



SDG7 Energy Compact of Google

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.	<p>Target(s): Operate on 24/7 Carbon-free Energy at every data center and office campus around the world</p> <p>Time frame: 2020-2030</p> <p>Context for the ambition(s): By 2030, Google aims to operate on 24/7 carbon-free energy at all of its data centers and campuses across the world. One critical action that we will take related to carbon-free energy (which includes renewable energy) is:</p> <p>Action 1: Purchase carbon-free electricity on every grid where we operate, and expand our purchasing to technologies or combinations that can match our consumption with clean energy on an hourly basis. This commitment goes far beyond our achievement of matching 100% of our global annual electricity consumption, which we achieved in 2017 and each year since.</p>
<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 checked="" 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.	<p>Target(s): Operate on 24/7 Carbon-free Energy at every data center and office campus around the world</p> <p>Time frame: 2020-2030</p> <p>Context for the ambition(s): By 2030, Google aims to operate on 24/7 carbon-free energy at all of its data centers and campuses across the world. One critical action that we will take related to international cooperation is:</p> <p>Action 2: Develop tools and partnerships to advance 24/7 carbon-free energy for all, and advocate for policy changes needed to rapidly decarbonize the world's electricity systems.</p>
<input checked="" 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	<p>Target(s): Operate on 24/7 Carbon-free Energy at every data center and office campus around the world</p> <p>Time frame: 2020-2030</p> <p>Context for the ambition(s): By 2030, Google aims to operate on 24/7 carbon-free energy at all of its data centers and campuses across the world. One critical action that we will take related to infrastructure and technology is:</p>

developing countries, in accordance with their respective programs of support.

Action 3: Catalyze the development and commercialization of new technologies (e.g. green hydrogen, enhanced geothermal, long-duration energy storage) that we and the world will need to fully decarbonize electricity, and continue to develop solutions (such as our carbon-intelligent computing platform) to better match supply and demand of clean energy.

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. [Please add rows as needed].

<p><i>Description of action (please specify for which ambition from Section 1): Carbon-free Energy</i></p> <p>Action 1: Purchase carbon-free electricity on every grid where we operate, and expand our purchasing to technologies or combinations that can match our consumption with clean energy on an hourly basis.</p> <p>Since 2017, Google has matched our electricity consumption with 100% renewable energy on a global, annual basis. Many other companies are pursuing the same goal. Even though Google currently buys enough renewable energy to match our annual electricity use, the variable nature of wind and solar means there are times and places where we still have to rely on carbon-based electricity. In 2020, although we fully matched our global, annual electricity consumption with renewable energy, on an hourly basis 67% of all the electricity we used was matched with regional, carbon-free sources.</p> <p>In recognition of the urgent need to rapidly decarbonize the world's electricity systems, we at Google set our most ambitious energy goal yet - to fully decarbonize our own electricity consumption by matching our hourly electricity use with carbon-free electricity on every local grid, everywhere we operate, by 2030. We will continue to buy much more clean energy, but will target a portfolio of technologies that collectively can supply us with round-the-clock clean energy for our operations.</p> <p>By pursuing this goal for our own operations, we will also demonstrate and model the types of strategies and approaches needed to decarbonize the electricity system as a whole, advancing affordable and clean energy for all.</p>	<p><i>Start and end date</i> 2020-2030</p>
<p><i>Description of action (please specify for which ambition from Section 1): International Cooperation</i></p> <p>Action 2: Building a global 24/7 CFE movement to accelerate decarbonization around the world</p> <p>Due to the remarkable ongoing progress in clean energy and enabling technologies, rapid electricity system decarbonization is now possible, but it is not inevitable. To achieve it, all stakeholders in the energy ecosystem--from utilities to governments to other corporate purchasers--must be focused on this goal and moving in the same direction towards its realization.</p>	<p><i>Start and end date</i> 2020-2030</p>

<p>Google wants to help all of the grids in the world to decarbonize. As we advance toward our goal of 24/7 CFE by 2030, we will create tools and partnerships that help scale 24/7 carbon-free energy, not just for Google, but for everyone. We are also committed to working with others and using our voice to advocate for smart clean energy policies to benefit all communities worldwide. This will include publishing our global energy policy vision and investing significant resources in carbon-free energy policy advocacy and implementation. We will also share our global experience with companies, cities, and governments across the world and work to foster international collaboration on clean energy and decarbonization among companies, governments, and NGOs.</p> <p>We will also launch the 24/7 CFE Compact, a multi-stakeholder effort that details a set of principles and actions that stakeholders across the energy ecosystem can take to adopt, enable, and advance 24/7 Carbon-free Energy.</p>		
<p><i>Description of action (please specify for which ambition from Section 1): Technology</i></p> <p>Action 3: <i>Catalyze the development and commercialization of new clean energy technologies and software solutions that accelerate electricity grid decarbonization</i></p> <p>Achieving our goal will require significant technological innovation, both in the way we consume electricity and in the technologies that supply it. On the consumption side, we have made significant progress in making our electricity demand more flexible through our carbon-intelligent computing platform. This allows us to shift certain computing jobs in time and space to align with times of the day when electricity grids are cleanest.</p> <p>The world will also need a broad portfolio of cost-competitive carbon-free energy technologies to rapidly decarbonize electricity systems. This includes variable renewables like wind and solar, as well as “firm” carbon-free energy technologies such as enhanced geothermal, sustainable hydro, advanced nuclear power, green hydrogen, and carbon capture and storage, among others, and technologies that can store clean electricity over both short and long time periods. Through our procurement activities, we are working to advance the commercialization of these technologies and help scale them in the marketplace. One example is the partnership we announced with a next-generation geothermal project in the United States, which could help make geothermal a firm and flexible carbon-free resource that can increasingly replace carbon-emitting fossil fuels.</p> <p>Finally, we are working with partners to develop software solutions and tools that will enable all energy consumers to maximize their decarbonization impact.</p>	<p><i>Start and end date</i> 2020-2030</p>	
<p><i>Description of action (please specify for which ambition from Section 1)</i></p>	<p><i>Start and end date</i></p>	

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>Outcome</i>	<i>Date</i>
<p>Action 1: <i>Purchase carbon-free electricity on every grid where we operate, and expand our purchasing to technologies or combinations that can match our consumption with clean energy on an hourly basis.</i></p> <ul style="list-style-type: none"> 1) Carbon-free Energy % for global portfolio, 2) Gigawatts of new clean energy and deployed due to purchases <p>Action 2: <i>Building a global 24/7 CFE movement to accelerate decarbonization around the world</i></p> <p><i>Outcomes:</i></p> <ul style="list-style-type: none"> 1) Launch 24/7 CFE multi-stakeholder Compact 	

- 2) # of partnerships announced
- 3) # of external carbon-free energy policy-related communications (papers, blogs, letters) published

Action 3: *Catalyze the development and commercialization of new technologies*

- # of new technology pilots announced
- Amount of investment catalyzed into clean energy technology

SECTION 4: REQUIRED RESOURCES AND SUPPORT

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

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 type="checkbox"/> Financing	Description
<input type="checkbox"/> In-Kind contribution	Description
<input type="checkbox"/> Technical Support	Description
<input type="checkbox"/> Other/Please specify	Description

SECTION 5: IMPACT

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

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]

Action 1: *Purchase carbon-free electricity on every grid where we operate, and expand our purchasing to technologies or combinations that can match our consumption with clean energy on an hourly basis.*

Purchasing 24/7 Carbon-Free Energy will contribute to a number of the SDGs:

- **SDG 7:** Affordable and clean energy. 24/7 carbon-free energy means around-the-clock clean energy that can fully decarbonize electricity consumption. By tackling this goal in our own operations, we are demonstrating and highlighting the strategies that can ensure clean and reliable power for all.

- **SDG 8:** Job creation and economic growth. Clean energy equals jobs. Through our purchasing activities, we will enable the deployment of gigawatts (GW) of new clean power technologies that will create thousands of jobs in clean energy construction, operations, and maintenance. We will also focus our activities in deploying clean energy in regions that have historically not benefited from clean energy, or are undergoing transitions away from fossil fuels and toward the creation of a clean energy economy.
- **SDG 9:** Responsible consumption and production. By pursuing 24/7 carbon-free energy, Google is taking responsibility for our electricity consumption to ensure that it is fully met with clean energy, every hour, everywhere. This is the only way for any entity to fully decarbonize its electricity supply.
- **SDG 13:** Accelerating climate action through the deployment of significant amounts of clean energy capacity by 2030 due to our purchasing activities.

Action 2: *Building a Global 24/7 CFE Movement to Accelerate Decarbonization Around the World.*

Developing partnerships and advocating for strong clean energy policies will contribute to a number of the SDGs:

- **SDG 7:** Affordable and clean energy. By creating tools and scaling partnerships for 24/7 carbon-free energy, we will enable others to adopt similar goals and maximize their own clean energy use and decarbonization impact.
- **SDG 13:** Accelerating climate action by advocating for strong policies to dramatically increase clean energy adoption across the world.
- **SDG 17:** Partnerships for the goals. As we advance toward our own goal, we will recruit partners and strengthen coalitions across the energy ecosystem focused on driving decarbonization. This includes technology partnerships to accelerate clean energy innovation, transaction partnerships to bring clean energy to more buyers, and policy partnerships to organize voices across the ecosystem to call for rapid creation of clean electricity systems and the policies that will enable them.

Action 3: *Advancing Carbon-Free Energy Technology*

Advancing clean energy technology will contribute to a number of the SDGs:

- **SDG 7:** Affordable and clean energy. Achieving a fully carbon-free electricity system and economy will require significant innovation in clean energy technologies. Through our activities, we will help advance needed innovation in key technologies and will commercialize new technologies. This will enable technology cost reductions and performance improvements that will allow technologies to be scaled up and widely adopted in the marketplace.
- **SDG 8:** Job creation and economic growth. Our efforts to commercialize new clean energy technologies will support the development of entire industries that can serve as engines of job creation and sustainable economic growth for decades to come.
- **SDG 9:** Promoting innovative and sustainable infrastructure. Our 24/7 carbon-free energy goal is focused on using our investments and purchasing power to spur innovation in technology and clean energy infrastructure that can help decarbonize electricity grids and enable 24/7 carbon-free energy for all.
- **SDG 13:** Accelerating climate action by advancing technological innovation in needed clean energy technologies.

By making this commitment to operate entirely on 24/7 carbon-free energy by 2030 and building a global 24/7 CFE movement, we hope to set an example to others for how they can maximize their impact on transforming electricity systems toward clean energy. By adopting this goal for all of our operations across many different geographies and a wide variety of market types and energy systems, we will show that with the right mix of technologies, partnerships, and policy change, complete decarbonization is possible everywhere.

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]

A fully zero-carbon electricity system is critical to achieving at minimum net-zero emissions across national economies by 2050. Electricity is both a source of carbon emissions as well as a vehicle to reduce emissions elsewhere through zero-carbon electrification. By accelerating the decarbonization of electricity systems through 24/7 carbon-free energy procurement, our efforts will help achieve the goals outlined in the Paris Agreement and create a net-zero global economy 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.

Google has committed to a new level of transparency in our reporting by providing annual updates for each of our data center sites with respect to progress being made on carbon-free energy. For each regional grid where we operate, we calculate a “carbon-free energy score” that measures the degree to which our electricity consumption was matched with carbon-free energy on an hourly basis over the course of a year. The methodology behind this calculation is described in detail in our [24/7 CFE methodology paper](#).

We also regularly share public updates regarding new initiatives or announcements related to the three Actions described above (transactions, technology, and policy). We also share our learnings along our journey through the publication of case studies and white papers that are widely distributed to others in the energy ecosystem.

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 defined 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 N/A

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

Google 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)

8.3. Lead entity type

- | | | |
|--|---|--|
| <input 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 checked="" type="checkbox"/> Private Sector | <input type="checkbox"/> Philanthropic Organization | <input type="checkbox"/> Other relevant actor |

8.4. Contact Information

Caroline Golin – golin@google.com

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.

- Google 2020 Environment Report: <https://www.gstatic.com/gumdrop/sustainability/google-2020-environmental-report.pdf>
- 24/7 by 2030: Realizing a Carbon-Free Future: <https://www.gstatic.com/gumdrop/sustainability/247-carbon-free-energy.pdf>
- 24/7 Carbon-free Energy: Methodologies and Metrics: <https://www.gstatic.com/gumdrop/sustainability/24x7-carbon-free-energy-methodologies-metrics.pdf>