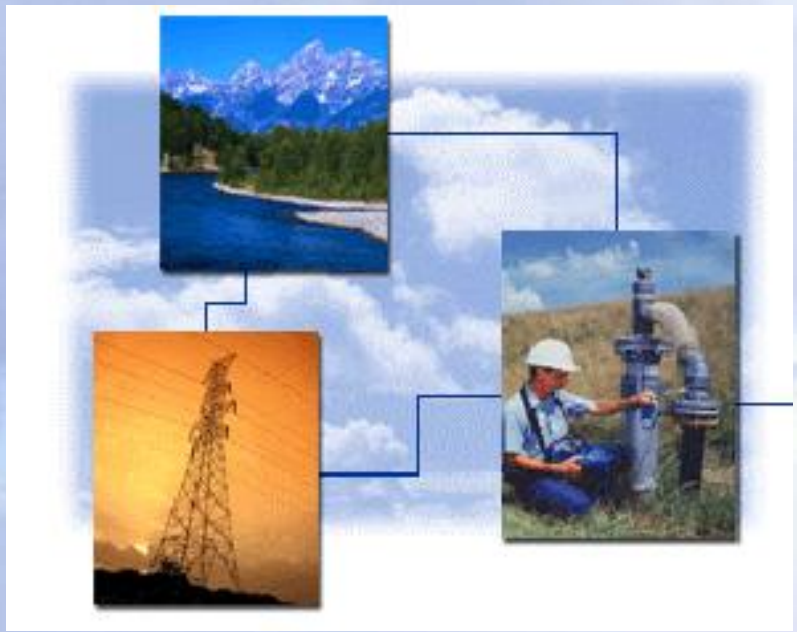
Financing Landfill Gas Energy Projects



2009 Maui County Energy Expo

U.S. Environmental Protection Agency

Landfill Methane Outreach Program (LMOP)

September 9, 2009

LANDFILL METHANE OUTREACH PROGRAM

LANDFILL METHANE OUTREACH PROGRAM

Presentation Overview

- Identification of LFGE project revenue streams
- Potential incentives
- Project ownership structures

Revenue Sources

- Can be broken down into three main categories
  - Energy
  - Environmental Attributes
  - Incentives
- Need to understand “relative” value of LFG-derived energy
  - Local energy markets will dictate value of LFG

Revenue Sources

- Electric projects
  - Sale of electricity ($/MWh)
  - Sale of Renewable Energy Credits (RECs)
  - Clean Renewable Energy Bonds (CREBs)
- Direct-use projects
  - Sale of LFG ($/MMBtu)
- Both
  - Greenhouse gas emissions trading
  - Energy cost savings
  - Tax credits and incentives
  - Other federal incentives (EECBG)

Revenue – Electrical Sales

- Sale of electricity to local utility, power marketer, wholesale buyer, or nearby end-user through Power Purchase Agreement (PPA)
- Revenue stream is impacted by local electric pricing
  - Avoided costs set by state utility commissions
  - Typically range from 4 to 6 cents/kWh for “brown” power
- Electricity may also be sold to industries
  - May need to be nearby or adjacent
  - Utilization of net-metering as an option

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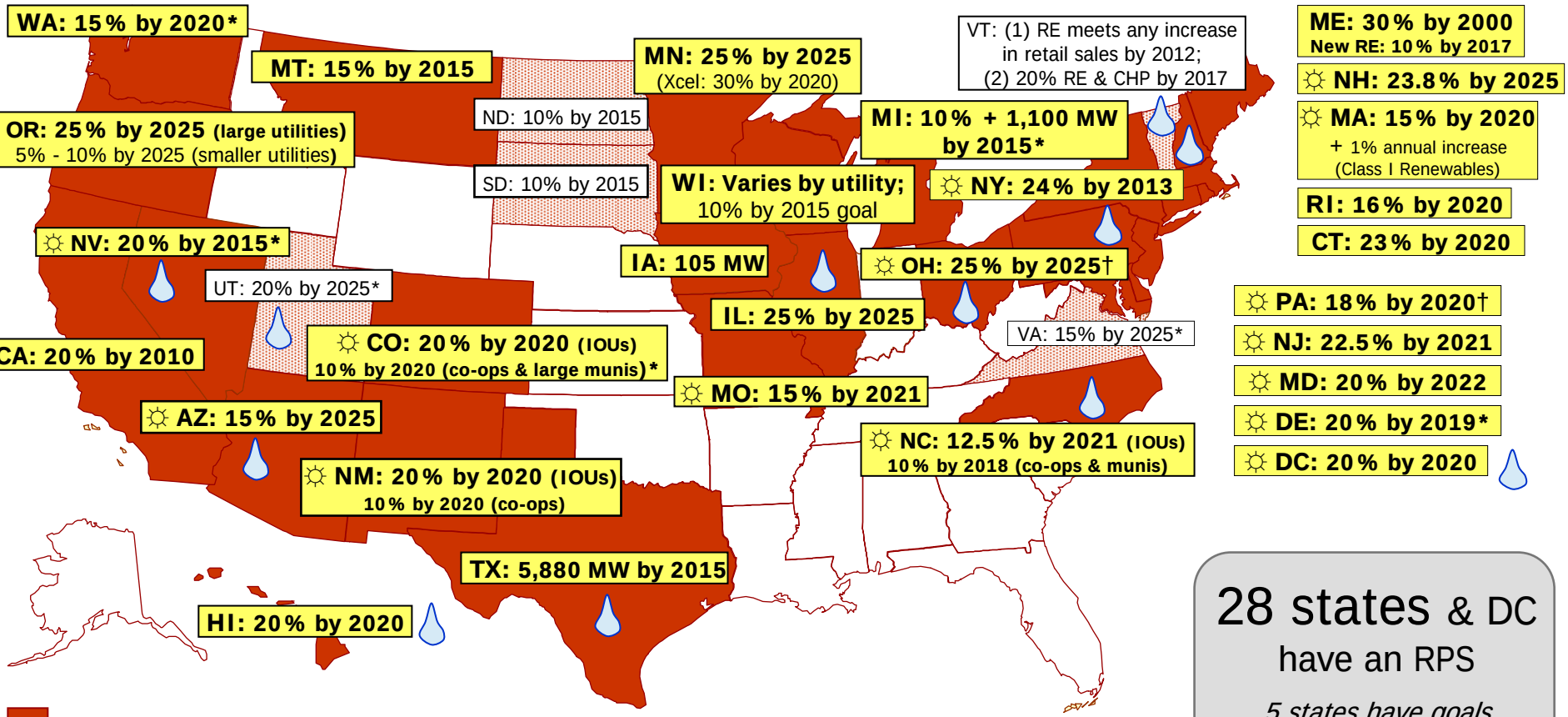
Other Environmental Revenue Streams (continued)

- Renewable Energy Credits:
  - Sold to electrical utilities seeking to meet RPS requirements or to consumers/industries seeking to reduce their environmental footprint
  - In addition to revenue received from sale of electricity (e.g., brown power)
  - Offered in 1 MWh units
  - May be sold into compliance or voluntary markets
  - Require verification so that the renewable attributes of the electricity are not being sold more than once

Renewable Portfolio Standards

www.dsireusa.org / April 2009



28 states & DC have an RPS

5 states have goals

State renewable portfolio standard

State renewable portfolio goal

Solar water heating eligible

Minimum solar or customer-sited requirement

* Extra credit for solar or customer-sited renewables

† Includes separate tier of non-renewable alternative resources

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Revenue – Hawaii State Incentive

- Renewable Portfolio Standard (RPS)
  - Significantly expanded in 2009
  - Requires electric utilities to produce 40% of electric energy from renewable energy sources by 2030
  - Landfill gas qualifies as a renewable energy source

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Revenue – LFG Sales

- LFG sales to an end-user are the primary source of revenue for direct-use projects
- LFG price is often indexed to the price of natural gas
  - Fluctuates significantly based on energy markets and economy (currently natural gas is less than $4.00/MMBtu)
  - Indexed contracts typically include cap and floor pricing provisions
  - Indexed pricing dependent upon capital and operating costs of system to deliver the LFG
- Price for LFG paid by end-user must result in costs savings that outweigh project capital and operating costs

Other Environmental Revenue Streams (continued)

- Section 45 Tax Credit:
  - Provides privately owned (tax-paying) electricity projects a production tax credit
  - Value of the credit is 1.0 cent/kWh
  - Electricity must be sold to an unrelated entity
  - Eligible projects must be placed in service by 12/31/2013
  - Allows for a 10 year pay-out period
- Energy Efficiency and Conservation Block Grant
  - 3.2 billion allocated in stimulus bill
  - For projects that increase energy efficiency and encourage renewable energy

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Other Environmental Revenue Streams (continued)

- Greenhouse Gas Emission Reductions
  - Compliance Markets:
    - Rapidly growing, expanding market – will become dominant
    - Lead by RGGI and CAR
    - Pay attention to Federal Legislation (Maxman-Markey)
  - Voluntary Markets:
    - Very active – where most of the greenhouse gas trading activity occurs
    - Major market mechanisms include CAR, VCS, and CCX

Incentive References

- LMOP Funding Guide
  - www.epa.gov/lmop
- North Carolina State Solar Center
  - www.dsireusa.org
  - Make sure you get this website correct!

Ownership Structures

- Self-development
  - Municipality or LF owner provides capital and coordinates development
- Utilization of third-party developer
  - Select developer through RFP or negotiated process
  - LF takes little/no financial risk
- Hybrids

Ownership Considerations

- Self-development
  - More effort and financial risk
  - Potentially higher financial reward (depending on project type and available incentive programs)
- Third-party
  - Less effort and financial risk
  - Loss of control of project
  - Potentially lower financial reward

Project Financing

- Typically, landfill gas projects require financing to develop project infrastructure
- Investors and banks do not like to lose money when financing projects
- The project developer will need demonstrate project financial performance and risk
- Detailed project cash flow analyses and supporting assumptions are critical

Recommendations

- For Landfill Owners
  - Determine route for ownership structure
  - Be realistic, these projects are not gold mines
  - Simplify and speed up procurement processes
  - The sooner the project makes money – the sooner you will

Recommendations

- Closely scrutinize LFG generation projections and model assumptions
- Work with reputable construction and engineering firms
- Obtain written quotes for costs
- Include price and schedule contingencies
- Compare multiple sources of financing

Recommendations

- Pay attention to details and assumptions
- Be realistic about project costs, revenues, and schedules
- Run financial sensitivity scenarios to determine project boundaries

Summary

- Revenue sources can include the sale of energy and environmental attributes
- Numerous incentive programs are in place to support LFG projects.
- Project ownership structure will effect incentive eligibility and financing considerations