US Power & IPP Strategies Outlook

RAAB Roundtable on PJM Market

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What's the Biggest Challenge? Energy Market Prices

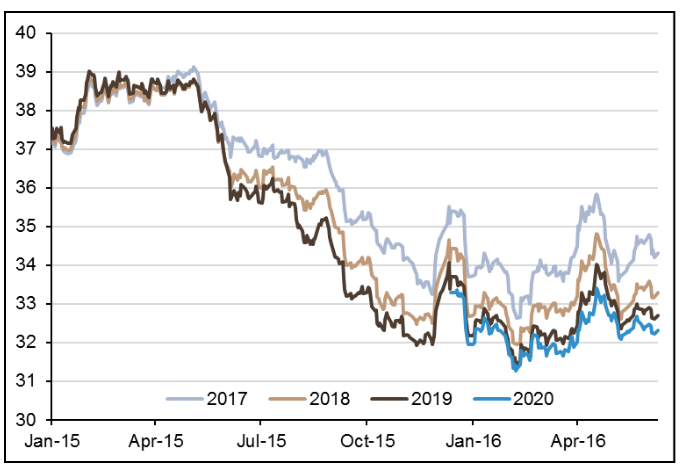
How do you deal with prices declining?

- Energy Prices = Wider Decline?
- **Biggest Issue is Long-Term Price Compensation**
  - Energy Markets *cannot* work if RECs and Renewables Subsidies drive new entry

  - Capacity Markets = Need long-term commitment

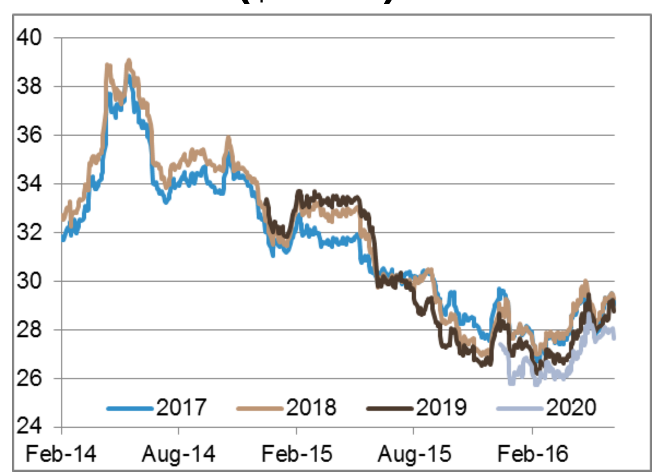
  No debate about the merits of capacity; rather how do you expand to make them more robust?

PJM-W ATC ($/MWh)



Source: Platts

NI-Hub ATC ($/MWh)



Source: Platts

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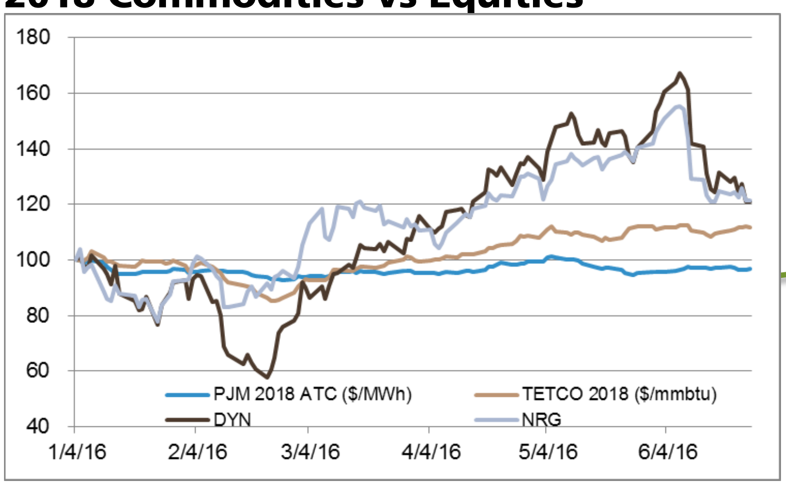
Can Power Keep Up With Gas?

How do you deal with prices declining?

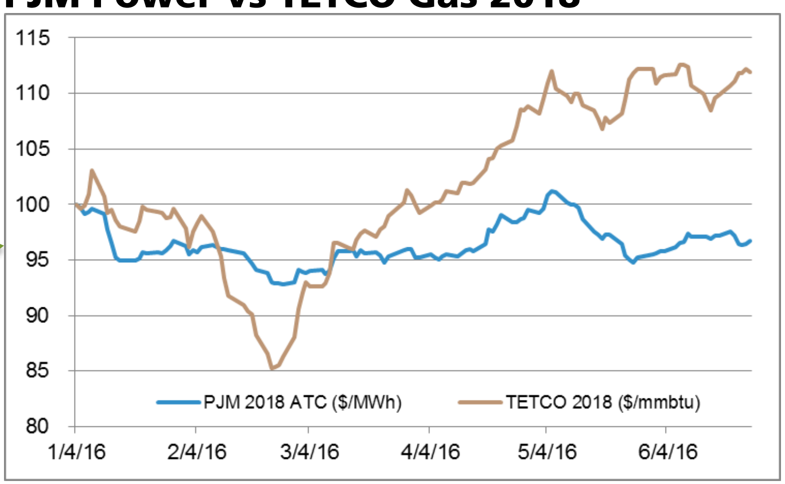
- In 1H16 IPPs largely ignored a disconnect between power and gas in PJM
  - Forward gas has gained ~10% while power is actually down YTD
  - Some of the IPPs had doubled off their lows due to investors bullishness on natural gas
- Sentiment has shifted but there are still investors expecting $3.25+/mmbtu '17 gas

2018 Commodities vs Equities



Source: Platts and FactSet

PJM Power vs TETCO Gas 2018



Source: Platts

Renewables: Working Against Themselves?

Renewables will be critical

- Post PPA Life?
  - What will developers do with assets after contracts are completed?
  - XEL looking at ratebase deals to acquire
  - Analogous to experience with previously contracted gas in regulated markets?
- Merchant Renewables
  - Texas has seen this takeoff based on PTCs
  - Correlation on dispatch could be consistently quite poor… will be hardest hit post PPA
- Re-qualify assets for PTCs
  - Add value once more for another 10-years; look for IRS details in coming months

Pricing Pressure = The Tough Consolidate

Responses to the Last Several Years

- Trend has been consolidation in recent years
  - Industry has gotten smaller with Talen the latest announced transaction
- Limits on this = Market Power
  - Defined by requirements of each region (PJM, ERCOT, CAISO, etc.)
- Speed Bump = Recent Restructuring
  - Edison Mission Energy (EME) was first and now NRG Energy and Dynegy Inc have disclosed that they will negotiate with creditors of their non-recourse subsidiaries: GenOn & IPH
- Critical Mass in Key Markets
  - DYN management is focused on scale: Potentially divesting NY and CA generation

What's the Right Return Strategy?

Focus Has Been on Buybacks Rather than Growth

- IPPs have focused on returning cash generated to bondholders + shareholders
  - Largely in form of debt reduction and share buybacks *with limited* cash dividends
- What to Invest in?
  - Both Utilities and IPPs struggle with this question amidst no demand growth backdrop
- Contracted Renewables = Tax Credits are Inefficient for IPPs
  - Utilize tax equity? NRG did.
- Eventual Merger of IPP and YieldCos
  - Redefining what it means to be a "Power" company
  - Both are struggling with long-term investor base identity

Risk Taking: Exploring New Avenues

With limited obvious new avenues for growth , where to generate cash?

What to do to generate cash?

- **Retail**
- **"Other" Energy Businesses** (EIX with Edison Energy)
- **Renewables & Gas**
  - Question is Merchant vs. Contracted Build?
  - No Public IPP has done merchant renewables yet…

- **Wider trend towards *More* Risk**
  - Looking at a de-risking cycle in post Polar Vortex world?

How do IPPs Generate Cash Today?

Bucketing the IPPs Today

- **"Gen" tailers**
  - Bulk of the merchant cash flow is generated from retail businesses: EFH, NRG, EXC
  - IPP asks as a risk mitigation to "true" cash generative retail business
- **Gas Generators**
  - CPN, DYN
- **Just Simply Lacking Cash?**
  - FirstEnergy

  - *They simply do not generate material FCF from the legacy coal and nuclear biz*

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Renewable Development: Successful via Markets?

Renewable Energy Markets require long-term buyers

- Renewable Energy Credits (RECs) = Need to be more than short-term signal
- Regulators are struggling with PPA or Long-Term RECs (e.g.: NY State w/ new RPS)
- Even if hedge Long-Term RECs, how to hedge Energy Prices *too*?

What is the "ideal" minimal length of contracting needed to make development possible? Will get longer.

How Much Upside is There?

Framing Power under the context of New Entry

- We see Power as largely *at* new entry in PJM
- Upside is capped in ERCOT by long-term new entry of solar & wind
  - Still, this is the market most likely to see recovery
- **Timing related call in ERCOT in our view**
  - There remains a clear cyclicality in Power markets as hover between full recovery of new build and below cash costs for marginal plants
  - Step 1 = Recovery = Coal & Steam Based Retirements later this decade
  - Step 2 = New Entry of Renewables
  - Step 3 = Batteries becoming economic for peak shaving potentially in the next decade

<u>Upside = Tied to Declining Cost of New Entry of Renewables</u>

PJM: Not a Ton of Recovery?

How Much Capacity Price Uplift for Now? Not a Ton

- In long-term, prices will continue to accrue back towards capacity
  - Lower Energy = Higher Capacity
- How high will capacity prices go?
  - Structurally should equal to Full Ongoing Costs
  - But most plants are there @ $150/MW-day
  - Nuclear Plants = Can they Become "Marginal"? Yes in ComEd.
    Is that the example elsewhere now?

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We do not see prices going back to $160…

- **For 2020/2021 PJM will move to a 100% CP Auction Mechanism**

- **We see an Uplift of ~$20-30/MW-day under this CP transition**
- **Retirements: More Coming out of the Market? We see a potential of 1-5 GWs of lower steam gas/coal clearing in the auction**
- **Less Demand Response: With an estimated 3 GWs Demand Response capacity not participating**
- **Renewables: Without a base product, we see a modest ~1GW of *less* capacity (not CP qualifying)**
- **New Generation: Anticipating *at least* new capacity of 2.5 GWs**

This nets to an increase of $20-30/MW-day

Net Change in GWs @ Midpoint = -4.5GW YoY

2020/2021 PJM Auction YoY Walk	Capacity Δ	$/MW-Day
2019/2020 RTO Auction Results	167.3	$100.0
Retirement Impact: 1-5GW of Steam/Coal	(3.0)	$15.0
Demand Response Impact: Lower Participation as CP	(3.0)	$15.0
Renewables: Lower Participation as CP	(1.0)	$5.0
New Generation: Continued New Entry/Uncleared Capacity Clearing	2.5	-$12.5
Net Change	**(4.5)**	**$22.5**
2020/2021 RTO Auction Preliminary UBSe		**$120-$130**
2020/2021 RTO Auction Preliminary Street Expectations		**$150-$180**
Sensitivity: +/- 1GW ≈ +/-$5/MW-Day		-$5.0

Source: UBS Estimates and PJM

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Retirements are Clearly A Possibility

We see a clear potential for retirements after the latest auction results

- With 17GW of generation *not* clearing the latest auction, what will they do?
  - We suspect much of the unclearing assets generate negative cash flow w/o capacity revs
  - Will they be able to clear in *incremental* auctions? Lower load forecast skews this less neg

- *When* will they give it up?
  - Retirements could come *after* the outcome of the next auction with 100% CP
  - They continue to clear in the interim (through mid-2019) and can decide *later*

- What kinds of units are at risk? Principally high over-head costs for Coal units
  - We see units like GenOn's Cheswick plant in RTO as a key risk… no chance to convert?

- Bottom Line: Retirements = will largely <u>*not*</u> impact capacity => <u>Lack of clearing in RPM is a *leading indicator*</u> *of intention to retire… not the opposite*

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The Street is Expecting So Much More Still

Stocks intact because Street appears to think results are *temporary;* we think this is *wrong*.

- Based upon feedback from clients, the Street believes the uplift is $50-80/MW-day
  - Expectations for a return to past years
- Why do they have this perception?
  - PJM sensitivities disclosed $72/MW-day upside last year – this is an unfair comparison. Does not adjust for shifted bidding behaviors.
- <u>Why do we see limited upside?</u>
  - 1. Differential CP and Base remain quite modest – still $20/MW-day

    This is despite expectations for the spread to meaningfully widen from $15/MW-day
  - 2. Substantial Uncleared Capacity from Incumbents

    At what price would they re-clear?
  - 3. Declining risk profile for Capacity Performance

    Generators appearing to be increasingly comfortable with the risk profile
    Polar Vortex risk premiums continue to decline – and fear of many CP Hours too
- Overall, PJM is indicating it was surprised to the downside … this could continue

New Supply Keeps Coming Too

Gas Plants Keep Coming

- And it will continue as long as cheap gas basis remains *and* interest rates remain low…

Status of Selected New PJM Generating Units

Plant	Total Size (MW)	Technology	Permitting	Expected COD	Owners	Location	Other Notes
Future Assets							
Birdsboro	**450**	**CC Gas**	**PA DEP Final Air Permit Granted**	**Apr-19**	**EmberClear/Ares**	**Birdsboro, PA**	**Construction Expected end of 2016**
Stonegate Power Generation (Gateway Energy Center)	**440**	**CC Gas**	**N/A - Early**	**May-18**		**Middlesex, NJ**	**20MW Storage**
Quantum Moundsville	**549**	**CC Gas**	**Approved Feb 13, 2016**	**Jun-18**	**Energy Solutions Consortium**	**Marshall, WV**	
CPV Fairview	**1050**	**CC Gas**	**N/A - Early**	**Apr-19**	**CPV**	**Cambria, PA**	
Total Future Supply Potential	**2,489**						
Recent Clears							
Westmoreland Generating Station	925	CC Gas	Construction Started	2018	Tenaska and Mitsubishi	Westmoreland, PA	$780M Financing Closed
Freedom	829	CC Gas	Construction Started	Jun-16	Panda Power	PA	
Lordstown Generating Station	940	CC Gas	Construction Started	Jun-18	Clean Energy Future	Trumbull, OH	
Greensville	1588	CC Gas	Approved March 29 2016	Dec-18	Dominion	Greensville, VA	
Maryland Mattawoman	1008	CC Gas	Approved Oct 13, 2015	May-18	Panda Power	Prince George's, MD	

Source: EmberClear/Ares, NextEra, Energy Solutions Consortium, Tenaska and Mitsubishi, Panda Power, Clean Energy Future, Dominion

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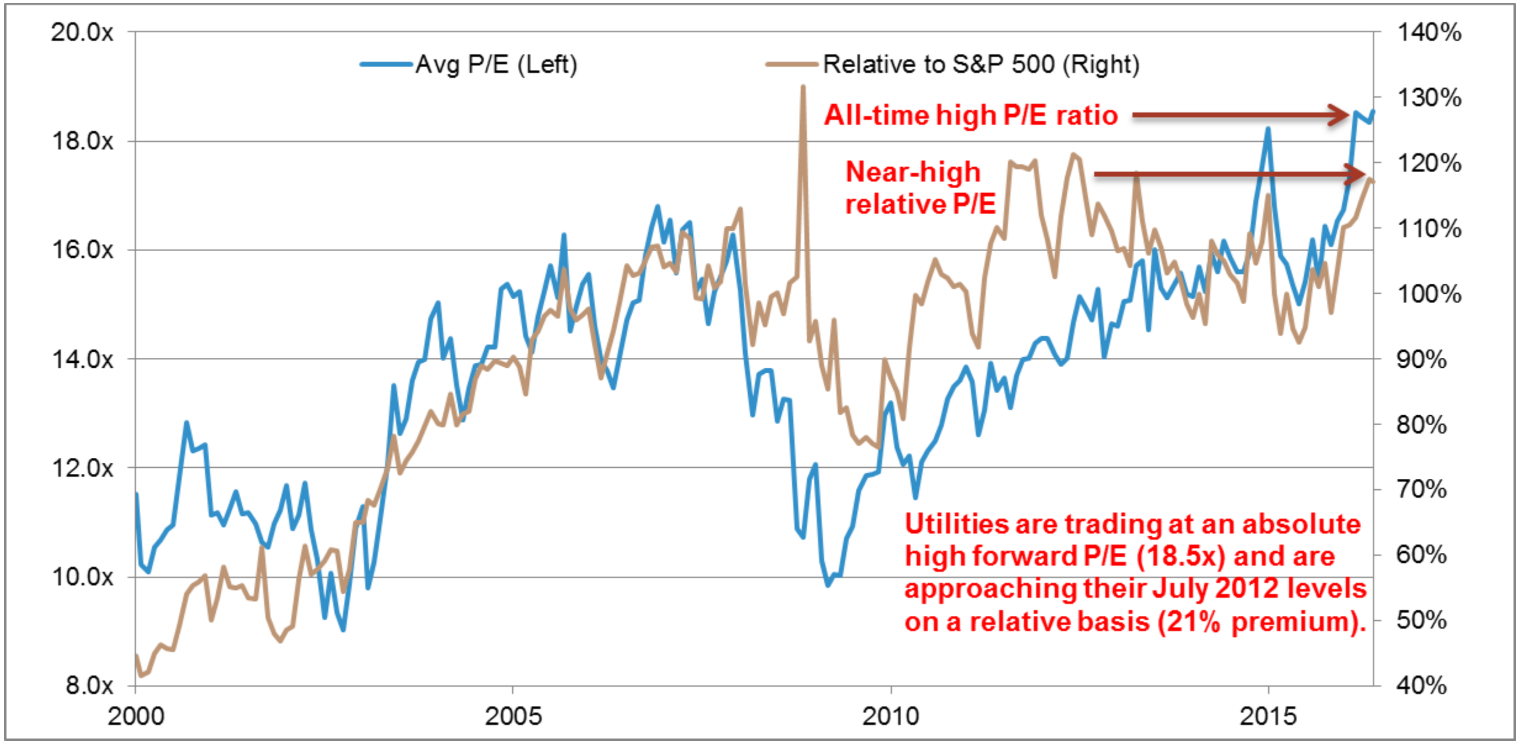
Regulated Valuations: Hitting Highs, But Can Keep Going

Utilities Still Outpacing the S&P YTD

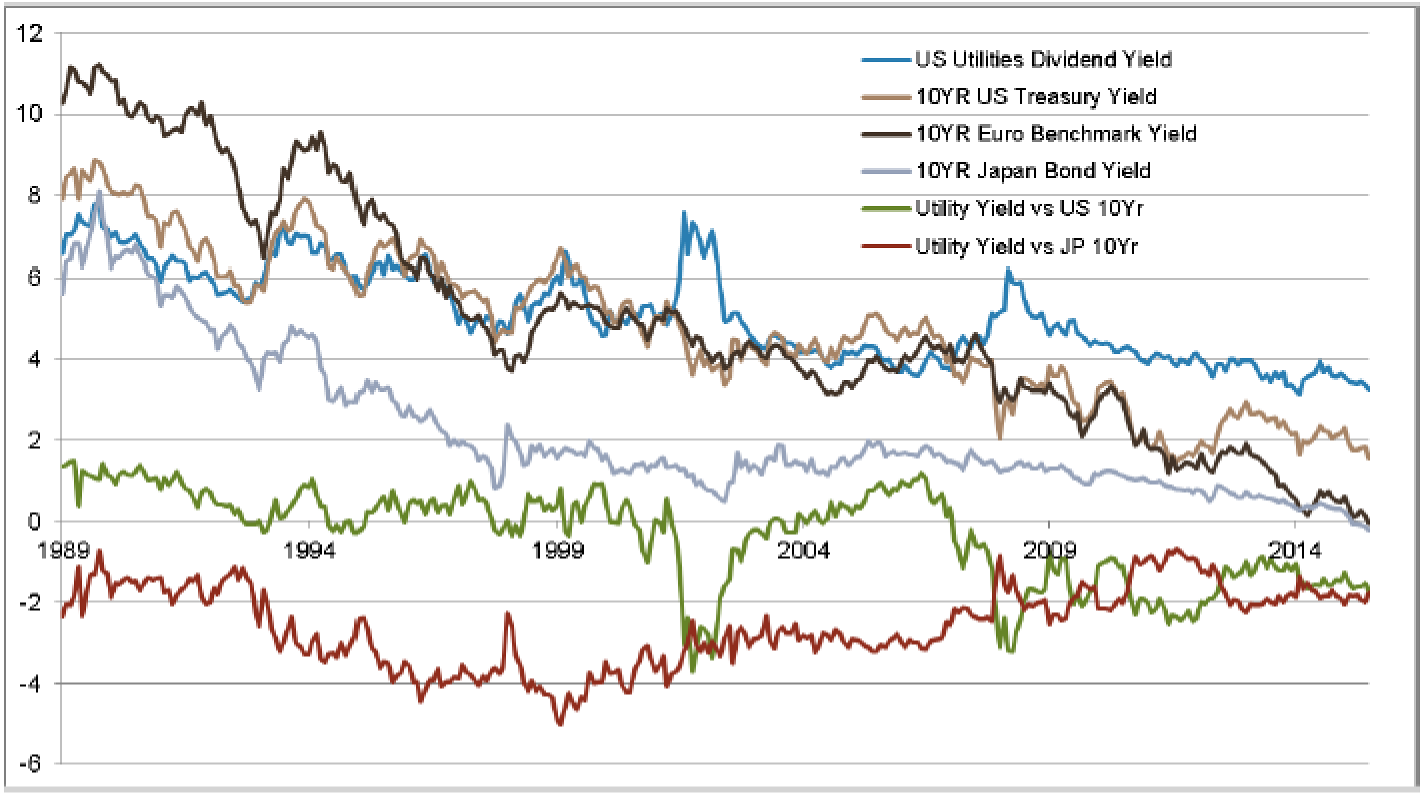


Source: FactSet

Global Rates Are Driving Lots of Investment

Rates are Lower Everywhere Else.. Making US Quite Attractive, Relative

Comparison of US Utilities Dividend Yields Versus Global Benchmarks (%)



Source: FactSet

Valuation Method and Risk Statement, Analyst Certification

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. Valuation methodologies are based on sum-of-the-parts analyses or P/E multiple basis.

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Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

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Dynegy, Inc.[6, 7, 16]	DYN.N	Neutral	N/A	US$15.93	28 Jun 2016
Exelon Corp.[6, 7, 16]	EXC.N	Neutral	N/A	US$34.88	28 Jun 2016
FirstEnergy Corp.[7, 16]	FE.N	Neutral	N/A	US$33.73	28 Jun 2016
NRG Energy Inc.[7, 13, 16]	NRG.N	Sell	N/A	US$14.19	28 Jun 2016
Talen Energy Corp[4, 5, 6, 16]	TLN.N	Neutral	N/A	US$13.48	28 Jun 2016
Xcel Energy Inc.[7, 16]	XEL.N	Sell	N/A	US$43.75	28 Jun 2016

Source: UBS. All prices as of local market close.
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