

# Feed-in Tariffs and Auctions in the United States



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# Presentation Overview

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- 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

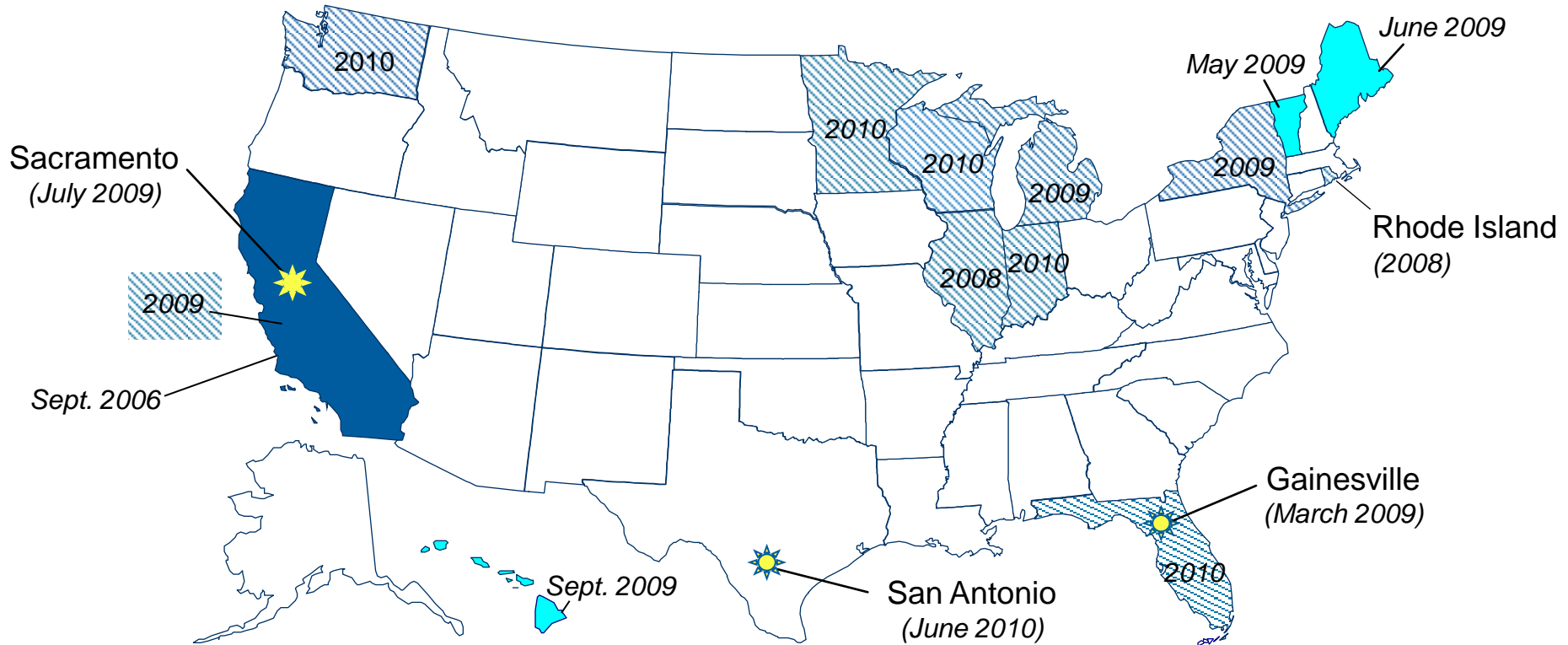
**Feed-in Tariff\***: A renewable energy policy that typically offers a **guarantee of**:

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

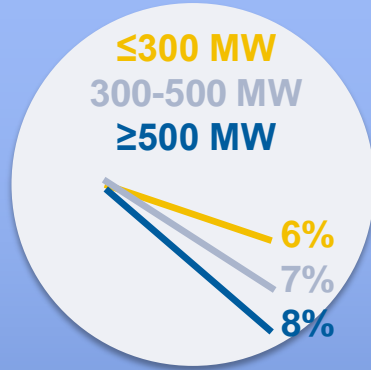
Supporting emerging or higher-cost technologies can lead to upward pressure on electricity costs

# 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

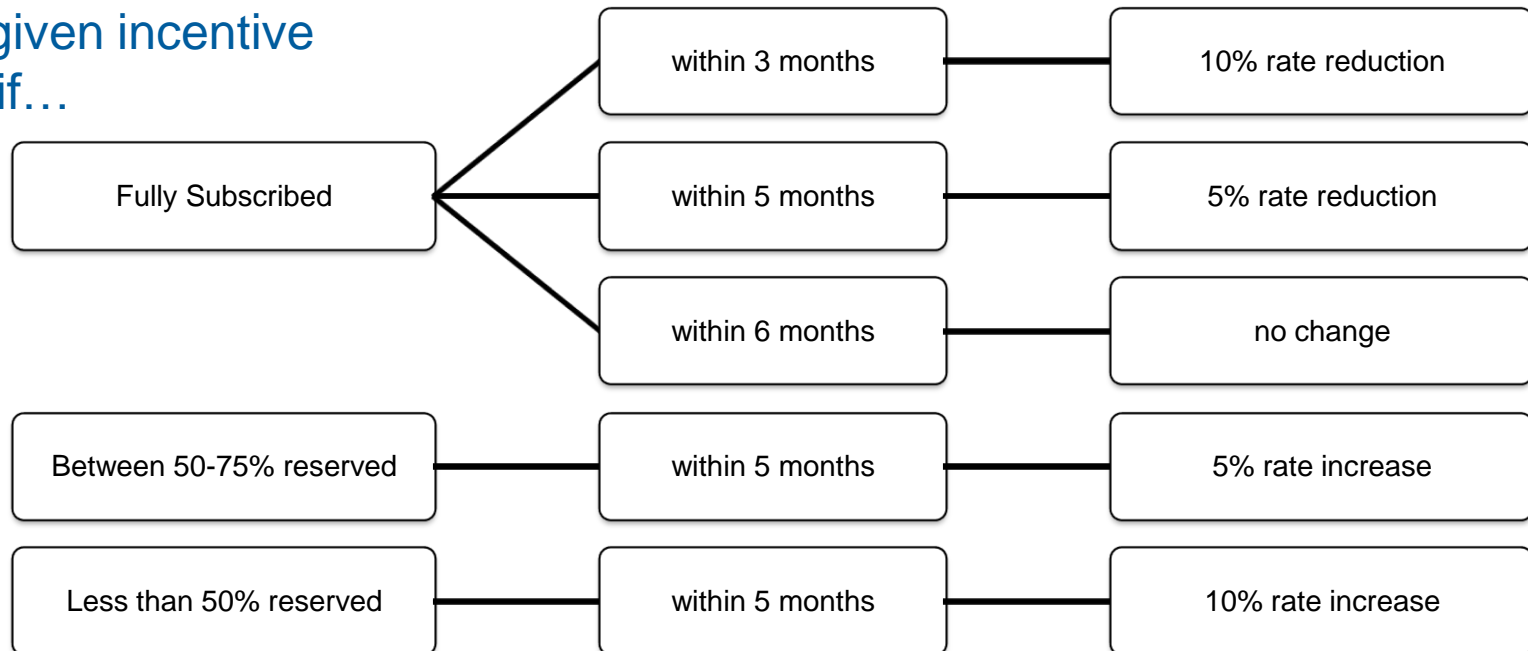
- developers bid what they need for cost recovery
- contracts non-negotiable



# 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  $10\text{kW}$  and  $100\text{kW}$
- 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 ( $\leq 500$  kW)
- Bidders are ranked on basis of contract price (using NPV)
- 4 auctions results to date (5<sup>th</sup> 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

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***“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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