

Transforming Our Strategic Plan

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Core Pillars





Purpose of Strategic Plan

- Long-term vision for energy transformation
- Mission and commitment to customers and community
- Alignment of employees and resources to common goals





Development of Strategic Plan

- Listening to our Customers and their concerns and aspirations
- Developed in collaboration with regional partners
- Community Advisory Panel input
- Listened to input and concerns of the City
- Taking the input of our employees
- Looking at the Industry and its directions
- Solving for our issues today and positioning our region to excel in the future
- Economic development is of priority to all of us
- We are committed to our customers and our community



Strategic Goals





MISSION We are Transforming the Energy Landscape.

Together we are powering the next hundred years **VISION** of growth, innovation and economic vibrancy.



- 1.1 Champion customer affordability
- 1.2 Drive reliability and customer service

- 1.3 Deliver customer choice for programs and rates
- 1.4 Develop a transparent education and communication plan
- 1.5 Partner with institutions to build connections and social improvements for our region



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- 21 Partner with local educational institutions to develop, create and retain the workforce of the future
- 2.2 Actively participate in economic development to grow our region's commercial and industrial base
- 2.3 Provide energy solutions for electrification and our community's emerging energy needs
- 2.4 Proactive engagement in energy sector's legislative and regulatory construct

2.5 Develop business initiatives for the growth of our company



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Leverage

Drive Efficiency

and Security

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opportunities in our evolving industry 3.2 Modernize the grid Technology to

3.1 Capture

to meet the customer's energy needs

- 3.3 Implement technological resources and data analytics to automate and optimize business operations
- **3.4** Provide robust cyber and CIP security technology for data and systems

3.5 Optimize assets for participation in regional markets



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- **41** Offer customers green energy options
- 4.2 Drive solutions for greater renewable energy integration and clean energy
- 4.3 Manage energy demand growth and levelize peak load
- **4.4** Replace aging power generation and grid infrastructure
- 4.5 Transform our fleet and facilities environmental footprint



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- 5 Drive a Work Culture of **Empowerment**, Accountability, and Inclusion
- 51 Create a culture and system for safety performance
 - 5.2 Develop programs for health and wellness
- 5.3 Drive leadership development and effectiveness
- 5.4 Institute and incentivize performance management and employee accountability
- 5.5 Optimize organizational structure for effectiveness and agility



Modernizing Our Grid



Grid Modernization Definition

Grid Modernization (Grid-Mod):

- The application of sensors, computers and communications, that is, increasing intelligence, or 'smarts,' of the grid
- Goal: Improve the flexibility needed to adapt and enable a range of technologies onto the grid



Grid-Mod Definitions

Embedded Devices – The micro-processing "chips" that the manufacturers are putting into everything to collect/provide data.

Controllable Embedded Devices – Some chips do more than collect/provide data...they can actualy control the device.

The Internet of Things (IoT) – Refers to a system of interrelated, **internet**-connected objects with <u>embedded devices</u> that are able to collect and transfer data by way of the internet.

Situational Awareness – Simply put: "knowing what is going on around us."





Grid-Mod Definitions - Orientation



Bulk Electric System - BES

Distribution System



Grid-Mod Definitions – Orientation





El Paso Electric

Grid-Mod Technology Deployment At the <u>Bulk Electric System</u> (BES) Level

Active Technology and Data Analytic Deployment Projects

- Transient Wave Systems (TWS) + Data Analysis on Transmission
- New Protective Relaying Technology with remote query and programming functionality
- Electromechanical relay change-out 2700 of 4,000 relays are electromechanical.
- More from electromechanical Add a device that provides analytics from electromechanical relays.
- A team dedicated to R&D to determine if any new devices will help improve our system

Substation Standards – Automation & Digitization

- Double bus double breaker (Distribution side)
- Improved ring bus (Transmission & Distribution side)
- All new distribution substations will have full automation going forward.
- Additions of T2 to existing substation will be converted in phases to have local automation





Grid-Mod Technology Deployment At the <u>Bulk Electric System (BES)</u> Level

Transmission Applications Field Data and an Asset Management System

- Detailed fly-over inspections helicopters/UAVs with IR/Corona
- Deploy **UAVs** (Drones) for improved line inspections/outage restoration
- Define/Establish Dynamic Rating of Transmission Lines by way of locational weather stations
- Digitize Field inspections to facilitate data collection and processing







Grid-Mod Technology Deployment At the <u>Bulk Electric System (BES) Level</u>

The Communication and Control Systems

- Existing systems and experienced personnel will facilitate the Grid-Mod process
 - Communication systems (will require some new fiber)
 - SCADA Substation Control and Data Acquisition
 - Energy Management System (EMS)
 - Dedicated, fully functional, **Control Center**

The BES Control Center



EPE's System Operations Control Center



Grid-Mod Definitions – Re-Orientation



Distribution System



Bulk Electric System - BES

Grid-Mod Definitions – Orientation







Grid-Mod – Operational Technology

Where we are Where we're going



El Paso Electric

Grid-Mod – Operational Technology

Where we are Where we're going



Grid-Mod Technology Deployment

At the **Distribution** Level

AMI/AMS – Advanced Metering System

Smart Meters with multiple registers (TOU, TOD, Smart Chargers).

- Allows for storing various customer load data for developing load profiled
- Allows providing cost signals to customers so they can make decisions.
- Allows for utilizing EV chargers to manage load to off peak or even supply load from the battery to the grid. (GEV and EVG)

Backhaul system to communicate with meters (IoT, accessible data storage).

• Fast communication system needed to get real time values for DSM applications.

Remotely programmable Smart Meters.

• Ability to reprogram meters without visiting the field.



Grid Modernization

At the **Distribution** Level

Distribution line Equipment/Systems

- Distribution Automation (DA) profiles continue to expand visibility and control
 - OH reclosers, capacitor banks, OH sensors, network equipment, and voltage regulators.
 - 6 advanced reclosers were placed in-service on July 7th.
 - **4 additional units are planned** to be in-service by the EOY.
 - Automation has been bench tested and placed into service
 - System Operations, Distribution Dispatch, and the DSME's have visibility and control

Line Recloser

- 3 network vaults have communications. DSMEs have visibility and automatic email notifications have been configured to notify Distribution Dispatch of any issues.
- Working with Distribution Dispatch to improve system studies
 - Use OMS/DMS map and modules to perform power flow and other system studies
 - Consolidates efforts to a single map
 - Replaces currently used tools and spreadsheets.





Grid-Mod Technology Deployment

Proof of concept/capabilities project for summer 2021

 East Side 24kV Distribution System IoT deployment to enable remote switching capability and improve outage recovery.







Grid-Mod Technology Deployment At the <u>Distribution</u> System Level

Existing systems and new systems are not integrated

- ADMS Advanced Distribution Management System
- AMS/AMI Advanced Metering System
- CMS Customer Management System
- DERMS Distrib. Energy Resource Management Sys.
- D-SCADA Distribution SCADA
- EAMS Enterprise Asset Management System
- EMS Energy Management System
- **GIS** Geographical Information System
- MDMS Meter Data Management System

OMS – Outage Management System

- **PDM** Predictive Management System
- SCADA Substation Control And Data Acquisition



Grid-Mod Technology Deployment At the <u>Distribution</u> System Level – Future Grid Subdivisions

Preplanning & pre-installing infrastructure

- EV Charging (single family homes, multi-family residence)
- Energy Storage System(s) to support micro-grids
- Additional transformation
- Assume high percentage PV
- Street Lighting 5G Connection & Controllability



Future Energy Storage

Grid-Mod Technology Deployment

The Foundation of Grid Mod – Making it work



El Paso Elect

Grid Modernization – Recent Investments



2016-2020 Approx. \$122.8 MM

EPE Scheduling Polygon	City Districts	Distribution Line	Distribution Substation	Total
C03	1 & 8	\$7.4 MM	\$32.7 MM	\$40.1 MM
C04	1,2&8	\$10.5 MM	\$22.7 MM	\$33.2 MM
C05	1,2&4	\$6.3 MM	\$12.0 MM	\$18.3 MM
C06	2,3&7	\$5.2 MM	\$10.5 MM	\$15.7 MM
S01	3&5	\$2.6 MM	\$2.6 MM	\$5.2 MM
S02	6&7	\$2.9 MM	\$7.4 MM	\$10.3 MM



Grid Modernization – Future Investments





Transportation Electrification



The Promise of Electrication

Fuel and maintenance cost savings

Fun to drive and technologyfocused driving experience

Customer

Economy

 Convenience of charging at home Environment

- Reduce greenhouse gas emissions
- Lower carbon footprint over EV lifetime
- Decrease noise levels

 Positive economic growth incentivizing capital investment

- EV Charging attracts customers with longer stays
- Job creation for skilled workforce

Electric Grid

- Enable better grid management
- Increase system utilization rate
- Create opportunities for bidirectional energy flow



Global Outlook

- At the end of 2020, the number of EVs on the world's roads were:
 - 10 million passenger vehicles
 - 600,000 e-buses representing 16% of global fleet
 - 31,000 trucks
- Electric car registrations increased by 41% in 2020, despite the pandemicrelated worldwide downturn in car sales in which global car sales dropped 16%
- Pandemic also accelerated electric micro mobility adoption (e-bikes)
- Out of top 20 vehicle manufacturers, 18 have stated plans to widen their portfolio with EV models





U.S. EV Trends

- More than 1.8 million EVs in the U.S.
- EV commitments by auto-manufacturers, fleet owners, and ridesharing companies
- EV sales to grow rapidly
 - Executive Order proposes 50% of new car sales to be electric by 2030
- Over 40,000 charging plugs in the U.S.
 - Infrastructure bill proposes \$7.5 billion for EV initiatives targeting installation of 500,000 charging stations



Regional Light-Duty EV Projections





What Drives Growth

- Supportive regulatory frameworks:
 - Zero Emission Vehicle programs, executive orders, legislation
- Incentives and rebates:
 - Direct purchase incentives and tax deductions
- Declining battery costs:
 - Reduced by 13% in 2020, expected to reach below \$100/kWh

- Improved EV range:
 - Most new models offering 200-500 miles range
- Increased availability of car options, prices, styles:
 - 370 electric car models were available in 2020 worldwide
- Growth in charging infrastructure:
 - ~85 Local charging stations



EPE Initiatives and Key Collaborations

- Customer Outreach and Education
 - EV Community and educational webpage
 - Informational sessions with homebuilders and apartment associations
 - HOME Ride and Drive Events, tenant surveys
 - EPCC EV maintenance curriculum development
- Local Dealerships
 - GoEV Savings Program
 - Salesforce training
- EV Time-of-Use rates
- Company fleet transition
- Grant Applications to TCEQ
- NM Transportation Electrification Plan
 - Grid Impact study to evaluate EPE's infrastructure readiness





EPE Initiatives and Key Collaborations

- Camino Real Regional Mobility Authority
- El Paso Chamber of Commerce
- Borderplex Alliance
- City of El Paso
- UTEP

Potential Opportunities

- El Paso Airport Electrification
- EV Ride Sharing Pilot
- Project Amistad Shuttle Electrification Pilot
- School Districts Bus Electrification with Vehicle-to-grid (V2G) capabilities







Public Charging

Most public charging stations are Level 2 or DC Fast Charging

Level 2 Charging:

- Uses pedestal, wall- and polemounted station with 208/240volt.
- Adds 10 to 30 miles of range per hour

DCFC Charging:

- Uses pedestal station with 400 to 1,000-volt
- Adds 150-1,000 miles of range per hour



Public Charging Stations for Downtown El Paso

Alignment with City's Strategic Plan

- Goal 6.12 Create a real-world laboratory environment to <u>explore scalable smart</u> <u>technology</u>
- Goal 7.2 Improve competitiveness through <u>infrastructure improvements impacting quality</u> of life
- Goal 7.5 Design and implement <u>infrastructure projects that maximize co-benefits</u>, simultaneously addressing climatic and social stressors such as flooding, heat and energy, and citizen mobility
- Goal 8.4 Create and implement the <u>Urban Energy Plan</u>
- Goal 8.5 *Improve air quality* throughout El Paso



Public Charging Stations for Downtown El Paso

- Charging Station Commitments
 - EPE will provide:
 - Level 2 Charging Stations
 - Infrastructure Upgrades
 - 10 years of Operations and Maintenance
 - Anonymized usage data
 - Requesting the City to provide:
 Parking spaces at no cost to EPE



Public Charging Stations for Downtown El Paso

- Proposed Locations
 - Identified in collaboration with City Staff and Downtown Management District
 - City Hall
 - Oregon Street (One-CoWorking space across from library)
 - Civic Center Parking
 - Cincinnati Avenue
- Path Forward
 - **EPE** to submit:
 - Special Privilege License Application to the City
 - EV Charging Tariff
 - City to review and approve project documentation
 - EPE to coordinate installation of stations



