International Civil Aviation Organization

WORKING PAPER

A41-WP/545
EX/259
13/9/22
(Information paper)
English only

ASSEMBLY — 41ST SESSION

EXECUTIVE COMMITTEE

Agenda Item 17: Environmental Protection – International Aviation and Climate Change

MEANS OF IMPLEMENTATION OF A LONG-TERM ASPIRATIONAL GOAL FOR AIR TRANSPORT

(Presented by Airports Council International (ACI), Civil Air Navigation Services Organisation (CANSO), International Air Transport Association (IATA), International Business Aviation Council (IBAC) and International Coordinating Council of Aerospace Industries Associations (ICCAIA) coordinated by Air Transport Action Group (ATAG))

EXECUTIVE SUMMARY

The information paper supports A41-WP/466 which details the industry's view that adoption of a long-term aspirational goal for international civil aviation is critical to supporting industry action to address its climate impacts and enable it to achieve net-zero carbon emissions by 2050. This paper outlines some of the means of implementation that the Council could consider to support the adoption and deployment of a long-term aspirational goal.

1. INTRODUCTION

1.1 In October 2021 the collective air transport industry raised its climate ambition with a new long-term commitment: net-zero carbon by 2050, supported by accelerated deployment of a comprehensive programme of effective emission reduction, energy transition and innovation across the aviation sector and in partnership with governments around the world.

1.2 The industry invites Governments meeting at ICAO to adopt a sector-wide long-term aspirational goal for aviation climate action, in line with the Paris Agreement stretch goal of 1.5ºC and backed by the latest scientific advice on limiting the worst impacts of climate change.

1.3 Reaching that agreement, and operationalising it at a global level, will require a global effort including commitments to capacity building, transfer of technology and financing of the transition away from fossil fuels and towards new forms of sustainable energy.

1.4 It is important to acknowledge that in a global system different circumstances and levels of capacity exist and there are different speeds of development between countries. International aviation can deal with these differences pragmatically, showing global ambition in line with climate science (the need to aim for net-zero emissions), whilst also putting in place the right tools to help support those States

without as much pre-existing knowledge in mitigating, adapting or transitioning energy supply, or which have the need and desire to develop their economic situation. Growth of aircraft operations and economic prosperity can take place in a low-carbon world.

1.5 This paper outlines some of the possible options that should be considered as means of implementation of a long-term aspirational climate goal for air transport. Some of these will be implementable through the ICAO structure and processes, some may be in parallel multilateral or bilateral arrangements.

2. THE IMPORTANCE OF MARKET AND INVESTMENT CERTAINTY

2.1 In all parts of every economy, the climate challenge will require significant investment to realise the 1.5C pathway. Aviation is no different. However, many studies have shown that the whole-of-economy cost of not reaching Paris Agreement targets will be far higher in the long-run than the cost of transition in the coming decades[1].

2.2 In order to fund the investment required, particularly in new technology solutions and the build-up of sustainable aviation fuel infrastructure, a level of market certainty is required to ensure investments decisions can be made with confidence. Having a global-level agreement will help work towards a level playing field for international aviation, assist in de-risking the necessary investments and minimising competitive distortions. A long-term goal will help deliver that at a global level, but to ensure projects can be funded in countries all over the world, a combination of the following means of implementation will be vital.

3. CAPACITY BUILDING

3.1 With different levels of knowledge in many parts of the world, there is a clear and urgent need for capacity building on decarbonisation. Not all States or regions will share the exact same approach – different market and technology conditions and levels of maturity in decarbonisation options exist and should be part of individual approaches tailored for each State, ensuring an inclusive transition between all States.

3.2 The ICAO State Action Plans process has proven to be a valuable tool for helping countries determine opportunities for efficiency improvements across the basket of measures and working alongside the industry and other stakeholder groups. By July 2022, 133 Member States, covering over 98% of traffic, have submitted their State Action Plans already with capacity building assistance from both the European Union and UNDP. With a clear long-term goal agreed, this process could also assist States in developing plans of action for decarbonisation in their own national context, taking into account local conditions.

3.3 ICAO's ACT SAF project will help build readiness for SAF development in particularly developing nations. Whilst the full roll-out of such a system may be most appropriate following the CAAF/3 and associated decisions, the development of SAF industries and opportunities are an urgent priority.

[1] SwissRe study: 10% contraction in the global economy by 2050 if Paris Agreement reductions are not met (www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf)

Partnerships through ICAO or bilaterally should be identified as soon as possible, and can always be refined following CAAF/3. This will be augmented by the proposed ICAO ACT LTAG project.

3.4 Industry would encourage member States, particularly from the developed world, to facilitate multilateral and bilateral capacity building across the range of technology and energy mitigation options. "Buddy system" approaches could be a useful tool to transfer knowledge and build understanding of the opportunities that exist.

4. FINANCING

4.1 The transition will require significant investment at a global level, with investment in infrastructure for SAF production and deployment estimated at $1.45 trillion, for example. The industry understands this and believes the cost elements are a manageable part of doing business in a low-carbon world.

4.2 Access to financing by all will be vital to the transition. It is likely that a blended finance approach will be most effective, bringing in initial public finance (policy approaches within countries, as well as support from multilateral development banks and other donor-lead opportunities), but with the significant support for scale-up of SAF supply coming from private and institutional investors. More information about how this could evolve can be found in the Appendix to this information paper.

4.3 Financing will be needed in the following areas: sustainable aviation fuel production and deployment; green hydrogen, renewable energy, and low-carbon electricity investment; air traffic management modernisation; research and technology for new aircraft; new aircraft fleet financing; airport infrastructure decarbonisation and adaptation, including amongst other items: terminal buildings; renewable energy deployment; maintenance facility upgrades.

4.4 Alignment and disclosure of environmental, social and governance (ESG) factors will assist the sector transition to net zero in aviation by facilitating access to sustainable finance and investment. Bloomberg estimates that the total value of ESG investments is on track to exceed $53 trillion by 2025, accounting for more than a third of all global investments[2].

4.5 Industry would encourage member States, particularly from the developed world, to find ways to facilitate multilateral and bilateral financing arrangements to help developing States or industry, (both aviation and energy) access the investment capital needed to finance the decarbonisation of air transport. There is also an important role for the multilateral development banks and international development agencies, as well as ICAO in assisting in this process. Capacity building will also help developing countries to access finance.

5. TECHNOLOGY TRANSFER

5.1 The UNFCCC notes that all Parties shall promote and cooperate in the development and transfer of technologies that reduce emissions of GHGs. It also urges developed country Parties to take all practicable steps to promote, facilitate and finance the transfer of, or access to, climate technologies to other Parties, particularly to developing countries.

[2] www.bloomberg.com/professional/blog/esg-assets-may-hit-53-trillion-by-2025-a-third-of-global-aum/

5.2 In an aviation context, the transfer of modern aircraft technology has been facilitated through both funding mechanisms such as export/import banks and the move towards more leasing of aircraft. Many operators in developing and emerging economies are already investing in technology to increase efficiency, and flying the latest and most efficient aircraft. Likewise, the possibility to leapfrog technology generations and move directly to satellite-based navigation in air traffic management is now a reality.

5.3 However, there is some potential for technology transfer mechanisms to be established in several key areas including sustainable aviation fuels and hydrogen supply.

6. POLICY GUIDANCE

6.1 A key enabling factor for success in industry decarbonisation will be smart policy environments that enable innovation and energy transition in the most cost-effective and rapid manner, aligned in different economies around the world. Guidance on the most optimum policies which can respond to the challenge is already being made available and should be part of any capacity building efforts. Consistency of global policy approaches can help, whilst ensuring different States have the ability to develop policies responding to their national situations.

6.2 For sustainable aviation fuel deployment, several policy guidance toolkits have already been developed, including the ICAO *Guidance on Potential Policies to Advance the Deployment of Sustainable Aviation Fuel* and the *Sustainable Aviation Fuel Policy Toolkit* developed by Kenya, the Netherlands, Singapore, United Arab Emirates and United Kingdom[3]. These provide a useful menu of policy options, but each policy should be developed in a national context and with local industry stakeholders guidance to ensure the optimum policy framework for each State.

6.3 Out-of-sector measures will be needed to meet part of the net-zero goal, both in practical terms and to ensure flexibility of options for the industry. This lever will require a robust set of sustainability criteria to be established. The CORSIA framework for sustainability should be a benchmark at a global level – both for CORSIA itself and other market-based measures. Importantly, the current offset opportunities could evolve towards nature-based carbon sinks and technological carbon removal opportunities develop which creates a need to consider, as soon as possible, the necessary conditions to account for CO2 emission reductions from such measures and include them in the CORSIA guidance.

7. TIMETABLE

7.1 Assuming an agreement is able to be reached at the 41st ICAO Assembly, the scale-up of action will need to start rapidly. Already, a number of industry partners have started their own process towards decarbonisation, but that effort needs to be expanded both in scale and geography, and by bringing in government efforts around the world.

7.2 The sector has just 28 years to achieve some historic things. This is a challenge, but not unprecedented: the jet engine first entered military service in 1944, just 30 years after the first commercial airline service began. And whilst some of the more advanced potential building blocks such as

[3] www.weforum.org/reports/clean-skies-for-tomorrow-sustainable-aviation-fuel-policy-toolkit/

hydrogen-powered aircraft have yet to be matured, the industry could pursue much of our decarbonisation approach with existing technology pathways and energy transition.

7.3 Following a successful outcome of the ICAO Assembly in 2022, the industry would like to see a rapid scale-up in capacity building by ICAO, supported by developed States, as well as significant discussions between financing providers (such as the multilateral development banks and private and institutional investors) and the States which will need assistance.

8. TRACKING PROGRESS TOWARDS A LONG-TERM ASPIRATIONAL GOAL

8.1 Whilst it will be important to track the progress towards the long-term goal, there exist several metrics that will help in that process. CORSIA monitoring, reporting and verification standards and established systems (e.g. CCR) as well as State Action Plans can be used, along with existing and in-development global data sets on fuel use (such as the IEA) and SAF production.

8.2 Industry's recommendation is that existing and in-development tools are used to track progress, rather than duplicate or add new reporting requirements which would increase the administrative burden and related costs for both States and operators.

9. CONCLUSIONS

9.1 The industry recognises that in order for a long-term goal to be successful, the underlying elements of the means of implementation (particularly capacity building and access to financing) need to be available to all States. Industry encourages a robust programme of action to be developed, with support of industry, to ensure the greatest chance of success for a long-term aspirational climate goal.

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APPENDIX

Briefing note | September 2022

ACCELERATING ADOPTION OF SUSTAINABLE AVIATION FUEL: FINANCING AND RELATED ISSUES

Follow-up notes from an informal ICAO Council briefing in June 2021 by CDPQ[1] with questions by ATAG[2]

Since the air transport industry's adoption of a 2050 net zero carbon goal last October, a key issue is the acceleration of a program of effective emission reduction, energy transition and innovation in the industry. A critical element is the availability and use of fuels that have a lower carbon footprint: sustainable aviation fuel (SAF). Two major challenges for accelerating the provision and adoption of SAF are (i) the large and growing size of the jet fuel market and hence significant financial outlays that are required (including for storage and distribution), and (ii) the hurdles created by cost of SAF which is higher than petroleum-based jet fuel. This Note discusses a number of issues related to these challenges and the likely options for meeting them.

Is there adequate capital to finance the move to SAF to meet the net zero goal?

There is no doubt that the move to SAF to meet the net zero goal will require significant outlays. While estimates vary somewhat, investments totaling up to $1.45 trillion[3] will be needed between now and 2050 for the infrastructure to deliver the needed quantities of SAF. The cost of purchasing that SAF (potentially around $5.3 trillion over the period[4]) by airlines also needs to be considered as part of the operational aspects of decarbonization. This reflects the fact that the global demand for jet fuel is likely to more than double over the next thirty years (from 320 million tonnes in 2019 to nearly 700 million tonnes by 2050), and despite the likely technological innovations, a very significant increase in SAF production.

The required outlays are large. But these are over a period of almost thirty years, thus for any given sub-period the investment requirements would be correspondingly smaller. More importantly, these outlays should be seen in the context of available resources globally. While public sector resources in most countries are constrained, very large amounts are potentially available from the private sector for investments in SAF. The latest estimates from the Financial Stability Board suggest that the private institutional sector has over $225 trillion in assets and these assets are likely to more than double by 2050. Thus, even a small proportion of investments by the private institutional sector (sometimes known as non-bank financial institutions, or NBFI) can finance the outlays needed for a significant acceleration in the production and utilization of SAF.

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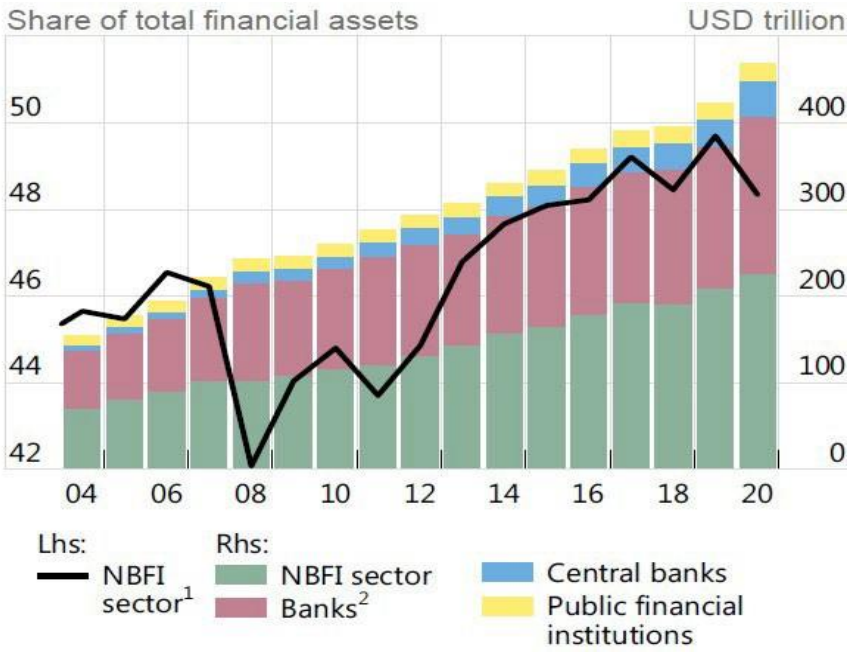
[1] Caisse de dépôt et placement du Québec is an institutional investor that manages several public and parapublic pension plans and insurance programs in Quebec with assets of nearly $400 billion. Answers drafted by Manmohan S Kumar for CDPQ

[2] Air Transport Action Group: www.atag.org

[3] Air Transport Action Group *Waypoint 2050* and *Fueling Net Zero* analysis: www.aviationbenefits.org/W2050

[4] Air Transport Action Group fact sheet on the cost of meeting net zero: www.atag.org/component/attachments/?task=download&id=1008:FACT-SHEET_15_cost-of-net-zero-transition. International aviation alone is estimated by the ICAO LTAG analysis to be around $4 trillion.



Global financial assets[5]

	Total global financial assets	Central Banks	Banks	PFIs	NBFI sector
Size at end-2020 (USD Trillion)	468.7	41.9	180.4	19.9	226.6
Share of total global financial assets (%)	100.0%	8.9%	38.5%	4.2%	48.3%
Growth in 2020 (y/y, %)	10.9%	32.3%	11.1%	7.7%	7.9%
Growth 2014-2019 (annualized, %)	5.0%	6.9%	3.7%	4.5%	5.9%

[5] Financial Stability Board: *Global Monitoring Report on Non-Bank Financial Intermediation 2021*.

Why would investments in SAF be attractive to the private sector?

There are several reasons why investments in SAF can be potentially attractive to the private institutional sector:

1. **Investment in SAF would help institutional investors meet their objectives regarding green energy.** The net zero commitment has increased markedly across a wide range of institutions over the past five years and is now widespread. Private financial institutions already have large infrastructure investments globally, and many - for instance, members of groupings such as GFANZ, the Institutional Leadership Network (ILN), Sustainable Markets Initiative (SMI), and Global Investors for Sustainable Development (GISD) Alliance - are helping the move to the transition to a net-zero economy. Investments in SAF would be thus highly complementary to these commitments. The Glasgow Financial Alliance for Net Zero (GFANZ) by itself brings together 450 firms managing $130 trillion in assets. These investors, together with governments and official agencies, are attaching significant importance to climate change investments.

2. **The private institutional sector has a strong preference for projects that yield a steady stream of cashflows and acceptable risk return-calculus**. As discussed below, risk-return trade-off for investing in SAF will become increasingly attractive as the countries' governments take measures to improve the policy environment, the public sector undertakes measures to ameliorate excessive risk, and as the market for SAF expands. In this regard, the role of the private sector investment in turbo-charging other renewables especially solar energy is striking.

3. **SAF can offer important diversification benefits as an asset class.** In other words, the strong likelihood that returns to SAF investments are not correlated with returns to equities or fixed income markets in other sectors and products would help stabilize the overall returns to a portfolio that has SAF as an asset. Similarly, there could be geographical diversification benefits in that SAF investments may occur in countries where investors' exposure in other assets is limited.

4. **Such investments would also provide an additional opportunity to work with domestic agencies and governments** to help meet their own goals for green investments and jobs and support the adaptation of strategic assets and activities (such as airports and airlines). For institutional investors, with long investment horizons and often the need or the desire to coinvest with the public sector in other areas, especially in emerging economies, this can constitute an important benefit.

What are the supply and cost calculus for accelerated development of SAF?

There is no doubt that the realization of net zero target by the aviation industry is highly dependent on airlines sourcing more sustainable aviation fuel and become less reliant on traditional fossil-based jet fuel. But then the supply of expected SAF that would be needed to achieve net zero by 2050 would require a quantum increase.

Currently SAFs are more expensive than traditional jet fuel. However, costs are expected to come down for advanced SAF pathways as technology and processes mature.

In order to accelerate the decarbonization of the sector, large quantities of sustainable aviation fuel at reasonable prices are needed in the near and medium term and beyond. Policy measures, as well as support for investment in the production facilities are required to help kick- start the transition away from fossil fuels. But this will bring other benefits, aside from the carbon reductions: currently, around 22 countries supply over 90% of global oil. SAF presents an opportunity for new energy industries to be established in many other countries worldwide making use of local feedstock resources (waste streams, solar other renewables, limited non- food crops, etc). Importantly, it is also estimated that such a global shift could support or sustain 14 million jobs in a new energy economy, as well as boost energy security for many countries[6].

Sustainable aviation fuel is currently in short supply. The biological and non-biological resources such as oil crops, sugar crops, algae, waste oil, waste gases, municipal solid waste, hydrogen and low-carbon electricity etc., that are the raw materials that play an important role in the entire production chain of SAF need to be expanded significantly. Investment also needs to be made in production plants – some would be greenfield opportunities, but there are many existing oil and gas production facilities that could usefully be retro-fitted into SAF-compatible units. Re- purposing existing or mothballed fossil fuel plants to generate low-carbon fuels is an excellent opportunity to retain jobs and make use of existing facilities.

Given that, as noted above, adequate funding can be available, what is needed is a virtuous cycle to create and expand the market, which will then, given the technology breakthroughs that are occurring by the day, will attract as much funding, on attractive terms, as needed.

What can be done to accelerate private sector investments in SAF?

Institutional investors have the resources that could help unlock the scale-up needed. What is required is the enabling environment that is conducive to a material increase in the market for SAF. A key element in this regard is improving expectations regarding the demand for SAF: long-term contracts with creditworthy agencies or airlines could play a critical role. This can play an important role in kick-starting the industry. At the same time, regulatory and legal frameworks that are transparent and predictable, as well as economic and financial stability at the macro level would be helpful.

As noted above, long-term institutional investors (comprising public pension funds, for example) have a stake in the developments of the economies they operate in. While risk-return calculus is relevant given their fiduciary duties, these are not investors that are focused only or even primarily on obtaining excessive returns. Nonetheless, given the rapid pace of innovation in SAF, and the long-term nature of investments there can be risks that private sector may be unable or unwilling to take given the expected returns.

[6] Air Transport Action Group *Fueling Net Zero* analysis: www.aviationbenefits.org/W2050

Measures and policies that can help reduce the risks can thus accelerate private investments. This is particularly so in emerging and developing economies. Just as important, there has to be an adequate development of pipeline of projects. In the latter context, capacity building and showing significant demand signals – either with government policy, or airline commitments to purchase SAF – is key.

Risks and uncertainties related to exchange rates, and regulatory and legal factors can constitute additional constraints. Were these constraints to be reduced or eliminated, large amounts of capital would be forthcoming.

What role can governments and multilateral development banks (MDBs) play in accelerating SAF?

Governments and MDBs are in theory well-suited to take the range of risks entailed in infrastructure investments, many over long-term. However, they do not have adequate resources, nor are the incentives and constraints necessarily consistent with mobilizing the quantum of needed investment for the scale-up that will be required. Nonetheless they can play an important role in facilitating the acceleration of private sector investments in SAF in several ways.

They can help ameliorate the risk-return nexus (via for instance blended finance – see below). But just as important is project preparation and the availability of project pipeline. Financing per se can only proceed if there are adequate, financeable projects available. This is an area that requires particular attention in many of the developing economies, and where MDBs and development finance institutions (DFIs), such as the Industrial Finance Corporation of India (IFCI), Industrial Development Finance Corporation of US (DFC), and Development Finance Institute (DFI) in Canada can play a constructive role.

With regard to governments, predictable policies that offer long-term visibility build market confidence. The experience with other renewables underlines this: for example in India, by setting up various government and state entities to help bolster the solar market, resolving congestion issues, and mitigating off-take risks, India sent a strong signal to investors about their commitment to harnessing the country's significant solar potential. Capital flowed in quickly, and India has since become a global leader in solar power. Similarly in the case of Chile, established regulatory framework and the presence of strong off-takers have been key to the rapid scale-up of solar investment in the country. Coupled with their commitment to decarbonization, Chile is credited to be the most attractive emerging market for clean energy investment.

What is blended finance and how can it be helpful?

Blended finance combines private funding with concessional public funds to mobilize capital that may not be forthcoming on strictly commercial terms. It is still in its early stages, despite having grown rapidly in the past decade[7]. Blended finance uses relatively small amount of public funding to rebalance a project's risk profile, helping mobilize private funding. In other words, limited public funds act as a "catalyst" for eliciting much larger amounts of private funds.

[7] "The State of Blended Finance 2021" Convergence 2021: www.convergence.finance/resource/0bbf487e-d76d-4e84-ba9e-bd6d8cf75ea0/view

This type of financing is particularly suited for projects, as in SAF production, when investors perceive the risks to be such that either because of the pioneering nature of a project or a challenging environment, returns have to be commensurately high. The use of blended finance can help ease investor concerns by including the right combination of debt, equity or grant financing, the right seniority of investors in terms of absorbing losses and earning returns, and appropriate risk-mitigation products. Blended financing for instance may seek to leverage long- term subordinated debt, a portion of which may be provided at concessional terms, to ameliorate the investment and crowd-in commercial senior debt at more competitive terms. Given that external investors want the returns in their currency, blended finance can help deal with the foreign exchange risk; and assist in the general development of a menu of instruments to modify or attenuate risks.

Blended finance guarantees can help mitigate demand risk. Blended finance has achieved notable success in Sub-Saharan Africa, financing climate-smart agribusiness and energy investments. It can help with risk mitigation measures, such as long-term power purchase agreements in the case of off-grid solar energy.

To stimulate large amounts of private funding, governments, DFIs, MDBs and philanthropic organizations need to make private capital mobilization a core part of their strategies. Blended finance can be mobilized through a platform approach, whereby a particular investment strategy for mixing public and private capital is used across a group of countries to catalyze increased private capital. Thus public resources can be used to modify the risk profile or blend private financing opportunities. These efforts complement support to governments for policy and business climate reforms.

Importantly, MDBs should assist governments with the creation of a pipeline of investible bankable projects; and encourage co-investing between the private sector and MDBs. We also need other innovative approaches: one of these is to complement the important country-specific approach to sustainable infrastructure with cross-country platforms.

The public sector can also be a catalyst in accelerating technological innovation by, for instance, exploring novel use of nontraditional raw materials (including carbon oxides, deconstructed plastic etc.) that will help cost competitiveness.

Can government subsidies help?

To the extent that government subsidies help with redressing the risk-return tradeoffs, public sector subsidies could certainly play a useful role. In this context it is helpful to draw some lessons from the evolution of other renewables in many countries – ranging from India, China, EU, Japan, USA (which were subsidized initially by governments)[8].

These subsidies helped address market failures, such as to deal with the price disparity with fossil fuels when environmental costs are not accounted for. Moreover, spill-over benefits from research and development and economies of scale justified subsidies in early years.

By increasing the deployment of renewables, subsidies played an important role in accelerating adoption and ramp up production to more rapidly bring scale and reduce reliance on fossil fuels and as well as greenhouse gas emissions.

The results of subsidies that played an important role in creating demand and stimulating technological breakthroughs are instructive: the cost of renewable energy has drastically fallen since 2010. Over the past

[8] *Energy Subsidies*, International Renewable Energy Agency 2020: www.irena.org/publications/2020/Apr/Energy-Subsidies-2020

10 years, the price of solar electricity dropped over 90%, and the price of onshore wind dropped 70%. The price of solar photovoltaic power (from solar panels) reduced from around $360 per megawatt hour to $40, the cheapest of any of the power options. Over the same time- period, the price of coal barely shifted, from $111 per megawatt hour in 2009 to $109 in 2019.

In 2009, building a new solar farm was 225% more expensive than building a new coal plant. Now, it has flipped: Electricity from a new coal plant is 175% more expensive than electricity from new solar panels (on a levelized basis—that is cost of electricity generation for a generator over its life-time). What caused the switch? Huge leaps in technological advancement, and like other technologies, the more that was produced, the cheaper it became to produce.[9].

In the case of SAF, and depending on the country, the private financial sector would not necessarily need the subsidies on the same long-term scale. They could of course help in the early stages of development but what is really needed is to create and expand the market at the same time we create the technology and production facilities. As investors see the expanding market they will invest in all stages of the production chain of SAF. There are a range of policy measures that could help the acceleration: these have been explored reports such as the *Sustainable Aviation Fuel Policy Toolkit*[10].

What other factors could help facilitate investment?

There is a critical need to ensure transparency and reduce uncertainties in the regulatory and legal environment. The governments have to set the right framework for action. To reduce the risk profile, countries need to make significant progress; upgrade their macro policy frameworks; have more macro stability and appropriate regulatory as well as legal frameworks; but many of these factors, and the related variables that go into credit ratings are slow moving (including institutional and economic profile, fiscal positions, debt stocks).[11]

Blended finance is a useful tool to help mitigate the excessive risks; goal of blended finance is to create "market equivalent" investments to mobilize private sector investment for climate (and SDG) projects.

[9] "Why did renewables become so cheap so fast", Max Roser in *Our World in Data* (Online science publication in partnership with Oxford University), December 2020)

[10] World Economic Forum and Energy Transitions Commission: www.weforum.org/reports/clean-skies-for-tomorrow-sustainable-aviation-fuel-policy-toolkit/

[11] For a recent summary of the measures government can take to improve their creditworthiness and prospects of attracting foreign capital, see a note by the head of IMF Kristalina Georgieva, and Tobias Adrian, "Public sector must play a major role in catalyzing private finance", IMF, August 18, 2022

What role can global cooperation play, and how can we ensure that capital doesn't just flow to the developed world and large developing markets?

There are many areas where global cooperation can play an important role in helping emerging market and developing countries accelerate the deployment of SAF. A low-hanging fruit is simply sharing knowledge, information and expertise in the development of SAF projects pipelines. Capacity building – through the ICAO ACT-SAF process as well as others – is very important as part of the means of implementation. There can be fruitful cooperation in the regulatory environment that is most conducive to SAF. Understanding what has worked, what hasn't and how to improve the framework within which the private sector will invest can be helpful. More generally, the pursuit of appropriate macro, financial and sectoral policies that will help SAF, and green infrastructure more generally, can be facilitated by global cooperation, bilaterally and multilaterally.

The global cooperation can play a role in setting common standards (including standardized long-term contracts), and in the case of multi-country platforms for blended finance, helping with the risk-return nexus, and the adoption of policies that can help ameliorate risks. These global cooperation measures, as well as measures noted above to improve the risk-return trade-offs, blended finance, and an improvement in domestic economic, financial and regulatory environment can go a long way towards ensuring that adequate capital is available for developing and emerging market economies. In the case of smaller economies, the portfolio approach, whereby strategies are developed for groups of countries (e.g. the Caribbean region, groups of Commonwealth countries, etc.) can ensure that country size is less of a hindrance to the flow of capital.

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