

Value proposition

The purpose of EPIC funding is to support investments in technology demonstration and deployment projects that benefit the electricity customers of PG&E, San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE). *EPIC 1.14 Next Generation SmartMeter™ Telecom Network Functionalities* has demonstrated that the SmartMeter Network (SMN) is capable of supporting additional technologies and devices to further Smart Grid efforts, improve outage restoration, and improve the safety and efficiency of the electric grid at a reduced cost.

Many of the recommendations from this EPIC project have already been accepted and implemented at PG&E as a result of this pilot. The network bandwidth analysis methodology developed for this project has been adopted for use in other projects. The demonstration of the capabilities of the SMN to handle other forms of traffic has prompted other Smart Grid projects, such as the wireless Line Sensor project, to use the SMN for communications. The voltage monitoring recommendations developed for this project have been foundational for helping PG&E to develop a voltage monitoring strategy. The groundwork begun in this project for phase identification has provided the confidence to proceed with the EPIC 2.14 Automatic Phase Identification project. Many of the recommendations for outage reporting firmware updates and application changes have been implemented and have been successful.

Primary Principles

The primary principles of EPIC are to invest in technologies and approaches that provide benefits to electric ratepayers by promoting **greater reliability**, **lower costs**, and **increased safety**. This EPIC project contributes to these primary principles in the following ways:

- **Greater Reliability**
The *EPIC 1.14 Next Generation SmartMeter™ Telecom Network Functionalities* project demonstrated technologies that can provide greater reliability through improved outage reporting, distribution automation control and telemetry, and better monitoring and control of the electric grid.
- **Lower Costs**
The ability to leverage the SMN for non-metering applications and devices that would otherwise require a separate communications network has the potential to lower costs for smart grid devices and applications that can help PG&E to deliver energy safely and efficiently. Innovative metering solutions such as Smart Streetlights and SmartPoles can enable PG&E to more accurately meter electricity use.
- **Increased Safety**
Monitored and controlled streetlights have the potential to improve safety by increasing the streetlight intensity when crews respond to emergency situations and well as automatically alerting PG&E when bulbs burn out. Lower-cost networked transformer monitoring solutions can enable PG&E to monitor smaller transformers, and receive alerts before a transformer fails.

Secondary Principles

EPIC also has a set of complementary secondary principles that include: Societal benefits, Greenhouse gas (GHG) emissions reduction and adaptation in the electricity sector at the lowest possible cost, the loading order, low-emission vehicles/transmission, economic development; and efficient use of ratepayer funds. This EPIC project contributes to the following three secondary principles: societal benefits, economic development, and efficient use of ratepayer monies.

- **Societal Benefits**

Smart Streetlights can be easily dimmed remotely, allowing communities to prevent excessive light pollution. SmartPole meters provide the ability to implement small-footprint metering solutions which reduces the need to place metering equipment at street level, and are more aesthetically pleasing than standalone metering solutions

- **Economic Development**

Smart grid technologies in general have the potential to create new markets for more efficient devices, new sensing and communications capabilities, and PG&E's vision for the Grid of Things™ (GoT). Confirming additional communication channels for these devices improves their value proposition and market potential.

Efficient Use of Ratepayer Monies

The ability to use the existing SMN to deploy future smart grid applications and devices means that PG&E would not need to deploy a new network or rely on more costly communications solutions. In evaluating next generation network hardware, PG&E endeavored to confirm through EPIC that this hardware would have a compelling cost advantages for the company and for ratepayers. Carefully choosing technologies and methodologies to better manage the SMN, such as producing a company-wide voltage collection methodology strategy or evaluating ways to enhance outage notification messaging, provides a number of potential savings to ratepayers.