



CIPEA

CERN Innovation Programme
on Environmental Applications

CIPEA Innovation Day Conclusions

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Environmental Applications: Key Areas for CERN

RENEWABLE AND LOW-CARBON ENERGY

Production
Transformation
Distribution
Storage



CLEAN TRANSPORTATION AND FUTURE MOBILITY

Aviation
Shipping
Rail
Automotive



CERN KNOWHOW

Superconductivity
High Field Magnets
High Vacuum
Cryogenics
Materials
Artificial Intelligence
Advanced Sensors
Rad-Tol Systems
Thermal Control
Radioprotection
...

SUSTAINABILITY AND GREEN SCIENCE

Power Management
Heat Management
Industrial Processes



CLIMATE CHANGE AND POLLUTION CONTROL

Monitoring
Modelling
Mitigation



Bundling efforts to increase efficiency and visibility



Compact Fusion Energy Systems

Accelerator Driven Nuclear Systems

Technologies for Hydrogen storage and handling

Protection systems for SC based energy generators

Fast, low-power, advanced ML/DL based computing

Energy saving techniques based on digital twins

Platforms for consumption and emissions monitoring and optimization

SC technologies for on-board and long distance energy distribution

Technologies for fuel cells, batteries and PV efficiency improvement

Efficient, low GHG thermal control systems

Detectors and instruments for environmental monitoring

Fast, autonomous long distance transportation

Accelerator technologies for on-board and industrial pollution reduction

AI platforms for environmental modelling



CIPEA submitted proposals



CIPEA phases

IDEATION

March-May 2022

Identify new ideas
(done)

PITCHING

June 2022

Discuss and
celebrate
selected projects
(today)

IMPLEMENTATION

Starts in July 2022

Define support strategies

CIPEA implementation

- Support strategies will be defined for every CIPEA project
- Options include:
 - Use of internal instruments like the KT Fund or the Impact Fund
 - Establishment of bilateral partnerships with external organisations
 - Coordination or participation to EU or national projects
 - Other possible internal funding options tbd
- A KT Fund session with focus on environmental projects will be organised on 22 September (deadline to apply: 8 August)
- KT team will liaise with the technical departments representatives and reach every CIPEA project team to discuss next steps on a case by case basis

COULD YOUR TECHNOLOGY BE APPLIED OUTSIDE OF HIGH-ENERGY PHYSICS?

The Knowledge Transfer (KT) group can help you find resources to accelerate your project



Apply for the Knowledge Transfer fund or Medical Applications budget by **8 August 2022**

If your technology can be applied to healthcare, you should apply for the MA budget, and present a brief proposal to the Medical Applications Project Forum on 15 June or 13 July. We especially look forward to welcoming project proposals which support the environment through the CERN Innovation Programme on Environmental Applications (CIPEA).

Conclusions

- The amount and variety of ideas submitted demonstrates that there is a broad and strong interest from experts across CERN to contribute
- The CIPEA team will, together with the experts, determine the best way forward for each of the 15 approved ideas in the months to come
- IPT/KT will define and streamline a coherent strategy for CERN Environmental Applications to maximize impact on society and the return for the Organization in terms of image and direct benefits

Let's create real tangible impact together and show that CERN can help to tackle climate and environmental issues on a global scale!

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