

REGULATORY TOOLS TO SUPPORT COMPETITIVENESS OF RENEWABLE ENERGY SOURCES

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Why Promote RES?

- Assume renewable energy sources (RES) are currently more expensive than the utility's cost of generation from traditional sources
- Offsetting benefits of RES:
 - Environmental
 - Encourage development of RES technology
 - Diversity (technical and geographic)



Important factors for supporting renewable energy

- Guaranteed grid access
- Long-term contract (or other assurance of long-term payment for production)
- Adequate purchase price for output
- Performance-based payments



Guaranteed grid access

- Mandatory right of interconnection (terms may vary with size or type of generation)
- Standard interconnection agreement for smaller generators (reduced transaction costs)
- Costs of transmission or distribution system upgrades can be an issue



Long-Term Contract

- Typically, investors expect contract terms (or other purchase guarantees) long enough to repay the investment and a return
- 15 to 25 years seems to be typical for larger projects; smaller projects may prefer shorter-term agreements



Adequate Purchase Price

- Must be high enough to repay investment, plus return, within term of contract (and projected life of project)
- Many ways to establish purchase price
 - Avoided cost of purchasing utility
 - Generator's expected cost of production
 - Market-based mechanisms
 - May increase or decrease over time



Performance-Based Payment

- Typically, the renewable energy-source generator gets paid for kWhs produced; no output, no payment
- Provides strong incentive to perform, giving the purchasing utility some assurance it will receive the benefit of its bargain
- May be inequitable if performance is hindered by factors beyond the control of the generating entity



Alternatives

- Alternative means of promoting renewable energy generation include:
 - Feed-in Tariffs
 - Net billing (kWh production netted against customer's kWh utility usage)
 - Tax credits (production vs. investment)
 - Direct government subsidy (loans, loan guarantees, interest subsidies, other)
 - Ratemaking incentives for utility-owned projects
 - Utility renewable purchase requirements



Potential Funding Sources

- Retail rates
- Tax revenues
- Carbon emission auction revenues
- Utility tax credits
- Multi-utility assessments (share the costs)



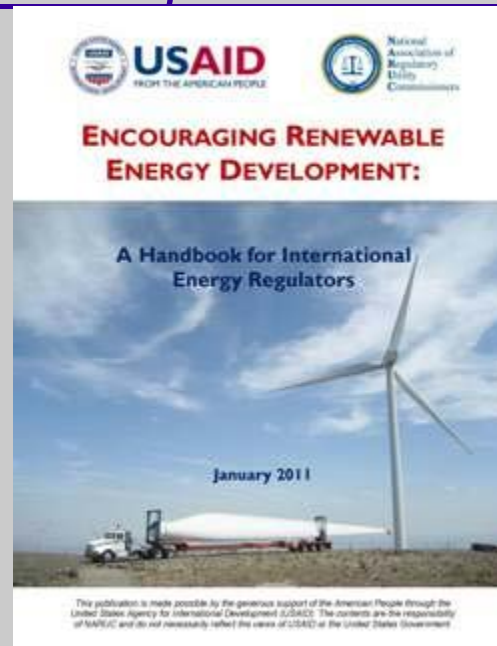
Cost Containment

- Renewable energy promotion tends to create upward pressure on retail rates, at least in the short term
- Can limit adverse effect with caps
 - Caps on individual project size
 - Caps on overall program size



Additional Resource

- USAID Renewable Energy Development Handbook:
- <http://www.naruc.org/International/program.cfm?page=51>



Additional Resources, continued

- National Renewable Energy Laboratory
“Policymaker’s Guide to Feed-In Tariff
Policy Design”, Tech. Report NREL/TP-
6A2-44849
- <http://www.nrel.gov/docs/fy10osti/44849.pdf>



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Questions?



Use of Purchaser's Avoided Cost

- PURPA law of 1978 established a purchase obligation for U.S. utilities, but limited the payment rate to each utility's "avoided cost"
 - Different definitions used in different states—short-run cost or long-run cost, each with many variations. Results varied.
 - California: Long-run cost, expected costs to increase, resulting in escalating schedule of prices
 - Successful in promoting PURPA generators
 - When oil and gas prices fell in late 1980s, PURPA contracts became uneconomical for purchasing utilities and their customers



Use of Generator's Cost of Production

- Worldwide, more common to set purchase price based on generator's cost of production
- Best practice sets different prices for different technology and different scales of production
- Depends on accurate projection of generator cost of production to avoid unintended results
- Recently, seeing some use of tariff degression, paying lower prices in future (in anticipation of expected reductions in cost of production)



Pricing Examples

- Set purchase price for photovoltaic production at, for example, 90 percent of residential retail price for electric power
- Requiring utilities to solicit bids from renewable producers and offer FIT purchase prices based on lowest bids
 - Can involve multiple auctions based on:
 - Different technologies
 - Different scales of production



FITs- General Information

- Over 50 countries have adopted some type of FIT policy
- Also adopted in several U.S. states (California, Hawaii, Vermont, Oregon, and Maine), and actively considered by others
 - Limited by PURPA “avoided cost” standard.
Work-around solutions can include:
 - Limited or pilot programs (involving utility cooperation)
 - Competitive bidding programs combined with specific renewable purchase requirements

