

# Risk Mitigation Applied to Decision Making

Steve Wenke

2012 Northwest Hydro Operators Forum

September 26, 2012



# Risk Based Decision Making

- Briefly Discuss a change in our Capital Allocation Process
- Briefly Discuss evolution of the Enterprise Risk Management (ERM)
- Provide Illustration of how ERM is used
- Discuss How ERM was Adopted for Project Evaluation
- Demonstrate How this System Impacts Funding Decisions

# Budget Item Scoring System

In the last two years, Avista has revamped its Capital Budget allocation method to provide a more visible and objective means of allocating budget.

- The past we used the judgment of Capital Budget Committee to allocate funds
- The new system relies on an objective scoring system to primarily allocate funds

# Scoring Categories

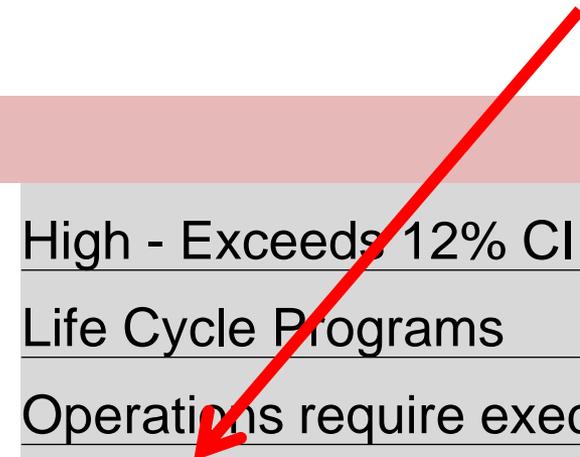
The new system “scores” budget requests based on:

- Customer IRR
- Strategic Alignment
- Business Risk
- Program Risk
- Operational Benefits

# Example Budget Assessment Score

Assessments:	
Financial:	High - Exceeds 12% CIRR
Strategic:	Life Cycle Programs
Operational:	Operations require execution to perform at current levels
Business Risk:	ERM Reduction >0 and <= 5
Program Risk:	High certainty around cost, schedule and resources
Assessment Score:	89

# Example Budget Assessment Score



Assessments:	
Financial:	High - Exceeds 12% CIRR
Strategic:	Life Cycle Programs
Operational:	Operations require execution to perform at current levels
Business Risk:	ERM Reduction >0 and <= 5
Program Risk:	High certainty around cost, schedule and resources
Assessment Score:	89

Want to focus on use of ERM Reductions and how it

# Avista's Enterprise Risk Methodology (ERM)

- Avista's Risk Management Department developed a tool that is intended to be applied to a variety of business activities, processes, and assets that quantifies the risk
- It is used to help assist management to determine the relative risk of these different elements so that the risk of those things that score high can be reduced or mitigated.
- This is intended as a high level informational tool. It is not a decision tool.

# Risk Scoring Method

This risk methodology blends an assessment of the **Likelihood** of an event happening, with the **Impact or Severity** of the event if it should happen, against the **Effectiveness of Controls** that are in place to prevent the risk from happening.

# Risk Categories

These considerations are applied against several risk areas:

- EPS: Revenue, Expense, Lost or Gained Business
- Balance Sheet, Cash Flow, Liquidity
- Legal, Regulator, External Business Impacts
- Environmental
- Safety & Health (both public and employee)

# Example Using Customer Service

Likelihood Rating Scale						
Likelihood Measure	Score	1	2	3	4	5
	Descriptive	Almost Impossible	Extremely Unlikely	Possible	Isolated Incidents	Repeated Incidents
	Time	< Once / 100 years	< Once / 50 years	< Once / 10 years	< Once / year	> Once / year
	Probability	< 1%	1% - 2%	2% - 10%	10% - 20%	> 20%
Impact/Severity Rating Scale						
Customer Service and Reliability	Score	1	2	3	4	5
	Avista lacks the ability to provide service; Customers are without power, gas, or connectivity to Avista:					
		< 1,000 customers and < 6 hours	< 2,500 customers and < 12 hours or < 3 Network hours	< 5,000 customers and < 24 hours or < 8 Network hours	< 10,000 customers and < 48 hours or < 24 Network hours	> 10,000 customers and > 48 hours or > 24 Network hours  OR All customers in blackout > 2 hours
Control Effectiveness Rating Scale						
Control Effectiveness Measure	Score	1	2	3	4	5
	Control Description	Limited controls in place	Controls are ineffective	Controls are partially effective	Controls are effective on most occasions	Controls are highly effective on almost all occasions

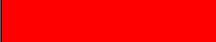


# Risk Score Method

The Control Effectiveness number is then assigned a percentage based on the table:

TABLE for CONTROL EFFECTIVENESS

0	0%
1	5%
2	15%
3	30%
4	60%
5	90%

<b>Color Coding:</b>	<b>1-5</b>	
	<b>6-10</b>	
	<b>11-15</b>	
	<b>16-20</b>	
	<b>21-25</b>	

This Score is then given a color code to provide a high level indicator:

## Example

- A particular initiative is deemed to have an extreme impact to the personnel safety so it is assigned a **severity level of 5**
- A similar analysis results that the likelihood of this incident occurring is considered “possible” so it is assigned a **likelihood level of 3**
- Controls are in place to manage how severe the incident might be and are considered effective. It is assigned a score of 4, which is a mitigating factor of 60% (i.e. this might be a targeted training program)
- Because workers would be exposed to the situation in the normal course of work, it is judged that controls to reduce the likelihood of the incident happening are limited. It is assigned a score 1, which is a mitigating factor of 5%

# Assessing the Risk

For this example, the overall risk is:

$$\begin{aligned} \text{Risk} &= \text{Severity} * \text{Likelihood} \\ &= 5 * 3 = \underline{15} \end{aligned} \quad \text{Yellow Box}$$

When Controls are factored in

$$\text{Severity} = 5 * (1 - 0.60) = 2$$

$$\text{Likelihood} = 3 * (1 - 0.05) = 2.85$$

$$\begin{aligned} \text{Mitigated Risk} &= \text{Mitigated Severity} * \text{Mitigated Likelihood} \\ &= 2 * 2.85 = \underline{5.7} \end{aligned} \quad \text{Green Box}$$

# Summary

This provides an opportunity to ask if there are ways that you could mitigate the risk to reduce your scores so that it is at a more acceptable level (i.e. one of the green levels)

## Applying ERM to Projects

In general, the criterion for an enterprise wide risk assessment are too large when you consider an individual project.

- In the example table above, how many projects would have 10,000 customers on a single line and impact them for two days by plan?

We needed to come up with a different concept

# Modification of ERM to address Project Scoring

We reviewed the enterprise wide criterion developed from our Corporate and re-assessed how they would relate to a project

For example, we didn't think there would be many projects that would impact 10,000 customers. So we came up with a different concept of customer-hours

Financial risks were significantly reduced to reflect impacts of a project rather than a corporate wide initiative

In most cases, we were able to leave the criterion the same.

# Modification of ERM to address Project Scoring

Finally, we reasoned that part of the justification of a project was to reduce the risk of something. So we developed a spreadsheet that nets the higher risk items against a mitigated risk item.

[Risk Template](#)

Unfunded Project/Program Risk (no funding if a project, cease funding if an existing program)					
Financial Impact (Consequential Costs/Revenues)	Likelihood	Legal, Regulatory, External Business Affairs	Likelihood	Customer Service and Reliability (# customers * duration of an outage)	Likelihood
5 - > \$10MM	< Once / 5 years	4 - Potential for regulators to impose onerous restrictions or Board or management to make leadership change	< Once / 5 years		
Environmental	Likelihood	Safety and Health: Public	Likelihood	Safety and Health: Employee	Likelihood
		2 - Potential for minimal or minor injury Outages and or equipment damage Public health infrastructure impact up to 24 hours	< Once / year		
Revised Risk if funded/completed					
Financial Impact (Consequential Costs/Revenues)	Likelihood	Legal, Regulatory, External Business Affairs	Likelihood	Customer Service and Reliability (# customers * duration of an outage)	Likelihood
5 - > \$10MM	< Once / 10 years	2 - Could result in a moderate negative impact to local, online, or industrial relationships and /or regional media coverage	< Once / 50 years		
Environmental	Likelihood	Safety and Health: Public	Likelihood	Safety and Health: Employee	Likelihood
		2 - Potential for minimal or minor injury Outages and or equipment damage Public health infrastructure impact up to 24 hours	< Once / 5 years		

# Risk and Risk Reduction

Business Risk Reduction	Unfunded Raw Score	Revised Risk Raw Score
5	15	10

# Score Changes From Risk Reduction

Assessments:	
Financial:	High - Exceeds 12% CIRR
Strategic:	Life Cycle Programs
Operational:	Operations require execution to perform at current levels
Business Risk:	<b>ERM Reduction - None</b>
Program Risk:	High certainty around cost, schedule and resources
Assessment Score:	<b>80</b>

# Score Changes From Risk Reduction

Assessments:	
Financial:	High - Exceeds 12% CIRR
Strategic:	Life Cycle Programs
Operational:	Operations require execution to perform at current levels
Business Risk:	<b>ERM Reduction &gt;0 and &lt;= 5</b>
Program Risk:	High certainty around cost, schedule and resources
Assessment Score:	<b>89</b>

# Score Changes From Risk Reduction

Assessments:	
Financial:	High - Exceeds 12% CIRR
Strategic:	Life Cycle Programs
Operational:	Operations require execution to perform at current levels
Business Risk:	<b>ERM Reduction &gt;5 and &lt;= 10</b>
Program Risk:	High certainty around cost, schedule and resources
Assessment Score:	<b>103</b>

# Score Changes From Risk Reduction

Assessments:	
Financial:	High - Exceeds 12% CIRR
Strategic:	Life Cycle Programs
Operational:	Operations require execution to perform at current levels
Business Risk:	<b>ERM Reduction &gt;10 and &lt;= 15</b>
Program Risk:	High certainty around cost, schedule and resources
Assessment Score:	<b>116</b>

# Score Changes From Risk Reduction

Assessments:	
Financial:	High - Exceeds 12% CIRR
Strategic:	Life Cycle Programs
Operational:	Operations require execution to perform at current levels
Business Risk:	<b>ERM Reduction &gt;15</b>
Program Risk:	High certainty around cost, schedule and resources
Assessment Score:	<b>125</b>

# Summary

- Avista has adopted an Enterprise Risk Management approach as an evaluation tool for many of its business initiatives
- This method has been modified from an enterprise wide perspective to risk magnitudes that are more appropriate for consideration for projects or programs.
- Using Project Risk is an important consideration in determining what capital programs and projects will be funded
- This has put into play considerations of where additional costs for a project to further reduce risk have in some cases resulted in selection of those options.

# Questions?

