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## Climate Exactions

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## CLIMATE EXACTIONS

J. PETER BYRNE\* & KATHRYN A. ZYLA\*\*

### I. INTRODUCTION

Governments at every level need to devise innovative approaches to reduce emissions of greenhouse gases in order to lessen global warming already underway. They also need to fashion measures to help adapt to the inevitable and alarming environmental effects. Efforts are underway at the federal and state levels to reduce emissions from large stationary sources and from vehicles, and to plan for climate adaptation. However, these efforts will have little impact on land use development patterns, which drive transportation choices and reshape natural systems. These patterns are regulated primarily by local planning decisions, which have not historically addressed greenhouse gas emissions or adaptation challenges. However, local governments have significant experience using land use tools to mitigate other development impacts, including those on environmental resources.

Monetary exactions are one such common tool that can force developers to mitigate the climate costs of new development. Local governments commonly impose fees, a type of monetary exaction, on new development to offset public costs that such development will impose. This Essay argues that monetary fees offer significant potential as a tool to help local governments manage land development's contribution to climate change. Such "climate exactions" can put a price on the carbon emissions from new development and also on development that reduces the natural resiliency of the jurisdiction to the effects of climate change, such as sea-level rise. Thus, for example, a town might permit development of residences in a location distant from the town center and not served by public transit, but charge a monetary fee based on anticipated automobile emissions. Analogously, if a state agency predicts that the location of the development will become a wetland due to sea-level rise in the future, the town could charge an additional fee based on probable loss of future wetlands. While no jurisdiction has yet imposed exactions explicitly to

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address such climate problems, the strategy is commonly used to address a variety of other negative externalities and public services needs and provides a promising legal template for climate concerns.

In addition to describing how such climate exactions might work, the Essay argues that using exactions to address climate concerns is consistent with the United States Supreme Court's constitutional takings framework, including the Court's recent exactions decision in *Koontz v. St. Johns River Water Management District*.<sup>1</sup> The Essay also argues that exactions are an appropriate and feasible approach for local governments in our federal system.<sup>2</sup> It suggests that California provides an especially inviting legal context for local governments to experiment with climate exactions.<sup>3</sup>

## II. WHY "CLIMATE EXACTIONS"?

As demonstrated by the global climate agreement negotiated in Paris in December 2015,<sup>4</sup> the urgent need to reduce emissions of greenhouse gases contributing to climate change is widely understood. In the United States, climate change is expected to cause increased water scarcity, more frequent and intensive heat waves, particularly in cities, sea-level rise and storm surges threatening coastal homes and infrastructure, and other impacts.<sup>5</sup> Many of these changes are beginning already, and they are expected to become worse over time.<sup>6</sup> Emissions of greenhouse gases produced by the burning of fossil fuels—for example, in our power plants, factories, vehicles, and homes—are the primary contributors to climate change.<sup>7</sup> Although communities will inevitably have to develop strategies to deal with unavoidable climate impacts, it is equally important to lessen these impacts by reducing the emissions driving them.

Many national and state efforts to reduce greenhouse gas ("GHG") emissions focus on the power sector (for example, the Clean Power Plan, finalized by the U.S. Environmental Protection Agency in June 2015<sup>8</sup>), a logical place to start given the sector's large contribution to CO<sub>2</sub>

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1. 133 S. Ct. 2586 (2013). *See infra* Part II.

2. *See infra* Part V.

3. *See infra* Part VI.

4. United Nations Framework Convention on Climate Change, Negotiation Updates COP 21/CMP 11, [http://unfccc.int/meetings/paris\\_nov\\_2015/in-session/items/9320.php](http://unfccc.int/meetings/paris_nov_2015/in-session/items/9320.php) (lasted visited Dec. 12, 2015).

5. U.S. GLOBAL CHANGE RESEARCH PROGRAM, GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES: HIGHLIGHTS 7–9, 14–16 (2009), <http://data.globalchange.gov/assets/4e/16/df9a1659784131dcd1ea020bce19/20page-highlights-brochure.pdf>.

6. *Id.* at 8–11.

7. *Id.* at 6.

8. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60).

emissions,<sup>9</sup> relatively few sources, and the well-established regulatory system under which power companies already operate. However, emissions from transportation make up thirty-three percent of CO<sub>2</sub> emissions nationally and are growing.<sup>10</sup> Policies must also address this much more diffuse source of emissions.<sup>11</sup>

While many efforts to reduce transportation emissions focus on vehicle technology (e.g., vehicle fuel economy and GHG standards issued by EPA and the National Highway Traffic Safety Administration in 2010<sup>12</sup>) and fuel content, less emphasis has been placed on the role of land development in emissions reduction policy. Yet land use drives decisions about where people travel, how far, and by what mode, and therefore has a significant effect on transportation emissions. Low density development with rigid zoning restrictions, better known as “sprawl,” needs to be severely restricted to reduce emissions.<sup>13</sup> A 2009 study found that aggressively implementing a full range of strategies aimed at reducing vehicle miles traveled could reduce on-road GHG emissions by eighteen to twenty-four percent by 2050, and many of these strategies (e.g., expanded transit service, investments in land use) are in the hands of local planners and policymakers.<sup>14</sup>

Development not only contributes to GHG emissions, but also affects the land’s ability to respond to the impacts of climate change. For example, engineered structures like sea walls can damage beaches and wetlands; encourage even greater development behind the wall, leading to increased risks of catastrophic failure; and increase flooding and erosion of neighboring properties, all of which decrease the community’s ability to respond effectively to rising sea levels.<sup>15</sup> If we are to be successful in addressing development’s role in climate change, we will have to address both its contributions to emissions and its effect on climate resilience.

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9. *U.S. Greenhouse Gas Inventory Report: 1990–2013*, U.S. ENVTL. PROT. AGENCY (Sept. 11, 2015), <http://www3.epa.gov/climatechange/ghgemissions/usinventoryreport.html>.

10. Vicki Arroyo & Kathryn A. Zyla, *Transportation Policy*, in *CLIMATE CHANGE AND PUBLIC HEALTH* 303 (Barry S. Levy & Jonathan A. Patz eds., 2015).

11. *See generally id.* at 303–13.

12. Light-Duty Vehicle GHG Emission Standards and Corporate Average Fuel Economy Standards, 75 Fed. Reg. 25, 324 (May 7, 2010) (to be codified at 40 C.F.R. pts. 85, 86, 600 and 49 C.F.R. pts. 531, 533, 536–38).

13. Peter Calthorpe presents an excellent planning study of how promoting walkable, mixed-use communities linked in regional transportation systems can effectively address climate change in *Urbanism in the Age of Climate Change*. PETER CALTHORPE, *URBANISM IN THE AGE OF CLIMATE CHANGE* (2011). He makes a strong case that such urbanism is “our single most potent weapon against climate change, rising energy costs, and environmental degradation.” *Id.* at 17.

14. CAMBRIDGE SYSTEMATICS, INC., *MOVING COOLER: AN ANALYSIS OF TRANSPORTATION STRATEGIES FOR REDUCING GREENHOUSE GAS EMISSIONS* (2009), <http://www.fta.dot.gov/documents/MovingCoolerExecSummaryULL.pdf>.

15. JESSICA GRANNIS, *ADAPTATION TOOL KIT: SEA-LEVEL RISE AND COASTAL LAND USE* 6 (2011).

While much is being done at the federal and state levels to reduce emissions from large stationary sources<sup>16</sup> and from vehicles,<sup>17</sup> these strategies will have little impact on the land use patterns that drive transportation decisions. Rather, local policies and planning decisions, which have not historically taken on GHG emissions explicitly, influence these patterns. Local governments oversee land use decisions and build and maintain roads, transit systems, bicycle paths, and sidewalks. They influence not only where people travel, but also how they travel, and for how long.<sup>18</sup> In addition, while stationary sources like power plants are already part of an existing national regulatory regime for air emissions and other pollutants, it is much harder to get a handle on emissions from many small, distributed sources of emissions like buildings and transportation, and much harder to address these sources at a national (or even state) level. Local governments hold the levers needed to shift development to lower emission practices, and can do so in a way that makes sense within the context of their own jurisdictions.

Local governments have significant experience employing land use tools to mitigate other impacts, including environmental concerns.<sup>19</sup> In 1926, the Supreme Court blessed the use of zoning by local governments in *Village of Euclid v. Ambler Realty Co.*,<sup>20</sup> concluding that the strategy is a reasonable extension of local police power.<sup>21</sup> Local jurisdictions now regularly use zoning to minimize environmental harms and other negative impacts of development. Over time, they have added to this toolkit, developing strategies like exactions of land or money, and planned unit developments to provide communities with a greater ability to manage and mitigate the impacts of land use in their neighborhoods. Local governments therefore have the opportunity, the legal authority, and access to the tools needed to drive emissions reductions from development and protect the adaptive capacity of land in a way that other levels of government do not.

There are well-known challenges with local decisionmaking, however. For example, competition among jurisdictions for new development and economic growth could lead to more lax environmental standards.<sup>22</sup> For this reason and others, there are still important roles for state, regional, and

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16. See, e.g., *Clean Power Plan: What EPA is Doing*, U.S. ENVTL. PROT. AGENCY (July 17, 2015), <http://www2.epa.gov/carbon-pollution-standards/what-epa-doing>.

17. See, e.g., *Cars and Light Trucks: Vehicle Standards and Regulations*, U.S. ENVTL. PROT. AGENCY (Oct. 23, 2015), <http://www.epa.gov/otaq/standards.htm>.

18. See CALTHORPE, *supra* note 13, 22–23.

19. See generally JOHN R. NOLON, *PROTECTING THE ENVIRONMENT THROUGH LAND USE LAW: STANDING GROUND* (2014).

20. 272 U.S. 365 (1926).

21. *Id.* at 397.

22. See, e.g., Benjamin J. Richardson, *Local Climate Change Law*, in *LOCAL CLIMATE CHANGE LAW: ENVIRONMENTAL REGULATION IN CITIES AND OTHER LOCALITIES* 3, 16 (Benjamin J. Richardson ed., 2012).

national policies that address climate change.<sup>23</sup> However, these regional and state-level efforts do not change the unique role that local government plays in driving development choices.

Many local governments have already taken climate change on as an issue of local significance. Sixty-six U.S. cities have signed onto the Compact of Mayors' 2014 agreement<sup>24</sup> to reduce city-level emissions and vulnerability to climate change<sup>25</sup> and countless jurisdictions across the country have developed climate action plans, adaptation plans, or both.<sup>26</sup> These jurisdictions have committed to using the tools at their disposal to address climate change.

As local governments contemplate the risks posed by climate change, many may want to take vigorous regulatory action to reduce emissions or avoid losses from consequent sea-level rise or storm surges.<sup>27</sup> The most direct regulatory approach would be to prohibit new development that increases emissions or lessens the capacity of the community to adapt to the effects of climate change. Thus, for example, a local government might prohibit development in areas not served by public transit in order to limit emissions from new automobile traffic, or in areas reasonably predicted to be submerged by rising seas during the expected useful life of the development. While arguably effective to meet their public goals, such measures raise serious distributional concerns. They could render land previously planned for development valueless or nearly so. Affected private owners could be expected to wage vigorous political opposition to protect their interests, and other citizens may see the regulatory "wipeouts" of such investments as unfair. Moreover, a jurisdiction may not have sufficient growth capacity in areas either walkable or served by transit nor the resources to expand low-carbon transit infrastructure.

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23. See Alice Kaswan, *Climate Adaptation and Land Use Governance: The Vertical Axis*, 39 COLUM. J. ENVTL. L. 390 (2014); see also William W. Buzbee, *Urban Sprawl, Federalism, and the Problem of Institutional Competence*, 68 FORDHAM L. REV. 57 (1999).

24. *Cities Committed to the Compact of Mayors*, COMPACT OF MAYORS, <http://compactofmayors.org/cities/> (last visited Nov. 11, 2015).

25. *Compact of Mayors*, ICLEI LOCAL GOV'TS FOR SUSTAINABILITY, <http://www.iclei.org/compactofmayors.html> (last visited Dec. 15, 2015).

26. See, e.g., *Climate Action Plans: Local Examples*, INST. FOR LOCAL GOV'T, <http://www.ca-ilg.org/post/climate-action-plans-local-examples> (last visited Dec. 15, 2015); *Example City Climate Plans*, SUSTAINABLE REVOLUTION LONGMONT, <http://www.srlongmont.org/examples-of-city-climate-action-plans.html> (last visited Dec. 15, 2015); *State and Local Adaptation Plans*, GEO. CLIMATE CTR., <http://www.georgetownclimate.org/adaptation/state-and-local-plans> (last visited Dec. 21, 2015).

27. On land use tools for addressing sea-level rise caused by climate change, see J. Peter Byrne & Jessica Grannis, *Coastal Retreat Measures*, in *THE LAW OF ADAPTATION TO CLIMATE CHANGE* 267–306 (Michael B. Gerrard & Katrina Fischer Kuh eds., 2012).

Such starkly prohibitive measures also may expose the local government to liability for a regulatory taking.<sup>28</sup> The Supreme Court construes the Takings Clause of the Fifth Amendment to require the government to pay “just compensation” not just when it expropriates or physically occupies land but also when regulations of use go “too far.”<sup>29</sup> Although many elements of the doctrine developed under this construction are confusing and inconsistent, it is reasonably clear that sudden changes in land use regulation that impose large losses on a small number of property owners are at risk of being judged to be regulatory takings.<sup>30</sup> Indeed, in what might be considered the first sea-level rise takings case, involving the South Carolina Coastal Council’s prohibition of new construction seaward of an erosion line, the Supreme Court invented a new rule providing that when a regulation eliminates all economic value from a parcel of land, it will be deemed a regulatory taking without any consideration of the public justification for such a regulation.<sup>31</sup>

The costs of litigating regulatory takings claims, let alone paying large compensation awards, are daunting for local governments, and lawyers for property owners are well aware of this vulnerability. For these reasons, land use regulators have sought other means to discourage new developments that will exacerbate climate problems.<sup>32</sup> One promising approach that has not yet been applied to carbon emissions or adaptation is the use of monetary exactions. Climate exactions could condition new development upon payment for its impact on greenhouse gas emissions or

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28. Takings problems arising from regulatory efforts to adapt to climate change are discussed in J. Peter Byrne, *The Cathedral Engulfed: Sea-Level Rise, Property Rights, and Time*, 73 LA. L. REV. 69 (2012); see also James G. Titus, *Rising Seas, Coastal Erosion, and the Takings Clause: How to Save Wetlands and Beaches Without Hurting Property Owners*, 57 MD. L. REV. 1279 (1998).

29. *Pa. Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922).

30. “In engaging in these essentially ad hoc, factual inquiries, the Court’s decisions have identified several factors that have particular significance. The economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations are, of course, relevant considerations.” *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978). See Frank I. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of “Just Compensation” Law*, 80 HARV. L. REV. 1165, 1229–34 (1967).

31. *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1019, 1027 (1992).

32. Perhaps the most ambitious legislative effort specifically to address reduction of greenhouse gas emissions from land use planning has been California’s Sustainable Communities and Climate Protection Act, often referred to as S.B. 375. 2008 Cal. Stat. 5065 (codified in scattered sections of CAL. GOVT. CODE and PUB. RES. CODE). The Act requires regional transportation plans to address how future transportation investment can help meet greenhouse gas emissions targets and provides incentives for localities to plan and zone for new development consistent with these goals. The Act combines ambitious goals, complex interactions among multiple state agencies and local governments, and incentives with uncertain force. See Dorothy J. Glancy, *Vehicle Miles Travelled and Sustainable Communities*, 46 MCGEORGE L. REV. 23 (2014); Alexandra Lampert, *California’s Fight Against Global Warming: Finally Getting Smart About Sprawl?*, 20 STAN. L. & POL. REV. 193 (2009).

the jurisdiction's resilience to the impacts of climate change, and the funds used to mitigate the impact. For example, the granting of a permit for development of land that lacks a public transit connection could be conditioned on the payment reflecting the social costs of the carbon that would be emitted from the automobiles of the residents; the proceeds could be used to support low-carbon transit options in other parts of the jurisdiction.

An exaction can be understood as a required conveyance to the government of money or real property in exchange for the grant of a discretionary development permit.<sup>33</sup> The justification for the exaction is that the government can and will use the property to mitigate some public harm from the proposed development. The use of exactions in the land development process dates back to at least the 1950s when local governments required developers to donate roads within subdivisions in exchange for approval of the subdivision plat.<sup>34</sup> Exactions became far more common during the 1960s and 1970s, as discretionary permitting grew to address public concerns about suburban growth, property taxes, and environmental harms.<sup>35</sup> Today, despite decades of scholarly criticism,<sup>36</sup> exactions are a ubiquitous feature of the development process, requiring conveyances or fees to remedy increased traffic, overburdened schools and parks, and a growing lack of affordable housing, among myriad other needs. Exactions permit developments to go forward despite their generation of public harms because they provide the means to mitigate those harms.

The law governing exactions has grown throughout this period to reach a current state of maturity. Early state court cases focused on the power of local governments to require exactions without explicit state delegations of authority.<sup>37</sup> As regulatory tools, exactions need to address solely the effects on the public of granting the permit, rather than merely raise revenue for general public needs. As a consequence, local governments have to show that the exactions will address some harm reasonably attributable to the permitted development. State courts

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33. See, e.g., Mark Fenster, *Takings Formalism and Regulatory Formulas: Exactions and the Consequences of Clarity*, 92 CAL. L. REV. 609, 623–24 (2004).

34. See R. Marlin Smith, *From Subdivision Improvement Requirements to Community Benefit Assessments and Linkage Payments: A Brief History of Land Development Exactions*, 50 LAW & CONTEMP. PROBS. 5, 6 (1987).

35. See Ronald H. Rosenberg, *The Changing Culture of American Land Use Regulation: Paying for Growth with Impact Fees*, 59 SMU L. REV. 177 (2006).

36. See, e.g., Robert C. Ellickson, *Suburban Growth Controls: An Economic and Legal Analysis*, 86 YALE L.J. 385, 465–67, 510 (1977) (criticizing exactions as unfair and inefficient burdens imposed by cartels of current homeowners).

37. See, e.g., *Ayers v. City Council of L.A.*, 207 P.2d 1, 5 (Cal. 1949); *Call v. City of West Jordan*, 606 P.2d 217, 218–19 (Utah 1979).

developed doctrine through the 1980s that implemented this requirement with varying degrees of strictness.<sup>38</sup>

The United States Supreme Court subsequently entered the field in the well-known *Nollan v. California Coastal Commission*<sup>39</sup> and *Dolan v. City of Tigard*<sup>40</sup> decisions. These cases fashioned a federal constitutional floor for exactions, requiring that every exaction have an “essential nexus” with a public harm justifying regulation<sup>41</sup> and that the value of the property exacted be “roughly proportional” to the degree of harm threatened by the proposed development.<sup>42</sup> These decisions rejected more easygoing approaches to evaluating exactions used by some state courts and limited the flexibility in bargaining between local regulators and developers.<sup>43</sup> But they also had the effect of cementing the appropriateness of exactions for many public harms resulting from development, so long as the nexus and proportionality requirements were met. Thus, the two cases taken together approved the use of exactions to address the impairment of public viewsheds, increased vehicular traffic, and additional runoff into a stream from paving adjacent land.

Monetary exactions have become a particularly important form of exaction. Rather than conveying to the government an interest in real property, the developer pays the government an equivalent in money, which the government then spends to mitigate the public harm attributable to the development.<sup>44</sup> Monetary exactions, or “development impact fees,” have grown in prominence because they offer distinct advantages over “in kind” exactions both to government and to developers.<sup>45</sup> Exactions of real property may come in parcels that are too awkwardly sized or located to address legitimate needs. Impact fees can be assessed for a wider range of community needs than can land exactions, and the proceeds can be pooled and applied more easily to off-site community needs generated by the new development. Thus, impact fees play a role in financing new capital

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38. Compare *Pioneer Trust & Sav. Bank v. Mount Prospect*, 176 N.E. 2d 799 (Ill. 1961) (strict test for reasonableness) with *Assoc. Home Builders v. City of Walnut Creek*, 484 P.2d 606 (Cal. 1971) (lenient test for reasonableness).

39. 483 U.S. 825 (1987).

40. 512 U.S. 374 (1994).

41. *Id.* at 386; *Nollan*, 483 U.S. at 837.

42. *Dolan*, 512 U.S. at 391.

43. See Lee Anne Fennell, *Hard Bargains and Real Steals: Land Use Exactions Revisited*, 86 IOWA L. REV. 1 (2000); David A. Dana, *Land Use Regulation in an Age of Heightened Scrutiny*, 75 N.C. L. REV. 1243 (1997).

44. Monetary exactions as regulatory tools to mitigate specific harms can be distinguished from taxes designed primarily to raise general revenue even though taxes may be adopted with specific incentive effects. See, e.g., *Sinclair Paint Co. v. State Bd. of Equalization*, 937 P.2d 1350, 1355 (Cal. 1997).

45. See JULIAN CONRAD JUERGENSMEYER & THOMAS. E. ROBERTS, *LAND USE PLANNING AND DEVELOPMENT LAW* 318–21 (3d ed. 2013).

expenditures necessitated by growth.<sup>46</sup> For example, a large new residential subdivision may necessitate that the local public school add new classroom space, but the proposed subdivision may not attract enough families with children to justify a new building or even a new room, and the developer may not own land in an appropriate location or have the capacity to construct school space. But, accepted formulas exist to project the number of school-age children likely to reside in a new development of a certain size and form, and the capital costs to accommodate them in local schools.<sup>47</sup> Thus, the developer could pay a monetary exaction based on a per pupil capital charge that reasonably and efficiently discharges its obligation while affording the local government flexibility in constructing new classroom space in what it deems the best location, design, and schedule.<sup>48</sup>

An important safeguard is that the funds collected must be segregated in an account that may be used only to mitigate the harm for which the money was exacted.<sup>49</sup> Many jurisdictions have legislated schedules of impact fees, which provide generally applicable formulas or tables of monetary charges for specific types and scales of development in place of case-by-case negotiations.<sup>50</sup> Developers may prefer monetary exactions, and legislative development fees in particular, to in-kind exactions as being more predictable and transparent.

Until recently, monetary exactions or impact fees offered local governments another advantage over in-kind exactions: it was unclear whether the *Nollan/Dolan* requirements of nexus and proportionality applied to monetary exactions. Some courts had held that the constitutional requirements did not apply to monetary exactions, relieving the affected local governments from litigation risk.<sup>51</sup> However, in *Koontz v. St. Johns River Water Management District*, the Supreme Court squarely held that the general constitutional test for exactions applies to monetary exactions as well.<sup>52</sup>

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46. See *id.*; Rosenberg, *supra* note 35, at 203–04.

47. See, e.g., *Jordan v. Village of Menomonee Falls*, 137 N.W. 2d 442, 449–50 (Wis. 1965).

48. See, e.g., *St. John's County v. Ne. Fla. Builders Ass'n, Inc.*, 583 So. 2d 635, 637, 639 (Fla. 1991).

49. See, Rosenberg, *supra* note 35, at 228.

50. See JUERGENSMEYER & ROBERTS, *supra* note 45, at 319–22.

51. See *St. Johns River Water Mgmt. Dist. v. Koontz*, 77 So. 3d 1220, 1229 (Fla. 2011), *rev'd*, 133 S. Ct. 2586 (2013) (collecting cases).

52. *Koontz v. St. Johns River Water Mgmt. Dist.*, 133 S. Ct. 2586, 2603 (2013). *Koontz* did not address whether the heightened scrutiny of *Nollan/Dolan* applies to legislatively scheduled impact fees. Some state courts have held that such pre-established fees do not require such scrutiny because they are not bargained for and thus are less subject to the risk of “extortion.” See, e.g., *Ehrlich v. City of Culver City*, 911 P.2d 429 (Cal.), *cert. denied*, 519 U.S. 929 (1996); *Homebuilders Ass'n of Central Ariz. v. City of Scottsdale*, 902 P.2d 1347 (Ariz. App. 1995), *aff'd*, 930 P.2d 993 (Ariz.), *cert. denied*, 512 U.S. 1120 (1997). The analysis in this Essay assumes that *Nollan/Dolan* will apply to climate exactions.

*Koontz* did not change the substance of the Court's test for exactions. When challenged, local governments need only show that the monetary exactions they have demanded bear an essential nexus to the grounds for regulation and that the money sought is roughly proportional to the harm predicted from the development. The Court's opinion justifies its application to exactions of money on the reasonable concern that regulators can too easily evade *Nollan* and *Dolan* by obtaining money in place of an interest in real property.<sup>53</sup> But the Court did not suggest any increase in the burden on local governments in meeting those requirements. Importantly, Justice Alito's opinion for the Court affirms the value of exactions more forcefully than any prior Court opinion. The opinion expressly stated, "Insisting that landowners internalize the negative externalities of their conduct is a hallmark of responsible land-use policy, and we have long sustained such regulations against constitutional attack."<sup>54</sup> The Court reiterated its concern about what it had termed "extortion" in prior cases, explaining that its concern focused on the ability of government to leverage its control over discretionary permits to obtain property unrelated to legitimate concerns about public harms attributable to the new development.<sup>55</sup> Reiterating that regulators can insist that "applicants bear the full costs of their proposals," the Court concluded: "Under *Nollan* and *Dolan* the government may choose whether and how a permit applicant is required to mitigate the impacts of a proposed development, but it may not leverage its legitimate interest in mitigation to pursue governmental ends that lack an essential nexus and rough proportionality to those impacts."<sup>56</sup>

*Koontz* has been the subject of some withering scholarly criticism as an undue and vague extension of the Court's prior exactions doctrine.<sup>57</sup> Although some of that criticism seems warranted, this Essay will argue that *Koontz* does not pose a significant barrier to the use of climate exactions. The most problematic part of the Court's opinion addresses the extension of *Nollan* and *Dolan* to "demands" for exactions that arise in negotiations between regulators and developers but are never made explicit conditions for the grant of permit.<sup>58</sup> Both the reach and rationale for this extension seem problematic.<sup>59</sup> But that holding poses no special risk for climate

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53. *Id.* at 2598–99.

54. *Id.* at 2595.

55. *Id.* at 2594–95.

56. *Id.* at 2595.

57. See John D. Echeverria, *Koontz: The Very Worst Takings Decision Ever?*, 22 N.Y.U. ENVTL. L.J. 1 (2014); Lee Anne Fennell & Eduardo M. Peñalver, *Exactions Creep*, 2013 SUP. CT. REV. 287 (2014).

58. *Koontz*, 133 S. Ct. at 2598.

59. The Court declined to determine whether the discussions between the government and *Koontz* reached the level of a "demand" for payment, potentially exposing all sorts of negotiations to exactions analysis. Local governments may want to structure their exactions process in order to

exactions. Rather, climate exactions fall squarely within the Court's approval of monetary exactions that mitigate public harms.<sup>60</sup> They can be structured to avoid the undue "leverage" that the Court identified as the rights violation it acted to prevent, and also to operate with transparency. Indeed, as this Essay will show, climate exactions can be assessed following established formulas that provide objective calculation of proportionality.

### III. APPLYING A "CLIMATE EXACTION"

It is helpful to consider how a climate exaction might work in practice and how well these strategies would stand up to the *Nollan* and *Dolan* tests. This Section will suggest ways in which exactions might be used to address both emissions and loss of adaptive capacity caused by development.

#### A. *Climate Exactions to Address GHG Emissions*

In the emissions context, developers of large new residential and commercial buildings might be charged a climate exaction based on the calculated "emissions impact" of the development. For example, the development may be found to generate substantial new automobile travel and therefore increased emissions from driving, or to consume significant amounts of electricity on-site, leading to increased energy-sector emissions. The jurisdiction could place a fee on these emissions (or perhaps the emissions in excess of an expected or ideal baseline) and then use the fee to invest in infrastructure to encourage more walking and biking within the community in order to offset the emissions caused by increased motor vehicle traffic. The jurisdiction might also be interested in applying the fee to energy efficiency programs in the jurisdiction in order to offset the emissions caused by energy use in the new building itself. In either case, the use of a monetary exaction allows the jurisdiction to pool funds received from multiple projects to make broader infrastructure investments (like improved transit service) that benefit the community in ways that individual on-site mitigation projects could not.

##### 1. *Demonstrating an Essential Nexus for an Emissions Fee*

In contrast to exactions of land, development fees offer the flexibility to identify the most cost effective mitigation investments wherever they occur. However, this flexibility may raise questions about whether a geographically distant mitigation project bears a strong enough nexus to the impact caused by the development (i.e., whether it is truly mitigating the

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permit a robust give and take with applicants before reaching a final determination of necessary conditions, for example, by separating staff discussions with the applicant from agency decisions.

60. *See infra* Part III.

harm imposed). That said, GHG emissions may offer a clearer nexus between impact and mitigation activity than other measures currently used to calculate impact fees, even if the mitigation project occurs elsewhere in the jurisdiction.

Planners are fairly comfortable imposing an impact fee on developments to fund transportation projects that will directly mitigate increased traffic caused by the development.<sup>61</sup> The nexus analysis becomes more complicated if the transportation mitigation project occurs elsewhere in the jurisdiction and cannot be claimed to offset the specific traffic issues caused by the development. That said, courts have been flexible with the scope of the nexus, as long as one can be demonstrated. In *Commercial Builders of Northern California v. City of Sacramento*,<sup>62</sup> the Ninth Circuit rejected a builder's argument that an ordinance can only be upheld under *Nollan* if it can be shown that the development is directly responsible for the impact the exaction is designed to address.<sup>63</sup> For a fee imposed to mitigate a development's GHG emissions, the location of the mitigation project and the source of emissions reduced matter less than a fee based on infrastructure demand. Because climate change is a global problem, and GHGs mix uniformly in the atmosphere, it makes little difference scientifically where emissions occur or from what type of source (e.g., carbon dioxide emissions from transportation are no different from those from buildings).<sup>64</sup> Emissions increases in one part of town can be "offset" by emissions reductions elsewhere, without concern for the local public health impacts that more traditional pollutants can cause.<sup>65</sup> In that sense, GHG emissions mitigation projects offset the direct impact of the development no matter where in the jurisdiction they occur, and arguably might not have to happen within the jurisdiction at all, although a community may prefer to invest locally.

A local government provides a logical boundary within which to reduce net emissions. As mentioned above, many communities have

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61. NANCY W. VERBER, DEVELOPMENT IMPACT FEES: AN OVERVIEW (2004), <http://www.impactfees.com/publications%20pdf/impactFeepres.pdf> (listing roadway facilities as one of the "fee-eligible public facilities frequently named in state laws").

62. 941 F.2d 872 (9th Cir. 1991).

63. *Id.* at 875 (holding that when "a detailed study revealed a substantial connection between development and the problem to be addressed, the Ordinance does not suffer from the infirmities that the Supreme Court disapproved in *Nollan*").

64. A. DENNY ELLERMAN, PAUL L. JOSKOW & DAVID HARRISON, JR., PEW CTR. ON GLOBAL CLIMATE CHANGE, EMISSIONS TRADING IN THE U.S.: EXPERIENCE, LESSONS, AND CONSIDERATIONS FOR GREENHOUSE GASES 46 (2003), <http://www.c2es.org/publications/emissions-trading-us-experience-lessons-and-considerations-greenhouse-gases>.

65. *Id.* at 8.

already set jurisdiction-wide GHG emissions reduction goals.<sup>66</sup> In these cases, the entity that would be imposing the fee (the local government) aligns with the geographic area in which mitigation strategies would occur, providing for a relatively straightforward administration of the program. There are also economic reasons to allow the mitigation to take place anywhere within the jurisdiction—it can be far more affordable to achieve GHG reductions across a wider geographic area than in a facility-by-facility manner.<sup>67</sup> By pooling mitigation fees instead of requiring each developer to provide on-site mitigation, the jurisdiction can make the best use of funds by directing them to the most cost-effective reduction opportunities. As long as the community identifies a governmental interest in reducing GHG emissions, something many jurisdictions have done through formal processes to develop Climate Action Plans,<sup>68</sup> and provides assurances that fees collected will be spent to reduce emissions within the jurisdiction, the nexus test would seem to be satisfied.<sup>69</sup>

## 2. *Demonstrating Rough Proportionality for an Emissions Fee*

The rough proportionality test asks whether exaction is related “both in nature and extent to the impact of the proposed development.”<sup>70</sup> In order to pass the rough proportionality test, local officials would have to show that approximately the same level of emissions would be reduced by the mitigation effort as would be increased by the development project. Conveniently, for GHG emissions, this is relatively easy to do.

A strategy that quantified GHG emissions resulting from the traffic impacts of a development would most closely resemble the impact fees local governments currently impose. However, there is no legal reason to limit the emissions analysis to the gases resulting from transportation, as long as a nexus can be shown between the mitigation strategy (the climate change impact of emissions from building energy use is identical to those from transportation) and the development. Therefore, local officials might also calculate the contribution that the development makes to emissions

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66. See, e.g., *Local Examples of Climate Action*, U.S. ENVTL. PROT. AGENCY, <http://www3.epa.gov/statelocalclimate/local/local-examples.html> (last visited Dec. 16, 2015) (listing local jurisdictions that have created climate change action plans).

67. ELLERMAN ET AL., *supra* note 64, at iii.

68. U.S. ENVTL. PROT. AGENCY, *supra* note 66.

69. To demonstrate that the nexus is truly in place, it would likely be important for communities to isolate funds collected for a given impact so that they can be spent explicitly for mitigation purposes, rather than commingling the revenue with general funds that may or may not go to mitigation purposes. VERBER, *supra* note 61 (listing segregated funds as a key element of state legislation enabling impact fees).

70. *Dolan v. City of Tigard*, 512 U.S. 374, 391 (1994).

from its energy use or other sources. Approaches to each of these are discussed below.<sup>71</sup>

*a. Rough Proportionality: Transportation Emissions*

Planners talk about quantifying both the direct and indirect impacts of development. While it may be hard to estimate the number of residents in a new development who would use a new bicycle lane (a direct impact), or to estimate the number of cyclists that would be necessary to mitigate the increased traffic congestion caused by a development (an indirect impact), it is relatively easy to quantify the GHG emissions associated with increased traffic, and even to estimate the reductions that could be achieved by investing in bicycling and walking infrastructure. Planners already estimate the traffic impacts of new development in order to establish entirely uncontroversial development fees to improve road infrastructure. Travel demand forecasting models or sketch planning tools analyze the impacts of a given development project on the transportation system.<sup>72</sup> In order to calculate the GHG emissions associated with that travel, the travel forecast can then be fed into a transportation GHG modeling tool. A report prepared for the American Association of State Highway and Transportation Officials recommends using MOVES, (the “Motor Vehicle Emissions Simulator”),<sup>73</sup> a tool produced by the U.S. Environmental Protection Agency—and already used nationwide to estimate emissions of other pollutants from transportation sources—for this purpose.<sup>74</sup>

Traditional transportation impact fees use metrics like level of service (“LOS”), which identify the infrastructure service the local government will provide the community (e.g., X miles of road per capita), and then impose a fee on the development to cover the incremental infrastructure needed to maintain that LOS.<sup>75</sup> Recently, some progressive jurisdictions have started

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71. A topic deserving further research is the baseline that should be employed to calculate the GHG emission upon which the climate exaction should be calculated. Of course, even the greenest new residential development will generate some emissions from transportation or energy use, and a climate conscious local government might want not to discourage any such development with a fee. One might hypothesize that a climate exaction should be calculated only upon emissions in excess of an average building, or from transit-oriented development using current best practices for energy efficiency. On the other hand, a rigorous land use policy may strive to discourage and mitigate all emissions that contribute to global warming.

72. ICF CONSULTING, ASSESSMENT OF GREENHOUSE GAS ANALYSIS TECHNIQUES FOR TRANSPORTATION PROJECTS 21 (2006), [http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25\(17\)\\_FR.pdf](http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25(17)_FR.pdf).

73. *Id.*

74. U.S. ENVTL. PROT. AGENCY, USING MOVES FOR ESTIMATING STATE AND LOCAL INVENTORIES OF ON-ROAD GREENHOUSE GAS EMISSIONS AND ENERGY CONSUMPTION 5 (2012), <http://www.epa.gov/otaq/stateresources/420b12068.pdf>.

75. PETER N. BROWN & GRAHAM LYONS, CITY ATTORNEYS DEPT., LEAGUE OF CAL. CITIES, A SHORT OVERVIEW OF DEVELOPMENT IMPACT FEES 7–9 (2003), [http://www.ca-ilg.org/sites/main/files/file-attachments/resources\\_\\_overviewimpactfees.pdf](http://www.ca-ilg.org/sites/main/files/file-attachments/resources__overviewimpactfees.pdf).

to develop multi-modal LOSs in addition to automobile-focused LOSs.<sup>76</sup> However, using GHGs instead of some version of LOS might simplify the calculation and the legal analysis by providing a standard metric that applies to all development projects and mitigation efforts.<sup>77</sup>

*b. Rough Proportionality: Nontransportation Emissions*

The prototypical development fee addresses a development's impact on traffic. However, if the concern is GHG emissions, any given development will also be responsible for emissions from its own energy use, and jurisdictions might consider requiring developers to offset these emissions as well. There is precedent for development fees to support green building initiatives. Arlington County, Virginia, imposes a fee on development projects to support the county's green building educational fund; and Eagle County, Colorado rebates permit fees for residential projects that exceed green building standards, and they imposes additional fees on projects that do not.<sup>78</sup> Professor Carl Circo has proposed greater use of this tool to promote energy efficient buildings, on the ground that green building projects "serve the public health and general welfare in the same way that environmental regulations do."<sup>79</sup> However, as with transportation, GHG emissions provide a way to use environmental regulation to achieve energy efficiency goals, and with an already standardized metric. Conveniently, GHG emissions from building energy consumption are even easier to calculate than induced transportation emissions.

In 2001, the World Resources Institute and the World Business Council for Sustainable Development released the first edition of the "Greenhouse Gas Protocol," an accounting framework that now serves as

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76. Sarah Peters, *Impact Fees for Complete Streets: A Comprehensive Project Submitted in Partial Satisfaction of the Requirements for the Degree Master of Arts in Urban Planning 3* (2012) (unpublished M.A. thesis, University of California, Los Angeles), [http://164.67.121.27/files/Lewis\\_Center/CompleteStreetsInitiative/Peters\\_report.pdf](http://164.67.121.27/files/Lewis_Center/CompleteStreetsInitiative/Peters_report.pdf).

77. The Natural Resources Defense Council ("NRDC") has recommended that California replace the LOS metric used for environmental impact analysis with vehicle miles traveled ("VMT"). Letter from Amanda Eaken, Deputy Dir. Sustainable Communities, & Justin Horner, Policy Analyst, NRDC, to Christopher Calfee, Senior Counsel, Governor's Office of Planning and Research (Feb. 13, 2014), [http://www.opr.ca.gov/docs/NRDC\\_LOS2-13.pdf](http://www.opr.ca.gov/docs/NRDC_LOS2-13.pdf). As NRDC notes, VMT would better reflect the environmental impact of transportation, in much the same way that GHG emissions would. *Id.* GHG emissions, however, offer a metric that can be standardized across multiple emissions sources, rather than just transportation. In addition, a VMT metric would not reflect the environmental benefit of driving more fuel efficient (or non-emitting) vehicles, while a GHG metric would. On the other hand, VMT may be a more politically palatable choice than GHG emissions.

78. Carl J. Circo, *Should Owners and Developers of Low-Performance Buildings Pay Impact or Mitigation Fees to Finance Green Building Incentive Programs and Other Sustainable Development Initiatives?*, 34 WM & MARY ENVTL. L. & POL'Y REV. 55, 73 (2009).

79. *Id.* at 77.

the foundation for nearly every GHG standard and program in the world.<sup>80</sup> The GHG Protocol introduced the concept of different “scopes” of emissions.<sup>81</sup> Scope 1 refers to direct emissions from a facility (e.g., from a building’s boiler or furnace, or from a vehicle used on-site).<sup>82</sup> Scope 2 refers to emissions from purchased electricity, heat, or steam produced off-site (for example, emissions from the generation of electricity purchased by the building).<sup>83</sup> Scope 3 refers to other “indirect” emissions, and would include the travel-demand-related emissions discussed above.<sup>84</sup>

The transportation section above discussed methods for estimating these Scope 3 emissions,<sup>85</sup> but Scopes 1 and 2 are actually far easier to calculate. Scope 1 involves simply applying emissions factors to any fuels combusted on-site,<sup>86</sup> information that is available in any building’s records and could be estimated for a new development based on comparable structures. Scope 2 involves applying local or supplier-specific emissions factors to metered electricity consumption.<sup>87</sup> These calculations are more straightforward than the travel demand forecasting done routinely by local jurisdictions trying to estimate road infrastructure needs. To help jurisdictions and others establish a method for making and compiling these project-level calculations, the GHG Protocol produced a report focused on estimating reductions from projects (as opposed to emissions at a corporate or institutional level).<sup>88</sup>

### 3. *Proposed Frameworks for Calculating an Emissions Fee*

The authors are not aware of any jurisdictions that have imposed a fee on a development project to mitigate its GHG emissions. However, the consideration of a few alternative approaches suggests one potential methodology.

It might be tempting for a jurisdiction to attempt to quantify the societal cost of GHG emissions, and then charge the developer this amount. The appeal of this approach is that it could truly internalize the full cost of the emissions released by a given development, often stated as the goal of

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80. *About the GHG Protocol*, GREENHOUSE GAS PROTOCOL, <http://www.ghgprotocol.org/about-ghgp> (last visited Dec. 16, 2015).

81. GREENHOUSE GAS PROTOCOL, A CORPORATE ACCOUNTING AND REPORTING STANDARD 25 (rev. ed. 2004), <http://www.ghgprotocol.org/files/ghgp/public/ghg-protocol-revised.pdf>.

82. *Id.*

83. *Id.*

84. *Id.*

85. *See supra* Part III.C.1.

86. GREENHOUSE GAS PROTOCOL, *supra* note 81, at 42.

87. *Id.*

88. GREENHOUSE GAS PROTOCOL, THE GHG PROTOCOL FOR PROJECT ACCOUNTING (2005), [http://www.ghgprotocol.org/files/ghgp/ghg\\_project\\_protocol.pdf](http://www.ghgprotocol.org/files/ghgp/ghg_project_protocol.pdf).

development fees.<sup>89</sup> Such estimates are used for other purposes, too. For example, the U.S. Environmental Protection Agency and other federal agencies use a “social cost of carbon” to estimate the climate benefits of rulemakings.<sup>90</sup> This amount is used to estimate the economic damages associated with a small increase in carbon dioxide emissions, as well as the benefit of a small decrease in emissions.<sup>91</sup> It is intended to be a comprehensive figure, including among other impacts “changes in net agricultural productivity, human health, [and] property damages from increased flood risk.”<sup>92</sup> Although the figure “very likely” underestimates the true damages caused by emissions,<sup>93</sup> it would be hard to argue that the local jurisdiction bears all of these costs and therefore that there is a clear nexus between this level of fee and the local government interest harmed by the development. For example, there may not be any agriculture in the community. There is also considerable debate about what the appropriate level of the social cost of carbon should be, and the issue is very politically charged.<sup>94</sup> For these reasons, while the social cost of carbon may be the right measure for nationwide emissions mitigation strategies, it may not be the best fit for calculating local development fees.

An alternative approach would involve quantifying the emissions resulting from a given project and then identifying the local cost to achieve the same level of reduction. Focusing on matching the level of emissions mitigation to the level of emissions increase avoids the challenging economic modeling exercise and maintains a clear nexus. There may still be some uncertainty in the calculation: project costs may vary within the jurisdiction, or based on the size or type of project, and calculations will have to assume a baseline level of emissions that would have occurred in the absence of the project. However, these baseline calculations are frequently made for local Climate Action Plans, and the fee must only be

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89. See *Koontz v. St. Johns River Water Mgmt. Dist.*, 133 S. Ct. 2586, 2595 (2013) (“Insisting that landowners internalize the negative externalities of their conduct is a hallmark of responsible land-use policy . . .”).

90. *The Social Cost of Carbon*, U.S. ENVTL. PROT. AGENCY (Dec. 11, 2015), <http://www.epa.gov/climatechange/EPAactivities/economics/scc.html>.

91. *Id.*

92. *Id.*

93. IPCC, CLIMATE CHANGE 2007: SYNTHESIS REPORT 69 (2008), [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr\\_full\\_report.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_full_report.pdf).

94. In 2013, the White House revised the value it uses for the social cost of carbon and was met with political pushback from all sides. Environmental groups argued the value was too low, and industry groups argued that the process was too opaque and the result too uncertain. See, e.g., PETER HOWARD, OMITTED DAMAGES: WHAT’S MISSING FROM THE SOCIAL COST OF CARBON (2014),

[http://costofcarbon.org/files/Omitted\\_Damages\\_Whats\\_Missing\\_From\\_the\\_Social\\_Cost\\_of\\_Carbon.pdf](http://costofcarbon.org/files/Omitted_Damages_Whats_Missing_From_the_Social_Cost_of_Carbon.pdf); Andrew Childers, *Putting a Social Price on Carbon. Is \$37 a Ton Adequate?*, BLOOMBERG BNA ENERGY & ENV’T BLOG (Feb. 28, 2014), <http://www.bna.com/putting-social-price-b17179882522/>.

roughly proportional (not a “precise mathematical calculation”).<sup>95</sup> Therefore, the fee does not have to match the cost of mitigation precisely, and this approach allows the jurisdiction to estimate a reasonable local cost and determine fees accordingly. (To meet the requirement under *Dolan* that there be an “individualized determination,”<sup>96</sup> jurisdictions should also ensure that even within the context of a broadly applied fee program, a process is available for review of individual cases.<sup>97</sup>)

### *B. Climate Exactions for Climate Adaptation*

In the adaptation context, a climate exaction could take multiple forms. Most simply, it could require that existing environmental impact fees take into account the effect that climate change will have on the relevant impact (for example, quantifying a project’s impact based on projections of *future* sea-level rise at the property site rather than using historical projections). A more challenging but valuable version of this strategy would also quantify and mitigate any loss in adaptive capacity caused by the development, such as, for example, a project that made it harder for a wetland to migrate with rising sea levels.

#### *1. Demonstrating Essential Nexus for an Adaptation Fee*

A mitigation fee approach is already used to require developers causing a loss of wetlands to mitigate the loss on- or off-site, and fees in lieu of mitigation may be imposed.<sup>98</sup> This was, in fact, the type of monetary exaction at issue in *Koontz*—Mr. Koontz was given the option to improve wetlands off-site in exchange for permission to fill the wetlands property he proposed to develop.<sup>99</sup> Adaptation to climate change is generally not currently the stated purpose for existing wetlands mitigation—the requirement comes from the Clean Water Act’s concern for the “integrity of the Nation’s waters”<sup>100</sup> and from state wetlands laws—but one can imagine an additional rationale for the same program based on mitigating the loss of the community’s capacity to adapt to increased storm water. While the Court found in Mr. Koontz’s favor, it was not because a local government may not impose a wetlands mitigation fee; rather, the

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95. *Dolan v. City of Tigard*, 512 U.S. 374, 391 (1994).

96. *Id.*

97. SARAH L. COFFIN, SERENA M. WILLIAMS & PAUL F. MUETHING III, CTR. FOR ENVTL. POL’Y & MGMT. ENVTL. FIN. CTR., *MANAGING GROWTH WITH FAIRNESS: THE REGULATORY TAKINGS TEST OF SMART GROWTH POLICIES*, PRACTICE GUIDE #2, at 12 (2002), <https://louisville.edu/cepm/pg-2>.

98. U.S. ENVTL. PROT. AGENCY, EPA-843-F-08-002, *WETLANDS COMPENSATORY MITIGATION*, [http://www.epa.gov/sites/production/files/2015-08/documents/compensatory\\_mitigation\\_factsheet.pdf](http://www.epa.gov/sites/production/files/2015-08/documents/compensatory_mitigation_factsheet.pdf).

99. *Koontz v. St. Johns River Water Mgmt. Dist.*, 133 S. Ct. 2586, 2593 (2013).

100. U.S. ENVTL. PROT. AGENCY, *supra* note 98.

Court wanted the jurisdiction to go through the exercise of applying constitutional takings tests to the condition it imposed.<sup>101</sup> The strategy is valid as long as this demonstration is made, and it is not hard to imagine jurisdictions applying a similar fee for other measures designed to maintain a community's adaptive capacity by offsetting loss of capacity caused by a project with increased capacity close by. Development that decreases a community's resilience to climate change, for example, by removing shoreline protections from flooding or decreasing tree canopy that provides cooling, could be mitigated with activities elsewhere in the community that increase resilience to these impacts. The nexus between the impact and the fee spent to offset the impact seems clear.

## 2. *Demonstrating Rough Proportionality for an Adaptation Fee*

Quantifying a project's impact to demonstrate that a fee is roughly proportional may be more challenging—adaptive measures raise additional complications regarding timing and uncertainty of future projections. In California, the Coastal Commission already charges mitigation fees to offset the impacts of private seawalls on beaches. For example, owners of the Ocean Harbor House Condominium in Monterey, California requested a permit to build a 585-foot seawall to protect the complex.<sup>102</sup> As a condition of the permit, the Coastal Commission imposed a \$2.15 million beach impact fee and dedication of public beach access through a parking lot in the complex.<sup>103</sup> In this case, the Coastal Commission determined the amount of the beach fee by calculating the *historical* rate of erosion at the site, and the estimated recreational value of the beach that would be lost because of impacts to the beach caused by the seawall.<sup>104</sup> The court upheld this fee, holding that it passed both the *Nollan* essential nexus test and the *Dolan* rough proportionality test.<sup>105</sup>

In an adaptation context, however, regulators may need to reconsider how they calculate the beach fee in the following ways:

(1) Erosion rates are likely to increase as sea levels rise, so regulators may need to project *future* erosion rates over the life of the project to adequately mitigate the impacts.

(2) In addition to recreational benefits, beaches and natural shorelines provide important flood risk reduction benefits that will become

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101. *Koontz*, 133 S. Ct. at 2597–98.

102. *Ocean Harbor House Homeowners Ass'n v. Cal. Coastal Comm'n*, 77 Cal. Rptr. 3d 432, 43 (Cal. Ct. App. 2008).

103. *Id.* at 439.

104. *Id.* at 437.

105. *Id.* at 450.

increasingly important to communities as the climate changes.<sup>106</sup> These natural resources will be increasingly degraded over time as sea levels rise. Where we put development in the way, these resources will be unable to migrate inland and keep pace with rising seas and those will be gradually eroded and lost.

Regulators should account for ways that climate change will affect the currently calculated impacts (e.g., recreation) of a development in the future, as well as how the project may exacerbate future risks of climate change impacts to neighboring properties. As this example shows, rough proportionality for adaptation, (which is inherently forward-looking), may require more of a risk-mitigation analysis, which may be harder to calculate and monetize than GHG emissions are. There is work to be done to improve current tools and methodologies—for example, regulators will need a scientifically sound analysis of how sea-level rise may affect erosion rates over time—but the science in these areas is constantly progressing, and unfortunately, we learn more about the value of avoiding risk each time we see more damage from storms and sea-level rise. In any event, the amount of an adaptation fee probably should be discounted to reflect that it addresses climate harms that will occur at an uncertain time in the future. Finally, as in the emissions discussion above, the requirement is only that the jurisdiction demonstrate *rough* proportionality, not a precise mathematical calculation.

#### IV. ADDRESSING CRITIQUES

We can anticipate some concerns about our proposal for climate exactions. An immediate objection may be that such exactions would unduly raise the costs of housing. The economics of exactions are complex, but they do not always raise the cost of housing. When the measure of an exaction is known to a developer before initiating a project, both logic and empirical evidence suggest that, in general, the landowners will bear the costs of the exaction because developers will pay the landowners less for their land.<sup>107</sup> Lower prices for land may decrease the amount of land available for development. But given that development of such a parcel will impose costs on all from GHG emissions or weakened resilience, it seems both efficient and fair for the exaction to discourage development of the site.

In some circumstances, the costs of an exaction likely will be passed on to purchasers in the form of higher real estate prices.<sup>108</sup> How one may

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106. Florida recently enacted legislation authorizing local governments to consider sea-level rise in their coastal management planning. FLA. ST. ANN. § 163.3178 (West 2015).

107. See Vicki Been, *Impact Fees and Housing Affordability*, 8 CITYSCAPE: A J. OF POL'Y DEV. & RES. 139, 153 (2005).

108. See Rosenberg, *supra* note 35, at 211.

evaluate this should vary, depending on whether or not the expenditures made with the exacted funds benefit the specific site upon which the exaction is imposed. If the expenditure does benefit the site, the higher price paid will be appropriate because the development will be more valuable due to the added public infrastructure. Thus, for example, if the municipality funds a new zero-emission bus line to serve the burdened site, the value of a home on that site will increase along with its price. However, if the municipality funds the bus line elsewhere within the jurisdiction, perhaps because it can serve more people there, then the cost of the burdened parcel will rise without any increase in value, discouraging development at that site. But this seems justified (assuming that the expenditure choice was made for good reasons, such as too little density near the burdened site), because climate policy justifies discouraging development at a site that will create large new emissions. Providing the bus line in the denser part of the jurisdiction will make land and existing housing there more valuable and may encourage new development where climate impacts will be less.

Some may express concern that local governments are not the proper level of government to impose regulations directed at reducing GHG emissions from motor vehicles. Of course, the federal government has exclusive authority to regulate emissions from motor vehicles, with the notable statutory exception for California, and co-regulates emissions from power plants along with the states.<sup>109</sup> But local land use regulations do not regulate tailpipe or building emissions or gas mileage. Rather, they are the chief tool available to reduce vehicle miles traveled, which has an obvious and independent effect on emissions. Moreover, local governments possess the initiative for providing transportation alternatives to automobiles, through providing bicycle and pedestrian options and developing public transit (even if federal funding is often necessary), and they implement the building codes that drive the energy consumption of new buildings. In addition, preparing for the impacts of climate change is an inherently local concern, as sea-level rise, increased storms, or urban heat will affect each jurisdiction according to its own location and presence of features to mitigate these effects. There seems to be no reasonable argument that climate exactions or other land use regulations aimed at reducing emissions or responding to the impacts of climate change are preempted by federal law.<sup>110</sup> On the contrary, the Supreme Court has often stated that land use

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109. 42 U.S.C. §§ 7411, 7543 (2012).

110. In *American Electric Power Co. v. Connecticut*, the United States Supreme Court held “that the Clean Air Act and the EPA actions it authorizes displace any federal common law right to seek abatement of carbon-dioxide emissions from fossil-fuel fired power plants.” 131 S. Ct. 2527, 2537 (2011). Although the Court did not address whether the Clean Air Act also preempts state claims based on GHG emissions, *id.* at 2540, other courts have held that it does not. *E.g.*, *Bell v. Cheswick Generating Station*, 734 F.3d 188, 190 (3d Cir. 2013). But even if the Clean Air

regulation is primarily entrusted to state and local governments and has even read federal authority narrowly to preserve local authority.<sup>111</sup>

Similarly, the reality that climate change is a planetary problem, meaning that local emissions contribute to harm globally, should not preclude local efforts to reduce local emissions. Local emissions contribute to aggregate global emissions, which impose both global and local harms. Local governments have jurisdiction over local land development; no global entity can address emissions from such local development. Climate exactions do not attempt to regulate any economic activity outside of the regulating jurisdiction; for example, they neither discriminate against nor burden interstate commerce.<sup>112</sup>

Emissions reductions achieved by one local government can become pointless if other localities continue to grow emissions at historic levels. Nonetheless, localities are the chief governments that can reduce emissions from land use patterns. Fragmentation of land use authority is a familiar problem creating many inefficiencies; climate exactions would not pose a unique challenge. Local government initiatives such as climate exactions may even lead to broader collaboration on difficult climate problems, because local governments motivated to address climate issues will not place themselves at a short-term comparative economic disadvantage if acting in concert with other localities. In addition, coordination of climate land use regulations within metropolitan regions, among states, and even internationally could create a more efficient regulatory structure with greater benefits. For example, concern about climate change has led to novel efforts among states and localities to coordinate land use and other policies to adapt to climate change and effect greater reductions of

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Act does preempt state and federal tort claims against power plants, the scope of the Act's preemption would not reach local land use regulations, because the Clean Air Act only preempts state action to the extent that the EPA is regulating at the national level. Current EPA GHG regulations under the CAA address vehicle tailpipe emission rates and power plant emission rates, not land-use patterns that lead to greater use of fuels. In contrast, other state actions have been expressly preempted by the Clean Air Act. For example, states are prevented from adopting or attempting to enforce standards relating to the control of emissions from new motor vehicles or new motor vehicle engines, 42 U.S.C. § 7543(a), although even in this case, the Act also explicitly allows the state of California to seek a waiver to this provision, 42 U.S.C. § 7543(b), and allows other states to adopt California's standards. 42 U.S.C. § 7507.

111. *See, e.g.*, *Solid Waste Agency of N. Cook Cty. v. U.S. Army Corps of Eng'rs*, 531 U.S. 159, 174 (2001) (finding that construction of Clean Water Act to permit federal jurisdiction over abandoned sand and gravel pit "would result in a significant impingement of the States' traditional and primary power over land and water use"); *Hess v. Port Auth. Trans-Hudson Corp.*, 513 U.S. 30, 44 (1994).

112. *Cf. Rocky Mountain Farmers Union v. Corey*, 730 F.3d 1070, 1107 (9th Cir. 2013), *cert. denied*, 134 S. Ct. 2875 (2014) (finding that California low carbon fuel standard does not discriminate against interstate commerce).

GHGs.<sup>113</sup> Successful climate policy measures often bubble up from lower levels of government rather than emerge from top down directives.<sup>114</sup>

An environmentalist may complain that climate exactions are an inadequate response to climate problems because they permit new developments even when they exacerbate emissions and weaken resiliency so long as the developer can pay the fee. But climate exactions achieve what economists have long advocated—putting a price on carbon.<sup>115</sup> Thus, climate exactions should discourage developments where the welfare benefits from development fail to exceed the social costs of climate harms, so long as the costs of the new developments are accurately calculated—a serious issue, which we address below. This balancing of costs and benefits is likely to be more politically sustainable than an outright prohibition of categories of development, because it acknowledges that other values sometimes will outweigh climate concerns. Importantly, when development does occur, payment of the exaction will provide the government with funds that can be used to mitigate climate harms. For example, a local government can spend the proceeds of a climate exaction on public transit, which can permanently reduce the community’s overall carbon emissions, or on coastal lands, permitting wetlands or beaches to migrate inland with sea-level rise.

#### V. CALIFORNIA: A COMPELLING CANDIDATE FOR CLIMATE EXACTIONS

In addition to the constitutional permissibility of climate exactions, a key question is whether a jurisdiction has the legal and technical capacity to undertake this approach. Some recent developments may enhance such capacity. Environmental protection statutes at the state and federal level look likely to provide tools for a jurisdiction to impose a GHG mitigation fee.<sup>116</sup> For example, the National Environmental Policy Act (“NEPA”) requires all federal agencies to assess the environmental impacts of major

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113. See, e.g., SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT, <http://www.southeastfloridaclimatecompact.org/>; TRANSPORTATION AND CLIMATE INITIATIVE OF THE NORTHEAST AND MID-ATLANTIC STATES, <http://www.transportationandclimate.org> (last visited Jan. 31, 2016).

114. For example, efforts to enact comprehensive climate legislation in the U.S. Congress did not succeed, and current federal vehicle GHG standards build on standards established by California and followed by other states under § 177 of the Clean Air Act; likewise, the Clean Power Plan recently finalized by the EPA builds on existing state-level limits on emissions from power plants.

115. In 1997, 2500 economists, including Kenneth Arrow, William Nordhaus, and Joseph Stiglitz, endorsed a statement calling for a mechanism to put a price on carbon to address climate change. *The Economists’ Statement on Climate Change, Redefining Progress*, <http://rprogress.org/publications/1997/econstatement.htm> (last visited Jan. 31, 2016).

116. See, e.g., Michael B. Gerrard, *Climate Change and the Environmental Impact Review Process*, 22 NAT. RES. & ENV’T, Winter 2008, at 20, 24 (discussing the extent to which state and federal environmental reviews consider climate change in their analyses).

federal actions significantly affecting the environment,<sup>117</sup> and this includes local transportation projects that receive federal funding or permits.<sup>118</sup> In 2010, the White House Council on Environmental Quality released draft guidance for incorporating GHG emissions and climate change impacts into the NEPA analysis and evaluating options for mitigating the impacts,<sup>119</sup> updated in 2014 to incorporate federal land and resource management activities.<sup>120</sup> Their finalization would begin to standardize assessment of the emissions and climate impacts of federal (or federally funded) projects, and may give localities translatable tools for quantifying and mitigating emissions. In addition, some state environmental policy acts also incorporate climate change explicitly,<sup>121</sup> and perhaps these states are well suited to taking the first steps toward local development policies to reduce emissions.

The State of California might be an excellent place to explore climate exactions, for a number of reasons. First, California is one of the states with its own state-level environmental protection statute (the California Environmental Quality Act, or “CEQA”).<sup>122</sup> CEQA does not independently authorize a jurisdiction to impose exactions on developers, but it does provide that:

[a] lead agency for a project has authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment, consistent with applicable constitutional requirements such as the ‘nexus’ and ‘rough proportionality’ standards established by case law.<sup>123</sup>

Most importantly, in 2007, California passed legislation requiring the governor’s office to develop guidelines for the incorporation of GHGs into CEQA analyses.<sup>124</sup> Regulations followed in 2009, and include a number of

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117. National Env'tl. Policy Act of 1969, 42 U.S.C. §§ 4321–4370 (2012).

118. 40 C.F.R. § 1508.18 (2015).

119. Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, 75 Fed. Reg. 8046 (Feb. 18, 2010).

120. COUNCIL ON ENVTL. QUALITY, GUIDANCE: FEDERAL DEPARTMENTS AND AGENCIES ON CONSIDERATION OF GREENHOUSE GAS EMISSIONS AND THE EFFECTS OF CLIMATE CHANGE IN NEPA REVIEWS (Dec. 24, 2014), <http://www.regulations.gov/#!documentDetail;D=CEQ-2014-0004-0001>.

121. *EIA Guidelines for Assessing the Impact of a Project on Climate Change*, SABIN CENTER FOR CLIMATE CHANGE LAW, [http://web.law.columbia.edu/climate-change/resources/nepa-and-state-nepa-eis-resource-center/environmental-assessment-protocols-consideration-climate-change#State Guidelines](http://web.law.columbia.edu/climate-change/resources/nepa-and-state-nepa-eis-resource-center/environmental-assessment-protocols-consideration-climate-change#State%20Guidelines) (last visited Jan. 31, 2016).

122. See CAL. PUB. RES. CODE §§ 21000–165 (West 2007).

123. CAL. CODE REGS. tit. 14, § 15041(a) (2015).

124. S.B. 97, 2007 Leg., 2007–08 Sess. (Cal. 2007), [http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb\\_0051-0100/sb\\_97\\_bill\\_20070824\\_chaptered.pdf](http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb_0051-0100/sb_97_bill_20070824_chaptered.pdf).

relevant provisions.<sup>125</sup> California agencies must analyze the GHG emissions of proposed projects and reach a conclusion regarding the significance of those emissions.<sup>126</sup> The analysis must include the project's potential energy use, including transportation-related energy, and ways to reduce energy demand, including through the use of efficient transportation alternatives;<sup>127</sup> agencies also must consider potential mitigation measures to reduce those emissions.<sup>128</sup> Agencies may streamline the analysis by using a programmatic GHG emissions reduction plan.<sup>129</sup> A GHG mitigation fee would be well aligned with this direction to consider mitigation measures, particularly if the fee were included in a local climate action plan, allowing for streamlining of the CEQA analysis. Likewise, California's Coastal Commission has led the way in attempts to mitigate the environmental impact of development on the coast, using strategies like monetary exactions, as with the beach impact fee example discussed above.<sup>130</sup> California has extensive experience with development impact fees, guided since 1987 by the state's Mitigation Fee Act, which identifies the legal requirements of fees.<sup>131</sup>

Second, California has a particularly acute local government funding challenge. Proposition 13,<sup>132</sup> enacted in 1978, drastically limited the property tax that local governments collect on properties, increasing jurisdictions' dependence on other sources of revenue, including development fees.<sup>133</sup> This leads the state to consider sources of revenue that others may not. In 2014, California's then-Senate majority leader proposed a carbon tax on transportation fuels,<sup>134</sup> although he later shifted the proposal to focus instead on revenue from the state's GHG cap-and-trade program.<sup>135</sup> The GHG mitigation fee would create a new funding source for emissions reduction or climate adaptation projects.

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125. *CEQA and Climate Change*, GOVERNOR'S OFFICE OF PLANNING & RES., [http://www.opr.ca.gov/s\\_ceqaandclimatechange.php](http://www.opr.ca.gov/s_ceqaandclimatechange.php) (last visited Dec. 23, 2015).

126. CAL. CODE REGS. tit. 14, § 15064.4 (2015).

127. CAL. CODE REGS. tit. 14, app. F.

128. CAL. CODE REGS. tit. 14, § 15126.4(c).

129. CAL. CODE REGS. tit. 14, § 15183.5(b).

130. *See supra* Part III.D.3.

131. *See* CAL. GOV'T CODE §§ 66000–08 (West 2009).

132. CAL. CONST. art. 13A.

133. *See, e.g.*, JEFFREY I. CHAPMAN, PUB. POL'Y INST. OF CAL., PROPOSITION 13: SOME UNINTENDED CONSEQUENCES 11 (1998) (discussing the “fiscalization of land use”), [http://www.ppic.org/content/pubs/op/OP\\_998JCOP.pdf](http://www.ppic.org/content/pubs/op/OP_998JCOP.pdf).

134. Marc Lifsher, *State Senate Leader Proposes ‘Carbon Tax’ on Motor Vehicle Fuels*, L.A. TIMES (Feb. 20, 2014), <http://articles.latimes.com/2014/feb/20/business/la-fi-carbon-tax-proposal-20140221>.

135. *Steinberg Backs Off ‘Carbon Tax’*, ABC 10 (Apr. 14, 2014), <http://www.news10.net/story/news/politics/2014/04/14/steinberg-backs-off-carbon-tax/7712703/>.

Finally, California has already been a leader on the development of innovative laws and policies to address climate change.<sup>136</sup> It is the first state in the country to enact a cap on GHGs across all sectors of the economy.<sup>137</sup> It has also enacted a novel law known as S.B. 375, requiring the state to set regional targets for GHG reductions from passenger vehicles, and requiring metropolitan planning organizations to prepare a Sustainable Communities Strategy (“SCS”) as part of their Regional Transportation Plans.<sup>138</sup> The SCS must be adequate to meet the GHG reduction targets, if implemented, but there is no requirement to implement the plans.<sup>139</sup> There are, however, incentives to encourage implementation, for example, providing developers relief from CEQA requirements if the project is consistent with the SCS.<sup>140</sup> S.B. 375 could also provide a framework for establishing GHG mitigation fees—a jurisdiction interested in the approach could incorporate the strategy into its SCS. The fee could, in turn, provide the mechanism to implement the plan and achieve the goals of S.B. 375, rather than stopping at the planning stage for lack of funding. At the same time, the approach would offer developers a streamlined approval process, thanks to the incentives provided in the legislation.

Another recently proposed state bill, S.B. 1, would have supported S.B. 375 by authorizing the creation of Sustainable Communities Investment Authorities and use of a strategy known as “tax increment financing” in defined Sustainable Communities Investment Areas.<sup>141</sup> The bill passed both houses of the state legislature, but met with considerable political opposition that characterized the bill as an attempt by the state to take land use decisions away from local governments, or by local governments to vest too much power in the hands of unelected Authority members.<sup>142</sup> Governor Brown did not sign the bill, and he vetoed a similar

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136. The political elements contributing to California’s strong support for policies addressing climate change are analyzed insightfully in Eric Biber, *Cultivating a Green Political Climate: Lessons for Climate Change Policy from the Defeat of California’s Proposition 23*, 66 VAND. L. REV. 399 (2013).

137. California Global Warming Solutions Act of 2006, A.B. 32, 2006 Leg., 2005-06 Sess. (Cal. 2006), [http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab\\_0001-0050/ab\\_32\\_bill\\_20060927\\_chaptered.pdf](http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf). For information on the Act’s primacy, see Lampert, *supra* note 32, at 193.

138. Sustainable Communities and Climate Protection Act of 2008, S.B. 375, 2008 Leg., 2007-08 Sess. (Cal. 2008), [http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb\\_0351-0400/sb\\_375\\_bill\\_20080930\\_chaptered.pdf](http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb_0351-0400/sb_375_bill_20080930_chaptered.pdf).

139. *Sustainable Communities*, CAL. ENVTL. PROT. AGENCY AIR RES. BD., <http://www.arb.ca.gov/cc/sb375/sb375.htm> (last visited Dec. 18, 2015).

140. *Id.*

141. Sustainable Communities Investment Authority Act, S.B. 1, 2013 Leg., 2013–14 Sess. (Cal. 2013), [http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\\_id=201320140SB1](http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201320140SB1).

142. See, e.g., Stephen Frank, *Senate Bill 1: Good Bye California Republic, Hello California ‘Soviet Socialist’ Republic or the ‘CSSR’ for Short*, AGENDA 21 RADIO (Aug. 12, 2013), <http://agenda21radio.com/?p=697>; Lawrence J. McQuillan, *Good News! SB 1 Dies (For Now)*,

version of the bill in 2012.<sup>143</sup> Emissions mitigation fees would likely find their own political opposition just as S.B. 1 did, but they would remain in the hands of local officials and planners, which might make them more politically palatable than more state-driven approaches.

## VI. CONCLUSIONS

The imposition of fees on developers to mitigate GHG emissions offers several benefits to local governments concerned with meeting the *Nollan* and *Dolan* tests. First, contrary to concerns that applying these tests to monetary exactions would be an excessive burden, it may actually be easier to apply these tests to monetary fees (which have an explicit value) than to physical dedications of property, whose value may be harder to calculate and demonstrate as roughly proportional. Second, GHGs provide a convenient, consistent metric for which there are standard methodologies to calculate. Based on this analysis, there is no constitutional barrier to local governments imposing a fee on developments in order to mitigate GHG emissions.<sup>144</sup> There may still be state-level restrictions or guidelines, as in California's Mitigation Fee Act, and a fee enabling act may be required. However, that does not mean that other barriers do not exist—for example, political opposition to fees or support for increased local development may weigh against the policy.

### A. Challenges

In difficult economic times, jurisdictions are often wary of not being sufficiently welcoming of new development. Rather than imposing new fees, some jurisdictions are waiving or deferring existing impact fees as an economic development strategy.<sup>145</sup> Political inertia is a factor as well, and

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INDEP. INST., THE BEACON (Sept. 25, 2013, 5:26 PM), <http://blog.independent.org/2013/09/25/good-news-sb-1-dies-for-now/>.

143. Damien Newton, *Gov. Brown Could Sign Bill to Help Finance Sustainable Development in CA*, STREETS BLOG (Aug. 9, 2013), <http://la.streetsblog.org/2013/08/09/gov-brown-could-sign-bill-to-help-finance-sustainable-development-inca/>.

144. Another legal objection to climate exactions may be based on the judicial doctrine followed in some states that an expenditure of a monetary exaction must directly benefit the land charged for the impact fee. *See, e.g., Volusia Cty. v. Aberdeen at Ormond Beach, L.P.*, 760 So. 2d 126 (Fla. 2000). While these states apply the rule to impact fees for construction of public capital projects, they do not seem to apply the rule to monetary exactions designed to mitigate environmental harms. Even if they did, climate exactions to mitigate emissions do directly benefit residents of the burdened development as much as other residents of the jurisdiction. For exactions to address loss of adaptive resilience, however, the analysis might be more complicated, requiring the adaptation measures to benefit the burdened residents, so that, for example, investments in berms or other living shorelines features to increase the community's adaptive capacity would need to protect and serve the development, although not exclusively.

145. *See, e.g., Development Impact Fee Deferral Program*, CITY OF ELK GROVE, [http://www.elkgrovecity.org/city\\_hall/departments\\_divisions/economic\\_development/incentive\\_programs/development\\_impact\\_fee\\_deferral\\_program](http://www.elkgrovecity.org/city_hall/departments_divisions/economic_development/incentive_programs/development_impact_fee_deferral_program) (last visited Dec. 18, 2015).

the GHG mitigation fee idea is a relatively new one. Others have proposed greater use of impact fees to deal with environmental problems,<sup>146</sup> but the strategy is not in wide use, as it is for traffic mitigation. In addition, climate change itself is controversial. Although GHGs may provide a more transparent method for connecting new development to the need for alternative transportation infrastructure, it may be more expedient politically to stick with traffic impacts as the basis for the fee, if only to avoid a political battle over climate change.

### *B. Opportunities*

On the other hand, jurisdictions interested in adopting strategies to address GHG emissions should consider a mitigation fee placed on new development. It provides a source of funding for implementation of climate goals, and ties the cost for any given development only to the impact of that specific development. The funding aspect of this strategy is worth additional emphasis—to the extent that state and federal gasoline taxes fund transportation projects, those sources of funds are already inadequate to meet spending obligations,<sup>147</sup> and will decline even further if climate change policies reduce GHG emissions by decreasing fuel consumption.<sup>148</sup> Transportation departments are searching for alternative sources of revenue, but many of these (e.g., a fee on vehicle miles traveled) are also politically challenging.<sup>149</sup> A GHG mitigation fee would put the power to manage GHGs—and to pay for them—in the hands of local governments.

There is no question that society must find a way to reduce GHG emissions in order to lessen the impact of climate change, and that engagement by all levels of government will be necessary. While federal and state governments may be best suited to address emissions from power plants or regulate vehicle fuel economy, land use strategies will have to be implemented at the local level, as they always are. There is good reason to get started on these strategies quickly: the latest report on mitigation measures from the

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146. See, e.g., James C. Nicholas & Julian Conrad Juergensmeyer, *Market Based Approaches to Environmental Preservation: To Environmental Mitigation Fees and Beyond*, 43 NAT. RES. J. 837, 846 (2003).

147. CONG. BUDGET OFF., THE HIGHWAY TRUST FUND AND THE TREATMENT OF SURFACE TRANSPORTATION PROGRAMS IN THE FEDERAL BUDGET 5 (2014), <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/45416-TransportationScoring.pdf>.

148. See, e.g., Pacyniak et al., *Reducing Greenhouse Gas Emissions from Transportation: Opportunities in the Northeast and Mid-Atlantic*, GEORGETOWN CLIMATE CENTER 15 (2015), [http://www.georgetownclimate.org/sites/www.georgetownclimate.org/files/GCC-Reducing\\_GHG\\_Emissions\\_from\\_Transportation-11.24.15.pdf](http://www.georgetownclimate.org/sites/www.georgetownclimate.org/files/GCC-Reducing_GHG_Emissions_from_Transportation-11.24.15.pdf).

149. *Road Pricing Defined: Vehicle-Miles Traveled (VMT) Fees*, U.S. DEP'T OF TRANSP. FED. HIGHWAY ADMIN., [https://web.archive.org/web/20150908002219/https://www.fhwa.dot.gov/ipd/revenue/road\\_pricing/defined/vmt.aspx](https://web.archive.org/web/20150908002219/https://www.fhwa.dot.gov/ipd/revenue/road_pricing/defined/vmt.aspx) (last visited Dec. 18, 2015).

Intergovernmental Panel on Climate Change notes that “[i]nfrastructure developments and long-lived products that lock societies into GHG-intensive emissions pathways may be difficult or very costly to change, reinforcing the importance of early action for ambitious mitigation.”<sup>150</sup> Fortunately, some local jurisdictions are taking it upon themselves to establish GHG emissions reduction goals and plans to achieve them.<sup>151</sup> One option for achieving these goals might be the adoption of a GHG mitigation fee on new developments, and the approach is both legally and technically viable.

Given the *Koontz* decision, the safest approach for a jurisdiction is to design a fee program that applies to developers broadly rather than ad hoc, as well as to meet the *Nollan* and *Dolan* tests. This approach should be workable in the case of GHG emissions mitigation given the availability of standardized quantification tools and methodologies. Framing the fee in the context of a comprehensive climate plan or goal can help ground the strategy in terms of the government’s interest, and in the case of California, can both support compliance with and streamline review under statewide environmental statutes.

Jurisdictions that may have struggled to justify transportation impact fees based on other metrics may find that applying a GHG emissions lens to the analysis reveals both an essential nexus and a rough proportionality that might otherwise be difficult to demonstrate. However, political challenges with a fee explicitly based on GHGs may argue against such an approach, and as other travel metrics become more widely used, it may be easier to avoid the explicit climate change discussion. Nevertheless, some jurisdictions welcome that discussion—some, particularly those in California, are even required to have it. For these communities interested in being first, a GHG mitigation fee may offer a viable strategy to address emissions reductions in local land use decisionmaking.

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150. IPCC, SUMMARY FOR POLICYMAKERS 18 (2014), [http://report.mitigation2014.org/spm/ipcc\\_wg3\\_ar5\\_summary-for-policymakers\\_approved.pdf](http://report.mitigation2014.org/spm/ipcc_wg3_ar5_summary-for-policymakers_approved.pdf).

151. See, e.g., C40 CITIES, <http://www.c40.org/cities> (last visited Jan. 31, 2016).