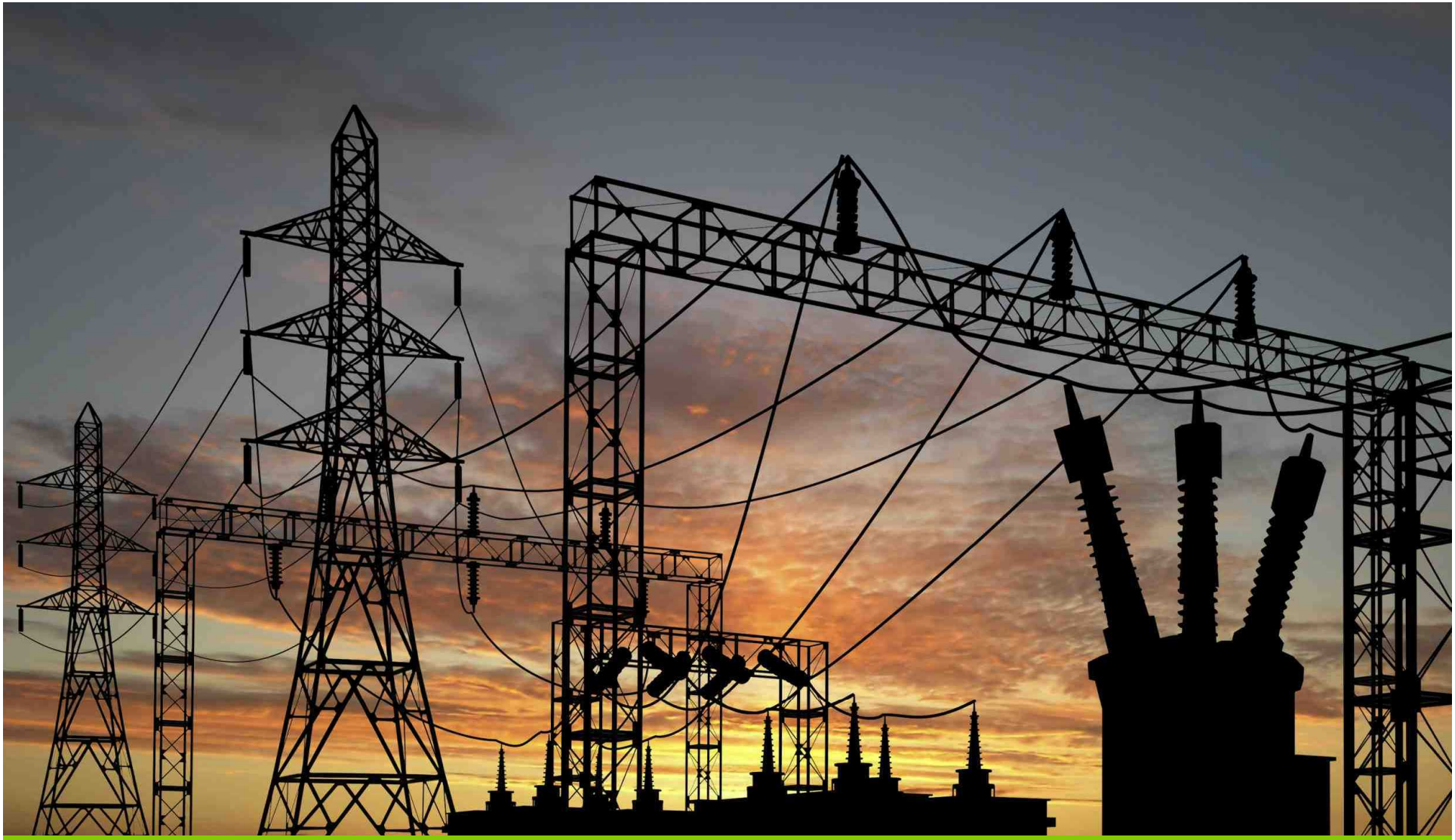
AES El Salvador

September 2014

AES El Salvador



1. Introduction

AES Corporation: A Global Leading Power Company

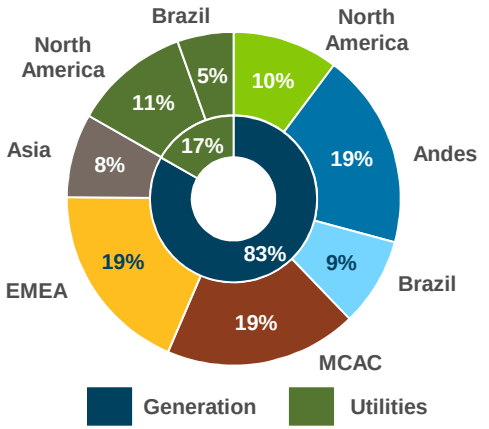
Founded in 1981, the AES Corporation is a global power company present in 21 countries across 5 continents.

Key Facts

- **US$42 bn in assets** located across 21 countries
- Total installed power generation capacity of **37,524 MW**
- Distribution networks with capacity to serve **+10.9 mm customers**
- Organized globally under 6 strategic business units ("SBUs")
- The AES Corporation (NYSE: AES) is a Fortune 200 global power company

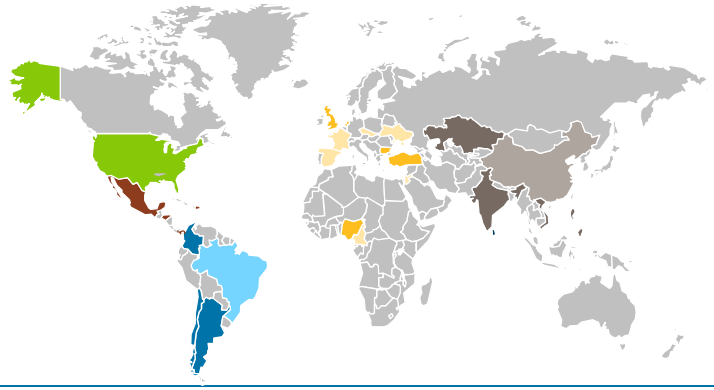
LTM Adjusted Pre-Tax Contribution(1) by Segment

LTM Adj. PTC
US$1,321 mm

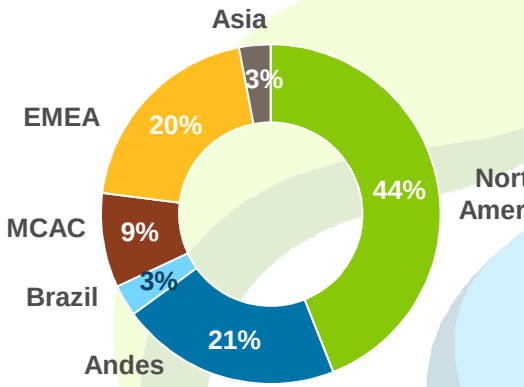


AES Global Presence(2)

Narrowing Geographic Focus:
Simplify Story and Reduce Portfolio Risk



Proportional Installed Capacity(3)
29,867 MW



Source: AES Corporation SEC Filings and Factsheet. Note: LTM as of September 30, 2013.
(1) Adjusted PTC: represents pre-tax income from continuing operations attributable to AES excluding gains or losses of the consolidated entity due to (a) unrealized gains or losses related to derivative transactions, (b) unrealized foreign currency gains or losses, (c) gains or losses due to dispositions and acquisitions of business interests, (d) losses due to impairments, and (e) costs due to the early retirement of debt. It includes net equity in earnings of affiliates, on an after-tax basis. (2) The AES Corporation has recently divested or intends to divest its interests in the following countries: Cameroon, China, Spain, France, Hungary, Czech Republic, Ukraine and Trinidad & Tobago. (3) Proportional for AES ownership stakes in the generation assets.

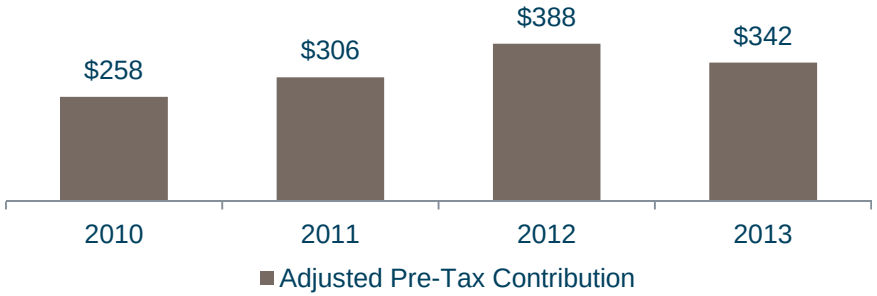
Mexico, Central America and The Caribbean (SBU)

Combining deep local insights, global presence, perspective and a relentless commitment to operational excellence, AES helps communities and countries grow through reliable and responsible electric power.

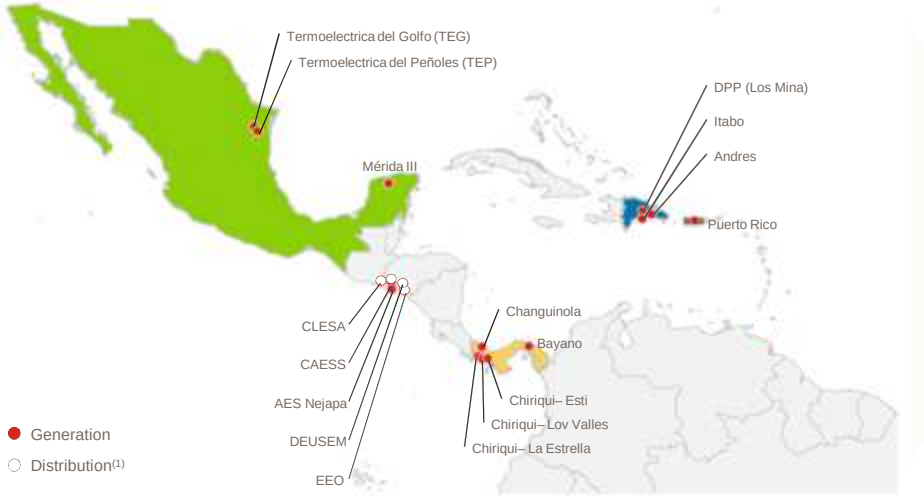
AES Competitive Advantage

- AES' MCAC business unit has operations in Dominican Republic, El Salvador, Mexico, Panama and Puerto Rico
- Through knowledge transfer, MCAC works, learns, improves and contributes to the AES Corp in every country
- Employees benefit from the collective and global experience of AES
- AES ES is a top ranked platform within AES' distribution businesses

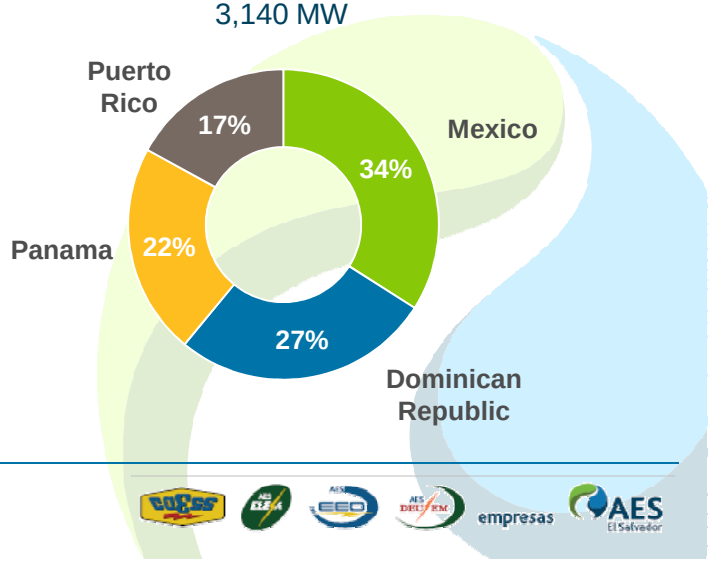
Historical Performance (US$ mm)



Mexico, Central America and The Caribbean (MCA&C) SBU Overview



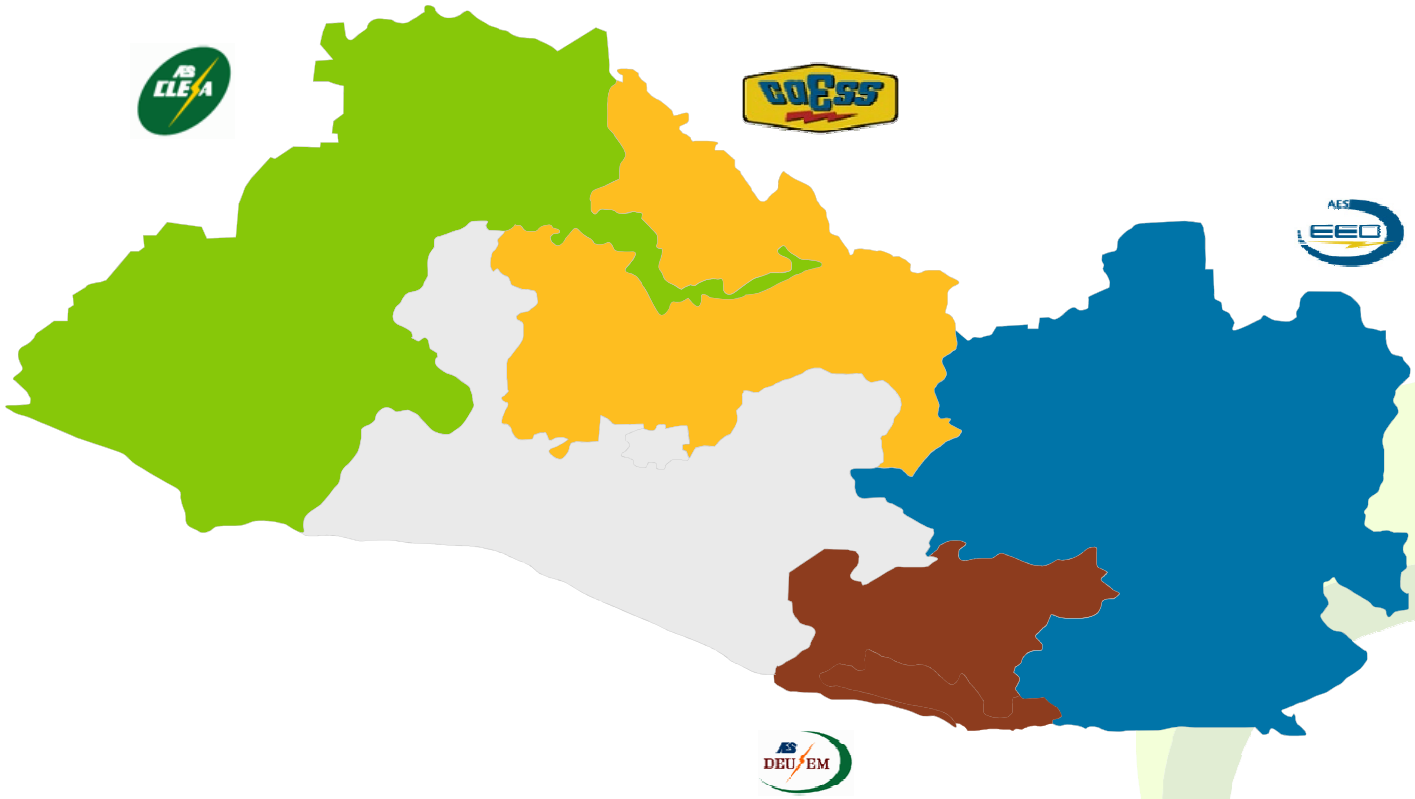
Gross Installed Capacity:
3,140 MW



Source: AES Corp., AES Corporation Fact Sheet (November 2013). .
(1) AES owns four distribution businesses in El Salvador serving ~1.3 million customers.

AES El Salvador Competitive Advantage

"AES El Salvador distributes to ~80% of the country geographically, and holds a ~70% market share. We focus on efficient capital investment in a capital intensive industry."



AES El Salvador Competitive Advantage

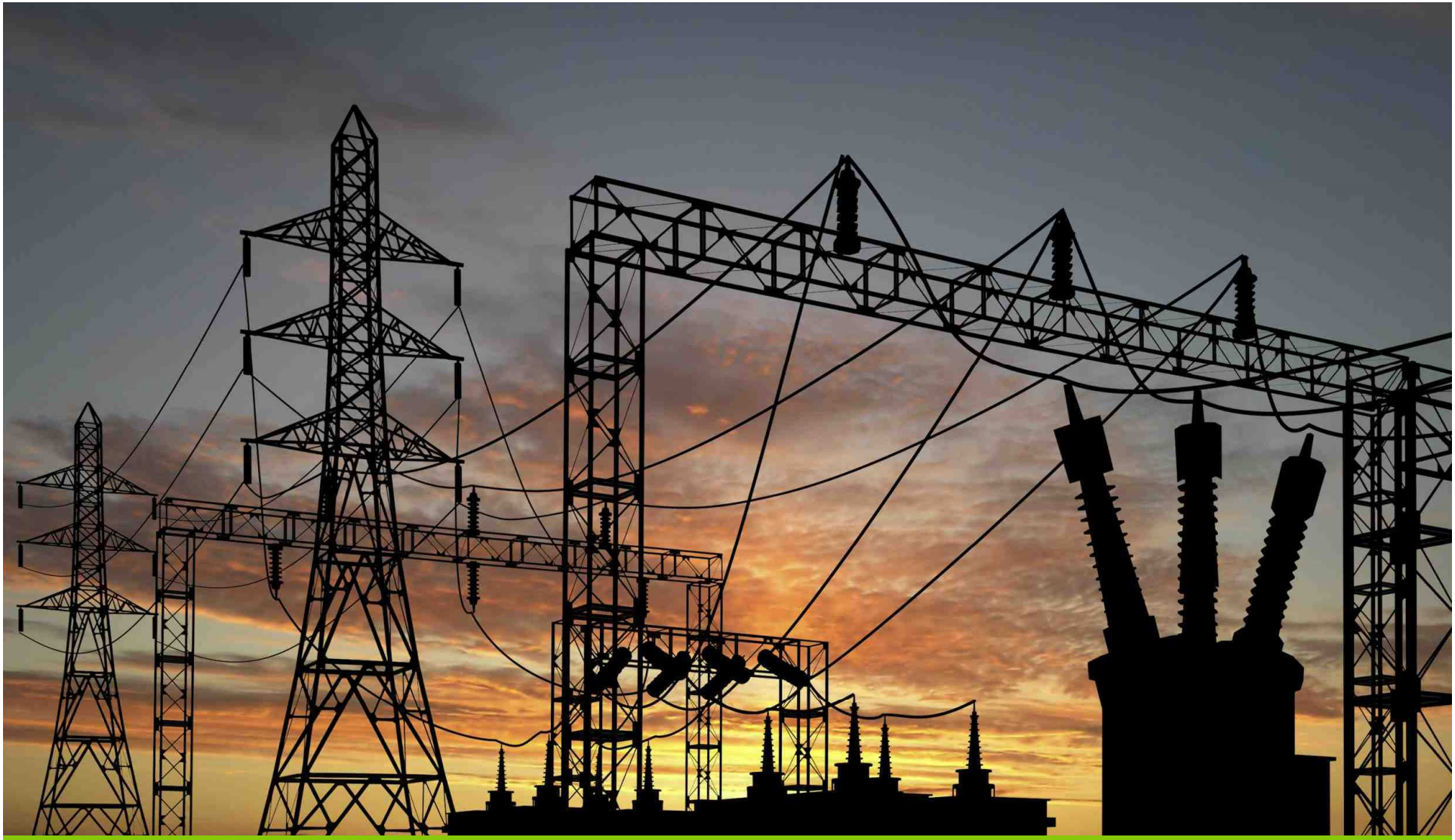
Largest Player and Most Important Private Investor in El Salvador's Electricity Sector

Integrated World-Class Management Team with AES Sponsorship

Impressive Operational Track Record with Best-in-Class Performance Metrics

Distribution Tariffs Supported by a Clear and Rational Regulatory Framework

Solid and Sustainable Financial Performance.



2. Privatization Process in El Salvador

Privatization History

1936

- Government of El Salvador awarded concession in electricity distribution for 50 years

1975

- The owners of the Distribution Companies asked to Government about the finalization of the concession, the Government does not respond. As a result:
  - The Distribution companies stop investments and equipment replacements.
  - Energy Tariff (set by the Government) were frozen and companies had deficits in their operations.
  - Quality and customer service deteriorated considerably.

1986

- The El Salvador Government announces finalization of distribution electrical concessions and take over of management.
- Distribution Companies continue to deteriorate quality and customer service.

1995

- In 1990 Latin America started processes restructuring of governments and in 1995 the Government created the General Electricity Law which considers that the electricity sector will be restructured and could sell to private operators.

1996-1997

- New regulatory framework established with Electricity Law in October 1996.
- By-laws for regulatory entity, SIGET, approved in July 1997

1998-1999

- Privatization of four main Distribution Companies in February 1998
- Privatization by CEL of 275MW of thermal generation (sold to Duke Energy in august 1999)

Resulting Structural Changes and Lesson Learned

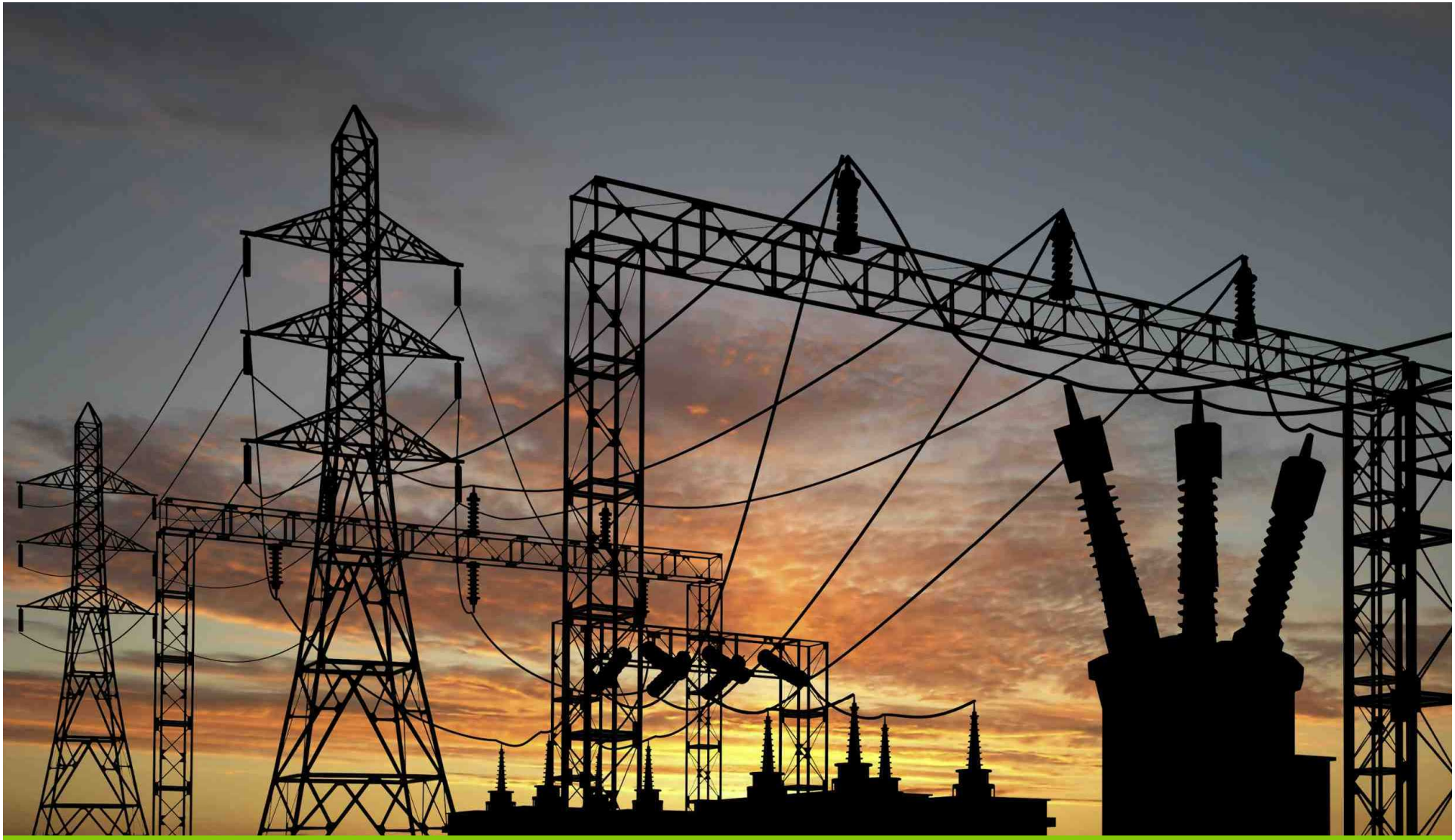
Resulting Structural Changes

- Free Electrical Market
- Free access to Transmission and Distribution Networks
- Has no concession areas in the country
- Unregulated prices for Generation and Large Customers
- Electricity Market by Unidad de Transacciones:
  -Contracts Market
  - Spot Market
- Concessions for Hydroelectric and Geothermal Generation

Lesson Learned

- The electrical distribution is a natural monopoly
- The concession area is necessary to Electrical Distribution
- The Electricity Law should be explicit and specific and Regulations should be developed by the regulator body
- The regulations should be provide transition periods for companies to adapt the change
- The price of energy must be adjusted to a maximum period of 3 months.
- The Tariff Rate must be cover the costs of technical and Commercial losses.

Source: SIGET.



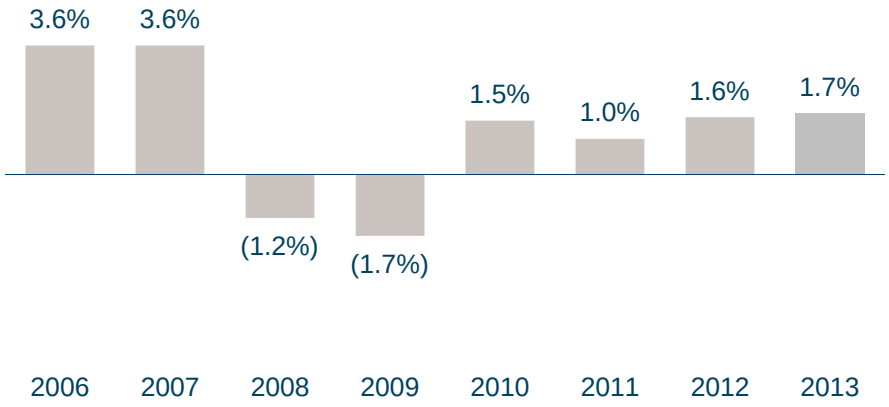
3. Market Overview

El Salvador Macroeconomic Overview

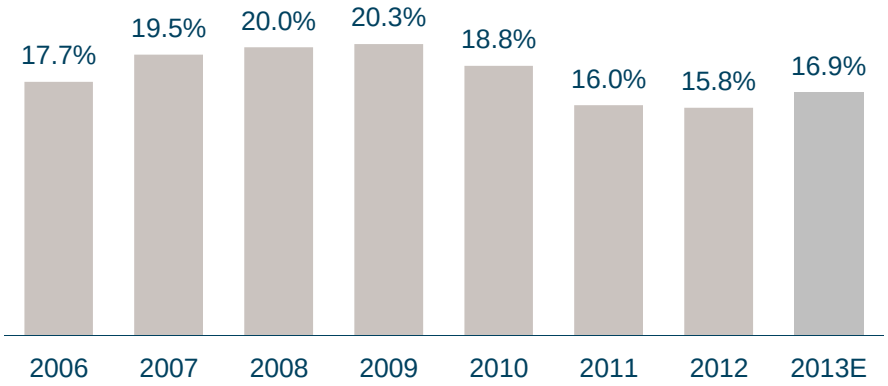
Macroeconomic Highlights

- ✓ El Salvador's economy has shown consistent recovery after the 2008 Financial Crisis, with GDP growing steadily over the last 4 years
- ✓ El Salvador adopted the U.S. dollar as legal tender in 2001, and has recently experienced relatively low inflation
- ✓ Remittances also continue to remain a strong component of GDP, now accounting for approximately 16.9% of GDP (7 year average of US$3.6 bn)

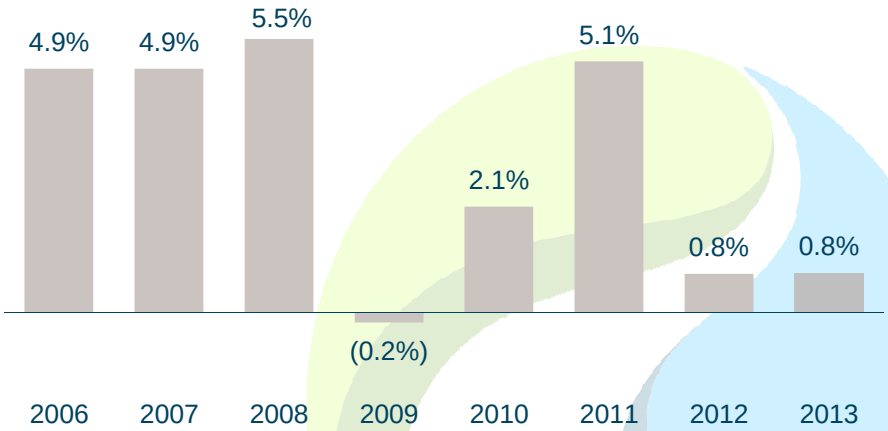
Real GDP Growth (%)



Remittances as Percentage of GDP (%)



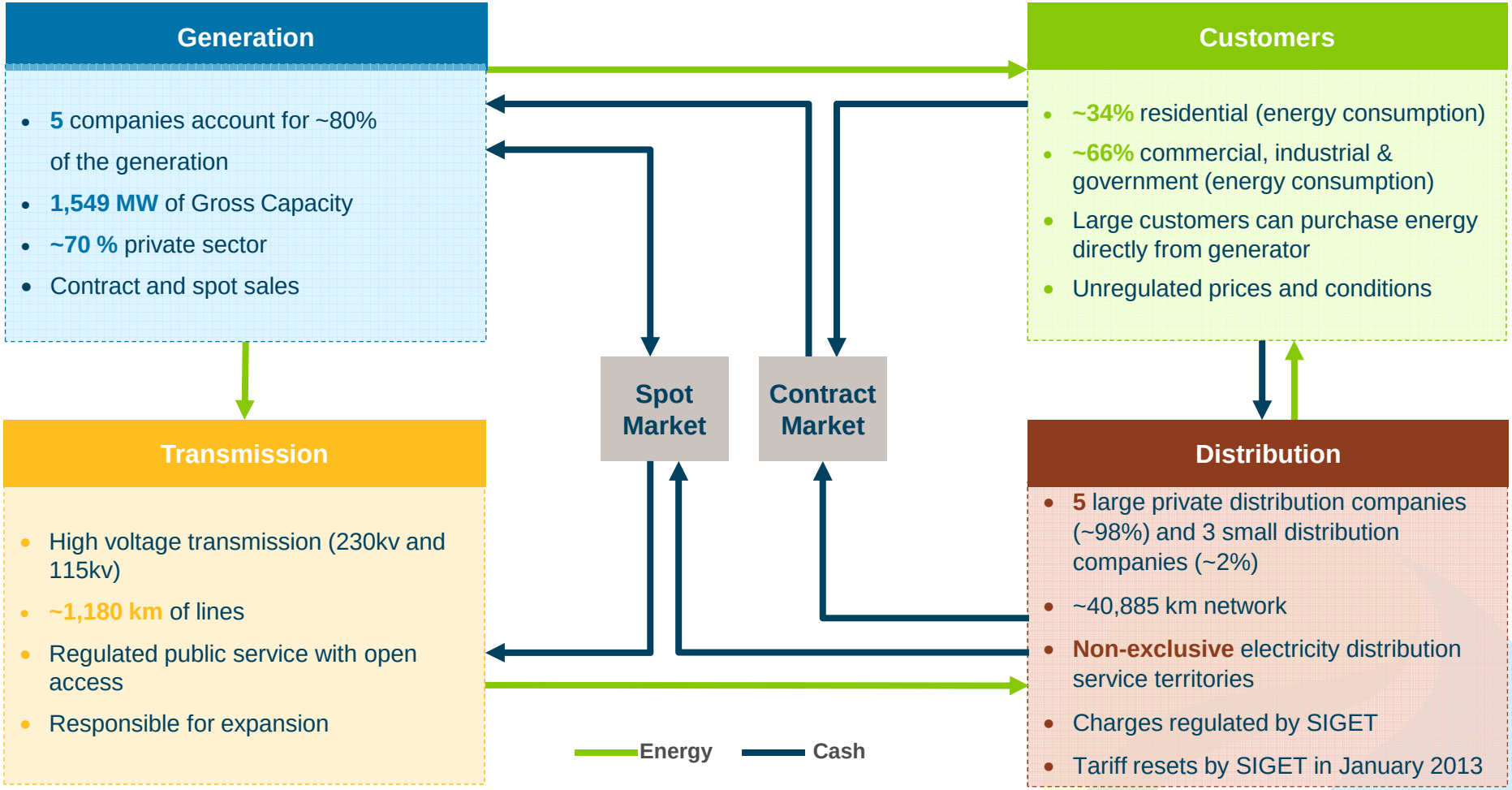
Inflation



Source: Banco Central de Reserva de El Salvador, COPADES.

El Salvador Power Sector Participants

Sector Participants & Energy Cash Flows



Electricity sector is composed of a single interconnected system governed by the General Electricity Act and General Electricity Law ("GEL")

Source: SIGET.
Note: Statistics as of December 2012.

El Salvador Power Sector Regulation

Regulatory Institutions

Independent Regulatory Authority

- Approval of distribution value added charges
- Enforcement of sector regulation
- Dispute resolution among market participants
- Granting of concessions for generation projects

Policy Making Entity

- Formed by the National Energy Council in 2007
- Highest energy authority
- Oversees regulations governing energy policy

System Coordinator

- Clearance of spot transactions in the wholesale electricity market
- Settlement and electricity dispatch coordination

Relevant Regulation Applicable to AES ES

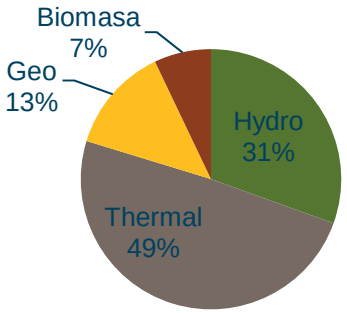
- DISCOs are forced to allow the use of its networks for energy transport
- Billing charges for energy, distribution, and commercialization are regulated
- Has no concession areas in the country
- DISCOs are responsible for both operating and maintaining the distribution grid
- DISCOs are required to carry out any investments in the network. These are then included in the tariff calculation
- Registration as a trader is necessary for DISCOs in order to sell energy to users

Source: SIGET.

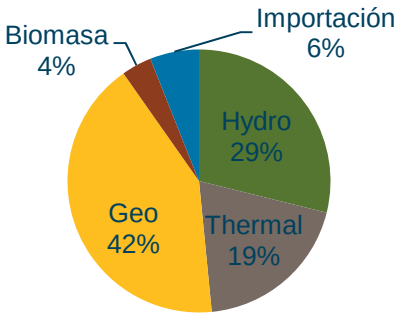
Power Generation Market Overview

Installed Capacity

2013 Installed Capacity by Type



2013 Market Share

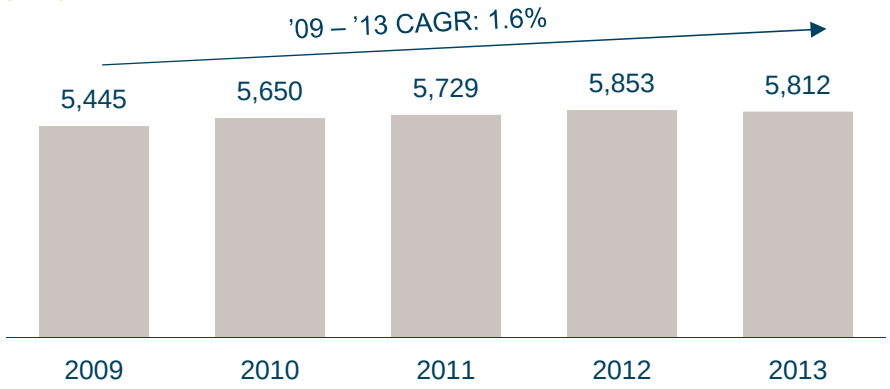


Total Gross Installed Capacity: 1,549 MW

Power Generated

Power Generation Evolution[1]

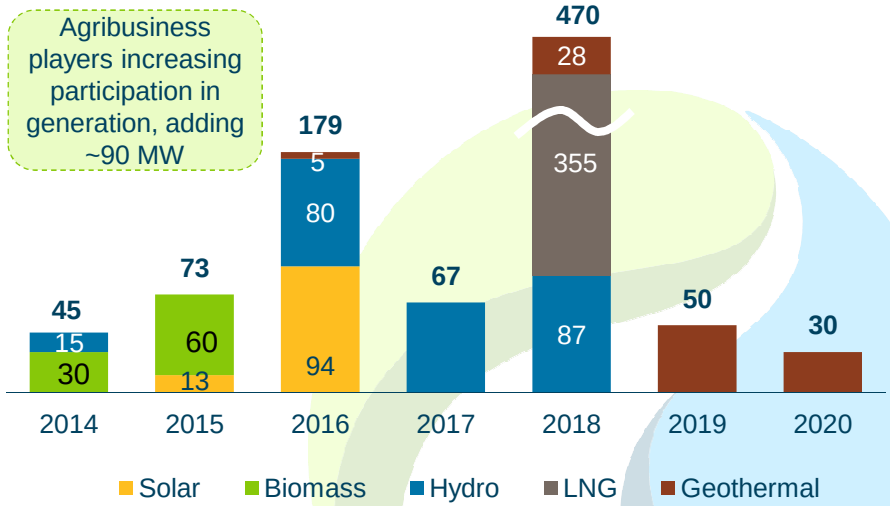
(GWh)



Outlook

- CEL estimates that ES will require ~1,230 MW of additional electricity generation capacity by 2022
  - Plans already in place to increase capacity of existing hydroelectric power plants
- New investments by LaGeo in 2 geothermal plants and a new geothermal power generation project, Chinameca, are anticipated in the near future

New Capacity Forecast (MW)



Source: SIGET and UT.
(1) Includes domestic generation only.

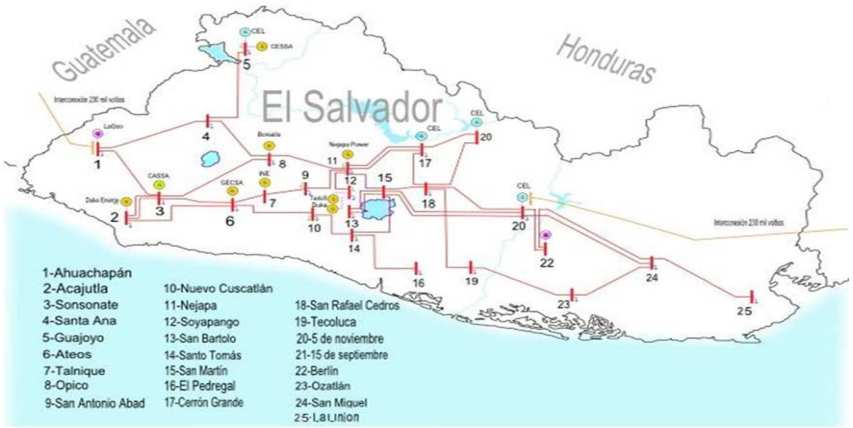
Transmission Overview

All high voltage (230kV and 115kV) transmission lines in El Salvador are government-owned and are currently operated by ETESAL, a wholly-owned subsidiary of CEL(1).

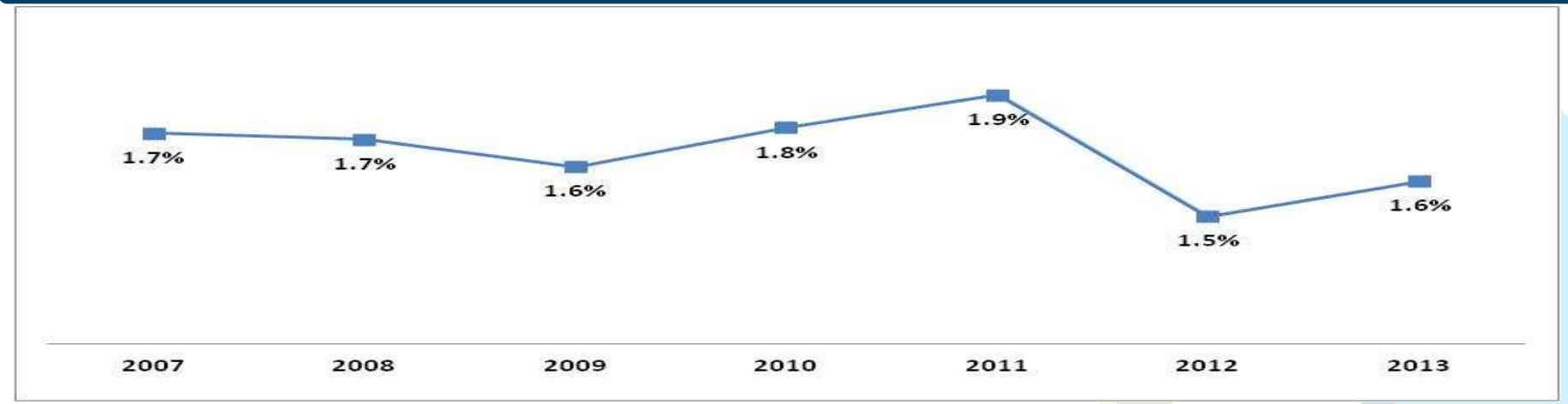
Key Characteristics (2)

- **One** transmission system, **100% government-owned**
- Transmission network with **38 lines of 115 kV (1,072.5 kms)**
- 2 lines of 230 kV, connecting El Salvador network system with Guatemala's and Honduras' (14.6 Kms and 92.9 kms, respectively)

Transmission Network



Transmission Losses (%)

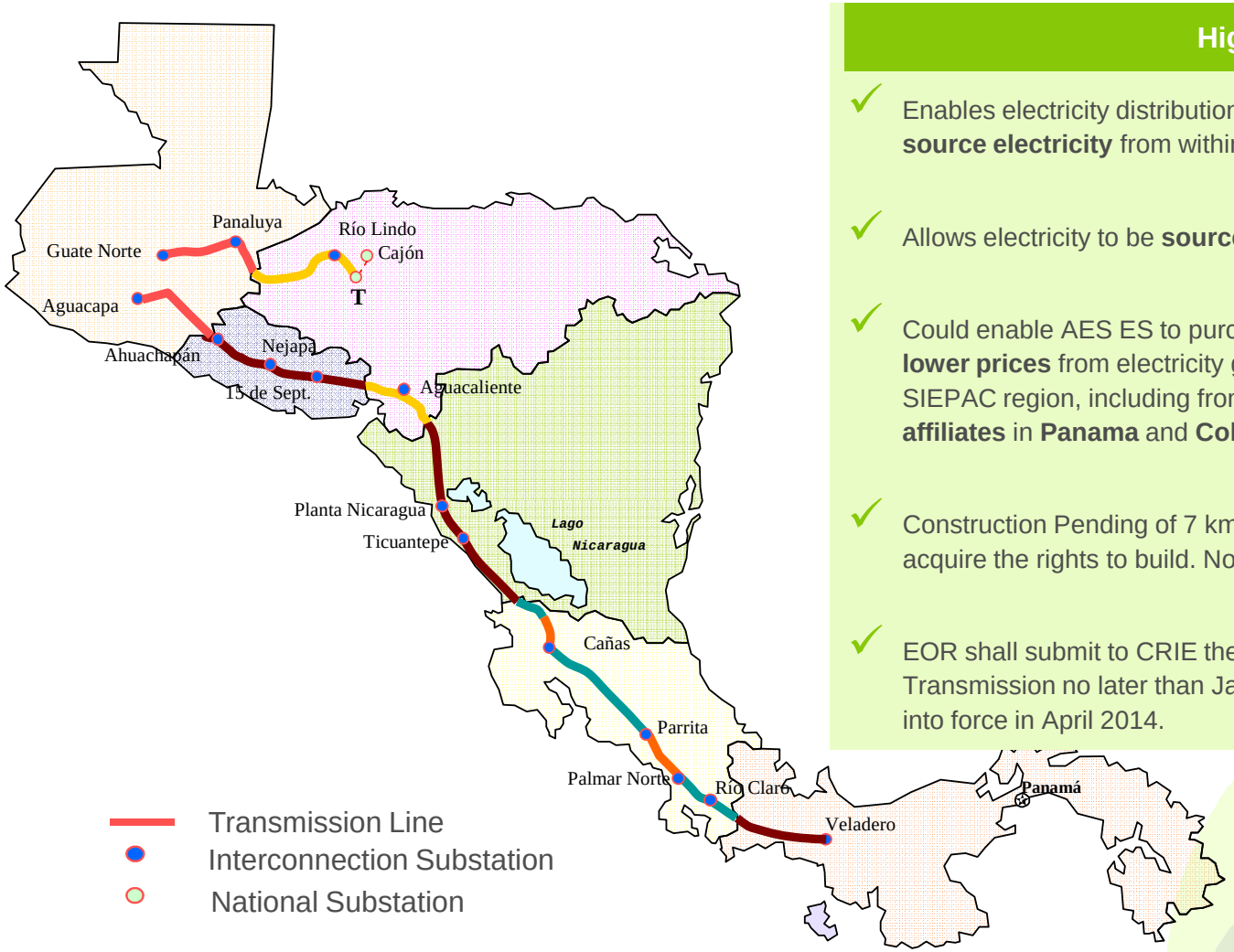


Source: SIGET

(1) Lempa River Hydroelectric Executive Commission *(Comisión Ejecutiva Hidroeléctrica del Río Lempa).*

(2) As of December 2011.

SIEPAC Regional Transmission System



Highlights

- Enables electricity distribution companies in **Central America** to **source electricity** from within the area comprised by these nations
- Allows electricity to be **sourced** from **Mexico**
- Could enable AES ES to purchase **greater amounts of electricity** at **lower prices** from electricity generation companies throughout the SIEPAC region, including from **AES' hydroelectric generation affiliates** in **Panama** and **Colombia**
- Construction Pending of 7 kms the 230 KV in Costa Rica, it is hard to acquire the rights to build. No end date to acquire and built
- EOR shall submit to CRIE the proposal for bid for rights of Transmission no later than January 2014, for the mechanism comes into force in April 2014.

Guatemala	283
El Salvador	286
Honduras	274
Nicaragua	307
Costa Rica	493
Panama	150
Total	**1,793**

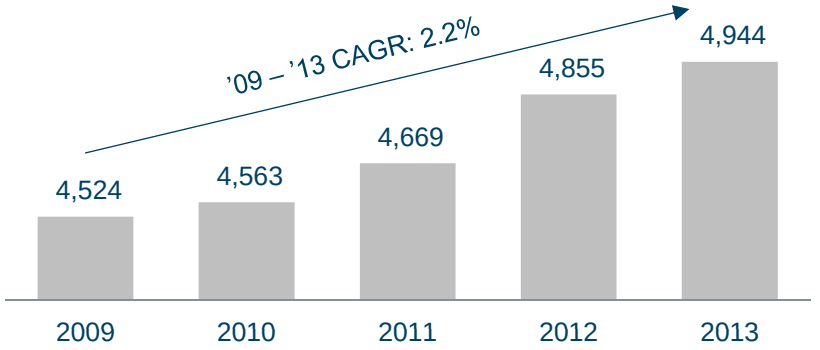
Source: *Ente Operador Regional & Empresa Proprietaria de la Red* SIEPAC websites.

Distribution Sector Overview

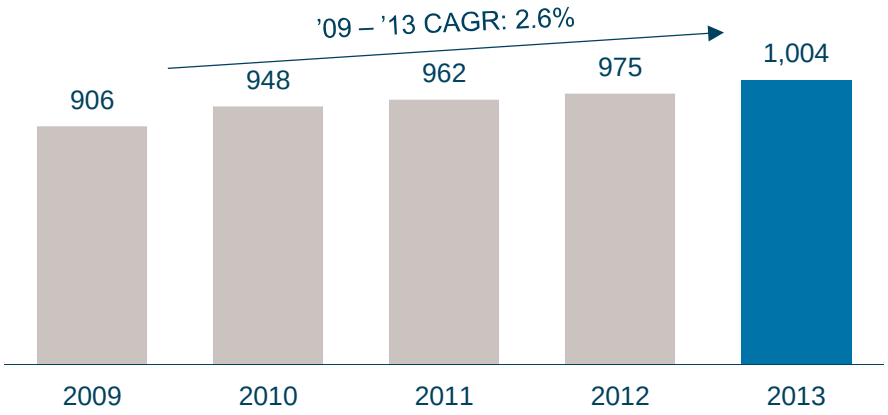
Key Characteristics

- Distribution companies, previously held by the government were **privatized in 1998**
- **No concession areas** assigned to the DISCOs
- Strong and efficient regulation in place requiring long-term contracts and guaranteeing price transfers to tariff
- In August 2012, SIGET issued the new methodology for calculating distribution and commercialization charges and energy losses
- **5 large private distribution companies** (~98%) and 3 small distribution companies (~2%)

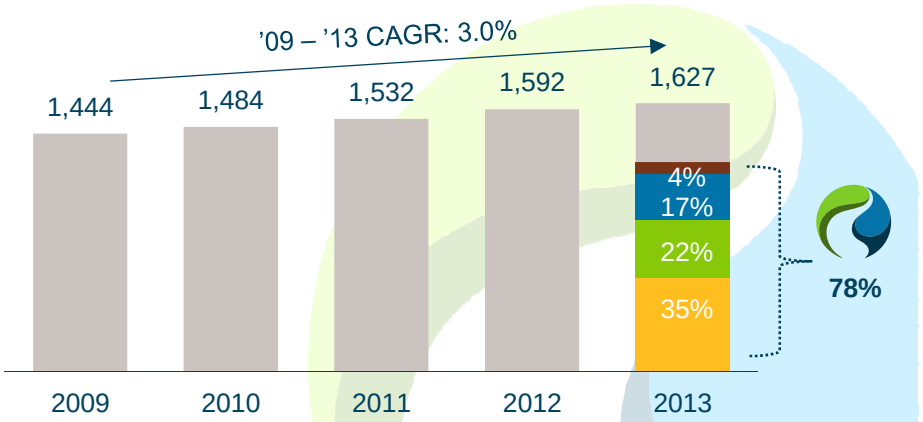
Electricity Distributed (GWh)



Peak Demand Evolution (MW)

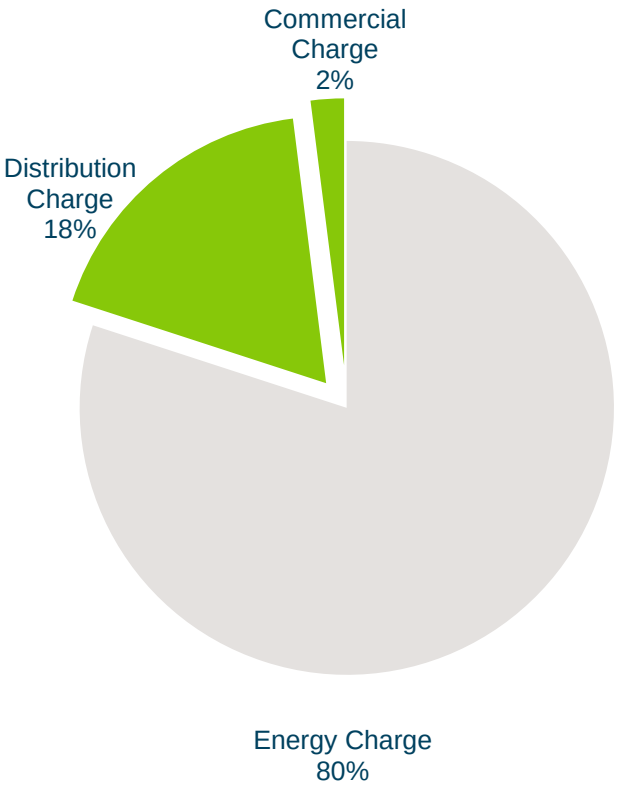


Number of Customers ('000s)



Source: AES and UT (Data from SIGET to date no available).

Distribution Tariff Overview



Components

Energy Charge: a pass through cost of KWh consumed by clients plus a recognition of energy losses

Indexed in a quarterly basis (Jan, Apr, Jul, Oct) based on weighted average energy cost

Distribution Charge: includes remuneration for assets(1), actual O&M costs plus any other expenses not included in the commercial charge

Review and reset every 5 years

Annual adjustment by 62% of CPI

Commercial Charge: Monthly fixed charge based on commercialization costs including billing service, notification service and collection

Review and reset every 5 years

Annual adjustment by 100% of CPI

Entities

CEL, Duke Energy, LaGeo, Nejapapower

CoESS, AES EEO, AES CLESA, AES DEUSEM, DELSUR

Source: SIGET.

(1) The assets do not include subventions, donations and paid by customers

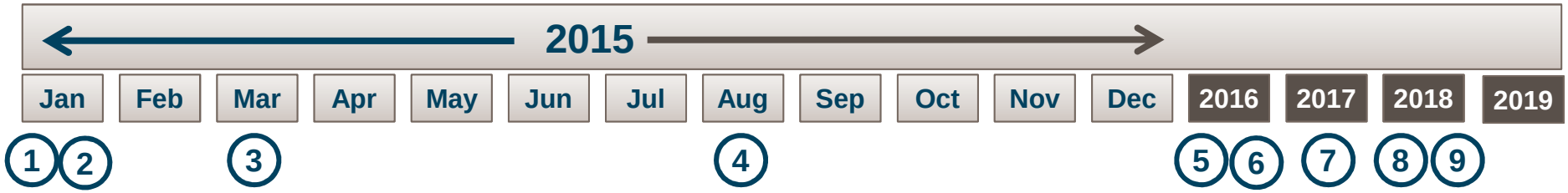
New Tariff Since January 2013

Distribution Tariff Reset & Current Methodology Overview

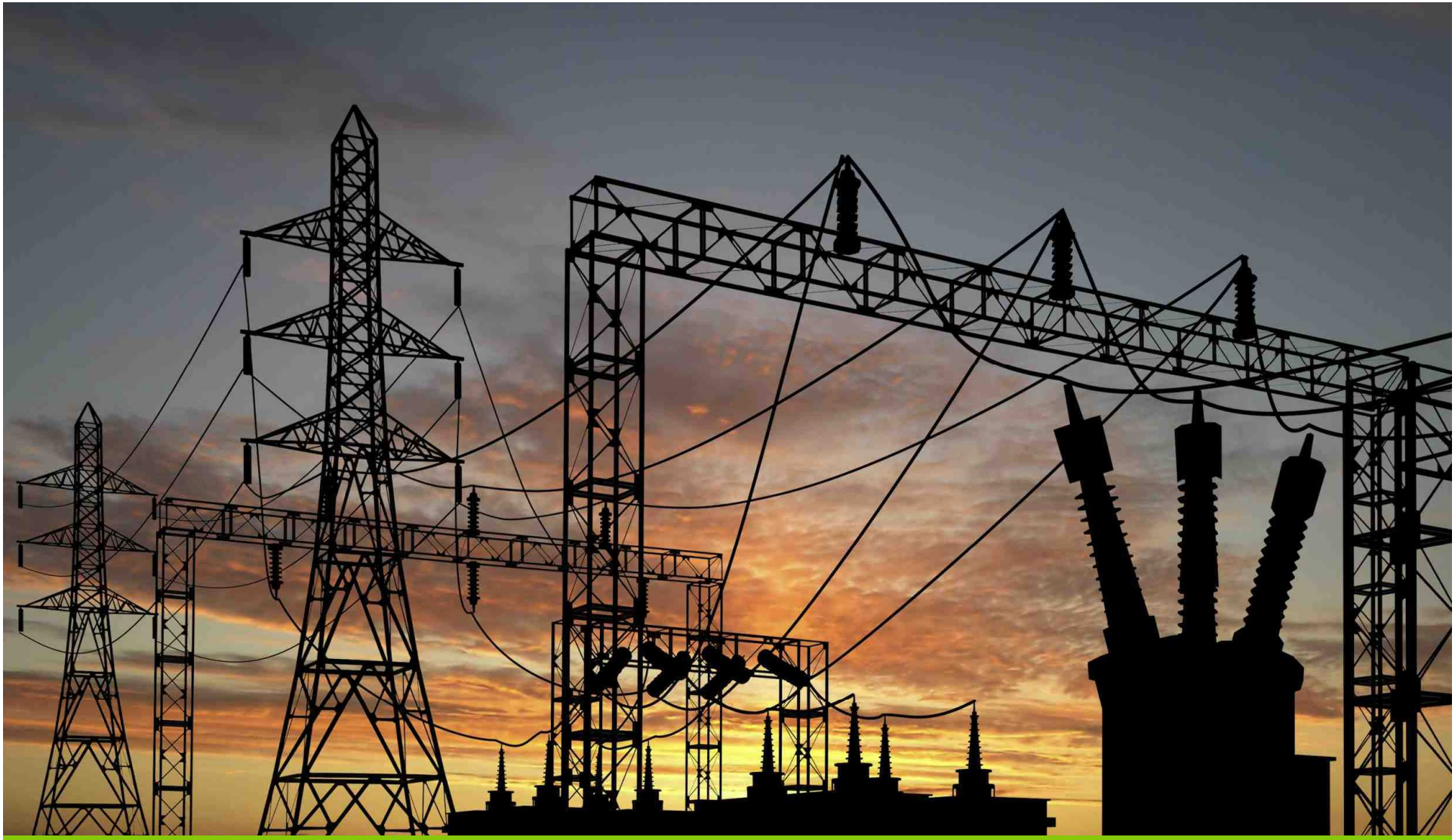
Tariff Components	Older Tariffs	Current Tariffs	Differences
Investments (Asset Base)	Investments based on an *ideal* company, did not consider all investments	Takes into account the *real* and *actual* investments made	✓ *Appropriate remuneration for capital invested*
Operation & Maintenance Costs	Remunerated the distributor based on the O&M costs of an *ideal* company	Remunerates the distributor for *all* O&M expenses incurred	✓ *Helps avoid financial losses by focusing on real O&M costs*
Energy Losses	Technical losses based on the *ideal* network and ignored non-technical losses	Technical losses based on *actual* network and recognizes 50% of non-technical losses	✓ *Improves compensation of costs due to energy losses*

Source: SIGET.

Political & Regulatory Timeline



N.	*Description*
1	▪ Start preparation for information 2017 Tariff Reset Review
2	▪ COD 13.2 MW of renewable bidding process of 15 MW
3	▪ Municipal & Legislative Elections March 2015, causing contraction in demand
4	▪ Risk of increase the price of energy renewal (Hydro and Geothermal) in Long Term Contract of 235 MW
5	▪ Start base year information for Tariff reset Revision
6	▪ COD 94 MW of renewable bidding process of 100 MW
7	▪ Full Tariff revision for Distribution Companies
8	▪ Entry of New Tariff Rate Distribution
9	▪ New Power Plant installed.



4. Company Overview

AES in El Salvador History

AES ES has been a key player in El Salvador's power distribution sector since the privatization in 1998, and is now one of the most important foreign investors in the country and the largest investor in the local energy sector.

1998

- CEL, a Salvadoran state-owned entity which controlled 100% of El Salvador's power sector, geographically divided distribution assets into five electricity distribution companies
- AES won the bid to acquire CLESA
- EDC won the bid to acquire CAESS, EEO
- CAESS acquire DEUSEM

2000

- AES acquired an ~ 87% stake in EDC and became controlling shareholder in CAESS, EEO and DEUSEM (controlling interest in these 3 distribution assets was held by EDC)

C.A. La Electricidad de Caracas SAICA-SACA

2001

- AES acquired the remaining minority interest in EDC, thereby acquiring 100% beneficial ownership EDC had in the distribution assets

C.A. La Electricidad de Caracas SAICA-SACA

2003 - 2005

- New tariff application (2003 – 2007)
- Implemented restructuring plan; centralized operations, finance, and support services; eliminated 145 positions
- Launched new image campaign as AES El Salvador

2006 - 2007

- Renegotiated collective bargaining agreement
- New tariff application (2008– 2012)

2013

- New tariff application (2013 – 2017)
- Renegotiated collective bargaining agreement until 2015

AES ES Competitive Advantages

- Safety & Operational Excellence
- Customer Satisfaction

→ **Operational Excellence**

- Market Share
- Market Experience / Recognition

→ **Market Intimacy**

- Our People
- Stakeholder Management

→ **People & Institutional Mgmt.**

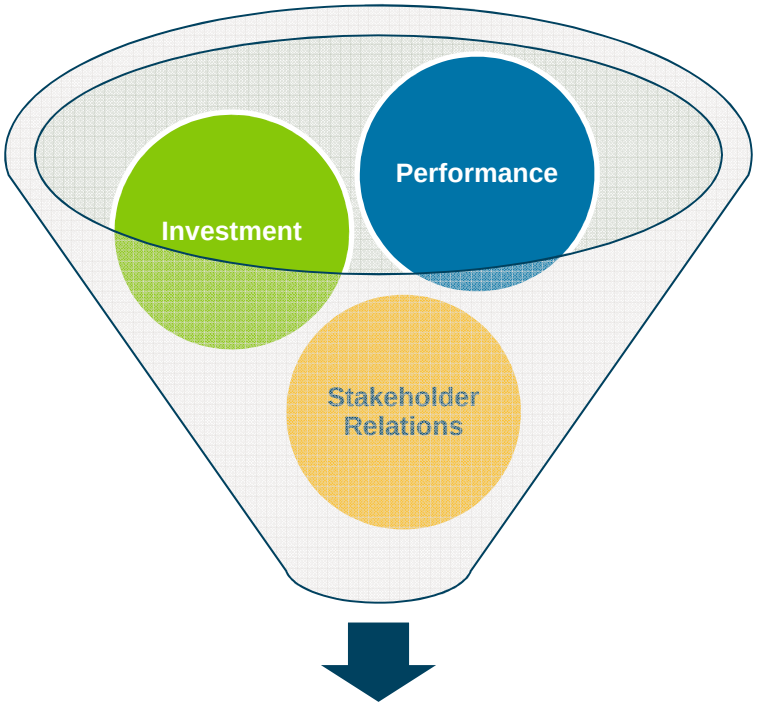
- CSR Programs
- PPP with MCC (Fomilenio)

→ **Social Responsibility**

Source: AES ES.

AES El Salvador: Business Strategy

Strategic Focus



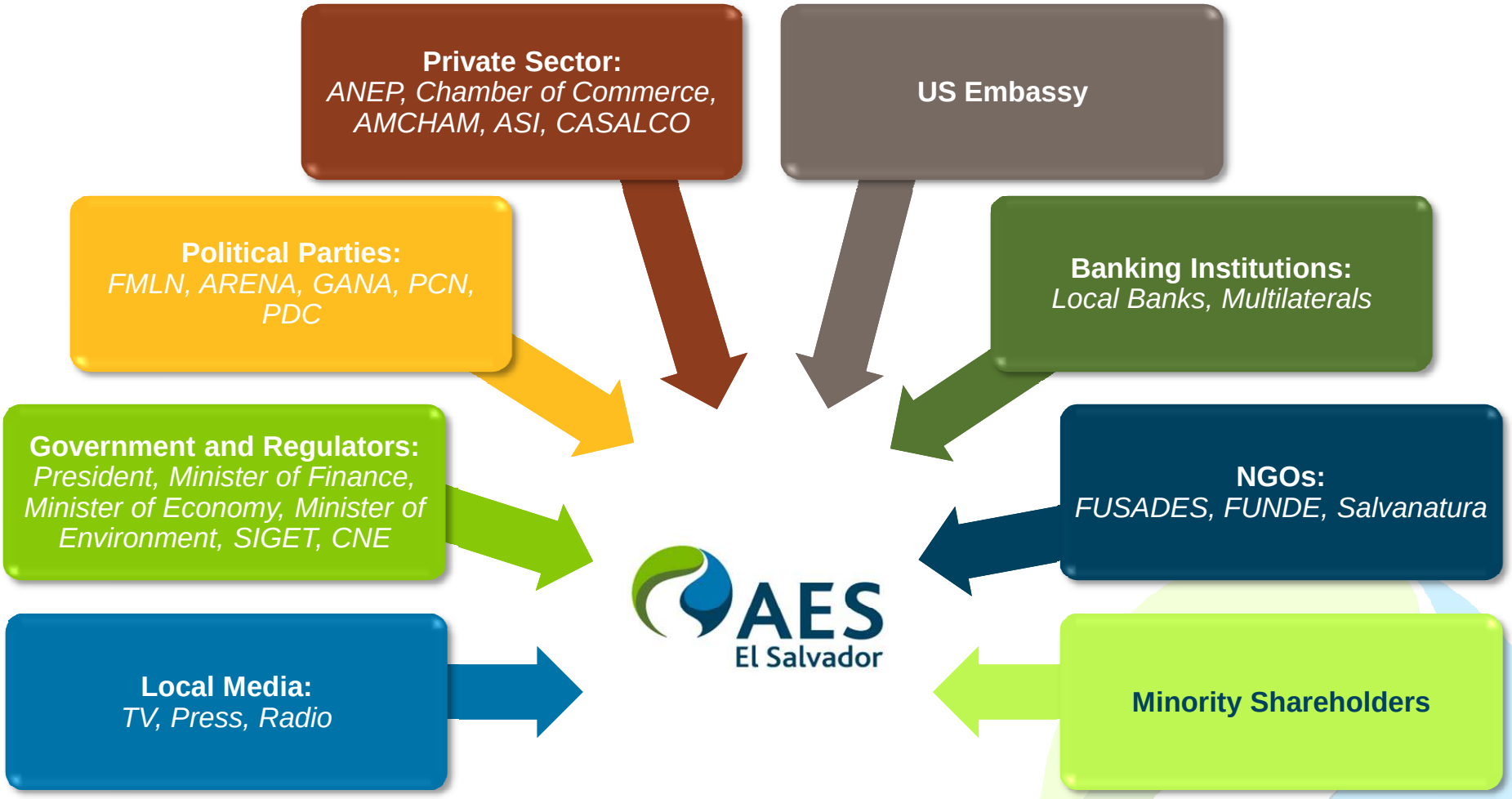
- ✓ *Consistently meet or exceed regulatory limits, network reliability and quality of service*
- ✓ *Always improving capital performance through disciplined cost/benefit analysis of CapEx projects*
- ✓ *Maintain strong stakeholder relations to ensure attractive returns and maintain predictable cash flows*

Critical Value Drivers

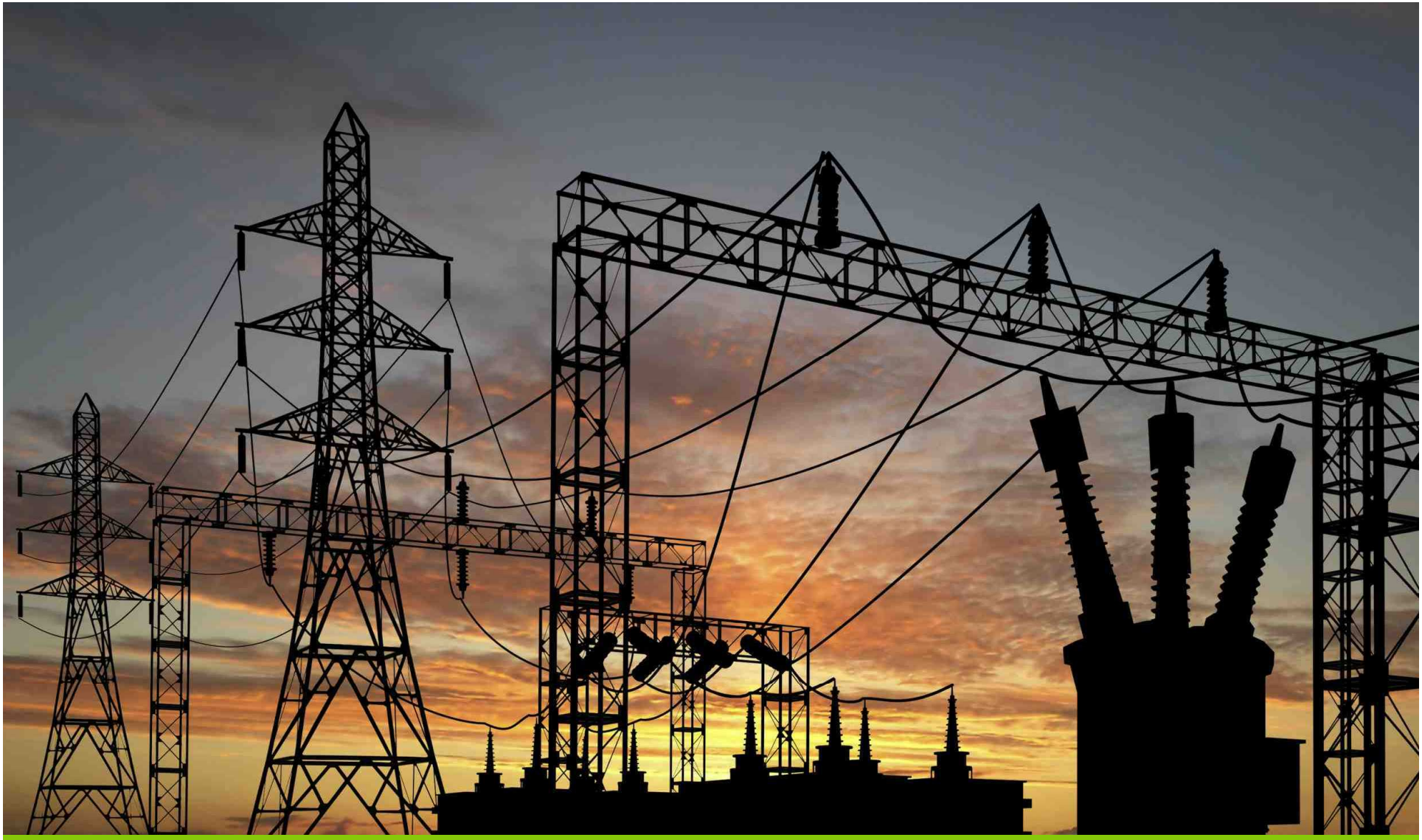
- ✓ **Tariff -** 10% ROA on Regulatory Asset Base with reasonable cost pass through and recovery parameters
- ✓ **Customer Maintenance and Growth -** significant market share supported by high barriers to entry
- ✓ **Strong Operations -** KPIs at impressive levels when compared to other Latin American distribution companies
- ✓ **Managing Fixed Costs -** Single, integrated management team across AES ES minimizes overhead costs
- ✓ **Energy Pass Through -** new tariff treatment of losses will improve effectiveness of energy pass through

Source: AES ES.

AES ES: Close Relations with a Broad Group of Stakeholders



Source: AES ES.



5. KPIs Performance

AES ES Snapshot

Dominant position in the market, covering 79% of El Salvador's territory, serving 78% of the total power distribution clients and providing 72% of the total energy transmitted in 2012.

(2013 figures)

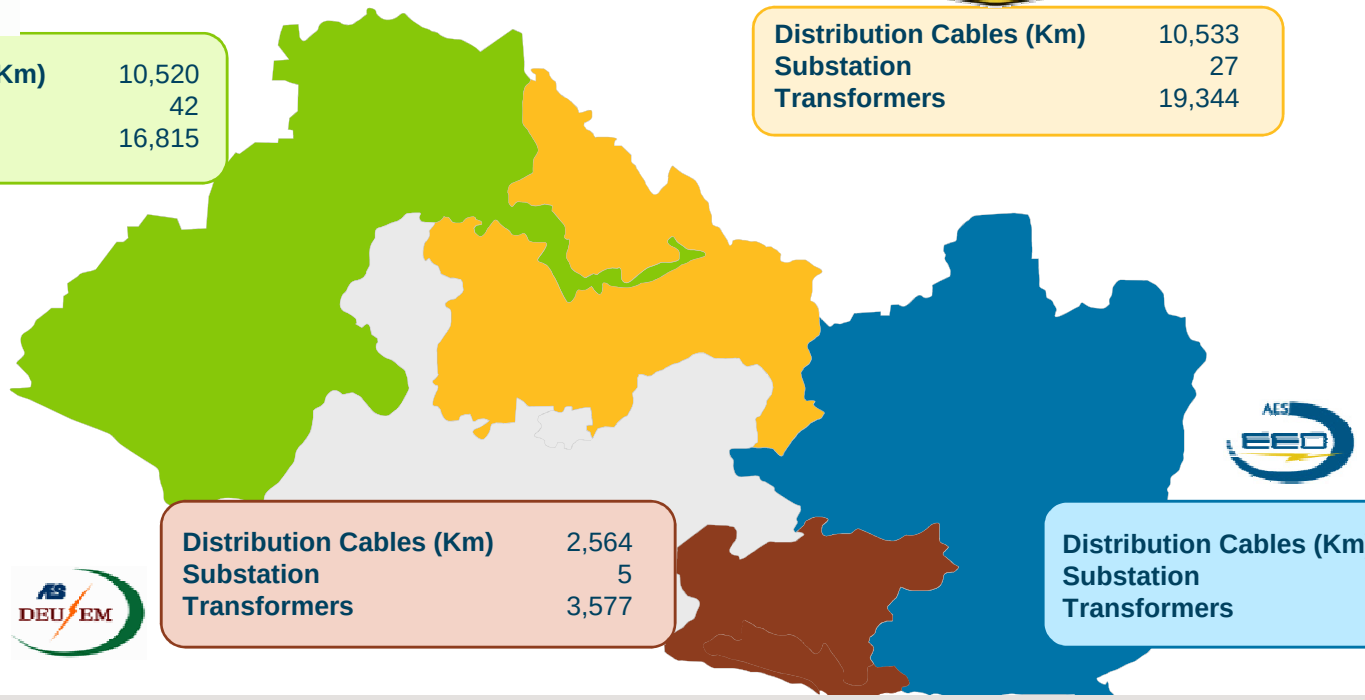
	AES El Salvador	CESS (1)	CLESA	EEO	DEUSEM
Operational Since	1998	1890	1892	1995	1957
Client Composition	Urban (mainly commercial and industrial clients) and rural clients	Primarily urban zone with a high component of commercial and industrial clients	50% consist of families in rural zones	Mostly rural clients	Focuses on covering families in rural zones
Location	79% of El Salvador's national territory	Chalatenango, Cuscatlán, Cabañas and Northern San Salvador	Santa Ana, Sonsonate, Ahuachapán and part of the La Libertad district	San Miguel, Morazán, La Unión, and part of the Usulután y San Vicente	Usulután
Sales (GWh) / *Market Share (as a % of the whole national Market)*	3,563 / 72%	2,082 / 42%	847 / 17%	513 / 10%	121 / 2%
Customers / *Market Share (as a % of the whole national Market*	1,269,579 / 78%	567,154 / 35%	353,899 / 22%	276,853 / 17%	71,673 / 4%
Footprint (Km^2)	17,118	4,572	4,696	6,270	1,580
Employees	976	518	232	185	41
2013E Key Financials (US$ mm)					
Revenues	US$858.2	US$503.6	US$212.4	US$142.2	--
EBITDA / Margin (%)	US$87.1/ 10.0%	US$37.7 / 7.5%	US$28.1 / 13%	US$21.3 / 15%	--
Total Debt	US$310.0	US$181.1	US$79.8	US$49.1	--

Source: AES ES.
(1) Financial figures include DEUSEM as subsidiary.

Distribution Network Overview

CLESA	
Distribution Cables (Km)	10,520
Substation	42
Transformers	16,815

CAESS	
Distribution Cables (Km)	10,533
Substation	27
Transformers	19,344



DEUSEM	
Distribution Cables (Km)	2,564
Substation	5
Transformers	3,577

EEO	
Distribution Cables (Km)	12,554
Substation	25
Transformers	16,165

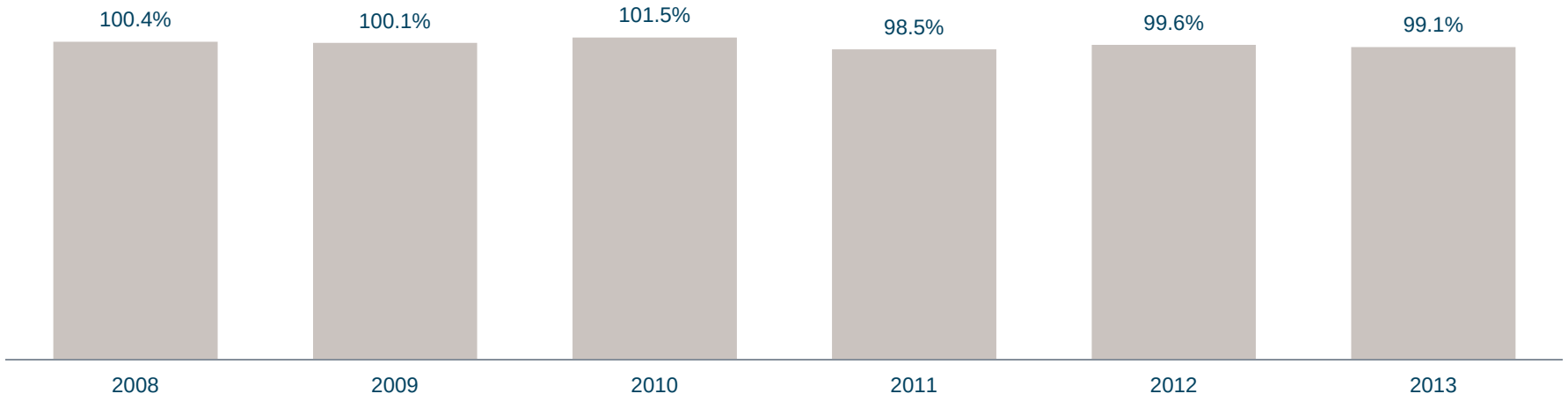
AES El Salvador	
Distribution Cables (Km)	36,172
Substation	**99**
Transformers	55,901

[redacted]

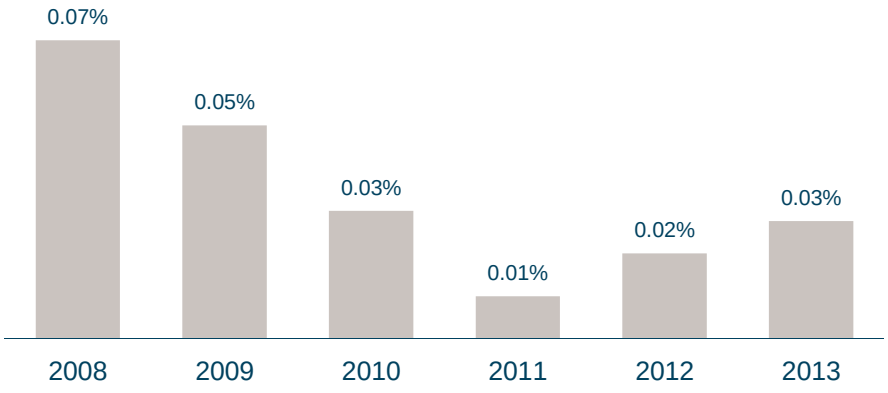
Source: AES ES.
Note: Data as of July 2014.

Healthy and Continuously Improving Collection Metrics

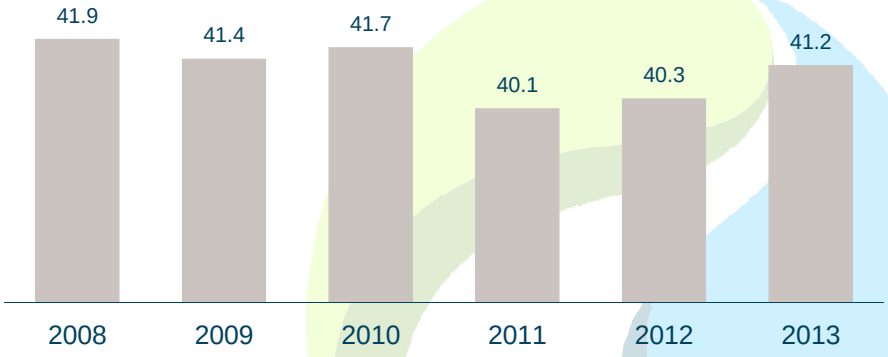
Collection Rate (%)



Bad Debt (%)



Days of Sales Outstanding (Days)



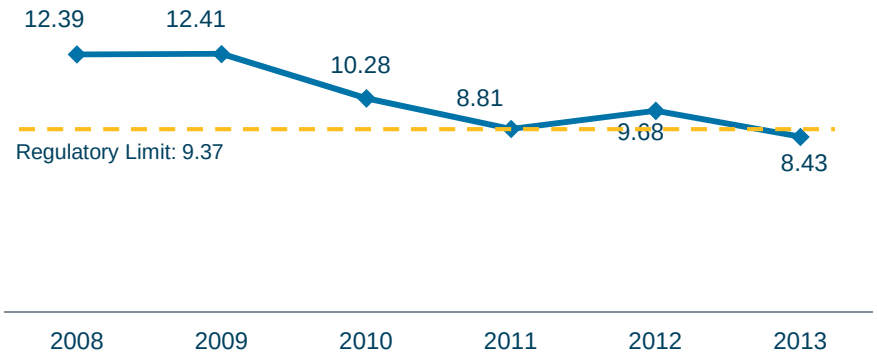
Source: AES ES.

Focus on Best-in-Class Customer Service

Overview

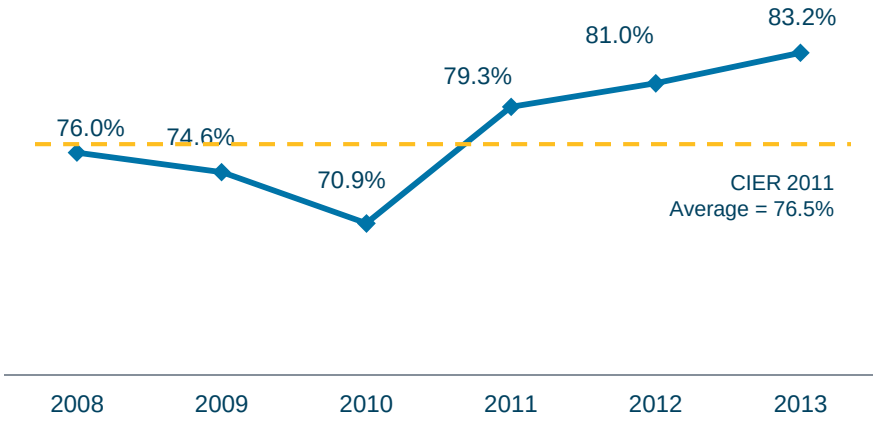
- Significant Improvement in SAIFI (System Average Interruption Frequency Index) reaching the regulator limits and reducing penalties
- SAIDI (System Average Interruption Duration Index) also showing significant improvement over the last years
  - Index impacted in 2012 as a result of a change in regulation related to force majeure
- Highest Customer Satisfaction levels in the Region

SAIFI[(1)] (Hours)



Source: AES ES Outage Management System OMS

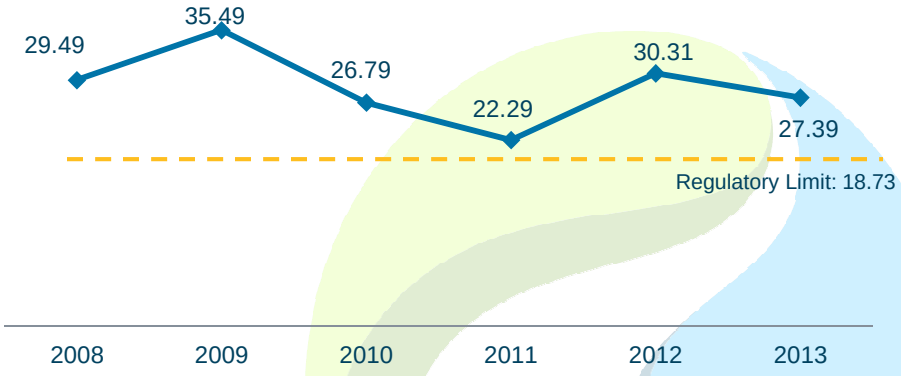
Customer Satisfaction Index (%)



Source: CIER Survey

*

SAIDI[(2)] (Hours)



Source: AES ES Outage Management System OMS

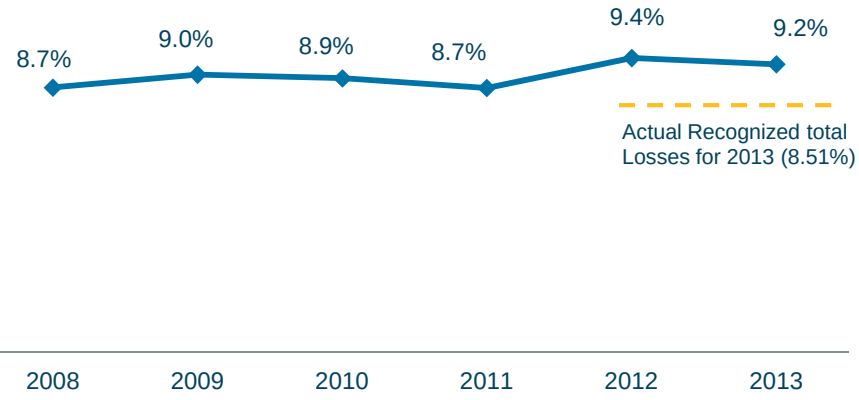
Source: AES ES. Note:
(1) SAIFI is an electricity distribution system reliability or quality metric which represents the average number of interruptions per consumer per annum.
(2) SAIDI is an electricity distribution system reliability or quality metric which represents the average outage duration in hours experienced per consumer per annum.

Outstanding Operational Performance

Overview

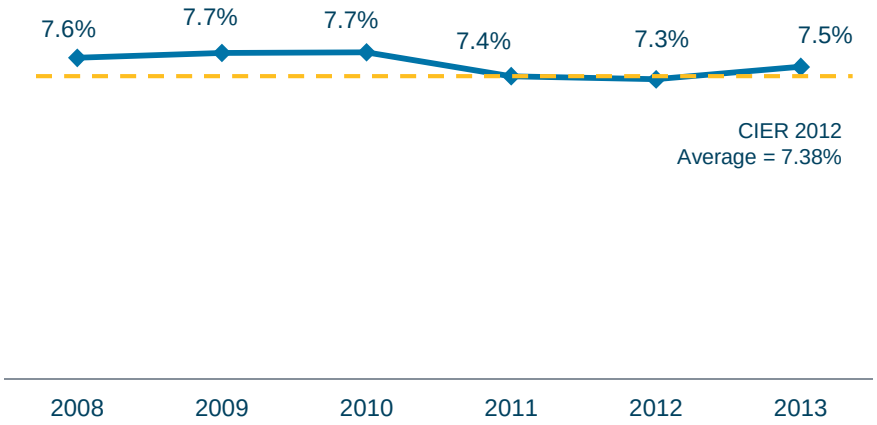
- AES El Salvador Businesses running at highest operational standards
- Top Ten in 2013 Survey by CIER *Comisión de Integración Energética Regional (LATAM)*
- Businesses AES El Salvador perform much better than the averages of other Latin American companies.
- Despite the economic situation of the country, the energy prices and soft anti theft energy regulation (no crime, no penalties, no jail, can be recovered just 6 months)

Total Losses (% of Total)

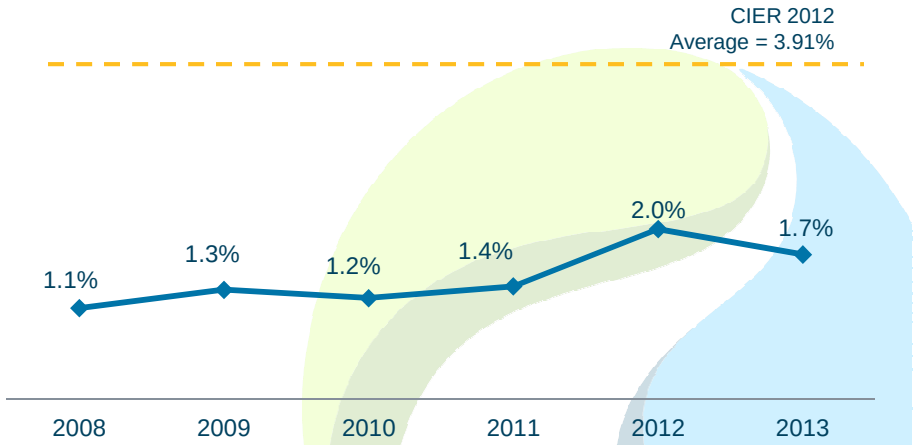


Actual Recognized total Losses are 8.51% (for 2013)

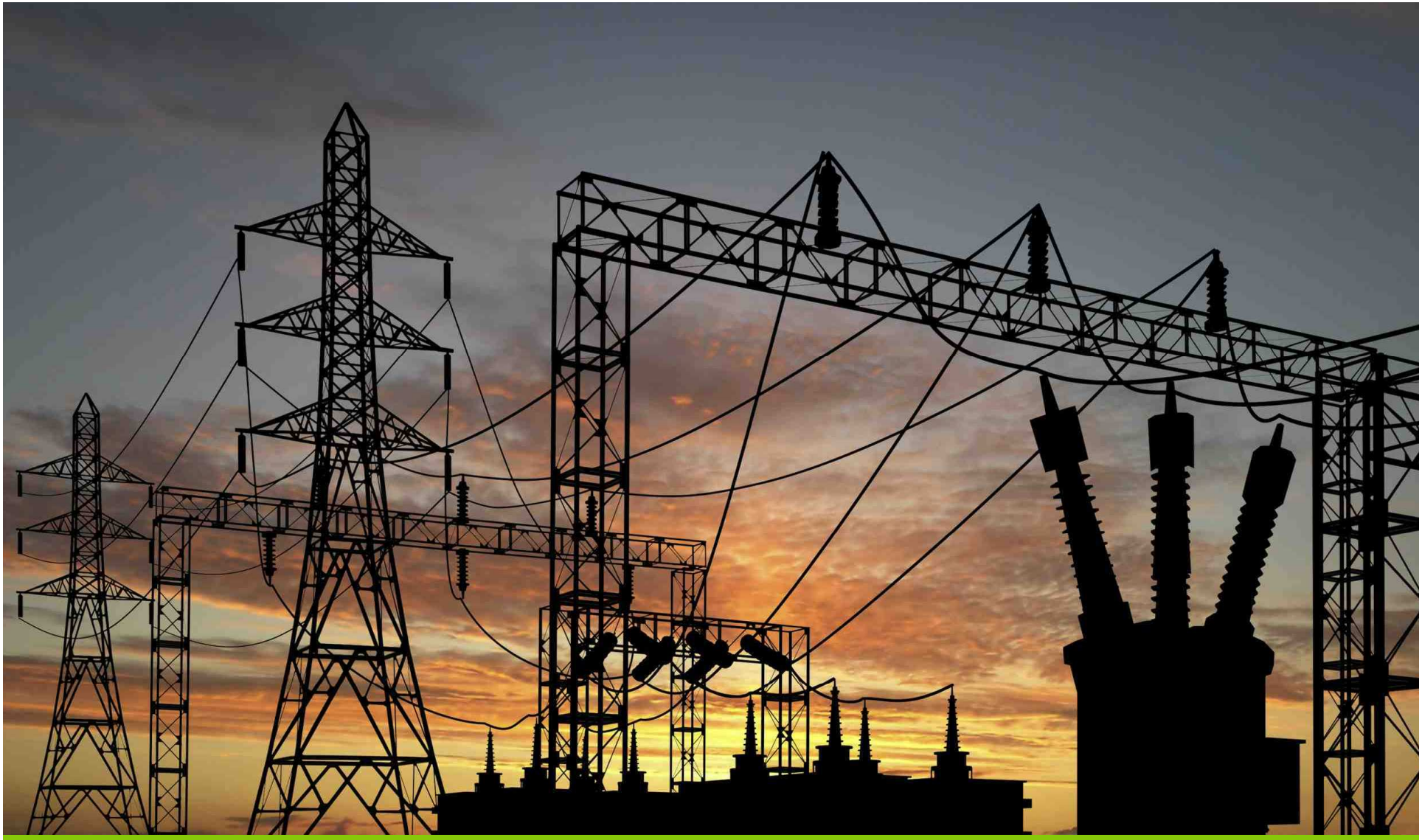
Technical Losses (% of Total)



Non-Technical Losses (% of Total)



Source: AES ES.



6. Electricity Resource Planning

CapEx 2015 Development Process

4Q 2013	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2015

Stage 0 Previous to CapEx

Demand forecast
AM update
QoS Calculation engine
Unit Cost Mannual update
Network Models update

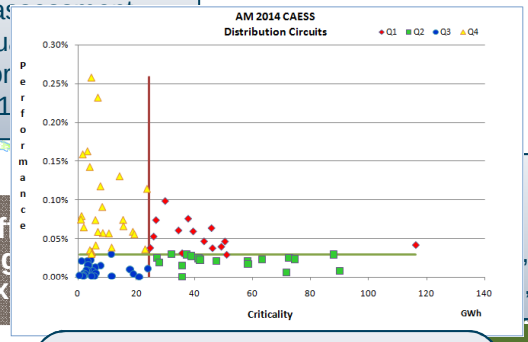
Asset Management Update 2014

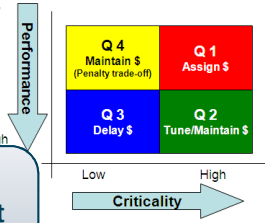
STAGE I Formulation

l projection of the power
ador Distribution Network

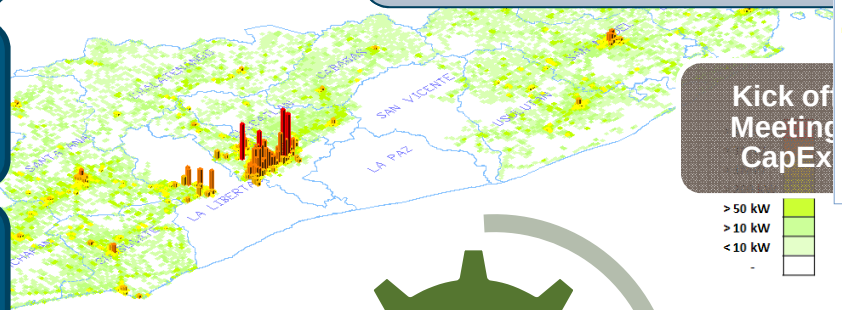
Kick Off Meeting CapEx
Planning Proposals
Regions Proposals
Formulation Projects

Field as
Evalu
prior
CapEx R1





STAGE II Special Equipment



Kick of
Meetin
CapEx

Sept
, Sep
, Nov

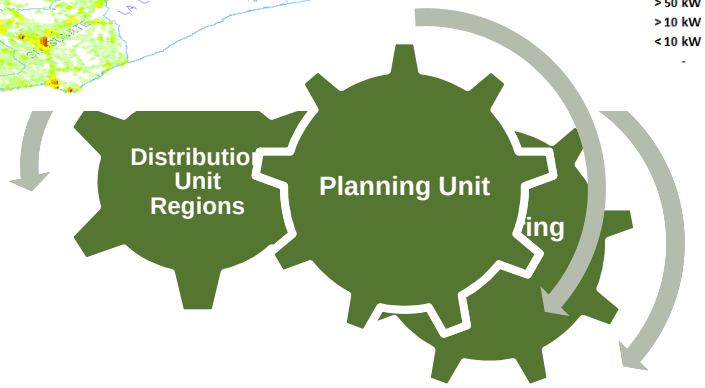
ment

STAGE III Dossiers creation

Engineering Substation budget
A&C Dstribution budget
Regions budget
CapEx R1 SAP uploading
Dossiers Review/Correction

Technical Data

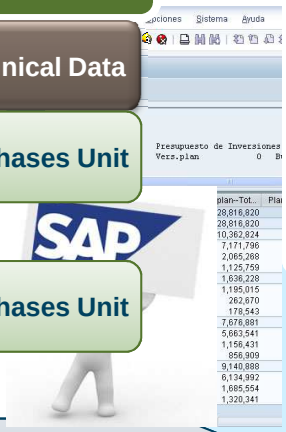
Purchases Unit



Final Specia
-Field assessme
-Dossiers

Presentation of SIGET dossier to Regulatory

urchases Unit

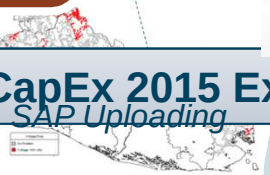


STAGE IV SIGET Dossier

STAGE V Execution

CapEx 2015 Execution

Capex R1 SAP Uploading



Project Selection and Prioritization Criteria

The group of projects included in AES El Salvador's investment portfolio has been selected using a Multi-criteria decision methodology for prioritization as follows:

* Each project impact related to it´s ***Return of Investment (NPV & IRR)*** received a weight of 50% for the final evaluation. The Financial Evaluation include the benefits by reduction of technical energy losses.

* The impact on ***Safety*** related to the project received a weight of 25% .

* The weight of 15% has been allocated to the ***Operational*** impact.

* Finally, a factor depending on the ***Strategic value*** of the project according to its ***Asset Management*** ranking completes the final evaluation parameter with a 10% weight.

Once every project has been evaluated in each of the above criteria, they are prioritized based on the final evaluation parameter, which is the weighted average of the previous criteria.

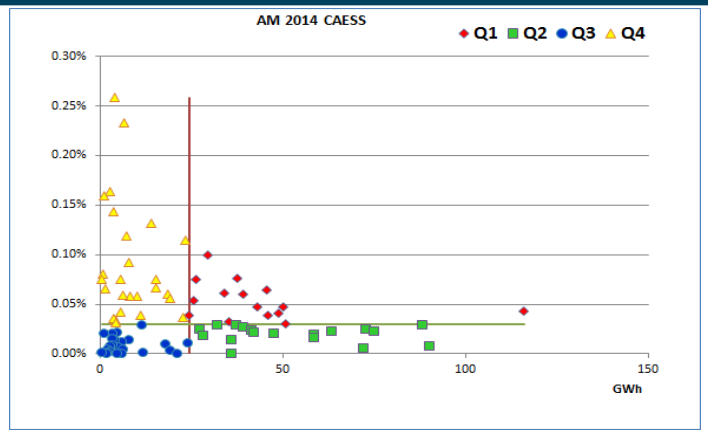
			50%			15%	25%	10%	
DistCo	Project name	Amount	IRR	NPV	B/C	Op Cr	Safety	Stratgy	EVAL
CLESA	Widespread electronic sectionalizers installation	$187,191	47.3%	$497,612	2.66	3	1	8	6.50
	Reactive compensation bank installation at "Exporsalva" substation	$138,000	37.6%	$296,315	2.15	1	1	7	5.14
	Bushing covers installation at selected substations	$19,090	28.2%	$20,910	1.10	4	5	8	4.71
	Reliability improvement of distribution feeder 417-1-11	$95,662	15.9%	$82,822	0.87	10	3	8	4.68
	Reliability improvement of distribution feeder 429-1-11	$37,000	14.8%	$21,341	0.58	10	5	8	4.63
	Insulation upgrade in sub-transmission circuit 38-4-80	$101,739	32.2%	$168,549	1.66	3	1	7	4.52
	Power Transformer Upgrade At "Sonsonate" Substation.	$333,620	17.8%	$192,746	0.58	10	3	8	4.14
	Reliability improvement of distribution feeder 410-1-12	$117,859	16.4%	$38,217	0.32	10	3	8	3.66
	Widespread overhead faulted circuit indicators installation	$50,000	24.3%	$48,478	0.97	1	3	8	3.52
	Reliability improvement of distribution feeder 408-1-13	$25,000	14.1%	$3,684	0.15	10	3	8	3.33
	Reliability improvement of distribution feeder 416-1-11	$66,528	19.1%	$36,083	0.54	5	3	8	3.32
	"Opico - American park" sub-transmission line	$989,914	21.4%	$722,212	0.73	4	1	8	3.02
	Obsolete NTU replacement	$80,000	17.9%	$35,377	0.44	5	1	8	2.63
	Obsolete recloser replacement	$64,000	14.2%	$9,900	0.15	5	1	8	2.09
	Insulation upgrade in sub-transmission circuit 416-4-10	$174,824	15.0%	$37,905	0.22	6	1	5	2.06
	Voltage Upgrate In Distribution Feeder 408-0-17.	$300,000	11.6%	-$7,464	-0.02	3	5	4	2.05
	Tie line between Distribution Feeder 401-1-12 & 401-1-13.	$144,510	12.9%	$9,066	0.06	4	2	8	2.02
	Reliability improvement of distribution feeder 424-1-13	$119,000	8.8%	-$25,241	-0.21	7	3	6	2.00
	Contingency Scheme Improvement For "Zapotitan" & "Lourdes" Substations.	$71,541	4.8%	-$31,759	-0.44	7	2	4	1.12

Projects Included In The 2015 CAPEX

Discarded Or Postponed Projects.

Effective Asset Management Tools and Processes

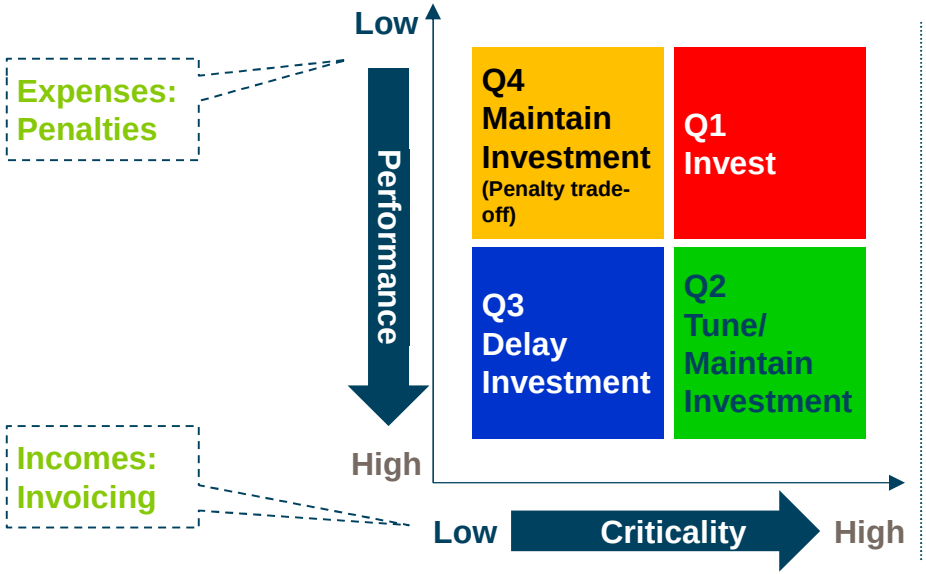
AM 2014 CAESS Distribution Feeders



Asset Management Drivers Definition

- **Performance:** How well an asset achieves the organizational objectives for which it was installed (i.e. cost, reliability, etc.)
  - In El Salvador, performance is defined as Penalties
- **Criticality:** Importance of an asset relative to the entire asset base; which can be measured in terms of customer importance, income, etc
  - In El Salvador, criticality is defined as Invoicing

Performance Framework



Q1: Assets with lower performance and higher criticality would indicate the need to make investments and would be given the highest priority

Q2: Assets with high performance and high criticality would require minimal investment to ensure proper condition, tune/maintain done to sustain performance

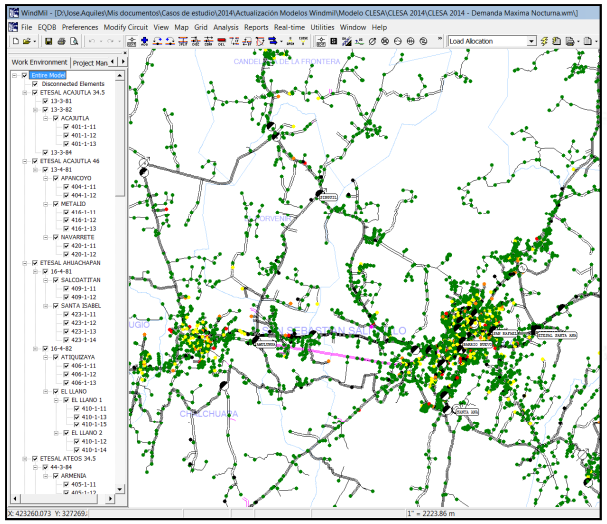
Q3: For high performing assets with lower criticality, the philosophy is generally to delay any investment until necessary (i.e. until it moves into another quadrant)

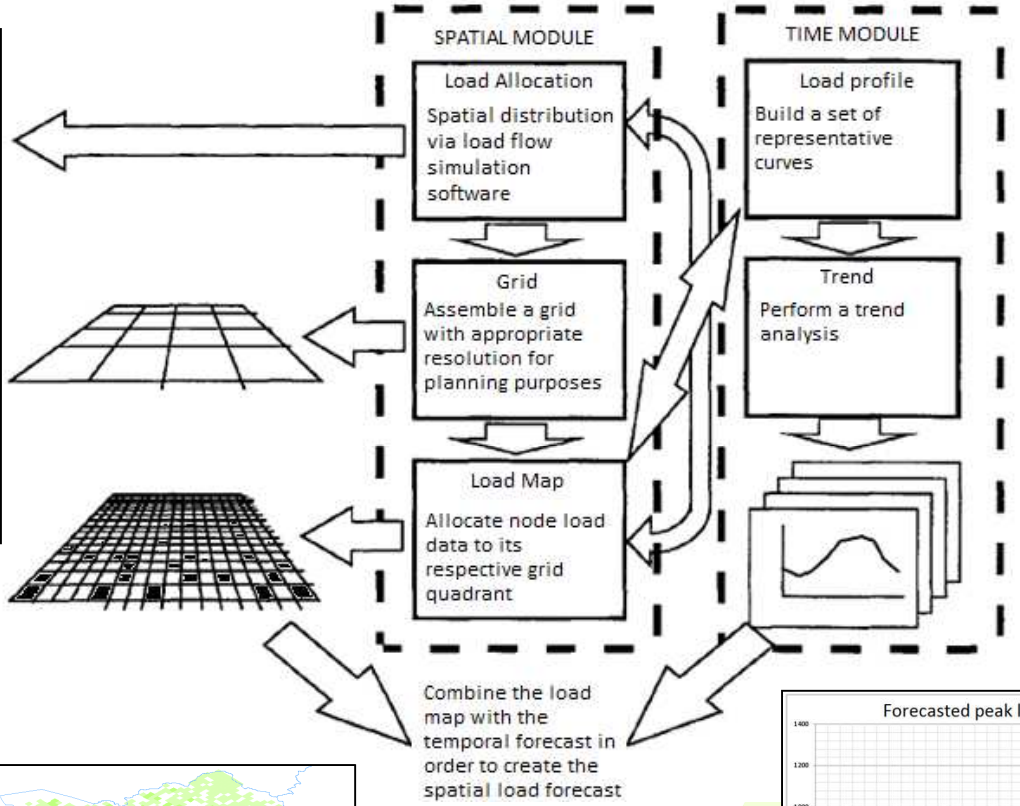
Q4: For low performing assets with lower criticality, the asset management philosophy should be to monitor the asset's ongoing performance, but limit any investment

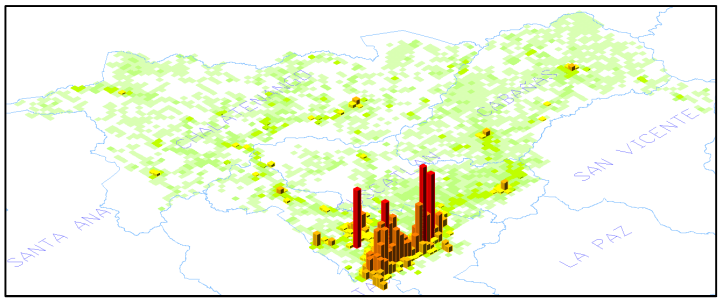
 Source: AES ES.

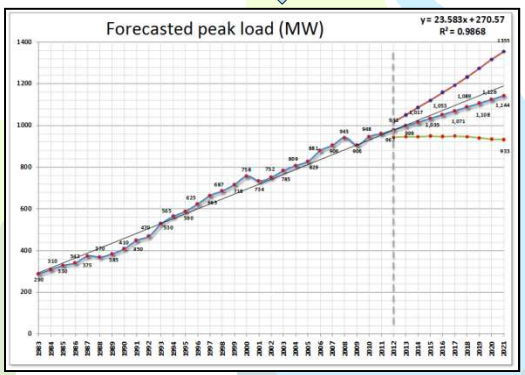
Demand forecasting

The flowchart below illustrates the simplified process to create a Spatial Load Forecast (SLF) which is arranged in 2 modules: Spatial & Time representations of the load, the individual results are later combined in the SLF.



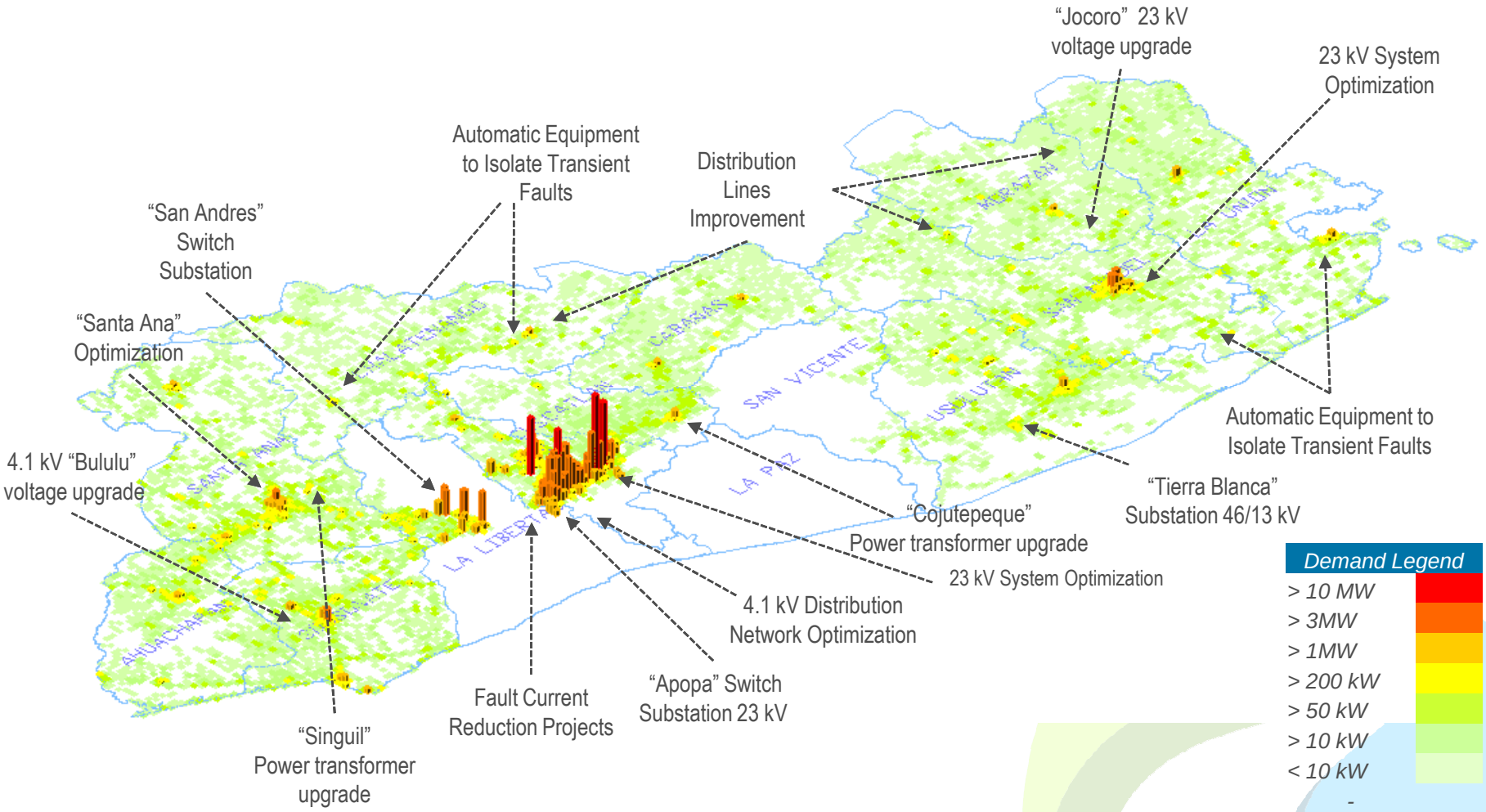






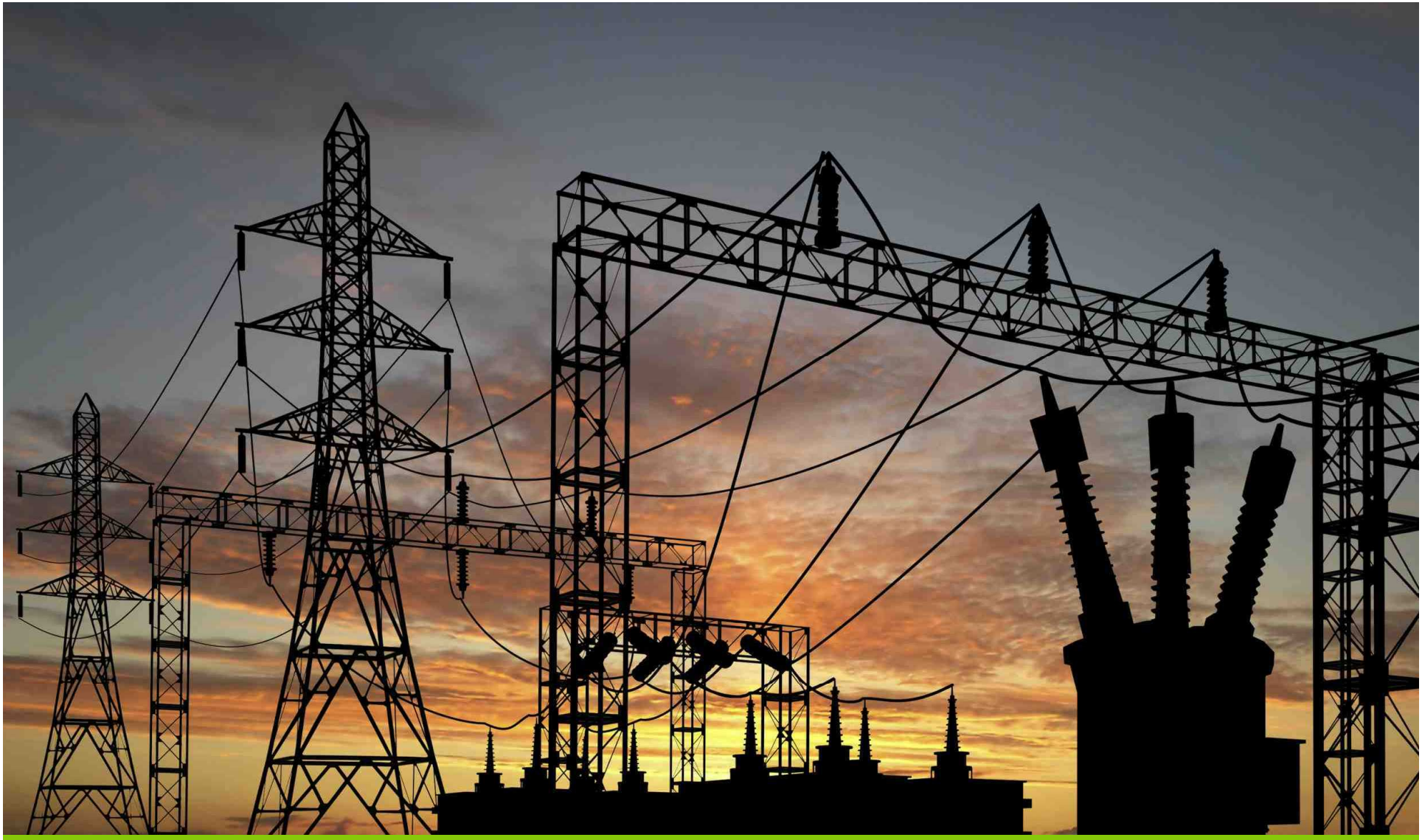
Distribution System Expansion

The CapEx budget is defined based on network and non-network strategic needs, programmed in a multiannual investment plan.



Highly Educated CapEx estimation based on a spatial projection of the power demand of El Salvador

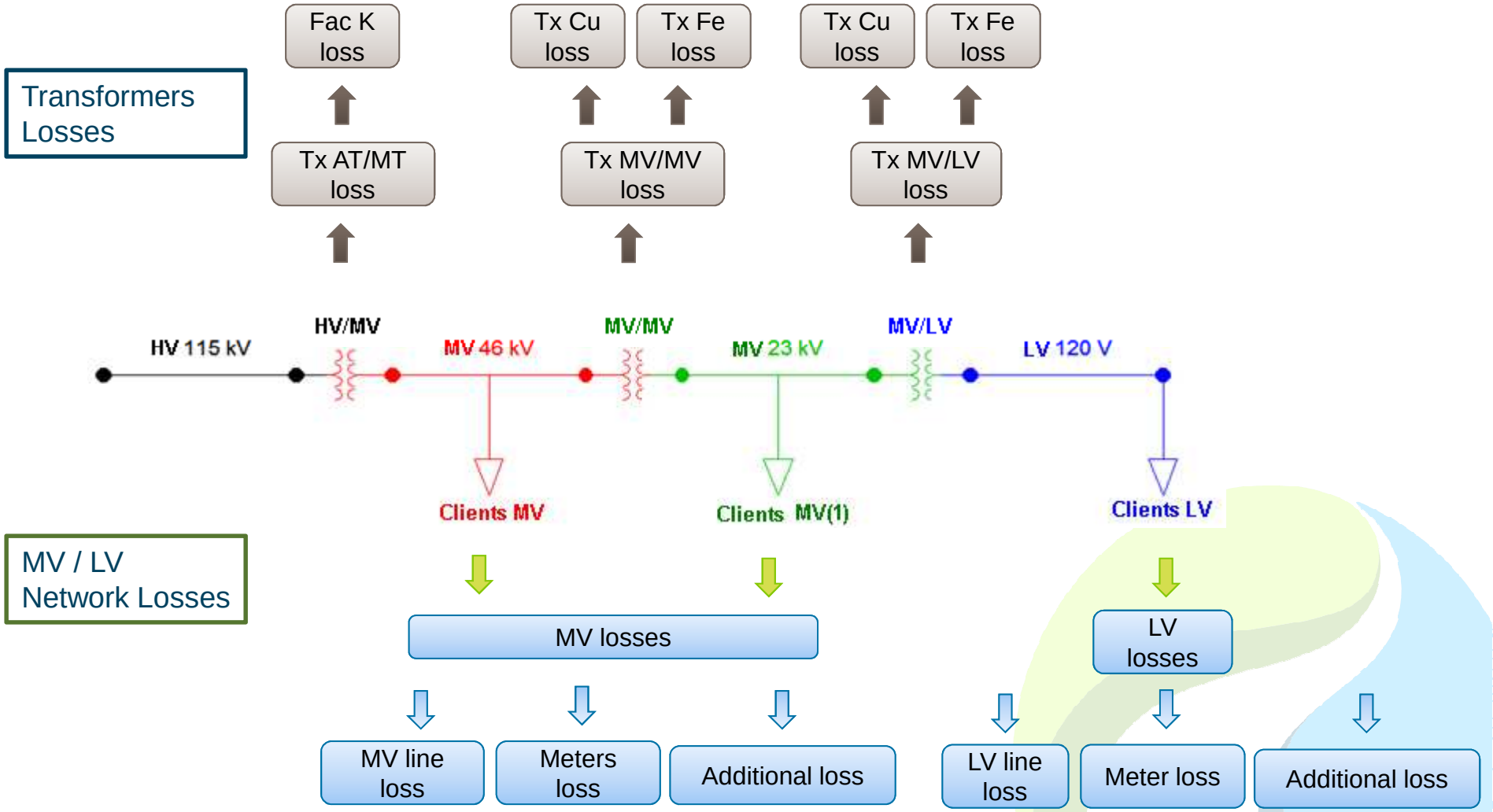
Source: AES ES.



7. Reducing Technical and Non-Technical Distribution System Losses

Technical Losses: Measuring and Modeling

The technical losses are calculated in each network segment for all distribution system

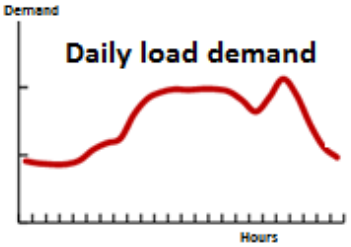


Technical Losses: Measuring and Modeling

Inputs

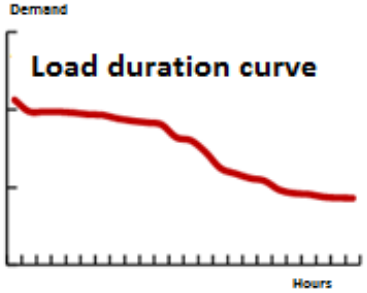
- Meter data on feeders
- Characterization load study
- Purchase energy

→ Obtain the **daily load demand curve** of each network segment



↓

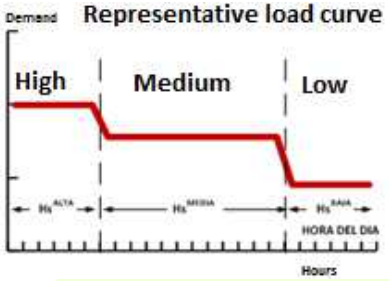
To determine the **load duration curve**



↓

- To determine the energy losses the analysis include three load states and the duration time of each one.
- Representative load curve on a typical day

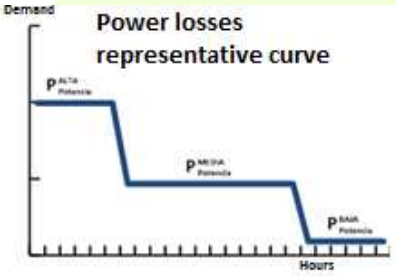
→ To determine the **representative load curve**



↓

Analysis by software simulation

→ **Power losses** calculated to each of the three load states



↓

Energy losses in each segment is getting by sum of the power losses multiplied by the total hours of each state

Technical Losses: Measuring and Modeling

❑ **Distribution Transformers:**
- Copper loss
- Core loss

MV Inputs :
- Meter data of Substation

LV Inputs :
- Customers billing data
- Characterization load study

To create the model: GIS data base → Simulation power systems software

❑ **MV / LV Distribution lines losses**

Inputs to MV model:
-Power load curves
-Energy purchase data

Inputs to LV model:
- Customers billing data

❑ **MV / LV meters and service drop losses**

Meters: Energy losses are calculated by the relation between the hourly current and the rated current meter , considering the meter loss characteristic.

Service drop: Energy losses are calculated from the hourly current and resistance service drop.

Education & Training for network operators and line crews

- Theoretical Training & Knowledge:
  - Theoretical concepts and procedures are taught promoting the interaction of the participants at the same time.
  - At each session, tools and materials are showed to help the participants to get familiar the real conditions at worksite.
  - At the end of each journal, all participants are evaluated on the contents covered.

- Support Resources Used:
  - Student (participant) Booklet.
  - Illustrative presentation of PPT format.
  - Teacher Booklet.
  - Theoretical Tests (Evaluations).

Education & Training for network operators and line crews

- FIELD TRAINING:
  - All practical contents are covered showing the «How To».
  - All practices are supervised by the instructor, following the step by step of each tasks according instructions and procedures defined on the Distribution Management System.
  - When the participants have acquired the appropriate skills, the practical evaluations are performed.

- Support Resources Used:
- Network Materials, Tools and Equipment depending of the activity to perform with the participants.

- Practical Evaluation:
  - The practices are made at controlled environmental (training yards) on each utility. It's important to mention that all practical training process for Offline Works Technicians was done at CAESS Training Yard.

Maintenance Crews

Field Operations Crews

Tree Trimming Crews

Losses Management: Plans and Initiatives

Energy Purchase and Sale Management

- Daily follow of the energy purchase and sale
- Commercial Conciliation Cycle
- Installation of Antifraud cable in the center of San Salvador
- Standardization of illegal connections by contracts through out community reaching
- Institutional Campaign encouraging reporting of energy theft through out the energy bill, speeches, mobile agencies, mailboxes, among others
- Training program and workshop for Inspector of Sale Protection.

Losses Management: Plans and Initiatives

Intelligence Losses and Energy Recovery

Annual Program of Meter Replacement

Analysis of Large Customers Hourly Consumption through meter downloads

Analysis of changes in consumer consumption patterns and possible fraud by Six-Sigma analysis and socio economic variables.

Analysis of special conditions reported by readers (zero consumption, empty facilities, among others)

Routine inspection looking for frauds in non business hours

Annual Census Program of Street Lights

Losses Management: Plans and Initiatives

Intelligence Losses and Energy Recovery

- Daily Report of Energy Recovery
- Implementation of time task and productivity (work management) for the inspectors
- Irregularities orders trough PDAs.
- Analysis Feeder Losses
- Thematic maps and geo-referenced routes for Energy Recovery Management
- Reporting system and monitoring of fraud / illegalities (customers and employees)

Daily Follow Sale and Collection

Effectiviness of Billing Report

Read Date	Services Programed	Services Billed	Differences	Services resolved	Gwh billed	Gwh Budget with Errors	Total Gwh Budget	Total Gwh Real	Services Read %	Services Billed %	Gwh billed %	Avg. Days on Bills
02/03/2012	78696	75415	3281	2828	3.55	0.11596827	17.49	17.48219	99.50%	95.83%	99.97%	30.32
03/03/2012	91003	87318	3685	2184	3.51	1.32466244	19.92	19.48673	99.51%	95.95%	97.84%	29.93
05/03/2012	75151	70650	4501	2198	18.35	1.01828696	33.50	34.50963	99.56%	94.01%	103.01%	30.81
06/03/2012	82652	75316	7336	1609	0.59	10.9132106	21.17	10.61695	99.30%	91.12%	50.14%	30.73
07/03/2012	0	0	0	0	0	0	0	0	0.00%	0.00%	0.00%	
08/03/2012	0	0	0	0	0	0	0	0.000165	0.00%	0.00%	0.00%	
09/03/2012	0	0	0	0	0	0	0	0	0.00%	0.00%	0.00%	
10/03/2012	0	0	0	0	0	0	0	0.000067	0.00%	0.00%	0.00%	
12/03/2012	0	0	0	0	0	0	0	0.000406	0.00%	0.00%	0.00%	

Readings per day

Inconsistencies readings (Reading errors, damaged meters, among others)

Days of average billing (Regulation 30-31days)

Daily Report of Energy Recovery

Company	Grade	Ranking
CLESA	226.12%	1
DEUSEM	141.15%	2
CAESS	112.10%	3
EEO	107.65%	4
AES	126.86%	

	> 95%
	Between 90% and 95%
	< 90%

AES	Budget (MTD)	Actual (MTD)	Variation	Variation %	Weight %	Grade	Budget (Month)
Billed Services	748,089	753,290	5,201	100.70%	3.00%	3.02%	1194,316
Sales (MWh)	162,931	174,880	11,949	107.33%	3.00%	3.22%	305,288.60
Recovered Energy (MWH)	550	800	249.82	145.41%	55.00%	79.98%	1,646.36
Vectorial Tests	87	52	(35)	59.77%	3.00%	1.79%	395
Meters Replaced	1,380	1,361	(19)	98.62%	3.00%	2.96%	3,130
Man Hours (inspectors)	5,039	5,869	830	116.48%	5.00%	5.82%	11,317
Inspections	3,104	3,844	740	123.82%	10.00%	12.38%	7,038
Effective Inspections	1,225	1,387	162	113.24%	15.00%	16.99%	2,775
Effectiveness	39.45%	36.08%	-3.37%	91.46%			39.43%
Street Lighting Census	9	2	(7)	23.16%	3.00%	0.69%	
Total AES				126.86%	100.00%	126.86%	

Daily Report to manage all activities related to energy recovery (effectiveness, efficiency, size wise, productivity)

Annual Campaign of Meter Replacement

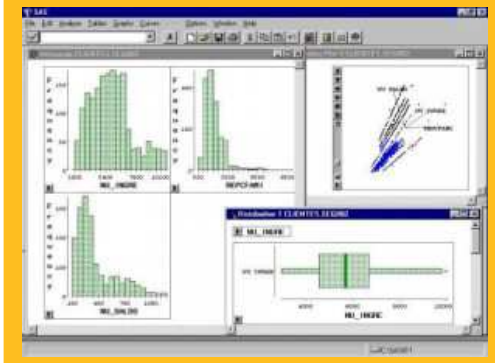
X_1: Meter Brand →

X_2: Municipality →

X_3: Ancient →

X_4: Others →

Accuracy Campaign



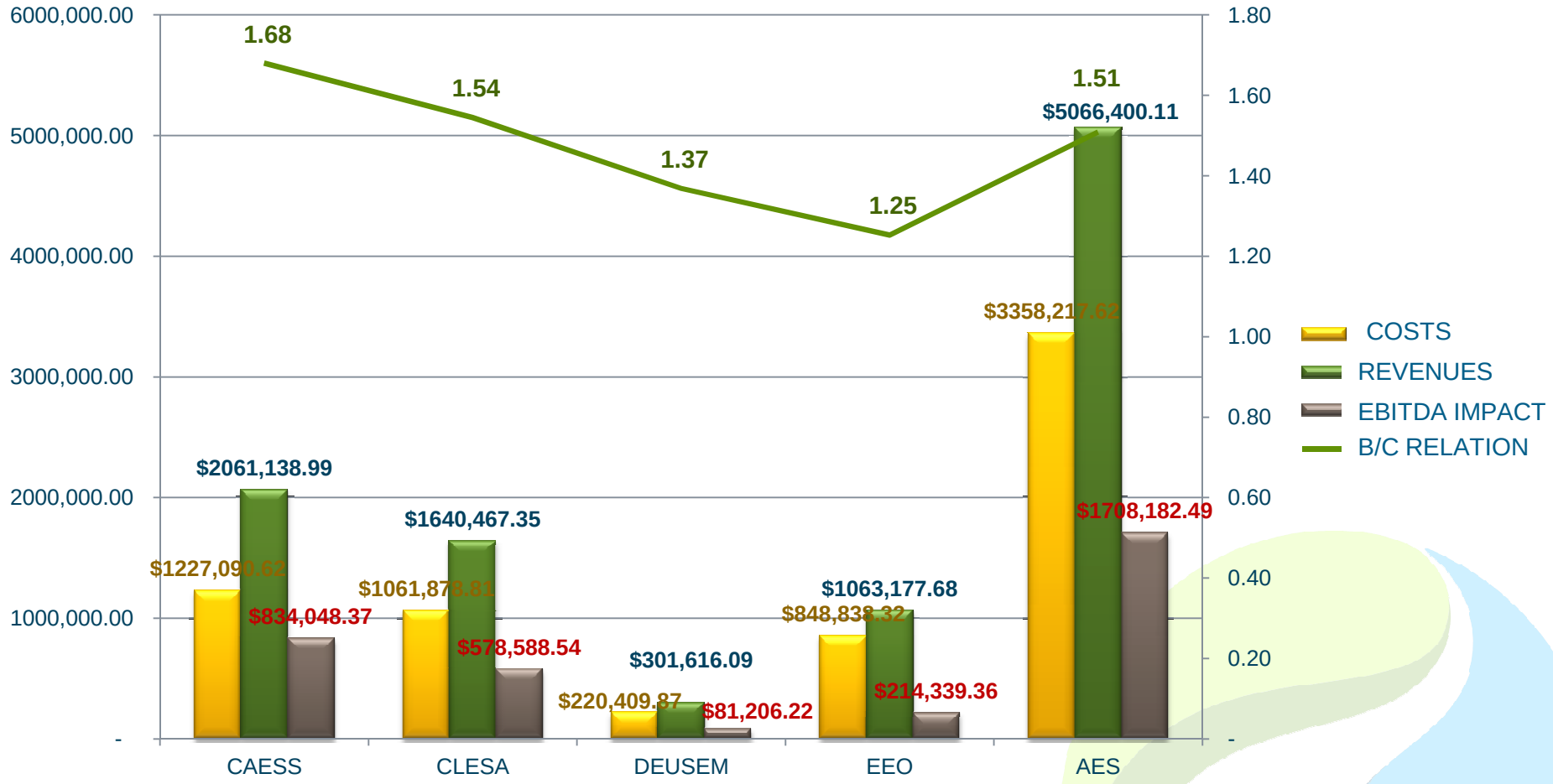
→ Y_1: Accuracy %

60,071 meters replaced by the campaign during 2013

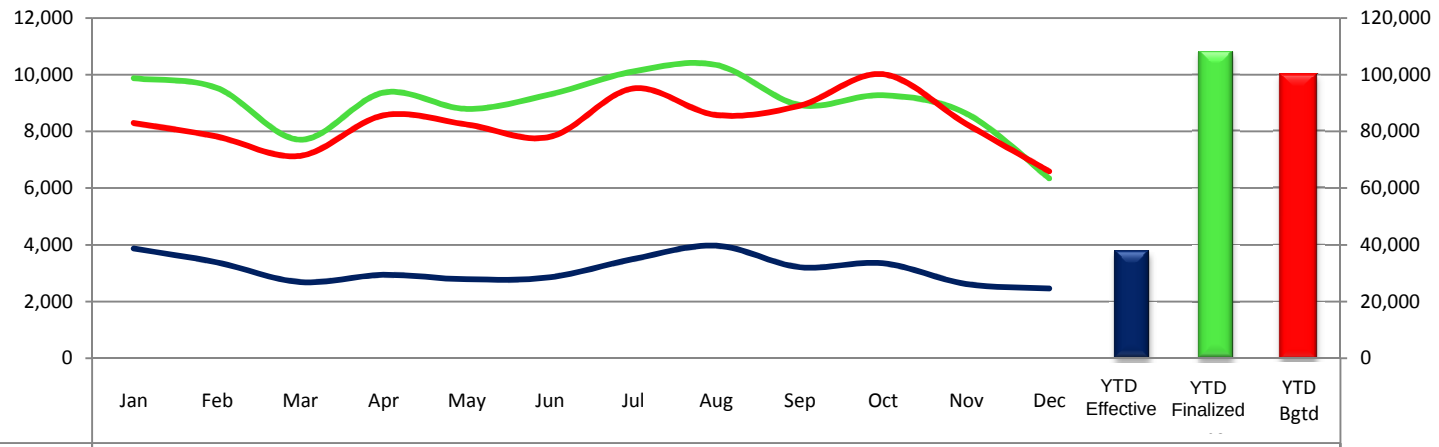
$1.7M invested to meter replacement during 2013

$1.9M of annual budget for the period 2014-2018 (67,000 meters per year)

Cost Benefit Analysis - Business Protection December 2013 YTD

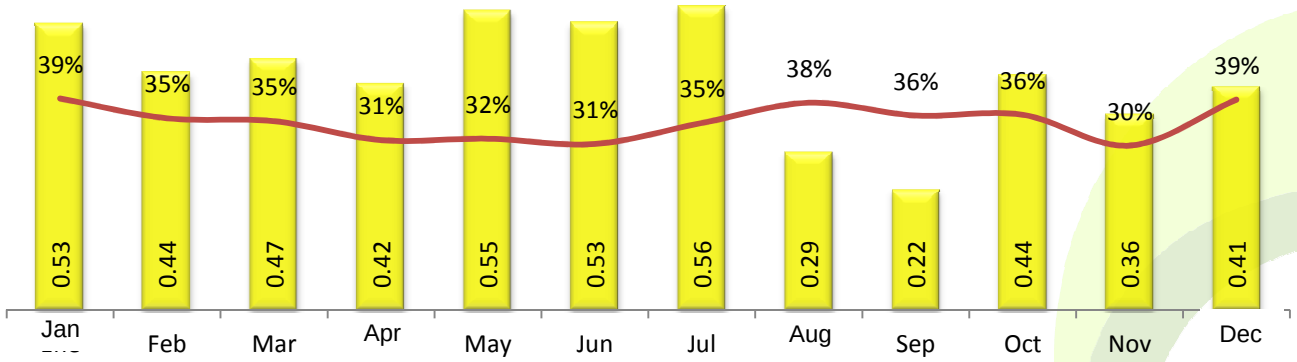


Productivity and Effectiveness of Sale Protection



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Effective	YTD Finalized	YTD Bgtd
YTD													37,649.	108,252	99,771.
OS Effective	3,866	3,382	2,692	2,944	2,787	2,858	3,498	3,967	3,213	3,351	2,626	2,467			
OS Completed	9,883	9,535	7,708	9,370	8,797	9,307	10,114	10,349	8,933	9,280	8,637	6,339			
BGT Inspections	8,300	7,821	7,140	8,567	8,247	7,810	9,515	8,579	8,907	10,019	8,272	6,594			

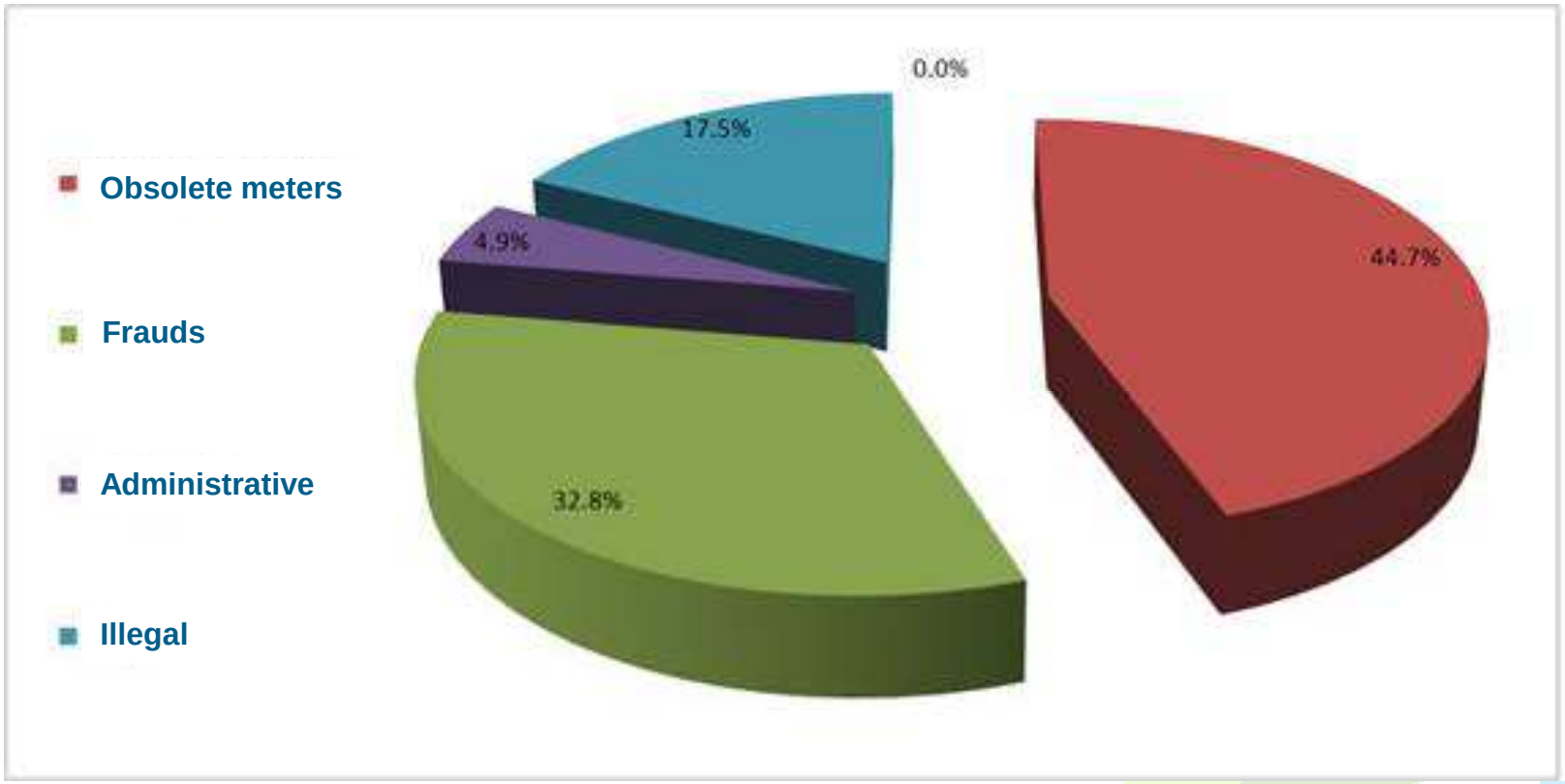
Effectiveness:



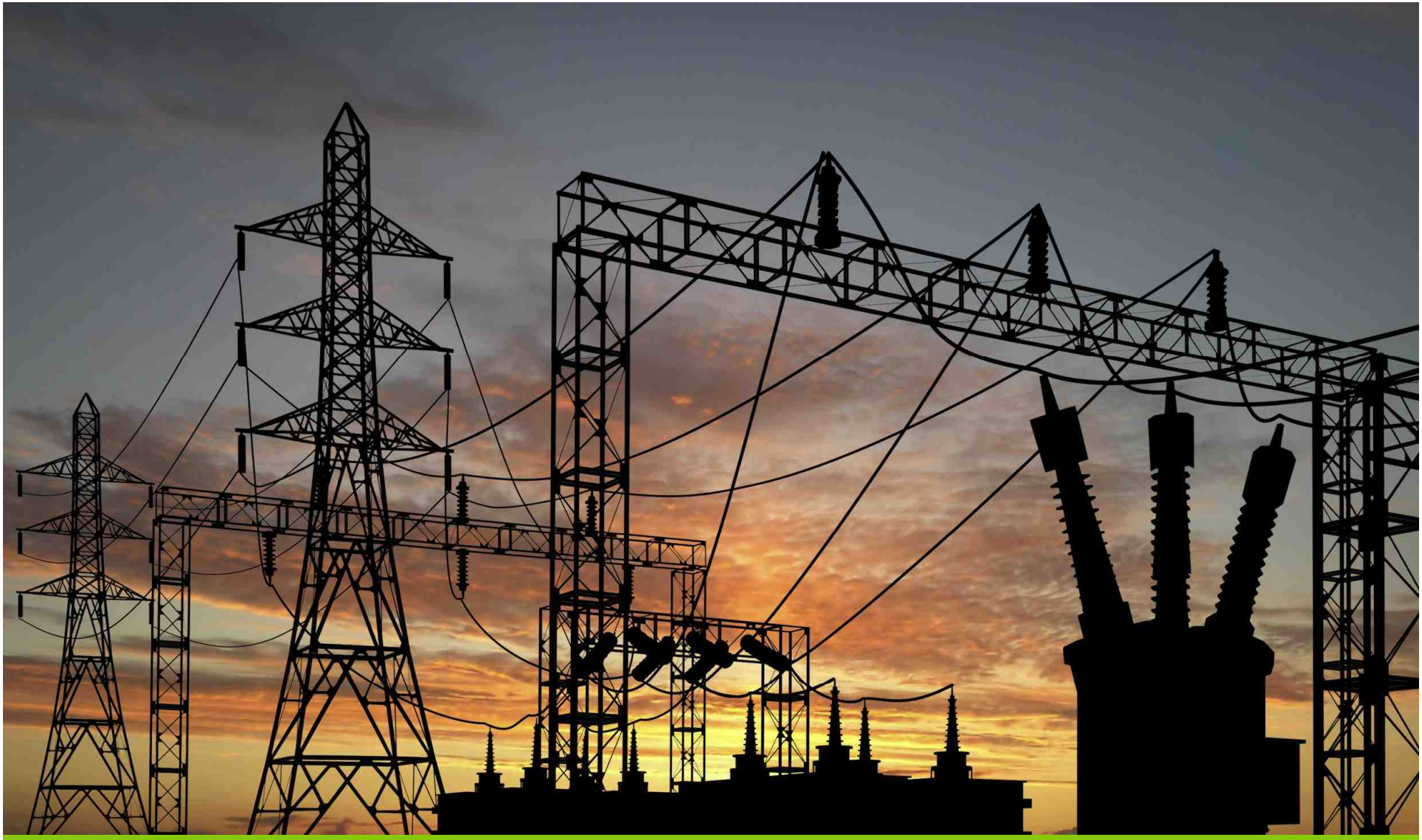
The average accuracy is about cases billed in the month, which were visited in the month or previous months.

No Technical Losses Breakdown

NTL 2013 = 68 GWh



- Guide to locate resources and efforts
- Starting point for plans and strategies



8. Distribution Applications & Platforms

Distribution Applications & Platforms

1 Prediction of Outage Location

- Detection of most probable failed device
- Prediction based on phone calls and network hierarchy

Benefits:

- Faster restoration
- Reduction on KPI (outage duration) and travel time of emergency crews

2 Prioritization

- Ranking of every zone according to monetary KPI impact
- Actions to reduce outage impacts by monitoring KPI prediction for the next hour

Benefits:

- Strong criteria to set the order for outages resolution
- Reduction on KPI (outage duration)

3 Tracking

Synoptic E-mail Alert

- Real time outage status sent automatically every hour
- Recipients: administrative and operative staff
- Report sent 24/7 all year long

Bizflow E-mail Alert

- VIP clients trouble calls
- Recipients: administrative and operative staff
- Report sent 24/7 all year long

Dashboard Performance Indicators

- Real time operations overview
- Summary status
- Quick diagnosis of problems
- Simple data presentation
- Granular view
- Everyone can access the information (intranet)
- Historical database for analysis

Benefits:

- Allows to take action immediately in emergency
- Allows to check effectiveness of action taken
- Involved staff always informed on ‘what’s going on’

Mobile Application System (MAS)

Fleet Management System (FMS)

Source: AES ES.

Outage Management Cycle

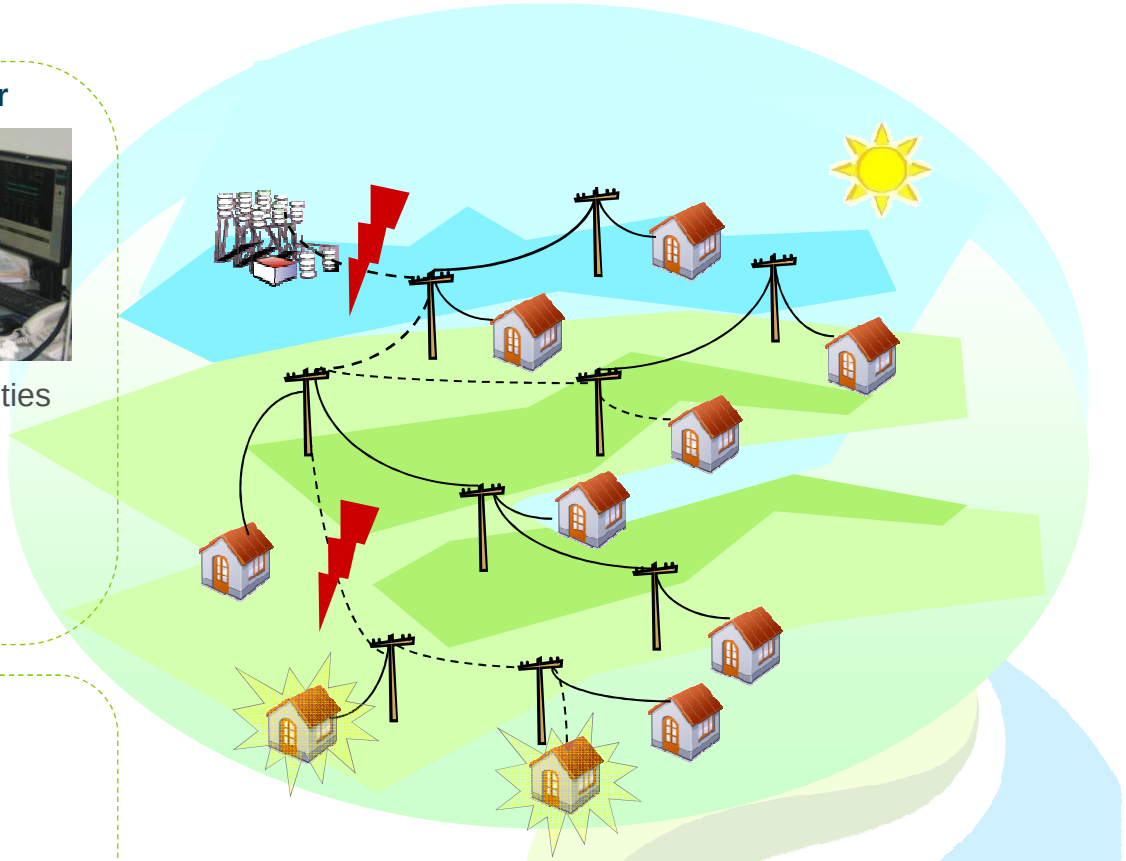
- Two ways of identifying outages:
  - SCADA alarms or status changes
  - Trouble calls or claims from clients

1

Call Center

Control Center

- Establishes priorities
- Dispatches



2

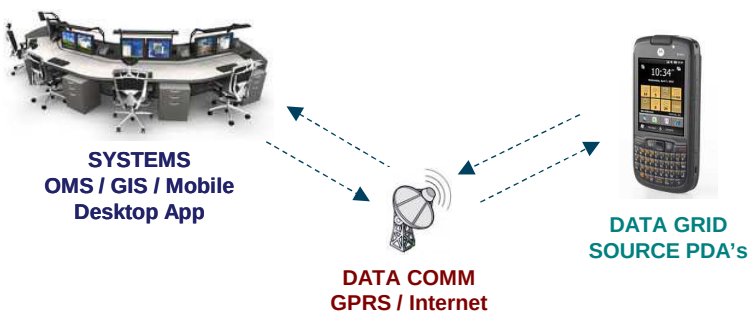
Work Execution

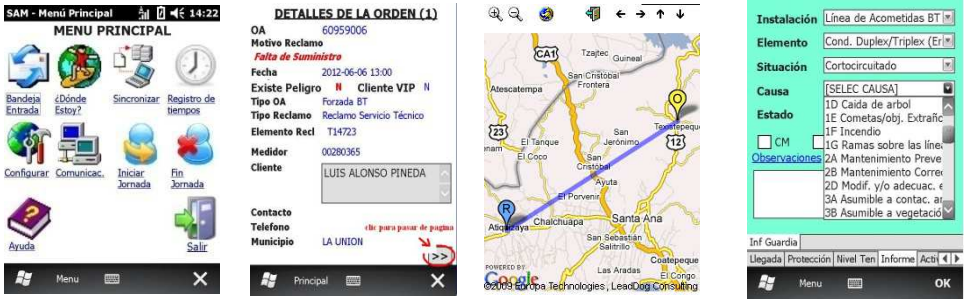
Source: AES ES.

Distribution Applications and Platforms

Mobile Application System (MAS)

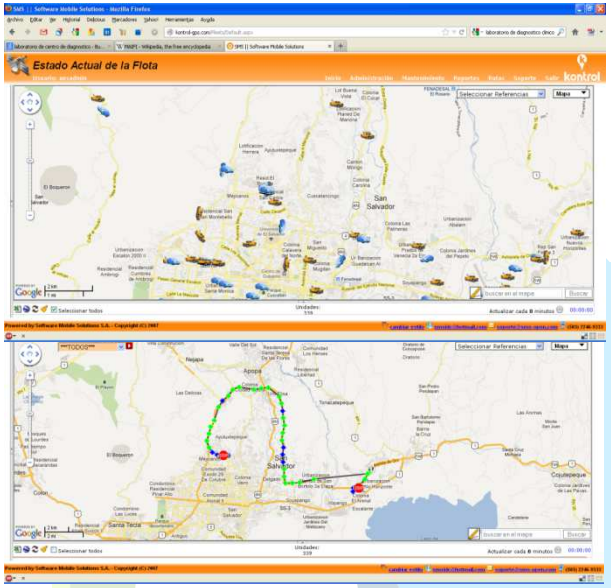
- Provide the necessary data to field service crew in association with the issued trouble ticket or network fault element



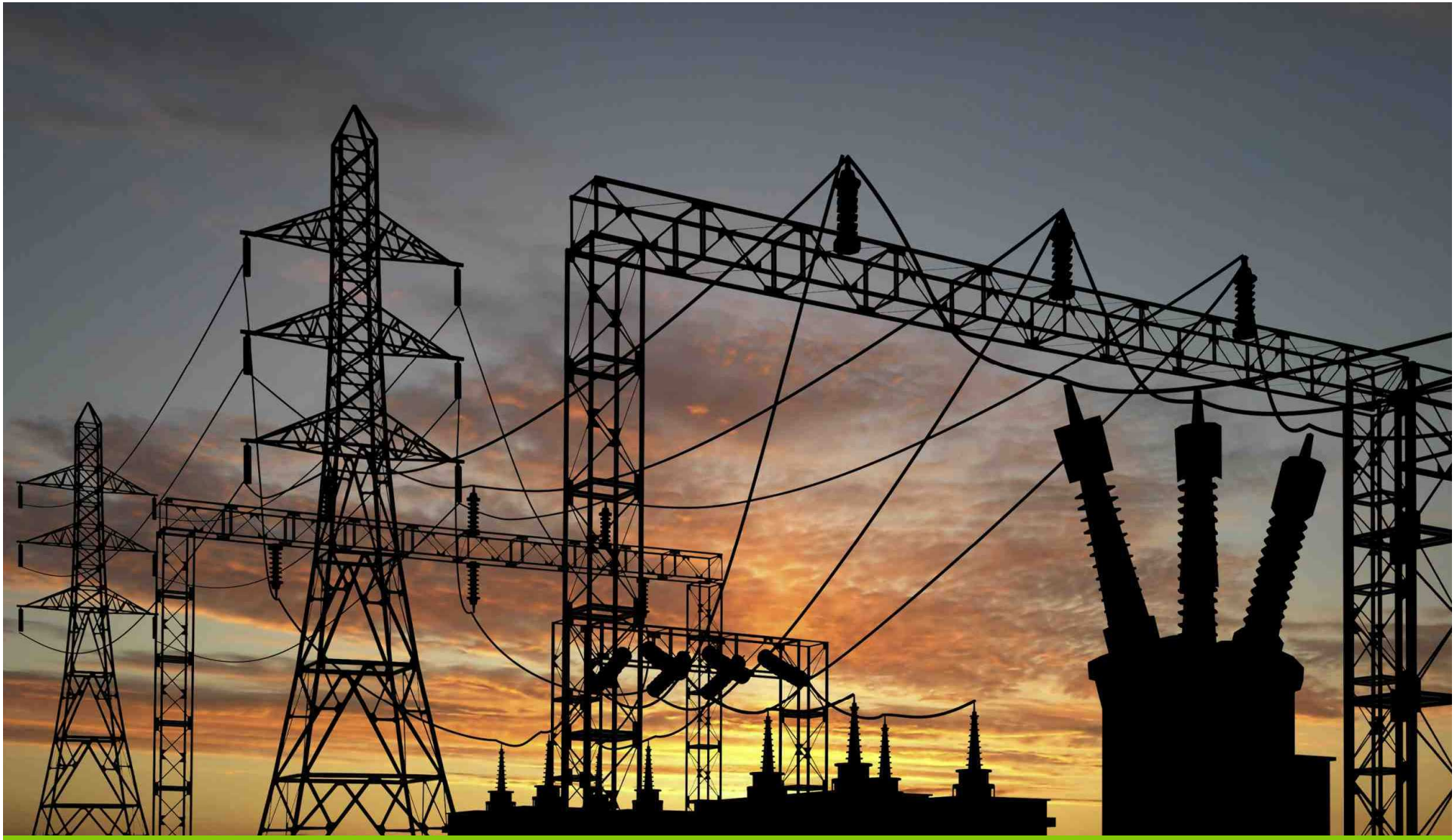


Fleet Management System (FMS)

- Processes all of the data coming from the GVE's and displays real-time location of the vehicles in geo-reference maps



Source: AES ES.



9. Contracts & Procurement

AES ES Power Purchase Agreements

Generator	Assigned MW	Period	Average Price				
Hidro Xacbal	30 MW	15 Years	$148 / MWh	30 MW	--	--	--
Inversiones Energéticas LaGeo, CEL	186 MW	3 Years	$105 / MWh	112 MW	40 MW	27 MW	7 MW
Hilcasa Textufil	25 MW	2 Years	$207 / MWh	11 MW	8 MW	5 MW	1 MW
LaGeo Duke Energy International	66 MW	2 Years	$184 / MWh	23 MW	25 MW	14 MW	4 MW
Generadora Eléctrica Central, Nejapa Power, Duke Energy International, Termopuerto, Textufil	229 MW	4 ½ -5 Years	$206 / MWh	136 MW	54 MW	30 MW	8 MW
Borealis, Duke Energy International, Poliwatt	30 MW	3 Years	$195 / MWh	22 MW	--	8 MW	0 MW
TOTAL	**566 MW**	**--**	**--**	**334 MW**	**128 MW**	**85 MW**	**20 MW**

*AES ES has **75%** of its energy demand contracted under long-term power purchase contracts*

Source: AES ES.

AES ES Long-Term Contracts

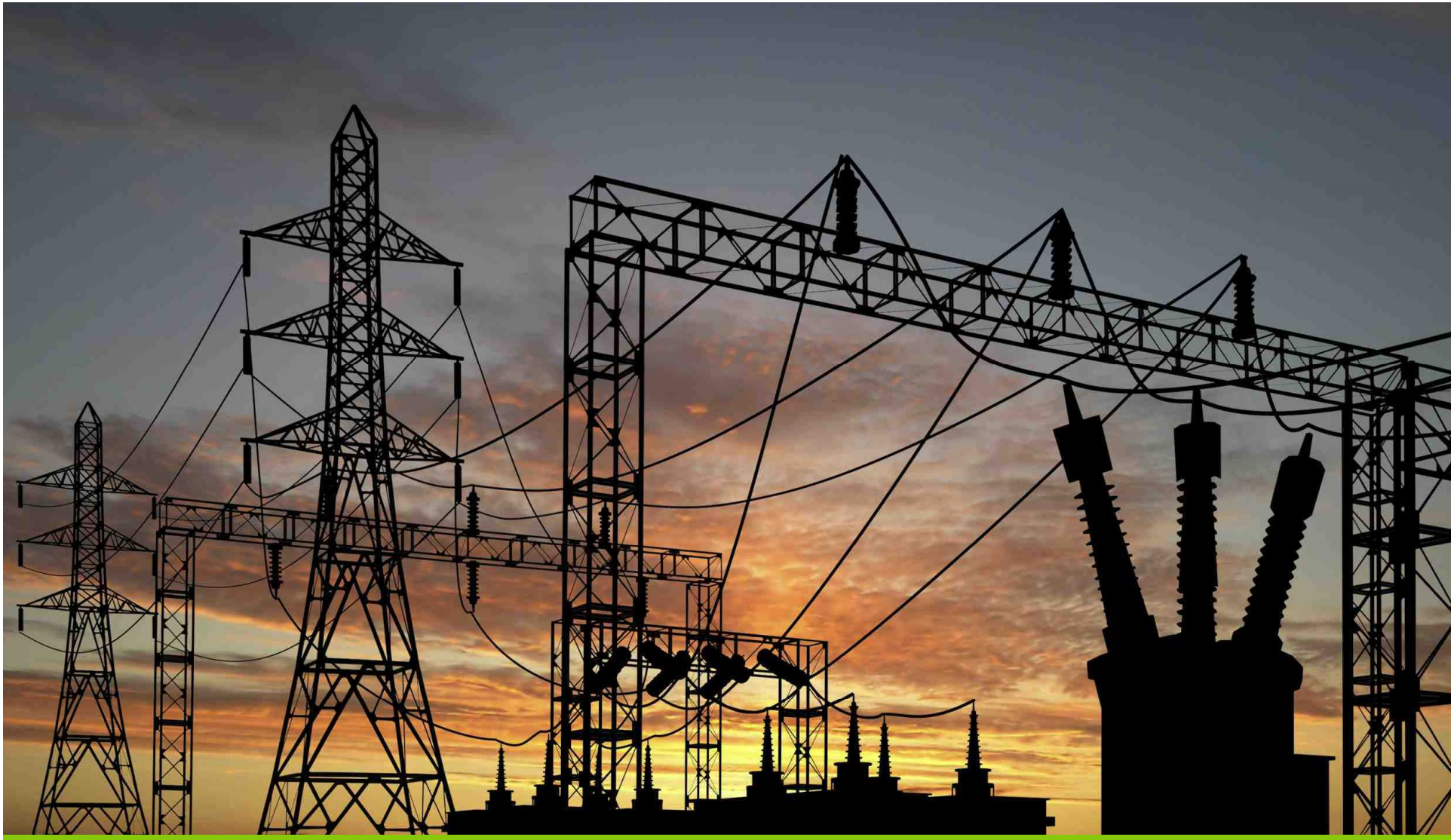
Contracted Power Composition

	2013E	2014E	2015E	2016E	2017E	2018E
Mid and Long-Term Contracts	79%	81%	82%	95%	84%	88%
Bilateral Contracts	1%	1%	1%	1%	1%	1%
Spot Market	20%	18%	17%	4%	15%	11%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

2011 Long-Term Power Contracts Mandate

- As of August 2011, long-term power purchase contracts (PPAs) are structured based on variable / production cost (as per regulations)
- This recent introduction of long-term PPAs is expected to promote competition and stimulate growth in El Salvador's power generation market
- New regulation requires DISCOs to have 70% of their maximum demand contracted by December 2017 and 80% by January 2018 as per Government Decree No. 88
- AES ES, together with DELSUR, EDESAL and B&D (competitors of AES ES), have developed different public bid processes to fulfill these new requirements.
- In 2016 entry of the new renewable Generation.

Source: AES ES and SIGET.



10. Human Resources

AES Corporate Philosophy

Mission Statement

"Improving lives by providing safe, reliable and sustainable energy solutions in every market we serve."

Vision

"The AES company vision is to be the world's leading sustainable power company that safely provides reliable, affordable energy. We seek to do this by leveraging our unique electricity platforms and the knowledge of our people to provide the energy and infrastructure solutions our customers truly need. Our people share a passion to help meet the world's current and increasing energy needs, while providing communities and countries the opportunity for economic growth due to the availability of reliable, affordable electric power."

Corporate Values

Source: AES ES.

People Development: Based on 2 Main Axes

1 Training Programs

Mid Level Management Training

- Training Team Coordinator, launched in 2013, with 21 participants finished and 31 participants in process.
- Developing Key Competencies in Development Executives for its dominance in Leadership.
- Strengthen Human Skills for Managing Change and Initiatives

Skills Development

- Train and develop Leadership competencies in local and international training programs such as leadership development, teambuilding, effective communication, etc
- Provide mentoring to high potential managers as well as executive coaching

Action Plans improve results GPTW

- Integration Workshops aimed at improving the results of GPTW results for different areas of the organization.

2 Succession Plans and Employee Survey

Succession Plans

- Identify and develop internal people with potential to fill key business leadership roles
- Currently implementing succession plans for key roles in middle and first line supervisor levels

Great Place To Work Survey

- Get to know the culture of the organization from employee perspective
- Implement enhancement programs in order to increase employee level satisfaction
- Currently deploying AES Employee Satisfaction Survey

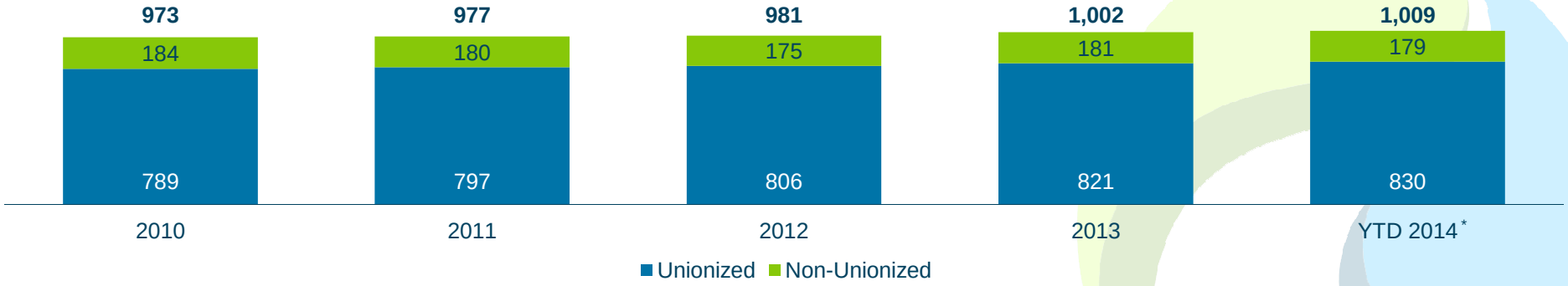
Source: AES ES.

Employees

As of September 1th 2014, AES ES employed 1,009 people, with upper management accounting for 3% of this total.

538 Employees	244 Employees	185 Employees	42 Employees
4% Upper Management	1% Upper Management	1% Upper Management	0% Upper Management
13% Middle Management	10% Middle Management	10% Middle Management	5% Middle Management
83% Staff	89% Staff	89% Staff	95% Staff

Employees Per Type



Source: AES ES.
* YTD as of September 2014.

Other Relevant Employee Matters

Employee Benefit Programs

AES ES has employee benefits in accordance with a Union Bargain Agreement

Annual Vacations	16 to 20 days of vacation, determined by years of service
Severance	One salary per service year
Christmas Bonus	Equivalent to one monthly salary paid in December
Mid Year Bonus	Equivalent to one monthly salary paid in June
Vacation Fund	7% of annual salary paid when an employee goes on annual leave
Life and Medical Insurance	Insured amounts of US$17 k, US$35k, US$100 k depending on the organizational level
Expenses	Expenses such as eyeglasses, funeral expenses, daily transportation per diem, etc

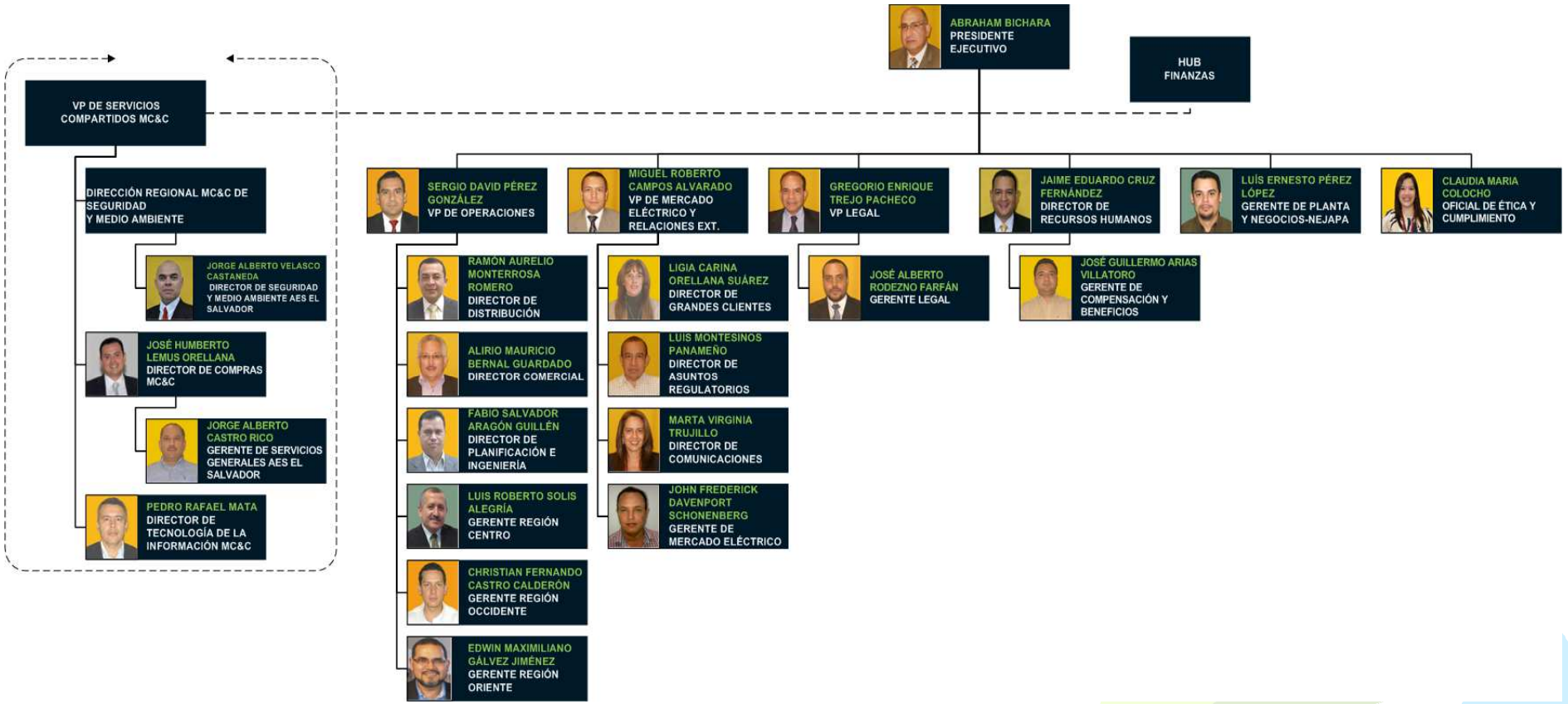
- All expenses are properly provisioned through the annual budget review, as well as monthly accounting provisions

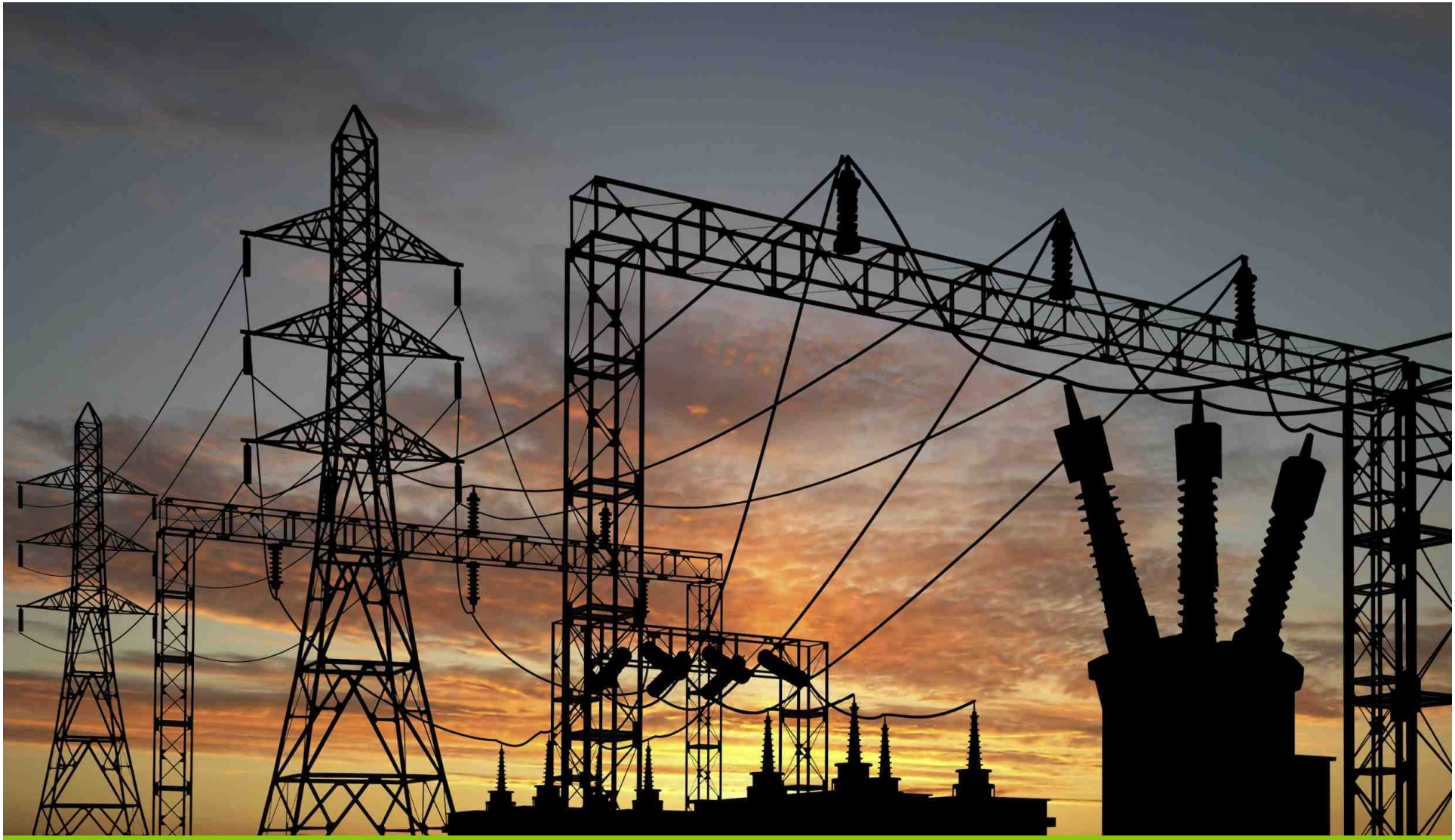
Current Union Relations

- The collective Labor Contract is negotiated every 3 years with each of the distribution companies. Last negotiation was conducted in January 2013
  - Valid until December 2015
  - Next negotiation process schedule to be on January 2016
- In 2013 negotiations with the unions went from January to May and agreements were reached in a few clauses that have improved efficiency and synergies from four similar contracts
- Relationships with the Union are managed under a friendly and respectful environment in order to reach consensus
- The union has been a key part of some strategic changes implemented by AES ES, some of these changes include: multitask teams, flexible work time, no labor conflicts, etc
- No significant changes expected in the relationship with the union

Source: AES ES.

AES El Salvador Organizational Chart





11. Safety, Environmental & Corporate Social Responsibility

Certifications & Environmental Matters

International Certifications

- OHSAS 18001 and ISO 14001 International Certifications for Environmental Management System and Safety Management System (August 2012). Overcoming the first follow-up Audit (Jan 2013)

Environmental Permits

- Operation permit of facilities
- Operation permit of power substations
- Permit for hazardous materials warehouse such as PCBs
- Operating permits for tree trimming

PCB Disposal According to Local Law

- Disposal of 108 drums with PCB > 50 ppm to authorized company (HOLCIM), with an investment of ~US$86 K.

Date	Region	Place	Barrels (55 Galons /Barrel)	Galons	Destiny
10/31/2013	East	Jalacatal	48	2640	HOLCIM
11/14/2013	Center	Agua Caliente	30	1650	HOLCIM
10/08/2013	West	Bululu	30	1650	HOLCIM
TOTAL			**108**	**5,940**	

- Similar investment made in 2011 and 2012, in compliance with requirements of AES Corp. and local environmental laws
- AES El Salvador meets the disposal of significant environmental aspects detailed in the Risk Assessment Matrix TD, where we identified each material with their respective controls.

Environmental Key Actions

EMPLOYEES TRAINING

WASTE MANAGEMENT

PCB MANAGEMENT

ENVIRONMENTAL EVENTS

GAS EMMISIONS

FACILITY INSPECTIONS

Source: AES ES.
* [ ]

Corporate Social Responsibility (CSR)

AES MEDIO AMBIENTE

The *¡Recicla!* (Recycle!) program is addressed to employees, customers and Community in general, donating the proceeds of used paper sales to the conservation of the national parks Los Volcanes and El Imposible. **To date 200,000 pounds have been recycled, equivalent to saving 1,300 hectares.**

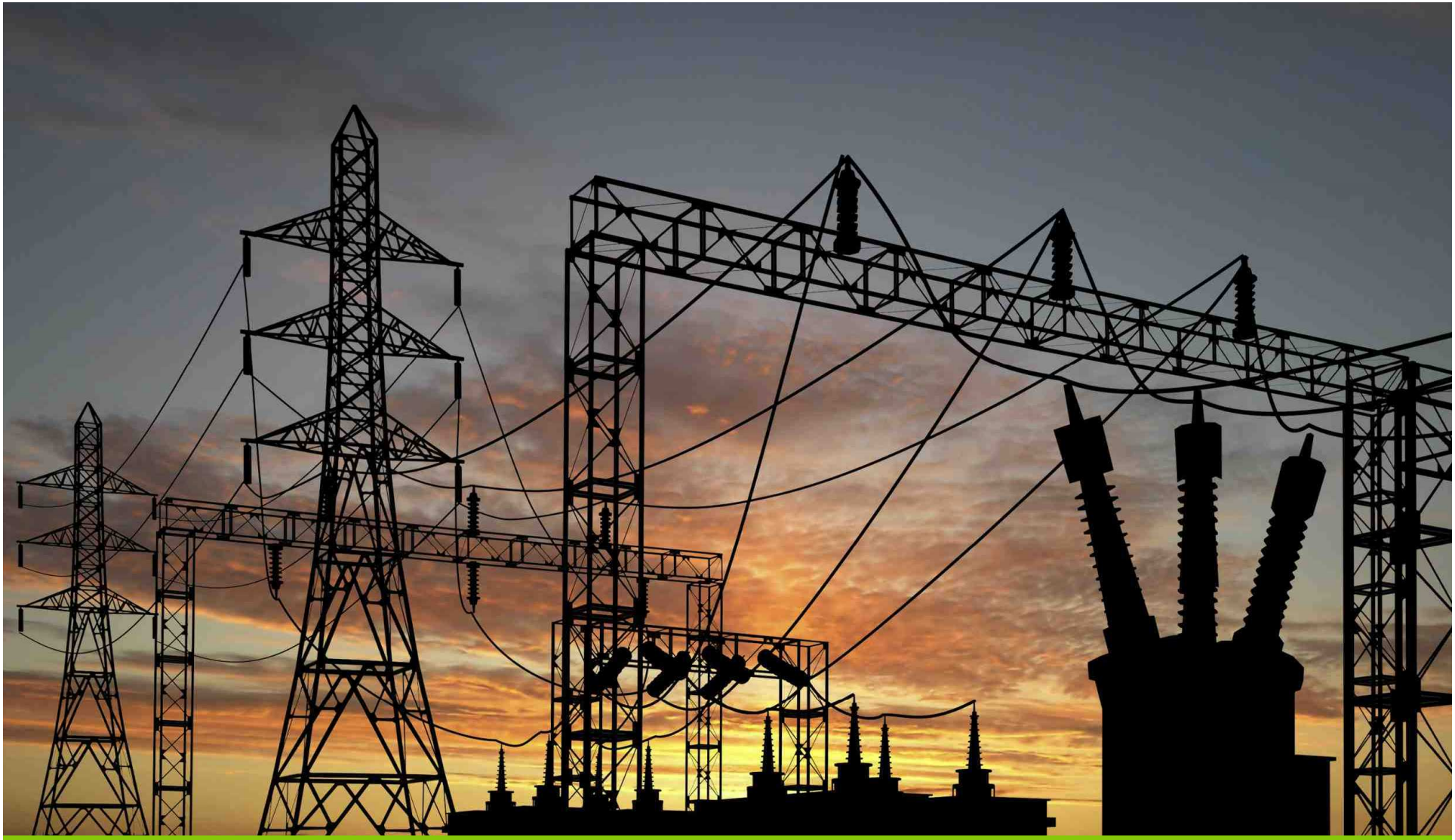
AES EDUCACION

Teaches the efficient and safe use of electric power in schools & communities. **To date, over 289,654 children and adults have been educated through the Energía Mágica (Magic Power) program.** Additionally, AES supports the "POETA Program" which offers training in technologies and communication for youth at risk, in order to promote social inclusion and employment.

AES ENERGÍA RURAL

Through the alliance formed from 2009-2012 with Fomilenio, AES ES served 36 thousand homes in 94 municipalities in northern El Salvador. Total investment: ~US$36 mm (Fomilenio fund 85% and AES ES fund the remaining 15%).
Aditionally, since 2001 to date we have brought electricity to 35 thousand families, through projects developed jointly with FINET, Municipalities and organized communities. Total: **more han 70 thousand families have been benefitted with electricity.**

Source: AES ES.



12. New Challenges

AES El Salvador Challenges

2.5 MW Solar Energy Project (AES Nejapa -EEO)

AES El Salvador

Distributed Rooftop Solar Generation (Commercial/Industrial Customers)

Thank you

Q&A