

SDG7 Energy Compact of Brazil (Bioenergy)

A next Decade Action Agenda to advance SDG7 on sustainable energy for all, in line with the goals of the Paris Agreement on Climate Change

SECTION 1: AMBITION

1.1. Ambitions to achieve SDG7 by 2030. *[Please select all that apply, and make sure to state the baseline of each target]*

(Member States targets could be based on their NDCs, energy policies, national five-year plans etc. targets for companies/organizations could be based on their corporate strategy)

<input type="checkbox"/> 7.1. By 2030, ensure universal access to affordable, reliable and modern energy services.	Target(s): Time frame: Context for the ambition(s):
<input checked="" type="checkbox"/> 7.2. By 2030, increase substantially the share of renewable energy in the global energy mix.	Target(s): Decarbonization target of 620 million tons of CO ₂ eq emissions reduction in the transport sector within 10 years, roughly equivalent to increasing the share of renewables in the transport sector from 25% to 30% by 2030. Time frame: By 2030 Context for the ambition(s): In 2018, the carbon intensity of Brazil’s fuels matrix was almost 73 gCO ₂ eq/MJ. With this decarbonization target, the goal is to achieve a carbon intensity of 66 gCO ₂ eq/MJ by 2030 – which represents a reduction of 10%. Currently, 25% of the transport sector is fueled with renewables. With Renovabio, the goal is to have almost 30% of renewable energy in the transport sector.
<input type="checkbox"/> 7.3. By 2030, double the global rate of improvement in energy efficiency.	Target(s): Time frame: Context for the ambition(s):
<input type="checkbox"/> 7.a. By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.	Target(s): Time frame: Context for the ambition(s):
<input type="checkbox"/> 7.b. By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programs of support.	Target(s): Time frame: Context for the ambition(s):

1.2. Other ambitions in support of SDG7 by 2030 and net-zero emissions by 2050. *[Please describe below e.g., coal phase out or reforming fossil fuel subsidies etc.]*

Target(s): Time frame: Context for the ambition(s):

SECTION 2: ACTIONS TO ACHIEVE THE AMBITION

2.1. Please add at least one key action for each of the elaborated ambition(s) from section 1.

- Yearly increase in the Renovabio Decarbonization target, so as to achieve higher emissions reductions and increase the share of renewables in the transport sector.	<i>Start and end date</i> 2021-2030
- The Brazilian government enacts the Brazilian national biofuels policy, denominated RenovaBio.	<i>Start and end date</i> Dec. 26 th , 2017
- The certification of Renovabio's Decarbonization Credits and the accreditation of inspection firms is regulated.	<i>Start and end date</i> Nov 23 rd , 2018
- RenovaBio emissions reduction credits start trading in the stock exchange.	April 2020
- On a yearly basis, the national mandatory target is split into individual targets, to be applied to all fuel distributors in proportion to their respective shares in the fossil fuel market in the previous year.	annual
- Methodology improvement, including in relation to the GHG emissions calculator (Renovacalc), for program expansion and further gains in system accuracy and (MRV).	annual 2021-2030
- New advanced biofuels, including for hard to abate sectors, such as aviation, are developed and included in the CBIO markets.	2027-2030
- Investment monitoring of additional capacity in biofuels production	annual
- The evolution of domestic biofuels production capacity is monitored	annual
- The supply, demand and prices of CBios are monitored	annual

SECTION 3: OUTCOMES

3.1. Please add at least one measurable and time-based outcome for **each** of the actions from section 2. *[Please add rows as needed].*

<i>Policy and regulatory support from the Biofuel Policy (Y/N)</i>	<i>annual</i>
<i>14,54 million tons of CO2eq emissions reduction</i>	<i>Date: December 31st, 2020</i>
<i>24,86 million tons of CO2eq emissions reduction</i>	<i>Date: December 31st, 2021</i>
<i>34,17 million tons of CO2eq emissions reduction</i>	<i>Date: December 31st, 2022</i>
<i>42,35 million tons of CO2eq emissions reduction</i>	<i>Date: December 31st, 2023</i>
<i>50,81 million tons of CO2eq emissions reduction</i>	<i>Date: December 31st, 2024</i>
<i>58,91 million tons of CO2eq emissions reduction</i>	<i>Date: December 31st, 2025</i>
<i>66,49 million tons of CO2eq emissions reduction</i>	<i>Date: December 31st, 2026</i>
<i>72,93 million tons of CO2eq emissions reduction</i>	<i>Date: December 31st, 2027</i>
<i>79,29 million tons of CO2eq emissions reduction</i>	<i>Date: December 31st, 2028</i>
<i>85,51 million tons of CO2eq emissions reduction</i>	<i>Date: December 31st, 2029</i>
<i>90,67 million tons of CO2eq emissions reduction</i>	<i>Date: December 31st, 2030</i>
<i>Share of renewables in the transport sector (%)</i>	<i>annual</i>
<i>Number of CBIOs sold units (1 unit = 1 ton of CO2eq)</i>	<i>annual</i>

SECTION 4: REQUIRED RESOURCES AND SUPPORT

4.1. Please specify required finance and investments for **each** of the actions in section 2.



It is estimated that the Program decarbonization target will require a total investment of USD 248 million, between CAPEX and OPEX. All the actions described in section 2 are necessary steps for the full implementation of the program and the setting of decarbonization credits market based on the emissions reduction target for this decade.

The Renovabio Program was designed with a view to providing an extra source of income for biofuel producers, in exchange for the environmental services provided. With an estimated price of USD10.00 per ton of CO2 emission avoided, the total of emissions avoided can generate more than USD 6 billion for biofuel producers over the next decade. Since more environmental benefit leads to more CBIOS, it is expected that, in addition to making biofuels even more competitive vis-à-vis fossil fuels, a part of this extra income will be used for technological improvements and for the expansion of production, including through increased productivity.

Additional financial resources and support might be required to accelerate the dissemination of new advanced biofuels, including to cover extra expenses in Life Cycle Analysis, and to eventually improve the technological database and provide support to other countries willing to establish similar biofuels market-oriented schemes to achieve SDG7 (7.2) by 2030 and to further decarbonize their energy matrix under the Paris Agreement.

4.2. [For countries only] In case support is required for the actions in section 2, please select from below and describe the required support and specify for which action.

[Examples of support for Member States could include: Access to low-cost affordable debt through strategic de-risking instruments, capacity building in data collection; development of integrated energy plans and energy transition pathways; technical assistance, etc.]

<input checked="" type="checkbox"/> Financing	<p><i>Description</i> Access to loans for CAPEX and OPEX for ethanol, biodiesel and biomethane production. These estimates do not include investments needed in, for instance aviation biofuels.</p> <table border="1" data-bbox="546 972 1163 1192"> <thead> <tr> <th>Investments USD (million)</th> <th>CapEx</th> <th>OpEx</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Ethanol</td> <td>12,16</td> <td>163,50</td> <td>175,65</td> </tr> <tr> <td>Biodiesel</td> <td>2,48</td> <td>62,52</td> <td>65,00</td> </tr> <tr> <td>Biomethane</td> <td>4,71</td> <td>3,47</td> <td>8,19</td> </tr> <tr> <td>Total</td> <td>19,35</td> <td>229,49</td> <td></td> </tr> </tbody> </table>	Investments USD (million)	CapEx	OpEx	Total	Ethanol	12,16	163,50	175,65	Biodiesel	2,48	62,52	65,00	Biomethane	4,71	3,47	8,19	Total	19,35	229,49	
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<input type="checkbox"/> In-Kind contribution	<p><i>Description</i></p>																				
<input type="checkbox"/> Technical Support	<p><i>Description</i></p>																				
<input type="checkbox"/> Other/Please specify	<p><i>Description</i></p>																				

SECTION 5: IMPACT

5.1. Countries planned for implementation including number of people potentially impacted.

Since this is a National Biofuels Policy, it is, for the moment, restricted to Brazil, with 210 million people being the direct beneficiaries of the air quality improvement, in particular the 80% of the population that reside in urban areas, in addition to the global benefit of CO2 emissions reduction. Brazil is open to sharing lessons learned to help other countries design similar mechanisms. Furthermore, the increase in the production of biofuels will generate more jobs, including in rural areas, contributing to rural and regional development.

5.2. Alignment with the 2030 Agenda for Sustainable Development – Please describe how **each** of the actions from section 2 impact advancing the SDGs by 2030.

[up to 500 words, please upload supporting strategy documents as needed]

- Renovabio is Brazil's National Biofuels Policy and Program, aiming to stimulate further reductions in the carbon intensity of the Brazilian transport sector, by expanding the use of biofuels, ensuring long-term



demand and creating a carbon credit market to offset emissions of greenhouse gases by fossil fuels. With this mechanism, Brazil will achieve significant a carbon emissions reduction in the transport sector, which has posed a particular challenge in global decarbonization efforts, which will contribute to further increase the share of renewable energy in Brazil's energy mix, representing a major contribution to SDG 7, as well as to SDG 13 ("Integrate climate change measures into national policies, strategies and planning", as well as "build capacity to reduce impact on the climate")

- Biofuels production will be certified through life cycle analysis, through inspection firms. Renovabio's eligibility requirement does not allow the certification of biomass resulted from deforestation, which is a contribution to SDG target 15.2: "promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally"). Biofuel producers must also demonstrate that biomass was produced in accordance with the Brazilian environmental legislation, which includes being up to date with the Rural Environmental Registry (CAR, acronym Portuguese). Each fuel will be graded with a specific level of carbon emissions. Biofuels produced with lower carbon intensity (relative to liquid fossil fuel) will generate more decarbonization credits (Cbio), a tradeable bond, per volume unit. Therefore, producers that are more efficient are rewarded with the possibility of issuing more financial assets (CBio) proportionally to the score of the biofuel produced.

- Fuel distributors must purchase CBIOs in order to comply with annual decarbonization targets set by the Renovabio Committee. Each distributor must buy CBIOs according to their market share in the previous year. Biofuel producers, with voluntary certifications, will be the ones selling CBIOs.

- Furthermore, Brazil has in place the "Social Fuel Certificate mechanism", which supports family farmers which participate in the biofuels production value chain. The concession of the Social Fuel Certificate will be granted to the biodiesel producer that promotes the social inclusion of family farmers included in the National Program for Strengthening Family Agriculture - PRONAF, through: 1) the signing of contracts for raw material purchases with family farmers or cooperatives qualified as agricultural companies; 2) the purchase of raw material contracted in a percentage not lower than the minimum defined in the current regulations established by Ministry of Agriculture, Livestock and Food Supply; 3) free technical assistance services to all family farmers contracted individually or through qualified agricultural cooperatives. This social and economic aspect supports the achievement of SDG8 (decent work and economic growth).

5.3. Alignment with Paris Agreement and net-zero by 2050 - Please describe how **each** of the actions from section 2 align with the Paris Agreement and national NDCs (if applicable) and support the net-zero emissions by 2050. [up to 500 words, please upload supporting strategy documents as needed]

The Ministry of Mines and Energy designed the Renovabio program, in a collaborative way, with contributions from different stakeholders, aiming to contribute to the Brazilian commitments under the Paris Agreement; to provide appropriate energy efficiency and greenhouse gases emissions reduction; to promote the expansion and use of biofuels in the Brazilian transport matrix; and to offer predictability to biofuel producers. For that reason, the program's contribution in supporting the continued growth of biofuels production has been mentioned in Brazil's updated NDC submission, on December 2020. The same document confirms Brazil's NDC to reduce its greenhouse gas emissions in 2025 by 37%, compared with 2005, and presents an additional commitment to reduce its emissions in 2030 by 43%, compared with 2005.

In relation to supporting net-zero emissions, it is important to underscore that the IEA's Roadmap to Net Zero report projects that sustainable bioenergy has to grow from 40 to around 100 EJ by 2050, and that liquid biofuels production have to more than quadruple from 1.6 to 7 million barrels of oil equivalent per day. Renovabio is an important instrument to help the biofuels sector achieve the scale of growth needed for net-zero emissions by 2050.

SECTION 6: MONITORING AND REPORTING

6.1. Please describe how you intend to track the progress of the proposed outcomes in section 3. Please also describe if you intend to use other existing reporting frameworks to track progress on the proposed outcomes.

The Renovabio's Committee was established by the Decree 9888/2019, with the following main attributions: i) monitor the supply and development of biofuel production and market; ii) monitor the evolution of biofuel production capacity; iii) monitor the supply, demand and prices of CBIO issued and traded from the sale of biofuels. This Committee's monitoring will be used to track and report the expected outcomes progress.

SECTION 7: GUIDING PRINCIPLES CHECK LIST

Please use the checklist below to validate that the proposed Energy Compact is aligned with the guiding principles.

I. Stepping up ambition and accelerating action - Increase contribution of and accelerate the implementation of the SDG7 targets in support of the 2030 Agenda for Sustainable Development for Paris Agreement

I.1. Does the Energy Compact strengthen and/or add a target, commitment, policy, action related to SDG7 and its linkages to the other SDGs that results in a higher cumulative impact compared to existing frameworks?

Yes No

I.2. Does the Energy Compact increase the geographical and/or sectoral coverage of SDG7 related efforts? Yes No

I.3. Does the Energy Compact consider inclusion of key priority issues towards achieving SDG7 by 2030 and the net-zero emission goal of the Paris Agreement by 2050 - as defied by latest global analysis and data including the outcome of the Technical Working Groups? Yes No

II. Alignment with the 2030 agenda on Sustainable Development Goals – Ensure coherence and alignment with SDG implementation plans and strategies by 2030 as well as national development plans and priorities.

II.1. Has the Energy Compact considered enabling actions of SDG7 to reach the other sustainable development goals by 2030? Yes No

II.2. Does the Energy Compact align with national, sectoral, and/or sub-national sustainable development strategies/plans, including SDG implementation plans/roadmaps? Yes No

II.3. Has the Energy Compact considered a timeframe in line with the Decade of Action? Yes No

III. Alignment with Paris Agreement and net-zero by 2050 - Ensure coherence and alignment with the Nationally Determined Contributions, long term net zero emission strategies.

III.1. Has the Energy Compact considered a timeframe in line with the net-zero goal of the Paris Agreement by 2050? Yes No

III.2. Has the Energy Compact considered energy-related targets and information in the updated/enhanced NDCs? Yes No

III.3. Has the Energy Compact considered alignment with reaching the net-zero emissions goal set by many countries by 2050? Yes No

IV. Leaving no one behind, strengthening inclusion, interlinkages, and synergies - Enabling the achievement of SDGs and just transition by reflecting interlinkages with other SDGs.

IV.1. Does the Energy Compact include socio-economic impacts of measures being considered? Yes No

IV.2. Does the Energy Compact identify steps towards an inclusive, just energy transition? Yes No

IV.3. Does the Energy Compact consider measures that address the needs of the most vulnerable groups (e.g. those impacted the most by energy transitions, lack of energy access)? Yes No

V. Feasibility and Robustness - Commitments and measures are technically sound, feasible, and verifiable based a set of objectives with specific performance indicators, baselines, targets and data sources as needed.

V.1. Is the information included in the Energy Compact based on updated quality data and sectoral assessments, with clear and transparent methodologies related to the proposed measures? Yes No

V.2. Has the Energy Compact considered inclusion of a set of SMART (specific, measurable, achievable, resource-based and time based) objectives? Yes No

V.3. Has the Energy Compact considered issues related to means of implementation to ensure feasibility of measures proposed (e.g. cost and financing strategy, technical assistant needs and partnerships, policy and regulatory gaps, data and technology)? Yes No

SECTION 8: ENERGY COMPACT GENERAL INFORMATION

8.1. Title/name of the Energy Compact

Renovabio Energy Compact

8.2. Lead entity name (for joint Energy Compacts please list all parties and include, in parenthesis, its entity type, using entity type from below)

Ministry of Mines and Energy of Brazil

8.3. Lead entity type

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Government | <input type="checkbox"/> Local/Regional Government | <input type="checkbox"/> Multilateral body /Intergovernmental Organization |
| <input type="checkbox"/> Non-Governmental Organization (NGO) | <input type="checkbox"/> Civil Society organization/Youth | <input type="checkbox"/> Academic Institution /Scientific Community |
| <input type="checkbox"/> Private Sector | <input type="checkbox"/> Philanthropic Organization | <input type="checkbox"/> Other relevant actor |

8.4. Contact Information

Pietro A. Sampaio Mendes, pietro.mendes@mme.gov.br

8.5. Please select the geographical coverage of the Energy Compact

- Africa Asia and Pacific Europe Latin America and Caribbean North America West Asia Global

8.6. Please select the Energy Compact thematic focus area(s)

- Energy Access Energy Transition Enabling SDGs through inclusive just Energy Transitions Innovation, Technology and Data Finance and Investment.

SECTION 9: ADDITIONAL INFORMATION (IF REQUIRED)

Please provide additional website link(s) on your Energy Compact, which may contain relevant key documents, photos, short video clips etc.

- <http://web.archive.org/web/20190711123924/http://biofutureplatform.org/wp-content/uploads/2018/06/RenovaBio-Mechanism-Policy-and-Instruments.pdf>
<https://www.embrapa.br/busca-de-noticias/-/noticia/54067756/article-the-science-behind-brazilian-biofuels-policy--renovabio>