



**European X-Ray Free-Electron Laser Facility GmbH**

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## **Scheme of repartition of the operating costs among the Shareholders**

Approved by the Council at its 11<sup>th</sup> meeting on 13–14 June 2012 and amended by the Council at its 12<sup>th</sup> meeting on 24–25 October 2012, its 23<sup>rd</sup> meeting on 23–24 November 2016, and its 30<sup>th</sup> meeting on 21–22 November 2019

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# 1 Introduction

## 1.1 General provisions of the Convention concerning operating costs

The “*Convention concerning the Construction and Operation of the European X-Ray Free-Electron Laser Facility*” requests in its Art. 4 para. 1 that “*each Contracting Party shall make available to the Shareholders for which it is responsible grants covering the Shareholders’ contributions to the annual budgets of the Company as defined in Article 5.*”

During Phase I of the construction period, all expenditure is assigned to construction costs. Phase I ends “*at the date decided by the Council, with reference to the intermediate target specifications for initial operation set out in the Executive Summary of the XFEL Technical Design Report attached as Part A of Technical Document 1*” [Art. 4 para. 3 lit. a].

During Phase II of the construction period, “*the Company shall operate the accelerator complex and the first undulator branch with first experiments. In parallel the Company shall finish construction of the remaining undulator branches and shall commission them progressively together with the experimental stations*” [Art. 4 para. 3 lit. b].

During this phase, the annual budget will cover both construction costs (attributed to the completion of construction and commissioning of the remaining undulator branches and experiment stations, as well as to related modifications of the accelerator complex) and operating costs. The part of the budget covering construction costs will fade out, while the part of the operating costs will ramp up. Phase II of the construction period started in the year 2017 and, for SASE2 and SASE3, in the year 2018.

Once the final target specifications of the Facility have been attained, Phase II is complete. Henceforth, “*the Company operates the European XFEL Facility and pursues a programme for its further development*” [Art. 4 para. 3 lit. b]. For that phase, “*an estimation of the annual operating budgets*

*including provisions for development is specified in Technical Document 2”* [Art. 4 para. 9].

For the start-up configuration of the Facility, Technical Document 2 indicates that expenditure for operating costs will ramp up from the year 2014 on to reach an annual amount of 64.2 M€ (in 2005 prices). At its 25<sup>th</sup> meeting on 29–30 June 2017, the Council endorsed recommendations by its Working Group on the operation cost estimate, as shown in document XFEL\_Council\_17-23, according to which the Working Group recommends a budget for 2018 of 117.6 M€ in current prices. At the same meeting, the Council decided, based on measurement reports provided by the Management Board and a visual inspection of the experiment hall, that, from 1 July 2017 onward, the operation phase (as well as Phase II in terms of Art. 4 para. 3 of the Convention) was started. The cost estimate for the operating costs is currently again under revision.

## **1.2 Provisions of the Convention on the repartition of operating costs**

Art. 5 para. 5 of the Convention stipulates that the *“use of the European XFEL Facility by the scientific community of a Contracting Party presupposes that the Shareholder(s) of that Contracting Party participate in an appropriate way in covering the operating costs of the European XFEL Facility.”*

Art. 6 para. 3 requests that the Council create *“the prerequisites to avoid a lasting and significant imbalance between the use made of the European XFEL Facility by the scientific community of a Contracting Party country and the contribution of the Party’s Shareholder(s) to the European XFEL Facility.”*

The repartition scheme set out in the following section aims at implementing the objective of this article, while respecting that *“the use of the European XFEL Facility shall be based on criteria of scientific excellence and benefits to society”* [Art. 6 para. 1].

## 2 Repartition scheme

### 2.1 Principle

The contributions to the operating costs made by the Shareholder(s) of a specific Contracting Party or by Scientific Associates of the European XFEL shall reflect the actual use made of the Facility by the scientific community of that Contracting Party country or Scientific Associates.

The contribution of each Contracting Party and Scientific Associate shall be split into the baseline operating costs of the Facility, which shall be proportional to the construction cost/entrance fee share of that Contracting Party or Scientific Associate, and the costs deriving from use of the Facility, which shall be determined as described in Section 2.2. In accordance with the decision taken at the 11<sup>th</sup> Council meeting, 50% of the overall contributions of the Contracting Parties and Scientific Associates shall be made according to their construction cost/entrance fee shares and 50% according to the use of the Facility by the scientific communities of the Contracting Parties or Scientific Associates.

In parallel, the European XFEL Company should strive for co-funding of the operation budget by the European Commission.

### 2.2 Measuring scientific use

Although various parameters might be considered for the assessment of the scientific use, in the present context, only the delivered beamtime (incl. “*user-assisted commissioning*” shifts and shifts necessary to prepare and set up an experiment) expressed in shifts shall be taken into account, regardless of whether an experiment was successful or not. Beamtime shall be deemed not to have been “*delivered*” only if no beam whatsoever was delivered to the instrument during the respective shift or if severe malfunctioning of central equipment, like detectors, occurred during the respective shift, leading to a postponement of beamtime. The number of setup shifts to be counted in the context of measuring scientific use will be typically one shift but can, for very complex experiment, be up to five shifts and will be assigned to the corresponding proposal during the allocation process of beamtime. By the

end of each experiment, the respective European XFEL Leading Scientist (or his/her substitute) shall notify the European XFEL User Office, which is responsible to measuring scientific use, if the number of delivered shifts deviated from the allocated shifts. In case an experiment was spread over multiple years, the shifts shall be allocated to the year of its delivery. Shifts on externally funded instruments made available to the European XFEL Company for allocation to its users count in the same way as shifts on the European XFEL Facility's own instruments.

The beamtime fraction assigned to User Consortia for priority access according to Section 3.5 of the "*Guidelines for User Consortia*" shall not be taken into account.

For the assignment of the use to specific Contracting Parties or Scientific Associates, the following guideline shall apply:

- Decisive for the assignment to a specific Contracting Party or Scientific Associate is the location of the laboratory/department the proposer is affiliated with (and not the nationality of the proposer). In this context, proposers are those persons mentioned in the proposal at the end of the experiment, not only those who carry out the experiment on site or those who are listed as authors in the subsequent publication(s).
- Proposals submitted jointly by scientists from several laboratories/departments are assigned to their host countries pro rata to the number of laboratories/departments involved (not pro rata to the number of proposers).
- If scientists from laboratories/departments based in non-Contracting Party countries and not in countries of the Scientific Associates are involved in such collaborations, only the laboratories/departments based in Contracting Party countries and in those of the Scientific Associates will be taken into account for the pro rata assignment. The policy for the allocation of beamtime to be decided by the Council in accordance with Art. 11 para. 3 lit. g might provide for a limitation of such proposers.

- If scientists affiliated with internationally funded laboratories/departments (e.g. European XFEL, ESRF, ILL, EMBL) are involved in projects, the assignment per Contracting Party or Scientific Associate concerning them will be determined in accordance with the distribution per Contracting Party or Scientific Associate of the funding of these institutes after subtracting the contributions by non-participating countries. In the event of fluctuating contributions to the funding, the most recent repartition applies.

### **2.3 Long-term implementation**

When the Facility is in full operation, the contributions of the Shareholders from the various Contracting Parties or of the Scientific Associates shall be aligned with the actual scientific use by those Parties or Associates. This shall be implemented in the following way:

- The use will be reviewed annually, starting 3.5 years after the start of operations (2021).
- The contribution will be calculated as a rolling average for year  $n-3$  to  $n-1$  (i.e. first for the period 2018–2020).
- The contribution to operating costs will be adjusted every year for the year  $n+2$  (i.e. first adjustment for 2023), with the value of the adjustments only going to the first decimal point.

In principle, the use of a three-year rolling average should exclude abrupt changes of contribution rates.

## **3 Transition period**

During the first years of operation in 2017–2018, there will be a transition from the first beam to full operation in 2019.

During these years, but also in the following years when first empirical data on actual scientific use will be generated, the contributions to the operating costs by each Shareholder and Scientific Associate are calculated in proportion to their construction cost/entrance fee shares. This option should

be applied with the understanding that due account is taken of the relevant resolutions of various Contracting Parties attached to the Convention.

The contributions of Scientific Associates during this transition phase shall be fixed in the contractual agreement, based on which the associate joins the European XFEL.

As soon as empirical data on the use become available, the Council might, if appropriate, implement adjustments when deciding on the annual budgets. From the financial year 2023 onward, the repartition will be based fully on the scheme set out in Section 2 (50% proportional to the shares, 50% according to use of the Facility).

## **4 Revisions**

This document will be subject to future revisions.