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Collaboration Before Legislation: The Current State of E-Waste Laws and a Guide to Developing Common Threads for the State Patchwork Quilt

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I. INTRODUCTION

In 2006 there were only four states in the United States that had some form of state regulated electronics recycling program.[1] Today there are twenty states and one municipality with state or locally regulated programs.[2] Three common regulatory schemes have developed among these programs, each with their own nuances.[3] This comment will identify these common regulatory schemes and assess the nuances that arise within each group. It has become increasingly difficult for manufacturers to comply with the plethora of state programs, given the diversity of regulatory schemes, the sudden increase in states that regulate electronics recycling, and the rising number of electronics nearing the end of their life-cycle.[4] This comment will also attempt to

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1. NAT'L CTR. FOR ELECTRONICS RECYCLING, A STUDY OF THE STATE-BY-STATE E-WASTE PATCHWORK 1 (2006) [hereinafter PATCHWORK], http://www.ecyclingresource.org/UserDocuments/Patchwork%20Study%20final.pdf.

2. JASON LINNELL, NAT'L CTR. FOR ELECTRONICS RECYCLING, CAN THE PATCHWORK OF STATE PROGRAMS WORK TOGETHER? 6 (Sept. 16, 2008) [hereinafter LINNELL], http://www.electronicsrecycling.org/public/ContentPage.aspx?PageId=98.

3. *Id.* at 8.

4. OFFICE OF TECH. POL'Y, U.S. DEPT. COMMERCE, RECYCLING TECHNOLOGY PRODUCTS: AN OVERVIEW OF E-WASTE POLICY ISSUES 3 (2006) [hereinafter E-WASTE POLICY ISSUES], http://www.bvsde.paho.org/bvsacd/cd57/recycling/intro.pdf.

identify the issues that can arise with multiple stakeholders and identify areas where states can streamline their regulations to fit within the existing compliance model and still accomplish the ultimate goal: to reduce the amount of hazardous materials introduced into the waste stream and to recycle the valuable components of end of life electronics.

II. BACKGROUND

A. What is E-Waste?

The United State Environmental Protection Agency ("EPA") defines electronics waste ("e-waste") as consumer electronics that are discarded, including televisions and other video equipment, computers, assorted peripherals (such as printers, scanners, and faxes), computer mice, audio equipment, and phones.[5] While this generally defines the parameters of e-waste, each state has its own view of what e-waste should be regulated.

E-waste often contains some substances that pose environmental and human health concerns.[6] These substances include lead, mercury, cadmium and brominated flame retardants, among others.[7] State e-waste laws have attempted to limit the amount of these toxins that are introduced into landfills and the environment. Some e-waste products also contain valuable materials including precious metals such as gold, silver, and palladium; base metals such as copper and steel; and reusable plastics.[8] These materials can be recycled and used in the manufacture of new consumer products. States have recognized a need to limit the amount of dangerous substances introduced into the waste stream and a desire to recycle the valuable components of end of life electronics.[9]

5. U.S. Environmental Protection Agency, Electronic Waste & E-Cycling, http://www.epa.gov/region1/solidwaste/electronic/index.html (last visited March 31, 2010).

6. SILICON VALLEY TOXICS COALITION, POISON PCS AND TOXIC TVS: CALIFORNIA'S BIGGEST ENVIRONMENTAL CRISIS THAT YOU'VE NEVER HEARD OF 9 (2004)[hereinafter POISON PCS], http://svtc.etoxics.org/site/DocServer/ppc-ttv1.pdf?docID=124.

7. U.S. E.P.A., E-Cycling Frequent Questions, http://www.epa.gov/osw/conserve/materials/ecycling/faq.htm#concern (last visited March 31, 2010).

8. U.S. E.P.A., Consumer Electronics: Trends in Recycling Soundbites (Podcast Transcript), http://www.epa.gov/osw/partnerships/plugin/podcasts/trends-sb.htm (last visited March 31, 2010).

9. *Id.*

B. The E-Waste Problem

The shortened lifespan of electronics has contributed to the sudden influx of electronics into landfills.[10] The EPA estimates that e-waste constitutes approximately two to four percent of the total solid waste stream.[11] However, e-waste is growing two to three times faster than any other type of waste stream entering landfills.[12] There are two reasons for this increase. First, electronics are becoming a mainstay of everyday life, and the United States is leading the way with nearly two billion consumer electronic products used in United States households.[13] Second, technology is developing at a rapid rate.[14] This increasing rate of obsolescence can be attributed to the improvement of technology and the emphasis on increasing functionality and efficiency of electronic devices.[15] In practical terms, this means that the estimated lifespan of a computer is three years, a cell phone is two years, and a television is between thirteen to fifteen years.[16] With this increased reliance on electronics, newer products are being introduced into the stream of commerce more quickly, rendering older products obsolete.[17] The EPA estimated that in 2005 that there were approximately 1.9 to 2.2 million tons of electronics introduced into the waste stream while only about 18% of these electronics were recycled.[18] Adding to this problem is the recent switch from analog to digital television.[19] This could result in twenty-two to twenty-eight million televisions that will either need a digital conversion box or be forced into obsolescence.[20] In all, it is estimated that three billion consumer electronic units were scrapped before 2010.[21]

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10. U.S. E.P.A., FACT SHEET: MANAGEMENT OF ELECTRONIC WASTE IN THE UNITED STATES 1 (July 2008) [hereinafter FACT SHEET], http://www.epa.gov/osw/conserve/materials/ecycling/docs/fact7-08.pdf.

11. U.S. E.P.A., Statistics on the Management of Used and End-of-Life Electronics, http://www.epa.gov/osw/conserve/materials/ecycling/manage.htm (last visited Oct. 16, 2008).

12. U.S. E.P.A., Electronic Waste & ECycling, http://www.epa.gov/region1/solidwaste/electronic/index.html (last visited Oct. 16, 2008).

13. This does not include computers in corporate, government, educational, healthcare, or other institutional settings. *See* ELIZABETH GROSSMAN, HIGH TECH TRASH: DIGITAL DEVICES, HIDDEN TOXICS, AND HUMAN HEALTH 142 (Island Press 2006).

14. FACT SHEET, *supra* note 10, at 1.

15. GROSSMAN, *supra* note 13, at 143.

16. *Id.* at 144.

17. FACT SHEET, *supra* note 10.

18. *Id.*

19. Todd Spangler, *CEA: 22% of Analog TV Owners to 'Do Nothing' for DTV,* Multichannel News, Nov. 9, 2007, http://www.multichannel.com/article/CA6499625.html.

20. *Id.*

21. E-WASTE POLICY ISSUES, *supra* note 4, at 1.

The rising level of e-waste poses an environmental concern because electronics contain toxic materials. Consumer electronics contain lead, hexavalent chromium, mercury, cadmium, polybrominated diphenylethers, barium, and lithium.[22] Several of these, such as lead, are known to pose serious health risks.[23] Many are also highly ranked on the Agency for Toxic Substances and Disease Registry's Priority List of Hazardous Substances.[24] When electronics are disposed of in landfills, the substances can leach into the ground or water stream.[25] In particular, lead from cathode ray tubes contained in televisions have been found to leach into the ground in landfills at rates greater than the acceptable EPA regulatory rate for lead.[26]

C. *General State of the Law*

Currently, there is no federal regulatory scheme to deal with the wide variety of e-waste piling up in landfills. Some electronics may test as "hazardous" under EPA regulation and would therefore be regulated,[27] yet federal law also provides a household exemption to these regulations.[28] Given that an estimated 304 million electronics were removed from American households in 2005 alone,[29] the federal law and regulations are ineffective at addressing the e-waste landfill problem.

Starting in 2003, a few states have taken notice of the e-waste problem and have implemented regulatory schemes to combat the issue.[30] From January of 2007 until April 2010, the number of states with any form of e-waste regulation jumped from six states to twenty

22. POISON PCS, *supra* note 6, at 9, 10.

23. Agency for Toxic Substances and Disease Registry, U.S. Dep't of HHS, ToxFAQs for Lead, http://www.atsdr.cdc.gov/tfacts13.html#bookmark05 (last visited March 31, 2010).

24. Agency for Toxic Substances and Disease Registry, U.S. Dep't of HHS, Priority List of Hazardous Substances (2007), http://www.atsdr.cdc.gov/cercla/07list.html (Lead, mercury, polychlorinated biphenyls, cadmium, and hexavalent chromium ranked within the top 20 out of 275 substances).

25. POISON PCS, *supra* note 6, at 15.

26. *See* TIMOTHY G. TOWNSEND, STEPHEN MUSSON, ET AL., *CHARACTERIZATION OF LEAD LEACHABILITY FROM CATHODE RAY TUBES USING THE TOXICITY CHARACTERISTIC LEACHING PROCEDURE*, FLA. CTR. FOR SOLID AND HAZARDOUS WASTE MGMT., December 1999, http://www.ees.ufl.edu/homepp/townsend/Research/CRT/CRTDec99.pdf.

27. U.S. E.P.A., ECycling- Regulations/Standards, http://www.epa.gov/osw/conserve/materials/ecycling/rules.htm#regs (last visited March 31, 2010).

28. *See* 40 C.F.R. pt. 261.4(b)(1) (2008).

29. FACT SHEET, *supra* note 10, at 1.

30. California Integrated Waste Management Board, eRecycle.org, What is e-Waste?, http://www.erecycle.org/want_understand.htm (last visited March 31, 2010) (public awareness website created by California Integrated Waste Management Board).

states.[31] New York City was the first local government to regulate e-waste.[32]

Foreign countries have also introduced and passed legislation aimed at preventing e-waste. The European Union ("EU") has taken the most active role in regulating e-waste in the international community.[33] However, Japan, Taiwan, Korea, and Canada have also implemented regulations.[34] These regulations have taken the form of creating consumer oriented programs for return and reuse of end-of-life electronics, commonly referred to as "producer responsibility programs."[35] The EU has also implemented a ban on the use of certain hazardous materials in electronics that are imported into countries in the EU.[36]

While neither Congress nor the EPA has enacted statutes or regulations covering e-waste, federal agencies have recognized the need for regulation, and that a patchwork of state programs is evolving. In 2006, the United States Department of Commerce Office of Technology Policy issued a report that discussed policy issues and stakeholder positions behind e-waste regulations at the state and federal level.[37] The report concluded:

> Industry is now facing a patchwork of international and state laws that can dramatically affect the manufacture, marketing, and business models of the U.S. electronics sector and the transaction costs and business models of our retail sector. Disparate requirements can lead to uncertainties, inefficiencies and high compliance costs that could impede U.S. industry's ability to compete and innovate.[38]

As noted above, since this 2006 report was issued the number of states with regulations has more than tripled. Therefore, the threats to the

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31. *See* Nat'l Ctr. for Electronics Recycling, Laws, http://www.electronicsrecycling.org/public/ContentPage.aspx?pageid=14 (last visited March 31, 2010) (listing all currently enacted state and local and e-waste regulations).

32. City of New York, NYC WasteLe$$, http://www.nyc.gov/html/nycwasteless/html/in_business/product_stewardship.shtml (last visited March 31, 2010) (city of New York public awareness website, listing mandatory take-back programs).

33. BEVERLEY THORPE & IZA KRUZEWSKA, STRATEGIES TO PROMOTE CLEAN PRODUCTION: EXTENDED PRODUCER RESPONSIBILITY, CLEAN PRODUCTION ACTION (Jan. 1999), www.grrn.org/resources/BevEPR.html.

34. *See id.*

35. *See id.*

36. *See* RoHS: Working With EEE Producers to Deliver Compliance with RoHS in the UK, www.rohs.gov.uk/, (last visited March 31, 2010) (Restriction on Hazardous Substances bans from the EU market electronic equipment which contains more than the approved level of cadmium, mercury, hexavalent chromium, polybrominated biphenyl and polybrominated diphenyl ether flame retardants).

37. *See generally* E-WASTE POLICY ISSUES, *supra* note 4.

38. *Id.* at 3.

United States electronics and retail sectors recognized by the Department of Commerce have become even more acute.

D. Common State-Regulatory Schemes

There are three general regulatory schemes that have emerged in the state legislation addressing e-waste.[39] These regulatory schemes are: (1) advanced recovery fees, (2) producers responsibility programs, and (3) landfill disposal fees.[40] Some of these approaches diverge even within their individual approach to regulating e-waste, depending on the state administering the program.[41]

1. Advanced Recovery Fees

California is the only state that has adopted an advanced recovery fee system.[42] This system is administered by the state and requires consumers to pay a flat rate at the point of sale of specified video display devices.[43] The fee is collected by the state government to help approved collectors and recyclers defray the cost of recycling electronics. The advanced recovery fee is used to help recycle all electronics, including electronics other than video display devices, orphan electronics,[44] and electronics purchased before the recycling fee was implemented.[45] The advanced recovery fee has the benefit of creating an immediate funding mechanism for the implementation of an electronics recycling program.

One major shortfall of the program, however, is that the program could end up costing taxpayers additional money if the fees do not cover the cost of implementing the new recycling program.[46] Another problem with the advanced recovery fee system is that it does not place pressure on manufacturers to develop products that contain fewer toxins and are

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39. LINNELL, *supra* note 2, at 7-8 (listing five separate e-recycling schemes that can be consolidated into three larger groupings, as noted on the map on p.7).

40. *Id.*

41. *Id.* at 9-13.

42. *See generally* Cal. Integrated Waste Mgmt. Bd., E-FAQs, http://www.erecycle.org/efaqs.htm (last visited March 31, 2010).

43. CHRIS M. AMANTEA ET AL., CALIFORNIA BUSINESS LAW DESKBOOK §41:9 (West 2008).

44. *See*, e.g., 415 ILL. COMP. STAT. ANN. 150/10-3 (West 2008) (Orphan electronics are end-of-life electronics that are missing any identifying labels or brand marks so that recyclers can identify the manufacturer and attribute to that manufacturer the cost of the product's recycling).

45. NORTHWEST PRODUCT STEWARDSHIP COUNCIL, FRONT END FINANCING SCENARIOS FOR COLLECTION/RECYCLING OF ELECTRONIC PRODUCTS 3 (Jan. 20, 2004) [hereinafter FRONT END FINANCING], *available at* http://www.productstewardship.net/PDFs/productsElectronicsFinancingScenarios.pdf.

46. *Id.* at 2.

more amenable to disposal or recycling.[47] The advanced recycling fee could be considered one-dimensional because it addresses the recycling issue but not the producer's responsibility for creating environmentally sound products.[48] To address some of the gaps left by the advanced recycling fee program, California has also implemented a producer responsibility program for recycling cell phones.[49]

2. Producer Responsibility Programs

Producer responsibility programs, in varying forms, have been more common in recently implemented state programs than advanced recovery fees.[50] Producer responsibility programs, which are encouraged by the United States EPA,[51] call on manufacturers of electronics products to take the lead in reducing e-waste by eliminating some of the toxins contained in their equipment and by implementing take-back programs for their end-of-life equipment.[52] Unlike advanced recovery fees, producer responsibility programs place the onus on the company to come up with the solutions for the e-waste problem instead of burdening the taxpayer with finding solutions for the disposal of e-waste.[53] This creates incentives for private companies to be innovative and environmentally conscious when developing new products.

Producer responsibility programs administered at the state level create a large burden on manufacturers because the programs vary depending on the state.[54] The list of regulated products, the registration requirements, and the restrictions on applicable products are components of state-regulatory schemes that typically vary from state to state. Approximately sixteen of the twenty-one programs follow the producer

47. *Id.* at 3.

48. *Id.*

49. Denise Griffin, Environment Energy and Transportation Program: Electronic Waste (July 2005), http://www.ncsl.org/programs/environ/cleanup/Elecwaste.htm (legislation makes it unlawful for a retailer to sell a cell phone after July 1, 2006, if the retailer does not have a collection, reuse and recycling program in place).

50. National Center for Electronics Recycling, Current Electronics Recycling Laws in Effect, http://www.electronicsrecycling.org/public/ContentPage.aspx?pageid=14 (last visited March 31, 2010) (listing all state laws currently enacted).

51. U.S. E.P.A., Product Stewardship, http://www.epa.gov/epawaste/partnerships/stewardship/basic.htm (last visited March 31, 2010) (stating that "EPA's Product Stewardship program has primarily focused on end-of-life considerations as one means of encouraging more environmentally conscious design and greater resource conservation.").

52. *Id.*

53. U.S. E.P.A., Product Stewardship: Businesses and Product Stewardship, http://www.epa.gov/epawaste/partnerships/stewardship/basic.htm (last visited March 31, 2010).

54. *See generally* LINNELL, *supra* note 2 (discussing the variations in state programs and the possible areas for collaboration between states).

responsibility model.[55] Some states that do not have mandatory producer responsibility programs have started to implement incentives for voluntary producer responsibility programs as a precursor to implementing a state regulated producer responsibility program.[56]

a. Producer Responsibility Subgroups

There are subgroups within the producer responsibility category of regulatory regimes. These subgroups are created based on the allocation of responsibilities between the manufacturer, the recycler, and the state.

i. Producer Pays Returns

The first category will be referred to as "Producer Pays Returns." Under this regime, the local governments are responsible for coordinating and publicizing collections of end-of-life electronics.[57] The recyclers are responsible for the challenging task of coordinating with municipal collection sites to pick up collected household e-waste, identifying the manufacturer of each television and computer monitor, and maintaining an accounting by manufacturer.[58] The recycler is also responsible for providing the agency with this accounting of televisions and computer monitors organized by manufacturer. They must then invoice the manufacturers for reasonable operation costs associated with the handling, transportation and recycling of the wastes attributable to each manufacturer. The recycler may only ship waste to dismantlers and recyclers who will provide the consolidation facility with a sworn certification that its handling, processing, refurbishment, and recycling meet environmentally sound management guidelines published by the respective state agency.[59]

The manufacturers are responsible for the costs of handling (other than local collection site operating costs) and recycling, plus at least some of the transportation costs, of all household-generated waste

55. National Center for Electronics Recycling, Current Electronics Recycling Laws in Effect, http://www.electronicsrecycling.org/public/ContentPage.aspx?pageid=14 (last visited March 31, 2010) (listing all state laws currently enacted).

56. *See, e.g.,* California Integrated Waste Management Board, About EPR and Product Stewardship at the Board, http://www.ciwmb.ca.gov/EPR/About.htm (last visited March 31, 2010) (stating that "in 2007 the Board set the stage for a broader emphasis by adopting a set of Strategic Directives . . . which states it is a core value of the CIWMB that producers assume the responsibility for the safe stewardship of their materials in order to promote environmental sustainability").

57. Maine Dep't of Envtl. Prot., Municipal Guide to Maine's Television and Computer Monitor Recycling Law, http://maine.gov/dep/rwm/ewaste/genmunicipalguide.htm (last visited March 31, 2010).

58. *Id.*

59. *Id.*

computer monitors and televisions. Manufacturers must submit plans to the State Department of Environmental Protection (or other appropriate state agency/department) that describe how they will meet this obligation, and report to the Department of Environmental Protection annually.

ii. Managed with Default

The second subgroup is the "Managed with Default Subgroup." Under this regime, manufacturers have a choice between setting up their own collection and recycling program or paying the state to use a default program organized by the state.[60] First, under this regime the manufacturers are required to register and implement their own recycling program or pay to participate in a program set up by the state.[61] The manufacturers are responsible for covering the cost of processing the e-waste labeled with their brand name.[62] Second, the recyclers and collectors who are used independently by the manufacturer or through the state-run program, are required to register with the state.[63] Sometimes these recyclers and collectors must be certified by an auditor to ensure that their processes comply with the governing agency's recycling, collection, and disposal standards.[64] The regulations identify adverse effects that result from the processing of e-waste that can be harmful to the environment and the auditors ensure that the recyclers/collectors are not violating these protections.[65] If a recycler/collector fails to meet these standards, they could be subject to civil liability as provided in the respective state statutes.[66] This is a condensed version of the steps that are involved in executing a producer responsibility law. Producer responsibility laws can be complicated and expensive because they require significant state involvement and enforcement to ensure a program's effectiveness.

iii. Producer Managed—No Default

The third subgroup is "Producer Managed—No Default." Under this regime manufacturers are required to register with the appropriate

60. *See, e.g.*, WASH. REV. CODE § 70.95N.050 (2009).
61. *See, e.g., id.*
62. A state typically already has a consumer protection law that addresses product labeling issues. However, because the purpose of the labeling in this case is different than that in consumer protection cases, it may be necessary to include product labeling in the recycling statute. *See, e.g.*, WASH. REV. CODE § 70.95N.160 (2009).
63. *See, e.g.*, § 70.95N.240.
64. *See, e.g.*, § 70.95N.250.
65. *See, e.g., id.*
66. *See, e.g.*, § 70.95N.260.

state agency, pay an annual registration fee, and recycle.[67] "No default" means that the state does not have a recycling program set up for the manufacturers to participate in; they are on their own to set up a mandatory program and comply with the state laws and regulations. Collectors must register with the applicable state agency, report the amounts they collect and the source of the material, as well as where the materials were sent for recycling.[68]

Recyclers must also register with the applicable state agency.[69] They are responsible for reporting the amount they recycled in a year.[70] However, the amount of e-waste that must be recycled per manufacturer is not determined by the pounds of material recycled. Instead, the state determines the market share of the manufacturer's product, and then sets goals for manufacturers to meet in recycling a percentage of their market share. In Minnesota, for example, the recycling percentage that manufacturer's must meet is eighty percent of their market share. Many recyclers have agreements with registered manufacturers to recycle their household electronics.[71] The law requires recyclers to certify that they are insured, licensed, and in compliance with regulations, and that they do not use prison labor.[72]

Retailers also have requirements under the Producer Managed-No Default regime.[73] They can sell only registered brands to households, this includes online sales and catalog sales as well as retail outlets.[74] Retailers must report annual sales of video display devices to the manufacturers of those devices each year.[75] Retailers are required to provide recycling information to their customers.[76]

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67. MINN. POLLUTION CONTROL AGENCY, MINNESOTA'S ELECTRONICS RECYCLING ACT: OVERVIEW AND UPDATE, http://www.pca.state.mn.us/oea/publications/w-gen2-01.pdf (last visited March 31, 2010).

68. *Id.*

69. *Id.*

70. *Id.*

71. MINN. POLLUTION CONTROL AGENCY, MINNESOTA'S ELECTRONICS RECYCLING ACT: OVERVIEW AND UPDATE, http://www.pca.state.mn.us/oea/publications/w-gen2-01.pdf (last visited March 31, 2010).

72. *Id.*

73. *Id.*

74. *Id.*

75. *Id.*

76. MINN. POLLUTION CONTROL AGENCY, MINNESOTA'S ELECTRONICS RECYCLING ACT: OVERVIEW AND UPDATE, http://www.pca.state.mn.us/oea/publications/w-gen2-01.pdf (last visited March 31, 2010).

3. End-of-Life Fee Systems

End of life fees ("EOLs") are the least common e-waste solutions adopted by states. [77] EOLs impose fees on consumers at the end of the product life cycle to collectors or recyclers who dispose of the product.[78] Payments are made by the consumer directly to the private collectors bearing the cost of the recycling, instead of requiring the government to serve as a middle man.[79]

There are major issues with this system, however. Consumers may be dissuaded from taking their e-waste to collectors or recyclers because there is little economic incentive, and the high cost of recycling set by the private collector or recycler.[80] As pointed out by the Northwest Product Stewardship Council, these deterrents will most likely exacerbate the current issues with the disposal of e-waste. They may encourage illegal disposal or storage of end of life products until a more affordable or convenient recycling option is available.[81] It could lead to product "dumping" on charitable or non-profit organizations, forcing them to bear the recycling costs when the products become unusable.[82] Similar to the advanced recovery fee system, an end of life fee system discourages manufacturers from developing products that are more amenable to recycling and reuse.[83] Another problem with EOLs is that the lack of regulation could allow collectors and recyclers to dispose of the equipment in inappropriate ways, including export to countries with cheaper means for recycling.[84]

III. AREAS OF COLLABORATION

The goal of all electronics recycling laws is relatively the same: to reduce the harmful toxins introduced into the environment and to increase the reuse and recyclability of electronics products.[85] This,

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77. FRONT END FINANCING, *supra* note 45, at 11.
78. *Id.*
79. *Id.*
80. *Id.*
81. *Id.*
82. Jonathan Skillings, *Newsmaker: Playing Fair on Electronics Recyling*, CNET News, August 8, 2002, http://news.cnet.com/Playing-fair-on-electronics-recycling/2008-1082_3-948969.html.
83. FRONT END FINANCING, *supra* note 45, at 11-12.
84. *Id.*
85. *See, e.g.*, CAL. PUB. RES. ANN. §42461(a) (West 2008) (stating that the legislative purpose is to enact . . . system for the reuse, recycling and . . . disposal of covered electronic devices, and to provide incentives to design electronic devices that are less toxic, more recyclable); *see also,* ME. REV. STAT. ANN. tit.38 §1610(1) (*same*); and OKLA. STAT. tit. 27, §2-11-601 (West 2009) (*same*).

however, is where the similarities between state electronics recycling laws end.

There are several key areas within producer responsibility programs that are common to all states.[86] Each state characterizes these areas differently, though, thereby reducing the opportunity for collaboration between state programs and increasing the burden on manufacturers, recyclers, and state governments to achieve statutory standards.[87] Some of this variation includes the definitions of key terms such as reporting requirements, covered products, registration requirements, and the calculation of market and return share data.[88] If these areas are streamlined, manufacturers and recyclers would find it easier to comply with the laws and may also reduce costs for the states to enforce.

A. Defining of Common Terms

In a producer responsibility regime, the key term "manufacturer" determines who is responsible for paying the costs associated with recycling a labeled electronic product.[89] Manufacturers are required to register the brands that they manufacture in producer responsibility states and to affix a readily visible label to the equipment with the manufacturer's brand.[90]

There are two elements that lead to confusion between states when it comes to defining "manufacturer." First, statutes define the term as the entity responsible for recycling fees.[91] Therefore, states are not concerned with determining who is actually making the product, but rather, with who is responsible for recycling the product.[92] Second,

86. *See, e.g.,* OREGON DEP'T OF ENVIRONMENTAL QUALITY WASTE PREVENTION STRATEGY, BACKGROUND PAPER #8, PRODUCT STEWARDSHIP AND EXTENDED PRODUCER RESPONSIBILITY 5 (February 2007), http://www.deq.state.or.us/lq/pubs/docs/sw/WPSBkgd08.pdf (listing several common policy tools in producer responsibility programs, including recovery fees, waste management fees, reuse and reduction goals, and disposal bans).

87. *Compare* MD. CODE. ANN., ENVIR. § 9-1728(West 2008) (which requires manufacturers to pay a fee that funds a grant program run by counties and municipalities, and the state has no recycling goals); *with* WASH. REV. CODE § 70.95N.030 (2009) (which requires the manufacturer set up an independent plan or participate in a state plan and finances the plan based on return share and market share data).

88. LINNELL, *supra* note 2, at 22.

89. LINNELL, *supra* note 2, at 31.

90. *See, e.g.*, MO. ANN. STAT. § 260.1062(1)(3) (West 2008); *see also,* N.J. STAT. ANN. § 13:1E-99.96 (West 2008).

91. *See, e.g.,* MO. ANN. STAT. § 260.1062(6) (West 2008); *see also,* N.J. STAT. ANN. § 13:1E-99.96(e) (West 2008).

92. *Id.*

collectors or recyclers must identify who owns each product before it is sold to consumers, in order to allocate recycling fees.[93]

1. Manufacturer vs. Brand Owner

The statutory definition of "manufacturer" differs by state. In some states, the manufacturer responsible for paying the costs associated with the recycling of a product is the brand owner of the product—not the actual manufacturer of the product.[94] In these states, the recycler will need to determine the brand owner by the label on the front of the electronics product.[95] This is troublesome because a single company may manufacture the same electronic products, but the products are labeled with brands owned by several different companies, such as IBM Thinkpad.[96] In that case, the brand owner will be responsible for recycling the product, but has not manufactured it. This reduces the economic incentive for responsible design because the recycling costs aren't always allocated to the company engineering the design and manufacturing the product.[97] There can also be problems if the product has multiple brands listed on it that are owned by different companies, e.g. IBM ThinkPad.[98] In that case, recyclers may inconsistently identify a product as ThinkPad in some cases and IBM in others. This would make potential costs to the manufacturer unpredictable or incorrect, or could lead to intentional placement of labels of non-brand owners in areas that may confuse recyclers.

A few states use the brand-owner only approach as a default, but allow licensees to claim a brand and be responsible for the recycling costs.[99] Unlike the brand owner only approach, the claiming manufacturer approach allows the licensee who may have the greatest impact on design of the product to take responsibility for recycling, which encourages the manufacturer to improve the designs of their products so that they can be reused instead of placed into landfills.[100] This approach requires that the brand owner still be responsible for the

93. LINNELL, *supra* note 2, at 32-33.

94. MD. CODE ANN., ENVIR. §9-1701(g) (West 2008) (stating that manufacturer means the corporation or other legal entity that is the brand owner . of a computer sold in the state).

95. LINNELL, *supra* note 2, at 33.

96. *Id.* at 34.

97. *Id.*

98. *Id.*

99. OR. REV. STAT. ANN. § 459A.305(6)(a)(A)-(B) (West 2008) (stating that "manufacturer" means any person . . that manufactures covered electronic devices under a brand that it owns or is licensed to use; that sells covered electronic devices manufactured by others under a brand that the seller owns).

100. LINNELL, *supra* note 2, at 36.

product even if it's unclaimed by a licensee, thus ensuring most products' recycling costs are covered.[101] The claiming manufacturer model can lead to confusion over who is responsible for bearing the cost of recycling when multiple entities claim a single brand.[102]

States could adopt a compromise between these two approaches where the brand owner is responsible unless a single company other than the brand owner claims responsibility for the covered products and notifies the brand owner that they are doing so.[103] This would avoid multiple claims to the same brand. A compromise between the two approaches would encourage the goals behind producer responsibility while also reducing confusion for the recyclers and government as to which company is responsible for the recycling fees.

2. Identifying the Manufacturer

In order for an electronic product to be assigned to a manufacturer for billing purposes, the collector or recycler must identify the manufacturer from the labels on the product. This is essential to the success of the producer responsibility model because brand marking is the primary means of assigning financial costs.[104]

The problem with identification is that most state laws do not regulate how these products are to be identified by collectors or recyclers.[105] Some electronics products may be easy. For example, a television made by "Sony" that has only the "Sony" mark on it will be easy to identify.[106] The harder products are ones that are made by a common manufacturer but have a different brand name based on which retailer is selling the product, such as cell phones made by LG but sold by Verizon.[107] Products that have multiple brand names listed on the product also create problems.

101. OR. REV. STAT. ANN. § 459A.340 (West 2008).

102. LINNELL, *supra* note 2, at 36.

103. *Id.* at 37.

104. *Id.* at 41.

105. *See, e.g.*, WASH. REV. CODE. ANN. § 70.95N.110 (West 2008) (laying out the information required to be collected from the sampling, but not specifying how to identify the manufacturer of the product); *and* TEX. HEALTH & SAFETY CODE ANN. § 361.955 (Vernon 2008) (Statute deals with the identification issue by requiring manufacturer to label product. However this will not eliminate confusion for products already sold and could also lead to confusion if products have more than one label on the product.).

106. LINNELL, *supra* note 2, at 42.

107. For example, a TV sold at Walmart is branded "Ilo," whereas the same TV sold at Best Buy is branded "Insignia." *See id.* at 47.

States that use the producer responsibility model differ on product label requirements and which label the recycler must record.[108] Some states require that all units' brands be recorded while others require a random sample.[109] In states that allow multiple companies to claim a product, the recycler would be required to record several labels and then ensure that only the companies claiming that product are billed for its recycling.[110] This would create unnecessary work and confusion for the recycler. In states that require only the brand owner be recorded, recyclers must determine which of the numerous labels on a product is correct for identification purposes.[111] Therefore, the recycling cost of one product may be assigned to different manufacturers depending on the applicable state brand identification rules.[112]

States could reduce their administrative burden and the burden on collectors/recyclers if they adopted a uniform way to identify the "manufacturer" or party responsible for product recycling costs. Many states have taken the step of requiring product labeling, but this may still not be enough if the manufacturer label has to be discerned amongst several labels on a product. One possible solution could be to create a uniform recycling identification label located on a specific part or area of an electronic product. If there is a default sticker whose purpose is to provide collectors, retailers, and consumers with the information they need to recycle the product, it could reduce errors in the identification process while also raising awareness about the opportunities for electronics recycling.

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108. In a market share system, collectors do not need to record label but in a return share data system, collectors must record product labels so that the manufacturer's share of recycling can be calculated for billing purposes. *See,* WISCONSIN BRIEFS FROM THE LEGISLATIVE REFERENCE BUREAU, ELECTRONICS RECYCLING 3 (2008) [hereinafter WIS. BRIEF], http://www.legis.state.wi.us/LRB/pubs/wb/08wb11.pdf.

109. *Compare* ME. REV. STAT. ANN. tit. 38, § 1610(5)(B) (2008) (which requires all units to be recorded; *with* N.J. STAT. ANN. § 13:1E-99.105(a)(1) (West 2008) (which only records by random sample).

110. This may prove challenging for a regional collector or recycler who must record several labels in one state and bill the recycling of the product to a different "manufacturer" in that state than in a state which only one label is recorded. *See* LINNELL, *supra* note 2, at 46.

111. These two examples represent the complexities that develop when state laws differ in their approach to producer responsibility systems. While manufacturers may like the flexibility they gain in some states, this increases in flexibility for the manufacturers comes at the cost of increased expense and complications for collectors and reduced opportunity for collaboration between states. *See id.*

112. *See, e.g., id.* at 46 (suggesting that the correct brand in ME is the one registered to a claiming manufacturer and may require markings on both the front and back of the product; whereas in WA only the label on the front of the product is treated as the true brand).

This solution may be suitable, but it does not address the voluminous amount of end of life electronics accruing in homes, businesses, and schools across the country. However, any difficulty does not eliminate the importance of a streamlined system of identification across states with electronics recycling programs.

The National Center for Electronics Recycling has presented some best practices for brand identification,[113] which may serve to eliminate some of the errors and problems that can arise because of different approaches to brand identification. One option to eliminate inconsistencies in brand identification and assignment of recycling costs is to standardize the definition of "manufacturer" across states and to standardize the way in which the data is collected. If all states used a default brand owner only approach, but only allow a single company to assume responsibility, then states could create a database that lists all brands and the manufacturers responsible for them. Another suggestion would be to standardize the collection of data. If all states used either the random sample method or total brand identification method, it would make the data applicable to all programs and would provide guidance to states starting a new recycling program as well as a more accurate benchmark for the success of recycling programs. If a state implements a new electronics recycling program, it would not have to go in blindly with no benchmarking brand data if other states have already collected the same information.[114]

B. Covered Products

A second area where states could streamline the process of electronics recycling is to create a standard list of electronics products to be covered by electronics recycling legislation. Each state defines "covered electronics products" in its statute to include the products it wants to be recycled. Some statutes include laptops, televisions, and monitors, but do not cover desktop computers, printers, keyboards or other similar peripheral electronics devices. Additionally, electronics recycling laws specify the size of the screens on televisions, laptops, and

113. *See generally* NATIONAL CENTER FOR ELECTRONICS RECYCLING, BRAND RECORDING BEST PRACTICES (October 2006), http://www.iprworks.org/documents/file/brand_recording.pdf (following the practices suggested will at least allow the data collected to likely be usable by other programs if requested because it provides an organized approach to collection of brand identification information).

114. This would benefit both the state and the manufacturer. By using this data until the state can gather their own, the state can assure that the manufacturers are being billed enough to cover the recycling of products coming in, but that they are not billing more than what the manufacturer has had to pay in other states. *See* PATCHWORK, *supra* note 1, at 9-11.

monitors that are covered.[115] Typically, states' electronic recycling laws cover either screens over four inches to be recycled or screens over nine inches to be covered.[116] However, some states choose not to specify a minimum screen size, thus covering all laptop, television, or desktop monitor screens.[117]

The inconsistency in the definition of "covered products" under the statutes may be confusing for consumers, manufacturers, recyclers, and retailers.[118] Consumers may know that their state has an electronics recycling law but may be confused as to what electronics are covered because the information they have received is not specific about which specific products are required to be recycled.[119]

Manufacturers may face different obligations depending on the state's definition of covered electronic devices.[120] This may mean that the manufacturer has significantly varied recycling costs depending on the states to which their products flow.[121]

Similarly, a collector's obligations would differ depending on the state.[122] National and regional retailers may also find the inconsistency burdensome because they would be forced to issue unique instructions regarding which electronics devices are covered in each state where they have a retail location. [123]

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115. *See* ME. REV. STAT. ANN. Tit. 38, § 1610(2)(c) (2008).

116. *Compare* ME. REV. STAT. ANN. Tit. 38, § 1610(2)(c) (2008), *with* R.I. GEN. LAWS § 23-24.10-3 (2008).

117. *See* 415 ILL. COMP. STAT. 150/10 (2008).

118. *See* LINNELL, *supra* note 2, at 31-32.

119. Grant Gross, *Multiple State Laws Confuse Electronics Recycling,* InfoWorld, March 26, 2007, http://www.infoworld.com/article/07/03/26/HNstatelawselectronics recycling_1.html (last visited March 31, 2010).

120. *Compare* MO. ANN. STAT. § 260.1053 (West 2008) (defining covered electronics products narrowly, including only "a desktop or notebook computer and includes a computer monitor or other display device that does not contain a tuner"), *with* NEW YORK CITY, NY, ADMINISTRATIVE CODE § 16-421(d) (2008) (defining covered electronic products broadly to include not only computers, cathode ray tubes, and televisions, but also peripheral devices such as keyboards, video display devices, electronics mouses, and certain portable digital music players).

121. For example, "Sony" would have more products covered under the New York City electronics recycling ordinance than under the Missouri law because of the breadth of products covered. Thus, even holding the number of products sold in each state constant, the cost per capita to "Sony" will be higher in New York City based on the breadth of products covered. *Compare*, MO. ANN. STAT. § 260.1053 (West 2008), *with* NEW YORK CITY, NY, ADMINISTRATIVE CODE §16-421(d) (2008).

122. If the devices covered by a law differ from state to state, it will change the obligations of collectors depending on the state. The broader the list of covered products, the more products the collectors/recyclers must process. *Compare*, MO. ANN. STAT. § 260.1053 (West 2008), *with* NEW YORK CITY, NY, ADMINISTRATIVE CODE § 16-421(d) (2008).

123. *See* PATCHWORK, *supra* note 1, at 12.

To avoid this type of unnecessary confusion, states should adopt a broad definition of electronics covered by electronics recycling laws. If a broad definition of covered electronics products became standardized, it could eliminate some confusion to consumers as to which electronics devices can and should be recycled. While a broad definition of electronics may increase the financial burden on manufacturers, it would also promote the principles behind recyclable electronics, which is to design products that are more environmentally friendly.[124] Then, collectors and recyclers would not have to tailor their programs to each state's statutes, thus saving money by setting up a standard training or recycling process.[125] Most importantly, a broad definition of covered electronics products eliminates any inconsistency or confusion between the implementation of electronics recycling laws and their purpose. It makes clear that recycling electronics is necessary for safety and ecological reasons and it should be a manufacturer priority to engineer greener designs of all electronics products.[126]

C. Registration Requirement Collaboration

Many state recycling laws require manufacturers, collectors, and recyclers to register with the state in order to be allowed to operate in that state.[127] Because most states have some sort of registration requirement, it seems redundant to require each entity to register in every state in which they sell their products or serve as a collector or recycler.[128] The states could eliminate this issue by utilizing a national or regional data bank that would collect and store all registrations for the states.[129] Some regions already have the infrastructure in place to accomplish this type of collaboration. The Northeast Recycling Council is a ten state collaboration that has taken a multifaceted approach to addressing the problem with end of life electronics.[130]

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124. *See, e.g.*, CAL. PUB. RES. CODE § 42461 (West 2008).

125. *See id.* at 5(stating that the recurring costs for manufacturers due to redundant and conflicting information requirements and start-ups in the four states with active recycling in 2006 was $3,654,286.00).

126. *See, e.g.*, CAL. PUB. RES. CODE § 42461 (West 2008).

127. *See, e.g.*, MINN. STAT. ANN. § 115A.1318 (West 2008); *and* OR. REV. STAT. § 459A.313 (West 2008).

128. *See* NATIONAL CENTER FOR ELECTRONICS RECYCLING, A STUDY OF THE STATE-BY-STATE E-WASTE PATCHWORK 10-11 (2006) http://www.ecyclingresource.org/UserDocuments/Patchwork%20Study%20final.pdf.

129. *See id.*

130. NORTHEAST RECYCLING COUNCIL, A HISTORY OF THE NERC 4 [hereinafter NERC], http://www.nerc.org/documents/20_years_of_impressive_accomplishments.pdf (last visited March 31, 2010).

Creating a central database of manufacturers, collectors, and recyclers can also be used by states that have just recently enacted electronics recycling laws.[131] It allows them to have an already established and reliable list of collectors and recyclers to handle their products, which will save money in startup administrative costs for advertising, soliciting, and processing all of the registrations.[132] A central database could also prove helpful for collecting more than just registrations; it could also be useful in collecting information regarding market and return share data used in calculating recycling costs for manufacturers.[133]

There are some potential complications that could arise. First, states will have different registration requirements in order to be certified as a collector or recycler. Thus, if there is a clearinghouse that the covered entities must register with instead of individual states, then those requirements may be ignored. One way to approach this problem is for the clearinghouse to issue provisional approval until the state has time to request or receive further information from the covered entity. This may help to get fledgling programs off the ground. However, this option would not eliminate the cost and complications for the entities or the state in working together to meet the registration requirements. Another option is for a state to defer to the registration requirements of the clearinghouse. By using the multi-stakeholder model of a group like the Northeast Recycling Council, states could negotiate the registration terms that would give them the information they need.[134]

A second complication with a central registration database is the assessment and allocation of registration fees. Many states assess registration fees to cover administrative costs of implementing electronics recycling laws.[135] A central registration system will reduce the administrative burden on the states so that the registration fee may not be necessary, or could be significantly reduced.[136] There will inevitably be state costs associated with electronics recycling.[137] States can continue to charge these fees to manufacturers, collectors, and recyclers that want to operate in their state through the clearinghouse system.

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131. *See* PATCHWORK, *supra* note 1, at 11.

132. *See id.*

133. *See, e.g.*, National Center For Electronics Recycling, About Brand Data Management System, http://www.electronicsrecycling.org/BDMS/AboutBDMS.aspx (last visited Feb. 4, 2009).

134. *See generally* NERC, *supra* note 133.

135. *See, e.g.*, MINN. STAT. ANN. § 115A.1318 (West 2008); *and* OR. REV. STAT. § 459A.313 (West 2008).

136. *See* PATCHWORK, *supra* note 1, at 10-11.

137. *See id.*

Some covered entities, such as local collectors, may not need to register with multiple states and therefore, the central registration system may be unnecessary. It may be hard to justify forcing a local collector or recycler to register with a national clearinghouse instead of with the state when they will only be working in a small community. However, a local collector or recycler will have to register regardless of whether it is with the state or with a national clearinghouse. Using the clearinghouse may also be beneficial to the local collector or recycler because the economies of scale present in the registration of multiple entities across numerous states could greatly reduce the registration fee for a manufacturer or collector.[138] Also, central registration would account for multi-state and single state entities alike and reduce the number of registering authorities.

While some complications may arise in establishing a national registration clearinghouse for covered entities, none of the issues are so complex that they cannot be eliminated by conversations between state stakeholders. Given the infrastructure already established within EPA regions and other regional efforts like the Northeast Recycling Council, there is a great opportunity here for collaboration.[139]

D. Return Share Data vs. Market Share Data

In producer responsibility regimes, states differ in their approach to calculating the costs to manufacturers for recycling their covered electronics products.[140] Some states use return share data while others use market share data to calculate the costs associated with each manufacturer.[141] The data used is essential to the implementation of the recycling plan. Without this data, the states cannot accurately assess the costs attributable to each manufacturer and, thus, fund the program.[142]

Additionally, the choice of data collection method has an impact on the implementation of the program. With return share data, the identification of products and the calculation of the share of recycled electronics for each manufacturer occur at the end of the product's life.[143] This means the burden falls on the collectors or recyclers to identify the

138. *See id.*

139. *See, e.g.*, EPA Region 5, eCycling, Regional Initiatives, http://www.epa.gov/region5/solidwaste/ecycling/index.htm (last visited March 31, 2010); *see also,* NERC, *supra* note 133, at 3.

140. *See generally* ELECTRONICS TAKEBACK COALITION, BRIEF COMPARISON OF STATE LAWS ON ELECTRONICS RECYCLING (Jan. 2009) [hereinafter CHART], http://www.electronicstakeback.com/legislation/Compare_state_laws_chart.pdf.

141. *Id.*

142. *See* WIS. BRIEF, *supra* note 108, at 3.

143. *See id.*

product manufacturer. As discussed earlier, there are multiple ways to identify product manufacturers, which may lead to further variation in the implementation of a return share data system.[144]

Unlike return share data, market share data is compiled at the front end of the electronic product's life cycle.[145] Even so, this data is used in the same way in the respective states, by attributing recycling costs to manufacturers based on their percentage of covered electronic products sold during a designated period of time.[146]

Some states prefer return share data over market share data because of the large volume of electronic waste currently entering the recycling stream.[147] It seems appropriate to hold the companies responsible for the e-waste they have created based on the amount of their product entering the waste stream. Additionally, the market share system may not be able to adequately address the one-time costs that occur when recycling programs startup caused by the influx of products into the recycling stream and the administrative burden of implementing the program.[148] However, as electronics recycling programs develop, states could transition to market share data in order to cover the costs of recycling because the percentage of products being sold on the market per manufacturer should be somewhat proportional to that manufacturer's share of the e-waste.

Both systems require the compilation of either market or return share data before the state can assess costs attributable to each manufacturer.[149] Either system can cause funding issues and unnecessary delays and complications in implementing a startup recycling program.[150] One possible solution is to use a central clearinghouse, as suggested earlier, to also compile return share and market share data from states that have already implemented programs. By creating a databank for this information, states that are starting new programs can use this data as a temporary starting point for assessing costs without delay.[151] Maine and Washington have taken such an approach with the Brand Data

144. Some states use a random sampling method, whereas other states require each electronic product manufacturer label to be recorded. *Compare* ME. REV. STAT. ANN. tit. 38, § 1610(5)(B) (2008) (which requires all units to be recorded; *with* N.J. STAT. ANN. § 13:1E-99.105(a)(1) (West 2008) (which only records by random sample).

145. *See* WIS. BRIEF, *supra* note 108, at 3.

146. *See id.*

147. Phuong Le, *Washington law allows free electronics recycling: Program puts recycling costs on producers*, LEWISTOWN MORNING TRIBUNE, Dec. 27, 2008.

148. *See* PATCHWORK, *supra* note 1, at 11.

149. *See* WIS. BRIEF, *supra* note 108, at 3.

150. *See* PATCHWORK, *supra* note 1, at 11.

151. *See* National Center for Electronics Recycling, About the Brand Data Management System, http://www.electronicsrecycling.org/BDMS/AboutBDMS.aspx (last visited March 31, 2010).

Management System created by the National Center for Electronics Recycling.[152] While using this data obviously does not eliminate the need for recording and compiling new data in new state programs, and updating older programs, it can serve as a useful starting point for fledgling state electronics recycling programs.

IV. CONCLUSION

In the technological age, e-waste is not a problem that is going away. E-waste will continue to be an issue for the United States, other major countries, and the third world far into the future. This comment addresses only the issues created by patchwork legislation and the way that collaboration in key areas can address some of these issues. However, the problems created by e-waste are much bigger and more complicated than just patchwork legislation. There are ethical issues surrounding the transport of e-waste to other states and third world countries. Product design issues lead to this point in the first place. And current legislation cannot predict the future waste that may plague our landfills, but must be adaptable along with technology. These are just a few of the many problems that too numerous to recount. While collaboration on state legislation cannot alone solve all of the problems that the technology age will continue to cause, it can provide us with the framework for anticipating and addressing those problems. One of the great assets of modern technology is the capability to learn from and communicate with people from other sides of the country or even the Earth. We should take full advantage of current technology to help prevent the future problems as far as possible.

152. *See id.*