



**LCRA Board Work Session
DRAFT**

**FISCAL YEAR 2020
BUSINESS AND CAPITAL PLANS**

LCRA TRANSMISSION SERVICES CORPORATION

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The LCRA TSC Board is appointed by the Lower Colorado River Authority Board and serves at the LCRA Board's will. The current membership of the LCRA TSC Board is made up entirely of the existing LCRA Board. The LCRA TSC directors meet regularly to set strategic corporate direction for the president and CEO, to approve projects and large expenditures, and to review progress on major activities and industry issues.

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These business and capital plans present a long-term vision and summary of operational plans for LCRA Transmission Services Corporation. The business and capital plans should not be used as a basis for making a financial decision with regard to LCRA TSC or any of its securities or other obligations. These business and capital plans are intended to satisfy the official intent requirements set forth in IRS Treasury Regulations Section 1.150-2. For more complete information on LCRA TSC and its obligations, refer to LCRA TSC's annual financial report, the official statements relating to LCRA TSC's bonds, and the annual and material event disclosures filed by LCRA TSC with nationally recognized municipal securities information repositories and the State Information Depository pursuant to Rule 15c2-12 of the U. S. Securities and Exchange Commission. The information in this report and within each of the documents referenced applies only as of the report's date. The business and capital plans include forecasts based on current assumptions used for planning purposes only and are subject to change. Copies of the documents referenced in this report may be obtained from Stephen Kellicker, senior vice president of Finance, LCRA, 3700 Lake Austin Blvd., Austin, TX 78703.

Introduction

LCRA Transmission Services Corporation is a nonprofit corporation that serves electric service needs across Texas with a robust network of transmission lines and substations. LCRA TSC has no employees, but contracts with LCRA to provide the services and products necessary for LCRA TSC to achieve its vision and objectives.

Vision: Maximize value to our stakeholders through an uncompromising commitment to safety, our employees and system performance.

Objectives:

- Keep the safety of our employees and the public our top priority; nothing we do is so important it can't be done safely.
- Optimize and develop system assets to support customer needs in Texas.
- Provide cost-effective transmission and telecommunication services.
- Achieve targeted levels of system availability, performance and efficiency.
- Expand production flexibility and capabilities through the effective management of internal and external resources.
- Ensure our efforts align with our business objectives, and coordinate our activities effectively throughout LCRA.
- Empower and develop our team members to be proactive, innovative and accountable to make every LCRA endeavor outstanding.

Since LCRA TSC was created in 2002, the organization's revenues primarily have been reinvested in the transmission system, under the oversight of the Public Utility Commission of Texas.

LCRA TSC funds capital improvements to its transmission system with revenues collected above those required to cover:

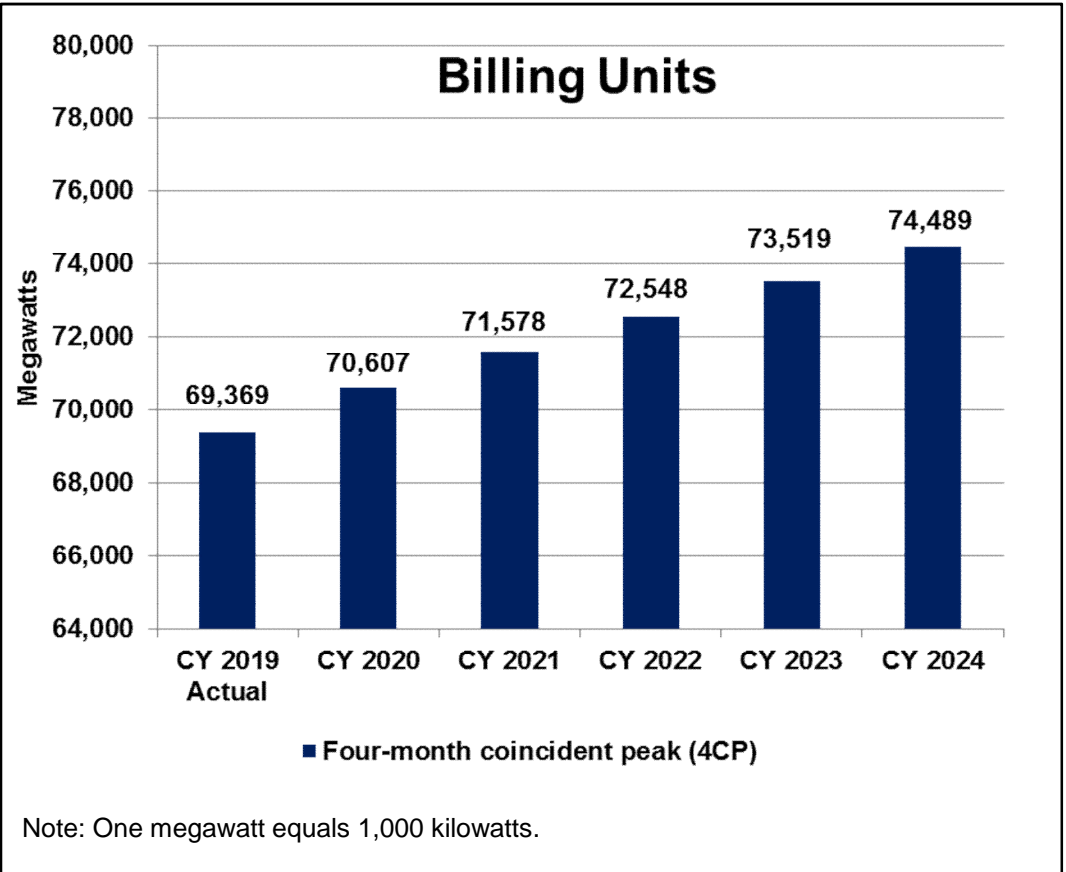
- Operating costs (including sales and property taxes).
- Debt service.
- Funding of reserves.
- LCRA TSC's portion of LCRA's Enterprise Support capital costs.
- LCRA TSC's portion of LCRA's corporate expenses.
- Contributions to the Public Service Fund and the Resource Development Fund.

Texas is growing, and with that growth comes an increasing need for reliable transmission services across the state. As demonstrated by the capital improvements outlined in these business and capital plans, LCRA TSC is committed to meeting the growing need for power and continuing to enhance the lives of the Texans it serves.

Billing Units

LCRA TSC's billing unit is the four-month coincident peak (4CP) in the Electric Reliability Council of Texas market.

- 4CP is the average of the peak ERCOT electrical demands (measured in kilowatts) during the months of June, July, August and September of the previous calendar year.
- The PUC approves the average of these four ERCOT system peaks each year to establish a 4CP for the following calendar year.
- 4CP is forecast to grow about 1.3% per year across ERCOT.

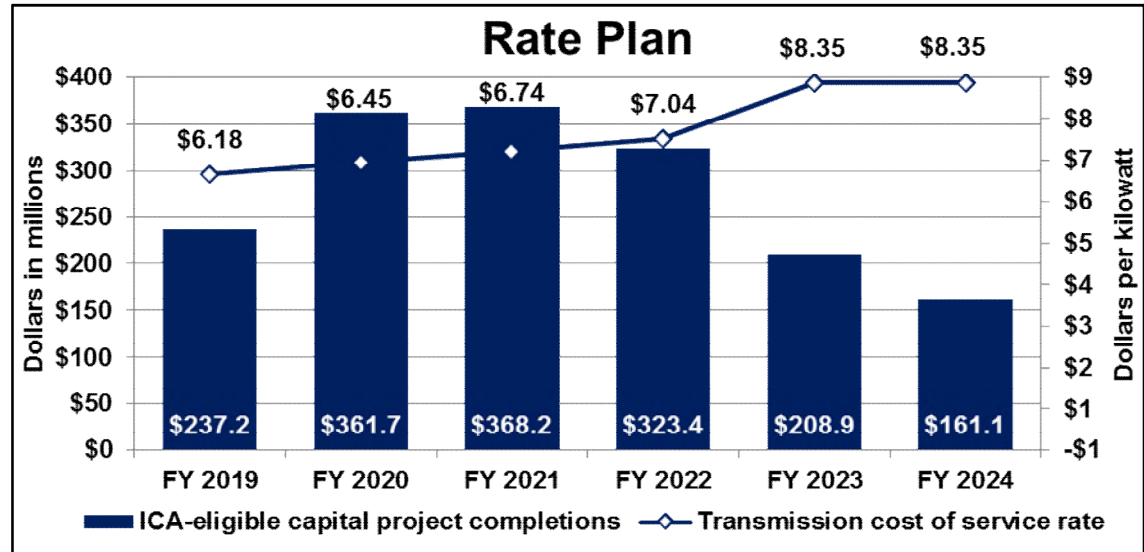
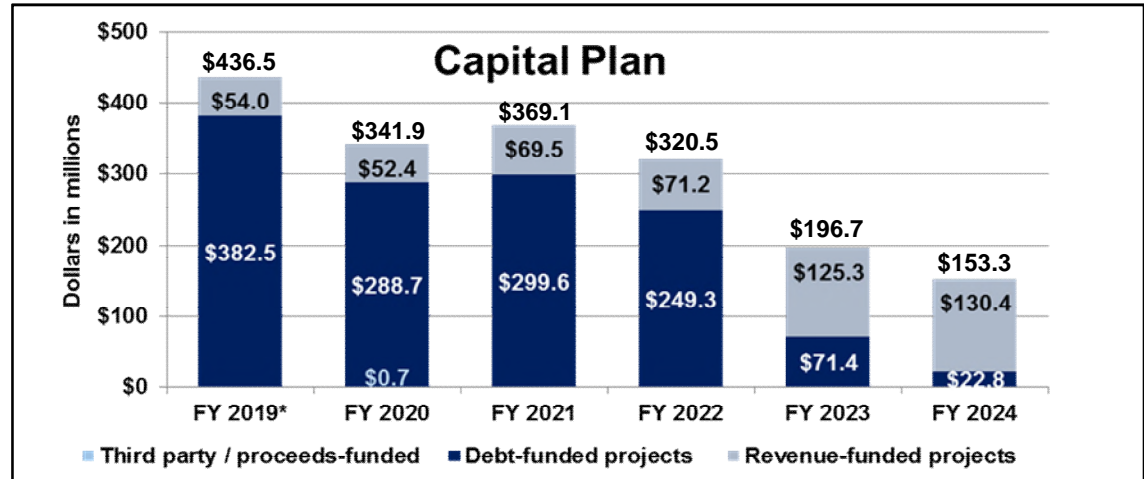


Capital and Rate Plans

We're growing the transmission system to meet customer needs:

- LCRA TSC plans to spend about \$1.4 billion on capital projects over the five-year planning period to support the needs of the ERCOT and LCRA TSC systems.
- LCRA TSC plans to recover its investment in capital costs for projects that are completed and energized through interim capital addition (ICA) filings in FY 2020 through FY 2024. Additionally, LCRA TSC plans to file a transmission cost of service rate case using a FY 2021 test year with new rates going into effect in FY 2023.
- LCRA TSC will continue to recover costs associated with additional projects beyond FY 2024 after they are completed and energized.

*Note: The LCRA Board of Directors in January 2019 approved the amended capital spending limit for LCRA TSC for FY 2019.



Financial Summary

- LCRA continues to expand the Transmission organization, adding staff and equipment needed to increase its current capacity to operate and construct facilities for LCRA TSC and provide customer services.
- LCRA TSC plans to manage costs to maintain its debt service coverage ratios between 1.36x and 1.50x.

(Dollars in millions)

	Budgeted	Proposed	Forecast			
	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Revenues	\$ 425.8	457.5	487.7	518.1	628.9	641.7
Operations and Maintenance	110.9	117.9	124.4	129.2	128.0	131.6
Net Operating Margin	314.9	339.5	363.3	388.9	500.9	510.0
Plus: Interest Income	3.8	5.6	6.6	6.8	6.9	5.6
Less: Assigned Enterprise Expense	48.1	51.0	49.7	54.5	61.3	63.9
Public Service Fund	12.8	13.7	14.6	15.5	18.9	19.2
Resource Development Fund	8.5	9.1	9.8	10.4	12.6	12.8
Net Margin Available for Debt Service	249.3	271.3	295.8	315.3	415.2	419.7
Debt Service	\$ 180.4	199.1	211.5	229.9	277.7	279.2
Debt Service Coverage	1.38x	1.36x	1.40x	1.37x	1.50x	1.50x
Net Margin After Debt Service	\$ 68.9	72.2	84.3	85.3	137.5	140.4
Less:						
Operating Reserves	4.6	5.7	3.9	6.2	7.2	6.0
Assigned Enterprise Capital	8.4	12.2	16.3	13.9	11.4	11.2
Revenue-Funded Capital	54.0	52.4	69.5	71.2	125.3	130.4
Transfer to LCRA ¹	7.3	6.7	1.1	1.1	1.1	1.1
Plus:						
Amortization of Enterprise/Minor Capital ²	5.4	4.9	6.5	7.1	7.6	8.4
Net Cash Flow	\$ 0.0	0.0	0.0	0.0	0.0	0.0

¹ An initial transfer from LCRA TSC to LCRA was authorized by the LCRA and LCRA TSC boards of directors in April 2014. Under the initial contractual commitment, the LCRA and LCRA TSC boards must make an annual determination to authorize each year's transfer. Such annual transfers are payable only if all other financial commitments have been met as required by LCRA TSC's financial policies.

² In FY 2012 through FY 2018, LCRA TSC funded minor capital and its share of enterprise capital with current year revenues and included an amortization of the amount in each year to recover in rates. Starting in FY 2019, minor capital is included in LCRA TSC's capital plan.

Capital Plan

Approval of this capital plan authorizes the initiation of all recommended projects at their individually stated lifetime budgets as shown in the plan.

Board approval of this plan also authorizes the proposed \$341.9 million budget for fiscal year 2020 capital spending, which includes \$42.2 million for recommended projects and \$299.7 million for projects the Board approved previously.

FY 2020-FY 2024 Capital Spending for Recommended, Approved and Future Projects LCRA Transmission Services Corporation

(Dollars in millions)

	Budgeted	Proposed	Forecast						
			FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Five-Year Total
Recommended Projects	\$	42.2	124.6	53.8	0.5	0.0	221.1	221.3	
Approved Projects		299.7	178.4	87.3	47.1	0.0	612.5	1,059.1	
Subtotal Recommended and Approved		341.9	303.0	141.1	47.6	0.0	833.6	1,280.4	
Future Projects		0.0	66.1	179.4	149.1	153.3	547.9	774.4	
Total FY 2020 Capital Plan		341.9	369.1	320.5	196.7	153.3	1,381.5	2,054.8	
Comparison to Previous Plan									
Total FY 2019 Capital Plan		295.6	299.3	281.5	164.5	128.0	1,169.0	1,391.1	
Difference*	\$	n/a	(42.6)	(87.5)	(156.0)	(68.7)	n/a	(212.5)	(663.7)

* Difference for five-year total is based on a rolling five-year comparison, i.e, FY 2020-FY 2024 spending from the current plan compared to FY 2019-FY 2023 from the plan the Board approved in May 2018 (not compared to the amended FY 2019 spending limit the Board approved in January 2019 for LCRA TSC).

Capital Plan (Continued)

LCRA TSC's FY 2020 capital budget for recommended and approved projects is \$341.9 million. Of that amount, about 16% will be revenue-funded.

LCRA TSC's five-year total capital budget is about \$1.4 billion. Of that amount, about 33% is projected to be revenue-funded.

FY 2020-FY 2024 Capital Spending for Recommended, Approved and Future Projects LCRA Transmission Services Corporation

(Dollars in millions)

	Budgeted	Proposed	Forecast			
	FY 2019*	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
<u>Capital Expenditures</u>						
Debt-Funded	\$ 382.5	288.7	299.6	249.3	71.4	22.8
Revenue-Funded	54.0	52.4	69.5	71.2	125.3	130.4
Third Party or Proceeds-Funded	0.0	0.7	0.0	0.0	0.0	0.0
	\$ 436.5	341.9	369.1	320.5	196.7	153.3

* The LCRA Board of Directors in January 2019 approved the amended capital spending limit for LCRA TSC for FY 2019.

Capital Plan (Continued)

Capital Planning Approach

LCRA TSC's capital planning approach conforms to the corporation's Board Policy T601 – Wholesale Electric Service Policy, which requires LCRA TSC to provide nondiscriminatory wholesale electric service and open access in accordance with PUC rules, applicable tariffs, ERCOT requirements, North American Electric Reliability Corporation reliability standards and other LCRA TSC requirements. The following section highlights aspects of LCRA TSC's approach to planning for capital additions to its transmission system.

As a transmission service provider in ERCOT, LCRA TSC provides reliable transmission service to ERCOT ratepayers and open access to the transmission grid to eligible customers. PUC Substantive Rule 25.195b requires transmission service providers in ERCOT to “construct and place into service sufficient transmission capacity to ensure adequacy and reliability of the network to deliver power to transmission service customer loads.” The requirements to provide facilities to reliably meet existing and anticipated growth in electric system load and generation are key drivers for LCRA TSC's capital projects.

LCRA TSC develops its capital plan to meet the following industry requirements:

- Compliance with ERCOT market rules and NERC reliability standards for adequate and reliable transmission service.
- Compliance with PUC rules to provide transmission service to eligible transmission customers (e.g., other electric utilities, power marketers, exempt wholesale generators qualifying facilities) on the same terms and conditions under which it provides transmission service to itself.
- Compliance with PUC and ERCOT direction to construct transmission facilities to mitigate transmission grid reliability risks and to relieve congestion associated with the flow of power in ERCOT.
- Necessary improvements, based on defined planning and telecommunications criteria, to maintain the reliability, security and safety of LCRA TSC's electric system and minimize the consequences associated with equipment failures that cause electric service outages.

Capital Plan (Continued)

Capital Planning Approach (Continued)

The FY 2020 capital plan is the result of obligatory system assessments conducted annually to ensure continued long-term adequate and reliable electric service. LCRA TSC works closely with transmission customers directly connected to LCRA TSC facilities, other transmission and distribution service providers, generation entities and ERCOT to identify electric system needs that directly affect LCRA TSC. LCRA TSC's capital planning process results in the publication of the Transmission System Improvements Plan. As part of the TSIP process, LCRA TSC tests the reliability performance of its transmission and transformation facilities under normal and contingency conditions. LCRA TSC performs the tests with anticipated electric load levels, available generation capacity and known system conditions to ensure its transmission system meets internal, state and federal planning requirements.

LCRA's Transmission Planning staff develops a business case analysis for each recommended project. Staff evaluates each project that is developed and recommended in the TSIP based on technical merits to meet a system performance requirement. Staff conducts a least-cost analysis to assist in selecting the best, most cost-effective alternative. Certain projects require ERCOT review and, in some cases, ERCOT stakeholder review to ensure projects are effective and coordinated as needed at the broader regional level.

If facilities do not meet planning-level reliability performance requirements, staff explores cost-effective solutions. When feasible, staff analyzes multiple alternative solutions, including operating solutions. These solutions typically include modifications, upgrades and/or additions of substation or transmission line facilities. LCRA Transmission Planning staff also considers options that optimize the use of existing facilities, address multiple performance limitations and minimize the need to acquire new rights of way, when possible.

Staff also reviews any customer project that includes modifications to the Transmission Facilities and Premises Lease, in accordance with LCRA TSC's Wholesale Electric Service Policy requirements.

Capital Plan (Continued)

Cost Estimating

LCRA's Engineering staff develops cost estimates for planning alternatives using templates populated with costs for design, material procurement and construction of transmission line and substation infrastructure. These costs are based on the latest available material pricing and historical actual costs for labor activities. Staff uses these templates to revise cost estimates as project implementation information becomes more certain later in the project cycle after completing the conceptual design and before construction. Staff reviews the cost-estimating templates annually and updates them as additional information becomes available on the cost of materials and labor. For recommended capital plan projects, staff initially estimates costs based on a budgetary level of estimating, which reflects an accuracy between negative 10% and 25%. Therefore, actual project costs could range from 10% lower to 25% higher than the estimates. In accordance with LCRA TSC Board Policy T301 – Finance, if an approved capital project is expected to exceed its lifetime budget by 10% and \$300,000, additional funding approval will be required.

Capital Outlook

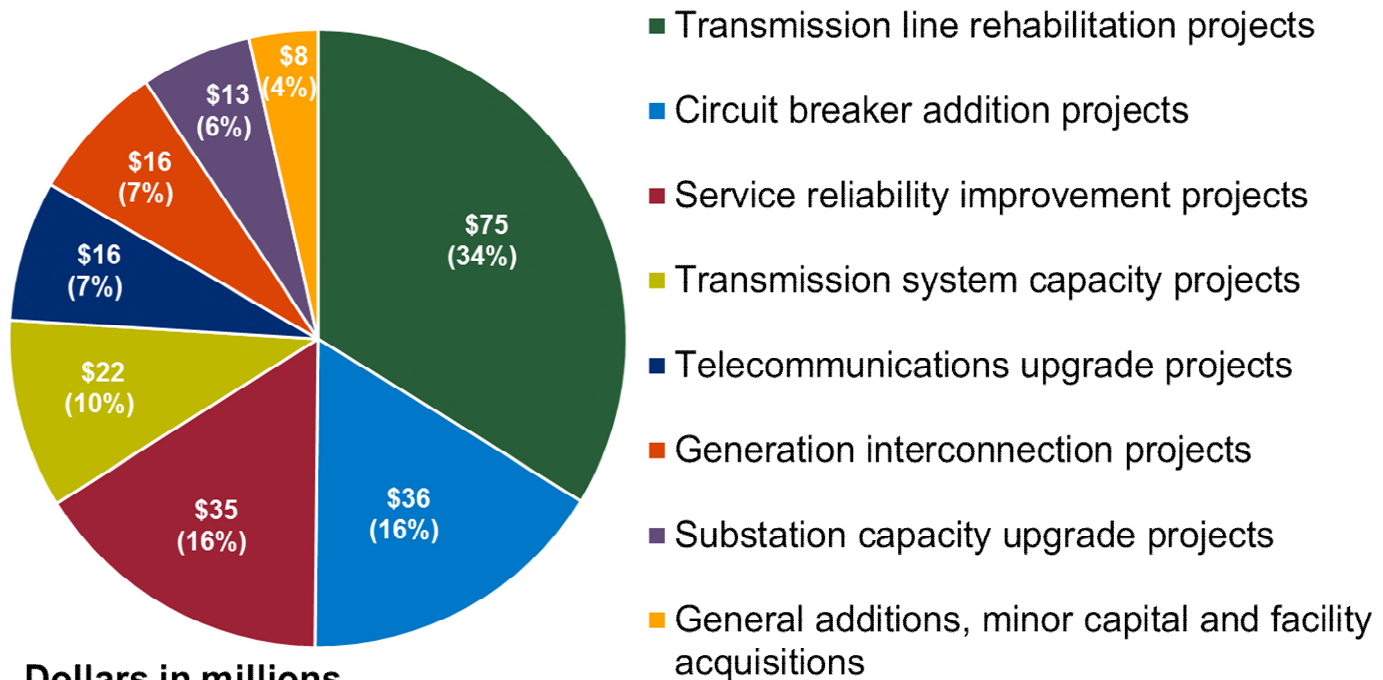
LCRA TSC will seek increases to its PUC-approved rates through an interim capital addition in early FY 2020 to recover the capital investment required to implement the FY 2020-FY 2024 capital plan. As projects progress, LCRA TSC funds capital expenditures through earned revenues or issued debt. LCRA TSC requests recovery from the PUC for capital expenditures through scheduled debt service payments incorporated into its transmission cost-of-service rate case filings. Between rate cases, LCRA TSC requests additional revenues using the interim capital addition approach based on increases in the base rate from the completion of capital projects. The PUC reviews the costs requested in interim filings during the rate proceedings. Previous rate cases have allowed 1.5 times coverage for scheduled payments on 30-year debt for capital projects. LCRA TSC plans to file five interim capital additions in the five-year planning period and one cost of service rate case filing.

Over the next five years, LCRA TSC will construct or upgrade transmission lines and substations. LCRA TSC has experience in successfully implementing capital plans of this magnitude and expects to finance the projects included in the FY 2020-FY 2024 capital plan using the same approach it has used to finance more than \$2.8 billion in net additions to the transmission system since LCRA TSC was created in January 2002.

Capital Plan (Continued)

Recommended and approved transmission projects total \$341.9 million in FY 2020 and \$833.6 million over the next five years through FY 2024. Future projects total \$547.9 million through FY 2024. Lifetime budgets for recommended LCRA TSC projects total about \$221.3 million.

LCRA TSC Recommended Projects Lifetime Budgets by Category



Dollars in millions

Capital Plan (Continued)

LCRA TSC FY 2020 Requested Project Budget Increases

Bakersfield to Solstice Transmission Line Addition (lifetime budget of \$78.1 million) – LCRA TSC requests approval to increase the Bakersfield to Solstice Transmission Line Addition project's previously approved lifetime budget by \$31.7 million from \$46.4 million to \$78.1 million. The LCRA TSC Board initially approved the project as an addendum to the FY 2018 capital plan. The budget increase is due to ERCOT adding a second 345-kilovolt circuit on the 35-mile transmission line, which resulted in additional substation costs. The project is a portion of the larger ERCOT Far West Texas Project, which is intended to serve the increased loads driven by industrial oil and gas-related development in the Permian Basin. LCRA TSC's project requires a Certificate of Convenience and Necessity, and the PUC is expected to issue its final order before the end of FY 2019.

Garfield Battery Bank Substation Upgrade (lifetime budget of \$1.5 million) – LCRA TSC requests approval to increase the Garfield Battery Bank Substation Upgrade project's previously approved lifetime budget by \$1.25 million from \$251,000 to \$1.5 million. The LCRA TSC Board initially approved the project in the FY 2019 capital plan. Austin Energy owns the control house and batteries at the Garfield Substation and shared them with LCRA TSC. The original project scope was for LCRA TSC to construct a separate stand-alone battery house. After the project was approved, Austin Energy requested LCRA TSC build a larger control house and move all LCRA TSC substation equipment from the Austin Energy-owned control house. The project is needed to improve the safety and reliability of the Garfield Substation.

Capital Plan (Continued)

LCRA TSC FY 2020 Recommended Projects

Andice to Bertram to Burnet Transmission Line Upgrade (lifetime budget of \$10.236 million) – The project will increase the transmission capacity and reliability of the 23.2-mile Andice to Bertram to Burnet 69-kV transmission line in Burnet and Williamson counties. The project’s scope includes upgrading bus and terminal equipment to convert the transmission line to 138-kV operation and improve reliability in the area. The recommended project completion date is May 15, 2021.

Autotransformer Monitoring – FY 2020 Substation Upgrade (lifetime budget of \$399,000) – The project will increase the reliability of substation equipment by installing additional apparatus monitoring equipment and establishing online monitoring capabilities at the Nada, Gillespie and Bergheim substations in Colorado, Comal and Gillespie counties. The recommended project completion date is May 15, 2020.

Backbone Bandwidth Telecommunications Upgrade (lifetime budget of \$1.466 million) – The project will replace telecommunications equipment such as routers and add new telecommunications equipment to maintain reliability and increase the capacity of the eastern and western fiber backbone rings. The recommended project completion date is June 30, 2021.

Battery Systems – FY 2020 Substation Upgrade (lifetime budget of \$958,000) – The project will increase the reliability and safety of substation equipment by replacing batteries and battery chargers at the Mesa View Switchyard and the Bitter Creek, Fort Lancaster, Fredericksburg, Hays Energy, New Bremen, Smithville, Turtle Creek and Verde Creek substations in Austin, Bastrop, Gillespie, Hays and Kerr counties. The recommended project completion date is May 15, 2020.

Bellville South to Prairie View Transmission Line Upgrade (lifetime budget of \$2.601 million) – The project will increase the transmission capacity and reliability of the 26.1-mile Bellville South to Prairie View 69-kV transmission line in Austin and Waller counties. The project’s scope includes upgrading bus and terminal equipment to convert the transmission line to 138-kV operation and improve reliability in the area. The recommended project completion date is May 15, 2021.

Capital Plan (Continued)

LCRA TSC FY 2020 Recommended Projects (Continued)

Burnet to Lampasas Transmission Line Overhaul (lifetime budget of \$12.96 million) – The project will support the safe and reliable operation of the transmission network by replacing structures on the 23.4-mile Burnet to Lampasas 138-kV transmission line in Burnet and Lampasas counties. The new structures will improve reliability and support higher-capacity bundled conductor. The project's scope also includes installing optical ground wire and protective relaying improvements. The recommended project completion date is May 15, 2021.

Clear Fork to Lockhart Transmission Line Overhaul (lifetime budget of \$3.913 million) – The project will increase the transmission capacity and reliability of the 3-mile Clear Fork to Lockhart 69-kV transmission line in Caldwell County. The project will support the safe and reliable operation of the transmission network by replacing structures, which will have a 138-kV rating. The project's scope also includes installing new higher-capacity conductor and optical ground wire. The recommended project completion date is May 15, 2022.

Clear Fork to Robert Brown Jr. Transmission Line Overhaul (lifetime budget of \$8.731 million) – The project will increase the transmission capacity and reliability of the 8.8-mile Clear Fork to Robert Brown Jr. 69-kV transmission line in Caldwell County. The project will support the safe and reliable operation of the transmission network by replacing structures, which will have a 138-kV rating. The project's scope also includes installing new higher-capacity conductor and optical ground wire. The recommended project completion date is May 15, 2022.

Capital Plan (Continued)

LCRA TSC FY 2020 Recommended Projects (Continued)

Constellation Microwave Radio Telecommunications Upgrade (lifetime budget of \$700,000) – The project will improve the performance of the LCRA TSC telecommunications transport network in Burleson, Burnet, DeWitt, Goliad, Hays, Lampasas, Travis and Washington counties. The project's scope includes replacing microwave radio equipment with upgraded equipment. The upgraded equipment will provide the Ethernet connectivity necessary to support the radio system migration to multiprotocol label switching at these sites, as well as upgraded alarm monitoring and system management functionality. The recommended project completion date is Aug. 31, 2020.

Coronado to Sherwood Shores Transmission Line Storm Hardening (lifetime budget of \$12.001 million) – The project will improve the safety and reliability of the transmission network by replacing structures on the Coronado to Sherwood Shores 138-kV transmission line in Burnet and Llano counties to improve reliability. The project scope also includes replacing conductor with new conductor of the same rating. The recommended project completion date is May 15, 2021.

Crane Circuit Breaker Addition (lifetime budget of \$1.396 million) – The project will accommodate the termination point of a new 138-kV transmission line at Crane Substation in Crane County by installing an additional circuit breaker and associated relay and control equipment to provide a new interconnection point with American Electric Power. The recommended project completion date is Nov. 30, 2020.

Divide Roadway Substation Upgrade (lifetime budget of \$949,000) – The project will rebuild the existing roadway from a public access point to the Divide Substation in Coke County to improve the safety, ease and efficiency of access to the facility for workers to operate and maintain transmission equipment. The recommended project completion date is Aug. 31, 2020.

Capital Plan (Continued)

LCRA TSC FY 2020 Recommended Projects (Continued)

Ferguson to Sherwood Shores Transmission Line Storm Hardening (lifetime budget of \$3.368 million) – The project will improve the safety and reliability of the transmission network by replacing structures on the 3.5-mile Ferguson to Sherwood Shores 138-kV transmission line in Burnet and Llano counties to improve reliability. The project scope also includes replacing conductor with new conductor of the same rating. The recommended project completion date is May 15, 2021.

Frelsburg Circuit Breaker Addition (lifetime budget of \$7.736 million) – The project will improve the reliability of transmission facilities at the Frelsburg Substation in Colorado County by installing breakers in a ring bus configuration that allows the substation to remain in service during transmission line faults. The project's scope also includes implementing physical security improvements and a requirement to acquire additional property. The recommended project completion date is May 15, 2021.

Gabriel Substation Upgrade (lifetime budget of \$18.829 million) – The project will increase the reliability of substation equipment by replacing oil circuit breakers, replacing relay and control equipment, adding physical security improvements and replacing equipment at the Gabriel Substation in Williamson County. The substation bus configuration also will be converted to a more reliable and maintainable breaker-and-a-half configuration. The recommended project completion date is May 15, 2022.

Gabriel to Glasscock Transmission Line Storm Hardening (lifetime budget of \$2.099 million) – The project will improve the safety and reliability of the transmission network by replacing structures on the 6.6-mile Gabriel to Glasscock 138-kV transmission line in Williamson County to improve reliability. The project's scope also includes adding optical ground wire and removing older microwave equipment. The recommended project completion date is May 15, 2021.

Capital Plan (Continued)

LCRA TSC FY 2020 Recommended Projects (Continued)

Gabriel to Rivery Transmission Line Storm Hardening (lifetime budget of \$8.59 million) – The project will improve the safety and reliability of the transmission network by replacing structures on the 2.4-mile Gabriel to Rivery 138-kV transmission line in Williamson County to improve reliability. The project’s scope also includes installing optical ground wire. The recommended project completion date is May 15, 2021.

General Additions (lifetime budget of \$4 million) – The project will fund required but unplanned system improvements to accommodate load increases, equipment needs, substation reliability enhancements, customer requests or changing system conditions as needed through June 30, 2020.

Graphite Mine Circuit Breaker Addition (lifetime budget of \$11.141 million) – The project will improve the reliability of transmission facilities at the Graphite Mine Substation in Burnet County by installing breakers in a ring bus configuration that allows the substation to remain in service during transmission line faults. The project’s scope also includes installing optical ground wire and implementing physical security improvements. The project also will require acquiring additional property. The recommended project completion date is May 15, 2022.

Harris Branch to McNeil Transmission Line Relocation (lifetime budget of \$621,000) – The project will relocate a portion of the Harris Branch to McNeil 138-kV transmission line in Travis County to accommodate Austin Energy’s future Northeast Substation addition project. The recommended project completion date is May 15, 2020.

Harris Remote Terminal Unit Telecommunications Upgrade (lifetime budget of \$456,000) – The project will improve the Telecommunications Operations Control Center’s ability to remotely control and monitor substation equipment by upgrading remote terminal units and associated telecommunications equipment at 35 sites in 18 counties. The recommended project completion date is Aug. 31, 2020.

Capital Plan (Continued)

LCRA TSC FY 2020 Recommended Projects (Continued)

Hayter Ranch Substation Upgrade (lifetime budget of \$5.456 million) – The project will increase the reliability of substation equipment by upgrading temporary transformation facilities with a permanent load-serving 22.4-megavolt amperes power transformer and associated facilities at Hayter Ranch Substation in Pecos County. The project’s scope also includes control house, relay and control, and metering facilities. The recommended project completion date is May 15, 2021.

Hi Cross to Turnersville Transmission Line Storm Hardening (lifetime budget of \$2.852 million) – The project will improve the safety and reliability of the transmission network by replacing structures on the 8.8-mile Hi Cross to Turnersville 138-kV transmission line in Hays and Travis counties to improve reliability. The recommended project completion date is May 15, 2021.

Hidden Valley to McNeil Transmission Line Relocation (lifetime budget of \$493,000) – The project will relocate a portion of the Hidden Valley to McNeil 138-kV transmission line in Travis County to accommodate Austin Energy’s Balcones Substation reliability upgrade. The recommended project completion date is May 15, 2020.

Kempner Circuit Breaker Addition (lifetime budget of \$9.152 million) – The project will improve the reliability of transmission facilities at the Kempner Substation in Lampasas County by installing breakers in a ring bus configuration that allows the substation to remain in service during transmission line faults. The project’s scope also includes installing optical ground wire, adding an access road and implementing physical security improvements. The project will require acquiring additional property. The recommended project completion date is May 15, 2022.

LCRA TSC Fiber Build-out – FY 2020 Telecommunications Upgrade (lifetime budget of \$9.459 million) – The project will increase the reliability and capability of the fiber network in Bastrop, Blanco, Hays, Travis, Waller and Washington counties by adding optical ground wire and related telecommunications equipment to six LCRA TSC transmission lines. The recommended project completion date is May 15, 2021.

Capital Plan (Continued)

LCRA TSC FY 2020 Recommended Projects (Continued)

Leakey Substation Upgrade (lifetime budget of \$1.05 million) – The project will upgrade transmission substation facilities at Leakey, Utopia and Tarpley substations in Bandera and Real counties to accommodate Bandera Electric Cooperative’s transmission line upgrade. The upgraded substation facilities will be capable of 138-kV operation. The recommended project completion date is May 15, 2020.

Luling to Zorn Transmission Line Overhaul (lifetime budget of \$13.572 million) – The project will increase the transmission capacity and reliability of the 28.3-mile Luling to Zorn 138-kV transmission line in Caldwell and Guadalupe counties and support the safe and reliable operation of the transmission network by replacing structures. The project scope also includes installing new higher-capacity conductor and optical ground wire. The recommended project completion date is May 15, 2021.

Marion Substation Asset Purchase (lifetime budget of \$594,000) – The project scope is to acquire 345-kV circuit breakers and upgrade associated transmission equipment at the Marion Substation. The recommended project completion date is May 15, 2020.

Minor Capital (lifetime budget of \$3.451 million) – The scope of minor capital projects is to purchase equipment that, essentially, is ready to place in service upon delivery for projects related to transmission lines, substations or related equipment.

Multiprotocol Label Switching Network Core – FY 2020 Telecommunications Upgrade (lifetime budget of \$1.25 million) – The project will improve the performance of LCRA TSC’s telecommunications transport network. The project’s scope of work includes replacing multiprotocol label switching network core routers at the System Operations Control Center and the General Office Complex. The recommended project completion date is June 30, 2020.

Capital Plan (Continued)

LCRA TSC FY 2020 Recommended Projects (Continued)

Multiprotocol Label Switching Protective Relaying Telecommunications Upgrade (lifetime budget of \$279,000) – The project will improve the reliability of the transmission network in Blanco, Burnet, Caldwell, Gillespie, Kendall, Llano and Travis counties by replacing protective relaying time domain multiplexing circuits with multiprotocol label switching-based circuits. The project scope also includes upgrading multiprotocol label switching router equipment and substation clocks. The recommended project completion date is June 30, 2020.

Naruna Circuit Breaker Addition (lifetime budget of \$3.991 million) – The project will improve the reliability of transmission facilities at the Naruna Substation in Lampasas County by installing breakers in a ring bus configuration that allows the substation to remain in service during transmission line faults. The project's scope also includes implementing physical security improvements. The recommended project completion date is May 15, 2021.

Obsolete Circuit Breaker Replacement – FY 2020 Substation Upgrade (lifetime budget of \$5.939 million) – The project will increase the safety and reliability of substation equipment at the Fayette Power Project's 138-kV switchyard and the Fayetteville, McCarty Lane, Salem, Spicewood and Zorn substations in Fayette, Hays, Guadalupe and Travis counties. The project's scope includes replacing oil circuit breakers, surge arrestors and associated equipment with gas circuit breakers and associated equipment. The recommended project completion date is May 15, 2021.

Out-of-Band Management Switch Telecommunications Upgrade (lifetime budget of \$695,000) – The project will upgrade telecommunications hardware associated with the network used to control, monitor and troubleshoot devices that support LCRA TSC's telecommunications transport network and transmission operations. The recommended project completion date is June 30, 2020.

Capital Plan (Continued)

LCRA TSC FY 2020 Recommended Projects (Continued)

Physical Security – FY 2020 Substation Upgrade (lifetime budget of \$3.53 million) – The project will improve transmission grid security by implementing physical security measures and related telecommunications system improvements for 17 LCRA TSC-owned substations in various counties throughout LCRA TSC’s service area. The recommended project completion date is June 30, 2021.

Pooley Road Circuit Breaker Addition (lifetime budget of \$4.265 million) – The project will improve the reliability of transmission facilities at the Pooley Road Substation in Guadalupe County by installing breakers in a ring bus configuration that allows the substation to remain in service during transmission line faults. The project’s scope also includes implementing physical security improvements. The recommended project completion date is May 15, 2021.

Rattler Substation Addition (lifetime budget of \$4.627 million) – The project scope is to construct a new load-serving substation for San Marcos Electric Utility in Hays County. The Rattler Substation will be interconnected via LCRA TSC’s 138-kV Redwood to McCarty Lane transmission line. The recommended project completion date is Nov. 30, 2020.

Remote Terminal Unit Multiprotocol Label Switching Migration – FY 2020 Telecommunications Upgrade (lifetime budget of \$1.487 million) – The project will upgrade telecommunications equipment used to connect to 46 remote terminal units that allow the System Operations Control Center to remotely control and monitor substation equipment. The project will allow for the retirement of legacy telecommunications equipment at substations in 13 counties and will free up equipment to use as spares until other systems are upgraded. The recommended project completion date is June 30, 2021.

Capital Plan (Continued)

LCRA TSC FY 2020 Recommended Projects (Continued)

Robert Brown Jr. to San Marcos Transmission Line Overhaul (lifetime budget of \$6.306 million) – The project will increase the transmission capacity and reliability of the 4.9-mile Robert Brown Jr. to San Marcos 69-kV transmission line in Caldwell and Hays counties. The project will support the safe and reliable operation of the transmission network by replacing structures, which will have a 138-kV rating. The project scope also includes installing new higher-capacity conductor and optical ground wire. The recommended project completion date is May 15, 2022.

San Angelo Area Microwave Telecommunications Upgrade (lifetime budget of \$194,000) – The project will improve the performance of LCRA TSC's telecommunications transport network in Tom Green County associated with the new LCRA TSC San Angelo Maintenance Facility. The project scope includes adding microwave transport and multiprotocol label switching equipment at a third-party site in Christoval. The recommended project completion date is June 30, 2020.

Swiftex Substation Upgrade (lifetime budget of \$2.848 million) – The project will increase the capacity and reliability of equipment at the Swiftex Substation in Bastrop County by upgrading the 22.4-megavolt ampere power transformer to a 33.6-MVA power transformer to accommodate anticipated load growth in Bluebonnet Electric Cooperative's service territory. The project's scope also includes implementing physical security improvements. The recommended project completion date is May 15, 2021.

Switch Replacement – FY 2020 Substation Upgrade (lifetime budget of \$1.477 million) – The project will increase the safety and reliability of substation equipment by replacing transmission switches at Bee Creek, Boerne, Friendship, Kerrville Stadium, Marshall Ford and Spicewood substations in Hays, Kendall, Kerr and Travis counties. The recommended project completion date is May 15, 2021.

Capital Plan (Continued)

LCRA TSC FY 2020 Recommended Projects (Continued)

Transmission Metering – FY 2020 Substation Upgrade (lifetime budget of \$2.06 million) – The project will increase the reliability and capability of substation equipment by replacing revenue-metering equipment and adding telecommunications circuits for meter data connectivity. The recommended project completion date is May 15, 2023.

Transport Network Power – FY 2020 Telecommunications Upgrade (lifetime budget of \$334,000) – The project will increase the reliability of the LCRA TSC telecommunications transport network by replacing battery charger systems at 11 locations in Austin, Bastrop, Caldwell, Fayette, Guadalupe, Kerr, Matagorda, Travis and Williamson counties. The project scope also includes adding batteries at two sites to support equipment load requirements. The recommended project completion date is Aug. 31, 2020.

Ute Pass Substation Addition (lifetime budget of \$16.074 million) – The project scope is to construct a new point of interconnection for a generator that has requested a connection to the ERCOT grid. The Ute Pass Substation will be interconnected via LCRA TSC's 345-kV Twin Buttes to Brown transmission line. The recommended project completion date is April 1, 2021.

Zorn Autotransformer Replacement (lifetime budget of \$6.694 million) – The project will increase the reliability of substation equipment by replacing a 477.7-megavolt ampere and 345-kV autotransformer with a new autotransformer and associated equipment at Zorn Substation in Guadalupe County. The recommended project completion date is May 15, 2021.

Capital Plan (Continued)

LCRA Transmission Services Corporation FY 2020 Capital Plan Recommended Projects

(Dollars in thousands)

Project Name	Contingency	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Five-Year	
							Total	Lifetime
Recommended								
Andice-Bertram-Burnet Transmission Line Upgrade	0%	851	9,387	-	-	-	10,238	10,238
Autotransformer Monitoring – FY 2020 Substation Upgrade	0%	399	-	-	-	-	399	399
Backbone Bandwidth Telecommunications Upgrade	0%	733	733	-	-	-	1,466	1,466
Battery Systems – FY 2020 Substation Upgrade	0%	958	-	-	-	-	958	958
Bellville South-Prairie View Transmission Line Upgrade	0%	520	2,081	-	-	-	2,601	2,601
Burnet-Lampasas Transmission Line Overhaul	0%	668	12,292	-	-	-	12,960	12,960
Clear Fork-Lockhart Transmission Line Overhaul	0%	269	242	3,402	-	-	3,913	3,913
Clear Fork-Robert Brown Jr. Transmission Line Overhaul	0%	303	65	8,363	-	-	8,731	8,731
Constellation Microwave Radio Telecommunications Upgrade	0%	351	349	-	-	-	700	700
Coronado-Sherwood Shores Transmission Line Storm Hardening	0%	563	11,438	-	-	-	12,001	12,001
Crane Circuit Breaker Addition	0%	435	961	-	-	-	1,396	1,396
Divide Roadway Substation Upgrade	0%	321	628	-	-	-	949	949
Ferguson-Sherwood Shores Transmission Line Storm Hardening	0%	450	2,918	-	-	-	3,368	3,368
Frelsburg Circuit Breaker Addition	0%	653	7,083	-	-	-	7,736	7,736
Gabriel Substation Upgrade	0%	421	846	17,562	-	-	18,829	18,829
Gabriel-Glasscock Transmission Line Storm Hardening	0%	391	1,708	-	-	-	2,099	2,099
Gabriel-Rivery Transmission Line Storm Hardening	0%	674	7,916	-	-	-	8,590	8,590
General Additions		4,000	-	-	-	-	4,000	4,000
Graphite Mine Circuit Breaker Addition	0%	475	630	10,036	-	-	11,141	11,141
Harris Branch-McNeil Transmission Line Relocation	0%	621	-	-	-	-	621	621
Harris Remote Terminal Unit Telecommunications Upgrade	0%	342	114	-	-	-	456	456
Hayter Ranch Substation Upgrade	0%	602	4,854	-	-	-	5,456	5,456
Hi Cross-Turnersville Transmission Line Storm Hardening	0%	414	2,438	-	-	-	2,852	2,852
Hidden Valley-McNeil Transmission Line Relocation	0%	493	-	-	-	-	493	493
Kempner Circuit Breaker Addition	0%	551	505	8,096	-	-	9,152	9,152
LCRA TSC Fiber Build-out – FY 2020 Telecommunications Upgrade	0%	5,165	4,294	-	-	-	9,459	9,459

Capital Plan (Continued)

LCRA Transmission Services Corporation FY 2020 Capital Plan Recommended and Approved Projects

(Dollars in thousands)

Project Name	Contingency	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Five-Year		
							Total	Lifetime	
Recommended (continued)									
Leakey Substation Upgrade	0%	1,050	-	-	-	-	1,050	1,050	
Luling-Zorn Transmission Line Overhaul	0%	748	12,824	-	-	-	13,572	13,572	
Marion Substation Asset Purchase	0%	594	-	-	-	-	594	594	
Minor Capital		3,451	-	-	-	-	3,451	3,451	
Multiprotocol Label Switching Network Core – FY 2020 Telecommunications Upgrade	0%	1,250	-	-	-	-	1,250	1,250	
Multiprotocol Label Switching Protective Relaying Telecommunications Upgrade	0%	279	-	-	-	-	279	279	
Naruna Circuit Breaker Addition	0%	426	3,565	-	-	-	3,991	3,991	
Obsolete Circuit Breaker Replacement – FY 2020 Substation Upgrade	0%	1,791	4,148	-	-	-	5,939	5,939	
Out-of-Band Management Switch Telecommunications Upgrade	0%	695	-	-	-	-	695	695	
Physical Security – FY 2020 Substation Upgrade	0%	1,230	2,300	-	-	-	3,530	3,530	
Pooley Road Circuit Breaker Addition	0%	530	3,735	-	-	-	4,265	4,265	
Rattler Substation Addition	0%	1,673	2,954	-	-	-	4,627	4,627	
Remote Terminal Unit MPLS Migration – FY 2020 Telecommunications Upgrade	0%	488	999	-	-	-	1,487	1,487	
Robert Brown Jr.-San Marcos Transmission Line Overhaul	0%	330	124	5,852	-	-	6,306	6,306	
San Angelo Area Microwave Telecommunications Upgrade	0%	194	-	-	-	-	194	194	
Swiftex Substation Upgrade	0%	408	2,440	-	-	-	2,848	2,848	
Switch Replacement – FY 2020 Substation Upgrade	0%	588	889	-	-	-	1,477	1,477	
Transmission Metering – FY 2020 Substation Upgrade	0%	515	515	515	515	-	2,060	2,060	
Transport Network Power – FY 2020 Telecommunications Upgrade	0%	156	178	-	-	-	334	334	
Ute Pass Substation Addition	0%	3,722	12,182	-	-	-	15,904	16,074	
Zorn Autotransformer Replacement	0%	457	6,237	-	-	-	6,694	6,694	
Recommended Subtotal		42,198	124,572	53,826	515	-	221,111	221,281	
Approved									
Amos Creek Substation Addition		11,836	-	-	-	-	11,836	12,821	
Asphalt Mines Substation Addition		489	1,907	-	-	-	2,396	2,416	
Bakersfield-Solstice Transmission Line Addition		48,665	22,637	-	-	-	71,302	78,100	

Capital Plan (Continued)

LCRA Transmission Services Corporation FY 2020 Capital Plan Approved Projects

(Dollars in thousands)

Project Name	Contingency	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Five-Year		
							Total	Lifetime	
Approved (continued)									
Bellville South-Glidden Transmission Line Storm Hardening		26	-	-	-	-	26	6,589	
Bellville South-Waller Transmission Line Storm Hardening		134	-	-	-	-	134	33,942	
Boerne Cico-Comfort-Kendall Transmission Line Upgrade		11,624	1,992	-	-	-	13,616	14,094	
Burnet-Wirtz Transmission Line Overhaul		1,652	-	-	-	-	1,652	3,472	
Camp Wood-Leakey Transmission Line Overhaul		5,250	22,688	-	-	-	27,938	29,609	
Castle Mountain Circuit Breaker Addition		1,146	-	-	-	-	1,146	1,733	
Castle Mountain Substation Addition		2,560	-	-	-	-	2,560	3,139	
Cedar Canyon Substation Addition		5,547	-	-	-	-	5,547	10,718	
Central Texas Electric Cooperative Transmission Facility Acquisition		6	-	-	-	-	6	4,670	
Colton Power Transformer Addition		1,484	-	-	-	-	1,484	2,085	
Cooks Point Substation and Transmission Line Addition		3,190	22,754	11,893	-	-	37,837	39,457	
Crosswinds Substation Addition		4,072	-	-	-	-	4,072	4,861	
Culberson-Kunitz Transmission Line Overhaul		331	-	-	-	-	331	812	
Cypress Creek Circuit Breaker Addition		46	-	-	-	-	46	3,826	
Darst Creek Circuit Breaker Addition		12	-	-	-	-	12	4,249	
Desert Mesa Circuit Breaker Addition		28	-	-	-	-	28	5,090	
Dimmit Circuit Breaker Addition		500	4,349	-	-	-	4,849	5,108	
Divide Circuit Breaker Addition		1,486	77	-	-	-	1,563	1,563	
Easement Enhancement – FY 2019 System Upgrade		3,443	-	-	-	-	3,443	4,147	
Energy Management System Upgrade – Phase 4 System Upgrade		278	-	-	-	-	278	8,000	
Environmental Permitting System Upgrade		84	-	-	-	-	84	1,350	
Esperanza Substation Addition		3,783	-	-	-	-	3,783	7,318	
Fayette Area Transmission Line Upgrades		14,725	6,365	-	-	-	21,090	25,657	
Fayette Power Project 138-kV-La Grange Transmission Line Overhaul		1,206	27	-	-	-	1,233	1,753	
Fayetteville-Winchester Transmission Line Upgrade		11,693	60	-	-	-	11,753	12,528	
Flatonia-Hallettsville Transmission Line Upgrade		6,470	-	-	-	-	6,470	7,740	

Capital Plan (Continued)

LCRA Transmission Services Corporation FY 2020 Capital Plan Approved Projects

(Dollars in thousands)

Project Name	Contingency	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Five-Year Total	Lifetime
Approved (continued)								
Flood Mitigation – FY 2018 System Upgrade		2,022	-	-	-	-	2,022	5,510
Garfield Battery Bank Substation Upgrade		1,078	-	-	-	-	1,078	1,500
Georgetown-Rivery Transmission Line Upgrade		716	-	-	-	-	716	1,642
Glidden Area Transmission Line Upgrade		2,621	-	-	-	-	2,621	19,995
Goldthwaite-Lampasas Transmission Line Overhaul		500	4,733	-	-	-	5,233	6,071
Gonzales-Harwood Transmission Line Overhaul		5,698	-	-	-	-	5,698	7,029
Gustav Substation Acquisition		17	5	8,846	-	-	8,868	8,775
Hamilton Road-Uvalde Fiber Addition		7	-	-	-	-	7	10,154
Harwood-Luling Double-Circuit Transmission Line Overhaul		25	-	-	-	-	25	9,485
Heines Substation Addition		1,424	-	-	-	-	1,424	4,312
Hext Substation Upgrade		2	953	-	-	-	955	983
Highway 36 Substation Upgrade		856	-	-	-	-	856	1,239
Horse Crossing-Rio Pecos Transmission Line Addition		1,099	-	-	-	-	1,099	2,399
Hurricane Response System Upgrade		2,143	-	-	-	-	2,143	3,193
Jim Briley Substation Addition		1,220	-	-	-	-	1,220	4,480
Kimbrow Substation Addition		3,559	1,000	-	-	-	4,559	4,510
King Mountain Circuit Breaker Addition		19	-	-	-	-	19	5,657
Kleimann Circuit Breaker Addition (formerly Columbus Circuit Breaker Addition)		3,400	-	-	-	-	3,400	4,108
La Grange-Plum Transmission Line Overhaul		110	-	-	-	-	110	2,196
LCRA TSC Fiber Build-out – FY 2018 Telecommunications Upgrade		21	-	-	-	-	21	28,400
LCRA TSC Fiber Build-out – FY 2019 Telecommunications Upgrade		6,006	10,763	7,148	-	-	23,917	31,898
Leander-Round Rock Transmission Line Addition		28,288	28	-	-	-	28,316	118,167
Lexington Circuit Breaker Addition		2,924	-	-	-	-	2,924	3,823
Lockhart Substation Upgrade		1,928	-	-	-	-	1,928	2,041
Magnolia Mercer Circuit Breaker Addition		2,200	2,700	-	-	-	4,900	5,131
Marble Falls Double Circuit Transmission Line Upgrade		2,770	-	-	-	-	2,770	3,374

Capital Plan (Continued)

LCRA Transmission Services Corporation FY 2020 Capital Plan Approved Projects

(Dollars in thousands)

Project Name	Contingency	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Five-Year		
							Total	Lifetime	
Approved (continued)									
McCamey Area Easement Enhancement System Upgrade (formerly McCamey Area CCN System Upgrade)		1,460	258	-	-	-	1,718	2,098	
Meadow Lake Substation Addition		2,665	24	-	-	-	2,689	2,963	
Menger Creek Power Transformer Addition		1,741	-	-	-	-	1,741	2,483	
Most Limiting Series Element – FY 2019 Substation Upgrade		249	-	-	-	-	249	645	
Mountain Home Substation and Transmission Line Addition		759	29,673	35,226	10,593	-	76,251	79,089	
Multiprotocol Label Switching Network Core Telecommunications Upgrade		191	-	-	-	-	191	477	
New Bremen Circuit Breaker Addition		500	2,638	-	-	-	3,138	4,336	
Obsolete Circuit Breaker Replacement – FY 2019 Substation Upgrade		876	-	-	-	-	876	2,279	
Physical Security – FY 2019 Substation Upgrade		500	4,659	-	-	-	5,159	22,284	
Pinnacle Circuit Breaker Addition		784	1,832	-	-	-	2,616	2,689	
Pinnacle Substation Addition		11,973	5	-	-	-	11,978	12,852	
Protective Relaying – FY 2019 System Upgrade		1,039	-	-	-	-	1,039	1,499	
Ranch Road 12 Circuit Breaker Addition		500	2,493	-	-	-	2,993	3,952	
RGEC Transmission Facilities Acquisition		6,904	-	-	-	-	6,904	6,285	
Rim Rock-Turtle Creek Transmission Line Storm Hardening		500	7,549	-	-	-	8,049	8,622	
Riverside Circuit Breaker Addition		910	-	-	-	-	910	4,294	
Salem-Winchester Transmission Line Overhaul		6,150	-	-	-	-	6,150	7,084	
Schneeman Draw Circuit Breaker Addition		4,380	-	-	-	-	4,380	5,105	
Soda Lake Circuit Breaker Addition		784	979	-	-	-	1,763	1,848	
Soda Lake Substation Addition		2,452	-	-	-	-	2,452	3,548	
Sonne Substation Addition		2,881	-	-	-	-	2,881	3,810	
Study Butte Substation and Transmission Line Addition		1,011	2,000	20,000	36,521	-	59,532	87,127	
Summit T161 Transmission Line Relocation		828	-	-	-	-	828	881	
Tumbleweed Substation Addition		1,000	11,348	4,176	-	-	16,524	16,984	
Turtle Creek Substation Upgrade		500	3,768	-	-	-	4,268	5,268	
Twelvemile Substation Addition		1,000	8,142	-	-	-	9,142	8,857	

Capital Plan (Continued)

LCRA Transmission Services Corporation FY 2020 Capital Plan Approved and Future Projects

(Dollars in thousands)

Project Name	Contingency	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Five-Year	
							Total	Lifetime
Approved (continued)								
Twin Buttes Circuit Breaker Addition		2,955	-	-	-	-	2,955	3,564
Weimar Circuit Breaker Addition		2,290	9	-	-	-	2,299	3,499
Welcome Circuit Breaker Addition		2,970	12	-	-	-	2,982	4,633
Winchester Autotransformer Additions		25,342	7	-	-	-	25,349	32,721
Wirtz Substation Upgrade		1,089	-	-	-	-	1,089	1,089
Zorn-Marion Transmission Line Addition		96	-	-	-	-	96	83,346
Approved Subtotal		299,698	178,434	87,289	47,114	-	612,535	1,059,130
Future								
Altair-Garwood Transmission Line Overhaul		-	-	495	495	-	990	990
Bastrop Power Transformer Addition		-	-	-	1,800	-	1,800	1,800
Bay City Transport Telecommunications Upgrade		-	1,162	1,162	-	-	2,324	2,324
Bernardo Circuit Breaker Addition		-	-	-	500	2,500	3,000	3,000
Big Hat Substation Addition		-	10,000	-	-	-	10,000	10,000
Blewett Circuit Breaker Addition		-	-	1,000	2,000	-	3,000	3,000
Brenham North Power Transformer Addition		-	-	2,500	-	-	2,500	2,500
Brenham South Power Transformer Addition		-	-	-	2,500	-	2,500	2,500
Caldwell County Substation Addition		-	-	1,000	2,000	12,000	15,000	15,000
Cedar Hill Power Transformer Upgrade		-	-	-	1,000	1,000	2,000	2,000
Central Texas Electric Cooperative Transmission Line Improvements		-	-	5,000	5,000	5,000	15,000	15,000
Cienega Substation Upgrade		-	300	-	-	-	300	300
Colorado County Area Transmission Line Upgrades		-	2,197	8,786	10,983	-	21,966	21,966
Condor Conductor Remediation – FY 2021 Transmission Line Upgrade		-	3,000	6,000	-	-	9,000	9,000
Condor Conductor Remediation – FY 2022 Transmission Line Upgrade		-	-	3,000	6,000	-	9,000	9,000
Condor Conductor Remediation – FY 2023 Transmission Line Upgrade		-	-	-	3,000	6,000	9,000	9,000
Condor Conductor Remediation – FY 2024 Transmission Line Upgrade		-	-	-	-	3,000	3,000	9,000
Crane East Circuit Breaker Addition		-	-	-	1,000	2,000	3,000	3,000

Capital Plan (Continued)

LCRA Transmission Services Corporation FY 2020 Capital Plan Future Projects

(Dollars in thousands)

Project Name	Contingency	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Five-Year	
							Total	Lifetime
Future (continued)								
Deer Creek-Luling Transmission Line Upgrade	-	-	-	750	6,638	-	7,388	7,388
Easement Enhancement – FY 2021 System Upgrade	-	-	2,000	-	-	-	2,000	2,000
Easement Enhancement – FY 2022 System Upgrade	-	-	-	2,000	-	-	2,000	2,000
Easement Enhancement – FY 2023 System Upgrade	-	-	-	-	2,000	-	2,000	2,000
Easement Enhancement – FY 2024 System Upgrade	-	-	-	-	-	2,000	2,000	2,000
Easton Park Substation Addition	-	-	-	-	500	-	500	500
Eckert-Nebo Transmission Line Overhaul	-	-	600	-	-	-	600	600
Elgin Tap Circuit Breaker Addition	-	-	-	-	1,000	2,000	3,000	3,000
Energy Management System Upgrade – Phase 5 System Upgrade	-	-	-	1,000	-	-	1,000	1,000
Escobares Substation Addition	-	-	-	1,000	2,000	-	3,000	3,000
Fayetteville Autotransformer Replacement	-	-	-	-	1,000	4,500	5,500	5,500
Four Point Substation Addition	-	-	-	200	-	-	200	200
Gabriel-Gabriel Split Transmission Line Upgrade	-	-	750	4,715	-	-	5,465	5,465
General Additions	-	-	4,000	4,000	4,000	4,000	16,000	16,000
Generation Interconnection Additions – FY 2021	-	-	5,000	11,000	-	-	16,000	16,000
Generation Interconnection Additions – FY 2022	-	-	-	5,000	11,000	-	16,000	16,000
Generation Interconnection Additions – FY 2023	-	-	-	-	5,000	11,000	16,000	16,000
Generation Interconnection Additions – FY 2024	-	-	-	-	-	5,000	5,000	16,000
Giddings Power Transformer Addition	-	-	-	-	900	900	1,800	1,800
Gillespie-Sandstone Mountain Transmission Line Overhaul	-	-	1,000	2,431	-	-	3,431	3,431
Glasscock Substation Upgrade	-	-	-	-	1,000	-	1,000	1,000
Gonzales-Hochheim Tap Transmission Line Overhaul	-	-	1,284	13,119	-	-	14,403	14,403
Hallettsville-Hallettsville City Transmission Line Addition	-	-	-	-	-	5,355	5,355	5,355
Harris Branch Power Transformer Addition	-	-	-	-	1,800	-	1,800	1,800
High Point Substation Addition	-	-	1,000	3,000	-	-	4,000	4,000
Highway 36 Power Transformer Addition	-	-	-	-	900	900	1,800	1,800

Capital Plan (Continued)

LCRA Transmission Services Corporation FY 2020 Capital Plan Future Projects

(Dollars in thousands)

Project Name	Contingency	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Five-Year Total	Lifetime
Future (continued)								
Hortontown Substation Upgrade	-	1,000	4,000	-	-	-	5,000	5,000
Hueco Springs Substation Addition	-	-	2,500	2,500	-	-	5,000	5,000
Jack Furman Power Transformer Addition	-	750	750	-	-	-	1,500	1,500
Kendall County Transmission Line Addition	-	-	1,000	1,000	1,000	1,000	3,000	70,000
LCRA TSC Fiber Build-out – FY 2021 Telecommunications Upgrade	-	3,000	5,000	-	-	-	8,000	8,000
LCRA TSC Fiber Build-out – FY 2022 Telecommunications Upgrade	-	-	5,000	5,000	-	-	10,000	10,000
LCRA TSC Fiber Build-out – FY 2023 Telecommunications Upgrade	-	-	-	5,000	5,000	-	10,000	10,000
LCRA TSC Transmission System Upgrade	-	-	-	-	-	10,000	10,000	10,000
Lockhart-Mendoza Transmission Line Storm Hardening	-	536	3,284	-	-	-	3,820	3,820
Lockhart-Red Rock Transmission Line Overhaul	-	579	5,842	-	-	-	6,421	6,421
Maenius Road Circuit Breaker Addition	-	-	-	500	2,500	-	3,000	3,000
Marion Autotransformer Replacement	-	500	4,500	-	-	-	5,000	5,000
Merrelltown Substation Addition	-	-	-	2,831	-	-	2,831	2,831
Minor Capital	-	5,936	4,182	4,040	394	-	14,552	14,552
Montgomery County Transmission Line Addition	-	1,000	1,000	2,000	20,000	-	24,000	24,000
Northwest Austin Metro Transmission Line Addition	-	-	-	-	1,000	-	1,000	40,000
Obsolete Circuit Breaker Replacement – FY 2021 Substation Upgrade	-	500	2,000	-	-	-	2,500	2,500
Obsolete Circuit Breaker Replacement – FY 2022 Substation Upgrade	-	-	500	2,000	-	-	2,500	2,500
Obsolete Circuit Breaker Replacement – FY 2023 Substation Upgrade	-	-	-	500	2,000	-	2,500	2,500
Obsolete Circuit Breaker Replacement – FY 2024 Substation Upgrade	-	-	-	-	500	-	500	2,500
Oxy Tap Circuit Breaker Addition	-	-	-	1,000	2,000	-	3,000	3,000
Physical Security – FY 2021 Substation Upgrade	-	3,500	6,500	-	-	-	10,000	10,000
Physical Security – FY 2022 Substation Upgrade	-	-	3,000	3,000	-	-	6,000	6,000
Protective Relaying – FY 2021 System Upgrade	-	1,000	1,000	-	-	-	2,000	2,000
Protective Relaying – FY 2023 System Upgrade	-	-	-	1,000	1,000	-	2,000	2,000
Red Rock-Tahitian Village Transmission Line Overhaul	-	1,000	5,275	-	-	-	6,275	6,275

Capital Plan (Continued)

LCRA Transmission Services Corporation FY 2020 Capital Plan Future Projects

(Dollars in thousands)

Project Name	Contingency	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Five-Year Total	Lifetime
Future (continued)								
Remote Terminal Unit MPLS Migration – FY 2021 Telecommunications Upgrade		-	1,800	-	-	-	1,800	1,800
Rio Grande Electric Cooperative Transmission Line Improvements		-	-	1,100	2,200	-	3,300	3,300
Storm Mitigation – FY 2021 Substation Upgrade		-	1,000	-	-	-	1,000	1,000
Storm Mitigation – FY 2022 Substation Upgrade		-	-	1,000	-	-	1,000	1,000
Storm Mitigation – FY 2023 Substation Upgrade		-	-	-	500	-	500	500
Strahan Power Transformer Addition		-	-	-	1,800	-	1,800	1,800
Synchronous Optical Networking Migration Telecommunications Upgrade		-	-	1,000	1,000	1,000	3,000	3,000
System Operations Control Center Data Center		-	2,000	8,000	-	-	10,000	10,000
Telecommunications Tower Additions		-	-	-	-	1,000	1,000	1,000
Transmission Bus Reconfiguration – FY 2021 Substation Upgrade		-	2,000	3,000	-	-	5,000	5,000
Transmission Bus Reconfiguration – FY 2022 Substation Upgrade		-	-	2,500	2,500	-	5,000	5,000
Transmission Bus Reconfiguration – FY 2023 Substation Upgrade		-	-	-	2,500	2,500	5,000	5,000
Transmission Bus Reconfiguration – FY 2024 Substation Upgrade		-	-	-	-	2,500	2,500	5,000
Transmission Line Clearance Mitigation – FY 2021		-	1,000	-	-	-	1,000	1,000
Transmission Line Clearance Mitigation – FY 2022		-	-	1,000	-	-	1,000	1,000
Transmission Line Clearance Mitigation – FY 2023		-	-	-	1,000	-	1,000	1,000
Transmission Line Overhauls – FY 2021		-	2,862	4,862	-	-	7,724	7,724
Transmission Line Overhauls – FY 2022		-	-	5,866	-	-	5,866	5,866
Transmission Line Overhauls – FY 2023		-	-	-	14,135	-	14,135	14,135
Transmission Line Overhauls – FY 2024		-	-	-	-	14,000	14,000	14,000
Transmission Line Storm Hardening – FY 2021		-	1,500	3,500	-	-	5,000	5,000
Transmission Line Storm Hardening – FY 2022		-	-	2,500	2,500	-	5,000	5,000
Transmission Metering – FY 2021 Substation Upgrade		-	505	-	-	-	505	505
Transmission Metering – FY 2022 Substation Upgrade		-	-	505	-	-	505	505
Transmission Metering – FY 2023 Substation Upgrade		-	-	-	505	-	505	505
Transport Network Power – FY 2021 Telecommunications Upgrade		-	400	-	-	-	400	400

Capital Plan (Continued)

LCRA Transmission Services Corporation FY 2020 Capital Plan Future Projects

(Dollars in thousands)

Project Name	Contingency	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Five-Year Total	Lifetime
Future (continued)								
Transport Network Power – FY 2022 Telecommunications Upgrade		-	-	400	-	-	400	400
Turtle Creek-Verde Creek Transmission Line Overhaul		-	-	1,179	1,179	-	2,358	2,358
TXI Loop Transmission Line Addition		-	1,000	2,000	8,000	12,838	23,838	23,838
Weltner Road Circuit Breaker Addition		-	-	-	500	2,500	3,000	3,000
West Texas-San Antonio Transmission Line Addition		-	-	-	-	1,000	1,000	100,000
Whisper Valley Substation Addition		-	400	3,600	-	-	4,000	4,000
Wolf Creek Circuit Breaker Addition		-	-	500	2,500	-	3,000	3,000
XS Ranch Substation Addition		-	-	3,900	-	-	3,900	3,900
Yoakum Gartner Road Power Transformer Upgrade		-	-	-	900	900	1,800	1,800
York Creek Circuit Breaker Addition		-	-	-	500	2,500	3,000	3,000
Yorktown-Nordheim Circuit Breaker Addition		-	-	500	2,500	-	3,000	3,000
Future Subtotal		-	66,061	179,403	149,106	153,287	547,857	774,357
Total LCRA Transmission Services Corporation		341,896	369,067	320,518	196,735	153,287	1,381,503	2,054,768

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