xStorage Home

Powering Business Worldwide

NISSAN
MOTOR CORPORATION

Get ready for rising energy challenges

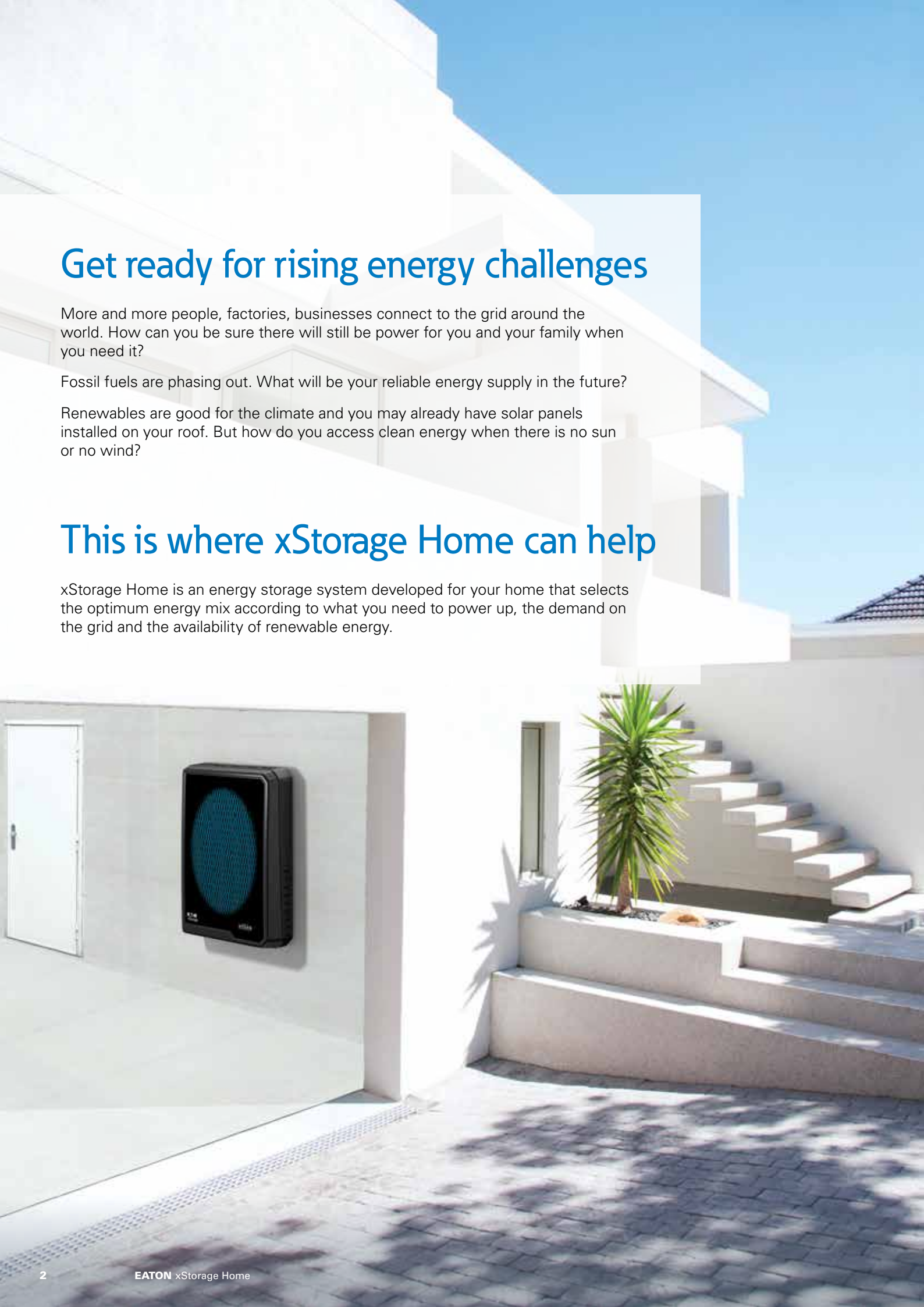
More and more people, factories, businesses connect to the grid around the world. How can you be sure there will still be power for you and your family when you need it?

Fossil fuels are phasing out. What will be your reliable energy supply in the future?

Renewables are good for the climate and you may already have solar panels installed on your roof. But how do you access clean energy when there is no sun or no wind?

This is where xStorage Home can help

xStorage Home is an energy storage system developed for your home that selects the optimum energy mix according to what you need to power up, the demand on the grid and the availability of renewable energy.



Discover xStorage Home

Home battery storage systems consist of a power conversion system (inverter) combined with lithium-ion batteries and associated electrical control, protection and distribution devices.

xStorage Home combines power electronics from global power management leader Eaton with new or used lithium-ion batteries from Nissan Leaf electric vehicles.

It can be installed in a home as a hub for incoming and outgoing power, connecting renewable and grid power to the home and can, in some cases, even support integration with electric vehicle batteries when parked overnight.

Stored energy can be used throughout the day, but is particularly valuable either when the sun is no longer shining, or when grid electricity prices are highest.

Here is how it helps you maximize your solar energy consumption

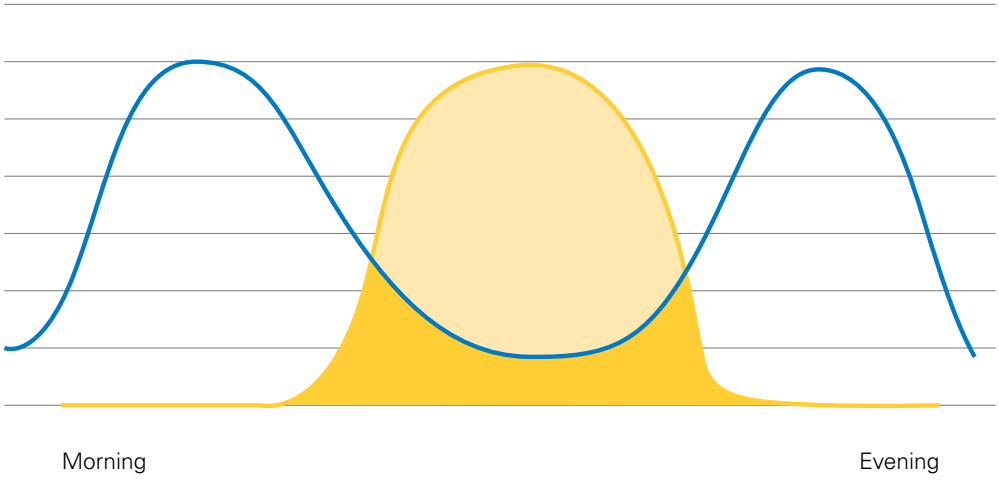
During the day when the sun is shining, xStorage Home powers the load directly with renewable energy thereby lowering your energy costs. It can also charge the battery with renewable energy if you're not at home for use later in the evening when you're back home.

In the evening, it is peak time as everybody is back at home and needs power. xStorage Home uses the energy stored in the battery to power the load.

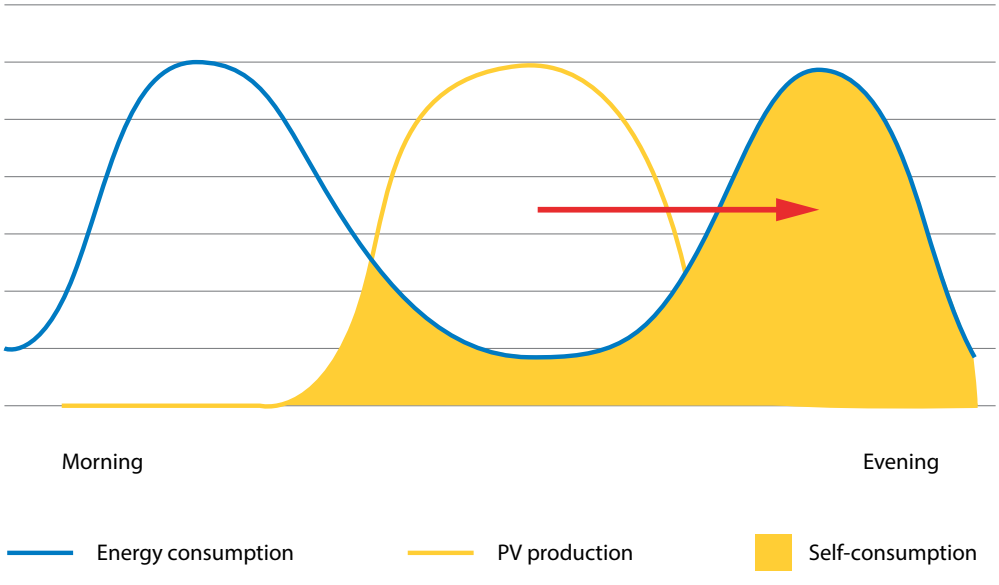
If the energy demand is very high, it can also release it to the grid to support the needs of other households.

In a nutshell, here is what happens in a day:

Solar self-consumption without energy storage



Solar self-consumption with energy storage



What xStorage Home can do for you

Plugged to a solar panel and the public grid, xStorage Home allows you to:

Save money

xStorage Home can save on energy bills by using more solar and harvesting cheap off-peak electricity.

Be more energy independent

xStorage Home puts you in control of your energy, either maximising self-generated solar power, or choosing when to charge from the grid based on variable pricing tariffs.

Keep the lights on

xStorage Home can provide your house with energy if the grid fails, powering your lights and security systems.

Lower your CO_2 footprint

xStorage Home provides solar power storage - harvesting energy produced during the day to use morning, noon and night.

Optimize your energy easily

Once set-up by a certified installer, the unit is ready to go and can be plugged in and powered up simply and easily.

Stay safe

xStorage Home battery systems have been developed to meet the highest electrical safety standards. Eaton is a global power management leader working with highly qualified installers.

Optimize your energy from the xStorage Home app

You'll be able to follow the generation and consumption of your energy, check your battery status, all from your phone or tablet, over the app's friendly interface.

Authorised Installer
xStorage Home

Rely on Eaton and a trusted network of installers

Eaton is a 100 year power management company with a depth of experience unmatched by most energy storage system providers.

We have selected and certified highly qualified installers to ensure you optimize your energy in a way that is safe, reliable and sustainable. You can find your closest installer on eaton.com/xstorage.

Get in touch

We would love to hear from you and help you optimize your energy.

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eaton.com/xstorage

Technical specifications

System overview

The following Table 1 provides a general overview of battery capacity and inverter power range combinations that can be integrated together with the PV solar system. Physical properties of the system are included as well.

Table 1 System combinations

xStorage Home single phase system combinations overview						
Battery Capacity (nominal)	**AC Inverter Power (nominal)**			**Recommended PV power range**	**Full system weight (appr.)**	**Full system dimensions (appr.) H x W x D**
4.2 kWh	3.6 kW	4.6 kW	6 kW	from 3 kWp to 7 kWp	135 kg	1230 mm x 890 mm x 220 mm
6 kWh						
10.08 kWh						

Battery pack

The xStorage Home system offers a range of three battery capacities. Note that the 4.2 kWh which is the smallest in size represents the 2nd life batteries previously used in the Nissan Leaf electric vehicles while the 6 kWh and 10.08 kWh battery packs use new batteries. Table 2 provides a technical specification for all three different battery packs.

Table 2 xStorage Home battery pack technical specifications

Battery pack	**BATTERY TYPE**		
	SECOND LIFE	**NEW**	
Nominal capacity	4.2 kWh	6 kWh	10.08 kWh
Cell chemistry	LMO (Lithium Manganese Oxide)		NMC (Lithium Nickel Manganese Cobalt)
DC battery voltage range	74.4 V to 98.4 V		
Battery nominal voltage rating	90 V		
Overcharge protection	Fuse + Contactor		
Depth of Discharge (DoD)	90 %		
Standards	EN 62619:2017; UN 34.81; UN 38.3; CE		
EMC/EMI standard	Class B (EN 61000-6-3:2007; EN 61000-6-1:2007)		
Physical properties			
Dimensions	442 mm x 781 mm x 175 mm (H x W x D)		
Weight	83 kg		

Hybrid inverter

The xStorage Home system offers three different power inverter ranges. The following Table 3 provides a technical specification for all three different hybrid inverters.

Table 3 xStorage Home hybrid inverter technical specifications

Hybrid inverter	POWER RANGE		
	3.6 kW	4.6 kW	6 kW
PV INPUT (DC)			
Recommended PV power range	from 3 kWp to 7 kWp		
Max. DC voltage	500 V		
Nominal DC operating voltage	100 V to 500 V		
MPPT max. voltage range	240 V to 500 V		
Max. input current	20 A		
Initial feeding voltage	150 V		
Max continuous current	70 A		
Isc PV	35 A		
Max inverter backfeed current to the array	0		
Number of MPPT Trackers	1		
DC insulation resistance	VDE0126 and VDE0126-1-1/A1: R_{iso} > 1.5 MΩ, Others: R_{iso} > 200 kΩ		
BATTERY INPUT/OUTPUT			
Nominal capacity	4.2 kWh	6 kWh	10.08 kWh
Cell chemistry	LMO (Lithium Manganese Oxide) and NMC (Lithium Nickel Manganese Cobalt		
Max C/D DC current	42 A	54 A	70 A
DC battery voltage range	74.4 V to 98.4 V		
Battery nominal voltage rating	90 V		
LOAD/GRID OUTPUT (AC)			
Nominal Output Power	3600 VA	4600 VA	6000 VA
Max. Critical Load	70 % of nominal output power		
Nominal AC Grid Voltage	230 V (Grid-Tie), 230 V ± 3 % (Off-Grid)		
Nominal frequency	AC Synchronized operation 50 Hz / 60 Hz ± 1 Hz		
Nominal AC output current	15.6 A	20 A	26 A
Max. AC current	17.4 A[1]	22.3 A	29 A
AC wiring systems	Single phase/N/PE, TN, TT, IT (additional fuse or CB required)		
Total Harmonic Distortion (THD)	< 3 %		
Power Factor	0.99 (Grid-Tie), 0.8 (ind) - 0.8 (cap) (Grid Tie-PF regulation, Off-Grid)		
Metering capability	Power metering of critical loads and PV production		
EFFICIENCY			
MPPT efficiency	> 99 %		
Max. efficiency (battery to AC)	> 90 %		
PV to grid max. efficiency	97 %		
Standby Losses	< 10 W		
INTERFACE			
Communication	LAN, RS-485, USB Host (with USB WIFI dongle)		
	USB: Type B receptacle for firmware upgrade		
	CAN BUS: Only for battery pack - inverter internal communications		
Communications protocols	HTTP, REST, API		
LED indicators	**Green (ON)**: Normal status; **Red (ON)**: Fault status. Inverter is unable to connect to the grid; **Green (Blinking)**: Communication activity		
Display	LCM display: Character 16 words, 2 lines, 3 Function keys		
STANDARDS			
EMC/EMI standard	Class A IEC 61000-3-2; IEC 61000-3-3 (XSTH1P036P048V01); IEC 61000-3-12; IEC 61000-3-11 (XSTH1P046P048V01 and XSTH1P060P048V01)		
Standards	EN 62109 (part 1:2010, part 2:2011); DIN V VDE V0126-1:2013		
PHYSICAL PROPERTIES			
Dimensions	515 mm x 796 mm x 182 mm (H x W x D)		
Weight	37 kg		

1. For UK installations, as per G83 certification of the product, Maximum AC current is below 16 A via the product firmware.

General specifications

Please find below an overview of the technical specifications applying to the fully integrated xStorage Home system.

Table 4 General technical specifications

General system specifications	XSTORAGE HOME SYSTEM
	Applicable for all system combinations
SAFETY	
Degree of protection	IP20[2]
Hazard substance restriction	Lead free, compliance with RoHS GP2
Standards	CE - LVD: 2014/35/EU; EMCD: 2014/30/EU (EN 61000-6-3:2007+A1:2011; EN 61000-6-1:2007); RoHS: 2011/65/EU (EN 50581:2012)
Protective Class	I
OPERATING CONDITIONS	
Storage temperature range	from -10 °C to 40 °C
Operating temperature	0 °C to 30 °C
Humidity	5 % to 95 % Relative Humidity (Non condensing)
Acoustic noise	35 dB (indoor application)
Altitude	Elevation: max 2000 meters
Cooling	Natural airflow
OTHERS	
Solar DC Switch	Integrated
Topology	Transformerless
Grid integration	AC coupled
Grid certificates	DE (VDE-AR-N 4105:2011-08; DIN VDE V 0124-100:2012-07); UK (G83/2, G59/3-2, G83-1 for Northern Ireland); FR (UTE C15-712-1, Enedis/ERDF-NOI-RES_13E:2016, SEI REF04_V6 for non interconnected area); IT (CEI 0-21); BE (C10-11); SP (RD 1699:2011); EU (EN 50438:2013)
Common use cases	Grid tie: self-consumption; Off-grid: backup
OV category	OVC II (PV and Battery), OVC III (AC grid/load)
Degree of pollution	2

2. Indoor, with all power cables connected

Warranty

Please find below an overview of the warranty applying to the fully integrated xStorage Home system.

	3.6 kW	4.6 kW	6 kW
4.2 kWh	5 years[3]		
6 kWh	10 years[3]		
10 kWh			

3. full cycle per day i.e. one Charge/Discharge

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Publication No. BR700001EN / CSSC-1086
June 2018

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