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ARTICLES

Adapting Energy and Environmental Policy for Climate Change
Victor B. Flatt..... 655

King Corn: Will the Renewable Fuel Standard Eventually End Corn
Ethanol's Reign?
Melissa Powers..... 667

Adapting Water Law to Public Necessity: Reframing Climate Change
Adaptation As Emergency Response and Preparedness
Robin Kundis Craig..... 709

Adapting to Climate Change: Transbasin Water Diversions and an Example
from the Missouri River Valley
John H. Davidson 757

NOTE

Extraterritorial Condemnation for Open Space and Parks: A Look at *Town
of Telluride v. San Miguel Valley Corp.*'s Effect on Colorado and the
Mountain West
Nate Smith 779

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ADAPTING ENERGY AND ENVIRONMENTAL POLICY FOR CLIMATE CHANGE

*Victor B. Flatt**

TABLE OF CONTENTS

Introduction.....	655
I. Energy and Environmental Laws.....	656
II. Climate Change and Energy.....	659
III. Climate Change Mitigation and Other Environmental Values	660
V. Climate Change Triggering of Laws Without Additional Benefit	663
Conclusion	665

INTRODUCTION

The United States has never really had a comprehensive energy policy. Instead, we have had several interests that have jockeyed for position in determining how we procure and use energy. These interests include energy security, cheap energy, and non-environmentally harmful energy. These interests are not always consistent; in fact, they are often inconsistent. Trying to increase fossil fuel production in the United States may reduce dependency on foreign oil, but it is also likely to have significant environmental impacts and raise the price of fossil fuel. Added to this is the United States's historic natural resources policy of transferring publicly owned resources (such as energy supplies) to the private sector, which in turn has an incentive to make a profit from these transfers.¹ The

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1. While leasing of federal energy resources are also subject to environmental reviews or may be prevented by other uses, a series of natural resources acts, like the Minerals Management Act, 30 U.S.C. §§ 601–604 (2006), the Hardrock Mining Act, 30 U.S.C. §§ 21–54 (2006), and the National Forest Management Act of 1976, 16 U.S.C. §§ 1600–1614 (2006), envision the use of federal lands, at least partially for energy and other resource production.

upshot is that energy and environmental policy often seem at odds and difficult to reconcile.

Now we must also face the 800-pound gorilla of climate change, which is distinctly different from other environmental interests and also presages a wholesale alteration of our current energy infrastructure. While most environmental laws are concerned with preserving environmental amenities and tend to work in complementary fashion (i.e., not mining coal will enhance clean water, clean air, and natural species protection), preventing climate change by deploying non-greenhouse gas emitting energy sources can itself cause other environmental harms. Additionally, climate change impacts themselves, through operation of existing environmental or natural resource laws, may prohibit otherwise desirable or useful energy and resource extraction and utilization, which is not itself the trigger of the environmental legal restriction.

Therefore, we need to have a conversation about the new environmental, energy, and economic tradeoffs brought to us by climate change. What choices will we make as we move forward with climate change mitigation policy in this country? How will we address the operation of laws never intended to deal with climate change harms? In this essay, I will point out the ways in which climate change mitigation policies may have negative environmental consequences, and how climate change impacts may also negatively affect other interests with no commensurate gain. I will then discuss possible ways that this issue can be addressed.

I. ENERGY AND ENVIRONMENTAL LAWS

The extraction and utilization of the dominant forms of energy (i.e., fossil fuels, nuclear, and hydropower) can be some of the most environmentally harmful activities on earth; and yet energy supplies are also needed to support our economy and levels of human development. While we as a country have never fully reconciled these warring interests, we do have environmental laws that can operate to avoid environmental harms associated with extracting and using various forms of energy. The Clean Air Act controls the emission of criteria air pollutants and hazardous air pollutants, both of which are primarily associated with the combustion of fossil fuels to produce energy.² The Clean Water Act operates in

2. See 42 U.S.C. §§ 7408–7412 (2006) (controlling stationary source emissions in these categories); see also CRAIG JOHNSTON, BILL FUNK & VICTOR B. FLATT, LEGAL PROTECTION OF THE

numerous fields related to energy extraction and consumption, including: the control of heat pollution from power plants; water quality controls that can be impacted by air emissions from fossil fuel combustion; and controls from wastewater associated with the extraction of energy sources.³ The Resource Conservation and Recovery Act (RCRA) also has impacts on energy production, since the waste products from energy extraction and combustion may be classified as hazardous waste under the statute.⁴

In addition to the traditional pollution control laws, resource protection laws, such as the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), wetlands protection in the Clean Water Act, and the National Environmental Policy Act (NEPA) have impacts on the extraction and use of energy in this country. The ESA, for example, works on both federal and private actions to prevent activities that will harm members of listed species.⁵ While endangered species are not particularly associated with energy extraction locations, the sheer bulk of the energy extraction industry assures that these activities may be limited or prohibited for purposes of protecting endangered or threatened species, or marine mammals in the case of some offshore energy extraction activities. Hydropower is also significant in its effect on listed fish species and other parts of the ecosystem.⁶

Because many energy sources are located on federal land or require federal approval for extraction or utilization, laws that control the activities of federal agencies may also have a significant effect on energy supplies. Energy extraction operations often have large environmental impacts in general, triggering NEPA, ESA, or wetlands analysis for federal permitting. The federal laws themselves that allow the government to lease or sell energy resources to the private sector have also been amended in some cases to require consideration of general environmental values.⁷ In addition to interaction with federal laws, energy usage and extraction also has an

ENVIRONMENT 287–90 (2d ed. 2007) (introducing the Clean Air Act's jurisdiction and regulatory provisions).

3. See 33 U.S.C. §§ 1312–1315 (2006) (describing water quality standards); § 1313(g) (describing heat standards); *id.* § 1362(6) (“The term ‘pollutant’ means . . . heat.”).

4. See 42 U.S.C. § 6982(n) (2006) (concerning administrative findings about the adverse health effects of fossil fuel combustion); see also *id.* § 6924(x) (concerning mining and other special wastes); *id.* § 6966(a)(3)(B) (defining “recovered mineral component” as including coal combustion fly ash).

5. 16 U.S.C. § 1538 (2006).

6. Jane G. Steadman, *Protecting Water Quality and Salmon in the Columbia Basin: The Case for State Certification of Federal Dams*, 38 ENVTL. L. 1331, 1332 (2008).

7. See, e.g., Materials Act of 1947, 30 U.S.C. §§ 601–604 (2006) (containing rules governing the disposal of materials on public lands); Mineral Leasing Act, 30 U.S.C. §§ 181–196 (2006) (containing rules governing the leasing and permitting of public lands).

impact on water quantity (generally a state law concern), since many forms of usage and extraction techniques require large amounts of freshwater.⁸

Though we have never had the discussion as a country about the balancing of interests between energy and the environment, the operation of many of our environmental and natural resource laws have struck this balance in some way, even if it is without explicit consideration. Because the Clean Air Act, Clean Water Act, and RCRA are predicated on not causing any significant harm to human health or the environment, they roughly operate to prohibit energy extraction and utilization that might cause those harms.⁹ The ESA prohibits harm of an endangered species or members thereof, drawing the line at preventing energy extraction, production, or utilization activities that would cause that result.¹⁰ Much of the balancing is still unclear, of course. Mountaintop removal mining of coal has significant impacts on river and stream valleys, but the U.S. Army Corps of Engineers has used a nationwide wetlands permit to allow the waste generated from the mining to be deposited in stream beds, prompting criticism that this violates the Clean Water Act's protections.¹¹

Nevertheless, because of clarity about bottom-line environmental values, we have struck some balance between some environmental values and energy needs. Additional environmental values not explicitly protected by our environmental laws, such as protection of natural vistas or wilderness, remain in contention and are played out in the withdrawing or releasing of federal lands for resource extraction.¹² Climate change, however, is a whole new ballgame.

8. See, e.g., Del. Basin River Comm'n, Natural Gas Drilling in the Delaware River Basin, <http://www.state.nj.us/drbc/naturalgas.htm> (last updated Jan. 20, 2010) (“[N]ew extraction methods [for natural gas] require large amounts of fresh water.”).

9. See 42 U.S.C. § 7409(b) (2006) (stating that national air quality standards should be based on public health considerations); 33 U.S.C. § 1254a (2006) (ordering the Administrator to conduct research on the harmful effects on human health and welfare caused by pollutants in the water); 42 U.S.C. § 6901(b) (2006) (summarizing congressional findings regarding the environment and health).

10. See Julie Fuschino, *Mountaintop Mining and the Clean Water Act: The Fight Over Nationwide Permit 21*, 34 B.C. ENVTL. AFF. L. REV. 179 (2007) (“[T]he Corps may only grant general permits authorizing mountaintop coal mining when no more than ‘minimal adverse environmental effects’ result from the activity.”).

11. See generally 33 U.S.C. § 1344 (2006) (describing the permit process for dredged or fill material).

12. See, e.g., *Utah Ass’n of Counties v. Clinton*, 255 F.3d 1246 (10th Cir. 2001) (involving a dispute over federal land for a proposed underground coal mine).

II. CLIMATE CHANGE AND ENERGY

One link between energy and climate change that is obvious is the link between the release of greenhouse gases from fossil fuel combustion and the energy we receive from such combustion. The question about the competition between these values has been driving the discussion about climate change since its identification as a problem. How much emissions reduction from fossil fuel combustion is necessary to avoid the worst harms from climate change? Should we allow more environmental harm in order to continue gathering the benefits of fossil-fuel created energy? While the answers to these questions have not been determined and may differ between nations or regions, the attention paid to it and the general agreement about a target of a two degree Celsius limit in temperature rise indicate that this trade-off has at least been considered and debated.¹³

The debate over climate change has already affected the energy production mix, with concurrent effects on other environmental values. On the plus side, the use of natural gas, which is a far more environmentally friendly fuel, has increased at the expense of coal for electricity production in the last few years, since natural gas produces far fewer greenhouse gases per unit of energy emitted.¹⁴

In many other cases, however, the unilateral good of moving from fossil fuel combustion is not as clear. For instance, there has been an increasing interest in deployment of more nuclear power because it produces no greenhouse gases, but the other environmental and human health harms from nuclear energy (such as the harms from spent nuclear waste) have not changed. Similarly, the push for eliminating large-scale hydropower and its accompanying environmental harms has waned as the value of hydropower as a “carbon free” fuel source has grown.¹⁵ Wind energy may harm birds,¹⁶ solar thermal plants use massive amounts of

13. Michael Vandenbergh, Brooke Ackerly & Fred Forster, *Micro Offsets and Macro Transformation: An Inconvenient View of Climate Change Justice*, 33 HARV. ENVTL. L. REV. 303, 315 (2009).

14. See, e.g., Env'tl. Prot. Agency, How Does Electricity Affect the Environment? (Dec. 28, 2007), <http://www.epa.gov/RDEE/energy-and-you/affect/natural-gas.html> (comparing average emissions rates of coal and natural gas).

15. See generally Adell Amos, *Freshwater Conservation in the Context of Energy and Climate Policy: Assessing Progress and Identifying Challenges in Oregon and the Western United States*, 12 U. DENV. WATER L. REV. 1, 122 (2008) (discussing hydropower as a “green” energy solution).

16. Victoria Sutton & Nicole Tomich, *Harnessing Wind Is Not (By Nature) Environmentally Friendly*, 22 PACE ENVTL. L. REV. 91, 115 (2005).

water,¹⁷ and photovoltaic cells cause conventional pollution in production,¹⁸ yet climate change has spurred massive interest and development of these as major sources of power.

Moreover, we have not fully considered the change in balance of energy usage and environmental values caused by climate change. For instance, the listing of the polar bear as a threatened species has slowed the exploration of offshore oil and gas fields in Alaska's Bering and Chukchi Seas while doing nothing to actually help the recovery of the polar bear. While extracting fewer fossil fuels may mean slightly lower emissions overall, the impacts of ceasing all energy exploration and extraction in Alaska will not help the polar bear. The prior balance between the environment and energy that was clear from the ESA and the MMPA has been altered. We are no longer sacrificing energy benefits for saving a species; we are sacrificing them without saving a species.

It is true that there are other important environmental and cultural values at issue in the Alaska debate, but these are not supposed to be the basis of the operation of the ESA. Instead, they should be considered in a broader policy debate. There will be similar situations in the future as increasing climate change harms trigger environmental and resource protection statutes without actually ameliorating the harm that the climate change is causing.

This result means that we have to have a new conversation about the balance between protecting ourselves and the world through climate change mitigation policies and the environmental harms this may cause, and about the effect of climate change on existing laws that trigger results without the intended benefit.

III. CLIMATE CHANGE MITIGATION AND OTHER ENVIRONMENTAL VALUES

American policy makers have already recognized that there are conflicts between climate change mitigation and other environmental values. Last year, as applications for the use of federal lands for solar, thermal, and photovoltaic sites skyrocketed, the Department of the Interior

17. Scott Streater, *Fast Tracked Solar Project Could Speed Mojave Desert's Demise*, N.Y. TIMES, Nov. 29, 2009, available at <http://www.nytimes.com/gwire/2009/11/12/12greenwire-fast-tracked-solar-project-could-speed-mojave-95100.html>.

18. Joel A. Gallob, *In Search of Beneficial Environmental Impacts, Superconductive Magnetic Energy Storage, The National Environmental Policy Act, and an Analysis of Environmental Benefits*, 14 HARV. ENVTL. L. REV. 411, 449 n.190 (1990).

(DOI) placed a moratorium on consideration until they could sort through some of these competing values.¹⁹ However, after howls of protest, the moratorium was quickly lifted.²⁰ Since that time, President Obama has instructed all federal agencies to consider what impacts climate change will have on their mission.²¹ The DOI, probably the most important agency in terms of federal land usage and the ESA, has explicitly recognized this linkage between climate change mitigation and environmental effects. In Secretarial Order 3289, Secretary Salazar stated explicitly:²² “Interior is now managing America’s public lands and oceans not just for balanced oil and natural gas, and coal development, but also—for the first time ever—to promote environmentally responsible renewable energy development.”²³

However, in contrast to instruction on direct climate change impacts on resources under the DOI’s umbrella, the Secretarial Order makes no attempt to specify exactly how the DOI is to balance the trade-offs between encouraging climate-friendly energy production on federal land and the environmental harm that it might cause.²⁴ This balance needs to be explored and defined for the interaction of our resource, energy, and pollution policies.

What then should we do? How do we formulate a policy to address the conflicts inherent in climate-friendly actions that could also cause environmental harm? In American law, we have often used the multiple-use paradigm in which the administrator is to consider the use of the land for multiple values and make a decision that gives effect to an optimal mix of these values. By definition this should be a case-by-case analysis, but it has become less so in practice. The U.S. Army Corps of Engineers, for instance, often follows prior procedure in determining which uses to favor.²⁵

Even if it could be applied properly, the multiple-use paradigm is still problematic. Courts are reluctant to second-guess agency decisions under these provisions, leaving perhaps too much discretion to agencies and effectively insulating policy choices from the public. Ironically, climate change has exposed the flaws in multiple-use management by reducing

19. Dan Frosch, *Citing Need for Assessments, U.S. Freezes Solar Energy Project*, N.Y. TIMES, June 27, 2008, available at <http://www.nytimes.com/2008/06/27/us/27solar.html>.

20. Dan Frosch, *U.S. Lifts Moratorium on New Solar Projects*, N.Y. TIMES, July 3, 2008, available at <http://www.nytimes.com/2008/07/03/us/03solar.html>.

21. Exec. Order No. 13,514, 74 Fed. Reg. 52,117 (Oct. 8, 2009).

22. Department of the Interior, Secretarial Order No. 3289 (Sept. 14, 2009), available at http://elips.doi.gov/elips/sec_orders/html_orders/3289.htm.

23. *Id.*

24. *Id.*

25. *See, e.g., In re Tri-State Water Rights Litig.*, 639 F. Supp. 2d 1308 (M.D. Fla. 2009) (involving a challenge to the Army Corps’ water allocations based on long-expired contracts).

water supply in several watersheds, which makes it more and more difficult to give effect to the listed statutory values.

Another possibility is to rigorously apply existing environmental laws as conflicts arise. This is how we have historically managed energy and environmental conflicts. For example, a massive solar thermal plant could be permitted as long as it did not violate other environmental or resources laws, such as the ESA or water supply restrictions. This would at least protect the core environmental values discussed *supra*. But this too has problems. For one, not all environmental or social values that may be impacted by climate change mitigation measures can be protected through existing environmental and resource laws.²⁶ Should the DOI be swayed by the negative impacts from the water required for solar generation if a private developer can secure such water? And what about the effects of wind deployment on migrating birds? Currently, no law provides comprehensive protection for the protection of bird and bat species on federal lands or under federal jurisdiction, presumably because DOI actions associated with other energy sources besides wind could not have such a large impact.

We must also be aware that there could be a project that might be prohibited or made cost ineffective by an environmental law, and yet whose positive attributes in reducing climate change are so important that they should be allowed.

So, some new kind of template is due. I do not have any definitive solution, but I would like to offer some possible suggestions. One possibility is to try to quantify the relative benefits of climate change mitigation with any attendant environmental harm for particular projects or applications. Cost-benefit analysis is rightly criticized in environmental circles because of the difficulty in actually quantifying environmental benefits, but the field of ecosystem services has advanced in being able to assign values to many resources.²⁷ There have also been attempts to do an economic analysis of failing to halt climate change at various levels.²⁸ This could be used if one scaled the quantification of the values of the climate change mitigation activity. The marginal impact of one climate change

26. See Streater, *supra* note 17 (discussing how a proposed solar plant would negatively impact pristine public lands and the rare plants and animals that inhabit those lands).

27. See generally J.B. Ruhl & James Salzman, *The Law and Policy Beginnings of Ecosystem Services*, 22 J. LAND USE & ENVTL. L. 157 (2007) (tracing the development of the ecosystem services field).

28. See, e.g., Nicolas Stern, *Stern Review on the Economics of Climate Change*, http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm (last updated Oct. 10, 2008) (discussing the economic impact of climate change).

mitigation activity might be small indeed, but one could still calculate the percent of avoided emissions to determine percent of avoided harm. Such comparisons could also be simplified by rulemaking.

Similar trade-offs are becoming apparent in the emerging carbon markets. Offsets can be certified to replace emissions reductions as long as they produce actual additional reductions that are permanent and verifiable.²⁹ However, just as in the deployment of climate mitigating energy sources on federal lands, these sequestration opportunities can also have other effects, including negative environmental effects. Both leading comprehensive federal statutes (the American Clean Energy and Security Act of 2009 and the Boxer-Kerry proposal note that the negative environmental effects of offsets should be considered (the Boxer-Kerry proposal would also consider negative social effects).³⁰ In a prior workshop, I have posited that these potential environmental degradations associated with offsets could be assigned rough categories to allow for comparison among them.³¹ This might be accomplished in the same manner for deployment of climate change mitigation measures on federal lands.

This system is obviously not ideal, but it at least starts to get at the issue of comparing the relative harms and benefits of climate change mitigation activities of the government with environmental harms that might result from such activities.

V. CLIMATE CHANGE TRIGGERING OF LAWS WITHOUT ADDITIONAL BENEFIT

We also have a problem with climate change triggering restrictions based on the operation of environmental laws without any benefit. In this case, the problem is that the triggered laws do little to protect the resource that they were designed to protect, while they do interfere with the

29. See, e.g., ENVTL. PROT. AGENCY, STATE BIOENERGY PRIMER: INFORMATION FOR STATES ON ISSUES, OPPORTUNITIES AND OPTIONS FOR ADVANCING BIOENERGY 30 (Sept. 15, 2009), available at <http://www.epa.gov/RDEE/documents/bioenergy.pdf> (describing the key accounting principles for use of bio-power for offsets).

30. See American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. §§ 731(c), 741 (2009), available at http://energycommerce.house.gov/index.php?option=com_content&view=article&id=1633&catid=155&Itemid=55 (mandating inclusion of issues pertaining to “any beneficial or adverse environmental . . . effects associated with an offset project type”).

31. Victor Flatt, Workshop on Adapting Legal Regimes in the Face of Climate Change (Oct. 18, 2008), available at <http://www.law.unc.edu/centers/clear/workshops/climatechange/overview/default.aspx>.

operation of other resource usage policies. For instance, the ESA (ineffective though it may be at times) works by prohibiting activities that may harm a species.³² This usually takes the form of avoiding some kind of habitat destruction, which may bring hope of a species (and indeed ecosystem) recovery.³³ There are many examples of this. The spotted owl's recovery was dependent on saving its old growth forest habitat, and the listing of the species as threatened will in theory allow that habitat to recover.³⁴ Sometimes we do not always know what activities are truly the most harmful to an endangered species (such as with the Pacific Northwest salmon runs), but we usually only seek to control those things that may be harmful.

This is not so with climate change impacts to species. With respect to the polar bear, the main problem is the loss of sea ice due to Arctic warming.³⁵ Other general activities, such as oil and gas exploration, may affect the species at the margins, but eliminating all of these other activities will not rescue the species from its peril of extinction. Only comprehensive climate change mitigation measures will help, but these must be conducted worldwide. While the DOI's determination of the negligible effect of oil and gas exploration and leasing activities on the polar bear has already been made, the procedural hurdles have probably mostly been unnecessary, and thus a waste of resources.³⁶

While ending oil and gas exploration and leasing activities in the Chukchi Sea in Alaska may have other independent values, these should be tackled head on in a comprehensive energy policy, not through the use of laws in situations for which they were not designed.

The ESA is not alone, of course. The National Forest Management Act requires management plans to preserve and assist in the viability of forests for designated uses.³⁷ But what if forests are being killed by temperatures or pathogens caused by climate change? It may be sensible to do everything we can to save the remainder of that forest, or it may make more

32. 16 U.S.C. § 1538 (2006).

33. *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687, 698 (1996).

34. *Id.*

35. Endangered and Threatened Wildlife and Plants; 12 Month Petition Finding and Proposed Rule to List the Polar Bear (*Ursus maritimus*) As Threatened Throughout Its Range, 72 Fed. Reg. 1064, 1072-74 (Jan. 9, 2007) (to be codified at 50 C.F.R. pt. 17), available at http://alaska.fws.gov/fisheries/mmm/polarbear/pdf/Polarbear_proposed_rule.pdf.

36. *See* *Ctr. for Biological Diversity v. Kempthorne*, 588 F.3d 701, 709-12 (9th Cir. 2009) (rejecting a challenge to oil and gas regulations based on a prior determination by Fish and Wildlife Service of "no significant impact" on polar bears).

37. *The Land Council v. McNair*, 537 F.3d 981, 988 (9th Cir. 2008).

sense to do something else, like transplantation to different and newly altered climactic zones.

The point is that climate change is triggering actions under more and more laws without necessarily providing any concomitant benefit. This suggests the need to make attempts to balance funds and efforts spent on protecting our resources with the actual benefit that they will have in saving said resources. Obviously, we think of endangered species as having almost infinite value. The wording of the statute prohibits *any* harm to the species.³⁸ That prohibition, however, was understood in the context of the addition of many incremental harms. The polar bear as a species might be affected by various activities, and indeed some of those activities (such as hunting) might wipe them out, but what of activities that do not appreciably change the extinction timeline?

While making such a determination exactly may be almost impossible, it should be possible to make some reasoned judgments in rulemaking, where allowed. Even the ESA allows consideration of these incidental activities in a consideration of section ten plans and habitat recovery plans. But some statutory changes might be necessary as well.

CONCLUSION

The impacts from climate change and the need for more climate change mitigation will likely accelerate in the future. In this essay, I have posited that unless we undertake to examine how climate change mitigation actions and the operation of existing laws work in the face of climate alteration, there will be unintended consequences, many of which will be negative for our environment and energy mix. I offer no simple solutions, just suggested frameworks for consideration. Over time, we must continue to examine how we need to adapt all of our legal regimes in the face of climate change to protect all of the interests we hold important.

38. 16 U.S.C. § 1539 (2006).

KING CORN: WILL THE RENEWABLE FUEL STANDARD EVENTUALLY END CORN ETHANOL'S REIGN?

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TABLE OF CONTENTS

Introduction.....	668
I. An Overview of Biofuels.....	674
II. The Rise of the Biofuels Industry and King Corn.....	677
A. Early Efforts to Promote Ethanol.....	678
B. Ongoing Subsidies and Tax Credits.....	679
C. Renewable Fuel Standards.....	681
D. Putting It Together: Corn Is King.....	682
III. The Unintended Consequences of Biofuels Development.....	682
A. Foreseeable Impacts: Environmental and Economic.....	683
B. Global Food Shortages.....	686
C. Increased Greenhouse Gas Emissions.....	687
IV. Weak Initial Efforts to Address the Unintended Consequences.....	688
A. 2005 EPA Act and Equivalence Values.....	689
B. The Waiver Policy.....	690
C. Corn Is Still King.....	693
V. A Stronger Response: EPA's Regulation Implementing EISA.....	697
A. Life-cycle Analyses and Advanced Biofuels.....	698
B. New Versus Old Corn Ethanol Production.....	701
C. Will New Ethanol Become Old Ethanol?.....	705
VI. A Sustainable Biofuels Policy or More of the Same?.....	707

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INTRODUCTION

Since the late 1970s, the United States has promoted the use of biofuels in an effort to achieve energy independence from the major oil-producing countries.¹ By many accounts, these promotional efforts have met with wild success. Various tax subsidies and tax credits aimed at promoting corn ethanol² led to an increase in corn ethanol production from 175 million gallons in 1980 to 1.4 billion gallons in 1998³ to 3.9 billion gallons in 2005.⁴ In 2005, Congress adopted a more direct approach to promote biofuels by establishing the first federal Renewable Fuel Standard (RFS).⁵ The RFS required gasoline importers, blenders, and refiners to blend up to four billion gallons of biofuels into gasoline in 2005 and to increase the amount to 7.5 billion gallons by 2012.⁶ The RFS did better than expected, leading Congress to include increased biofuel-blending requirements in the Energy Independence and Security Act of 2007 (EISA).⁷ Under EISA, the petroleum industry must, by 2022, blend at least thirty-six billion gallons of biofuels into gasoline.⁸ Industry experts have little doubt that the biofuel industry will be able to satisfy this requirement. To the extent that U.S. biofuel policy aims to promote domestic energy production, it appears to be well on its way.

However, U.S. biofuel policy also aims to mitigate climate change by reducing greenhouse gas emissions,⁹ and on this front, it has not lived up to

1. See generally Christine C. Benson, Note, *Putting Your Money Where Your Mouth Is: The Varied Success of Biofuel Incentive Policies in the United States and the European Union*, 16 *TRANSNAT'L L. & CONTEMP. PROBS.* 633 (2007).

2. See John A. Sautter et al., *Construction of a Fool's Paradise: Ethanol Subsidies in America*, *SUSTAINABLE DEV. L. & POL'Y* 26, 26 (2007) (describing subsidies, tariffs, tax credits, and legislation designed to promote ethanol production and use).

3. JOSEPH DiPARDO, ENERGY INFO. ADMIN., *OUTLOOK FOR BIOMASS ETHANOL PRODUCTION AND DEMAND 1* (2002), available at <http://tonto.eia.doe.gov/FTPROOT/features/biomass.pdf>.

4. Office of Energy Efficiency & Renewable Energy, U.S. Dep't of Energy, *Ethanol Production Reaches Nearly 4 Billion Gallons in 2005*, *EERE NETWORK NEWS*, Mar. 8, 2006, http://apps1.eere.energy.gov/news/news_detail.cfm/news_id=9816.

5. Energy Policy Act of 2005 § 1501, 42 U.S.C. § 7545(o) (2006) (amending the Clean Air Act).

6. § 7545(o)(2)(B)(i).

7. Energy Independence and Security Act of 2007, Pub. L. No. 110-140, § 202, 121 Stat. 1492, 1522 (2007).

8. *Id.*

9. Climate change, also called global warming, results from an overabundance of greenhouse gases in the atmosphere. The most important naturally occurring greenhouse gases are carbon dioxide, methane, and nitrous oxide. While these gases occur naturally, human activities, including fossil fuel combustion, deforestation, and agricultural practices, have increased the concentrations of greenhouse gases in the atmosphere and thus increased their heat-trapping potential. See EPA, *Climate Change – Basic Info.*, <http://www.epa.gov/climatechange/basicinfo.html> (last visited Dec. 23, 2009).

its promises. In theory, biofuels should be “carbon-neutral,” because the amount of carbon dioxide they release during combustion should be offset by the amount of carbon dioxide the plants sequester during their growth.¹⁰ However, these emissions offsets do not necessarily account for all greenhouse gas emissions that could directly result from agricultural and production practices.¹¹ For example, fertilizer use and soil tilling can result in high emissions of nitrous oxide, a potent greenhouse gas.¹² Converting corn starch into ethanol usually requires a substantial amount of energy, and if coal-fired power plants supply the energy, ethanol production can emit large quantities of greenhouse gases.¹³ Thus, depending upon various factors, direct emissions from biofuels may exceed emissions from fossil fuels.

More importantly, when the global consequences of U.S. agricultural and biofuels policies are considered, crop-based biofuels—and corn ethanol, in particular—appear likely to cause significant increases in greenhouse gas emissions.¹⁴ The United States is one of the world’s largest exporters of agricultural crops, and many developing countries depend on U.S. food imports to meet their basic food needs.¹⁵ U.S. biofuel policy has prompted many agricultural interests to shift away from food production in favor of domestic biofuel production.¹⁶ This, combined with several other

10. See Union of Concerned Scientists, *Biofuels: Biodiesel Basics*, http://www.ucsusa.org/clean_vehicles/technologies_and_fuels/biofuels/biodiesel-basics.html (last revised Jan. 7, 2010) [hereinafter *Biodiesel Basics*].

11. P.J. Crutzen et al., *N₂O Release from Agro-Biofuel Production Negates Global Warming Reduction by Replacing Fossil Fuels*, 7 *ATMOS. CHEM. & PHYS. DISCUSSIONS* 11,191, 11,197 (2007), available at <http://www.atmos-chem-phys-discuss.net/7/11191/2007> (global warming effects from corn ethanol would be 0.9–1.5 times worse due to emissions of nitrous oxide). Some scientists calculate that corn ethanol will lower greenhouse gas emissions by 11–39%, even when emissions from ethanol refining and inputs of petroleum and fertilizer are factored in. Bruce A. Babcock et al., *Is Corn Ethanol a Low-Carbon Fuel?*, 13 *IOWA AG REV.* 1, 3 (2007). However, this study considered only direct inputs and emissions associated with ethanol production and did not consider the indirect effects associated with land clearing. *Id.*

12. Crutzen et al., *supra* note 11, at 11,197.

13. Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program, 74 Fed. Reg. 24,904, 25,042 (proposed May 26, 2009) (to be codified at 40 C.F.R. pt. 80) [hereinafter *EPA RFS2 Proposal*].

14. FRIENDS OF THE EARTH EUROPE, *AGROFUELS: FUELING OR FOOLING EUROPE? THE PROBLEMS OF USING PLANT-BASED OILS IN POWER STATIONS AND VEHICLES* 3–4, http://www.foe.co.uk/resource/briefings/agrofuels_fuelling_or_fool.pdf (last visited April 12, 2010).

15. U.N. ENV’T PROGRAMME, *TOWARDS SUSTAINABLE PRODUCTION & USE OF RESOURCES: ASSESSING BIOFUELS* 23 (2009), available at http://www.unep.org/pdf/Assessing_Biofuels-full_report-Web.pdf [hereinafter *UNEP*]; James Kanter, *Europeans Reconsider Biofuel Goal*, *N.Y. TIMES*, July 8, 2008, <http://www.nytimes.com/2008/07/08/business/worldbusiness/08fuel.html>.

16. Food & Agric. Org. of the U.N. [FAO], High-Level Conference on World Food Security: The Challenges of Climate Change & Bioenergy, *Soaring Food Prices: Facts, Perspectives, Impacts*,

factors, has contributed to soaring global food prices and food shortages in developing countries.¹⁷ In response, many developing countries have begun or will begin clearing forests and peatlands to increase their own food production.¹⁸ Additionally, other countries have begun clearing land to produce their own biofuels to export to the United States and Europe.¹⁹ These land use changes, particularly where they would convert rainforests and peatlands into agricultural lands, could release massive amounts of carbon dioxide and other greenhouse gases.²⁰ One study found that U.S. biofuels policy would “double[] greenhouse [gas] emissions over 30 years and increase[] greenhouse gases for 167 years.”²¹ Many other studies have concluded that any U.S. biofuels policy that allows biofuels to come from food crops will result in more greenhouse gas emissions than it will prevent.²² Policymakers have therefore begun to propose changes to U.S. biofuels policy to align it with its overarching goal of reducing emissions.

Since its creation, the federal RFS has had several provisions that could promote non-food biofuels and mitigate the effects associated with indirect land use changes spurred by corn ethanol production and development of other crop-based biofuels. However, none achieved meaningful results. For example, the 2005 Energy Policy Act (EPAAct) attempted to promote the use of biofuels other than corn ethanol through various market mechanisms that allow producers to buy and trade credits, rather than actual biofuels, to meet their RFS requirements.²³ Under the 2005 EPAAct, the Environmental Protection Agency (EPA) assigned different values (called “equivalence values”) to various biofuels based on their energy values and environmental benefits.²⁴ The 2005 EPAAct itself assigned cellulosic biofuels²⁵ and biofuels

and Actions Required, ¶ 18, U.N. Doc. HLC/08/INF/1 (June 3–5, 2008) [hereinafter *FAO Soaring Food Prices*].

17. *Id.* at ¶¶ 7, 18 n.11 (explaining the linkages between agriculture and fuel prices), ¶ 22 (discussing how corn ethanol production in the United States will draw down U.S. corn supply), ¶¶ 33–63 (discussing impacts of high food prices on developing countries); see UNITED NATIONS FOOD AND AGRICULTURAL ORGANIZATION, *THE STATE OF FOOD & AGRICULTURE, BIOFUELS: PROSPECTS, RISKS AND OPPORTUNITIES*, 43–44 (2008) [hereinafter *FAO BIOFUELS REPORT*].

18. *FAO BIOFUELS REPORT*, *supra* note 17, at 60–61.

19. UNEP, *supra* note 15, at 63–65.

20. *Id.* at 67–68.

21. Timothy Searchinger et al., *Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land Use Change*, 319 *SCI.* 1238, 1238 (2008).

22. Joseph Fargione et al., *Land Clearing and the Biofuel Carbon Debt*, 319 *SCI.* 1235, 1235 (2008).

23. Regulation of Fuels and Fuel Additives: Renewable Fuel Standard Program, 72 *Fed. Reg.* 23,900, 23,904 (May 1, 2007) [hereinafter *EPA RFS1 Final Rule*].

24. *Id.* at 23,909, 23,919–22.

25. Cellulosic ethanol is derived from plant materials, including wood waste, corn stover (leaves, stalks, and cobs), and other plant parts. Cellulosic ethanol may produce seven to eight times

derived from waste an equivalency value 2.5 times higher than corn ethanol.²⁶ In other words, an oil producer, importer, or refiner would need to purchase only one gallon of waste-derived fuel for every 2.5 gallons of corn ethanol to meet its RFS. EPA assigned other biofuels equivalence values that ranked them above corn ethanol.²⁷ Yet, despite the higher equivalence values, corn ethanol has continued to dominate the biofuels industry because subsidies and tax breaks make corn ethanol much cheaper than other biofuels.²⁸ Thus, the market approach under the RFS proved inadequate to spur production of biofuels with lower greenhouse gas emissions.

Congress included another element in the RFS that EPA could theoretically use to restrict corn ethanol production. EPA has the authority to suspend the RFS in whole or in part if a state petitions for a waiver and can demonstrate that meeting the RFS will “severely harm the economy or environment of a State, a region, or the United States.”²⁹ In theory, a state could petition EPA to suspend the RFS requirement on the basis that it promotes the use of corn ethanol, which contributes to climate change, and that this, in turn, harms the environment of the United States and individual states. To date, EPA has declined to develop regulations implementing the RFS waiver.³⁰ However, in responding to a waiver request filed by Texas, EPA stated it would grant waiver requests only where a state can show that the RFS requirement is the exclusive cause of harm to the economy or environment.³¹ Since corn ethanol production thrived before Congress developed an RFS, and since many additional factors contribute to climate change, EPA’s existing articulation of the waiver requirement makes it extremely unlikely that a state could petition EPA to suspend the RFS on the basis that it causes increased greenhouse gas emissions due to indirect land use changes.

While these initial measures do little to curb greenhouse gas emissions, EISA presented EPA with new opportunities to improve U.S. biofuels

more energy than corn starch, and it would not affect food supply. However, technology to produce cellulosic ethanol has not developed to a point where cellulosic ethanol production is commercially viable. L. Leon Geyer et al., *Ethanol, Biomass, Biofuels and Energy: A Profile and Overview*, 12 *DRAKE J. AGRIC. L.* 61, 73–74 (2007).

26. EPA RFS1 Final Rule, *supra* note 23, at 23,909; 42 U.S.C. § 7545(o)(4) (2006).

27. EPA RFS1 Final Rule, *supra* note 23, at 23,921.

28. See Roberta F. Mann & Mona L. Hymel, *Moonshine to Motorfuel: Tax Incentives for Fuel Ethanol*, 19 *DUKE ENVTL. L. & POL’Y F.* 43, 45 (2008).

29. § 7545(o)(7)(A)(i).

30. EPA RFS1 Final Rule, *supra* note 23, at 23,928.

31. Notice of Decision Regarding the State of Texas Request for a Waiver of a Portion of the Renewable Fuel Standard, 72 *Fed. Reg.* 47,168, 47,182 (Aug. 13, 2008) [hereinafter *Texas Waiver Denial*].

policy and reduce resulting greenhouse gas emissions. Most significantly, EISA mandates the use of new types of biofuels, including cellulosic and other “advanced biofuels” that do not come directly from food crops and that will likely result in far fewer greenhouse gas emissions.³² Between 2016 and 2022, advanced biofuel use must increase by almost fourteen billion gallons.³³ In addition, all new renewable fuel production—defined as renewable fuel produced in facilities built after December 2007—would need to achieve greenhouse gas emissions reductions of 20%, compared to baseline emissions from fossil fuels.³⁴ This 20% requirement would apply to most new corn ethanol produced in facilities built after December 31, 2009.³⁵ These changes could significantly improve the environmental benefits of biofuels at some point in the future.

However, EISA and EPA’s recent regulation implementing the new biofuel requirements would grandfather existing corn ethanol production from the greenhouse gas reductions requirement, perhaps indefinitely.³⁶ In its proposed rule implementing EISA, EPA explored the possibility of phasing out the exemption for existing corn ethanol within fifteen years in a potential effort to expedite the climate change benefits of biofuel use.³⁷ This phase-out would have limited the grandfathering effects under EISA and perhaps created a broader opening for other, more beneficial biofuels to gain a greater share of the market. EPA’s final rule, however, rejected the phase-out.³⁸ Based on EPA’s estimates, the grandfathering provision will allow existing facilities to produce about fifteen billion gallons of corn ethanol annually³⁹ and will therefore allow corn to continue its dominance over the U.S. biofuels industry for years to come. Thus, while EISA signals

32. See EPA RFS2 Proposal, *supra* note 13, at 24,911.

33. Energy Independence and Security Act of 2007, Pub. L. No. 110-140, § 202, 121 Stat. 1492, 1522 (2007).

34. EPA RFS2 Proposal, *supra* note 13, at 24,924.

35. Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program, 75 Fed. Reg. 14,670, 14,688–89 (Mar. 26, 2010) (to be codified at 40 C.F.R. pt. 80), *available at* <http://www.epa.gov/otaq/fuels/renewablefuels/regulations.htm> [hereinafter EPA RFS2 Final Rule Preamble].

36. *Id.* at 14,688.

37. EPA RFS2 Proposal, *supra* note 13, at 24,929–30; EPA RFS2 Final Rule Preamble, *supra* note 35, at 24,946.

38. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,689–90.

39. *Id.* at 14,746. EPA calculated that facilities online as of November 2009 had the capacity to produce more than twelve billion gallons. *Id.* It further estimated that eleven new facilities and two facility expansions—all of which were under construction and thus subject to the grandfathering provisions—would come online and increase overall corn ethanol production to fifteen billion gallons. *Id.* at 14,746 n.60 (citing industry publications listing facilities under construction as of October 2009); *id.* at 14,746 n.63 (explaining why two coal-powered ethanol plants would qualify for grandfathering based on the date construction began).

a significant shift in biofuels policy toward more environmentally beneficial biofuels, it does not go far enough to limit the existing harmful effects of corn ethanol production.

Moreover, EPA's final rule may send signals to the corn ethanol industry that could trigger new investment in corn ethanol production facilities, despite Congress's intent to transition away from corn ethanol. In developing its rule, EPA made the controversial decision to incorporate indirect land use emissions into its calculations of lifecycle greenhouse gas emissions from various biofuels.⁴⁰ EPA's proposed rule then determined that future corn ethanol production would not meet EISA's requirement that new corn ethanol reduce greenhouse gas emissions by at least 20%.⁴¹ In its final rule, however, EPA reassessed its assumptions and concluded that most types of corn ethanol production would, in fact, meet the 20% reduction requirement.⁴² In so doing, EPA created a road map for future corn ethanol producers to follow if they want to increase future corn ethanol manufacturing under EISA.

To the extent EPA based its conclusions on accurate scientific data, EPA's final rule represents a legally defensible shift. Yet, as EPA acknowledges, uncertainty abounds whenever the agency attempts to assess future greenhouse gas emissions resulting from biofuel production.⁴³ By establishing expectations that certain types of new corn ethanol production may qualify under EISA's 20% standard, EPA may have foreclosed the possibility of limiting that production in the future, even if EPA's estimates prove inaccurate. As EISA's grandfathering provisions indicate, Congress seems unlikely to prohibit ongoing production of corn ethanol. EPA's suggestions that new corn ethanol facilities can meet the 20% reduction requirement may therefore set the stage for future grandfathering provisions and perpetuate the dominance of corn ethanol, even if the science ultimately shows that corn does more harm than EPA currently expects.

While the existing grandfathering provisions and EPA's new rule suggest that the corn ethanol industry will remain a strong player in the U.S. biofuels industry, other requirements under EISA and EPA's new rule could signal a longer-term shift towards a sustainable biofuels policy. Existing corn ethanol production capacity dominates the industry for now, but advanced and cellulosic biofuels may surge ahead of corn ethanol in the near future. By 2022, these superior biofuels must account for more than

40. *Id.* at 14,765 (explaining why EPA would continue to consider indirect land use changes).

41. EPA RFS2 Proposal, *supra* note 13, at 25,048 tbl.VI.C.2-1.

42. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,785-86.

43. *Id.* at 14,777-81 (discussing the uncertainty involved with assessing greenhouse gas emissions resulting from land use changes caused by U.S. biofuels production).

half of all biofuel production under EISA.⁴⁴ While EPA's new rule may send signals to the corn ethanol industry to increase production, EISA simultaneously indicates to the biofuels industry at large that advanced biofuels will assume a dominant place in the future U.S. biofuels market. Ultimately, the climate change benefits of U.S. biofuels policy may depend on which signals the biofuels industry receives and acts upon.

Part I of this article briefly introduces the different types of biofuels to provide the reader with a foundation for the rest of the article and to emphasize the important distinctions between first-generation, second-generation, and third-generation biofuels. Part II of this article explores the development of the U.S. biofuels industry and explains why corn ethanol has come to dominate U.S. biofuel production. It discusses subsidies under various energy laws and the Farm Bill, which have enabled corn farmers to dominate the agricultural and renewable fuels markets. It also explains how the RFS has favored corn ethanol. Part III then describes the unintended consequences of corn ethanol production, including its impacts on the global food supply and increased greenhouse gas emissions. Part IV reviews the initial attempts under the 2005 EPAct to limit some of these unintended consequences and explains why they failed to reduce production and use of corn ethanol. Part V turns to EPA's recent rulemaking implementing EISA and analyzes how it will affect corn ethanol production. Finally, Part VI addresses whether EISA and EPA's regulations could lead the way to a sustainable biofuels policy. This paper, while concluding that U.S. biofuels policy is not yet sustainable, argues that EISA and EPA's regulations represent a significant step forward and provide a reason to hope for more improvements in the future.

I. AN OVERVIEW OF BIOFUELS

Not all biofuels are created alike. The term biofuel means any kind of fuel produced from biomass (except fossil fuels), such as plants, woody material, organic wastes, and the like.⁴⁵ Yet, until recently, policymakers drew little distinction between different types and sources of biofuels.

44. Energy Independence and Security Act of 2007, Pub. L. No. 110-140, § 202, 121 Stat. 1492, 1522 (2007).

45. Cymie Payne, *Local Meets Global: The Low Carbon Fuel Standard and the WTO*, 34 N.C. J. INT'L L. & COM. REG. 891, 895 (2009) (citing FOOD & AGRIC. ORG. OF THE U.N., UNIFIED BIOENERGY TERMINOLOGY: UBET 14, 30-31 (2004), available at <ftp://ftp.fao.org/docrep/fao/007/j4504e/j4504e00.pdf>). Although biofuels can refer to any type of energy derived from organic material, such as energy produced from burning wood, this paper focuses on biofuels intended to replace transportation fuels, such as gasoline and diesel.

Today, however, scientists and policymakers tend to distinguish biofuels as first-generation, second-generation, and third-generation biofuels.⁴⁶ The different monikers reveal key distinctions between the types of fuels produced, their overall energy efficiency, and the potential side-effects of their production and use.⁴⁷

First-generation biofuels use relatively simple technology to extract fuels from plants that typically also serve as food crops.⁴⁸ Two main types of first-generation biofuels—ethanol and biodiesel—serve as replacements for transportation fuels.⁴⁹ Ethanol is an alcohol produced from the sugars found in plants.⁵⁰ Ethanol production “works best” using plants that concentrate simple sugars, such as starch, in their seeds.⁵¹ Corn kernels serve as ideal starch-delivery systems and therefore account for about 95% of all ethanol production in the United States.⁵² Other countries, like Brazil, manufacture ethanol from sugar cane, which provides a much more efficient source of ethanol than corn.⁵³ Biodiesel comes from plant or animal oils that undergo a minimal level of processing to make the oils less dense and thus more compatible with vehicle engines.⁵⁴ Biodiesel makes up a small fraction of U.S. biofuels,⁵⁵ but Europe has embraced biodiesel to a much greater extent.⁵⁶ Like ethanol, most biodiesel comes from food crops, such as soy, rapeseed, and sunflower plants.⁵⁷ Many developing countries with tropical climates have also begun producing biodiesel from palm oil plantations.⁵⁸ Worldwide, first-generation biofuels dominate the biofuels market.⁵⁹

Second-generation biofuels include both ethanol and biodiesel produced from cellulosic materials, instead of from food.⁶⁰ Cellulosic materials include any of the woody or fibrous waste materials that remain after the harvest of the food parts of a plant.⁶¹ For example, the stalks of

46. See UNEP, *supra* note 15, at 25 (distinguishing first-, second-, and third-generation biofuels).

47. *Id.*

48. *Id.* at 25, 26 tbl.2.1.

49. CHRIS WOLD ET AL., CLIMATE CHANGE AND THE LAW 754 (2009).

50. Geyer, *supra* note 25, at 69.

51. *Id.*

52. *Id.*

53. *Id.* at 73.

54. WOLD ET AL., *supra* note 49, at 756.

55. Biodiesel Basics, *supra* note 10.

56. UNEP, *supra* note 15, at 34.

57. *Id.* at 26 tbl.2.1.

58. *Id.*

59. *Id.* at 34.

60. *Id.* at 25.

61. Geyer, *supra* note 25, at 73–74.

wheat plants and corn stover are cellulosic materials that could produce second-generation biofuels.⁶² Some studies suggest that second-generation biofuels could serve as replacements for fossil fuels without creating the unintended consequences associated with using food crops for fuels, and without expending the same amount of energy that corn ethanol production demands,⁶³ although this latter point remains subject to dispute.⁶⁴

Third-generation biofuels include several experimental alcohols developed from crops⁶⁵ and the more promising and proven technology of algae-based biodiesel (called, alas, oilgae).⁶⁶ Algae-based biofuels have the potential to provide large amounts of biodiesel using a relatively small amount of land (when compared to traditional crops) and few resources.⁶⁷ Several industries and some cities have invested in algae-based fuels,⁶⁸ but it may take time for this nascent technology to develop into a commercially viable biofuel.

Collectively, policymakers tend to refer to second- and third-generation biofuels as advanced biofuels.⁶⁹ While the United Nations Environment Programme (UNEP) cautions that this label may incorrectly suggest that advanced biofuels have absolute superiority over first-generation biofuels,⁷⁰ advanced biofuels do at least appear to have a few advantages. First, to the extent that the advanced biofuels come from waste and materials not used as food, advanced biofuels may avoid the conflicts between fuel and foods that the world witnessed in 2008.⁷¹ Second, if algae-based biofuels live up to their promise, they could supply localized sources of transportation fuels without significantly affecting other land uses.⁷² Finally, unlike first-generation biofuels, and corn ethanol in particular, certain advanced biofuels could yield significant net reductions in greenhouse gas emissions.⁷³ While advanced biofuels require much more study and development, they have the potential to deliver on the promise of carbon-

62. UNEP, *supra* note 15, at 25.

63. See Geyer, *supra* note 25, at 75 (discussing the concern over increased ethanol production on world food supplies).

64. David Pimentel & Marcia Pimentel, *Corn and Cellulosic Ethanol Cause Major Problems*, 8 ENERGIES 35, 36 (2008).

65. UNEP, *supra* note 15, at 25.

66. *Id.*

67. Katie Howell, *Is Algae the Biofuel of the Future?*, SCI. AM., Apr. 28, 2009, <http://www.scientificamerican.com/article.cfm?id=algae-biofuel-of-future>.

68. *Id.*

69. UNEP, *supra* note 15, at 25.

70. *Id.*

71. FAO BIOFUELS REPORT, *supra* note 17, at 18.

72. Howell, *supra* note 67.

73. FAO BIOFUELS REPORT, *supra* note 17, at 18–19.

neutral fuels. To date, however, this promise has gone unfulfilled due to the dominance of first-generation biofuels, and corn ethanol in particular, in the United States.⁷⁴

II. THE RISE OF THE BIOFUELS INDUSTRY AND KING CORN

Well before Congress began mandating the use of biofuels as a way to achieve energy independence or reduce greenhouse gas emissions, corn growers and producers began promoting corn ethanol as a fuel source. U.S. farm policy likely created a greater incentive for corn growers to promote ethanol.⁷⁵ Beginning in the 1970s, farmers received payments for increased corn production and thus created a glut of low-priced corn.⁷⁶ As more corn flooded the marketplace, producers developed new uses for the cheap commodity, one of which was ethanol.⁷⁷ Once ethanol producers convinced politicians that ethanol could serve as a substitute for foreign oil, politicians increased the already significant incentives for ethanol production by creating new subsidies and tax credits for corn and corn ethanol.⁷⁸ By the time Congress passed the first renewable fuel standard in the 2005 EPA Act,⁷⁹ corn ethanol had already gained a dominant position in the biofuels market. Five years later, despite policies aimed at promoting other biofuels—including biodiesel and more advanced biofuels—corn retains its status as the king of biofuels.

74. Corn ethanol is not the only first-generation biofuel that presents risks to food sources and potentially emits more greenhouse gases than fossil fuels. Biodiesel derived from soy, rapeseed, and sunflower plants presents some of the same risks. In addition, many developing countries have increased their production of biodiesel from palm oil, and, in so doing, likely increased greenhouse gas emissions due to converting rainforests into palm plantations. The European Union responded to these developments by suspending its renewable fuel requirements until it could verify that its policies were not causing more harm than good. See UNEP, *supra* note 15, at 25 (discussing the unintended consequences of first-generation biodiesel production and use). This paper does not explore those developments. Instead, it focuses only on U.S. biofuel policy and, by necessary implication, corn ethanol production and use.

75. See Michael Pollan, *The Great Yellow Hope*, N.Y. TIMES, May 26, 2006, <http://pollan.blogs.nytimes.com/2006/05/24/the-great-yellow-hope/?scp=1&sq=pollan%20corn%20ethanol&st=cse> (describing the corn industry's monetary incentive to promote a federal government policy to increase ethanol production with tax incentives).

76. Jedediah Purdy & James Salzman, *Corn Futures: Consumer Politics, Health, and Climate Change*, 38 ENVTL. L. REP. NEWS & ANALYSIS 10,851–52 (2008).

77. *Id.*

78. Mann & Hymel, *supra* note 28, at 44.

79. 42 U.S.C. § 7545(o) (2006).

A. *Early Efforts to Promote Ethanol*

Early corn ethanol production resulted from a change in farm policy that began in the 1970s. During the Great Depression, President Franklin D. Roosevelt initiated the country's first comprehensive farm policy aimed at addressing the boom-and-bust cycle that had dominated the agricultural industry for decades.⁸⁰ President Roosevelt created a new loan program to even out food production and increase security in the U.S. food supply.⁸¹ The program provided farmers with guaranteed loans to purchase agricultural supplies and allowed farmers to defer payment on the loans until their crops produced.⁸² When crop prices were low, farmers could store their crops and defer payment on loans.⁸³ Whenever the crop prices rose, farmers could then sell their surplus at the higher rates and then repay the government.⁸⁴ Farmers also had the option of making payments in the form of grains, thereby increasing the government's direct access to crops.⁸⁵ This system evened out the boom-and-bust cycle by providing farmers with guaranteed access to loans and allowing farmers to store crops when market prices were low.⁸⁶ In short, the system freed farmers from the whims of the market and created a more stable agricultural economy.

In the early 1970s, however, a series of events unrelated to the loan program led to the first decline in food production since the 1930s. In response, President Nixon's Secretary of Agriculture substantially revised the farm payment system so that farmers received a guaranteed payment for every bushel of grain they produced.⁸⁷ Production-based subsidies created the sought-after increase in food production.⁸⁸ However, because the system included no cap in the amount of subsidies available, over-production and plunging market prices for the subsidized grains soon followed.⁸⁹ Perhaps as a cynical ploy to ensure continued receipt of subsidies, or perhaps as an innovative response to the new abundance of corn, corn growers teamed up with consumers to create new corn-intensive

80. DANIEL IMHOFF, *FOOD FIGHT: THE CITIZEN'S GUIDE TO A FOOD AND FARM BILL* 33–34 (2007).

81. *Id.* at 34.

82. *Id.* at 35.

83. *Id.*

84. *Id.*

85. *Id.*

86. Purdy & Salzman, *supra* note 76, at 10,852.

87. MICHAEL POLLAN, *THE OMNIVORE'S DILEMMA: A NATURAL HISTORY OF FOUR MEALS* 51–52 (2006).

88. *Id.* at 91.

89. *Id.* at 52–54, 62.

products.⁹⁰ The most dominant product, high-fructose corn syrup, quickly took hold within the fast food industry.⁹¹ Other food manufacturers embraced other corn products and quickly added them to their foods as cheap fillers.⁹² As a result, more than one-quarter of all supermarket food contains corn.⁹³ As Professors Purdy and Salzman have quipped, based on the amount of corn consumed by the typical American, “[i]f we are what we eat, then we’re corn on legs.”⁹⁴

Ethanol became the other major corn product developed to take advantage of the surplus crops. Initially, corn ethanol entered the scene as a novelty; the Arab oil embargo of the early 1970s, however, followed by the energy crisis that lasted for several more years, created an opening for corn ethanol to fill.⁹⁵ As discussed in the next section, Congress quickly acted to create more subsidies and tax credits, as well as certain mandates, to spur increased production of corn ethanol and to lead the United States further down its path to energy independence. While energy independence and environmental benefits ultimately became the goals undergirding U.S. biofuels policy, it is important to remember that U.S. farm policy initially created the ethanol industry.

B. Ongoing Subsidies and Tax Credits

Once the corn-growers’ industry convinced Congress that corn ethanol could lead the United States toward energy independence, Congress passed several laws to promote corn ethanol.⁹⁶ Concerns about clean air further enabled the growth of the ethanol industry, as gasoline that contained ethanol released fewer pollutants into the air and thus enabled various cities to meet their air quality requirements.⁹⁷ Once ethanol gained a more stable foundation, Congress once again used subsidies and tax incentives to prop

90. *Id.* at 91–92.

91. *Id.* at 103–06.

92. *Id.* at 95–98.

93. Bonnie Azab Powell, *Journalism Professor Michael Pollan’s New Book on the U.S. Food Chain Provides Few Soundbites—But Much to Chew On*, U.C. BERKELEY NEWS, Apr. 11, 2006, available at http://www.berkeley.edu/news/media/releases/2006/04/11_pollan.shtml.

94. Purdy & Salzman, *supra* note 76, at 10,851.

95. See Bruce A. McCarl & Fred O. Boadu, *Bioenergy and U.S. Renewable Fuels Standards: Law, Economic, Policy/Climate Change and Implementation Concerns*, 14 DRAKE J. AGRIC. L. 43, 44–48 (2009) (describing various legislative acts designed to promote bioenergy, including ethanol use in the United States).

96. U.S. Energy Info. Admin., *Energy Timelines: Ethanol*, <http://www.eia.doe.gov/kids/history/timelines/ethanol.html> (last visited Feb. 28, 2010).

97. *Cf. infra* notes 106–08 and accompanying text; see McCarl & Boadu, *supra* note 95.

up the industry.⁹⁸ Until passage of the Renewable Fuel Standard in 2005, energy and clean air policy provided the foundation for expanding the ethanol industry.

Congress initially began promoting corn ethanol as a means to achieve energy independence in the 1970s when it passed the Energy Tax Act of 1978, which gave a \$0.40 per gallon subsidy for ethanol use in gasoline.⁹⁹ Congress followed this initial step by passing several other laws, including the Energy Security Act of 1980,¹⁰⁰ the Surface Transportation Assistance Act of 1982,¹⁰¹ and the Tax Reform Act of 1984,¹⁰² all of which increased the tax incentives and subsidies for ethanol, resulting in a subsidy of \$0.60 per gallon by 1984.¹⁰³ Even this substantial subsidy, however, could not make ethanol competitive with gasoline when oil prices plummeted to \$10 per barrel in 1985.¹⁰⁴ Several ethanol producers went under as a result,¹⁰⁵ and the industry appeared doomed.

However, concerns about air quality revived the ethanol industry beginning in the late 1980s, when states and then Congress mandated the use of oxygenated fuels.¹⁰⁶ Oxygenated fuels, including fuels mixed with additives like ethanol and methyl tertiary butyl ether (MTBE), allowed gasoline to burn more completely and thus release fewer pollutants.¹⁰⁷ However, MTBE turned out to be a toxic, carcinogenic chemical that readily leached into and contaminated groundwater supplies, which enabled ethanol to dominate the oxygenated fuel market.¹⁰⁸ The ethanol industry thus regained its footing as a result of the oxygenated fuels requirement.

Congress, meanwhile, continued to award ethanol more subsidies and to pass additional laws requiring its use.¹⁰⁹ In 2005, Congress restructured these tax incentives to create the alcohols fuels credit, which amounted to a \$0.51 per gallon credit in 2008, and a separate excise tax credit, which

98. *See infra* notes 109–16 and accompanying text.

99. *Energy Timelines*, *supra* note 96; *see* McCarl & Boadu, *supra* note 95, at 45 & n.6 (explaining how the legislation promoted gasohol, which effectively meant ethanol).

100. Pub. L. No. 96-294, 94 Stat. 611 (codified as amended at 42 U.S.C. §§ 8802–03, 8813–16, 8820 (2006)).

101. Pub. L. No. 97-424, 96 Stat. 2097 (codified as amended at 16 U.S.C. § 40 (2006)).

102. Pub. L. No. 98-369, 98 Stat. 494 (codified as amended at 26 U.S.C. § 40 (2006)).

103. McCarl & Boadu, *supra* note 95, at 45.

104. *Id.*

105. *Energy Timelines*, *supra* note 96; McCarl & Boadu, *supra* note 95, at 45 n.11.

106. *See* McCarl & Boadu, *supra* note 95, at 45–46 (describing state and federal mandates to control pollution by requiring oxygenated fuels); 42 U.S.C. § 7545(m) (2006) (requiring oxygenated gasoline in areas not meeting ambient air quality standards).

107. *See id.* at 45–46 & n.12 (citing Thomas J. Knudson, *Antipollution Plan Stirs Ire of Colorado Motorists*, N.Y. TIMES, July 27, 1987, at A8).

108. McCarl & Boadu, *supra* note 95, at 46.

109. *Id.*

allowed ethanol users to take a \$0.51 per gallon credit.¹¹⁰ Congress also imposed a \$0.54 per gallon tariff on imported ethanol.¹¹¹ Although the interactions between the tax credits and subsidies are quite complicated,¹¹² the combined amount of subsidies for corn and subsidies for corn ethanol runs into the billions of dollars per year. Total U.S. corn subsidies from 1995 to 2005 exceeded \$56 billion, and ethanol subsidies cost \$5.1 to \$7 billion in 2006.¹¹³ On a per gallon basis, subsidies amounted to \$1.05 to \$1.38 per gallon.¹¹⁴ When combined with the import tariff, corn ethanol costs \$120 more than every barrel of oil saved.¹¹⁵ Experts expect the total subsidies to increase as a result of RFS requirements, which require an increase in biofuels production through the year 2022.¹¹⁶

C. Renewable Fuel Standards

Congress passed the first RFS (RFS1) as part of the comprehensive energy legislation embodied in the 2005 EPAct. RFS1 required gasoline producers, importers, and refiners to blend up to four billion gallons of biofuels into gasoline in 2005 and to increase the amount to 7.5 billion gallons by 2012.¹¹⁷ RFS1 established a guaranteed market for various biofuels, including corn ethanol, and quickly worked with other forces, including existing tax subsidies and credits and soaring oil prices, to lead to a boom in ethanol production.¹¹⁸

110. See Mann & Hymel, *supra* note 28, at 47–49 (explaining the differences between the different types of tax credits and how they interact with each other). Those details are beyond the scope of this article.

111. Omnibus Reconciliation Act of 1980, Pub. L. No. 96-499, 94 Stat. 2599 (1980); see David Adams, *Sugar in the Tank*, FORBES, Nov. 16, 2005, available at http://www.forbes.com/2005/11/15/energy-ethanol-brazil_cx_111energy_adams.html. This tariff has achieved its intended effect of reducing imports of Brazilian sugarcane ethanol. Sautter et al., *supra* note 2, at 26. In so doing, the tariff, along with U.S. corn and corn-ethanol subsidies, may violate free trade rules enforced by the World Trade Organization (WTO). Phoenix X.F. Cai, *Think Big and Ignore the Law: U.S. Corn and Ethanol Subsidies and WTO Law*, 40 GEO. J. INT'L L. 865, 905 (2009).

112. See Mann & Hymel, *supra* note 28, at 47–51 (describing the complexities of ethanol-based tax incentives).

113. Cai, *supra* note 111, at 899. These figures reveal the difficulty in calculating actual subsidies for corn and corn ethanol. Subsidies come from so many different laws and appear in so many different forms that it is difficult for even experts to track them.

114. Sautter et al., *supra* note 2.

115. Purdy & Salzman, *supra* note 76, at 10,853 (citing Michael Pollan, *The Great Yellow Hope*, N.Y. TIMES, May 24, 2006, <http://pollan.blogs.nytimes.com/2006/05/24/the-great-yellow-hope>).

116. Cai, *supra* note 111, at 905–06.

117. Energy Policy Act of 2005 § 1501, 42 U.S.C. § 7545(o)(2)(B)(i) (2006) (amending the Clean Air Act).

118. EPA RFS2 Proposal, *supra* note 13, at 24,908.

Two years after creating RFS1, Congress passed EISA and substantially increased the renewable fuel production and use requirements in what EPA calls RFS2.¹¹⁹ As discussed below, EISA has significantly modified the RFS by creating clearer mandates for the production of advanced biofuels and by establishing greenhouse gas emission thresholds that renewable fuels must achieve. However, EISA includes a significant loophole that allows existing corn ethanol facilities to be grandfathered from the new greenhouse gas emission requirements.¹²⁰ As a result, corn ethanol appears likely to retain its status as the primary biofuel in the United States for several more years.

D. Putting It Together: Corn Is King

Overall, the various farm and energy laws, tax subsidies and credits, and other policies enabled corn ethanol to dominate the U.S. biofuels sector for more than thirty years. Renewable fuel standards have propelled corn ethanol into gaining an even larger market share over other biofuels.¹²¹ By the end of 2007, corn ethanol comprised 95% of the biofuels used in the United States.¹²² As discussed in greater detail below, EISA will continue to allow corn ethanol production to grow, despite the increasing evidence showing that corn ethanol likely creates more harm than previously thought.

III. THE UNINTENDED CONSEQUENCES OF BIOFUELS DEVELOPMENT

Increased production of biofuels, and particularly corn ethanol, has led to several unintended consequences. Some of these, such as the direct environmental and economic damage exacted by increased corn production, were readily foreseeable even in the 1970s. However, the passage of the RFS in 2005 gave corn a new image as a “green fuel” that would release fewer greenhouse gases than fossil fuel. As ethanol production increased to serve this new purpose, several new studies revealed that first-generation biofuels, and corn ethanol in particular, may actually cause significant increases in greenhouse gas emissions.¹²³ Other studies linked a boom in

119. *Id.*

120. *Id.*

121. Cai, *supra* note 111, at 905–06.

122. Frances Cerra Whittelsey, *Bio-Hope, Bio-Hype*, SIERRA MAG., Sept. – Oct. 2007, at 50–51, available at <http://www.sierraclub.org/sierra/200709/bio.asp>.

123. UNEP, *supra* note 15, at 67–69; see Searchinger et al., *supra* note 21, at 1238–39 tbl.1; Fargione et al., *supra* note 22.

ethanol production in the United States, increased biodiesel production in Europe, and spiking oil prices around the world to a food crisis.¹²⁴ These studies suggested that the benefits of corn ethanol may be outweighed by its detrimental effects and have led to calls to suspend all biofuels produced from food crops.¹²⁵

A. Foreseeable Impacts: Environmental and Economic

Corn growing exacts a heavy toll on water quality, air quality, and wildlife habitat, as several studies have documented for many years.¹²⁶ Corn subsidies have also generally favored large agribusiness companies rather than small farmers, and have contributed to the concentration of agriculture business in the hands of relatively few players.¹²⁷ Subsidies for corn ethanol only enhance these harmful environmental and economic effects by adding even greater incentives for corn production and by continuing to allow large corporations to benefit from the subsidies.¹²⁸

1. Localized Environmental Impacts

Other articles have extensively documented the environmental consequences of expansive corn production.¹²⁹ This article will not repeat their findings, except to highlight some of the major impacts to the environment from intensive corn production. Corn production has a particularly profound impact on water quality and supply.¹³⁰ Corn is an

124. See *infra* notes 156–58 and accompanying text.

125. See Purdy & Salzman, *supra* note 76, at 10,853 n.34 (quoting a United Nations official who argued that diverting arable land from food production to fuel production is “a crime against humanity”).

126. See William S. Eubanks II, *A Rotten System: Subsidizing Environmental Degradation and Poor Public Health with Our Nation’s Tax Dollars*, 28 STAN. ENVTL. L.J. 213, 251–73 (2009) (summarizing the studies discussing the environmental impacts of intensive agricultural production with a focus on the effects of growing corn crops).

127. *Id.* at 221–34.

128. See Cai, *supra* note 111, at 904 (noting that the Volumetric Ethanol Excise Tax Credit, which provides a \$0.51 per gallon tax credit, will continue to apply as renewable fuels mandates increase); Mann & Hymel, *supra* note 28, at 72 (“[I]ndependent farmers will not benefit nearly as much from ethanol subsidies as large agribusiness concerns.”). According to EPA, company-owned facilities produce about 80% of all U.S. corn ethanol, compared to 20% produced by farmer cooperatives. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,745. Just three companies own facilities that produce 30% of all domestic ethanol. *Id.*

129. Eubanks, *supra* note 126, at 251–73.

130. *Id.* at 252–61.

extremely input-intensive crop, which requires massive amounts of water¹³¹ and typically large amounts of fertilizers, herbicides, and pesticides to grow.¹³² Chemicals added to the crops frequently run off into surface waters or leach into groundwater and contaminate water supplies.¹³³ One particular herbicide used on corn, called atrazine, pollutes many water bodies in the Midwest and has been linked to hermaphroditism in frogs and other amphibians.¹³⁴ Nitrogen fertilizers, which farmers apply heavily to corn crops, have also created particular problems in many aquatic areas by causing “dead zones” that can kill all immobile organisms within low oxygen areas.¹³⁵ EPA anticipates that water quality will continue to suffer as corn ethanol production increases.¹³⁶

Corn production and corn ethanol production also contribute to loss of soil, air quality deterioration, and loss of habitat.¹³⁷ Intensive agriculture typically involves the tilling of soil, which increases the likelihood of erosion and airborne transport of soils.¹³⁸ Chemicals applied to crops can become airborne, along with the soil, and create a risk of exposure to humans and other animals.¹³⁹ Ethanol production and combustion also release chemicals that can contribute to air pollution and public health risks.¹⁴⁰ Although adding ethanol to gasoline may reduce emissions of some pollutants from motor vehicles,¹⁴¹ ethanol can also increase emissions of other pollutants.¹⁴² Whether ethanol yields net benefits in air quality remains difficult to determine.¹⁴³

It is clearer, however, that increased corn production has reduced, and will likely continue to reduce, wildlife habitat, as it has done for decades.¹⁴⁴ As discussed in greater detail below, Congress amended the RFS to allow biofuels to qualify as renewable fuels when they are grown on certain types of land. EPA has decided to include lands that would otherwise be set aside

131. *Id.* at 253–54. Ethanol production plants also consume significant quantities of water; a typical plant will use three to six gallons of water for each gallon of corn ethanol produced. See EPA RFS2 Proposal, *supra* note 13, at 25,104.

132. EPA RFS2 Proposal, *supra* note 13, at 25,101 (“Corn has the highest fertilizer and pesticide use per acre and accounts for the largest share of nitrogen fertilizer use among all crops.”).

133. *Id.*

134. *Id.* at 25,105 (discussing presence of atrazine in drinking water).

135. Eubanks, *supra* note 126, at 255–56.

136. EPA RFS2 Proposal, *supra* note 13, at 25,101.

137. Eubanks, *supra* note 126, at 261–68; EPA RFS2 Proposal, *supra* note 13, at 25,097–100.

138. Eubanks, *supra* note 126, at 257–58.

139. EPA RFS2 Proposal, *supra* note 13, at 25,097.

140. *Id.*

141. See *supra* notes 106–07 and accompanying text.

142. EPA RFS2 Proposal, *supra* note 13, at 25,097.

143. *Id.*

144. Eubanks, *supra* note 126, at 263–66.

for conservation as qualifying lands for corn ethanol production under EISA.¹⁴⁵ Since these lands would otherwise provide habitat for animals displaced by agricultural practices, it is likely that wildlife habitat will continue to decline due to corn ethanol production.¹⁴⁶ None of these outcomes, however, are particularly surprising. Agriculture has always exacted a heavy toll on the natural environment, and increased agricultural production will predictably do the same.

2. Domestic Economic Impacts of Increased Corn Ethanol

The economic consequences of increased corn ethanol production—at least to the extent that they affect ongoing subsidies—also present few surprises. Despite the image of U.S. agricultural policy as promoting small family farms, farm bills have instead propped up large agribusiness enterprises for almost as long as farm subsidies have existed.¹⁴⁷ Most observers expect increased renewable fuel mandates, and the accompanying per gallon tax credits, to further aid these large corporations.¹⁴⁸ Indeed, Congress changed the eligibility requirements under the Small Ethanol Producer Credit so that “small producers” can receive a \$0.10 per gallon tax credit so long as they produce no more than sixty million gallons of ethanol.¹⁴⁹ Before the change, the maximum production level topped out at thirty million gallons.¹⁵⁰ These increased subsidies to larger corporations will likely result in a further decrease in smaller farms and an increase in the political power of the corporations.¹⁵¹

Increased corn ethanol production will also likely affect the prices of corn, other crops, and agricultural commodities worldwide. Ethanol already competes with other consumptive uses of corn, and increased ethanol mandates will likely contribute to increased costs for cattle feed and

145. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,692–93.

146. Purdy & Salzman, *supra* note 76, at 10,853.

147. Eubanks, *supra* note 126, at 221–34; Mann & Hymel, *supra* note 28, at 72–73.

148. *See* Mann & Hymel, *supra* note 28, at 72–73 (showing the biggest beneficiaries of ethanol tax-credits are large corporations); Sanjay Gupta & Charles W. Swenson, *Rent Seeking by Agents of the Firm*, 46 J.L. & ECON. 253, 265 (2003) (describing how firms with strong managerial ownership engage in more rent seeking behavior than firms with smaller levels of managerial ownership); *see generally* DOUG KOPLOW, *BIOFUELS—AT WHAT COST? GOVERNMENT SUPPORT FOR ETHANOL AND BIODIESEL IN THE UNITED STATES* (2006), available at http://earthtrack.net/files/biofuels_subsidies_us.pdf (detailing government policies and subsidies concerning ethanol and biodiesel).

149. Energy Policy Act of 2005, Pub. L. No. 109-58, sec. 1347(a), § 40(a), 119 Stat. 594, 1056; *see* Cai, *supra* note 111, at 904–05.

150. Cai, *supra* note 111, at 905.

151. Eubanks, *supra* note 126, at 227–33; *see* Gupta & Swenson, *supra* note 148.

other food products.¹⁵² If farmers dedicate more land to corn production, as the existing subsidies and mandates should incentivize, available land for soy and wheat will decline, leading to a reduction in soy and wheat supplies.¹⁵³ Reduced supplies of these products will increase their prices, leading to increased production on whatever land is available.¹⁵⁴ Globally, this could spur increased food prices in the near term, and increased food production in the longer term.¹⁵⁵ As discussed in the next sections, these developments could ultimately undermine one of the driving purposes of the RFS—reducing global greenhouse gas emissions.

B. Global Food Shortages

In the first half of 2008, increased food prices around the globe triggered concern that the world economy had entered a food crisis. Food prices during that time had reached their highest levels in fifty years and were placing great stress on people in the poorest countries.¹⁵⁶ In response, the United Nations Food and Agriculture Organization (FAO) convened a high-level meeting to discuss the causes of the increased prices.¹⁵⁷ Although the organization found that many factors contributed to the food crisis, experts linked first-generation biofuels to the rising prices and, thus, to global food shortages.¹⁵⁸

The link between biofuels production and global food prices results from the fact that first-generation biofuels use the very same crops—namely corn in the United States and soy and oil crops in the European Union—that would otherwise go toward global food production.¹⁵⁹ In essence, biofuels demand “forge[s] closer linkages between the energy and agricultural markets,” exposing agricultural prices to global energy demand.¹⁶⁰ Although energy prices have long influenced global agricultural prices, due to the use of machinery and fossil-fuel derived fertilizers and pesticides, biofuels policy integrates energy and agriculture in unprecedented ways.¹⁶¹ This integration indicates that so long as biofuels

152. Purdy & Salzman, *supra* note 76, at 10,853.

153. *Id.*

154. *Id.*

155. *Id.*

156. FAO *Soaring Food Prices*, *supra* note 16, ¶ 1.

157. *Id.* ¶ 5.

158. *Id.* ¶¶ 7, 18 n.11 (explaining the linkages between agriculture and fuel prices), ¶ 22 (discussing how corn ethanol production in the United States will draw down U.S. corn supply), ¶¶ 33–63 (discussing impacts of high food prices on developing countries).

159. FAO BIOFUELS REPORT, *supra* note 17, at 41–43.

160. *Id.* at 43.

161. *Id.*

policy relies on food crops to produce energy it will likely continue to drive up food prices.¹⁶²

C. Increased Greenhouse Gas Emissions

First-generation biofuels may also, ironically, result in increased greenhouse gas emissions.¹⁶³ Corn ethanol produced in the United States may have the worst impact on greenhouse gas emissions.¹⁶⁴ EPA initially estimated that direct emissions from corn ethanol production, including emissions from growing the corn and processing corn starch into ethanol, likely exceeded fossil fuel emissions from gasoline by more than 10%.¹⁶⁵ These increases result from emissions of greenhouse gases from the soil¹⁶⁶ and the fossil fuels consumed at ethanol production facilities, most of which use natural gas or coal power.¹⁶⁷

When researchers add the consequences of indirect land use changes into their estimates, most studies show significant increases in overall greenhouse gas emissions.¹⁶⁸ Economists predict that increased commodity prices associated with biofuels production will increase pressure for developing countries to convert non-agricultural land into cropland so that they can either produce their own food crops (to reduce local food prices) or their own biofuels (to increase exports and take advantage of the higher global fuel prices).¹⁶⁹ Many developing countries will likely convert rainforests and peatlands, which currently sequester significant amounts of greenhouse gases, into agriculture lands.¹⁷⁰ This, in turn, could release massive amounts of greenhouse gases into the atmosphere and thus offset

162. *Id.* at 41–43; see Joachim von Braun, Dir. Gen., Int'l Food Pol'y Research Inst., Keynote Address at the Crawford Fund Annual Conf., When Food Makes Fuel: The Promises and Challenges of Biofuels 6–7 (Aug. 15, 2007), <http://www.ifpri.org/sites/default/files/publications/2007jvbcrawfordkeynote.pdf>.

163. FAO BIOFUELS REPORT, *supra* note 17, at 55–59.

164. *Id.* at 57 fig.23. The type of corn ethanol production employed—whether it involves wet mill or dry mill processing—would change the greenhouse gas emissions, as would the energy source for the production. See EPA RFS2 Proposal, *supra* note 13, at 25,043 tbl.VI.C.1-2, tbl.VI.C.1-3; EPA RFS2 Final Rule Preamble, *supra* note 35, at 251–256.

165. FAO BIOFUELS REPORT, *supra* note 17, at 57 fig. 23.

166. See Crutzen et al., *supra* note 11, at 11,197.

167. EPA RFS2 Proposal, *supra* note 13, at 25,043 tbl.VI.C.1-2 (showing that coal-fired corn-ethanol production could increase greenhouse gases by 41% during the first 30 years and by 20% when these emissions are spread out over a 100-year timeframe); EPA RFS2 Final Rule Preamble, *supra* note 35, at 165 (relating that of the 180 existing ethanol production facilities, 151 burn natural gas and 17 plants burn coal).

168. Searchinger et al., *supra* note 21, at 1238–39 tbl.1; Fargione et al., *supra* note 22; UNEP, *supra* note 15, at 67.

169. UNEP, *supra* note 15, at 67–68.

170. *Id.*

the direct reductions that biofuels may otherwise achieve.¹⁷¹ EPA's initial assessment of lifecycle greenhouse gas emissions from U.S. corn ethanol, when considering indirect land use changes, concluded that it would take between twenty-two and seventy-five years (depending on whether coal or biomass powers the ethanol production facility) for corn ethanol production to achieve a 0% increase in emissions, and more than 100 years for a coal-fired ethanol plant to achieve a 20% greenhouse gas emissions reductions.¹⁷² Although EPA revised these estimates based on different assumptions about crop yields and the types of land conversions that would result from increased ethanol use,¹⁷³ the weight of the evidence shows that first-generation biofuels will spur increased land use changes in other countries, and these land-use changes may increase global greenhouse gas emissions for a period of time.¹⁷⁴ Thus, ironically, many biofuels policies designed to mitigate climate change may ultimately have the opposite effect.

IV. WEAK INITIAL EFFORTS TO ADDRESS THE UNINTENDED CONSEQUENCES

While Congress knew in 2005 when it passed the first RFS that first-generation biofuels could have some detrimental effects, this knowledge did not provide adequate justification for the majority of Congress to stand up to the corn lobby and vote against the RFS. However, Congress did at least attempt to limit the unintended consequences by including some safeguards in the laws. The 2005 EPAct gave EPA the authority to establish different values for various biofuels in an effort to create market incentives for companies to produce and use more advanced and environmentally sound biofuels.¹⁷⁵ Congress also included a waiver provision in the RFS to allow any state to petition EPA to waive the RFS where its implementation caused injury to the economy or environment of a state.¹⁷⁶ These safeguards did nothing to limit corn ethanol production, however, because they served as weak, if not impotent, mitigation measures when compared to the subsidies, tax credits, and other economic drivers of corn ethanol. Despite the food

171. *Id.*

172. EPA RFS2 Proposal, *supra* note 13, at 25,048 tbl.VI.C.2-1.

173. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,769-72.

174. Searchinger et al., *supra* note 21, at 1238-39 tbl.1.

175. EPA RFS1 Final Rule, *supra* note 23, at 23,918-19.

176. 42 U.S.C. § 7545(o)(7)(A)(i) (2006).

crisis and emerging studies demonstrating the harmful nature of first-generation biofuels, corn has remained king.

A. 2005 EPA Act and Equivalence Values

Congress passed the first national renewable fuel standard in 2005 as part of its expansive energy bill.¹⁷⁷ The heart of RFS1 consisted of mandatory volume requirements, establishing the amount of renewable fuels that importers, refiners, and blenders (collectively, “obligated parties”) must add to motor vehicle fuels between 2006 and 2012.¹⁷⁸ Beginning in 2006, obligated parties collectively were required to add four billion gallons of renewable fuels, and by 2012, that amount increased to 7.5 billion gallons.¹⁷⁹ After 2012, RFS1 gave EPA discretion to establish new volume requirements so long as the volumes did not fall below the 2012 standards.¹⁸⁰ To figure out each party’s annual obligations under RFS1, EPA employed a formula reflecting anticipated fuel production, each party’s share of production, and the proportion of renewable fuel each party would need to use to meet the national goal.¹⁸¹

Congress directed EPA to establish a credit trading system to provide flexibility for obligated parties to meet the volume mandates established under the law.¹⁸² To implement this trading scheme, EPA assigned each gallon of produced or imported renewable fuel a Renewable Identification Number (RIN).¹⁸³ Whenever a party produced or imported renewable fuel, it received a unique RIN assigned to the batch of fuel produced.¹⁸⁴ An ethanol producer, for example, would receive a RIN for each batch of ethanol produced, and whenever the producer sold the ethanol to an obligated party, it would also sell or transfer the RIN.¹⁸⁵ At the end of each year, obligated parties needed to demonstrate that they had obtained enough credits, as reflected by the number of RINs they had obtained, to meet their volume requirements.¹⁸⁶ If an obligated party had purchased and used more renewable fuel than necessary, it could sell its excess RINs to another

177. Energy Policy Act of 2005 § 1501, 42 U.S.C. § 7545(o) (2006) (amending the Clean Air Act).

178. EPA RFS1 Final Rule, *supra* note 23, at 23,903 tbl.I.B.-1.

179. *Id.*

180. *Id.* at 23,912.

181. *Id.*

182. *Id.* at 23,909.

183. *Id.* at 23,908, 23,929–36.

184. *Id.*

185. *Id.*

186. *Id.*

obligated party.¹⁸⁷ If another obligated party had not purchased enough fuel, it could nonetheless meet its obligations by purchasing enough RINs to meet its obligations; even though a different party actually used the renewable fuel, each party's ultimate compliance was measured according to the number of RINs it collected, and not according to the actual amount of fuel used.¹⁸⁸

RINs, however, did not carry equal value under RFS1. In an attempt to incentivize development of cellulosic and waste-derived biofuels, Congress assigned these fuels equivalence values 2.5 times the value of corn ethanol.¹⁸⁹ Under this system, each gallon of ethanol would receive a RIN worth one, but each gallon of waste-derived biofuel would have a RIN worth 2.5.¹⁹⁰ Presumably, Congress expected these differential values to create adequate incentives for obligated parties to purchase more cellulosic and waste-derived biofuels. EPA, in turn, followed Congress's lead by assigning other biofuels different equivalence values, all of which were higher than the baseline value assigned to corn ethanol.¹⁹¹ In theory, these higher equivalence values should have increased investment in and production of biofuels other than corn ethanol.¹⁹² In reality, the equivalence values had no effect on corn ethanol production. Indeed, corn ethanol accounted for approximately 95% of all biofuel production in the United States in 2007.¹⁹³ Thus, the equivalence values seem to have had no effect on reversing corn ethanol's dominance in the biofuels industry.

B. The Waiver Policy

Congress included another mitigating measure in its first RFS by giving EPA the authority to waive the national renewable fuel requirements if "implementation of the requirement would severely harm the economy or environment of a State, region, or the United States."¹⁹⁴ For the first three years of the RFS, the waiver went essentially unnoticed. However, in April 2008, when soaring gas, ethanol, and food prices sent commodity values sky-high, Texas's governor petitioned EPA to waive the RFS requirements

187. *Id.*

188. *Id.* at 23,908.

189. *Id.* at 23,920–21 tbl.III.B.-1.

190. *Id.* Crude-based renewable fuels, which are not biofuels, received the same value as corn ethanol. *Id.* at 23,921 tbl.III.B.-1.

191. *Id.* at 23,918–21 tbl.III.B.-1.

192. *Id.* at 23,919.

193. Whittelsey, *supra* note 122.

194. 42 U.S.C. § 7545(o)(7)(A)(i) (2006).

for the 2008–2009 corn marketing year.¹⁹⁵ Texas sought the waiver to protect its cattle industry, which had become heavily dependent on corn feed, and which faced escalating prices due, in part, to the corn ethanol boom.¹⁹⁶ Texas argued that the sheer size of its cattle industry, which was the largest in the United States and amounted to about one-quarter of the entire U.S. herd, justified the waiver request.¹⁹⁷ Despite EPA’s calculations that waiving the RFS mandates could potentially decrease feed costs in Texas by anywhere from \$53 million to \$207 million—and even perhaps as much as \$919 million¹⁹⁸—EPA denied Texas’s request for a waiver.¹⁹⁹

Texas was the first state to seek waiver of the RFS, and prior to Texas’s request, EPA had not explained how it would apply the waiver or interpret its requirements. In acting on Texas’s petition, EPA used its response to explain how it would interpret the statutory requirements for the waiver and to notify future petitioners about the evidence they would need to produce to obtain a waiver. EPA’s denial of Texas’s petition helps explain why the waiver provision will not limit production of corn ethanol.

As noted, the statute gives EPA discretion to waive a RFS mandate if the Administrator determines that implementation of the requirement would severely harm the economy or environment of a state, region, or the United States.²⁰⁰ EPA determined that this statutory authorization requires the agency to make two findings before it exercises its discretion to grant or deny the waiver.²⁰¹ First, because the statute requires a finding that implementation of the RFS “would” harm the economy or environment,²⁰² EPA stated that evidence must demonstrate, to a high degree of confidence, that the RFS is itself the cause of the harm.²⁰³ Second, EPA concluded that evidence must also show, to a high degree of confidence, that the resulting harm would be severe.²⁰⁴ This latter condition also requires petitioners to show that granting the waiver would provide effective relief from that harm.²⁰⁵ Once EPA established the framework by which it would analyze

195. Texas Waiver Denial, *supra* note 31, at 47,170 & n.3.

196. *Id.* at 47,170.

197. *Id.* at 47,177.

198. *Id.* EPA considered the \$919 million estimate to be a highly unlikely worst-case scenario. *Id.* at 47,177 & n.36.

199. *Id.* at 47,168.

200. 42 U.S.C. § 7545(o)(7)(A)(i) (2006).

201. Texas Waiver Denial, *supra* note 31, at 47,182.

202. § 7545(o)(7)(A)(i).

203. Texas Waiver Denial, *supra* note 31, at 47,182.

204. *Id.*

205. *Id.* at 47,172.

Texas's waiver request, it became nearly a foregone conclusion that EPA would deny it.

First, EPA concluded that Texas could not demonstrate that the RFS itself had caused Texas's economic woes. The agency rejected Texas's argument that Congress intended the waiver to apply whenever the RFS contributed significantly to severe economic or environmental harm; instead, it concluded that the RFS alone must act as the cause of the asserted harm.²⁰⁶ Texas argued that the EPA's interpretation would render the waiver provision a nullity, since the RFS will never be the sole and direct cause of injury.²⁰⁷ Although EPA appeared to agree that the RFS will always work in conjunction with other factors, such as gasoline and food prices, to affect the economy and environment, EPA nonetheless held that the waiver requires a demonstration that the RFS, acting alone, is the cause of the alleged harm.²⁰⁸ The agency pointed to many other places in the Clean Air Act where Congress used the term "causes or contributes" to allow the agency to consider direct and indirect contributions of various acts on a single outcome.²⁰⁹ However, since Congress did not use the "cause or contribute" language in describing the RFS waiver, EPA concluded that Congress intended to allow a waiver only where the RFS itself "would" harm the economy or environment.²¹⁰ While implicitly acknowledging Texas's point that EPA's interpretation could render the waiver option a nullity, EPA concluded that its interpretation more fully adhered to Congress's intent to promote the use of renewable fuels.²¹¹

Second, EPA determined that whatever economic impacts Texas could show did not amount to the "severe" impacts required for a waiver.²¹² EPA concluded that the threshold level of harm required for a waiver fell somewhat below "extreme" harm, but required Texas to demonstrate more than a "significant adverse impact[]" on its economy.²¹³ Moreover, Texas needed to show that the RFS would severely harm the entire economy of a state, region, or the United States, not only one sector.²¹⁴ Based on the high threshold of harm EPA required, it is not surprising that EPA denied Texas's waiver request. Ultimately, EPA concluded that waiving the RFS for the 2008–2009 marketing period (the year for which Texas sought the waiver)

206. *Id.* at 47,171.

207. *Id.* at 47,170–71.

208. *Id.* at 47,171.

209. *Id.*

210. *Id.*

211. *Id.*

212. *Id.* at 47,168.

213. *Id.* at 47,171, 47,182.

214. *Id.* at 47,183.

would likely alter cattle feed prices by between 1.2% and 4.7%, or, at the very most, 20%.²¹⁵ While this would decrease annual feed costs by \$53 million, \$207 million, or even \$919 million, depending upon the factors considered, EPA found these economic effects small compared to Texas's \$1 trillion economy.²¹⁶

C. Corn Is Still King

The 2005 EPAct achieved its overarching goal of increasing domestic biofuels production. When combined with tax credits, subsidies, and the skyrocketing oil prices of 2007 and early 2008, RFS1 surpassed expectations. However, to the limited extent that Congress and EPA sought to diversify the sources of biofuels and to limit the growth of corn ethanol, RFS1 failed. Corn remains, by far, the dominant biofuel.

This failure to diversify is not simply an issue of historical importance, however, because EPA has chosen to retain the RIN system and the equivalence values from RFS1, although it will modify them to a limited degree.²¹⁷ The waiver provision also still exists, although Congress amended it to allow more parties to petition for waivers.²¹⁸ Despite these changes, the weak mitigating measures will do little to offset the financial superiority of corn ethanol.

1. Equivalence Values Do Not Offset Other Incentives for Corn Ethanol

The equivalence values established in RFS1 have not, and likely cannot, offset the substantial subsidies and tax credits that corn ethanol producers and corn growers already receive. As a result, equivalence values seem unlikely to spur a transition away from corn ethanol and toward other, less damaging biofuels. When one considers the existing technology to produce corn ethanol compared to other biofuels, existing facility capacity and infrastructure, and other factors, the equivalence values seem especially weak.

As noted above, corn growers themselves benefit enormously from subsidies: corn receives more subsidies than any other commercial crop. Many biofuels crops, such as switchgrass and algae, have historically

215. *Id.* at 47,177. The different values derive from three different scenarios considered in the economic model EPA employed to assess whether the RFS would severely harm the Texan economy. *Id.*

216. *Id.*

217. EPA RFS2 Proposal, *supra* note 13, at 24,943; EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,675. The RIN modifications are beyond the scope of this article.

218. Texas Waiver Denial, *supra* note 31, at 47,183.

received almost no subsidies at all.²¹⁹ But even when compared to soy, which is the other major domestic crop currently used to produce first-generation biofuels and which benefits greatly from subsidies and tax credits, corn still receives far more in subsidies annually.²²⁰ EPA assigned soy-based biodiesel an equivalence value of 1.5, meaning that each gallon of biodiesel could earn 1.5 credits towards compliance with the mandate.²²¹ Simply comparing the growers' subsidies to the equivalence value suggests that the equivalence value would not offset corn's dominance. Of course, this simple comparison ignores other factors, such as the demand for the commodity and the capacity to convert the crop into a biofuel, which could make other biofuels more competitive with corn than direct growers' subsidies might suggest. However, when these additional factors come into play, the equivalence values seem even weaker.

Corn ethanol has benefitted from having a significant head start over other biofuels due to clean air requirements that mandate blending ethanol into gasoline. These mandates spurred the initial construction of corn ethanol production capacity, such that EPA estimates that facilities in existence as of December 2007 could produce more than fifteen billion gallons of corn ethanol per year.²²² First-generation biodiesel production capacity, in comparison, comes in at less than a billion gallons per year.²²³ From there, production capacity for other biofuels drops precipitously. For example, only one plant in the United States currently operates to produce cellulosic biofuels, and algae biofuel production is in its infancy. Clearly, absent the capacity to produce the fuels, the equivalence values themselves will not promote development of advanced biofuels.²²⁴

It may be, however, that the new mandates under EISA will spur greater investment in advanced biofuels production and make the equivalence

219. The 2008 Farm Bill established a \$1.01 per gallon tax credit for cellulosic biofuel produced between December 31, 2008 and January 1, 2013. See *IRS Issues Guidance on Cellulosic Biofuels Tax Credit*, ETHANOL PRODUCER MAG., Mar. 2009, available at http://www.ethanolproducer.com/article.jsp?article_id=5327.

EPA anticipated this tax credit would increase cellulosic biofuel production in the future, although it is unclear if the tax credit will enable cellulosic biofuels to compete with corn ethanol, which remains cheaper and easier to produce. See EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,688.

220. See Mann & Hymel, *supra* note 28, at 46–47 (“[C]orn constitutes about 90% of the feedstock for U.S. ethanol production. . . . Changing the source and methods of agriculture can limit adverse environmental and economic effects of ethanol production.”).

221. EPA RFS1 Final Rule, *supra* note 23, at 23,918.

222. EPA RFS2 Proposal, *supra* note 13, at 24,925.

223. *Id.* at 24,999.

224. *But see id.* at 24,945 (explaining that equivalence values are meant to provide a level playing field, particularly for technologies that are in the early stages of development).

values more relevant in the future.²²⁵ But for this to happen, the trading program itself would require much more activity than it has experienced to date. In 2008, EPA reported that RINs under RFS1 traded at less than 5 cents per gallon on average and never exceeded 6.5 cents per gallon,²²⁶ an almost negligible value. Even using the highest multipliers in the equivalence values—2.5—would result in credits worth only 12.5 cents to 16.25 cents per gallon of fuel, which is well below the 51 cent excise credit ethanol receives under existing subsidies.²²⁷ For the equivalence values to work to make cellulosic fuels competitive with corn ethanol, RINs for corn ethanol would need to cost more than corn ethanol receives in subsidies. It seems unlikely that they will reach this value any time soon, since the market supply currently exceeds RFS mandates. Indeed, EPA estimates that existing corn ethanol facilities could produce fifteen billion gallons per year, but the new RFS volume mandates will not reach that level until 2016.²²⁸ The current abundance of corn ethanol will keep credit prices low for the foreseeable future and, consequently, make the equivalence values generally irrelevant. In other words, the longstanding market flaws of the corn and corn ethanol industries render impotent EPA's efforts to employ market tools to incentivize other types of biofuels.

2. The RFS Waiver Will Not Suspend Corn Production

EPA's rejection of Texas's waiver request suggests that future waiver requests aimed at curbing corn ethanol production, whether based on injury to the economy or the environment, would suffer the same fate as the Texas petition. By requiring a petitioner to demonstrate that the RFS alone has caused the alleged harm, EPA has effectively insulated corn ethanol from waivers. EPA's test requires a petitioner to show that granting the waiver would effectively suspend all production of corn ethanol and thus mitigate the alleged harm. However, as EPA acknowledged in its waiver denial, other factors, such as mandatory ethanol blending requirements,²²⁹

225. *Id.* at 24,944–45.

226. Texas Waiver Denial, *supra* note 31, at 47,175.

227. Mann & Hymel, *supra* note 28, at 49 (noting the excise tax awards ethanol producers \$0.51 per gallon).

228. EPA RFS2 Proposal, *supra* note 13, at 24,910 tbl.II.A.1-1. In 2012, the total renewable fuel requirement will exceed 15.2 billion gallons, but 2 billion gallons must come from advanced biofuels. By 2015, the total requirement will reach 20.5 billion gallons, 5.5 of which must come from advanced biofuels. The remaining 15 billion gallons will come from either first-generation biofuels or other advanced renewable fuels. *Id.* Due to corn ethanol's abundance and low costs, EPA expects corn ethanol to account for the entire 15 billion gallons of first-generation biofuels. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,746.

229. See *supra* notes 106–10 and accompanying text.

subsidies, and tax credits will continue to spur corn ethanol production even without the RFS mandates.²³⁰ While increased RFS mandates may play a larger role in encouraging future corn ethanol development, EPA predicted that the RFS mandate would not become the cause of any alleged economic harm until the RFS requires approximately fifteen billion gallons of corn ethanol production.²³¹ The RFS will not require this volume of ethanol use until 2015.²³² Even then, a petitioner would need to demonstrate that other forces, such as crude oil prices and corn production levels, do not contribute to corn ethanol production.²³³ So long as Congress continues to subsidize corn and corn ethanol production—and it has shown no sign of ending these subsidies—the waiver provision in the RFS could play no role in abating corn ethanol use.

In addition, the demonstration of harm required by EPA places a nearly impossible burden on petitioners and makes a successful waiver petition extremely unlikely. Petitioners must not only show severe harm—defined by EPA as something more than significant adverse effects but somewhat less than “extreme” harm²³⁴—to the economy or the environment; they must also apparently demonstrate that the detrimental impacts seriously outweigh the beneficial ones.²³⁵ In the case of a waiver request based on economic concerns, it may be hard for a state to make such a showing, since some sectors of the economy will undoubtedly benefit from the RFS mandate.²³⁶

In theory, it might become easier for a petitioner to demonstrate severe harm to the environment from corn ethanol production as the science progresses and more studies reveal the localized and global harms that result directly and indirectly from increased corn ethanol production. However, the waiver applies only where a petitioner can show direct harm to the environment of a state, region, or the United States.²³⁷ This appears to preclude petitioners from relying on global increases in greenhouse gas emissions to prove their harm, due to the indirect nature of the linkages between localized ethanol production, global land use changes, global climate change, and resulting localized environmental degradation. While petitioners could arguably rely on local harm to water quality, air quality, and wildlife habitat, these injuries may be offset, at least to some degree, by the air quality benefits that ethanol blending provides. Even assuming

230. Texas Waiver Denial, *supra* note 31, at 47,173.

231. *Id.* at 47,173 n.21.

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

233. Texas Waiver Denial, *supra* note 31, at 47,176.

234. *Id.* at 47,182, 47,184.

235. *Id.* at 47,183.

236. *Id.* at 47,172.

237. 42 U.S.C. § 7545(o)(7)(A)(i) (2006).

petitioners could meet their burden of showing severe environmental harm, they still bear a heavy burden to show that the RFS mandate is itself the cause of the environmental harm.²³⁸ It appears highly unlikely that petitioners could make such a showing, when so many other factors incentivize corn ethanol production and thus contribute to localized and global harms. In sum, the mitigating measures provided under the 2005 EPA Act have very little chance of reducing corn ethanol production and avoiding the unintended consequences of using this biofuel.

V. A STRONGER RESPONSE: EPA'S REGULATION IMPLEMENTING EISA

By the end of 2008, it had become clear to most scientists and policymakers that first-generation biofuels, and corn ethanol in particular, had several negative impacts that required regulatory attention. At the same time, outside of a few state efforts to address these negative effects,²³⁹ EPA appeared unwilling to take meaningful steps to limit production of these first-generation biofuels. However, the passage of EISA in December 2007 created several new mandates for advanced biofuels production and specifically required new corn ethanol production to achieve a 20% reduction in greenhouse gas emissions as compared to emissions from fossil fuels. Most significantly, EISA directed EPA to conduct life-cycle analyses of greenhouse gas emissions from various biofuels. EPA interpreted this requirement to allow it to consider both direct and indirect emissions resulting from domestic and international land use changes.²⁴⁰ If nothing else, EISA appeared likely to radically alter biofuels production and corn ethanol's dominance.

EPA's life-cycle analyses initially revealed that many advanced biofuels would satisfy the emissions reductions requirements but that corn ethanol generally would not.²⁴¹ EPA's final rule, however, yielded different results, based on different assumptions regarding the types of land use changes that would occur internationally and the types of corn ethanol production

238. Texas Waiver Denial, *supra* note 31, at 47,184.

239. For example, California embarked on a difficult effort to ensure that any renewable fuels used in its state qualified as "low carbon" fuels based on all direct and indirect emissions associated with producing the fuels. Payne, *supra* note 45, at 891. Several states in the Northeast announced their intention to create a regional Low Carbon Fuel Standard modeled after California's. *Id.* at 897-98.

240. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,765-66.

241. EPA RFS2 Proposal, *supra* note 13, at 25,042 (concluding that corn ethanol produced in a basic dry mill ethanol production facility would reduce emissions by 16% compared to fossil fuels over a 100-year period, but result in a 5% increase in emissions over a 30-year period); *see id.* at 25,042 tbl.VI.C.1-2 (showing that all types of corn ethanol production would fail to achieve the 20% reduction requirement over a 30-year timeframe).

facilities likely to come online in the future.²⁴² Applying these new assumptions, EPA concluded that corn ethanol produced at new facilities using “advanced efficient technologies” and natural gas, biomass, or biogas for energy would meet the 20% emissions reduction requirements.²⁴³ In effect, EPA’s new rule establishes a road map for companies to follow to keep corn ethanol in production in the future.

It is unclear, however, whether EPA’s final rule will actually trigger new investment in corn ethanol facilities in the foreseeable future. EISA exempted all existing biofuel production facilities from the greenhouse gas reduction requirements.²⁴⁴ EPA, moreover, interpreted EISA’s exemption to extend to all corn ethanol production facilities that burn natural gas or biomass for energy that had commenced construction before the end of 2009.²⁴⁵ By grandfathering in all existing facilities—and the fifteen billion gallons per year of corn ethanol they produce—EISA and EPA’s final rule will ensure corn ethanol’s dominance over other first-generation biofuels for the foreseeable future. This may restrict investment in new corn ethanol, thereby giving EPA time to more completely assess the life-cycle emissions from new corn ethanol facilities. On the other hand, the existing grandfathering provisions may spur even more investment in new corn ethanol production facilities, since both Congress and EPA have shown a willingness to protect existing investments that do not meet the greenhouse gas reduction requirements.

Overall, EISA represents a significant step forward in its use of life-cycle analyses and promotion of advanced biofuels. However, its generous grandfathering terms all but guarantee that corn ethanol will dominate the U.S. biofuels industry for years to come. Moreover, absent new scientific assessments of the life-cycle emissions from biofuels or a new renewable fuels mandate that phases out corn ethanol entirely, it seems that corn ethanol will maintain its status well into the future.

A. *Life-cycle Analyses and Advanced Biofuels*

One of the most promising aspects of EISA, in addition to its direct mandates for advanced biofuels, is Congress’s recognition that biofuels may cause an overall increase in emissions of greenhouse gases when direct and

242. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,768–72.

243. *Id.* at 14,677.

244. EPA RFS2 Proposal, *supra* note 13, at 24,924.

245. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,688–89.

indirect emissions are considered.²⁴⁶ EISA, therefore, includes three important changes from RFS1 that have the potential to revolutionize the renewable fuels industry and ensure that biofuels are climate friendly.

First, EISA establishes new and aggressive production mandates for various advanced biofuels. EISA phases the requirements in slowly by requiring, for example, that 0.6 billion gallons of biofuels come from advanced fuels in 2009.²⁴⁷ By 2016, advanced biofuels must supply 7.25 billion gallons of the mandate, and cellulosic biofuels must account for at least 4.25 billion.²⁴⁸ By 2022, advanced biofuels must supply 21.0 billion gallons of all renewable fuels and will account for almost 60% of all renewable fuels required under the RFS.²⁴⁹ When compared to RFS1 under the 2005 EPAct, the mandates under EISA represent a significant improvement in biofuels policy. While RFS1 had nominal production requirements for cellulosic and advanced biofuels,²⁵⁰ RFS2 signals a new, and generally positive, direction for U.S. biofuels policy towards advanced and likely more sustainable²⁵¹ renewable fuels.

Second, and perhaps more importantly, EISA defines various biofuels according to their life-cycle greenhouse gas emissions and only allows those biofuels that achieve net reductions in these emissions to qualify for the RFS mandates.²⁵² With an important exception for existing corn ethanol production,²⁵³ renewable fuels²⁵⁴ must reduce life-cycle greenhouse gas emissions by 20% compared to the baseline emissions of the fossil fuels they replace.²⁵⁵ EISA creates three new categories of renewable fuels—advanced biofuels, cellulosic biofuels, and biomass-based diesel—all of which must achieve even greater life-cycle greenhouse gas reductions compared to baseline emissions from fossil fuels.²⁵⁶ “Advanced biofuels” are any renewable fuels other than corn ethanol that achieve a life-cycle greenhouse gas emission displacement of 50% compared to the fossil fuel it

246. Ted Gayer, *Lose-Lose on Biofuels?*, THE AMERICAN, May 28, 2009, <http://www.american.com/archive/2009/may-2009-lose-lose-on-biofuels>.

247. EPA RFS2 Proposal, *supra* note 13, at 24,910 tbl.II.A.1-1.

248. *Id.*

249. *Id.* By 2022, the total RFS volume mandate will reach 36 billion gallons, and advanced biofuels must supply 21 billion gallons, or 58.3% of the total. *Id.*

250. EPA RFS1 Final Rule, *supra* note 23, at 23,905 (noting that the 2005 Act required 250 million gallons of renewable fuels to come from cellulosic ethanol, starting in 2013).

251. *See infra* Part VI.

252. EPA RFS2 Proposal, *supra* note 13, at 24,911.

253. *See infra* notes 272–93 and accompanying text.

254. A renewable fuel is fuel produced from renewable biomass that is used to replace or reduce the quantity of fossil fuel present in transportation fuels. EPA RFS2 Proposal, *supra* note 13, at 24,921.

255. *Id.* at 24,924.

256. *Id.* at 24,911.

displaces.²⁵⁷ Cellulosic biofuels are any renewable fuels derived from any cellulose, hemicelluloses, or lignin, and achieve a 60% reduction in life-cycle greenhouse gas emissions compared to fossil fuels.²⁵⁸ Finally, biomass-based diesel must achieve at least a 50% reduction in greenhouse gas emissions.²⁵⁹ In sum, EISA requires a minimum reduction of 20% and up to a 60% reduction²⁶⁰ in greenhouse gas emissions compared to fossil fuels. This change undoubtedly represents a significant step forward for U.S. biofuels policy.

Third, the definition of renewable fuels requires that the fuels come from renewable biomass, which Congress further defined as coming from seven distinct types of biological materials.²⁶¹ These include “planted crops and crop residue,” “planted trees and tree residues,” and slash from non-federal forestlands.²⁶² Moreover, EISA restricts the definitions such that planted crops and crop residue and planted trees and tree residue must come from agricultural lands and plantations that existed before December 19, 2007.²⁶³ These definitions attempt to ensure that biofuels will not come directly from existing forests or other wildlands, and instead require biofuels production to occur on already cultivated lands. Presumably, these definitions will preclude U.S. fuel refiners, importers, and blenders from purchasing palm oil and sugarcane ethanol grown on recently converted forests or peatlands. As such, these definitions should address, at least in part, some of the concerns raised regarding the direct emissions of greenhouse gases associated with biofuel production.²⁶⁴

However, the renewable biomass definition, and EPA’s final regulation, will not address all of the concerns related to biofuels development. For example, renewable biomass is defined as planted crops and crop residue from agricultural land cleared or cultivated at any time before December 19, 2007 that is non-forested and either actively managed or fallow.²⁶⁵

257. *Id.* at 24,923.

258. *Id.*

259. *Id.*

260. EISA allows EPA to reduce these requirements by up to 10% per category of biofuel, if EPA determines the existing reductions are not commercially attainable. *Id.* at 24,924. EPA has proposed adjusting the emissions reductions downward to 44% or even 40% for advanced biofuels, based on its assessment of emissions reductions achievable through sugarcane ethanol production. *Id.*

261. *Id.* at 24,922.

262. *Id.* Other types of acceptable biomass are “animal waste material and byproducts,” biomass cleared from close proximity to buildings to reduce wildfire risk, algae, and separated yard or food waste. *Id.*

263. *Id.* at 24,931, 24,933.

264. *See, e.g.,* Payne, *supra* note 45, at 908–15 (discussing how these restrictions could implicate World Trade Organization rules).

265. EPA RFS2 Proposal, *supra* note 13, at 24,931.

Applying this definition, EPA has decided to allow all existing cropland, pastureland, and, most significantly, Conservation Reserve Program (CRP) land to qualify for biofuels production.²⁶⁶ Using existing cropland will likely raise the same environmental concerns generally expressed regarding U.S. farm policy and have the same implications of expanding corn production.²⁶⁷ Including pastureland in the definition may raise different concerns. On the one hand, as EPA notes, pastureland provides a good location for growing switchgrass and other fibrous plants used for cellulosic biofuels production.²⁶⁸ On the other hand, some conservationists fear that pasturelands could become new locations for genetically modified crops and create greater risks to plant biodiversity.²⁶⁹ Including CRP land in the allowable category of lands for biofuels production, however, seems especially likely to stir controversy. Historically, the U.S. Department of Agriculture has paid farmers to set aside and restore or protect environmentally sensitive lands through the CRP program.²⁷⁰ Corn ethanol production has already resulted in many farmers leaving the CRP program and putting these sensitive lands into cultivation.²⁷¹ EPA's decision to allow further cultivation of CRP lands will likely receive strong criticism from some conservationists.

B. New Versus Old Corn Ethanol Production

Although EISA defines renewable fuels to mean fuels that achieve a 20% reduction in life-cycle greenhouse gas emissions compared to fossil fuels,²⁷² this definition applies only to fuel produced from new facilities that commenced construction after December 19, 2007.²⁷³ Fuel produced from facilities that commenced construction before then is exempt from the 20% reduction requirement.²⁷⁴ In addition, EISA declares that facilities that commenced construction after the December 2007 cutoff date but that used natural gas or biomass to power the facility in 2008 or 2009 are “deemed

266. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,692.

267. See *supra* notes 126–46 and accompanying text (discussing the environmental consequences of expansive corn production).

268. EPA RFS2 Proposal, *supra* note 13, at 24,931.

269. See Elizabeth Rosenthal, *New Trend in Biofuels Has New Risks*, N.Y. TIMES, May 21, 2008, available at <http://www.nytimes.com/2008/05/21/science/earth/21biofuels.html> (describing conservationists' and botanists' concerns over the invasive potential of second-generation biofuels crops).

270. Eubanks, *supra* note 126, at 242–43; Purdy & Salzman, *supra* note 76, at 10,583.

271. Purdy & Salzman, *supra* note 76, at 10,853.

272. EPA RFS2 Proposal, *supra* note 13, at 24,924.

273. *Id.*

274. *Id.*

compliant” with the 20% reduction requirement.²⁷⁵ These two exceptions, and particularly the grandfathering provision for “old” ethanol facilities, have the potential to allow continued production of significant quantities of corn ethanol—perhaps up to fifteen billion gallons per year²⁷⁶—despite EPA’s conclusions that existing corn ethanol production emits more greenhouse gases than it prevents. The “old” versus “new” distinction therefore represents a significant flaw in RFS2 that could undermine the otherwise laudable goals of EISA.

EPA’s proposed regulation included a preferred alternative and five alternative options to limit the harmful impacts of the grandfathering and “deemed compliant” exceptions. EPA’s preferred alternative would limit the exceptions to the baseline volumes of ethanol the facilities stated they were able to produce whenever they sought their initial air quality permits.²⁷⁷ If a facility exceeded its baseline production levels, then any increased production would face the 20% greenhouse gas reductions requirement, but baseline production would remain exempt.²⁷⁸ Baseline production volumes would also remain exempt even if facilities replaced production equipment, although EPA also suggested that it would consider an option under which replacing certain equipment would render the facility a “new facility” and thus subject all production to the greenhouse gas reduction requirements.²⁷⁹ Even with this potential change, EPA’s preferred alternative would still exempt approximately fifteen billion gallons of corn ethanol production annually from the requirement that renewable fuels reduce greenhouse gas emissions by 20% compared to fossil fuel emissions levels.

EPA also proposed five alternative options to its preferred approach. First, EPA proposed that significant facility changes that would qualify under other Clean Air Act programs as “reconstruction” would convert an existing facility into a “new” facility and remove the exemptions for all

275. *Id.* at 24,924–25.

276. *Id.* at 24,925.

277. *Id.* at 24,926. Under the Clean Air Act, facilities must obtain permits before constructing any facility with the potential to emit more than 100 tons per year, or in some cases 250 tons per year, of regulated air pollutants. Facilities must record their potential emissions in their permit applications and typically calculate these emissions based on their predicted production capacity. EPA’s proposed regulation would use these figures to establish baseline production limits for ethanol. *Id.* If, for some reason, the permit application did not state the plant’s maximum capacity, the facility’s actual peak production amount would establish its baseline amount. *Id.*

278. *Id.* EPA acknowledged that some production increases could occur within the plant’s “inherent capacity” and suggested that some increases—perhaps a 10% increase above the established baseline capacity—would also remain exempt from the greenhouse gas reduction requirement. *Id.*

279. *Id.* at 24,927–28.

ethanol produced at the facility.²⁸⁰ Unlike EPA's preferred alternative, this option would not retain any exemptions for baseline production levels.²⁸¹ Next, EPA proposed two alternative options that would establish a fifteen-year expiration date for the exceptions.²⁸² One of these would allow unrestricted production of corn ethanol at these exempt facilities, and the other would also subject existing facilities to the baseline production levels articulated in EPA's preferred alternative.²⁸³ EPA based the fifteen-year expiration date on studies showing that components on many ethanol facilities would require complete replacement within ten to fifteen years of their construction.²⁸⁴ Under these two options, starting in 2023, all biofuels produced from existing facilities would need to meet the 20% greenhouse gas reduction requirement.²⁸⁵ Another related option would separate out "significant production units" so that whenever a company added new production units, biofuels produced from those units would be subject to the 20% reduction requirement.²⁸⁶ In essence, this proposal would prevent facilities from adding new equipment and increasing production capacity without complying with the 20% requirement. EPA's last option would head in the other direction, establishing indefinite grandfathering and no limitations on the volume of biofuels existing facilities could produce.²⁸⁷ Ultimately, EPA selected its preferred alternative, which will indefinitely allow existing facilities and facilities under construction to continue to produce ethanol at baseline production levels.²⁸⁸

Although some of the alternative options could have lessened the significance of the grandfathering and "deemed compliant" exceptions, they would not have done much to lessen the immediate impacts of continued corn ethanol production. The most stringent alternative option would have established a fifteen-year expiration date for the grandfathering option and limited production levels to baseline capacity.²⁸⁹ While the fifteen-year expiration date would have established certainty in the biofuels industry by creating a date-certain by which existing facilities would need to meet the

280. *Id.* at 24,928–29.

281. *Id.* at 24,928.

282. *Id.* at 24,929–30.

283. *Id.*

284. *Id.* at 24,929.

285. *Id.*

286. *Id.* at 24,930.

287. *Id.*

288. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,690–91. EPA will set the baseline production rates either by looking at the amount of ethanol a facility is allowed to produce under state or federal air pollution permits or, where the permits do not set limits, by calculating the annual peak production volume of a given plant over a three- or five-year period. *Id.* at 14,690.

289. EPA RFS2 Proposal, *supra* note 13, at 24,929.

20% greenhouse gas reduction obligation,²⁹⁰ it would have done nothing to reduce existing corn ethanol production in the near term. Indeed, the only real difference between the most stringent alternative and EPA's preferred alternative was the deadline for future compliance. Otherwise, EPA's proposals would have allowed production of up to fifteen billion gallons of corn ethanol annually, despite its likely harmful effects, which may extend well into the future.

Unfortunately, EPA's discretion to phase out ethanol within a quicker timeframe is likely limited by EISA itself and Congress's unfortunate choice to establish the grandfathering and "deemed compliant" exceptions. In passing EISA, Congress set no limit on production volumes and no deadline for phasing out the exceptions. EPA could have argued, however, that it had discretion to include its proposed restrictions. For example, EPA could readily have made the case that its proposed limitations on ethanol production levels were consistent with Congress's intent to exempt only existing facilities, and, presumably, existing production from those facilities. Similarly, EPA could have argued that Congress's grandfathering of existing facilities, much like its grandfathering of other facilities under other parts of the Clean Air Act,²⁹¹ was meant to protect existing investments only.²⁹² A time limit on these exemptions would have been consistent with other parts of the Clean Air Act that require modified facilities to meet the same requirements as new facilities must meet.²⁹³

290. *Id.*

291. *See, e.g.*, 42 U.S.C. § 7411 (2006) (establishing New Source Performance Standards for new and modified facilities); *see id.* §§ 7475–7479 (requiring facilities that undergo major modifications to comply with the Prevention of Significant Determination permitting requirements otherwise applicable to new facilities); *id.* § 7503 (requiring facilities that undergo major modifications to comply with the New Source Review requirements applicable to new facilities).

292. *See* EPA RFS2 Proposal, *supra* note 13, at 24,929–30 (arguing that Congress likely created the exemptions to protect existing investments).

293. *Id.* at 24,929. Under other parts of the Clean Air Act, EPA uses case-by-case tests to determine whether or not a facility has performed a major modification and thus triggered requirements that would otherwise apply to new facilities. *Env'tl. Defense v. Duke Energy Corp.*, 549 U.S. 561, 568–69 (2007) (discussing the various regulations defining the term modification). EPA's case-by-case approach has resulted in substantial litigation over the years regarding whether particular facilities in fact made modifications triggering enhanced permitting and pollution control requirements. *See id.* at 579 n.7 (discussing three other cases). Nonetheless, EPA will need to continue to use a case-by-case approach for those parts of the Clean Air Act because the statutory definition of "modification," which requires a physical change resulting in an increase in emissions, requires EPA to determine in each case whether a facility made a change that increased emissions. *Id.* at 568–69. Under EISA, in contrast, Congress did not use the term modification or establish a case-by-case process for EPA to determine whether a facility could remain grandfathered. While ethanol producers could argue that this indicates congressional intent to permanently grandfather facilities, EPA has a colorable argument that Congress intended only to grandfather facilities in existence in 2007 and to subject any facility modifications to the 20% greenhouse gas reductions requirement.

Beyond that, however, Congress's decision to carve out exemptions for existing facilities likely constrains EPA from taking additional steps beyond those in the proposed regulations to limit ongoing corn ethanol production. If Congress wants to move toward developing a sustainable biofuels policy that actually reduces greenhouse gas emissions, Congress itself will need to remove the unfortunate exemptions it established under EISA.

C. Will New Ethanol Become Old Ethanol?

A more troubling issue arises with new corn ethanol facilities and their compliance with the 20% emissions reduction requirement. In its proposed rule, EPA calculated that new corn ethanol production would, over a thirty-year timeframe, likely result in more greenhouse gas emissions than it would prevent, based on predicted production methods and indirect land use changes.²⁹⁴ EPA's proposed rule would therefore have prohibited new corn ethanol production from qualifying as a renewable fuel under RFS2. In its final rule, EPA reversed course and determined that corn ethanol produced at new or expanded facilities using natural gas, biogas, or biomass would meet the 20% greenhouse gas emissions reduction requirement.²⁹⁵ EPA based its conclusion on new data and scientific methods for calculating indirect emissions associated with land use changes and on assumptions about the types of technologies that EPA would expect new facilities to employ.²⁹⁶ As a matter of administrative law, EPA's changes represent a perfectly justifiable reversal based on updated science and economic data.²⁹⁷ However, as a matter of good biofuels policy, EPA's determination appears premature and may enable corn ethanol producers to evade the greenhouse gas reductions requirements, even if scientific advancements reveal that indirect land use emissions are far greater than EPA predicted.

In developing both its proposed and final rules, EPA conducted an extensive survey of existing data to assess whether new corn ethanol and other biofuels would meet the greenhouse gas reduction requirements set by Congress. In both rulemaking proceedings, EPA identified areas of uncertainty and suggested that EPA would seek additional data and

294. EPA RFS2 Proposal, *supra* note 13, at 25,042 (concluding that corn ethanol produced in a basic dry mill ethanol production facility would reduce emissions by 16% compared to fossil fuels over a 100-year period, but result in a 5% increase in emissions over a 30-year period); *see id.* at 25,042 tbl.VI.C.1-2 (showing that all types of corn ethanol production would fail to achieve the 20% reduction requirement over a 30-year timeframe).

295. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,677.

296. *Id.* at 14,677-79.

297. *See* Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 42 (1983) (noting that an agency may reverse itself where data support the agency's changed position).

information to verify the accuracy of its assumptions.²⁹⁸ As an agency charged with making certain decisions in an area abounding with scientific uncertainty, EPA's approach appears appropriate and cautious.

However, EPA's determination that new corn ethanol production, which likely will not begin for years, will meet the 20% reduction requirement appears premature and subject to change. Looking, for example, at the indirect land use emissions that will result from corn ethanol, EPA explained that it used improved satellite data to assess whether assumed cropland expansion would result in increased deforestation—and thus more greenhouse gas emissions—or other types of land conversion that would result in fewer emissions.²⁹⁹ Once EPA decided that less deforestation would result, it lowered its overall greenhouse gas emissions estimates.³⁰⁰ Similarly, EPA revised its assumptions about the types of facilities corn ethanol producers would build based on predictions about the economics of the industry in the future.³⁰¹ These assumptions predicted that future ethanol plants would need to operate more efficiently and produce valuable byproducts for them to compete in the future.³⁰² Collectively, these revised assumptions resulted in a conclusion, about which the agency was “over 50% confident,” that new corn ethanol plans would meet the 20% greenhouse gas reduction requirement.³⁰³ In contrast, the agency was 95% confident that new corn ethanol would reduce emissions somewhere between 7% and 32% compared to the baseline.³⁰⁴

This begs the question of why the agency released its conclusions at all and effectively blessed new corn ethanol production plants. The answer, according to EPA, is that EISA mandates EPA to make the threshold determinations now, despite the uncertain science.³⁰⁵ In addition, the agency has promised to consult with the National Academy of Sciences regarding its estimates and to update its conclusions based on any relevant new information.³⁰⁶ With these caveats, the Agency decided to authorize new ethanol facilities that use efficient technologies.³⁰⁷ Although the Agency likely had no other choice than to issue the rule, it does not appear that EPA had to approve new corn ethanol production as part of that rule.

298. EPA RFS2 Final Rule Preamble, *supra* note 35, at 14,678–79.

299. *Id.* at 14,678.

300. *Id.*

301. *Id.* at 14,785–86.

302. *Id.*

303. *Id.* at 14,786.

304. *Id.*

305. *Id.* at 14,785.

306. *Id.*

307. *Id.* at 14,688.

EPA felt 95% confident that emissions would be between 7% and 32% lower when compared to gasoline, but that range suggests that many of the emissions may fall on the low end and not meet the 20% reduction requirement. If that proves to be the case, many facilities built in reliance on the rule may not ultimately comply with EISA. Those facilities will have three options: quit production; continue producing ethanol, but no longer receive production credits under EISA; or seek an exemption from Congress. Based on the history of the biofuels industry, the third approach seems the most likely one for corn ethanol producers to pursue. If that happens, corn ethanol will continue its reign for far longer than even EPA's new rule may suggest.

VI. A SUSTAINABLE BIOFUELS POLICY OR MORE OF THE SAME?

As the science has developed to link corn ethanol and other first-generation biofuels to increased emissions of greenhouse gases, increased conversion of rainforests and peatlands into agricultural lands, and increased localized pollution, U.S. biofuels policy has also begun to change. However, while various advocates have called for the United States to develop a sustainable biofuels policy, neither Congress nor EPA has heeded the call. U.S. biofuels policy, even after the passage of EISA in 2007, will continue to allow production of corn ethanol, and, by definition, will therefore continue to allow biofuels policy to result in various unintended consequences.

Yet, U.S. biofuels policy has moved significantly away from its original foundation and, if it continues to progress, could actually serve as a model for biofuels laws in other countries. Congress's decision to define renewable fuels and various categories of advanced and cellulosic fuels according to their greenhouse gas reductions represents a huge step forward in biofuels policy. Most other countries are only now beginning to pass biofuels laws, and none of these establish clear greenhouse gas reduction goals like U.S. biofuels law does. The new definitions in EISA, moreover, have the potential to mitigate the other unintended consequences of biofuels development. For example, EISA defines "advanced biofuels" as a fuel not derived from corn starch. As the volume requirements for advanced biofuels increase in the future, these mandates will be less likely to affect food supplies. The movement away from food crops as a source of fuel could prove to be an especially important development as global populations increase and global food supplies shrink due to climate change and other pressures. Similarly, a future move away from corn ethanol could

address concerns about localized degradation of water quality, air quality, and habitat, as corn production exacts a particularly harsh toll on the environment.

Finally, and perhaps most importantly, the changes in EISA could signal, perhaps ever so slightly, a willingness on behalf of Congress to resist at least some of the demands of the corn lobby. Admittedly, the corn industry will continue to profit immensely from the fifteen billion gallons of corn ethanol that it can continue to produce as a result of the exemptions in EISA. Yet, any limit on the corn industry must be seen, at least on some levels, as a success. For years, critics have argued against corn subsidies and called on politicians to suspend them, to no avail.³⁰⁸ Some scholars have concluded that the fight against subsidies is doomed to failure and have instead suggested ways for consumers to directly affect the corn industry.³⁰⁹ Even then, these scholars recognize the near futility in their proposals.³¹⁰ Biofuels policy, however, could signal a way to mitigate the power of the corn industry. As science shows the harm that corn ethanol is exacting, and as Congress responds to the science, the corn industry itself may face greater restrictions. For now, EISA's small steps suggest a movement, however slight, towards sustainability.

To be sure, U.S. biofuels policy remains flawed, and if Congress does not amend EISA to remove the grandfathering exceptions, corn ethanol will continue to exact an enormous toll on the environment and the economy. Yet, Congress's progress regarding biofuels policy has been quite extraordinary. In 2005, Congress's first RFS placed no limits on corn ethanol production and established pitifully weak standards for advanced biofuels. Only two years later, Congress set aggressive goals for advanced biofuels and required corn ethanol to meet a 20% greenhouse gas emissions reduction requirement. If Congress continues to proceed along this trajectory, U.S. biofuels policy may become truly sustainable. For now, there is at least reason to hope for its future.

308. See Eubanks, *supra* note 126 (critiquing subsidies for commercial agriculture).

309. Purdy & Salzman, *supra* note 76, at 10,853–56.

310. *Id.* at 10,856.

ADAPTING WATER LAW TO PUBLIC NECESSITY: REFRAMING CLIMATE CHANGE ADAPTATION AS EMERGENCY RESPONSE AND PREPAREDNESS

*Robin Kundis Craig**

“Sudden and disruptive changes are always painful, and every effort needs to be made to ensure that transition periods proceed as smoothly as possible The new era is one of reallocation. . . . No private property claims are going to halt this transformation Those who adapt well will survive.”¹

“We should be thinking less about rights altogether, and more about ways to get things done”²

“The needs of the many outweigh the needs of the few, or the one.”³

Abstract

As a result of both climate change and non-climate-change forces, fresh water supplies in many parts of the United States are approaching a state of crisis. This article suggests that both the law and public policy should embrace that reality.

Specifically, this article argues that viewing climate change impacts on water supply as an ongoing emergency could provide a more productive

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1. Joseph L. Sax, *The Limits of Private Rights in Public Waters*, 19 ENVTL. L. 473, 482–83 (1989). While Sax was discussing emerging concerns in water law regarding ecological protection, his views on the necessarily adaptable and public nature of water law are equally apt in the climate change context.

2. Carol M. Rose, *Property as the Keystone Right?*, 71 NOTRE DAME L. REV. 329, 351 (1996).

3. STAR TREK: THE WRATH OF KHAN (Paramount Pictures 1982) (quoting Mr. Spock and Captain Kirk).

framework for initiating and implementing adaptation strategies. Classifying climate change's impacts on water supply as a real crisis allows adaptation planning to become a form of emergency preparedness—concrete measures designed to deal with existing problems—underscoring the fact that the impacts are only likely to become worse in many parts of the country. Moreover, reframing climate change adaptation in the water context as emergency preparedness could productively shift the focus of adaptation strategies to the survival of communities as functional communities—that is, as something more than the mere physical survival of individual humans. Such reframing would also allow recognition that communities are coupled socio-ecological systems, dependent on the surrounding natural resources—like water—and the ecosystem services that they provide.

Reframing climate change impacts on water as an emergency, moreover, could provide needed flexibility both legally and politically. Legally, emergencies allow for the operation of the doctrine of public necessity, a common-law doctrine that may prove very useful in reallocating water rights, especially in times of significant drought. This article argues that public necessity invokes a broader public policy regarding the relationship of individual rights and community well-being that should produce a politically powerful synergy in the context of adapting water law to climate change, given that water is already considered a semi-public natural resource.

TABLE OF CONTENTS

Introduction.....	711
I. Water Supply Shortages and Climate Change.....	717
A. Water Stress in the United States, Pre-Climate Change.....	718
B. Climate Change and Water Supply in the United States.....	722
II. Water, Climate Change, and the Property Rights Barrier	725
A. Property Rights Barriers in Water Law to Adapting to Water Supply Changes.....	725
B. Property Rights in Water.....	730
III. Reframing Climate Change As an Emergency: Public Necessity and Its Implications for Water Law and Policy	735
A. The Legal Doctrine of Public Necessity	737
B. The Public Necessity Doctrine and Climate Change Adaptation: Reframing Climate Change Impacts on Water Supply As an Emergency.....	744

C. Philosophical Public Necessity and Reframing the Public Policy of Climate Change Adaptation	750
Conclusion: The Value of an Emergency Preparedness and Response Framework	752

INTRODUCTION

As a result of both climate change and non-climate-change forces, fresh water supplies in many parts of the United States are approaching a state of emergency. This article posits that the law should embrace that reality as an aid to climate change adaptation efforts.

As early as July 2003, the U.S. Government Accountability Office's (GAO's) survey of the states revealed that "[e]ven under normal water conditions, water managers in 36 states anticipate water shortages in localities, regions, or statewide within the next 10 years. Under drought conditions, 46 managers expect shortages in the next 10 years. Such shortages may be accompanied by severe economic, environmental, and social impacts."⁴ Notably, drought-plagued California and New Mexico did not respond to the survey,⁵ suggesting that the totals should actually be thirty-eight and forty-eight states, respectively: California is already facing water shortages⁶ and New Mexico is vulnerable to water stress.⁷

The end of the GAO's ten-year predictive window—2012—is quickly approaching, and drought conditions have persisted in many regions of the country.⁸ Thus, even without the complication of climate change, the United States is facing an impending water supply crisis.

However, as the GAO also recognized, climate change⁹ adds another level of urgency to the national water supply problem.¹⁰ Climate change

4. U.S. GEN. ACCOUNTABILITY OFFICE, GAO-03-514, FRESHWATER SUPPLY: STATES' VIEWS OF HOW FEDERAL AGENCIES COULD HELP THEM MEET THE CHALLENGES OF EXPECTED SHORTAGES 5 (2003), available at <http://www.gao.gov/new.items/d03514.pdf#70> [hereinafter 2003 GAO STATE WATER SURVEY REPORT].

5. *Id.* at 3.

6. Cal. Drought Preparedness, Water Shortages, <http://www.cadroughtprep.net/watshort.htm> (last visited Feb. 22, 2010).

7. Scott Streater, *Climate Change, Water Shortages Conspire to Create 21st Century Dust Bowl*, THE NEW YORK TIMES GREENWIRE, May 14, 2009, <http://www.nytimes.com/gwire/2009/05/14/14greenwire-climate-change-water-shortages-conspire-to-cre-12208.html>.

8. See U.S. Drought Monitor, National Drought Summary—January 26, 2010, <http://drought.unl.edu/DM/MONITOR.html> (showing much of the West, part of the Great Lakes region, and part of Florida in drought in December 2009).

9. "'Climate change' is the shift in the average weather, or weather trends that are experienced over decades or longer. Climate change is not demonstrated by a single event, but by a series of events,

resulting from the accumulation of greenhouse gases in the atmosphere is already affecting water resources in the United States and is likely to continue to do so for several decades, perhaps centuries.¹¹ These impacts threaten not only the availability of water to satisfy human needs for drinking water, agricultural irrigation, and industrial uses, but also the integrity of aquatic ecosystems and the ecosystem services that they supply to humans living in coupled socio-ecological systems.¹²

In general, climate change inspires observers and scholars to reframe our standard conceptions of “environmental problems.”¹³ In the climate change mitigation¹⁴ context, for example, several commentators have questioned the wisdom of viewing climate change as a standard “pollution” problem, despite the fact that identifiable emissions of greenhouse gases cause climate change. Most dramatically, in 2007 Ted Nordhaus and Michael Shellenberger argued that “the quantitative accumulation of carbon dioxide in the atmosphere has created something qualitatively different from pollution: changing temperatures worldwide and melting ice caps, which may lead to a collapse of the North Atlantic Gulf Stream, water shortages, new disease epidemics, and resource wars.”¹⁵ In their assessment:

To describe these challenges as problems of pollution is to stretch the meaning of the word beyond recognition. Global warming is as different from smog in Los Angeles as nuclear war is from gang violence. The ecological crises we face are more global, complex, and tied to the basic

like floods or warm years that change the average precipitation or temperature over time.” NATIONAL ASSOCIATION OF CLEAN WATER AGENCIES, CONFRONTING CLIMATE CHANGE: AN EARLY ANALYSIS OF WATER AND WASTEWATER ADAPTATION COSTS 1-1 (2009), available at <http://www.amwa.net/galleries/climate-change/ConfrontingClimateChangeOct09.pdf> [hereinafter 2009 NACWA WATER ADAPTATION COST ANALYSIS].

10. 2003 GAO STATE WATER SURVEY REPORT, *supra* note 4, at 62–63.

11. U.S. GLOBAL CHANGE RESEARCH PROGRAM, GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES 41 (2009), available at <http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf> [hereinafter 2009 U.S. CLIMATE CHANGE IMPACTS REPORT].

12. Robin Kundis Craig, “Stationarity Is Dead”—*Long Live Transformation: Five Principles for Climate Change Adaptation Law*, 34:1 HARV. ENVTL. L. REV. 9, 10–14 (Mar. 2010).

13. Of course, as J.B. Ruhl and Jim Salzman have recently pointed out, environmental problems themselves come in a variety of “flavors” and exhibit very different kinds and levels of complexity. See generally J.B. Ruhl & James Salzman, *Massive Problems in the Administrative State: Strategies for Whittling Away*, 98 CAL. L. REV. (forthcoming 2010) (manuscript at 42–43, on file with VJEL and the author), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1280896 (discussing the complexity of environmental issues).

14. Craig, *supra* note 12, at 18 n.49.

15. TED NORDHAUS & MICHAEL SHELLENBERGER, BREAKTHROUGH: FROM THE DEATH OF ENVIRONMENTALISM TO THE POLITICS OF POSSIBILITY 7 (2007) (emphasis omitted).

functioning of the economy than were the problems environmentalism was created to address forty years ago. Global warming threatens human civilization so fundamentally that it cannot be understood as a straightforward pollution problem, but instead as an existential one. Its impacts will be so enormous that it is better understood as a problem of evolution, not pollution.¹⁶

Notably, in the same year that Nordhaus and Shellenberger made these arguments, the U.S. Supreme Court decided *Massachusetts v. EPA*,¹⁷ which centered on the status of carbon dioxide and other greenhouse gases as “pollutants” under the federal Clean Air Act.¹⁸ The Environmental Protection Agency’s (EPA) refusal to regulate emissions of these gases and the resulting five-four split among the Justices gave powerful evidence of climate change’s contested status as a “pollution problem.”¹⁹

More recently, both Lisa Heinzerling²⁰ and John Nagle have discussed the phenomenon of “climate exceptionalism”—in Nagle’s terms, “the belief that the problem presented by climate change is different from the air pollution problems that we have addressed in the past.”²¹ While acknowledging that the traditional “pollution paradigm fits uneasily for a substance like CO₂,”²² Nagle argues instead that we should use a broader cultural construction of “pollution” when discussing climate change—one that includes conceptions of desecration and moral pollution.²³ This broader understanding of pollution, he argues, better promotes a pluralistic

16. *Id.* at 8 (emphasis omitted); see JAMES GUSTAVE SPETH, *THE BRIDGE AT THE EDGE OF THE WORLD: CAPITALISM, THE ENVIRONMENT, AND CROSSING FROM CRISIS TO SUSTAINABILITY* 9 (2008) (“Today’s mainstream environmentalism—aptly characterized as incremental and pragmatic ‘problem solving’—has proven insufficient to deal with current challenges and is not up to coping with the larger challenges ahead.”).

17. *Massachusetts v. EPA*, 549 U.S. 497 (2007).

18. See, e.g., *id.* at 558–59 (Scalia, J., dissenting) (arguing that greenhouse gases do *not* fit within the Act’s definition of “pollutant”).

19. For example, Chief Justice Roberts, writing in dissent, emphasized that “[g]lobal warming is a phenomenon ‘harmful to humanity at large[,] . . . and the redress petitioners seek is focused no more on them than on the public generally—it is literally to change the atmosphere around the world.’” *Id.* at 541 (Roberts, C.J., dissenting) (citation omitted). More directly on point, Justice Scalia (also writing in dissent) argued that climate change did not constitute “air pollution” for purposes of the Clean Air Act. *Id.* at 558–59 (Scalia, J., dissenting).

20. Lisa Heinzerling, *The Role of Science in Massachusetts v. EPA*, 58 EMORY L.J. 411, 416 (2008).

21. John Copeland Nagle, *Climate Exceptionalism*, 40 ENVTL. L. REV. (forthcoming Spring 2010) (manuscript at 1, on file with VJEL and the author), available at <http://ssrn.com/abstract=1459147>.

22. *Id.* at 2.

23. *Id.* at 3–4.

response to climate change, avoiding the either/or constrictions that the narrow environmental conception of “pollution” imposes on society’s responses to this phenomenon.²⁴ As Nagle points out, “[t]he traditional understanding of environmental pollution is doing much of the work to champion the regulation of CO₂ emissions instead of promoting adaptation to the effects of a changing climate. If the climate was changing naturally, then we would have to try to adapt to it.”²⁵ In contrast, “[a] broader understanding of pollution offers a justification for adaptation.”²⁶

This article takes the next step, arguing that we also should reframe (at least in specific contexts like water supply) how we categorize—legally, politically, and philosophically—climate change adaptation itself. In the United States in particular, climate change adaptation has generally been portrayed as a deliberative and generally unhurried process, framed as a choice whether to sacrifice current economic productivity in order to reduce the risk of uncertain future harm.²⁷ I agree with Richard Revesz and Michael Livermore that cost-benefit analyses, properly structured, can be invaluable tools in environmental policymaking.²⁸ Nevertheless, cost-benefit analyses of climate change adaptation are necessarily constrained by the lack of scientific certainty regarding the likely magnitude of average global temperature increases, the timing of those increases, and the severity, location, and timing of socio-ecological impacts.²⁹ As a result, these analyses are riddled with questionable assumptions about how bad climate

24. *Id.* at 4, 32.

25. *Id.* at 32.

26. *Id.*

27. As Robert Mendelsohn recently summarized:

Economists usually present a rather gloomy view of climate change. They argue that efficient policies should only slow climate change this century, not stop it. Aggressive near-term policies lead to abatement costs that outweigh the avoided future climate damages. Strict abatement policies should be delayed into the future as damages increase. Only modest control programs are warranted in the near term.

Robert O. Mendelsohn, *A Critique of the Stern Report*, 29 REG. 42, 42 (2006).

28. RICHARD L. REVESZ & MICHAEL A. LIVERMORE, RETAKING RATIONALITY: HOW COST-BENEFIT ANALYSIS CAN BETTER PROTECT THE ENVIRONMENT AND OUR HEALTH 18 (2008). “Cost-benefit analysis . . . can be an enormously powerful tool for proregulatory groups. It can show that the interests they represent—the environment, consumers, or workers—are not opposed to the economy. Instead, regulation is necessary to preserve economic value and maximize wealth because protecting the environment and protecting health and safety are an essential part of a well-functioning economy.” *Id.*

29. *See, e.g.*, Kelly C. de Bruin & Rob B. Dellink, *How Harmful Are Adaptation Restrictions 2* (Fondazione Eni Enrico Mattei, Working Paper No. 58, 2009) (challenging the assumption of most such studies that adaptation will be done in an optimal manner and emphasizing that “[t]here remains a large amount of uncertainty regarding climate change damages and how much of these are avoided through adaptation”).

change will be and how fast it will occur, and most such analyses do not even consider the truly “worst case” scenarios.³⁰

The “GIGO” principle³¹ thus cautions skepticism in relying on these analyses while formulating adaptation policy. But if portraying climate change adaptation as a conscious choice between well-understood benefits and risks unhelpfully misframes the problem and obscures the many complexities and uncertainties involved, how *should* we be looking at climate change impacts when we formulate adaptation policy?

Well, how about as an on-going and growing emergency?

Cost-benefit analyses and most discussions of climate change adaptation assume that humans and at least a minimally functional biosphere will survive climate change.³² Such assumptions reveal that, despite visions such as Nordhaus’s and Shellenberger’s, Americans are not yet thinking of climate change as a potential disaster.

But what if we did? If climate change itself constitutes an emergency, then adaptation can be helpfully reframed as emergency preparedness and response.³³ As in other emergency management contexts, the value of anticipating the crises that climate change impacts will create is in avoiding death, destruction, and a paralyzing sense of hopelessness—i.e., to prevent a bad situation from escalating into a full-blown disaster. Emergency preparedness exists to minimize damage and loss of life when emergencies, whether natural or human-caused, actually occur. Emergency response mechanisms, at least when they function correctly,³⁴ similarly minimize loss

30. See, e.g., Robert S. Pindyck, *Uncertain Outcomes and Climate Change Policy* 1 (MIT Sloan Research Paper No. 4742-09, 2009) (“Economic analyses of climate change policies often focus on a set of ‘likely’ scenarios—those within a roughly 66 to 90 percent confidence interval—for emissions, increases in temperature, economic impacts, and abatement costs.”), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1448683; see *id.* at 3 (concluding that “because of its focus on the middle of the distribution of outcomes, traditional cost-benefit analysis may be misleading”); Mendelsohn, *supra* note 27, at 42–46 (detailing the numerous economic assumptions made in the Stern Report and making a number of its own in the process).

31. WiseGEEK, What is Garbage In Garbage Out?, <http://www.wisegeek.com/what-is-garbage-in-garbage-out.htm> (last visited Feb. 23, 2010); Webopedia, Garbage In, Garbage Out, http://www.webopedia.com/TERM/g/garbage_in_garbage_out.html (last visited Feb. 23, 2010).

32. E.g., J.B. Ruhl, *Climate Change Adaptation and the Structural Transformation of Environmental Law*, 40 ENVTL. L. (forthcoming 2010) (manuscript at 11, on file with VJEL and the author), available at <http://ssrn.com/abstract=1517374> (consciously assuming for purposes of discussion that “at some point, probably many decades into the future, the mitigation measures will gain traction on greenhouse gas emissions and will arrest further climate change to lead us into a new stabilized climate regime”).

33. J.B. Ruhl has predicted that catastrophe and crisis avoidance and mitigation will become an overarching policy priority in climate adaptation policy. *Id.* at 40–43. I suggest a slightly different perspective—that there is value, legally and politically, in viewing the whole business of climate change adaptation (at least in certain sectors, such as water supply) as emergency preparedness.

34. The responses to Hurricane Katrina remain a national black eye in this regard.

of life and property destruction and, in truly extreme emergencies, prevent the loss of communities and civilizations.³⁵ Most importantly, framing a phenomenon as an emergency prioritizes the survival of the community, focusing attention and resources on ensuring its survival in ways that can be difficult during “business as usual.”

The law, too, recognizes the concept of emergency. As in the socio-political sphere, framing an event as a legal emergency often serves to shift the balance among competing goals and priorities in order to focus attention on community survival, even at the expense of individual property or civil rights. For example, the U.S. Constitution itself allows Congress to suspend the writ of habeas corpus “when in cases of rebellion or invasion the public safety may require it.”³⁶ Quarantine of individuals against their will remains a viable public health measure in the face of epidemic or pandemic communicable diseases,³⁷ despite the admitted abuses of quarantine measures in the past.³⁸ Most relevantly for this article, the doctrine of public necessity remains a viable defense to property destruction or limitations imposed on property rights.³⁹

This article argues that reframing climate change impacts as a long-term emergency better allows for the survival of communities *as* communities—that is, as something more than the mere physical survival of individual humans. Specifically, reframing climate change adaptation as long-term emergency preparedness can allow recognition that communities are always coupled socio-ecological systems, dependent on the surrounding natural resources—such as water—and the ecosystem services that they provide. As a result, community survival requires attention to more than just basic individual human needs. Focusing on the already semi-public natural resource of water, this article further argues that the doctrine of public necessity should play a significant role in reshaping water law in order to allow for effective climate change adaptation with respect to allocation of water resources.

35. Notably, in the December 2009 Copenhagen negotiations on climate change, nations whose very existence is at stake made some of the most stringent arguments for action. *See* AFP, *You Caused It, You Fix It: Tuvalu Takes Off the Gloves*, THE SYDNEY MORNING HERALD, Dec. 10, 2009, <http://www.smh.com.au/environment/climate-change-you-caused-it-you-fix-it-tuvalu-takes-off-the-gloves-20091210-kksq.html> (noting that “[t]he 42-member Alliance of Small Island States (AOSIS), including Tuvalu, and the bloc of mainly African Least Developed Countries, have rejected the widely held goal of keeping global temperatures from rising more than 2 degrees Celsius as inadequate” to protect them from sea-level rise and “crippling drought”).

36. U.S. CONST. art. I, § 9, cl. 2.

37. *See* LAWRENCE O. GOSTIN, PUBLIC HEALTH LAW: POWER, DUTY, RESTRAINT 205–24 (2000) (providing a history of quarantine law).

38. *Id.* at 207–08.

39. RESTATEMENT (SECOND) OF TORTS § 196 (1995); *see infra* discussion Part III.A.

Invoking public necessity requires that we be able to view climate change, or at least its impacts on water, as a form of emergency. Part I discusses in more detail the water supply shortages that the United States is already facing and the potential for climate change impacts to exacerbate those problems. Moreover, the public necessity doctrine is most frequently a defense to the destruction of or imposition upon property rights. Thus, Part II discusses the status of water and water rights as property. Finally, Part III discusses the potential role of the concept of public necessity in the law and policy of climate change adaptation. The legal doctrine of public necessity strengthens governments' normal police powers, allowing them to take extraordinary measures to protect human life and the community in times of emergency. More broadly, however, the policies behind public necessity recognize that in times of emergency, community survival trumps the technicalities of individual rights, especially private property rights. Such community-focused authority to protect and manage water resources may become one important tool in climate change adaptation law, aided by the fact that water possesses the adaptation advantage of already being considered a semi-public resource.

I. WATER SUPPLY SHORTAGES AND CLIMATE CHANGE

Water provides an iconic starting point for discussing climate change as an emergency. First, impacts on water are among the most universal and most anticipated climate change impacts; indeed, there is evidence that rising global average temperatures and consequent alterations in weather patterns are already affecting lakes, streams, and rivers around the country. Second, as noted, fresh water supplies in many regions of the country are already stressed, and shortages were anticipated even without the additional complication of climate change. Thus, the sense that something must be done to guarantee public water supplies for the future is already palpable. Finally, water, more than any other natural resource, is an absolute necessity for life. Even under the most favorable conditions, humans will die within ten days of being deprived of water, and can die within two days in more unfavorable conditions.⁴⁰ In addition, without water there is no food, no ecosystems, and no industry. Therefore, if climate change impacts any resource enough to justify re-framing climate change adaptation as an emergency, water is that resource.

40. Survival Topics, *How Long Can You Survive Without Water?*, <http://survivaltopics.com/survival/how-long-can-you-survive-without-water> (last visited Feb. 23, 2010).

A. *Water Stress in the United States, Pre-Climate Change*

As the GAO reported in 2003, water shortages are anticipated throughout the nation in the next few decades even without the complications of climate change. A variety of causes are contributing to these shortages:

Specifically, the building of new, large reservoir projects has tapered off, limiting the amount of surface-water storage, and the storage that exists is threatened by age and sedimentation. Significant ground-water depletion has already occurred in many areas of the country; in some cases the depletion has permanently reduced an aquifer's storage capacity or allowed saltwater to intrude into freshwater sources. Tremendous population growth, driving increases in the use of the public water supply, is anticipated in the Western and Southern states, areas that are already taxing existing supplies. Demand to leave water in streams for environmental, recreational and water quality purposes add to supply concerns.⁴¹

Construction of new water reservoirs peaked in the 1960s, and in 2003 the U.S. Bureau of Reclamation had only one new project, while the U.S. Army Corps of Engineers had none.⁴² As for existing reservoirs, "[t]he American Society of Engineers has rated over 2,000 dams as unsafe, and nearly 10,000 as having high hazard potential, according to the Federal Emergency Management Agency's fiscal year 2001–2002 report to Congress on the National Dam Safety Program."⁴³ Moreover, sedimentation behind these projects' dams reduces their storage capacity at a rate of about 1.5 million acre–feet of water per year.⁴⁴ Thus, just maintaining existing water storage and delivery requires a significant investment of money.⁴⁵

Perhaps partially in response to decreasing development of surface water supplies, groundwater depletion has been increasing across the United States.⁴⁶ As one particularly dramatic example, by 1999 the High

41. 2003 GAO STATE WATER SURVEY REPORT, *supra* note 4, at 7; *see id.* at 48 (emphasizing that "[n]umerous signs point to the danger that our freshwater supply is reaching its limits").

42. *Id.* at 48; *see id.* at 49 fig.15 (charting the number of reservoir construction projects in the United States and showing a steep decline after the 1960s).

43. *Id.* at 49.

44. *Id.* at 50.

45. *Id.* at 49–50.

46. *Id.* at 51–52.

Plains Aquifer, which stretches from South Dakota and Wyoming to Texas, had had an estimated 220 million acre-feet of water—more than half the volume of water in Lake Erie—removed.⁴⁷ Robert Glennon has more extensively traced this problem, noting that “[t]he laws regulating groundwater pumping often flout the scientific principles of hydrology. Our legal system has created rules that foster the economic interests of those who benefit from using water.”⁴⁸ The irony, as he emphasizes, is that “[a]s groundwater pumping increases, we, as humans, suffer the costs.”⁴⁹ In addition, in coastal states, groundwater depletion can result in saltwater intrusion into the aquifer, potentially contaminating much of the fresh water that remains.⁵⁰

Population growth is also a significant source of stress to water supplies, especially in states like California, Texas, and Florida.⁵¹ As the GAO observed in 2003, “[m]any of the states that are growing the most or at the fastest rates are also those that are currently stressing freshwater supplies.”⁵² Moreover, by 2003 many metropolitan areas across the United States, including Atlanta, Chicago, Tampa, Denver, and New York City, were already experiencing water supply stress as a result of population growth.⁵³

Finally, protection of the environment, including aquatic ecosystems, has increased significantly over the last thirty years.⁵⁴ It is worth emphasizing in the water context that these ecological protections simultaneously provide for other human values, such as flood control, recreation, fishing, and ecosystem services,⁵⁵ because such protections can also limit the availability of water for human water supply needs.⁵⁶ As the GAO summarized in 2003:

47. *Id.* at 53 fig.17.

48. ROBERT GLENNON, *WATER FOLLIES: GROUNDWATER PUMPING AND THE FATE OF AMERICA'S FRESH WATERS* 9 (2002).

49. *Id.* at 10.

50. 2003 GAO STATE WATER SURVEY REPORT, *supra* note 4, at 56 (“According to USGS, incidences of saltwater intrusion have been documented in almost all coastal states, especially along the Atlantic coast—affecting areas from Miami, Florida, to Cape Cod, Massachusetts.”).

51. *Id.* at 56–58.

52. *Id.* at 58.

53. *Id.* at 60.

54. *Id.* at 61.

55. *See* STATE OF CAL., THE RES. AGENCY, & DEP'T OF WATER RES., *MANAGING AN UNCERTAIN FUTURE: CLIMATE CHANGE ADAPTATION STRATEGIES FOR CALIFORNIA'S WATER* 21 (2008) (emphasizing the importance of protecting ecosystems as part of a comprehensive climate change adaptation strategy for water supply), available at <http://www.water.ca.gov/climatechange/docs/ClimateChangeWhitePaper.pdf> [hereinafter *MANAGING AN UNCERTAIN FUTURE*].

56. 2003 GAO STATE WATER SURVEY REPORT, *supra* note 4, at 61.

[T]he public places higher value on leaving water instream for endangered species, recreation, and scenic enjoyment, which may limit the use of existing water supplies and the development of new supplies. Federal laws such as the Endangered Species Act and the Wild and Scenic Rivers Act reflect these environmental values. However, when water is left instream to protect wetlands, fisheries, and endangered species or to preserve the wild and scenic status of a river, it cannot be simultaneously available for traditional offstream uses such as irrigation and municipal and industrial supply.⁵⁷

Depletion of fresh water supplies creates both economic and ecological problems. “For example, in the summer of 1998, a drought that ranged from Texas to the Carolinas resulted in an estimated \$6 to \$9 billion in losses to the agriculture and ranching sectors.”⁵⁸ “The nationwide economic costs of water shortages are not known because the costs of shortages are difficult to measure” Even so:

[The] National Oceanic and Atmospheric Administration has identified eight water shortages from drought or heat waves, each resulting in \$1 billion or more in monetary losses over the past 20 years. For example, the largest shortage resulted in an estimated \$40 billion in damages to the economies of the Central and Eastern United States in the summer of 1988.⁵⁹

Other regional losses from drought have also been significant. Thus, the Susquehanna River Basin Commission reported:

[A]s a result of the 1999 drought, 34 counties in New York State declared an agricultural disaster with losses of about \$2.5 billion, and it estimated Pennsylvania crop losses at \$500 million, with some farmers losing as much as 70 to 100 percent of their crops. The Commission also reported that other water-dependent industries, such as nurseries, suffered significant losses and electrical power plants had

57. *Id.*

58. *Id.* at 5–6.

59. *Id.* at 8; *see id.* at 67–68 (providing more detail regarding these economic losses).

trouble getting sufficient water supplies to meet operational needs because of low stream flows.⁶⁰

Two years later, drought cost the State of Washington “between \$270 million to \$400 million in damages to agricultural production, a loss of 4,600 to 7,500 agricultural jobs, and placed at risk an additional 950 to 1,400 jobs in the food processing, wholesaling, trucking, warehousing, and transportation services sectors.”⁶¹

Ecologically, fresh water shortages and drought can lead to “damages to plant and animal species, wildlife habitat, and water quality.”⁶² The Florida Everglades provides a good example. To address the recurring problems of both drought and flooding in this region, Congress authorized extensive channeling and draining of the Everglades beginning in 1948, including levees and sixteen pump-stations to direct water flow.⁶³ “This re-engineering of the natural hydrologic environment reduced the Everglades to about half its original size”⁶⁴ and resulted in “a 90 percent reduction in the population of wading birds.”⁶⁵ Groundwater pumping, too, can cause extensive environmental damage because of its hydrological connections to surface water.⁶⁶ As Robert Glennon has concluded, “[t]he hidden tragedy and irremediable fact is that groundwater pumping that has *already* occurred will cause environmental damage in the future.”⁶⁷

Finally, the GAO emphasized that “[w]ater shortages can also raise social concerns, such as conflicts between water users, reduced quality of life, and give rise to the perception of inequities in the distribution of disaster relief assistance.”⁶⁸ For example, the federally operated Klamath River project on the California-Oregon border has been the subject of ongoing “water wars” between farmers, fishermen, tribes, and environmentalists.⁶⁹ These conflicting interests came to a head in the drought of 2001–2002, forcing “several federal agencies—including Reclamation, the Fish and Wildlife Service, and the National Marine Fisheries Service—[to try] to balance the water needs of, among others, irrigators, who receive water from the project, and endangered fish, which

60. *Id.* at 68.

61. *Id.*

62. *Id.* at 6.

63. *Id.* at 8.

64. *Id.*

65. *Id.* at 6; *see id.* at 70–71 (discussing the impacts on the Florida Everglades in more detail).

66. GLENNON, *supra* note 48, at 210.

67. *Id.* at 212.

68. 2003 GAO STATE WATER SURVEY REPORT, *supra* note 4, at 6.

69. *Id.* at 8–9.

must have sufficient water to survive.”⁷⁰ In 2001, irrigation water was withheld from farmers to protect the fish, and “farmers experienced crop losses”⁷¹ The next year, the farmers got their water, but the fishermen, tribes, and environmentalists claimed that the resulting low flows killed 30,000 adult salmon and steelhead trout.⁷²

B. Climate Change and Water Supply in the United States

Climate change impacts are only likely to exacerbate the extent and severity of water shortages and their attendant problems. Indeed, even in 2003 the GAO acknowledged that “[t]he potential effects of climate change create additional uncertainty about future water availability and use.”⁷³

Two 2009 reports agree that climate change impacts increase the vulnerability of water supply in the U.S. The U.S. Global Change Research Program (USGCRP or Program) addressed the probable impacts of climate change on the United States’s water supply in *Global Climate Change Impacts in the United States*.⁷⁴ The primary conclusion of this report with respect to water resources is that “[c]limate change has already altered, and will continue to alter, the water cycle, affecting where, when, and how much water is available for all uses.”⁷⁵ In addition, “[c]limate change will place additional burdens on already stressed water systems.”⁷⁶

The National Association of Clean Water Agencies (NACWA) produced a more specific report, entitled *Confronting Climate Change: An Early Analysis of Water and Wastewater Adaptation Costs*.⁷⁷ Like the USGCRP, the NACWA emphasizes that “[t]he effects of climate change are already impacting our water and wastewater utilities—those entities entrusted with supplying our communities, our industries, and our natural environment with essential water management services.”⁷⁸

Most basically, according to the USGCRP, climate change is altering almost all aspects of the water cycle: changing precipitation patterns, precipitation intensity, and incidences of drought; melting snow and ice; increasing atmospheric water vapor, evaporation, and water temperatures;

70. *Id.* at 6.

71. *Id.*

72. *Id.* at 6, 8–9, 72–74.

73. *Id.* at 48.

74. 2009 U.S. CLIMATE CHANGE IMPACTS REPORT, *supra* note 11.

75. *Id.*

76. *Id.*

77. 2009 NACWA WATER ADAPTATION COST ANALYSIS, *supra* note 9.

78. *Id.* at ES-1; *see id.* at 1-1 to 1-2 (detailing these impacts and their implications for water utilities).

decreasing river and lake ice; and changing soil moisture and runoff.⁷⁹ In the U.S., the Program predicts that the Midwest, Northeast, and Alaska will experience increases in annual precipitation, runoff, and soil moisture, while the West and especially the Southwest will receive less water in all these forms.⁸⁰

In the West, reductions in the amount of precipitation and winter snowpack are increasingly severe threats to already stressed water supplies,⁸¹ a fact of which California in particular is already well aware.⁸² Mid-continental areas are also “particularly threatened by future drought.”⁸³ However, even in the East, more overall rainfall does not mean an end to water supply problems. In those regions, “extended dry periods have become more frequent,” and rain, when it comes, is already tending to come in less frequent but heavier events.⁸⁴ Moreover, areas in both the West and Northeast depend on winter snowpack for summer water supply, and winter snowfall has already been both decreasing in amount and melting sooner in the spring throughout the U.S.⁸⁵ As the USGCRP noted, “[e]arlier runoff produces lower late-summer streamflows, which stress human and environmental systems through less water availability and higher water temperatures.”⁸⁶ Summarizing the USGCRP’s findings, the NACWA emphasized that most regions of the U.S. will experience “increased uncertainty in water supply”; the Southwest and Puerto Rico will also experience a significantly reduced supply of water, while Alaska and the Northeast will require additional storage in order to cope with more variability in precipitation and earlier snowmelt.⁸⁷

Climate change impacts are also changing the quality of the water supply. Most directly, “[i]ncreased air temperatures lead to higher water temperatures, which have already been detected in many streams, especially

79. 2009 U.S. CLIMATE CHANGE IMPACTS REPORT, *supra* note 11.

80. *Id.* at 41–42.

81. *Id.* at 44–45.

82. “For California water managers, the future is now. Climate change is already having a profound impact on water resources as evidenced by changes in snowpack, river flows and sea levels.” California Department of Water Resources, *Climate Change*, <http://www.water.ca.gov/climatechange> (last modified Apr. 22, 2009) (last visited Feb. 19, 2010).

83. 2009 U.S. CLIMATE CHANGE IMPACTS REPORT, *supra* note 11, at 44.

84. *See id.* (noting that in the Northeast “the annual number of days with very heavy precipitation has increased most in the past 50 years” while extended dry periods have also become more frequent, and “[t]he number of dry days between precipitation events is also projected to increase”).

85. *Id.* at 45–46.

86. *Id.* at 46.

87. 2009 NACWA WATER ADAPTATION COST ANALYSIS, *supra* note 9, at ES-4 to ES-5; *see id.* at 2-2 to 2-3 (providing a slightly more detailed summary).

during low-flow periods.”⁸⁸ Increasing temperatures, in turn, can lead to water stratification and reductions in dissolved oxygen levels, stressing aquatic organisms and reducing water bodies’ self-purification capacities.⁸⁹ Finally, “[t]he negative effects of water pollution, including sediments, nitrogen from agriculture, disease pathogens, pesticides, herbicides, salt, and thermal pollution, will be amplified by observed and projected increases in precipitation intensity and longer periods when streamflows are low.”⁹⁰

Nor is groundwater likely to serve as a water supply solution. As noted, groundwater supplies in many parts of the U.S. are already overused, substantially reducing the water levels in aquifers. While the climate change impacts on groundwater are not yet well understood, “increased water demands by society in regions that already rely on groundwater will clearly stress this resource, which is often drawn down faster than it can be recharged.”⁹¹ Moreover, because groundwater is often connected to surface water and recharged through water migrating through soil, climate change impacts on surface water flow and soil moisture will also affect groundwater levels and replenishment.⁹² Finally, climate change is likely to increase the contamination of aquifers, such as through saltwater intrusion as a result of sea-level rise and changes in microorganisms’ capacity to eliminate pollution.⁹³

All of these impacts are likely to tax already stressed water-supply systems, especially because, as noted, “[i]n many places, the nation’s water systems are already taxed due to aging infrastructure, population increases, and competition among water needs for farming, municipalities, hydropower, recreation, and ecosystems. Climate change will add another factor to existing water management challenges, thus increasing vulnerability.”⁹⁴ The economic and social costs of adapting water supply to climate change impacts are likely to be especially high in areas that experience more extreme events, such as droughts and floods, compared to areas that experience gradual changes in the amount and timing of precipitation.⁹⁵

88. 2009 U.S. CLIMATE CHANGE IMPACTS REPORT, *supra* note 11, at 46.

89. *Id.*

90. *Id.*

91. *Id.* at 46–47.

92. *Id.* at 47.

93. *Id.*

94. *Id.*; see 2009 NACWA WATER ADAPTATION COST ANALYSIS, *supra* note 9, at 3-5 to 3-7 (detailing the impacts to water supply processes).

95. 2009 U.S. CLIMATE CHANGE IMPACTS REPORT, *supra* note 11, at 47.

Water demand is also likely to increase as a result of climate change impacts. Increasing temperatures are likely to increase demand for water for drinking, cooling, and recreation, while drying soils will require more water for irrigation.⁹⁶ There are also likely to be direct correlations between energy consumption and water demand as a result of increasing temperatures: “[h]igher temperatures are projected to increase cooling water withdrawals by electrical generating stations. In addition, greater cooling requirements in summer will increase electricity use, which in turn will require more cooling water for power plants.”⁹⁷

As a result, water planning needs to change to accommodate climate change impacts. Traditionally, such planning has quite rationally been based on historical fluctuations in water supply.⁹⁸ However, as the USGCRP pointed out, “[b]ecause climate change will significantly modify many aspects of the water cycle, the assumption of an unchanging climate is no longer appropriate for many aspects of water planning. Past assumptions derived from the historical record about supply and demand will need to be revisited for existing and proposed water projects.”⁹⁹

II. WATER, CLIMATE CHANGE, AND THE PROPERTY RIGHTS BARRIER

As the previous part demonstrates, both non-climate-change trends and climate change impacts are contributing to a growing water supply crisis in the United States. Historical evidence also indicates that the concept of a water supply “emergency” is not so far-fetched as it might sound: “[m]ulti-decade ‘megadroughts’ in the years 900 to 1300 were substantially worse than the worse droughts of the last century, including the Dust Bowl era.”¹⁰⁰ Adaptation strategies, however, will almost immediately confront the often-tangled mix of property rights permeating water law. That collision is the subject of this part.

A. Property Rights Barriers in Water Law to Adapting to Water Supply Changes

Adapting to water supply shortages and crises is likely to require substantial effort. Obvious and inexpensive alternative sources of fresh

96. *Id.* at 48.

97. *Id.* at 49.

98. *Id.*

99. *Id.*

100. *Id.*

water are generally nonexistent, requiring substantial investment in conservation, alternative supply infrastructure, or both—preferably without decimating the aquatic ecosystems that communities rely upon in the process.

In its 2009 report, the NACWA identified several strategies to adapt water supply to climate change impacts. These include:

- Increasing focus on conservation to extend existing source water supplies
- Using new water sources including seawater desalination, lower quality groundwater, and wastewater reuse
- Increasing storage and conveyance to manage new water sources and accommodate changes in the intensity and timing of precipitation and runoff
- Increasing treatment in locations where increased precipitation causes increased turbidity, increased temperature results in reduced water quality, and lower quality source water requires greater levels of treatment. Additionally, wastewater reuse and recycling for water supply augmentation will require advanced treatment and in most locations, additional distribution system infrastructure.
- Adapting to address plant or conveyance flooding damage (as a result of sea level rise or storm surge) that may affect some drinking water facilities in coastal locations. Adapting to address inland flooding associated with extreme precipitation events including levee and related structural protection. Flooding tends to be more problematic for wastewater treatment plants because water treatment plants tend to be located at higher elevations; however, water intake facilities, treatment plants, and distribution systems have recently experienced flood damage during extreme precipitation events.
- Creating water management portfolios that combine and integrate these various water supply and treatment

components to add flexibility and support sustainable water supply.¹⁰¹

Thus, with the exception of widespread adoption of conservation strategies, which need not be expensive, climate change adaptation for water supply purposes is likely to require extensive—and expensive¹⁰²—infrastructure investments.

If water were purely a commons resource like air, creating and implementing adaptation strategies would be purely a matter of public policy and normal governmental decision-making processes. However, water is not like air. Instead, private and governmental property and contractual rights can impede effective climate change adaptation by making re-allocation of water use and water priorities expensive and legally difficult. Notably, when the USGCRP identified several “institutional and legal barriers” to necessary changes in water allocation and use, many of them derive from the complex property rights matrices surrounding water.¹⁰³ As the Program explained:

- The allocation of water in many interstate rivers is governed by compacts, international treaties, federal laws, court decrees, and other agreements that are difficult to modify.

- Reservoir operations are governed by “rule curves” that require a certain amount of space to be saved in a reservoir at certain times of year to capture a potential flood. Developed by the U.S. Army Corps of Engineers based on historical flood data, many of these rule curves have never been modified, and modifications might require Environmental Impact Statements.

- In most parts of the West, water is allocated based on a “first in time means first in right” system, and because agriculture was developed before cities were established, large volumes of water typically are allocated to agriculture. Transferring agricultural rights to municipalities, even for short periods during drought, can involve substantial expense and time and can be socially divisive.

101. 2009 NACWA WATER ADAPTATION COST ANALYSIS, *supra* note 9, at ES-5 to ES-6.

102. *Id.* at ES-1 (stating that “[t]he assessment indicates that the cost to utilities could range from \$448 billion to \$944 billion”).

103. 2009 U.S. CLIMATE CHANGE IMPACTS REPORT, *supra* note 11, at 49.

- Conserving water does not necessarily lead to a right to that saved water, thus creating a disincentive for conservation.¹⁰⁴

Moreover, as if to drive home the critical connection between climate change adaptation and the law defining property rights in water, the USGCRP emphasized that “[t]he ability to modify operational rules and water allocations is likely to be critical for the protection of infrastructure, for public safety, to ensure reliability of water delivery, and to protect the environment.”¹⁰⁵

Recent droughts in California provide a concrete example of perceived limitations on the law’s ability to mandate rational adaptation strategies to cope with water supply crises. By 2009, California was anticipating severe water shortages. As the California Department of Water Resources (CDWR) summarized in September 2008:

Following two critically dry years, 2009 has the potential to be one of the most severe drought years in California’s recorded history. Water supplies in major reservoirs and many groundwater basins are already well below average. Court-ordered restrictions on water deliveries from the Delta have significantly reduced supplies from the state’s two largest water systems. Climate change is reducing mountain snowpack—a critical source of natural water storage. Finally, California’s population is growing rapidly, but our statewide water system that has not kept pace.¹⁰⁶

To cope with the anticipated drought, the CDWR instituted a Drought Water Bank for 2009 to facilitate water transfers between water-strapped buyers and willing sellers.¹⁰⁷ To implement the Water Bank, CDWR sought to “purchase water from willing sellers from water suppliers upstream of the Sacramento-San Joaquin Delta. This water will be transferred using State Water Project (SWP)” and would then become “available for purchase by public and private water suppliers in California based on certain needs criteria as applicable.”¹⁰⁸

104. *Id.* at 49–50.

105. *Id.* at 49.

106. CAL. DEP’T OF WATER RES., CALIFORNIA’S DROUGHT: 2009 DROUGHT WATER BANK OVERVIEW 1 (2008), available at http://www.water.ca.gov/drought/docs/2009water_bank.pdf.

107. *Id.* at 2.

108. *Id.*

The Water Bank, however, depended on willing sellers. The CDWR emphasized this point:

Water will be purchased for the 2009 Drought Water Bank from willing sellers. Willing sellers may make water available in four main ways:

- Reservoir releases above normal operations
- Groundwater substitution—using groundwater instead of surface water supplies that are normally used
- Cropland idling—not growing a crop (above normal fallowing practices) that would have been grown except for the water transfer
- Crop substitution—growing a less water-intensive crop than would have been planted except for the water transfer[.]¹⁰⁹

Other policies limited who could become a “willing seller.” For example, “[n]o more than 20 percent of the cropland idled in any county may be considered as a source of transfer water without a detailed economic analysis of the effects on the overall economy on the county from which the water is transferred.”¹¹⁰

However, the 2009 Drought Water Bank is considered a failure. The causes are many, but the economics of water rights played a big role. For example, according to the *Sacramento Bee*, “[m]any farmers were leery of entering into a complex water deal with the state, fearing they might be liable for unexpected environmental damages, become ineligible for federal subsidy programs or simply lose money if the sale fell through.”¹¹¹ Perhaps more important, the state simply was not paying enough, at \$275 per acre-foot of water, to compete with the profits to be made from rice, a thirsty crop: “rice prices [we]re at their highest levels in nearly 30 years, thanks in part to a prolonged drought in Australia that . . . knocked out the California rice industry’s biggest international competitor.”¹¹²

109. *Id.* at 5.

110. *Id.*

111. Jim Downing, *Economic, Environmental Hurdles Block Critical California Water Transfers*, THE SACRAMENTO BEE, May 12, 2009, at 14A, available at <http://www.sacbee.com/ourregion/story/1853186.html>.

112. *Id.*

As a result, the 2009 Drought Water Bank was able to transfer only 82,000 acre–feet of water, far less than the 600,000 acre–feet the state government had hoped for.¹¹³ Given this perceived inability to re-allocate water to deal with the drought, in February 2009 Governor Schwarzenegger declared a state of emergency in California because of the water shortage,¹¹⁴ asking for a federal disaster area declaration about four months later.¹¹⁵ Arguably, therefore, the larger public good lost out to private property rights (real or perceived) in water.

B. Property Rights in Water

The water rights surrounding public water supply can entail a complex web of federal law allocations,¹¹⁶ allocations through interstate compact,¹¹⁷ reclamation project contracts,¹¹⁸ federal reserved rights,¹¹⁹ riparian rights inherent in riparian or littoral property ownership,¹²⁰ appropriative water rights,¹²¹ groundwater rights,¹²² instream water rights,¹²³ and environmental restrictions on water use and withdrawal.¹²⁴ Obviously, many strands of this web are federal, limiting the legal efficacy of the common law.

113. *Id.*

114. Press Release, Governor Schwarzenegger, Gov. Schwarzenegger Takes Action to Address California's Water Shortage (Feb. 27, 2009), <http://gov.ca.gov/press-release/11556>.

115. Press Release, Governor Schwarzenegger, Gov. Schwarzenegger Requests Federal Disaster Declaration, Issues Executive Order to Provide Assistance (June 19, 2009), *available at* <http://gov.ca.gov/press-release/12562>.

116. *E.g.*, Boulder Canyon Project Act, ch. 42, 45 Stat. 1057 (1928) (apportioning the Colorado River); Wyoming v. Colorado, 259 U.S. 419 (1922) (apportioning the Laramie River).

117. *E.g.*, Susquehanna River Basin Compact, Pub. L. No. 91-575, 84 Stat. 1509 (1970); Delaware River Basin Compact, Pub. L. No. 87-328, 75 Stat. 688 (1961); Colorado River Compact, 42 Stat. 171 (1921).

118. Douglas L. Grant, *ESA Reductions in Reclamation Water Contract Deliveries: A Fifth Amendment Taking of Property?*, 36 ENVTL. L. 1331, 1334–35 (2006) (concluding “that in most, if not all, states and in most, if not all, circumstances, municipalities and irrigation districts or district members do have property rights under state law” pursuant to reclamation project contracts).

119. *E.g.*, Cappaert v. United States, 426 U.S. 128, 139–42 (1976) (awarding the United States a senior water right for Devil's Hole).

120. *E.g.*, Biddison v. Va. Marine Res. Comm'n, 680 S.E.2d 343, 347 (Va. Ct. App. 2009) (identifying riparian rights as qualified, but valuable property rights).

121. Pub. Util. Dist. No. 1 of Pend Oreille County v. Wash. Dep't of Ecology, 51 P.3d 744, 750 n.2 (Wash. 2002) (describing the perfection of appropriative water rights in Washington).

122. *E.g.*, Cent. & W. Basin Water Replenishment Dist. v. S. Cal. Water Co., 109 Cal. App. 4th 891, 905–06 (2003) (describing ground water rights in California).

123. *E.g.*, Joyce Livestock Co. v. United States, 156 P.3d 502, 515–17 (Idaho 2007) (describing instream water rights in Idaho).

124. *E.g.*, NRDC v. Kempthorne, 506 F. Supp. 2d 322 (E.D. Cal. 2007) (halting the operations of the Central Valley Project under the federal Endangered Species Act to protect the listed delta smelt); Cent. Platte Natural Res. Dist. v. Wyoming, 513 N.W.2d 847, 856–57 (Neb. 1994) (discussing the need

Nevertheless, much water allocation law remains the product of state water law, generally considered a form of state property law.¹²⁵ As such, pinning down the state-law property rights in water—and identifying the common-law and statutory mechanisms available to adjust or reallocate those property rights—is likely to become an important step in implementing climate change adaptation policies with respect to water supply. The time to think about these legal mechanisms is now, because climate change impacts are affecting water supply in more places than just California. For example, within this more local law framework, “[t]he New York City Department of Environmental Protection (DEP), the agency in charge of providing the city’s drinking water and wastewater treatment, is beginning to alter its planning to take into account the effects of climate change—sea-level rise, higher temperatures, increases in extreme events, and changing precipitation patterns—on the city’s water systems.”¹²⁶

“Water rights” generally refers to rights to remove fresh water from its natural watercourse and to use that water for some consumptive purpose, such as irrigation, drinking water, or industrial manufacturing. Because water law is largely state law, the exact principles and requirements governing the withdrawal and use of water can vary considerably from location to location. However, in broad-brush strokes, the eastern states inherited the doctrine of riparianism from England, which ties the right to use water to ownership of the land adjoining the water source, i.e., the riparian landowners.¹²⁷ Common-law riparian doctrine emphasizes domestic use,¹²⁸ water sharing,¹²⁹ correlative and adjustable rights to water,¹³⁰ and a limit on withdrawals from the natural watercourse.¹³¹

to consult with the Game & Parks Commission before granting new water rights and the special issues connected with instream flows for wildlife purposes).

125. GEORGE A. GOULD, DOUGLAS L. GRANT & GREGORY S. WEBER, *WATER LAW* 23 (7th ed. 2005); Reed D. Benson, *Deflating the Deference Myth: National Interests vs. State Authority Under Federal Laws Affecting Water Use*, 2006 UTAH L. REV. 241, 242; Charlton H. Bonham, *Perspectives from the Field: A Review of Western Instream Flow Issues and Recommendations for a New Water Future*, 36 ENVTL. L. 1205, 1208 (2006).

126. 2009 U.S. CLIMATE CHANGE IMPACTS REPORT, *supra* note 11, at 50.

127. George A. Gould, *Water Rights Systems*, in *WATER RIGHTS OF THE EASTERN UNITED STATES* 7, 8–9 (Kenneth R. Wright ed., 1998); Benson, *supra* note 125, at 250.

128. Mich. Citizens for Water Conservation v. Nestlé Waters N. Am., Inc., 709 N.W.2d 174, 194–95 (Mich. Ct. App. 2005); Cummins v. Travis County Water Control & Improvement Dist., 175 S.W.3d 34, 47 (Tex. Ct. App. 2005); Penn. Dep’t of Envtl. Res. v. Phila. Suburban Water Co., 581 A.2d 984, 986 (Pa. Commw. Ct. 1990).

129. Ace Equip. Sales, Inc. v. Buccino, 848 A.2d 474, 480 (Conn. App. Ct. 2004).

130. Pine Knoll Ass’n v. Cardon, 484 S.E.2d 446, 449 (N.C. Ct. App. 1997); United States v. State Water Res. Control Bd., 227 Cal. Rptr. 161, 170 (Cal. Dist. Ct. App. 1986); Robinson v. Ariyoshi, 65 Haw. 641, 648–49 (1982).

However, the legal connection of consumptive use rights to riparian land ownership limits non-riparian development,¹³² and most eastern states have transitioned to “regulated riparianism” and administrative permitting,¹³³ which allow for increased consumptive and off-site use of water. In contrast, the perpetually drought-threatened western states generally rejected riparianism in favor of the prior appropriation doctrine.¹³⁴ Prior appropriation operates on a principle of “first in time, first in right”—the first user to apply water to a beneficial use, without waste or abandonment, acquires a continued right to a water supply superior to that of later users drawing water from the same source.¹³⁵

Nevertheless, such generalizations grossly oversimplify the status of water rights as property rights. In particular, water rights have never been considered the same kind of “property” as either land or personal property. Under both riparian and prior appropriation systems, water rights are generally considered usufructory rights—that is, the right to take and use part of a flow, rather than guaranteed ownership of particular molecules of water.¹³⁶ As the Idaho Supreme Court recently explained:

A water right does not make the appropriator the owner of the source of the water, nor does it give the appropriator control over that source. . . . It does not even make the appropriator the owner of the water. . . . A water right

131. *Mich. Citizens for Water Conservation*, 709 N.W.2d at 194; *White’s Mill Colony, Inc. v. Williams*, 609 S.E.2d 811, 817–18 (S.C. Ct. App. 2005); *Portage County Bd. of Comm’rs v. Akron*, 808 N.E.2d 444, 462 (Ohio Ct. App. 2004).

132. Richard F. Ricci, Frankin W. Boenning & Kristina D. Pasko, *Battles Over Eastern Water*, 21 NAT. RES. & ENV’T 38, 38 (2006).

133. *Id.*; Jeremy Nathan Jungreis, “Permit” Me Another Drink: A Proposal for Safeguarding the Water Rights of Federal Lands in the Regulated Riparian East, 29 HARV. ENVTL. L. REV. 369, 371 (2005) (noting that “[t]wenty eastern states now impose some form of regulated riparianism”).

134. Benson, *supra* note 125, at 250–51; Ricci, Boenning & Pasko, *supra* note 132.

135. *State ex rel. Office of State Eng’r v. Lewis*, 150 P.3d 375, 383 (N.M. Ct. App. 2006); *Archuleta v. Gomez*, 140 P.3d 281, 284 (Colo. Ct. App. 2006); *W. Maricopa Combine, Inc. v. Ariz. Dep’t of Water Res.*, 26 P.3d 1171, 1180 (Ariz. Ct. App. 2001); *Hawley v. Kan. Dep’t of Agric.*, 132 P.3d 870, 873 (Kan. 2006).

136. Stephen Draper has emphasized that such limitations inhere in the nature of water itself:

Because they are irreplaceable source waters, the earth’s surface water (rivers, streams, lakes, and wetlands) and groundwater (aquifers) are unique natural resources. Unlike oil or minerals, life-sustaining flowing water is a shared, mobile, common-pool resource that is used and reused for different purposes as it moves through the hydrological cycle. Prior to capture by withdrawal or diversion, a claim of exclusive ownership of water is difficult to sustain.

Stephen E. Draper, *The Unintended Consequences of Tradable Property Rights to Water*, 20 NAT. RES. & ENV’T 49, 49 (2005). See Sax, *supra* note 1, at 482 (“Water is not like a pocket watch or piece of furniture, which an owner may destroy with impunity. The rights of use in water, however long standing, should never be confused with more personal, more fully owned, property.”).

simply gives the appropriator the right to the use of the water from that source, which right is superior to that of later appropriators when there is a shortage of water.¹³⁷

In addition, both systems of water rights allow for adjustments to those rights in particular circumstances. Thus, under common-law riparianism, riparian owners are under a continual obligation to accommodate each others' (new) uses¹³⁸ and must share shortages of water,¹³⁹ while prior appropriation anticipates that those who are "last in right" may in fact receive no water if actual stream flows cannot satisfy all claims.¹⁴⁰ Under both systems, therefore, water rights are contextual and contingent, and no one has an absolute entitlement to a specific amount of water regardless of the status of the supply.

Thus, property rights in water are, as my students have been happy to tell me, "weird"—or, as scholars prefer, nebulous and complex.¹⁴¹ The important point here is that, as a matter of property rights psychology, water is just different. Indeed, Carol Rose has observed that:

If water were our chief symbol for property, we might think of property rights—and perhaps other rights—in quite a different way. We might think of rights literally and figuratively as more fluid and less fenced in; we might think of property as entailing less of the awesome Blackstonian power of exclusion and more of the qualities of flexibility, reasonableness and moderation, attentiveness to others, and cooperative solutions to common problems.¹⁴²

Given the anticipated obstacles to adaptation arising from property rights, this weirdness of water may prove of great value in the climate

137. *Joyce Livestock Co. v. United States*, 156 P.3d 502, 516 (Idaho 2007) (citation omitted).

138. *Anglers of Ausable, Inc. v. Dep't of Env'tl. Quality*, 770 N.W.2d 359, 374–77 (Mich. Ct. App. 2009).

139. *City of Canton v. Shock*, 63 N.E. 600, 603 (Ohio 1902).

140. *Cent. Platte Natural Res. Dist. v. Wyoming*, 512 N.W.2d 392, 401 (Neb. Ct. App. 1993), *aff'd in part, rev'd in part on other grounds*, 513 N.W.2d 847 (Neb. 1994).

141. *See, e.g.*, David B. Anderson, *Water Rights as Property in Tulare v. United States*, 38 MCGEORGE L. REV. 461, 463 (2007) ("As a species of property, California water rights are indeed both unconventional and obscure."); Megan Hennessy, *Colorado River Water Rights: Property Rights in Transition*, 71 U. CHI. L. REV. 1661, 1665 (2004) (noting that in the Colorado River "[p]rivate parties hold property rights, albeit imperfect ones, in water"); Henry E. Smith, *Governing Water: The Semicommons of Fluid Property Rights*, 50 ARIZ. L. REV. 445, 450 (2008) (arguing "that water law tends to be a semicommons").

142. Carol M. Rose, *supra* note 2, at 351.

change era. The pressure to clarify and refine the status of water as a property right often comes in response to water shortages, which both increase conflicts between users and encourage governments to promote market “solutions” to water allocation problems.¹⁴³ However, as Stephen Draper has noted, “[o]ne key concern is whether a strategy to solve water scarcity based primarily on economics may have unintended consequences that outweigh its benefits.”¹⁴⁴ Notably, the drive to preserve a public rights component in water remains strong even in the face of increasing shortages,¹⁴⁵ undermining the imperative to fully privatize water that can arise in other property contexts.

As I have argued elsewhere, water’s status as a semi-public resource derives most directly from its dual status: unlike air, water is both a good and a medium, both a drinkable commodity and the defining characteristic of numerous ecosystems.¹⁴⁶ In addition, water provides a number of services to humans, including navigation and commerce, hydropower, waste disposal and assimilation, fishing and hunting, recreation, water purification, and flood control.¹⁴⁷ These services mean that many cities, towns, and communities are coupled socio-ecological systems, with community welfare dependent at least in part on the well-being of the aquatic ecosystems themselves.¹⁴⁸

143. See, e.g., Michael McKenzie, *Water Rights in NSW: Properly Property?*, 31 SYDNEY L. REV. 443, 443–45 (2009) (discussing new drivers for defining private property rights in Australia); Charles W. Snyder III & Nicholas R. Utley, Comment, *Acknowledging a Georgia Farmer’s Property Interest in Water*, 2 JOHN MARSHALL L. REV. 183, 183–84 (2009) (noting the numerous ambiguities regarding the status of riparian rights as property under Georgia law and the urgency of defining such rights in the face of water shortages).

144. Stephen E. Draper, *supra* note 136, at 49.

145. See, e.g., McKenzie, *supra* note 143, at 444 (arguing that clearly defining private property rights in water “does not sit . . . easily with other mechanisms set out in the [strategic] framework for achieving efficiency and sustainability; in particular, those that focus on environmental protection and social welfare”). But see Scott Andrew Shepard, *The Unbearable Cost of Skipping the Check: Property Rights, Takings Compensation & Ecological Protection in the Western Water Law Context*, 17 N.Y.U. ENVTL. L.J. 1063, 1065–68 (2009) (accepting the status of western appropriative water rights as property and resisting any public law limitation on that property status); Dale B. Thompson, *Of Rainbows and Rivers: Lessons for Telecommunications Spectrum Policy from Transitions in Property Rights and Commons in Water Law*, 54 BUFF. L. REV. 157, 183–89 (2006) (discussing the requirement under prior appropriation law that third-party interests be protected during the course of water transfers).

146. Robin Kundis Craig, *Climate Change, Regulatory Fragmentation, and Water Triage*, 79 U. COLO. L. REV. 825, 834 (2008).

147. *Id.* at 838–46.

148. “Socio-ecological systems (1), social-ecological systems (2), and coupled human-environmental systems (3) are commonly used in the literature to describe systems of human-environment interactions.” Elinor Ostrom, Marco A. Janssen & John M. Anderies, *Going Beyond Panaceas*, 104:39 PNAS: PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES 15,176, 15,176 (2007).

This fact of coupled socio-ecological systems is critical for climate change adaptation strategies.¹⁴⁹ Indeed, the public dependence on water as a medium has already generated several water-specific legal doctrines that limit private property rights in water in favor of public values, such as the federal navigation servitude¹⁵⁰ and state public trust doctrines.¹⁵¹

Together, the usufructory, contingent nature of private water rights and the existence of legal protections for public values in water indicate that water is a particularly malleable resource, legally speaking, when it comes to accommodating new public needs and interests. These public water rights are also a particularly important resource in protecting against a pervasive private-property-rights mentality, even in the absence of climate change impacts. In the face of those impacts and increasing shortages of water, and given the importance of water to life, ecosystems, and ecosystem services, water supply is likely to become an important testing ground for public necessity theories, both legally and politically. It is to those theories that this article now turns.

III. REFRAMING CLIMATE CHANGE AS AN EMERGENCY: PUBLIC NECESSITY AND ITS IMPLICATIONS FOR WATER LAW AND POLICY

The importance of water supply is difficult to overestimate, but climate change threatens that supply. As the NACWA emphasized in 2009:

Water is the most important natural resource, necessary for stable economic growth, as well as for human and environmental health. Our nation's water and wastewater infrastructure enables our prosperity by delivering clean water to our homes and industries and by transporting wastewater for treatment. Our increasing understanding of climate change impacts on water and wastewater suggests

149. Craig, *supra* note 12, at 16–21, 35–45, 47–49.

150. *Lewis Blue Point Oyster Cultivation Co. v. Briggs*, 229 U.S. 82, 86–88 (1913) (holding that an oyster cultivator was not entitled to compensation when congressionally ordered dredging of a navigable water destroyed the oyster beds).

151. *See* Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 452 (1892) (recognizing the existence of the public trust doctrine in American law and its limitations on the ability of states to completely privatize navigable waters); *see generally* Robin Kundis Craig, *A Comparative Guide to the Eastern Public Trust Doctrines: Classifications of States, Property Rights, and State Summaries*, 16 PENN ST. ENVTL. L. REV. 1 (2007) (summarizing all eastern states' public trust doctrines); Robin Kundis Craig, *A Comparative Guide to the Western States' Public Trust Doctrines: Public Values, Private Rights, and the Evolution Toward an Ecological Public Trust*, 37 ECOLOGY L.Q. 53 (Mar. 2010) (summarizing the western states' public trust doctrines).

that significant adaptation measures will be required for our infrastructure to continue protecting public health and the environment.¹⁵²

Thus, Part I of this article suggested that water is likely to be one of the first foci of climate change adaptation battles, as supplies in many parts of the country fall short of demand.

The considerable expense of water supply adaptation will only increase the stakes of such battles. The NACWA estimated that water utilities may need to spend \$448 to \$944 billion by 2050 to adapt to climate change impacts.¹⁵³ That assessment did not include “the larger societal costs associated with disruptions to water and wastewater services such as adverse impacts to the natural environment and public health when extreme weather events cause sewage to overflow in rivers, streams, and coastal areas.”¹⁵⁴ It also did not include the costs of emergency response and recovery (ER&R) to restore water supply and wastewater treatment after extreme events, such as flooding or hurricanes.¹⁵⁵ Finally, the NACWA’s cost estimate did not include the costs of adapting to impacts that occur beyond 2050, which could increase costs further¹⁵⁶—especially given that many scientists now conclude that the greenhouse gas emissions that have already occurred have committed the world to climate change for at least another century or two.¹⁵⁷

Thus, adapting to ensure the American public an adequate water supply represents a significant and probably long-term investment for the U.S. Given the history of water supply, moreover, the expense is likely to be borne predominantly by the public through various levels and types of governmental institutions and agencies. It will be next to impossible, in other words, to ignore the public component of adapting water supplies to climate change impacts.

These public facets of adapting water supplies will only increase when the ecological components of community needs are factored in as well. Hard decisions are likely to be necessary regarding absolute and relative priorities for changing water supplies, and experiences in the Klamath River Basin and the Sacramento Bay Delta suggest that decisions to allocate water to ecosystems (or, more accurately in those cases, to species)

152. 2009 NACWA WATER ADAPTATION COST ANALYSIS, *supra* note 9, at ES-1.

153. *Id.*; *see id.* at 3-2 (breaking down the costs by region and dividing them between water supply and wastewater expenses).

154. *Id.* at ES-2.

155. *Id.* at 3-4, 3-5.

156. *Id.* at 4-1.

157. Craig, *supra* note 12, at 23–24.

at the expense of human use generates considerable controversy, especially when made on a season-to-season basis. At the same time, there is no denying many communities' dependence on functional aquatic ecosystems, or the benefits to general water supply adaptation strategies of maintaining aquatic ecosystems to aid in water filtration and flood control. These realities all suggest that true community survival—and public acceptance of the ecological components of that survival—would benefit from recasting climate change adaptation plans for water supply as a long-term emergency preparedness strategy, with an emphasis on pre-crisis public discussion, education, and planning.

While property rights in water are an acknowledged impediment to water supply climate change adaptation measures, Part II of this article demonstrated that water also has a long-standing public character. Thus, if water supply is a likely first impetus for climate change adaptation battles, it is also a particularly fertile subject for testing the policies and law of public necessity in a climate change era.

A. The Legal Doctrine of Public Necessity

At the state level, the basis for most public welfare regulation is the police power. The police power, of course, is not limited to emergencies but extends generally to support regulation to promote public health, safety, and welfare.¹⁵⁸

Ordinary exercises of the police power, however, are subject to the workings of the Fifth Amendment's Takings Clause, made applicable to the states and their subdivisions through the Fourteenth Amendment.¹⁵⁹ Since the early twentieth century, takings jurisprudence has included regulatory takings, a constitutional protection against requiring relatively few private property owners to bear a disproportionate burden in providing for the public welfare.¹⁶⁰ Regulatory takings jurisprudence is one reason that California, for example, looks for willing sellers to supply its drought banks.

The public necessity doctrine, in contrast, recognizes that in times of true emergency or public necessity, private rights fall to public need—

158. *Baer v. City of Bend*, 292 P.2d 134, 137 (Or. 1956) (“It cannot be successfully contended that the exercise of the police power for the protection of the public health . . . is restricted to situations of overriding public necessity or emergency or infectious or contagious diseases . . .”).

159. *Kelo v. City of New London*, 545 U.S. 469, 472 n.1 (2005) (citing *Chi., Burlington & Quincy R.R. v. Chicago*, 166 U.S. 226 (1897)).

160. *Penn. Coal Co. v. Mahon*, 260 U.S. 393, 415–16 (1922).

gratis.¹⁶¹ According to the U.S. Supreme Court, “the common law had long recognized that in times of imminent peril—such as when fire threatened a whole community—the sovereign could, with immunity, destroy the property of a few that the property of many and the lives of many more could be saved.”¹⁶² In the context of water, the public necessity doctrine is thus roughly parallel in philosophy to the federal navigation servitude¹⁶³: private rights cannot interfere with the protection of the overriding public welfare.

In application, the public necessity doctrine can have two meanings. Most generally, the public necessity doctrine acts as the umbrella classification for three common-law defenses to takings or damages liability, as the South Dakota Supreme Court laid out in 1978:

There are three important exceptions to the requirement of compensation where, without the owner’s consent, private property is intentionally, purposefully or deliberately taken or damaged for the public use, benefit or convenience. They are the taking or destruction of property (1) during actual warfare; (2) to prevent an imminent public catastrophe; and (3) to abate a public nuisance. In each instance, the power to “take or damage” without compensation is based upon the public necessity of preventing an impending hazard which threatens the lives, safety, or health of the general public.

....

161. *Surocco v. Geary*, 3 Cal. 69, 73 (1853) (“At such times, the individual rights of property give way to the higher laws of impending necessity.”).

162. *United States v. Caltex, Inc.*, 344 U.S. 149, 154 (1952). Prosser explains further: Where the danger affects the entire community, or so many people that the public interest is involved, that interest serves as a complete justification to the defendant who acts to avert the peril to all This notion does not require the “champion of the public” to pay for the general salvation out of his own pocket. The number of persons who must be endangered in order to create a public necessity has not been determined by the courts.

PROSSER & KEETON, *THE LAW TORTS* § 24 (5th ed. 1984).

163. See *Lewis Blue Point Oyster Cultivation Co. v. Briggs*, 229 U.S. 82, 86–88 (1913) (holding that an oyster cultivator was not entitled to compensation when congressionally ordered dredging of a navigable water destroyed the oyster beds). In this context, it is worth noting that one set of private necessity cases revolves around the destruction of property to preserve an individual’s right of passage through navigable waters. John Alan Cohan, *Private and Public Necessity and the Violation of Property Rights*, 83 N.D. L. REV. 651, 670–73 (2007).

The public necessity privilege is an extension of every individual's privilege to take whatever steps appear reasonable to prevent an imminent public disaster.¹⁶⁴

More narrowly, but more commonly, the doctrine refers to the second of these three defenses—destruction “to prevent an imminent public catastrophe.”¹⁶⁵

Two facets of this narrower conception of the public necessity doctrine limit its application: the requirement of a public necessity or emergency; and the requirement that the destruction or limitation of private property be reasonably necessary to address that threat. These limitations will be important in applying the public necessity doctrine in the context of climate change adaptation, and so this section explores each in turn.

1. A Public Necessity or Emergency Exists

In the classic application of the public necessity doctrine, an imminent disaster, such as fire¹⁶⁶ or flood,¹⁶⁷ threatens the community, and destruction

164. *City of Rapid City v. Boland*, 271 N.W.2d 60, 65 (S.D. 1978). Other courts and some scholars have also viewed public necessity as a broader umbrella doctrine. *See, e.g., Patel v. City of Everman*, 179 S.W.3d 1, 11 (Tex. App. 2004) (“Where a plaintiff establishes that a governmental entity intentionally destroyed his property because of a real or supposed public emergency, the government entity may then defend its actions by proof of a great public necessity. In other words, the governmental entity has to show that the property destroyed was a nuisance on the day it was destroyed.”) (citations omitted); *City of Chi. v. Birnbaum*, 274 N.E.2d 22, 24 (Ill. 1971) (upholding the destruction of vacant buildings against a takings claim because “[t]he record indicates that the public welfare, health and safety of the surrounding area was imperiled by these circumstances, and the city properly and of public necessity exercised its police power and abated this nuisance by ordering the buildings demolished”); *Cohan*, *supra* note 163, at 690–732 (including both military and emergency cases within a discussion of public necessity).

165. *City of Rapid City*, 271 N.W.2d at 65; *see, e.g., Scott v. City of Del Mar*, 68 Cal. Rptr. 2d 317, 322 (1997) (distinguishing “public necessity to avert impending peril” from non-emergency nuisances).

166. *See, e.g., Bowditch v. Boston*, 101 U.S. 16, 18 (1879) (discussing the common-law right to destroy property to prevent a fire from spreading); *Field v. City of Des Moines*, 39 Iowa 575, 577 (1874) (noting that the right to the destruction of property to prevent the spread of fire is established in the common law); *Surocco*, 3 Cal. at 73 (discussing the need to destroy a building to check the progress of a fire); *Am. Print Works v. Lawrence*, 23 N.J.L. 9, 1850 WL 119, at *7 (N.J. 1850) (stating that there is a right to destroy property in order to arrest the spread of fire); *Hale v. Lawrence*, 21 N.J.L. 714, 1848 WL 154, at *11 (N.J. 1848) (holding that there is a private right to destroy a building in order to prevent mass destruction by a fire).

167. *See generally Dudley v. Orange County*, 137 So. 2d 859, 861–63 (Fla. Ct. App. 1962) (denying injunctive relief against county's action to dam waters that were causing flooding on plaintiff's land); *McKell v. Spanish Fork City*, 305 P.2d 1097, 1100 (Utah 1957) (holding that city is not liable for damages incurred by measures taken to control an extraordinary flood); *Short v. Pierce County*, 78 P.2d 610, 616 (Wash. 1938) (holding that “appellants may not recover for damage caused by acts of agents of the county in an attempt to control immediate danger from the flood”); *Atken v. Village of Wells River*,

of private property is necessary to protect the community as a whole.¹⁶⁸ Nevertheless, the concepts of “emergency” and “imminence” can vary across jurisdictions, and these variations are likely to be relevant to the doctrine’s application in climate change adaptation. Some commentators, for example, put more emphasis on the “necessity” than on the “emergency,” explaining that:

The right to destroy under such circumstances is a natural right which springs from the *necessity* of the case. Where, therefore, it is sought by statute to *add* to the right or to *create* the right to destroy in case of *emergency* rather than *necessity*, such attempt constitutes an exercise of the power of eminent domain and compensation must be made.¹⁶⁹

Both the Restatement (Second) of Torts and most courts, however, have tended to emphasize the “imminence” and “emergency” aspects of the public necessity doctrine. The Restatement, for example, states that “[o]ne is privileged to enter land in the possession of another if it is, or if the actor reasonably believes it to be, necessary for the purpose of averting an imminent public disaster.”¹⁷⁰ Similarly, the South Dakota Supreme Court noted that “[o]nce the impending disaster has passed, the government may not rely upon the doctrine of necessity to justify the subsequent destruction of property.”¹⁷¹ As a result, a city’s destruction of buildings in the wake of a severe flood in order to facilitate citywide cleanup efforts was not insulated from the compensation requirement, absent a new threat to the public:

Had the Boland property been destroyed during the flood in an attempt to control the rising waters of Rapid Creek, the destruction would undoubtedly have been justified as a public necessity. The destruction of the property 21 days after the flood waters had subsided cannot be justified as necessary to save lives or property from the flood. If there

40 A. 829, 830 (Vt. 1898) (finding that a taking had not occurred when the plaintiff’s property was destroyed to avert imminent injury from flooding).

168. Cohan, *supra* note 163, at 653.

169. *City of Rapid City*, 271 N.W.2d at 66 (quoting 1 NICHOLS, EMINENT DOMAIN § 1.43[1] and [2]); see *Hale*, 1848 WL 154, at *11 (noting that the right is “founded upon necessity and not expediency”).

170. RESTATEMENT (SECOND) OF TORTS § 196 (1995).

171. *City of Rapid City*, 271 N.W.2d at 66.

was an impending disaster, it could only have been that of an epidemic threatening the public health.¹⁷²

While the South Dakota Supreme Court thus suggested that preventive measures might be treated more leniently than post-disaster actions with respect to the public necessity doctrine, other courts have appeared skeptical about applying the doctrine to longer-term, preemptive protection efforts. Thus, while not deciding that a taking had occurred, the North Carolina Supreme Court ruled that a beachfront property owner's claim against the Town of Carolina Beach in connection with a beach erosion control project was not time-barred and could proceed despite the town's public necessity defense.¹⁷³ Specifically, the town argued that beach erosion was a severe and continuing problem that it sought to control by building a seawall, and "[t]he construction of the berm, or seawall was essential as a matter of public necessity to prevent a complete eventual erosion of the beach and the destruction of the town itself."¹⁷⁴ More directly, the U.S. District Court for the District of Oregon determined that the explosion of a dockside grain elevator as a result of a nearby ship fire was not sufficiently imminent to justify setting the ship adrift because it was "highly improbable that a spark could have been carried from the ship to the grain gallery since a steady drizzle was falling and the wind was blowing away from the dock. The fire was small and confined to the engine room."¹⁷⁵

Nevertheless, and importantly for climate change adaptation measures, courts have also recognized a relationship between the public necessity doctrine and disaster preparedness. For example, in 1989 the Idaho Supreme Court decided that the Idaho legislature had abrogated the common-law doctrine of public necessity in enacting the State Disaster Preparedness Act.¹⁷⁶ The Act "grants immunity from liability for death, injury, or damages resulting from" civil defense or disaster relief activities

172. *Id.* at 66–67.

173. *Carolina Beach Fishing Pier, Inc. v. Town of Carolina Beach*, 163 S.E.2d 363, 372 (N.C. 1968).

174. *Id.* at 366.

175. *Protectus Alpha Navigation Co. v. N. Pac. Grain Growers, Inc.*, 585 F. Supp. 1062, 1067 (D. Or. 1984). However, the facts that emergency workers ordered the defendant *not* to release the ship, that the fire could have probably been contained, and that both firefighters' lives and the ship were lost as a result of the defendant's overly hasty action probably influenced the court's seemingly stringent view of imminence. *See id.* at 1064–65. As the court remarked, the defendant's "perversity turned a small shipboard fire into a marine disaster." *Id.* at 1068.

176. *Marty v. State of Idaho*, 786 P.2d 524, 534–35 (Idaho 1989) (citing IDAHO CODE ANN. §§ 46-1002, 46-1011, 46-1017 (1988)).

taken pursuant to the Act's authority.¹⁷⁷ This case thus suggests that public necessity protection can and has extended to emergency preparedness activities.¹⁷⁸

2. The Destruction or Limitation Is Reasonably Necessary

Necessity is not an excuse for willy-nilly destruction of private property, regardless of the seriousness of the emergency. Thus, courts require that destructive actions be reasonably necessary given the particular emergency being addressed. In the words of the U.S. District Court for the District of Oregon, "[t]he defense applies only when the emergency justifies the action and when the defendant acts reasonably under the circumstances."¹⁷⁹

Thus, for example, the real need for flood control did not excuse the Los Angeles County Flood Control District from paying for damage to a resident's property, when the immediate cause of the damage was the District's poor drainage design and construction. Specifically, during heavy flooding, drainage grates that the District installed became obstructed by flood flotsam, "flooding plaintiff's land to a depth of several feet. As a result of the overflowing of the water, many thousands of concrete blocks were damaged and considerable sums were expended by plaintiff in cleaning up the premises."¹⁸⁰ The plaintiff argued that "but for the installation of the grating, which interfered with and diverted the natural flow of water so that it was discharged over plaintiff's land, the resultant damage would not have occurred."¹⁸¹

The California Court of Appeals upheld the lower court's award of damages to the plaintiff for a physical taking of the plaintiff's property. It emphasized that "in the absence of any compelling emergency or the pressure of public necessity, the courts will be slow to invoke the doctrine of police power to protect public agencies in those cases where damage to private parties can be averted by proper construction and proper precautions

177. *Id.* at 535 (referring to and quoting IDAHO CODE ANN. § 46-1017 (1988)).

178. *See Dudley v. Orange County*, 137 So. 2d 859, 861-63 (Fla. App. 1962) (denying, pursuant to public necessity principles, that Florida officials owed compensation for flooding properties while responding to a disaster in conformance with the Florida Civil Defenses Act).

179. *Protectus Alpha Navigation Co.*, 585 F.Supp. at 1067. Applying the public necessity doctrine can involve a form of risk-benefit analysis. *See Cohan, supra* note 163, at 654 ("Under the necessity doctrine, there is a weighing of interests: the act of invasion of another's property is justified under the necessity doctrine only if done to protect or advance some private or public interest of a value greater than, or at least equal to, that of the interest invaded.")

180. *Ward Concrete Prods. Co. v. L.A. County Flood Control Dist.*, 309 P.2d 546, 548 (Cal. App. 1957).

181. *Id.* at 550.

in the first instance.”¹⁸² As a policy matter, moreover, “[u]nnecessary damage to his property is of no benefit to the public; rather it only entails unwarranted sacrifice and loss on the individual’s part, which should be compensable damage.”¹⁸³ Similarly, public necessity was no defense to casting loose a burning ship when a dockside “grain facility could have been protected by much less drastic methods.”¹⁸⁴

As the California Court of Appeals suggested, however, actors often enjoy more leeway as to what constitutes “necessary” destruction in the actual throes of an emergency. In the early 20th century, for example, the King’s Bench in England excused a gamekeeper’s decision to start a backfire in order to stop a larger fire, even though it turned out that the backfire was not actually necessary, because there was “a real and imminent danger” and the backfire was a reasonable response under those emergency circumstances.¹⁸⁵ Almost ninety years later, the California Court of Appeals explained the relevance of an existing emergency with regard to actions under the California Emergency Services Act:

In situations in which the state must take steps necessary to quell an emergency, it must be able to act with speed and confidence, unhampered by fear of tort liability. A state of emergency imposes severe time constraints, forcing decisions to be made quickly and often without sufficient time to carefully analyze all potential repercussions.¹⁸⁶

Given the exigent circumstances involved, a California Reclamation District owed no compensation for damages resulting when it cut a levee in order to prevent “potentially massive flooding” as a result of a severe storm.¹⁸⁷

182. *Id.* at 551.

183. *Id.* (quoting *House v. L.A. County Flood Control Dist.*, 153 P.2d 950, 953 (Cal. 1944)).

184. *Protectus Alpha Navigation Co.*, 585 F. Supp. at 1068; see *Barton-Barnes, Inc. v. State of New York*, 583 N.Y.S.2d 547, 548 (N.Y. App. Div. 1992) (upholding an award of damages when state officials destroyed a PCB-contaminated vehicle rather than undertaking reasonable efforts to eradicate the toxic contamination).

185. *Cope v. Sharpe*, 1 K.B. 496, 504 (1912).

186. *Thousand Trails, Inc. v. Cal. Reclamation Dist. No. 17*, 124 Cal. App. 4th 450, 458 (2004).

187. *Id.* at 464.

*B. The Public Necessity Doctrine and Climate Change Adaptation:
Reframing Climate Change Impacts on Water Supply As an
Emergency*

1. The Argument

Of the two standard limitations on the public necessity doctrine, the “emergency” prong is likely to prove far more problematic for invoking public necessity in the context of climate change adaptation than the “reasonably necessary measures” prong. With respect to water supply, for example, what constitutes a “reasonably necessary” action to adapt to climate change impacts will follow more-or-less naturally from the articulation of an area’s particular water-supply crisis—a critical shortage of fresh water, a disastrously polluted supply, the death of critical aquatic ecosystems, the loss of water filtration ecosystem services, or some combination thereof.

In contrast, climate change appears to distort the normal understanding of emergency: how can a phenomenon that is likely to last for at least a couple of centuries qualify as an “imminent” and “impending” disaster? One obvious, although not entirely satisfactory, response is that a number of commentators have displayed no hesitation in classifying climate change as a global emergency.¹⁸⁸ For example, in connection with the opening of the climate change negotiations in Copenhagen in December 2009, fifty-six newspapers in forty-five countries published a shared editorial, announcing that “humanity faces a profound emergency.”¹⁸⁹ Underscoring that theme, the editorial concluded that “[t]he politicians in Copenhagen have the power to shape history’s judgment on this generation: one that saw a challenge and rose to it, or one so stupid that we saw calamity coming but did nothing to avert it.”¹⁹⁰

188. See generally JAMES HANSEN, STORMS OF MY GRANDCHILDREN: THE TRUTH ABOUT THE COMING CLIMATE CATASTROPHE AND OUR LAST CHANCE TO SAVE HUMANITY (2009); RICHARD HEINBERG, POWER DOWN: OPTIONS AND ACTIONS FOR A POST-CARBON WORLD (2004); MAYER HILLMAN, TINA FAWCETT & SUDHIR CHELLA RAJAN, THE SUICIDAL PLANET: HOW TO PREVENT GLOBAL CLIMATE CATASTROPHE (2007); JAMES LOVELOCK, THE REVENGE OF GAIA: EARTH’S CLIMATE CRISIS & THE FATE OF HUMANITY (2007); FRED PEARCE, WITH SPEED AND VIOLENCE: WHY SCIENTISTS FEAR TIPPING POINTS IN CLIMATE CHANGE (2007); FRED PEARCE, THE LAST GENERATION: HOW NATURE WILL TAKE HER REVENGE FOR CLIMATE CHANGE (2006); MARTIN REES, OUR FINAL HOUR: A SCIENTIST’S WARNING . . . (2007); PETER D. WARD, UNDER A GREEN SKY: GLOBAL WARMING, THE MASS EXTINCTIONS OF THE PAST AND WHAT THEY CAN TELL US ABOUT OUR FUTURE (2008).

189. E.g., Editorial, *Star Joins the Global Climate Crusade*, TORONTO STAR, Dec. 7, 2009, at A1, available at <http://www.thestar.com/printarticle/735124>.

190. *Id.*

Even allowing for a fair amount of hyperbole and rhetorical flourish, such discussions make two particularly important points about the “emergency” nature of climate change impacts. First, several have accepted the concept that emergencies can be of long duration, the most obvious example of which is James Kunstler’s multi-stranded weaving of *The Long Emergency*.¹⁹¹ Thinking of climate change as a long-term emergency brings to the forefront the issue of intergenerational equity—or, in James Hansen’s more vivid call to action, “The Storms of [Our] Grandchildren”¹⁹²—underscoring that lack of action now is extremely likely to have real consequences, even if those consequences are displaced in time.

Second, many commentators have also noted that climate change impacts might not in fact be slow. Thus, citing to a 2002 National Research Council report, James Speth rightly points out that “[a]lthough many people assume that the impacts of climate change will unfold gradually, as the earth’s temperature slowly rises, the buildup of greenhouse gases may in fact lead to abrupt and sudden, not gradual, changes.”¹⁹³

Nevertheless, a more satisfactory answer to climate change’s emergency status is that climate change impacts are already occurring—i.e., that the emergency, slow-moving or not, is already upon us, and things are

191. JAMES HOWARD KUNSTLER, *THE LONG EMERGENCY: SURVIVING THE END OF OIL, CLIMATE CHANGE, AND OTHER CONVERGING CATASTROPHES OF THE TWENTY-FIRST CENTURY* (2006). According to Kunstler:

Whether the cause of global warming is human activity and “greenhouse emissions,” a result of naturally occurring cycles, or a combination of the two, this does not alter the fact that it is having swift and tremendous impacts on civilization and that its effects will contribute greatly to the Long Emergency.

Global warming projections by the Intergovernmental Panel on Climate Change (IPCC) show a widespread increase in the risk of flooding for tens of millions of people due to increased storms and sea-level rise. Climate change is projected to aggravate water scarcity in many regions where it is already a problem. It will increase the number of people exposed to vector-borne disease (e.g., malaria and dengue fever) and waterborne disease (e.g., cholera). It will obviate the triumphs of the green revolution and bring on famines. It will prompt movements of populations fleeing devastated and depleted lands and provoke armed conflicts over places that are better endowed.

Id. at 9.

192. HANSEN, *supra* note 188, at 250–70.

193. SPETH, *supra* note 16, at 25; *see* HANSEN, *supra* note 188, at ix (“Planet Earth, creation, the world in which civilization developed, the world with climate patterns that we know and stable shorelines, is in imminent peril. The urgency of the situation crystallized only in the past few years The startling conclusion is that continued exploitation of all fossil fuels on Earth threatens not only the other millions of species on the planet but also the survival of humanity itself—and the timetable is shorter than we thought.”).

only going to get worse.¹⁹⁴ For example, in *Massachusetts v. EPA*, a majority of the Supreme Court Justices suggested that the “in-progress” aspect of climate change was relevant to evaluating its imminence, even though effects were likely to continue for several decades longer. Although this discussion took place in the context of imminent injury for standing purposes, the issue is essentially the same. According to the Court, “[t]he harms associated with climate change are serious and well recognized. Indeed, the NRC Report itself identifies a number of environmental changes that have already inflicted significant harms”¹⁹⁵ Of particular relevance to the litigation were the existing and continuing impacts on Massachusetts’s coast:

According to petitioners’ unchallenged affidavits, global sea levels rose somewhere between 10 and 20 centimeters over the 20th century as a result of global warming. These rising seas have already begun to swallow Massachusetts’ coastal land. Because the Commonwealth “owns a substantial portion of the state’s coastal property,” it has alleged a particularized injury in its capacity as a landowner. The severity of that injury will only increase over the course of the next century: If sea levels continue to rise as predicted, one Massachusetts official believes that a significant fraction of coastal property will be “either permanently lost through inundation or temporarily lost through periodic storm surge and flooding events.” Remediation costs alone, petitioners allege, could run well into the hundreds of millions of dollars.¹⁹⁶

In the water supply context, similarly, climate change impacts are already affecting water management decisions and imposing hardships on water users. In October 2008, for example, California published its plan for adapting its water supplies to climate change impacts.¹⁹⁷ This white paper acknowledges that “[e]xtreme climatic events will become more frequent, necessitating improvements in flood protection, drought preparedness, and emergency response” and that “[a]n array of adaptive water management strategies . . . must be implemented to better address the risk and

194. See, e.g., SPETH, *supra* note 16, at 27 (“In short, there is little doubt that the process of human-induced global warming has begun in earnest, that the consequences are already serious, and that they could be devastating if the buildup of greenhouse gases is not halted.”).

195. *Massachusetts v. EPA*, 549 U.S. 497, 521 (2007).

196. *Id.* at 522–23 (citations and footnotes omitted).

197. MANAGING AN UNCERTAIN FUTURE, *supra* note 55.

uncertainty of changing climate patterns.”¹⁹⁸ The analysis views California’s water situation as a “crisis,” with “no doubt” that climate change impacts are already contributing.¹⁹⁹ Climate change poses challenges that include loss of snowpack storage, drought, floods, water quality impacts, sea level rise, and impacts on hydroelectric generation.²⁰⁰ The state has perceived an “imperative to act,” noting that “[w]ith the state’s water resources already stressed, additional stress from climate change will only intensify the competition for clean, reliable water supplies.”²⁰¹ Immediate actions include funding and investment in infrastructure, moving to regional management, and aggressively increasing efficiency in water use.²⁰² Importantly, however, California also stresses the need to protect ecosystems, recognizing that “[w]ater supply and flood management are significantly more sustainable and economical over time when they preserve, enhance, and restore ecosystem functions”²⁰³

Impacts on water supply also prompt a third answer to why climate change should qualify as an emergency, at least in specific contexts: response time. Specifically, the “imminence” of a potential crisis for public necessity purposes needs to be calibrated to the time required to adequately prepare for and deal with it. Fires start fast and spread fast, and officials deciding what houses to blow up react minute-to-minute and hour-to-hour to shifts in wind direction and the path of conflagration. In contrast, floods often come with comparably long warning—but can require that entire time to sandbag and board up properties and evacuate the endangered population. Nevertheless, few would hesitate to classify a steadily approaching flood as an imminent emergency just because its full impact was a week (or longer) into the future.²⁰⁴

Responding to existing stresses and climate change’s impacts on water supply requires a much longer time frame than either fires or floods. Securing adequate water supply, according to the NACWA, will require substantial investments in massive infrastructure improvements, changes, and additions. Securing the funding, figuring out what exactly should be done, and building that infrastructure is likely to take several decades.

198. *Id.* at 2.

199. *Id.* at 3.

200. *Id.* at 4–7.

201. *Id.* at 8.

202. *Id.* at 9–14.

203. *Id.* at 21.

204. *See, e.g.,* *McKell v. Spanish Fork City*, 305 P.2d 1097, 1098 (Utah 1957) (allowing that an “exceptional” combination of heavy winter snows and an unusually warm spring “made it apparent that flooding in the area was imminent,” even though residents had considerable time to plan and prepare).

These longer-term response time realities justify classifying climate change impacts on water supply as an “imminent” disaster.

Finally, allowing climate change impacts on water supply to be considered a long-term emergency gives decision makers better opportunity to make rational decisions about what to destroy *before* communities’ ecological dependencies are sacrificed *de facto*. If a foreseeable water supply crisis does not qualify as a public necessity emergency until people are actually going thirsty, the community is likely to have already lost its surrounding aquatic ecosystems and ecosystem services. Legally acknowledging a longer-term emergency in the case of water supply gives communities a better chance to protect their socio-ecological requirements as well as the bare minimum fresh water requirements for individual human lives.

2. The Implications

So what does reframing climate change as an emergency mean in terms of applying the public necessity doctrine to climate change adaptation efforts for water supply? Obviously, traditional state common-law principles, such as the doctrine of public necessity, have no ability to change water allocations based on federal law or treaties, including those based on interstate compacts approved by Congress.²⁰⁵ Adapting to climate change impacts affecting water bodies and water supply sources that are governed by these sources of law will require different legal mechanisms. Thus, for example, in 2005 the Bureau of Reclamation began to work to adjust allocations of water within the Colorado River system when water flow and storage are low,²⁰⁶ as they have been for the last several years.²⁰⁷

205. When Congress approves an interstate compact, it becomes federal law. *New York v. Hill*, 528 U.S. 110, 111 (2000).

206. 2009 U.S. CLIMATE CHANGE IMPACTS REPORT, *supra* note 11, at 51.

207. By 2007:

The Colorado River Basin [was] in the eighth year of drought—the worst eight year period in over a century of continuous recordkeeping This is the first long-term drought in the modern history of the Colorado River, although climate experts and scientists suggest droughts of this severity have occurred in the past and are likely to occur in the future With over 27 million people relying on the Colorado River for drinking water in the United States, and over 3.5 million acres of farmland in production in the Basin, the Colorado River is the single most important natural resource in the Southwest.

BUREAU OF RECLAMATION & DEP’T OF THE INTERIOR, RECORD OF DECISION: COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES AND THE COORDINATED OPERATIONS FOR LAKE POWELL AND LAKE MEAD 1 (2007), *available at* <http://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf>. More recent studies indicate that the Colorado River will be increasingly unreliable in supplying expected amounts of water to Southwestern states—specifically, “that by 2050 the Colorado River won’t be able to provide all of its

Nevertheless, the importance of state water law as a potential impediment to adapting water supplies and preserving socio-ecological communities should not be underestimated. State water law, for example, remains the primary mechanism for defining the property aspects of most water rights, as Part II discussed.

At the state law level, the public necessity doctrine gives governments legal flexibility to deal with actual water shortages in productive ways. As Dale Thompson has observed, “[o]ne thing that has been clear over the history of property law is the need for a property system to adapt to changed circumstances.”²⁰⁸ However, it is not clear that—absent legal supports like the public necessity doctrine—water law will meet that need quickly enough to match the pace and potential devastation of climate change impacts, at least with respect to allowing broader socio-ecological system survival. As Stephen Draper pointed out even before climate change impacts on water resources were being observed:

In many jurisdictions, the policies, laws, and regulations that control water use and availability remain rooted in earlier times when water needs and water availability were different. Legal systems established in a prior century strain to respond to the increasing, changing demands and competitions for water without destabilizing existing water law systems and investment-backed expectations.²⁰⁹

The doctrine of public necessity is a built-in common-law limitation on the assertion of state-law-based property rights in water, one that could spare government coffers the expense of buying out individual water rights while adapting to water supply crises. As a legal doctrine, public necessity’s primary value for climate change adaptation is the authority it gives governments to reallocate established water rights to preserve life and community during actual shortages in water supply.²¹⁰ As one particularly apt example, given California’s failed 2009 water bank, public necessity could serve as the legal basis for truly effective emergency plans based on

allocated water 60 percent to 90 percent of the time . . .” Mike Stark, *Study: Shortages Likely on Colorado River by 2050*, S.F. CHRON., Apr. 20, 2009, <http://www.sfgate.com/cgi-bin/article.cgi?f=/n/a/2009/04/20/state/n145427D24.DTL>.

208. Thompson, *supra* note 145, at 160.

209. Draper, *supra* note 136.

210. Water supplies will remain subject to yearly variations in the climate change era, just as they always have been. In wet years, therefore, reallocation of individual rights would not be necessary, or at least not to the same extent as during drought years. However, in wet years, the flood-related aspects of the public necessity doctrine might become important.

government reallocation and redistribution of water during crisis-level droughts.

Within that authority, moreover, public necessity allows for prioritizing survival necessities at the expense of water luxuries—drinking water ahead of swimming pools, and water for climate-appropriate staple food crops and local food needs (including local fish) ahead of water for luxury, climate-inappropriate, and/or export crops. As part of that prioritization, public necessity also allows governments, during times of shortage, to reallocate individual water rights to the aquatic ecosystems and ecosystem services that communities' larger survival and well-being depends upon, rather than forcing the death of streams and other water bodies that climate change renders effectively over-appropriated.

C. Philosophical Public Necessity and Reframing the Public Policy of Climate Change Adaptation

Thus, the legal doctrine of public necessity could become important in undergirding particular climate change adaptation measures with respect to water, such as reallocating water to the demands of community survival, including socio-ecological survival, over the protests of private water rights holders. Nevertheless, the potentially more pervasively important aspect of the doctrine may well prove to be the basic concept of public necessity and the reordering of priorities that goes with it. Public necessity, in other words, is a public policy and political philosophy as well as a technical common-law doctrine, acknowledging superseding rights of survival that earlier cases traced straight to natural law.²¹¹

As a public policy and political philosophy, public necessity first underscores in times of stress and crisis the general (one hopes) norm that human lives are more important than property. In a 1953 English public necessity case, for example, the trial judge emphasized that “[t]he safety of human lives belongs to a different scale of values from the safety of property. The two are beyond comparison and the necessity for saving life has at all times been considered a proper ground for inflicting such damage as may be necessary on another’s property.”²¹²

211. *Bowditch v. Boston*, 101 U.S. 16, 19 (1879) (“In these cases the common law adopts the principle of the natural law, and finds the right and the justification in the same imperative necessity”); *Surocco v. Geary*, 3 Cal. 69, 73 (1853) (linking public necessity with natural law); *Hale v. Lawrence*, 21 N.J.L. 714, 1848 WL 514, at *11 (N.J. 1848) (stating that there is a natural right to destroy property in order to protect life, liberty, or property).

212. *Southport Corp. v. Esso Petroleum Co., Ltd.*, (1953) 2 Q.B. 1204, 1209–10 (H.L.); *see* *Field v. City of Des Moines*, 39 Iowa 575, 577 (1874) (“The rights of private property, sacred as the law

Second, within the context of human lives, public necessity shifts the law's focus from individuals to the community.²¹³ As John Cohan has aptly recognized, “[t]he principle behind public necessity is that the law regards the welfare of the public as superior to the interests of individuals and, when there is a conflict between them, the latter must give way.”²¹⁴

Legal exegeses of the public necessity doctrine have been particularly clear that public necessity embodies a community-focused philosophy and public policy. In 1853, for example, the California Supreme Court upheld the destruction of a plaintiff's house in San Francisco to stop the spread of a fire. As the court explained:

A house on fire, or those in its immediate vicinity, which serve to communicate the flames, becomes a nuisance, which it is lawful to abate, and the private rights of the individual yield to the considerations of general convenience, and the interests of society. Were it otherwise, one stubborn person might involve a whole city in ruin, by refusing to allow the destruction of a building which would cut off the flames and check the progress of the fire, and that, too, when it was perfectly evident that his building must be consumed.²¹⁵

Over a century later, the Oregon Supreme Court employed exactly the same priority—society over the individual—to uphold public fluoridation of drinking water against challenges that such protections against tooth decay unconstitutionally infringed on individual liberty. Touching on both the police power to protect public health and the doctrine of public necessity, the court noted:

There are manifold restraints to which every person is necessarily subject for the common good. On any other basis organized society could not exist with safety to its members. Society based on the rule that each one is a law

regards them, are yet subordinate to the higher demands of the public welfare.”) (quoting DILLON ON MUNICIPAL CORPORATIONS § 756 (1872)).

213. See, e.g., SPETH, *supra* note 16, at 199 (noting that, in addressing climate change, “two additional and allied transformations will be involved: a transformation in consciousness and a transformation in politics”); *id.* at 207 (arguing that American culture needs to transform from “hyperindividualism, narcissism, and social isolation to powerful community bonds reaching from the local to the cosmopolitan and to profound appreciation of interdependence both within and among countries”).

214. Cohan, *supra* note 163, at 653.

215. *Surocco*, 3 Cal at 73.

unto himself would soon be confronted with disorder and anarchy.²¹⁶

Public necessity's priorities could provide a needed check on "rugged individualism" in the climate change adaptation context. Especially in the context of property rights, American culture is arguably too focused on the private at the expense of the public in ways that could undermine effective climate change adaptation—especially adaptation that preserves not just the immediate necessities of life (clean fresh water) but also more extensive socio-ecological networks.²¹⁷ Relevantly, a number of authors have concluded in other contexts that Americans are overly individualistic, to their own detriment.²¹⁸

Public necessity, in contrast, demands a more communitarian view of the law and of property when survival is at stake. Water supply is basic to human survival, and climate change is putting that supply at risk. A public necessity philosophy could therefore help to support the reframing of climate change as a matter of emergency preparedness even as the legal doctrine of public necessity can supply some of the tools needed to achieve that preparedness.

CONCLUSION: THE VALUE OF AN EMERGENCY PREPAREDNESS AND RESPONSE FRAMEWORK

Reframing climate change impacts as an ongoing emergency is a tricky maneuver, to be sure. As James Speth has noted, "[u]nfortunately, the surest path to widespread cultural change is a cataclysmic event that profoundly affects shared values and delegitimizes the status quo and existing leadership."²¹⁹ The "unfortunately" recognizes that such cataclysmic events are also a social roll of the dice: society might reform itself into something highly adaptive and productive²²⁰—but it might also

216. *Baer v. City of Bend*, 292 P.2d 134, 137 (Or. 1956) (quoting *Jacobson v. Massachusetts*, 197 U.S. 11 (1905)).

217. For example, James Speth has noted generally that "[g]reater emphasis on the public side would serve our environment better. In America, for example, large public investments are overdue in land conservation; in environmental education, research, and development; and in incentives to spur more ecologically sophisticated technologies." SPETH, *supra* note 16, at 61.

218. *Id.* at 137–38, 204; Bill McKibben, *Reversal of Fortune*, MOTHER JONES, Mar. 1, 2007, available at 2007 WLNR 26413868; see generally DAVID G. MEYERS, *THE AMERICAN PARADOX: SPIRITUAL HUNGER IN AN AGE OF PLENTY* (2000); ROBERT D. PUTNAM, *BOWLING ALONE: THE COLLAPSE AND REVIVAL OF AMERICAN COMMUNITY* (2000).

219. SPETH, *supra* note 16, at 211.

220. *Id.* at 234.

collapse into chaos, or do nothing much at all. From this perspective, the 9/11 terrorist attacks and Hurricane Katrina can both be viewed as missed opportunities²²¹ to jumpstart rational climate change adaptation policies—the 9/11 attacks as an impetus for comprehensively changing the nation’s energy policy, Hurricane Katrina for thoroughly revamping emergency preparedness, emergency response, and coastal development policies.

In the middle of the 20th century, however, American society did collectively adapt to a crisis that created shortages of staple goods—World War II—through government rationing. Unsurprisingly, such rationing was described in public necessity terms: “The Congress, acting within its legislative powers, was entitled to consider the character of the emergency confronting the nation and the ‘inherent necessities of the governmental coordination.’”²²² Moreover, rationing “was introduced to avoid public anger with shortages and not to allow only the wealthy to purchase commodities,”²²³ revealing a communitarian motivation explicitly seeking to subvert individual prerogatives in the market. While rationing was not always endured ungrudgingly,²²⁴ people did, by and large, accept the reallocation of critical supplies to the war effort.²²⁵

The trick for climate change adaptation is two-fold: (1) getting the public to acknowledge the growing risks of climate change before actual survival becomes the only driver of action; and (2) getting the public to acknowledge the primacy of community survival within a complex and ever-changing mix of impacts.²²⁶ Again, water supply is the logical place to start because we—or at least certain parts of the country—are already careening toward a crisis.

221. James Speth has made this point in a much broader context. *Id.* at 211.

222. *O’Neal v. United States*, 140 F.2d 908, 912–13 (6th Cir. 1944) (citation omitted).

223. *Wars and Battles, The Home Front*, UNITED STATES HISTORY, <http://www.u-s-history.com/pages/h1674.html> (last visited Apr. 17, 2010) [hereinafter *Wars and Battles*].

224. *See, e.g., O’Neal*, 140 F.2d at 912–13 (upholding rationing under the Second War Powers Act of 1942 against challenges); *Country Garden Market v. Bowles*, 141 F.2d 540, 541 (D.C. Cir. 1944) (finding a violation of rationing orders); *Gallagher’s Steak House, Inc. v. Bowles*, 142 F.2d 530, 531 (2d Cir. 1944) (upholding a rationing order).

225. Iselin Theien, *Food Rationing During World War Two: A Special Case of Sustainable Consumption?*, ANTHROPOLOGY OF FOOD, ¶¶ 8–9 (2009), <http://aof.revues.org/index6383.html>; *Wars and Battles*, *supra* note 223 (noting that although black markets did develop, “few complained [about the sacrifice] because they knew it was the men and women in uniform who were making the greater sacrifice”).

226. Perhaps instructively, post-apocalyptic science fiction novels (most addressing nuclear war and its aftermath) have explored the range of likely human reactions to global crises that threaten human survival. *Warday* posited that when it came to allocating critical resources post-apocalypse, the British, with their tradition of queuing up and sharing, fared far better than the individualistic Americans. WHITLEY STRIEBER & JAMES KUNETKA, *WARDAY* (1984).

There are already many competing demands on water supply, and such competition is already leading to legal conflict.²²⁷ Legal battles over natural resources like water can serve as a proxy measure of emerging crises—crises one would hope do not deteriorate into actual violence. Nevertheless, it is worth remembering that water battles in the U.S. have historically included physical—and sometimes deadly—fights.²²⁸ Already, legal conflicts driven by water shortage, like those surrounding the Klamath River in southern Oregon and the Sacramento Bay Delta in central California, are complicated by the potential for real physical violence, and the various interests involved certainly perceive that survival—of species, lifestyles, and industries—is at stake.²²⁹ Contaminated water supplies raise a different kind of survival threat in the form of toxic poisoning²³⁰ and disease²³¹—but again, those threats are already real and will likely only become worse as climate change impacts increase. These problems should only increase our willingness to view water supply as being in, or at least approaching, a state of crisis.²³²

227. In prior work, I have traced the kinds of legal conflicts over water that have already occurred and are currently occurring among competing demands for water, emphasizing the sheer number of legal battles currently in play between environmental protection and human demands to withdraw water and the likelihood that climate change will increase those conflicts. Craig, *supra* note 146, at 869–90. In addition, the U.S. Bureau of Reclamation has identified several areas of the West, in particular, where water conflicts are likely to arise by 2025 and where rural water needs are unlikely to be met. 2009 U.S. CLIMATE CHANGE IMPACTS REPORT, *supra* note 11, at 48 (showing a map of “Potential Water Supply Conflicts by 2025”).

228. *E.g.*, *Cnty. Ditches or Acequia of Tularosa Townsite v. Tularosa Cmty. Ditch*, 120 P. 301, 301–02 (N.M. Terr. 1911); *Edson & Foulke Co. v. Winsell*, 118 P. 243, 245–46 (Cal. 1911); *Simpson v. State*, 33 S.W. 1078, 1078–79 (Tex. Crim. App. 1896).

229. Editorial, *A Gush of Possibilities Opens on the Klamath*, OREGONIAN (Sept. 30, 2009), available at http://www.oregonlive.com/opinion/index.ssf/2009/09/a_gush_of_possibilities_opens.html; Rebecca Bowe, *The Water Wars*, S.F. BAY GUARDIAN, Sept. 2, 2009, available at <http://www.sfbg.com/2009/09/02/water-wars>.

230. Contaminated water supplies are a major source of toxic tort litigation, made famous through movies such as “Erin Brockovich” and “A Civil Action.” ERIN BROCKOVICH (Universal Studios 2000); A CIVIL ACTION (Touchstone Pictures 1998).

231. Although John Snow discovered the water-borne nature of cholera in the mid-nineteenth century, the disease remains a deadly killer: “In 1994 cholera swept through a crowded refugee camp in Goma, Zaire, and killed sixty thousand people in less than a month.” ROBERT D. MORRIS, *THE BLUE DEATH: DISEASE, DISASTER, AND THE WATER WE DRINK 1* (2007). Lest Americans get too comfortable, moreover, the United States has had recent outbreaks of water-borne illness, the worst of which occurred in Milwaukee, Wisconsin in 1993, with cryptosporidium as the culprit. *Id.* at 1, 178–214.

232. Indeed, the NACWA views the climate change impacts on water supply as an urgent and critical problem demanding Congress’s immediate attention. In its 2009 report, it advised Congress that: (1) “[c]limate change is occurring and is impacting our critical drinking water and wastewater services at an ever-increasing rate”; (2) timely action to adapt to “the inevitable impacts of climate change . . . is critical—water and wastewater infrastructure planning and implementation operates within a 20- to 40-year timeframe”; (3) “[t]he costs for drinking water and wastewater services to adapt to climate change are significant”; and (4) “[f]ailure to provide a timely response to needed planning for

There are reasons to believe, however, that water battles arising as a result of climate change impacts may be amenable to the emergency preparedness/public necessity reframing—that is, to reallocation and shared rationing rather than “wild west” standoffs. As noted, almost uniquely among natural resources, water retains a strong public character both legally and politically, suggesting that public policies and legal solutions based on public necessity have a better chance of guiding climate change adaptation policy with respect to water than elsewhere. Sandra Zellmer and Jessica Harder, for example, have argued that “[w]ater is a uniquely essential resource with uniquely public attributes, unlike real estate, currency, jewelry, and many other things that are treated as property.”²³³ They regard water, given the web of interests surrounding it, as so unlike other forms of property that they would limit or eliminate regulatory takings claims for interference with water rights, although they would preserve water’s status as property for due process purposes.²³⁴ For them, “[t]he public interest in water . . . is so compelling that . . . private rights are correspondingly limited.”²³⁵

Joseph Sax has gone even further, arguing that water is first and foremost public property, limiting all assertions of private property

climate change adaptation will have serious consequences for the nation,” including “dire disruption or long-term loss of water and sanitation services to homes, municipalities, and industry—with the resultant short- and long-term impacts to human health, and the economy.” 2009 NACWA WATER ADAPTATION COST ANALYSIS, *supra* note 9, at ES-7.

233. Sandra B. Zellmer & Jessica Harder, *Unbundling Property in Water*, 59 ALA. L. REV. 679, 683 (2008). *But see* Carol M. Rose, *supra* note 2, at 351 (arguing that real property rights are also flexible, “however little the symbol of landed property may suggest them”); Michael C. Blumm, *Pinchot, Property Rights, and Western Water: (A Reply to Gregory Hobbs)*, 24 ENVTL. L. 1203, 1205 (1994) (arguing that “property rights in water are no different than property rights in land” and that “both land and water rights are contingent and flexible, able to accommodate the felt necessities of the day”).

234. Zellmer, *supra* note 233, at 686–87; *see* Sax, *supra* note 1, at 482 (“The roots of private property in water have simply never been deep enough to vest in water users a compensable right to diminish lakes and rivers or to destroy the marine life within them.”).

235. Zellmer, *supra* note 233, at 687. From a different perspective, Stephen Draper similarly sees the establishment of tradable property rights in water as being at odds with necessary public rights and values:

A series of unintended consequences arises when water rights are changed from a usufructory right to a property right. A system of tradable property rights would, by its definition and operation, have difficulty guaranteeing adequate river basin planning and management, as well as effective environmental and ecological protection. Additionally, private markets cannot appropriately examine the needs of other public values, such as social equity. Equally problematic is the potential loss of the legal authority and control of the internal water resources of a nation or state.

Draper, *supra* note 136, at 51.

interests.²³⁶ Moreover, as Sax points out, even the U.S. Supreme Court, in the person of Justice Holmes, has championed public rights in water at the expense of private rights:

[F]ew public interests are more obvious, indisputable and independent of a particular theory that the interest of the public of a State to maintain the rivers that are wholly within it substantially undiminished, except by such drafts upon them as the guardian of the public welfare may permit for the purpose of turning them to a more perfect use. This public interest is omnipresent wherever there is a State. And grows more pressing as population grows. It is fundamental, and we are of the opinion that the private property of riparian proprietors cannot be supposed to have deeper roots.²³⁷

Given these two threads—recognized crises and acknowledged public rights—public water supply appears to be the perfect testing ground for an emergency preparedness/public necessity approach to climate change adaptation. States like California have already acknowledged a water supply crisis and climate change’s role in creating and perpetuating that crisis; other states are likely to follow in the near future, especially if drought conditions persist in the West or resurge in the East. Reframed as a form of emergency preparedness responding to public necessity, therefore, adaptation to climate change impacts on water supply could allow for a transition from claims of individual rights to functional, community-based solutions that allow for the broadest and best survival of individuals, communities, and the ecosystems that support them.

236. In his view, “water is and always has been a public resource. The law is that water flows to benefit those uses that advance the contemporary public interest. No private right may stand in the way of that flux and reflux of water rights.” Sax, *supra* note 1, at 475.

237. Hudson County Water Co. v. McCarter, 209 U.S. 349, 356 (1908).

**ADAPTING TO CLIMATE CHANGE: TRANSBASIN WATER
DIVERSIONS AND AN EXAMPLE FROM THE MISSOURI
RIVER VALLEY**

John H. Davidson *

TABLE OF CONTENTS

Introduction.....	757
I. The Missouri River.....	759
II. Today: Climate, Transbasin Water Diversion, and the Commoditization of Rivers.....	760
III. Legal Tools for Allocating Waters in Federal Rivers, Reservoirs, and Channels.....	765
IV. Energy Transportation Systems, Inc.....	767
V. Control or Ownership of Missouri River Waters.....	773
VI. The Interstate Compact Option.....	775
Conclusion	776

INTRODUCTION

There are three apparent responses to global warming and climate variability: (1) additional research; (2) adaptation to new and changing conditions; and (3) addressing the root causes of changing resource demand or climate change itself.¹ This symposium motors through the sea of verbiage that has accumulated around option three and focuses on the practical legal and policy challenges of adaptation. This paper focuses on the implications for water managers of possible broad-scale water shortages. Using the Missouri River Basin as a working example, this essay offers for discussion the general issue of whether—in light of emerging prospects for regional climate change, climate variability, and population growth—it is necessary to contemplate an integrated water

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1. A. Dan Tarlock, *Western Water Law, Global Warming, and Growth Limitations*, 24 LOY. L.A. L. REV. 979, 980–81 (1991).

supply network playing freely across state and watershed lines. It assumes without discussion that any such proposals will meet deep opposition in water-abundant regions, where disruption of local economies and ecosystems is possible. It assumes further, however, that in a natural resources economy governed by equitable principles² and based on the free movement of essential goods in commerce,³ a true water shortage in one region will be impossible to ignore.

Parallels are found in the classic 1925 journal article by Felix Frankfurter and James M. Landis in which the authors recognized that in the use and conservation of natural resources “lurked the seeds of inevitable contest between the new Union and its constituent members.”⁴ There the authors describe the development of the electrical supply, which at the time was a local resource but was rapidly gaining recognition as a basic national interest. The first stage of development in this “electrical age”⁵ saw a large number of small independent plants located haphazardly with little regard to efficiency and governed only by local law. In a second stage, surplus energy became available for export to meet regional and national demand.⁶ Imagining a third stage through “legal pre-vision,” Frankfurter and Landis foresaw a “vast interrelated network of electric power freely playing across State lines,”⁷ an atomized and uncoordinated system of power generation necessarily merging into an integrated national system.

Moving on from electricity, the authors focused on water, which ultimately could not be a matter of local and state authority. Instead, “an adequate water supply for our teeming city populations presents one of the most exigent problems of conservation.”⁸ Further:

To a dramatic extent [water] is an ever-present concern in the daily lives of the people in one region, while it hardly touches the imagination, let alone the lives of millions of people in other parts of the country. Wherever the pressure is felt one answer is clear: no one State can control the

2. See A. Dan Tarlock, *The Law of Equitable Apportionment Revisited, Updated, and Restated*, 56 U. COLO. L. REV. 381, 394 (1985) [hereinafter *Equitable Apportionment*] (discussing “fair allocation” as “the touchstone of equitable apportionment”).

3. See *Sporhase v. Nebraska ex rel. Douglas*, 458 U.S. 941, 949–50 (1981) (describing the pervasive economic nature of water in interstate trade).

4. Felix Frankfurter & James M. Landis, *The Compact Clause of the Constitution: A Study in Interstate Adjustments*, 34 YALE L.J. 685, 685 (1925).

5. *Id.* at 708.

6. *Id.* at 708–09.

7. *Id.* at 711.

8. *Id.* at 702.

power to feed or to starve, possessed by a river flowing through several States. A great number of our streams have that potency. Moreover, there can not be a definitive settlement. Population, engineering, irrigation conditions constantly change; they cannot be cast into a stable mould by adjudication or isolated acts of administration.⁹

Frankfurter and Landis recognized that natural resource shortages represented a direct challenge “that [would] make a major demand on American statesmanship,”¹⁰ and that flexible federal leadership under the Commerce Clause was necessary to address the inevitable tensions among state, regional, and national interests.

Frankfurter and Landis could not have foreseen climate change, but they certainly foresaw the regional water shortages that now appear on our horizon. With this “legal pre-vision,” they wrote: “The legal issues are continuous because the human difficulties are continuous.”¹¹ Their prescription for an integrated system of resource distribution has not been adopted, but regional water shortages will soon require a renewal of that idea.

I. THE MISSOURI RIVER

The Missouri River is the longest river in the United States. Its 2540 miles drain one-sixth of the continent, stretching from headwaters in Wyoming and Montana to its mouth deep in the State of Missouri, where it spills into the Mississippi River, providing that stream with the water necessary to carry the nation’s commerce to the Gulf of Mexico. Equally as important, a series of six massive reservoirs have been constructed on the river’s main channel, creating three of the five largest man-made lakes in the United States, with a combined storage capacity of seventy-four million acre–feet, the largest system of reservoirs in the United States.¹² In the upper basin, the two large reservoirs, behind Garrison Dam in North Dakota and Oahe Dam in South Dakota, together store in excess of 46.9 million acre–feet of mountain and prairie runoff.¹³ The Missouri River below the

9. *Id.* at 700–01.

10. *Id.* at 699.

11. *Id.* at 686.

12. JOHN R. FERRELL, *BIG DAM ERA: A LEGISLATIVE AND INSTITUTIONAL HISTORY OF THE PICK-SLOAN MISSOURI BASIN PROGRAM* xii (1993).

13. *North Dakota v. U.S. Army Corps of Eng’rs*, 264 F. Supp. 871, 874–75 (D.N.D. 2003).

dams flows into the lower basin, where it is channeled within levees and provides a free-flowing navigation channel to the Mississippi.¹⁴

The Missouri River Basin encompasses ten states, several Canadian provinces, twenty-five Indian tribes, and nearly the full range of human land uses. It includes major metropolitan areas, as well as relatively unpopulated expanses. It includes sub-humid dry lands in the upper basin and lands of water abundance in the lower.¹⁵ Its modern history is that of conflict between the upper and lower basins, and the inability of basin states to achieve any level of accord in river management.¹⁶ In sum, however, the basin, as developed, enjoys an abundance of stored water.

II. TODAY: CLIMATE, TRANSBASIN WATER DIVERSION, AND THE COMMUNITIZATION OF RIVERS

A practical beginning point is a minor contemporary event: the North Dakota Water Engineer issued a water right permit of 15,000 acre-feet per year in order to allow the Garrison Diversion Conservancy District to serve a federally funded Northwest Area Water Supply Project.¹⁷ This project will divert water from Lake Sakakawea, the huge U.S. Army Corps of Engineers reservoir behind Garrison Dam on the main channel of the Missouri River, and transfer it eastward, where return flows will leave the Missouri River Basin, draining into the Red River and thence further northward into Canadian waters.¹⁸

The State of Missouri opposed the transbasin diversion and responded to the North Dakota permit by filing suit in federal district court under the National Environmental Policy Act. Missouri's complaint asserts that "any significant out-of-basin transfer of water . . . will significantly affect the human environment . . . and will cause actual and imminent harm to Missouri citizens."¹⁹ More specifically, it argued that the proposed transfers from the Missouri River reservoirs would reduce the amount of flows

14. John H. Davidson, *Indian Water Rights, the Missouri River, and the Administrative Process: What Are the Questions?*, 24 AM. INDIAN L. REV. 1, 7 (1999).

15. A. Dan Tarlock, *The Missouri River: The Paradox of Conflict Without Scarcity*, 2 GREAT PLAINS NAT. RES. J. 1, 2 (1997).

16. Sandra B. Zellmer, *A New Corps of Discovery for Missouri River Management*, 83 NEB. L. REV. 305, 307 (2004).

17. Complaint at 3, 6, *Missouri v. U.S. Dep't of Interior, Bureau of Reclamation*, D.D.C. (Feb. 23, 2009), available at http://ago.mo.gov/agriculture/pdf/NAWS_complaint.pdf.

18. *Id.* at 5 (identifying negative effects of upstream diversions on downstream uses).

19. *Id.* at 3.

released for downstream uses in the State of Missouri, such as domestic water supply and navigation.²⁰

Although Missouri's suit is based in the National Environmental Policy Act, the underlying concern is obviously with the decision of North Dakota, an upstream basin state, to permit a transbasin diversion over the objection of Missouri, a downstream basin state. The conclusion that Missouri's concern is focused on the transbasin character of the permit is supported by the fact that Missouri routinely declines to oppose large upstream consumptive use permits that support in-basin economic activity.²¹ Thus, the dispute renews attention to the legal status of transbasin water transfers from the Missouri Basin in the absence of an interstate compact, judicial apportionment, or congressional decree. The North Dakota Garrison permit and Missouri's opposition to it raise the question of whether any limits exist on the capacity of a single state in the Missouri River Basin to permit transbasin diversions from federal reservoirs. A further question is whether the federal agencies that manage developed rivers, such as the Missouri, themselves possess legal authority to license such diversions. These questions are important: the possibility of a demand for future transbasin diversions is real, and meeting this demand may serve the broad public interest.

An interbasin transfer is the physical transportation of water out of one natural basin and into another; one area gains from an interbasin transfer and another loses.²² The idea is hardly new. One of the earlier water cases to reach the United States Supreme Court was *New Jersey v. New York*,²³ in which the State of New York proposed the diversion of 600 million gallons per day from the Delaware River into the Hudson River Basin. Justice Holmes, writing for the Court, concluded that the issue of interbasin transfer was irrelevant and a mere makeweight argument: "[T]he removal of water to a different watershed obviously must be allowed at times unless States are to be deprived of the most beneficial use on formal grounds. In fact it has been allowed repeatedly and has been practiced by the States concerned."²⁴ Numerous other examples of large-scale transbasin diversions exist, such as the importation of water to Denver from the western slope of the Rocky Mountains, the Colorado-Big Thompson

20. *Id.* at 2–3.

21. *Id.* at 5 (focusing on the adverse impacts of "significant out of basin transfers").

22. NATIONAL WATER COMM'N, WATER POLICIES FOR THE FUTURE 317 (1973).

23. *New Jersey v. New York*, 283 U.S. 336 (1931).

24. *Id.* at 343.

Project, the Fryingpan-Arkansas Project, and the Colorado River Aqueduct.²⁵

Contemporary discussion of the issue can begin conveniently with the report of the National Water Commission (NWC) in 1973. Congress included in its charge to the NWC an instruction that it identify alternative ways of meeting future water needs, “giving consideration, among other things, to interbasin transfers.”²⁶ In its report, the NWC recognized that interbasin transfers were numerous, and that:

As economic demand for water increases, as available water supplies in areas of shortage shrink, as technological capability improves, and as national income grows, the feasibility of interbasin transfers increases and the scale of the proposals grow larger

Congress has the power either to prohibit or to require an interstate, interbasin transfer. The ultimate decisions as to criteria for design, construction, review, benefited areas, repayment, protection for areas of origin, environmental safeguards, and other aspects of such interbasin transfers are all Congress’s to make.²⁷

During the era in which the NWC wrote, interstate, interbasin transfers were central to water resources development planning.²⁸ It was no accident that Professor Sax titled the first chapter of his groundbreaking law school textbook on water law “Public Planning for Water Use: The Northwest-Southwest Diversion.”²⁹ In the decades that followed, however, circumstances changed, and the idea of large-scale transbasin diversions moved offstage. Area-of-origin states such as Washington were able to assert political power sufficient to thwart proposals; the tide of federally funded water resources projects ebbed, concerns with pollution and ecosystem effects received both legal and policy recognition, and federal spending priorities changed.³⁰

25. See, e.g., RALPH W. JOHNSON, NAT’L WATER COMM’N, MAJOR INTERBASIN TRANSFERS LEGAL ASPECTS 16 (1971); DEAN. E. MANN, NAT’L WATER COMM’N, INTERBASIN WATER TRANSFERS: A POLITICAL AND INSTITUTIONAL ANALYSIS 4 (1972).

26. National Water Commission Act, Pub. L. No. 90-515, § 3(a)(1), 82 Stat. 868, 868 (1968).

27. NATIONAL WATER COMM’N, *supra* note 22, at 329–30.

28. *Id.* at 317.

29. JOSEPH L. SAX, WATER LAW, PLANNING AND POLICY: CASES AND MATERIALS 5 (1968).

30. See A. Dan Tarlock, *Putting Rivers Back in the Landscape*, 14 HASTINGS W.-NW. J. ENVTL. L. & POL’Y 1059, 1090 (2008) (discussing the federal government’s “withdrawal from subsidized water development”).

The issue of transbasin water diversion and opposition to it is, therefore, hardly new. For several reasons, however, this recurring and unsettled issue gains fresh relevance in the current of changing circumstances. First, it is becoming apparent that we may be entering a period of climate change or variability. As Professor Leshy summarized recently, “[c]urrent patterns of water use, and the enormous infrastructure built to support them, are based on historic climate patterns as we have understood them, but a near-consensus among climatologists holds that our hydrologic future will not simply mimic the past.”³¹

This general summary has particular application to the American West, which is getting drier.³² The most recently published modeling results indicate warming well beyond the worldwide average, suggesting temperature increases from four to thirteen degrees Fahrenheit.³³ Any such increases will result in smaller snowpacks, earlier snowmelt, accelerated flood-control releases, more extreme flood events, receding glaciers, more evaporation, and less groundwater.³⁴ Most models foretell of water shortages, lack of storage capacity to meet seasonally changing river flows, and transfer of water from agriculture and industry to municipal use.³⁵ Significantly, the same models conclude that anthropogenic global warming is responsible for more than half of the well-documented changes to the hydrological cycle from 1950–1999.³⁶ Over the last half of the twentieth century, the West’s mountains received less winter snow and more rain, with snow melting earlier, causing rivers to flow more strongly in the spring and less strongly in the summer.³⁷

As an initial point, the American West provides a vivid example of an emerging regional water shortage, resulting in substantial part from global warming and made more acute by an assumption that human population there will increase without limit. Where water management issues are involved, the West, however, simply provides the first good example of a problem that has the potential to become commonplace. Whether water

31. John D. Leshy, *Notes on a Progressive National Water Policy*, 3 HARV. L. & POL’Y REV. 133, 133 (2009).

32. STEPHEN SAUNDERS ET AL., HOTTER AND DRIER: THE WEST’S CHANGED CLIMATE 7 (2008), available at <http://www.rockymountainclimate.org/website%20pictures/Hotter%20and%20Drier.pdf>.

33. W. GOVERNORS ASS’N, WATER NEEDS AND STRATEGIES FOR A SUSTAINABLE FUTURE 21 (2006), available at <http://www.westgov.org/wga/publicat/Water06.pdf>.

34. *Id.*

35. Tim Barnett et al., *Human-Induced Changes in the Hydrology of the Western United States*, 319 SCIENCE 1080, 1083 (2008).

36. *Id.*

37. *Id.* at 1080.

flows are altered by the global warming phenomenon or turn out simply to have been measured inaccurately, or whether population-rich or consumption-heavy regions outpace their supplies, it is likely that water-short regions will look to water-abundant regions for relief, even if the latter happen to be in another basin and disinclined toward sharing. Although this essay focuses on the Missouri River and the arcane aspects of the laws that apply to it, the decision-making process that it represents can apply to any river basin in the United States that is asked to yield surplus water supplies to meet needs in other basins.

Second, the Missouri River reservoirs contain a significant supply of mountain runoff that is, in pure quantity terms, unused and available to meet needs beyond the boundaries of the basin.³⁸ In fact, because historically large downstream calls on reservoir waters to support navigation are diminishing, some argue that the available supply in the reservoirs is actually increasing.³⁹

At present, the cost and technical feasibility of transporting water westward or southward by pipeline may seem to be prohibitive, but real shortages and changing economics elsewhere are known to alter quickly the calculation of costs and benefits.⁴⁰ That large-scale transbasin diversions can be a matter of practical concern is supported by the example of the Great Lakes states, which responded with noteworthy vigor when confronted with proposals to export waters of the Great Lakes to other basins.⁴¹ Moreover, as a series of past proposals for Great Lakes water have suggested, a very efficient, available method for transbasin transfers is the release of runoff waters stored in lakes and reservoirs for transport downstream in the main river channel and ultimate diversion much closer to the river's mouth.⁴² In sum, this essay contemplates that during times of emergency or economic demand elsewhere, the great Missouri River reservoirs may be seen as an opportunity to augment supplies in other basins and that certain chapters in the river's legal history may serve as

38. Sandra Zellmer, *Missouri River Basin*, in 4 WATERS AND WATER RIGHTS § I(C) (Robert Beck & Amy Kelley eds., 2009).

39. *Id.*

40. See, e.g., Emily Underwood, *Wild Turkey, Gunfire, and Great Big Pipelines*, HIGH COUNTRY NEWS 5 (July 20, 2009), available at <http://www.hcn.org/issues/41.12/wild-turkey-gunfire-and-great-big-pipelines> (describing plans to build a water pipeline from southwest Wyoming to Colorado's front range).

41. Sonya F. Palay, *Muddy Waters: Congressional Consent and the Great Lakes—St. Lawrence River Basin Water Resources Compact*, 36 HASTINGS CONST. L.Q. 717, 721 (2009).

42. Chris A. Schafer, *Great Lakes Diversions Revisited: Legal Constraints and Opportunities for State Regulation*, 17 T.M. COOLEY L. REV. 461, 463–66 (2000).

precedent for other basins which may consider diversions from the Missouri and other basins.

Third, individual states in the basin may decide to market reservoir water as a means of financing state government. A typical assumption in the discussion of transbasin diversions is that area-of-origin states will vigorously oppose any export scheme,⁴³ but this is no more than a handy conclusion and may not stand up as circumstances change. Equally counter to standard assumptions is the possibility that Native American tribes, always in need of capital financing but with only limited opportunity to irrigate or industrialize on tribal lands, may choose to market surplus water as a means of financing priority tribal objectives.⁴⁴

There is no settled vision of the river's future use. The underlying theme here is the recognition of a competition between a vision of the river's water as a commodity and a vision of it as a natural ecosystem resource. As a commodity, the river's water is available to serve the needs of a national economy in which water is growing in value as it becomes scarcer. As a natural ecosystem resource, the value of the river is seen as the flow itself, creating not only power and navigation, but ecosystem maintenance and recreation. Professor Tarlock writes: "Rivers have . . . often been conceptually and functionally 'detached' from their surrounding landscape, and river channels and corridors ceased to be considered valuable resources as rivers were viewed exclusively as commodities."⁴⁵ This essay expands upon the commodity concept, suggesting that a changing climate combined with altered demand and new technologies may add a note of inevitability.

III. LEGAL TOOLS FOR ALLOCATING WATERS IN FEDERAL RIVERS, RESERVOIRS, AND CHANNELS

State and federal governments can resolve transbasin water issues by a variety of means, all of which are familiar and enjoy broad legal recognition. First, private lawsuits between water users on the same stream but in different states may resolve largely local disputes but are of little

43. NAT'L RESEARCH COUNCIL, *WATER TRANSFERS IN THE WEST* 257–59 (1992).

44. John P. Guhin, *The Law of the Missouri*, 30 S.D. L. REV. 346, 471 (1985) (noting in suits resolving Indian water rights the issue is often "the amount of water to be allocated to the Indian reservation").

45. Tarlock, *supra* note 15, at 11 (citations omitted).

effect when applied to larger streams and rivers.⁴⁶ Second, equitable apportionment litigation between states as sovereigns may be pursued in federal court.⁴⁷ In these cases, the U.S. Supreme Court has original jurisdiction and applies federal common law rather than state law.⁴⁸ Third, interstate compacts may be negotiated by states in which waters of a stream are apportioned, but the Compact Clause of the United States Constitution requires congressional approval of such agreements in order for them to be enforceable.⁴⁹ Finally, Congress enjoys the power to allocate streams unilaterally in the national interest.⁵⁰

It is in the absence of any of these processes that states, federal water management agencies, and private water developers may initiate transbasin transfers. Each state and tribe in a basin is entitled to an equitable share of the flow of interstate rivers and their tributaries,⁵¹ but absent express recognition by way of a compact, equitable apportionment, or federal statute, the amounts of these entitlements remain ill-defined.

A developed river basin such as the Missouri can be tapped for out-of-basin uses in a variety of ways. The water stored behind a reservoir falls into congressionally specified use categories, which determine the nature of claims that can be made on it.⁵² Thus, in the Flood Control Act of 1944, it is stipulated that the Missouri River dams are to be operated for flood control, navigation, irrigation, and hydropower development.⁵³ This law also allows the Corps to declare certain waters “surplus” and available for marketing.⁵⁴ Although there is little specific law on the question, presumably these statutory uses preempt any inconsistent use recognized under state law. As a practical matter, the statutory power of federal agencies to operate the dams also preempts state law, since decisions on

46. Douglas L. Grant, *Private Interstate Suits*, in 4 WATERS AND WATER RIGHTS § 44.01 (Robert Beck & Amy Kelley eds., 2009).

47. Douglas L. Grant, *Equitable Apportionment Suits Between States*, in 4 WATERS AND WATER RIGHTS § 45.01 (Robert Beck & Amy Kelley eds., 2009).

48. *Id.*

49. See *Equitable Apportionment*, *supra* note 2, at 402–03 & n.85 (discussing “[f]ederal power to allocate interstate waters by congressional legislation”).

50. Douglas L. Grant, *Apportionment by Congress*, in 4 WATERS AND WATER RIGHTS § 47.01 (Robert Beck & Amy Kelley eds., 2009).

51. Grant, *supra* note 47, § 45.01.

52. *Id.*

53. Zellmer, *supra* note 38, § III(A).

54. *Id.* § IV(E).

such routine matters as the scheduling of releases have a direct bearing on the availability of supplies for other uses.⁵⁵

IV. ENERGY TRANSPORTATION SYSTEMS, INC.

In 1974 the Wyoming State Legislature authorized its State Engineer to issue permits from the Madison groundwater formation to Energy Transportation Systems, Inc. (ETSI), a private joint venture, for use in a coal slurry pipeline designed to ship Great Plains coal to the south central United States.⁵⁶ Coal slurry is a mixture of pulverized coal and water, and a slurry pipeline efficiently transports bulk coal. The Wyoming groundwater permits entitled ETSI to withdraw an average of 15,000 acre-feet of water per year.⁵⁷

The success of the ETSI proposal depended on a world influenced by the OPEC oil embargo of the 1970s—a world of inflation, energy shortages, and regulated railroad shipping rates.⁵⁸ These factors had all disappeared by the early 1980s and the ETSI project was ultimately abandoned, but the events that occurred during project development provide a case study for a time when transbasin diversions were proposed.

The proposed ETSI well field was located adjacent to the Wyoming-South Dakota border and presented a challenge to South Dakota's water managers and policy makers. The projected drawdown of the Madison aquifer over time was a direct threat to municipal well fields in South Dakota, and the effect on surface water flows threatened drinking water and waste management, as well as environmental and aesthetic impacts on the tourist and outdoor activity economy of the Black Hills region.⁵⁹

South Dakota faced an uneasy situation. Its option to actively resist potential damage was limited to lengthy litigation with little prospect of success. This situation changed dramatically when, in 1981, ETSI expressed a willingness to look to the Oahe Reservoir as a primary source for its project and to hold its Wyoming water rights as a reserve.⁶⁰ A

55. See generally *id.* § V(A) (explaining the various acts granting power to the federal government to regulate dammed areas).

56. Guhin, *supra* note 44, at 380.

57. Zellmer, *supra* note 38, § IV(E).

58. *Id.*

59. See William J. Janklow, *South Dakota and the ETSI Experience*, in *NEW SOURCES OF WATER FOR ENERGY DEVELOPMENT AND GROWTH: INTERBASIN TRANSFERS*, at 3.58, 3.68 to 3.69 (1982), available at <http://ufdcweb1.uflib.ufl.edu/ufdc/?b=WL00000321&v=00001>.

60. *Id.* at 3.68.

pipeline carrying Missouri River water from the Oahe Reservoir to Wyoming coal preparation stations presented South Dakota with several advantages.

First, the proposed pipeline option avoided the need for a legal confrontation over the Madison aquifer water permits. Second, it allowed a practical method for addressing another state issue—the delivery of reliable supplies for domestic and stock watering use in the open range between the Missouri River and the Black Hills.⁶¹ ETSI was willing to contract to provide water to western South Dakota communities along the pipeline route, a result that would otherwise be achieved only by large-scale public subsidy. Third, ETSI also proved willing to pay money to the State of South Dakota for the Oahe water right, a bold notion when viewed in the context of western water law systems that are based on rights claimed free of charge to private users.⁶²

Fourth, the U.S. Supreme Court in 1982⁶³ ruled that the Constitution's Commerce Clause precluded states from preventing exports of water from within their boundaries for parochial, political, or economic reasons; in other words, water is an item of commerce, subject to federal regulation, and states may not interfere with commerce in water.⁶⁴ South Dakota interpreted this ruling as a precursor to an active water market in which it hoped to be an early entrant. Finally, the timing of this breakthrough was significant because it coincided with a new requirement by the federal executive that state and local governments must contribute a share toward federally subsidized water projects within their boundaries. Economically advanced states were in a position to meet the local share requirement, but South Dakota, with a small population and an agrarian economy, was not in a position to contribute, making it considerably more difficult, if not impossible, to compete for federal subsidies. ETSI's willingness to pay for Oahe water thus provided a potential fund on which future water development would be based.⁶⁵

This innovative approach required supporting state legislation by a special session of the South Dakota Legislature, but as the pieces of the complex puzzle came into place, the Governor summarized:

61. *Id.* at 3.67.

62. *Id.* at 3.68.

63. *Id.* at 3.73.

64. *See Sporhase v. Neb. ex rel. Douglas*, 458 U.S. 941, 953–54 (1982) (recognizing the “Western States’ interest . . . in conserving and preserving scarce water resources,” while categorizing such interests as “irrelevant” to any commerce clause inquiry and granting Congress the “power to deal with” water problems on a national scale).

65. Zellmer, *supra* note 38, § IV(E).

Once this agreement began to take shape and it appeared that our goals with respect to preserving the Madison Formation, providing water to Western South Dakota communities, and obtaining money for water development were actually achievable, it became impossible for South Dakota to reject this virtual bird in the hand in favor of protracted and uncertain litigation that might accomplish only one of our goals.⁶⁶

Success of the proposed transbasin diversion depended upon a large supply of unappropriated water and a legally valid state water right. State water law is based on the familiar principal of seniority of rights, and the availability, value, and security of a right to use water is dependent on its original appropriation date.⁶⁷ Because virtually all of the surplus water impounded behind the Oahe and Garrison dams was then (and is now) unappropriated under state law, the ETSI project developers were in a position to claim a secure senior water right, assuming that state water law governed.

Implementing the deal required special state legislation in order to address several specific problems. “The first was the provision of the South Dakota State Constitution which prohibits the legislature from granting to any private concern any special privilege, franchise, grant, or immunity . . . and prohibits . . . special legislation where the same purpose can be accomplished through a law of general applicability.”⁶⁸ The solution was a law that allows a state-chartered special district—the South Dakota Conservancy District—to apply for and to obtain water rights for the purpose of transferring them to third persons for consideration in energy development in and out of the state. Nothing in the legislation was specific to ETSI, and the general statute remains on the books.⁶⁹

Under state water law, water rights are issued to successful applicants free of financial charge.⁷⁰ The ETSI developers, however, were willing to pay the State of South Dakota for water, provided that a lawful mechanism for the purpose could be established. Arranging payment to the

66. Janklow, *supra* note 59, at 3.69.

67. See *Equitable Apportionment*, *supra* note 2, at 383 (describing actions by states to claim “ownership” of waters).

68. Janklow, *supra* note 59, at 3.69.

69. A full account is available at: John H. Davidson, *South Dakota’s Special Water Districts—An Introduction*, 36 S.D. L. REV. 500, 533 (1991).

70. *Id.* at 530.

Conservancy District solved this problem and, as a practical matter, put the State in the business of selling water rights to energy companies, whether in or out of the state.⁷¹

South Dakota's legal strategy could not be limited to state legislation, however, because the water to be appropriated lay in storage behind the federal Oahe Dam. In order for the State's scheme to succeed, it required recognition of the state water right (and, it follows, the lucrative sales contract) by the appropriate federal water management agency. As it happens, however, the Flood Control Act of 1944,⁷² which governs management of the Missouri River, delegates authority to two agencies—and the statutory difference between the two is substantial. The U.S. Army Corps of Engineers is charged with constructing the large dams on the main river channel and managing them for flood control, navigation, and hydropower.⁷³ The Bureau of Reclamation, part of the Department of the Interior, is charged with developing projects that carry water from the main reservoirs to various irrigation projects to be developed in the upper basin.⁷⁴ The irrigation projects from the dams on the main channel never materialized and are generally agreed to be impractical.⁷⁵ The mixture of legislative authorizations caused the U.S. Army Corps of Engineers to construct and operate the dams, reservoirs, and navigation channel, while the Bureau of Reclamation maintained paper authority but few projects on the ground.⁷⁶

The laws that govern the operation of the Bureau of Reclamation provide water marketing authority, as well as a saving clause that states:

Nothing in this Act shall be construed as affecting or intended to affect or in any way interfere with the laws of any State or Territory relating to the control, appropriation, use or distribution of water in irrigation, or any vested right acquired thereunder, and the Secretary of the Interior, in

71. *See id.* at 534 (listing "marketing of water for energy use" as one of the Conservancy District's purposes).

72. Navigation and Flood Control Act of 1944, Pub. L. No. 78-534, ch. 665 (Dec. 22, 1944).

73. W.A. Hillhouse II, *Federal Law of Water Resources Development*, in *FEDERAL ENVIRONMENTAL LAW* 844, 846 (Erica L. Dolgin & Thomas G. P. Guilbert eds., 1974).

74. *Id.* at 848.

75. *See* Guhin, *supra* note 44, at 430 (noting the tentative but unlikely future course of the project).

76. Zellmer, *supra* note 38, § IV(E).

carrying out the provisions of this Act, shall proceed in conformance with such laws.⁷⁷

Section 8 thus requires the Bureau of Reclamation to conform to state law in the delivery of mainstem water, a constraint that was viewed at the time as basic by the upper basin states, which were and are concerned that state control may be subordinated to the U.S. Army Corps of Engineers's traditional preference for managing rivers for flood control and navigation. For South Dakota, a reservoir withdrawal permit issued by the Bureau of Reclamation would be subject to § 8, and would validate the ETSI water right, because section 9(c) of the Flood Control Act of 1944 states that "reclamation . . . developments [are] to be undertaken by the Secretary of the Interior . . . governed by the Federal Reclamation Laws."⁷⁸

The State of South Dakota thus reasoned that a significant portion of the water in storage behind the Oahe Dam was intended for irrigation that was unlikely to be developed in the foreseeable future. Additionally, it reasoned that the use of "irrigation water" ought to be governed by reclamation laws, including § 8 recognition of state water permits, even when the waters are marketed for energy development.⁷⁹

In contrast, section 6 of the Flood Control Act authorized the U.S. Army Corps of Engineers to "make contracts . . . for domestic and industrial uses for surplus water that may be available at any reservoir under the control of" the Corps.⁸⁰ Thus, were the Corps to designate waters in the reservoirs as "surplus," it could market the water independently of the states, without recognition of claimed state water permits, and without risk of sale by the state. The water would be subject to a mere administrative permit rather than a legally recognizable appropriation of a property interest. Because the Corps's constitutional authority is pursuant to the Commerce Clause as expressed through the navigation servitude,⁸¹ it may be assumed that the Agency enjoys the broadest discretion in administering its statutory authority to market surplus water, even in the face of opposition from basin states.

77. Reclamation Act of 1902 § 8, 43 U.S.C. § 383 (2006).

78. Navigation and Flood Control Act of 1944, Pub. L. No. 78-534, ch. 665 (Dec. 22, 1944).

79. The State took comfort from upstream litigation involving dams that were in fact constructed by the Bureau of Reclamation primarily for irrigation. In that case, reclamation laws do apply and § 9(c) gives the Bureau of Reclamation industrial water marketing authority.

80. 33 U.S.C. § 708 (2006).

81. See *Equitable Apportionment*, *supra* note 2, at 402 (discussing the move from limited federal power based on navigability to increased federal power "with the full reach of the Commerce Clause").

The ETSI project collapsed as economic circumstances changed, but the process still matters. First, it provides an example of a case in which state initiative was used to facilitate a transbasin transfer. Second, it demonstrates the substantial authority possessed by federal water management agencies. Needless to say, there was widespread opposition to the ETSI proposal, particularly from downstream states in the basin, as well as from the railroads that competed in the business of hauling coal and across whose tracks the slurry pipeline needed to pass.⁸² The abundance of litigation and proposed legislation spawned by the ETSI proposal is remarkable by any standard.⁸³

Most important is the federal court challenge brought by the lower basin states that were concerned with what they saw as a precedent for out-of-basin transfers at the initiative of a single upper basin state; the suit sought to invalidate the water marketing permit issued to South Dakota by the Bureau of Reclamation.⁸⁴ The challenge raised the general question of whether an upper basin state or any basin state held independent rights in some of the stored reservoir water. This water right was issued, after all, by a state rather than a federal agency. The Missouri River is operated under the Flood Control Act of 1944, under which the development of the great dams in the upper basin was undertaken. The Act authorized the reservoirs for multiple purposes. Most benefits flowed to the lower basin states in the form of flood control and navigation improvement, while the upper basin states and tribes received a string of recreation reservoirs and access to hydroelectric power. The ultimate plan of the Flood Control Act was for the Bureau of Reclamation to develop large-scale irrigation projects in the upper basin,⁸⁵ but these hopes did not materialize.

The downstream states of Iowa, Missouri, and Nebraska brought suit in federal district court in Nebraska to block the ETSI diversion from Oahe Reservoir.⁸⁶ The issue then was a narrow one: whether Congress in the Flood Control Act of 1944 intended the reservoir behind Oahe Dam to be a reclamation facility subject to the water marketing authority of the Secretary of the Interior.⁸⁷ The district court ruled for the plaintiff lower basin states,⁸⁸ and the court of appeals affirmed.⁸⁹ The U.S. Supreme Court

82. Janklow, *supra* note 59, at 3.59, 3.71.

83. *See id.* at 3.71 (rebutting the complaints of the various downstream states).

84. ETSI Pipeline Project v. Missouri, 484 U.S. 495, 498 (1988).

85. Guhin, *supra* note 44, at 352.

86. ETSI Pipeline Project, 484 U.S. at 505.

87. Missouri v. Andrews, 586 F. Supp. 1268, 1269 (D. Neb. 1984).

88. *Id.* at 1281.

89. Missouri v. Andrews, 787 F.2d 270, 287 (8th Cir. 1986).

held that the Secretary of the Interior lacked authority under the Flood Control Act of 1944 to make a contract allowing the state to use (and sell) water and held the contract void.⁹⁰ The decision was a singular victory for the downstream states.

V. CONTROL OR OWNERSHIP OF MISSOURI RIVER WATERS

The ETSI ruling by the U.S. Supreme Court held that because the reservoirs are under the control of the U.S. Army Corps of Engineers, the Corps has the sole authority to market water from them.⁹¹ Therefore the Corps may market water that it determines to be “surplus,” that is, not utilized to fulfill an authorized project purpose.⁹² Described in this way, the Corps’s assertion of power is broad and leaves open the question whether any basin state has independent rights in stored reservoir water, absent express congressional assignment. The Corps can assert that water held for irrigation is now dedicated to “project purposes,” such as hydroelectric generation, or it can declare water to be “surplus” and available for marketing by the Agency.

In the ETSI case, the Supreme Court interpreted the Flood Control Act of 1944 to deny the Bureau of Reclamation the authority to contract to supply Oahe water for industrial use.⁹³ Though the Court did not directly address “the relative interests of the United States and South Dakota in Lake Oahe water,”⁹⁴ its reading of section 6 appears fatal to South Dakota’s claim. The Court read the language as granting the Corps “exclusive authority to contract to remove water for industrial uses” from reservoir projects, like Oahe, that the Corps has constructed and operates.⁹⁵ The Court found the language of section 6 “plain in every respect.”⁹⁶

The statutory authority of the Corps to market surplus water is further strengthened by a general power to allocate project water pursuant to the navigation power. This path seems to be supported by the Supreme Court’s opinion in *Arizona v. California*,⁹⁷ where the Court recognized the power of Congress to apportion river waters, presumably based in the navigation

90. *ETSI Pipeline Project*, 484 U.S. at 505.

91. *Id.* at 506.

92. Guhin, *supra* note 44, at 378.

93. *ETSI Pipeline Project*, 484 U.S. at 505.

94. *Id.* at 498 n.2.

95. *Id.* at 506.

96. *Id.* at 505.

97. *Arizona v. California*, 373 U.S. 546, 587 (1963).

power.⁹⁸ Further, as Professor Trelease has observed, the court-appointed Special Master in Arizona hinted at another source of congressional power to allocate water that the Court did not mention—the government’s control over water it has stored in federal reservoirs. Trelease describes the power as follows:

Impounded water, not appropriated by any person, could be similarly regarded as the property of the United States, and this theory could be used to justify the distribution of water by sale to those who would enter into contractual relations with the United States⁹⁹

. . . .

If, upon the exercise of any of these powers, Congress can sell and distribute the stored waters, it probably follows that it can choose the state in which the waters are to be used and the persons who are to use the waters. Perhaps this has already been done to a limited extent. The 1944 Flood Control Act authorized the Secretary of the Army, who builds and controls flood control and navigation dams, to make contracts with municipalities, private concerns, or individuals for domestic and industrial uses of surplus water available at any reservoir under his control.¹⁰⁰

Thus described it is a fair conclusion that under existing legislation the Corps enjoys broad unilateral authority to market water out of basin. This power extends to all water not needed immediately for specified project purposes. But, the supply of water that is potentially available is enlarged considerably by the unused irrigation water and by the possibility that the demise of navigation on the Missouri River will make water now dedicated to that purpose “surplus” as well.

So, where does this leave the states and tribes? Each is entitled to make use of its equitable share of the flow of the Missouri River. The precise amount of this entitlement can be quantified by legislative or judicial process, but this has not occurred. Presumably a state can issue a state

98. Frank J. Trelease, *Arizona v. California: Allocation of Water Resources to People, States, and Nation*, 1963 SUP. CT. REV. 158, 177 (1963).

99. *Id.* at 181.

100. *Id.* at 181–82.

water permit under state law from the state's equitable share, and this can be for an out-of-basin use.

If, however, the water to be diverted under the state permit is available only because of the storage capacity provided by the federal reservoirs, the question is whether water, once captured and stored pursuant to federal law, can ever be claimed by a basin state. The question has not been answered and awaits future litigation. An argument exists, however, that the Flood Control Act of 1944 has given the Corps unqualified authority over all waters captured and stored in reservoirs, that is, that Congress has allocated the reservoir waters.

VI. THE INTERSTATE COMPACT OPTION

As proposals to divert water from the Missouri Basin have created controversy over time, so too have proposals for diversion from the vast Great Lakes Basin, including diversion to recharge the Ogallala aquifer and to augment Mississippi River flows in support of navigation.¹⁰¹ Rather than await litigation, the basin states and Canadian provinces of Ontario and Quebec signed a Great Lakes Charter, which committed the governors and premiers to monitor existing and future diversions, regulate diversions in excess of a minimum gallonage, and notify all other states and provinces of any new or increased diversions over five million gallons per day.¹⁰² This early "hand-shake" agreement has evolved through a series of more specific versions, and at the heart of each is the question of whether transbasin diversions should be formally prohibited by law. In 1986, Congress authorized any governor to veto a proposed out-of-state diversion.¹⁰³ Finally, a formal Great Lakes-St. Lawrence River Basin Compact was adopted by the states and approved by Congress, making it a federal compact with the force of law.¹⁰⁴ Most important, the Compact prohibits "[a]ll [n]ew or [i]ncreased [d]iversions,"¹⁰⁵ defining "diversions" as "transfer of Water from the Basin into another watershed."¹⁰⁶ The Compact represents federal approval of a state-run comprehensive water management

101. JOSEPH L. SAX ET AL., *LEGAL CONTROL OF WATER RESOURCES: CASES AND MATERIALS* 777–78 (3d ed. 2006).

102. Palay, *supra* note 41, at 724–25.

103. Water Resources Development Act of 1986, 42 U.S.C. § 1926d-20(d) (2006).

104. Great Lakes-St. Lawrence River Basin Compact, Pub. L. No. 110-342, 1985 U.S.C.C.A.N. (122 Stat.) 3739.

105. *Id.* at 3752.

106. *Id.* at 3740.

regime. It makes waters of the Great Lakes Basin “subject to the sovereign right and responsibilities of the [p]arties.”¹⁰⁷

CONCLUSION

States and basins that enjoy an abundance of water but are in a position, due to either proximity or developed capacity, to serve needs in other regions have authority to do so under most existing legal regimes. As things stand in the Missouri River and some other large river systems, the U.S. Army Corps of Engineers has the discretion to implement export infrastructure. In general, this broad discretion is derived from the history of affirmative federal laws sponsoring multiple purpose water resources development.¹⁰⁸ Based on a firm constitutional foundation,¹⁰⁹ the United States has on its own constructed “navigation improvements, flood control works, irrigation projects, [and] hydroelectric facilities; . . . [and has] regulated the use of the navigable waters by others; recently taken the lead on river basin planning; . . . collected and disseminated vast amounts of data and information about the Nation’s waters; and granted or lent funds for various water-related purposes.”¹¹⁰

The absence of federal law necessary to implement this menu of development activities has left the Corps and the Bureau of Reclamation in a strong position to exercise the discretion necessary to adapt to changing water needs across the nation, providing that there is the political will to allow it. Stated in terms related directly to this symposium, the federal water resources laws are adaptable to support transbasin diversions.

Meeting the needs of chronically water-short regions by means of transbasin diversions would create a result that policymakers have long attempted to avoid by enacting ecosystem protection statutes such as the Endangered Species Act. That is, the prospect now exists that river flows will be more than ever a mere commodity, and natural river systems a rare thing indeed.

Against this centralized and adaptable system of federal water resources laws now comes a new model in The Great Lakes Compact, in which basin states seem to have recognized the sweeping authority possessed by federal water resources agencies and utilized the Compact to reclaim control over

107. *Id.* at 3745.

108. Hillhouse II, *supra* note 73, at 844–45.

109. *Id.*

110. *Id.*

potential transfers from the Great Lakes Basin. It is now possible for states in other river basins to consider whether there is reason to mimic the Great Lakes model and preempt agency law. Certainly, the Missouri Basin states have reason to reflect on this.¹¹¹

In the absence of collective action of basin states, this essay points to a third model for transbasin diversion—unilateral action by a state or tribe. Although the ETSI proposal stumbled over South Dakota's rigid resistance on a Bureau of Reclamation permit, it is possible to imagine an identical proposal meeting success today.

111. This brief essay will leave for another time the federalism issue—the question whether one group of states should be allowed to lockup needed supplies of an essential item of commerce. It may be imagined that The Great Lakes Compact caused eyebrows to be raised in the graves of the authors of the Federalist Papers.

**EXTRATERRITORIAL CONDEMNATION FOR OPEN SPACE
AND PARKS: A LOOK AT *TOWN OF TELLURIDE V. SAN
MIGUEL VALLEY CORP.*'S EFFECT ON COLORADO AND THE
MOUNTAIN WEST**

*Nate Smith**

TABLE OF CONTENTS

Introduction.....	779
I. Telluride and the Valley Floor.....	780
II. <i>Town of Telluride v. San Miguel Valley Corp.</i> in the Colorado Supreme Court.....	784
III. Will <i>Town of Telluride v. San Miguel Valley Corp.</i> Become Colorado's <i>Kelo</i> ?	788
IV. The Aftermath of <i>Town of Telluride v. San Miguel Valley Corp.</i>	791
A. The Property Rights Backlash.....	791
B. The Local Municipal Power Movement.....	794
C. A Look to <i>Telluride v. San Miguel Valley Corp.</i> 's Influence in the Future	797
V. Will Extraterritorial Condemnation of Property for Open Space or Parks Become a Regularly Used Tool Throughout the Mountain West? ...	799
A. Utah.....	800
B. Wyoming.....	801
C. New Mexico	802
D. Arizona.....	802
Conclusion	804

INTRODUCTION

As suburban sprawl, commercial development, and ski area expansion begin to become more common throughout the Mountain West,¹

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1. WILLIAM R. TRAVIS, NEW GEOGRAPHIES OF THE AMERICAN WEST: LAND USE AND THE CHANGING PATTERNS OF PLACE 3 (2007).

communities have begun to search for ways to expand responsibly.² Some municipalities have placed limits on sprawl by preserving “natural spaces” around their communities, while others look to create parks and recreational areas for their communities before all remaining open space is developed.³ By exploring the use of extraterritorial⁴ condemnation for the preservation of open space and parks, this Note looks at one way that municipalities can reach beyond their borders to achieve their goals of curbing sprawl and providing recreational areas for their residents.

First, this Note will discuss Telluride, Colorado’s condemnation of 572 acres of undeveloped land outside its boundaries as a means to curb development and provide open space for its residents and visitors. Second, by comparing the aftermath of Telluride’s condemnation to the pro-property rights backlash of *Kelo v. City of New London*,⁵ this Note will analyze the likelihood that other municipalities within Colorado will seek to curb development and preserve parks by using their power of extraterritorial condemnation. Third, this Note will look to other states throughout the Mountain West to determine if municipalities within those states will be able to emulate Telluride’s method of curbing growth and preserving open space.

I. TELLURIDE AND THE VALLEY FLOOR

Telluride is a small mountain-resort town in the San Juan mountain range of southwest Colorado. Surrounded on three sides by a breathtaking box canyon, the only entrance into the town exists to its west along an undeveloped, 880-acre portion of the San Miguel River Basin known to locals as the “Valley Floor.”⁶ While Telluride may be known nationally for its great skiing and annual bluegrass festival, the town also has a rich, historic past, and the Valley Floor has played a significant role throughout the years.

Before western settlers discovered the Valley Floor, the Native American Ute Tribe occupied the river basin during the warm summer months.⁷ In 1872, prospector Linnard Remine found gold on the Valley

2. *Id.* at 216–19.

3. *Id.*

4. “Beyond the geographic limits of a particular jurisdiction.” BLACK’S LAW DICTIONARY 666 (9th ed. 2009).

5. *Kelo v. City of New London*, 545 U.S. 469 (2005).

6. Eileen McGinley, *A History of the Valley Floor*, in VALLEY FLOOR ANTHOLOGY: WRITINGS AND IMAGES FROM THE TELLURIDE COMMUNITY 39 (Rhonda Claridge ed., 2006).

7. *Id.*

Floor.⁸ As a result, the United States government broke a prior treaty with the Utes and forced them off the Valley Floor and out of the surrounding mountains. By 1875, over 300 miners worked along the San Miguel River.⁹ While more temporary settlements were first established directly to its west, Telluride, then known as Columbia, became a town in 1885 with a population of 850.¹⁰

The new town began to flourish in 1890 when the Rio Grande Southern Railroad connected the town to the rest of the West.¹¹ These tracks ran across the Valley Floor along the San Miguel River. As a result, the population of Telluride skyrocketed to 5000.¹² “For the next forty years the Valley Floor saw a variety of uses under public and private ownership, as the site[s] of dairies, recreation, and a dump for mine tailings.”¹³ In 1930, Joe Oberto began buying mining claims across the Valley Floor in an attempt to consolidate all of the land immediately to the west of Telluride into one large parcel.¹⁴

Oberto sold his consolidated Valley Floor property to Idarado Mining Company, a subsidiary of Newmont Mining Company, in 1967.¹⁵ While Idarado bought the property mainly to store spent mine tailings, Telluride residents forced the company to stop the dumping—preserving the Valley Floor’s natural beauty.¹⁶ After Telluride declined an offer to purchase the Valley Floor, Idarado sold the Valley Floor to the Cordillera Corporation, the predecessor to the San Miguel Valley Corporation (SMVC) in 1983. Cordillera bought the property for \$6.5 million.¹⁷

Meanwhile, with the close of its last mine, Telluride was forced to reinvent itself, and the town soon became a world-class ski resort and tourist attraction.¹⁸ With this change came wealth. Telluride’s hippies and ski bums soon found themselves bumping elbows with second homeowners, movie stars, and CEOs.¹⁹

8. *Valley Floor Timeline*, TELLURIDE WATCH, June 2, 2008, available at http://www.telluridewatch.com/printer_friendly/50711.

9. McGinley, *supra* note 6, at 39.

10. *Id.*; *Valley Floor Timeline*, *supra* note 8.

11. *Valley Floor Timeline*, *supra* note 8.

12. Town of Telluride, Colorado: Town History, <http://telluride-co.gov/home/index.asp?page=33> (last visited Feb. 1, 2010).

13. McGinley, *supra* note 6, at 39.

14. *Id.* at 40.

15. *Valley Floor Timeline*, *supra* note 8.

16. McGinley, *supra* note 6, at 40.

17. *Id.*

18. Town of Telluride, Colorado: Town History, *supra* note 12.

19. Bruce V. Bigelow, *A Rockies Sage*, SAN DIEGO UNION-TRIB., Mar. 25, 2007, at F1; Joanne Kelley, *Telluride Passes Hat, Collects \$50 Million: Fundraising Drive Nets Enough to Preserve Pristine*

Through the 1980s and 90s, SMVC presented numerous development plans for the Valley Floor. One plan included “a series of reservoirs, a golf course, and a population of 7000. SMVC never pursued these plans.”²⁰ However, in 1999, the company updated plans to develop the Valley Floor and stated its intent to have the property annexed into the nearby resort town of Mountain Village. The development was to include amenities such as a large hotel, a golf course, and a gondola to Mountain Village. Condominiums and single-family homes would also be part of the development.²¹

On June 25, 2000, in reaction to SMVC’s plans, the Telluride Town Council directed staff to prepare to condemn the extraterritorial property. As locals rallied around the Council’s directive, SMVC again backed away from its plans and suspended annexation efforts.²² In an effort to preserve the portion of the Valley Floor south of Highway 145 (the road into Telluride) for open space, the Town Council adopted an ordinance to condemn the 572 acres.²³ On June 25, 2002, the residents of Telluride backed the Council by voting to pursue the condemnation.²⁴ After filing an intent to condemn in district court, Telluride had the property appraised at \$19.3 million. SMVC’s appraiser, on the other hand, determined the property to be worth \$48.2 million. Thus, SMVC rejected the town’s effort to purchase the land outright for \$19.5 million.²⁵

After officially filing for condemnation in district court, Telluride was faced with a new challenge. In a reaction to the Town’s efforts, the Colorado legislature passed House Bill 04–1203, known as the “Telluride Amendment” and codified.²⁶ The amendment reads as follows:

(I) Effective January 1, 2004, no home rule or statutory municipality shall either acquire by condemnation property located outside of its territorial boundaries nor provide any funding, in whole or in part, for the acquisition by condemnation by any other public or private party of property located outside of its territorial boundaries; except

Land, ROCKY MTN. NEWS (Denver, Colo.), May 10, 2007, available at <http://m.rockymountainnews.com/news/2007/may/10/telluride-passes-hat-collects-50-million>.

20. McGinley, *supra* note 6, at 40.

21. *Id.* at 40–41; *Valley Floor Timeline*, *supra* note 8.

22. McGinley, *supra* note 6, at 41; *Valley Floor Timeline*, *supra* note 8.

23. *Town of Telluride v. San Miguel Valley Corp.*, 185 P.3d 161, 163 (Colo. 2008) (“The Town of Telluride, a home-rule municipality, sought to condemn 572 acres of real property located adjacent to Telluride for open space and park purposes.”).

24. McGinley, *supra* note 6, at 41.

25. *Valley Floor Timeline*, *supra* note 8.

26. COLO. REV. STAT. § 38-1-101(4)(b) (2008); see *Valley Floor Timeline*, *supra* note 8.

that the requirements of this paragraph (b) shall not apply to condemnation for water works, light plants, power plants, transportation systems, heating plants, any other public utilities or public works, or for any purposes necessary for such uses. (II) Effective January 1, 2004, no home rule or statutory municipality shall either acquire by condemnation property located outside of its territorial boundaries for the purpose of parks, recreation, open space, conservation, preservation of views or scenic vistas, or for similar purposes, nor provide any funding, in whole or in part, for the acquisition by condemnation by any other private or public party of property located outside of its territorial boundaries for the purpose of parks, recreation, open space, conservation, preservation of views or scenic vistas, or for similar purposes except where the municipality has obtained the consent of both the owner of the property to be acquired by condemnation and the governing body of the local government in which territorial boundaries the property is located.²⁷

Upon the codification of the Telluride Amendment, Telluride was forced to challenge the amendment as unconstitutional during the condemnation proceedings. In an opinion that would later be affirmed by the Colorado Supreme Court, District Judge Greenacre held that the Colorado Constitution allows the extraterritorial exercise of condemnation by home-rule municipalities²⁸ and that it is unconstitutional for the General Assembly to legislate otherwise.²⁹

Judge Greenacre cited over sixty years of Colorado Supreme Court precedent recognizing the power given to home-rule municipalities to condemn land extraterritorially.³⁰ Judge Greenacre also held that home-rule municipalities have the power to condemn land for open space even though

27. *Id.* By declaring that extraterritorial condemnation was a matter of statewide and local concern, this statute attempted to assert authority over both home-rule and statutory municipalities' eminent domain powers.

28. Upon adopting a home-rule charter, home-rule municipalities "no longer are dependent upon the state legislature for their authority to determine their local affairs and government, but have power granted directly from the people through the state constitution without statutory authorization." 56 AM. JUR. 2D *Municipal Corporations* § 108 (2009). In contrast, statutory municipalities are subject to state legislative control. These municipalities are not sovereign entities and exist as creatures of the state. *Id.* § 85.

29. *See* *Town of Telluride v. San Miguel Valley Corp.*, No. 04CV22, at 13 (San Miguel County Dist. Ct. Oct. 6, 2004), available at http://telluride-co.gov/docs/greenacre_order.pdf ("There is simply no authority for the proposition that the General Assembly may regulate, much less prohibit, a home-rule municipality's constitutional eminent domain powers.").

30. *Id.* at 3-4.

the use is not enumerated in the Colorado Constitution.³¹ Judge Greenacre cited precedent rejecting the notion that enumerated uses are the only legal uses allowed to condemn property.³² Furthermore, he cited Colorado case law that upheld the use of condemnation for parks and recreation trails.³³ With constitutional authority for both extraterritorial condemnation and condemnation for open space, Judge Greenacre concluded that the Telluride Amendment was unconstitutional as it applied to home-rule municipalities.³⁴

In the valuation trial, the jury appraised the Valley Floor at fifty million dollars.³⁵ Because the town had only about twenty-six million on hand³⁶ to give just compensation, friends and residents of Telluride soon found themselves in a twenty-five million dollar fundraising drive.³⁷ The fundraising became a community effort; waiters began to donate their tips and school children broke open their piggy banks to help the cause—though it was the larger gifts that really made an impact.³⁸ On May 9, 2007, Telluride Mayor John Pryor announced that the town had accomplished the remarkable feat of raising over twenty-five million dollars.³⁹ With the money raised, Telluride continued to pursue the condemnation of the Valley Floor.

II. *TOWN OF TELLURIDE V. SAN MIGUEL VALLEY CORP.* IN THE COLORADO SUPREME COURT

After Telluride raised the money needed to give SMVC just compensation, the corporation continued to pursue its claim that extraterritorial condemnation for open-space preservation and parks was unconstitutional. In its appeal to the Colorado Supreme Court, SMVC made two key arguments. First, the company claimed that open-space preservation is not a valid public use under article XX of the Colorado Constitution.⁴⁰ Second, it claimed that section 38-1-101(4)(b) is

31. *Id.* at 4.

32. *Id.* at 4–5.

33. *Id.* at 5.

34. *Id.* at 13.

35. *Town of Telluride v. San Miguel Valley Corp.*, 185 P.3d 161, 164 (Colo. 2008).

36. Bigelow, *supra* note 19.

37. Anna Haislip, *Telluride Given Control of Land at Town Entrance*, DENVER POST, June 3, 2008, available at http://www.denverpost.com/search/ci_9460237.

38. Bigelow, *supra* note 19; Kelley, *supra* note 19.

39. *Valley Floor Timeline*, *supra* note 8.

40. *San Miguel Valley Corp.*, 185 P.3d at 164.

constitutional and that municipalities are prohibited from condemning extraterritorial land for parks, recreation, or open space as a result.⁴¹

In addressing SMVC's first argument, the court discussed whether municipalities' condemnation powers are limited to the specific uses enumerated within section 1 of article XX of the Colorado Constitution.⁴²

Section 1 of article XX provides that home-rule municipalities:

[S]hall have the power, within or without its territorial limits, to construct, condemn and purchase, purchase, acquire, lease, add to, maintain, conduct, and operate water works, light plants, power plants, transportation systems, heating plants, and any other public utilities or works or ways local in use and extent⁴³

SMVC argued that Telluride lacks authority to condemn extraterritorial land for parks or open space because such uses are not enumerated in section 1 of article XX.⁴⁴ The court rejected this argument and held that the court has ruled on numerous occasions that the purposes listed under section 1 are only examples of home-rule municipalities' "broader grant of power" to condemn property for "any lawful, public, local, and municipal purpose."⁴⁵ Furthermore, the court concluded that the plain language in section 6 of article XX confirms that section 1 is not intended to define the full scope of powers given to home-rule municipalities. Section 6 provides that home-rule municipalities are given "all other powers necessary, requisite or proper for the government and administration of its local and municipal matters"⁴⁶ Thus, the court ruled that open-space preservation is not precluded from being a "lawful, public, local, and municipal purpose" simply because it is not enumerated in the Colorado Constitution.⁴⁷

SMVC next argued that even if a park or open-space preservation potentially is a valid public purpose under a home-rule municipality's eminent domain power, such power is limited when a town seeks to

41. *Id.*

42. *Id.* at 164–65.

43. COLO. CONST. art. XX, § 1.

44. *San Miguel Valley Corp.*, 185 P.3d at 165.

45. *Id.* See *Fishel v. City of Denver*, 108 P.2d 236, 240 (Colo. 1940) (en banc) (holding that the amendment was designed "to give as large a measure of home-rule in local municipal affairs as could be granted under the Republican form of government"). See also *City of Denver v. Hallett*, 83 P. 1066, 1068 (Colo. 1905) (holding that article XX was only an "expression" of a few prominent powers that municipalities are frequently granted).

46. COLO. CONST. art. XX, § 6.

47. *San Miguel Valley Corp.*, 185 P.3d at 166.

condemn land extraterritorially.⁴⁸ The company looked to section 6 of article XX of the Colorado Constitution, which states that municipalities' charters or local ordinances shall take the place of any state law within the territorial limits of the city or town.⁴⁹ The court quickly rejected this claim and stated that just because home-rule municipalities have plenary power over matters of local and municipal concern within their territorial limits does not mean that their section 1 power of eminent domain is limited within their borders.⁵⁰ The court pointed to other constitutional provisions that granted extraterritorial power and cited precedents where it had previously upheld extraterritorial condemnations involving other public purposes.⁵¹

The Colorado Supreme Court next decided whether a park or open space constitutes a valid public purpose under article XX. This was an issue of first impression for the court.⁵² In its reasoning, the court refused to adopt a uniform standard to determine what constitutes a public use under article XX. Instead, the court looked at "pertinent Colorado law" and the state's tradition of land use policy as a function of local government.⁵³

In looking to pertinent Colorado law, the court relied on precedent that gives home-rule municipalities every power which the legislature could confer to the statutory municipalities.⁵⁴ In doing so, the court looked to state statutes passed by the Colorado General Assembly giving power to statutory municipalities to condemn land for parks and open space.⁵⁵ One such statute granted *statutory* cities and towns the authority to condemn land for "park and recreational purposes or for the preservation or conservation of . . . open space and vistas."⁵⁶ The court also looked upon two other statutes that allowed extraterritorial condemnation for open space and parks.⁵⁷ By looking to these statutes, the court determined that *home-*

48. *Id.*

49. *Id.*

50. *Id.* at 165–66.

51. *Id.* at 166. See COLO. CONST. art. XX, § 1 (providing that home-rule municipalities shall have the power to condemn land within or outside their territorial boundaries). See also *City of Thornton v. Farmers Reservoir & Irrigation Co.*, 575 P.2d 382, 389 (Colo. 1978) (holding that the city, as specifically granted by the State's Constitution, may condemn extraterritorial water rights).

52. *Id.* at 167.

53. *Id.* at 168.

54. *Id.*

55. *Id.*

56. *Id.* (citing COLO. REV. STAT. § 29-7-107 (2008) (defining "recreational system")). See COLO. REV. STAT. § 29-7-104 (2008) (granting the power of eminent domain to "any municipal board given charge of the recreation system").

57. *San Miguel Valley Corp.*, 185 P.3d at 168; COLO. REV. STAT. §§ 31-25-201(1), 38-6-110 (2008).

rule municipalities should have similar rights in their power to condemn property for parks and open space.⁵⁸

The state's tradition of leaving land use policy to local governments brought the court to a similar conclusion regarding home-rule municipalities' power to condemn land for parks and open space. Many of Colorado's home-rule municipalities manage extensive open-space programs, and many mountain-resort communities find such programs to be an important tool in controlling growth and development.⁵⁹ Because of the traditional role of municipalities in managing parks and open space and the condemnation powers given to statutory municipalities, the court found that condemnation for parks or open space was a "lawful, public, local, and municipal purpose within the scope of Article XX."⁶⁰

Next, the court addressed SMVC's argument that section 38-1-101(4)(b) is constitutional and, as a result, that municipalities are prohibited from condemning extraterritorial land for parks or open space. SMVC argued that even if article XX grants home-rule municipalities the condemnation power at hand, it is still necessary to weigh competing state and local concerns to determine whether the General Assembly can preempt that power.⁶¹ In response, the court looked to precedents that set out the rules on when state statutes can preempt home-rule municipalities. If the issue is one of statewide or mixed state and local concern, state statutes take priority over any conflicting home-rule ordinance unless the municipality's ordinance is pursuant to the Colorado Constitution.⁶² However, the court concluded that no analysis of state and local concerns is necessary regarding home-rule municipalities' power to condemn extraterritorial land for the purpose of parks and open space because the state constitution grants such municipalities this power in article XX.⁶³

In response, SMVC argued that the legislature can repeal home-rule powers granted in article XX if those powers are only implied. SMVC argued that home-rule powers that are "merely implied" in article XX only apply in matters that are purely local and that Telluride's condemnation was not a "purely local" matter.⁶⁴ The court quickly rejected this argument by reiterating that the condemnation purposes enumerated in article XX are merely examples of a broader grant of power given to home-rule

58. *San Miguel Valley Corp.*, 185 P.3d at 168.

59. *Id.* at 168–69.

60. *Id.* at 169.

61. *Id.*

62. *Id.*

63. *Id.* at 170.

64. *Id.*

municipalities.⁶⁵ As a result, the court declared the Telluride Amendment to be unconstitutional as it applies to home-rule municipalities.⁶⁶

In its conclusion, the court held that extraterritorial condemnation of land for open space was a valid public purpose under article XX of the Colorado Constitution.⁶⁷ Furthermore, the court held that the Telluride Amendment was unconstitutional because it prohibited home-rule municipalities from exercising their eminent domain power granted in the constitution.⁶⁸ As a result, the court affirmed the judgment of the trial court, which upheld Telluride's condemnation of the Valley Floor.⁶⁹

III. WILL *TOWN OF TELLURIDE V. SAN MIGUEL VALLEY CORP.* BECOME COLORADO'S *KELO*?

In 2000, New London, Connecticut sought to revitalize its fledgling economy by using its eminent domain power to allow for the creation of a "small urban village," "riverwalk," and a Pfizer research center.⁷⁰ Quickly, residents whose homes were to be condemned in furtherance of the project challenged the effort. They argued that the project did not meet the Fifth Amendment's public use requirement because their land was to be transferred to a private party.⁷¹ After granting certiorari on the matter, the United States Supreme Court defined "public use" broadly and held that private property can be condemned and transferred to a private party as long as its use benefits the public.⁷²

When the Court released its opinion in *Kelo* in June 2005, the decision led to a "political firestorm" in a majority of state legislatures throughout the country.⁷³ By November 2006, twenty-eight states had already passed statutes limiting eminent domain power in their states, and residents in eleven states voted on ballot measures designed to limit government's

65. *Id.*

66. *Id.* at 171.

67. *Id.*

68. *Id.*

69. *Id.*

70. *Kelo v. City of New London*, 545 U.S. 469, 472–74 (2005).

71. *Id.* at 475. The Fifth Amendment of the U.S. Constitution requires that private property only be condemned if the land is taken for a public use and the landowner is provided with just compensation. U.S. CONST. amend. V.

72. *Kelo*, 545 U.S. at 480, 486.

73. Molly G. Brottmiller, Comment, *Is This the Start of a Silent Spring?* *Kelo v. City of New London's Effect on Environmental Reforms*, 56 CATH. U. L. REV. 1107, 1127 (2007).

ability to condemn land for economic development.⁷⁴ Similarly, the media joined the states in their concern that the decision “departed from 200 years of precedent.”⁷⁵ Yet, a look at the Court’s takings precedent tells a different tale: it shows that *Kelo* was not as radical a departure from past Takings Clause cases as the media depicted.⁷⁶

The Supreme Court established a broad definition of public use long before *Kelo*. In 1954, the Court in *Berman v. Parker*⁷⁷ upheld the eminent domain power to acquire blighted properties to sell them to private parties for redevelopment.⁷⁸ In his opinion, Justice Douglas wrote that the government could condemn properties in blighted areas of the District of Columbia for just compensation to promote community redevelopment, regardless of whether the individual properties were blighted themselves.⁷⁹ The Court held that “communit[ies] should be beautiful as well as healthy, spacious as well as clean”⁸⁰ “Thus, a taking is for public use so long as the government is taking property to achieve a legitimate government purpose and so long as the taking is a reasonable way to achieve the goal.”⁸¹

The Court reaffirmed its view of eminent domain thirty years later in *Hawaii Housing Authority v. Midkiff*, in which it upheld a condemnation effort that involved taking land from one private landowner and selling it to another.⁸² In an attempt to expand property ownership to a larger number of people, the State of Hawaii sought to condemn property from the land-owning class, with the plan to sell to those in Hawaii who did not own land.⁸³ In upholding Hawaii’s condemnation, the Court reaffirmed that economic factors could be considered in determining whether a state action qualifies as a public use.⁸⁴

Considering these precedents, the Court’s upholding of the acquisition of non-blighted homes to promote economic development in New London was nothing more than a “direct restatement of *Berman*,” a fifty-year-old precedent.⁸⁵ Yet, the media attention in reaction to the decision highlighted

74. Editorial, *The Anti-Kelo Wave*, WALL ST. J., Nov. 4, 2006, available at <http://online.wsj.com/article/SB116260316340513325.html> [hereinafter *The Anti-Kelo Wave*].

75. See, e.g., *id.* (agreeing with dissenting Justice Sandra Day O’Connor).

76. BrottMiller, *supra* note 73, at 1117.

77. *Berman v. Parker*, 348 U.S. 26 (1954).

78. ERWIN CHERMERINSKY, CONSTITUTIONAL LAW: PRINCIPLES AND POLICIES 662 (3d ed. 2006).

79. BrottMiller, *supra* note 73, at 1116.

80. *Berman*, 348 U.S. at 33.

81. CHERMERINSKY, *supra* note 78, at 663.

82. *Haw. Hous. Auth. v. Midkiff*, 467 U.S. 229, 231–32 (1984).

83. CHERMERINSKY, *supra* note 78, at 663.

84. BrottMiller, *supra* note 73, at 1116.

85. *Id.* at 1117.

the not-so-radical holding, creating an anti-*Kelo* backlash throughout a majority of states.⁸⁶

On a smaller scale, *San Miguel Valley Corp.* is analogous to *Kelo* in that the Colorado Supreme Court's holding caused a media frenzy throughout Colorado and the Mountain West.⁸⁷ Yet, similar to *Kelo*, the decision should be no surprise considering Colorado Supreme Court precedent and existing Colorado statutes. In hearing SMVC's challenge to Telluride's extraterritorial exercise of their condemnation power, the court cited four previous decisions that upheld such eminent domain powers. In *City of Thornton*, the court upheld the city's extraterritorial condemnation of water rights.⁸⁸ In *Toll v. City of Denver*, the court upheld extraterritorial condemnation for easements and channel improvement.⁸⁹ In *City of Denver v. Board of Commissioners*, the court allowed extraterritorial condemnation to construct an airport.⁹⁰ Lastly, in *Fishel v. City of Denver*, the court permitted extraterritorial condemnation for a bombing range.⁹¹ Furthermore, the court's determination that open space and parks constituted a lawful public purpose was nothing revolutionary within Colorado. The court cited several statutes in which the General Assembly conferred authority to statutory towns and cities to condemn land for parks and open space.⁹²

While *San Miguel Valley Corp.* may not be a completely radical holding considering the court's precedents, the case struck the same chord among property rights advocates as *Kelo* did: it explicitly established another reason upon which government can take a property owner's bundle

86. *The Anti-Kelo Wave*, *supra* note 74.

87. *See, e.g.*, Jean Torkelson, *Telluride Wins Right to Seize Land*, ROCKY MTN. NEWS (Denver, Colo.), June 2, 2008, available at <http://m.rockymountainnews.com/news/2008/jun/02/telluride-wins-right-to-seize-land>; Haislip, *supra* note 37; Staff Report, *Telluride Wins 'Valley Floor' Battle*, ASPEN TIMES, June 2, 2008, available at <http://www.aspentimes.com/article/20080602/NEWS/798846839&parentprofile=search>; Staff, *State Supreme Court: Telluride Can Condemn Valley Floor*, MONTROSE PRESS (Montrose, Colo.), June 2, 2008, available at http://montrosepress.com/articles/2008/06/02/breaking_news/doc48441f6e46678604.178029.txt; Lucia Stewart, *Supreme Court Rules in Favor of Telluride Valley Floor Condemnation*, NEW WEST, June 3, 2008, available at http://www.newwest.net/topic/article/supreme_court_rules_in_favor_of_telluride_valley_floor_condemnation/C559/L559/.

88. *City of Thornton v. Farmers Reservoir & Irrigation Co.*, 575 P.2d 382, 389 (Colo. 1978).

89. *Toll v. City of Denver*, 340 P.2d 862, 865 (Colo. 1959).

90. *City of Denver v. Bd. of Comm'rs*, 156 P.2d 101, 103 (Colo. 1945).

91. *Fishel v. City of Denver*, 108 P.2d 236, 241 (Colo. 1940) (en banc).

92. *See* COLO. REV. STAT. §§ 29-7-104 to 29-7-107 (2008) (giving municipalities the power to condemn property for parks, preservation sites, or open space); *see also* COLO. REV. STAT. § 31-25-201(1) (2008) (granting municipalities the authority to extraterritorially condemn parks and open space within five miles of their boundaries).

of sticks. Will *San Miguel Valley Corp.* be Colorado's *Kelo*? Will the case lead to a majoritarian uprising within Colorado to reverse the court's holding? Or could it become an accepted and widely utilized tool for Mountain West municipalities looking to curb growth?

IV. THE AFTERMATH OF *TOWN OF TELLURIDE V. SAN MIGUEL VALLEY CORP.*

A. *The Property Rights Backlash*

The property-rights movement within Colorado kept its eye on Telluride's effort to condemn the Valley Floor from the case's inception. The movement first attempted to halt Telluride's efforts when State Representative Shawn Mitchell tacked the Telluride Amendment onto a bill aimed at protecting property owners located within urban renewal areas.⁹³ After intense lobbying by SMVC's lead attorney, Thomas Ragonetti,⁹⁴ the General Assembly passed the Telluride Amendment and Colorado Governor Bill Owens signed the bill into law, prohibiting Colorado municipalities from condemning land outside of their boundaries for open space and parks.⁹⁵

Six months after the Telluride Amendment's passage into law, however, property-rights advocates learned that their fight against eminent domain abuse was not over. In January 2005, San Miguel County District Court Judge Charles Greenacre declared the statute unconstitutional.⁹⁶ This ruling sent shockwaves through the property-rights movement. The Director of Property Rights Project, Jessica Peck Corry, published an analysis of condemnation within Colorado, with a portion of the publication focusing

93. Charles Ashby, *Towns Oppose Bill Limiting Power*, THE DURANGO HERALD, Feb. 28, 2004. See COLO. REV. STAT. § 38-1-101 (2008) (asserting authority over both home-rule and statutory municipalities' eminent domain powers). While a portion of this statute included the Telluride Amendment, the majority of the statute dealt with changes to the state's urban renewal law. Those portions are beyond the scope of this note; however, a summary of the legislation can be found at Paul Benedetti et al., *A Brief Overview of Recent Changes in Colorado's Urban Renewal Law*, THE COLORADO LAWYER 99 (Sept. 2004).

94. Peter Kenworthy, *On the Valley Floor: How Did We Get Here?*, THE WATCH (Telluride, Colo.), Jan. 26, 2009, available at http://www.telluridewatch.com/view/full_story/50695/article-On-the-Valley-Floor--How-Did-We-Get-Here-.

95. Reilly Capps, *Key Legal Decisions*, THE DAILY PLANET (Telluride, Colo.), Jan. 22, 2008.

96. *Id.* See *Town of Telluride v. San Miguel Valley Corp.*, No. 04CV22, at 13 (San Miguel County Dist. Ct. Oct. 6, 2004), available at http://telluride-co.gov/docs/greenacre_order.pdf ("There is simply no authority for the proposition that the General Assembly may regulate, much less prohibit, a home-rule municipality's constitutional eminent domain powers.").

on Judge Greenacre's decision and the Telluride Amendment.⁹⁷ Corry found Judge Greenacre's decision to be another example of how "families and small businesses across Colorado face the very real threat of eminent domain in their lives every day."⁹⁸ Furthermore, Corry stated that local governments are misguided in their belief that they know best how to handle land use issues because these municipalities often neglect their citizens' constitutional rights to own private property.⁹⁹

By defining the issue very broadly, Corry rejected Judge Greenacre's reasoning that the General Assembly had no authority to regulate home-rule municipalities' eminent domain powers. She believes that "[t]he Colorado constitution clearly allows legislators to enact legislation designed to protect all residents from abuses of their most basic constitutional freedoms."¹⁰⁰ In a related editorial, Corry analogized Judge Greenacre's ruling to that of "race or gender discrimination."¹⁰¹

The Property Rights Project was not the only voice to criticize Judge Greenacre's holding. A Denver Post editorial expressed the belief that extraterritorial condemnation to preserve open space would be "abusive" regardless of how any court ruled on the issue.¹⁰² Another editorial by Colorado Farm Bureau president, Alan Foutz, expressed concern over Judge Greenacre's ruling because of the risk such a decision will have on the state's agricultural community. He feared that farmers and ranchers could lose their livelihood simply because a town desires an open space buffer along its boundaries.¹⁰³

With backlash already brewing among property rights advocates based simply on a trial court decision declaring the Telluride Amendment unconstitutional, it should not have been surprising that a Colorado Supreme Court holding affirming Judge Greenacre's ruling would only increase anti-condemnation rhetoric among the movement. On June 2, 2008, the Colorado Supreme Court released its decision declaring the

97. JESSICA PECK CORRY, AT THE CROSSROADS OF CONDEMNATION: THE DEBATE OVER THE USE OF EMINENT DOMAIN FOR PRIVATE DEVELOPMENT AND OPEN SPACE 23-24 (2006), available at http://www.i2i.org/articles/IP_1_2006_b.pdf.

98. *Id.* at 25.

99. *Id.* at 26.

100. *Id.* at 27.

101. Jessica Peck Corry, Editorial, *Telluride Tug of War: Implications Grave in Taking of Valley Floor*, ROCKY MOUNTAIN NEWS (Denver, Colo.), May 19, 2007, at 28, available at 2007 WLNR 9451846.

102. David Harsanyi, *Land Grab Should Be Condemned*, THE DENVER POST, Nov. 21, 2007, at B01, available at 2007 WLNR 23068739.

103. Alan Foutz, Editorial, *Court Case a Threat to Farmers, Ranchers*, ROCKY MOUNTAIN NEWS (Denver, Colo.), Jan. 23, 2008, at 36, available at 2008 WLNR 1283073.

Telluride Amendment unconstitutional—allowing the Valley Floor to be condemned.¹⁰⁴ More *Kelo*-like backlash soon followed.

Newspapers throughout Colorado were the first to weigh in on the holding. A Rocky Mountain News editorial by Vincent Carroll warned that the decision would give municipalities the power to pursue “[l]ots of high-handed bullying.”¹⁰⁵ Carroll feared that the ruling would lead to a rash of government entities spying on private projects outside their borders and suddenly declaring an interest in procuring the land for open space or parks simply because they do not like the project.¹⁰⁶ He also feared that this could lead to resort towns condemning farmland, which would prevent farmers from pursuing their retirement.¹⁰⁷ A Denver Post editorial declared the court’s ruling to be a “troubling expansion of the condemnation power of home-rule cities.”¹⁰⁸ The editorial elaborated that the court should only consider the examples of public use enumerated in article XX of the constitution.¹⁰⁹ Further, it argued that the court should take a restrained approach in condemning land outside municipal borders.¹¹⁰ In its conclusion, the article implicitly endorsed forcing the courts to take such a restrained approach by pursuing a state constitutional amendment requiring such minimalism.¹¹¹

Following the Supreme Court’s decision, Colorado House Republican Leader Mike May announced his intent to push through a constitutional amendment just as the Denver Post had suggested the previous month.¹¹² Similar to Corry’s attacks on Judge Greenacre’s ruling, May defined the rights at stake generally as a right to own property and stated that it is “unacceptable for the court to trample that right.”¹¹³ As a result, May claimed he plans to pursue a constitutional amendment to overrule the supreme court’s ruling.¹¹⁴ May expressed concern that extraterritorial

104. Haislip, *supra* note 37.

105. Vincent Carroll, Editorial, *Unleashing Mischief*, ROCKY MOUNTAIN NEWS (Denver, Colo.), June 6, 2008, at 39, available at 2008 WLNR 10704443.

106. *Id.*

107. *Id.* Carroll fails to recognize that the requirement of just compensation would ensure that farmers could still pursue their retirement plans.

108. Editorial, *Wrong Course on Eminent Domain*, DENVER POST, Jun. 4, 2008, available at http://www.denverpost.com/search/ci_9468259 (last visited Feb. 23, 2010).

109. *Id.*

110. *Id.*

111. *Id.*

112. Tania Vijarro, *Mike May Acts to Defend Private Property Rights*, July 18, 2008, <http://denver.yourhub.com/Parker/Stories/News/Government/Story~497417.aspx>.

113. *Id.*

114. Mike Saccone, *Rep. May Objects to High Court’s Ruling on Telluride Condemning Outside Land*, DAILY SENTINEL (Grand Junction, Colo.), Aug. 7, 2008.

condemnation for open space is particularly oppressive because the property owners cannot vote on the elected officials who threaten to condemn their land.¹¹⁵ He believes that the people of Colorado will agree that the court's ruling is an abuse of power.¹¹⁶ May said, "The Supreme Court may be powerful enough to overturn a state law, but the people are powerful enough to overturn the Supreme Court. If you try to take away our property rights, you can expect a fight."¹¹⁷

The Colorado Constitution can be amended using one of two different methods. One method allows for a citizen's initiative, and the other allows for revision through the legislative referral process.¹¹⁸ As a state legislator, May plans to amend the Constitution using the legislative referral process.¹¹⁹ To do so, May's proposed amendment would need the approval of two-thirds of the members of both the state's house and senate.¹²⁰ If the amendment passes through the legislature, the language would then have to be approved by a simple majority of citizens voting in the state's next general election.¹²¹ If the amendment makes its way onto the ballot, the soonest the voters could have their say would be in the November 2010 election.¹²² Media coverage of proposed constitutional amendments tends to raise the level of public awareness on the issue, and approval by the electorate soon follows if they make it through the legislature.¹²³ "In Colorado, between 1964 and 2006, more than [seventy-five] percent of legislatively referred constitutional amendments were approved by the voters."¹²⁴ However, as of the end of the 2009 legislative session, May had not yet introduced the House Concurrent Resolution to overturn the Colorado Supreme Court's Valley Floor decision.¹²⁵

B. The Local Municipal Power Movement

While there were outspoken opponents to Telluride's efforts to condemn the Valley Floor, these views did not represent a consensus

115. *Id.*

116. *Id.*

117. Vjarro, *supra* note 112.

118. UNIV. OF DENVER, STRATEGIC ISSUES PROGRAM, FOUNDATION OF A GREAT STATE: THE FUTURE OF COLORADO'S CONSTITUTION 10 (2007) [hereinafter UNIV. OF DENVER].

119. Vjarro, *supra* note 112.

120. UNIV. OF DENVER, *supra* note 118.

121. *Id.*

122. Vjarro, *supra* note 112.

123. UNIV. OF DENVER, *supra* note 118.

124. *Id.*

125. E-mail from Randy Hildreth, Communications Director, Colorado House Republicans, to Author (Dec. 31, 2009, 08:11 MST) (on file with author).

throughout Colorado. Environmentalists, individual municipalities, and the Colorado Municipal League (CML)¹²⁶ spoke out in support of the town during the condemnation process.¹²⁷

When the controversial Telluride Amendment was before the General Assembly, Telluride's neighbors in southwest Colorado began to speak out against the bill. One city official in Durango cautioned that the bill would limit all cities' ability to use condemnation as a last resort just because it may have been abused elsewhere.¹²⁸ Similarly, one Cortez official believed that condemnation should be decided at the local level because there are differences within every community.¹²⁹ The towns of Bayfield and Ignacio expressed similar concerns about the Telluride Amendment.¹³⁰ The Colorado Association of Ski Towns' (CAST) policies also conflicted with the Telluride Amendment prior to the supreme court striking it down. CAST's policies promote "community-based land use" and protecting the environment."¹³¹

Columnists in Colorado's larger newspapers also showed some support for Judge Greenacre's ruling that knocked down the Telluride Amendment. One Denver Post columnist expressed support for Judge Greenacre's ruling that the Telluride Amendment was unconstitutional. He stressed the importance of municipalities providing local solutions to local problems because "one size never fits all."¹³² In response to Colorado Farm Bureau president Alan Foutz's opinion piece attacking Judge Greenacre's decision,¹³³ Telluride environmentalist Hilary White emphasized that property rights are not god-given, but rather granted by law. She discussed the importance eminent domain has had in society's development because it has given government entities the ability to build roads, hospitals, and parks.¹³⁴

126. The Colorado Municipal League is a nonpartisan organization that represents almost all of Colorado's municipalities. The organization's mission consists of two parts: to represent municipalities collectively in matters before state and federal government and to educate local officials and employees to help them more effectively manage municipalities. Colorado Municipal League, About CML, <http://www.cml.org/about/about.aspx> (last visited Feb. 23, 2010).

127. Hilary White, *Constitution Allows Telluride Land Acquisition*, ROCKY MOUNTAIN NEWS (Denver, Colo.), Feb. 7, 2008, available at <http://www.rockymountainnews.com/news/2008/Feb/07/constitution-allows-telluride-land-acquisition>.

128. Ashby, *supra* note 93.

129. *Id.*

130. *Id.*

131. Colorado Association of Ski Towns, Mission, <http://www.coskitowns.com/mission.cast> (last visited Mar. 17, 2010).

132. Bob Ewegen, Editorial, *Local Problems Need Local Answers*, THE DENVER POST, Feb. 23, 2007, available at http://www.denverpost.com/opinion/ci_5291634.

133. Foutz, *supra* note 103.

134. White, *supra* note 127.

While some of the media and grassroots response after the Colorado Supreme Court decision was critical of the holding,¹³⁵ other editorials did express support for the landmark ruling. National Trust for Historic Preservation president Richard Moe wrote that the supreme court's opinion was in line with other courts at all levels who had consistently sought to strike "a balance between individual rights and public benefits."¹³⁶ Further, Moe stressed that condemnation was "no spur-of-the-moment land grab" and that the town of Telluride repeatedly attempted to purchase the Valley Floor.¹³⁷ Regarding just compensation, Moe also pointed out that the owner profited forty-three million dollars off of the land.¹³⁸

The Colorado Municipal League (CML) was Telluride's biggest cheerleader throughout the eight-year process to condemn the Valley Floor. CML advocates that "community issues and needs should be addressed locally" and that "[s]tate and federal government interference can undermine home-rule and local control."¹³⁹ In doing so, CML expresses support for enabling legislation that gives towns and cities more authority and flexibility to address local needs.¹⁴⁰ In addressing land use specifically, CML supports policies "that discourage the sprawl of urban, suburban or exurban development into rural and unincorporated areas of the state."¹⁴¹ As a result, CML opposes state restrictions on the ability of municipalities "to exercise [eminent domain] for the benefit of public health, safety and welfare."¹⁴²

In pursuing its mission to "represent cities and towns collectively in matters before the state and federal government,"¹⁴³ CML often submits amicus curiae briefs for Colorado Supreme Court cases that have a substantial likelihood of affecting Colorado municipalities.¹⁴⁴ CML submitted such a brief in support of Telluride's efforts.¹⁴⁵ While property

135. See Carroll, *supra* note 105 (declaring that the Colorado Supreme Court unleashed "lots of high-handed bullying" by giving home-rule cities the right to condemn land outside their boundaries on any public pretext); Editorial, *supra* note 108 (criticizing the decision because "the court went too far").

136. Richard Moe, Opinion, *Speakout: Court Right on Telluride*, ROCKY MOUNTAIN NEWS (Denver, Colo.), June 15, 2008, available at <http://m.rockymountainnews.com/news/2008/jun/15/speakout-court-right-on-telluride>.

137. *Id.*

138. *Id.*

139. Colorado Municipal League, 2009–2010 Policy Statement 1, available at http://www.cml.org/pdf_files/policy_statement.pdf (last visited Feb. 22, 2010).

140. *Id.*

141. *Id.* at 8.

142. *Id.* at 9.

143. Colorado Municipal League, About CML, *supra* note 126.

144. Brief of Amicus Curiae the Colorado Municipal League at 1, *Town of Telluride v. San Miguel Valley Corp.*, 185 P.3d 161 (Colo. 2008) (No. 07-SA-101), 2007 WL 4970069.

145. *Id.*

rights advocates feel condemnation for open space and parks is a violation of the fundamental right to own property,¹⁴⁶ CML believes such local power is necessary to “preserve the American west.”¹⁴⁷ In support of Telluride, CML looked less at the generalized right to own property and more to the specific rights granted to home-rule municipalities in article XX of the Colorado Constitution.¹⁴⁸ Just as the Colorado Supreme Court would later hold, CML advocated that the state legislature does not have constitutional authority to limit home-rule municipalities’ eminent domain powers through statute (in this case the Telluride Amendment) because it is an issue of local concern and therefore article XX applies.¹⁴⁹ In discussing the public use component of the case, CML cited *Londoner v. City and County of Denver*¹⁵⁰ as giving home-rule municipalities authority to condemn lands for parks.¹⁵¹ If Representative May introduces his proposed constitutional amendment to overrule the Colorado Supreme Court’s holding in *San Miguel Valley Corp.*, CML will likely lobby the state legislature to ensure that the holding it advocated will be preserved.¹⁵²

C. *A Look to Telluride v. San Miguel Valley Corp.’s Influence in the Future*

During and after Telluride’s effort to condemn the Valley Floor, property rights advocates have consistently expressed fear that the precedent will lead to a barrage of condemnation efforts by municipalities throughout the state, increasing the violation of private property rights.¹⁵³ In contrast, those in support of the town’s condemnation have attempted to

146. CORRY, *supra* note 97, at 26; Vijarro, *supra* note 112.

147. Brief of Amicus Curiae the Colorado Municipal League, *supra* note 144, at 3.

148. *Id.* at 9–10.

149. *Id.* at 11–12.

150. *Londoner v. City of Denver*, 119 P. 156, 158–159 (Colo. 1911).

151. Brief of Amicus Curiae the Colorado Municipal League, *supra* note 144, at 13.

152. “The League monitors the daily events of the Colorado Legislature for proposals that would affect municipalities and works to pass, defeat or amend legislation in accordance with general municipal interests and membership direction.” Colorado Municipal League, Media Room: Fact Sheet, Services, <http://www.cml.org/media/media.aspx#services> (last visited Feb. 23, 2010).

153. *See, e.g.*, Carroll, *supra* note 105 (“Incredibly, officials all over Colorado have been authorized to gaze out beyond their jurisdictions, spy a private project they dislike, declare their sudden interest in acquiring the land for ‘open space,’ and move to condemn it.”); Foutz, *supra* note 103 (“[A] frightening precedent will have been set for all of Colorado’s farms and ranches and the families who work and love their land.”); Pat Healy, *After Court Hearing, A Late Blast From SMVC*, THE DAILY PLANET (Telluride, Colo.), Jan. 28, 2008 (“Really, this is a precedent-setting case that fundamentally changes the way eminent domain is used in the State of Colorado.”); Corry, *supra* note 101 (“Such a ruling could establish a damning precedent, one where basic constitutional rights, including property rights and due process, are only protected if a local government decides they should be.”).

ward off such fears by emphasizing that condemnation power will only be used as a last resort.¹⁵⁴

Throughout the eight years it took Telluride to successfully condemn the Valley Floor, several other municipalities have considered pursuing similar action by extraterritorially condemning property for open space or parks.¹⁵⁵ However, even with the go-ahead from the Colorado Supreme Court, municipalities still face many hurdles before they can condemn private property for open space. As a result, the flood of condemnations that property rights advocates have warned about are unlikely.¹⁵⁶

Telluride differs from most communities throughout the Mountain West. These differences explain why the supreme court's decision in *San Miguel Valley Corp.* will not cause a flood of extraterritorial condemnations for parks and open space, or even condemnation for parks and open space inside municipal boundaries. First, Telluride raised half of the funds needed to provide just compensation for the Valley Floor through the town's real estate transfer tax and through municipal bonds.¹⁵⁷ Such a tax may be successful in exclusive resort towns such as Telluride, but a majority of communities throughout the West seek to increase their tax base by expanding development, not by taxing newcomers.¹⁵⁸ The current nationwide slump in home sales will also make it more difficult for municipalities to raise money through a similar real estate transfer tax.¹⁵⁹ Furthermore, municipalities in Colorado that do not already have a real estate transfer tax established no longer have the option to create one

154. See, e.g., White, *supra* note 127 ("Exhausting all attempts at collaboration and negotiation, Telluride was left with no other option than to exercise its powers of eminent domain, which the courts have upheld every step of the way."); Moe, *supra* note 136 ("Eventually it became apparent that the use of eminent domain was the only viable option that remained . . ."); Ashby, *supra* note 93 (stating that the City of Durango has never used condemnation and would only use it as a last resort).

155. Parker, Colorado is currently pursuing extraterritorial condemnation for an addition to its regional park. Ed Sealover, *Eminent Domain Battle: Cities Couldn't Use It Outside Limits Under Proposal*, ROCKY MOUNTAIN NEWS (Denver, Colo.), July 18, 2008, at 22, available at 2008 WLNR 13454168. Opponents of the Twin Buttes development in Durango, Colorado have pushed for condemnation of the property to preserve open space. Karen Boush, *Twin Buttes Opponents Meet: Talk About Proposal for Subdivision for Up to 595 Homes*, THE DURANGO HERALD, Oct. 1, 2008, available at http://www.durangoherald.com/sections/News/2008/10/01/Twin_Buttes_opponents_meet. Aspen, Colorado also watched Telluride's action closely while it considered condemning Smuggler Mountain as open space. Janet Urquhart, *Telluride Is Poised to Fight Open Space Bill*, ASPEN TIMES, May 25, 2004, available at <http://www.aspentimes.com/article/20040525/NEWS/105250004&parentprofile=search>.

156. See *supra* note 153 and accompanying text.

157. Bigelow, *supra* note 19, E-mail from Kevin Geiger, Town Attorney, Town of Telluride. to Author (Mar. 18, 2010, 10:38 MST) (on file with author).

158. Ewegen, *supra* note 132.

159. See Abby Goodenough, *Housing Slump Pinches States in Pocketbook*, N.Y. TIMES, Apr. 8, 2007, at 11, available at 2007 WLNR 6703946 (noting that slump in home sales is hurting state revenues).

because the state's Taxpayer Bill of Rights now prohibits these taxes.¹⁶⁰ It is also important to note that condemning land for open space and parks will likely not bring about the future economic and tax benefits that are often used to justify other condemnation efforts for *Kelo*-like urban renewal projects.¹⁶¹

Second, residents of most Mountain West municipalities do not have the financial resources to raise the money necessary to provide just compensation for valuable undeveloped open space.¹⁶² The residents and second-home owners of Telluride, one of the wealthiest towns in the Mountain West, were able to raise the money necessary to purchase the Valley Floor more easily than most communities could.¹⁶³ It is because of these differences that most municipalities within Colorado will likely not use eminent domain to acquire open space, whether inside or outside municipal boundaries.

V. WILL EXTRATERRITORIAL CONDEMNATION OF PROPERTY FOR OPEN SPACE OR PARKS BECOME A REGULARLY USED TOOL THROUGHOUT THE MOUNTAIN WEST?

While it is unlikely that many municipalities in Colorado will begin to condemn property for open space and parks within or without their boundaries due to the financial reasons discussed above, could municipalities in other states throughout the Mountain West proceed with such condemnations if they chose? The following sections discuss the legal power that other Mountain West states give to municipalities with respect to extraterritorial condemnation and the definition of public use. Figure 1 summarizes this discussion.

160. See Ewegen, *supra* note 132 (noting that Telluride is able to continue taxing real estate sales because the tax was imposed before the Taxpayer's Bill of Rights); see also COLO. CONST. art X, § 20.

161. See JOHN D. ECHEVERRIA, GEORGETOWN ENVTL. LAW & POL'Y INST., *THE MYTH THAT KELO HAS EXPANDED THE SCOPE OF EMINENT DOMAIN* 3 (2005), http://www.law.georgetown.edu/gelpi/current_research/documents/KeloMyth.pdf (discussing that economic benefit is the main public use rationalization for urban-renewal-based condemnation).

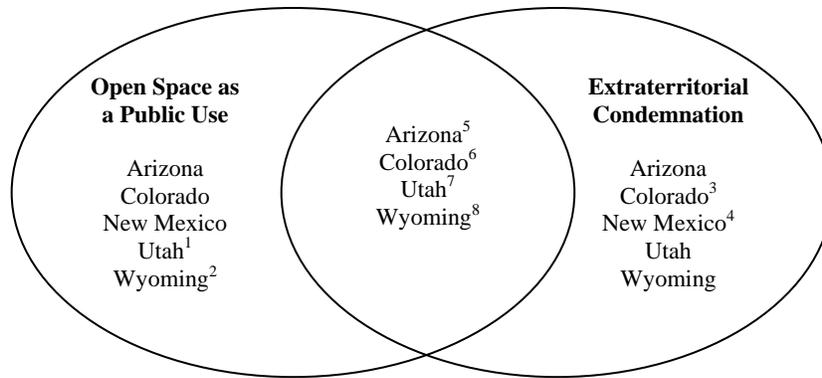
162. See, e.g., Bigelow, *supra* note 19 (stating that Mountain Village, Telluride's resort-town neighbor, often makes *Worth* magazine's survey of "America's Richest Towns"); Ted Holteen, *Condemnation of Twin Buttes a Long Shot*, THE DURANGO HERALD, July 13, 2008, available at http://archive.durangoherald.com/aspbin/article_generation.asp?article_type=news&article_path=news08/news080713_5.htm (citing Telluride's ability to raise funds due to its famous residents).

163. Bigelow, *supra* note 19.

A. Utah

Under Utah law, municipalities' power to extraterritorially condemn land for open space or parks is more limited than home-rule municipalities in Colorado. Unlike Colorado, Utah law allows both charter (home-rule) municipalities and noncharter municipalities to condemn land inside and outside their boundaries.¹⁶⁴ Article XI, section 5 of the Utah Constitution grants charter municipalities the power to condemn land outside their boundaries "[t]o furnish all local public services."¹⁶⁵ However, when a charter town is simply making "local public improvements," the municipality can only condemn land within its boundaries.¹⁶⁶ In reaction to the Utah Supreme Court's decision in *Provo City v. Ivie* that prevented a noncharter city from extraterritorially condemning land, the state legislature amended state law to expand noncharter cities' condemnation power.¹⁶⁷ The amended statute now gives noncharter municipalities the power to condemn land outside their boundaries to "furnish all necessary local public services."¹⁶⁸

Figure 1: A Summary of Mountain West Condemnation Law



¹ If property is not used for recreation

² Not yet determined by Wyoming courts

³ Limitations exist for statutory municipalities

⁴ Only for certain infrastructure improvements

⁵ Cities larger than 75,000 must condemn land for park *and* utility purposes

⁶ Only home-rule municipalities

⁷ If the entity meets public use requirements

⁸ Not yet determined by Wyoming courts

164. UTAH CODE ANN. § 10-8-2(1)(b)(iii) (Supp. 2009); UTAH CONST. art. XI, § 5(b).

165. UTAH CONST. art. XI, § 5(b).

166. *Id.* § 5(c).

167. *Utah County v. Ivie*, 137 P.3d 797, 799 n.1 (Utah 2006).

168. § 10-8-2(1)(b) (Supp. 2009).

While these grants of power appear to give cities and towns in Utah rights similar to that of home-rule municipalities in Colorado, Utah's municipalities are limited by the state's statutory definition of public use.¹⁶⁹ The statute allows municipalities to condemn land for public parks as long as the park is not primarily used "as a trail, path, or other way for walking, hiking, bicycling, or equestrian use."¹⁷⁰ This could be a roadblock for many municipalities looking to Telluride as a guide because open space and parks are often used to preserve land *and* to provide land for recreation.¹⁷¹ Such statutory language would place a burden on the local entity to show that the land will not be condemned primarily for recreation.¹⁷² If a municipality can meet this burden, then Utah law allows both charter and noncharter municipalities to extraterritorially condemn land for public parks.¹⁷³

B. Wyoming

In Wyoming, the law is not so clear. State law explicitly gives all municipalities the power to extraterritorially condemn land. Wyoming law allows condemnation of "property for public use within *and* without the city limits."¹⁷⁴ The state's definition of public purpose is less explicit. Wyoming defines public purpose as "the possession, occupation and enjoyment of the land by a public entity."¹⁷⁵ The statute makes no mention of parks or open space as a public purpose.¹⁷⁶

The Wyoming Supreme Court has taken the responsibility of determining whether a proposed use is public.¹⁷⁷ The court makes this decision by considering local conditions and the facts surrounding the condemnation.¹⁷⁸ At this time, the Wyoming Supreme Court has not ruled on whether parks or open space qualify as a public use, though state law grants all municipalities the power to establish parks and recreational areas

169. UTAH CODE ANN. § 78B-6-501.

170. § 78B-6-501(11).

171. *See generally* Telluride, Colo., Ordinance 1289 (June 24, 2008), *available at* http://telluride-co.gov/docs/valley_floor_use_regulations_website.pdf [hereinafter Telluride Ordinance 1289] (noting that bicycles are allowed on marked trails, cross country skiing trails are maintained in the winter and a "pack it in, pack it out" rule will be enforced for those recreating on the Valley Floor).

172. § 78B-6-501(11).

173. § 10-8-2(1)(b)(iii); § 78B-6-501(11); UTAH CONST. art. XI, § 5(b).

174. WYO. STAT. ANN. § 15-1-103(a)(xxxv) (2009) (emphasis added).

175. *Id.* § 1-26-801(c).

176. *Id.*

177. *Associated Enters., Inc. v. Toltec Watershed Improvement Dist.*, 656 P.2d 1144, 1148 (Wyo. 1983).

178. *Id.*

within their borders.¹⁷⁹ This could be an indication that parks and open space areas are considered a public use within Wyoming.

C. *New Mexico*

New Mexico is more explicit in what it considers to be valid public uses. Under section 42A-3-1 of the New Mexico Statutes, counties and municipalities can condemn property for use as “public parks and playgrounds.”¹⁸⁰ Considering this specific enumeration, a local entity may have to show that the condemned property will not be used only as open space, but also as a park.¹⁸¹ While New Mexico courts have not ruled on the scope of “public parks and playgrounds,” a land use designation similar to Telluride’s Valley Floor may suffice.¹⁸²

New Mexico follows the general rule that municipalities have no power outside their boundaries without “express authorization from the state.”¹⁸³ As a result, New Mexico statutes expressly authorize municipalities to purchase extraterritorial land for parks.¹⁸⁴ However, extraterritorial *condemnation* for parks is prohibited.¹⁸⁵ State law only allows limited extraterritorial condemnation for certain uses, such as widening streets and constructing storm drains.¹⁸⁶ Hence, municipalities are obligated to look within their own boundaries when condemning land for parks, cemeteries, and mausoleums.¹⁸⁷ Thus, municipalities in New Mexico can condemn land for parks, but they must do so within their boundaries.

D. *Arizona*

Arizona law explicitly states what is considered a public use for eminent domain purposes.¹⁸⁸ All applicable statutes include parks as a valid public use.¹⁸⁹ In *City of Phoenix v. Harnish*, an Arizona appellate court

179. § 15-1-103(a)(xxii).

180. N.M. STAT. ANN. § 42A-3-1(A)(4) (LexisNexis 2009).

181. This requirement is the inverse of Utah’s allowed public uses under UTAH CODE ANN. § 78B-6-501(11) (2008).

182. See Telluride Ordinance 1289, *supra* note 171.

183. State *ex rel.* Village of Los Ranchos de Albuquerque v. City of Albuquerque, 889 P.2d 185, 195 (N.M. 1994).

184. N.M. STAT. ANN. § 3-18-18 (LexisNexis 2009).

185. § 3-18-10.

186. § 3-18-10(A).

187. § 3-18-10(B).

188. ARIZ. REV. STAT. ANN. §§ 9-511, 9-276(A)(1), 9-521 to 9-522 (1996).

189. *Id.*

clarified what is considered a park for condemnation purposes.¹⁹⁰ By citing *The American Heritage Dictionary*, the court determined that a preserve falls within the definition of “park” for eminent domain purposes if it includes “a large tract of rural land kept in its natural state and usually reserved for the enjoyment and recreation of visitors.”¹⁹¹ This definition, undoubtedly, would give municipalities in Arizona significant wiggle room in condemning land for open space or parks.

Municipalities’ ability to *extraterritorially* condemn land for open space or parks in Arizona is limited. Section 9-521.01 of the Arizona Statutes states that a park qualifies as a recreational facility and that a “recreational facility” is considered a “utility undertaking.”¹⁹² Section 9-522 further provides that cities with a population of 75,000 or less can acquire land through eminent domain both within and without their boundaries for such “utility undertakings.”¹⁹³ In other words, small cities and towns can extraterritorially condemn land for parks and open space purposes.

Yet, as the court ruled in *Harnish*, cities with a population greater than 75,000 cannot extraterritorially condemn land outside their borders solely for parks or open space.¹⁹⁴ Sections 9-511(A) and (C), which by default apply to cities larger than 75,000, allow cities to extraterritorially condemn land “for public utility *and* public park purposes.”¹⁹⁵ The *Harnish* court determined that the statute “allows municipalities to condemn property for public utility purposes and, if desired, to also use the property for park purposes.”¹⁹⁶ As a result, the statute’s reference to “public park purposes” does not grant larger cities the power to condemn extraterritorial land solely for such park or open space purposes.¹⁹⁷

In summary, municipalities in Arizona with populations of 75,000 or less can extraterritorially condemn land solely for park and open space purposes, while municipalities with populations larger than 75,000 can only extraterritorially condemn land for parks or open space purposes if they also intend to use the land for utility purposes.¹⁹⁸

190. *City of Phoenix v. Harnish*, 150 P.3d 245, 248 (Ariz. Ct. App. 2006).

191. *Id.*

192. ARIZ. REV. STAT. ANN. § 9-521.01 (1996).

193. *Id.* § 9-522.

194. *Harnish*, 150 P.3d at 250.

195. ARIZ. REV. STAT. ANN. § 9-511(A), (C) (1996) (emphasis added).

196. *Harnish*, 150 P.3d at 250.

197. *Id.*

198. *Id.*

CONCLUSION

The development boom across the Mountain West has led to sprawled development with an influx of new business and suburban residential housing.¹⁹⁹ This new development often encroaches upon undeveloped lands.²⁰⁰ As development continues and communities attempt to curb growth by creating parks and open-space programs, some may be hindered by a lack of appropriate land within municipal borders or a lack of undeveloped property available for purchase.²⁰¹ In *Town of Telluride v. San Miguel Valley Corp.*, the Colorado Supreme Court upheld the right of home-rule municipalities to condemn land outside their boundaries to limit development and create open space.²⁰² While property rights advocates throughout the state rallied against the opinion, it is unlikely that the case will lead to a *Kelo*-like backlash.

As the reaction to the *San Miguel Valley Corp.* decision subsides, a new tool in the municipal planner's toolbox will have emerged. Communities cannot only work to curb growth within their borders; they can have an influence on growth outside their borders. Following Telluride's lead, municipalities throughout the Mountain West should consider utilizing extraterritorial condemnation as suburban sprawl begins to encroach upon their municipal limits.

199. TRAVIS, *supra* note 1, at 1.

200. *Id.* at 112.

201. *Id.* at 179.

202. *Town of Telluride v. San Miguel Valley Corp.*, 185 P.3d 161, 171 (Colo. 2008).