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Transition Bonds for Stranded Costs

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Through their policies on pricing, entry, exit, service quality, and the obligation to supply unbundled network access to competitors, public utilities commissions or other sector-specific regulatory authorities influence the ability of an investor-owned regulated firm to recover its fixed and common costs. A major regulatory transition involving any one of those policy instruments can materially impair the regulated firm's ability to recover its sunk costs and thus give rise to the problem of stranded costs, which I will define more precisely in the pages to follow. Consequently, a legal battle will inevitably erupt between the regulated firm and its regulator over whether the perpetuation of an unchanged regime of price or cost-of-service regulation in the newly changed regulatory environment of impaired cost recovery is confiscatory and, therefore, contrary to statute or even the U.S. Constitution.[1]

This scenario unfolded time and again with a predictability that might have led one to wonder whether regulation was the sole activity in the American economy impervious to innovation. Then, remarkably, a brilliant idea emerged in the 1990s: authorize the regulated firm to securitize its stranded costs and issue "transition bonds" to be serviced by a competitively neutral surcharge that end users would be unable to bypass. These transition bonds were a vastly superior means to permit the regulated firm a reasonable opportunity to recover its stranded costs in the face of a regulatory transition. In the United States, a number of electric utilities successfully used transition bonds to recover the stranded capital costs of infrastructure whose value had fallen as a result of a change (or the expectation of a change) in the government's policies or regulations that would impede the electric

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[1] *See* J. GREGORY SIDAK & DANIEL F. SPULBER, DEREGULATORY TAKINGS AND THE REGULATORY CONTRACT: THE COMPETITIVE TRANSFORMATION OF NETWORK INDUSTRIES IN THE UNITED STATES (Cambridge Univ. Press 1997).

utility's ability to recover the cost of its sunk investment. As I document in this article, as of August 2019, utilities in the United States had issued nearly $55 billion of transition bonds.

Yet, to my surprise, despite the success of transition bonds in the electric power industry over more than two decades, scholars on regulation have evidently shown no interest in studying the use of this innovative financial instrument. Daniel Spulber and I wrote briefly about transition bonds soon after their emergence in the 1990s.[2] Since then, however, there has been virtually no literature on the subject, much less any sustained theoretical or empirical research by scholars in law or economics. That lacuna is odd, for one can respectably argue that the regulatory innovation of transition bonds has had more practical benefit for consumer welfare, and that it continues to hold more enduring promise as a means to improve dynamic efficiency, than the development of incentive-based regulation (which replaced cost-of-service, rate-of-return regulation and thereupon spawned a theoretical literature in economics that culminated in a Nobel Prize for Jean Tirole in recognition of his work with the late Jean-Jacques Laffont on regulation in the face of asymmetric information).[3]

It is also puzzling why both regulators and regulated firms in the telecommunications industry ignored this public-policy success story unfolding in the electric power industry. Instead, the telecommunications industry experienced a decade of continuous litigation following the enactment of the Telecommunications Act of 1996.[4] By the end of the first decade of the 21st century, the use of transition bonds had slowed to a trickle, perhaps because regulators no longer were implementing or envisioning more waves of regulatory transitions that would necessitate an alternative means of recovering the sunk costs of the regulated firm.

But I find that conjecture—that regulators ran out of new tricks to command old dogs to learn—not persuasive. My casual observation from nearly four decades of professional experience in the field is that nothing seems to slake the thirst of regulators to seek the gradual transformation of everything into something a little bit different. After all, the model of the public utilities commission gained its steam in the Progressive Era,[5] and the

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[2] *Id.* at 444–47.

[3] *See* Jean-Jacques Laffont & Jean Tirole, A Theory of Incentives in Procurement and Regulation (MIT Press 1993); *see also* Jean-Jacques Laffont & Jean Tirole, Competition in Telecommunications (MIT Press 2001).

[4] Pub. L. 104-104, 110 Stat. 56. For discussion of the intense friction created by the implementation of the Telecommunications Act of 1996, and the inherent conundrum that it created concerning the recovery of the cost of sunk investment in network infrastructure, see J. Gregory Sidak, *The Failure of Good Intentions: The WorldCom Fraud and the Collapse of American Telecommunications After Deregulation*, 20 Yale J. on Reg. 207 (2003); Jerry A. Hausman & J. Gregory Sidak, *A Consumer-Welfare Approach to the Mandatory Unbundling of Telecommunications Networks*, 109 Yale L.J. 417 (1999).

[5] *See, e.g.*, George L. Priest, *The Origins of Utility Regulation and the Theories of Regulation Debate*, 36 J.L. & Econ. 289 (1993).

resurgence in American politics, roughly a century later, of progressive ideology on the Left and populism on the Right generates calls from both camps to declare various technology giants the new public utilities. So, perhaps, the fundamental transformation of America will proceed—and in its relentless advance conscript new dogs to learn old tricks. Moreover, for technocratic reasons wholly separate from political ideology, it appears that the demand for transition bonds might well rebound as regulators change course from the dramatic shifts in policy that they ordered network industries to undertake in the 1990s and early 2000s. Because it is possible to use transition bonds to securitize and recover *any* cost at risk of being stranded by *any* particular regulatory change, a new generation of regulators might profitably resort to this policy tool, regardless of whether their chosen transformation is wise or foolish. To paraphrase Holmes, as long as the government pays for the consequences of its social experiments, not much constitutional objection remains to the exercise of "the petty larceny of the police power."[6]

In this article, I explain how regulators have used transition bonds to defuse incumbent opposition to major regulatory transitions that threaten to impair the ability of the incumbent regulated firm to recover the costs of its sunk investments prudently made in expectation of providing regulated service to the public. In Part I, I explain how stranded costs arise from the deregulation (or transformation) of network industries. In Part II, I briefly review the debate from the 1990s over the recovery of stranded costs and show how that debate unfolded differently in the electric power industry than in the telecommunications industry. I chronicle how electric utilities facing stranded costs successfully securitized those costs and issued tens of billions of dollars of transitions bonds. In Part III, I explain in closer detail the economic genius of transition bonds as a mechanism for both overcoming the incumbent's resistance to regulatory change and reducing the regulator's temptation to engage in opportunism concerning the sunk investments of regulated firms.

I. Stranded Costs and the Regulatory Contract

Under a traditional regulated utility model, the utility assumes obligations to serve in return for the regulator's assurance that the utility will receive a reasonable opportunity to earn a return of its invested capital, and a

[6] 1 Holmes-Laski Letters: The Correspondence of Mr. Justice Holmes and Harold J. Laski, 1916–1935, at 457 (Mark DeWolfe Howe ed., Harvard Univ. Pess 1953). I have previously observed that Holmes' "petty larceny of the police power" is "one of the most [famous] phrases ever deleted from a draft Supreme Court opinion." J. Gregory Sidak, *The Petty Larceny of the Police Power*, 86 Calif. L. Rev. 655, 656 (1998) (reviewing Fred S. McChesney, Money for Nothing: Politicians, Rent Extraction, and Political Extortion (Harvard Univ. Press 1997)).

competitive return on that invested capital, along with compensation for the full operating cost of providing service. In that relationship, the regulator affects the utility's opportunity to earn a competitive return of, and on, capital by controlling entry into the firm's market, by restricting the maximum earnings of the utility through rate setting, and by establishing service requirements through universal service, carrier of last resort, and other obligations. Such an arrangement, known as the *regulatory contract*, enables the regulator to reconcile its ceilings on the earnings of the utility with the requirement that, in terms of actuarially expected value, prospective investors in the utility be offered a competitive rate of return on their investments. The regulator is thus said to have entered into a bargain with the public utility: In return for assuming an obligation to serve and charging "just and reasonable" prices on a nondiscriminatory basis, the utility is guaranteed a franchise protected by entry regulation—thus the utility is guaranteed that it is commercially reasonable for it to expect a stream of income sufficient to recover, and earn a competitive rate of return on, the utility's invested capital.

The incumbent utility makes its decisions to invest in sunk infrastructure on the basis of that regulatory contract. In other words, the incumbent firm's expectations of its future returns and its obligations under the regulatory contract affect both the amount and the degree of asset specificity of its investments. For example, the incumbent might choose to deploy more infrastructure to meet a universal service obligation, or it might invest in developing technologies that the regulator favors (such as renewable energy sources or higher speeds of residential broadband connectivity).

To establish a network, industries such as telecommunications and electric power must make substantial sunk investments—which is to say nonrecoverable, market-specific investments, which have come to figure prominently in the creation and modification of regulation. The transportation and reticulation facilities in telecommunications, electricity, railroads, oil and natural gas pipelines, and water services are tied to specific geographic locations. The assets deployed for such facilities cannot physically be transferred to another market, and thus they have little if any scrap value unless alternative uses for the facilities can be found where they are already situated. Similarly, investments in specialized capital equipment, such as those found in nuclear power plants, are also sunk costs, as these facilities cannot be transferred easily or at all to other uses across space or time.

Sunk costs motivate regulation in two distinct ways. The notion that the need to incur sunk costs to deploy highly specific assets favors incumbents is said to justify price regulation to control the monopoly power of incumbents.[7]

[7] As Daniel Spulber and I observed in the 1990s, however, this argument is a tautology: the fact that the incumbent incurred sunk costs is conclusive evidence that those sunk costs are not a barrier to entry. *See* Sidak & Spulber, *supra* note 1, at 25.

Conversely, technological change that reduces the need to make sunk investments creates opportunities for deregulation. Moreover, the presence of sunk costs justifies the imposition of regulatory entry barriers to allow incumbents to earn a stream of revenues exceeding marginal cost so as to earn a return of, and on, their invested capital. The need to permit the regulated firm a reasonable opportunity for the recovery of sunk costs is a critical aspect of network industries that complicates their deregulation.

By opening regulated markets to competition, regulators can reduce the earnings of the incumbent public utility. The utility's capital equipment and other facilities might not be suited to the changing requirements of competitive markets. Moreover, competitive rules designed by regulators seeking to "manage" the transition to competition might have the incidental effect of handicapping the incumbent utility's ability to adapt relative to entrants. Those changes in regulatory policy can reduce the regulated firm's net revenues and deny its investors an opportunity to earn a fair return of and on their transaction-specific investments made under the previous regulatory regime. Those changes also can prevent the utility's shareholders from having a return of and on their invested capital when the utility retires from the provision of regulated service the assets that such capital was used to acquire.

That inability of utility shareholders to secure the return of, and a competitive rate of return on, their investment gives rise to the condition known as *stranded investment*, which is a subset of *stranded costs*. The latter includes operating expenditures (such as the mandatory purchase of energy at the utility's avoided cost but above the market price of such energy) that are not capital investments in physical plant *per se*, but that nonetheless reflect outlays required by regulators that regulated firm cannot recoup in the presence of competitive entry. Throughout this article, I will use this broader concept of stranded costs, which William Baumol and I proposed in a 1995 article.[8] We defined stranded costs as "those costs that the utilities currently are permitted to recover through their rates but whose recovery may be impeded or prevented by the advent of competition."[9] Various scholars and courts have adopted this working definition.[10] Daniel Spulber and I refined this definition in our articles and book several years later, with an emphasis that "one

[8] *See* William J. Baumol & J. Gregory Sidak, *Stranded Costs*, 18 Harv. J.L. & Pub. Pol'y 835 (1995).

[9] *Id.* at 835.

[10] For example, the Supreme Court of New Mexico adopted this definition in State *ex rel.* Sandel v. New Mexico Pub. Util. Comm'n, 127 N.M. 272, 276, 980 P.2d 55, 59 (1999) (quoting Baumol & Sidak, *Stranded Costs*, *supra* note 8, at 835). The Massachusetts Supreme Court cited my contemporaneous book with Baumol in Stow Mun. Elec. Dep't v. Dep't of Pub. Utils., 426 Mass. 341, 348, 688 N.E.2d 1337, 1346 (1997) ("Permitting utilities to recover their prudently incurred stranded costs promotes fair and effective competition in the electric industry.") (citing William J. Baumol & J. Gregory Sidak, Transmission Pricing and Stranded Costs in the Electric Power Industry (AEI Press 1995)).

can measure stranded costs as the anticipated shortfall in net revenues under competition as a consequence of changes in regulatory policy."[11]

II. The Divergent Approaches to Recovery of Stranded Costs in the Electric Power and Telecommunications Sectors

In the 1990s, regulators opened particular stages of the vertical chain of production of both the electric power sector and the telecommunications sector to competition, creating stranded costs for the vertically integrated incumbents, which for a century or more had provided end services to business and residential customers. In both sectors, lawsuits followed that claimed that the regulator's failure to permit a reasonable opportunity to the vertically integrated incumbent to recover its stranded costs was unlawful under the controlling regulatory statute (because the net effect of such open-access or "unbundling" regulation was to produce an uncompensatory rate, which was not "just and reasonable" from the utility's perspective) and unconstitutional under the Takings Clause of the Fifth Amendment to the U.S. Constitution (because the utility was not justly compensated for the value of the sunk investment that the regulatory change in effect took from the utility and rededicated to some new—and different—public purpose from what the utility and its regulator had originally specified). In response, the new entrants and regulators developed arguments that regulated rates for mandated access to the incumbent's facilities should be based only on a competitor's forward-looking costs, calculated to approximate what a hypothetically efficient network being built at the time of the regulatory change would cost. In telecommunications, this approach—which effectively denied full recovery for the common costs of the sunk infrastructure of the incumbent local exchange carriers—produced several divided Supreme Court decisions, beginning in 1999, that ultimately denied the incumbent local exchange operators the right to recovery of stranded costs that they had sought as a matter of law.[12]

In the electric power industry, a remarkably different outcome occurred. Although the first bonds resembling transition bonds were issued for demand-side management purposes in the mid-1990s,[13] U.S. electric utilities and their regulators soon modified this financial instrument to compensate electric utilities for assets that were rendered obsolete by the widespread deregulation of wholesale power-supply markets,

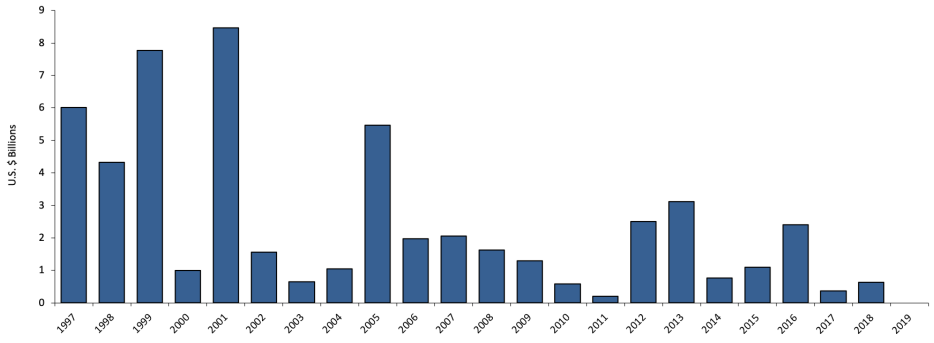
[11] Sidak & Spulber, *supra* note 1, at 29.

[12] AT&T Corp. v. Iowa Utils. Bd., 525 U.S. 366 (1999); Verizon Commc'ns, Inc. v. FCC, 535 U.S. 467 (2002).

[13] J. Paul Forrester, *Unstranding "Stranded Cost" Securitizations: New Applications for a Proven Technology*, 14 J. Structured Fin. 33, 33–34 (2008).

which occurred mainly in the late 1990s.[14] By 1996, transition bonds—also known as ratepayer obligation charge (ROC) bonds, rate-reduction bonds, stranded-cost bonds, energy-recovery bonds, environmental trust bonds, and storm-recovery bonds[15]—emerged as a solution to the problem of funding the regulatory transition that the state had deemed, in the exercise of its police power, to be a desirable public purpose. Between December 1997 and August 2019, various U.S. states approved nearly $55 billion (USD) in transition bonds. Figure 1. Issuances of Transition Bonds in the United States, 1997–August 2019 (USD) shows the value of the issuances, aggregated by year.

Figure 1. Issuances of Transition Bonds in the United States, 1997–August 2019 (USD)



Sources: *See* Appendix I.

Table 1. Transition Bond Issuances in the United States, 1997–August 2019 (USD) below chronicles the transition bonds issued in the United States between 1997 and August 2019.

Table 1. Transition Bond Issuances in the United States, 1997–August 2019 (USD)

Transaction Name	Servicer	Closing Date	Issuance Amount ($Millions)
PG&E Funding LLC	Pacific Gas & Electric	Dec-97	2,901
SCE Funding LLC, Series 1997-1	Southern California Edison	Dec-97	2,463
SDG&E Funding LLC Notes, Series 1997-1	San Diego Gas & Electric	Dec-97	658
ComEd Transitional Funding Trust, Series 1998	Com Edison	Dec-98	3,400

[14] *Id.* at 33.

[15] Standard & Poor's RatingsDirect, The Recession Hasn't Been Hard on "Ratepayer Obligation Charge" Bonds 5 (2009), https://saberpartners.com/wp-content/uploads/2017/02/SP-Report-on-Ratepayer-Obligation-Bond-July-09.pdf.

Transaction Name	Servicer	Closing Date	Issuance Amount ($Millions)
Illinois Power Special Trust, Series 1998-1	Illinois Power	Dec-98	864
MPC Natural Gas Funding Trust	Northwestern Energy	Dec-98	63
PECO Energy Transition Trust, Series 1999-A	PECO Energy	Mar-99	4,000
SPPC Funding LLC, Series 1999-1	Sierra Pacific Power	Apr-99	24
BEC Funding LLC	NSTAR Electric	July-99	725
PP&L Transition Bond Company LLC, Series 1999-1	PP&L	Aug-99	2,420
West Penn Funding LLC, Series 1999-A	West Penn	Nov-99	600
PECO Energy Transition Trust, Series 2000-A	PECO Energy	May-00	1,000
PSNH Funding LLC 2, Series 2002-1	Public Service Company of New Hampshire	Jan-01	50
PSEG Transition Funding LLC, Series 2001-1	Public Service Electric & Gas	Jan-01	2,525
PECO Energy Transition Trust, Series 2001-A	PECO Energy	Mar-01	805
The Detroit Edison Securitization Funding LLC, Series 2001-1	Detroit Edison	Mar-01	1,750
Connecticut RRB Special Purpose Trust CL&P-1	Connecticut Light & Power	Mar-01	1,438
PSNH Funding LLC, Series 2001-1	Public Service Company of New Hampshire	Apr-01	525
Massachusetts RRB Special Purpose Trust WMECO-1	Western Massachusetts Electric	May-01	155
Reliant Energy Transition Bond Company LLC, Series 2001-1	CenterPoint Energy Houston Electric	Oct-01	749
Consumers Funding LLC, Series 2001-1	Consumers Energy	Nov-01	469
CPL Transition Funding LLC, Series 2002-1	AEP Texas Central	Feb-02	797
JCP&L Transition Funding LLC, Series 2002-A	Jersey Central Power & Light	June-02	320
Atlantic City Electric Transition Funding LLC, Series 2002-1	Atlantic City Electric	Dec-02	440
Oncor Electric Delivery Transition Bond Company LLC, Series 2003-1	Oncor Electric Delivery	Aug-03	500
Atlantic City Electric Transition Funding LLC, Series 2003-1	Atlantic City Electric	Dec-03	152
TXU Electric Delivery Transition Bond Company LLC, Series 2004-1	TXU Electric Delivery	June-04	790
Connecticut (State of) Special Obligation Rate Reduction Bonds, 2004 Series A	Connecticut Light & Power	June-04	205

Transaction Name	Servicer	Closing Date	Issuance Amount ($Millions)
Rockland Electric Company Transition Funding LLC, Series 2004-1	Orange and Rockland Utilities	July-04	46
PG&E Energy Recovery Funding LLC, Series 2005-1	Pacific Gas & Electric	Jan-05	1,888
Massachusetts RRB Special Purpose Trust 2005-1	NSTAR Electric	Feb-05	675
PSE&G Transition Funding II LLC, Series 2005-1	Public Service Electric & Gas	Sept-05	103
WPP Funding, LLC, Series 2005-A	West Penn Power	Sept-05	115
PG&E Energy Recovery Funding LLC, Series 2005-2	Pacific Gas & Electric	Nov-05	844
CenterPoint Energy Transition Bond Company II, LLC, Series A	CenterPoint Energy Houston Electric	Dec-05	1,851
JCP&L Transition Funding II LLC, Series 2006-A	Jersey Central Power & Light	Aug-06	182
AEP Texas Central Transition Funding II LLC, Series A	AEP Texas Central	Oct-06	1,794
MP Environmental Funding LLC - Senior Secured Sinking Fund Environmental Control Bonds, Series A	Monongahela Power	Apr-07	344
PE Environmental Funding LLC - Senior Secured Sinking Fund Environmental Control Bonds, Series A	Potomac Edison	Apr-07	115
FPL Recovery Funding LLC, 2007 Series A	Florida Power and Light	May-07	652
Entergy Gulf States Reconstruction Funding I, LLC Senior Secured Transition Bonds, Series A	Entergy Gulf States Louisiana	June-07	330
RSB BondCo LLC	Baltimore Gas and Electric	June-07	623
CenterPoint Energy Transition Bond Company III, LLC	CenterPoint Energy Houston Electric	Feb-08	488
Cleco Katrina/Rita Hurricane Recovery Funding LLC	Cleco Power	Mar-08	181
Louisiana Public Facilities Authority, System Restoration Bonds, Series 2008	Entergy Louisiana	July-08	688
Louisiana Public Facilities Authority, System Restoration Bonds, Series 2008	Entergy Gulf States Louisiana	Aug-08	278
Entergy Texas Restoration Funding, LLC, Senior Secured Transition Bonds	Entergy Texas	Oct-09	546
CenterPoint Energy Restoration Bond Company, LLC	CenterPoint Energy Houston Electric	Nov-09	665
MP Environmental Funding LLC, Senior Secured ROC Bonds, Environmental Control Series B	Monongahela Power	Dec-09	64

Transaction Name	Servicer	Closing Date	Issuance Amount ($Millions)
PE Environmental Funding LLC, Senior Secured ROC Bonds, Environmental Control Series B	Potomac Edison	Dec-09	22
Louisiana Local Government Environmental Facilities and Community Development Authority, System Restoration Bonds, Series 2010	Entergy Louisiana	July-10	469
Entergy Arkansas Restoration Funding LLC, Senior Secured Storm Recovery Bonds	Entergy Arkansas	Aug-10	124
Entergy Louisiana Investment Recovery Funding I, LLC, Senior Secured Investment Recovery Bonds	Entergy Louisiana	Sept-11	207
CenterPoint Energy Transition Bond Company IV, LLC, Series 2012 Senior Secured Transition Bonds	CenterPoint Energy	Jan-12	1,700
AEP Texas Central Transition Funding III LLC, Senior Secured Transition Bonds	AEP Texas Central	Mar-12	800
FirstEnergy Ohio PIRB Special Purpose Trust, Series 2013	FirstEnergy	June-13	446
Ohio Phase-In-Recovery Funding LLC, Senior Secured Phase-In-Recovery Bonds	AEP Ohio Power	July-13	267
Appalachian Consumer Rate Relief Funding LLC, Senior Secured Consumer Rate Relief Bonds	AEP West Virginia Appalachian Power	Nov-13	380
Utility Debt Securitization Authority, Restructuring Bonds, Series 2013T & Series 2013TE	Long Island Power Authority	Dec-13	2,022
Consumer 2014 Securitization Funding LLC, Senior Secured Securitization Bonds, Series 2014-A	Consumers Energy	July-14	378
Louisiana Local Government Environmental Facilities and Community Development Authority, System Restoration Bonds, Series 2014	Entergy Gulf States Louisiana	Aug-14	244
State of Hawaii 2014-A Green Energy Market Securitization Bond	State of Hawaii Department of Business, Economic Development & Tourism	Nov-14	150
Entergy New Orleans Storm Recovery Funding I, LLC	Entergy New Orleans	July-15	99
Utility Debt Securitization Authority Restructuring Bonds, Series 2015	Long Island Power Authority	Oct-15	1,000
Utility Debt Securitization Authority, Restructuring Bonds, Series 2016-A	Long Island Power Authority	Apr-16	637
Duke Energy Florida Project Finance LLC, Series A Senior Secured Bond	Duke Energy	June-16	1,300

Transaction Name	Servicer	Closing Date	Issuance Amount ($Millions)
Utility Debt Securitization Authority, Restructuring Bonds, Series 2016-B	Long Island Power Authority	Sept-16	469
Utility Debt Securitization Authority, Restructuring Bonds, Series 2017	Long Island Power Authority	Nov-17	369
PSNH Funding LLC 3, Series 2018-1	Public Service Company of New Hampshire	May-18	636
		Total	54,979

Sources: *See* Appendix I.
Note: This table is current as of August 8, 2019.

Under the transition bond approach, the electric utility establishes in a regulatory proceeding the extent of its recoverable stranded costs given the pricing regime that the regulator has imposed for the changed nature of the utility's regulatory obligation—such as mandatory unbundled access to the firm's network. In other words, this approach separates the recovery of stranded costs from the rate-setting process in the changed regulatory environment. The regulator then permits the electric utility to issue bonds to recover those stranded costs.

Typically, in the United States, a special-purpose entity owned by the utility issues the transition bonds. Thus, the utility itself avoids holding the value of the bonds on its balance sheet, which reduces the utility's capital costs that are charged to consumers. The bonds are funded through a broad, "nonbypassable" rate—known generally as a transition charge—that is added to the retail rate charged to all consumers in the utility's service territory. It is essential that the transition charge be nonbypassable so that consumers cannot evade it simply by switching to another utility that is not subject to the charge.

This transition charge is imposed by the state regulatory authority (typically a public utilities commission), which enables the bonds to achieve a high credit rating despite their not being backed by the full faith and credit of the state government.[16] Indeed, ratings agencies have typically given transition bonds an AAA rating, which has tended to make the cost of capital necessary to fund the underlying debt low; specifically, the cost of capital for the transition bonds is less than the utility's weighted-average cost of capital (WACC).

Put differently, the use of transition bonds achieves the financing of the utility's recovery of its stranded costs at the lowest possible cost. If, in an alternative formulation of transition bonds, a utility were permitted to recover its stranded costs through similarly constructed bonds but was

[16] *See* Forrester, *supra* note 14, at 34.

forced to carry those bonds on its own balance sheet, the utility would need to bill consumers for a higher transition charge because of the utility's higher WACC. Thus, transition bonds provide an efficient solution because their use both preserves the utility's investment incentives (which benefits consumers in the long term) and reduces the immediate costs of the transition charge (which benefits consumers in the near term).

Although regulators in the United States have most frequently used transition bonds to allow electric utilities to recover their stranded costs after the deregulation of wholesale power sales, regulators have also permitted utilities to issue transition bonds for other purposes. For example, utilities have issued transition bonds for environmental initiatives such as the financing of the acquisition of mandatory pollution-control equipment.[17] Regulators have also permitted utilities to issue transition bonds to finance future investments by fossil fuel fired plant operators in carbon reduction and alternative energy.[18] In fact, as of 2019, many states have enacted legislation that specifically allows coal burning electric utilities to issue transition bonds to lessen the burden of stranded and obsolete coal assets.[19] These incentives have the potential to induce these utilities to prioritize carbon-reduction and embrace alternative-energy technologies.[20]

Utilities have also been able to issue transition bonds to assist with disaster recovery.[21] For example, utilities in Florida issued $652 million in transition bonds in 2007 to finance reconstruction after Hurricane Katrina.[22] In California, Pacific Gas and Electric (PG&E) has lobbied to be able to securitize some of their profits to finance past wildfire liabilities as well as to pay for future wildfire damages.[23]

III. Case Studies of the Structure and Benefits of Transition Bonds

The archetypal authorizing legislation for transition bonds is Pennsylvania's Electricity Generation Customer Choice and Competition Act of 1996.[24] Analyzing the Pennsylvania plan shows how transition bonds permit efficient stranded-cost recovery and provide market-based monitoring of regulatory

[17] *Id.*
[18] *Id.*
[19] Herman K. Trabish, *Securitization Fever: Renewables Advocates Seize Wall Street's Innovative Way to End Coal*, Utility Dive, May 28, 2019, https://www.utilitydive.com/news/securitization-fever-renewables-advocates-seize-wall-streets-innovative-w/555089/.
[20] *See* Forrester, *supra* note 14, at 35–36.
[21] *Id.* at 34.
[22] *Id.* at 35.
[23] Scott Deveau & Mark Chediak, *PG&E in California Wants to Securitize Some Profits to Cover Wildfire Costs*, Insurance J., July 1, 2019, https://www.insurancejournal.com/news/west/2019/07/01/531062.htm.
[24] 1996 Pa. Laws 138 (codified at 66 Pa. Cons. Stat. § 2801 *et seq.*).

risk. To demonstrate more fully the function and structure of transition bonds, I also analyze a case study of a specific electric utility in Texas, AEP Texas Central Company.

A. Pennsylvania's Electricity and Consumer Choice and Competition Act

Pennsylvania's legislation defines the amount of recoverable costs as *intangible transition property*.[25] The regulator then authorizes the utility to securitize those stranded costs through a bond issuance, which a qualified rate order will permit the utility to service from the revenue derived from an *intangible transition charge* that the utility is permitted to impose on end users in a competitively neutral and nonbypassable manner.[26] Intangible transition property represents "the irrevocable right of the electric utility or an assignee to receive through intangible transition charges amounts sufficient to recover all its qualified transition expenses."[27]

The creation of intangible transition property and the issuance of the transition bonds accomplish something significant that the regulator could not accomplish simply by authorizing the utility to impose a (correctly calculated) end-user charge and to use the proceeds to recoup its stranded costs over time. These regulatory innovations enable the government to make credible commitments, so as to elicit the private investment in nonsalvageable infrastructure that was the *raison d'être* of the regulatory contract in the late 19th and early 20th centuries.[28] Because the incumbent utility can use the proceeds from the bond issuance to recoup its stranded costs *immediately*, it no longer has an economic incentive to oppose immediate competitive entry on grounds of impairment of its recovery of sunk costs. Further, the incumbent utility can use transition bonds to shift the risk of stranded-cost recovery from current shareholders to a new class of consenting bondholders, whose recourse relative to other creditors would presumably be limited strictly to the stream of revenues that the intangible transition charge would produce. But how could the new holders of transition bonds be confident that the regulator would not destroy the value of those bonds by reneging on

[25] 66 Pa. Cons. Stat. § 2812(c).

[26] *Id.* The Pennsylvania legislation defines intangible transition charges as "[t]he amounts authorized to be imposed on all customer bills and collected, through a nonbypassable mechanism by the electric utility or its successor or by any other entity which provides electric service to a person that was a customer of an electric utility located within the certificated territory of the electric utility on the effective date of this chapter or that, after this effective date of this chapter, became a customer of electric services within such territory and is still located within such territory, to recover qualified transition expenses pursuant to a qualified rate order." *Id.* § 2812(g). The statutory definition includes the following proviso concerning cross-subsidies: "The amounts shall be allocated to customer classes in a manner that does not shift interclass or intraclass costs and maintains consistency with the allocation methodology for utility production plant accepted by the commission in the electric utility's most recent base rate proceeding." *Id.*

[27] *Id.* § 2812(g)(1).

[28] *See* Sidak & Spulber, *supra* note 1, at 108–09.

the intangible-transition-charge rate order—all in the name of lowering the consumer's total bill for electricity? What would prevent the regulator from simply substituting its repudiation of the intangible transition charge for its repudiation of the underlying regulatory contract?

The answer is ingenious. Under Pennsylvania's law, the Commonwealth does not guarantee the transition bonds. Nonetheless, the capital market provides, through the price that it sets for those marketable securities, a continuously updated estimate of the likelihood that the state will renege on its promise embodied in the rate order authorizing the securitization and the intangible transition charge. Services such as Moody's and Standard & Poor's can continuously rate the risk that the state will interfere with the sole revenue stream servicing the transition bonds. Through bond prices and bond ratings, the capital market quantifies the expectation of regulatory opportunism on a state by-state basis, such that the premiums for political risk are relatively free from extraneous "noise" and causal ambiguity. The risk associated with transition bonds does not arise from competitors or from exogenous changes in either technology or market demand; rather, the risk arises solely from the possibility of regulatory opportunism. Transition bonds, in short, empower the capital market to regulate the regulators.

Given the capital market's intense level of scrutiny, regulatory opportunism by the state commission or the Commonwealth of Pennsylvania would incur an immediate, conspicuous cost to reputation that would be continuously measurable through the price of the transition bonds. Not surprisingly, therefore, Pennsylvania's legislation contains the following promise that the Commonwealth will refrain from regulatory opportunism:

> The Commonwealth pledges to and agrees with the holders of any transition bonds issued under this section and with any assignee or financing party who may enter into contracts with an electric utility under this section that the Commonwealth will not limit or alter or in any way impair or reduce the value of intangible transition property or intangible transition charges approved by a qualified rate order until the transition bonds and interest on the transition bonds are fully paid and discharged or the contracts are fully performed on the part of the electric utility. Subject to other requirements of law, nothing in this paragraph shall preclude limitation or alteration if adequate compensation is made by law for the full protection of the intangible transition charges collected pursuant to a qualified rate order and of the holder of this transition bond and any assignee or financing party entering into contract with the electric utility.[29]

The interpretation and enforceability of *that* regulatory promise would surely admit less gainsaying by lawyers than the regulatory contract's earlier promise

[29] 66 Pa. Cons. Stat. § 2812(c)(2).

to the utility that the regulator would permit the firm a reasonable opportunity to recover its operating costs, its capital investments to provide service, and a competitive return on those investments. In short, Pennsylvania's novation of the pre-existing regulatory contract, backed by the discipline of the capital market, increases the likelihood of preserving the original investment-backed expectations of utility shareholders.

B. AEP Texas Central Company

To demonstrate more fully the function and structure of transition bonds, it is useful to consider a case study of a specific electric utility. On September 5, 2006, AEP Texas Central Company (TCC) filed a registration statement with the Securities and Exchange Commission for nearly $1.75 billion (USD) in transition bonds,[30] issued pursuant to the Texas Electric Utility Restructuring Act, which Texas enacted in June 1999.[31] In the Transaction Summary that TCC issued on September 15, 2006, TCC described the structure of the transition bonds:

> AEP Texas Central Transition Funding Company II LLC (the "Issuer") is issuing up to $1,739,700,000 of Senior Secured Transition Bonds, Series A in five tranches (the "Bonds"). The Bonds are senior secured obligations of the Issuer supported by Transition Property which includes the right to a special, irrevocable non-bypassable charge ("Transition Charge") paid by all retail electric customers in the service territory of AEP Texas Central Company ("TCC") based on their consumption of electricity . . . . The Public Utility Commission of Texas (the "PUCT") requires and guarantees that Transition Charges be adjusted annually, and semi-annually as necessary, to ensure the expected recovery of amounts sufficient to timely provide all scheduled payments of principal and interest on the Bonds (the "True-up Mechanism").[32]

Thus, the transition bonds enabled TCC to obtain a return of and on its stranded investments as the PUCT deregulated the wholesale market for electricity in Texas, all while ensuring that neither the utility nor the state government was forced to bear the liability of the transition bonds directly. Moreover, although the PUCT did not guarantee the transition bonds, it nonetheless stipulated that "the State of Texas and other governmental

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[30] AEP Tex. Cent. Co., Registration Statement (Pre-Effective Amendment No.1 to Form S-3) (Sept. 5, 2006), http://www.sec.gov/Archives/edgar/data/18734/000119312506185414/ds3a.htm.

[31] Tex. Util. Code § 39.001.

[32] AEP Tex. Cent. Transition Funding II LLC, Preliminary Term Sheet 1 (Sept. 15, 2006), https://www.sec.gov/Archives/edgar/data/18734/000119312506191785/dfwp.htm.

entities, as retail electric customers, will be obligated to pay Transition Charges securing the Bonds."[33]

An important commitment mechanism in the process that created the transition bonds was the inclusion of a *non-impairment* provision in the Financing Order, issued by the PUCT:

> The Financing Order includes affirmative findings to the effect that (i) the Financing Order is final and not subject to PUCT rehearing, (ii) the Issuer's right to collect Transition Charges is a property right against which bondholders will have a perfected lien upon execution and delivery of a security agreement and the filing of notice with the Secretary of State, and (iii) *the State of Texas has pledged not to take or permit any action that would impair the value of the Transition Property, or, reduce, alter or impair the Transition Charges to be imposed, collected and remitted to bondholders, except for the periodic true-up, until the Bonds have been paid in full*. The Financing Order is final and is no longer subject to further appeal or review by the PUCT or the courts.[34]

Through this non-impairment provision, Texas guaranteed TCC the right to collect the Transition Charge to fund the transition bonds and thus secured the bonds against any future action on the part of the PUCT that might impede TCC's ability to collect the Transition Charges. The PUCT also guaranteed, through the True-up Mechanism included in the Financing Order, that it would "take specific actions pursuant to the irrevocable Financing Order as expressly authorized by the Restructuring Act *to ensure that Transition Charge revenues are sufficient to pay on a timely basis scheduled principal and interest on the Bonds*."[35]

Consistent with TCC's expectations that the bonds would receive high credit ratings, as of August 2019, the bonds were rated Aaa by Moody's, AAA by Standard & Poor's, and AAA by Fitch.[36]

C. The Historical Performance of Transition Bonds

Because stranded-cost transition bonds are secured by a cash flow backed by a regulatory obligation, the usual credit risks extant in more

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[33] *Id.* at 1; *see also* Tex. Util. Code § 39.310 ("Transition bonds are not a debt or obligation of the state and are not a charge on its full faith and credit or taxing power. The state pledges, however, for the benefit and protection of financing parties and the electric utility, that it will not take or permit any action that would impair the value of transition property, or, except as permitted by Section 39.307, reduce, alter, or impair the transition charges to be imposed, collected, and remitted to financing parties, until the principal, interest and premium, and any other charges incurred and contracts to be performed in connection with the related transition bonds have been paid and performed in full.").

[34] AEP Tex. Cent. Transition Funding II LLC, Preliminary Term Sheet, *supra* note 33, at 10 (emphasis added).

[35] *Id.* at 3 (emphasis added).

[36] *See Ratings Assigned*, American Electric Power, https://www.aep.com/investors/financialfilingsandreports/utilitysecuritizations/bondII/rates.aspx.

familiar asset-backed securities (ABS)—backed by credit cards or mortgages, for example—do not apply to stranded-cost transition bonds.[37] As a result of their unique structure, transition bonds for stranded-cost recovery have exhibited strong market performance since regulated firms first issued them in the 1990s. These bonds have undergone several shocks, including the 2001 California energy crisis, in which Pacific Gas and Electric Co. (PG&E) went bankrupt; natural disasters, such as Hurricane Rita in 2005; and the severe recession that began in 2008. Despite those shocks, the yields on these transition bonds have closely tracked those on comparable AAA credit card ABS.

A typical structured security—an ABS, for example—is unavoidably subject to default risks involved in underwriting standards, as well as the prepayment risks inherent in the refinancing option. For example, both risk factors could reduce the value of the securities more severely in a recession, given the high level of market uncertainty and the relatively lower interest rate. In contrast, transition bonds are immune from both of those risk factors, because the payments are backed by a regulatory rate order and prepayment of the debt is not possible.

To assess the risk that a recession poses to transition bonds, Standard & Poor's developed stress tests for AAA-rated transition bonds in 2009 and found that there was no material weakness in the performance of the bonds issued by regional electricity utility companies.[38] Even in the regions that suffered from relatively severe recessions beginning in 2007 (including Michigan, Florida, and California), customer use of electricity provided by issuers of transition bonds—including Detroit Edison (DE), Florida Power & Light (FPL), and Southern California Edison (SCE)—declined only modestly.[39] Further, customer use of electricity provided by DE, FPL, and SCE withstood stress tests based on a usage decline of between 60 percent and 80 percent in the amount of electricity generated in the service territories of these utilities.[40]

In sum, because the transition bond's cash flows are backed by the nonbypassable end-user charge that the regulator has authorized the utility to collect from all customers (even those served by other utilities in that jurisdiction), the most critical risk factors for transition bonds become only natural disasters and politics.

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[37] *See* Douglas J. Lucas, Laurie S. Goodman & Frank J. Fabozzi, Collateralized Debt Obligations: Structures and Analysis 150–51 (Wiley Finance 2d ed. 2006).

[38] Standard & Poor's RatingsDirect, The Recession Hasn't Been Hard on "Ratepayer Obligation Charge" Bonds, *supra* note 15.

[39] *Id.* at 4.

[40] *Id.*

Conclusion

Transition bonds elicit a credible commitment from the government to allow the incumbent utility to recover its stranded costs in its network. Specifically, the capital market quantifies the expectation of regulatory opportunism through the price and rating of the transition bonds, much as risk premiums quantify political risk in a country with an unstable political regime. In effect, the regulated firm's issuance of transition bonds to recover stranded costs enables the capital market to regulate the regulators. Given the intense scrutiny by the capital market, any act of regulatory opportunism by the government causes an immediate, conspicuous cost to the reputation of that particular jurisdiction that is continuously measurable through the price of the transition bonds. Transition bonds also increase transparency to end users, because the transition charge appears as a separate line item on each end user's monthly bill. Consequently, ultimate consumers directly observe the cost that the regulator has determined they should be made to pay to effect a particular transformation of the structure of the regulated industry.

Appendix I

The following sources for the data depicted in Figure I are listed in reverse chronological order.

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