



AUG 2015

Effective Heat Rate Programs Achieved Through Asset Management Integration

energy everywhere.™

Business Methodology

HEAT RATE PROGRAM A SUBSET ASSET MANAGEMENT:

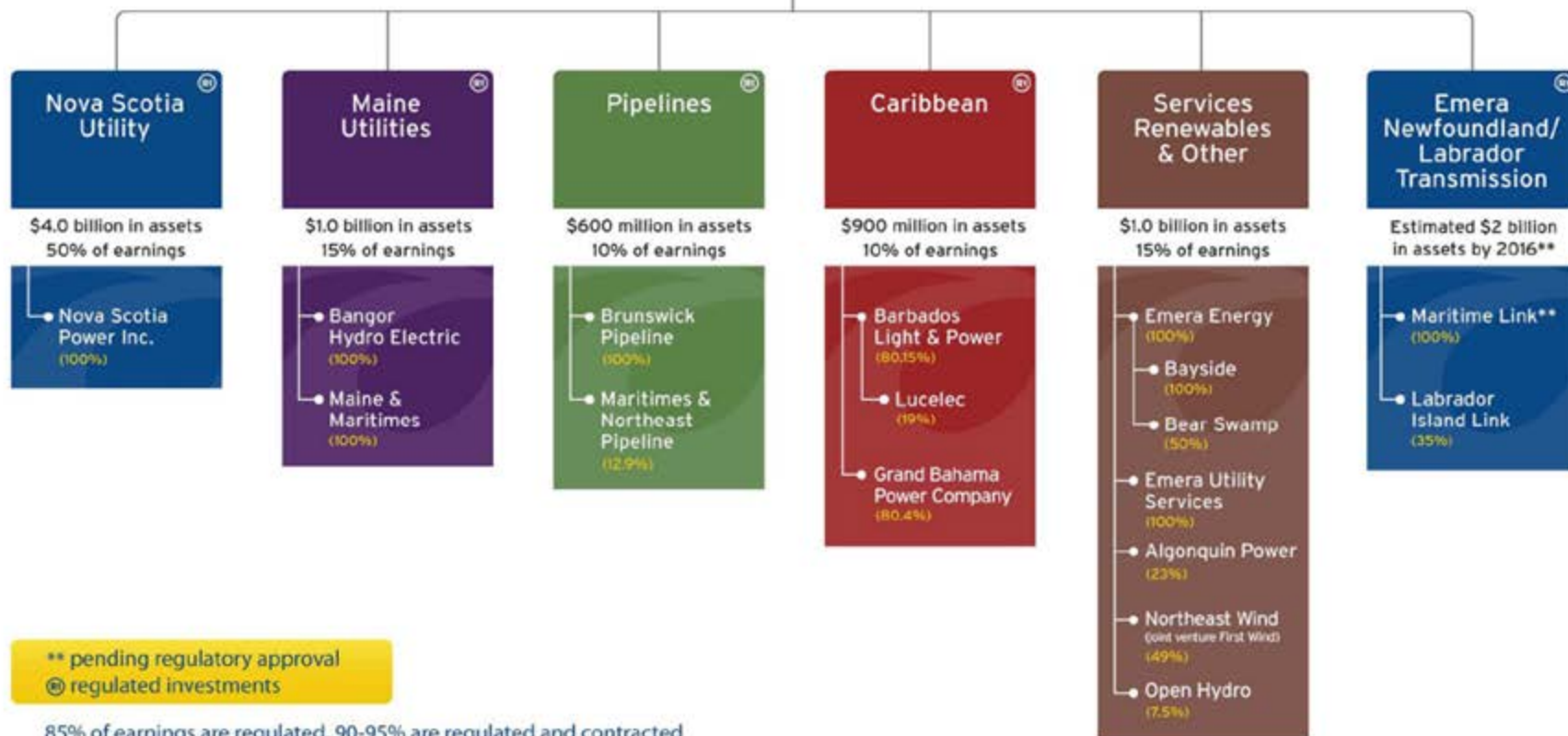
- Condition Assessment
- Risk calculation
- Outage planning
- Maintenance planning
- Investment planning

HEAT RATE ACTIVITIES INTEGRATED WITHIN ASSET MANAGEMENT

- Maintenance strategies/CBM/failure analysis
- Advanced Technology a principle of NSPI Asset Management
 - APR, 1st Principle On-line and Off-line applications, automated diagnostics
- HR findings processed like other findings

FLEET WIDE SCORECARDS & DASHBOARDS

- Heat rate = key business metric
- Provides wide stakeholders understanding and drives decisions

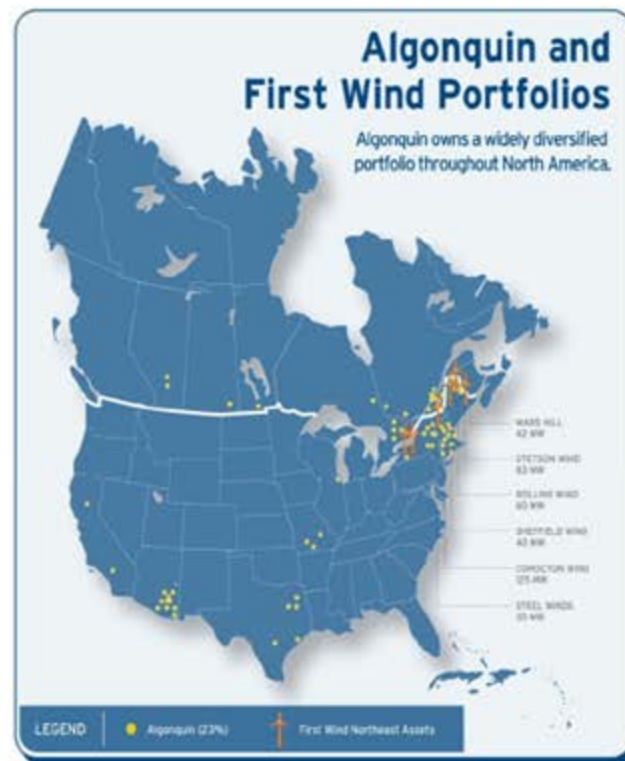


** pending regulatory approval
 ® regulated investments

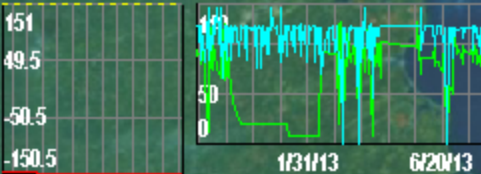
85% of earnings are regulated, 90-95% are regulated and contracted
Approximate earnings and assets as at December 31, 2012

Emera Investments

The consolidated picture



NS NB Interconnect NePool Pricing \$ CDN



Synchronized Reserve 137
10 Minute Reserve 448
30 Minute Reserve 363
Current Real Time Price \$48.76

Wreck Cove
% Storage
BAD DATA

Gisborne 0
Wreck Cove 1 79 Auto
Wreck Cove 2 0 Off
Wreck Cove Lake 1198
Surge Lake 1194
Inferred Value of Hydro \$Shutdown
Point Aconi 179 Manual \$ 21.90

Keswick Real Time FX Adjusted \$ 90.34 For Import Add \$7.00 on Peak & \$3.33 off Peak
Keswick Hourly FX Adjusted \$ 116.57 For Export Subtract \$7.00 on Peak & \$3.33 off Peak

ISO-NE Forecast Peak @ Hour Shutdown MWs
ISO-NE Surplus Commitment 95 MWs
ISO-NE Instantaneous Load Shutdown MWs
New Brunswick Instantaneous Load 16 MWs
MECL Instantaneous Load 161 MWs

MERCO Schedule 667
MERCO Tie Actual 667
HQ-NB Madawaska 460
HQ-NB Bel River -126

-151
Onslow Import 369
Onslow South 427

Temperature 23
CB Load 1078
CB Export 293
Stora Enso 126



Temperature 26
Wind Speed Shutdown
Direction Shutdown

Lin 1 121 Manual \$ 66.13
Lin 2 96 Manual \$ -0.00
Lin 3 66 Manual \$ 95.53
Lin 4 70 Manual \$ 95.04

Pt. Tupper 2 0 Off \$106.46

Trenton 5 0 Off \$ 95.20
Trenton 6 158 Manual \$ 50.75

Temperature Shutdown
Wind Speed Shutdown
Direction Shutdown

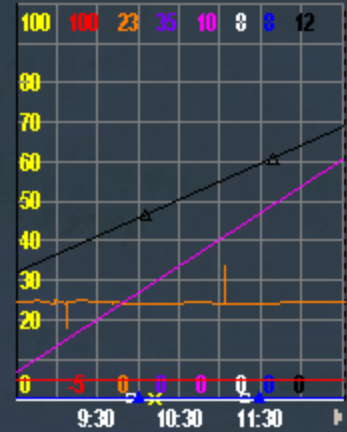
Thermal Units



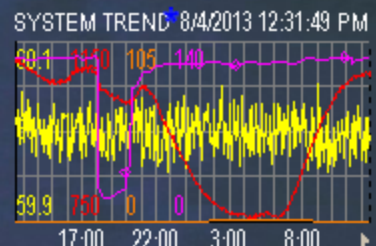
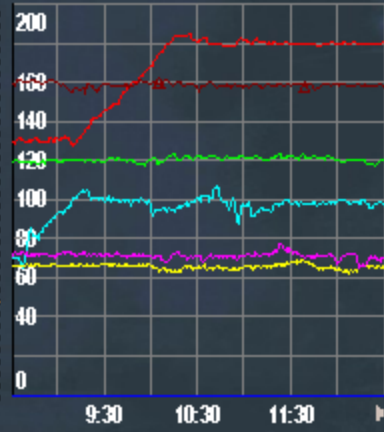
	HFO	GAS
* TC 1	6 Off	\$23.91
* TC 2	97 Manual	\$21.00
* TC 3	0 Off	\$186.00
* TC 4	41 fixed	\$-59.49
* TC 5	30 fixed	\$37.06

BS 1 0 Off \$ 0.00
BS 2 0 Off \$ 17.95
BS 3 0 Off \$ 32.99
BS 4 0 Off \$ 24.17

Hydro Systems 8/4/2013 12:31:49 PM



Thermal Units 8/4/2013 12:31:49 PM

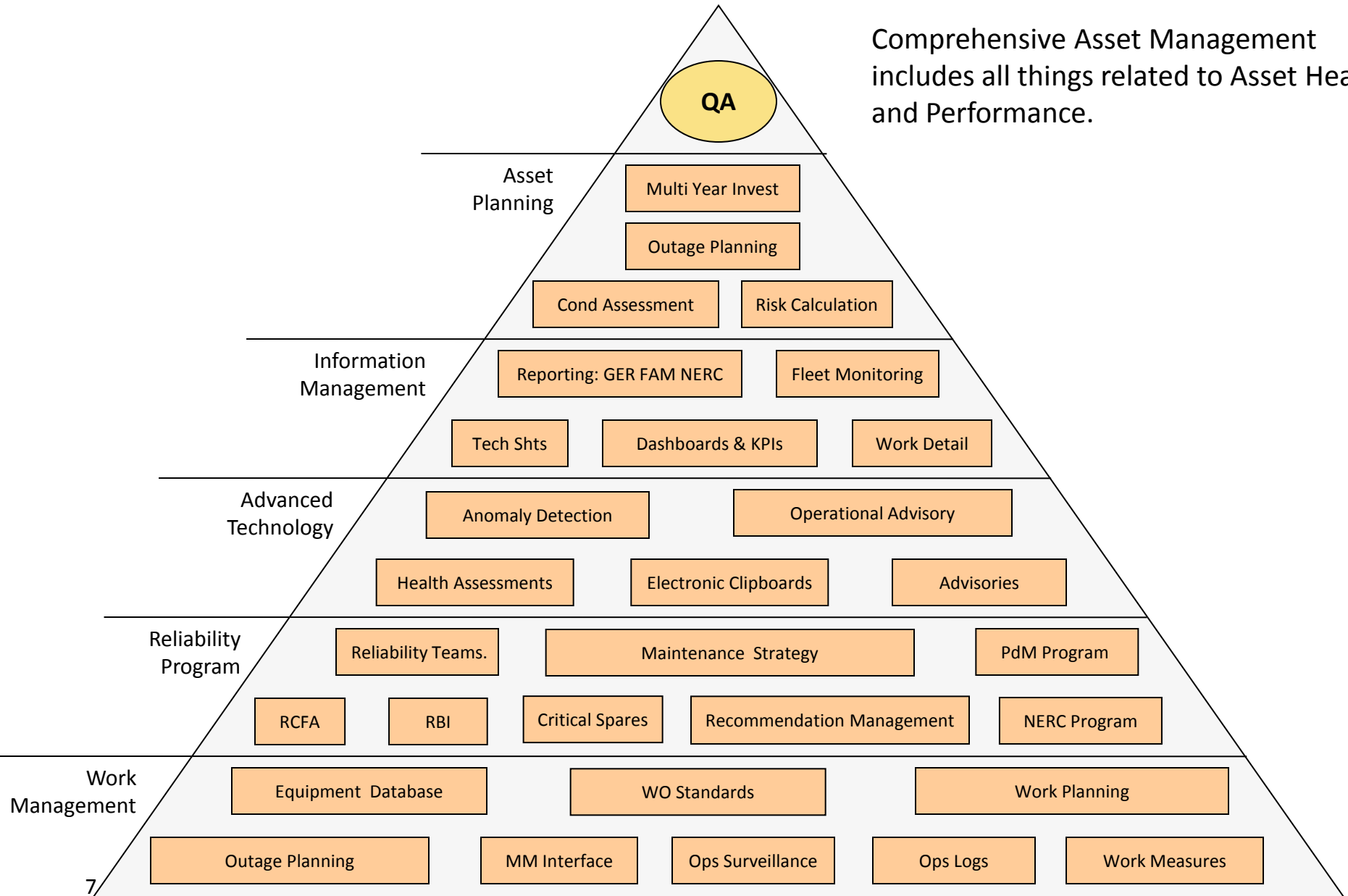


Asset Management (AM) Business Drivers

- Utilization of generation assets: dynamic
- Future planning: complex
- Demographics: knowledge gap
- Stakeholder scrutiny: increasing
- Transparency: expectation
- Business pressures: cost, production

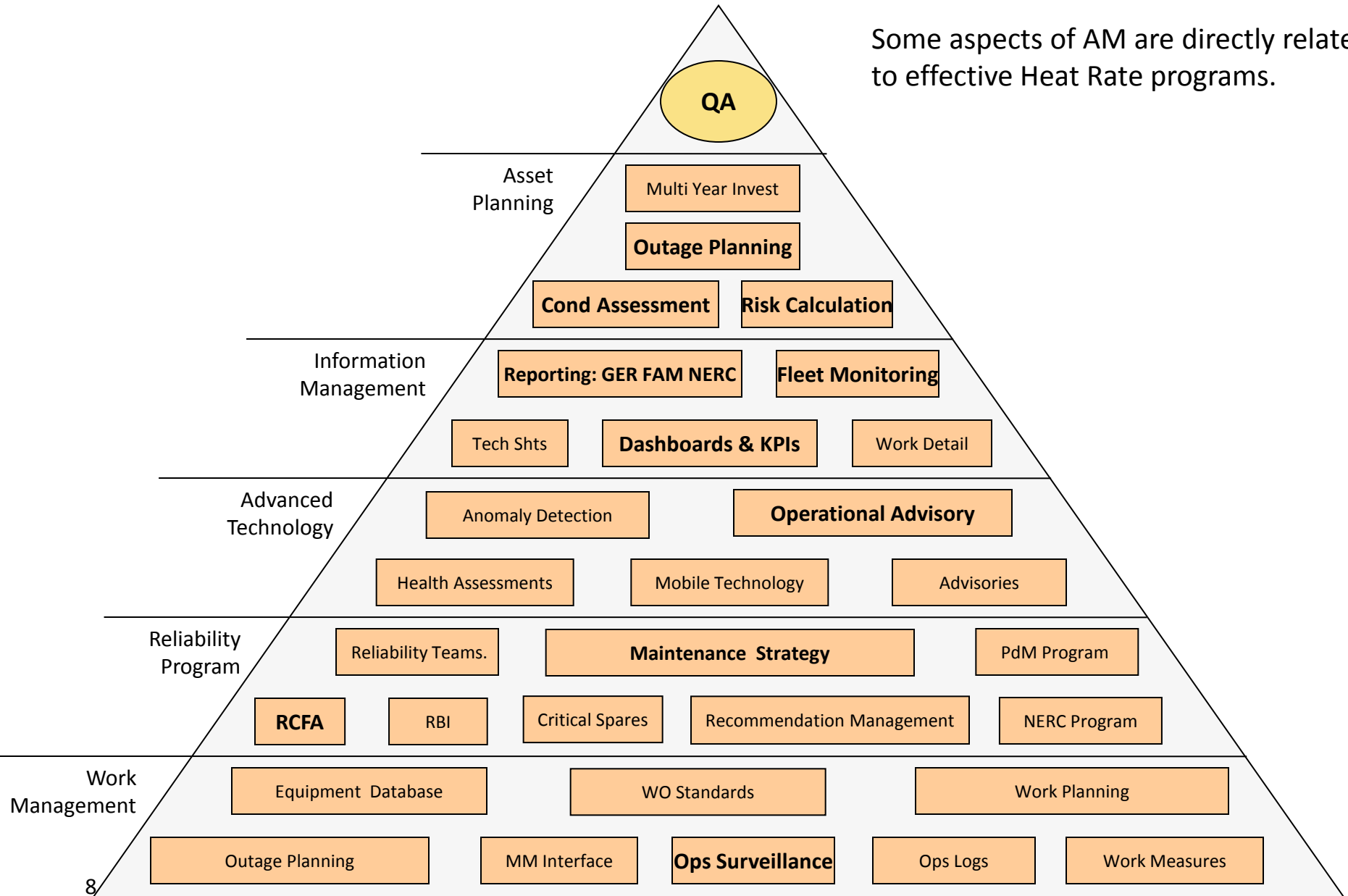
Asset Management Aspects

Comprehensive Asset Management includes all things related to Asset Health and Performance.

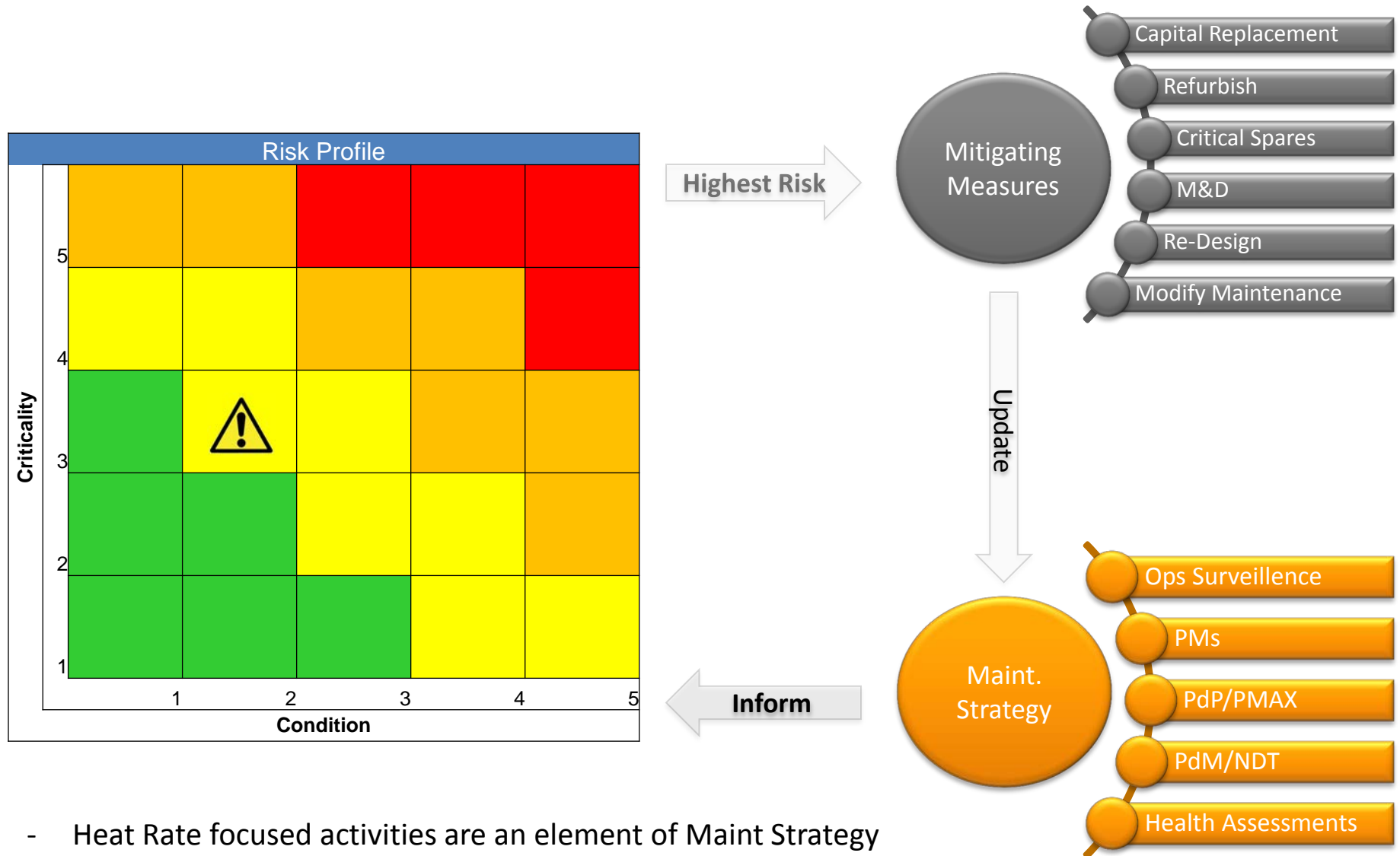


Asset Management: Heat Rate Aspects

Some aspects of AM are directly related to effective Heat Rate programs.

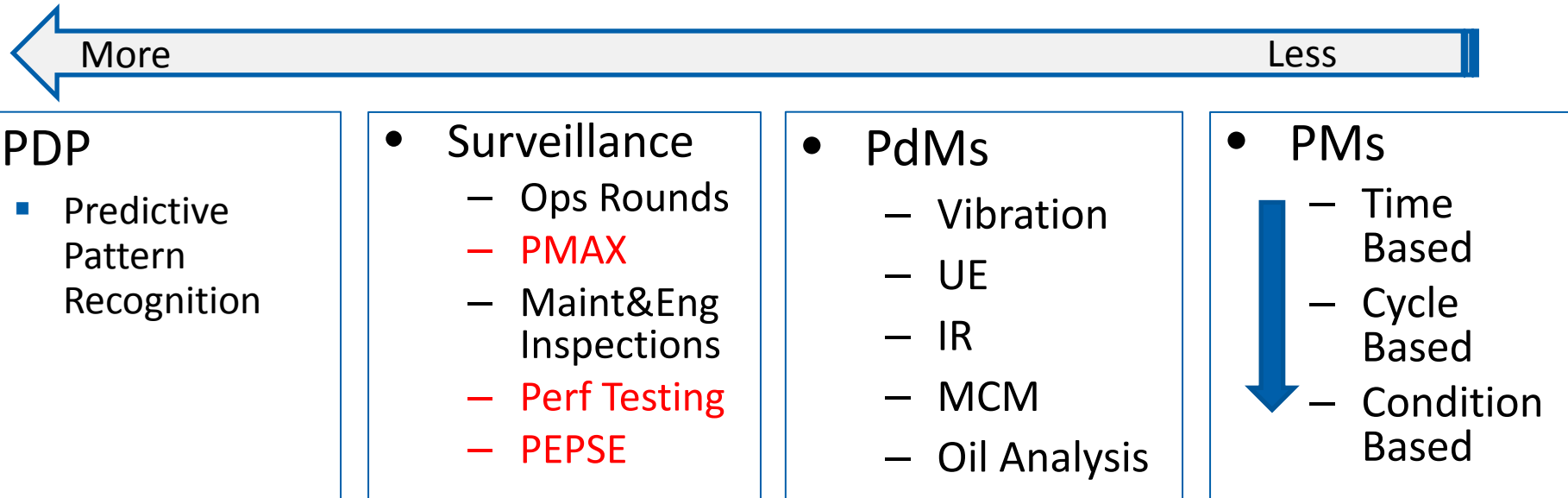


Asset Management Mechanism:



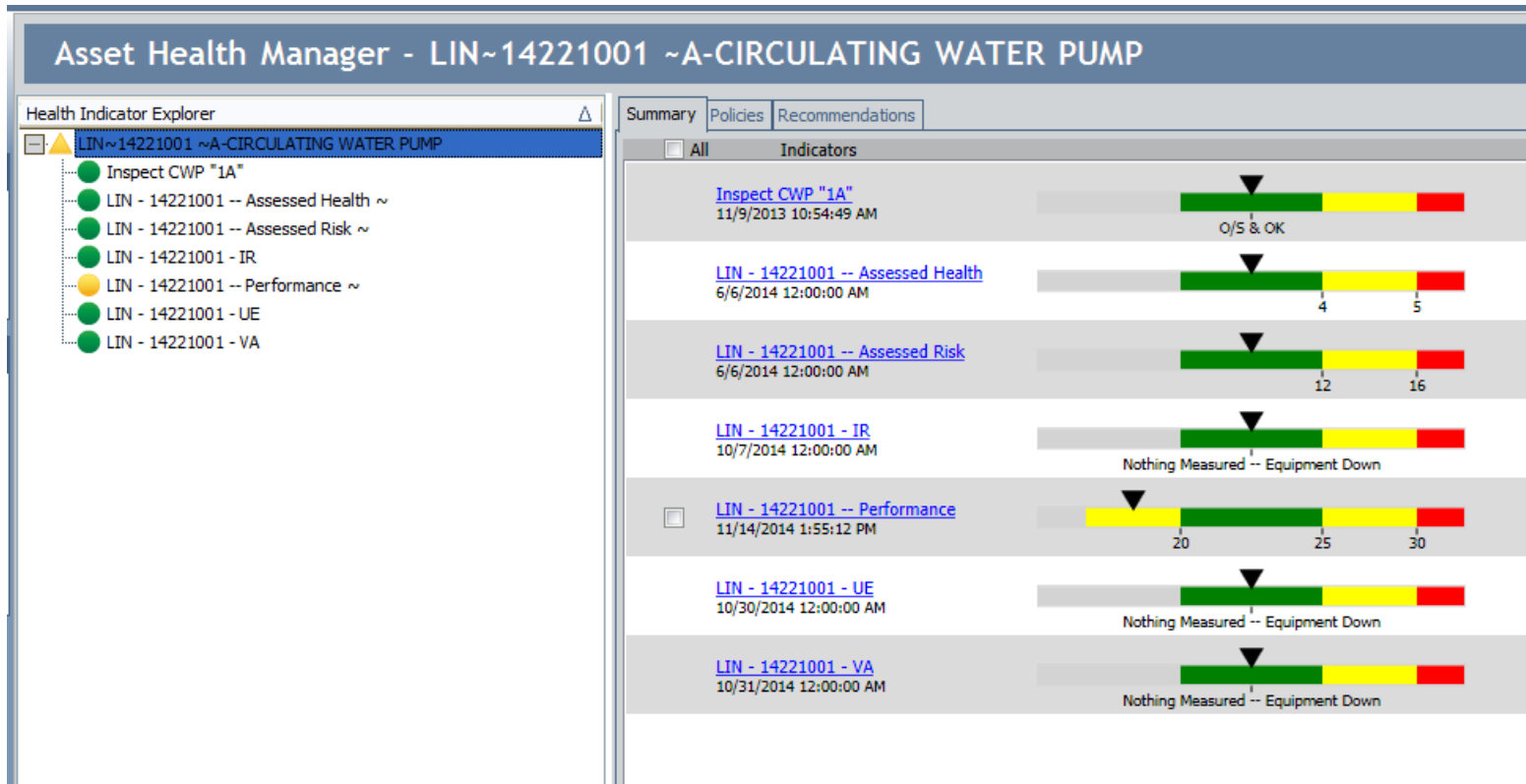
- Heat Rate focused activities are an element of Maint Strategy
- Heat Rate findings contribute to equipment condition rating and risk profiling
- Mitigating measures are assigned to standard business activities.

Fleet Maintenance Strategy Optimization



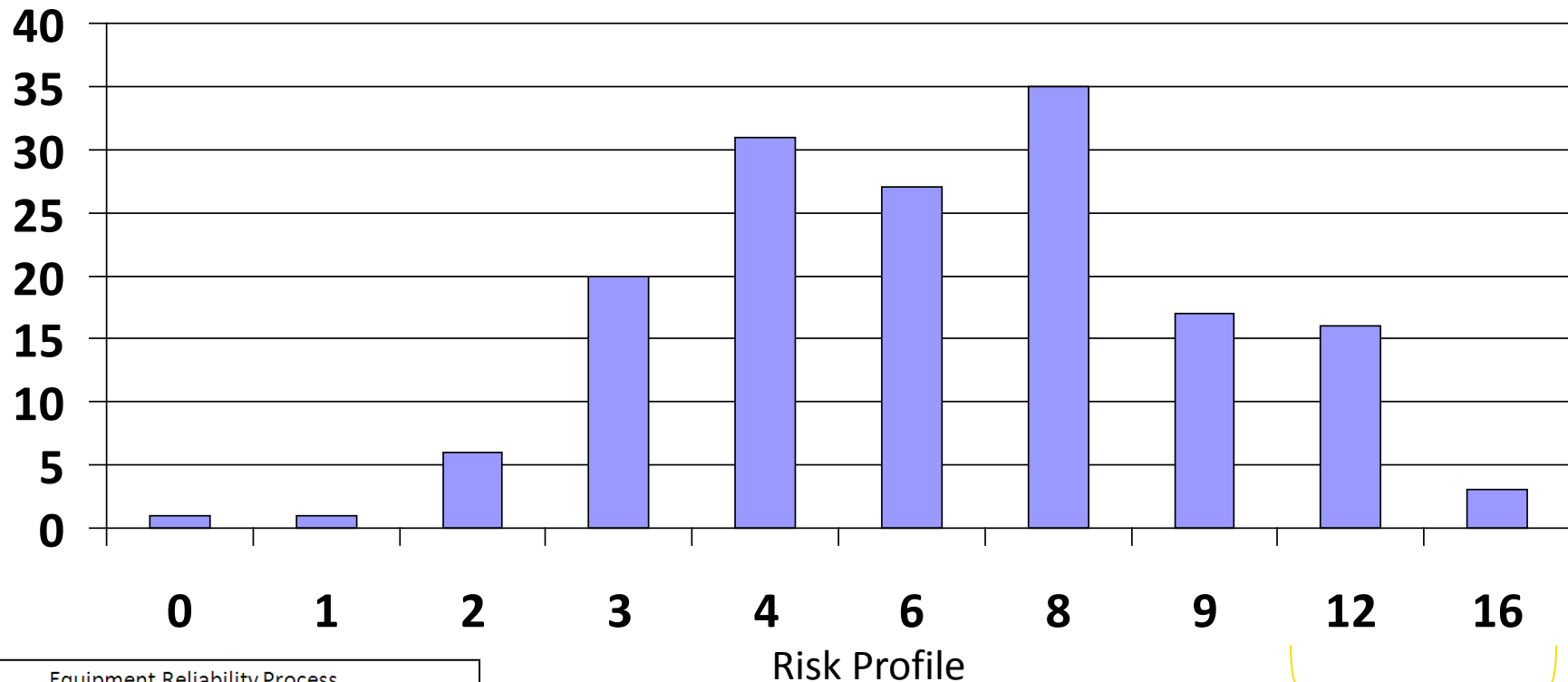
- Continuous Surveillance (PMAX) is an element of Maint Strategy
- Performance Testing is an element of Maint Strategy
- Performance activities are optimized with all other elements of maint strategy (Minimize cost while providing sufficient intelligence and protection)

Asset Health Assessment



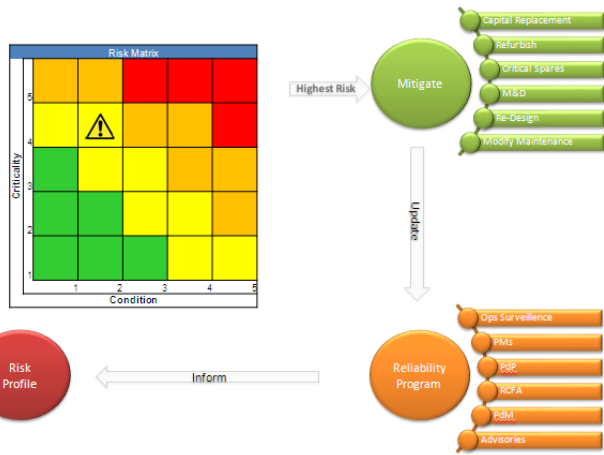
- Performance ratings are a standard feature in Health (condition) assessment

Risk Profile Pumps



Target for Mitigation

Equipment Reliability Process



- Performance ratings are a standard feature in Health (condition) assessment and risk profiling.



Generating Fleet Executive Scorecard

	Actual	Previous	Target	Trend	Frequency	Event Date	Description	A
[-] Safety and Environment								
[-] Safety Stats								
[-] Corrective Actions								
[-] FINANCIAL								
[-] Headcount								
[-] Labour - Biweekly								
[-] Labour - Monthly								
[-] Asset Strategy								
[-] Compliance to Strategy								
[-] Critical PM Compliance - Non-Outage								
[-] Critical PM Compliance - Outage								
[-] Performance								
[-] Production - Net								
[-] YTD - Heat Rate Deviation - PP	-1,141	-1,566	1,400	↑	Monthly	10/31/2014	Sum of the Uni	
[-] Avg Heat Rate Deviation YTD - LIN	-478	-715	400	↑	Monthly	10/31/2014	Avg Heat Rate	
[-] Avg Heat Rate Deviation YTD - POA	255	206	100	↑	Monthly	10/31/2014	Avg Heat Rate	
[-] Avg Heat Rate Deviation YTD - POT	-341	-349	100	↑	Monthly	10/31/2014	Avg Heat Rate	
[-] Avg Heat Rate Deviation YTD - TRE	-336	-359	200	↑	Monthly	10/31/2014	Avg Heat Rate	
[-] Avg Heat Rate Deviation YTD - TUC	-242	-348	600	↑	Monthly	10/31/2014	Avg Heat Rate	
[-] YTD - Actual Heat Rate - PP	10,392	10,371	10,443	↑	Monthly	10/31/2014	YTD Heat Rate	
[-] Actual Production (MWh) - PP	584,085	559,850	571,942	↑	Monthly	10/28/2014	Monthly Produc	
[-] Actual Production (MWh) - Hydro	57,600	54,600	65,047	↑	Monthly	10/28/2014	Monthly Produc	
[-] Actual Production (MWh) - Wind	24,214	18,817	24,304	↑	Monthly	10/28/2014	Monthly Produc	
[-] DAFOR								
[-] DAFOR - YTD - High Capacity	3.25 %	3.47 %	5.00 %	↓	Monthly	9/30/2014	YTD DAFOR V	
[-] YTD - DAFOR - PP	5.95 %	6.40 %	5.00 %	↓	Monthly	9/30/2014	YTD DAFOR V	
[-] Monthly - DAFOR - PP	2.20 %	1.70 %	5.00 %	↑	Monthly	9/30/2014	YTD DAFOR fc	
[-] Operating Hours								
[-] Maintenance								

- Heat Rate KPI are a part of Executive and Plant Scorecards
- Heat Rate KPIs take their place alongside other key business indicators

Summary

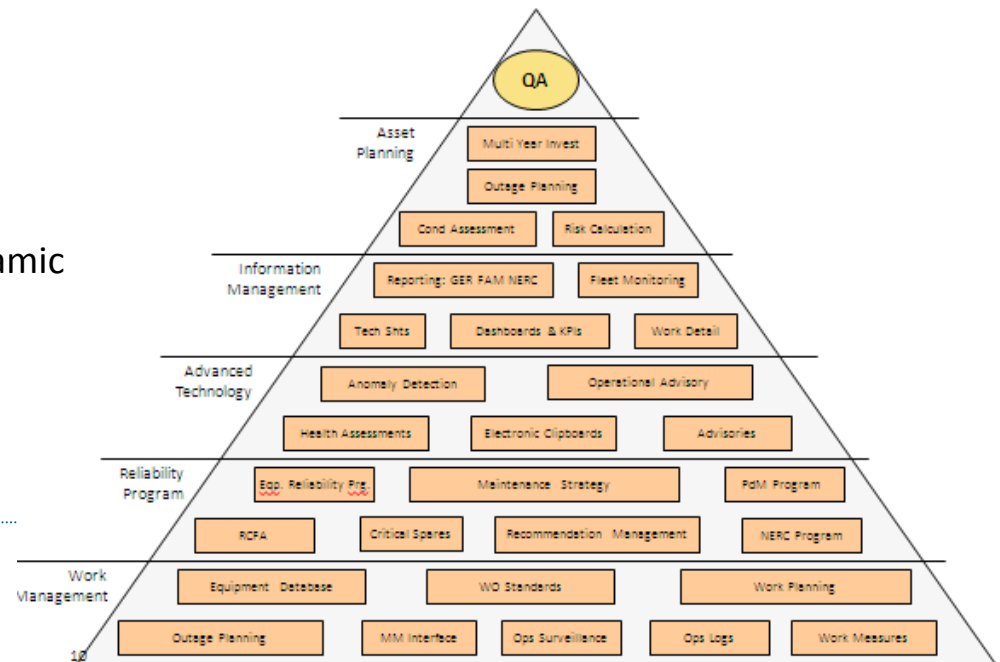
- HR Programs facilitated with AM infrastructure
 - improved issue identification and processing
 - Integrated with work processes
- AM objectives enhanced by HR programs
 - Factor in determining equipment health and calculating risk
 - Supporting asset planning: investment , refurbish, outage
- Asset Strategy Optimization
 - Increasing proactive approach
 - Earlier issue ID
 - Fewer PMs
- Real Time Analytics: Growth Area
 - Operating Risk ID
 - Daily/Weekly work Planning

Outlook

- Greater real time analytical capability
- Improving infrastructure to manage data and produce intelligence
- More holistic thinking about Asset Management integrating
 - all activities related to equipment performance
 - strategic purpose
- Inevitable push toward Fleet Approach

- Innovation race: to address business drivers

- Utilization of generation assets: dynamic
- Future planning: complex
- Demographics: knowledge gap
- Stakeholder scrutiny: increasing
- Transparency: expectation
- Business pressures: cost, production



Questions

