

Renewable Energy Feed-in Tariffs: A U.S. Policy Overview



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Feed-In-Tariff Definition

Feed-in Tariff (FIT)*: A renewable energy policy that typically offers a guarantee of:

- **Payments** to project owners for the total amount of renewable electricity they produce;
- **Access to the grid**; and
- **Stable, long-term contracts** (15-20 years)

This revenue may pay for:

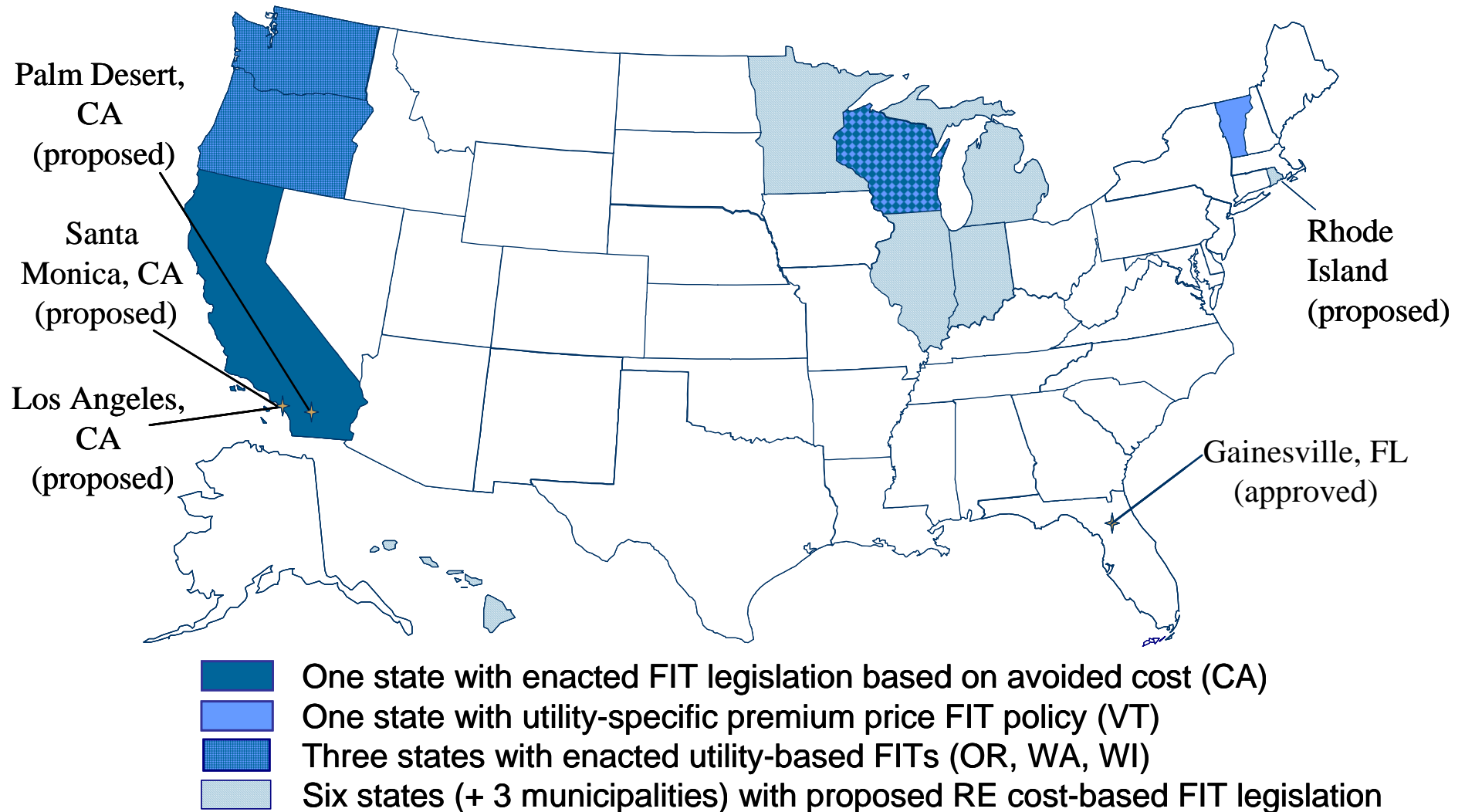
- Electricity sales, or
- Electricity sales + RECs



* Also called fixed-price policies, minimum price policies, standard offer contracts, feed laws, renewable energy payments, renewable energy dividends and advanced renewable tariffs.

FIT Policy: Application in the U.S.

Note: As of Feb 2009, no US states have implemented FITs based on the RE project cost. Gainesville Regional Utilities, has approved the first U.S. cost-based FIT for solar PV.



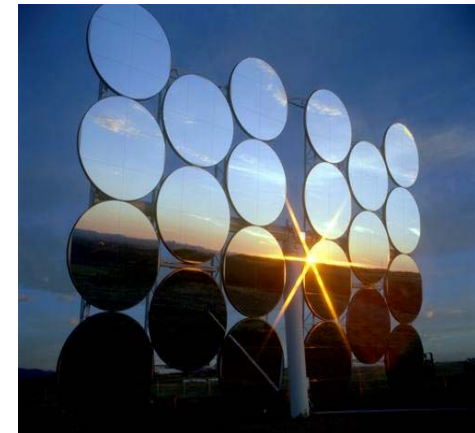
Source: Adapted from Gipe www.wind-works.org, NREL Feb 2009

Key differences: U.S. & EU

1. In general, U.S. FIT policies have not been based on the cost of generation (plus a reasonable profit)

2. EU FIT policies can be used by everyone

- Res, Com & Ind customers
- Fed., state, local govt.
- Non-profit organizations
- AND utilities



3. U.S. FITs impose numerous caps (e.g. project size, program capacity or total cost) typically on an annual basis

- U.S.: focus tends to be on annual increment
- EU: longer-term goals/caps are set (10-20 years)
- Longer-term caps provide investor and developer certainty

4. U.S. FITs have yet to fully differentiate FIT payments

- Different project costs based on technology, size of project, quality of resource and other locational factors

FIT Policies: Addressing Misconceptions

- **FITs are not a “foreign” policy**
 - U.S. utilities get **cost-recovery + profit** for conventional generation
- **FITs are not the same as PURPA or net metering**
- **FITs are compatible with (and compliment) RPS mandates**
- **All FITs are production-based, but not all PBIs are FITs**
- **If the goal is jobs, econ development, states (and not utilities) should execute FITs**



Feed-in Tariff vs. PURPA

FIT payments are distinctly different from PURPA

- PURPA payments to RE projects were anchored on erroneous projections (oil-fired power on the margin; oil prices high)
- In reality, actual electricity prices diverged greatly from forecasts (NG-fired power on the margin; lower fuel prices); but PURPA payments remained high and continued to grow
- **In contrast: successful FITs* are based on RE project economics (plus reasonable return)**
 - Not usually tied to fossil fuel/electricity prices (some exceptions)
 - Most often, payments are levelized (perhaps small escalator)
 - Price hedge, if payment is fixed or bound with cap & floor

* **Successful FIT: Results in substantial RE MW and GWh, quickly**

FITs and RPS: complimentary policies

- **FITs replace competitive solicitations (i.e. RFPs), NOT RPS policies (EU countries use FITs to achieve goals)**
- **A FIT policy can be compatible with an RPS mandate**
 - Project financing support through ratepayer backing
 - Cost-effective procurement
 - All eligible projects are typically assured a utility contract
 - Hedge against project delays and cancellations
 - Open to all end-users, including utilities
 - Focus on “reasonable” cost renewables (not least cost)
 - Assured support for emerging technologies

Feed-in Tariff vs. Production Incentives

- Production-based incentives (PBIs) are distinguished from capacity-based incentives (\$/W)
- PBIs generally offer a per kWh payment without regard to production costs
 - all US FITs currently fall under this category, with the exception of Gainesville, FL
- **Successful FITs are based on project economics**
 - i.e.: they ensure that the revenue streams cover total project costs, plus a reasonable return



Feed-in Tariff vs. Utility Policies

→ Important to distinguish between **utility-based FIT policies** and **state-based FIT policies**

→ PG&E, SCE, Xcel, MGE et al., all have “FITs”

- None are cost-based
- None are meant to stimulate large amounts of RE
- None are meant to create jobs

...but that's not utilities' role

ALSO: FIT pays for total generation, unlike net metering (a credit only for *excess* generation)

How can FITs help meet US State goals?

- **Job creation (both up & downstream)**
- **Meeting RPS targets**
- **Fossil fuel price hedge**
- **Stimulate rapid market growth in RE**
 - Create stable investment environment
- **Foster cost-efficient RE development**
- **Target distributed generation**
- **Diversify energy supply**
- **GHG reductions**
- **Foster local ownership (greater economic benefits)**



FITs in the Financial Crisis

- U.S. is down to ~ 4 tax equity investors (*Jan '09*)
- FITs facilitate project financing through guaranteed, long-term contract for output
- **Help attract capital**
- Can reduce dependence on tax equity
- Proven mechanism to stimulate new industries, create jobs, if generous caps
- **FITs provide the opportunity for low-risk returns on local energy investments**



FIT Policy Challenges

Setting FIT payment level is challenging:
if set too low, little new RE development;
if too high, surplus profits to developers



Cost: supporting emerging technologies
can lead to near-term, upward pressure on electricity costs

Complexity: Usually many levels of differentiation

Policy design challenge: Tracking technological improvement
and cost reduction accurately over time

Policy crutch: RE industries could develop a reliance upon the
policy for project deployment

Future U.S. FIT Policy

Best practices suggest that successful FITs :

1. are in place over a long period of time to provide policy stability and reduce uncertainty
2. are methodologically based on RE project costs (+return)
3. are differentiated by project size, resource quality and technology type
4. involve long-term contracts (15-25 years)
5. include built-in decreased payments to drive innovation and cost-reduction over time

How to implement a FIT in the U.S.?

- Make a **long-term commitment** to RE – enact the policy for 10 or more years to provide policy stability
- Introduce as a **procurement mechanism** to meet RPS mandates (either supplement to RFPs, or replacement)
- Establish **clear interconnection standards** to streamline access and reduce administrative barriers
- Introduce provisions on **cost allocation** (e.g. rate-basing, inter-utility cost sharing, T&D upgrades, etc.)
- Consider **interactions** with existing state & federal policies (ITC, PTC, MACRS, etc.)
- Address any **legal and/or regulatory barriers** to RE
- Consider **local context** and resource availability



NREL Reports

“Feed-in Tariff Policy: Design, Implementation, and RPS Policy Interactions” NREL, March 2009

<http://www.nrel.gov/docs/fy09osti/45549.pdf>

COMING SOON

“Feed-in Tariff Policy Design and Implementation: Best Practices Guide” NREL, 2009

<http://www.nrel.gov/docs/fy09osti/44849.pdf>

Thank you for your attention!

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