BRAZIL ECONOMICS/UTILITIES

ELECTRICITY TARIFFS AND INFLATION: LOSING STEAM

Tatiana Pinheiro*
Brazil: Banco Santander S.A.
+5511-3012-6682 | tatiana.pinheiro@santander.com.br

Maria Carolina Carneiro*
Brazil: Banco Santander S.A.
+5511-3012-6682 | macarneiro@santander.com.br

Net/Net: In this report, we analyze the impact of better hydrology, lower demand, and the numerous regulatory changes that can have a substantial effect on electricity tariffs and, consequently, the inflation index in 2016. We expect electricity tariff increases and their impact on inflation to be lower than in 2015 (with or without the "green flag" mechanism), thus helping the disinflationary process. Therefore, in our baseline scenario, we continue to see tariffs increasing, but at a much slower pace.

- Volume decline and hydrology: helping to offset the upward pressure . . . The most recent supply-demand data from federal agencies shows some relief for reservoir levels through year-end 2016, based on an expectation of "close to normal" rainfall and weak consumption; moreover, we believe supply should benefit from some new capacity additions for 1H16 (~2.5 GW). We, therefore, see a higher likelihood for yellow or green flags in 2016, vs. the red flag seen in 2015. We also highlight that (i) lower Itaipu tariffs and (ii) lower RBNI receivables should help to offset the cost pressure from other variables.

- . . . coming from receivables and other changes. We see some items putting significant upward pressure on tariffs in 2016. (1) The banks' loans to Discos (around R$17 billion) helped to reduce the pressure on tariffs in 2015, but will imply upward pressure, in our view, starting in 2016, leading tariffs to increase 7.60%. (2) Receivables from Law 12,783 (former MP 579), by which electricity companies expect to receive R$35 billion as compensation from the renewal of old concession contracts (old generation and transmission assets); consequently, we see 3.6% upward pressure on tariffs from this variable. (3) We expect changes in CDE charges, as injunctions begin to protect free customers/industrials, thus increasing the burden for other final customers.

- Inflation impact. We estimate the potential electricity tariff adjustment at 6.8% on average in 2016 (contribution of 0.22 p.p. to IPCA), considering our base case scenario for energy, which is a yellow flag in 1H16 and a green flag in 2H16. We see high summer temperatures potentially increasing consumption and limiting the potential likelihood of seeing the flag mechanism changing to green in 1H16.

- Risks to tariffs and inflation are on the downside. For 2016, the most likely scenario, in our view, is normal hydrology (with rainfall at 90% on average), which reduces the cost of operation of energy generation. The adoption of a green flag in early 2016 (2Q16) could mean an electricity tariff adjustment of only 2.0% on average. Moreover, we have no guidance regarding the terms of reimbursement of the receivables derived from Law 12,783; if the government decides on longer payment terms and postpones these payments, we could see lower tariff increases in 2016.

HELP FROM WEAK CONSUMPTION AND BETTER HYDROLOGY

Weak consumption and better hydrology continue to save the day. We update here the scenarios for the reservoir estimate based on weak consumption (-1.7% YoY in 2015 and -2% in 2016). Our models assume 7 GW thermals should be operating at least until the end of 2016 — this supply of thermal energy would be enough to ensure that reservoirs would operate above the risk-aversion curve. Our base case includes a normal hydrology scenario for the Southeast region and a dry scenario for the Northeast, with rainfall at 90% of the average for the entire system in 2016. Using these assumptions, rationing is not likely, in our view, but generation still depends on thermals operating with an average marginal cost of generation of R$250-300 per MWh, at least for 1H16.

Figure 1. Brazilian Water Reservoir Levels (%)

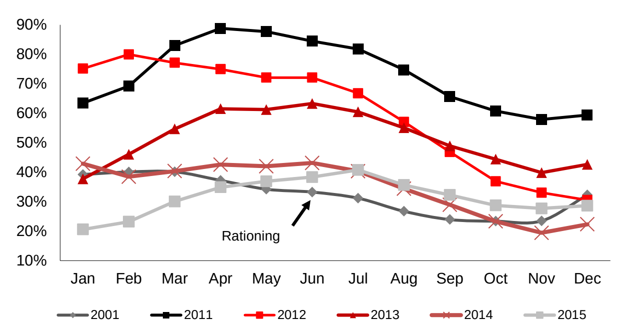
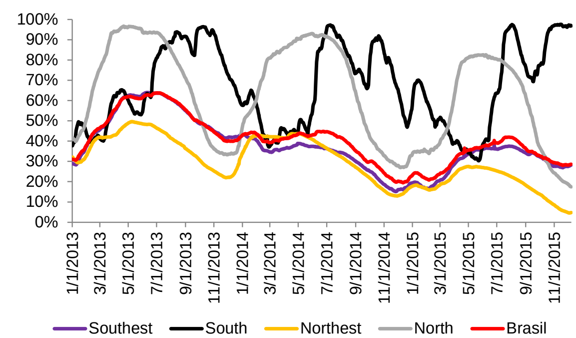
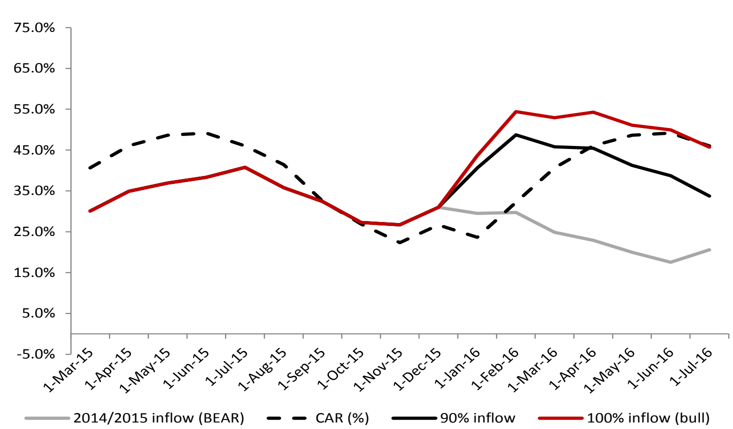


Figure 2. Reservoir Levels by Region (%)



Source: ONS.

Figure 3. Rationing Model Output—Hydrology Scenarios



Sources: ONS and Santander estimates.

Itaipu also helping the disinflationary process. On December 15, Aneel approved Itaipu's 2016 tariffs, with a 32% decline for tariffs in USD terms. The lower tariffs derive from lower reimbursement for GSF costs (hydro deficit costs charged in 2015 tariffs also covered GSF costs for 2014). We estimate a -2% impact on the final tariffs for Itaipu's energy. Thus, we expect lower tariffs from Itaipu energy to also help to reduce upward pressure on electricity prices.

Risk factors: the large dams in the Northeast are almost dry. Although the system is operating at an average reservoir level of 28.7%, North/Northeast reservoirs are at a 16%/5% level, and important reservoirs, like Sobradinho, Tres Marias, Itaparica, and Serra da Mesa (to name the most important ones), are still at critical levels, some below 10%. The operation of the system could be under stress in early 2016 given these low levels combined with peak consumption due to high temperatures (normal in the summer season), and, thus, we foresee volatility in spot prices and ESS charges.

Cost pressure factors: postponing the problem . . . and its consequences. In 2014 and 2015, the federal government postponed tariff hikes for customers, using a loan taken from Brazilian banks. However, the loan amounted to close to R$17 billion originally, and although the payment period of this loan has been extended until 2019, it will be paid through higher tariffs in 2016 onward, at a cost of CDI +2% and CDI +2.3% — the total costs in tariffs will reach R$35.2 billion when adjusted. In addition to the cost of the loan, costs related to new auctions (with prices close to R$140-150/MWh) should also sustain tariffs at reasonable levels, in our view, instead of contributing to a decline. Moreover, following passage of Law 12,783 (former MP 579), the federal government committed to reimbursing old transmission (RBSE and RBNI) and generation assets with resources coming from the National Treasury; however, the fiscal budget constrained the RBSE and generation reimbursement payments, and now these costs will be passed on to final customers.

The flag mechanism: we should see a green flag soon. The flag mechanism was implemented in January 2015. It currently implies an increase in tariffs of R$4.50/MWh (down from the original R$5.50/MWh) per each 100 kWh consumed whenever the marginal cost of operation exceeds R$350 per MWh (red flag), and R$2.50/MWh if the marginal cost of generation is between R$250/MWh and R$350/MWh (yellow flag). If the marginal cost of generation lies below this range, the green flag mechanism is triggered. The mechanism works as additional cost coverage for Discos while thermals are operating and educates customers in respect to the real costs of electricity, reducing electricity consumption. For 2016, we believe the most likely scenario is a normal hydrology scenario (with rainfall at 90% of the average) that reduces the cost of operations, and decreases the thermo plants' participation in energy generation. We expect the reduction of thermal operating costs should allow for the implementation of the green flag during 2016, which means additional cost coverage being cut to zero from the current level, R$4.50/MWH per each 100 kwh consumed whenever the marginal cost of operation exceeds R$350/MWh. If the flag change occurs in 1H16, the impact could imply an average tariff decrease of 8.9% in the month of application; if the flag change occurs in 2H16, the impact could imply an average tariff decrease of 3.9% in the month of application. We point out that Aneel might change the prices that trigger the flag mechanism again, in order to better accommodate thermal cost variations; note that Aneel changed the flag mechanism trigger prices in 2015. If the regulator again changes the flag mechanism, tariffs could be lower and, as a consequence, inflation estimates as well.

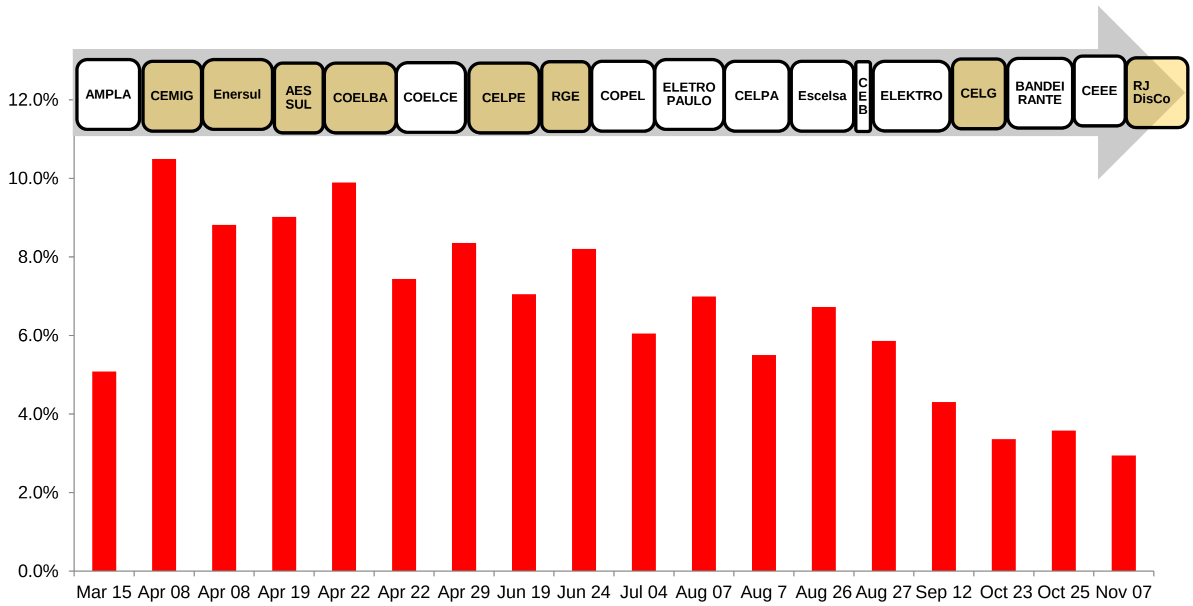
ECONOMIC IMPACT

Losing steam: a lower tariff increase, less inflation pressure. The "tariff realism" solution (defined as the adjustment of tariffs to reality in terms of cost levels) adopted this year, coupled with the extension of the banks' loans to Discos, would result in a much lower electricity tariffs annual adjustment in 2016 than the tariff adjustment in 2015. In addition, we note that reservoir levels are better than last year, and the expectation among meteorologists is for plentiful rainfall in the period November to April — between 80% and 100% of the historical rainfall, on average.

A lot to consider. According to our estimate, the banks' loans to Discos (around R$17 billion) imply an electricity tariff readjustment of 38% on average that will continue to affect tariffs for the next 60 months. We estimate that the payment of the banks' loan instalments due in 2016 will represent an increase of 7.6% in tariffs. The regular annual readjustment of the electricity tariffs also will put upward pressure on tariffs; we estimate 9.3% on average for the readjustments. Last but not least, there is a change in the CDE subsidy application (lower contribution from industrial segments after an injunction resulted in a higher contribution by residential segments) to be paid in 2016 (around R$1.6 billion), which we estimate will add upward pressure to tariffs of 1.8%. However, an abundant rainfall period coupled with low demand for electricity energy due to the economic recession should result in a deflation range of 3.9-8.9%, depending on whether the flag mechanism becomes yellow/green. Because of the better rainfall expected, we foresee the electricity spot price being lower than it was in 2015 (R$180/MWh vs. the previous R$300/MWh) and lower average prices from auctions (R$126/ MWh at old power plants and R$148/MWh in the last A-1 auction), resulting in an average cost of new energy purchased of around of R$150/MWh; this will also represent deflation in tariffs of 4.42%. Finally, we have included the combined impact of lower tariffs from Itaipu and lower financial reimbursement for RBNI, partially offset by reimbursements expected for RBSE and generation assets; taken together, we expect a 2.14% decline in tariffs coming from these parcels.

Electricity energy tariff adjustment in 2016. We estimate the potential electricity tariff adjustment at 6.8% on average in 2016 (contribution of 0.20 p.p. to IPCA), considering our base case scenario for energy, which is a yellow flag in 1H16 and a green flag in 2H16. We see high temperatures in the summer and the poor performance of hydrology in the Northeast region being constraints on the government changing the flag mechanism to green in 1H16. A weaker summer (weaker consumption) or much better hydrology (above 100% of the average in the southeast region) could mean a green flag in the beginning of 2Q16 and an electricity tariff adjustment at 2.0% on average in 2016 (contribution of 0.06 p.p. to IPCA), which would help the disinflation process significantly. We assume the average cost to contract new energy in 2016 at R$150/MWh. This outcome is very much in-line with what we have for the electricity tariff adjustment in our regulated price inflation forecast of 7.3%, a contribution of 1.7 p.p. to IPCA.

Figure 4. Schedule of Electricity Tariff Annual Adjustments 2016



Source: Santander estimates.

Figure 5. Breakdown of Tariffs Adjustment Factors (%) – Baseline Scenario

DisCos	City	Regular Contract Adjustment	Cost of Loans (2015-2017)	Yellow/ Green Flag	New Exposure to Spot Market	(+)RBSE&G/ (-)RBNI/Itaipu	(+) CDE	Total adjustment
AMPLA	RJ	11.01%	5.83%	-5.7%	-4.42%	-2.1%	1.3%	5.1%
CEMIG	BH	13.32%	7.06%	-4.2%	-4.42%	-2.1%	1.6%	10.5%
Enersul	MS	12.12%	6.84%	-4.4%	-4.42%	-2.1%	1.6%	8.8%
AES SUL	POA	12.99%	6.32%	-4.4%	-4.42%	-2.1%	1.5%	9.0%
COELBA	SAL	9.07%	11.09%	-5.4%	-4.42%	-2.2%	2.6%	9.9%
COELCE	FOR	9.07%	8.74%	-5.0%	-4.42%	-2.2%	2.0%	7.4%
CELPE	REC	9.06%	9.75%	-5.3%	-4.42%	-2.2%	2.2%	8.4%
RGE	POA	11.43%	6.77%	-5.3%	-4.42%	-2.1%	1.6%	7.0%
COPEL	CUR	10.94%	7.21%	-4.3%	-4.42%	-2.1%	1.7%	8.2%
ELETROPAULO	SP	9.22%	7.44%	-5.0%	-4.42%	-2.1%	1.7%	6.0%
CELPA	BEL	8.13%	8.11%	-3.9%	-4.42%	-2.2%	1.9%	7.0%
Escelsa	ES	8.47%	7.29%	-4.7%	-4.42%	-2.1%	1.7%	5.5%
CEB	DF	8.39%	8.62%	-5.0%	-4.42%	-2.2%	2.0%	6.7%
ELEKTRO	SP	8.41%	7.26%	-4.3%	-4.42%	-2.1%	1.7%	5.9%
CELG	GOI	6.97%	7.22%	-4.4%	-4.42%	-2.1%	1.7%	4.3%
BANDEIRANTE	SP	6.34%	6.78%	-4.2%	-4.42%	-2.1%	1.6%	3.4%
CEEE	POA	6.38%	6.76%	-4.0%	-4.42%	-2.1%	1.6%	3.6%
RJ DisCo	RJ	6.01%	6.45%	-3.9%	-4.42%	-2.1%	1.5%	2.9%
Tariffs		**9.34%**	**7.60%**	**-4.63%**	**-4.42%**	**-2.14%**	**1.8%**	**6.8%**

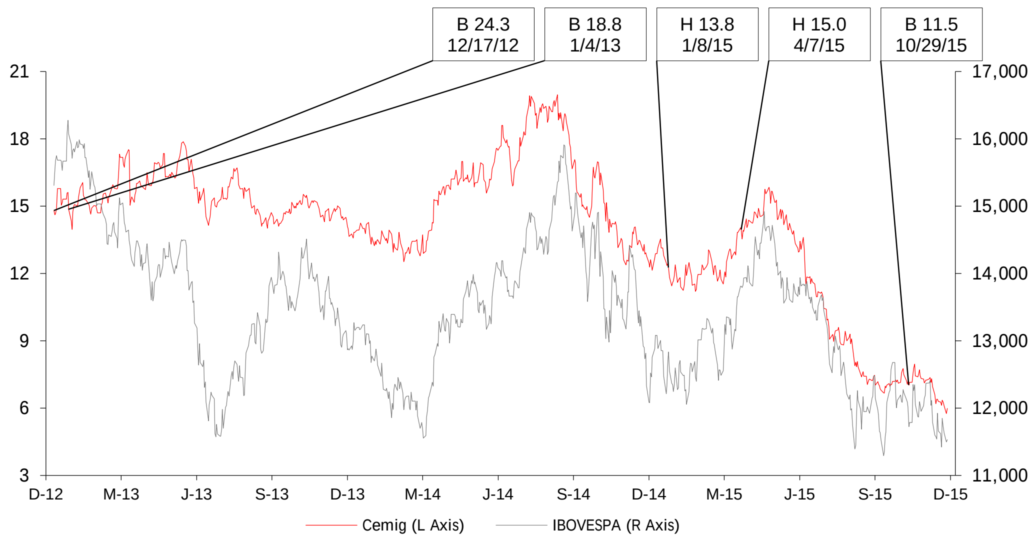
Source: Santander estimates.

Figure 6. Breakdown of Tariffs Adjustment Factors (%) – Optimistic Scenario (Green Flag)

DisCos	City	Regular Contract Adjustment	Cost of Loans (2015-2017)	Green Flag	New Exposure to Spot Market	(+)RBSE&G/ (-)RBNI/Itaipu	(+) CDE	Total adjustment
AMPLA	RJ	11.01%	5.83%	-10.9%	-4.42%	-2.1%	1.3%	-0.8%
CEMIG	BH	13.32%	7.06%	-8.1%	-4.42%	-2.1%	1.6%	6.0%
Enersul	MS	12.12%	6.84%	-8.5%	-4.42%	-2.1%	1.6%	4.2%
AES SUL	POA	12.99%	6.32%	-8.5%	-4.42%	-2.1%	1.5%	4.4%
COELBA	SAL	9.07%	11.09%	-10.4%	-4.42%	-2.2%	2.6%	4.1%
COELCE	FOR	9.07%	8.74%	-9.7%	-4.42%	-2.2%	2.0%	2.2%
CELPE	REC	9.06%	9.75%	-10.2%	-4.42%	-2.2%	2.2%	2.7%
RGE	POA	11.43%	6.77%	-10.2%	-4.42%	-2.1%	1.6%	1.5%
COPEL	CUR	10.94%	7.21%	-8.4%	-4.42%	-2.1%	1.7%	3.7%
ELETROPAULO	SP	9.22%	7.44%	-9.6%	-4.42%	-2.1%	1.7%	0.9%
CELPA	BEL	8.13%	8.11%	-7.6%	-4.42%	-2.2%	1.9%	2.9%
Escelsa	ES	8.47%	7.29%	-9.0%	-4.42%	-2.1%	1.7%	0.7%
CEB	DF	8.39%	8.62%	-9.6%	-4.42%	-2.2%	2.0%	1.5%
ELEKTRO	SP	8.41%	7.26%	-8.2%	-4.42%	-2.1%	1.7%	1.5%
CELG	GOI	6.97%	7.22%	-8.4%	-4.42%	-2.1%	1.7%	-0.1%
BANDEIRANTE	SP	6.34%	6.78%	-8.1%	-4.42%	-2.1%	1.6%	-0.8%
CEEE	POA	6.38%	6.76%	-7.7%	-4.42%	-2.1%	1.6%	-0.4%
RJ DisCo	RJ	6.01%	6.45%	-7.6%	-4.42%	-2.1%	1.5%	-1.0%
Tariffs		**9.34%**	**7.60%**	**-8.93%**	**-4.42%**	**-2.14%**	**1.8%**	**2.0%**

Source: Santander estimates.

Cemig – Three-Year Stock Performance (R$)

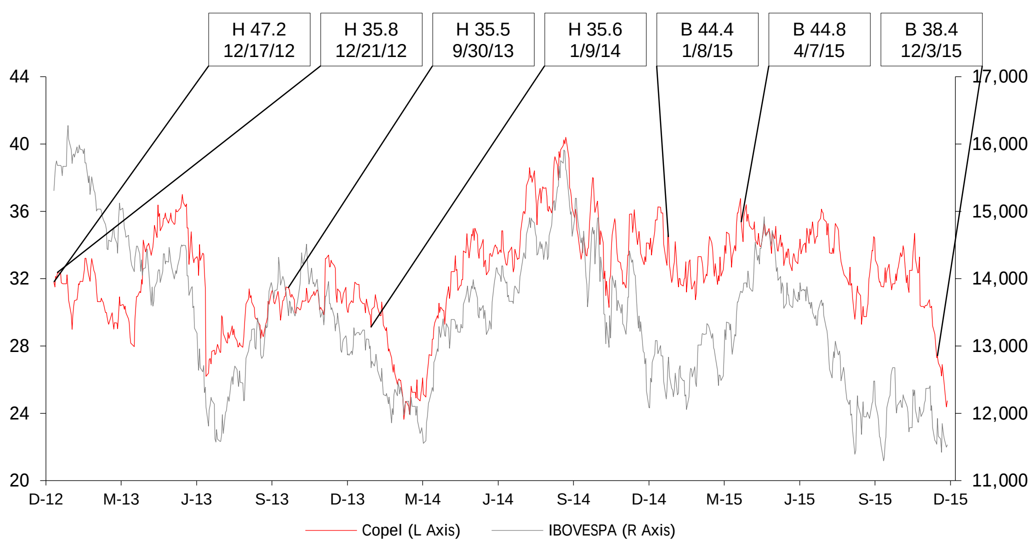


Sources: FactSet and Santander.

Valuation & Risks

Our target price is based on a DCF valuation using a WACC of 11.2% and perpetual growth rate of 5% per year. Risks include (1) lower-than-expected generation prices, (2) concession renewal risks, and (3) expensive acquisitions.

Copel – Three-Year Stock Performance (R$)

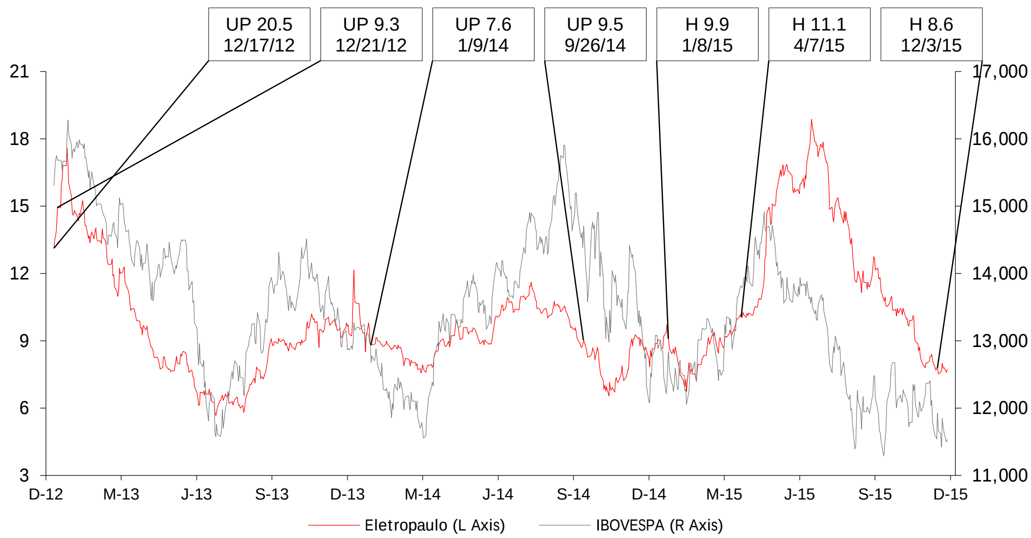


Sources: FactSet and Santander.

Valuation & Risks

Our YE2016 target price is based on a DCF valuation using a WACC of 13.1% and perpetual growth rate of 5% per year. Risks include (1) lower-than-expected generation prices; and (2) investment in new ventures at lower-than-expected return.

Eletropaulo – Three-Year Stock Performance (R$)



Sources: FactSet and Santander.

Valuation & Risks

Our YE2016 target price is based on a DCF valuation using a WACC of 11.2% and a perpetual growth rate of 5.0% per year. Risks include (1) off-balance-sheet contingencies; and (2) lower-than-expected cash generation

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