



# **CONS and HL-LHC day Analysis of needs from EN-HE**

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# Equipment under HE responsibility vs HL-LHC

- Overhead cranes
- Road transport vehicles

} No specific consolidation budget needed for Hi-Lumi

- Lifts
- Industrial trucks and electric tractors

} Includes crucial equipment for transport of people and material and installation of magnets (LHC and HL-LHC)

# CONS and HL-CONS approved requests

(for HL-CONS except spares)

Item n.	Description	Approved Budget	Funding (CONS/HL-CONS) %	Budget to be allocated in the years
1	Overhead cranes	2.500 kCHF (2018-2020)	100% CONS	Variable
2	Lifts	6.435 kCHF (2018-2023)	100% CONS	Variable
3	Road transport (>3.5t)	600 kCHF (2018-2020)	100% CONS	200 kCHF/year
4	Industrial trucks and electric tractors	1.195 kCHF (2018-2020)	100% CONS	~400 kCHF/year

# CONS and HL-CONS requests pending approval or refused (1/2)

Item n.	Description	Budget request	Budget to be allocated in the years	Pending	Refused
5	Overhead cranes	8.250 kCHF (2021-2025)	1.500 kCHF/year (2.250 kCHF in 2022)	X	
6	Lifts	600 kCHF (2024-2025)	300 kCHF/year	X	
7	Road transport (>3.5t)	1.050 kCHF (2021-2025)	200 kCHF/year (250 kCHF in 2024)	X	
8	Industrial trucks and electric tractors	2.000 kCHF (2021-2025)	400 kCHF/year	X	

# CONS and HL-CONS requests pending approval or refused (2/2)

Item n.	Description	Budget request	Budget to be allocated in the years	Pending	Refused
9	Support Consolidation	1.600 kCHF (2018-2025)	200 kCHF/year		X
10	Heavy transport / aux. lifting equipment	400 kCHF (2018-2025)	50 kCHF/year		X
11	Industrial trucks and electric tractors	420 kCHF (2019-2025)	60 kCHF/year		X

# New requests in view of HL-LHC installation

(to meet HL-LHC goals)

# New requests for conversion of LHC into HL-LHC

Item n.	Description	Budget request	Budget to be allocated in years (from-to)	Priority (1-3) 1 top 3 low
12	Replacement of 2 Mafi trailers	1.400 kCHF	2021-2023	1
13	Replacement of Mafi power feeding line in sectors 3-4 and complete repainting of guidance line	600 kCHF	300 kCHF/LS	1
14	Replacement of Kouba bogies	1.000 kCHF	2025	1
15	Replacement of magnets transfer tables	400 kCHF	Not known	2

# Description sheets for new requests



# ITEM: Mafi trailers

## Rational of the request

Total Budget request	1.400 kCHF	Budget to be allocated in years (from-to)	2021-2023
Material budget request	100%	Personnel available [y/n] in addition to personnel budget request	Yes
Personnel budget request (M2P budget for MPAs and fellows)	1 technical engineer (50%)		

Consequences of suppression of request on HL performance

Impossibility to install and/or replace magnets

Consequences of delay of request to LS4 or later

Impossibility to install and/or replace magnets during LS2 and LS3

## ITEM: Mafi trailers

- Being a prototype, equipment life can be hardly estimated
- Major consolidation interventions can't be done due to the lack of support from the manufacturer
  - Reliability still sufficient for LS2 but not enough for LS3
  - Its proper functioning concerns both LHC and HL-LHC
  - Installation of TAN and inner triplets will be done with new specific machines (budget already requested)



# ITEM: Mafi feeding line / guidance line

## Rational of the request

Total Budget request	600 kCHF	Budget to be allocated in years (from-to)	LS2, LS3
Material budget request	100%	Personnel available [y/n] in addition to personnel budget request	Yes
Personnel budget request (M2P budget for MPAs and fellows)	0		

Consequences of suppression of request on HL performance

Impossibility to install and/or replace magnets

Consequences of delay of request to LS4 or later

Impossibility to install and/or replace magnets during LS2 and LS3

# ITEM: Mafi feeding line / guidance line



- Water infiltrations in sectors 3-4 require repair/replacement of power feeding line at every LS
- Good line quality is required to correctly guide the convoy (only 10cm side clearance!): check and repairs on 27 km at every LS

# ITEM: Kouba bogies

## Rational of the request

Total Budget request	1.000 kCHF	Budget to be allocated in years (from-to)	2025
Material budget request	100%	Personnel available [y/n] in addition to personnel budget request	Yes
Personnel budget request (M2P budget for MPAs and fellows)	1 technical engineer (50%)		

### Consequences of suppression of request on HL performance

None

### Consequences of delay of request to LS4 or later

Impossibility to replace warm magnets from LS4

# ITEM: Kouba bogies



- Necessary for dismounting and installation of warm magnets
- Proper functioning not guaranteed from LS4

# ITEM: Magnets transfer tables

## Rational of the request

Total Budget request	400 kCHF	Budget to be allocated in years (from-to)	Not known, needed in case of major breakdown
Material budget request	100%	Personnel available [y/n] in addition to personnel budget request	Yes
Personnel budget request (M2P budget for MPAs and fellows)	0		

Consequences of suppression of request on HL performance

Impossibility to install and/or replace magnets

Consequences of delay of request to LS4 or later

Impossibility to install and/or replace magnets during LS2 and LS3

# ITEM: Magnets transfer tables



- Estimations are given for information only
- 5 sets available
- In case of major breakdown, replacement is the only possible intervention
- Manufacturer still available



# Summary (1/3)

Priority (1-3) in decreasing order of importance	Item n.	Description	Approval Status: <ul style="list-style-type: none"> <li>• <i>Approved by CONS</i></li> <li>• <i>Approved by HL-CONS</i></li> <li>• <i>Not Approved by CONS</i></li> <li>• <i>Not Approved by HL-CONS</i></li> <li>• <i>New</i></li> </ul>
1	12	Replacement of 2 Mafi trailers	New
1	13	Replacement of Mafi power feeding line in sectors 3-4 and complete repainting of guidance line	New
1	14	Replacement of Kouba bogies	New
1	4	Industrial trucks and electric tractors (2018-2020)	Approved by CONS

## Summary (2/3)

Priority (1-3) in decreasing order of importance	Item n.	Description	Approval Status: <ul style="list-style-type: none"> <li>• <i>Approved by CONS</i></li> <li>• <i>Approved by HL-CONS</i></li> <li>• <i>Not Approved by CONS</i></li> <li>• <i>Not Approved by HL-CONS</i> <ul style="list-style-type: none"> <li>• <i>New</i></li> </ul> </li> </ul>
2	15	Replacement of magnets transfer tables	New
2	8	Industrial trucks and electric tractors (2021-2025)	Not Approved by CONS
3	5	Overhead cranes (2021-2025)	Not Approved by CONS
3	6	Lifts (2024-2025)	Not Approved by CONS
3	7	Road transport (>3.5t) (2021-2025)	Not Approved by CONS

# Summary (3/3)

Priority (1-3) in decreasing order of importance	Item n.	Description	Approval Status: <ul style="list-style-type: none"> <li>• <i>Approved by CONS</i></li> <li>• <i>Approved by HL-CONS</i></li> <li>• <i>Not Approved by CONS</i></li> <li>• <i>Not Approved by HL-CONS</i> <ul style="list-style-type: none"> <li>• <i>New</i></li> </ul> </li> </ul>
3	1	Overhead cranes (2018-2020)	Approved by CONS
3	2	Lifts (2018-2023)	Approved by CONS
3	3	Road transport (>3.5t) (2018-2020)	Approved by CONS
3	9	Support Consolidation	Not Approved by CONS
3	10	Heavy transport / aux. lifting equipment	Not Approved by CONS
3	11	Industrial trucks and electric tractors	Not Approved by CONS