



#### Property Assessed Clean Energy ("PACE") Bonds

December 18, 2009 Strictly Private and Confidential



**Primary Contact Banker** 

**Supporting Banker** 

**Todd H. Holder** Director, Dallas *Regional Public Power Specialist* 

200 Crescent Court, Suite 830 Dallas, Texas 75201 E-mail: todd.holder@citi.com Telephone: (214) 720-5074 Fax: (214) 871-5335 **Robert Szostak** 

Vice President, Tampa Regional Public Power Specialist

100 N Tampa, Suite 3750 Tampa, FL 33602 E-mail: robert.szostak@citi.com Telephone: (813) 223-5011 Fax: (813) 221-8954



### **Table of Contents**

1. Overview of PACE Program

Appendix A: America's Energy Challenge

Appendix B: Overview of Sustainable Energy





# 1. Overview of PACE Program



# **Distributed Clean Energy**

While financing is only a part of increasing clean energy adoption, it is a central piece

- For over 30 years, the "green" community has been exploring ways to increase penetration of property owners participating in clean energy programs, particularly energy efficiency
  - Less than 2% of eligible property owners participated in programs
- One major impediment to widespread adoption has been the lack of financial incentives
  - Rebates alone are not enough to incentivise property owners to undertake sizable financial transactions
- Long term low cost financing not available at scale needed to capture market potential
  - Property owners undertook measures with a combination of unsecured personal loans, HELP, Energy Efficiency Mortgages, and cash

Without a nationally available financing structure, participation may continue to remain low.



# **PACE Description**

PACE financing removes the issue of upfront capital as a barrier to wide spread clean energy investment

 PACE programs are designed to provide private property owners the ability to finance clean energy improvements, particularly energy efficiency and solar PV, through an additional tax assessment on property

Steps	Creating a Municipal Clean Energy Financing District ("CEFD")	Financing Clean Energy Improvement
1.	State approves enabling legislation	Property owner receives energy audit / installation bid
2.	Municipality creates CEFD	Property owner & CEFD execute clean energy lien agreement
3.	CEFD develops program standards & markets to property owners	Property owner undertakes construction
4.	CEFD seeks interim & permanent financing	Upon completion of construction, CEFD provides final payment to vendor & property owner begins repayment through property tax assessment



The State of Florida already has pre-existing legislation in place which provides the ability to form "special tax districts"



## **Financing PACE Investment**

#### A PACE program will require both interim and permanent financing





## PACE Program Advantages

Compared to unsecured lending to property owners, PACE financing has a number of advantages

- Established Repayment Method Land secured/property assessment financing is a proven way to finance infrastructure improvement. Since 2000, there have been \$16.5 billion of bonds financed
- 2. Secure Obligation Clean Energy Investments no longer are unsecured obligations of property owners but through PACE tied to the property for a substantial period (15+ years)
- Transfers with Sale of Property By attaching a long-term lien to the property, current property owners do not have to make investment decision based solely on projected payback period
- 4. Growing Taxable Market With the introduction of BABs, the taxable muni market has seen increased activity. Establishing a larger market for PACE bonds will result in better overall pricing & market acceptance



### PACE Activity – Federal Level

PACE is seen as positive development for the deployment of clean energy technologies, particularly energy efficiency in the private sector

- PACE supporters have worked to remove disincentives for using federal tax credits with municipal financing
- In ARRA, PACE financing is the direct beneficiary of the creation of the Green Community programs for QECBs
- PACE was cited directly in the American Clean Energy and Security Act ("ACES") as funding approach to be supported by the Clean Energy Development Authority ("CEDA")
- The PACE structure was featured prominently in the Vice President's Middle Class Task Force report as an innovative new financing vehicle to significantly expand the building sector retrofit market





#### PACE Activity – State Level

Currently, 18 states have the authority to establish Clean Energy Financing Districts

#### **States With PACE Authority**



7

To date, 5 communities have funded PACE programs

- Berkley, CA Executed first PACE financing for residential solar program. Participation limited to \$1.5 million and allocation was oversubscribed
- Palm Desert Utilized city funds to finance residential clean energy program, mostly solar
- **Sonoma County** Utilized county to finance PACE program. Initial program included first financing for a commercial/industrial project
- Babylon, NY Funded program with excess funds from solid waste financing. Amended definition of solid waste to include CO2. Looking to grow program from \$3 million to \$10 - \$15 million
- Boulder County, CO Executed first public PACE offering for \$8 million. The bonds were secured by property assessment and moral obligation of county. County Authority to provide moral obligation up to \$40 million of bonds, projects include Energy Efficiency and Renewable Energy
- Pending: New Mexico, San Francisco, Los Angeles County, Annapolis, MD



# Why is PACE a Game Changer?

#### There is a large, real need for energy efficiency and renewable energy funding

Sarasota County



Property	# of Properties	Energy Efficiency Installation Cost	EE with 1.0% Penetration	Renewable Energy Installation Cost	RE with 1.0% Penetration
Residential	220,536	\$10,000	\$22,053,600	\$25,000	\$55,134,000
Commercial	9,586	\$40,000	\$3,834,400	\$100,000	\$9,586,000
Industrial	3,989	\$40,000	\$1,595,600	\$100,000	\$3,989,000

#### **City of Sarasota**



Property	# of Properties	Energy Efficiency Installation Cost	EE with 1.0% Penetration	Renewable Energy Installation Cost	RE with 1.0% Penetration
Residential	26,898	\$10,000	\$2,689,800	\$25,000	\$6,724,500
Commercial	2,634	\$40,000	\$1,053,600	\$100,000	\$2,634,000
Industrial	1,559	\$40,000	\$623,600	\$100,000	\$1,559,000

9 \*Renewable estimates assume solar panels



# Appendix A: America's Energy Challenge



## Increasing Energy Demand is a Global Phenomenon

Despite a global recession, the continued growth of developing countries, particularly China & India, will significantly increase global energy demand



#### **Global Energy Demand**



Source: Japan Agency for Natural Resources and Energy. 2007 Annual Energy Report 10

#### Greater Demand Means Greater Competition for Energy Resources

While energy production and use are increasing world wide, it is a major concern to see the increasing pace in which non-OECD countries are ramping up production while OECD region falls behind



\*OECD includes: Canada, France, Germany, Italy, Japan, Korea, Unitied Kingdom, United States, etc..

## Energy Costs Impact on the US Economy

Increasing demand and rising energy costs affect households and businesses directly and indirectly





Annual Energy Outlook, March 2009

## **Energy Prices Are Trending Upward**

While the US Recession blunted high energy prices, energy prices are back on the rise



<sup>13</sup>Based on Information prepared by the Center for Energy and Environmental Policy, University of Delaware

## The Impacts of Rising Energy Prices are Real

#### Energy expenditures continue to grow at a faster rate than income

- Costs for traditional energy sources have and will continue to rapidly increase
- The resulting burden on state and commercial entities inhibits their ability run efficiently
- Higher energy costs mean less money in the pockets of households and a less robust economy





\*Source: EIA household report, Consumer expenditure tables, Census Bureau statistics, Alcoa sustainability report



Household (Energy Expenditure as % of Total Expenditure)

\*Projections based on historic average Compound Annual Growth Rate

# Seizing the Sustainable Energy Opportunity

In order to better manage bottom lines, families, businesses & governments must explore ways to contain energy costs







## Appendix B: Overview of Sustainable Energy



#### Sustainable Energy is a Win...Win...Win

With the same dollar, sustainable energy can cut CO<sub>2</sub>, create jobs, and put money in "our" pockets

#### Sustainable Energy is...



#### Reducing CO<sub>2</sub> Emission Requires Significant Investment in Sustainable Energy

Energy efficiency and renewable energy will constitute nearly 60% of carbon mitigation in the coming years



#### The Cost of CO<sub>2</sub> Abatement

While renewable energy costs money to reduce CO<sub>2</sub>, energy efficiency saves money while reducing CO<sub>2</sub>





# US CO<sub>2</sub> Emissions by Sector

Energy Efficiency improvements in buildings have the dual benefit of reducing  $CO_2$  emissions and energy use significantly



#### Energy Efficiency and Renewables Can Help Spur the Economy

Expanding the "green economy" benefits the local economy by creating jobs that are more resistant to foreign outsourcing than traditional blue-collar manufacturing jobs

• Energy Efficiency and Renewable Energy stimulate meaningful investment and create important jobs:

 Green Collar Jobs: "blue collar work force opportunities created by firms, organizations, and policies whose mission is to improve environmental quality"

 White Collar Jobs: Research, development, engineering and design of energy efficient technology











# Sustainable Energy Investments Benefit the "Local" Economy

#### Energy Efficiency and Renewable Energy are responsible for the creation of thousands of jobs

Energy Efficiency		Renewable Energy	
Industry Segment	Efficiency-Related Jobs Created in 2006	Industry Segment	Renewable Energy Jobs Created in 2006
Recycling	3,013,000	Wind	36,800
ESCOs and Retrofits	221,000	Solar	17,600
Household Appliances	198,000	Hydro	19,000
Office Equipment	718,000	Geothermal	21,000
TV, Video and Audio	421,000	Biomass	312,300
HVAC	104,000	Fuel Cell	11,100
Manufacturing	2,663,000	Hydrogen	9,200
Construction / Utilities	554,000	Government and NGO	19,320
Government	154,000		
Total	8,046,000		446,320







21 Source: Roger Bezdek, Management Information Services and American Solar Energy Society



#### Jobs in Sustainable Energy ("Green Jobs/Careers")

Investments in sustainable energy create jobs at varying skill and income levels

Strategies for Green Economy Investment	Representative Jobs
Building Retrofitting	Electricians, Heating / Air Conditioning Installers, Carpenters, Construction Equipment Operators, Roofers, Insulation Workers, Carpenter Helpers, Industrial Truck Drivers, Construction Managers, Building Inspectors, Auditors
Mass Transit	Civil Engineers, Rail Track Layers, Electricians, Welders, Metal Fabricators, Engine Assemblers, Production Helpers, Bus Drivers, First-Line Transportation Supervisors, Dispatchers
Solar Power	Electrical Engineers, Electricians, Industrial Machinery Mechanics, Welders, Metal Fabricators, Electrical Equipment Assemblers, Construction Equipment Operators, Installation Helpers, Laborers, Construction Managers

Sources: Center for American Progress & University of Massachusetts (2008)

#### Sustainable Energy is Profitable Energy

While energy efficiency saves money today, renewable energy provides a hedge against future energy costs



Source: Credit Suisse Research – Alternative Energy "Levelized Cost of Energy" LCOE is defined as the net present value of all costs divided y the lifetime energy output of the project Assumes that today's steep decline in cost of solar panels continues as well as current ITCs for renewables Assumes a \$20 / ton CO2 tax

23

### **Reducing Energy Costs**

Whether you count in MW, MWh, MMBtu, Quads or dollars, the result is the same: using less means saving more

- Total savings from existing standards in 2000:
  - 2.5% of US electricity use
  - 21,000 MW of peak power demand
  - \$50 billion in net consumer savings
- Total savings from existing standards by 2020
  - 7.8% of projected US energy use
  - 120,000 MW of peak power demand
  - \$186 billion in net consumer savings
- It is widely accepted among experts that a more stringent application of standards would increase savings substantially



**Electricity Consumption** 

If "game-changing" policies were introduced such as a significant carbon tax or carbon cap, then the potential for achievable cost-effective energy-efficiency improvements would increase significantly.



Source: Alliance to Save Energy "Promoting Energy Efficiency: Benefits, Approaches, and Barriers Source: Delaware Sustainable Energy Utility

## Energy Efficiency Gains Can Have a Transformative Impact

In the US, only a third of energy created is available for use



Source: Production and end-use data from Energy Information Administration, Annual Energy Review 2002. \*Net fossil-fuel electrical imports. \*\*Biomass/other includes wood, waste, alcohol, geothermal, solar, and wind.

Units in Quadrillion BTU



#### **Energy Efficiency in Practice**





# 87% Decrease in Energy Use



26 Source: International Energy Agency



#### **Energy Efficiency Improvements Produce Results**

Organizations have already begun to take advantage of Energy Efficiency Savings

Chicago Housing Authority

CHANGE. CHICAGO HOUSING AUTHORITY

Investment	\$30 million
Savings	\$36 million
% Savings	20%
ESCO	Ameresco
Project	Decentralized steam plant





U.S. AIR FORGE

Investment	\$9.2 million
Savings	\$800,000/yr
% Savings	40%
ESCO	Ameresco
Project	Underground heat plants

**Allegheny County, PA** 



Investment	\$8.9 million
Savings	\$13.7 million
% Savings	53%
ESCO	Noresco
Project	Building Retrofits

#### University of Massachusetts Medical Center



Investment	\$30 million
Savings	\$3.63 million/yr
% Savings	21%*
ESCO	Noresco
Project	Building Retrofits



### Renewable Energy Monetizes Available Assets

Solar installations in particular, allow property owners to take advantage of an abundant fuel source – the Sun, but also monetize real estate assets – roofs, bare land, brownfield.



IRS Circular 230 Disclosure: Citigroup Inc. and its affiliates do not provide tax or legal advice. Any discussion of tax matters in these materials (i) is not intended or written to be used, and cannot be used or relied upon, by you for the purpose of avoiding any tax penalties and (ii) may have been written in connection with the "promotion or marketing" of any transaction contemplated hereby ("Transaction"). Accordingly, you should seek advice based on your particular circumstances from an independent tax advisor.

Any terms set forth herein are intended for discussion purposes only and are subject to the final terms as set forth in separate definitive written agreements. This presentation is not a commitment to lend, syndicate a financing, underwrite or purchase securities, or commit capital nor does it obligate us to enter into such a commitment, nor are we acting as a fiduciary to you. By accepting this presentation, subject to applicable law or regulation, you agree to keep confidential the information contained herein and the existence of and proposed terms for any Transaction.

Prior to entering into any Transaction, you should determine, without reliance upon us or our affiliates, the economic risks and merits (and independently determine that you are able to assume these risks) as well as the legal, tax and accounting characterizations and consequences of any such Transaction. In this regard, by accepting this presentation, you acknowledge that (a) we are not in the business of providing (and you are not relying on us for) legal, tax or accounting advice, (b) there may be legal, tax or accounting risks associated with any Transaction, (c) you should receive (and rely on) separate and qualified legal, tax and accounting advice (and any risks associated with any Transaction) and our disclaimer as to these matters. By acceptance of these materials, you and we hereby agree that from the commencement of discussions with respect to any Transaction, and notwithstanding any other provision in this presentation, we hereby confirm that no participant in any Transaction shall be limited from disclosing the U.S. tax structure of such Transaction.

We are required to obtain, verify and record certain information that identifies each entity that enters into a formal business relationship with us. We will ask for your complete name, street address, and taxpayer ID number. We may also request corporate formation documents, or other forms of identification, to verify information provided.

Any prices or levels contained herein are preliminary and indicative only and do not represent bids or offers. These indications are provided solely for your information and consideration, are subject to change at any time without notice and are not intended as a solicitation with respect to the purchase or sale of any instrument. The information contained in this presentation may include results of analyses from a quantitative model which represent potential future events that may or may not be realized, and is not a complete analysis of every material fact representing any product. Any estimates included herein constitute our judgment as of the date hereof and are subject to change without any notice. We and/or our affiliates may make a market in these instruments for our customers and for our own account. Accordingly, we may have a position in any such instrument at any time.

Although this material may contain publicly available information about Citi corporate bond research, fixed income strategy or economic and market analysis, Citi policy (i) prohibits employees from offering, directly or indirectly, a favorable or negative research opinion or offering to change an opinion as consideration or inducement for the receipt of business or for compensation; and (ii) prohibits analysts from being compensated for specific recommendations or views contained in research reports. So as to reduce the potential for conflicts of interest, as well as to reduce any appearance of conflicts of interest, Citi has enacted policies and procedures designed to limit communications between its investment banking and research personnel to specifically prescribed circumstances.

[TRADEMARK SIGNOFF: add the appropriate signoff for the relevant legal vehicle]

© 2009 Citigroup Global Markets Inc. Member SIPC. All rights reserved. Citi and Citi and Arc Design are trademarks and service marks of Citigroup Inc. or its affiliates and are used and registered throughout the world.

© 2009 Citigroup Global Markets Limited. Authorized and regulated by the Financial Services Authority. All rights reserved. Citi and Citi and Arc Design are trademarks and service marks of Citigroup Inc. or its affiliates and are used and registered throughout the world.

© 2009 Citibank, N.A. All rights reserved. Citi and Citi and Arc Design are trademarks and service marks of Citigroup Inc. or its affiliates and are used and registered throughout the world.

© 2009 Citigroup Inc. All rights reserved. Citi and Citi and Arc Design are trademarks and service marks of Citigroup Inc. or its affiliates and are used and registered throughout the world.

© 2009 [Name of Legal Vehicle] [Name of regulatory body.] All rights reserved. Citi and Citi and Arc Design are trademarks and service marks of Citigroup Inc. or its affiliates and are used and registered throughout the world.

In January 2007, Citi released a Climate Change Position Statement, the first US financial institution to do so. As a sustainability leader in the financial sector, Citi has taken concrete steps to address this important issue of climate change by: (a) targeting \$50 billion over 10 years to address global climate change: includes significant increases in investment and financing of alternative energy, clean technology, and other carbonemission reduction activities; (b) committing to reduce GHG emissions of all Citi owned and leased properties around the world by 10% by 2011; (c) purchasing more than 52,000 MWh of green (carbon neutral) power for our operations in 2006; (d) creating Sustainable Development Investments (SDI) that makes private equity investments in renewable energy and clean technologies; (e) providing lending and investing services to clients for renewable energy development and projects; (f) producing equity research related to climate issues that helps to inform investors on risks and opportunities associated with the issue; and (g) engaging with a broad range of stakeholders on the issue of climate change to help advance understanding and solutions.

Citi works with its clients in greenhouse gas intensive industries to evaluate emerging risks from climate change and, where appropriate, to mitigate those risks.



#### efficiency, renewable energy & mitigation