Leveraging Environmental Market Assets in Financing Renewable Energy Projects

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Outline

• Purpose of Markets
• Renewable Energy Certificates
• Carbon Offsets
• Risk Mitigation
• Opportunities for Leverage
Purpose of Environmental Markets

• Combat Global Warming
• Promote Renewable Energy
• Tap Success of Air Quality Markets
• Take Advantage of Variable Technologies
• Realize Efficiencies
• Reward Innovators and Proactive Players
Renewable Energy Certificates (RECs)

- Something extra to sell on top of electricity
- One REC = One mWH “premium,” earned when RE is generated
- Voluntary and mandatory markets

Anticipated RECs improve forecasted profitability of renewable energy projects
States with Renewable Portfolio Standards (RPS) Create Regulated REC Demand

VT: Equals Load Growth by 2012

MA: 4% by 2009 + 1% / year

RI: 16% by 2020

CT: 13% by 2020

NJ: 22.5% by 2021

DE: 20% by 2019

MD: 9.5% by 2022

HI: 20% by 2020

DC: 11% by 2022

VT: 23.8% by 2025

CT: 15% by 2015

HI: 20% by 2015

MA: 4% by 2009 + 1% / year

RI: 16% by 2020

CT: 13% by 2020

NJ: 22.5% by 2021

DE: 20% by 2019

MD: 9.5% by 2022

HI: 20% by 2020

State RPS

State RPS with significant flux

State Goal

5,880 MW by 2015

105 MW by 2013

10% by 2015

25% by 2025

11% by 2020

15% by 2025

20% by 2010

15% by 2025

20% by 2025

5% - 10% by 2025 (small utilities)

20% by 2025

10% by 2025 (IOUs), 10% by 2020 (co-ops)

20% by 2025

VT: Equals Load Growth by 2012

105 MW by 2013

18% by 2012

10% by 2015

24% by 2013

VT: 23.8% by 2025

VT: 20% by 2010

VT: 15% by 2015

VT: 10% by 2012
Milestones in Developing the Carbon Markets

- Accelerating Progress
- Applies to Greenhouse Gases (GHG)
- GHGs Standardized in CO₂ equivalents
- Voluntary and Mandatory
- Diverse and Dynamic
- Rewarding Pro-action
Examples of Regulated Emissions and Categories
Economic Uncertainty

Carbon Cost Projections

Source: Pace and various entities’ carbon projections including EPA, MIT, Nicholas Institute, CRAI, ACCF&NAM
Potential Impact on Industrial Facility

Future Estimated Financial CO2e Risk

- Low-Case Price Risk
- High Case Price Risk
Forthcoming Climate-Driven Responsibilities

- GHG Inventory
- GHG Disclosure
  - Liability Reporting (e.g., 10K)
  - Stakeholder Expectations
  - Pre-compliance Reporting
- GHG Performance Improvement (Carbon Intensity)
- Carbon Trading
How Best to Reduce GHG Liability?

- Abatement
- Demand Reduction
- Renewable Generation (DG)
- Emission/Allowance Trading

Which Tools When?

Risk Reduction Target

Propective Carbon Liability

2007 2008 2009 2010 2011
Converging Responsibilities Invite an Integrated Perspective

A Carbon-driven Strategic Plan
Representative Energy/GHG Management Outputs
The Integrated Planning Process Starts with Existing Data Streams

Business Processes

- Invoices
- Emissions
- Meters
- Deliveries
- Metrics

• Actions
• Archives

Strategic Carbon Planning

- WRI Protocol for GHGs
- Compilation and Data Management
- Analytics and Display Tools
- Renewable Energy
- Carbon Offsets
- Energy Planning
- GHG Inventory

The Power of Integration
The Three Major Categories of Offset-generating Activities

GHG Reduction Project

Carbon Sequestration Project

A GHG Avoidance Project
Examples of Offsets

• Facility Improvements
  – Direct Emissions Reductions
  – Energy Efficiency
  – Carbon Emissions Capture (CCS)

• Renewable Energy
  – Fuel Switching
  – Distributed Generation

• Carbon Sequestration
  – Carbon Capture and Injection (CCS)
  – On-site Biological Sequestration
  – Off-site Biological Sequestration

• Co-benefits
Navigating RECs and Carbon Markets

- Voluntary and compliance markets are dynamic and volatile.
- Each project has a unique path in the environmental landscape.
- RECs and offsets may be differentially attractive, depending on circumstances.
Case Study: Major Mining/Refining Company

- Large energy spend and GHG exposure
- Uses purchased fossil energy to run its mills
- Operates coal-fired power plant to meet some of its energy needs
- Uses purchased gas and coal to heat its melters
- Introducing renewable bio-fuel (RF) to generate power or co-fire melting process
- How best to use fuel?

DECISION FACTORS:
- Point of carbon regulation
- Eligibility of Co-firing for RECs
- Values of RECs and Offsets
Navigating RECs and Carbon Markets

• Voluntary and compliance markets are dynamic and volatile

• Each project has a unique path in the environmental landscape

• RECs and offsets may be differentially attractive, depending on circumstances

• RECs and/or offsets may apply; don’t presume or double dip

• The first step is Carbon Planning…toward a Managed Carbon Position
Leveraging your Carbon Investment

Climate Risk

Integrated Carbon-driven Energy Planning

- Reduced Carbon Liability
- Improved Energy Efficiency
- Mitigated Energy Price/Supply Risk
- Improved Emissions Performance
- Enhanced Corporate Equity
- Renewable Energy Deployments
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