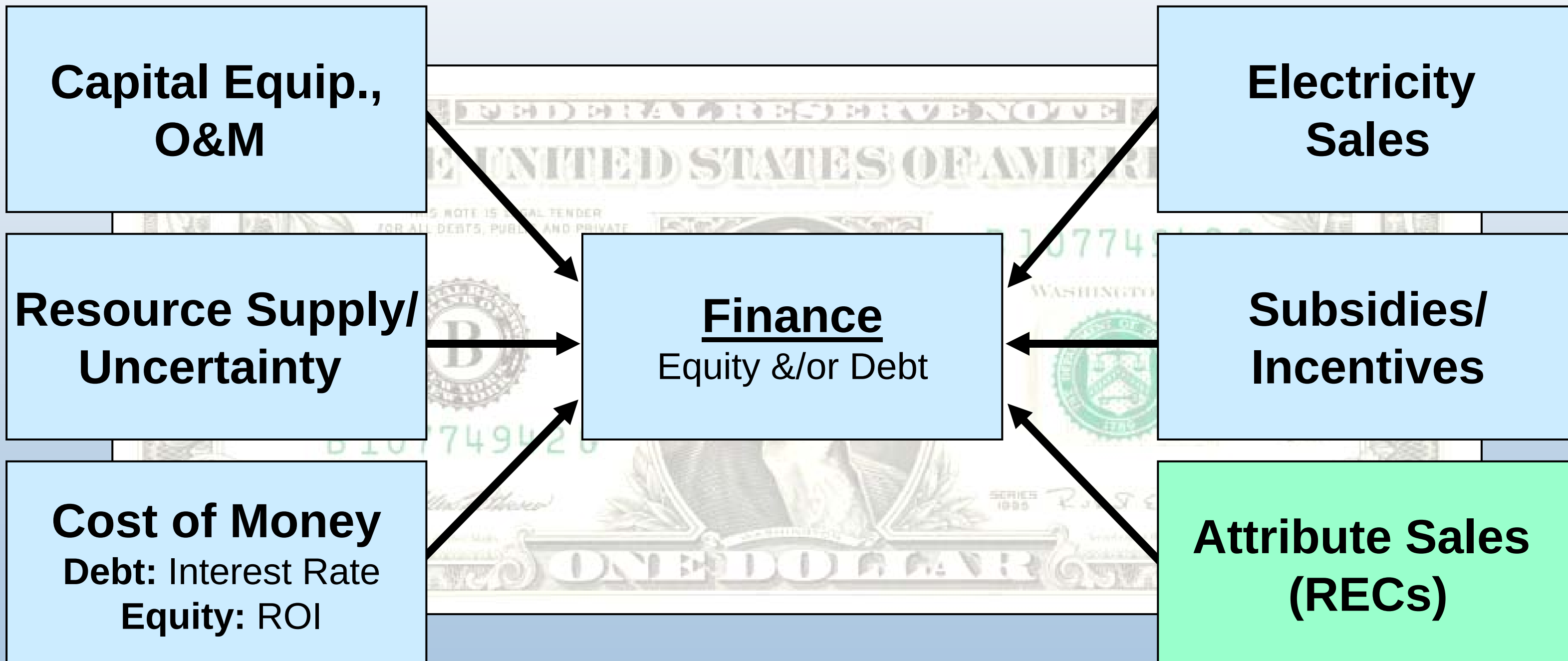
The Value of RECs in Renewable Project Financing

Karlynn Cory
Strategic Energy Analysis Center, NREL

Renewable Energy Marketing Conference
San Francisco, California
December 5, 2006

RECs as a Revenue Stream

Costs | **Revenues**

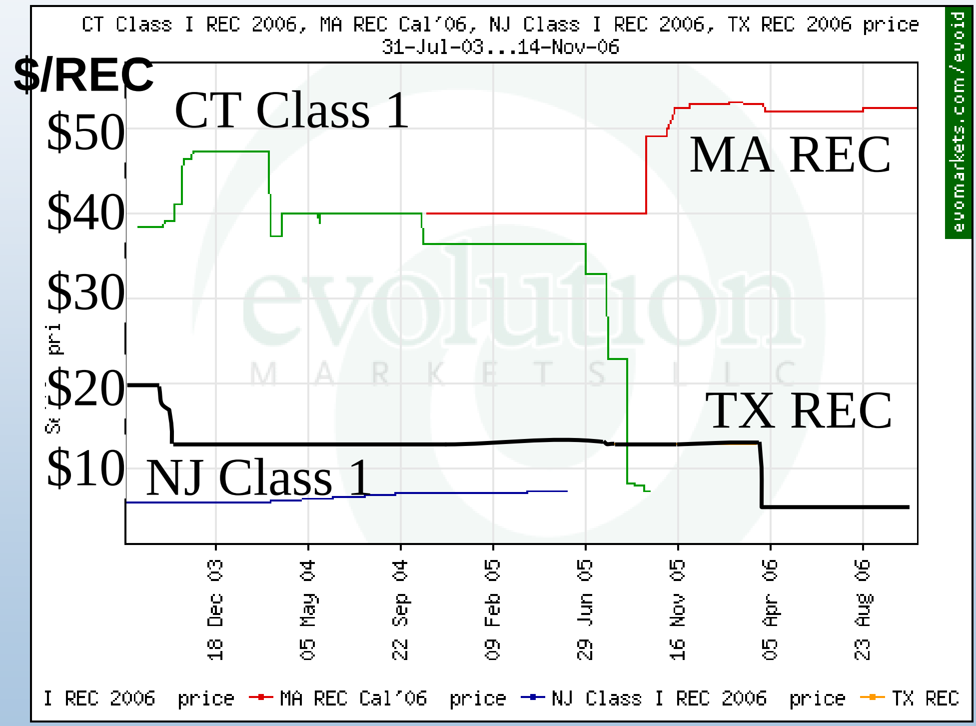


Impacts on REC Value & Project Finance

- Illiquid REC trading markets
  - Compliance vs. voluntary markets
  - Regional eligibility definitions
- Ability to secure contracts
- Project economics
  - Are REC contracts even needed?

REC Markets

Compliance RECs



2006 Compliance REC Prices

Voluntary RECs

~$1-10/REC

REC Value

– Significantly different in the two markets

– Varies by region, often by project econ.

Source: Evolution Markets

Differences in REC Treatment

1. "Eligible renewable" definitions
2. Shelf-life of RECs
3. Ability to bank RECs
4. Multiple RECs awarded
   - Early development or
   - Specific technologies (e.g. solar PV)
5. RECs double-counted for RPS and voluntary

<u>Result</u>: Smaller, fragmented, fairly illiquid markets

- Not much market transparency
- Questions on inter-region REC trading ("seams")
- Burdensome for developers

Role of RECs in Financing - 1

	Full Reliance on RECs	Partial/no Reliance on RECs (quasi-merchant)
Role of RECs	Essential to financing	RECs = **upside** potential
Typical Project	• OK RE resources • Long/expensive permitting	• Great RE resources • Shorter/streamlined permitting
Energy Financing Structure	• Uncertain link between elec. margin and NG • Energy revenues covered over **long-term**: o Contract; or o Resource insurance ➔ *Energy revenues cannot cover most project costs*	• Strong link between electricity margin and NG • NG hedging tools avail. • Energy revenues covered: o Contract; o Energy hedge; or o Resource insurance ➔ *Potentially, energy revenues cover most/all project costs*

Role of RECs in Financing - 2

	Full Reliance on RECs	Partial/no Reliance on RECs (quasi-merchant)

Debt and Equity Investment	• Usually seek debt & must meet banker req.
	• Less equity = cheaper money
	• With contracts, less overall REC price risk
	    • No opportunity for upside potential
		• Generally, avoid/min. debt (& banker's strict requirements)
		• Need more equity investors to cover project costs
		• Greater REC price risk
		    • High REC prices = upside
		    • Low REC prices = risk

REC Financing Structure	• REC value = REC commitments
	• 10+ year REC deal
	    • creditworthy party
	• <u>Potential opportunity</u>: long-term fixed P_{energy}
		• REC value = any REC commitments + spot price
		• Short-term/no REC deal
		    • Creditworthiness not as critical

REC Value Important to Project Finance

- Market value depends on:
  - Compliance vs. voluntary market
  - Regionality
  - Policy stability
  - Other market rules/conditions
- Financing value depends on:
  - Quality of project
  - Perspective of equity investors

Thank you for your attention!

Karlynn Cory
Strategic Energy Analysis Center – NREL
www.nrel.gov/analysis

1617 Cole Blvd., MS 1533
Golden, CO 80401-3393
P: (303) 384-7464
E: Karlynn_cory@nrel.gov

Disclaimer and Government License