From Power Generation to Vehicle Fuel Shifting Paradigms

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LMOP 2014 Awards
March 19, 2015

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Progressive Waste Solutions

Aria Energy

- Designed and Constructed Over 50 Facilities
- Own and operate one of the largest portfolios in US
  - 266 MWe of base load renewable energy
  - 38 Renewable Power Projects
  - 6 Renewable Natural Gas Projects
- Third party services
  - Design/Build
  - O&M
  - Power scheduling

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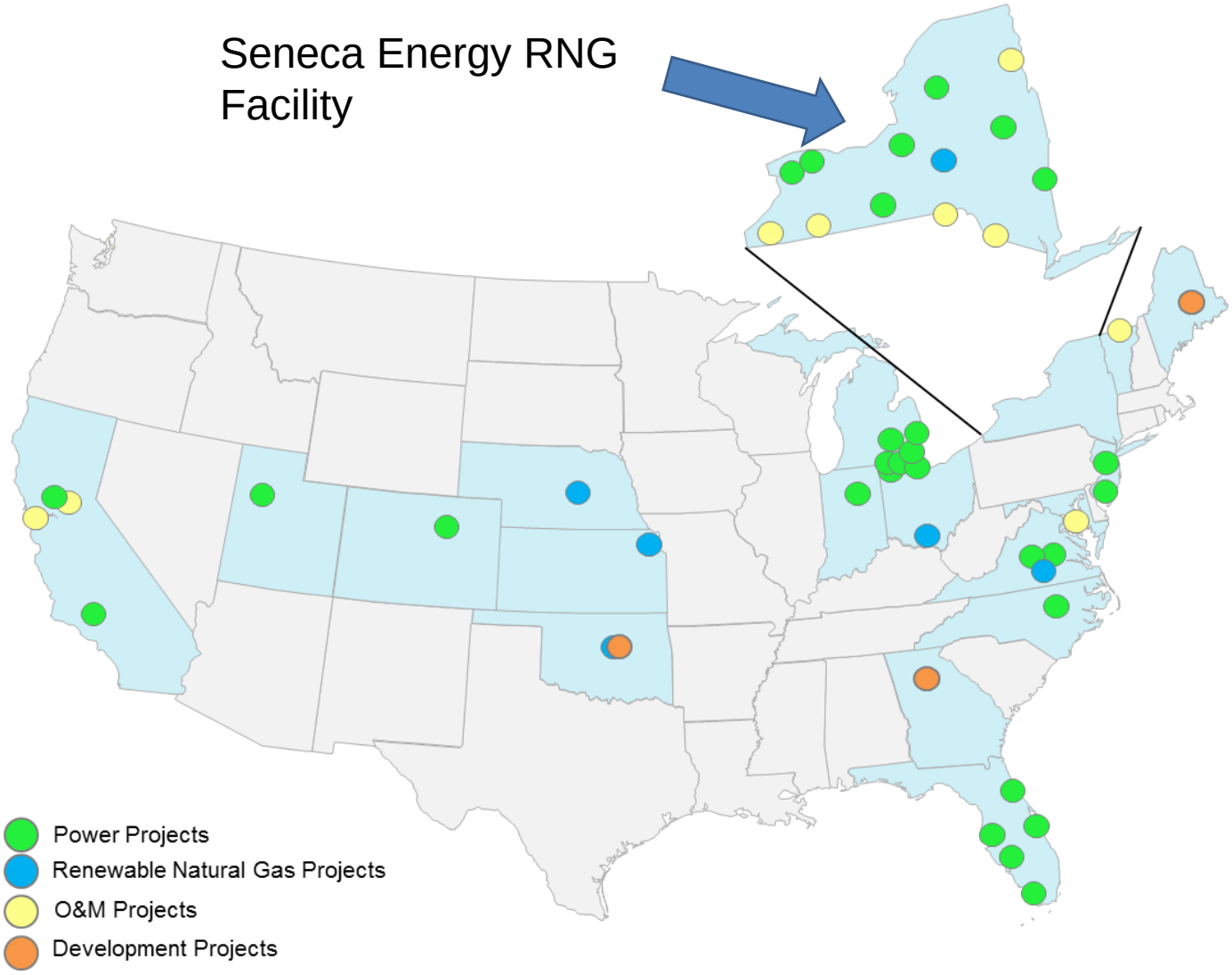
Project Map

Seneca Energy RNG Facility



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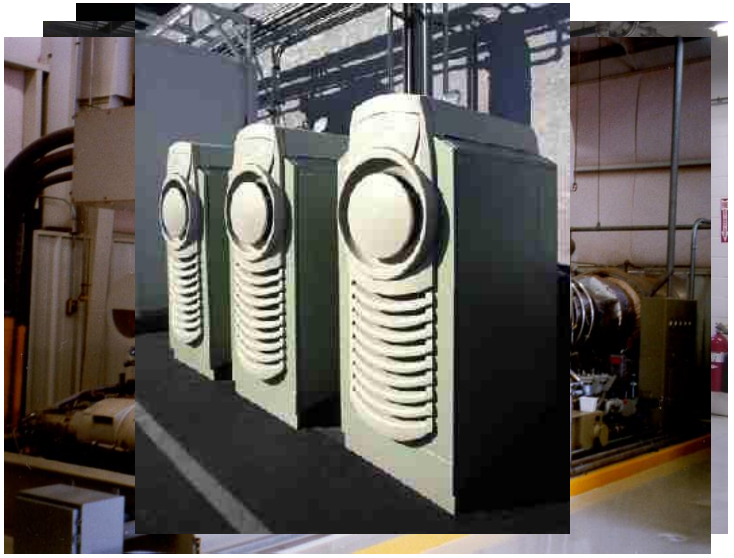
Electric Generation

- Internal Combustion Engine
- Gas Turbine
- Steam Turbine
- Micro Turbine



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Electric Generation

Technical	Environmental	Financial
Long Operating History	Stringent Emissions Limits	Qualified RECs - State RPS
Standard Commodity	Combined Title V	Base Load
Wide Fuel Range	Fuel Combusted On-site	Competitive in Dispatch Stack
		Federal and State Incentives Favor Power Generation

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DSIRE™
Database of State Incentives for Renewables & Efficiency

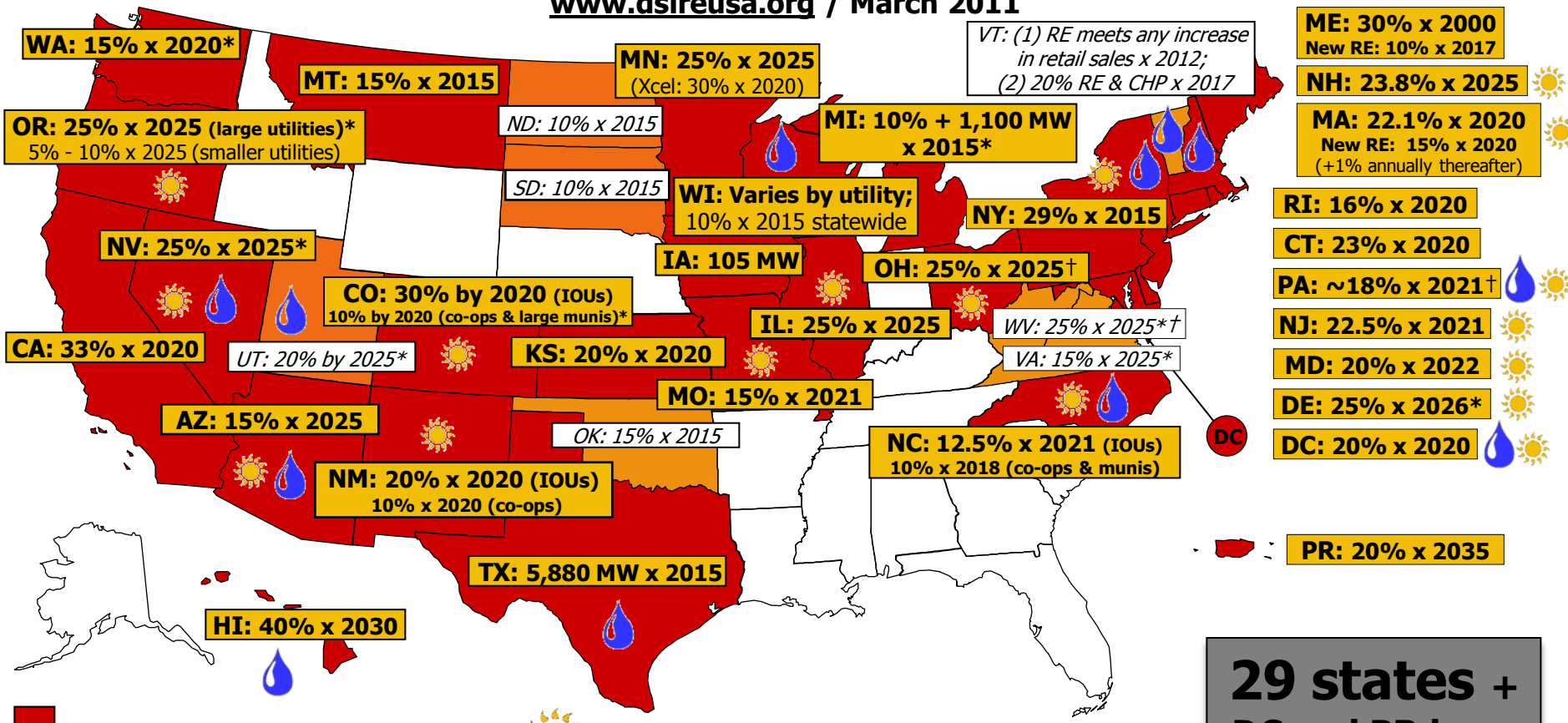
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

IREC Interstate Renewable Energy Council

North Carolina Solar Center

RPS Policies

www.dsireusa.org / March 2011



Renewable portfolio standard

Renewable portfolio goal

Solar water heating eligible

Minimum solar or customer-sited requirement

* Extra credit for solar or customer-sited renewables

† Includes non-renewable alternative resources

29 states + DC and PR have an RPS
(7 states have goals)

Seneca Meadows Landfill

- Five Expansions
  - Over a nine year period
  - Match growth of LFG production

- RNG offers Versatility
  - Co-located Electric Generation and RNG Projects
    - 17.6MW Electric Project
    - 3,000 scfm RNG Project

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Growth at Seneca

February 1996
2.4 MW Electric Generation

Spring 1996
.8 MW Electric Generation
3.2 MW

June 1997
2.4 MW Electric Generation
5.6 MW

August 1998
5.6 MW Electric Generation
11.2 MW

January 2007
6.4 MW Electric Generation
17.6 MW

July 2014
Addition of 3000 scfm RNG facility

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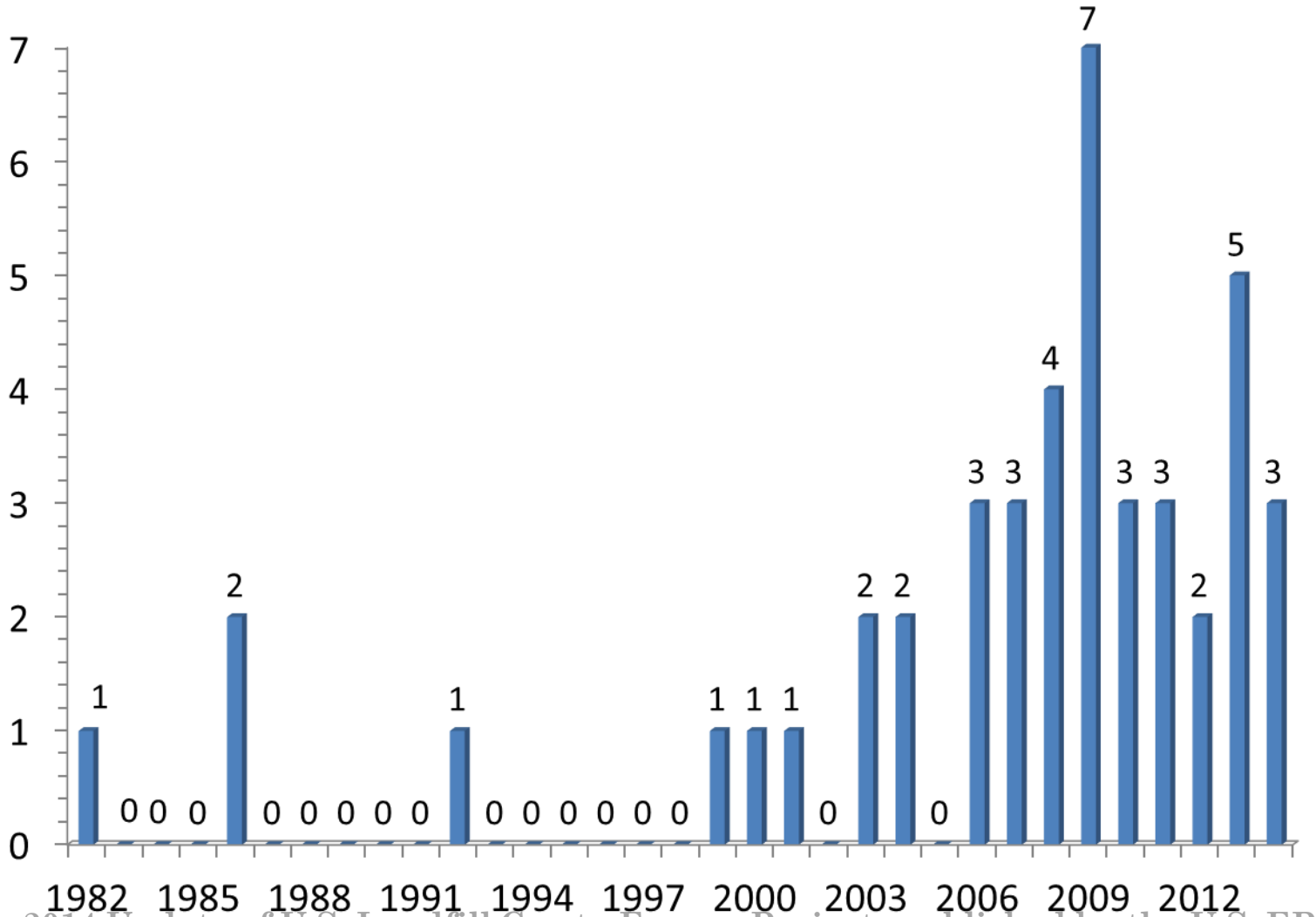
RNG Projects in the US



Source: 2014 Update of U.S. Landfill Gas-to-Energy Projects published by the U.S. EPA

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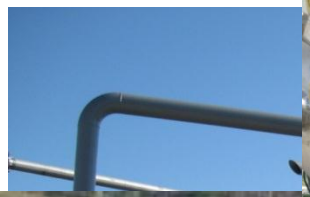
Renewable Natural Gas

- Organic Solvents
- Membranes
- Adsorption



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Benefits of RNG Projects

- Reduced permitting requirements
  - Minimal emissions footprint
  - All but eliminates methane destroyed at landfill
- Capture renewable value in transportation sector
- Offsets use of fossil-fuel derived natural gas
- Increased transportability

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RNG – Technical Considerations

High Complexity	Pipeline Specifications	Recent Improvements
Skill Sets	Heating Value	Standardized Design
Design and construction	Inert Gases	Modular Components
Operating Costs	Oxygen, Sulfur	N_2O_2 Removal

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RNG – Environmental Considerations

Emissions	Permitting	Regulatory
Limited Footprint	Streamlined Process	USEPA RIN Certification
Gas Combusted Off-site	Separate Source	California CEC Certification

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RNG – Economic Considerations

Commodity	Transportation	Environmental Attributes
Traded Commodity	National Pipeline Network	RINS
Lock in Forward Price	Established and Regulated Process	LCFS
Long Term Forecast		RECS

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RNG Math

- Seneca New York Facility
- Production Capacity
  - 2,000 MMBtu/Day
- 25,960 GGE per day
- The average convenience store sells 4,000 gallons of gasoline per day *
- 6 ½ average stations to sell output from Seneca based on gasoline sales
- Access to national pipeline network mandatory to move production to markets

* Based on NACS bulletin

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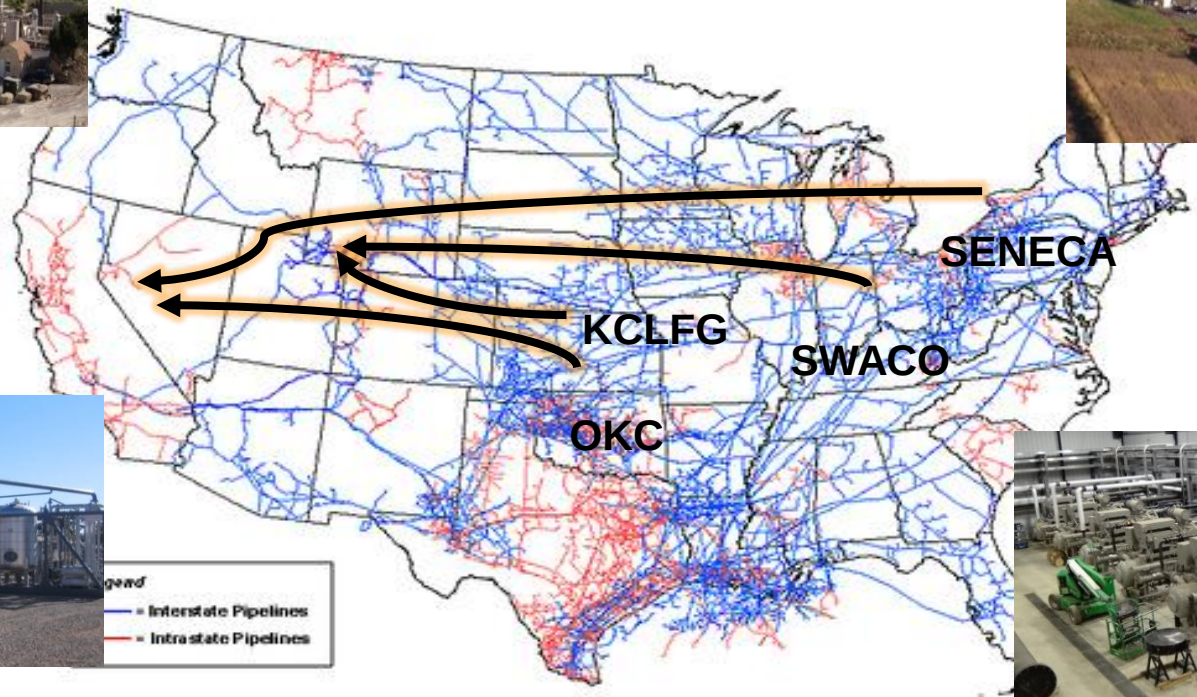
RNG Transportation



Source: Energy Information Administration, Office of Oil & Gas, Natural Gas Division, Gas Transportation Information System

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Value Drivers

Traditional Value Drivers

- Energy/Capacity
- Renewable Energy Credits
- Section 45 Tax Credits
- CO2e Emissions Credits
- NSPS Compliance

Emerging Value Drivers

- Commodity price of NG
- Green Attributes
- RFS2 - RINS
- Low Carbon Fuel Standard (CA)
- Legislative Proposals

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RNG – Legislative and Policy

- **Federal**
  - Encourage all renewable uses
  - Long term certainty
  - Realistic and timely rule making
- **State**
  - Adopt low carbon fuel standard
  - Encourage pipeline access
  - Qualify broad range of resources

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