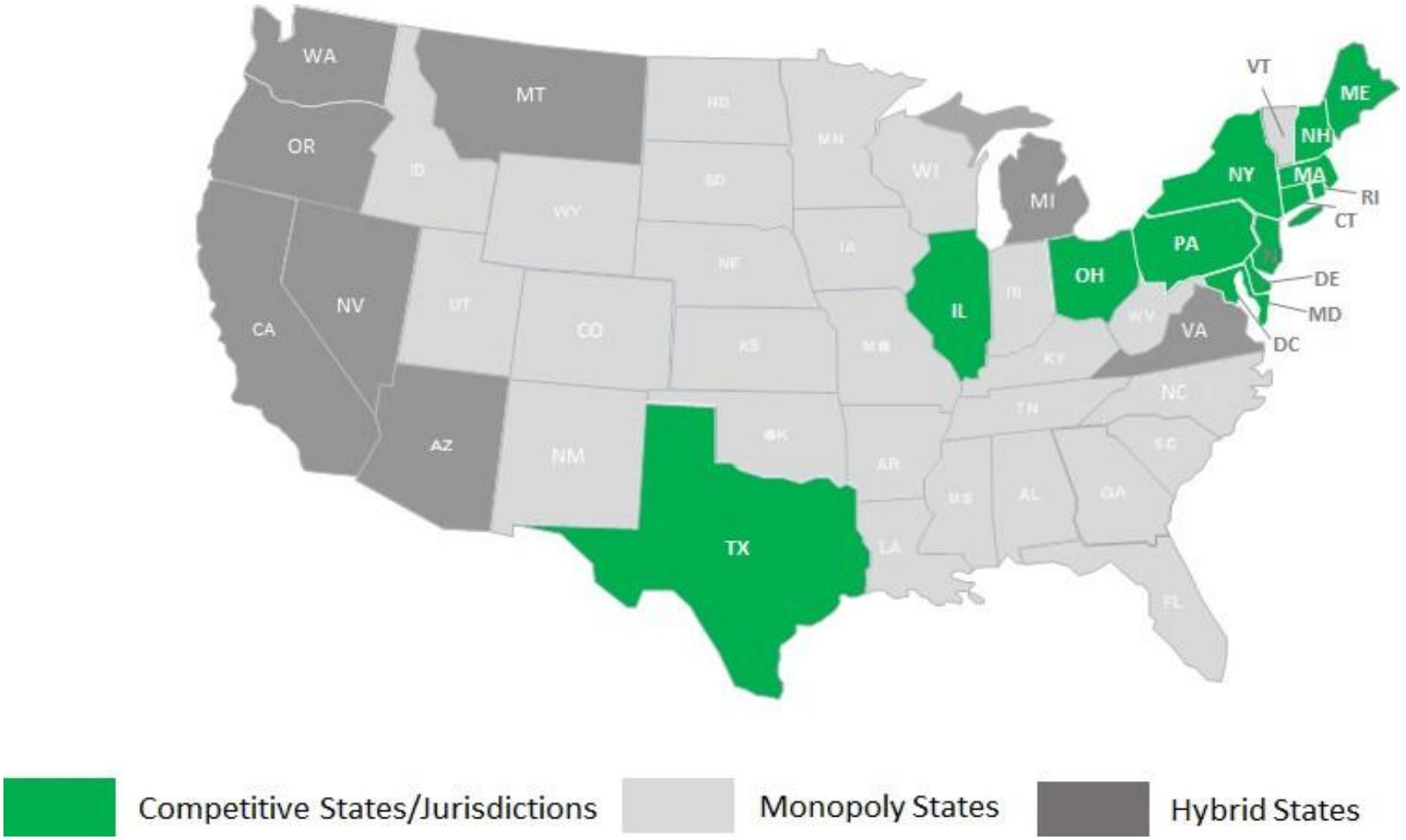
14 Customer Choice Jurisdictions

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.



RESA
Retail Energy Supply Association

Figure 3 (page 13) of Restructuring Recharged and Figure 1 (page 4) of The Great Divergence - **Updated through July 2025**

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;
- 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, phase-ins 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 supplies;
- Millions of customers, especially in the commercial and industrial classes, had embraced supplier choice;
- Nearly all 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.

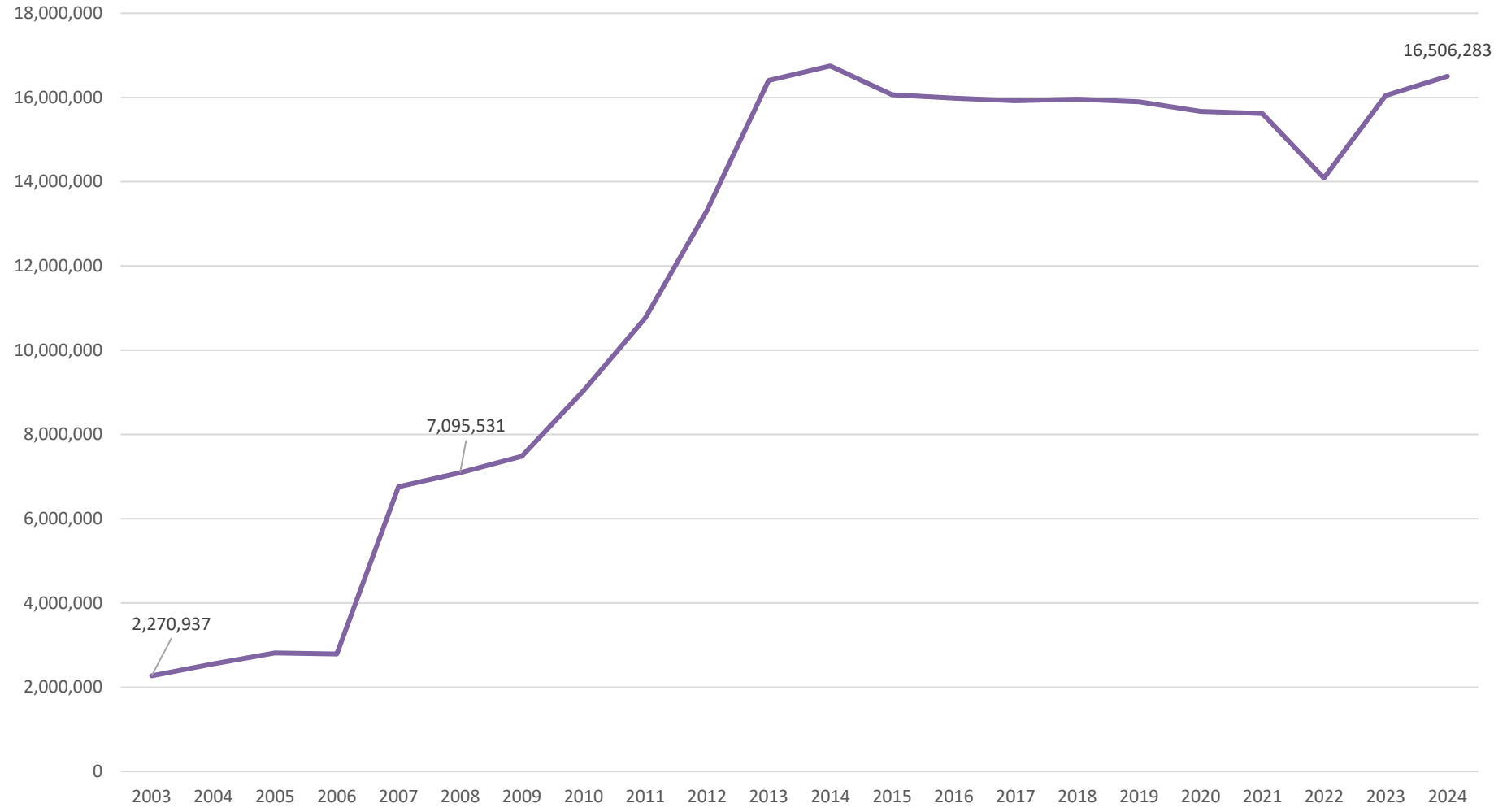
The 'Hybrid' States

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 that consider 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 (August 2024), other states are contemplating various competitive markets, such as Missouri, South Carolina, and Utah.

Residential Switching by Year

Figure 4 of Restructuring Recharged

Source: DNV GL 2024 Retail Energy Outlook



Retail Energy Supply Association

Figure 4 (page 15) of Restructuring Recharged – **Updated through CY2024**

Source: DNV GL 2024 Retail Energy Outlook. This figure is derived from information from DNV GL's annual report on competitive electricity accounts and loads. 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 residential customer's shopping activity 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 2.27 million to 7.0 million. Residential accounts served by retail suppliers more than doubled again since in 2024. In recent years, competitively served residential accounts have flattened out at about **16.5 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 services 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 2024 Retail Energy Outlook

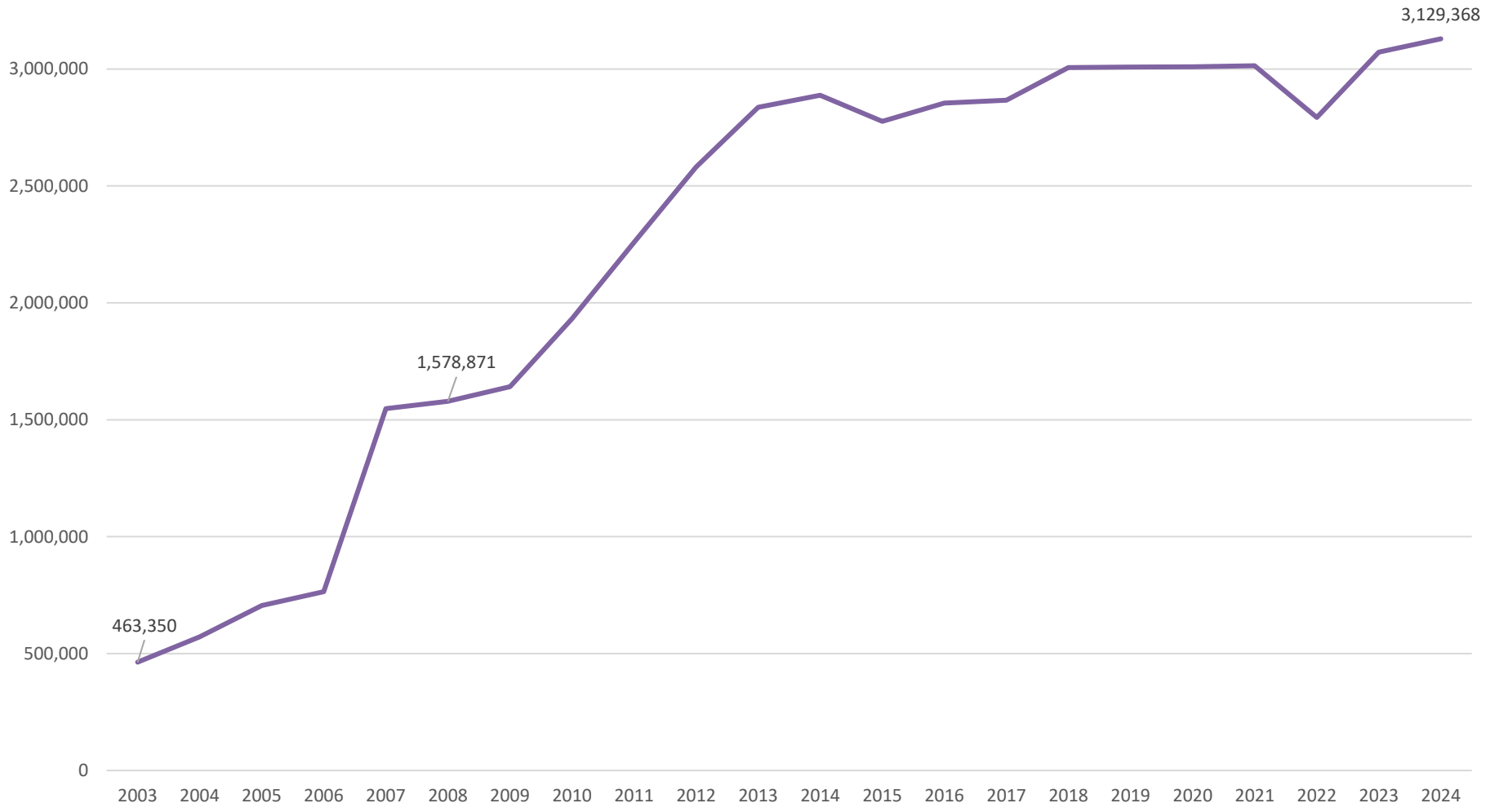


Figure 5 (page 15) of Restructuring Recharged **– Updated through CY2024**

Source: DNV GL 2024 Retail Energy Outlook. This figure is derived from information from DNV GL's annual report on competitive electricity accounts and loads. 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 concerning accounts served by non-utility suppliers.

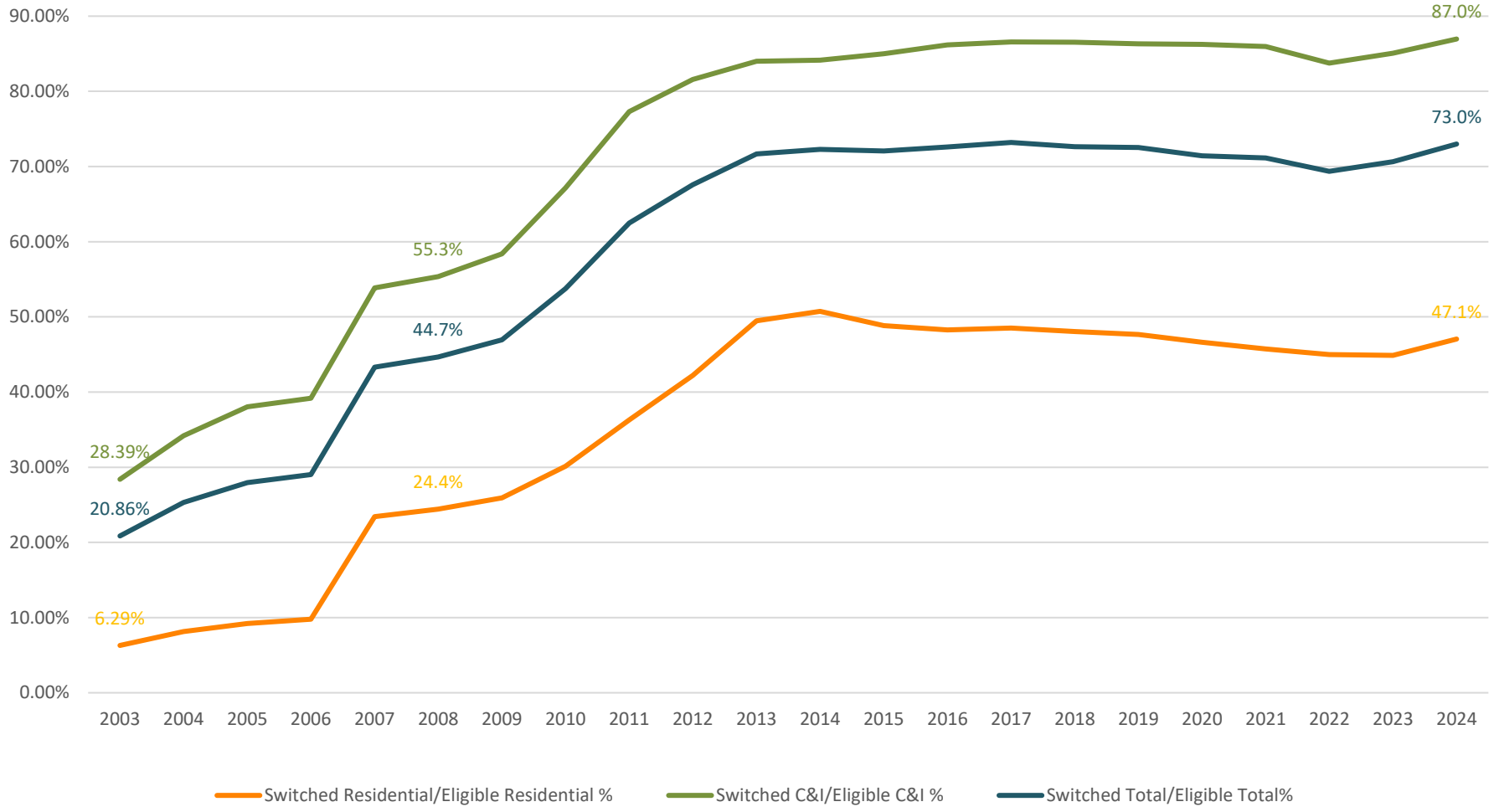
Figure 5 shows that between 2003 and 2008, the number of C&I customers served by non-utility suppliers more than tripled, from 463,350 to over 1.5 million. Competitive C&I accounts doubled again between 2008 and 2024. Just over **3 million** C&I customers have switched to non-utility suppliers. C&I customers 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 2024 Retail Energy Outlook



Retail Energy Supply Association

Figure 6 (page 16) of Restructuring Recharged – **Updated through CY2024**
Source: DNV GL 2024 Retail Energy Outlook. This figure is derived from information from DNV GL's annual report on competitive electricity accounts and loads. 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 concerning load served by non-utility suppliers.*1 In 2024, **73.0%** 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, most C&I load **(87.0%)** has switched to non-utility supply. Meanwhile, less than half **(47.1%)** 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 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. It would not change the percentages shown materially even if they were included.

Residential Weighted Average Percentage Price Change, Choice vs. Monopoly States, 2008-2024

% Price Change – 20.0% Spread

Figure 7 of The Restructuring Recharged

Source: EIA-861M

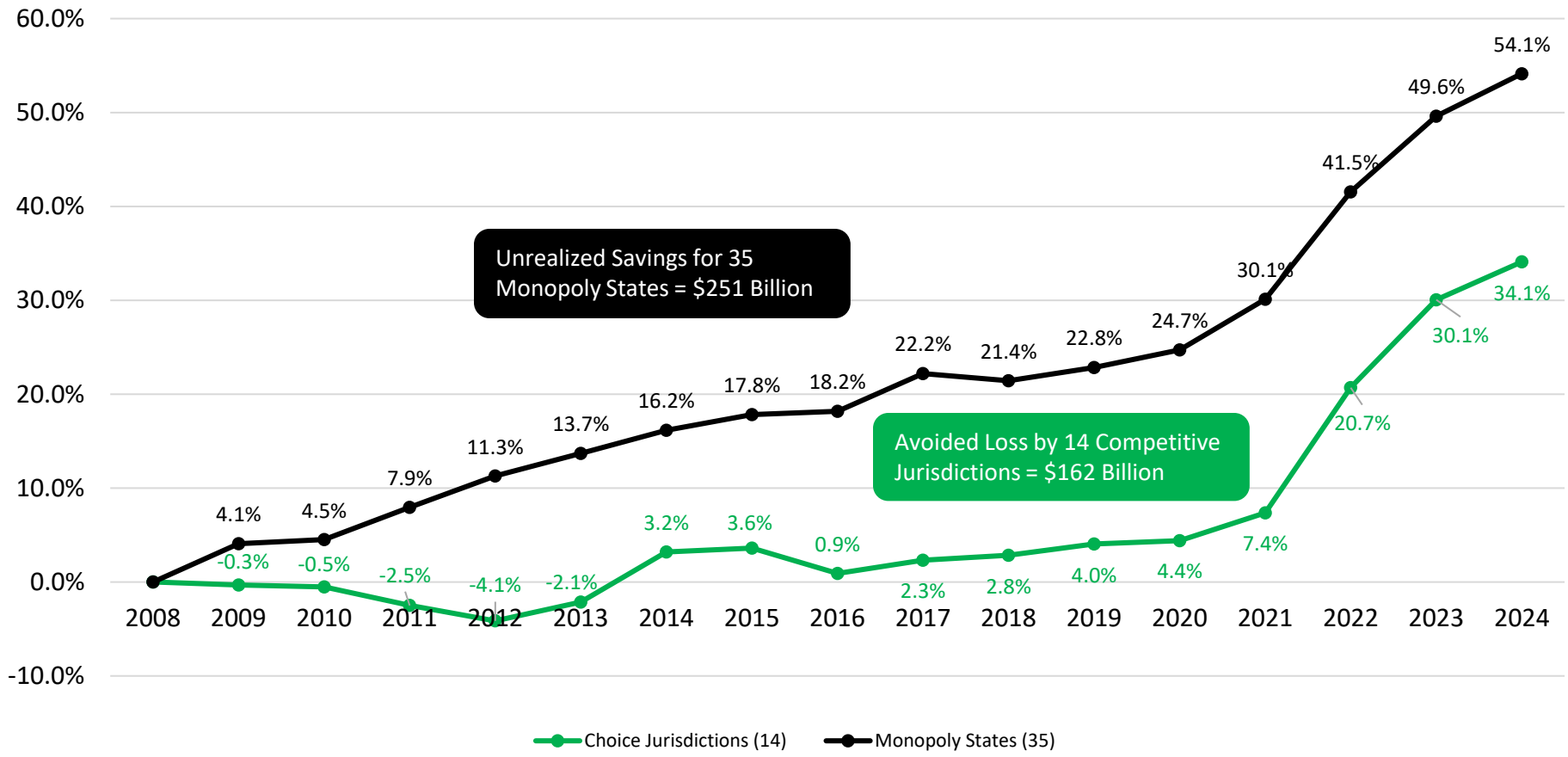


Figure 7 (page 16) of Restructuring Recharged and Figure 3 (page 5) of The Great Divergence - **Updated through CY2024**

A DECADE OF DIVERGENT PRICE PATHS

U.S. Energy Information Administration (EIA) data allow for a comparison of trends in weighted average nominal prices between the monopoly group of states and the competitive jurisdictions. This figure shows stunningly different price trends in the competitive jurisdictions compared to the monopoly states. From 2008 through 2024, weighted average prices for residential customers in the 35 monopoly states have risen by **54.1%.** By contrast, in the 14 competitive markets, residential customers weighted average prices have risen significantly less, increasing only **34.1%**.

The dollar implications of such spreads in price paths are significant. If 2008-2024 annual percentage price changes in the thirty-five monopoly states had tracked with percentage price changes in the fourteen competitive jurisdictions, residential consumers in the monopoly states would have saved a quarter of a trillion dollars **($251 billion)**. 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 residential electricity customers in the fourteen competitive jurisdictions would have been higher by **$162 billion**.

Commercial Weighted Average Percentage Price Change, Choice vs. Monopoly States, 2008-2024

% Price Change – 36.8% Spread

Figure 8 of Restructuring Recharged

Source: EIA-861M

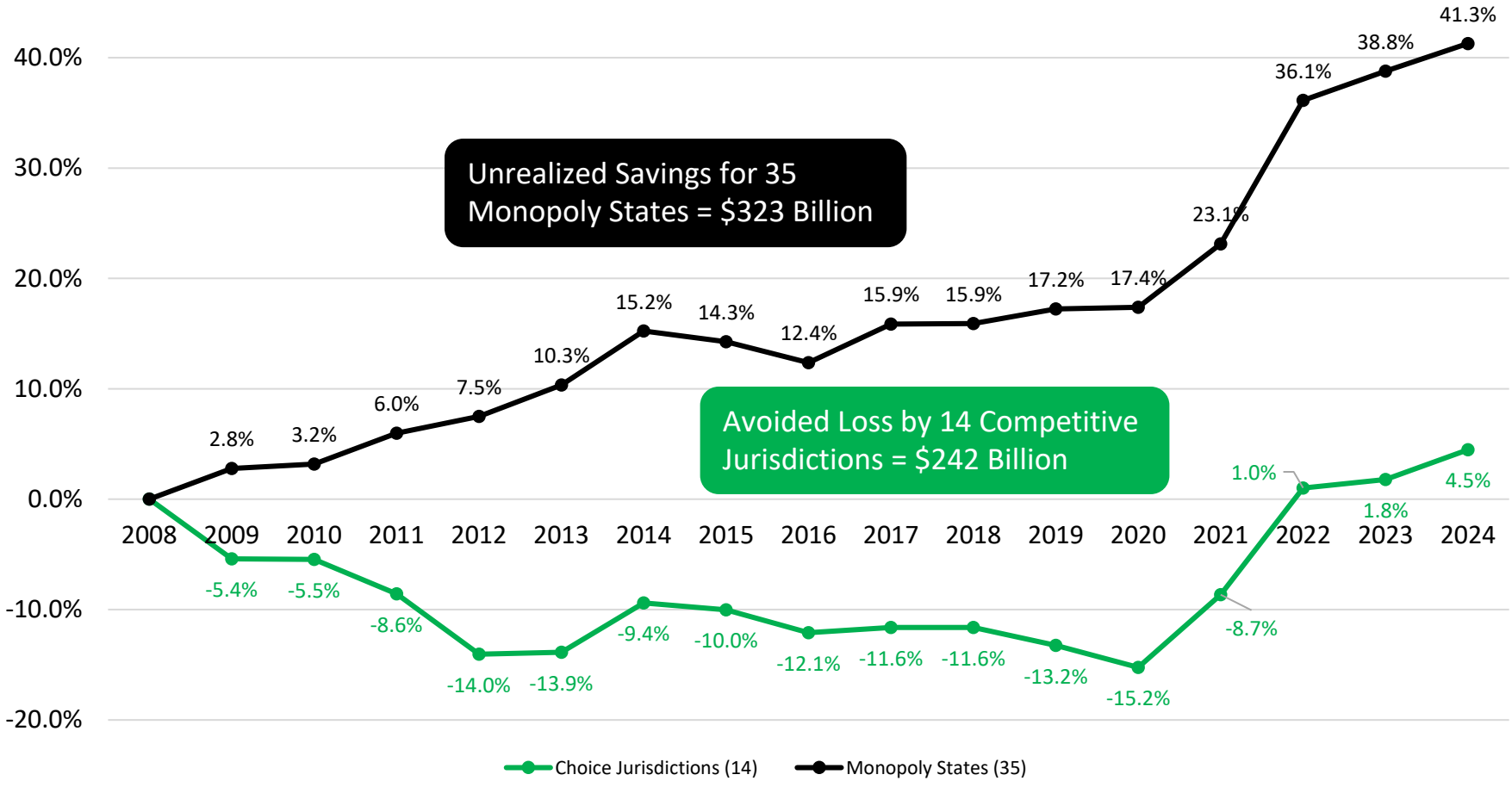


Figure 8 (page 17) of Restructuring Recharged and Figure 4 (page 5) of The Great Divergence - **Updated through CY2024**

A DECADE OF DIVERGENT PRICE PATHS

U.S. Energy Information Administration (EIA) data allow for a comparison of trends in weighted average nominal prices between the monopoly group of states and the competitive jurisdictions. This figure shows stunningly different price trends in the competitive jurisdictions compared to the monopoly states. From 2008 through 2024, weighted average prices for commercial customers in the 35 monopoly states have risen by **41.3%**. By contrast, in the 14 competitive markets, commercial average prices have risen extremely less, increasing only **4.5%**.

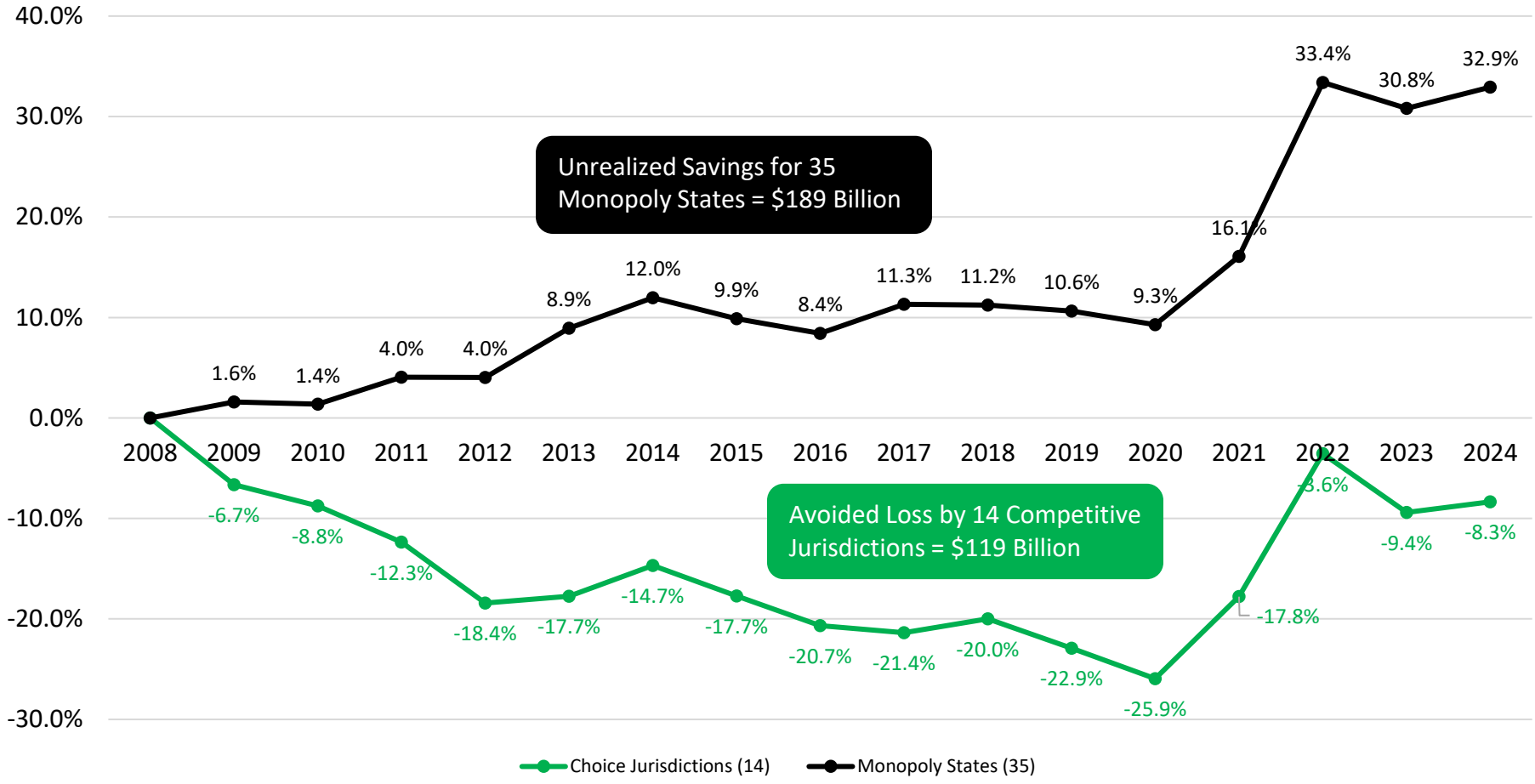
The dollar implications of such spreads in price paths are significant. If 2008-2024 annual percentage price changes in the thirty-five monopoly states had tracked with percentage price changes in the fourteen competitive jurisdictions, commercial consumers in the monopoly states would have saved a quarter of a trillion dollars **($323 billion)**. 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 commercial electricity customers in the fourteen choice markets would have been higher by **$242 billion.**

Industrial Weighted Average Percentage Price Change, Choice vs. Monopoly States, 2008-2024

% Price Change – 41.2% Spread

Figure 9 of Restructuring Recharged

Source: EIA-861M



Retail Energy Supply Association

Figure 9 (page 17) of Restructuring Recharged and Figure 5 (page 5) of The Great Divergence - **Updated through CY2024**

A DECADE OF DIVERGENT PRICE PATHS

U.S. Energy Information Administration (EIA) data allow for a comparison of trends in weighted average nominal prices between the monopoly group of states and the competitive jurisdictions. This figure shows stunningly different price trends in the competitive jurisdictions compared to the monopoly states. From 2008 through 2024, weighted average prices for industrial customers in the 35 monopoly states have risen by **33%.** By contrast, in the 14 competitive markets, commercial average prices have experienced the reverse trend, decreasing by **8.3%**.

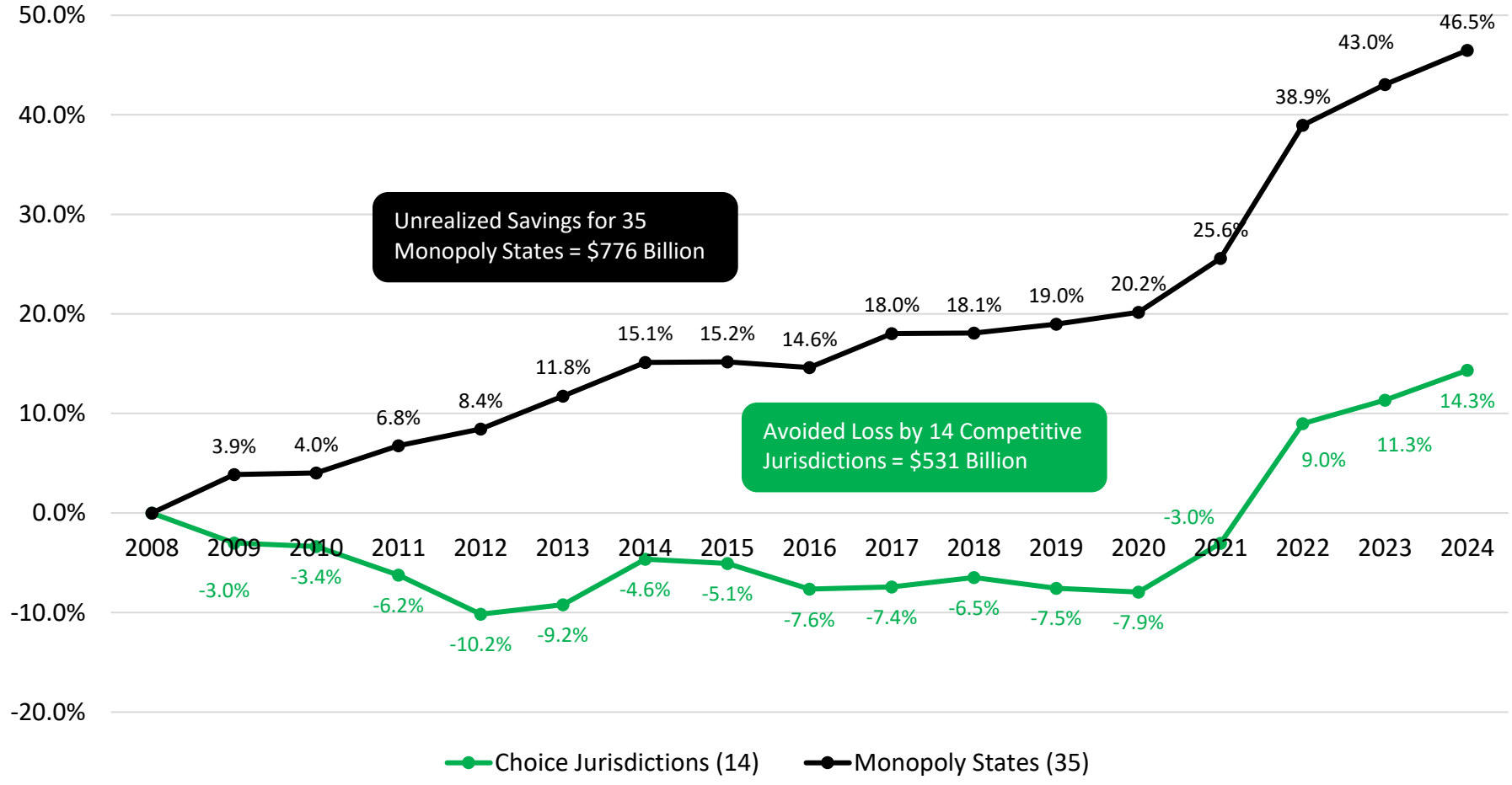
The dollar implications of such spreads in price paths are significant. If 2008-2024 annual percentage price changes in the thirty-five monopoly states had tracked with percentage price changes in the fourteen competitive jurisdictions, industrial consumers in the monopoly states would have saved a quarter of a trillion dollars **($189 billion).** 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 industrial electricity customers in the fourteen choice markets would have been higher by **$119 billion**.

All-Sector Weighted Average Percentage Price Change, Choice vs. Monopoly States, 2008-2024

% Price Change – 32.2% Spread

Figure 10 of Restructuring Recharged

Source: EIA-861M



Retail Energy Supply Association

Figure 10 (page 17) of Restructuring Recharged and Figure 2 (page 4) of The Great Divergence - **Updated through CY2024**

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 **46.5%** higher in 2024 than in 2008. In contrast, the All-Sector annual weighted average price for the competitive retail markets was only **14.3%** higher than in 2008.

The dollar implications of such spreads in price paths are significant. If 2008-2024 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 **$775.9 billion**. By major customer class, the savings (in the monopoly states) would have been $250.7 billion for Residential, $322.8 billion for Commercial and $189.4 billion for Industrial.*1*2

*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 **$530.6 billion** for All- Sector. By major customer class, the avoided cost in the competitive jurisdictions is $161.7 billion for Residential, $242.4 billion for Commercial and $119.1 billion for Industrial. *2

*2: The All-Sector cost is slightly higher than the combined Residential, Commercial, and Industrial sectors because Transportation and Other is not shown

Nominal Weighted Average Percentage Price Change by Customer Class, Choice vs. Monopoly States, 2008-2024

Figure 11 of Restructuring Recharged

Source: EIA-861M

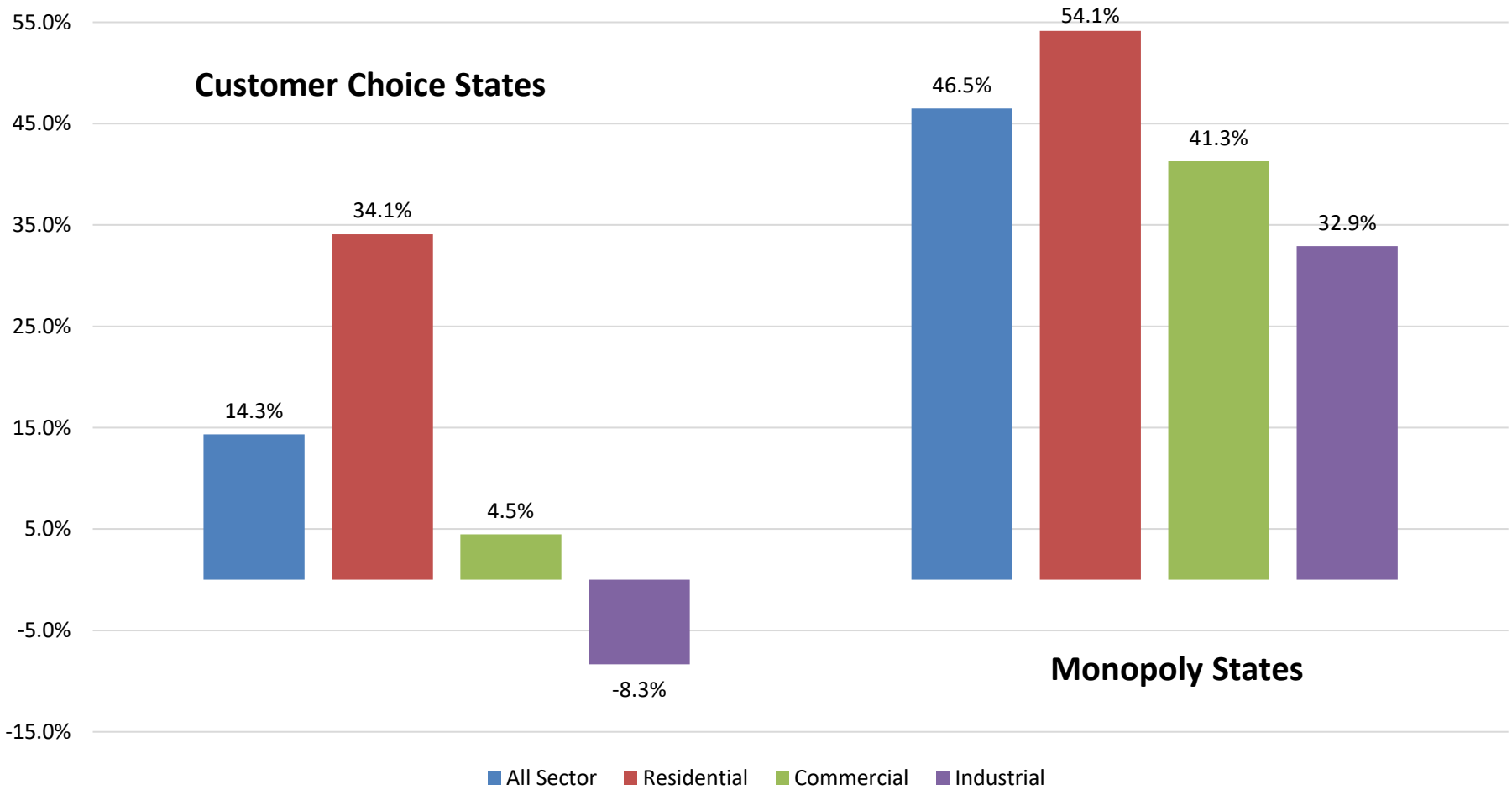


Figure 11 (page 18) of Restructuring Recharged - **Updated through CY2024** ***Price Trend Divergence in the Flat-Load Era***

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 2024. It also shows stunningly different price trends in the competitive jurisdictions compared to the monopoly states from 2008 through 2024. The nominal weighted average prices in 35 monopoly states have risen significantly. By contrast, in the 14 competitive jurisdictions, the nominal weighted average prices have risen, but significantly less so than the monopoly states. In the case of the industrial sector for competitive jurisdictions, the nominal weighted average prices have decreased.

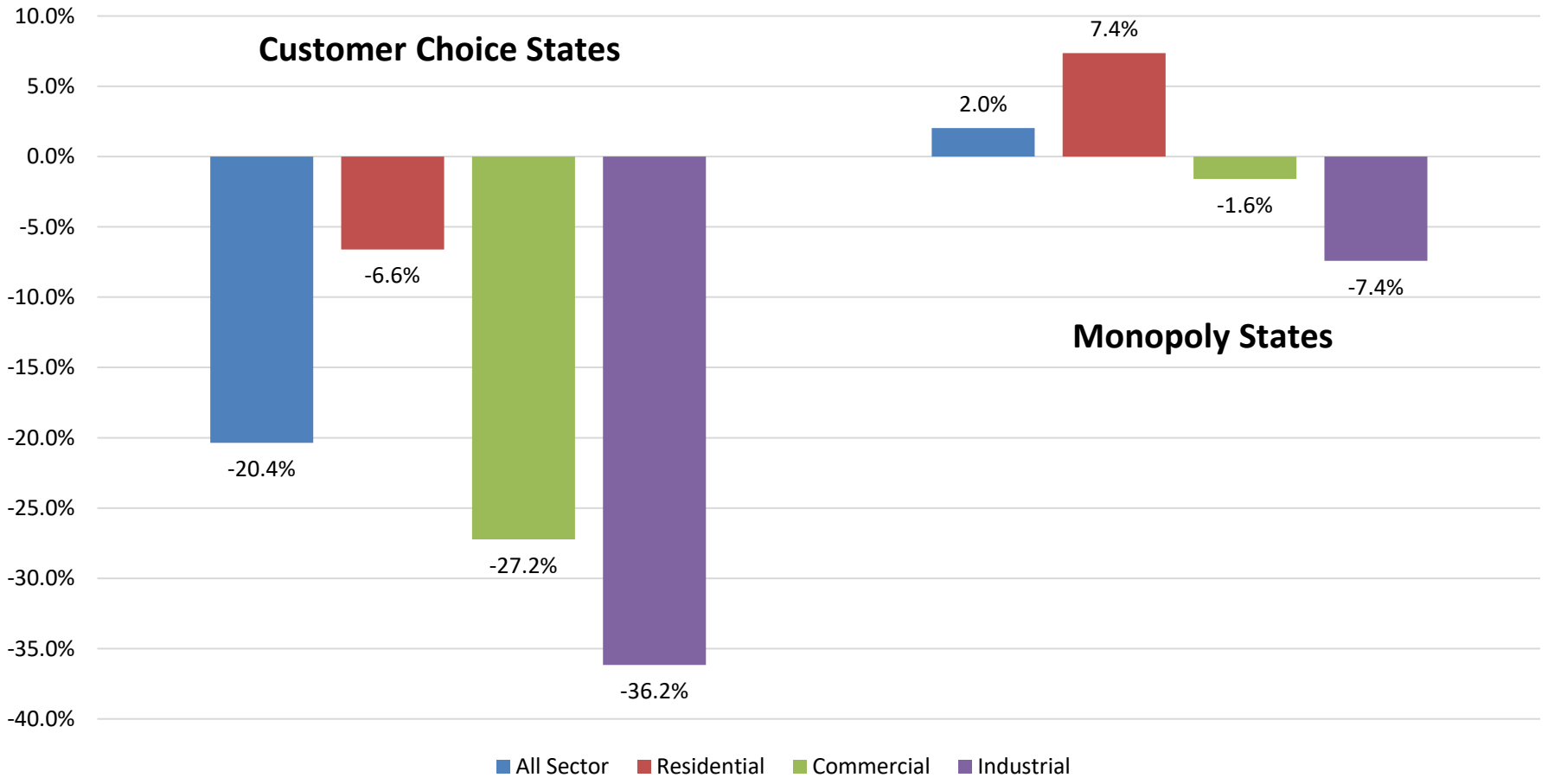
Advocates for the monopoly model sometimes promote the notion that residential, small business, and non-profit customers, such as schools, are disadvantaged by choice. The assertion is that large commercial and industrial customers will reap most benefits and that competitive suppliers will "cherry-pick." 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.

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 largely retrospective, prices will tend to be set too high in periods of surplus to recover investment in power plants 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, 2008-2024

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 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.

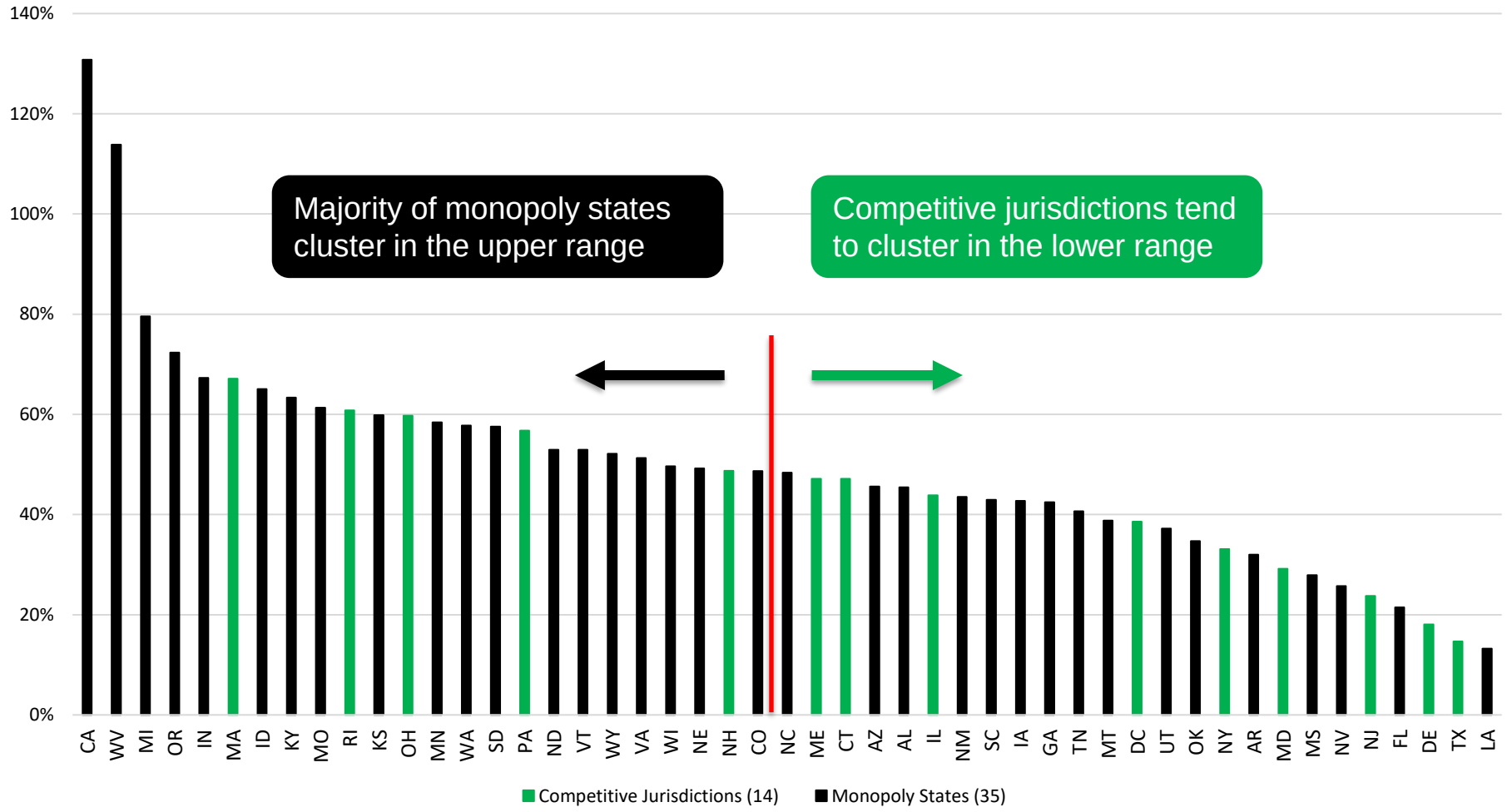
The divergence in price trends between the group of states that have incorporated competitive markets and the group that has remained under monopoly regulation is neither accidental nor aberrational. It is a function of entirely different public policies that prescribe quite different ways supply prices 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 largely retrospective, prices will tend to be set too high in periods of surplus to recover investment in power plants 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.

Residential Price % Price Change by State, 2008-2024

Figure 14 of Restructuring Recharged

Source: EIA-861M



Retail Energy Supply Association

Figure 13 (page 19) of Restructuring Recharged and Figure 7 (page 6) of The Great Divergence - **Updated through CY2024**

DIVERGENT DIRECTIONS AND STATE RANKINGS

The significant 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. 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.

The significant difference in percentage changes in weighted average prices between the monopoly and competitive choice jurisdictions remained consistent until 2024. In previous years, competitive states tended to cluster in the lower range, and the monopoly states tended to occupy the higher parts of the rankings. However, in 2024, when the states are ranked by the percentage change in each state's average residential price change over this period, a shift occurs, splitting competitive choice jurisdictions, half in the lower range and half in the upper. Non-New England states tended to skew to the bottom of the range, while New England states skewed to the upper range. This sudden price increase in New England is likely due to higher RPS standards and limited access to low-priced shale gas supplies. Comparably, Vermont, the only monopoly jurisdiction in New England, is experiencing a similar price performance.

Explanation for the High 2008-2024 Residential Price Changes in New England States

Firstly, most of the consumers in the New England states have experienced higher relative increases in the regulated transmission and distribution portion of the bill than have other areas of the country. In the New England states, there has been proportionally higher investments in grid upgrades for reasons of resiliency, interconnection, and distribution of new renewable generation. Moreover, many New England states have several state initiatives/regulations included in their transmission and distribution rates; including solar programs, energy efficiency programs, and local project/generation power purchase agreements. In the supplier portion of the electric power bill, these New England states also experience higher RPS/Clean Energy standards, particularly in RI, MA, CT, and ME.

Furthermore, the beneficial aspects of the increased use of shale gas that started in the late 2000s has brought down the price of gas in many states in the US but has not been quite as beneficial economically in the New England region, particularly during the winter. This is due in part to limited pipeline capacity in the New England area and an increasing dependence on the fuel for baseload and dispatchable power generation. This situation forces the New England states to rely on other more costly alternatives such as LNG and fuel oil during periods of elevated heating demand where the natural gas supply/demand balance can tighten significantly.

Harsh weather conditions could pose challenges to New England's power system this winter - ISO Newswire

Role of Natural Gas

Why are electric and gas bills so high? - The New Bedford Light

Rise in gas and electric bills prompts outcry in Mass., calls for state to review hikes | WAMC

Outrage over high bills brought Mass. to brink of policy change

Data: Comparing Boston's high energy costs with the US

Commercial Price % Price Change by State, 2008-2024

Figure 14 of Restructuring Recharged

Source: EIA-861M

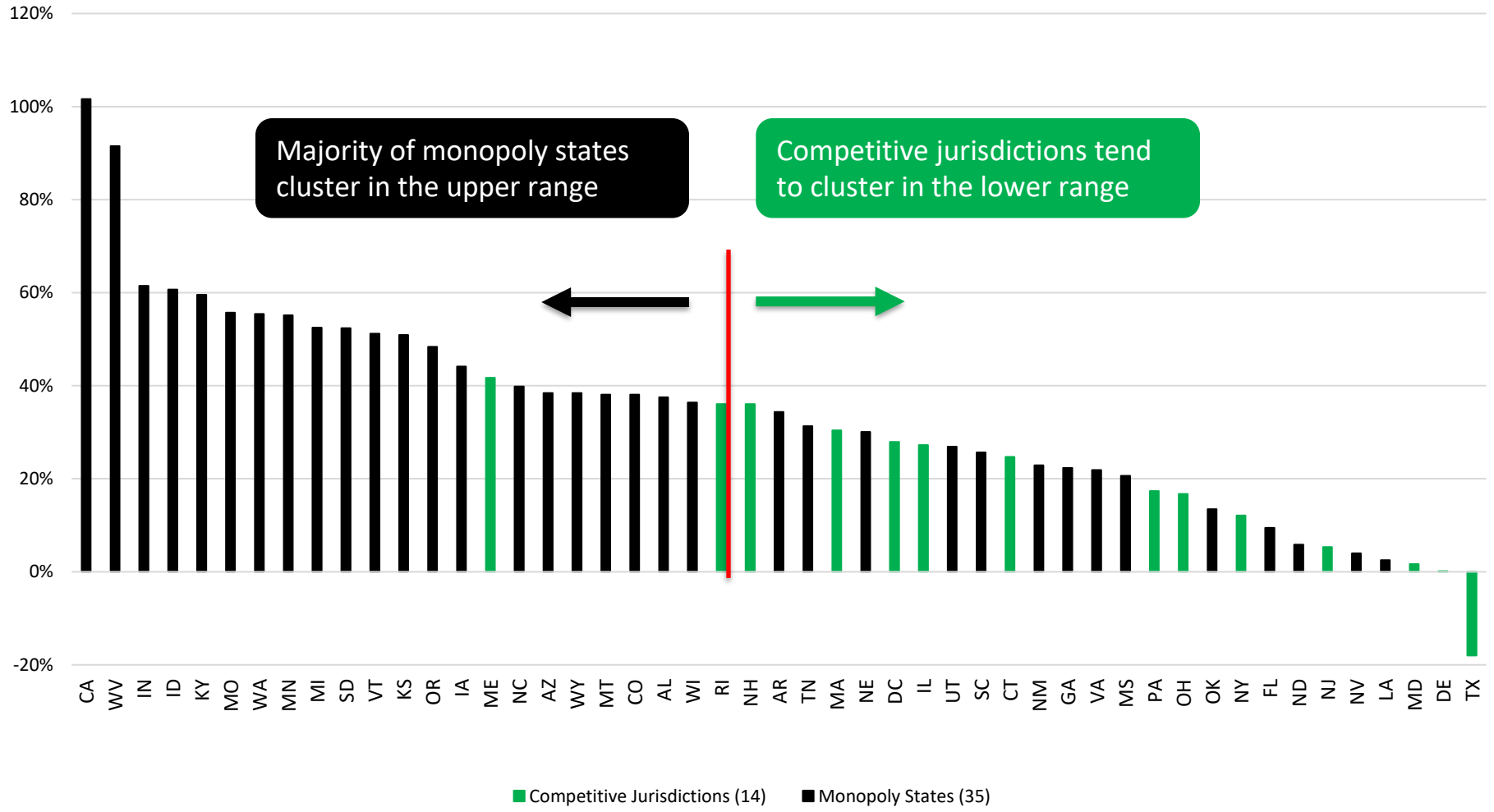


Figure 14 (page 19) of Restructuring Recharged and Figure 8 (page 6) of The Great Divergence - **Updated through CY2024**

DIVERGENT DIRECTIONS AND STATE RANKINGS

The significant 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. 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, 2008-2023

Figure 15 of Restructuring Recharged

Source: EIA-861M

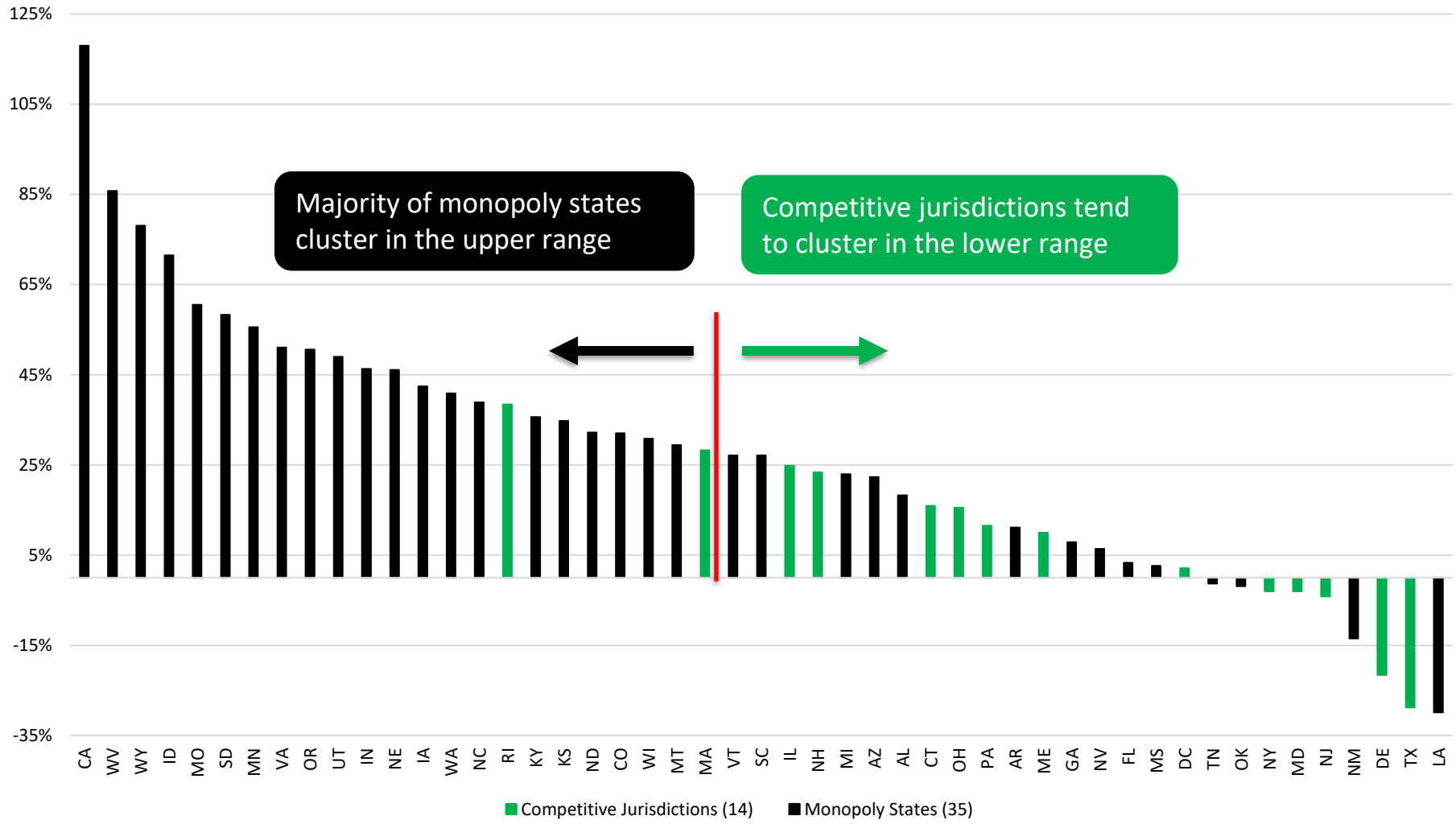


Figure 15 (page 20) of Restructuring Recharged and Figure 9 (page 7) of The Great Divergence - **Updated through CY2024**

DIVERGENT DIRECTIONS AND STATE RANKINGS

The significant 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. Instead, when the states are ranked by the 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 15 Industrial price changes over this period are all monopoly states. Additionally, all 14 competitive states/jurisdictions reside on the right-hand side of this chart. Meanwhile, seven states have seen a net decline in prices since 2008, and five (out of seven) are competitive states.

All Sector Price % Price Change by State, 2008-2024

Figure 16 of Restructuring Recharged

Source: EIA-861M

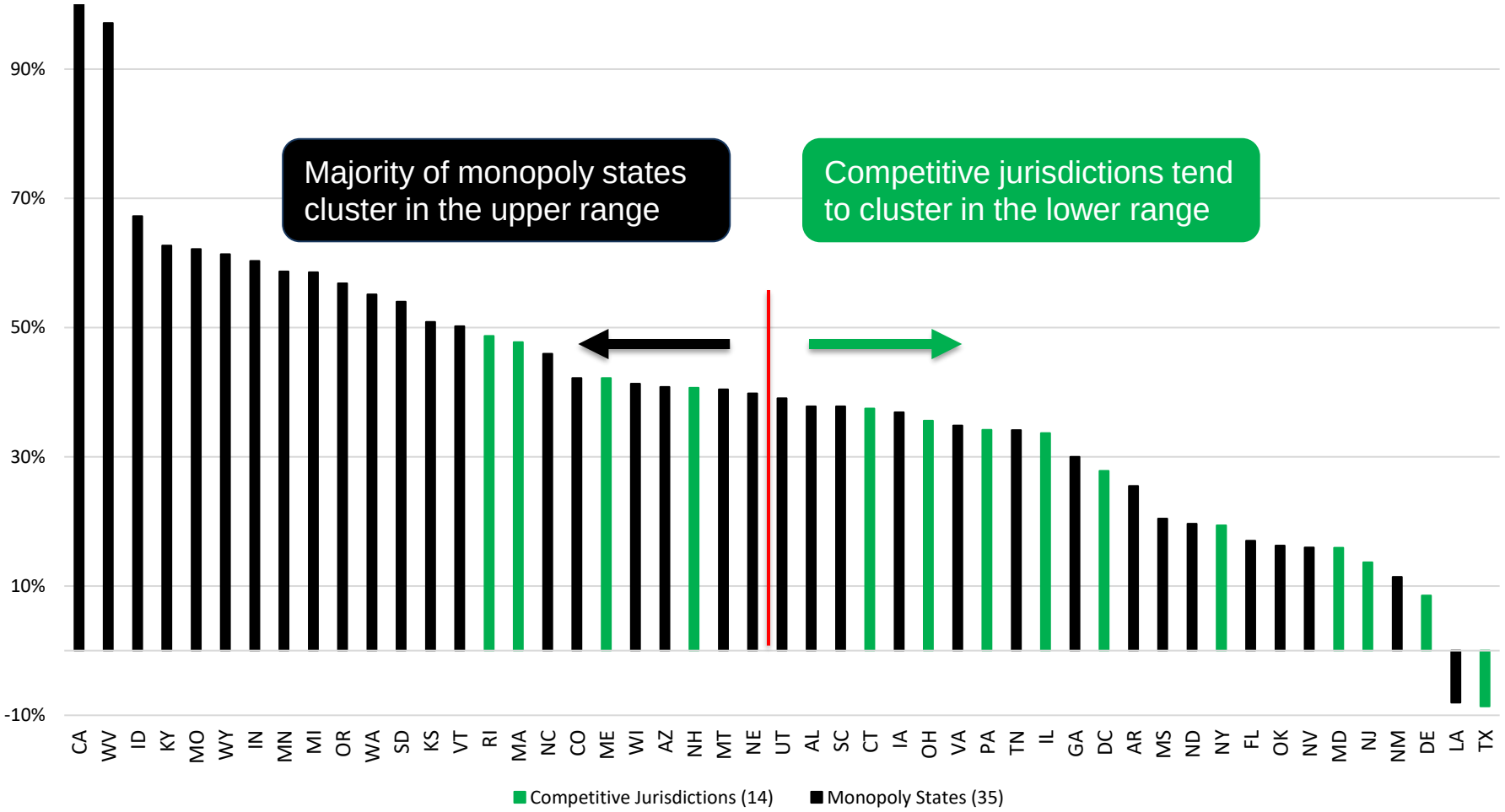


Figure 16 (page 20) of Restructuring Recharged and Figure 6 (page 6) of The Great Divergence- **Updated through CY2024**

DIVERGENT DIRECTIONS AND STATE RANKINGS

The significant 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. Instead, when the states are ranked by the percentage change in each state's average All-Sector 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.

Effectiveness Ratio, 1997-2023 [Summer Capacity (Δ%)]/[Consumption (Δ%)]

Figure 17 of Restructuring Recharged

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

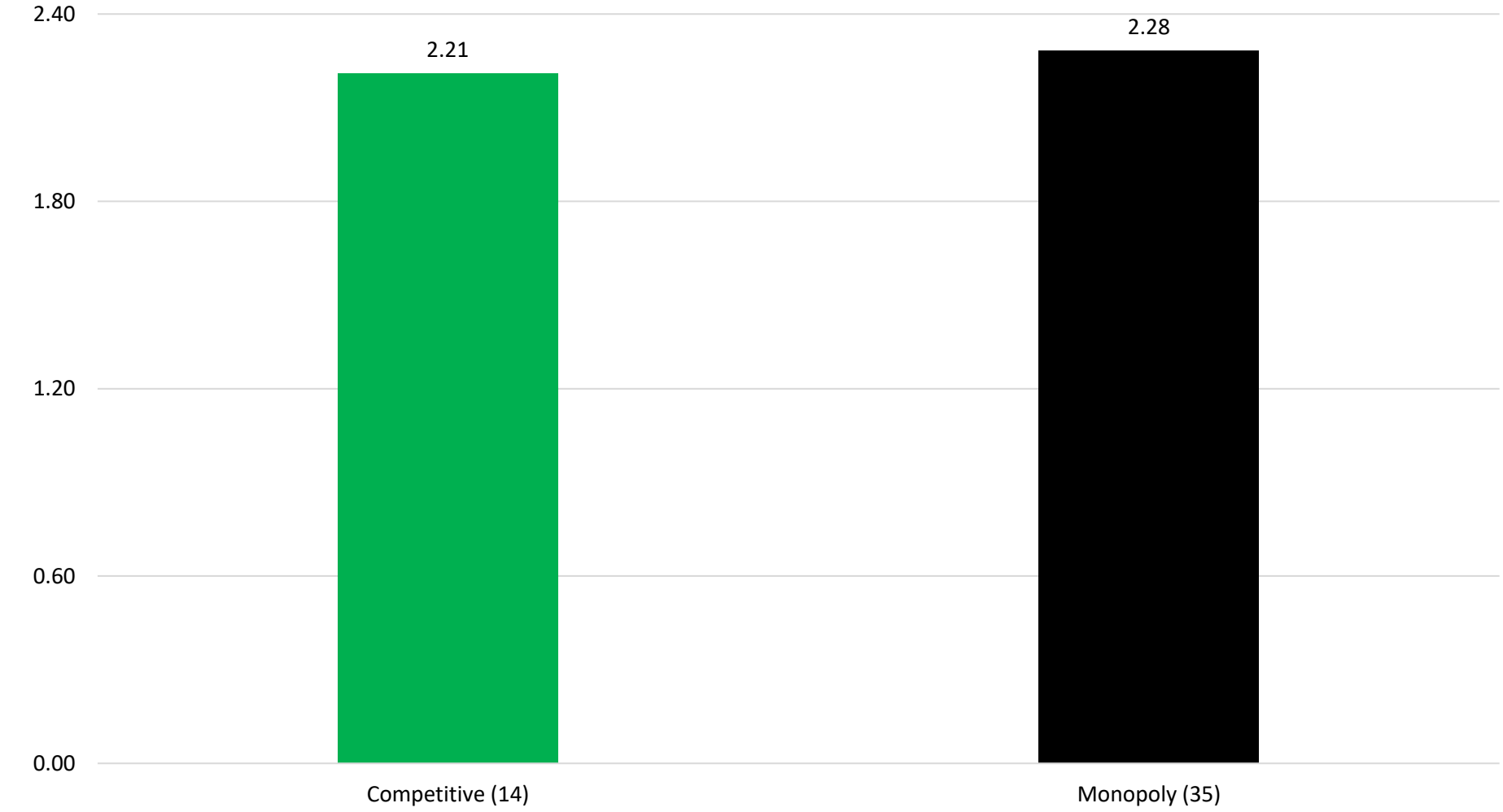


Figure 17 (page 21) of Restructuring Recharged –
Updated through CY2023 Generation Effectiveness

"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 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 over two times the increase in MWh consumption: **2.28** in the Customer Choice Jurisdictions and **2.21** in the Monopoly States as of 2023. 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 (1997-2023). This demonstrates that generation build proportional to load growth in the competitive states has slightly outperformed this same ratio in the monopoly-states, even as monopoly states offer a guaranteed rate of return.

Change in Resource Adequacy Factors Ratio, 1997, 2008, 2023 (Generation Output/Consumption)

Figure 18 of Restructuring Recharged

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

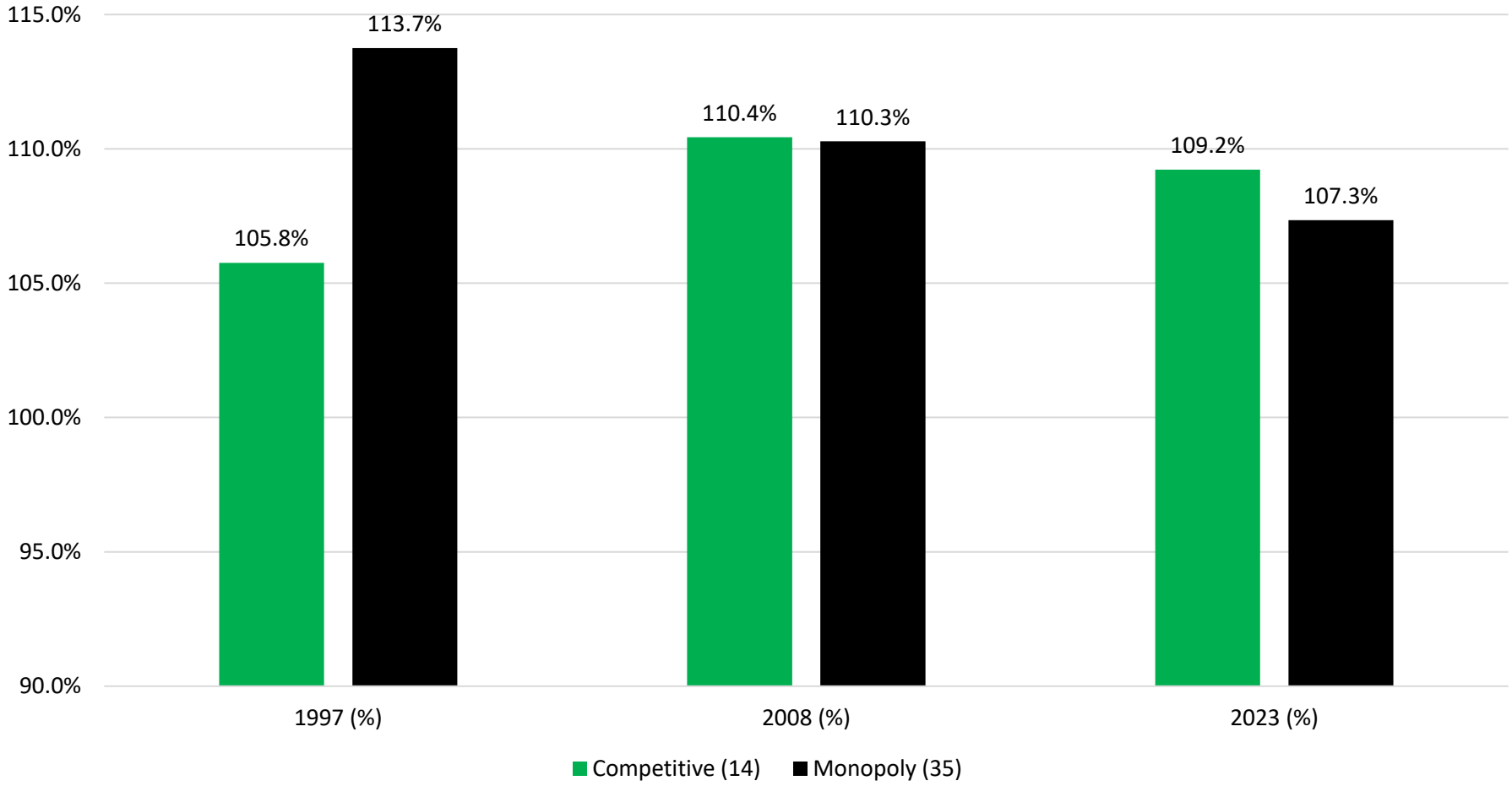


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Figure 18 (page 22) of Restructuring Recharged –
Updated through CY2023 Change in Resource Adequacy

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 105.8% 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 in this measure. However, by 2023, customer choice jurisdiction's resource adequacy percentage has now surpassed the monopoly states, even as monopoly states offer a guaranteed rate of return.

Change in Capacity Factor, 1997, 2008, and 2023 (Generation Output/Potential Output)

Figure 19 of Restructuring Recharged

Source: EIA-860, EIA-923

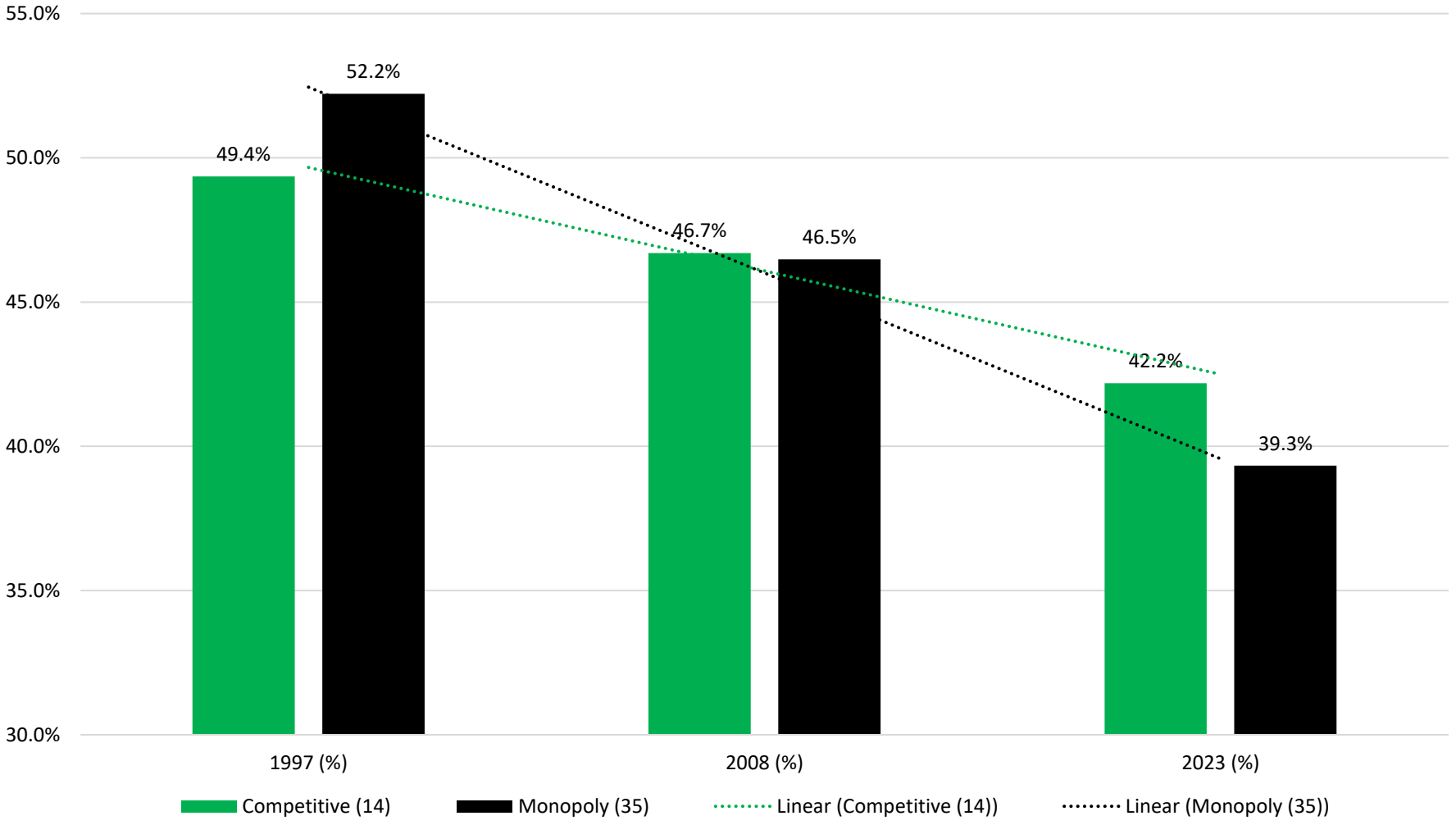

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Figure 19 (page 22) of Restructuring Recharged and Figure 12 (page 8) of The Great Divergence – **Updated through CY2023**

The "Capacity Factor" refers to the measurement of how often plants are operated at maximum output. In part, the explanation of the Great Divergence in price performance between the monopoly states and competitive jurisdictions is found in trend lines seen on this figure. While the capacity factors of both state groupings show a decline in capacity factor (due primarily to the deployment of renewable generation assets), the competitive jurisdictions have responded to this trend more cost effectively than have the monopoly states. The decline in the 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 however, the increased negative 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 **39.3%** in 2023 (**12.9% change**). That is a much more significant decrease in capacity factor compared to the much more modest decline in the 14 competitive states/jurisdictions from **49.4%** in 1997 to **42.2%** in 2023 (**7.2% change**). Plant utilization, as measured by the Capacity Factor, has declined in far greater proportion in the group of monopoly states than in competitive states/jurisdictions due largely to the shift from coal toward gas, and to the deployment of renewables. 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 14 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, 1997-2023 (Generation Output (Δ%))/(Consumption (Δ%))

Figure 20 of Restructuring Recharged

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

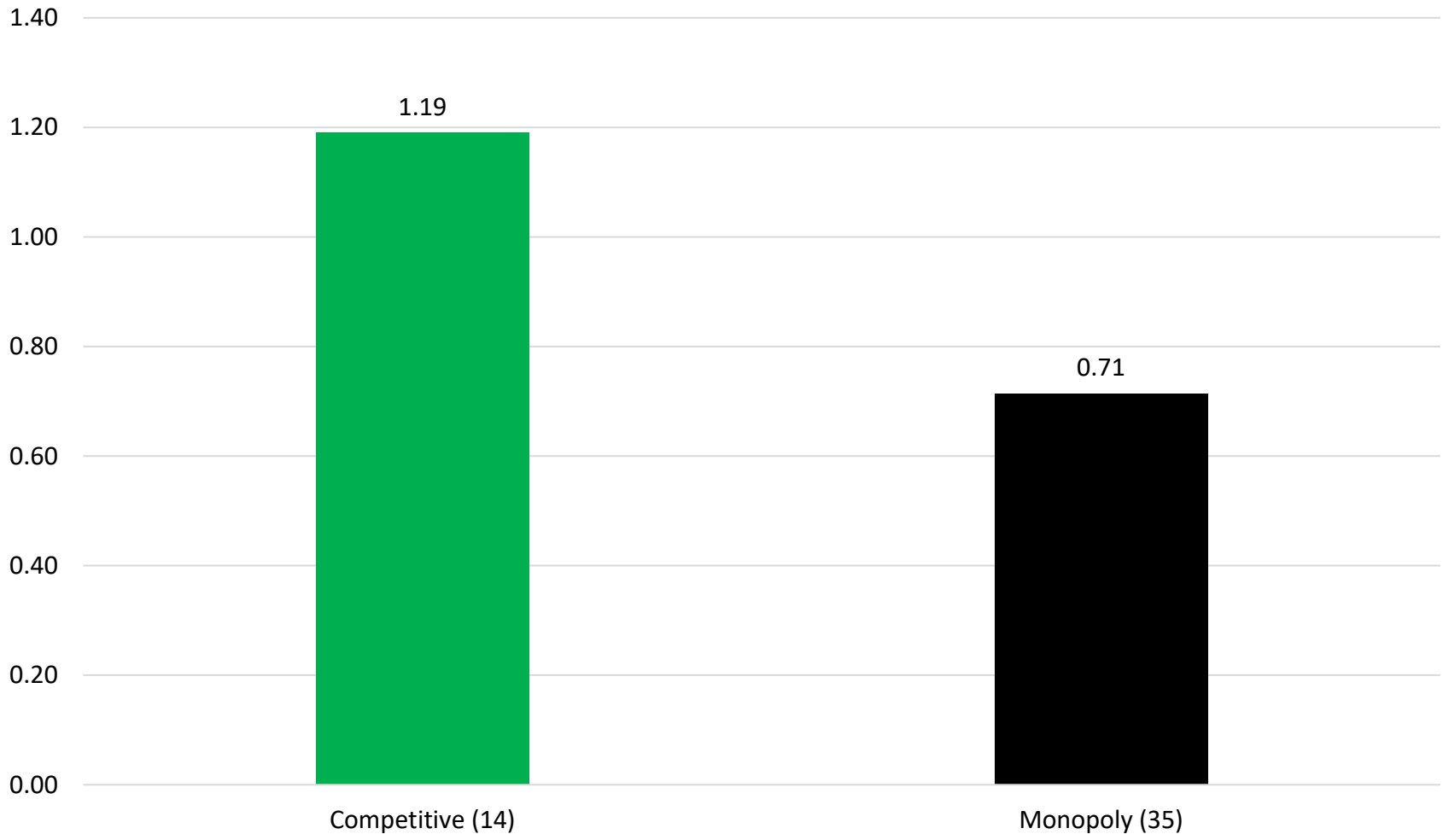

Figure 20 (page 22) of Restructuring Recharged - **Updated through CY2023**

”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 time. Figure 20 shows that in the customer choice states/jurisdictions, production has increased at a ratio of **1.19** to the change in consumption. In contrast, in the monopoly states, production slowly decreased at a pace well below the percentage change in consumption at a ratio of just **0.71**. Thus, generation production in the customer choice states/jurisdictions outpaced consumption, while consumption in the monopoly states outpaced generation production. Clearly, the operating performance of the generating assets in the competitive states are operating under a different model than in the vertically intergraded monopoly states. The performance of the generators in response to the form of regulation is demonstrated in this figure.

State Ranking – Consumption Percentage Change 2008-2024

Figure 22 of Restructuring Recharged

Source: EIA-861M

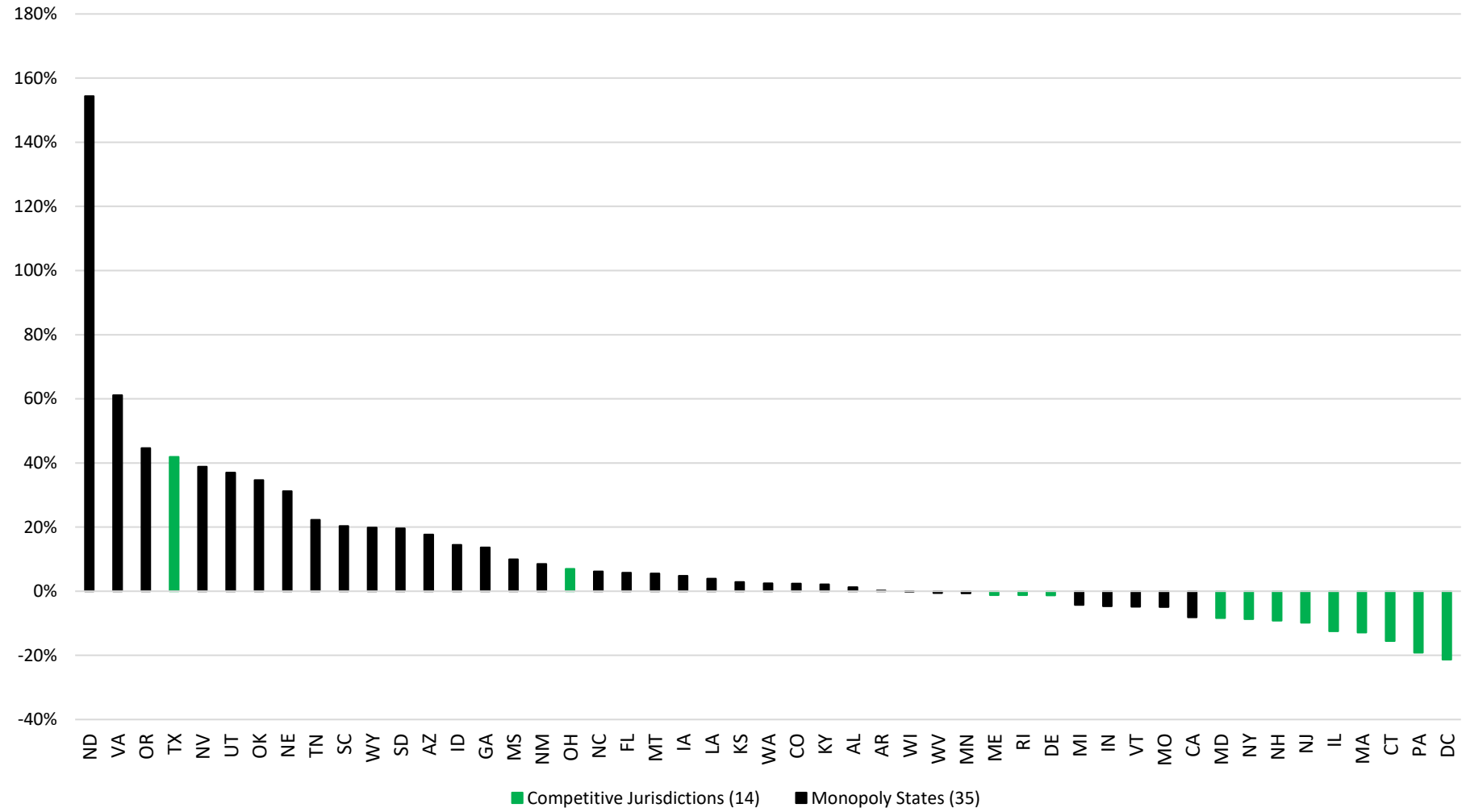

Figure 22 (page 27) of Restructuring Recharged - **Updated through CY2024**

As shown in Figure 22, about half of all states decreased in load consumption from 2008 to 2024. In fact, each of the competitive states (excluding Texas) experienced a reduction in consumption over this period. All else equal, a drop in consumption would often 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 a rise in competition, which has led to a much-diminished price increase in the competitive jurisdictions as compared to the monopoly states.

Generation Percentages by Energy Type in the 14 Competitive States/Jurisdictions, 1997-2023

Figure 23 of Restructuring Recharged

Source: EIA-861M

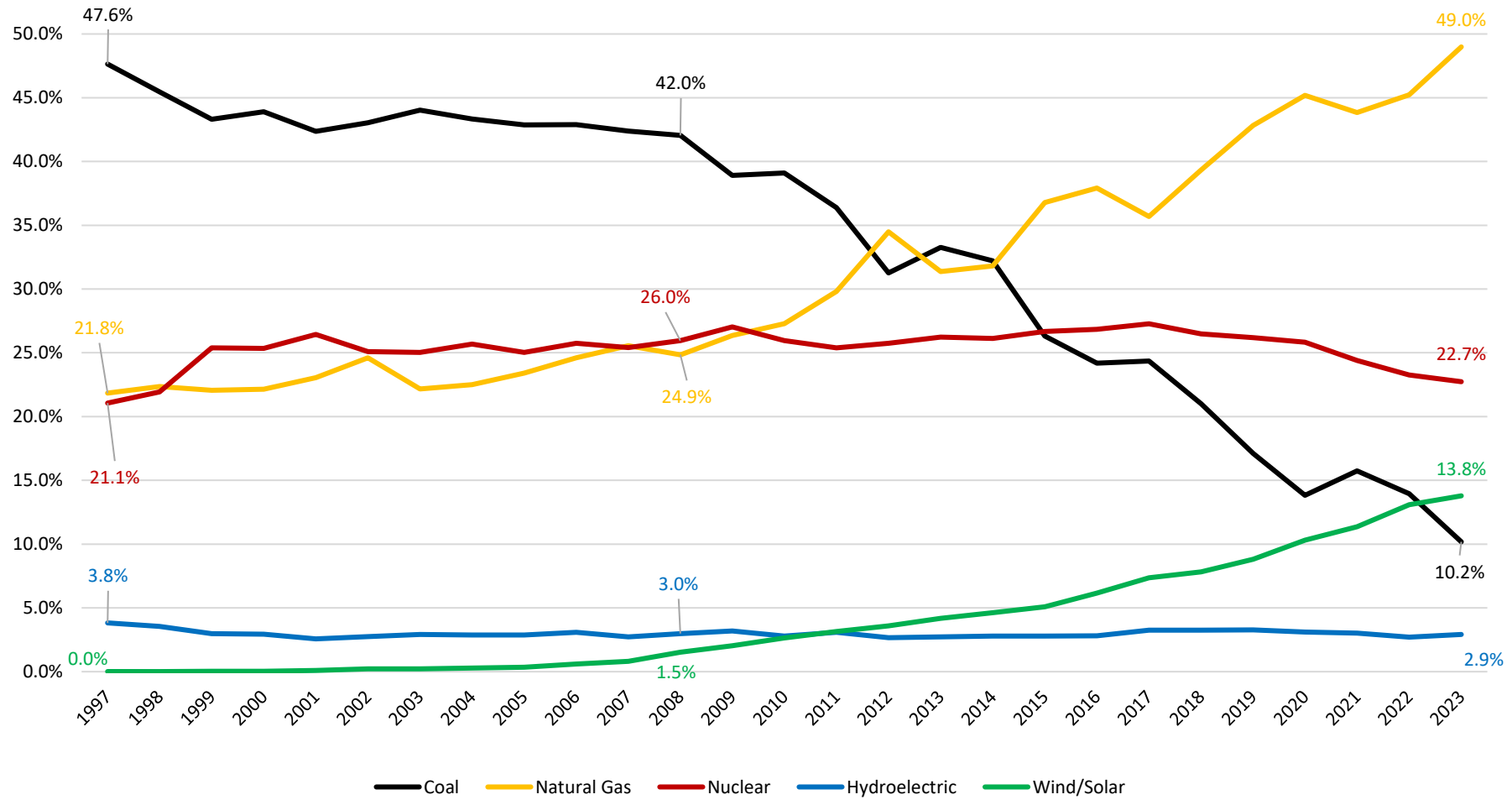

Figure 23 (page 28) of Restructuring Recharged and Figure 10 (page 8) of The Great Divergence **- Updated through CY2023**

Figures 23, 24, and 25 of Restructuring Recharged show the 2008-2023 comparative changes in the proportion of electricity production from the major sources in the 14 competitive states/jurisdictions and the 35 monopoly states, respectively. Since the commencement of the customer choice era and the shale gas revolution, natural gas has been on track to overtake coal regarding installed capacity and production. This has been true in the 14 competitive states/jurisdictions and the 35 monopoly states.

Figure 23 of RR shows that in the 14 competitive states/jurisdictions during the beginning of the competitive era in 1997, coal accounted for 47.6% of generation, while natural gas plants constituted 21.8%. By year-end 2023, coal's share of generation output had dropped to **10.2%** while generation from natural gas had risen to **49.0%.** Figure 23 of RR also indicates that 2012 was the first-year natural gas-fired electric power production exceeded coal production in the 14 competitive states/jurisdictions. This flip has occurred in the 35 monopoly states, too, but not until 2018 (as shown in Figure 24 of RR).

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. 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:

- Coal accounted for a greater share of generating capacity in monopoly states than in the customer choice states/jurisdictions where gas and nuclear are more prominent.
- In 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, 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 **(13.8%)** and the 35 monopoly states **(14.2%).** 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 14.2% down to 13.2%.

Generation Percentages by Energy Type in the 35 Monopoly States, 1997-2024

Figure 24 of Restructuring Recharged

Source: EIA-861M

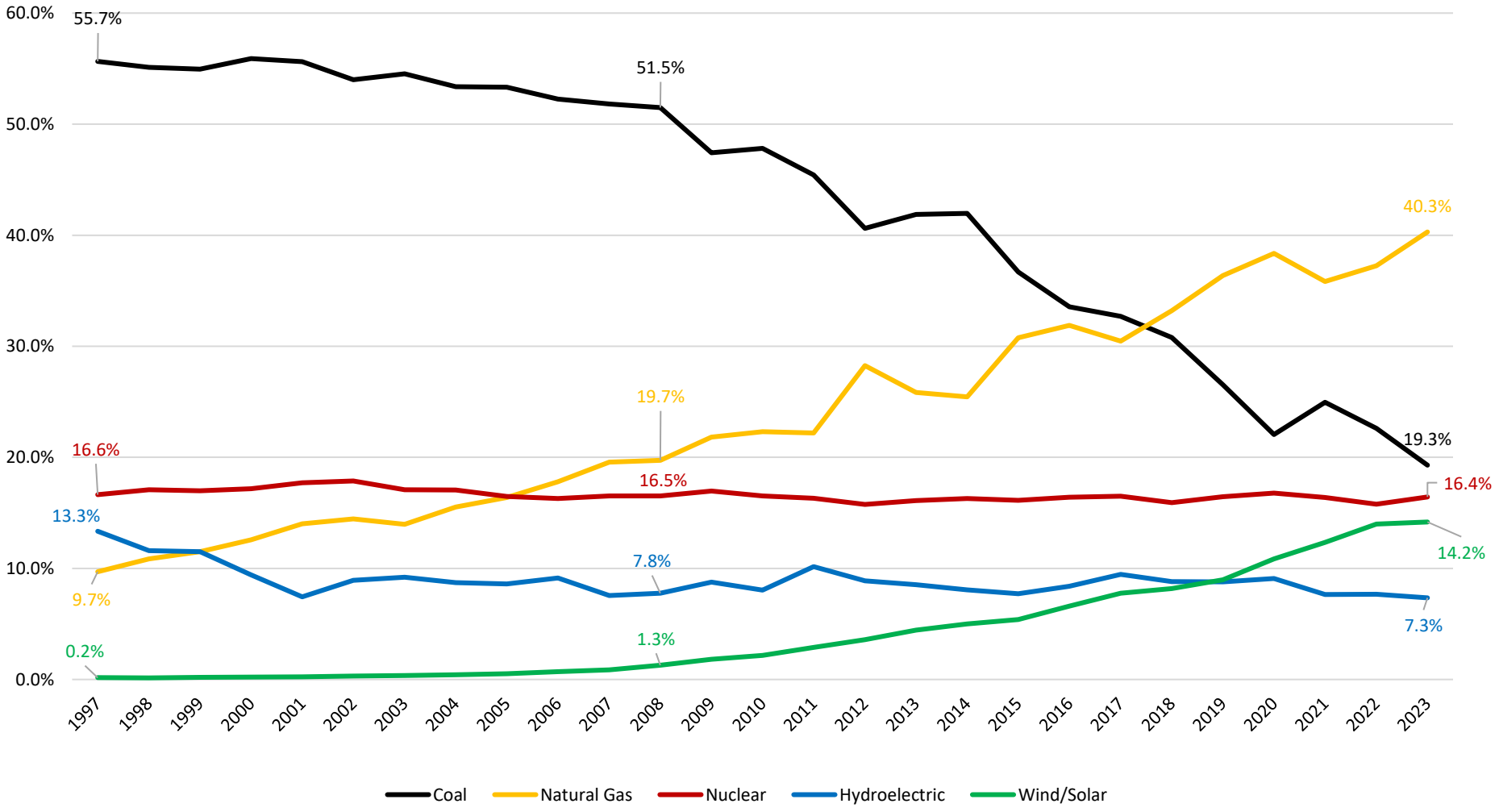

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Figure 24 (page 28) of Restructuring Recharged and Figure 11 (page 8) of The Great Divergence - **Updated through CY2023**

Figures 23, 24, and 25 of Restructuring Recharged show the 2008-2023 comparative changes in the proportion of electricity production from the major sources in the 14 competitive states/jurisdictions and the 35 monopoly states, respectively. Since the commencement of the customer choice era and the shale gas revolution, natural gas has been on track to overtake coal installed capacity and production. This has been true in the 14 competitive states/jurisdictions and the 35 monopoly states.

Figure 24 of RR shows that in the 35 monopoly states during the beginning of the competitive era in 1997, coal accounted for **55.7%** of generation, while natural gas plants constituted **9.7%**. By year-end 2022, coal's share of generation output had dropped to **19.3%** while generation from natural gas had risen to **40.3%.** Figure 24 of RR also indicates that 2018 was the first-year natural gas-fired electric power production exceeded coal production in monopoly states. This flip occurred in 2012 in the 14 competitive states/jurisdictions, as shown in Figure 23 of RR.

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. 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:

- Coal accounted for a greater share of generating capacity in monopoly states than in the 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, 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 **(13.8%)** and the 35 monopoly states **(14.2%).** 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 14.2% down to 13.2%.

Generation Percentages by Energy Type in the 49 Contiguous States/Jurisdictions, 1997-2023

Figure 25 of Restructuring Recharged

Source: EIA-861M

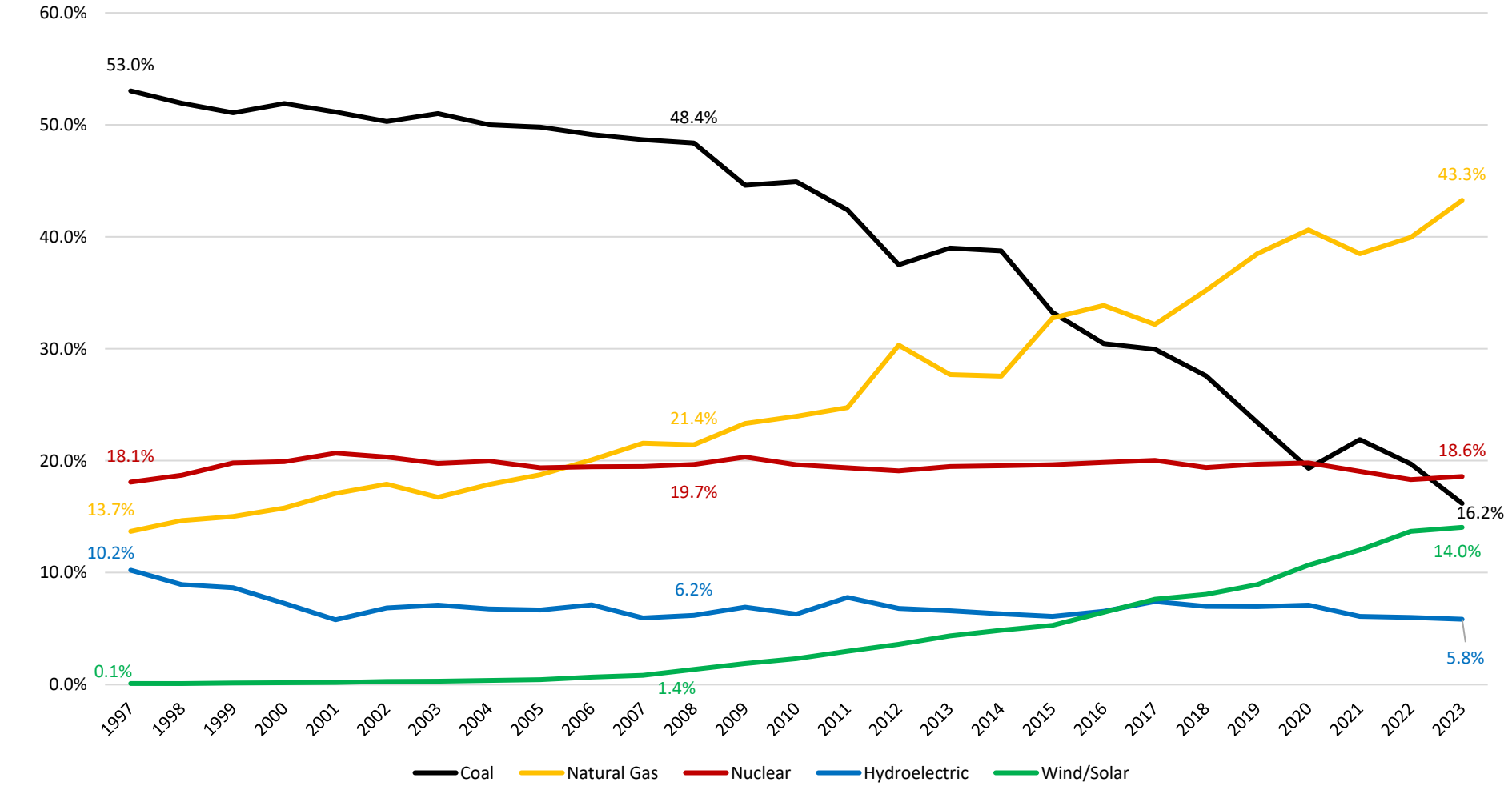

Figure 25 (page 28) of Restructuring Recharged - **Updated through CY2023**

Figures 23, 24, and 25 of Restructuring Recharged show the 2008-2023 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 53.0% of generation production, while natural gas plants constituted 13.7%. By year-end 2023, coal's share of generation output had dropped to **16.2%** while generation from natural gas had risen to **43.3%**

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:

- Coal accounted for a larger share of generating capacity in the 35 monopoly states 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.

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 **(13.8%)** and the 35 monopoly states **(14.2%).** 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 14.2% down to 13.2%.