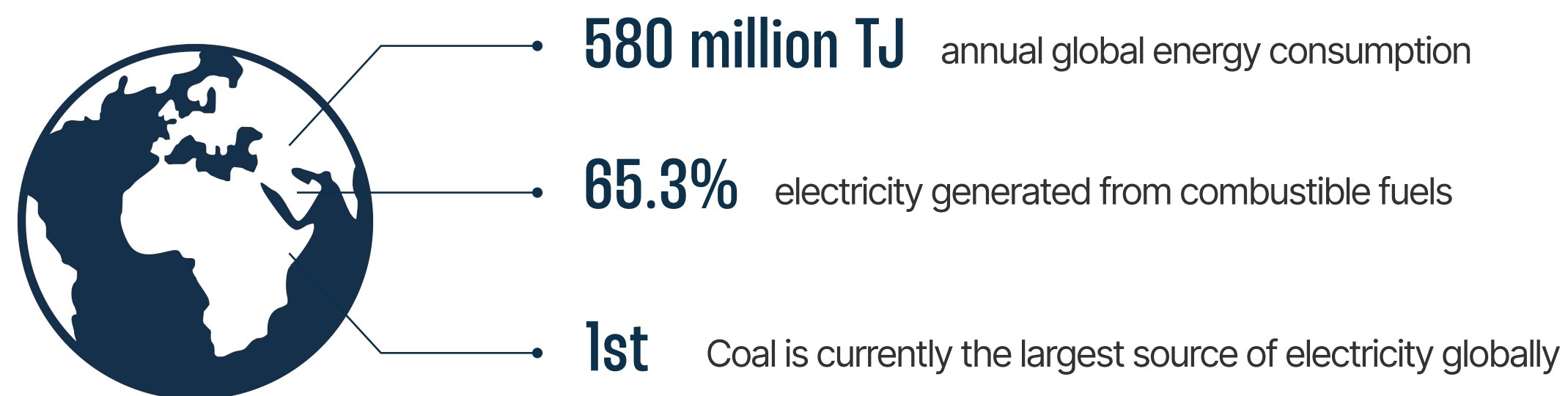In our exploration of human-induced wastage, we've uncovered a less visible yet significant culprit, electricity. Often overlooked, this intangible resource requires substantial resources for its creation but is wasted unknowingly, draining both our wallets and our precious energy reserves. Our research has shed light on the concept of Vampire Power, a phantom shadow silently sapping our resources.

Our objective is to design a service that not only **raises awareness** about this issue but also **provides practical solutions for managing and reducing Vampire Power consumption**.

580 million TJ — annual global energy consumption

65.3% — electricity generated from combustible fuels

1st — Coal is currently the largest source of electricity globally

Source: A report by The World Counts

DISTRIBUTION OF ELECTRICITY CONSUMPTION IN INDIA IN 2023

41%
26%
6%
18%
8%

● Industry   ● Domestic   ● Agriculture   ● Commercial   ● Other
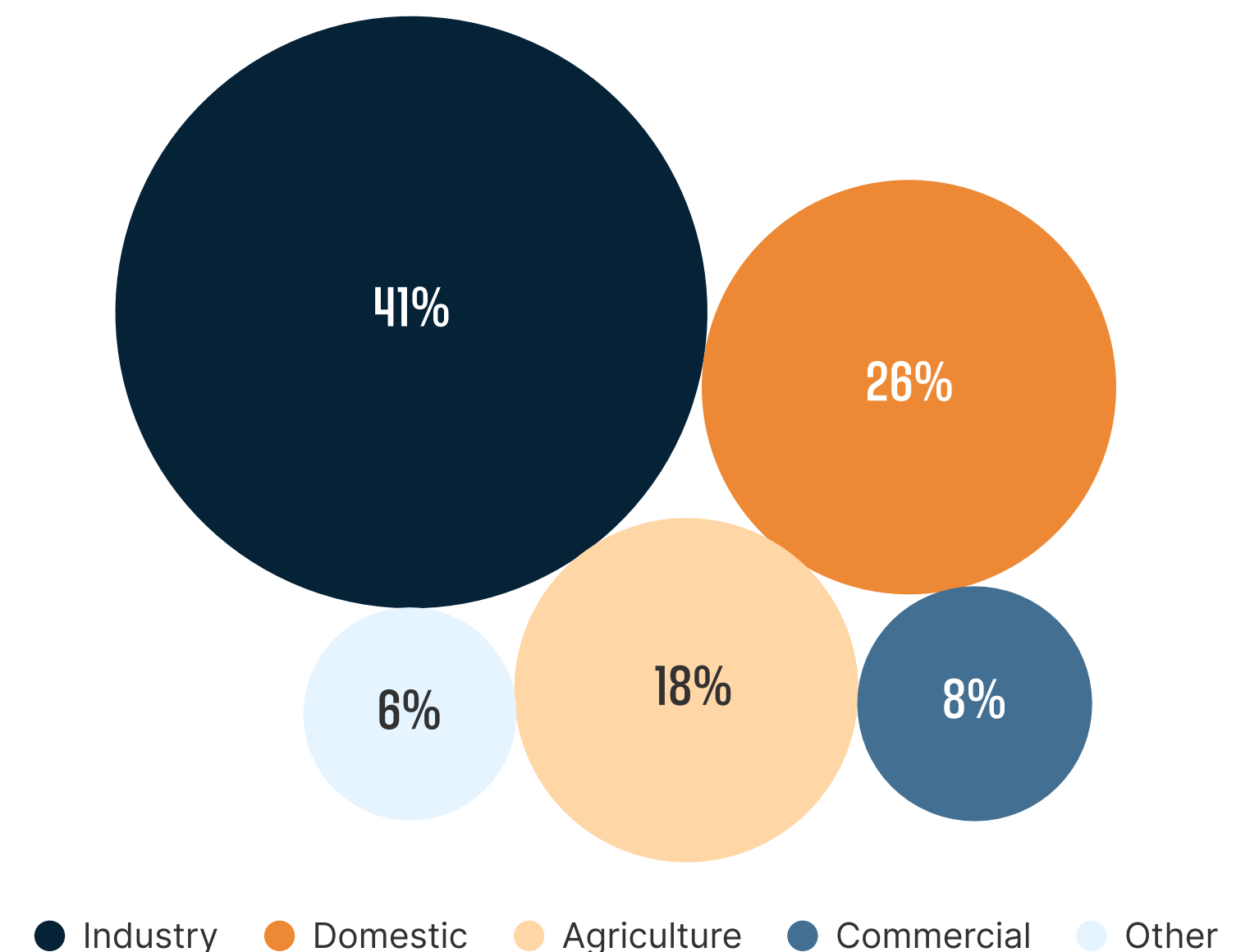
Source: A report by Statista

IN THE INDIAN CONTEXT

In India, power is generated from conventional (Thermal, Nuclear & Hydro) and renewable sources (Wind, Solar, Biomass etc.) Electricity consumption has tripled since 2000, as the percentage of households with access to electricity has increased from 55% in 2001 to more than 84% in 2022. Though electricity generation from renewable sources such as wind and solar have registered robust growth, but still

PRODUCTION

75%

75% of the total power generation is achieved by coal in a thermal power plant

Source-A report by MoSPI India

CONSUMPTION

847 BU

India's electricity consumption grew nearly eight per cent to about 847 billion units in 2023

Source-A news report by Economic Times

WASTAGE

~20%

Nearly 20 per cent of the electricity is lost due to technical and commercial reasons (AT&C Losses)

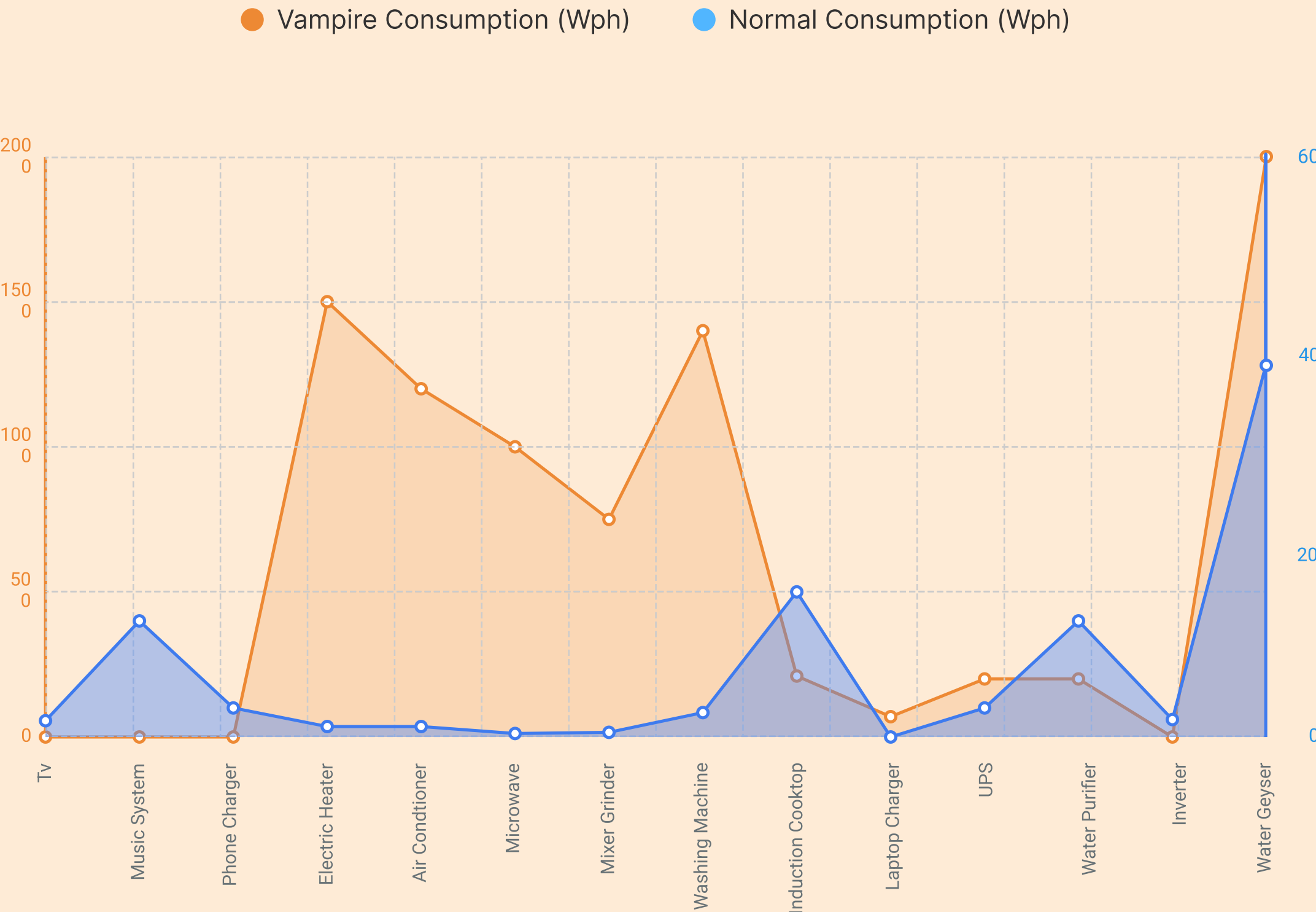*Source-A news report by Financial Express*

*This is the conscious wastage that people are aware of, but there is an unattended power wastage that people are not aware of, known as **Vampire Power***
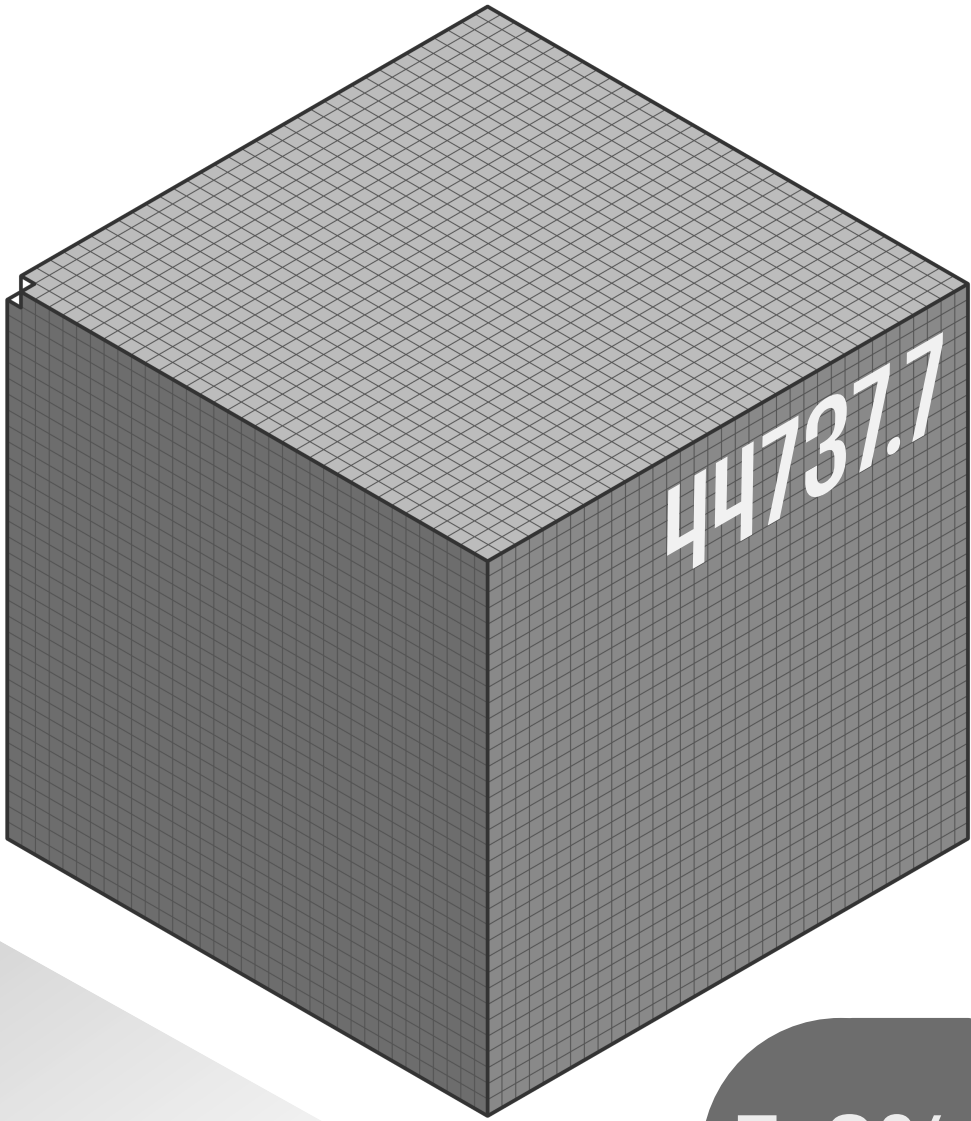
Vampire Power is most commonly known as standby power, phantom load or leaking electricity. It refers to the electric consumption by electronic and electrical appliances while they are switched off or in a stand by mode.

Many of our gadgets never fully shut down so that they're ready to use at a moment's notice. Many printers spend hours in standby mode, waiting to receive signals from connected computers. Before we even pick up your remote control, the TV is already using electricity to power the sensor that will receive the signal.
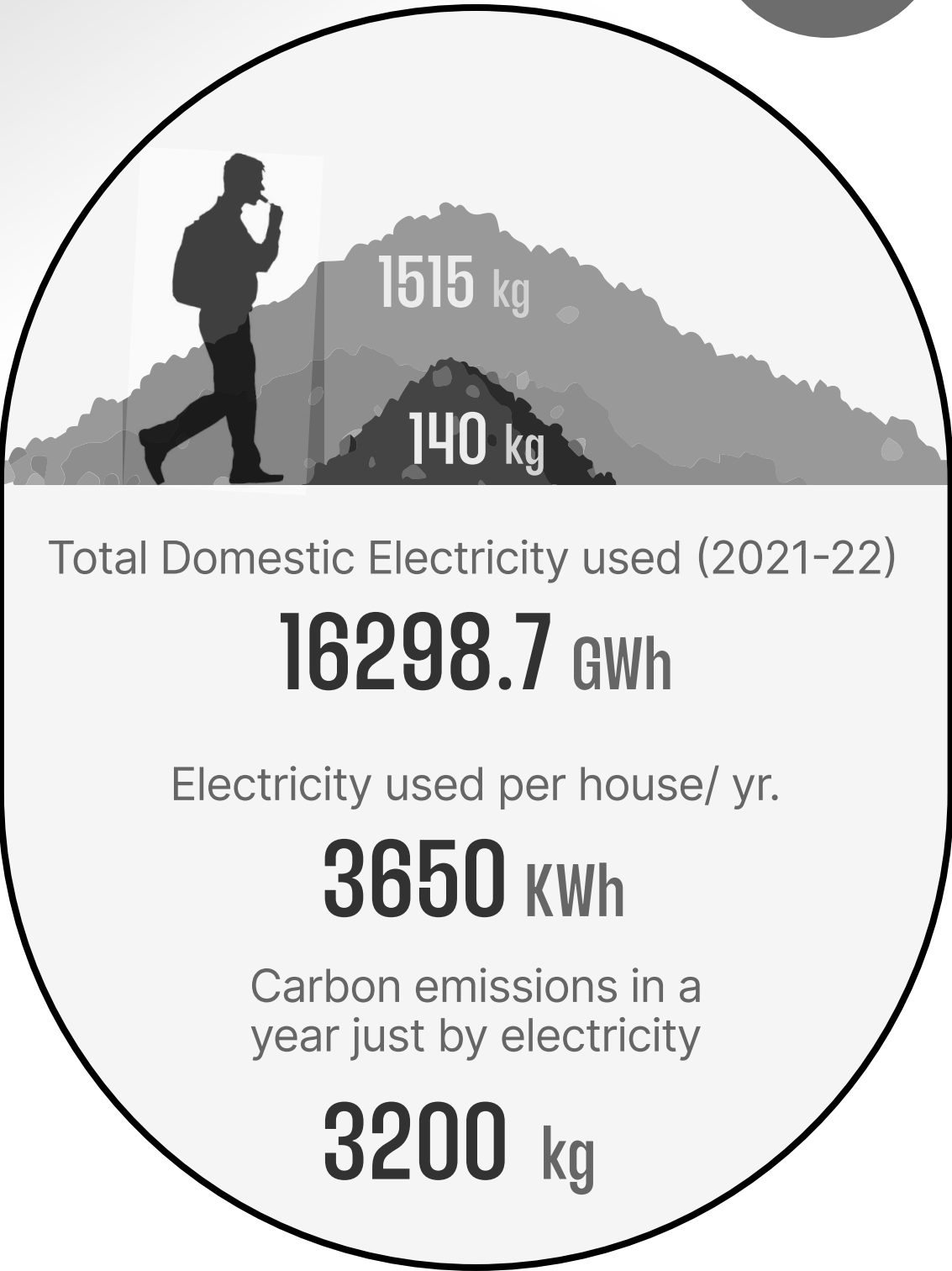
IN THE INDIAN CONTEXT

● Vampire Consumption (Wph) ● Normal Consumption (Wph)

44737.7

x100
Number of house hold in Delhi as of 2021

5-8%
Average Vampire Power usage in Delhi

Coal used by a household/ yr
1515 kg

Coal wasted as Vampire Power (@7%)/ yr
140 kg

1515 kg

140 kg

Total Domestic Electricity used (2021-22)
16298.7 GWh

Electricity used per house/ yr.
3650 KWh

Carbon emissions in a year just by electricity
3200 kg

CO_2 Emissions released by coal per house/ yr.
4379 kg

Practical Inconvenience

Many people perceive the act of switching off appliances as a hassle, often posing practical inconveniences that deter them from doing so regularly. The thought of repeatedly switching off and on appliances seems tedious and unnecessary, especially when the immediate benefits are not readily apparent.

Established behaviour

The routine act of leaving appliances plugged in or in standby mode has now become a habitual behavior, with little thought given to the potential wastage of energy or its environmental consequences

Lack of Awareness

The routine act of leaving appliances plugged in or in standby mode is now a habitual behaviour, with little thought given to the potential wastage of energy or its environmental consequences
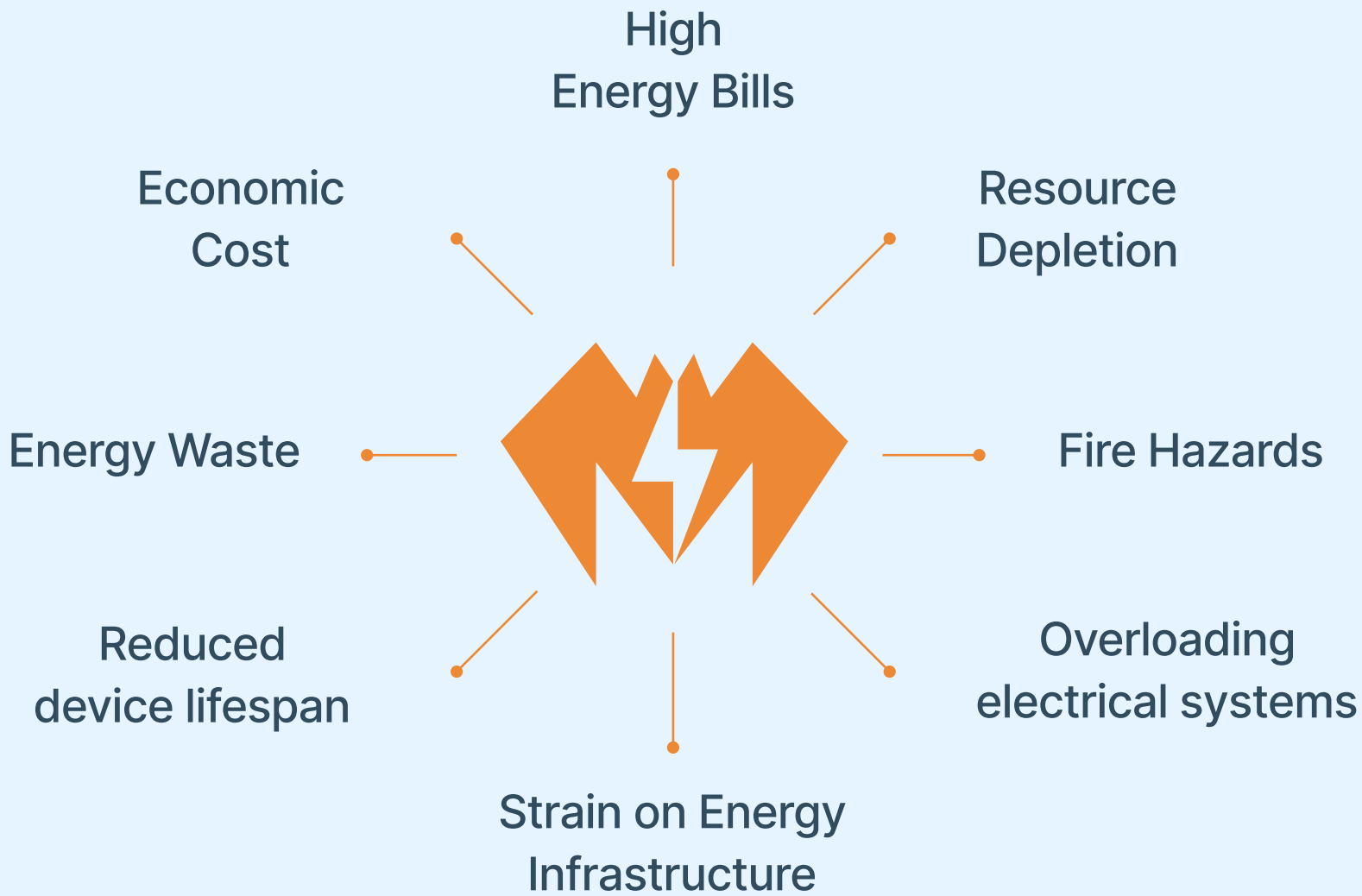
Economically Conscious

Residents of Delhi receive a subsidy that grants them 200 units of electricity free of charge. This incentive encourages individuals to voluntarily limit their electricity consumption in order to save money.

KEY INSIGHTS

Convenience over conservation   Perception of negligible impact

Awareness   Behaviour   Inconspicuous nature of devices

Technological dependencies

IMPACT OF VAMPIRE POWER

High Energy Bills
Economic Cost
Resource Depletion
Energy Waste
Fire Hazards
Reduced device lifespan
Overloading electrical systems
Strain on Energy Infrastructure

In our fast-paced lives, where time is a precious commodity, individuals prioritize convenience and efficiency over energy conservation. With the rise of technology and the increasing number of electronic devices in households, vampire power has become a pervasive issue.

100 bil KWh ≈ **80 mil ton** ≈ **15 mil** 🚐

vampire energy   carbon dioxide   carbon emission

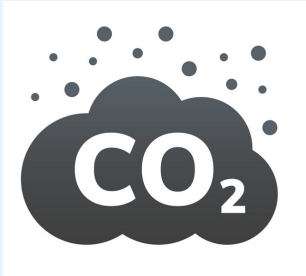*Source: "A billion acts of green: slaying vampire energy" by Earthday.org*

People **NOT** aware of Vampire energy (out of 64 responses)

87%	13%
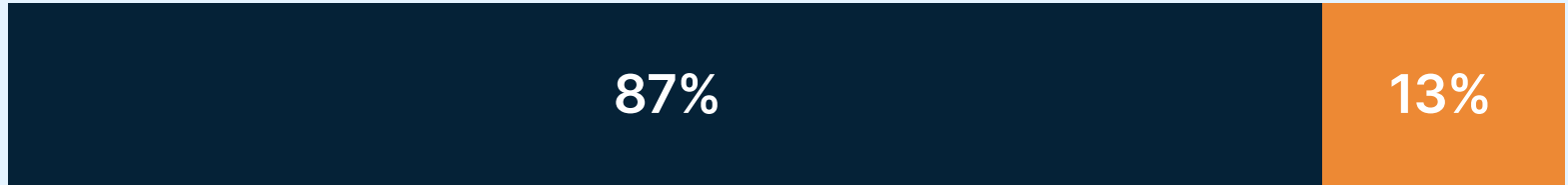
" Vampire power has been on the rise during the past decade, thanks to the proliferation of rechargeable gadgets, computer networks and devices with standby power functions. 2 of 3 households in India worry about the cost of their next bill while they also feel they could know more on saving energy bills "

— *Alan Meier, Senior scientist*
Lawrence Berkeley National Laboratory

Our survey revealed a significant number of individuals who are eager to conserve energy, motivated either by personal benefits or concern for the environment. By effectively engaging with this group, we have the potential to make a substantial impact.

CARBON EMISSION

Total CO2 emission (2021-22)

983 mil ton

Source- A report by GHG platform India

1KWh ≈

0.82 kg CO2

Source- A report by IIT Varanasi

The average carbon intensity for electricity generation in India was around **0.82 kilograms** of CO2per kilowatt-hour (kgCO2/kWh).

Worldwide emissions of carbon dioxide (CO2) from burning fossil fuels total about **34 billion tonnes** (Gt) per year.

Educational Initiatives

Product Design Innovation

Sustained Behaviour Change

Technology Integration

PROBLEM STATEMENT & EXPECTED IMPACT

"How might we enable an ecologically and economically conscious individual to manage and reduce vampire energy consumption at home"

As urban populations grow, so does energy demand, making it crucial to address vampire energy consumption to diminish strain on the energy grid and environmental degradation. Moreover, it aligns with India's commitment to sustainability and can lead to economic benefits for households who are already concerned, by lowering electricity bills and conserving finite resources.

Current Population of Delhi   **Conscious about environmental impact**

34 mil   75% ≈ 25.5 mil

If **1 kwh** per person per month is saved.   →   it leads to, **25.5 million kwh** per person per month

By 2030, We can save around **30 million kwh in a month**. This approach has the potential to inspire approximately 1 billion people to lead more sustainable lives within the planet's boundaries.

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