

Update de la stratégie EU de Physique des Particules 2025

Dernière mise-à jour - juin 2020



Highlights :

- transformation du LHC en machine à haute luminosité
- intensifier les activités de R&D sur des technologies de pointe d'accélérateur, de détecteur et informatiques
- *réaliser un collisionneur électron-positon fonctionnant comme « usine à Higgs »* en tant qu'installation prioritaire après le LHC ;
l'exploitation au CERN de ce futur collisionneur pourrait commencer dans moins de dix ans après fin LHC (2038)
- soutien EU des projets de recherche sur les neutrinos au Japon et aux États-Unis

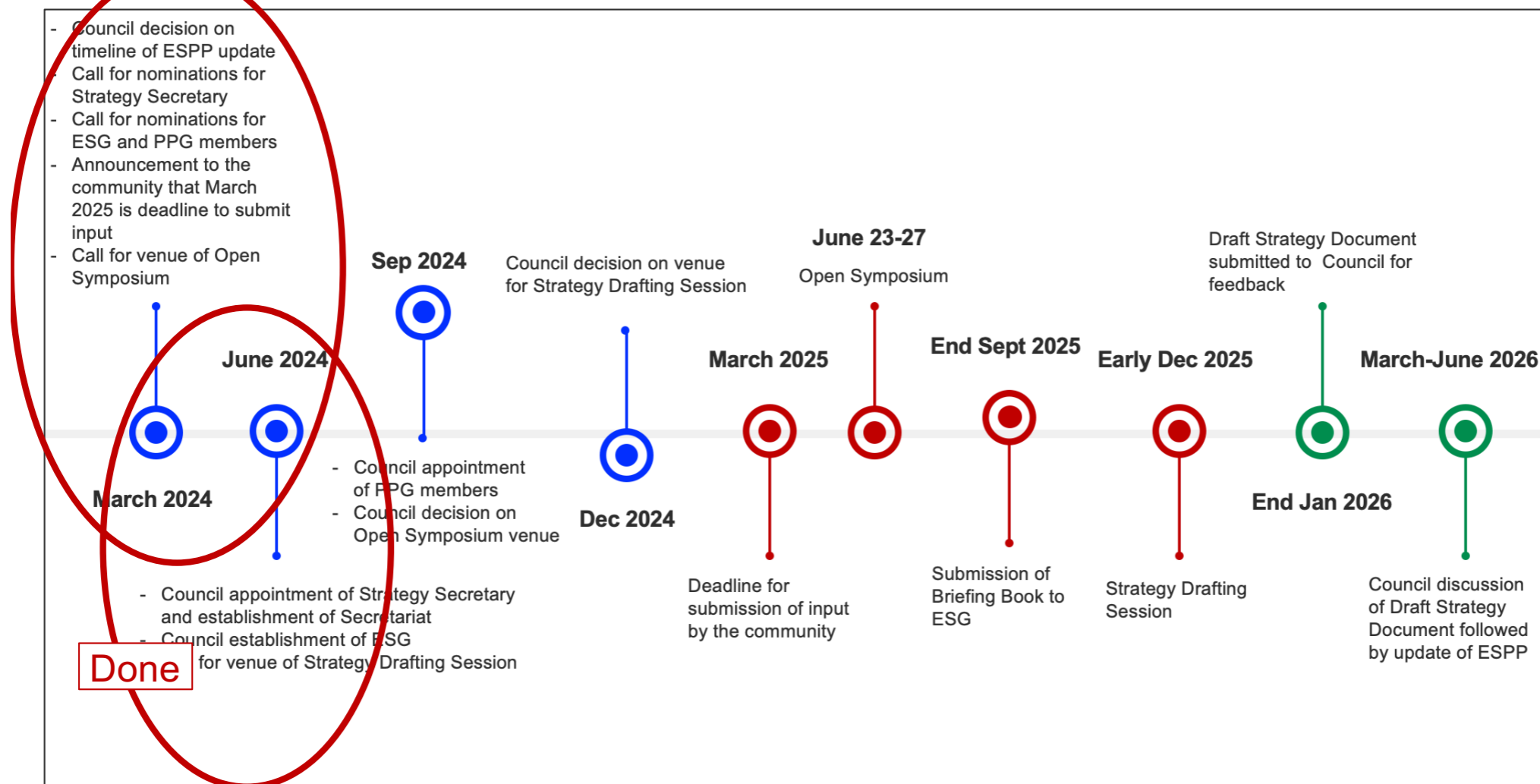
More info : <https://www.home.cern/fr/news/news/physics/particle-physicists-update-strategy-future-field-europe>

EPPSU 2025 : calendrier



Timeline of European Strategy update (I)

- ❑ March 2025: deadline for submission of community input
- ❑ June 23-27 2025: Open Symposium
- ❑ Early Dec 2025: Strategy Drafting Session
- ❑ June 2026: approval of the Strategy update by CERN Council → end of the process



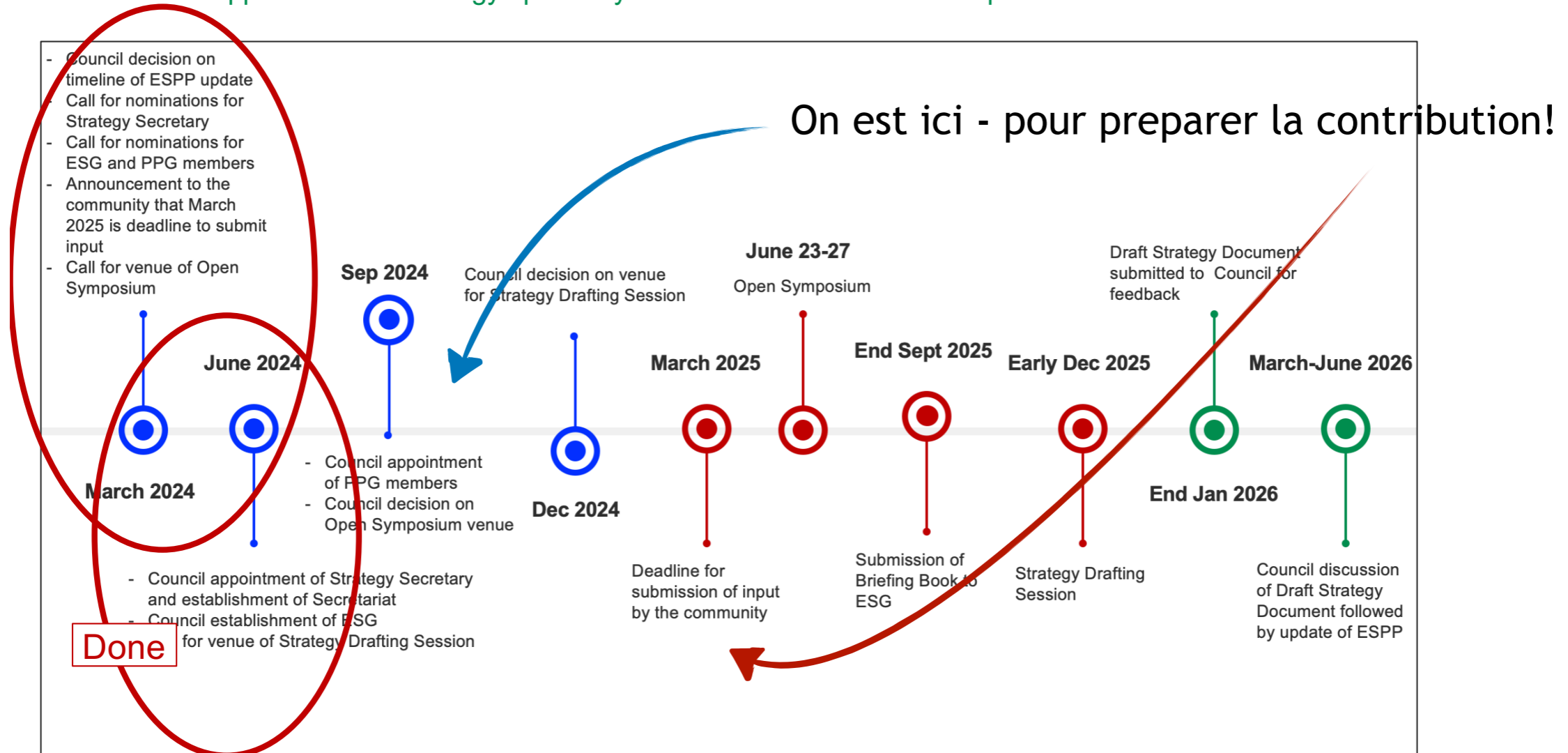
From F. Gianotti's slides (Summer 2024)

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CERN

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EPPSU 2025 : "remit"



European Strategy Group (ESG) remit

Approved by Council in June

The remit of the European Strategy Group (ESG), established in June 2024, is to develop an update of the European Strategy for Particle Physics and submit it for approval by the Council. [The aim of the Strategy update should be to develop a visionary and concrete plan that greatly advances human knowledge in fundamental physics through the realisation of the next flagship project at CERN. This plan should attract and value international collaboration and should allow Europe to continue to play a leading role in the field.](#)

The ESG should take into consideration:

- the input of the particle physics community;
- the status of implementation of the 2020 Strategy update;
- the accomplishments over recent years, including the results from the LHC and other experiments and facilities worldwide, the progress in the construction of the High-Luminosity LHC, the outcome of the Future Circular Collider Feasibility Study, and recent technological developments in accelerator, detector and computing; the international landscape of the field.

[The Strategy update should include the preferred option for the next collider at CERN and prioritised alternative options to be pursued if the chosen preferred plan turns out not to be feasible or competitive.](#) The Strategy update should also indicate [areas of priority for exploration complementary to colliders](#) and for other experiments to be considered at CERN and at other laboratories in Europe, as well as for participation in projects outside Europe.

The ESG should review and update the Strategy and add other items identified as relevant to the field, including accelerator, detector and computing R&D, the theory frontier, actions to minimise the environmental impact and to improve the sustainability of accelerator-based particle physics, the strategy and initiatives to attract, train and retain the young generations, public engagement and outreach.

[The ESG should submit the proposed Strategy update to the Council by the end of January 2026.](#)

From F. Gianotti's slides (Summer 2024)

EPPSU 2025 : points clé

"The aim of the Strategy update should be to **develop a visionary and concrete plan** that greatly advances human knowledge in fundamental physics through the **realisation of the next flagship project at CERN.**

This plan should attract and value international collaboration and should **allow Europe to continue to play a leading role in the field.**"

"The Strategy update should include the **preferred option for the next collider at CERN** and **prioritised alternative options to be pursued** if the chosen preferred plan turns out not to be feasible or competitive."

F. Gianotti (Summer 2024)

EPPSU 2025 : contribution française

Contribution française = **IN2P3/CNRS & IRFU/CEA**, document de **10 pages**

Cadrage - L. Vacavant et N. Besson

GT1 : Modèle standard et au-delà [IRN Terascale] **(4/10 & 13/11)**

Pilotage : Fabrice Couderc, Marie-Hélène Genest, Ana Teixeira

GT2 : Physique de la saveur et tests des interactions fondamentales [GDR Intensity Frontier]

Pilotage : Yasmine Ahmis, Giulio Dujany, Christopher Smith **(6/11)**

GT3 : Neutrinos (notamment Long-baseline) [IRN Neutrinos] **(9/10)**

Pilotage : Sara Bolognesi, Stéphane Lavignac, Anselmo Meregaglia

GT4 : QCD et collisions d'ions lourds [GDR QCD] **(19/09)**

Pilotage : Cyrille Marquet, Carlos Munoz Camacho, Michael Winn

GTS Scenarios (16/12)

Cristinel Diaconu, Jeremy Andrea, Maarten Boonekamp et Stéphane Monteil

Collecte d'input direct : 25 octobre ; Symposium de restitution 20-21 janvier 2025

EPPSU 2025 : ECFA questionnaire

Questions to be considered by countries/regions when forming and submitting their “national input” to the ESPP:

a) Which is the preferred next major/flagship collider project for CERN?

b) What are the most important elements in the response to 3a)?

- i) Physics potential*
- ii) Long-term perspective*
- iii) Financial and human resources: requirements and effect on other projects*
- iv) Timing*
- v) Careers and training*
- vi) Sustainability*

c) Should CERN/Europe proceed with the preferred option set out in 3a) or should alternative options be considered:

- i) if Japan proceeds with the ILC in a timely way?*
- ii) if China proceeds with the CEPC on the announced timescale?*
- iii) if the US proceeds with a muon collider?*
- iv) if there are major new (unexpected) results from the HL-LHC or other HEP experiments?*

d) Beyond the preferred option in 3a), what other accelerator R&D topics (e.g. highfield magnets, RF technology, alternative accelerators/colliders) should be pursued in parallel?

e) What is the prioritised list of alternative options if the preferred option set out in 3a) is not feasible (due to cost, timing, international developments, or for other reasons)?

f) What are the most important elements in the response to 3e)? (The set of considerations in 3b should be used).

EPPSU 2025 : ECFA questionnaire

The remit given to the ESG also specifies that “The Strategy update should also indicate areas of priority for exploration complementary to colliders and for other experiments to be considered at CERN and at other laboratories in Europe, as well as for participation in projects outside Europe.” It would thus be most useful if the national inputs explicitly included the preferred prioritisation for non-collider projects. Specific questions to address:

- a) What other areas of physics should be pursued, and with what relative priority?*
- b) What are the most important elements in the response to 4a)? (The set of considerations in 3b should be used).*
- c) To what extent should CERN participate in nuclear physics, astroparticle physics or other areas of science, while keeping in mind and adhering to the CERN Convention? Please use the current level and form of activity as the baseline for comparisons.*

EPPSU 2025 : Discussion @ LPCA

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