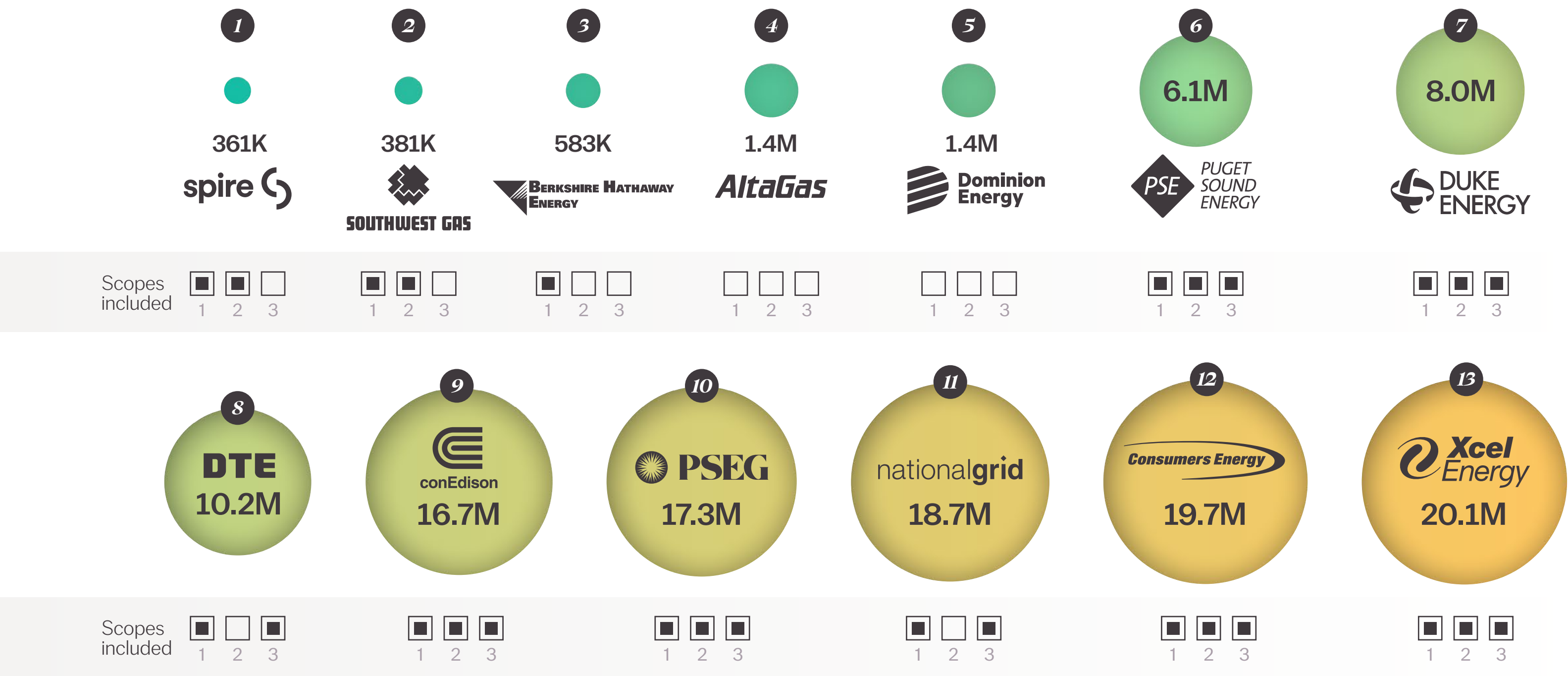
This list includes subsidiaries and acquired companies.

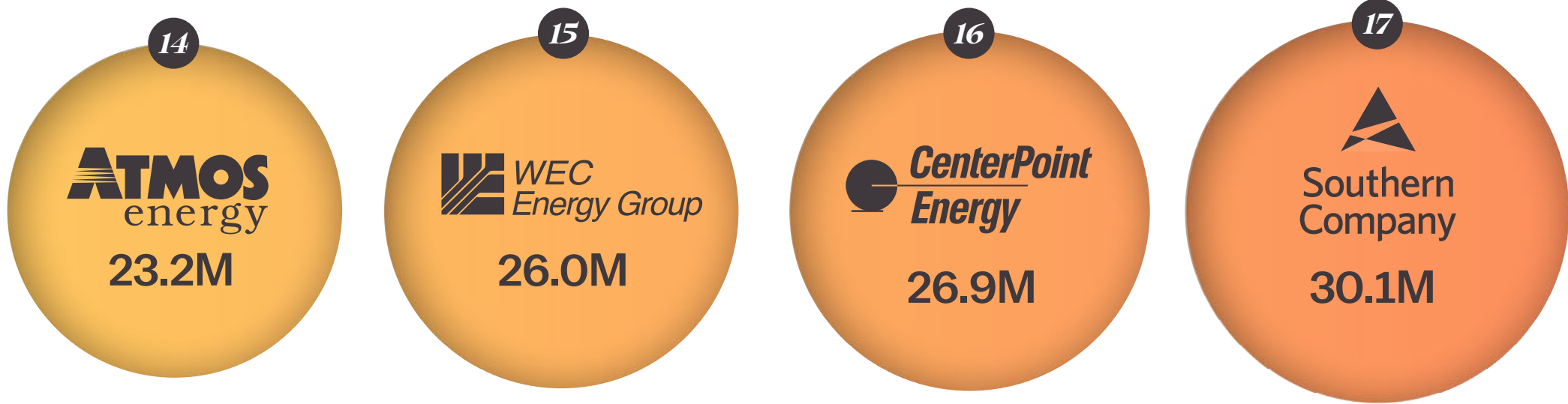
Mcf = volume of 1,000 cubic feet of natural gas
Source: American Gas Association¹⁹

U.S. Gas Utilities Total Emissions Ranking

By 2022 Reported CO₂-Equivalent Emissions (Metric tons)

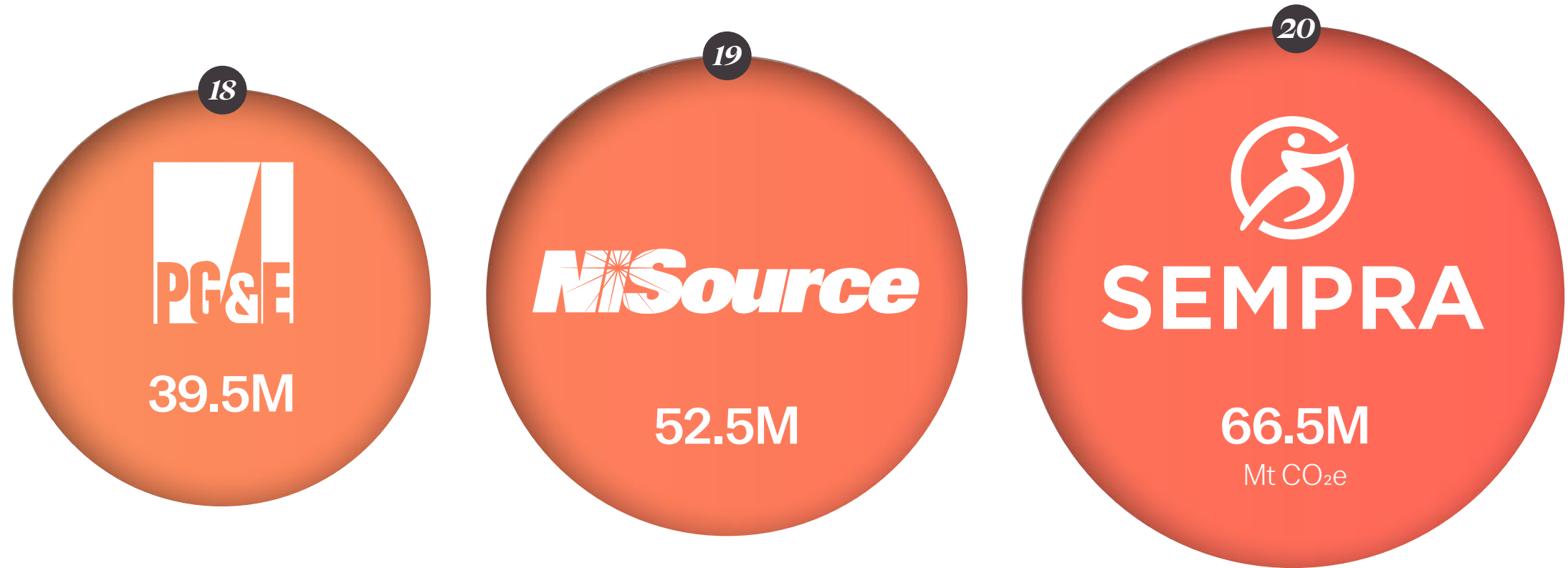
This list shows gas-related emissions from parent companies only, with the exception of AltaGas (Washington Gas Light Company).





Key Takeaways

- ▶ As a pragmatic path toward clean energy is navigated, carbon capture, utilization, and storage technology will be critical to mitigating natural gas-related emissions.
 - ▶ Emission reporting across gas utilities in the U.S. is inconsistent and several companies do not report scope 3 emissions.
- These companies make up the top scorers for this metric as their total reported emissions are undercounted.
- ▶ Companies that do not currently report scope 3 emissions must be pragmatic in measuring and reporting these numbers as new mandatory reporting regulations loom.





The Path Forward

Closing thoughts by the
National Public Utilities Council.

Looking Ahead

While notable progress has already been made, the decarbonization journey for utilities is fraught with challenges, particularly as regulatory, technological, and operational landscapes continue to evolve.

As we look toward 2025, several key areas require attention and strategic action to ensure a successful transition to a sustainable future.



Regulatory Challenges and Supply Chain Sustainability

The SEC's proposed climate disclosure rules, especially the potential requirements for Scope 3 emissions reporting, represent a significant challenge for the energy and utility sectors. Given the industry's complexity and extensive geographic reach, complying with these rules demands a comprehensive approach to emissions tracking and reporting. Although the timeline for mandatory Scope 3 reporting has been delayed, this extension should not be seen as a reason to postpone action.

Utilities must use this time to develop robust systems for capturing and reporting their full emissions profiles, particularly those associated with upstream and downstream activities.

As Scope 3 reporting becomes a focal point, utilities will increasingly depend on their suppliers to provide accurate Scope 1 and 2 emissions data. Smaller suppliers, especially those with limited resources, may struggle to meet these requirements. Forward-thinking utilities are addressing this by offering training and support to help their suppliers set goals, manage emissions data, and leverage reporting platforms. This collaborative approach not only ensures compliance but also strengthens the entire value chain's commitment to sustainability. Any potential near term cost will be offset by long-term value.

Real-time monitoring technologies are instrumental in this effort, providing crucial data that supports enhanced reporting and decision-making.

Leveraging Reporting Platforms and Tools

Advanced reporting platforms and tools are becoming essential for utilities to streamline the process of tracking and reporting sustainability efforts. These platforms can automate data collection, analysis, and visualization, thereby simplifying the demonstration of progress toward sustainability goals. By offering a comprehensive view of an organization's environmental performance, these tools enhance transparency, credibility, and accountability.

Effective use of these platforms allows utilities and their suppliers to identify areas for improvement, set meaningful targets, and monitor progress toward net-zero goals.

Moreover, these tools facilitate collaboration, knowledge sharing, and benchmarking against industry standards, ultimately contributing to a more resilient and sustainable economy. However, while these tools provide immediate benefits, their use should be seen as part of a broader, phased strategy that prepares for future challenges.

Data Management for the Future

As reporting requirements become more stringent, utilities face the challenge of compiling, managing, and cleansing data across multiple platforms and departments. While advanced reporting platforms offer short-term solutions that enable continued operations within the current landscape, these may come at the cost of efficiency and scalability in the long run.

The uncertain regulatory environment presents an opportunity for utilities to invest in future-proof and cyber-secure data management systems that offer integration across all business functions.

This dual approach ensures that utilities not only address current demands but also build the capacity to meet evolving regulatory and sustainability challenges head-on.

Infrastructure Investment Imperatives

The pace of investment in generation, transmission, and distribution infrastructure is accelerating, driven by the anticipated growth in electricity demand and the need to modernize aging systems. Projections indicate that U.S. electricity usage will increase by 27% by 2050²⁰, with significant growth in peak demand expected over the next decade. To meet these demands, investor-owned utilities are set to significantly increase capital investments, with a focus on transmission, distribution, and battery storage.²¹

The scale of these investments underscores the importance of strategic planning and execution in ensuring that the infrastructure not only meets future demands but also supports the broader goals of decarbonization and sustainability.





About Us

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About NPUC



The National Public Utilities Council

is a leading research organization dedicated to driving progress in the decarbonization of power generation.

The council fosters collaboration between public utilities, providing a platform for sharing ideas and finding innovative solutions to the challenges of reducing carbon emissions.



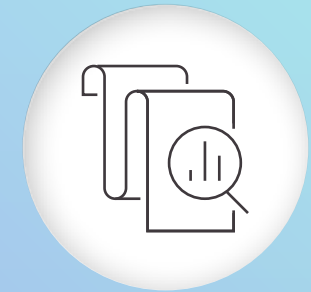
NPUC's Goals



Share knowledge and experience across utilities and assist in lessons learned on decarbonization efforts.



Create a knowledge repository for utilities to use in pursuit of their decarbonization goals.



Gather research and information for utilities.

The Decarbonization Solutions Forum

Every year, in partnership with a regional utility, the NPUC hosts the **Decarbonization Solutions Forum**, our signature event designed to unite utility leaders, policymakers, and industry innovators in the pursuit of a carbon-neutral energy future.

This forum serves as a catalyst for collaboration and knowledge-sharing, with a focus on the latest advancements in clean energy, regulatory strategies, and technological innovations.

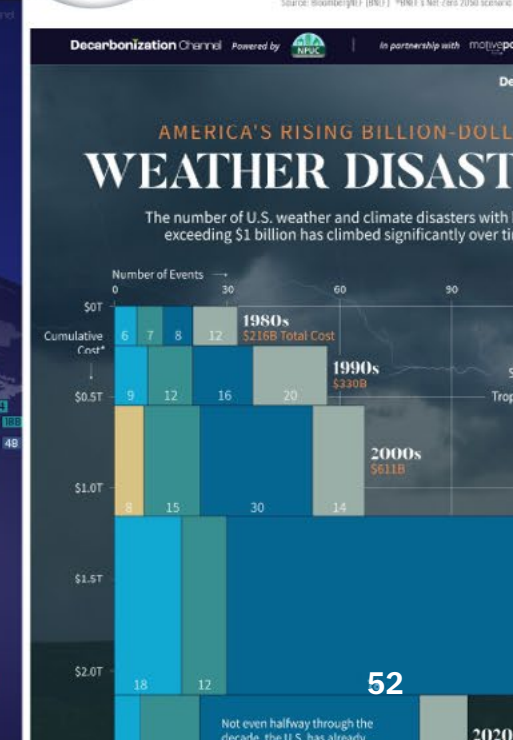
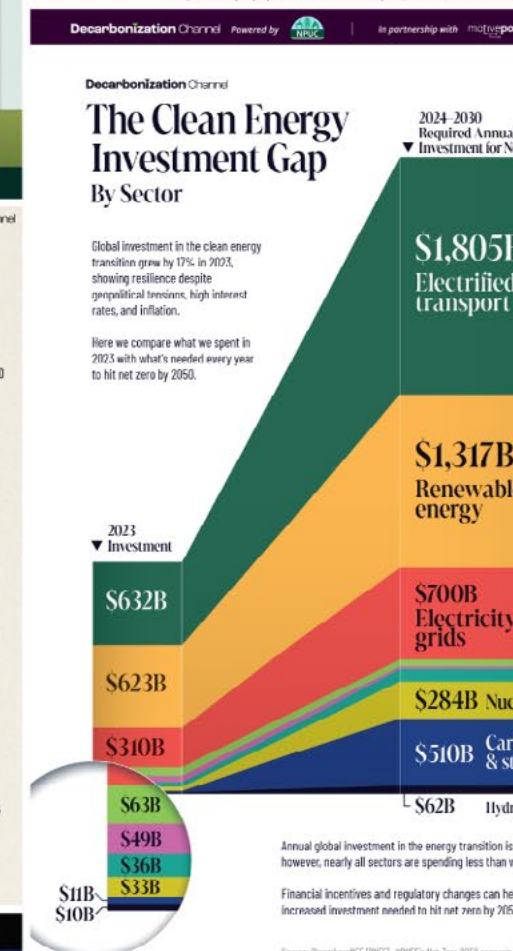
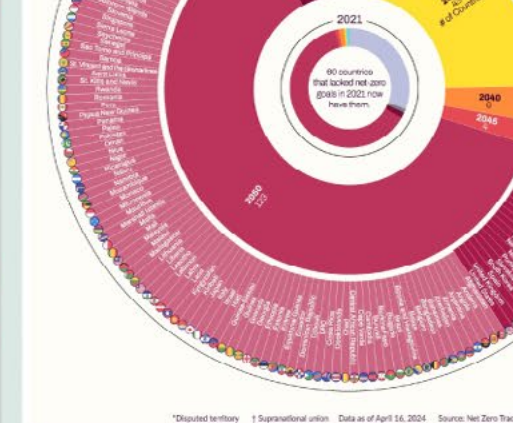
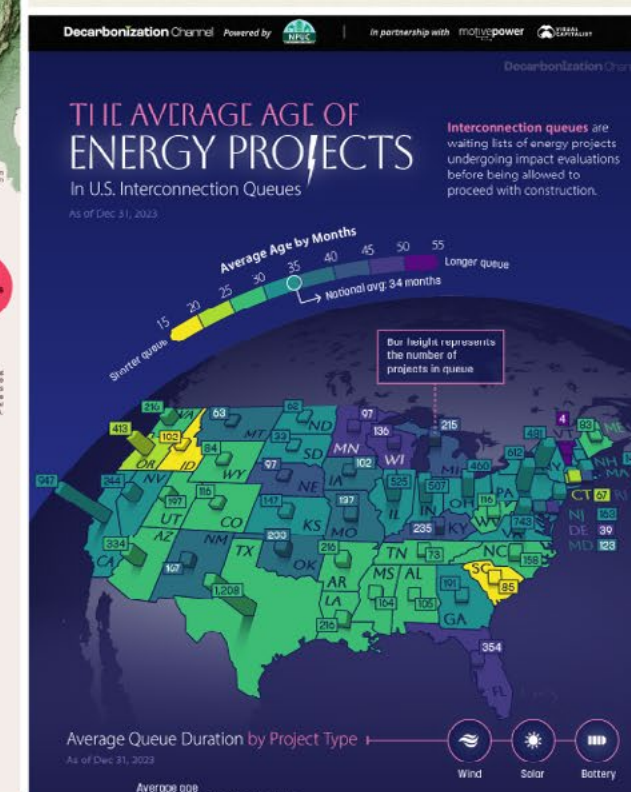
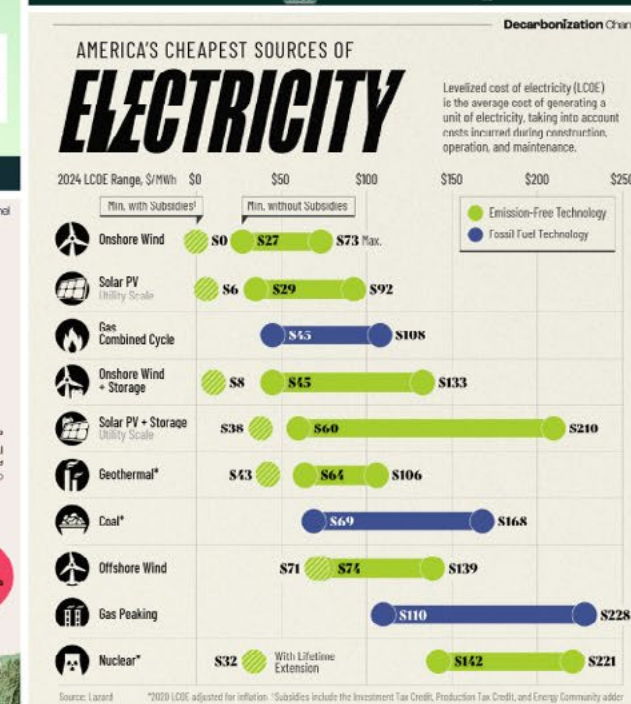
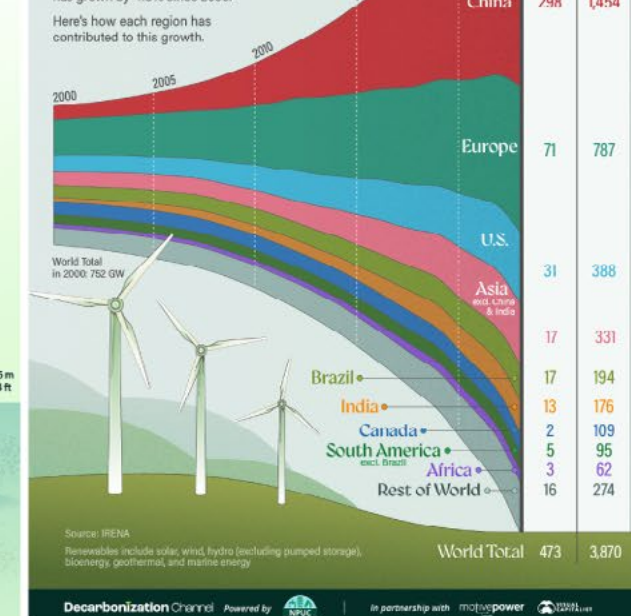
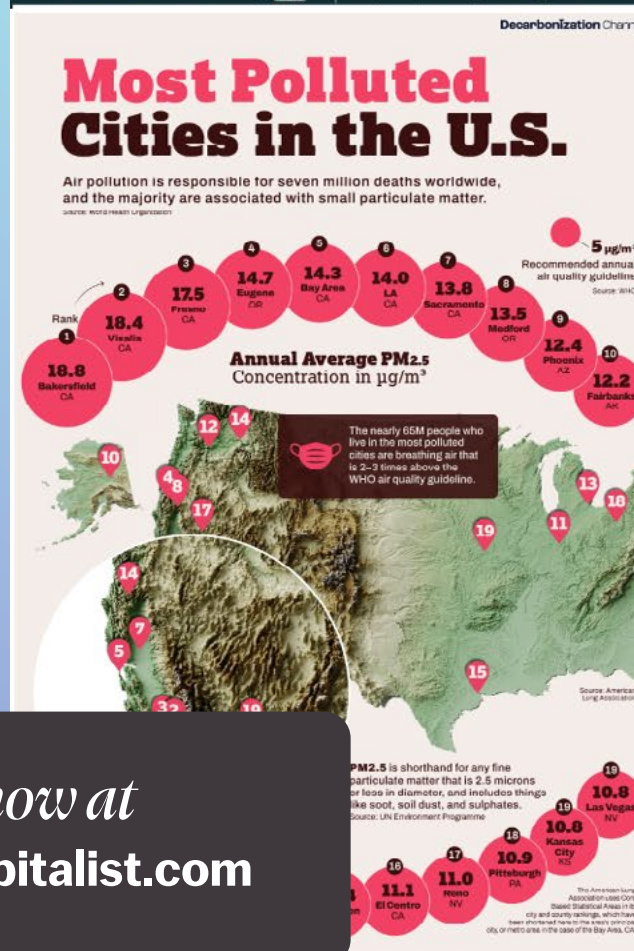
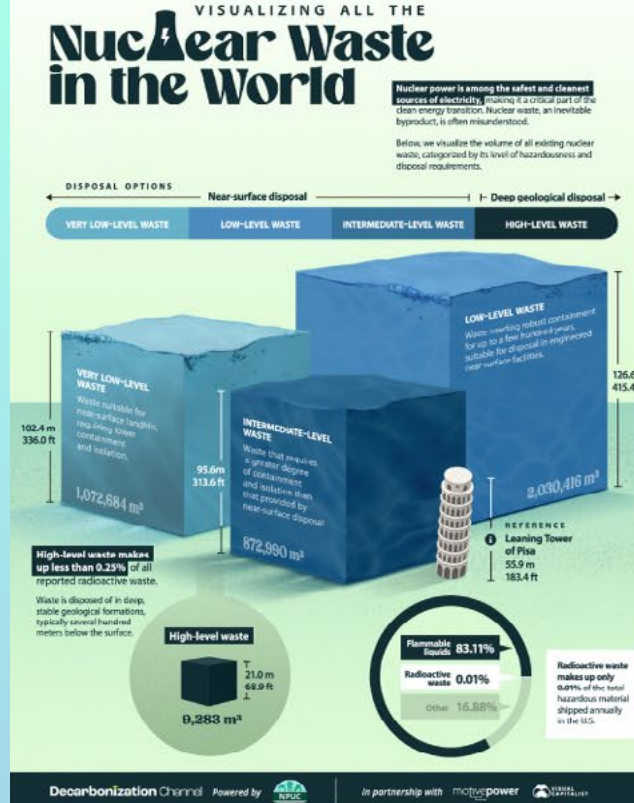
**Join us at the next NPUC
Decarbonization Solutions Forum in 2025** decarbforum.com

About the Decarbonization Channel

In partnership with NPUC and Visual Capitalist, the Decarbonization Channel hosts content that shines a light on the progress towards net-zero goals in the U.S. and drives the utility decarbonization conversation forward.

The website provides utilities, administrators, investors, and utility customers a data-driven look at all things decarbonization with a focus on the U.S. energy sector.

Dive into content now at
decarbonization.visualcapitalist.com



A special thank you to the team members at, and friends of,
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With Thanks

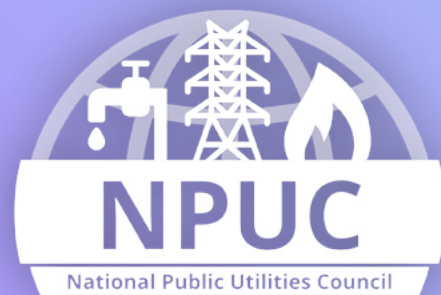
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