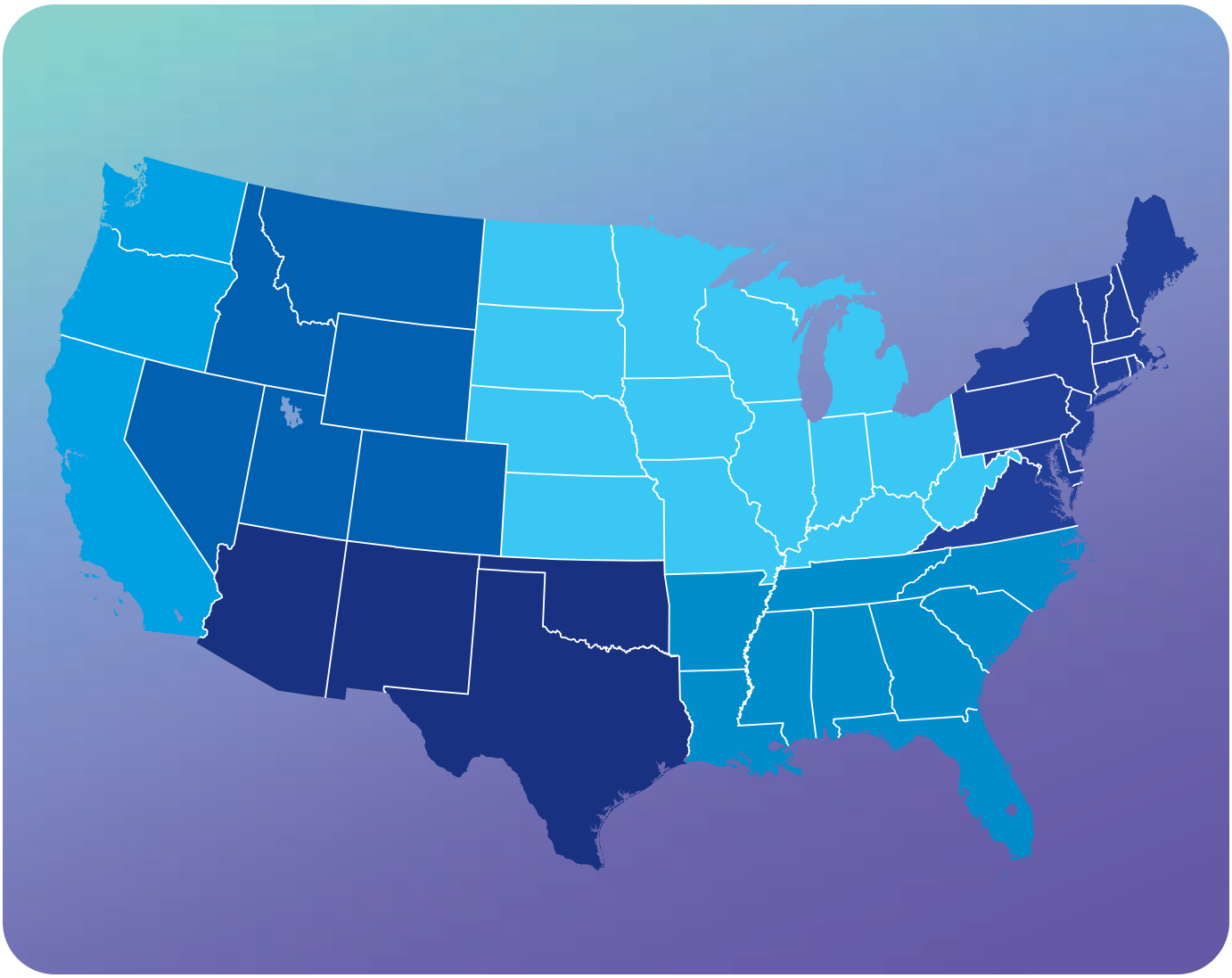
AMERICAN PUBLIC POWER ASSOCIATION
Powering Strong Communities

Retail Electric Rates in Deregulated and Regulated States:

2021 UPDATE



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AMERICAN PUBLIC POWER ASSOCIATION
Powering Strong Communities

The American Public Power Association is the voice of not-for-profit, community-owned utilities that power 2,000 towns and cities nationwide. We represent public power before the federal government to protect the interests of the more than 49 million people that public power utilities serve, and the 96,000 people they employ. We advocate and advise on electricity policy, resilience, cybersecurity, grid operations, technology, trends, and training.

Retail Electric Rates in Deregulated and Regulated States

This annual report from the American Public Power Association compares trends in average retail electric rates between deregulated and regulated states. The report covers data on average rates through 2021.

KEY POINTS FOR THIS YEAR:

- Rates increased significantly in all states from 2020 to 2021, largely attributable to a rise in natural gas prices. Average total rates increased by six-tenths of a cent, or 5.7%.
- Average rates in regulated states increased by 5.3% (from 9.5 cents to 10 cents), compared to a 6.7% increase in deregulated states (from 12 cents to 12.8 cents)..
- Since 2012, residential rates in deregulated states have increased by 2.5 cents, compared to a 1.4 cent increase in regulated states.

UNDERSTANDING DEREGULATION

The deregulated category includes states with retail choice programs where end-use customers can choose their electricity provider, and no longer have rate caps or other forms of regulatory protections that limit customers' exposure to wholesale market prices. Deregulated states are California, Connecticut, Delaware, Illinois, Massachusetts, Maryland, Maine, Michigan, Montana, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, and Texas. The District of Columbia is also deregulated. The regulated category includes those states with traditional rate regulation.

In most deregulated states, investor-owned utilities (IOUs) sold off their electric generating facilities as part of the implementation of retail choice. The distribution utility purchases power from the wholesale market (typically through a third-party intermediary) to serve the remaining customers not purchasing from an alternative supplier (This is generally called "default" or "provider-of-last-resort" service). Except for part of Montana, retail choice states are in regions where wholesale electricity prices are set through centralized markets run by regional transmission organizations (RTOs) and independent system operators (ISOs).

While most industrial and large commercial energy is purchased from an alternative supplier, residential customers are still predominantly served by the incumbent utility in retail choice states. Residential participation is below 20% in seven of the 16 deregulated states. In all retail choice states except Texas, less than half of eligible residential customer load is purchased through an alternative supplier. Texas is unique in that all customers in retail choice regions of the state must purchase from an alternative supplier.

States with higher residential participation in retail choice, such as Ohio, tend to rely more on aggregation, where a county or municipality purchases power on behalf of the citizens and citizens can either opt-in or opt-out of that aggregation. In Ohio, 47% of residential customers are served by retail suppliers and about two-thirds of residential participation is through aggregation. Aggregators can arrange longer-term purchases on behalf of their customers for specific resources, such as renewable power, rather than primarily relying on RTO-operated wholesale markets. Such aggregation is also the primary source of retail choice participation in California.

RATE TRENDS

According to data from the U.S. Department of Energy's Energy Information Administration, from 1997 to 2021 retail electric prices increased nominally by half a cent more than rates in regulated states, though regulated states had a slightly higher percentage increase in prices. Between 2020 and 2021, electric rates in the United States increased by the highest amount since 2007 to 2008. Year-over-year rates increased by nearly a full cent in deregulated states, and by half a cent in regulated states. Then, as now, increases in natural gas prices played a significant role in increased retail electric prices. The delivered price of natural gas to electric generators increased by 58% between January 2021 to the fourth quarter.

Table 1 and Figure 1 cover more than 20 years of retail choice programs. Weighted average retail rates for each category were calculated by dividing total annual revenue from sales to consumers in that category by total annual kilowatt-hour sales to those consumers. The charts start with 1997, which was the last year with essentially no retail choice activity. The decline in rates in deregulated states in 1998 and 1999 most likely reflects the effect of mandated rate decreases in retail choice states, but the decline was short lived as rates began rising again in 2000.

Rates for both deregulated and regulated states increased steadily from 2000 to 2005, then increased dramatically in deregulated states between 2005 and 2006 as more rate caps came off and natural gas prices increased. Rates in regulated states also increased, though at a slightly slower pace. Due to the decline in natural gas prices, rates in deregulated states declined from 2008-2012; however, rates in deregulated states began increasing again after 2012. Between 2012 and 2021, total rates in deregulated states increased by 1.8 cent, compared to 1.1 cent for regulated states.

States that implemented retail choice for electricity were generally higher-cost states. The hope was that competition by electric suppliers would result in lower rates. In 1997, the states in the deregulated category had weighted average rates that were 2.3 cents per kilowatt-hour higher

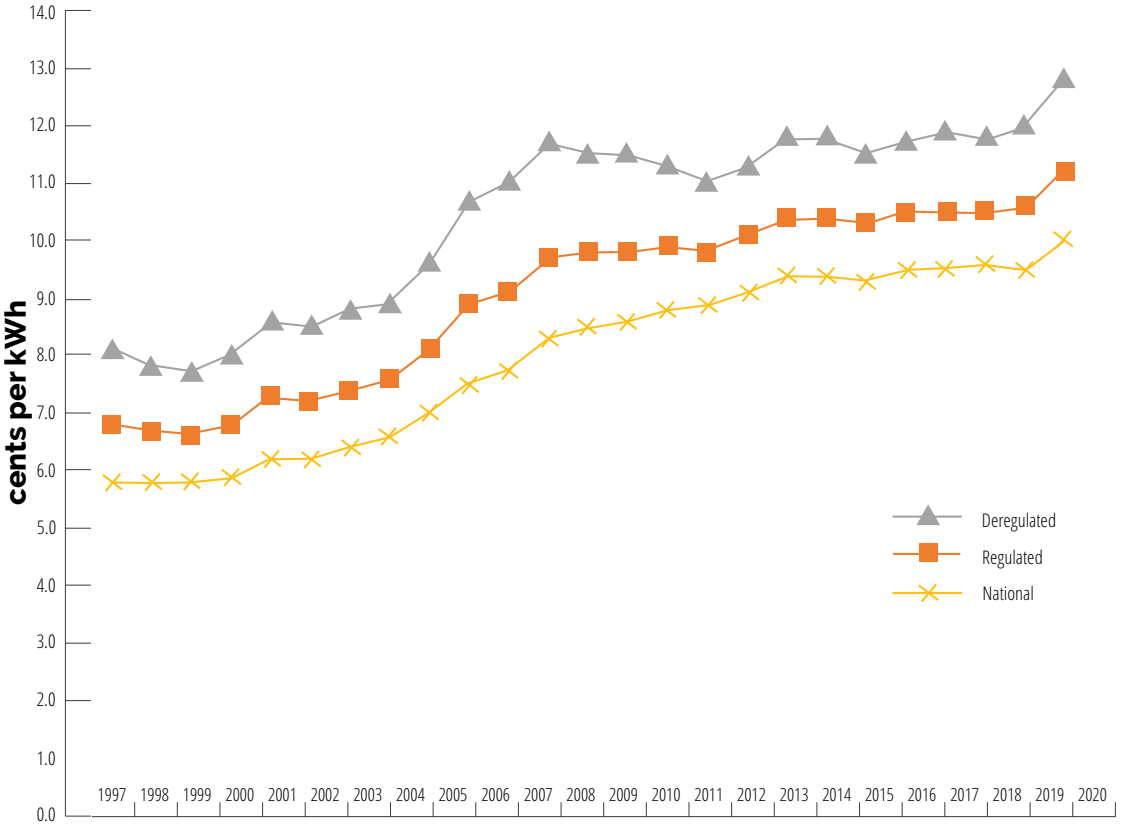
Table 1.1 Average Revenue per Kilowatt-hour: Deregulated vs. Regulated States

Source: Energy Information Administration, Forms EIA-861 and EIA-861M.

	Deregulated States	Regulated States	National
1997	8.1	5.8	6.8
1998	7.8	5.8	6.7
1999	7.7	5.8	6.6
2000	8.0	5.9	6.8
2001	8.6	6.2	7.3
2002	8.5	6.2	7.2
2003	8.8	6.4	7.4
2004	8.9	6.6	7.6
2005	9.6	7.0	8.1
2006	10.7	7.5	8.9
2007	11.0	7.7	9.1
2008	11.7	8.3	9.7
2009	11.5	8.5	9.8
2010	11.5	8.6	9.8
2011	11.3	8.8	9.9
2012	11.0	8.9	9.8
2013	11.3	9.1	10.1
2014	11.8	9.4	10.4
2015	11.8	9.4	10.4
2016	11.5	9.3	10.3
2017	11.7	9.5	10.5
2018	11.9	9.5	10.5
2019	11.8	9.6	10.5
2020	12.0	9.5	10.6
2021	12.8	10.0	11.2
Difference, in cents per kilowatt-hour			
1997-2005	1.5	1.2	1.3
2005-2012	1.4	1.9	1.7
2012-2021	1.8	1.1	1.4
2020-2021	0.8	0.5	0.6
1997-2021	4.7	4.2	4.4

Notes: Deregulated states include: CA,CT,DC,DE,IL,MA,MD,ME,MI,MT,NH, NJ,NY,OH,PA,RI, TX
Regulated states include all other states

Figure 1. Average Electricity Rates in Deregulated and Regulated Stages, 1997-2021s



than rates in the regulated states (8.1 vs. 5.8). After 23 years, that gap has increased to 2.8 cents (12.8 vs. 10.0).

Though the difference in average rates has remained the same nominally and has narrowed from a 40% to a 28% differential, the original promise of greatly reduced prices has not materialized. Most of the gains achieved in deregulated states have been in the commercial and industrial sectors.

As shown in Table 2, residential rates in deregulated states increased by eight-tenths of a cent more than the rates in regulated states between 1997 and 2021 (increasing from 10.1 to 15.9 in deregulated states vs. 7.2 to 12.2 in regulated states). Since 2012, residential rates in deregulated rates increased by slightly less than double those in regulated states (2.5 vs. 1.4). Between 2020 and 2021, residential rates in deregulated states increased by seven-tenths of a cent, while average residential rates in regulated states increased by half a cent. Average residential rates in deregulated states have increased by more than a cent in two years.

The differential increase occurred despite growing residential customer participation in retail choice. "Unbundled" residential sales, meaning sales to customers choosing an alternative supplier, increased more than seven-fold between 2006 and 2020 (from 13.6 million megawatt-hours to 108.8 million MWh). Despite this increase in residential participation in retail choice, most residential customers in retail choice states remain with their default utility.

1 Source: Energy Information Administration Form EIA-861, 2006 and 2019.

Table 2. Residential Revenue per Kilowatt-hour: Deregulated vs. Regulated States

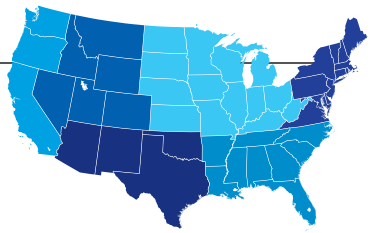
(in cents per kilowatt-hour)

Source: Energy Information Administration, Forms EIA-861 and EIA-861M..

	Deregulated States	Regulated States	All States Combined
1997	10.1	7.2	8.4
1998	9.7	7.2	8.3
1999	9.5	7.2	8.2
2000	9.6	7.3	8.2
2001	10.0	7.5	8.6
2002	9.8	7.5	8.4
2003	10.1	7.7	8.7
2004	10.3	8.0	8.9
2005	11.0	8.3	9.4
2006	12.4	9.0	10.4
2007	12.8	9.2	10.7
2008	13.4	9.8	11.3
2009	13.6	10.1	11.5
2010	14.0	10.1	11.5
2011	13.4	10.5	11.7
2012	13.4	10.8	11.9
2013	13.8	10.9	12.1
2014	14.3	11.3	12.5
2015	14.5	11.3	12.7
2016	14.3	11.3	12.5
2017	14.6	11.6	12.9
2018	14.7	11.6	12.9
2019	14.9	11.7	13.0
2020	15.2	11.7	13.2
2021	15.9	12.2	13.7
Difference, in cents per kilowatt-hour			
1997-2005	0.9	1.1	1.0
2005-2012	2.4	2.5	2.5
2012-2021	2.5	1.4	1.8
2020-2021	0.7	0.5	0.5
1997-2021	5.8	5.0	5.3

Note: Deregulated states include: CA,CT,DC,DE,IL,MA,MD,ME,MI,MT, NH,NJ,NY,OH, PA,RI, TX
Regulated states include all other states.

Data by State and Region



NEW ENGLAND

Five deregulated states are in the footprint of ISO-New England. Table 3 shows that in 1997, rates for all five of those states were already well above the national average. Since then, all experienced rate increases above the national average. Rates in Connecticut, Massachusetts, and Rhode Island have increased at least double the national average. Rates in these states declined between 2008-2012, most likely due to steep drops in the price for natural gas, which the New England region relies heavily on for generation. Since 2012, rates have risen dramatically in several New England states: by approximately 3.2 cents in Connecticut, just under 5.4 cents in Massachusetts, and by 5.8 cents in Rhode Island.

Table 3. Average Customer Rates, in cents per kWh

	1997	2021	Difference
Connecticut	10.5	18.8	8.3
Maine	9.5	14.1	4.6
Massachusetts	10.4	19.2	8.8
New Hampshire	11.6	17.4	5.8
Rhode Island	10.7	18.5	7.8
National Average	6.8	11.2	4.4

MID-ATLANTIC

Four retail choice states and the District of Columbia are in PJM, and the state of New York comprises the New York ISO. Customers in New Jersey, Pennsylvania, and Delaware saw smaller rate increases compared to the national average, while the District of Columbia and New York saw higher rate increases compared to the national average. Maryland's rate increase has been in line with the national average.

Table 4. Average Customer Rates, in cents per kWh

	1997	2021	Difference
Delaware	7.0	10.6	3.6
District of Columbia	7.4	12.8	5.4
Maryland	7.0	11.5	4.5
New Jersey	10.5	14.1	3.6
Pennsylvania	8.0	10.0	2.0
New York	11.1	16.3	5.2
National Average	6.8	11.2	4.4

MIDWEST

Utilities in two of the three retail choice states in the Midwest operate in both PJM and the Midcontinent ISO (MISO). While Michigan's rates increased by more than the national average, Illinois and Ohio's rates increased by less than the national average. Ohio is located within PJM. Commonwealth Edison, which serves more than 60% of the load in Illinois, is in PJM, while the rest of the utilities in Illinois and almost all utilities in Michigan are in MISO. Rate caps in Illinois expired after 2006, and the state implemented an auction process to procure supply.

Unlike investor-owned utilities in most retail choice states, Michigan utilities did not sell their generating assets, and consequently, only depend on wholesale power markets for a small portion of their customers' power needs. Under a 2008 law, participation in retail choice programs is capped at 10% of an IOU's retail sales. Almost no residential load in Michigan is served by an alternative supplier.

Ohio utilities initially had been subject to transitional rate regulation and were required to offer customers a rate approved by the Public Utilities Commission of Ohio (PUCO) under a cost-plus-based electricity plan. Beginning in 2012, a large share of IOU load was bid at competitive auctions, and most customers had switched to alternative suppliers. Because a large portion of Ohio ratepayers are now directly exposed to wholesale market prices, Ohio is considered a deregulated state.

Table 5. Average Customer Rates, in cents per kWh

	1997	2021	Difference
Illinois	7.7	10.2	2.5
Michigan	7.0	13.0	6.0
Ohio	6.3	9.8	3.5
National Average	6.8	11.2	4.4

WEST

Only two western states implemented retail choice: California, which comprises the California ISO, and Montana.

Retail choice was suspended in California following the energy crisis in 2000-2001, and only customers who were on retail choice plans at the time of the suspension could choose their providers. An October 2009 law allowed retail choice for commercial and industrial customers up to the level achieved prior to the suspension of retail choice, and in April 2010, the California Public Utilities Commission set the level at 11% of total retail sales. California's rates have increased significantly since 1997.

Retail competition in California has recently expanded in a different form with community choice aggregators (CCAs). These non-profit entities procure power on behalf of retail customers within a municipality in an IOU's service territory, although individual customers may opt out of CCA participation. CCAs are estimated to provide almost half of the retail energy within Pacific Gas & Electric's service territory. This is a different form of retail choice, as CCAs tend to procure power through long-term contracts, typically for renewable power, rather than purchasing directly from RTO-operated markets. The impact of CCAs on average retail rates may not be seen for a few years.

Montana is the only retail choice state not entirely in an RTO, but the IOU that serves customers in the state sold off all its generation, so the utility must purchase power in wholesale power markets, including RTO-operated markets. Montana enacted a law in 2007 to end retail choice except for customers with more than 5 megawatts of load and customers who were on retail choice plans as of October 2007..

Table 6. Average Customer Rates, in cents per kWh

	1997	2021	Difference
California	9.5	19.8	10.3
Montana	5.2	9.5	4.3
National Average	6.8	11.2	4.4

TEXAS

Texas's experience with deregulation is somewhat unique. Retail choice began in 2002 in the ERCOT portion of the state. Major IOUs were required to offer retail choice and to break up their business services. All end-use customers in the state are served by retail electric providers (REPs), and thus, IOUs in the ERCOT region no longer report sales or revenue to the Energy Information Administration. Public power utilities and rural electric cooperatives were given the option to offer retail choice, but none currently offer retail choice to customers.

Rates in Texas increased dramatically in the wake of retail choice implementation. In 2002, the average retail rate was 6.6 cents per kWh, and by 2008, rates had increased to 11 cents per kWh. Rates consistently declined each year from 2008-2017, before increasing again in 2018 and 2019,

and then declining again slightly in 2020. Between 2020 and 2021, average rates increased by nearly a cent. As has been widely reported, many retail customers in Texas received inordinately high electricity bills following extreme winter weather in February 2021 due to sharp spikes in energy prices under ERCOT's scarcity pricing rules.

Table 7. Average Customer Rates, in cents per kWh

	1997	2021	Difference
Texas	6.2	9.3	3.1
National Average	6.8	11.2	4.4

YEAR OVER YEAR CHANGES

Table 8 shows year over year changes from 2020 to 2021 for all deregulated states.

Average Customer Rates, in cents per kWh, 2020-2021

	2020	2021	Difference (cents)	Difference (%)
California	18.0	19.8	1.8	10.0%
Connecticut	19.1	18.8	-0.4	-1.6%
District of Columbia	11.9	12.8	0.9	7.6%
Delaware	10.2	10.6	0.3	3.9%
Illinois	9.8	10.2	0.4	4.1%
Maine	13.5	14.1	0.5	4.4%
Maryland	11.2	11.5	0.4	2.7%
Massachusetts	18.2	19.2	1.0	5.5%
Michigan	12.2	13.0	0.7	6.6%
Montana	9.1	9.5	0.4	4.4%
New Hampshire	16.6	17.4	0.8	4.8%
New Jersey	13.6	14.1	0.5	3.7%
New York	14.9	16.3	1.4	9.4%
Ohio	9.4	9.8	0.4	4.3%
Pennsylvania	9.7	10.0	0.3	3.1%
Rhode Island	18.5	18.5	0.0	0%
Texas	8.4	9.3	1.0	10.7%
All Deregulated	12.0	12.8	0.8	6.7%
All Regulated	9.5	10.0	0.5	5.3%
National Average	10.6	11.2	0.6	5.7%

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