BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN

Joint Application of Wisconsin Electric Power Company and Wisconsin Gas LLC, for Authority to Adjust Electric, Natural Gas, and Steam Rates — Docket No. 5-UR-109

DIRECT TESTIMONY OF SCOTT HEMPLING

I. Summary and Qualifications

Q. State your name, position, and business address, and the party on whose behalf you are testifying.

A. Scott Hempling, President of Scott Hempling, Attorney at Law LLC, 417 St. Lawrence Drive, Silver Spring Maryland 20901. I am testifying on behalf of Sierra Club.

Q. State your testimony's purpose and organization.

A. In Dockets 5-UR-109 and 6690-UR-126, Wisconsin Electric Power Company (WEPCo) and Wisconsin Public Service Corporation (WPS), respectively, are proposing to recover, among other costs, test-year expenses arising from operating electric generating units. Sierra Club witness Paul Chernick presents and analyzes data demonstrating that for certain of those units, their economic performance justifies retirement. Mr. Chernick's analysis raises this question: Should the Commission disallow these units' operating expenditures from the companies' proposed revenue requirements? I present a policy framework, built on the prudence standard, for the Commission to apply in answering that question.

Following my qualifications, this testimony has two remaining parts. Part II explains the prudence standard and its application here. It makes six points:

A. The just-and-reasonable standard requires prudence—operating at lowest feasible cost.

B. The just-and-reasonable standard requires that test-year costs be consistent with long-term prudence.

C. The prudence obligation is a continuing obligation.

D. A utility has the burden of proving its prudence.

E. In the generation retirement context, prudence requires minimizing prospective operating costs.

F. The necessary consequence of both imprudence and failure to prove prudence is disallowance.

Part III cautions opponents of my recommendations not to mischaracterize them. It makes two points:

A. This testimony addresses the future, not the past.

B. This testimony recommends policy decisions; it does not interpret statutes.

Q. Describe your employment background, education, and experience.

A. I began my legal career in 1984 at a private law firm, where I represented municipal power systems and others on transmission access, holding company structures, nuclear power plant construction prudence, and producer-pipeline gas contracts, among other matters. From 1987 to 1990, I was an attorney at a public interest organization, working on electric utility issues. From 1990 to 2006, I had my own law practice, advising public and private sector clients—primarily state regulatory commissions, and also municipal systems, independent power producers, consumer advocates, public interest organizations, and utilities—with an emphasis on electric utility regulation.

From October 2006 through August 2011, I was Executive Director of the National Regulatory Research Institute (NRRI). Founded by the National Association of Regulatory Utility Commissioners (NARUC), NRRI is a Section 501(c)(3) organization,

funded primarily by state utility regulatory commissions to provide research to regulatory decision-makers. As Executive Director, I was responsible for working with commissioners and commission staff at all 51 state-level regulatory agencies to develop and carry out research priorities in electricity, gas, telecommunications, and water. In addition to overseeing the planning and publication of over 80 research papers by NRRI's staff experts and outside consultants, I published my own research papers, advised contract clients (including state commissions, regional transmission organizations, private industry, and international institutions), and wrote monthly essays on effective regulation.

In September 2011, I returned to private practice. I have focused on writing books and research papers, providing expert testimony, advising regulatory agencies and others, and teaching courses and seminars on the law and policy of utility regulation. Beginning in 2011 and continuing through the present, I teach public utility law (and for three years, taught regulatory litigation) as an adjunct professor at Georgetown University Law Center.

My book on public utility law, *Regulating Public Utility Performance: The Law of Market Structure, Pricing and Jurisdiction*, was published by the American Bar Association in 2013. My book of essays, *Preside or Lead? The Attributes and Actions of Effective Regulators*, was published by NRRI in 2010. I published a second, expanded edition in 2013. I am now completing a book on mergers and acquisitions in the U.S. electric utility industry. I have written several dozen articles on utility regulation for publication in law journals, trade journals, and books.

I have taught utility law seminars to attendees from all fifty states and all industry sectors. Most recently, from January to April 2019, I taught a 12-week, 18-hour webinar

on the law of utility regulation to 120 students from all industry sectors—the plurality from state commissions. Internationally, I have taught seminars or presented at industry conferences in Australia, Canada, England, Germany, India, Italy, Jamaica, Mexico, New Zealand, Nigeria, Norway, Peru, and Vanuatu. As a subcontractor to the U.S. Department of State, I have advised the six nations of Central America on the regulatory infrastructure necessary to accommodate and encourage cross-national electricity transactions.

I received a B.A. *cum laude* from Yale University in 1978, where I majored in Economics and Political Science, and in Music. I received a J.D. *magna cum laude* from Georgetown University Law Center in 1984. I am a member of the Bars of the District of Columbia and Maryland.

My resume is attached to this testimony as Exhibit SH-1. More information is available at www.scotthemplinglaw.com.

Q. Before what fora have you presented testimony?

A. I have presented testimony before the state commissions of California, Connecticut, District of Columbia, Hawaii, Illinois, Indiana, Kansas, Louisiana, Maryland, Minnesota, Mississippi, New Jersey, North Carolina, Oklahoma, Texas, Vermont, and Wisconsin. I have also submitted testimony to federal district courts in Florida, Minnesota, Montana, and Wisconsin. These proceedings are listed on my resume.

II. Prudence Principles

A. The just-and-reasonable standard requires prudence—operating at lowest feasible cost

Q. What is the prudence standard?

A. A utility's rates must be just and reasonable.[1] The costs underlying those rates will satisfy that requirement only if the utility "operate[s] with all reasonable economies";[2] incurs the "lowest feasible cost";[3] and uses "all available cost savings opportunities."[4]

To evaluate a utility's costs, regulators use prudence analysis. Prudence analysis tests whether a utility has behaved reasonably, based on industry norms, using all professional tools objectively and competently.[5] Prudence requires "[c]arefulness, precaution, attentiveness, and good judgment. . . ."[6] It requires "sagacity or shrewdness in management of affairs"; "skill or good judgment in the use of resources";[7] and "a thorough, complete, and accurate evaluation of alternatives."[8] Prudence analysis asks

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[1] Wis. Stat. § 196.137 (1).

[2] *El Paso Natural Gas Co. v. FPC*, 281 F.2d 567, 573 (5th Cir. 1960).

[3] *Potomac Elec. Power Co. v. Pub. Serv. Comm'n of the D.C.*, 661 A.2d 131, 137 (D.C. 1995). *See also State of Oklahoma v. Oklahoma Gas & Electric*, 1975 OK 40, 536 P.2d 887, 891 (1975) (requiring Commission to set "lowest reasonable rates consistent with the interests of the public and the utilities").

[4] *Midwestern Gas Transmission Co. v. E. Tenn. Natural Gas Co.*, 36 FPC 61, 70 (1966), aff'd sub nom. *Midwestern Gas Transmission Co. v. FPC*, 388 F.2d 444 (7th Cir. 1968). The Federal Power Commission later rescinded its decision on unrelated grounds. *Knoxville Utils. Bd. v. E. Tenn. Natural Gas Co.*, 40 FPC 172 (1968).

[5] *See, e.g.*, Appeal of *Conservation Law Found., Inc.* 507 A.2d 652, 673 (N.H. 1986) (describing the prudence standard as "essentially apply[ing] an analogue of the common law negligence standard").

[6] *Wisconsin Public Service Corp. v. Public Service Comm.*, 156 Wis. 2d 611, 617-18 (1990) (quoting Black's Law Dictionary).

[7] *Business & Professional People for the Pub. Interest v. Commerce Comm.*, 665 N.E.2d 553, 556, 558 (1996).

[8] *In the Matter of Wisconsin Electric Power Company's Request for Declaratory Ruling Approving a Proposed Plan to Increase Generation in Wisconsin. Application of Wisconsin Energy Corporation for Approval to Acquire the Stock of WICOR*, 2001 Wisc. PUC LEXIS 69 (Oct. 17, 2001).

"whether the process leading to the decision was a logical one . . . ."[9] A commission's judgment about whether a utility acted reasonably, and about whether its decision-making process was appropriate, must take into account the consequences of error.[10] When the stake is hundreds of millions of dollars—someone else's dollars—the required level of care is high.

Finally, in prudence analysis hindsight is irrelevant, since a reasonable utility can act only on facts known or reasonably knowable at the time of its decision.[11]

Q. How does the prudence standard help achieve the purposes of regulation?

A. Within its assigned territory, each Wisconsin utility has a legal monopoly over retail electric service. Absent regulatory standards—along with consequences for not meeting those standards—a company protected from competition lacks incentive to perform as if subject to competition:

> Managements of unregulated business subject to the free interplay of competitive forces have no alternative to efficiency. If they are to remain competitive, they must constantly be on the lookout for cost economies

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[9] *Gulf States Utilities Co. v. Louisiana Pub. Serv. Comm.*, 578 So.2d 71, 85 (La. 1991). See also *Cambridge Elec. Light Co.*, D.P.U. 87-2A-1, 86 P.U.R.4th 574 (*Mass. Dep't of Pub. Utils.* Sept. 3, 1987) (asking whether the utility used "a reasonable decision making process to arrive at a course of action and, given the facts as they were or should have been known at the time, responded in a reasonable manner").

[10] *Baltimore Gas & Elec. Co.*, Case No. 8520/8520A, 1989 Md. PSC LEXIS 85, at *6-7, *24 (Md. Pub. Serv. Comm. 1989) (stressing the "high standard of care" required for maintenance practices and procedures at baseload plants, given the "high cost consequences of outages").

[11] *Waukesha Gas & Electric Co. v. Railroad Com*, 181 Wis. 281 (1923) (holding that "the question of whether or not the investment was prudent must be determined as of the time when it was made"). *See also Boston Edison Co.*, D.P.U. 906, 46 P.U.R.4th 431 (Mass. Dep't of Pub. Utils. Apr. 30, 1982) (prudence analysis must consider "all conditions and circumstances which were known or which reasonably should have been known at the time the decisions were made"), *aff'd sub nom. Att'y Gen. v. Mass. Dep't of Pub. Utils.*, 455 N.E.2d 414 (Mass. 1983).

> and cost savings. . . . Public utility management, on the other hand, does not have quite the same incentive.[12]

Regulation therefore must replicate the pressures of competition. "[T]he state through its commission takes the place of competition and furnishes the regulation which competition cannot give."[13] For "[i]f a competitive enterprise tried to impose on its customers costs from imprudent actions, the customers could take their business to a more efficient provider. A utility's ratepayers have no such choice."[14]

To produce pressures comparable to competition, regulation must assign consequences commensurate with performance. It must reward competitive-level performance with competitive-level profit, and penalize suboptimal performance by disallowing excess costs. If a competitive company acts imprudently (or imprudently fails to act), it incurs costs its competitors don't incur; or, it fails to achieve savings its competitors achieve. The equilibrium market price will reflect the lower costs of the prudent competitors. Because the imprudent seller cannot charge more than the market price without losing customers, that seller cannot recover its excess costs. Knowing of this inevitable consequence, companies in competitive markets strive toward prudence. They "have no alternative to efficiency."[15]

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[12] Midwestern Gas, *supra* at 70.

[13] *Delmarva Power & Light Co. v. Public Service Comm'n of Maryland*, 370 Md. 1, 6 (Md. 2002) (quoting Oscar L. Pond, *A Treatise on the Law of Public Utilities* 29-31 § 901 (3d ed.1925)). *See also* Alfred Kahn, *The Economics of Regulation: Principles and Institutions* (1971, 1988), Vol. 2 at 112 (stressing the "importance of making regulation more intelligent and more effective in those circumstances in which competition is simply infeasible").

[14] *Long Island Lighting Co.*, Case No. 27563, 71 P.U.R.4th 262, 1985 N.Y. PUC LEXIS 40 (N.Y. Pub. Serv. Comm'n Nov. 16, 1985).

[15] *Midwestern Gas Transmission Co.*, 36 FPC at 70.

Prudence review is regulation's substitute for competition's consequences. "A utility's motivation to act prudently arises from the prospect that imprudent costs may be disallowed."[16] When competition or regulation operates effectively, the shareholder and customer interests align. Customer satisfaction gets the company a strong market position and healthy earnings; shareholder satisfaction gets the customers ample investment in the services they want at the quality they want. Under both effective competition and effective regulation, good performance yields good returns; suboptimal performance yields suboptimal returns. Under both competition and regulation, the purpose is performance.

Regulation cannot produce results equivalent to competition, of course. Regulated utilities have an obligation to serve all paying customers. That obligation to serve includes an obligation to plan to serve, and to be ready to serve, all customers in all foreseeable circumstances; and to carry out whatever additional obligations the commission or legislature imposes lawfully. Companies in competitive markets, in contrast, have only the obligations they accept contractually (along with any imposed by statute or rule). Because these differences in obligation produce differences in cost, we cannot expect regulation always to produce results equivalent to competition. But effective regulation should create pressures comparable to competition, so that the utility achieves, and its customers experience, performance as comparable to competition as possible.

B. The just-and-reasonable standard requires that test-year costs be consistent with long-term prudence

[16] *Gulf States Utilities Co.*, 578 So.2d at 85.

Q. In the context of generation operating expenses, what questions should prudence analysis consider?

A. In the context of assessing the reasonableness of generation expenses, the prudence standard requires attention to as least the following questions:

1. Has the utility rigorously identified all plausible solutions, and assessed those solutions with comparable levels of effort, expertise, sophistication, and institutional support? When the data says a unit operates uneconomically, prudence requires rigorous analysis. A prudent utility identifies all plausible options, then uses comparable levels of effort, expertise, sophistication, and institutional support to explore those options—at multiple points in time as facts change.[17]

2. Has the utility rigorously accounted for the probabilities associated with plausible future scenarios that affect the costs and revenues of the various alternatives? A major power supply solution can lock in costs and lock out alternatives for decades. When choosing among alternatives, the utility must address multiple uncertainties—including but not limited to customer loads and consumption, future fuel costs for the selected and rejected options, regional market prices, future environmental rules and the costs of complying with them, and interest rates. Prudence analysis addresses whether the company identified each future cost, and then reasonably quantified its effects on alternative outcomes.

3. Has the utility used a process that involved revisiting and testing factual assumptions when changes in facts cross a threshold of significance? Prudence requires

[17] See, e.g., *Empire District Elec. Co.*, Cause No. PUD 201200170, Order No. 605738, 2012 WL 7170483 (Okla. Corp. Comm. Dec. 20, 2012) (holding that "to meet its burden of proof, Empire must demonstrate that all of its decisions and investments regarding generation, purchased power, and fuel procurement during the review period were reasonable").

making the right choice, based on facts knowable at the time of the choice. But it is not prudent to treat a choice as fixed when that choice's reasonableness depends on facts that are not fixed. If facts central to the decision can change, a prudent decision-maker remains alert to change—by monitoring the facts, then reassessing the original decision when those facts change.

4. Did the utility analyze costs over an appropriate time horizon? A utility must perform prudently over both the short term and the long term. Customers are not overnight guests; generating units are not short-term costs. Customers pay monthly, but a generating unit's 40-year life has many months. A utility must minimize cost over the long term.

Q. Is it necessary, then, for a rate case to consider long-term costs?

A. Yes, it is necessary for a rate case to consider long-term costs. For any cost associated with a long-term cost trajectory, an approval of that cost is an implicit approval of that long-term cost trajectory. If we don't review long-term prudence in a rate case, when else would we? Applying the prudence standard in the context of a generating unit's possible retirement requires us to address this question: How does the prospective cost of that unit's capacity and energy compare to the prospective cost of alternative ways to supply that capacity and energy? Decisions about what costs customers bear are made in a rate case. The place to decide whether customers should pay for the costs of a non-retired plant are made in a rate case.

One might argue that the place to challenge a utility's non-retirement decision is in a certificate of authority proceeding; specifically, a proceeding to withdraw a certificate. That option may be available as well—except that it addresses only the

operational decision; it does not address the ratemaking decision. The place to set rates—and to determine whether costs associated with a non-retirement decision go into rates—is in a rate case.[18]

Which rate case? It has to be a rate case in which the utility is proposing to recover prospective costs associated with the long-term plan; it can't be some rate case that occurs after the utility executes that long-term plan. Long-term imprudence is imprudence over the long term. Imprudence over the long term is the sum of each year's excess of the chosen resource's annual costs over some more cost-effective resource's annual costs. We can estimate that sum in advance, or we can add it up after the fact. If we wait until after the fact, it is too late to fix the problem because the prohibition against retroactive ratemaking prevents a commission from requiring the utility to refund costs previously placed in rates (except where the utility was put on notice that the rates were subject to refund). So if we don't calculate that sum in advance, and act in advance, customers bear the costs of implicit annual approvals that are divorced from their long-term effects. That approach turns ratemaking into passive approval of annual budgets rather than active insistence on cost-effective performance.

Q. In a rate case, is the scope of prudence analysis confined to test-year costs?

[18] *See, e.g.*, these two rate cases: *MidAmerican Energy Company*, Doc. No. RPU-2018-0003, slip op. at 34 (Iowa Utilities Board Dec. 4, 2018) ("This is not to say the Board may never evaluate whether generation facilities are uneconomic; should a rate-regulated utility continue to utilize an uneconomic facility, the Board may disapprove the costs incurred as imprudent or unreasonable during a rate case."), available at https://efs.iowa.gov/cs/groups/external/documents/docket/mdax/odmy/~edisp/1832097.pdf; and *DTE Electric Company* for Authority to Increase Its Rates, Cause No. U-18255, slip op. at 7-8 (Mich. Pub. Serv. Comm. April 28, 2018) (disallowing proposed capital expenditures for a unit because the utility failed, for the second time, to update the unit's long-term net present value revenue requirement: "Reasonable and prudent capital expenditures are recoverable, but not when the Commission is deprived of evidence upon which to base the determination that they are reasonable and prudent.").

A. No, in a rate case we cannot sever the scope of prudence analysis from the long-term trajectory of test-year costs.

The customer-utility relationship is a long-term relationship. People don't buy electricity like they buy season's tickets for the Brewers, one year at a time. Whether residential, commercial, or industrial, a customer moves into a utility's territory expecting to buy from the utility for the long term. That is what being a captive customer means—being captive for the long term. Conversely: A utility views each customer not as a one-year visitor, but as a customer whose long-term needs require long-term attention. The obligation to serve is not an obligation to serve for a year; it is an obligation to serve, and to plan to serve, for as long as each customer stays in the service territory.

Rate cases do use test years. But they use test years not because electric service is a one-year product; they use test years because a commission needs some fixed period of time, traditionally a 12-month period, for which it collects relevant cost data. From that data, a commission sets rates that give the utility a reasonable opportunity to earn, over a year, a fair return on prudent, used-and-useful investment. The test year period is a one-year period not because customers have a one-year relationship with the utility, but because a one-year period is, by convention, the period regulatory practitioners, accountants, financial analysts, and budget planners use to keep track of costs and plan spending.

In short, the time period commissions use as the test year does not determine the time prudence analysis uses to assess a utility's cost-effectiveness. If commissions cared only about test-year costs, they would never allow a generating unit into rate base, because the first-year's increase in rates (reflecting a return on the entire undepreciated

investment) would likely always exceed the cost of substituting a one-year power purchase. Instead, commissions allow the cost in the first year's rates based on the reasonableness of the unit's total projected lifetime cost. The same long-term consideration should apply when testing the reasonableness of an existing unit's annual operating expense.

This reasoning reveals the logical error in the utilities' resistance—their resistance to assessing a unit's multi-economics in a rate case. They appear to argue that a commission can't find a single-year operating expense imprudent even if the expense arises from a unit whose multi-year operation is imprudent. By limiting the Commission's cost perspective to a single year, the argument separates the test-year cost from its operational purpose. The purpose of a unit's test-year operating expense is not to produce a one-year electricity product; the purpose is to keep the unit running over its expected life. So in evaluating an expenditure's reasonableness, a commission must evaluate the associated operational decision's reasonableness. Operational decisions—including decisions whether to retire or not retire a unit—are long-term decisions.

Q. Respond to the assertion that assessing the prudence of a unit's operating expenditure converts a rate case into an integrated planning docket.

A. The utilities try to equate (a) a cost-only comparison of certain generating units to their alternatives with (b) an integrated resource plan docket, "in which an electric utility's entire generation fleet is assessed against its future needs."[19]

The comparison fails. For each distinct unit, Mr. Chernick compares its costs to the costs of plausible alternatives to that unit. He does not examine the full mix of the

[19] Joint Applicants' Opposition to Sierra Club's Motion, Docket No. 5-UR-109 (filed July 10, 2019).

utilities' resources. He does not look at the many alternative configurations that could substitute for that full mix of resources. He does a unit-specific test for prudence. That Mr. Chernick's analysis could be one small segment of a full integrated resource plan process does not make it an integrated resource plan.

Suppose the Milwaukee Brewers team has overpaid, under-performing relief pitchers. The General Manager will consider replacing them with better performers costing less. He can do that without studying how to reconstruct the entire team for the next 20 years. Similarly, a family on a budget, shopping for dinner at the supermarket, can consider substituting sausages for steak without planning the entire family's nutritional needs for the next decade. Assessing the economic role of less than half a system's installed capacity is not integrated resource planning.

If the Commission had an integrated resource docket, certainly it would consider these units' future, along with all other resources. But that obvious fact—that the units play a role in the utilities' full asset mix—does not convert a consideration of their cost into an integrated resource plan analysis. Nor does it convert a judgment about the reasonableness of their operating costs into a decision about a utility's total resource mix. Calling a unit-specific analysis integrated resource planning is hyperbole—exaggerated, inaccurate, and wrong.

Q. What about the argument that, because in a rate case the Commission cannot order a unit's retirement, an intervenor cannot propose a cost disallowance that could cause that unit's retirement?

A. That argument distills to this syllogism:

1. The proposed disallowance would result in the unit's retirement.
2. A rate decision does not decide generation retirements.
3. Therefore, a rate decision cannot make the proposed disallowance.

The illogic should be obvious, but let's use a hypothetical first. Suppose a rate increase request includes the cost of 10 world-famous chefs to staff the C Suite's lunchroom. A disallowance will likely cause the company to drop the idea, because the executives will not want shareholders paying that self-serving expense. The Commission has no authority to tell the company whom it can hire or how well its executives eat; it can only set rates. But when it sets rates, it will disallow that cost, because it is imprudent. That disallowing the cost will make the lunchroom caper history does not change the commission's obligation to disallow the imprudent costs.

The syllogism's error is this: It confuses the scope of the Commission's jurisdiction with the effects of exercising that jurisdiction. The Commission does not run the utility; the utility's executives run the utility. But the entire point of ratemaking is to compensate the utility for providing service. In cost-based ratemaking, the compensation is based on cost. In determining what costs to include in the revenue requirement, commissions do guide spending: They determine what types of costs are worth the ratepayers' money and what types are not. Absent a specific directive from the Legislature or the commission, the utility can spend its revenues as it wishes, but in determining what revenues to allow, the Commission makes judgments about costs. Those judgments influence utility decisions. That is the reality of ratemaking. To say that a commission cannot include or exclude costs because doing so will influence the utility's actions is to ignore the entire purpose of cost-based ratemaking.

C. The prudence obligation is a continuing obligation

Q. Is a utility's responsibility to perform prudently a continuing responsibility?

A. Yes. As this Commission has held: "A decision which is initially prudent may become imprudent if a utility ignores new circumstances which it knew or should have known of and which should have led to a reevaluation of options."[20] A utility has a continuing responsibility to respond to "changing circumstances or new challenges that arise as a project progresses."[21] This regulatory principle emulates competition. As the then Iowa State Commerce Commission declared, when insisting that Iowa's utilities "maintain surveillance over costs associated with a particular decision": "In the real world of competitive enterprise, management officials must continuously rethink prior decisions as new events unfold. Those who fail to stay on top of current events lose out to their competition."[22] And in assessing the Kansas utilities' decision-making around the Wolf Creek Nuclear Plant, the Kansas Commission found that "each of the owners' Wolf Creek economic cost-benefit planning exercises were too infrequent and deficient in design and execution."[23] The Commission added: "Certainly by the end of 1981, applicants should

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[20] *Application of Wisconsin Public Service Corporation for Authority to Increase Its Electric and Natural Gas Rates*, 1987 Wisc. PUC LEXIS 50, 86 P.U.R.4th 357 (1987) (finding imprudent WPS's failure to protest its property tax payments, and referencing a previous decision where it "found a utility imprudent for failing to reevaluate its position in light of new information and for failing to make a cost comparison of the options available to it"); citing Docket No. 6630-ER-14, upheld in *Wisconsin Electric Power Company v. Public Service Commission*, et al., No. 82-1249 (Wis. App., August 4, 1983).

[21] *Gulf States Utilities Co.*, 578 So. 2d at 85 (citing *Long Island Lighting Co.*, Case No. 27563, 71 P.U.R.4th 262 (N.Y. Pub. Serv. Comm'n Nov. 16, 1985); and *Central Vermont Public Service Corp.*, Docket No. 5132, 83 P.U.R.4th 532 (Vt. Pub. Serv. Bd. May 15, 1987)).

[22] *Iowa Power & Light Co.*, Nos. RPU-78-27, RPU-78-30, RPU-80-36, slip op. at 6-7 (Iowa State Commerce Comm'n Feb. 19, 1982); quoted in *Iowa Pub. Serv. Co.*, 46 P.U.R.4th 339, 368, 1982 WL 993176 (Iowa State Commerce Comm'n 1982).

[23] Re *Wolf Creek Nuclear Generating Facility*, 1985 WL 1205505, 70 P.U.R.4th 475, 526 (Kansas Corp. Comm. Sept. 27, 1985).

have been acutely aware that the capital costs of Wolf Creek were becoming unreasonably high and that the overall economic benefits were subject to serious question."[24] The Commission blamed, in part, the utilities' "institutional inertia."[25]

Q. Does a commission's prior approval of a project relieve the utility of responsibility for assessing the reasonableness of continuing that project?

A. No, a regulator's prior approval of a project does not relieve the utility of its obligation to reassess that project. Managing utility service is the utility's job. The purpose of managing a utility is to fulfil its obligation to serve, cost-effectively. Over how to serve, management has discretion. But with management discretion comes management responsibility—the responsibility to ensure that a prior-approved project remains a cost-effective project.

The irrelevance of a prior commission approval to the utility's prospective responsibility rests on a simple fact: A decision to build a plant is different from a decision to continue operating a plant. So, the prudence of a decision to build is logically distinct from a decision to continue operating—especially when those two decisions are decades apart.

To argue otherwise is to convert a commission approval into a ball-and-chain contraption, locking the commission and customers into a cost trajectory regardless of its reasonableness. Opposition to this reasoning necessarily rests on one or both of these two assertions: (1) Once a decision is made, its prospective cost-effectiveness never

[24] *Id.* at 533.

[25] "The decision to continue construction of Wolf Creek, especially after 1981, was not based on adequate or realistic analysis and review and appears to have stemmed from institutional inertia." *Id.* at 533.

changes; or (2) a utility has no obligation to reduce the cost of prior decisions. Neither assertion stands up.

Consider an extreme hypothetical. Suppose the utility had proposed, and the commission had approved and found prudent, a particular generating unit. The unit comes on line. In Year 10 a new source of electricity is invented, allowing homeowners to product their own power at zero cost. (Assume homeowners will pay all of the unit's sunk cost.) Would it make sense for the utility to keep running its plants, charging customers not only for the sunk cost but also for the operating costs, just because the commission had previously approved the unit? Of course not. Returning to reality: Mr. Chernick and the company's witnesses will debate the economics of continuing vs. retiring. But debate they must, and decide the Commission must, because the prudence principle makes the utility responsible for prospective costs that exceed reasonable prospective alternatives.

I have emphasized that effective regulation emulates the results of competition. In a competitive market, any company that sat on its past decisions, ignoring the facts as they change, would be out-competed by the more alert. Only a monopoly could ignore the facts and get away with it.

Q. How does the testimony of the utility's witnesses square with a utility's continuing responsibility to manage a project prudently?

A. That a utility has a continuing obligation to reconsider past decisions—to monitor facts and change course where the economics require—is a principle well-known to the companies' witnesses. Mr. Jensen described the Order granting a Certificate of Authority for the ReAct project. It required the utility to notify the Commission if and when the utility thought the final project cost would exceed the approved cost of $275 million by 5

percent. Costs did rise, according to Mr. Jensen. And when they did, the company compared the new higher cost with the feasible alternatives. Indeed, the "company undertook a thorough, line-by-line review of the total project capital cost estimate to identify potential cost reductions." And the company "reran our economic studies at the new higher capital cost estimate with updated market commodity and energy prices to determine whether the project remained cost effective."[26] By cost-effective, I assume Mr. Jensen means cost-effective relative to alternatives. He did, in other words, what Mr. Chernick has done and what Mr. Chernick says the utilities should do, about the units he discusses.

Mr. Jensen didn't sit on ReAct's Certificate, denying any obligation to reevaluate because the Commission had found the project prudent. Re-evaluating the economics is precisely what prudence required. That the Commission expressly required the evaluation makes no difference; the Commission was making explicit an obligation that was implicit—implicit in the utility's continuing obligation to act cost-effectively.

And Mr. Jensen did not look only at test-year facts; that would make no sense. He compared the PVRR of his original plan with the "FGD/SCR" alternative. He wanted to see whether the original plan still "remained lower in cost among the alternatives"[27]—lower in cost over the plant's life, that is, not over one artificial test year. He also acknowledged that Staff requested updates—specifically, a comparison of the ReAct project's fixed and variable O&M costs to two alternatives: "The capital and fixed and variable O&M costs of FGD/SCR, and . . . [c]apital costs of new combustion turbine and

[26] Jensen Direct in Docket No. 6690-UR-126, at 6:20-7:13.

[27] *Id*. at 7:19-20.

combined cycle facilities."[28] Again—precisely what Mr. Chernick says is necessary to ensure that a previously approved project is cost-effective.

Consider also Mr. Krueger. To decide Pleasant Prairie's future, he compared its prospective costs with "the declining prices of alternative supplies from the regional MISO energy market." He observed that gas prices are "at historic lows and appear poised to stay that way for the foreseeable future," solar panel costs are declining, and wind availability is increasing.[29] He concluded that Pleasant Prairie was "uneconomic" because its projected costs, over its life, were higher than alternatives. Again—precisely what Mr. Chernick does.

To justify decisions to retire a unit, Mr. Jensen and Mr. Krueger compared costs over the long term. It is illogical to say that long-term cost comparisons are relevant to justify a decision to retire a plant, but not relevant to a decision not to retire a plant. Whether buying an office building, committing to a generating unit, or continuing to operate and charge customers for that unit, the proper period for analyzing cost-effectiveness is the period covered by the asset's life.

D. A utility has the burden of proving its prudence

Q. Describe the relationship among burden of proof, burden of production, and the presumption of prudence; and how those concepts interact with prudence principles.

A. When proposing a rate increase, a utility bears a statutory burden of proof—sometimes called the risk of non-persuasion.[30] The utility must prove that the increased rate is just

[28] Id. at 8:2-6.

[29] Krueger Direct in Docket No. 05-UR-109, at 6:23-7:4, 7:10-8:4.

[30] *See, e.g.*, James Fleming, Jr., Burdens of Proof, 47 *Va. L. Rev*. 51, 51 (1961). The Oklahoma Supreme Court discusses burden of persuasion, and its relation to burden

and reasonable, including that the underlying costs were prudently incurred. This statutory burden always lies with the utility.

Some case decisions have lessened this burden of proof by establishing a rebuttable presumption of prudence.[31] The prudence presumption has this effect: If the utility produces evidence sufficient to support its proposed rates, the burden of producing evidence of imprudence lies with the commission and the intervenors.

An intervenor satisfies that burden of production if it produces facts sufficient to create "serious doubt" about a decision's reasonableness. Creating that serious doubt rebuts the presumption of prudence.[32] With the presumption of prudence rebutted, and the burden of proof on reasonableness remaining with the utility (that statutory burden is always with the utility), the utility then must show persuasive evidence of its prudence—or else have the challenged costs disallowed.

Q. What if the Commission does not find imprudence, but does find that the utility has failed to prove prudence?

A. If the intervenor's evidence creates serious doubt about the prudence, and the utility then fails to produce persuasive evidence of its prudence—because, for example, it has failed

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of production, in *Turpen v. Oklahoma Corp. Comm'n*, 1988 OK 126, 769 P.2d 1309, 1323-24 (1988).

[31] *See, e.g., Waukesha Gas & Elec. Co.*, 181 Wis. at 304 ("In the absence of satisfactory proof to the contrary, it must be presumed that the investment was prudently made."); *Turpen*, 769 P.2d at 1330 ("Since good faith is presumed on the part of public utility managers, their judgment about prudent outlays, including outlays for capital, should not be overruled unless inefficiency or improvidence on their part is shown.").

[32] See, e.g., *State ex rel. Pub. Counsel v. Pub. Serv. Comm'n of Mo.*, 274 S.W.3d 569, 577-78 (Mo. Ct. App. 2009) (holding that the "commission properly presumed that [Union Electric] was prudent in its purchase of the [combustion turbine generators], until the State or Public Counsel presented evidence that raised a 'serious doubt' concerning the prudence of its expenditure").

to study the question or has studied it ineffectively—then the necessary result is this: The combination of (a) the burden of proof on prudence, (b) the absence of a presumption of prudence, and (c) the absence of affirmative evidence on prudence, means that the utility has failed to carry its burden of proving prudence. The utility loses.

While in the discovery process the utility has no obligation to create a study, burden of proof and burden of production are different. The bearer of burdens must carry those burdens or lose.

E. In the generation retirement context, prudence requires minimizing prospective operating costs

Q. How would these concepts of burden of proof, burden of production, and prudence apply in a rate case's consideration of generating costs?

A. In a rate case dealing with the reasonableness of a particular generating unit's prospective costs, serious doubt about the utility's prudence would be established by any of the three following facts:

1. For a significant number of hours, the unit's avoidable operating cost of producing a kWh for the MISO market exceeds the revenues the unit earns from the MISO market. By avoidable cost, I mean any cost that would be avoided if the utility retired the unit. That category would include fixed O&M cost, variable cost, and any future capital expenditures necessary to keep the plant running and compliant with environmental, reliability, and other rules. The comparison would also take into account sales to MISO no longer made by the retired unit. The comparison would exclude sunk costs (*i.e.*, expenditures already made to build the plant), because by definition a sunk cost is not avoidable.

2. Over a year's time, the unit's avoidable operating cost to provide capacity and energy exceeds the all-in (capacity and energy) costs of reasonable alternatives. Again, this comparison would exclude the existing unit's sunk costs.

3. Over the unit's remaining life, the net present value revenue requirement (NPVRR) associated with the total avoidable costs will likely exceed the NPVRR of the all-in (capital and operating) costs of plausible alternatives. Again, this comparison would exclude the existing unit's sunk costs.

For all these comparisons, the analysis must take into account factors that constrain cost-minimizing. Those constraints include, without limitation, rules or laws on reliability, environmental protection, and siting; as well as physical factors like transmission availability, generation capacity value, and generation ramp rates.

F. The necessary consequence of both imprudence and failure to prove prudence is disallowance

Q. What are the consequences of a utility's failure to carry its burden of proof on prudence?

A. Both imprudence and failure to prove prudence have the same necessary consequence: disallowance of excess costs; specifically, the excess of actual costs over the costs of the least-cost prudent decision knowable at the time the utility acted or failed to act.

In the context of generating unit retirement, what costs? One might say that the Commission should disallow all operating expense for the units at issue because the utility has not carried its burden of showing the reasonableness of those costs. But disallowing the entire operating cost would not reflect reality because the units, or their substitutes, will be providing service; and because customers should pay the reasonable cost of that service. The logical recoverable amount would be the cost of the least-cost feasible alternative known or knowable at this time. The Commission would need to

determine that number, by asking the parties for their best estimates and then deciding. That the utility has not supplied that number does not change the Commission's obligation to determine the number. And it is not the intervenors' obligation to supply the number, because they have no burden of proving the proposed rate's reasonableness.

Q. Explain how assigning utilities the consequence of imprudence induces accountability consistent with competitive pressures.

A. Assigning to the utility the consequence of imprudence induces accountability, and aligns the interests of investors and consumers, in two ways.

Increasing business discipline: Assigning to the utility the consequences of imprudence, and of failing to prove prudence, induces business discipline comparable to what competitive companies experience. In competitive markets, prices reflect the cost structures of sellers who choose the most economic paths. Sellers with excess costs cannot charge higher-than-market prices and still keep their customers. They have to absorb their excess costs.

Aligning risk with expertise and control: Commission-set rates include the costs of the utility executives, managers, and employees responsible for monitoring costs and minimizing costs. Ratepayers pay for expertise; they pay for prudence. When a utility performs suboptimally, shareholders can sell their stock and leave, but customers are stuck paying the Commission-set rates. If the utility's decisions do not reflect the expertise ratepayers pay for, the utility must bear the consequence.

Q. If the Commission does not disallow operating expenses in this proceeding, are there other actions it should take?

A. Yes. If there is a realistic possibility that continuing to operate a unit will cost customers more than retiring that unit, the Commission should require the utility to monitor the facts. The monitoring should cover the unit and the plausible alternatives. The

Commission should specify the data required and the reports' frequency. The reports should be usable and public, so the Commission staff and intervenors have the data they need to seek to rate changes should new information create serious doubts about the prudence of continuing to run the plants.

Also, if and when serious doubt develops, the Commission should simultaneously (a) open a proceeding to reconsider the utility's rates, and (b) declare that the utility's current rates are interim and subject to refund. That way, and only that way (due to the prohibition against retroactive ratemaking), can ratepayers receive refunds of costs charged during the proceeding that are deemed imprudent in the proceeding.

III. Two Cautions Against Mischaracterizing this Testimony

A. This testimony addresses the future, not the past

Q. Does your testimony criticize, or recommend any change to, any past Commission decision; or recommend disallowance of any prior-approved cost?

A. No. My focus is prospective only. I do not address whether the Commission's original decision to grant a Certificate for a unit was appropriate. I do not address whether the utility's prior decision to invest in a unit was prudent. I do not address whether the utility's costs incurred to build a unit, and to operate that unit to date, were prudent. Nor do I address who should bear the previously incurred but not yet recovered capital costs of a unit. I focus only on the future: whether the utility should recover in its rates the avoidable costs associated with operating a unit, where those costs exceed, or are likely to exceed, the all-in costs of feasible alternatives to the capacity and energy provided by the unit.

While I hope this explanation will prevent mischaracterization, I will anticipate one version anyway. A disallowance of prospective costs of operating a previously approved project is neither "Monday morning quarterbacking" nor "regulation-by-hindsight." That type of attack applies only where, in a prudence analysis, the regulator treats the utility as having access at the time of its original decision to facts that did not appear until after the decision. My testimony is not about the original decision to build a unit; it is about the prospective decision to continue operating the unit.

For these reasons, arguments about the so-called prudent-investment theory are irrelevant. As cited by the applicants, these cases address only recovery of costs already "invested in the enterprise," investments already "made."[33] A prospective-only inquiry does not look at investments already made.

B. This testimony recommends policy decisions; it does not interpret statutes

Q. Does either utility have reason to seek to suppress your testimony as legal analysis?

A. No, because I offer no legal interpretations of Wisconsin law. That's the attorneys' job. I don't describe the boundaries of the Commission's legal discretion; rather, I present policy principles for the Commission to use when it exercises that legal discretion. The utility has no cause to suppress my testimony, because every principle I present provides the company an objective opportunity to seek recovery of its prudent costs.

[33] *See* Joint Applicants' Opposition to Motion to Sierra Club's Motion to Compel (filed July 10, 2019), citing *Waukesha Gas & Elec. Co.*, 181 Wis. 281, 194 N.W. 846, 854, 855 (1923) ("Both the Commission and the court in Wisconsin have adhered with reasonable fidelity to what is now termed the prudent investment theory, that is, that the utility is entitled to earn a reasonable return upon the amount which has been prudently invested in the enterprise. . . .[T]he question of whether or not the investment was prudent must be determined as of the time when it was made."); and *Milwaukee & Suburban Trans. Co. v. Pub. Serv. Comm. of Wis.*, 268 Wis. 573, 585, 68 N.W.2d 552 (1995) ("[B]oth the [C]ommission and this court are committed to the prudent investment theory in rate cases"). Neither case is relevant to my testimony.

Where useful, I have provided examples of how other commissions have applied these policy principles, along with court decisions that have upheld those principles. That other bodies have used, and courts have upheld, the principles I recommend does not convert my policy recommendations into legal analysis. These references let the Commission know that each of my recommendations fits within the mainstream of regulatory policy practice. Without them, this document would be less useful to the Commission. And if my testimony omitted these precedents, someone then might mis-describe recommendations it dislikes as "unprecedented." Rate of return witnesses routinely cite cases like *Bluefield* and *Hope*. They do so to show that the principles they espouse fall within legal boundaries. That I am licensed as a lawyer does not mean that by citing cases my testimony is any more legal testimony than theirs.

Opposing counsel are free to cross-examine me on each of my recommendations. The resulting dialogue between witness and opposing attorney, on the foundations and principles of regulatory practice, will assist the Commission's decision-making. There is no public interest in preventing it.

Q. Does this conclude your Direct Testimony?

A. Yes.

EXHIBIT 1

Exhibit SH-1

Resume of Scott Hempling

Scott Hempling, Attorney at Law

Scott Hempling is an attorney, expert witness and teacher. As an attorney, he has assisted clients from all industry sectors—regulators, utilities, consumer organizations, independent competitors and environmental organizations. As an expert witness, he has testified numerous times before state commissions and before committees of the United States Congress and the legislatures of Arkansas, California, Maryland, Minnesota, Nevada, North Carolina, South Carolina, Vermont, and Virginia. As a teacher and seminar presenter, he has taught public utility law and policy to a generation of regulators and practitioners, appearing throughout the United States and in Canada, Central America, Germany, India, Italy, Jamaica, Mexico, New Zealand, Nigeria and Peru.

The first volume of his legal treatise, *Regulating Public Utility Performance: The Law of Market Structure, Pricing and Jurisdiction*, was published by the American Bar Association in 2013. It has been described as a "comprehensive regulatory treatise [that] warrants comparison with Kahn and Phillips." The second volume will address the law of corporate structure, mergers and acquisitions. His book of essays, *Preside or Lead? The Attributes and Actions of Effective Regulators*, has been described as "matchless" and "timeless"; a Spanish translation has circulated throughout Latin America, through the auspices of the Asociación Iberoamericana de Entidades Reguladoras de la Energía, REGULATEL (an association of telecommunications regulators from Europe and Latin America) and the World Energy Forum. The essays continue monthly at www.scotthemplinglaw.com.

His articles have appeared in the *Energy Bar Journal*, the *Electricity Journal*, *Energy Regulation Quarterly, Public Utilities Fortnightly, ElectricityPolicy.com*, publications of the American Bar Association, and other professional publications. These articles cover such topics as mergers and acquisitions, the introduction of competition into formerly monopolistic markets, corporate restructuring, ratemaking, utility investments in nonutility businesses, transmission planning, renewable energy and state–federal jurisdictional issues. From 2006 to 2011, he was the Executive Director of the National Regulatory Research Institute.

Hempling is an adjunct professor at the Georgetown University Law Center, where he teaches public utility law and has taught regulatory litigation. He received a B.A. *cum laude* in (1) Economics and Political Science and (2) Music from Yale University, where he was awarded a Continental Grain Fellowship and a Patterson research grant. He received a J.D. *magna cum laude* from Georgetown University Law Center, where he was the recipient of an *American Jurisprudence* award for Constitutional Law. He is a member of the District of Columbia and Maryland Bars. More detail is available at www.scotthemplinglaw.com.

Education

B.A. *cum laude*, Yale University (two majors: Economics and Political Science, Music), 1978. Recipient of a Continental Grain Fellowship and a Patterson Research grant.

J.D. *magna cum laude*, Georgetown University Law Center, 1984. Recipient of *American Jurisprudence* award for Constitutional Law; editor of *Law and Policy in International Business*; instructor, legal research and writing.

Professional Experience

President, Scott Hempling, Attorney at Law LLC (2011–present).

Adjunct Professor, Georgetown University Law Center (2011–present).

Executive Director, National Regulatory Research Institute (2006–2011).

Founder and President, Law Offices of Scott Hempling, P.C. (1990–2006).

Attorney, Environmental Action Foundation (1987–1990).

Associate, Spiegel and McDiarmid (1984–1987).

Past Clients

Independent Power Producers and Marketers

California Wind Energy Association, Cannon Power Company, Electric Power Supply Association, EnerTran Technology Company, National Independent Power Producers, SmartEnergy.com, U.S. Wind Force.

Investor-Owned Utilities

Madison Gas & Electric, Oklahoma Gas & Electric.

Legislative Bodies and Executive Departments

South Carolina Department of Administration, South Carolina Senate, Vermont Legislature.

Municipalities and Counties

American Public Power Association; Connecticut Municipal Electric Energy Cooperative; Iowa Association of Municipal Utilities; City of Jacksonville, Florida; Montgomery County, Maryland; Texas Cities; City of Winter Park, Florida.

Public Interest Organizations

Alliance for Affordable Energy, American Association of Retired Persons, Consumer Federation of America, D.C. Consumer Utility Board, Energy Foundation, Environmental Action Foundation, Environmental Defense Fund, GRID2.0 (Washington, D.C.), Illinois Citizens Utility Board, Natural Resources Defense Council, Sierra Club, Union of Concerned Scientists.

Regulatory Commissions and Consumer Agencies

Arkansas Attorney General, Arkansas Public Service Commission, Arizona Corporation Commission, Australia Energy Regulator, British Columbia Office of the Auditor General, British Columbia Utility Commission, California Public Advocates Office, Connecticut Department of Public Utility Control, Connecticut Office of Consumer Counsel, Delaware Public Service Commission, Hawai'i Public Utilities Commission, Hawai'i Office of Planning, Indiana Utility Regulatory Commission, Kansas Corporation Commission, State of Maryland, Maryland Energy Administration, Maryland Attorney General, Maryland Office of People's Counsel, Massachusetts Attorney General, Massachusetts Department of Public Utilities, Mexico's Comisión Reguladora de Energía, Minnesota Public Utilities Commission, Mississippi Public Service Commission, Mississippi Public Utilities Staff, Missouri Public Service Commission, Montana Public Service Commission, National Association of Regulatory Utility Commissioners, Nevada Consumer Advocate, Nevada Public Service Commission, New Hampshire Public Utilities Commission, New Jersey Division of Ratepayer Advocate, North Carolina Utilities Commission, Ohio Public Utilities Commission, Oklahoma Corporation Commission, Pennsylvania Office of Consumer Advocate, Puerto Rico Energy Commission, South Carolina Department of Administration, South Carolina Public Service Commission, Texas Office of Public Utility Counsel, Vermont Department of Public Service, Virginia State Corporation Commission, Wisconsin Attorney General.

Testimony Before Legislative Bodies

United States Senate

Committee on Energy and Natural Resources, May 2008 (addressing the adequacy of state and federal regulation of electric utility holding company structures).

Committee on Energy and Natural Resources, Feb. 2002 (analyzing bill to amend the Public Utility Holding Company Act) (PUHCA).

Committee on Energy and Natural Resources, May 1993 (analyzing bill to transfer PUHCA functions from SEC to FERC).

Committee on Banking and Urban Affairs, Sept. 1991 (analyzing proposed amendment to PUHCA).

Committee on Energy and Natural Resources, March 1991 (analyzing proposed amendment to PUHCA).

Committee on Energy and Natural Resources, Nov. 1989 (analyzing proposed amendment to PUHCA).

United States House of Representatives

Subcommittees on Energy and Power and Telecommunications and Finance, Commerce Committee, Oct. 1995 (regulation of public utility holding companies).

Subcommittee on Energy and Power, Energy and Commerce Committee, July 1994 (analyzing future of the electric industry).

Subcommittee on Energy and Power, Energy and Commerce Committee, May 1991 (analyzing proposed amendment to PUHCA).

Subcommittee on Environment, Energy and Natural Resources, Government Operations Committee, Oct. 1990 (assessing electric utility policies of FERC).

Appropriations Subcommittee on Commerce, Justice, State and the Judiciary, Apr. 1989 (discussing proposals to increase staff administering PUHCA).

Subcommittee on Energy and Power, Sept. 1988 (discussing "independent power producers" and PUHCA).

State Legislatures

Judiciary Committee, South Carolina Senate (2000) (discussing options for introducing retail electricity competition).

Commerce Committee, Arkansas General Assembly (1999) (discussing legislation to introduce retail electricity competition).

Health Access Oversight Committee, Vermont General Assembly (1999) (discussing options for state regulation of prescription drug pricing).

Electricity Restructuring Task Force, Virginia General Assembly (1999) (discussing options for introducing retail electricity competition).

Study Committee, North Carolina Legislature (1999) (discussing legislation to introduce retail electricity competition).

Committees on General Affairs, Finance, Vermont Senate (February-March 1997) (discussing options for structuring the electric industry).

Task Force to Study Retail Electric Competition, Maryland General Assembly (1997) (discussing options for introducing retail electricity competition).

Interim Committee on Electric Restructuring, Nevada Legislature (1995-97) (discussing options for structuring the electric industry).

Committee on Energy and Public Utilities, California Senate (December 1989) (discussing relationships between electric utilities and their non-regulated affiliates).

Testimony before Commissions, Courts and Arbitration Panels

Oklahoma Corporation Commission: Principles relating to prudence and used-and-usefulness in the context of a scrubber investment (2019).

Louisiana Public Service Commission: Utility holding company’s acquisition of merchant generation company (2018).

District of Columbia Public Service Commission: Canadian holding company acquisition of retail natural gas company (2017).

Maryland Public Service Commission: Canadian holding company acquisition of retail natural gas company (2017).

Kansas Corporation Commission: Utility holding company acquisition of utility holding company (2016-2017).

U.S. District Court for Middle District of Florida: Effect of disaffiliation, mandated by Public Utility Holding Company Act, on corporation's liability under the Comprehensive Environmental Response, Compensation, and Liability Act (2016).

New Jersey Board of Public Utilities: Transfer of utility transmission assets to holding company affiliate (2015-2016) (application withdrawn).

Hawaii Public Utilities Commission: Holding company acquisition of utility holding company (2015-2016).

Louisiana Public Service Commission: Holding company acquisition of utility holding company (2015).

Connecticut Public Utilities Regulatory Authority: Holding company acquisition of utility holding company (2015).

District of Columbia Public Service Commission: Holding company acquisition of utility holding company (2014-15).

Maryland Public Service Commission: Holding company acquisition of utility holding company (2014-15).

Mississippi Public Service Commission: Utility holding company's divestiture of its utility subsidiaries' transmission assets to an independent transmission company (2013).

U.S. District Court for Minnesota: Effects of Minnesota statute limiting reliance on fossil fuels (2013).

Tobacco Arbitration Panel: Principles for regulating cigarette manufacturers (on behalf of State of Maryland) (2012).

Illinois Commerce Commission: Performance-based ratemaking (2012).

Maryland Public Service Commission: Holding company acquisition of utility holding company (2011).

California Public Utilities Commission: Performance-based ratemaking (2011).

Superior Court of Justice, Ontario, Canada: Renewable energy contractual relations under the Public Utility Regulatory Policies Act (2007).

Florida arbitration panel: Financial responsibility for stranded investment arising from municipalization (2003).

Minnesota Public Utilities Commission: Transmission expansion for renewable power producers (2002).

U.S. District Court for Wisconsin: State corporate structure regulation in relation to the Commerce Clause of the U.S. Constitution (2002).

New Jersey Board of Public Utilities: Conditions for provider of last resort service (2001).

Indiana Utility Regulatory Commission: Risks of overcharging ratepayers using "fair value" rate base (2001).

North Carolina Utilities Commission: Effect of merger on state regulatory powers (2000).

Wisconsin Public Service Commission: Effect of merger on state regulatory powers (2000).

New Jersey Board of Public Utilities: Affiliate relations in telecommunications sector (1999).

Illinois Commerce Commission: Affiliate relations and mixing of utility and non-utility businesses (1998).

Texas Public Utilities Commission: "Incentive" ratemaking, introduction of competition (1996).

Vermont Public Service Board: Cost allocation and interaffiliate pricing between service company and utility affiliates (1990).

Publications

Books

Regulating Public Utility Performance: The Law of Market Structure, Pricing and Jurisdiction (American Bar Association 2013).

Preside or Lead? The Attributes and Actions of Effective Regulators (2d edition 2013).

Articles, Papers and Book Chapters

"Inconsistent with the Public Interest: FERC's Three Decades of Deference to Electricity Consolidation," *Energy Law Journal* (Fall 2018), available at https://www.eba-net.org/assets/1/6/15-233-312-Hempling_[FINAL]1.pdf.

"Maryland's Supreme Court Loss: A Win for Consumers, Competition and States," *ElectricityPolicy.com* (June 2016).

"Certifying Regulatory Professionals: Why Not?", *ElectricityPolicy.com* (June 2015).

"Litigation Adversaries and Public Interest Partners: Practice Principles for New Regulatory Lawyers," *Energy Law Journal* (Spring 2015), available at http://www.felj.org/sites/default/files/docs/elj361/14-1-Hempling-Final-4.27.pdf.

"Pricing in Organized Wholesale Electricity Markets: Can We Make the Bright Line any Brighter?", *Infrastructure* (American Bar Association, Spring 2015).

"From Streetcars to Solar Panels: Stranded Investment Law and Policy in the United States," *Energy Regulation Quarterly* (Vol. 3, Issue 3 2015).

"Regulatory Capture: Sources and Solutions," *Emory Corporate Governance and Accountability Review* Vol. 1, Issue 1 (August 2014), available at http://law.emory.edu/ecgar/content/volume-1/issue-1/essays/regulatory-capture.html.

"When Technology Gives Customers Choices, What Happens to Traditional Monopolies?" *Trends* (American Bar Association, Section of Environment, Energy and Resources July/August 2014).

"Democratizing Demand and Diversifying Supply: Legal and Economic Principles for the Microgrid Era," *ElectricityPolicy.com* (March 2014).

"Non-Transmission Alternatives: FERC's 'Comparable Consideration' Needs Correction," *ElectricityPolicy.com* (June 2013).

"Broadband's Role in Smart Grid's Success," in Noam, Pupillo, and Kranz, *Broadband Networks, Smart Grids and Climate Change* (Springer 2013).

"How Order 1000's Regional Transmission Planning Can Accommodate State Policies and Planning," *ElectricityPolicy.com* (September 2012).

"Renewable Energy: Can States Influence Federal Power Act Prices Without Being Preempted?" *Energy and Natural Resources Market Regulation Committee Newsletter* (American Bar Association, June 2012).

"Can We Make Order 1000's Transmission Providers' Obligations Effective and Enforceable?" *ElectricityPolicy.com* (May 2012).

"Riders, Trackers, Surcharges, Pre-Approvals, and Decoupling: How Do They Affect the Cost of Equity?" *ElectricityPolicy.com* (March 2012).

"Regulatory Support for Renewable Energy and Carbon Reduction: Can We Resolve the Tensions Among Our Overlapping Policies and Roles?" (National Regulatory Research Institute 2011).

"Infrastructure, Market Structure, and Utility Performance: Is the Law of Regulation Ready?" (National Regulatory Research Institute 2011).

"Cost-Effective Demand Response Requires Coordinated State-Federal Actions" (National Regulatory Research Institute 2011).

"Effective Regulation: Do Today's Regulators Have What It Takes?" in Kaiser and Heggie, *Energy Law and Policy* (Carswell 2011).

Renewable Energy Prices in State-Level Feed-in Tariffs: Federal Law Constraints and Possible Solutions (lead author, with C. Elefant, K. Cory, and K. Porter), Technical Report NREL//TP-6A2-47408 (January 2010).

Pre-Approval Commitments: When and Under What Conditions Should Regulators Commit Ratepayer Dollars to Utility-Proposed Capital Projects? (National Regulatory Research Institute 2008) (with Scott Strauss).

"Joint Demonstration Projects: Options for Regulatory Treatment," *The Electricity Journal* (June 2008).

"Corporate Structure Events Involving Regulated Utilities: The Need for a Multidisciplinary, Multijurisdictional Approach," *The Electricity Journal* (Aug./Sept. 2006).

"Reassessing Retail Competition: A Chance to Modify the Mix" *The Electricity Journal* (Jan./Feb. 2002).

The Renewables Portfolio Standard: A Practical Guide (National Association of Regulatory Utility Commissioners, Feb. 2001 (with N. Rader).

Promoting Competitive Electricity Markets Through Community Purchasing: The Role of Municipal Aggregation (American Public Power Association, Jan. 2000 (with N. Rader).

"Electric Utility Holding Companies: The New Regulatory Challenges," *Land Economics*, Vol. 71, No. 3 (Aug. 1995).

Is Competition Here? An Evaluation of Defects in the Market for Generation (National Independent Energy Producers 1995) (co-author).

The Regulatory Treatment of Embedded Costs Exceeding Market Prices: Transition to a Competitive Electric Generation Market (1994) (with Ken Rose and Robert Burns).

"Depolarizing the Debate: Can Retail Wheeling Coexist with Integrated Resource Planning?" *The Electricity Journal* (Apr. 1994).

Reducing Ratepayer Risk: State Regulation of Electric Utility Expansion. (American Association of Retired Persons 1993).

"'Incentives' for Purchased Power: Compensation for Risk or Reward for Inefficiency?" *The Electricity Journal* (Sept. 1993).

"Making Competition Work," *The Electricity Journal* (June 1993).

"Confusing 'Competitors' With 'Competition.'" *Public Utilities Fortnightly* (March 15, 1991).

"The Retail Ratepayer's Stake in Wholesale Transmission Access," *Public Utilities Fortnightly* (July 19, 1990).

"Preserving Fair Competition: The Case for the Public Utility Holding Company Act," *The Electricity Journal* (Jan./Feb. 1990).

"Opportunity Cost Pricing." *Wheeling and Transmission Monthly* (Oct. 1989).

"Corporate Restructuring and Consumer Risk: Is the SEC Enforcing the Public Utility Holding Company Act?" *The Electricity Journal* (July 1988).

"The Legal Standard of 'Prudent Utility Practices' in the Context of Joint Construction Projects," *NRECA/APPA Newsletter Legal Reporting Service* (Dec. 1984/Jan. 1985) (co-author).

Speaker and Lecturer

United States: American Antitrust Institute; American Association of Retired Persons; American Bar Association; American Power Conference; American Public Power Association; American Wind Energy Association; Chicago Bar Association (Energy Section); Columbia University Institute for Tele-Information; Electric Cooperatives of South Carolina; Electric Power Research Institute; *Electric Utility Week;* Electricity Consumers Resource Council; Energy Bureau; *Energy Daily;* Executive Enterprises; Exnet; Federal Energy Bar Association; Harvard Electricity Policy Group; Indiana State Bar Association; Infocast; King Abdullah Petroleum Studies and Research Center; Louisiana Energy Bar; Management Exchange; Maryland Resiliency Through Microgrids Task Force; MIT Energy Initiative; Michigan State University Public Utilities Institute; Mid-America Association of Regulatory Commissioners; MidAtlantic Demand Resources Initiative; Mid-Atlantic Conference of Regulatory Utility Commissioners; National Association of Regulatory Utility Commissioners; National Association of State Utility Consumer Advocates; National Conference of Regulatory Attorneys; National Governors Association; National Independent Energy Producers; New England Conference of Public Utility Commissioners; New England Public Power Association; New Mexico State University Regulatory Studies Program; New York Bar Association (Energy Section); North Carolina Electric Membership Corporation; Pennsylvania Bar Institute; Puerto Rico Energy Center; Puerto Rico Institute of Public Policy; Regulatory Studies programs at Michigan State University, New Mexico State University and University of Idaho; Society of American Military Engineers; Society of Utility and Regulatory Financial Analysts; Southeastern

Association of Regulatory Utility Commissioners; Universidad del Turabo (Puerto Rico); United Nations Association at Georgetown Law; U.S. Department of Energy Forum on Electricity Issues; U.S. Department of Energy Solar Energies Technology Office; U.S. Environmental Protection Agency; Western Interstate Energy Board; Wisconsin Public Utilities Institute; Wisconsin Bar-Public Utilities Section; Yale Alumni in Energy; Yale School of Forestry and Environmental Studies.

International: Australian Competition and Consumer Commission; Australian Energy Regulator; Bergen Center for Competition Law & Economics, University of Bergen (Norway); British Columbia Utilities Commission; Canadian Association of Members of Utility Tribunals; Canadian Energy Law Forum; Central Electric Regulatory Commission (India); Comisión Reguladora de Energía (Mexico); The Energy and Resources Institute (India); Government & Policy Think Tank, Sharif University Institute of Technology (Iran); Independent Power Producers Association of India; India Institute of Technology at Kanpur; Ludwig-Maximilians-Universitat (Munich, Germany); Management Development Institute (Gurgaon, India); National Association of Water Utility Regulators (Rome, Italy); New Zealand Electricity Authority; New Zealand Commerce Commission; Nigeria Electric Regulatory Commission; Office of Utility Regulation of Jamaica; OSIPTEL (the Peruvian Telecom Regulator) Training Program on Regulation for University Students; Petroleum and Natural Gas Regulatory Board (India); Regulatel (an international forum of telecommunications regulators); Regulatory Policy Institute (Cambridge, England); Utilities Regulatory Authority of Vanuatu; World Regulatory Forum.

Community Activities

Member, PEPCO Work Group, appointed by County Executive of Montgomery County, Maryland (2010–2011).

Sunday School teacher, Temple Emanuel, Kensington, Maryland (2002–2006, 2008).

Board of Trustees, Temple Emanuel (2005–2006).

Musical performer (cello): Riderwood Village Retirement Community (2003-present); St. Paul Episcopal Church (Centreville, MD).