

# Getting FIT

## The Ultimate RE Incentive

by Michael Welch

Fifteen years ago, *Home Power* first reported on rate-based incentives (RBIs), which offer a premium per-kWh price for grid-tied renewable electricity with the intent of giving RE technologies a boost. At that time, Germany had just introduced these incentives, showing strong support for a renewable energy future.

The crew at *Home Power* realized that RBIs could become the most successful method of giving RE the boost it needed to catch up with conventional electricity production technologies. Now, 15 years later, the success of Germany's incentive program is proven, with the country having greater than half of the entire world's installed PV capacity. But here in the United States, conventional energy industries prevailed, as their vast political influence limited RE incentives to the much-less-effective rebate programs.

### New Game

But maybe that is changing. After a decade and a half of the RE industry's fast growth in Germany and other countries with similar government-sponsored incentives, the United States is finally inching toward embracing this incentive structure.

RBIs are more recently known here as feed-in tariffs (FITs), renewable tariffs, RE payments (REPs), and others. But no matter what you call them, the concept is the same: Laws and regulations require utilities to pay a premium price over a set period of time for the renewable energy produced, to cover system costs and offer an attractive profit to the system owner. These tariffs are structured similarly to how utilities buy and sell conventionally made energy. Thus the concept is familiar to utilities and their regulators, which may lead to somewhat easier acceptance.

The major difference between FITs and conventional energy tariffs is that the intent goes beyond just supplying energy—the idea is to promote the use of renewable energy by richly rewarding system owners. Per-kWh payments for renewably produced electricity are set higher than

### Net Metering



**Under net metering, the homeowner uses renewable energy to offset domestic use. Any surplus RE that's produced is typically donated to the utility.**

### Feed-In Tariff (FIT)



**With a feed-in tariff, the homeowner sells all their renewably generated electricity to the utility at a premium price and buys all energy used at retail rates.**

Adapted from "Feed-In Tariffs in America: Driving the Economy with Renewable Energy Policy that Works," by John Farrell & the New Rules Project

conventional market prices for fossil-fuel-based electricity, as an incentive to add renewable energy to the grid. Most utility tariffs are based on conventional fuel and power plant costs—in other words, what it takes to replace the energy without considering the higher purpose. But not RE FITs: They are based on the higher costs of RE because, again, the point is to encourage RE sources over the environmentally undesirable conventional sources.

With net metering, an RE system's output may cover household usage, then anything left over is often given away to the utility, or in some states purchased by the utility at wholesale rates. Net metering encourages limiting the system size to that which merely covers the household usage. But a FIT pays the system owner a premium price for all the system's energy production, thus encouraging as large a system as possible, which increases the amount of RE on the grid for others to use and furthering even more RE by decreasing system costs through ever-increasing economies of scale. Finally, FITs help RE cross socio-economic lines. More property owners could afford a system under FIT payment

schemes—whereas as things stand with current incentives, often only the well-off can afford systems.

In Florida, the Gainesville Regional Utilities made recent headlines by implementing a true FIT for PV systems. Other states and municipalities offer customers some type of performance-based incentive, but often those are different from FITs. For example, for system sizes smaller than 50 kW, California now offers an up-front single-rebate payment that is not based strictly on system size, but includes performance factors that affect output, such as geographic location, tilt, and shading. Or, system owners can choose a per-kWh payout over five years. The payout amount is close

to European payouts, but the five-year limit disqualifies it as a tariff. In California, larger systems must use the per-kWh payout, and soon all system sizes will be limited to that choice.

### What It Takes

The key features of successfully implemented FITs have been:

- High-enough per-kWh payments to cover system costs, plus provide a reasonable profit to the system owner
- Long-enough terms to ensure confidence that system

## How FITs Work

The point of FITs, as with other current incentives, is to increase the amount of RE in the electric-energy mix. Here in the United States, we have seen a slow but steady increase in the use of PV and wind energy. Compared to places that are using effective FIT incentives, however, U.S. RE growth has been sluggish.

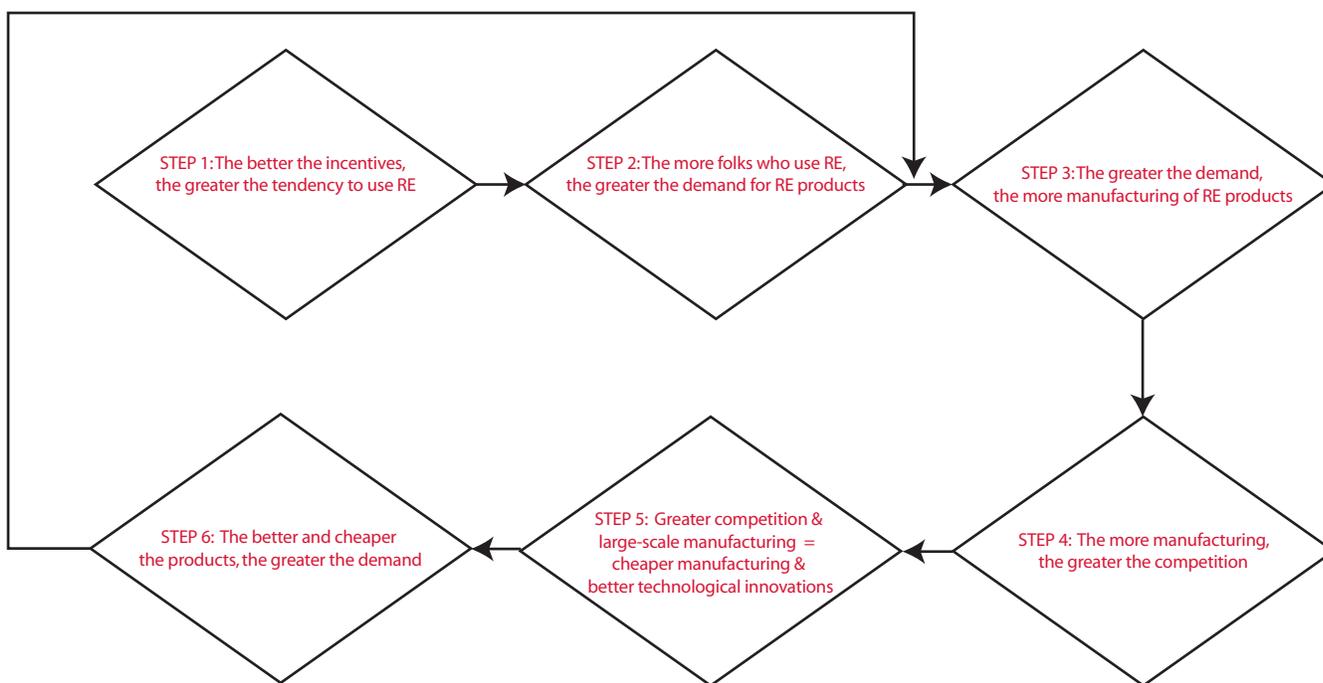
The cycle of incentives—and how it increases the use of RE—is depicted below. Note that Step 6 brings the cycle back to Step 2, to start over again with added strength. In addition to its initial input (Step 1), an ongoing, effectively large incentive compounds the ever-increasing nature of the cycle, adding even more growth to the use of RE. In the case of FITs that pay a premium price for RE-made electricity, there is nothing to stop the cycle.

European FITs had been paying the equivalent of about \$0.50 to \$1.00 per kWh for PV-made energy. About five years ago in

Germany, the amount paid for grid-tied solar-electric systems equaled about \$0.70 per kWh. The payment was guaranteed for 20 years, with the tariff for new systems decreasing 5% each year.

Assuming a 1 kW PV system, payments for energy production would total more than \$12,000 over the 20 years. At about \$10 per watt installed (in 2004), these systems were poised to make a profit immediately.

With these kinds of guaranteed payments, lenders are willing to make low-interest loans. Loan repayments are low enough to create a monthly profit for the system owner and, of course, soon lead to ownership of a system that will continue producing both energy and income for years to come. The German system makes homeowners equal participants in the renewable energy revolution—not a second thought or an add-on.



owners (and their financiers) will recoup the initial investment

- Not limited to any particular class of system installation (like residential vs. commercial) or size of project
- Payment amounts vary based on technology, system size, and application
- Simple to understand
- Periodic review of both success as an incentive and the amount of profit, so that payments and term lengths can be adjusted appropriately. Review also allows for addition of new technologies to the program, as appropriate.

The main components critical to the success of a FIT plan are a high-enough rate and a long-enough contract term. As proven by other marginally helpful incentives, payments or terms that are too low make it harder for a system owner to make an economic case for system purchase. For example, Washington state was first to pass a statewide FIT-like program. Unfortunately, both the rate and the term were low—the program seemed to be designed more to encourage the local economy rather than build an RE future. Starting at \$0.15 per kWh, the rate is adjustable up to a maximum of \$0.54 per kWh, but only if both the PV modules and inverter used are manufactured within the state. The maximum term length was nine years, which was not quite long enough for most owners to recoup their investment, and there was a \$2,000 cap on the annual payments that effectively limited the size of the eligible system. The program was altered this summer to extend payments until 2020, and the annual cap increased to \$5,000.

Some successful programs have fairly complex tariffs for RE projects, carefully constructed to account for a variety of circumstances. They often differentiate payment amount and term length by the project type (PV, wind, biomass, etc.) and the scale of the projects (home, business, or utility; plus sizing options within the categories). This makes a lot of sense because some RE technologies and scales of systems are easier and cheaper to implement than others or have higher output, so the tariffs and term lengths need to be adjusted accordingly.

### *Big Business Resists Getting FITs*

Just as the United States would benefit from a national net metering law that would finally bring all utilities, whether private or public, under the same regulations, we would also greatly benefit from a national FIT law. Too many states and utilities have been dragging their feet when it comes to RE incentives. A national FIT would encourage more RE in general, help RE businesses that are having trouble during our current economic “downturn,” create U.S. jobs, and would significantly help the national effort to reduce climate-changing greenhouse gas emissions to the needed 90% below 1990 levels.

But establishing FITs is not going to be easy. Corporate influence is still a principal driving force behind our elected officials’ and bureaucrats’ decisions, and the fossil-fuel and nuclear industries work hard to keep their conventional

technologies on top. Just as corporations and their legislative puppets bent recent climate and energy legislation in the House to their wishes, they will be working hard to make FIT laws untenable or severely limited in scope.

“Greened” utilities claim to be environmentally responsible, but only as far as their own self-interests dictate. Already, they are claiming FITs are unfair to users without RE systems, since, under the FIT system, the increased cost for RE-generated electricity is spread out over all rate payers—not just RE system owners. They conveniently ignore the fact that their polluting, resource-hogging technologies have environmental and human health costs that go beyond the balance sheet.

Expect utilities to eventually capitulate and allow FITs, but they will seek limits—like requiring that they make money off the systems too, possibly by receiving the systems’ renewable energy credits (green tags, or RECs) instead of the system owners, or claiming others’ FIT-qualified systems as part of any required renewable energy portfolio standards. They will likely push for low caps to be placed on the number of systems, which they successfully have done with other incentives and even net metering.

### *Finally FIT*

Our climate and renewable energy future are inextricably entwined, and both require leaving the greedy self-interests of conventional energy companies behind. We citizens need to tirelessly lobby to get first-rate FIT programs enacted, and the only way to do that is through participation in our government, no matter the difficulty. Let your legislators know that you want strong, effective FIT programs, and that you want fewer of your tax dollars to go toward supporting conventional technologies. For starters, the Alliance for Renewable Energy has a sign-on letter that can be sent to your representatives (see Access) to begin the citizen-lobbying process. Then don’t forget to tell your friends and neighbors about FITs via letters to the editor and even online social-networking sites like Facebook and Twitter.

### *Access*

Author **Michael Welch** ([michael.welch@homepower.com](mailto:michael.welch@homepower.com)) dreams of a nuclear-free and fossil fuel-free future that will come quicker with the help of RBIs.

Alliance for Renewable Energy • [www.allianceforrenewableenergy.org](http://www.allianceforrenewableenergy.org) • Take action to promote FITs

Wind-Works • [www.wind-works.org](http://www.wind-works.org) • Paul Gipe’s repository of articles and commentary on FITs

#### Further Info on FITs:

World Future Council • [www.worldfuturecouncil.org/arguing\\_fits.html](http://www.worldfuturecouncil.org/arguing_fits.html)

FITs email listserver •

[http://uk.groups.yahoo.com/group/feed\\_in\\_tariffs/](http://uk.groups.yahoo.com/group/feed_in_tariffs/)

