

US Electric Utilities & IPPs

The Wild, Wild West

Equities

Americas
Electric Utilities

Robust supply of CCGTs in Arizona points to low contracting prices

Pinnacle West's Arizona Public Service (APS) has a pending request for proposal (RFP) for 400-600MW of capacity and based on the volume of merchant power plants in the region we expect a quite low bid to emerge from the process, illustrating the weak economics for IPPs regionally. For example near the APS service territory there are four notable merchant CCGT assets (Harquahala, Arlington Valley, Mesquite, and Gila River) which could opt to participate given challenging merchant economics in the regulated market. We note that valuation that recent Arizona power plant transactions have averaged \$533/kW but we expect future transactions to be materially lower with the assets really only needed from May-September, and for intermittency principally. PNW customers stand to benefit from the overbuild in the region just like in other similar transactions. We think the best chance for these assets remains to be acquired by utilities and entered into ratebase, rather than further capacity & energy tolling RFPs.

What does this mean for IPPs? Expect low prices on asset sales

The excess regional supply dampens expectations for sales prices. [Calpine announced the divestiture of its South Point asset](#) on April 29th to NV Energy but did not disclose the sale price. Furthermore, on the call Calpine management would not comment whether the plant had a positive or negative EBITDA but simply stated that it was an accretive transaction. Looking at Calpine's 'non-core' asset sales more broadly we have seen a negative trajectory in recent years and expect that to continue. When Talen purchase the Harquahala asset in August 2015 it [guided to \\$50-\\$150+Mn of target value](#) for the 1,040MW asset, well below even Arizona comps. Talen management has frequently discussed moving the plant as a potential way to create value but with a potential transport cost of \$300-\$400/kW we believe that is an unlikely scenario. Bottom line, we think scenarios for <\$200/kW values are likely to remain outside of utility acquisition scenarios; the question is whether the steady trend back towards utility held consolidation will enable companies to acquire at discounted prices.

Beyond Arizona we look further West – with similar conclusions

Broadly we have seen IPPs and integrated firms seek to divest power asset in less competitive markets. We emphasize recent deals in California appear to be as low as ~\$100/kW for CCGTs, suggesting the distress stretches beyond AZ. For Calpine the South Point transaction follows 6.5GW of other non-core sales, most notably the '[South East Sixpack](#)'. Other uncontracted plants in the West worth tracking are Hermiston in Oregon (635MW) and Metcalf in California (605MW) both of which we value at \$250/kW (\$310Mn). Dynegy has been marketing its small California portfolio as well which has been delayed along the PG&E GTS rate case which could have a material impact on the delivered cost of gas for the assets. We value the assets at \$160Mn collectively for Dynegy (~\$1/sh) but importantly this could [help avoid revolver borrowings on the pending Engie transaction](#). Star West is the portfolio behind the two further CCGTs, Arlington Valley and Griffiths, with contracts back to utilities (through September 2019 with APS and 2017 with NVEnergy, respectively). We see acquisition potential by these utilities as a potential positive factor (and natural evolution given the regulated nature of these markets) with updates potentially later in 2016 into 2017 as the current RFP process concludes (timing would necessarily be around a rate case to roll the plants into the formal tariffs).

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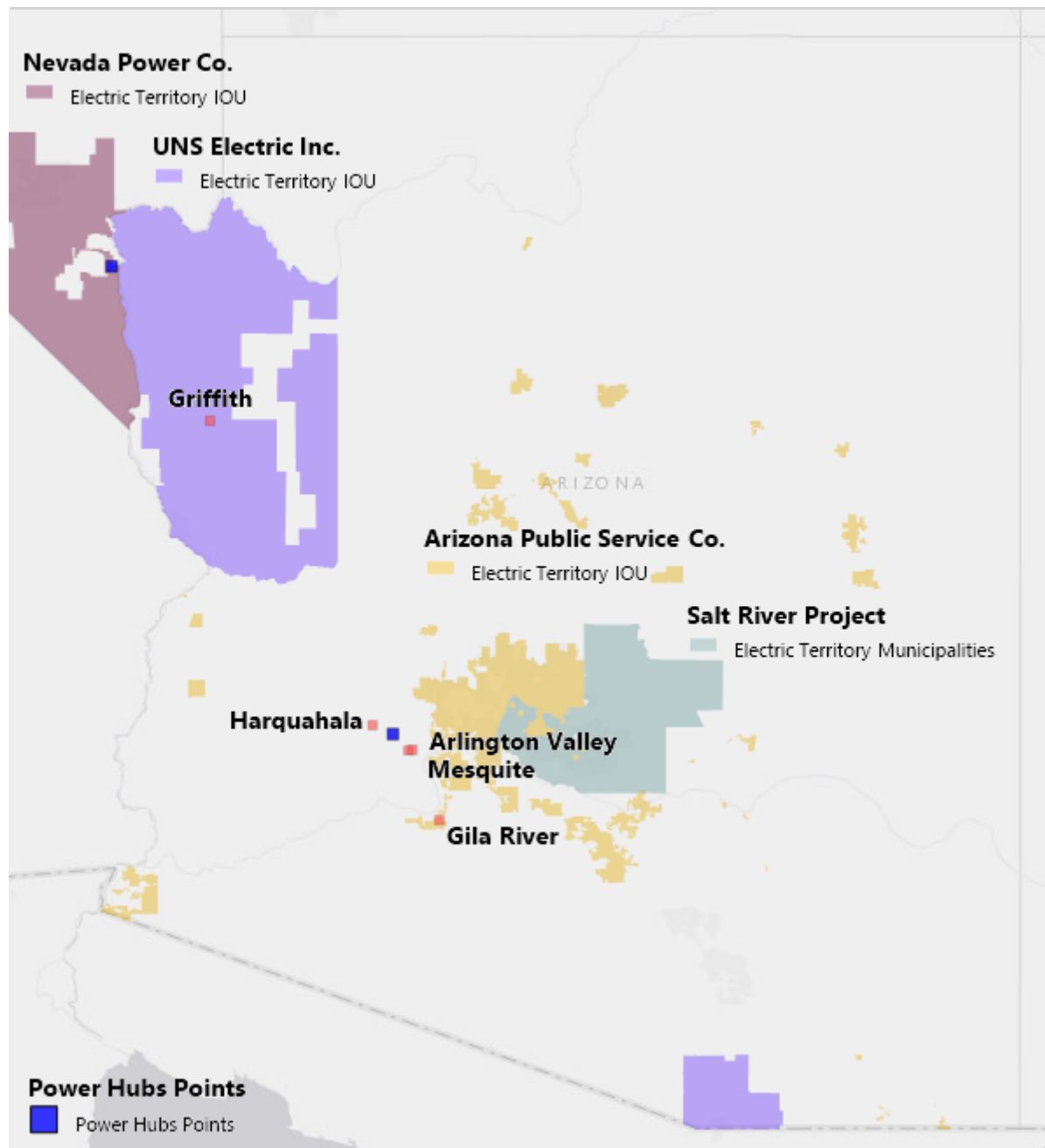
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Figure 1: Map of Select Merchant Gas Plants in Arizona and Neighboring Utilities



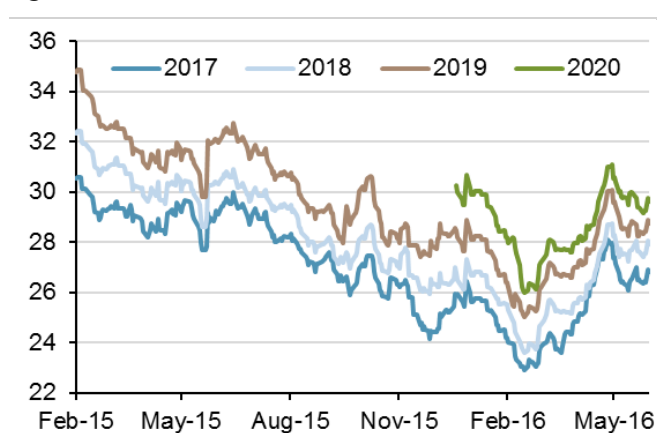
Source: SNL Energy

Painting the backdrop in the market

Generation in the Arizona market continues to be owned primarily by regulated utilities as part of the integrated model but there are a notable number of unregulated assets given the market size. Despite continue strong growth from solar in the state and the effects of energy efficiency, APS projects 50-150bp of weather-adjusted retail electric sales volume in the near-term, far above the national average where volume is essentially flat.

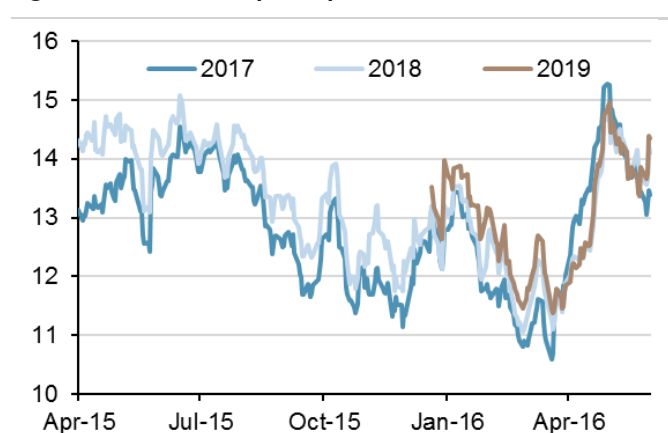
Wholesale power prices in Arizona off the Palo Verde hub have declined over the last year but were already at a discount to other regions of the country. With the entire 2017-2020 around-the-clock (ATC) power curve below \$30/MWh, prices are among the lowest in traded markets. In contrast, ERCOT-Houston 2018 ATC Power trades at \$31/MWh (\$3/MWh higher) and spark spreads are \$16/MWh (\$2/MWh higher).

Figure 2: Palo Verde ATC Power Prices (\$/MWh)



Source: Platts

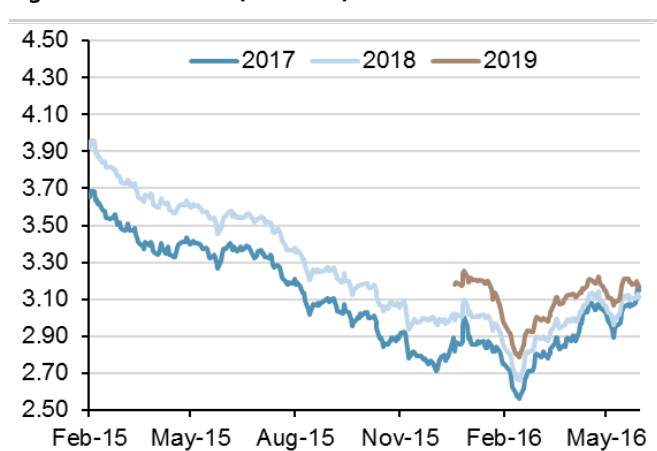
Figure 3: Palo Verde Spark Spreads @ 7.2x (\$/MWh)



Source: Platts

The driver for the decline in power prices has been the steady decrease in natural gas prices from \$3.70-\$4.00/MMBtu to ~\$3.00/MMBtu today. Spark spreads have exhibited some volatility but are generally flat over the last year with the commodity cost offsetting power declines.

Figure 4: So Cal Gas (\$/MMBtu)



Source: Platts

Figure 5: So Cal Gas – Henry Hub Basis (\$/MMBtu)



Source: Platts

Plant Economics – Arizona

We briefly touch upon the key unregulated plants in the market as these could be candidates to participate in APS' or other RFPs.

Figure 6: Merchant Conventional Generation Power Plants in Arizona

AZ Merchant Power Plants	Fuel Type	Capacity (MW)	Heat Rate	2015 Capacity Factor	2018E EBITDA (\$Mn)
Arlington Valley Energy	Natural Gas	579	7,435	36%	4
Coolidge Generating Station	Natural Gas	572	10,160	6%	(9)
Gila River Project	Natural Gas	2,212	7,539	33%	(4)
Griffith Generating Station	Natural Gas	570	7,383	42%	6
Harquahala	Natural Gas	1,040	7,100	16%	(7)
Mesquite Power 1 & 2	Natural Gas	1,248	7,396	52%	11
South Point Energy Center	Natural Gas	504	7,852	34%	(2)

Source: SNL Energy, Platts, Company Filings, and UBS Estimates. Estimates exclude any PPAs, contracts, or hedging.

- **Arlington Valley:** The plant has a contract with APS through October 2019 covering the summer months with merchant operations in the balance of the year. The timing and size of the plant aligns well with APS' request for proposal where the company needs the capacity by June 2020.
- **Coolidge:** Another unregulated plant in the region is TransCanada's Coolidge Generating Station which utilizes simple-cycle gas turbines to meet peaking needs with its fast-ramp capabilities (10 minutes). This explains the higher heat rate (over 10,000) despite being built in 2011. Since the plant has a twenty-year contract running through May 2031 with Salt River Project we would not expect it to participate in the APS RFP.
- **Gila River:** The majority of the plant is owned by one investment partnership while Fortis (Tucson Electric and UNS Electric) own 25% of the plant. Specifically Fortis' utilities purchased the 550MW unit 3 for \$219Mn in December 2014.
- **Griffith Generating:** The asset is contracted with Nevada Power Company through September 2017 through the summer months, seemingly in a similar structure to Arlington Valley. Griffith shares common owners with Arlington as well. This plant is further northwest in the state
- **Harquahala:** Although this is a larger plant, Talen has discussed the modular design and could opt to divest/contract certain units if the opportunity presents itself. Management has guided to a \$5-\$10Mn annual EBITDA drag which we expect to persist without an alternate arrangement or renegotiation of the long-term services agreement (LTSA). [Given the high cost and complexities associated with potentially moving a power plant](#), we believe management's preference is to find a local purchaser for the asset.
- **Mesquite Power 1 & 2:** Sempra divested the two units to private equity for \$371Mn and \$370Mn, respectively, in the past few years. [After having paid ~\\$600/kW for the plant we believe the hurdle to divest is quite high](#). The plant runs at over a 50% capacity factor (down from 73% in 2010) but is one of the few merchant assets in the region that has appears to be generating real positive EBITDA; however, we think free cash flow is likely still challenged.

Talen appears to be a motivated seller of the plant. With a 7,100 heat rate it is one of the more efficient plants but has a higher organic cost structure due to the LTSA.

- **South Point Energy Center:** With 1Q16 results Calpine announced the sale of the 530MW South Point CCGT in Mohave Valley to NV Energy but did not disclose the transaction price due to a confidentiality agreement. We ascribe \$130 Mn in our SOTP for the asset (\$250/kW), which had generated negligible (or even negative) EBITDA without a contract and thin spark spreads at Palo Verde hub. This is consistent with management's comment that it is an accretive transaction. To frame expectations we believe a good price for the asset would be over \$175Mn while anything below \$100Mn likely is a relative disappointment.

Other swing factors? Nevada gaming, solar, and the imbalance market

Among the potential developments in the West are nascent efforts by NV's gaming industry to effectively restructure the state again for larger consumers. This could yet create more robust demand for merchant power. A further angle is how the implementation of the Energy Imbalance Market (EIM) across NV and AZ and other Western states could impact the market prospects as well (likely negative to energy prices given the improvements in grid efficiency).

Putting valuations in context

In the next two figures we show comps in the West (primarily Arizona) and other less-competitive power markets to help gauge expectations.

Figure 7: Western Power Comps

Western Power Comps					
Asset	Location	Fuel	Date	\$/kW	Value (\$Mn)
Gila River 3	Maricopa, AZ	Gas	2013	398	\$219
Mesquite Power	Maricopa, AZ	Gas	2013	594	\$371
Mesquite Power	Maricopa, AZ	Gas	2015	591	\$370
West Valley	Salt Lake, UT	Gas	2014	249	\$47
Arizona Average				533	\$320
South Point	Mohave, AZ	Gas	2016	Pending	

Source: Company Filings, SNL Energy, and UBS Estimates

Calpine's largest non-core sale was its 3.5GW divestiture of its Southeast Portfolio for \$1.57Bn (\$1.53Bn cash proceeds) in April 2014. Below we show other non-core asset sales executed by management since 2010 and although different markets are not ideal for comparisons, the clear trend is that pricing has declined in these regulated markets. We expect this trend to hold true with the South Point transaction announced in April.

Figure 8: Calpine Non-Core Asset Sales: South Point is UBSe

Assets	Date	Region	Capacity	Sale Price	\$/kW Value
South Point Energy Center	Apr-16	AZ	520	130	\$250.0
Osprey Energy Center	Jan-15	FL	600	166	\$276.7
Oneta, Decatur, etc.	Apr-14	South East	3,498	1,570	\$448.8
Broad River	Nov-12	SC	847	427	\$504.1
Riverside Energy Center	May-12	WI	600	402	\$670.0
Rocky Mountain & Blue Spruce	Apr-10	CO	931	739	\$793.8

We expect a low \$/kW valuation for South Point in AZ

Source: SNL Energy, Company Filings, and UBS Estimates

Dynegy has been pursuing the sale of its Western portfolio for a lengthy period of time but the delay has related to uncertainty around the ultimate delivered gas cost to its Moss Landing plant due to the pending rate case. We note progress on the pending GT&S case for PG&E (following a recent Proposed Decision before the CPUC) may bolster confidence on the ability to transact this asset (albeit the meaningful rate increase could well temper our sales price expectations articulated below).

Figure 9: Potential Sale Value for West

Dynegy California Portfolio Potential Transaction Value					
Asset	Location	Fuel	Dispatch	\$/kW	Value (\$Mn)
Moss Landing					
Units 1-2	Monterey County, CA	Gas CCGT	Intermediat	150	\$153
Units 6-7	Monterey County, CA	Gas	Peaking	-	-
Oakland	Oakland, CA	Oil	Peaking	30	5
Morro Bay*	Morrow Bay, CA	N/A	N/A	8	5
* Transmission Capacity		Total			\$163
		Total per Sh			\$1.03
Est. Rate of Delivered Gas ↑ Potential W./ GTS Case: \$1/Mmbtu NPV ~\$200Mn					

Source: Company reports and UBS estimates

Appendix:

Figure 10: Plant Economics of Arlington Valley Power Plant

Arlington Valley Mini-Model	2016	2017	2018	2019	2020	2021
Capacity (MW)	577	577	577	577	577	577
Capacity Factor, UBSe	35.9%	35.9%	35.9%	35.9%	35.9%	35.9%
Generation (TWh)	1,815	1,815	1,815	1,815	1,815	1,815
Power Price - Palo Verde (\$/MWh)	26	29	30	31	31	32
Heat Rate (Btu/KWh), UBSe	7.435	7.435	7.435	7.435	7.435	7.435
Gas Price - SoCal Gas (\$/MMBtu)	2.86	3.32	3.35	3.46	3.46	3.46
Spark Spread (\$/MWh)	5.0	4.2	5.1	5.1	5.6	6.1
Energy Margin (\$Mn)	9.0	7.7	9.2	9.2	10.1	11.0
O&M (\$/KW), UBSe	15	15	15	15	15	15
O&M (\$MM)	8.7	8.7	8.7	8.7	8.7	8.7
EBITDA (\$MM)	0.4	-1.0	0.6	0.5	1.5	2.4

Source: Company filings, SNL and UBSe

Figure 11: Plant Economics of Griffith Power Plant

Griffith Generating Mini-Model	2016	2017	2018	2019	2020	2021
Capacity (MW)	570	570	570	570	570	570
Capacity Factor, UBSe	41.8%	41.8%	41.8%	41.8%	41.8%	41.8%
Generation (TWh)	2,089	2,089	2,089	2,089	2,089	2,089
Power Price - Palo Verde (\$/MWh)	26	29	30	31	31	32
Heat Rate (Btu/KWh), UBSe	7.383	7.383	7.383	7.383	7.383	7.383
Gas Price - SoCal Gas (\$/MMBtu)	2.86	3.32	3.35	3.46	3.46	3.46
Spark Spread (\$/MWh)	5.1	4.4	5.3	5.2	5.7	6.2
Energy Margin (\$Mn)	10.7	9.2	11.0	11.0	12.0	13.1
O&M (\$/KW), UBSe	15	15	15	15	15	15
O&M (\$MM)	8.6	8.6	8.6	8.6	8.6	8.6
EBITDA (\$MM)	2.1	0.7	2.4	2.4	3.5	4.5

Source: Company filings, SNL and UBSe

Figure 12: Plant Economics of Coolidge Generating Power Plant

Coolidge Generating Mini-Model	2016	2017	2018	2019	2020	2021
Capacity (MW)	572	572	572	572	572	572
Capacity Factor, UBSe	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
Generation (TWh)	277	277	277	277	277	277
Power Price - Palo Verde (\$/MWh)	26	29	30	31	31	32
Heat Rate (Btu/KWh), UBSe	10.16	10.16	10.16	10.16	10.16	10.16
Gas Price - SoCal Gas (\$/MMBtu)	2.86	3.32	3.35	3.46	3.46	3.46
Spark Spread (\$/MWh)	-2.8	-4.8	-4.1	-4.4	-3.9	-3.4
Energy Margin (\$Mn)	-0.8	-1.3	-1.1	-1.2	-1.1	-0.9
O&M (\$/KW), UBSe	15	15	15	15	15	15
O&M (\$MM)	8.6	8.6	8.6	8.6	8.6	8.6
EBITDA (\$MM)	-9.4	-9.9	-9.7	-9.8	-9.6	-9.5

Source: Company filings, SNL and UBSe

Figure 13: Plant Economics of Gila River Power Plant

Gila River Mini-Model	2016	2017	2018	2019	2020	2021
Capacity (MW)	2212	2212	2212	2212	2212	2212
Capacity Factor, UBSe	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Generation (TWh)	6,334	6,334	6,334	6,334	6,334	6,334
Power Price - Palo Verde (\$/MWh)	26	29	30	31	31	32
Heat Rate (Btu/KWh), UBSe	7.539	7.539	7.539	7.539	7.539	7.539
Gas Price - SoCal Gas (\$/MMBtu)	2.86	3.32	3.35	3.46	3.46	3.46
Spark Spread (\$/MWh)	4.7	3.9	4.7	4.7	5.2	5.7
Energy Margin (\$Mn)	29.6	24.7	30.0	29.8	33.0	36.2
O&M (\$/KW), UBSe	15	15	15	15	15	15
O&M (\$MM)	33.2	33.2	33.2	33.2	33.2	33.2
EBITDA (\$MM)	-3.6	-8.5	-3.2	-3.3	-0.2	3.0

Source: Company filings, SNL and UBSe

Figure 14: Plant Economics of Harquahala

Harquahala Mini-Model	2016	2017	2018	2019	2020	2021
Capacity (MW)	1040	1040	1040	1040	1040	1040
Capacity Factor, UBSe	15.8%	15.8%	15.8%	15.8%	15.8%	15.8%
Generation (TWh)	1,440	1,440	1,440	1,440	1,440	1,440
Power Price - Palo Verde (\$/MWh)	26	29	30	31	31	32
Heat Rate (Btu/KWh), UBSe	7.1	7.1	7.1	7.1	7.1	7.1
Gas Price - SoCal Gas (\$/MMBtu)	2.86	3.32	3.35	3.46	3.46	3.46
Spark Spread (\$/MWh)	5.9	5.3	6.2	6.2	6.7	7.2
Energy Margin (\$Mn)	8.5	7.7	8.9	9.0	9.7	10.4
O&M (\$/KW), UBSe	15	15	15	15	15	15
O&M (\$MM)	15.6	15.6	15.6	15.6	15.6	15.6
EBITDA (\$MM)	-7.1	-7.9	-6.7	-6.6	-5.9	-5.2

Source: Company filings, SNL and UBSe

Figure 15: Plant Economics of Mesquite Power Plant

Mesquite Power 1 & 2 Mini-Model	2016	2017	2018	2019	2020	2021
Capacity (MW)	1248	1248	1248	1248	1248	1248
Capacity Factor, UBSe	51.8%	51.8%	51.8%	51.8%	51.8%	51.8%
Generation (TWh)	5,662	5,662	5,662	5,662	5,662	5,662
Power Price - Palo Verde (\$/MWh)	26	29	30	31	31	32
Heat Rate (Btu/KWh), UBSe	7.396	7.396	7.396	7.396	7.396	7.396
Gas Price - SoCal Gas (\$/MMBtu)	2.86	3.32	3.35	3.46	3.46	3.46
Spark Spread (\$/MWh)	5.1	4.4	5.2	5.2	5.7	6.2
Energy Margin (\$Mn)	28.8	24.7	29.5	29.5	32.3	35.1
O&M (\$/KW), UBSe	15	15	15	15	15	15
O&M (\$MM)	18.7	18.7	18.7	18.7	18.7	18.7
EBITDA (\$MM)	10.1	6.0	10.8	10.7	13.6	16.4

Source: Company filings, SNL and UBSe

Figure 16: Plant Economics of South Point Power Plant

South Point Energy Mini-Model	2016	2017	2018	2019	2020	2021
Capacity (MW)	504	504	504	504	504	504
Capacity Factor, UBSe	34.1%	34.1%	34.1%	34.1%	34.1%	34.1%
Generation (TWh)	1,506	1,506	1,506	1,506	1,506	1,506
Power Price - Palo Verde (\$/MWh)	26	29	30	31	31	32
Heat Rate (Btu/KWh), UBSe	7.852	7.852	7.852	7.852	7.852	7.852
Gas Price - SoCal Gas (\$/MMBtu)	2.86	3.32	3.35	3.46	3.46	3.46
Spark Spread (\$/MWh)	3.8	2.9	3.7	3.6	4.1	4.6
Energy Margin (\$Mn)	5.7	4.3	5.5	5.5	6.2	7.0
O&M (\$/KW), UBSe	15	15	15	15	15	15
O&M (\$MM)	7.6	7.6	7.6	7.6	7.6	7.6
EBITDA (\$MM)	-1.9	-3.3	-2.0	-2.1	-1.3	-0.6

Source: Company filings, SNL and UBSe

Valuation Method and 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 Integrations. 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.

Solar sector risks include : 1) Solar panel and other input pricing is subject to ongoing price deflation, which affects economics of downstream projects and margins of upstream producers. 2) Government incentives being added or removed have had a disproportionate effect on demand in the past, and may continue to 3) reliance on power purchase agreements in electricity markets could make future contracts more difficult to sign 4) solar power is directly competing with other traditional generators as well as other renewables like wind, which creates uncertainty as wholesale power markets shift 5) Headline risk and policy risk continue to shift economics in countries as trade policies and changes to other key policies affect solar economics.

Valuation for IPPs are based on sum-of-the-parts analysis.

Valuations for regulated utilities are based on multiples of earnings per share.

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Neutral	FSR is between -6% and 6% of the MRA.	38%	26%
Sell	FSR is > 6% below the MRA.	14%	19%
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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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