**Motivation:**

Studying the demand for electricity is important for several reasons, including:

1. Ensuring Adequate Supply: Understanding electricity demand patterns helps to ensure that there is enough supply to meet the needs of consumers. This is important because inadequate supply can lead to blackouts, brownouts, and other forms of electricity rationing, which can have negative consequences for individuals, businesses, and the economy as a whole.
2. Pricing and Cost: Knowledge of electricity demand patterns can help utilities and electricity providers to set pricing and manage costs more effectively. Understanding when and how much electricity is used can help providers to better allocate resources and avoid overbuilding infrastructure that is not needed.
3. Resource Allocation: Understanding demand patterns can help to determine the most efficient use of resources, such as natural gas, coal, and renewable energy sources. This helps to promote more sustainable and environmentally friendly practices.
4. Energy Policy: Data on electricity demand can help policymakers to make informed decisions about energy policy. For example, understanding peak demand times can inform decisions about whether to invest in new power plants or transmission lines, or to promote energy conservation measures.

Numerically, some of the **key stakeholders** that may be interested in power usage include:

1. Electricity suppliers: These are companies that generate and supply electricity to homes and businesses. They are interested in power usage because it affects their ability to generate and supply electricity, and therefore their revenue. They may use power usage data to forecast future demand, plan capacity, and manage their supply chain.
2. Consumers: These are individuals and businesses that use electricity. They are interested in power usage because it affects their energy bills, and therefore their costs. They may use power usage data to monitor their energy consumption, identify opportunities for energy savings, and make more informed decisions about their energy use.
3. Energy regulators: These are government agencies responsible for regulating the electricity industry. They are interested in power usage because it affects the reliability and affordability of the energy supply, and therefore their ability to fulfill their regulatory responsibilities. They may use power usage data to monitor the performance of the energy industry, identify areas for improvement, and make regulatory decisions based on evidence.
4. Environmental organizations: These are non-profit organizations that work to protect the environment. They are interested in power usage because it affects the amount of greenhouse gas emissions and other pollutants that are released into the environment. They may use power usage data to advocate for energy policies that promote renewable energy and energy efficiency, and to educate the public about the environmental impacts of energy use.
5. Technology providers: These are companies that develop and supply technologies for energy generation, distribution, and consumption. They are interested in power usage because it affects the demand for their products and services. They may use power usage data to identify market trends, develop new products and services, and optimize their technology offerings.

There are several **government-related stakeholders** who may be interested in electric usage, including:

1. Energy Departments and Regulators: In many countries, there are government departments responsible for regulating the energy sector and ensuring that electricity providers operate safely, fairly, and efficiently. These departments may be interested in electric usage data to inform their regulatory decisions, such as setting energy prices or enforcing environmental regulations.
2. National Grid Operators: The national grid operator is responsible for managing the electricity transmission network, ensuring the electricity supply matches the demand across the grid. They may need electric usage data to monitor the grid's load and ensure there is enough capacity to meet demand.
3. Energy Efficiency and Renewable Energy Agencies: Governments may establish agencies that promote energy efficiency and the use of renewable energy sources. These agencies may be interested in electric usage data to identify areas of high demand and promote the adoption of energy-efficient technologies or renewable energy sources to meet that demand.
4. Environmental Agencies: Electric usage and the generation of electricity can have environmental impacts, such as greenhouse gas emissions, air pollution, and water use. Environmental agencies may be interested in electric usage data to monitor and regulate the environmental impact of electricity production.

**Government-related stakeholders in Australia** who may be interested in electric usage:

1. Australian Energy Regulator (AER): The AER is a Commonwealth statutory authority responsible for regulating electricity and gas networks in Australia. It sets the prices that electricity and gas networks can charge to deliver energy to homes and businesses, and it monitors network performance to ensure that consumers receive safe and reliable energy supplies. The AER may be interested in electric usage data to inform its regulatory decisions.
2. Australian Energy Market Commission (AEMC): The AEMC is a national independent rule-making body that governs the energy markets in Australia. It develops and recommends changes to the rules governing the energy markets, and it provides advice to governments and other stakeholders on energy policy and market design. The AEMC may use electric usage data to inform its recommendations and advice.
3. Australian Energy Market Operator (AEMO): The AEMO manages the wholesale electricity and gas markets in Australia and operates the national electricity grid. It is responsible for ensuring the security and reliability of the energy system, and it forecasts future demand for electricity to inform its planning and management of the grid. The AEMO may use electric usage data to forecast future demand and to manage the grid.
4. Department of the Environment and Energy (DoEE): The DoEE is a Commonwealth government department responsible for developing and implementing energy and environmental policies in Australia. It is responsible for implementing the National Greenhouse and Energy Reporting scheme, which requires large energy users to report their greenhouse gas emissions, energy consumption, and production. The DoEE may be interested in electric usage data to monitor compliance with the reporting scheme and to develop energy and environmental policies.
5. Clean Energy Regulator (CER): The CER is a Commonwealth statutory authority responsible for administering legislation relating to renewable energy, energy efficiency, and carbon abatement. It is responsible for issuing certificates for renewable energy generation and energy efficiency activities, and for ensuring compliance with the legislation. The CER may use electric usage data to monitor compliance with the legislation and to issue certificates for renewable energy generation and energy efficiency activities.

**Government-related stakeholders**, such as regulators and policy-makers, play a critical role in setting the framework for the electricity industry and establishing regulations and policies that shape the behavior of industry participants. They are also responsible for enforcing regulations and overseeing the industry to ensure that it operates in the public interest.

**Industry participants**, including electricity suppliers, technology providers, and consumer advocacy groups, also play a critical role in shaping the electricity industry. They may have more detailed information about industry trends and consumer behavior, and may be more attuned to emerging issues and challenges.

**Consumers** are also important stakeholders to consider, as they ultimately determine the demand for electricity and have a direct impact on industry participants. Understanding consumer behavior and preferences can be valuable in informing policy and regulatory decisions, as well as in guiding industry participants' decisions about investment, product development, and pricing.

**Environmental organizations** can provide important perspectives on the impact of power usage on the environment and may be able to inform policy and regulatory decisions about how to mitigate the environmental impact of electricity generation and consumption.

Government-related stakeholders are important in the electricity industry in Australia. Here are a few references to support this point:

1. The Australian Energy Regulator (AER) is a government agency responsible for regulating the electricity industry in Australia. The AER oversees the pricing and quality of electricity services, and ensures that electricity suppliers operate in the long-term interests of consumers. (Source: <https://www.aer.gov.au/energy-system>)
2. The Australian Energy Market Commission (AEMC) is a government agency responsible for setting the rules for the electricity market in Australia. The AEMC's role is to promote competition and efficiency in the electricity industry, and to ensure that consumers have access to reliable and affordable electricity. (Source: <https://www.aemc.gov.au/>)
3. The Australian government has established policies and programs to encourage the development of renewable energy sources and to reduce greenhouse gas emissions from the electricity sector. For example, the Renewable Energy Target (RET) is a policy that aims to ensure that 33,000 gigawatt hours (GWh) of Australia's electricity comes from renewable sources by 2020. (Source: <https://www.energy.gov.au/government-priorities/clean-energy-future>)
4. The Australian government has also established agencies to support research and development in the electricity sector, such as the Australian Renewable Energy Agency (ARENA) and the Clean Energy Finance Corporation (CEFC). These agencies provide funding and support for projects that aim to improve the efficiency and sustainability of the electricity industry. (Source: <https://arena.gov.au/about-us/> and <https://www.cefc.com.au/>)

Electrical usage forecasting is an important tool for understanding and managing electricity demand. Here are some of the things that **electrical usage forecasting can do**:

1. Plan for future electricity needs: By forecasting electricity demand, utilities and policymakers can better plan for future electricity needs. This can help ensure that there is sufficient generation capacity to meet future demand, and can help guide decisions about investments in new power plants and other infrastructure.
2. Manage electricity supply: Forecasting electricity demand can also help utilities and grid operators manage electricity supply in real-time. By predicting changes in demand, operators can adjust the output of power plants and other generation sources to ensure that supply matches demand.
3. Price electricity: Forecasting electricity demand can also help price electricity more accurately. By anticipating changes in demand, utilities and regulators can set prices that reflect the true cost of providing electricity, and can avoid pricing that is too high or too low.
4. Promote energy efficiency: Forecasting electricity demand can also help promote energy efficiency. By identifying times of peak demand, utilities can encourage customers to shift their electricity usage to off-peak times, when electricity is cheaper and demand is lower. This can help reduce the need for new generation capacity, and can help lower overall electricity costs.
5. Support renewable energy integration: Forecasting electricity demand can also help support the integration of renewable energy sources, such as wind and solar. By predicting changes in demand, utilities and grid operators can better manage the intermittency of renewable energy sources, and can ensure that there is sufficient backup generation capacity to maintain grid stability.