

Feed-In Tariffs Abroad and in the US

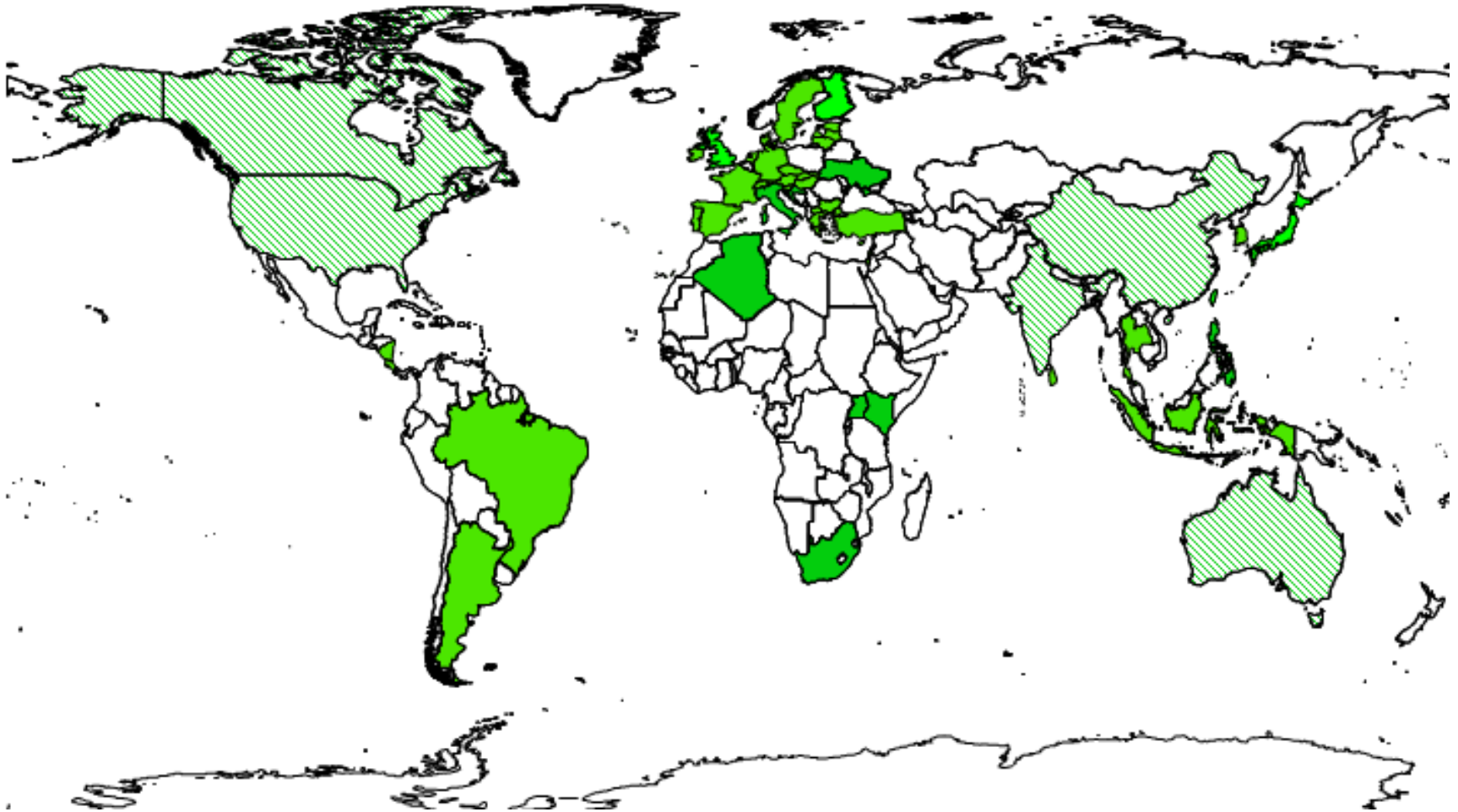


Renewable Energy Markets 2009

Hilary Flynn

September 15th, 2009

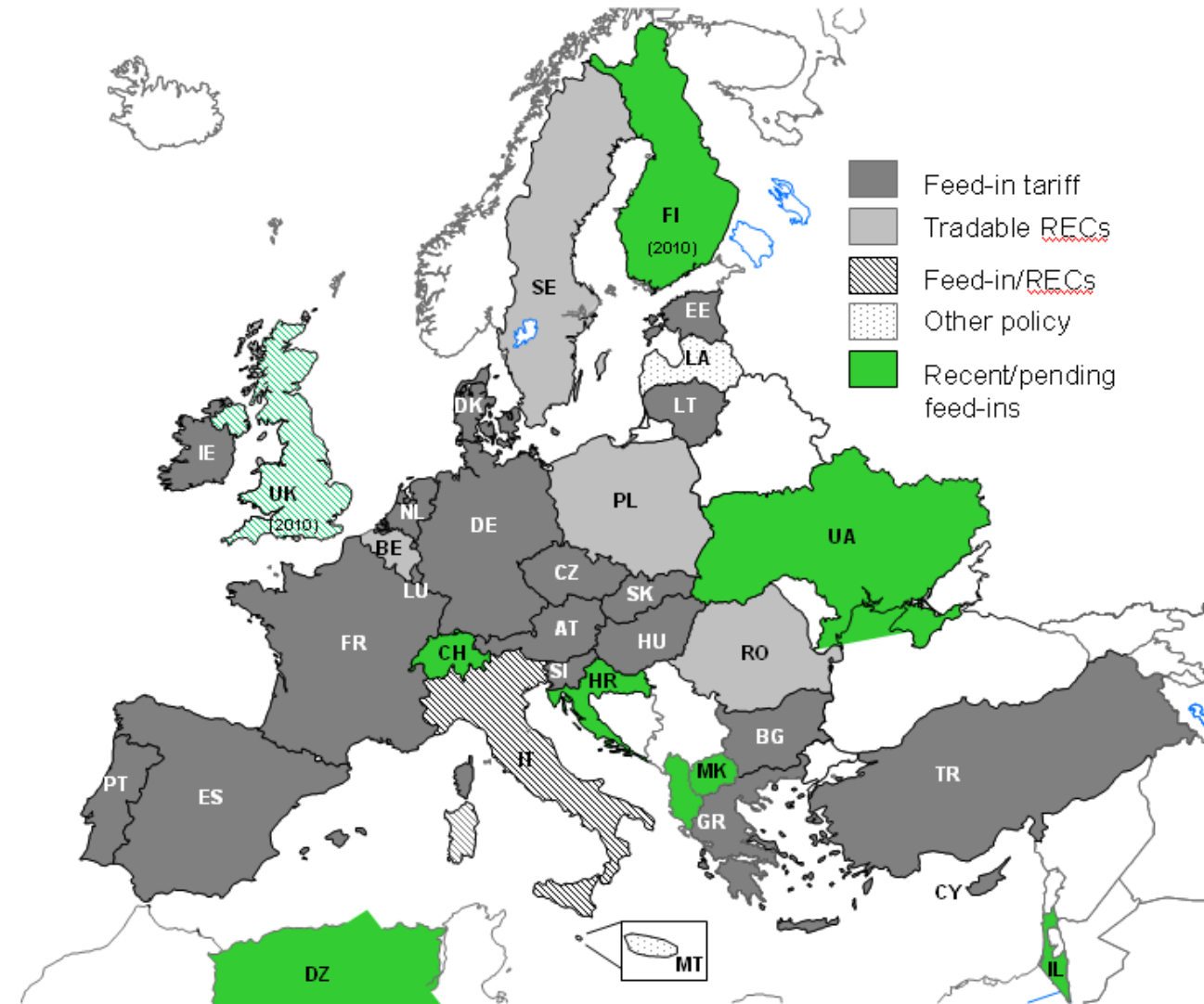
Feed-In Tariffs Worldwide



Source: REN21. (2009). Renewables Global Status Report: 2008

-  National Feed-in Tariffs
-  Regional Feed-in Tariffs

European Policies



Source:

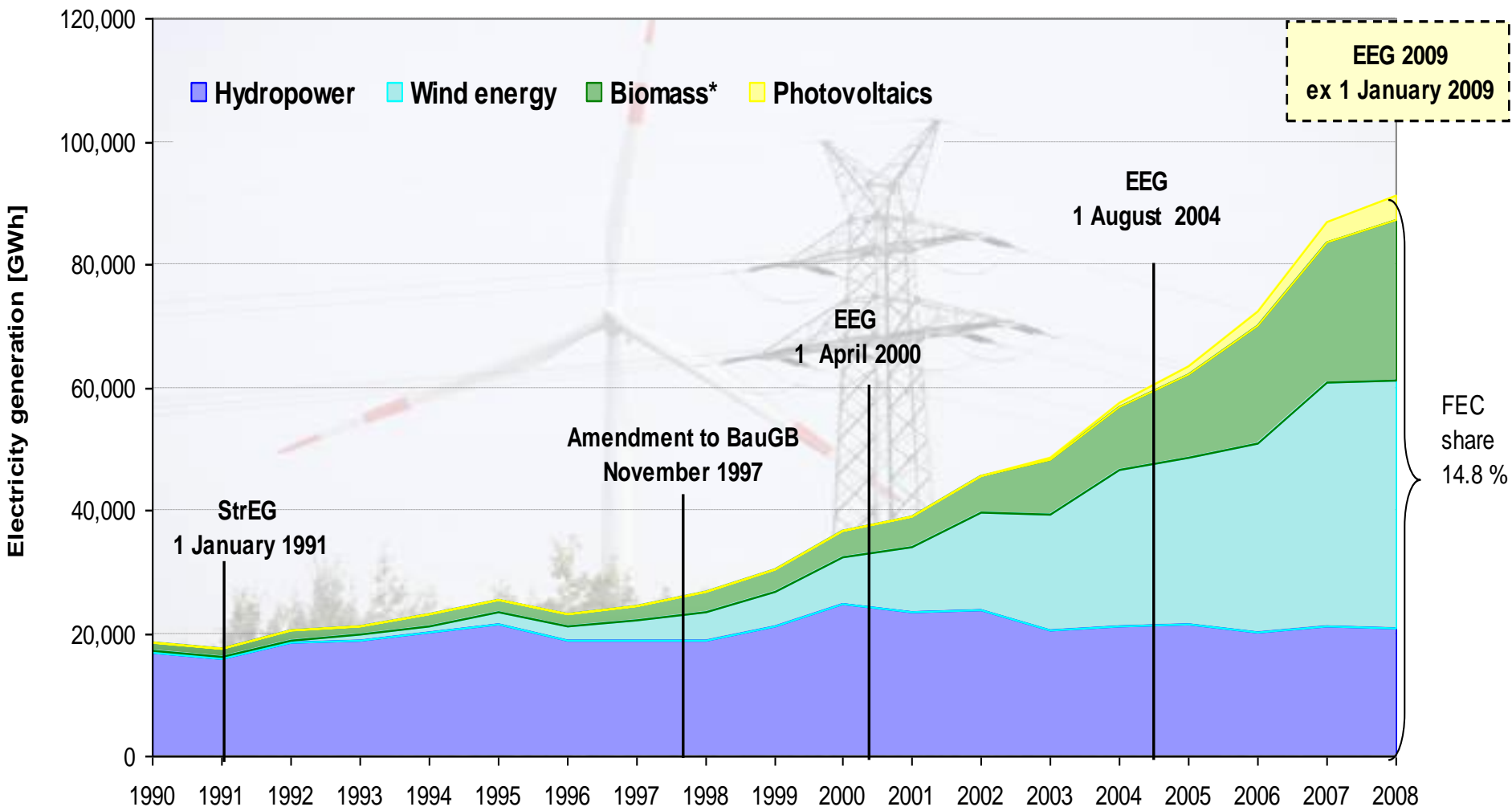
About Feed-in Tariffs

- What is a feed-in tariff? Standard offer contracts, Performance based incentives, Advanced Renewable Tariffs (ARTs), Renewable Energy Payments, Renewable Energy Rates, Renewable Energy Dividends, (PBIs), Full 15-Year Tariffs, etc.
- Feed-in tariff design depends entirely on policy objectives
- Every criticism that you hear about feed-in tariffs can be made about any policy

A Focus on Germany



Electricity Generation from Renewables in Germany, 1990-2008



- Revised target: 25-30% by 2020
- 280,000 jobs created in the renewables industry

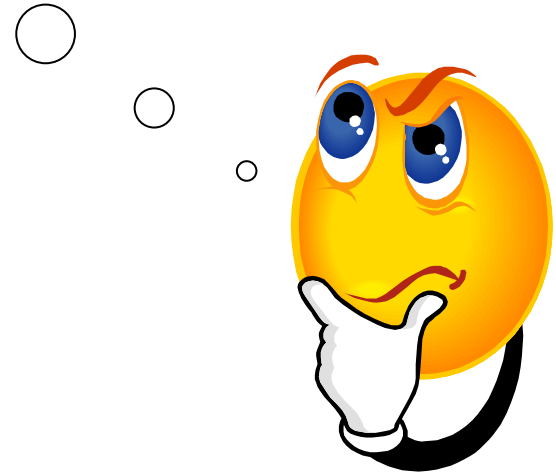
What is a Feed-in Tariff?

The German Gold Standard

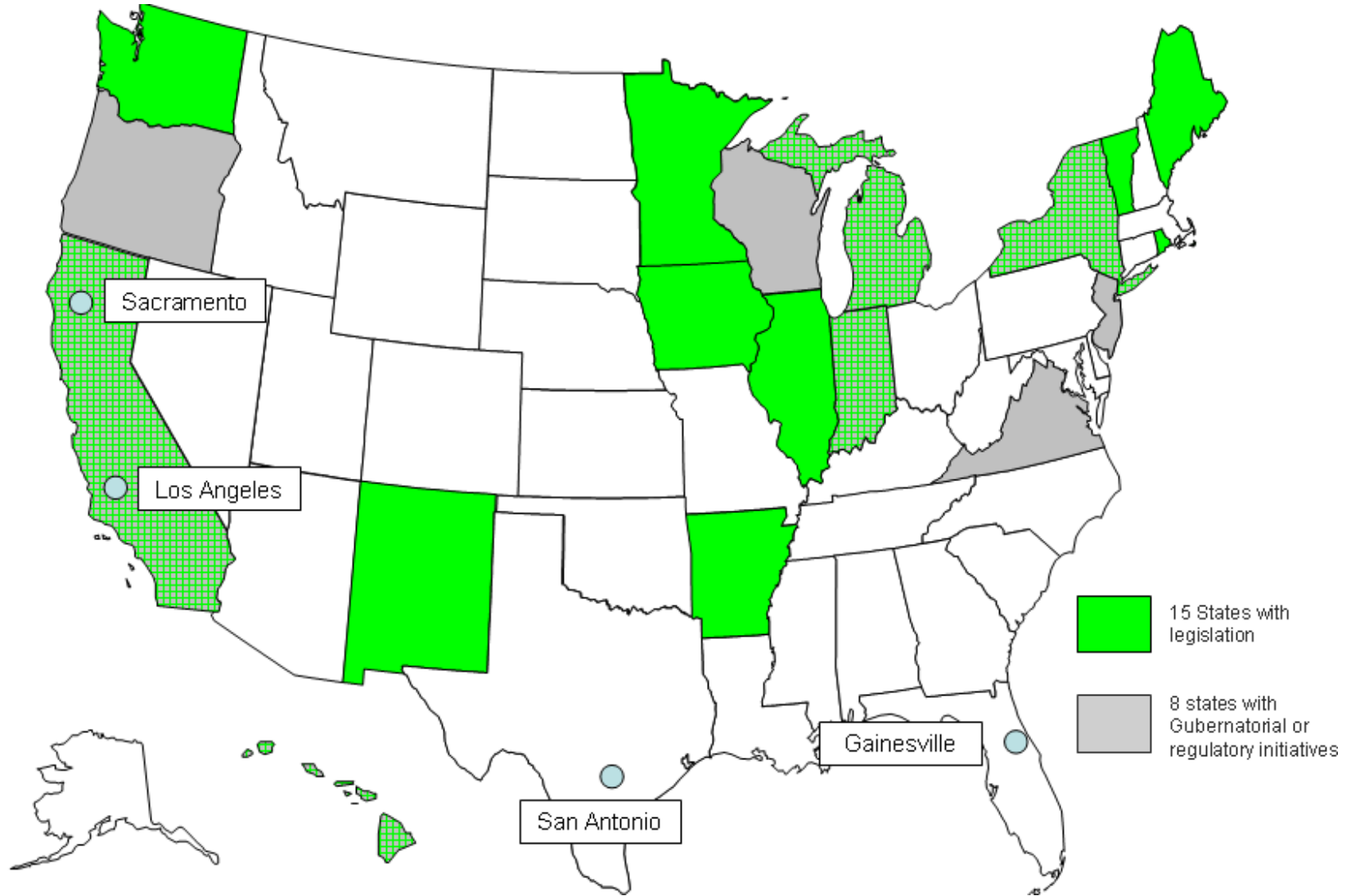
- Fixed-price payment (\$/kWh)
- Long-term (e.g. 20 years)
- Guaranteed interconnection & 100% power purchase
- Based on *generation cost*
- Differentiated
 - By technology
 - By size
 - By application, fuel, resource
- Schedule of payments declines over time
- No project size caps, no program caps



Implications for US Policy Making



The FIT Landscape: The last 2 years

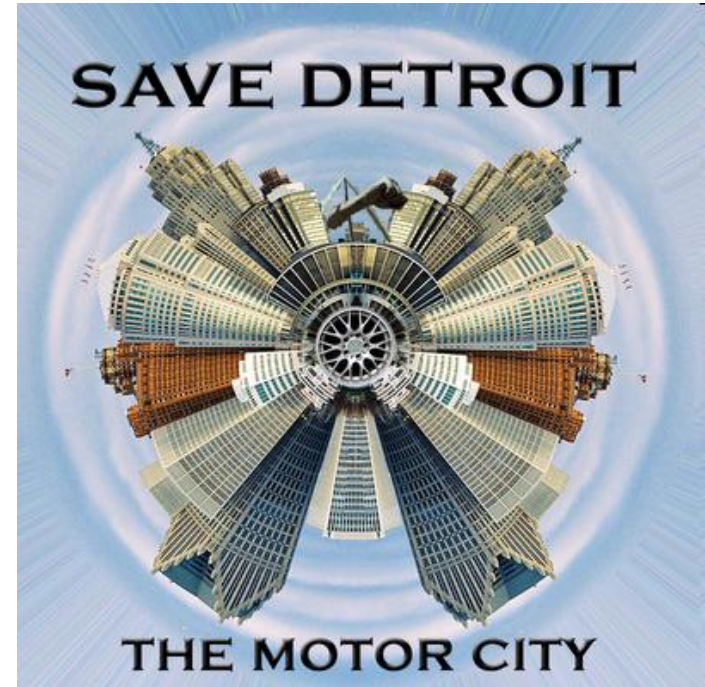


Why?

- Policy makers want to move faster – climate change, jobs, fuel prices
- An emphasis on portfolio diversity (technology, size, ownership, etc.)
- Financing woes
 - Fixed price vs. volatile revenue
 - Debt financing vs. tax equity

THE “MICHIGAN MODEL”

- Original bill introduced in 2007 (and again in 2009)
- IL, IN, MN, NY, RI, WA
- 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, NY have community-ownership requirement



California: A Convergence of Interests



Some from Column A, Some from Column B

California Energy Commission

- Ongoing regulatory feed-in tariff investigation (1+ year and counting)
- CEC recommends feed-in tariffs for generators 20 MW and below
- FITs should be differentiated by technology and based on generation cost

California Public Utilities Commission

- SB 1969 (Yee) of 2006 - FITs for 1.5 MW and below at water and wastewater facilities
- CPUC extends to all IOU customers at time-differentiated MPR (average 11¢-13¢ for solar)
- SB 380 (Kehoe) of 2008 formally extends FIT to all customers and expand statewide cap to 500 MW
- CPUC Energy Division Staff Proposal
 - Extend project size to 10 MW
 - Additional 1000 MW of capacity
 - Price TBD

Legislative wildcards....

- SB 523 (Pavley) – generation cost-based FIT, amended to municipal PV pilot FIT in Santa Monica and elsewhere with rates \$0.237 - \$0.534/kWh
- AB 1106 (Fuentes) – Generation cost-based FIT

Hawaii

- Hawaii Clean Energy Agreement Initiative:
 - **FITs by September 2009**
 - Generation cost-based
 - Supported by the Governor, the utilities, and the Consumer Advocate
 - Regulatory proceedings ongoing
- Current bill (SB 1196) would set FIT rates for PV at \$0.4683-\$0.6314/kWh



Vermont

- Program cap of 50 MW
- Project size cap of 2.2 MW
- Contract term: 10-20 years
- Wind energy tariffs
 - <15 kW: \$0.20/kWh
 - >15 kW: \$0.14/kWh
- Landfill and biogas tariff of \$0.12/kWh
- Solar tariff of \$0.30/kWh
- Profit set at rate of return of Vermont electric utilities
- Open a regulatory examination of the tariffs by September 15, 2009 and new rates set in January, 2010



Gainesville, Florida

- Gainesville Regional Utility established a feed-in tariff in February, 2009
- PV only
- \$0.32/kWh – replaces both rebate and net metering
- 20 years
- 4 MW annual cap – already subscribed for 2 years



San Antonio, Texas

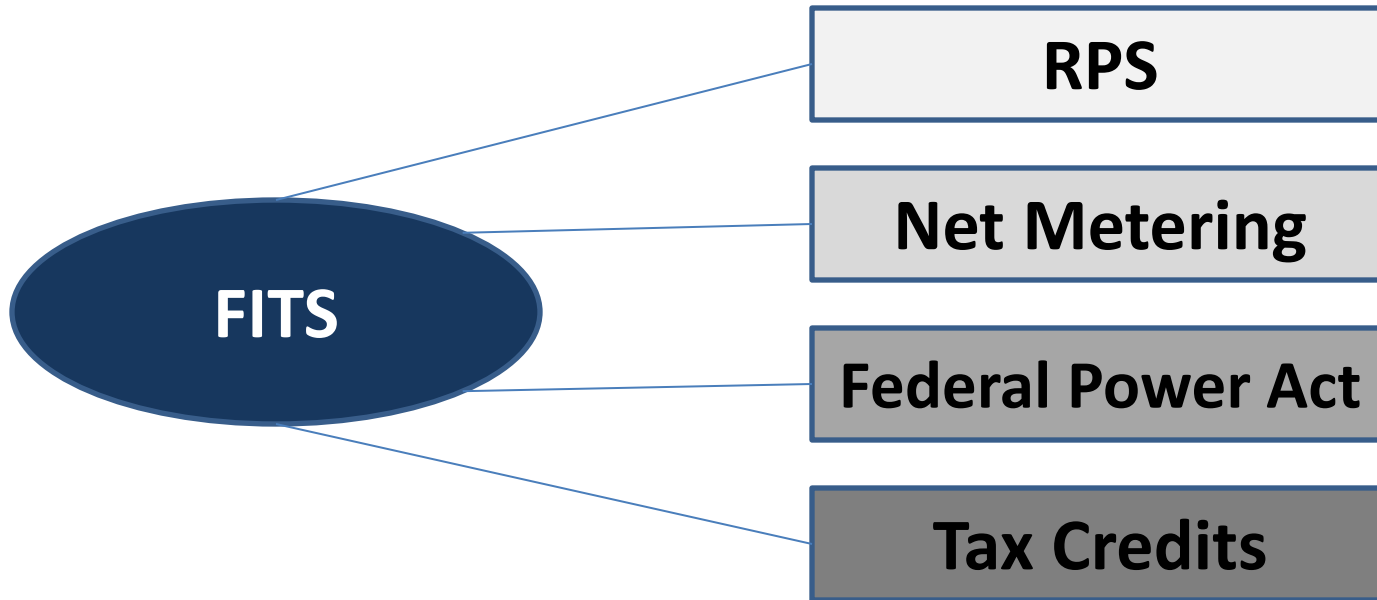
- CPS Energy announces that Solartricity Producer Program will launch in January 2010, and will last for two years, with a 10 MW target
- PV only
- 25 kW – 500 kW systems
- \$0.27/kWh
- 20 years



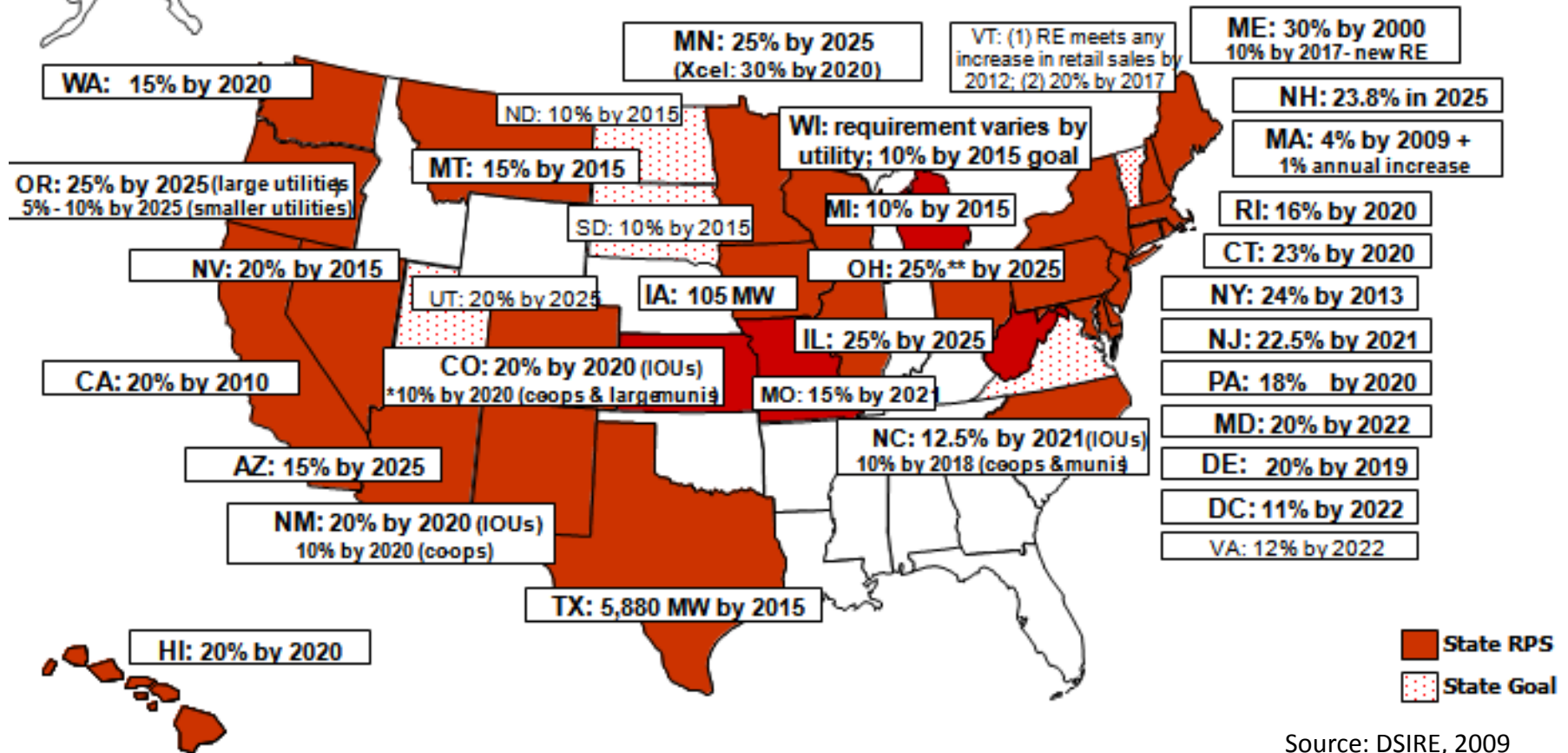
Other Recent Activity

- SMUD establishes FIT based on time-differentiated avoided cost + CO2 & hedge adders (PV: ~\$0.17 + \$0.0227/kWh; 100 MW program cap)
- Maine establishes FIT capped at \$0.10/kWh (50 MW program cap – LD 1075)
- Oregon establishes PV FIT pilot based on avoided cost + T&D benefit (25 MW program cap – HB 3039)

Interactions



Interaction with RPS



Source: DSIRE, 2009

- Most proposed FITs in states with existing or pending RPS
- Some FITs are explicitly proposed as mechanisms for meeting RPS goals
- Most FITs target generators perceived as not served by RPS (e.g. DG, PV, community-owned)

Interaction with Net Metering

- Gainesville: Replace net metering
 - Address landlord/tenant split
 - Avoid revenue loss
- California: Choose one or the other
 - 1.5 MW and below can choose 100% sale or net excess only sale at FIT rate; OR
 - 1 MW and below can choose net metering
- New Jersey (proposed)
 - FIT payment sits on top of net metering in the form of fixed-price RECs

Interaction with the Federal Power Act



“The Commission lacks wholesale price-setting authority, as the Congress and the Federal Energy Regulatory Commission...have preempted the State from asserting such authority...”

- Southern California Edison in CPUC CHP FIT proceeding



Interaction with Tax Credits

- Subtract tax credit value from FIT amount (Michigan model)
- Differentiate between taxable and non-taxable entities
- Assume that generators can claim all tax benefits



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