Renewable Energy
Feed-in Laws:
The Green-light for Economic Development and Jobs!

Great Basin Resource Watch
Electric Auto Association of Northern Nevada
Net-Metering v. Feed-in Metering

Two Ways of Connecting PV Systems to the Grid

USA: Net-metering
Solar electricity is used for own consumption first, only excess electricity is fed into the grid

Germany: Feed-in tariff
Solar electricity is exclusively fed into the grid

Feed-in tariffs (FITs) turn consumers into pro-sumers!
Although California receives 70% more sunlight for producing solar energy, Germany installs 15 times more solar electric capacity every year!

The U.S did well installing 10 GWhs of new wind in 2009, but...

**United States**
- 4x Population = 309 million
- 27x Sq miles = 3.7 million
- 4x GDP = $14.2 Trillion
- ~ 1% of domestic energy supplied by wind.

**Germany**
- Population = 80 million
- Sq miles = 137,000
- GDP = $3.4 Trillion
- > 7% of domestic energy supplied by wind.

“*It’s not a technology problem, this is a mobilization problem.*” -- Catherine Zoi, DOE Secretary for Energy Efficiency & Renewable Energy
Score: Germany 840, United States 7

Germany 588, Nevada 7
It should be the goal of any renewable energy incentive to provide price support such that desirable new technologies displace undesirable old technologies with the eventual ultimate goal of reaching *grid-parity* conditions.

FIT policies offer a cost-efficient method for fostering rapid development of RE resources, thereby benefiting ratepayers, RE developers, and society at large. FIT policies offer a stable investment environment featuring long-term certainty of payment terms. --National Renewable Energy Laboratory (NREL), An Analysis of Renewable Energy Feed-in Tariffs in the U.S., 06/09 (v).
Common Qualities of Real Feed-in Tariffs

FITs = Certainty + Simplicity + Transparency + Accessibility

Feed-in tariff definition:

A Feed-in Tariff or FIT (where "tariff" is a "price paid," not a tax) guarantees that any renewable energy generator is paid a fair price, plus a reasonable ROI, to "feed" renewable energy into the grid.

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<th>Both Policies are Partially Market Based</th>
<th>Price</th>
<th>Quantity</th>
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<td>Renewable Portfolio Standard (RPS), Tax Credits (ITC/PTC), Rebates, PACE, RECs/PECs</td>
<td>Market Based</td>
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<tr>
<td>Feed Law</td>
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Experience from Europe is also beginning to demonstrate that properly designed FITs may be more cost-effective than renewable portfolio standards (RPS). --National Renewable Energy Laboratory (NREL), Feed-in Tariff Policy: Design, Implementation and PRS Interactions, 03/09 (1).
**How Do Feed-in Tariffs Work?**

FITs stabilize energy policy which inspires investor confidence by:

* Basing tariffs (rates) on actual production costs
* Assuring energy producers a reasonable ROI
* Guaranteeing long term contracts
* Guaranteeing grid access

FITs are also differentiated by:

* Technology
* Resource quality
* Project size
* Location

"I think there is a lot of potential for new local jobs in this, we need one big state to join Vermont in implementing feed-in tariffs." --R. James Woolsey, Venture Partner VantagePoint & former CIA Director (1993-95)
The future of Nevada must include energy independence and that can only result from a dramatic growth in renewable energy in Nevada.

--Governor Jim Gibbons, Governor's Press Release, 12/15/08
Parasitic Costs

A typical power purchase agreement.

A typical feed-in tariff contract.

In California, nearly 90 percent of PPAs projects never get built.

In Germany 42 percent of all renewable energy capacity is owned by individuals.

Photo credits: Craig Lewis, CLEAN Coalition, www.clean-coalition.org
More on Ratepayer Impacts

- **Merit Order Effect:** Prioritize FIT renewables to displace the most expensive energies on the grid.

- **Substitution Effect:** FITs generation displaces conventional generation.

- **Locational Benefits:** Distributed generation maximizes supply-side efficiency.

- **Parasitic Transaction Costs:** Big projects are expensive to negotiate.

In terms of project returns, given the expected feed-in tariffs of approximately $400 per megawatt hour, solar projects in Israel are very attractive, and this has created a good opportunity for a commercial entry into this market as a developer.

--Yoram Bronicki, CEO of Ormat Technologies Inc., in Q3 2009 Earning Call
FITs Will Diversify Nevada's Economy

Just as cash is king, feed-in tariffs are favored by investors and in particular finance banks. --Jonathan Johns, Ernst & Young Renewable Energy Group, Exeter, UK, RE Country Attractiveness Indices Quarter 3 2008
Where might FITs, fit?

Feed-in tariffs will draw additional investment into Hawai’i’s renewable energy developments and signify to the rest of the nation and global community that Hawai’i is a model for clean energy initiatives.

--Republican Gov. Linda Lingle, Hawaii, Radio address on 10/1/09
PUCN Order & Report: b) "[A] FIT could be used to stimulate a specific technology like combined heat and power" (p. 2 & 13). FIT4NV might add: solar thermal, biomethane pipeline injection, onsite biogas combustion, air and ground source heat pumps, anaerobic digestion, waste heat to energy, &c.

PUCN Report: I) "Regulatory Operations Staff stated that adoption of any FIT policy in Nevada should be driven by the goals to be achieved by the policy, whether compliance with the RPS, development of solar generation, or economic development" (p. 7).

Bingo! Economic Development, KA-CHING!

I think there is a lot of potential for new local jobs in this, we need one big state to join Vermont in implementing feed-in tariffs. --R. James Woolsey, Venture Partner VantagePoint & former CIA Director (1993-95)
German technology provider Conergy is planning to manufacture solar mounting systems in Ontario.

Ontario-based Arise Technologies, which ironically has most of its production in Germany are also planning to establish production.

Solar module maker Canadian Solar Inc. is preparing to establish a manufacturing facility in Ontario that will create 500 direct jobs to take advantage of feed-in tariffs. The new module manufacturing facility in Ontario will be Canadian Solar's first outside of China.

The feed-in tariffs will attract foreign manufacturers, especially Europeans familiar with feed-in tariff plans who will make Ontario a "beachhead" for North America.

Ontario is acting independently of Canada's federal government and plans to close all its coal-fired power plants by 2014.

The 694 FIT contracts announced to date will create 20,000 direct and indirect green-jobs and attract an estimated $9 billion in private sector investment.

Feed-in tariffs attract private capital to the business of creating solar energy, because you can make money doing this. --John MacDonald, CEO of Day4 Energy Inc., a Vancouver-based solar cell maker
Local Ownership = Growth!

- Two times the jobs
- Four to five times more economic impact

Absentee owned vs. Locally owned

So what’s very attractive about the green technologies is the markets are enormous. We did very well in the Internet market which is $100 billion or so; but the energy market is $6 trillion. This is the mother of all markets.

--John Doerr, a partner at Kleiner Perkins
The world is on track to add another 2.5 billion people by 2050, and many will be aspiring to live American-like, high-energy lifestyles. In such a world, renewable energy - where the variable cost of your fuel, sun or wind, is zero - will be in huge demand. --Thomas Friedman, Have a Nice Day, NY Times, 9/15/09
Applied Materials urges a stronger near-term commitment to solar PV via the feed-in tariff, which will enable PV manufacturing and deployment scale and more quickly drive down solar costs for the state and its ratepayers. --Blair Swezey, Applied Materials, Senior Director of Solar Markets & Public Policy, 9/18/09
California is Tapping FITs, will Nevada?

In addition to implementing the provisions of [SB32], I encourage the PUC to continue their work so that we can take advantage of the new renewable electricity capacity that a robust FIT program can provide.

--Republican Gov. Schwarzenegger, Memo to the CA Senate, 10/11/09

~ **The Electric Auto Association (EAA),** a 501(c)(3), is your Electric Car & Vehicle authority for Reno, Sparks, Washoe County, & Northern Nevada! We also encourage and support interest in all forms of alternative transportation options as well as renewable energy technologies and policies. On the web at [www.ElectricNevada.org](http://www.ElectricNevada.org). Contact: Bob Tregilus, 775.826.4514, elaterite@yahoo.com.

~ **Great Basin Resource Watch (GBRW)** is a 501(c)(3) non-profit organization, founded in 1994 by a coalition of environmental, Native American and scientific community representatives. We are a regional environmental justice organization dedicated to protecting the health and well being of the land, air, water, wildlife, and human communities of the Great Basin from the adverse effects of resource extraction and use. On the web at [www.GBRW.org](http://www.GBRW.org). Contact: John Hadder, 775.348.1986, john@gbrw.org.