

Narrative

Building Resilient Energy Systems

In order to build a more resilient energy system against climate change, it is essential for us to shift our energy reliance from fossil fuels to renewable sources. Residential energy use in the U.S. is about six times that of the world, where most of the sources are fossil fuels. San Diego's largest energy source is natural gas, which accounts for over 60% of its energy supply, while renewables make up only 19%. A majority of San Diego's renewable energy comes from wind and geothermal sources. San Diego's geothermal and wind potential alone can satisfy the city's peak demand of 4500 MW of electricity.

Integrating renewable energy will require upfront investments in new capital infrastructure, but the improving operating costs and technologies behind renewable energy sources may soon make them more cost-effective than fossil fuels. Although natural gas provides a cheap source of energy for our county's 3.3 million people, its harmful extraction processes, high methane emissions, and volatile prices make it a dangerous energy source for San Diego to continue relying upon.

San Diego's energy systems are at risk due to population growth, heavy reliance on natural gas, and climate-driven changes. San Diego's population is projected to grow another million people by 2050, increasing energy demands as more homes and people are consuming electricity. San Diego's location at the end of natural gas pipelines makes it vulnerable to supply disruptions and methane leakages pose serious threats to the environment. The consequences of climate change will have a major impact on our energy systems in the near future.

There are three methods of building resilient energy systems: improving energy efficiency, enhancing renewable energy capacity, and investing in innovative technology. Improving efficiency is the most cost-effective approach as it can simply involve adjusting energy consumption or retrofitting "green building" design elements. In the domain of renewable energy, San Diego has potential to expand, particularly its solar, wind, and geothermal capacity. Wind and geothermal collectively make up two-thirds of SDG&E's renewable energy generation, while solar makes up only 1-2% of this mix. With the help of local government programs and incentives, San Diego has already begun to explore the benefits of cogeneration, microgrid systems, fuel cells, and microturbines. San Diego's resiliency could be strengthened by diversifying its energy portfolio and investing more heavily in renewable energy sources.

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