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# Municipal Financing Options for Renewable Energy and Energy Efficiency Projects

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## MAG Greening Water and Wastewater Infrastructure Workshop

### Presented by:

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# Key Factors for Consideration

- | **What is the goal?**
  - q Superior economics?
  - q Policy desire for green energy?
- | **Future rates under a “do nothing” scenario (Business as Usual)**
  - q Assumed growth rate will impact feasibility of solar facility
- | **How to best utilize available subsidies**
  - q Direct ownership versus 3<sup>rd</sup> party ownership
- | **Potential technological changes making solar generating system comparatively less advantageous**
  - q For example, “VHS vs Beta”

# Federal Subsidies for Tax Paying Entities

- | **Federal Investment Tax Credits (ITCs)**
  - q Available to tax-paying entities who invest in renewable energy facilities
  - q Authorized in American Recovery and Reinvestment Act of 2009 (“ARRA”)
  - q ITCs equal 30% of the total eligible facility costs
  
- | **Depreciation**
  - q ARRA permits a 5-year depreciation using the Modified Accelerated Cost Recovery method (“MACR”) with a 50% bonus depreciation in the first year if the system is operational by end of 2009
  - q Pursuant to the MACR formula, the majority of the facility (52%) is depreciated in the first 2 years
  - q Only tax-paying entities are able to receive the tax savings resulting from the depreciation of an asset

# Private Ownership of Municipal Facilities

## Power Purchase Agreement (PPA)

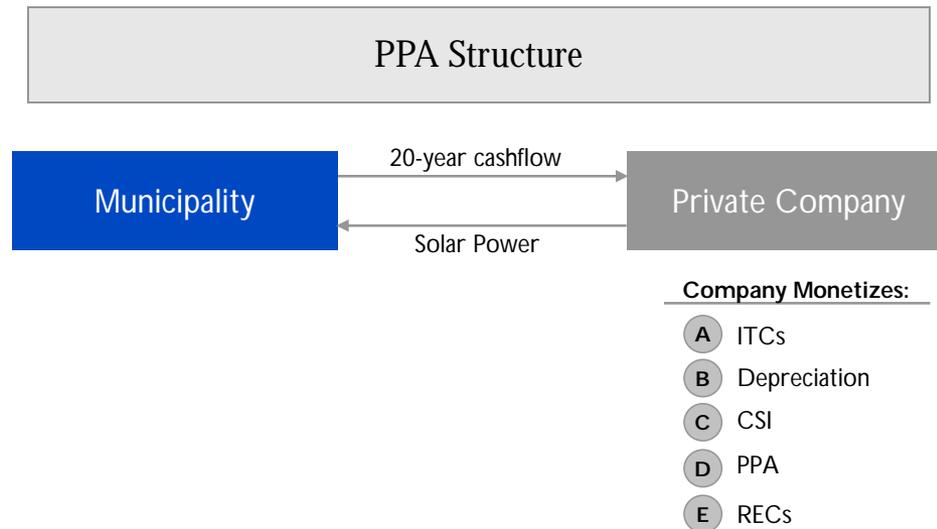
- q Enables public entities to share in ability to monetize tax subsidies
- q Private entity owns facilities
- q Public agency purchases power for 20 years at a contractual rate

## Economic viability of PPA

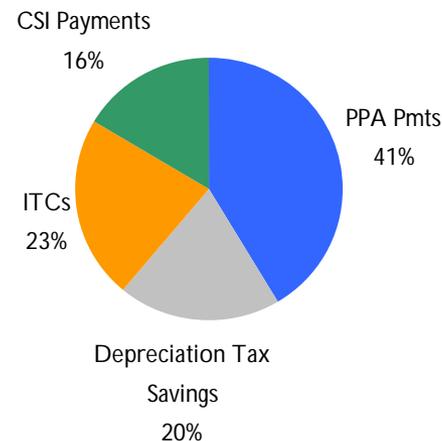
- q Depends on rate of return investors in the PPA are seeking
- q After-tax rate of return has fluctuated from 7% to 14+% and is highly dependent on the tone of the overall financial markets

## Comparison of PPA to BAU

- q In today's market, may require upfront payment to "buy down" PPA price to make it competitive vs BAU



Approximate Capital Source for Private Party Financed Solar Projects



# Public Ownership Funding Alternatives

- | **Traditional municipal bonds & WIFA programs**
  - q Bonds can be either conventional tax-exempt or Build America Bonds
  - q Maximum advisable maturity typically 25 years based on useful life of asset
- | **Bank loan**
  - q Maximum maturity acceptable by banks is typically 15-20 years
- | **Repayment source for loans**
  - q Requires creditworthy repayment source (such as general fund, enterprise fund)
- **California Energy Commission (CEC) loan program [Example: – AZ Program?]**
  - q Up to \$3 million maximum loan with interest rate of 3%
  - q Bond repayment term up to 15 years
  - q Must demonstrate ability to repay loan from energy cost savings
- | **Tax credit bonds**
  - q Investor receives tax credit and possibly supplemental coupon
  - q Bond maturity 14-17 years as determined by U.S. Treasury

# Federal Subsidies for Municipalities

## I Tax Credit Bonds

- q In theory, structured with principal payment only
- q Tax credit offered to investor in lieu of interest payment
  - I Credit realized on a quarterly basis, recognized as income on federal return, carries over
  - I Credit may be stripped (pursuant to pending federal regulations)
- q U.S. Treasury sets tax credit rate and maximum maturity date
- q Most tax credit bonds sold with a supplemental coupon

## I New Clean Renewal Energy Bonds (New CREBs)

- q \$2.4 billion split among three issuer groups
  - I Governmental entities, Electric co-ops, Public power providers
- q Allocated by competitive process, awarded on October 27, 2009

## I Qualified Energy Conservation Bonds (QECCBs)

- q Issued by state and large local governments (population <sup>3</sup> 100,000)
- q \$3.2 billion allocated nationally by formula

# New Clean Renewable Energy Bonds

## | What are New CREBs?

- q Tax credit to finance qualified renewable energy facilities
- q Tax credit capped at 70% of published tax credit rate

## | Volume Cap Amount

- q \$2.4 billion

## | Issued by Qualified Issuers

- q Public power providers, cooperative electric companies, clean renewable energy bond lenders or not-for-profit electric utilities<sup>(1)</sup>

## | Use of Proceeds

- q Capital expenditures incurred by “qualified owners” for one or more “qualified renewable energy facilities”
- q Qualified owners are governmental bodies, public power providers and cooperative electric companies

(1) Includes only not-for-profit electric utilities that have received a loan or loan guarantee under the Rural Electrification Act

- | **“Qualified renewable energy facilities” include:**
  - q Wind energy facilities
  - q Closed-loop biomass facilities
  - q Open-loop biomass facilities
  - q Geothermal energy facilities
  - q Solar energy facilities
  - q Small irrigation power facilities
  - q Landfill gas facilities
  - q Trash combustion facilities
  - q Qualified hydropower facilities
  - q Marine and hydrokinetic renewable energy facilities

# New CREBs – Allocation Methodology

- | **\$2.4 billion to be split in thirds**
  - q Qualified projects owned by governmental bodies, cooperative electric companies and public power providers
- | **Governmental and cooperative electric companies**
  - q Allocations based on a smallest to largest methodology
- | **Public power providers**
  - q Allocations based on pro-rata amount requested (ratio of individual project request to all project requests)

# New CREBs – Applications

- | **Deadline was August 4, 2009**
- | **Applications must include:**
  - q Information regarding the qualified owner, the qualified issuer and the project (qualified renewable energy facility that will be funded)
  - q A certification from an independent, licensed engineer
    - | In general, engineer certifies that the project will (i) meet the requirements for a “qualified facility” under § 45(d)\*, (ii) be technically viable, and (iii) produce electricity
    - | Additional certifications are required for certain qualified hydropower facility projects
  - q Other relevant information (prior allocations, plan of finance, etc)
- | **Form of application is available on the IRS website:**
  - q <http://www.irs.gov/pub/irs-drop/n-09-33.pdf>

# Case Study: City of Palo Alto CREBs

## City of Palo Alto \$1,500,000 Clean Renewable Energy Bonds

### I **Security:**

- q Subordinate pledge of the City's Electric Net Revenues

### I **Use of proceeds:**

- q \$1.3 million towards a 250 kilowatt solar photovoltaic panel system

### I **Structure:**

- q 15 year term, priced at a discount to par
- q CREBs tax credit rates ranged from 4.81% to 5.64%
- q Equal annual repayments of \$100,000 in principal
- q Investor receives principal payments and tax credit (in lieu of interest) from the IRS
- q Tax credit is calculated as interest would be
  - I CREB rate (%) x par amount

### I **Stone & Youngberg Role**

- q As placement agent for the sale, Stone & Youngberg assisted the City in drafting the initial application to the IRS for the CREBs allocation, structuring the credit and securing a buyer for the bonds

# Tax Credit Bonds (non-BAB), Generally

## \$10,000,000 TAX CREDIT BONDS (Non BABs)

### Issuer's Theoretical Cashflow Comparison (Tax Credit versus Tax-Exempt)

Year	Tax Credit Scenario				Tax-Exempt Scenario			
	District Sinking Fund Deposit	Less: Principal Payment to Investor	Less: Interest Payments to Investor Est. @ 2.0%	Sinking Fund Interest Earnings Est. @ 3.0%	Sinking Fund Ending Balance	Principal	Interest Est. @ 5.0%	Estimated Annual Payment
1	\$737,666		(\$200,000)		\$537,666	\$465,000	\$500,000	\$965,000
2	737,666		(200,000)	\$16,130	1,091,462	485,000	476,750	961,750
3	737,666		(200,000)	32,744	1,661,871	510,000	452,500	962,500
4	737,666		(200,000)	49,856	2,249,393	535,000	427,000	962,000
5	737,666		(200,000)	67,482	2,854,541	565,000	400,250	965,250
6	737,666		(200,000)	85,636	3,477,843	590,000	372,000	962,000
7	737,666		(200,000)	104,335	4,119,844	620,000	342,500	962,500
8	737,666		(200,000)	123,595	4,781,105	650,000	311,500	961,500
9	737,666		(200,000)	143,433	5,462,204	685,000	279,000	964,000
10	737,666		(200,000)	163,866	6,163,736	720,000	244,750	964,750
11	737,666		(200,000)	184,912	6,886,314	755,000	208,750	963,750
12	737,666		(200,000)	206,589	7,630,569	795,000	171,000	966,000
13	737,666		(200,000)	228,917	8,397,152	830,000	131,250	961,250
14	737,666		(200,000)	251,915	9,186,732	875,000	89,750	964,750
15	737,666	(\$10,000,000)	(200,000)	275,602	0	920,000	46,000	966,000
	<u>\$11,064,987</u>	<u>(\$10,000,000)</u>	<u>(\$3,000,000)</u>	<u>\$1,935,013</u>		<u>\$10,000,000</u>	<u>\$4,453,000</u>	<u>\$14,453,000</u>

Estimated Savings from Tax Credit Bond Scenario:

\$14,453,000	Estimated Total Payments of Tax-Exempt Scenario
(11,064,987)	Estimated Total Payments of Tax Credit Scenario
<u>\$3,388,013</u>	Estimated Future Value Savings
<u>\$2,343,281</u>	Estimated Net Present Value Savings (@ 5.0% discount rate)

# Qualified Energy Conservation Bonds

## I What are QECBs?

- q Tax credit to finance “qualified conservation purposes”
- q Tax credit rate capped at 70% of published rate
- q Issued by state and local governments

## I Allocation

- q \$3.2 billion nationally
- q Allocations to states and large local governments (with a population <sup>3</sup> 100,000) based on population

## I Use of Proceeds

- q 100% of available project proceeds<sup>(1)</sup> must be used for “qualified conservation purposes”

(1) Available project proceeds (APP) are proceeds from the sale of the issue less issuance costs (not to exceed 2%)

## Capital Expenditures for:

- q Reducing energy consumption in public buildings by at least 20%
- q Implementing green community programs<sup>(1)</sup>
- q Rural development involving production of electricity from renewable energy resources
- q All Internal Revenue Code 45(d) “qualified facilities” without regard to placed-in-service dates, e.g. wind, solar, geothermal, biomass, landfill gas & hydro (does not include refined coal or Indian coal)

## Research facility expenditures and research grants for:

- q Cellulosic ethanol and nonfossil fuel development
- q Technologies to capture and sequester carbon dioxide produced through the use of fossil fuels
- q Increasing efficiency of existing technologies for producing non-fossil fuels
- q Automobile battery technologies and other technologies to reduce fossil fuel consumption in transportation
- q Technologies to reduce energy use in buildings

(1) Including the use of loans, grants, or other repayment mechanisms to implement such programs

# QECCBs Use of Proceeds, continued

- | **Mass commuting & related facilities to reduce energy consumption, including expenditures to reduce pollution from vehicle used for mass commuting**
- | **Demonstration projects designed to promote the commercialization of:**
  - q Green building technology
  - q Conversion of agricultural waste for use in the production of fuel or other purposes
  - q Advanced battery manufacturing technologies
  - q Technologies to reduce peak use of electricity
  - q Technologies for the capture & sequestration of carbon dioxide emitted from combusting fossil fuels in order to produce electricity
- | **Public education campaigns to provide energy efficiency**

# QECCBs - Allocations

## | Allocations to States

q Pro-rata based on population as of July 1, 2008

| <http://www.census.gov/popest/states/tables/NST-EST2008-01.xls>

q Arizona = \$67.436 million

## | Allocations to Large Local Governments (LLGs)

q LLGs are any city or county that has a population <sup>3</sup> 100,000<sup>(1)</sup>

q LLG allocations based on proportional population within State based on population as of July 1, 2007

| <http://www.census.gov/popest/estimates.html>

| Population used for county allocations must exclude the population of any net LLGs within the county

1. Indian Tribal Governments (ITGs) shall be treated as a LLG, except that (a) an ITG shall be treated as located w/in a State to the extent of so much of the population of such government resides within the State & (b) any bond issued by an ITG shall be treated as a QECCB only if issued as part of an issue the APP of which are used for purposes for which such ITG could issue bonds to which §103(a) applies.

## | **Private Activity Bond Requirements**

- q At least 70% of the allocation to any State or LLG must be designated for bonds that are not private activity bonds
- q Proceeds of private activity QECCBs can only be used for capital expenditures

## | **Exception for green community programs**

- q QECCBs issued to provide funding mechanisms for capital expenditures to implement green community programs are not treated as private activity bonds

# Summary of Energy Financing Alternatives

Structure	Ownership	Term *	Subsidies Available	Current Market
<b>Power Purchase Agreement (PPA)</b>	<ul style="list-style-type: none"> <li>  Private entity</li> <li>  Public agency has option to purchase</li> <li>  Who owns RECs?</li> </ul>	20 – 25 years	<ul style="list-style-type: none"> <li>  ITCs</li> <li>  Depreciation</li> </ul>	<ul style="list-style-type: none"> <li>  May not be an economically viable alternative in current market</li> </ul>
<b>Traditional municipal bonds</b>	<ul style="list-style-type: none"> <li>  Public agency owns solar asset</li> <li>  Public agency owns RECs</li> </ul>	Up to 25 years	<ul style="list-style-type: none"> <li>  Tax-exempt interest or BAB subsidy</li> </ul>	<ul style="list-style-type: none"> <li>  25 year amortization provides annual cash flow flexibility</li> </ul>
<b>Tax credit bonds (QECBs and CREBs)</b>	<ul style="list-style-type: none"> <li>  Public agency owns solar asset</li> <li>  Public agency owns RECs</li> </ul>	14-17 year max	<ul style="list-style-type: none"> <li>  Tax credit bonds</li> </ul>	<ul style="list-style-type: none"> <li>  Provides lower cost financing</li> <li>  Shorter maturity causes cash flow limitations</li> <li>  Tax credit bond market “developing”</li> </ul>

\* Assumes 25-year useful life of asset for all scenarios

# Concluding Considerations

- | **Economic benefits of renewable energy financings should be carefully evaluated**
  - q Many renewable energy pitches are based on high future energy cost growth rates
  - q Changing market dynamics affect competitiveness of PPAs
- | **Available subsidies can influence preferred alternative**
  - q Hybrid municipal bond approaches using some combination of Tax Credit Bonds, BABs, or tax-exempt fixed rate bonds may be viable alternative
  - q In today's market, self-ownership structures are often more cost effective than Power Purchase Agreements
- | **Stone & Youngberg provides unique expertise to deliver creative cost-effective renewable energy financing solutions**

# Summary of ARRA Bond Provisions

NAME	NATIONAL ALLOCATION	ALLOCATION METHOD	USE OF PROCEEDS	FEDERAL INCOME TAX TREATMENT*	SPECIAL RESTRICTIONS
<b>Taxable Bonds</b>					
<b>Build America Bonds (BABs)</b>	Unlimited for bonds issued by State and local governments, including school districts before January 1, 2011	Not applicable	Any purpose otherwise also eligible for tax-exemption (no private activity bonds)	Taxable, 35% interest subsidy paid to issuer by Treasury or as tax credit to investor	Refundings not eligible use of proceeds for issues where 35% interest subsidy is paid to issuer; refundings are eligible for issues where 35% tax credit is paid to investor
<b>Recovery Zone Economic Development Bonds (RZEDBs)</b>	\$10 billion State and local governments, expires January 1, 2011 <i>AZ = \$408 million (est.)</i>	Through States, then to counties & cities <b>with populations <sup>3</sup> 100,000</b> in proportion to 2008 employment loss	Any purpose otherwise also eligible for tax-exemption, including job training & education (no private activity)	Taxable, 45% interest subsidy paid to issuer by Treasury	Formation of Recovery Zone (area determined by the issuer to be in general economic distress or meeting certain other criteria); Refundings not an eligible use of proceeds
<b>Tax Exempt Bonds</b>					
<b>Recovery Zone Facility Bonds (RZFBs)</b>	\$15 billion State and local governments, expires January 1, 2011	Through States, then to counties & cities <b>with populations <sup>3</sup> 100,000</b> in proportion to 2008 employment loss	Certain private activity purposes (excluding land, residential rental, gambling, liquor, golf, etc.)	Tax-Exempt	Formation of Recovery Zone (area determined by issuer to be in general economic distress or meeting certain other criteria); Refundings not an eligible use of proceeds
<b>Tax Credit Bonds</b>					
<b>New Clean Renewable Energy Bonds (New CREBs)</b>	\$2.4 billion total, including 1/3 each to 1) public power providers, 2) governmental bodies & 3) electric cooperatives	IRS applications due by 8/4/09; 1/3 max each to 1) public power providers 2) governmental bodies & 3) electric coops	Wind, solar, geothermal, biomass, landfill gas & hydro energy facilities	Tax credit @ 70% of published Federal Tax Credit Rate	Refundings not an eligible use of proceeds
<b>Qualified Energy Conservation Bonds (QECBs)</b>	\$3.2 billion to States and local governments <i>AZ = \$67.4 million</i>	Pro-rata by population to States and then to local governments <b>with populations <sup>3</sup> 100,000</b>	Energy reduction in public buildings, green community lending programs, energy research, commuter facilities, education, etc.	Tax credit @ 70% of published Federal Tax Credit Rate	Not less than 70% of allocations must be used for non-private activity bonds; Refundings not an eligible use of proceeds

Tax credits may be stripped from the bonds and assigned to a separate owner. Tax credit bonds (except BABs) have a maximum maturity length (published daily on the Bureau of Public Debt website at [https://www.treasurydirect.gov/govt/rates/irs/rates\\_qtc.htm](https://www.treasurydirect.gov/govt/rates/irs/rates_qtc.htm)). The maturity length has ranged from 14 to 16 years in recent years.

Does not include additional Tax Credit Bond programs available to School Districts (Qualified Zone Academy Bonds and Qualified School Construction Bonds)