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# From Dirty to Green: Increasing Energy Efficiency and Renewable Energy in Environmental Justice Communities

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FROM DIRTY TO GREEN: INCREASING ENERGY EFFICIENCY  
AND RENEWABLE ENERGY IN ENVIRONMENTAL  
JUSTICE COMMUNITIES

DEBORAH BEHLES\*

I. INTRODUCTION

THE stifling summer heat that raged across the nation was difficult for everyone, but one group had a more difficult time than others—those who could not afford to cool their homes. Disparities like these will likely only get worse. Poor communities of color that are already vulnerable and disproportionately impacted by pollution will shoulder a larger burden of climate change impacts. These neighborhoods, often called environmental justice communities, have fewer resources to adapt to the effects of climate change. More measures should be taken to increase the development of renewable energy and energy efficiency in environmental justice communities before the gap becomes worse.

A myriad of policies promote the development of renewable energy and energy efficiency resources throughout the United States. These measures are justified by reasons ranging from energy security and job creation to environmental mitigation. Many of these measures are not targeted towards any particular community, but rather are general measures designed to encourage the development of these resources in a particular state or area of a state. A limited number of policies have strayed from this general approach and are designed to target sectors of the population that are more vulnerable to rising energy prices. These policies are often focused on lowering a person's energy bill rather than reducing a person's energy needs and environmental burdens. Most recently, the federal government authorized some funding to encourage energy efficiency and renewable energy development in low-income communities in the recovery fund. These funds, however, were limited and are unlikely to reoccur.

New policies are needed to increase renewable energy development and energy efficiency in environmental justice communities. Current measures are insufficient to help these communities when energy prices and temperatures rise, as they are expected to. The right policies could reduce pollution in areas that are already overburdened and would provide these vulnerable communities with new economic opportunities. To

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develop new policies, innovative renewable energy structures including on-bill financing and a feed-in tariff should be explored. In addition, policymakers should examine the environmental tools used in settlements, mitigation measures, and pollution fees as potential areas for innovation. Finally, policymakers need to consider: how to assure benefits help the targeted community, gentrification issues, whether a separate entity can administer the program, and the potential legal implications.

## II. CURRENT PROGRAMS ARE NOT ENOUGH

A decade ago, the environmental justice movement recognized the need to improve the environmental sustainability of poor communities and communities of color by encouraging the development of renewable energy and energy efficiency:

A just transition is about making sure no group of people shoulders a disproportionate burden when it comes to transitioning to a renewable resource economy. Effective climate policy will not only phase out fossil fuels in favor of renewables, but it will also make the transition as fair as possible. To ensure equity and self-sufficiency, policies must engage and empower communities with the information and resources to transition a resource economy.<sup>1</sup>

Transitioning environmental justice communities to greener economies has continued to be a focus of organizations in the environmental justice movement.<sup>2</sup> Meanwhile, government entities have also acknowledged the value of renewable development in environmental justice communities, along with the barriers that these communities face.<sup>3</sup>

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1. See Ansje Miller & Cody Sisco, *Ten Actions of Climate Justice Policies* 4 (Second Nat'l People of Color Env'tl. Leadership Summit—Summit II, Resource Paper Series, 2002), available at <http://www.ejrc.cau.edu/summit2/SummitIIClimateJustice%20.pdf> (discussing ten principles for climate change policies).

2. See, e.g., ENVTL. JUSTICE LEADERS WORKING GRP., ENVIRONMENTAL JUSTICE AND THE GREEN ECONOMY: A VISION STATEMENT AND CASE STUDIES FOR JUST AND SUSTAINABLE SOLUTIONS (2010), available at <http://ejstimulus.files.wordpress.com/2010/03/ejreport-english1.pdf> (highlighting work of community-based environmental justice groups that aim to create sustainable energy); KRISTEN ZIMMERMAN, MOVEMENT STRATEGY CTR., DARE TO CHANGE: ENVIRONMENTAL JUSTICE LEADERSHIP FOR CLIMATE JUSTICE, SUSTAINABLE COMMUNITIES AND A DEEP GREEN ECONOMY (2010), available at [http://funderservices.movementsstrategy.org/a/wp-content/uploads/Dare\\_To\\_Change.pdf](http://funderservices.movementsstrategy.org/a/wp-content/uploads/Dare_To_Change.pdf) (discussing transitioning of environmental justice movement towards advocating for sustainable economy based on clean energy); *Forgotten Communities in the South: Environmental Justice and Building a Green Society*, GOOD JOBS GREEN JOBS (2012), available at <http://www.greenjobsconference.org/node/680> (describing conference on transition of environmental justice communities).

3. See CAL. ENERGY COMM'N, 2011 INTEGRATED ENERGY POLICY REPORT 45 (2012), available at <http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-LCF.pdf> ("Rooftop PV in urban environments can provide value to these communities by reducing the health and environmental impacts of

Despite that recognition, few policy measures have been enacted to encourage green development in the areas of the country that need it most. Two main federal programs are focused on helping members of low-income communities ease their energy burdens: the Low-Income Home Energy Assistance Program (“LIHEAP”) and the Weatherization Assistance Program (“WAP”). LIHEAP, the larger program, provides financial support to low-income households to pay energy bills, and WAP provides funding to assist low-income families with energy efficiency upgrades. In addition to these programs, some states have also created programs through mechanisms such as public benefit charges that assist low-income communities with energy needs.

Although these programs are beneficial for low-income households, and should be continued, additional programs are needed to adequately assist environmental justice communities. The focus of the existing programs is direct subsidies to lower current energy bills. These programs, although admirable, are merely bandages over a larger problem. There is evidence that these programs already have difficulty serving the portion of the population most in need.<sup>4</sup> Moreover, if energy prices increase, as they are expected to, the energy burden on these low-income communities will also rise, making these temporary fixes increasingly difficult to sustain.<sup>5</sup> Another approach needs to be taken.

#### A. Federal Programs

In 1981, Congress passed the LIHEAP, with the goal of assisting low-income households. The LIHEAP particularly targets those households that spend the largest portion of their income on energy, and assists them in meeting their immediate home energy needs.<sup>6</sup> To give some perspective on size and trends, LIHEAP had a \$5.1 billion grant in 2010, a \$4.7 billion grant in 2011, and a \$3.5 billion grant in 2012.<sup>7</sup> These programs

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fossil-fueled power and increasing economic revitalization and creation of local green jobs. However, rooftop solar is not always accessible to these communities due to the high upfront cost of these systems.”).

4. See Tracey M. Roberts, *Mitigating the Distributional Impacts of Climate Change Policy*, 67 WASH. & LEE L. REV. 209, 264 (2010) (“Uptake under these benefits systems is historically low.”).

5. See, e.g., Victor E. Schwartz, Phil Goldberg & Corey Schaecher, *Why Trial Courts Have Been Quick to Cool “Global Warming” Suits*, 77 TENN. L. REV. 803, 829 (2010) (noting that funding for Low Income Home Energy Assistance Program “would need to be increased significantly if home heating oil prices had to incorporate costs allegedly related to global climate change”).

6. See Low Income Home Energy Assistance, 42 U.S.C. §§ 8621–8630 (2006) (establishing Low Income Home Energy Assistance Program). Parts of the Low Income Home Energy Assistance Program were amended in 2005 by Subtitle B of the Energy Policy Act of 2005.

7. See *LIHEAP Funding Tables*, U.S. DEP’T OF HEALTH & HUMAN SERVS., <http://www.acf.hhs.gov/programs/ocs/liheap/funding/fund.html> (last updated Apr. 27, 2012) (providing data of all LIHEAP funds allocated to states, as well as what portion of funds are used as block grants and emergency contingency funds).

are available in all fifty states, five territories, and about 140 tribal organizations.<sup>8</sup> The amount of federal funding available in a particular state depends on its weather and the size of its low-income population.<sup>9</sup> Some states supplement the federal funding with state funding through different measures such as public benefit charges.<sup>10</sup> To be eligible, the household's income cannot exceed 150% of the poverty level.<sup>11</sup>

In the past, much of the grant money has been utilized to lower the energy bill for qualifying residents for a particular month.<sup>12</sup> Some of the states limit this funding to only cover heating assistance, and not cooling assistance. This includes states that recently had high heat levels such as Colorado, Iowa, Kansas, and Maryland.<sup>13</sup> Some states have also included limited weatherization components within the constructs of the LIHEAP.<sup>14</sup> For example, Wisconsin has a public benefits fund, supported partly by the federal government,<sup>15</sup> which provides low-income energy assistance and low-income energy efficiency programs.<sup>16</sup> More recently, extreme heat waves have led some states to announce plans to grant certain

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8. See 42 U.S.C. §§ 8621–8630 (establishing LIHEAP). The law allows states, territories, and Indian tribes and tribal organizations that want to assist low-income homes to apply for a grant. See *id.* at § 8623 (defining state allotments and eligible states, territories, and tribal organizations).

9. See *LIHEAP Fact Sheet*, U.S. DEP'T OF HEALTH & HUMAN SERVS., <http://www.acf.hhs.gov/programs/ocs/liheap/about/factsheet.html> (last updated Jan. 18, 2011) (discussing type of grant, appropriation, legislative authority, purpose, and target population of LIHEAP). In 2010, the block grant for the program was \$5.1 billion. See *id.*

10. See, e.g., CONN. GEN. STAT. § 16-262c(b)(4)–(5) (2011). In Connecticut, a law requires a combined public benefit charge, which electric utilities use to assist low-income customers with their energy bills. See *id.*

11. See *LIHEAP Eligibility Criteria*, U.S. DEP'T OF HEALTH & HUMAN SERVS., <http://www.acf.hhs.gov/programs/ocs/liheap/guidance/eligibility.html> (last updated May 8, 2012) (describing eligibility criteria for LIHEAP assistance). This law also includes a measure based on the state's median income. See *id.*

12. See, e.g., LEGISLATIVE BUDGET & FIN. COMM., THE ADMINISTRATION OF PENNSYLVANIA'S LIHEAP GRANT AND CRISIS PROGRAM (2012), available at <http://lbfc.legis.state.pa.us/reports/2012/67.pdf> (detailing how majority of funds from Pennsylvania program goes to grants for low-income homes to help with heating costs).

13. See *Percent LIHEAP Funds By Program Component*, U.S. DEP'T OF HEALTH & HUMAN SERVS. (Dec. 3, 2012), <http://liheap.ncat.org/tables/FY2012/components.htm>.

14. See NEXUS MKT. RESEARCH, INC., EVALUATION OF THE 2005 UI HELPS AND WRAP LOW-INCOME WEATHERIZATION PROGRAMS: FINAL REPORT 111-13 (2006), available at <http://www.ctsavesenergy.org/files/UI%20Helps%20-%20WRAP%20final%20report%20FINAL%2012-18-06.pdf> (describing weatherization programs in New York, Rhode Island, Wisconsin, and New Jersey).

15. See WIS. STAT. § 16.957(2)(a)(1)–(4) (2007) (enumerating sources of funding for Wisconsin's low-income assistance program). Wisconsin's public benefit fund aggregates funds from charging utilities a public benefits charge, federal funds through the LIHEAP and the WAP, and voluntary contributions. See *id.*

16. See 1999 Wisconsin General Assembly, Act 9, § 109 (*codified in part at Wis. Stat. § 196*).

low-income families funds to purchase air conditioners or fans to help alleviate the heat.<sup>17</sup>

LIHEAP funding has also been used sparingly to help develop renewable resources. For example, California has a “Solar for All California” program, which receives funding through the state’s LIHEAP.<sup>18</sup> This program was created with the recognition that a low-income household can spend over fifteen percent of its income on energy.<sup>19</sup> It had a goal of installing 1,000 new solar photovoltaic systems that would produce 1.5 megawatts (MW) of renewable energy.<sup>20</sup> Over half of the approved projects are planned for multi-family residences.<sup>21</sup>

In addition to LIHEAP, the Department of Energy runs a program called the WAP, which was created in 1976 during the oil crisis, with the goal of reducing the energy burden for low-income homes.<sup>22</sup> This program employs energy audits to determine the most cost-effective energy

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17. See Lisa K. Brown, *Fairfax County Offers Cooling Programs*, KINGSTOWNE-ROSEHILL PATCH (June 27, 2012), <http://kingstowne.patch.com/articles/cooling-assistance-fairfax-county-heat-wave> (discussing cooling assistance options in Fairfax County); Nathan Brown, *Some NY Residents Eligible to Get Free Air Conditioners*, TIMES HERALD-RECORD (July 1, 2012), <http://www.recordonline.com/apps/pbcs.dll/article?AID=/20120701/NEWS/207010317> (explaining that New York’s governor announced that \$3 million of program funded by LIHEAP) will be used to allow eligible families that have medical condition to purchase air conditioners); Karla James, *Fan Distribution and Energy Assistance Programs*, NEBRASKA RADIO NETWORK (June 12, 2012), <http://nebraskaradionetwork.com/2012/06/12/fan-distribution-and-energy-assistance-programs>.

18. See CAL. DEP’T OF CMTY. SERVS. & DEV., *About Us*, SOLAR FOR ALL CALIFORNIA, <http://www.csd.ca.gov/documents/Programs%20tab/Energy/Solar%20For%20All%20CA/FinalEnglish.pdf> (last visited July 18, 2012) (on file with *Villanova Law Review*) (“California has used this funding for more traditional weatherization measures like insulation and caulking, but with the growing awareness of the benefits of solar, CSD wanted to find a way its low-income customers could benefit. CSD set aside \$14.7 million, challenging our providers to design an approach that met program objectives.”).

19. See CAL. DEP’T OF CMTY. SERVS. & DEV., FIFTH PROGRAM QUARTER: JUNE 1, 2011-AUGUST 31, 2011 1 (2011), available at [http://www.csd.ca.gov/Portals/0/Documents/Jun2011-Aug2011-S4AStatus\[1\].pdf](http://www.csd.ca.gov/Portals/0/Documents/Jun2011-Aug2011-S4AStatus[1].pdf).

20. See *id.* The initial grant for the program was \$14.7 million from funds in the 2009 LIHEAP. See *id.* Energy providers leveraged an additional \$2.25 million for the program. See *id.* The program is slated to meet its goal in Spring 2012. See *id.*

21. See *id.* at 2. 300 multifamily units were approved for Los Angeles and 295 multifamily units were approved for San Bernadino.

22. See *Weatherization & Intergovernmental Program: About*, U.S. DEP’T OF ENERGY, [http://www1.eere.energy.gov/wip/wap\\_history.html](http://www1.eere.energy.gov/wip/wap_history.html) (last updated Apr. 14, 2010).

efficiency projects for homes.<sup>23</sup> Weatherization can include a variety of projects that help a home more efficiently adapt to changing weather.<sup>24</sup>

The WAP recently received \$5 billion in funding from the American Recovery and Reinvestment Act of 2009 (“Recovery Act”).<sup>25</sup> The Department of Energy has used a small portion of that Recovery Act funding to launch a program called Sustainable Energy Resources for Consumers.<sup>26</sup> This program allows agencies administering the WAP to increase energy efficiency and renewable energy above what can be installed under the WAP. However, it is estimated that only approximately \$11 million, out of the total \$5 billion, will be spent on 1,000 solar photovoltaic installations.<sup>27</sup>

These programs generally assist households that have high-energy burdens relative to income. They do not take into account environmental burdens and other factors that should be considered if these programs are to target the population with the greatest need. Another significant problem with these programs is that the majority of the funding will be needed year after year because it is used to help pay energy bills.<sup>28</sup> Only a small percentage of the total funding for these federal programs has focused on trying to prevent homeowners from continuing to face the same energy burdens in the future. An additional issue with these programs is that they only help a small fraction of the population in need.<sup>29</sup> In many states, only around one-third of the population that falls below 75% of the poverty line receives assistance.<sup>30</sup> Finally, as shown by the shrinking budget of

23. *See id.* (explaining how energy audits “proved to be a key advance for weatherization service providers since it required every home to be comprehensively analyzed before work began in order to select the most cost-effective measures and the best approach”).

24. *See* 10 C.F.R. § 440.3 (2009) (defining weatherization materials). Weatherization projects can include “[c]ooling efficiency modifications” such as replacement of air conditioners, “[f]urnace efficiency modifications,” weather-stripping or shading devices. *Id.*

25. *See* American Recovery and Reinvestment Act of 2009 Pub L. No. 111-5, § 201, 123 Stat. 115, 138; *Weatherization & Intergovernmental Program: Technical Assistance*, U.S. DEP’T OF ENERGY, <http://www1.eere.energy.gov/wip/assistance.html> (last updated Oct. 22, 2012).

26. *See* U.S. DEP’T OF ENERGY, SERC GRANTS EXPAND WEATHERIZATION TECHNOLOGIES (2011), available at [http://www1.eere.energy.gov/wip/pdfs/serc\\_fact\\_sheet.pdf](http://www1.eere.energy.gov/wip/pdfs/serc_fact_sheet.pdf). Out of the \$5 billion grant from the Recovery Act, only \$90 million was used for Sustainable Energy Resources for Consumers grants. *See id.*

27. *See id.*

28. *See* David A. Super, *From the Greenhouse to the Poorhouse: Carbon-Emissions Control and the Rules of Legislative Joinder*, 158 U. PA. L. REV. 1093, 1147 (2010) (arguing that low-income households “depend on the uncertain and largely episodic support of altruists, many of whom have other commitments”).

29. *See id.* at 1169–70 (commenting on varying quality and efficacy of state home energy assistance programs). As Super summarized, “[s]ome [states] provide thin, almost irrelevant, subsidies to large numbers of people; others offer more substantial aid but only to a tiny fraction of low-income families.” *Id.* at 1169.

30. *See* U.S. DEP’T OF HEALTH & HUMAN SERVS., LOW INCOME HOME ENERGY ASSISTANCE PROGRAM: REPORT TO CONGRESS FOR FISCAL YEAR 2008 39–40 (2011),

LIHEAP, these programs are often subject to budget cuts. As the population expands, the climate gets hotter, and energy prices rise, these federal programs will not be adequate to meet the needs of environmental justice communities. New, innovative policies need to be developed.

### B. *State Policies*

Several states and cities have developed programs and policies to reduce low-income communities' energy burdens. As discussed above, several states use the LIHEAP funds in conjunction with other funding mechanisms to run energy assistance programs.<sup>31</sup> In addition, some states and cities have started direct grant programs to fund renewable development in environmental justice communities. For example, from 2001 through 2006, San Francisco spent approximately \$1 million in an environmental justice grant program that resulted in forty-two solar units being installed.<sup>32</sup> An independent audit estimated that the program served 350 people, which included the training and employment of sixteen people.<sup>33</sup> These direct grant programs are often instituted alongside other forms of assistance.<sup>34</sup>

Grant programs are funded in a number of ways. For example, pursuant to California's plan to develop one million solar roofs under the California Solar Initiative ("CSI"), California sets aside ten percent of the total budget for two programs that are reserved for low-income residential solar development.<sup>35</sup> One of the CSI programs, called Multifamily Affordable Solar Housing ("MASH"), provides incentives for the installation of solar photovoltaic generating systems on low-income multifamily housing structures.<sup>36</sup> The other CSI program, called the Single-Family Affordable Solar

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*available at* <http://www.acf.hhs.gov/programs/ocs/liheap/publications/liheap08rc.pdf> (listing number of households assisted by state and poverty level). Some states are even lower than a third. For example, in New Hampshire, only 19.2% of the population that fell below 75% of the poverty line was served by the program. *Id.* As one commentator summarized, "the amount allocated for low-income subsidies is far lower than the estimated \$60 billion low-income households spent on utility bills during 2006." Ann E. Carlson, *Heat Waves, Global Warming, and Mitigation*, 26 UCLA J. ENVTL. L. & POL'Y 169, 209 (2008).

31. For a further discussion of states combining these sources of funding, see *supra* notes 6–30.

32. TECHLAW, INC., INDEPENDENT EVALUATION OF THE ENVIRONMENTAL JUSTICE GRANT PROGRAM 18 (2006), *available at* [http://www.sfenvironment.org/sites/default/files/fliers/files/sfe\\_ej\\_independent\\_evaluation\\_grant.pdf](http://www.sfenvironment.org/sites/default/files/fliers/files/sfe_ej_independent_evaluation_grant.pdf).

33. *See id.*

34. *See* Zachary Shahan, *Go Solar in San Francisco! . . . How Much Does It Cost?*, CLEAN TECHNICA (May 11, 2011), <http://cleantechnica.com/2011/05/11/go-solar-in-san-francisco-how-much-does-it-cost/>.

35. *See* S.B. 1, 2006 Leg. (Cal. 2006) (codifying eligibility requirements and program budget for California Solar Initiative); Assemb. B. 2723, 2006 Leg. (Cal. 2006) (requiring CPUC to ensure that at least 10% of CSI funds were used for installing solar energy on low-income residences).

36. CAL. CTR. FOR SUSTAINABLE ENERGY ET AL., MULTIFAMILY AFFORDABLE SOLAR HOUSING SEMI-ANNUAL PROGRESS REPORT 6-7(2010), *available at* <http://www>.

Homes (“SASH”) program, offers incentives for photovoltaic installation.<sup>37</sup> Both of these programs “substantially subsidize” solar development in low-income neighborhoods.<sup>38</sup> In addition to these incentives, the SASH program also promotes energy efficiency, workforce development, and green jobs training.<sup>39</sup> These other aspects of the SASH program have been found useful for helping a community transition to renewable energy.<sup>40</sup> Another California Solar Initiative program directly targets solar water heating systems for low-income, multifamily residences by providing direct financial incentives to install solar water heating systems.<sup>41</sup> Although these programs have done well on recent evaluations, a common theme is the need to obtain more funding.<sup>42</sup> Part of the problem is that these programs were originally envisioned as surviving on community financing, but that has not proven feasible.<sup>43</sup>

Another approach has been the creation of loan programs for qualifying individuals. For instance, Connecticut has a program called the Housing Investment Fund that offers loans for energy conservation.<sup>44</sup> In particular, it helps finance loans to undertake projects such as upgrading heating and cooling systems or improving hot water equipment with low,

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cpuc.ca.gov/NR/rdonlyres/C0EEF9DF-1EF4-4C9A-965D-683205D59293/0/MASHSemiAnnualProgressReport\_July2010.pdf (describing program and its progress).

37. See *CSI Single-Family Affordable Solar Homes (SASH) Program*, CAL. PUB. UTILS. COMM’N, <http://www.cpuc.ca.gov/PUC/energy/Solar/sash.htm> (last updated Dec. 17, 2012).

38. See CAL. CTR. FOR SUSTAINABLE ENERGY ET AL., *supra* note 36, at 6.

39. See CAL. PUBLIC UTILS. COMM’N, CALIFORNIA SOLAR INITIATIVE PROGRAM HANDBOOK (2012), available at [http://www.gosolarcalifornia.ca.gov/documents/CSI\\_HANDBOOK.pdf](http://www.gosolarcalifornia.ca.gov/documents/CSI_HANDBOOK.pdf) (generally describing program).

40. See NAVIGANT CONSULTING, INC., CALIFORNIA SOLAR INITIATIVE—LOW-INCOME SOLAR PROGRAM EVALUATION: MARKET ASSESSMENT REPORT 4 (2011), available at <http://www.cpuc.ca.gov/NR/rdonlyres/EB601615-61B3-43B2-B034-EEC95AF46708/0/CSISASHandMASHMarketAssessmentReport.pdf> (explaining additional incentives of SASH program).

41. See *California Solar Initiative CSI—Thermal Program, Low-Income Program*, GO-SOLAR CAL., [http://www.gosolarcalifornia.ca.gov/solarwater/low\\_income\\_solar\\_water.php](http://www.gosolarcalifornia.ca.gov/solarwater/low_income_solar_water.php) (last visited Oct. 6, 2012). Installations of solar water heaters have lagged behind installations of solar panels in California. See Tor Valenza, *California Expands Solar Thermal Incentives for Low-Income Housing*, RENEWABLE ENERGY WORLD (Apr. 18, 2012), <http://www.renewableenergyworld.com/rea/blog/post/2012/04/california-expands-solar-thermal-incentives-for-low-income-housing>.

42. See, e.g., NAVIGANT CONSULTING, CALIFORNIA SOLAR INITIATIVE SASH AND MASH PROGRAM ADMINISTRATOR PERFORMANCE ASSESSMENT REPORT 5 (2011), available at [http://www.cpuc.ca.gov/NR/rdonlyres/3A60572D-725B-434E-A525-077428DE4E5D/0/CSIMASHandSASHPAAssessmentReport\\_2011.pdf](http://www.cpuc.ca.gov/NR/rdonlyres/3A60572D-725B-434E-A525-077428DE4E5D/0/CSIMASHandSASHPAAssessmentReport_2011.pdf).

43. See *id.* at 7 (noting that “[m]any projects with an Installed or Completed [sic] status indicate that gap funding is required but do not have a funding source indicated”).

44. See generally CONN. HOUS. INV. FUND, INC., RESPONDING TO CHANGE (2010), available at [http://www.chif.org/public/uploads/files/annual\\_reports/2010\\_annual\\_report.pdf](http://www.chif.org/public/uploads/files/annual_reports/2010_annual_report.pdf).

affordable rates.<sup>45</sup> Another approach that has been taken is combining loans and grants for eligible residents. For instance, New York has an Assisted Home Performance Program, which grants up to 50% of the cost of energy efficiency improvements to eligible families and then loans money at a subsidized rate.<sup>46</sup> The average homeowner under this program saves \$910 per year on energy costs.<sup>47</sup>

Unfortunately, some of the funds for these programs have been disappearing recently. For example, Michigan used to have an approximately \$85 million Low-Income and Energy Efficiency Fund (“LIEEF”) that helped finance energy efficiency and renewable energy projects to assist low-income communities. After the initial funding mechanism ran out, the Michigan Public Service Commission (“PSC”) attempted to fund the program through ratepayer funding, but a state court determined that the “administration of a LIEEF does not fall within the scope of the PSC’s general statutory powers.”<sup>48</sup> Later, the Michigan Legislature replaced LIEEF with the Vulnerable Household Warmth Fund, which was financed with a much smaller one-time grant of \$23 million.<sup>49</sup>

### III. WHY DISTRIBUTED RENEWABLE ENERGY AND ENERGY EFFICIENCY SHOULD BE INCREASED FOR VULNERABLE COMMUNITIES

Federal and state programs need to be reengineered to prevent energy and pollution disparities from getting worse.<sup>50</sup> To that end, small-scale distributed renewable generation projects and energy efficiency measures should be encouraged in environmental justice communities. Several reasons support an increased focus on such projects generally, as well

45. See *Residential Energy Efficiency Financing Program*, CONN. HOUS. INV. FUND, INC., <http://www.chif.org/page/borrower-information-and-application> (last visited July 6, 2012).

46. See *Assisted Home Performance Program with ENERGY STAR*, N.Y. STATE ENERGY RESEARCH & DEV. AUTH., [http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities/Assisted-Home-Performance-Program-with-ENERGY-STAR.aspx?sc\\_database=web](http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities/Assisted-Home-Performance-Program-with-ENERGY-STAR.aspx?sc_database=web) (last visited Apr. 16, 2012).

47. See ENERGY PROGRAMS CONSORTIUM, *INCREASING DEMAND FOR ASSISTED HOME PERFORMANCE WITH ENERGY STAR IN THE AFFORDABLE HOUSING MARKET 8* (2007), available at [http://www.energystar.gov/ia/partners/bldrs\\_lenders\\_raters/downloads/Assisted\\_Home\\_Performance\\_WI\\_NY.pdf](http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/Assisted_Home_Performance_WI_NY.pdf).

48. *In re Application of Mich. Consol. Gas Co. to Increase Rates*, 293 Mich. App. 360, 369 (Mich. Ct. App. 2011).

49. See, e.g., S.B. 864, 96th Leg., Reg. Sess. (Mich. 2011) (creating vulnerable household warmth fund within state treasury); S.B. 364, 96th Leg., Reg. Sess. (Mich. 2011) (appropriating funds for vulnerable household warmth assistance); H.B. 5190, 96th Leg., Reg. Sess. (Mich. 2011) (“The commission shall not include the low-income and energy efficiency charge in an affected utility’s base rates.”).

50. See Sharon Parrott, Dottie Rosenbaum & Chad Stone, *CTR. ON BUDGET & POLICY PRIORITIES, HOW TO USE EXISTING TAX AND BENEFIT SYSTEMS TO OFFSET CONSUMERS’ HIGHER ENERGY COSTS UNDER AN EMISSIONS CAP 1* (2009), available at [www.cbpp.org/files/4-20-09climate.pdf](http://www.cbpp.org/files/4-20-09climate.pdf) (recognizing need to focus on reducing energy needs of vulnerable communities, but noting much of focus has been on lowering energy bills).

as in the specific context of environmental justice communities. Importantly, these projects will not only improve the environment, but will also create economic opportunities for these communities.<sup>51</sup> Finally, reducing pollution and cleaning up contaminated areas in low-income communities may have health benefits for the people who live and work in those communities.<sup>52</sup>

A. *Distributed Renewable Generation and Energy Efficiency Have Advantages Over Other Types of Energy Resources*

Distributed generation (“DG”) is generally defined as small-scale electricity generation resources located close to the demand.<sup>53</sup> Renewable resources that can be scaled down and sited near load requirements include wind and solar facilities.<sup>54</sup> Most DG is solar because it can be readily sited on roofs and in other available urban areas such as parking lots and transportation infrastructure.<sup>55</sup> Some DG, such as most types of fuel cells, still use fossil fuel.<sup>56</sup> Distributed renewable generation, as used in this paper, is not intended to include sources that use fossil fuels or emit air pollution, such as biomass.

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51. See Louis Sahagun, *Los Angeles’ “Green Zone” Plan Is Aimed at Low-Income, High-Pollution Areas*, L.A. TIMES (Jan. 21, 2011), <http://articles.latimes.com/2011/jan/21/local/la-me-hazards-pacoima-20110121> (describing effort in Los Angeles neighborhoods to transition environmental justice communities to green economy).

52. See *id.* (quoting resident of Pacoima saying, “It’s time to clean that place up. There is nothing more important than the health of our children and elderly.”)

53. See, e.g., MARK RAWSON, CAL. ENERGY COMM’N, DISTRIBUTED GENERATION COSTS AND BENEFITS ISSUE PAPER (2004), available at [http://www.energy.ca.gov/papers/2004-08-30\\_RAWSON.pdf](http://www.energy.ca.gov/papers/2004-08-30_RAWSON.pdf) (noting that size of what qualifies as distributed generation varies throughout different jurisdictions). Regulators and policy-makers have suggested that the definition is not limited to a particular size limit.

54. Notably, the definition of renewable resources depends on which jurisdiction the resource is located in. Some states include various forms of biomass and hydro, while others have replaced restrictions on counting these resources as renewable. See RYAN WISER ET AL., RENEWABLES PORTFOLIO STANDARDS: A FACTUAL INTRODUCTION TO EXPERIENCE FROM THE UNITED STATES 4 (2007); see also RAWSON, *supra* note 53, at 2 (“[T]he definition of DG should not be solely defined on the basis of size, technology, application, or ownership. DG uses many different technologies and can be applied in so many different ways, as mentioned above. The benefits that a particular DG project can provide are driven more by application than technology type. To a large extent, the ownership of a particular DG device, whether by the utility, a third party or the end use customer, is unrelated to ability to capture DG benefits.”).

55. The type of renewable resource that is developed will depend on what resources are available. Some resources are more prevalent in some areas of the country than others. See *Dynamic Maps, GIS Data, & Analysis Tools*, NAT’L RENEWABLE ENERGY LABORATORY, <http://www.nrel.gov/gis/> (last updated Aug. 22, 2012).

56. See *What Is an Energy Server?*, BLOOMENERGY, <http://www.bloomenergy.com/products/data-sheet/> (last visited Aug. 6, 2011); see also S.B. 124, 146th Gen. Assemb. (Del. 2011).

Distributed renewable generation projects should be the focus of policies that encourage green development in environmental justice communities. Distributed generation projects have several benefits over large-scale renewable projects. They are deployed more easily than large-scale renewable resources because “these facilities can be located close to load without the need for transmission additions, and may face fewer environmental barriers and public opposition than larger scale projects.”<sup>57</sup> Consequently, “it is reasonable to conclude that development of smaller projects can be accomplished more quickly and with less risk than larger facilities.”<sup>58</sup> Thus, a major benefit of a decentralized system is that the electricity is generated close to the load center, thereby reducing, or even eliminating, the need for reliance on transmission lines. For example, in Germany, one solar developer is constructing solar panels on a highway tunnel, which is located close to a load center.<sup>59</sup>

Distributed generation can eliminate the need for dirty energy generation resources. Solar photovoltaic distributed generation has been recognized as a viable replacement for natural gas peaker plants because PV “provide[s] power at a time when demand is likely to be high—on hot, sunny days.”<sup>60</sup> Another significant benefit of the most widely distributed technology, solar photovoltaic systems, is that the panels have dropped greatly in price, making deployment more economical. Large-scale integration of PV for the urban grid is now both technically and economically feasible. Prices for solar PV have dropped drastically in the last few years, and projections estimate that PV will further drop to a price point of \$2.60 per watt installed.<sup>61</sup> These prices will likely drop further as deployment of PV systems increases.<sup>62</sup>

Large-scale solar facilities confront many issues. The subsidies to large renewable projects have come under political fire after large companies have declared bankruptcy.<sup>63</sup> In addition, some large-scale facilities

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57. See *Re Pac. Gas & Elec. Co.*, No. 10-04-052, 2010 WL 1821080, at \*7 (Cal. P.U.C. Apr. 22, 2010).

58. See *id.* at 17.

59. See *2.8-MW A3 Highway Solar System Nears Completion*, RENEWABLE ENERGY WORLD (Feb. 26, 2009), <http://www.renewableenergyworld.com/rea/news/article/2009/02/2-8-mw-a3-highway-solar-system-nears-completion>.

60. See CAL. ENERGY COMM'N, *CHULA VISTA ENERGY UPGRADE PROJECT 30* (2009), available at <http://www.energy.ca.gov/2009publications/CEC-800-2009-001/CEC-800-2009-001-CMF.pdf>.

61. See Stephen Lacey, *Why Clean Energy Can Scale Today*, THINK PROGRESS (May 9, 2011), <http://thinkprogress.org/romm/2011/05/09/208051/clean-energy-scale-stephen-lacey/> (discussing projections of PV prices by industry leaders).

62. See Paul Gipe, *Should California Simply Adopt German Solar Tariffs*, RENEWABLE ENERGY WORLD (July 8, 2011), <http://www.renewableenergyworld.com/rea/news/article/2011/07/should-california-simply-adopt-german-solar-tariffs> (reporting that prices of photovoltaic systems dropped by half since 2004 in Germany, and prices in Germany are currently sixty-one percent of prices in United States).

63. See Eric Lipton & Clifford Krauss, *Rich Subsidies Powering Solar and Wind Projects*, N.Y. TIMES, Nov. 11, 2011, at A1 (“Taxpayers and ratepayers are providing subsidies worth almost as much as the entire \$1.6 billion cost of the project.”); see

have been developed quickly without careful, thoughtful planning. For instance, the Genesis Solar Energy Project, a 225-MW project planned for the California desert, has been delayed due to impacts on foxes in the area and the discovery of a possible Native American historic site.<sup>64</sup>

Large-scale projects also have transmission problems because they are located far away from the need. In fact, regulators have been concerned with the possibility of stranded development, and entire projects have been delayed due to issues related to transmission.<sup>65</sup> Further, transmission costs often exceed initial estimates.<sup>66</sup> For all these reasons, programs to assist environmental justice communities should focus on small, distributed renewable energy projects.

A program designed to encourage green development should also include energy efficiency measures. Such programs will face significant challenges, because members of low-income communities often lack the capital to install new technology and a great many do not own their homes.<sup>67</sup> Nevertheless, there are many advantages to promoting energy efficiency. Energy efficiency is generally less politically charged than alternative energy generation, and therefore easier to implement.<sup>68</sup> Energy efficiency has been seen as an essential measure for decreasing emissions.<sup>69</sup> As the U.S. Secretary of Energy commented, energy efficiency is more important now than ever for a clean energy economy.<sup>70</sup> The easiest

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*also DOE Loan Guarantees Under Attack—Storm Clouds on the Horizon for U.S. Alternative Energy?*, PROJECT FIN. INT'L J., Jan. 2012, at 1 (stating that significance of lawsuit "can scarcely be exaggerated. . . . [I]f DOE's guarantees under Section 1705 are invalidated as a result of the CARE suit, it would not be too much to say that billions of dollars of investment, and tens of thousands of construction and permanent jobs, will be thrown into turmoil, with potentially calamitous consequences for the market in United States obligations generally").

64. See Louis Sahagun, *The Solar Desert: A Cloud Over Solar Effort*, L.A. TIMES, Feb. 11, 2012, at 1.

65. See Seth Parker, Jack Elder & Boris Shapiro, *Green Gridworks: Case Studies on Integrating Renewable Resources*, PUB. UTILS. FORTNIGHTLY, Feb. 2012, at 25, 33 ("Renewable generators won't invest without an assured delivery pathway, and regulators are reluctant to approve transmission cost recovery without sufficient assurances from generators. The issue is compounded by the long lead times and high development cost for both.").

66. See *id.* at 33 (citing Texas as example of place where transmission costs greatly exceeded initial estimates).

67. See *supra* notes 6–30. The Weatherization Assistance Program provides funding for energy efficiency measures. However, these measures focus on heating, ventilation, and cooling issues, not on other energy efficiency measures. Although these programs are very helpful for the recipients that receive them, they are only a fraction of the funding available in other programs.

68. See, e.g., Avery Fellow, *EPA Official Sees Growing Interest in Energy Efficiency Among Utilities*, 43 ENV'T REP. 520, 520–21 (2012) (quoting president of Alliance to Save Energy as stating that "energy efficiency offers a good opportunity to address climate change without becoming politically charged.").

69. See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: MITIGATION OF CLIMATE CHANGE 10 tbl. SPM.3 (2007).

70. See Janice Valverde, *Chu Says "Transformational Technologies" Vital for Transition to Clean-Energy Economy*, 40 ENV'T REP. 621 (2009).

way to meet climate change related goals is to reduce energy consumption.<sup>71</sup> Indeed, the Pew Center has stated that that the United States needs to focus on improving “the efficiency of energy conversion and utilization so as to reduce the demand for energy” to mitigate for climate change.<sup>72</sup> New policies are important because previous programs to incentivize renewable development are likely to disappear in coming years.<sup>73</sup>

The United States has already realized significant reductions in energy usage due to energy efficiency measures. For example, Vermont has been able to effectively reduce load by a couple of percentage points each year over the last few years.<sup>74</sup> Several other states have also implemented energy efficiency programs that have resulted in significant savings.<sup>75</sup> For instance, a weatherization program in New York has significantly reduced energy bills for consumers.<sup>76</sup>

Although significant reductions have been realized, new specifications related to energy efficiency will continue to reduce energy requirements. One area requiring further improvement is home appliance maintenance. “[M]ajor consumer equipment, such as refrigerators and air conditioning units, are often not properly commissioned when first installed.”<sup>77</sup> Similarly, new requirements for light bulbs in the United States are expected to reduce energy usage by seventy-five percent compared to standard light bulbs.<sup>78</sup> Another new standard requires that resi-

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71. See S. Pacala & R. Socolow, *Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies*, 305 SCI. 968, 969 (2004) (describing different strategies for reducing greenhouse gas emissions as wedges and stating that efficiency and conservation offer greatest potential to provide wedges).

72. See PEW CTR. ON GLOBAL CLIMATE CHANGE, U.S. TECHNOLOGY AND INNOVATION POLICIES: LESSONS FOR CLIMATE CHANGE iii (2003), available at <http://www.c2es.org/docUploads/us-technology-innovation-policies.pdf>.

73. See, e.g., Ari Natter, *Solar Industry Renew Push to Reinstate Cash Grant Program, Despite Long Odds*, 43 ENV'T REP. 141 (2012) (describing likelihood of Congress not reapproving cash grants to solar developers).

74. See EFFICIENCY VERMONT, ANNUAL REPORT: 2010 2 (2012), available at [http://www.encyvermont.com/docs/about\\_efficiency\\_vermont/annual\\_reports/2010\\_Annual\\_Report.pdf](http://www.encyvermont.com/docs/about_efficiency_vermont/annual_reports/2010_Annual_Report.pdf).

75. See GEOFFREY KEITH ET AL., SYNAPSE ENERGY ECON., BEYOND BUSINESS AS USUAL: INVESTIGATING A FUTURE WITHOUT COAL AND NUCLEAR POWER IN THE U.S. 7 (2010), available at <http://www.civilsocietyinstitute.org/media/pdfs/Beyond%20BAU%205-11-10.pdf> (describing Annual Energy Outlook, which simulates U.S. electricity production and use through 2035).

76. See NEXUS MARKETING RESEARCH, INC., *supra* note 14, at 111 (noting that program in New York has resulted in savings over \$900 annually).

77. See U.S. ENVTL. PROT. AGENCY, SMART GRID'S POTENTIAL FOR CLEAN ENERGY: BACKGROUND AND RESOURCES (2010), available at [http://www.epa.gov/statelocalclimate/documents/pdf/background\\_paper\\_3-23-2010.pdf](http://www.epa.gov/statelocalclimate/documents/pdf/background_paper_3-23-2010.pdf) (explaining features and functions of smart grids).

78. See Energy Independence and Security Act of 2007, Pub. L. No. 110-140, § 321, 121 Stat. 1492 (codified at 42 U.S.C. §§ 17001-17386 (2007)) (requiring reduction in wattage requirements for light bulbs). Compact florescent light bulbs are expected to use 75% less energy and last many times longer than standard light bulbs. See *id.* (establishing efficiency standards for general service light bulbs).

dential dishwashers use fifteen percent less energy, and that top-loading clothes washers use thirty-three percent less energy.<sup>79</sup> In addition, new innovative types of energy efficient technologies are constantly being developed. For example, a company developed a new thin window material that makes windows up to thirty percent more energy efficient during hotter months.<sup>80</sup> Through the Energy Star program, the Environmental Protection Agency will continue to update its standards for various types of appliances and technologies to reflect these advancements.<sup>81</sup>

More recently, the federal government appears to have become more serious about energy efficiency. The Department of Energy ruled that states must review and update their energy efficiency codes for residential and commercial buildings.<sup>82</sup> The Department of Energy also recently issued a rule that includes efficiency standards for furnaces, air conditioners, and heat pumps.<sup>83</sup> This rule interestingly also focuses on specific regions recognizing that efficiency goals may need to be designed differently in diverse climates.<sup>84</sup> With that in mind, energy efficiency improvements can be a significant tool for helping environmental justice communities transition to a cleaner energy future.

#### B. *Increased Distributed Renewable Generation and Energy Efficiency Helps Mitigate Climate Change*

A policy encouraging increased development of distributed renewable energy and energy efficiency measures can also help mitigate the effects of climate change. Scientists have found that significant reductions of greenhouse gases are necessary to avoid the likely devastating impacts of climate change.<sup>85</sup> In fact, reputable scientists have found that we are

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79. See Energy Conservation Program: Energy Conservation Standards for Residential Dishwashers, 77 Fed. Reg. 31,918, 31,919 (May 30, 2012) (to be codified at 10 C.F.R. pts. 429-30) (prescribing energy conservation standards for various consumer products).

80. See Tripp Baltz, *DOE Signs First "Energy Innovator" Agreement with Colorado Company, Biden Announces*, 42 ENV'T REP. 1166 (2011) (discussing U.S. e-Chromic's invention pursuant to Obama administration's "Startup America Initiative").

81. See *About Energy Star*, U.S. ENVTL. PROT. AGENCY, [http://www.energystar.gov/index.cfm?c=about.ab\\_index](http://www.energystar.gov/index.cfm?c=about.ab_index) (last visited July 27, 2011).

82. See, e.g., *Updating State Residential Building Energy Efficiency Codes*, 76 Fed. Reg. 42,688 (July 19, 2011) (requiring states to file certification statements to DOE that they have reviewed provisions of residential building code regarding energy efficiency); *Building Energy Standards Program: Determination Regarding Energy Efficiency Improvements in the Energy Standard for Buildings, Except Low-Rise Residential Buildings*, 76 Fed. Reg. 64,904 (Oct. 19, 2011) (requiring states to review provisions of commercial building code regarding energy efficiency and update their code accordingly).

83. See *Energy Conservation Program for Consumer Products*, 10 C.F.R. § 430 (2011) (amending energy conservation standards for residential furnaces, central air conditioners, and heat pumps).

84. See *id.* (displaying different standards for different geographical regions).

85. See *Massachusetts v. U.S. Env'tl. Prot. Agency*, 549 U.S. 497 (2007) (holding that Clean Air Act authorized EPA to regulate greenhouse gas emissions from

neering a tipping point, at which the impact of climate change will become irreversible.<sup>86</sup> Other news related to climate change is similarly dire. Recent years were among the warmest on record, and studies continue to link the warm temperatures to extreme weather events.<sup>87</sup> Federal, state, and local governments are currently evaluating many different options to reduce greenhouse gases.<sup>88</sup> Many of these efforts are focused on the electrical generation industry because approximately forty percent of carbon dioxide emissions in the United States are created from burning fossil fuels to create electricity.<sup>89</sup> To reduce the levels of greenhouse gases produced by the electrical generation industry, many plans would require increased generation of electricity through renewable resources, as well as conservation of resources.<sup>90</sup>

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new motor vehicles). Notably, the Supreme Court called the rise in global temperatures “well-documented” and recognized that well-respected scientists see the trend in global temperatures and greenhouse gas concentration as interrelated. *See id.* at 504-05 (“A well-documented rise in global temperatures has coincided with a significant increase in the concentration of carbon dioxide in the atmosphere.”); *see also* Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496, 66,497 (Dec. 15, 2009) (finding that body of evidence “compellingly supports” conclusion that GHG emissions endanger human health and that “human-induced climate change has the potential to be far-reaching and multi-dimensional”); James Hansen et al., *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?*, 2 OPEN ATMOSPHERIC SCI. J. 217 (2008) (presenting data showing that human activity is altering atmospheric composition); *see generally* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT (2007), available at [http://www.ipcc.ch/publications\\_and\\_data/ar4/syr/en/spms1.html](http://www.ipcc.ch/publications_and_data/ar4/syr/en/spms1.html) (providing integrated view of climate change).

86. *See* Hansen et al., *supra* note 85, at 217 (finding that if current rates of increasing greenhouse gas emissions are not reversed, “there is a possibility of seeding irreversible catastrophic effects”); James E. Hansen & Makiko Sato, *Paleoclimate Implications For Human-Made Climate Change*, CLIMATE CHANGE 2012, at 21, available at [http://link.springer.com/chapter/10.1007/978-3-7091-0973-1\\_2](http://link.springer.com/chapter/10.1007/978-3-7091-0973-1_2) (same).

87. *See* Leora Falk, *NOAA Says 2010 Among Warmest on Record; Pew Links Climate, Harsh Weather Frequency*, 42 ENV’T REP. 1449 (2011) (containing statement of executive director of Scientific American saying, “the existence of the link between climate change and extreme weather is not so much theoretical anymore as it is observational”); BULLETIN OF THE AM. METEOROLOGICAL SOC’Y, STATE OF THE CLIMATE IN 2010 SUPPLEMENTAL (2011), available at <http://www1.ncdc.noaa.gov/pub/data/cmb/bams-sotc/2010/bams-sotc-2010-brochure-lo-rez.pdf>.

88. *See* CTR. FOR CLIMATE AND ENERGY SOLUTIONS, CLIMATE CHANGE 101: STATE ACTION (2011), available at <http://www.pewclimate.org/docUploads/climate101-state.pdf> (summarizing policies that states and regions are developing as related to climate change).

89. *See Electricity Explained: Electricity and the Environment* U.S. ENERGY INFORMATION AGENCY, (Apr. 16, 2012), [http://www.eia.doe.gov/energyexplained/index.cfm?page=electricity\\_environment](http://www.eia.doe.gov/energyexplained/index.cfm?page=electricity_environment); Dean Scott, *World Carbon Emissions From Fossil Fuel Combustion Reach Record High, IEA Says*, 43 ENV’T REP. 1398 (2012).

90. *See* BERT METZ ET. AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: MITIGATION OF CLIMATE CHANGE (Bert Metz et al. eds., Cambridge Univ. Press 2007) (recommending that policy makers reduce reliance on fossil fuel generated electricity as part of any climate change mitigation plan).

While plans for requiring the development of renewable energy are progressing, other responses to climate change have come under attack.<sup>91</sup> International efforts to secure a global treaty, and domestic efforts for a climate change law, have been largely unsuccessful.<sup>92</sup> Not surprisingly, a recent United Nations report found that the best way to achieve climate reduction is in a “bottom-up process rather than in response to a comprehensive global treaty.”<sup>93</sup>

Consistent with a bottom-up approach, the United States has increased efforts to transition to renewable energy as a way to mitigate climate change.<sup>94</sup> Policymakers in the United States and throughout the world are starting to see the substantial benefit of distributed generation.<sup>95</sup> This increased development of renewable energy and energy efficiency measures can help communities transition away from fossil fuel dependence, which in turn can help mitigate climate change impacts.

### C. *Reduce Pollution Burden of Environmental Justice Communities*

A policy encouraging renewable energy development and energy efficiency measures could help reduce harmful air pollution in environmental justice communities. Numerous studies have shown that low-income and minority communities that often live in urban areas bear more of the

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91. See *Renewable and Alternative Energy Portfolio Standards*, CENTER FOR CLIMATE AND ENERGY SOLUTIONS, [http://www.pewclimate.org/what\\_s\\_being\\_done/in\\_the\\_states/rps.cfm](http://www.pewclimate.org/what_s_being_done/in_the_states/rps.cfm) (last visited July 28, 2011) (detailing states that have promulgated requirements for certain percentage of their energy to be generated from renewable resources). At the same time renewable development has been increasing, other climate change policies have been not targeted. See, e.g., Amena H. Saiyid, *EPA Authority to Regulate Greenhouse Gases to Be Targeted in 2012 Spending Measure*, 42 ENV'T REP. 1295 (2011) (discussing recent plans by Representative to offer amendment to bill to bar EPA from using fiscal 2011 funds to regulate greenhouse gases); see also Valerie Volcovici, *Court Ruling to Shift Greenhouse Gas Fight Back to Congress*, REUTERS (June 28, 2012), <http://www.reuters.com/article/2012/06/28/us-emissions-court-idUSBRE85R0C120120628> (discussing how challenges to EPA's GHG work will be focused in Congress after D.C. Circuit upheld EPA's endangerment finding and GHG rules).

92. See Eric J. Lyman, *Bonn Talks Conclude with Agenda Outline, Selection of Chairs for New Negotiating Track*, 43 ENV'T REP. 1400 (2012) (summarizing May 2012 talks, which ended in agreement to talk again); Bryan Walsh, *Fighting Climate Change By Not Focusing on Climate Change*, TIME (July 26, 2011), <http://www.time.com/time/health/article/0,8599,2085220,00.html> (discussing reasons for failures in international climate change deal).

93. See GLOBAL GOVERNANCE 2020, BEYOND A GLOBAL DEAL: A UN+ APPROACH TO CLIMATE GOVERNANCE 5 (2011), available at [http://www.gg2020.net/fileadmin/media/gg2020/GG2020\\_2011\\_Climate\\_Beyond\\_Global\\_Deal.pdf](http://www.gg2020.net/fileadmin/media/gg2020/GG2020_2011_Climate_Beyond_Global_Deal.pdf). Others have advocated for this as well. See, e.g., Edna Sussman, *Reshaping Municipal and County Laws to Foster Green Building, Energy Efficiency, and Renewable Energy*, 16 N.Y.U. ENVTL. L.J. 1, 39–42 (2008) (stating why local action is necessary and that local governments can have impact on global warming by utilizing local tools).

94. See Ari Natter, *Obama's Budget to Seek More Funding For Clean Energy, Fewer Oil, Gas Subsidies*, 42 ENV'T REP. 155 (2011).

95. See generally *id.* (detailing efforts related to distributed generation in Spain and Germany).

cumulative burden of pollution.<sup>96</sup> Minority and low-income communities disproportionately bear the adverse environmental and health impacts from fossil fuel exploration, extraction, production, consumption, and disposal.<sup>97</sup> These communities are often located near many different industries creating different types of pollution and the cumulative impact of all those types of pollution is unknown.<sup>98</sup> These activities produce and lead to several criteria pollutants including fine particulate matter and nitrous oxides, which are harmful to human health.<sup>99</sup> For example, in the San Francisco Bay Area, urban neighborhoods with high populations of minorities such as Southeast San Francisco, called the Bayview Hunters Point neighborhood, and Richmond have been designated as high impact areas for air pollution.<sup>100</sup>

These overburdened communities often experience higher incidences of respiratory health effects, which have been linked to criteria pollutants, than other communities.<sup>101</sup> Several studies have demonstrated

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96. See, e.g., ROBERT D. BULLARD ET AL., TOXIC WASTES AND RACE AT TWENTY, 38–48, available at <http://www.ucc.org/justice/environmental-justice/pdfs/toxic-wastes-and-race-at-twenty-1987-2007.pdf> (discussing racial and socioeconomic disparities in distribution of environmental hazards); Clifford Rechtschaffen, *The Evidence of Environmental Injustice*, 12 ENVTL. L. NEWS, No. 3, 2003 at 3–11 (analyzing evidence regarding different theories about unequal distribution of environmental benefits and burdens).

97. See BULLARD ET AL., *supra* note 96, at 122 (recognizing that people of color bear burden of society addicted to fossil fuel); MANUEL PASTOR ET AL., MINDING THE CLIMATE GAP: WHAT'S AT STAKE IF CALIFORNIA'S CLIMATE LAW ISN'T DONE RIGHT AND RIGHT AWAY 17–19 (2010), available at <http://dornsife.usc.edu/perc/documents/mindingthegap.pdf>; see also *The California Environmental Justice Movement's Declaration on Use of Carbon Trading Schemes to Address Climate Change*, EJ MATTERS, <http://www.ejmmatters.org/declaration.html> (last visited Oct. 6, 2012) (recognizing that Asian, Black, Latino, and Native American communities disproportionately bear negative economic, environmental, and health impacts of fossil fuel economy).

98. See Deborah Behles, *Examining the Air We Breathe: EPA Should Evaluate Cumulative Impacts When It Promulgates National Ambient Air Quality Standards*, 28 PACE ENVTL. L. REV. 200, 201 (2010) (proposing that failure of EPA to consider cumulative health impacts negatively affects low-income communities); Sahagun, *supra* note 51 (describing Los Angeles community's response to toxic environment). Manuel Pastor, director of the Program for Environmental and Regional Equity, said "in some of these neighborhoods there is no place that is not within 1,000 feet of a significant pollution hazard such as chrome-plating businesses, heavy industry and adjacent freeways. The synergistic effect of these hazards remains unknown." *Id.*

99. See PASTOR ET AL., *supra* note 97, at 5–8 (measuring pollutant effects on communities); Seth B. Shonkoff et al., *Minding the Climate Gap: Environmental Health and Equity Implications of Climate Change Mitigation Policies in California*, 2 ENVTL. JUST., 173 (2009).

100. See CARE Program, BAY AREA AIR QUALITY MGMT. DIST., (Sept. 29, 2012), <http://www.baaqmd.gov/Divisions/Planning-and-Research/CARE-Program.aspx> (discussing high impact areas).

101. See JONATHAN LONDON ET AL., LAND OF RISK, LAND OF OPPORTUNITY: CUMULATIVE ENVIRONMENTAL VULNERABILITIES IN CALIFORNIA'S SAN JOAQUIN VALLEY 12 (2011) (finding that areas with environmental vulnerabilities tend to have higher

that asthma rates are higher among minorities.<sup>102</sup> Other studies have found that asthma rates are higher in low-income areas. One study found that children living in a low socioeconomic status community had a seventy percent higher risk of acquiring asthma than children living in a higher socioeconomic status neighborhood.<sup>103</sup>

The disparities associated with a higher cumulative burden of pollution will continue to increase due to climate change.<sup>104</sup> Environmental justice communities have less access to the resources necessary to adapt to climate change such as air conditioning and medical care.<sup>105</sup> In addition, cap and trade regimes, such as the scheme created in California, can create hot spots in areas already experiencing high levels of pollution, which in turn leads to a greater cumulative health risk.<sup>106</sup> Greenhouse gas levels

cumulative health problems). For example, the Bayview Hunters-Point community in San Francisco, which houses the majority of industry in the city, suffers higher bronchitis and asthma rates than the rest of the area. See Clifford Rechtschaffen, *Fighting Back Against a Power Plant: Some Lessons from the Legal and Organizing Efforts of the Bayview-Hunters Point Community*, 14 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 537, 553 (2008) (discussing bronchitis and asthma rates in this community).

102. See, e.g., Diane R. Gold & Rosalind Wright, *Population Disparities in Asthma*, 26 ANN. REV. PUB. HEALTH 89 (2005); Marielena Lara et al., *Heterogeneity of Childhood Asthma Among Hispanic Children: Puerto Rican Children Bear a Disproportionate Burden*, 117 PEDIATRICS 43, 43–53 (2006); Marla McDaniel et al., *Racial Disparities in Childhood Asthma in the United States: Evidence from the National Health Interview Survey, 1997 to 2003*, 117 PEDIATRICS 868 (2006).

103. Luz Claudio et al., *Prevalence of Childhood Asthma in Urban Communities: The Impact of Ethnicity and Income*, 16 ANNALS OF EPIDEMIOLOGY 332, 332 (2006).

104. See, e.g., PASTOR ET. AL., *supra* note 97, at 20–22 (discussing disparity of asthma rates); Shonkoff et al., *supra* note 99, at 173 (same).

105. See, e.g., CONGRESSIONAL BLACK CAUCUS FOUND., INC., AFRICAN AMERICANS AND CLIMATE CHANGE: AN UNEQUAL BURDEN 9 (2004), available at [www.rprogress.org/publications/2004/CBCF\\_REPORT\\_F.pdf](http://www.rprogress.org/publications/2004/CBCF_REPORT_F.pdf) (finding that African Americans are twice as likely to die than general population from heat wave and nearly three times more likely to die of asthma than Whites). The limited capability of low income and minority communities to adapt to climate change was also recently recognized by California's Attorney General:

The impacts of global warming experienced by [communities of color] and poor communities will be exacerbated because these groups are often the least able to adapt. They typically have less access to health care and medical, home, and renter's insurance; less money to purchase air conditioning or to move away from droughts, floods and fires caused by global warming; and spend a higher percentage of their income on necessities such as gasoline, water, and electricity, which will become scarcer and more expensive with climate change.

*Factsheet: The Cap and Trade Charade for Climate Change*, EJ MATTERS, [http://www.ejmatters.org/docs/Cap-Trade\\_FACTSHEET.pdf](http://www.ejmatters.org/docs/Cap-Trade_FACTSHEET.pdf) (last updated Nov. 4, 2010)

106. See *AB 32 Scoping Plan*, CALIFORNIA ENVTL. PROT. Agency, <http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm> (last updated May 16, 2012) (describing California's cap and trade scheme); see also Richard Toshiyuki Drury et al., *Pollution Trading and Environmental Injustice: Los Angeles' Failed Experiment in Air Quality Policy*, 9 DUKE ENVTL. L. & POL'Y F. 231, 272 (1999) (same); Alice Kaswan, *Environmental Justice & Domestic Climate Change Policy*, 38 ENVTL. L. REP. 10287, 10299 (2008) (discussing climate change policies); Ida Martinac, *Considering Environmental Justice in the Decision to Unbundle Renewable Energy Certificates*, 35 GOLDEN

are directly related to the environmental burden these communities currently face, partly because fossil fuel stationary sources emit greenhouse gases and other harmful air pollutants including particulate matter, nitrogen oxides, sulfur dioxide, and mercury.<sup>107</sup>

In addition to heat-related impacts, increased temperatures are tied to increased smog, and thus deterioration of air quality.<sup>108</sup> As temperatures increase, nitrogen oxides will react with volatile organic compounds and sunlight at an increased rate, which will increase the atmospheric concentrations of ozone in urban areas.<sup>109</sup> This predicted air quality deterioration in urban areas will most severely impact low-income and minority communities that live in these areas, which are already overburdened by pollution.<sup>110</sup>

#### D. *Green Development Has Economic Benefits for Communities*

Environmental justice communities that bear a disproportionate impact of environmental pollution also generally have a higher energy burden.<sup>111</sup> Low-income communities pay a larger amount of their income, which makes them more vulnerable to fluctuating energy prices.<sup>112</sup> This is especially problematic when energy prices and needs are expected to rise due to climate change.<sup>113</sup>

The energy burden for low-income communities varies. One report estimates that energy bills can be up to thirty percent of a low-income family's monthly income.<sup>114</sup> Low-income households are estimated to re-

GATE U. L. REV. 491, 523 (2005) (explaining how RECLAIM created hot spots); Carol M. Rose, *Hot Spots in the Legislative Climate Change Proposals*, 102 Nw. U. L. REV. COLLOQUY 189, 190 (2008) (discussing how cap and trade systems create hot spots).

107. See *Energy Impacts & Adaptation*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/climatechange/impacts-adaptation/energy.html> (last updated Jan. 4, 2013) (discussing these stationary sources that burn fossil fuels).

108. See RACHEL MORELLO-FROSCH ET AL., *THE CLIMATE GAP: INEQUITIES IN HOW CLIMATE CHANGE HURTS AMERICANS & HOW TO CLOSE THE GAP* 5, 13 (2010) (discussing environmental effects of climate change).

109. See Mark Z. Jacobson, *On the Causal Link Between Carbon Dioxide and Air Pollution Mortality*, GEOPHYSICAL RES. LETTERS, Feb. 12, 2008, at 3809 (discussing causes of increases in atmospheric concentrations of ozone in urban areas).

110. See MORELLO-FROSCH ET AL., *supra* note 108, at 5, 13 (discussing environmental effects of climate change).

111. 42 U.S.C. § 8622 (2006) (defining energy burden as: "the expenditures of the household for home energy divided by the income of the household").

112. The energy burden continues to grow as energy prices for heating oil, natural gas, electricity, and propane are rising. See CAMPAIGN FOR HOME ENERGY ASSISTANCE, *THE LIHEAP INVESTMENT* (2010), [http://liheap.org/assets/investment/LIHEAP\\_investment\\_june2010.pdf](http://liheap.org/assets/investment/LIHEAP_investment_june2010.pdf).

113. See FRANK ACKERMAN, STOCKHOLM ENV'T INST., *CLIMATE CHANGE: THE COSTS OF INACTION* (2009), available at [http://www.e3network.org/opeds/Ackerman\\_testimony\\_April22.pdf](http://www.e3network.org/opeds/Ackerman_testimony_April22.pdf) (discussing effects of climate change).

114. See LIHEAP INVESTMENT, *supra* note 112, at 2 ("Without energy assistance, many low-income households would have to choose between heating and

present over ninety-five percent of those households that are considered to have a high energy burden.<sup>115</sup> Studies have also shown that the level of energy burden can vary depending on race. In particular, a greater proportion of low-income African American households have a high energy burden than low-income households of other races.<sup>116</sup> Not only will renewable energy and energy efficiency resources reduce the bills of the residences where they are installed, but introduction of more green energy on the grid could reduce electricity bills.<sup>117</sup>

Green development could also create jobs in environmental justice communities.<sup>118</sup> For instance, the Los Angeles Business Council has estimated that 4,500 job-years could be created with a 300 MW program focused on multi-family housing.<sup>119</sup> Development of green economy resources can also provide income to communities. If accompanied by the right policies, the development of renewable energy in neighborhoods could potentially create a revenue stream. For example, a utility provider in Virginia has offered to pay premium rates for solar power sold back to it.<sup>120</sup> A feed-in tariff is an instrument that pays an entity that sells power to the grid a certain, pre-determined amount. One organization estimated that a payment of twenty-four to twenty-six cents per kilowatt-hour would ensure a sufficient rate of return on the initial capital costs.<sup>121</sup> Investment

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eating or other vital necessities. This is especially true during the peak winter heating and summer cooling seasons.”).

115. See APPLIED PUB. POLICY RESEARCH INST. FOR STUDY & EVALUATION, LIHEAP ENERGY BURDEN EVALUATION STUDY: FINAL REPORT (2005), available at [http://www.acf.hhs.gov/programs/ocs/liheap/publications/publications\\_reports.html#h](http://www.acf.hhs.gov/programs/ocs/liheap/publications/publications_reports.html#h) (defining low income households as those with incomes of less than \$20,000 per year).

116. See *id.* at 22 (finding that 55.9% of low-income African American households have high energy burden while 36.2% of low-income white households have high energy burden, and 36.5% of all low income households have high energy burden).

117. See Ari Natter, *Clean Energy Standard Would Not Boost Electricity Bills, DOE Officials Tell Panel*, 43 ENV'T REP. 1339 (2012) (noting David Sandalow, acting energy undersecretary, and Howard Gruenspect, acting head of Energy Information Administration, stated that price would be lower based on analysis performed by EIA).

118. See, e.g., JERRY BROWN, CLEAN ENERGY JOBS PLAN, available at [http://www.jerrybrown.org/sites/default/files/6-15%20Clean\\_Energy%20Plan.pdf](http://www.jerrybrown.org/sites/default/files/6-15%20Clean_Energy%20Plan.pdf) (indicating how green development creates jobs); *Creating Quality Local Jobs*, THE GREEN DEV. ZONE, <http://greendevdevelopmentzone.org/jobs/> (last visited Jan. 8, 2013) (same).

119. L.A. BUS. COUNCIL INST., MAKING A MARKET: MULTIFAMILY ROOFTOP SOLAR AND SOCIAL EQUITY IN LOS ANGELES (2011), available at [http://www.labusinesscouncil.org/online\\_documents/2011/LABC-Exec-Summary-Brochure-2011-Final-1.pdf](http://www.labusinesscouncil.org/online_documents/2011/LABC-Exec-Summary-Brochure-2011-Final-1.pdf) (discussing job creation in Los Angeles).

120. See Jeff Day, *Dominion Proposes to Buy Solar Power from State's Customers at Premium Rate*, 43 ENV'T REP. 1371 (2012).

121. L.A. BUS. COUNCIL INST., *supra* note 119, at 6 (examining price of solar and price of financing to develop estimate).

in green resources has been shown to create more jobs than investment in the fossil fuel resources from the old urban grid.<sup>122</sup>

There may also be other benefits to installing renewable energy in environmental justice communities. Studies have shown significant solar potential in low-income urban communities.<sup>123</sup> Additionally, installing solar panels on multi-family rooftops can also be less expensive than installing them on individual homes.<sup>124</sup>

#### IV. RENEWABLE ENERGY MECHANISMS THAT CAN BE USED TO INCREASE DEVELOPMENT OF RENEWABLE ENERGY AND ENERGY EFFICIENCY IN ENVIRONMENTAL JUSTICE COMMUNITIES

New mechanisms have been proposed that could help incentivize green development in environmental justice neighborhoods. Many of the examples of programs that try to incorporate environmental justice principles into renewable energy projects are from California, due in part to California's aggressive renewable energy standard.<sup>125</sup> Community solar gardens, on-bill financing, and feed-in tariffs are potential mechanism and policies that have been proposed or are being applied in various forums. All of these mechanisms provide predictable revenue for sales of energy generated from renewable resources. On-bill financing can also directly apply to energy efficiency upgrades. The other programs may also be able to encourage energy efficiency upgrades, but that is not explored further here.

##### A. *Community Solar Gardens*

The concept of a community solar garden has been proposed as a way to allow renters to have a share in renewable energy generated in their neighborhood. The general definition of a community solar garden is a solar project owned, developed, or controlled—in full or in part—by residents of the community in which the project is located.<sup>126</sup> Members of a

122. See POL. ECON. RESEARCH INST., GREEN PROSPERITY: HOW CLEAN-ENERGY POLICIES CAN FIGHT POVERTY AND RAISE LIVING STANDARDS IN THE UNITED STATES 3 (2009) (“[I]nvesting in clean energy can provide significant new opportunities at all levels of the U.S. economy, and especially for families who are poor or near-poor.”).

123. See, e.g., L.A. BUS. COUNCIL INST., *supra* note 119, at 9 (“[A]n overlay of high-solar potential areas and economically distressed neighborhoods shows a great deal of confluence.”).

124. See *id.* at 6 (discussing cost-effectiveness of installing solar on multi-family homes).

125. See JEFFREY RUSSELL AND STEVEN WEISSMAN, UNIV. OF CAL. BERKELEY CTR. FOR LAW, ENERGY & THE ENV'T, CALIFORNIA'S TRANSITION TO LOCAL RENEWABLE ENERGY: 12,000 MEGAWATTS BY 2020 i (2012) (“California has one of the most ambitious renewable energy programs in the country, with target of procuring 33 percent of its electric energy from renewable sources by 2020.”).

126. *Community Power*, ONTARIO SUSTAINABLE ENERGY ASS'N, [http://www.ontario-sea.org/Page.asp?PageID=751&SiteNodeID=202&BL\\_ExpandID=44](http://www.ontario-sea.org/Page.asp?PageID=751&SiteNodeID=202&BL_ExpandID=44) (last visited Jan. 20, 2012) (explaining definition of community solar garden).

community who purchase energy from community-owned solar panels receive the same credit as if the panels were located on their property. Additionally, members of the community may be able to lease or purchase panels for a certain set timeframe.<sup>127</sup>

Colorado is the first state to pass legislation authorizing the creation of community solar gardens.<sup>128</sup> Colorado's law highlights one of the purposes of a community solar garden, which is to allow broader participation in solar electric generation by renters and low-income utility customers.<sup>129</sup> It further provides that Colorado's Utility Commission should create policies that encourage ownership by low-income customers to the extent there is a demand for such ownership.<sup>130</sup> Compensation is essentially provided by a net-metering scheme whereby utilities pay a community if it generates more solar power than it consumes.<sup>131</sup> A bill proposed in California similarly anticipates that the community solar garden would employ virtual net metering.<sup>132</sup>

This type of structure has the advantage that it allows renters to own a share in distributed solar generation. Problematically, however, the costs of entering such a market may still be cost-prohibitive for environmental justice neighborhoods, depending on how the incentives and systems are designed. Colorado's legislation, for example, allows the utility to subtract a charge determined to cover the cost of delivering and integrating the community solar garden into the grid.<sup>133</sup> These costs can be overestimated as transmission and distribution data is not widely available and studies have not been performed to sufficiently determine the benefit of distributed generation to the distribution and transmission systems. These

127. *See, e.g.*, COLO. REV. STAT. § 40-2-127 (2010) (providing that organizations can "enter into leases, sale-and-leaseback transactions, operating agreements, and other ownership arrangements with third parties").

128. *See* Colorado Community Solar Gardens Act, H.B. 1342 (Colo. 2010) (revising COLO. REV. STAT. § 40-2-127 (2012)).

129. *See* COLO. REV. STAT. § 40-2-127 (2012) (explaining objective behind enactment of Colorado statute). Specifically, the text states that:

It is in the public interest that broader participation in solar electric generation by Colorado residents and commercial entities be encouraged by the development and deployment of distributed solar electric generating facilities known as community solar gardens, in order to:

. . . .

Allow renters, low-income utility customers, and agricultural producers to own interests in solar generation facilities.

*Id.*

130. *See id.* (containing Colorado's law).

131. *See id.* Net metering is slightly different in the context of a community solar garden than it is for an individual residential owner. Under Colorado's formulation, all of the energy and the renewable energy credits (to the extent they exist) are sold to the retail utility. The utility then calculates the value of the energy and credits it to all of the bills of retailers.

132. S.B. 843, 2012 Assemb., Reg. Sess. (Cal. 2012) (noting several different amendments to bill making it unclear exactly what bill will contain).

133. COLO. REV. STAT. § 40-2-127 (2012).

compensation issues are generally problems for other distributed generation schemes as well, and they need to be thoroughly vetted to ensure that the benefits of entering into a community solar garden are not negated by overestimated excessive utility distribution costs.

In addition, although the structure of a community garden can facilitate renters and low-income individuals acquiring ownership interests in solar, the majority of the ownership interests are held by the organization administering the program. To ensure that programs are fairly administered, protections would need to be set up to make sure that the solar panels are truly owned by the community not by particular individuals.

Finally, as demonstrated by the design of the Colorado program, creating a community solar garden program is likely not enough in itself to generate solar development in environmental justice communities because investors will likely pick communities based on economics. Therefore, development of community solar gardens in environmental justice communities will have to be supported by targeted government policies.

### B. *On-Bill Financing*

On-bill financing is a tool that allows improvements to a building to be paid for through a monthly utility bill. This tool can be effectively used to allow a consumer to pay back the cost of energy efficiency or renewable resources with the monthly energy savings. On-bill financing has been adopted in many states,<sup>134</sup> and has the potential to reach multi-family and rental buildings.<sup>135</sup> Generally, an owner that has renters paying the utility bills does not have an incentive to make investments in resources that reduce the energy needs of the building. If on-bill financing stays with the property, it can provide a way for renters to pay the capital necessary to make upgrades.<sup>136</sup>

An example of this type of program is the Rural Energy Savings Program by Electric Cooperatives of South Carolina.<sup>137</sup> The on-bill financing is tied to the unit's meter, and when a renter moves, the renter is not

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134. See CATHERINE J. BELL, STEVEN NADEL & SARAH HAYES, AM. COUNCIL FOR AN ENERGY-EFFICIENT ECON., *ON-BILL FINANCING FOR ENERGY EFFICIENCY IMPROVEMENTS: A REVIEW OF CURRENT PROGRAM CHALLENGES, OPPORTUNITIES, AND BEST PRACTICES* (2011). The report found that at least twenty states have utilities that either have implemented or are about to implement on-bill financing.

135. See *id.* at iii (“Additionally, financing can be extended to previously underserved markets, such as rental and multifamily buildings.”).

136. See *id.* at 19 (discussing on-bill financing’s ability to provide commercial and industrial customers with energy-efficient upgrades).

137. See BRIAN HENDERSON, ENVTL. & ENERGY STUDY INST., *FACT SHEET: SOUTH CAROLINA CO-OPS IMPLEMENT “HELP MY HOUSE” ON-BILL FINANCING PILOT* (2012), available at [http://www.eesi.org/files/Help\\_My\\_House\\_Pilot\\_070512.pdf](http://www.eesi.org/files/Help_My_House_Pilot_070512.pdf) (discussing Rural Energy Savings Program by Electric Cooperatives of South Carolina); BRIAN HENDERSON, ENVTL. & ENERGY STUDY INST., *ON-BILL FINANCING: HELPING HOMEOWNERS IMPLEMENT ENERGY EFFICIENCY IMPROVEMENTS* (2012), available at [http://www.eesi.org/files/On\\_Bill\\_Financing\\_070512.pdf](http://www.eesi.org/files/On_Bill_Financing_070512.pdf).

responsible for repayment of the rest of the loan.<sup>138</sup> Payment is suspended until a new tenant occupies the unit.<sup>139</sup> The average homeowner participating in the South Carolina program has a loan repayment of \$878 and a projected savings of \$1,240 annually, which means that the on-bill payment plan can generate a significant net savings for the homeowner.<sup>140</sup>

On-bill financing has been viewed as a successful way to help homeowners invest in energy efficiency resources.<sup>141</sup> Yet, on-bill financing, by itself, is unlikely to spur significant development of renewable generation or improvements in energy efficiency. Many on-bill financing programs require a minimum credit score, which may limit the availability of on-bill financing in environmental justice neighborhoods.<sup>142</sup> Therefore, in order for an on-bill financing program to help encourage green development in environmental justice communities, the program will need to be specifically tailored to help that community.

### C. *Feed-In Tariff*

The concept of feed-in tariffs is a relatively simple one: guarantee compensation, generally in the form of long-term contracts, for renewable energy that is generated and delivered to the grid.<sup>143</sup> By providing guaranteed compensation, feed-in tariffs can help assure small energy generators dependable compensation for electricity generated, which helps

138. See ON-BILL FINANCING: HELPING HOMEOWNERS IMPLEMENT ENERGY EFFICIENCY IMPROVEMENTS, *supra* note 137 (discussing on-bill financing); see also BELL, NADEL & HAYES, *supra* note 134, at 5–6, 8 (discussing general payment scheme where charge is tied to meter and not to individual renters).

139. See BELL, NADEL & HAYES, *supra* note 134, at 8 (“In the event that a house that received a loan is sold, the new owner is informed of, and obligated to pay, the remaining amount.”).

140. See FACT SHEET: SOUTH CAROLINA CO-OPS IMPLEMENT “HELP MY HOUSE” ON-BILL FINANCING PILOT, *supra* note 137, at 2 (demonstrating estimated savings realized by participants in on-bill financing program).

141. See ON-BILL FINANCING: HELPING HOMEOWNERS IMPLEMENT ENERGY EFFICIENCY IMPROVEMENTS, *supra* note 137, at 1 (“Along with the convenience of having both energy savings and loan payments on the same bill, the loan’s repayment term is . . . longer than the payback period . . . resulting in a positive cash flow for the customer.”).

142. See BELL, NADEL & HAYES *supra* note 134, at 9 (discussing requisite credit score of 590 for qualified applicants).

143. See TOBY D. COUTURE ET AL., NAT’L RENEWABLE ENERGY LAB., A POLICYMAKER’S GUIDE TO FEED-IN TARIFF POLICY DESIGN 22 (2010), *available at* <http://www.nrel.gov/docs/fy10osti/44849.pdf> (explaining payment levels remaining independent from market price, guaranteeing payment for pre-determined period). The National Renewable Energy Lab found that successful feed in tariffs generally include: “(1) guaranteed access to the grid; (2) stable, long-term purchase agreements (typically, 15–20 years); and (3) payment levels based on the costs of RE generation.” *Id.* at vi.

guarantee a return on an investment and allows small generators to compete with larger generators.<sup>144</sup>

Feed-in tariffs have been adopted throughout many different countries and states.<sup>145</sup> Many of these feed-in tariffs have been successful at encouraging development of distributed generation.<sup>146</sup> For instance, Germany's reliance on feed-in tariffs both encouraged the deployment of significant amounts of solar photovoltaic resources and kept energy costs reasonable.<sup>147</sup> Due to this success, commentators consistently recommend feed-in tariffs as "one of the most effective policy instruments in overcoming the cost barriers to introducing renewable energy and making it economically viable."<sup>148</sup>

The success of a feed-in tariff is highly dependent on regulatory certainty and the price of the tariff.<sup>149</sup> To institute a feed-in tariff, a state or local government must be cognizant of federal law. Pursuant to Sections 205 and 206 of the Federal Power Act, the Federal Energy Regulatory Commission ("FERC") has the power to regulate wholesale electricity in

144. *See id.* at 25 (citing examples of payment structures where goal is to approximate same rate of return, regardless of project size). Feed-in tariffs can be designed in a variety of ways to accomplish different types of policy goals such as rapid renewable development, jobs and economic development, and greenhouse gas reduction. *See id.* at 18.

145. *See* TOBY COUTURE & KARLYNN CORY, NAT'L RENEWABLE ENERGY LAB., STATE CLEAN ENERGY POLICIES ANALYSIS (SCEPA) PROJECT: AN ANALYSIS OF RENEWABLE ENERGY FEED-IN TARIFFS IN THE UNITED STATES 6 (2009), [http://www.nrel.gov/applying\\_technologies/state\\_local\\_activities/pdfs/tap\\_webinar\\_20091028\\_45551.pdf](http://www.nrel.gov/applying_technologies/state_local_activities/pdfs/tap_webinar_20091028_45551.pdf) (describing status of renewable energy feed-in tariff policies in United States in 2009); COUTURE ET AL., *supra* note 143, at 22 (discussing implementation of feed-in tariffs in Europe, Asia, and Africa).

146. In fact, before 2009, feed-in tariffs were responsible for 75% of worldwide installed solar photovoltaic capacity. *See* DEUTSCHE BANK GRP., GET FIT PROGRAM: GLOBAL ENERGY TRANSFER FEED-IN TARIFFS FOR DEVELOPING COUNTRIES 6 (2010), available at [http://www.dbcca.com/dbcca/EN/\\_media/GET\\_FiT\\_Program.pdf](http://www.dbcca.com/dbcca/EN/_media/GET_FiT_Program.pdf).

147. *See* Paul Gipe, *Should California Simply Adopt German Solar Tariffs?*, RENEWABLE ENERGY WORLD (July 8, 2011), <http://www.renewableenergyworld.com/rea/news/article/2011/07/should-california-simply-adopt-german-solar-tariffs> (discussing costs for energy in Germany as opposed to California).

148. Miguel Mendonça et al., *Success Story: Feed-In Tariffs Support Renewable Energy in Germany*, E-PARLIAMENT, <http://www.e-parl.net/eparliament/pdf/080603%20FIT%20toolkit.pdf> (last visited July 31, 2011); *see also* ETHAN N. ELKIND, UNIV. OF CAL. BERKELEY CENTER FOR LAW, ENERGY & THE ENV'T AND UCLA ENVTL. LAW CTR., IN OUR BACKYARD: HOW TO INCREASE RENEWABLE ENERGY PRODUCTION ON BIG BUILDINGS AND OTHER LOCAL SPACES 1 (2009), [http://www.law.berkeley.edu/files/In\\_Our\\_Backyard.pdf](http://www.law.berkeley.edu/files/In_Our_Backyard.pdf) (finding that "policy makers must expand and improve . . . feed-in tariff incentive programs").

149. *See* Emma Hughes, *UK vs. German Feed-in Tariff: Where Are We Going Wrong?*, SOLAR POWER PORTAL (Jan. 20, 2011), [http://www.solarpowerportal.co.uk/blogs/uk\\_vs\\_german\\_feed-in\\_tariff\\_where\\_are\\_we\\_going\\_wrong5478/](http://www.solarpowerportal.co.uk/blogs/uk_vs_german_feed-in_tariff_where_are_we_going_wrong5478/) (describing German market's reaction to price changes and regulatory uncertainty in U.K.).

interstate commerce.<sup>150</sup> An exception to that federal authority is established by the Public Utility Regulatory Policies Act (“PURPA”), which provides that state public utility commissions have authority to establish rates as long as they are based on the avoided cost for utilities’ wholesale purchases from qualifying facilities.<sup>151</sup> Under FERC regulations, the avoided cost may consider the ability to dispatch the facility, the availability of the facility during peak periods, the “deferral of capacity additions,” the “reduction of fossil fuel use,” and transmission savings such as line loss savings.<sup>152</sup>

In 2012, the California Senate passed a feed-in tariff bill that is targeted to help “the most impacted and disadvantaged communities with high unemployment that bear a disproportionate burden from air pollution, disease, and other impacts from generation of electricity from the burning of fossil fuels.”<sup>153</sup> This bill would have established a feed-in tariff for 375 MW of new distributed renewable resources in environmental justice communities. Specifically, this bill would have required long-term contracts at rates set at “sufficient [levels] to meet the program targets.”<sup>154</sup> This approach has already proven effective in areas throughout the world, and should be examined as a way to continue to increase development of renewable energy projects.

#### V. NEW POTENTIAL WAYS TO ENCOURAGE ENERGY EFFICIENCY AND RENEWABLE ENERGY IN ENVIRONMENTAL JUSTICE COMMUNITIES

The above policies are all mechanisms that have been proposed as ways to encourage green development generally. Because policies that encourage green development in vulnerable communities should also reduce pollution, there may be other ways to increase these projects by focusing on their environmental attributes. New ideas, such as these, could be important ways to increase the availability of green resources, as previous programs to incentivize renewable development are likely to disappear in coming years.<sup>155</sup> The three ideas that this paper explores are

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150. See 16 U.S.C. § 824d (2006) (discussing Federal Energy Regulatory Commission’s power to regulate wholesale power). FERC requirements do not apply to non-jurisdictional public entity sellers. See *id.* (discussing FERC requirements).

151. See 16 U.S.C. § 824a-3(b) (2006); 18 C.F.R. § 292.304(a) (2006) (stating rates for purchases of wholesale energy).

152. 18 C.F.R. § 292.304(e) (2006). FERC clarified a state’s ability to set avoided cost in a California Public Utilities Commission opinion. See *generally*, 133 F.E.R.C ¶ 61059 (2010) (discussing state’s ability to set avoided cost).

153. *Bill Number: AB 1990*, OFFICIAL CAL. LEGISLATION INFO., [http://leginfo.ca.gov/pub/11-12/bill/asm/ab\\_1951-2000/ab\\_1990\\_bill\\_20120329\\_amended\\_asm\\_v98.html](http://leginfo.ca.gov/pub/11-12/bill/asm/ab_1951-2000/ab_1990_bill_20120329_amended_asm_v98.html) (last visited Dec. 18, 2012).

154. *Id.*

155. See, e.g., Ari Natter, *Solar Industry Renews Push to Reinstate Cash Grant Program, Despite Long Odds*, 43 ENV’T REP. 141 (2012) (describing likelihood of Congress not reapproving cash grants to solar developers).

encouraging development of green resources through settlements, use of pollution fees, and mitigation measures.

A. *Encouraging Green Development Through Settlements—  
Supplemental Environmental Projects*

Many times, as part of a settlement, a potential violator can choose to do an environmentally beneficial project, called a Supplemental Environmental Project (“SEP”), in lieu of a penalty.<sup>156</sup> In addition, the Clean Air Act allows a court to order a “beneficial mitigation project,” which benefits public health or the environment.<sup>157</sup> SEPs can help fund environmental improvements in communities impacted by the alleged violation.<sup>158</sup> Likely due to these benefits, EPA has stated that it “encourages SEPs in communities where environmental justice may be an issue.”<sup>159</sup> SEPs, thus, may represent a viable way to potentially increase renewable energy and energy efficiency improvements in environmental justice communities.<sup>160</sup>

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156. Memorandum from Steven A. Herman, Assistant Adm’r, U.S. Evtl. Prot. Agency, to Regional Adm’rs of U.S. Evtl. Prot. Agency 3 (Apr. 10, 1998), *available at* [http://www.epa.gov/ogwdw/wsg/wsg\\_119.pdf](http://www.epa.gov/ogwdw/wsg/wsg_119.pdf) (“To further EPA’s goals to protect and enhance public health and the environment, in instances environmentally beneficial projects, or Supplemental Environmental Projects (SEPs), may be part of the settlement.”). The EPA defines SEPS as “environmentally beneficial projects which a defendant/respondent . . . is not otherwise legally required to perform.” *Id.* at 6. *See* United States v. Smithfield Foods, Inc., 982 F. Supp. 373, 375 (E.D. Va. 1997) (“[A]s a matter of public policy, simply depositing civil penalties into the vast reaches of the United States Treasury does not seem to be the most effective way of combating environmental problems caused by a specific polluter.”).

157. 42 U.S.C. § 7604(g)(2) (2006) (noting court “shall have discretion to order that such civil penalties, in lieu of being deposited in [the U.S. Treasury], be used in beneficial mitigation projects which are consistent with this chapter and enhance the public health or the environment.”).

158. *See* Memorandum from Steven A. Herman, *supra* note 156, at 4 (discussing benefits of completing SEPs in areas where environmental justice is issue).

159. *See id.* (“Emphasizing SEPs in communities where environmental justice concerns are present helps ensure that persons who spend significant portions of their time in areas, or depend on food and water sources located near, where the violations occur would be protected.”). Some states also encourage SEPs where equity is an issue or list environmental justice as a consideration. *See* Steven Bonorris, *Environmental Enforcement in the Fifty States: The Promise and Pitfalls of Supplemental Environmental Projects*, 11 HASTINGS W.-N.W. J. ENVTL. L. & POL’Y 185, 212 (2005) (recommending stronger requirement for geographical nexus to promote environmental justice).

160. Commentators have discussed the utility of SEPs for environmental justice communities generally. *See, e.g.*, Douglas Rubin, *How Supplemental Environmental Projects Can and Should Be Used to Advance Environmental Justice*, 10 MD. L.J. RACE, RELIGION, GENDER & CLASS 179 (2010) (discussing how environmental justice communities should use SEPs for Clean Water Act citizen suits); *see also* Patricia E. Salkin, *Environmental Justice Update—2010*, SS001 ALI-ABA 625, 628 (2010) (noting that at least seven states incorporate environmental justice into supplemental environmental justice projects).

To determine whether a proposed project is an appropriate SEP, EPA evaluates whether the project meets the definition of a SEP, whether all legal guidelines are satisfied, and whether the project fits a category of SEPs.<sup>161</sup> Although EPA's policy only strictly applies to settlements where EPA is a party, EPA is a party to many environmental settlements and it also uses the policy to evaluate federal environmental citizen suit settlements.<sup>162</sup>

As an initial inquiry, to meet the definition of a SEP, the proposed project must be environmentally beneficial, in settlement of an enforcement action, and not otherwise legally required.<sup>163</sup> Energy efficiency and renewable resources can meet the definition of "environmentally beneficial" because, as described above, lowering fossil-fuel energy needs benefits public health and the environment.<sup>164</sup> A potentially larger issue is whether the projects are otherwise legally required as injunctive relief or as part of another state or local requirement.<sup>165</sup> Although renewable energy and energy efficiency improvements to facilities may be required as injunctive relief, targeted investments in the community are unlikely to be required.<sup>166</sup> As for the state or local requirement, most renewable and energy efficiency requirements do not require development in a specific community, so unless there is a provision that the violator needs to develop these resources pursuant to a requirement in a particular place, it is

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161. See Memorandum from Steven A. Herman, *supra* note 156, at 4 (discussing factors evaluated to determine whether projects qualify as SEPs). After these issues are evaluated, the agency determines the appropriate amount of penalty mitigation and whether the project satisfies the implementation criteria. See *id.* at 2–4. Because this paper is examining a category of projects, these latter two steps are not addressed here. For a detailed history on the evolution of the SEP policy, see Kenneth T. Kristl, *Making a Good Idea Even Better: Rethinking the Limits on Supplemental Environmental Projects*, 31 VT. L. REV. 217, 220–26 (2007) (detailing EPA's policies related to SEPs).

162. See Memorandum from Steven A. Herman, *supra* note 156, at 5 (discussing applicability of policy to EPA). As the EPA states, its SEP policy "applies to all civil judicial and administrative enforcement actions taken under the authority of the environmental statutes and regulations that EPA administers." *Id.*

163. See *id.*

164. See *supra* Section I (discussing public health benefits of energy efficiency and renewable projects).

165. See Memorandum from Steven A. Herman, *supra* note 156, at 6 (explaining "not otherwise legally required to perform" requirement for qualifying as SEP). As the EPA states, "[s]ince the primary purpose of this Policy is to obtain environmental or public health benefits that may have occurred 'but for' the settlement projects which the defendant has previously committed to perform or have been started before the Agency has identified a violation are not eligible as SEPs." *Id.*

166. See, e.g., U.S. ENVTL. PROT. AGENCY, RESPONSES TO PUBLIC COMMENTS ON THE PROPOSED PREVENTION OF SIGNIFICANT DETERIORATION PERMIT FOR THE PALMDALE HYBRID POWER PROJECT 51 (2011), available at <http://www.epa.gov/region9/air/permit/palmdale/palmdale-response-comments-10-2011.pdf> (agreeing that renewable energy requirements can be part of Best Available Control Technology determination under Clean Air Act).

unlikely that projects in an environmental justice neighborhood would be considered already legally required.<sup>167</sup>

After determining that a project meets the definition of a SEP, the next issue is whether it meets the applicable legal requirements.<sup>168</sup> EPA has interpreted its legal requirements as requiring a nexus to the underlying statute and to its objectives.<sup>169</sup> Renewable energy and energy efficiency projects should be able to meet this requirement since these projects are likely to displace fossil fuel generation of electricity, which emits air pollution. Thus, these projects are likely to prevent pollution.<sup>170</sup> To establish the nexus between a particular project and the alleged violation, the project will likely need to be in the same geographical area.<sup>171</sup> Having the SEP in the same geographical area will be particularly important for communities impacted by the violation.<sup>172</sup>

EPA believes there are limitations for applying a SEP based on the Federal Receipts Act, which generally requires that money from penalties be paid to the U.S. Treasury,<sup>173</sup> but serious questions have been raised as to whether this interpretation is valid.<sup>174</sup> Part of the reason for this potential legal issue is that EPA states all SEPs are in lieu of a penalty. But, if

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167. See *supra* notes 1–50 (discussing lack of policies requiring measures in environmental justice communities).

168. See Memorandum from Steven A. Herman, *supra* note 156 (listing legal guidelines that EPA believes apply to SEPs). Questions have been raised about whether these legal requirements make sense. See Kristl, *supra* note 161 (arguing that nexus requirement is not legally justified).

169. See 31 U.S.C. § 3302(b) (2006). Due to this requirement, without a nexus to the underlying violation, EPA believes it does not have authority to agree with a SEP. See Memorandum from Walker B. Smith, Director, Office of Regulatory Enforcement, to Regional Counsel (Oct. 31, 2002), available at <http://www.epa.gov/compliance/enforcement/documents/policies/sep/sepnexus-mem.pdf>. EPA interprets the nexus requirement as important to follow its SEP Policy and to comply with the Miscellaneous Receipts Act, which requires officials receiving money for the Government deposit with the treasury.

170. See Memorandum from Steven A. Herman, *supra* note 156, at 4. EPA's SEP policy states "SEPs involving pollution prevention techniques are preferred over other types of reduction or control strategies." *Id.*

171. See Final EPA Supplemental Environmental Projects Policy Issued, 63 Fed. Reg. 24,796, 24,798 (May 5, 1998) (defining "immediate geographic area" as "within a 50 mile radius of the site on which the violations occurred").

172. See, e.g., *Natural Res. Def. Council, Inc. v. Interstate Paper Corp.*, No. 487-169, 1988 WL 156749 (S.D. Ga. Nov. 22, 1988) (approving SEP in settlement even though it did not have nexus to underlying violation); see also Bonorris, *supra* note 159, at 212 (recommending stronger requirement for geographical nexus to promote environmental justice). But, it is not clear that a court will require such a nexus to exist.

173. See 31 U.S.C. § 3302 (2006) (requiring official or agent of Government receiving money for Government to deposit money in Treasury); see also Memorandum from Walker B. Smith, *supra* note 169 (noting requirements of Section 3302(b) (discussing application of SEP)).

174. See Kristl, *supra* note 161 (arguing that nexus requirement is not legally justified in part because there is no receipt or possession of money by federal government).

SEPs were deemed part of the economic benefit, or part of the package to be considered when determining penalties, this requirement would arguably not apply.<sup>175</sup>

Next, a project needs to fit within the paradigm of projects that are generally deemed appropriate for a SEP. Energy efficiency and renewable energy projects are within this realm. EPA has notably proposed renewable energy and energy efficiency project ideas such as constructing wind turbines either on school property or on state land, installing solar panels on school property as an educational opportunity and for emergency backup, and energy audits and assessment.<sup>176</sup> In fact, as part of a recent settlement with American Electric Power concerning its construction of a facility in Arkansas, AEP agreed to construct or secure 400 MW of new renewable energy resources.<sup>177</sup> In another agreement, a facility agreed to not restart a coal facility and to reduce electricity demand in the region.<sup>178</sup>

In addition to meeting the technical requirements of a SEP, other considerations must be made. To use a SEP to develop energy efficiency and renewable resources in a vulnerable community, community input is essential. As EPA acknowledges, community input in the development of a SEP can lead to SEPs that better assist the community and help promote environmental justice.<sup>179</sup> One way to involve the communities is to facilitate submission of project ideas by the impacted community.<sup>180</sup> Problematically, although SEPs are a potential way to help environmental justice communities develop renewable energy and energy efficiency resources, the percentage of settlements that include SEPs is low.<sup>181</sup> This may be due to the interpretation of the SEP policy. It may also be due to the increased scrutiny of settlements. Notably, policy-makers have recently examined potential modifications to environmental settlement procedures

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175. *See id.* (arguing SEPs do not need to be considered penalties). EPA does not consider economic benefit payments the same as penalties. *See id.* (discussing penalties). Economic benefit payments are intended to eliminate the advantage a violator may have gained by delaying compliance. *See id.* (arguing that SEPs do not need to be considered penalties).

176. *See* Memorandum from Granta Y. Nakayama, Assistant Adm'r, to Assistant Adm'rs et al. (July 20, 2005), *available at* <http://www.dsibiodiesel.com/pdf/potentialproject-seps0607.pdf>.

177. *See* Consent Decree, *Sierra Club v. Army Corps of Eng'rs*, 754 F.Supp.2d 1021 No. 10-04017 (W.D. Ark. Dec. 22, 2011) (agreeing to construct or secure energy from total of four hundred megawatts of new Clean Energy Resources).

178. *See* Martha Kessler, *Consent Decree Prohibits Use of Coal to Repower Massachusetts Plant in Future*, 43 ENV'T REP. 323 (2012) (discussing consent decree filed in *Conservation Law Found. v. Dominion Energy New England, Inc.*, No. 10-11069 (D. Mass. Feb. 3, 2012)).

179. *See* Memorandum from Steven A. Herman, *supra* note 156.

180. *See* Bonorris, *supra* note 159, at 212 (discussing how SEP idea banks could work and what states have developed to include community members).

181. *See* Kristl *supra* note 161, at 243-44 (finding only around 11-12% of settlements from 1992-2006 include SEPs).

that could change how settlements are formulated.<sup>182</sup> SEPs could potentially be a useful tool in helping environmental justice communities transition to green energy, but as discussed above, SEPs are currently underutilized, and SEPs only occur when there is an alleged violation that necessitates settlement.

B. *Requiring Mitigation Under Environmental Assessment Statutes*

Environmental assessment statutes that require mitigation are another potential means of increasing green development in environmental justice communities. An example of this type of statute is the California Environmental Quality Act, which requires that projects be mitigated if the measures are feasible.<sup>183</sup> Air emissions and greenhouse gas impacts are subject to a mitigation analysis under these requirements.<sup>184</sup> To determine how to mitigate these impacts, a mitigation plan must be designed. For instance, a court ordered that an environmental impact report “should take advantage of any pertinent new information in analyzing the Projects [sic] potential greenhouse gas emissions and their cumulative impact on climate change, as well as defining legally adequate mitigation measures to avoid those impacts.”<sup>185</sup> Generally, mitigation measures are completed at the same site as the project that is being assessed. Mitigation projects may potentially be able to reduce greenhouse impacts in the surrounding area. Mitigation measures can be designed to “reduce the wasteful, inefficient, and unnecessary consumption of energy.”<sup>186</sup> This would need to be more fully explored and would likely depend on the particular project at issue.

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182. See *Federal Consent Decree Fairness Act, and the Sunshine for Regulatory Decrees and Settlements Act of 2012: Hearing on H.R. 3041 and H.R. 3862 Before the Subcomm. on Courts, Commercial and Admin. Law of the H. Comm. on the Judiciary*, 112th Cong. (2012) (hearing on consent decrees and settlements). Two bills have been proposed in the U.S. House of Representatives that could impact consent decrees: the Federal Consent Decree Fairness Act (H.R. 3041) and the Sunshine for Regulatory Decrees and Settlements of 2012 (H.R. 3862). This proposed legislation could open up settlements to more parties and potentially make it more difficult to enter settlements. See Alan Kovski, *Congress Urged to Modify Procedures Governing Environmental Settlements*, 43 ENV'T REP. 351 (2012).

183. See CAL. PUB. RES. CODE § 21002 (West 2012) (discussing policy where environmental effects will be examined when approving projects).

184. See CAL. CODE REGS. tit. 14, § 21083.05 (2012) (noting preparation, development, and transmittal by specified date of guidelines for mitigation of greenhouse gas emissions); CAL. CODE REGS. tit. 14, § 15064.4 (2012) (requiring lead agencies to analyze greenhouse gas emissions); CAL. CODE REGS. tit. 14, § 15126.4(c) (2012) (explaining that lead agencies must consider mitigation when greenhouse gas emissions are significant); CAL. CODE REGS. tit. 14, § 15183.5(b) (2012); see also generally CAL. CODE REGS. tit. 14, §§ 15000-15387 (2012) (detailing California Environmental Quality Act Guidelines).

185. *Communities for a Better Env't v. City of Richmond*, 108 Cal. Rptr. 3d 478, 498 (Cal. Ct. App. 2010).

186. CAL. PUB. RES. CODE § 21100 (West 2011).

Environmental justice issues may also arise in the context of mitigation measures for larger community plans. Recently, environmental justice issues have arisen in a suit related to compliance with a California law that requires communities to prepare a “sustainable community strategy” as part of their land and transportation plans.<sup>187</sup> After the San Diego Association of Governments adopted its compliance plan, environmental and environmental justice groups filed suit alleging that the environmental assessment of the plan did not analyze the impact the plan would have on public health nor did it have support for stating that it would not “disproportionately affect the health of low-income minority communities.”<sup>188</sup> The California Attorney General filed a motion to intervene alleging the plan had a similar environmental justice deficiency.<sup>189</sup> New York has also taken steps to ensure that environmental justice is considered when evaluating climate change impacts.<sup>190</sup> Commentators believe that these actions may be precedential for actions throughout the country.<sup>191</sup> This is an area that could be more fully explored to determine whether mitigation measures for environmental assessment requirements could include green development in vulnerable communities.

### C. Fees to Comply with Air Requirements

Environmental justice communities often live in polluted areas that are not meeting health protective standards. When determining how to promote renewable development, possible fees associated with not meeting the Clean Air Act requirements should be examined. Provisions of the Clean Air Act suggest that promoting energy efficiency and renewable resources is consistent with its purpose:

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187. S.B. 375, (Cal. 2008), available at <http://www.calapa.org/attachments/wysiwyg/5360/SB375final.pdf>.

188. Verified Petition for Writ of Mandate and Complaint for Injunctive Relief at 12, Cleveland Nat'l Forest Found. & Ctr. for Biological Diversity v. San Diego Ass'n of Gov'ts, No. 37-2011 (Cal. App. Dep't Super. Ct. Nov. 28, 2011), available at <http://transitsandiego.files.wordpress.com/2011/12/cnff-v-sandag.pdf>.

189. See *Ex Parte* Application of the People of the State of California for Leave to Intervene at 10, Cleveland Nat'l Forest Found. & Ctr. for Biological Diversity v. San Diego Ass'n of Gov'ts, No. 37-2011 (Cal. App. Dep't Super. Ct. Jan. 25, 2012), available at [http://ag.ca.gov/cms\\_attachments/press/pdfs/n2614\\_2012-01-23\\_ex\\_parte\\_application\\_to\\_intervene.pdf](http://ag.ca.gov/cms_attachments/press/pdfs/n2614_2012-01-23_ex_parte_application_to_intervene.pdf)? (discussing adequacy of final environmental impact reports). The California Attorney General stated that the environmental assessment: “[d]oes not perform an adequate analysis to determine whether the health impacts of exposure to increased particulate matter emissions will be more severe for low-income or minority communities that already suffer from disproportionate health burdens from existing levels of localized air pollution.” *Id.*

190. See *Environmental Justice Recently Adopted Regulations*, N.Y. STATE DEP'T OF ENVTL. CONSERVATION (July 12, 2012), <http://www.dec.ny.gov/regulations/79626.html>; see also John Herzfeld, *State Agency Issues Draft Regulations on Power Plant Siting, Carbon Emissions*, 43 ENV'T REP. 173 (2012).

191. See Peter Hsiao et al., *Environmental Justice as Environmental Impact: The Intersection of Environmental Justice, Climate Change, and the California Environmental Quality Act*, 43 ENV'T REP. 787 (2012) (discussing potential national impact).

The purpose of this subchapter is to reduce the adverse effects of acid deposition through reductions in annual emissions of sulfur dioxide . . . . It is also the purpose of this subchapter to *encourage energy conservation, use of renewable and clean alternative technologies, and pollution prevention* as a long-range strategy, consistent with the provisions of this subchapter, for reducing air pollution and other adverse impacts of energy production and use.<sup>192</sup>

Pursuant to the Clean Air Act, areas are defined as either attaining or not attaining the National Ambient Air Quality Standards (“NAAQS”), which are set at a level EPA finds to be requisite to protect public health.<sup>193</sup> For areas that are not attaining the standards set to protect public health, the Clean Air Act requires states to detail their efforts to ensure that the area attains air quality standards in a State Implementation Plan (“SIP”).<sup>194</sup> In general, new stationary sources must comply with the lowest achievable emission rate (“LAER”), and existing sources must use reasonably available control technology.<sup>195</sup>

In addition to complying with the lowest achievable emission rate, the Clean Air Act requires new or modified major sources in nonattainment areas to obtain emission offsets from existing sources.<sup>196</sup> These offsets are required to ensure that the total emissions in the area are lower after the new or modified source begins operations.<sup>197</sup> Notably, unlike the national trading scheme under the Clean Air Act’s Acid Rain program, offsets need to come from the “same source or other sources in the same

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192. 42 U.S.C. § 7651(b) (2006) (emphasis added).

193. *See* § 7409(a) (declaring regions of nonattainment are subject to additional restrictions); *see also* *Whitman v. Am. Trucking Ass’ns*, 531 U.S. 457, 476 (2001). Notably, although the NAAQS are required to be set at a level to protect public health, some of these pollutants cause health impacts below the levels.

194. *See* § 7410(a) (providing that states submit draft SIP to EPA for review, and upon EPA approval, SIP becomes federally enforceable); *see also id.* § 7410(k); § 7413.

195. *See id.* § 7501(3) (defining “lowest achievable emission rate”); *see also id.* § 7502(c)(1) (stating plan provision shall provide for implementation of all reasonably available control measures). Notably, the offset requirement is a separate requirement from the reasonably available control technology requirement. *See* *Natural Res. Def. Council v. Entl. Prot. Agency*, 571 F.3d 1245 (D.C. Cir. 2009) (ruling on EPA’s implementation of rules revising National Ambient Air Quality Standard).

196. *See* 42 U.S.C. § 7503(a)(1)(A) (“[B]y the time the source is to commence operation, sufficient offsetting emissions reductions have been obtained, such that total allowable emissions from existing sources in the region, from new or modified sources which are not major emitting facilities, and from the proposed source will be sufficiently less than total emissions from existing sources” prior to operation of new or modified source).

197. *See id.* (describing how emission totals are lowered). To attempt to accomplish this, offset ratios are often set so that total emissions are reduced. These ratios require that a greater amount of offsets are obtained to offset new emissions. *See id.* § 7503(c). As a sanction, the EPA can require that the ratio of emission reductions to increased emissions be at least two to one. *See id.* § 7509(b)(2).

nonattainment area.”<sup>198</sup> States can require that these offsets take the form of Emission Reduction Credits (“ERCs”)—emission reductions that are “surplus, enforceable, permanent, and quantifiable”—which can be purchased by those constructing or modifying a source.<sup>199</sup> A new facility generally needs to purchase offsets that are generated from another source of pollution shutting down or permanently lowering its pollution. The local authority sets the amount of offsets needed to reduce a set pollution value. For example, emission reduction credits worth 1.5 tons may be necessary to offset one ton of new pollution. In setting this ratio, a local air quality area may be able to set up a requirement that a source purchase a portion of the offsets from the local area, and then pay a set fee, which is equivalent to a portion of the offset that could be used for a community mitigation project. For example, for each new ton of emissions from a new facility, the facility could buy 1.2 tons of emission reduction credits, and pay the market rate for 0.8 tons into a fund for community mitigation projects such as energy efficiency or renewable energy projects.

The Clean Air Act also has penalty requirements for areas that are not meeting the NAAQS. For instance, for areas not meeting ozone standards, the Clean Air Act imposes a fee of approximately \$9,000<sup>200</sup> per ton of volatile organic compounds (VOCs)—a precursor to ozone—that is above a certain level.<sup>201</sup> These fees were enacted in the 1990 Clean Air Act amendments to encourage areas to meet attainment deadlines.<sup>202</sup> Yet, the

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198. *Id.* § 7503(c)(1). The Clean Air Act also provides a limited exception to requiring offsets being in nonattainment areas:

[T]he State may allow the owner or operator of a source to obtain such emission reductions in another nonattainment area if (A) the other area has an equal or higher nonattainment classification than the area in which the source is located and (B) emissions from such other area contribute to a violation of the national ambient air quality standard in the nonattainment area in which the source is located.

*Id.*

199. Emissions Trading Policy Statement; General Principles for Creation, Banking and Use of Emission Reduction Credits, 51 Fed. Reg. 43,814 (Dec. 4, 1986).

200. *See* Clean Air Act Advisory Comm., Presentation to the Env'tl. Prot. Agency: *Clean Air Act Section 185, Nonattainment Fees* (May 14, 2009), available at [http://www.epa.gov/air/caaac/pdfs/wyman\\_section\\_185\\_presentation.pdf](http://www.epa.gov/air/caaac/pdfs/wyman_section_185_presentation.pdf).

201. *See* 42 U.S.C. § 7511d(b). The section provides that “[t]he fee shall equal \$5,000, adjusted in accordance with paragraph (3), per ton of VOC emitted by the source during the calendar year in excess of 80 percent of the baseline amount, computed under paragraph (2).” § 7511d(b)(1). The \$5,000 is adjusted for inflation. *Id.* § 7511d(b)(3). Sources are liable for fees until they reduce their emissions to “80 percent of the baseline amount.” § 7511d(b)(1).

202. *See* S. Coast Air Quality Mgmt. Dist. v. Env'tl. Prot. Agency, 472 F.3d 882 (D.C. Cir. 2006); *see also* 42 U.S.C. § 7511d(a) (describing general rule). The fees apply “each calendar year beginning after the attainment date” for severe and extreme ozone nonattainment areas, and the fees apply only “until the area is redesignated as an attainment area for ozone.” § 7511d(a). The areas subject to the penalties in 2009 were Baltimore, MD; Baton Rouge, LA; Sacramento, CA; New York, NY; NJ; CT; Houston, TX; Southeast Desert, CA; South Coast CA; and San

ability to use these fees for promoting renewable development or energy efficiency is likely limited. The relevant section of the Clean Air Act provides that the fees collected by EPA shall be used “to carry out the Agency’s activities for which the fees were collected,” and that the fees collected by a state or local agency “shall be utilized solely to cover all reasonable (direct and indirect) costs required to support the permit program as set forth in subparagraph (A).”<sup>203</sup> Despite this language, EPA has suggested that states have more latitude in how they use the fees. In a guidance document, which was later vacated by the D.C. Circuit, EPA interpreted Section 185 stating:

The CAA does not specify how states may spend or allocate the fees collected under a section 185 fee program. Therefore, states have discretion on how to use the fees. We believe that one beneficial approach would be to channel the fees into innovative programs to provide incentives for additional ozone precursor emissions reductions from stationary or mobile sources, or for other purposes aimed at reducing ambient ozone concentrations in the affected area.<sup>204</sup>

This guidance document was struck down for reasons not related to this provision.<sup>205</sup> Regardless, any attempt to not strictly conform to the language of the statute here could be struck down.<sup>206</sup>

Notably, there is some latitude in how states administer nonattainment programs. A recent ruling by the Ninth Circuit supports the idea that EPA and states will need to take a closer look at communities to figure out ways to reduce emissions in nonattainment areas. The Clean Air Act allows states generally to come up with plans on how to reduce pollution in areas not meeting air quality standards.<sup>207</sup> Nonattainment area plans

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Joaquin Valley, CA. See Clean Air Act Advisory Comm., *supra* note 200. (discussing subjected areas).

203. 42 U.S.C. § 7661a.

204. Memorandum from Stephen D. Page, Dir., Office of Air Quality Planning and Standards, to Regional Air Division Directors (Jan. 5, 2010), *available at* <http://www.epa.gov/airquality/ozonepollution/pdfs/20100105185guidance.pdf>.

205. See *Natural Res. Def. Council v. Env'tl. Prot. Agency*, 643 F.3d 311 (D.C. Cir. 2011) (holding attainment alternative contained within guidance document contravened language of CAA).

206. See *Whitman v. Am. Trucking Ass'ns.*, 531 U.S. 457, 485–86 (2001) (“To use a few apparent gaps in Subpart 2 to render its textually explicit applicability to nonattainment areas under the new standard utterly inoperative is to go over the edge of reasonable interpretation. The EPA may not construe the statute in a way that completely nullifies textually applicable provisions meant to limit its discretion.”); see also *S. Coast Air Quality Mgmt. Dist.*, 472 F.3d at 895 (“EPA’s interpretation of the Act in a manner to maximize its own discretion is unreasonable because the clear intent of Congress in enacting the 1990 Amendments was to the contrary.”).

207. See 42 U.S.C. § 7416 (providing nothing in chapter precludes state from adopting “any standard or limitation respecting emissions of air pollutants . . . [except that the] State or political subdivision may not adopt or enforce any emis-

are also required to provide “reasonable further progress” towards attainment goals.<sup>208</sup>

Another place to explore is whether states can use fees for greenhouse gas (“GHG”) reduction programs to create mitigation projects.<sup>209</sup> Other ideas that have been floated are different uses of cap and trade funds.<sup>210</sup> For example, one commentator suggested that the revenue from a cap and trade program should be used as an energy refund for low-income households.<sup>211</sup>

## VI. ISSUES TO EXAMINE WHEN DESIGNING A PROGRAM

When designing a policy to encourage development of renewable energy and energy efficiency measures in an environmental justice neighborhood, there are several key questions that need to be considered including how the program will be funded, which neighborhoods will benefit from the program, how a program can assure that residents benefit from it, gentrification issues, and who should administer the program. Finally, potential legal issues and challenges need to be examined.

### A. Program Funding

The financial mechanism is the primary issue that needs to be addressed when designing a policy to encourage green development in an environmental justice community. There are several different ways to design programs, several of which are examined above. Often, the largest barrier to renewable development in low-income neighborhoods is the initial upfront cost of installation, especially when the particular building is rented by a tenant.<sup>212</sup> Scrutinizing current spending on other programs

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sion standard or limitation which is less stringent than the standard or limitation under such plan or section”); *see also* *Oxygenated Fuels Ass’n v. Davis*, 331 F.3d 665, 670 (9th Cir. 2003).

208. 42 U.S.C. § 7501. Reasonable further progress is defined as “such annual incremental reductions in emissions of the relevant air pollutant as are required by this part or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable national ambient air quality standard by the applicable date.” *Id.*

209. *See, e.g.*, A.B. 1532 (Cal. 2012) (relating to spending of cap and trade revenues).

210. *See, e.g.*, *Cal/EPA Secretary Says Cap & Trade Funds Could Be Tapped for SB 375*, INSIDEEPA (Feb. 17, 2012), [http://environmentalnewsstand.com/index.php?option=com\\_ppv&id=2390582&Itemid=305](http://environmentalnewsstand.com/index.php?option=com_ppv&id=2390582&Itemid=305) (discussing how government official suggested that cap and trade funds could be used to help local governments redevelop communities consistent with California’s greenhouse gas requirements).

211. *See* Chad Stone, *Addressing the Impact of Climate Change Legislation on Low-Income Households*, 40 ENVTL. L. REP. NEWS & ANALYSIS 10555 (2010).

212. *See* CAL. ENERGY COMM’N, *supra* note 3, at 44; Nadia Ameli & Daniel M. Kammen, *The Linkage Between Income Distribution and Clean Energy Investments: Addressing Financing Cost I* (Fondazione Eni Enrico Mattei, Working Paper No. 10, 2012) (“Financing barriers represent a notable obstacle for energy improvements and this is particularly the case for low-income households. Limited

may free up funding for environmental justice focused programs. For example, the California Public Utilities Commission recently froze the \$800,000 per month it was spending on publicity for its energy efficiency programs because it was only a website.<sup>213</sup> Notably, however, due to increased skepticism about renewable investment after the bankruptcy of Solyndra, experts believe that renewable energy funding in general may decrease.<sup>214</sup>

### B. *Beneficiaries of Program*

It is important at the outset of developing a policy that encourages green development in environmental justice communities to identify the communities that should be targeted. Policymakers should examine the tools that have been developed to identify vulnerable communities to determine which neighborhoods should be eligible to receive the benefit envisioned by the program. This step of the program design will likely greatly depend on how the funds for the program are generated. For example, if the program relies on rates from a particular utility, the scope of the plan will likely be limited to customers of that particular utility.

Government and academic entities have developed tools to identify environmental justice communities. EPA developed a tool called the Environmental Justice Strategic Enforcement and Assessment Tool (EJ SEAT), which uses environmental, human health, compliance, and social demographic data to identify environmental justice neighborhoods.<sup>215</sup> An environmental justice screening method focused on California has also been

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access to credit, due to socio-economic status and the lack of guarantees, are key issues related to financing barriers.”).

213. See CAL. PUB. UTILS. COMM’N, ASSIGNED COMMISSIONER’S RULING REGARDING STATEWIDE MARKETING AND OUTREACH 1 (2011), available at <http://docs.cpuc.ca.gov/efile/RULINGS/145410.pdf> (discussing freeze in spending).

214. Ari Natter, *Analysts Predict Tough Year Ahead for Renewable Subsidies*, *Legislation*, 43 ENV’T REP 17 (2012) (describing how Congress is more skeptical of renewable investment than it was in past due to problems with Solyndra, LLC).

215. See *The Environmental Justice Strategic Enforcement Assessment Tool*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/compliance/ej/resources/policy/ej-seat.html#environmental> (last visited Sept. 24, 2012). According to EPA, the tool is still in development and therefore is currently only for internal use. See *id.* Although EPA’s tool has been considered a step forward by some in the environmental justice community, the tool has also been criticized for not catching enough data to adequately identify communities. See generally CAL. ENVTL. JUSTICE ALLIANCE, GREEN ZONES FOR ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY: A CONCEPT PAPER FROM THE CALIFORNIA ENVIRONMENTAL JUSTICE ALLIANCE (n.d.), available at [http://caleja.org/wp-content/uploads/2011/06/2010\\_0000\\_green\\_zones.pdf](http://caleja.org/wp-content/uploads/2011/06/2010_0000_green_zones.pdf).

developed by a group of scientists.<sup>216</sup> Environmental groups have endorsed this method.<sup>217</sup>

Even with these tools, however, identifying the particular community to target can be a difficult endeavor because many factors that are hard to quantify contribute to a community being vulnerable. For example, the cumulative impacts of air pollution resources are not comprehensively evaluated by regulatory agencies. Due to difficulties such as these, many policies have relied primarily on numerical indicators of need such as energy burden. Recommendations have also targeted communities with the highest energy burden for purposes of allocating federal energy funding.<sup>218</sup> An analysis of the federal program that provides energy assistance to low-income households found that the program would have greater success if it gave higher benefits to those that paid more of their income for energy.<sup>219</sup>

Although relying primarily on numerical indicators such as energy burden may be seen as a simpler way to design a policy, it may not benefit those most in need of emission reductions. As discussed above, economic benefits are only one of the potential advantages for the community. A policy that creates new development of renewable resources and energy efficiency measures can also reduce the pollution burden in the communities. To effectively target communities where environmental and economic burdens are an issue, environmental justice screening methods should be utilized.

### C. *Assuring Benefits Accrue to Residents*

The implementation of a green economy program in an environmental justice community needs to assure that the program benefits the residents. There are several types of benefits that may accrue from a green economy program based on monetary benefits from lower energy bills to

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216. See generally RACHEL MORELLO-FROSCH, MANUEL PASTOR & JIM SADD, ENVIRONMENTAL JUSTICE SCREENING METHOD: INTEGRATING INDICATORS OF CUMULATIVE IMPACT INTO REGULATORY DECISION-MAKING, <http://arb.ca.gov/cc/ejac/meetings/060910/presentation.pdf> (last visited Sept. 10, 2012) (describing elements of screening method in presentation to California Air Resources Board).

217. See, e.g., CAL. ENVTL. JUSTICE ALLIANCE, *supra* note 215, at 1 (recommending weatherization of homes to improve their energy efficiency and policies that promote ownership of renewable resources).

218. See generally 42 U.S.C. § 8621 (2012); see also APPLIED PUB. POLICY RESEARCH INST. FOR STUDY & EVALUATION, LIHEAP ENERGY BURDEN EVALUATION STUDY: FINAL REPORT, *supra* note 115, at 4–6 (analyzing extent to which Low Income Home Energy Assistance Act is actually serving communities with highest energy burdens).

219. See APPLIED PUB. POLICY RESEARCH INST. FOR STUDY & EVALUATION, *supra* note 115, at 40 (concluding that “[t]he best way to increase targeting would be to measure energy burden for LIHEAP [Low Income Housing Energy Assistance Program] recipients and give higher benefits to households that have higher energy burden [sic]”).

job creation and pollution reduction.<sup>220</sup> A carefully designed program will examine all of the potential benefits of the program and determine who will receive those benefits. Green development may not help residents if this is not considered. For example, if renewable energy generation equipment is installed on buildings that are being rented, the residents may not accrue the financial benefits unless a policy is developed to assure that the tenants benefit from the development.<sup>221</sup> One multi-tenant building in Los Angeles overcame this issue often associated with rental properties by passing on the utility savings to the tenants.<sup>222</sup>

In addition, it is important to evaluate a program after it has been initiated to determine who is benefiting from the program and whether it is reaching the desired population. Audits help determine whether the program is effectively targeting the intended goals.

Further, it is important to inform customers of the realistic impacts that energy efficiency measures may have on their particular home's energy needs.<sup>223</sup> In addition, the program design itself needs to determine the type of benefits that it wants to achieve. The more people the program serves, depending on the funding mechanism, the less impact the program may ultimately have. For example, an energy efficiency grant program could give new light bulbs to a large number of people.<sup>224</sup> This, however, may not have a significant impact on lowering the energy burden and pollution in the communities. The better way may be to start by targeting the most vulnerable members of the population and providing more comprehensive energy efficiency investment.

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220. See CAL. CTR. FOR SUSTAINABLE ENERGY ET AL., *supra* note 36, at 6–7 (discussing benefits of green economy program). For example, a California program aimed at installing solar energy at multi-family low income residences has the following goals: stimulating development of solar power in affordable housing, improving quality of affordable housing, decreasing energy costs without increasing monthly expenses, and increasing awareness of benefits of solar. See *id.* at 6 (same).

221. See L.A. BUS. COUNCIL INST., *supra* note 119, at 14 (discussing benefits to low-income families of green program).

222. See *id.* (“The beauty of the solar panels is that they offset our costs so much so that we pay nothing for utilities, allowing us to funnel those savings into our resident programs, providing computers, education programs and activities for the community.”).

223. See NEXUS MKT. RESEARCH, INC., *supra* note 14, at 6 (reporting “only lack-luster satisfaction with program-induced energy savings” because some participants were dissatisfied because they did not realize how much energy other items in household use).

224. See *id.* at 117–18 (characterizing levels of energy efficiency goals as: “1. Provide cost-effective services to the greatest number of households, thereby limiting services primarily to lighting, and secondarily to the replacement of room air conditioners and refrigerators”; “2. Provide only comprehensive weatherization, including heating system repair and replacement, insulation, appliances and lighting measures and target those services to the most vulnerable households with higher energy burdens, including the frail elderly, the disabled, and families with young children”; and 3. A combined approach).

#### D. *Gentrification Issues*

Research has shown that energy efficiency improvements increase the value of homes.<sup>225</sup> Similar results have been shown for installation of renewable resources. A report by researchers at the Lawrence Berkeley National Laboratory found that homes with solar panels sell for higher prices than homes without solar panels.<sup>226</sup> Although this research found that the value roughly corresponded to the price of the solar system,<sup>227</sup> this research demonstrates that installation of renewable systems can increase the property value of a home.

A program designed to encourage green development in a community needs to protect community members from the negative impacts of gentrification. As the experience with other efforts has shown, once property values rise, communities of color and low-income residents can be forced to move because of higher property taxes and lack of available housing due to redevelopment.<sup>228</sup> Studies of gentrification have found that changes in public policy can be the genesis of gentrification.<sup>229</sup> In order to assure that the policies encouraging green development truly benefit local communities, measures should be taken at the outset to prevent the negative impacts of gentrification from occurring. Actions that can help prevent gentrification include: providing policies that protect renters from displacement and rising rent; creating common land for community development; and creating financing structures that help communities take ownership in their residences.<sup>230</sup>

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225. See, e.g., ICF INT'L, INCORPORATING ENERGY EFFICIENCY INTO HOME-FUNDED AFFORDABLE HOUSING DEVELOPMENT, (2008), available at <http://www.icfi.com/~media/Files/ICFi/Reports/energy%20efficiency%20HOME.ashx> (discussing tools available to help calculate savings from energy efficiency measures).

226. See BEN HOEN, RYAN WISER, PETER CAPPERS & MARK THAYER, ERNEST ORLANDO LAWRENCE BERKELEY NAT'L LAB., AN ANALYSIS OF THE EFFECTS OF RESIDENTIAL PHOTOVOLTAIC ENERGY SYSTEMS ON HOME SALES PRICES IN CALIFORNIA iii (2011), available at <http://eetd.lbl.gov/ea/emp/reports/lbnl-4476e.pdf> ("Across a large number of hedonic and repeat sales model specifications and robustness tests, the analysis finds strong evidence that California homes with PV systems have sold for a premium over comparable homes without PV systems.").

227. See *id.* at 46 (finding that estimates for increased value of home from PV installation ranges from \$3.9 to \$6.4 per installed watt, which "corresponds to a premium of approximately \$17,000 for a relatively new 3,100 watt PV system").

228. See Matthias Bernt, *The "Double Movements" of Neighbourhood Change: Gentrification and Public Policy in Harlem and Prenzlauer Berg*, URBAN STUDIES, Nov. 2012, at 3045, 3045–55, available at <http://usj.sagepub.com/content/early/2012/03/23/0042098012437746> (discussing negative impacts of gentrification).

229. See *id.* at 3057 (finding that "In both cases, neighbourhood change did not happen as a structural result of anonymous market forces, but as an outcome of changes in public policy. The conditions for the upgrading of the housing stock, rent increases and the displacement of low-income groups did not simply exist and were pushed forward by the work of markets—but markets had to be made to work").

230. See Kalima Rose, *Combating Gentrification Through Equitable Development, RACE POVERTY AND THE ENV'T* (2002), <http://urbanhabitat.org/node/919> (describing policy measures that have helped communities combat gentrification).

### E. *Who Will Administer the Program?*

Government entities, utilities, nonprofits, or other organizations can administrate programs to encourage renewable development or increased energy efficiency in environmental justice communities.<sup>231</sup> It is important that policy-makers explore different options when determining how best to administer the program.

One potential way to improve programs for communities is to have an entity other than the utility run the fund. Due to issues with administration of the program, Maryland changed the administration of its low-income energy efficiency program from the utilities to the Maryland Department of Housing and Community Development.<sup>232</sup> An essential part of administering a program is coordination between the various entities that have programs, which apply to these communities. As a report on Connecticut's program highlighted, although there are several programs in the state, "there is little direct coordination or mutual understanding of these programs and the overall budget available for them."<sup>233</sup>

An example of an entity that has effectively managed a program that helps vulnerable communities with energy needs is a California non-profit called GRID.<sup>234</sup> A recent evaluation of this non-profit found that it was effectively implementing the program due to its program strategy, incorporation of education and job training, and its established relationships with the community.<sup>235</sup> GRID's program should be examined when determining the best way to administer a program to help vulnerable communities.

### F. *Potential Legal Issues*

Since a green economy will promote local development over remote development, these rules and policies related to renewable development must be cognizant of potential commerce clause issues. A number of commentators have raised the potential concern over the constitutionality of state renewable programs under the dormant commerce clause.<sup>236</sup> The dormant commerce clause limits actions that discriminate against inter-

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231. *See, e.g.*, Colo. Rev. Stat. § 40-2-127(2)-(3) (2012) (providing that community garden program may be owned and operated by "the qualifying retail utility or any other for-profit or nonprofit entity or organization, including a subscriber organization organized under this section" and that the "community solar garden may be owned by a subscriber organization, whose sole purpose shall be beneficially owning and operating a community solar garden").

232. Md. Pub. Serv. Comm'n, Order No. 84569 (2011).

233. NEXUS MKT. RESEARCH, INC., *supra* note 14, at 7.

234. GRID is a nonprofit organization focused on delivering affordable solar energy to low-income customers.

235. *See* NAVIGANT CONSULTING, INC., *supra* note 42, at 130.

236. *See, e.g.*, Steven Ferrey et al., *Fire and Ice: World Renewable Energy and Carbon Control Mechanisms Confront Constitutional Barriers*, 20 DUKE ENVTL. L. & POL'Y F. 125, 158-59 (2010) (discussing how states that have geographic restrictions in their renewable programs raise Commerce Clause concerns).

state commerce.<sup>237</sup> Facially discriminatory statutes are subject to a strict scrutiny analysis and can only survive if there is a compelling state interest and the statute is the least intrusive means to achieve that interest.<sup>238</sup> The Supreme Court has found that “even if environmental preservation were the central purpose” of the regulation, it “would not be sufficient to uphold a discriminatory regulation.”<sup>239</sup> The Supreme Court has also found that the “saving clause” of the Federal Power Act, which allows states to regulate local electricity rates, does not exempt decisions related to rates from the Commerce clause.<sup>240</sup>

The potential implication of a dormant commerce clause challenge is not just a theoretical exercise. A federal district court in California found that California’s low fuel carbon standard violates the dormant commerce clause.<sup>241</sup> California’s low fuel carbon standard included provisions to estimate and reduce GHG emissions from ethanol usage by determining, among other things, the location of the ethanol producer.<sup>242</sup> While striking the law down, the court found that, although states have an interest in reduced GHGs, California could have achieved this through a less-discriminatory means.<sup>243</sup> Other cases have also struck down requirements related to preference for local fuel.<sup>244</sup> Dormant commerce clause issues will also likely arise in North Dakota’s challenge to a Minnesota law that prohibits the state from importing power from any new large energy facility that could contribute to the state’s carbon dioxide emissions.<sup>245</sup>

Depending on how a policy is written, preemption could also be a concern. Pursuant to the U.S. Constitution’s Supremacy Clause, “Con-

237. The Commerce Clause provides that “[t]he Congress shall have Power . . . [t]o regulate Commerce . . . among the several States.” U.S. CONST. art. I, § 8, cl. 3. Several cases have found that this clause limits states from discriminating against interstate commerce. *See, e.g.*, *Wyoming v. Oklahoma*, 502 U.S. 437, 454–55 (1992); *New Energy Co. of Indiana v. Limbach*, 486 U.S. 269, 273 (1988); *Hughes v. Oklahoma*, 441 U.S. 322, 326 (1979).

238. *See generally New Energy Co. of Indiana*, 486 U.S. at 273–74. Cases have also said that the discrimination should be justified by a factor unrelated to economic protection. *See generally Maine v. Taylor*, 477 U.S. 131 (1986). Less strict scrutiny applies when a statute only indirectly impacts interstate commerce. *See generally Brown-Forman Distillers Corp. v. N.Y. State Liquor Auth.*, 476 U.S. 573, 576 (1986).

239. *West Lynn Creamery, Inc. v. Healy*, 512 U.S. 186, 204 n.20 (1994).

240. *See Wyoming*, 502 U.S. at 458 (“Congress must manifest its unambiguous intent before a federal statute will be read to permit or to approve such a violation of the Commerce Clause as Oklahoma here seeks to justify.”).

241. *See generally Rocky Mountain Farmers Union v. Goldstene*, 843 F. Supp. 2d 1071, 1090 (E.D. Cal. 2011).

242. *See generally Cal. Code. Regs. tit. 17, § 95481* (2011).

243. *See Rocky Mountain Farmers Union*, 842 F. Supp. 2d at 1093–94.

244. *See Wyoming*, 502 U.S. at 438–39 (striking down use of indigenous fuel supplies); *New Energy Company of Indiana v. Limbach*, 486 U.S. 269, 271, 278–80 (1988) (stating income tax credits can only be given to in-state producers of fuel additives).

245. *See North Dakota v. Swanson*, No. 11-3232 (D. Minn. Nov. 2, 2011) (challenging Minnesota’s Next Generation Energy Act).

gress has the authority, when acting pursuant to its enumerated powers, to preempt state and local law.”<sup>246</sup> Preemption issues can arise when a state regulates air pollution. For example, the Clean Air Act expressly preempts all states except California from regulating fuels to reduce motor vehicle emissions.<sup>247</sup> One way to minimize preemption concerns is to focus on a particular utility’s retail customers.

## VII. CONCLUSION

The impacts of climate change could be devastating unless programs are put into place to help the most vulnerable communities adapt. Helping environmental justice communities install renewable energy and energy efficiency resources are essential parts of a long-term solution to remedy energy disparities.

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246. *Oxygenated Fuels Ass’n v. Davis*, 331 F.3d 665, 667 (9th Cir. 2003). The U.S. Constitution states that federal law “shall be the Supreme Law of the Land . . . any Thing in the Constitution or laws of any State to the Contrary notwithstanding.” U.S. CONST. art. VI, cl. 2.

247. *See generally* 42 U.S.C. § 7543(a) (2006). The Clean Air Act provides that: “no State (or political subdivision thereof) may prescribe or attempt to enforce, for purposes of motor vehicle emission control, any control or prohibition respecting any characteristic or component of a fuel or fuel additive in a motor vehicle or motor vehicle engine.” *Id.* § 7545(c)(4)(A). California is the only state that qualifies for a preemption waiver of Section 7543(a) or a Section 7543(b) waiver. *See generally* *Engine Mfrs. Ass’n v. Env’tl. Prot. Agency*, 88 F.3d 1075, 1079 n.9 (D.C. Cir. 1996).

