

## NOTE

# TAKINGS AND HOMEOWNERS' EXPECTATIONS IN TIMES OF RAPID CLIMATE CHANGE

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## INTRODUCTION

When Hurricane Idalia hit the U.S. in August 2023, citizens felt the impact. Towns like Horseshoe Beach in Florida were “wiped off the map.”<sup>1</sup> Some people lost their houses,

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<sup>1</sup> Hugh Green, *Horseshoe Beach Is Still Recovering Two Months After Hurricane Idalia*, WLRN (Nov. 13, 2023), <https://www.wlrn.org/environment/2023-11-13/horseshoe-beach-recovery-hurricane-idalia> [<https://perma.cc/3V57-UJYW>].

possessions, and pets.<sup>2</sup> Others were without power for extended periods.<sup>3</sup> The hurricane disproportionately hit counties that lack the resources to prepare for or respond to such storms.<sup>4</sup> And yet local government response is crucial when disasters happen. For example, medical facilities need power to save lives, and local governments may ask gas stations to provide power to such facilities.<sup>5</sup> Governments are considering their options with disasters becoming more and more common.<sup>6</sup>

The year 2023 was record-breaking in many respects. The United States saw a record number of billion-dollar disasters, such as floods, heat waves, and tornadoes.<sup>7</sup> July was the hottest month ever recorded on Earth.<sup>8</sup> December saw heavy rainfall and floods across the world.<sup>9</sup> These extraordinary weather events resulted from climate change and were exacerbated by the return of El Niño.<sup>10</sup> That naturally occurring climate phenomenon increases temperatures in the North of the United States and intensifies rainfall in the South.<sup>11</sup>

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<sup>2</sup> See Michael Sainato, *'Everything Is Destroyed': Floridians Begin Long Recovery from Idalia*, THE GUARDIAN (Aug. 31, 2023), <https://www.theguardian.com/us-news/2023/aug/31/hurricane-idalia-damage-flooding-florida> [https://perma.cc/6QF9-PY26].

<sup>3</sup> See Emily Olson, *Hurricane Idalia's Aftermath: Florida Rushes to Restore Power and Clear Debris*, NPR (Aug. 31, 2023), <https://www.npr.org/2023/08/31/1196953443/hurricane-idalia-damage-florida> [https://perma.cc/V7RL-F6VE].

<sup>4</sup> See Jacob Ogles, *Fiscally Constrained Counties Discuss Needs in Wake of Hurricane Idalia*, FLORIDA POLITICS (Nov. 13, 2023), <https://floridapolitics.com/archives/644364-fiscally-constrained-counties-discuss-needs-in-wake-of-hurricane-idalia/> [https://perma.cc/GH4E-G5GH].

<sup>5</sup> See *id.*

<sup>6</sup> See Jonathan Erdman, *2023's Record Number of US Billion-Dollar Disasters Count Now 25, and There's Still Two Months Left*, THE WEATHER CHANNEL (Nov. 8, 2023), <https://weather.com/news/climate/news/2023-11-08-billion-dollar-disasters-record-2023-october> [https://perma.cc/G9EJ-GVKY].

<sup>7</sup> See *id.*

<sup>8</sup> Emily Cassidy, *July 2023 Was the Hottest Month on Record*, NASA EARTH OBSERVATORY, (Aug. 15, 2023), <https://earthobservatory.nasa.gov/images/151699/july-2023-was-the-hottest-month-on-record#:~:text=July%202023%20was%20hotter%20than,said%20GISS%20Director%20Gavin%20Schmidt.> [https://perma.cc/CK25-K8SW]. Global temperature records go back to 1980. *Id.*

<sup>9</sup> See Emiliya Mychasuk & Steven Bernard, *El Niño Heralds Turbulent Start to 2024*, FINANCIAL TIMES (Jan. 5, 2024), <https://www.ft.com/content/f480cebc-3414-44bb-b85f-4c1a53fee784> [https://perma.cc/8JUJ-FZWK].

<sup>10</sup> See Nikk Ogasa, *July 2023 Nailed an Unfortunate World Record: Hottest Month Ever Recorded*, SCIENCE NEWS (Aug. 2, 2023), <https://www.sciencenews.org/article/july-2023-just-unfortunate-world-record-hot> [https://perma.cc/G2X5-MZFY].

<sup>11</sup> Rebecca Hersher, *El Niño Has Officially Begun. Here's What That Means for the U.S.*, NPR (June 8, 2023), <https://www.npr.org/2023/06/08/1181086972/el-nino-has-officially-begun-heres-what-that-means-for-the-u-s> [https://perma.cc/R56F-JKTN].

Because of warmer-than-usual ocean water, weather forecasters predicted that 2023's El Niño would also bring more hurricanes than average.<sup>12</sup> Hurricanes have drastic impacts—Idalia caused about \$20 billion in damage for citizens of Florida, Georgia, and North Carolina, for example.<sup>13</sup> Total damage from hurricanes in Florida in 2022 amounted to 7.5% to 10% of the state's GDP.<sup>14</sup>

The insurance industry has noticed. Globally, the industry suffered \$50 billion in losses from natural disasters in the first six months of 2023.<sup>15</sup> To recoup those losses, insurers tend to raise their prices: 20% to 40% in the United States.<sup>16</sup> Homeowner insurers have also begun to limit coverage in states where regulations restrict their ability to raise prices, such as California.<sup>17</sup> And the insurers have withdrawn altogether from states with greater exposure to extreme weather events, such as Florida.<sup>18</sup> Homeowners are left with fewer choices, higher prices, and more uncertainty.<sup>19</sup>

Changes are also happening in other financial industries. Investors and asset managers have flocked to sustainable investments, though the growth of ESG funds, which consider economic, social, and governance factors, has slowed since

<sup>12</sup> *See id.*

<sup>13</sup> *See* Cecilia Garzella, Ramon Padilla, Yoonserk Pyun, Jennifer Borresen & Dinah Voyles Pulver, *Damage from Hurricane Idalia Stretches Across States: Maps Show the Storm's Aftermath*, USA TODAY, <https://www.usatoday.com/story/graphics/2023/08/30/hurricane-idalia-landfall-map/70707915007/> [<https://perma.cc/JXE9-8U24>] (last updated Aug. 31, 2023).

<sup>14</sup> *Climate Change Is Coming for America's Property Market*, THE ECONOMIST (Sept. 21, 2023), <https://www.economist.com/leaders/2023/09/21/climate-change-is-coming-for-americas-property-market> [<https://perma.cc/9FFM-9HCQ>].

<sup>15</sup> *See* Ian Smith, *Insurers Rack Up \$50bn in Losses from Natural Catastrophes This Year*, FIN. TIMES (Aug. 9, 2023), <https://www.ft.com/content/7ad831a7-801d-47e7-9158-4e832b798bb0> [<https://perma.cc/W835-ZC52>].

<sup>16</sup> *See* Ivan Taylor, *Will Property Insurance in South Florida Take a Hit After Idalia?*, CBS NEWS, <https://www.cbsnews.com/miami/news/will-property-insurance-in-south-florida-take-a-hit-after-idalia/> [<https://perma.cc/2AJC-4TVW>] (last updated Aug. 30, 2023); *Lloyd's of London: Charging a Premium for Climate Risks*, FIN. TIMES (Sept. 7, 2023), <https://www.ft.com/content/5608c58d-b465-4882-9422-abff4d4bac18> [<https://perma.cc/9L6T-WW2S>].

<sup>17</sup> *See California Proposed New Rules for Insurance Companies. Here's What to Know*, CBS NEWS (Sept. 28, 2023), <https://www.cbsnews.com/sacramento/news/california-home-insurance-things-to-know/> [<https://perma.cc/9B4A-8GK8>].

<sup>18</sup> *See* Noor Zainab Hussain, Manya Saini & Matt Tracy, *Florida-Only Insurers Weather Hurricane Idalia amid Market Pullback*, REUTERS (Aug. 31, 2023), <https://www.reuters.com/markets/us/florida-only-insurers-weather-hurricane-idalia-amid-market-pullback-2023-08-31/> [<https://perma.cc/3N77-YSL8>].

<sup>19</sup> *See Climate Change Is Coming for America's Property Market*, *supra* note 14.

2022.<sup>20</sup> Banks are also transitioning. They have incorporated climate change into their credit-risk management, product development, and marketing processes,<sup>21</sup> spurred on by U.S. regulators.<sup>22</sup>

If the reasonable investor is adapting to climate change, that raises the question of what the reasonable property owner should be doing. That question is important because expectations of property owners play a central role in regulatory takings.<sup>23</sup> In *Penn Central Transportation Co.*, the Supreme Court articulated three factors to determine whether a government regulation constitutes a taking under the Fifth Amendment to the U.S. Constitution.<sup>24</sup> One of those factors is the “extent to which the regulation has interfered with distinct investment-backed expectations.”<sup>25</sup> The Court later added the word “reasonable” to that standard.<sup>26</sup> Reasonable investment-backed expectations are not just a factor in that test; they form the theory of rights that the Court uses to determine what property interest the owner has.<sup>27</sup> The Court also uses other theories, such as the traditional bundle of rights,<sup>28</sup> but for regulatory takings, it mostly turns to expectations.<sup>29</sup>

With sea levels rising and disasters more and more common, the question of what climate controls a property owner should reasonably expect will come up more often. Governments at all levels prepare for and respond to disasters through regulations. Examples that have come before the Court are

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<sup>20</sup> See Brooke Masters & Patrick Temple-West, *The Real Impact of the ESG Backlash*, FIN. TIMES (Dec. 4, 2023), <https://www.ft.com/content/a76c7feb-7fa5-43d6-8e20-b4e4967991e7> [<https://perma.cc/CPA3-V5SX>]. Political resistance in the United States has been a significant obstacle. See *id.*

<sup>21</sup> See Ben Caldecott, *Banks Need to Get Ahead of Climate Change, or Else*, FIN. TIMES (June 30, 2019), <https://www.ft.com/content/189e4ba4-98cb-11e9-98b9-e38c177b152f> [<https://perma.cc/2DXB-GKSL>].

<sup>22</sup> See Laurence E. Platt, Kris D. Kully & Kerri Elizabeth Webb, *Climate Change Impacts to the US Mortgage Industry*, MAYER BROWN (Nov. 3, 2021), <https://www.mayerbrown.com/en/perspectives-events/publications/2021/11/climate-change-impacts-to-the-us-mortgage-industry> [<https://perma.cc/PP4Z-BYL9>].

<sup>23</sup> See *Penn. Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124–25 (1978).

<sup>24</sup> See *id.*

<sup>25</sup> *Id.*

<sup>26</sup> *Palazzolo v. Rhode Island*, 533 U.S. 606, 617 (2001).

<sup>27</sup> See LAURA S. UNDERKUFFLER, *THE IDEA OF PROPERTY* 19–21 (2003).

<sup>28</sup> See *id.* at 19 (stating the rights to “possess, use, transport, sell, donate, exclude, or devise”).

<sup>29</sup> See *Cedar Point Nursery v. Hassid*, 141 S. Ct. 2063, 2072 (2021).

temporary government-induced flooding<sup>30</sup> and beach restoration after hurricanes.<sup>31</sup> Other examples include hurricane and flood controls,<sup>32</sup> controlled forest fires to prevent wildfires from spreading,<sup>33</sup> and restrictions on water use through limited water rights.<sup>34</sup> Because even temporary takings can be compensable,<sup>35</sup> governments may face a flood of takings challenges as they step up their efforts to protect citizens from harms resulting from natural disasters.

This Note thus analyzes a question that every property owner, lawyer, judge, and government official should be asking: What are reasonable investment-backed expectations in times of rapid climate change? Some scholars have suggested that those expectations should reflect effects of climate change—especially in coastal areas, where rising sea levels increase flooding risks.<sup>36</sup> And, as noted above, investors have already begun to adjust their expectations for financial risks stemming from climate change.

This Note argues that courts should give more weight to climate change when assessing the reasonable investment-backed expectations that define the owner's property interest. First, the owner's expectations should be viewed dynamically, evolving over time, because government regulations—climate and disaster controls in particular—must also respond to changing circumstances. Currently, expectations are fixed at the time of purchase, with some limitations.<sup>37</sup>

Second, notice of disasters and investor behavior should inform reasonable investment-backed expectations about climate change. Public news sources frequently cover disasters and responses from parties in the financial sector, such as insurers.<sup>38</sup> Property owners thus receive notice of how experts, in forecasting financial risks, are adapting to climate change and how that affects their property. When the circumstances

<sup>30</sup> See *Ark. Game & Fish Comm'n v. United States*, 568 U.S. 23, 27–28 (2012).

<sup>31</sup> See *Stop the Beach Renourishment, Inc. v. Fla. Dep't of Env't Prot.*, 560 U.S. 702, 711 (2010).

<sup>32</sup> See *DM Arbor Ct., Ltd. v. City of Houston*, No. 4:18-CV-01884, 2023 WL 4462076, at \*25 (S.D. Tex. July 11, 2023).

<sup>33</sup> See *TrinCo Inv. Co. v. United States*, 722 F.3d 1375 (Fed. Cir. 2013).

<sup>34</sup> See, e.g., *Estate of Hage v. United States*, 687 F.3d 1281, 1289 (Fed. Cir. 2012).

<sup>35</sup> See *Ark. Game & Fish*, 568 U.S. at 32.

<sup>36</sup> See, e.g., Sandra B. Zellmer, *Takings, Torts, and Background Principles*, 52 WAKE FOREST L. REV. 193, 231–32 (2017).

<sup>37</sup> See *Palazzolo v. Rhode Island*, 533 U.S. 606, 626–28 (2001).

<sup>38</sup> See, e.g., Hussain, Saini & Tracy, *supra* note 18.

suggest that a property owner is aware of greater risks, it will be more difficult for them to claim those risks were not part of their reasonable investment-backed expectations.

Third, courts should give more weight to custom when defining a property owner's reasonable expectations about climate change. Custom plays an important role in property law<sup>39</sup> and helps define the reasonable person in tort law.<sup>40</sup> It can do the same here. As Justice Kennedy noted in his concurrence in *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992), reasonable investment-backed expectations are "based on objective rules and customs that can be understood as reasonable by all parties involved."<sup>41</sup> Although custom is slow to adapt,<sup>42</sup> widespread and accessible information about climate change can accelerate the extent to which local custom reflects the consequences of climate change and informs the reasonable investment-backed expectations of property owners.

The proposed redefinition of the expectations factor has important theoretical implications. Applying the *Penn Central* factors constitutes an "ad hoc, factual inquir[y], designed to allow careful examination and weighing of all the relevant circumstances."<sup>43</sup> So rather than adopting a rule, the Court set forth a flexible balancing test to be applied on a case-by-case basis.<sup>44</sup> This Note proposes a move towards a per se rule in those geographical areas where property owners should reasonably expect natural disasters caused by climate change, and government controls in response, to limit their property interests. A per se rule is not wholly unprecedented in takings analysis, however. The Court has recognized that any regulation that

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<sup>39</sup> See David J. Bederman, *The Curious Resurrection of Custom: Beach Access and Judicial Takings*, 96 COLUM. L. REV. 1375, 1408 (1996). But see Henry E. Smith, *Custom in American Property Law: A Vanishing Act*, 48 TEX. INT'L L. J. 507, 518–22 (2013) (arguing that the role of custom in property diminished as positivism displaced natural law, law and equity courts merged, and other legal doctrines developed in tension with custom).

<sup>40</sup> See, e.g., James A. Henderson, Jr., *Learned Hand's Paradox: An Essay on Custom in Negligence Law*, 105 CALIF. L. REV. 165, 171–72 (2017).

<sup>41</sup> *Lucas*, 505 U.S. at 1035. (Kennedy, J., concurring) (emphasis added).

<sup>42</sup> See *The T.J. Hooper v. N. Barge Corp.*, 60 F.2d 737, 740 (1932) ("Indeed in most cases reasonable prudence is in fact common prudence; but strictly it is never its measure; a whole calling *may have unduly lagged* in the adoption of new and available devices.") (emphasis added).

<sup>43</sup> *Murr v. Wisconsin*, 582 U.S. 383, 393 (2017) (quoting *Tahoe-Sierra Pres. Council v. Tahoe Reg'l Plan. Agency*, 535 U.S. 302, 322 (2002)).

<sup>44</sup> See *Cedar Point Nursery v. Hassid*, 141 S. Ct. 2063, 2072 (2021).

“denies all economically beneficial or productive use of land” will require compensation under the Takings Clause.”<sup>45</sup>

A per se rule increases uniformity in the application of a framework that the Court itself has described as giving “little insight” into when a regulation goes “too far” and becomes a taking.<sup>46</sup> A more uniform approach increases consistency, which makes it easier for governments to understand what climate change controls constitute takings and thus to effectively respond to natural disasters without incurring significant cost. It also allows property owners to better understand the limits of their property interests when they choose to locate in a particular area.

## I

### BACKGROUND

#### A. Takings and Property Theories

The federal government may not take private property for public use without just compensation.<sup>47</sup> That prohibition applies to the states through the Fourteenth Amendment.<sup>48</sup> The Court distinguishes between two kinds of takings: physical and regulatory.<sup>49</sup> A physical acquisition of a property interest by the government is a per se taking, requiring just compensation in all circumstances.<sup>50</sup> Physical takings date back to the founding and include eminent domain, taking possession but not title, occupying the property in some way, and requiring the owner to set aside items of physical property for the government (e.g., raisins).<sup>51</sup> Regulatory takings were not recognized until the early twentieth century and include a wide variety of regulations that go “too far”—certain zoning ordinances, restrictions on mining and sales, and so on.<sup>52</sup> To determine whether a regulation constitutes a regulatory taking, courts balance the three factors set forth in *Penn Central*.<sup>53</sup>

<sup>45</sup> *Murr*, 582 U.S. at 393 (quoting *Palazzolo v. Rhode Island*, 533 U.S. 606, 617 (2001)).

<sup>46</sup> *Lucas*, 505 U.S. at 1015.

<sup>47</sup> U.S. CONST. amend. V.

<sup>48</sup> *Cedar Point*, 141 S. Ct. at 2071.

<sup>49</sup> *See id.*

<sup>50</sup> *See id.*

<sup>51</sup> *See id.*

<sup>52</sup> *See id.*

<sup>53</sup> *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 124 (1978); *see Cedar Point*, 141 S. Ct. at 2072.

A threshold question for both kinds of takings is what property interest the owner possesses that the government is alleged to have taken.<sup>54</sup> For physical takings, the Court looks to state law,<sup>55</sup> but often comes up with a bundle of rights on its own—the right to use,<sup>56</sup> exclude,<sup>57</sup> possess, and dispose.<sup>58</sup> When the government physically occupies property, it infringes on each of these rights and thus takes the property.<sup>59</sup> In other circumstances, infringement on the right to exclude alone is enough to constitute a physical taking.<sup>60</sup>

For regulatory takings, the Court tends to use the *Penn Central* framework to determine to what extent a regulation interferes with reasonable investment-backed expectations.<sup>61</sup> In other words, the expectations constitute the property interest of the owner.<sup>62</sup> Interference with those expectations correlates with the economic impact of the regulation,<sup>63</sup> another factor under *Penn Central*.

## B. Reasonable Investment-Backed Expectations

Applying the *Penn Central* factors constitutes an “ad hoc, factual inquir[y], designed to allow careful examination and weighing of all the relevant circumstances.”<sup>64</sup> So rather than adopting a rule, the Supreme Court set forth a flexible balancing test to be applied on a case-by-case basis.<sup>65</sup> It then applied that test in *Kaiser Aetna v. United States*.<sup>66</sup> In that case, the Court blocked the federal government’s attempt to require a privately owned marina to open itself to the public.<sup>67</sup> The Court

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54 See UNDERKUFFLER, *supra* note 27, at 19, 53.

55 See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1029 (1992).

56 UNDERKUFFLER, *supra* note 27, at 19 (citing *Lucas*, 505 U.S. at 1031).

57 *Cedar Point*, 141 S. Ct. at 2072.

58 *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 435 (1982).

59 See *id.*

60 See *Cedar Point*, 141 S. Ct. at 2072.

61 See *id.*

62 See UNDERKUFFLER, *supra* note 27, at 19.

63 See, e.g., Susanne Cordner, *Adjusting the Benefits and Burdens of Economic Life for the Public Good: The ACA’s Medical Loss Ratio as a Constitutional Regulation of Health Insurance Companies*, 24 WM. & MARY BILL RTS. J. 213, 236 (2015) (“[M]uch of the analysis of the second prong is similar to the analysis under the first prong.”).

64 *Murr v. Wisconsin*, 582 U.S. 383, 393 (2017) (quoting *Tahoe-Sierra Pres. Council v. Tahoe Reg’l Plan. Agency*, 535 U.S. 302, 322 (2002)).

65 See *Cedar Point*, 141 S. Ct. at 2072.

66 444 U.S. 164 (1979).

67 See *id.* at 179–80.



reasoned that imposing such a “navigational servitude” would constitute a physical invasion—which the Court later made a category of per se takings<sup>68</sup>—that interfered with the property owner’s expectation of excluding others from their property.<sup>69</sup>

Reasonable investment-backed expectations are context dependent, but they must be “more than a ‘unilateral expectation or an abstract need.’”<sup>70</sup> In *Ruckelshaus v. Monsanto Co.*, a pesticide company was required to disclose data to the EPA that constituted trade secrets under federal law.<sup>71</sup> Because pesticide use was a matter of public concern that might require public disclosure, and federal trade-secrets law did not guarantee confidentiality, the Court held that the company had no reasonable investment-backed expectation that the EPA would not disclose the data.<sup>72</sup> Only when a statute explicitly guarantees confidentiality does the owner of the data form a reasonable investment-backed expectation instead of a unilateral one.<sup>73</sup>

Other contextual factors that the Court considers when assessing whether a regulation interferes with property owners’ expectations include prior regulations and current uses of the property and adjacent properties.<sup>74</sup> As an example, the Court of Appeals for the Federal Circuit has articulated and consistently applied a three-factor analysis.<sup>75</sup> The court assesses whether the claimant (1) operates in a highly regulated industry, (2) was aware of the problem that spawned the regulation when purchasing the property, and (3) could have reasonably anticipated the regulation given the regulatory environment when purchasing the property.<sup>76</sup> The First and Ninth Circuits have applied similar factors when assessing reasonable investment-backed expectations.<sup>77</sup>

<sup>68</sup> See *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 419 (1982).

<sup>69</sup> *Kaiser Aetna*, 444 U.S. at 179–80; *Pruneyard Shopping Ctr. v. Robins*, 447 U.S. 74, 84 (1980).

<sup>70</sup> *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1005–06 (1984) (quoting *Webb’s Fabulous Pharmacies, Inc. v. Beckwith*, 449 U.S. 155, 161 (1980)).

<sup>71</sup> *Id.* at 1008–09.

<sup>72</sup> *Id.*

<sup>73</sup> *Id.* at 1010–11.

<sup>74</sup> See Thomas Ruppert, *Reasonable Investment-Backed Expectations: Should Notice of Rising Seas Lead to Falling Expectations for Coastal Property Purchasers?*, 26 J. LAND USE & ENV’T L. 239, 253 (2011).

<sup>75</sup> See *id.* at 254; *Taylor v. United States*, 959 F.3d 1081, 1088 (Fed. Cir. 2020).

<sup>76</sup> *Taylor*, 959 F.3d at 1088.

<sup>77</sup> See *Me. Educ. Ass’n Benefits Tr. v. Cioppa*, 695 F.3d 145, 154–55 (1st Cir. 2012); *Bridge Aina Le’a, LLC v. Land Use Comm’n*, 950 F.3d 610, 633–35 (9th Cir. 2020).

Reasonable investment-backed expectations can also be analyzed by their dimensions—space, stringency of protection, and time.<sup>78</sup> The space dimension asks whether the impact of the regulation should be assessed against part or the whole of the property.<sup>79</sup> That question is also known as the “denominator” problem.<sup>80</sup> The Supreme Court looks at state and local law, physical characteristics of the property, and the value of the property under the challenged regulation.<sup>81</sup> Next, the stringency dimension determines which rights receive greater protection.<sup>82</sup> The rights to exclude and devise in particular are more strongly protected.<sup>83</sup>

Lastly, the time dimension asks when reasonable investment-backed expectations are established and whether they are fixed or dynamic—that is, whether they evolve over time.<sup>84</sup> Expectations are typically fixed at the time of purchase, with some limitations.<sup>85</sup> For example, in *Palazzolo*, the Court held that a property owner was not precluded from challenging a regulation that existed at the time of purchase if that regulation was unreasonable.<sup>86</sup> Otherwise, courts should assess property owners’ expectations “in light of the regulatory climate that existed when he purchased the property.”<sup>87</sup>

### C. The Impact of Climate Change on Regulations and Property

The regulatory climate for climate change is evolving rapidly as governments at all levels prepare for and respond to disasters through regulations. Such preventive and responsive measures restrict the exercise of property rights. Examples that have come before the Supreme Court are temporary government-induced flooding<sup>88</sup> and beach restoration after hurricanes.<sup>89</sup> Other examples include hurricane and flood controls,<sup>90</sup>

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<sup>78</sup> See UNDERKUFFLER, *supra* note 27, at 21, 24, 28.

<sup>79</sup> See *id.* at 21.

<sup>80</sup> *Murr v. Wisconsin*, 582 U.S. 383, 397 (2017).

<sup>81</sup> See *id.* at 397–98.

<sup>82</sup> See UNDERKUFFLER, *supra* note 27, at 24.

<sup>83</sup> See *id.*

<sup>84</sup> See *id.* at 28–29.

<sup>85</sup> See *Palazzolo v. Rhode Island*, 533 U.S. 606, 626–28 (2001).

<sup>86</sup> See *id.*

<sup>87</sup> *Mehaffy v. United States*, 499 F. App'x 18, 22 (Fed. Cir. 2012).

<sup>88</sup> See *Ark. Game & Fish Comm'n v. United States*, 568 U.S. 23, 27–28 (2012).

<sup>89</sup> See *Stop the Beach Renourishment, Inc. v. Fla. Dep't of Env't Prot.*, 560 U.S. 702, 711 (2010).

<sup>90</sup> See *DM Arbor Ct., Ltd. v. City of Houston*, No. 4:18-CV-01884, 2023 WL 4462076, at \*25 (S.D. Tex. July 11, 2023).

controlled forest fires to prevent the spread of wildfires,<sup>91</sup> and restrictions on water use through limited water rights.<sup>92</sup>

Preventive measures can be takings, even if temporary. In *Arkansas Game and Fish*, the U.S. Army Corps of Engineers regulated the pace at which a dam released water from the lake behind the dam.<sup>93</sup> The Corps set a slower pace in the fall, so that farmers would have a longer harvest time.<sup>94</sup> To ensure the lake would not get too full, the Corps released more water in the spring and summer, inhibiting the growth of trees in a nearby wildlife area.<sup>95</sup> The Court held that the owners of the wildlife area were not precluded from raising a physical takings claim merely because the physical invasion was temporary.<sup>96</sup>

On remand, the Federal Circuit held that a physical taking occurred.<sup>97</sup> It reasoned that the Corps's decision to release more water in the spring and summer "caused widespread damage to the trees that existed there."<sup>98</sup> The court also refused to look at the amount of flooding itself, which the government argued was insignificant, because the effects of the invasion were severe.<sup>99</sup>

Governments cannot always rely on the doctrine of necessity to defeat takings claims that challenge climate controls. In *TrinCo Investment Co. v. United States*, 722 F.3d 1375 (Fed. Cir. 2013), the U.S. Forest Service responded to a large wildfire in a national forest in California by lighting small fires to prevent unburned wood from fueling the fire further.<sup>100</sup> The intentional fires damaged nearby property that would have otherwise been free from fire, according to the complaint.<sup>101</sup> The district court dismissed the case because the government's intervention was necessary to prevent the spreading of fire.<sup>102</sup> The Federal Circuit reversed.<sup>103</sup> It reasoned that necessity only releases a government from takings liability "when there is an

<sup>91</sup> See *TrinCo Inv. Co. v. United States*, 722 F.3d 1375 (Fed. Cir. 2013).

<sup>92</sup> See, e.g., *Estate of Hage v. United States*, 687 F.3d 1281, 1289 (Fed. Cir. 2012).

<sup>93</sup> *Ark. Game & Fish*, 568 U.S. at 27.

<sup>94</sup> *Id.* at 27–28.

<sup>95</sup> *Id.* at 28.

<sup>96</sup> *Id.* at 38.

<sup>97</sup> See *Ark. Game & Fish Comm'n v. United States*, 736 F.3d 1364, 1367 (Fed. Cir. 2013).

<sup>98</sup> *Id.* at 1372.

<sup>99</sup> *Id.* at 1375.

<sup>100</sup> *TrinCo Inv. Co.*, 722 F.3d at 1377.

<sup>101</sup> *Id.*

<sup>102</sup> *Id.* at 1377–78.

<sup>103</sup> *Id.* at 1376.

imminent danger and an actual emergency giving rise to actual necessity.”<sup>104</sup> The court held that the wildfire did not meet that standard and therefore did not necessarily justify “the burning of 1,782 acres of TrinCo’s timbered acreage.”<sup>105</sup>

Responsive measures can also be unconstitutional takings of property. For example, in *Stop the Beach Renourishment, Inc. v. Florida Department of Environmental Protection*, 560 U.S. 702 (2010), the Florida government passed laws that permit depositing sand on beaches that erode because of rising sea levels.<sup>106</sup> Owners of beachfront property challenged a local project to deposit sand, claiming a taking of their rights to receive accretions to their property resulting from the erosion and to have their property contact the water.<sup>107</sup> The Florida Supreme Court rejected the claim, holding that state law did not recognize the claimed property rights.<sup>108</sup> The U.S. Supreme Court affirmed that decision and rejected the property owners’ judicial takings claim.<sup>109</sup> Had they been able to establish the claimed rights under state law, however, a taking would have occurred.<sup>110</sup>

Climate controls are more likely to “interfere” with reasonable investment-backed expectations as their economic impact increases. In the examples noted above, property was invaded, destroyed, or otherwise damaged. And in the early case of *United States v. Cress*, 243 U.S. 316 (1917), the Supreme Court detailed the substantial damage that government-induced flooding had caused to property—about half of its value.<sup>111</sup>

#### D. How Reasonable Investors Are Responding to Climate Change

Investors recognize the potential impact of climate change and controls on property values. In 2021, researchers surveyed 861 finance professionals and regulators from various backgrounds for their assessment of the financial and economic risks stemming from climate change.<sup>112</sup> The professionals

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<sup>104</sup> *Id.* at 1378 (citing *Bowditch v. Boston*, 101 U.S. 16, 16–19 (1880)).

<sup>105</sup> *Id.* at 1380.

<sup>106</sup> *Stop the Beach Renourishment, Inc.*, 560 U.S. at 709.

<sup>107</sup> *Id.* at 711.

<sup>108</sup> *Id.* at 712.

<sup>109</sup> *Id.* at 733.

<sup>110</sup> *Id.* at 729 n.10.

<sup>111</sup> *Cress*, 243 U.S. at 318.

<sup>112</sup> See Johannes Stroebel & Jeffrey Wurgler, *What Do You Think About Climate Finance?*, 142 J. FIN. ECON. 487, 487 (2021).

almost uniformly considered the physical impact of climate change, such as rising sea levels and wildfires, to be a significant risk for investors in the long term.<sup>113</sup> They also believed that asset markets, including the real estate market, do not adequately reflect climate risks.<sup>114</sup>

As noted earlier, homeowner insurers are responding to the changing physical and regulatory climate. They raise their prices to cope with increased disaster payouts,<sup>115</sup> and where they cannot do so or consider climate risks too large, they limit their coverage or withdraw.<sup>116</sup> Property reinsurers recently refused to lower prices, citing climate change, inflation, and concentration of property in areas with greater climate risk as primary drivers of higher prices.<sup>117</sup>

Homeowners who can no longer afford or even find insurance are left uninsured and thus face more uncertainty. They can resort to federal aid after a disaster occurs, such as loans from the Small Business Administration or grants from the Federal Emergency Management Agency ("FEMA").<sup>118</sup> But that funding is not always accessible—after Hurricane Harvey in Houston in 2017, poorer neighborhoods were 58% less likely to get a loan and received lower grants overall.<sup>119</sup>

On the financial markets, investors are reallocating their investments in response to climate change. As of March 2020, they invested at least \$103.4 trillion in ESG assets.<sup>120</sup> Though political views affect investor behavior in the United States, investors who choose greener assets are willing to pay a premium for those assets and receive a lower return in the short term as a result.<sup>121</sup>

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<sup>113</sup> See *id.* at 487–89.

<sup>114</sup> See *id.* at 489.

<sup>115</sup> See Taylor, *supra* note 16.

<sup>116</sup> See *California Proposed New Rules for Insurance Companies. Here's What to Know*, *supra* note 17; Hussain, Saini & Tracy, *supra* note 18.

<sup>117</sup> See Ian Smith, *Reinsurers Resist Calls to Cut Prices for Extreme Weather Cover*, *FIN. TIMES* (Dec. 24, 2023), <https://www.ft.com/content/779d6c9c-70ab-4857-bb2b-f73358f28b45> [<https://perma.cc/4M4H-7N2D>].

<sup>118</sup> See Stephen B. Billings, Emily A. Gallagher & Lowell Ricketts, *Let the Rich Be Flooded: The Distribution of Financial Aid and Distress After Hurricane Harvey*, 146 *J. FIN. ECON.* 797, 797–98 (2022).

<sup>119</sup> See *id.* at 799.

<sup>120</sup> See Adam Blomqvist & Francesco Stradi, *Responsible Investments: An Analysis of Preference - the Influence of Local Political Views on the Return of ESG Portfolios*, 30 *EUR. J. FIN.* 696 (2024).

<sup>121</sup> See *id.* at 696–97.

Lastly, banks are adapting their mortgage lending to account for increased property risks stemming from climate change. They have reason to do so. A study in Florida found that in areas with greater flooding risk, property owners are more likely to default on their mortgage loans after “intense rain events” and hurricanes.<sup>122</sup> To compensate for that greater credit risk in those areas, banks have been charging a higher interest rate over the past twenty-five years.<sup>123</sup> And they are more likely to securitize mortgage loans—raising funds from federal agencies using the loans as collateral, effectively offloading credit risk onto the government—after billion-dollar disasters.<sup>124</sup> As a result, federal agencies such as Fannie Mae and Freddie Mac “may bear a substantial share of the increasing climate risk.”<sup>125</sup> By continuing to grant mortgage loans in areas with greater flooding risk, banks facilitate and prolong property ownership in those areas.<sup>126</sup>

## II

### ANALYSIS

#### A. Reasonable Investment-Backed Expectations About Climate Change Develop Over Time

This Section argues that reasonable investment-backed expectations about climate change develop over time and that courts should view the expectations dynamically. Currently, expectations are fixed at the time of purchase, with some limitations.<sup>127</sup> So when a government enacts a regulation to control the impact of climate change on its community, and that regulation affects property,<sup>128</sup> courts will look back to when the

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<sup>122</sup> See Raffaella Calabrese, Timothy Dombrowski, Antoine Mandel, R. Kelley Pace & Luca Zanin, *Impacts of Extreme Weather Events on Mortgage Risks and Their Evolution Under Climate Change: A Case Study on Florida*, 314 EUR. J. OPERATIONAL RSCH. 377, 378 (2024).

<sup>123</sup> See Duc Duy Nguyen, Steven Ongena, Shusen Qi & Vathunyoo Sila, *Climate Change Risk and the Cost of Mortgage Credit*, 26 REV. FIN. 1509, 1511 (2022).

<sup>124</sup> See Amine Ouazad & Matthew E. Kahn, *Mortgage Finance and Climate Change: Securitization Dynamics in the Aftermath of Natural Disasters*, 35 REV. FIN. STUD. 3617, 3619 (2022).

<sup>125</sup> *Id.* at 3661.

<sup>126</sup> *Id.*

<sup>127</sup> See *Palazzolo v. Rhode Island*, 533 U.S. 606, 626–28 (2001).

<sup>128</sup> This is not a scenario in which climate change directly affects property and the owner tries to attribute that effect to “government fault.” See, e.g., Laura S. Underkuffler, *Challenging Equality: Property Loss, Government Fault, and the Global Warming Catastrophe*, 117 NW. U. L. REV. 335, 345–46 (2022). Nor is this a situation in which the government could invoke the public-health exception to

owners purchased their property to determine what reasonable expectations they would have formed at the time. Those expectations form the owners' property interest<sup>129</sup> that they may claim has been interfered with and thus taken by the government.<sup>130</sup>

But those expectations may be outdated. For example, the owner in *Lucas* bought his beachfront property in South Carolina in 1986.<sup>131</sup> The regulation that he claimed took his property was enacted in 1988, although earlier forms of that regulation had existed since a federal coastal-protection law passed in 1972.<sup>132</sup> The Supreme Court treated the regulation as a physical acquisition because it prohibited "all economically beneficial use of land,"<sup>133</sup> but otherwise, it would have applied the factors from *Penn Central*.<sup>134</sup> In the latter case, the property owner's reasonable investment-backed expectations would have dominated the takings inquiry. That inquiry is the same regardless of whether the regulation was enacted in 1988 or in 2023.

Suppose that the property owner in *Lucas* did not buy beachfront property in South Carolina, but in Florida, which has similar coastal problems.<sup>135</sup> By recent estimation, 60% of Miami Beach and other coastal areas in Florida will be inundated by the year 2060.<sup>136</sup> Combining rising sea levels with more common billion-dollar disasters,<sup>137</sup> climate change will continue to physically impact property in Florida. A purchaser of beachfront property in 1986 would likely not have had that information. But a purchaser today could reasonably expect to lose their property within forty years. With information of greater quality today—because of better technology and experience with inundation and other disasters—information from

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takings under *Hadacheck v. Sebastian*, 239 U.S. 394 (1915). See, e.g., Thomas E. Roberts & Thomas C. Shearer, *Report of the Subcommittee on Land-Use Litigation and Damages: Regulation, Property Rights, and Remedies*, 23 URB. LAW. 785, 788 (1991) (citing *Hadacheck*, 239 U.S. 394).

<sup>129</sup> See UNDERKUFFLER, *supra* note 27, at 19.

<sup>130</sup> See *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978).

<sup>131</sup> *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1006–07 (1992).

<sup>132</sup> See *id.* at 1007.

<sup>133</sup> *Id.* at 1029.

<sup>134</sup> See *id.* at 1015.

<sup>135</sup> See, e.g., *Stop the Beach Renourishment, Inc. v. Fla. Dep't of Env't Prot.*, 560 U.S. 702, 709–10 (2010).

<sup>136</sup> See Underkuffler, *supra* note 128, at 338.

<sup>137</sup> See Erdman, *supra* note 6.

the past quietly loses its relevance. So do reasonable investment-backed expectations at the time of purchase.

Adhering to expectations at the time of purchase also creates an asymmetry between the government and property owners. Governments that impose hurricane and flood controls to protect their citizens,<sup>138</sup> for example, must adapt to changing circumstances, such as the increasing occurrence of natural disasters. But just as those governments are forced to act, those same citizens can invoke rights created under outdated circumstances against the government. As a result, courts must balance present interests—including those of the property owner—against the property owner's historically defined interests. Because some governments already lack the resources to effectively respond to disasters,<sup>139</sup> their palette of available measures is limited further by the prospect of having to pay just compensation that they cannot afford.<sup>140</sup>

Thomas Ruppert analyzed reasonable investment-backed expectations for coastal property in relation to notice and summarized the dilemma as follows:

[P]roperty has [been] and remains a dynamic concept that evolves in direct relationship with the society that defines it. [Reasonable investment-backed expectations] hold[] the balance between the need for property concepts to evolve and the need for certainty or consistency in definitions of property. Too much flexibility in the definition of property can leave property owners subject to unfair losses while too little flexibility in the definition of property can lead to grave harms to the society that makes property possible and protects it. Harms to society can include making society shoulder the environmental costs of activities on private property, loss of public access to resources, foisting the costs of risk-taking onto the public, and, in the most extreme case, the inability of society to advance.<sup>141</sup>

Moreover, defining investment-backed expectations at a single point in time is arbitrary. Property owners continuously make investment decisions—they decide whether to sell or move, whether to make replacements or improvements to

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<sup>138</sup> See, e.g., *DM Arbor Ct., Ltd. v. City of Houston*, No. 4:18-CV-01884, 2023 WL 4462076, at \*25 (S.D. Tex. July 11, 2023).

<sup>139</sup> See Ogles, *supra* note 4.

<sup>140</sup> The ability-to-pay problem also occurs where property owners succeed on a theory of government fault and the government must pay just compensation to a large group of claimants. See Underkuffler, *supra* note 128, at 348–51.

<sup>141</sup> Ruppert, *supra* note 74, at 255 (footnotes omitted).



their home, whether to take out home equity loans against their property, and so on. Each decision requires information about the physical state of the property and its surrounding environment, and about the evolving regulatory climate. That information would shape investment-backed expectations if a new purchaser made those decisions, rather than the existing owner. A takings inquiry that solely looks at the time of purchase ignores all subsequent moments at which a property owner revises or “updates” their expectations.

A better approach would therefore be dynamic—removing the temporal fixation on the time of purchase and allowing reasonable investment-backed expectations about climate change to develop over time.<sup>142</sup> That would be consistent with how courts treat the traditional bundle of rights—the property interest theory used for physical takings. For example, the right to use property is subject to change and not fixed at the time of purchase. Changes in zoning schemes regularly expand or restrict the permissible uses on a particular property. The same applies to the right to exclude, which can be limited by prescriptive easements that are formed over time.

One could argue that zoning and easements are based on statutes and common law and are thus more foreseeable, whereas regulations can be entirely unexpected. But two points help to allay that concern. First, purchasers of property must already keep an eye towards future regulations. One of the factors that the Federal Circuit uses to define reasonable investment-backed expectations is the property owner’s awareness, at the time of purchase, of “the problem that spawned the regulation.”<sup>143</sup> In other words, the owner’s property interest is limited by problems on the property that the owner knows may lead to regulations in the future. If a government later decides to enact a regulation that addresses the problem, this factor weighs against the property owner.<sup>144</sup> For example, in *Appolo Fuels, Inc. v. United States*, the property owner was aware of environmental problems surrounding surface mining at the time of purchase.<sup>145</sup> In part for that reason, the court rejected the

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<sup>142</sup> This proposal applies to climate controls only because of the pressing and pervasive nature of natural disasters. Future judicial decision-making and scholarship could assess whether the approach is suitable for application to other regulations.

<sup>143</sup> *Taylor v. United States*, 959 F.3d 1081, 1088 (Fed. Cir. 2020) (quoting *Appolo Fuels, Inc. v. United States*, 381 F.3d 1338, 1349 (Fed. Cir. 2004)).

<sup>144</sup> *See id.*

<sup>145</sup> *Appolo Fuels, Inc. v. United States*, 381 F.3d 1338, 1349 (Fed. Cir. 2004).

owner's regulatory takings claim<sup>146</sup> that it raised after a federal agency designated its land as unsuitable for surface mining.<sup>147</sup>

Second, courts could still find that a taking has occurred where governments enact climate controls that the property owner did not reasonably expect. As noted above, the Federal Circuit looks at whether an owner was aware of possible regulations. That implies a knowledge mental state. By allowing owners to show that they did not know of climate problems that spawned subsequent climate controls and to shift the burden of proving that knowledge to the government, that legal standard adequately protects owners from being caught by surprise by a climate control.

Knowledge can be a high bar for the government to meet, but there are alternatives that still sufficiently protect owners' property interests. Notice, for example, already informs reasonable investment-backed expectations.<sup>148</sup> Ruppert points to notice of existing regulations—much like the Federal Circuit's test—and notice of the appropriateness of the owner's proposed use of the property.<sup>149</sup> With climate-related disasters becoming more common, Ruppert argues that "failure to impute these [disaster risks] to property purchasers burdens the public with the cost of coastal property risks that are largely controlled by the private property owners."<sup>150</sup> The same applies to areas at greater risk of hurricanes, wildfires, and drought. The following Section explores notice further.

#### B. Notice of Disasters and Investor Behavior Should Inform Reasonable Investment-Backed Expectations About Climate Change

There are several sources from which property owners receive information about natural disasters and investor behavior, but two stand out: public news sources and direct contact with parties in the financial sector. Both should inform reasonable investment-backed expectations because they provide adequate notice to property owners of climate risks affecting their property and controls that governments may impose in response. And both are available on a continuous basis, which would be consistent with a continuous approach to reasonable investment-backed expectations.

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<sup>146</sup> *Id.*

<sup>147</sup> *See id.* at 1343.

<sup>148</sup> *See Ruppert, supra* note 74, at 256–57.

<sup>149</sup> *See id.* at 257, 259.

<sup>150</sup> *Id.* at 259.

Notice is part of due process.<sup>151</sup> Notice is adequate when it is “reasonably calculated, under all the circumstances, to apprise interested parties of the pendency of the action and afford them an opportunity to present their objections.”<sup>152</sup> Although property owners form their reasonable investment-backed expectations outside the context of an “action” or procedure—at the time they purchase property, or continuously after—applying the same the legal standard as for adequate notice helps protect property owners from surprises and avoids the confusion of differing standards.

Property owners receive news about natural disasters and climate change through various channels. Major news channels typically report on disasters,<sup>153</sup> their impact on property,<sup>154</sup> and investor behavior in response to disasters;<sup>155</sup> the channels also forecast future extreme weather events.<sup>156</sup> Most Americans read at least some news, mostly through digital devices,<sup>157</sup> which does not change during a disaster.<sup>158</sup> Because major news channels are accessible on digital devices, their news reports are “reasonably calculated, under all the circumstances, to apprise” property owners of climate risks affecting their property and behavior of investors in their area.<sup>159</sup>

The federal government is another source of information. NASA, for example, provides comprehensive information about climate change and global temperatures.<sup>160</sup> And FEMA publishes flood maps that show flood hazards by region.<sup>161</sup> A study found that homeowners are more likely to buy flood insurance voluntarily in areas where those maps indicate greater

<sup>151</sup> See *Mullane v. Central Hanover Bank & Tr. Co.*, 339 U.S. 306, 314 (1950).

<sup>152</sup> *Id.*

<sup>153</sup> See, e.g., Olson, *supra* note 3.

<sup>154</sup> See, e.g., Sainato, *supra* note 2.

<sup>155</sup> See, e.g., Smith, *supra* note 117.

<sup>156</sup> See, e.g., Hersher, *supra* note 11.

<sup>157</sup> See Elisa Shearer, *More Than Eight-in-Ten Americans Get News from Digital Devices*, PEW RSCH. CTR. (Jan. 12, 2021), <https://www.pewresearch.org/short-reads/2021/01/12/more-than-eight-in-ten-americans-get-news-from-digital-devices/> [<https://perma.cc/7S3K-GKMM>].

<sup>158</sup> See Elizabeth L. Petrun Sayers, Andrew M. Parker, Rachana Seelam & Melissa L. Finucane, *How Disasters Drive Media Channel Preferences: Tracing News Consumption Before, During, and After Hurricane Harvey*, 29 J. CONTINGENCIES & CRISIS MGMT. 342, 353–54.

<sup>159</sup> *Mullane v. Central Hanover Bank & Tr. Co.*, 339 U.S. 306, 314 (1950).

<sup>160</sup> See, e.g., Cassidy, *supra* note 8.

<sup>161</sup> See Wanyun Shao et al., *Understanding the Effects of Past Flood Events and Perceived and Estimated Flood Risks on Individuals' Voluntary Flood Insurance Purchase Behavior*, 108 WATER RSCH. 391, 393 (2017).

flooding and hurricane risk.<sup>162</sup> The researchers concluded that the maps at least indirectly influence homeowners' behavior.<sup>163</sup> Information from the federal government thus at least contributes to apprising property owners of climate risks affecting their property.

Direct contact with parties in the financial sector also appraises property owners of investors responses to climate change.<sup>164</sup> They may learn about insurer behavior when they inquire into insurance offerings and find out that prices have risen or that insurance is no longer available. They may also learn about investor behavior when they receive information about how asset managers have reallocated investments in their portfolios in response to climate change, such as through 401(k) plan reports.<sup>165</sup> And they may learn about banks' behavior when they apply for a mortgage loan at the local bank office and find out that interest rates are higher in areas with greater climate risk. All in all, property owners have numerous opportunities in their daily lives to stay informed, intentional or not, about how parties in the financial sector are responding to climate change.

### C. Custom Should Inform Reasonable Investment-Backed Expectations About Climate Change

Customs are another possible input to reasonable investment-backed expectations about climate change. Like notice, knowledge of customs can be imputed to property owners. Because customs provide some level of notice to the public, they also protect owners from being surprised by climate regulations.

Custom is "the idea that communities can make law through the practice and usage of their constituents."<sup>166</sup> The role of custom in common law predates the founding<sup>167</sup> and is important in property law.<sup>168</sup> It also helps define the reasonable person in tort law.<sup>169</sup> Although some states were initially

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<sup>162</sup> See *id.* 396–97.

<sup>163</sup> See *id.* at 397.

<sup>164</sup> For a description of investor responses to climate change, see *supra* Section II.D.

<sup>165</sup> See Greg Daugherty, *How to Read Your 401(k) Plan Reports*, INVESTOPEDIA, <https://www.investopedia.com/how-to-read-401-k-plan-reports-5324132>, [<https://perma.cc/8MNQ-U36L>] (last updated Aug. 27, 2022).

<sup>166</sup> Bederman, *supra* note 39, at 1375.

<sup>167</sup> See *id.* at 1382, 1398.

<sup>168</sup> See *id.* at 1408. But see Smith, *supra* note 39, at 518–22.

<sup>169</sup> See Henderson, *supra* note 40, at 171–72.

skeptical of custom,<sup>170</sup> other states have always used it to shape property rights.<sup>171</sup> And it became more mainstream in the context of public easements for access to beaches.<sup>172</sup>

Climate controls have also become mainstream. Local governments have engaged in coastal management for a long time—in *Lucas*, South Carolina passed its first coastal management statute in 1977.<sup>173</sup> Government-induced flooding to manage water levels dates back to at least 1917.<sup>174</sup> And an early example of government intervention to prevent the spread of (wild)fires was *Bowditch* in 1880, where Boston's fire engineers blew up a building that was on fire to stop the fire from spreading.<sup>175</sup> With rising sea levels, heavier rainfall, and increased wildfires, such climate controls have become customary tools of governments across the United States. But they are not just the government's custom. Climate controls serve to protect the citizenry from harm, and those same citizens can hold federal, state, and local governments to account.

If those climate controls are customary, they form an implicit limitation on property interests through the owner's reasonable investment-backed expectations. That is not a novel concept. As Justice Kennedy noted in his concurrence in *Lucas*, reasonable investment-backed expectations are "based on objective rules and *customs* that can be understood as reasonable by all parties involved."<sup>176</sup> And the regulatory climate is already part of the analysis, operating much like custom. The Federal Circuit uses the regulatory climate as a factor to assess reasonable investment-backed expectations<sup>177</sup> and the Supreme Court has considered it in a case-by-case *Penn Central* inquiry.<sup>178</sup> Future judicial decision-making and scholarship could assess the extent to which particular climate controls have become part of customary law.<sup>179</sup>

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<sup>170</sup> See *Bederman*, *supra* note 39, at 1398.

<sup>171</sup> See *id.* at 1401.

<sup>172</sup> See *id.* at 1408.

<sup>173</sup> *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1007 (1992).

<sup>174</sup> See *United States v. Cress*, 243 U.S. 316 (1917).

<sup>175</sup> *Bowditch v. Boston*, 101 U.S. 16, 16 (1880).

<sup>176</sup> *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1035 (1992) (Kennedy, J., concurring) (emphasis added).

<sup>177</sup> See *Taylor v. United States*, 959 F.3d 1081, 1088 (Fed. Cir. 2020).

<sup>178</sup> See *Tahoe-Sierra Pres. Council v. Tahoe Reg'l Plan. Agency*, 535 U.S. 302, 313 n.5 (2002).

<sup>179</sup> See generally *Bederman*, *supra* note 39, at 1382–95.

Professor Bederman cautions against using custom “as a means of rewriting the jurisdiction’s general property law . . . with one stroke of the judicial brush.”<sup>180</sup> He contends that such a move runs afoul of the Court’s opinion in *Lucas*.<sup>181</sup> The Court there said that regulations that “prohibit all economically beneficial use of land” can only escape the requirement of just compensation when they “inhere in the title itself, in the restrictions that background principles of the State’s law of property and nuisance already place upon land ownership.”<sup>182</sup> A case-by-case analysis of the owner’s property interest would be more acceptable.<sup>183</sup>

The proposed use of custom in defining reasonable investment-backed expectations would not run afoul of *Lucas* or Professor Bederman’s concerns. The use of custom as envisioned here is more like a case-by-case analysis than a “stroke of the judicial brush” that “rewrites . . . general property law.”<sup>184</sup> The custom of climate controls varies by region and type of climate problem and is not generally applicable. It is not analogous to the universal recognition of public easements on private beaches that Professor Bederman complains about.<sup>185</sup> Under this proposal, courts must assess whether a particular property owner affected by climate controls resides in an area where such controls—whether national, state, or local—have become sufficiently entrenched in the community to have reached customary recognition.

Climate controls are not new—they are existing restrictions in property and nuisance law because governments have been using them for a long time. And if a property owner may not use their land so as to flood adjacent land, it follows that the government may step in to prevent the same flooding where it is not the owner but a natural cause, such as heavy rainfall, that causes the flood. The climate controls, moreover, have become regular enough to be part of “background” principles.

#### D. Implications and Effects

The proposed redefinition of the expectations factor has important theoretical implications. First, this Note proposes a

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<sup>180</sup> *Id.* at 1441.

<sup>181</sup> *See id.* at 1443.

<sup>182</sup> *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1029 (1992).

<sup>183</sup> *See Bederman, supra* note 39, at 1441.

<sup>184</sup> *See id.*

<sup>185</sup> *See id.* at 1408.

move towards a per se rule in geographical areas where property owners should reasonably expect natural disasters caused by climate change, and government controls in response, that limit their property interests. To be sure, questions of custom and notice remain factual inquiries that courts must resolve on a case-by-case basis. But a factual finding that a property owner was aware of impending climate controls at the time of an investment decision—whether through actual knowledge, custom, or notice—should lead courts to conclude that the owner's reasonable investment-backed expectations account for those climate controls. Such a finding in effect creates an irrebuttable presumption against the claimant for one of the *Penn Central* factors.

Per se rules are not wholly unprecedented in takings analysis with respect to regulations. The Court has recognized that any regulation that “denies all economically beneficial or productive use of land’ will require compensation under the Takings Clause.”<sup>186</sup> The same applies to regulations that authorize physical invasions onto a property.<sup>187</sup>

Adding per se rules to the *Penn Central* framework also has its benefits. The rules increase uniformity in the application of a framework that the Court itself has described as giving “little insight” into when a regulation goes “too far” and becomes a taking.<sup>188</sup> A more uniform approach to considering climate change increases consistency among courts dealing with regulations in different geographical areas addressing different kinds of natural disasters—wildfires in California, floods in Florida, or droughts in Nevada.

Consistency also makes it easier for governments to understand what climate controls constitute takings and allows them to respond effectively to natural disasters without incurring significant costs. It also allows property owners to better understand the limits of their property interests when they decide whether to purchase property in a particular area.

Removing the temporal fixation on reasonable investment-backed expectations has consequences for other kinds of takings claims. One example is when climate change affects property owners directly, who then bring takings claims because

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<sup>186</sup> *Murr v. Wisconsin*, 582 U.S. 383, 393 (2017) (quoting *Palazzolo v. Rhode Island*, 533 U.S. 606, 617 (2001)).

<sup>187</sup> See *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 435 (1982).

<sup>188</sup> *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1015 (1992).

they believe the government is at fault for causing the impact.<sup>189</sup> That theory has its own problems.<sup>190</sup> But even if property owners were able to attribute fault to government, they would be less likely to succeed if they should have reasonably expected the climate change effects—that is, if government fault was foreseeable and thus within the property owners' reasonable investment-backed expectations.

Redefining reasonable investment-backed expectations leaves open another possible avenue to adapt takings law to climate change: the character of the government action, which is the third *Penn Central* factor.<sup>191</sup> The Supreme Court has said that governments sometimes have the power to infringe on property rights for the public good.<sup>192</sup> That idea refers to the government's core police powers: general welfare, health, and safety. One could argue that climate controls should defeat takings challenges because the importance of the government's response—the third *Penn Central* factor—outweighs the importance of any reasonable investment-backed expectations of the property owner. That conclusion may hold in situations where health and safety concerns are particularly severe, such as during a power outage after a hurricane. Future scholarship could examine that third factor further.

#### CONCLUSION

Climate change is causing increasingly severe weather events and disasters. Governments at all levels are responding by providing citizens with information about climate risks, taking preventive and responsive measures, and providing aid to help citizens cope with damage to their property. The regulatory climate has been evolving and evolves more rapidly still.

But the constitutional doctrine of regulatory takings fails to account for that changing regulatory climate. Property owners may succeed on their takings claims and receive just compensation from the government when climate controls interfere with the reasonable investment-backed expectations that they formed at the time they purchased the property. As a result, outdated expectations trump present public interests and needlessly complicate regulatory takings analysis.

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<sup>189</sup> See Underkuffler, *supra* note 128.

<sup>190</sup> *Id.* at 346–48.

<sup>191</sup> See *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978).

<sup>192</sup> See *Murr v. Wisconsin*, 582 U.S. 383, 394 (2017).



To prevent the doctrine of regulatory takings from unduly burdening government efforts to control the effects of climate change, this Note proposed three possible changes to rebalance the analysis. The first is to adopt a dynamic approach to reasonable investment-backed expectations about climate change, so that they are not fixed at the time of purchase but evolve in response to the changing physical and regulatory climate. The second is to incorporate custom into the analysis to align reasonable expectations about climate change with local practices and protect property owners from unexpected regulatory changes. The third is to incorporate notice from two sources into the analysis—public news sources and direct contact with parties in the financial sector. Both provide adequate notice to property owners about climate risks and the controls that governments may impose in response.

These three changes make the analysis under the *Penn Central* framework more objective, moving from principle to rule within a subset of applications. That move increases uniformity and consistency. But the impact of the move on the whole regulatory takings analysis is limited because it affects only one of the three factors—although this factor shapes the property interest at issue—and the analysis for that factor remains case-by-case. All in all, the proposed changes to the constitutional doctrine are modest and yet ensure a more equitable approach to allocating harms resulting from climate change between property owners and society at large.