



# Supplier Clean Energy

## Program Update

April 2018

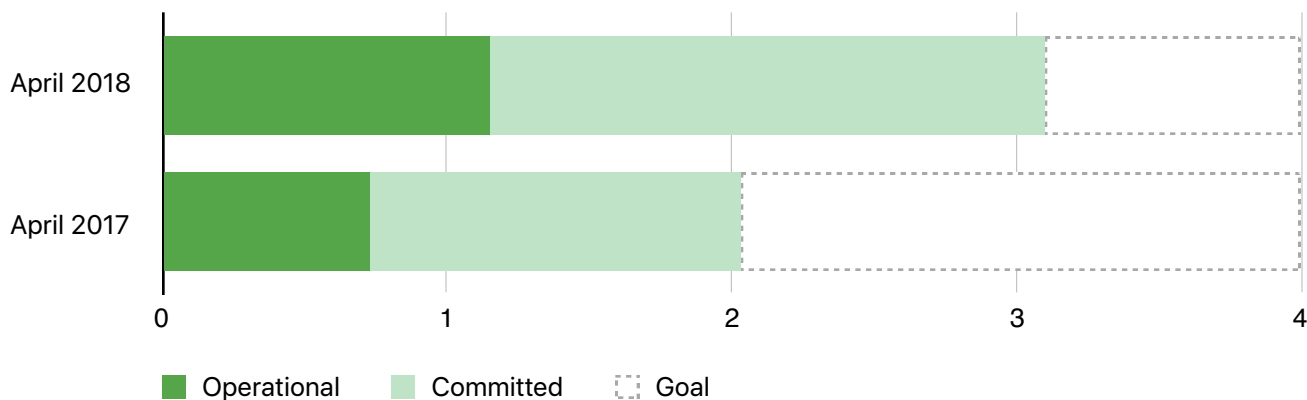
We launched our supplier clean energy program in October 2015 and we are proud of the progress our suppliers have made over the past two years. Our aim is to reduce the carbon footprint of our manufacturing by helping our partners become more energy efficient and by transitioning our entire supply chain to 100 percent clean energy.

### Our 2020 Goal

As part of our clean energy program, Apple and our suppliers will generate and source from more than 4 gigawatts of new clean energy worldwide by 2020. Once online, this will represent one-third of our current manufacturing electricity footprint. In just the two and a half years since launch of the clean energy program, 23 manufacturing partners, operating in more than 10 different countries, have committed to powering all of their Apple production with 100 percent clean energy. We are excited to announce that our program now has more than 3 gigawatts of committed clean energy. Once operational, these projects plus partial commitments will avoid over 4.9 million metric tons of CO<sub>2</sub>e emissions.

As part of our commitment, to date, Apple has also directly helped develop 485 megawatts of wind and solar projects across six provinces of China to address upstream manufacturing emissions that are beyond Apple's direct influence. Renewable energy technologies can have trade-offs. To ensure our program can achieve the greatest positive impact on communities and the environment, we require that all supplier clean energy projects undergo stringent environmental and social due diligence reviews. The data below reflects only those projects that meet our strict environmental standards and represent only the new clean energy that has come online since Apple's engagement.

### Progress toward 4 gigawatts



To date, 23 suppliers operating in more than 10 different countries have committed to 100 percent clean energy for Apple production. Other suppliers have also committed to generate or procure clean energy for portions of Apple production. In addition, Apple has helped develop 485 megawatts of wind and solar projects across six provinces of China to support upstream manufacturing.

We are now directly collecting data from suppliers on their facilities' energy consumption, renewable energy procurement, and verification documentation. This data help us accurately track the program's progress. We also share with our suppliers the impact their renewable solutions have had on avoiding greenhouse gas emissions.

In fiscal year 2017, over 1.5 million metric tons of CO<sub>2</sub>e were avoided as a result of clean energy procured or installed by supplier and Apple projects. That's roughly equivalent to taking more than 300,000 cars off the road every year. In addition, over 85 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. In the coming months, we will be launching new content on the Clean Energy Portal, intended to make adoption of clean energy in key markets even easier. We continually update policy guidance and tools to help develop commercially viable strategies to achieve 100 percent renewable energy.

As we continue our journey toward 4 gigawatts, these 23 suppliers—including nine new commitments in the past six months—have committed to globally producing Apple products with 100 percent clean energy:

- Arkema\*
- Biel Crystal Manufactory Ltd.
- Catcher Technology
- Compal Electronics
- DSM Engineering Plastics\*
- ECCO Leather\*
- Finisar\*
- Golden Arrow
- Ibiden
- Jabil
- Lens Technology
- Luxshare-ICT\*
- Mega Precision
- Pegatron\*
- Qorvo
- Quadrant\*
- Quanta Computer\*
- Solvay
- Sunway Communication
- Sunwoda Electronics
- Taiyo Ink Mfg. Co.\*
- Wistron
- Yuto

\* Suppliers that have committed to 100 percent renewable energy since publication of the last Program Update in October 2017.

## Supplier Projects

We're working with our suppliers to ensure that the projects they select have the greatest potential for impact. We aim to displace fossil fuel-based energy sources by creating new clean energy that adds to the energy sources already delivering to the grid. We uphold stringent accountability standards to ensure no double-counting occurs and that all clean energy can be verified. These clean energy solutions often take time to build, and each supplier is making great progress toward meeting its 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. The following describes the commitments made to date.

### Arkema

Arkema, a designer of high-performance bio-based polymers, will be 100 percent renewable by the end of 2018. Arkema manufactures for Apple at its facilities in France, the United States, and China, and is planning to source renewable energy from wind and solar.

## **Biel Crystal Manufactory Ltd.**

Biel, one of Apple's major glass suppliers, secured a contract to procure nearly 50 percent of its energy from wind and solar projects, and will increase this to 100 percent renewable for its Apple production in 2018. Going one step further, Biel is also building a 3-megawatt onsite rooftop solar system that will come online in 2018. And it plans to build a 100-megawatt offsite renewable energy system to meet its remaining renewable energy commitments in the long term.

## **Catcher Technology**

Catcher is one of Apple's aluminum enclosure suppliers. Catcher will power 100 percent of its production of Apple components with renewable energy, and subsequently will avoid nearly 600,000 metric tons of greenhouse gas emissions each year. This is equivalent to removing nearly 125,000 passenger vehicles from the road every year.

## **Compal Electronics**

Compal, which assembles iPad devices, is on its way to 100 percent with the construction of rooftop solar on its facilities across China, beginning in Jiangsu Province. As of February 2018, Compal had successfully connected 9.4 megawatts across 224,000 square meters of rooftop in Jiangsu.

## **DSM Engineering Plastics**

DSM Engineering Plastics manufactures polymers and compounds in the Netherlands, Taiwan, and China that are used in many Apple products, including connectors and cables. DSM will achieve 100 percent renewable energy for its Apple production through a combination of renewable electricity procurement agreements and selected investments, including a co-investment with three other partners into Windpark Krammer in the Netherlands. Combined, the project partners will consume over 350 million kilowatt-hours of clean energy per year.

## **ECCO Leather**

ECCO Leather is the first soft goods supplier to commit to 100 percent clean energy for its Apple production, and will achieve its commitment by the end of next year. The leather that ECCO produces for Apple is of European origin, with tanning and cutting occurring at facilities in the Netherlands and China. ECCO is currently 100 percent renewable at its facilities in the Netherlands through an onsite biogas plant. To achieve its global renewable energy commitment, ECCO is planning to install onsite solar solutions at its cutting and tanning facilities in China.

## **Finisar**

Finisar is an industry-leading producer of optical communication components and vertical-cavity surface-emitting lasers (VCSELs), which power some of Apple's most popular new features like Face ID, Portrait mode selfies, and Animoji. In partnership with Apple's Advanced Manufacturing Fund, Finisar has committed to procuring renewable energy for 100 percent of its Apple manufacturing, all of which is located in the United States.

## **Golden Arrow**

Along with Yuto, Golden Arrow is one of the first packaging supplier to commit to 100 percent renewable energy for Apple production. Golden Arrow primarily manufactures molded fiber product trays for Apple, which have helped reduce the amount of plastic used in iPhone, iPad, and Apple Watch packaging. The company is currently exploring direct power purchase options in Jiangsu Province as a first step toward achieving its goal, and has already installed 1.2 megawatts of onsite solar capacity at its production site.

## **Ibiden**

Ibiden, a provider of integrated circuit substrates, 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, maximizing 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**

Jabil makes a number of components for Apple—primarily the aluminum housing—across eight facilities on the Chinese mainland and Taiwan. Jabil has already achieved nearly 70 percent renewable energy for its Apple production through direct power purchase agreements, among the first in China for renewable energy.

## **Lens Technology**

Lens is one of Apple's glass suppliers. To achieve its goal of 100 percent renewable for Apple production, Lens entered into a power purchase agreement with a local wind provider. Wind energy will cover 100 percent of the electricity that Lens facilities consume to produce Apple products—avoiding nearly 450,000 metric tons of carbon dioxide each year, equivalent to the energy use in 380,000 Chinese homes.

## **Luxshare-ICT**

Luxshare-ICT, a supplier of accessories for Apple products, has committed to 100 percent renewable energy for Apple production by 2018 year-end. Luxshare-ICT's production for Apple is predominantly located in Eastern China. To achieve its renewable energy commitment, the company is evaluating a portfolio of over 5 megawatts of rooftop solar projects in Jiangsu, Jiangxi, and Anhui Provinces. Remaining electricity demand will be satisfied through offsite investments.

## **Mega Precision**

Mega Precision—based in Dongguan, Guangdong Province—produces precision metal components. It has committed to power its Apple production with 100 percent clean energy by the end of 2018. Mega has achieved 100 percent renewable energy for Apple production by entering into a cost competitive renewable power purchase agreement 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**

Pegatron assembles a number of products, including iPhone, at its two factories in Shanghai and Kunshan, China. Pegatron has already installed more than 5 megawatts of rooftop solar, and its team is evaluating a variety of wind and solar investments to reach 100 percent renewable energy for Apple production.

## **Qorvo**

Qorvo—based in Greensboro, North Carolina—designs and manufactures solutions that help connect Apple devices wirelessly with cellular networks. Qorvo is the first U.S.-based manufacturer with a majority of production in this country (Texas, Florida, and Oregon) to commit to using 100 percent clean energy for all Apple production by the end of 2018 in the U.S. and globally by the end of 2019.

## **Quadrant**

Quadrant is a supplier of magnets and magnetic components in a number of Apple's product. By maximizing onsite solar solutions at its manufacturing facilities, Quadrant will be able to achieve 100 percent renewable energy for Apple production by year-end 2018.

## **Quanta Computer**

Quanta Computer is one of the first Mac suppliers to commit to 100 percent renewable energy for Apple production by year-end 2018. The company has manufacturing facilities in Shanghai, Jiangsu, and Chongqing, and has evaluated a variety of approaches, including rooftop solar and capital investment, to bring new clean energy projects online.

## **Solvay**

Solvay is a supplier of materials used in iPhone. The company has committed to 100 percent renewable energy for Apple production across 14 manufacturing facilities in seven countries: China, Belgium, France, Germany, Italy, India, and the United States. Solvay recently entered a 15-year credit-purchase agreement from a 70-megawatt solar farm in South Carolina, of which a portion will go toward Apple manufacturing. The solar project will be commissioned in spring 2018; once online, the project will be the largest solar farm in that U.S. state.

## **Sunway Communication**

Sunway Communication manufactures antennas and enclosures for iPhone, and has committed to procure 100 percent renewable energy for its Apple production, which takes place in Shenzhen and Beijing. It plans to enter into a direct power purchase agreement with a local solar farm in Guangdong Province.

## **Sunwoda Electronics**

Sunwoda is Apple's first battery supplier committed to achieving 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 will be dedicated to Apple manufacturing.

## **Taiyo Ink Mfg. Co.**

Taiyo Ink produces solder masks for the printed circuit boards. Taiyo Ink 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.

## **Wistron**

Wistron was the first iPhone final assembly supplier to commit to 100 percent clean energy for its Apple production. The company has assembly facilities for Apple in both China and India. To meet its renewable energy commitments, Wistron installed 1.8 megawatts of rooftop solar in 2017—and will continue to build up its renewable generation in the coming years. Wistron is committed to achieving 100 percent clean energy for its Apple production by year-end 2019.

## **Yuto**

Along with Golden Arrow, Yuto is the first packaging supplier to commit to 100 percent clean energy for its Apple production by mid-2019. Yuto manufactures packaging for Apple, including molded fiber product trays that have reduced the amount of plastic used in iPhone, Apple Watch, and iPad packaging. Yuto manufactures for Apple across five sites, four in China and one in Hanoi, Vietnam.