



# **FINANCING CHP PROJECTS WITH TAX-EXEMPT AND TAXABLE BONDS**

**2010 CHP Partnership Meeting & U.S. DOE Gulf  
Coast Clean Energy Application Center Texas CHP  
Policy Forum  
November 1-3, 2010**

**John M. May  
Managing Director  
Head of Alternative Energy Finance Group  
Stern Brothers & Co.  
St. Louis, MO**

# I. Introduction – Bond Financing of Renewables in General

- Stern Brothers has pioneered the use of tax-exempt and taxable bonds to finance private developers' renewable energy projects in a variety of segments, e.g., cogen/CHP, biomass, second generation biofuels, WTE, LFG, and we are expanding the practice to include second generation biofuels, wind, solar, hydro, etc.
- Illiquidity of bank syndication market and disappearance of tax equity market have made tax-exempt and taxable bonds a exciting and independent source of debt capital for renewable project financing. Can be used as sole source of debt or as complement to bank debt.
- Types include traditional solid waste bonds, recovery zone bonds and QECBs, new tax credit bonds.
- In current market, bonds are a realistic alternative to bank debt, and offer structural advantages that improve equity returns.

# Using Bonds for Renewables – Trends and Challenges

- **Balance sheet ownership by governments and utilities: is this the best approach? Accounting/rating, cost of energy and project risk considerations.**
- **Use of PPP's as non-recourse, off-balance sheet ownership and financing structures by municipalities, universities, school districts, hospitals, muni utilities.**
- **Is PPP debt off-balance sheet under new FASB rules? Is it “off-credit” for rating purposes?**
- **How debt of PPP can be structured and placed using bonds: for-profit and non-profit/governmental models. Case studies.**
- **How do you finance renewable projects in the PPP context in today's tough financial markets.**
- **The key to creating credit quality in PPP debt: shifting project finance risk, and using credit enhancement if available and cost-effective.**

# Credit Enhancing Bonds for Renewables - Trends

- DOE FIPP, SDFO.
- USDA 9003, B&I
- State moral obligation guarantees – Illinois, Oregon
- State feed in tariffs – Vermont, California
- Letters of credit; parental guarantees - Syntroleum
- Export-import bank guarantees – Denmark for AD projects
- Wind Project – Prepays of PPA's – Cowlitz County, WA
- Utility/Refiner guarantees or tolls – Bionol, PA
- Bond insurance
- BB or higher stand alone ratings

## **II. Financing Renewables for Private Developers Using Bonds**

- Tax Code has long provided for use of tax-exempt bonds by private sector developers, as well as governmental entities.**
- Traditional examples of private activity bonds include industrial revenue bonds (IRBs) and solid waste disposal revenue bonds which can be used in various segments within the renewable energy space, such as solar, WTE, biomass, cogeneration, biofuels, LFG, coal gasification.**
- New tax-exempt or tax credit bonds created prior to and as part of ARRA: CREBS, Katrina Zone, Midwest Disaster Relief, Build America Bonds (BABs), Recovery Zone Bonds, QECBs. Potential expansion of solid waste bonds. Potential use of tax-exempts even if backed by DOE guarantee. Flexibility to use exempts along with 1603 Grants, PTC/ITC, NMTCs, Manufacturing Tax Credits, Stimulus Money.**

# Characteristics of Tax-Exempt or Taxable Bonds

- Finance capital expenditures using leverage ratios similar to bank debt. Typically issued to institutions like mutual funds, insurance companies, corporations.
- Bonds represent a combination of construction and permanent financing. All proceeds drawn at closing.
- Interest rate is fixed and tax-exempt. Historically lower than taxable bank debt for comparable term by 2%. Long tenor of 15-20 years or more. Flexible amortization and call feature. Construction interest and DSRF handled like bank debt.
- Buyers want to hold to maturity and have different investment objective than banks.
- Here bonds are non-recourse project financing without letter of credit – thus are independent source from bank debt.

# History of Bonds and Renewables

•Before “renewables”, bonds were used for small WTE and wood waste projects. Also for LFGTE. Recently bonds used to finance corn ethanol plants. IRS issued PLR in 2002 recognizing “stillage” as waste. Result was 40% of plants could be financed with bonds. Taxable bonds were used for other segments, e.g. solar, biodiesel, biomass, CHP. Stern also placed one of the first tax-exempt waste bonds to finance landfill gas to electricity projects in 2003.

•Ethanol bonds started as an afterthought. Stern Bros. pioneered use of bonds as important part of cap structure. Stern developed buy side acceptance of ethanol projects from mutual funds buying high yield tax-exempt bonds. Bonds offered key advantages over bank debt: rate, tenor, amortization. Result was higher IRR for developer.

•Last major greenfield ethanol transaction was 2008 for Bionol: Stern’s \$65 million senior bond tranche filled a hole in bank syndicate and was first to use toll with US refiner.

# Advantages of Bonds Over Bank Debt

- Exploring why the bonds offer advantages over bank debt in some cases, beyond fixed rate and rate differential:
- Banks require short tenors of 7-8 years and cash sweeps which shorten average life of the loan.
- Bond funds want a longer maturity, do not want rapid amortization, are flexible with deferral of principal.
- Bonds can be structured with 15-20 year tenors and can defer principal until after bank debt swept out.
- Resulting debt structure of project improves the IRR as developer receives return sooner.

# Using Bonds for Renewables

- **Stern interested in using tax-exempt and taxable bonds for various renewable technologies. Mainstreaming bonds as financing tool based on precedent set by similar transactions in the past.**
- **We will apply structuring and bank inter-creditor strategies techniques learned in the solar, biofuels and LFG spaces.**
- **We will offer bonds to identified (and growing) group of institutional buyers which have an appetite for project financings with good credit.**
- **We have spoken to leading bond counsel firms and believe the solid waste rules will apply to a variety of technologies and projects in these segments.**
- **Taxable bonds can be used to fill in gaps if some costs or project as whole are not deemed tax-exempt eligible.**

# What Are Terms for Tax-Exempt and Taxable Bonds in Today's Market?

- **Par Amount/Leverage:** depends on project. \$15-200 million for most renewable projects. D/E credit dependent and similar to banks.
- **Rates:** Depends on credit (e.g., IG PPA). Based on wider credit spreads and less liquidity, “BBB” deals today for 20-year bonds at 5-6% tax-exempt, 7-8% taxable, if rating obtained. “BB” credits higher.
- **Tenor:** Concurrent with PPA or off-take; some possibility for merchant “tail”.
- **Amortization:** Flexible. Deferred principal. Sinking fund. Bullet unlikely. Scheduled versus cash sweeps or cash trap based on debt service coverage.
- **Call:** For exempts, typically 8-10 years at par for 20-yr paper. Can negotiate shorter 5-yr at premium. Taxable: make-whole.

## **What Are Credit Requirements for Bonds in Today's Market?**

- No technology or scale up risk. Past pilot and maybe past “001” commercial plant. IE report essential.**
- Construction risk handled as with bank debt. GMP EPC contract with tech wrap; without wrap, contingent equity.**
- Will take operating risk as project lenders.**
- Generally will not take merchant risk – looking for PPA or off-take/toll from IG rated counterparty. Debt service on bonds to be paid through contracted cash flows.**
- Currently, tax-exempt buyers are mutual funds and corporations; taxable buyers are life companies, pension funds, special situation funds looking for equity features.**

## **New Tax Credit Bonds: CREBs, QECBs, RZBs**

- Not tax-exempt, not interest bearing (generally). Tax credit rate, term of bonds and amount of allocation set/approved by Treasury. Bonds sometimes sold at discount or with supplemental coupon.**
- Intent is to provide governments and developers with lower cost source of debt capital than even tax-exempts.**
- Tax credit amount (\$) is included in income and also as a credit against ordinary income and that subject to AMT. Rate for credit may be higher than exempt rate to compensate for taxability.**
- CREBs authorized in 2005; all initial allocation gone. New CREBs and QECBs authorized in EIEA of 2008. No regulations on certain issues yet from Treasury.**

# Applying Tax Credit Bonds CREBs, QECBs to Renewables

- Both apply to open and closed loop, LFG and MSW – all to electricity. Problem with NCREBs is only apply to local governments, public power and electric coops. Developer may use if does a “CREB lease” – ownership with government.

- QECBs not limited to “publics” but can be used like private activity bonds. Still issued by conduits. Same broad application to renewable as NCREBs but “rural” development requirement (USDA analysis). Allocation limited to \$800 million nationally for each, but no more than 30% for private activity. Time period for application is “months”, so developers must plan in advance.

Institutional investors and banks are buying tax credit bonds in direct placements. Credits can now be carried forward, and stripped by bond buyer and monetized, improving their marketability.

## **New Tax-Exempt Bonds: Recovery Zone Bonds**

- **New category of private activity bonds.**
- **Bonds are available in every state and can finance all types of property, without regard to meeting solid waste rules. Similar to Katrina or Go Zone bonds.**
- **Initial volume cap allocations have been made by the states to counties and other local government units. Allocations made based on loss of employment.**
- **If county did not get sufficient allocation, cap will likely be sent back to the state and then reallocated to counties with projects needing specific cap amounts.**
- **RZBs can finance developer- owned renewable projects tax-exempt without the need to meet solid waste or other rules re eligibility of specific equipment.**

### **III. Financing Renewables for PPPs –Case Studies**

*CHP project for university – off-balance sheet but pass through of project risks.*

- **CHP plant owned by private LLC. 1603 grant eligible.**
- **GPA/PPA with university where all costs of production and debt service are passed through on take or pay basis.**
- **Key to credit is transfer of operating risk and rating of university.**
- **LLC tax-exempt or taxable bonds rated one notch below university rating.**
- **Rating lower if project retains operating risk.**
- **LLC debt is “on credit” to university.**

# Case Studies

*Biomass to power project for hospital – off-balance sheet but pass through of project risks. DASNY Model*

- **BTP project owned by separate non-controlled NFP.**
- **PPA or lease with hospital where all costs of production and debt service are passed through on take and pay basis.**
- **Key to credit is failure to transfer operating risk and rating of hospital.**
- **NFP bonds are tax-exempt and rated as project financing.**
- **LLC debt is “on credit” to hospital.**
- **Project not 1603 grant eligible as NFP owner not a taxpayer. Financing done as 100% leverage but more expensive than Case 1 due to absence of grant.**

# Case Studies

## *Cellulosic ethanol project.*

- **DOE 1703 loan guarantee for 100% of 80% project debt necessary because technology is not commercialized.**
- **Federal Financing Bank loans 80% of capital cost at Treasuries plus 75 bps (under 4%) for 20 years (concurrent with offtake). Loan is guaranteed by DOE under 1703.**
- **No unguaranteed debt.**
- **20% equity from sponsor.**
- **Developer pays credit subsidy cost. Limited track record of success under this program. Still an option for new and unique technologies.**
- **Application process expensive, time consuming and risky.**
- **Risk of changing RFS approach to advanced biofuels.**

# Case Studies

## *Renewable energy project with NIG rated PPA Using Section 1705 DOE Loan Guarantee through FIPP.*

- **FIPP program with DOE 1705 loan guarantee for 80% of 80% project debt; need enhancement due to credit of PPA counterparty; and technology is commercialized. FIPP is applicant.**
- **Bank loan or bonds subject to guarantee. Guaranteed bonds are taxable unless rule is changed. Unguaranteed loan or bonds can be stripped and placed with different lender than guaranteed tranche.**
- **Unguaranteed bonds can be tax exempt or tax credit (QEGBs) but will be rated as project financing with floor of BB. Cost of rating is \$200,000.**
- **Project is 1603 eligible and loan or note used to bridge grant. Separate tranche priced at reasonable spread to Treasuries reflecting commitment by Treasury to make grant. Diligence necessary for bridge includes legal opinion and Big Four accounting firm opinion.**

# Case Studies

## *Renewable energy project with NIG rated PPA Using DOE Section 1705 Loan Guarantee through SDFO.*

- **SDFO program with DOE 1705 loan guarantee for 80% of 80% project debt; State must enhance 5% of project cost; need enhancement due to credit of PPA counterparty; and technology is commercialized. SDFO is applicant.**
- **Bank loan or bonds subject to guarantee. Guaranteed bonds are taxable unless rule is changed. Unguaranteed loan or bonds can be stripped and placed with different lender than guaranteed tranche.**
- **Unguaranteed bonds can be tax exempt but will be rated as project financing with floor of BB. Cost of rating is \$200,000.**
- **Project is 1603 eligible and loan or note used to bridge grant. Separate tranche priced at reasonable spread to Treasuries reflecting commitment by Treasury to make grant. Diligence necessary for bridge includes legal opinion and Big Four accounting firm opinion.**

# Case Studies

## *Biomass equipment manufacturing project – supply chain for biomass – using Advanced Manufacturing Tax Credit.*

- **USDA loan guarantee under B&I program for 60% of project, with \$40 million cap. Guarantee can apply to bonds as it is assignable.**
- **Unguaranteed portion of debt must be taken by bank or bondholder who takes guaranteed tranche.**
- **Guaranteed bonds are taxable but still low interest rate; unguaranteed bonds can be tax-exempt but rate may be higher than 10%, depending on overall credit quality.**
- **Qualifies for advanced manufacturing tax credit. How to monetize this credit (it is not a grant)?**
- **Also consider new DOE FIPP style program for manufacturing.**

# Case Studies

## *Renewable energy project in Illinois Using State Moral Obligation Guarantee.*

- **State moral obligation guarantee applies to bonds giving them an A- rating; no longer a project financing. Requires BB underlying rating like 1705.**
- **Bonds can be tax-exempt as moral ob does not affect tax status of bonds the way federal guarantee does.**
- **State still has to be satisfied of credit quality, may have its own rating floor requirement.**
- **Can be combined with DOE 1705 SDFO program where there is a separate DOE guaranteed tranche of senior debt.**
- **1603 eligible but bondholders want 15-25% equity from sponsor to remain in deal after grant comes in. Developer cannot use grant as substitute or take out of its own equity, must have skin in the game, amount of which depends on credit quality and lender.**

# Case Studies

## *WTE project in Vermont with Feed-in Tariff.*

- **Feed in tariff obligates State PUC to buy electricity at above market levels sufficient to make financing IG.**
- **Feed in tariff is legislative analogue to creditworthy PPA.**
- **Tenor of PPA is longer than many utility PPAs available in other markets.**
- **Bonds can be used and can be tax-exempt.**
- **State still has to be satisfied of credit quality, may have its own rating floor requirement.**
- **1603 eligible.**

# Case Studies

## *BTP project with prepay of PPA.*

- **Municipal utility issues tax-exempt bonds to prepay the PPA. Specific safe harbor for such bonds under IRC.**
- **Bond proceeds are contributed to developer as an additional source of funds, eliminating the need for debt or equity that would otherwise have to be raised in that amount.**
- **1603 eligible because contribution does not give utility an ownership interest in the developer.**
- **Allows developer to use utility's lower cost of capital. Utility locks in cost of renewable power.**
- **Credit enhancement of developer's obligation to deliver power, or right to cure; also enhancement of utility's obligation to pay for power in future, depending on utility's rating.**
- **How to structure bonds non-recourse to utility.**

# Case Studies

*Anaerobic digestion project developed using technology from Denmark – Export/Import Bank Guarantee.*

- Private developer can use tax-exempt or tax credit bonds backed by Export/Import Bank Guarantee from Denmark.
- Bonds are rated AAA up to amount of debt guaranteed and remain tax-exempt (are not converted to taxable).
- Unguaranteed portion will be sold as separate bond tranche and will need to be BB credit quality to get a reasonable interest rate.
- Amount of bonds subject to guarantee is greater of 70% of loan amount or 110% of amount of non-US content.
- Developer must pay fee for use of ex-im guarantee reflecting difference in rate caused by higher rating.

**John M. May**  
**Managing Director**  
**Head of Alternative Energy Finance Group**  
**Stern Brothers & Co.**  
**(Office) 314.743.4026**  
**(Cell) 314.583.2130**  
**8000 Maryland Avenue Suite 800**  
**St. Louis, MO 63105**