



# Increasing Effectiveness of an ERM Program

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**The MEARIE Conference**

June 15-17, 2016

**ONTARIOPOWER**  
GENERATION

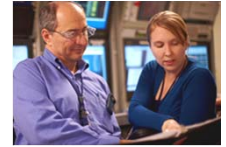
# Agenda



1. Overview of Ontario Power Generation (OPG)
2. ERM Value Proposition
3. Improving ERM Program Effectiveness
4. ERM Tools & Templates
5. Risk-Informed Decision Making
6. Key Takeaways



# Overview of OPG



- 2 

Nuclear Stations
- 2 

Leased Nuclear Stations
- 3 

Thermal Stations
- 2 

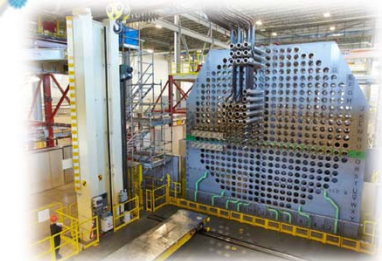
Co-Owned Gas-Fired Stations
- 65 

Hydroelectric Stations
- 1 

Wind Power Turbine
- 1 

Hydroelectric Project Under Construction

At Dec. 31, 2015, OPG's electricity portfolio had an in-service capacity of **17,055 MW.**



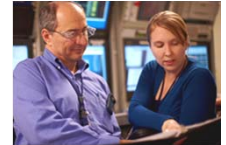
# OPG's Corporate Profile



<https://www.youtube.com/watch?v=c7W0SR07RqM>

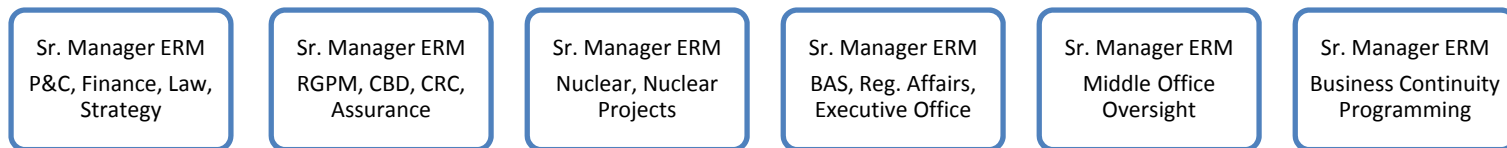
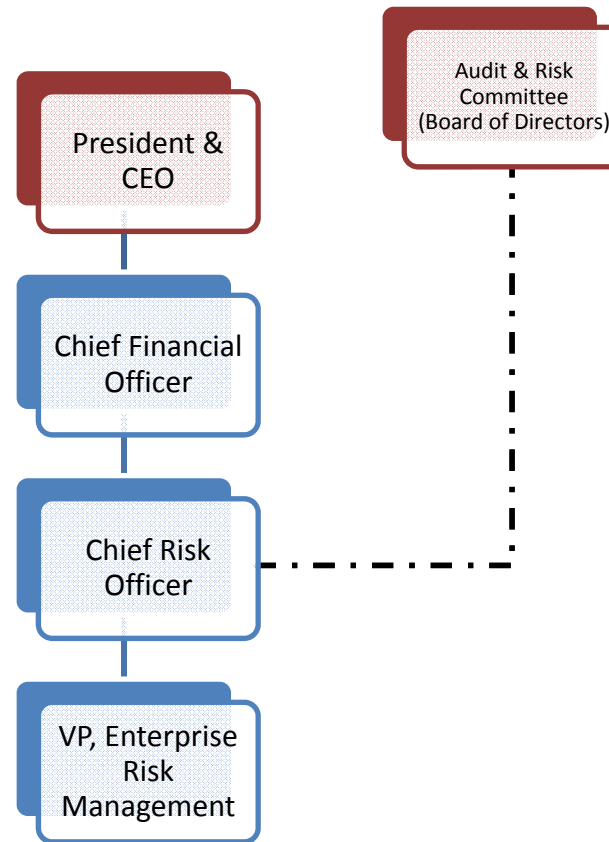


# Risk Management Organization



## ERM VISION

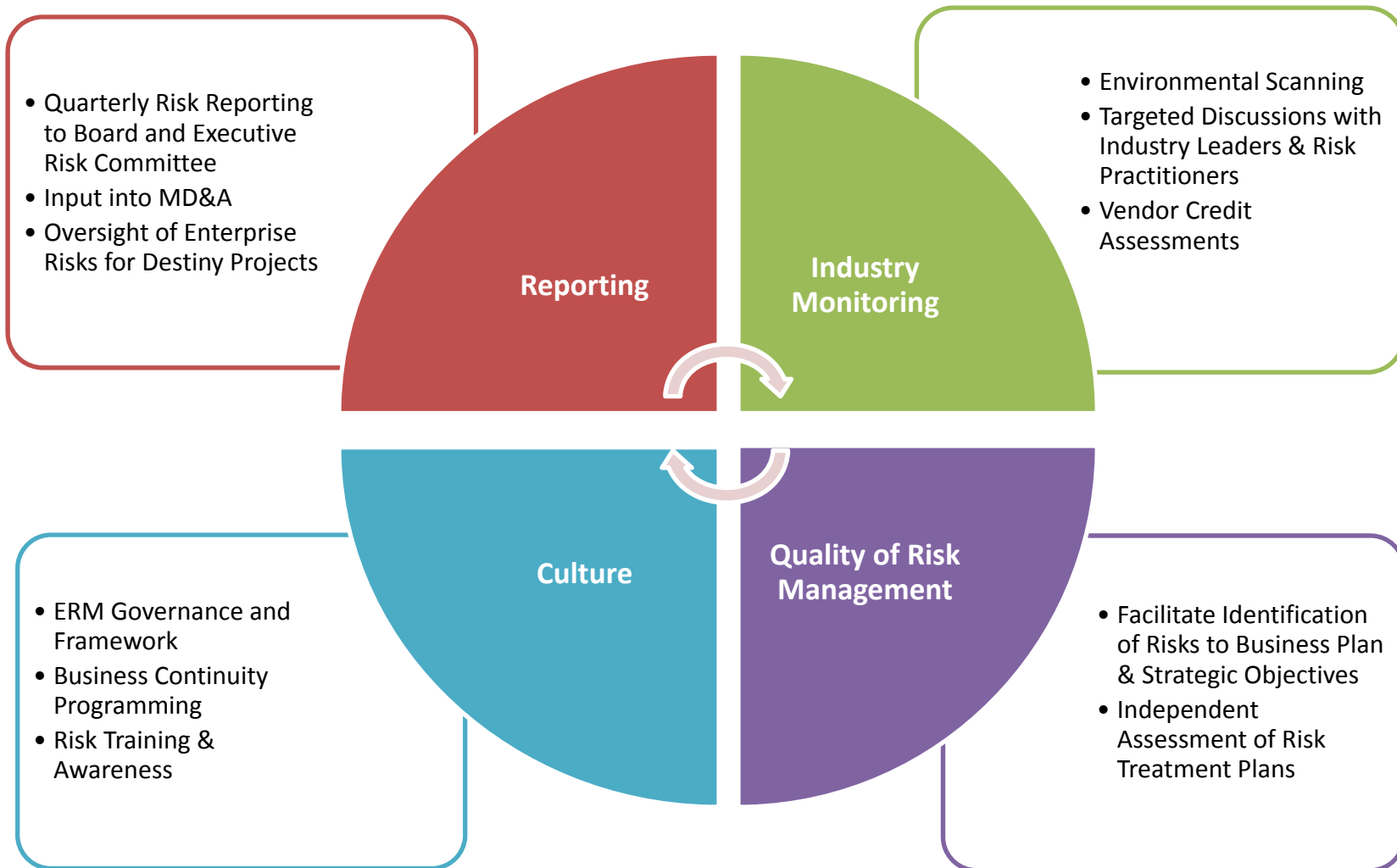
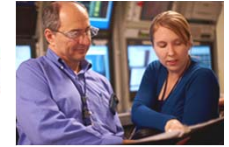
To enhance the organization's **risk culture, risk-informed decision-making, and resilience** through continuous improvement of OPG's **Risk Management Framework**, including Market/Credit risk and Business Continuity, and to be a **leader** in Enterprise Risk Management.



A team of Senior Associates, Senior Analysts, Analysts, and Administrative Support



# How ERM Supports the Executive Leadership Team





Why Bother?

# ERM'S VALUE PROPOSITION



# ERM Value Proposition



- ✓ Do we understand what can go wrong?
- ✓ Are we doing enough to address and mitigate the risks?
- ✓ Have we prioritized risks appropriately?

Risks to  
Business Plan  
Objectives



Prioritization  
of Risks



ERM Value =  
Forward Looking

Risks to  
Strategic  
Objectives

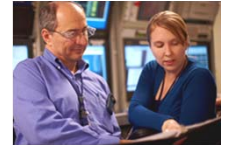


Project Risks





# Ontario's Energy Industry Risk Universe



## Generation

- Destiny Projects
- Nuclear Specific

## Transmission

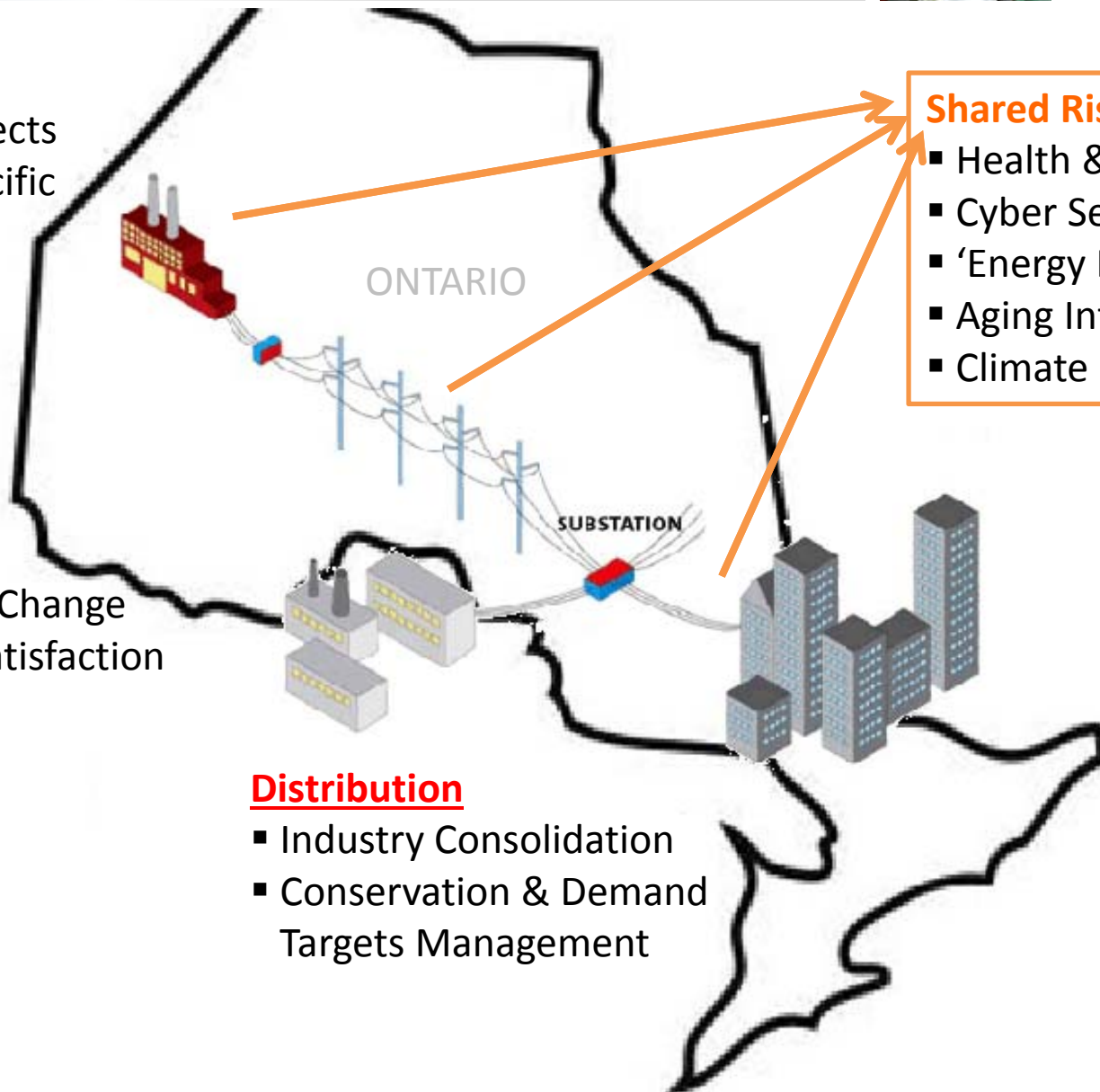
- Organizational Change
- Customer Dissatisfaction

## Distribution

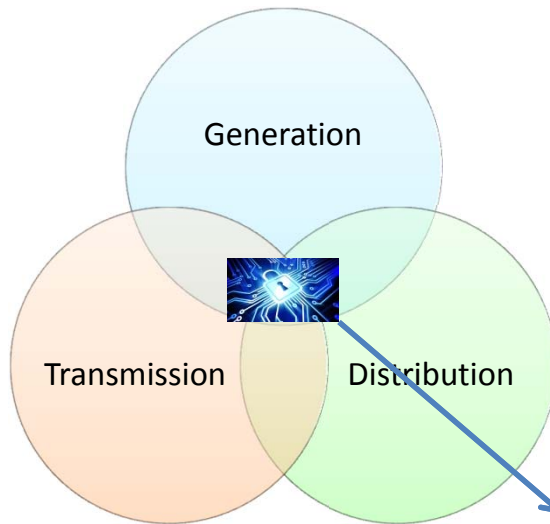
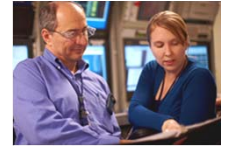
- Industry Consolidation
- Conservation & Demand Targets Management

## Shared Risks

- Health & Safety
- Cyber Security
- 'Energy Poverty'
- Aging Infrastructure
- Climate Change



# Cyber Security – A Closer Look



- Industrial Espionage
- Social Engineering Attacks
- Sensitive data loss from Cloud Data Storage

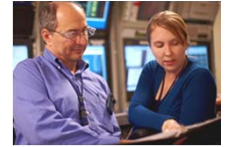


- Equipment delivered with malware
- Exploitation of security vulnerabilities
- Third party cyber security
- Remote control of control systems



- Training
- Regulatory compliance
- Information sharing and communication
- Data loss prevention
- NERC compliance





ERM Effectiveness

# THE IMPORTANCE OF A ROBUST PROCESS



# A Robust Risk Reporting Process



Committee of the Board of Directors



Executive Risk Committee



Consolidated Risk Report

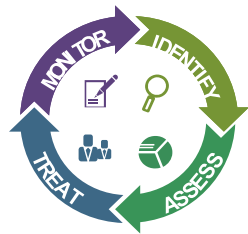
## Communication and Consultation

Business Units

Enterprise Risk Management

Executive Management

Manage and Report Risks to Objectives



Consolidate & Review Risks across all BUs

- Quarterly Review / Prioritize Enterprise Risks
- Strategic Risk Themes / External Events Input
- Oversight of Market & Credit Risks

SLT and ELT / ERM Review

- Validate Enterprise Risks & Identify Emerging Risks
- SLT Meetings
- ELT Meetings

## Monitoring and Review

Strategic Objectives



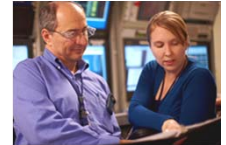
Business Plan (BU Objectives)



# Executive Leadership Participation in Risk Management

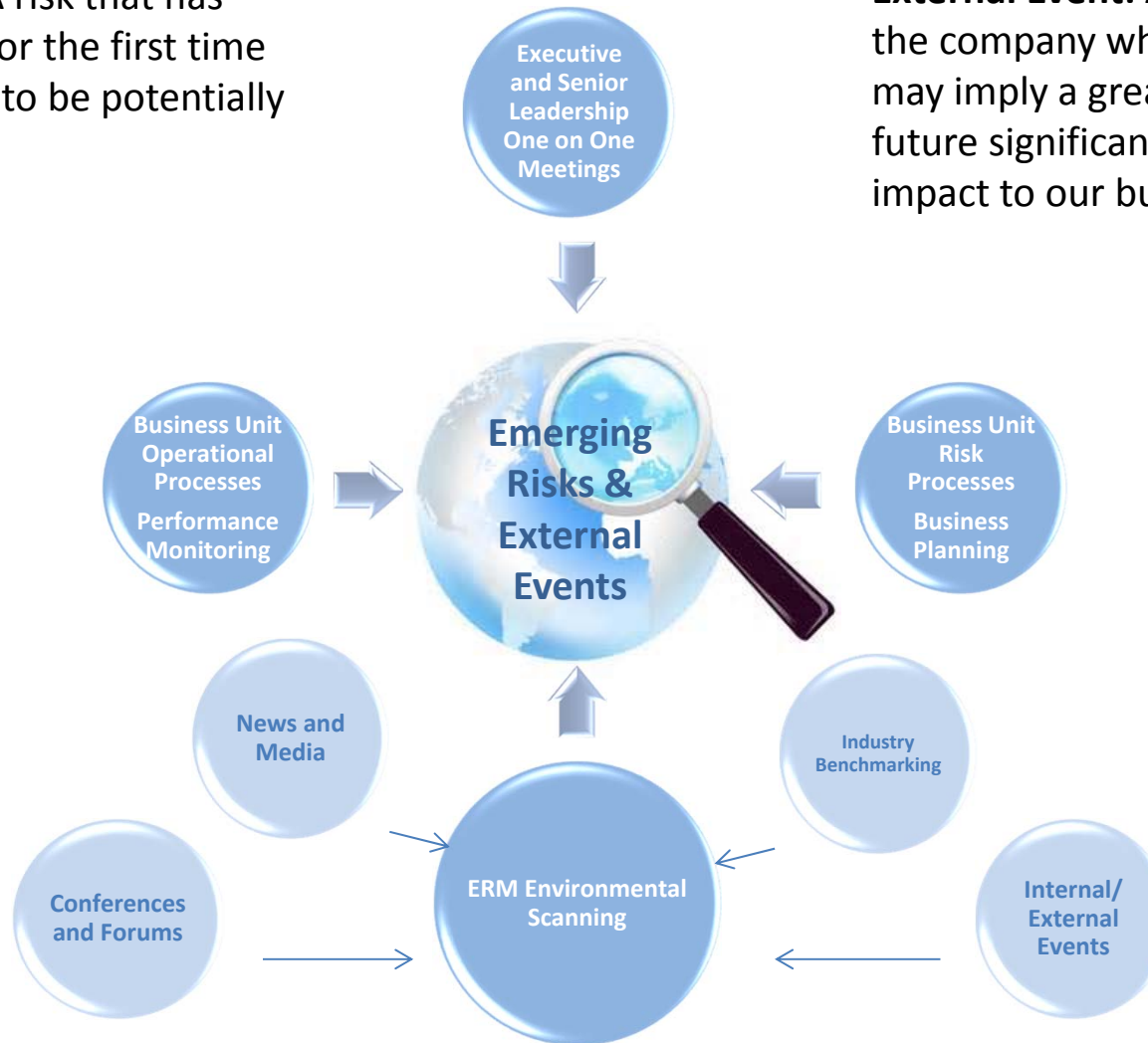


# Environmental Scanning



**Emerging Risk:** A risk that has been identified for the first time and is perceived to be potentially significant.

**External Event:** An occurrence outside the company which may result in or may imply a greater probability of a future significant indirect or direct impact to our business.



**Value-added risk insights!**





Creativity

# ERM TOOLS & TEMPLATES



# Identifying Risks – The Risk Universe





# OPG Brand Management Timeline

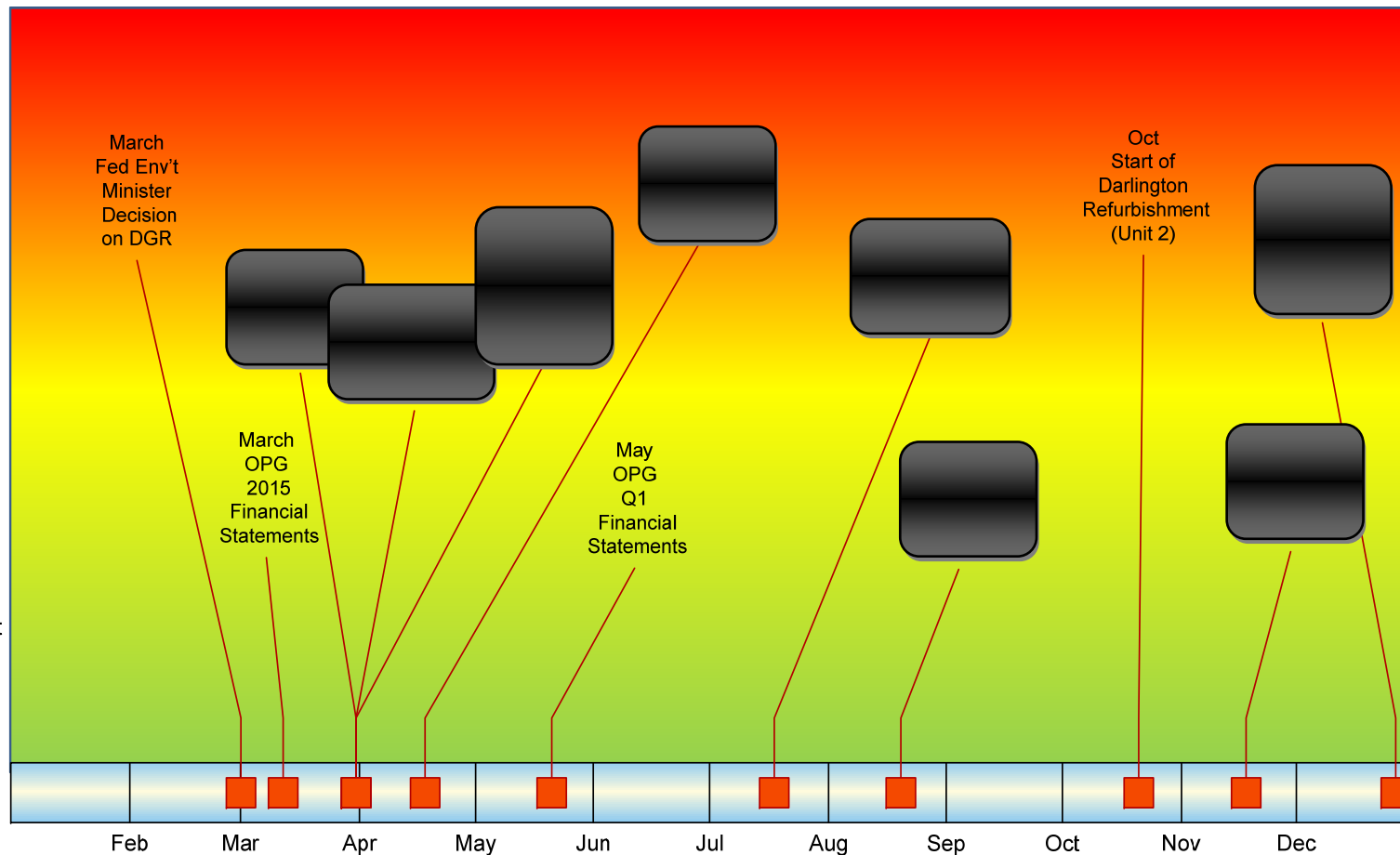


- The timeline is updated semi-annually to highlight any events that could impact OPG's reputation, along with the relative magnitude

Severe impact on OPG's social licence (e.g. sustained, significant negative perceptions by media, stakeholders and/or communities of interest)

POTENTIAL IMPACT TO REPUTATION

Minimal or positive impact on OPG's social licence as safe, accountable and environmentally-responsible

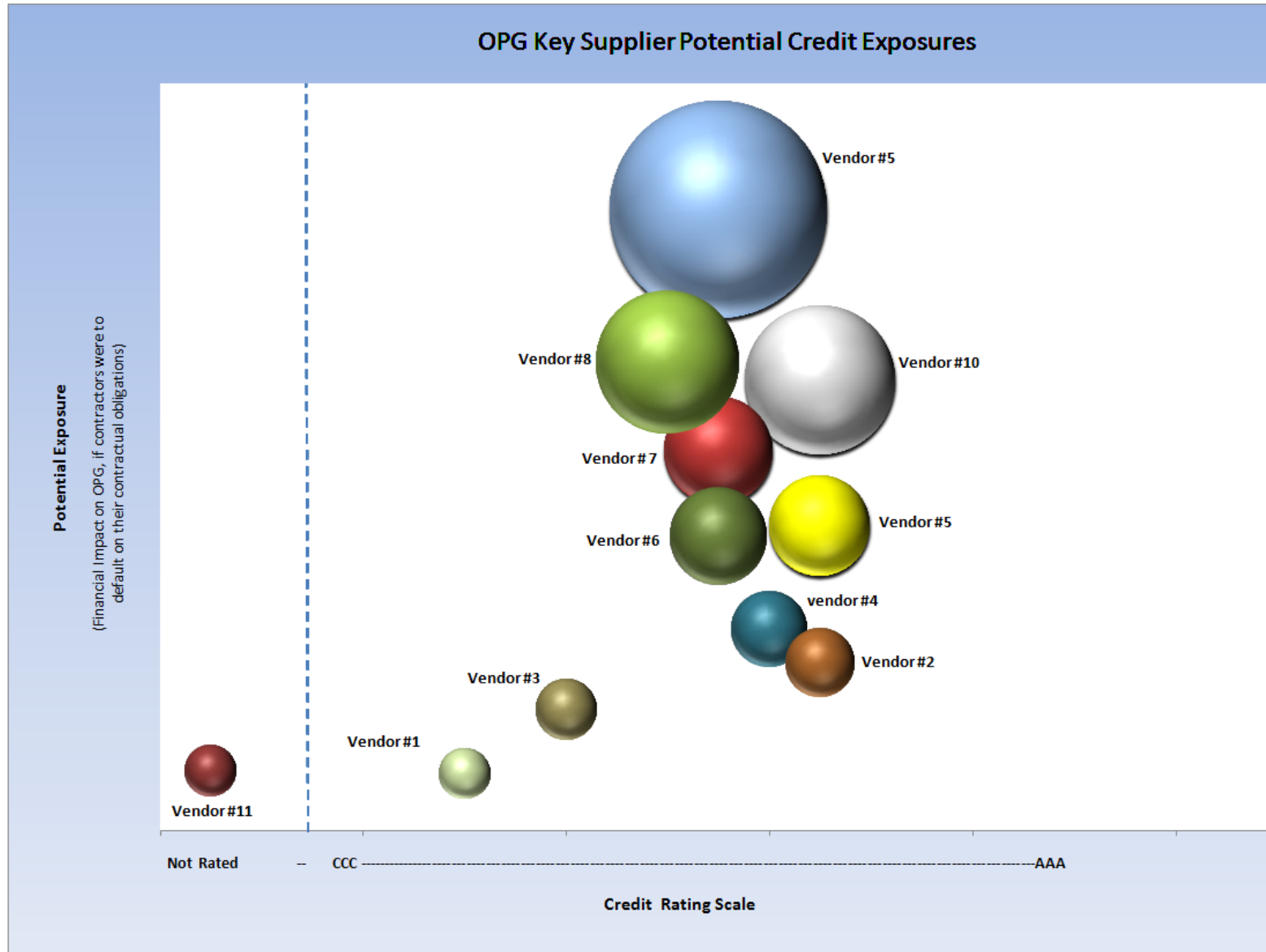
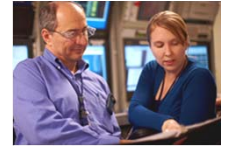


January 16

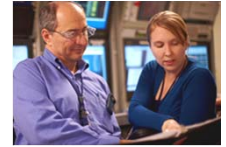
December 16



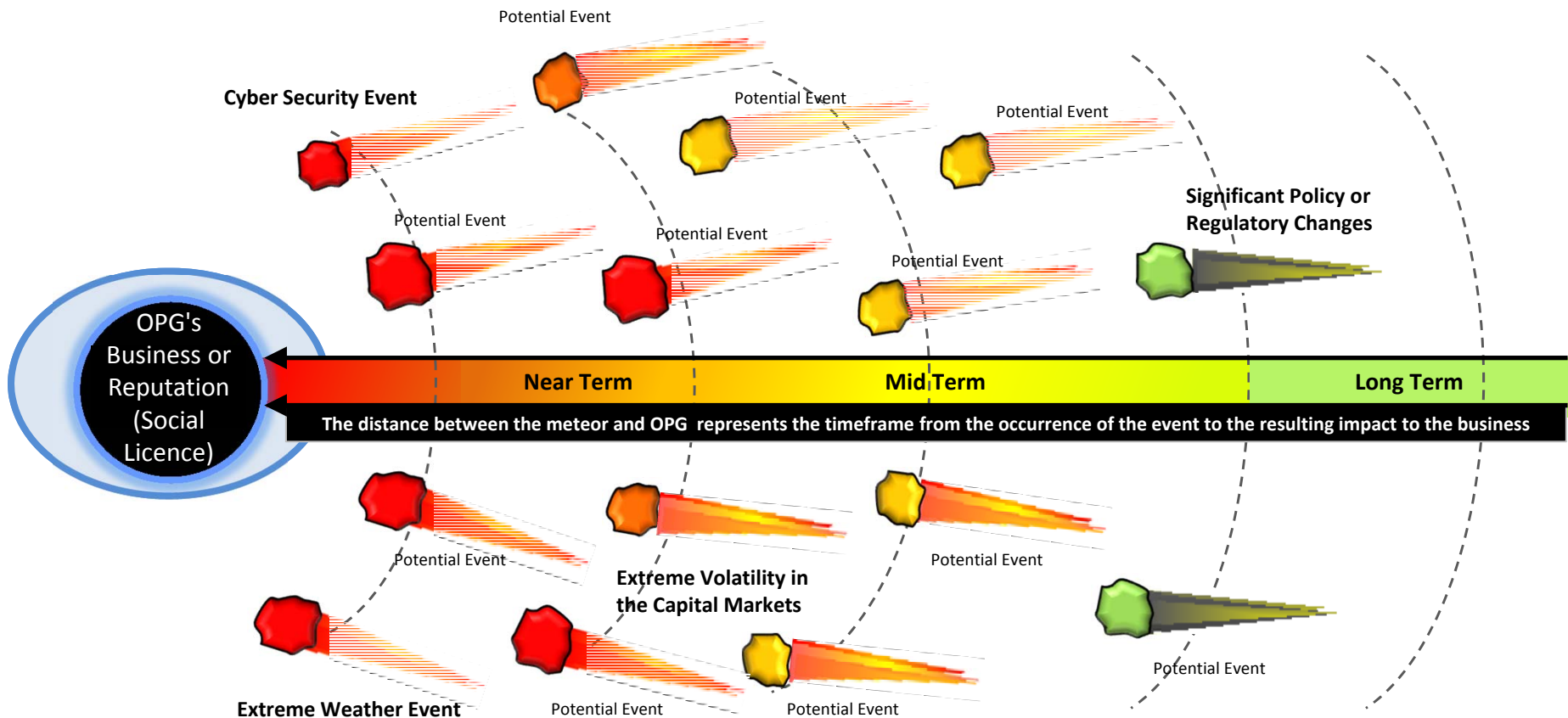
# Vendor Credit Risk



# Disruptive Events – Risk Meteors



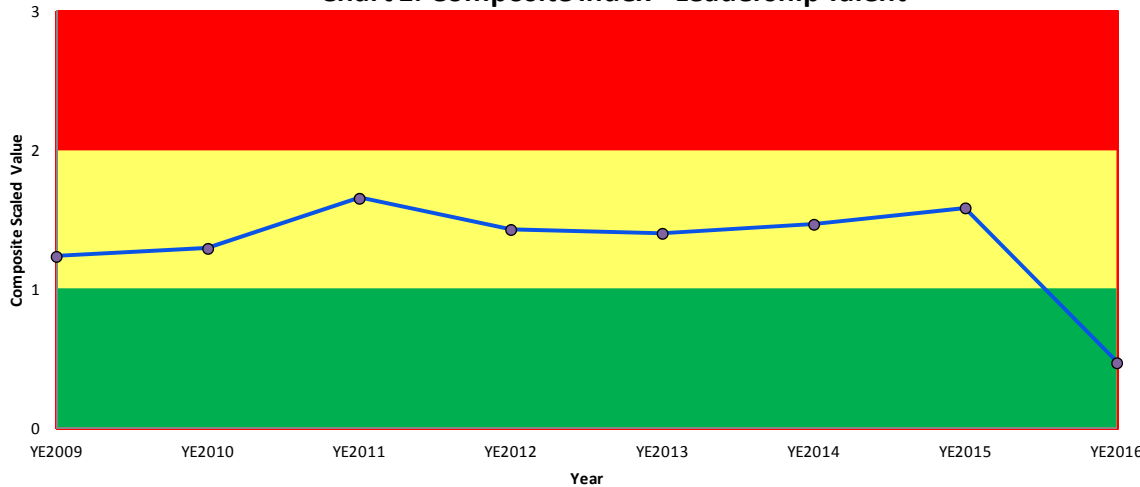
- **High Velocity, Low Probability, High Impact** external threats that could affect OPG's Business or Reputation



# Key Risk Indicators



Chart 1. Composite Index - Leadership Talent



- Composite Risk Index Chart shows the composite risk index for the *Top Risk – Leadership Talent*. This index is a weighted summation of the eight KRI's.

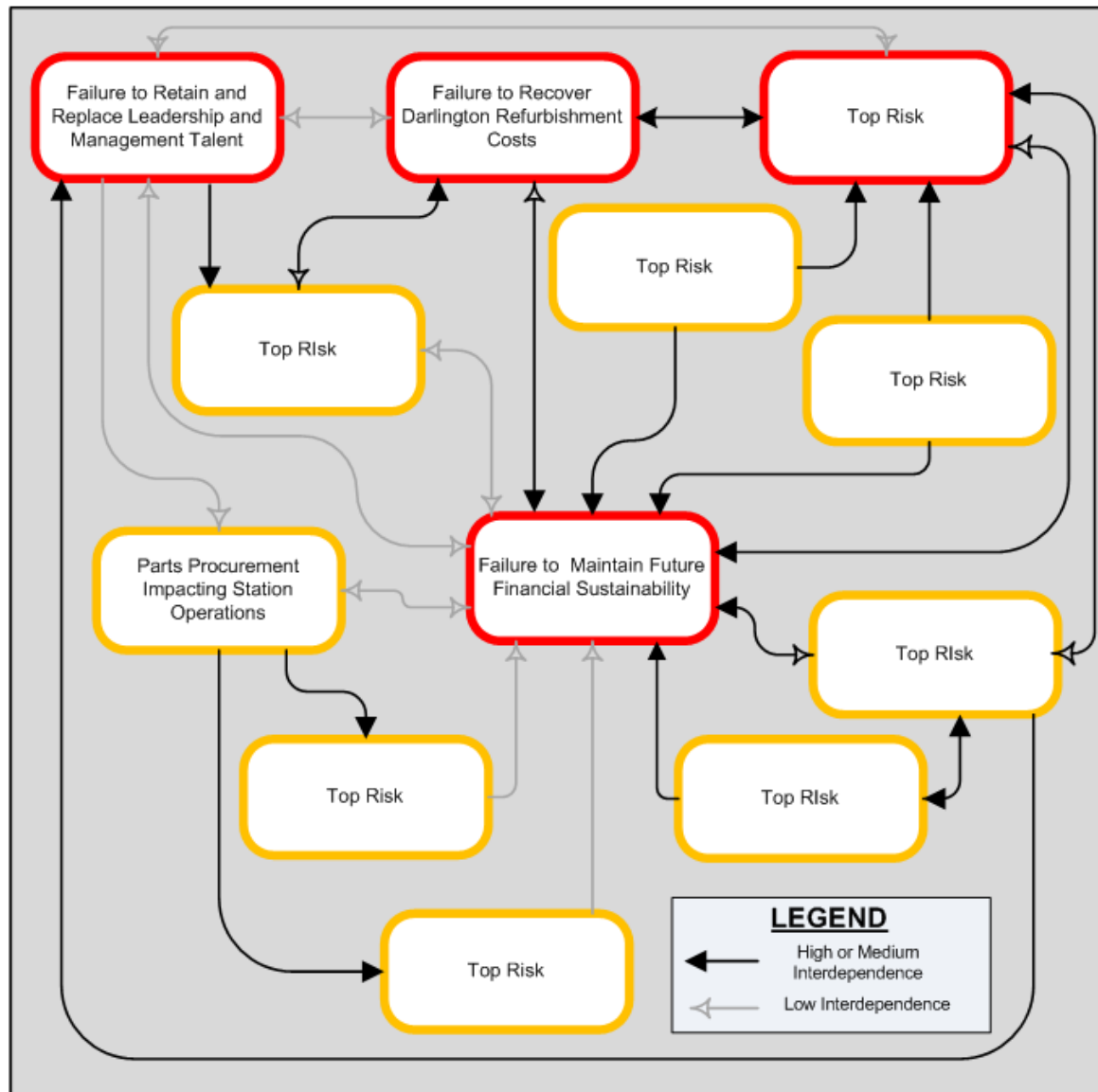
- Dashboards showing the composite risk index and associated KRIs are provided for select Top Risks including:

- Leadership Talent
- Financial Sustainability
- Pension Plan

Weighting	x%	x%	x%	x%	x%	x%	x%	x%	
KRI's	Leadership Attrition (A-H)	Average Age of Leadership (A-E)	Average Age of Leadership (F-H)	KRI #4	KRI #5	KRI #6	KRI #7	KRI #8	Overall Assessment
Failure to Retain and Replace Leadership Talent	●	●	●	●	●	●	●	●	●



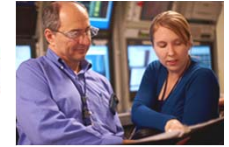
# Risk Interdependencies of Top Enterprise Risks



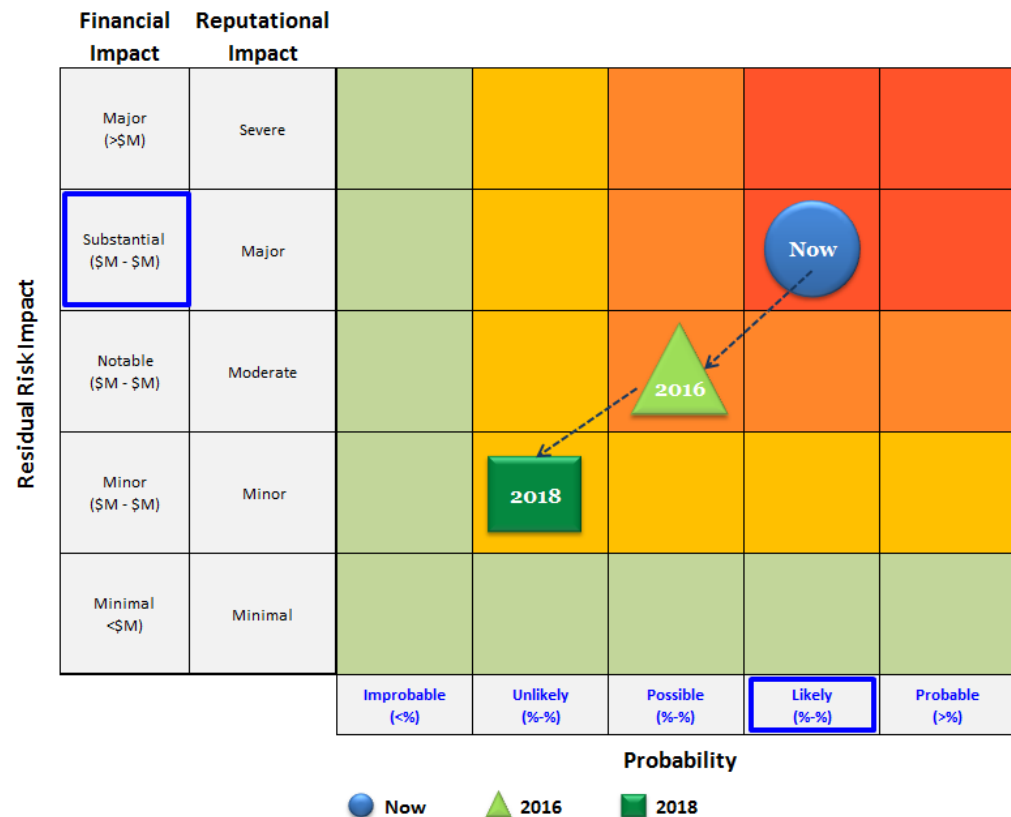
**Illustrative Example**



# Risk Targets



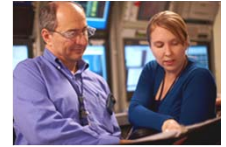
- Risk targets / risk trajectories developed for top risks
  - Reflection of acceptable level(s) of risk
- Allows risk owner to think about strategy for risk treatment
  - Focus on reducing impact?
  - Focus on reducing probability?
- Facilitates development of “SMART” risk treatment plans
  - Specific activities which are measurable and achievable
- Assists in evaluating risk treatment plan effectiveness and strengthening controls
  - Are targets on track?



Existing Mitigation Plans	TCD	Mitigation Effect
Plan 1	Date 1	Reduces probability to meet 2016 target
Plan 2	Date 2	Reduces impact to meet 2016 target
Plan 3	Date 3	Reduces probability and financial impact to meet 2018 target
Plan 4	Date 4	Reduces reputational impact to meet 2018 target

## Illustrative Example



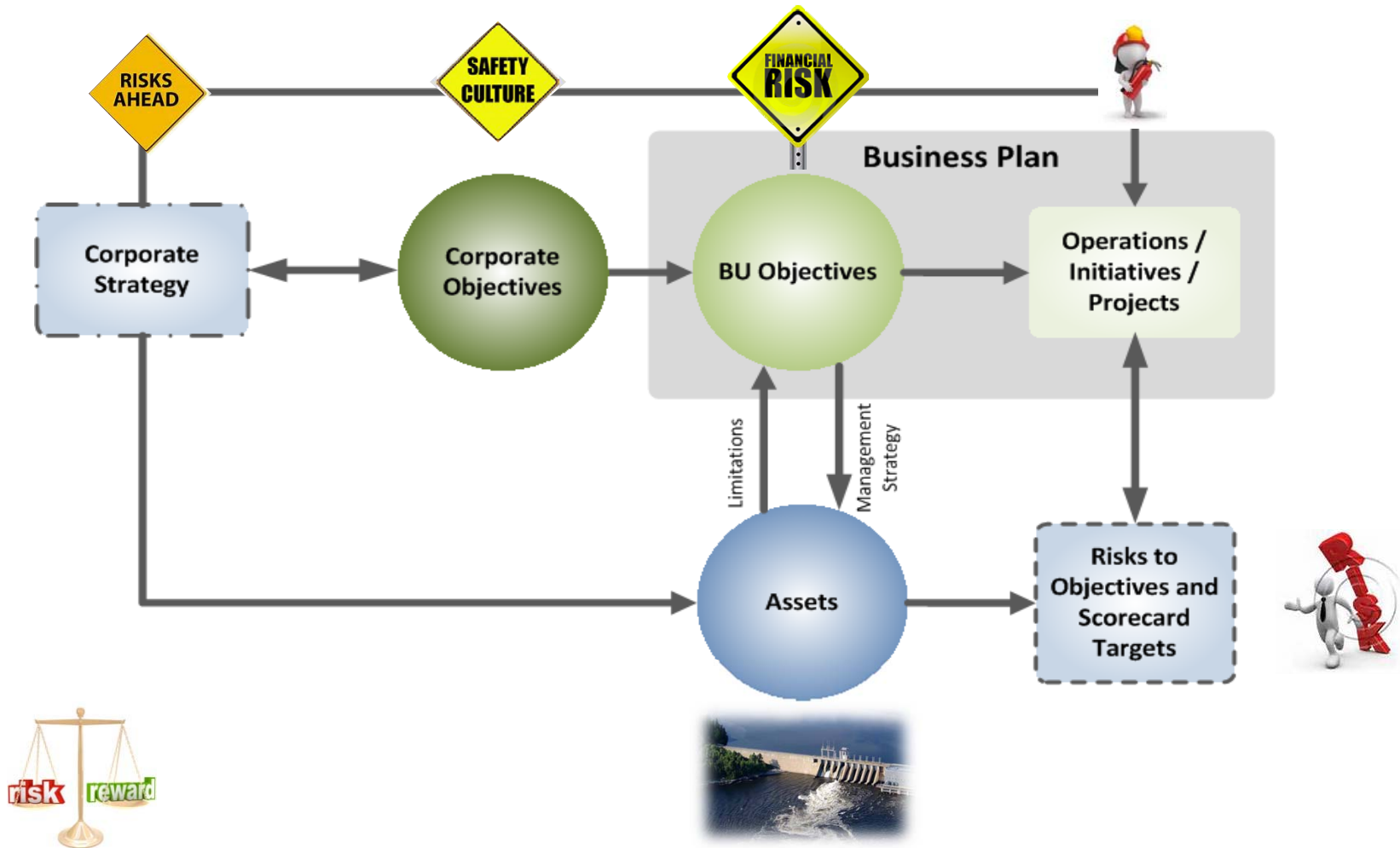


The End Game:

# RISK-INFORMED DECISION MAKING



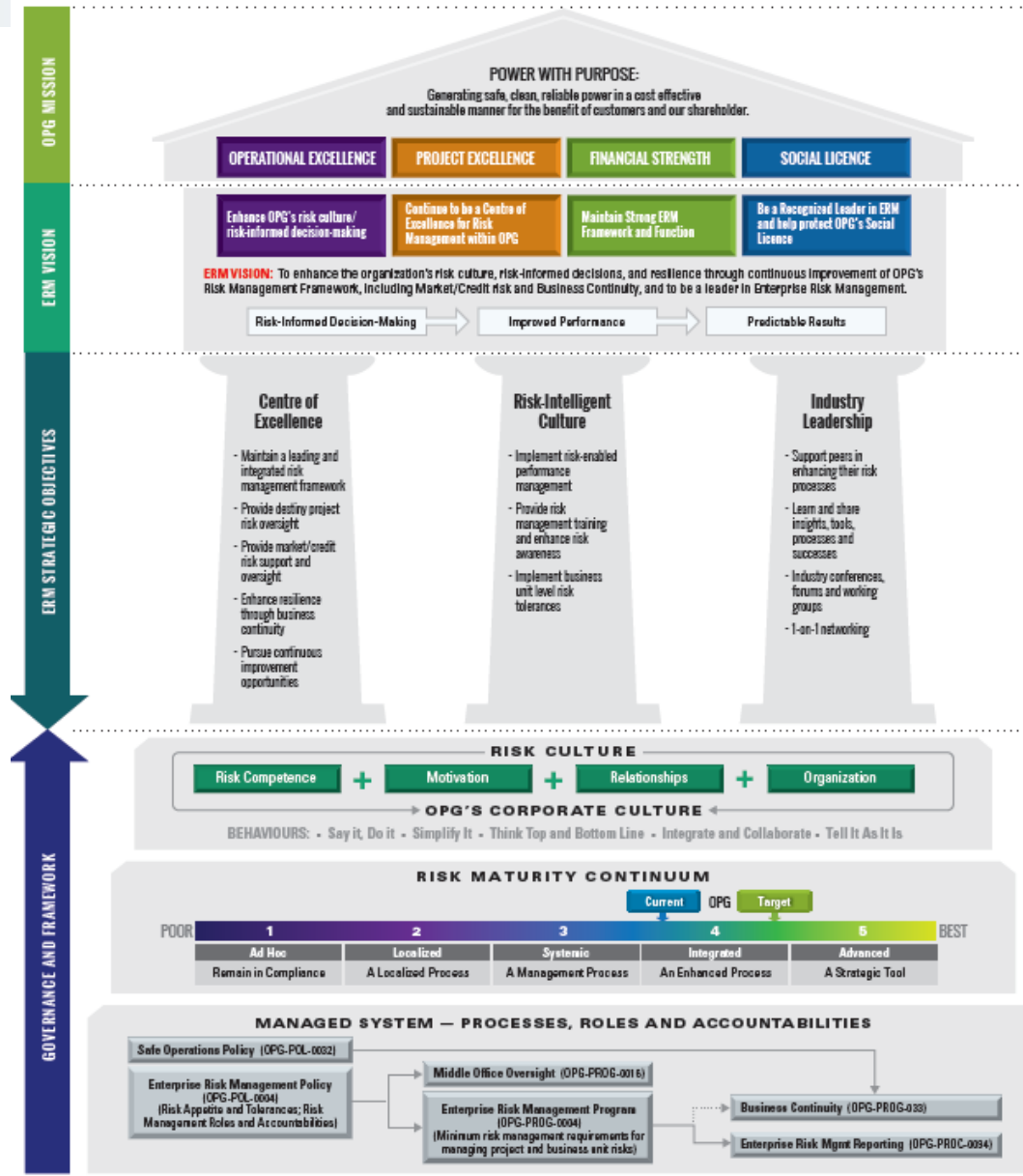
# Risk-Informed Decision Making







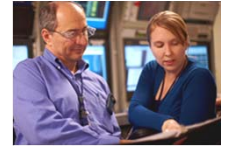
# Enterprise Risk Management Strategic Plan



Rev. May 10, 2016



# Risk Management Failure Example



**SOLYNDRA®**

- Designed, manufactured, and sold solar panels made of copper indium gallium selenide (CIGS) in a cylindrical formation; a cheaper alternative to the typical polysilicon used by their competitors.
- Praised for innovation, claimed to be more efficient than other solar systems because of surface area covered.
- Significant decrease in polysilicon and cost of traditional solar panels.
  - **Market risk not considered!**
- Production costs of Solyndra's solar panels could not compete with the market prices of competitor solar panels and the company filed for bankruptcy.

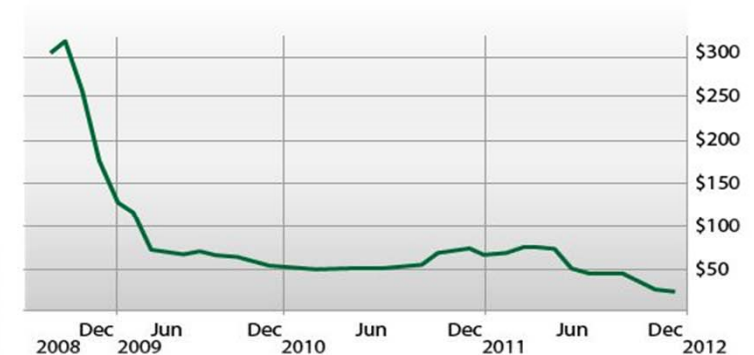


Traditional Solar Panels



Solyndra Solar Panels

**Polysilicon Price per Kilogram**





**THE ONLY**

**THINGS**

**YOU'LL**

**REGRET IN LIFE**

**ARE THE RISKS**

**YOU DIDN'T**

**TAKE**





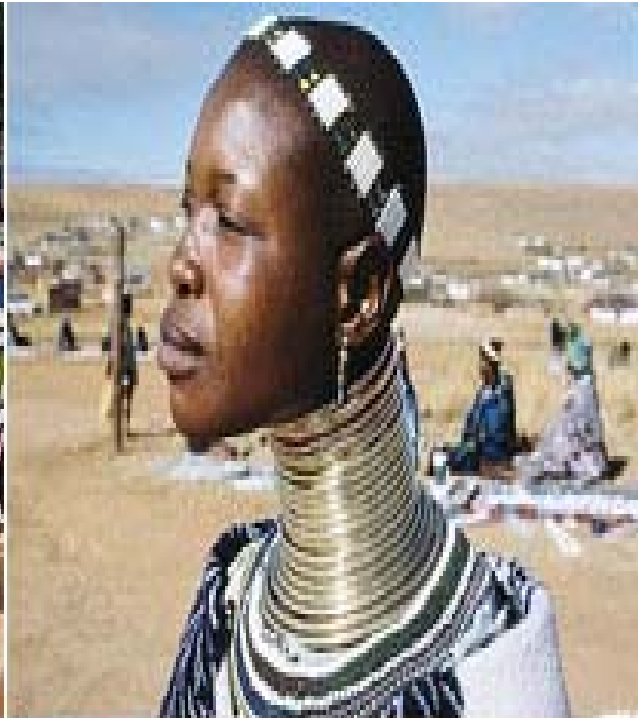


Neil Austen via Getty Images







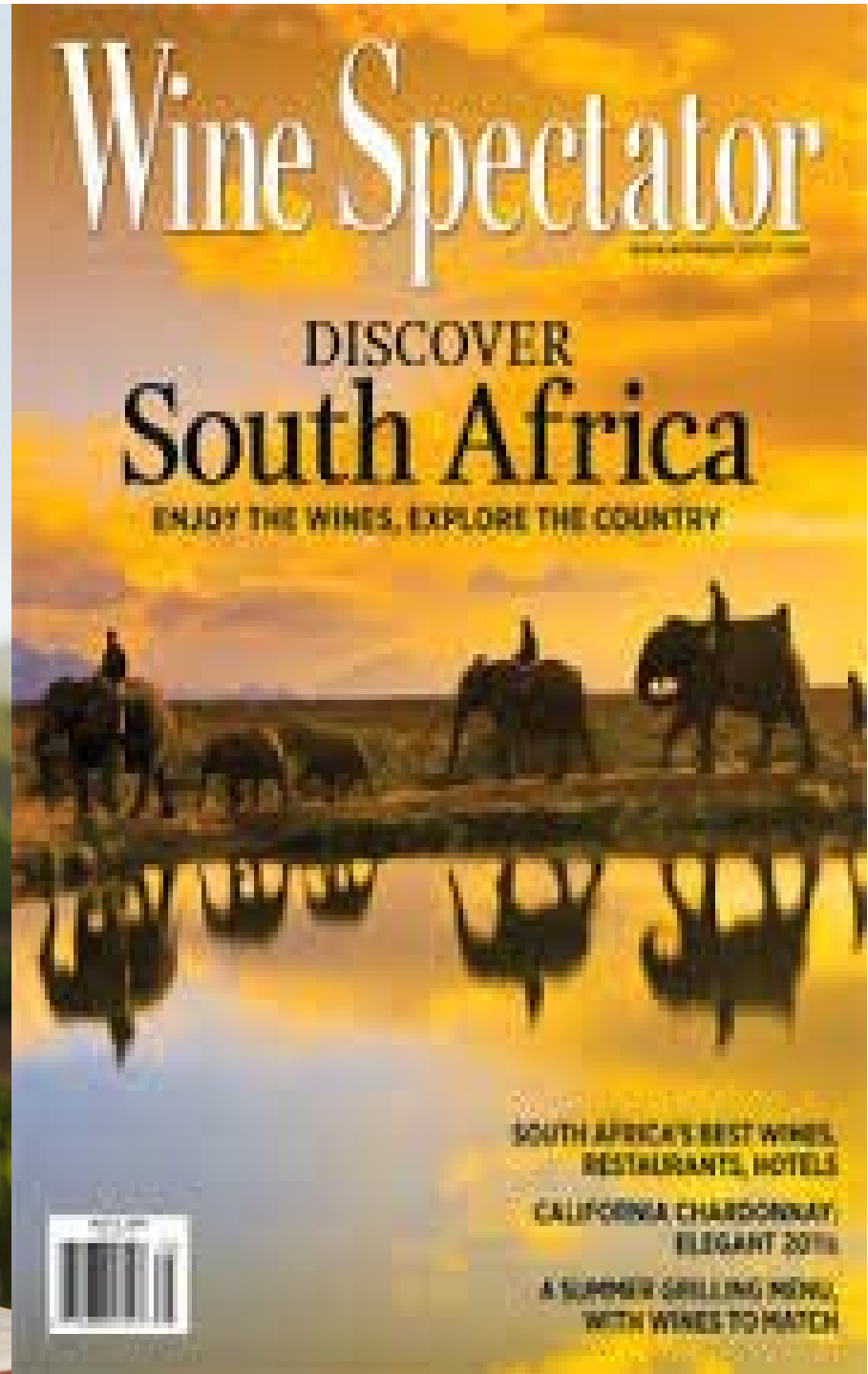


"IT ALWAYS SEEMS  
IMPOSSIBLE UNTIL  
ITS DONE."

~NELSON MANDELA





















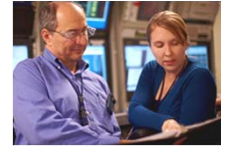
**WORLD'S HIGHEST BUNGY**





**6 sec free fall**

6 SEC FREE FALL



<https://www.youtube.com/watch?v=0tBeiH1veak>





BLOUKRANS BRIDGE  
**WALK THE  
WALK**

WORLD'S HIGHEST BRIDGE WALKING TOUR



For more information  
contact: 11 DUCKS AT WALKS  
PO Box 1004, 1004, 1004, 1004, 1004

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**FACE**  
ADVENTURE









Freak?



**WORLD'S HIGHEST BUNGY**



## Bloukrans Bungy



- \* Bridge construction completed 1983
- \* Total bridge length 452m
- \* Height at highest point 216m
- \* Highest single span concrete arch bridge in the world
- \* Highest road bridge in the Southern Hemisphere



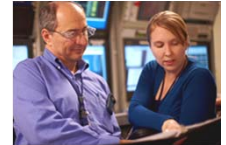
- \* Highest commercial Bungy Jump in the world
- \* Face Adrenalin has introduced Bungy Jumping to Africa in 1989
- \* Bloukrans Bungy opened in December 1997
- \* Unique pendulum Bungy system ensures smoothest jump possible
- \* Access to arch via specially designed catwalk



- \* Your safety is our primary concern
- \* All technical equipment conforms to international safety requirements
- \* Operating according to international safety standards
- \* Recovery back to the arch with specially constructed winch system
- \* Strict quality control as well as trained and experienced crew ensures complete safety

FACE

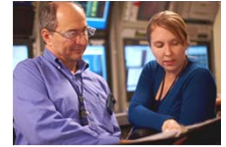
# Lessons Learned



- Don't dismiss an idea outright as 'stupid'
- Think about risks in advance
  - Make sure risks are real
- "Grow a pair"
- Try to take fear out of the equation



# Key Takeaways



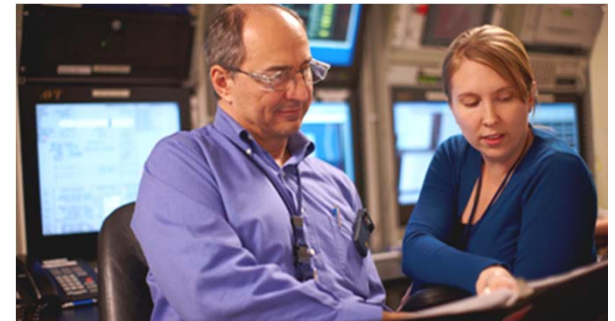
- UNDERSTANDING ERM'S Value Proposition is critical to ERM success!
  - Executive involvement and endorsement is key
- An effective ERM program relies on standard, practical processes and CREATIVE tools
  - Involves internal input (emerging risks) and external input (external factors or events)
- Goal = Risk-Informed Decision Making
- ERM is a Journey
  - Need to be adaptable and flexible





Thank you!

Questions?



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**ONTARIOPOWER**  
GENERATION



# Risk Leadership



<https://www.youtube.com/watch?v=laKprX-HP94>

