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## Climate of Transformation: Pursuing Carbon Neutrality and Economic Equity in San Francisco

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Photo credit: Phil King

On Earth Day 2018, San Francisco’s Mayor announced the city’s new goal to become carbon neutral by the year 2050. This is an admirable goal, but how does a city like San Francisco achieve carbon neutrality in the context of social and economic disparity? Long commutes and insufficient or unaffordable housing won’t help the city reach its goal. Incremental changes are not enough. More efficient light bulbs and electric cars are not enough. We need transformation—dramatic change in the design of our buildings and neighborhoods, and new ways of powering our mobility and empowering our communities. San Francisco offers an early glimpse of how these transformations can happen.

“Carbon neutral” means trimming greenhouse gas (GHG) emissions by 80-100% by the year 2050 or sooner, according to the Carbon Neutral Cities Alliance. With this Alliance, San Francisco joins a leading group of cities – from Washington DC and New York City, to Copenhagen and Rio de Janeiro – committed to climate action. Carbon neutrality is needed to fend off worsening impacts of climate disruption, including unbearably hot nights and days, droughts and fires, crop failures and pestilence, cloudbursts and floods, coastal inundation and economic failure.

San Francisco has the experience and innovative spirit to achieve this bold goal. The city launched its first Climate Action Plan in 2006 and updated the plan in 2013. San Francisco then launched its *0-50-100-Roots* outreach campaign: zero waste, 50% sustainable trips, 100% renewable energy, and expansion of urban greenery. By 2015, the city and county had already achieved carbon savings of 28% (compared to a 1990 baseline). These savings were due in part to the Energy Watch efficiency program and strong green building codes in the city, as well as state mandates for cleaner fuels and more efficient vehicles.

Some of San Francisco's transformation efforts are centralized and concentrated. These include large infrastructure such as expanded railway service around the Bay, the bus rapid transit reconfiguring Geary and Van Ness Avenues, and renewable electricity contracting for the entire city through Clean Power SF. These infrastructure efforts are aimed at trimming GHG emissions from the Transportation sector, which accounts for 46% of the city's emissions.

Other transformation efforts are diffused and distributed. Replacing natural gas heaters with electric heat pumps across homes and businesses in the city is one example examined in the 2016 report, *Reaching 80-50: Technology Pathways to a Sustainable Future*. These efforts are aimed at Residential and Commercial Buildings, which account for another 46% of the city's emissions.

Another way of looking at the transformation is from the perspective of energy supply. San Francisco must overcome two big energy challenges to reach carbon neutrality. The first challenge is to replace fossil gas, which causes more than a quarter of GHG emissions from Buildings. Strategies include heating, cooling, lighting, and other building services with better design and renewable electricity.

The second energy challenge involves mobility. Since oil-derived gasoline and diesel cause nearly all of the city's transportation GHG emissions, we need to phase out fossil oil. For that to happen, we need a transformation of land use as well as transportation: making transit, biking, and walking more accessible and connected; promoting affordable housing and mixed use of land to shorten trips and improve quality of life; and powering our mobility with renewable electricity.

But transformation isn't only technological – it is deeply intertwined with society and the economy. San Francisco has the highest economic inequality of all cities in California. The income of the top 1% of households (\$3.4 million) is 44 times higher than the average income of the other 99% of households (roughly \$81,000), according to a 2016 report by the California Budget Center. By June 2018, median

home prices had risen to \$1.65 million, with median condo prices close behind at \$1.25 million. While Twitter, Uber, and other large tech firms were given tax breaks to locate in San Francisco, funding for affordable housing fell.

The city is inundated by a crisis of inequality as much as sea-level rise, a shortage of housing as much as water. We need transformation from social patterns of disparity to prosperity. Transformation from an economic system narrowly fixated on extracting profits for a few, to a system that sustains livelihoods for the many.

As San Francisco pursues carbon neutrality, we must remember that transformation is seldom smooth. Past experience from dramatic technological and social change tells us to expect bumps and to not give up when we encounter setbacks, even when costs seem high and progress seems slow. We must be persistent, with eyes to the future and hands on the present. Social activist Angela Davis counsels: “You have to act as if it were possible to radically transform the world. And you have to do it all the time.” We must be more persistent than the industries that ripped out the trolley rails that connected our neighborhoods, more persistent than the tech companies that monitor us for marketing purposes. We must persist with a transformation that makes San Francisco a better place to live for all.

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