Long-Term Contracting Policies for Renewable Energy in the Northeast

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Sustainable Energy Advantage, LLC

Mission: Sustainable Energy

Approach: Sustainable Advantage

We help build Renewable Energy Businesses, Markets, Policies & Projects...

through Analysis, Strategy & Implementation

Services

- Interdisciplinary consulting & advisory services (regional & national)
- New England Renewable Energy Market Outlooksm (REMO) subscription briefings
- New England Eyes & Earssm Regulatory, Policy & Legislative Tracking and Analysis Subscription Service

Practice Areas

- Power market and public policy analysis, tracking, development & implementation.
- Strategy development.
- Financial analysis & economic feasibility
- Renewable Energy supply & procurement.
- Quantitative analysis and modeling.
- Transaction facilitation, contract development and negotiation support.
- Business infrastructure development.
- Green power product development & pricing

Long-Term Contracting Policies for Renewable Energy Generation

 Long-term agreements for sale and purchase of commodity electricity products and/or renewable energy credits (RECs) by a credit-worthy entity



- Typically involves...
 - Agreement between generation owner (seller) and regulated utility or state entity (buyer)
 - New renewable energy generators not yet financed and operating
 - Long enough to amortize high up-front costs and exceed debt term...
 - Usually 10-20 yrs
 - RPS, or renewable energy goal, context
 - Utility balance sheet

Why Long-Term Contract Policies?

- Generators:
 - Access to financing
 - Lower cost of financing
 - Lack of credit-worthy counterparties
 - Limited options for effectively hedging long-term revenue streams at reasonable cost
- Load:
 - Hedge/stability
 - Reduce cost
- State:
 - Influence where projects get built (and economic benefits accrue) [mandate vs. tilt]
 - Influence 'favored' technologies





RE finance: U.S. landscape

	Pre-Crisis (up to mid-2008)	Post-Crisis (Current)		
Market Characterization	 Tax-based incentives Well-defined structures Moderate investor risk tolerance 	 Tax-based incentives → Grant in lieu of ITC provides temporary cash incentive Overall market uncertainty Re-evaluation of structures: lease vs. partnership flip (PTC-based projects) Low investor risk tolerance 		
Capital Supply and Demand	 Capital supply exceeds demand (fewer projects than investment \$) 	Capital demand exceeds supply (fewer investment \$ than projects)		
Tax Equity	 Robust market Many participants Low-cost 	 Severely limited supply (consolidation, loss of tax appetite) Few participants High cost 		
Debt	 Robust market Long tenors (~15 year) available Low spreads 	 Limited supply Shorter tenors (5-7 year "mini-perms") Widening spreads offset low cost of borrowing 		
Overall	 Capital readily available Many types of products available Low cost of capital Creative structuring 	 Limited capital available Reduced number of products available High cost of capital "Flight to quality" (only best projects financed) 		

<u>Adapted from</u>: Presentation to 2009 California Energy Commission IEPR Workshops, Feed-in Tariff Design Implications for Financing of Renewable Energy Projects Over 20 MW, by KEMA, Inc., Deacon Harbor Financial, L.P., Meister Consultants Group, Inc., Sustainable Energy Advantage, LLC (May 28, 2009)

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Why Long-Term Contracts? Financing

- Investment decisions based on evaluation of risks vs. return
- High risk = high return, or don't invest
- Risks: demand, and "renewable revenue" (REC value) is largely a political/legislative/regulatory creation, subject to rapid and unpredictable change

- Policy-makers can increase or reduce risk
- Long-term Contracts can:
 - \rightarrow Overcome inability to attract financing
 - → Lower cost of financing by reducing risk



Why not?

Arguments against LT contracting policies?

- Appropriateness of shifting risk?
 - most risks still with generator in per-MWh contract structure
- Risk of price being too high if costs go down
 - 'stranded cost' vs. stranded benefit
- Incompatibility with market structure (retail choice)
 - Competitive issues
- Customer migration risk
- Imputed debt to buyer? (maybe)

The Toolkit: Long-Term Contract Policy Approaches

- Structure
 - Competitive procurement
 - Negotiated contract
 - Feed-in Tariffs or Standard Offers
- Degree of revenue stability
 - Fixed price
 - Partially fixed
 - Floor price (cap?)

- Products
 - REC-only
 - Energy-only (capacity?)
 - Bundled?
- Role of Utility
 - G vs. T&D side?
 - Solicit vs. contract vs. collect \$
 - Keep or liquidate commodities purchased?
 - Compensation?



Risks Associated with RE Financing that can be Mitigated with Long-Term Contract Policies

	Risk	Mitigation Strategy	RFP	FIT
Revenue	 Adequacy of revenues to provide target returns Revenue volatility 	 Long-term fixed-price contract for both energy and RECs 	\checkmark	\checkmark
Contract Price Risk	 Setting a firm power purchase price before development contingencies are resolved and project costs fully known 	 Minimize time gap between finalizing project costs and financial closing 	?	~
Development (Contracting)	 Investment in development, proposal development, contract negotiations without yielding off-take agreement 	Assured access to off-take contract		~
Development (Timing)	 Project will be delayed or not be completed at all Missed milestones increase (1) cost of development capital, risk of achieving permanent financing; (2) exposure to contractual penalties (liquidated damages), loss of security, off-take contract termination risk 	 Clearly defined process for siting, permitting and interconnection Off-take contract (contract for the sale of electricity and/or RECs) flexibility in commercial operation date 	?	

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Laboratory of the States: Northeast Long-Term Contracting Policies

- New York
 - RPS Central Procurement
- Connecticut
 - Project 150
 - Long-Term Contracting Order
- Massachusetts
 - MA DPU 08-88/GCA LT Contract Pilot Program
 - MA Solar PV RPS Carve-out
- Vermont
 - Feed-in Tariff for up to 2.2 MW

- Maine
 - Long-Term Contracting for Capacity & Associated Energy
 - Community-based Renewable Energy Pilot Program
- Rhode Island
 - Long-term Contracting Legislation
- New Hampshire
 - Proposed SB 418
 - Hearing 3/4/10 @ 8:50 am LOB102



NY

RPS Central Procurement (2004)

- Structure:
 - NYSERDA Periodic competitive RFPs
 - 10-year fixed price REC contracts
 - 70/30 price/economic development benefit scoring
 - Funded via SBC-like collection from EDC's T&D customers
- Motivation
 - − Assist financing \rightarrow state goals/RPS
 - Reduce compliance costs
 - Encourage in-state economic benefits (tilt)
- Results & observations:
 - Lot's of MW built; generator frustrations with process; geographic equity
 - Commodity products still unhedged, generators left with substantial risk → Paying too much?
- Lessons learned: LT Contracts can work with the right ingredients
- Looking forward PSC considering hedge (lower cost + hedge)





CT Project 150 (2004)



- Structure:
 - Periodic competitive RFPs involving CCEF, EDCs and then DPUC
 - To qualify must be in-state and have CCEF funding
 - 10-20 year fixed price bundled contracts (fuel cells may retain 50% of RECs)
 - Set pricing options (fuel cells get favored option)
 - CCEF multi-attributed scoring; EDC price-based ranking
 - Funded via utility rates (whether G or T&D, whether purchases retained or liquidated, TBD)
- Motivation
 - Assist financing, provide credit-worthy counterparties \rightarrow RPS
 - In-state generation, economic benefits (requirement)
 - Support favored technology (fuel cells)
- Results & observations:
 - 150 MW of contracts, no projects, none replaced
 - Cumbersome process; substantial Contract Price Risk
- Lessons learned:
 - Not well-designed to handle contract price risk \rightarrow streamline;
 - Method needed to kick out non-performers (adopted for Round 4, if there is one)
- Looking forward: Legislation recently proposed to require a Round 4

СТ

DPUC Standard Service and Last Resort Service Long-Term Contracting Order (2009) (Dk. 06-01-08RE03)

- Structure:
 - Optional ability for EDCs to seek/propose Long-Term contracts for serving part of SO/LR
 - Could be energy or bundled with capacity &/or RECs
 - Duration open-ended; fast-track (1-day turnaround) for 2-5 yr energy only; openended review for all other
 - Funded through utility G rates, commodities to be retained
- Motivation
 - reduction of energy, capacity and REC prices; rate stability
 - Explicitly *not* intended to support new financing
- Results & observations:
- Lessons learned:
- Looking forward:

New, yet to be tested





DPU 08-88/GCA LT K Pilot (2008)

- Structure:
 - 2 RFPs over 5 yrs (EDCs + DOER, initially); bilateral negotiation allowed (Cape Wind-NGrid)
 - Generation in-state or adj. Federal waters
 - 10-15 yr fixed-price contracts for energy, capacity and/or RECs (bundled or unbundled)
 - 80/20 Price/other evaluation
 - EDCs to liquidate purchases, profits/losses born by T&D customers
 - EDCs receive remuneration of 4% of annual payments
- Motivation:
 - Assist financing, provide credit-worthy counterparties \rightarrow RPS
 - Reduce cost
 - Influence where projects get built \rightarrow In-state generation, economic benefits (requirement)
- Results & observations:
 - Lot's of interest... likely to motivate projects that may not have been able to compete in RPS
 - Role of solar unclear
- Lessons learned: Just getting started (first RFP proposals due Feb. 19)
- Looking forward:
 - What happens next? Is NGrid appetite filled by Cape Wind?

VT

SPEED Standard Offer (Feed-in Tariffs) (2009)

- Structure:
 - Requirement to purchase from in-state generators up to 2.2. MW @ fixed price for 15-25 yrs
 - EDC fixed tariff rate for bundled energy/capacity/RECs, differentiated by technology
 - Interim rates set by statue; PSB determines initial (2010) rates based on estimates of 'cost'
 - Energy & capacity used to serve load, RECs may be sold off elsewhere
 - 50 MW max; initially capped @ 12.5 MW per technology; queue procedures established
- Motivation:
 - Financing; In-state generation (requirement); Generation diversity
- Results & observations:
 - Under interim rates, applications for most generation types hit the cap on 1st day
 - Unless attrition, limited additional activity
 - Suggests *either* speculative queuing or price too high, especially for solar (172 MW)
- Lessons learned:
 - Queue rules are important
 - Establishing tariff based on analysis of costs is critical
 - Learning will be limited due to immediate full subscription
- Looking forward: How many of initial projects were real, and what happens if/when project failures under revised more cost-based rates





Long-Term Contracting for Capacity & Associated Energy (2009)

- Structure:
 - Periodic all-source RFP by PUC for EDC contracts at least every 3 yrs
 - Priority order for environmental, reliability objectives favor new RE capacity resources in ME
 - Energy & Capacity... not RECs; Flexible pricing
 - Flexibility re: disposition of energy & capacity purchases (reselling @ spot is anticipated)
 - Term up to 10 years unless PUC finds longer term in ratepayer interest
- Motivation:
 - Resource adequacy/grid reliability, reduce GHG emissions
 - Minimize electricity costs & hedge against price volatility for ME's electricity consumers
 - Location: Increase share of new renewable capacity resources in Maine by 10% by 2017 (tilt)
 - Note: intent was not to support what it perceives as above-market contracts
- Results & observations:
 - Late 2009 PUC announced 20-yr contract with wind farm @ price indexed at discount to LMPs with cap & floor
- Lessons learned:
 - Providing guaranteed revenue stream can support financing while reducing ratepayers costs!
- Looking forward:
 - Ad hoc nature of PUC process leaves uncertainty as to how often this tool will be used





ME

- Structure¹:
 - 20-year contract from interconnecting EDC
 - Community-based = (>51%) locally-owned, no bigger than 10 MW
 - Price set/capped at \$0.10/kWh for energy
 - Capacity & RECs may be sold separately by generator
 - Small Generators (<1 MW): fixed \$0.10/kWh → Feed-in Tariff-like guarantee for energy
 - Larger Generators (>=1 up to 10 MW) PUC to conduct periodic RFPs for long-term contracts
 - EDCs can use energy for meeting SO requirements, or resell (at PUC direction)
- Motivation:
 - Encourage local RE generation (required)
 - Assist financing, provide credit-worthy counterparties \rightarrow RPS
 - Encourage favored generators not otherwise RPS-competitive
- Results & observations:
- Lessons learned:
- Looking forward:

New, yet to be tested... but impact to be small due to pilot scale





RES Long-term Contracting Legislation (2009)

- Structure
 - EDC RFPs for up to 90 aMW regional new RE, 3 aMW solar in RI; and 'commercially reasonable' contract for Block Island Offshore Wind project up to 10 aMW
 - Negotiated Utility Scale Offshore Wind contract for 100 -150 aMW in or adj. to RI Federal waters by a developer selected by the state
 - 10-15 years contracts (or longer with PUC approval) for Bundled energy, capacity, RECs
 - Provide 'substantial' direct economic benefits to RI (jobs, property taxes) regardless of location
 - EDCs to liquidate purchases, profits/losses born by T&D customers
 - EDC receives remuneration of 2.75% of annual payments
- Motivation:
 - Assist private financing, provide credit-worthy counterparties \rightarrow RES
 - 'Commercially reasonable' contracts; stabilize energy prices, enhance environmental quality
 - Encourage development of in-state RE resources; direct economic benefits (Jobs!) to RI [mandate & tilt]
 - Spark an in-state off-shore wind industry (enable RI to be leader)
- Results & observations:
 - Will motivate substantial MW of projects that would not have been able to compete in RES
- Lessons learned & looking forward: New, yet to be tested



Other Observations

- Contractual details can impact success
 - Security
 - Milestones
 - Allocation of risk
- EDC liquidation of purchases to short-term market can address some of competitive market concerns
 - Mitigates competitive issues in generation service sector...
 - ... but confounds end-user self-hedging when buy-sell spread passed through to T&D customers

Conclusions

- Key RE barriers are siting & contracting...there appears to be a need for long-term contracts
- Lot's of ongoing experiments
- Some results are promising, others less so
- Details matter
- It's early... we're still learning
- Interested parties should follow range of activities to cross-pollinate best practices

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Extra Slides

VT

SPEED RE Goals-Driven RFPs (2005, later amended)

- Structure:
 - Meet all load growth from 2005-2012 with EE & RE; if fail, statue requires implementing binding RPS
 - (non-binding) Minimum goals of 5% of 2005 load with RE, 20% RE by 2017
 - Purchase of RECs not required (can be resold to out-of-state buyers) in meeting goal
 - Utilities issuing RFPs for portfolio supply including renewables(expiring contracts, end of VY)
- Motivation:
 - Promote the development of in-state RE sources (SPEED resources)
 - Ensure economic benefits flow to VT to the greatest extent possible
- Results & observations:
 - VT utilities soliciting and contracting with RE projects including RECs (seeking PSB approvals)
- Lessons learned:
 - SPEED policies (goals) contribute to regulated utilities seeking LT contracts as part of their portfolio management, as long as regulators are supportive
- Looking forward:
 - Will PSB encourage such purchases? How will PSB treat REC purchases?