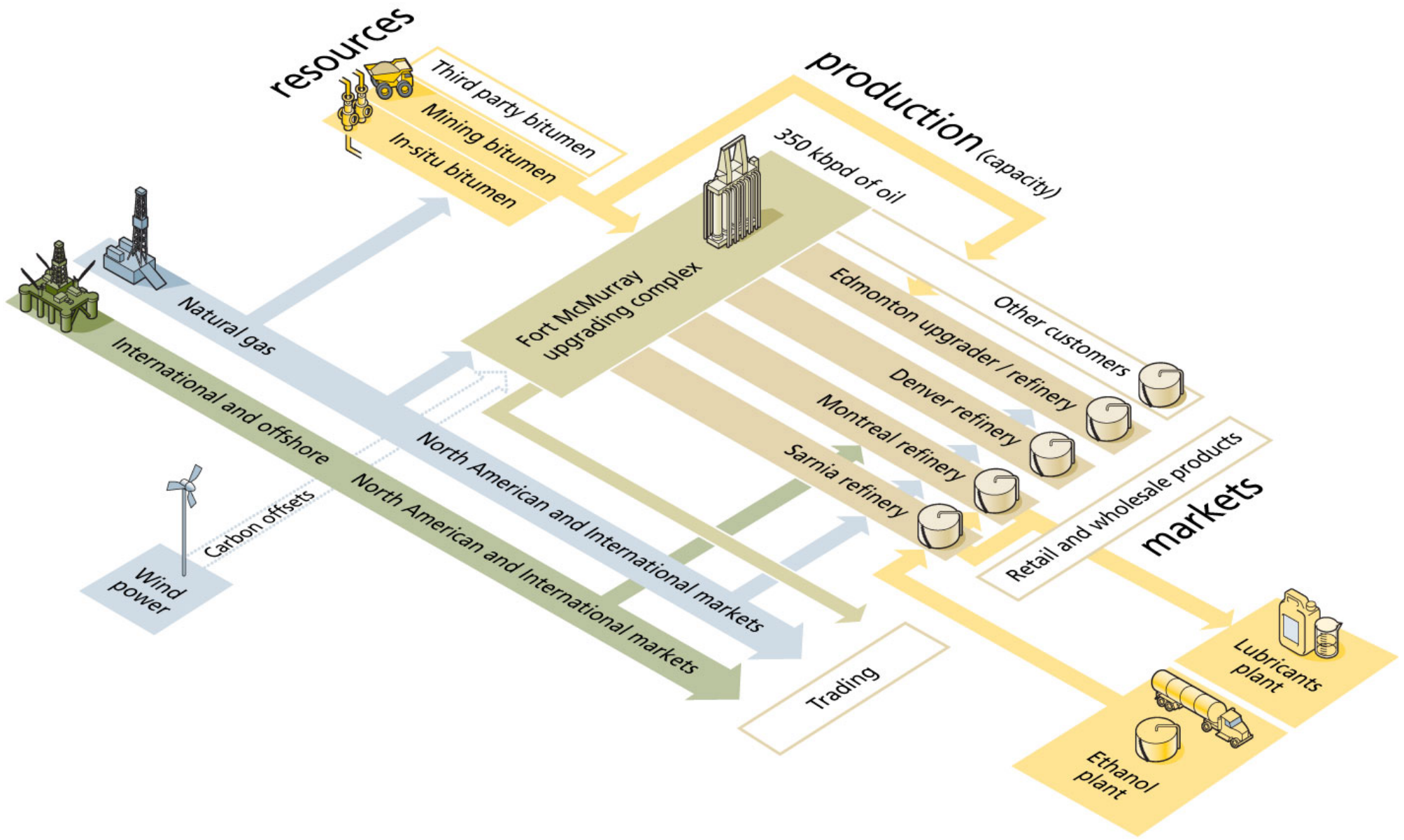




Enterprise Risk & Governance

April 2014



The Suncor Operations Excellence Management Systems (OEMS)

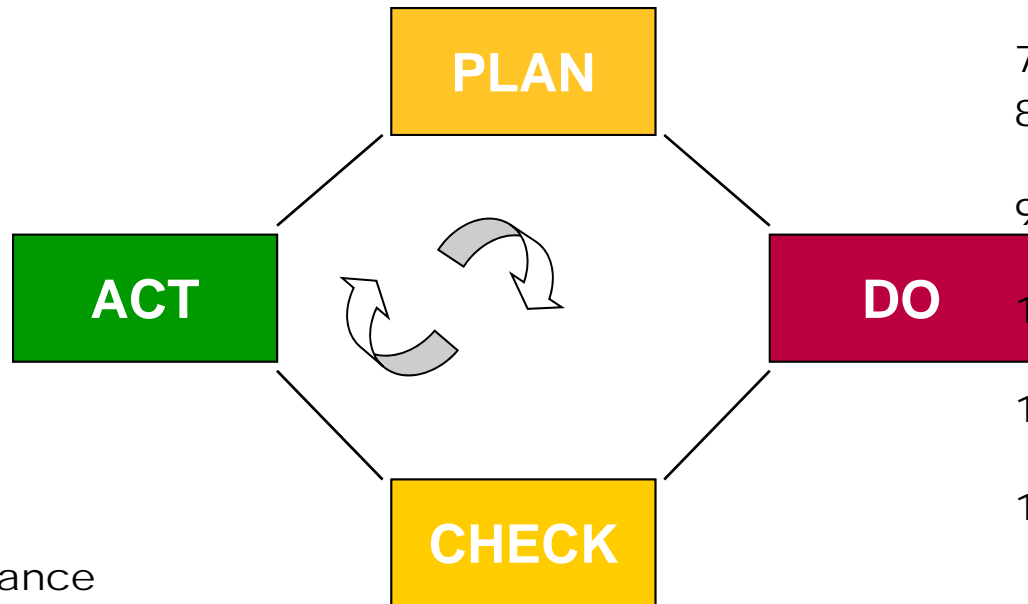
- Developed to provide a framework for company policies, standards, and procedures to support the company's goal of operational excellence
- Lays out the requirements / expectations for the management of operational risks inherent in Suncor's businesses
- The OEMS contains the requirements for the development and sustainment of an effective risk and hazard identification process and effective processes to mitigate said risks
- The OEMS also lays out requirements for the governance of the OEMS itself, and supporting programs, risks and controls in the areas of Health, Environment, Personal and Process Safety, Wellness, Security etc which fall under its scope.

The following slides provide an overview of Suncor's approach to risk management and governance, focusing in particular on the role of the Corporate Operations Integrity Audit function.

Overview of Suncor Operations Excellence MS Structure

1. Leadership, Integrity & Accountability
2. Risk Identification, Assessment & Management
3. Legal Requirements & Commitments
4. Objectives, Targets and Planning
5. Management of Change

6. Structure, Responsibility & Resources
7. Training & Competence
8. Facilities Design & Construction
9. Operations & Maintenance Controls
10. Contractor Management & Third Party Services
11. Data & Document Management
12. Emergency Preparedness & Response
13. Information & Communication Management



18. Stewardship & Management Review

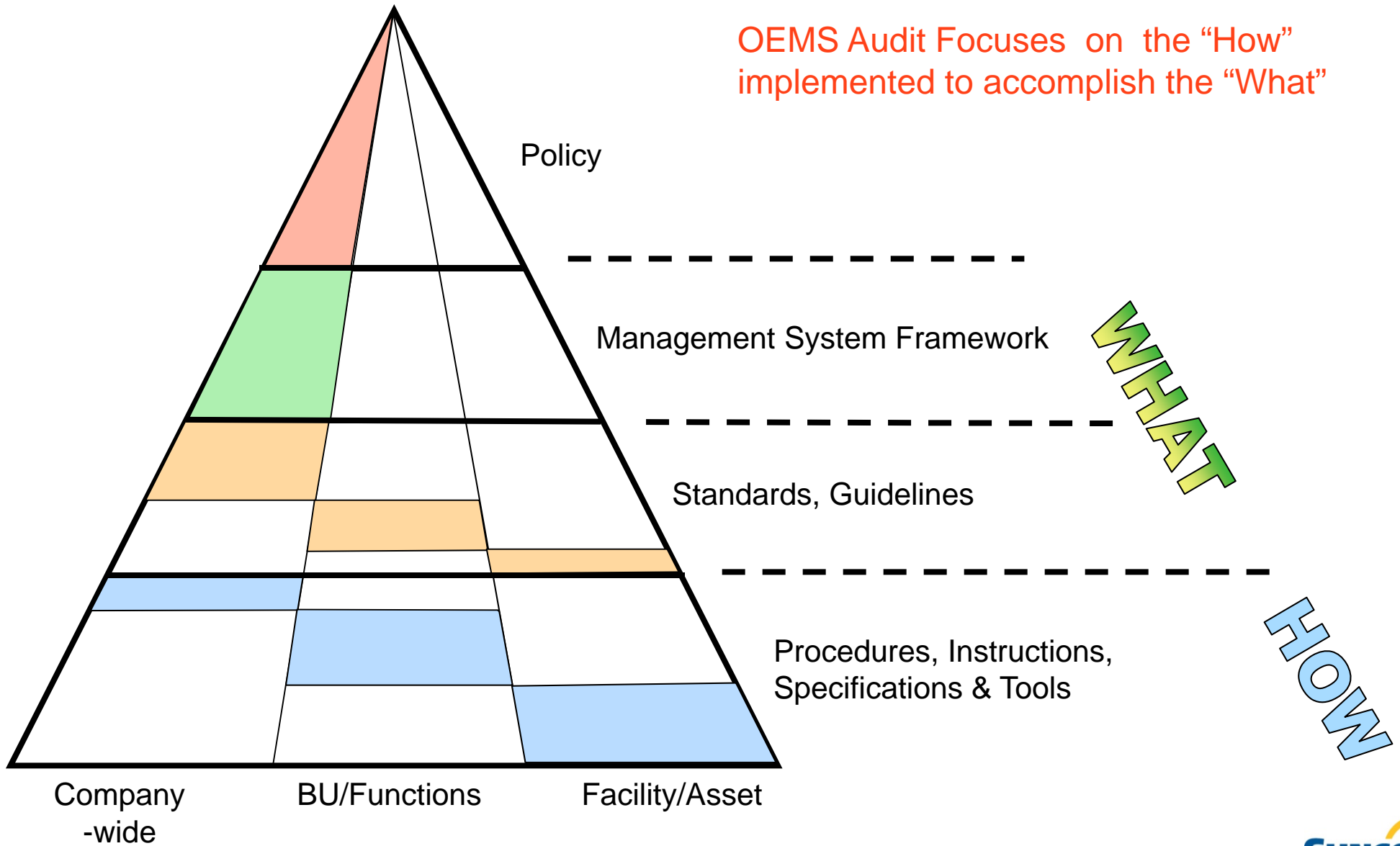
14. Quality Assurance
15. Incident Reporting, Investigation & Learning
16. Operations Integrity Monitoring, Audit & Assessment
17. Corrective & Preventative Action

Long Term Benefits of OEMS Governance Initiatives -- Operational Excellence

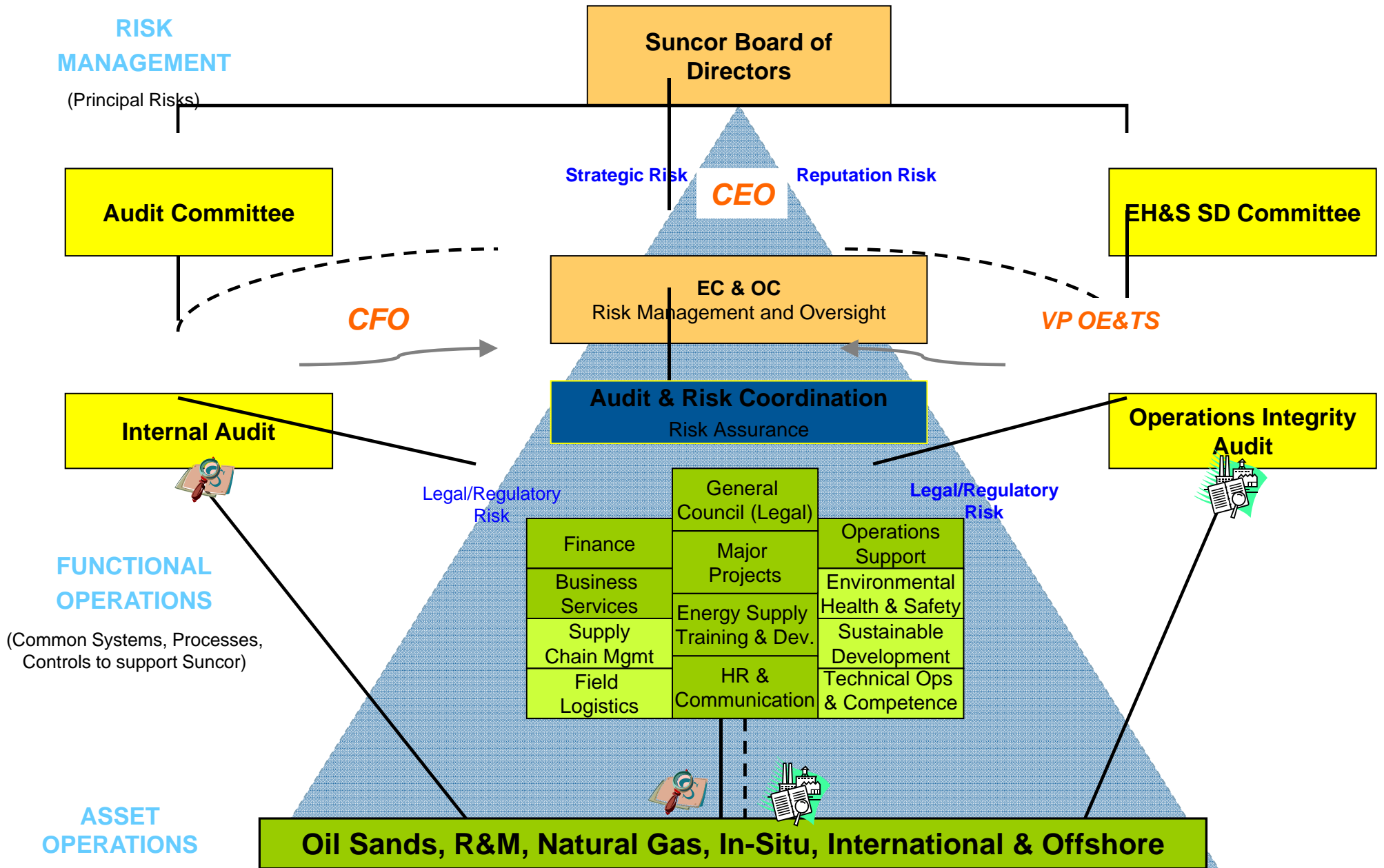
- Process for the continual reduction of Suncor risk profile, and in particular those low probability but high consequence events that have been occurring with increased frequency in our industry over the last few years
- Improved operational discipline, and corresponding improvements in asset reliability and production performance
- Identification of controls weakness and/ or continual improvement opportunity
- Improved regulatory compliance controls, and resultant stakeholder relations
- Risk transparency
- Facilitates achievement of stretch environmental Goals

Management System Hierarchy – Audit

OEMS Audit Focuses on the “How” implemented to accomplish the “What”

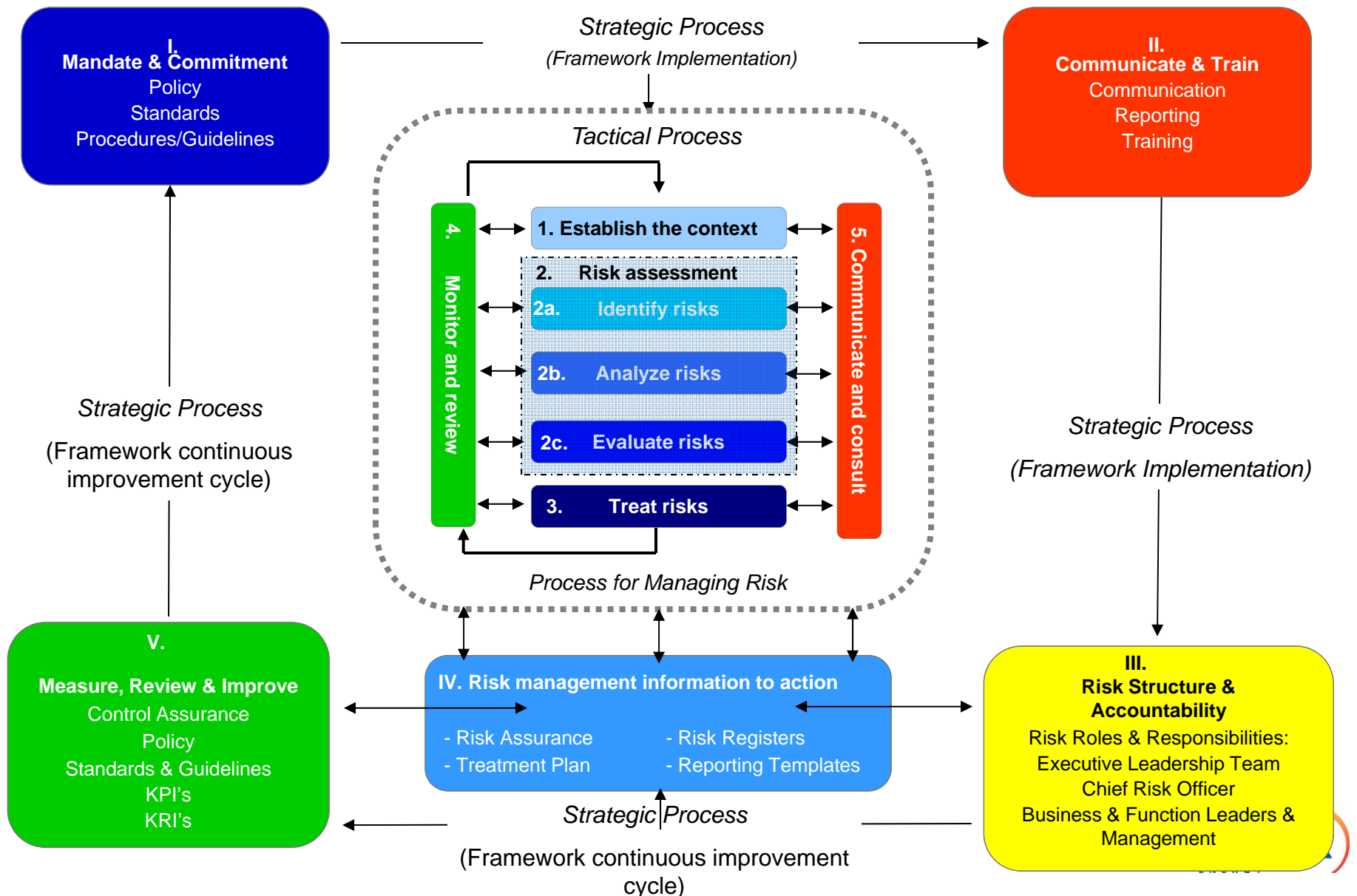


Risk and Audit Governance Structure



The Risk Management Process

Risk Assessment Model (Adapted from Standard AS/NZS 4360:2004)
OEMS Element 2 and related PS Standard requirements



Suncor Risk Matrix

Likelihood Category - Frequency Guidelines (Business Unit Basis)	Event Description	Project Execution Likelihood	Description								
$f \geq 1/yr$	Occurs once per year in BU / facility and is likely to reoccur annually	Higher than 90% chance	Probable	Likelihood Category ↑ Increasing Likelihood	L6	III	II	I	I	I	I
$0.1 \leq f < 1/yr$ (between 1/yr and 1/10 years)	Expected to occur several times in the BU/facility lifetime	70% - 90% chance	Possible		L5	III	III	II	I	I	I
$0.01 \leq f < 0.1/year$ (between 1/10 and 1/100 years)	Expected to occur in the BU/facility lifetime	50% - 70% chance	Unlikely		L4	IV	III	III	II	I	I
$0.001 \leq f < 0.01/year$ (between 1/100 and 1/1,000 years)	May happen less than once during the BU/facility lifetime	30% - 50% chance	Rare		L3	IV	IV	III	III	II	I
$0.0001 \leq f < 0.001/year$ (between 1/1,000 and 1/10,000 years)	Remote chance of happening	10% - 30% chance	Remote		L2	IV	IV	IV	III	III	II
$f < 0.0001/year$ (less than 1/10,000 years)	Extremely remote chance of happening	less than 10% chance	Extremely Remote		L1	IV	IV	IV	IV	III	III
				<div style="display: flex; justify-content: space-around;"> C1 C2 C3 C4 C5 C6 </div> <div style="text-align: center; margin-top: 5px;"> Consequence Category → Increasing Consequence </div>							

Action Priorities	
Residual Risk Level	Risk Responsibility
I	Responsible Senior Leader in BU is made aware of risk and assures mitigation and risk reduction plans are implemented.
II	Responsible VP ensures preventive controls and mitigation plans are established and maintained, and risks are re-assessed at appropriate intervals.
III	Line management monitors the risk, ensures operational controls and mitigation plans are functioning and procedures are followed.
IV	Front line leaders ensure that employees and contractors are aware of the risk, and follow established procedures & operational controls.

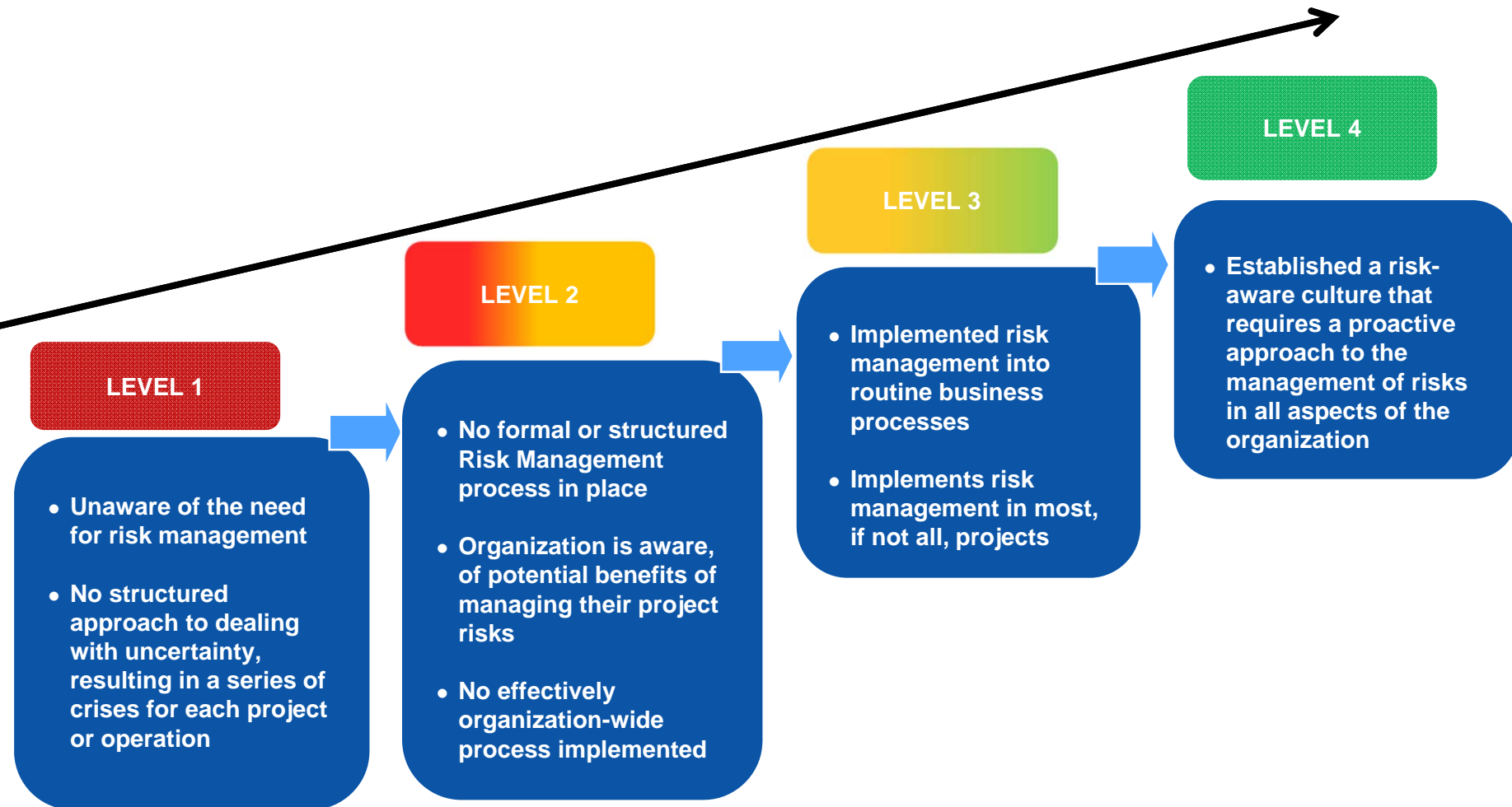
	Health & Safety (Public and Employees)	Reputation (Legal requirements & commitments)	Regulatory Consequence	Environmental Consequence	Economic Consequence (Business / Operating Loss - Financial / Asset Damage / Reliability / Business Interruption)	Project Costs % of total Project
Social	Incident - no treatment	Individual concern - single stakeholder complaint. No media involvement.	Below regulatory limits	Release to on-site environment, controlled by passive controls	C < \$100k	C < 1%
	Single first aid injury / illness or multiple no treatment cases	Multiple stakeholder complaints / local media attention/ no impact on Suncor's reputation	Regulatory notification required	Release to on-site environment, controlled by active controls	\$100k =< C < \$1M	1% < C < 3%
	Single restricted work case or a medical treatment injury / illness or multiple first aid cases	Community concern/ regional news/ adverse impact on Suncor's reputation at regional level	Regulatory Limit / Requirement breached; formal regulatory reporting triggered	Release with minor impact to significant receptor	\$1M =< C < \$10M	3% < C < 5%
Environmental	Single temporary disability or a lost time injury / illness or multiple medical aid cases	Provincial or State news/ adverse impact on Suncor's reputation at provincial/ state level	Regulatory Limit / Requirement breached. Moderate response from authority	Release off-site with moderate impact to significant receptor	\$10M =< C < \$100M	5% < C < 7%
	Single permanent disability or multiple lost time cases	National news/ public outrage/ short-term drop in market share and share price	Regulatory investigation and response with penalties	Release off-site with major impact to significant receptor	\$100M =< C < \$500M	7% < C < 9%
	Fatality or multiple permanent disabilities	Recurring national / International media attention / punitive action by government against company/ long-term major impact on market share and share price.	Significant regulatory response with significant penalties.	Significant release with catastrophic impact to significant receptor	C > \$500M	C > 9%
Economic						

Authorized 2 February 2010, Suncor Energy BOD meeting

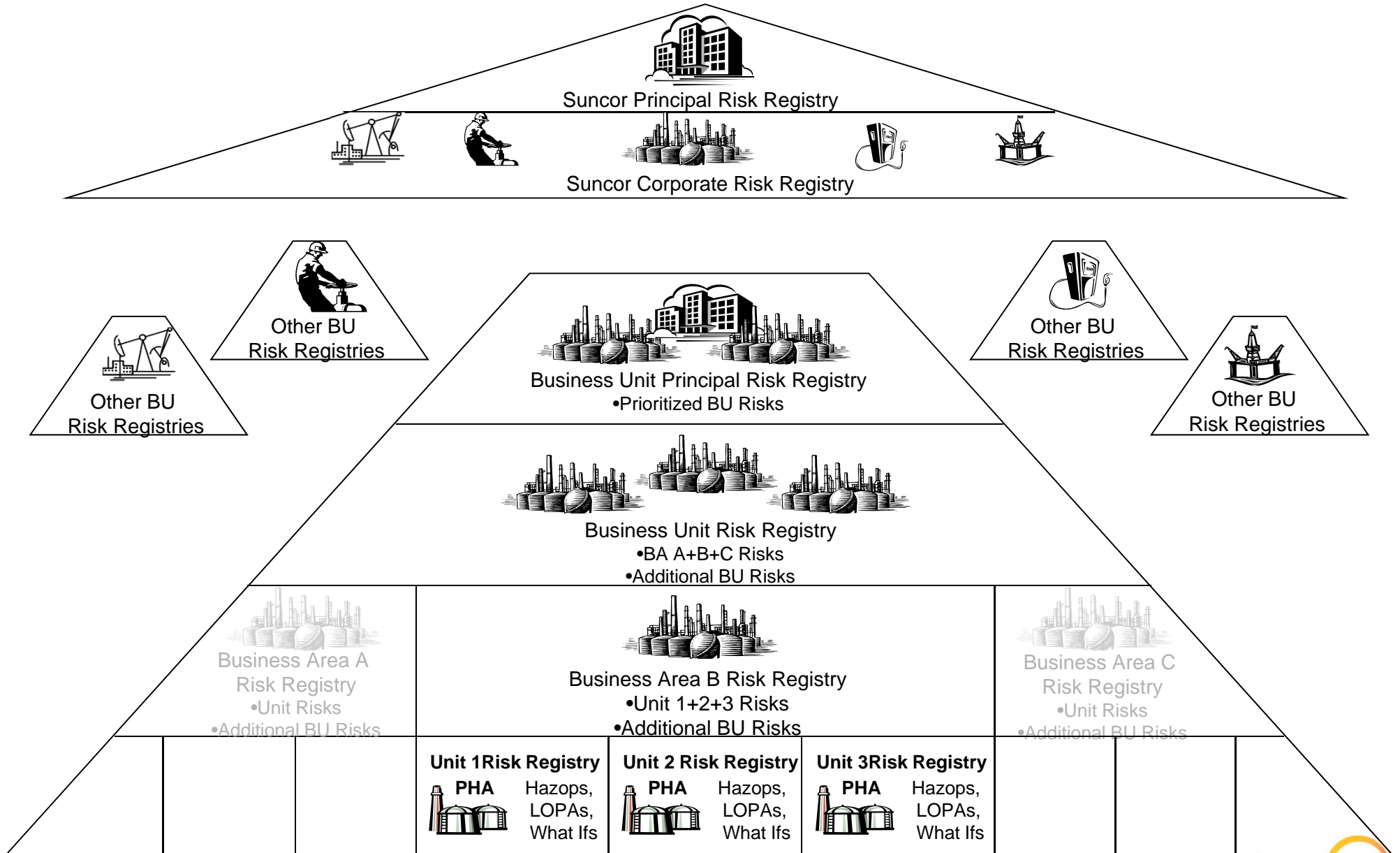
UNCONTROLLED DOCUMENT WHEN PRINTED

Risk Management Maturity Road Map

**JOURNEY
TO ZERO**

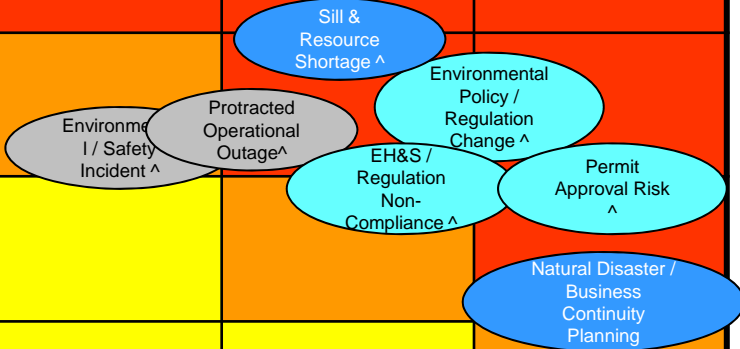


Suncor Risk Registries



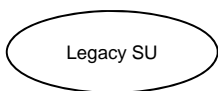
Principle Risk Registry for a Hypothetical Oil Sands Operation

Likelihood Category Increasing Likelihood ↑	L6 Virtually certain						
	L5 Probable						
	L4 Possible						
	L3 Unlikely						
	L2 Rare						
	L1 Remote						
		C1 <\$100K	C2 \$100K to <\$1M	C3 \$1M to <\$10M	C4 \$10M to <\$100M	C5 \$100M to <\$500M	C6 >\$500M



Consequence Category

Increasing Consequence →



Operational



Reputation



Financial



Legal & Regulatory



Strategic

NOTES:

• Based on risk assessment for YE 2008 for legacy SU and legacy PC

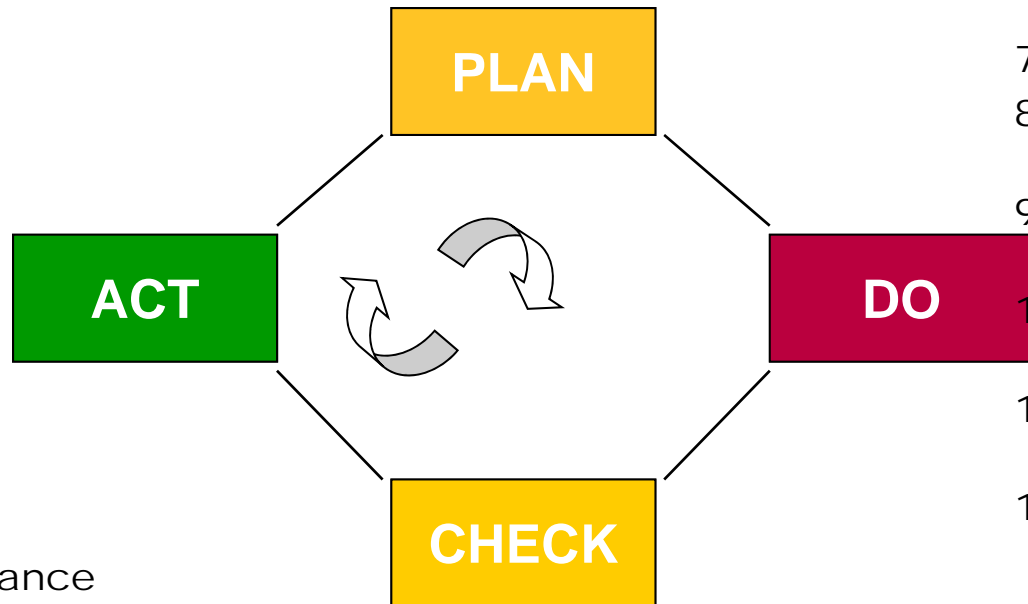
^ Identified as a principal risk for legacy Suncor



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12. Emergency Preparedness & Response
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18. Stewardship & Management Review

14. Quality Assurance
15. Incident Reporting, Investigation & Learning
16. Operations Integrity Monitoring, Audit & Assessment
17. Corrective & Preventative Action

OEMS Element - Audit Focus , Delivering Value

OIA's Mandate is to monitor the effectiveness of controls related to operational risks associated with physical assets and matters of EHS and sustainable development. OIA Audit help provide the EHS&SD Committee on assurance of risk management and mitigation. Our focus is therefore on level I or II inherent risks. Scope will be adjusted to monitor the effectiveness of OEMS implementation to those key risks.

Example AUDIT SCOPE DISCUSSION... --

Look at key risks / operations and associated controls

- Pipeline Infrastructure
 - Integrity Issues
 - Corrosion Concerns (Internal / External)
 - Maintenance and Repairs
- Major Incidents / Emergencies (last few years)
 - Emergency Preparedness
 - Emergency Response
- New Processes, Standards, Procedures
 - Effectiveness of Implementation
- Organizational Changes
 - Critical Positions
- Regulatory Changes
 - New requirements / programs
- Contractual Concerns
 - Incidents with Contractors
 - Managing significant risks on our behalf
 - Contract revised
- New Projects or Construction
 - Quality Assurance
- Facility Infrastructure
 - Age of infrastructure
 - Reliability issues

OEMS Element - Audit Focus Example

RISK: PIPELINE LEAK DETECTION

CRITERIA	AUDIT FOCUS	LOOK FOR...
Element 2 Risk Management	Process for the identification and assessment of risks	Risk Registries •Normal •Abnormal •Emergency
Element 3 Legal and Other Requirements	Provincial Pipeline Act / Regulations <i>Reg 91/05</i> CSAZ662 and Annex's Approval Conditions	Legal Registry ESS Compliance Tasks Controls (as per Element 9)
Element 7 Learning and Competence	Critical Positions Competency Requirements Training Programs Relevant Legal Requirements <i>E.5.1 Training Requirements</i> <i>"Personnel responsible for interpreting and responding to the results of leak detection systems shall be knowledgeable about and receive training in..."</i>	Critical Positions defined (as per Element 6) Role Descriptions (as per Element 6) Competency Documentation Training Requirements Records of training Operator – Interpreting and responding to results of leak detection system.
Element 9 Operations and Maintenance Controls	Leak Detection Processes <i>E. 5.2 Leak Detection Manual</i> <i>Operating companies shall have a leak detection manual...</i> Control System - SCADA design Material Balance – Persistent small leak detection Instruments and Systems – Process/Procedures Right of Way Inspections	Leak Detection Protocols / Manual Operator - SCADA knowledge Material Balance Results (daily, weekly, monthly) Operator - Instrument Readings and Response Inspection Records
Element 15 Incident Management	Protocol for response Historical Leaks – Response and Root Cause Analysis	Incidents Corrective Actions (as per Element 17)
Element 12 Emergency Management	Testing Exercises Emergency Preparedness and Response	PM Programs for Emergency Equipment Testing Results Corrective Actions (as per Element 17) Drills and Exercises ERP Plans

OEMS Element - Audit Focus Example

RISK: EMERGENCY PREPAREDNESS & RESPONSE

CRITERIA	AUDIT FOCUS	LOOK FOR...
Element 2 Risk Management	Process for the identification and assessment of risks	Risk Registries •Emergency Scenarios
Element 9 Operations and Maintenance Controls	Maintenance - Emergency Instruments <i>CSA Z662-11, 10.4.2 Pipeline systems (iii) valves — locations of valves designated as emergency valves, with complete information about the dates of inspection and maintenance, and the current intended operating position, whether open or closed;</i> Emergency Procedures <i>CSA Z662-11, 10.4.3.1 Pipeline Emergency Records</i> Emergency Equipment <i>CSA Z662-11, 10.9.6.2 Pipeline valves that can be necessary during an emergency shall be inspected and partially operated at least once per calendar year, with a maximum interval of 18 months between such inspections and operations.</i>	Operations and Maintenance Manuals (PM Programs) List of Emergency Equipment Emergency PM's and Records
Element 10 Contractor Management (Equipment Maintenance)	Contractor Qualifications Competency Requirements Contract Conditions Contractor Performance	Contractor Performance Management Records Contractor Competency Records On-Boarding Processes Audit and/or Assessment Records Observation Records
Element 12 Emergency Management	Emergency Response Plans <i>REG 91/05, Section: 8(1)</i> Hydrogen Sulphide Plans <i>REG 91/05, Section: 8(3-5)</i> Response Capabilities Emergency Drills Emergency Exercises Responder Competency and Training	Site Emergency Response Plans Mutual Aid Agreements Emergency Resources Records and Corrective Actions (as per Element 17) Competency Requirements (as per Element 7) Training Requirements (as per Element 7)
Element 13 Communication and Stakeholder Relations	Public Awareness Programs <i>Pipeline Regulation, 91/2005, Part 1 8(1)</i> <i>CSA Z622-11, 10.5.2.2</i>	Communication Records – External Stakeholders

OEMS Element - Audit Focus Example

RISK: PIPELINE INTEGRITY MANAGEMENT

CRITERIA	AUDIT FOCUS	LOOK FOR...
Element 2 Risk Management	Process for the identification and assessment of risks	Risk Registries <ul style="list-style-type: none"> •Internal •External •Environmental
Element 3 Legal and Other Requirements	Provincial Pipeline Act / Regulations CSAZ662 and Annex's Approval Conditions	Legal Registry ESS Compliance Tasks Controls (as per Element 9)
Element 9 Operations and Maintenance Controls	Integrity Management Processes <i>CSA Z662-11, 3.1.2 – Safety Loss Management System</i> <i>CSA Z662-11, 3.2 “Operating companies shall develop and implement an integrity management program that includes...”</i> <i>REG 91/05, Section: 7 “A licensee shall prepare and maintain a manual or manuals containing procedures for integrity management...”</i>	Integrity Management Manuals Records of implementation Annual Reviews (as per Element 11) Pipeline Risk Assessments (as per Element 2) In-line inspection program and results Excavation program and results
Element 10 Contractor Management	Contractor Qualifications Competency Requirements Contract Conditions Contractor Performance	Contractor Performance Management Records Contractor Competency Records On-Boarding Processes Audit and/or Assessment Records Observation Records

Audit findings are classified in the following manner to help prioritize corrective actions.

Rating	Definition
Level I	<ul style="list-style-type: none"> • Total or significant absence of objective evidence demonstrating conformance with multiple elements of the management system resulting in significant weakness in application of the Plan, Do, Check, Act approach • Total or significant absence of objective evidence demonstrating conformance with the entirety of one element of the management system • Absence of, or widespread weakness in, risk controls which raise doubt about the ability to adequately manage significant risk and/or comply with requirements • Regulatory non-compliance which present risk to our license to operate and/or potentially significant penalty and/or potentially significant impact • Repeat Level I and Level II audit findings (from previous OIA audits)
Level II	<ul style="list-style-type: none"> • Inadequate objective evidence demonstrating conformance with requirement(s), preventing consistent effectiveness of the management system and/or transparency in risk management • Multiple issues of control weakness or ineffectiveness which raise doubt about the implementation of the management system and/or ability to meet requirements • Regulatory non-compliance which present risk of penalty and/or impact
Level III	<ul style="list-style-type: none"> • Isolated cases of inadequate demonstration of conformance with requirement(s) • Lapses in operational discipline managing requirements and/or risk • Regulatory non-compliance which present negligible potential impacts
OFI	<ul style="list-style-type: none"> • There is not necessarily a current issue with conformance or operating discipline, however there may be an opportunity to improve the approach toward meeting a requirement(s) • Minor inconsistency in risk control application • Isolated, administrative issue which is readily correctable



NATIONAL PARTNER

