THE STATE OF ELECTRIC COMPETITION IN THE UNITED STATES OF AMERICA

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INTRODUCTION

We developed a framework to compare the competitiveness of electricity systems in each of the 50 US states. We developed a consistent set of question-based criteria and used their answers to assign a numerical score (0-13) and letter grade (A-F) to each state. For this analysis, we generally define "competitive" to mean using more market-based mechanisms, or opening various parts of the electricity system to more players beyond the traditional monopoly single-provider model. We also identify policies across states that facilitate markets with more competitive behavior and present how various policies relate to each other and the final competitiveness score of each state.

Competition is often introduced into systems to nudge them towards higher levels of efficiency with the expectation that having firms compete to provide a service in a fair marketplace should lead to innovation, new services, and price declines [1]. Sectors such as telecom and airlines[1], while still regulated in terms of pollution, access, and safety, vastly expanded their reach and level of service after their own deregulation and the dismantling of their monopoly positions.

COMPETITIVE

Definition: Using more market-based mechanisms, or opening various parts of the electricity system to more players beyond the traditional monopoly single-provider model.

From state to state, the extent of power market deregulation and competition is far from uniform and even the same deregulation terms can be used differently. Some states have highly competitive wholesale and retail markets, some states are partly competitive, and some have statewide monopolies with only one provider. This heterogeneity is partly due to the historical context of how electricity systems were developed. When electricity was a new sector, the technology did not exist to transmit it very far. Thus, the regulation of the new sector was left to local authorities, which retained much of that control as the technology expanded and grids grew in size.[2] Some parts of the modern electricity sector are managed by multi-state Independent System Operators or Regional Transmission Organizations, while, generally, oversight of the generation and sales of electricity have been left to the states. This study seeks to assess the competitiveness for each of the states' electricity sectors.

The results of this study provide state policymakers and other interested parties a consistent set of metrics to assess where any given state stands in terms of competitiveness relative to other states. We grouped the analysis into high-level results as well as developed individual state-level dossiers that provide a direct look at each individual state along with recommendations for how each state could increase their ranking. The results have also been developed into an interactive web tool to facilitate quick state-by-state comparisons and access to each of the individual dossiers.

Background

Electricity systems in the US began as highly fragmented islands that served customers that were close to a centralized power plant, often in a large metropolitan area. As technologies advanced, individual grids were connected to increase both reliability for the customer and economies of scale for the producers. In parallel, the concept of an integrated electric company that would own and operate

1 https://www.econlib.org/library/Enc/AirlineDeregulation.html

2 See Gretchen Bakke's The Grid for a detailed summary of how the modern grid evolved from its very local beginnings.

the generation, transmission, and distribution as a way to increase access and reduce costs gained traction. Because electricity service was (and is) a capital-intensive business, these companies preferred to evolve into natural monopolies in a given area to protect their investments and to avoid duplication of infrastructure. State-level Public Utility (or Service) Commissions were developed to regulate the monopoly utilities and provide checks on the investments that the companies could make and the prices they could charge their customers. In most places in the United States, and for well over half a century, this is how the system continued.

For much of the modern electrical age, technologies changed, demand rose, and fuel prices oscillated, but the state-sponsored natural monopoly persisted. However, the twin energy crises of the 1970s triggered the beginnings of change for the sector. Figure 2 provides a list of key milestones in the restructuring of the US electricity sector [1].

Figure 1: Figure showing a timeline of important milestones in US electricity restructuring [2].

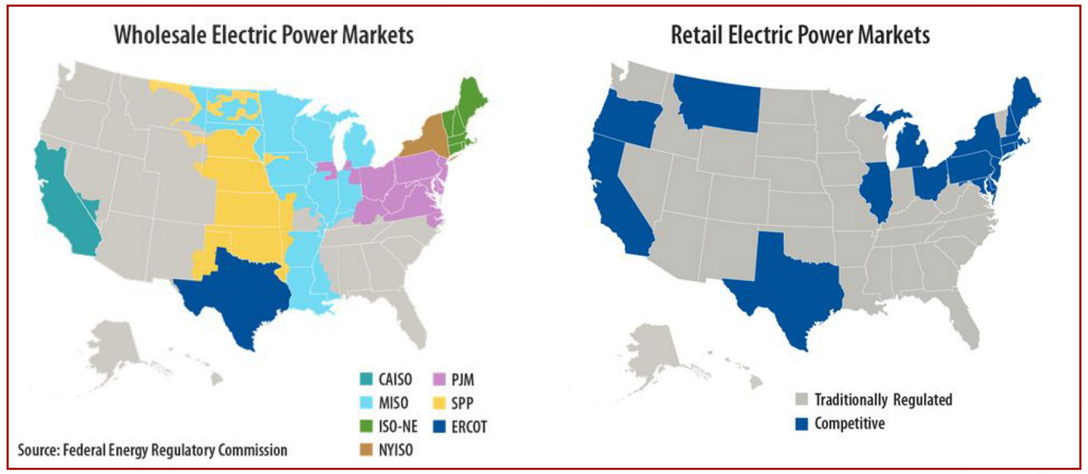


Figure 1: Figure showing which parts of the US have wholesale power markets (left) and which states have retail choice for customers (right) [3]. Gray areas on the left side of the panel are traditionally regulated areas.

Various policies at the state and federal level have led to the uneven distribution of restructured electricity markets in the US. Figure 1 shows the current distribution of competitive wholesale (left) and retail (right) electricity markets in the US.

There are some areas of the country where competitive wholesale and retail markets overlap (e.g. Texas), some areas that have one or the other (e.g. Oregon & Vermont), and some that have neither (such as Alabama). Competition at the transmission and distribution level is more complicated and mostly refers to a competitive bidding process to build projects that receive a regulated rate of return, a process accelerated by FERC Order 1000 in non-ERCOT areas [4]. True merchant transmission projects are often high-voltage direct current (HVDC) lines between locations that sustain large price differentials or have ineffective interregional transmission planning processes. [3]

3 Transmission was not the focus of this analysis as it is mostly a fully regulated part of the electric sector, even in the most deregulated states.

Key Milestones in U.S. Electricity Restructuring

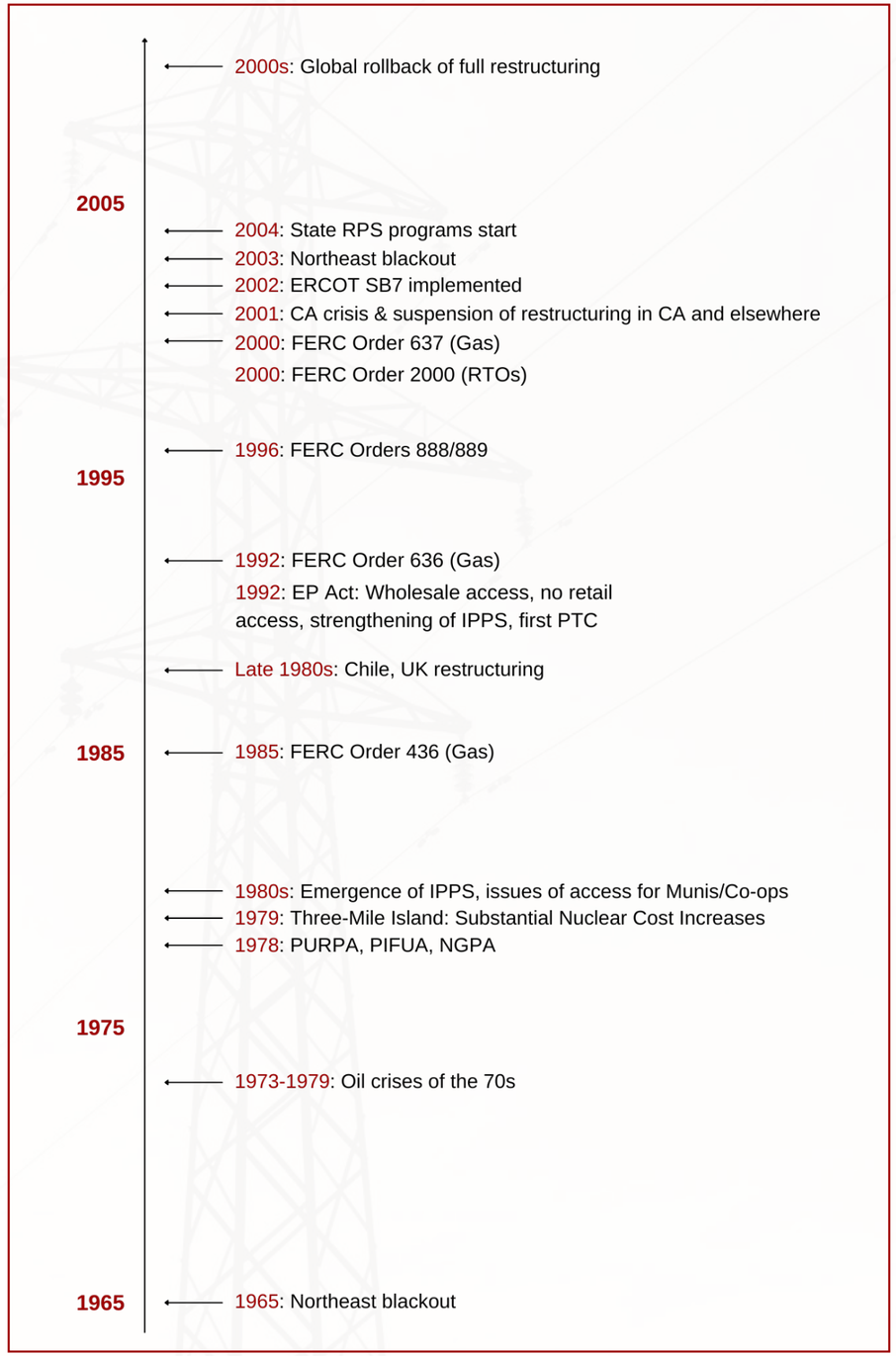


Figure 2: Figure showing a timeline of important milestones in US electricity restructuring [2].

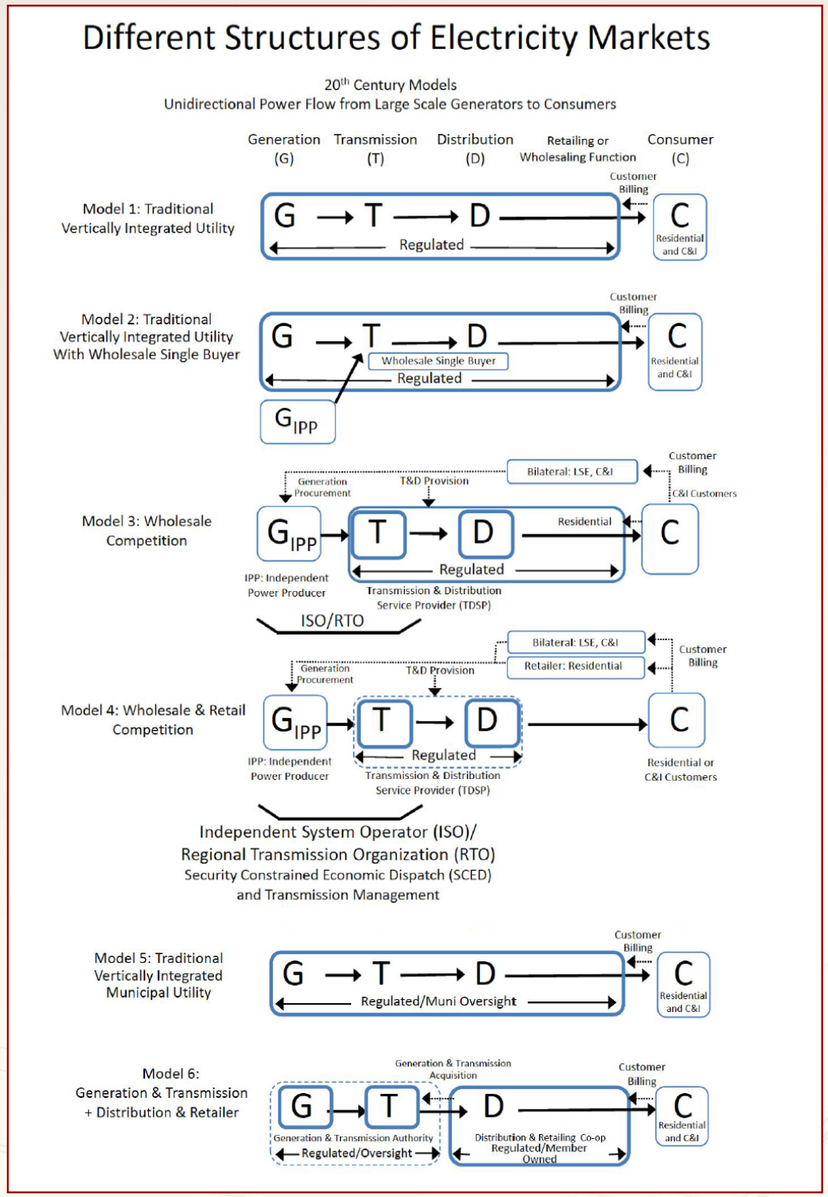


Figure 3: Figure showing how different electricity system models vary in which parts are regulated or open to competition [2]. (IPP: Independent Power Producer, LSE: Load Scheduling Entity, C&I: Commercial and industrial, ISO: Independent System Operator, RTO: Regional Transmission Organization, TDSP: Transmission and Distribution Utility)

Figure 3 shows a breakdown of the most common electricity market structures in the US, from the traditional vertically-integrated utility shown as Model 1 (Alabama Power) to the most-decoupled Model 4 (ERCOT)[4]. Models 5 and 6 vertically-integrated municipal utilities (El Paso Electric) and

4 However, even EROCT is a hybrid model with vertically integrated municipal utilities and CO-OPs.

Coops and Administrations (Bluebonnet and TVA). The wide variety of market types show the range of competitiveness in different areas of the system.

While there are multiple types of electricity markets, some are more competitive than others. This analysis sought to assess each state in terms of the competitiveness of its electricity market structure and provide a consistent comparison framework to compare them.

METHODS

This analysis had two main objectives: 1) to create a framework to rank each state in terms of the competitive nature of its electricity system and 2) to provide short case studies of each state that explain their level of competition, along with the steps that each can take to become more competitive.

State-by-state rankings

To rank each state, this analysis developed a consistent set of question-based criteria that were answered for each state. Most questions were developed to have a binary (zero or one) answer, where each state scored a one for that question if their answer was the more competitive option. Question 2, which assessed retail choice, was broken into three possible scores depending on the number of customer classes included and Question 10 is based on the percentage of power plants owned by private companies, by quartiles. In all, we developed 10 questions with a maximum possible score of 13. These numerical scores were then translated into a grade letter score. The questions are as follows:

1. Does the state have competition at the wholesale market level? (1 = yes, 0 = no)
2. Does the state have competition at the retail market level? (2 = all, 1 = industrial & commercial only, 0 = no)
3. (For vertically integrated states) Are utilities required to utilize “All-source RFP’s” when planning for future generation expansion? (1 = yes/market, 0 = no)
4. (For vertically integrated states) Are RFPs managed by an independent third party (independent evaluator) ? (1 = yes/market, 0 = no)
5. (For vertically integrated states) Do utilities have Performance Incentive Mechanisms (PIMs) to incentivize good behavior? (1 = yes/market, 0 = no)
6. Does the state allow revenue decoupling or a lost revenue adjustment mechanism for electric utilities? (1 = yes/market, 0 = no)
7. Does the state have a policy in place that requires utilities to release energy use data to customers or third parties? (1=yes, 0=no)
8. Does the state have compensation programs for distributed generation? (1=yes 0=no)
9. Does the state have an aggregate capacity limit for participation in compensation programs for distributed generation? (0=yes 1=no)
10. What percentage of power plants in the state are owned by private companies? (0 = <25%, 1 = 25-50%, 2 = 50-75%, 3 = >75%)

The questions are intended to reveal how various markets for electricity are organized and how their mechanisms are managed. Some questions focused on how states with monopoly utility structures

incorporated competitive aspects into their markets. For states without monopoly utility structures, like most of Texas, we assigned a non-zero score for these questions, assuming that a competitive market supersedes the need for structures such as PIMs or all-source RFPs.

Wholesale markets: Inclusion in a wholesale electricity market allows for competition among power plants. Because power plants in wholesale markets generally compete on marginal price, it is more likely that the lowest cost power plants will be dispatched and overall costs will be lower. Wholesale markets also generally make more operations data public.

Retail competition: Locations with retail competition allow customers to choose their energy provider. This choice allows more companies to enter the market space and provides incentives for those companies to compete on price and offer services that customers can choose to utilize.

All-source Requests for Proposals (RFPs): Requiring all-source RFPs increases competition because it allows for new technologies to compete directly on their merits instead of allowing the incumbent utility to choose a specific type of power plant, which might not be the most beneficial to the end customer.

Independently managed IRPs: Utilities have traditionally managed their own IRP process, but that can lead to bias in proposal selection if the utility already has in mind a technology type or vendor for which they have a preference. Independently managed IRPs can better level the playing field for competitive proposals.

Performance Incentive Mechanisms (PIMS): PIMS incentivize utilities to develop customer benefit programs, such as energy efficiency programs by allowing utilities to earn revenue based on meeting certain program goals [5].

Decoupling or lost revenue adjustment: Utilities traditionally make money by selling electricity, which can provide a disincentive to invest in energy efficiency because it can reduce sales. Decoupling or lost revenue adjustments allow utilities to make a rate of return based on equity, not volumetric sales of electricity, which can allow them to explore new services beyond the sale of electricity [5].

Data sharing: Utilities often have access to customer energy use data going back years or decades. Data generation has also recently increased with the deployment of smart meters across many parts of the US. Allowing customers, or approved third parties, access to the data can allow them to make better informed energy decisions.

Distributed energy resource (DER) programs: Some states offer programs designed to reimburse owners of distributed generation resources, like solar PV or biomass, for the energy that they produce. These programs have different names across states, such as: Net Metering, Net Billing, or Value of Solar Tariffs, etc. Having these types of compensation programs can allow for more participants in the supply side of the electricity system.

Limits on DER programs: Some states that offer DER programs also have a cap on the number of participants, or the aggregate amount of DER capacity that qualifies for their programs. Caps can limit the number of potential participants in the supply side of the electricity system.

Power plant capacity owned by private companies: The percentage of the capacity of power plants owned by private[5] companies varies by state. A higher level of private ownership can also be an indicator of competitiveness by allowing more companies to operate in the generation space. It is important to note that state-level energy policy is complex and this report does not capture every possible existing nuisance. For example, some states have areas that are in multiple ISO regions, or have areas inside retail choice regions where some customers do not have the ability to choose their provider. Further, some utilities inside of some states might offer services such as net-metering while the state writ large does not. This report describes how the majority of the state is regulated, but it is possible that, like the above examples, the parameters for each state might not cover the entirety of that state.

5 Private companies are defined as Independent Power Producers (IPPs) and corporates, i.e. they are owned by non-utility companies.

RESULTS AND DISCUSSION

This section contains results for all states and across each of the questions, while individual state dossiers are presented in a later section.

The results of this analysis are shown in Table 1, which displays the calculated competitiveness score for each of the 50 US states. Based on our analysis, 4 states received a grade[6] of “A”, 9 states received a “B”, 9 states received a “C”, 16 received a “D”, and 12 received an “F”. The only state to garner a perfect score of 13 (“A”) was the state of Connecticut and the states with the worst scores were Alaska, Alabama and Tennessee, which each only received one point and a grade of “F”. Alaska scored a point for Question 8 (DER compensation), Alabama received one point for Question 10 -- at least 25% of the power plant capacity in the state is privately owned, and Tennessee received a point for utilizing revenue decoupling with electric utilities.

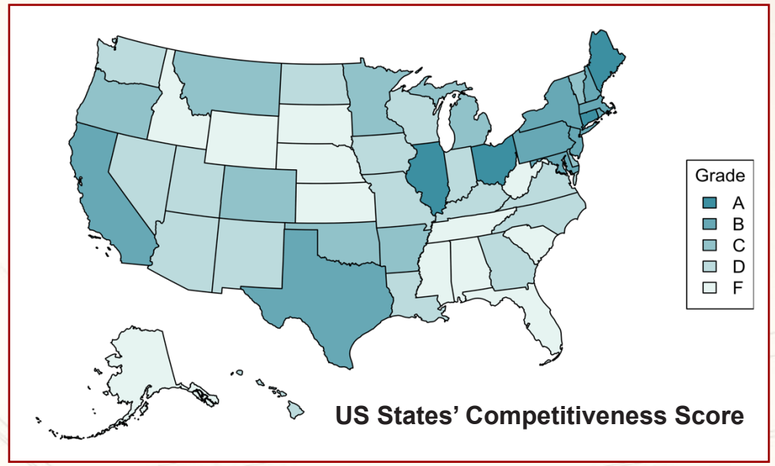


Figure 4: Map showing the relative competitiveness grades assigned by the framework developed for this analysis. The numerical scores were translated to letter grades using the following assignment: a numerical score of greater than or equal to 12 was assigned a letter grade of “A”, a score of 10 or 11 was assigned a “B”, a score from 7 to 9 was assigned a “C”, a score from 4 to 6 was assigned a “D”, and anything less than 4 was assigned an “F”.

The information found in Figure 4 has also been developed into an interactive map-based web tool that can be accessed here: https://utw10073.utweb.utexas.edu/energy-competiveness/
Criterion #8, which asked if the state had some kind of program to reimburse owners of distributed

6 Alpha scores were calculated as follows: >= 12 = “A”, 10-11 = “B”, 7-9 = “C”, 4-6 = “D”, and <= 3 = “F”.

energy resource (DER) system, had the highest number of states (45) that demonstrated competitive market behavior. The second highest criterion was Question 1, which asked if the state had competition at the wholesale market level: 33 states satisfied this criterion. Question 4 was the third most popular question to receive a non-zero score amongst the states with 32 states using third party evaluators for RFPs, or not generally needing RFPs.

Table 1 and Table 2 show how each state scored for each question as well as their total score, ranked alphabetically and from high to lowest score, respectfully.

For Question 10, 11 states scored a 3 with 75% or more of their power plant capacity owned by private companies, 4 states scored a 2 with 50-75%, and 15 scored a 1 with 25-50% of their power plant fleet capacity owned by private companies. In all, 31 states use Performance Incentive Mechanisms for utilities (Question 5). Question 6 (revenue decoupling) was satisfied by 30 states. Half of US states require all-source RFPs, or don't need RFPs at all (Question 3). Even though the majority of states (as referenced by Question 8) have DER compensation programs, Question 9 found that only 21 states do not have an aggregate capacity limitation that could be met and exclude more entrants.

Answering Question 2 found that only 20 states have some form of competition at the retail level, with 13 having competition across all end users and 7 states with only competition for commercial and/or industrial customers. The question with the lowest overall score was Question 7 which asked if the utilities were required to release energy use data to customers or third parties, with only 15 having such policies in place.

Receiving a positive score for some questions were more indicative than others that the state would receive a higher overall score. For instance, every state that scored a 2 on Question 2, with the exception of Delaware and California, meaning that they had retail choice for all customers, finished with at least an overall grade of "B", including every state that scored an "A" (average numerical

Table 1: Table showing the scores for each state in alphabetical order

STATE	SCORE	GRADE	STATE	SCORE	GRADE
AK	1	F	MT	8	C
AL	1	F	NC	4	D
AR	7	C	ND	4	D
AZ	5	D	NE	2	F
CA	11	B	NH	10	B
CO	8	C	NJ	10	B
CT	13	A	NM	5	D
DE	9	C	NV	5	D
FL	3	F	NY	11	B
GA	5	D	OH	12	A
HI	6	D	OK	9	C
IA	5	D	OR	7	C
ID	2	F	PA	11	B
IL	12	A	RI	11	B
IN	5	D	SC	3	F
KS	3	F	SD	3	F
KY	5	D	TN	1	F
LA	6	D	TX	11	B
MA	11	B	UT	4	D
MD	11	B	VA	4	D
ME	12	A	VT	8	C
MI	7	C	WA	6	D
MN	8	C	WI	5	D
MO	4	D	WV	3	F
MS	3	F	WY	3	F

Table 2: Table showing the scores for each state ranked from high to low

STATE	SCORE	GRADE	STATE	SCORE	GRADE
CT	13	A	AZ	5	D
IL	12	A	GA	5	D
ME	12	A	IA	5	D
OH	12	A	IN	5	D
CA	11	B	KY	5	D
MA	11	B	NM	5	D
MD	11	B	NV	5	D
NY	11	B	WI	5	D
PA	11	B	MO	4	D
RI	11	B	NC	4	D
TX	11	B	ND	4	D
NH	10	B	UT	4	D
NJ	10	B	VA	4	D
DE	9	C	FL	3	F
OK	9	C	KS	3	F
CO	8	C	MS	3	F
MN	8	C	SC	3	F
MT	8	C	SD	3	F
VT	8	C	WV	3	F
AR	7	C	WY	3	F
MI	7	C	ID	2	F
OR	7	C	NE	2	F
HI	6	D	AK	1	F
LA	6	D	AL	1	F
WA	6	D	TN	1	F

score of 11) indicating that states that have retail choice often are competitive in many other ways. All states, with the exception of Delaware, that scored a 3 on Question 10 received at least a “B” grade.

For states that received at least a 1 on Question 2, meaning some customers had retail choice, their average numerical score was 9.5 with most, 17 out of 20 states, receiving a “C” grade or better.

A positive score on Question 7 (data sharing) was also associated with a high overall score, with the average state with a positive response scoring a 9 (“B”) on average, with the notable exceptions of Washington, Wisconsin, and Utah, which while getting credit for Question 7, each scored a 5 (“D”) overall. On the other hand, for Ohio (score: 12, “A”), Question 7 was their only 0 score in the entire rubric. Scoring positively on Questions 3 (all-source RFPs) and 5 (PIMs) were also associated with generally higher overall scores.

Zero marks for Question 5 (PIMs) was strongly associated with a low overall total score for each state, with an average of only 3.2 which included every state that received a “D” or an “F”, except Pennsylvania. This result indicates that PIMs are likely one of the first steps in moving towards a more competitive system.

Direct scores versus realized outcomes

This analysis sought to assess the stated policies, laws, and regulations that would lead to more competitive outcomes. However, it is not always the case that such principles are followed. For instance, a state could score high in our metric, but could fail to live up to its full potential. For example, Ohio, which we found to be in a three-way tie for second place (with Maine and Illinois) with a score of 12, was recently caught up in a utility scandal where millions of dollars are alleged to have been sent to a non-profit organization in exchange for a favorable state financial bailout of a struggling electric generation company.

In interviewing multiple people and organizations that operate in various states and regions, it became clear that asking these types of direct questions, particularly about more heavily regulated states, would often be met with a sentiment such as: “Yes, that is what the rules say, but in actuality, the electric utilities or companies [in my area] get around them by…” These actions included restricting access to public meetings, redacting confidential data for which they do not have competitors for and is widely available in other regions, and over prescribing RFPs to the point where only a single company qualifies to respond. These actions serve to restrict competition and likely do not result in the best or most efficient solution. While these actions can serve to reduce competition, we were not able to quantify them here.

CONCLUSIONS

This analysis developed a framework to assess the state of competition for each US state’s electricity system. We developed 10 question-based criteria that provided a scoring rubric upon which to compare each state to the others as well as offer suggestions for how each state could increase its competitiveness and thus attain a higher score. We also developed individual state-level dossiers for each state to explain and provide additional context to their score. Our analysis found a distribution of scores roughly skewed towards the lower end.
We found that states that are part of deregulated wholesale electricity markets and have retail choice for customers tended to score the highest while (fully regulated) states that did not have Performance Incentive Mechanisms for utilities or any sort of compensation programs for distributed generation owners also did not tend to fare well in any other competition metric, and tended to score lower overall.

BIBLIOGRAPHY

[1]	P. AGHION, N. BLOOM, R. BLUNDELL, R. GRIFFITH and P. HOWITT, “COMPETITION AND INNOVATION: AN INVERTED-U RELATIONSHIP,” *Quarterly Journal of Economics,* pp. 701-728, 2005.
[2]	D. Tuttle, G. Gülen, R. Hebner, C. King, D. Spence, J. Andrade, J. Wible, R. Baldick and R. Duncan, “The History and Evolution of the U.S. Electricity Industry,” The University of Texas Energy Institute, Austin, TX, 2014.
[3]	US EPA, “U.S. Electricity Grid & Markets,” [Online]. Available: https://www.epa.gov/greenpower/us-electricity-grid-markets.. [Accessed 23 06 2021].
[4]	J. Pfeifenberger, J. Chang and A. Sheilendranath, “Transmission Solutions: Potential Cost Savings Offered by Competitive Planning Processes,” The Brattle Group.
[5]	American Council for an Energy-Efficient Economy, “Utility Business Model,” [Online]. Available: https://database.aceee.org/state/utility-business-model. [Accessed 23 06 2021].

STATE-LEVEL COMPETITION DOSSIERS

Short dossiers for each US state that assess its level of competition as well as explain its competitiveness score are availabe at www.competitionscorecard.org.

APPENDIX 1:

Table 3:

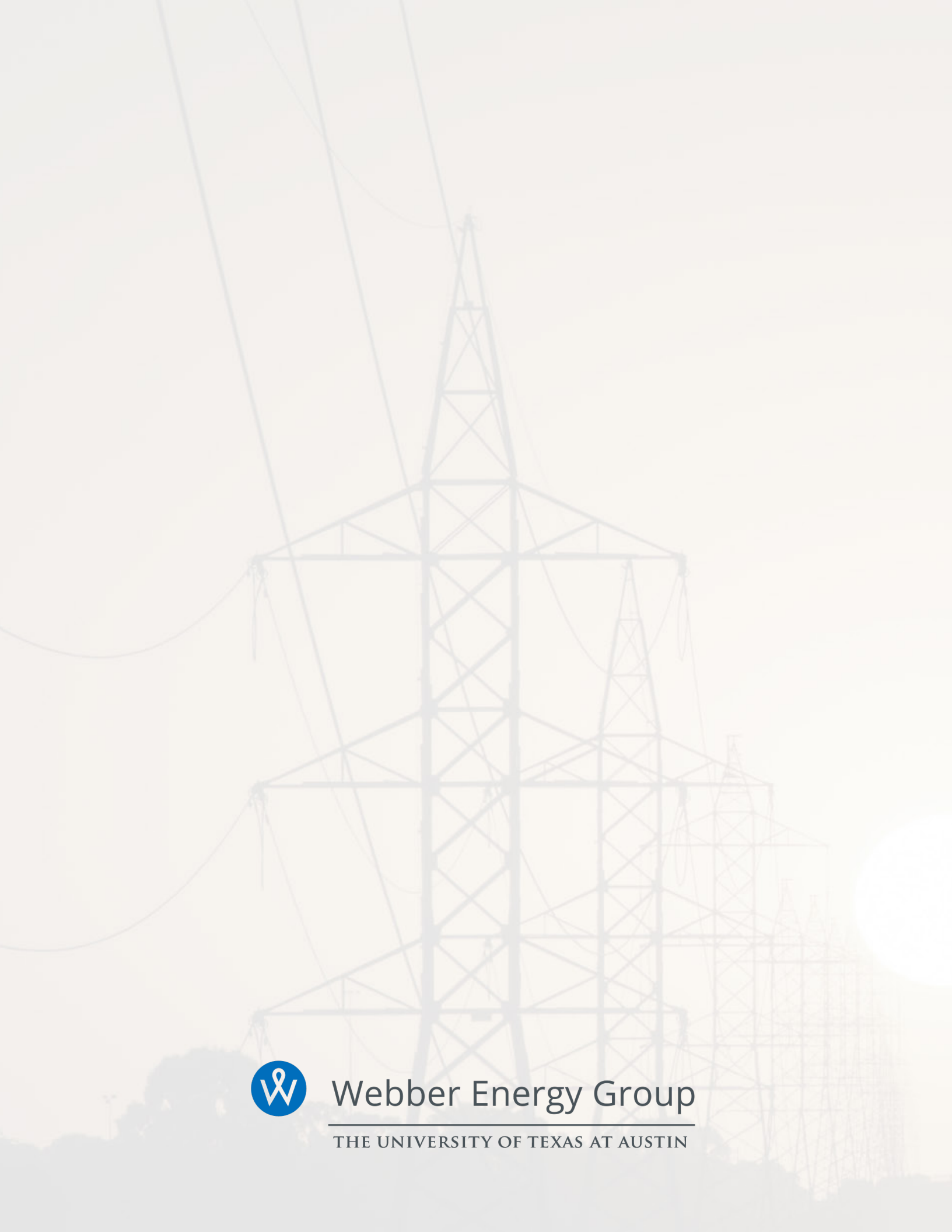
Table showing the scores for each state for each question and the total score in alphabetical order.

State	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	SCORE	GRADE
AK	0	0	0	0	0	0	0	1	0	0	1	**F**
AL	0	0	0	0	0	0	0	0	0	1	1	**F**
AR	1	0	1	1	1	1	0	1	1	0	7	**C**
AZ	0	0	1	1	1	1	0	1	0	0	5	**D**
CA	1	1	1	1	1	1	1	1	1	2	11	**B**
CO	0	0	1	1	1	1	1	1	1	1	8	**C**
CT	1	2	1	1	1	1	1	1	1	3	13	**A**
DE	1	2	1	0	1	0	0	1	0	3	9	**C**
FL	0	0	0	0	0	1	0	1	1	0	3	**F**
GA	0	1	0	0	1	1	0	1	0	1	5	**D**
HI	0	0	1	1	1	1	0	1	0	1	6	**D**
IA	1	0	1	0	1	0	0	1	1	0	5	**D**
ID	0	0	0	1	0	0	0	0	0	1	2	**F**
IL	1	2	1	1	1	1	1	1	0	3	12	**A**
IN	1	0	1	0	1	1	0	1	0	0	5	**D**
KS	1	0	0	0	0	0	0	1	0	1	3	**F**
KY	1	0	0	1	1	1	0	1	0	0	5	**D**
LA	1	0	1	1	1	0	0	1	0	1	6	**D**
MA	1	2	1	1	1	1	0	1	0	3	11	**B**
MD	1	2	1	1	1	0	1	1	0	3	11	**B**
ME	1	2	1	1	1	0	1	1	1	3	12	**A**
MI	1	1	1	1	1	1	0	1	0	0	7	**C**
MN	1	0	0	1	1	1	1	1	1	1	8	**C**
MO	1	0	0	1	0	1	0	1	0	0	4	**D**
MS	1	0	0	1	0	0	0	1	0	0	3	**F**
MT	1	1	1	0	1	0	0	1	1	2	8	**C**
NC	0	0	0	1	0	1	0	1	1	0	4	**D**
ND	1	0	0	0	0	0	0	1	1	1	4	**D**
NE	1	0	0	0	0	0	0	1	0	0	2	**F**
NH	1	2	1	1	1	1	0	1	0	2	10	**B**
NJ	1	2	1	0	1	0	0	1	1	3	10	**B**
NM	0	0	0	1	0	1	0	1	1	1	5	**D**
NV	0	1	0	1	0	1	0	1	0	1	5	**D**
NY	1	2	1	1	1	1	0	1	1	2	11	**B**
OH	1	2	1	1	1	1	0	1	1	3	12	**A**
OK	1	0	1	1	1	1	1	1	1	1	9	**C**
OR	0	1	1	1	1	0	1	1	0	1	7	**C**
PA	1	2	1	1	0	0	1	1	1	3	11	**B**
RI	1	2	1	1	1	1	0	1	0	3	11	**B**
SC	0	0	0	1	0	1	0	1	0	0	3	**F**
SD	1	0	0	1	0	1	0	0	0	0	3	**F**
TN	0	0	0	0	0	1	0	0	0	0	1	**F**
TX	1	2	1	0	1	1	1	0	1	3	11	**B**
UT	0	0	1	0	1	0	1	1	0	0	4	**D**
VA	1	1	0	0	1	0	0	1	0	0	4	**D**
VT	1	0	0	1	1	1	1	1	1	1	8	**C**
WA	0	0	1	1	1	1	1	1	0	0	6	**D**
WI	1	0	0	0	0	1	1	1	1	0	5	**D**
WV	1	0	0	0	0	0	0	1	0	1	3	**F**
WY	0	0	0	1	0	0	0	1	1	0	3	**F**

Table 4:

Table showing the scores for each state for each question and the total score ranked from high to low.

State	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	SCORE	GRADE
CT	1	2	1	1	1	1	1	1	1	3	13	**A**
IL	1	2	1	1	1	1	1	1	0	3	12	**A**
ME	1	2	1	1	1	0	1	1	1	3	12	**A**
OH	1	2	1	1	1	1	0	1	1	3	12	**A**
CA	1	1	1	1	1	1	1	1	1	2	11	**B**
MA	1	2	1	1	1	1	0	1	0	3	11	**B**
MD	1	2	1	1	1	0	1	1	0	3	11	**B**
NY	1	2	1	1	1	1	0	1	1	2	11	**B**
PA	1	2	1	1	0	0	1	1	1	3	11	**B**
RI	1	2	1	1	1	1	0	1	0	3	11	**B**
TX	1	2	1	0	1	1	1	0	1	3	11	**B**
NH	1	2	1	1	1	1	0	1	0	2	10	**B**
NJ	1	2	1	0	1	0	0	1	1	3	10	**B**
DE	1	2	1	0	1	0	0	1	0	3	9	**C**
OK	1	0	1	1	1	1	1	1	1	1	9	**C**
CO	0	0	1	1	1	1	1	1	1	1	8	**C**
MN	1	0	0	1	1	1	1	1	1	1	8	**C**
MT	1	1	1	0	1	0	0	1	1	2	8	**C**
VT	1	0	0	1	1	1	1	1	1	1	8	**C**
AR	1	0	1	1	1	1	0	1	1	0	7	**C**
MI	1	1	1	1	1	1	0	1	0	0	7	**C**
OR	0	1	1	1	1	0	1	1	0	1	7	**C**
HI	0	0	1	1	1	1	0	1	0	1	6	**D**
LA	1	0	1	1	1	0	0	1	0	1	6	**D**
WA	0	0	1	1	1	1	1	1	0	0	6	**D**
AZ	0	0	1	1	1	1	0	1	0	0	5	**D**
GA	0	1	0	0	1	1	0	1	0	1	5	**D**
IA	1	0	1	0	1	0	0	1	1	0	5	**D**
IN	1	0	1	0	1	1	0	1	0	0	5	**D**
KY	1	0	0	1	1	1	0	1	0	0	5	**D**
NM	0	0	0	1	0	1	0	1	1	1	5	**D**
NV	0	1	0	1	0	1	0	1	0	1	5	**D**
WI	1	0	0	0	0	1	1	1	1	0	5	**D**
MO	1	0	0	1	0	1	0	1	0	0	4	**D**
NC	0	0	0	1	0	1	0	1	1	0	4	**D**
ND	1	0	0	0	0	0	0	1	1	1	4	**D**
UT	0	0	1	0	1	0	1	1	0	0	4	**D**
VA	1	1	0	0	1	0	0	1	0	0	4	**D**
FL	0	0	0	0	0	1	0	1	1	0	3	**F**
KS	1	0	0	0	0	0	0	1	0	1	3	**F**
MS	1	0	0	1	0	0	0	1	0	0	3	**F**
SC	0	0	0	1	0	1	0	1	0	0	3	**F**
SD	1	0	0	1	0	1	0	0	0	0	3	**F**
WV	1	0	0	0	0	0	0	1	0	1	3	**F**
WY	0	0	0	1	0	0	0	1	1	0	3	**F**
ID	0	0	0	1	0	0	0	0	0	1	2	**F**
NE	1	0	0	0	0	0	0	1	0	0	2	**F**
AK	0	0	0	0	0	0	0	1	0	0	1	**F**
AL	0	0	0	0	0	0	0	0	0	1	1	**F**
TN	0	0	0	0	0	1	0	0	0	0	1	**F**



Webber Energy Group

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