US Electric Utilities & IPPs
Debating the Nuclear Option in Illinois

Equities

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We think a deal is still coming in Illinois, but may be a 2016 event
Given continued frustration over budget and pension deal in Illinois, it appears real prospects of any energy bill is increasingly being pushed into the Spring session in 2016. However, with EXC having latitude to retract any formal retirement date to late 2015 off an initial retirement date for Quad Cities expected in Sept 2015 for Quad Cities, there's a real chance the plant is permanently retired prior to any legislative review. In turn, Quad Cities may still get a shot, with a retirement announcement expected in December, and final 'go-no go' decision potentially as late as May, 2016. The key question remains to what extent an announcement in September of an initial Quad Cities retirement will cause any 'leapfrogging' of the issue

But still see a real desire from all constituents to get a deal done if it comes up
Despite the delay, we see an incredible level of support for bridging the FCF deficits at the plants through forthcoming 5-year period until EPA's Clean Power Plan (CPP) is put in place (2016-2021). In fact, retirements of plants would effectively double the impact of the CPP program (from 31 Mn tons to upwards of 60 Mn tons/yr + with all three units gone). We flag both stakeholders at the State level and Federal levels from across the energy diaspora appear to be weighing in to keep the plants around. We suspect any failure to reach a deal in the current instance is likely a matter of brinksmanship rather than desire.

What could compensation look like? We still think it's carbon program
In a move towards supporting the nuclear plants, we see a mandatory carbon scheme that is 'market' driven as the likely outcome, focusing on a program that would require retailers in the state to procure a minimum level of 'clean' (eg- carbon free) resource. While we worry about the leakage towards renewables under the scheme, seeing RECs as roughly ~$1/MWh on a market basis today, we suspect EXC could well accept some continued FCF deficit as part of any deal. We estimate total FCF deficits from the two plants generate a total loss north of ~$100 Mn/yr (see tables below)

PJM capacity wildcard remains a potential de-railer of any deal?
Despite the clear likelihood that Exelon will *not* clear it's Quad Cities plant in the capacity auction, it appears that any 'upside' captured from the auction could well need to be sacrificed or offset upside from a low-carbon deal in the state. Tying PJM compensation to a carbon scheme could well be among the unorthodox elements of any deal, addressing consumer concerns over wider 'total' compensation. We expect a high capacity price and price separation in the region (particularly if prices breach $200/MW-day) as detracting from any potential for further meaningful compensation (we still expect the region to breakout, but that will be driven by NRG rather than EXC). We suspect Quad Cities would still retire, as $200 is likely still insufficient.

See general tailwind on nuclear support for EXC

While delay to 2016 is clearly a negative datapoint, we see meaningful wide support for a deal as widely supportive of Exelon into next year. We suspect this could help address wider concerns that the compensation scheme be deemed by a 'bailout' by some stakeholders. We see the risk associated with any true 'market' implementation as largely addressing concerns of a firm-specific bailout. Rather, the question is if the company be willing to 'accept' such an uncertain outcome, at risk of only mitigating FCF deficit rather than driving towards an overall FCF positive position (which would arise from firm retirement of these units, given both elimination of the cash drag as well as the potential upside from market recovery). We see EXC mgmt as keen to leverage a successful deal in IL as a model for other states keen to implement their own interim measures, such as NY.

How do we think the dust settles in Illinois?

We see a deal in Illinois as still quite possible, with a last-minute decision to turn around nuclear plant retirements a real prospect following any legislation. We expect firm plant closure commitments to ratchet up pressure in the state this Fall, which has seen relatively limited debate thus far given the raging and debilitating budget issues in the state. Particularly with a politically savvy-ComEd and Exelon navigating the political traps in the state, we readily expect compromises to be reflected in any finalized version of the bill. As such, investors may be left wanting a firmer deal to address cash losses. In many respects, Exelon comes to the table with credibility at stake with investors to address cash deficits from assets; it will be up to the political establishment to accept a deal that begins to approximate the net improvement to the overall portfolio should Exelon move forward with threatened retirements.

Understanding the nuclear timeline

We flag that there are several key and specific milestones for Quad Cities and Clinton, respectively to bear in mind. First, Exelon must provide 18-months notification as to whether it will retire units per it's arrangement with PJM. This would suggest participation in the May, 2017 auction (and 2017/18 period) would need to be indicated in September, 2015 (this is the critical deadline).

<u>Refueling events are the 'investment decisions' for nuclear plants to keep going</u>

As it relates to the nuclear refuelling timeline for Quad Cities, unit 2 has a scheduled outage in the Spring, 2016. Typically these units are loaded with a 24-month fuel core, however, should both plants be shut, the plant will probably be loaded with just a 12-month core to satiate the plant through May, 2017. Unit 1 could also see a simultaneous outage to reflect any terminal investment needs for the plant in the Spring. Notably, given the core's unique design, any unused elements of new nuclear core could *not* be used in other plants in the EXC portfolio.

As for Clinton (single-unit site), it too faces a refuelling outage next Spring, May 2016. Given the year 1-year forward reliability scheme for retirements in the footprint, we suspect Clinton may indeed not pursue investment for its core either and shut down permanently as soon as late next Spring.

What kind of uplift – and by when?

With Clinton potentially permanently retiring as soon as next Summer and Quad Cities the summer after (2017), reports pin this uplift at $0.75-2.00/MWh for the ComEd market. With the current nuclear portfolio in Illinois estimated to generate ~92TWh annually, we see the ~20TWh reduction from the retirement of these two units as leaving ~70 TWh of nuclear length in these markets across four remaining plants (Dresden, LaSalle, Braidwood, and Byron).

<u>What's the total benefit of retirement to EXC? </u>Removal of ~$100+ Mn/yr of cash deficit generated by the two plants, alongside market uplift of a further ~$70 Mn assuming ~$1/MWh improvement in price. All-in, total uplift would appear to be ~$200 Mn.

Coal retirements – another eventual twist in the ComEd story

We continue to see the potential for further coal plant retirements alongside the potential for nuclear retirements. We see confluence of more stringent 1-hour SO_2 standards as well as further stringency on coal ash regulations as potentially weighing on the portfolio, particularly as companies are pressured to reduce portfolios to keep margins up.

Be careful – further conversions? We caution that while further coal retirements could prove forthcoming, we see many as potentially candidates for coal-to-gas conversion. We suspect NRG's EME portfolio could well continue in this direction, with plants such as Will County poised to eventually convert, particularly given the prospects of higher capacity prices. Ozone & NO_x emissions do not readily appear to be an issue given prospective lower capacity factors.

We see potential for less coal dispatch, but meaningful capacity retirements are elusive, rather, it's all about bidding strategies that should keep ComEd higher rather than further retirements (presumably Quad Cities will continue *not* to clear the PJM capacity auction as well).

But Southern Illinois coal interests will necessarily play a key role

Potential deal would include offsets for coal industry

We suspect any nuclear deal would well require the support of Southern Illinois – and along with that constituents and provisions to bolster the coal industry in the state. This could well come in the form of a payment to subsidize installation of scrubber retrofits to allow burning of Illinois Basin coal portfolio. *Bottom line, the coal industry in the state is taking aim to get a deal done to enable it to compete with PRB, however, with rail rates anecdotally declining of late, this may prove a tough feat.*

While the carbon scheme would be crafted to be a 'carrot' for the nuclear industry, rather than 'stick' for dirtier coal generators, the question remains how to provide equitable relief to downstate regions as part of any energy reform.

Sunset to any deal would aim to 'bridge' to CPP implementation

The ComEd bill as proposed would have a start date of January 1st, 2016 (unlikely in our view) through May, 2021, effectively bridging to the start date of any carbon regime under the Clean Power Plan (5-year window). The thought process is that any compliance under the CPP plan would ultimately establish a sufficient value on carbon to 'save' the nuclear portfolio.

How do final CPP targets jive with retirements?

It would appear the 31 mn ton/yr reduction targeted for Illinois (off 2012 emissions of 97 mn tons) would effectively double, with the eventual retirement of all three units (estimated at 33 Mn tons including Byron and ~20 Mn tons excluding Byron, just for Quad and Clinton).

This could effectively force Illinois to pursue a rate-based approach

With reduction targets this high, this could well push the state to pursue a rate-based approach (lb/MWh) approach rather than aggregate ton reduction target, seeing it as unpalatable given the size of reductions contemplated. Notably, such an approach would meaningfully reduce future latitude, as EPA has seemingly gone out of its way to incentivize the mass based approach.

Timeline for Byron is a further question mark?

Third plant on bubble could become 'next' plant under close scrutiny

While it appears that both Clinton and Quad Cities could well be 'sacrificed' later this year, we see Byron as *next* on the list. Given recent transmission planning on the subject as recently as last year, it would be a surprise to many to actually see further re-entrenchment of the nuclear portfolio back to Byron (perhaps driven by market price improvement with the other two plants retiring). Among the key questions is whether the plant will clear the forthcoming 2018/19 capacity auction to be held in August (we see this as still likely). Notably, this plant would be the first large-two unit site (2.336GW) that would face any retirement risk, raising the wider risk profile of structural issues in sustaining nuclear plants.

What would green interests get? An RPS fix.

Among the principle wins for the environmental community would be a simple fix to effectively allow for continued procurement of renewables to enable RPS compliance. Today, with the state restructured, the IPA, the backstop authority on procurement has limited visibility on total quantities to procure. As such, there could well be a deal to move RPS compliance obligations to the *distribution* bill, seeing this as a more stable source of customers off which to fund such programs. This would be among few restructured states that would allow for RFPs to be run and ultimately paid for via distribution bills rather than through supply charges.

In the near term, expect relatively modest procurement with Community solar gaining increasing attention from many market watchers; this is a consistent comment across multiple markets we look at as finding a 'solution' to address achieve distributed resources in markets with low delivered costs of solar. This could realistically play a key part in appeasing interests.

Utility of the future remains another twist

Following similar efforts in other states, we would expect any legislation to continue to attempt to include:

- Elements of both rate design reform, pushing for fixed demand charges (away from variable rates), as well as encouraging distributed resources, largely for C&I constituents.
- Among more economic angles would include potential for expanded Combined Heat & Power (CHP) and microgrid schemes.
- Lastly realigning utility incentives around energy efficiency remains a key priority, implementing a 'performance'-based scheme to encourage the utility to hit more aggressive standards.

What's not on the table? No bilateral deals to save plants

We continue to perceive a bilateral arrangement to keep any nuclear plants open as a non-starter across the board from all constituents; additionally, re-ratebasing remains equally off the table. As for the recent uplift in the MISO Southern Illinois region, we see just noise, rather than any reality behind recent investigations.

What's our view? We think ComEd is the most interesting RPM niche

Bottom line – between potential for further nuclear retirements and the potential for eventual coal retirements in the region, we see this as the promising region still for PJM. That said, we're not sure we're that bullish on PJM overall this point. We

suspect further wind plant additions and additional transmission will limit significant improvement. Add to that, we see potential economics emerging for new build around gas if gas basis degrades relative to Henry Hub or power prices improve on retirements.

Beyond EXC's own bidding strategy (which we see not as not particularly incentivized to drive extremely high prices due to political considerations), is how NRG will opt to bid its marginal EME coal portfolio. We suspect continued coal to gas conversions and the wider cost compliance with IL NOx and SO_2 targets could drive up their bids meaningfully.

Economics for Clinton and Quad Cities

We include our latest economics below. We have stripped out PJM capacity payments to Quad to reflect the fact the plant has not cleared recent auctions.

Figure 1: Clinton FCF

Clinton ($Mn)	2014	2015	2016	2017
Capacity Payments (Assume All Cleare	7	19	29	37
Dispatch (TWh)	9.1	8.8	8.8	8.8
Power Price (Discount to NI Hub)	30	24	29	30
Ancillary Services (est.)	10	10	10	10
Energy Revenue	269	213	256	267
Revenue ($ Mn)	276	232	284	305
Nuclear Fuel ($/MWh)	6.5	6.1	6.5	6.6
Fuel Cost ($ Mn)	(59)	(54)	(57)	(59)
Non-Fuel Production Cost ($ Mn)	(207)	(209)	(211)	(213)
Taxes other than Inc.	(15)	(15)	(16)	(16)
EBITDA ($ Mn)	(6)	(47)	0	17
EBITDA Margin ($/MWh)	(0.61)	(5.26)	0.03	1.87
Est. D&A	(31)	(31)	(32)	(33)
EBIT	(36)	(78)	(32)	(17)
Taxes (Assume 37%)	13	29	12	6
Net Income	(23)	(49)	(20)	(11)
EPS	(0.03)	(0.06)	(0.02)	(0.01)
Cash Flow Adjustments:				
D&A	31	31	32	33
Addback Nuke Fuel	59	54	57	59
CFO	67	36	69	82
Maintenance Capex	(54)	(54)	(54)	(54)
Nuclear Fuel	(56)	(59)	(61)	(60)
Total Capex	(110)	(113)	(114)	(114)
Free Cash Flow	(43)	(76)	(45)	(32)
FCF per MWh	(4.7)	(8.6)	(5.1)	(3.7)

Source: Platts and UBS estimates

Figure 2: Quad Cities FCF

Quad Cities ($Mn)	2014	2015	2016	2017
Dispatch (TWh)	10.8	10.8	10.8	10.8
Power (~$5/MWh disc. to NI Hub)	27	21	26	25
Energy Revenue	294	229	281	273
Revenue ($ Mn)	294	229	281	273
Nuclear Fuel ($/MWh)	6.54	6.12	6.48	6.65
Fuel Cost ($ Mn)	(70.9)	(66.3)	(70.2)	(72.1)
Non-Fuel O&M ($/kW-yr)				
Non-Fuel Production Cost ($ Mn)	(202)	(202)	(202)	(202)
Taxes other than Inc.	(7)	(7)	(8)	(8)
EBITDA ($ Mn)	15	(47)	1	(8)
EBITDA Margin ($/MWh)	1.34	(4.29)	0.12	(0.75)
Est. D&A	(37)	(38)	(39)	(40)
EBIT	(22)	(85)	(38)	(49)
Taxes (assume 37%)	8	31	14	18
Net Income	(14)	(53)	(24)	(31)
EPS	(0.02)	(0.06)	(0.03)	(0.04)
Cash Flow Adjustments:				
D&A	37	38	39	40
Addback Nuke Fuel	71	66	70	72
CFO	94	51	86	82
Maintenance Capex	(67)	(67)	(67)	(67)
Nuclear Fuel	(70)	(74)	(81)	(81)
Total Capex	(137)	(141)	(148)	(148)
Free Cash Flow	(44)	(90)	(63)	(66)
FCF per MWh	(4.0)	(8.3)	(5.8)	(6.1)

Source: Platts and UBS estimates

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Company Disclosures

Company Name	Reuters	12-month rating	Short-term rating	Price	Price date
Exelon Corp.[4, 6a, 6b, 7, 16]	EXC.N	Neutral	N/A	US$32.44	07 Aug 2015
NRG Energy Inc.[16]	NRG.N	Buy	N/A	US$19.60	07 Aug 2015

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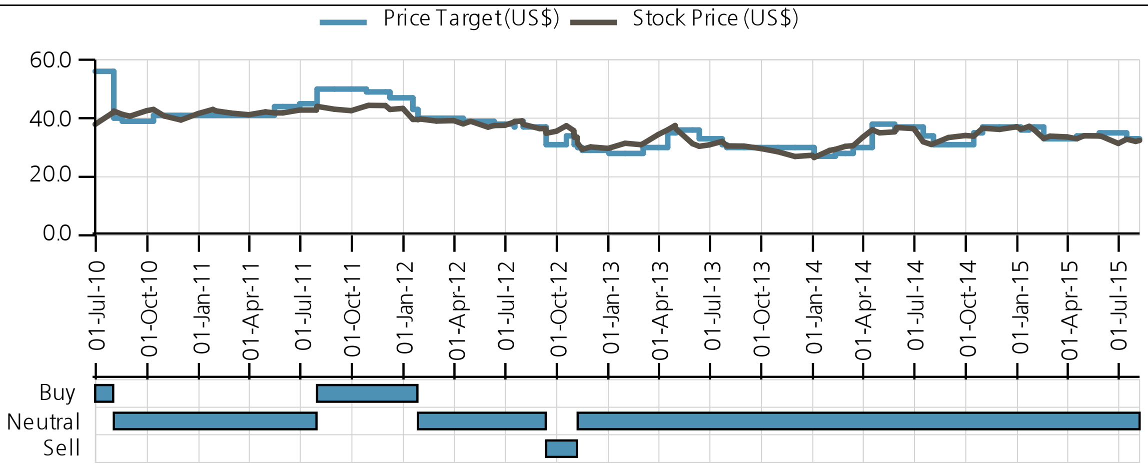

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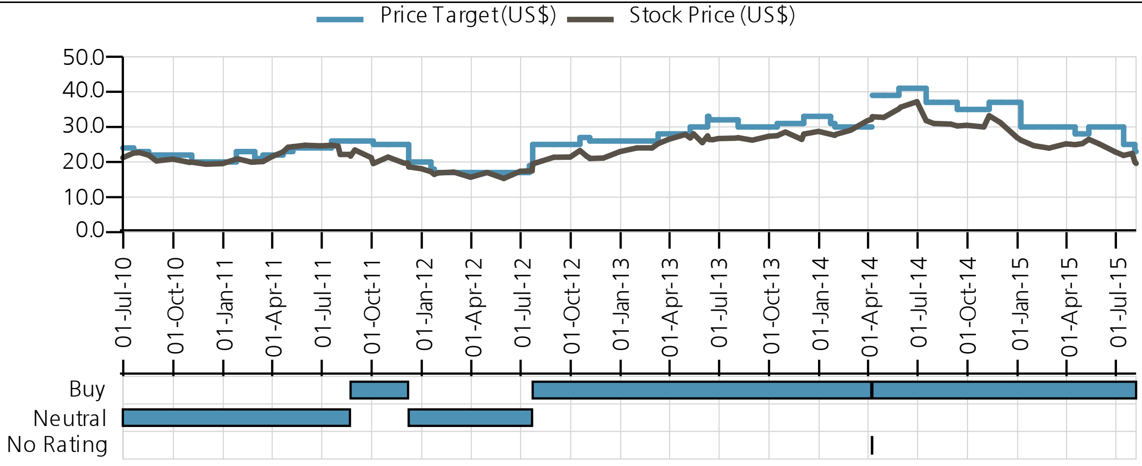
NRG Energy Inc. (US$)



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