



northeast group, llc

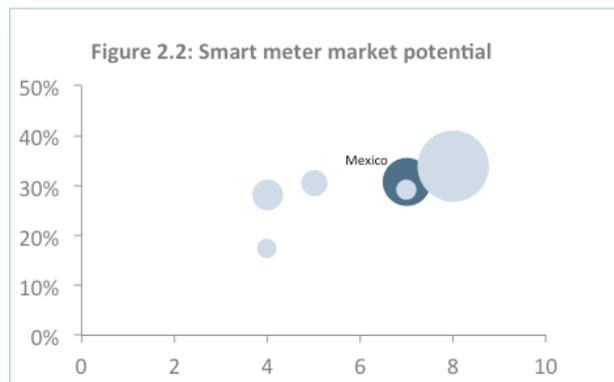
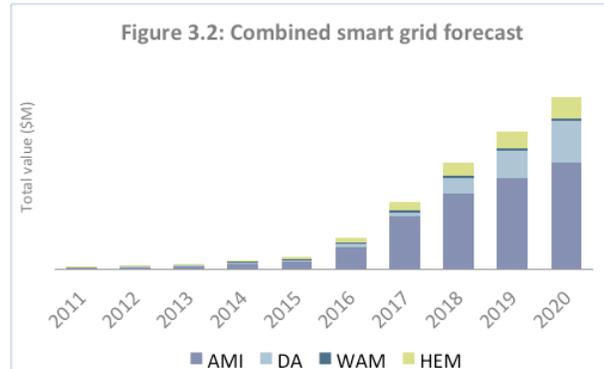
Mexico Smart Grid: Market Forecast (2011 – 2020)

Smart metering (AMI)
Distribution automation
Wide area measurement
Home energy management

October 2011 | www.northeast-group.com

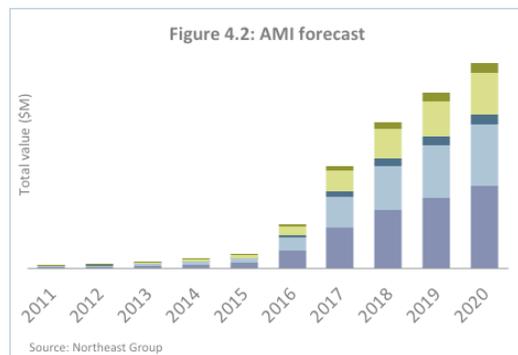
Mexico is poised to become a major smart grid market over the course of the next decade. This will provide American smart grid vendors, international players, and domestic Mexican firms with ample opportunities to expand in the country. While deployments are still in the early and pilot stages, Mexico has the core conditions and government backing to create a significant smart grid market in the latter half of this decade.

With high non-technical distribution losses, unreliable grid infrastructure, and rapidly growing electricity demand—especially from an emerging middle class—Mexico faces many of the same conditions driving smart grid development throughout Latin America. What differentiates Mexico though is its proximity to the US and its



largely monopolized utility sector. Mexico has been in close coordination with the US on smart grid cooperation and is a natural market for US vendors, in particular, to enter. As a result, the country has the potential to become a key market for wireless mesh communication technologies popular in the US. At the same time, there is still equally strong potential for powerline

communication (PLC) technologies common in European and other countries. Finally, unlike other countries in Latin America, Mexico has a single state-owned utility. While this may limit the number of stakeholders vendors can market to, it will help ensure streamlined start dates and deployment throughout the country.



Key questions answered in this report:

- How will the combined smart grid market develop over the next decade?
- What are the market possibilities for PLC and wireless mesh communications technologies in Mexico?
- How much value will distribution automation and home energy management add to the Mexico smart grid market?
- Which international vendors are already active in Mexico? Which domestic vendors are poised to partner with international firms to exploit the growing smart grid market?

Table of Contents

i. Executive Summary	1
ii. Methodology	5
1. Introduction	7
1.1 Smart grid in Mexico	7
1.2 Smart grid's role in Mexican energy policy	12
2. Mexico smart grid snapshot	15
2.1 Current situation	15
2.2 Regional comparison	17
2.3 Electricity industry structure	19
2.4 Smart metering regulatory framework	23
2.5 Market drivers and barriers	24
2.6 Recent activity	29
3. Smart grid market forecast	33
3.1 Assumptions	33
3.2 Overall smart grid forecast	34
4. Detailed smart grid forecast and technology outlook	36
4.1 AMI	36
4.1.1 Meter hardware	36
4.1.2 Communications options	37
4.1.3 IT: meter data management and customer information systems	40
4.1.4 Professional services	41
4.1.5 Installation costs	41
4.2 Wide area measurement	42
4.3 Distribution automation	43
4.3.1 SCADA and RTU systems	43
4.3.2 Advanced distribution automation	44
4.3.2.1 Substation automation and monitoring	44
4.3.2.2 FDIR	45
4.3.2.3 Volt/VAR optimization	46
4.3.2.4 Grid monitoring and control	46
4.3.3 Recent distribution automation projects	47
4.4 Home energy management	48
4.4.1 Home area networks	48
4.4.2 Distributed generation: solar inverters with communication capability	49
4.4.3 Electric vehicle supply equipment	50
5. Vendor activity	52
5.1 Domestic vendors	52
5.1.1 Domestic vendors active in smart grid projects	52
5.1.2 Domestic vendors in the electrical equipment field	54
5.2 International vendors	55
5.2.1 International vendors in AMI projects	55
5.2.2 International vendors in distribution automation projects	56
5.2.3 International vendors poised to expand in Mexico	58
6. Conclusion	60
6.1 Next steps	60

List of Figures, Boxes, and Tables

Mexico smart grid: key takeaways	3
Mexico smart grid: leading indicators	4
Figure 1.1: Smart grid value chain	7
Figure 1.2: Smart grid model highlighting focus in Mexico	8
Table 1.1: Demand response options	11
Figure 1.3: Actual and projected oil production in Mexico	12
Table 1.2: Mexican legislation and decrees affecting smart grid	13
Figure 2.1: Current installed base of smart meters in Latin America	15
Figure 2.2: Smart meter market potential	16
Figure 2.3: Per-capita electricity consumption	17
Figure 2.4: Per-capita CO ₂ emissions	17
Figure 2.5: Actual and forecasted GDP growth in Latin America	18
Figure 2.6: Residential electricity prices	18
Box 2.1: Smart grid throughout Latin America	19
Figure 2.7: The divisions of CFE	20
Figure 2.8: Electricity generation mix	21
Figure 2.9: Percentage renewable energy consumption	21
Box 2.2: Mexican political scene – A return to the past?	22
Figure 2.10: Global distribution losses	24
Table 2.1: Consumer appliance ownership in Mexico	25
Figure 2.11: Power outages per year	26
Figure 2.12: Renewable energy potential in Mexico	27
Table 2.2: Smart grid drivers and barriers in Mexico	28
Figure 2.13: Distribution losses in Mexico	30
Table 2.3: Existing base of smart meters in Mexico	30
Box 2.3: Mexico and the Smart Grid Maturity Model	31
Figure 3.1: Timeline of smart grid progress in Mexico	33
Figure 3.2: Combined smart grid forecast	34
Figure 3.3: Mexico smart meter forecast	35
Figure 3.4: Mexico smart meter penetration rate	35
Figure 4.1: AMI cost breakdown	37
Figure 4.2: AMI forecast (5 components)	38
Table 4.1: AMI communications technologies	39
Figure 4.3: Mexico phasor measurement unit forecast	42
Figure 4.4: Distribution automation forecast (4 components)	43
Figure 4.5: Timeline of distribution automation progress in Mexico	45
Figure 4.6: Home energy management forecast (3 components)	49
Figure 4.7: Electric vehicle forecast	50
Figure 5.1: Vendors active in smart grid in Mexico	52
Table 5.1: Domestic electricity sector vendors in Mexico	54
Table 6.1: The next steps and necessary actions	60

Order Form

Pricing

Single user – \$2,495 | Enterprise license – \$3,595

Clients purchasing a single user license are limited to one user for this report. The enterprise license allows all employees within a single organization to view the report. Any forwarding or sharing of the report to others who have not paid for it is strictly forbidden.

Email orders: Fill out and scan the sheet below. Please email orders to **ben.gardner@northeast-group.com**

Telephone: We can be reached at **+1.202.538.0848**. Please have all of the information below ready to expedite your order.

Customer information

SINGLE USER ENTERPRISE LICENSE

NAME	POSITION	COMPANY	
ADDRESS			
CITY	STATE	POSTAL CODE	COUNTRY
TELEPHONE	EMAIL		

Credit card information Card type: VISA MASTERCARD AMERICAN EXPRESS DISCOVER

CARD NUMBER	EXPIRATION DATE	CV CODE	
CARDHOLDER'S NAME	SIGNATURE	DATE	
BILLING ADDRESS			
CITY	STATE	POSTAL CODE	COUNTRY

By purchasing this report I agree to abide by the following terms and conditions: 1. Single-user license - use of this report is restricted to one individual. 2. Enterprise license – use of this report is restricted to individuals within a single enterprise or organization. I agree not to forward or share this report to others who have not paid for its use.