



LCS

Life Cycle
Services

3

Shutdown and
Process
Optimization

1

Scheduled Inspections

2

Shutdown and Wear Parts
Optimization

3

Shutdown and Process
Optimization

4

Maintenance and Process
Optimization

Life Cycle Services Contracts

Life Cycle Services (LCS) take the entire range of services Metso provides and conveniently bundles them into customizable, easily manageable packages, ranging from the basics to more complete solutions, depending on the scale of your needs. Our packages are equipped to cover a single-event shutdown or span multiple years, measured against strict key performance indicators (KPI).

The challenge: It's all about throughput.

Your productivity rates from ore deposits with differing mineralogical properties can fluctuate as ore inputs change. They can also vary as wear components are worn down from the grind of daily production, or when equipment undergoes a step-change, causing mill liners or crusher wear parts to be replaced.

Determining how your equipment, configuration, wear parts condition, changing ore characteristics, blasting practices and control loops interact with your process poses a significant challenge.

The solution: Shutdown and Process Optimization

Helping you ramp up production levels.

An LCS Shutdown and Process Optimization solution means you get one supplier not only planning and executing your shutdown events, but also providing process support to ensure any mechanical change to your process has a positive impact on your production levels.

We take a holistic approach, combining your operations knowledge with our equipment and process expertise to open up new ways of maximizing your mine's productivity. All this is backed by commercial terms and payment plans that work for you.

Our package gives you:

1. Scheduled inspections

2. Shutdown planning, execution and follow-up

3. Wear parts analysis, design, supply and inventory

4. Process analysis and optimization

What we do: Help you get the most out of your equipment.

- Our process team can assist in designing your liners to maximize throughput for your specific setup
- Examine production flows from mine to mill looking for areas of improvement
- Collect data and make recommendations for optimizing wear parts, feed rates, screen performance and grinding media

- Implement feed optimization through acoustic condition monitoring
- Implement Control Performance, using control loop analysis and Metso's Plant Triage Software, to ensure controls are working correctly
- Implement Control Parameter Optimization to ensure that the comminution process is at its best for your production goals
- Provide our Process Integration and Optimization solution (optional) to help you get the most of your production process from pit to port

Extra features:

- Manage your cash flows better with fixed monthly payments, rather than upfront lump sums
- All elements of our Scheduled Inspections package, as well as our Shutdown and Wear Parts Optimization package, can also be included, ensuring less downtime and higher productivity rates. Consult their respective inserts for more details.



Benefits

Core benefit: Improved production efficiency and higher throughput

Each element of this package aims to help you maximize your productivity, efficiency and improve the quality of the final product. We want to optimize how your equipment and controls interact with your process using our proven expertise, and figure out how to make production improvements based on ore characteristics at your mine or plant.

Higher uptime and more effective comminution, through the optimization of wear parts, ensures you will hit your production targets day in and day out, while minimizing your cost per ton of ore produced. You'll also get:

- **Zero compromise on safety:** Our utmost priority, plain and simple. Documented time-and-motion studies of your shutdowns help pinpoint potential hazards, while better

planning and access to Metso-designed tools reduce safety risks for onsite staff.

- **More efficient resource management:** Optimizing the production process lets you minimize the specific energy consumption per ton of ore produced. With equipment settings and wear parts optimized, you can better reach your energy reduction goals. This helps you improve your resource recovery process by minimizing the energy required to get ore from waste product.

- **Improved availability:** Our shutdown optimization (planning, custom-designed tools, specially trained shutdown crews and follow-up) works to guarantee you faster shutdown events. Optimizing the life of your mill liners also means you'll change your wear parts less often, minimizing planned outages.

LCS Packages	Package 1	Package 2	Package 3	Package 4	Customized Package
LCS Service Offerings	Scheduled Inspections (and EPP)	Shutdown and Wear Parts Optimization	Shutdown and Process Optimization	Maintenance and Process Optimization	Custom Selections (Mix and Match)
Wears and Spares					
· Preliminary Diagnostics and Baseline Studies	X	X	X	X	Yes
· Inspections and Equipment Protection Plan (EPP)	X	X	X	X	Yes
· Inventory Optimization	Recommended	X	X	X	Yes
· Wears Consignment Inventory	Recommended	X	X	X	Yes
· Spares Consignment Inventory	Recommended	X	X	X	Yes
· Liner Profile Optimization		X	X	X	Yes
· Wear Component Analysis		X	X	X	Yes
· Wear Component Replacement Labour		X	X	X	Yes
· Spare Component Replacement Labour		X	X	X	Yes
· Health, Safety and Environment (HSE) Planning		X	X	X	Yes
Shutdown Improvements					
· Shutdown Planning		X	X	X	Yes
· Shutdown Optimization by SMED Analysis		X	X	X	Yes
· Shutdown Guarantee		X	X	X	Yes
· Metso Special Tooling		X	X	X	Yes
Process Optimization					
· Comminution Optimization		Recommended	X	X	Yes
· Condition Analysis (Acoustic Mill Condition Monitoring)			X	X	Yes
· Process Integration and Optimization (PIO)			X	X	Yes
· Control Performance using Plant Triage Software			X	X	Yes
· Ore Characterization (Using SmartTag)			X	X	Yes
· Geometallurgical Modelling (Using GeoMetso)			X	X	Yes
Maintenance and Training Offers					
· Metso Maintenance Solution (customized CMMS)			Recommended	X	Yes
· CMMS FRACAS Reliability Studies				X	Yes
· Maintenance Planning				X	Yes
· Equipment Documentation Library				X	Yes
· Equipment Performance Report				X	Yes
· Overall Equipment Effectiveness Reporting				X	Yes
· Plant Maintainability (Plant Design) Review				X	Yes
· Root Cause Analysis (RCA)				X	Yes
· Criticality Analysis Report (CA)				X	Yes
· Reliability Event Model Analysis				X	Yes
· Vibration Analysis				X	Yes
· Lubricant Condition Monitoring				X	Yes
· Lubrication Labour				X	Yes
· LCS Training Plans					Yes
Financial and Costing Programs					
· Fixed Monthly Fee Payments	Recommended	Recommended	Recommended		Yes
· Cost Per Ton Payment Plan				Recommended	Yes
· Key Performance Indicators (KPI) Reporting				Recommended	Yes
· Total Cost of Ownership Reporting				Recommended	Yes
· Payment Deferral Plan					Yes



Why Metso?

As a manufacturer of comminution equipment, replacement parts and wear parts, and—most importantly—as a provider of services, only Metso offers you a single package covering the build, operation and maintenance of mining equipment. Each LCS package is backed by commercial terms and services aligned to your needs. Our people, knowledge and solutions, coupled with experience gained through thousands of global shutdowns, ensure you only the best results. **This is our guarantee to you.**