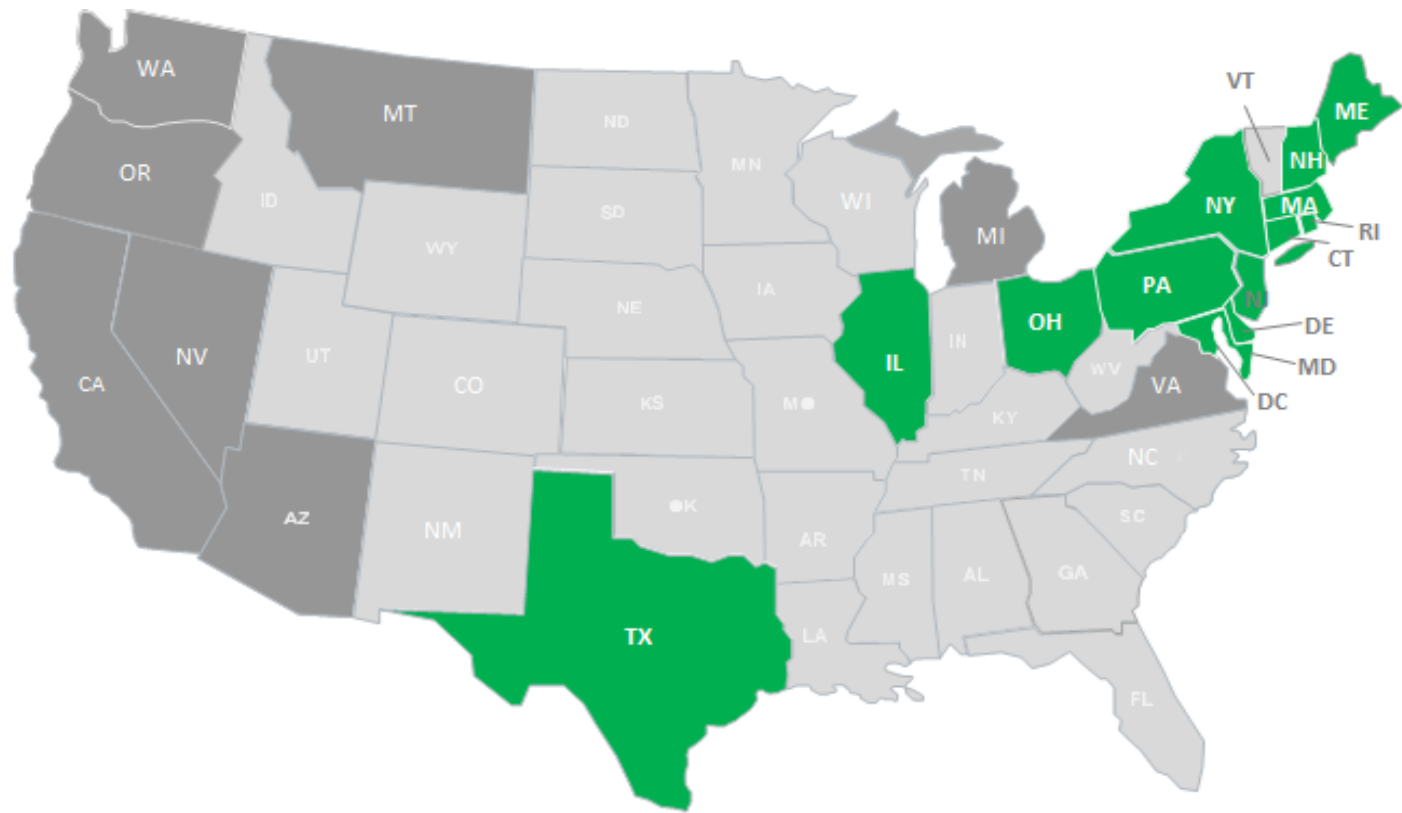


# 14 Customer Choice Jurisdictions

Figure 3 of Restructuring Recharged

These 14 jurisdictions (13 states plus Washington DC) each have enabled Retail Choice for Nearly All Customers. These jurisdictions represent nearly 1/3 of all electricity consumption in the continental U.S.



 Competitive States/Jurisdictions     Monopoly States     Hybrid States



The information presented in this document represent the views of RESA as an organization and may not necessarily reflect the views of any particular RESA member.

### Figure 3 (page 13) of Restructuring Recharged and Figure 1 (page 4) of The Great Divergence - Updated through July 2023

These 14 competitive jurisdictions shown in **green** (13 states plus Washington DC) account for one-third of U.S. electricity power production and consumption. The designation of “competitive jurisdiction” in this paper is defined as a jurisdiction that:

- Enables nearly all classes of customers to be able to choose a retail supplier without cumbersome restrictions or limitations, and,
- That the utilities in these jurisdictions have divested all (or nearly all) of their generation assets and are primarily wires-only delivery service companies. Consequently, the generating assets in these states are not included in the rate base of these delivery service utilities. Therefore, they compete within the wholesale power market parameters in place for business revenues.

It should be noted that several other states—including California, Michigan, Arizona, Oregon, Nevada, Virginia, Washington, and Montana—allow limited portions of the total load to be served competitively at retail while denying the great majority of customers a choice of supplier. These hybrid states are mainly regulated under the traditional monopoly model and are treated accordingly in this paper (see note below concerning the ‘hybrid’ states). The primary focus of this whitepaper examines the various aspects and outcomes of these 14 jurisdictions (combined) vs. the 35 monopoly states (combined) on a whole host of measures, including generator builds, performance and capacity factors, pricing performance by rate class, switching activity and the like.

#### ***The Transitional Decade 1998-2007***

Each of the 14 competitive states/jurisdictions proceeded at different speeds and in other ways during the transitional decade. By 2007, phases of customer class eligibility and the collection of stranded-cost charges had reached their prescribed end points in most states. The transitional decade witnessed a cautious, stepwise approach that set the stage for ongoing evolution and growth in competitive retail markets. Regulation would continue to adapt to this new model.

By 2008, in competitively restructured states:

- Most utility generation had been divested to unaffiliated firms or devolved to competitive generation affiliates, resulting in nearly half of all productive capacity in the country being owned and operated by a diverse array of non-utility companies;
- Utilities had been compensated for “stranded” investment in uneconomic generation;
- Large numbers of retail suppliers were offering competitively priced supply;
- Millions of customers, especially in the commercial and industrial classes, had embraced supplier choice;
- Nearly a majority of consumption in the 14 customer choice markets was satisfied by non-utility suppliers;
- Default service programs, mainly for residential and small business customers not choosing an alternative supplier, were functioning well, providing competitively priced supply, usually procured by utilities in the market and divorced from traditional rate-of-return price regulation; and
- Billions of dollars in new generation investment were made at similar paces in monopoly and competitive states.



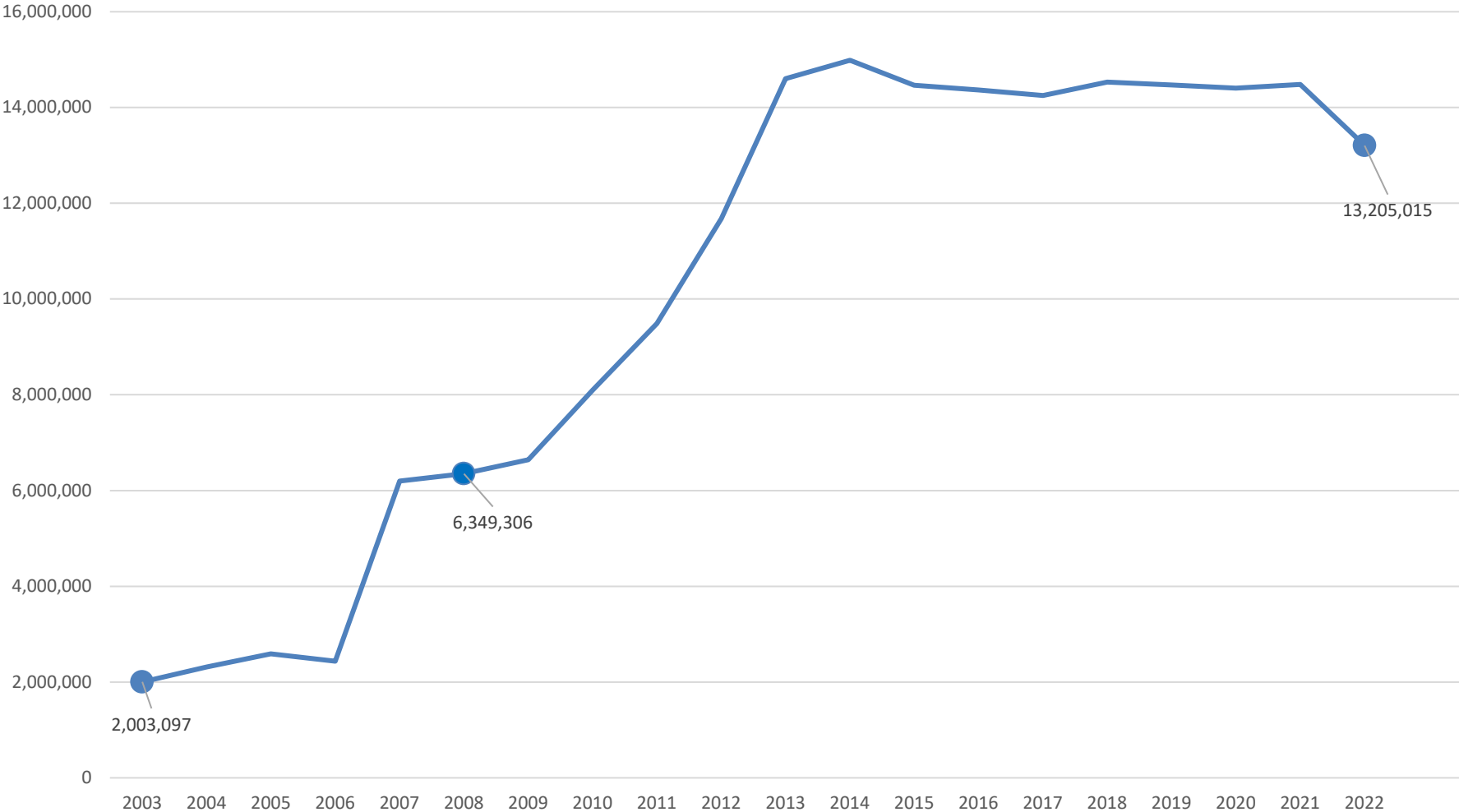
### ***The 'Hybrid' States***

Hybrid states are as varied in their approaches to limiting retail customer choice as are the choice states in the details of their market-based programs (perhaps even more so). In all cases, however, there is strong evidence of considerable customer demand for market access that can be satisfied under the rules. In Michigan, for example, more than twice as much load than the 10% permitted to access choice is enrolled in choice "queues." Industrial and commercial customers in Arizona, California and Oregon have eagerly participated in legislative and regulatory proceedings considering expanded market access. In Nevada, the constitutional amendment adopted by a 72% voter majority in the November 2016 election was initially promoted for the ballot by large customers dissatisfied with utility and regulatory obstacles to electricity retail competition. However, in November 2018, that measure was largely voted down due to Nevada Energy (utility) opposition. Meanwhile, as of this writing (July 2023), other states are contemplating various competitive markets, such as Missouri, Oklahoma, and Louisiana.

# Residential Switching by Year

Figure 4 of Restructuring Recharged

Source: DNV GL 2022 Retail Energy Outlook



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Source: DNV GL 2022 Retail Energy Outlook. This figure is derived from information from the annual report on competitive electricity accounts and loads issued by DNV GL. DNV GL is a highly regarded international consulting and energy information firm that compiles information from state utility commissions and other sources to estimate various statistics on retail electricity choice provided to subscribers in an annual Retail Energy Outlook Report.

This figure shows the upward trend in shopping activity from residential customers with respect to accounts served by non-utility suppliers.

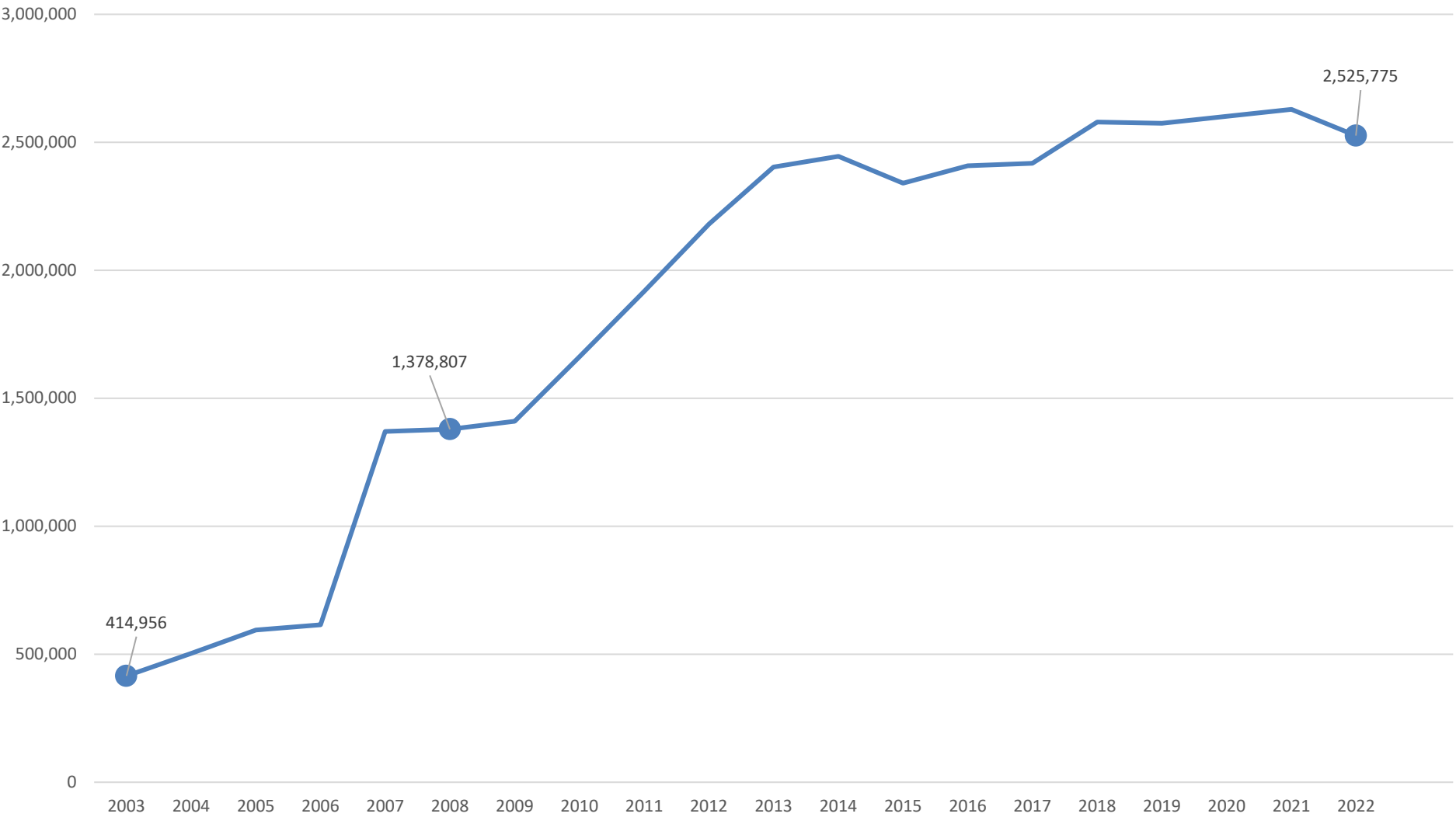
### **Growth of Customer Choice**

As shown in Figure 4, millions of residential retail electricity customer accounts are served with competitively sourced market-priced power supply. Between 2003 and 2008, the number of residential accounts served by non-utility providers more than tripled from about 2.3 million to 7.1 million. Residential accounts served by retail suppliers more than doubled again in the ensuing years. In recent years, competitively served residential accounts averaged nearly 15 million annually. (Note that the primary reason for the drop-off from 2014 to 2015 is the return to default service of approximately 750,000 City of Chicago municipal aggregation customers (primarily residential), which a retail supplier had served for several years before this). It is also important to remember that residential and small business customers taking utility default service in competitive jurisdictions are also supplied with market-priced power procured in a competitive market. “Rate of return” pricing is a thing of the past in the 14 competitive retail states/jurisdictions. Other reasons and issues concerning default service procured by retail energy suppliers have caused a flattening of shopping in recent years.

# C&I Switching by Year

Figure 5 of Restructuring Recharged

Source: DNV GL 2022 Retail Energy Outlook



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**Figure 5 (page 15) of Restructuring Recharged – Updated through CY2022**

Source: DNV GL 2022 Retail Energy Outlook. This figure is derived from information from the annual report on competitive electricity accounts and loads issued by DNV GL. DNV GL is a highly regarded international consulting and energy information firm that compiles information from state utility commissions and other sources to estimate various statistics on retail electricity choice provided to subscribers in an annual Retail Energy Outlook Report.

This figure shows the upward trend in shopping activity from C&I customers with respect to accounts served by non-utility suppliers.

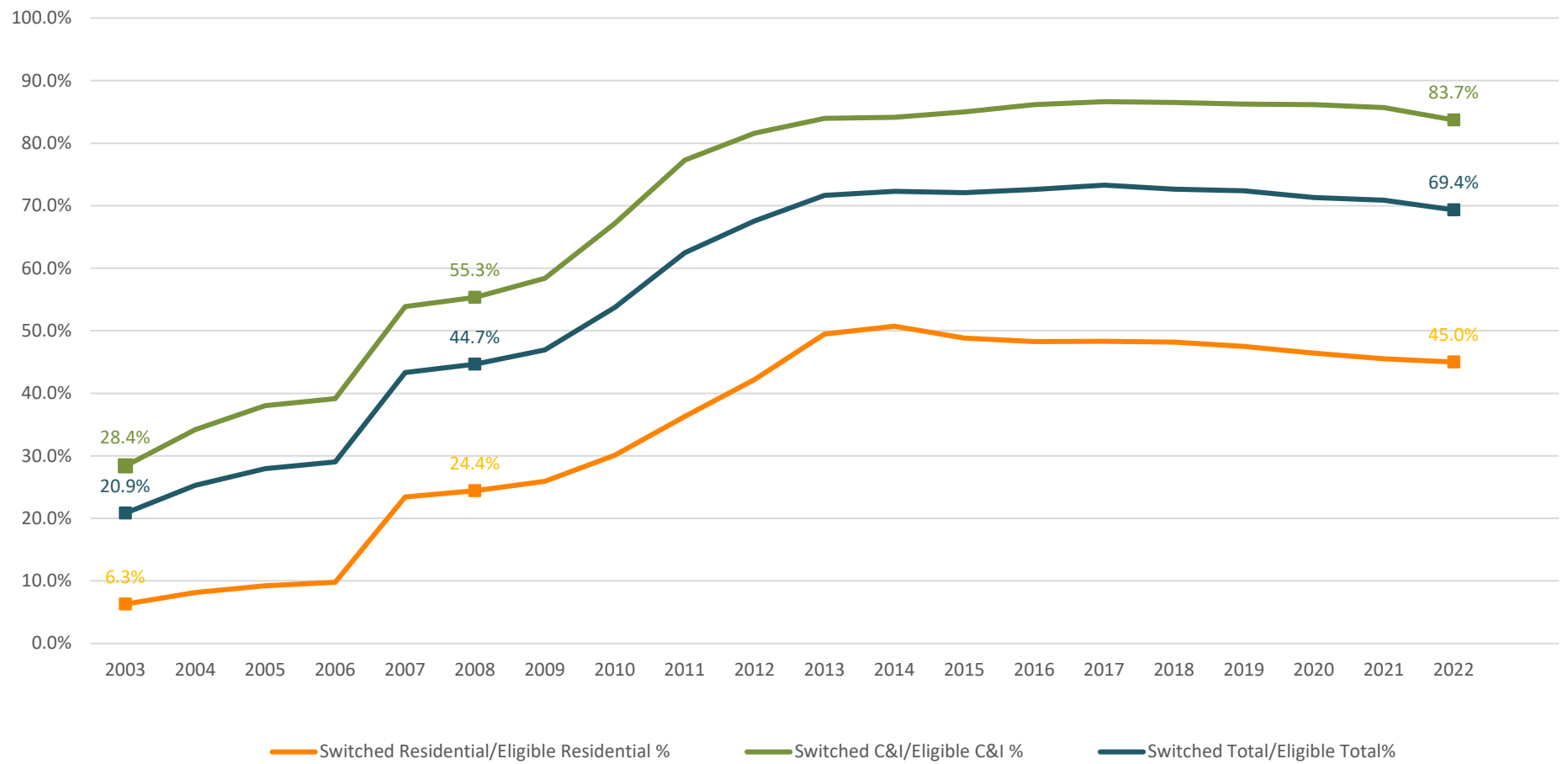
Figure 5 shows that between 2003 and 2008, the number of C&I customers served by non-utility suppliers grew 240%, from 463,351 to nearly 1.6 million. Competitive C&I accounts almost doubled again between 2008 and 2021. Just over 2.5 million C&I customers have switched to non-utility suppliers. C&I customers that have elected to take utility default service are billed at “rates” derived from market-based purchases in the competitive wholesale market

# Percentage of Load Switched in the 14 Competitive Jurisdictions

The great majority of eligible load in the choice jurisdictions is served by competitive suppliers

Figure 6 of Restructuring Recharged

Source: DNV GL 2022 Retail Energy Outlook



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## Figure 6 (page 16) of Restructuring Recharged – Updated through CY2022

Source: DNV GL 2022 Retail Energy Outlook. This figure is derived from information from the annual report on competitive electricity accounts and loads issued by DNV GL. DNV GL is a highly regarded international consulting and energy information firm that compiles information from state utility commissions and other sources to estimate various statistics on retail electricity choice provided to subscribers in an annual Retail Energy Outlook Report.

This figure shows the upward trend in shopping activity from residential and C&I customers with respect to load served by non-utility suppliers.\*<sup>1</sup> In 2022, 69.4% of the load eligible to switch in the 14 customer choice markets was served competitively with retail pricing and products by non-utility suppliers. Interestingly, the vast majority of C&I load (83.7%) has switched to non-utility supply. Meanwhile, less than half (45.0%) of the residential load in the competitive jurisdictions had switched to supply procured by retail suppliers. Most of the remaining load in the 14 markets, a little less than one-third of the total eligible load in those jurisdictions, is served with market-priced supply procured in the competitive wholesale market by wires utilities acting as default providers.

The nature of utility default service is often misunderstood or mischaracterized as the equivalent of traditional utility “rate of return” tariffed service under the monopoly model that the utility provided before restructuring. It is significantly different in several ways:

- Wires-only utilities that provide default service to non-choosing residential and small business customers generally do not earn a profit from providing the market-priced default supply;
- Customers eligible for default service are generally free to switch from the utility default service and to choose service from a competitive supplier; and,
- Default service supply is customarily procured through forward purchases made in a competitive wholesale market similar to that procured by the retail suppliers.

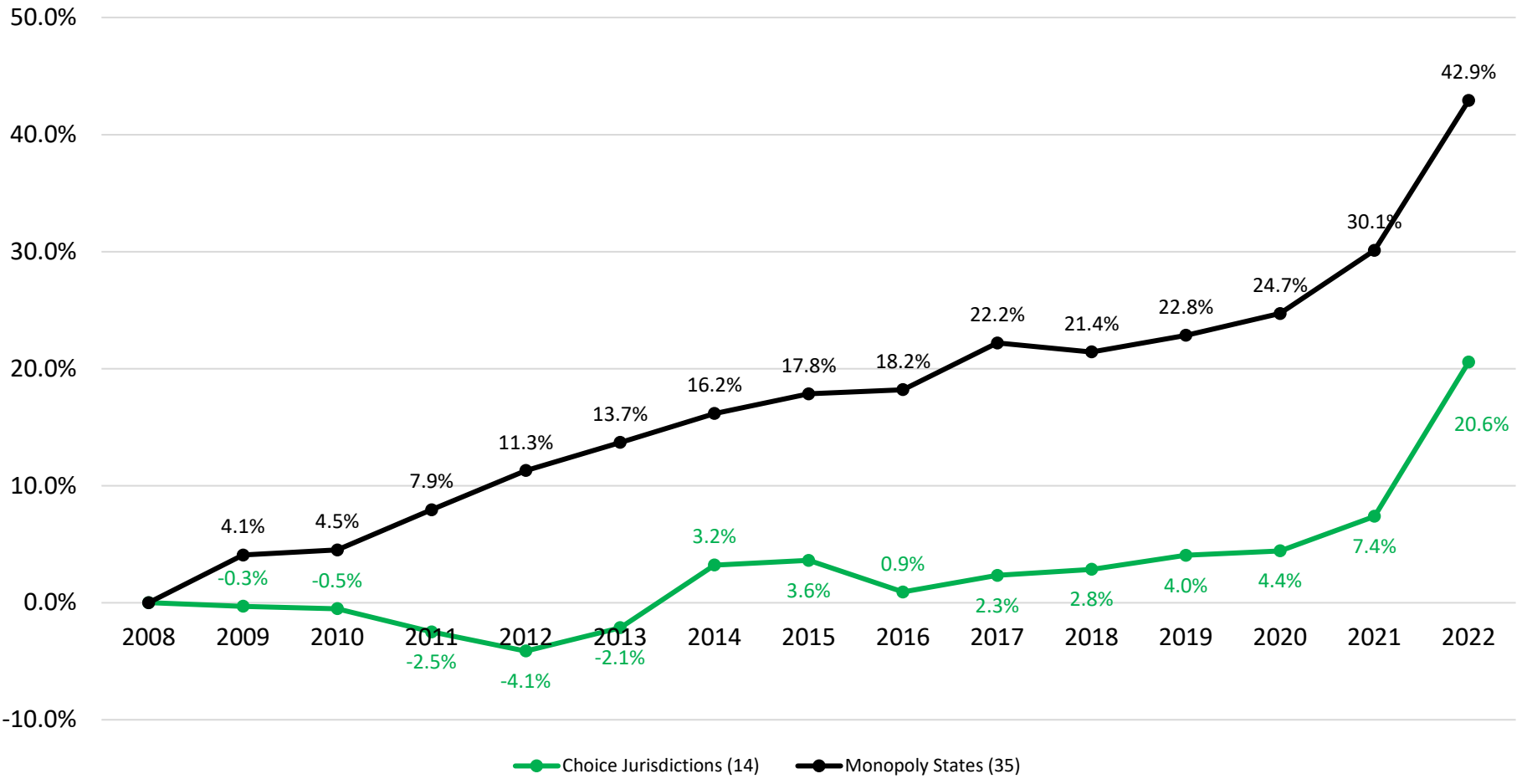
\*1: The word “eligible” in the slide title indicates that only those customers allowed to choose a retail supplier (usually those located behind IOUs in the competitive jurisdictions/states) are included in the calculation. Typically, customers located behind municipal utilities and rural cooperatives do not allow choice in their respective service territories even though they may reside in what this paper defines as a competitive jurisdiction/state. In any event, the proportion of load represented by the ineligible customers is usually small and would not change the percentages shown in a material way even if they were included.

# Residential Weighted Average Percentage Price Change, Choice vs. Monopoly States, 2008-2022

% Price Change – 22.3% Spread

Figure 7 of Restructuring Recharged

Source: EIA-861M



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***A DECADE OF DIVERGENT PRICE PATHS***

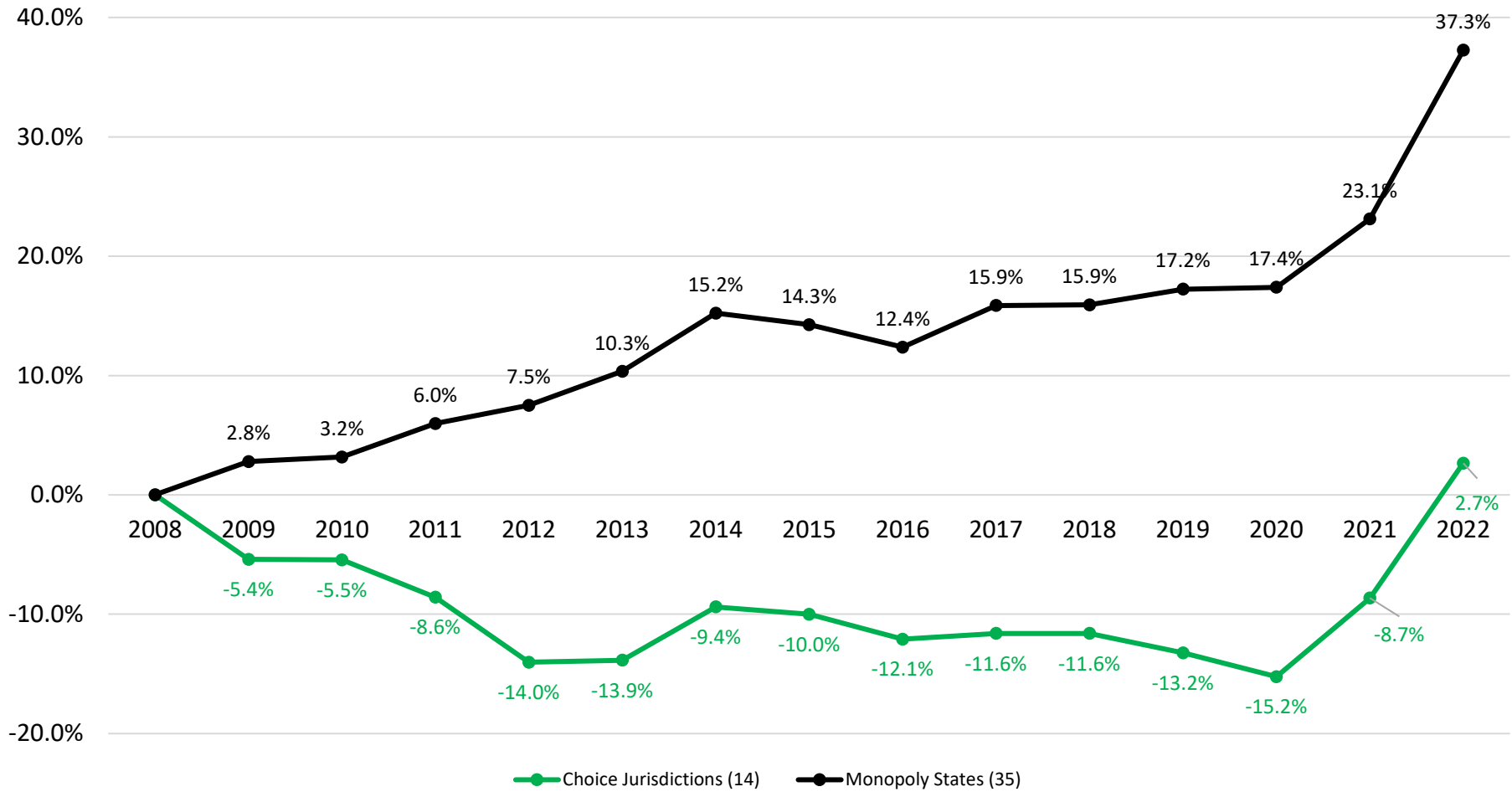
U.S. Energy Information Administration (EIA) data allow for comparing trends in weighted average nominal prices between the monopoly group of states and the competitive jurisdictions. Figures **3, 4, 5 and 6** show stunningly different price trends in the competitive jurisdictions compared to the monopoly states. From 2008 through 2022, weighted average prices in the group of 35 monopoly states have risen inexorably. By contrast, in the 14 competitive markets, commercial and industrial weighted average prices have trended significantly downward through 2020, and while the last few years have shown an uptick in prices, commercial, residential, and industrial prices are still significantly lower than their monopoly state counterparts.

# Commercial Weighted Average Percentage Price Change, Choice vs. Monopoly States, 2008-2022

% Price Change – 34.6% Spread

Figure 8 of Restructuring Recharged

Source: EIA-861M



The information presented in this document represent the views of RESA as an organization and may not necessarily reflect the views of any particular RESA member.

Figure 8 (page 17) of Restructuring Recharged and Figure 4 (page 5) of The Great Divergence - Updated through CY2022

***A DECADE OF DIVERGENT PRICE PATHS***

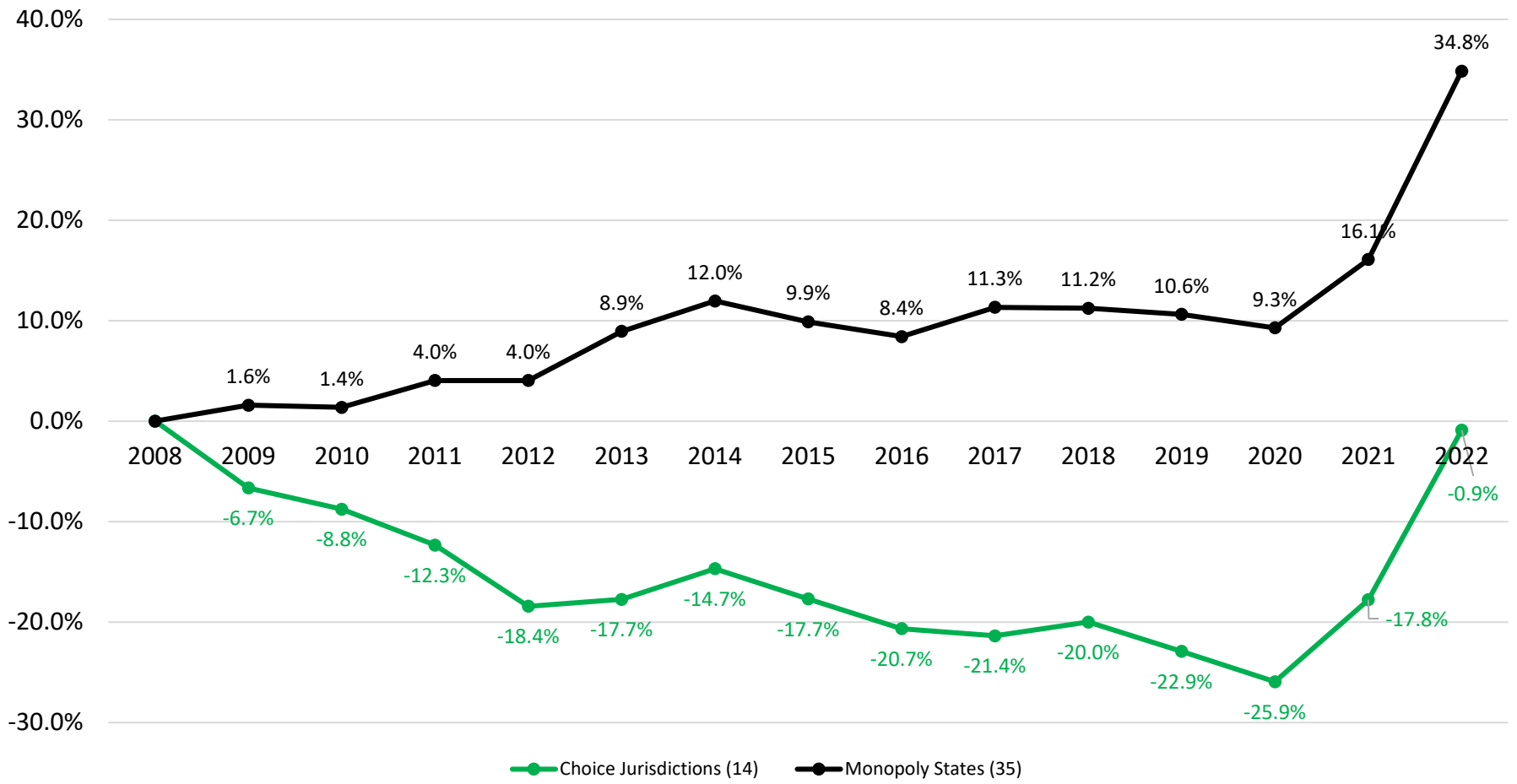
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# Industrial Weighted Average Percentage Price Change, Choice vs. Monopoly States, 2008-2021

**% Price Change – 35.7% Spread**

*Figure 9 of Restructuring Recharged*

Source: EIA-861M



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***A DECADE OF DIVERGENT PRICE PATHS***

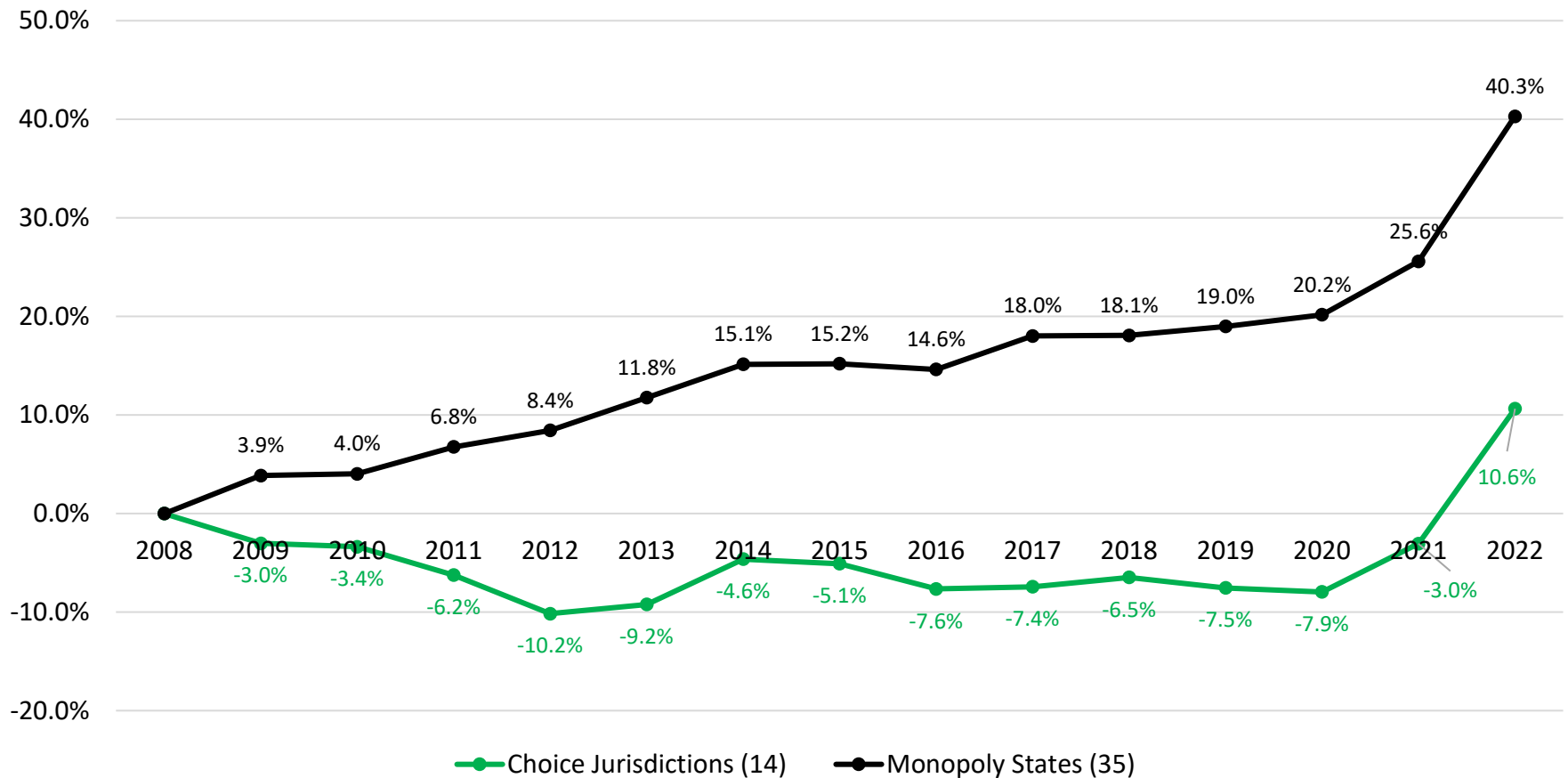
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# All-Sector Weighted Average Percentage Price Change, Choice vs. Monopoly States, 2008-2022

% Price Change – 29.7% Spread

Figure 10 of Restructuring Recharged

Source: EIA-861M





### **A DECADE OF DIVERGENT PRICE PATHS**

U.S. Energy Information Administration (EIA) data allow for comparing trends in weighted average nominal prices between the monopoly group of states and the competitive jurisdictions. The All-Sector annual weighted average price in the 35 monopoly states was 40.3% higher in 2021 than in 2008. In contrast, the All-Sector annual weighted average price for the competitive retail markets only was 10.6% higher than in 2008.

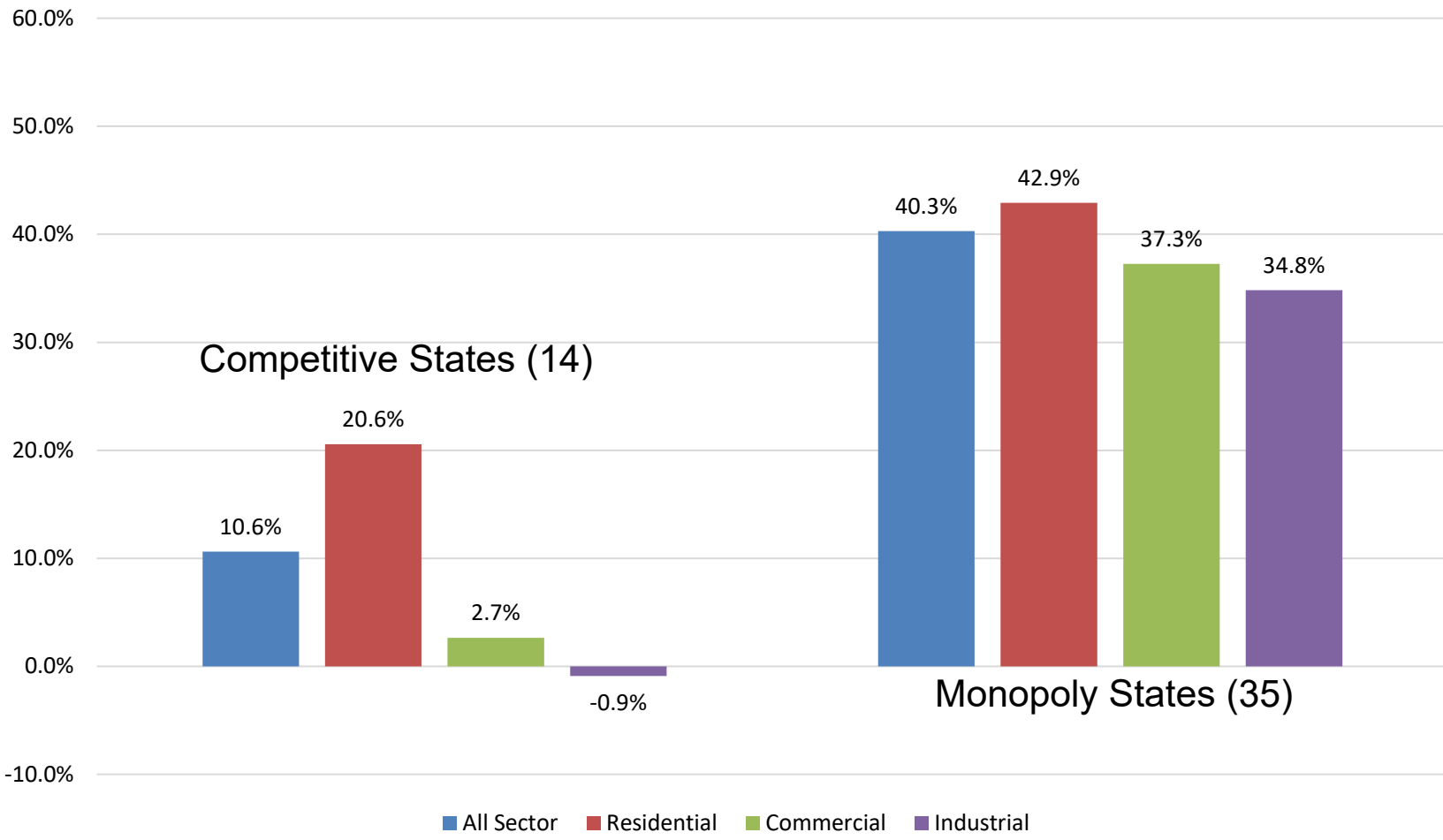
The dollar implications of such spreads in price paths are significant. If 2008-2022 annual percentage price changes in the thirty-five monopoly states had tracked with percentage price changes in the fourteen competitive jurisdictions, all consumers in the monopoly states *would have saved* more than half of a trillion dollars (\$630 billion). By major customer class, the savings (in the monopoly states) would have been \$210.9 billion for Residential, \$206.4 billion for Commercial and \$155 billion for Industrial.\*<sup>1</sup>

\*1: The flip side is that if the same price trend patterns that occurred in the monopoly group had also prevailed in the competitive jurisdictions, the hypothetical cost to electricity customers in the fourteen choice markets would have been higher by \$430 billion for All-Sector. By major customer class, the avoided cost in the competitive jurisdictions is \$137.2 billion for Residential, \$197.34 billion for Commercial and \$94.8 billion for Industrial.

# Nominal Weighted Average Percentage Price Change by Customer Class, Choice vs. Monopoly States, 2008-2022

Figure 11 of Restructuring Recharged

Source: EIA-861M



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### ***Price Trend Divergence in the Flat-Load Era***

The difference in risk allocation between monopoly and choice regimes is manifested most clearly in the divergent electricity price trends during the flat-load era since 2008. This figure shows the aggregate inflation-adjusted percentage changes in weighted average prices of delivered supply for the groups of 14 choice jurisdictions and the 35 monopoly states from 2008 through 2022. It also shows stunningly different price trends in the competitive jurisdictions compared to the monopoly states from 2008 through 2022. The nominal weighted average prices in 35 monopoly states have risen inexorably. By contrast, in the 14 competitive markets, residential, commercial, and industrial nominal weighted average prices have trended significantly downward, except for residential prices, which have flatlined.

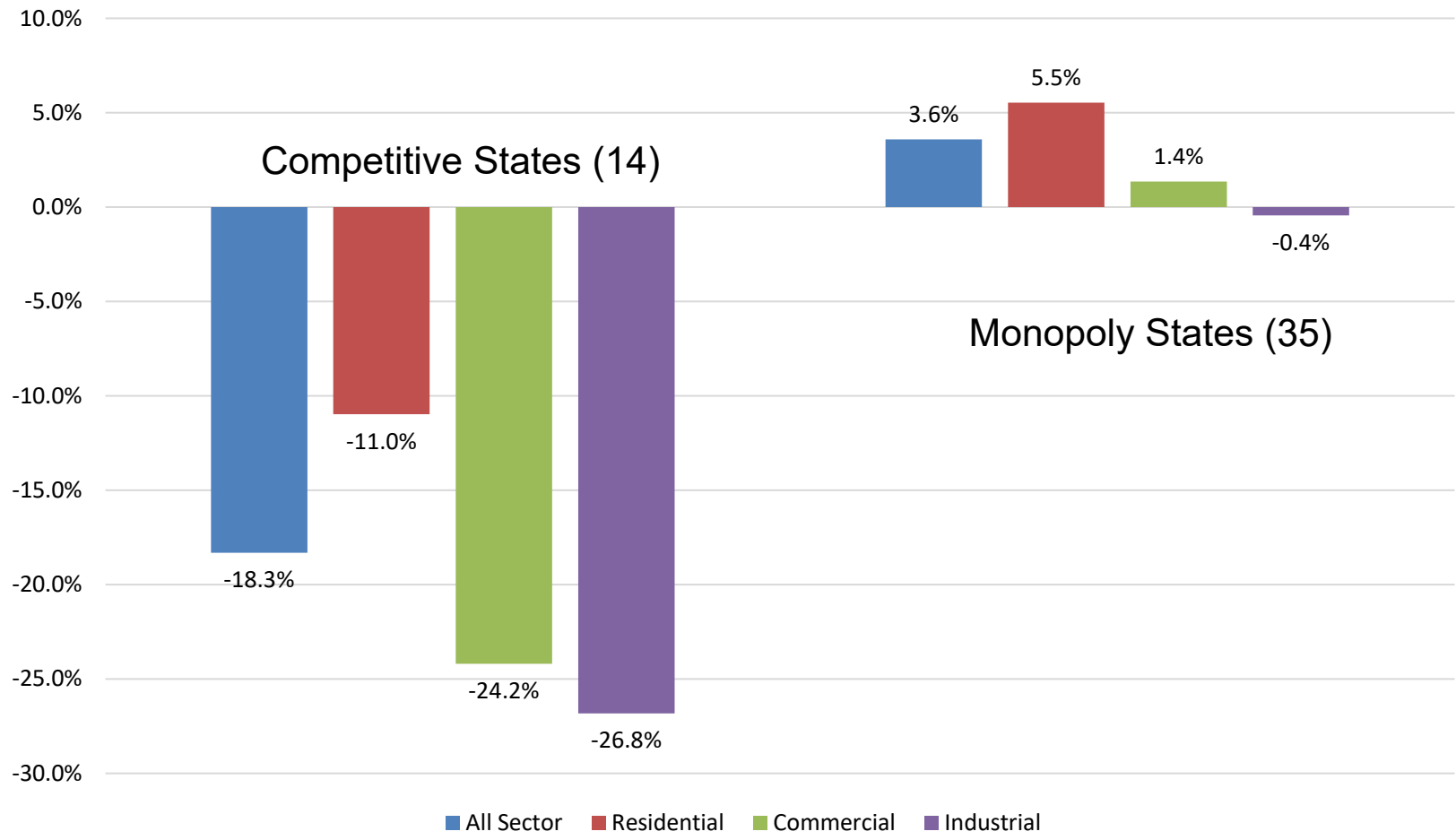
Advocates for the monopoly model sometimes promote the notion that residential, small business and non-profit customers, such as schools, are disadvantaged by choice. The assertion is that large commercial and industrial customers will reap most of the benefits and that competitive suppliers will “cherry-pick.” Opponents of retail choice argue that allowing large customers to leave utility service will necessarily drive up costs for the remaining customers. That may be true in a monopoly state with a commission-approved revenue requirement. However, the data show that prices for residential customers in competitive retail markets have been on a favorable track alongside the benefits that have accrued to C&I customers (all customers benefit, although the non-residential customers benefit more). While percentage changes in price differ among the customer classes in both the monopoly and choice states, this is due in part to the greater volumes and more constant demand characteristics of larger customers. Additionally, the costs of delivery services allocable to residential and small business customers constitute a greater share of the total price.

The divergence in price trends between the group of states that have incorporated competitive markets and the group that has remained under monopoly regulation is neither accidental nor aberrational. It is a function of entirely different public policies that prescribe quite different ways supply prices are set and risks are borne. Traditional regulation sets supply prices based on past capital investment and current operation costs, with little regard for the actual economic value of the product. In competitive markets, supply prices are set by supply and demand dynamics. The problem for consumers served by monopoly utilities in the flat-load era is more than just one of poor risk allocation. Traditional regulation necessarily sends inaccurate price signals. Because traditional rate setting is in great part retrospective, prices will tend to be set too high in periods of surplus to recover investment in power plants that are producing less power than anticipated. Similarly, traditional regulation distorts price signals, including setting prices too low in periods of impending shortage and too high in periods of surplus. This upside-down pricing is resulting in rising prices in monopoly states. At the same time, customers are restraining their electricity consumption from the grid. In choice jurisdictions, all customers have a clear line of sight to the economic value of electricity in wholesale markets. Price signals constitute some of the most valuable information for all stakeholders in a market. Accurate and timely price signals elicit efficient consumer and investor decisions. Poor price information encourages inefficient behavior.

# Inflation-Adjusted Weighted Average Percentage Price Change by Customer Class, Choice vs. Monopoly States, 2008-2022

Figure 12 of Restructuring Recharged

Source: EIA-861M



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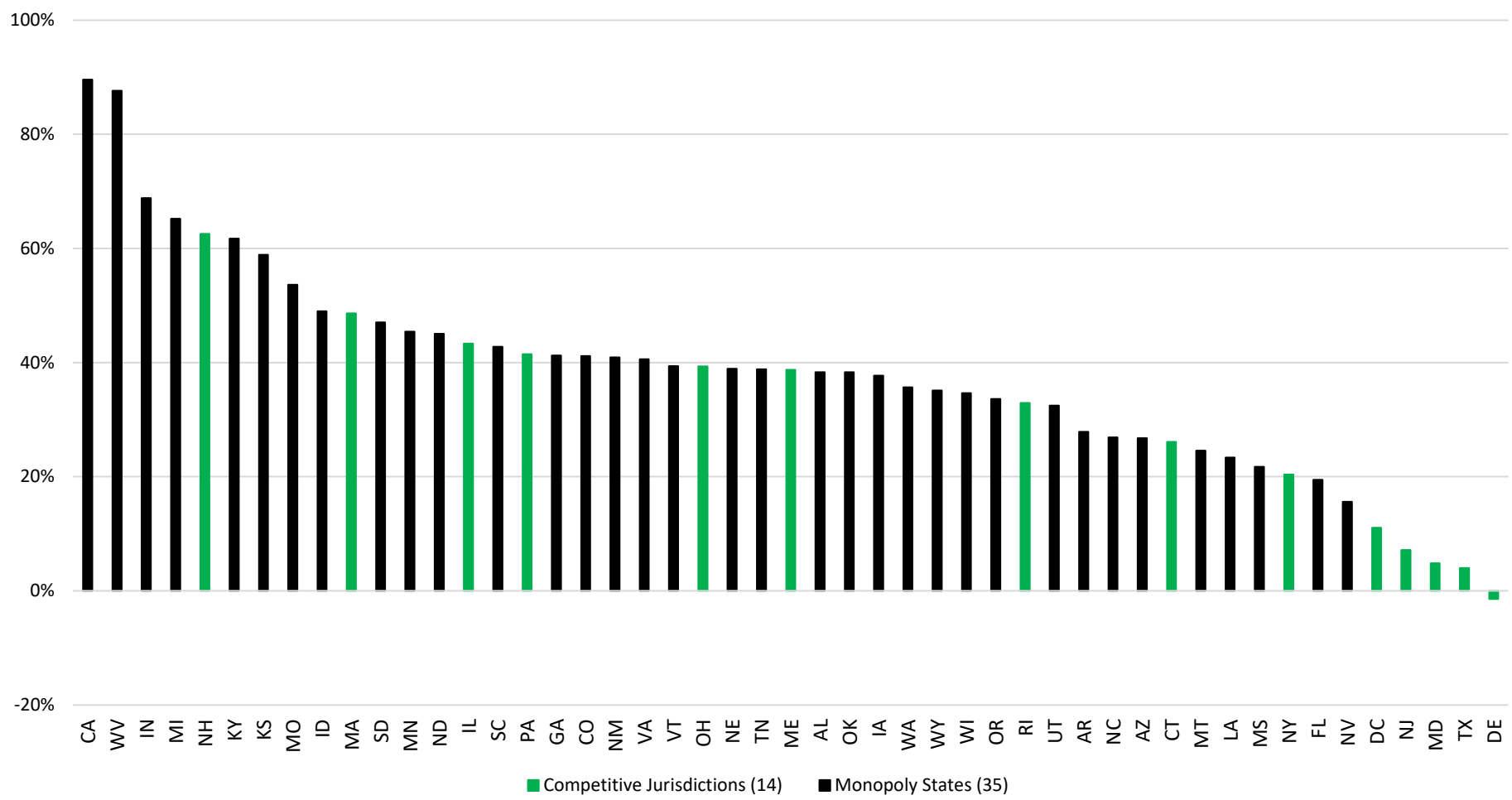
Advocates for the monopoly model sometimes promote the notion that residential, small business and non-profit customers, such as schools, are disadvantaged by choice. The assertion is that large commercial and industrial customers will reap most of the benefits and that competitive suppliers will “cherry-pick.” Opponents of retail choice argue that allowing large customers to leave utility service will necessarily drive up costs for the remaining customers. That may be true in a monopoly state with a commission-approved revenue requirement. However, the data show that prices for residential customers in competitive retail markets have been on a favorable track alongside the benefits that have accrued to C&I customers (all customers benefit, although the non-residential customers benefit more). While percentage changes in price differ among the customer classes in both the monopoly and choice states, this is partly due to the greater volumes and more constant demand characteristics of larger customers. Additionally, the costs of delivery services allocable to residential and small business customers constitute a greater share of the total price.

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# Residential Price % Price Change by State, 2008-2022

Figure 13 of Restructuring Recharged

Source: EIA-861M



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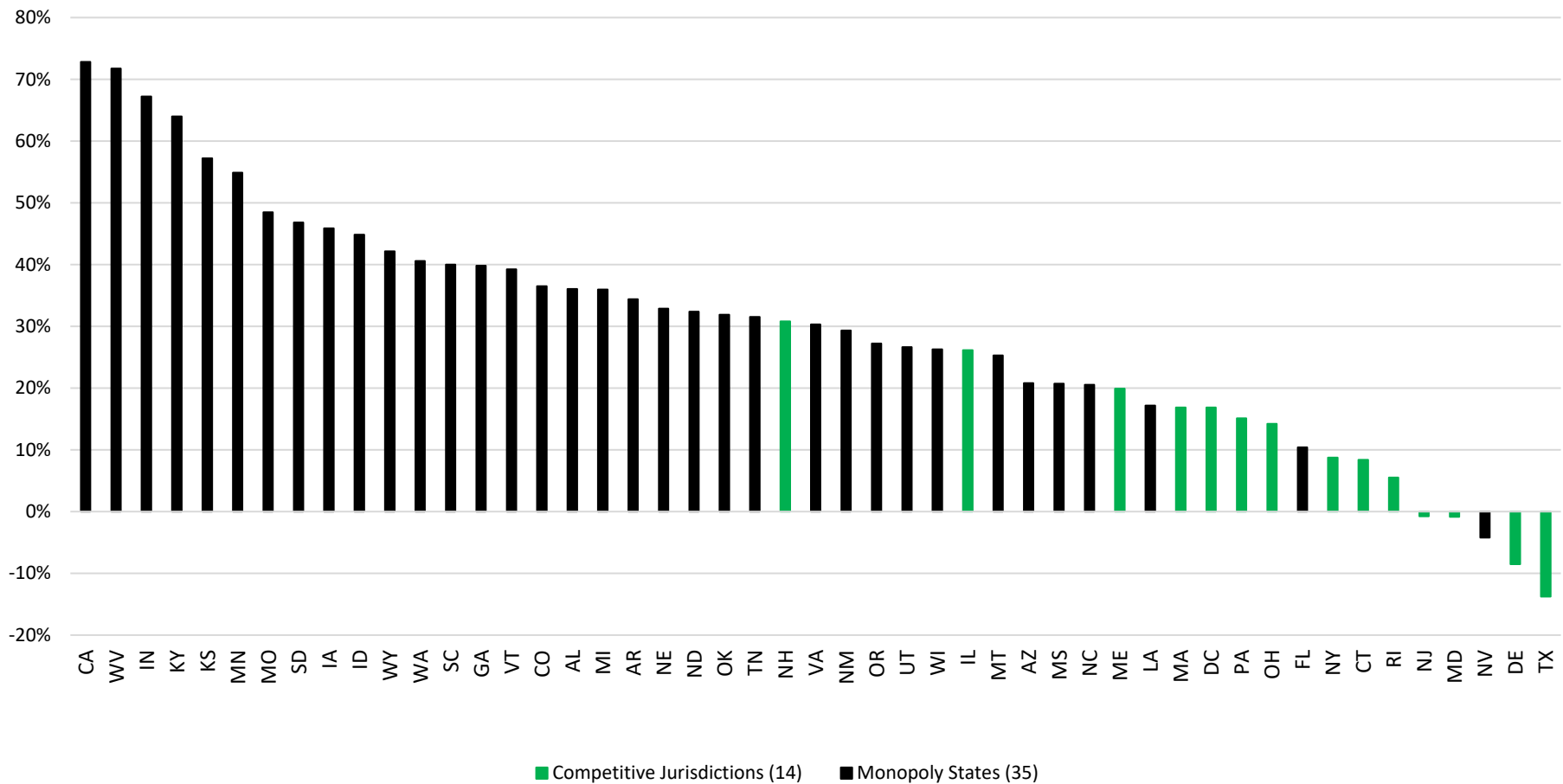
***DIVERGENT DIRECTIONS AND STATE RANKINGS***

The large difference in percentage changes in weighted average prices between the monopoly and competitive choice jurisdictions is not the result of a few large states skewing the results in one direction or the other. Instead, when the conditions are ranked by the percentage change in each state's average residential price change over this period, the competitive states tend to cluster in the lower range and the monopoly states tend to occupy the higher parts of the rankings.

# Commercial Price % Price Change by State, 2008-2022

Figure 14 of Restructuring Recharged

Source: EIA-861M



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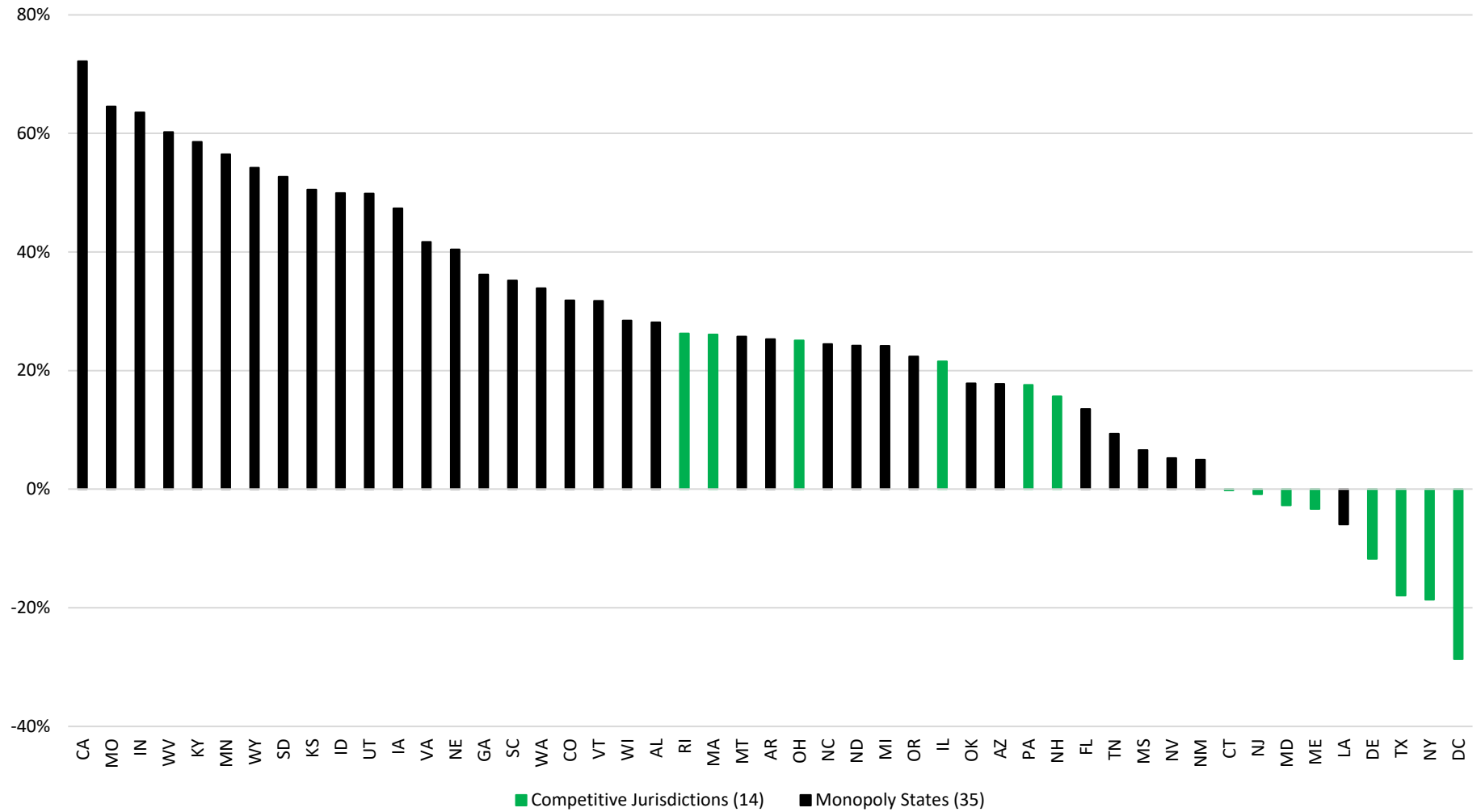
***DIVERGENT DIRECTIONS AND STATE RANKINGS***

The large difference in percentage changes in weighted average prices between the monopoly and competitive choice jurisdictions is not the result of a few large states skewing the results in one direction or the other. Instead, when the states are ranked by percentage change in each state's average commercial price change over this period, the competitive states tend to cluster in the lower range and the monopoly states tend to occupy the higher parts of the rankings.

# Industrial Price % Price Change by State, 2008-2022

Figure 15 of Restructuring Recharged

Source: EIA-861M



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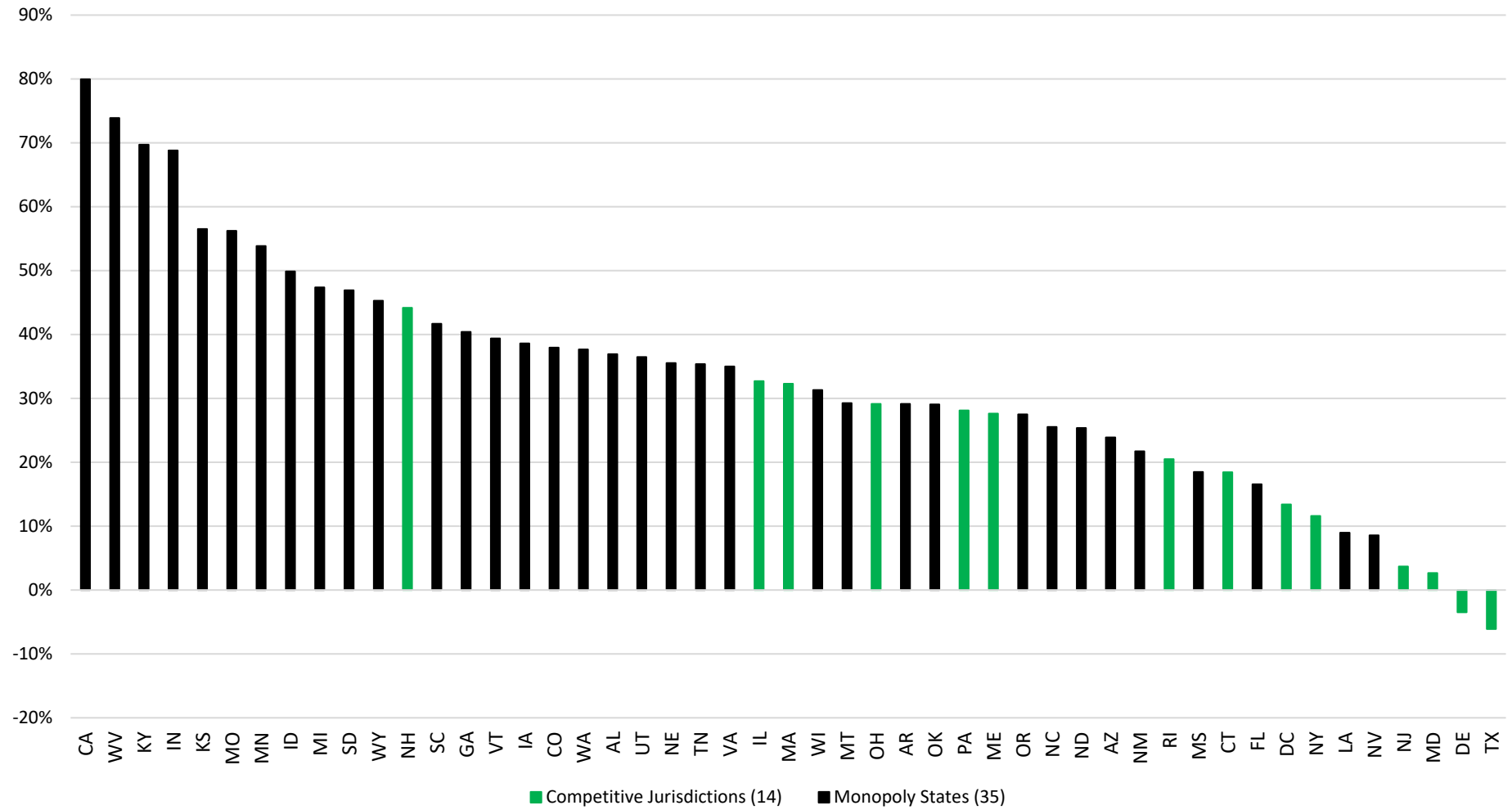
***DIVERGENT DIRECTIONS AND STATE RANKINGS***

The large difference in percentage changes in weighted average prices between the monopoly and competitive choice jurisdictions is not the result of a few large states skewing the results in one direction or the other. Instead, when the states are ranked by percentage change in each state's average Industrial price change over this period, the competitive states tend to cluster in the lower range and the monopoly states tend to occupy the higher parts of the rankings. It is interesting to observe that the largest 21 Industrial price changes over this time period are all monopoly states. Additionally, all 14 competitive states/jurisdictions reside on the right-hand side of this chart. Meanwhile, nine states have seen a net decline in prices since 2008, and eight (out of nine) are competitive states.

# All Sector Price % Price Change by State, 2008-2022

Figure 16 of Restructuring Recharged

Source: EIA-861M



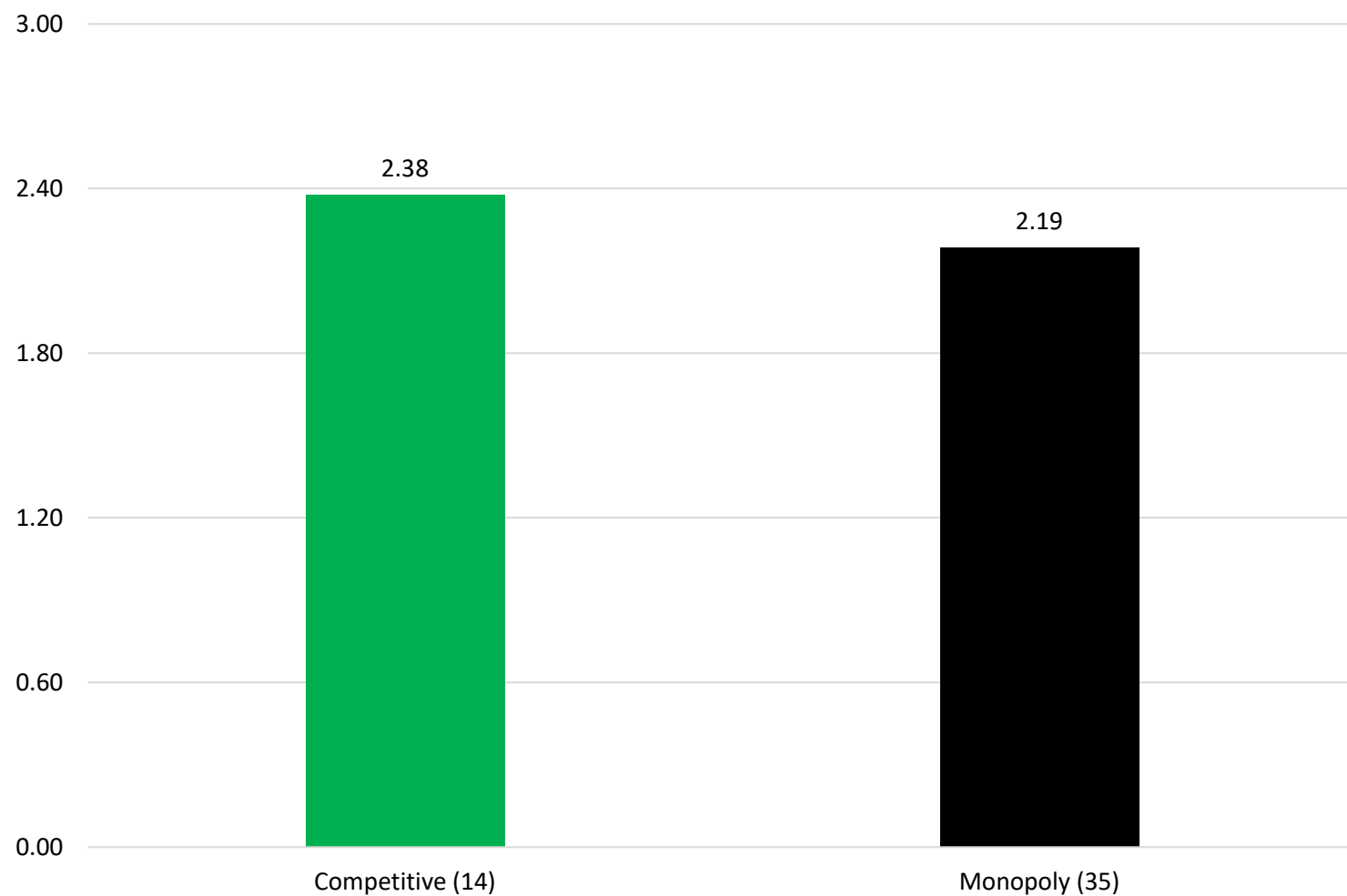
***DIVERGENT DIRECTIONS AND STATE RANKINGS***

The large difference in percentage changes in weighted average prices between the monopoly and competitive choice jurisdictions is not the result of a few large states skewing the results in one direction or the other. Instead, when the conditions are ranked by the percentage change in each state's average All-Sector price change over this period, the competitive states cluster in the lower range and the monopoly states occupy the higher parts of the rankings. It is interesting to observe that the largest 25 all-sector price changes over this time period are all monopoly states. Additionally, all 14 competitive states/jurisdictions reside on the right-hand side of this chart. While only two states have seen a net decline in price since 2008, both of these states (Texas and Delaware) have competitive markets.

# Effectiveness Ratio, 1997-2021 [ $\Delta\%$ ]/[Consumption ( $\Delta\%$ )]

Figure 17 of Restructuring Recharged

Source: EIA-860, EIA-861M, EIA-923



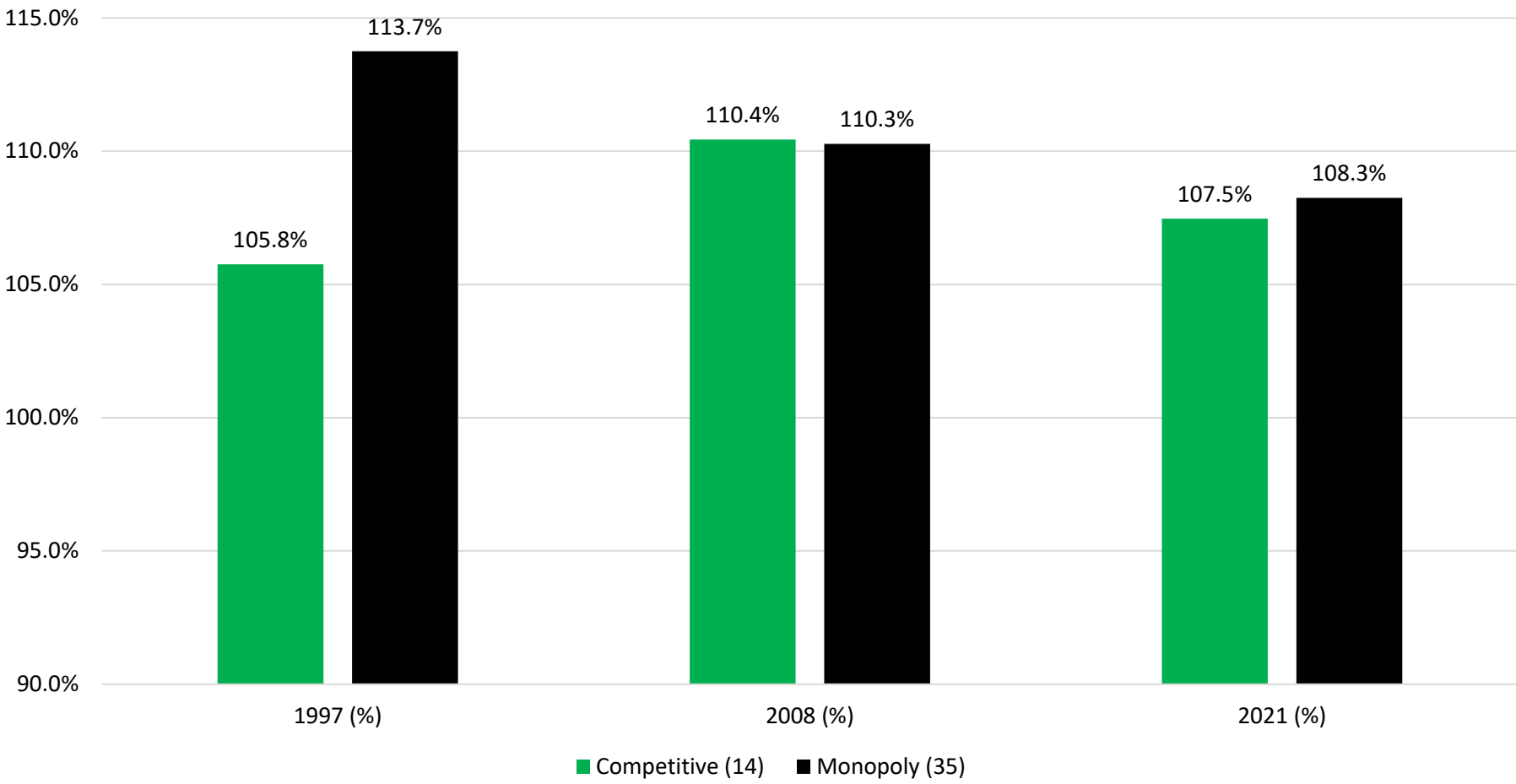
### **Generation Effectiveness**

“Generation Effectiveness” is the extent to which generating capacity additions have kept pace with consumption, as measured by the ratio of the percentage growth in generating capacity to the percentage change in consumption over the same time period. As shown in Figure 17, monopoly states and competitive jurisdictions have added capacity since 1997, approaching double the proportion of the percentage increase in electricity consumption. Figure 17 also shows that both groups of states added capacity at comparable effectiveness ratios of approximately two times the increase in MWh consumption: 2.38 in the Customer Choice Jurisdictions and 2.19 in the Monopoly States. The takeaway is that when using the “Effectiveness Ratio” as a measure, there is a reasonably significant difference between the amount of capacity added in either group during this period (1997-2021). This demonstrates that competitive states outperform their monopoly state counterparts, even as monopoly states offer a guaranteed rate of return.

# Change in Resource Adequacy Factors Ratio, 1997, 2008, 2021 (Generation Output/Consumption)

Figure 18 of Restructuring Recharged

Source: EIA-860, EIA-861M, EIA-923



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### Change in Resource Adequacy

A useful measure of “Change Resource Adequacy” in an electricity market or collection of markets is whether total annual generation production equals about 110% of total annual consumption. At the time, 10% of production above consumption represented line losses and other production that did not reach the end-use meter. As shown in Figure 18, at the commencement of the competitive era in 1997, the 14 Customer Choice Jurisdictions, as a group, were net importers, generating 106% of total consumption. Thus, the group of 14 competitive states/jurisdictions was considered a net importer and the monopoly states were net exporters.

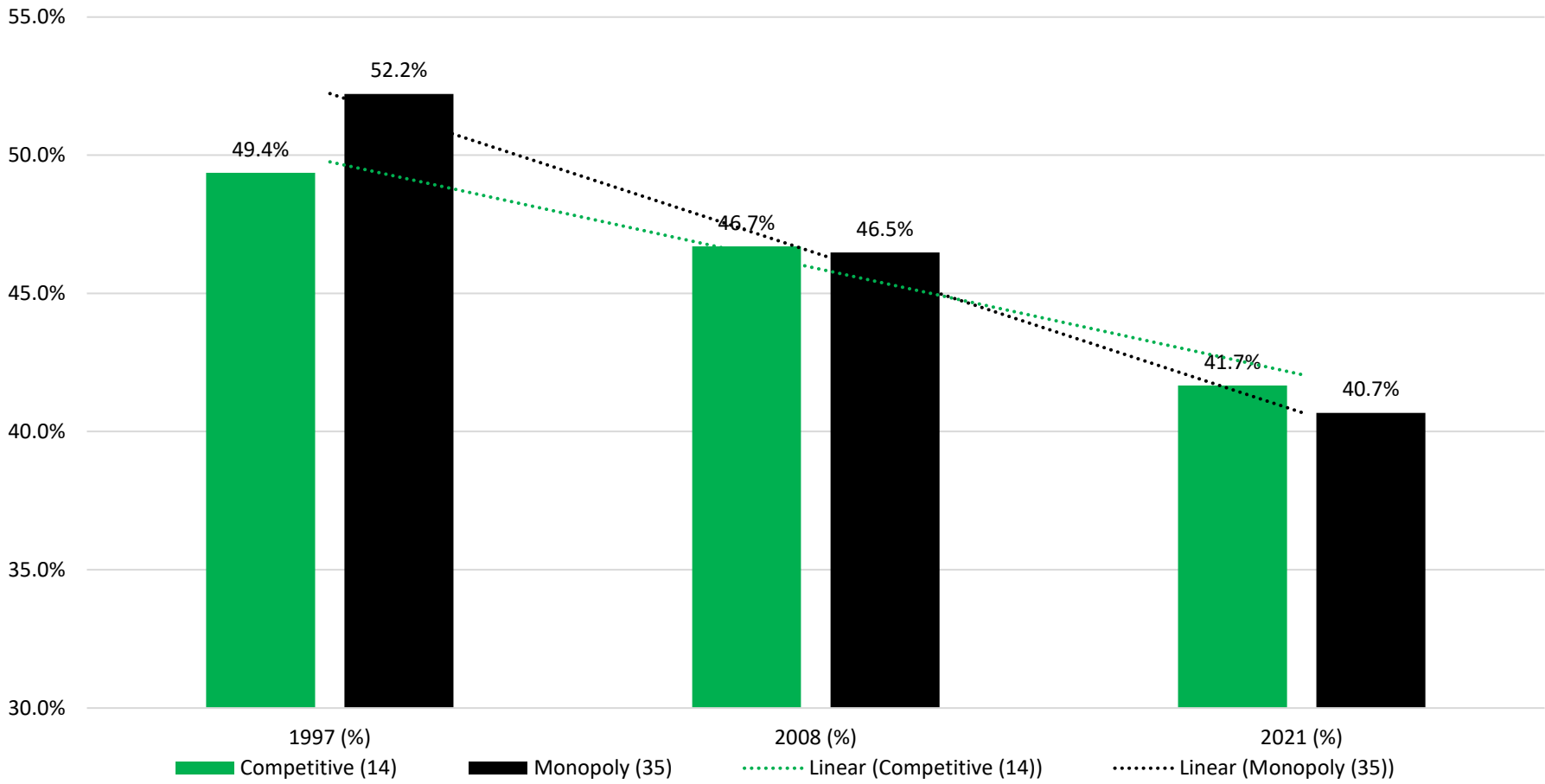
By 2008, the competitive states had evened out with the monopoly states as far as this measure is concerned. However, by 2021, two things have occurred.

- 1) The overall loss percentage of the grid seems to have improved and is now less than 10%, which accounts for the lower Change in Resource Adequacy Factors Ratios in 2021 compared to the previous years on this chart (for both types of states).
- 2) Customer Choice Jurisdiction’s resource adequacy had fallen just above pre-restructuring levels. This comparative drop in RA was primarily driven by the fact that while monopoly states experienced a decline in generation output of about -0.3%/year and competitive states saw a growth of 0.1%/year during this time frame, the competitive states/jurisdictions saw a more significant increase in consumption of 2.9%/year. In contrast, the monopoly states saw a negligible growth in consumption of around 1.5% per year over this period.

# Change in Capacity Factor, 1997, 2008, and 2021 (Generation Output/Potential Output)

Figure 19 of Restructuring Recharged

Source: EIA-860, EIA-923



The information presented in this document represent the views of RESA as an organization and may not necessarily reflect the views of any particular RESA member.

**Figure 19 (page 22) of Restructuring Recharged and Figure 12 (page 8) of The Great Divergence – Updated through CY2021**

The explanation of the Great Divergence between the monopoly states and competitive jurisdictions is not to be found in the similar trend lines moving from coal to gas and negligible differences in patterns of renewables and nuclear resources. There is, however, a knock-on effect that may partially explain the Great Divergence in price direction. Monopoly regulation and competitive markets accord fundamentally different treatment to power plant utilization. The decline in power plant portfolio capacity factor has been larger, both nominally and proportionally, in the 35 monopoly states than in the 14 competitive states/jurisdictions, as shown in this figure (note the increased slope of the black dotted line compared to the green dotted line). The Capacity Factor in the 35 monopoly states declined from 52.2% in 1997 to 40.7% in 2021 (the most recent year for which EIA data are available). That is more than a one-fifth decrease compared to the much more modest decline in Capacity Factor in the 14 competitive states/jurisdictions from 49.4% in 1997 to 41.7% in 2020, a proportional decrease of about one-seventh. As measured by the Capacity Factor, plant utilization has declined in far more significant proportion in the group of monopoly states than in competitive states/jurisdictions due mainly to the shift from coal toward gas. However, as long as rate-based generation assets are considered “used and useful” —even if underutilized— full cost recovery is accorded in the monopoly states, with consumers absorbing those costs; in contrast, underutilized or uneconomic generation assets in the competitive states/jurisdictions will tend to experience adverse financial consequences under the same conditions. The difference is that investors, not customers, bear the risk of changing market fundamentals.

# “Potency” Ratio, 1997-2021 (Generation Output ( $\Delta\%$ ))/(Consumption ( $\Delta\%$ ))

Figure 20 of Restructuring Recharged

Source: EIA-860, EIA-861M, EIA-923

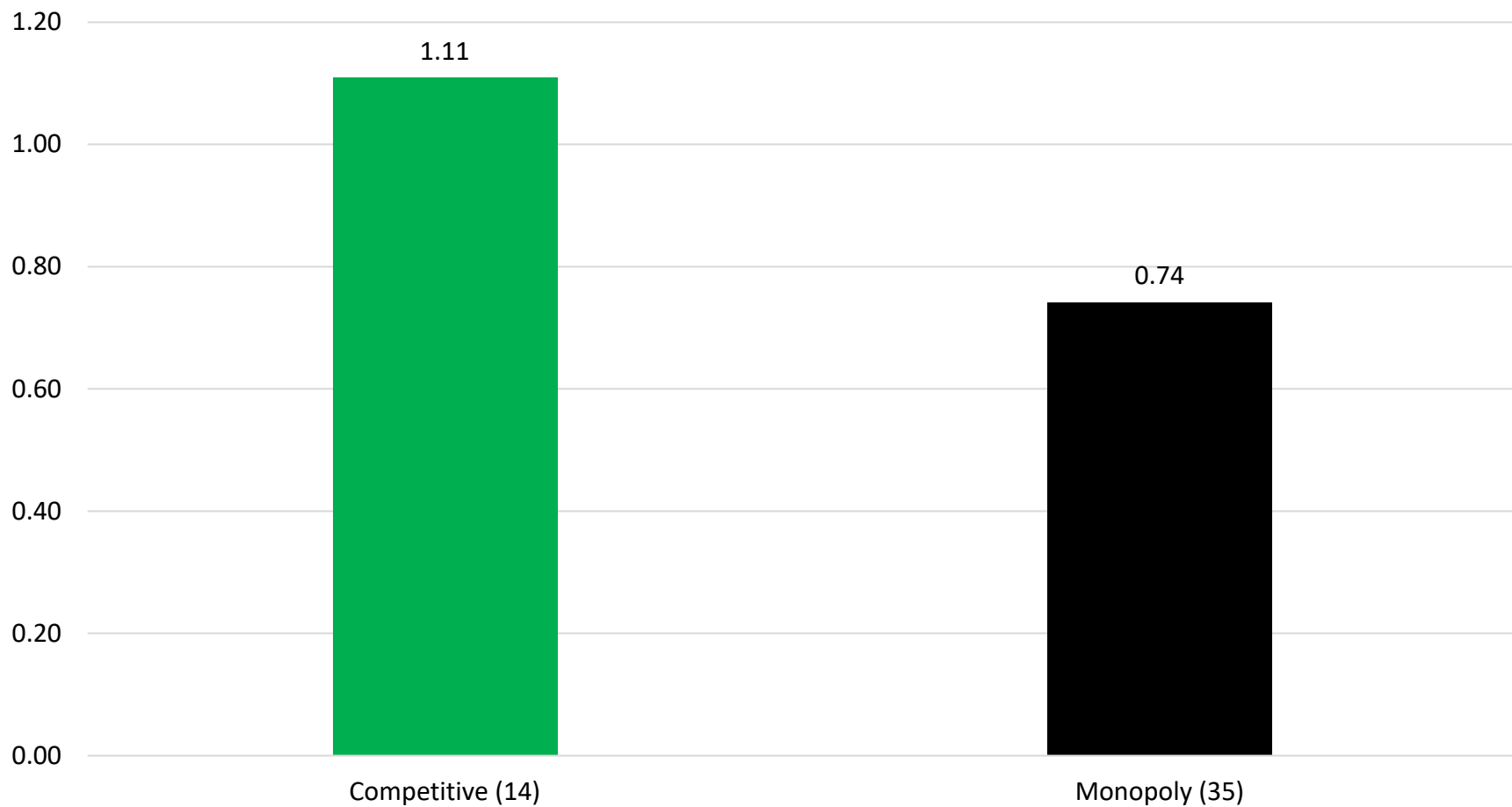


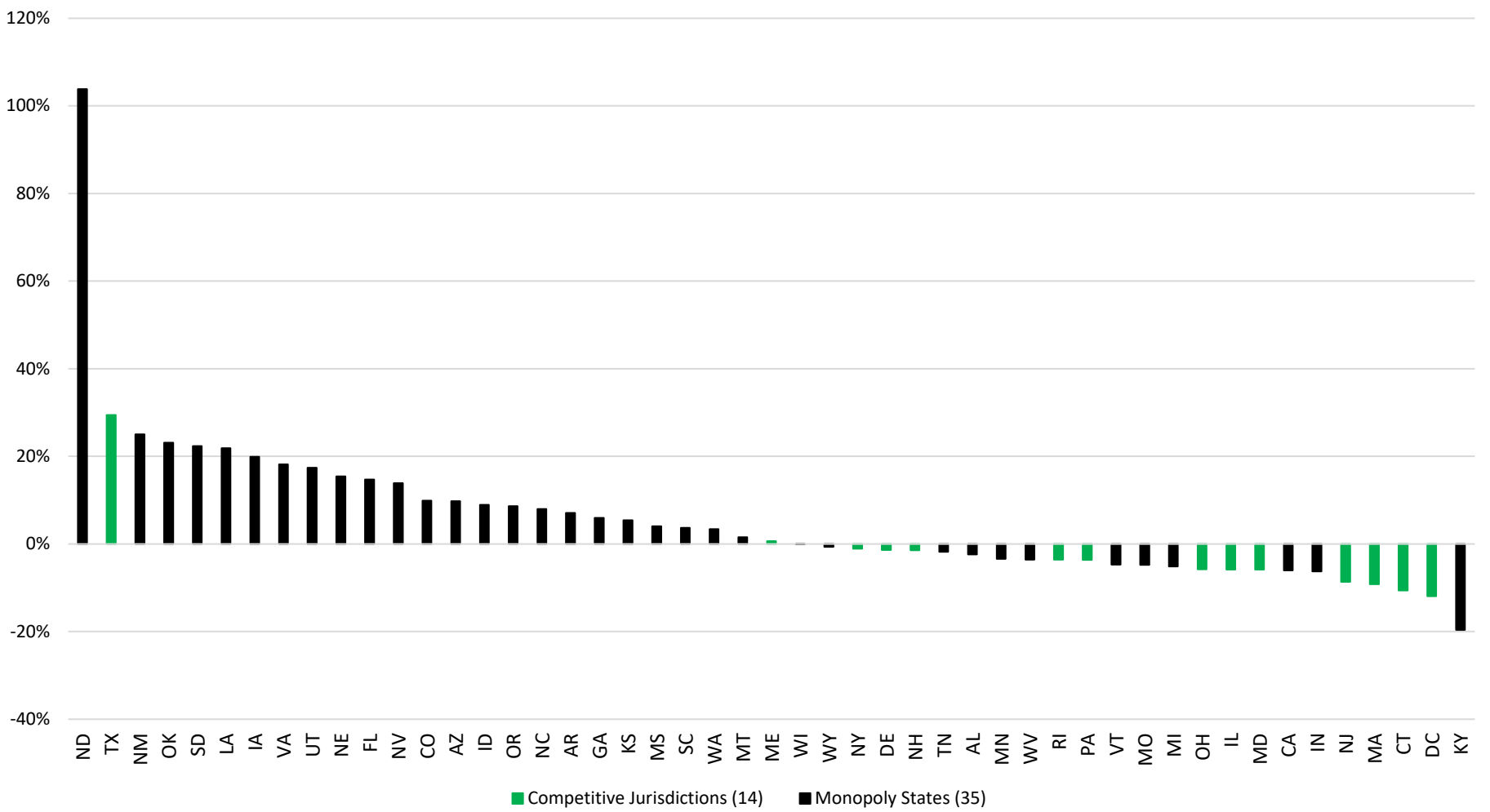
Figure 20 (page 22) of Restructuring Recharged - Updated through CY2021

Generation Potency "Generation Potency" measures how well generating assets meet consumers' electricity usage requirements over time. The Potency ratio compares the percentage change in generation production to the percentage change in consumption over a period of time. Figure 20 shows that in the customer choice states/jurisdictions, production has increased at a ratio of 1.11 to the change in consumption. In contrast, in the monopoly states, production increased at a pace well below the percentage change in consumption at a ratio of just 0.74. Thus, generation production in the customer choice states/jurisdictions outpaced consumption, while consumption in the monopoly states outpaced generation production.

# State Ranking – Consumption Percentage Change 2008-2022

Figure 22 of Restructuring Recharged

Source: EIA-861M



The information presented in this document represent the views of RESA as an organization and may not necessarily reflect the views of any particular RESA member.

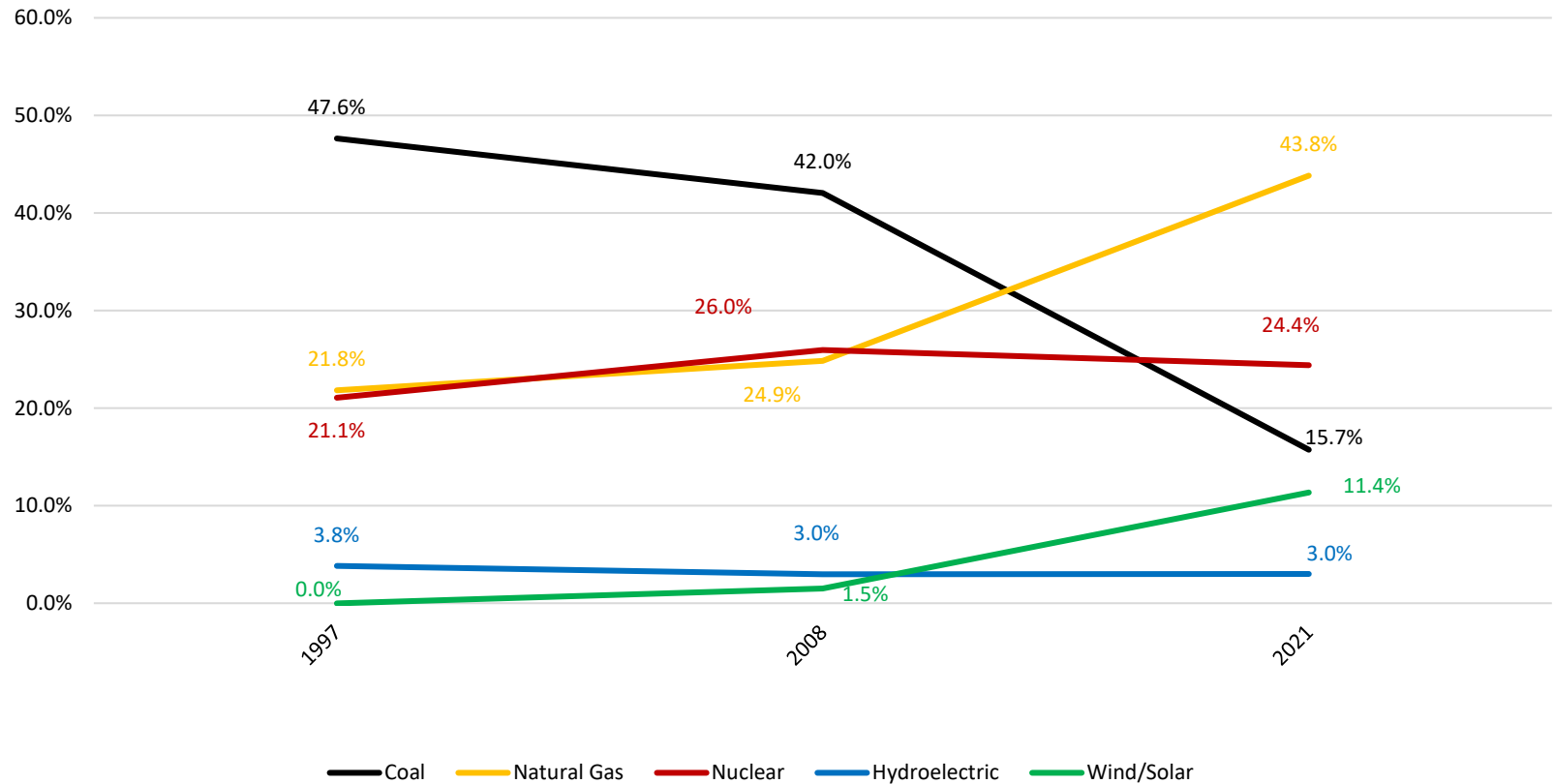
**Figure 22 (page 27) of Restructuring Recharged - Updated through CY2021**

As shown in Figure 22, more than half of all states lost load over this period. Developments in the fossil fuel industry may explain why certain states are at the high end of percentage change in consumption or the low end. Some states with increased loads have benefited from increased domestic oil and gas production. Some states with reduced loads have suffered from reductions in coal mining.

Nearly all competitive states (excluding Texas) experienced a reduction in consumption over this period. All else equal, a drop in consumption would lead to price increases in a vertically integrated (monopoly) state, whereas, as we've previously shown, this reduction in consumption in competitive states has led to an increase in competition which has further decreased prices.

# Generation Percentages by Energy Type in the 14 Competitive States/Jurisdictions, 1997-2021

Figure 23 of Restructuring Recharged  
Source: EIA-861M





**Figure 23 (page 28) of Restructuring Recharged and Figure 10 (page 8) of The Great Divergence - Updated through CY2021**

Figures 23, 24 and 25 of Restructuring Recharged show the 2008-2020 comparative changes in the proportion of electricity production from the primary sources in the 14 competitive states/jurisdictions, the 35 monopoly states, and all 49 contiguous States/Jurisdictions, respectively.

Figure 25 of RR shows that since the commencement of the customer choice era, natural gas has been on track to overtake coal in terms of installed capacity and production. In 1997, coal accounted for 53% of generation production, while natural gas plants constituted less than 14%.

Meanwhile, Figure 23 of RR shows that electricity customers in the 14 competitive states/jurisdictions have experienced the benefits of low gas prices more promptly and effectively than those in the 35 monopoly states. Specifically, natural gas generation production in the competitive states/jurisdictions first surpassed coal generation production in 2012. Despite coal reclaiming its top position in 2013 and 2014, natural gas generation production has exceeded coal generation production since 2015 in the 14 competitive states/jurisdictions. Meanwhile, in the 35 monopoly states, Figure 24 of RR shows that natural gas generation production didn't exceed coal generation production until 2018. There are several reasons:

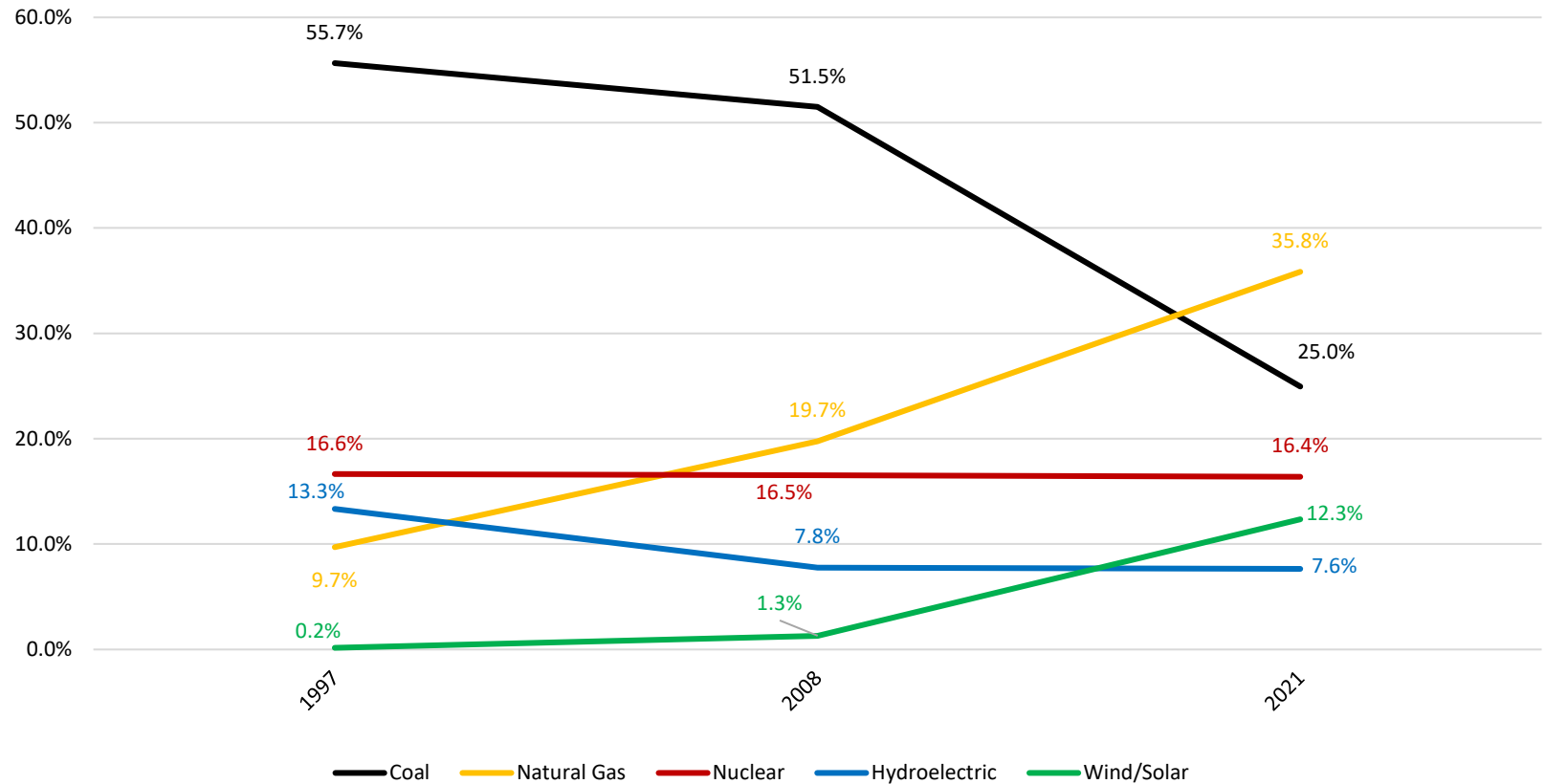
- A more significant share of generating capacity in the 35 monopoly states was accounted for by coal than in the 14 customer choice states/jurisdictions where gas and nuclear are more prominent.
- In the 14 competitive states/jurisdictions, consumers pay only for the economic value of existing generating capacity, with prices set in open and transparent competitive auctions.
- In the 14 competitive states/jurisdictions, generating capacity is installed or taken out of service based on investor perceptions of the competitive economics. In the 35 monopoly states. Utilities build, contract or retire generating capacity under regulatory protocols that require consumers to pay for capacity irrespective of economic efficiency.

This data also supports that financial markets are willing to make billions of dollars in equity investment and low-cost debt available for non-utility generation, contradicting the claim that only regulated monopolies could attract capital at favorable rates. Additionally, commercial and industrial customers (which account for more than 60% of consumption) can adjust contract terms and prices to take advantage of market developments in the 14 competitive states/jurisdictions.

Additionally, as the relative shares of electricity production from gas and coal plants flipped, there has been a steady contribution of nuclear and a strong recent upswing in the role of renewables. Figures 23 and 24 of RR show that wind and solar generation production is roughly equivalent in the 14 competitive states/jurisdictions (11.4%) and the 35 monopoly states (12.3%), respectively. However, it is interesting to observe that if California were excluded from the monopoly state wind/solar totals, its wind/solar generation percentage would drop from 12.3% to 11.3%.

# Generation Percentages by Energy Type in the 35 Monopoly States, 1997-2021

Figure 24 of Restructuring Recharged  
Source: EIA-861M



**Figure 24 (page 28) of Restructuring Recharged and Figure 11 (page 8) of The Great Divergence - Updated through CY2021**

Figures 23, 24 and 25 of Restructuring Recharged show the 2008-2020 comparative changes in the proportion of electricity production from the major sources in the 14 competitive states/jurisdictions, the 35 monopoly states, and all 49 contiguous States/Jurisdictions, respectively.

Figure 25 of RR shows that since the commencement of the customer choice era, natural gas has been on track to overtake coal in terms of installed capacity and production. In 1997, coal accounted for 53% of generation production, while natural gas plants constituted less than 14%.

Meanwhile, Figure 23 of RR shows that electricity customers in the 14 competitive states/jurisdictions have experienced the benefits of low gas prices more promptly and effectively than those in the 35 monopoly states. Specifically, natural gas generation production in the competitive states/jurisdictions first surpassed coal generation production in 2012. Despite coal reclaiming its top position in 2013 and 2014, natural gas generation production has exceeded coal generation production since 2015 in the 14 competitive states/jurisdictions. Meanwhile, in the 35 monopoly states, Figure 24 of RR shows that natural gas generation production didn't exceed coal generation production until 2018. There are several reasons:

- A more significant share of generating capacity in the 35 monopoly states was accounted for by coal than in the 14 customer choice states/jurisdictions where gas and nuclear are more prominent.
- In the 14 competitive states/jurisdictions, consumers pay only for the economic value of existing generating capacity, with prices set in open and transparent competitive auctions.
- In the 14 competitive states/jurisdictions, generating capacity is installed or taken out of service based on investor perceptions of the competitive economics. In the 35 monopoly states, utilities build, contract or retire generating capacity under regulatory protocols that require consumers to pay for capacity irrespective of economic efficiency.

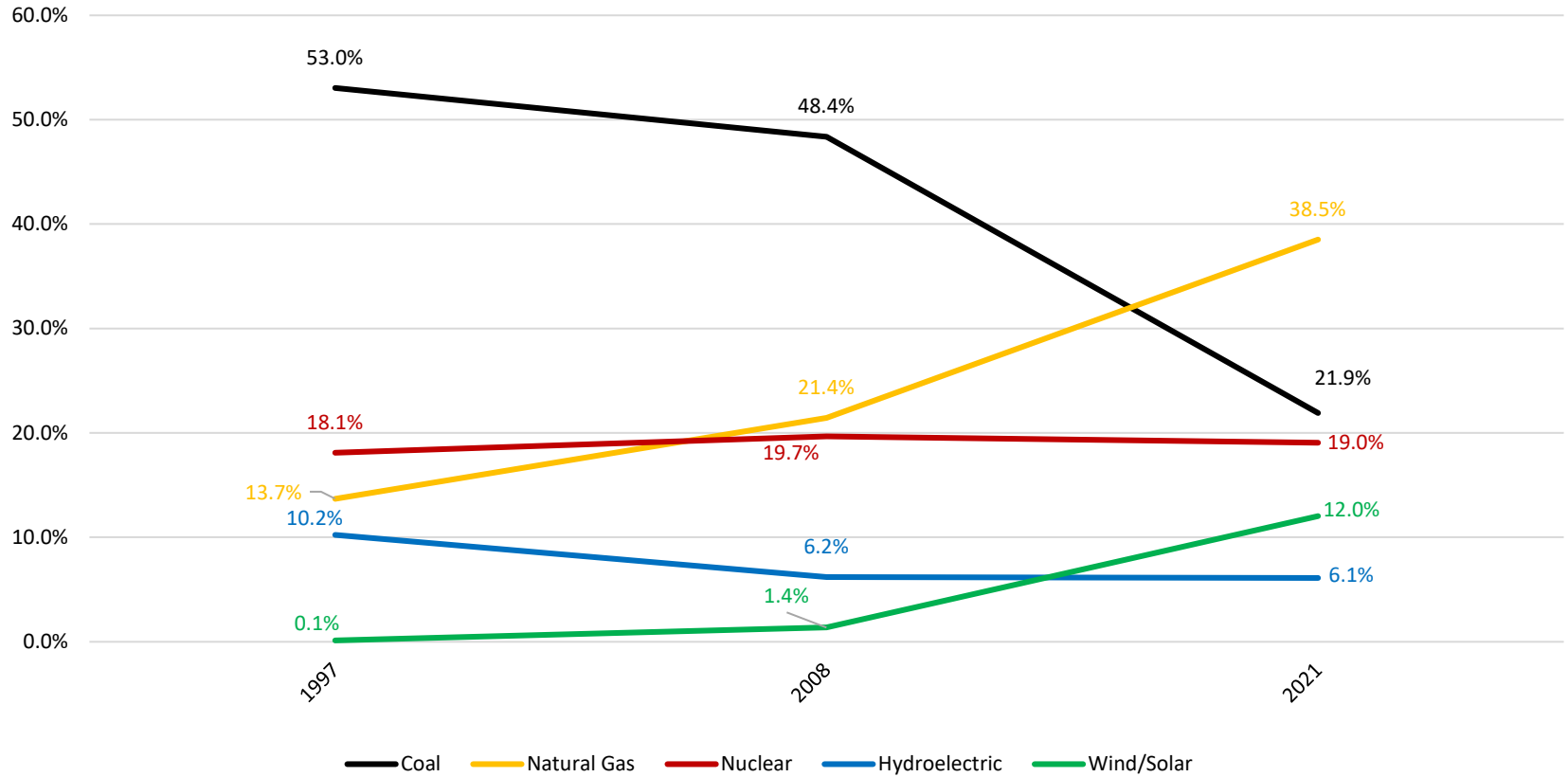
This data also supports that financial markets are willing to make billions of dollars in equity investment and low-cost debt available for non-utility generation, contradicting the claim that only regulated monopolies could attract capital at favorable rates. Additionally, primarily commercial and industrial customers (which account for more than 60% of consumption) can adjust contract terms and prices to take advantage of market developments in the 14 competitive states/jurisdictions.

Additionally, as the relative shares of electricity production from gas and coal plants flipped, there has been a steady contribution of nuclear and a strong recent upswing in the role of renewables. Figures 23 and 24 of RR show that wind and solar generation production is roughly equivalent in the 14 competitive states/jurisdictions (11.4%) and the 35 monopoly states (12.3%), respectively. However, it is interesting to observe that if California were excluded from the monopoly state wind/solar totals, the monopoly state wind/solar generation percentage would drop from 12.3% down to 11.3%.

# Generation Percentages by Energy Type in the 49 Contiguous States/Jurisdictions, 1997-2021

Figure 25 of Restructuring Recharged

Source: EIA-861M



## Figure 25 (page 28) of Restructuring Recharged - Updated through CY2021

Figures 23, 24 and 25 of Restructuring Recharged show the 2008-2020 comparative changes in the proportion of electricity production from the major sources in the 14 competitive states/jurisdictions, the 35 monopoly states, and all 49 contiguous States/Jurisdictions, respectively.

Figure 25 of RR shows that since the commencement of the customer choice era, natural gas has been on track to overtake coal in terms of installed capacity and production. In 1997, coal accounted for 53% of generation production, while natural gas plants constituted less than 14%.

Meanwhile, Figure 23 of RR shows that electricity customers in the 14 competitive states/jurisdictions have experienced the benefits of low gas prices more promptly and effectively than those in the 35 monopoly states. Specifically, natural gas generation production in the competitive states/jurisdictions first surpassed coal generation production in 2012. Despite coal reclaiming its top position in 2013 and 2014, natural gas generation production has exceeded coal generation production since 2015 in the 14 competitive states/jurisdictions. Meanwhile, in the 35 monopoly states, Figure 24 of RR shows that natural gas generation production didn't exceed coal generation production until 2018. There are several reasons:

- A more significant share of generating capacity in the 35 monopoly states was accounted for by coal than in the 14 customer choice states/jurisdictions where gas and nuclear are more prominent.
- In the 14 competitive states/jurisdictions, consumers pay only for the economic value of existing generating capacity, with prices set in open and transparent competitive auctions.
- In the 14 competitive states/jurisdictions, generating capacity is installed or taken out of service based on investor perceptions of the competitive economics. In the 35 monopoly states. Utilities build, contract or retire generating capacity under regulatory protocols that require consumers to pay for capacity irrespective of economic efficiency.

This data also supports that financial markets are willing to make billions of dollars in equity investment and low-cost debt available for non-utility generation, contradicting the claim that only a regulated monopoly could attract capital at favorable rates. Additionally, commercial and industrial customers (which account for more than 60% of consumption) can adjust contract terms and prices to take advantage of market developments in the 14 competitive states/jurisdictions.

As the relative shares of electricity production from gas and coal plants flipped, there has been a steady contribution of nuclear and a strong recent upswing in the role of renewables. Figures 23 and 24 of RR show that wind and solar generation production is roughly equivalent in the 14 competitive jurisdictions (11.4%) and the 35 monopoly states (12.3%), respectively. However, it is interesting to observe that if California were excluded from the monopoly state wind/solar totals, the monopoly state wind/solar generation percentage would drop from 12.3% down to 11.3%.