SDG7 Energy Compact of Raízen
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)

☐ **7.1.** By 2030, ensure universal access to affordable, reliable and modern energy services.	Target(s): Time frame: Context for the ambition(s):
☐ **7.2.** By 2030, increase substantially the share of renewable energy in the global energy mix.	Target(s): Time frame: Context for the ambition(s):
☒ **7.3.** By 2030, double the global rate of improvement in energy efficiency.	Target(s): Increase the GJ/ha indicator by 15%. Time frame: 2030 Context for the ambition(s): Raízen is an integrated energy company whose main objective is to be a protagonist in the energy transition process to a low carbon economy by offering a diverse portfolio of renewable products In this context, the company has been investing in improving the land use efficiency and increasing energy production per cultivated hectare, thus reducing the carbon footprint of its products and encouraging the circularity of its products. Raízen's public commitment to increase GJ/ha reflects the company's commitment to diversify its renewable energy generation portfolio The company's Strategic Plan, in order to achieve these goals, are clear: investments in agricultural efficiency, increase the use of its residues to produce bioenergy -such as bagasse to electricity, pellets and second-generation ethanol and residues to biogas and biomethane, plus the electricity generated from them
☐ **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):
☐ **7.b.** By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least	Target(s): Time frame: Context for the ambition(s):

developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programs of support.	

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): Reduce the carbon footprint of ethanol by 10%
Time frame: 2030
Context for the ambition(s): In addition to its role in the energy transition through its portfolio of renewable products that have a high global decarbonization potential, Raízen is also working to reduce emissions from its low-carbon solutions.
The commitment to reduce the carbon footprint of ethanol, the company's main decarbonization solution and which collaborates not only with the replacement of fossil fuels in Brazil, but worldwide, shows that the company wants to go further and offer even more advanced low carbon solutions.
In order to achieve the biofuels emissions reductions, the company has been investing in agricultural efficiency and in reducing fossil fuels in its operations.

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. *[Please add rows as needed].*

Increase the GJ/ha indicator by 15%. *In 2020 Raízen inaugurated its first biogas production plant from filter cake and vinasse, residues from the company's ethanol production process, which has an installed capacity of 21MW. That's our first plant and the potential for expansion is very significant throughout our bioenergy parks.*	*2020 – no end date*
Increase the GJ/ha indicator by 15%. *Raízen is a pioneer in the production of second generation (2G) ethanol from sugarcane bagasse (residue from its production process). We are currently the only company in the world that produces cellulosic ethanol (2G) on a commercial scale, owning the technology for production from sugarcane. In the 19'20 harvest, we produced around 20 million liters of 2G ethanol and the expectation for 20'21 is 25 million liters, responsible for the reduction of around 35 thousand tons of CO2 annually. Considering the production of 20'21, we will have produced, in a cumulative approach, more than 75 million liters that were exported to the USA and Europe.* *In 2021, Raízen announced the construction of its second E2G plant with an installed capacity of 82 million liters per year, with the potential to avoid more than 130 thousand tons of CO2/year, which corresponds to twice the production capacity of the first plant of the company. It is expected to start operating in 2023*	*2015 – no end date*
Reduce the ethanol carbon footprint by 10% *In order to reduce its carbon footprint, Raízen will prioritize 4 -Strategies: (i) optimization use of synthetic fertilizers; (ii) reduce fossil fuel consumption in agricultural operations; (iii) increase in the TCH (ton of cane per hectare) of the sugarcane field; (iv) innovation projects in the agricultural area, such as precision and regenerative agriculture, which tend to generate savings in the use of inputs and increase productivity.*	*2020 - 2030*
Description of action (please specify for which ambition from Section 1)	*Start and end date*

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].*

Increase the GJ/ha indicator by 15% - Biogas *Baseline 18/19 harvest: 157,2 GJ/ha* *Result expected in 2030: 180,8 GJ/ha* *Currently, the main use of Biogas produced by Raízen is the production of electricity, collaborating with a cleaner energy matrix in Brazil, generating a reduction in emissions in the sector and in air pollution due to the displacement of fossil sources:* *- the carbon footprint of Biogas is 96% lower than natural gas, with the potential to avoid more than 70 thousand tons of CO2/year considering the current potential of generating 138,000 MWh annually* *In addition to the positive impacts of the final product, the biogas production process itself generates operational efficiency increases for the company. During the treatment of vinasse for biogas production, its nutritional load is concentrated, allowing us to increase the vinasse application radius to areas further away from the plants, thus generating an additional reduction in GHG emissions by replacing synthetic fertilizers in the field.*	*2030*
Increase the GJ/ha indicator by 15% - 2G ethanol *Baseline 18/19 harvest: 157,2 GJ/ha* *Result expected in 2030: 180,8 GJ/ha* *In this journey, it has already been possible to achieve significant efficiency gains in the production process of cellulosic E2G. In addition to being an advanced biofuel producer, Raízen has become a technologies developer for the clean energy generation* *External impacts mainly reflect the reduction of emissions in the transport sector caused by the replacement of gasoline by ethanol:* *- Raízen's second-generation ethanol has a carbon footprint 30% lower than 1G ethanol and 90% lower compared to gasoline.* *- the volume of E2G produced to date (>75 million liters) has avoided more than 120 thousand tons of CO2 and has avoided planting in possible new farms, corresponding to more than 10.5 thousand hectares of avoided new production hectares*	*2030*
Reduce the carbon footprint of ethanol by 10% *Baseline 18/19 harvest: 19,59 gCO2/MJ* *Result expected in 2030: 17,63 gCO2/MJ*	*2030*

SECTION 4: REQUIRED RESOURCES AND SUPPORT

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

Increase the GJ/ha indicator by 15% - Biogas *The resources spent are related to strong investments in pilot plants, research and innovation. As we are pioneers in the production of biogas from vinasse, we assume several financial and technological risks that have been overcome in recent years. We have already invested 30 MM USD in our first plant that has been operating since 2019, having its official inauguration on October 16, 2020 with the presence of President Bolsonaro and delegation. We plan to expand investments in new plants and R&D projects until 2030.*
Increase the GJ/ha indicator by 15% - 2G ethanol *The resources spent are related to strong investments in pilot plants, research and innovation. As we are pioneers in this type of technology, we take on several financial and technological risks that have been overcome in recent years. We have already invested more than 100 MM USD in our first plant, which has a nominal capacity of 42 million liters/year and has been operating since 2015 at the Costa Pinto unit, in Piracicaba. We expect to increase investments in R&D and new plants in Brazil and abroad until 2030.*

We have a dedicated and specialized team for this operation, which also includes the maintenance structure, processes and laboratory dedicated to the development and optimization of processes.
Reduce the carbon footprint of ethanol by 10% *In the 20/21 crop year, the funds allocated to the sugarcane agro-industrial operation totaled R$ 2.9 billion, always focused on operational efficiency and increased productivity*

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.]

☐Financing	*Description*
☐ In-Kind contribution	*Description*
☐ Technical Support	*Description*
☐ Other/Please specify	*Description*

SECTION 5: IMPACT

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

Brazil
In addition to our 40,000 employees and 6,000 suppliers, we will impact the entire energy and fuel consumption chain on a global scale

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]

Raízen conducted a study with a third party in order to understand the synergies of its strategic plan with the challenges of the SDGs. As a result, the public commitments assumed by Raízen collaborate with 16 of the 17 UN SDGs.

Increase the GJ/ha indicator by 15% - Biogas
When we specify our commitment to land use, the main SDGs, in addition to SDG 7, we collaborate additionally with 11, 12, 13 and 15.
This connection is even more clear in relation to the biogas power plant initiative. Additionally, by offering a clean energy source that displaces a fossil fuel, such as natural gas, the company collaborates with the fight against climate change and the reduction of GHG emissions, making the national energy matrix within a higher renewable percentage. Finally, initiatives like this allow us to increase the company's energy output without the need for new cultivation areas, collaborating with an efficient and sustainable land use.

Increase the GJ/ha indicator by 15% - 2G Ethanol
When we specify our commitment to land use, the main SDGs, in addition to SDG 7, are 11, 12, 13 and 15.

This connection is even more clear in relation to the 2G ethanol plants initiative. .Additionally, by offering a biofuel that displaces a fossil fuel such as gasoline, the company is helping to combat climate change and the transition to a low-carbon economy. Finally, initiatives like this allow us to increase the company's energy output without the need for new cultivation areas, collaborating with an efficient and sustainable land use.

Reduce the carbon footprint of ethanol by 10%
When we specify our commitment to climate change and energy transition, the main SDGs, in addition to SDG 7, are 12 and 13.
This connection is even more clear when the main efforts to reduce the carbon footprint of our ethanol are in the evolution of our practices in the field, including a focus on greater efficiency in the use of agricultural inputs and optimization of the use of machinery and fuel consumption. Through these actions, Raízen seeks to increase its ethanol production per cultivated area and with the use of lower resources, ensuring an increasingly sustainable production.
In addition, as a result, the renewable solution offered by Raízen will have an even greater impact on climate change, expanding its potential to reduce emissions in the transport matrix.

5.3. Alignment with Paris Agreement and net-zero by 2050 - Please describe how **<u>each</u>** 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]

In order to drastically reduce global GHG emissions, immediate actions must be taken, especially in the energy sector, which accounts for 73% of total emissions. In this context, biofuels and renewable energy sources play an essential role in the transition to a sustainable low-carbon economy around the world.
In this context, we created the Bioenergy Parks concept, an operational innovation by Raízen that positions the sugar-energy sector as a key player in decarbonization. The old and inefficient sugar and ethanol plants evolved into modern industrial parks with low losses and high circularity.
The same raw material that used to produce sugar and ethanol now provides additional products. Sugarcane bagasse has become a valuable raw material, generating: (i) bioelectricity that lower emissions from our electrical grid system; (ii) pellets that displace coal as an energy source, and (iii) second-generation ethanol that allows the production of up to 50% more ethanol within the same planted area.
Industrial residues also gain a new destination, being the basis for the production of biogas (cake filter and vinasse), which generates additional electricity, and biomethane, which is a renewable substitute for natural gas.

Increase the GJ/ha indicator by 15% - Biogas
In order to measure the impact of the company's products in the context of the Paris agreement and the challenges of reducing emissions, the company monitors emissions avoided due to the displacement of fossil products by Raízen's renewable products.
As per the current installed capacity of the biogas plant (21 MW), the company has the potential to annually avoid more than 70 thousand tons of CO2.

Increase the GJ/ha indicator by 15% - 2G ethanol
In order to measure the impact of the company's products in the context of the Paris agreement and the challenges of reducing emissions, the company monitors emissions avoided due to the displacement of fossil products by Raízen's renewable products.
The volume produced so far of E2G by Raízen (>75 million liters) has avoided more than 120 thousand tons of CO2 and the new plant will have the potential to avoid more than 130 thousand tons of CO2/year

Reduce the carbon footprint of ethanol by 10%
In order to measure the impact of the company's products in the context of the Paris agreement and the challenges of reducing emissions, the company monitors emissions avoided due to the displacement of fossil products by Raízen's renewable products.
Adding the fossil displacement potential of Raizen ethanol and other renewable energies produced by the company, we reach a potential to avoid 5.2MM tCO2/year.

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.

Increase the GJ/ha indicator by 15% - Biogas

The company's progress in the GJ/ha indicator will be monitored through the volume of energy generated by the company yearly and the planted area occupied by it - operational data already monitored by Raízen. In order to ensure the credibility of this information, Raízen will rely on a third-party verification of its public commitments.
Among the energy sources considered in the indicator is Biogas.

Increase the GJ/ha indicator by 15% - 2G ethanol The company's progress in the GJ/ha indicator will be monitored through the volume of energy generated by the company and the planted area occupied by it - operational data already monitored by Raízen. In order to ensure the credibility of this information, Raízen will rely on a third-party verification of its public commitments. Among the energy sources considered in the indicator is 2G Ethanol .
Reduce the carbon footprint of ethanol by 10% *The outcomes must be monitored by annual life cycle analysis conducted by a third party a verified by an internationally recognized verification agency. We intend to provide transparency on the company's evolution in its public commitments and therefore their evolution must be disclosed annually on our website and annual report, and, in the case of this commitment, be disclosed in our report on CDP Climate Change*

SECTION 7: GUIDING PRINCIPLES CHECKLIST

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

Raízen's as a protagonist on the energy transition process

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)

Raízen

8.3. Lead entity type

☐ Government ☐ Local/Regional Government ☐ Multilateral body /Intergovernmental Organization

☐ Non-Governmental Organization (NGO) ☐ Civil Society organization/Youth ☐ Academic Institution /Scientific Community

☒ Private Sector ☐ Philanthropic Organization ☐ Other relevant actor

8.4. Contact Information

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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.