STAYING POWER:
65 RENEWABLE ENERGY HOMES STATS

Renewable energy is generated from natural resources such as the sun, wind, and water, using technology which ensures that the energy stores are naturally replenished. Instead of buying all their energy from suppliers, homeowners can nowadays install renewable technology to generate their own

GENERAL STATS & FACTS

THE RELATIONSHIP BETWEEN RENEWABLE ENERGY AND SUSTAINABILITY

RENEWABLE ENERGY

SUSTAINABILITY

- Processes or products that create energy with renewable resources
- Only applies to specific methods of generating energy
- Can be sustainable when executed correctly

- Thinking that guides the conscientious use of natural resources
- Can be applied to everything we do in the office and at home
- Includes using renewable energy sources

In 2017, global energy demand grew by **2.2%**.

60% of the increase in primary energy was provided by natural gas and renewable energy.

Wind provided more than half of renewables growth, while solar contributed more than a third.

CONCERNS THAT LEAD TO ACTION ON SAVING ENERGY AT HOME

Climate change
And the potential to reduce carbon emissions from home

Cost
Concerns about energy bills

Control
Do householders feel in control of their energy consumption?

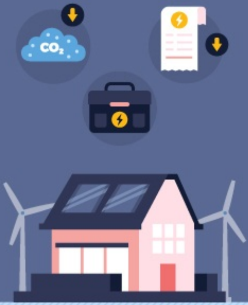
Comfort

Are homes warm enough?

The condition of the home

Are there problems with dampness, draughts, or mold?

PROS OF INSTALLING RENEWABLES



- Making use of secure and local resources
- Reducing dependence on non-renewable energy
- Creating new jobs in renewable energy industries
- Helping to reduce the production of carbon dioxide and other greenhouse gases
- Reducing energy bills. In some cases, you can even generate income by selling your surplus energy back to your energy provider

ENERGY EFFICIENCY

FUNCTIONS OF DOMESTIC ENERGY EFFICIENCY INVESTMENTS

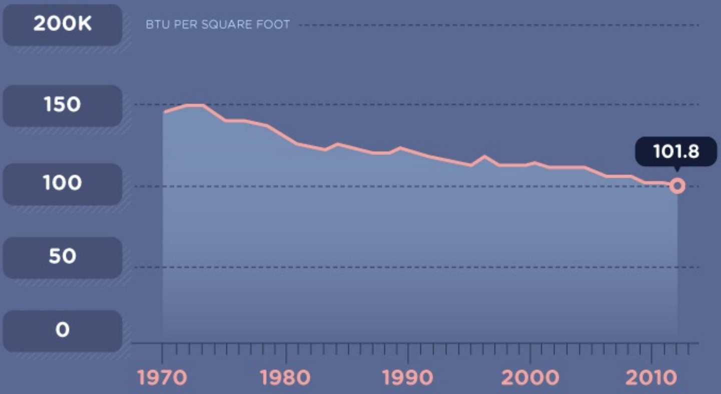
They result in

They reduce

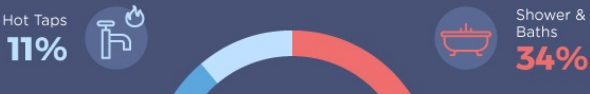
warmer and more comfortable homes

energy use

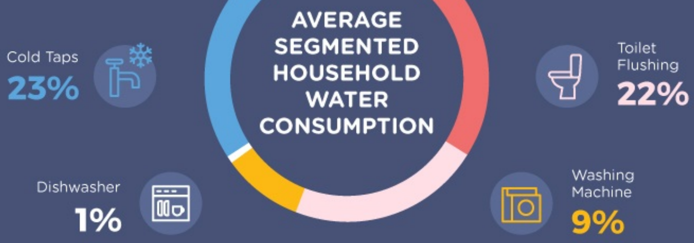
AVERAGE ANNUAL ENERGY USE OF U.S. HOMES, WEATHER-ADJUSTED



The total number of housing units rose by **80%** over the past four decades, but collectively they used just **45%** more Btu (British thermal units) than in 1970.



AVERAGE SEGMENTED HOUSEHOLD WATER CONSUMPTION



FACTS ABOUT ELECTRICITY

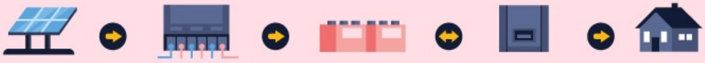
In 2017, Power generation rose by **2.8%**, close to the 10-year average. **94%** of the growth came from emerging economies.

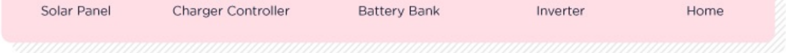
Renewables accounted for **49%** of the growth in power generation, mostly provided by coal (**44%**).

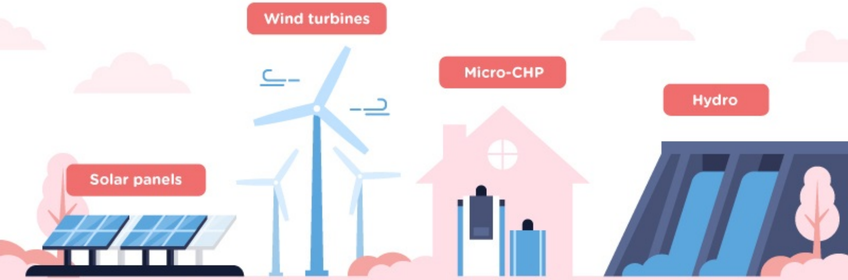
The share of renewables in global power generation rose to **8.4%.**

OPTIONS FOR GENERATING ELECTRICITY

Off-Grid







Five years ago, **84%** of house owners said they would want solar panels, regarding the benefits but not the costs

Solar PV broke the record in 2017 with **178** gigawatts, accounting for more than two-thirds of global net electricity capacity growth for the first time.

39% men are nearly twice as likely as **21%** women to correctly identify that solar thermal panels provide hot water.

FACTS ABOUT HEATING

Difficulty in heating rooms is the biggest single predictor for householders considering or planning energy saving action

OPTIONS FOR GENERATING HEAT

Biomass

Air source heat pumps

Solar water heating

Ground source heat pumps

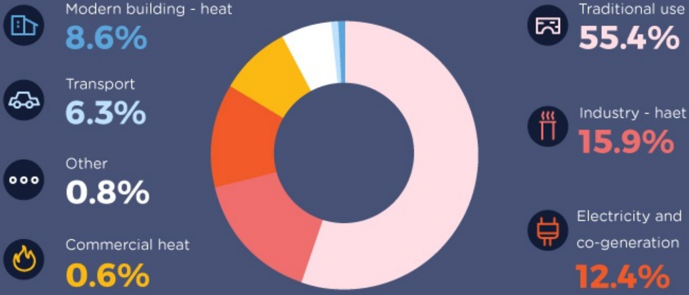
Thermal stores

BIOENERGY AND BIOFUELS

- Bioenergy accounts for roughly 9% of the world total primary energy supply today.

- Over half of this relates to the traditional use of biomass for cooking and heating, with impacts on health and the environment.

CONSUMPTION OF BIOMASS AND WASTE RESOURCES BY END USE IN 2015

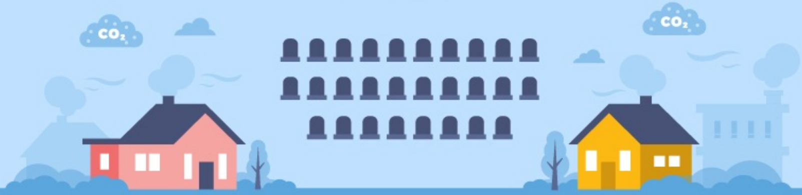


INTERESTING FACT

In 2018, the share of modern bioenergy in the world's total renewables consumption was about **50%**, in other words as much as hydro, wind, solar and all other renewables combined.

ENERGY ACCESS

Household air pollution is responsible for **2.8 M** premature deaths worldwide each year



ENERGY ACCESS DEPENDS ON

Economic growth

Human development

Environmental sustainability

The number of people without access to electricity worldwide fell to below **1.1 B** people for the first time in 2016, and nearly **1.2 B** people have gained access since 2000. **500 M** were in India

CLEAN COOKING ACCESS IN 2017

2.8 billion people do not have access to clean cooking facilities

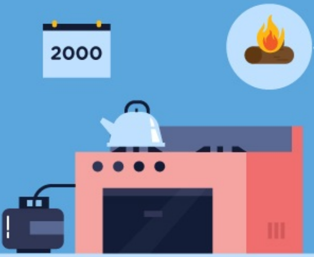
A third of the world's population—**2.5 billion** people—relies on the traditional use of solid biomass to cook their meals

Around **120 million** people use kerosene, and **170 million** use coal.

Since 2000, the number of people in developing countries with access to clean cooking has grown by **60%.**

In Asia, 1.65 billion people (**43%** of the population) rely on biomass for cooking. This represents an increase of **160 million** people since 2000.

A further **225 million** people cook with coal and kerosene, a decline from **600 million** in 2000, due to switching to LPG, natural gas, and electricity.



The least progress is in Sub-Saharan Africa, where **80%** of the population still cooks with solid biomass

Smart home technologies aim to educate consumers and make energy use more transparent and accurate, thereby saving money

HOMEOWNERS' PERSPECTIVE

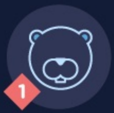
90% of homeowners who have completed a home improvement in the last three years have made energy efficiency upgrades

WHAT HAVE WE LEARNED IN THE PAST FIVE YEARS?

- The LED lighting is one of the most cost-effective technologies currently available to homeowners
- The top reasons people are not buying LEDs are the cost (**30%** of people) and lack of right fittings (**22%**)
- Householders familiar with LED bulbs seem happy with the way they work - only **7%** report a negative experience

- Only **11%** of tenants thought their landlord would make an energy efficiency upgrade without raising the rent. **14%** of tenants thought landlords would make the upgrade while asking for higher rent
- **59%** would be more likely to rent or buy a property with a renewable energy system such as a solar panel or heat pump

THE ARCHETYPES OF SOCIAL GROUPS AND THEIR ENGAGEMENT WITH SMART HOME AND ENERGY TECHNOLOGIES



1

The Human Machine
BEAVER

2

The Passive
KOALA

3

Smarter Than Smart
FOX

These early adopter energy geeks follow, test, and use all smart data

Lets the machine do the work but won't do very much to lend it a hand. Trusting in technology until something goes wrong

Hyper-critical of new technologies but constantly early-adopting if they can afford it

System Thinkers

GOOSE

Puts other people's needs ahead of their own

Precarious

FIELD MOUSE

Isolated from knowledge of both the potential losses and gains of smart technologies

Gamers

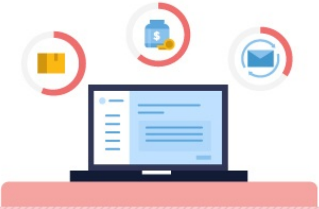
DOLPHIN

Inspired by competition and understands their own situation in relation to the position of others

BUSINESS PERSPECTIVE

Since 2015, **50%** of businesses have taken steps to mitigate the risks of rising energy costs, blackouts, and the long term impact of climate change

52% of them used sustainability messages as part of their marketing activities



78% of them base messages around specific products, with **63%** saying saving money is the most common theme

15% of business owners think there's greater public awareness of sustainability than 10 years ago

WHAT DO CONSUMERS SAY?

In 2015, **70%** of them thought that businesses should be doing more to reduce their impact on climate change

41% of them said they would rather buy electronics, light bulbs, and heating products that feature information on how to use less energy

This year, home buyers said they are willing to pay an additional **$8.5K** on a home in order to save **$1,000** a year in utility bills.

RENEWABLE ENERGY PREDICTIONS

By 2030, renewable energy sources will power over **60%** of new

electricity access

EXPECTATIONS

1. A **34%** reduction in greenhouse gas emissions by 2020, **50%** by the mid-2020s, as much as **80%** by 2050

2. **87%** of householders agreed that new homes should be built with the latest renewables technologies and to the highest standards of energy efficiency possible only **4%** disagreed

ENERGY EFFICIENCY PLANS

- Providing electricity for everyone in the world by 2030 would require an annual investment of **$52 B** per year
- Of the additional investment, **95%** needs to be directed to sub-Saharan Africa

- India is expected to have universal electricity access in the early 2020s, with renewables accounting
- In sub-Saharan Africa, the access rate will reach **59%** by 2030

- The population without access to clean cooking facilities will decline from **2.8 B** people in 2015 to **2.3 B** in 2030
- The number of people in cities relying on biomass will decline by over **40%**

AUTHOR

ANA BERA
ana@safeatlast.com

safeatlast

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