



Renewable Energy Project Development Basics

By

Scott Martin

March 25, 2010

**2010
WORKS!**

BACKGROUND

2010
WORKS!

Why Are We Talking About Renewable Energy?

On May 22, 2009, Kansas Governor Mark Parkinson signed into law the Senate Substitute for H.B. 2369, which includes a renewable energy standard, net metering provisions, and various other energy efficiency and energy-related provisions.

What is Renewable Energy?

Under the Kansas Senate Substitute for H.B. No. 2369 “Renewable energy resources” means net renewable generation capacity from:

- (1) Wind;
- (2) solar thermal sources;
- (3) photovoltaic cells and panels;
- (4) dedicated crops grown for energy production;
- (5) cellulosic agricultural residues;
- (6) plant residues;
- (7) methane from landfills or from wastewater treatment;
- (8) clean and untreated wood products such as pallets;
- (9)
 - (A) existing hydropower;
 - (B) new hydropower, not including pumped storage, that has a name-plate rating of 10 megawatts or less;
- (10) fuel cells using hydrogen produced by one of the above-named renewable energy resources;



What are the details?

- (1) Not less than 10% of the affected utility's peak demand for calendar years 2011 through 2015, based on the average demand of the prior three years of each year's requirement;
- (2) not less than 15% ... for calendar years 2016 through 2019...;
- (3) not less than 20% for each calendar year beginning in 2020...;

Each megawatt of eligible capacity in Kansas installed after January 1, 2000, shall count as 1.10 megawatts for purposes of compliance.

What are the details (Continued)?

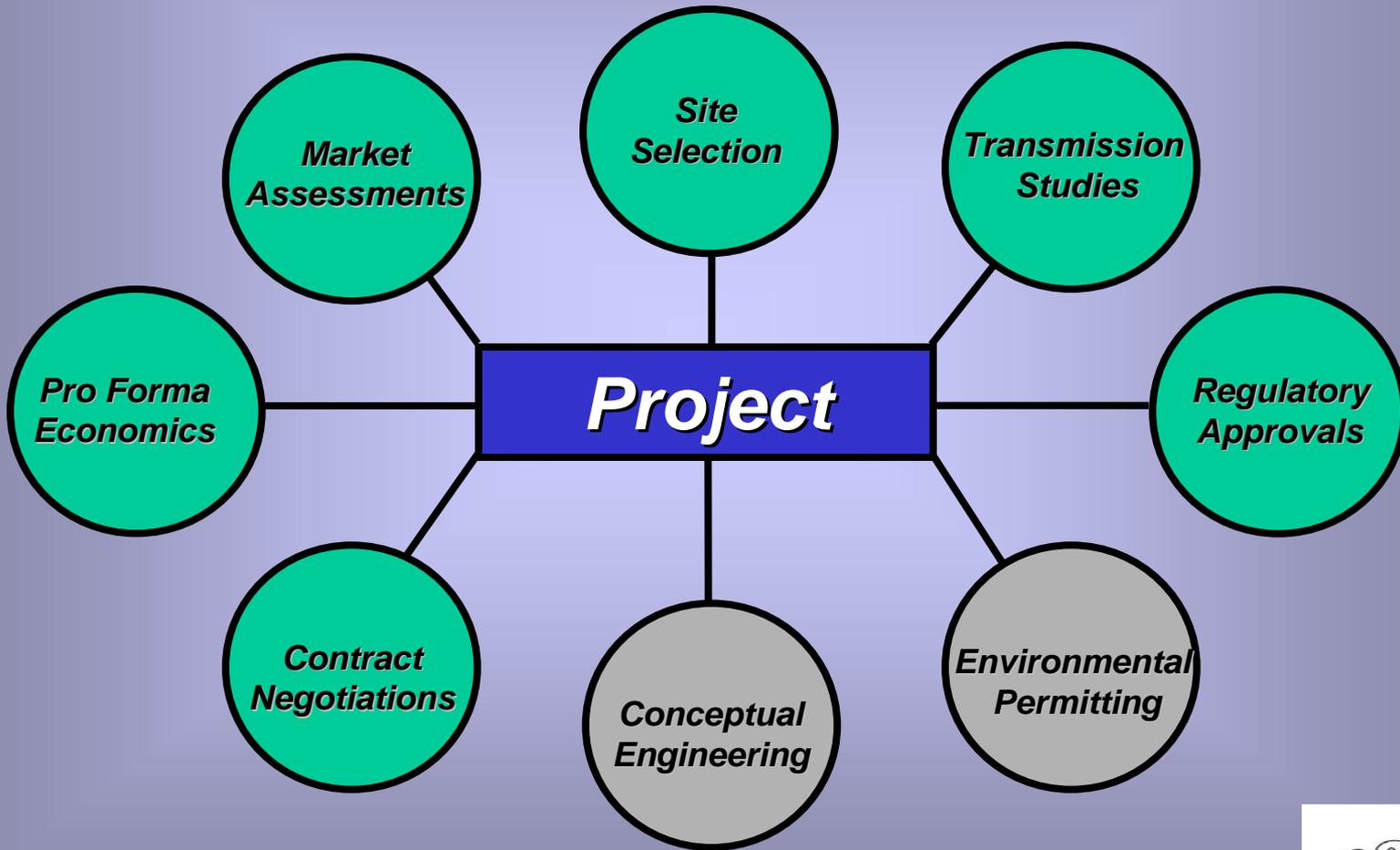
The KCC shall allow affected utilities to recover reasonable costs incurred to meet the new renewable energy resource requirements required in the renewable energy standards act.





Steps for Development of A New Project

Renewable Energy Project Development Basics



2010
WORKS!

Landfill Gas Utilization Project Development



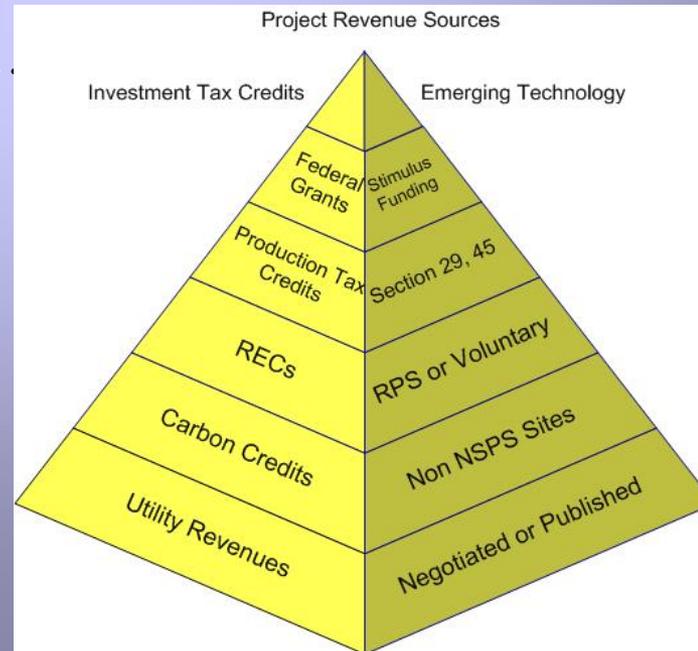
1. Perform LFG Modeling of the Site

2. Evaluate Technical Feasibility

Direct Use: Medium Btu, High Btu

Electricity: Microturbines, Recip. Engines, Turbines

3. Evaluate Financial Feasibility...



2010
WORKS!

What is Eligible Under the Renewable Energy (Section 45) Production Tax Credit ?

Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Hydrokinetic Power (i.e., Flowing Water), Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal

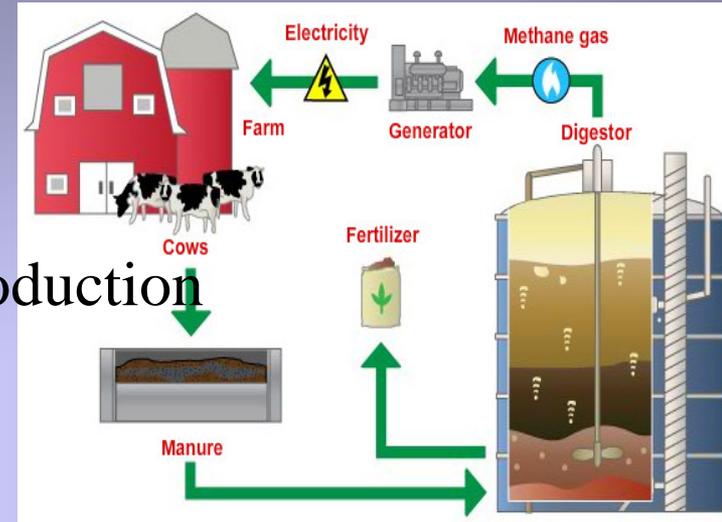
What is Eligible Under the Renewable Energy (Section 48) Investment Tax Credit ?

Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Wind, Biomass, Geothermal Electric, Fuel Cells, Geothermal Heat Pumps, CHP/Cogeneration, Solar Hybrid Lighting, Microturbines



Anaerobic Digester Gas Utilization Project Development

1. Evaluate Facility Loading & Gas Production
2. Evaluate Technical Feasibility
 - Direct Use
 - Electricity / CHP
3. Evaluate Financial Feasibility...



REC's

??

Carbon Credits

Federal / State Grants

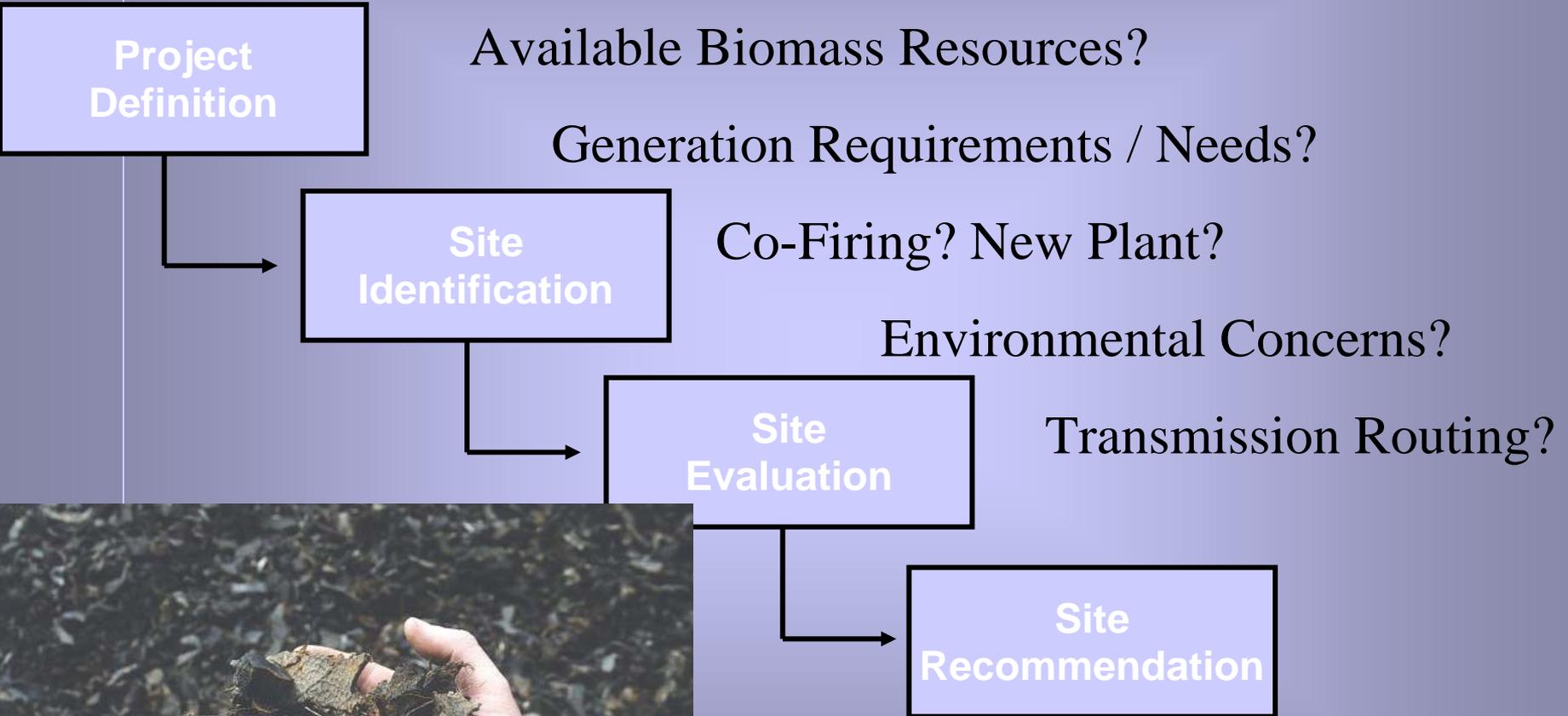
Production Tax Credits

Revenues from the Utility



2010
WORKS!

Biomass Project Development



Biomass Project Development (Continued)

- Define the project scope
- *Obtain Regulatory Support Early in the Process*
- Develop the project schedule and budget
- Develop Fuel Transport / Handling Layout
- Equipment / Technology Selection & Emissions Estimates
- Physical Plant Layout
- Construction



2010
WORKS!

Wind / Solar Project Development

Identify Potential Project Areas:

- Desired Scale of Project
- Available Resource Data/Maps
- Transmission Access
- Net Metering Agreement (if <200 kW in KS)



Screening Factors:

- State/County Siting Requirements Exclusionary Criteria (e.g. wetlands, wildlife habitat, scenic areas, other sensitive areas, etc.)

Development Criteria:

- Landowner / local support
- Ease of development
- Define Land Option and Lease Terms
- Impact-Related Provisions (roads, restoration, decommissioning)



Identify Core Owners/Scope of Work

Negotiate Core Options/Leases

2010
WORKS!

Net Metering (<200kW) – An Important Development for Utility Consumers

Senate Substitute for H.B. 2369 Key Definitions:

1. Powered by a renewable energy resource;
2. Located on a premises owned, operated, leased or controlled by the customer-generator;
3. Electricity supplied > electricity generated by the customer-generator during a billing period, the customer-generator shall be billed for the net electricity supplied by the utility in accordance with normal practices for customers in the same rate class.
4. Electricity generated > Monthly Consumption all net excess energy (NEG), expressed in kilowatt-hours, shall be carried forward from month-to-month and credited to customer-generator's energy consumption in subsequent months.
5. Excess generation credits expire at the end of each calendar year.

2010
WORKS!



Questions ?

Contact: Scott Martin
Burns & McDonnell
samartin@burnsmcd.com
816-333-9400



2010
WORKS!

A snapshot of what we're doing at Burns & Mac

Client: National Renewable Energy Laboratory (NREL)
Project: 70-acre Greenfield Solar Research Facility



Client: MMR Power Solutions – California
Project: Concentrating Solar Trough with Biomass Backup – 49 MW



Client: Southern California Gas
Project: Digester Gas to Pipeline Quality Methane



Client: Horizon Wind Energy
Project: Meridian Way Wind Farm (largest wind farm in KS)



Client: Kansas City Power & Light
Project: St. Joseph, MO Landfill Gas to Electricity Plant

