

To: Honorable Public Utilities Board

Submitted by: _____/s/_____

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AGM – Customer Resources

From: James Dorrance
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Approved by: _____/s/_____

Nicolas Procos
General Manager

Subject: Energy Risk Quantification Report – Information Only

RECOMMENDATION

This report is *for information only*. The Utility Energy Risk Quantification report provides information regarding the economic risks and uncertainty associated with Alameda Municipal Power's (AMP) power supply and other major costs and revenue for fiscal years 2018-2020.

BACKGROUND

Staff prepares assessments on a triennial basis of AMP's energy risk over the subsequent three fiscal years. The types of risks inherent in energy resources stem from supply-side risk, transmission and distribution risk, reduced demand, and the inability to comply with legislative and regulatory requirements. This update outlines anticipated risks for fiscal years (FY) 2018-2020 and includes the steps AMP has taken to mitigate such risks.

AMP has policies in place to ensure that risks are managed. These include the Northern California Power Agency (NCPA) risk management program and AMP's Financial Guidelines for Rates, Revenues, and Reserves.

DISCUSSION

The financial exposure averaged per year over the FY 2018-20 period, should each individual risk occur concurrently, ranges from \$13 million to \$12 million for the high and low values. Since each risk occurring at the same time has a low probability, the report focuses on the risks with high or significant cost exposure. For example, the exposed risk due to a reduction in hydro-electric generation from the Western Area Power Administration sites is large because we pay a fixed price, regardless of the amount of generation we receive. In addition, our exposed risk for a local distribution component failure is also large based on the cost of replacing key system components.

AMP has sufficient financial resources in the event that a risk event occurs. There are financial guidelines adopted that require AMP to keep 145 days of cash-on-hand for each fiscal year, and currently, \$22 million has been budgeted for FY 2018. AMP's current reserves are listed at

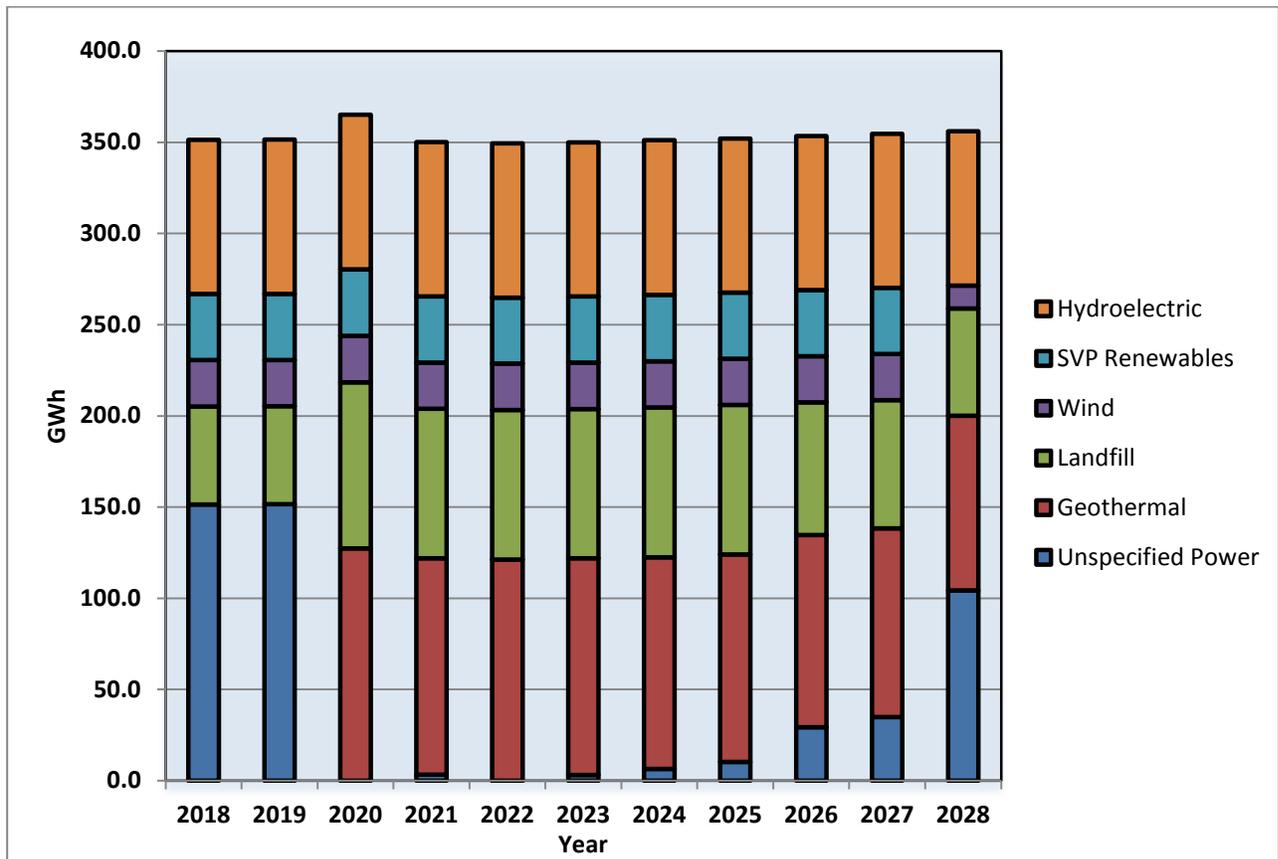
\$33.2 million in the June 2017 Treasurer’s Report. The greatest individual risk is \$5.6 million from a failure within AMP’s distribution system, which could be covered by AMP’s \$21.6 million in reserves.

1. Supply-Side Risks

Background

AMP has long-term contracts or project ownership with the generators. 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 on the wholesale market, exposing AMP to market price risk. In quantifying exposure to market prices a high-case and low-case amount are shown. The risk to AMP is not the actual power 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.

Chart 1: AMP’s generation resources over time



Staff used NCPA’s June 6, 2017 market price projection to determine the forecasted market prices shown in Table 1. The high case numbers, or most likely prices, are based on 90th percentile values; these are where 90 percent of the values fell below this price over the past four years. The low case numbers are from the 50th percentile values.

Staff has included assessments of the value of AMP’s renewable resources represented as Renewable Energy Credits (REC). Utilities with excess renewable resources are able to take advantage of the market for the sale of renewable attributes from these resources. On November 26, 2016 the Board approved the sale of RECs to Shell Energy North America from January 1, 2017 through December 31, 2019. The price per REC was \$13.15 per at the time of Board approval, and this dollar value is used to estimate the economic loss as a consequence of losing RECs.

Table 1: Forecasted Market Prices

Value Description	FY 2018	FY 2019	FY 2020
On-Peak Low Market Price [\$/MWh]	\$46.37	\$46.59	\$46.84
Off-Peak Low Market Prices [\$/MWh]	\$36.62	\$36.84	\$37.09
On-peak High market Prices [\$/MWh]	\$57.16	\$57.38	\$57.63
Off-Peak High Market Prices [\$/MWh]	\$46.30	\$46.52	\$46.77
Renewable Energy Credit Sales Revenue [\$/REC]	\$13.15	\$13.15	NA

Dry hydrologic conditions affecting hydroelectric generation

AMP currently serves 24 percent of its load from hydroelectric generation. There are facilities managed by NCPA that provide generation with the cost based on output. AMP also receives energy from the Western Area Power Administration (WAPA) 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.

During historically wet years where large volumes of snowpack exist, dry conditions still need to be considered. During dry conditions AMP receives less generation from the hydro facilities due to having less water available for the spinning turbines that generate energy. The reduced quantity of snowpack affects the yearly production of energy from the facilities. During the periods of dry hydro conditions, AMP would replace the reduced hydroelectric output by purchasing power on the wholesale market and be 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-case market numbers for electricity over the same period. The reduction in the project’s variable production cost is subtracted to quantify associated cost for procuring market power in place of lost power from the hydroelectric facilities. The exception being the WAPA contract where AMP pays a fixed-dollar amount that is independent of the amount of energy delivered. In dry years power costs have been observed to increase up to \$1million due to low hydroelectric generation that year.

Table 2: Exposure from generation resources in forecasted dry conditions

Generation Resources	Exposure - (\$000)					
	FY 2018		FY 2019		FY2020	
Market Price Factor	High	Low	High	Low	High	Low
Hydroelectric Generation [All]	\$2,150	\$1,710	\$2,180	\$1,750	\$2,190	\$1,760
Landfill Generation	(\$140)	(\$240)	(\$150)	(\$250)	(\$150)	(\$250)
Geothermal Generation	\$140	\$110	\$280	\$220	\$410	\$320
Value of Loss REC's total	\$90		\$60		NA	
Total Exposure	\$2,240	\$1,670	\$2,370	\$1,780	\$2,445	\$1,830

Dry hydrologic conditions affecting landfill generation

AMP currently serves approximately 18 percent of the load from five 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 is assumed during a critical dry hydro year because gas quality deterioration has the potential to reduce production by 10 percent or more. It cannot be assumed that market prices will remain low but they are forecasted as such for the duration of this risk study. Loss value from RECs is included with the total for FY 2019 being halved to account for the ending of the program at the end of calendar year (CY) 2019.

Table 3: Exposure for landfill generation in forecasted dry conditions for high and low market pricing

	Exposure - (\$000)					
	FY 2018		FY 2019		FY2020	
Market Price Factor	High	Low	High	Low	High	Low
Landfill - Dry conditions Risk	(\$140)	(\$240)	(\$150)	(\$250)	(\$150)	(\$250)
REC Loss Value Total - \$ (qty.)	\$55 (4,125)		\$30 (2,068)		NA	
Total Exposure	(\$85)	(\$185)	(\$120)	(\$220)	(\$150)	(\$250)

Geothermal steam field decline

At present, AMP does not serve any load from geothermal projects after having sold the power and the RECs. The Shell contract is output based and currently there is no penalty with reduction in generation. While under contract, the geothermal projects could serve 38 percent of AMP's load and do need to be addressed as a risk. Geothermal steam-field production at NCPA's geothermal facility has gradually declined over time as steam pressure dropped due to

power generation activity. NCPA has forecast the rate of decline as roughly 2 percent on an annual basis. Uncertainty in the forecast of geothermal energy production however represents exposure for AMP because Alameda’s share of energy deliveries from the geothermal projects will decline as steam-field production declines.

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.

AMP’s annual cost exposure resulting from an accelerated decline in output, accelerated from 2 percent to 4 percent, 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 for geothermal generation in forecasted dry condition for high and low market pricing

	Exposure - (\$000)					
	FY 2018		FY 2019		FY2020	
	High	Low	High	Low	High	Low
Market Price Factor						
Geothermal - Dry conditions risk	\$135	\$105	\$265	\$210	\$370	\$295
REC Loss Value Total - \$ (qty.)	\$35 (2,760)		\$35 (2,760)		NA	
Total Exposure	\$170	\$140	\$300	\$245	\$370	\$295

Table 5: Consolidation of exposure from forecasted dry conditions for high and low market pricing

	Exposure - (\$000)					
	FY 2018		FY 2019		FY2020	
	High	Low	High	Low	High	Low
Market Price Factor						
Hydroelectric Generation [All]	\$2,150	\$1,710	\$2,180	\$1,750	\$2,190	\$1,760
Landfill Generation	(\$140)	(\$240)	(\$150)	(\$250)	(\$150)	(\$250)
Geothermal Generation	\$135	\$105	\$265	\$210	\$370	\$295
Value of Loss REC's total	\$90		\$60		NA	
Total Exposure	\$2,235	\$1,665	\$2,355	\$1,770	\$2,410	\$1,805

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 the purpose of 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 and the contract cost.

Curtailement Risk

Excess solar and wind generation (the “duck curve”) periodically result in negative prices and increase the risk of curtailment of other generation sources to account for the glut of daytime generation. Curtailment endangers the amount of eligible renewable resources available for RPS compliance. AMP does have significant historical carry over REC’s to maintain RPS compliance. The same goes for the geothermal generation which could be curtailed by NCPA when prices reach a certain point.

Default Risk

In the event of default, it is possible that the counterparty with which AMP has a power purchase agreement (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 the facts that NCPA maintains its own robust and comprehensive risk management program and maintains a high credit rating. NCPA is currently rated A+ by Fitch, between A- and A+ by S & P, and A1 to A3 by Moody’s, depending on the particular bond issue.

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.

Fire or other event causing lost generation and facility repair costs

Some of the generation facilities that serve AMP’s load are located in areas that are prone to wild fire that could both damage a facility and reduce or stop generation there for some time. There would be associated facility repairs costs and the cost of procuring replacement energy at

market cost. These are evaluated into this analysis as exposure cost for buying replacement energy and available funds in the NCPA General Operating fund (\$2.4 million) for repairs. Another concern is security vulnerabilities at the facility sites where those with malicious intent could gain access to the facility. NCPA has taken appropriate action to allocate funding to upgrade security and restrict facility access to address this concern.

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. AMP’s 10-year budget incorporates annual increases in the TAC of up to 5 percent annually. As the TAC has already increased substantially in recent years, 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 kV power transformer as well as the replacement cost of a 115 kV submarine cable.

Table 5: Exposure with a 10 percent increase in transmission charge over forecasted and the cost for replacement of a 115 kV transformer and a 115 kV submarine cable

	Exposure - (\$000)		
	FY 2018	FY 2019	FY2020
Transmission @ 10% over forecast	\$700	\$800	\$900
Distribution, replacement cost	\$4,800	\$4,800	\$4,800
Total	\$5,500	\$5,600	\$5,700

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. AMP has seen a year over decrease in load over time and has accounted for this shift in the budgeted forecast. To account for the additional risk of reduction in customer load, a 10 percent additional reduction has been calculated over the top ten customers who serve approximately 20 percent of AMP’s load.

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 was calculated by multiplying the 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 averaging \$2.3 million for the high case and \$2.0 million for the low case.

Table 6: Exposure with losing 10 percent commercial customer load on top of forecast for high and low market pricing

	Exposure - (\$000)					
	FY 2018		FY 2019		FY2020	
	High	Low	High	Low	High	Low
Market Price factor						
10 % Loss of Customer Sales	\$2,300	\$1,900	\$2,400	\$2,000	\$2,600	\$2,200

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.

AMP has a long-term Preference Power (PP) contract to purchase a portion of the electrical output of Central Valley Project (CVP) as marketed by WAPA. Under this contract, AMP pays WAPA a cost-based rate irrespective of the quantity or timing of generation from the CVP. The Bureau of Reclamation is the operator of the CVP generation facilities and has announced a number of operational decisions in an effort to comply with environmental and species protection laws and regulations. Reclamation may resort to scheduling water releases that bypass the hydroelectric generation equipment. Such bypasses will result in a reduced quantity of electricity delivered to AMP under the PP contract.

There a recent proposal for WAPA transmission lines to be sold to non-government entities. This could have increased the rate paid for transmission of WAPA power and could extend the length of payment of transmission debt.

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 have not met the threshold for GHG emissions compliance under the statute, 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 GHG emissions compliance obligation.

SB 100 introduced by Senate President pro Tempore Kevin de León, also known as the California Renewable Portfolio Standard Program, is a pathway to 100 percent renewable energy by 2045. This accelerates SB 350's 50 percent mandate for renewable energy from the previous mandated year of 2030 to 2026. If not passed the current mandate is to have 50 percent of the energy portfolio to be renewable by 2030. AMP is currently on pace to reach the needed RPS compliance mandates with compliance period ending this year.

The passage of AB 802 will establish policy to better monitor energy usage in buildings over 50,000 square feet, requiring utilities to provide energy consumption data to building owners upon request and directing Energy Commission to establish benchmarks for this disclosure. AMP would not be largely affected by increases in efficiency from these larger buildings beyond the forecasted load declined.

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

Uninsured loss

NCPA carries insurance for the joint facilities to cover catastrophic loss events. AMP's risk exposure is limited to the share of uninsured cost to repair NCPA facilities. NCPA's coverage is limited and subject to a deductible. NCPA estimates that both uninsured losses and AMP's share and exposure in the case of single catastrophic event with an offset by insurance coverage to be \$2.4 million per year, for a maximum total of \$5.4 million over the 3-year period.

Technology Risk

As renewables such as solar and wind become more prevalent and costs drop, there is a risk of financial and operating viability of other resources. The STIG has gone from a plant that operated every third quarter to operating less than 1 percent. It has gone from an energy resource to a capacity resource while still having a \$1 million annual debt load. While the capacity can be sold, its revenue doesn't cover the debt. Market prices have dropped so much that even very efficient plants such as the Lodi Energy Center (LEC) operate at a fraction of their planned capacity.

Default on compliance with California Renewable Portfolio Standard

NCPA may be required to curtail base load generation such as geothermal and landfill gas because of excess power from solar and wind on the grid. Compliance costs of meeting the renewable standard may be incurred if one or more renewable facilities suffer outages. AMP is fortunate to have a large amount of historic carryover RECs that will be used to meet AMP's RPS compliance requirements through Calendar Year (CY) 2020 and beyond.

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 likelihood 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 7: Consolidation of discussed risk exposure for high and low market pricing

Risk event	Exposure - (\$000)					
	FY 2018		FY 2019		FY2020	
Market Price Factor	High	Low	High	Low	High	Low
Dry conditions Risk	\$2,300	\$1,700	\$2,400	\$1,800	\$2,400	\$1,800
Customer Loss Risk	\$2,300	\$1,900	\$2,400	\$2,000	\$2,600	\$2,200
Low Wind Years Risk	(\$20)	(\$40)	(\$20)	(\$40)	(\$10)	(\$40)
Uninsured Loss Risk	\$2,400		\$2,400		\$2,400	
Transmission and Dist. Risk	\$5,500		\$5,500		\$5,600	
Total Exposure	\$12,500	\$11,400	\$12,800	\$11,700	\$13,000	\$12,000

Risk Mitigation

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

AMP believes that funding adequate reserves is the key method for minimizing the impact from these risks. Reserves are maintained at both AMP and NCPA. AMP also maintains insurance for AMP-owned facilities with some of the exposure limited to the deductible on the insurance policies. Similarly, NCPA maintains insurance for its facilities, with AMP’s exposure being a percentage share of the deductible on those facilities.

In April of 2016, AMP instituted an Energy Adjustment Charge (EAC) that is a charge per kWh to assist in the recovery of costs related to purchased power not adequately covered from the base rates. The EAC will assist in recovering losses stemming from purchasing market power due to the availability of scheduled generation, changes in load and other power supply related issues.

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. By adding more local resources, AMP’s reliability will increase and CAISO transmission cost exposure will be lower.

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 overhead independent of energy usage. AMP plans to continue to restructure rates to recover more of the fixed costs of the distribution system.

Given that AMP has exposure to customer loss and load reduction, AMP continues to investigate ways to increase its customer base and mitigate impacts that lead to customer loss. In addition, AMP is currently developing electric vehicle programs that will increase EV penetration with customers and help facilitate EV ownership on the island in order to build load and support Alameda's carbon reduction efforts.

Lastly, 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).

FINANCIAL IMPACT

There is no direct or immediate financial impact. The results of the annual utility energy risk quantification update serve to inform subsequent activities, which include next year's 10-year Pro Forma, the rate adjustment process and future 5-year rate plans.

NEXT STEPS

Prepare and present a new report at the beginning of FY 2021

LINKS TO STRATEGIC PLAN AND METRICS

- KRA 6.1 Meet all bond covenants by annually ensuring 145 days of cash on hand
- KRA 6.2 Ensure AMP's average rates are 15 percent below PG&E every year
- KRA 6.4 Ensure balanced budget

EXHIBIT

- A. Power Point Presentation

FY 2018 – FY 2020 Energy Risk Quantification Report

September 18, 2017

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 FY 2018 - FY 2020

Reasons for quantifying risk

- To develop a metric 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 risks is measured as the cost of buying energy at market price
- Exposure through distribution, transmission, and customer load

Examples of Risk Events

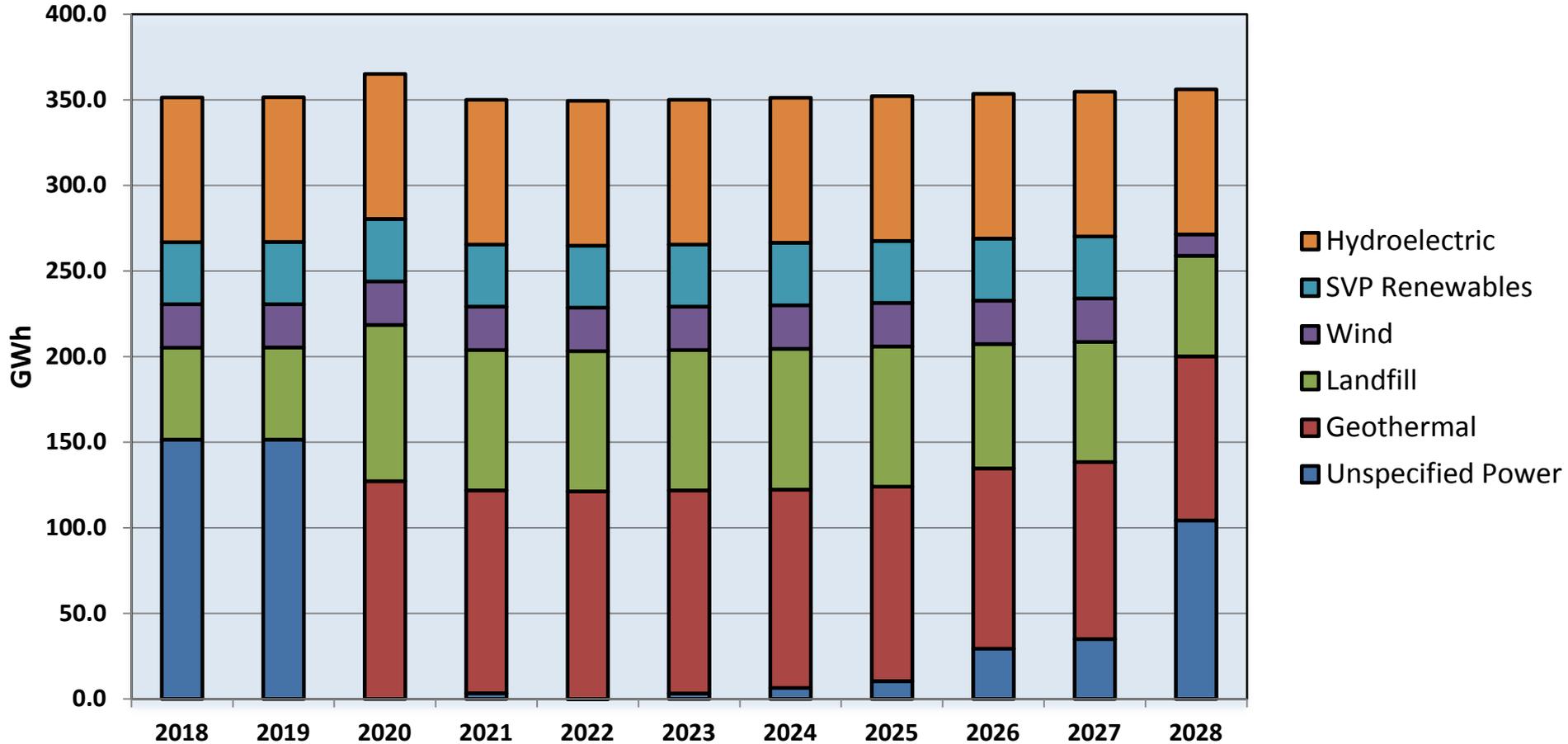
- **Supply**

- Drought conditions
- Landfill-gas field decline
- Facility failure event, fire risk
- Uninsured loss

- **Distribution and load**

- Increase in transmission cost
- Distribution system component failure
- Reduction in customer load

Generation Resource by Type



Financial exposure

Risk event	Exposure - (\$000)					
	FY 2018		FY 2019		FY2020	
Risk Factor	High	Low	High	Low	High	Low
Dry year	\$2,300	\$1,700	\$2,400	\$1,800	\$2,400	\$1,800
Customer Loss	\$2,300	\$1,900	\$2,400	\$2,000	\$2,600	\$2,200
Low Wind Years Risk	(\$20)	(\$40)	(\$20)	(\$40)	(\$10)	(\$40)
Uninsured Loss	\$2,400		\$2,400		\$2,400	
Transmission & Distribution Risk	\$5,500		\$5,500		\$5,600	
Total Exposure	\$12,500	\$11,400	\$12,800	\$11,700	\$13,000	\$12,000

*The high and low category of the risk factor is indicative of the likelihood of market pricing with the high factor being more likely

Transmission and Distribution Risk

- 10% additional transmission access charge on top of 5% forecast
- Estimated cost for 115 kV transformer and 115 kV submarine cable

	Exposure - (\$000)		
	FY 2018	FY 2019	FY2020
Transmission @ 10% over forecast	\$700	\$800	\$900
Distribution, replacement cost	\$4,800	\$4,800	\$4,800
Total	\$5,500	\$5,600	\$5,700

Mitigation

Measures and policy to mitigate risk

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

Reserves

Reserve coverage

- FY 2018 reserve requirement:
\$22 million
- May 2017 Treasurers Report, cash on hand:
\$33 million
- NCPA general operating reserve:
\$2.4 million

Summary

Summarized risk exposure and reserves per year

Source	(\$000)
Average Yearly Risk	(\$12,200)
AMP Reserve Requirement	\$21,600
NCPA Operating Reserve	\$2,400
Coverage through reserves	\$11,800

Next Steps

- File report for archiving
- Compile and conduct next report for FY 2021

Questions?

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