Supplier Clean Energy

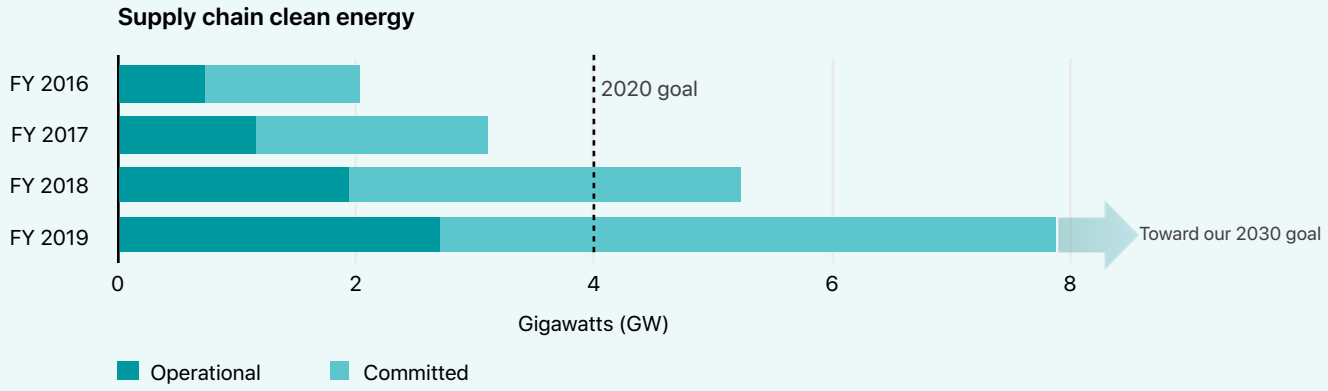
2020 Program Update

Apple is committed to addressing climate change and increasing the use of renewable energy around the world. We started by reaching 100 percent renewable energy for Apple's facilities. In October 2015, we launched the Supplier Clean Energy Program to advance clean energy through our manufacturing supply chain. Since then, we have made strong progress toward our initial goal to bring online 4 gigawatts of new clean energy by 2020. This momentum has led to our most ambitious goal to date: to transition the electricity used across our entire manufacturing supply chain—including material extraction, component manufacturing, and final product assembly—to 100 percent renewable sources by 2030.

Supplier Clean Energy Program

100%
supply chain clean energy by 2030

The Supplier Clean Energy Program is integral to reducing Apple's overall emissions. Emissions from manufacturing make up about three quarters of Apple's overall carbon footprint. And most of those emissions are from the electricity used to make the parts in our products. So we're focused on increasing energy efficiency at supplier facilities, and then on transitioning suppliers to clean, renewable electricity. 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.



To ensure that our program achieves the greatest positive impact, we require that all supplier clean energy projects meet stringent social and environmental standards. The data above reflects 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 for fiscal year 2019. Commitments are current as of June 2020.

We're proud of the progress our suppliers have made. To date, 71 manufacturing partners in 17 countries have committed to 100 percent renewable energy for Apple production. Apple itself has invested directly in renewable energy projects to cover a portion of upstream emissions. The Supplier Clean Energy Program

now has 7.8 gigawatts of clean energy commitments. Once completed, these commitments will avoid over 14.3 million metric tons of CO2e annually—the equivalent of taking over 3 million cars off the road each year.[1]

> "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

Apple's Role

Apple envisions a world where renewable energy is cost-effective, reliable, and widely available to all. As we work with suppliers to grow their use of clean energy, we look for ways to achieve those broader goals as well:

Demonstrating leadership in our suppliers' markets. The transition to renewable energy can require complicated deal structures across many regions with diverse market designs and regulatory requirements. Apple seeks to break down that complexity for our suppliers by sharing what we've learned from our own investments in renewable energy—often in challenging markets. For example, we've helped to develop nearly 500 megawatts of solar and wind projects in China and Japan to address upstream emissions in our supply chain.

Connecting suppliers to high-quality projects. We develop new tools for our suppliers to help execute on their renewable energy goals. In many markets where we operate, companies have limited options to access clean energy. To break down that barrier, we created the China Clean Energy Fund, which enables Apple and our suppliers to invest in clean energy projects totaling more than 1 gigawatt of renewable energy in China. We also connect suppliers with opportunities to buy renewable energy directly from project developers and utilities as those models emerge around the globe.

Building clean energy champions. We leverage our own experience and bring in world-leading experts to help our supplier partners plot their transitions to renewable energy. Building on the success of our Supplier Clean Energy Portal, which offers training and tools for suppliers switching to clean energy, in 2019 Apple hosted its first in-person training for over 30 suppliers in China. The intensive, two-day training equipped suppliers with the market insights, policy analysis, and tools needed to drive renewable energy solutions—within Apple's supply chain and beyond.

Advocating for strong policy. Suppliers often face regulatory barriers to cost-effective renewable energy options. Clean energy technology offers tremendous benefits to our suppliers, to electricity grids, and to countries. We believe that when policymakers fully value these benefits, clean energy becomes more cost competitive than fossil fuel energy. So we actively support policies that create cost-effective renewable energy markets, and we work closely with suppliers and other climate-leading companies to engage local, regional, and national governments. This encourages the development of country-specific policies that support scalable renewable energy solutions, with impact far beyond Apple's supply chain.

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[1] Greenhouse gas equivalency is calculated using the U.S. EPA Greenhouse Gas Equivalencies Calculator: www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

Supplier Commitments

As we continue transitioning our supply chain to clean energy, these 71 suppliers—including 28 new commitments in the past year—have committed globally to producing Apple products with 100 percent clean energy:

- II-VI Incorporated*
- 3M*
- Advanced International Multitech
- Amphenol*
- Arkema
- ASE Technology Holding*
- ATL*
- AT&S
- Avary Holding*
- Bemis Associates
- Biel Crystal (HK) Manufactory Ltd.
- BOE
- Boyd Corporation*
- BYD Electronic (International) Company Limited*
- Catcher Technology
- Compal Electronics
- Compeq*
- Corning Incorporated
- COSMO
- Cowell Optics Electronic Ltd.*
- Daesang*
- Dexerials Corporation*
- DSM Engineering Plastics
- ECCO Leather
- Fastway Creation
- Flex Ltd.*
- Goertek
- Golden Arrow
- Guangzhou Meadville Electronics*
- H.B. Fuller
- Henkel*
- Hon Hai Precision Industry
- Hutchinson Technology, Inc.*
- IBIDEN Co., LTD.
- Jabil
- Keiwa Incorporated*
- Kersen Science and Technology*
- Kunshan KIMD Co., Ltd.*
- LEALEA Enterprise
- Lens Technology
- Lingyi iTech*
- Lishen
- Luen Fung Group
- Luxshare-ICT
- Nidec
- Nitto Denko Corporation*
- OFILM*
- Pegatron
- Phone In Mag-Electronics*
- Primax Group
- Qorvo
- Quadrant
- Quanta Computer
- RRD
- RyPax
- SanHuan
- SDK
- Seiko Advance Ltd.*
- Shenghe Resource*
- SK hynix*
- Solvay
- Sony Semiconductor Solutions*
- STMicroelectronics
- Sunway Communication
- Sunwoda Electronic
- Suzhou Anjie Technology*
- Taiyo Holdings Co., Ltd.
- tesa SE
- TSMC
- Wistron
- Yuto

*Suppliers that have committed to 100 percent renewable energy since publication of the last Program Update in April 2019.

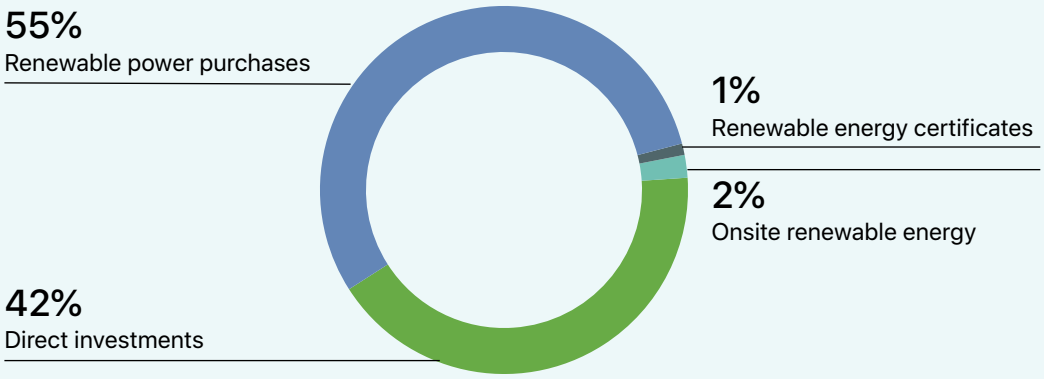
Supplier Projects

We help our suppliers select projects with the greatest potential for impact and with a clear carbon, ecological, and social benefit. In most cases, wind and solar solutions meet our criteria. For some energy solutions, such as biomass and hydroelectric generation, we review individual projects to ensure that it delivers positive impact while minimizing harm. We also 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 suppliers listed below is making progress toward meeting their commitment to 100 percent renewable energy for all Apple production. The majority of suppliers find solutions in the same province, state, or grid region in which they operate.

We want to be a driving force for new projects and help overcome barriers to bring new renewable energy online. With the rapidly changing policy dynamics in some of our key countries, we continuously evolve our framework both to comply with local laws and regulations and to yield the most positive and meaningful energy transformation.

Identified supplier renewable energy solutions



Apple and its suppliers are implementing clean energy solutions using a variety of contracting mechanisms—with renewable power purchases and direct project investments representing 55 and 42 percent, respectively, of all solutions identified or implemented to date.

Supplier-identified renewable energy solutions

Supplier	Onsite Renewable Projects	Offsite Renewable Projects					Markets
		Power Purchases	Direct Investments	China Clean Energy Fund	Utility	Certificates	
II-VI Incorporated						✓	USA
3M		≈					China, Germany, Japan, Singapore, USA
Advanced International Multitech		☀					China
Amphenol	☀						China
Arkema						✓	China, France, USA
ASE Technology Holding	☀					✓	China, Taiwan
ATL				✓			China
AT&S	TBD						China
Avary Holding	☀	≈					China
Bemis Associates		☀				✓	USA
Biel Crystal (HK) Manufactory Ltd.	☀	≈ ☀					China, Vietnam
BOE	☀	💧	☀				China
Boyd Corporation	TBD						China, Thailand
BYD Electronic (International) Company Limited	TBD						China
Catcher Technology	☀			✓			China
Compal Electronics	☀			✓			China
Compeq		≈ ☀					China, Taiwan
Corning Incorporated		☀		✓			Republic of Korea, Taiwan, USA
COSMO		≈					China
Cowell Optics Electronic Ltd.		☀					China
Daesang	☀				✓		Republic of Korea
Dexerials Corporation		💧				✓	Japan
DSM Engineering Plastics	☀	≈					China, Netherlands, Taiwan
ECCO Leather	☀ 🐄					✓	China, Netherlands
Fastway Creation	☀						China

Supplier	Onsite Renewable Projects	Offsite Renewable Projects					Markets
		Power Purchases	Direct Investments	China Clean Energy Fund	Utility	Certificates	
Flex Ltd.	☀	≋					China, India, USA
Goertek	☀	≋					China, Vietnam
Golden Arrow	☀			✓			China
Guangzhou Meadville Electronics		🌲					China
H.B. Fuller						✓	China, Germany, USA
Henkel	TBD						China, USA
Hon Hai Precision Industry	☀	☀ ≋	☀				Brazil, China, India, USA
Hutchinson Technology, Inc.	TBD						USA
IBIDEN Co., LTD.	☀						Japan, Malaysia
Jabil		☀ ≋		✓			China, Taiwan
Keiwa Incorporated	TBD						Japan
Kersen Science and Technology	☀						China
Kunshan KIMD Co. Ltd.						✓	China
LEALEA Enterprise	☀						Taiwan
Lens Technology	☀	☀ ≋					China, Vietnam
Lingyi iTech	☀	☀ ≋					Brazil, China, India
Lishen	☀						China
Luen Fung Group		🌲					China
Luxshare-ICT	☀			✓			China, Vietnam
Nidec	TBD						China, Philippines, Vietnam
Nitto Denko Corporation	TBD						China, Japan, Republic of Korea
OFILM	TBD						China
Pegatron	☀			✓			China
Phone In Mag-Electronics	☀						China
Primax Group		🌲					China
Qorvo						✓	China, Costa Rica, USA

Supplier	Onsite Renewable Projects	Offsite Renewable Projects					Markets
		Power Purchases	Direct Investments	China Clean Energy Fund	Utility	Certificates	
Quadrant	☀						China
Quanta Computer			☀ ≋				China
RRD	☀	❦					China
RyPax		≋					China
SanHuan	☀						China
SDK	☀						China
Seiko Advance Ltd.					❦	≋	China, Japan
Shenghe Resource		✓				✓	China
SK hynix	TBD						China, Republic of Korea
Solvay	☀	☀		✓		✓	Belgium, China, France, Germany, India, Italy, USA
Sony Semiconductor Solutions	TBD						Japan
STMicroelectronics	☀					✓	China, France, Italy, Malaysia, Malta, Philippines, Singapore
Sunway Communication				✓			China
Sunwoda Electronic			☀				China, India
Suzhou Anjie Technology	☀						China
Taiyo Holdings Co., Ltd.	☀		☀				Japan
tesa SE						✓	China, Germany
TSMC	☀	☀ ≋				✓	China, Taiwan
Wistron	☀			✓			China, India
Yuto	☀		☀				China, India, Vietnam
Legend	☀ Solar energy	≋ Wind energy		💧 Low-impact hydro	❦ Biomass		Biogas

Notes:

- Solutions are either online, in process, or planned.
- TBD reflects solutions not yet finalized.
- Biomass is sourced from China's largest biomass plant, located in Guangdong Province. The project has undergone rigorous evaluation to make sure it meets Apple's high standards for ensuring 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.
- Solutions listed reflect part of supplier's global portfolio. In the case of suppliers operating in multiple geographies, listed solutions may be implemented in one market and not in others.
- Under the "Markets" column heading in the chart above, "China" refers to the energy market in mainland China.