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Electric Utility Rate Alternatives - Project Impacts

Table Legend and Definitions:	
✓	**Project funded at Option 3 level.**
REDUCED	**Project funding reduced from Option 3 level.**
DELAYED	**Project funding delayed from Option 3 level.**
ELIMINATED	**Project not funded.**
Customer Experience	**Provide world-class customer-centered service in every encounter, every day.**
Reliability & Resiliency	**Renew, replace, upgrade, modernize and extend the water and electric system infrastructure to ensure reliability is maintained or improved and that resilience to extreme events is maintained or improved.**
Affordability	**Keep water and electricity prices affordable and comply with Fiscal Policy.**
◯	**No impact from change in project funding from Option 3.**
↑	**Positive impact from change in project funding from Option 3.**
↓	**Negative impact from change in project funding from Option 3.**
↓↓	**Significant impact from change in project funding from Option 3.**
↓↓↓	**Severe impact from change in project funding from Option 3.**

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Electric Utility

		Features and Costs by Option (10 Years, FY 18/19 through 27/28)						
Project Category	**Projects**	**October 6, 2015 City Council Direction Option 3 - 4.8%**	**November 28, 2017 Revised Proposal Modified Option 1 - 3.0%**	**2.9% Average Rate Increase**	**2.8% Average Rate Increase**	**2.7% Average Rate Increase**	**2.6% Average Rate Increase**	**2.5% Average Rate Increase**
Overhead Projects *Projects to rehabilitate and replace overhead equipment, such as poles, wires, transformers, and streetlights to improve safety, efficiency and reliability of the electric system.*	Neighborhood Streetlight Retrofits to replace deteriorated streetlight posts, fixtures and power feeds city wide	✓	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED
	Rehabilitation and replacement of overhead equipment, including poles, and associated wires to meet California Public Utilities Commission General Order 165 standards	✓	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED
	4kV to 12kV neighborhood conversions to prevent circuit overload	✓	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED
	Overhead switch replacements	✓	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED
Overhead 10-year costs		**$150,800,000**	**$89,208,000**	**$89,208,000**	**$89,208,000**	**$89,208,000**	**$89,208,000**	**$89,208,000**
Impacts to Utility 2.0 Goals	**Customer Experience :**	◯	↓	↓	↓	↓	↓	↓
	Reliability & Resiliency :	◯	↓	↓	↓	↓	↓	↓
	Affordability :	◯	↑	↑	↑	↑	↑	↑

4.8%

-Replace 4,750 neighborhood streetlight retrofits over 10 years (improved from current rate of 100 per year).
-Replace 5,900 deteriorating/overloaded poles over 10 years (improved from current rate of 100 per year) with a replacement cycle of 37 years (improved from current cycle of 110 years). Pole conditions are considered deteriorating and requiring General Order 165 inspection at 15-30 years.
-Complete 34 conversions over 5 years (improved from current rate of 2 per year).
-Replace 720 switches over 10 years.

3.0% and below

-Reduce neighborhood streetlight retrofits by 75% to 1,270 over 10 years. This results in no further Neighborhood Street Light Retrofit projects beyond the boundaries of the Wood Streets, the elimination of proposed program to install reverse frontage lighting on streets where it currently does not exist, the reduction from 20 miles to 5 miles of arterial street light installations on streets where they currently do not exist, and the reduction from 105 miles to 28 miles of mast arm street lighting on wood poles which do not meet current lighting standards.
-Reduce pole replacements by 47% to 3,080 over ten years and increasing the replacement cycle to 70 years. Decreasing the replacement cycles of overloaded and deteriorated overhead structures increases the chance of downed wires, poles and extended outages due to aged switches.
-Delay 4-12kV conversions by 1 year.
-Reduce overhead switch replacements by 16% to 600 per year, resulting in more frequent outages that customers encounter during failure events.

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		Features and Costs by Option (10 Years, FY 18/19 through 27/28)						
Project Category	**Projects**	**October 6, 2015 City Council Direction Option 3 - 4.8%**	**November 28, 2017 Revised Proposal Modified Option 1 - 3.0%**	**2.9% Average Rate Increase**	**2.8% Average Rate Increase**	**2.7% Average Rate Increase**	**2.6% Average Rate Increase**	**2.5% Average Rate Increase**
2.9% and below -Reduction of Citywide Streetlight LED Lamp Replacement Program (see System Automation below) will reduce energy savings used to help fund neighborhood streetlight retrofits.								
Underground Projects *Projects to rehabilitate and replace underground conduits, cables, and related equipment to improve safety, efficiency and reliability of the electric system*	Miles of cable and conduit replacements	✓	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED
	Vault replacements and rehabilitations	✓	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED
	Underground switch replacements	✓	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED
Underground 10-year costs		**$154,423,000**	**$139,326,000**	**$139,326,000**	**$139,326,000**	**$139,326,000**	**$139,326,000**	**$139,326,000**
Impacts to Utility 2.0 Goals	**Customer Experience :**	◯	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓
	Reliability & Resiliency :	◯	↓	↓	↓	↓	↓	↓
	Affordability :	◯	↓	↓	↓	↓	↓	↓
4.8% -Replace 77 miles of cable and conduit over 10 years (improved from current rate of 3.5 per year) with a replacement cycle of 67 years (improved from current cycle of 96 years). The manufacturer's recommended replacement cycle is 50 years. -Replace/rehabilitate 320 vaults over 10 years. -Replace 145 underground switches over 10 years. RPU has identified underground infrastructure with the greatest need of rehabilitation. The original 4.8% rate increase would fund a comprehensive worst circuit replacement initiative. Reducing the amount of structures RPU replaces increases the risk of long-duration outages due to cable and vault failure. **3.0% and below** -Reduce cable/conduit replacements by 20% to 62 miles over 10 years and increasing the replacement cycle to 80 years. -Reduce vault replacements/rehabilitations by 18% to 262 over 10 years. -Reduce underground switch replacements by 20% to 116 over 10 years.								

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Substation Projects *Projects related to neighborhood power stations to efficiently distribute power throughout the service area.*	New neighborhood substation in Arlanza	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Substation transformer replacements	✓	✓	✓	✓	✓	✓	✓
	Substation switchgear replacements	✓	✓	✓	✓	✓	✓	✓
	Substation breaker replacements	✓	✓	✓	✓	✓	✓	✓
	Substation relay replacements	✓	✓	✓	✓	✓	✓	✓
Substation 10-year costs		**$98,102,000**	**$88,100,000**	**$88,100,000**	**$88,100,000**	**$88,100,000**	**$88,100,000**	**$88,100,000**
Impacts to Utility 2.0 Goals	**Customer Experience :**	○	○	○	○	○	○	○
	Reliability & Resiliency :	○	○	○	○	○	○	○
	Affordability :	○	○	○	○	○	○	○

Substation projects reduce the risk of high-volume and long-duration customer outages. RPU proposes to maintain the budget allocation for existing substation projects, resulting in no increased risk in this category.

4.8%
-Build new Arlanza neighborhood substation
-Replace 7 substation transformers with a replacement cycle of 83 years (improved from current rate of 116 years). Recommended useful life for substation transformers is 60 years.
-Replace 5 switchgears
-Replace 70 breakers
-Replace 570 substations relays

3.0%
-Eliminate new Arlanza neighborhood substation

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System Automation *Technology, security and system automation tools and applications to improve cyber security and overall efficiency.*	Operational Technology planning, management, and cyber & physical security improvements	✓	✓	✓	✓	✓	✓	✓
	Contact Center Interactive Voice Response System, Customer Web Portal, and Customer Information System	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Work, Asset and Inventory Management Systems	✓	✓	✓	✓	REDUCED	REDUCED	REDUCED
	Development of Geographic Information System (GIS) advanced analytical tools, new applications	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Mobile applications to support Work Management System, Customer Relationship Management system, inspection, Outage Management and GIS Integration	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Operational Data Management System Enhancements and business analytics to support data integration and reporting (KPI dashboarding)	✓	✓	✓	✓	✓	ELIMINATED	ELIMINATED
	Network Communications Systems to improve communication backbone and improve system functionality, efficiency and cybersecurity	✓	✓	✓	✓	✓	✓	✓
	Land-Mobile Radio system to improve office-to-field and field-to-field communication to support worker safety and emergency response	✓	REDUCED	DELAYED/ REDUCED	DELAYED/ REDUCED	DELAYED/ REDUCED	ELIMINATED	ELIMINATED

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Project Category	**Projects**	**October 6, 2015 City Council Direction Option 3 - 4.8%**	**November 28, 2017 Revised Proposal Modified Option 1 - 3.0%**	**2.9% Average Rate Increase**	**2.8% Average Rate Increase**	**2.7% Average Rate Increase**	**2.6% Average Rate Increase**	**2.5% Average Rate Increase**
	Advanced Metering Infrastructure (AMI) and Meter Data Management System to integrate AMI data and support customer facing applications and web integration of CIS	✓	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED
	Automated Vehicle Locating to improve fleet efficiency and support worker/crew locations for safety and outage management efficiencies.	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Distribution Automation System	✓	DELAYED	DELAYED	DELAYED	DELAYED/ REDUCED	DELAYED/ REDUCED	DELAYED/ REDUCED
	Substation Automation providing real-time monitoring of asset condition and control networks that allow secure remote access and control	✓	✓	✓	✓	✓	✓	✓
	Outage Management System to predict and detect outages automatically	✓	REDUCED	REDUCED	REDUCED	REDUCED	ELIMINATED	ELIMINATED
	Supervisory Control and Data Acquisition (SCADA) to improve system automation, efficiency and cyber security	✓	✓	✓	✓	✓	✓	✓
	EV Charging Infrastructure	✓	✓	✓	✓	✓	✓	✓
	Citywide Streetlight LED Lamp Replacement Program to replace old streetlight lamps with new LED lamps	✓	✓	REDUCED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
System Automation 10-year costs		**$108,300,000**	**$96,574,000**	**$86,817,000**	**$80,817,000**	**$71,602,000**	**$65,708,000**	**$59,175,000**

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Impacts to Utility 2.0 Goals	**Customer Experience :**	◯	↓	↓	↓	↓↓	↓↓	↓↓
	Reliability & Resiliency :	◯	↓	↓	↓	↓↓	↓↓	↓↓↓
	Affordability :	◯	◯	◯	◯	↓	↓	↓

Overall, the technology budget was reduced in each scenario to add funding to underground infrastructure projects.

3.0% and below

-Customer Engagement Portal and Interactive Voice Response System for customer self-service are eliminated, resulting in significant impact to customer service due to longer response times, abandoned calls, and lack of intuitive self-service options.
-Current city-wide project underway to convert outdated Geographic Information System (GIS) to a modern system continues, but all future updates, upgrades, or enhancements to GIS are eliminated.
-Eliminate Mobile Applications for the field work management system resulting in continued reliance on paper and inefficient manual processes.
-Deployment of commercial/industrial Advanced Metering Infrastructure (AMI) meters (2-way communication) is delayed by 1 year, and deployment of residential AMI meters (hybrid of 2-way and 1-way communication) is delayed by 2 years. This results in a negative impact on customer experience and operational efficiencies.
-Reduce scope of Electric Outage Management System, resulting in an negative impact on customers due to longer outages and wait times for utility response.

2.9% and below

-Eliminate Citywide Streetlight LED Lamp Replacement Program for residential street lighting systems. Shifts use of carbon reduction credits from Citywide Streetlight LED Lamp Replacement Program to renewable energy. This impacts the cost savings the LED streetlights would provide as well as some of the traffic and parking efficiencies and public safety-related enhancements that are gained through the smart systems.

2.8% and below

-Eliminate Citywide Streetlight LED Lamp Replacement Program for arterial street lighting systems. Shifts use of carbon reduction credits from Citywide Streetlight LED Lamp Replacement Program to renewable energy. This impacts additional cost savings the LED streetlights would provide as well as additional traffic and parking efficiencies and public safety-related enhancements that are gained through the smart systems.

2.7% and below

-Reduce and delay scope of Work, Asset and Inventory Management Systems, resulting in a negative impact to reliability and customer service, higher operating costs, and longer repair cycle times.
-Deployment of commercial/industrial AMI is delayed by 1 year and stretched out to 3 years and residential AMI is delayed by 3 years. This results in a further negative impact on customer experience and operational efficiencies.
-Reduce and delay Distribution Automation System, resulting in a negative impact on system reliability and operational efficiencies.
-Reduce scope of Electric Outage Management System, resulting in an increasingly negative impact on customers due to longer outages and wait times for utility response.
-Reduce scope for the future phases of the electric Supervisory Control and Data Acquisition (SCADA) system upgrade, and advancement (full integration to Outage Management, Distribution Management System, and work order management to support network simulation, analysis, and other advanced features) and delayed by a year, impacting operational efficiencies.

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2.6% and below -Eliminate Electric Outage Management System, resulting in an increasingly negative impact on customers due to longer outages and wait times for utility response. -Reduce scope of the electric Supervisory Control and Data Acquisition (SCADA) system. -Eliminate deployment of future phases of the Operations Data Management System (development of Advance Analytics, Enterprise Performance Dashboards), resulting in a negative impact on operational efficiencies. -Deployment of commercial/industrial AMI is delayed by 2 years and stretched out to 4 years and residential AMI is delayed by 5 years. This results in a further negative impact on customer experience and operational efficiencies. **2.5% and below** -Deployment of commercial/industrial AMI is delayed by 5 years and stretched out to 3 years and residential AMI is delayed by 7 years. This results in a further negative impact on customer experience and operational efficiencies.								
Recurring Projects *Recurring projects related to RPU's obligation to serve new incoming load*		✓	✓	✓	✓	✓	✓	✓
Recurring 10-year costs		**118,866,000**	**115,037,000**	**115,037,000**	**115,037,000**	**115,037,000**	**115,037,000**	**115,037,000**
Impacts to Utility 2.0 Goals	**Customer Experience :**	—	—	—	—	—	—	—
	Reliability & Resiliency :	—	—	—	—	—	—	—
	Affordability :	—	—	—	—	—	—	—
Recurring projects include the following: City-wide Communications, Distribution Automation/Reliability, Distribution Line Extensions, Lines Rebuilds / Relocate, Major Feeders, Major Overhead/Underground Conversions, Major Street Light Projects, Major Tract Distribution, Major Transmission Line Projects, Meters, Services, SCADA-Compliance/NERC, Street Lighting and Transformers.								
Total		**630,491,000**	**528,245,000**	**518,488,000**	**512,488,000**	**503,273,000**	**497,379,000**	**490,846,000**