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NEWS & ANALYSIS

Beyond the Injunction: Why and How Environmental Lawyers Should Promote the Urgent Transition to a Natural Economy

by Douglas A. Ruley

The juggernaut of technology-based capitalism will not be stopped . . . But its direction can be changed by the mandate of a generally shared long-term environmental ethic. The choice is clear: the juggernaut will very soon either chew up what remains of the living world, or it will be redirected to save it.

—Edward O. Wilson¹

Why the Transition to a Natural Economy Should Be a Primary Goal of Environmental Lawyers

Our economy and our environment are in trouble, and not just because we have trillion-dollar deficits and the Bush Administration. As serious as these challenges are, the long-term, fundamental problems of our economy and our environment are systemic and nonpartisan, and always have been. The way we live is destroying the water, air, soil, forests, and living systems—the “natural capital”—upon which we and all life depend:

Capitalism, as practiced, . . . is a nonsustainable aberration in human development. . . . It liquidates [natural] capital and calls it income. It neglects to assign any value to the largest stocks of capital it employs—the natural resources and living systems [that are essential to life].²

Although there are many benefits of a market economy, our current industrial model is self-destructive. Because most natural capital is neither accounted nor paid for, our economy is “chewing up” the natural world at an unsustainable rate. Absent fundamental change, the natural capital accumulated over the previous 3.8 billion years of life on earth will be all but destroyed by the end of this century, with grave implications for our existence and quality of life.³ This is evidenced by our expanding extinction crisis, the dwindling of our freshwater supplies, our burgeoning greenhouse gas generation, and the global warming it portends.

If we want our species to last, we must create an economy that can last—an economy that meets our human needs but also sustains the natural world. A solution—the next indus-

trial revolution—would replace the self-consuming dynamic of our present economy by redesigning it to function more consistently with nature and its biological realities.⁴ Rather than destroying the living systems that support us, we can move toward an economy that maintains and respects these systems as the basis for life, thereby providing for our present without undermining our future.⁵

Descriptions of such a natural economy are found in *Natural Capitalism* by Paul Hawken et al., and *Eco-Economy* by Lester Brown.⁶ These books argue: (1) that the environment is not merely another factor in production, but rather, the envelope that provides and sustains the economy; and (2) that the primary limiting factor in our future will be the availability and functionality of natural capital, especially those parts of nature that support our lives and all life—clean air, water, and soil, for example.⁷ Accordingly, a natural economy directly would attempt to conserve our natural capital by mimicking nature in the design of our economic activities: “‘We don’t need to invent a sustainable world—that’s been done already.’ It’s all around us. We need only to learn from its success in sustaining the maximum of wealth with the minimum of materials flow.”⁸

Nature is sustainable because eons of evolutionary design and adaptation have produced a system of continuous cycles that maintain life.⁹ In nature, the sun’s energy is cycled and recycled so as to extract the maximum of life from this energy. Likewise, there is no waste or pollution because in nature’s nutrient cycle one organism’s waste is another’s food. And, in nature, inefficient activities cannot externalize their costs or receive subsidies and so they are eliminated.

A natural economy would mimic nature’s model in its efficient cycling of energy, in its eradication of waste through the cycling of materials, and in its insistence that all activities bear their true costs. But, rather than through the crucible of evolution, a natural economy would achieve this sustainability through intelligent human design. No doubt, descriptions of a natural economy tend toward the utopian and, of course, no human-designed system will be perfect. But, since humans can appreciate the current and future impacts of our economic system, we as a species are at a unique

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1. EDWARD O. WILSON, *THE FUTURE OF LIFE* 156 (Knopf 2002).
2. PAUL HAWKEN ET AL., *NATURAL CAPITALISM: CREATING THE NEXT INDUSTRIAL REVOLUTION* 5 (Little, Brown & Co. 1999).
3. *Id.* at 2-3.

4. *Id.* at 1; William McDonough & Michael Braungart, *The Next Industrial Revolution*, *THE ATLANTIC*, Oct. 1998.

5. See HAWKEN ET AL., *supra* note 2, at 9. This is an often-used formulation of sustainability. More to the point, there can be little doubt that our current system is headed toward disaster and that change will come, one way or another.

6. See HAWKEN ET AL., *supra* note 2; LESTER BROWN, *ECO-ECONOMY* (W.W. Norton & Co. 2001).

7. HAWKEN ET AL., *supra* note 2, at 9.

8. *Id.* at 73.

9. BROWN, *supra* note 6, at 79.

cross-roads, with the option of self-preservation through changes to that system. By addressing the root cause of many of our most pressing environmental problems, from global warming to various forms of pollution, a natural economy would bring tremendous environmental progress. The law and environmental lawyers have a vital role in promoting that urgent transition.¹⁰

As a starting point, state and local laws and policies can be used to encourage a transition in our buildings, factories, and houses toward designs that use far less energy and recycle that energy, thereby vastly reducing our emissions of greenhouse gases. Similarly, the Clean Water Act (CWA)¹¹ could be used more directly and aggressively to move our manufacturing processes toward designs that eliminate pollution by using materials in cyclical loops and designing out toxicity. And the National Environmental Policy Act (NEPA)¹² and other laws can help us to expose more clearly the full costs and inefficiencies of sprawling highways, damaging mines, and other activities that destroy vast amounts of our natural capital without accounting or paying for it.

Our current economic “juggernaut” underlies many of the problems that public-interest environmental lawyers try to address every day through cases and other actions that we hope will have some systemic impact. In many respects, we environmental advocates resemble an overwhelmed company of flood inspectors, running frantically to plug gushing leaks in our environmental edifice while, behind the dike, the rising flood of our aberrant economic system builds toward breaching the walls and sweeping us away. We will either reform our economic system, and quickly or, as Dr. Edward Wilson writes, it will overwhelm what remains of the living world.¹³

As environmental lawyers, we will work more effectively if we appreciate the structural economic forces driving the environmental destruction we fight against and focus more of our efforts toward a transition to a natural economy that can—and must—occur to blunt these forces. Thus, it is time for environmental advocates to address more directly our underlying economic system as the root cause of most of our environmental problems. We explicitly should expand our role and promote the transition to a natural economy by designing more of our cases and campaigns around this goal. If we unite behind this goal we can be a powerful force for change.

How We Can Advocate for a Natural Economy: Three Examples

Use State and Local Laws to Promote Green Construction and Stem the Flood of Greenhouse Gases

Since the beginning of the industrial revolution, the concentration of carbon dioxide (CO₂) in our atmosphere has increased by about 30%.¹⁴ Each year this concentration increases steadily as humans burn massive amounts of fossil fuel. Because these carbon emissions blanket the earth by trapping the sun’s energy, the world is getting warmer, with appalling implications. Despite the scientific consensus that we must reduce our carbon emissions, progress has been stymied. State and local laws can play a critical role in breaking this logjam and can form the backbone of a broader legal strategy to reduce our use of fossil fuels and help promote the transition to a natural economy.

A good example of a strong state law that environmental lawyers could use effectively is North Carolina’s Energy Conservation in Public Facilities Act¹⁵ which was intended to require the state to construct more energy-efficient buildings based on a rational evaluation of the building’s long-term energy and operating costs. Surprisingly, building construction and operation—residential, commercial, and industrial—including building materials, consumes 48% of U.S. energy produced and generates 46% of our CO₂ emissions—far more than any other economic sector and almost double the amount of energy consumed by the transportation sector, at 27%.¹⁶ Equally important, building construction and operation constitutes the fastest growing sector of energy consumption and carbon emissions.¹⁷ And our buildings last a long time. For these reasons, if environmental lawyers can promote a paradigm shift in our architecture and building construction toward more efficient structures, we can achieve tremendous reductions in our energy consumption and carbon emissions.

Because more efficient buildings frequently can be built for little more than conventional structures, the issue of building design, construction, and operation aptly illustrates the natural economy thesis that we can improve our environment while continuing to live comfortably. So why has this transition to energy-efficient buildings not occurred more rapidly? At least three reasons are apparent: (1) for many buildings, the builder and the owner/operator are different entities, thereby creating a disconnect between the design decisions and the cost savings that would flow from efficient decisions; (2) architects and builders tend to do what they know, creating inertia against change; and (3) in a period of low energy prices, like the last two decades, the motivation to overcome this inertia has been lacking.

State and local governmental buildings can lead the transition to green construction because they can remove each of the three blocks listed above. In state buildings, a governmental entity both supervises the designs and operates the building, thereby retaining the financial incentive to design efficiently. The legal directive of the state or local laws,

10. This does not necessarily imply acceptance of the current, corporate-dominated markets and the global rules, or lack thereof, that have come to characterize these markets in the last two decades. See DAVID C. KORTEN, *WHEN CORPORATIONS RULE THE WORLD* (Kumarian Press, Inc. 2d ed. 2001) (describing the many problems created by the great economic power residing in global corporations and reforms to limit that power). Progress toward a natural economy is possible either independent of or concurrent with further systemic reforms.

11. 33 U.S.C. §§1251-1387, ELR STAT. FWPCA §§101-607.

12. 42 U.S.C. §§4321-4370d, ELR STAT. NEPA §§2-209.

13. Easter Island provides an ominous example of where we are headed. Now barren, this 64-square-mile island once was a paradise that supported up to 20,000 people and abundant wildlife. Destruction of the forest led to the collapse of human society as well. “The meaning of Easter Island for us should be chillingly obvious. Easter Island is Earth writ small.” Jared Diamond, *Easter’s End*, DISCOVER, Aug. 1995, at 63, 69.

14. HAWKEN ET AL., *supra* note 2, at 236.

15. N.C. GEN. STAT. §§143-64.10 to 143-64.17K.

16. Edward Mazria, *It’s the Architecture, Stupid!* SOLAR TODAY, May/June 2003, at 49-51.

17. *Id.*

combined with the significant cost savings over the life of the building, provide the motivation to adopt a better approach to design and construction. And, as we know, laws such as the Energy Conservation in Public Facilities Act are enforceable—bringing the judicial system to bear in overcoming inertia. Encouraging the transition to energy-efficient state and local buildings will promote a similar transition in federal and private buildings, thereby multiplying both the reduction in greenhouse gas emissions and the economic benefits inherent in green construction.

The Energy Conservation in Public Facilities Act passed in 1975, in the middle of the 1970s energy crisis.¹⁸ It is a remarkable law that, if followed, would require almost all state construction to be energy-efficient.

The findings and policy behind this statute are as follows:

(a) the General Assembly hereby finds:

(1) That the [s]tate shall take a leadership role in aggressively undertaking energy conservation in North Carolina;

(3) That energy conservation practices adopted for the design, construction, operation, maintenance, and renovation of these facilities . . . will have a beneficial effect on the [s]tate's overall supply of energy;

(4) That the cost of the energy consumed by these facilities and the equipment for these facilities over the life of the facilities shall be considered, in addition to the initial cost;

(5) That the cost of energy is significant and facility designs shall take into consideration the total life-cycle cost, including the initial construction cost, and the cost, over the economic life of the facility, of the energy consumed . . . ; and

(6) That [s]tate government shall undertake a program to reduce energy use in [s]tate facilities and equipment in those facilities in or to provide citizens with an example of energy-use efficiency.

(b) It is the policy of the [s]tate of North Carolina to ensure that energy conservation practices are employed in the design, construction, operation, maintenance, and renovation of [s]tate facilities . . .

Pursuant to these findings, state agencies are directed that they “shall” construct and renovate state facilities so as to further energy conservation practices and ensure the use of life-cycle cost analyses.¹⁹ These requirements apply to any state facility of 20,000 or more gross square feet.²⁰ Further, the state Department of Administration is directed to modify the design criteria for buildings to improve energy efficiency and require life-cycle cost analysis.²¹

Equally striking, the guidelines developed by the North Carolina Department of Administration correctly interpret this statute as “require[ing] that new [s]tate facilities be designed on a life cycle cost basis.”²² Designers must evaluate a broad range of design elements and select the alternative design that results in the lowest life-cycle cost of the build-

ing. These guidelines aptly recognize that, since the cost to the state over the life of buildings far exceeds the initial cost, the goal of the legislation is to ensure that building designs maximize the long-term benefits to the state by minimizing the long-term building costs.²³

Despite the clear dictates of this legislation and the proper interpretative guidelines, the Department of Administration also has admitted that there has been little significant improvement in the design of state facilities in the nearly 30 years that this statute has been in effect.²⁴ This is due in part to the fact that the more forceful administrative guidelines were only adopted in 2001 and have just begun to have their impact. But, as the Department of Administration forthrightly acknowledged, state building design has plodded along in its long-standing ruts because life-cycle costing has been treated as an academic exercise, rather than as the fundamental element of building design.²⁵ Vigorous enforcement of the Energy Conservation in Public Facilities Act would cut through this inertia and prompt a more rapid transition to energy-efficient buildings.²⁶

North Carolina is not alone in requiring or pursuing green buildings. For example, Pennsylvania's Building Energy Conservation Act seeks to ensure a responsible building energy conservation policy and to authorize the Pennsylvania Department of Labor and Industry to develop that policy.²⁷ Similarly, on the local level, the city of San Francisco's municipal code promotes resource-efficient building designs and sets forth multiple design and construction requirements as part of an efficient building program.²⁸

Changing the way our buildings are designed, built, and operated is one of the most direct steps we can take to reduce our use of fossil fuels, reduce our carbon emissions, and ameliorate the looming crisis of global warming. It also will save money and generate multiple economic benefits for years to come. To hasten the day when all buildings—commercial, industrial, and residential—are far more efficient, environmental advocates should enforce state and local statutes that are on the books, or work for their passage where they are not, using laws like North Carolina's or San Francisco's as models.

Intelligent Design to Eliminate Pollution: The CWA and Best Available Technology (BAT)

Progressive designers already are creating products and production systems that promise to render pollution and waste concepts of the past. Rather than merely ameliorating the waste created by the present industrial systems, as in most of our pollution control efforts, a natural economy would seek to eliminate pollution altogether by rethinking and redesigning products and how they are produced. As

23. *Id.* at Preface.

24. *Id.*

25. *Id.*

26. A number of cities such as Portland, Oregon, and Seattle, Washington, now require that their public buildings meet Leadership in Energy and Environmental Design standards developed by the U.S. Green Building Council. This is an alternative approach to promoting green construction, but these admirable standards are entirely voluntary.

27. 35 P.S. 7201.1.1-7201.602.

28. SAN FRANCISCO MUN. CODE, pt. I, ch. 82, §82.1-82.7, available at <http://www.sfgov.org/sfenvironment/aboutus/policy/legislation/efficient.htm> (last visited Apr. 23, 2004).

18. N.C. GEN. STAT. §§143-64.10 to 143-64.17K.

19. *Id.* §143-64.12(a).

20. *Id.* §143-64.15A(c).

21. *Id.* §143-64.12(b).

22. N.C. Dep't of Admin., *Life-Cycle Cost Analysis for State Facilities*, at app. A (Oct. 1, 2001) is available through the Life-Cycle Cost Analysis Links—North Carolina, at <http://interscope2.doa.state.nc.us/toc.htm> (last visited May 17, 2004).

phrased by a leading designer: “[W]hy not set out, right from the start, to create products and industrial systems that have only positive, regenerative impacts on the world? Why fine tune a damaging system when we can create a world of commerce that we can celebrate . . . ?”²⁹

A natural economy would apply nature’s cycles to the making of things, changing our products and production systems from cradle-to-grave to cradle-to-cradle—after each useful life, the products would provide nourishment for something new. Rather than designing products to be thrown away, we would imitate nature by designing every product to be a nutrient in either the natural biological cycles or in human technological cycles.³⁰

Progressive designers already are applying these principles to design products and industrial systems that eliminate pollution. For example, the DesignTex division of Steelcase Inc., the largest American manufacturer of office furniture, set out to design a furniture fabric that was biodegradable. After reviewing over 8,000 chemicals and eliminating all that were toxic or otherwise unsafe in soil, they found 38 substances they could use in producing the fabric. The result was that, without any expensive pollution control equipment, the water leaving the factory was as clean as the water coming in—the manufacturing process itself was filtering the water.³¹ The design process had “taken the filters out of the pipes and put them where they belong—in the designers’ heads.”³²

Putting the filters in the designers’ heads, rather than in the pipes (or smokestacks), often saves money as well. Ford Motor Company redesigned its massive River Rouge plant in Dearborn, Michigan, with a living roof that uses plants, insects, and microorganisms to filter and control stormwater runoff and that will save the company about \$35 million compared to conventional technical controls.³³ Similarly, Herman Miller, Inc. designed a furniture factory that used wetlands to purify stormwater, thereby saving money and also providing wildlife habitat.³⁴ And bioengineers have created a biological treatment plant that costs about the same as a conventional sewer-processing facility but cleans human wastewater through biological processes that produce fertilizers rather than toxic waste.³⁵

William A. McDonough, a leading designer, has written the following:

Once the regulatory infrastructure catches up with designs such as these—designs so inherently productive and safe they don’t require regulation—the regulatory agencies will start to use them as benchmarks, presenting them within the culture as strategies that are hugely attractive from the perspective of both the carrot and the stick.³⁶

Surprising though it may be, the CWA anticipated and encouraged McDonough’s vision of natural economic designs that would eliminate pollution rather than just controlling it. Showing some vision of its own, 30 years ago the U.S. Congress adopted as the primary goal of the CWA “that the discharge of pollutants into navigable waters be eliminated by 1985.”³⁷ Congress also declared “it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited.”³⁸ Of course, these goals have not been met but the CWA already includes provisions that environmental lawyers can employ more actively to promote this natural economic transition in our production systems.

Foremost among these long-standing elements of the CWA is the requirement that many sources of pollution must apply BAT. Sounding much like McDonough, the courts have described BAT as not the average plant, but “the pilot plant which acts like a beacon to show what is possible.”³⁹ The CWA specifies that BAT shall “require the elimination of all discharges” if the U.S. Environmental Protection Agency (EPA) determines that such elimination is technologically and economically achievable.⁴⁰ Following this direction, the courts have held that BAT is “the means chosen by Congress to achieve the national goal” of eliminating the discharges of pollutants, and have upheld EPA in imposing BAT to set a “no discharge” limitation.⁴¹

Under the CWA, BAT must be applied to sources of toxic pollutants and unconventional pollutants, both of which are defined in the CWA.⁴² Even more significant, the CWA requires EPA to establish new source performance standards (NSPS), that apply BAT to all new sources of pollution (new production facilities), and further requires EPA to revise these standards “from time to time, as technology and alternatives change.”⁴³ NEPA also applies to permits containing these “[NSPS].”⁴⁴

In line with a natural economy, with the filters in the designers’ heads rather than in the pipes, BAT for many facilities today should produce no pollution. Working with the engineers, designers, and companies that already have begun implementing this natural economic approach to pollution control, environmental advocates can implement McDonough’s vision of the regulatory infrastructure catching up to these designs by petitioning EPA to designate no-pollution designs as BAT for new sources and by participating in NEPA proceedings or intervening in selected permit renewals to achieve the same end.⁴⁵

The CWA already incorporates both: (1) the natural economic premise that the elimination of pollution into our water is an achievable national goal; and (2) the means to

29. WILLIAM McDONOUGH & MICHAEL BRAUNGART, *The Extravagant Gesture: Nature, Design, and the Transformation of Human Industry*, in *SUSTAINABLE PLANET: SOLUTIONS FOR THE TWENTY-FIRST CENTURY 17* (Juliet B. Schor & Betsy Taylor eds., Beacon Press 2002).

30. *Id.* at 16-17.

31. *Id.* at 20.

32. HAWKEN ET AL., *supra* note 2, at 72 (emphasis in original).

33. McDONOUGH & BRAUNGART, *supra* note 29, at 23-24.

34. *Id.* at 21. This green-designed factory also has boosted productivity significantly.

35. HAWKEN ET AL., *supra* note 2, at 228-29.

36. McDONOUGH & BRAUNGART, *supra* note 29, at 31.

37. 33 U.S.C. §1251(a)(1).

38. *Id.* §1251(a)(3).

39. Quoting *Kennecott v. EPA*, 780 F.2d 445, 448, 16 ELR 20435 (4th Cir. 1985); see also *A Legislative History of the Water Pollution Control Amendments of 1972*, 93d Cong. 798 (1973).

40. 33 U.S.C. §1311(b)(2)(A).

41. *Kennecott*, 780 F.2d at 454 (upholding no discharge limitation for blast furnace slag granulation in the primary lead industry).

42. 33 U.S.C. §1311(b)(2).

43. *Id.* §1316(a), (b)(1)(A) and (B).

44. *Id.* §1371(c)(1); 40 C.F.R. §122.29(c).

45. This approach also is supported by the Pollution Prevention Act, 42 U.S.C. §§13101-13109, 13101(b), which declares the national policy that “pollution should be prevented or reduced at the source wherever feasible.”

achieve that goal, namely, BAT and NSPS. Legal experts in CWA enforcement should work more closely with corresponding experts in engineering and design to make this goal the operating reality for new industrial facilities.

NEPA, Road Construction, and Honest Accounting of the Costs of Highways and Sprawl

Among the primary impediments to the transition to a natural economy are the subsidies and externalized costs inherent in various entrenched industries, from road construction to mining, and the formidable political influence exerted by these industries: "The transportation sector . . . is the most subsidized and centrally planned sector of the majority of the world's economies It has the least true competition among available modes, and the most untruthful prices."⁴⁶

Contrary to popular belief, gasoline taxes do not even pay for the full costs of building roads, much less the costs for repair, maintenance, and road-related services such as police and fire protection.⁴⁷ In fact, gasoline taxes pay only about 60% of the direct costs of building and maintaining roads, leaving over \$30 billion in costs that are subsidized by general taxes.⁴⁸ Employer-provided parking, a non-taxed fringe benefit, adds up to another \$85 billion in subsidies.

Beyond these direct subsidies, highways and automobiles accrue a mountain of externalized costs, including air pollution and related public health impacts, congestion and its attendant losses and waste, accidents and injuries, water pollution, noise, and much of the burden of the huge cost of insuring our oil supplies—no small sum as we see in Iraq and in the debates over expanded drilling in this country. Estimates of these externalized costs run into the hundreds of billions annually, with congestion alone costing over \$100 billion per year.⁴⁹ And then there is the sprawl engendered by more and larger roads, which carries its own costs and, through increased driving and congestion, loss of habitat, etc.,⁵⁰ augments these other external costs in a negative cycle. All told, estimates of these externalized costs range up to nearly \$1 trillion a year, all of which are borne by the general public.⁵¹

Although these entrenched inefficiencies admit to no easy solution, an available line of attack would be to employ NEPA more broadly and comprehensively in challenging new highways and other projects, with the goal of forcing a more honest and open accounting of these subsidies and externalities. NEPA requires that federal agencies prepare an environmental impact statement (EIS) on all major federal actions that addresses: (1) environmental impacts and adverse environmental effects; (2) alternatives to the proposed action; (3) the relationship between local short-term uses of the environment and the maintenance of long-term productivity; and (4) any irreversible and irretrievable commitments of resources involved in the proposed action.⁵²

Under regulations adopted by the Council on Environmental Quality that are binding on federal agencies,⁵³ the EIS "shall provide a full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of reasonable alternatives which would avoid or minimize adverse impacts . . ." ⁵⁴ "Impacts" and "effects" are synonymous, and there is no doubt that an EIS must adequately address indirect effects of roads, such as sprawl and air pollution: "Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."⁵⁵ These effects further include not only environmental impacts, but also "economic, social, or health [effects], whether direct, indirect, or cumulative."⁵⁶

Despite these regulations, to date the courts generally have not required extensive analyses of the impacts of large highways on sprawl or air quality, nor have they required detailed cost-benefit analyses that would have disclosed the extensive subsidies and externalities inherent in building roads.⁵⁷ However, that tide may be turning. In *Davis v. Mineta*,⁵⁸ the court held that the failure to consider mass transportation as a reasonable alternative was "one of the most egregious shortfalls" in the environmental analysis for a new highway project.⁵⁹ The court specifically held that "there are no cost studies, cost/benefit analyses or other barriers" that demonstrated that mass transit would be unreasonable in lieu of building the highway.⁶⁰ Since a primary purpose of NEPA is to "sharply defin[e] the issues and provid[e] a clear basis for choice among options,"⁶¹ once the government is required to consider mass transit and other alternatives to highways, as in the *Davis* case, the door is open for a much more open and honest accounting of the subsidies and externalities that long have been hidden in highway planning and transportation decisions.⁶²

Armed with the *Davis* case, plaintiffs opposing specific highway projects have a better opportunity to force transportation planners to address the subsidies and externalities inherent in building roads versus other transportation investments. The information that documents these previously unaddressed subsidies and costs is readily avail-

46. HAWKEN ET AL., *supra* note 2, at 40.

47. JANE HOLTZ KAY, ASPHALT NATION 119-21 (Univ. of California Press 1997).

48. JAMES J. MACKENZIE ET AL., THE GOING RATE: WHAT IT REALLY COSTS TO DRIVE 9-11 (World Resources Inst. 1992).

49. *Id.* at 13-21.

50. *Id.* at 10-11.

51. KAY, *supra* note 47, at 120; HAWKEN ET AL., *supra* note 2, at 41.

52. 42 U.S.C. §4332(2)(C)(i), (ii), (iv), and (v).

53. *E.g.*, *Heartwood, Inc. v. U.S. Forest Serv.*, 230 F.3d 947, 949, 31 ELR 20217 (7th Cir. 2000); *Sugarloaf Citizens Ass'n v. Federal Energy Regulatory Comm'n.*, 959 F.2d 508, 512 (4th Cir. 1992); *Fritiofsen v. Alexander*, 772 F.2d 1225, 1236, 15 ELR 21070 (5th Cir. 1985).

54. 40 C.F.R. §1502.1.

55. *Id.* §1508(b).

56. *Id.*

57. *See, e.g.*, *City of Carmel-by-the-Sea v. Department of Transp. (DOT)*, 123 F.3d 1142, 1162, 27 ELR 21428 (9th Cir. 1997) (holding that, although analysis of growth-inducing impacts of proposed freeway was "not without fault," it nonetheless satisfied NEPA); *North Carolina Alliance for Transp. Reform v. Department of Transp.*, 151 F. Supp. 2d 661, 694 (M.D.N.C. 2001) (allowing the U.S. DOT to avoid a quantitative analysis of the ozone impacts of building an interstate beltline around Winston-Salem, North Carolina).

58. 302 F.3d 1104, 32 ELR 20727 (10th Cir. 2002).

59. *Id.* at 1121-22.

60. *Id.*

61. 40 C.F.R. §1502.14.

62. *Davis* also held that the government's perfunctory analyses of the highway's impacts on induced growth, noise, and cumulative impacts were inadequate. 302 F.3d at 1123, 1125-26.

able.⁶³ Ideally, advocates of alternatives to more and bigger roads also would employ consultants to document these costs and to define alternatives in the context of specific projects.

Beyond raising these issues on a project-by-project basis, the intersection of NEPA requirements and transportation planning merits more thorough scrutiny. Under the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991,⁶⁴ transportation planning agencies must develop both a long-range regional transportation plan (RTP) for transportation investments over a 20-year period and a short-range schedule of projects, a transportation improvement plan, from the RTP for actual funding and implementation.⁶⁵ Comparable to forest plans under the National Forest Management Act and Forest and Rangeland Renewable Resources Planning Act,⁶⁶ or to Fishery Management Plans under the Magnuson-Stevens Fishery Conservation and Management Act,⁶⁷ these transportation plans should be subject to an EIS that considers alternatives to roads. Although these plans are approved by the U.S. Department of Transportation and largely funded by the federal government, ISTEA exempted these plans from NEPA requirements.⁶⁸ Accordingly, plaintiffs should look to state laws that require EIS, such as North Carolina's Environmental Policy Act⁶⁹ in seeking a more thorough disclosure and consideration of the true costs of building roads pursuant to these plans.

Encouraging Further Thoughts on the Central Issues in Promoting a Natural Economy

The central failing in our economy is its failure to assign any

value to the natural capital that undergirds it all.⁷⁰ Acting as if natural capital is free leads to two recurring problems that lie at the heart of most of our environmental challenges. First, our prices do not reflect the true ecological costs of our products; the purchaser does not pay for the externalized costs of air and water pollution or habitat destruction. Second, our accounting systems do not count the loss or waste of national capital, either in a company's annual report or in our national measures of economic health. This basic irrationality at the heart of the system is building toward systemic collapse: "Socialism collapsed because it did not allow prices to tell the economic truth. Capitalism may collapse because it does not allow prices to tell the ecologic truth."⁷¹

This Article has suggested some thoughts on how environmental advocates can begin to expose and attack this central economic failure in a strategic and coordinated manner, but its primary purpose is to stimulate further ideas in pursuit of the goal of fundamental economic transition. What might be some additional methods and means of changing the way that our government and our businesses account for their ongoing depletion of natural capital? Are there other statutes such as the Clean Air Act (CAA)⁷² that we can use to move toward a cyclical, cradle-to-cradle production system? Beyond NEPA, what other tools can we employ to expose and eliminate the economic and environmental waste that accompanies not just building roads, but also oil exploration, mining, and clearcut logging? And how can we alter the current system of short-term financial measurements of "success" toward a more long-term view?

It is time to look beyond the injunction and, as a community, to develop new tactics to promote a natural economy before the coming natural collapse focuses our efforts for us.

63. An excellent starting point is the website for the Surface Transportation Policy Project, at <http://www.transact.org> (last visited Apr. 23, 2004); see also *supra* notes 45-50.

64. 23 U.S.C. §§101 et seq.

65. *Id.* §§134, 135.

66. 16 U.S.C. §§472a, 1600-1614.

67. *Id.* §§1801-1882.

68. *Id.* §134(g).

69. N.C. GEN. STAT. §§113A-1 to 113A-13.

70. BROWN, *supra* note 6, at 21-22; HAWKEN ET AL., *supra* note 2, at 3, 5-6.

71. BROWN, *supra* note 6, at 23.

72. 42 U.S.C. §§7401-7671q, ELR STAT. CAA §§101-618.