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## What's In Your Piggy Bank?



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# Utility Financial Solutions, LLC

- International consulting firm providing cost of service and financial plans and services to utilities across the country, Canada, Guam and the Caribbean
- Instructors for cost of service and financial planning for APPA, speakers for organizations across the country.
- Hometown Connections preferred vendor for COS and financial analysis



# Objectives

- Importance of cash reserve policy
- Factors that influence a utility's need for cash reserves
- Calculation of a sample cash reserve policy
- Methodology for any size
- Methodology for other utility types



# Why Development of a Cash Reserve Policy is Important





# Reasons for Adequate Cash

Funds exist to:

- Pay expenses
- Fund system improvements help ensure reliability
  - Normal capital improvements = approx depreciation expense
- Pay Debt Service
- Fund unanticipated cost contingencies
- Phase in large rate adjustment
- Keep utility healthy for future Mgmt.



# Cash Reserve Policy

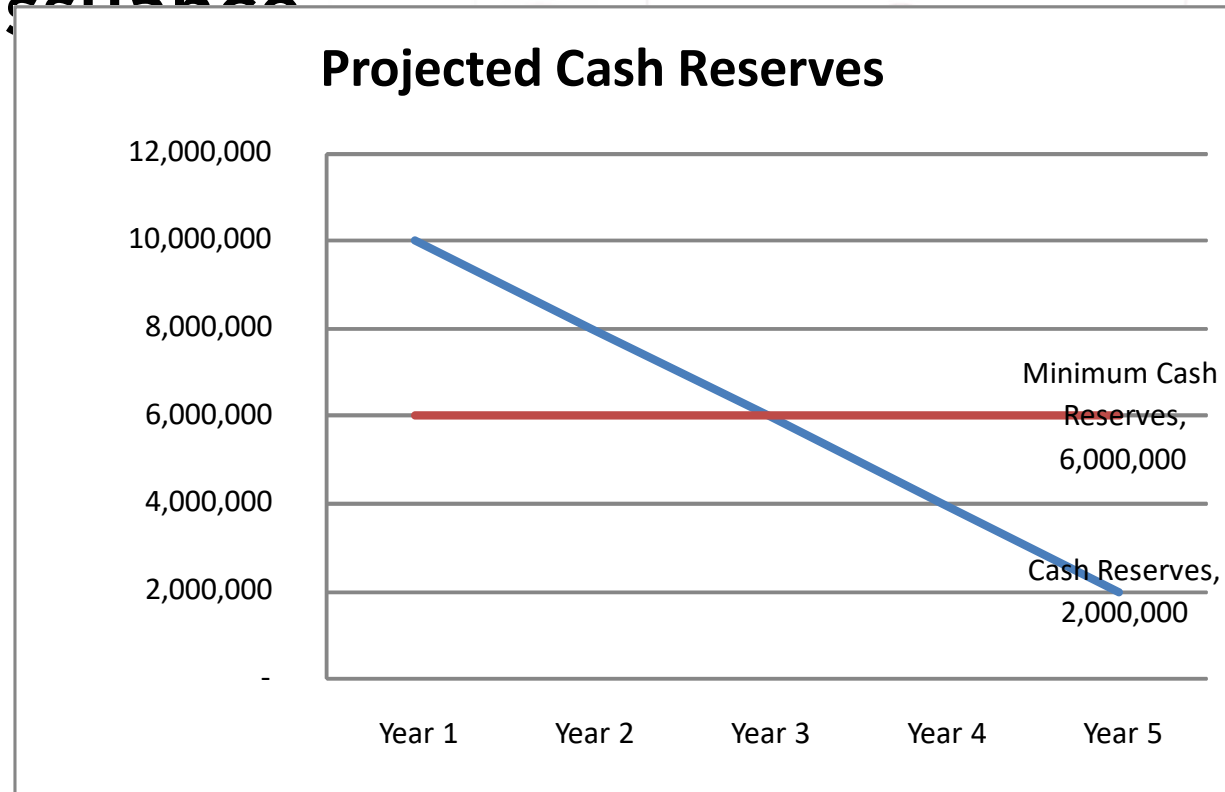
Helps to:

- **Justify cash reserves to customers, councils and boards**
- **Provides detailed description of methodology**
- **Maintain adequate reserve levels with changes in management, Boards and Councils**
- **Encourage periodic reviews of cash levels**
  - Rate and borrowing needs
- **Reduce chance of unexpected transfer to City**



# Helps Identify Bonds Issuances

- If rates set appropriately and large capital cause cash to fall below minimum = bond issuance



# Policy to Help Determine Debt Issues

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Projected Bonds	Planned Capital Improvements	Debt Coverage Ratio
Year 1	0.00%	3,483,540	3,160,347	637,041	2,157,223	-	911,700	2.54
Year 2	0.00%	3,483,540	3,188,044	610,543	2,319,871	-	852,200	2.31
Year 3	2.50%	3,570,029	3,249,867	636,409	2,423,487	-	967,700	2.39
Year 4	2.50%	3,658,680	3,492,550	483,576	(3,181,940)	-	6,729,140	2.48
Year 5	2.50%	3,749,547	3,542,730	525,463	(2,383,351)	-	350,000	2.53
Minimum Recommended Year 1				\$ 560,138	\$ 2,175,988			1.40
Minimum Recommended Year 5				\$ 565,125	\$ 2,595,035			1.40



# Recommended Rate Track with Bond Issue

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Projected Bonds	Planned Capital Improvements	Debt Coverage Ratio
Year 1	0.00%	3,483,540	3,160,347	637,041	2,157,223	-	911,700	2.54
Year 2	0.00%	3,483,540	3,188,044	610,543	2,319,871	-	852,200	2.31
Year 3	2.50%	3,570,029	3,249,867	636,409	2,423,487	-	967,700	2.39
Year 4	2.50%	3,658,680	3,492,550	483,576	2,031,935	5,300,000	6,729,140	2.19
Year 5	2.50%	3,749,547	3,541,972	526,221	2,574,287	-	325,000	1.75
Minimum Recommended Year 1				\$ 560,138	\$ 2,175,988			1.40
Minimum Recommended Year 5				\$ 565,125	\$ 2,595,035			1.40



# Cash Reserve Policies and Bond Rating

- Establishing a formal policy important factor for bond rating
  - 200+ days for higher rating
- A cash reserve policy in isolation will not necessary improve bond ratings
- Many other key indicators considered



# Bond Rating Agencies

- Why ratings are important
  - Higher rating, considered low
    - Better interest rate on debt
  - Confidence doing things right
  - Pride



# Cash Reserve Policy

*Policy should identify minimum cash reserve level*

- Cash should be allowed to flow above the minimum level
- Cash reserves will fluctuate over time, usually depending on age of assets and capital improvement program



## Some Utilities Identify Maximum Levels of Reserves

- Some Utilities will specify a maximum cash reserve
- Due to external pressures a maximum may be considered by the utility
- We don't recommend a maximum
  - Are you reinvesting enough in the system?
  - Move to restricted for "future XX"





# Types of Cash Reserve Policies

## Most Common Policy – Number of Days of Expenses

- 90 – 180 days O&M
- 45 days operating expenses plus single proxy emergency event
- 50% of capital expenditures



# Factors that Influence Cash Reserves

- Timing differences between when expenses are incurred and revenues received from customers
- Future capital improvement program
- Annual debt service payments
- Historical Asset Investment
  - Ice Storm
  - Wind Storm



# Operating Factors that Influence Cash Reserves

- Utilities control over rates
- Rates ability to recover fixed operating costs
  - Customer Charge
  - Demand Charges
  - Structure of Rates
- Cash Cycles (peaks and valleys in Expenses or Seasonal billing)
- Other unique to your utility



# Identification of Minimum Cash Reserves Case Example





# Determination of Minimum Cash

## At Least Five Factors to Consider

Five Risk Factors to Consider	% Risk Range to Allocate	Influenced By:
O&M Expenses (Less Power Costs and Depreciation)	12-25%	Billing Cycle - timing of expenses VS Receipts
Power Costs	10-25%	Max Month converted to working capital days
Historical Investment in Assets	1-3%	Age of System, Likelihood of ice, wind, other
Annual Debt Payment	50-100%	Timing of Debt Payments
Total Five-Year Capital Plan	20%	1/5 of five-year plan - funds beginning of season
<b>Total of These Five Items</b>		<b>\$X,XXX,XXX MINIMUM Recommendation</b>



# Operation and Maintenance Expenses

- Range 12-25% (45 to 90 days) of yearly O&M
- Working Capital Lag -
  - Timing differences exist between when expenses are incurred and revenues received
- Average Municipal 45 days or 12.3% (45/365days)
  - 15 days avg month, 5 days read/bill, 20 days due, 5 days for to receive payment



# Working Capital O&M

Annual O&M (Excluding Power Supply & Depr)	\$	24,000,000
Factor (45 days/365days = 12.3%)		<u>12.3%</u>
Working Capital	\$	2,958,904
<b><i>12.3% Factor = 45 Days Divided by 365 Days</i></b>		



# O&M Line Item

Five Risk Factors to Consider	% Risk Range to Allocate	Influenced By:
O&M Expenses (Less Power Costs and Depreciation)	12.30%	\$2,958,904
Power Costs	10-25%	Max Month converted to working capital days
Historical Investment in Assets	1-3%	Age of System, Likelihood of ice, wind, other
Annual Debt Payment	50-100%	Timing of Debt Payments
Total Five-Year Capital Plan	20%	1/5 of five-year plan - funds beginning of season
<b>Total of These Five Items</b>		<b>\$X,XXX,XXX MINIMUM Recommendation</b>



# Power Costs

- Review peak monthly power supply costs
- Adjust for working capital lag time

# Power Costs

- Review peak monthly power supply costs

Month	Power Supply Expense
January	2,340,695
February	2,319,399
March	2,416,769
April	2,436,267
May	3,564,256
June	3,696,283
<b>July</b>	<b>3,783,388</b>
August	3,751,459
September	3,533,570
October	3,039,720
November	2,588,718
December	2,885,649
<b>Total Power Supply Expense</b>	<b>36,356,174</b>





# Working Capital Power Costs

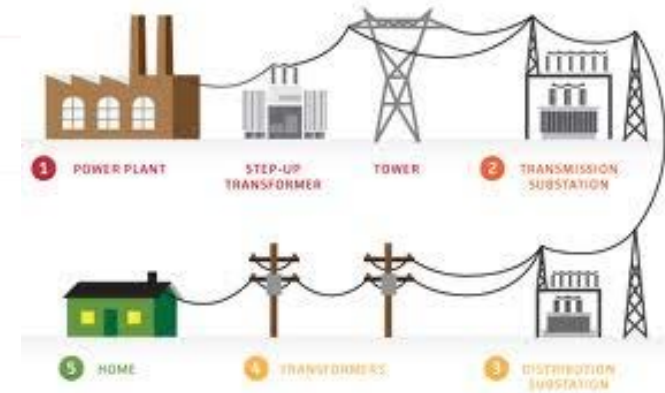
Max Monthly Power Expense	\$ 3,783,388
Factor to convert 30 days into 45 days	1.5
Total Working Capital Power Supply 45 days	<b>\$ 5,675,082</b>
Total Yearly Power Costs	\$ 36,356,174
Percent of Total Yearly Power Costs	15.6%

# Power Costs Line Item

Five Risk Factors to Consider	% Risk Range to Allocate	Influenced By:
O&M Expenses (Less Power Costs and Depreciation)	12.30%	\$2,958,904
Power Costs	15.60%	5,675,082
Historical Investment in Assets	1-3%	Age of System, Likelihood of ice, wind, other
Annual Debt Payment	50-100%	Timing of Debt Payments
Total Five-Year Capital Plan	20%	1/5 of five-year plan - funds beginning of season
Total of These Five Items		\$X,XXX,XXX MINIMUM Recommendation

# Historical Investment in system

- Capital lag used to factor in risk of catastrophic event
  - Consider Age of Assets
  - Accumulated depreciation expense divided by asset investment
- Assumptions for Base Case:
  - If less than 50% = 1%
  - Between 50% - 60% = 2%
  - Over 60% = 3%



# Historical Investment

	Amount
Total Historical Investment	165,585,000
Accumulated Depreciation	87,101,683
Percent of Total	52.6%
Factor	2.0%
Cash Reserve	\$ 3,311,700

# Historical Investment Line Item

Five Risk Factors to Consider	% Risk Range to Allocate	Influenced By:
O&M Expenses (Less Power Costs and Depreciation)	12.3%	\$2,958,904
Power Costs	15.6%	5,675,082
Historical Investment in Assets	2.0%	3,311,700
Annual Debt Payment	50-100%	Timing of Debt Payments
Total Five-Year Capital Plan	20%	1/5 of five-year plan - funds beginning of season
Total of These Five Items		\$X,XXX,XXX MINIMUM Recommendation



# Debt Service

- Debt Service payments are often made twice per year
- Cash reserve policy attempts to make sure payment is available in reserves when needed
- Often uses peak payment

# Debt Service Working Capital

Date	Principal	Interest	Total
October	\$ -	\$ 123,313	\$ 123,313
April	382,566	123,313	505,879
Total	\$ 382,566	\$ 246,626	\$ 629,192
Highest Payment divided by Annual Debt Service			80.4%

# Debt Service Line Item

Five Risk Factors to Consider	% Risk Range to Allocate	Influenced By:
O&M Expenses (Less Power Costs and Depreciation)	12.3%	\$2,958,904
Power Costs	15.6%	5,675,082
Historical Investment in Assets	2.0%	3,311,700
Annual Debt Payment	80.4%	505,879
Total Five-Year Capital Plan	20%	1/5 of five-year plan - funds beginning of season
Total of These Five Items		\$X,XXX,XXX MINIMUM Recommendation

# Capital Improvements

- Cash available in reserves to fund capital expenses at beginning of construction season
- Capital expenditures can fluctuate annually, smooth fluctuations by use of a five-year average
- Subtract planned bond issuances from five year plan



# Capital Improvements

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Capital Expenditure	2,000,000	2,500,000	4,000,000	3,500,000	3,000,000	15,000,000
Bond Proceeds						6,000,000
Five-year total						\$ 9,000,000
Cash Policy Amount						20%
Cash Reserves						\$ 1,800,000



## Minimum Reserve Policy

Five Risk Factors to Consider	% Risk Range to Allocate	MINIMUM Reserves
O&M Expenses (Less Power Costs and Depreciation)	12.3%	\$2,958,904
Power Costs	15.6%	5,675,082
Historical Investment in Assets	2.0%	3,311,700
Annual Debt Payment	80.4%	505,879
Total Five-Year Capital Plan	20.0%	1,800,000
Total of These Five Items		\$14,251,565

# Reserve Policy as a Whole

- Not establishing an amount – establishing methodology
  - Formula updated each year with budget process
- Minimum cash in total not each line item
- Check for reasonableness
- Change risk percent to line up with goals

# Simplification of Policy

- Once the methodology is established, can simplify policy for number of days of O&M

Policy Simplification	
Annual Expense	\$ 24,000,000
Power Supply	36,356,174
<b>Total Expenses</b>	<b>\$ 60,356,174</b>
Minimum Cash Reserve	\$ 14,251,556
Factor (\$60,356,174/\$14,251,556)	4.23
<b>Days Cash on Hand (365/4.23)</b>	<b>86.0</b>

# Modify Percentages?

Five Risk Factors to Consider	% Risk Range to Allocate	MINIMUM Reserves
O&M Expenses (Less Power Costs and Depreciation)	12.3%	\$2,958,904
Power Costs	15.6%	5,675,082
Historical Investment in Assets	2.0%	3,311,700
Annual Debt Payment	80.4%	505,879
Total Five-Year Capital Plan	20.0%	1,800,000
Total of These Five Items		\$14,251,565

# Calculate Days Cash on Hand

	Cash On Hand						<b>Comments:</b>
	<u>Electric</u>						
<b>A</b>	\$ 33,945,391	O&M Expenses					
<b>B</b>	\$ 5,205,300	Cash on Hand (non-restricted)					
<b>(A/B)</b>	<u>6.52</u>	Factor					
<b>365/Factor</b>	<b>56</b>	<b>Days Cash on Hand of Total O&amp;M for Electric</b>					<b>LOW</b>

Comments:						
Find this information on your balance sheet and Income statement						
Establish a Cash reserve policy for each utility						
Typical Range 90-120 days of O&M						
High Bond Rating 150 Days						



# Real Example



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## Real Example

Fiscal Year	Projected Rate Adjustments	Projected Cash Balances
Year 1	0.00%	305,841
Year 2	0.00%	(224,816)
Year 3	0.00%	(964,623)
Year 4	0.00%	(1,891,495)
Year 5	0.00%	(3,074,774)
Recommended Target		\$ 1,926,681

Fiscal Year	Projected Rate Adjustments	Projected Cash Balances	Year Four Current Update
Year 1	15.00%	699,284	
Year 2	15.00%	1,017,092	
Year 3	5.50%	1,322,064	
Year 4	5.50%	1,648,056	\$ 1,521,188
Year 5	5.50%	1,938,152	
Recommended Target		\$ 1,926,681	

# Formal Policy Development

## Just Calculating Doesn't Make it a Solid Guideline



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# Development of Policy

- Helps ensure cash objections kept intact
  - change in management/Board
- List methodology and show calculations in policy for future consistency
- Identify time period to restore cash reserve if falls below minimum cash levels
  - Example three to five year to restore cash levels
  - Cash restored through issuance of debt, rate adjustments, reduced expenses





# Implementation

- Explain the need for maintaining appropriate levels of cash reserves
- Explain assumptions to Governing Body
- Request input on assumptions
- Develop into policy format and get formal approval





# Questions?



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