Evergy Sustainability Transformation Plan (STP)

Grid Modernization Workshop

December 3, 2020

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Agenda

Agenda

- Sustainability Transformation Plan Overview
- Grid Modernization
  - Overview
  - Transmission Projects
  - Distribution Projects
- Summary

Sustainability Transformation Plan (STP)

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What is Evergy's Sustainability Transformation Plan (STP)?

- Evergy's five-year strategic plan accelerates work on creating a **forward-thinking, sustainable energy company**
- Focused on additional **decarbonization, grid modernization and cost competitiveness**
- Positions the company to increase **operational efficiencies, optimize capital allocation and deliver attractive investment opportunities**

Stakeholder Benefit of the STP

CUSTOMERS

- ✓ **Maintains Affordability**
  - Capital investments targeted to enable long-term and sustainable cost savings of an expected ~25% non-fuel O&M reduction by 2024
  - Significant fuel and purchase power savings of ~$145M from 2019 through 2024
- ✓ **Improves Customer Experience**
  - Enables automated outage communications
  - Expands digital communications, transactions and customer self-service options
  - Modernizes rate structures to offer additional rate options tailored to different types of residential customers
- ✓ **Improves Reliability & Resiliency**
  - Capital investments in replacing aged infrastructure, grid automation, data handling / analytics capabilities and communications infrastructure to improve grid reliability, reduce restoration times and increase overall grid resiliency

COMMUNITY

- ✓ **Provides Regionally Competitive Rates**
  - Cost savings minimize rate increases over the period of the plan and is expected to improve regional rate competitiveness
- ✓ **Enhances Economic Development**
  - Job creation as a result of investments in grid modernization projects and renewable generation
  - Investments in renewable energy and grid modernization will help attract companies by improving cost competitiveness, reliability and overall sustainability
- ✓ **Honors Community Commitments**
  - Maintains Evergy's 'People First' culture
  - No merger-related involuntary layoffs
  - Maintains local control and current community involvement and investments
  - Honors existing regulatory agreements while providing a safe work environment for employees and meeting the needs of customers

ENVIRONMENT

- ✓ **Delivers Cleaner Energy**
  - An Integrated Resource Plan that builds on Evergy's focus on sustainability with increased investment in renewable energy, including solar energy, and battery storage and expanded energy efficiency programs
  - Pursues legislative and regulatory policy changes that would allow for more rapid decarbonization through accelerating retirement of coal plants
  - Investments in grid modernization will enable easier access to and development of distributed generation and customer facing grid-edge technology
- ✓ **Engages Stakeholders**
  - A robust process to engage our customers, regulators, employees and shareholders in Evergy's transformation to a low-carbon, resilient utility

Key Areas of STP

1. **Grid Modernization:** Create detailed plans to execute on grid modernization which promotes improved resiliency and grid capabilities
2. **Cost Efficiencies:** Achieve O&M savings through well-documented and robust plans to improve efficiency
3. **Customer Experience:** Deploy technology and programs to enhance customer experience and availability of options
4. **Decarbonization:** Develop an Integrated Resource Plan (IRP) which balances the needs of various stakeholders

Decarbonization will be discussed through IRP Stakeholder meetings

Grid Modernization Overview

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Industry Focus on Modernizing the Grid

Utilities across the U.S. have been developing and implementing Grid Mod programs in recent years

- Replacing aging equipment reaching end of life to minimize equipment failures
- Adding new technologies to meet the needs of customers - Digital Sensors, Meters, Automation and Communications

Why We Need Grid Modernization

- Creates lower long-term operating costs, greater grid resiliency and enhanced security from threats
- Enables decarbonization by improving renewable deliverability and strengthening grid for future fossil retirements
- Links capital investments to customer-centric performance and benefits
- Upgrades aging infrastructure nearing or exceeding useful life
- Adapts to changing generation landscape with integration of less dispatchable resources, such as wind, solar and storage, to enable decarbonization
- Responds to changing load nature with customer equipment increasingly sensitive to interruption of service
- Enhances grid operational flexibility and resilience to severe weather impacts

Building a Connected Grid

Transmission lines

Transmission lines & communications infrastructure connect the Grid and new energy resources (e.g., wind)

New infrastructure is required to **unlock decarbonization & enhance communications** equipment

Substations

Substation sensors and smart transformers to help perform MM&C Bi-directional flows of power, while monitoring Grid performance

Smart connections & IoT to help **manage power flows & monitor energy** levels

Distribution lines

Poles with smart reclosers, capacitor banks & other assets can enhance automation & data collection across the Grid

Smart assets are required to **develop automation & unlock key use cases** like VVO and outage management

Smart devices

Smart devices integrate resources & customers onto the Grid and provide power quality data

Smart devices can **minimize disturbances** on the grid and provide **real-time data** on energy use and problems

Customer DER & EVs

Residential customer with smart home, rooftop solar, EV

Commercial building with battery and EV parking lots

Sensors & connectivity will become essential to **integrate new customer choices**

Leveraging Technology to Increase Capability

Best in class common software platforms

Leveraging industry best software platforms in Enterprise Asset Mgmt (EAM), Energy and Outage Management Systems (EMS and OMS), Geospatial, Mobile, ADMX (Advanced Distribution Management), and Meter Data Mgmt. Some functionality delivered:

- **Common system integration**
- **Better grid control & monitoring**

Reservoir of data for real-time grid management and data analytics

Culmination of software platforms and smart devices leads to robust data repositories. Some functionality delivered:

- **Proactive grid management**
- **Data driven decisions**

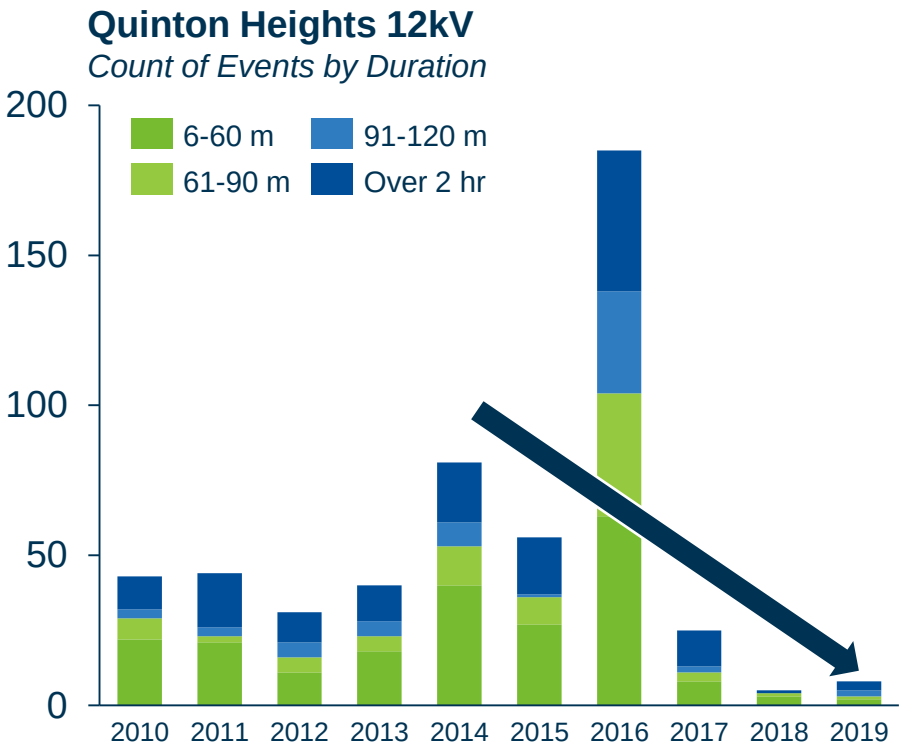
IoT smart devices / sensors to gather data and manage the grid

Sensors gather data on performance and condition, historically done manually. Smart devices provide greater self-healing capabilities. Some functionality delivered:

- **Asset condition & outage data**
- **Enhanced grid configuration and control**

Evergy's Previous Grid Modernization Efforts

- KCC approved funding for a 16-month, $50M Grid Resiliency pilot for work performed between October 2015 and March 2017
  - Program addressed aging infrastructure causing an increase in frequency of outages and degraded customer experience
- Upgrades spanned many assets across a large geographic area
  - Specific circuit targeted in pilot showed dramatic reduction in outages after the upgrade
- Evergy and KCC Staff agreed that a programmatic approach to address the reliability of the distribution system and correct deficiencies is in the public interest



Planned Infrastructure Investment

$5.6B in Capital Expenditures Planned in Kansas, with about $3.5B of that in transmission, distribution and IT to support Grid Mod (2020-2024)

Breakdown of Kansas Grid Mod Capital Spend

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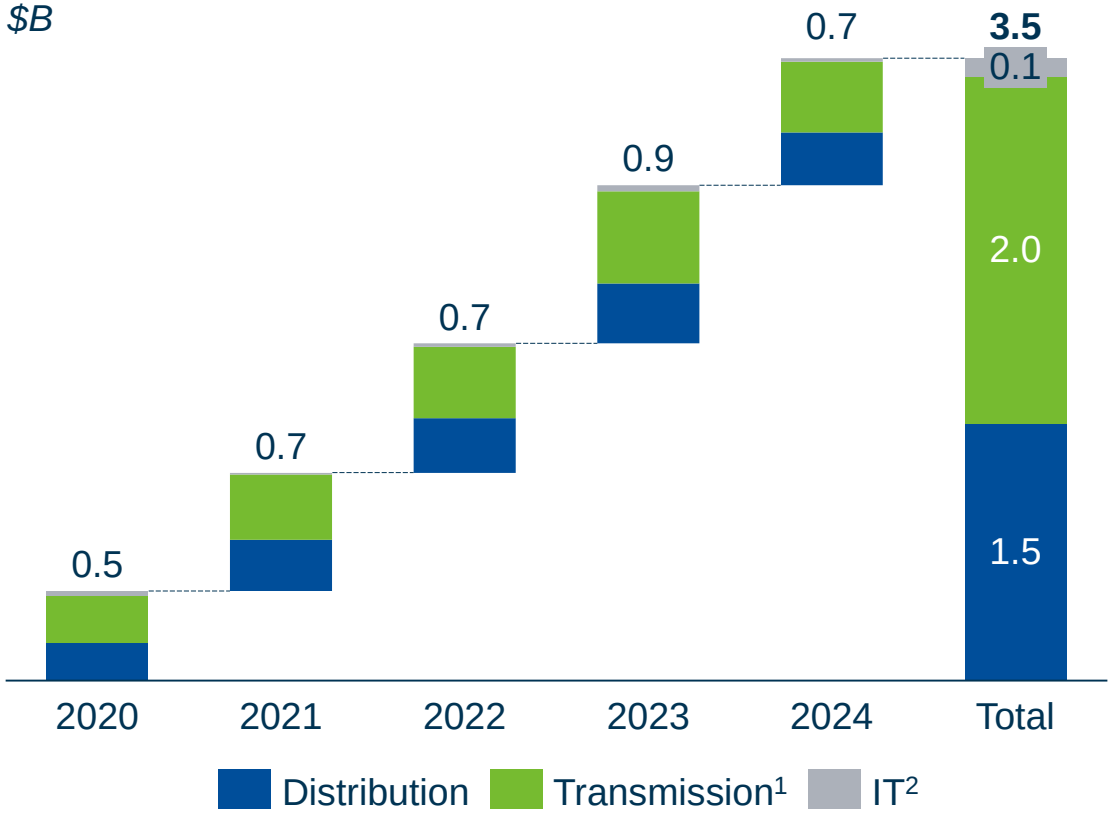


Investment Highlights

- Coordinating grid modernization across T&D and IT to ensure alignment of field upgrades and supporting system / comms infrastructure
- Through detailed planning process (upcoming slides), working to select specific projects which best support grid modernization goals
- Remaining KS investment is spread across generation and other general facilities

Note: Breakdown provided here is a subset of T&D and General CapEx reported in SEC Filings which is based on forecasted spend in Kansas and which uses a "functional" definition of T&D as opposed to a FERC Accounting definition

1) Exact split for Evergy Kansas Metro transmission vs. distribution is not available in SEC reported forecasted capital spend, but is estimated directionally here; 2) Includes estimated KS IT spend related to Grid Mod / T&D

Disciplined Planning Process

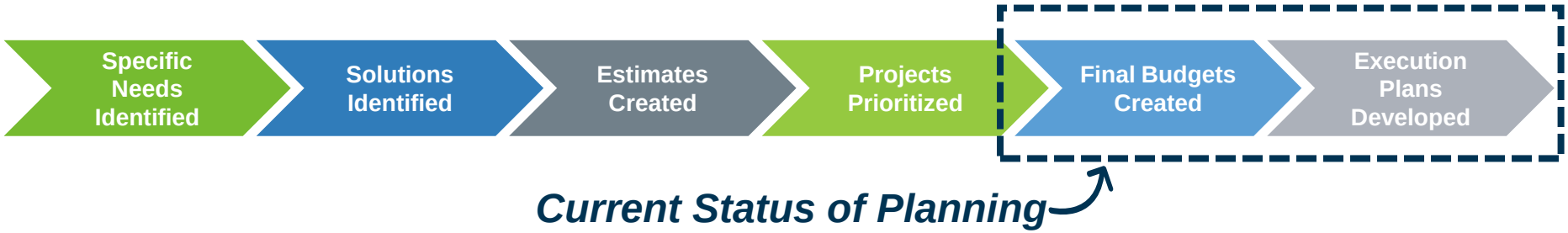
Specific Needs Identified	Solutions Identified	Estimates Created	Projects Prioritized	Final Budgets Created	Execution Plans Developed

"Needs" can be a mix of:
• New customers / customer **growth**
• **Capacity** needs for current and future loads
• Need for **contingency** options to increase resiliency
• Historical **reliability** issues causing customer outages and/or increased maintenance costs
• Changes in generation mix requiring investment for stability and reliability
• Aging **asset condition** or asset not aligning with current standards
 	
Not exhaustive
	Needs can be addressed through specific **projects** or through **programs**
	
	• **Projects:** Targeted effort on a part of the system which addresses one or more needs
	  • Projects are evaluated based on the benefits they provide across multiple categories
	• **Programs:** Overall efforts targeting a specific asset type (e.g., breakers) across one jurisdiction
	  • Individual assets within a program are generally prioritized based on condition, reliability, and criticality
		Engineering Estimates are created to define funding required for each **project**
		
		Program amounts are estimated based on overall needs within that asset category
			Projects and Programs are prioritized and moved between years based on:
			
			• Relative **benefits** provided by different solutions
			• **Funding availability** by year
			• Project **interdependencies** or timing requirements
			• **Labor availability** for execution in different areas
				Prioritized projects and programs are combined with annual, recurring budget items (defined below) reviewed with **cross-functional team** (T&D, Generation, IT, Customer, Finance) prior to incorporation into final budget	Based on final budgets, plans are created for labor and materials required for execution
					
					Will be described in more detail on next slide

Resource Requirements

Labor 	**Baseline and forecast labor requirements**	• Design and Engineering requirements forecasted to ensure design readiness far ahead of increased spend • Construction labor forecast built to total internal & contracted needs across T&D based on overall capital and type of project spend divided by jurisdiction • Specialized labor requiring long apprenticeships has been specifically forecasted
	Outline a robust labor strategy	• Set guidelines around strategies
	Design pricing and policies to incentivize labor	• Contracting strategies will be utilized to resource the workload • Since any interruption in contractor capacity due to storms elsewhere could have a large impact on the ability to close capital on time, constant resource monitoring and adjustments will be necessary
	Engage in contractor partnership	• Engage contractor vendors that will help ensure that we have significant resources and minimal delays for capital deployment
Materials 	**Baseline and forecast long-term materials requirements**	• Create a long-term outlook of material resource requirements to give procurement & supply chain insight into future projects & supplier negotiations
	Build trusted supplier discussions in-line w. demand	• Provide long-term (through 2024) estimates of increased demand around materials to a set of trusted suppliers to they can plan ahead to meet this demand • Develop notification process to keep suppliers integrated into project backlogs and future capital plans
	Lock-in trusted suppliers with the right terms	• Leverage the long-term materials forecast to improve bargaining power with guaranteed materials procurement and bulk orders
	Set guardrails for procurement within the larger EPC strategy	• Build out the outsourcing strategy to ensure materials are priced appropriately, but can still be included as part of the contracting strategy; align with Procurement on these guardrails

Current Grid Modernization Planning Outlook



- Have identified specific needs and solutions to align with STP objectives
- Prioritized project opportunities and developed proposed budget (will be reviewing details & breakdown today based on this *proposed* budget)
- Began developing execution plans subject to final budget approval
- Completing budget process to finalize budget and 5-year plan for execution

Transmission

Transmission Infrastructure Investment Benefits

- Improves resiliency to allow for quicker restoration of power to customers after extreme or unplanned events
- Enables decarbonization by improving renewable deliverability and strengthening grid for future fossil retirements
- Enables online condition monitoring of substation equipment which allows for quicker response and improved reliability
- Promotes continued operational efficiencies through improved reliability and asset data quality for predictive analysis
- Reduces energy losses
- Promotes economic development

Transmission Planning Progress

Kansas Transmission 2020 – 2024 Preliminary Proposed Budget
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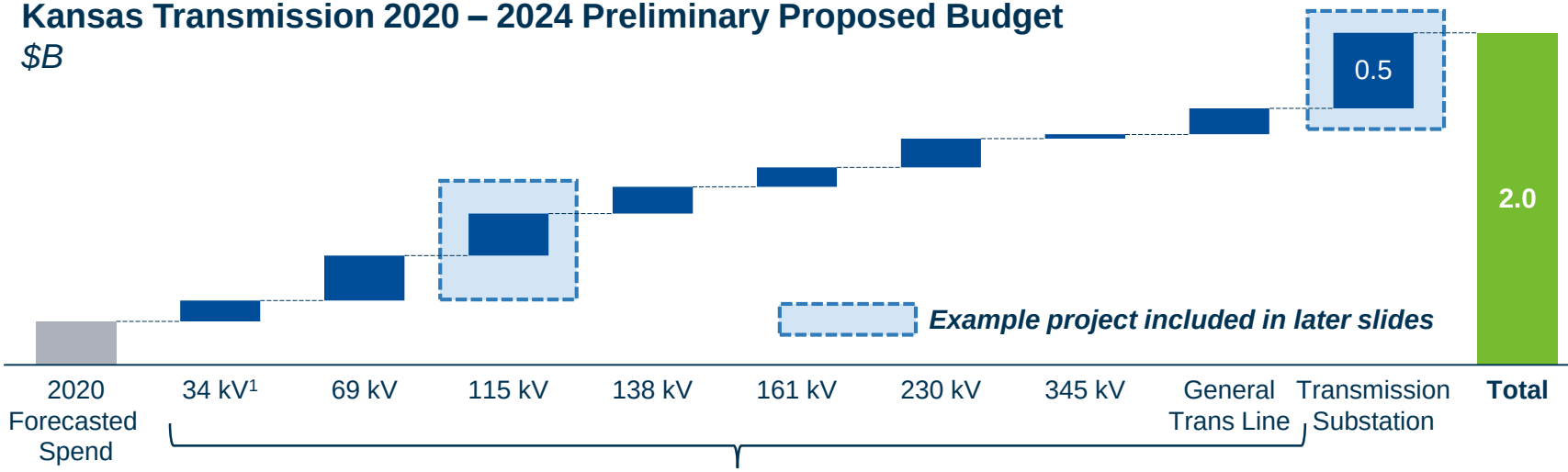


Transmission Line Projects (2021-2024 Total)[2]: $1.3B

- Identified projects include a mix of programmatic asset replacements (for line & sub assets), specific projects identified to improve reliability/resiliency, and required regulatory projects
- Projects have been prioritized by Planning, Asset Management, and Operations and are in the process of being finalized in capital budget and forecast

1) 34 kV is only included in Transmission for Evergy Kansas Central; 2) Breakdown by voltage is estimated and indicative as projects can span multiple voltage classes

Transmission Aging Infrastructure Data

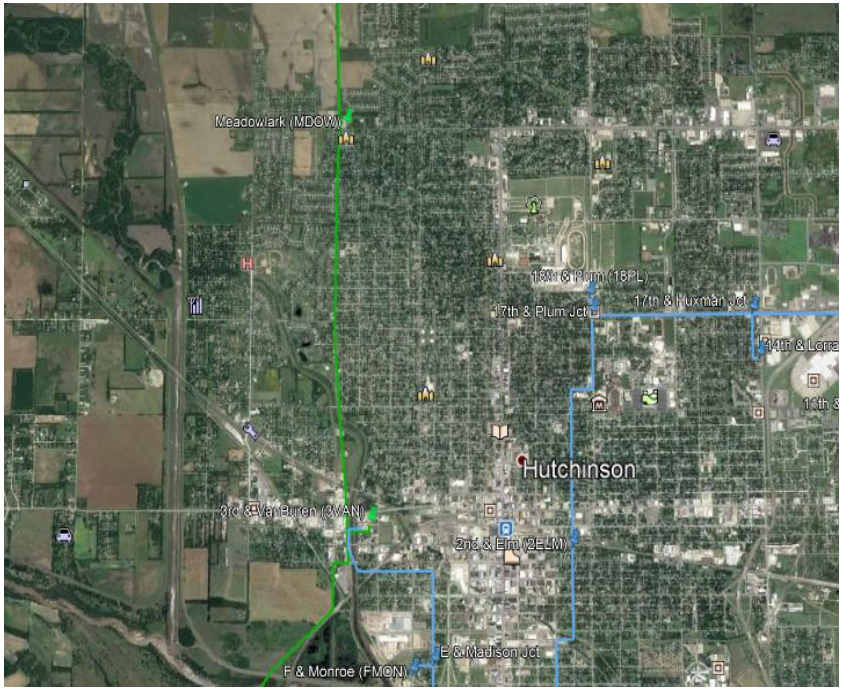
Key Asset Types	Average Age (years)		Expected Life (years)
	Kansas Central	Kansas Metro	
Wood Poles	41	36	40-45
Overhead Conductor	44	-	50
Substation Transformer - Non-LTC	50	39	45-50
Circuit Breakers - Air	52	43	50
Circuit Breakers - Oil	48	52	50

Project Deep Dive – 3rd & Van Buren-Meadowlark

Scope
- Rebuild 2.27 miles of 115 kV line from Meadowlark – 3rd & Van Buren in Hutchinson, KS
- In-Service Date: 6/1/2021
- Current Estimate: $6 million

Drivers
- Installed in 1929 (~91 years old)
- Current transmission structures are steel lattice towers and will be upgraded to current standards
- Allows replacement with higher ampacity conductor and addition of fiber

Benefits
- Higher ampacity conductor will increase capacity and fiber will improve communications and system protection
- Asset upgrades and improved relaying will improve reliability



3rd & Van Buren-Meadowlark 115kV rebuild

Project Deep Dive: Hillsboro-Florence Junction 115 kV

Scope

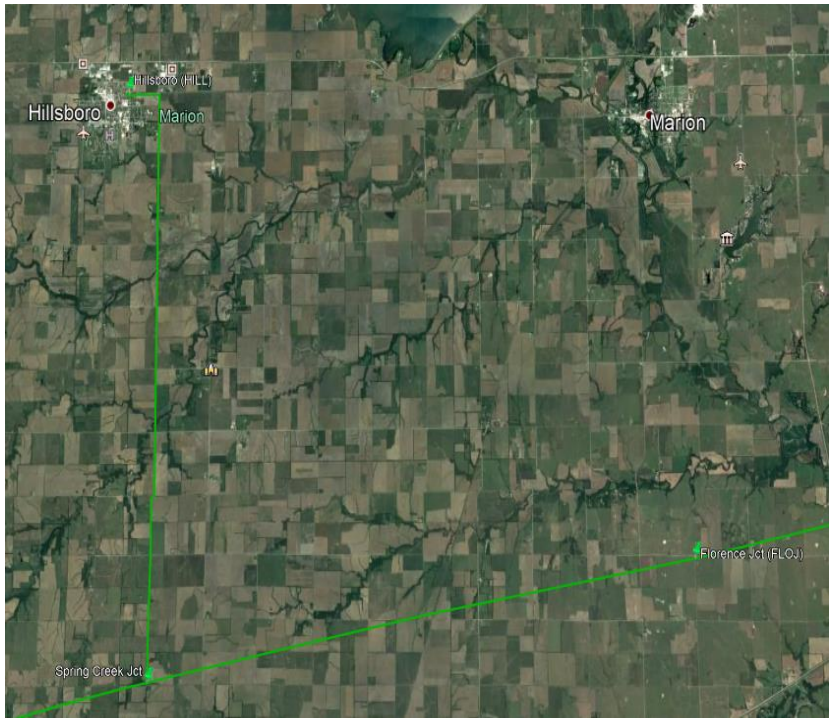
- Rebuild Hillsboro Substation as a 115kV in-and-out substation
- Construct a new Hillsboro-Florence Jct 115kV line
- Remove the Spring Creek Junction-Florence Junction 115kV line and 115kV switches at Spring Creek Junction
- In-Service Date: December 2022
- Cost Estimate: ~$31 million

Drivers

- The city of Hillsboro is currently fed from a 10-mile radial line out of Spring Creek Junction
- This line is tapped off of a 75-mile 115kV line that was built in 1949 (~71 years old)

Benefits

- Reduces system exposure and adding breakers will increase reliability to the area



Hillsboro-Florence Junction 115 kV rebuild

Distribution

Distribution Infrastructure Investment Benefits

- Enables future grid transformation toward distributed resources and electrification
- Improves resiliency to allow for quicker restoration of power to customers after extreme or unplanned events
- Promotes continued operational efficiencies through improved reliability and increased automation
- Provides better system awareness and real-time visibility
- Reduces energy losses
- Promotes economic development

Distribution Planning Progress

Kansas Distribution 2020 – 2024 Preliminary Proposed Budget[1]

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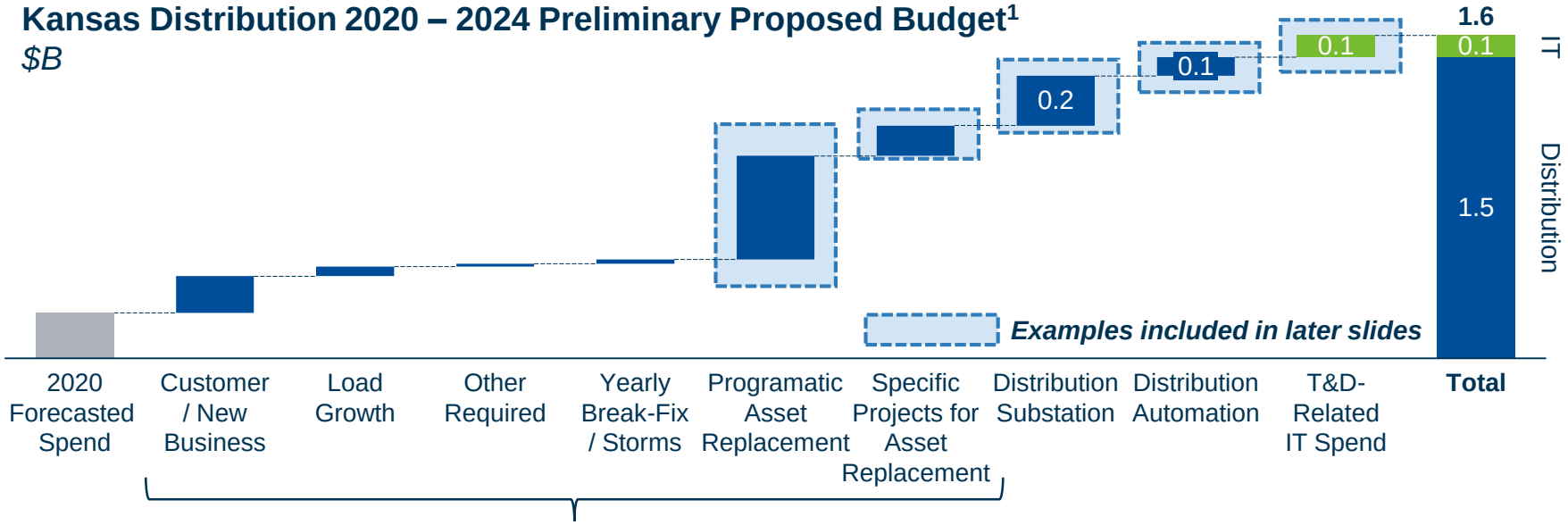


Distribution Line Projects (2021-2024 Total): $0.9B

- Projects have been identified based on a variety of key drivers which promote the replacement of aged assets and continued improvements to system resiliency
- Relevant IT projects span both Transmission and Distribution, but are key to support the expansion of advanced grid capabilities going forward
- Currently working to finalize budget and forecast based on this view of prioritization

1) Allocation across different drivers is estimated and directional as projects / programs can have multiple drivers

Distribution Aging Infrastructure Data

Key Asset Types	Average Age[1] (years)		Expected Life (years)
	Kansas Central	Kansas Metro	
Overhead Conductors	37	37	30
Underground Conductors	24	23	30
Poles	39	37	40-45
Line Transformers	26	34	20
Padmount Transformers	20	26	20

1) Average age approximated on some assets

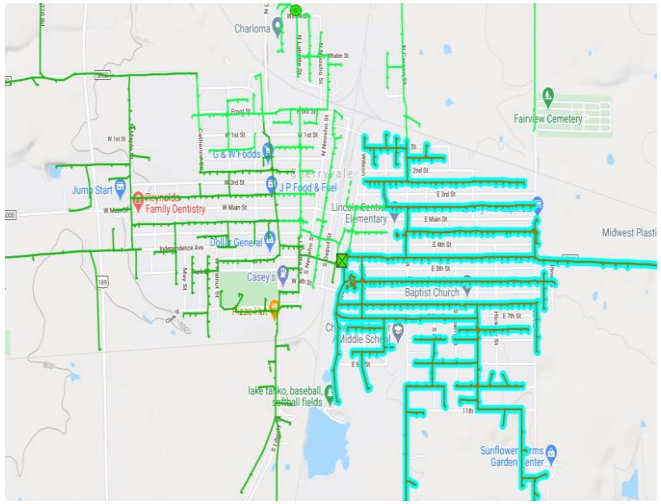
Project Deep Dive - Cherryvale Conversion Project

Scope

- Installation of two 14 MVA 69/12 kV transformers
- Substation duct bank
- One mile of 12 kV overhead rebuild
- 300 distribution transformers replacements
- In service: June 2022
- Cost: ~$9M

Drivers

- Upgrades substation equipment and distribution facilities that date back to 1937
- The existing non-standard 4kV substation and equipment is antiquated and is nearing end-of-life
- The existing 4 kV substation supporting the town of Cherryvale will be converted to 12 kV



Benefits

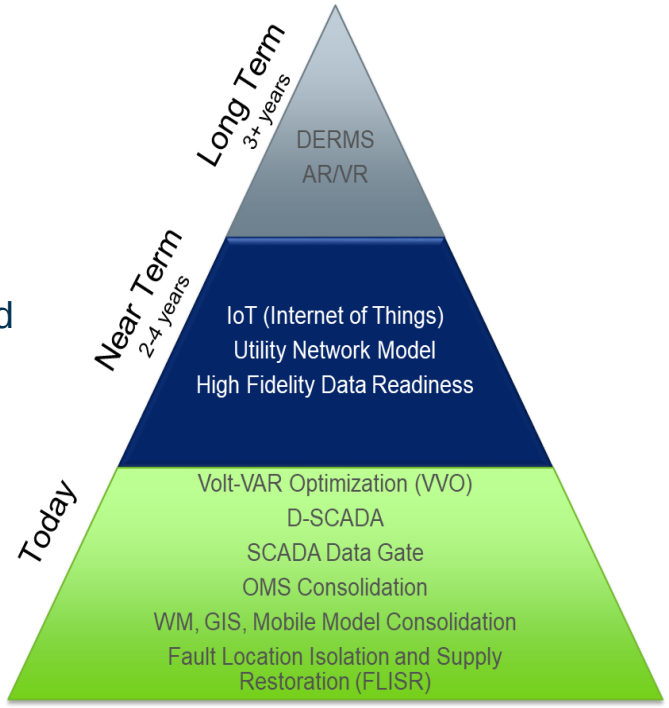
- Increases area reliability
- Eliminates non-standard failing equipment
- Reduces restoration time during contingency events

Advanced Distribution Management (ADMX)

Scope
- Software and applications associated with grid control and management
- Implement systems that execute and support grid automation
- In service: December 2025
- Cost: ~$60M

Drivers
- Freedom to independently execute each module of an Advanced Distribution Management System (ADMS) – Evergy's "ADMX" – solution in coordination with grid device deployment
- Create a plug & play ecosystem of control, geospatial and situational awareness applications
- Adapt to advances in centralized and grid edge control architectures

Benefits
- Supports advancements in technology and data
- Coincides with grid device deployments
- Increases grid efficiency, reliability and security
- Reduces restoration time during outage events
- Manage voltage profiles to support peak demand reduction



Summary

STP T&D Capital Investment Summary

Evergy will invest ~$3.5B in Grid Mod in Kansas through 2024

Breakdown of Kansas Grid Mod Capital Spend

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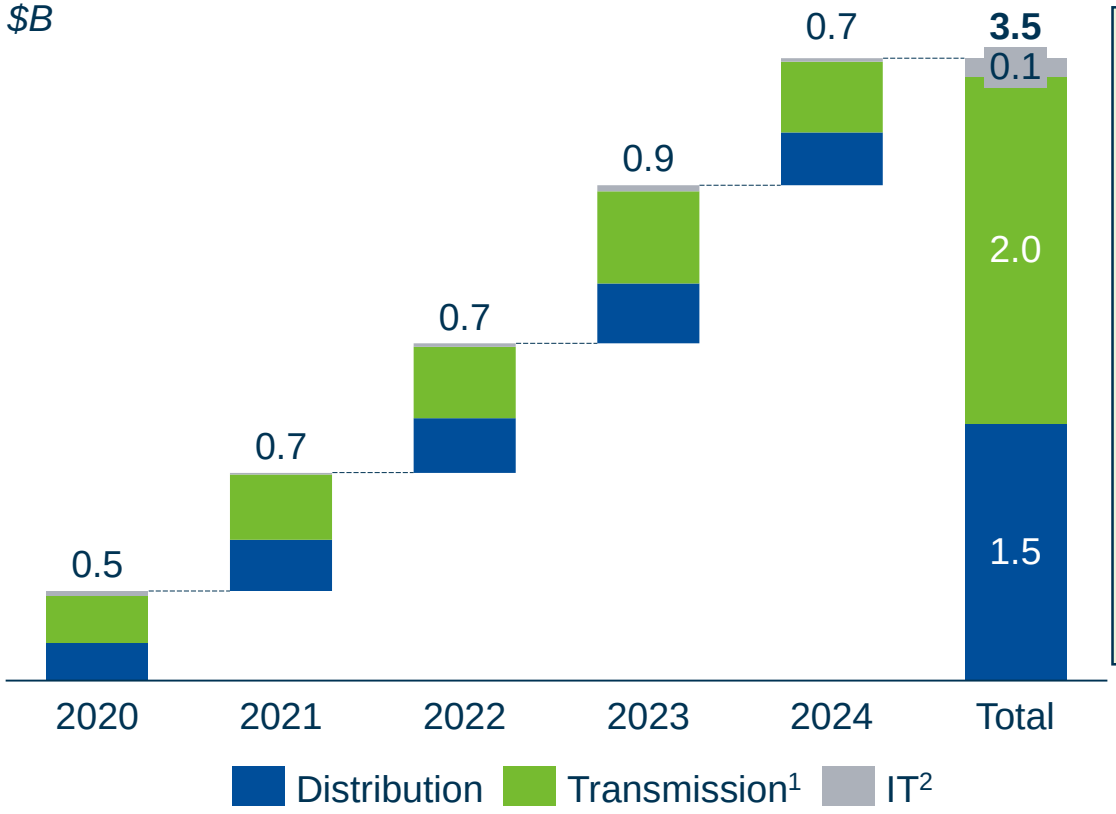

Next Steps

- ☐ Continue stakeholder engagement through STP Workshops
- ☐ Finalize detailed budgets and forecasts
- ☐ Continue execution planning and begin to execute on detailed plans
- ☐ File 5-Year Capital Plan in February

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The STP Strengthens the Grid, Prepares for the Future

- Creates lower long-term operating costs, greater grid resiliency and enhanced security from threats
- Enables decarbonization by improving renewable deliverability and strengthening grid for future fossil retirements
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