WIRES UTILITIES & THE NEXT WAVE OF COMPETITIVE ELECTRICITY RESTRUCTURING

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UNPRECEDENTED CONDITIONS ARE CONVERGING

- **THREE UNPRECEDENTED CONDITIONS ARE ALTERING THE LANDSCAPE**

1) FLAT LOAD – a decade of stagnant grid-served load is unravelling a business & regulatory model predicated on expansion.

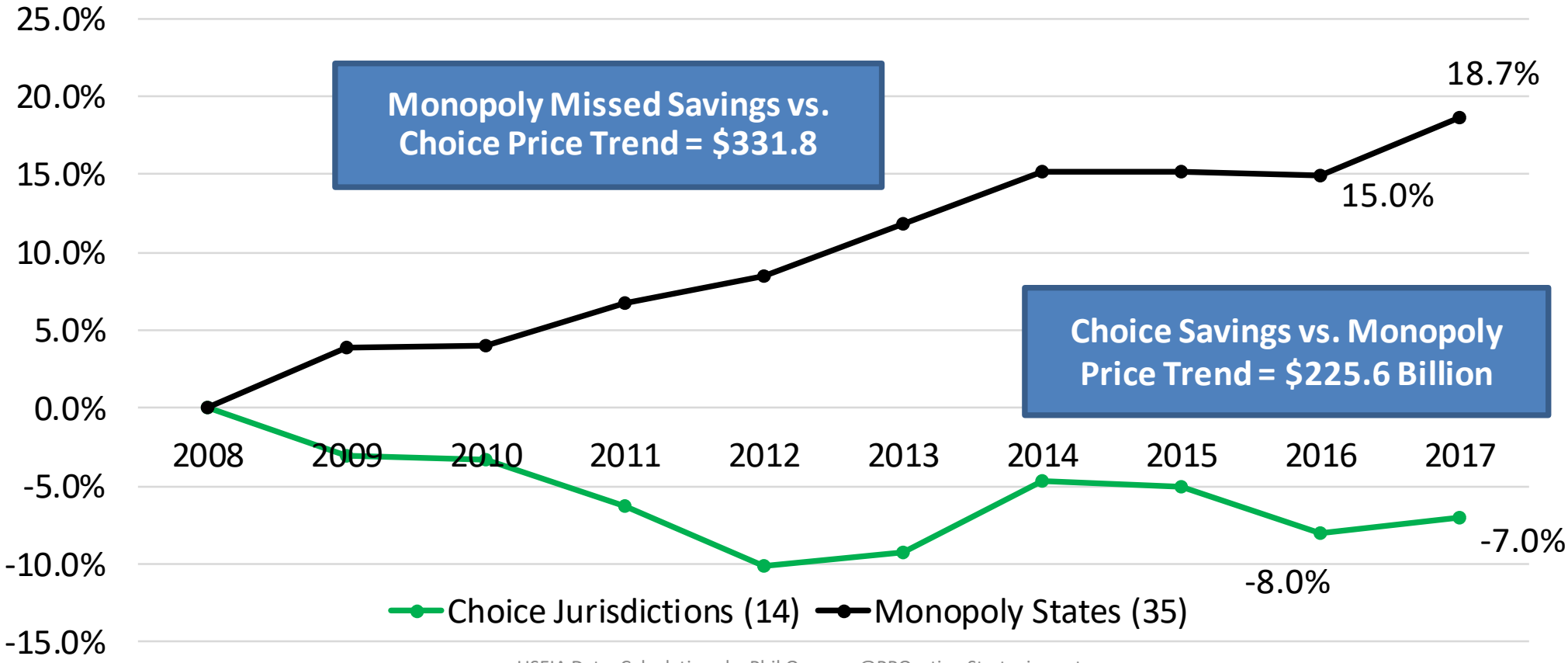
2) GENERATION DYS-ECONOMICS – shale gas & renewables have upset the traditional central station, capital-intensive low-cost fuel model of efficiency.

3) DIGITAL DEPLOYMENT – digitizing of the electricity network is generating massive amounts of information about the grid and customers.

- Rising fixed costs must be spread over flat sales volumes
- Legacy volumetric rate design makes utilities chase their tails
- Distributed energy resources need a web-style network, not hub & spoke
- Consumer expectations may be rising & differentiating

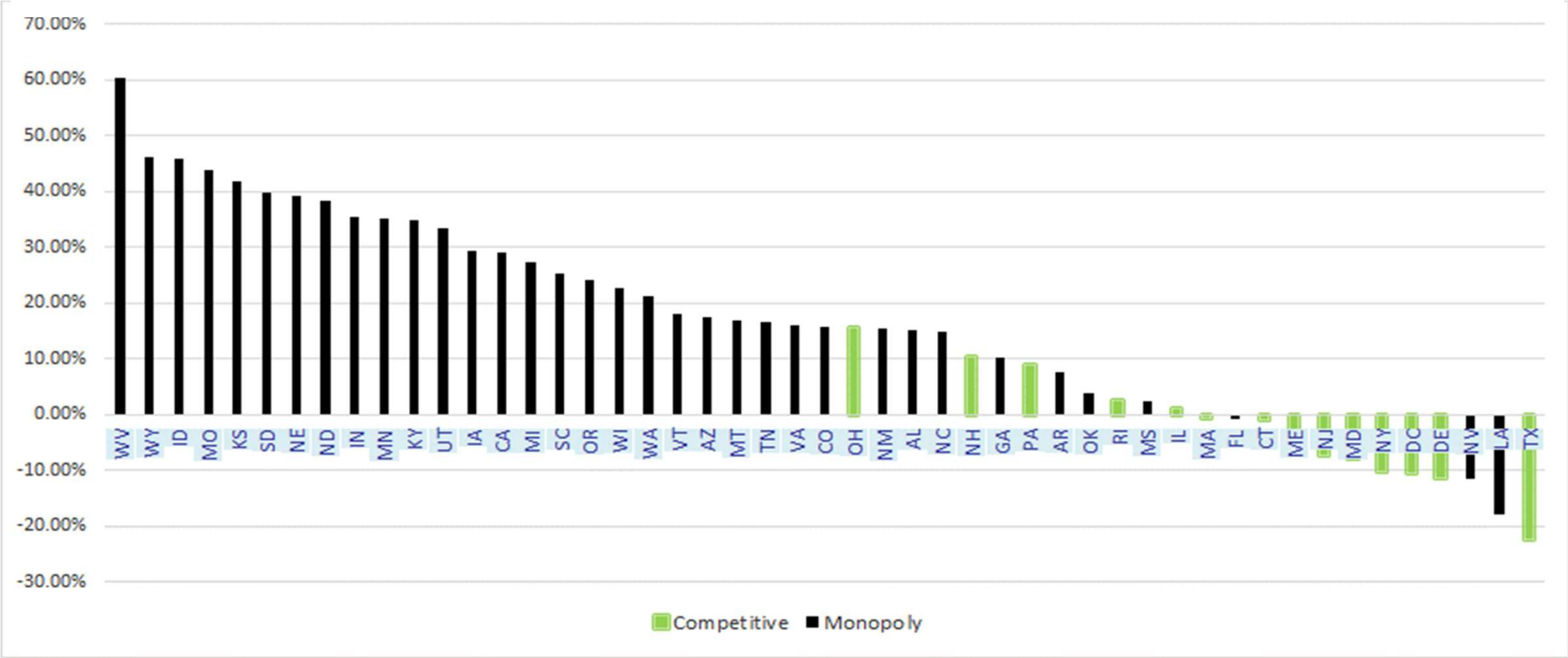
USEIA Data - Calculated by Phil.OConnor@PROactive-Strategies.net

IF MONOPOLY STATES' PRICE PATH WERE THE SAME AS CHOICE STATES', MONOPOLY CONSUMERS WOULD HAVE PAID ONE-THIRD TRILLION DOLLARS LESS 2008-17



USEIA Data; Calculations by Phil.Oconnor@PROactive-Strategies.net

CHOICE STATES CLUSTER AT THE LOW END OF PERCENTAGE PRICE CHANGE 2008-17



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WIRES UTILITIES AS TRANSACTIVE PLATFORMS (FOR ELECTRICITY TOO CHEAP TO METER?)

- Flat load will drive utilities toward non-volumetric pricing for delivery service
- Formula ratemaking will minimize judicialized proceedings
- Distributed Energy Resources need a robust wires network for efficient trading
- Utility smart meters can collect and transmit essential trading information
- Utility investment will gravitate toward smart resilience and power quality
- As more DER &renewables are added, incremental production costs will migrate in the direction of zero.
- As “InfoComp” progresses (wireless, quantum processing, blockchain), transaction costs will migrate toward zero.
- Low incremental production costs and transaction costs suggest that the much-maligned prediction of “too cheap to meter” will have substance.

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SUPPLEMENTAL ILLUSTRATIONS DIVERGENT PERFORMANCE OF CHOICE & MONOPOLY STATES DURING THE FLAT LOAD ERA 2008-17

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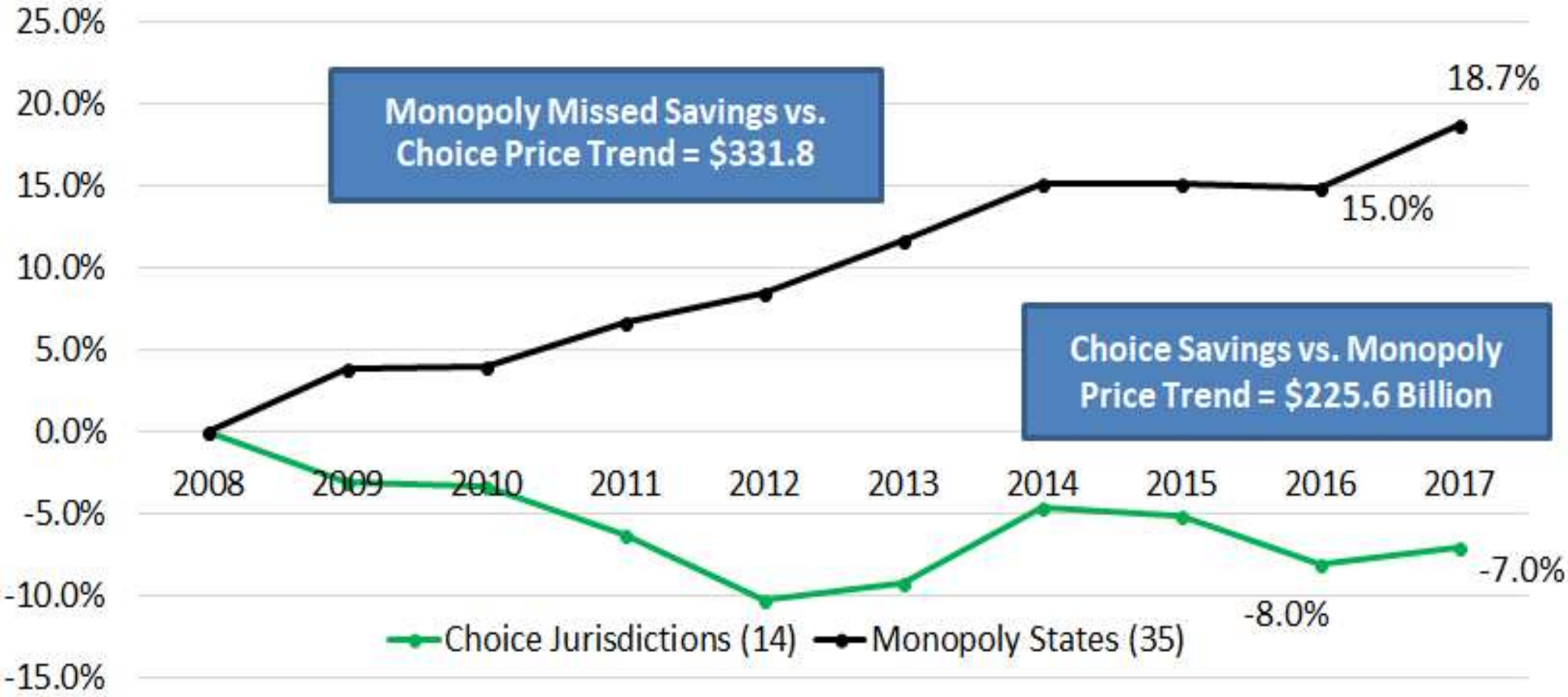
2008-2017 SIMULATION OF IMPACTS OF RELATIVE MONOPOLY & CHOICE STATE WEIGHTED AVERAGE PRICE % CHANGE PATHS - IF 35 MONOPOLY STATES HAD THE SAME PRICE PATH AS 14 CHOICE STATES, ALL CONSUMERS WOULD HAVE PAID $332 BILLION LESS – WHEREAS IF CHOICE STATES TOOK SAME PATH AS MONOPOLY, ALL CONSUMERS WOULD HAVE PAID $226 BILLION MORE



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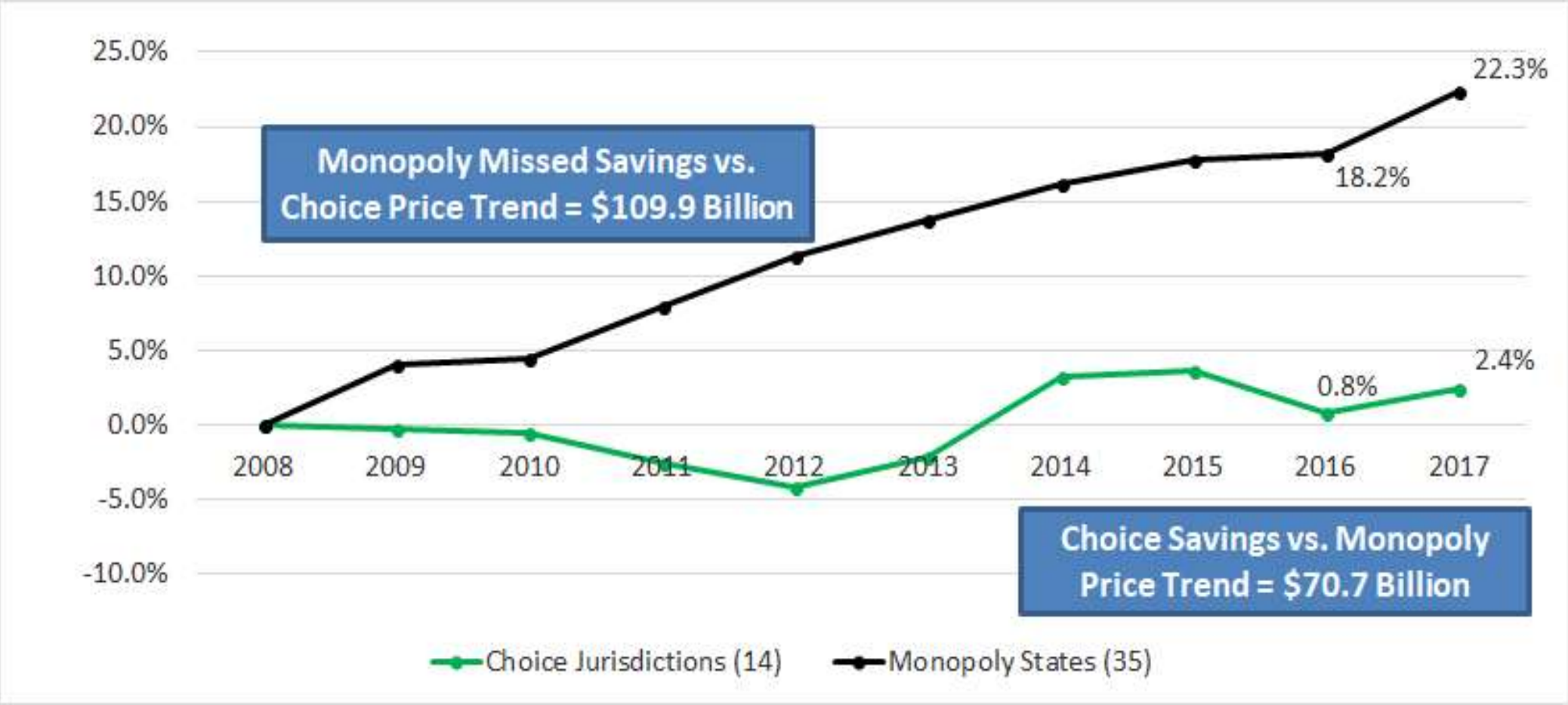
2008-2017 SIMULATION OF IMPACTS OF RELATIVE MONOPOLY & CHOICE STATE WEIGHTED AVERAGE PRICE % CHANGE PATHS - IF 35 MONOPOLY STATES TOOK SAME PRICE PATH AS 14 CHOICE STATES, RESIDENTIAL CONSUMERS WOULD HAVE PAID $110 BILLION LESS – WHEREAS IF CHOICE STATES TOOK SAME PATH AS MONOPOLY, RESIDENTIALS WOULD HAVE PAID $71 BILLION MORE



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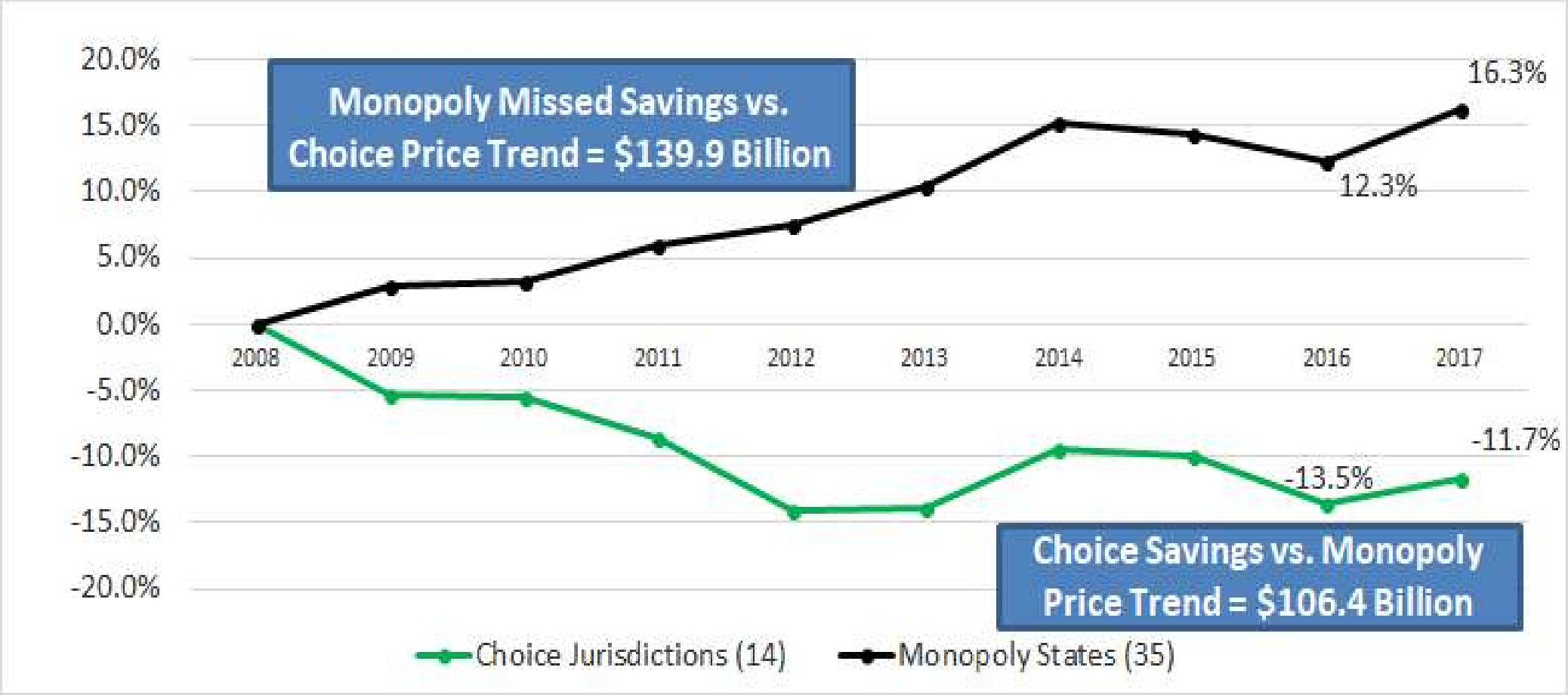
2008-2017 SIMULATION OF IMPACTS OF RELATIVE MONOPOLY & CHOICE STATE WEIGHTED AVERAGE PRICE % CHANGE PATHS - IF 35 MONOPOLY STATES TOOK SAME PRICE PATH AS 14 CHOICE STATES, COMMERCIAL CONSUMERS WOULD HAVE PAID $140 BILLION LESS – WHEREAS IF CHOICE STATES TOOK MONOPOLY PATH, COMMERICALS WOULD HAVE PAID $106 BILLION MORE



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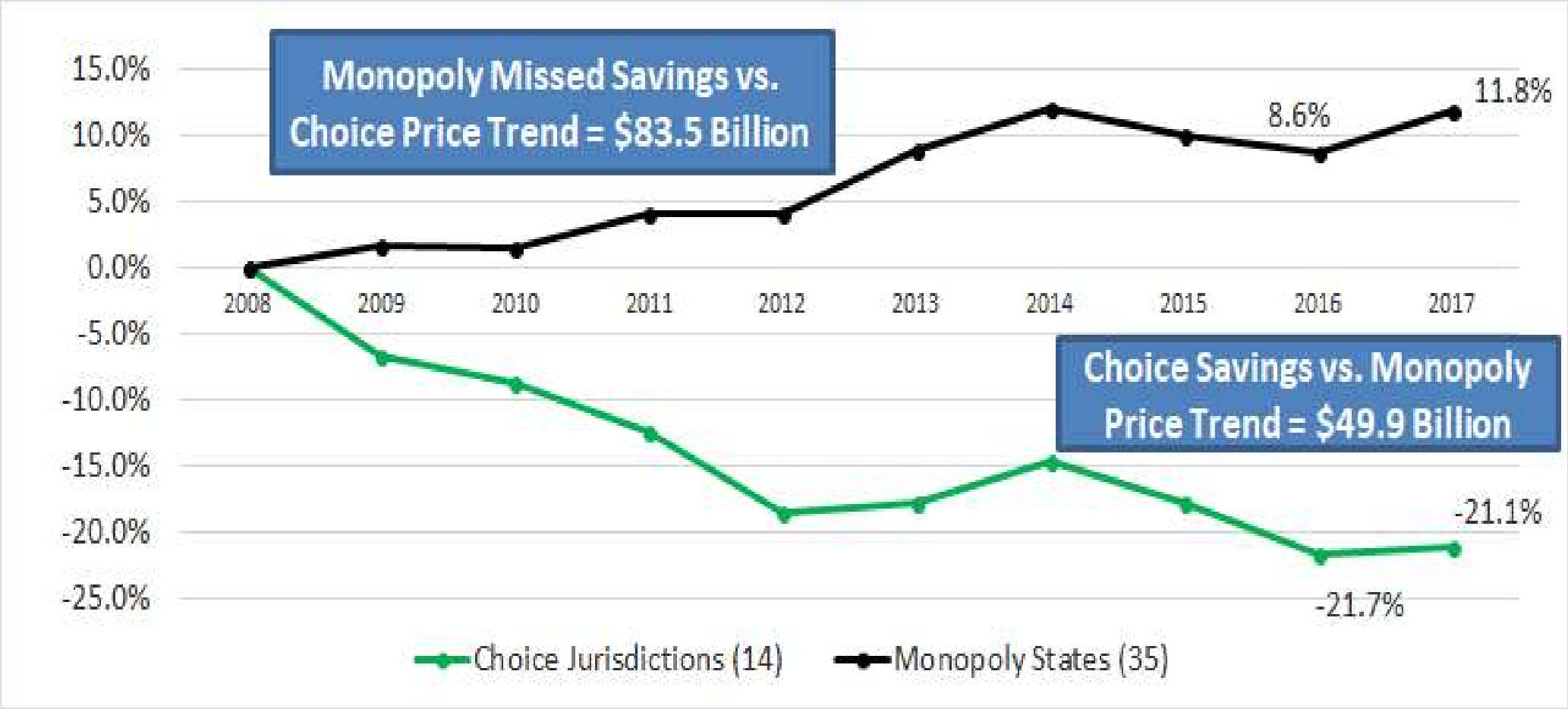
2008-2017 SIMULATION OF IMPACTS OF RELATIVE MONOPOLY & CHOICE STATE WEIGHTED AVERAGE PRICE % CHANGE PATHS IF 35 MONOPOLY STATES TOOK SAME PRICE PATH AS 14 CHOICE STATES, INDUSTRIAL CONSUMERS WOULD HAVE PAID $84 BILLION LESS – WHEREAS IF CHOICE STATES TOOK SAME PATH AS MONOPOLY, INDUSTRIALS WOULD HAVE PAID $50 BILLION MORE



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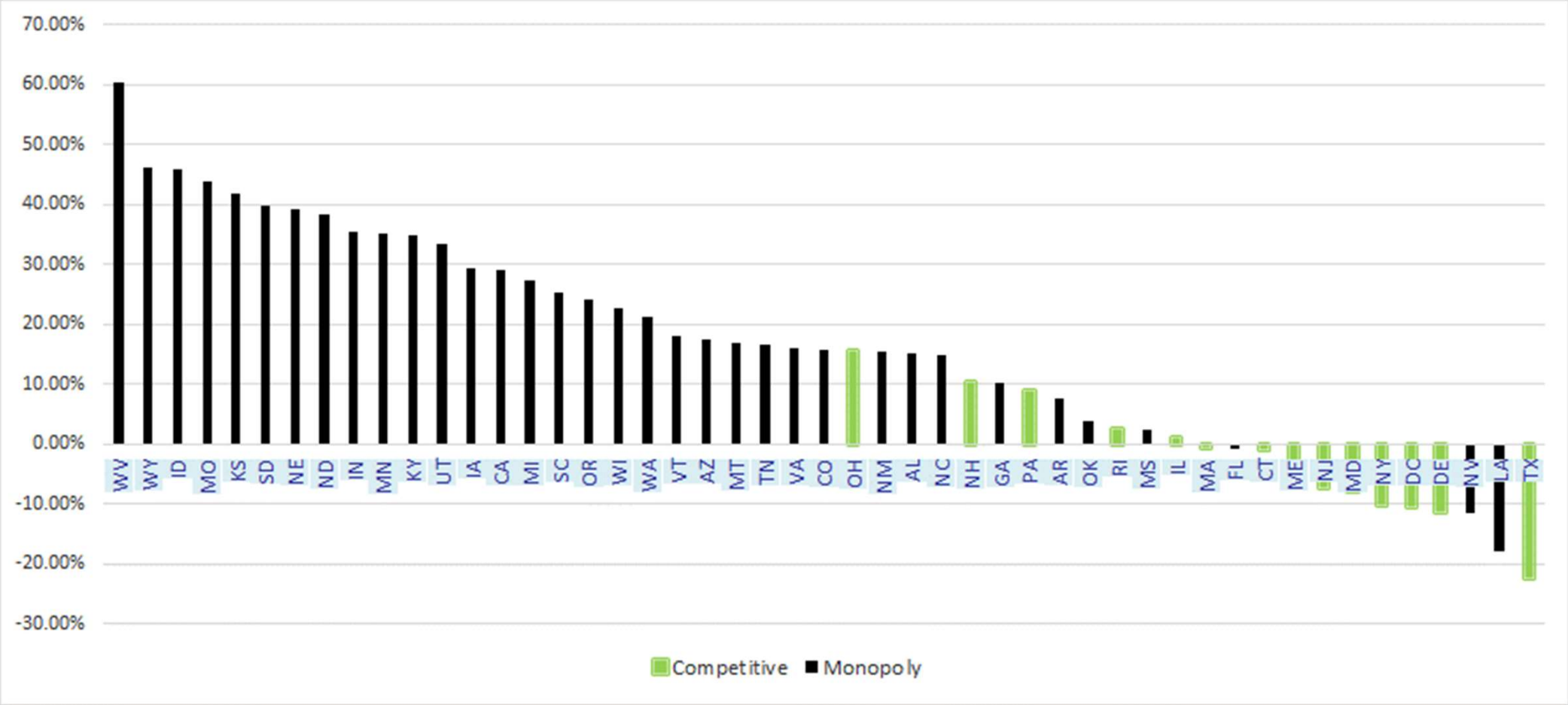
2008-17 RANKING OF 35 MONOPOLY STATES AND 14 CHOICE JURISDICTIONS BY % CHANGE IN ALL-SECTOR WEIGHTED AVERAGE PRICE - ALL 14 CHOICE STATES ARE IN THE LOWER HALF OF THE RANGE AND OCCUPY 9 OF 12 NEGATIVE % PRICE CHANGE SPOTS



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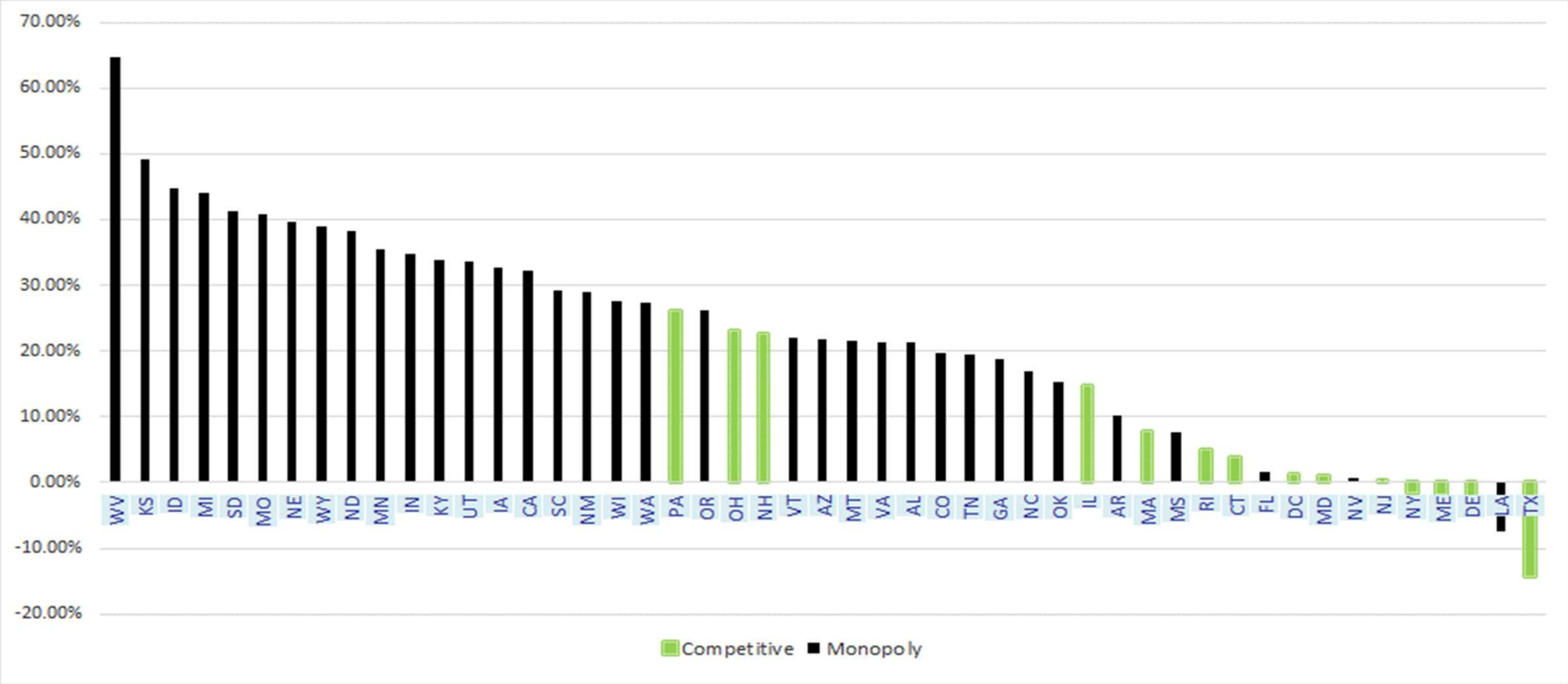
2008-17 RANKING OF 35 MONOPOLY STATES AND 14 CHOICE JURISDICTIONS BY % CHANGE IN RESIDENTIAL WEIGHTED AVERAGE PRICE - 11 OF 14 CHOICE STATES ARE IN THE LOWER HALF OF THE RANGE AND OCCUPY 4 OF 5 NEGATIVE % PRICE CHANGE SPOTS



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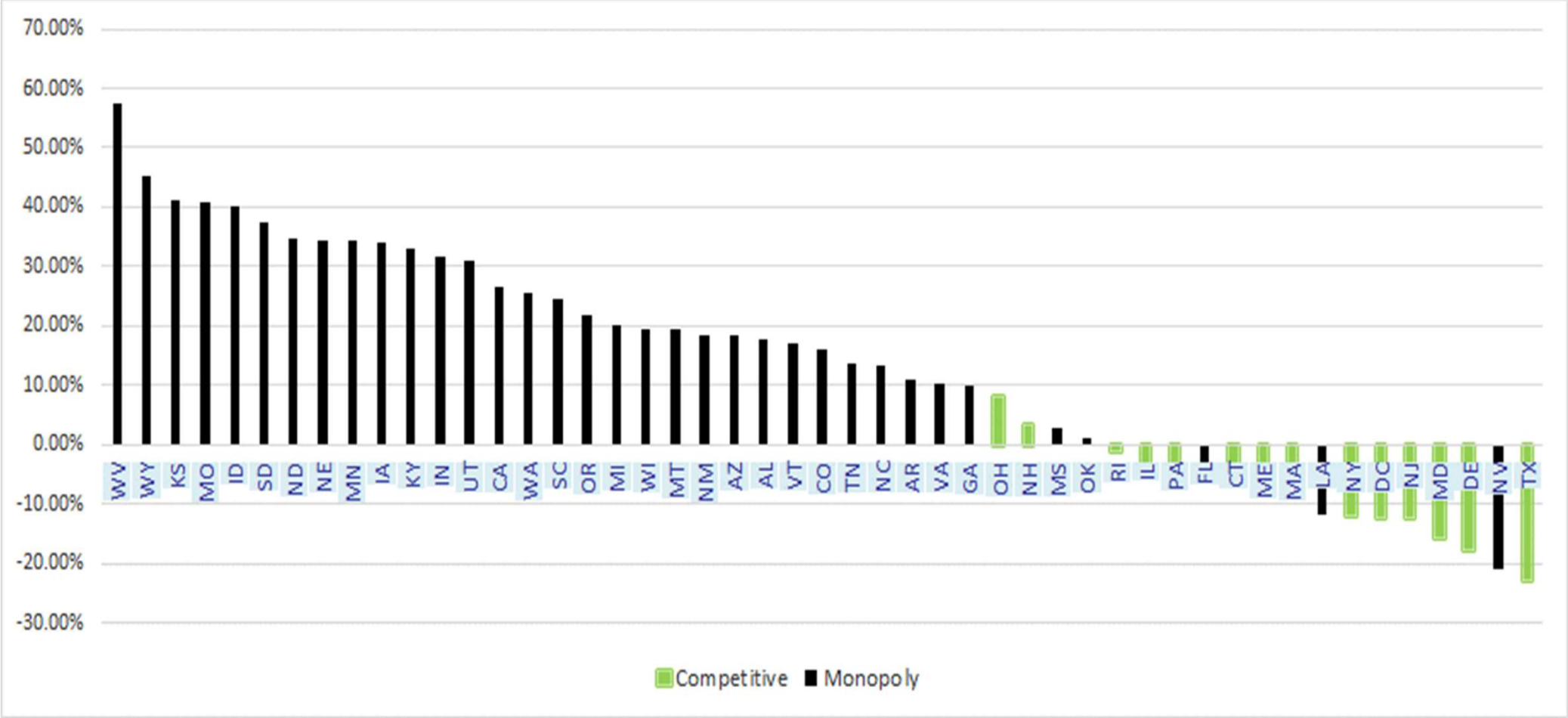
2008-17 RANKING OF 35 MONOPOLY STATES AND 14 CHOICE JURISDICTIONS BY % CHANGE IN COMMERCIAL WEIGHTED AVERAGE PRICE - ALL 14 CHOICE STATES ARE IN THE LOWER HALF OF THE RANGE AND OCCUPY 12 OF 15 NEGATIVE % PRICE CHANGE SPOTS



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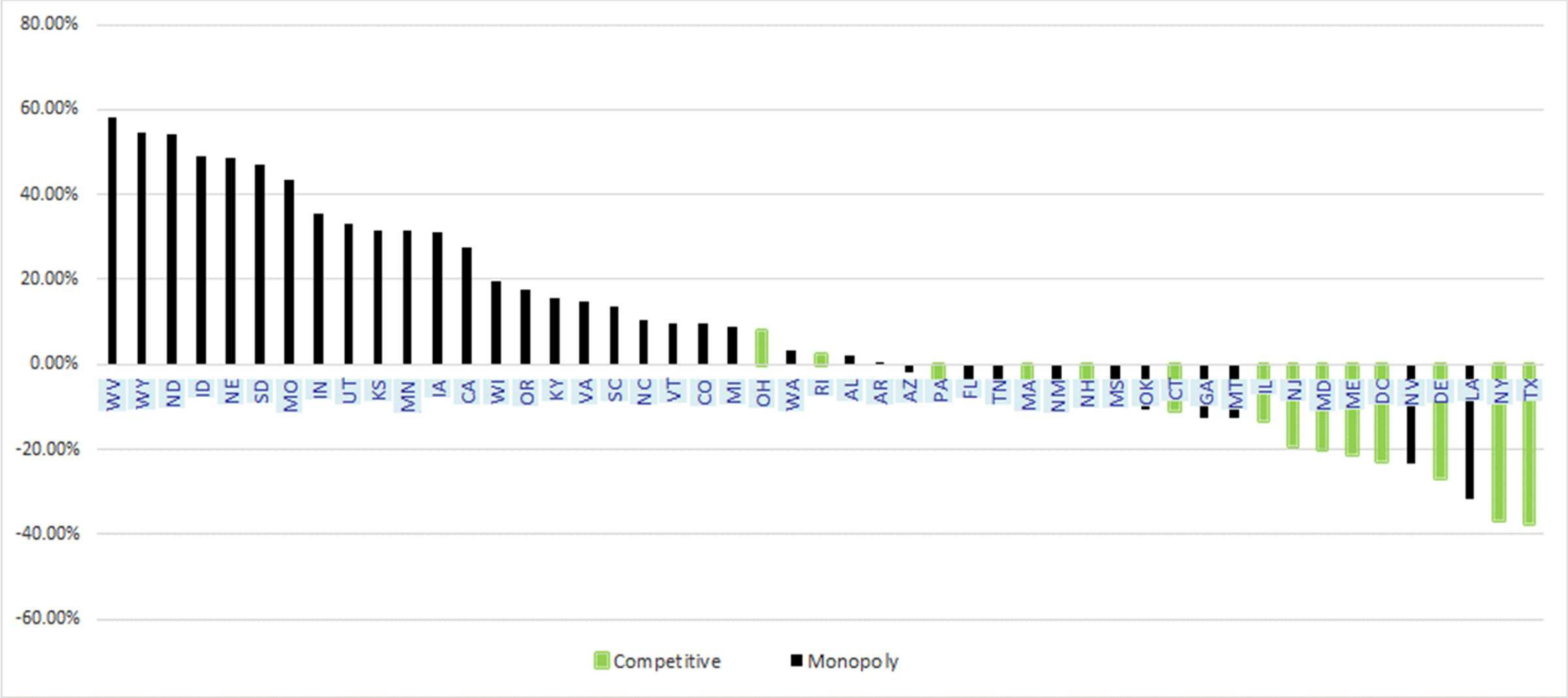
2008-17 RANKING OF 35 MONOPOLY STATES AND 14 CHOICE JURISDICTIONS BY % CHANGE IN INDUSTRIAL WEIGHTED AVERAGE PRICE - 13 OF 14 CHOICE STATES ARE IN THE LOWER HALF OF THE RANGE AND OCCUPY 12 OF 22 NEGATIVE % PRICE CHANGE SPOTS



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- Philip R. O'Connor, Ph.D. is President of PROactive Strategies, a Chicago consulting firm providing advice in the energy and insurance industries. He is recognized as an expert on the transition of regulated industries to competition.
- In addition to a lengthy career in the private sector, Phil has had extensive government and political experience, having chaired the Illinois Commerce Commission serving as Director of the Illinois Department of Insurance and as a member of the Illinois State Board of Elections. Five consecutive Illinois Governors have appointed him to various boards and commissions.
- From March 2007 to March 2008, Phil served in the U.S. Embassy in Baghdad, Iraq with the US Army Corps of Engineers and the US Department of State as an advisor to the Iraqi Ministry of Electricity. A magna cum laude graduate of Loyola University of Chicago, Phil received his Masters and Doctorate in Political Science from Northwestern University.
- Among his writing on electricity competitive restructuring are Restructuring Recharged: The Superior Performance of Competitive Electricity Markets 2008-2016, a whitepaper prepared for the Retail Energy Supply Association (RESA) April 2017, Evolution of the Revolution: The Sustained Success of Retail Electricity Competition, with Erin O'Connell-Diaz (July 2015) and Customer Choice in Electricity Markets: From Novel to Normal, (November 2010) both published by COMPETE Coalition; "The Grand Experiment: Has Restructuring Succeeded on Either Continent?", with Terrence L. Barnich, published in Public Utilities Fortnightly, February 2007;, "Regulation and Relevancy: Assessing the Impact of Electricity Customer Choice," with John L. Domagalski in ElectricityPolicy.com, January 2013; "The Electricity Choice Debate: Conjectures and Refutations," with Jonathan A. Lesser, in The Electricity Journal, Aug/Sep 2014; and, "A Five-Point Plan for the Next Wave of Electricity Restructuring," with Robert Bussa and Wayne Olson, in the May 2016 issue of Public Utilities Fortnightly.

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