

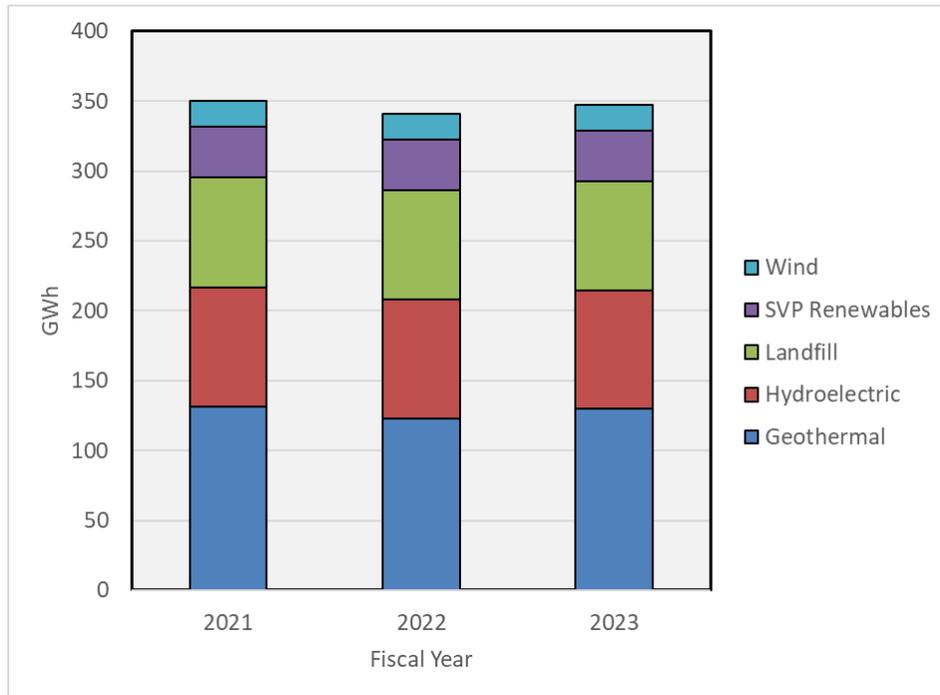


AMP has sufficient financial resources to cover all quantified risk events. There are financial guidelines adopted that require AMP to keep 145 days of cash-on-hand for each fiscal year. AMP’s projected reserves are listed at \$48.5 million in the April 2020 Pro Forma Report. The greatest individual quantified risk, is \$20 million from a failure of AMP’s transmission equipment, which could be covered by AMP’s \$48.5 million in reserves.

**1. Supply-Side Risks**

*Background*

AMP sources its power supply from long-term contracts and participation in NCPA generation projects. Supply-side risk occurs when the generators’ output does not meet the contracted or expected amount. This analysis assumes that the replacement power is purchased from the market, exposing AMP to market price risk. In quantifying exposure to market prices, a high-case and low-case amount are shown, each including a premium for clean power. For AMP’s power purchase agreements (PPAs), not including WAPA, the risk to AMP is not the actual market price, but the difference between the contract price and the market price. A price higher than the contract price would mean higher power costs, while buying replacement energy at lower market prices would reduce AMP’s power costs during a risk event. For WAPA and AMP’s share of NCPA generators, a high percentage of AMP’s costs are fixed, therefore, for any loss of generation output, the risk exposure is equal to the market price of that power.



**Chart 1: Alameda Municipal Power’s Generation Resources - Fiscal Years 2021 - 2023**

Staff used NCPA’s February 2020 market price projections to determine the forecasted market prices shown in Table 1. The high scenario market prices are based on 90th percentile values; in other words, 90 percent of the values fell below this price over the past four years. The low case numbers are from the 50th percentile values, or most likely market prices. Current prices are below the most likely “Low Market Price” scenario. On-peak and off-peak periods are

defined by the California Independent System Operator (CAISO) as follows: On-peak – 6am to 10pm M-Sat, Off-peak – all other hours. AMP has not forecasted impacts to market pricing as a result of any of the scenarios discussed in the report below.

Previously, staff has included assessments of the lost value of AMP’s renewable resources represented as Renewable Energy Credits (RECs) in its analysis for risk exposure. Given AMP’s 100 percent clean energy commitment, AMP will no longer engage in the sale of excess renewable RECs and will therefore not include in this analysis any economic loss because of losing RECs. Staff has instead included a clean energy premium that is embedded in the purchase of any replacement energy from the market as shown in Table 1 below to maintain AMP’s 100 percent clean portfolio. Based on the timing of any unexpected loss of generation and the market conditions it may not be possible to find available replacement clean power for short term contracting.

**Table 1: Forecasted Market Prices by Fiscal Year (FY)**

Value Description	FY 2021	FY 2022	FY 2023
<b>On-Peak Low Clean Energy Market Price [\$/MWh]</b>	\$44	\$45	\$44
<b>Off-Peak Low Clean Energy Market Prices [\$/MWh]</b>	\$38	\$41	\$41
<b>On-peak High Clean Energy Market Prices [\$/MWh]</b>	\$71	\$73	\$71
<b>Off-Peak High Clean Energy Market Prices [\$/MWh]</b>	\$60	\$63	\$63

*Dry hydrologic conditions affecting hydroelectric generation*

AMP serves 24 percent of its load from hydroelectric generation on average. AMP’s hydroelectric generation comes from NCPA’s Calaveras Project and from the WAPA’s Central Valley Project, with energy generated from both large and small volume reservoirs. While all hydroelectric generation is carbon-free, only the small volume reservoirs are Renewable Portfolio Standard (RPS) compliant. The RPS compliant, small volume hydroelectric energy provides approximately 7 percent of the total hydroelectric power in AMP’s portfolio.

The amount of available generation varies considerably between years with dry and wet conditions. During dry conditions, mainly determined by the amount of snowpack in the Central California mountains, less water is available in the reservoirs to spin the turbines that generate electricity. During periods of dry hydro conditions, AMP replaces the reduced hydroelectric output by purchasing clean energy from the market and is exposed to market price risk.

AMP’s cost exposure resulting from dry conditions is calculated by multiplying the projected volume of reduced energy over a 12-month period by the projected high and low market prices for electricity over the same period. The reduction in the project’s variable production costs are then subtracted from the calculated cost exposure to quantify associated cost for procuring market power in place of lost power from the hydroelectric facilities. As is the case for most non-fossil fuel generation, the variable production costs represent a small fraction of the total costs for hydroelectric generation and thus AMP still pays a substantial amount of fixed costs in the event of reduced generation. In the case of WAPA, AMP’s contract is a fixed amount

that is completely independent of the amount of energy delivered. In dry years, power costs have been observed to increase up to \$1 million due to low hydroelectric generation that year.

**Table 2: Exposure from Hydroelectric Generation in Forecasted Dry Conditions for High and Low Market Pricing by Fiscal Year (FY)**

Generation Resources	Exposure - (\$Mi)					
	FY 2021		FY 2022		FY 2023	
Market Price Factor	High	Low	High	Low	High	Low
Hydroelectric Generation [All]	\$2.2	\$1.3	\$2.3	\$1.3	\$2.2	\$1.3

*Dry hydrologic conditions affecting landfill generation*

AMP expects to serve approximately 22 percent of the load from four landfill-gas facility projects. Dry hydrologic conditions can result in deteriorated gas quality and subsequent declines in electricity output. Under extended dry conditions, the cover over the landfill can fracture and form cracks, which allows air to be sucked into the landfill, also reducing gas quality.

A 10 percent reduction in generation output is assumed during a critical dry hydro year from potential gas quality deterioration. On average, AMP’s landfill contracts exceed the cost of replacement clean power from the market resulting in limited financial risk.

**Table 3: Exposure from Landfill Generation in Forecasted Dry Conditions for High and Low Market Pricing by Fiscal Year (FY)**

	Exposure - (\$Mi)					
	FY 2021		FY 2022		FY 2023	
Market Price Factor	High	Low	High	Low	High	Low
Landfill - Dry conditions Risk	\$-	\$(0.2)	\$-	\$(0.2)	\$-	\$(0.2)

*Geothermal steam field decline*

AMP serves approximately 37 percent of its load from the NCPA Geothermal Plants. Geothermal steam-field production at NCPA’s geothermal facilities has gradually declined over time as steam pressure drops due to power generation activity. NCPA forecasts the rate of decline as roughly 2 percent on an annual basis. NCPA prepares steam-field production forecasts to plan for declines in energy production in advance. Measures to mitigate steam-field decline risk, such as injection of treated effluent water, have helped to stem the decline. It is likely that such mitigation measures will maintain production at the projected levels. In the event of an unanticipated accelerated drop in production, AMP could face market price exposure as it seeks to replace the lost generation.

Hydrologic conditions can also affect the production of energy from the geothermal facilities. Approximately 40 percent of the water utilized for re-injection is delivered from Clear Lake.

During dry periods when the level of water in the lake falls below a pre-determined level, NCPA may not have access to additional water from the lake.

To calculate AMP’s annual cost exposure, the rate of decline in output was accelerated from 2 percent to 4 percent and the total cost is calculated by multiplying the volume of lost energy by the high and low case projected market prices and subtracting the variable production costs.

**Table 4: Exposure from Geothermal Generation in Forecasted Dry Conditions for High and Low Market Pricing by Fiscal Year (FY)**

	Exposure - (\$Mi)					
	FY 2021		FY 2022		FY 2023	
Market Price Factor	High	Low	High	Low	High	Low
<b>Geothermal - Dry conditions risk</b>	\$0.2	\$0.1	\$0.3	\$0.2	\$0.5	\$0.3

**Table 5: Consolidation of Exposure from Forecasted Dry Conditions for High and Low Market Pricing by Fiscal Year (FY)**

	Exposure - (\$Mi)					
	FY 2021		FY 2022		FY 2023	
Market Price Factor	High	Low	High	Low	High	Low
<b>Hydroelectric Generation [All]</b>	\$2.2	\$1.3	\$2.3	\$1.3	\$2.2	\$1.3
<b>Landfill Generation</b>	\$-	\$(0.2)	\$-	\$(0.2)	\$-	\$(0.2)
<b>Geothermal Generation</b>	\$0.2	\$0.1	\$0.3	\$0.2	\$0.5	\$0.3
<b>Total Exposure</b>	\$2.4	\$1.2	\$2.6	\$1.3	\$2.7	\$1.4

*Low Wind Year Risk*

AMP serves approximately 7 percent of its load from contracted wind resources in Solano County. Although staff estimates the expected output over the long-term to be constant, variations in weather patterns and wind speeds from year to year can result in higher or lower output from the wind projects. For this analysis, the risk is estimated as a 10 percent generation reduction, the cost of which is calculated by multiplying the lost energy production by the difference between market prices for clean energy and the contract cost. The results are summarized in Table 8.

*Curtailement Risk*

Excess solar and wind generation (the “duck curve”) periodically result in negative prices and increase the risk of curtailment of daytime generation sources to account for the glut of daytime generation. With all non-dispatchable contracts and NCPA generation there is a balance between paying negative prices to generate and losing out on RECs for renewable portfolio standard (RPS) compliance. In the case of AMP’s contracts, AMP would still be required to pay the contract rate for any curtailed power. The issue of curtailment risk is currently and for the foreseeable future primarily a risk for those utilities with large investments in utility scale solar and, to a lesser extent, wind. AMP has no utility scale solar currently in its portfolio and AMP’s wind contract is small enough to pose little curtailment risk.

*Default Risk*

In the event of default, it is possible that the counterparty with which AMP has a PPA will not be able to perform under the energy delivery provisions of the agreement. AMP will therefore be exposed to market price risk as it seeks replacement power. Ameresco and Republic operate the landfill gas plants and analysis of the contract agreements in 2011 showed that AMP’s right to take over operation of a facility would provide little value in the event of a financial default by these two companies due to the limitation at AMP for running a generation facility and the additional costs involved. The risk is mitigated because the institutions funding these operators have a stake in the operation and would work with AMP to minimize disruptions to service.

Additionally, it should be noted that while AMP’s power portfolio is diversified, a significant share of the supply portfolio (approximately 50 percent) is represented by NCPA projects. This concentration of risk is mitigated by NCPA’s robust and comprehensive risk management program and the strong weighted average credit rating of the various project participants (also municipalities). NCPA’s bond issues are rated as of June 30, 2019, at the following:

<b>Debt Credit Ratings:</b>	<b>Standard &amp; Poor’s</b>	<b>Fitch</b>	<b>Moody’s</b>
<b>Geothermal</b>	A-, stable	A+, stable	A1, stable
<b>Hydroelectric</b>	A+, stable	AA-, stable	Aa3, stable
<b>Capital Facilities</b>	A-, stable	Not rated	A1, stable

When evaluating procurement transactions, AMP takes into consideration the financial strength and commercial viability of parties offering power supply services. AMP’s credit risk exposure is determined by monitoring credit ratings and financial statements of its counterparties. In addition, AMP can measure the percentage share of total energy provided by its various counterparties to gauge counterparty concentration risk. AMP’s largest counterparty is Ameresco. On average, AMP’s Ameresco landfill contracts exceed the cost of replacement clean power from the market resulting in limited financial risk.

*NCPA Plant Insurance - property damage or business interruption*

NCPA carries insurance for the joint facilities to cover catastrophic loss, property damage, and business interruption events. Possible events include generator failures, plant property damage caused by fires, or extended transmission outages causing NCPA plants to remain offline. AMP’s risk exposure is limited to the share of the insurance deductible and any uninsured costs to repair NCPA facilities. NCPA’s coverage is limited to \$325 million in property loss in a policy year and subject to a \$500,000 deductible. Alameda’s overall cost estimate of the amount AMP may reasonably expect to fund for insurance deductibles, self-insured retention, or uninsured risk in the event of property loss is \$2 million per year. This does not represent the worst-case scenario.

*Transmission and Distribution Risks*

The California Independent System Operator (CAISO) assesses high- and low-voltage Transmission Access Charges (TAC) for transmitting power over the CAISO-controlled grid. As additional high-voltage transmission lines are built to integrate renewable energy resources across California, the cost of these new lines will be added to the charges from the CAISO.

The high- and low-voltage TAC is projected to increase to fund required upgrades and other transmission-related activities needed to integrate renewables. In recent years, TAC has already increased substantially. For the purpose of this analysis staff quantified the risk as a 10 percent increase over the forecast in each year going forward.

The risk exposure associated with the distribution system is based on the unanticipated repair and/or replacement of the highest cost and most critical distribution system facilities. This risk is quantified by estimating the replacement cost of a 115 kilovolt (kV) submarine cable. This estimate has increased substantially in recent years.

**Table 6: Exposure with a 10 Percent Increase in Transmission Charge Over Forecasted and the Cost for Replacement of a 115 kV Submarine Cable by Fiscal Year (FY)**

	Exposure - (\$Mi)		
	FY 2021	FY 2022	FY 2023
<b>Transmission Access Costs @ 10% over forecast</b>	\$1	\$1	\$1
<b>AMP Transmission and Distribution equipment replacement cost</b>	\$20	\$20	\$20
<b>Total</b>	\$21	\$21	\$21

It is noteworthy that the loss of a 115kV submarine cable would require upwards of \$20 million to replace. During the time the transmission line is not available to AMP (2-3 years), AMP would experience a significant degradation in reliability and ability to perform normal operations.

**2. Demand-side Risk**

*Loss of Electrical Load*

Customer load may be reduced due to commercial customers exiting service, reduction in usage due to energy efficiency or from onsite generation independent of AMP service. While AMP attempts to account for all of the above factors within the annual load forecast there still exists the possibility of a major shock such as a recession or rapid technology change that could reduce AMP’s load well beyond expectations. In the case of the current coronavirus crisis, the impacts to the commercial sector largely follow the expectations of a major recession with reduced load, while the residential sector has increased consumption. To estimate the additional risk of reduction in customer load, a 50 percent additional reduction has been calculated over the top ten customers who serve approximately 20 percent of AMP’s load. This amount of load is also approximately equal to a 10 percent reduction in total sales across all customer classes.

Net revenue is defined as the loss of revenue from sales minus power costs, which are lower because load is lower in this scenario. This is calculated by multiplying the kilowatt hour (kWh) sales decrease by the large commercial rate and subtracting the product of the load decrease (including losses) and the wholesale market power rate. The high and low range for wholesale market power prices are used to determine the range of impacts for this potential risk. The above scenario would amount to financial risk of an average of \$3.2 million for the high market price case and \$4.1 million for the low market price case over the next three years.

**Table 7: Exposure with Losing 50 Percent of the Top 10 Commercial Customer’s Load with High and Low Market Pricing by Fiscal Year (FY)**

	Exposure - (\$Mi)					
	FY 2021		FY 2022		FY 2023	
Market Price factor	High	Low	High	Low	High	Low
10 % Loss of Customer Sales	\$3.1	\$4	\$3.2	\$4.1	\$3.4	\$4.3

**3. Legislative and Regulatory Risk**

*Federal*

AMP is registered with the Federal Energy Regulatory Commission (FERC) as a Distribution Provider (DP) and Load Serving Entity (LSE). As a result, AMP is formally exposed to risk during both spot audit and annual self-certification. Since the imposition of financial penalties is subject to litigation, the evaluation of AMP’s potential risk due to its current and possible future compliance requirements is not quantified.

*State*

California’s Cap and Trade (C&T) regulation imposes the cost of compliance on the power generator and on the first deliverer of power to the CAISO Balancing Area. As such, AMP’s exposure to this regulation is minimal, limited to AMP’s share of the emissions obligations from the two NCPA combustion turbine (CT) generation units and steam-injected gas turbines (STIG). Since the CTs do not run very often, they have thus far been exempted from the impacts of the regulations and NCPA intends to keep their generation below the threshold. The California Air Resources Board (CARB) now treats STIG and the Lodi Energy Center (LEC) as one unit so each kWh of STIG generation incurs a greenhouse gas (GHG) emissions compliance obligation.

Senate Bill (SB) 100 is the latest update to California’s Renewable Portfolio Standard Program. The state now mandates LSEs provide 60 percent of their sales from renewable energy by 2030 and 100 percent of their sales from clean energy by 2045. With the end of AMP’s REC sales, AMP is well ahead of schedule in meeting current and future RPS compliance targets.

There are numerous other federal and state regulatory mandates that have been proposed. The impact of these regulations has not been explicitly included in this analysis. Some mandates could have a future impact that has not been quantified.

#### **4. Other risks**

##### *Wildfire Liability*

While the City of Alameda does not include any areas of high wildfire threat within its territory, AMP is exposed to wildfire liability as a result of its participation in several NCPA projects as well as transmission lines. For the current policy year, NCPA maintains \$60 million of wildfire liability insurance. However, even this low level of coverage is becoming increasingly difficult to source as the insurance industry is removing itself from California's wildfire liability coverage. NCPA is currently seeking out options for self-insurance, similar to the City of Alameda's participation in the California Joint Powers Risk Management Authority or the state's newly formed Wildfire Fund for investor-owned utilities (IOUs).

##### *Other Coronavirus Impacts*

In addition to the reduced commercial sector load referenced in the *Loss of Electrical Load* section there is an increased risk of deferred, discounted, or uncollected payments. As many sectors of the economy struggle in the wake of the coronavirus it is increasingly likely that more customers will face difficulty paying their utility bill. AMP was one of the first utilities to cease all disconnections for non-payment in response to the current crisis. AMP continues to encourage customers to reach out to our customer service team to discuss payment assistance programs. Depending on an individual's circumstances they will be directed to various payment assistance/deferral programs. As the coronavirus crisis extends AMP may see more substantial revenue impacts and staff has begun the process to evaluate these impacts

##### *Technology Risk*

As California and Alameda ramp up their efforts to reduce greenhouse gas emissions, electrification and energy storage are two broad categories of technologies with the potential to greatly change the operations of our industry. The City of Alameda introduced a requirement for the electrification of any new residential construction on City land. In the near-term, AMP sees no major risks with the additional electrification of load. In the medium to long-term, there could be scenarios where substation-expansions or new substations are required to meet large increases in load due to electrification. In the near-term, AMP sees no major risks with the adoption of distributed energy storage. In the medium to long-term, energy storage paired with distributed solar has the potential to substantially decrease electrical load and revenues. There will be opportunities for these two risks to offset with the adoption of more advanced rate design.

##### *Cyber Threats*

Utility assets are increasingly targeted with malicious cyber attacks. Cyber attacks bring a range of possible risks including data corruption, obtaining customer information, and even potentially interrupting AMP's ability to deliver power to customers. AMP has responded by moving forward with a robust cybersecurity plan and an institutional commitment throughout the organization to cyber-awareness as AMP expands its use of technology to better serve customers.

##### *Compliance with California Renewable Portfolio Standard*

As AMP presented to the Board this past September, because of AMP’s longstanding renewable portfolio AMP staff projects that we will have over 1,300,000 excess RECs at the end of Compliance Period 3. As AMP’s current portfolio is already above 60% renewable, staff sees no risk to comply with the Renewable Portfolio Standard.

**SUMMARY**

This report outlines the financial risk that AMP is currently exposed to. When feasible, risk should be acknowledged and addressed with mitigation. The probability of simultaneous occurrence of all discussed risks is low. However, there is the possibility that multiple events happen like a fire that causes both facility repair and a loss of generation that would need to be paid for at market price. In these cases it would be beneficial to display the potential financial exposure together.

**Table 8: Consolidation of Discussed Risk Exposure for High and Low Market Pricing by Fiscal Year (FY)**

Risk event	Exposure - (\$Mi)					
	FY 2021		FY 2022		FY 2023	
	High	Low	High	Low	High	Low
<b>Market Price Factor</b>						
<b>Dry conditions Risk</b>	\$2.4	\$1.2	\$2.6	\$1.3	\$2.7	\$1.4
<b>Customer Load Loss Risk</b>	\$3.1	\$4	\$3.2	\$4.1	\$3.4	\$4.3
<b>Low Wind Years Risk</b>	\$-	(\$-)	\$-	(\$-)	\$-	(\$-)
<b>NCPA Plant Damage Risk</b>	\$2		\$2		\$2	
<b>Transmission and Dist. Risk</b>	\$21		\$21		\$21	
<b>Total Exposure</b>	\$28.5	\$28.2	\$28.8	\$28.4	\$29.1	\$28.7

**Risk Mitigation**

AMP has policies and processes to assure that risks are managed. These include NCPA’s risk management programs as well as AMP’s Transaction Authorities and Guidelines, adopted by the Board in January 2012 through Resolution No. 4890.

AMP staff have had a longstanding practice that funding adequate reserves is the key method for minimizing the impact from these risks. Reserves are maintained at both AMP and NCPA. NCPA maintains insurance for its facilities, with AMP’s exposure being a percentage share of the deductible on those facilities.

AMP generally takes the position of locking in power resources and prices under long-term contracts, thus minimizing the exposure to market price volatility. Additionally, having a large percentage of renewable energy projects further reduces AMP’s exposure to penalties and costs for compliance with GHG and RPS mandates.

AMP has implemented a fixed customer or meter charge for each rate class. This charge is not dependent on customer usage and thus helps to recover the costs of customer billing and overheads, independent of energy usage. Staff plans to continue to restructure rates to recover more of the fixed costs of the distribution system.

AMP's Energy Adjustment Charge (EAC) is a charge per kWh to assist in the recovery of costs related to purchased power not adequately covered from the base rates. EAC assists in recovering unexpected losses stemming from purchasing market power due to the unavailability of scheduled generation, changes in load, and other power supply related issues. As a result of limited deviations in expected generation and load AMP has been able to keep EAC at \$0/kWh for the past two years.

AMP mitigates the risk of potential regulatory mandates through active participation in regional, statewide, and national forums that advocate for cost-effective and efficient regulation. Primary advocacy is through the California Municipal Utilities Association (CMUA), the NCPA Legislative and Regulatory program, the Transmission Agency of Northern California (TANC), and the American Public Power Association (APPA).

To address wildfire liability, NCPA is continuously improving its already robust wildfire practices with increased vegetation management and additional infrastructure upgrades. NCPA is also currently seeking alternative forms of wildfire liability insurance to enhance coverage.

To address cyber threats, AMP has pushed forward with cybersecurity plan to protect its systems. All AMP staff are routinely required to take Cyber training and are subjected to Phishing test emails to get a better understanding of this potential threat. Staff has completed three outside contractor cyber assessments in the past year and presented the results from one to the PUB in closed session. AMP is also upgrading its IT hardware and software to provide further cyber threat protections.

### FINANCIAL IMPACT

There is no direct or immediate financial impact. The results of the annual utility business risk quantification update serve to inform subsequent activities, which include next year's 10-year Pro Forma, the rate adjustment process, and future risk management and reserves policy.

### NEXT STEPS

Staff will continue to monitor the level of reserves against AMP's risk exposure. Additionally, staff will work with NCPA to expand wildfire liability coverage and enhance AMP's resilience to cyber threats.

Lastly, staff will continue to evaluate the impacts of the current coronavirus crisis and develop new risk mitigations strategies if needed.

### LINKS TO STRATEGIC PLAN AND METRICS

#### Business Resiliency

Strategy 2: AMP will develop financial planning processes that provide fiscal stability and clearly communicate service priorities with their associated costs.

T1: Include a longer-term outlook of the Capital Improvement Plan in the annual budget.

T2: Improve rate design to reflect AMP's Strategic Plan.

KPI: Maintain rates at 15 percent or more below PG&E and 10 percent or more below local CCAs.

EXHIBIT

A. Power Point Presentation

# **Fiscal Years 2021 – 2023 Business Risk Quantification Report**

May 18, 2020

# Overview

- Background
- Risk exposure and mitigation
  - Examples of risk events
  - Cost exposure
  - Mitigation reserves and policy
- Summary
- Next Steps

# Background

## Historical risk quantification reports

- Reports generated every three years; first report issued in 2009
- Present report examines risk from fiscal years (FY) 2021 - 2023

## Reasons for quantifying risk

- To develop a metrics for estimating exposure through risk events
- To ensure that potential risk is mitigated through reserves and policy

# Quantifying Risk

## How risk exposure is quantified

- Exposure through supply-side risk is measured as the cost of buying clean energy at market price.
- Exposure through transmission is measured as unexpected increases in transmission charges.
- Exposure through distribution, and customer risk is measured as the loss of major equipment and/or customers.
- Other new and emerging risks are identified but not quantified.
  - AMP and NCPA follow best industry practices to minimize these risks

# Examples of Risk Events

- **Supply**
  - Drought conditions
  - Landfill-gas field decline
  - Facility failure, damage, or interruption
- **Distribution and load**
  - Increase in transmission cost
  - Distribution system component failure
  - Reduction in customer load
- **Emerging Risks**
  - COVID - 19
  - Wildfire Liability
  - Cyber Threats

# Financial exposure

Risk event	Exposure - (\$Mi)					
	FY 2021		FY 2022		FY2023	
Market Price Factor	High	Low	High	Low	High	Low
Dry year	\$2.4	\$1.2	\$2.6	\$1.3	\$2.7	\$1.4
Customer Load Loss	\$3.1	\$4	\$3.2	\$4.1	\$3.4	\$4.3
Low Wind Years Risk	\$-	(\$-)	\$-	(\$-)	\$-	(\$-)
Uninsured Loss	\$2		\$2		\$2	
Transmission & Distribution Risk	\$21		\$21		\$21	
<b>Total Exposure</b>	\$28.5	\$28.2	\$28.8	\$28.4	\$29.1	\$28.7

# Transmission and Distribution Risk

- 10 percent additional transmission access charge on top of forecast
- Estimated cost for 115 kilovolt (kV) submarine cable
  - The estimate doesn't include cost of business interruption

Category	Exposure - (\$Mi)		
	FY 2021	FY 2022	FY2023
Transmission Access Costs @ 10% over forecast	\$1	\$1	\$1
AMP Transmission and Distribution equipment replacement cost	\$20	\$20	\$20
<b>Total</b>	<b>\$21</b>	<b>\$21</b>	<b>\$21</b>

# Risk Management Strategies

## Measures and policy to mitigate risk

- Alameda Municipal Power (AMP) funding adequate reserves
- Northern California Power Association (NCPA) risk management program
- Long-term power purchase agreements
- Legislative and regulatory advocacy
- Fixed customer charge
- Energy Adjustment Charge (EAC)

# Emerging Risks and Mitigations

- **Loss of Revenues due COVID – 19**
  - AMP plans to use its reserves to manage any impacts to revenues in the short-term.
  - AMP will develop additional mitigation measures in future if needed.
- **Wildfire Liability**
  - NCPA follows best practices for vegetation management and infrastructure maintenance.
  - NCPA is seeking alternative forms of wildfire liability insurance to enhance coverage.
  - NCPA is seeking legislative changes to protect public utilities from wildfire liability.
- **Cyber Threats**
  - AMP follows industry best practices for cybersecurity protocols and infrastructure.
  - AMP has worked extensively on educating its employees about cybersecurity threats.

# Risks and Reserves

- AMP has enough reserves to meet the total value of quantified risk exposure in any given year.
  - Reserve levels below \$24.7 million would require funding in subsequent years to meet the Board-approved days of cash-on-hand requirement.

Source	(\$000)
Average Total Quantified Risk, Annually	(\$28,500)
AMP Projected FY2021 Reserves	\$48,500
Coverage through reserves	\$20,000

*FY 2021 Reserve Requirement based on Board-approved 145 days of cash-on-hand:  
**\$24.7 million***

# Next Steps

- Continue to monitor AMP's reserve levels against AMP's risk exposure
- Continue to evaluate impacts due to COVID-19
- Continue to pursue expanded wildfire liability coverage and legislative changes with NCPA
- Continue to enhance AMP's resilience to cyber threats

# Questions?

Alan Harbottle  
Energy Resources Analyst  
(510) 814-6403  
harbottle@alamedamp.com