

PRIVATE STANDARDS IN PUBLIC LAW

Emily S. Bremer^{*}

Federal agencies often give legal effect to privately authored technical standards that the public can access only by paying a fee. It is widely agreed that this practice impedes public participation in the rulemaking process and makes federal regulatory requirements less transparent. Ideally, private standards that are or may be incorporated into federal regulations would be freely available to the public online. But the problem is multidimensional. Tension between the public right to access the law and the private intellectual property rights of standards developers must be resolved within the overarching context of a longstanding and highly valuable public-private partnership in standards. Any approach to expanding the free online availability of private standards must also preserve the ability of federal agencies to fulfill substantive statutory missions to protect public health and safety.

This article offers a case study of a recent law that prohibited one federal agency, the Pipeline and Hazardous Materials Safety Administration (PHMSA), from incorporating into regulations or guidance any private standard not freely available to the public online. The confined regulatory context makes possible a much needed analysis of the actual cost of private incorporated standards. The data reveal that standards developers voluntarily provided free online access to a surprisingly large share of PHMSA's standards. The free access mandate produced little marginal improvement over that baseline. Furthermore, it imperiled PHMSA's ability to protect public safety by preventing the continued use of just a few extremely important standards. In the end, Congress was forced to amend the law.

PHMSA's experience strongly suggests that simply mandating free online access to private incorporated standards is unworkable. This multidimensional problem requires a more nuanced solution. Collaboration between individual federal agencies and private standards developers holds greater promise for expanding public access without unduly restricting federal agencies' ability to protect public safety by integrating private standards and public law.

^{*} Attorney Advisor, Administrative Conference of the United States; New York University School of Law, J.D.; New York University, B.A. The views expressed here are those of the author and do not necessarily reflect those of the members of the Conference or its committees. Thanks to Reeve Bull and Amber Williams for helpful comments and suggestions on earlier drafts and to Samantha Aster, Matthew Bisanz, and Blair Druhan for invaluable research assistance.

TABLE OF CONTENTS

Introduction.....	2
I. The Challenges of Addressing a Multidimensional Problem.....	5
A. The Public Rights Dimension: Freedom of Information.....	6
B. The Private Rights Dimension: Copyright	11
C. A Hybrid Third Dimension: The Public-Private Partnership in Standards	16
D. Conflicting Approaches to the Public Access Problem.....	17
II. The Imperative of Public-Private Collaboration.....	19
A. The Importance of Standards.....	20
B. The Predominately Private U.S. Standards System.....	23
C. The Need to Integrate Private Standards and Public Law	26
III. Pipeline Safety: A Case Study in Incorporation by Reference	29
A. Meet the Standards Development Organizations	29
B. A Comprehensive Analysis of the Costs of Incorporated Standards.....	32
C. The Effort to Implement Section 24	41
IV. Evaluating the Section 24 Experiment.....	43
A. The Benefits and Costs of Mandating Free Access.....	43
B. Collaborating to Expand Public Access	47
C. Expanding Public Access through Federal Depository Libraries.....	48
Conclusion	50

INTRODUCTION

As the federal government has moved online, providing free electronic access to rulemaking dockets and regulations, one class of holdouts has become readily apparent: private standards incorporated by reference into regulations. Developed by private nonprofit organizations, copyrighted, and typically sold to fund the standards development process, private standards are essential to nearly every aspect of modern life. Agencies often make these voluntary standards mandatory by incorporating them by reference into federal regulations. Indeed, federal law¹ and executive policy² have long required agencies to use available voluntary consensus standards in this way, instead of creating “government-unique” standards solely to serve regulatory purposes. This policy is an important part of an extensive, longstanding, and highly valuable public-private partnership in standards. One unfortunate consequence of

¹ See National Technology Transfer and Advancement Act of 1995 (NTTAA), Pub. L. No. 104-113, § 12(d), 110 Stat. 775 (1996) (codified at scattered sections of 15 U.S.C. (2006)), *available at* http://standards.gov/standards_gov/nttaa.cfm.

² See OFFICE OF MGMT. & BUDGET, EXEC. OFFICE OF THE PRESIDENT, OMB CIRCULAR NO. A-119, FEDERAL PARTICIPATION IN THE DEVELOPMENT AND USE OF VOLUNTARY CONSENSUS STANDARDS AND IN CONFORMITY ASSESSMENT ACTIVITIES, 63 Fed. Reg. 8546, 8549 (Feb. 19, 1998) [hereinafter CIRCULAR A-119], *available at* <http://standards.gov/a119.cfm>.

incorporating private standards into regulation, however, is that the public must often pay a private party to see the full text of a proposed or final regulation.

What is the best way to make private, incorporated standards freely available to the public online? I have argued,³ and the Administrative Conference of the United States has recommended,⁴ that agencies should work collaboratively with standards developers and use available electronic tools, such as read-only access, to facilitate free online access without undermining the value of the copyright and the ability of the standards developer to recoup the significant costs of developing the standards. Others have argued that free electronic access should be mandated in all cases, regardless of the implications for copyright, federal standards policy, or public safety.⁵

Until now, the incorporation by reference debate has proceeded at a high level of generality, allowing advocates on both sides to selectively highlight data points that support their understanding of the relevant facts and preferred solution to incorporation by reference's public access problem. No systemic analysis of the costs of incorporated standards or the viability of various proposed solutions has been possible. A government-wide quantitative analysis of these costs would require compiling cost and other data for the nearly 10,000 incorporations by reference of standards in the Code of Federal Regulations (CFR)—a truly daunting prospect. A government-wide qualitative analysis would be even more difficult—and perhaps impossible. Whether the cost of incorporated material is reasonable or can be reduced or eliminated depends on a combination of factors that vary widely across agencies, regulatory contexts, standards, and standards development organizations.⁶ In the abstract, it is difficult predict the consequences of any given approach to reducing the costs of incorporated materials. And it is impossible to evaluate whether those consequences—for public safety, private rights, regulatory and non-

³ See Emily S. Bremer, *Incorporation by Reference in an Open-Government Age*, 36 HARV. J.L. & PUB. POL'Y 131 (2013).

⁴ See Administrative Conference of the United States, Recommendation 2011-5, *Incorporation by Reference*, 77 Fed. Reg. 2,257 (Jan. 17, 2012) [hereinafter Recommendation 2011-5]. I acted as the Conference's in-house researcher for this recommendation. See Bremer, *supra* note 3, at 131 n.*.

⁵ See, e.g., Peter L. Strauss, *Private Standards Organizations and Public Law*, Columbia Public Law Research Paper No. 13-334 (2012), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2194210 (last visited June 3, 2013); Nina A. Mendelson, *Private Control Over Access to Public Law: The Puzzling Federal Regulatory Use of Private Standards*, MICH. L. REV. (forthcoming 2013), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2264321 (last visited June 3, 2013).

⁶ See Bremer, *supra* note 3, at 145-47, 158-59, 180-83.

regulatory collaborative governance relationships, and other public needs and priorities—are acceptable.

This article addresses these challenges by offering a case study of incorporation by reference in the pipeline safety context.⁷ In 2012, in Section 24 of the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011, Congress addressed the issue of public access to incorporated standards by imposing an uncompromising free access mandate on a single component agency of the Department of Transportation, the Pipeline and Hazardous Materials Safety Administration (PHMSA). Section 24 prohibited the agency from incorporating by reference into pipeline safety regulations or guidance any material not available to the public for free on the Internet.⁸ The prohibition was prospective, with an effective date of January 2013, and so did not affect PHMSA’s existing incorporations by reference. Nonetheless, the agency was forced to delay ongoing rulemaking proceedings while it sought a way to implement Section 24 without violating federal standards policy, infringing copyright, or undermining public safety.

This article examines PHMSA’s use of regulatory incorporation by reference and experience with Section 24’s uncompromising free access mandate. It provides a detailed, data-driven analysis of the costs of the private standards and other materials incorporated by reference into federal pipeline safety regulations.⁹ This analysis provides a more complete picture of the costs of incorporated standards and reveals that, independently of Section 24’s requirements, standards developers voluntarily provided free online access to a surprisingly large percentage of PHMSA’s incorporated standards. The data also cast some doubt on the argument that a government-wide free access mandate is required because standards developers routinely engage in monopoly pricing, charging more for incorporated editions of standards simply because they are the law. The article further provides a qualitative analysis of the consequences of Section 24. After a year and a half of continuous effort to implement the law, PHMSA was able to successfully negotiate free access agreements with some—but not all—of its standards developers. In the end, the law did not much expand the free online availability of PHMSA’s

⁷ See Edward L. Rubin, Commentary, *The New Legal Process, the Synthesis of Discourse, and the Microanalysis of Institutions*, 109 HARV. L. REV. 1393, 1425-34 (1996).

⁸ See Pub. L. 112-90, 125 Stat. 1903 (Jan. 3, 2013) (codified in scattered sections of 49 U.S.C.), available at <http://www.gpo.gov/fdsys/pkg/PLAW-112publ90/pdf/PLAW-112publ90.pdf> [hereinafter Pipeline Safety Act].

⁹ For purposes of simplicity, this article typically uses the term “standards” to refer collectively to the materials incorporated by reference into PHMSA’s pipeline safety regulations. As I explain later, however, the incorporated materials include several non-standards materials, such as technical reports and software. See *infra* at notes 201-228 and accompanying text.

incorporated standards. Worst of all, the agency was unable to negotiate the agreements necessary to continue incorporating some of its most important (and expensive) standards. The law thus threatened PHMSA's ability to protect public safety by integrating federal regulatory requirements with an extensive, pre-existing private regulatory infrastructure.

PHMSA's experience provides strong additional support for a collaborative, non-comprehensive approach to incorporation by reference's public access problem. Indeed, in August 2013, Congress acknowledged that Section 24's aggressive approach proved unworkable when it amended the law, significantly softening its requirements.¹⁰ The legislative history identified collaboration as the best path forward for agencies seeking to expand the public availability of incorporated standards while simultaneously protecting public safety, complying with federal standards policy, and observing copyright.¹¹ Like PHMSA, other agencies should collaborate with standards developers to make the law more free. But when the ideal of free online access cannot be achieved, agencies must retain the flexibility to integrate private standards into public law as necessary to further the public interest and protect health and safety.

This article proceeds in four parts. Part I explores the multidimensional problem of public access to incorporated standards and explores competing approaches to improving the public availability of private standards incorporated by reference into federal regulations. Part II explains the importance of standardization, explores the vast and largely unknown world of private standards, and demonstrates why federal agencies must retain the ability to integrate private standards into public regulatory regimes. Part III provides a detailed analysis of the standards incorporated into federal pipeline safety regulations and PHMSA's efforts to implement Section 24's strict requirements. Part IV argues that a collaborative approach holds the greatest promise for addressing the multidimensional problem of public access to incorporated standards.

I. THE CHALLENGES OF ADDRESSING A MULTIDIMENSIONAL PROBLEM

Improving the public availability of incorporated standards is surprisingly difficult because the problem is multidimensional. The best approach must reconcile two apparently incompatible rights: the public's right to freely access the law and the private copyrights of

¹⁰ See H.R. 2576, 113th Cong. (1st Sess. 2013).

¹¹ See 159 Cong. Rec. H4499 (daily ed. July 16, 2013) (statement of Rep. Eddie Bernice Johnson).

standards developers. Moreover, this reconciliation must occur within the broader context of a longstanding, complex, and highly valuable public-private partnership in standards.

A. The Public Rights Dimension: Freedom of Information

An important administrative principle holds that federal agencies must make certain information, including regulatory proposals and legally binding regulations, available to the public. To that end, the Administrative Procedure Act (APA) requires agencies to publish notices of proposed rulemaking in a daily government publication, the *Federal Register*.¹² Similarly, the Freedom of Information Act (FOIA) requires agencies to publish regulations in the *Federal Register*,¹³ for codification in a special annual edition, the CFR.¹⁴ By providing a central repository for key agency pronouncements, the *Federal Register* and CFR have long ensured that both the public and the government are aware of what federal regulations may or do require.¹⁵

An agency that violates these publication requirements will suffer the consequences. A proposed rule not properly noticed in the *Federal Register* will be invalidated or remanded.¹⁶ And if an agency fails to publish a regulation as required, it will not be permitted to enforce that regulation except against parties having actual notice of the regulation's requirements.¹⁷

Congress and the executive have supplemented these basic publication requirements by requiring agencies to disseminate certain information to the public electronically. Together, the Electronic Freedom of Information Act of 1996, the Government Paperwork Elimination Act of 2000, and the E-Government Act of 2002, moved agencies into the digital age by mandating the provisions of electronic public reading rooms. Thus, agencies now use electronic docketing for rulemaking and other administrative proceedings.¹⁸ In accord with a similar statutory

¹² See 5 U.S.C. § 553(b).

¹³ See *id.* § 552(a).

¹⁴ See 44 U.S.C. § 1510; see also 1 C.F.R. § 8.1(a) (explaining that the CFR is a special edition of the *Federal Register* that “present[s] a compact and practical code . . . contain[ing] each Federal regulation of general applicability and legal effect”)

¹⁵ See, e.g., *Fed. Crop. Ins. Corp. v. Merrill*, 332 U.S. 380, 385 (1947) (“Congress has provided that the appearance of rules and regulations in the *Federal Register* gives legal notice of their contents); see generally *Panama Refining Co. v. Ryan*, 293 U.S. 388, 412 (1935) (preventing an agency from enforcing regulations that “did not exist.”); Erwin N. Griswold, *Government in Ignorance of the Law—A Plea for Better Publication of Executive Legislation*, 48 HARV. L. REV. 198 (1934) (urging the creation of the *Federal Register*); *Note: The Federal Register and the Code of Federal Regulations—A Reappraisal*, 80 HARV. L. REV. 439 (1966).

¹⁶ See, e.g., *PPG Indus. Inc. v. Costle*, 659 F.2d 1239, 1249-51 (D.C. Cir. 1981).

¹⁷ See *Appalachian Power Co. v. Envtl. Prot. Agency*, 566 F.2d 451, 455 (4th Cir. 1977).

¹⁸ Executive branch agencies are required to use the Federal Docket Management System (FDMS) and its public-facing web portal, Regulations.gov. See, e.g., Exec. Order No. 13563, 76 Fed. Reg. 3821, 3822 (Jan. 21,

requirement that Congress added to the Federal Register Act,¹⁹ the Government Printing Office (GPO) today provides online access to the *Federal Register*²⁰ and CFR.²¹

Under FOIA, agencies can fulfill the basic obligation to publish regulations by incorporating by reference material that has already been published elsewhere. The provision authorizing agencies to incorporate by reference is oddly structured. It is found embedded in a freestanding paragraph hanging at the end of 5 U.S.C. § 552(a)(1), which is primarily concerned with establishing the sanction (unenforceability) for agency non-publication. In its entirety, this paragraph provides:

Except to the extent that a person has actual and timely notice of the terms thereof, a person may not in any manner be required to resort to, or be adversely affected by, a matter required to be published in the Federal Register and not so published. For the purpose of this paragraph, matter reasonably available to the class of persons affected thereby is deemed published in the Federal Register when incorporated by reference therein with the approval of the Director of the Federal Register.²²

Office of the Federal Register (OFR) regulations²³ and guidance²⁴ flesh out federal policy on incorporation by reference and establish the process agencies must go through to secure OFR's approval to incorporate by reference. The statute appears to require OFR approval only at the final rule stage,²⁵ and OFR regulations currently do not require agencies to seek approval at the proposed rule stage.²⁶ Courts will not permit an agency to enforce incorporated material if it has not fulfilled these requirements and secured OFR's requisite approval.²⁷

2011). Independent agencies may use this infrastructure or create and manage their own solutions. *See, e.g.*, FED. COMM'NS COMM'N, ELECTRONIC COMMENT FILING SYSTEM, <http://apps.fcc.gov/ecfs/> (last visited June 8, 2013).

¹⁹ *See* 44 U.S.C. § 4101(a)(2).

²⁰ *See* www.federalregister.gov.

²¹ *See* www.ecfr.gov. This e-CFR provides the requisite public access, but at this time is not the legally authoritative version of the CFR. *See* Bremer, *supra* note 3, at 190 n.258.

²² 5 U.S.C. § 552(a)(1).

²³ *See* 1 C.F.R. pt. 51.

²⁴ *See* Nat'l Archives & Records Admin., Federal Register Document Drafting Handbook, Chapter 6: What is Incorporation by Reference, and How do I do it? (Jan. 2011).

²⁵ *See* Letter from the Office of the Chairman of the Admin. Conference of the United States, to Michael L. White, Acting Dir., Office of the Fed. Register (June 1, 2012) [hereinafter Admin. Conf. Letter to White], available at <http://www.acus.gov/research-projects/incorporation-reference>.

²⁶ OFR is currently considering a petition to amend its incorporation by reference provisions to, among things, require approval at the proposed rule stage. *See* Incorporation by Reference, 77 Fed. Reg. 11,414 (Feb. 27, 2012) (to be codified at 1 C.F.R. pt. 51).

²⁷ *Appalachian Power Co. v. Env'tl. Prot. Agency*, 566 F.2d 451, 455 (4th Cir. 1977).

Private publications incorporated by reference are frequently copyrighted and may be available to the public only by purchase from a private organization.²⁸ As a practical matter, this means that the public may have to pay a private party to gain access to the full text of a proposed or final regulation. The traditional method of addressing this issue has been to require promulgating agencies and OFR to maintain a copy of each incorporated material in a public reading room.²⁹ Indeed, this is how rulemaking dockets were made available to the public before the transition to electronic docketing and rulemaking. Although some agencies have public reading rooms in regional offices located throughout the country, it is not uncommon for an agency's only public reading room to be located in Washington, D.C. OFR is the only agency that maintains a full collection of all materials incorporated by reference in the CFR. The public can access this collection, but only by visiting OFR or other offices of the National Archives and Records Administration (NARA), all of which are located in the Washington, D.C. metro area.³⁰

Prices for privately authored incorporated materials that are available online³¹ can vary widely—some are available for free, others may cost hundreds of dollars.³² Even if a publication is available for free, it may be protected by digital rights management solutions, such as those used to facilitate read-only access. The worst-case scenario is when an incorporated material is out-of-print, in which case it may not be available online at any price.³³ OFR does not consider the price of incorporated material when deciding whether to approve an agency's request to incorporate by reference.³⁴ And although the agency works to prevent the incorporation of out-of-print materials through its incorporation by reference approval process, it cannot eradicate the possibility that an incorporated material will go out-of-print or otherwise become unavailable after the incorporating regulation has been approved, published, and codified.³⁵

Since the federal government began providing free online access to rulemaking dockets and regulations, the costs of electronic access to incorporated materials have become both

²⁸ Agencies often incorporate by reference to avoid infringing copyright. *See* Bremer, *supra* note 3, at 155.

²⁹ *See* Bremer, *supra* note 3, at 153.

³⁰ *See* NAT'L ARCHIVES & RECORDS ADMIN., INCORPORATION BY REFERENCE, WHERE TO FIND MATERIALS INCORPORATED BY REFERENCE AT NARA FACILITIES, <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

³¹ Standards development organizations typically sell both hard and electronic copies of standards.

³² *See infra* at Part III.B.

³³ *See infra* at notes 228 and 211 and accompanying text.

³⁴ *See* 1 C.F.R. pt. 51.

³⁵ *See, e.g., infra* notes 228 and 211 and accompanying text.

obvious and controversial.³⁶ Some have argued that incorporated materials must always be available online free of charge both during the rulemaking process and after a final incorporating regulation is promulgated.³⁷

But the law does not require incorporated materials to be available for free online. Under FOIA, incorporated materials must be “reasonably available to the class of person affected.”³⁸ “Reasonably available” is not so stringent a standard as “freely available.”³⁹ Indeed, the legislative history⁴⁰ of the provision, which was enacted in 1966⁴¹ to address concerns that too much material was being published in the *Federal Register*,⁴² reveals that Congress expected agencies to incorporate by reference privately published, copyrighted material. More specifically, Congress contemplated incorporation of material found in professional publications, such as those of the West Company and Commerce Clearing House.⁴³ Such publications are copyrighted, fairly expensive, and rarely available in libraries open to the general public.⁴⁴ The Attorney General’s memorandum on FOIA, issued shortly after the incorporation by reference provision was adopted, further supports interpreting “reasonably available” to permit some charge or other reasonable restriction of the availability of incorporated materials.⁴⁵

³⁶ Cf. Timothy B. Lee, *The case against PACER: tearing down the courts’ paywall*, ARS TECHNICA, <http://arstechnica.com/tech-policy/2009/04/case-against-pacer/> (arguing government should not charge for online access to judicial opinions, just as it does not charge for access to other government information portals, such as recovery.gov and regulations.gov).

³⁷ See generally Mendelson, *supra* note 5.

³⁸ 5 U.S.C. § 552(a)(1).

³⁹ See generally Admin. Conf. Letter to White, *supra* note 25.

⁴⁰ FOIA’s complete legislative history is available online in George Washington University’s National Security Archive. See <http://www.gwu.edu/~nsarchiv/nsa/foialeghistory/legistfoia.htm>.

⁴¹ See Pub. L. No. 89-487, 80 Stat. 250 (July 4, 1966). The 1966 amendments became effective in 1967, *see id.*, and the statute was also revised again in 1967, *see* Pub. L. No. 90-23, 81 Stat. 54 (June 5, 1967), with largely nonsubstantive amendments to the incorporation by reference provision.

⁴² *E.g.*, S. REP. 1219, at 11 (1964) (“[T]here have been few complaints about omission from the Federal Register of necessary official material. In fact, what complaints there have been have been more on the side of *too much* publication rather than *too little*.”).

⁴³ See S. REP. 1219, at 4 (1964).

⁴⁴ The collections of most general public libraries do not include, for example, West Reporters. See, e.g., LONGMONT PUBLIC LIBRARY, CATALOG, <http://library.ci.longmont.co.us/ipac20/ipac.jsp?profile=>. State or local bar associations may have lending libraries, but they are typically open to bar members only and may not include substantive publications. See, e.g., COLORADO BAR ASSOCIATION, LENDING LIBRARY, <http://www.cobar.org/index.cfm/ID/17/CLPE/Lending-Library/>. Law school libraries are typically not open to the general public. See, e.g., NEW YORK UNIVERSITY SCHOOL OF LAW, ACCESS: USING THE LAW LIBRARY, <http://www.law.nyu.edu/library/generalinformation/access/index.htm> (“The Law Library is not open to the general public.”). Private publications are ineligible for inclusion in Federal Depository Libraries. See *infra* at Part IV.C.

⁴⁵ Ramsay Clark, Memorandum for the Executive Departments and Agencies Concerning Section 3 of the Administrative Procedure Act as Revised Effective July 4, 1967 (June 1967), *available at* <http://www.justice.gov/oip/67agmemo.htm> [hereinafter *Attorney General’s Memorandum*].

Another apparent deficiency in FOIA's incorporation by reference standard is its exclusive concern with ensuring reasonable availability for regulated parties.⁴⁶ This is reflected in the statute's text, which requires that incorporated materials be "reasonably available to the class of persons affected thereby." It is further indicated by the previously mentioned strange structure of the provision. The authorization to incorporate by reference "matter reasonably available to the class of person affected thereby" is embedded in the paragraph providing that "a person may not in any manner be required to resort to, or be adversely affected by, a matter required to be published in the Federal Register and not so published."⁴⁷ Read holistically, the paragraph thus conveys a singular concern with the rights of regulated parties, who may be "required to resort to" or may "be adversely affected by" incorporated material.⁴⁸ In this age of open government and e-rulemaking, however, administrative law and policy have properly sought to expand access to agency processes and regulations beyond regulated parties, to the entire American public.⁴⁹

In fact, the law does not require even that regulations—whether in print or electronic format—be free to the public. GPO is authorized to charge the public for its publications, including the *Federal Register* and CFR, at a price sufficient to cover the cost of printing plus fifty percent.⁵⁰ A one-year subscription to the print edition of the *Federal Register* currently costs \$929.00.⁵¹ A one-year subscription to the print edition of the CFR costs \$1,804.00.⁵² Electronic subscriptions (presumably intended for institutional purchasers) are significantly more expensive—as much as \$17,325.00 for the CFR and \$17,250.00 for the *Federal Register*.⁵³ Although GPO is required to provide online access to the *Federal Register* and CFR,⁵⁴ Congress has authorized the agency to charge for it.⁵⁵ To its credit, GPO has so far declined to use that

⁴⁶ See Letter Admin. Conf. Letter to White, *supra* note 25.

⁴⁷ 5 U.S.C. § 552(a)(1).

⁴⁸ See Bremer, *supra* note 3, at 156-57; see also Admin. Conf. Letter to White, *supra* note 25.

⁴⁹ See Bremer, *supra* note 3, at 157.

⁵⁰ See 44 U.S.C. § 1708.

⁵¹ GOV'T PRINTING OFFICE, U.S. GOV'T BOOKSTORE, ANNUAL CFR PRINT SUBSCRIPTION, <http://bookstore.gpo.gov/products/sku/769-004-00000-9> (last visited June 8, 2013).

⁵² GOV'T PRINTING OFFICE, U.S. GOV'T BOOKSTORE, FEDERAL REGISTER COMPLETE (COMPLETE PAPER SUBSCRIPTION SERVICE WITH INDEXES), <http://bookstore.gpo.gov/catalog/laws-regulations/code-federal-regulations-cfrs-print/annual-cfr-print-subscription> (last visited June 8, 2013).

⁵³ GOV'T PRINTING OFFICE, U.S. GOV'T BOOKSTORE, ELECTRONIC DATA PRODUCTS, <http://bookstore.gpo.gov/Electronic-Data-Products> (last visited May 30, 2013).

⁵⁴ See 44 U.S.C. § 4101(a)(2).

⁵⁵ See *id.* § 4102.

authority.⁵⁶ It bears noting, however, that the prices GPO charges do not reflect the costs of developing the substance of what it publishes. The agencies themselves bear those costs, expending significant staff time and appropriated funds to develop regulations and take other action that is publicly reflected in GPO's publications.⁵⁷

Regardless of what the law requires, however, we should, as a matter of sound administrative policy, strive to facilitate easy, electronic public access to materials incorporated by reference.⁵⁸ During the rulemaking process, regulated and other interested parties may need access to a private standard or other material in order to meaningfully comment on an agency's proposal to incorporate it by reference. Similarly, legally binding regulations, including any material incorporated by reference therein, should be readily available to all. In short, we need to find a way to update publication requirements to account for how technology has changed the public's needs and expectations for transparency and online access.⁵⁹

The first challenge to implementing this policy ideal to its fullest extent—that is, by providing free online access to incorporated materials—is copyright, considered in the next section.

B. The Private Rights Dimension: Copyright

As a general rule, the law cannot be copyrighted. The Supreme Court established this rule in nineteenth century, in the cases of *Wheaton v. Peters*⁶⁰ and *Banks v. Manchester*.⁶¹ These cases address the question of whether a reporter of federal or state judicial opinions acquires copyright in the judicial opinions themselves. *Wheaton* addresses the issue only briefly and in dicta, in the last line of Justice McLean's majority opinion: "It may be proper to remark that the Court is unanimously of opinion that no reporter has or can have any copyright in the written

⁵⁶ Some have questioned whether GPO can continue providing this free access as revenues from its various print products decline and GPO faces other budgetary pressures. See Nat'l Acad. of Pub. Admin., *Rebooting the Government Printing Office: Keeping America Informed in the Digital Age* (Jan. 2013); but see Letter from Candice S. Miller, Chairman, and Robert A. Brady, Ranking Member, Committee on House Administration, U.S. House of Representatives to Hon. Davita Vance-Cooks, Acting Public Printer, U.S. Government Printing Office (May 21, 2013) (urging GPO not to follow the National Academy's recommendation to charge for online access because "in the interest of transparency and accessibility, the documents of our democracy should be available to all Americans electronically, in perpetuity, and for free").

⁵⁷ Agencies also pay GPO to publish in the *Federal Register* and maintain regulations annually in the CFR. These payments can seem quite significant to an agency focused on extending limited funding, but they are dwarfed by the full costs of rulemaking and other agencies activities.

⁵⁸ See Recommendation 2011-5, *supra* note 4, at ¶ 1.

⁵⁹ Cf. Orin S. Kerr, *Foreword: Accounting for Technical Change*, 36 HARV. J.L. & PUB. POL'Y 403 (2013).

⁶⁰ 33 U.S. (8 Pet.) 591 (1834).

⁶¹ 128 U.S. 244 (1888).

opinions delivered by this Court, and that the judges thereof cannot confer on any reporter any such right.”⁶² The case was, however, decided (and not unanimously) on other grounds.⁶³ In *Banks*, the question of a reporter’s copyright in judicial opinions was squarely presented, providing an opportunity for the Court to elaborate. Here, the Court held that, under the federal copyright statute, a reporter could acquire no copyright because he “was not the author, inventor, designer, or proprietor of the syllabus, the statement of the case, or the decision or opinion of the court.”⁶⁴ Indeed, as public servants paid a salary to perform their work, judges could not themselves acquire copyright in their opinions.⁶⁵ Beyond the issue of authorship, the Court observed that, as a matter of “public policy,” the “work done by the judges constitutes the authentic exposition and interpretation of the law, which, binding every citizen, is free for publication to all, whether it is a declaration of unwritten law or an interpretation of a constitution or a statute.”⁶⁶ Today, the Copyright Act provides that “[c]opyright protection . . . is not available for any work of the United States Government,”⁶⁷ and it is well established that reporters have copyright only in the material they author and publish as supplement to the law.⁶⁸

The hard question is how this rule applies when the government elects to give legal effect to materials that are, in the first instance, privately authored and copyrighted.⁶⁹ On this question, there is little judicial guidance and much ambiguity. The only case directly on point is the Fifth Circuit’s 2002 en banc decision in *Veeck v. Southern Building Code Congress, Inc.*⁷⁰ In *Veeck*, a sharply divide court held that once a state or local government adopts a model code as law, the private author of the code, having intended that its work be adopted as law, cannot assert

⁶² *Wheaton*, 33 U.S. at 668

⁶³ See generally *id.* at 654-668

⁶⁴ *Banks*, 128 U.S. at 252.

⁶⁵ See *id.* at 253, 254.

⁶⁶ *Id.* at 253.

⁶⁷ 17 U.S.C. § 105. This rule does not extend to the work of state governments, see, e.g., Nat’l Conference of Bar Exam’rs v. Multistate Legal Studies, Inc., 495 F. Supp. 34 (N.D. Ill. 1980), *aff’d* 692 F.2d 478 (7th Cir. 1982), *cert. denied* 464 U.S. 814 (1983), which sometimes assert copyright over state statutes and regulations.

⁶⁸ See generally L. Ray Patterson & Craig Joyce, *Monopolizing the Law: The Scope of Copyright Protection for Law Reports and Statutory Compilations*, 36 U.C.L.A. L. REV. 719 (1989).

⁶⁹ I have previously argued that the doctrine of fair use is of little help to an agency seeking to find a way to provide free online access to incorporated materials. See Bremer, *supra* note 3, at 160-67. A government use of copyrighted work is not necessarily a fair use. See *Whether and Under What Circumstances Government Reproduction of Copyrighted Materials is a Noninfringing “Fair Use” Under Section 107 of the Copyright Act of 1976*, 1999 WL 33490240 (O.L.C. Apr. 30, 1999), available at <http://www.justice.gov/olc/pincusfinal430.htm>.

⁷⁰ 293 F.3d 791 (5th Cir. 2002). The First Circuit has commented these issues, but only in dicta. See *Building Officials & Code Admin. v. Code Tech., Inc.*, 628 F.2d 730, 732-35 (1st Cir. 1980).

copyright over the code qua law.⁷¹ The court offered two intertwined rationales for this outcome: (1) once adopted as law, the privately authored code enters the public domain because the citizens' right to read the law cannot be subject to the whims of a private copyright owner;⁷² and (2) upon adoption, the model code's expression merges with the "fact" that is "the law," and is thus no longer eligible for copyright protection.⁷³ The court further said, however, that a case involving the incorporation by reference of extrinsic standards into the law would be "distinguishable in reasoning and result."⁷⁴ In a footnote, the majority cited Office of Management and Budget (OMB) Circular A-119, suggesting that it had federal regulatory incorporation of private standards particularly in mind.⁷⁵ Indeed, several other circuits have held that a private author's copyright generally survives the government's incorporation by reference of the work.⁷⁶

It is an open question whether the courts would, if presented with the opportunity, reaffirm *Veeck* and extend its holding to standards incorporated by reference in federal regulations. Even as far as it went, the decision was controversial.⁷⁷ The district court⁷⁸ and the Fifth Circuit panel⁷⁹ had both held that adoption of the code as law did not abrogate the code developer's copyright. Sitting en banc, the Fifth Circuit resolved the case on a closely divided vote of eight to six, generating two powerful dissents.⁸⁰ Invited to express the views of the United States,⁸¹ the Solicitor General urged the Supreme Court to deny certiorari.⁸² Although urging that the Fifth Circuit decided the case correctly,⁸³ the brief reveals some anxiety for the

⁷¹ See *Veeck*, 293 F.3d at 793. But the author retains copyright in the model code itself. See *id.*

⁷² See *id.* at 799-800.

⁷³ See *id.* at 800-02.

⁷⁴ *Id.* at 804.

⁷⁵ See *id.* at 804 n.20.

⁷⁶ See, e.g., *Practice Mgmt. Info. Corp. v. Am. Med. Ass'n*, 133 F.3d 516 (9th Cir. 1997); *CCC Info. Servs., Inc. v. Maclean Hunter Mkt. Reports*, 44 F.3d 61, 74 (2d Cir. 1994).

⁷⁷ See, e.g., Katie M. Colendich, Comment, *Who Owns "The Law"? The Effect on Copyrights When Privately-Authored Works are Adopted or Enacted by Reference into Law*, 78 WASH. L. REV. 589, 590 (2003).

⁷⁸ See 49 F. Supp. 2d 885 (E.D. Tex. 1999).

⁷⁹ See 241 F.3d 398 (5th Cir. 2001). Judge Wiener authored the majority opinion for the panel and was joined by Judge Stewart. Judge Little, sitting by designation from the Western District of Louisiana, dissented on essentially the same grounds as the subsequent en banc majority.

⁸⁰ See *Veeck*, 293 F.3d at 806-808, 808-826.

⁸¹ See 537 U.S. 1043 (2002).

⁸² See Brief for United States as Amicus Curiae, *Southern Bldg. Code Cong. Int'l, Inc. v. Veeck*, 539 U.S. 969 (2003) (No. 02-355).

⁸³ See *id.* at 8.

potential consequences of the decision on federal standards policy.⁸⁴ In a case involving continued copyright in standards incorporated by reference into federal regulations, the United States might very well defend the standards developers' copyrights as part of a broader defense of federal standards policy.⁸⁵

A case recently filed in the U.S. District Court for the District of Columbia squarely presents the question of continued copyright protection for standards incorporated by reference into federal regulations. For several years, Carl Malamud, a well-known transparency advocate and founder of Public.Resource.org, has posted state and local codes online, irrespective of copyright,⁸⁶ virtually daring code developers to sue him. None of the affected organizations so much as sent Mr. Malamud a takedown notice and, in the spring of 2012, he expanded his initiative to include all standards incorporated by reference in federal regulations.⁸⁷ In August 2013, three standards developers—the American Society for Testing and Materials (ASTM), the National Fire Protection Association (NFPA), and the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc.—filed a complaint seeking injunction relief for copyright violation against Public.Resource.org.⁸⁸ The plaintiffs are not seeking damages, and the complaint appears to raise the copyright issues cleanly, so the litigation may prove an excellent vehicle for resolving some of the ambiguity created by *Veck*.

⁸⁴ See, e.g., *id.* at 18 (acknowledging that “the continued ability of private standards organizations to develop and update their materials at a high level of quality and integrity is of substantial importance to the federal government,” but urging that Supreme Court review was unnecessary because the Fifth Circuit’s decision did not extend to standards incorporated by reference in federal regulations).

⁸⁵ See *supra* Part I.C.

⁸⁶ See, e.g., Tim Stanley, *Building Codes, State Codes & Regulations from Carl Malamud & Public.Resource.org*, Justia Law, Technology & Legal Marketing Blog (Sept. 7, 2008), <http://onward.justia.com/2008/09/07/building-codes-state-codes-regulations-from-carl-malamud-public-resource-org/>.

⁸⁷ See, e.g., Alex Goldman, *Carl Malamud is Making Laws More Public*, On the Media Blog (May 15, 2012, 10:21 am), <http://www.onthemedialog.org/blogs/on-the-media/2012/may/15/carl-malamud-making-laws-more-public/>. Mr. Malamud sent an attention-grabbing package announcing the plan to a number of federal agencies (including the Administrative Conference) and major standards development organizations, opening a public comment period before the first standard would be posted on a date certain. See Alex Goldman, *Carl Malamud’s Box of Goodies*, On the Media Blog (April 13, 2012, 11:20 am), <http://www.onthemedialog.org/blogs/on-the-media/2012/apr/13/carl-malamuds-box-goodies/>.

⁸⁸ See Complaint, *Am. Soc’y for Testing & Materials, Inc., et al. v. Public.Resource.org, Inc.*, No. 13-1215 (D.D.C. Aug. 6, 2013). A similar, previously-filed action was swiftly terminated. In early 2012, Public.Resource.org filed a preemptive declaratory judgment action in the Northern District of California against the Sheet Metal and Air Conditioning Contractors’ National Association, Inc. (SMACCNA), which was apparently the first affected organization to send Mr. Malamud a takedown notice. See *Public.Resource.org v. Sheet Metal and Air Conditioning Contractors’ National Association, Inc.*, No. 13-0815 (N.D. Cal.). SMACCNA at first refused to defend the action, but then swiftly settled.

Some have argued that legislative action is necessary to definitively address these complex copyright questions. For example, in May 2013, Public.Resource.Org organized a petition urging Congress to amend the Copyright Act⁸⁹ to include a provision stating that “[e]dicts of government, such as judicial opinions, administrative rulings, legislative enactments, public ordinances, and similar official legal documents are not copyrightable for reasons of public policy. This applies to such works whether they are Federal, State, or local as well as to those of foreign governments.”⁹⁰ As the petition acknowledges, this provision largely restates existing law. Even if it were added to the Copyright Act, it would not clearly strip copyright protection for privately authored materials subsequently given legal effect through adoption or incorporation. A more definitive amendment would be required to achieve that result. As the *Veeck* litigation and the ongoing debate over public access to incorporated materials demonstrate, however, a more definitive amendment would be controversial and might face an uphill battle in Congress.

Stripping copyright protection for incorporated materials is a poor solution to the public access problem: it would be both under- and over-inclusive and would create new problems of its own. It would be under-inclusive because it would not address the need for public access during the rulemaking stage, before a material is incorporated by reference and becomes law. It would be over-inclusive because it would punish the many private publishers that already provide free online access. Indeed, in the public debate of this issue, many often forget that copyright is not synonymous with for-pay access.⁹¹ And there may be other *public* benefits of preserving copyright. It provides an incentive for private standards development, funding the development of essential standards that convey significant public benefits.⁹² If not through fees for access, the public will have to pay the significant costs of standards development through some other mechanism. Copyright also provides the standards developer with the legal right and incentive to ensure that other parties are not disseminating erroneous or incomplete versions of its standards.

⁸⁹ See Mike Masnick, *One Simple Copyright Reform Idea: Government Edicts Should Never Be Subject to Copyright*, TECHDIRT (May 16, 2013), <http://www.techdirt.com/articles/20130516/01413623104/one-simple-copyright-reform-idea-government-edicts-should-never-be-subject-to-copyright.shtml>.

⁹⁰ See PUBLIC.RESOURCE.ORG, THE EDICTS OF GOVERNMENT AMENDMENT, <https://law.resource.org/pub/edicts.html>.

⁹¹ Indeed, a surprisingly large share of the private, copyrighted standards incorporated into federal pipeline regulations are available for free online. See *infra* at Part III.B.

⁹² See, e.g., *Veeck*, 293 F.3d at 817 (Wiener, J., dissenting).

If the government stripped copyright protection for incorporated materials, whether through legislation or litigation, affected copyright owners may have a viable takings claim.⁹³

The most complex and challenging barrier to free online access to incorporated materials, considered in the next section, is the need to preserve a federal standards policy that facilitates a valuable public-private partnership in standards.

C. A Hybrid Third Dimension: The Public-Private Partnership in Standards

For the past several decades, federal law and policy have generally required federal agencies to use available voluntary consensus standards⁹⁴ in regulations, in lieu of creating so-called “government-unique” standards solely to serve regulatory purposes. This policy has roots in a 1978 Administrative Conference recommendation,⁹⁵ which was swiftly embraced by the executive with the 1982 issuance of the first version of Circular A-119.⁹⁶ In its most recent iteration, finalized in 1998, Circular A-119 provides that “federal agencies must use voluntary consensus standards in lieu of government-unique standards . . . except where inconsistent with law or otherwise impractical.”⁹⁷ If an agency decides to create its own standard instead of using an available voluntary consensus standard, it must justify that decision in an annual report to OMB.⁹⁸ Congress codified this requirement in the National Technology Transfer and Advancement Act of 1995, commonly referred to as the “Tech Transfer Act.”⁹⁹

Incorporation by reference is the means through which agencies comply with this federal standards policy in the regulatory context. It is a necessary drafting technique, enabling agencies

⁹³ See *CCC Info. Servs., Inc. v. Maclean Hunter Mkt. Reports*, 44 F.3d 61, 74 (2d Cir. 1994). Depending on how such a takings claim arose, copyright owners may have to be wary of the jurisdictional bar imposed by 28 U.S.C. § 1500. See generally Emily S. Bremer & Jonathan R. Siegel, *Clearing the Path to Justice: Reform of 28 U.S.C. 1500*, 65 ALA. L. REV. ____ (forthcoming 2013).

⁹⁴ As explained in greater detail below, see *supra* at notes 157-158 and accompanying text, voluntary consensus standards are a particular type of private technical standard created using procedures designed to generate consensus among diverse participants and respect due process.

⁹⁵ See Administrative Conference of the United States, Recommendation 78-4, *Federal Agency Interaction with Private Standard-Setting Organizations in Health and Safety Regulation*, 44 Fed. Reg. 1357 (Jan. 5, 1979); see also Robert W. Hamilton, *The Role of Nongovernmental Standards in the Development of Mandatory Federal Standards Affecting Safety or Health*, 56 TEX. L. REV. 1329, 1379-86 (1978).

⁹⁶ See CIRCULAR A-119, *supra* note 2. Circular A-119 was first proposed in the late 1970s, but was not issued in final form until 1982. See ROSS E. CHEIT, *SETTING SAFETY STANDARDS: REGULATION IN THE PUBLIC AND PRIVATE SECTORS* 6 (1990).

⁹⁷ CIRCULAR A-119, *supra* note 2, at ¶ 6. OMB may soon release for public comment a further revised version of Circular A-119, which is expected to address, among other things, incorporation by reference issues. See *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*, 77 Fed. Reg. 19,357 (Mar. 30, 2012).

⁹⁸ CIRCULAR A-119, *supra* note 2, at ¶ 9.

⁹⁹ See NTTAA, *supra* note 1.

to integrate private standards into federal regulatory requirements without infringing the standards developers' copyrights. Indeed, Circular A-119 itself directs agencies to "observe and protect the rights of the copyright holder."¹⁰⁰ In some cases, incorporation by reference may also be required because the material cannot be printed in the *Federal Register* and CFR. Good examples include schematics, maps,¹⁰¹ and non-print materials such as software. According to the Standards Incorporated by Reference (SIBR) Database maintained by the National Institute for Standards and Technology (NIST)¹⁰² there are now nearly 10,000 incorporations by reference of standards, including voluntary consensus standards, government-unique standards, private industry standards, and international standards, in the CFR.¹⁰³

D. Conflicting Approaches to the Public Access Problem

How do we expand public access to incorporated standards within the complex, multidimensional parameters of administrative process, private copyright, and federal standards policy? For the last several years, the debate over this question has raged and a variety of solutions have been put forward. I have argued that a collaborative solution holds the greatest promise for expanding free online access to incorporated materials without undermining the highly valuable public-private partnership in standards.¹⁰⁴ In December 2011, the Administrative Conference of the United States recommended just such an approach, urging federal agencies to work with copyright owners and use available technological solutions, such as read-only access, to expand access to incorporated materials.¹⁰⁵ Others have argued that free online access should be required in all cases, regardless of other considerations. Some have sought to achieve this by asking OFR to amend its regulations to interpret FOIA's "reasonably available" standard more

¹⁰⁰ CIRCULAR A-119, *supra* note 2, at ¶ 6(j).

¹⁰¹ *See* Bremer, *supra* note 3, at 142.

¹⁰² NIST is a non-regulatory federal agency that conducts research, maintains core standards of measurement, and helps to coordinate private and public standards activities. *See infra* at notes 144, 150, and 208; *see also* Bremer, *supra* note 3, at 188-90 (describing NIST's responsibilities under the Tech Transfer Act and Circular A-119).

¹⁰³ *See* NAT'L INST. FOR STANDARDS & TECH., REGULATORY SIBR (P-SIBR) STATISTICS, STANDARDS INCORPORATED BY REFERENCE DATABASE, http://standards.gov/sibr/query/index.cfm?fuseaction=rsibr.total_regulatory_sibr (last visited May 8, 2013).

¹⁰⁴ *See* Bremer, *supra* note 3, at 153-83.

¹⁰⁵ *See* Recommendation 2011-5, *supra* note 4.

stringently.¹⁰⁶ Others have sought to force free online access through copyright litigation or argued that such access should be required by statute.¹⁰⁷

In one limited regulatory context, Congress has imposed an uncompromising free access mandate for incorporated standards. This mandate affects PHMSA, the component agency of the Department of Transportation¹⁰⁸ responsible for regulating pipelines and hazardous materials transportation.¹⁰⁹ Institutionally, the agency operates through two offices or “sides”: one that focuses on regulating hazardous materials and another that focuses on pipeline safety.¹¹⁰ In Section 24 of the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011,¹¹¹ enacted on January 3, 2012, Congress prohibited the pipeline side of PHMSA from incorporating by reference, into regulations or guidance, any material that is not available to the public for free online. The language of the provision was uncompromising:

Beginning 1 year after the date of enactment of this subsection, the Secretary may not issue guidance or a regulation pursuant to this chapter that incorporates by reference any documents or portions thereof unless the documents or portions thereof are made available to the public, free of charge, on an Internet Web site.¹¹²

PHMSA reasonably interpreted this provision to have prospective effect only. At the time the statute was enacted, however, the agency was already in the midst of rulemaking proceedings to update its standards incorporated by reference. Section 24 required the agency to put the proceedings on hold, while it spent approximately a year and a half working out how to implement the law’s requirements. These efforts included a July 2012 public workshop on implementation,¹¹³ as well as extensive negotiations with standards developers.

In August 2013, in response to significant concerns that Section 24 was unworkable, Congress amended the law, softening its requirements in three respects.¹¹⁴ First, Congress extended the effective date of the law, giving PHMSA until January 2015 to complete

¹⁰⁶ See *Incorporation by Reference*, 77 Fed. Reg. 11,414 (Feb. 27, 2012).

¹⁰⁷ See, e.g., Mendelson, *supra* note 5.

¹⁰⁸ See 49 U.S.C. § 108(a); 49 C.F.R. § 1.3(b)(7).

¹⁰⁹ See 49 U.S.C. § 108(b); 49 C.F.R. § 1.4(h).

¹¹⁰ See PHMSA ORGANIZATION, <http://www.phmsa.dot.gov/about/org>; see also 49 C.F.R. §§ 1.4(h), 1.53.

¹¹¹ See Pipeline Safety Act, *supra* note 8.

¹¹² 49 U.S.C. § 60102(p).

¹¹³ See Pipeline Safety: Notice of Public Workshop To Discuss Implementing Incorporation by Reference Requirements of Section 24 of the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011, 77 Fed.Reg. 37,472 (June 21, 2012).

¹¹⁴ See H.R. 2576, 113th Cong. (1st Sess. 2013).

implementation. Second, as amended, Section 24 will no longer apply to incorporations by reference in guidance, just regulations. Finally, and most crucially, Congress eliminated the requirement that free access to incorporated standards be provided “on an Internet Web site.”¹¹⁵

Nonetheless, PHMSA’s experience with Section 24 provides a unique opportunity to comprehensively evaluate, in a defined regulatory context, the costs of incorporated standards and the viability of an uncompromising mandate for free online access to incorporated standards. Those who view such a mandate as the best or only acceptable solution frequently appear to work from the premise that the primary purpose of private standards is regulatory, that standards developers view incorporation by reference as a valuable prize, and that federal agencies could easily achieve regulatory goals without integrating private standards into regulations. They have also argued that standards developers charge “significant fees” for access to incorporated standards and engage in monopoly pricing of incorporated standards, offering only discrete examples as evidence that these pricing practices are the norm.¹¹⁶ The Section 24 experiment provides a defined context in which to comprehensively evaluate the validity of these claims and assess the consequences of requiring free online access as a condition of regulatory incorporation by reference.

II. THE IMPERATIVE OF PUBLIC-PRIVATE COLLABORATION

Understanding PHMSA’s experience with Section 24 and crafting a workable solution to incorporation by reference’s public access problem first requires a nuanced understanding of the vast and complex, but frequently overlooked, world of private standards. As an initial matter, the terms “standard” and “technical standard” are often used interchangeably¹¹⁷ and are defined for purposes of federal standards policy as:

- (1) Common and repeated use of rules, conditions, guidelines or characteristics for products or related processes and production methods, and related management systems practices.
- (2) The definition of terms; classification of components; delineation of procedures; specification of dimensions, materials, performance, designs, or operations; measurement of quality and quantity in describing materials, processes, products, systems,

¹¹⁵ *Id.* The implications of these amendments are explored further in Part IV.

¹¹⁶ *See, e.g.,* Strauss, *supra* note 5.

¹¹⁷ *See* CIRCULAR A-119, *supra* note 2, at ¶ 3.

services, or practices; test methods and sampling procedures; or descriptions of fit and measurements of size or strength.¹¹⁸

As this definition suggests, standards take many different forms and serve a variety of purposes.¹¹⁹ Although frequently invisible to the average consumer, standards are crucially important for manufacturing, industry, commerce and trade, public safety, and technological progress.

In most nations, standards development is a government-driven enterprise, even if nominally carried out by private standards development organizations. In contrast, the U.S. has a highly decentralized, market-driven, predominately private standards system that has evolved over more than a century. Viewed in this context, the federal standards policy embodied in the Tech Transfer Act and Circular A-119 is best understood as merely the most recent and prominent extension of a larger and more deeply rooted commitment to private standards development. One consequence is that, in the U.S., private standards significantly outnumber public standards—and even without governmental action, *the* accepted national standard is often a private standard. The federal government generally lacks the resources, technical expertise, and knowledge to displace private standards.¹²⁰ As a practical matter, then, agencies must be able to incorporate private standards into public law in order to craft effective regulations and smoothly integrate coexisting governmental and private regulatory regimes.

A. The Importance of Standards

Over the course of thirty hours in early February 1904, most of the city of Baltimore, Maryland burned to the ground.¹²¹ The fire apparently began on a Sunday morning, February 7, when a cigarette or cigar was tossed to the ground and found its way through a crack in the

¹¹⁸ CIRCULAR A-119, *supra* note 2, at ¶ 3(a).

¹¹⁹ At the broadest level, standards can be divided into physical measurement standards and documentary standards. Physical measurement standards establish “basic measurement quantities” and “are traceable to the International System of Units (SI).” BREITENBERG, *supra* note 124, at 5. This article is primarily concerned with documentary standards, which NIST has described, consistent with Circular A-119’s definition, as “written agreements containing technical specifications or other precise criteria that may contain rules, guidelines, or definitions of characteristics.” *Id.*

¹²⁰ This is likely true of the federal government as a whole, even if its power and expertise were not divided among numerous federal agencies. It also bears noting that, although only a tiny fraction of private standards are incorporated into federal law, eliminating incorporation might require the federal government to take over the entire standards system.

¹²¹ See generally PETER B. PETERSEN, THE GREAT BALTIMORE FIRE (2005).

sidewalk and into the basement of the John E. Hurst dry-goods company,¹²² located in the western part of downtown Baltimore.¹²³ The fire quickly spread beyond the capacity of Baltimore's firefighters to contain it, and pleas for help were telegraphed to surrounding cities and counties. By early afternoon, the first engine companies arrived by train from Washington, D.C. They were little help: their hoses could not fit Baltimore's hydrants because of differences in the threads and couplings. Other fire companies arrived from all over the Mid-Atlantic—from Altoona, Annapolis, Chester, Harrisburg, New York, Philadelphia, Wilmington, and York—but many were similarly unable to join the fight because their hoses would not fit Baltimore's fire hydrants.¹²⁴ In the end, although only one life was lost, the fire consumed seventy city blocks, destroyed more than 1,500 buildings and 2,500 businesses.¹²⁵

Widespread equipment incompatibilities allowed the Great Baltimore Fire to spread further and burn longer, greatly exacerbating the damage caused by the fire and making painfully apparent the need for standardized specifications for fire hydrant and hose couplings. Indeed, as a National Bureau of Standards¹²⁶ study found later that same year, there were approximately “600 sizes and variations in fire-hose couplings across the country.”¹²⁷ Fire hose manufacturers routinely patented their own unique designs, clinging to them for competitive advantage, rendering one community's equipment incompatible with that used in other, even neighboring, communities.¹²⁸ In 1905, a committee of NFPA, a private standards development organization, responded by producing the first edition of the standard that to this day defines the diameter and threading specifications for fire hydrants and hose couplings.¹²⁹ Nearly a quarter century later, Fall River, Massachusetts escaped the extensive destruction Baltimore had suffered because

¹²² See Brennen Jensen, *Lives Lost: One*, BALTIMORE CITY PAPER, Sept. 3, 2003, <http://www2.citypaper.com/news/story.asp?id=2321>.

¹²³ See PETERSEN, *supra* note 121; MOMAR D. SECK & DAVID D. EVANS, NISTIR 7158, MAJOR U.S. CITIES USING NATIONAL STANDARD FIRE HYDRANTS, ONE CENTURY AFTER THE GREAT BALTIMORE FIRE 7 (Nat'l Inst. of Standards & Tech. 2004), available at <http://www.fire.nist.gov/bfrlpubs/fire04/PDF/f04095.pdf>.

¹²⁴ See MAUREEN A. BREITENBERG, NISTIR 7614, THE ABC'S OF STANDARDS ACTIVITIES 5, available at http://gsi.nist.gov/global/docs/pubs/NISTIR_7614.pdf.

¹²⁵ See SECK & EVANS, *supra* note 123, at 7-8.

¹²⁶ The National Bureau of Standards is known today as the National Institute of Standards and Technology (NIST). See 15 U.S.C. § 271(b)(1).

¹²⁷ SECK & EVANS, *supra* note 123, at 8.

¹²⁸ See *id.* at 7, 9.

¹²⁹ See *id.* at 9. Continued non-conformity in some locations has caused urban fire disasters as recently as 2004, and NIST has found a surprising number of jurisdictions that still do not use national standard fire hydrants and hoses, see *id.* at 11-14.

standardized fire hydrants and hose couplings enabled fire fighters from twenty neighboring communities to come swiftly to the town's rescue.¹³⁰

Around the turn of the twentieth century, often in response to the unique challenges and tragedies that came with the Industrial Revolution,¹³¹ a variety of private sector organizations, including membership organizations, professional societies, and trade associations, emerged to develop standards designed to reduce public hazards, ensure the quality of materials and equipment, promote technological progress, and facilitate trade.¹³² These private standards, although technically advisory or voluntary in nature,¹³³ made many great feats possible. For example, ASTM standards for structural carbon and silicon steel, steel castings, cement, concrete, and paving blocks made possible the construction the Ambassador Bridge, which connects Detroit, Michigan with Windsor, Ontario. It was the world's longest suspension bridge at the time of its completion in 1929, and it remains the busiest international border crossing in North America.¹³⁴ Similarly—and to give just a few examples—standardization enabled the construction of the nationwide rail system by ensuring the uniform quality and characteristics of steel rails, made steamboat transport safe by preventing once-common boiler explosions, and facilitated the development of nationally interoperable electrical systems and appliances.¹³⁵

Although typically invisible to the average consumer, private standards are everywhere. They are essential for nearly every modern convenience, from consumer electronics to telephone and internet communications to automobile ignition systems.¹³⁶ The communications functions of the average smartphone alone require the use of more than 600 standards.¹³⁷ Standards produced by the Underwriters Laboratories (UL), a private, independent testing and certification

¹³⁰ See BREITENBERG, *supra* note 124, at 3-4.

¹³¹ The first industrial era standards took the form of specifications included in private purchase contracts to establish the required quality or performance characteristics of the materials conveyed. Standardization was necessary to ensure consistency—for example, railroads needed confidence that steel purchased from various suppliers was strong enough to build safe rails—but the contract-based approach was inefficient and incapable of encouraging high levels of conformity across the national market. See ASTM INTERNATIONAL, *ASTM 1898-1998: A CENTURY OF PROGRESS 29-30*, available at <http://www.astm.org/HISTORY/> [hereinafter CENTURY OF PROGRESS].

¹³² See generally *id.*

¹³³ See *infra* notes 177-178 and accompanying text.

¹³⁴ See CENTURY OF PROGRESS, *supra* note 131, at 39.

¹³⁵ AM. STANDARDS ASS'N, *THROUGH HISTORY WITH STANDARDS: AN ILLUSTRATED TEXT BOOK FOR YOUNG AND OLD*, reprinted in *SPEAKING OF STANDARDS*, at 48, 50, 64 (Rowen Glie ed., 1972).

¹³⁶ See, e.g., Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL. L. REV. 1889, 1896-98 (2002).

¹³⁷ Dr. George Arnold, Director, Standards Coordination Office, NIST, Remarks at NIST Fundamentals of Standards for Government Agencies Workshop: Overview of NIST and the Standards Coordination Office (May 9, 2013).

organization created by insurers after electricity made its grand debut at the 1893 Chicago World's Fair, ensure the safety and interoperability of nearly every electrical appliance today sold in the U.S.¹³⁸ Even more fundamentally, standards make it possible for technical professionals, manufacturers, government employees, and others to communicate and collaborate with one another.¹³⁹ To that end, many standards facilitate mutual understanding simply by providing defining methods or materials, often at a very basic level. For example, there is a standard that defines “two-by-four,” a common piece of lumber that is not, in fact, two feet by four feet in dimension.¹⁴⁰ There are even meta-standards that establish the uniform vocabulary necessary for standards professionals around the world to understand and collaborate with each other.¹⁴¹

B. The Predominately Private U.S. Standards System

A key reality is implicit in the above discussion: the U.S. standards system is predominately private, highly decentralized, and market-driven.¹⁴² This system has evolved over the course of more than a century, but its fundamental characteristics are no accident. To the contrary, there have been a number of pivotal moments in the system's evolution at which the U.S. government has consciously sought to address pressing public standardization needs by encouraging and shaping private standards development and cultivating a robust private-public partnership in standards.

The federal government has understood the importance of standardization for the advancement of science, industry, manufacturing, and commerce from the time of its

¹³⁸ See, e.g., *How Underwriters Laboratories has progressed*, CHI. TRIB., June 29, 2011. Pick up the lamp or other electrical appliance closest to you at this moment, and you will surely see the organization's distinctive mark, “UL®,” in a circle, on its base or cord tag. See generally CHEIT, *supra* note 96, at 94-106 (exploring UL's history, importance, and standards development process through a case study of UL 1482, *Solid-Fuel Type Room Heaters*).

¹³⁹ See, e.g., Donald R. Mackay, *The Development and Use of National Voluntary Standards*, 24 FOOD DRUG COSM. L.J. 550, 555 (1969).

¹⁴⁰ See CHEIT, *supra* note 96, at 5 n.9. There is even a standard for snowboarding terminology. See ASTM F 1107-04, *Standard Terminology Relating to Snowboarding*.

¹⁴¹ See ISO/IEC Guide 2:2004, *Standardization and related activities -- general vocabulary*, http://www.iso.org/iso/catalogue_detail?csnumber=39976.

¹⁴² In most other nations, the standards development community is smaller and less diverse than it is in the U.S., and most standards development is government-driven, even if it is carried out by nongovernment organizations. See, e.g., TIM BÜTHE & WALTER MATTLI, *THE NEW GLOBAL RULERS: THE PRIVATIZATION OF REGULATION IN THE WORLD ECONOMY* 17 (2011). Most nations have long had national standards laboratories or similar government or quasi-government organizations clothed with authority to establish national standards. See, e.g., REXMOND C. COCHRANE, *MEASURES FOR PROGRESS: A HISTORY OF THE NATIONAL BUREAU OF STANDARDS* 15 (1966).

founding.¹⁴³ This is reflected in the Constitution, which grants Congress the power to “fix the Standard of Weights and Measures.”¹⁴⁴ For more than a century following the founding, however, opposition to centralized federal power largely prevented the establishment of the federal scientific institutions necessary to exercise the power effectively and drove opposition to the appropriation of federal funds to support private scientific research.¹⁴⁵ Responsibility for standardization was left to the states, which lacked the resources and authority to do the job.¹⁴⁶ The resulting standards vacuum caused myriad problems. At one point, there were at least eight different “authoritative” standards governing the measure of a U.S. gallon.¹⁴⁷ This kind of standards proliferation impeded both government operations, such as the collection of customs duties and property taxes, and private enterprise, including commerce and scientific progress.¹⁴⁸ In the absence of a properly equipped national standards laboratory, the highly precise instruments required for reliable measurement typically had to be procured from national laboratories in Europe and were usually in short supply.¹⁴⁹ More troubling, without a functioning standards system, the quality of construction materials, industrial goods, and household products became increasingly unreliable, and the public health and safety were frequently and unnecessarily imperiled. By the turn of the twentieth century, Congress could no longer deny that federal government involvement in standardization was necessary.

Even once the federal government became an active participant in the development of standards, it consistently did so in a collaborative way that sought to complement and improve, rather than displace, private standards development. For example, in 1901, Congress finally created a national laboratory, the National Bureau of Standards (now known as NIST),¹⁵⁰ but purposively declined to cast it in the European mold of government-driven standardization.¹⁵¹ As

¹⁴³ *E.g.*, COCHRANE, *supra* note 142, at 16.

¹⁴⁴ U.S. CONST. art. I, § 8, cl. 5; *see also id.* art. I, § 8, cl. 8 (granting Congress the power to “promote the Progress of Science and useful Arts” through patent and copyright). The constitutional reference is to measurement standards, not documentary standards. *See supra* at note 119 and accompanying text. Congress’s standards power today is exercised through NIST. *See* 15 U.S.C. § 272(b)(2). NIST establishes and maintains uniform national standards for weights and measures and even keeps the United States’ official time. *See* NIST, TIME AND FREQUENCY DIVISION, <http://www.nist.gov/pml/div688/> (last visited May 16, 2013).

¹⁴⁵ *See* COCHRANE, *supra* note 142, at 16-20.

¹⁴⁶ *See id.* at 36.

¹⁴⁷ *See id.* at 33-34.

¹⁴⁸ *See id.*

¹⁴⁹ *See id.* at 37, 38.

¹⁵⁰ *See* 15 U.S.C. § 271(b)(1). NIST is a component agency of the Department of Commerce. *See* 15 U.S.C. § 1511(3).

¹⁵¹ *See, e.g.*, CENTURY OF PROGRESS, *supra* note 131, at 32.

the private standards development community began to emerge and grow, federal government employees participated in the standards development process alongside privately employed technical experts.¹⁵² During World War I, the federal government worked closely with the private sector to meet the war's significant standardization needs.¹⁵³ This included the creation in 1918 of the American Engineering Standards Committee, a joint venture of private sector standards organizations and federal government departments to streamline and coordinate the process of developing the many voluntary standards essential to the war effort.¹⁵⁴ That committee eventually became the American National Standards Institute (ANSI), a private organization that today continues to coordinate the U.S. standards system in partnership with federal government officials.¹⁵⁵

It bears emphasizing that public-private collaboration is a two-way street: just as government policy has been shaped by the dominance of private standards, so too has the private standards community been shaped by governmental needs and public values. The emergence and evolution of the voluntary consensus standards development process is a prime example. One impetus for the expansion of federal health and safety regulation in the 1960s and 1970s was widespread dissatisfaction with private standards and the often closed, opaque nature of the process through which they were developed.¹⁵⁶ The private standards development community responded by reforming the process into what is today known as the voluntary consensus process. This process is marked by the inclusion of participants with a wide range of views, transparency, due process, appeals, and the promise that any resulting standard reflects a true consensus among all participants.¹⁵⁷ These principles are described in Circular A-119 and are perhaps best reflected in the ANSI's Essential Requirements.¹⁵⁸ It was only once these processes were sufficiently evolved and regularly used that the federal government began to favor the use of voluntary consensus standards in health and safety regulation. Understood in light of this

¹⁵² See *id.* at 33.

¹⁵³ See Mackay, *supra* note 139, at 551; see also CENTURY OF PROGRESS, *supra* note 131, at 34-35.

¹⁵⁴ See, e.g., CENTURY OF PROGRESS, *supra* note 131, at 35.

¹⁵⁵ See AM. NAT'L STANDARDS INST., NAT'L POLICY COMMITTEE, http://www.ansi.org/standards_activities/domestic_programs/governance_committees/about_nic.aspx#.UcIUXPmyDnE.

¹⁵⁶ See Bremer, *supra* note 3, at 140-41; Hamilton, *supra* note 95, at 1379-86.

¹⁵⁷ See, e.g., CIRCULAR A-119, *supra* note 2, at ¶ 4.

¹⁵⁸ See AM. NAT'L STANDARDS INST., ANSI ESSENTIAL REQUIREMENTS: DUE PROCESS REQUIREMENTS FOR AMERICAN NATIONAL STANDARDS (Jan. 2013) [hereinafter ESSENTIAL REQUIREMENTS].

history, the incorporation by reference debate appears to be merely the most recent flare-up of a fundamental and longstanding tension between private standards and public law.

C. The Need to Integrate Private Standards and Public Law

One consequence of the predominantly private character of the U.S. standards system is that public standards are—and long have been—significantly outnumbered by private standards.¹⁵⁹ A recent study suggests that there are at most 114 federal agencies,¹⁶⁰ while as of 2004, there were more than 600 standards development organizations in the U.S.¹⁶¹ There is significant diversity among these private organizations, although the most common are trade associations, professional societies, standards organizations, international organizations, and consortia.¹⁶² It is estimated that there are currently more than 100,000 private standards actively in use in the U.S.¹⁶³ In any given sector, such as consumer products or pipeline transportation, the output of the private standards developers typically far outstrips that of their relevant public counterpart. Thus, in 1990, one scholar noted that while the Consumer Product Safety Commission (CPSC) had created about a dozen standards since its creation in 1973 (several of which had been challenged in court), UL had over five hundred published standards.¹⁶⁴ Similarly, although approximately 73% of PHMSA's incorporated standards are developed by just three organizations,¹⁶⁵ those incorporated standards represent just 3.7%,¹⁶⁶ one-tenth of

¹⁵⁹ See CHEIT, *supra* note 96, at 5-6. Particularly in political science and legal scholarship, this reality is generally obscured by the disproportionate attention given to public standards and the public processes through which they are developed.

¹⁶⁰ See DAVID E. LEWIS AND JENNIFER L. SELIN, SOURCEBOOK OF UNITED STATES EXECUTIVE AGENCIES (Admin. Conf. of the U.S., 2d ed. 2013); see also VANDERBILT UNIV., CTR. FOR THE STUDY OF DEMOCRATIC INSTS., SOURCEBOOK OF UNITED STATES EXEC. AGENCIES, <http://www.vanderbilt.edu/csdi/sourcebook.php>. This study is a comprehensive evaluation of the federal executive establishment, and thus many of the agencies are non-regulatory entities that would not establish standards. On the other hand, the definition of “agency” used in the study does not independently count component agencies. Thus, for example, PHMSA is not independently counted among the 114 because it is a component agency of the Department of Transportation.

¹⁶¹ U.S. CHAMBER OF COMMERCE, STANDARDS & COMPETITIVENESS: COORDINATING FOR RESULTS 5 (May 2004), <http://ita.doc.gov/td/standards/pdf%20files/Standards%20and%20Competitiveness.pdf>.

¹⁶² See, e.g., 16 C.F.R. § 1031.1(b) (“[V]oluntary standards bodies are private sector domestic or multinational organizations or groups, or combinations thereof, such as, but not limited to, all non-profit organizations, industry associations, professional and technical societies, institutes, and test laboratories, that are involved in the planning, development, establishment, revision, review or coordination of voluntary standards.”).

¹⁶³ E-mail from Scott P. Cooper, Vice President of Government Relations, Am. Nat’l Standards Inst. to author (June 11, 2013) (on file with author).

¹⁶⁴ CHEIT, *supra* note 96, at 6.

¹⁶⁵ See *infra* note 181 and accompanying text.

¹⁶⁶ See *infra* note 190 and accompanying text.

1%,¹⁶⁷ and 2%,¹⁶⁸ of those organizations' respective standards portfolios. This imbalance pervades the U.S. standards system—the thousands of private standards incorporated by reference into federal regulations represent just a tiny fraction of private standards actively in use in the U.S.¹⁶⁹

On one level, agencies use private standards in regulations instead of creating their standards because federal law requires it.¹⁷⁰ The requirement to use available voluntary consensus standards applies government-wide through Circular A-119 and the Tech Transfer Act, and the policy is echoed in myriad, narrower contexts through executive directives¹⁷¹ and statutory provisions that require individual agencies to use private standards, participate in private standards development, and otherwise collaborate with the private sector on standards issues.¹⁷² Agency personnel frequently participate in private standards development,¹⁷³ an activity that federal law encourages and supports.¹⁷⁴ Among NIST's core functions is to “coordinate the use by Federal agencies of private sector standards, emphasizing where possible the use of standards developed by private, consensus organizations.”¹⁷⁵ Even PHMSA's statute expressly contemplates the use of private standards in federal pipeline safety regulations.¹⁷⁶

¹⁶⁷ See *infra* note 196 and accompanying text.

¹⁶⁸ See *infra* note 200 and accompanying text.

¹⁶⁹ See *infra* at Part III.B.

¹⁷⁰ See *supra* at Part I.C.

¹⁷¹ See, e.g., EXEC. OFFICE OF THE PRESIDENT, MEMORANDUM, IMPROVING ENERGY SECURITY, AMERICAN COMPETITIVENESS AND JOB CREATION, AND ENVIRONMENTAL PROTECTION THROUGH A TRANSFORMATION OF OUR NATION'S FLEET OF CARS AND TRUCKS, 75 Fed. Reg. 29,400-401 (May 26, 2010) (directing “[t]he Department of Energy [to] work with stakeholders on the development of voluntary standards to facilitate the robust deployment of advanced vehicle technologies and coordinate its efforts with the Department of Transportation, the NHTSA, and the EPA”).

¹⁷² See, e.g., 6 U.S.C. § 747 (requiring the Federal Emergency Management Agency (FEMA) to support and consult with private sector voluntary standards developers in creating uniform equipment and training standards for emergency response providers); 15 U.S.C. §§ 1193(g) & (h), 1262(f), (g), & (h), 2054(a)(4) (requiring CPSC to collaborate with private sector standards developers in service of its mission of ensuring the safety of consumer products); 42 U.S.C. § 16194 (directing the Department of Energy to collaborate with the private sector to assess and improve existing voluntary consensus standards and rating systems for high performance buildings).

¹⁷³ See, e.g., CIRCULAR A-119 *supra* note 2; Hamilton *supra* note 95; see also 16 C.F.R. pt. 1031 (CPSC's regulations regarding agency employee participation in voluntary standards activities).

¹⁷⁴ See NTTAA, *supra* note 1, at § 12; CIRCULAR A-119 *supra* note 2, at ¶ 7. Congress provided further support for federal participation in private standard-setting activities in Section 1115 of the National Defense Authorization Act for Fiscal Year 2002, Pub. L. 107-107, available at <http://www.gpo.gov/fdsys/pkg/PLAW-107publ107/html/PLAW-107publ107.htm>, which exempted standards development activities from a statutory limitation on agencies using general appropriations to pay for employees' membership fees or attendance at conferences or meetings of societies or associations, see 5 U.S.C. § 5946.

¹⁷⁵ 15 U.S.C. § 272(b)(3).

¹⁷⁶ See, e.g., 49 U.S.C. § 60102(l) (“The Secretary shall, to the extent appropriate and practicable, update incorporated industry standards that have been adopted as part of the Federal pipeline safety regulatory program under this chapter.”).

The imperative to integrate private standards into public law is not, however, merely a matter of statutory requirement, executive policy, or political preference. It is a matter of real and practical necessity. Public policy and regulation, not engineering and design, are the domain of federal agencies. Agency officials, particularly those responsible for formulating policy and writing rules, are often lawyers or political appointees who lack the expertise required to develop sound technical specifications. Similarly, the expense of developing standards is beyond the budgetary capacity of most agencies. The APA and other administrative law requirements further important public values, but make it impossible for agencies to act quickly enough to develop standards at the pace required to keep up with technological progress.

In addition, when a federal agency needs to include a technical standard in a regulation, it often discovers that a private standard is, for all intents and purposes, *the de facto* authoritative standard on the subject. Even when a standard has not been made formally mandatory via governmental adoption or incorporation by reference, that standard may acquire coercive effect by virtue of one or more other forces. Participating in a given industry or technical field often requires intimate knowledge and consistent use of terminology and technical concepts authoritatively defined by private standards. Similarly, success in the marketplace often requires conformity with private standards to facilitate interoperability with parts or accessories manufactured by various other producers, or to satisfy market and consumer demands for reliable assurances of safety, quality, or fitness for purpose.¹⁷⁷ Contracts may require conformity to private standards as a way of precisely establishing the parties' expectations regarding, for example, the quality or characteristics of goods being procured or insured.¹⁷⁸ Tort law may look to private standards to define the duty of care, putting some force behind those standards without giving them formal legal effect.

Finally, standardization is most effective when it is well coordinated, with any overlap or inconsistencies among different standards minimized or eliminated.¹⁷⁹ The reality is that there is

¹⁷⁷ *E.g.*, *Am. Soc'y of Mech. Eng'rs, Inc. v. Hydrolevel Corp.*, 456 U.S. 556, 559 (1982) ("Obviously if a manufacturer's product cannot satisfy the applicable ASME code, it is at a great disadvantage in the marketplace.")

¹⁷⁸ If such contract terms may become common practice within an industry, individual parties may have little real choice but to agree to conform to particular, widely-accepted private standards. Government procurement, which is generally beyond the scope of this article, is just one context in which contractual arrangements may contribute to the *de facto* authoritativeness of private standards. *See generally* George W. Ritter, *Standards and the Federal Consumer*, in *SPEAKING OF STANDARDS*, at 230-34 (Rowen Glie ed., 1972).

¹⁷⁹ Thus, for example, in the context of defense procurement, Congress has mandated that the Secretary of Defense "to the highest degree practicable . . . eliminat[e] overlapping and duplicate specifications, and reduc[e] the number of sizes and kinds of items that are generally similar." 10 U.S.C. § 2451; *see also* 6 U.S.C. § 747 (requiring

a vast world of private standards that exists independently of federal regulation. For regulation in any particular industry to be efficient and effective, it must complement and not conflict with the private regulatory regime already in place. Incorporation by reference is essential to achieving this goal, facilitating the smooth integration of private standards and public law.

III. PIPELINE SAFETY: A CASE STUDY IN INCORPORATION BY REFERENCE

A. Meet the Standards Development Organizations

The group of organizations that develop PHMSA's standards is representative of the highly diverse composition of the U.S. standards development community. Although PHMSA's pipeline regulations incorporate standards produced by eleven organizations, 73% (forty-seven of sixty-four) of those standards are created by just three organizations—the American Petroleum Institute (API), ASTM International (ASTM),¹⁸⁰ and ASME International (ASME).¹⁸¹ These organizations are a trade association, an international standards organization, and a professional society, respectively. The remaining 27% of PHMSA's standards (seventeen of sixty-four) are produced by eight other standards development organizations. This diverse group includes three trade associations (the American Gas Association (AGA), Pipeline Research Council International (PRCI), and Plastics Pipe Institute, Inc. (PPI)), two professional societies (the American Society of Civil Engineers (ASCE) and NACE International¹⁸²), one international standards organization (NFPA), one research organization (the Gas Technology Institute (GTI)¹⁸³), and one technical association (the Manufacturers Standardization Society of the Valve

FEMA to support development of voluntary consensus standards for equipment and training that must, “to the maximum extent practicable, be consistent with existing national voluntary consensus standards”); *cf.* 15 U.S.C. § 2051(b)(3) (declaring that one purpose of the Consumer Product Safety Act is “to develop *uniform* safety standards for consumer products and to *minimize conflicting* State and local regulations” (emphasis added)).

¹⁸⁰ “ASTM” is derived from the ASTM International’s original name, the American Society for Testing and Materials. The organization changed its name in 2001 to reflect the increasingly global influence of its standards. *See* Press Release, ASTM International, Name Change Reflects Global Scope (Dec. 11, 2001); *see also* Hamilton, *supra* note 95, at 1338. Using just an acronym as the organizational name, without retaining the name from which the acronym was originally derived, appears to be something of a trend among standards development organizations.

¹⁸¹ “ASME” is derived from ASME International’s original name, the American Society of Mechanical Engineers. *See* William J. Curran III, *Volunteers . . . Not Profiteers: The Hydrolevel Myth*, 33 CATH. U. L. REV. 147, 148 (1983); Hamilton, *supra* note 95, at 1340.

¹⁸² NACE International, the Corrosion Society, was originally known as the National Association of Corrosion Engineers.

¹⁸³ GTI was formerly known as the Gas Research Institute (GRI), a history reflected in some of its standards’ titles.

and Fittings Industry, Inc. (MSS)). An examination of the nature, history, and activities of the three largest organizations will make concrete the previous overview of the standards system.¹⁸⁴

API is PHMSA's largest standards contributor, producing one-third (twenty-two of sixty-four, or 34%) of the standards PHMSA incorporates by reference. Founded in 1919 as one part of the private-public standardization effort required to fight World War I,¹⁸⁵ API is the national trade association for the oil and natural gas industry.¹⁸⁶ Although membership is restricted to businesses operating within the industry, API includes non-industry representatives, such as consumer advocates and academics, in its standards development activities.¹⁸⁷ Indeed, its standards program, established in 1924, is accredited by ANSI.¹⁸⁸ The organization maintains more than 600 standards and recommended practices and is the largest developer of petroleum and petrochemical equipment and operating standards in the nation.¹⁸⁹ Its work is thus squarely within the subject matter of PHMSA's regulatory mandate. Even so, the twenty-two API standards referenced in federal pipeline regulations represent just a tiny fraction—approximately 3.7%—of API's total standards portfolio.¹⁹⁰

PHMSA's second largest standards developer, ASTM, produces approximately one-fifth (fourteen of sixty-four, or 22%) of PHMSA's standards. ASTM is a true standards development organization, created in 1898 by a chemist working for the Pennsylvania Railroad who perceived the need for uniform standards to assure the quality of industrial materials the railroad purchased in bulk quantities from a variety of different suppliers.¹⁹¹ From its founding, principles of consensus, inclusiveness, and due process appear to have been at the core of ASTM's

¹⁸⁴ See *supra* at Part II.B.

¹⁸⁵ See *supra* at note 153 and accompanying text.

¹⁸⁶ API's more than 500 corporate members range from major oil companies to small, independent businesses and represent all segments of the industry, including producers, refiners, suppliers, pipeline operators, marine transporters, and servicers. See API OVERVIEW AND MISSION, <http://www.api.org/globalitems/globalheaderpages/about-api/api-overview>. The organization's activities include industry advocacy, public outreach and education, research, statistics compilation and reporting, equipment and inspector certification, and standards development.

¹⁸⁷ As an ANSI accredited standards developer, see *infra* note and accompanying text, it is required to observe the essential requirement of balanced representation on technical committees, see ESSENTIAL REQUIREMENTS, *supra* note 158, at 4, 5-6.

¹⁸⁸ See Press Release, API, ANSI reaccredits API's standards program (Oct. 6, 2011), available at <http://www.api.org/news-and-media/news/newsitems/2011/oct-2011/ansi-reaccredits-apis-standards-program>.

¹⁸⁹ See API, PUBLICATIONS, STANDARDS AND STATISTICS OVERVIEW, <http://www.api.org/publications-standards-and-statistics.aspx> (last visited June 10, 2013).

¹⁹⁰ See API, PUBLICATIONS, STANDARDS AND STATISTICS OVERVIEW, <http://www.api.org/publications-standards-and-statistics.aspx> (last visited June 10, 2013).

¹⁹¹ See ASTM INT'L, NEWS AND INFORMATION, ENGINEERS CREATE ASTM, <http://www.astm.org/NEWS/engineers.htm> (last visited May 3, 2013).

institutional philosophy.¹⁹² Today, more than 32,000 volunteers participate in the standards development work of ASTM's 162 technical committees.¹⁹³ With more than 12,000 active standards, ASTM is the largest standards developer in the U.S.¹⁹⁴ and the organization most frequently referenced in federal regulations—there are more than 2,000 references to ASTM standards in the CFR.¹⁹⁵ The fourteen ASTM standards incorporated into PHMSA's pipeline regulations are a negligible portion—approximately one tenth of one percent—of the organization's overall standards portfolio.¹⁹⁶

In third place is ASME, which is responsible for just under one-fifth (eleven of sixty-four, or approximately 17%) of PHMSA's incorporated standards. A professional society for engineers established in the U.S. in 1880, ASME's influence is increasingly international—the society has more than 130,000 members from 158 different countries.¹⁹⁷ Developing codes and standards is a significant component of ASME's work—more than 5,000 volunteers participate in the work of its 700 technical committees.¹⁹⁸ ASME is perhaps best known for its Boiler and Pressure Vessel Code,¹⁹⁹ which has applications in many different industries. Indeed, with a broad focus on engineering, ASME standards are used in a variety of industries, including aerospace and defense, automotive, bioengineering, construction and building, energy, environmental engineering, manufacturing and processing, and transportation. As with API and ASTM, the eleven standards incorporated into federal pipelines safety regulations represent a very small share—approximately 2%—of the ASME's 530 standards and codes.²⁰⁰

¹⁹² See CENTURY OF PROGRESS, *supra* note 131, at 30-31.

¹⁹³ See ASTM INT'L, TECHNICAL COMMITTEES, <http://www.astm.org/COMMIT/> (last visited June 10, 2013). Any interested individual can become a participating member of an ASTM technical committee for a fee of \$75.00 per year. See ASTM INT'L, MEMBERSHIP, <http://www.astm.org/MEMBERSHIP/MemTypes.htm> (last visited June 10, 2013). Membership includes direct participation in the committee's work and free copies of the committee's standards, as well as other benefits.

¹⁹⁴ See ASTM INT'L, ABOUT ASTM INTERNATIONAL, <http://www.astm.org/ABOUT/aboutASTM.html> (last visited Aug. 28, 2013).

¹⁹⁵ See Bremer, *supra* note 3, at 150.

¹⁹⁶ See ASTM INT'L, ABOUT ASTM INTERNATIONAL, <http://www.astm.org/ABOUT/aboutASTM.html> (last visited Aug. 28, 2013).

¹⁹⁷ See AM. SOC'Y MECH. ENG'RS, ASME BY THE NUMBERS, https://www.asme.org/wwwasmeorg/media/ResourceFiles/AboutASME/ASME-By-The-Numbers_fact-sheet.pdf.

¹⁹⁸ See AM. SOC'Y MECH. ENG'RS, ASME BY THE NUMBERS, https://www.asme.org/wwwasmeorg/media/ResourceFiles/AboutASME/ASME-By-The-Numbers_fact-sheet.pdf. As a professional society, ASME also provides training and professional development services, conducts research, organizes conferences, and represents its members' interests through government relations activities and public outreach.

¹⁹⁹ See *infra* at note 235 and accompanying text.

²⁰⁰ See AM. SOC'Y MECH. ENG'RS, ASME BY THE NUMBERS, https://www.asme.org/wwwasmeorg/media/ResourceFiles/AboutASME/ASME-By-The-Numbers_fact-sheet.pdf. This phenomenon is observable with

As this discussion reveals, some of PHMSA's standards developers work particularly on pipelines and the petroleum industry (e.g., API, AGA, GTI), while others have broader missions and produce only a few materials that have discrete implications for the industry PHMSA regulates (e.g., ASTM, ASME, NFPA). As a consequence, the agency has better working relationships—and greater leverage—with some standards developers than it does with others.

The materials incorporated by reference into PHMSA's pipeline regulations are as diverse as the organizations that develop them. Many of these materials are private technical standards, such as ASTM's *Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service*²⁰¹ and MSS's *Specification for High Test Wrought Butt Welding Fittings*,²⁰² or codes, such as NFPA's *National Electrical Code*.²⁰³ Others identify recommended practices, such as API's *Recommended Practice 2510, Design and Construction of LPG Installations*,²⁰⁴ or provide safety guidelines, as does AGA's *Purging Principles and Practice*.²⁰⁵ The regulations also incorporate non-standards materials by reference, including two software programs produced by GTI,²⁰⁶ and a technical report produced by PRCI.²⁰⁷

B. A Comprehensive Analysis of the Costs of Incorporated Standards

To date, a comprehensive analysis of the actual cost to the public of purchasing private standards incorporated in federal regulations has not been possible. This is largely due to the practical difficulties associated with determining and comprehensively evaluating the thousands of private standards incorporated by reference in federal regulations. Not only is there no

respect to some of PHMSA's more minor standards development organizations, too. For example, PHMSA's pipeline regulations incorporate by reference five standards and codes developed by the NFPA, which is just 2.7% of the organization's 185 codes and standards.

²⁰¹ See 49 C.F.R. §§ 192.113, Item I, app. B to pt. 192, 195.106(e).

²⁰² See 49 C.F.R. § 195.118(a).

²⁰³ See 49 C.F.R. §§ 192.163(e), 192.189(c). The current version is from 2011, with the next version due in 2014. See <http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=70> (last visited May 7, 2013).

²⁰⁴ See 49 C.F.R. §§ 195.132(b)(3), 195.205(b)(3), 195.264(b)(2), 195.264(e)(4), 195.307(e), 194.428(c), 195.432(c). "LNG" refers to liquefied natural gas.

²⁰⁵ See 49 C.F.R. §§ 193.2513, 193.2517, 193.2615.

²⁰⁶ See 49 C.F.R. § 193.2057(a) (incorporating GTI-04/0032, LNGFIRE3, A Thermal Radiation Model for LNG Fires); 49 C.F.R. § 193.2059 (incorporating GTI-04/0049, LNG Vapor Dispersion Prediction with the DEBADIS 2.1: Dense Gas Dispersion Model for LNG Vapor Dispersion).

²⁰⁷ See 49 C.F.R. §§ 192.485(c), 192.933(a)(1), 192.933(d)(1)(i), 195.452(h)(4)(i)(B), 195.452(h)(4)(iii)(D), 195.587 (incorporating AGA Pipeline Research Committee, *Project PR-3-805, A Modified Criterion for Evaluating the Remaining Strength of Corroded Pipe* (1989)).

reliable, centralized list identifying these standards,²⁰⁸ but pricing information is scattered among thousands of private standards developers and resellers. Advocates on both sides of the issue have thus relied on either a general sense of typical costs or discrete examples of the cost of individual incorporated standards. This has impoverished the debate and put government officials, including congressional staff and executive officials, in the difficult position of trying to formulate a government-wide policy without the benefit of comprehensive cost data.

This case study provides a unique opportunity to conduct a comprehensive analysis of the public availability of private standards incorporated by reference within a defined regulatory context.²⁰⁹ PHMSA's regulations incorporate by reference a manageable number of easily identifiable materials: these include, as noted above, sixty-four standards and other materials developed by eleven organizations.²¹⁰ Only one of these incorporated standards appears to be out-of-print and unavailable for purchase.²¹¹ The remaining sixty-three standards are available for online purchase from the standards developer or an authorized reseller.

Although the aggregate cost to purchase copies of PHMSA's incorporated standards is considerable, the cost of the individual standards is highly variable, and the average and median prices of the standards do not appear to be excessive. A complete set of PHMSA's incorporated standards costs \$9,477.85. At \$630.00, ASME's *Rules for Construction of Pressure Vessels*, a single volume of ASME's multivolume *Boiler and Pressure Vessel Code*, is the most expensive standard.²¹² The least expensive is PPI's *Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Pressure Design Basis (PDB), Strength Design Basis (SDB), and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe*, which is available for free in PDF format on PPI's website.²¹³ Looking just to the maximum or minimum price, however, conveys an inaccurate impression of public access costs. The picture becomes clearer

²⁰⁸ NIST maintains a Standards Incorporated by Reference (SIBR) Database, but a close comparison of the CFR and the SIBR Database revealed pervasive errors and omissions in the latter's identification of standards incorporated into pipeline safety regulations, suggesting that the database may not be wholly complete or reliable.

²⁰⁹ Membership in a standards development organization often includes free or discounted access to that organization's standards, but the incorporation by reference debate is primarily concerned with *public access*, that is, the cost to interested members of the general public seeking to obtain copies of privately authored, incorporated standards. Thus, this article analyzes the non-member costs of incorporated standards.

²¹⁰ See 49 U.S.C. §§ 192.7, 193.2013, 195.3.

²¹¹ See *infra* at note 228 and accompanying text.

²¹² See 49 C.F.R. §§ 192.153(a), 192.153(b), 192.153(d), 192.165(b)(3), 193.2321(a), 195.124, 195.307(e).

²¹³ See *id.* § 192.121.

when one considers that the average cost of PHMSA's standards is \$150.44, while the median cost is \$112.00. Table 1 provides an overview of these figures.

TABLE 1: OVERVIEW OF THE NON-MEMBER COST OF PHMSA'S INCORPORATED STANDARDS

Total Cost	Average Cost	Median Cost	Max Cost	Min Cost
\$9,477.85	\$150.44	\$112.00	\$630.00	\$0.00

In addition to being available for purchase, however, many of PHMSA's standards are also available for free online, usually in a read-only format. Four of PHMSA's standards development organizations—API, ASTM, NFPA, and PPI—have voluntarily provided free online access to all or some of their incorporated standards independently of PHMSA's efforts to implement Section 24. PPI takes the simplest and least common approach, posting all of its materials online in PDF, apparently as a matter of course and subject to no registration requirement or read-only restrictions.²¹⁴ For more than a decade, NFPA has provided free, read-only access to *all* of its codes and standards on its website. API began providing free, read-only access to its incorporated standards in 2010, in response to the Deepwater Horizon spill.²¹⁵ More recently, ASTM created an online library that provides free, read-only access to all of its federally incorporated standards. These last three organizations, NFPA, API, and ASTM, require that users register and agree to the terms of a license in order to access the standards.

Thus, nearly half of PHMSA's standards (thirty-one of sixty-four, or 48%) are available for free online independently of Section 24. These figures would be higher still but for a few apparent omissions from the online libraries maintained by API and ASTM. Although those libraries are supposed to include all standards incorporated by reference by any agency, a search for the standards incorporated by PHMSA could not verify free access to eight of API's twenty-two standards (36%) and three of ASTM's eleven standards (27%).²¹⁶ If rectified, two-thirds of

²¹⁴ See PPI, PPI PUBLICATIONS, <http://plasticpipe.org/publications/index.html> (last visited May 17, 2013). Even PPI's software appears to be available for free online use without registration, but subject to some terms. See PPI, S-1 (2011) PPI BOREAID™, <http://plasticpipe.org/publications/software-boreaid.html> (last visited May 17, 2013); see also Press Release, Plastics Pipe Institute, Inc., Plastics Pipe Institute Launches Free On-Line Water Pipeline Planning Program (Feb. 5, 2013), available at <http://finance.yahoo.com/news/plastics-pipe-institute-launches-free-151200265.html>.

²¹⁵ See Bremer, *supra* note 3, at 177 & n.223.

²¹⁶ I last attempted to verify free online availability to these standards in May 2013. In some cases, a different edition of a PHMSA-incorporated standard was available for free. In other cases, no edition of a PHMSA-incorporated standard was available for free. It is possible that that these omissions were an unintentional

PHMSA's standards (forty-two of sixty-four, or approximately 66%) would be free online without regard to Section 24.

TABLE 2: THE COST OF PHMSA'S INCORPORATED STANDARDS BY ORGANIZATION

Organization	Number of Standards Incorporated by PHMSA	Total Cost	Average Cost	Total Cost Using Non-Section 24 Free Access	Average Cost Using Non-Section 24 Free Access
AGA	1	\$177.00	\$177.00	\$177.00	\$177.00
API	22	\$3,240.00	\$147.27	\$937.00 ²¹⁷	\$42.59
ASTM	14	\$721.60	\$51.54	\$151.60 ²¹⁸	\$10.83
ASCE	1	\$93.75	\$93.75	\$93.75	\$93.75
ASME	11	\$3,075.00	\$279.55	\$3,075.00	\$279.55
GTI	4	\$1,590.00	\$397.50	\$1,590.00	\$397.50
MSS	2	\$188.00	\$94.00	\$188.00	\$94.00
NACE	2	\$125.00	\$62.50	\$125.00	\$62.50
NFPA	5	\$267.50	\$53.50	\$0.00	\$0.00
PRCI	1	Unavailable	Unavailable	Unavailable	Unavailable
PPI	1	\$0.00	\$0.00	\$0.00	\$0.00
Total	64	\$9,477.85	\$150.44	\$6,337.35²¹⁹	\$198.04

Taking into account the free online access provided voluntarily by standards developers, the cost of a full set of PHMSA's standards is reduced by approximately one-third, from \$9,477.85 to \$6,337.35. If the API and ASTM online libraries were completed, the cost would be further reduced to \$5,248.75. Table 2, which appears above, summarizes the costs of PHMSA's incorporated standards by organization, both with and without considering the free online access provided independently of Section 24's free access mandate.

consequence of the organizations relying on NIST's SIBR Database to identify the standards to which free access was needed. *See supra* note 208.

²¹⁷ If API's library were completed, this figure would be \$0.00.

²¹⁸ If ASTM's library were completed, this figure would be \$0.00.

²¹⁹ If API and ASTM libraries were completed, this figure would be \$5,248.75.

C. The Monopoly Pricing Hypothesis

The data also provide an opportunity to evaluate whether, as some have argued, standards developers routinely engage in a kind of monopoly pricing by charging more for the incorporated version of a standard than for the current version of that same standard. This monopoly pricing hypothesis is based on the idea that incorporation by reference, because it makes a standard mandatory as a formal, legal matter, enables the standards developer to charge more for the standard than it would in the absence of incorporation. A standards developer that charges a significantly higher price for the incorporated version of a standard than for its current version, it is argued, is improperly charging the higher price simply because the older version is law. Proponents of this theory have offered discrete examples of such apparently nefarious pricing as evidence that the practice is widespread and should be addressed systemically.²²⁰

More than two-thirds (forty-four of sixty-four, or 69%) of the references in PHMSA's pipeline regulations are outdated, meaning that at least one more recent edition of each of these standards is now available. For these forty-four standards, I identified the cost of both the incorporated and most current edition, tabulated all instances in which the standards developer charged more for the incorporated edition, and calculated the cost differential between the incorporated and current version of each standard. Two factors complicated this analysis. First, voluntary free read-only access is provided to some but not all standards and editions. Second, ASTM appears to have a highly formalized approach to pricing its standards. Different editions of the same standard are typically offered for exactly the same price, except that the current edition includes a redline showing the changes made from the previous edition. In these instances, however, a copy of the current standard is often offered *without* the redline for a modest discount. To address these complications, I constructed three data sets—one of edition prices alone, one of edition prices including voluntary free read-only access, and one of edition prices including the cost of the current edition purchased with an available redline.

As shown in Tables 3 and 4, which appear on the next page, the data reveal that the majority (six of eight) of the organizations either charge the same price (NACE, NFPA, and PPI) or slightly more (API, ASCE, and MSS) for the current edition(s) of PHMSA-incorporated standards. The data thus suggest that these standards developers are not engaged in monopoly pricing, at least not in the pipeline safety context.

²²⁰ See Strauss, *supra* note 5.

TABLE 3: NUMBER OF INCORPORATED VERSIONS MORE EXPENSIVE THAN CURRENT EDITIONS

Organization	Incorporated Standards (Number of Outdated References)	Incorporated Edition More Expensive than Current Edition	Incorporated Edition More Expensive Including Non-Section 24 Free Access	Incorporated Edition More Expensive Including Current Edition Plus Redline
API	22 (9)	5	5	5
ASTM	14 (14)	13	3	4
ASCE	1 (1)	0	0	0
ASME	11 (11)	4	4	4
MSS	2 (2)	0	0	0
NACE	2 (1)	0	0	0
NFPA	5 (5)	0	0	0
PPI	1 (1)	0	0	0
Total	58 (44)	22	12	13

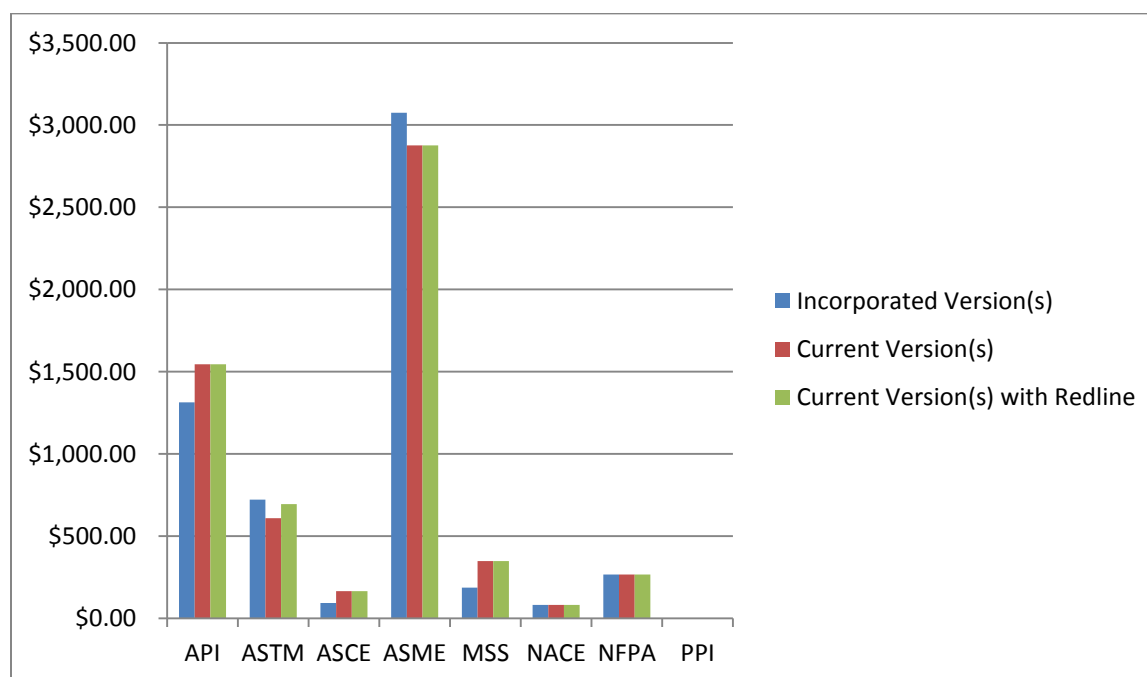
TABLE 4: TOTAL COST DIFFERENTIALS BETWEEN INCORPORATED AND CURRENT EDITIONS²²¹

Organization	Number of Incorporated Standards (Number of Outdated References)	Price Differential Between Incorporated and Current Editions	Price Differential Including Non-Section 24 Free Access	Price Differential Including Current Edition Plus Redline
API	22 (9)	-\$232.00	-\$326.00	-\$232.00
ASTM	14 (14)	111.60	-\$458.40	\$25.80
ASCE	1 (1)	-\$71.25	-\$71.25	-\$71.25
ASME	11 (11)	\$199.00	\$199.00	\$199.00
MSS	2 (2)	-\$160.00	-\$160.00	-\$160.00
NACE	2 (1)	\$0.00	\$0.00	\$0.00
NFPA	5 (5)	\$0.00	\$0.00	\$0.00
PPI	1 (1)	\$0.00	\$0.00	\$0.00
Total	58 (44)	-\$152.65	-\$816.65	-\$238.45

²²¹ In this table, negative figures indicate that incorporated editions are less expensive than current editions, and positive figures indicate that incorporated editions are more expensive than current editions.

The data also reveal, however, that the remaining two organizations (ASTM and ASME) do charge more for the incorporated editions of their standards than for the current editions of those same standards. This at least raises the question of whether these organizations are engaged in monopoly pricing. A closer examination is necessary to determine whether there might be one or more alternative explanations for these organizations' differential version pricing. Figure 1, below, compares edition pricing data by organization.

FIGURE 1: TOTAL COST OF INCORPORATED VS. CURRENT EDITIONS BY ORGANIZATION

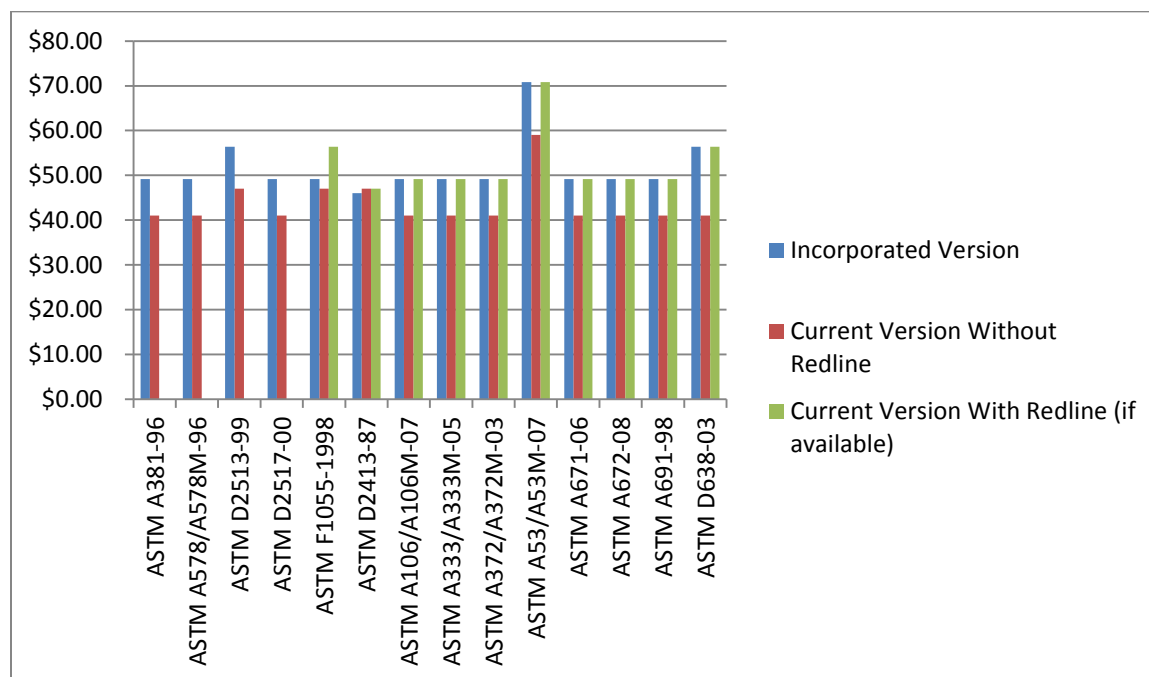


Even a cursory examination of Figure 1 suggests that ASTM's version pricing differential may be attributable to its redline pricing practices. A full set of the incorporated versions of ASTM's standards costs \$721.60. A full set of the current versions of these standards costs \$610.00 (\$111.60 less than the incorporated versions) if purchased *without* the available redlines, but it costs \$695.80 (\$25.80 less than the incorporated versions) if purchased *with* the available redlines. ASTM's redline practices thus appear to explain most of pricing differential (approximately 77%) between ASTM's incorporated and current editions.

A closer examination of ASTM's edition costs appears to confirm this tentative conclusion, for it turns out that the only instances in which the incorporated edition of an ASTM standard is *more* expensive than the current edition is where no redline purchasing option is

available for the current edition. For these four standards (representing 29% of ASTM’s incorporated standards), the only option is to purchase the current edition of the standard without a redline, at what appears to be a standardized discount. Together, the incorporated editions of these four standards cost \$240.00, while the current editions without redline cost \$170.00, resulting in a price differential of \$70.00. For two (approximately 14%) of its other standards, ASTM charges just slightly more (a total differential of \$8.20) for the current edition with redline (\$103.40 total) than for the incorporated edition (\$95.20 total). For the remaining majority of its standards (eight of fourteen, or 57%), ASTM charges precisely the same amount for the current edition with redline as it charges for the incorporated edition. The discount ASTM offers for a current edition without a redline also appears to be strictly standardized. This emerges in Figure 2, below, which shows the edition costs of ASTM’s incorporated standards.

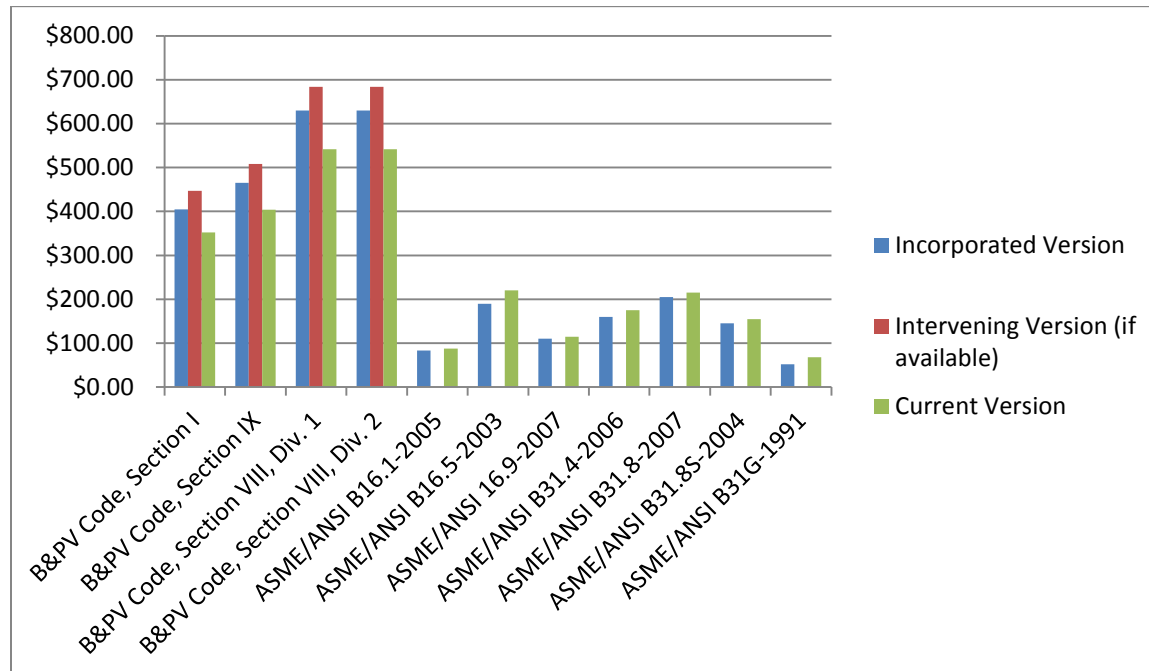
FIGURE 2: EDITION PRICES FOR ASTM’S INCORPORATED STANDARDS



A closer examination of ASME’s pricing data, provided on the next page in Figure 3, suggests that it too may be engaged in something other than monopoly pricing. A full set of ASME’s standards costs \$3,075.00 for the incorporated editions and \$2,876.00 for the current editions. Overall, then, ASME charges \$199.00 more for the incorporated editions of its standards than it does for the current editions of those same standards. For most (seven of eleven,

or 64%) of its incorporated standards, however, ASME charges between \$5.00 and \$30.00 *more* for the current edition than it does for the incorporated edition. All together, the current editions of these standards are \$91.00 more expensive than the incorporated editions. This data suggest that ASME is not engaged in monopoly pricing, at least with respect to the majority of its incorporated standards.

FIGURE 3: VERSION PRICING FOR OUTDATED REFERENCES TO ASME STANDARDS



The potentially troubling pricing affects only four (36%) of ASME's eleven standards, all of which are drawn from the 2007 edition of its signature publication, the Boiler and Pressure Vessel Code. Here, ASME charges between \$53.00 and \$88.00 more for the incorporated editions than it does for the current editions. In total, the incorporated editions of these four standards cost \$290.00 more than the current editions. There is an intervening 2010 edition of the Boiler and Pressure Vessel Code, however, which is more expensive than both the incorporated and current editions of the Code. This suggests the possibility that something other than simple monopoly pricing is going on here. This Code is widely used throughout the world, is relatively expensive, and is updated every three years. In these circumstances, a more reasonable hypothesis is that ASME offers an emerging edition at a reduced cost to encourage Code users to move to it and buy a new set, while progressively reducing the price of older editions.

Beyond this examination of the edition pricing for PHMSA's incorporated standards, there are other reasons to doubt the systemic validity of the monopoly pricing hypothesis. First, it is rare that only one edition of a private standard—particularly one that is widely accepted—will alone have the force of law. More often, a number of different editions of a standard are given legal effect in multiple contexts by different government entities, including state agencies, local governments, and various federal agencies. The non-legal phenomena that give private standards de facto coercive effect also complicate the analysis, making it even more unlikely that standards development organizations will with any regularity have clear monopolistic power to charge more for an edition of a standard simply because it is “the law.”²²² Second, the monopoly pricing hypothesis is predicated on the false premise that the current edition of a standard is always the most or only valuable edition. In fact, older editions often remain authoritative for equipment, products, or processes created under those editions, even once a more current edition becomes available. PHMSA regulations expressly recognize this reality by providing that regulated parties using older equipment can comply with pipeline regulations by conforming to an older, appropriate edition of an incorporated standard.²²³

D. The Effort to Implement Section 24

PHMSA's efforts to implement Section 24 in its original, uncompromising formulation began immediately upon the law's January 2012 enactment and continued well past the January 2013 effective date. The agency interpreted Section 24 to have exclusively prospective effect, meaning that it would apply only to new or revised incorporations by reference and would not affect the standards already incorporated by reference into federal pipeline regulations. At the time of enactment, PHMSA had already initiated rulemaking proceedings to update those regulations, but it did not believe the proceedings could be concluded before Section 24 became effective. The agency was thus forced to delay its rulemaking and, in July 2012, held a public workshop and solicited public comments on how to comply with Section 24 without reducing the effectiveness of federal pipeline safety regulations, violating the requirements of the Tech

²²² See *supra* notes 177-178 and accompanying text.

²²³ See, e.g., 49 C.F.R. § 192.7(c) (“Earlier editions of currently listed documents or editions of documents listed in previous editions of 49 CFR part 192 may be used for materials and components designed, manufactured, or installed in accordance with these earlier documents at the time they were listed.”).

Transfer Act and Circular A-119, or infringing copyright.²²⁴ More than seventy people, including representatives of industry, the standards development community, and all levels of government attended the workshop in person, and more than 200 others participated in the Webcast of the event.²²⁵ Although the event generated a lively and interesting discussion, it uncovered no simple solution to the agency's quandary.

With limited implementation options available to it, PHMSA focused on two broad strategies. First, the agency carefully evaluated its existing incorporations by reference. One goal of this analysis was to identify any private standards that could be removed from pipeline safety regulations without undermining public safety. For those standards indispensable to PHMSA's public safety mission, however, the agency further sought to determine how long the existing incorporations could be retained before the disparity between the incorporated and any newer edition of those standards would begin to pose a public safety problem.²²⁶ Second, PHMSA expended considerable time and effort negotiating free access agreements with as many of its standards developers as possible. This task was easier to accomplish with those organizations that work in the pipeline and petroleum industry—as previously noted, the agency has better established working relationships and more leverage with these organizations. The negotiations were also a bit easier with the organizations that had decided to provide free access to incorporated standards independently of Section 24's requirements.

As of July 2013, after more than a year and a half of working on the issue, PHMSA was able to secure the required prospective free access agreements with seven (approximately 64%) of its eleven standards developers, including AGA, API, ASTM, GTI, MSS, NACE, and NFPA.²²⁷ In keeping with the agency's interpretation of Section 24 as having exclusively prospective effect, the agreements contemplated free online access only to the standards that PHMSA may incorporate in future rulemakings. PHMSA did not reach an agreement with PRCI because the organization did not plan to update its only incorporated publication, which is

²²⁴ See Pipeline Safety: Notice of Public Workshop To Discuss Implementing Incorporation by Reference Requirements of Section 24 of the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011, 77 Fed. Reg. 37,472 (June 21, 2012).

²²⁵ See 159 Cong. Rec. H4496 (daily ed. July 16, 2013) (statement of Rep. Titus). I participated as a panelist in this workshop.

²²⁶ Private standards are regularly updated to reflect evolving technical knowledge and respond to engineering and safety problems that emerge only over the course of time and experience. See Bremer, *supra* note 3, at 137-38, 153.

²²⁷ See 159 Cong. Rec. H4499 (daily ed. July 16, 2013) (statement of Rep. Eddie Bernice Johnson).

currently out-of-print.²²⁸ PPI did not respond to the agency's communications, perhaps because the organization already provides free online access to all of its publications as a matter of course. Finally, no agreement was reached with ASCE. Only one ASCE standard is incorporated by reference into federal pipeline regulations, however, and PHMSA does not currently plan to update that incorporation.

The most challenging holdout was ASME, which develops some of PHMSA's most expensive—and important—standards. As of July 2013, ASME and PHMSA were continuing to negotiate the possibility of ASME administratively creating a pipeline-specific standards book containing excerpts of the standards that PHMSA would need to incorporate by reference into its regulations. But by then it was clear that ASME would not be able to provide free online access to the full text of those standards because the organization relies so heavily on the significant revenue generated by the worldwide sale of those standards. As explained in further detail in Part IV, this created a very difficult predicament for the agency.

In August 2013, Congress amended Section 24 in three ways that will give the agency greater flexibility, while still retaining the requirement that any incorporated standards be available to the public for free.²²⁹ First, Congress extended the effective date of the provision to January 2015, giving the agency another year and a half to complete implementation. Second, Congress removed standards incorporated by reference into guidance from Section 24's free access requirement. Finally, and perhaps most important, Congress eliminated the requirement that incorporated standards be provided to the public for free “on an Internet Web site.”²³⁰ At this point, it is not clear what “free” will mean beyond the public inspection that has long been required for incorporated materials.²³¹ It also remains to be seen whether PHMSA's free access agreements will remain viable under the newly amended law.

IV. EVALUATING THE SECTION 24 EXPERIMENT

A. The Benefits and Costs of Mandating Free Access

In its original, uncompromising formulation, Section 24 did expand the free online availability of private standards incorporated by reference into federal pipeline safety

²²⁸ See *supra* note 228 and note 211 and accompanying text.

²²⁹ See 159 Cong. Rec. H4496 (daily ed. July 16, 2013) (statement of Rep. Petri).

²³⁰ H.R. 2576, 113th Cong. (1st Sess. 2013).

²³¹ See 159 Cong. Rec. H4495 (daily ed. July 16, 2013) (letter from Carl Weimer, Exec. Dir., Pipeline Safety Trust).

regulations. After all, PHMSA was able to negotiate free access agreements with seven of eleven (approximately 64%) of its standards development organizations. These agreements cover fifty (approximately 78%) of PHMSA's sixty-four standards. Overall, these agreements may reduce the cost of a full set of PHMSA's standards from \$9,477.85 to \$3,168.75. Although the maximum and minimum costs of PHMSA's standards would remain the same, the agreements may reduce the average cost of PHMSA's standards from \$150.44 to \$50.30.²³²

A more accurate quantitative analysis of Section 24's effects, however, should evaluate the law's success based on its marginal effect on the free online availability of PHMSA's incorporated standards. That is, based on the degree to which the law expanded free access beyond the level provided independently of its requirements. As explained above, several of PHMSA's standards developers offered free online access to their incorporated standards independently of PHMSA's efforts to implement Section 24. Taking this into account, Section 24 can be credited with precipitating free access agreements with four (approximately 36%) of PHMSA's eleven standards developers. Those agreements, however, cover just eight (approximately 13%) of PHMSA's incorporated standards. In this accounting, the cost reduction achieved as a result of Section 24, although meaningful, appears to be more modest. Table 6, below, illustrates the point.

TABLE 6: COMPARISON OF NON-MEMBER COST OF PHMSA'S INCORPORATED STANDARDS

	Total Cost	Average Cost	Median Cost	Max Cost	Min Cost
Current Incorporations	\$9,477.85	\$150.44	\$112.00	\$630.00	\$0.00
Including Non-Section 24 Free Access	\$6,337.35 ²³³	\$100.59	\$42.00	\$630.00	\$0.00
Also Including Section 24 Agreements	\$3,168.75	\$50.30	\$0.00	\$630.00	\$0.00

²³² This analysis is somewhat speculative, for three reasons. First, it assumes PHMSA would in future rulemakings incorporate by reference newer editions of precisely the same standards currently incorporated by reference. Second, it assumes that the new editions of those standards would be priced identically to the currently incorporated editions. Finally, now that the law has been amended, it is unclear whether the agreements negotiated in the face of the original, more demanding standard will remain viable. On this last point, only time will tell.

²³³ As previously noted, *see supra* at notes 216-219 and accompanying text, if the API and ASTM libraries were completed, this figure would be \$5,248.75.

It is essential, however, to look beyond the numbers and qualitatively evaluate the effects of Section 24 on PHMSA's operations and broader regulatory responsibility for ensuring federal pipeline safety. At the most basic level, the agency's efforts to implement the law were costly. Substantial agency resources, particularly in terms of the agency staff's time and attention, were devoted to the issue for over a year and a half. This will continue even under the amended version of the law, although perhaps to a somewhat lesser degree. In addition, the agency was forced to delay rulemaking proceedings to update its regulations and incorporated standards. Many agencies find it challenging to keep incorporations up-to-date as newer editions of standards become available. PHMSA has a specific statutory responsibility to keep its incorporations up-to-date, and in the past it has taken a disciplined approach to updating that has enabled it to fulfill that responsibility.²³⁴ Section 24 derailed the agency in this respect, requiring it to delay rulemaking proceedings that had already been initiated.

The most troubling consequence of Section 24, at least in its original formulation, was that PHMSA was faced with the prospect of no longer being able to use some of its most important standards—standards that will continue to be important to the industry whether or not they are integrated in federal regulations. ASME's Boiler and Pressure Vessel Code, several sections of which are incorporated by reference into pipeline safety regulations, is one such standard. This code has been in continuous development by ASME since 1914. Adopted as law in all 50 states and incorporated by reference by numerous other federal agencies, the Boiler Code has been the de facto national standard since at least the 1950s and the de facto international standard since 1972.²³⁵ It is a large, complex code: its 14,000 pages are divided into 28 volumes. And it is used in many different industries, providing the authoritative standards for everything from residential boilers and water heaters to equipment used in nuclear power plants. It is truly a living document, continuously updated and refined through addenda and interpretations, with a new edition released every three years. This requires an incredible amount of manpower and resources—multiple committees are devoted to maintaining the Code, and over 1,000 volunteers contribute their time and expertise to its development.

²³⁴ See 49 U.S.C. § 60102(l).

²³⁵ See ASME, ABOUT ASME, WHO WE ARE, ENGINEERING HISTORY, LANDMARKS, ASME BOILER AND PRESSURE VESSEL CODE, <https://www.asme.org/about-asme/who-we-are/engineering-history/landmarks/138-asme-boiler-and-pressure-vessel-code> (last visited Aug. 29, 2013).

PHMSA could not possibly create its own standards to replace even just the few sections of ASME's Boiler and Pressure Vessel Code that are incorporated by reference into federal pipeline safety regulations. The agency has neither the technical expertise nor the resources to do so. And even if it did, such an effort would face other, far more significant hurdles. The resulting standard would likely turn out to be inconsistent or incompatible with the Boiler Code, in ways that could well be unforeseeable. Regulated parties would find themselves subject to conflicting obligations from multiple sovereigns. Equipment and parts conforming to the PHMSA-unique standards would likely not be available in a marketplace dominated by ASME's competing code.

By the summer of 2013, when it was clear that PHMSA would not be able to secure free online access to ASME's standards, including the relevant sections of the Boiler Code, PHMSA and ASME were considering the possibility of ASME creating a PHMSA-specific standards supplement containing the material essential to pipeline safety regulation. The supplement would be developed by ASME administratively (that is, not through the work of some new, PHMSA-specific technical committee) and would be made available for free online. This solution would not be ideal, for several reasons. Regulated parties would be put in the position of needing to comply with both ASME's actual standards and the versions of those standards contained in the PHMSA-specific supplement. Conflicts would be likely. PHMSA's rule writers are not technical experts and would be poorly positioned to evaluate both the technical sufficiency of the supplement and its consistency with ASME's actual standards and PHMSA's other regulations and incorporated standards. Nor would PHMSA have the independent authority to determine the contents of the supplement or the frequency with which it was updated.

In situations like this, agencies must retain the flexibility to smoothly integrate federal regulatory requirements with dominant private regulatory regimes that already exist and are both technically sophisticated and highly complex. Transparency is an important administrative value—but is not the only such value at stake here. Ideally, all private standards incorporated by reference should be freely available to the public online. In some cases, however, insisting on this ideal will imperil other important regulatory goals, making regulation both more burdensome and expensive and also less clear and technically sophisticated. It will deprive agencies of the opportunity to benefit from the significant expertise that exists outside government and the ability to smoothly integrate federal regulation with the vast and complex

world of private standards. In short, the cost of free access may in some cases be reduced public safety.

B. Collaborating to Expand Public Access

Section 24's principal defect was that it took a one dimensional approach to a multidimensional problem. It required free online access to incorporated private standards without addressing the agency's competing legal obligations to use available voluntary consensus standards and observe and protect its standards developers' copyrights. This created a quandary for the agency, for in some cases it proved impossible to comply simultaneously with Section 24, Circular A-119 and the Tech Transfer Act, and copyright law. Worst of all, it endangered the agency's ability to faithfully carry out its important public safety mission.

The analysis of the costs of PHMSA's standards suggests that incorporation by reference's public access problem is neither as uniform nor as egregious as some have suggested. A majority of the standards were available online for free independently of Section 24's requirements. Although this access is almost always read-only, that should be sufficient if the goal is to allow the general public to read standards that have the force of law. That standards developers generally require users to agree to an intellectual property license appears similarly reasonable if the goal is to further public access while still preserving the ability of standards developers to recoup the significant costs of the standards development process. Although the cumulative cost to purchase a full set of the standards seems quite high even when taking into account available free access, it is unlikely that members of the general public will often find a need to purchase a full set. More likely, they will be interested to see one or just a few standards in connection with a particular rulemaking. From this perspective, the average and median costs of PHMSA's incorporated standards do not seem to be "excessive." The most expensive standards are the sections of ASME's Boiler and Pressure Vessel Code. In light of the significant costs of developing and maintaining that code, and its importance independent of pipeline safety regulations, it is not immediately clear that even its price is unreasonable. What is clear is that Section 24's approach is overly aggressive as applied to most of PHMSA's incorporated standards.

PHMSA's experience with Section 24 strongly suggests that a better way to address incorporation by reference's public access problem is through a more nuanced, compromising, and collaborative solution. Before putting the force of law behind a private standard, agencies

should consider not only the standard's fitness for purpose and the quality of the process through which it was developed, but also the conditions under which it will be available to the public. Although federal law already recognizes these principles, the latter has taken on new importance in this new age of open, electronic government. When incorporating private standards by reference, agencies must take responsibility for ensuring those standards are reasonably available to the public. In carrying out this responsibility, agencies should work with standards developers in pursuit of the ideal of free online access, but with the willingness to compromise when doing so is necessary to promote other important administrative values and fulfill regulatory responsibilities, including protecting public health and safety. A bald free access requirement such as that embodied in Section 24 imprudently deprives agencies of the flexibility to use their informed, expert judgment to strike the right balance in individual circumstances.

There is good reason to believe that this collaborative approach can succeed. Many standards developers already provide their standards for free, and there appears to be momentum gaining in that direction. ASTM's recent decision to create an online library of all its incorporated standards is a highly significant development. As the largest standards developer in the U.S., this decision affects nearly more than one quarter of the incorporations by reference in the CFR. In addition, ANSI has been working to create a centralized online library to make it possible for smaller standards developers that lack the resources to create the required technological infrastructure to provide free read-only access to their incorporated standards. Finally, it is notable that the degree of success PHMSA had in implementing Section 24 was achieved only through collaboration with its standards developers. Other agencies can do the same—and without being forced into the kind of quandary created by Section 24.

C. Expanding Public Access through Federal Depository Libraries

In addition to the collaborative solution urged above, Congress could amend federal law to require agencies to make a copy of all incorporated private standards²³⁶ available in federal depository libraries. This could be accomplished under the auspices of the Federal Depository Library Program (FDLP), through which GPO distributes government publications to over 1,200

²³⁶ Although private standards are the focus of this article, the requirement could extend to the variety of privately authored, copyrighted materials that are incorporated by reference in federal regulations. *See* Bremer, *supra* note 3, at 145-47.

libraries nationwide.²³⁷ Participating libraries must provide the general public with free access to those publications.²³⁸ Individual agencies are responsible for furnishing to GPO a list of publications to be included in the program²³⁹ and must bear the printing and binding costs of any publications that are not issued by GPO.²⁴⁰ Under current law, only “government publications,” defined as “informational matter which is published as an individual document at Government expense, or as required by law,” are eligible for inclusion in the FDLP.²⁴¹ As previously explained, agencies are technically “required by law” to publish any private material given legal effect in federal regulations, but that obligation is fulfilled through incorporation by reference.²⁴² The “individual document” containing the full text of the incorporated material is privately published, however, at the expense not of the government, but of the private standards developer. Thus, including such materials in the FDLP collection would require legislative action. As under current law, agencies would presumably be responsible for including incorporated standards in their distribution lists for GPO, negotiating any necessary licensing agreements with private standards developers, and purchasing the paper or electronic copies to be distributed to federal depository libraries.

This compromise approach would be an admittedly imperfect solution. It would not address the problem of public access to private standards that may be—but are not yet—incorporated by reference. Agencies would still need to work with standards developers to provide access during the rulemaking process, although the goal is more achievable under such naturally time-limited circumstances. In addition, the library solution is bound to be expensive. The up-front costs of transitioning the thousands of existing standards incorporated by reference into the FDLP would be considerable—perhaps prohibitive. Going forward, individual agencies would have to pay private standards developers for over 1,200 copies of each incorporated standard. Perhaps costs could be contained by limiting the requirement to incorporated standards not otherwise available for free online. Such a limitation would reduce the incentive for

²³⁷ See GOV'T PRINTING OFFICE, FED. DEPOSITORY LIBRARY PROGRAM FOR PUBLIC, <http://www.gpo.gov/libraries/public/>.

²³⁸ See 44 U.S.C. § 1911. Publications in the federal collection may be in hard copy or electronic format, but electronic materials are accessible only in libraries and not via the Internet.

²³⁹ See *id.* § 1902. The list must include “[a]ll government publications, except those determined by their issuing components to be required for official use only or for strictly administrative or operational purposes which have no public interest or educational value and publications classified for reasons of national security.”

²⁴⁰ See *id.* § 1903; see also *id.* § 1913.

²⁴¹ See *id.* § 1901.

²⁴² See *supra* at Part I.A.

standards developers to provide free online access, undermining collaborative efforts and perhaps even putting the ideal of free online access out of reach. Finally, it is a compromise unlikely to satisfy free access advocates who believe that free and unrestricted online access is not merely the ideal, but the only acceptable outcome.

CONCLUSION

Crafting an effective, workable strategy for expanding public access to private standards incorporated into federal regulations is a surprisingly difficult challenge. Ideally, these standards would be freely available to the public online, as are federal rulemaking dockets and regulations. Copyright is the most obvious barrier to achieving this ideal, but the real difficulties run much deeper. The U.S. has a robust, highly decentralized, predominantly private standards system, and a variety of forces often give private standards de facto authoritative status. Federal law and policy generally require agencies to use available private standards that have been created using a voluntary consensus process. This policy yields significant benefits to federal agencies and the public. Yet even beyond this, the ability of federal agencies to carry out their regulatory missions and protect public health and safety frequently requires that private standards be seamlessly integrated into federal regulatory requirements.

Although a free access mandate like Section 24 has an alluring simplicity, a more flexible, collaborative approach holds greater promise for improving public access to incorporated standards without undermining other important public policies, values, and priorities. Over the long history of the public-private partnership in standards, the private sector has demonstrated both the willingness and ability to evolve in response to new public needs. This case study of federal pipeline regulations and PHMSA's experience working to implement Section 24 strongly suggests that private standards developers are already responding to the emerging public need for expanded online access to incorporated standards. Rather than abandoning a public-private partnership that has worked so well for so long, federal agencies and private standards development organizations should now rely on that partnership to effectively address the multidimensional problem of expanding public access to incorporated standards.