The Taxation of Emissions Permits Distributed for Free As Part of a Carbon Cap-and-Trade Program

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Introduction

Climate change legislation is one of the Obama administration's top priorities.[1] The administration has proposed regulating carbon emissions using a cap-and-trade program.[2] If adopted, the program will place a cap on the aggregate carbon emissions of certain firms. Under the program, the government will create emissions permits in an amount corresponding to the cap and will require certain firms to surrender a permit for each ton of carbon emitted. After the government initially distributes permits, firms will be able to buy and sell them on a secondary market.

Both the administration[3] and many economists prefer that the government initially distribute permits by auction.[4] Auctioning permits would raise billions of dollars in revenue and force firms to pay for their emissions.[5] Nevertheless, Congress seems unlikely to adopt legislation that auctions all permits.[6] In prior cap-and-trade programs, including the acid rain program, the government gave away permits to the firms required to surrender them.[7] Similarly, the Waxman-Markey cap-and-trade bill passed by the House of Representatives in June of 2009 gives away a large portion of permits.[8]

Assuming that the government gives away emissions permits, an important unresolved issue is whether recipient firms should pay federal income tax on any permits that they receive. This Article addresses that question.[9]

After adoption of the acid rain cap-and-trade program, which regulates sulfur dioxide emissions, the Internal Revenue Service ("IRS") issued administrative guidance that allows firms receiving sulfur dioxide permits to exclude the permits from income.[10] This means that the permits are not taxed when received. Instead, excluded permits have a tax cost basis[11] of zero,[12] so a firm that sells permits that it received for free will be taxed on the full amount of the sales proceeds.[13] The result is that free permits are not permanently exempt from tax, but instead the tax is deferred. Tax deferral provides firms with a benefit similar to receiving an interest-free loan from the government.[14] So deferral is valuable to firms and costly to the government.

This Article argues that the government should not extend the tax exclusion that currently applies to free sulfur dioxide permits to free carbon permits.[15] Instead, free carbon permits should be taxed when received, which would eliminate costly tax deferral.[16]

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1. *See* Office of Mgmt. & Budget, Exec. Office of the President, A New Era of Responsibility: Renewing America's Promise 100–01 (2009) [hereinafter OMB Budget Overview]; John M. Broder, *Setting 'Green' Goals*, N.Y. Times, Feb. 27, 2009, at A16; John M. Broder, *Obama's Greenhouse Gas Gamble*, N.Y. Times, Feb. 28, 2009, at A15.
2. OMB Budget Overview, *supra* note 1, at 100–01.
3. *See id.*; John M. Broder, *Adding Something for Everyone, House Leaders Gained a Climate Bill,* N.Y. Times, July 1, 2009, at A20.
4. *See, e.g.*, Alan D. Viard, *Don't Give Away the Cap-and-Trade Permits!*, 123 Tax Notes 613, 616–17 (2009).
5. *See* Cong. Budget Office, Cost Estimate: H.R. 2454 American Clean Energy and Security Act of 2009, at 10–12 (2009) [hereinafter Cost Estimate]; OMB Budget Overview, *supra* note 1, at 100.
6. David Wessel, *Pollution Politics and the Climate-Bill Giveaway*, Wall St. J., May 23, 2009, at A2 (noting that giving away permits "may be the only politically possible way to get any cap on carbon emissions through Congress").
7. Terry M. Dinan & Diane Lim Rogers, *Distributional Effects of Carbon Allowance Trading: How Government Decisions Determine Winners and Losers*, 55 Nat'l Tax J. 199, 201 (2002). Note, however, that the government is not limited to giving permits to the firms required to surrender them. Because they can be sold, permits are valuable even to firms not covered by cap-and-trade.
8. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 782 (2009).
9. The Waxman-Markey bill does not address the taxation of free permits.
10. Rev. Rul. 92-16, 1992-1 C.B. 15.
11. For an explanation of tax cost basis, see *infra* note 107.
12. *See* Rev. Rul. 92-16, 1992-1 C.B. 15. A firm receiving free permits might have to capitalize transaction costs, e.g., legal fees, incurred in obtaining those permits, in which case the permits' tax basis would include the transaction costs. *See* Rev. Proc. 92-91, 1992-2 C.B. 503. For simplicity, the Article will ignore this possibility and assume that the tax basis of free permits is zero.
13. *See* I.R.C. § 1001 (2006).
14. *See* Michael J. Graetz & Deborah H. Schenck, Federal Income Taxation: Principles and Policies 297 (6th ed. 2009) (discussing the benefits of tax deferral).
15. Given that carbon permits will have significant value, eliminating deferral could produce substantial revenue. *See infra* notes 100 and 110.
16. If permits were taxed upon receipt, they would have a tax basis equal to their initial value and this basis would reduce the taxable gain upon any subsequent sale. *See infra* note 107.

Part I discusses the general features and likely distributive effects of a carbon cap-and-trade program. In the long run, consumers will bear most of the program's costs as the prices of carbon-intensive goods and services increase.[17] Nevertheless, after the program is adopted, some firms may suffer transition losses as increased costs reduce their profits.[18] Additionally, the government can alter the program's distributive effects through its control over permits.[19] For example, the government could give permits to firms to avoid price increases or to compensate firms for transition losses. If, as seems likely, the government gives permits away, the resulting distributive effects will depend largely on whether the recipient firms are subject to rate regulation. State regulators will likely require that rate-regulated firms use any permits that that they receive to benefit their customers, e.g., by keeping prices low.[20] Permits allocated to unregulated firms, however, generally will benefit those firms' shareholders, not their customers and not consumers.[21] Unregulated firms that are required to surrender permits will increase prices to reflect the opportunity cost of using permits in the production process. This means that unregulated firms will increase prices even if they receive permits for free because surrendering permits entails giving up the potential revenue that could be earned from selling them.[22] In short, giving permits to unregulated firms generally will not protect consumers.[23]

Parts II and III consider the appropriate tax treatment of permits given to unregulated firms.[24] Part II argues that because the permits will be valuable and easy to sell and will generally benefit shareholders, unregulated firms that receive permits for free have economic income that should be taxed.[25] Part II also addresses and rejects the argument that free permits should not be taxed because they will merely compensate firms for transition losses.[26] Although cap-and-trade may cause transition losses, free allocation of permits may overcompensate at least some firms, causing them to be better off than if cap-and-trade were not adopted.[27] As a result, the case for a tax exclusion for free permits is not especially strong. Moreover, because a tax exclusion entails a tax basis of zero, it may produce a significant lock-in effect that causes firms to refuse to sell their permits in order to avoid paying tax on the resulting gain.[28] This lock-in effect may increase the overall cost of the cap-and-trade program.[29]

Additionally, Part III argues that firms should be taxed even if it turns out that the permits that they receive serve only to compensate them for transition losses. Ideally, the government would not use free permits to compensate firms because doing so will invite wasteful lobbying and may result in overcompensation.[30] Compensating transition losses also effectively rewards firms that have failed to anticipate climate change legislation and to take steps to reduce their carbon emissions.[31] This may discourage firms from anticipating future changes in the law, particularly new environmental regulations, which might result in excessive investment in technologies that are harmful to the environment.[32] In short, compensating firms is a bad idea in principle and should be avoided. But if the government chooses to give permits away, then taxing the permits when received will at least reduce the net amount of any compensation. This is desirable because it moves us toward the optimal amount of compensation, i.e., zero.

Part IV examines the appropriate tax treatment of permits given to local distribution companies ("LDCs"), which are rate-regulated firms that distribute electricity and natural gas to residential, commercial, and industrial users.[33] The Waxman-Markey bill allocates a substantial share of permits to LDCs ostensibly for the benefit of consumers.[34] Because LDCs are rate-regulated firms, state regulators will require that they use any permits that they receive to benefit their customers, e.g., by selling the permits to finance rebates. As a result, LDCs arguably will not have economic income from receiving permits.[35]

Nevertheless, Part IV argues that LDCs should be taxed on any permits that they receive. The rationale is as follows.

17. Cong. Budget Office, Shifting the Cost Burden of a Carbon Cap-and-Trade Program 10 (2003) [hereinafter Shifting the Cost Burden].
18. *Id.*
19. *Id.* at 3–4.
20. *See infra* note 190 and Part IV.
21. By "unregulated," I mean that that the firms are not subject to rate regulation.
22. *See, e.g.*, Cong. Budget Office, Trade-Offs in Allocating Allowances for CO_2 Emissions 5 (2007) [hereinafter Trade-Offs]; Viard, *supra* note 4, at 616–17.
23. For a caveat to this analysis, see *infra* note 180.
24. These would include, e.g., the permits that the Waxman-Markey bill gives to merchant coal generators (i.e., unregulated coal-fired power plants) and to oil refineries. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. §§ 783(c), 787 (2009).
25. For a definition of economic income, see *infra* note 114.
26. For a discussion of this argument, see Joint Comm. on Taxation, Climate Change Legislation: Tax Considerations 9–10 (2009) [hereinafter Joint Comm. on Taxation]. The Joint Committee's report notes that the IRS may have created a tax exclusion for free sulfur dioxide permits because it did not believe that cap-and-trade produced a net accession to wealth.
27. *E.g.*, Dallas Burtraw & Karen Palmer, *Compensation Rules for Climate Policy in the Electricity Sector*, 27 J. Pol'y Analysis & Mgmt. 819 (2008) (noting that "free allocation of allowances . . . may overcompensate producers for their loss in value"); Trade-Offs, *supra* note 22, at 5; Viard, *supra* note 4, at 616–17.
28. See Ethan Yale, *Taxing Cap-and-Trade Environmental Regulation*, 37 J. Legal Stud. 535, 547 (2008) [hereinafter Yale I].
29. *Id.* at 543.
30. *See* Burtraw & Palmer, *supra* note 27, at 836–43 (explaining that allocating permits to compensate electricity generators could lead to overcompensation of many firms).
31. *Cf.* Louis Kaplow, *Transition Policy: A Conceptual Framework*, 13 J. Contemp. Legal Issues 161, 181 (2003) [hereinafter Kaplow I] (noting that when the government bans a product without compensating transition losses "the anticipation of transition losses . . . will efficiently discourage . . . investment ex ante").
32. *See* Daniel Shaviro, When Rules Change 84–85 (2000) [hereinafter When Rules Change].
33. *See* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. §§ 783(b), 784 (2009).
34. *See id.*
35. *See* Joint Comm. on Taxation, *supra* note 26, at 9. The view that LDCs will not have economic income is debatable. For further discussion of this point, see *infra* note 333.

Giving permits to LDCs is bad policy.[36] If LDCs use their permits to provide rebates, the rebates may reduce the incentive to conserve electricity and natural gas and may produce windfalls for the shareholders of the LDCs' commercial and industrial customers.[37] There are more efficient and effective ways for the government to relieve the burden that cap-and-trade imposes on consumers. For example, the government could simply auction permits and send rebates directly to consumers.[38] As a consequence, it would be better if LDCs received no permits. But if they do receive permits, then taxing the permits will reduce their net cost to the government and their net value to LDCs. This may be beneficial because it will reduce the amount of any rebates, thereby increasing the incentive to conserve and limiting windfalls to shareholders. It will also increase the amount of revenue available to the government for use in reducing the deficit, cutting taxes, or increasing spending on other programs.[39]

I. The General Features and Distributive Effects of a Carbon Cap-and-Trade Program

This Part explains how a carbon cap-and-trade program will likely work and its distributive effects. Section A contains an overview of the program's general features. Section B describes how the costs that firms incur will be distributed among shareholders, workers, and consumers. Section C discusses how the government can use its control over permits to alter the program's distributive effects. Section D briefly explains how free permits will affect the value of firms that receive them.

A. General Features

A carbon cap-and-trade program[40] will have two primary features—the emissions cap and emissions permits.[41] The emissions cap limits the annual aggregate carbon emissions of covered firms[42] to a specified amount usually expressed in tons of emissions.[43] The program will likely be phased in so that the cap decreases over time.[44] The government will distribute a quantity of permits corresponding to the cap.[45] One permit confers the right to emit one ton of carbon.[46] In other words, a covered firm must surrender a permit for each ton of carbon that it emits during the year.[47] Following the initial distribution of permits, firms (and others who wish to do so) can buy and sell permits on the secondary market.[48]

Firms that own more permits than they are required to surrender can save the excess permits for use in a future year, a feature known as "banking."[49] Analysts anticipate that firms will reduce emissions by more than necessary in the early years of the program so that they can bank permits for use in future years, when the permits will become more expensive as the result of a more stringent cap.[50] So in the program's early years, banking will increase the demand for permits, thereby increasing their price.[51] It will have the opposite effect in later years, i.e., it will increase permit supply and decrease permit price.[52] Analysts anticipate that firms will bank permits until the expected annual appreciation in permit price provides the firms with a return on banked permits equal to the return on comparable investments.[53]

The purpose of cap-and-trade is to reduce carbon emissions to the capped level at the lowest possible social cost.[54] The program creates flexibility in reducing emissions by allowing firms to take advantage of the fact that the cost of emissions abatement varies across firms and across time.[55] For example, if Firm A can reduce emissions at a lower cost than Firm B, instead of requiring that both firms reduce emissions, the program allows A to reduce its emissions and to sell its excess permits to B. This lowers the overall cost of reducing emissions.

In theory, cap-and-trade will allocate emissions abatement to the cheapest sources first.[56] Firms that find it cheaper to

36. *E.g.*, Chad Stone & Hannah Shaw, Ctr. on Budget and Policy Priorities, Senate Can Strengthen Climate Legislation by Reducing Corporate Welfare and Boosting True Consumer Relief 1–2 (2009); Chad Stone, Ctr. on Budget and Policy Priorities, Holding Down Increases in Utility Bills Is a Flawed Way to Protect Consumers While Fighting Global Warming 1 (2009) [hereinafter Stone, Holding Down Increases]; *Hearing Before the Sen. Comm. on Energy and Natural Resources on the Costs and Benefits for Energy Consumers and Energy Prices Associated with the Allocation of Greenhouse Gas Emissions Allowances*, 111th Cong. (2009) (statement of Chad Stone); *see also Hearing Before the Sen. Comm. on Energy and Natural Resources on the Costs and Benefits for Energy Consumers and Energy Prices Associated with the Allocation of Greenhouse Gas Emissions Allowances*, 111th Cong. (2009) (statement of Gilbert Metcalf) [hereinafter Statement of Gilbert Metcalf]; Viard, *supra* note 4, at 619–20.
37. *E.g.*, Stone, Holding Down Increases, *supra* note 36, at 4–5; Viard, *supra* note 4, at 619.
38. Stone, Holding Down Increases, *supra* note 36, at 1, 7.
39. Whether this outcome is beneficial depends on whether the government would use the additional revenue in a way that is preferable to giving it to LDCs.
40. The cap-and-trade program created by the Waxman-Markey bill incorporates many of the features described in this Section.
41. Emissions permits are sometimes referred to as "allowances," but this Article uses the shorter term "permits" instead.
42. Where it might otherwise be unclear, I use the term "covered firms" to refer to firms that the program requires to surrender permits.
43. Cong. Budget Office, An Evaluation of Cap-and-Trade Programs for Reducing U.S. Carbon Emissions 5 (2001) [hereinafter Evaluation of Cap-and-Trade Programs]; Robert N. Stavins, *A Meaningful U.S. Cap-and-Trade System to Address Climate Change*, 32 Harv. Envtl. L. Rev. 293, 298 (2008) [hereinafter Stavins I].
44. The cap-and-trade program created by the Waxman-Markey bill is phased in gradually. *See* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 721(e) (2009).
45. *See* Stavins I, *supra* note 43, at 298.
46. *See* Evaluation of Cap-and-Trade Programs, *supra* note 43, at 5.
47. *Id.*
48. *Id.*
49. The Waxman-Markey bill permits banking. H.R. 2454 § 725(a).
50. *See, e.g.*, Cost Estimate, *supra* note 5, at 15.
51. *Id.*
52. *Id.*
53. *Id.*
54. *See* Stavins I, *supra* note 43, at 298; Harvey S. Rosen & Ted Gayer, Public Finance 86–94 (8th ed. 2008).
55. *See* Stavins I, *supra* note 43, at 329–330; Rosen & Gayer, *supra* note 54, at 94; N. Gregory Mankiw, Principles of Microeconomics 216 (4th ed. 2007). The flexibility that a cap-and-trade program allows in reducing emissions is the program's chief advantage over traditional command-and-control environmental regulation. *See* Rosen & Gayer, *supra* note 54, at 94–95.
56. *See* Stavins I, *supra* note 43, at 298; Mankiw, *supra* note 55, at 216.

reduce emissions than to purchase permits will abate.[57] Conversely, firms that find it cheaper to purchase permits than to reduce emissions will purchase permits.[58]

If the market for permits is efficient, the cost of a permit should equal the marginal cost of reducing emissions by one ton.[59] The reason is that each firm that has a marginal abatement cost that is lower than the permit price will abate (selling any excess permits that it holds) until its marginal abatement cost increases to equal the price of a permit.[60] Conversely, each firm that has a marginal abatement cost that is higher than the permit price will buy permits until its marginal abatement cost decreases to equal the price of a permit.[61] As a result of this process, the permit price will equal the marginal cost of abatement.[62]

B. Distribution of the Burden of Costs Imposed on Firms

A cap-and-trade program will impose substantial costs on firms, e.g., permit costs and abatement costs.[63] Ultimately, the extent to which these costs reduce profits will depend on whether firms can shift them to employees (by reducing wages) and to consumers (by raising prices).[64]

To understand why, consider a program that requires fossil-fuel suppliers to surrender permits to cover the potential carbon emissions in the fuels that they sell.[65] To preserve profits, the suppliers will attempt to shift their permit costs to employees (by reducing wages) and customers (by raising fuel prices).[66] As a result, firms that use fossil fuels, e.g., electricity companies, will pay higher fuel prices. These firms will also incur abatement costs, e.g., the additional costs of generating electricity using alternatives to fossil fuels. Fossil-fuel users will attempt to shift these additional costs to their employees and customers. Ultimately, market interactions will determine how prices (including wages) adjust in response to cap-and-trade, which in turn will determine how shareholders, workers, and consumers share the burden of cap-and-trade's costs.[67]

Economists expect that in the long run, consumers will absorb most of cap-and-trade's costs in the form of higher prices.[68] Over time, firms that experience reduced returns on their investments in carbon-intensive assets will redirect capital toward more lucrative projects, e.g., renewable energy.[69] During the transition to a cap-and-trade program, however, firms, and by extension their shareholders, in industries dependent on fossil fuels, particularly coal, may see their investments decline in value.[70]

The costs of cap-and-trade may impose transition losses on firms in two ways.[71] First, to the extent that a firm cannot shift its additional costs to others, it will lose profit on the goods that it sells.[72] Second, if a firm shifts costs to customers, the resulting price increase may reduce sales and eliminate profits from those sales.[73]

C. Distributive Effects of Permit Allocation

We have seen that price changes will determine how the costs that cap-and-trade imposes on firms are distributed among shareholders, workers, and consumers. The government can, however, dramatically alter these distributive effects through its control over permits.[74]

Because the government will create fewer permits than covered firms wish to surrender, permits will acquire a scarcity value.[75] The government can capture this value by auctioning permits, in which case its use of auction revenue will substantially determine the program's overall distributive effects.[76] For example, Congress can use auction revenue to

57. *See* Stavins I, *supra* note 43, at 298.
58. *Id.*
59. *See* Yale I, *supra* note 28, at 536–37; Rosen & Gayer, *supra* note 54, at 86–90.
60. *See* Rosen & Gayer, *supra* note 54, at 89–90.
61. *See id.*
62. *See id.*
63. Abatement costs include any cost that firms incur to reduce emissions. An example would include the increased cost of producing electricity using renewable energy sources instead of using cheaper fossil fuels.
64. *See, e.g.*, Stavins I, *supra* note 43, at 304–05; Shifting the Cost Burden, *supra* note 17, at 2–3.
65. The point of regulation in a cap-and-trade program can be upstream or downstream. Stavins I, *supra* note 43, at 309. An upstream program requires fossil-fuel suppliers to surrender permits to cover potential emissions from burning fossil fuels. *Id.* A downstream program, on the other hand, requires fossil-fuel users to surrender permits. *Id.* at 309 n.73. In general, the distributive effects of a cap-and-trade program do not depend on the point of regulation. *Id.* at 310. In an upstream program, suppliers will raise the price of fossil fuels to reflect permit costs. *Id.* In a downstream program, fossil fuel users will have to pay permit costs directly. *Id.* Either way, the program makes using fossil fuels more expensive, which will affect both suppliers and users. *Id.*
66. *See* Stavins I, *supra* note 43, at 304–05; Shifting the Cost Burden, *supra* note 17, at 2–3.
67. *See* Stavins I, *supra* note 43, at 304–05.
68. *See* Shifting the Cost Burden, *supra* note 17, at 10.
69. *See id.*
70. *Id.* Similarly, workers in affected industries may lose their jobs or experience wage cuts. *See id.* at 3, 14.
71. *Id.* at 3.
72. *Id.*
73. *Id.* Economists expect that the industries most likely to experience transition losses are fossil-fuel suppliers, particularly coal companies, electricity generators, oil refineries, and certain energy-intensive industries. *See, e.g.*, A. Lans Bovenberg & Lawrence H. Goulder, *Neutralizing the Adverse Industry Impacts of CO2 Abatement Policies: What Does It Cost?*, *in* Behavioral and Distributional Effects of Environmental Policy 45, 66–67 (Carlo Carraro & Gilbert E. Metcalf eds., 2001).
74. *See* Shifting the Cost Burden, *supra* note 17, at 3–4. Although the government can use auction revenue or free permits to compensate shareholders, workers, and consumers, it cannot fully compensate everyone. *See id.* at 4. The reason is that the program's gross costs (i.e., its costs ignoring any environmental benefits) will exceed the value of the permits. *Id.* It may seem that cap-and-trade's most significant cost will be the cost of permits. But in reality, permit costs are not real social costs. *See* Robert N. Stavins, *A U.S. Cap-and-Trade System to Address Global Climate Change* 12 (Brookings Inst., Discussion Paper No. 2007–13, 2007). When a firm purchases a permit, it merely transfers income to the seller (e.g., the government or another firm). *See id.* The loss to the buyer is exactly offset by revenue to the seller. Some of the program's costs, however, will not involve income transfers. *See* Shifting the Cost Burden, *supra* note 17, at 2–4. The program will impose real social costs. *Id.* It will divert resources to produce goods in a way that reduces carbon emissions and avoids cheap fossil fuels. *Id.* It will also require consumers to reduce consumption of carbon-intensive goods (e.g., driving). *See id.* Unlike permit costs, these costs represent real resource costs and welfare losses that will not be recovered elsewhere in the economy. *Id.* at 3. As a result, when these costs are added to permit costs, the aggregate costs of the program will exceed permit value, making full compensation impossible. *Id.* at 4.
75. *See* Shifting the Cost Burden, *supra* note 17, at 3.
76. *Id.* at 3–4.

compensate consumers for price increases or to cut income and payroll taxes.[77]

Alternatively, the government can give permits away for free. In prior cap-and-trade programs, including the acid rain program, the government gave away permits to covered firms to relieve the regulatory burden imposed upon them.[78] Moreover, it seems likely that the government will give away at least some permits if it adopts a carbon cap-and-trade program.[79]

It may seem that free permits will benefit consumers because firms that receive them will not be forced to increase prices to cover permit costs. Nevertheless, this intuition is incorrect.[80] The reason is that covered firms will likely increase prices to reflect the opportunity cost of using free permits in the production process (i.e., the forgone opportunity to sell any permits that are surrendered).[81] Paradoxically, firms are likely to charge their customers for using permits for which the firms themselves do not pay. Since firms will not forgo price increases simply because they received their permits for free, free permits generally will benefit the shareholders of recipient firms, not consumers.

This analysis, however, does not apply to LDCs.[82] State regulators will likely require LDCs to use any permits that they receive to benefit their customers, not their shareholders.[83]

D. *Free Permits and Firm Value*

It may seem that cap-and-trade will necessarily decrease the value of covered firms even if those firms receive free permits.[84] Nevertheless, as explained in detail in Part II, free permits may actually increase the value of a covered firm relative to its value prior to adoption of the program. Briefly stated, this can happen for two reasons.

First, some firms likely to be covered by the program own low-carbon assets that will increase in value because cap-and-trade will increase the price of the products those assets produce without a proportionate increase in costs.[85] For example, many electricity companies own nuclear and hydroelectric facilities in addition to fossil-fuel fired power plants.[86] The nuclear and hydroelectric facilities will benefit from cap-and-trade because the program will increase electricity prices, but these facilities will not incur substantial costs.[87]

Second, as already mentioned, covered firms will pass on a substantial portion of their costs to customers by raising prices[88] and will even raise prices to reflect the opportunity cost of using permits that they received for free. This may cause some firms to end up in a better position with the cap-and-trade program in place than without it.[89]

II. Permits Allocated to Unregulated Firms

This Part argues that the government should require unregulated firms receiving permits to include those permits in income for tax purposes. Section A provides background by describing the tax exclusion that currently applies to free sulfur dioxide permits. Section B briefly discusses the tax policy objective of capital income neutrality and how a tax imposed on economic income furthers that objective. Section C explains that a tax exclusion for free permits creates a non-neutral tax preference that may be both inefficient and unfair. Sections D and E address and reject the argument that an exclusion for free permits is justifiable on the grounds that free permits will simply compensate firms for transition losses.

A. *The Tax Exclusion for Free Sulfur Dioxide Permits*

The IRS has issued administrative guidance addressing the taxation of sulfur dioxide permits distributed for free as part of the acid rain cap-and-trade program.[90] Under Revenue Ruling 92-16, firms are not taxed when they receive free sulfur dioxide permits, and as a result, the permits have a tax cost basis of zero.[91] Under Revenue Procedure 92-91, a firm that surrenders a permit for compliance purposes takes a tax deduction equal to the firm's basis in the permit.[92] Because free permits have no basis, their surrender generates no deduction. Moreover, a firm that sells permits that it received for free generally will have taxable gain equal to the sales proceeds.[93]

Unfortunately, Revenue Ruling 92-16 does not provide a rationale for the tax exclusion that it creates.[94] One possibility is that the IRS concluded that free permits merely compensate covered firms for transition losses so that on net, cap-and-trade does not make those firms better off even if they receive free permits.[95] Sections D and E of this Part address this argument.

A second possible explanation is that the IRS was concerned that a secondary market for sulfur dioxide permits would not develop.[96] This concern may have arisen because

77. *See id.* at 4.
78. *See* Dinan & Rogers, *supra* note 7, at 201.
79. The Waxman-Markey bill gives away a large portion of permits to firms. *See* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 782 (2009).
80. *E.g.*, Trade-Offs, *supra* note 22, at 5; *see also* Viard, *supra* note 4, at 616–17.
81. *E.g.*, Trade-Offs, *supra* note 22, at 5; *see also* Viard, *supra* note 4, at 616–17. For further discussion of this point, see *infra* Part II.E.
82. For an additional exception, see *infra* note 180.
83. *See infra* Part IV.
84. This Section discusses cap-and-trade's effects on unregulated firms. State regulators will likely adjust the prices of rate-regulated firms to ensure that cap-and-trade has little if any effect on their value.
85. *See* Stavins I, *supra* note 43, at 305; Burtraw & Palmer, *supra* note 27, at 826–27; Dallas Burtraw et al., *The Effect on Asset Values of the Allocation of Carbon Dioxide Emissions Allowances*, Electricity J., June 2002, at 51, 56–57.
86. *See* Burtraw et al., *supra* note 85, at 56.
87. *Id.* at 56–57.
88. *E.g.*, Shifting the Cost Burden, *supra* note 17, at 10.
89. *E.g.*, Trade-Offs, *supra* note 22, at 5; Viard, *supra* note 4, at 616–17.
90. Rev. Rul. 92-16, 1992-1 C.B. 15; Rev. Proc. 92-91, 1992-2 C.B. 503.
91. *See* Rev. Rul. 92-16, 1992-1 C.B. 15–16.
92. *See* Rev. Proc. 92-91, 1992-2 C.B. 503–04. In certain circumstances, the surrender of a permit may be treated as a nondeductible capital expenditure, e.g., if surrender is treated as a production cost of inventory under I.R.C. § 263A.
93. *See id.*
94. Rev. Rul. 92-16, 1992-1 C.B. 15–16.
95. *See* Joint Comm. on Taxation, *supra* note 26, at 9 (discussing possible reasons for the IRS's decision to exclude permits from income).
96. *See id.*

the acid rain program was the government's first significant experience with cap-and-trade, and the program applies to a limited number of firms, mostly electricity companies that own coal-fired power plants.[97] Without an active secondary market, sulfur dioxide permits would have been difficult to value for tax purposes, and firms might have had trouble selling the permits to raise cash to pay the tax.[98]

These administrative concerns, however, should not preclude taxing free carbon permits. A carbon cap-and-trade program will likely cover numerous firms from a number of industries.[99] Additionally, the value of carbon permits will far exceed the value of sulfur dioxide permits,[100] and analysts expect that carbon permits will be traded on an active secondary market.[101] So taxing carbon permits should not create insurmountable valuation and liquidity problems.[102]

Although taxing free carbon permits will be feasible, it would conflict with the IRS's apparent reluctance to tax government grants of licenses and similar rights.[103] Nevertheless, this reluctance is likely based in large part on the same administrative concerns that may explain the tax exclusion for free sulfur dioxide permits.[104] Most government grants of noncash property would be difficult to tax, either because the property is hard to value or cannot easily be sold to pay the tax. As already discussed, these administrative concerns should not arise with respect to carbon permits.[105]

Before considering why the government should not extend the tax exclusion for sulfur dioxide permits to carbon permits, it is important to recognize what is at stake. If a firm receives permits and surrenders those permits in the year of receipt, it generally will not matter whether the permits are included in or excluded from income for tax purposes. As we have seen, excluded permits produce no income upon receipt, which means they have no tax basis and produce no tax deduction when surrendered.[106] In effect, the tax system simply ignores the permits. On the other hand, if firms had to include the value of free permits in income, the permits would have a tax cost basis equal to their value at the time of receipt.[107] Additionally, surrendering the permits would generate a tax deduction equal to their basis.[108] As a result, if a firm were to surrender its permits in the year it received them, surrender of the permits would result in a deduction that fully offset any income from receiving the permits.[109] This would produce the same result as if the permits were simply excluded from income.

If, however, a firm banks its permits,[110] it matters a great deal whether the permits are included in or excluded from income. Excluding the permits defers tax, e.g., until the permits are sold.[111] Including the permits would mean that the firm must pay tax in the year of receipt. (Because the firm would take a tax basis in the permits equal to the amount included in income, the permits would not be taxed twice.[112]) As a result, the benefit of the tax exclusion is deferral. Deferring tax is similar to receiving an interest-free loan from the government.[113] The firm gets to invest the deferred amount until the tax is due.

97. *See id.* at 9–10.
98. *See id.* at 10.
99. The Congressional Budget Office estimates that the Waxman-Markey bill would cover 7,400 facilities in various economic sectors, including electricity generators, refineries, natural gas distributors, and certain carbon-intensive industries. Cost Estimate, *supra* note 5, at 4–5. This estimate includes facilities covered by a separate, smaller cap-and-trade program regulating hydrofluorocarbons. *Id.* at 5–7.
100. The Congressional Budget Office estimates that if the Waxman-Markey bill is enacted, the permits eligible to be traded on the secondary market in 2012 will exceed $60 billion in value. *Id.* at 11. Note that this estimate includes the value of permits issued as part of the separate cap-and-trade program regulating hydrofluorocarbons. *Id.*
101. *E.g.*, *id.*
102. *See id.* ("Within such a large and liquid market, allowances could be easily and immediately traded for cash.").
103. *See, e.g.*, Rev. Rul. 67-135, 1967-1 C.B. 20; I.R.S. Gen. Couns. Mem. 39,606 (Feb. 27, 1987). For example, Revenue Ruling 67-135 involved leases of oil and gas rights on federal lands administered by the Bureau of Land Management. Rev. Rul. 67-135, 1967-1 C.B. 20–21. The Bureau leased the lands without competitive bidding. *Id.* The IRS held that a taxpayer who obtained a lease did not have income even if the rent under the lease was below market (so that the lease itself had value). *Id.*
104. *See* Joint Comm. on Taxation, *supra* note 26, at 10.
105. According to the Congressional Budget Office, "the free distribution of allowances by the federal government [under the cap–and–trade program created by the Waxman-Markey bill] would be essentially equivalent to the distribution of cash grants." Cost Estimate, *supra* note 5, at 11.
106. Rev. Rul. 92-16, 1992-1 C.B. 15; Rev. Proc. 92-91, 1992-2 C.B. 503.
107. When a taxpayer includes the receipt of noncash property in income, generally the property has a tax basis equal to the amount included in income, i.e., its tax cost basis. Boris I. Bittker et al., Federal Income Taxation of Individuals ¶ 29.02[5] (3d ed. 2002); Boris I. Bittker & Lawrence Lokken, Federal Taxation of Income, Estates and Gifts ¶ 41.2.5 (3d ed. 1999); *see also* I.R.C. § 302(d) (2006) (basis of property received as a result of a dividend); Treas. Reg. § 1.61–2(d)(2)(i) (as amended in 2003) (basis of property received as compensation for services).
108. Rev. Proc. 92-91, 1992-2 C.B. 504. The analysis in the text assumes that, as is the case for sulfur dioxide permits, the surrender of a carbon permit will result in a deduction equal to the permit's basis. This seems likely. *See* Joint Comm. on Taxation, *supra* note 26, at 7, 12–14 (considering the possibilities for taxing permits).
109. As discussed *supra* note 92, in certain circumstances, the surrender of a permit may be treated as a nondeductible capital expenditure. In that case, surrender of the permit would not immediately result in a deduction that fully offset the income from receiving the permit. Similarly, if the cap-and-trade program allows firms to surrender permits in a year following the year in which emissions occur, it is possible that a firm using the accrual method would be entitled to a deduction in the year the emissions occurred and not in the year the permits are surrendered. *See* Joint Comm. on Taxation, *supra* note 26, at 13 n.30. If this were the case and a firm received permits and surrendered those permits to cover emissions in the prior year, the firm could have income from the permits that would not be offset by a deduction (because the firm would have already taken the deduction in the prior year when emissions occurred).
110. The Congressional Budget Office expects that firms would bank a significant number of permits if Waxman-Markey were enacted. Cost Estimate, *supra* note 5, at 16 ("CBO estimates that by 2019, covered entities would undertake significantly more mitigation than necessary to meet their annual emission caps, banking about 2 billion $mtCO_2e$ of allowances.").
111. *See* Rev. Rul. 92-16, 1992-1 C.B. 15; Rev. Proc. 92-91, 1992-2 C.B. 503.
112. More specifically, a firm that includes permits in income will receive a subsequent tax benefit either in the form of a deduction (if it surrenders the permits) or tax-free basis recovery (if it sells the permits). A firm that excludes its permits will not receive this benefit. For the excluding firm, however, the trade-off is worth it. As explained in the text, taxpayers generally prefer to defer tax. So a firm would generally prefer to exclude free permits from income rather than include the permits in income in exchange for a subsequent deduction or basis recovery.
113. Graetz & Schenck, *supra* note 14, at 297.

B. Capital Income Neutrality and a Tax on Economic Income

This Part argues that free permits should be taxed if they constitute economic income.[114] To that end, this Section briefly explains that a tax on economic income is appealing because it produces capital income neutrality.[115]

Many tax scholars support the idea of capital income neutrality, which exists in a tax system that imposes the same tax burden on all capital income.[116] A tax that is neutral in this sense does not distort the choice among particular investments.[117] For example, a tax that exempts income from certain investments but not others is not neutral because it may alter investment decisions. Conversely, a tax on economic income is neutral (assuming that it taxes all types of capital income at the same rate)[118] because it extends to all capital income and does not favor particular investments.[119] Thus, if we are going to have an income tax, preserving neutrality provides support for using economic income as the tax base (at least when measuring and taxing economic income does not raise significant administrative concerns).[120]

Capital income neutrality is desirable because it is generally thought to produce an efficient allocation of capital.[121] Investors direct capital into investments that have the highest expected aftertax returns. So if the government imposes different tax burdens on different types of investments, e.g., by exempting income from certain investments while taxing income from others, then capital may flow into the investments that have the highest expected aftertax returns even if those investments do not have the highest expected pretax returns.[122] In other words, capital will not be put to its most productive use. But if the government imposes the same tax burden on all investments, investors will in effect decide among investments based upon their expected pretax returns, which should generally maximize social welfare.[123]

In addition to being efficient, neutrality is also fair because it avoids windfalls to investors who happen to invest in tax-favored assets.[124] If Congress reduces the relative tax burden imposed on a particular asset, e.g., by exempting income from the asset from tax, then investors will begin buying that asset. The increase in demand will increase the asset's price, thereby reducing its expected rate of return.[125] If capital markets were perfect and only top bracket taxpayers purchased the tax-favored asset, its price would continue to increase until its expected rate of return came in line with the expected aftertax rate of return of top bracket taxpayers on similar taxable investments.[126] Once this happened, investors would no longer receive a tax advantage from investing in the tax-exempt asset.[127] Instead, the tax preference would be capitalized into the asset's price.[128]

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114. Because many of the firms affected by cap-and-trade will likely be corporations subject to the corporate income tax, economic income in this context means corporate economic income, which has been defined as "the algebraic sum of (1) distributions to investors, less advances from investors, and (2) the change in value of [the corporation's] net worth during the income period." Leon Gabinet & Ronald J. Coffey, *The Implications of the Economic Concept of Income for Corporation-Shareholder Income Tax Systems*, 27 Case W. Res. L. Rev. 895, 915 (1977); *see also* Ethan Yale, *When Are Capitalization Exceptions Justified?*, 57 Tax L. Rev. 549, 552–53 (2004) [hereinafter Yale II]. This definition of corporate income is based on the Haig-Simons definition of personal income, according to which personal income is consumption plus changes in net worth during the period. Gabinet & Coffey, *supra,* at 915. Commentators have adapted the Haig-Simons definition of income to fit corporations by dropping the consumption component, retaining the accretion component, and adjusting for distributions to and receipts from investors.
115. Capital income is the income from savings.
116. *See, e.g.*, When Rules Change, *supra* note 32, at 93–94; Yale II, *supra* note 114, at 551–52; David A. Weisbach, *Measurement and Tax Depreciation Policy: The Case of Short-Term Intangibles*, 33 J. Legal Stud. 199, 208–09 (2004); Joel Slemrod & Jon Bakija, Taxing Ourselves 131–34, 216–18 (4th ed. 2008).
117. Yale II, *supra* note 114, at 551–52.
118. Note, however, that capital income neutrality does not require that capital income and wages be taxed at the same rate. Yale II, *supra* note 114, at 557.
119. *See, e.g.*, Slemrod & Bakija, *supra* note 116, at 31 ("A system that taxes some forms of income and does not tax others creates incentives for taxpayers to alter their actions so that they earn (or appear to earn) less of the kind of income that gets counted and more of the kind that does not."). Even if an income tax exhibits capital income neutrality, the tax will not be neutral with respect to all decisions. By reducing the return to labor and saving, an income tax distorts the decisions to work and save. *See generally* Jonathan Gruber, Public Finance and Public Policy 611–60 (2d ed. 2007). As a result, some tax scholars advocate replacing the income tax with a consumption tax, which would be neutral with respect to the decision to save. *See, e.g.*, Slemrod & Bakija, *supra* note 116, at 212–13 (reviewing the arguments in favor of a consumption tax). Nonetheless, if we are going to have an income tax, even consumption tax advocates might favor a broad-based tax that imposes a low rate on all capital income to a tax that imposes a higher rate on income from some investments while exempting income from others.
120. Taxing certain types of economic income, e.g., unrealized appreciation or imputed income from owner-occupied housing, might create administrative problems.
121. *E.g.*, Yale II, *supra* note 114, at 551; Calvin H. Johnson, *Soft Money Investing under the Income Tax*, 1989 U. Ill. L. Rev. 1019, 1038 (1989). In theory, in certain circumstances deviating from neutrality may enhance efficiency. *E.g.*, Slemrod & Bakija, *supra* note 116, at 131–34. For example, tax preferences may encourage activities that produce positive externalities. *Id.* at 132–33. Nonetheless, properly identifying appropriate deviations from neutrality is difficult. *Id.* at 132; Weisbach, *supra* note 116, at 208–09 ("Optimal tax theories may indicate that some deviation from neutrality is desirable, but the size of the adjustments tends to be sufficiently small and of uncertain direction, and the benefits sufficiently minimal, that most economists assume that neutrality is best."). Moreover, once we abandon the neutrality norm, Congress may find it more difficult to resist the temptation to enact tax preferences that benefit special interests, even if those tax preferences have no principled justification. Slemrod & Bakija, *supra* note 116, at 218; When Rules Change, *supra* note 32, at 94–95. Thus, a strong argument exists for neutrality as a guiding principle with the caveat that exceptions may be appropriate in some instances.
122. *E.g.*, Johnson, *supra* note 121, at 1038; Bittker & Lokken, *supra* note 107, ¶ 3.3.3.
123. *E.g.*, Johnson, *supra* note 121, at 1038. Because it distorts the decisions to work and save, an income tax imposes an efficiency cost even if it does not distort the choice among particular investments. Nevertheless, the idea is that (at least in practice) other things equal, an income tax that imposes the same tax burden on all investments is likely to have a lower efficiency cost than an income tax that favors certain investments and penalizes others.
124. *E.g.*, Johnson, *supra* note 121, at 1036–38; Yale II, *supra* note 114, at 552; *see also* Bittker & Lokken, *supra* note 107, ¶ 3.3.3 (discussing the circumstances under which a tax preference leads to a windfall); Marvin A. Chirelstein, Federal Income Taxation 431–32 (11th ed. 2009) (same).
125. *E.g.*, Bittker & Lokken, *supra* note 107, ¶¶ 3.3.3., 3.3.4; Chirelstein, *supra* note 124, at 429–31; Johnson, *supra* note 121, at 1036–38; Yale II, *supra* note 114, at 551–52.
126. *E.g.*, Bittker & Lokken, *supra* note 107, ¶ 3.3.3; Chirelstein, *supra* note 124, at 429–31; Johnson, *supra* note 121, at 1036–38; Yale II, *supra* note 114, at 551–52.
127. *E.g.*, Bittker & Lokken, *supra* note 107, ¶ 3.3.3; Chirelstein, *supra* note 124, at 429–31.
128. *See, e.g.*, Bittker & Lokken, *supra* note 107, ¶ 3.3.3; Chirelstein, *supra* note 124, at 429–31; Johnson, *supra* note 121, at 1037; Yale II, *supra* note 114, at 551–52.

In reality, however, tax preferences are not always fully capitalized into the price of tax-favored assets.[129] Investors often fail to reallocate funds until the aftertax rates of return on similar investments equalize.[130] This can produce inequities because taxpayers who happen to invest in tax-favored assets face a lower tax burden and receive a higher aftertax rate of return than taxpayers who invest in similar tax-penalized assets.[131] Additionally, to the extent that capitalization does not eliminate the advantage of tax preferences to investors, investors who invest in tax-favored assets effectively receive a windfall from the government without any obvious benefit to society.[132]

To illustrate, consider what would happen if the government created a special tax exemption for the interest on bonds issued by XYZ Corporation ("XYZ").[133] Assume that XYZ will issue a bond that pays $100 in interest annually in perpetuity. Assume further that similar taxable bonds offer a pretax rate of return of 10% and that all investors pay tax at a flat rate of 50%. Given these assumptions, the aftertax rate of return on taxable bonds is 5%.

If XYZ's bond were not exempt from tax, we would expect it to sell for $1,000. At that price, the bond's aftertax rate of return would equal 5%, which is the aftertax rate of return available on similar bonds. Because of the tax exemption, however, investors will bid up the price of XYZ's bond. If capital markets were perfect, the price of the XYZ bond would double to $2,000.[134] At that price, the bond would yield 5%, so investors would be indifferent between it and similar taxable bonds. If this were to happen, an investor who bought the bond would in effect not benefit from the tax exemption because the bond's price would have increased sufficiently to ensure that the investor received only the normal 5% return. In other words, the value of the tax exemption would be capitalized into the price of the bond.[135]

But if we make the example more realistic by assuming that, for whatever reason, the tax exemption is not fully capitalized,[136] the result changes significantly. For example, if the price of the XYZ bond increases to $1,500, not $2,000, then an investor who purchases the bond will earn an aftertax return of 6.7%, not 5%. In effect, the government provides the investor with what amounts to a windfall,[137] which arguably is unfair because the government receives nothing in exchange.[138] Put differently, why should an investor who happens to invest in a tax-favored asset such as the XYZ bond earn a higher aftertax return than an investor who invests in a similar tax-penalized asset?[139]

In sum, capital income neutrality has broad support because a neutral tax does not distort investment choices. Generally, neutrality is both fair and efficient. A tax imposed on economic income is neutral because it extends to all capital income. This suggests that as a tax policy matter, firms should be taxed when they receive free carbon permits if those permits constitute economic income.

C. *The Tax Exclusion for Free Permits as a Non-Neutral Tax Preference*

Emissions permits are valuable assets, so a firm that receives them for free has economic income and arguably should have to include the permits in income for tax purposes. This Section will show that a tax exclusion for free permits creates a tax preference that deviates from neutrality. This tax preference may interfere with environmental policy[140] and is potentially unfair. The next Section will consider whether, despite these concerns, a tax preference for free permits can be justified.

As discussed in the previous Section, tax preferences can distort investors' behavior, and a number of commentators have pointed out that the tax exclusion for sulfur dioxide permits may do just that.[141] In particular, one commentator has used the Cary Brown theorem to show that the tax exclusion creates an incentive to bank free permits and that this incentive may increase the overall social cost of cap-and-trade.[142]

According to the theorem, under certain conditions, permitting a taxpayer to expense an investment (i.e., to deduct its cost immediately) is equivalent to requiring capitalization but exempting the income generated by the investment

129. *E.g.*, Bittker & Lokken, *supra* note 107, ¶ 3.3.3; Chirelstein, *supra* note 124, at 431–32; Yale II, *supra* note 114, at 551–52; Johnson, *supra* note 121, at 1036–38.
130. *E.g.*, Bittker & Lokken, *supra* note 107, ¶ 3.3.3; Chirelstein, *supra* note 124, at 431–32; Yale II, *supra* note 114, at 551–52; Johnson, *supra* note 121, at 1036–38.
131. *See, e.g.*, Bittker & Lokken, *supra* note 107, ¶ 3.3.3; Chirelstein, *supra* note 124, at 431–32; Johnson, *supra* note 121, at 1036–38; Yale II, *supra* note 114, at 551–52.
132. *E.g.*, Bittker & Lokken, *supra* note 107, ¶ 3.3.3; Chirelstein, *supra* note 124, at 431–32; Johnson, *supra* note 121, at 1036–38; *see also* Boris I. Bittker, *Equity, Efficiency, and Income Tax Theory: Do Misallocations Drive Out Inequities?*, 16 San Diego L. Rev. 735, 743–44 (1979).
133. The example in the text is based on examples found in Bittker & Lokken, *supra* note 107, ¶ 3.3.3 and Chirelstein, *supra* note 124, at 427–32.
134. This conclusion assumes that investors expect that the government will not change the tax rate or repeal the tax exemption. It also assumes that creation of the tax exemption for XYZ's bonds has no effect on the pretax return on other bonds.
135. *See, e.g.*, Bittker & Lokken, *supra* note 107, ¶ 3.3.3; Chirelstein, *supra* note 124, at 430–31. If the tax exemption is fully capitalized, XYZ receives the entire benefit. To see why, recognize that without the exemption, XYZ could have borrowed $2,000 only if it had paid $200 in interest annually. In that case, the investor receiving the $200 in interest would have kept $100 and paid the remaining $100 to the government as tax. Because of the tax exemption, however, the government loses $100 in revenue, and XYZ can borrow $2,000 while paying only $100 in annual interest, not $200. Thus, the exemption is a subsidy provided by the government to XYZ, with no benefit to the investor. *See, e.g.*, Bittker & Lokken, *supra* note 107, ¶ 3.3.3; Chirelstein, *supra* note 124, at 427–32.
136. One reason this could happen is that in reality, as opposed to the example, investors purchasing tax-exempt bonds may face different marginal tax rates. Thus, tax-exempt bonds may be priced to appeal to taxpayers who are not in the top tax bracket. *E.g.*, Bittker & Lokken, *supra* note 107, ¶ 3.3.3; Chirelstein, *supra* note 124, at 427–32.
137. *E.g.*, Bittker & Lokken, *supra* note 107, ¶ 3.3.3; Chirelstein, *supra* note 124, at 430–31.
138. *See* Johnson, *supra* note 121, at 1038.
139. *See* Yale II, *supra* note 114, at 552.
140. *See* Yale I, *supra* note 28, at 543; Jonathan R. Nash, *Taxes and the Success of Non-Tax Market-Based Environmental Regulatory Regimes*, *in* Critical Issues in Environmental Taxation 735, 749 (Nathalie J. Chalifour et al. eds., 2008).
141. *See, e.g.*, Yale I, *supra* note 28, at 535, 543; Nash, *supra* note 140, at 749.
142. Yale I, *supra* note 28, at 543. Yale does not address the topic of this Article, i.e., whether the government ought to tax free permits. Instead, he accepts a tax exclusion for free permits as given and explains the ramifications for environmental policy.

from tax.[143] The tax exclusion for free permits is similar to expensing.[144] More precisely, excluding permits is similar to including them in income and then expensing the amount included.[145] Because an exclusion is similar to expensing, if a firm banks excluded permits, any subsequent appreciation in their value is effectively exempt from tax.[146]

To illustrate, assume that absent cap-and-trade, Firms A and B would each emit one ton of carbon and have $100 of net earnings during year 1. Assume for simplicity that each firm pays tax at a flat rate of 40%. The government adopts cap-and-trade and at the end of year 1, each firm receives a free permit worth $100. Assume that for tax purposes, the firms can exclude permits from income so that each firm has a tax basis of zero in the permit that it receives.

Assume that A surrenders its permit to cover its year 1 emissions. Because it excluded the permit from income, A receives no tax deduction for surrendering the permit, and it pays $40 in tax on its $100 of net earnings. Assume that at the end of year 1, A invests its aftertax income of $60. A then sells its investment at the end of year 2 after the investment appreciates in value by 10%. Table 1 illustrates the results for A. It shows that at the end of year 2 A has $63.60 in cash after paying taxes.

Table 1: Effect of Tax Exclusion for Free Permits

	Firm A	Firm B
1. Yr. 1 taxable income	$100	$0
2. Yr. 1 tax	$40	$0
3. Yr. 1 investment	$60	$100
4. Yr. 2 pretax sale proceeds	$66	$110
5. Yr. 2 pretax appreciation	$6	$10
6. Yr. 2 tax	$2.40	$44
7. Yr. 2 aftertax cash (line 4 minus line 6)	$63.60	$66

Now turn your attention to Firm B. Assume that instead of surrendering its permit in year 1, B banks its free permit and chooses to abate its emissions at a cost of $100. (Recall from Part I that if the market for permits is efficient, the marginal cost of abatement should equal the cost of a permit. Thus, a permit price of $100 implies a marginal abatement cost of $100.) Assuming that B's abatement costs are deductible,[147] the deduction offsets B's net earnings of $100 and reduces the firm's taxable income to zero. So B pays no tax in year 1.

If permits appreciate at a rate of 10% (i.e., the same rate as the investment that A purchased), the permit that B banked will be worth $110 at the end of year 2. If it sells the permit, B will have a gain of $110. (Because B excluded the permit from income, it has a tax basis of zero.) Table 1 shows that after paying tax on its gain, B is left with $66.

Line 7 of Table 1 shows that B has $2.40 more cash than A at the end of year 2. The Cary Brown theorem explains this result. The tax exclusion for free permits has the same effect as including the permits in income and then expensing them, and expensing provides a benefit similar to exempting subsequent appreciation from tax.[148] In order to receive the benefit of this exemption, a firm receiving free permits must bank those permits. Because A did not bank its permit, it does not receive the benefit of the exemption.

B, on the other hand, banked its permit. Thus, B ends up in the same position in which it would have been if the following had occurred: (1) it included the permit in income, producing $100 of taxable income; (2) it paid tax of $40 on that income; (3) it invested the aftertax income of $60 in an asset that appreciated in value by $6 (i.e., 10%) during year 2; and (4) it did not pay tax on the resulting appreciation.

Why does banking produce this result? Abating emissions and banking the free permit allows B to defer payment of $40 in tax on $100 of income. The tax is deferred for one year from year 1 to year 2. Because of deferral, B receives what amounts to an interest-free loan from the government of $40. In effect, B invests the loan proceeds at an aftertax rate of return of 6% for a profit of $2.40. At the end of year 2, B is better off than A by this amount because A did not receive the interest-free loan. Instead, A had to pay $40 in tax on its $100 of net earnings in year 1.

This analysis shows that an exclusion for free permits creates a tax preference for banking those permits.[149] A and B are identical except for the fact that A surrendered its permit while B reduced emissions and banked its permit. Because B banked its permit, the firm pays $40 less in tax in year 1 than does A. This tax preference for banking would not exist if firms had to include free permits in income.

Another way to explain why a tax exclusion for free permits favors banking is the lock-in effect.[150] If free permits have no tax basis, a firm that sells them will pay tax on the full amount of the sales proceeds. Zero basis effectively transforms the income tax into an excise tax on the sale of permits. Banking permits allows firms to defer the tax. Thus, firms have an incentive to lock in their investment in free permits and to refrain from selling those permits to other firms.

By creating an incentive to bank permits, the tax exclusion for free permits may increase the cost of cap-and-trade.[151] If the exclusion encourages firms to bank permits, the current price of permits may rise relative to their future price. Given that the price of permits reflects the marginal cost of abatement, "[t]ax rules will warp the relative costs of abatement in

143. E. Cary Brown, *Business-Income Taxation and Investment Incentives*, *in* Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen 300–416 (Lloyd A. Metzler et al. eds., 1948). For a discussion of the Cary Brown theorem and the conditions under which equivalence holds, see Graetz & Schenck, *supra* note 14, at 298–301.
144. Yale I, *supra* note 28, at 544–45.
145. *Id.*
146. *Id.* at 544–47.
147. B's abatement costs would be deductible business expenses unless they constitute capital expenditures. *See* I.R.C. §§ 162, 263 (2006).
148. Yale I, *supra* note 28, at 544–47.
149. *See id.* at 546–48.
150. *Id.* at 547.
151. *Id.* at 543.

present and future periods, causing the present cost of abatement to increase relative to future costs."[152]

The effect on permit price of the tax exclusion for free permits is similar to the effect on the price of the XYZ bond of the tax exemption discussed in the example in the previous Section. The tax exclusion for free permits effectively exempts from tax any appreciation in the value of those permits if the permits are banked.[153] So the tax exclusion may encourage firms to bank permits, which could cause the price of permits to rise so that the tax exemption becomes capitalized into permit price.[154] If the tax exemption becomes fully capitalized into permit price, firms will no longer have a tax incentive to continue banking permits. On the other hand, if capitalization is less than complete, the price of permits will not increase enough to eliminate the tax advantage of banking. (This might happen, e.g., if holders of zero-basis permits do not dominate the market.) In that case, firms that receive and bank free permits may receive a windfall because the aftertax return on the banked permits may be higher than the aftertax return on similar investment opportunities.[155]

In sum, a tax exclusion for free permits creates a tax preference for banking those permits. If tax-induced banking increases the permit price, the overall cost of cap-and-trade may increase. By contrast, if the tax preference for banking is not fully capitalized in permit price, firms that receive and bank free permits may experience a windfall. The next Section considers whether this potential windfall is justifiable.

D. A Tax Exclusion as Rough Justice

Despite the fact that the free receipt of valuable permits produces economic income, recipient firms may argue that a tax exclusion provides a certain rough justice. The argument proceeds as follows. The adoption of a cap-and-trade program may cause some of the assets of certain firms to decline in value.[156] (These transition losses may occur, e.g., if a firm is expected to incur costs that it cannot pass on to its customers.)[157] If the income tax were imposed on economic income, firms could immediately deduct transition losses, and this deduction would at least partially offset any income resulting from free permits. The problem is that under the actual income tax (as opposed to a tax imposed on economic income) firms cannot immediately deduct transition losses because of the realization requirement.[158] As a result, any potential windfall resulting from a tax exclusion for free permits is arguably justified as a mechanism to mitigate the overtaxation that results from the inability to immediately deduct unrealized transition losses.[159] Stated differently, if a firm's transition losses equal or exceed the value of the permits it receives, then on net, the firm has no economic income as a result of cap-and-trade. Instead, the free permits effectively compensate the firm for losses it would otherwise sustain.

This rough justice argument, however, suffers from two significant flaws. The first flaw is somewhat technical but still worth noting. Even if free permits merely compensate firms for transition losses, a tax exclusion that results in the permits having zero tax basis does not seem appropriate. If permits constitute compensation then they are analogous to a property damage award and arguably should be treated as a recovery of capital, or more precisely, a recovery for injury to capital.[160] The tax consequences of treating free permits as a recovery of capital would mimic the consequences of including the permits in income and simultaneously deducting any losses on the firm's other assets, except that the deduction would be limited to the lesser of the value of the permits or the tax basis of the other assets. In other words, receipt of the permits would effectively be tax-free to the extent of the firm's tax basis in its other (non-permit) assets.[161] The permits themselves would take a basis equal to their value, and the firm would reduce the basis of its other assets by the value of the permits (but not below zero).[162]

To illustrate, assume that Firm X owns assets that are worth $1,000 immediately before the government unexpectedly adopts a carbon cap-and-trade program in which X is a covered firm.[163] Assume that if the government auctioned all permits, the value of X's assets would drop to $900 because X's additional costs (including permit costs) would reduce the firm's expected profits. This could occur if investors expected that X would be unable to pass on all of its additional costs to its customers. Assume that instead of auctioning all permits, the government gives X, at no charge, permits worth $100. X receives the permits in the year the government adopts the program.[164]

152. *Id*.
153. *See id.* at 543–48.
154. *Id.* at 547–48.
155. Arguably, the tax exclusion for free permits will create a windfall for firms even if the resulting tax exemption for subsequent appreciation *is* fully capitalized into permit price. As discussed *infra* Part II.E, the receipt of free permits by firms may itself constitute a windfall. To the extent that capitalization of the tax exemption makes permits more valuable, it increases the amount of this windfall.
156. *See, e.g.*, Shifting the Cost Burden, *supra* note 17, at 3; Burtraw & Palmer, *supra* note 27, at 825–28.
157. Shifting the Cost Burden, *supra* note 17, at 3.
158. As a result of the realization requirement, unrealized gains and losses generally are not recognized for tax purposes until the occurrence of a realization event, e.g., a sale. *E.g.*, J. Martin Burke & Michael K. Friel, Taxation of Individual Income 28 (8th ed. 2007); *see also* I.R.C. § 1001 (2006); Treas. Reg. § 1.1001–1(a) (as amended in 2007).
159. The firms would be "overtaxed" in the sense that the realization requirement causes their taxable income to exceed their economic income.
160. *See* Raytheon Prod. Corp. v. Comm'r, 144 F.2d 110, 113–14 (1st Cir. 1944) (stating that a damage award is treated as a tax-free recovery of capital to the extent of the taxpayer's basis in the damaged property); State Fish Corp. v. Comm'r, 48 T.C. 465, 472–73 (1967) (same); Sager Glove Corp. v. Comm'r, 36 T.C. 1173, 1180 (1961) (same).
161. *See, e.g.*, Raytheon Prod. Corp., 144 F.2d at 113–14; State Fish Corp., 48 T.C. at 472–73; Sager Glove Corp., 36 T.C. at 1180.
162. *See* I.R.C. § 1016(a) (2006); Inaja Land Co., Ltd. v. Comm'r, 9 T.C. 727, 735–36 (1947); Rev. Rul. 70-510, 1970-2 C.B. 159 (holding that amounts received for granting a perpetual easement to flood the taxpayer's property reduced the basis of the property).
163. Assuming that the program is adopted by surprise avoids the complication of a gradual decline in the value of X's assets that would likely occur as the estimated probability of cap-and-trade's adoption increased.
164. Instead of receiving all of its permits in the year the program is adopted, a firm might receive a stream of permits over several years. Receipt of a stream of permits complicates the analysis without materially altering the conclusion, so for simplicity, I assume immediate lump-sum receipt.

Because the government gives X permits worth $100, adoption of the program has no effect on the firm's aggregate value. The firm's old assets, i.e., the assets it owned prior to adoption of the program, are now worth only $900. (To understand why, imagine that after receiving the permits, X sold its old assets but kept the permits. The buyer would not pay more than $900 for the old assets because after it purchased the assets, the buyer would still have to buy permits to cover emissions.) The permits the firm receives, however, are worth $100. So the firm's aggregate value remains $1,000.

In this example, the free permits are just sufficient to compensate the firm for the transition losses it sustains on its old assets. On net, the firm has no economic income or loss, so in a tax imposed on economic income, adoption of the program would have no net effect on taxable income.

This does not mean, however, that for tax purposes, X should exclude the permits and give them a tax basis of zero, as it would if the tax exclusion in Revenue Ruling 92-16 applied.[165] Instead, in theory at least, X should be taxed as follows. Since the permits are valuable property, X should include them in income and give them a tax basis of $100. Conversely, because the firm's old assets have declined in value by $100, the firm should deduct this loss immediately. Assuming that prior to the adoption of the program, the firm's old assets had an aggregate tax basis of $1,000 (i.e., their value at that time), the loss deduction would reduce the aggregate tax basis of the old assets to $900 (i.e., their value after adoption of the program).[166]

The result is that the income from the permits and the deduction for the loss on the old assets offset one another, producing no net effect on taxable income. Of course, instead of including the permits in income and allowing an offsetting deduction, the same outcome could be achieved by treating the receipt of the permits as a recovery of capital that reduces the basis of the old assets. In effect, X simply needs to transfer $100 of basis from its old assets to the permits.

As this example makes clear, an analogy between free permits and a property damage award does not provide support for the tax exclusion created by Revenue Ruling 92-16. The tax consequences of treating free permits similar to a property damage award would generally be similar to including the permits in income and simultaneously deducting an offsetting loss on the recipient firm's other assets. By contrast, Revenue Ruling 92-16 effectively requires that for tax purposes, firms simply ignore permits that they receive for free, at least until those permits are sold.[167] These two approaches differ because the former approach results in permits that have a tax basis equal to their value at the time of receipt, whereas the latter results in permits that have no tax basis. This difference is important because, as the previous Section demonstrated, taxpayers have an incentive to bank permits that have no basis, and tax-induced banking may increase the overall cost of cap-and-trade. This tax preference for banking, however, would not arise if free permits were treated as a recovery of capital and took a basis equal to their fair market value.

The second flaw with the rough justice argument is more fundamental. The argument rests substantially on the claim that free permits merely compensate firms for transition losses. Returning to the example, if cap-and-trade had not caused X's old assets to decline in value, then the free permits would have increased the value of the firm from $1,000 to $1,100. In other words, the permits would have triggered $100 of economic income with no offsetting loss. In that case, no reason would exist not to tax the permits upon receipt. The next Section argues that the claim that free permits will merely compensate firms for transition losses is questionable.

E. Windfalls Resulting from Free Permits

This Section shows that free permits may do more than just compensate firms for transition losses. The permits can actually increase the value of recipient firms relative to their value prior to adoption of cap-and-trade.[168] As a result, the argument for not taxing the permits upon receipt is difficult to sustain.

Subsection 1 describes in general terms how a cap-and-trade program with free permits can make firms better off than they would be if the program did not exist. Subsection 2 focuses specifically on firms in the electricity generation industry and explains how a cap-and-trade program will likely affect the value of those firms. I focus on the electricity generation industry because its members will be responsible for a large share of emissions abatement[169] and, as a result, will be among the candidates for free permits.[170] Subsection 3 explains that because the government may allocate permits for any reason it wants, there is no assurance that permits will simply provide compensation. As a result, the government should tax free permits upon receipt. Subsection 4 argues that firms should be required to include free permits in income despite the fact that doing so creates some potential for overtaxation in certain instances.

1. Covered Firms Generally

A seemingly intuitive argument can be made that a cap-and-trade program cannot increase the value of covered firms even if those firms receive free permits.[171] This argument proceeds as follows. Cap-and-trade places a new regulatory burden on covered firms, i.e., the requirement that the firms surrender permits to cover emissions. Free permits reduce this burden, but only partially. Because firms will not receive all of the permits they wish to surrender, they will still incur

165. Rev. Rul. 92-16, 1992-1 C.B. 15.
166. *See* I.R.C. § 1016(a) (2006).
167. Rev. Rul. 92-16, 1992-1 C.B. 15.
168. Burtraw & Palmer, *supra* note 27, at 819 (noting that "free allocation of allowances . . . may overcompensate producers for their loss in value").
169. *Id.* at 823.
170. The Waxman-Markey bill allocates permits to certain coal-fired power plants. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 783(c) (2009).
171. This argument is similar to an argument that was used to justify the tax exclusion for free sulfur dioxide permits. *See* Letter from George B. Javaras and Donald E. Rocap, Kirkland & Ellis, to Glenn A. Carrington, Internal Revenue Service (Sept. 18, 1992), *reprinted in* 208 Tax Notes 46 (1992).

substantial costs, including the cost of purchasing additional permits. Granted, the government could increase the program's regulatory burden by auctioning permits. But its failure to do so does not put covered firms in a better position than they were in before the program existed. A grant by the government of limited pollution rights in place of previously unlimited pollution rights does not make covered firms better off.[172] In other words, free permits make covered firms better off than if they had to purchase permits at auction. But free permits do not make the firms better off than they were before they were required to surrender permits in the first place.

The problem with this argument is that it assumes that because a cap-and-trade program limits the rights of covered firms it must also reduce their value. This assumption is incorrect. For example, a program in which the government auctioned all permits would limit the rights of covered firms and impose significant costs, but it would not necessarily reduce the value of all of those firms.[173]

The reason is that many firms will be able to raise prices and pass on a substantial portion of their costs to their customers. Additionally, many firms that own carbon-intensive assets also own low-carbon assets that will actually increase in value when the government adopts cap-and-trade.[174] This will happen because the program will increase prices of the goods produced using those assets without imposing a proportionate increase in costs.[175] Given that the value of all covered firms would not necessarily decline even if the government auctioned all permits, a substantial risk exists that giving permits away will overcompensate many firms for any transition losses that they do in fact incur.[176]

It may seem that free permits should benefit consumers, not firms, because firms that receive permits for free will not be forced to raise prices. This view, however, is inaccurate. Even if firms receive permits for free, using permits in the production process involves an opportunity cost.[177] A firm that uses its permits forgoes the revenue from selling them. Firms make pricing decisions based on opportunity costs.[178] In general, firms will increase prices to reflect the opportunity cost of using permits even if the firms received those permits for free.[179] As a result, free permits generally will benefit the firms that receive them (or more precisely, the shareholders of those firms) and not consumers.[180]

This partly explains why allocating permits for free can significantly overcompensate covered firms for any transition losses. If the government auctions permits, in effect, money flows from consumers to the government, which captures permit value. This results from a three-step process: (1) money flows from consumers (who pay higher prices); (2) to covered firms (which purchase permits); and (3) then to the Treasury. But if the government gives permits away for free, the third step is omitted. In other words, firms capture permit value because they charge their customers for permits that they themselves receive for free.[181] As a result, free permits can produce windfalls for the firms that receive them.[182]

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172. *See id.*

173. *See* Stavins I, *supra* note 43, at 305; Burtraw & Palmer, *supra* note 27, at 826–27; Burtraw et al., *supra* note 85, at 56–57.

174. *See* Stavins I, *supra* note 43, at 305; Burtraw et al., *supra* note 85, at 56–57.

175. *See* Stavins I, *supra* note 43, at 305; Burtraw et al., *supra* note 85, at 56–57.

176. Burtraw & Palmer, *supra* note 27, at 822 ("The award of free allowances to producers is a blunt instrument for compensation [that] tends to reward winners as well as losers.").

177. Trade-Offs, *supra* note 22, at 5; Viard, *supra* note 4, at 616–17.

178. Trade-Offs, *supra* note 22, at 5; Viard, *supra* note 4, at 616–17.

179. *See, e.g.*, Trade-Offs, *supra* note 22, at 5; Viard, *supra* note 4, at 616–17. Indeed, these price increases will further the purpose of cap-and-trade by giving consumers an incentive to reduce consumption of carbon-intensive goods. Viard, *supra* note 4, at 619–20. Note that prices will not necessarily increase to reflect the full cost of permits, whether those costs represent explicit costs or opportunity costs. *See, e.g.*, *id.* at 616–17. In other words, firms will not be able to raise prices enough to pass on all permit costs to consumers. This does not, however, alter the conclusion in the text that free allocation of permits generally will not stop firms from raising prices and will therefore benefit shareholders, not consumers. For a discussion of why some electricity generators may not be able to pass on all of their permit costs to their customers, see *infra* Part II.E.2.

180. Trade-Offs, *supra* note 22, at 5; Viard, *supra* note 4, at 616–17. The analysis in the text assumes that permits are given to firms based on historical measures over which the firms have no control, e.g., historical emissions. If that is the case, then permit allocations will not affect production decisions and will not result in lower prices but will instead increase profits. *See, e.g.*, Stavins I, *supra* note 43, at 317 n.96, 319–20.

It is possible, however, that the government will update allocations periodically based on output. For example, the Waxman-Markey bill includes output-based updating for some allocations. *See, e.g.*, American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 783(c) (2009) (using output-based updating for allocations to merchant coal generators). Output-based updating transforms allocations into a production subsidy, which may dampen the price increases that would otherwise result from cap-and-trade. Evaluation of Cap-and-Trade Programs, *supra* note 43, at 12–15; Stavins I, *supra* note 43, at 317 n.96. In that case, shareholders and consumers will likely share the benefits of freely allocated permits. Evaluation of Cap-and-Trade Programs, *supra* note 43, at 12–15; Stavins I, *supra* note 43, at 320 n.102.

But even if consumers receive some benefit, output-based updating is problematic. If the government uses free permits to keep prices of certain goods and services artificially low, it will reduce the incentive to conserve. *See, e.g.,* Evaluation of Cap-and-Trade Programs, *supra* note 43, at 12–15; Stavins I, *supra* note 43, at 317 n.96; Viard, *supra* note 4, at 619–20. As a result, emissions abatement will shift from the subsidized sectors of the economy to unsubsidized sectors where it may be more expensive. *E.g.*, Viard, *supra* note 4, at 619–20. The net result may be an inefficient subsidy that increases the overall cost of cap-and-trade. *Id.* Consumers will save money on subsidized goods but as a result, may spend even more money on unsubsidized goods. *Id.*

In short, the use of output-based updating to benefit consumers is likely to prove counterproductive. So if the government ultimately uses free permits in this way, it may be best to tax those permits in order to reduce the amount of the inefficient subsidy. Output-based updating creates problems similar to those created by the allocation of permits to LDCs. For a more complete discussion of these problems, see *infra* Part IV.

There is one caveat to this analysis. Output-based updating may be beneficial for allocations to "trade-vulnerable" industries (although this is controversial). *See infra* note 328.

181. Another way of describing why firms benefit from free permits is as follows. By forcing firms to limit production of carbon-intensive goods, cap-and-trade effectively organizes firms into a cartel, which increases prices and creates the potential for economic rents. Bovenberg & Goulder, *supra* note 73, at 48–49, 56–60; Lawrence H. Goulder, *Mitigating the Adverse Impacts of CO2 Abatement Policies on Energy-Intensive Industries* 2 (Res. for the Future, Working Paper No. 02–22, 2002). The potential rents are reflected in permit value. If the government auctions permits, it transforms the potential rents into revenue. If the government gives away permits, it allows firms to retain the rents.

182. Yet another way to think about this is to recognize that a cap-and-trade program in which permits are auctioned is similar to a carbon tax, the burden of which falls primarily on consumers because it increases the prices of carbon-intensive goods and services. *See* Viard, *supra* note 4, at 613–17. But a cap-and-trade program with free permits for covered firms is similar to a carbon tax in which the government allows firms to keep the tax revenue. *See id.* Hence the conclusion that free permits can make firms substantially better off than they would be if the cap-and-trade program did not exist.

Empirical evidence from the European Union ("EU") supports this conclusion.[183] The EU has a carbon cap-and-trade program in which most permits are given away for free to covered firms.[184] Economists have concluded that many firms have likely reaped windfalls precisely because the firms have raised prices despite the fact that they do not have to pay for most of their permits.[185]

2. Firms in the Electricity Generation Industry

To better illustrate how a carbon cap-and-trade program with free permits may increase the value of covered firms, this Subsection explains the likely effects of the program on the electricity generation industry. This industry is responsible for 40% of carbon emissions, and analysts estimate that it could account for 70% of emissions reduction under a carbon cap-and-trade program.[186] Cap-and-trade will impose significant costs on many power plants, so members of the industry will likely lobby for free permits.[187] As we will see, a substantial risk exists that any allocation scheme will overcompensate many firms for their potential transition losses.[188]

This Subsection focuses specifically on what I will refer to as unregulated generators,[189] which are firms that sell electricity on competitive markets and that, unlike rate-regulated utilities,[190] are not subject to rate regulation.[191] The effects of cap-and-trade on the value of unregulated generators will be ambiguous.[192] If the government wishes to compensate these firms for transition losses, it will be difficult to estimate those losses (if any) and to determine the appropriate amount of compensation.[193]

To illustrate why, consider a cap-and-trade program in which electricity generators are covered firms. Market forces will determine the effects of the program on firms that sell power in competitive markets. In competitive wholesale markets, prices generally are set based on generators' offers, which are accepted in order from the lowest to highest until demand is met.[194] The market clearing price is the price of the marginal generator, i.e., the highest offer sufficient to satisfy demand.[195] All generators receive the market clearing price, even if they submitted lower offers.[196]

Because the marginal generator sets the price of electricity, prices in competitive markets depend on the marginal generator's operating costs.[197] This means that prices generally will increase to reflect any costs that cap-and-trade imposes on the marginal generator, including any permit costs.[198] Because of this, the effects of cap-and-trade on other generation facilities will largely depend on whether their additional costs per unit of electricity generated are more or less than those of the marginal generator.[199] If they are more, the additional costs will cut into profits and reduce the value of the facility.[200] If they are less, the facility may increase in value because electricity prices will increase by more than any additional costs.[201]

This raises an important question: which facilities are the marginal generators in the various markets for electricity? The answer varies from market to market and depends on the time of day and year, but very often, the marginal generator in a particular market is a power plant fueled by natural gas.[202] A few details about the electricity industry will assist in explaining why. Electricity cannot be stored, so it must be generated and consumed at virtually the same time.[203] Also, demand varies throughout each day and throughout the year.[204] As a result, some generation capacity sits idle during off-peak hours (e.g., nighttime).[205] Because of their high capital costs and for technical reasons, some power plants (e.g., many nuclear and coal-fired power plants) operate at long-intervals or almost constantly.[206] These baseload plants operate during both peak and off-peak hours.[207] Other power plants (e.g., many gas-fired power plants) are brought online

183. *See* Jos Sijm et al., *CO2 Cost Pass Through and Windfall Profits in the Power Sector*, 6 Climate Pol'y 49, 67 (2006); Trade–Offs, *supra* note 22, at 5.
184. Sijm et al., *supra* note 183, at 49.
185. *See id.* at 49, 67; Trade-Offs, *supra* note 22, at 5.
186. Burtraw & Palmer, *supra* note 27, at 823.
187. As previously noted, the Waxman-Markey bill allocates free permits to certain coal-fired power plants. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 783(c) (2009).
188. Burtraw & Palmer, *supra* note 27, at 826–28; *see also* Burtraw et al., *supra* note 85, at 56–57 (noting that some utilities may profit from cap-and-trade even if permits are auctioned).
189. The Waxman-Markey bill allocates permits to merchant coal generators, which are unregulated generators. *See* H.R. 2454 § 783(c).
190. I focus on unregulated generators because rate-setting bodies will likely adjust the rates of rate-regulated utilities so that the utilities recover any additional costs and do not suffer significant transition losses. Burtraw & Palmer, *supra* note 27, at 824. So the government has no reason to use free permits to compensate rate-regulated utilities. As discussed *infra* Part IV, the Waxman-Markey bill does give free permits to LDCs, the rates of which are regulated, but the bill requires LDCs to use the permits to benefit their customers. H.R. 2454 § 783(b).
191. For a description of unregulated generators, *see* Energy Info. Admin., U.S. Dep't of Energy, The Changing Structure of the Electric Power Industry 2000: An Update 21–24 (2000) [hereinafter Electric Power Industry 2000]; Paul L. Joskow, *The Difficult Transition to Competitive Electricity Markets in the United States*, *in* Electricity Deregulation: Choices and Challenges 31, 44–49 (James M. Griffin & Steven L. Puller eds., 2005).
192. Burtraw & Palmer, *supra* note 27, at 826–27; *see also* Burtraw et al., *supra* note 85, at 56–57 (noting that cap-and-trade may increase the revenues of some utilities by more than it increases costs).
193. *See* Burtraw & Palmer, *supra* note 27, at 821–45 (discussing the difficulties in estimating losses at the firm level).
194. *See* Susan F. Tierney et al., Uniform-Pricing Versus Pay-as-Bid in Wholesale Electricity Markets 1–2, 7–8 (2008).
195. *See id.*
196. *See id.*
197. Burtraw & Palmer, *supra* note 27, at 824.
198. *See id.*; Anne E. Smith et al., *Implications of Trading Implementation Design for Equity-Efficiency Trade-Offs in Carbon Permit Allocations* 4 n.4 (Charles River Assocs., Discussion Paper, 2002). Sijm, Neuhoff, and Chen, however, discuss several reasons why the price of electricity might not increase sufficiently to fully reflect the permit costs of the marginal generator. Sijm et al., *supra* note 183, at 51–52.
199. *See* Burtraw & Palmer, *supra* note 27, at 829; Smith et al., *supra* note 198, at 4 n.4.
200. *See* Burtraw & Palmer, *supra* note 27, at 829; Smith et al., *supra* note 198, at 4 n.4.
201. *See* Burtraw & Palmer, *supra* note 27, at 829; Burtraw et al., *supra* note 85, at 56–57.
202. *See* Burtraw et al., *supra* note 85, at 56; Burtraw & Palmer, *supra* note 27, at 829; Smith et al., *supra* note 198, at 4 n.4.
203. Joskow, *supra* note 191, at 40.
204. *Id.*
205. *Id.*
206. *See* Electric Power Industry 2000, *supra* note 191, at 9–10 (noting that baseload plants usually operate continuously).
207. *See id.*

to meet peak demand.[208] The nuclear and coal-fired baseload plants often have lower operating costs (primarily because of lower fuel costs) than the peakload gas-fired power plants.[209] This means that in competitive markets, a gas-fired power plant is often the marginal generator that sets the price of electricity (at least during peak hours).[210]

Because gas-fired power plants often set the price in competitive markets, economists expect that many of these facilities will be able to shift a substantial portion of their additional costs to their customers.[211] This means that in many cases, cap-and-trade's effects on the profits of coal-fired power plants and other generation facilities will depend on whether those facilities' costs per unit of electricity generated increase by more or less than the costs of gas-fired power plants.[212]

On the one hand, natural gas emits about half as much carbon as coal per unit of electricity generated.[213] This means that if a gas-fired power plant is the marginal generator in a particular market, prices will likely increase enough to allow coal-fired power plants to recover roughly half of their additional costs.[214]

On the other hand, low-carbon facilities, e.g., nuclear, hydroelectric, and wind facilities, will have no or low additional costs.[215] These facilities will experience windfalls as the price of the electricity they produce rises much faster than their costs.[216]

In general, economists expect that a cap-and-trade program in which permits are auctioned would have the following effects on values at the *facility* level.[217] Many coal-fired power plants would likely decline in value as increased costs cut into profits.[218] Low-carbon facilities would likely substantially increase in value.[219] To the extent that they serve as the marginal generators in their respective markets, the effects on gas-fired power plants generally would likely be less dramatic than the effects on other types of facilities.[220]

While the effects on facility values are of interest, what matters for purposes of this Article are the effects of cap-and-trade on values at the *firm* level. Firms, not facilities, serve as taxable units. The argument that free permits should be excluded from income for tax purposes is substantially weakened unless cap-and-trade imposes transition losses at the firm level.

Cap-and-trade's potential effect on firm values can be difficult to determine because many firms own a portfolio of generation facilities.[221] As we have seen, some facilities will increase in value and others will decrease in value. The net effect on a particular firm will depend on its energy generation portfolio. In a study that estimates cap-and-trade's effects on facility and firm values (assuming that the government auctions all permits) researchers concluded that because many firms have diversified energy generation portfolios, net losses at the firm level could be substantially less than gross losses at the facility level.[222] Some firms may actually increase in value.[223]

This research substantially weakens any argument that free permits will merely compensate firms for transition losses. Given that some firms will increase in value even if permits are auctioned, a significant possibility exists that free permits will overcompensate at least some firms and increase their value above what it would be if the government did not adopt cap-and-trade.[224]

3. The Government's Motives in Allocating Permits and the Procedure for Determining Transition Losses

The fact that free permits can increase the value of firms weakens the argument against taxing the permits upon receipt. Free permits are not similar to an award for property damage because we have no guarantee that the permits will simply restore the taxpayer to the position it was in prior to the adoption of cap-and-trade. This point is particularly forceful when you consider that in allocating permits, the government may have mixed motives. It may allocate permits to compensate for transition losses, but it also may allocate permits for any number of other reasons, including the desire to placate powerful interest groups.[225] In this respect, con-

208. *See id.*
209. *See* Burtraw & Palmer, *supra* note 27, at 829; Burtraw et al., *supra* note 85, at 56.
210. *See* Burtraw & Palmer, *supra* note 27, at 829; Burtraw et al., *supra* note 85, at 56; Smith et al., *supra* note 198, at 4 n.4.
211. *See* Burtraw & Palmer, *supra* note 27, at 829; Burtraw et al., *supra* note 85, at 56; Smith et al., *supra* note 198, at 4 n.4.
212. *See* Burtraw & Palmer, *supra* note 27, at 829; Burtraw et al., *supra* note 85, at 56; Smith et al., *supra* note 198, at 4 n.4; Sijm et al., *supra* note 183, at 52–53.
213. Energy Info. Admin., U.S. Dep't. of Energy, Emissions of Greenhouse Gases in the United States 2000, at 140 (2001); Smith et al., *supra* note 198, at 4 n.4.
214. Smith et al., *supra* note 198, at 4 n.4.
215. *See* Burtraw et al., *supra* note 85, at 56.
216. *See* Burtraw & Palmer, *supra* note 27, at 829; Burtraw et al., *supra* note 85, at 56.
217. By facility level, I mean at the generation facility or power plant level, as opposed to at the firm level.
218. *See* Burtraw & Palmer, *supra* note 27, at 829; Burtraw et al., *supra* note 85, at 55; Smith et al., *supra* note 198, at 4 n.4.
219. *See* Burtraw & Palmer, *supra* note 27, at 829; Burtraw et al., *supra* note 85, at 55; Smith et al., *supra* note 198, at 4 n.4.
220. *See* Burtraw & Palmer, *supra* note 27, at 829; Burtraw et al., *supra* note 85, at 55; Smith et al., *supra* note 198, at 4 n.4.
221. *See* Burtraw & Palmer, *supra* note 27, at 826–27.
222. *Id.* at 825–27.
223. *Id.*; *see also* Stavins I, *supra* note 43, at 305.
224. The Waxman-Markey bill contains a provision that allows the Administrator of the Environmental Protection Agency, in consultation with the Federal Energy Regulatory Commission, to adjust permit allocations to merchant coal generators if the Administrator makes an affirmative finding that those generators are receiving windfall profits. *See* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 783(c)(5) (2009). It is not clear, however, how the Administrator will make such a finding and whether the provision will be vigorously enforced. Given the delicate political balance that the bill's complex allocation scheme achieves and the influence of the special interest groups involved, the Administrator may be reluctant to tamper with permit allocations. *Cf.* Peter Behr, *Power Industry Infighting Heats Up Over Climate Legislation,* ClimateWire, July 16, 2009, *available at* http://www.nytimes.com/cwire/2009/07/16/16climatewire–power–industry–infighting–heats–up–over–clim–38477.html ("Some industry experts said that the Federal Energy Regulatory Commission could, in theory, intervene if [generators] were taking unfair advantage of the allotment program. But such an effort could run into the complex ownership arrangements that the [generators] have for their various coal, nuclear and renewable generation resources, they added.").
225. *See, e.g.*, Broder, *supra* note 3, at A20 (discussing the manner in which free permits were used to secure passage of the Waxman-Markey bill).

trast free permits with a property damage award that results from litigation in which the defendant has a strong incentive to ensure that the award is not excessive.

Even if the government's motives were pure, determining which firms will suffer losses and the amount of those losses will be difficult. For example, a good faith attempt to determine losses at the firm level in the electricity generation industry might require that the government painstakingly net gains at some facilities against losses at others.[226] Moreover, the researchers who have attempted to estimate firm-level losses note that the estimates are not precise and depend on numerous variables.[227] For example, delays in implementing the cap-and-trade program (or slowly phasing it in) could substantially reduce transition losses.[228] Delays will give firms time to realize the value of existing carbon-intensive assets and to adjust their investments accordingly.[229]

Because estimating losses is so difficult, it seems unlikely that the government will be able to accurately target allocations only to those firms that might lose value.[230] Overcompensation seems especially likely given the fact that the allocation scheme will result from a highly politicized process in which numerous interest groups vie for billions of dollars worth of permits.[231] During this process, firms have a significant incentive to exaggerate potential losses and understate potential gains.[232]

4. The Potential for Overtaxation

This Section has described in detail the very real possibility that free permits may make at least some recipient firms better off than they would be if the government did not adopt climate change legislation. On the basis of this analysis, I conclude that free permits should be taxed upon receipt.[233] Nevertheless, I acknowledge that some firms receiving free permits would otherwise suffer transition losses so that at least some portion of the permits that they receive can be viewed as providing compensation. Because the realization requirement prevents immediate deduction of transition losses, requiring that these firms include free permits in income may cause them to be overtaxed. This prospect, however, does not convince me to support a tax exclusion similar to the one created by Revenue Ruling 92-16. Four reasons support my position.

First, a strong case can be made in support of a conclusive presumption that firms receiving free permits would not have otherwise suffered transition losses. The realization requirement exists largely because of the difficulty of quantifying unrealized changes in asset values.[234] Unrealized transition losses resulting from the adoption of cap-and-trade are no different. As this Section has made clear, even in the absence of free permits, the effects of climate change legislation on firm values would be ambiguous. Some firms would be better off and others worse off. Identifying the firms that will suffer transition losses and quantifying those losses will be difficult. Additionally, it is not clear that the government will use free permits solely to compensate transition losses. Thus, there is no reason not to include free permits in income and apply the realization requirement to disallow the deduction of any unrealized losses. This approach may result in overtaxation in some cases, but the realization requirement frequently results in overtaxation.[235] Moreover, any overtaxation may be easier to accept once we consider that cap-and-trade will cause some firms to enjoy unrealized gains so that those firms will effectively be undertaxed.

Second, if the problem is that the realization requirement prevents firms from immediately deducting unrealized transition losses, then a tax exclusion that results in free permits having no tax basis is a woefully underinclusive remedy. The exclusion generally will benefit only those firms that receive permits. If a firm suffers transition losses but receives no permits, it will receive no benefit from the exclusion. It is not apparent why a firm that suffers transition losses and receives free permits should receive a tax benefit that is unavailable to a similar firm that receives no free permits.

Third, as already discussed, a tax exclusion may lead to tax-induced banking of permits. This in turn may increase the overall cost of cap-and-trade and impede the objectives of environmental policy.

Finally, a case can be made for taxing free permits even if those permits merely compensate firms for transition losses. The next Part develops this argument.

226. *See* Burtraw & Palmer, *supra* note 27, at 837.
227. *Id.* at 821–22.
228. *Id.* at 820–21.
229. *Id.*
230. *Id.* at 823 ("[C]onsiderations regarding the difficulty of targeting compensation to its intended recipients . . . might move policy makers away from free allocation.").
231. *Cf.* Paul L. Joskow & Richard Schmalensee, *The Political Economy of Market-Based Environmental Policy: The U.S. Acid Rain Program*, 41 J. L. & Econ. 37, 38 (1998) ("Because emissions permits are valuable and decisions about their distribution are made by political institutions, these decisions are likely to be highly politicized, reflecting rent-seeking behavior and interest group politics.").
232. *See* Burtraw & Palmer, *supra* note 27, at 819 ("Strong incentives exist for parties to argue for an ever-increasing share of emissions allowances through free allocation.").
233. If the government taxes free carbon permits, a technical issue will arise in the event that a firm receives permits in a year prior to the year in which the permits can be surrendered for compliance purposes. It is possible that the terms of a permit may specify that it cannot be used until a later year. The issue is whether the firm should include the permits in income upon receipt or defer recognizing income until the year the permits are eligible for surrender. *See* Joint Comm. on Taxation, *supra* note 26, at 7–8. In principle, the former is preferable. The only reason to defer income recognition is the liquidity problem that might arise if a firm owes tax because income inclusion occurs in a year prior to the year in which the firm takes a tax deduction for surrendering the permits. *See id.* This, however, should not be a significant problem if, as expected, firms find it easy to sell the permits even though the permits cannot be used until a later year. *Id.*
234. *E.g.*, Burke & Friel, *supra* note 158, at 29.
235. The realization requirement can result in overtaxation because by deferring the recognition of unrealized losses, the requirement may increase the present value of a taxpayer's tax liability. This type of overtaxation is the opposite of the undertaxation that results when the tax on unrealized gains is deferred until realization. For a discussion of the benefits of tax deferral, see *supra* text accompanying note 113.

III. Free Permits and Transition Policy

This Part argues that taxing permits used to compensate transition losses furthers the objectives of transition policy.[236] It makes the case that while compensation may be necessary to secure passage of climate change legislation, it is otherwise undesirable. As a result, the government should, to the extent politically feasible, minimize the amount of compensation. One way to do that is by taxing firms when they receive permits for free. In other words, if the government uses permits to compensate transition losses, then a 100% excise tax imposed upon the receipt of those permits arguably is ideal. A 100% excise tax would produce a result similar to providing no compensation, and providing no compensation would be the best policy if it were politically feasible. Given that an excise tax is not likely, imposing the income tax (which may be possible) is the next best alternative.

To illustrate, assume that a particular firm is subject to tax at a rate of 35% and that the firm's assets decrease in value by $100 when the government adopts cap-and-trade. Ideally (i.e., in a tax on economic income), the government would allow the firm to deduct the $100 loss on its tax return. But the government would not give the firm permits to compensate it for its aftertax loss of $65. Consequently, if the firm does in fact receive permits, taxing those permits is desirable because it reduces the net amount of compensation.

This argument is based on the recognition that receiving free permits is tantamount to receiving a cash grant. If the grant itself is bad policy, then taxing the grant reduces its net cost to the government and may therefore be good policy.

In recent years, law and economics scholars have developed a consequentialist framework for analyzing transition policy.[237] This Part applies that framework to argue against compensating firms for losses stemming from climate change legislation. Section A makes the prima facie case against compensation.[238] Section B discusses some potential objections to the noncompensation argument.

A. The Argument Against Compensating Firms

Changes in the law, i.e., legal transitions, often adversely affect the value of long-term investments, which creates losers.[239] Among other things, transition policy addresses whether the government should compensate the losers for their losses.[240]

Traditionally, commentators advocated compensation or other transition relief[241] on the grounds that investors had reasonably relied on current law in making their investment decisions.[242] More recently, scholars have challenged this reliance argument.[243] Given that the law changes frequently, investors arguably cannot reasonably rely on the status quo.[244] Moreover, the government could always negate the reasonableness of reliance by announcing that all laws are subject to change.[245] Additionally, investors appear to have no stronger a normative claim to compensation for transition losses than for other types of losses, which typically go uncompensated.[246]

These criticisms have eroded some of the traditional support for the reliance argument. Recent literature instead focuses on the consequentialist framework for evaluating transition policy,[247] which examines the economic and political consequences of transition relief.[248]

Subsections 1 and 2 use the general conclusions of the consequentialist analysis to argue that the government should not give away permits to compensate firms that suffer losses as a result of cap-and-trade. Subsection 3 offers an additional argument against compensation, namely that it may cause cap-and-trade to be less efficient and equitable by reducing money available for tax cuts and consumer rebates.

1. Compensation as an Unnecessary and Inefficient Form of Risk Mitigation

The possibility of legal change imposes a risk upon investors and part of the appeal of compensation is that it mitigates this risk.[249] Nonetheless, the consequentialist framework

236. For a definition of transition policy, see *infra* text accompanying note 240.

237. *See generally* Kaplow I, *supra* note 31; Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 Harv. L. Rev. 509 (1986) [hereinafter Kaplow II]; When Rules Change, *supra* note 32; Daniel Shaviro, *When Rules Change Revisited*, 13 J. Contemp. Legal Issues 279 (2003) [hereinafter *When Rules Change Revisited*]. Some of the ideas that Kaplow and Shaviro develop originated in Michael J. Graetz, *Legal Transitions: The Case for Retroactivity in Income Tax Revision*, 126 U. Pa. L. Rev. 47 (1977).

238. Daniel Shaviro has argued against giving away permits to firms when the government adopts cap-and-trade programs to control pollution. When Rules Change, *supra* note 32, at 84–86; *When Rules Change Revisited*, *supra* note 237, at 287–88. My argument is largely consistent with Shaviro's general points, although I discuss a number of issues that Shaviro does not specifically address.

239. Kaplow II, *supra* note 237, at 511.

240. *Id.*; Barbara H. Fried, *Ex Ante/Ex Post*, 13 J. Contemp. Legal Issues 123, 123 (2003). Legal transitions can also enhance the value of investments. For example, as discussed in Part II, climate change legislation may increase the value of low-carbon assets. Where legal transitions create transition gains, transition policy addresses whether the government should tax away those gains. Kaplow II, *supra* note 237, at 552–55 (discussing the appropriate treatment of transition gains). As a practical matter, transition losses tend to receive more attention than transition gains if for no other reason than the fact that "losers cry for compensation while winners never cry for taxation." *Id.* at 555. The treatment of transition gains is outside the scope of this Article.

241. Transition relief can take various forms, including compensation, grandfathering, delayed implementation, and phase-ins. *See* When Rules Change, *supra* note 32, at 216–26 (discussing the various types of transition relief); Kaplow I, *supra* note 31, at 187 (same). Whatever its form, transition relief reduces or eliminates transition losses. The analysis in the text focuses on compensation because free emissions permits are effectively equivalent to cash and serve as a type of compensation.

242. Kaplow II, *supra* note 237, at 522 (discussing and rejecting the reliance argument).

243. *See, e.g.*, Kaplow II, *supra* note 237, at 522–27; When Rules Change, *supra* note 32, at 19; Graetz, *supra* note 237, at 74–79.

244. Kaplow II, *supra* note 237, at 522; When Rules Change, *supra* note 32, at 19.

245. Kaplow II, *supra* note 237, at 522–23.

246. *See id.* at 523–24 (stating that arguments in favor of reliance often ignore the fact that losses frequently occur for reasons other than government action); Graetz, *supra* note 237, at 78.

247. *See* Kyle D. Logue, *Legal Transitions, Rational Expectations, and Legal Progress*, 13 J. Contemp. Legal Issues 211, 225 (2003) (noting that the consequentialist framework "has come to dominate legal scholarship on transition issues").

248. *See generally* the sources cited *supra* note 237.

249. Kaplow II, *supra* note 237, at 527–28.

demonstrates that the risk mitigation function of compensation is often unnecessary and inefficient.[250]

One of the key insights underlying the consequentialist framework is that from the investor's perspective, the risk of transition losses is similar to other types of risk.[251] A loss is a loss whether it stems from a change in the law, a change in demand for a product, or any other type of market risk. Because we generally regard it is a bad idea for the government to protect investors from market risk, it follows that the government generally should not protect investors from the risk of transition losses unless some good reason can be offered to distinguish the latter from the former.[252]

Once we recognize the similarity between the risk of transition losses and market risk, the case in favor of compensation is considerably weakened.[253] Generally, it is undesirable to use compensation to mitigate the risk of transition losses for the same reason it is undesirable to use compensation to mitigate market risk.[254] Investors frequently can mitigate both types of risk on their own (e.g., by purchasing insurance or, more importantly for purposes of this Article, through diversification). Moreover, private risk mitigation mechanisms tend to be more efficient than government-provided compensation.[255] Compensation creates inefficient incentives by permitting investors to ignore potential losses,[256] which may lead to wasteful overinvestment.[257] Additionally, compensation may impose significant administrative costs.[258] It requires that the government determine losses ex post when "[p]otential recipients have strong incentives to argue for high valuations."[259] Diversified stock ownership, on the other hand, avoids this problem because any losses are spread automatically.[260]

Climate change legislation illustrates the manner in which compensation creates inefficient incentives. If firms expect that they will receive compensation for transition losses when climate change legislation is adopted, they have little incentive to avoid investments in carbon-intensive assets, e.g., investments in coal-fired power plants.[261] On the other hand, if firms do not expect compensation, they have an incentive to account for the possibility of transition losses and refrain from overinvestment in carbon-intensive assets.[262]

Moreover, compensation is an unnecessary and costly way to mitigate the risk of losses resulting from cap-and-trade. Many of the potentially affected firms are public companies whose ownership is dispersed among diversified investors. Diversification will automatically spread transition losses. Compensation, on the other hand, would require that the government make some attempt to determine which firms will suffer losses and the amount of those losses. As we have already seen, ascertaining losses will not be an easy task. Moreover, firms have an incentive to exaggerate their losses, which is likely to result in overcompensation in many cases and in substantial resources wasted on lobbying for free permits.[263]

2. Extending the Scope of Future Laws through Anticipation

A second key insight underlying the consequentialist framework is that compensation limits the scope of future laws.[264] As we have seen, compensation removes the incentive to anticipate changes in the law. Contrast this with a policy of not providing compensation, which encourages anticipation to avoid transition losses. Anticipation effectively extends the scope of a future law because those who anticipate it will take it into account prior to enactment.[265] In other words, the future law will begin to influence behavior even before it is adopted.[266] As a result, anticipation will often be desirable where new laws result in progress and improvement.[267]

Climate change legislation provides an excellent example of how compensation limits the scope of a new law. If firms anticipate that the legislation will include compensation, they have little incentive to alter their investments to take it into account. The legislation will reduce carbon emissions only after it is officially enacted. But if firms do not expect com-

250. *Id.* at 526–50; When Rules Change, *supra* note 32, at 33–42.
251. Kaplow I, *supra* note 31, at 177; Kaplow II, *supra* note 237, at 535–36.
252. Kaplow II, *supra* note 237, at 551 ("[A] general policy of government-provided mitigation [of the risk of transition losses] is inefficient for precisely the same reasons that general government relief for market risks would be inefficient."); Fried, *supra* note 240, at 159 ("We do not routinely protect investors against market risk, presumably for what we regard as good reasons. If we are going to single out that portion of market risk that is created by change in government policy, we presumably need some good reason to do so-e.g., considerations of political economy-that distinguishes this case from all others.").
253. Kaplow I, *supra* note 31, at 177–80; Kaplow II, *supra* note 237, at 535–36.
254. Kaplow I, *supra* note 31, at 177–80; Kaplow II, *supra* note 237, at 535–36.
255. Kaplow II, *supra* note 237, at 527–28; When Rules Change, *supra* note 32, at 42.
256. *See* Kaplow II, *supra* note 237, at 538–42. Private risk mitigation mechanisms may also create inefficient incentives. For example, insurance creates the risk of moral hazard. Insureds have a reduced incentive to take steps to avoid covered losses. Similarly, diversification may result in poor incentives. Diversified stock ownership generally entails the separation of management and control, and managers may not have sufficient incentives to account for potential losses that will be borne by shareholders and not the managers themselves. Nevertheless, the market has developed methods of balancing the tradeoff between spreading risk through insurance and diversification and maintaining incentives. *Id.* at 536–41. Insurance policies frequently provide for co-insurance, deductibles, and premiums that vary with risk, *id.* at 537–41, and shareholders may be able to monitor managers' behavior and structure compensation to provide managers with appropriate incentives.
257. *Id.* at 529 ("The efficient level of investment is that induced when investors bear all real costs and benefits of their decisions. Therefore, the encouragement resulting from the assurance that compensation or other protection will be provided in the event of change results in overinvestment."). By shifting the burden of transition losses from investors to taxpayers, compensation creates a negative externality. *Id.* at 531.
258. *Id.* at 547.
259. *Id.*
260. *Id.*
261. *See* When Rules Change, *supra* note 32, at 84–86; *When Rules Change Revisited*, *supra* note 237, at 287–88.
262. *See* When Rules Change, *supra* note 32, at 84–86; *When Rules Change Revisited*, *supra* note 237, at 287–88.
263. When Rules Change, *supra* note 32, at 85; *see also* Joskow & Schmalensee, *supra* note 231, at 38.
264. *See* When Rules Change, *supra* note 32, at 26, 47–49; Kaplow I, *supra* note 31, at 191; Kaplow II, *supra* note 237, at 572–74.
265. *See* Kaplow I, *supra* note 31, at 191; Kaplow II, *supra* note 237, at 572–74; When Rules Change, *supra* note 32, at 26, 47–49.
266. *See* Kaplow I, *supra* note 31, at 191; Kaplow II, *supra* note 237, at 572–74; When Rules Change, *supra* note 32, at 26, 47–49.
267. Kaplow I, *supra* note 31, at 191; *see* Kaplow II, *supra* note 237, at 572–74; When Rules Change, *supra* note 32, at 26, 47–49.

pensation, they will take the legislation into account prior to enactment, e.g., by reducing their investments in carbon-intensive assets.[268] This has the effect of expanding the legislation's scope and reducing carbon emissions even before the government puts cap-and-trade in place. And assuming that carbon emissions are harmful,[269] expanding the legislation's scope generally will be beneficial.[270]

3. Compensation Versus Tax Cuts and Consumer Rebates

Another reason to oppose compensation for losses resulting from cap-and-trade is that it reduces revenue available for tax cuts and consumer rebates. By diverting revenue from tax cuts, compensation may make cap-and-trade less efficient. Because it will increase prices, cap-and-trade reduces the real value of income, and in this sense, it is similar to a tax on earnings.[271] As a result, it may alter the incentive to work and create an excess burden that increases the overall cost of the program.[272] If the government auctions permits, it can use permit value to cut existing distortionary taxes, e.g., income and payroll taxes. Cutting taxes will at least partially offset the program's efficiency costs.[273] Additionally, by diverting revenue from consumer rebates, compensation (which generally will benefit shareholders who, as a group, have higher than average incomes) may make cap-and-trade less equitable. In sum, while giving away permits reduces auction revenue available for tax cuts and consumer rebates, taxing firms when they receive free permits will offset this effect to some extent.

B. Potential Objections to the Noncompensation Argument

The previous Section argued that the government should not use free permits to compensate firms for transition losses. This Section addresses eight potential objections to the noncompensation argument. Several of these objections relate to the effects of compensation on investors. Others are based on the claim that compensation may have positive effects on government behavior. The Section concludes that despite these potential objections, the case against providing compensation when climate change legislation is adopted remains strong. This Section also discusses two caveats to the argument that the government should tax permits used to compensate firms.

1. Too Late for Anticipation

As we have seen, the case against compensation is based in part on anticipation. Compensation takes away the incentive for investors to anticipate adoption of climate change legislation, which may lead to wasteful overinvestment in carbon-intensive assets and may discourage firms from reducing carbon emissions before the legislation is adopted.[274] Thus, part of the objective of removing the prospect of compensation is to alter incentives prior to adoption of the legislation. Of course, now that legislation is receiving serious consideration, any attempt to alter incentives may not have much effect.[275] At this point, past investments in carbon-intensive assets are already sunk costs. It may be too late to affect pre-enactment behavior by threatening to withhold compensation.[276]

This fact, however, does not completely undermine the anticipation-based argument against compensation. If the government compensates firms for losses sustained upon adoption of climate change legislation, firms may be more likely to expect compensation in the event the government adopts cap-and-trade programs or pollution taxes intended to regulate pollutants other than greenhouse gases.[277] This expectation of compensation could discourage firms from altering their behavior in anticipation of future pollution control legislation.[278] Conversely, if the government refuses to provide compensation when it adopts climate change legislation, that act may contribute to the development of a norm of noncompensation that will encourage anticipation of future cap-and-trade programs and pollution taxes.[279] Such a norm would create desirable incentives going forward.

2. The Possibility of Bad Laws

The argument against compensation rests in part on the objective of extending the scope of future laws. Not providing compensation has this effect because it encourages firms to anticipate future laws and modify their behavior to conform with those laws even before enactment. This response will be beneficial if new laws tend to improve upon the sta-

268. *See* Kaplow II, *supra* note 237, at 530 n.56; When Rules Change, *supra* note 32, at 26, 84–86; *When Rules Change Revisited*, *supra* note 237, at 287–88.

269. The argument that carbon emissions contribute to global warming has considerable support among scientists worldwide. *See, e.g.*, Elisabeth Rosenthal & Andrew C. Revkin, *Science Panel Says Global Warming is 'Unequivocal'*, N.Y. Times, Feb. 3, 2007, at A1.

270. When Rules Change, *supra* note 32, at 26, 84–86; *When Rules Change Revisited*, *supra* note 237, at 287–88. Shaviro discusses some caveats to this analysis, which I address *infra* Part III.B.

271. Rosen & Gayer, *supra* note 54, at 341–42 (citing Ian W.H. Parry and Wallace E. Oates, *Policy Analysis in a Second-Best World*, 19 J. Pol'y Analysis & Mgmt. 603 (2000)); Shifting the Cost Burden, *supra* note 17, at 16–17.

272. Rosen & Gayer, *supra* note 54, at 341–42; Shifting the Cost Burden, *supra* note 17, at 16–17.

273. Rosen & Gayer, *supra* note 54, at 341–42; Shifting the Cost Burden, *supra* note 17, at 16–17.

274. *See* When Rules Change, *supra* note 32, at 84–86; *When Rules Change Revisited*, *supra* note 237, at 287–88.

275. *Cf.* Kaplow II, *supra* note 237, at 557–58 (noting that the benefits of anticipation will be realized only if the policy of noncompensation is known before a reform is adopted).

276. *Cf. id.* (noting that this problem arises whenever a policy of noncompensation is not known in advance).

277. *Cf. id.* (noting that if the government does not consistently follow a policy of noncompensation, the policy will lose credibility).

278. *Cf.* When Rules Change, *supra* note 32, at 84–86 (noting that giving permits away as part of the acid rain cap-and-trade program likely created the expectation that permits will be given away if and when the government adopts a carbon cap-and-trade program).

279. *See* When Rules Change, *supra* note 32, at 84–85 (arguing that if the government had not given away permits when it adopted the acid rain cap-and-trade program, then it would have established a precedent that might have encouraged firms to anticipate future cap-and-trade programs and pollution taxes).

tus quo.[280] But if new laws frequently are harmful, extending their scope will usually be ill advised.[281] For example, if investors anticipate that the government will ban a particular product without compensating firms that produce that product, firms will be less likely to invest in the product in the first place, and its supply will decrease even before the ban is enacted.[282] Anticipation will effectively expand the scope of the ban. As a policy matter, this is desirable if the ban is appropriate, but it is not necessarily desirable if banning the product is a mistake.[283]

If the government does not provide compensation when it adopts climate change legislation, the likely effect will be to expand the scope of future cap-and-trade programs and pollution taxes through anticipation.[284] The question that arises is whether this outcome is desirable. The answer largely depends on whether in enacting cap-and-trade programs and pollution taxes the government's objective is to achieve the optimal level of pollution or to maximize revenues (e.g., through permit auctions).[285] If the government has the former objective, anticipation generally will be beneficial. But if the government has the latter objective, it may set the quantity of pollution permits below the optimal level or the amount of pollution taxes above the optimal level, in which case anticipation of new environmental laws may result in excessive pollution abatement.[286]

So which of these possibilities is more likely? It seems improbable that the government generally will pursue a policy of excessive pollution abatement using pollution permits or pollution taxes.[287] This is currently not a common practice.[288] Moreover, the firms that would be harmed by this type of policy are often members of well-organized and politically influential special interest groups that are in a good position to defend themselves.[289]

An additional point is worth noting. Even if new laws are often harmful, the anticipation-based argument against compensation does not fall apart completely.[290] If the government is determined to enact a law, even if the law itself is harmful, it may still be beneficial for those who will be affected to anticipate enactment.[291] For example, if the government is determined to enact a pollution tax that would render a particular type of facility worthless, it may be efficient if firms that are considering investing in that type of facility take the tax into account, regardless of whether the tax is good or bad. But if firms expect to receive compensation when the tax is adopted, they have little incentive to account for the tax in their investment decisions, which may result in wasteful overinvestment.

3. Irrationality and the Potential Unavailability of Private Risk Mitigation Mechanisms

The argument that compensation is often unnecessary as a risk mitigation device assumes that private actors are rational, appreciate the risk of transition losses, and mitigate that risk if they so desire.[292] It further assumes the availability of private mechanisms for mitigating transition risk, e.g., insurance.[293] In reality, these assumptions may be false in some cases. Research in behavioral economics and finance suggests that we suffer from numerous cognitive biases that may prevent us from accurately perceiving certain risks.[294] In particular, we may fail to appreciate low-probability risks.[295] Additionally, market failures, e.g., adverse selection problems, may cause insurance to be unavailable to those who would like to purchase it.[296] If people are not rational or if private mechanisms for mitigating risk are unavailable,[297] then government compensation of transition losses may be warranted.[298]

This argument for compensation, however, is not very persuasive when it comes to compensating transition losses resulting from climate change legislation. Climate change is a well-known threat[299] and firms have had years to anticipate

280. *See* Kaplow I, *supra* note 31, at 191; Kaplow II, *supra* note 237, at 572–74; When Rules Change, *supra* note 32, at 26, 47–49.
281. Kaplow I, *supra* note 31, at 191; *see* Kaplow II, *supra* note 237, at 572–74; When Rules Change, *supra* note 32, at 26, 47–49.
282. Kaplow I, *supra* note 31, at 191.
283. *Id.*
284. *See* When Rules Change, *supra* note 32, at 84–86; *When Rules Change Revisited*, *supra* note 237, at 287–88.
285. *See* When Rules Change, *supra* note 32, at 85.
286. *See id.*
287. *Id.*
288. *Id.*
289. *Id.*; *cf.* Bovenberg & Goulder, *supra* note 73, at 46 n.1 (noting that firms that are adversely affected by climate change legislation will have a strong incentive to take political action since the stakes are high).
290. *See* When Rules Change, *supra* note 32, at 49; Kaplow II, *supra* note 237, at 572.
291. *See* When Rules Change, *supra* note 32, at 49; Kaplow II, *supra* note 237, at 572.
292. When Rules Change, *supra* note 32, at 19–25; Kaplow II, *supra* note 237, at 548.
293. When Rules Change, *supra* note 32, at 40–42; Kaplow II, *supra* note 237, at 536–50.
294. When Rules Change, *supra* note 32, at 19–25; *see also* Kaplow II, *supra* note 237, at 548–50.
295. When Rules Change, *supra* note 32, at 40; Kaplow II, *supra* note 237, at 548–50.
296. Kaplow II, *supra* note 237, at 536–50; When Rules Change, *supra* note 32, at 40–42.
297. To illustrate the problems that these two conditions create, consider the tax deduction for home mortgage interest. If the government repealed the deduction, home values would likely fall. If homeowners anticipate the possibility of repeal without transition relief they may wish to mitigate this risk. Two problems arise. On the one hand, homeowners may fail to fully appreciate the risk (e.g., because the probability of repeal is so low that they simply ignore it). *See* Logue, *supra* note 247, at 225. On the other hand, even if homeowners do perceive the risk, there may be little they can do about it. Insurance companies may refuse to insure the risk because, e.g., insurance might remove the incentive that homeowners have to oppose repeal. *See* Kaplow II, *supra* note 237, at 605; Christopher T. Wonnell, *The Noncompensation Thesis and Its Critics: A Review of This Symposium's Challenges to the Argument for Not Compensating Victims of Legal Transitions*, 13 J. Contemp. Legal Issues 293, 303 (2003). Moreover, the investment in the home is not easily diversifiable. *See* When Rules Change, *supra* note 32, at 41.
298. Kaplow II, *supra* note 237, at 536–50; When Rules Change, *supra* note 32, at 40–42; Logue, *supra* note 247, at 225–26. Even if private actors are irrational or private mechanisms for mitigating risk are unavailable, compulsory insurance may be preferable to ex post compensation. Kaplow II, *supra* note 237, at 549. Unlike compensation, a mandatory insurance program may be able to maintain appropriate incentives through the use of premiums. *Id.*
299. The debate over climate change has received enormous attention for over two decades. *See, e.g.*, Philip Shabecoff, *Global Warming Has Begun, Expert Tells Senate,* N.Y. Times, June, 24, 1988, at A1 (discussing the congressional testimony of Dr. James Hansen of NASA regarding the warming effects of greenhouse gases).

and prepare for legislation that regulates carbon emissions.[300] Climate change legislation is not the sort of low-probability risk that potentially affected firms are likely to have ignored or failed to appreciate.[301] Additionally, many firms that a cap-and-trade program might harm are public companies with numerous shareholders. Diversification can spread various kinds of risks, including low-probability risks of which a particular investor is not aware and risks against which a particular firm cannot insure.[302] The possibility of diversification may make the risk-mitigation function of government compensation largely unnecessary even if investors are sometimes irrational.[303]

4. Fairness and the Distributive Effects of Cap-and-Trade

The benefits of mitigating climate change will be shared broadly by both the general public and by future generations. Although consumers will bear most of cap-and-trade's cost, the burden on consumers will be diffuse and may be partially or completely offset by the environmental benefits that consumers will enjoy.[304] On the other hand, certain firms will sustain large losses.[305] These firms might argue that the government should compensate them so that the burden of the program is more evenly distributed among the program's beneficiaries. In other words, firms might argue that it is only fair that the government compensate them for the losses they sustain as a result of a program that will benefit society generally.[306]

Although fairness can be an elusive concept, a number of considerations undercut the argument that compensation is fair in this instance. First, the purpose of cap-and-trade is to force covered firms and their customers to bear the full cost of carbon emissions. Up to this point, firms have imposed these costs on others. A (perhaps controversial) argument exists that the firms responsible for carbon emissions should be left with any transition losses resulting from a program that responds to their own harmful activity.[307]

Second, the argument that the government should use compensation as a device for distributing the burden of transition losses ignores the fact that investors can mitigate the risk of those losses through diversification.[308] Although firms may suffer concentrated losses, investors' losses generally will be diffuse as long as those investors own diversified portfolios. If losses are diffuse, fairness concerns become less significant.[309] Additionally, to the extent that particular investors suffer concentrated losses because they have chosen not to diversify, compensation largely loses its appeal. The failure to diversify constitutes either a deliberate gamble[310] or poor investment strategy. If the former is true, i.e., if an investor has in effect bet against climate change legislation, then no normative claim to compensation exists. After all, "[n]o principle of ethics requires that Monte Carlo produce only winners."[311] If the latter is true, the problem may suggest a need for investor education programs, but it would not appear to warrant government compensation of losses. Incompetent investors lose money every day for a variety of reasons, and the government does not compensate those losses. Why should the government treat losses resulting from climate change legislation any differently?

Finally, the distributive effects of providing compensation to firms may lead some to conclude that doing so would be unfair. As discussed in Part II, free permits generally will result in a transfer of wealth from consumers to shareholders. In general, shareholders have above-average incomes.[312] So assuming that the shareholders of firms receiving free permits are characteristic of shareholders generally, free permits will largely benefit individuals with above-average incomes.[313]

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300. *See, e.g.*, William K. Stevens, *Meeting Reaches Accord to Reduce Greenhouse Gases,* N.Y. Times, Dec. 11, 1997, at A1 (discussing the Kyoto Protocol, under which a number of countries agreed to reduce greenhouse gas emissions).
301. *Cf.* Kaplow II, *supra* note 237, at 549 (arguing that misperception of risk is of less concern when the entity subject to risk is a firm that has sophisticated managers as opposed to an individual dealing with personal risk); Duke Energy Co., 2004 Summary Annual Report 4–5 (2004) (announcing the company's intention to "shape public policy" with respect to climate change in order to "advance the interests of [its] investors and customers").
302. *See* Kaplow II, *supra* note 237, at 600–01. For example, because some firms in the electricity industry will increase in value if and when the government adopts a cap-and-trade program, investors have the opportunity to significantly reduce their net transition losses simply by holding a portfolio of diversified stocks within the electricity sector. *See* Burtraw & Palmer, *supra* note 27, at 827–28. Diversification outside the electricity sector would further mitigate transition risk.
303. Kaplow has pointed out that when diversification is possible, compensation often will be unnecessary to mitigate risk even if investors fail to appreciate the risk or if insurance is unavailable. Kaplow I, *supra* note 31, at 178 n.30.
304. *See* Bovenberg & Goulder, *supra* note 73, at 46 n.1.
305. *Id.* at 45-46.
306. The argument that fairness requires that the government broadly distribute the burden of transition losses is a familiar one. Kaplow II, *supra* note 237, at 576–77.
307. N. Gregory Mankiw, *Smart Taxes: An Open Invitation to Join the Pigou Club*, 35 E. Econ. J. 14, 18 (2009); *cf.* E. J. Mishan, *The Post-War Literature on Externalities: An Interpretative Essay*, 9 J. Econ. Literature 1, 25 (1971) ("[I]t may be argued [that] the freedom to operate noisy vehicles, or pollutive plant, does incidentally damage the welfare of others, while the freedom desired by members of the public to live in clean and quiet surroundings does not, of itself, reduce the welfare of others. If such arguments can be sustained, there is a case . . . for making polluters legally liable.").
308. *Cf.* Kaplow II, *supra* note 237, at 536 n.74 (explaining that the financial markets have the ability to spread risk almost as broadly and perhaps even more broadly than the government).
309. *Cf.* Kaplow I, *supra* note 31, at 171 (arguing that the question of how transition losses ought to be distributed is best viewed from an ex ante perspective and treated as a problem involving the imposition of risk).
310. *Cf.* When Rules Change, *supra* note 32, at 18, 34–35 (arguing that anyone who invests in a firm subject to the risk of transition losses is implicitly betting against an adverse change in the law unaccompanied by compensation); J. Mark Ramseyer & Minoru Nakazato, *Tax Transitions and the Protection Racket: A Reply to Professors Graetz and Kaplow*, 75 Va. L. Rev. 1155, 1159–60 (1989) (discussing the idea that if prices of investments are discounted ex ante to reflect the risk of transition losses, then purchasing those investments involves a gamble and investors cannot argue ex post that the government's failure to relieve transition losses is unfair).
311. Ramseyer & Nakazato, *supra* note 310, at 1160.
312. *See* Ian W.H. Parry, *Are Emissions Permits Regressive?*, 47 J. Env't. Econ. & Mgmt. 364, 375 (2004).
313. *Id. at* 364–79.

5. Political Feasibility

Giving permits to firms may be politically expedient. Regardless of the merits of the approach, the reality is that free permits will reduce opposition to cap-and-trade by industries that might otherwise use their disproportionate political influence to prevent its adoption.[314] Note that any argument for using permits to gain the support of special interests is not based on compensation's intrinsic merits. In fact, a firm that wants permits need not demonstrate a loss at all. The firm merely has to show that it has sufficient power to warrant a payoff. In any event, if the only rationale for compensation is that it will facilitate desirable legislation, then the government should (to the extent politically feasible) minimize the cost of giving permits away. Taxing firms when they receive free permits will reduce the government's overall cost.[315]

6. Compensation as an Instrument for Improving Government Decision Making

In some contexts, compensation may improve government decision making. For example, the requirement that the government compensate landowners for takings of property may be justified at least in part by the notion that compensation forces the administrators of agencies that engage in takings to internalize the costs imposed by their decisions—costs that these administrators might otherwise ignore.[316]

Although this argument may be persuasive with respect to takings, it has less force when applied to climate change legislation. Takings generally involve action by administrative agencies.[317] Because agencies are subject to a budget constraint imposed by the legislature, administrators may be more likely to give weight to direct outlays that appear on an agency's budget than to any off-budget costs imposed by an agency's actions.[318] Climate change legislation, on the other hand, will be enacted by Congress, which is subject to a different set of political forces. Many of the benefits of climate change legislation will be diffuse (i.e., enjoyed by the general public and future generations), but part of the costs will be concentrated in particular industries.[319] Under these circumstances, the public choice theory of interest group politics suggests that industry groups are more likely to organize and lobby in opposition to the legislation than the general public is likely to organize and lobby in favor of it.[320] If this is correct, lobbying efforts may cause Congress to assign too much weight to the concentrated costs incurred by industry relative to the diffuse benefits enjoyed by the public. Thus, in this instance, it does not appear that compensating firms will be necessary to ensure that Congress will take their potential losses into account. In fact, as we have seen, some proponents of climate change legislation favor giving permits away precisely because they believe doing so is necessary to overcome the disproportionate political influence of certain industry groups.

7. Compensation as a Restraint on Government Action

A related but more general argument in favor of compensation is that mandatory compensation may restrain government action in certain cases.[321] As a result, it may appeal to those who believe that changes in the law are often detrimental and should be avoided or who fear that the government is prone to single out particular individuals or groups for punishment.[322]

The restraint argument may justify a compensation requirement in certain contexts, e.g., where a law applies narrowly to a particular individual or small group that has little political power. But in other contexts, restraining government through mandatory compensation may be undesirable.[323] Any benefits of doing so have to be balanced against the costs that compensation imposes (1) by taking away the incentive of private actors to anticipate new laws;[324] (2) by requiring that the government establish procedures for determining the correct amount of compensation;[325] (3) by giving private actors an incentive to waste resources lobbying for an ever larger piece of the pie; and (4) by creating the potential for overcompensation of groups that have disproportionate political influence. These concerns are especially significant when a law affects a large number of private actors (as opposed to an individual or a small group) in ways that are not easy to quantify, as would be the case for climate change legislation.[326]

8. Free Permits as Compensation for Overtaxation

As discussed in Part II, some firms may be overtaxed in the year the government adopts climate change legislation because they will suffer unrealized transition losses that they cannot immediately deduct for tax purposes. Should the

314. *See, e.g.*, Stavins I, *supra* note 43, at 351–52; *cf.* Kaplow II, *supra* note 237, at 571–72 (discussing considerations that arise when the government uses transition relief to secure enactment of a law).
315. For example, if a firm pays tax at a rate of 35% and if the receipt of permits is taxable, then giving the firm a permit worth $100 will impose a net cost on the government of only $65.
316. When Rules Change, *supra* note 32, at 78–79.
317. *Id.* at 78.
318. *Id.* (citing William A. Fischel, Regulatory Takings: Law, Economics, and Politics 207 (1995)).
319. Bovenberg & Goulder, *supra* note 73, at 45–46.
320. *See id.* at 2 n.1. Lobbying efforts by environmental groups and by industry groups that will benefit from climate change legislation, e.g., firms that specialize in renewable energy, may offset this effect to some extent.
321. Kaplow II, *supra* note 237, at 575; Richard A. Epstein, *Beware of Legal Transitions: A Presumptive Vote for the Reliance Interest*, 13 J. Contemp. Legal Issues 69, 71–72 (2003).
322. Kaplow II, *supra* note 237, at 575–76; Epstein, *supra* note 321, at 71–77.
323. *See* Kaplow II, *supra* note 237, at 575–76.
324. *See id.* at 567 (arguing that the benefits of using compensation to prevent government decision makers from undervaluing the costs imposed by their actions must "be balanced against its adverse incentive effects").
325. *See id.* at 547 (discussing the administrative costs of compensation).
326. Richard Epstein, who favors the use of transition relief as a restraint on certain types of government actions, has noted that compensation may in many cases prove untenable for generally applicable laws that affect a large number of private actors. Epstein, *supra* note 321, at 75–76.

government use free permits to compensate firms for this overtaxation?

I believe that the answer is no. First, it is important to keep in mind that although transition losses are not deductible immediately, they may ultimately be deducted either upon realization or through depreciation. This mitigates (but does not eliminate) any overtaxation. Second, given that overtaxation (as well as undertaxation) is an inevitable consequence of our realization-based income tax, it is not clear why compensation should be awarded in this particular circumstance. Third, as emphasized throughout this Article, quantifying a particular firm's transition losses, if any, will be a difficult task. Quantifying the amount of any overtaxation resulting from the inability to immediately deduct those losses would be even more difficult. Under these circumstances, any attempt to provide compensation invites firms to waste resources lobbying for permits.

To summarize, using free permits to compensate firms for transition losses is arguably bad transition policy. The government should avoid compensation altogether. But if that proves impossible, taxing the permits when received will at least reduce the government's net cost and is therefore desirable.[327]

9. Two Caveats

This Subsection briefly discusses two caveats to the argument that the government should tax permits used to compensate firms. The first caveat is that the argument assumes that Congress will not defeat the purpose of taxation by simply increasing the initial permit allocation to account for the tax or by giving any tax revenue back to the firms that pay the tax, e.g., via a cash grant. This assumption seems plausible for two reasons. First, aggregate permit value is finite, which limits Congress's ability to increase permit allocations to account for any tax on permits. Second, although permit allocations and cash grants are similar, the public may more readily perceive cash grants as "corporate welfare." So Congress may be less inclined to hand out cash than it is to hand out permits. If so, then taxing permits may effectively cap the amount available for compensating firms.

The second caveat arises from the fact that in addition to giving permits away to compensate firms, the government may use permits to provide subsidies that ostensibly will benefit the public at large. The Waxman-Markey bill, for example, allocates permits to certain firms to subsidize the development of low-carbon assets.[328]

If the government uses permits to provide subsidies for the public's benefit, whether these permits should be taxed arguably depends on, among other things, the optimal amount of the subsidy. After all, taxation simply reduces the net subsidy. This might be desirable if the pretax subsidy is either too large or otherwise ill advised, but it might be undesirable if the pretax subsidy is either optimal or too small.

Although this argument may have some merit, a strong case exists that all permits should be taxed upon receipt, regardless of the motive for allocation. It seems likely that the government will adopt only one rule applicable to all permits and will not tax some permits while exempting others from tax. Given this constraint, the better rule is to tax all permits. As already discussed, taxing permits may have the desirable effect of limiting the amount of compensation provided to firms. Additionally, for political reasons, Congress may attempt to disguise as a program that benefits the public a program that amounts to little more than a grant of government funds to a politically influential industry. In any event, if Congress determines that in certain cases, taxation reduces the pretax subsidy for a particular program below the optimal amount it can always increase the subsidy by making cash grants, assuming that doing so is politically feasible.

IV. Permits Given to Local Distribution Companies

The Waxman-Markey bill allocates a substantial portion of permits to LDCs, which are rate-regulated firms that distribute electricity and natural gas to residential, commercial, and industrial users.[329] LDCs own the wires and pipes through which electricity and natural gas flow to retail customers, and they are regulated even in states that have deregulated other parts of the utility sector.[330] Waxman-Markey requires state regulators to ensure that LDCs use the permits that they receive to benefit their customers.[331] The bill does not, however, clearly spell out exactly what that means. Since LDCs themselves generally will not need permits (because they have no emissions), one possibility is that they might sell their permits to finance customer rebates.[332]

327. As discussed *supra* note 7, the government is not limited to giving permits to covered firms. Because they can be sold, the government could use permits to compensate firms that will suffer transition losses even if those firms themselves are not required to surrender permits. My proposal to tax permits would apply even if the recipient is not a covered firm. Whether or not the recipient firm is a covered firm, we have no assurance that permits will merely compensate it for transition losses. Regardless, the government should not use permits to compensate firms, but if it makes the mistake of doing so, taxing the permits when received reduces the cost.

328. *See* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. §§ 782(f), (i) (2009). The bill also allocates permits to "trade-vulnerable industries" to prevent domestic firms in those industries from losing market share to foreign firms not burdened by cap-and-trade and to prevent domestic firms from moving offshore to avoid the costs imposed by cap-and-trade. *See id.* § 782(e). In theory, this provision could produce environmental benefits if it avoids the relocation of carbon-intensive industries to countries that do not regulate emissions. Nevertheless, for the reasons given in the text, I favor taxing permits used for this purpose.

329. *Id.* §§ 783(b), 784.

330. Nat'l Ass'n of Regulatory Util. Comm'rs, FAQ: Consumer Benefits of Free CO_2 Allowances for Utilities (2009) [hereinafter Consumer Benefits], *available at* http://www.naruc.org/Publications/FAQ1_Consumer_Benefits.pdf.

331. H.R. 2454 §§ 783(b)(5), 784(c).

332. *Hearing Before the Sen. Fin. Comm. on Auctioning under Cap-and-Trade*, 111th Cong., May 7, 2009 (statement of Douglas Elmendorf, Director of the Congressional Budget Office) [hereinafter Statement of Douglas Elmendorf]; Stone, Holding Down Increases, *supra* note 36, at 3; Consumer Benefits, *supra* note 330. Note, however, that Waxman-Markey requires certain natural gas LDCs to surrender permits. H.R. 2454 §§ 700(13)(J), 722(b)(8). Additionally, some electricity LDCs are part of regulated, vertically integrated utilities that generate electricity, and the utilities would be required to surrender permits. Consumer Benefits, *supra* note 330.

If LDCs are required to use their permits to benefit customers, then receipt of the permits arguably will not produce economic income for the LDCs.[333] Nonetheless, this Part argues that a compelling case exists for taxing LDCs when they receive free permits. The problem is that giving permits to LDCs is itself bad policy.[334] Taxing the permits is desirable because it will reduce the net value of the permits to the LDCs and their net cost to the government.

A. Problems with Giving Permits to LDCs

The ostensible rationale for giving permits to LDCs is to reduce the burden that cap-and-trade imposes upon consumers. Although this is a worthwhile objective, providing consumer relief by giving permits to LDCs may prove both inefficient and inequitable.[335] There are better ways to provide relief to consumers, e.g., by auctioning permits and using the auction proceeds to fund rebates sent directly by the government.[336]

At least three serious objections can be raised to giving permits to LDCs. First, it may cause the overall cost of cap-and-trade to increase.[337] If LDCs use the permits to keep utility bills low, e.g., by providing rebates, this will weaken the price signal and impair the incentive to conserve electricity and natural gas.[338] This in turn will reduce emissions abatement in the electricity and natural gas sectors and shift it to other sectors of the economy where it may be more expensive.[339] As a result, overall abatement costs may increase.[340] Consumers will save on their utility bills, but those savings may be more than offset by increases in the prices of gasoline and other carbon-intensive goods.[341]

The Waxman-Markey bill attempts to avoid this problem by stating that if LDCs provide rebates, they must provide "rebates with regard to the fixed portion of the ratepayers' bills or as a fixed credit or rebate," and they cannot "provide to any ratepayer a rebate that is based solely on the quantity" of electricity or natural gas delivered to that ratepayer.[342] The apparent purpose of this restriction is to ensure that rebates are provided as a lump sum that does not vary solely with consumption. In other words, the rebate may lower the overall utility bill, but it will not affect the price paid per unit of electricity or natural gas consumed. If the rebates are fixed so that they do not vary based on electricity use, then in theory they will not affect the price signal or the incentive to conserve. The problem with this approach is that it assumes that users of electricity and natural gas are fully informed and rational and that they will respond to changes in variable costs. That assumption may be true for commercial and industrial users that monitor their utility bills closely. But it seems less likely for consumers, who may respond only to changes in their overall bill.[343] If LDCs structure rebates so that consumers experience little or no change in their overall bill, they may be unlikely to conserve.

Second, giving permits to LDCs may benefit the shareholders of the LDCs' commercial and industrial customers rather than consumers.[344] The Waxman-Markey bill requires that LDCs distribute the benefits of any permits they receive among their "ratepayer classes ratably based on . . . deliveries to each class."[345] This means that if LDCs use permits to provide rebates, over 60% of those rebates will go to commercial and industrial customers, not consumers.[346] Moreover, if, as the bill requires, the rebates are fixed and do not affect variable costs, then it is likely that the businesses receiving them will not pass on the rebates to their customers in the form of reduced prices for goods and services.[347] The reason is that businesses make pricing decisions based on variable costs, not fixed costs.[348] Fixed rebates do not affect variable costs, so they will not affect prices.[349] Instead, the rebates will increase profits and result in a windfall to shareholders.[350] This problem could perhaps be corrected if LDCs

333. *See* Joint Comm. on Taxation, *supra* note 26, at 9 ("A reasonable argument for the lack of any accession to wealth could exist in the case of an entity with a regulated rate of return, such as a utility, that is required to pass through to its customers the benefits of any freely allocated allowances.") The argument that LDCs have no economic income is apparently based on the view that while LDCs are receiving valuable permits, they also have an offsetting obligation to pass through permit value to their customers. So the LDCs function as a conduit through which money passes from the government to the LDCs' customers. This view is debatable and whether LDCs have economic income may depend on the precise rules governing the use of permits by LDCs, which, as already mentioned, are not made clear by the Waxman-Markey bill. In any event, I take no position on the issue and base my proposal for taxation on the alternate grounds discussed in the text.

334. *See infra* text accompanying notes 335–56.

335. *See* Stone & Shaw, *supra* note 36, at 5–10; Stone, Holding Down Increases, *supra* note 36, at 3–6; Statement of Gilbert Metcalf, *supra* note 36; Viard, *supra* note 4, at 619–20.

336. *E.g.*, Stone, Holding Down Increases, *supra* note 36, at 1, 7.

337. *E.g.*, *id.* at 4–6; Statement of Gilbert Metcalf, *supra* note 36; Statement of Douglas Elmendorf, *supra* note 332; *see also* Viard, *supra* note 4, at 619–20.

338. *E.g.*, Stone, Holding Down Increases, *supra* note 36, at 4–6; Statement of Douglas Elmendorf, *supra* note 332; *see also* Viard, *supra* note 4, at 619–20.

339. *E.g.*, Stone, Holding Down Increases, *supra* note 36, at 4–6; Statement of Douglas Elmendorf, *supra* note 332; *see also* Viard, *supra* note 4, at 619–20.

340. *E.g.*, Stone, Holding Down Increases, *supra* note 36, at 4–6; Statement of Douglas Elmendorf, *supra* note 332; *see also* Viard, *supra* note 4, at 619–20.

341. *E.g.*, Stone, Holding Down Increases, *supra* note 36, at 6–11; Statement of Douglas Elmendorf, *supra* note 332; *see also* Viard, *supra* note 4, at 619–20.

342. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. §§ 783(b)(5)(B)(i), 784(c)(2) (2009).

343. Stone, Holding Down Increases, *supra* note 36, at 4 n.4 (noting that the ability of fixed rebates to preserve the price signal "is largely blunted if consumers look only at the bottom line of their bill, where they would not experience the 'sticker shock' that could prompt changes in behavior"); Statement of Gilbert Metcalf, *supra* note 36 ("If the value of the permits allocated to LDCs is returned to customers on their monthly bill it is quite likely that many consumers will misperceive this as a reduction in the price of consuming electricity and natural gas."). This problem may be somewhat mitigated if rebates are given annually instead of monthly. The Waxman-Markey bill, however, is not clear as to how any rebate program should be administered.

344. Cong. Budget Office, The Estimated Costs to Households From the Cap-and-Trade Provisions of H.R. 2454, at 5–6, 12 (2009) [hereinafter Estimated Costs to Households]; Stone & Shaw, *supra* note 36, at 5–7.

345. H.R. 2454 §§ 783(b)(5)(C), 784(c)(3).

346. Stone & Shaw, *supra* note 36, at 6; *see also* Estimated Costs to Households, *supra* note 344, at 5.

347. Estimated Costs to Households, *supra* note 344, at 5–6, 12; Stone & Shaw, *supra* note 36, at 6–7.

348. Estimated Costs to Households, *supra* note 344, at 5–6, 12; Stone & Shaw, *supra* note 36, at 6–7.

349. Estimated Costs to Households, *supra* note 344, at 5–6, 12; Stone & Shaw, *supra* note 36, at 6–7.

350. *See* Estimated Costs to Households, *supra* note 344, at 5–6, 12; Stone & Shaw, *supra* note 36, at 6–7. The Waxman-Markey bill contains language that could be interpreted as allowing LDCs to give rebates to their industrial customers that vary based on electricity use. *See* H.R. 2454 § 783(b)(5)(D). This interpretation is open to question, but if rebates to industrial customers

were allowed to structure their rebates to businesses so that the rebates reduced the cost of electricity and natural gas. But that would create another problem that we have already examined, i.e., it would weaken the price signal and reduce the incentive to conserve.[351] The obvious (but perhaps politically infeasible) solution to this dilemma is to cut out the LDCs altogether and to instead have the government auction permits and send rebates directly to consumers. Since rebate checks and utility bills would come in separate envelopes, this approach would reduce the burden on consumers but also preserve the price signal and avoid the problems associated with tying the rebates to utility bills.[352]

Third, despite the fact that LDCs are regulated, they may find ways to use permits to increase their profits.[353] It is possible that LDCs will use permits for purposes other than rebates, e.g., to fund energy efficiency programs.[354] These energy efficiency programs may be beneficial in some cases, but as one commentator has noted, "the quality of state utility regulation is uneven across the country."[355] Thus, absent clear guidelines from the federal government, LDCs may be able to use permits to finance programs that ostensibly benefit consumers but that actually benefit shareholders.[356]

B. *Taxing Permits Given to LDCs*

Because giving permits to LDCs is itself bad policy, the government should avoid it. But that may be impossible for political reasons. In that case, taxing the permits may be the next best alternative. Taxing the permits will reduce the net permit value available for rebates. This is beneficial to the extent that the rebates would undermine the incentive to conserve electricity and natural gas and to the extent that the rebates would ultimately go to the shareholders of the LDCs' commercial and industrial customers.

Assuming, as I propose, that LDCs should pay tax on any free permits they receive, the remaining question is the timing of the tax. Should the permits be taxed upon receipt or when they are sold? If LDCs generally sell permits in the year of receipt, the timing issue will be relatively unimportant. But if the LDCs are permitted to bank permits, then postponing taxation until the time of sale increases the value of the permits to the LDCs and may ultimately increase the amounts rebated to customers. (This will occur because tax deferral reduces the present value of the tax owed on the permits.) Increasing the amount of the rebates is undesirable for the same reasons that giving permits to LDCs is undesirable. Moreover, postponing taxation until the time of sale could create the problems associated with zero basis discussed in Part II. Thus, a strong argument exists for taxing at the time of receipt any permits given to LDCs.

Conclusion

This Article has argued that if, as seems likely, the government gives away carbon permits, it should tax firms on those permits when the permits are received. The government should tax permits given to unregulated firms for three reasons. First, there is no guarantee that the permits will merely compensate for transition losses. They may in fact make recipient firms better off than they would be if cap-and-trade were not adopted. Second, applying a tax exclusion similar to the one that currently applies to free sulfur dioxide permits will create a tax preference for banking permits that is potentially inefficient and unfair. Third, taxing free permits furthers the objectives of transition policy by reducing the net cost of giving permits away. Minimizing the cost of free permits is desirable because it would be preferable if the government auctioned permits instead of using them to compensate firms for transition losses.

The government should also tax permits given to LDCs. Taxing the permits when received will reduce their net cost to the government and their net value to the LDCs. This is beneficial because it will reduce the net amount of rebates the LDCs can offer their customers, which will in turn increase the incentive to conserve electricity and natural gas and reduce the windfall to the shareholders of the LDCs' commercial and industrial customers.

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can vary with use, the rebates will undermine the incentive to conserve. Stone & Shaw, *supra* note 36, at 7 n.8.

351. Stone & Shaw, *supra* note 36, at 9–10 (noting that allocating permits to LDCs will either result in "corporate welfare" or reduce the incentive to conserve).

352. *See id.* at 10.

353. Stone, Holding Down Increases, *supra* note 36, at 4 n.4.

354. The Waxman-Markey bill requires that natural gas LDCs use at least one-third of the permits that they receive for energy efficiency programs. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 784(c)(5) (2009).

355. Stone, Holding Down Increases, *supra* note 36, at 4 n.4.

356. *Id.*