



ELEMENT MARKETS

The New England RPS Markets “REC-onomics”

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Introduction

Econ 101 - How Commodity Markets are Supposed to Work

“The market price of every particular commodity is regulated by the proportion between the quantity which is actually brought to market, and the demand of those who are willing to pay the natural price of the commodity”

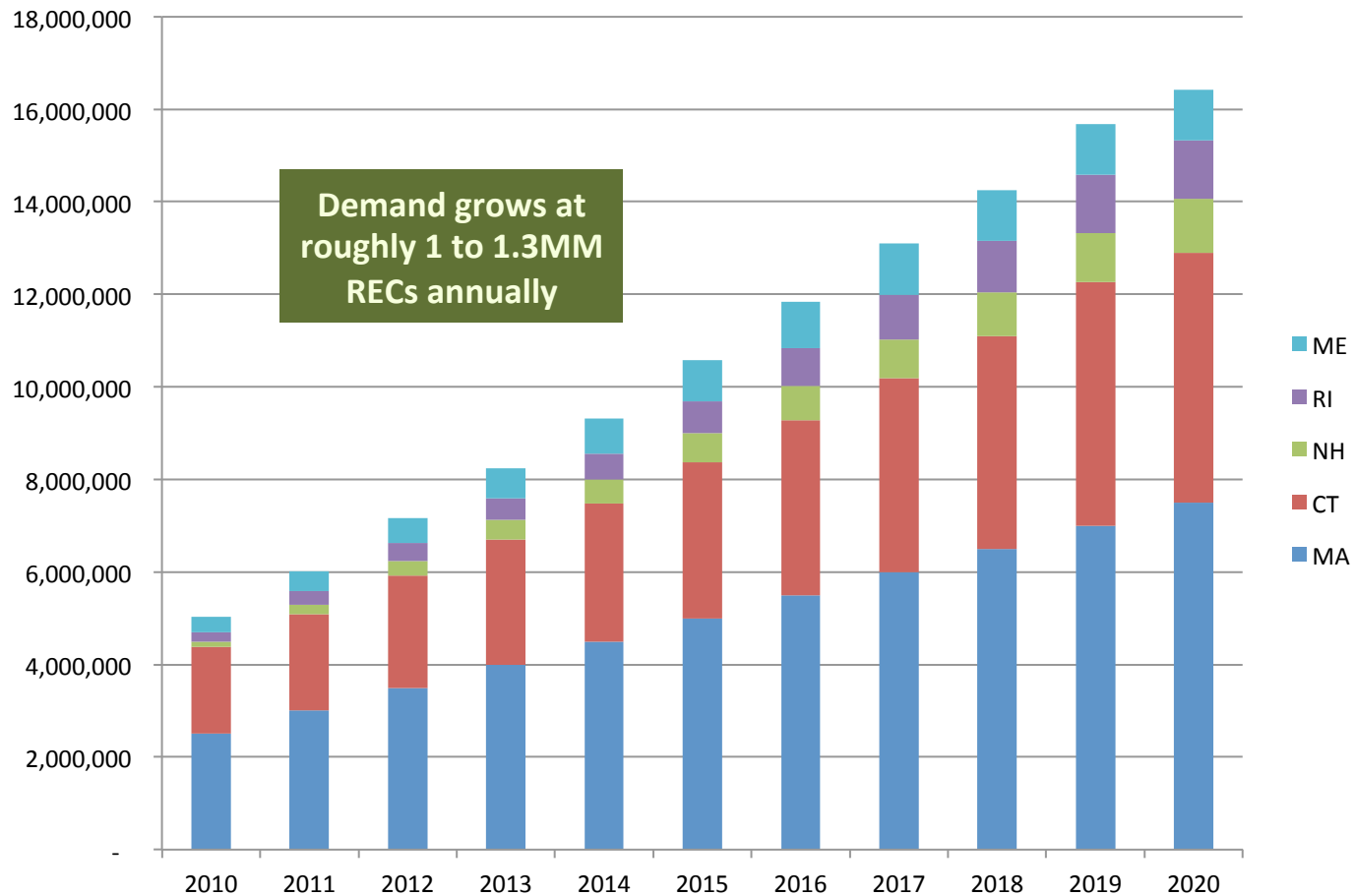
-- Adam Smith, *An Inquiry into the nature and Causes of the Wealth of Nations*, Book I, Chap. VII: "Of the Natural and Market Price of Commodities“

But Mr. Smith never met the New England REC Markets...

New England Class I REC Demand

Minimal Variation in Forecast over the past few years

New England's Power Demand appears to be flattening, and no new policies have been implemented recently that significantly impact the mandated Class I growth



New England Class I REC Supply

Cue the Magic 8 Ball...

Far from being a stable linear progression like demand, modeling the supply of RECs in New England is much more complicated and needs to be solved using a Monte Carlo simulation (or my Magic 8 Ball app) that accounts for the following variables:

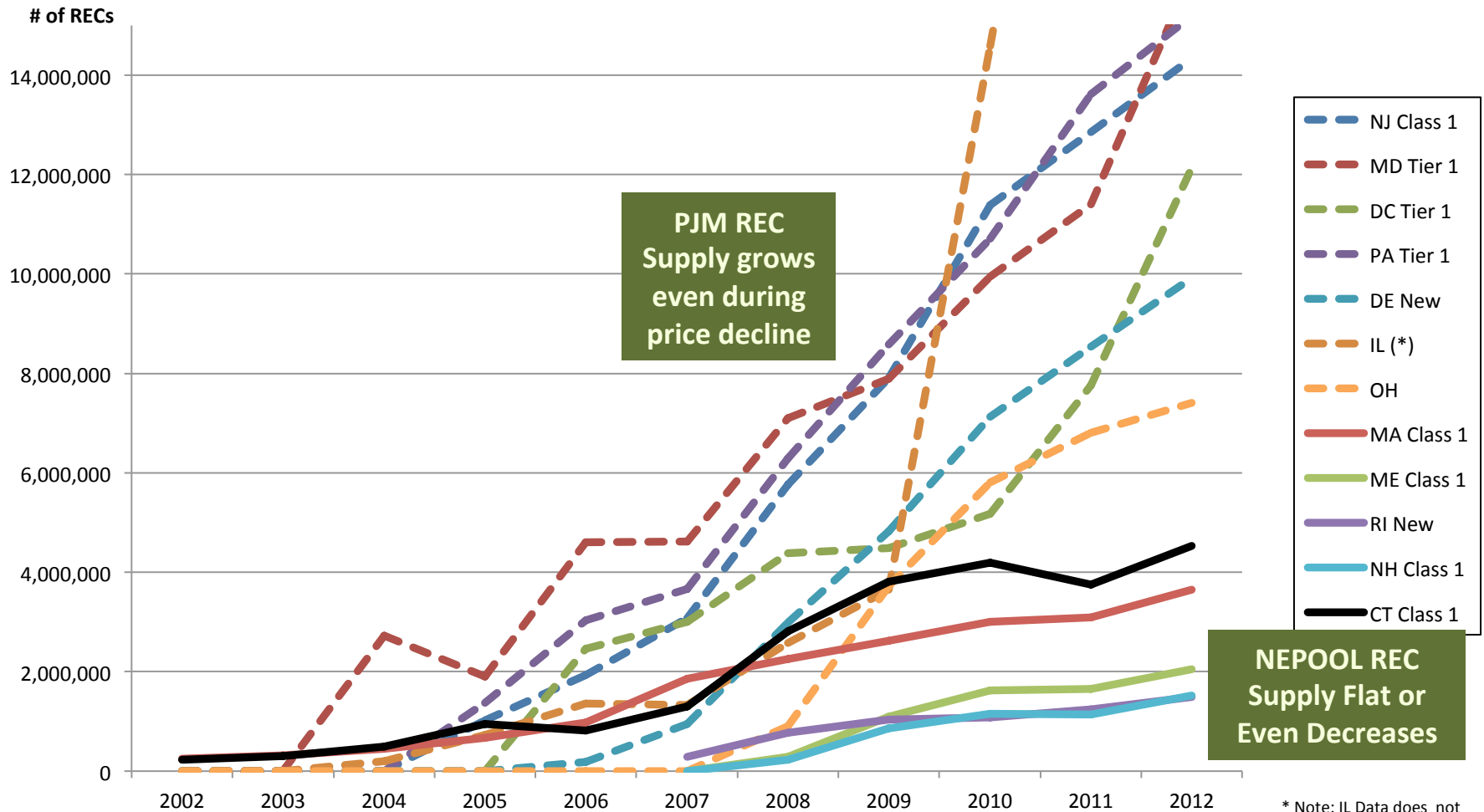
- The Elasticity of NEPOOL REC Supply to Price
- The Impact of Current and Potential Long Term REC Procurements
- The Concept of “Reducing” Renewable Energy Credits per MWhr
- The Issue of “Double Counting”
- The Inclusion of New Technologies

With the goal being an average growth rate of roughly 1.0 to 1.5MM new RECs per year...

New England Class I Supply

REC Generation Decreases in Response to Price

New England REC Markets' supply demonstrated a unique ability to quickly respond to price signals – compare the PJM and NEPOOL market response to lower prices in 2011



Source: PJM GATS and NEPOOL EIS

* Note: IL Data does not include RECs from MRETS registered facilities

New England Class I REC Supply

State Authorized Long Term REC Procurements

Unlike in most deregulated power markets, the New England States have and are continuing to procure RECs (and in many cases power and capacity) by mandating their distribution utilities conduct long-term RFP's

	Completed	Est. RECs/yr	Underway	Est. RECs/yr	Future	Est. RECs/yr
MA	Green Comm. Act (Sec. 83) Cape Wind (Nat.Grid & NSTAR)	300 1,350	Green Comm. Act (Sec. 83A) #1	850	Green Comm. Act (Sec. 83A) #2 Non-solar DG RFPs	850 425
CT	Project 150 LREC/ZREC #1	400 100	New Renewable RFP (13-303 Sec. 6) LREC/ZREC #2	1,000 115	LIHI/LFG/Biomass RFP (13-303 Sec. 7) Large Hydro Inclusion LREC/ZREC #3-6	1,000 1,250 635
NH	Laidlaw Berlin Biopower	500				
RI	Block Island Wind	100				
ME	MPUC RFP #1 (Rollins) MPUC RFP #2 (Verso)	160 250	MPUC RFP #3 Deepwater Offshore Wind	?? 100		
NE					New England Governor's Regional Procurement	??
TOTALS		3,160		2,065		4,160

All numbers are annual estimates (in 1,000's of RECs)

New England Class I REC Supply

Reducing Renewable Energy Credits per MWhr

Recent changes have introduced the concept of declining REC factors whereby the number of RECs per MWhr of renewable generation is reduced – but this is proving very complicated to administer

Massachusetts

- Biomass Ruling – created a sliding scale factor for units achieving between a 50 and 60% efficiency rating
- SREC II – originally designed such that all systems were to be assigned an SREC factor starting at 1 and moving toward 0 based on COD and cumulative program generation – revised due to difficulties in reconciling adjusted SREC values in carve out with Tier 1

Connecticut

- Public Act 13-303 - Requires the DEEP Commissioner to institute a proceeding in conjunction with the IRP process before the end of the 2013 to assign “*a gradually reduced renewable energy credit value to all biomass and landfill methane gas facilities*”.

New England Class I REC Supply

Double Counting – or What’s the Matter with Vermont?

CT Public Act 13-303 added a new restriction for Class I resource eligibility

“...on and after January 1, 2014, any megawatt hours of electricity from a renewable energy source described under this subparagraph that are claimed or counted by a load-serving entity, province or state toward compliance with renewable portfolio standards or renewable energy policy goals in another province or state, other than the state of Connecticut, shall not be eligible for compliance”

The language is primarily directed at Vermont and its SPEED Program

- The goal is to cover 20% of load (or ~1.2MM) with new renewable resources by 2017
- SPEED resources generated 830K RECs (RY12) that were resold into the regions’ Tier I markets; VT RECs accounted for 15% of CT 2011 compliance

Then there’s New York –

- Questions have been raised as to whether their Environmental Disclosure Program (EDP) would constitute a potential conflict
- NY RECs made up 5% of CT 2011 compliance

This rule alone may not have much impact as the majority of VT’s (and potentially NY’s) credits will still be eligible in the remaining states, but it sets a precedent that bears close watching both for any reaction from either the other states or from VT (time for an RPS?)

New England Class I REC Supply

Newly Eligible Class I Technologies

States have or are evaluating expanding their definitions of Class I resources

Large Hydroelectric Resources

- NESCOE recently released a study on behalf of the governors of CT, ME, MA, RI and VT that evaluates the potential to increase Canadian hydropower imports
- In 2010 VT approved large hydro as a renewable resource
- CT Public Act 13-303 allows the DEEP Commissioner, following an annual four step determination process as to whether the program is otherwise short, can procure up to 1% of the required RPS each year up to a 5% maximum.

Renewable Thermal Resources

- NH is in the process of implementing a Renewable Thermal Class I Carve-out
- MA has pending legislation that would add 5 renewable thermal technologies to their Alternative Energy Program

In Summary

Upcoming Timeline of Significant Events

2013

- CT - Hearings on Biomass and LFG reductions
- CT – Possible RFPs for run of river hydro, biomass and lfg (13-303 Section 8) and for Large Hydro Resources (Section 7) - ongoing

2014

- CT - Vermont SPEED RECs no longer eligible
- NH – Renewable Thermal Carve-out begins
- MA – SREC II program (1,600 MW goal with sliding scale)

2015

- CT - Biomass and LFG reductions begin
- MA – Cape Wind PPAs terminate if construction not begun by year end

2016

- MA – Minimum Biomass Efficiency Requirements begin
- CT – Large Hydro eligible to supply 1% of the RPS demand, growing annually

2017

- VT – SPEED Program Target year – what's next?

Thank You

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Please Note: The views expressed in this presentation are my own and do not necessarily represent the views of my employer. Element Markets is a participant in the environmental credit markets. The purpose of my comments is to provide general background on the market structure, and should not be interpreted as advice on particular trading strategies.

 <p>U.S. EMISSIONS HOUSE OF THE YEAR</p> <hr/> <p>AWARDED BY ENERGY RISK MAGAZINE</p>	 <p>#1 U.S. REGIONAL GREENHOUSE GAS DEALER</p> <p>#1 U.S. VOLUNTARY GHG CREDIT DEALER</p> <p>#2 RENEWABLE ENERGY CREDIT DEALER</p> <p>#1 SO₂ DEALER</p> <p>#1 NO_x DEALER</p>	 <p>BEST TRADING COMPANY OF NORTH AMERICAN GREENHOUSE GAS MARKETS</p> <p>BEST TRADING COMPANY OF SO₂ EMISSIONS CREDITS</p> <p>RUNNER-UP FOR BEST TRADING COMPANY IN NORTH AMERICAN RENEWABLE ENERGY</p> <p>RUNNER-UP FOR BEST NORTH AMERICAN GREENHOUSE GAS DEVELOPER</p>
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