



Supplier Clean Energy

October 2018 Program Update

As part of Apple's commitment to address climate change and increase the use of renewable energy within our supply chain, we launched the Supplier Clean Energy Program in October 2015. Manufacturing is energy-intensive and historically has relied heavily on fossil fuels. Apple is helping our manufacturing partners transition to 100 percent clean energy for Apple production. These efforts are helping to reduce product-related carbon emissions, create a more resilient supply chain, and contribute to healthier communities—while also paving the way for others to follow.

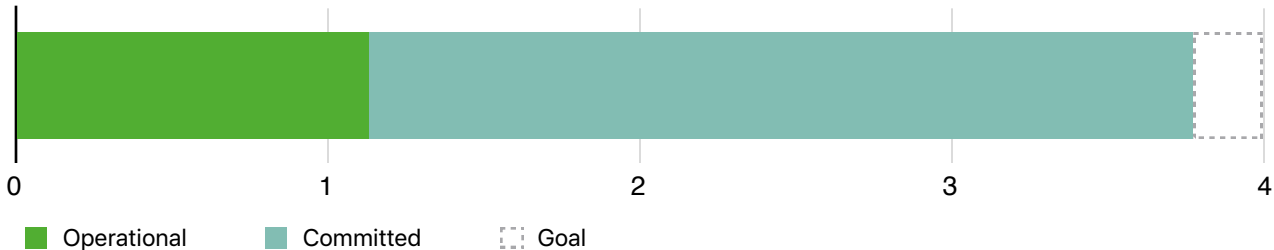
We have partnered with suppliers across the globe to secure over 3.7 gigawatts of clean energy commitments, including 29 suppliers that have committed to powering their Apple production with 100 percent renewable energy.

Our 2020 Goal

Our goal is for Apple and our suppliers to generate and source more than 4 gigawatts of new clean energy in Apple's global supply chain by 2020. This goal represents one-third of the electricity we currently use to make our products.* In just three years since the launch of the Supplier Clean Energy Program, 29 manufacturing partners operating in more than 10 different countries have committed to powering all of their Apple production with 100 percent clean energy. Other suppliers have also committed to generate or procure clean energy for portions of Apple production, and Apple itself has invested directly in renewable energy projects to cover upstream emissions.

The Supplier Clean Energy Program has 3.7 gigawatts of clean energy commitments. Once operational, these commitments will avoid over 5.2 million metric tons of CO2e emissions—the equivalent of taking over a million cars off the road each year.

Progress toward 4 gigawatts



To ensure our program achieves the greatest positive impact, we require stringent social and environmental reviews of all supplier clean energy projects. The data above reflect only those projects that meet our strict standards and include only clean energy generated or sourced since Apple's engagement. Operational data is based on our last annual supplier energy survey conducted in January 2018.

*We've estimated electricity use for manufacturing using a life cycle analysis methodology, based on fiscal year 2017 data.

Apple's Role

Apple drives the transition to clean energy in its supply chain by advocating for policy change in key markets, connecting suppliers with high quality clean energy projects, and educating them on how they can have the greatest impact.

Demonstrating Leadership

Apple has directly helped develop 485 megawatts of wind and solar projects across six provinces of China and 20 megawatts of solar rooftop projects in Japan to address a portion of upstream manufacturing emissions. These clean energy projects demonstrate our commitment to transitioning our supply chain to clean energy and have helped us obtain expertise we can then share with our manufacturing partners.

China Clean Energy Fund

Apple recently launched a first-of-its-kind investment fund in China to connect suppliers with renewable energy sources. Initially, 10 suppliers and Apple will jointly invest nearly \$300 million over the next four years into the China Clean Energy Fund. By virtue of its size and scale, the Fund will give its participants the advantage of greater purchasing power and the ability to attain more attractive and diverse clean energy solutions. The fund will invest in and develop clean energy projects totaling more than 1 gigawatt of renewable energy in China, the equivalent of powering nearly 1 million homes.

Clean Energy Portal

Over 100 suppliers have registered for Apple's Clean Energy Portal, an online platform that Apple developed to help suppliers identify commercially viable renewable energy solutions in regions around the world. We recently launched new content on the Clean Energy Portal, including policy guidance and financial analysis tools, intended to make adoption of clean energy in key markets even easier.

"The Supplier Clean Energy Program is at the center of Apple's commitment to making world-class products with greener manufacturing. Our suppliers are taking significant actions to join us in this work, and we look forward to seeing more bold pledges as we continue to address our environmental impact."

— Jeff Williams, Apple's Chief Operating Officer

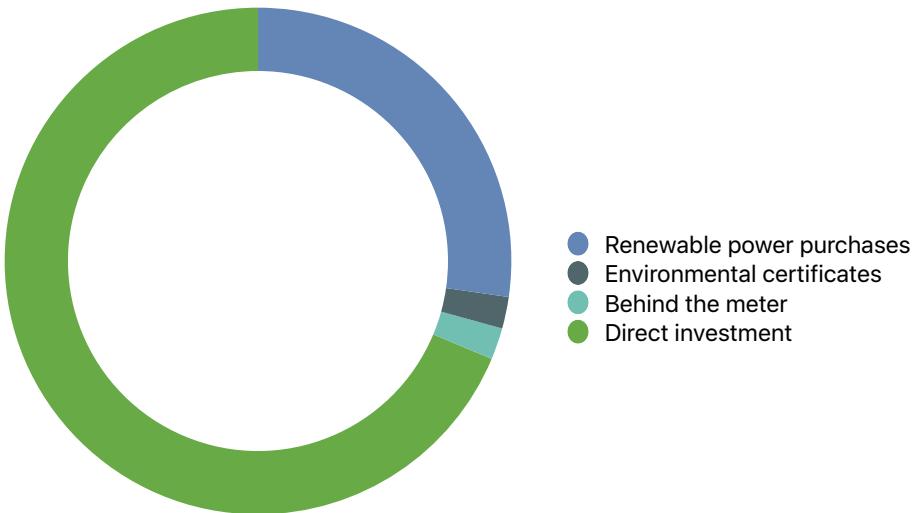
Supplier Commitments

As we continue our journey toward 4 gigawatts, these 29 suppliers—including six new commitments in the past six months—have committed globally to producing Apple products with 100 percent clean energy:

- Arkema
- Biel Crystal (HK) Manufactory Ltd.
- Catcher Technology
- Compal Electronics
- DSM Engineering Plastics
- ECCO Leather
- Fastway Creation*
- Finisar
- Golden Arrow
- Ibiden
- Jabil
- Lens Technology
- Lishen*
- Luxshare-ICT
- Mega Precision
- Pegatron
- Primax Group*
- RRD*
- Rypax*
- Qorvo
- Quadrant
- Quanta Computer
- Solvay
- Sunway Communication
- Sunwoda Electronics
- Taiyo Ink Mfg. Co.
- tesa SE*
- Wistron
- Yuto

* Suppliers that have committed to 100 percent renewable energy since publication of the last Program Update in April 2018.

Identified renewable energy solutions



Apple and its suppliers are implementing clean energy solutions using a variety of contracting mechanisms—with direct project investments representing close to 70 percent of all solutions identified or implemented to date.

Supplier Projects

We're working with our suppliers to ensure that the projects they select have the greatest potential for impact. We uphold stringent accountability standards to ensure that all clean energy can be verified. These clean energy solutions often take time to build, and each of the following suppliers is making progress toward meeting their commitment to 100 percent renewable energy for all Apple production. The majority of suppliers find localized solutions in the same province, state, or grid region in which they operate.

Arkema will be 100 percent renewable for Apple production by the end of 2018. Arkema manufactures for Apple in France, the United States, and China, and is planning to use renewable energy from wind and solar resources.

Biel Crystal (HK) Manufactory Ltd. has secured contracts in China to procure 100 percent of its energy from wind and solar projects for its Apple production. Going one step further, Biel is also building a 3-megawatt on-site rooftop solar system that will come online in early 2019.

Catcher Technology will power 100 percent of its Apple production with renewable energy through a series of onsite solar installations and other renewable energy investments.

Compal is meeting its commitment through a combination of rooftop solar projects and participation in the China Clean Energy Fund. As of September 2018, Compal has successfully connected 10.7 megawatts of solar PV across 224,000 square meters of rooftop in Jiangsu.

DSM Engineering Plastics will achieve 100 percent renewable energy for its Apple production in the Netherlands, Taiwan and China through a combination of clean energy investments and procurement agreements. DSM has already secured a long-term commitment through a power purchase agreement (PPA) with Windpark Krammer and Windpark Bouwdokken in the Netherlands, together with three other partners.

ECCO Leather is currently 100 percent renewable at its facilities in the Netherlands, for its production to Apple, through an on-site biogas plant. To achieve its global renewable energy commitment, ECCO is planning to install on-site solar solutions at its facilities in China.

Fastway Creation has committed to 100 percent renewable energy for Apple production by 2020. They plan to install a rooftop solar energy system at their manufacturing facility located in Dongguan, China.

Finisar, in partnership with Apple's Advanced Manufacturing Fund, has committed to procuring renewable energy for 100 percent of its Apple manufacturing, all of which is located in the United States.

Golden Arrow is meeting a portion of its commitment to 100 percent renewable energy for Apple production through participation in the China Clean Energy Fund. Golden Arrow has already installed 1.2 megawatts of on-site solar capacity at its production site.

Ibiden is achieving 100 percent renewable energy in Japan through a variety of solar solutions, including a 2-megawatt, state-of-the-art floating system constructed on a converted lumberyard, helping to maximize land use in the country. In addition, Ibiden's investment in a 14-megawatt low-impact hydro solution will achieve any remaining portion of its renewable target not covered by solar PV. Apple worked with Ibiden to ensure that the small hydropower plant meets or exceeds a stringent set of environmental and social impact standards.

Jabil has already achieved more than 80 percent renewable energy in China for its Apple production through direct power purchase agreements (PPAs), among the first such power agreements in China for renewable energy. Additionally, Jabil is a participant in the China Clean Energy Fund.

Lens Technology has entered into a PPA in China for wind and solar electricity, which covers all electricity used in the manufacturing of Apple products. Lens is also building rooftop solar PV at its manufacturing facilities in Hunan.

Lishen has pledged to use 100 percent renewable energy in the production of Apple devices by December 2018. Lishen plans to achieve its commitment through a portfolio of on-site solar investments in Tianjin, China.

Luxshare-ICT has committed to 100 percent renewable energy for Apple production. The company is meeting its commitment through investments in the China Clean Energy Fund.

Mega Precision has committed to power its Apple production with 100 percent clean energy by the end of 2018. Mega Precision has achieved its commitment by entering into a cost competitive renewable PPA with China's largest biomass plant, located in Guangdong Province. The project has undergone rigorous evaluation to make sure it meets Apple's high standards to ensure sustainable and socially responsible power sourcing from biomass. The biomass plant generates electricity from biological waste (such as eucalyptus bark, sugarcane stalks, and rubber tree waste) that would otherwise be incinerated. It also has over 4 megawatts of installed solar.

Pegatron will achieve 100 percent renewable for Apple production through investments. Pegatron has already installed more than 5 megawatts of rooftop solar, and the company is participating in the China Clean Energy Fund to reach the remainder of its commitment.

Primax Group will achieve its goal to power 100 percent of its Apple production with clean energy by 2019. Primax has secured a direct PPA with the aforementioned biomass facility in Guangdong Province. The project has undergone rigorous evaluation to make sure it meets Apple's high standards to ensure sustainable and socially responsible power sourcing from biomass.

RRD is transitioning its facilities in southern China to be powered through a series of renewable energy direct PPAs, and will meet its commitment to 100% renewably powered Apple manufacturing by the end of 2018.

Rypax has committed to source 100% renewable energy for Apple production by June 2020. The company is exploring options in Asia.

Qorvo—based in Greensboro, North Carolina—is the first U.S.-based manufacturer with a majority of production in the United States (Texas, Florida, and Oregon) to commit to using 100 percent clean energy for all Apple production. Qorvo plans to meet their commitment by the end of 2018 in the U.S. and globally by the end of 2019.

Quadrant plans to achieve 100 percent renewable energy for Apple production by year-end 2018. Quadrant plans to meet its commitment by maximizing onsite solar solutions at its manufacturing facilities in China.

Quanta Computer has evaluated a variety of approaches, including rooftop solar and capital investment to achieve its commitment to 100 percent renewable energy for Apple production. In China, Quanta Computer has manufacturing facilities in Shanghai, Jiangsu, and Chongqing.

Solvay has committed to 100 percent renewable energy for Apple production across 14 manufacturing facilities in six countries: China, Belgium, France, Germany, India, and the United States. In the spring of 2018, Solvay entered a 15-year credit-purchase agreement with a 70-megawatt solar farm in South Carolina, the largest in the state, of which a portion will go toward Apple manufacturing. Additionally, Solvay is a participant in the China Clean Energy Fund.

Sunway Communication has committed to procuring 100 percent renewable energy for its Apple production, which takes place in Shenzhen and Beijing. Sunway is meeting its goal through participation in the China Clean Energy Fund.

Sunwoda Electronics is committed to 100 percent clean energy for its Apple production. Sunwoda has built a 50-megawatt solar farm in central Henan Province in China. A portion of the solar farm has been dedicated to Apple manufacturing.

Taiyo Ink Mfg. Co. is an indirect supplier to Apple and has committed to 100 percent renewable energy for Apple production—inspired by renewable energy commitments made by other direct Apple suppliers. Taiyo Ink has already achieved 100 percent renewable energy for Apple production at its factory in Saitama, Japan, partially through a more than 1-megawatt floating photovoltaic system.

tesa SE has committed to utilizing 100% renewable energy for its manufacturing operations related to Apple products at their facilities in Germany and China by 2020.

Wistron has facilities for Apple in both China and India. To meet its renewable energy commitments, Wistron is participating in the China Clean Energy Fund and has also installed onsite rooftop solar.

Yuto has committed to reach 100 percent clean energy for its Apple production by mid-2019. Yuto manufactures for Apple across several sites, including five locations in China and one in Vietnam. Yuto is achieving its commitment through a portfolio of rooftop solar PV projects and other clean energy investments.