



国际航空二氧化碳减排长期理想目标可行性 高级别会议（HLM-LTAG）

2022年7月19至22日，蒙特利尔

议程项目 2：国际航空长期全球理想目标的实施手段

支持各国筹措资金以实现宏伟的长期理想目标

（由捷克代表欧洲联盟及其各成员国¹和其他欧洲民用航空会议的各成员国²提交）

摘要

要实现宏伟的国际航空二氧化碳减排长期理想全球理想目标（LTAG）将要求采取多种实施手段，包括投资，用以资助低碳化航空运输所需的运营变更、技术改进以及对可持续航空燃料的更广泛的使用。

可想而知，有一些国家，大部分是那些航空系统成熟度较低的国家，尤其是发展中国家，将在承担相关成本和获取必要供资方面需要帮助和支持。这对于确保在航空的环境过渡期间没有任何国家掉队而言，至关重要。

本文件列举了多项可能的渠道，用于支持所有国家获得适当的实施手段以实现宏伟的长期理想目标，并提议了若干行动以确保实施手段得以实现。

会议的行动在第 5 段。

1. 适当的实施手段的必要性

1.1 航空环境保护委员会编制的长期理想目标报告评估了长期理想目标各情景相关的成本和投资（如非经常性成本、燃料成本、资本支出），以制定成本和投资在不同利害攸关方群体之间的总体和时间分布情况。

¹ 奥地利、比利时、保加利亚、克罗地亚、塞浦路斯、捷克、丹麦、爱沙尼亚、芬兰、法国、德国、希腊、匈牙利、爱尔兰、意大利、拉脱维亚、立陶宛、卢森堡、马耳他、荷兰、波兰、葡萄牙、罗马尼亚、斯洛伐克、斯洛文尼亚、西班牙和瑞典。

² 阿尔巴尼亚、亚美尼亚、阿塞拜疆、波斯尼亚和黑塞哥维那共和国、格鲁吉亚、冰岛、摩尔多瓦、摩纳哥、黑山、北马其顿、挪威、圣马力诺、塞尔维亚、瑞士、土耳其、乌克兰和联合王国。

1.2 许多成本和投资预期来自航空领域本身（如航空器和发动机制造商、航空公司、机场、燃料生产商和空中航行系统提供者），并在某种程度上体现在为航空服务所支付的价格。长期理想目标报告强调，为了特别支持航空器技术的发展，各国可能需要对研究和开发进行投资。长期理想目标报告将这些成本和投资置于了相关背景之下，并进行了解释。

1.3 支持此文件的国家认同实施国际航空二氧化碳减排长期理想目标将要求多种实施手段，包括排放标准、基于市场的措施，以及为确保发展中国家获得融资以帮助解决投资需求和其他成本而向其提供的协助。诚然，对于通过一项长期理想目标而言，可预期的关键益处之一即向国际航空领域吸引投资，用于减少其二氧化碳排放。

1.4 因此，助力可持续航空和实现目标意味着，各国必须确保拥有适当的实施手段以支持其实现宏伟的长期理想目标。这将包括但不限于研究和开发方案。一些国家当前在此方面资源禀赋较好，而其他配备条件较弱的国家，则应在其相关努力中得到支持，包括通过根据不让任何国家掉队倡议所提供的协助。通过知识分享和技术支持，将能在新兴创意市场（如可持续航空燃料）中创造商业和创收机遇。

1.5 国际民用航空低碳化也将取决于能源领域的低碳化，同时需虑及其他模式和产业自身的清洁能源需求。与此同时，能源过渡也代表着机遇——绿色电力和绿色燃料供应是在地球任何地方开发未充分利用的土地，从而在不同的创新活动中制造就业的方式。在此方面，发展中国家所拥有的原料构成了真切的资产。

1.6 与实现任何目标相关的投资和成本需相对来看（如相对于航空公司 2019 年的收入和至 2050 年的情况），但是提升燃料效率定有助于节约成本。这些成本也应相对于不采取行动的成本而言，后者可能造成更高的适应成本，以解决根据政府间气候变化问题小组所发现问题中认定的气候变化的后果。

1.7 国家行动计划是实施长期理想目标的关键。应增强国家行动计划在解决和报告国际航空二氧化碳排放中扮演的角色，同时也将其用作查明差距和任何实施支助方面的需求的方式。每个国家制定一份国家行动计划应成为强制性要求（2024 年之前），计划应有稳健的内容以期实现相关的长期理想目标。

2. 获取气候变化缓解的公共资金

2.1 如本文件附录所列，有众多财务支持来源可为各国用于航空减排，以助力实现长期理想目标。

2.2 国际民航组织和联合国开发计划署（UNDP）援助项目（2015-2019）（参见 HLM-LTAG-WP/6 号文件）拟定的航空减排融资指南中包含各国可用于寻找财务支助的宝贵资源，因为其提供了用于缓解航空排放的公共筹资方案目录。

2.3 一项关于可用基金的分析显示，有数目可观的财务资源正被引向与气候变化缓解相关的方案，这些方案通过联合国、各跨国发展银行、非政府间组织和私营部门伙伴和利害攸关方，与公共气候融资紧密相联。

2.4 指南审视了赠款、贷款、债券、担保、保险以及直接股权投资，涉及多边气候基金、双边资助、多边和地区发展银行、地区和国家基金。指南对于如何寻找和获取融资提供协助，并覆盖可再生能源、能源效率、电气化和可持续航空燃料议题。

2.5 用于缓解航空排放的公共融资方案目录包括 21 个不同方案，载于本文件附录。

2.6 实施长期理想目标需要强调维护、推广和增强该指南的重要性，以及国际民航组织和气候融资国家所发挥的关键作用，其可促成需要航空气候融资的国家与相关方案和供资来源建立联系。

3. 激励私营部门投资支助长期理想目标

3.1 要实现宏伟的长期理想目标还将要求筹措私人投资，使其投入有助于实现民用航空低碳化的项目、方案和举措。

3.2 该资金对于加快创新和推动航空器效率提升和污染降低方面的发展，直至生产出零排放航空器而言必不可少，这将提升每个航班的环保绩效并降低其对气候变化的影响。

3.3 此外，这些投资将对于生产和利用可持续航空燃料直至实现宏伟的长期理想目标所需的程度至关重要。鉴于未来数十年将对更广泛的可持续航空燃料产生大量需求，此方面经济发展存在巨大潜能，对于诸多发展中国家尤是。尽管如此，这些国家及其企业和公民在寻找和获取必要的私营部门投资方面仍存在困难，而导致项目难有进展。

3.4 国际民航组织能够扮演重要角色，可以通过支持国家、捐助者、国际投资业界和行业间的对话，也可以通过探索可能的机制支持推动潜在投资者与投资需求，特别是发展中国家的投资需求间的匹配。

4. 自愿捐助和能力建设

4.1 此外，还需要通过能力建设和自愿捐助支持航空运输低碳化的必要过渡。

4.2 在此方面，提交此文件的各国对于 2022 年 6 月 1 日启动的“国际民航组织可持续航空燃料协助、能力建设、培训方案”（ACT-SAF）表示欢迎。各国、国际组织和行业均应为此方案贡献力量。一旦长期理想目标得到批准，这是编制覆盖面更广、涉及宏伟的长期理想目标所有方面的方案的第一步。

4.3 此外，应提高国际民航组织自愿环境基金的可见性，鼓励各国向其捐助，同时预留部分捐助专门用于国际民航组织就长期理想目标所开展的活动。

4.4 最后，可以以合作方案、技术协助和类似活动的形式，在双边基础上开展其他的能力建设和支助活动。

5. 国际航空二氧化碳减排长期理想目标可行性高级别会议的行动

5.1 请国际航空二氧化碳减排长期理想目标可行性高级别会议：

- a) 同意实施手段和能力建设方面的努力对于帮助所有国际民航组织国家实现宏伟的国际航空长期理想目标的重要性；
- b) 要求国际民航组织开展必要行动，推动其各缔约国获取现有的融资来源，以支持实现宏伟的长期理想目标；
- c) 邀请国际民航组织探索可能的举措，激励私营部门投资将有助于实现宏伟的长期理想目标的行动；和
- d) 号召各国和国际组织向国际民航组织提供自愿捐助，以此支持宏伟的长期理想目标，尤其是在“不让任何国家掉队”倡议的背景下。

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APPENDIX

DIRECTORY OF PUBLIC FINANCING PROGRAMMES FOR MITIGATING AVIATION EMISSIONS³

I. CLEAN TECHNOLOGY FUND (CTF)

ADMINISTERED BY THE CLIMATE INVESTMENT FUND AT THE WORLD BANK

PURPOSE

Increase the development of low carbon technologies including renewable energy.

FUNDING TYPES

Financing, senior loans, convertible grants/contingent recovery grants, equity, local currency swaps and guarantees, contingent recovery loans, subordinated debt, plus technical assistance and capacity building.

WEBSITE

www.climateinvestmentfunds.org/fund/clean-technology-fund

II. SCALING UP RENEWABLE ENERGY IN LOW INCOME COUNTRIES (SREP)

ADMINISTERED BY THE CLIMATE INVESTMENT FUND AT THE WORLD BANK

PURPOSE

Increase the development of renewable energy in developing countries.

FUNDING TYPES

Concessional Financing, senior loans, convertible grants/contingent recovery grants, equity, local currency swaps and guarantees, contingent recovery loans, subordinated debt, plus technical assistance and capacity building.

WEBSITE

www.climateinvestmentfunds.org/fund/scaling-renewable-energy-program

III. GLOBAL ENERGY EFFICIENCY AND RENEWABLE ENERGY FUND (GEEREF)

ADMINISTERED BY GEEREF WITH SUPPORT FROM THE EUROPEAN INVESTMENT BANK GROUP

PURPOSE

Provide attractive, low risk financial investments that will produce economic, environmental, and social benefits.

FUNDING TYPES

Invests public and private risk capital in private equity funds, which provide equity financing for small and medium sized renewable energy and energy efficiency projects in emerging economies.

WEBSITE

geeref.com

IV. THE GLOBAL ENVIRONMENT FACILITY (GEF)

ADMINISTERED BY THE GEF

PURPOSE

To help developing countries and countries with economies in transition to meet the objectives of international environmental conventions and agreements.

FUNDING TYPES

Multilateral grants, contingent loans, loan to grant, mitigate technology specific risks, microfinancing for residences.

³ Source: [FinancingLowCarbonAirportGuidance_4 \(icao.int\)](#)

WEBSITE

www.thegef.org

V. GREEN CLIMATE FUND (GCF)

ADMINISTERED BY THE GCF BOARD UNDER THE UNFCCC, WITH SUPPORT FROM THE WORLD BANK

PURPOSE

To advance the goal of keeping the temperature increase on earth below two degrees Celsius by investing into low-emission and climate-resilient development.

FUNDING TYPES

Variety of financial instruments available, including grants, concessional loans, subordinated debt, equity, and guarantees, giving flexibility to match project needs. Risk-bearing capacity, allowing the Fund to support innovation and leverage and crowd in additional financing.

WEBSITE

www.greenclimate.fund

VI. GLOBAL CLIMATE CHANGE ALLIANCE (GCCA)

ADMINISTERED BY THE EUROPEAN COMMISSION UNDER THE EUROPEAN UNION (EU)

PURPOSE

To help the most vulnerable and least developed countries address climate change through support of their national programmes.

FUNDING TYPES

National budget support with funds sent directly to the country in tranches with supplemental funds delivered on completion of first programme.

WEBSITE

www.gcca.eu

VII. NEIGHBORHOOD, DEVELOPMENT AND INTERNATIONAL COOPERATION INSTRUMENT (NDICI)

ADMINISTERED BY THE EUROPEAN COMMISSION UNDER THE EUROPEAN UNION

PURPOSE

To support EU Development Policy and "Agenda for Change" including sustainability goals.

FUNDING TYPES

Grants to organizations or projects being developed by them. Contracts through tendering process for goods and services. Budget support to countries through financial transfers to national treasuries. Funding directly to specific in-country sectors.

WEBSITE

<https://ec.europa.eu/international-partnerships/global-europe>

VIII. PILOT AUCTION FACILITY FOR METHANE AND CLIMATE MITIGATION (PAF)

ADMINISTERED BY THE WORLD BANK WITH FUNDING FROM THE GOVERNMENTS OF GERMANY, SWEDEN, SWITZERLAND, AND THE UNITED STATES

PURPOSE

To support a market for carbon credits.

FUNDING TYPES

Grants to organizations or projects being developed by them. Contracts through tendering process for goods and services. Budget support to countries through financial transfers to national treasuries. Funding directly to specific in-country sectors.

WEBSITE

<https://www.pilotauctionfacility.org/>

IX. AFRICA CLIMATE CHANGE FUND (ACCF)

ADMINISTERED BY THE AFRICAN DEVELOPMENT BANK, FINANCED BY VARIOUS CLIMATE FUNDS AND DONOR COUNTRIES

PURPOSE

To support low carbon development and climate resiliency.

FUNDING TYPES

Grants for capacity building, strategic planning, policy development, project implementation.

WEBSITE

www.afdb.org/en/topics-and-sectors/initiatives-partnerships/africa-climate-change-fund/

X. SUSTAINABLE ENERGY FUND FOR AFRICA (SEFA)

ADMINISTERED BY THE AFRICAN DEVELOPMENT BANK, FINANCED BY THE GOVERNMENTS OF DENMARK AND THE UNITED STATES

PURPOSE

To support private sector-led small and medium scale renewable energy development in Africa.

FUNDING TYPES

Grant funding to target renewable energy development from feasibility to financial close. Grants for technical assistance and project preparation. Equity investments through the Africa Renewable Energy Fund, managed by Berkeley Investments. Grants to fund public activities that enable private investments

WEBSITE

www.afdb.org/en/topics-and-sectors/initiatives-partnerships/sustainable-energy-fund-for-africa/

XI. INTERNATIONAL CLIMATE FUND (ICF)

ADMINISTERED BY THE GOVERNMENT OF THE UNITED KINGDOM

PURPOSE

As the United Kingdom's primary source of climate finance, it funds existing multilateral and national programmes focused on supporting private sector innovation and public-private partnerships, including renewable energy development in Africa.

FUNDING TYPES

Project grants, investments in climate funds. Grants primarily provided for bilateral projects. Concessional loans provided to multilateral programs.

WEBSITE

www.gov.uk/government/publications/international-climate-fund/international-climate-fund

XII. INTERNATIONAL CLIMATE INITIATIVE (IKI)

ADMINISTERED BY THE GERMAN FEDERAL MINISTRY FOR THE ENVIRONMENT, NATURE CONSERVATION, BUILDING AND NUCLEAR SAFETY

PURPOSE

To mitigate GHG emissions, adapt to climate change, conserve carbon sinks, and conserve biodiversity.

FUNDING TYPES

Grants to support policy advice, capacity building and appropriate training measures, and also technological lighthouse projects and technological cooperation scheme.

WEBSITE

www.international-climate-initiative.com/en/

XIII. NAMA FACILITY

ADMINISTERED BY THE NAMA BOARD AND IMPLEMENTED BY DEUTSCHE GESELLSCHAFT FÜR INTERNATIONALE ZUSAMMENARBEIT (GIZ) GMBH

PURPOSE

Implement ambitious mitigation projects in developing and emerging economies.

FUNDING TYPES

Funding for transformational changes in sector development driven by in-country planning and implementation.

WEBSITE

www.nama-facility.org

XIV. GLOBAL CLIMATE PARTNERSHIP FUND (GCPF)

ADMINISTERED BY THE INVESTMENT FIRM RESPONSABILITY INVESTMENTS AG, AND FINANCED BY THE GOVERNMENTS OF DENMARK, GERMANY, AND THE UK, THE INTERNATIONAL FINANCE CORPORATION, THE DEVELOPMENT BANKS OF AUSTRIA AND THE NETHERLANDS, AND PRIVATE INVESTORS

PURPOSE

Use public funding to leverage private capital in order to mitigate climate change and drive sustainable growth in developing and emerging markets.

FUNDING TYPES

Dedicated funding to local institutions in the form of senior or subordinated debt; mid- to long-term financing with flexible schedules; direct financing for projects in the late stage of development through direct funding primarily in the form of senior debt; maturities of up to 10 years; equity or mezzanine debt, provided in smaller amounts where this strengthens the funding package.

WEBSITE

www.gcpf.lu/investing-in-renewable-energy-and-energy-efficiency.html

XV. GLOBAL CLIMATE CHANGE INITIATIVE (GCCCI)

ADMINISTERED BY THE US AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)

PURPOSE

Support plans and programmes to mitigate and adapt to climate change in developing countries.

FUNDING TYPES

Various measures from direct technical assistance, grant funding, and financial supports through partner agencies.

WEBSITE

www.usaid.gov/climate

XVI. PRIVATE FINANCE ADVISORY NETWORK (PFAN)

ADMINISTERED BY THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION AND THE RENEWABLE ENERGY AND ENERGY EFFICIENCY PARTNERSHIP

PURPOSE

Provide free business consulting services to early stage clean energy development projects in emerging economies.

FUNDING TYPES

Free advisory services, networking to bring entrepreneurs in the developing world together with investors from the developed world.

WEBSITE

cti-pfan.net

XVII. POWERING AGRICULTURE: AN ENERGY GRAND CHALLENGE FOR DEVELOPMENT

ADMINISTERED BY THE US AGENCY FOR INTERNATIONAL DEVELOPMENT

PURPOSE

Support new and sustainable approaches to accelerate the development and deployment of clean energy solutions for increasing agriculture productivity and/or value in developing countries.

FUNDING TYPES

Grants, technical assistance to develop work plans, access to business technical firms and consultants, communication with investors, advisory services for business development and marketing.

WEBSITE

www.poweringag.org/

XVIII. UAE SOUTH PACIFIC PARTNERSHIP FUND (UAE-PPF)

ADMINISTERED THE ABU DHABI FUND FOR DEVELOPMENT AND FINANCED BY THE GOVERNMENT OF THE UNITED ARAB EMIRATES

PURPOSE

To diversify energy mix and advance sustainability.

FUNDING TYPES

Grants and technical assistance.

WEBSITE

<http://www.masdar.ae>

XIX. IRENA / ADFD PROJECT FACILITY

ADMINISTERED THE INTERNATIONAL RENEWABLE ENERGY AGENCY (IRENA) AND FINANCED BY THE ABU DHABI FUND FOR DEVELOPMENT (ADFD)

PURPOSE

To overcome financial barriers to clean energy development.

FUNDING TYPES

IRENA provides technical assistance and capacity building, ADFD provides concessionary loans.

WEBSITE

adfd.irena.org

XX. PACIFIC ENVIRONMENT COMMUNITY (PEC) FUND

ADMINISTERED THE PACIFIC ISLAND FORUM SECRETARIAT

PURPOSE

To install renewable energy and sea water desalination projects to solve energy and drinking water problems.

FUNDING TYPES

Grants for solar power generation systems and sea water desalination plants or a combination of both.

WEBSITE

www.forumsec.org/pages.cfm/strategic-partnerships-coordination/pacific-environment-community-pec-fund

XXI. UAE-CARIBBEAN RENEWABLE ENERGY FUND

ADMINISTERED THE ABU DHABI FUND FOR DEVELOPMENT AND FINANCED BY THE GOVERNMENT OF THE UNITED ARAB EMIRATES

PURPOSE

To diversify energy mix and advance sustainability.

FUNDING TYPES

Grants and technical assistance.

WEBSITE

<http://www.masdar.ae>