

# Liquor to Liquor (L2L) Recovery Boiler Agreement Based Service

ENE

North America

## Our core commitments

Safety  
comes first

Close to you

Solutions to  
your needs

People you  
can trust

## Services offering

### Reliability

- Spare parts and components
- Maintenance and shutdown management
- Outsourcing services

### Performance

- Production consumables
- Process support and optimization

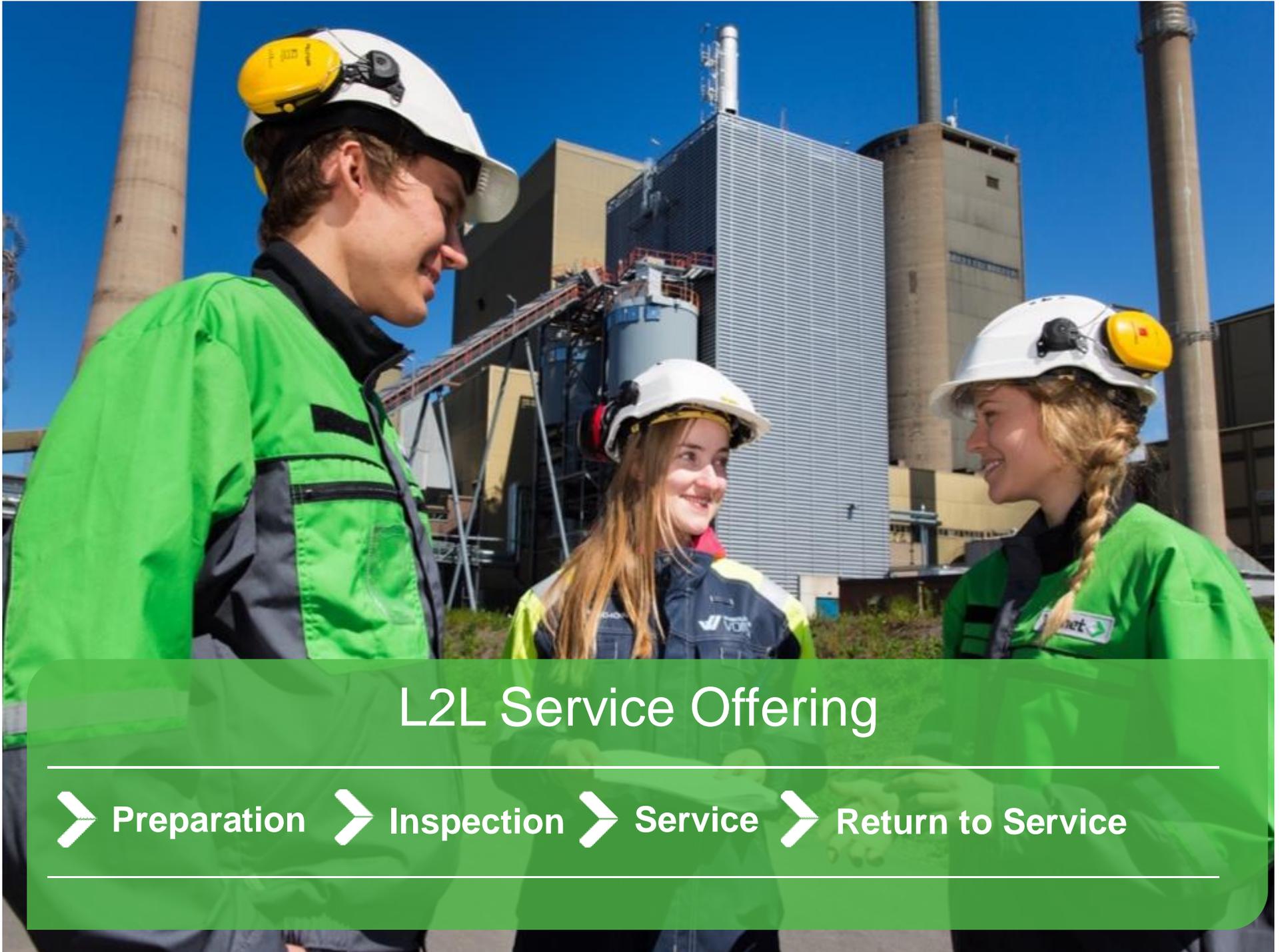
### New Technology

- Process and automation upgrades
- Automation projects
- Industrial Internet and remote solutions

## Shared Journey Forward

Valmet's way to serve

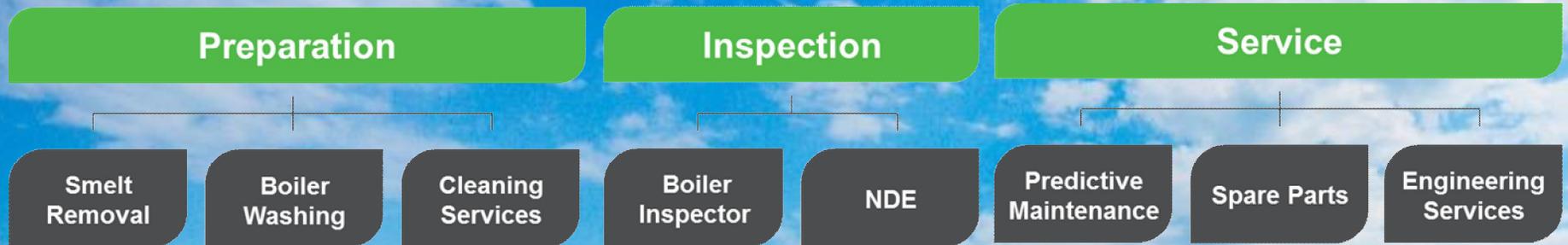
Committed to moving your performance forward



## L2L Service Offering

➤ Preparation ➤ Inspection ➤ Service ➤ Return to Service

# L2L Service Offering



# L2L Service Offering

## Preparation

### Smelt Removal

Smelt-X

### Boiler Washing

Wash-X

### Cleaning Services

High Pressure Washing

Hydro-Blasting Service

Vacuum Services

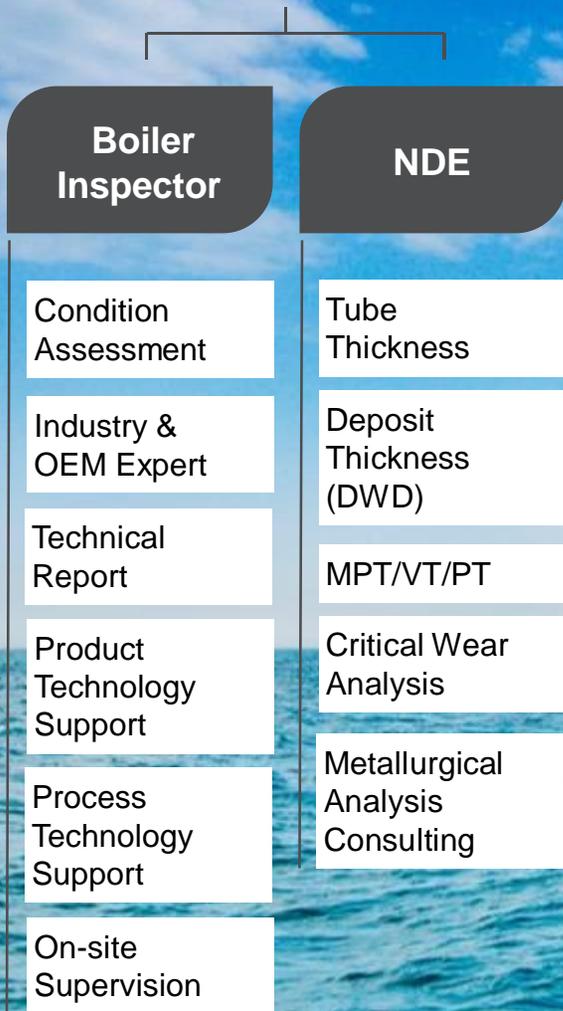
Chemical Recovery

Disposal



# L2L Service Offering

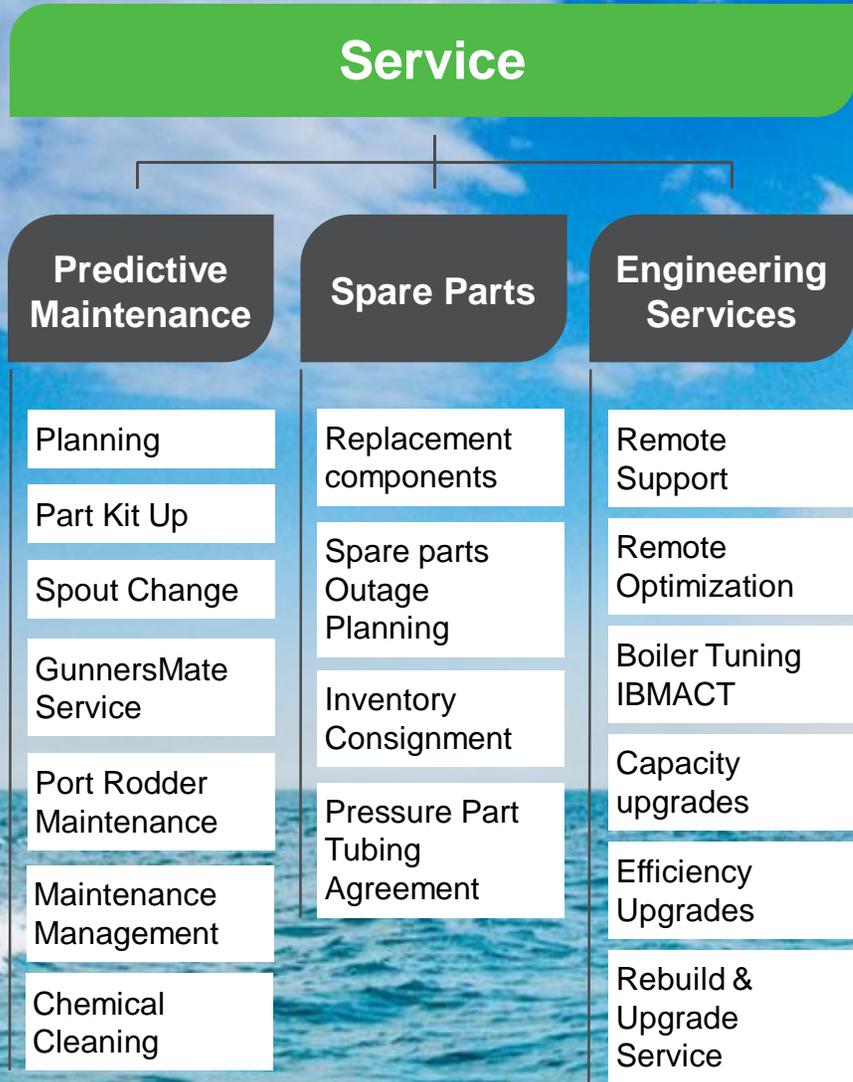
## Inspection



L2L Service Offering

➤ Preparation ➤ Inspection ➤ Service ➤ Return to Service

# L2L Service Offering

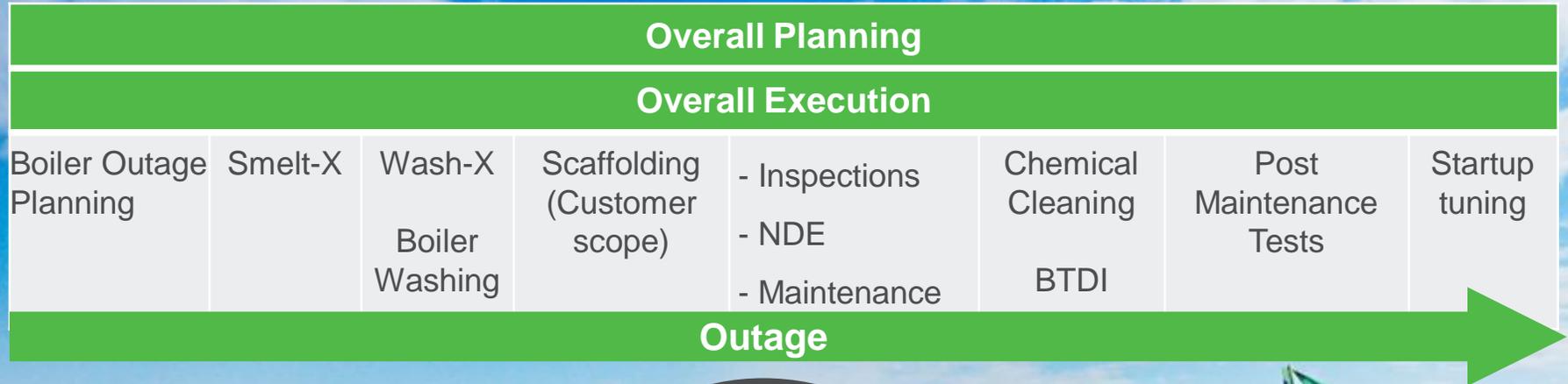


L2L Service Offering

➤ Preparation ➤ Inspection ➤ Service ➤ Return to Service



# Liquor to Liquor Concept



← Planning Outage

Liquor to Liquor can be offered as:

- Complete package
- Individual services

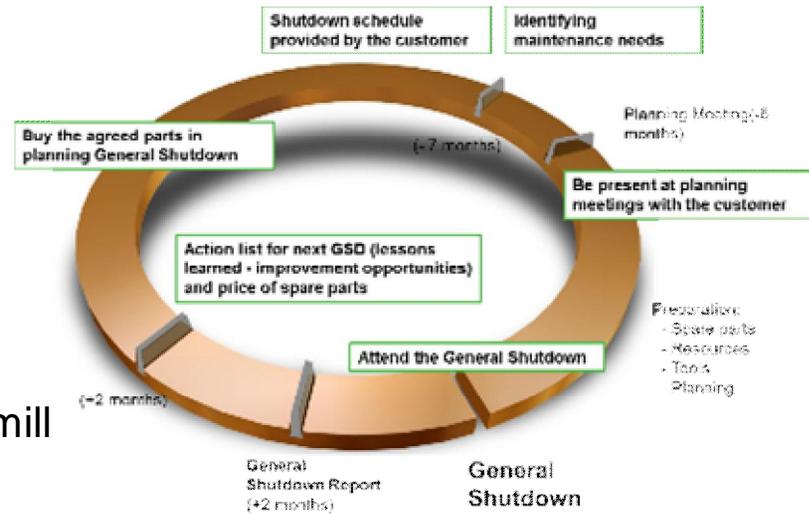
• Summary Report  
• Plan Next Outage →

# Liquor to Liquor Concept Outage Planning



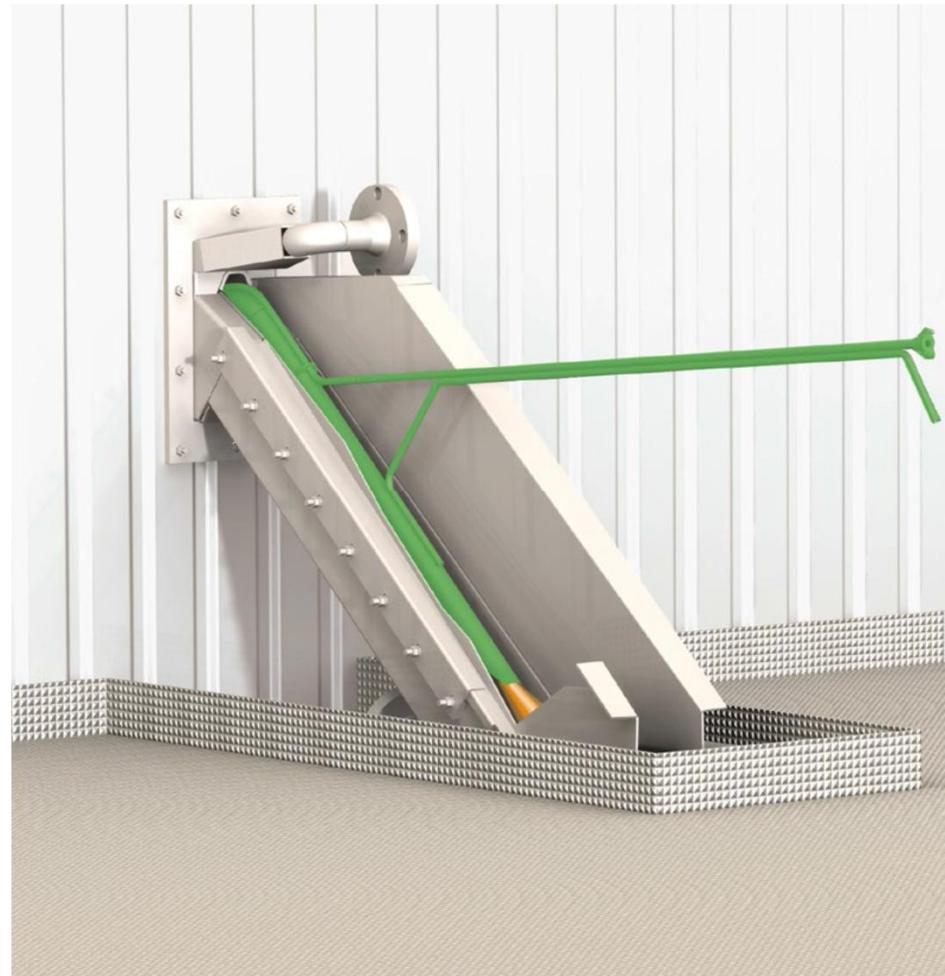
Planning starts in advance

- Planning
- Spare-Parts support
- Technical Coordination
- Distribution of tasks with the mill team
- Parts in the mill and staged



# Liquor to Liquor Concept Smelt-X

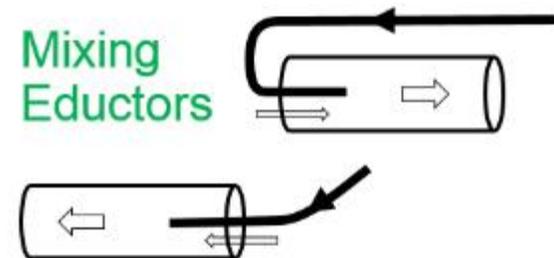
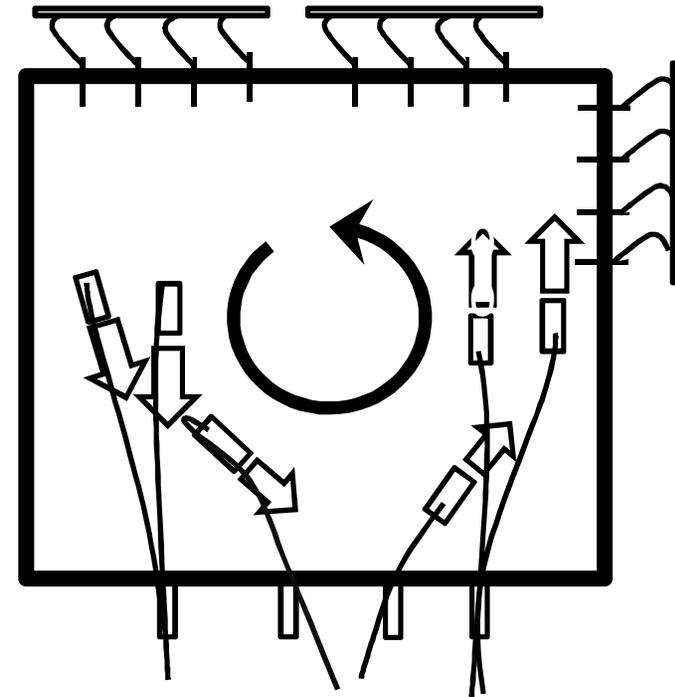
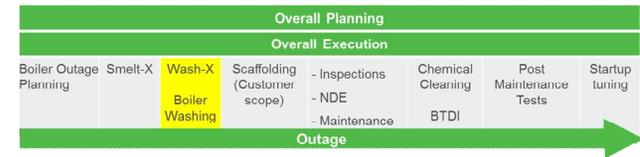
- ÿ Smelt is extracted by an ejector driven by 100 psi air (~1500 cfm)
- ÿ Simple design, No moving parts = Reliable, Reusable
- ÿ 200 + Smelt-X projects have been completed globally
- ÿ Smelt bed cooling time can be reduced to 4 – 6 hours from 15 – 35 hours.
- ÿ Smelt spouts are not exposed to high smelt flow and temperature
- ÿ Costly chemicals are saved.



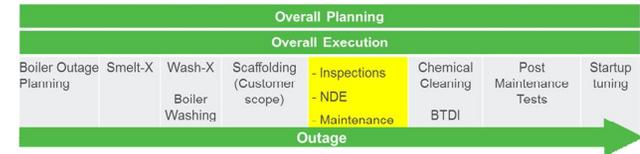
# Liquor to Liquor Concept

## Wash-X

- Water can be sprayed to furnace floor through liquor guns or nozzles installed in various openings.
- Eductors are used to circulate floor wash water
- As a result, time spent in recovery boiler washing can be reduced by 10 – 30 hours
- Once superheaters are clean, the mixing devices are removed and floor is emptied from wash water using smelt ejectors.



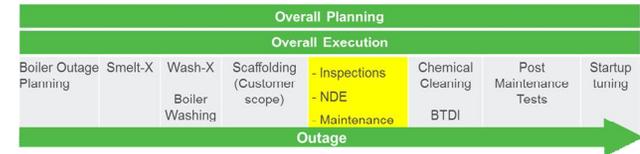
# Liquor to Liquor Concept Inspections



- Y Valmet is a recognized expert in the Power and Recovery Boiler industry
  - Average 52 inspections annually
- Y Full range of inspection capability
  - Recovery Boilers
  - CFB & BFB Power Boilers
  - Stokers
  - Evaporators
- Y Comprehensive and detailed reporting
  - Punch List
- Y Full access to Valmet Global Support Staff
  - Engineering, Technology, Service, Pulp & Paper, R&D, etc.
- Y Better capability to plan and budget future outage work



# Liquor to Liquor Concept Maintenance Management

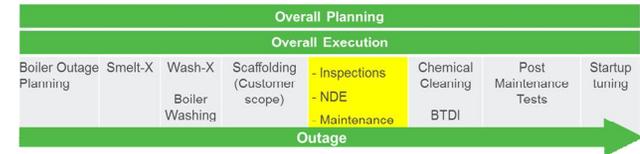


- ÿ Valmet can provide the manpower needed to effectively manage the maintenance throughout the outage
- ÿ Coordinate NDE activities, including tube thickness readings
- ÿ Continuous maintenance oversight in the field
- ÿ Provide up to the minute maintenance briefs at production meetings
- ÿ Provide immediate support for “As-Found” deficiencies.
  - Root Cause Analysis (RCA)
  - Troubleshooting
- ÿ Lessons learned feedback for continuous improvement



# Liquor to Liquor Concept

## NDE Non Destructive Examination



- ÿ Tube thickness NDE (UT)
  - Easy to read reports
  - Life cycle evaluation
- ÿ Visual and liquid dye penetrant testing
- ÿ Required testing to support code enforced activities
- ÿ Coordinate activity with Authorized Inspectors (AI)
- ÿ Valmet holds valid “S” & “U” stamps for ASME code work, and the National Board “R” stamp.
- ÿ Valmet has largest inventory of boiler tubing in NAM
  - Hotshot and fabrication support from our Lancaster SC facility

Average Wear (Avg Wear) is calculated as the yearly wear since last measure

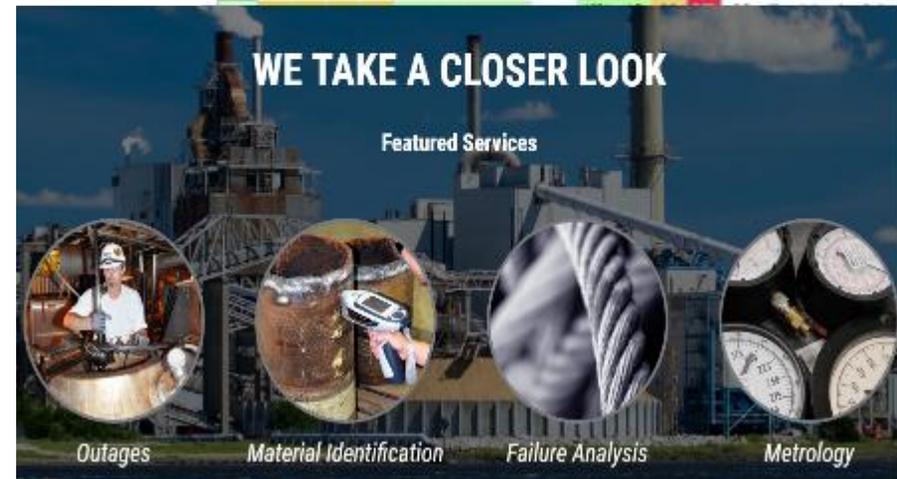
Part	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Avg. Wear (2010-2020)	% Flng. Gap	Flng. Size	Alm. level	Alert level	Crit. level	Crit. Year
A001		4.80	4.27			3.60	3.70	2.88	2.80	2.26	1.67	0.34	*	5	4.0	3.0	2.80	2017
A002		4.40	4.27			3.30	2.80	2.10	1.80	1.00	0.60	0.54	*	5	3.0	3.0	2.80	2015
A003		4.80	4.40			3.40	2.80	2.81	1.70	1.20	0.66	0.54	*	5	4.0	3.0	2.80	2018
A004		4.34	4.91			3.70	2.94	2.80	1.04	0.98	0.42	0.50	*	5	4.0	3.0	2.80	2018

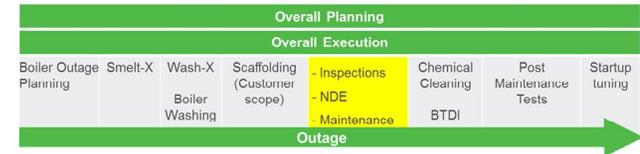
Value (mm)	A	B	C	D	L	M	N	O
001	3.80	3.10	4.40	4.20				
002	3.20	2.40	4.10	4.10				
005	3.40	2.80	2.70	4.00				
006	3.20	2.80	3.10	3.60				
008	3.70	3.50	3.80	3.30				

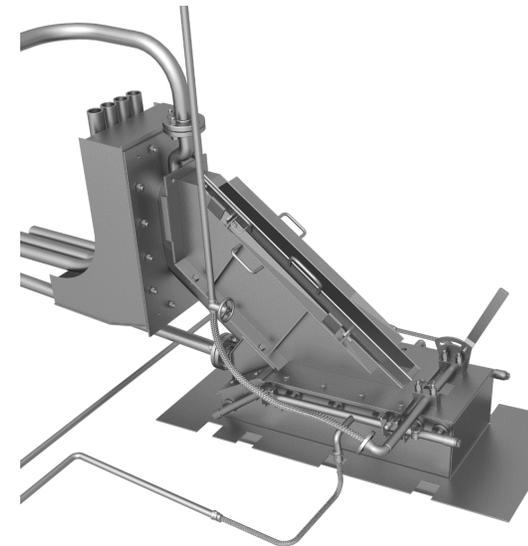
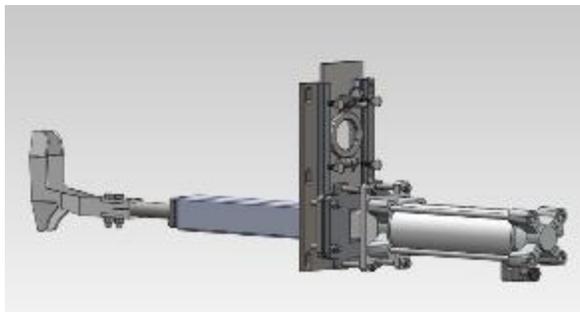
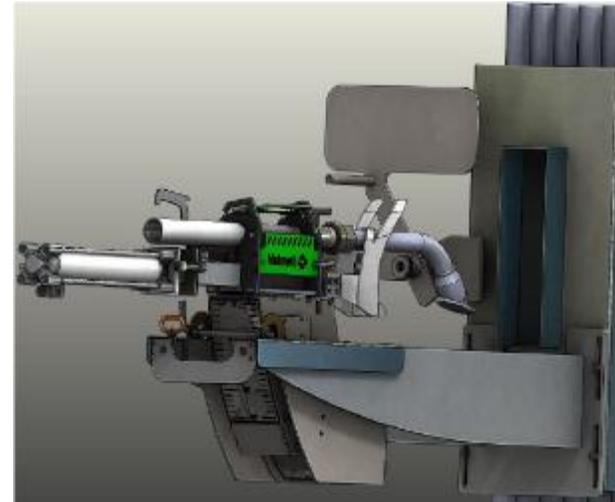
Part	Alm. level	Alert level	Crit. level	Value	Notes
A001	4.5	3.0	2.80	3.8	Wear: below alarm limit 3.80
A002	4.5	3.0	2.80	3.7	Wear: below alarm limit 3.80
A003	4.0	3.0	2.80	3.4	Wear: below alarm limit 3.80



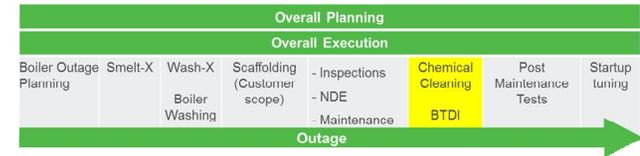
# Liquor to Liquor Concept Maintenance Services



- Valmet provides the manpower, tools, and parts to service the following components
  - Smelt Spouts
  - Protective hood maintenance or replacement
  - GunnersMate (liquor stations)
  - Port Rodders
  - Shatter jets



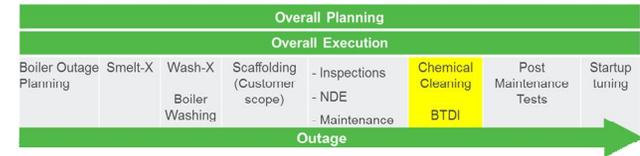
# Liquor to Liquor Concept Chemical Cleaning



- ÿ Boilers, Evaps, HRSGs, etc.
  - General management to full turnkey service
  - Furnish & direct chemical cleaning vendor
  - Furnish and direct mechanical contractor
- ÿ Steam Blows
- ÿ High Pressure Chemical Blasting
- ÿ Hydrolasing
- ÿ Vapor Phase Cleaning
- ÿ Boiler tube scale deposit inspection and evaluation
- ÿ Deposit Weight Density (DWD) and tube scale composite evaluation
- ÿ References available on request



# Liquor to Liquor Concept Boiler Tube Deposit Inspection (BTDI)



## Y Hardware and Software System:

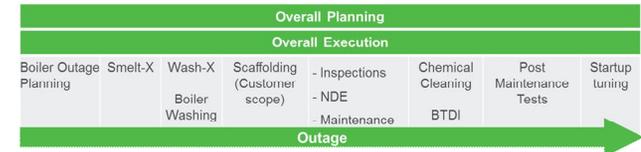
- Measures tube scale deposit thickness with direct correlation to standard Deposit Weight Density (DWD) method using advanced UT method.

## Y Equipment Operates Using Ultrasonic Testing (UT) Technology

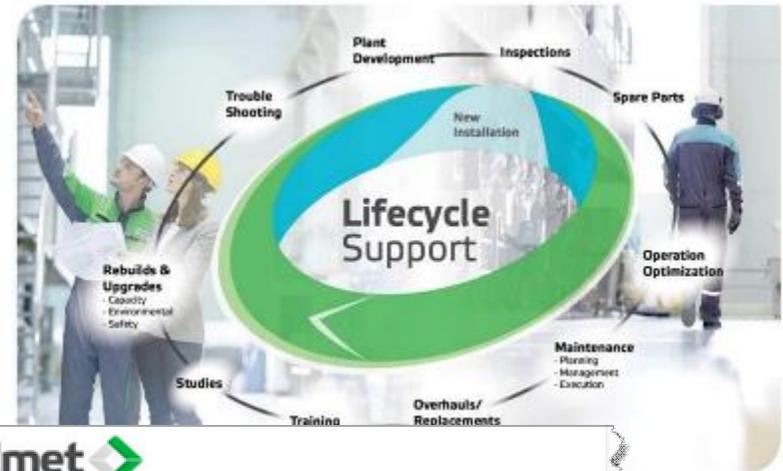
- The tube thickness and deposit layer can be accurately measured by measuring the change in wave forms through the material
- Requires cleaned smooth inspection surface
- Minimum detectable scale capability less than ~1 mil



# Liquor to Liquor Concept FlexServ



- Service Agreement with budgeted hours (200 hours)
- A bank of hours can be used in any manner;
  - Field Service
  - Valmet Automation
  - Maintenance management
  - Engineering
  - Outage Planning
  - Emergency Call-Outs
  - Troubleshooting
  - Mill-Wide Service
- Annual or greater agreement. Multi year agreement discounts
- Full transparency on service rates



**Valmet**  Effective Date - June 1, 2014

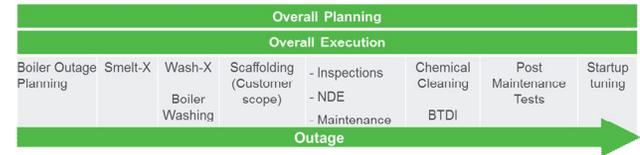
**2014 STANDARD RATES  
FIELD SERVICE AND EQUIPMENT\*\*  
US FUNDS**

CLASS	BASE RATE*	SATURDAY / OVERTIME*	SUNDAY / OVERTIME (2)*	HOLIDAY OR EMERGENCY*	TRAVEL Fee & Entry	PREPARATION REPORT WRITING Fee & Entry	TRAVEL & LIVING EXP
PROCESS SPECIALIST MULTI-USER CONSULTANT TRAINING INSTRUCTOR	\$185.00	\$282.00	\$360.00	\$390.00	\$100.00 Site fee	\$1,500.00 Day Min 7 Days	
FIELD SERVICE ENGINEER PROCESS SPECIALIST ROTOR/REPAIR CALCULATIONS & SPECIAL TOOL EXHAUSTION PARTS & ALIGNMENT SPECIALIST METALWORKER	\$170.00	\$255.00	\$330.00	\$360.00	\$1,200.00 Day Substitution (based on location)	\$1,500.00 Day Min 7 Days	Travel and accommodation at cost +50% plus 10% for driver
TRAVEL Only & Entry SAFETY TRAINER*** PREP & SERVICE WRITER****	\$100.00	\$150.00	\$200.00	\$250.00			
HOODWARD FIELD SERVICE****	\$140.00	\$210.00	\$280.00	\$320.00	\$140.00	\$10.00 Min 8 Hours	

\* All rates per hour unless otherwise specified.  
\*\* Includes fee for special equipment rental available upon request.  
\*\*\* \$15 Specific safety training is not included & will be billed accordingly.  
\*\*\*\* For Woodhead Field Service the travel rate will be fixed at \$140 hour regardless of Day and Time.  
\*\*\*\*\* A minimum prep and post charge will be applied as follows: (1) working day - \$40; (2) working days - \$100; (3) working days - \$100.  
Rates are subject to change at any time and do not apply to customers that have service agreements.

# Liquor to Liquor Concept

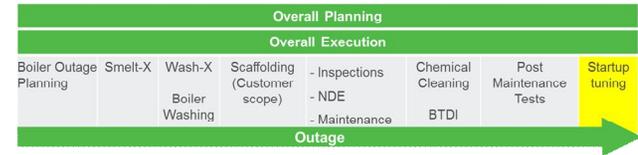
## New Technology/R&D



- Continuous Improvement in safety and technology
- Industry leader in Research & Development

	Our Rodingmaster effectively shaves off smelt deposits		Liquor sprayer station For safe liquor distribution
	Stable and reliable operation – load and start-up burners		Smelt Spout to minimize hazardous risks
	Reduced emissions SNCR for NO <sub>x</sub> reduction		Safe smelt cleaning with Spout Robot
	Safe maintenance with Safety Roof		Smelt-X Extract smelt safely and effectively

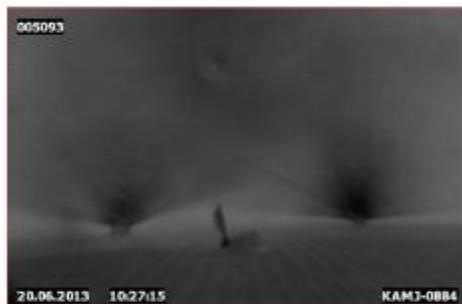
# Liquor to Liquor Concept Boiler Tuning



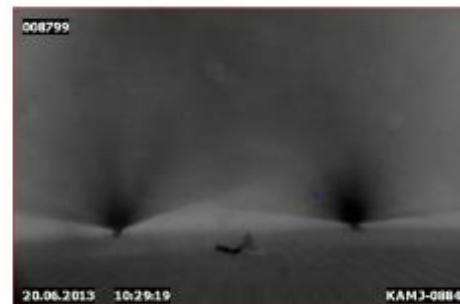
- Recovery Boiler Tuning Camera
  - Plugging
  - Tune liquor sprays
  - Emissions troubleshooting
  - Improved Heat Transfer
  - Burner optimization
  - Video capable
- IBMACT Tuning per 40CFR63 DDDDD for power boilers



Dirty Sprays



Clean Sprays



# Liquor to Liquor Concept

## Field Service Summary

### • Inspections

- Recovery Boilers
- Power Boilers (Stoker, BFB, CFB)
- Evaporators
- Auxiliary equipment
- Detailed reports

### • Outage Planning

### • Outage Execution

- NDE services
- Metallurgical Analysis/Consulting
- Smelt removal

### • Fuel and Ash Analysis/Testing

### • System Audits (NFPA/BLRBAC)

### • Troubleshooting/RCA

### • Tuning and Optimization

- Boiler re-start assistance
- Operational consulting
- IB MACT/Utility MATS Tuning
- Online Boiler Gas Analysis Tuning

### • Long Term Service Agreements (LTSA)

### • Remote Monitoring and Reporting

### • Smelt-X, Wash-X

### • Spare parts inventory

### • Asset management

### • 24/7/365 Service

- (888) 574-0055

# Liquor to Liquor Concept

## Field Service Summary

### ÿ Maintenance Services

- ÿ Boiler hanger rod inspection and maintenance
- ÿ Port Rodder maintenance
- ÿ Liquor Station maintenance
- ÿ Smelt spout maintenance
- ÿ Rebuild and Upgrades
- ÿ Outage service
- ÿ Manufacturing solutions
- ÿ Qualified Welder Services

### ÿ Boiler Tube Scale Deposit Inspections

- ÿ Enhances DWD analysis

### ÿ Chemical Cleaning

- ÿ Advisory services
- ÿ Steam Blows
- ÿ Vapor Phase, Hydrolasing

### ÿ Engineering Studies/Services

- ÿ CFD
- ÿ RBD (Recovery Boiler Design)
- ÿ PBD (Power Boiler Design)
- ÿ FEA
- ÿ Debottlenecking
- ÿ Capacity upgrades
- ÿ Feasibility studies
  - ÿ Gas conversions
  - ÿ Boiler upgrade/rebuild/conversion
  - ÿ Process improvement
- ÿ Corrosion studies

# Liquor to Liquor Concept Training

## ÿ WebAcademy

- ÿ Online Training Portal using Interactive Media Training
- ÿ Learning Management System (LMS)
- ÿ Pulp Mill and Power Plants
- ÿ Self paced courses

## ÿ VirtualSite™ Simulators

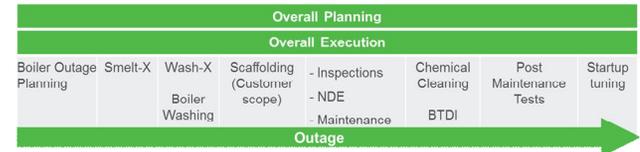
- ÿ DCS coupled – Fully dynamic
  - ÿ Look and feel of DCS
- ÿ Stand-Alone – Medium
  - ÿ Uses replicated DCS display
- ÿ Generic

## ÿ Classroom Training

Training throughout the plant's lifecycle



# Liquor to Liquor Concept Value



## Time & Money

Standby Cost Reduced

Mob & DeMob Costs Eliminated

Outage Time Reduced

Tubing & Spare Parts Discounts

Multi-Year Agreements at Reduce Price

Free Internet Training Package

Valmet's Annual Recovery Boiler Users Group Conference

## Lean Practices

Safety Enhancements & Lessons Learned

Extended Outage Cycles Become Achievable – Experience Gap Minimized

Mill Staff Reductions Mitigated & Staff Workload is Reduced

One Purchase Order & a Single Point of Contact

Expert Analysis of Performance Data

# Liquor to Liquor Concept

Valmet Partners



# Fast, Flexible Components & Parts

## Daily spare parts

- ÿ Original parts for equipment delivered by Valmet
- ÿ Spares for several other acquired brands
- ÿ Engineered components designed by Valmet
- ÿ Approved replacement parts that meet quality and performance requirements
- ÿ Upgraded substitute parts

## Spare part packages

- ÿ Spare and wear parts for Valmet's new installations and rebuilds
- ÿ Spare part recommendations prepared by Valmet specialists
- ÿ Spare parts required on-site are identified together with the customer

## eServices

Take advantage of this online store 24/7 for spare parts and consumables

[Read more >](#)



## Facts

- ÿ The right spare parts, at the right time, based on OEM manufacturer know-how
- ÿ On competitive terms

## Facts

- ÿ Special tools for spare part qualification
- ÿ Experienced global and local specialists

