Even before extreme weather conditions in the Southern Cone burdened national electric grids and energy infrastructure, countries of the region were struggling to meet their internal energy demand. In some cases, years of poor policy decisions and lack of investment in the sector – particularly in the oil and gas upstream – had left the energy industry in a tenuous position.

From Montevideo to Brasilia to Buenos Aires, policy makers have been forced to reconsider what comprises their national energy strategy, with some more assertive than others in devising the most rational path forward.

The stress on these nations’ energy sector and by extension national economies has led to a renewed call for diversification and efforts to foster energy security across the region. Yet policy makers’ language now includes an important caveat: “diversificación con soberanía” (diversification with sovereignty).” The pioneering energy integration efforts in the Southern Cone, once critical to the region’s collective energy and economic outlook, are now more often than not but fading memories.

In Uruguay, the need for clear and stable rules and long-term vision for energy progress prompted officials to reach political consensus for a strategic energy policy – Política Energética Uruguay 2030 – that sought to reduce their dependency on imported energy, whether oil products, natural gas or electricity. Projects to further deployment of wind energy and incorporate natural gas via a liquefied natural gas (LNG) terminal just off the coast of Montevideo are well underway.

Likewise, policy makers in Brazil and Argentina have sought to offset spiking demand by importing natural gas and LNG, often at great expense. Argentina has also increased electric imports from Uruguay. Efforts in both countries to advance the role for non-hydro renewables such as wind and solar have received a great deal of attention but are yet to yield the results energy planners expected.

Great anticipation remains for the hydrocarbons potential in Argentina and Brazil, with world-class natural gas deposits and immense offshore oil reserves. But a hefty injection of investment, and some critical policy changes, would be needed to reverse current trends.

Upstream Development: Addressing the “Exploration Deficit”

Despite upstream potential across the Southern Cone, countries are running an “exploration deficit”, albeit for different reasons. Argentina and Brazil count abundant reserves but at the same time are increasing their imports of LNG as well as natural gas via pipeline from Bolivia. Bolivia’s situation, while not as critical, appears heading in the same direction. Uruguay, despite a historical lack of deliberation on hydrocarbons, has begun an aggressive campaign for onshore and offshore exploration as well as a regasification terminal. Uruguay’s Gas Sayago project is set to meet the country’s natural gas demands and conceivably serve as a regional hub for natural gas distribution in the Southern Cone.

In Uruguay, years of economic growth and foreign investment, bolstered by a stable and transparent political system, have made access to dependable and economical energy supplies a national economic imperative and incentivized Uruguay to develop a rational, forward looking energy policy. Indeed, the country’s long-term, multi-party energy strategy (Política Energética Uruguay 2030) has sent an important signal to investors as the country opens its hydrocarbons sector to bidding both on- and offshore.
When it comes to the usual dichotomy in the global oil and gas business between above ground and below ground risks, Uruguay’s challenge lays squarely in the latter: a lack of geological data and limited recoverable reserves, particularly when compared to its neighbors.

Uruguay has held two offshore exploration rounds. The first, in 2009, received few offers in part due to limited geological information. Round II in 2012 was more successful; a total of 19 offers from 9 companies received, on 8 of the 15 blocks offered. With over $1.5bn committed by majors BP, Total, BG, and Tullow Oil, the Uruguayan government hopes to catalyze a new era in exploration and production.

State oil company ANCAP has high hopes for the third offshore round, to be launched in December 2014, and its prospects for deepwater production in the future. Whether companies locate the reserves to support these lofty goals remains to be seen. Companies have been straightforward in asserting that only major oil reserves will be economically viable to develop in the deepwater fields; natural gas offshore holds limited possibilities.

Uruguay is also taking its first steps in onshore exploration. The US Energy Information Administration estimates Uruguay has 2 trillion cubic feet (tcf) of technically recoverable shale gas reserves and 600 million barrels of shale oil in the north of the country.

The Southern Cone has become an epicenter of unconventional promise in Latin America, in large part due to the 802 tcf of technically recoverable shale gas reserves in Argentina (Figure 1). Successful shale development can be transformational for a nation’s economy – as the United States’ experience demonstrates – though as the case of Argentina reveals, the early stages of monetizing unconventional reserves present steep learning curves and daunting challenges.

Figure 1

Globally, the energy world has heard much about the extent of reserves and potential for Argentina’s Vaca Muerta formation and while exploration has begun in the region, the challenges for efficient shale production are significant. Most notably, local infrastructure is inadequate, there is a lack of detailed information about the subsoil, and operations are inefficient when compared to their counterparts in the United States. The costs, if not prohibitive, require a more efficient approach to extraction in Argentina, where a well can cost up to five times its equivalent in the United States.

Argentina has experienced 15 years of declining oil production and 10 years of production declines in natural gas. Meanwhile, demand for natural gas is growing at an annual rate of 5 – 6 percent, and despite abundant reserves, the country is set to become a net importer of natural gas. Given the critical energy situation, Argentina must find a way to fast-track its unconventional learning curve.

The experience of the world’s most successful unconventional hydrocarbons producer, the United States, is frequently cited as a reference point for shale development in Argentina and elsewhere. Yet policymakers should be cautious when attempting to replicate its success. Every shale formation is different and complex, requiring distinct technology and approaches that cannot be adopted directly from the United States.

With the costs running much higher, countries such as Argentina do not have the same luxury as drillers in the US, where a “brute force” approach has allowed companies to accept a lower success rate per well than would be economically feasible in the Vaca Muerta, for example. It also bears noting that companies in the US took 10 years to reach a rate of 1m barrels per day in North Dakota’s Bakken region. Argentina’s current energy supply-demand imbalance requires a far shorter timeline.
Energy Security in the Southern Cone

A More Strategic Role for Natural Gas

The United States’ energy renaissance, entirely replicable or not, has sent ripples across the region. A new reality of natural gas abundance and low prices has transformed the energy landscape in North America and beyond.

Predictions that US domestic natural gas prices are likely to remain far below historical rates and more importantly stable - between $4 – 6 MMBtu - for the next decade, will cement natural gas’ place as a competitive source for electric generation and transport (as both compressed natural gas and LNG).

In the Southern Cone, natural gas is playing an increasingly important role in the energy matrix, across sectors and industries in the region. Yet with an exploration deficit limiting access to domestic supplies in Brazil and Argentina – and even Bolivia in the next decade – natural gas in the form of LNG must be imported. In the largely hydroelectric energy markets in the Southern Cone, the impact of declining local production has been compounded by extreme weather conditions, particularly droughts, that have seen countries of the region scrambling to purchase LNG on the expensive spot market.

Argentina, despite abundant reserves, will be a net importer of natural gas in under a decade if existing trends continue. It currently imports both via pipeline from Bolivia and Argentina – and even Bolivia in the next decade – natural gas in the form of LNG must be imported. In the largely hydroelectric energy markets in the Southern Cone, the impact of declining local production has been compounded by extreme weather conditions, particularly droughts, that have seen countries of the region scrambling to purchase LNG on the expensive spot market.

Brazil also has significant natural gas potential both on- and offshore. Yet like Argentina, rising domestic demand has been met with increasing imports from Bolivia through the long-time gas pipeline connecting the two nations. Brazil has also become Latin America’s second largest buyer of LNG, imported through two regasification terminals in Pecém and Guanabara Bay. A third terminal in Bahia is set to come online in 2014.

In Brazil, natural gas exploration and production functions as a virtual monopoly, led by national oil company Petrobras. In order to promote a more robust natural gas sector, the government enacted a new natural gas law in 2009, which, in principle, separated exploration and production from distribution, with the goal of attracting investment in natural gas infrastructure, particularly pipelines in the country. However, sector participants argue that more needs to be done to liberalize the gas market so that, for example, power project developers can more easily bring on-line gas-fired generation.

Infrastructure remains an ongoing challenge across Brazil’s energy sector, with supply centers located far from the demand, and insufficient or inefficient means of transport between the two. Even with natural gas discoveries in the pre-salt, transport infrastructure remains inadequate and expensive. As in Argentina, Brazil will continue to depend on imported natural gas and LNG until investment in exploration and production catch up.

Bolivia, while at a different stage of its natural gas trajectory, still faces the threat of an exploration deficit as production from its megafields naturally declines and major new investments lag.

Against this backdrop, Uruguay has developed its first regasification terminal, to be operational by mid-2015. The terminal run by Gas Sayago (a joint venture between state energy companies UTE and ANCAP), will be supplied by

Combining Natural Gas and Renewables in Uruguay's Electric Sector

Uruguay is leading the region in terms of renewables goals, with the aim of reaching 90 percent generation from renewable sources by 2015. And the government plans to do so without subsidizing the sector.

Armed with an abundance of wind energy, Uruguay hopes to rival Brazil in wind generation capacity. By 2015, it is expected that 1300MW of installed wind generation capacity will comprise 28 percent of total electric generation. Hydropower is the other key base, contributing 55 percent. Biomass (10 percent) and natural gas (7 percent) will provide both foundation and backup power, particularly in times of drought.

For the Uruguayan government, natural gas plays a small but critical role in stabilizing electricity prices and reducing vulnerability. As costs have decreased, renewable generation has become more viable in Uruguay, particularly when faced with expensive fossil fuel imports. The cost of wind energy is between $62 – 64 per MWh.
a floating storage regasification unit capable of providing between 0.3 million m$^3$ per day (MMm$^3$/d) to 10 MMm$^3$/d. Not only will this give Uruguay greater flexibility as they deploy more renewables but the terminal could make Uruguay an energy hub in the Southern Cone, eventually distributing natural gas to neighboring Brazil and Argentina.

**Reinvigorating Energy Integration in the Southern Cone**

While the Southern Cone may now be better known for energy disputes than cooperation, the region has enormous potential for energy integration both in electricity generation and natural gas exchange. Indeed, Argentina and Brazil have increased their dependency on their respective natural gas interconnections with Bolivia over the last several years.

But a region that once led Latin America in energy integration is now marked by the refrain “diversification with sovereignty.” In spite of this sentiment, the Southern Cone’s best chance of ensuring reliable access to affordable energy is through cooperation, if not integration. Reinvigorating the pioneering outlook for a more collective effort to harness and deploy energy resources across the the Southern Cone is vital.

The good news is that much of the region’s collaborative legacy remains. Electricity interconnection already exists between Uruguay, Argentina, and Brazil. Uruguay counts a 2,000MW connection with Argentina and 70MW to Brazil; an additional 500MW connection is under construction. Existing infrastructure between the three countries could also see electricity swaps to and from Uruguay via a 1,000MW connection between Argentina and Brazil.

Energy security would also be bolstered by greater interconnection though new and existing pipelines. LNG arriving at La Plata (the Gas Sayago project) could be distributed via existing pipeline infrastructure to both Argentina and Brazil. With no new major investment, Uruguay could supply up to 2.7MMm3 of natural gas per day, restarting the long-dormant AES Uruguaiana plant and easing demand pressure in Southern Brazil (Figure 2). These cases underscore the importance of reinvigorating regional integration initiatives.

It is conceivable that with the steps already taken, Uruguay could develop into a small-scale energy hub in the Southern Cone in the medium term. This is particularly important as Brazil and Argentina continue to import natural gas from Bolivia, itself struggling with the possibility of a deficit by the end of the decade. However, each case would entail significant political capital, as bi- and tripartite agreements would be required for the use of cross-border pipeline and transmission infrastructure.

Countries in the Southern Cone are at a critical juncture in terms of ensuring long-term energy security. Opportunities abound and policy makers would be unwise to allow the moment to pass. Beyond reaching domestic political agreement on energy policy and their respective energy outlooks, officials and sector participants must also restore a regional approach.