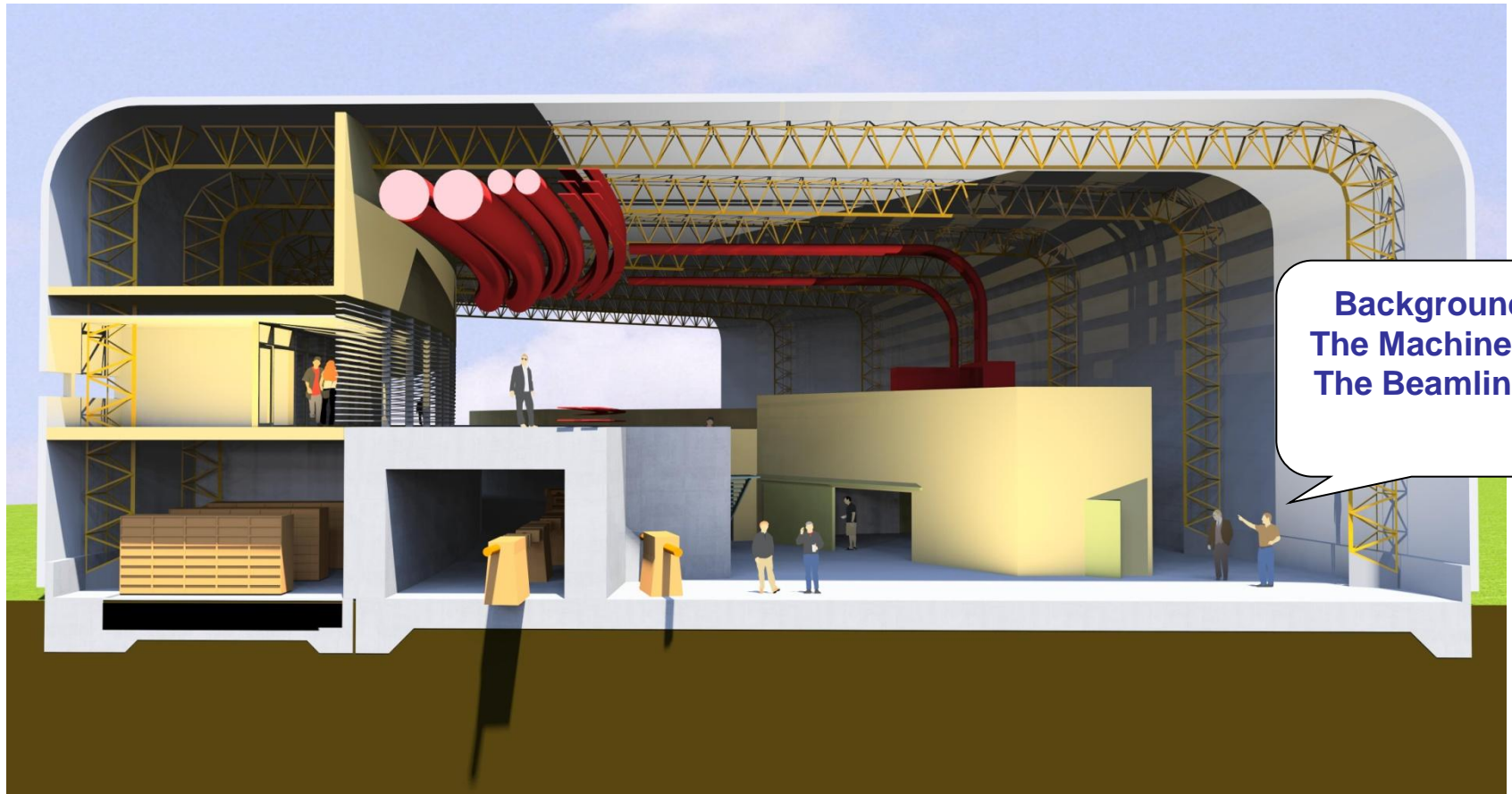
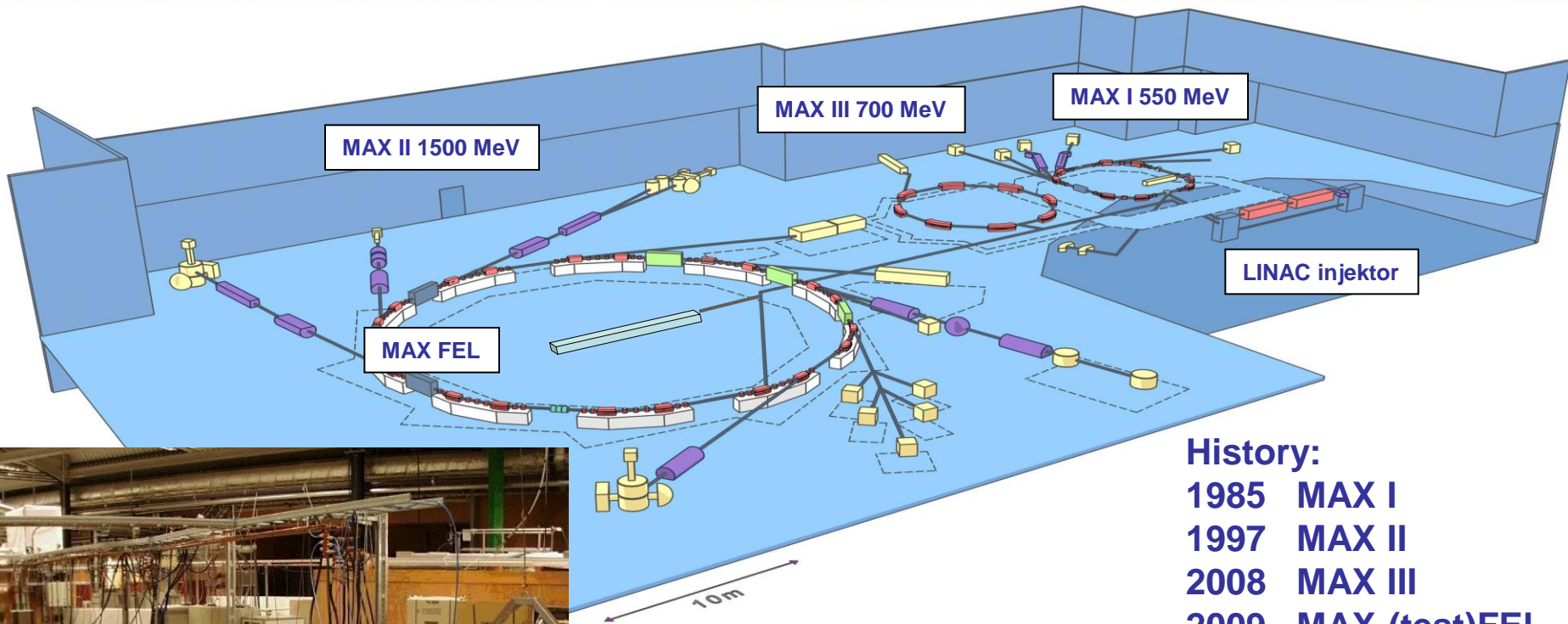


The MAX IV Project

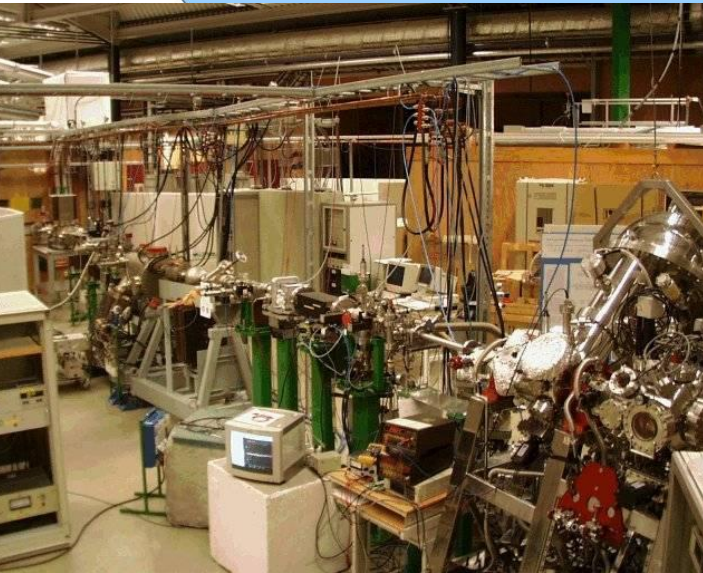


MAX-lab - A laboratory under continuous development



History:
1985 MAX I
1997 MAX II
2008 MAX III
2009 MAX-(test)FEL

Today:
>20 beamlines in operation
Open for users >200 days/ year
900 users / year
Extensive in-house research activities



MAX IV – the process

2002 – 2006

Discussions with research communities in Sweden, Nordic & Baltic countries.

First funding from KAW

2006 – 2008

The conceptual design report

First evaluation

Revised design



2009

Second evaluation

27th of April MoU for the start version of MAX IV



2009

City plan for the MAX IV area

Building contract



2010

MAX IV project org.

First orders

Construction starts

2011-2014

Installations

- Linac 2012
- Building 2013
- Storage rings 2014
- Beamlines 2014→

2015

MAX IV in operation

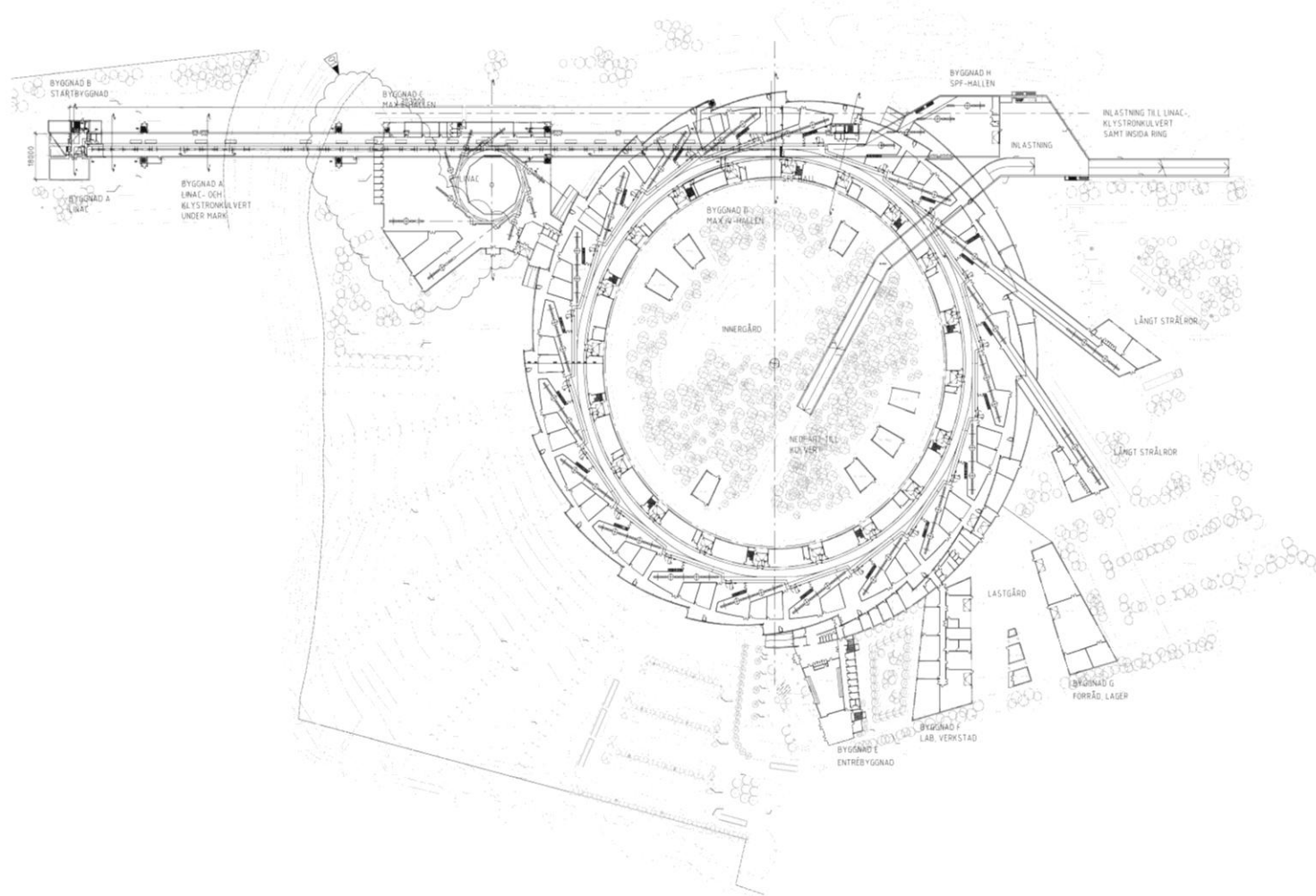


Soleil (Paris, France)
2.75 GeV
354 m
24 straight sections
30 Beamlines

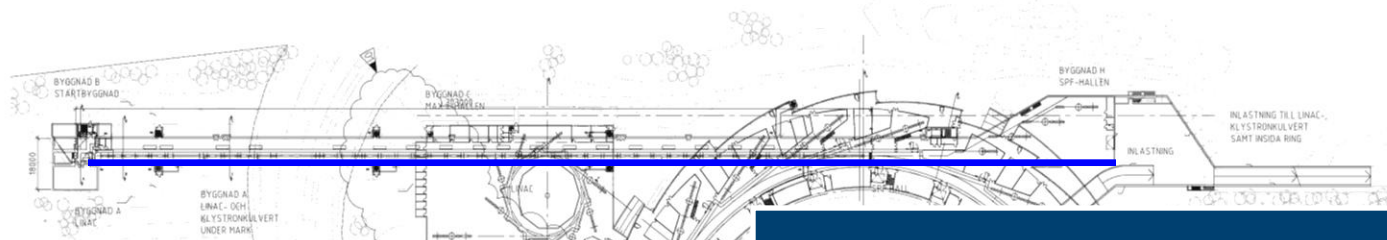
Diamond (Oxford, UK)
3 GeV
561, 6 m
40 beamlines

MAX IV (Lund, Sweden)
3 GeV
528 m
19 beamlines (30)

MAX IV – Three parts



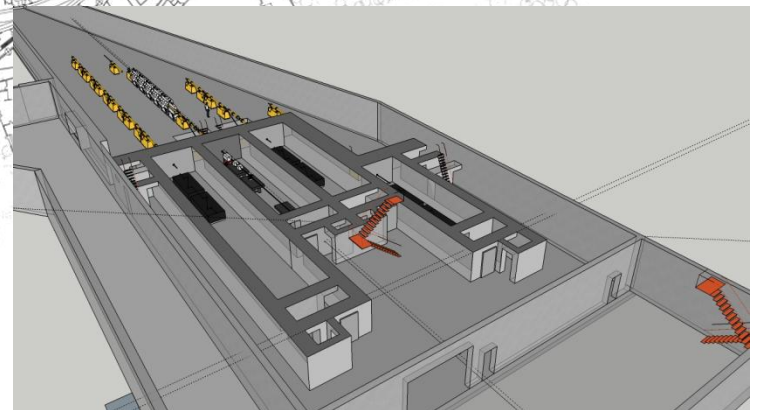
MAX IV – the linac



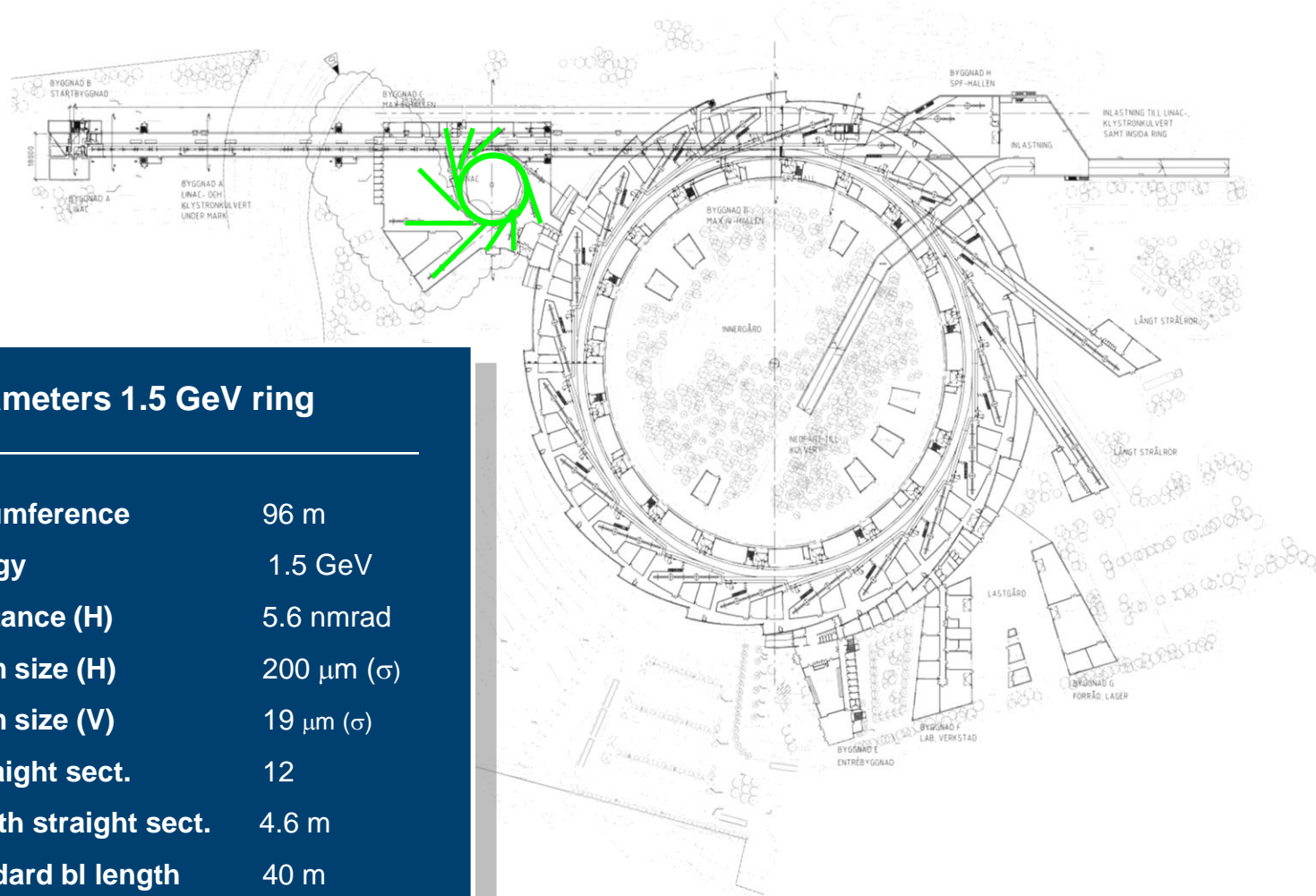
Parameters Linac

Length	300 m
Energy	3 (3.5) GeV
Max rep. Rate	10 (100) Hz
Bucket charge	300 (100) pC
Bunch length	660 (<0.1) ps
Emittance	< 1 mmrad

- Injections in top up mode for the both rings
- Source for the Short Pulse Facility
- Future upgrade plans: FEL



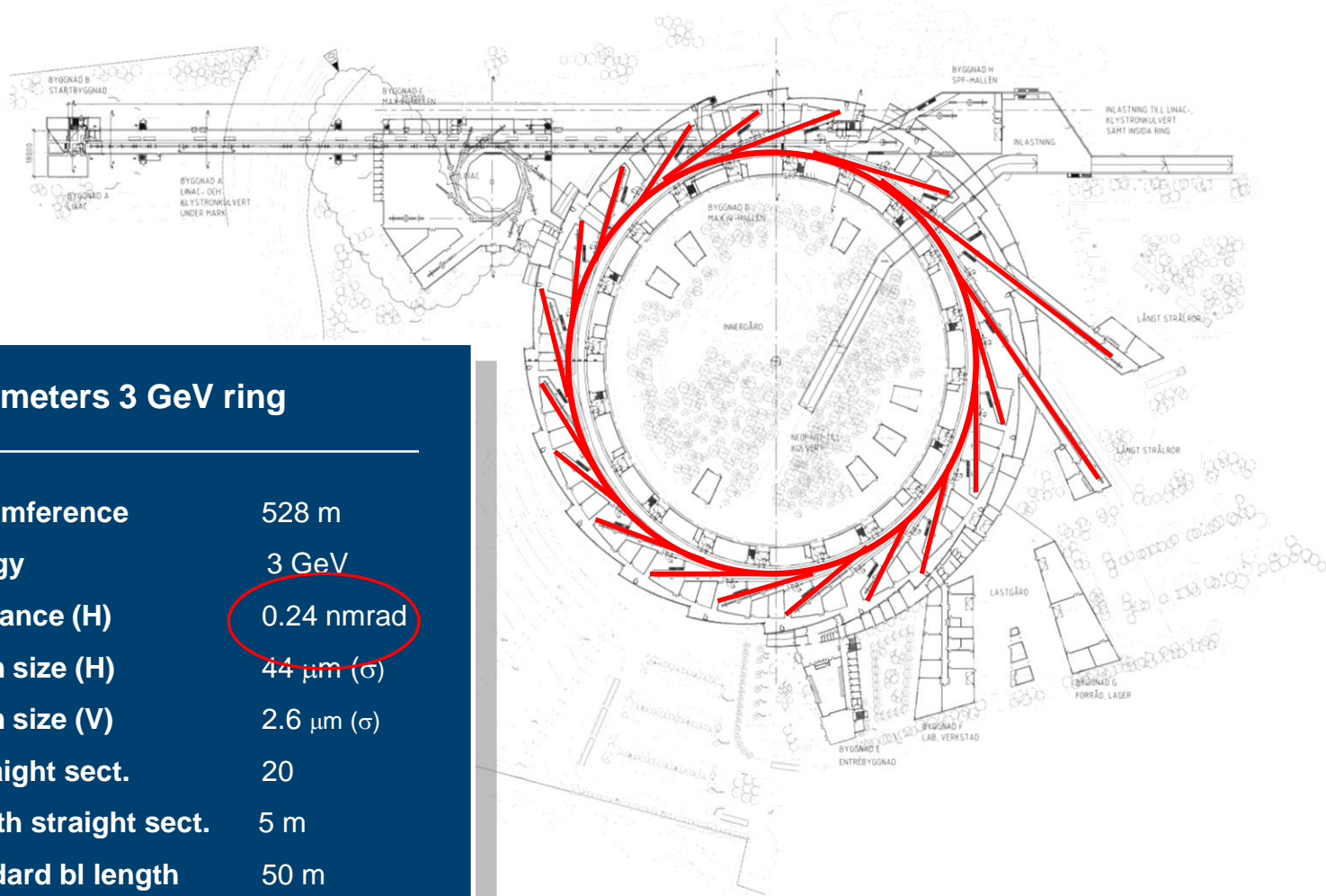
MAX IV – the 1.5 GeV ring



Parameters 1.5 GeV ring

Circumference	96 m
Energy	1.5 GeV
Emittance (H)	5.6 nmrad
Beam size (H)	200 μm (σ)
Beam size (V)	19 μm (σ)
# straight sect.	12
Length straight sect.	4.6 m
Standard bl length	40 m

MAX IV – the 3 GeV ring



Parameters 3 GeV ring

Circumference	528 m
Energy	3 GeV
Emittance (H)	0.24 nmrad
Beam size (H)	44 μm (σ)
Beam size (V)	2.6 μm (σ)
# straight sect.	20
Length straight sect.	5 m
Standard bl length	50 m

MAX IV - A state-of-the-art storage ring!



New facilities in Europe

Synchrotron	Place	Year	Emittans
ELETTRA	Trieste	1993	7-9.7
ESRF	Grenoble	1994	4
MAX II	Lund	1997	8.8
BESSY II	Berlin	1998	5.2
SLS	Villigen	2001	5
SOLEIL	Paris	2007	3
DIAMOND	Oxford	2007	2.74
PETRA III	Hamburg	2010	1
MAX IV	Lund	2015	0.24

US

Synchrotron	Place	Year	Emittans
NSLS II	Brookhaven	2015	0.6-1

Funding

Basic Version, 2009-2014

Building, accelerators and a basic version of beamlines.

In total 110 M€

The founding was secured at April the 27th 2009 when a Memorandum of Understanding was signed between the Swedish Research Council (VR), the Swedish Governmental Agency for Innovation Systems (VINNOVA), Lund University and Region Skåne, defining the start of the MAX IV project.

Supplements, 2010-

Additional beamlines and laboratories.

Proposal to KAW and ongoing negotiations with "Research Councils" and universities in neighbouring countries.



*Knut och Alice
Wallenbergs
Stiftelse*

The Knut and Alice Wallenberg Stiftelse (KAW) is a private foundation that started in 1917. Over the years it has frequently and generously contributed to the build up of MAX-lab.

In March this year the Swedish Research Council (VR) has submitted a proposal to the KAW foundation for 6-7 beamlines on MAX IV.

A priority process was initiated by VR where the emphasis was on beamlines utilizing the performance of MAX IV & had a strong Swedish user community.



The KAW Priority List

Priority 1 -5

Very High Resolution Soft X-ray Spect	3 GeV, EPU
High Pressure & High Res. Electron Spect	3 GeV, EPU
Short Pulse Facility	Linac
Nanomax	3 GeV, PMU
Life Science (micro focus)	3 GeV, PMU

Priority 6 -10

Angle Resolved Photoelectron Spectroscopy	1.5 GeV, EPU
Gas Phase Core-Level Spectroscopy	3 GeV, EPU
SAXS/WAXS	3 GeV, PMU
Life Science (high throughput)	3 GeV, PMU
Hard X-ray Env. XAS	3 GeV, wiggler



MAX IV (2015)

Lund Science City (20??)

ESS (2020)