

Tidal Current Energy

Tidal streams are caused by the twice-a-day rise and fall of the tides. As water flows in and out of estuaries, it carries energy. The amount of energy it is possible to extract depends on the speed of the flowing stream and the area intercepted, similar to wind-power extraction, but because water is much denser than air, an equivalent amount of power can be extracted over smaller areas and at slower velocities.

Nearly 400 billion gallons of water rush through the Golden Gate every day; the potential for tidal-energy generation in San Francisco Bay is massive. San Francisco's unique tidal energy resource is unmatched in California or anywhere else in the lower 48 states. The volume and speed of water passing through the Golden Gate, coupled with the depth of water below the bridge itself, provide a near-perfect setting for the deployment of a tidal energy generation system. In 2005, San Francisco took part in [a study conducted by the Electric Power Research Institute \(EPRI\)](#) on the technical and economic feasibility of tidal power in seven areas in North America, including San Francisco.

The study conservatively estimated that the Golden Gate site has 35.5 megawatts of total extractable average annual power, and that 15 to 17 average megawatts of this power could realistically be extracted by technologies currently in development. The cost of electricity generated, assuming incentives similar to those provided to other renewable resources, is estimated at six to nine cents per kilowatt-hour—a cost competitive with current wind and natural gas generation, and about one-third the cost per megawatt of solar power. Building a tidal energy project at the Golden Gate will help the city meet its growing energy needs from a clean, renewable, locally available source, and serve as a catalyst for other large-scale, innovative renewable energy projects not only around the state and country, but also for the rest of the world.

In September 2006, Mayor Newsom announced that the city would formally explore the possibility of generating clean energy through the power of the tides at the Golden Gate with a [\\$150,000 feasibility study](#)

The study, which began in December 2006, is looking at the range of potential issues, challenges, and opportunities of tidal power at the Golden Gate, including regulatory, technological, environmental, financial, and other issues. The study is expected to be completed in fall 2007.