Feed-in Tariffs in the US: The Race to Catch Europe


Wilson Rickerson
January 9th, 2009
Why I
#1 Charity & Restraint

Baudette, The Wigwam

Bemidji, Jammers

Detroit Lakes, Islands Nightclub

Minneapolis, The Fine Line

St. Paul, The Lab

2000
#1 Charity & Restraint

Baudette, The Wigwam

Bemidji, Jammers

We didn’t get beat up!

Minneapolis, The Fine Line

St. Paul, The Lab

2000
#2: Unbelievable Luck

1993 – French camp (North Woods)  
2005 – Thank you Minnesota!!
#3 Inspiration

Better, Bigger, Faster (and Community Owned)
Feed-in Tariffs for Minnesota:
Why are we even talking about this?
LOTS OF JOBS

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Jobs</th>
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<tbody>
<tr>
<td>Current</td>
<td>435,000</td>
</tr>
<tr>
<td>Moderate</td>
<td>3,138,000</td>
</tr>
<tr>
<td>Aggressive</td>
<td>7,935,000</td>
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</table>

Source: Management Information Services, Inc. & ASES (2007)
Big Ideas

• 10% by 2012
• 25% by 2025
• Plug-in hybrids and energy independence
• Climate change mitigation
• So how do we get there?
Germany: Market Growth

• 14.2% in 2007 (target: 12.5% by 2010)

• Revised target: 25-30% by 2020

• 22,622 MW of wind (1,667 MW in 2007)

• 3,800 MW of PV (1,100 MW in 2007)

• 1,270 MW of biogas (doubled between 2005 and 2007)

Wind energy

PV

Biogas

Source: Fachverband Biogas e.V. (based on a survey of state government records: September 2007)
Feed-in tariffs

- Fixed-price payment ($/kWh)
- Long-term (e.g. 20 years)
- Guaranteed interconnection (If you build it, we buy it)
- Based on generation cost
- Differentiated
  - By technology
  - By size
  - By application, by fuel, by resource
So Why Can’t We Do This Here?
MYTH(s) #1

They Are Expensive
- Feed-in tariff
- Tradable RECs
- Feed-in/RECs
- Other policy
- Recent feed-ins
GOVERNMENTS ARE BETTER AT SETTING PRICE THAN MAKING ASSUMPTIONS ABOUT FUTURE BALANCE OF SUPPLY AND DEMAND
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RISK IS EXPENSIVE!
New Jersey: Lowest Ratepayer Impact for Solar
German government analysis from 2006 showed policy savings primarily from electricity market price reductions

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<tr>
<td><strong>Subtotal</strong></td>
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**THE FASTER WE GET NEAR-MARKET RENEWABLES, THE FASTER WE GET HEDGE BENEFITS AND WHOLESALE PRICE SUPPRESSION**

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MYTH #2

FIXING PRICES IS UNAMERICAN
Federal tax credit
MACRS Depreciation
Net metering
State tax credit
Rebates
RECs
Price ceiling
Price floor
Federal tax credit
MACRS Depreciation
State tax credit
Net metering
Rebates
RECs
Phew! A market...
Price ceiling
Price floor
Refundable production tax credit?
MYTH #3

RPS AND REPS AREN’T COMPATIBLE

And/Or Neither are REPS and Net Metering
- **SHORT-TERM TRADABLE CREDIT MARKETS**
- **CENTRALLY PROCURED LONG-TERM REC CONTRACTS**
- **LONG-TERM CONTRACTS FOR *JUST* ELECTRICITY**
- **BILATERAL LONG-TERM CONTRACTS FOR RECs AND ELECTRICITY**
- **GUILT (i.e. voluntary markets)**

Source: DSIRE, 2008
Trend #1: Technology Differentiation

- NM: 4% solar electric by 2020; 0.6% DG by 2015
- AZ: 4.5% DG by 2025
- NV: 1% solar by 2015; 2.4 to 2.45 multiplier for PV
- CO: 0.8% solar electric by 2020
- NM: 4% solar electric by 2020; 0.6% DG by 2015
- WA: double credit for DG
- NY: 0.1542% customer-sited by 2013
- DE: 2.005% solar PV by 2019; triple credit for PV
- MD: 2% solar electric in 2022
- DC: 0.4% solar by 2020; 1.1 multiplier for solar
- NH: 0.3% solar electric by 2014
- MA: TBD by MA DOER
- NJ: 2.12% solar electric by 2021
- PA: 0.5% solar PV by 2020
- NC: 0.2% solar by 2018

Trend #2: Long-Term Contracts
RENEWABLE ENERGY PAYMENTS ARE A MECHANISM FOR MEETING RPS REQUIREMENTS
What’s the difference?

Feed-in Tariff: $0.40/kWh

Wholesale RPS with Fixed-Price RECs:
- $0.30/kWh
- $0.10/kWh

Net metering with Fixed-Price RECs:
- $0.20/kWh
- $0.20/kWh
MYTH #3

THE GHOSTS OF PURPA ARE A PROBLEM
GHOSTS OF PURPA

• Long-term fuel prices probably won’t stay low

• Paying “premiums” for renewable energy on a long-term basis is OK

• PURPA *does not* set a contract price ceiling

• PURPA wasn’t all bad:
  – Birth of the modern wind energy industry
  – Rapid alleviation of critical capacity shortages
So… feed-in Tariffs in the US…
Federal Feed-in Tariff (Inslee, D-WA)

INTRODUCED, BUT NOT VOTED ON
California: A Convergence of Interests
• In place: Feed-in tariff for 1.5 MW and below set at time-differentiated Market Price Referant (average 11¢-13¢ for solar) (AB 1969)

• California Public Utilities Commission considering expansion of tariff to 20 MW and under

• California Energy Commission considering cost-based feed-in tariffs for under 20 MW
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• CPUC considering feed-in tariff for new Combined Heat and Power under 20 MW (AB 1613 Blakeslee)

• Southern California Edison offers standard offer contracts at MPR for biomass under three different contracts (<1 MW, 1-5 MW, 5-20MW) and proposes expanding to all renewables in 2009

• Standard offer contracts under PURPA are back (CPUC D.07-09-040)

• Legislature (SB 451 (2007), AB1807, AB1920, AB1714)

• Proposition 7: 50% renewables by 2025 using feed-in tariffs

• Feed-in tariffs were debated as part of California Solar Initiative
Challenges with Bidding

- Complexity of the RPS solicitation processes, including suitability of RPS solicitation processes for smaller projects
- Lack of transparency
- Contract failure, which may be caused by a wide variety of reasons, including over-aggressive bidding in solicitation processes.
- Cost changes during the project development process, which may cause some projects to become infeasible

DECEMBER 1st: California Energy Commission recommends feed-in tariff similar to Germany’s for resources 20 MW and under
Hawaii

- 4 unsuccessful bills (2006-2008)
- Premium net metering for PV only
- 20 year contracts
- $0.45 - $0.70/kWh

NOT PASSED TO DATE
Hawaii Clean Energy Initiative

• “The parties agree that feed-in tariffs are beneficial for the development of renewable energy...[and] that feed-in tariffs should be designed to cover the renewable energy producer’s costs of energy production plus some reasonable profit

• “the benefits...from lowering oil imports, increasing energy security, and increasing both jobs and tax base for the state, exceed the potential incremental rents paid...”

• Utility purchases under a feed-in tariff shall be counted towards the utility’s [RPS] requirements

• By July 2009, the Commission will adopt a set of feed-in tariffs
Recent Gubernatorial Initiatives

• Wisconsin Governor’s Task Force on Global Warming recommends feed-in tariffs for distributed generators (<15 MW, “based upon the specific production costs of each particular generation technology, include a return comparable to the utilities' allowed returns”)

• Oregon Governor Kulongoski’s 2009 legislative proposal “will create a production incentive pilot program that will pay for the electricity produced by a solar project…Known also as a feed-in tariff, this type of incentive program has led to the installation of more than 2,500 megawatts of solar electricity in Germany.”

• Virginia Governor’s Commission on Climate Change Draft Recommendations for a feed-in tariff feasibility study
Recent Feed-in Tariff Legislation

“Michigan model” (MI, RI, MN, IL)
- Cost-based
- Technology + size differentiated
- $0.08 to $0.14/kWh wind/biomass
- $0.25 for small wind
- $0.48-$0.71 for PV
- 20 year contracts
- MN would be community-owned

NOT PASSED TO DATE
Gainsville, Florida

• Gainsville Regional Utility established a feed-in tariff

• PV only

• $0.32/kWh – replaces both rebate and net metering

• 20 years
“In 1993, the city of Aachen, Germany, was the first to enact the renewable energy policy Gainesville is considering.”
-Kellyn Eberhardt, Gainesville Sun

1st PV Feed-in Tariff in 1993
EVENTUALLY, OVER 60 MUNIS BEFORE NATIONAL LAW PASSED

Source: Rickerson, based on Solarenergie-Förderverein (1994)
Conclusions

• Rapid diffusion of feed-in tariff concept during the last 24 months – Minnesota is not alone

• Feed-in tariffs proposed as mechanisms to meet state RPS goals

• To date, most FITs target specific technologies (e.g. PV), specific sizes (e.g. under 20 MW), and/or certain ownership structures (e.g. community)

• FITs gaining recognition because of the financial crisis – they provide investor security in a period of uncertainty regarding tax equity financing
Thank You

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