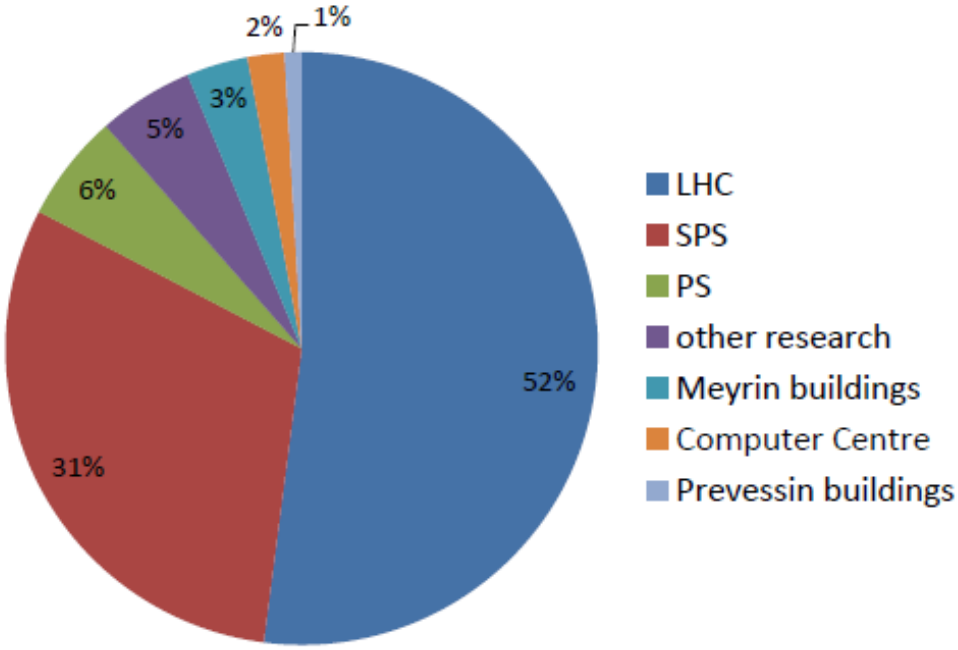
Welcome to the Workshop on "Compact and Low Consumption Magnet Design for Future Linear and Circular Colliders"

CERN: Power and Electrical Consumption (2012)

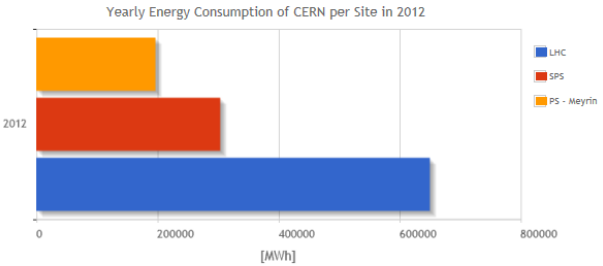
Power demand:

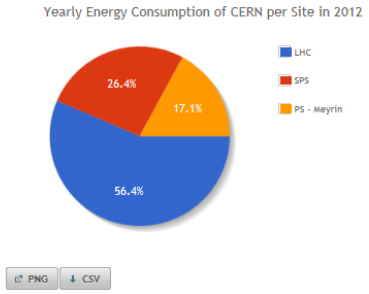
- Full operation : 220 MW
- Shutdown: 50 MW

Annual consumption: 1.2 TWh

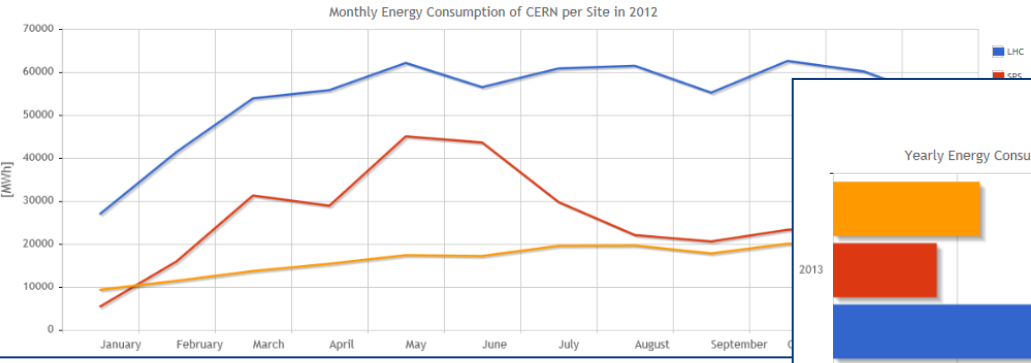


Energy Consumption CERN per Site in 2012 [MWh]

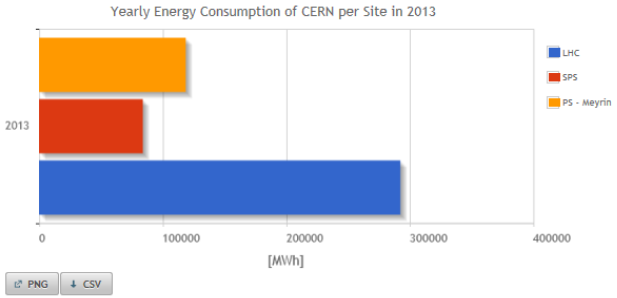


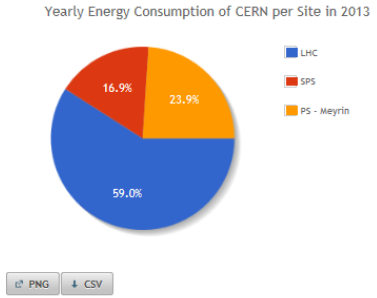


Total: 1,151,365 MWh

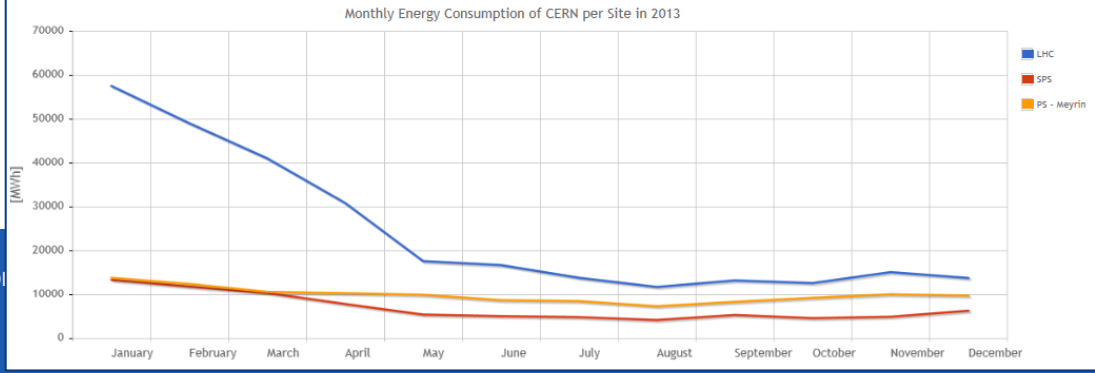


Energy Consumption CERN per Site in 2013 [MWh]





Total: 495,517 MWh



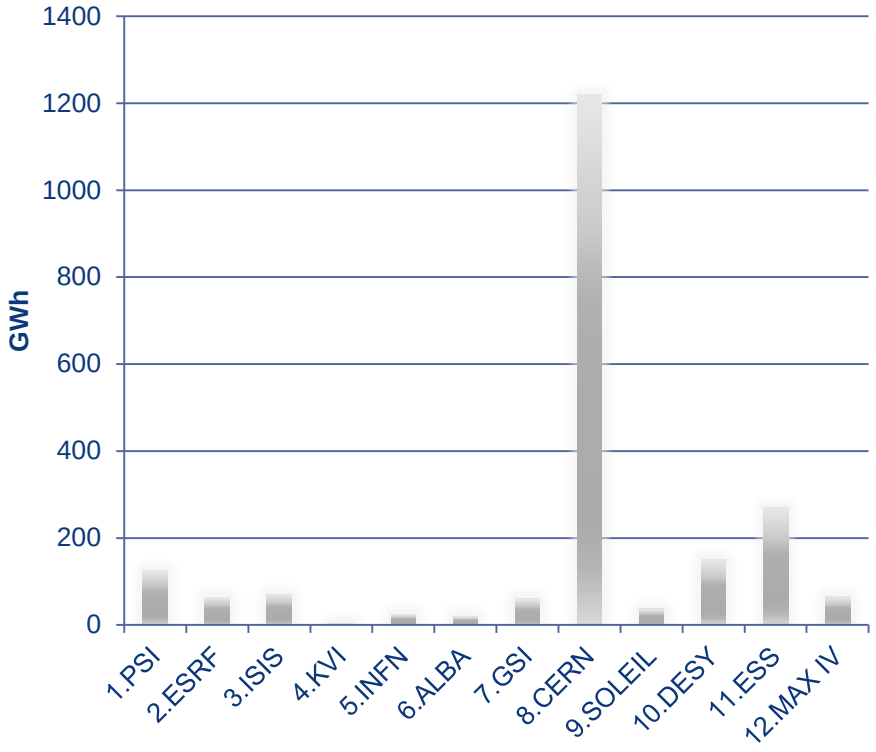
SPS – Prévessin	Max Power [MVA]	Yearly consumption [GWh]
SPS Stable cooling and ventilation included		71
SPS Pulsed		19
Experiments North Area Stable		64
Experiments North Area Pulsed		23
RF		21
Magnets		200
		6
		10
	75	**414**

LHC – 4 TeV		Max power * [MVA]	Yearly consumption [GWh]
Experiments		25	145
RF		13	41
Magnets & Converters		8	19
LHC+Point18 Cryogenics		37	257
Cooling		9	50
Ventilation		7	33
General Services	lighting, overhead cranes, local control rooms, buildings (SY, SX, etc.), some redundant circuits for cryogenics, Atlas	20	97
Total LHC		**115**	**648**

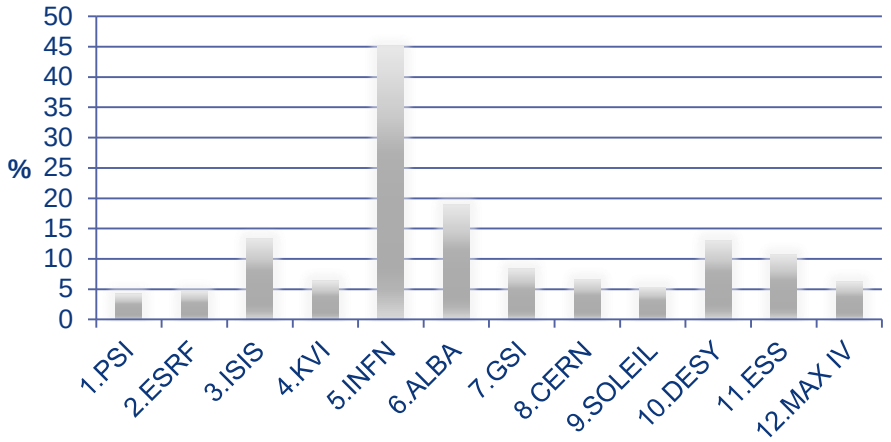
* average power values sampled every 10 minutes

Laboratory Survey: Energy Consumption and Energy Cost

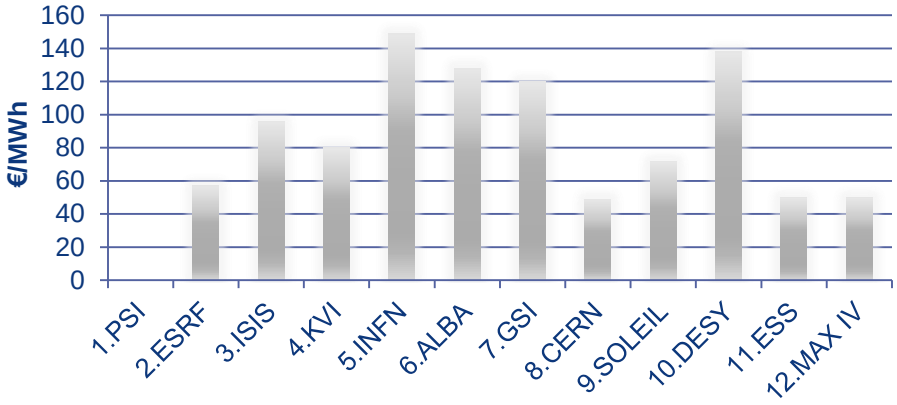
Electricity consumption (GWh)



Energy-related part of costs (%)



Electricity price (€/MWh)



Workshop Energy for Sustainable Science

Energy Management for Large-Scale Research Infrastructures

13-14 October 2011, ESS-LUND, Sweden

CERN, the European Organization for Nuclear Research, ERF, the European Association of National Research Facilities, and ESS, the European Spallation Source, are delighted to invite you to indicate your interest in attending the first joint workshop on Energy Management for large-scale research infrastructures.

Volatile energy costs, a tight budget climate and increasing environmental concerns are all inciting large-scale research facilities across the globe to develop mid- and long-term strategies aimed at achieving for the future a reliable, affordable and sustainable energy supply that is carbon neutral.

The workshop will bring together international experts on energy and representatives from laboratories and future projects all over the world in order to identify the challenges and best practice in respect of energy efficiency and optimization, solutions and implementation as well as to review the challenges represented by potential future technical solutions and the tools for effective collaboration.

Topics for discussion will include:

- **Technical challenges in availability and quality:** efficiency and optimization of energy supply, energy recovery, storage and stability
- **Strategic and financial challenges for the future:** impact of GRID regulation, investment optimization, procurement strategy
- **Challenges for heat recycling systems and water saving:** energy conversion, heat recovery, high-temperature cooling loops

Costs

Participation is by invitation and free of charge. Partici
cover their own travel and accommodation expenses.
As participation in the Workshop is limited by the av
accommodation, you are strongly advised to indicate yo
in attending the Workshop as soon as possible.
In order to ensure that the participating research facil
broadly represented as possible, the Workshop orga
issue a formal invitation confirming attendance at the W
due course.

Additional Information & Registration

www.esss.se/energysworkshop

Scientific Organisation

Frédérick Bordry, CERN | Frederick.Bordry@cern.ch
Thomas Parker, ESS | Thomas.Parker@ess.se
Jean-Pierre Caminade, SOLEIL | caminade@synchrotron-so
Frank Lehner, DESY | Frank.Lehner@desy.de
Keith Jeffery, STFC | keith.jeffery@stfc.ac.uk

Local Organisation

Monica Nilsson, ESS | monica.nilsson@esss.se

Communications

Marina Giampietro,CERN | marina.giampietro@cern.ch
Roger Eriksson, ESS | roger.eriksson@esss.se

2nd Workshop Energy for Sustainable Science at Research Infrastructures

CERN, GENEVA, SWITZERLAND 23-25 OCTOBER 2013

ENERGY.SUSTAINABLESCIENCE2013@CERN.CH
HTTP://CERN.CH/ENERGY.SUSTAINABLESCIENCE2013

MAIN THEMES

- Energy Management at Research Infrastructures
- Procurement and Financing of Energy
- Energy Efficiency at Research Infrastructures
- Energy Efficiency in Computing Centres
- Sustainable Campus Development and Management
- Energy Quality and Operation
- Green Technologies developed at Research Infrastructures

INTERNATIONAL ORGANIZING COMMITTEE

Mike Ashworth	STFC
Frédérick Bordry	CERN
Frank Lehner	DESY
Carlo Rizzuto	ERF
Thomas Parker	ESS

LOCAL ORGANIZING COMMITTEE

Giovanni Anelli	Vincent Dore
Frédérick Bordry	François Duval
Helfried Burckhart	Marina Giampietro
Jean-Paul Burnet	Friedrich Haug
Fritz Caspers	Tjitske Kehrer
Enrico Chesta	Philippe Lebrun
Serge Claudet	Mauro Nonis