Feed-in Tariffs - Overview

FITs: what are they and how do they work?

- FITs are a **mechanism**; while Renewable Portfolio Standards (RPSs) set a **goal**;
- RPS requires regulated utility to get X% of electricity from renewable energy (RE) by a certain date; in Arizona: 15% by 2025, with a 30% carve-out for distributed generation;
- FITs are why **Germany has 53% of the world’s total installed solar PV; currently getting 15% of electricity from RE at a cost of $52.00 U.S. per household per year**;

FITs are distinguished by:

- **long (15-20 year) contract term**;
- **different price for different types of RE generation** (example: small wind pays more than big wind; building-integrated solar PV pays more than ground-mounted);
- **tariff decreases over time**; (example: 35 cents/kWh for solar PV year 1, drops to 20 cents/kWh by year 10);
  - open, transparent process that pays a modest profit;
  - fosters local ownership rather than large corporations;
  - fosters **development of RE industry and manufacturing**;

FITs v. Net Metering v. Renewable Portfolio Standards

- FITs, RPSs and net metering are NOT mutually exclusive and can work together;
- Net metering generally covers a person’s or business’ own use but not much more – although in AZ 125% of use can be net metered¹;
- FITs in Germany are designed so that you don’t need to be a customer to sell electricity; you can just put up panels or a wind turbine and start selling electricity.
- However, there are models in the U.S. that are hybrids – i.e. a person’s own use is net metered, and then any excess is sold at a higher rate (in IL, there’s a proposal to sell excess electricity back to the grid at 200% of retail rate). This higher rate is “fair” because the incremental value of peak power is very high.
- California is allowing electricity to be sold back to the grid based on time-of-use; for example peak summer power can be sold to the grid at 31 cents/kWh, which is what it probably costs the utility to provide peak summer power.

What about cost and how much power are the Germans getting from solar?

- Europeans pay about twice as much for electricity on average as the U.S: 20 cents/kWh in Germany v. 10 cents/kWh in the U.S.;
- However, the German FIT cost per household is only **US$52.00 per year**.
- Bavaria Germany: solar power is contributing **2% overall, but 20% at peak times**;
- Germans are **not** having grid integration problems (i.e. the grid absorbing fluctuations in electricity, such as lots of solar electricity at peak times);

¹ APS net metering:  
http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=AZ22R&state=AZ&CurrentPageID=1&RE=1&EE=1; net metering for SRP, TEP and general info, see:  
How would FITs benefit AZ?

- FITs facilitate distributed generation AND local ownership;
- In Germany, most wind and solar is community-owned due to broad ownership rights, which allows communities to build infrastructure, not just large utilities.
- Spain’s FIT model is different;²
- FITs would help AZ reach its high distributed generation (DG) set-aside,
- FITs spur innovation in areas like solar because solar is expensive; if we only chose RE by price, wind would always win.

Vermont, City of Gainesville FL and Province of Ontario Canada Recently Passed FIT Laws

- VT’s FIT passed May 2009, considered a true German-style FIT;³
  - costs are borne by ratepayers, not taxpayers
  - program cap is 50 MW; project size cap is 2.2 MW
  - Wind tariff: less than 15 kW is 20 cents/kWh; over 15 kW is 14 cents/kWh
  - Landfill and biogass tariff: 12 cents/kWh
  - solar tariff is 30 cents/kWh
  - tariffs are differentiated by size, technology
  - tariff = cost of RE plus profit (based on VT utility Rate of Return)
  - regular review of tariffs by Public Service Commission

Many States Are Considering FITs

- California, Michigan, Illinois, Rhode Island, Minnesota, Hawaii, New Jersey, Massachusetts, New York

Amounts of Solar PV Around the World⁴

<table>
<thead>
<tr>
<th>Country (or state)</th>
<th>Solar PV – end of 2008</th>
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</thead>
<tbody>
<tr>
<td>Canada</td>
<td>26 MW</td>
</tr>
<tr>
<td>China</td>
<td>100 MW</td>
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<tr>
<td>Germany</td>
<td>5,722 MW</td>
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<td>Japan</td>
<td>2,100 MW</td>
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<tr>
<td>Israel</td>
<td>3 MW</td>
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<tr>
<td>Italy</td>
<td>120 MW</td>
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<tr>
<td>California (state of)</td>
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<tr>
<td>United States</td>
<td>1,265 MW</td>
</tr>
<tr>
<td>Spain</td>
<td>3,000 MW</td>
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</tbody>
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² Need to do more research on Spain’s FIT model.