DATE: November 17, 2021

TO: Board of Supervisors

SUBJECT
UPDATE ON THE REGIONAL DECARBONIZATION FRAMEWORK (DISTRICTS: ALL)

OVERVIEW
The global climate is changing, and nowhere are the effects felt more acutely than at the local level. This includes a higher frequency and intensity of extreme heat events, droughts, wildfires, storms and sea level rise. Furthermore, the growing economic, social, and environmental impacts associated with a changing climate are causing immediate and long-term damages to our communities, ecosystems, food production, health, safety, jobs, businesses, and our overall quality of life in the San Diego region.

In light of these realities, on January 27, 2021 (3), the San Diego County (County) Board of Supervisors (Board) directed the Chief Administrative Officer to develop the Regional Decarbonization Framework (Framework), a guide to achieve zero carbon emissions in the region. This Framework, created in partnership with the University of California San Diego (UC San Diego) School of Global Policy and Strategy and the University of San Diego Energy Policy Initiatives Center (EPIC), includes strategies and initiatives to achieve zero carbon emissions in the region by mid-century to align with State targets. On July 14, 2021 (3), the Board received an update on the Framework, which outlined the following three guiding principles that shape the development of the Framework to reach zero carbon emissions: (1) Data-Driven Approach, (2) Regional Collaboration, and (3) Stakeholder Input.

Led by County staff, a team of technical experts utilized the latest data and modeling techniques to conduct regional baseline assessments of greenhouse gas emissions across transportation, renewable energy, land use, buildings and jobs. The baseline assessments provided a science-based starting place from which pathways could be identified to reduce carbon emissions in each of these sectors of the San Diego regional economy. These baseline assessments and science-based pathways make up the technical reports included as Attachment A and will form the basis of future policy recommendations.
The scale and pace of this effort will require partnerships between public and private sectors, particularly, business, labor and environmental communities. It will necessitate each level of government working with the private sector to implement policies for carbon reduction within its respective jurisdiction, but also collaborate vertically and horizontally across jurisdictions to align long-term goals. This draft Framework provides policymakers, private industry, and stakeholders in the San Diego region with the information needed to chart an objectively measurable path towards implementation of their decarbonization goals.

Today’s action is to receive an update on the Regional Decarbonization Framework.

**RECOMMENDATION(S)**

**CHIEF ADMINISTRATIVE OFFICER**

1. Find that the proposed actions are not subject to CEQA per Section 15060(c)(3) of the CEQA Guidelines because receiving an update on the Regional Decarbonization Framework is administrative in nature and is not a project as defined in CEQA Guidelines Section 15378(b)(5).


**EQUITY IMPACT STATEMENT**

The Draft Regional Decarbonization Framework (“Framework”) is centered on equity. The voices of communities of concern were critical in the development of this framework and will continue to play an important role through the implementation of this Framework. The newly established Office of Environmental and Climate Justice will coordinate between community groups and public agencies in terms of capacity building, as well positioning the historically disadvantaged communities in leveraging state/federal resources on climate mitigation, adaptation and resiliency. Here are some examples of equity considerations within the Framework:

1. The renewable energy analysis presents a scenario that prioritizes rooftop solar and urban infill solar in communities where the economic development, good-paying local jobs, potential air quality benefit, and reducing emissions from thermal plants, would have high societal value. They found that this scenario could result in between 5-30% reduction in infrastructure development on previously undisturbed land (namely, greenfield development). If coupled with apprenticeship programs, job training opportunities could be significant.

2. The land use analysis found potential to create substantial negative emissions through expanding urban tree cover. The numerous co-benefits of increased urban canopy cover and urban tree distribution include furthering regional equity goals and improving social welfare through better air and water quality, cooling effects, and aesthetic improvements.

3. The local policy opportunity analysis will assess whether and how Climate Action Plans across the region integrate social equity considerations. It will then consider the equity implications of these local policies and potential for regional collaboration. As an example,
what equity implications result from widespread electrification of buildings and transportation, and could regional programs be developed to address any impacts?

FISCAL IMPACT
There are no fiscal impacts associated with this action. Funds for the initial University of San Diego School of Global Policy and Strategy contract are included in the Fiscal Year 2021-22 Operational Plan for the Land Use and Environment Group Executive Office. Staff will return to the Board with future actions related to implementation of the Regional Decarbonization Framework that could have a fiscal impact, which would be included in future Operational Plans.

BUSINESS IMPACT STATEMENT
The Regional Decarbonization Framework will help businesses and workers in San Diego county by providing a guiding framework for climate-related jobs and investments through the advancement of science and technological innovations, economic resiliency efforts, new renewable energy generation and storage projects, clean technology in transportation and building systems, research and development in greenhouse gas capture and storage, economic benefits from emissions reductions and the associated high-quality job creation in the green economy.

ADVISORY BOARD STATEMENT
N/A

BACKGROUND
The global climate is changing and nowhere are the effects felt more acutely than at the local level. This includes a higher frequency and intensity of extreme heat events, droughts, wildfires, storms and sea level rise. Furthermore, the growing economic, social, and environmental impacts associated with a changing climate are causing immediate and long-term damages to our communities, ecosystems, food production, health, safety, jobs, businesses, and our overall quality of life in the San Diego region.

In light of these realities, on January 27, 2021 (3), the County of San Diego (County) Board of Supervisors (Board) directed the Chief Administrative Officer to develop a framework for a regional zero carbon sustainability plan in partnership with the University of California San Diego (UC San Diego) School of Global Policy and Strategy and the University of San Diego Energy Policy Initiatives Center (EPIC) that includes strategies and initiatives to achieve zero carbon in the region. On July 14, 2021 (3), the Board received an update on the Regional Decarbonization Framework (“Framework”) which outlined the three guiding principles to follow in the development of the framework to reach zero carbon emission: (1) Data-Driven Approach, (2) Regional Collaboration, and (3) Stakeholder Input.

Led by County staff, a team of technical experts utilized the latest data and modeling techniques to conduct baseline assessments throughout the region based on greenhouse gas (GHG) emissions across transportation, renewable energy, land-use, buildings and jobs. The baseline assessments informed science-based pathways for reducing carbon in each of these sectors of the San Diego regional economy. The baseline assessments and science-based pathways make up the technical reports included as Attachment A and will form the basis of future policy recommendations. The analysis uses scientific modeling of energy systems to guide sector-specific analyses of electricity
infrastructure, potential for natural climate solutions, gaps in transportation sector strategic plans, opportunities and challenges in the buildings sectors, and an analysis of the impact to jobs during the transition to decarbonization.

**Data-Driven Approach**
A draft of the technical reports in the draft Framework has been prepared for public review and presents a science-based approach to help all sectors of the economy in the San Diego region, plan for policies and investments to achieve carbon emission reductions consistent with the State of California’s target of reaching carbon neutrality by 2045 or sooner under Governor Brown’s Executive Order B-55-18. The draft Framework begins with the premise that regional and local policies should be informed by detailed analyses of the energy, transportation, and land use sectors, and that these should be consistent with a system-wide path to decarbonization at regional, State, and national levels. As such, the Regional Decarbonization Framework recommends that the region make plans to move in lockstep with the State and with neighboring jurisdictions. While aiming to decarbonize sooner may be desirable from the climate standpoint, our experts on the UC San Diego team believe that national, State, and local governments need to move in concert in their policies and investments in order to achieve decarbonization, given the interconnected nature of the energy system. Due to the complexity of our energy and climate systems, many analytical approaches examine a single sector at a time, often in great detail, but do not explicitly consider interactions between sectors. The following outlines the methodology and findings from each chapter of the draft Framework. See Attachment A – Draft Regional Decarbonization Framework for the full compilation.

**Study Method**

- Sectoral analyses in the draft Framework are informed by energy system results at a state and national level that achieve net-zero emissions. This work was performed by Evolved Energy Research and is based on the methodology and data in “Carbon-Neutral Pathways for the United States.” Modeling tools were updated for consistency with the 2021 Annual Energy Outlook, and specific zones were created for Northern and Southern California to aid in downscaling the insights from the U.S. at large. In instances where the particular circumstances in the region differed from those at a state or national level, the San Diego specific insights were retained.
- Each sector is not expected to arrive at net-zero emissions independently; rather, it is expected to work in conjunction with other sectors and California regions as an interconnected system to reach decarbonization goals. Guided by the energy system results for California as a whole, analysis within each sector in the draft Framework details what would be needed (e.g. infrastructure investments or local policy commitments) so that the San Diego region is in alignment with a net-zero carbon emissions trajectory for California.
- The draft Framework shows multiple scenarios for the region to achieve decarbonization based on tradeoffs, decision points, risks, and synergies among different pathways. This is a unique effort to chart out how to reduce carbon emissions in the region, and it aims to foster collaboration among various public agencies while positioning the region to attract State and federal resources.
Geospatial Analysis of Renewable Energy Production

- The electric sector spatial analysis is intended to inform planning and implementation of the build out of renewable electricity capacity in the region based on cost of energy, environmental impacts, and resource availability.
- The analysis identifies a series of scenarios of low-impact and high-quality areas for renewable energy development, which may be candidate project areas for solar, wind and geothermal development, including:
  - Levelized cost of energy (LCOE) within the hypothetical sites in the various scenarios to meet 100% of San Diego County electricity demand in 2030, 2040, and 2050 [LCOE refers to the estimates of the revenue required to build and operate a generator over a specified cost recovery period.]
  - Imported solar, wind, and geothermal resources from Imperial County
  - Locating renewable energy projects on developable land with the fewest conflicts and impacts on the environment, land values, and carbon stored in different types of vegetation
  - Potential benefit of energy produced and cost of rooftop solar
- Findings include a need to engage in near and long-term planning in the development of renewable resources to ensure priorities of environmental protection, cost, carbon sequestration potential, and land value are considered adequately in deployment.
- Analysis shows that balancing these priorities is possible, but with trade-offs such as importing electricity and upgrading transmission.
- San Diego County could import electricity from clean power resources within Imperial County. This would open up opportunities for increasing the Category 1 renewable energy content in our region’s energy portfolio through geothermal power which will also reduce storage requirements and increase reliability. [Category 1 generally refers to in-state energy that directly connects to the transmission grid and for which there is no annual percentage procurement limit under State law.]
- To meet electricity demand, there will need to be roughly two new operational 100 MW clean power plants every year between now and 2050 that supply electricity to San Diego County. If the timeline is constrained to 2035, this would require roughly four new operational 100 MW clean power plants every year.

Accelerating Deep Decarbonization in the Transportation Sector

Two fundamentally different regional models were reviewed for the transportation sector: 1) the San Diego Association of Governments (SANDAG) activity based-model, which simulates individual and household transportation decisions at a detailed level, and 2) the Evolved Energy’s EnergyPATHWAYS model, which estimates energy use and GHG emissions given a specific electrification pathway and fleet.

- SANDAG’s 2021 Regional Plan includes policy and transportation investment initiatives that are referred to as the “5 Big Moves,” which include Complete Corridors, Transit Leap, Mobility Hubs, Flexible Fleets, and Next Operating System. These initiatives are expected
to reduce vehicle miles traveled after adoption and implementation of the regional transportation plan.

- This analysis focuses on mobility technology, particularly electrification of vehicles in the reduction of emissions.

**Natural Climate Solutions and other Land Use Consideration**

- San Diego County is widely regarded as the most biodiverse county in the nation, in large part due to its high diversity of plants, native bees, birds, reptiles, and mammals.
- This analysis focused on two main considerations: 1) the sequestration of greenhouse gases from the land, ocean, and coast and 2) Avoiding potential greenhouse gas emissions from the land, ocean, and coast after a disturbance or land use change. Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide. Natural and working lands hold large quantities of carbon in both living and dead plant tissues and in soils. In the San Diego region, scrub habitats, including coastal sage scrub and chaparral, provide high sequestration rates and storage. Land use change occurs through natural processes, such as ecosystem succession after fires or pest invasions; as well as through urban and transportation development.
- A key finding of the analysis is that the simplest and most effective of the solutions is to continue to protect and preserve natural and working lands, which enables these lands to sequester and store carbon naturally. Natural and working lands, the latter of which includes agricultural lands like orchards and pasture lands, can sequester carbon dioxide through photosynthesis, and methane and nitrous oxide through bacterial metabolic reactions. Natural and working lands, as opposed to barren lands or settlements, can act as filters for carbon dioxide and provide so-called “negative emissions” which play a role in offsetting GHG emissions in other sectors.
- Recommendations include the following:
  - Research and incentivize carbon farming techniques like composting, riparian restoration, and orchard tree retention that amend soil or change farming practices to increase the stored carbon in the soil and to prevent emissions
  - Restore wetlands and surrounding areas
  - Increase the urban tree canopy cover
  - Utilize non-forest management of chaparral and scrub ecosystems to improve regional sequestration
  - Prevent worse wildfires and pursue infrastructure hardening (such as utility grids) to reduce wildfire emissions and to allow natural systems to regenerate after wildfires and recover the emitted carbon as plants regrow.
- Regional governments should quantify the full breadth of co-benefits and ecosystem services provided by natural and working lands, carbon farming, “blue carbon” (salt marshes, salt pans, mudflats, and seagrass beds that store the most marine carbon), and urban forestry
- Although natural and working lands provide numerous societal benefits, such as air and water quality improvements, reduced impacts from natural disasters, groundwater
recharging, increased ecological resilience, and improved public health, neither the San Diego region nor the State can rely wholly on natural and working land sequestration to generate enough negative emissions to achieve zero carbon emissions.

**Decarbonization of Buildings**

- There are an estimated 1.3 million residential units across the region. The commercial sector includes 158,000 building units across 36,000 properties in the region.
- The analysis found that heating spaces and water with natural gas are responsible for the most greenhouse gases in the San Diego region. Heating with electricity will have fewer emissions over time as the electric grid incorporates more renewable generation.
- Experts modeled three different scenarios to reach a carbon-free building sector in 2050 through space and water heating equipment:
  - **Central (high electrification)** – assumes that over 95 percent of space heating and water heating equipment sales are fully electric by 2030 and 2032, and no residential heating is served by gas by 2050.
  - **Low Demand** – assumes similar trajectory as central scenario, but heat pumps perform at high efficiencies, so electricity consumption is reduced.
  - **Partial Electrification** – alternate approach, this scenario assumes the use of a low-carbon gas to reach the decarbonization goal.
- All the scenarios considered result in substantial changes in household and business spending on heating systems, water heaters, and the fuel and electricity to operate those systems. Heat pumps displace the need to pay for separate air conditioning and furnace systems. Heat pump water heaters are more expensive upfront than traditional electric resistance or gas storage water heaters but are more efficient heating and cooling systems that can work for all climates compared to fossil-fuel based heaters and could lead to cost savings for residential and commercial customers.
- No matter what pathway is pursued, decarbonizing San Diego’s buildings will transform the business of the region’s gas utility, San Diego Gas and Electric (SDG&E). In any of the cases presented, SDG&E will transport much less gas to homes and businesses than it does today.

**Employment Analysis**

- Between 2021 – 2030, the regional decarbonization pathway would generate an average of nearly 27,000 jobs per year in the San Diego region.
- Even taking into account the contraction of fossil fuel jobs, we estimate that no workers in the region’s fossil fuel-based industries will have to experience job displacement before 2030.
- San Diego county and local governments should begin now to develop a viable set of just transition policies for the workers in the community who will experience job displacement between 2031 – 2050.
- The costs of a just transition will be much lower if the transition is able to proceed steadily rather than through a series of episodes. Under a steady transition, the proportion
of workers who will retire voluntarily in any given year will be predictable, the transition process avoids having to provide support for a much larger share of workers.

- Geothermal production of the five sites identified in Imperial County would generate 1,900 jobs per year over a 10-year period.

**Key Policy Considerations for the San Diego Region**

- This chapter outlines that an entity such as the County can facilitate collaboration among government officials, regulators, industry stakeholders, and academics.
- The County of San Diego is a natural coordinating body in the San Diego region. The County Board of Supervisors represents all areas of the region and holds planning authority in the unincorporated areas of the county. In addition, the County receives federal and State funds for health, infrastructure, and more recently, economic stimulus.
- San Diego’s contribution to global carbon emissions is 0.08%, a proportion that will only decrease as efforts to decarbonize continue and emissions in other regions rise. Therefore, for San Diego to have a meaningful impact on atmospheric carbon, it must demonstrate successful innovations that generate local benefits and engage other regions to follow its lead.
- A proposed consideration is a San Diego Conference of Governments, modeled on the international Conference of Parties (of the United Nations Framework Convention on Climate Change), which can increase the visibility of the Framework policy agenda, facilitate coordination, and engage stakeholders.
- With a region-wide Framework, this chapter outlines recommendations for organization, incentives, and a mechanism for regional governance – such as a steering committee, sector-specific working groups, advisory roles. It also includes suggested actions such as funding pilot projects and creating climate collaboratives to help under-resourced communities develop and implement climate change mitigation and adaptation projects.
Future Considerations

The following issues that were brought up in the stakeholder meetings could be considered in future research and implementation of the Framework pathways.

1. **Agriculture:** In 2020, the total value of agriculture in the region totaled $1.8 billion. With a total of 224,549 acres dedicated to agriculture, San Diego county is the leader across the State in the number of organic producers and is the leader in the nation for certified organic operations. Agriculture plays an important role in the region in terms of production, jobs, economy, and its relation to the environment. San Diego county has over 3,500 small farms (between 1-9 acres), more than any other county in the United States. Agriculture is included in the Natural Climate Solutions and other Land Use Considerations chapter.

2. **Blue Carbon:** According to the National Atmospheric Administration (NOAA), blue carbon is the term for carbon captured by the world’s oceans and coastal ecosystems. Our ocean and coasts provide a natural way of reducing the impact of greenhouse gases on our atmosphere, through sequestration (or taking in) of this carbon, and when these areas of coastal habitat conservation (e.g. sea grasses, salt marshes, and wetlands) are damaged or impacted, carbon is emitted back into the atmosphere, where it can contribute to climate change. WILDCOAST is working with the Center for Climate Change Impacts and

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Adaptation (CCCIA) at Scripps Institution of Oceanography, UC San Diego, to carry out a San Diego County-wide assessment of carbon storage and sequestration rates in the region’s salt marsh ecosystems. This information will be used to identify the region’s carbon sinks or filters that are at risk of becoming carbon sources due to sea-level rise and other threats, and to develop recommendations for decision makers and resource managers to better conserve coastal wetlands in the face of climate change. WILDCOAST and the CCCIA will also determine what opportunities there are for restoration to enhance the carbon sequestration value of San Diego county wetlands and how wetland conservation and restoration efforts can be included in climate action planning.3

3. **Carbon Content of Buildings:** Buildings are constructed using materials, components, and products. All of this material has to be extracted from the ground, or (in the case of timber) grown, transported to a facility to be processed, transported again (perhaps numerous times) to be fabricated into a product, transported to site, and craned into place. All of these processes result in the emission of greenhouse gases – fuel for deliveries, and to heat, shape and treat, as well as releases from manufacturing processes. This impact is repeated on a smaller scale all the way through the life of a building, during its repair, maintenance and any refurbishment programs. At end of life, we expend energy, and therefore emit carbon, once again in the demolition and disposal of assets. Between 30 percent and 70 percent of a typical building’s total lifecycle emissions is from embodied carbon, which refers to the carbon emissions released during the extraction, manufacturing, transportation, construction and end-of-life phases of buildings.4,5

4. **Methane (CH₄):** According to the Environmental Protection Agency, methane is emitted during the production and transport of coal, natural gas, and oil, as well as a result from livestock and other agricultural practices, land use, and by the decay of organic waste in landfills.6 Compared to carbon dioxide emissions, methane emissions have 25 times a greater impact on warming the Earth.

5. **Consumption Based Model:** As described by the city of Boulder, Colorado as they were updating their Climate Action Plan, previous city GHG inventories did not adequately account for the full scope of emissions associated with the community.7 Emissions inventories since 2005 have focused solely on the production-based emissions within the

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3 Zach Plopper and Dr. Matthew Costa, *Blue Carbon Ecosystem Management as a Natural Climate Solution in San Diego County*
4 Embodied carbon is defined as the indirect emissions associated with energy and the direct emissions of a variety of global-warming chemicals associated with raw material extraction, manufacturing, transportation, installation, and disposal at the end of usefulness.
administrative boundary of the city government, under the GPC Protocol’s (Global Protocol for Community Scale GHG emissions) BASIC level reporting. With this boundary, emission from other transboundary emissions from activities such as purchases of goods and materials or food choices (i.e. consumption-based emissions) are not incorporated. The city of Boulder found that if consumption-based emissions were included in the overall emissions footprint of the city, then Boulder’s reported emissions may more than double.8 The city staff will be producing a draft consumption-based inventory in 2022 to set a new emission baseline, this will allow the city to make more headway toward system change that incorporates not just energy, transportation, and waste systems — but also how the community spends its money, and the consumption chains the community can influence.

6. Geothermal Energy and Lithium: Geothermal plants can generate emissions-free, renewable electricity around the clock, unlike solar panels or wind turbines. The technology has been used commercially for decades and involves tapping naturally heated underground reservoirs to create steam and turn turbines. Its limitation is that a geothermal plant is multiple times more expensive to build than a comparably sized solar or wind farm.

   a. San Diego County does not have any areas identified as “Known Geothermal Resource Areas” in the map produced by the California Energy Commission, which limits exploration opportunities for new geothermal sources within the region.

   b. Imperial County’s Salton Sea due to its location on top of the San Andreas Fault, is the largest Known Geothermal Resource Area in the world. It currently produces the second highest geothermal electricity in the state, after Sonoma County. Nonetheless, the Salton Sea Geothermal Field (SSGF) is a large resource that is still underdeveloped with an estimated potential of 2,000 MW, enough to power 1.5 million homes, according to the California Department of Conservation. The Hell’s Kitchen Project is located near the southern shore of the Salton Sea, with commercial operation expected in 2023. In its first stage it is expected to produce 49.9 MW of geothermal energy. After project completion, Controlled Thermal Resources, the Australian developer of the project, estimates that they will produce 1,100 MW.

   c. Lithium is a key element used in batteries for electric cars and energy storage, and its demand is projected to expand considerably in the future. It is estimated that 40% of the world’s potential future lithium supply is also located in the hot mineral-rich brine under and near the Salton Sea. The State estimates that 600,000 tons of lithium could be produced every year, which could create a global supply chain, with opportunities for related businesses like battery and cathode makers. However, there are environmental health issues in the life cycle of lithium associated with

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8 C40 Cities, https://www.c40.org/researches/consumption-based-emissions
lithium released into the atmosphere from evaporation ponds, ecosystem damage, and the lack of recycling of lithium batteries (lithium-ion batteries are collected and recycled at a rate less than 5% according to the U.S. Department of Energy). Last year, the State created a “Lithium Valley Commission” to tap the opportunity to develop lithium from the Salton Sea. A final report from the Commission is due to the State Legislature on October 1, 2022.

7. **Off-Shore Wind (OSW) Energy:** Off-shore wind energy is at the cusp of moving from planning and exploration to leasing and development in California. Among the challenges to OSW are the transmission of energy and competing coastal uses (such as shipping, fishing, recreation, marine conservation, and Department of Defense activities, especially those of the United States Navy). The advantages of OSW are that it has a high-capacity factor compared with solar, since it is generating electricity all the time. It would also add resource diversity and geographic diversity, as bringing in energy from the west allows us to charge batteries on the coast.

   a. Assembly Bill 525 (Chiu) signed by the Governor on September 23, 2021, accelerates the path toward offshore wind energy generation in California. It requires the California Energy Commission (CEC) to do the following by the set deadlines:

   i. June 1, 2022: evaluate and quantify the maximum feasible capacity of offshore wind to achieve reliability, ratepayer, employment, and decarbonization benefits and to establish offshore wind planning goals for 2030 and 2045.

   ii. December 31, 2022: submit to the Natural Resources Agency and the relevant fiscal and policy committees of the Legislature a preliminary assessment of the economic benefits of offshore wind as they relate to seaport investments and workforce development needs and standards.

   iii. June 30, 2023: submit the strategic plan to the Natural Resources Agency and the Legislature, that identifies sea space sufficient to accommodate the CEC’s OSW planning goals for 2030 and 2045, working with stakeholders, industry and other agencies.

   b. In federal waters, the Bureau of Ocean Energy Management (BOEM) is the lead for leasing. There are 4 steps to the BOEM process for OWS: planning and analysis, leasing, site assessment, and construction. In 2016, the BOEM-California Renewable Energy Taskforce was formed, consisting of State and federal agencies, tribal governments, NGOs, developers, academics, fisherman and local communities. That year, BOEM also did a planning study that identified 6 sites in California that met the site selection criteria needed to sustain a major commercial offshore wind project. The site evaluation criteria included a technological

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9 https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220AB525
exclusion for low wind speed (<7 m/s) area, which excludes most of the San Diego coast. The southernmost site identified was the South Channel Islands off the coast of Orange County. In 2018, BOEM identified three call areas as potentially suitable for OSW energy leasing: the Humboldt Call Area, the Morro Bay Call Area, and the Diablo Canyon Call Area. There were challenges associated with the Morro Bay and Diablo Canyon areas for the Department of Defense. After negotiations between State and federal officials, an agreement was announced in May 2021, on two OSW sites: Central California – Morro Bay, and Northern California – Humboldt.

These projects could bring up to 4.6GW of clean energy to the grid, enough to power 1.6 million homes. These areas known as “Wind Energy Areas” are the subject of an environmental review under the National Environmental Policy Act (NEPA). After the NEPA process is complete, BOEM anticipates conducting a lease auction for both sites in Fall 2022. Developers then have 5 years to conduct a site assessment to survey the area in minute detail. After the construction drawings and operational plans are submitted, a second NEPA review will be conducted as well as a federal consistency review. Federal consistency review will be conducted by several State and federal agencies, including the California Coastal Commission, which has a regulatory role for projects in federal waters. Even though neither of the final two sites selected by BOEM for leasing are in or near San Diego, the region could benefit economically from the supply chain in terms of Port activities, installation, assembly, manufacturing, construction and technical support required by the large components that such a project would require.

c. In State waters, the State Lands Commission is the lead agency for leasing. Any offshore renewable energy project involving State waters under the State Lands Commission’s jurisdiction requires a lease from the Commission. There are two smaller scale proposals for wind turbines in State waters off the central coast in Vandenberg Air Force Base being considered by the State Lands Commission. They will be subject to an environmental review under the California Environmental Quality Act (CEQA). These applications are completely independent of the activities within federal waters, which are managed by BOEM. However, the projects still need to get permits from federal agencies, including the Department of Defense.

8. **Ocean Wave Energy:** The marine and hydrokinetic energy industry is at an early stage of development, with only a handful of demonstration projects operating in U.S. waters. The U.S. Department of Energy's (DOE) Water Power Technologies Office has a “Powering the Blue Economy” initiative for research and development (R&D) focused on marine energy technology development as well as in understanding how these resources could serve grid-scale electricity needs.
a. Wave energy is in a pilot phase: Scripps Institution of Oceanography at UC San Diego is partnering with the U.S. Department of Energy R&D to conduct an ocean pilot of a scaled wave energy converter. They have a buoy off the Scripps pier that will be operating from August 2021 through February 2022.

b. Feasibility of wave energy for connecting to electric grids is still being tested: Pacific Gas & Electric (PG&E) did a study called WaveConnect on the potential for ocean wave energy in Humboldt. In 2011, it concluded that it would be infeasible to pursue the permit. Oregon State University (PacWave) is partnering with industry groups at their two test sites off of the Oregon coast to test this technology. Vandenberg Air Force Base (U.S. Navy) has partnered with PG&E for the WaveConnect project to test the generation of wave energy for base operations.

9. **Border Region:** Although the county shares a border with Mexico, cross border pollution was not considered in this draft Framework due to modeling limitations, as it is outside the geographic boundary of the San Diego region. Nonetheless, cross border collaboration with the California Environmental Protection Agency will continue throughout the development of the Framework in order to explore future research opportunities and potential measures.

**Regional Collaboration**

Continued research and information sharing with other local and regional agencies will identify potential areas of cooperation. As the climate crisis takes on a renewed urgency, several new and ongoing regional efforts are underway. Our regional outreach would identify the additional role that the County could play in convening public agencies, including cities, tribal governments, transportation agencies, the Port of San Diego and the San Diego Airport Authority, San Diego County Air Pollution Control District, school districts and community college districts, as well as leveraging resources at the State and federal levels.

In support of the Framework, on February 11, 2021, the Board of Port Commissioners of the San Diego Unified Port District unanimously passed and adopted Resolution 2021-014, *Resolution Supporting the County of San Diego Developing A Framework For A Regional Carbon Sustainability Plan In Partnership with the University Of California San Diego School Of Global Policy And Strategy*. This resolution highlights the integral component of regional collaboration and interconnected strategies to collectively help the region reduce the impacts of climate change and reach zero-carbon emissions.

In addition to public agencies, non-profit, private, and business organizations continue to play a critical and collaborative role. The newly established San Diego Regional Policy & Innovation Center, a partnership between The San Diego Foundation, the County of San Diego, and The Brookings Institution to conduct research and policy analysis and help solve the region’s biggest problems could provide expertise and guidance through the policy measure development. To ensure collaboration across the region, the County will also work with the San Diego Regional Climate Collaborative (Climate Collaborative). The Climate Collaborative was launched over a decade ago by The San Diego Foundation. The Climate Collaborative is currently housed at The Nonprofit Institute at the University of San Diego.
The Climate Collaborative has been working in partnership with the San Diego Association of Governments (SANDAG) since 2018 on two consecutive Senate Bill 1 Adaptation Planning Grants. Through this funding, the Climate Collaborative and SANDAG developed the Regional Climate Adaptation Needs Assessment and is currently leading and finalizing the development of an Equity Guidance Document as well as an Equity in Adaptation Curriculum. These documents together will provide adaptation practitioners best practices and guidance to implement an equitable adaptation process. Materials from this project will be available and shared widely in December 2021. In partnership with the Resilient Cities Catalyst (RCC) and the Local Government Commission (LGC), the Climate Collaborative was recently funded by the California Oceans Protection Council to develop a Regional Coastal Resilience Roadmap for the San Diego region by 2023. This project will align regional efforts on effective coastal resilience strategies to create a clear, guided path on how to efficiently combat and adapt to coastal vulnerabilities that are climate change induced.

**Technical Working Group**

A 13-member Technical Working Group consisting of public agencies and diverse stakeholders brings localized insights and subject-matter expertise; it is being asked to suggest further analysis that would be useful to policymakers as they analyze policies and investments to achieve climate targets, and to examine technical details in the modeling work that could be better explained or modified. The participating agencies are San Diego Association of Governments (SANDAG), San Diego County Air Pollution Control District (APCD), San Diego Regional Airport Authority, Port of San Diego and California Environmental Protection Agency (Cal/EPA). Other private and non-profit experts include those from business, industry, labor and environment.

**Stakeholder Input**

As outlined on July 14, 2021 (3), stakeholder input is organized into two phases: pre-draft Framework, and post-draft Framework. Pre-draft input will be focused on specific issue areas and solicit input from subject-matter experts and nonprofit advocates into the research and development of the measures and technical reports. Post-draft input will be conducted by supervisory district and be more broadly focused for a general audience.

**Focus Groups:** Between August 23 - 26, 2021, the Land Use and Environment Group (LUEG) conducted six focus groups regarding the proposed Framework to achieve zero-carbon emissions in the region. Over 60 local organizations were invited including public agencies, businesses, labor, environmental and community organizations. The participants, topics and questions in these focus groups were organized based on interests and affinities in order to have a productive and substantive conversation on each of the focus group areas. The purpose of these focus groups was to engage local stakeholders and subject matter experts to review the purpose and scope of the Framework and hear ideas and suggestions for collaboratively developing it. The focus groups were organized into three subject matter areas - building and industries, energy, and transportation and land use - to ensure a diverse representation of stakeholders and interests in the region. Some key findings are noted below, but for a full report of the focus groups and participants, please see the Draft Framework.
Examples of findings and themes that emerged:

- Our region has strong existing momentum and leadership in clean energy technology and solutions
- Disadvantaged communities disproportionately do not enjoy the same level of benefits of others, and may have greater existing infrastructure needs and workforce impacts
- Community education and stakeholder collaboration are critical

Public workshop: On September 13, 2021, LUEG held a virtual evening public workshop with opening remarks from Vice Chair Nora Vargas and Supervisor Terra Lawson-Remer. The workshop was attended by over 160 participants. Two presentations were shared with the attendees, one was a brief overview of the Regional Decarbonization Framework and the second by Elena Crete, who is a Climate & Energy Program Manager for the United Nations Sustainable Development Solutions Network. Attendees were then asked a series of discussion questions and provided comments, feedback, and questions. Attendees also shared their thoughts, suggestions, and questions, which will be reviewed and assessed through the development of the Framework. The attendees represented a wide array of organizations from environmental, labor, business, academia, and other government agencies, which reflects our region’s interest and investment in developing a meaningful and equity-minded Framework that is centered on data, collaboration, and driven by stakeholder input.

Future Stakeholder Input: During the next few months, as the local policy opportunity analysis and the implementation pathways are being prepared, LUEG staff plan to present the draft Framework to regional agencies, cities, community groups and stakeholder organizations for their input.

Connection with other County Initiatives and Efforts

The Framework is a regional approach, and therefore spans beyond the County’s Climate Action Plan, which evaluates local policy opportunities and sustainability measures for the County’s unincorporated areas and County facilities. There are numerous natural resource and sustainability actions spread out among different County departments. On May 5, 2021 (6), the Board of Supervisors directed all County departments and programs to develop and implement sustainability plans, as well as issue solicitations for services to assess the capacity of the current organizational and staffing structure of departments across the County enterprise to achieve the County's sustainability goals, consult with relevant stakeholders, suggest organizational structure alternatives that maximize sustainability and equity, and promote comprehensive natural resource management. These sustainability initiatives are currently in progress. It is expected that the departmental sustainability plans that follow the conclusion of this initial enterprise-wide assessment and reorganization would utilize measures identified in the Framework.

ENVIRONMENTAL STATEMENT

This action is for the Board to receive and update on the Regional Decarbonization Framework. Therefore, the action is not subject to the California Environmental Quality Act (CEQA) because it is not a “project” as defined in CEQA Guidelines Section 15378(b)(5) as it is administrative in nature and will not result in direct or indirect physical changes in the environment. No environmental determination is required for this action.
LINKAGE TO THE COUNTY OF SAN DIEGO STRATEGIC PLAN
This action to receive an update on the Regional Decarbonization Framework supports the County of San Diego's 2021-2026 Strategic Plan's Sustainable Environments/Thriving Initiative by enhancing the quality of the environment by focusing on sustainability, environmental justice, and strategic planning.

Respectfully submitted,

SARAH E. AGHASSI
Deputy Chief Administrative Officer

ATTACHMENT(S)
ATTACHMENT A – Draft Regional Decarbonization Framework