

Feed-in Tariffs and Auctions in the United States



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Presentation Overview

- Feed-in Tariffs (FITs) in the United States:
 - Definition
 - U.S. Map
- Benefits and Challenges to FITs
- Payment Level Adjustments
 - Methodologies
 - Examples
- Reverse auctions
 - New Jersey's SREC Auctions
 - California's Renewable Auction Mechanism (RAM)

Feed-in Tariff Definition

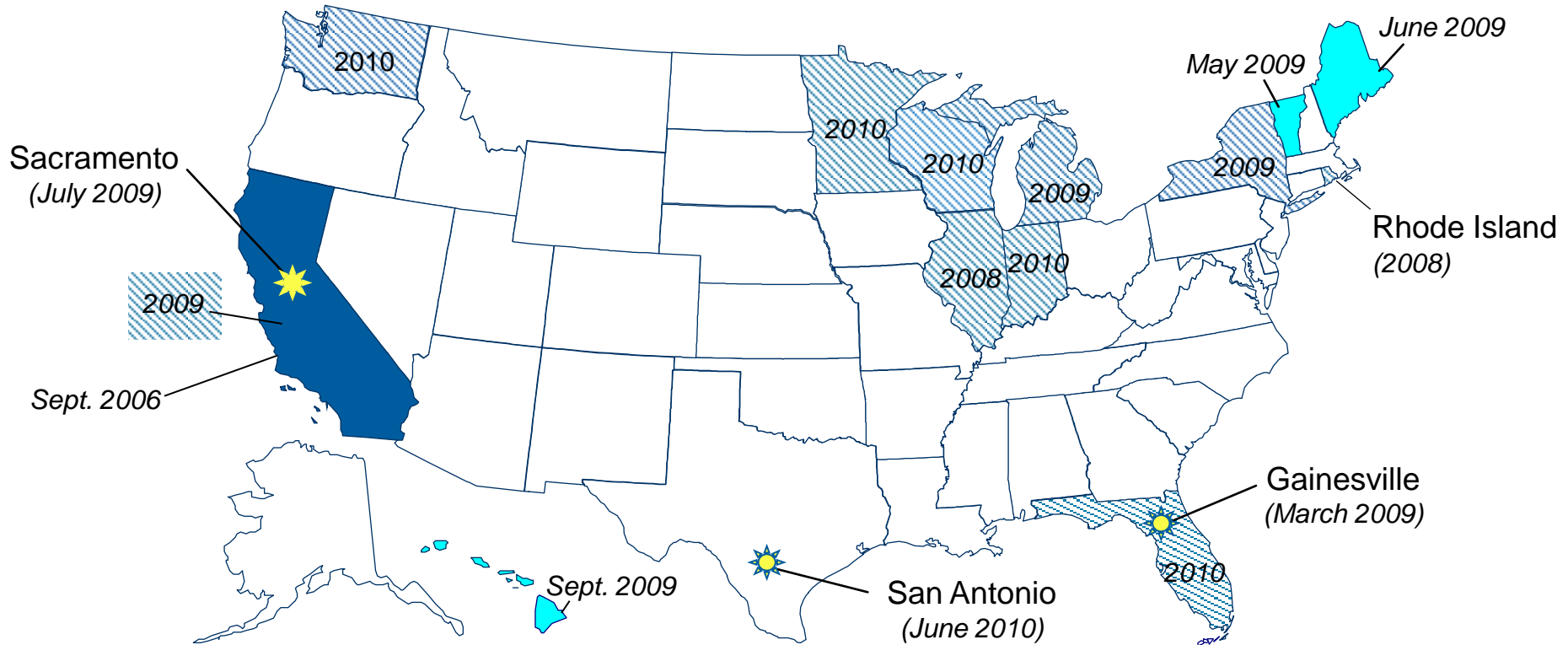
Feed-in Tariff*: A renewable energy policy that typically offers a **guarantee of**:

1. **Payments** to project owners for total kWh of renewable electricity produced;
2. **Access to the grid**; and
3. Stable, **long-term contracts** (15-20 years)



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

FIT Policies and Proposals in the U.S.



Source: Adapted from DSIRE 2010, Gipe 2010, Oregon PUC 2010.

- 3 states enacted FIT policies based on RE project cost
(VT, HI, ME (but with a payment level cap)) (*Date passed*)
- 1 state enacted FIT policies based on avoided cost
(CA- subsequently updated in 2008, 2009) (*Date passed*)
- 10 states proposed FIT legislation based on RE project cost (CA, FL, IL, IN, MI, MN, NY, RI, WA, WI)
(*Year last proposed*)
- Solar FIT policies approved by municipal utilities (*Date introduced*)

Financing Benefits

Cost-based FIT methodologies provide **cost recovery + return**

Investor certainty due to long-term contracts

Bankability: with a long-term FIT contract, developers may be able to access low cost debt

Design Challenges

Severe policy implications if payment levels are set too high or too low

Tracking technological improvement and cost reduction accurately over time **to adjust payment level**

Complexity: Usually many levels of differentiation

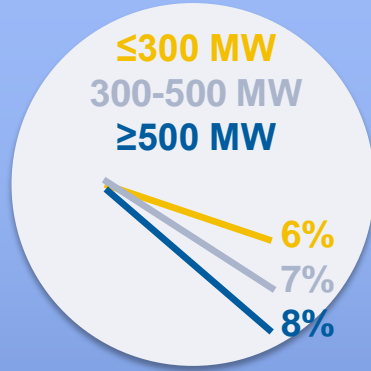
Supporting emerging or higher-cost technologies can lead to upward pressure on electricity costs

FIT Payment Level Adjustment Options



Administrative

- can be highly differentiated
- can include predefined depression to track market prices



Responsive

- payment levels are adjusted based on quantity installed or market price



Volumetric

- cumulative capacity acts as a trigger for predefined payment level adjustments



Auction-Based

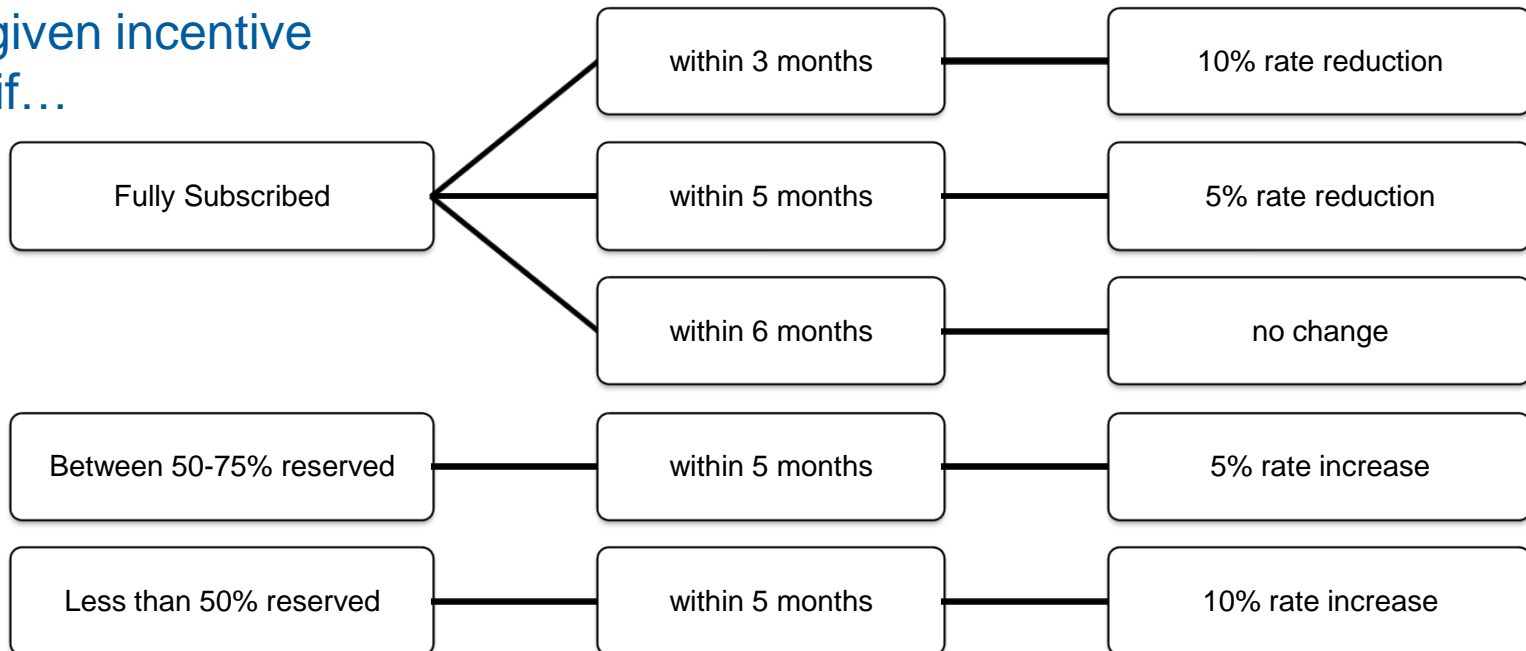
- developers bid what they need for cost recovery
- contracts non-negotiable



Oregon Volumetric Incentive Rate

- Total pilot program = 25 MW of solar PV over 4 years
- Net Metering Option provides cost-based rates for systems $\leq 10\text{kW}$ and between 10kW and 100kW
- Rate changes are made according to results of bi-annual calls:

At a given incentive rate, if...



Auction-based Mechanisms

- **Concept:** provide standardized, non-negotiable contracts awarded through a “sell” auction (*See Oregon, California RAM*)
- **Bids awarded:** starting with least-cost bid, until a threshold
- **DESIGN is KEY:**
 - Auctions work only with homogenous products, in markets with sufficient liquidity and competition
 - Auction design should *maximize competition*
 - Auction design should *assure that winning projects are viable*
 - Could be accomplished by offering a single bidding round for non-negotiable contracts
 - Could include specific preconditions for mounting a bid
 - Could include penalties for not delivering on a contract
- **Caveats:** Auctions are not FITs, there is significant access risk & project risk.



New Jersey SREC Financing Program



See: <http://www.njedcsolar.com>

- **“Sell” auctions** for 10-15 year SREC contracts (≤ 500 kW)
- Bidders are ranked on basis of contract price (using NPV)
- 4 auctions results to date (5th solicitation closed 10/14)
- Limited pool of participants to date (between 8 and 63 bidders in each round)
- Average 10-year REC price has ranged from ~\$400-465/REC
- **Challenge:** increase participation levels to yield a functionally competitive auction

California Renewable Auction Mechanism

- 1,000 MW program
- PG&E, SCE, and SDG&E are obligated to hold concurrent auctions for renewable energy generation every 180 days
- Eligible projects must be between 1 and 20 MW
- Auctioneers set auctions for **firm, non-firm peaking, and non-firm non-peaking** power products
- Explicit rules to maximize competition, ensure project viability, and minimize seller concentration
- First auction to be held within 90 days of decision (before the end of 2010)

NREL Reports – Additional Resources

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

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

***“State Clean Energy Policies Analysis (SCEPA) Project:
An Analysis of Renewable Energy Feed-in Tariffs in the
United States”*** NREL, May 2009 (revised June 2009)

<http://www.nrel.gov/docs/fy09osti/45551.pdf>

“A Policy Makers Guide to Feed-in Tariff Policy Design”
NREL, 2010

<http://www.nrel.gov/docs/fy10osti/44849.pdf>

COMING SOON: NREL, 2010

- “Evolution of Feed-in Tariffs: Lessons Learned and Implications for the Future”
- “Renewable Portfolio Standard Procurement Options”
- “Accelerating Renewable Energy Deployment While Containing Feed-in Tariff Policy Costs”

Questions?

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