COMMENTARY

# Renewable energy is NOT new ...

## ... it's just more important now

By Rick Phelps

Man has used renewable energy for thousands of years in such areas as water for mills, wind for water pumping, and the sun for heating. In the last 125 years, man has used those same renewable sources to generate electricity and provide heat, light and power to millions of people; in fact, hydro energy has been a renewable staple in the Eastern Sierra since the mining days of the late 19th century. Everyone agrees that renewable energy is a proven technology and provides great benefits, but to grow renewables more quickly, we need to establish priorities, figure out how to pay for renewables, and knock down the roadblocks that impede growth.

The first renewable priority is energy efficiency. But how can that be? You can't touch energy efficiency and it's a tough cover story, as there are no shiny parts and beautiful vistas of sun, wind and water. But through efficient practices and technologies, energy is harvested in the way that wind, sun and water help to generate incremental energy. This "harvest" of energy efficiency is not boundless and you cannot grow energy efficiency to meet increased needs. You can, however, reduce the amount of energy required today and therefore the amount of energy needed for the future. In this way energy efficiency can provide a bridge to a more renewable world by reducing energy requirements as renewable technologies continue to develop and expand. That's why Energy Star ®, lighting, and yes, even caulk, are so important!

Renewables tend to be more costly than fossil sources, although some types of wind and water are very competitive.

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However, to fully understand the challenges that drive adoption of renewables you have to decipher the riddles of cost effectiveness and market transformation.

The cost effectiveness of renewables is easy. Simply put, if you receive more benefit than something costs you, it is cost effective, depending on your time frame. If your new solar photovoltaic system cost $10,000 and you save $2,000 annually, the system is cost effective, as long as you have a five-year horizon ($10,000/$2,000=5). But, if you only think ahead for 12 months, you will never spend a dime on solar, unless the market changes.

That's where market transformation comes into play. In California, the Public Utilities Commission stimulates markets by mandating that the investor owned utilities (like SCE) provide rebates or subsidies for technologies that are not yet cost effective. The vision of the 10-year California Solar Initiative is that the combinations of utility rebates and federal and state tax credits will increase solar sales and drive down the cost of solar equipment and installation. The hope is that market transformation will occur and purchasing solar technologies will be commonplace in 10 years or less. Of course, as these rebates are collected from all utility customers, we all have a stake in the success of the Solar Initiative.

Another market transforming idea is the so-called feed-in tariff for renewable energy. Under the current regulatory scheme the only renewable technology that the utilities will buy back from customers is solar photovoltaic kilowatts, but only up to the amount of kilowatts that a customer uses in any one year. If you generate more than what you use, or generate with wind, water or biomass, you are out of luck.

What the feed-in tariff should theoretically accomplish, and it has been very successful in Spain and Germany with photovoltaics, is that customers are financially motivated to generate renewable energy and the costs of the technologies begin to decrease as volume increases. Feed-in tariffs work best, however, when the energy is purchased at above market rates and the cost of those feed-in tariffs is absorbed by all the other utility customers.

Even though feed-in tariffs are complex and controversial, and arguments arise against range from the impact on rates to customers to base electric load requirements, it seems that we should be experimenting with the market transforming potential of feed-in tariffs. We should assume enough renewable capacity can be built economically.

In the long run, successful renewables have to be cost-

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