

CAPTURING THE EV CHARGING MARKET
IN PAKISTAN: OPPORTUNITIES AND
STRATEGIES FOR
ATTOCK PETROLEUM LIMITED (APL)



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BUSINESS PROJECT ACCEPTANCE CERTIFICATE

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Executive Summary

The transportation sector in Pakistan is facing challenges related to dependence on imported oil, power supply deficits, and environmental concerns. In this business report, we propose that Attock Petroleum Limited (APL) can capitalize on the emerging Electric Vehicle (EV) market in Pakistan by strategically rolling out EV chargers at its fuel sites to capture the retail market.

Pakistan's transportation sector relies heavily on imported oil, resulting in significant costs and trade deficits. The power sector has also faced challenges in meeting the country's power demand, although new generation projects are expected to create a surplus of power supply in the coming years. As a result, EVs can leverage the excess power supply and provide a cost-effective and sustainable transportation solution for Pakistan.

APL, a leading fuel marketing company in Pakistan, is well-positioned to enter the EV charging market due to its extensive retail network of fuel sites across the country. By strategically installing EV chargers at its fuel sites, APL can leverage its existing infrastructure and capture the growing retail market for EV charging services.

APL can differentiate itself in the market by offering a unique value proposition, including a reliable and efficient charging experience, competitive pricing models, and excellent customer service. APL can also leverage its strong brand reputation and existing customer base to promote its EV charging services.

To successfully roll out EV chargers at its fuel sites, APL needs to carefully plan its implementation strategy. This includes conducting market research to identify high-potential locations for EV chargers, securing necessary permits and approvals, investing in appropriate charging infrastructure, and training staff to handle EV charging operations. APL should also keep abreast of the evolving EV market trends and regulatory developments in Pakistan to adapt its strategies accordingly.

Table of Contents

About this Report	6
1. Company Profile	7
2. EVs and Pakistan's Energy Sector.....	8
2.1 Importance of EVs.....	8
2.2 Charging Infrastructure.....	9
3. Market Segmentation & Targeting.....	10
3.1 Geographic Segmentation	11
3.2 Demographic Segmentation	12
3.4 Potential Customers.....	14
3.5 Key Segments Within Market	15
3.6 Types of Chargers.....	16
4 Market Size & Growth	17
4.1 Government Policies	18
4.2 Competitive Environment	20
5 Market Identification.....	21
5.1 SWOT Analysis.....	22
5.2 Factors Influencing Customer Decisions	23
5.3 Marketing Strategies	25
5.3.1 Product Positioning & Offerings.....	25
5.3.2 Unique Selling Propositions & Differentiation	26
5.3.3 Pricing Strategies.....	26
5.4 Market Niche	26
5 Branding	27
5.1 Brand Positioning and Strategy.....	27
5.2 Place: Distribution Strategy.....	28
6 EV Analysis.....	29
6.1 Simulator: EV Load on the Grid.....	30

6.2 EV vs. Petrol Car Cost Comparison	31
6.2.1 Estimated Annual Maintenance Cost.....	33
6.2.2 Fuel Saved.....	34
6.2.3 Emissions Avoided.....	35
7 Conclusion	37

List of Figures

Figure 1. Audi ETRON	12
Figure 2. Number of Motor Vehicles Registered in Pakistan, Source Pakistan Economic Survey	14
Figure 3. Segment Identification.....	15
Figure 4. Level 1 Charger	16
Figure 5. Level 2 Charger	16
Figure 6. Level 3 Charger	17
Figure 7. Dongfeng Sokon	21
Figure 8.EV Charger Installed at APL Blue Area Site.....	26
Figure 9 Current Electric Demand, Supply & Forecast	30
Figure 10. Simulation Results	30
Figure 11. MG ZS EV.....	31
Figure 12. Honda City Aspire	32
Figure 13. Honda City Vs MG ZS EV	32
Figure 14. Fuel Savings Comparison	33
Figure 15. Comparison on Costs for Electrical Vehicles vs. Fossil Fuel Vehicles	34
Figure 16. CO2 Emissions (metric tons per capita) - Pakistan.....	35

About this Report

Goal

The goals of this study are to assess the potential of electric vehicles (EVs) in Pakistan, explore the current status of the EV industry, and identify key opportunities and challenges for EV adoption. The study aims to provide a comprehensive understanding of the role of EVs in Pakistan's energy sector and environment, as well as their potential economic, social, and environmental impacts.

Scope

The scope of this study encompasses various aspects related to EVs in Pakistan, including the current regulatory framework, policy incentives, market trends, consumer perceptions, charging infrastructure, and technological advancements. The study will draw upon existing literature, reports, and data from reputable sources, as well as expert opinions and interviews with stakeholders in the EV industry in Pakistan.

Limitations

However, this study has some limitations. First, the availability and reliability of data on EVs in Pakistan may be limited, as the EV market is still in its early stages of development in the country. Secondly, the study may be constrained by the time and resources available for research, which may limit the depth and breadth of the analysis. Thirdly, study may also be affected by potential biases in the interpretation of data or assumptions made during the research process. Moreover, external factors such as changes in regulations, policies, inflation or current market dynamics during the study period may impact the findings.

Assumptions

Assumptions made in this study include the assumption that the current regulatory framework and policy incentives for EVs in Pakistan remain relatively stable during the study period. Additionally, the study assumes that technological advancements in EVs and charging infrastructure will continue to progress, and that consumer perceptions and preferences towards EVs will evolve over time.

1. Company Profile

Attock Petroleum Limited (APL) is one of the leading oil marketing companies in Pakistan, with a strong presence in the downstream sector of the oil and gas industry. The company's headquarters are located in Rawalpindi, and it has a nationwide network of over 800 retail outlets that offer a wide range of petroleum products and services to its customers.

APL was incorporated in 1998 as a subsidiary of Attock Oil Company Limited (AOC) which is a member of the Attock Group, a prominent conglomerate in Pakistan. APL is listed on the Pakistan Stock Exchange and is one of the largest private sector oil marketing companies in the country. The company's core business operations revolve around the marketing and distribution of petroleum products. These operations can be further elaborated as follows: -

1. **Retail Fuel Stations:** APL operates a large network of retail fuel stations across Pakistan, catering to the fuel needs of individual consumers and commercial customers. These fuel stations are strategically located in urban and rural areas to provide convenient access to fuel for transportation and other purposes. APL offers various types of fuel, including motor gasoline (petrol), high-speed diesel (HSD), and other petroleum products, at its retail fuel stations. The company focuses on providing high-quality fuel and reliable service to its customers.
2. **Value-Added Services:** APL provides a range of value-added services at its retail fuel stations to enhance customer experience and convenience. These services include convenience stores, car wash facilities, and loyalty programs. APL also offers loyalty programs to reward loyal customers with discounts, points, and other incentives.
3. **Bulk Sales to Industrial and Commercial Customers:** APL caters to the fuel requirements of various industries and commercial customers through bulk sales. These customers include power plants, transportation companies, manufacturing industries, and other commercial entities. APL provides reliable and efficient fuel supply to these customers to support their operations and meet their energy needs. The company maintains strong relationships with its industrial and commercial customers, providing them with customized solutions and competitive pricing.

As of September 2021, Attock Petroleum Limited (APL) had a market share of 9.8%¹ in the Pakistani oil marketing industry, according to a report by the Oil Companies Advisory Committee (OCAC). This placed APL as the third-largest oil marketing company in Pakistan in terms of market share, after Pakistan State Oil (PSO) and Shell Pakistan.

Overall, Attock Petroleum Limited's market share in Pakistan's oil marketing industry is significant, and the company has demonstrated a strong performance in recent years.

2. EVs and Pakistan's Energy Sector

2.1 Importance of EVs

Electric vehicles (EVs) hold significant importance for Pakistan's energy sector and environment due to several compelling reasons. Firstly, EVs can help reduce the country's dependence on imported fossil fuels, which currently make up a significant portion of Pakistan's energy mix. EVs are powered by electricity, which can be generated from domestic renewable energy sources such as solar, wind, and hydropower, reducing the reliance on imported fossil fuels and promoting energy security (International Renewable Energy Agency, 2020)². This can also contribute to mitigating the risks associated with fluctuating oil prices in the international market.

Secondly, EVs can help reduce greenhouse gas (GHG) emissions, which contribute to climate change and air pollution. Pakistan, like many other countries, faces challenges related to air pollution and deteriorating air quality, particularly in urban areas. The transportation sector is a significant contributor to air pollution, emitting pollutants such as carbon dioxide (CO₂), nitrogen oxides (NO_x), and particulate matter (PM) from fossil fuel-powered vehicles (World Bank, 2019). EVs have zero tailpipe emissions, which can significantly reduce local air pollution and improve air quality in Pakistan, contributing to public health and environmental benefits.

¹ <https://ocac.org.pk/reporting/>

² International Renewable Energy Agency. (2020). Renewable power generation costs in 2019. Retrieved from <https://www.irena.org/publications/2020/Jun/Renewable-Power-Costs-in-2019>

Thirdly, the adoption of EVs can support Pakistan's commitments to international climate change agreements and sustainable development goals. Pakistan has committed to reducing its GHG emissions under the Paris Agreement and has set a target to generate 60% of its electricity from renewable energy sources by 2030 (Government of Pakistan, 2016)³. The increased use of EVs, powered by renewable energy, can align with these goals and contribute to reducing overall GHG emissions in the transportation sector.

Furthermore, the promotion of EVs can also create opportunities for economic growth, job creation, and technological advancement in Pakistan. Sales, and maintenance of EVs and their associated infrastructure can generate new business opportunities, create jobs in the clean energy sector, and promote technological innovation. This can contribute to economic development and diversification, as well as enhance the country's competitiveness in the global market.

EVs are crucial for Pakistan's energy sector and environment due to their potential to reduce dependence on imported fossil fuels, mitigate GHG emissions and air pollution, and create economic opportunities. The adoption of EVs can contribute to a more sustainable and environmentally friendly transportation system in Pakistan, while also promoting economic growth and technological advancement.

2.2 Charging Infrastructure

Electric Vehicles (EVs) are increasingly recognized as an important component of Pakistan's energy sector, with potential benefits in terms of energy diversification, reduced energy demand, and environmental sustainability. There are several reasons why a well-developed charging infrastructure is essential in fostering the growth of EVs in an industry:

1. **Convenience for EV Users:** A reliable and accessible charging infrastructure is essential for EV users to charge their vehicles conveniently and efficiently. It eliminates the range anxiety associated with EVs and allows users to confidently plan and undertake long trips without worrying about running out of battery power.

³ Government of Pakistan. (2016). Pakistan's intended nationally determined contributions (INDCs) under the United Nations Framework Convention on Climate Change (UNFCCC). Retrieved from <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Pakistan%20First/INDC%20of%20Pakistan.pdf>

2. **Extended EV Range:** An extensive charging infrastructure enables the use of fast charging stations, which can significantly reduce the charging time for EVs. This can extend the driving range of EVs, making them a more viable option for longer trips or commercial purposes.
3. **Economic Opportunities:** The development of a charging infrastructure creates economic opportunities in terms of job creation, investment, and business development. It opens up avenues for private companies, entrepreneurs, and investors to invest in and operate charging stations, thereby creating employment opportunities and contributing to economic growth.

3. Market Segmentation & Targeting

Transport area in Pakistan is the biggest supporter towards releases of Green House Gases (GHGs) into the climate, which are a main factor in reducing the air quality index. As a result, the risks associated with reducing air quality is tremendously increasing the death count. Henceforth, such emissions have showed malicious outcomes on the soundness of the population. Consequently, there is an imminent requirement for an answer that can address the prevailing issue.

Pakistan's government has announced plans to promote EVs and reduce the country's reliance on imported oil. In March 2021, the government launched the National Electric Vehicle Policy, which aims to increase the share of EVs in the country's automotive sector to 30%⁴ by 2030. The policy includes various measures to support the development of EV infrastructure, such as the installation of EV charging stations across the country.

Attock Petroleum Limited intends to introduce the EV segment charging platforms to solve aforementioned oil import issues. EVs run on electric power instead of gasoline. Therefore, EVs do not emit harmful pollutants. As per the current FY Budget 2021-22 presented in National Assembly, Government of Pakistan has curtailed various taxes on auto-vehicles especially EVs. Government is encouraging the use and manufacturing of electric vehicles to reduce dependence on imported fuel, provide affordable transport to the general public and mitigate the environmental impact.

⁴ <https://www.brecorder.com/news/40071648>

3.1 Geographic Segmentation

Geographic segmentation is a crucial aspect of analyzing the proposed service within Attock Petroleum Limited's operating area. Following analysis provide insights into the existing and potential EV charging infrastructure, adoption patterns, and market dynamics in different regions.

1. Existing Infrastructure:

Urban Areas: Metropolitan cities tend to have higher population densities and greater demand for EV charging infrastructure. In such areas, there may already be a relatively higher number of commercial charging stations with EV charging facilities due to higher EV adoption rates and greater market potential. Currently APL is only operating one EV charger located at its Blue Area site. In competition, only in Islamabad EV Chargers are installed at following locations: -

- PSO site located at F-7 Markaz
- Centaurus Mall Basement Parking
- R&I Electrical Appliances, I-10/3

Rural Areas: On other hand, APL have no existing EV charging infrastructure, as the demand for EVs and related infrastructure is comparatively lower due to factors such as less developed transportation networks and lower awareness about EVs.

2. Potential Infrastructure:

Urban Areas: There may be further potential for expansion and investment in EV charging infrastructure. As the adoption of EVs continues to grow, there may be opportunities to set up more commercial charging stations. This can help meet the increasing demand for EV charging in urban areas and provide convenient charging options for EV users, thereby promoting the growth of the EV market in these regions. At the moment, APL is expanding/ installing EV chargers at following locations

- Peshawar Bound Motorway M-1 at Rashakai Service Area
- APL Site located near Ammar Chowk, Rawalpindi
- Car parking of Islamabad Club at Club Road

Rural Areas: While the demand for EVs may be relatively lower in rural areas, there may still be potential for setting up charging infrastructure, especially along major highways, transportation hubs, and key economic corridors. Government has planned to install 85 EV charging platforms across Motorways⁵. This could facilitate long-distance travel and promote EV adoption in rural areas.

3.2 Demographic Segmentation

Majority of consumers in Pakistan who owns EVs belongs to Elite Class at the moment and therefore, such consumers are not anyhow affected by prevailing issues i.e. vehicles price hike, car maintenance, electricity prices etc. Currently, there are only handful EVs are available in our country i.e. Audi e-tron 50, BMW i3, Mercedes-Benz EQC, MG ZS-EV.



Figure 1. Audi ETRON

It is a well-known fact that people with high incomes are less price-sensitive than others, so EV consumers ignore inflation price hikes.

3.3 Behavioral Segmentation

Behavioral segmentation in the context of EV adoption in Pakistan includes factors such as price sensitivity, willingness to pay for premium services, impact of government initiatives and subsidies, benefits sought by customers, pricing and payment options, and charging usage patterns.

Price Sensitivity: Price sensitivity may vary among different customer segments in Pakistan. As mentioned earlier, the current majority of EV owners in the country belong to the elite class, which may have a lower price sensitivity compared to other income groups. However, as the EV market develops and more affordable options become available, price sensitivity may become a more significant factor for potential EV buyers from other income segments. The willingness to pay for EVs and related services may depend on various factors such as income levels, budget constraints, and perceived value for money.

⁵ <https://www.nation.com.pk/14-Nov-2022/govt-to-set-up-5-new-ev-charging-stations-at-motorways>

Government Initiatives and Subsidies: Government initiatives and subsidies play a significant role in influencing EV adoption behavior. In Pakistan, the government has introduced various policies and incentives to promote EV adoption, including tax exemptions, customs duty waivers, and other financial incentives for EV buyers and manufacturers⁶. These initiatives can impact customers' willingness to pay for EVs and related services, as well as their overall decision to adopt EVs.

Benefits Sought: Customers may seek various benefits when it comes to EVs and related services. Pricing and payment options can be an important factor, including factors such as upfront costs, financing options, and operating costs. Customers may also value the speed and convenience of charging options, including fast-charging stations, easy payment methods, and reliable charging infrastructure. These benefits can impact customers' choices and preferences in terms of EV charging and related services.

Usage Patterns: EV charging usage patterns can vary among customers in Pakistan. Factors such as charging frequency, preferred charging locations, and charging habits can influence overall EV adoption behavior. Some customers may charge their EVs at home, while others may prefer to charge at the fuel charging stations.

As per discussion with EV customers, they usually tend to charge their batteries when battery capacity is 20%. This increases life span of battery otherwise it degrades over time.

⁶ Dawn. (2021). EV incentive policy approved to promote electric vehicles in Pakistan. Retrieved from <https://www.dawn.com/news/1622711>

3.4 Potential Customers

Presently the total number of vehicles on streets is 32.38 million (vehicles, bicycles, buses and trucks), of which 4.01⁷ million are cars.

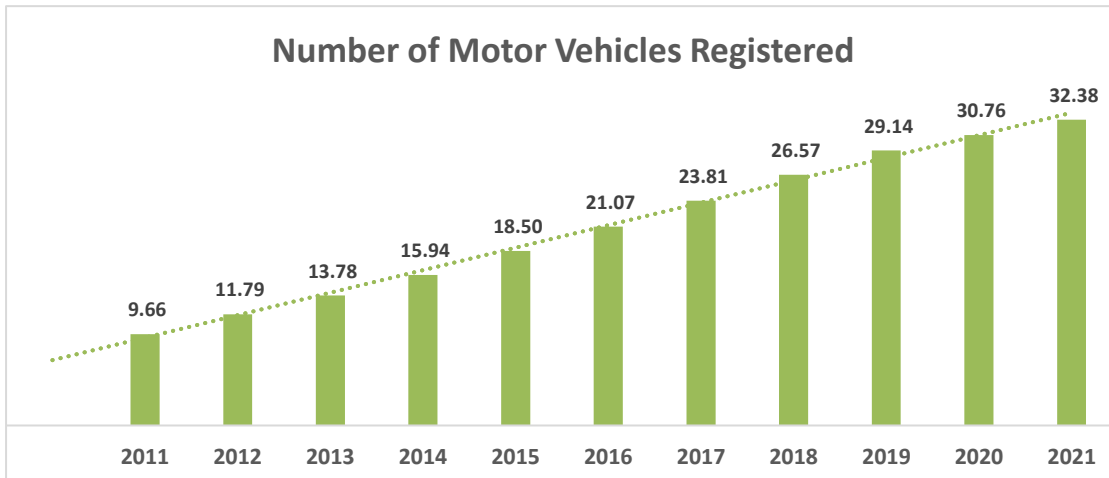


Figure 2. Number of Motor Vehicles Registered in Pakistan, Source Pakistan Economic Survey

Pakistan needs an ambitious plan to limit environmental degradation and introduction of EVs in Pakistan can potentially be a substantial component of this plan. According to TrueCar data, Gen X (1965 -1980) is buying the most EVs, at 39.8%, followed closely by Millennials at 34.9%⁸. However, the influencing factors to predict the people's intentions to purchase EVs remain poorly understood. Given this, there is an essential need to explore the public acceptance of electric vehicles through various factors that may guide the policymakers and EV manufacturers to predict the population's intentions to purchase EVs.

In Pakistan, EVs are in their early stage, and government organizations are trying to accelerate the market penetration of EVs to meet the target of 30% electric mobility by 2030. The global sales of EVs have been rapidly increasing, owing to favorable transportation policies. Global EV sales reached a new high of 2.1 million in 2019, breaking previous sales records⁹. Despite remarkable growth in EV sales, EV adoption remains very limited due to uneven market share across countries.

⁷ https://www.finance.gov.pk/survey/chapter_22/Economic%20Survey%202021-22.pdf

⁸ <https://www.truecar.com/blog/which-generation-is-going-green/>

⁹ International Energy Agency. Global EV Outlook 2020: Entering the Decade of Electric Drive? OECD: Paris, France, 2020.

People who own EVs in Pakistan are the current potential customers. Gradually the number of vehicles is increasing but at a snail's pace, therefore to cater the demand, EV charging platforms are recommended in city hubs for customer ease.

3.5 Key Segments Within Market

Based on the marketing aspects, EV charging platforms are divided into two charging marketing segments i.e. fast and moderate chargers. The main segment is captured by fast charger as this charger quickly charges the vehicle's battery in a short span. Moreover, its ability to protect car batteries while charging will favor market growth. The slow/moderate charger section holds the biggest portion of the overall industry as far as volume and is projected to encounter moderate/slow development over the forecast period.



Figure 3. Segment Identification

The EV charging infrastructure market can be segmented based on various factors, including the type of charger, end-use application, and installation type. Here are some of the key segments within the EV charging infrastructure market:

- a. **Charger Types:** The EV charging infrastructure market can be segmented based on the type of charger, including Level 1, Level 2, and Level 3 charging stations. Level 1 and Level 2 chargers are typically used for home charging and public charging in parking garages, workplaces, and other locations. Level 3 chargers, also known as DC fast chargers, are used for fast charging and are typically found along highways and fuel stations.
- b. **End-Use Application:** Another key segment within the EV charging infrastructure market is based on the end-use application. This includes commercial, residential, and public charging applications. Commercial charging refers to charging stations located in fuel stations. Residential charging is primarily used for home charging solutions, while public charging refers to charging stations located in public areas such as parking garages and on-street parking.

3.6 Types of Chargers

Level 1, Level 2, and Level 3 charging stations are the three main types of electric vehicle (EV) charging stations. These charging stations differ in their charging speed, voltage, and suitability for different types of EVs.

Level 1 Charging Stations:

Level 1 charging stations are the slowest type of EV chargers, and are also the most basic and widely available. These chargers can be used with a standard 120-volt household outlet and typically provide up to 4-5 miles of driving range per hour of charging. Level 1 chargers are ideal for home charging, as they can be plugged into any standard wall outlet.

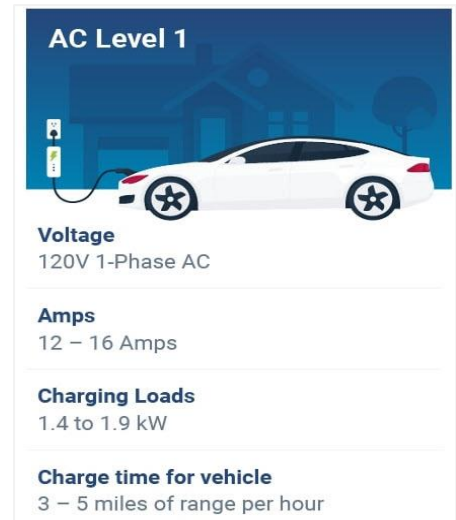


Figure 4. Level 1 Charger

Level 2 Charging Stations:



Figure 5. Level 2 Charger

Level 2 chargers offer faster charging than Level 1 stations and are more commonly found in public locations such as workplaces and shopping centers. These chargers require a 240-volt connection and can provide up to 25 miles of driving range per hour of charging, depending on the specific charging station and the EV's battery capacity.

Level 3 Charging Stations:

Level 3 chargers, also known as DC fast chargers, are the fastest type of charging station available. They use direct current (DC) to charge an EV battery, which allows for much faster charging times.

Level 3 chargers can provide up to 80% of an EV's battery capacity in as little as 30 minutes, depending on the charging station's capacity and the EV's battery capacity. Level 3 chargers are primarily located along fuel sites/ highways, making them ideal for long-distance travel.

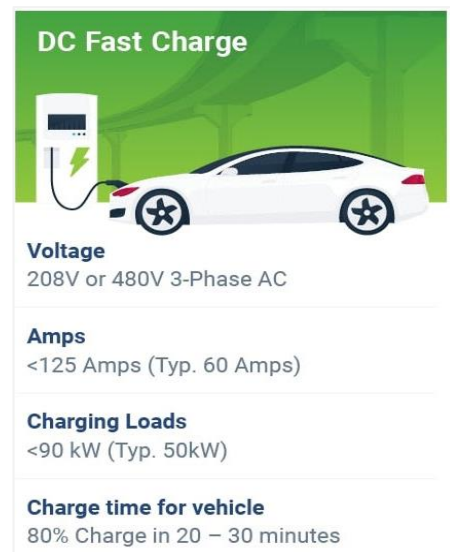


Figure 6. Level 3 Charger

Attock Petroleum Limited has adopted its fuel stations model to setup charging facilities for its customers. For commercial purpose, APL has already installed charging platforms at its retail outlets in order to provide fuel for both conventional and electric vehicles. These fast chargers are called Level 3 chargers whose range varies from 6.2 to 7.6 kW¹⁰.

A lot of people often desires to buy EVs but due to bad infrastructure of EV chargers, people often tend to give up the idea. Therefore, by introducing such chargers in niche market, people will certainly be starting buying such vehicles and can drive hassle free. As far as profits are concerned, there are speculations that are piling into the industry that there are enormous profits associated with this business model.

4 Market Size & Growth

The market size of the EV charging infrastructure in Pakistan is still in its growth stage, with limited charging stations currently available in the country. However, there is significant potential for growth in this market as the government of Pakistan has been actively promoting electric vehicles as part of its efforts to reduce carbon emissions, air pollution, and dependency on fossil fuels.

¹⁰ <https://evocharge.com/resources/the-difference-between-level-1-2-ev-chargers/>

Past Trends: In recent years, there has been a growing interest in electric vehicles in Pakistan, with some key developments in EV charging infrastructure. In 2020, Pakistan's first-ever electric vehicle charging station was inaugurated in Islamabad, which marked a significant milestone in the country's transition towards e-mobility. Since then, there have been efforts to expand the charging infrastructure in other major cities of Pakistan as well.

Future Projections: The future growth prospects of the EV charging infrastructure market in Pakistan are promising. The government of Pakistan has announced its Electric Vehicle Policy, which aims to promote the use of electric vehicles and establish a comprehensive EV charging network across the country. The policy sets a target of having at least 30%¹¹ of new vehicle sales in Pakistan to be electric by 2030, which indicates a significant potential for growth in the EV market and consequently the EV charging infrastructure. This indicates a positive outlook for the future growth of EV charging infrastructure in Pakistan.

However, it's worth noting that the growth of the EV charging infrastructure market in Pakistan may face challenges such as lack of standardized charging protocols, limited public awareness, economic slowdown and regulatory barriers. Addressing these challenges will be crucial for the sustained growth of the EV charging infrastructure market in Pakistan.

Overall, the market size of the EV charging infrastructure in Pakistan is currently small but has significant growth potential in the coming years, driven by government initiatives, increasing consumer demand for electric vehicles, and investments in charging infrastructure.

4.1 Government Policies

The government of Pakistan has taken several initiatives to promote the adoption of electric vehicles and support the development of EV charging infrastructure. The Electric Vehicle Policy for Pakistan, introduced in 2019, outlines the government's strategic plan to promote electric mobility in the country. The policy includes measures such as tax incentives, customs duty exemptions, and reduced sales tax on the import

¹¹ Ministry of Climate Change, Government of Pakistan. (2019). Electric Vehicle Policy for Pakistan. Retrieved from <http://www.climatechange.gov.pk/en/wp->

of electric vehicles and charging equipment, which are aimed at making electric vehicles more affordable for consumers and encouraging investment in EV charging infrastructure.

The main primary decision authority rests with two Government ministries i.e. Ministry of Climate Control and Ministry of Industries and Production. As per the Automotive Development Policy 2016–2021, Govt. is encouraging foreign investments for the new automobile brands to enter Pakistani market. The Govt. is already committed to provide incentive to companies to setup their auto-manufacturing plants. On 5 November 2019, Pakistan's Federal Cabinet had approved the first-ever National Electric Vehicles (EV) policy in a bid to tackle effects of climate change and offer affordable transport¹².

In the initial stage, Government has set target to convert over 30% of all-out number of vehicles, principally vehicles and auto-rickshaws, into EVs by 2030. As indicated by strategy, 100,000 vehicles and 500,000 motorcycles will be changed over to EVs in next 4 years, and in excess of 3,000 CNG stations that have been closed because of gas deficiency will be converted to EV charging stations.

Technological Advancements: The advancement of technology has played a significant role in the development of EV charging infrastructure in Pakistan. With the evolution of EV charging technologies, such as fast-charging stations, charging has become more efficient, convenient, and user-friendly. These technological advancements are expected to continue to improve, resulting in faster charging times, higher charging capacities, and more widespread availability of charging stations, which will further support the growth of the EV charging infrastructure in Pakistan.

Cost Reduction: The cost of electric vehicles and EV charging infrastructure has been a significant factor affecting their adoption. However, with advancements in technology, economies of scale, and increasing competition in the market, the costs of electric vehicles and charging infrastructure are expected to reduce over time. This cost reduction is likely to make electric vehicles and EV charging infrastructure more

¹² https://en.wikipedia.org/wiki/Electric_vehicle_industry_in_Pakistan

accessible and affordable to a wider range of consumers, thus driving the growth of the EV charging infrastructure market in Pakistan.

Customer Preferences: Understanding customer preferences is crucial for the success of EV charging infrastructure. Customers in Pakistan may have varying preferences when it comes to EV charging, including factors such as charging speed, convenience, and availability of charging stations.

Preferences may also vary depending on the type of electric vehicle owned, as different EV models may have different charging requirements. Understanding and catering to customer preferences, through factors such as pricing and payment options and charging location availability will be key to meeting customer demands and driving the adoption of EV charging infrastructure in Pakistan.

4.2 Competitive Environment

APL intends to launch this EVs platforms. Other major competitors/ market players i.e. PSO, SHELL etc. are also working on their models to become market leader in this segment. Some of the OMCs have already launched their prototype platforms on few selected retail sites to study this growing market segment. At the moment, all OMC's who are offering such facility have somehow similar charging platforms as the ultimate goal is to charge the batteries which can only be fulfilled by electricity.

The only advantage which we foresee is placement/ location of these EVs platforms. If these platforms are equally distributed at distances of 200-250 kms then owner of EVs can enjoy their drives trouble free. To capture this niche segment, APL has planned to install these chargers at motorways at its retail sites where it can easily target EV consumers. But in years to come and as soon as this low cost EVs are launched, then consumers will tend to look for charging platforms and competition sense will prevail.

4.3 Challenges & Barriers

There are several challenges and barriers that APL is facing for deployment of EV charges. Few of them are: -

1. **Investment Risks**: Setting up and operating EV charging infrastructure requires significant investments in import of equipment, installation, and maintenance. High upfront costs these days due to import restrictions, LC opening issues, dollar price fluctuation pose a challenge for APL. Moreover, as the EV charging market in Pakistan is still in its early stages, there may be risks associated with market demand and revenue generation, which can impact the financial viability of the business.
2. **Operational and Maintenance Challenges**: Operating and maintaining EV charging infrastructure poses operational challenges. Ensuring smooth operations, regular maintenance, and addressing any technical issues or breakdowns in a timely manner can be resource-intensive and require skilled personnel.
3. **Market Saturation**: As more players enter the Pakistani market and the industry continues to grow, competition can intensify, leading to pricing pressures, reduced profit margins, and difficulties in capturing market share.

5 Market Identification

Currently, the EV market has several gaps, including a limited number of products, high prices, insufficient driving range, poor performance, and an underdeveloped charging ecosystem. Given these obstructions, the growth of EV is expected to lag behind that of other segments; however, sales are expected to pick up once the existing gaps are filled.

Based on the economic environment, this product demand will certainly like to increase from current fiscal year as new EVs entrants have initiated assembling cars in Pakistan. The approval of the country's initial five-year Electric Vehicle (EV) strategy for vehicles in last year has driven automobile industry analysts and vehicle lovers to foresee a quick and early adoption of the innovation/ technology by Pakistani clients.



Figure 7. Dongfeng Sokon

One of the new entrants named MG Motors has launched its first EV in Pakistan named MG EV at a price tag of Rs. 9.0 Mn. In addition to it, Regal Motors is also working in joint venture with Dongfeng Sokon, a Chinese EV maker to launch a small

EV with a range of 100-200 kms in one charge at an affordable price. If launched at a reasonable price bracket, then certainly middle class income group can relish themselves from this car drive and can enhance customer experience and satisfaction.

5.1 SWOT Analysis

Strengths:

- Customers can charge their vehicles in a short span of time by adopting fast charging facilities.
- EVs are highly efficient, with lower operating costs and reduced maintenance requirements compared to petrol cars.
- EVs to be exempted from toll tax partially @ 50%¹³ (Engineering Development Board, 2020)
- The Government of Pakistan has announced several incentives and policies to promote the use of EVs, such as reduced import duties, tax exemptions, and charging infrastructure development.
- 1% import duty on EV chargers under the Electric Vehicles Policy 2020-2025

Weaknesses:

- Lack of awareness and education among the general public and policymakers about the benefits of EVs and the need to transition towards cleaner transportation.
- Consumer cannot drive EVs out of urban cities as no platforms are available on highways.
- Inadequate grid infrastructure and power supply reliability, which can hinder the adoption of EVs.
- Energy crisis especially in summer seasons.
- Overnight charging required if charged at homes.
- Competition from gasoline vehicles.
- High competition from existing charging infrastructure providers in urban areas, resulting in potential pricing pressures and reduced profit margins.

¹³ <https://invest.gov.pk/sites/default/files/2020-07/EV%2023HCV%20130620%20PDF.pdf>

Opportunities:

- Potential for local manufacturing of EVs and components, which can create new job opportunities and support the development of a domestic EV industry.
- Increased investment in renewable energy projects, which can improve the availability and affordability of clean electricity to power EVs.
- Collaboration between the government, private sector, and academia to promote research and development of new EV technologies and infrastructure solutions.
- Increasing awareness and adoption of EVs in urban areas, driven by environmental concerns, government incentives, and changing consumer preferences.

Threats:

- High charging time if Level 1 chargers are utilized. If charged at home 7-8 hours charging will be needed, thus testing consumers patience.
- Electric shutdowns/ load shedding with rising cost of electricity
- Competition faced by electric hybrid and plug in hybrid cars (PHEV)
- Expensive electric components.
- Limited consumer demand for EVs due to concerns over range anxiety, charging infrastructure availability, and vehicle performance.

5.2 Factors Influencing Customer Decisions

a. **Geographic Characteristics**

As people's exercises in contributing to environmental change, there is a need to know what factors comprehend what elements impact people's ability to change earth harming practices, like driving non-renewable energy source vehicles. Today, electric vehicles (EVs) are developing into a more grounded option in contrast to vehicles that sudden spike in demand for traditional fuel, and EVs can be characterized as an eco-advancement; that is, a new product in the market that reduces environmental harm.

With limitations in range or charging platforms, and so forth, can be dodged by changing to customary fuel, the maximum capacity of a PHEV is reliant upon the

accessibility of charging framework and driving distances. EVs then again, require changes in driving conduct; in this way, specialized characteristics like reach, charging time, speed, and dependability are of incredible worry concerning appropriation. When going in regions where the distances are far, range contrasts among charging and refueling vehicles become significant.

b. **Situational Characteristics**

Although the quantity of various kinds of EVs is expanding, they still constitute just a little portion of the absolute vehicle market. There are various hindrances to vehicle owner selection of an EV i.e. travel needs, charging framework, individual vehicle owner's socio-economic characteristics and natural concerns.

Although EV owners in general mostly recharge their vehicles at home overnight or at work during the day. A lack of charging infrastructure can serve as a psychological barrier for non-adopters in that they believe they will want to recharge at public access points more than they will in reality.

At that point when buyers make purchase choices, they face more options because of data exchange, and the perspectives that they esteem during buying are likewise changed. Although the popularity of electric vehicles is expanding, but the market proportion of electric vehicles is still low.

c. **Reaching the Customer**

Marketing EVs is all about Differentiated Marketing Strategy concept. Consumers who own an EV are unique in their class and had a different taste. Generally, a vague idea is floating in market about EVs that they are slow but in fact they are fast, bold and sparking in nature. Just like ordinary marketing, you cannot throw your product into the market and expect consumers to buy their products. Instead, create a story that pulls them in and gets them talking. Following strategies would be effective:

- i. It is necessary to educate the consumer about the product norms and services available in the market in order to gain their confidence. If a customer knows about EVs after sales, its services and charging stations availability in cities, this will build their trust, resultantly increase in sales.

- ii. Creating awareness amongst the masses about the safety and reliability of EVs. Generally, it's a misconception about EVs that they are costly in term of mileage and maintenance. As per our analysis and discussion with EVs owners, an EVs can be fully charged in Rs. 7,000 whereas the average fuel combustion vehicle tank costs twice at current fuel price. So, this dilemma needs to be stopped and lastly, EVs are cleaner to drive with 0% emissions.

5.3 Marketing Strategies

5.3.1 Product Positioning & Offerings

Competitive strategy is the basis on which an organization might achieve a competitive advantage in its market. EV's generic competitive strategy is based on making its products different from those of competitors. Being a service provider, APL strategy will be to offer state of the art services in competing in the market. As in our case the product offered by rival companies is similar (except power difference), only thing which differs here how well we can market out product and obviously higher customer satisfaction will keep our business running. This behavior will enable APL to compete in the market.

By effectively implementing below mentioned product positioning and offering strategies, APL can create a compelling value proposition that differentiates itself from competitors and resonates with its target market.

1. **Proximity and Convenience**: Due to strategically position of APL fuel sites, its placement of EV charging stations in high-traffic areas, such as urban centers to provide convenient access to EV owners.
2. **Fast Charging Options**: APL can highlight its fast charging capabilities at its charging stations as a key offering. By offering fast charging options, APL can cater to the need for quick charging times for EV owners who are always on the go. APL can invest in high-power chargers providing a competitive advantage over slower charging options available in the market.
3. **Value-Added Services**: APL offers value-added services to enhance the overall customer experience. This already includes dedicated waiting rooms and loyalty programs to create added value for customers and build customer loyalty.

5.3.2 Unique Selling Propositions & Differentiation

Unique Selling Propositions (USPs) refer to the distinctive and compelling advantages that a company offers to its customers, setting it apart from competitors. APL can identify unique advantages it offers to customers, such as fast charging solutions, exceptional customer service, compliance with regulatory standards. These USPs can be used in marketing and promotional messages to communicate the unique value that APL provides to customers and differentiate itself from competitors.

5.3.3 Pricing Strategies

APL is operating an EV charger at its Blue Area site in Islamabad. Company is charging Rs. 80 per unit from its customers. Recent data collected from the site and analysis from the EVs station, only a few customers i.e. 7-9 vehicles on daily average visits station for charging. Hence, it can be deduced that this business model is directly dependent on number of vehicles charged per day.

Pay per use pricing model is followed at site where customers pay for charging services based on their actual usage. This provides flexibility to customers who prefer to pay only when they need to charge their vehicles. Pay per use pricing can be based on the amount of energy consumed, charging duration, or a combination of both.

Customers are always sensitive to pricing and any impact on the change of price will shift APL market share to its competitors. So, pricing has a key role for customer retention. Currently, a single EV charger costs between Rs. 8.0-10.0 Mn having 200KW and other expense are also incurred which includes electric and civil works.

5.4 Market Niche

As already identified, charging platforms are our product which is already a market niche. It is important to ensure that there is a charging network that ensures the mobility of electric vehicle clients.



Figure 8. EV Charger Installed at APL Blue Area Site

APL is an oil retail marketing company which sells fuels through its fuel stations network. As it tends to introduce EVs platform, hence Yes, it needs to reposition its market strategy, by enlightening its customers about the EVs. It is evident from the fact that conventional fuels will be replaced or over taken one day by these upcoming electric vehicles, therefore to prepare for a change, we need to reposition APL strategy. Customer taste and preference should be kept in mind as consumers are tech savvy, so acquisition of new technology and staff trainings needs to be developed in order to compete in the market.

5 Branding

Being an Oil Marketing Company, APL is an established brand across the Country. Launching a new product in market i.e. EVs chargers' services will attract customers base as they prefer customer satisfaction more than promotions. APL is a symbol of reliability & consistency and we take great pride in it. We have a base of millions of satisfied customers who visits us for our services and quality.

5.1 Brand Positioning and Strategy

EV's are considered as a niche market product as most of the customers top concerns are about charging network infrastructure, battery barriers and driving range. Majority of customers taste and preference should be kept in mind as consumers are these days are tech savvy, so acquisition of new technology and staff trainings needs to be developed at this hour in order to compete in the market.

Companies implement strategies where they like to emphasize the quality of their products. Often, this quality comes at a premium cost. Budget-conscious shoppers may bypass brand in favor of a cheaper alternative. But this is where buyer personas fall. The income habits of target customers would determine whether emphasizing quality (with a higher premium) is the right approach for the brands. As already stated, currently the target market is upper class who are the one who can afford this segments car unless cheap and new entrants start their production. Following are some key elements that can be incorporated into the brand positioning and strategy:

- a. **Environmental Benefits:** Electric vehicles are eco-friendly and produce zero emissions, making them a sustainable alternative to traditional gasoline-powered

vehicles. The brand positioning should emphasize the environmental benefits of electric vehicles and position the company as a champion of sustainable transportation.

- b. **High Performance:** Electric vehicles offer high torque and acceleration, making them a high-performance alternative to traditional vehicles. The brand positioning should highlight the performance advantages of electric vehicles and position the company as a leader in electric vehicle technology.
- c. **Luxury and Exclusivity:** As the majority of EV consumers in Pakistan are upper-class, the brand strategy should focus on creating an exclusive and luxurious brand image for the company's EV segment.
- d. **Advertising and Public Relations:** APL can leverage advertising and public relations campaigns to create awareness about its EV charging services and build brand recognition. This can include traditional advertising methods, such as print and online ads and radio, as well as digital advertising through social media, and display ads.
- e. **Social Media Presence:** APL has already established a strong presence on social media platforms, such as Instagram and LinkedIn to engage with potential customers, share updates and promotions, and build a community around its brand.

5.2 Place: Distribution Strategy

APL charging stations will be distributed across the country located in major cities and highways for commercial and domestic customers. APL have presence of its fuel stations across major cities where they have the capacity to build charging platforms. In coming days, APL is planning to introduce state of the EV charging stations till 2030 across all motorways¹⁴:

- Rashakai Service Area (Islamabad-Peshawar Motorway, M-1)
- Tandliyanwala Service Area (Lahore-Multan Motorway, M-3)
- Dandewal Service Area (Pindi Bhattian- Khanewal Motorway M-4)
- Hazara Service Area (Hassanabdal-Havelian Expressway E-35)

¹⁴<https://www.nation.com.pk/14-Nov-2022/govt-to-set-up-5-new-ev-charging-stations-at-motorways#:~:text=%E2%80%9CThere%20are%20almost%2085%20locations,in%20Pakistan%2C%E2%80%9D%20it%20said.>

As CPEC routes are under constructions, APL has planned to work on BOT basis with NHA and CPEC authority to build, operate and transfer these EV charging stations on these routes on a long-term agreement. Lastly, developing charging infrastructure, particularly fast-charging stations along major highways and in urban centers, is critical to address range anxiety concerns.

6 EV Analysis

According to global experience, the projected growth of electric vehicles will not result in a significant increase in total electricity demand. Thus, in comparison to total electricity demand, the additional need for power generation capacity for electrified transportation would not be enormous. For example, at 5 gigatons (GW) of generation capacity, projected EV growth in Germany would only add about 1% to total electricity demand by 2030¹⁵.

At present, the number of EVs in Pakistan is relatively low, so the impact on the grid load is minimal. However, as the adoption of EVs increases, there may be a need to upgrade the electrical grid to accommodate the additional demand for electricity. With the addition of new power plants to the system, Pakistan finally reached a stage in the fiscal year 2017-2018 where its producing capacity was adequate to meet load demand¹⁶, after decades of energy shortages and interruptions. Below graph depicts

¹⁵ Mckinsey & Company, "The potential impact of electric vehicles on global energy systems" (2018) <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/the-potential-impact-of-electricvehicles-on-global-energy-systems>

¹⁶ Analysis: Pakistan Pays Heavy Price for Excess Power Generation Capacity. TheThirdPole. 2021. Available online: <https://www.thethirdpole.net/en/energy/pakistan-excess-power-generation/> (accessed on 17 February 2023).

the current and forecasted power demand and supply in Pakistan¹⁷. As a result, the existing and planned transmission networks have enough capacity to satisfy charging requirements in nearly all expected EV adoption scenarios.

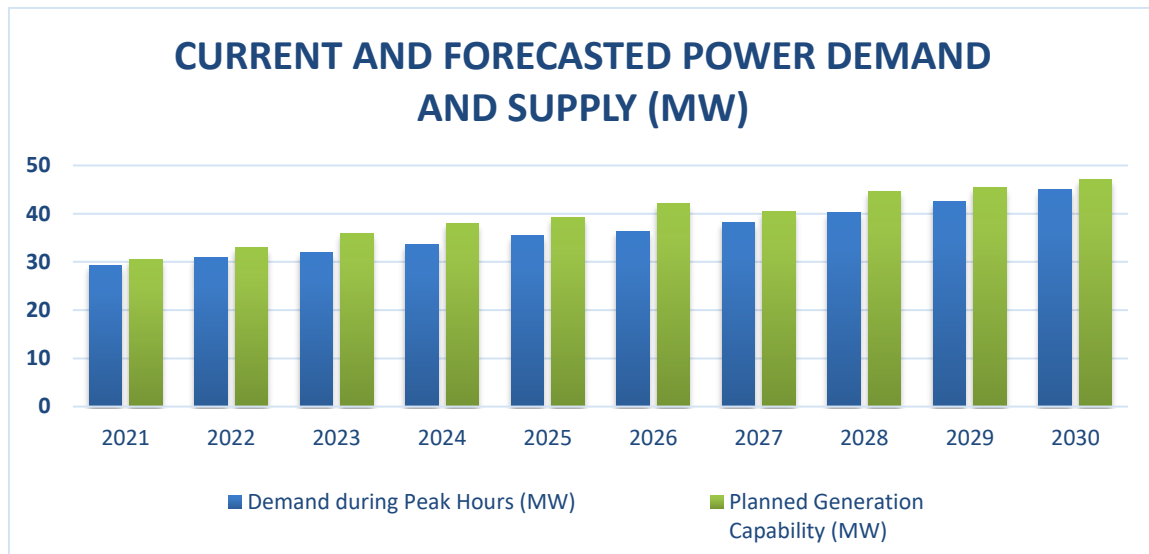


Figure 9. Current Electric Demand, Supply & Forecast

6.1 Simulator: EV Load on the Grid

As part of this project report, load calculation was carried out find out increase in load consumed by the addition of EVs as well its effect on the power grid. Below image illustrates the power consumed from EV chargers to charge EVs from Jan 2017 till Dec 2017. A total number of 5,000 EVs were charged at the APL site located at Blue

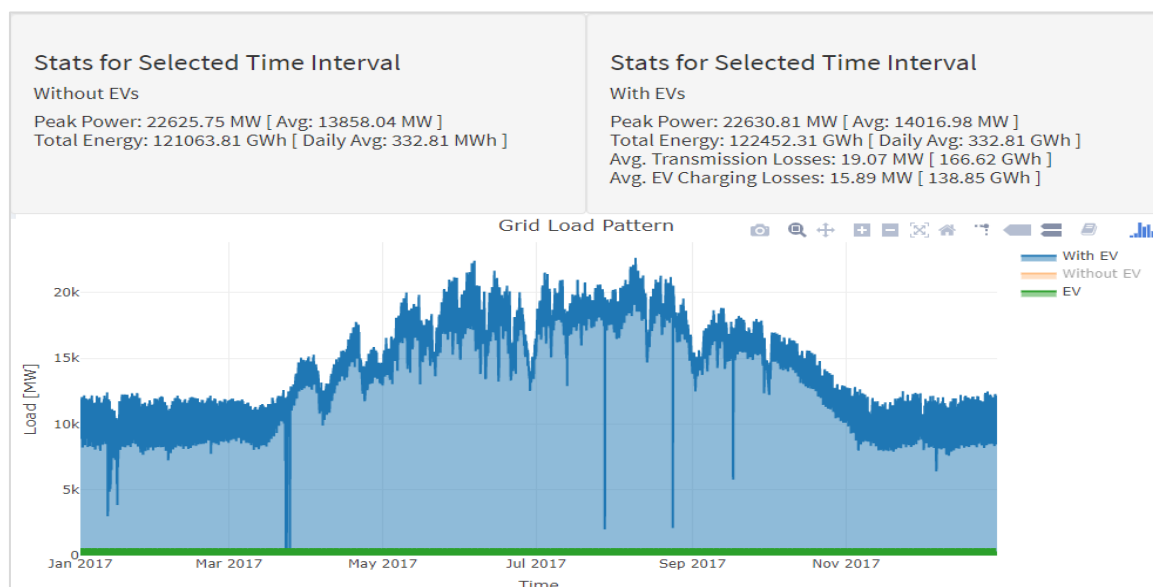


Figure 10. Simulation Results

¹⁷ State of Industry Report 2020. [ebook] NEPRA. Available at: [Accessed 13 March 2023].

Area, Islamabad. Above image explains the power consumed with and without EV impact on load over the grid. As a difference only 5 MW energy was consumed, resultantly charging of 5,0000 electric vehicles, hence, model demonstrates that greater number of EV penetration is not likely to cause large increase in power demand.

6.2 EV vs. Petrol Car Cost Comparison

Comparison on costs for EVs vs. petrol vehicle was drawn. EVs have a higher purchasing cost, but they have lower operating costs due to their lower energy consumption and maintenance requirements. However, the total cost of ownership of an EV depends on factors such as the price of electricity, the cost of battery replacement, and the availability of charging infrastructure. Moreover, on terms of maintenance costs, EVs tend to have fewer moving parts than petrol cars, which means there are fewer components that can wear out and require replacement.

To support above statement with facts, a comparison is drawn between MG ZS (EV) and Honda City Aspire. To calculate the fuel saved by the MG ZS electric vehicle (EV) compared to the Honda City Aspire petrol car, following assumptions and calculations were used:

1. MG ZS Energy Consumption Rate:

According to MG Motors Pakistan website, the MG ZS electric vehicle has an energy consumption rate of around 14 kWh per 100 km.

Energy Cost:

In case of EV tariff, APL is charging a single unit at Rs.85 per kwh.

Energy cost of MG ZS per km = Energy consumption rate of MG ZS x Cost of electricity per kWh / 100



Figure 11. MG ZS EV

Energy cost of MG ZS per km = 14 kWh per 100 km x Rs.85 per kWh / 100

Energy cost of MG ZS per km = Rs.11.9 per km

Fuel Efficiency Rate of Honda City Aspire:

According to Honda Pakistan website, the fuel efficiency rate of the Honda City Aspire petrol car is around 12 km per liter.



Figure 12. Honda City Aspire

Fuel Cost:

Assuming the cost of petrol per liter is around Rs.272, based on the current rates in Pakistan.

Fuel cost of Honda City Aspire per km = Petrol cost per liter / Fuel efficiency rate of Honda City Aspire

Fuel cost of Honda City Aspire per km = Rs.272 / 12 km per liter

Fuel cost of Honda City Aspire per km = Rs.22.6 per km

Therefore, Fuel saved per km = Rs.22.6 per km – Rs.11.9 per km

Fuel saved per km = Rs.10.7 per km

Therefore, the MG ZS electric vehicle saves around PKR 10.7 per km in fuel costs compared to the Honda City Aspire petrol car.

Electric vehicle tends to reduce the oil import bill by providing an opportunity for fuel reduction over useful lifetime. To support this statement, below graph depicts the fuel saving potential of electric vehicles in Pakistan is significant. The best-case scenario, with high EV penetration in the market, could lead to a reduction of over 18 Million Tons of Oil Equivalent (MTOE) in fuel consumption during the period of 2021-2030¹⁸. This reduction would contribute significantly to the



Figure 13. Honda City Vs MG ZS EV

¹⁸ https://www.pc.gov.pk/uploads/report/IEP_Report_FINAL.pdf

country's efforts to reduce its dependence on fossil fuels and move towards a more sustainable energy future.

The medium and low growth scenarios also offer significant fuel savings of 10 MTOE and 5 MTOE, respectively, during the same period. These savings are still substantial and

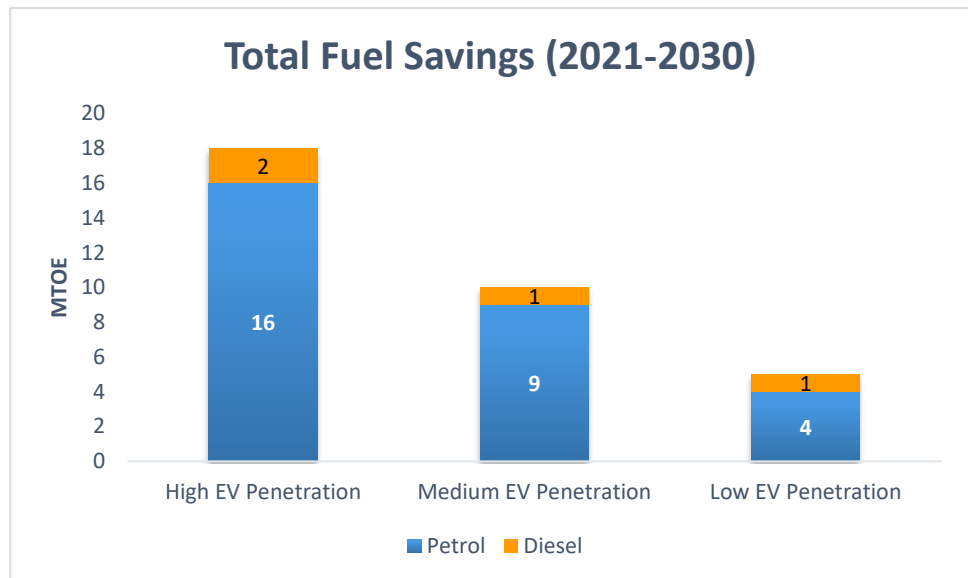


Figure 14. Fuel Savings Comparison

indicate that even if the uptake of electric vehicles is not as high as expected, there is still a considerable potential to reduce fuel consumption and associated emissions.

It is worth noting that Pakistan's total final energy consumption in 2020 was 54.9 MTOE, with the transport sector alone consuming 17.07 MTOE¹⁹. Therefore, the potential fuel savings offered by electric vehicles could make a significant contribution to reduce the energy consumption of the transport sector and the country as a whole. Overall, the fuel savings potential of electric vehicles in Pakistan is significant, and the country has an opportunity to move towards a more sustainable energy future by promoting the adoption of electric vehicles.

6.2.1 Estimated Annual Maintenance Cost

EVs, in general, have lower maintenance costs than petrol cars because they have fewer moving parts that can wear out. The estimated annual maintenance cost for the MG ZS is around PKR 12,500²⁰ per year. This cost includes periodic maintenance, replacement of wear and tear items, and software upgrades. Additionally, EVs tend to

¹⁹ <https://www.undp.org/sites/g/files/zskgke326/files/migration/pk/Scaling-Up-Electric-Mobility-in-Pakistan.pdf>

²⁰ MG ZS maintenance cost: <https://mgmotor.com.pk/zs-ev/>

have longer service intervals compared to petrol cars, which can further reduce the maintenance cost.

On the other hand, the estimated annual maintenance cost for the Honda City Aspire, is typically higher than that of an EV. Honda City, has an estimated annual maintenance cost of around PKR 30,000 per year²¹. This cost includes oil and air filters, brake pad replacements, and other routine maintenance.

6.2.2 Fuel Saved

EVs utilize around 30% of the energy of petrol vehicles, provide significant economic and financial savings, and reduce dependency on energy imports²². The MG ZS is an electric vehicle that does not require any petrol, while the Honda City Aspire runs on petrol.

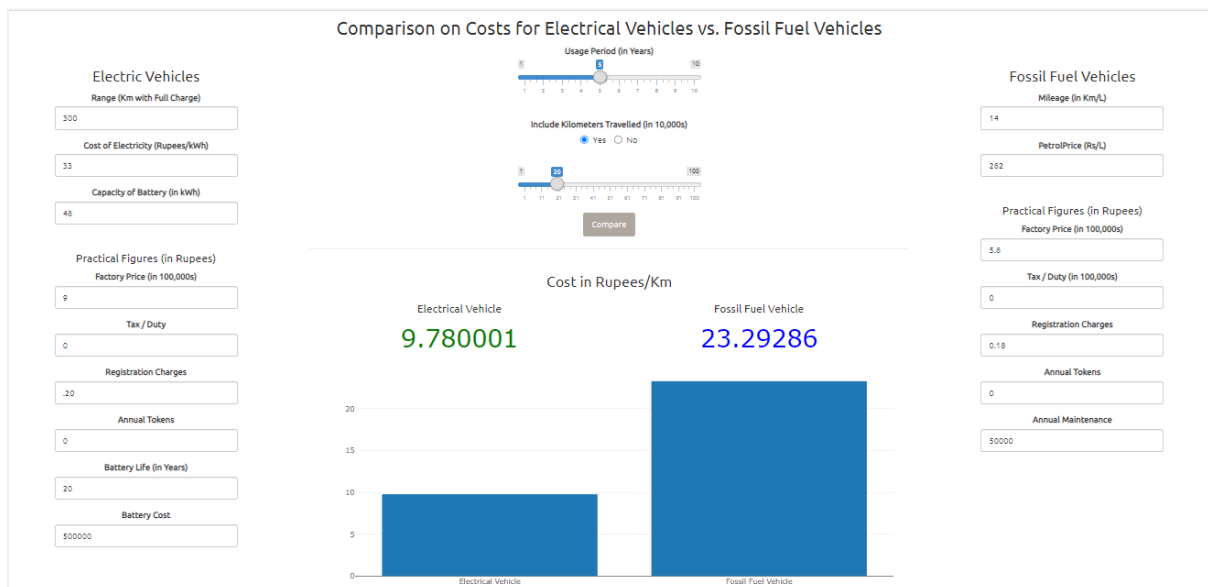


Figure 15. Comparison on Costs for Electrical Vehicles vs. Fossil Fuel Vehicles

The above image from simulator has computed the comparison between an EV and a fuel vehicle. This simulator has calculated the cost per km of both vehicles. After inserting the parameters, the simulator calculates and graphically depicts the difference in the cost in rupees/ km.

²¹ Honda City Aspire maintenance cost: <https://www.honda.com.pk/city-aspire/specifications>

²² <https://www.fueleconomy.gov/feg/evtech.shtml>

6.2.3 Emissions Avoided

Pakistan is one of the most vulnerable countries to climate change since it is heavily polluted. Due to massive GHG emissions, it is ranked as the world's second worst country in the Global Air Quality Index Report 2020²³. Moreover, in recent years, Pakistan's carbon emissions per capita scenario has shown an increased trend, with 0.72 metric tons of carbon per capita emitted in 2010, rising to 0.85 metric tons per capita in 2019²⁴ as depicted in the below graph.

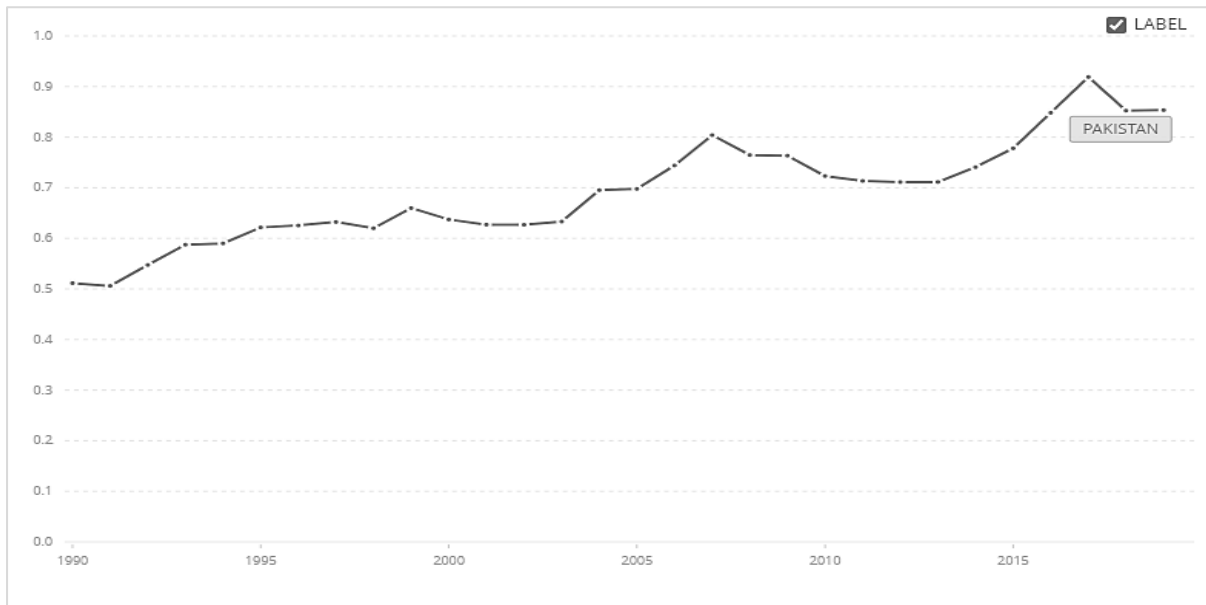


Figure 16. CO2 Emissions (metric tons per capita) - Pakistan

Electric Vehicles are environmentally friendly than petrol cars because they produce fewer greenhouse gas emissions from the tailpipe. EVs have greater efficiency and the country's overall emissions will decline significantly as more people switch to using electric vehicles for transportation.

MG ZS Emissions

MG ZS produces zero tailpipe emissions during operation as it is an electric vehicle. However, the emissions associated with the electricity used to charge the vehicle depend on the source of the electricity. In Pakistan, the electricity mix is dominated by fossil fuels, which means that charging the MG ZS from the grid would result in some

²³ World's Most Polluted Countries in 2020 (PM2.5) Ranking, World Air Quality Report, AirVisual. 2020. Available online: www.iqair.com/world-most-polluted-countries (accessed on 25 March 2023).

²⁴ CO2 emissions (metric tons per capita) - Pakistan (no date) Data. Available at: <https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=PK> (Accessed: March 25, 2023).

CO2 emissions. The emissions factor for electricity in Pakistan is around 0.859 kg CO2/kWh²⁵.

The MG ZS has a battery capacity of 44.5 kWh and an estimated range of 262 km on a single charge. This means that it would consume around 17 kWh of electricity per 100 km. Therefore, the MG ZS would produce around 0.146 kg of CO2 emissions per km.

$$\frac{17 \text{ kWh}}{100 \text{ km}} \times \frac{0.859 \text{ kg CO}_2}{\text{kWh}} = 0.147 \text{ kg of CO}_2 \text{ emissions per km}$$

Honda City Aspire Emissions

Now, let's calculate the CO2 emissions produced by the Honda City Aspire. The CO2 emissions factor for petrol in Pakistan is around 2.36 kg/liter²⁶. Therefore, the Honda City Aspire would produce around 0.168 kg of CO2 emissions per km (12 km/liter x 2.36 kg/liter).

$$\frac{12 \text{ km}}{\text{liter}} \times \frac{2.46 \text{ kg}}{\text{liter}} = 0.168 \text{ kg of CO}_2 \text{ emissions per km}$$

Based on these calculations, the MG ZS would save around 0.022 kg of CO2 emissions per km compared to the Honda City Aspire (0.168 kg/km - 0.146 kg/km). Over the course of a year, assuming an average driving distance of 10,000 km per year, the MG ZS would save around 220 kg of CO2 emissions compared to the Honda City Aspire.

Based on these calculations, the MG ZS would save around 0.022 kg of CO2 emissions per km compared to the Honda City Aspire (0.168 kg/km - 0.146 kg/km). Over the course of a year, assuming an average driving distance of 10,000 km per year, the MG ZS would save around 220 kg of CO2 emissions compared to the Honda City Aspire.

²⁵ NEPRA | Home. (n.d.). NEPRA | Home. https://www.nepra.org.pk/Publications/State%20of%20the%20Industry%20Reports/SOIR_2020.pdf

²⁶ Ministry of Climate Change. (n.d.). Retrieved March 26, 2023, from <https://mocc.gov.pk/Sitelimage/Misc/files/PakistanUpdatedNDC2021-compressed.pdf>

7 Conclusion

In conclusion, this project report has provided a comprehensive analysis of the potential of electric vehicles (EVs) in Pakistan to address multi-sectoral and multi-layered challenges related to transportation, climate, and economy. The findings of this report suggest that the introduction of EVs in Pakistan can offer significant benefits, including reduced emissions, lower operating costs, and the potential to utilize excess power supply from renewable sources.

The analysis has also highlighted the role of Attock Petroleum Limited in successfully rolling out EV chargers at its fuel sites to capture the retail market. Factors such as government policies and customer preferences have been identified as critical for the successful implementation of EV chargers.

However, the report acknowledges that there are challenges that need to be addressed for widespread EV adoption in Pakistan, such as high upfront costs, range anxiety, and charging infrastructure availability. Furthermore, the report underscores the importance of continuous efforts from all stakeholders to create an enabling environment for EV adoption in Pakistan. This includes the implementation of supportive policies, incentives, and infrastructure development to facilitate the growth of the EV market.

In conclusion, the business project report presents a compelling case for the adoption of EVs in Pakistan as a solution to address various challenges in the transportation, climate, and economy sectors. The findings of this report provide valuable insights and recommendations for Attock Petroleum Limited to successfully rollout EV chargers at its fuel sites and capitalize on the growing EV market in Pakistan. Further research and collaborative efforts are needed to promote the widespread adoption of EVs and accelerate the transition to a more sustainable transportation system in Pakistan.