In 2005, the California Public Utility Commission approved PG&E’s $2.2 billion roll-out of 10 million Smart Meters (5 million gas, 5 million electric).

The Smart Meters will replace traditional gas and electric meters with a digital, wireless meter that transmits the data back to PG&E.

Learn how the Smart Meters work here. (/articles/how-smart-meters-work)

In Marin, PG&E began installing the meters in July 2010 and hopes to complete installation of all meters in Marin by mid-2011.

PG&E believes that the Smart Meter program is part of developing a smart grid, which was a large component of the stimulus package. A smart grid will allow energy-efficiency programs and better management of energy usage.

A number of concerns have been raised about PG&E’s Smart Meters, citing privacy, security, accuracy and health problems.

The State of Maryland recently turned down a similar program because of privacy and security concerns regarding the data. The legal framework guiding the use of such data is still being developed.

The number of data points will go from one per month for residential customers to 720 per month.

That data will be overseen and managed by Oracle, per a contract with PG&E.

Security experts have alleged that the wireless network is relatively easy to hack into. PG&E says they meet the highest standards of security in the industry.

Critics also argue that the health effects of the electro-magnetic frequencies and radio frequencies are unknown. Although the meters far surpass FCC standards, investigations into the long-term effects of such frequencies are still on-going.

In addition to surpassing FCC standards, PG&E has pointed out that the frequencies are far less than that of cell phones.

Victoria, Australia, also turned down a similar program.

Places like Italy and Germany that have smart grids have typically used fiber-optic technology.

The meters have also been plagued with allegations of inaccuracy, particularly where they were rolled-out in the Central Valley.

A class-action lawsuit out of Bakersfield prompted the California Public Utility Commission to hire The Structure Group to conduct an independent audit of the meters with regards to accuracy problems. That report is expected in mid-August of 2010.

The audit will cost $1.4 million and PG&E will reimburse the commission for the audit.

PG&E argues that the meters are far more accurate than traditional meters and that the problems were largely a result of people using more electricity due to higher temperatures.

Customers with concerns are encouraged to call PG&E at 1-866-743-0263.

What do you think of the Smart Meter program? Tell us in the comments.