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UBS Investment Research

Market Evolution in New England

New England Electricity Restructuring Roundtable

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- Sellside Equity Research regularly publish reports on publicly traded, including *regulated and integrated utilities and IPPs*

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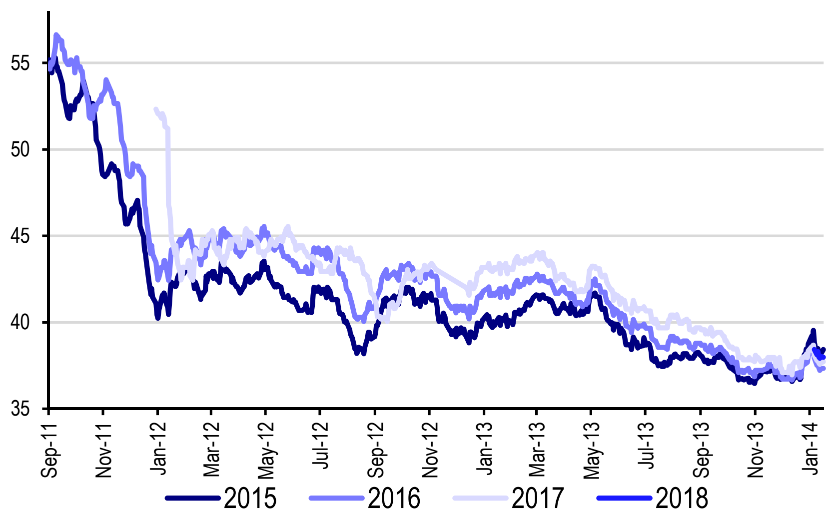
Where are we today?

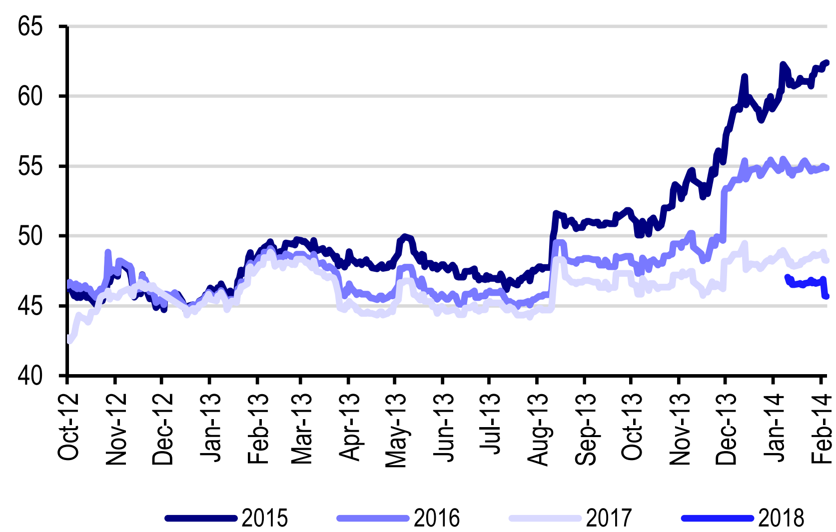
Power Prices (and Markets) Under Pressure

- Backwardation is substantial
  – Meaningful outperformance relative to other markets in New England
- Power Spikes Driven by Gas Spikes

PJM West ATC Prices ($/MWh)



Mass Hub ATC Prices ($/MWh)



Source: Platts

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And the Basis Continues to Get Wider

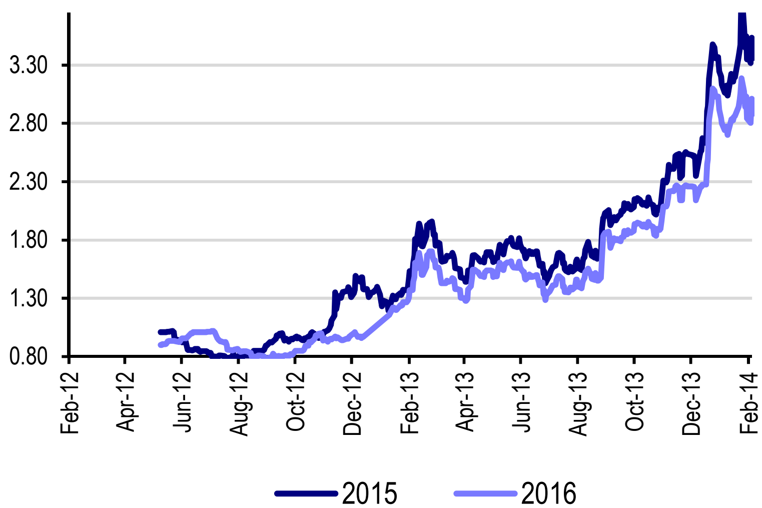
Pinch Point Approaching in ~2015…

- Gas basis $3-4/MMBtu, with Nominal Price back to ~$8/MMBtu in 2015
  - Positive impact to heat rates / power prices
  - Transient phenomenon: solved with *either* electric transmission or gas midstream

'Gas by Wire' Solution? HQ as well? … Governor's RFP is worth watching closely

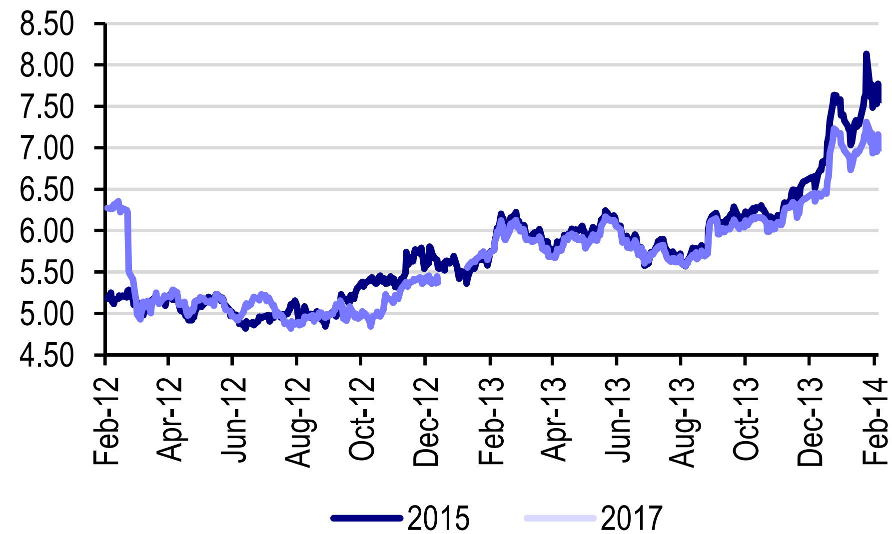
- Ultimately 'out-of-market' solution appears likely, albeit long-dated

Algonquin Gas Basis ($/MMBtu)



Source: Platts

Algonquin Gas Nominal($/MMBtu)



Source: Platts

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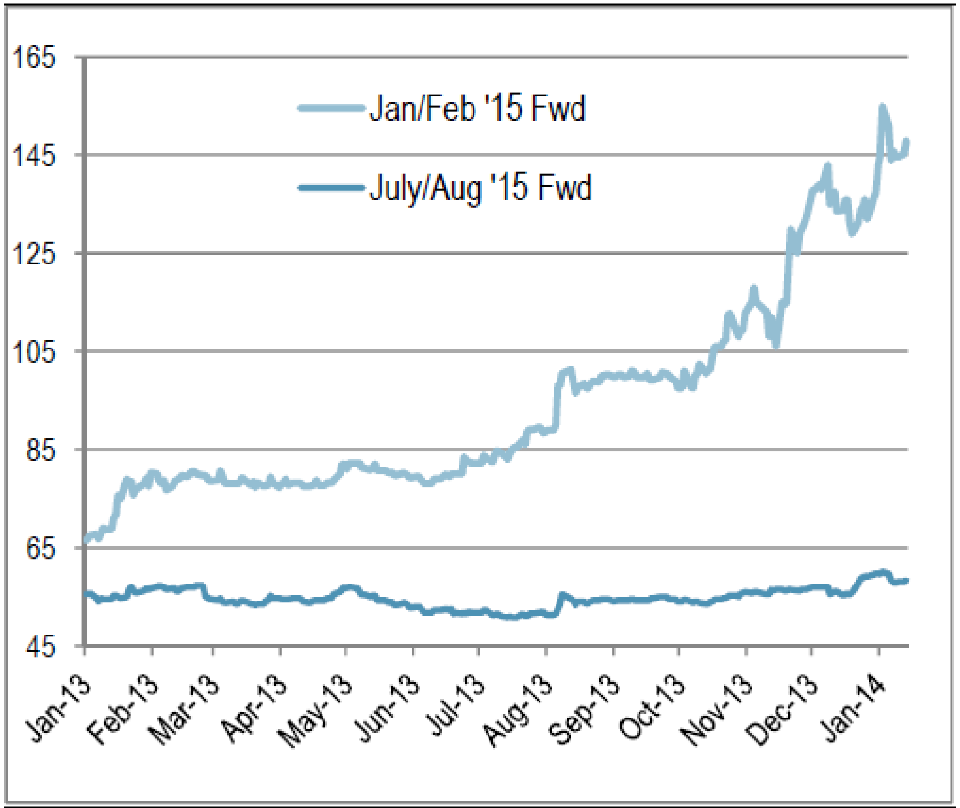
Gas Constraints: Saving the Day for IPPs?

Where are we today?

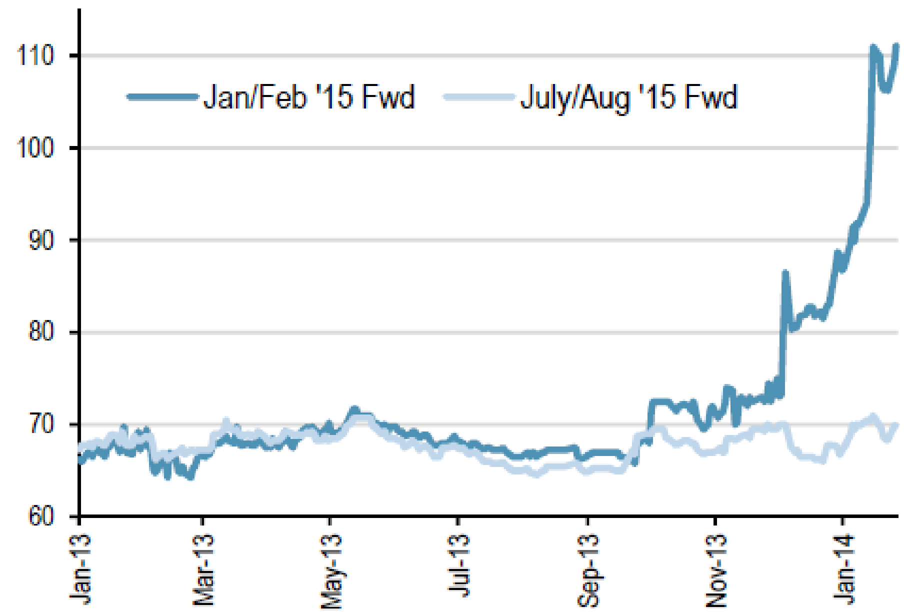
- Has been the case in NY and New England for Some Time…

Mass Hub Seasonal Onpeak Prices ($/MWh)



Source: Platts and UBS estimates

NYISO – Zone J Seasonal Onpeak Prices ($/MWh): NYC Pricing



Source: Platts and UBS estimates

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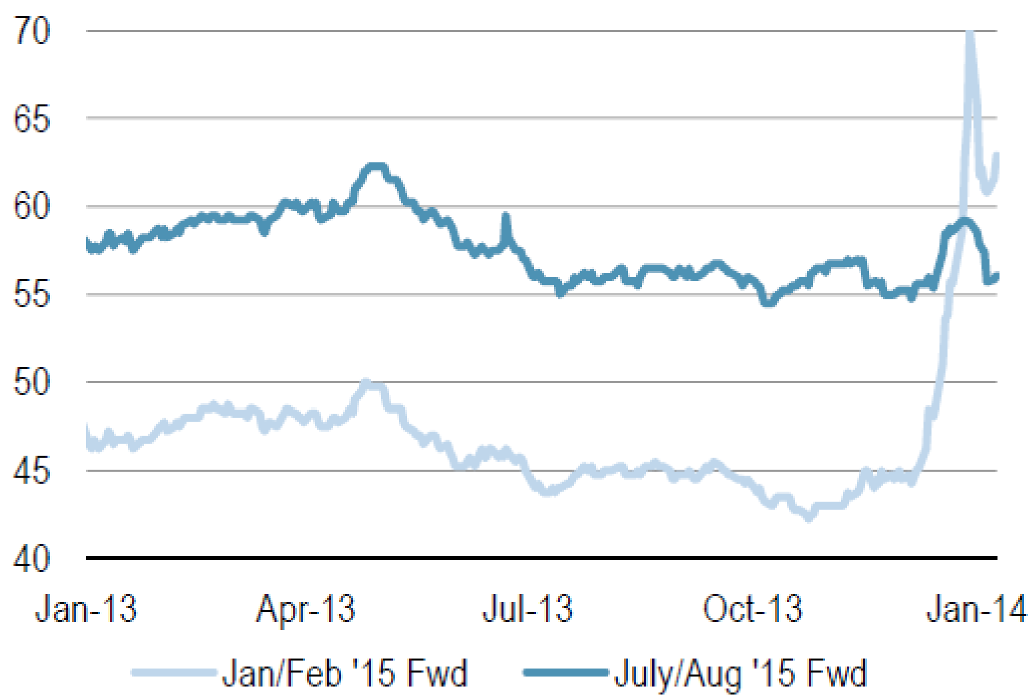
Adding PJM to that List

Winter Eclipses Summer for 'Value' Argument

- Commodity Recovery ***Rather*** Than Power Supply/Demand (Heat Rate) Recovery?

Figure 3: PJM West Seasonal Onpeak Prices ($/MWh)

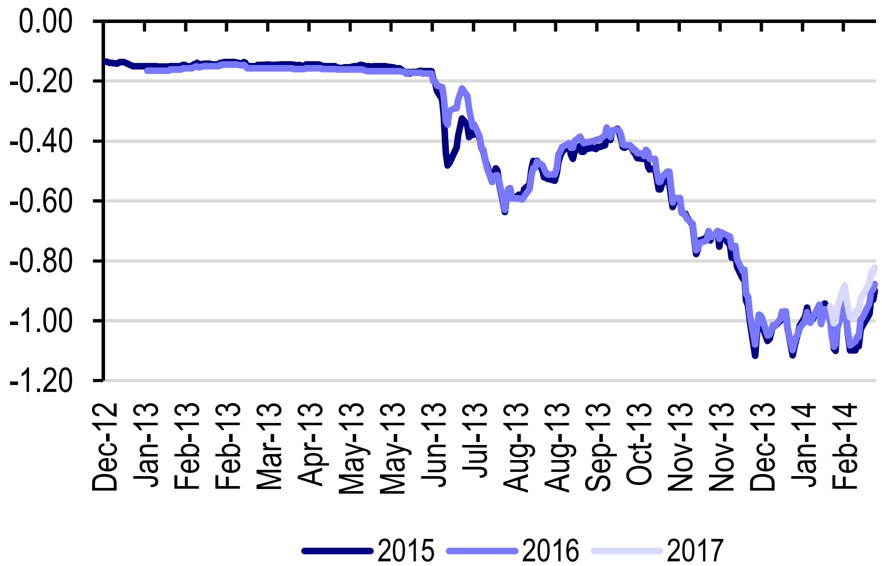


Source: Platts and UBS estimates

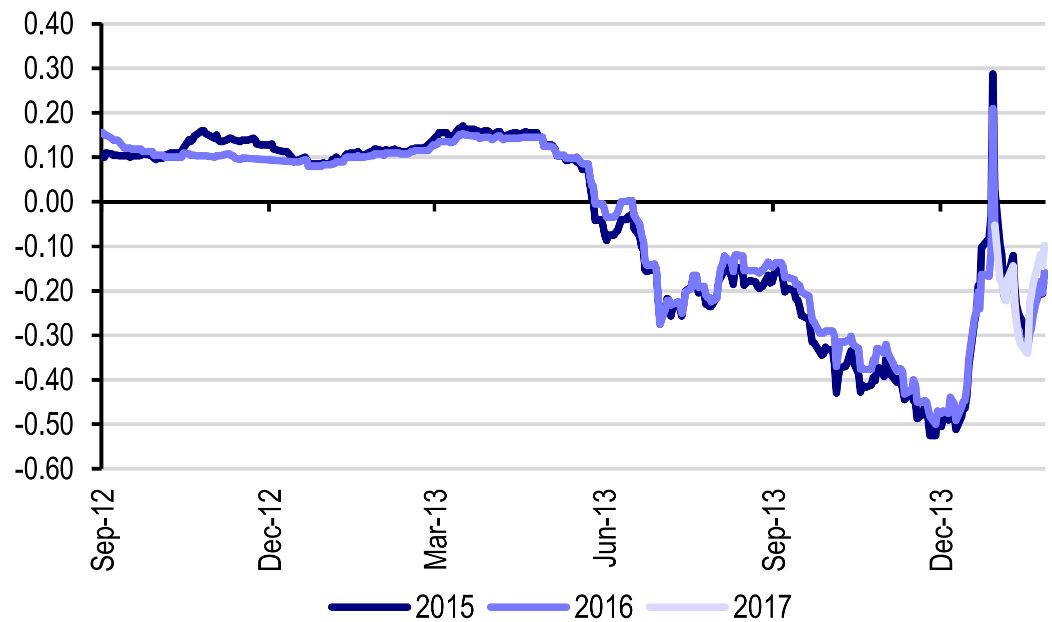
Structural or Cyclical Headwind in Gas Prices?

Gas Prices Should Improve Given Proximity to Gas Supply.

Dominion South Point Forwards $/MMBtu



TETCO M3 (NJ-PA) $/MMBtu



- When will the gas <u>takeaway</u> issues get resolved?
  - *Bottleneck on pipes has jolted TETCO M3 back to life.*
  - *Seems sooner for NJ, but 'constraints' seem to have been a pervasive problem*

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Source: Platts

New England: And Then The Purge Happened…

- Rationalization is happening *prior* to the floor going away
  - Brayton Point, Vermont Yankee, Norwalk, Demand Response
  - *Other Oil Capacity could have followed in February auction for 2017/18?*
- Other static de-list bids could bring some stability to market
  - But trend here is again, *back to cash flow break-even*
- **Saw pricing hit new levels (1.1x Net CONE = ~$7/kW-month)**
  - *Illustrates need for sloped demand curve*
  - Vertical demand curve leads to Boom-and-Bust
  - Be a leader in design of 'market' approaches to Firm Fuel?

Figure 1: Latest ISO-NE FCM Capacity Auction Results

ISO New England FCM Results					Actual	UBSe	
FCA Auction #	4	5	6	7	8	8	9
Auction Date				4-Feb-13	4-Feb-13	3-Feb-14	
Period (Years)	2013/14	2014/15	2015/16	2016/17	2017/18	2017/18	2018/19
CONE (Updated)	4.918	5.349	5.723	6.05	6.39		
Increase		*9%*	*7%*	*6%*			*New Demand Curve*
Clearing Price, $/kW-month (Actual/Forecasted)	2.95	3.21	3.43	3.15	7.025		2.50
Pro-Rated Price (Actual/Forecasted)	2.52	2.86	3.13	2.88	7.025	*7.025*	2.50
$/MW-day Equivalent	*82.72*	*94.03*	*102.87*	*94.78*	*230.96*	*230.96*	*82.19*
NEMA (Boston Clearing Price), $/kW-month [1x1 * Net CONE]				6.66	15.00		
$/MW-day Equivalent				*219*	*493*		

Source: ISO-NE and UBS estimates

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Driving more retirements?

Outlook suggests continued retirements possible

- Advocating for policies that exacerbate risk profile for existing generators
  - Could drive yet more retirements?
- Is there really an alternative source of supply?
  - Can footprint deliver on time?
- Will capacity wait it out?
  - Yes, as much as can
  - Nuclear retirements less of a risk now
- Lots of 'Tenous' capacity still
  - Coal (Merrimack), Nuclear (Pilgrim, Seabrook), Oil (Canal, etc.) that could shake out under a 'weak' / 'risky' pricing scenario

Securing the Supply

How is this done?

- Firm Fuel Requirements
  - A focus in all markets now..
  - *Worth paying attention to PJM's proposed framework – with LDA's that 'constrain' with marginal price of firm fuel bids*
- **But what's the source of that supply?**
  - Need for gas plants to secure supply, but how to do that?
  - Oil Inventory: *Build out more storage (and logistics behind it too?)*
  - Gas Firm Transport: Is there really any available at a reasonable price? *What qualifies as adequate FT if just moving the constraint delivery point down the pipe?*

Our view remains that this new contracted pipes with utilities appear inevitable

- **Environmental Considerations**
  - Will CO_2 regulations limit participation of oil in power markets?
  - New GHG deal with Footprint: limiting supply flexibility?
  - Waivers for SO_2 emissions were allowed for in the last gas price spike

Permissible Bidding Strategies are Key!

Focus on what retiring units are allowed to bid

- Trend in a market without load growth is *towards Free Cash Flow Breakeven*
  - The question is about asset rationalization to meet load forecast, NOT new entry
  - One capacity source is *cannibalizing another* with a lower fixed cost structure
- The key questions remains what are permissible bidding strategies by participants
  - What is *my appropriate variable cost?*
  - *Recovery ON and OF Capital:* That is to say:

    1) 'Return on Equity'

    2) Depreciation

Is New England Poised to Become a 'Real' Market Again?

Latest developments point to constructive reforms

- Sloped demand curve should yield more predictable results
  - And hopefully more 'sustainable' results too. Stem the loss of capacity.
- Real 'Need' for Supply makes market appealing for both incumbent and new entrants
  - Real nascent efforts to develop/expand under way
- Question on legacy of out-of-market contracting in focus
  - Could New England still get away with Contract-for-Difference (CfD contracts)
  - Are the existing ones still enforceable?
- Seemingly unavoidable consolidation of IPP assets in the region
  - Does it make sense for companies to own just 1 or 2 assets in the region? Not really.
  - Examples: D, NEE, ETR, PEG

Looking Beyond The Near Term: The Renewables Are Coming

Watch Out!

- Robust outlook for new renewables
  - *Rush* to the door on PTC expiration
  - *Robust* capacity factor expectations
- Effectively equivalent to new gas assets being added to market
  - Compare to Europe?
    1) No demand growth, but new supply based on subsidies
    2) PTCs drive negative prices
- Where is this relevant?
  - New York & New England have substantial 'increment' to achieve RPS goals
  - How much will be firm (e.g hydro)?
- No fuel costs to renewables
  - Increasing penetration will driven prices down, *below* that of other fuel sources
  - Akin to nuclear assets, with limited marginal costs

-> Subsidized Renewables.. Not Subsidized Gas?

Renewables: Exceeding Demand?

Cumulative US build exceeds forecasted EIA demand growth through 2020

Incremental Renewable Requirements vs. Projected Incremental Retail Sales (GWh)

(GWh)	Incremental Renewable Generation Required (2020)	Total Incremental Retail Sales Projected (2020)	Discrepency
AZ	3,784	9,283	5,499
CA	57,231	21,834	(35,398)
CO	5,715	7,193	1,478
CT[1]		1,456	
DE	1,162	373	(789)
HI	1,667	519	(1,148)
IA			
IL	17,077	7,229	(9,848)
KS	3,140	1,283	(1,857)
MA[2]	5,944	2,709	(3,235)
MD	6,882	2,069	(4,813)
ME		557	
MN[3]	11,218	3,624	(7,594)
MO	4,259	2,291	(635)
MT		1,589	
NC	8,162	9,968	(6,574)
NH	1,850	530	(1,320)
NJ[4]		2,500	
NM	2,850	2,854	4
NV	880	4,201	3,321
OH	10,695	7,829	(2,866)
OR	6,252	5,435	(817)
PA[1]	6,404	4,838	(1,566)
RI		377	
TX[1]			
WA[1]	4,713	10,799	6,087
WI			
Total	**159,884**	**111,340**	**(62,068)**
Total without CA	**102,652**	**89,507**	**(26,671)**

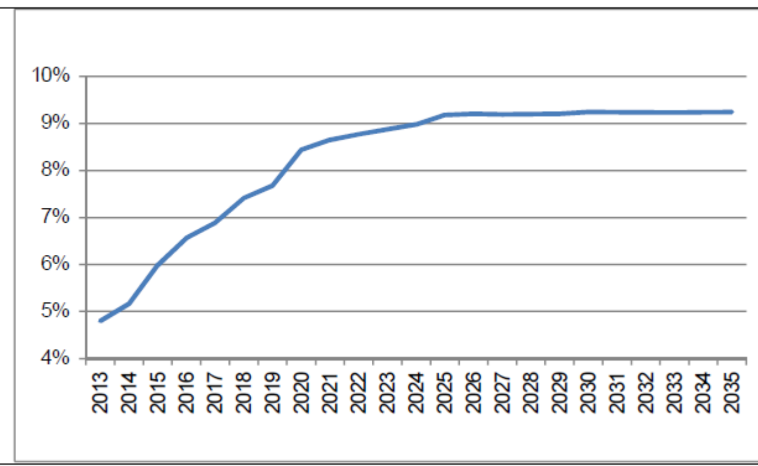
Notes:

(1) Utilized SNL data for the 2011 Compliance Data as there was no data reported from the states.

Source: LBNL, SNL, and UBS estimates

- Assumes Build out to Existing RPS Standards
  - *Some states poised to increase?*
  - *Will likely be regionally concentrated*

Mandatory RPS as a proportion of Total Electric Sales



Source: EIA, Berkeley National Laboratory

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Zero Marginal Cost?

The Future of Power Markets

- Markets will need to response to these signals
- Does the future look more like **energy** or **capacity markets**
  - Intermittency and operational metrics will matter <u>more</u>
  - How will 'merchant' renewables ever be incentivized? Not with Energy?
- Still does not bode well for steam generation based technologies
  - Nuclear and Coal remain fragile
- Capacity markets appropriately redirect compensation towards **fixed payments**
  - Infrastructure business naturally attempts to *match* duration of assets with cash flows
- Time to focus on the **forthcoming** issues as well
  - Once deal with existing immediate issues.

Most Dynamic Market.

Decisions in next key months will shape experience of restructured markets

- 'Testing' the limits of restructured markets to deliver
- In interim Infrastructure development will need to be key
  - Working to resolve gas and electric bottlenecks key
  - Overcoming structural NIMBY issues, etc
- Capital is available to execute
  - Just enable 'a' framework that works

Risk Statement

- Risks for Utilities and Independent Power Producers (IPPs) primarily relate to volatile commodity prices for power, natural gas, and coal. Risks to IPPs also stem from load variability, and operational risk in running these facilities. Rising coal and, to a certain extent, uranium prices could pressure margins as the fuel hedges roll off Competitive Integrateds. Further, IPPs face declining revenues as in the money power and gas hedges roll off. Other non-regulated risks include weather and for some, foreign currency risk, which again must be diligently accounted in the company's risk management operations. Major external factors, which affect our valuation, are environmental risks. Environmental capex could escalate if stricter emission standards are implemented. We believe a nuclear accident or a change in the Nuclear Regulatory Commission/Environment Protection Agency regulations could have a negative impact on our estimates.

  Risks for regulated utilities include the uncertainty around the composition of state regulatory Commissions, adverse regulatory changes, unfavorable weather conditions, variance from normal population growth, and changes in customer mix. Changes in macroeconomic factors will affect customer additions/subtractions and usage patterns

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Neutral	FSR is between -6% and 6% of the MRA.	45%	35%
Sell	FSR is > 6% below the MRA.	11%	23%
UBS Short-Term Rating	**Definition**	**Coverage[3]**	**IB Services[4]**
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	less than 1%	less than 1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	less than 1%	less than 1%

Source: UBS. Rating allocations are as of 31 December 2013.
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