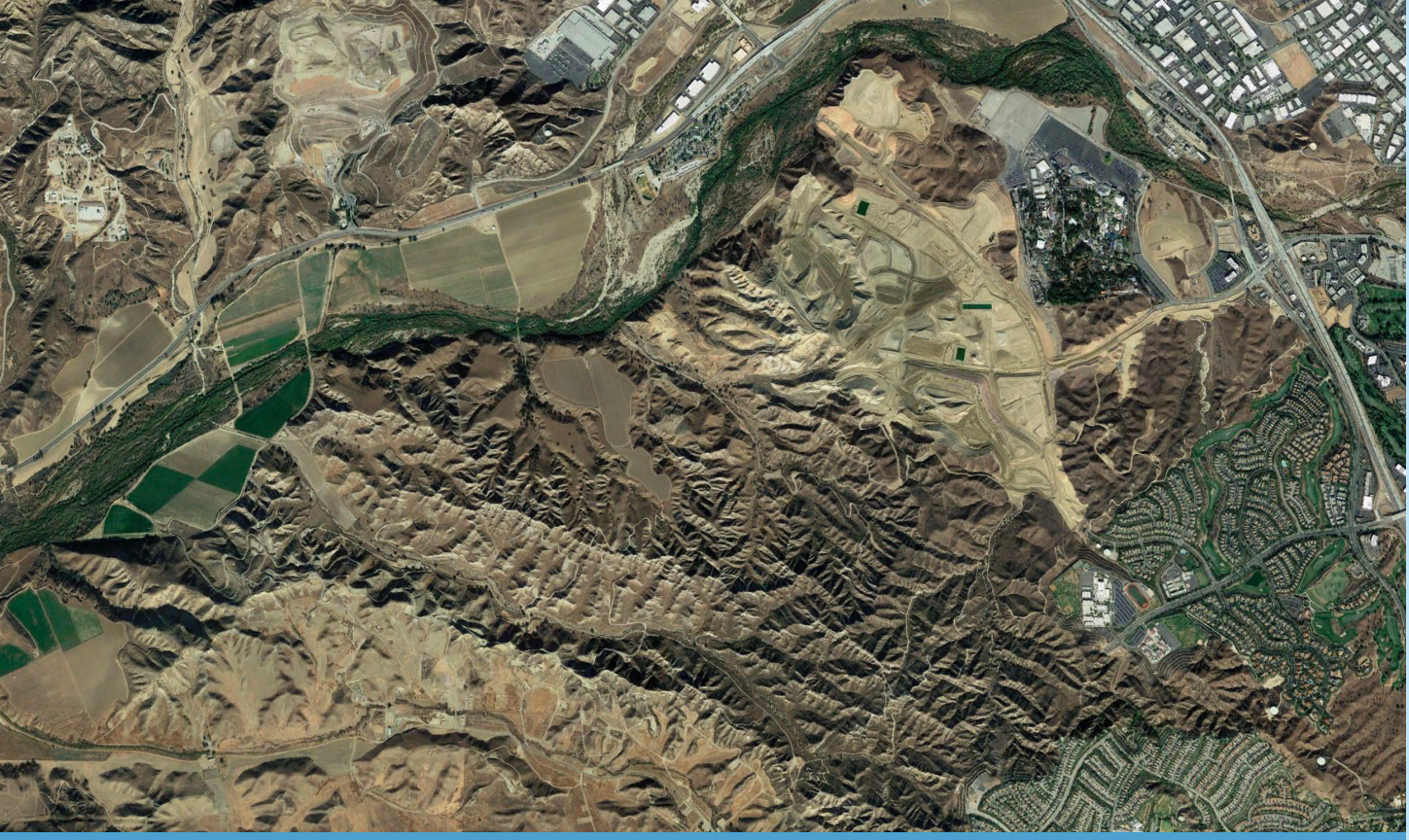


2019 DESCRIPTIVE CASE STUDY

Environmental Protection, Climate Regulation, and the Persistence of Sprawl in California

SEAN KENNEDY AND STEPHANIE PINCETL LINCOLN INSTITUTE OF LAND POLICY

TOPIC

City and Regional Planning, Climate Change, Land Conflict Resolution

TIMEFRAME

1990–2018

LEARNING GOALS

- Explain the limitations of state and local policy in regulating local land use decisions to minimize greenhouse gas emissions and other environmental impacts.
- Identify drivers of exurban development and the relationship of those drivers to climate change mitigation and adaptation efforts.
- Analyze this case via different theories and frameworks, including California's climate regulation framework.
- Analyze the potential impacts of greenhouse gas (GHG) mitigation strategies associated with proposed exurban developments.
- Evaluate broader social and environmental impacts stemming from exurban developments in California and across the United States.

PRIMARY AUDIENCE

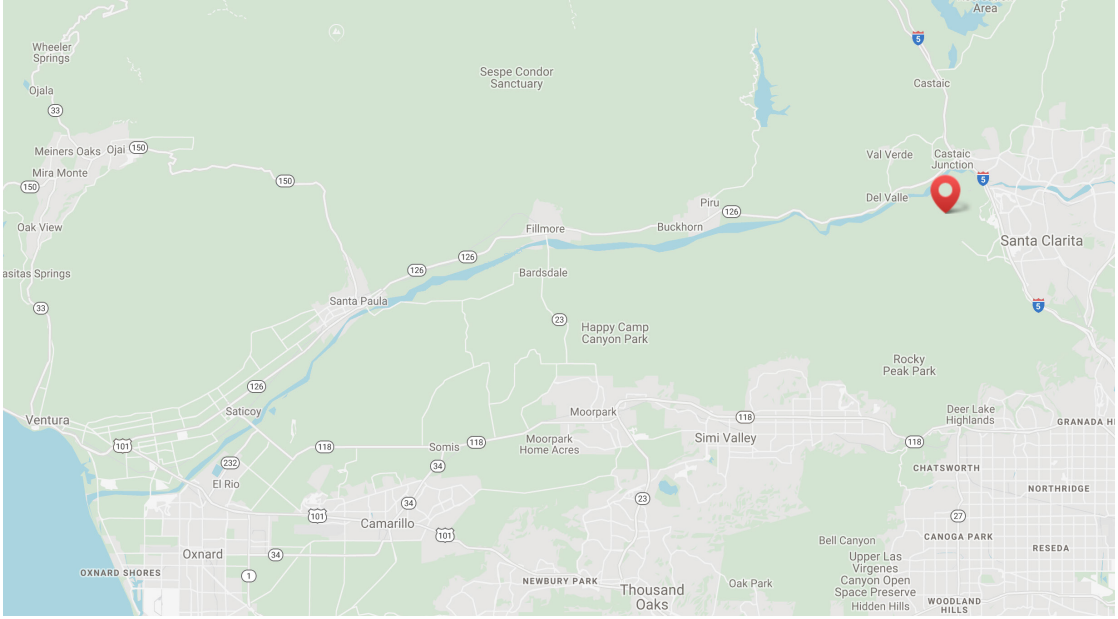
This case study is intended for planners and policymakers working at the nexus of climate change and land use across local, state, and federal government. It may also be used by advocacy organizations as a nuanced example of the ways that developer demands intersect with—and ultimately shape—state and local planning efforts.

PREREQUISITE KNOWLEDGE

None.

SUMMARY

In the United States, California is a leader in implementing policies to address climate change and environmental protection. A closer look, however, reveals how changes in land use, a major driver of greenhouse gas (GHG) emissions and other environmental impacts, continue unabated. For example, Newhall Ranch is a large-scale land development project in the northern part of Los Angeles County that meets state environmental regulations through the use of carbon offsets, rooftop solar, and investments in energy efficiency in low-income neighborhoods in distant areas of the county. While these mitigation measures meet state requirements, however, they also separate significant environmental impacts from the specific places where those impacts occur. By demonstrating how California's environmental policies are being unevenly applied at the local level, this case study reveals how both developers and local planners are adapting new regulatory tools to perpetuate conventional sprawled development.



Newhall Ranch Development locates west of Santa Clarita and south of the Santa Clara river.
Source: https://ranchontheriver.com/

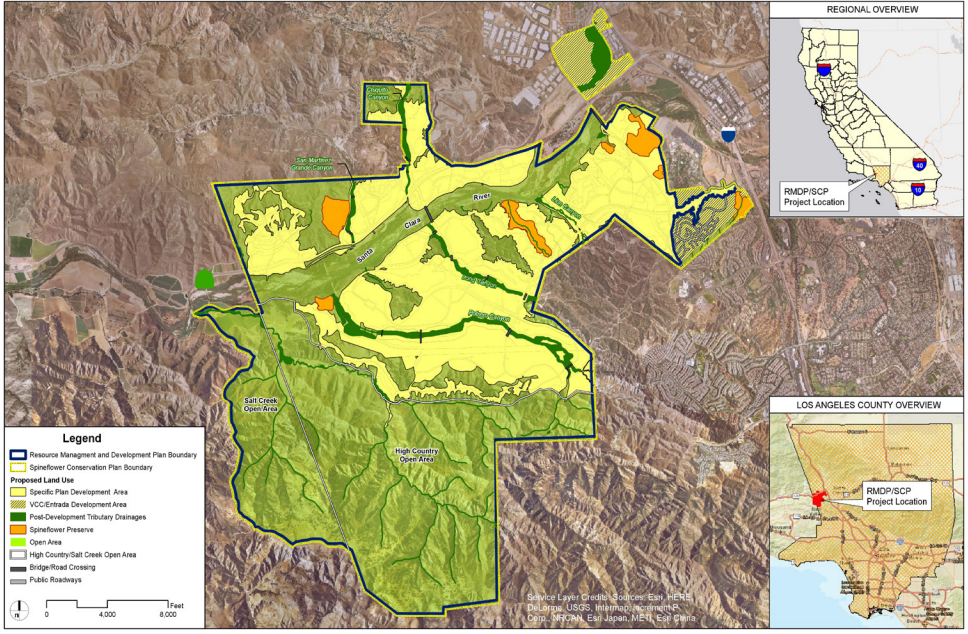
DEFINITION OF THE PROBLEM

Created under Spanish rule, Newhall Ranch was originally a farming and cattle operation that at one point comprised 13,599 acres. In the 1980s, however, Newhall Ranch converted a portion of its land from agriculture into a largely residential community, located 35 miles north of Los Angeles along the Interstate 5 freeway. Over time, additional urban developments brought the area to its current population: more than 230,000 inhabitants, most of whom are white, college educated, and affluent.

In 1994, the Newhall Ranch Company was established as a division of the Newhall Land and Farming Company and charged to create another new urban development, Newhall Ranch. This project, the largest in the history of Los Angeles County, was initially planned to include 21,615 dwelling units, over 300 acres of commercial and business parks, an 18-hole golf course, and a massive water reclamation plant (Shates 2005). The project area contains the Santa Clara River—the county's last free-flowing river—as well as riparian woodland habitats, home to endangered species such as the threespine stickleback fish, the San Fernando Valley spineflower, and the Southern California steelhead. It also included active oil and natural gas operations and 1,500 acres of existing agricultural land, over a quarter of which was designated as "prime" agricultural land, a designation assigned by U.S. Department of Agriculture defining land that has the best physical and chemical characteristics for crop production.

As is typical of large-scale California developments, the Newhall project faced mandatory compliance with state and local regulatory requirements to secure approval. Any large development proposal in California first requires a formal specific plan, which lays out the development plans, regulations, and infrastructure required to support the project (Fulton and Shigley 2012). The adoption of a specific plan is a legislative act—similar to adoption of a general plan or zoning ordinance—and thus requires a majority vote by the local governing

Newhall Ranch Development EIR Map.



Source: Hunsaker 2010/Pace 2010.

body, as well as public participation, which typically takes the form of public hearings. While the range of issues a specific plan addresses is left to local discretion, California law does require that a specific plan be consistent with the existing general plan of the jurisdiction within which it is located.

At the state level, a specific plan is subject to the California Environmental Quality Act (CEQA), which typically requires the preparation and consideration of an environmental impact report (EIR) to disclose potential environmental effects of the plan, alternatives to it, and the means by which possible damage may be reduced or avoided (CEQA 1969). When projects may affect fish, wildlife, or their habitats, the California Department of Fish and Wildlife (CDFW) must also review and approve EIRs before the EIRs can be considered by local governing bodies (AEP 2018). While the CEQA requires that public agencies assess the environmental effects of proposed actions in order to prevent or limit potential harm, local governments can still approve any project on the grounds that its benefits—environmental, social, economic, or otherwise—outweigh any unavoidable environmental costs. The lead agency must detail those costs and benefits in a statement of overriding considerations, but the project can go forward regardless.

In 1994, the Newhall Ranch Company began processing a request for the approval of the Newhall Ranch Specific Plan and the related EIR. To comply with the Los Angeles County General Plan, the plan included measures to avoid leapfrog development by locating new development adjacent to existing or planned infrastructure, urban services, transportation corridors, and major employment centers.[1] The plan also proposed clustered development to preserve regionally significant natural resource areas, sensitive habitat, and major landforms and to reduce vehicle and energy consumption. The plan's mobility objectives included alternatives to automobile use, and it categorized resource conservation as an important objective.

[1] Leapfrog development is a form of development commonly associated with urban sprawl that occurs well beyond the limits of the current urbanized area, usually to take advantage of less expensive land.

Though billed by the developer as a model of environmental sensitivity, the project sparked significant concerns over its impacts on traffic, the Santa Clara River, and a number of endangered species found within the project area (Kaplan and Kelley 1994). Following a lengthy period of public comment and review, the specific plan and related EIR were unanimously approved by the Los Angeles County Board of Supervisors on March 23, 1999 (Department of Regional Planning 2003). In its statement of overriding considerations accompanying the Board's approval, the county acknowledged that the project would result in unavoidable environmental damage—yet supervisors believed the cost of this damage would be offset by environmental, social, and economic benefits. These alleged benefits—the majority of which were not supported by any detailed analysis—included the preservation of 51 percent of the land within the project area; the provision of 2,200 affordable dwelling units; 19,226 permanent jobs; a reduction in vehicle miles travelled (VMT) by residents; and recreational benefits derived from a proposed public lake and golf course (Department of Regional Planning 2003). Most striking, however, were the plan's economic benefits, which included an estimated fiscal surplus of $251–$301 million to the county during construction and $17–$20 million annually thereafter.

Shortly after, neighboring Ventura County and a number of environmental groups challenged Los Angeles County's approval of Newhall Ranch on the grounds that the EIR had failed to adequately address and mitigate potential impacts on traffic volume, land use change, and biodiversity loss. On August 1, 2000, the Kern County Superior Court—serving as an independent arbiter between LA and Ventura counties—ordered Los Angeles County to void its certification of the final EIR with respect to traffic, wildlife, and water resource impacts and to conduct an additional analysis under the CEQA. In 2003, Newhall Ranch revised its specific plan and EIR for the County of Los Angeles, both of which were adopted by the County of Los Angeles Department of Regional Planning later that year (FORMA 2003). In 2011—following another lengthy EIR process, CDFW approval, and the developer's bankruptcy and subsequent reorganization— the Los Angeles County Board of Supervisors approved the first two phases of the Newhall Ranch development.

In 2015, however, the Center for Biological Diversity filed a lawsuit that challenged the CDFW approval of the specific plan and EIR, alleging that the project's estimated unmitigated production of 260,000 metric tons of carbon dioxide each year was inconsistent with California's statewide climate goals. In its ruling later that year, the California Supreme Court separately rejected the EIR on the grounds that the CDFW's conclusion that greenhouse gas (GHG) emissions would not have a significant impact was not supported by substantial evidence. The court further concluded that the EIR's proposed biological mitigation measures included failed to adequately protect the unarmored threespine stickleback, a freshwater fish designated as endangered by federal and state law. The ruling dealt a major blow to Newhall Ranch, leaving no further avenues of appeal for the developer with the project in its current form (Kim 2015).

POSSIBLE STRATEGIES AND SOLUTIONS

While the California Supreme Court's ruling closed the last avenue of appeal for the developer, the parties could still pursue a number of options to determine the fate of the project:

- The developer could abandon the project entirely;
- The developer could revise the proposal to reduce its environmental impacts;
- Opponents of the project could lobby the state to change laws to better mitigate the environmental impacts of new development; or
- The Los Angeles County Department of Regional Planning could explore options for increasing housing supply through infill development rather than new development.

SOLUTION AND IMPLEMENTATION

In late 2016, the developer—now operating under the name FivePoint—responded to the California Supreme Court decision with modifications to the project's GHG reduction measures and to the design and construction methods for the proposed Santa Clara River bridge crossing and bank stabilization (CDFW 2016). While the unmitigated project was estimated to generate 526,103 metric tons of carbon dioxide equivalent per year ($MTCO_2$-e), the revised proposal estimated *zero* $MTCO_2$-e emissions, thanks to mitigation.

In addition to a resource management plan for the spineflower and the threespine stickleback fish, the revised EIR contains a total of thirteen proposals for GHG mitigation (Ramboll Environ 2016). These include three major reduction strategies: onsite reductions, including the deployment of solar panels on homes, electric vehicles, and circulation elements; offsets, including reducing building energy use in disadvantaged Los Angeles County communities; and support for specific U.S. Forest Service projects and programs involving the funding of clean-burning cook stoves for underprivileged households in Africa (including in Zambia and Malawi).[2]

The revised proposal targeted GHG emissions from three main sources:

1. Building Energy Use. Unmitigated, the project was estimated to produce 7,366 MT CO_2-e per year from building energy usage alone. The revised version would reduce these emissions to zero, through a combination of residential and commercial Zero Net Energy (ZNE) buildings (-5,762 $MTCO_2$-e per year), swimming pool heating (-1,636 $MTCO_2$-e/year), and an offsite building retrofit program (-77 $MTCO_2$-e/year). The latter would include investment in a Los Angeles County building retrofit program to provide cool roofs, solar panels, solar water heaters, energy-efficient lighting and appliances, windows, insulation, and water conservation measures primarily in disadvantaged communities, with specific locations to be determined by the Los Angeles County Planning Director.

[2] Clean cook stoves—typically run on electricity, natural gas, or biogas—may avoid the GHG emissions associated with the collection and combustion of firewood; however, the environmental benefits and social costs of this mitigation strategy have been the subject of considerable debate.

Assistant Field Supervisor Cat Darst during a 2015 site visit to Newhall Ranch to assess the status of San Fernando Valley spineflower in Los Angeles County. Source: USFWS.

2. Vehicle and Transportation Emissions. The EIR's Transportation Demand Management Plan outlines a set of strategies to reduce vehicle miles traveled (VMT) in the Newhall Ranch development area and neighboring communities. Residents, workers, customers, and delivery vehicles serving the project area are estimated to generate 47,272 $MTCO_2$-e per year; in response, the report outlines a combination of transportation demand management strategies (-7,331 $MTCO_2$-e per year), subsidies for residential electric vehicles (EVs) and EV charging infrastructure (-13,904 $MTCO_2$-e per year), traffic signal synchronization (-904 $MTCO_2$-e per year), and support for electric school buses (-74 $MTCO_2$-e per year).[3]

According to the revised EIR, each Newhall Ranch residence will be equipped with at least one single-port electric vehicle charging station, and the project developer will subsidize the purchase of zero-emission vehicles. Commercial buildings in the development will also provide parking spaces with EV chargers. The project will further develop bike routes, bikeshare and carshare programs; provide electric school buses; and coordinate traffic signals on major corridors to reduce traffic.

The remaining 25,059 $MTCO_2$-e per year would be offset through the aforementioned GHG reduction program, which includes funding activities that reduce or sequester GHG emissions through GHG reduction credits, issued by a recognized carbon registry.

3. Construction and Vegetation Loss. Total off-road and on-road construction activities are estimated to result in 12,967 $MTCO_2$-e over a 30-year period; the revised EIR amortizes them in order to offset and mitigate the resulting 432 $MTCO_2$-e per year through investments in energy efficiency and conservation in existing low-income neighborhoods and buildings. The revised EIR also addresses vegetation changes and reduced GHG emissions from the reduction

[3] Transportation demand management, traffic demand management or travel demand management (all TDM) is the application of strategies and policies to reduce travel demand, or to redistribute this demand in space or in time (Gopalakrishna et al. 2012).

of agricultural activities within the development's boundaries, and it documents emissions associated with landscape maintenance in the project. With the curtailment of agricultural activities, it claims that fewer GHGs will be produced overall.

RESULTS

In 2017, the CDFW certified the revised EIR. In a resounding endorsement, the accompanying statement of overriding considerations noted, "the Project represents an innovative demonstration of a mixed-use development project providing needed housing and commercial development in a manner consistent with California's GHG reduction goals" (CDFW 2017, 40). Echoing the sentiments of the initial Los Angeles County Board of Supervisors approval, the CDFW argued that, although the project would result in unavoidable environmental damage, the proposed mitigation measures and estimated economic benefits would outweigh the projects costs (CDFW 2017). In July 2017, the Board of Supervisors again approved the Newhall Ranch development in two 4 to 0 votes, with only one supervisor abstaining due to concerns about siting such a large project on open space and agricultural land. In approving the project, supervisors who had supported it applauded both the developer's efforts to mitigate environmental impacts and the project's overall contributions to job creation and housing supply (County of Los Angeles 2017).

To address ongoing and future litigation, FivePoint entered an agreement with four of the six environmental groups and tribal organizations that had long opposed the development: the Center for Biological Diversity, the Wishtoyo Chumash Foundation's Ventura Coastkeeper Program, the California Native Plant Society, and the Santa Ynez Band of Chumash Indians (Sahagun and Agrawal 2017). In a sign that these groups felt they had exhausted all avenues for legal opposition, a staff attorney at the Center for Biological Diversity noted, "No matter what, this massive development was going to break ground in a matter of months, so we're glad to have these important benefits in place for wildlife, the climate and local communities" (CBD 2017). In exchange for the groups' ceasing their ongoing and future opposition to the project, FivePoint agreed to provide approximately $25 million for conservation efforts to protect endangered species both on the site and along a six-mile stretch of the Santa Clara River. FivePoint also signed a separate proprietary agreement with the Wishtoyo Chumash Foundation, a Native American nonprofit organization, to provide an undisclosed amount of funding for the multimillion-dollar construction of a cultural center on donated ancestral lands within the development. In exchange for these guarantees, the four groups agreed to discontinue any future opposition to the project (Lawrence 2017).

The two environmental groups not party to the settlement—Friends of the Santa Clara River and the Santa Clarita Organization for Planning and the Environment (SCOPE)—viewed the agreement as an effort to silence potential opposition to future changes in the project. In an interview with the Los Angeles Times, SCOPE President Lynne Plambeck stated, "We shouldn't have to be muzzled to get conservation funds" (Sahagun and Agrawal 2017). While these two organizations remain free to oppose the project, neither has pursued further legal opposition—inaction suggestive of the financial strains of sustained legal action, particularly for small nonprofit entities, rather than a change in position.

ANALYSIS AND EVALUATION

The willingness of the Los Angeles County Board of Supervisors and the CDFW to approve the Newhall Ranch project in spite of obvious environmental concerns points to some troubling trends in California's environmental regulations. The willingness of both agencies to approve the project on the basis of future economic benefits outweighing of environmental costs points to the continued dominance of economic concerns over environmental ones—even in an environmentally progressive state such as California. On a more abstract level, the approvals also point to policymakers' increased tendency to accept environmental solutions situated in locations physically removed from the actual sites of the degradation in question. In other words, environmental problems in one location (e.g., GHG emissions due to vegetation loss) can be justified by the promise to address a separate environmental concern elsewhere (e.g., purchasing clean cook stoves in Africa).

Newhall Ranch finally broke ground in early 2018. While the full extent of the project's social, economic, and environmental impacts is unknown as of this writing, the following overview discusses the ways that spatially disconnected mitigation measures attempt to address local environmental concerns and the potential implications of this project's generation of GHG emissions from buildings, transportation, construction, and vegetation loss.

Building GHGs

Under the California Code of Regulations Title 24, Part 6 and according to the California Energy Commission's definition, the buildings in the Newhall Ranch development shall be zero net energy (ZNE) buildings; that is, they will produce as much energy as they use every year, and, in the event that one building produces excess energy, it will offset those buildings that do not (California Building Standards Commission 2019). This agreement complies with the community-based approach allowable under state regulations.

The report's proposed approach to achieving ZNE fails to discuss several important complicating factors. The first is whether there is enough rooftop solar capacity in the development to offset building electricity use: While a given building may be able to generate more electricity during the several midday hours that is utilized daily (subject to available rooftop area, slope, and orientation), this will not mitigate the need for electricity and natural gas for appliances when the sun declines on the horizon without energy storage (Hernandez and Kenny 2010). Adding more rooftop solar generation capacity may increase the amount of electricity supplied over the course of the year and even exceed demand—on paper—but nighttime will necessitate additional electricity from other sources. Furthermore, there has been no discussion of the project's potential impact on the grid, particularly with regard to increased demand for energy-intensive air conditioning as the number of very hot days in Los Angeles County – including the Santa Clarita Valley – continues to increase (Burillo et al. 2019).

Proposed measures to reduce emissions by retrofitting buildings in other parts of the county raise additional concerns. Investments in existing buildings and neighborhoods assume that such investments can be targeted at those buildings for which retrofitting would be most effective; however, the revised EIR contains no detail regarding the specific location of building retrofits or strategies for overcoming potential resistance from property owners—both important factors in bringing the proposed strategy to scale (Vergragt and Brown 2012; Wilson, Crane, and Chryssochoidis 2015).

Transportation GHGs

According to the EIR, the program to install charging stations in residential areas could create a "neighbor effect" regarding EVs, meaning that as more people see neighbors and friends using EVs, fewer perceived barriers to adopting remain. Indeed, the EIR assumes that, as EVs become more common due to reduced costs, increased availability of infrastructure, and other incentives, members of the community will be increasingly more likely to purchase and use their own EVs. Citing additional studies, the EIR further states that EVs will be preferred to other vehicles when there is a choice—and the project developers were thus able to claim significant GHG emissions reductions from their Transportation Demand Management Plan.

Such assumptions, however, run counter to a growing body of empirical research on electric vehicle adoption practices, which finds that consumers tend to resist rather than embrace new technologies that they consider alien or unproved (Egbue and Long 2012; Li et al. 2017). In this case, inflated assumptions regarding EV uptake will likely translate into higher-than-anticipated GHG emissions while the use of conventional vehicles continues. In addition,

household ZNE does not directly incorporate EVs' charging; if that happens at night, the energy mix will have a larger component of natural gas in absolute quantities, unless additional investments are made in energy storage.

Traffic impacts on non-EV trips generated by Newhall Ranch are addressed in the EIR using standard estimates and methods, including enlarged traffic arteries, signal coordination, and rideshare programs. Given the vast literature examining connections between urban form and congestion (Ewing 2008; Ewing and Hamidi 2015), congestion increases seem likely as more vehicles use the same infrastructure. How that will affect the overall system, though, remains unexplored. Electric or not, any car from the Newhall development contributes to congestion, and the development will continue to add to the number of overall commuters, as well as additional commercial traffic, most of which is unlikely to be electrified in the near term. While GHG emissions associated with commercial traffic are considered in the report, these will be mitigated using offsets, rather than directly minimizing associated VMT.

Construction and Vegetation GHGs

While Newhall Ranch's developers also claim that the change from agriculture to urban land use will reduce GHG emissions, consideration of the broader social and environmental dimensions of this land use transformation are nonexistent: There is no discussion of the types of crops that were grown, their markets, effects on land quality and water use, or where the discarded crops might be grown in the future. In addition, the developer's analysis fails to account for losses in carbon sequestration by soil on previously undeveloped land, including the hills razed for housing.

Finally, the project proposes to preserve 6,170 acres of open space out of its 12,000 acres. About half of that open space will be developed parks and recreation facilities for residents, which will transform the distinctive existing landscape of shrubby native plants, old Eucalyptus, agriculture, and a large alluvial plain, to a vernacular that could be found in any conventional development in the American west. Endangered species in the area will be confined to reservations, which may or may not support their long-term viability. Furthermore, the management of the Santa Clara River to prevent potential flooding impacts to adjacent developed properties (including the construction of hardened banks) may, for example, lead to the inevitable demise of the threespine stickleback fish. Though the CDFW will monitor for and propose management adjustments to prevent that decline, there is no true recourse for this eventuality.

LESSONS LEARNED

As Seto, Güneralp, and Hutyra (2012), Liu et al (2015), and others have shown, urbanization patterns are increasingly land extensive, and California is no exception. In addition to immediate environmental costs, extensive urban development—coupled with drier and hotter conditions associated with the changing climate— increasingly generates significant social and economic costs. For example, the 2017 Tubbs Fire in northern California, one of the most destructive wildfires in state history, tore through over 5,000 structures located on previously undeveloped land, resulting in two fatalities and over $1.3 billion in damage (Nelson et al. 2017; Ortiz 2018).

Despite these risks, the desire for, ease of, and permitting of, exurban developments on greenfields in the state persist. Despite a growing market for infill development and state interest in greater infill developments to meet GHG emissions reductions goals, the market for single-family homes outside of already-built urban areas remains. Housing construction costs are perceived to be lower on greenfields at the urban periphery, and land use zoning is open for negotiation with the locality. Infill development, by contrast, is complex, unique, site-by-site, must appease local existing residents, and must comply with sets of specific requirements that may vary place-to-place, even within one jurisdiction.

The forces driving peri-urban development present a major challenge to California's climate change regulations, such as SB 375[4], which aim to align land use, transportation, and housing planning in a way that ultimately reduces GHG emissions. The long-term success of SB 375 and of the CEQA depends on the state's ability to reshape the forces that previously promoted low-density, emissions-intensive development on the urban periphery.

In this context, the shift to GHG emissions reductions as environmental and climate policymakers' metric of choice has important implications, particularly when viewed through the land use–climate nexus. Carbon emissions can be abstracted with relative ease, but their production remains inextricably linked to the materiality of land use change—which, in the current regulatory regime, they are disconnected from, because a ton of California's carbon emissions can be removed from the global balance sheet by purchasing offsets. These enable emitting carbon in one place and sequestering it in another—which is not how biodiversity, which is by its very essence unique to place, functions. As with other forms of landscape change (Robertson 2004), this type of abstraction and the accompanying assumption of commensurability (e.g., carbon sequestration *potential* is the same as a ton of produced carbon, and both are the same everywhere and anywhere) obscure both local and broader social and environmental implications associated with emission production.

[4] SB 375 directs the Air Resources Board to set regional targets for the reduction of greenhouse gas emissions. Aligning these regional plans is intended to help California achieve GHG reduction goals for cars and light trucks under AB 32, the state's landmark climate change legislation.

Given the use of offsets, negotiations about offsite endangered species mitigations, and clustering of some dwellings, sprawling development and its associated land use transformation is unstoppable under the current regulatory regime. Developers' unfettered ability to exonerate themselves from GHG impacts through offsite—even international—offset purchases, is actually anomalous within the context of the California scheme. Polluting companies that purchase carbon offsets instead of cap-and-trade carbon permits are strictly limited in the total emissions that can be offset.[5] Currently, however, new land development in California has no cap on offset purchases.

California's policymakers and administrators have evidently not considered the global implications of such "outsourcing" by land development; offsets completely undermine the goals of SB 375, including reconfiguring transportation and land use to reduce VMT. Whether consequences are unintended or not, the use of these offsets (and particularly inexpensive foreign offsets) is likely to increase. For example, while Newhall Ranch offset 47 percent of its GHG emissions, a major development in San Diego has since proposed 82 percent offsets (Smith 2017). Furthermore, the willingness of local planning staff to approve GHG mitigation strategies based on flawed or inaccurate assumptions highlights the need for improved literacy in the increasingly complex and technical nature of GHG accounting and regulation.

This case study highlights the limits of GHG regulation as a means of shifting contemporary land use patterns to reduce emissions and their impacts. As exurban development continues to drive increases in GHG emissions while creating hazards to human health, this study will be of relevance to policymakers and planners nationwide.

[5] The share of required GHG reductions that can be met through offsets is capped at 8 percent in California. Beginning in 2021, at least half of offsets used for compliance must come from projects that directly benefit California (C2ES 2017).

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