IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN

WILLIAM WHITFORD, *et al.,*

      Plaintiffs,

    v.   Case No. 15-cv-421-bbc

GERALD NICHOL, *et al.,*

      Defendants.

DEFENDANTS' RESPONSE TO PLAINTIFFS' PROPOSED FINDINGS OF FACT

I.   Plaintiffs' Experts and Their Analyses

1. Simon Jackman is a Professor of Political Science at Stanford University who teaches classes on American politics and statistical methods in the social sciences. (Jackman Rpt. (Dkt. 62) at p. 1.)

   RESPONSE 1: Undisputed.

2. Professor Jackman has authored and published many articles in peer-reviewed journals over the last decade on a variety of subjects in his field, including the properties of electoral systems and election administration. (Jackman Decl. (Dkt. 58-2) at pp. 3-7.)

   RESPONSE 2: Undisputed.

3. Kenneth Mayer is a Professor of Political Science at the University of Wisconsin Madison, and a faculty affiliate at the University's Lafollette School of Public Affairs. He teaches courses on American politics, the presidency, Congress, campaign finance, election law, and electoral systems. (Mayer Rpt. (Dkt. 54) at p. 2)

   RESPONSE 3: Undisputed.

4. Professor Mayer has published numerous articles in peer-reviewed journals on the topics of American politics, the presidency, Congress, campaign finance, election law, and electoral systems. (Mayer Rpt. (Dkt. 54) at pp. 3-4; Mayer Decl. (Dkt. 59-1) at pp. 2-7.)

    RESPONSE 4: Undisputed.

5. Both Professor Mayer and Professor Jackman were already highly experienced in studying and analyzing the principles of partisan symmetry on which the efficiency gap is based before this lawsuit was filed, and both are have years of experience as political scientists on which they base their calculations of the metrics for any district plan.

    RESPONSE 5: Disputed. The plaintiffs cite to no evidence in support of this proposed finding.

6. Wasted votes are votes that are cast either for a losing candidate ("lost votes") or for a winning candidate but in excess of what he or she needed to prevail ("surplus votes"). (Jackman Rpt. (Dkt. 62) at pp. 15-16.)

    RESPONSE 6: Undisputed but only to the extent this is a description of the definition of the term the plaintiffs use in this case.

7. The efficiency gap measures the extent to which one party's voters are more cracked and packed than the other's, and so provides a single intuitive figure (expressed as a negative value for a pro-Republican gap and a positive value for a pro-Democratic gap) that can be used to assess the existence and extent of partisan gerrymandering and to compare one plan's partisan impact to another's. (Jackman Rpt. (Dkt. 62) at pp. 15-16.)

    RESPONSE 7: Disputed. The "existence and extent of partisan gerrymandering" is a question of law, not of fact. [See legal briefs]

8. Professor Jackman calculated the efficiency gap for every state house election for which data was available over the period from 1972 to 2014, using actual election results. To do so, he did not aggregate wasted votes district by district, but rather used a simplified computation method based on statewide electoral data. (Jackman Rep. (Dkt. 62) at p. 16.)

    RESPONSE 8: Disputed. Jackman calculated the efficiency gap for "general election results since 1972 in states whose lower houses are elected via single-member districts, or where single-member districts are the norm" available in the data set "available from the Inter-University Consortium for Political and Social Research." (Jackman

Rep. (Dkt. 62) at 20.) The defendants do not dispute the second sentence of the proposed finding.

9. Defendants' expert, Professor Goedert, "concur[s] that th[e] shortcut [used by Professor Jackman] is an appropriate and useful summary measure of [the] efficiency gap." (Goedert Rpt. (Dkt. 51) at p. 5; Goedert Dep. (Dkt. 65) at 70:17-73:2.)

  RESPONSE 9: Undisputed.

10. Using the simplified method for Wisconsin's Current Plan, Professor Jackman arrived at an efficiency gap of -13% in 2012 and -10% in 2014. (Jackman Rpt. (Dkt. 62) at p. 4.)

  RESPONSE 10: Undisputed.

11. Professor Jackman also found that, from 1972 to 2010, not a single map in the country was as asymmetric as the Plan in its first two elections, and that there is nearly a 100% likelihood that the Plan will continue to disadvantage Democrats throughout its lifespan. (Jackman Rpt. (Dkt. 62) at pp. 4-5, 63-73.)

  RESPONSE 11: Disputed. The defendants do not dispute that Jackman found that, from 1972 to 2010, not a single map in the country was as asymmetric, as measured by his method of calculating the efficiency gap, as the Plan in its first two elections. The defendants dispute the remainder of the proposed finding. Jackman found that "[t]he probability that the Wisconsin plan—if left undisturbed—will turn out to have a positive, pro-Democratic, average efficiency gap is for all practical purposes zero." (Jackman Rebuttal Rep. (Dkt. 63) at 16.)

12. Professor Jackman opined that any plan that gives rise to an efficiency gap of 7% or more in its first election is likely to create a partisan advantage that will endure for the remainder of the decade. (Jackman Rpt. (Dkt. 62) at pp. 56-69; Jackman Rebuttal Rpt. (Dkt. 63) at pp. 5-17; Jackman Decl. Ex. D (Dkt. 58-4) at pp. 1-6.)

  RESPONSE 12: Disputed. Jackman performed a historical analysis that "compute[d] this probability of a sign flip in *EG* conditional on the

magnitude of the EG observed with the first election under a districting plan." (Jackman Rep. (Dkt. 62) at 60.) He found "Districting plans unfavorable to Democrats, with $EG < -.07$ are not unusual; about 10% of post-1990 plans generate EG measures below -.07; the proportion of these plans that then record a sign flip is only about 10%." (Jackman Rep. (Dkt. 62) at 66.)

13. Unlike Professor Jackman, Professor Mayer used the full method to calculate the efficiency gap, tallying wasted votes on a district-by-district basis. (Mayer Rpt. (Dkt. 54) at pp. 5-10.)

RESPONSE 13: Undisputed.

14. Also unlike Professor Jackman, Professor Mayer did not use actual vote totals. Instead, because he was comparing an actual with a hypothetical plan, he used a regression analysis to estimate what the wasted votes would have been in each district, under both the Current Plan and his Demonstration Plan. (Mayer Rpt. (Dkt. 54) at pp. 8-18.)

RESPONSE 14: Undisputed

15. Professor Mayer's results were remarkably similar to those generated by Professor Jackman using actual results, with Professor Jackman calculating a -13% efficiency gap for the Current Plan in 2012 and Professor Mayer calculating a -12% efficiency gap for the Current Plan in 2012. (Jackman Rpt. (Dkt. 62) at p. 72; Mayer Rpt. (Dkt. 54) at p. 46.)

RESPONSE 15: Disputed. Mayer and Jackman calculated the efficiency gap using different numbers of seats won by the Republicans, with Mayer using 57 Republican seats and Jackman using 60 seats. Not "remarkably similar."

16. Professor Mayer also found that his Demonstration Plan would have had an efficiency gap of only -2% in 2012, which is more than 80% smaller than the Current Plan. (Mayer Rpt. (Dkt. 54) at p. 46.)

RESPONSE 16: Undisputed.

17. Professor Mayer further determined that the baseline partisanship estimates prepared *prior* to the 2012 election by the Legislature's consultant, Professor Keith Gaddie, corresponded to an efficiency gap of -12% for the Current Plan. (Mayer Rpt. (Dkt. 54) at p. 46.)

RESPONSE 17: Undisputed.

II. National Trends in the Efficiency Gap and Their Explanations

18. Professor Jackman's work shows that over the modern redistricting era, from 1972 to 2014, the average efficiency gap of state house plans has been -0.5%, or almost exactly zero. (Jackman Rpt. (Dkt. 62) at p. 35.)

> **RESPONSE 18: Disputed.** Professor Jackman's work shows that over the modern redistricting era, from 1972 to 2014, the average efficiency gap of state house plans has been -0.5%. Defendants dispute that this is "almost exactly zero."

19. Over the modern redistricting era, from 1972 to 2014, the average efficiency gap for congressional plans has been almost exactly zero. (Nicholas O. Stephanopoulos & Eric M. McGhee, *Partisan Gerrymandering and the Efficiency Gap*, 82 U. Chi. L. Rev. 831, 869-70 (2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2457468.)

> **RESPONSE 19: Disputed.** Stephanopoulos and McGhee determined there was an "average efficiency gap[] of . . . -0.32 percent for state houses." 82 U. Chi. L. Rev. 831, 869 (2015).

20. In the last three redistricting cycles, however, state house plans have become steadily more pro-Republican, with their average efficiency gap dropping from -0.6% in the 1990s to -2.1% in the 2000s to -3.2% in the 2010s. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 20.)
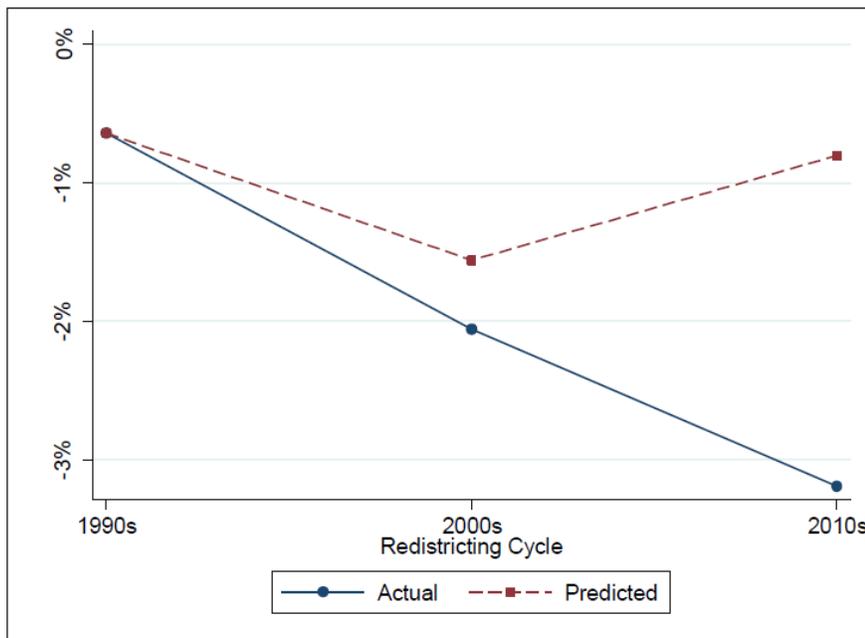
> **RESPONSE 20: Undisputed**

21. The proportion of plans that were designed by Republicans in full control of state government increased from about 10% in the 1990s to about 20% in the 2000s to about 40% in the 2010s. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 19; Trende Dep. (Dkt. 66) at 79:11-23.)

RESPONSE 21: Undisputed.

22. By comparison, fewer than 20% of current plans were designed by Democrats in full control of the state government. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 19.)

RESPONSE 22: Undisputed.

23. The chart below shows how the average efficiency gap of state house plans would have changed from the 1990s to the 2010s if the distribution of party control over redistricting had remained constant over this period. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 20; Jackman Decl. Ex. F (Dkt. 58-6).)

RESPONSE 23: Disputed. The chart does not show what the average efficiency gap of all state house plans would have been because Jackman's analysis did not consider plans enacted without unified partisan control. His rebuttal report says "The omitted category is any other institution responsible for redistricting, such as divided government, a court, or a commission." (Jackman Rebuttal Rep. (Dkt. 63) at 20.) Jackman says plans without partisan control accounted for 60% of plans in the 1990s and 40% of plans in the 2010s. (Jackman Rebuttal Rep. (Dkt. 63) at 18.)

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24. The average efficiency gap would barely have changed if the distribution of party control over redistricting had remained constant from 1990 to 2010, going from -0.6% only to - 0.8%. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 20.)

> **RESPONSE 24: Disputed.** Jackman's analysis does not show what the average efficiency gap of all state house plans would be because Jackman's analysis did not consider plans enacted without unified partisan control. His rebuttal report says "The omitted category is any other institution responsible for redistricting, such as divided government, a court, or a commission." (Jackman Rebuttal Rep. (Dkt. 63) at 20.) Jackman says plans without partisan control accounted for 60% of plans in the 1990s and 40% of plans in the 2010s. (Jackman Rebuttal Rep. (Dkt. 63) at 18.)

25. Edward Glaeser and Bryce Ward calculated what is known as the isolation index for Democratic and Republican voters by county from 1840 to 2004. This index indicates, for the average Democratic or Republican voter, what share of his or her fellow county residents are also Democrats or Republicans. (Edward L. Glaeser & Bryce Adam Ward, *Myths and Realities of American Political Geography* (2005) (Dkt. 59-3) at pp. 5-6.)

> **RESPONSE 25: Undisputed.**

26. As the below chart reveals, over the last half-century, both Democratic and Republican isolation scores have been close to 50%, oscillating over a range from roughly 40% to 60%. (Edward L. Glaeser & Bryce Adam Ward, *Myths and Realities of American Political Geography* 39 (2005), Mayer Decl. Ex. C (Dkt. 59-3) at p. 39.)

> **RESPONSE 26: Undisputed** that this is the range calculated by Glaeser and Ward**.**

27. In the final election covered by the Glaeser and Ward study (2004), "[t]he isolation index . . . was 53.4 percent for Republicans and 52.6 percent for Democrats." Thus "[t]he isolation measures show even less of a trend." (Mayer Decl. Ex. C (Dkt. 59-3) at p. 6.)

> **RESPONSE 27: Undisputed.**

28. For both 2012 and 2014, Professor Goedert constructed models with a measure essentially identical to the efficiency gap as the dependent variable, along with the following independent variables: whether a plan was designed by Democrats or Republicans in full control of the state government or through a bipartisan or nonpartisan process; each state's proportions of black and Hispanic residents; each state's level of urbanization; the Democratic share of the statewide vote; and the number of seats in each state. (Nicholas Goedert, *Gerrymandering or Geography? How Democrats Won the Popular Vote But Lost the Congress in 2012*, Res. & Pol. (2014), Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 6; Nicholas Goedert, *The Case of the Disappearing Bias: A 2014 Update to the "Gerrymandering or Geography* (2015), Goedert Dep. Ex. 21 (Dkt. 65-3) at p.13; Goedert Dep. (Dkt. 65) at 79:24-80:3.)

> **RESPONSE 28: Disputed.** The proposed finding misstates Professor Goedert's research. To analyze the results of the congressional elections in both 2012 and 2014, Professor Goedert constructed three different models, one of which used a measure essentially identical to the efficiency gap as the dependent variable, along with the following independent variables: whether a plan was designed by Democrats or Republicans in full control of the state government or through a bipartisan or nonpartisan process; each state's proportions of black and Hispanic residents; the percentage of the state deemed urbanized by the U.S. Census; the Democratic share of the statewide vote; and the number of seats in each state. (Nicholas Goedert, *Gerrymandering or Geography? How Democrats Won the Popular Vote But Lost the Congress in 2012*, Res. & Pol. (2014), Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 1, 5-6; Nicholas Goedert, The Case of the Disappearing Bias: A 2014 Update to the "Gerrymandering or Geography (2015), Goedert Dep. Ex. 21 (Dkt. 65-3) at p.13; Goedert Dep. (Dkt. 65) at 79:24-80:3, 81:23-82:1.)

29. Both of Professor Goedert's models have large R-squared values (0.829 in 2012, 0.570 in 2014), indicating that the models account for a large fraction of the variance in the efficiency gap. (Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 6; Goedert Dep. Ex. 21 (Dkt. 65- 3); Goedert Dep. (Dkt. 65) at 79:24-80:3.)

> **RESPONSE 29: Disputed.** Goedert's model does not predict an efficiency gap. The dependent variable in Goedert's model "is the deviation in democratic seats won from historical expectation given a certain vote share." (Goedert Dep. (Dkt. 60) at 77:9-11.) His model "ends up I think rather coincidentally being very close to efficiency gap when one party wins say between 40 and 60 percent of the vote." (Goedert Dep. (Dkt. 60) at 77:20-23.)

Goedert's model examines congressional elections. (Nicholas Goedert, *Gerrymandering or Geography? How Democrats Won the Popular Vote But Lost the Congress in 2012*, Res. & Pol. (2014), Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 1, 5-6.) Therefore it cannot be used to determine anything with respect to state legislative elections, which the proposed finding implies.

Goedert's model is intended to "give a prediction about the average impact of" the dependent variables "given that the electoral conditions are identical to the electoral conditions in a particular election." (Goedert Dep. (Dkt. 60) at 76:22-25.)

30. Professor Goedert's models can be used to predict what the efficiency gap would have been in 2012 and 2014 in a state that resembled the country as a whole—demographically, geographically, and electorally—if that state's plan was designed through a bipartisan or nonpartisan process. (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 15-16; Goedert Dep. (Dkt. 65) at 90:12-18.)

> **RESPONSE 30: Disputed.** Goedert's model does not predict an efficiency gap. The dependent variable in Goedert's model "is the deviation in democratic seats won from historical expectation given a certain vote share." (Goedert Dep. (Dkt. 60) at 77:9-11.) His model "ends up I think rather coincidentally being very close to efficiency gap when one party wins say between 40 and 60 percent of the vote." (Goedert Dep. (Dkt. 60) at 77:20-23.)
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31. Plugging the appropriate values of the independent variables into th [sic] models reveals that the typical state would have had a pro-Democratic efficiency gap of 0.7% in 2012, and a *pro-Democratic* efficiency gap of 1.6% in

2014, if its map had been drawn by a court, a commission, or divided state government. (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 15-16.)

> **RESPONSE 31: Disputed.** Goedert's model does not predict an efficiency gap. The dependent variable in Goedert's model "is the deviation in democratic seats won from historical expectation given a certain vote share." (Goedert Dep. (Dkt. 60) at 77:9-11.) His model "ends up I think rather coincidentally being very close to efficiency gap when one party wins say between 40 and 60 percent of the vote." (Goedert Dep. (Dkt. 60) at 77:20-23.)
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>
> The finding of fact does not specify that Goedert's model relates only to states with seven or more congressional districts. (Nicholas Goedert, *Gerrymandering or Geography? How Democrats Won the Popular Vote But Lost the Congress in 2012*, Res. & Pol. (2014), Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 1.) Goedert at the deposition testified the demographic information in the hypothetical "includes states the model is not meant to apply to." (Goedert Dep. (Dkt. 92:3-7.) Further, the findings' use of a purportedly "typical state" has no basis in reality. There is no "typical state" that "resemble[s] the country as a whole—demographically, geographically, and electorally."

32. But, as explained in Professor Jackman's rebuttal report, "there are several issues with [Jowei Chen & Jonathan Rodden, *Unintentional Gerrymandering: Political Geography and Electoral Bias in Legislatures*, 57 Q.J. Pol. Sci. 239 (2013)] that make it inapplicable here." (Jackman Rebuttal Rpt. (Dkt. 63) at p. 20.)

> **RESPONSE 32: Disputed**. The question of whether Chen & Rodden's work is "applicable here" is a question of law for the Court, not a question of fact for an expert witness.

33. Chen and Rodden's simulated plans completely ignore the Voting Rights Act as well as state legal requirements such as respect for political subdivisions

and respect for communities of interest, which are in effect in a majority of states. (Jackman Rebuttal Rpt. (Dkt. 63) at pp. 20-21; Goedert Dep. (Dkt. 65) at 154:20-55:3; Trende Dep. (Dkt. 66) at 67:10-21.)

RESPONSE 33: Undisputed.

34. Chen and Rodden use only presidential election results from 2000 in their analysis. They do not use state legislative election results (which are more relevant to the issue of state legislative partisan gerrymandering) or results from more recent years. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 21.)

> **RESPONSE 34: Disputed.** Defendants do not dispute that Chen and Rodden use only presidential election results from 2000 in their analysis and that they do not use state legislative election results or results from more recent years.
>
> Defendants dispute that state legislative election results "are more relevant to the issue of partisan gerrymandering." Chen and Rodden are simulating election results of elections that did not take place. Professor Mayer creates a model that uses presidential vote shares to predict legislative vote shares and plaintiffs below claim "this sort of modeling is the appropriate (in fact, the only) way to assess proposed maps under which no elections have been held," APFOF ¶ 93. In his report, Mayer says "[t]he presidential vote is, not surprisingly, an extremely strong predictor of the legislative vote." (Mayer Rep. (Dkt. 54) at 13.)

35. Chen and Rodden's simulated maps do not actually constitute a representative sample of all possible maps that satisfy their criteria. Because of flaws in their simulation algorithm, their maps capture only an arbitrary subset of the entire solution space. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 21; Benjamin Fifield et al., *A New Automated Redistricting Simulator Using Markov Chain Monte Carlo* (2015), Jackman Decl. Ex. H (Dkt. 58-8) at pp. 2-3.)

> **RESPONSE 35: Disputed.** The cited evidence does not explain how Chen and Rodden's simulated maps do not "constitute a representative sample of all possible maps that satisfy their criteria." Defendants are unsure of the meaning of the phrase "arbitrary subset of the entire solution space," but Chen and Rodden's article explains their methodology and why it is not "arbitrary." (Dkt. 49-13:10-13.)

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36. Chen and Rodden's results are directly contradicted by other recent work using a nearly identical methodology. Roland Fryer and Richard Holden also simulated plans with contiguous, compact, and equipopulous districts for multiple states. But they found that, "[u]nder maximally compact districting, measures of Bias are slightly *smaller* in all states except [one]." And not only are the biases slightly smaller, they are also slightly *pro-Democratic* in all cases. (Roland Gerhard Fryer & Richard Holden, *Measuring the Compactness of Political Districting Plans,* 54 J.L. & Econ. 493 (2011), Goedert Dep. Ex. 18 (Dkt. 65-1) at pp. 514-15; Jackman Rebuttal Rpt. (Dkt. 63) at p. 21.)

> **RESPONSE 36: Disputed.** The research of Fryer and Holden does not contradict the research of Chen and Rodden and does not "us[e] a nearly identical methodology." Fryer and Holden "estimat[ed] a counterfactual of the 2000 congressional elections in California, New York, Pennsylvania and Texas using optimally compact districts derived from our algorithm." (Dkt. 65-1:6.) They then "estimate[d] a seat-vote curve for the actual and hypothetical districting plans of each state." (Dkt. 65-1:6.) They found that "[u]nder maximally compact districting, measures of Bias are slightly smaller in all states except Pennsylvania, although none of the differences are statistically significant." (Dkt. 65-1:24.)

> Fryer and Holden's analysis compares the bias of plans in place during the 2000 election to the bias present in a simulated election under their algorithm's version of a maximally compact plan. They do not attempt to analyze the likelihood that bias against one party would appear through the districting process itself by using multiple randomly generated districts, as Chen and Rodden do.

37. The only other evidence defendants cite in support of their claim that Democrats are becoming more clustered nationwide is the opinion of their expert (Sean Trende) based on his analysis of a set of maps comparing county-level presidential election results in 1996 and 2012 in the West South Central region of the country. (Trende Decl. (Dkt. 55) ¶¶ 66-68.)

> **RESPONSE 37: Disputed.** The defendants present the trend of efficiency gaps in favor of Republicans beginning in the 1990s, even under plans drawn with no partisan intent, as evidence that Democrats have become more clustered. (Dkt. 47 ¶¶ 141-50, 164-70, 180-84, 201-216.) Defendants do not dispute that they also present the analysis of Sean Trende mentioned in this finding in support of Democrats' increased clustering.

38. Trende admits that there are no "peer-reviewed studies that have analyzed the geographic clustering of Democratic and Republican voters by examining trends in counties won by each part[y's] presidential candidate." (Trende Dep. (Dkt. 66) at 51:6-11.)

   RESPONSE 38: Undisputed.

39. Trende admits that the maps he relied upon make no adjustment for counties' wildly divergent populations. (Trende Dep. (Dkt. 66) at 52:25-53:3; Goedert Dep. (Dkt. 65) at 186:5-7.)

   RESPONSE 39: Disputed. Trende admits that his maps make no adjustment for population differences and that the counties "do vary in population size." (Trende Dep. (Dkt. 66) at 53:2.) The cited evidence does not support the finding that the population differences are "wildly divergent."

40. Trende admits that the maps do not display each party's margin of victory in each county. (Trende Dep. (Dkt. 66) at 52:3-6.)

   RESPONSE 40: Undisputed.

41. Trende admits that the maps are based on presidential rather than state legislative election results. (Trende Dep. (Dkt. 66) at 53:25-54:13.)

   RESPONSE 41: Undisputed.

42. Trende admits that the maps do not generate any quantitative measure of partisan clustering over time, but rather are simply meant to be "eyeball[ed]." (Trende Dep. (Dkt. 66) at 59:2-8.)

   RESPONSE 42: Disputed. Trende did not say that his maps are meant to be "eyeball[ed]." This was a statement by counsel to which Trende did not agree. (Trende Dep. (Dkt. 66) at 59:2-8.) Trende testified that "a court can look at [the map] and pretty clearly see what's going on in the state." (Trende Dep. (Dkt. 66) at 59:15-17.)

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III. Wisconsin's Political Geography

43. The three-judge federal district court in *Baumgart v. Wendelberger*, 2002 WL 34127471 (E.D. Wis. May 30, 2002) did not consider likely electoral effects, and adopted a plan more similar to that submitted by the Republican intervenors than to the one offered by the Democratic intervenors. (Id. at *7; Mayer Dep. (Dkt. 52) at 121:7-16.)

> **RESPONSE 43: Disputed.** The three-judge federal district court in *Baumgart v. Wendelberger*, 2002 WL 34127471 (E.D. Wis. May 30, 2002) did consider districting for "political fairness" as suggested by the Democrats in that case. *Id.* at *6. The court rejected using this as a criteria for districting because "using this finding as the basis for a plan is that it does not take into account the difference between popular and legislative majorities, and the fact that, practically, there is no way to draw plans which use the traditional criteria and completely avoid this result." *Id.* Given that "Wisconsin Democrats tend to be found in high concentrations in certain areas of the state, [] the only way to assure that the number of seats in the Assembly corresponds roughly to the percentage of votes cast would be at-large election of the entire Assembly." *Id.* The court rejected the plans submitted by both Republicans and Democrats and "undertook its redistricting endeavor in the most neutral way it could conceive—by taking the 1992 reapportionment plan as a template and adjusting it for population deviations." *Id.* at *7. The court nowhere mentions that its plan is closer to the one offered by the Republicans and neither does Mayer's deposition.

44. The average efficiency gap of the Wisconsin state house redistricting plan from 1972- 1980 was -0.3% and it was drawn by divided government. (Jackman Rpt. (Dkt. 62) at p. 72; Jackman Decl. Ex. F (Dkt. 58-6) at p. 3.)

   RESPONSE 44: Undisputed.

45. The average efficiency gap of the Wisconsin state house redistricting plan from 1982- 1990 was -1.9%, and it was drawn by a court. (Jackman Rpt. (Dkt. 62) at p. 72; Jackman Decl. Ex. F (Dkt. 58-6) at p. 11.)

   RESPONSE 45: Undisputed.

46. The average efficiency gap of the Wisconsin state house redistricting plan from 1992- 2000 was -2.4%, and it was drawn by a court. (Jackman Rpt. (Dkt. 62) at p. 72; Jackman Decl. Ex. F (Dkt. 58-6) at p. 18.)

RESPONSE 46: Undisputed.

47. The average efficiency gap of the Wisconsin state house redistricting plan from 2002- 2010 was -7.6%, and it was drawn by a court. (Jackman Rpt. (Dkt. 62) at p. 72; Jackman Decl. Ex. F (Dkt. 58-6) at p. 25.)

RESPONSE 47: Undisputed.

48. The average efficiency gap for the Demonstration Plan drawn by Professor Mayer is calculated by averaging the efficiency gaps for the three scenarios that Professor Mayer used in conducting his sensitivity testing. These are "D minus 5" (1.96%); "My Plan Incumbent Baseline" (3.71%); and "D plus 3" (3.85%), resulting in an average efficiency gap of -1.9% (Mayer Rebuttal Rpt. (Dkt. 64) at p. 26.)

> **RESPONSE 48: Disputed.** The plaintiffs have consistently presented pro-Republican efficiency gaps as negative, but this proposed finding treats pro-Republican efficiency gaps as positive. For the Demonstration Plan, Mayer calculates an efficiency gap of 1.96% under his "D minus 5" model, and efficiency gap of -3.71% for his "My Plan Incumbent Baseline" model, and of -3.85 under his "D Plus 3" model. (Mayer Rebuttal Rpt. (Dkt. 64) at p. 26.) The average of these efficiency gap models is -1.86%. The sum of the efficiency gaps is -5.6 (1.96 + -3.71 + -3.85 = -5.6), which divided by 3 is -1.86.

49. In his rebuttal report, Professor Mayer plugged in Wisconsin's values for Goedert's models' independent variables (6.6% black, 6.5% Hispanic, 70.2% urbanized, 50.8% Democratic in 2012, and 47.2% Democratic in 2014) and assumed a bipartisan or nonpartisan redistricting process. (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 15-16.)

> **RESPONSE 49: Disputed.** In his rebuttal report, Professor Mayer plugged Wisconsin's values (6.6% black, 6.5% Hispanic, 70.2% urbanized, 50.8% Democratic congressional vote share in 2012, and 47.2% Democratic congressional vote share in 2014) into Goedert's model for congressional elections in 2012 and assumed a bipartisan or nonpartisan redistricting process. (Nicholas Goedert, *Gerrymandering*

or Geography? How Democrats Won the Popular Vote But Lost the Congress in 2012, Res. & Pol. (2014), Goedert Dep. Ex. 20 (Dkt. 65-2) at 5-6; Mayer Rebuttal Rpt. (Dkt. 64) at pp. 15-16.)

50. The results of this analysis were a *pro-Democratic* efficiency gap of 1.9% in 2012, and a *pro-Democratic* efficiency gap of 4.4% in 2014. (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 15-16; Goedert Dep. (Dkt. 65) at 85:7-20.)

> **RESPONSE 50: Disputed.** Professor Goedert's model does not predict an efficiency gap. The dependent variable in Goedert's model "is the deviation in democratic seats won from historical expectation given a certain vote share." (Goedert Dep. (Dkt. 60) at 77:9-11.) His model "ends up I think rather coincidentally being very close to efficiency gap when one party wins say between 40 and 60 percent of the vote." (Goedert Dep. (Dkt. 60) at 77:20-23.)
>
> Goedert's model examines congressional elections. (Nicholas Goedert, *Gerrymandering or Geography? How Democrats Won the Popular Vote But Lost the Congress in 2012*, Res. & Pol. (2014), Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 1, 5-6.) Therefore it cannot be used to determine anything with respect to state legislative elections, which the proposed finding implies.
>
> Goedert's model is intended to "give a prediction about the average impact of" the dependent variables "given that the electoral conditions are identical to the electoral conditions in a particular election." (Goedert Dep. (Dkt. 60) at 76:22-25.) Thus, this calculation predicts the average impact of these dependent variables given the electoral conditions of the 2012 and 2014 congressional elections.
>
> Goedert testified that "I don't know that I would be able to say with any confidence that it had a pro democratic bias considering like a two percent bias in favor of the democratic [sic] would be a small fraction of a seat, right? It would be like 1/10 of a seat." (Goedert Dep. (Dkt. 60) at 86:6-10.)

51. In his rebuttal report, Professor Mayer calculated measures of the isolation and concentration of Wisconsin's Democratic and Republican voters. One of these measures was the isolation index, which indicates, for the average Democratic or Republican voter, how much more heavily Democratic or Republican his or her ward is than the state as a whole. A Democratic isolation score of 10%, for example, means that the average Democratic voter lives in a ward that is 10% more Democratic than the state in its entirety. (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 16-17; Edward Glaeser & Jacob Vigdor, *The End of the Segregated Century* (2012), Mayer Decl. Ex. D (Dkt. 59-4) at p. 3.)

RESPONSE 51: Undisputed.

52. The other measure of the isolation and concentration of Wisconsin's Democratic and Republican voters, Global Moran's I, shows how spatially clustered Democratic or Republican voters are. It varies from -1 (perfect dispersion) to +1 (perfect clustering). (Mayer Rebuttal Rpt. (Dkt. 64) at pp 16-17; Su-Yeul Chung & Lawrence A. Brown, *Racial/Ethnic Sorting in Spatial Context: Testing the Explanatory Frameworks*, 28 Urb. Geo. 312 (2007), Mayer Decl. Ex. E (Dkt. 59-5) at p. 322.)

> **RESPONSE 52: Disputed.** The article cited provides that "Global Moran's I (Cliff and Ord, 1981) provides a measure of clustering or segregation over the entire study area for each racial/ethnic group. A value approaching +1.0 indicates a very high level of clustering, a negative value indicates dispersal, and values in between can be evaluated accordingly, but also by their significance level." (Mayer Decl. Ex. E (Dkt. 59-5) at p. 322.) This standard therefore measures segregation of groups compared to complete random distribution. The article uses it in relation to racial groups and Mayer does not explain how it would analyze two groups that each make up about 50% of the population, like Republicans and Democrats. The article also goes on to use a further analysis called Local Morans I which Mayer did not apply in his report. (Mayer Decl. Ex. E (Dkt. 59-5) at p. 322.)

53. For Wisconsin, the below table displays the Democratic isolation, Republican isolation, Democratic clustering, and Republican clustering scores for all available years (2004- 2014 for the isolation index and 2012-2014 for Global Moran's I).

Year	Democratic Isolation	Republican Isolation	Democratic Clustering	Republican Clustering
2004	20%	21%		
2006	16%	17%		
2008	15%	14%		
2010	15%	17%		
2012	14%	12%	0.68	0.69
2014	23%	20%	0.75	0.68

> **RESPONSE 53: Undisputed** that the table displays the scores as computed by Professor Mayer.

54. At all times, Democratic and Republican voters were about equally isolated and about equally clustered. In some years, Democratic voters were slightly more isolated (2008, 2012, 2014) and clustered (2014). In other years, Republican voters were slightly more isolated (2004, 2006, 2010) and clustered (2012). (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 17-18.)

> **RESPONSE 54: Disputed**. Mayer's results are based on his use of the isolation index and Global Morans I. The defendants do not dispute that in some years, Democratic voters were slightly more isolated as measured using the isolation index (2008, 2012, 2014) and clustered using Global Morans I (2014). In other years, Republican voters were slightly more isolated using the isolation index (2004, 2006, 2010) and clustered using Global Morans I (2012). (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 17-18.)

55. In his rebuttal report, Professor Mayer compares the partisan distribution of Wisconsin's *wards* with that of the Current Plan's *districts*. (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 11-12.)

> **RESPONSE 55: Undisputed.**

56. Both packing and cracking are evident in the Current Plan's district distribution, which peaks at around 42% Democratic and has a long Democratic tail. (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 11-12.)

RESPONSE 56: Disputed. The cited evidence does not support the proposed finding. Mayer himself says that "inferences at one level of geography frequently do not hold at other levels of aggregation." (Mayer Rebuttal Rep. (Dkt. 64) at 12.) Mayer offers no reason why the distribution of wards would match the distribution of districts when wards are aggregated into districts or why the fact that the distribution of wards does not match the distribution of districts is evidence of packing and cracking.

57. The current ward distribution for Wisconsin is almost perfectly symmetric in its shape, and its peak is very close to 50% Democratic. (Mayer Rebuttal Rpt. (Dkt. 64) at 11-12.)

RESPONSE 57: Disputed. Mayer's Figure C shows has there are a substantial number of wards with over 80% Democratic vote and even over 90% of the vote, whereas there are no Republican wards with over 85% of the vote and very few over 80%. (Mayer Rebuttal Rpt. (Dkt. 64) at 12, Fig. C.) In addition, the slope of the line gradually decreases from the peak going to the left (Republican wards) whereas the slope drops more sharply going to the right (Democratic wards). (Mayer Rebuttal Rpt. (Dkt. 64) at 12, Fig. C.) This shows there are many more wards that are packed with Democrats than there are wards packed with Republicans and more wards that are 50%–60% Republican than wards that are 50%–60% Democratic. (Mayer Rebuttal Rpt. (Dkt. 64) at 12, Fig. C.)

58. In combination, the histograms at APFOF ¶ 54 above "reveal that Act 43's designers were able to distort a fairly neutral ward distribution into a far more advantageous district distribution, through gerrymandering." (Mayer Rebuttal Rpt. (Dkt. 64) at p. 12; Goedert Dep. (Dkt. 65) at 166:7-13, 169:3-15.)

RESPONSE 58: Disputed. The distribution of wards is not neutral. Mayer's Figure C shows has there are a substantial number of wards with over 80% Democratic vote and even over 90% of the vote, whereas there are no Republican wards with over 85% of the vote and very few over 80%. (Mayer Rebuttal Rpt. (Dkt. 64) at 12, Fig. C.) In addition, the slope of the line gradually decreases from the peak going to the left (Republican wards) whereas the slope drops more sharply going to the right (Democratic wards). (Mayer Rebuttal Rpt. (Dkt. 64) at 12, Fig. C.)

Mayer himself says that "inferences at one level of geography frequently do not hold at other levels of aggregation." (Mayer Rebuttal Rep. (Dkt. 64) at 12.) Mayer offers no reason why the distribution of wards would match the distribution of districts when wards are aggregated into districts or why the fact that the distribution of wards does not match the distribution of districts is evidence of packing and cracking. Thus, Mayer has no basis to opine that the change in the distribution of wards to the distribution of districts is due to gerrymandering.

59. In violation of usual practice, the current ward boundaries were determined after the Current Plan's districts had already been drawn (Jason Stein & Patrick Marley, *GOP Redistricting Maps Make Dramatic Changes,* Milwaukee Journal-Sentinel (July 8, 2011), Earle Decl. Ex. D (Dkt. 57-4).)

> **RESPONSE 59: Disputed.** The evidence cited to support this finding is inadmissible hearsay because it is a newspaper article. *See* Fed. R. Evid. 802.
>
> Defendants further dispute that there could be a "usual practice" regarding the timing of passing a districting plan in relation to the time when ward boundaries are determined because the Current Plan was the first time that Assembly Districts had been drawn by the legislature, rather than a court, since the 1970s. *See, supra,* ¶¶ 44-47.

60. The partisan index used by defense expert Sean Trende, is used "almost exclusively by political commentators," and is used "less frequently in academic research." (Mayer Rebuttal Rpt. (Dkt. 64) at p. 5.)

> **RESPONSE 60: Disputed.** The cited evidence admits that the partisan index is used in academic research, thus it is incorrect to say it is used "almost exclusively by political commentators." Mayer admits that academics use the partisan index "as a basic descriptive statistic used to classify districts as competitive or not." (Mayer Rebuttal Rpt. (Dkt. 64) at 5.) Defendants do not dispute that the partisan index is used by political commentators.

61. Trende admits that he cannot "identify any peer-reviewed studies that have analyzed the geographic clustering of Democratic and Republican voters by examining trends in County Partisan Indices" (Trende Dep. (Dkt. 66) at 56:2-6.)

RESPONSE 61: Undisputed.

62. Trende admits that the maps he uses do not adjust for Wisconsin counties' very different populations (Trende Dep. (Dkt. 66:7-17) at 58; Goedert Dep. (Dkt. 65) at 185:19-186:4.)

      RESPONSE 62: Undisputed.

63. Trende admits that the maps he uses are based on presidential rather than state legislative election results, covering only two elections (Trende Dep. (Dkt. 66) at 56:9-58:9.)

      RESPONSE 63: Disputed. Defendants do not dispute that Trende's are based on presidential election results. His maps of the West South Central Region and Virginia covered three elections, 1996, 2004 and 2008, and his maps of Wisconsin covered four elections (1988, 1996, 2004 and 2012). (Trende Rep. (Dkt. 55) ¶¶ 66, 70, 79-81, 83-85.)

64. Trende admits that the maps he uses do not generate any "quantitative scores for Democratic and Republican clustering," but rather must be "eyeball[ed]" by the viewer. (Trende Dep. (Dkt. 66) at 59:2-8; Trende Decl. (Dkt. 55) ¶ 25.)

      RESPONSE 64: Disputed. Trende did not say that his maps are meant to be "eyeball[ed]," this was a statement by counsel with which he did not agree. (Trende Dep. (Dkt. 66) at 59:2-8.) Trende testified that "a court can look at [the map] and pretty clearly see what's going on in the state." (Trende Dep. (Dkt. 66) at 59:15-17.) Defendants do not dispute that his maps do not generate a quantitative score for Democratic and Republican clustering.

65. Trende admits that while "there are about 10 adjacent red counties in the southeast corner of the state," it is impossible to identify "any clusters of 10 very blue counties anywhere in the state." (Trende Dep. (Dkt. 66) at 62:22-63:2.)

      RESPONSE 65: Undisputed.

IV. The Volume of Plans at Risk of Failing Plaintiffs' Proposed Test

66. Professor Goedert has recommended a proxy for partisan intent: whether a single party had unified control over redistricting, in the sense of holding majorities in both legislative chambers as well as the state's governorship. (Goedert, *Gerrymandering or Geography*, supra, Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 3; Goedert Dep. (Dkt. 65) at 39:19-40:5. ("The definition of partisan gerrymandering I use in my work is . . . a redistricting plan which is done under the complete control of one party. . ..[with] control over both houses of the state legislature and the governorship.").)

> **RESPONSE 66: Disputed.** Professor Goedert has not "recommended a proxy for partisan intent." Goedert testified that in his research, his "criteria for what I would code as a partisan gerrymander is that the process -- the normal political process was controlled by one party." (Goedert Dep. (Dkt. 65) at 60:10-12.) He does so because his "work studies the electoral impact of a plan." (Goedert Dep. (Dkt. 65) at 42:12.) He did not testify that his coding methodology be used in a legal sense as "a proxy for partisan intent."

67. There are 206 distinct plans in Professor Jackman's database. (Jackman Rpt. (Dkt. 62) at p. 7.)

> **RESPONSE 67: Undisputed.**

68. 68. Of the 206 plans in Professor Jackman's database, 70 plans (or 34%) had initial efficiency gaps above 7%. (Jackman Rpt. (Dkt. 62) at p. 7.)

> **RESPONSE 68: Undisputed.**

69. Of the 70 plans in Professor Jackman's database that had initial efficiency gaps over 7%, 43 plans (or 21%) had initial efficiency gaps above 7% and unified control over redistricting by a single party. (Jackman Rpt. (Dkt. 62) at p. 7; Jackman Rebuttal Rpt. (Dkt. 63) at pp. 18-20; Jackman Decl. Ex. F (Dkt. 58-6).)

> **RESPONSE 69: Undisputed.**

70. If the threshold is increased to 10%, 32 plans in Professor Jackman's database (or 16%) had initial efficiency gaps of above 10%. (Jackman Rpt. (Dkt. 62) at p. 7.)

RESPONSE 70: Undisputed.

71. Of the 32 plans in Professor Jackman's database that had an initial efficiency gap over 10%, 20 plans (or 10%) had initial efficiency gaps this large *and* unified control over redistricting by a single party. (Jackman Rpt. (Dkt. 62) at p. 7; Jackman Rebuttal Rpt. (Dkt. 63) at pp. 18-20; Jackman Decl. Ex. F (Dkt. 58-6).)

RESPONSE 71: Undisputed.

72. Of the 43 *current* plans in Professor Jackman's database, 16 plans (or 37%) had initial efficiency gaps above 7%. (Jackman Rpt. (Dkt. 62) at p. 7.)

RESPONSE 72: Undisputed.

73. 7 Of the 16 plans in Professor Jackman's database that are current and have efficiency gaps over 7%, 11 plans (or 26%) had initial efficiency gaps above 7% *and* unified control over redistricting by a single party. (Jackman Rpt. (Dkt. 62) at p. 7; Jackman Rebuttal Rpt. (Dkt. 63) at pp. 18-20; Jackman Decl. Ex. F (Dkt. 58-6).)

RESPONSE 73: Undisputed.

74. Of the 43 *current* plans in Professor Jackman's database, 11 plans (or 26%) had initial efficiency gaps above 10%. (Jackman Rpt. (Dkt. 62) at p. 7.)

RESPONSE 74: Undisputed.

75. Of the 11 plans in Professor Jackman's database that are current and have efficiency gaps over 7%, 7 plans (or 16%) had initial efficiency gaps this large *and* unified control over redistricting by a single party. (Jackman Rpt. (Dkt. 62) at p. 7; Jackman Rebuttal Rpt. (Dkt. 63) at pp. 18-20; Jackman Decl. Ex. F (Dkt. 58-6).)

RESPONSE 75: Undisputed.

76. Professor Goedert finds that a single party with unified control over redistricting does not always seek to benefit itself. (Goedert Rpt. (Dkt. 51) at p. 10 ("In the 2000's decade, Democrats controlled all branches of state government in California, but instead of crafting an aggressively partisan congressional map, worked closely with Republicans in the legislature to draw districts that would protect incumbents of both parties.").)

RESPONSE 76: Undisputed.

77. The reapportionment revolution of the 1960s resulted in the invalidation of almost *every* state house, state senate, and congressional plan in the country, and "[b]oth state legislative and congressional districts were redrawn more comprehensively—by far— than at any previous time in our nation's history." (Gary W. Cox & Jonathan N. Katz, Elbridge Gerry's Salamander (2002), Jackman Decl. Ex. J (Dkt. 620) at p. 4.)

RESPONSE 77: Undisputed.

78. The Supreme Court's decision in *Thornburg v. Gingles*, 478 U.S. 30 (1986), construing Section 2 of the Voting Rights Act, spawned at least 800 lawsuits over the next generation. (Ellen D. Katz et al., *Documenting Discrimination in Voting: Judicial Findings Under Section 2 of the Voting Rights Act*, 39 U. Mich. J.L. Reform 643, 655 (2006), Earle Decl. Ex. B (Dkt. 57-2) at p. 655.)

RESPONSE 78: Disputed. This fact is not based on admissible evidence. The article cited references an ACLU report which compiled 331 lawsuits. (Earle Decl. Ex. B (Dkt. 57-2) at p. 655.) The 800 number is based on an extrapolating the results of a study done by the ACLU of Georgia and South Carolina as to the number of published versus unpublished decisions, "[i]nsofar as this ratio of filings is at all representative." (Earle Decl. Ex. B (Dkt. 57-2) at p. 655.)

79. In just the current redistricting cycle (i.e., new legislative districts based on the 2010 census), 224 cases were filed in 42 states, resulting in 23 plans being invalidated or designed by the courts. (*Litigation in the 2010 Cycle*, All About Redistricting, http://redistricting.lls.edu/cases.php.)

RESPONSE 79: Undisputed.

V. The Reliability of the First Efficiency Gap Recorded Under a Plan

80. The below scatter plot displays the relationship between state house plans' initial and average efficiency gap values from 1972 to 2010 (including only plans with at least three recorded efficiency gaps, for which the average is more meaningful). (Jackman Rebuttal Rpt. (Dkt. 63) at pp. 15-17.)
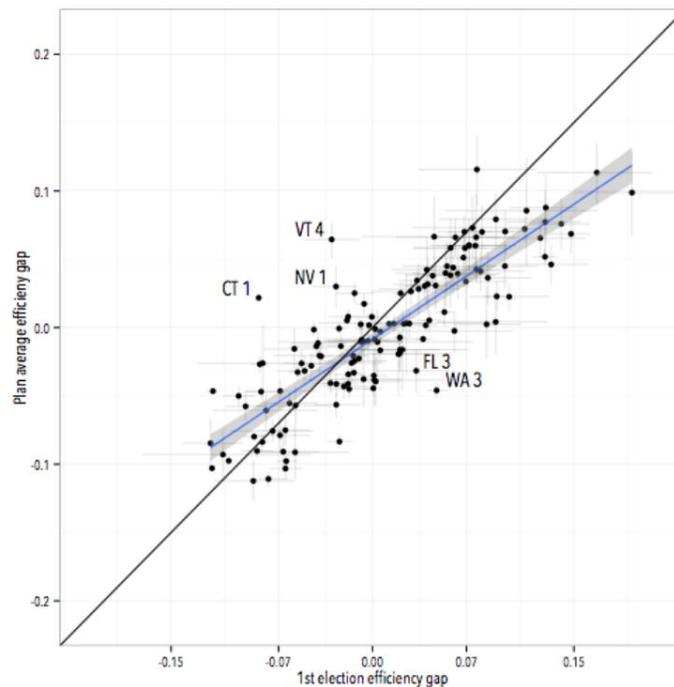
RESPONSE 80: Undisputed.

81. Plans' initial efficiency gaps explain fully *three-fourths* of the variation in their average efficiency gaps. (Jackman Rebuttal Rpt. (Dkt. 63) at pp. 15-17.)

> **RESPONSE 81: Disputed.** Jackman opines that "[t]he variation in plan-average efficiency gaps explained by this regression is quite large, about 73%; after taking into account the uncertainty in the *EG* scores (stemming from the imputation procedures used for uncontested districts; see my initial report) a 95% confidence interval on the variance explained measure ranges from 67% to 74% (the uncertainty has the consequence of tending to make the regression fit slightly less well). That is, even given the uncertainty that accompanies *EG* measures due to uncontestedness, the relationship between first

election *EG* and plan-average *EG* is quite strong." (Jackman Rebuttal Rpt. (Dkt. 63) at 15.)

82. For an initial efficiency gap of 7% in a Republican direction, for example, the average efficiency gap is predicted to be 5.3%, and there is more than a 96% likelihood that the average will be pro-Republican. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 16.)

> **RESPONSE 82: Disputed.** Jackman performed historical research on plans from the 1970s to the 2010s. His research shows that, in looking at historical results, "a first-election *EG* of -.07 is typically associated with a plan-average EG of about -0.053 (95% CI -0.111 to 0.004); the probability that the resulting, expected plan-average *EG* is negative is 96.5%." (Jackman Rebuttal Rpt. (Dkt. 63) at 16.)

83. For an initial efficiency gap of 7% in a Democratic direction, the average efficiency gap is forecast to be 3.7%, and there is roughly a 90% likelihood that the average will be pro-Democratic. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 16.)

> **RESPONSE 83: Disputed.** Jackman performed historical research on plans from the 1970s to the 2010s. His research shows that, in looking at historical results, "a first-election EG of .07 we typically see a plan-average EG of about 0.037 (95% CI -0.021 to 0.093); the probability that the resulting, expected plan-average EG is positive is 89.8%." (Jackman Rebuttal Rpt. (Dkt. 63) at 16.)

84. Wisconsin's Current Plan, which opened with a pro-Republican efficiency gap of 13.3%, it is likely have an average efficiency gap of 9.5% over its lifetime, with more than a 99.9% likelihood of exhibiting a pro-Republican mean. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 16.)

> **RESPONSE 84: Disputed.** Jackman performed historical research on plans from the 1970s to the 2010s. Jackman opines that "The analysis of historical data discussed above—and graphed in Figure 7—indicates that the plan-average EG for this plan will be -0.095 (95% CI -0.152 to -0.032)." (Jackman Rebuttal Rpt. (Dkt. 63) at p. 16.) He further opines that "[t]he probability that the Wisconsin plan—if left undisturbed—will turn out to have a positive, pro-Democratic, average efficiency gap is for all practical purposes zero (less than 0.1%)." (Jackman Rebuttal Rpt. (Dkt. 63) at p. 16.)

85. Professor Jackman carried out the sensitivity testing recommended by Professor Goedert, which he called "an important acknowledgement of the fluctuations observed in efficiency gap as electoral tides shift." (Goedert Rpt. (Dkt. 51) at p.15; Jackman Decl. Ex. D (Dkt. 58-4).)

> **RESPONSE 85: Disputed.** Goedert opined that Jackman had not carried out the sensitivity testing recommended by Stephanopoulos and McGhee, who recommended "shifting the actual election results by 7.5% in each direction for congressional plans, and 5.5% in each direction for legislative plans, and calculating the gaps for each shift." (Goedert Rpt. (Dkt. 51) at 13.) Jackman did "conduct sensitivity testing here of exactly the kind earlier carried out by Stephanopoulos & McGhee (pp. 889-90, 898-99) and recommended by Goedert," although he only conducted uniform swing of 5% in each direction rather than the recommended 5.5%. (Jackman Decl. Ex. D (Dkt. 58-4) at 1.) Goedert further opined that the sensitivity testing recommended by Stephanopoulos and McGhee "may not be sufficient to simulate the plausible range of election results than may be observed with a decade." (Goedert Rpt. (Dkt. 51) at 15.) Jackman, however, did not go beyond the sensitivity testing recommended by Stephanopoulos and McGhee. (Jackman Decl. Ex. D (Dkt. 58-4) at 1.)

86. Professor Jackman also used the uniform swing methodology employed and endorsed by Professor Goedert. (Goedert Rpt. (Dkt. 51) at p. 22; Goedert Dep. (Dkt. 65) at 123:12-20; Jackman Decl. Ex. D (Dkt. 58-4).)

> **RESPONSE 86:   Undisputed.**

87. Professor Jackman shifted the actual 2012 and 2014 election results by up to five points in each direction, and then recorded the efficiency gaps produced by each shift. (Jackman Decl. Ex. D (Dkt. 58-4) at pp. 1-2.)

> **RESPONSE 87:   Undisputed.**

88. Election swings of this magnitude encompass "the vast majority of state legislative elections from 1972 to 2012," and thus illustrate how the current plans would perform under almost all plausible electoral conditions. (Jackman Decl. Ex. D (Dkt. 58-4) at p. 2; Goedert Dep. (Dkt. 65) at 126:16-127:10.)

RESPONSE 88:   Disputed. As Goedert opined, the plus/minus 5.5% uniform swing recommended by Stephanopoulos and McGhee "this shift may not be sufficient to simulate the plausible range of election results than may be observed with a decade." (Goedert Rpt. (Dkt. 51) at 15.)

89. The below figure divides the current plans' actual efficiency gaps into three categories: small (absolute value below 3%), medium (absolute value between 3% and 7%), and large (absolute value above 7%). For each category, the figure then shows the *correlation* between the plans' actual and predicted efficiency gaps, as well as the proportion of actual and predicted efficiency gaps *with the same sign*, given different vote swings. (Jackman Decl. Ex. D (Dkt. 58-4) at p. 4.)

RESPONSE 89: Disputed. The defendants do not dispute the first sentence of the proposed finding. For each category, the figure then shows the correlation between the plans' actual and simulated efficiency gaps, as well as the proportion of actual and simulated efficiency gaps with the same sign, given different vote swings. (Jackman Decl. Ex. D (Dkt. 58-4) at p. 4.)

90. The chart in APFOF ¶ 89 shows that for plans with large actual efficiency gaps, the correlation between their actual and predicted values is very high (always above 0.7 and usually above 0.9) for all vote swings. (Jackman Decl. Ex. D (Dkt. 58-4) at p. 4.)

RESPONSE 90: Disputed. The chart in APFOF ¶ 89 shows the correlation between the actual efficiency gap and the simulated efficiency gap. (Jackman Decl. Ex. D (Dkt. 58-4) at p. 4.) The chart in the top right shows the correlation between the actual *EG* and simulated *EG*.

91. The chart in APFOF ¶ 89 shows that for plans with large actual efficiency gaps, the proportion of their actual and predicted efficiency gaps with the same sign is even higher—nearly 100% for all vote swings. (Jackman Decl. Ex. D (Dkt. 58-4) at p. 4.)

RESPONSE 91: Disputed. The chart in APFOF ¶ 89 shows the correlation between the actual efficiency gap and the simulated efficiency gap. (Jackman Decl. Ex. D (Dkt. 58-4) at p. 4.) The chart in the bottom right corner shows that the proportion of simulated plans

with the same sign is nearly 100%. The chart in APFOF ¶ 89 shows the correlation between the actual efficiency gap and the simulated efficiency gap. (Jackman Decl. Ex. D (Dkt. 58-4) at p. 4.)

92. Professor Jackman found that a 7% threshold would drive down the rate of false positives to minute levels, below 5%. A slightly higher threshold of around 8% would reduce the rate of false positives all the way to zero. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 12.)

> **RESPONSE 92: Disputed.** For Jackman's sensitivity testing, "[i]n each instance the test is whether the first *EG* observed under a plan exceeds a given threshold value. The outcome of interest is whether the plan's remaining efficiency gaps have the same sign as the *EG* from the first election." (Jackman Rebuttal Rpt. (Dkt. 63) at 6.) Thus, his definition of "false positive" is a plan is a plan that exceeds the threshold in its first election, yet goes on to produce an *EG* of the opposite sign. (Jackman Rebuttal Rpt. (Dkt. 63) at 6-7.) With this proper understanding of what counts as a "false positive" under Jackman's analysis, the defendants do not dispute the proposed finding.

93. Professor Jackman calculated, for different efficiency gap thresholds, the proportion of plans that either (1) would fall below the threshold or (2) if above the threshold, would exhibit an efficiency gap of the same sign throughout their lifetimes. On the Republican side the proportion is roughly 96% for an efficiency gap threshold of 7%. On the Democratic side a 7% efficiency gap threshold is associated with an almost identical confidence rate of 93% (Jackman Rpt. (Dkt. 62) at p. 67.)

> **RESPONSE 93: Disputed.** Professor Jackman calculated, for different efficiency gap thresholds, the proportion of plans that either (1) fell below the threshold in their first election or (2) if above the threshold in their first election, exhibited an efficiency gap of the same sign throughout their lifetimes. On the Republican side the proportion is roughly 96% for an efficiency gap threshold of 7%. On the Democratic side, the proportion is roughly 93% for a 7% efficiency gap threshold. (Jackman Rpt. (Dkt. 62) at p. 67.)

VI. Efficiency Gap Calculations for Wisconsin's Current Plan and Demonstration Plan

94. Professor Mayer's Demonstration Plan's efficiency gap "cannot be estimated by simply rearranging the votes cast in actual Assembly contests into a new district configuration, as the votes cast for specific Assembly candidates in each district are a function of the electoral environment in that district and whether a race is even contested by both parties." (Mayer Rpt. (Dkt. 54) at pp. 5-6.)

RESPONSE 94: Undisputed.

95. "A large literature has developed around the problem of estimating the likely election results in redistricting plan alternatives." (Mayer Rpt. (Dkt. 54) at p. 6.)

RESPONSE 95: Undisputed.

96. The key insight of the literature on estimating the likely election results in redistricting plan alternatives is that *exogenous* variables such as presidential election results can be used to *predict* election results at the level of the map at issue. There is no dispute among scholars that this sort of modeling is the appropriate (in fact, the only) way to assess proposed maps under which no elections have been held. (Bruce E. Cain, *Assessing the Partisan Effects of Redistricting*, 79 Am. Pol. Sci. Rev. 320 (1985), Jackman Decl. Ex. K (Dkt. 621); Andrew Gelman & Gary King, *Estimating the Electoral Consequences of Legislative Redistricting*, 85 J. Am. Stat. Ass'n 274 (1990), Jackman Decl. Ex. I (Dkt. 58- 9).)

RESPONSE 96: Undisputed.

97. This is why the Legislature's consultant, Professor Keith Gaddie, used the exact same method to predict the Current Plan's election results. (Goedert Dep. Ex. 25 (Dkt. 65-4).)

RESPONSE 97: Disputed. The cited evidence does not support the contention that Gaddie "used the exact same method to predict the Current Plan's election results." The document cited says Gaddie used "a regression analysis of the Assembly vote from 2006, 2008, and 2010, and it is based on prior election indicators of future election

performance." (Goedert Dep. Ex. 25 (Dkt. 65-4).) It does not establish that Gaddie used the same method that Mayer used and, in fact, shows the method was different because it was based on the results of three elections whereas Mayer's model was based solely on the results of the 2012 election. (Dkt. 67 ¶ 11.)

98. Professor Mayer's model incorrectly predicted the winners in only two districts: District 51 (actual Republican vote: 51.9% vs. predicted Republican vote: 49.9%) and District 70 (actual Republican vote: 49.7% vs. predicted Republican vote: 50.1%). (Mayer Rpt. (Dkt. 54) at pp. 24-25; Mayer Dep. (Dkt. 52) at 87:22.)

> **RESPONSE 98: Disputed.** The model Mayer used to calculate the efficiency gap under Act 43 incorrectly predicted the winners in five districts. (Mayer Rep. (Dkt. 54) 51; Mayer Dep. Ex. 5.) Defendants do not dispute the proposed finding as it relates to Mayer's "initial model" contained in Table 3 of his report, which was not used to calculate the efficiency gap.

99. Professor Mayer's incorrect predictions for the Wisconsin Assembly races in 2012 are balanced, one for each party, meaning that in the aggregate, Professor Mayer's model forecast the partisan distribution of contested districts (56 Republican, 16 Democratic) with perfect accuracy. (Mayer Rpt. (Dkt. 54) at pp. 24-25.)

> **RESPONSE 99: Disputed.** The model Mayer used to calculate the efficiency gap under Act 43 incorrectly predicted the winners in five districts, four Republicans and one Democrat. (Mayer Rep. (Dkt. 54) 51; Mayer Dep. Ex. 5.) Defendants do not dispute the proposed finding as it relates to Mayer's "initial model" contained in Table 3 of his report, which was not used to calculate the efficiency gap.

100. The R-squared value for Professor Mayer's model of the Republican Assembly Votes regression is 0.99, and the R-squared value for Professor Mayer's model of the Democratic Assembly Votes regression is 0.98. (Mayer Rpt. (Dkt. 54) at pp. 24-25; Mayer Dep. (Dkt. 52) at 125:11-17.)

> **RESPONSE 100: Undisputed**, but only as it relates to Mayer's "initial model" contained in Table 3 of his report, which was not used to calculate the efficiency gap.

101. The model's precision is apparent in the below scatter plot, which compares the actual Assembly vote to the predicted Assembly vote for all contested districts. The fit between the actual and predicted values is more or less perfect, with the two sets of scores tightly hugging the regression line. (Mayer Rpt. (Dkt. 54) at p. 23.)

Figure 5: Predicted vs. Actual District Assembly Vote - 2012
Both Parties, Contested Districts
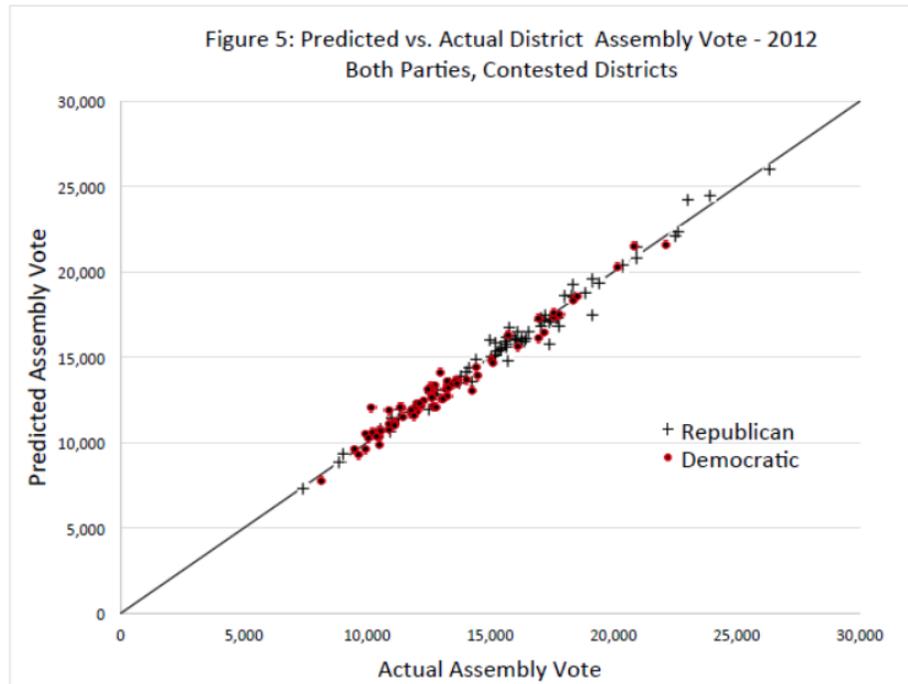
RESPONSE 101: Undisputed, but only as it relates to Mayer's "initial model" contained in Table 3 of his report, which was not used to calculate the efficiency gap.

102. Table 8 of Professor Mayer's report shows a later permutation of his model that "sets all incumbency variables to zero." (Mayer Rpt. (Dkt. 54) at p. 29.)

RESPONSE 102: Undisputed.

103. Professor Mayer created the model whose results are shown in Table 8 for the same reason that the Legislature's consultant, Professor Gaddie, did: to determine "what the vote would usually do without an incumbent in the district." (Mayer Rebuttal Rpt. (Dkt. 64) at p. 22; Goedert Dep. Ex. 25 (Dkt. 65-4).)

RESPONSE 103: Undisputed.

104. Professor Mayer also created the model to account for the facts that "incumbents can be defeated, retire, run for higher office, or switch parties over a plan's decade-long lifespan," and that "[a] map's authors will typically want to ensure that their projections do not depend on particular incumbents continuing to run in particular districts." (Mayer Rebuttal Rpt. (Dkt. 64) at p. 24.)

> **RESPONSE 104: Disputed**. Defendants do not dispute that Professor Mayer also created the model to account for the facts that "incumbents can be defeated, retire, run for higher office, or switch parties over a plan's decade-long lifespan. Defendants dispute the finding that "[a] map's authors will typically want to ensure that their projections do not depend on particular incumbents continuing to run in particular districts" because it is not based on admissible evidence. Mayer has no personal knowledge of this fact and has not explained how he is an expert in what a map's authors will typically want. Fed. R. Evid. 602, 702.

105. The "no incumbents" version of the model was not intended to predict the winners of the Current Plan's districts in 2012. To make such predictions, it would render an analysis unreliable to discard relevant information about candidates, and the first form of the model, discussed above, did not do so. (Mayer Dep. (Dkt. 52) at 52:19-53:19.)

> **RESPONSE 105: Undisputed.**

106. The "no incumbents" version of the model was intended to determine how the parties would fare in contested districts without incumbents, thus enabling an apples-to-apples comparison between the Current Plan and the Demonstration Plan. "This is a more accurate method of determining the baseline partisanship of a district, as it removes the effect of incumbents, who may or may not be running in an alternative plan. This baseline process is standard in the discipline, and was used by the expert retained by the state legislature." (Mayer Rpt. (Dkt. 54) at p. 31; Mayer Dep. (Dkt. 52) at 63:15-24, 70:4- 17.)

> **RESPONSE 106: Undisputed.**

107. Using Professor Gaddie's correct estimate for District 86 (55.08% Republican), the Current Plan's predicted efficiency gap *rises* from 12.36% to

13.29% due to the addition of one more Republican seat. (Mayer Rpt. (Dkt. 54) at p. 31; Mayer Dep. (Dkt. 52) at 63:15-24, 70:4-17.)

> **RESPONSE 107: Disputed.** Using Professor Gaddie's correct estimate for District 86 (55.08% Republican), when Mayer applies Gaddie's percentages to the total vote Mayer predicted in each district, the Current Plan's predicted efficiency gap rises from 12.36% to 13.29% due to the addition of one more Republican seat. (Dkt. 67 ¶ 55; Mayer Rpt. (Dkt. 54) at p. 31; Mayer Dep. (Dkt. 52) at 63:15-24, 70:4-17.)

108. Because "election results in Wisconsin (and in most states) are extremely highly correlated from one election to the next," predicted efficiency gaps will be very similar no matter which elections they are based on. (Mayer Rebuttal Rpt. (Dkt. 64) at p. 23.)

> **RESPONSE 108: Disputed.** It is unclear what a "predicted efficiency gap" refers to in this proposed finding. In Wisconsin in the 2000s, the efficiency gaps ranged from -4% to -12%. (Dkt. 67 ¶ 206.)

109. Wisconsin's "2008 county level presidential vote and the 2012 county level presidential vote are almost perfectly correlated (r^2=0.96)"). (Mayer Dep. (Dkt. 52) at 75:3-15.)

> **RESPONSE 109: Undisputed.**

110. With respect to incumbency, Professor Mayer "used the actual incumbents who ran in the plan's districts" for the Current Plan, and "geocoded incumbents' home addresses and then identified which districts had incumbents residing in them" for the Demonstration Plan. (Mayer Rebuttal Rpt. (Dkt. 64) at p. 24; Goedert Dep. (Dkt. 65) at 145:21-25.)

> **RESPONSE 110: Undisputed.**

111. Incorporating incumbency caused the Current Plan's efficiency gap to rise from 11.7% to 13.0%. (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 24-25.)

> **RESPONSE 111: Undisputed.**

112. Incorporating incumbency caused the Demonstration Plan's efficiency gap rose from 2.2% to 3.7%. (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 24-25.)
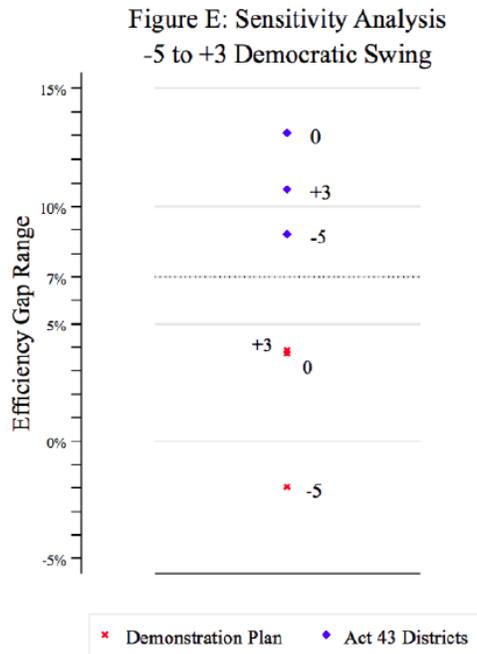
RESPONSE 112: Undisputed.

113. The gulf between the efficiency gaps of the Current Plan and the Demonstration Plan remained essentially unchanged (9.5% without incumbency, 9.3% with incumbency). (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 24-25.)

RESPONSE 113: Undisputed.

114. Professor Mayer used the uniform swing methodology endorsed by Professor Goedert to simulate the largest Democratic and Republican wave elections of the past three decades: 2006 (with a Democratic vote share 3% higher than in 2012) and 2010 (with a Democratic vote share 5% lower than in 2012). (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 26- 27.)

> **RESPONSE 114: Disputed.** Professor Jackman opines that, in a uniform swing analysis, "[a] new hypothetical election is considered in which all vote shares move up or down by a predetermined quantity (i.e., the "swing"); since all districts move by the same amount, this technique is known as uniform swing." (Dkt. 58-4:1.) Applying this method to Mayer's Demonstration Plan yields vastly different results from what Mayer calculates. The Demonstration Plan has 18 districts that are between 50%–55% Democratic when using the no-incumbent baseline. (Dkt. 67 ¶ 93.) Using a uniform swing of 5% lower Democratic vote share, the Democrats should lose all of these seats, resulting in a change from 51 seats to 33 seats. (*See* Dkt. 58-4:1.) Mayer does not explain how the Democrats would still win 48 seats under the Demonstration Plan on 5% less vote share. (Mayer Rebuttal Rpt. (Dkt. 64) at 6.)

115. The outcomes of Professor Mayer's sensitivity testing are displayed in the below chart (Mayer Rebuttal Rpt. (Dkt.59-2) at pp. 26-27.)

Figure E: Sensitivity Analysis
-5 to +3 Democratic Swing

> **RESPONSE 115: Undisputed** on the understanding that Mayer is presenting pro-Republican efficiency gaps as positive even though the plaintiffs have consistently presented pro-Republican efficiency gaps as negative.

116. The results of the uniform swing analysis conducted by Professor Mayer for the Current Plan show that its efficiency gap varies from 8.8% (in the Republican wave scenario) to 10.7% (in the Democratic wave scenario) to 13.0% (in 2012). (Mayer Rebuttal Rpt. (Dkt.59-2) at pp. 26-27.)

> **RESPONSE 116: Disputed.** Given that it does not appear that Mayer truly performed a uniform swing analysis, supra ¶ 114, the defendants dispute that the numbers in the proposed finding represent the result of a "uniform swing analysis." The defendants do not dispute that Mayer purports to show that the efficiency gap of the Current Plan varies from 8.8% (in the Republican wave scenario) to 10.7% (in the Democratic wave scenario) to 13.0% (in 2012).

117. The results of the uniform swing analysis conducted by Professor Mayer for the Demonstration Plan show that its efficiency gap varies from -2.0% (in the

Republican wave scenario) to 3.7% (in 2012) to 3.9% (in the Democratic wave scenario). (Mayer Rebuttal Rpt. (Dkt.59-2) at pp. 26-27.)

> **RESPONSE 117: Disputed.** Given that it does not appear that Mayer truly performed a uniform swing analysis, supra ¶ 114, the defendants dispute that the numbers in the proposed finding represent the result of a "uniform swing analysis." Further, the plaintiffs have consistently referred to pro-Republican efficiency gaps as negative, whereas this proposed finding treats a pro-Republican efficiency gap as positive. The defendants do not dispute that Mayer purports to show that the efficiency gap of the Demonstration Plan varies from 2.0% (in the Republican wave scenario) to -3.7% (in 2012) to -3.9% (in the Democratic wave scenario).

118. At all times under the uniform swing analysis conducted by Professor Mayer, the Current Plan's efficiency gap is greater than |7%|, and the Demonstration Plan's is well below that absolute value. (Mayer Rebuttal Rpt. (Dkt. 64) at pp. 26-28.)

> **RESPONSE 118: Disputed.** Given that it does not appear that Mayer truly performed a uniform swing analysis, supra ¶ 114, the defendants dispute that the numbers in the proposed finding represent the result of a "uniform swing analysis." The defendants do not dispute that Mayer purports to show the Current Plan's efficiency gap is greater than |7%|, and the Demonstration Plan's is well below that absolute value.

VII.   General Properties of the Efficiency Gap

119. Eric McGhee compiled a set of 501 state house elections from 1970 to 2003, and then constructed a pair of very simple models. In both cases, party seat share was the dependent variable, and party vote share was one of the independent variables. The other independent variable was either partisan bias (an older measure of partisan symmetry) or the efficiency gap. Partisan bias turned out to be a relatively poor predictor of party seat share, with a coefficient of only 0.246. But the efficiency gap turned out to be a *perfect* predictor, with a coefficient of exactly 2.0. (Eric McGhee, *Measuring Partisan Bias in Single-Member District Electoral Systems*, 39 Legis. Stud. Q. 55 (2014), Jackman Decl. Ex. G (Dkt. 58-7) at p. 67.)

RESPONSE 119: Disputed. The defendants dispute that "the efficiency gap" was an independent variable and that the efficiency gap "turned out to be a *perfect* predictor, with a coefficient of exactly 2.0." The cited article uses a dependent variable of "vote share," not the efficiency gap. (Eric McGhee, *Measuring Partisan Bias in Single-Member District Electoral Systems*, 39 Legis. Stud. Q. 55 (2014), Jackman Decl. Ex. G (Dkt. 58-7) at p. 67.) The defendants do not dispute the proposed finding as it relates to partisan bias.

120. In its full form, as calculated by Professor Mayer, the efficiency gap aggregates the parties' wasted votes district by district. (Mayer Rpt. (Dkt. 54) at pp. 5-6.)

   RESPONSE 120: Undisputed to the extent that it recognizes that Mayer did not aggregate "votes" which were actually cast in any election.

121. However, this district-by-district aggregation is unnecessary when districts have equal turnout. In this case, the efficiency gap can be calculated using the formula $(S - 0.5) - 2(V - 0.5)$, where S is a party's statewide seat share and V is a party's statewide vote share. (Jackman Rpt. (Dkt. 62) at p. 16.)

   RESPONSE 121: Undisputed.

122. This formula is not a different measure of the efficiency gap, as it produces exactly the same values as district-by-district aggregation when there is equal district turnout. This is why defendants' expert, Professor Goedert, "concur[s] that this shortcut is an appropriate and useful summary measure of [the] efficiency gap." (Goedert Rpt. (Dkt. 51) at 5; Goedert Dep. (Dkt. 65) at 70:17-71:1.)

   RESPONSE 122: Disputed. Defendants do not dispute that it "it produces exactly the same values as district-by-district aggregation when there is equal district turnout." It is a different method when districts do not have equal turnout. This is why Goedert refers to it as only a "summary measure of efficiency gap." 1. (Goedert Rpt. (Dkt. 51) at 5; Goedert Dep. (Dkt. 65) at 70:17-71:1.)

123. Districts are never exactly equal in their turnout. But America's very strict equal population rule—the most rigid in the world—ensures that they are never too different either. (Nicholas O. Stephanopoulos, *Our Electoral*

Exceptionalism, 80 U. Chi. L. Rev. 769 (2013), Earle Decl. Ex. 1 (Dkt. 57-1) at pp. 797, 806.)

RESPONSE 123: Undisputed.

124. In 2012, the Current Plan had an efficiency gap of -11.7% using the full method and - 9.9% using the simplified method, a difference of only 1.8%. Similarly, the Demonstration Plan had an efficiency gap of -2.2% using the full method and -0.8% using the simplified method, a difference of only 1.4%. (Mayer Rpt. (Dkt. 54) at p. 46; Jackman Rpt. (Dkt. 62) at p. 71.)

RESPONSE 124: Disputed. In 2012, the Current Plan had an every district was contested and no incumbents were running. (Supra, ¶ 106; Mayer Rpt. (Dkt. 54) 46.) Using the simplified method, Jackman's report says the efficiency gap in Wisconsin "is estimated to be -.13" or -13%. (Jackman Rpt. (Dkt. 62) 71.)

In 2012, the Demonstration Plan under the full method using Mayer's model assuming every district was contested and no incumbents were running is predicted to produce an efficiency gap of -2.20. (Mayer Rpt. (Dkt. 54) at p. 46.) The defendants do not dispute that the Demonstration Plan under the simplified method using Mayer's model assuming every district was contested and no incumbents were running is predicted to produce an efficiency gap of -1.4.

125. There were three cases in Professor Jackman's database of state house elections in which all races were contested: Michigan in 1996; Michigan in 2014; and Minnesota in 2008. Professor Jackman also identified six successive state senate elections in Michigan in which all races were contested, from 1994 to 2014. (Jackman Rpt. (Dkt. 62) at p. 25; Jackman Dep. (Dkt. 53) at 61:12-62:17; Jackman Decl. Ex. E (Dkt. 58-5).)

RESPONSE 125: Disputed. Jackman's opinions in this finding were not included in either his initial report or his rebuttal report, but are instead apparently found in pages of an exhibit attached to his declaration. Defendants object to the plaintiffs' relying on expert opinions that are not contained in Jackman's reports under Fed. R. Civ. P. 26(a)(2)(B)(i).

126. The efficiency gap for the Michigan House in the 1996 election using the full method was -6.7%, using the simplified method was -7.5%, and therefore the difference was 0.8%. (Jackman Decl. (Dkt. 58-5) at pp. 1-5.)

> **RESPONSE 126: Disputed.** Jackman's opinions in this finding were not included in either his initial report or his rebuttal report, but are instead apparently found in pages of an exhibit attached to his declaration. Defendants object to the plaintiffs' relying on expert opinions that are not contained in Jackman's reports under Fed. R. Civ. P. 26(a)(2)(B)(i).

127. The efficiency gap for the Michigan House in the 2014 election using the full method was -13.4%, using the simplified method was -13.1%, and therefore the difference was 0.3%. (Jackman Decl. (Dkt. 58-5) at pp. 5-10.)

> **RESPONSE 127: Disputed.** Jackman's opinions in this finding were not included in either his initial report or his rebuttal report, but are instead apparently found in pages of an exhibit attached to his declaration. Defendants object to the plaintiffs' relying on expert opinions that are not contained in Jackman's reports under Fed. R. Civ. P. 26(a)(2)(B)(i).

128. The efficiency gap for the Minnesota House in the 2008 election using the full method was -0.8%, using the simplified method was 1.4%, and therefore the difference was - 0.6%. (Jackman Decl. (Dkt. 58-5) at pp. 10-16.)

> **RESPONSE 128: Disputed.** Jackman's opinions in this finding were not included in either his initial report or his rebuttal report, but are instead apparently found in pages of an exhibit attached to his declaration. Defendants object to the plaintiffs' relying on expert opinions that are not contained in Jackman's reports under Fed. R. Civ. P. 26(a)(2)(B)(i).

129. The efficiency gap for the Michigan Senate in the 1994 election using the full method was -3.5%, using the simplified method was -4.1%, and therefore the difference was 0.6%. (Jackman Decl. (Dkt. 58-5) at pp. 16-17.)

> **RESPONSE 129: Disputed.** Jackman's opinions in this finding were not included in either his initial report or his rebuttal report, but are instead apparently found in pages of an exhibit attached to his declaration. In addition, this analysis is based on elections to the

Michigan Senate when Jackman's reports only offered opinions on the elections to lower chambers of state legislatures. Defendants object to the plaintiffs' relying on expert opinions that are not contained in Jackman's reports under Fed. R. Civ. P. 26(a)(2)(B)(i).

130. The efficiency gap for the Michigan Senate in the 1998 election using the full method was -9.7%, using the simplified method was -10.3%, and therefore the difference was 0.6%. (Jackman Decl. (Dkt. 58-5) at pp. 17-19)

> **RESPONSE 130: Disputed.** Jackman's opinions in this finding were not included in either his initial report or his rebuttal report, but are instead apparently found in pages of an exhibit attached to his declaration. In addition, this analysis is based on elections to the Michigan Senate when Jackman's reports only offered opinions on the elections to lower chambers of state legislatures. Defendants object to the plaintiffs' relying on expert opinions that are not contained in Jackman's reports under Fed. R. Civ. P. 26(a)(2)(B)(i).

131. The efficiency gap for the Michigan Senate in the 2002 election using the full method was -10.3%, using the simplified method was -10.4%, and therefore the difference was 0.1%. (Jackman Decl. (Dkt. 58-5) at pp. 19-20)

> **RESPONSE 131: Disputed.** Jackman's opinions in this finding were not included in either his initial report or his rebuttal report, but are instead apparently found in pages of an exhibit attached to his declaration. In addition, this analysis is based on elections to the Michigan Senate when Jackman's reports only offered opinions on the elections to lower chambers of state legislatures. Defendants object to the plaintiffs' relying on expert opinions that are not contained in Jackman's reports under Fed. R. Civ. P. 26(a)(2)(B)(i).

132. The efficiency gap for the Michigan Senate in the 2006 election using the full method was -18.7%, using the simplified method was -18.4%, and therefore the difference was - 0.3%. (Jackman Decl. (Dkt. 58-5) at pp. 20-22.)

> **RESPONSE 132: Disputed.** Jackman's opinions in this finding were not included in either his initial report or his rebuttal report, but are instead apparently found in pages of an exhibit attached to his declaration. In addition, this analysis is based on elections to the Michigan Senate when Jackman's reports only offered opinions on the elections to lower chambers of state legislatures. Defendants object to

the plaintiffs' relying on expert opinions that are not contained in Jackman's reports under Fed. R. Civ. P. 26(a)(2)(B)(i).

133. The efficiency gap for the Michigan Senate in the 2010 election using the full method was -14.6%, using the simplified method was -14.4%, and therefore the difference was - 0.2%. (Jackman Decl. (Dkt. 58-5) at pp. 22-24)

> **RESPONSE 133: Disputed.** Jackman's opinions in this finding were not included in either his initial report or his rebuttal report, but are instead apparently found in pages of an exhibit attached to his declaration. In addition, this analysis is based on elections to the Michigan Senate when Jackman's reports only offered opinions on the elections to lower chambers of state legislatures. Defendants object to the plaintiffs' relying on expert opinions that are not contained in Jackman's reports under Fed. R. Civ. P. 26(a)(2)(B)(i).

134. The efficiency gap for the Michigan Senate in the 2014 election using the full method was -22.8%, using the simplified method was -21.8%, and therefore the difference was 1.0%. Jackman Decl. (Dkt. 58-5) at pp. 24-25.)

> **RESPONSE 134: Disputed.** Jackman's opinions in this finding were not included in either his initial report or his rebuttal report, but are instead apparently found in pages of an exhibit attached to his declaration. In addition, this analysis is based on elections to the Michigan Senate when Jackman's reports only offered opinions on the elections to lower chambers of state legislatures. Defendants object to the plaintiffs' relying on expert opinions that are not contained in Jackman's reports under Fed. R. Civ. P. 26(a)(2)(B)(i).

135. In elections in which all races were contested, there was a correlation of 0.997 between the full method's and the simplified method's efficiency gap calculations (and the two methods never varies by more than 1%) (Jackman Rpt. (Dkt.58-1) at p. 25; Jackman Dep. (Dkt. 53) at 40-41, 61-62; Jackman Decl. Ex. E (Dkt.58-5); PFOF ¶¶ 121-130.)

> **RESPONSE 135: Disputed.** Jackman's opinions in this finding were not included in either his initial report or his rebuttal report, but are instead apparently found in pages of an exhibit attached to his declaration. In addition, this analysis is based on elections to the Michigan Senate when Jackman's reports only offered opinions on the elections to lower chambers of state legislatures. Defendants object to

the plaintiffs' relying on expert opinions that are not contained in Jackman's reports under Fed. R. Civ. P. 26(a)(2)(B)(i).

136. When the simplified method is used, the $(S - 0.5) - 2(V - 0.5)$ formula implies that for the efficiency gap to be zero, there must be a 2:1 relationship between seat share and vote share (also known as "responsiveness"). (Jackman Rpt. (Dkt. 62) at pp. 17-18.)

> **RESPONSE 136: Disputed**. Defendants do not dispute that "[w]hen the simplified method is used, the $(S - 0.5) - 2(V - 0.5)$ formula implies that for the efficiency gap to be zero, there must be a 2:1 relationship between seat share and vote share." Defendants object that this is "also known as 'responsiveness'" because the pages in the Jackman report cited do not refer to responsiveness. (Jackman Rpt. (Dkt. 62) 17-18.)

137. As Professor Goedert has explained in his report and other work, a responsiveness of 2 "conform[s] with the observed average seat/votes curve in historical U.S. congressional and legislative elections." (Goedert Rpt. (Dkt. 51) at p. 6; Goedert Dep. (Dkt. 65) at 95:17-21.)

> **RESPONSE 137: Undisputed.**

138. At the congressional level, the seat/vote curve had "an average slope of 2.02 for the past 40 years." (Goedert, *Gerrymandering or Geography*, supra, at 7, Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 7.)

> **RESPONSE 138: Undisputed.**

139. Professor Goedert "assume[s] that a party should expect to win a proportion of seats in line with historical patterns" – fearing a responsiveness of 2 – and then compares the party's actual seat share "with the expected seat share under a 'fair map' with…a historically average seats-votes curve." (Nicholas Goedert, *Gerrymandering or Geography? How Democrats Won the Popular Vote But Lost the Congress in 2012*, Research & Pol., Apr.-Jun. 2014, Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 7.)

> **RESPONSE 139: Disputed.** In his research, Goedert "assess[es] the bias in maps of individual states" by "first establish[ing] how a 'fair' map might translate the popular vote for individual candidates."

(Goedert Dep. Ex. 20 (Dkt. 65-2) 2.) He "assume[s] that a party should expect to win a proportion of seats in line with historical patterns found in modern congressional elections," which does have a responsiveness of 2. Goedert Dep. Ex. 20 (Dkt. 65-2) 2-3.)

140. The 10% population deviation threshold, used in one person, one vote cases, was set only after the Court first struck down plans with deviations of 20%, 26%, and 34%, and upheld plans with deviations of 8% and 10%, over roughly a decade. (Nicholas O. Stephanopoulos & Eric M. McGhee, *Partisan Gerrymandering and the Efficiency Gap*, 82 U. CHI. L. REV. 831, 890-91 (2015), publicly available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2457468.)

RESPONSE 140: Undisputed.

141. In setting a test for partisan gerrymandering, with respect to the second prong of the proposed test, the Court could supplement any threshold with the sensitivity testing recommended by defendants' expert, Professor Goedert. (Goedert Rpt. (Dkt. 51) at p. 15.)

> **RESPONSE 141: Disputed.** This is a question of law, not a finding of fact.

142. Plaintiffs' Demonstration Plan complies at least as well with all federal and state requirements, but has an efficiency gap more than 80% smaller. (Mayer Rpt. (Dkt. 54) at pp. 37, 46.)

> **RESPONSE 142: Disputed.** The Demonstration Plan does not comply as well as the current plan with respect to the federal constitutional requirement of population deviation. The Demonstration Plan has population deviation of 0.86% whereas the current plan has population deviation of 0.76%. (Mayer Rpt. (Dkt. 54) 37.) In addition, Mayer has presented no evidence as to how his plan compares to the current plan in respect of the disenfranchisement of voters for State Senate seats (which are each made up of three Assembly districts) and have staggered elections. This is an equal protection issue that has been addressed in court decisions regarding Wisconsin's districting. *Baldus v. Members of Wisconsin Gov't Accountability Bd.*, 849 F. Supp. 2d 840, 852 (E.D. Wis. 2012); *Baumgart*, 2002 WL 34127471, at *3-7; *Prosser v. Elections Bd.*, 793 F. Supp. 859, 866 (W.D. Wis. 1992).

143. The California state legislative plan for 1972-1980 had an average efficiency gap of 2.5% (Jackman Rpt. (Dkt. 62) at p. 7.)

RESPONSE 143: Undisputed.

144. The New Mexico state legislative plan for 2012-2014 had an average efficiency gap of - 1.6% (Jackman Rpt. (Dkt. 62) at p. 7.)

RESPONSE 144: Undisputed.

145. Roughly equal wasted votes, not any kind of seat-vote relationship, is the essence of the efficiency gap, and can be described as a measure of "relative wasted votes." (Eric McGhee, *Measuring Partisan Bias in Single-Member District Electoral Systems*, 39 Legis. Stud. Q. 55 (2014), Jackman Decl. Ex. G (Dkt. 58-7) at p. 68.)

> **RESPONSE 145: Disputed**. The simplified method of the efficiency gap judges plans based on how well they deliver seats in a way that each 1% increase in vote share leads to a 2% increase in seat share. (Dkt. 67 ¶ 123.) Thus, it does involve a particular seat-vote relationship.

146. Professor Goedert explained in his report that the 2:1 seat-vote relationship "conform[s] with the observed average seat/votes curve in historical U.S. congressional and legislative elections." (Goedert Rpt. (Dkt. 51) at p. 6; Goedert Dep. (Dkt. 65) at 95:17-21.)

RESPONSE 146: Undisputed.

147. Partisan bias denotes "the extent to which a majority party would fare better than the minority party, should their respective shares of the vote reverse," and so it is compatible with any seat-vote ratio. "An electoral system may have any degree of partisan bias, no matter what level of responsiveness happens to exist." (Bernard Grofman & Gary King, *The Future of Partisan Symmetry as a Judicial Test for Partisan Gerrymandering After* LULAC v. Perry, 6 Election L.J. 2, 6 (2007), http://gking.harvard.edu/files/jp.pdf, at p. 9.)

RESPONSE 147: Undisputed.

148. Under the simplified method, the efficiency gap would be -7% if the party received 53% of the seats ((0.53 − 0.5) − 2(0.55 − 0.5)), and 7% if the party received 67% of the seats ((0.67 − 0.5) − 2(0.55 − 0.5)). The seat-vote relationship would be 0.6 in the first case ((0.53 − 0.5) / (0.55 − 0.5)), and 3.4 in the second case ((0.67 − 0.5) / (0.55 − 0.5)), relative to the benchmark of S = V = 0.5. (Andrew Gelman & Gary King, *Estimating the Electoral Consequences of Legislative Redistricting*, 85 J. AM. STAT. ASS'N 274 (1990), Jackman Decl. Ex. I (Dkt. 58-9) at p.9; Jackman Rpt. (Dkt. 62) at p. 16.)

> **RESPONSE 148: Disputed.** The proposed finding does not specifically state the vote share involved. Assuming the 55% vote share indicated by the equation in the proposed finding, the defendants do not dispute the proposed finding.

149. Partisan bias is a relatively poor predictor of party seat share (McGhee, *supra*, at 67, Jackman Decl. Ex. G (Dkt. 58-7) at p. 67.)

> **RESPONSE 149: Undisputed.**

150. The more uncompetitive a state's election, the less accurate partisan bias becomes (Nicholas O. Stephanopoulos & Eric M. McGhee, *Partisan Gerrymandering and the Efficiency Gap*, 82 U. CHI. L. REV. 831, 858 (2015), publicly available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2457468.)

> **RESPONSE 150: Undisputed.**

151. Professor Gaddie, removed the effects of incumbency from his model, imputed election results in uncontested races, and assumed equal district turnout (Mayer Rebuttal Rpt. (Dkt. 64) at p. 22.)

> **RESPONSE 151: Disputed.** The cited evidence does not support the contention that Professor Gaddie "assumed equal district turnout." The defendants do not dispute that Gaddie's model attempted to "to create some measure of partisan competitiveness, an expected vote or what we call a normal vote, what the vote would usually do without an incumbent in the district." (Mayer Rebuttal Rpt. (Dkt. 64) at p. 22.)

152. Table 2 of Professor Mayer's Report sets out the results of his initial model, which predicts district vote shares with nearly perfect precision and does not remove incumbency effects. (Mayer Rpt. (Dkt. 54) at pp. 19-28.)

> **RESPONSE 152: Disputed.** The defendants do not dispute that Table 2 of Mayer's Report sets out the results of his initial model and does not remove incumbency effects. The defendants dispute that this model "predicts district vote shares with nearly perfect precision" because Mayer says his "average absolute error in the vote margin is 1.49%." (Mayer Rpt. (Dkt. 54) 25.)

153. All of Professor Jackman's calculations made no adjustments for incumbency. (Jackman Rpt. (Dkt. 62) at pp. 19-32.)

> **RESPONSE 153: Undisputed.**

154. Professor Jackman's sensitivity testing showed that maps throughout the nation with large efficiency gaps would remain highly asymmetric even given swings of up to five points in either party's direction. (Jackman Decl. Ex. D (Dkt. 58-4) at pp. 1-6.)

> **RESPONSE 154: Disputed.** Defendants dispute that the maps "would remain highly asymmetric." Jackman's chart shows a correlation of 0.7 in some instances, which does not correspond to a highly asymmetric map. (Jackman Decl. Ex. D (Dkt. 58-4) at 4.) Further, Wisconsin's own experience shows that electoral tides can significantly change the efficiency gap. Under the 2002 Plan, Wisconsin's efficiency gap started at -7.5% and ranged from -4% to -12% through a range of electoral conditions. (Dkt. 67 ¶¶ 211-16.)

155. The Republican leadership crafted the Current Plan the Republican-controlled Legislature passed the Current Plan with little debate (Compl. (Dkt. 1) ¶¶ 31-43.)

> **RESPONSE 155: Disputed.** The plaintiffs do not cite admissible evidence for this proposition. The allegations in their complaint are not admissible evidence.

156. The increase in Republican unified control accounts for essentially *all* of the efficiency gap's movement in a Republican direction. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 20.)

> **RESPONSE 156: Disputed.** Jackman's analysis does not show the average efficiency gap of state house plans because Jackman's analysis did not consider plans enacted without unified partisan control. His rebuttal report says "The omitted category is any other institution responsible for redistricting, such as divided government, a court, or a commission." (Jackman Rebuttal Rep. (Dkt. 63) at 20.) Jackman says plans without partisan control accounted for 60% of plans in the 1990s and 40% of plans in the 2010s. (Jackman Rebuttal Rep. (Dkt. 63) at 18.)

157. Partisan intent is often a driver of partisan impact, as shown by Professor Goedert's work finding that unified party control over redistricting leads to a large efficiency gap boost in favor of that party. (Goedert, *Gerrymandering or Geography, supra*, at 6, Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 6; Goedert, *Disappearing Bias, supra*, at 13, Goedert Dep. Ex. 21 (Dkt. 65-3) at 13.)

> **RESPONSE 157: Disputed.** Goedert's model does not predict an efficiency gap. The dependent variable in Goedert's model "is the deviation in democratic seats won from historical expectation given a certain vote share." (Goedert Dep. (Dkt. 60) at 77:9-11.) His model "ends up I think rather coincidentally being very close to efficiency gap when one party wins say between 40 and 60 percent of the vote." (Goedert Dep. (Dkt. 60) at 77:20-23.)

> Goedert's model examines congressional elections. (Nicholas Goedert, *Gerrymandering or Geography? How Democrats Won the Popular Vote But Lost the Congress in 2012*, Res. & Pol. (2014), Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 1, 5-6.) Therefore it cannot be used to determine anything with respect to state legislative elections, which the proposed finding implies.

> Goedert's model is intended to "give a prediction about the average impact of" the dependent variables "given that the electoral conditions are identical to the electoral conditions in a particular election." (Goedert Dep. (Dkt. 60) at 76:22-25.)

Further, Goedert found that partisan control did not lead to a large boost in favor of Democrats, instead that "Democrats also underperformed under bipartisan maps, and gained only a small advantage from their own maps, suggesting their main issue is not gerrymandering, but districting itself." (Nicholas Goedert, *Gerrymandering or Geography? How Democrats Won the Popular Vote But Lost the Congress in 2012*, Res. & Pol. (2014), Goedert Dep. Ex. 20 (Dkt. 65-2) at p. 1.)

158. At present, the motivation for many one-person, one-vote, Voting Rights Act, and state law claims is partisan dissatisfaction at being the victim of gerrymandering. Samuel Issacharoff finds that "the absence of any real constitutional vigilance over partisan gerrymandering" causes litigants to "squeeze all claims . . . into the suffocating category of race." (Samuel Issacharoff, *Gerrymandering and Political Cartels*, 116 Harv. L. Rev. 593, 630-31 (2002), Earle Decl. Ex. E (Dkt. 57-5) at pp. 630-31.)

> **RESPONSE 158: Disputed.** This finding of fact is not based on admissible evidence. The author of the article does not have first-hand knowledge of the motivation for legal claims. Fed. R. Evid. 602.

159. Richard H. Pildes observes that "[t]he 'right' claimed" in many "political cases" is "obviously a stalking horse for other interests." (Richard H. Pildes, *The Theory of Political Competition*, 85 Va. L. Rev. 1605, 1608 (1999), Earle Decl. Ex. F (Dkt. 57-6) at pp. 1608.)

> **RESPONSE 159: Disputed.** This finding of fact is not based on admissible evidence. The author of the article does not have first-hand knowledge of the motivation for legal claims. Fed. R. Evid. 602.

160. For decades, the vast majority of redistricting litigation has been resolved very early in the cycle. (*Litigation in the 2010 Cycle*, All About Redistricting, http://redistricting.lls.edu/cases.php (showing that more than 85% of redistricting suits in the 2010 cycle have already been resolved.)

> **RESPONSE 160: Disputed.** The cited evidence does not support the proposed finding as it relates to prior decades because it only deals with the 2010 cycle. Defendants do not dispute that more than 85% of redistricting suits in the 2010 cycle have already been resolved.

161. In assessing what cutoff would be reasonable, Professor Jackman considered whether a plan's initial efficiency gap is "large relative to those observed in the previous 40 years of state legislative elections." (Jackman Rpt. (Dkt. 62) at p. 65.)

RESPONSE 161: Undisputed.

162. In assessing what cutoff would be reasonable, Professor Jackman considered what proportion of plans either fall below a given threshold, or if above, would exhibit an efficiency gap of the same sign throughout their lifetimes. (Jackman Rpt. (Dkt. 62) at pp. 66-69.)

RESPONSE 162: Undisputed.

163. In assessing what cutoff would be reasonable, Professor Jackman considered what a series of prognostic tests reveal about the reliability of different thresholds. (Jackman Rebuttal Report (Dkt. 63) at pp. 5-14.)

> **RESPONSE 163: Disputed.** The cited evidence is Jackman's rebuttal report. The defendants do not dispute that Jackman considered what a series of prognostic tests reveal about the reliability of different thresholds in his rebuttal report, but dispute that he considered this factor in his initial report when he determined the 7% *EG* threshold.

164. In assessing what cutoff would be reasonable, Professor Jackman considered how a plan's initial efficiency gap is related to its average efficiency gap over its lifetime. (Jackman Rebuttal Report (Dkt. 63) at pp. 15-17.)

> **RESPONSE 164: Disputed.** The cited evidence is Jackman's rebuttal report. The defendants do not dispute that Jackman considered how a plan's initial efficiency gap is related to its average efficiency gap over its lifetime in his rebuttal report, but dispute that he considered this factor in his initial report when he determined the 7% *EG* threshold.

165. In assessing what cutoff would be reasonable, Professor Jackman considered what sensitivity testing demonstrates about the durability of plans' efficiency gaps in the current cycle. (Jackman Decl. Ex. D (Dkt. 58-4) at pp. 1-6.)

RESPONSE 165: Disputed. The cited evidence is Jackman a declaration to Jackman's declaration. The defendants do not dispute that Jackman considered what sensitivity testing demonstrates about the durability of plans' efficiency gaps in the current cycle for purposes of his declaration, but dispute that he considered this factor in his initial report when he determined the 7% *EG* threshold.

166. In his initial report, Professor Jackman examined whether most variation in the efficiency gap is *within* plans (in which case the metric would not be very trustworthy) or *between* plans (in which case it would amount to a durable plan characteristic). His results confirmed the latter thesis. "About 76% of the variation in the EG estimates is between plan variation," indicating that "there is a moderate to strong 'plan-specific' component to variation in the EG scores," and that "the efficiency gap is measuring an enduring feature of a districting plan." (Jackman Rpt. (Dkt. 62) at pp. 48; Jackman Dep. (Dkt. 53) at 75:10-76:4.)

RESPONSE 166: Undisputed.

167. About 95% of plans from 1972 to 2014 either had initial efficiency gaps below 7% or had larger initial efficiency gaps and never once favored the opposing party. (Jackman Rpt. (Dkt. 62) at p. 67; Goedert Dep. (Dkt. 51) at 120: 24-121:1.)

RESPONSE 167: Undisputed.

168. Professor Jackman's prognostic tests indicate that there would be almost no false positives with a 7% threshold, that is, cases where a plan's average efficiency gap was expected to have the same sign as its initial efficiency gap, but this expectation turned out to be incorrect. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 12.)

RESPONSE 168: Disputed. For Jackman's sensitivity testing, "[i]n each instance the test is whether the first *EG* observed under a plan exceeds a given threshold value. The outcome of interest is whether the plan's remaining efficiency gaps have the same sign as the *EG* from the first election." (Jackman Rebuttal Rpt. (Dkt. 63) at 6.) Thus, his definition of "false positive" is a plan is a plan that exceeds the threshold in its first election, yet goes on to produce an *EG* of the opposite sign. (Jackman Rebuttal Rpt. (Dkt. 63) at 6-7.) With this proper understanding of what counts as a "false positive" under

Jackman's analysis, Jackman calculated that the rate of false positives at a 7% threshold would be under 5%. (Jackman Rebuttal Rpt. (Dkt. 63) at p. 12.)

169. There is a very strong relationship between a plan's initial efficiency gap and the size and sign of its average efficiency gap, with the former accounting for fully three-fourths of the variation in the latter. (Jackman Rebuttal Rpt. (Dkt. 63) at pp. 15-17.)

> **RESPONSE 169: Disputed.** Jackman's report provides that "Figure 7 shows the relationship between the first-election *EG* and the average *EG* observed over the entire plan. Note that we restrict this analysis to plans with at least three elections, so that the first election does not unduly contribute to the calculation of the average; this restriction has the consequence of omitting elections from the most recent round of redistricting after the 2010 Census, which have contributed at most two elections. The black diagonal line on the graph is a 45-degree line: if the relationship between first-election *EG* and plan-average *EG* were perfect, the data would all lie on this line. Instead we see a classic 'regression-to-the-mean' pattern, with a positive regression slope of less than one (as indeed we should, given that the first-election *EG* on the horizontal axis contributes to the average plotted on the vertical axis). But the relationship here is especially strong. The variation in plan-average efficiency gaps explained by this regression is quite large, about 73%; after taking into account the uncertainty in the *EG* scores (stemming from the imputation procedures used for uncontested districts; see my initial report) a 95% confidence interval on the variance explained measure ranges from 67% to 74% (the uncertainty has the consequence of tending to make the regression fit slightly less well)." (Jackman Rebuttal Rpt. (Dkt. 63) at 15.)

170. This tight relationship applies not just retrospectively but also prospectively. If current plans with large efficiency gaps experienced electoral tides of up to five points in either direction, their new efficiency gaps would be extremely highly correlated with their original ones, and almost certain to have the same sign. (Jackman Decl. Ex. D (Dkt. 58-4) at p. 4.)

> **RESPONSE 170: Disputed.** The defendants do not dispute that Jackman found that plans with high efficiency gaps would be almost certain to have the same sign. Defendants dispute that the "new efficiency gaps would be extremely highly correlated with their original ones." Jackman's chart shows a correlation of 0.7 in some

instances, which is not "extremely high[]." Further, Wisconsin's own experience shows that electoral tides can significantly change the efficiency gap. Under the 2002 Plan, Wisconsin's efficiency gap ranged from -4% to -12% through a range of electoral conditions. (Dkt. 67 ¶¶ 211-16.)

171. Because partisan bias is calculated based on counterfactual rather than actual elections, it is essentially unaffected by the electoral swings that in fact occur. (*See* McGhee, *supra*, Jackman Decl. Ex. G (Dkt. 58-7) at p. 73 (noting that partisan bias exhibits "more persistence through time"); Stephanopoulos & McGhee, *supra*, at 864 (observing that "partisan bias is fairly stable" because "it shifts all actual results to the point of the hypothetical election").

RESPONSE 171: Undisputed.

172. Similar examples in the current cycle include Maine, where Republicans in full control of the state government authorized an advisory commission and then heeded its line drawing recommendations, and Vermont, where Democrats in full control did the same. (Maine, All About Redistricting, publicly available at http://redistricting.lls.edu/statesME.php; Vermont, All About Redistricting, publicly available at http://redistricting.lls.edu/states-VT.php.)

RESPONSE 172: Undisputed.

173. The only suggestion of defendants not tried out by plaintiffs' experts is treating uncontested races as if they were decided by a margin of 100% to 0%. *See* Defs' Br. at 49. This crude approach is guaranteed to produce errors since the voters in uncontested races are never unanimously in favor of the winning party's candidate. (Jackman Rpt. (Dkt. 62) at p. 24; Stephanopoulos & McGhee, supra, at 867.) ("We strongly discourage analysts from . . . treating [uncontested races] as if they produced unanimous support for a party.")

RESPONSE 173: Disputed. The defendants do not dispute that the plaintiffs did not treat uncontested races as if they were decided by a margin of 100% to 0%. Defendants dispute that this method would produce errors (at least any more errors than the methods used by the plaintiffs) in that they would be closer to the actual vote totals cast in uncontested races. Defendants dispute that the plaintiffs "tried out" all

of the suggestions suggested by the defendants' experts because they did not adopt Goedert's actual uniform swing suggestion. *Supra*, ¶ 85.

174. In the current cycle, the Florida, Georgia, Indiana, Michigan, North Carolina, Ohio, Rhode Island, Tennessee, Vermont, Wisconsin, and Wyoming plans were all enacted by a single party with unified control over redistricting, and all exhibited efficiency gaps above 7% in 2012. Likewise, the Alaska, California, Colorado, Connecticut, Hawaii, Iowa, Kentucky, Maine, Minnesota, Montana, Nevada, New Mexico, and Washington plans were all enacted by some other institution (a court, a commission, or divided government), and all had efficiency gaps below 7% in 2012. (Jackman Rpt. (Dkt. 62) at pp. 7, 73; Jackman Rebuttal Rpt. (Dkt. 63) at pp. 18-20; Jackman Decl. Ex. F (Dkt. 58- 6).)

   RESPONSE 174: Undisputed.

175. The efficiency gap is plaintiffs' measure of partisan *effect*, not of partisan *intent*. (Jackman Rebuttal Rpt. (Dkt. 63) at pp. 3-4.)

   RESPONSE 175: Disputed. This is a question of law, not a question of fact. Further, Professor Jackman is not an expert on legal questions, such as what the plaintiffs' legal standard is.

Dated this 4th day of February, 2016.

                              Respectfully submitted,

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