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Latin America is an important emerging market for smart grid solutions, due to its size and fast growth rates. A common feature in the region is the need to improve technical and commercial energy loss levels and enhance reliability and quality of service. This helps building the case for smart grids and results in advanced metering infrastructure and network automation technologies being under the spotlight. However, Latin American countries are far from uniform regarding their technological needs. Though many countries already have smart grid deployment road maps, the levels of actual investments also vary significantly in Latin America, and understanding the specific regulatory context of each country is a requirement for investments interested in the region.

With a yearly annual electricity consumption of over 1,250 Terrawatt-hours (TWh), Latin America represents an important emerging market for smart grid (SG) technologies and solutions.

Investors and manufacturers looking at the region are faced with high electricity demand growth rates: Figures exceeded 4 percent per annum in the last decade and, despite a recent slowdown in large markets such as Brazil, are expected to be sustained at high levels in the coming years. Moreover, the maturing of the regulatory and policy frameworks in important markets (including Brazil, Chile, Colombia and Peru) that initiated their power sector reforms in the 1980s and 1990s helps build confidence for investments. Also, the recent sector reorganization in Mexico consolidates opportunities in the second largest electricity market in the region.

Drivers for smart grid development and particularities of technological focus in Latin America

While the figures above suggest that large investments are needed in the power sector, a closer look at the particular circumstances of Latin America is needed to understand the potentially important role of SG solutions. The list of drivers below is not exhaustive, but the items are listed in their perceived importance for the region.

First, the power sectors in the region exhibit some of the higher transmission and distribution loss levels in the world. As shown in recent studies from the Inter-American Development Bank, average technical and commercial losses levels in Latin America have been oscillating at levels above 15 percent for quite some time, exceeding even figures seen in other predominantly developing regions. The estimated costs of these losses can be significant - for instance, IADB estimated them at 1.7 percent and 0.96 percent of the GDP, respectively for Honduras and Nicaragua, in 2012.

Also, though most Latin American countries have seen important improvements in distribution services,

reliability and quality indicators after the reforms of the 1990s, many of the improvements in these indices stagnated or even worsened since the early 2000s. (In some countries, deterioration of average reliability indicators has been seen concomitantly with improvement of electricity access in rural or isolated areas.)

The potential impacts of SG solutions - mainly these relating to advanced network automation (ANA) and advanced metering infrastructure (AMI) - over technical/commercial losses and service reliability/quality are already a very relevant driver for technology roll-out in the region. Similarly, though electrification rates increased significantly in recent decades, reaching levels well above 90 percent in most countries, there are still pockets of isolated populations, for which microgrid solutions can play an important role.

Hydroelectric power accounts for a large share of the generation matrix in many Latin American countries; for instance, in 2013 it accounted for more than 50 percent of total generation in Brazil, Colombia, Costa Rica, Panama, Paraguay, Peru, Uruguay and Venezuela. This puts the role of reductions of greenhouse gas emissions from fossil fuel thermal generation in perspective for the region.

Yet, the deployment of distributed energy resources (DER, including distributed renewable generation and storage) has an important role to play even in hydro-dominated countries. Such an important role is associated with:

These factors contribute to the policies of most of the countries listed above, which have aggressive renewable support policies, including support for distributed renewable generation. For the same reasons, SG solution families other than DER, including demand response (DR), also play a role in the region.