

**Alternative Energy for a Sustainable Downtown Oakland**

Oakland, CA

Skyline High School

10th grade Alternative Energy

****

**ISSUE**

Climate change is a threat to human and animal health, as the earth experiences record temperatures and changes to its ecosystems. As more people move to cities, new technologies can be incorporated to offset the reliance on fossil fuels. In July 2009, the Oakland City Council approved a preliminary GHG reduction target for year 2020 of 36% below 2005 levels. Reducing greenhouse gas (GHG) emissions while providing reliable and sustainable alternative energy sources is crucial to promoting resilience for growing cities like Oakland.

Currently, the City of Oakland is preparing a specific plan that will present suggestions for developing the downtown area including topics related to transportation, housing, and public space. Downtowns are hubs of activity—for working, living and playing—and require forward-thinking ideas to incorporate green technologies as they develop and aspire to reach GHG reduction targets.

**QUESTION**

How can we make Downtown Oakland a more equitable place for all to access and enjoy now and in the future? What does it mean to create a resilient, sustainable, and equitable downtown?

**COMMUNITY OF PRACTICE**

* Instructor: Dale Fiess
* Students: 10th grade Alternative Energy class
* Client(s): City of Oakland, Association of Bay Area Governments
* Community Partner(s): Center for Cities and Schools, UC Berkeley
* Other Resources: n/a

**YOUTH DRIVEN DATA AND INSIGHTS**

* 44.4% of people in the survey said it took them 20-30 minutes to get to their grocery store.
* Smartphone charging releases 6.4 megatons of greenhouse gases per year.
* Hydrogen Fuel Cell Buses reduce CO­2 emissions by 30%.
* Smart Thermostats in residences saves about $100 per household per year while saving about 813 lbs. of CO2 emissions annually.

**RECOMMENDATIONS**

In order to promote sustainability in Downtown Oakland, we recommend that the city invest resources into short-term and long-term alternative energy infrastructures and carbon-free events. It is important that Oakland meets and exceeds the Climate Action Plan target for 2020 and looks to future GHG reduction.

**SHORT-TERM (1-6 Months)**

* Pedestrian Boulevards: Building a strong sense of community in a car-free environment—returning the use of the streets to people.
* Solar Charging Stations: Solar powered charging stations in the downtown area near businesses and recreation areas allowing visitors and residents alike to charge their electronic devices.
* Three Bin Waste: Require compost, recycling, and trash separated bins at fast food restaurants to reduce landfills.

**LONG-TERM (1-3 Years)**

* Tidal Power: A renewable and efficient hydropower technology that generates electricity from the tides in the Bay.
* Edible Gardens: Making healthy food cheap, affordable, and accessible to Downtown Oakland residents so they don’t have to travel as far by car or bus to get groceries.
* Pneumatic Waste Systems for Restaurants: A series of underground waste collection tubes that take waste directly from restaurants to compost, recycling, or waste centers.
* Hydrogen Fuel Cell Buses: By switching over AC Transit’s entire fleet of buses to Hydrogen Fuel Cell burning, GHGs will be significantly reduced.
* Solar Electric Bike Share: Combining two sustainable technologies – bike share to reduce car usage and solar charging stations to further the use of green energy in Downtown.
* Sensor Controlled LED Streetlamps: This intelligent street lighting system plus LED bulbs is said to reduce CO2 and GHG emissions by 80%.
* Smart Thermostats: Reduce about 10% off heating and 15% off cooling costs for an average residence, saving in annual CO2 emissions.
* White Roofs: White roofs on office and residential buildings reflects off heat that is usually absorbed by dark roofs, thus promoting cooler temperatures within buildings and reducing reliance on air conditioning systems.

**NEXT STEPS AND SHARED ACCOUNTABILITY:**

* We reflected on why we produced such high quality work, and we agreed it was because of the real-world application of this project. We were inspired to make our city better.
* We look forward to receiving a response to comment on each of our proposals from the City of Oakland’s Planning and Building Department.