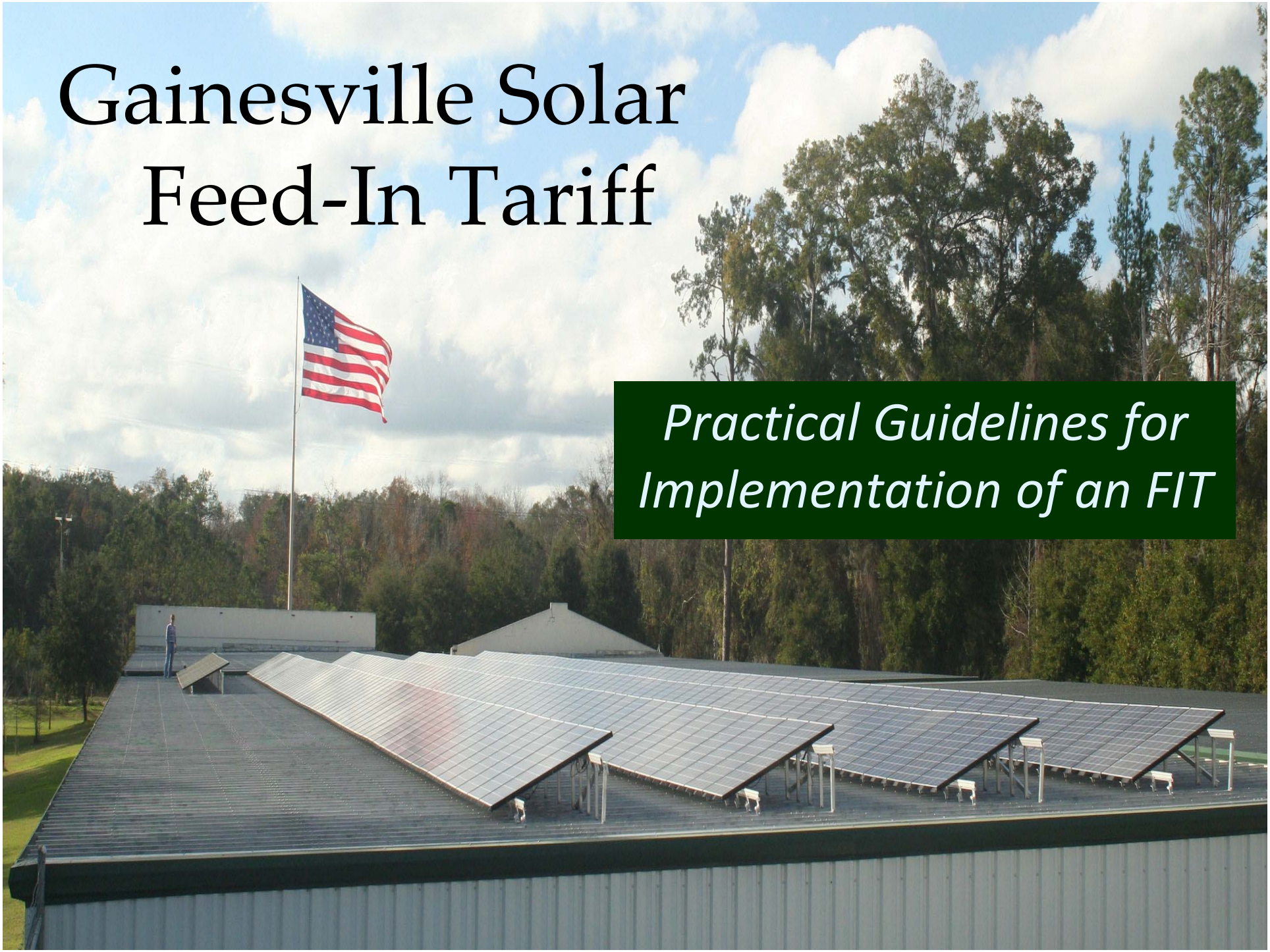
Gainesville Solar Feed-In Tariff

Practical Guidelines for Implementation of an FIT



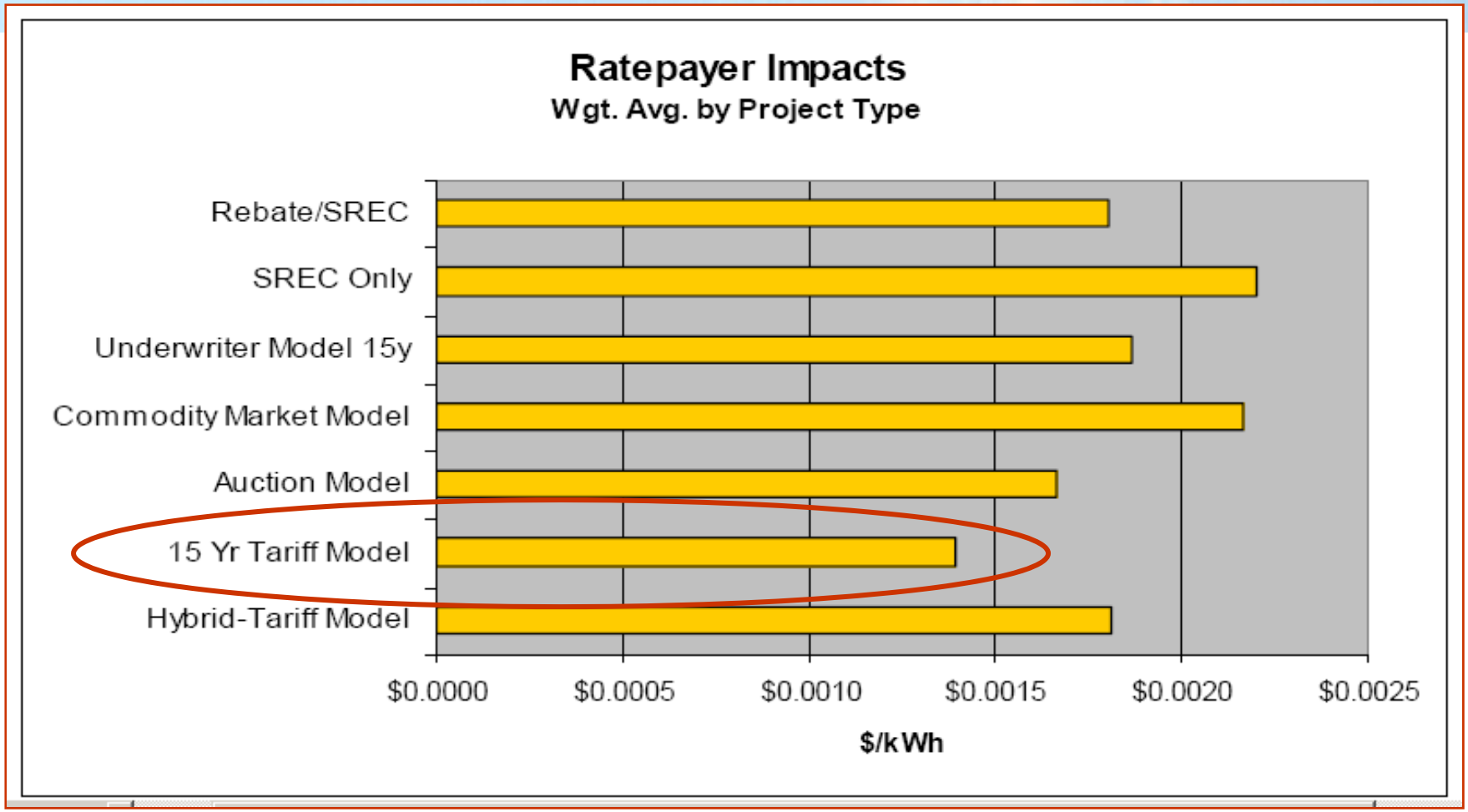
The Renewables Question

- The question "should we have a Feed-In Tariff?" is sometimes premature
- The first question is "are we committed to renewable energy?"
- If "yes", then the question becomes one of ***how*** to implement the policy, not "***why***"

Renewable Policy Options

- Rebates & grants – cash payments for equipment
- Tax credits and deductions
- RES/RECs – quota system with penalties
- REC market – trades, auctions set REC prices
- Tariff – special fixed, long-term rate for renewables
- Hybrid – some combination of the above

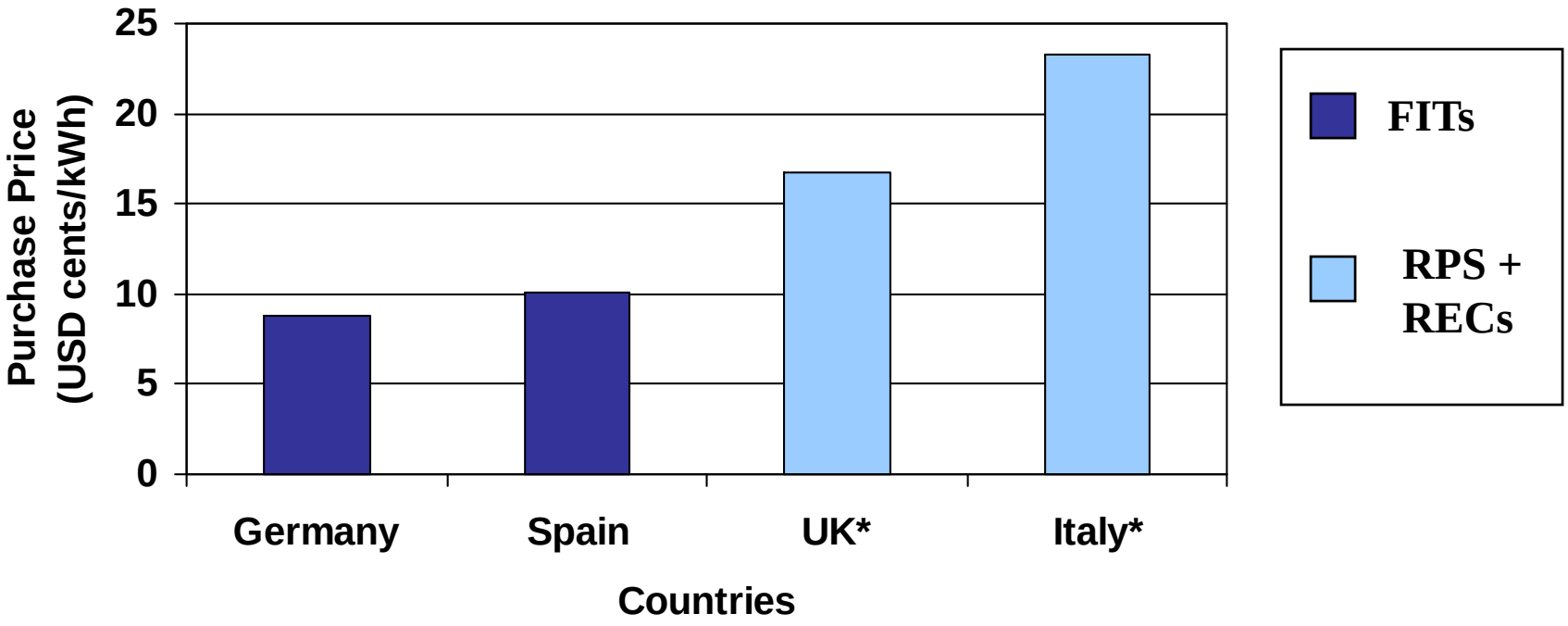
Why Choose an FIT?



- *From Summit Blue Report "An Analysis of Potential Ratepayer Impact of Alternatives for Transitioning the New Jersey Solar Market from Rebates to Market-Based Incentives", April 2007*

RE Policy & Cost

Average per kWh Payment for Onshore Wind (2008)



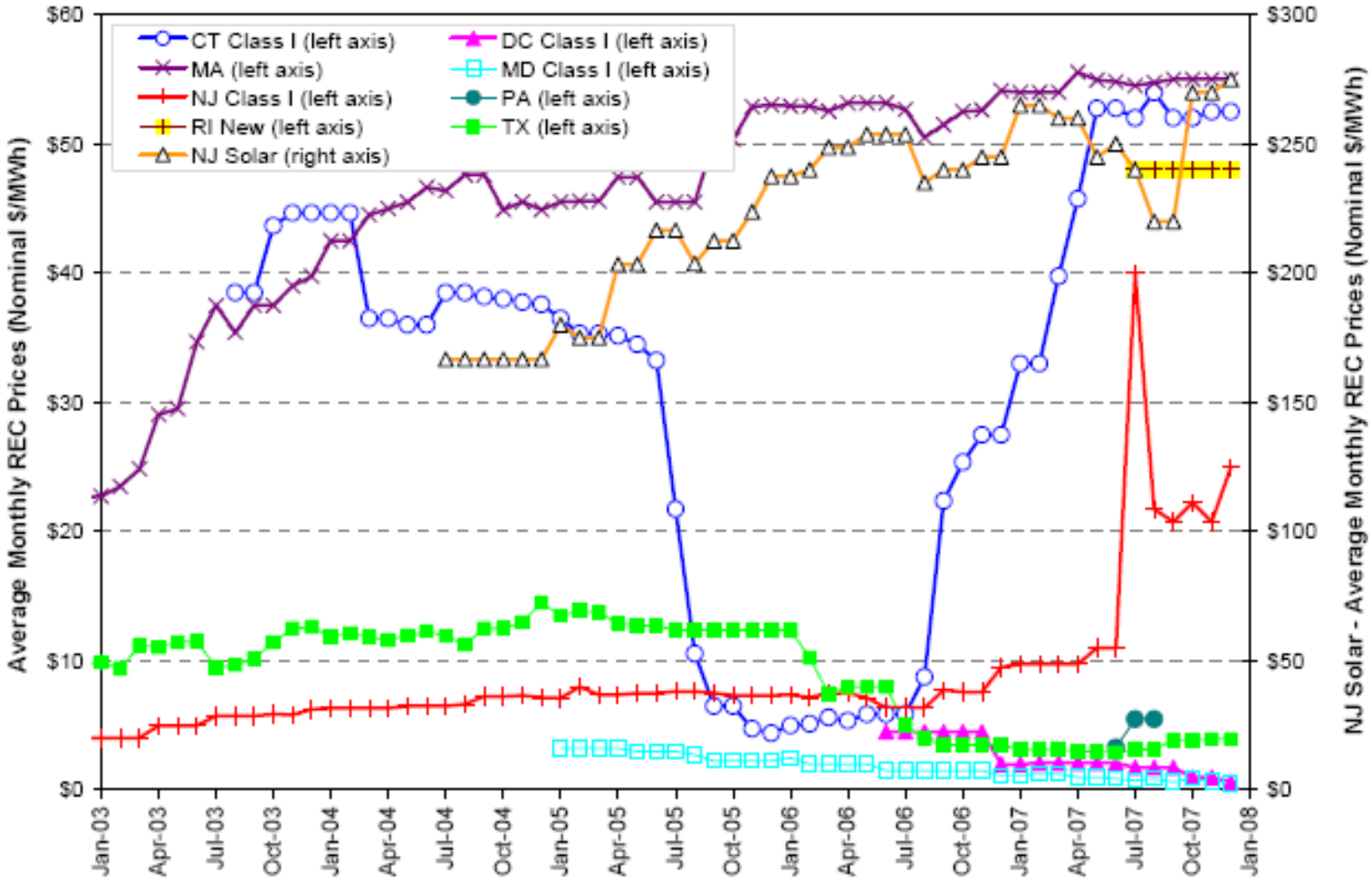
*** Electricity price + Tradable Green Certificate (i.e. REC)**

Source: BMU 2008; ISI, 2008; Fouquet, D. et al., 2008; NREL 2009

Investing in Renewables

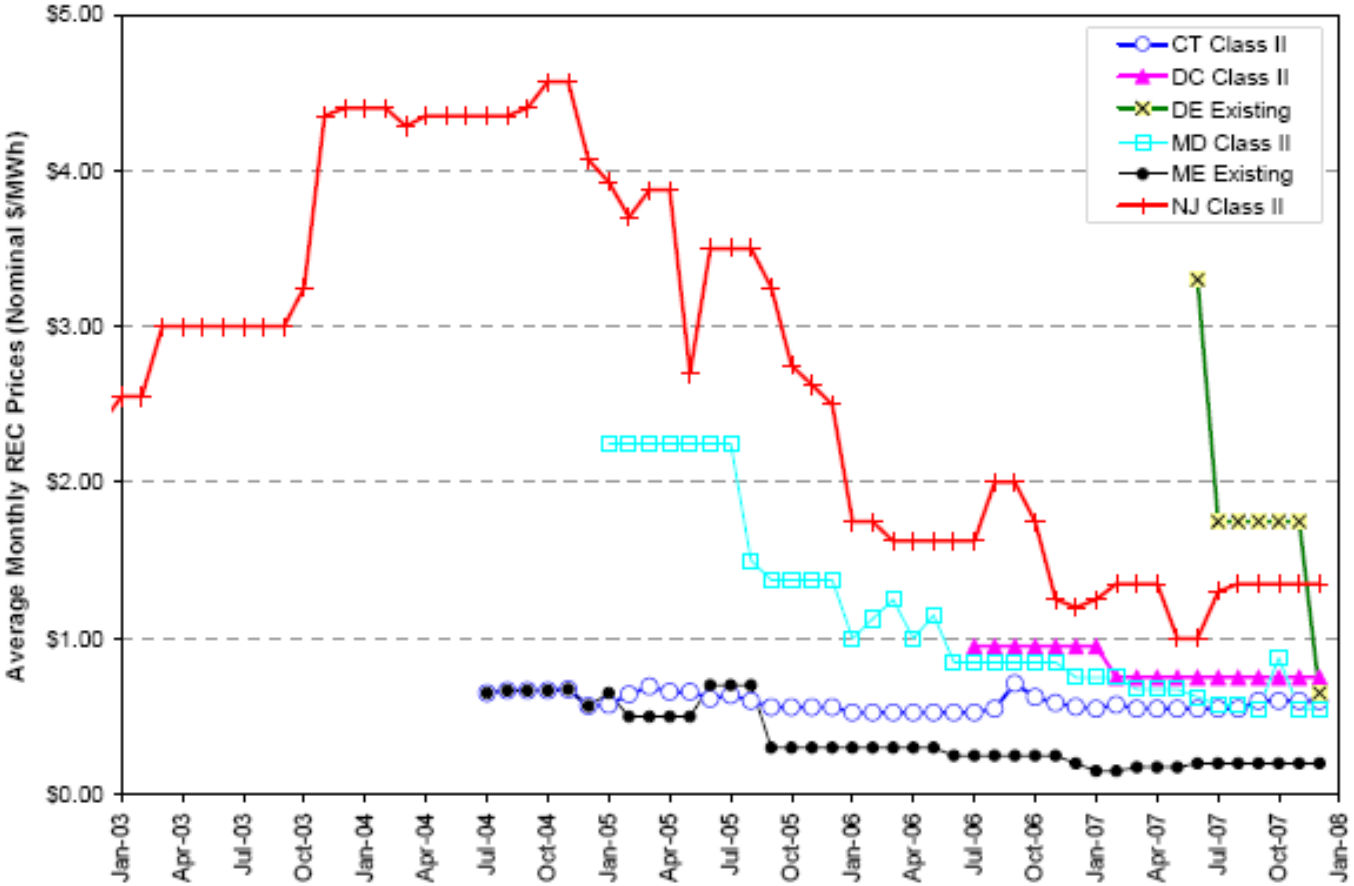
- Regardless of the policy implementation (FITs, RECs, or other), investors demand a reasonable rate of return (IRR)
- The more volatile and unpredictable revenue returns are, the higher the IRR demanded

Volatility of REC Values



source: Lawrence Berkeley Lab, "Renewables Portfolio Standards in the United States", April 2008

Volatility of REC Values, cont'd

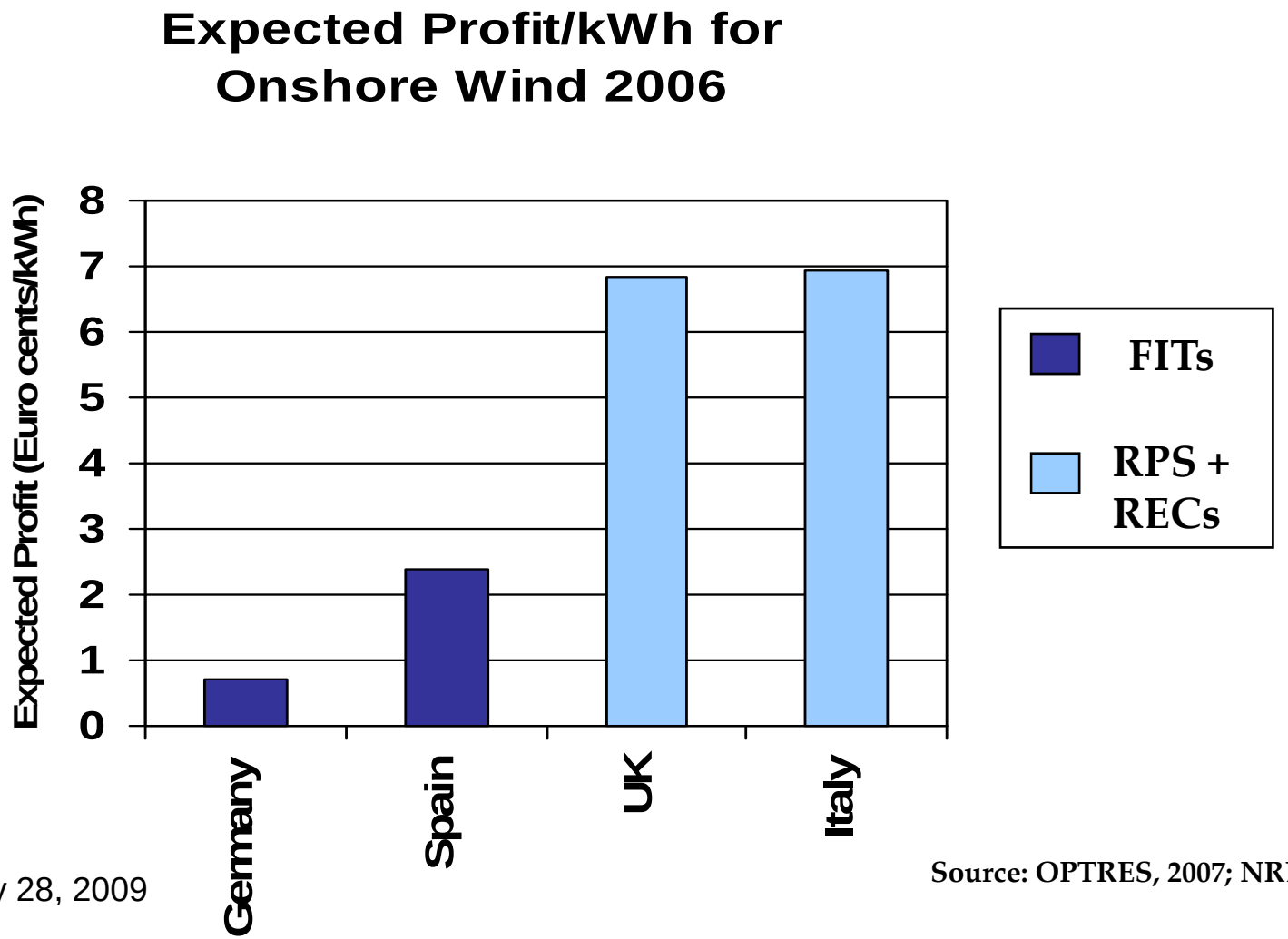


source: Lawrence Berkeley Lab, "Renewables Portfolio Standards in the United States", April 2008

Comparing IRRs

- Due to the volatile nature of the REC market, investors demand a higher IRR (typically 13-19%)
- The relative low-risk, long term contract and guaranteed tariff rates of an FIT mean investors can lower their IRR demands typically (5-8%)

FITs vs. Quotas on Cost



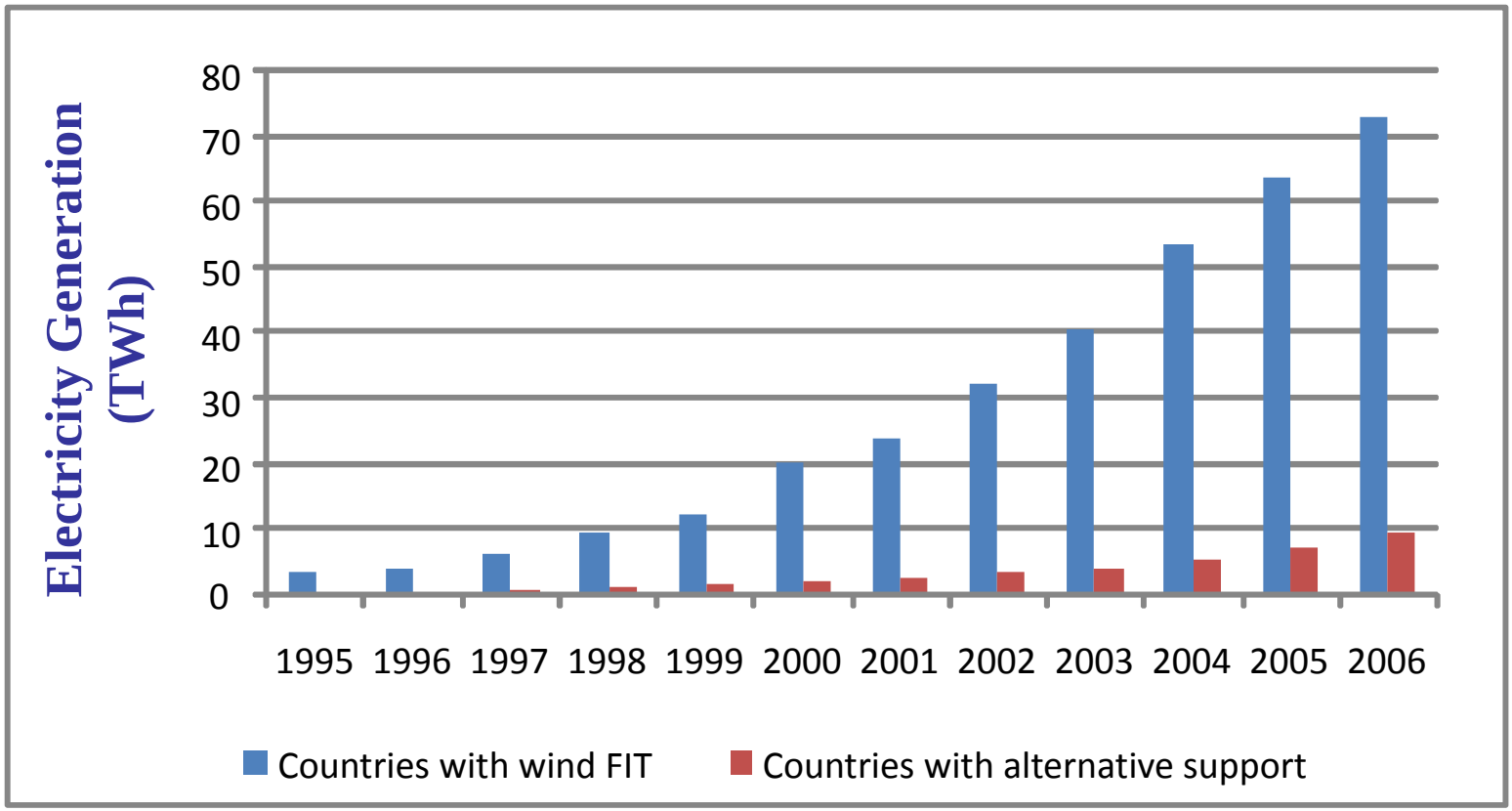
Source: OPTRES, 2007; NREL 2009

FITs Drive the Cost Down

- Creating a strong market makes use of market forces to push prices down
- Between 1990 and 2006 the price of photovoltaic systems dropped over 60% from EUR 13,500 to about EUR 5,000.
- Lower installed costs mean greater returns on the same invested amount, and thus more investment incentive

FITs Encourage Deployment

Wind Power Deployment in the European Union



Source: EUROSTAT, 2008; NREL, 2008

Renewable Deployment Models

- Utility Scale, Centralized
  - Control is maintained at the utility level
  - More likely to be dispatchable
- Small scale, Distributed
  - Privately owned and operated
  - Energy and renewable attributes sold to utility

Advantages of Distributed Generation

- Overall reduction of transmission and distribution line losses
- Helps system voltage stabilization
- Can provide fuel diversity
- Enhances system reliability and fault tolerance
- Can provide peak demand reduction

Advantages of an FIT for Distributed Generation

- Payment only for energy received – no O&M costs, no sunk costs
- No intrusion on borrowing ability or debt load
- Eliminates need for large capital investment
- Reduced cost of risk management

GRU's Solar Feed In Tariff Program

- Modeled After Successful German Program
  - GRU purchases solar 100% of photovoltaic energy output from distributed resources
  - A standard offer, fixed price contract for 20 years – non-negotiated and assignable
  - Rate assures competitive returns on investment for system owner
  - Tariff rate decreases in future (degression)
  - Complete cost recovery through fuel charges

GRU Solar Feed In Tariff

GRU's FIT and Degression Schedule (as of 5/2009)

Contract Entered into Under This Policy During Calendar Year	Fixed Rate per kWh Applied Uniformly From the Date of Installation Through December 31,	Fixed Rate $/kWh Over Life of Contract	
		Building or Pavement Mounted (any size) or Ground Mounted	Free Standing (Non-Building or Non-Pavement Mounted)
		< 25 kW	
2009	2030	$0.32	$0.26
2010	2031	$0.32	$0.26
2011	2032	$0.30	$0.25
2012	2033	$0.28	$0.23
2013	2034	$0.27	$0.22
2014	2035	$0.26	$0.21
2015	2036	$0.25	$0.20
2016	2037	$0.23	$0.19

Program Restrictions

- 4 MW total annual capacity limit due to cost constraints (1% increase in average bill)
- Only 1 MW of ground-mounted systems per year ("solar farms")
- Limited to projects physically located within GRU distribution area

Capacity Queue Pitfalls

- Limited number of projects cause a “rush”
- Bona Fide projects difficult to distinguish from proposals
- Potential for “start and stop” work in the field, weakens the marketplace
- Increased tendency to cheat or game the system
- Challenging to set rules that keep a fair and even playing field

GRU's Approach

- Timelines and project milestones
  - 60 days to get engineering approval
  - 60 additional days to build out
- Company and Project Documentation
  - proof of rights to roofs, property or building
  - proper licensing, permits, certifications
- Detailed and specific administrative guidelines
- Considering a non refundable application fee

Financing Considerations

- Contract must be assignable to all successors
- Degression creates a vintage market
- Longer contracts can mean lower interest rates for borrowers
- Tax and property equity are important factors in determining financing amount
- Investors look favorably on low-risk returns in today's market, even at moderate rates

Conclusion

- GRU's experience is that there is a lot of popular support for a solar FIT
- Lenders and capital investors look favorably on the FIT as an investment vehicle
- GRU has found that a long-term PPA, such as an FIT, is the least-risk and most cost-effective method to secure renewable energy
- An effective FIT implementation requires strong administrative guidelines, anticipation of potential pitfalls and solutions for dealing with them:

  "Proper Planning Prevents Poor Performance"