

Reliability of Li Battery to make Electrical Vehicle more Energy Efficient

Rajan Thapa



REPIC

Renewable Energy
Energy - & Resource Efficiency
Promotion in
International
Cooperation

A Brief History of EVs in Nepal

1975

- Trolley bus service begins at 13km route between Tripureshwor and Surya Binayak

1993

- 7 diesel run three wheelers converted into EV and operated as public vehicle for six months

1996

- Introduction of 600 electrically powered vehicle (Safa Tempos)

Source: EVAN

1997

- Government of Nepal Published EV tax policy in the National Gazette
- 23% as compare to the 234% tax for Cars with Combustion Engines

2001

- Trolley Bus Services Disconnected

Source: Onward Nepal

A Brief History of EVs in Nepal

2002

- Government ignorance on 10% Tax/VAT exemption policy

2009

- Formal Shutdown of Trolley Bus (Financially unviable transportation choice)

2015

- EV Tax reformation; 10% for private and 1% for public EVs (Passed in the budget 2016/17)
- Introduction of Conventional E-Rickshaws in Terai Region

2016/17

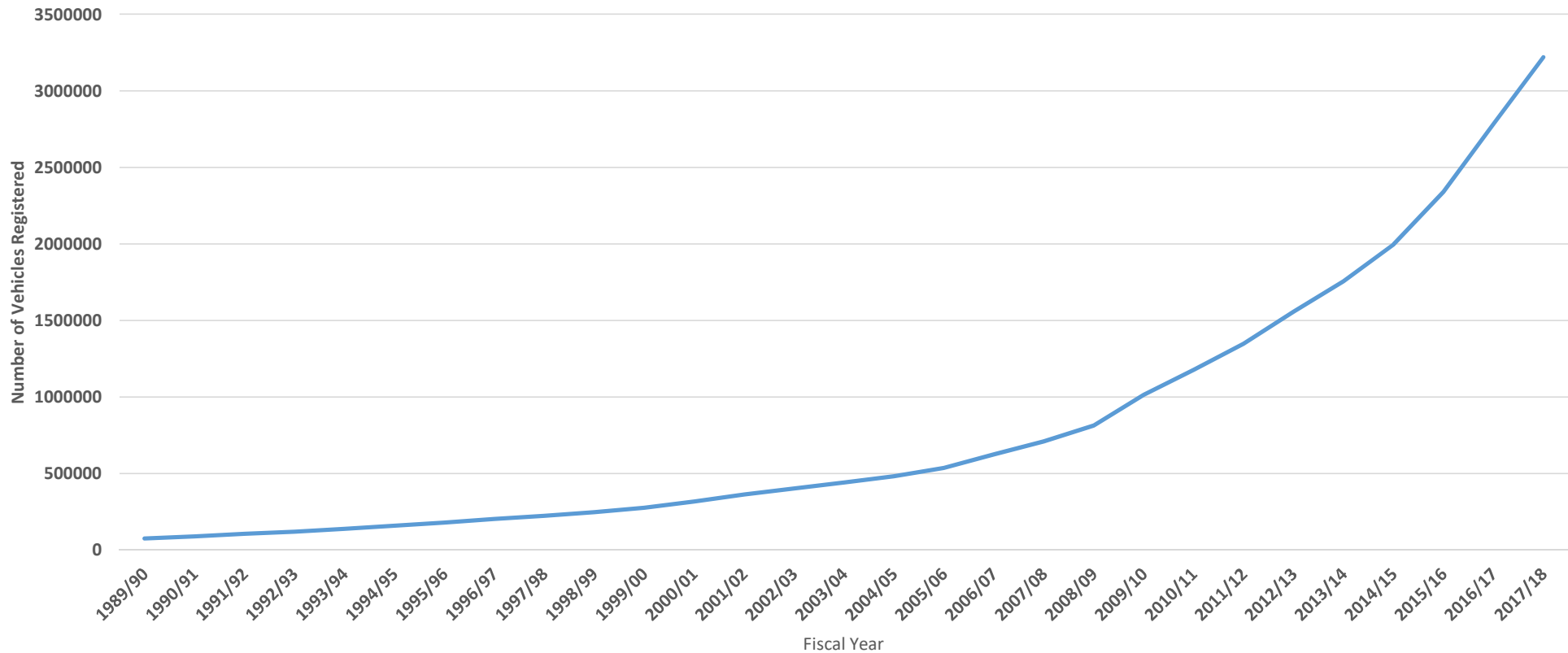
- Electric Rickshaws became normal (Around 18829)
- Import of Commercial Electric Vehicle by Mahindra, KIA's etc.

Source: EVAN

2017

- Introduction of first EV charging station in Kathmandu by NEA

Current Scenario of Vehicles Registration in Nepal

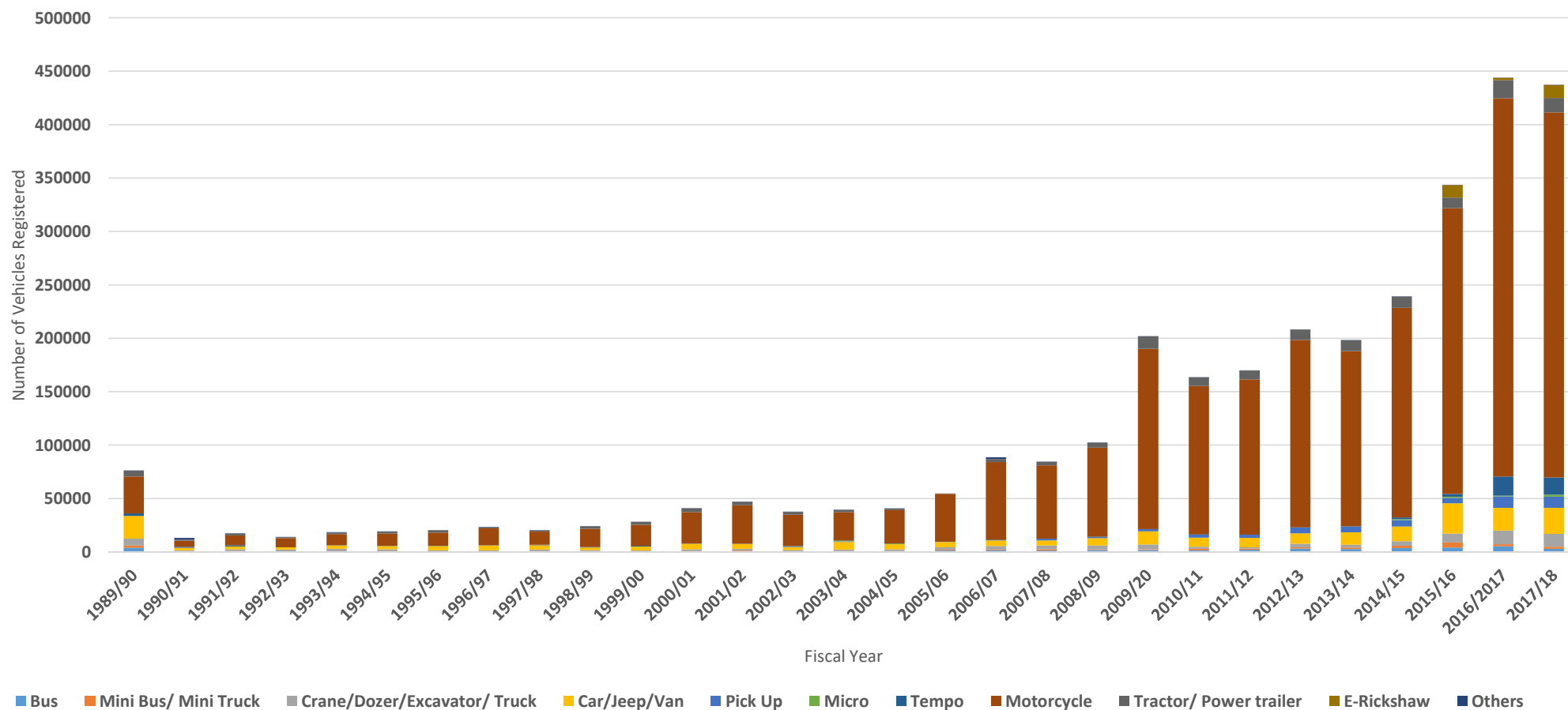


Exponential Growth - More than 3 millions

Rate of Motorization - Average annual growth rate for last 15 years: 14.58%

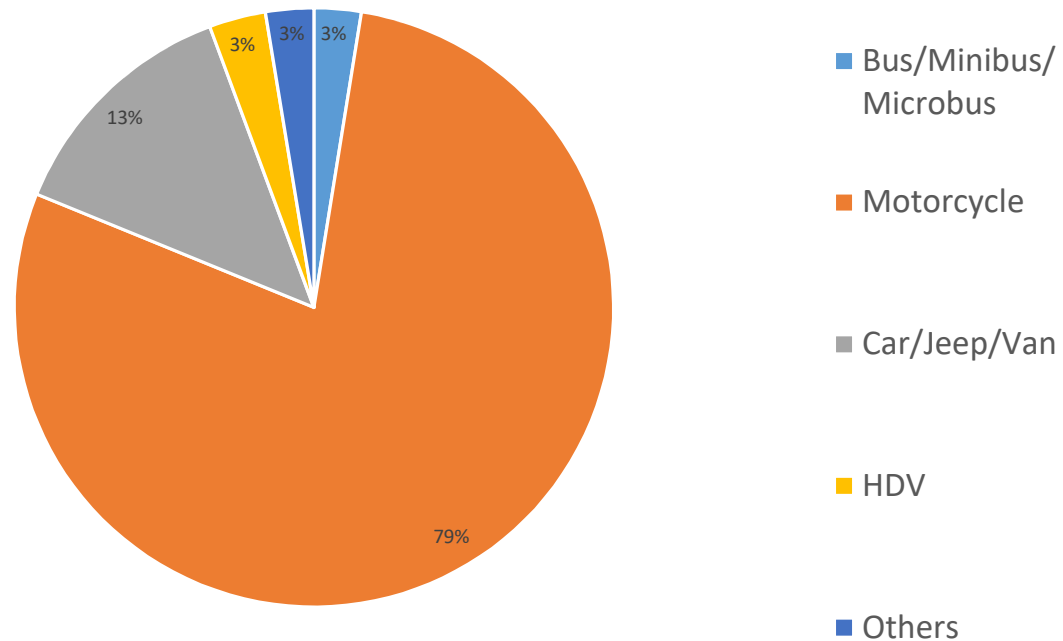
Source : DoTM, 2018

Vehicle Registration Data for Nepal



Source : DoTM, 2018

Share of Vehicles Registered in Bagmati Zone

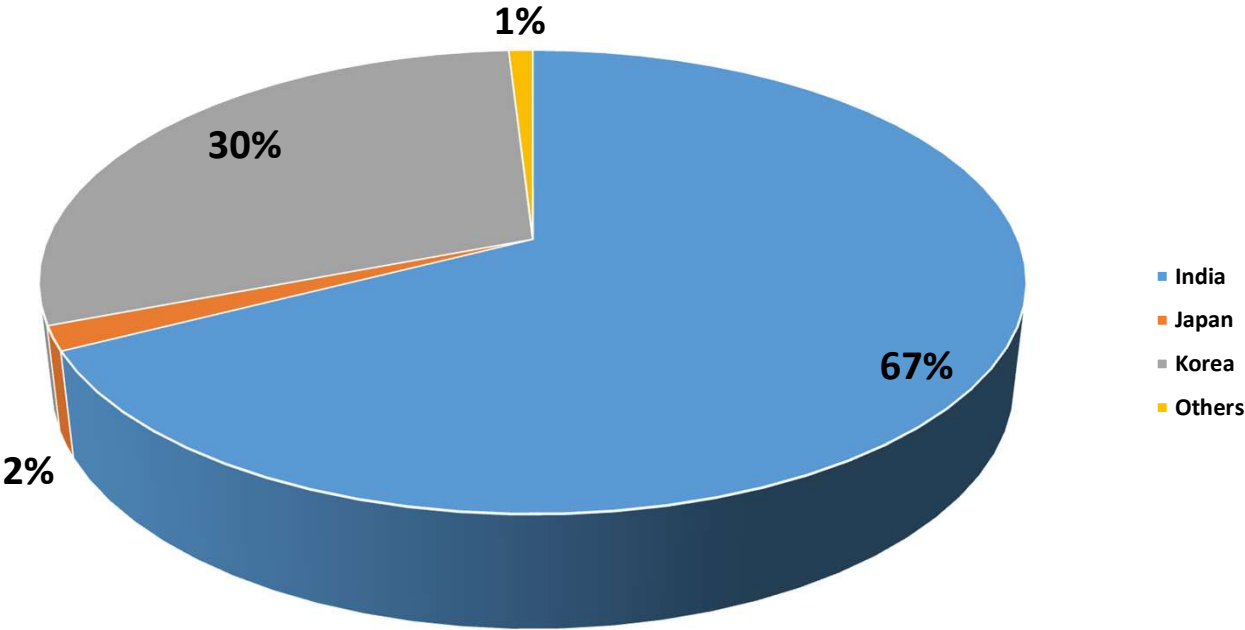


- More than 64% of the LDVs registered in Nepal

Source : DoTM, 2018

Vehicles Import in Nepal (By Countries)

Diagrammtitel



Source: Trade and Export Promotion Center, 2018

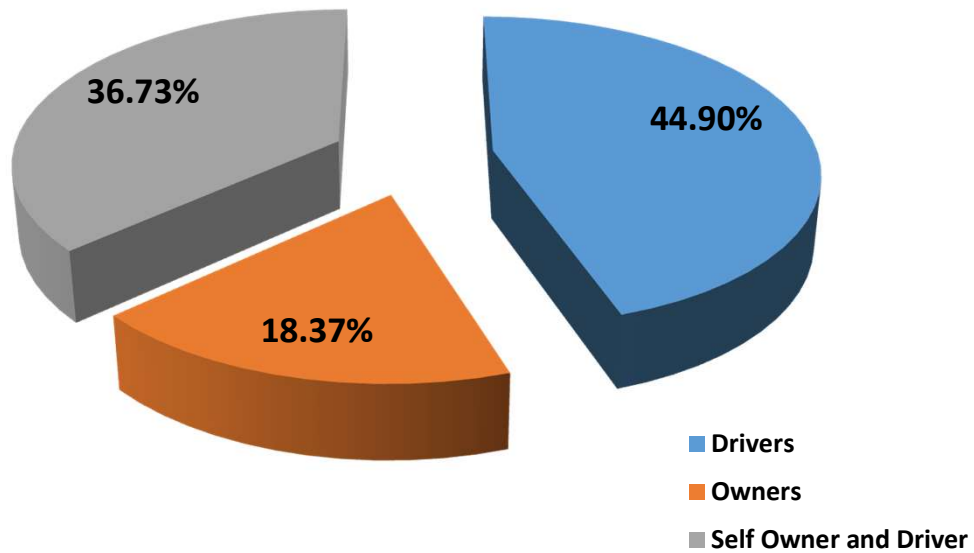
What Next:

Making Electric vehicle more efficient and reliable

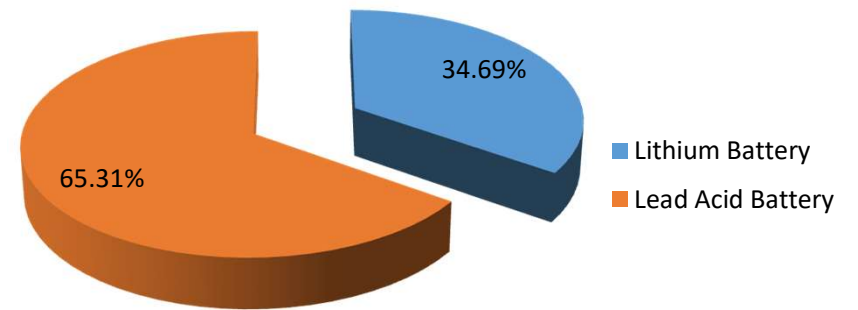
- To make comparative study of Lithium and Lead acid batteries and test the feasibility of Lithium battery in safe tempos.
- To examine the perception of users and performance of Lithium and Lead acid batteries

Background

Percentage of Respondents

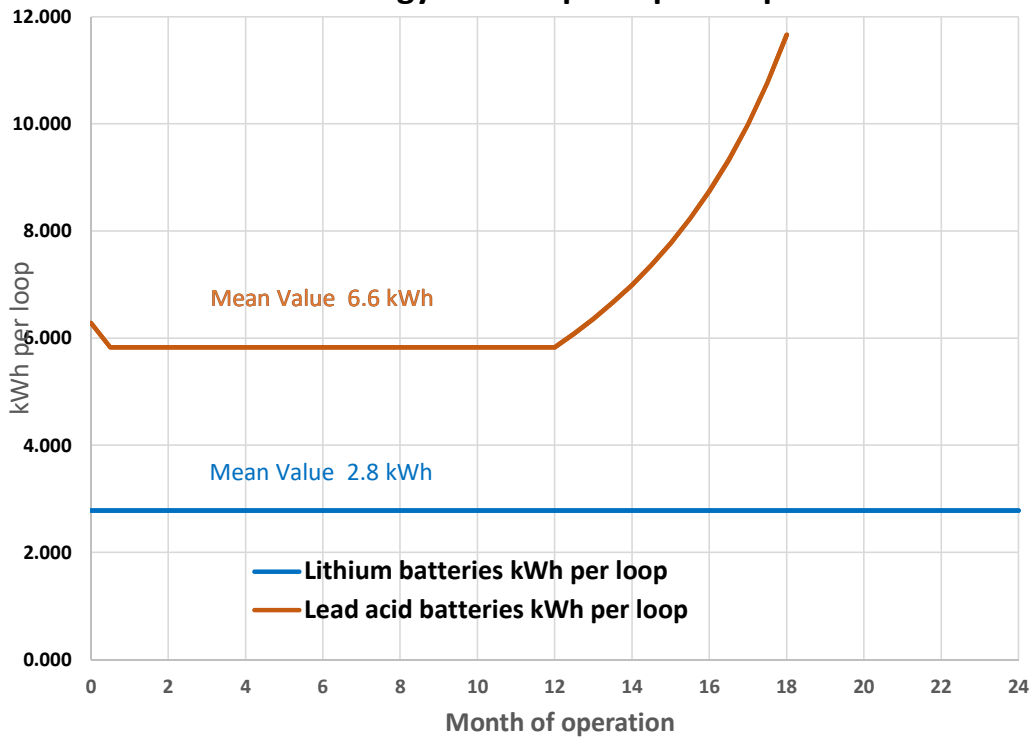


Battery Type

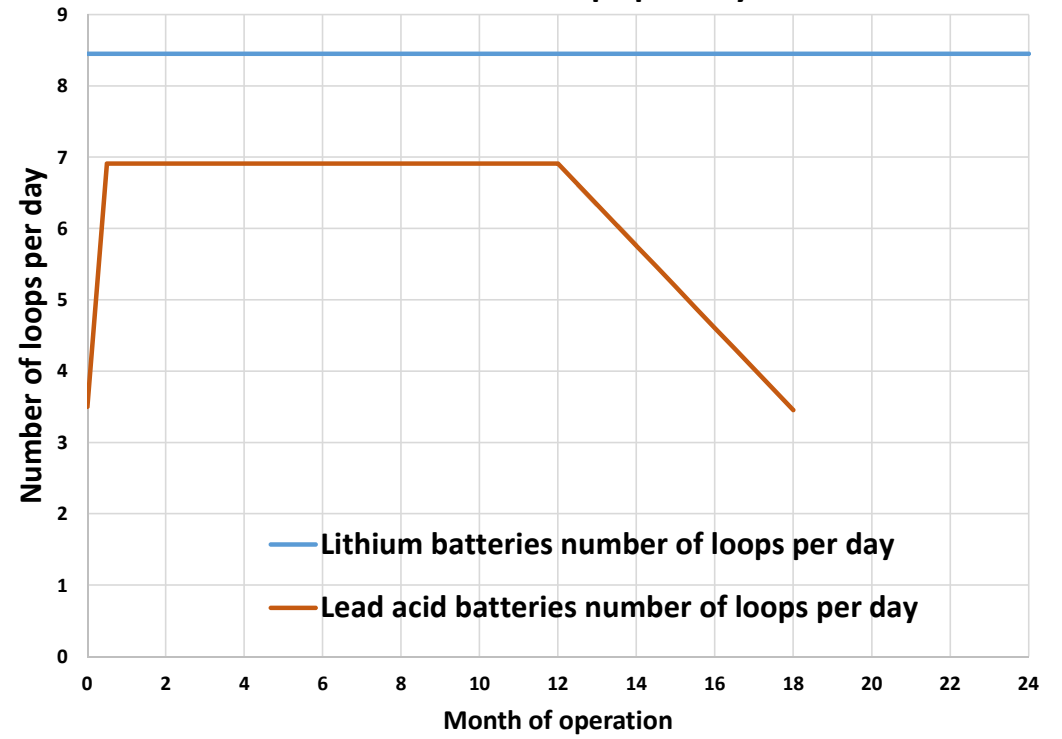


Findings

Energy consumption per loop

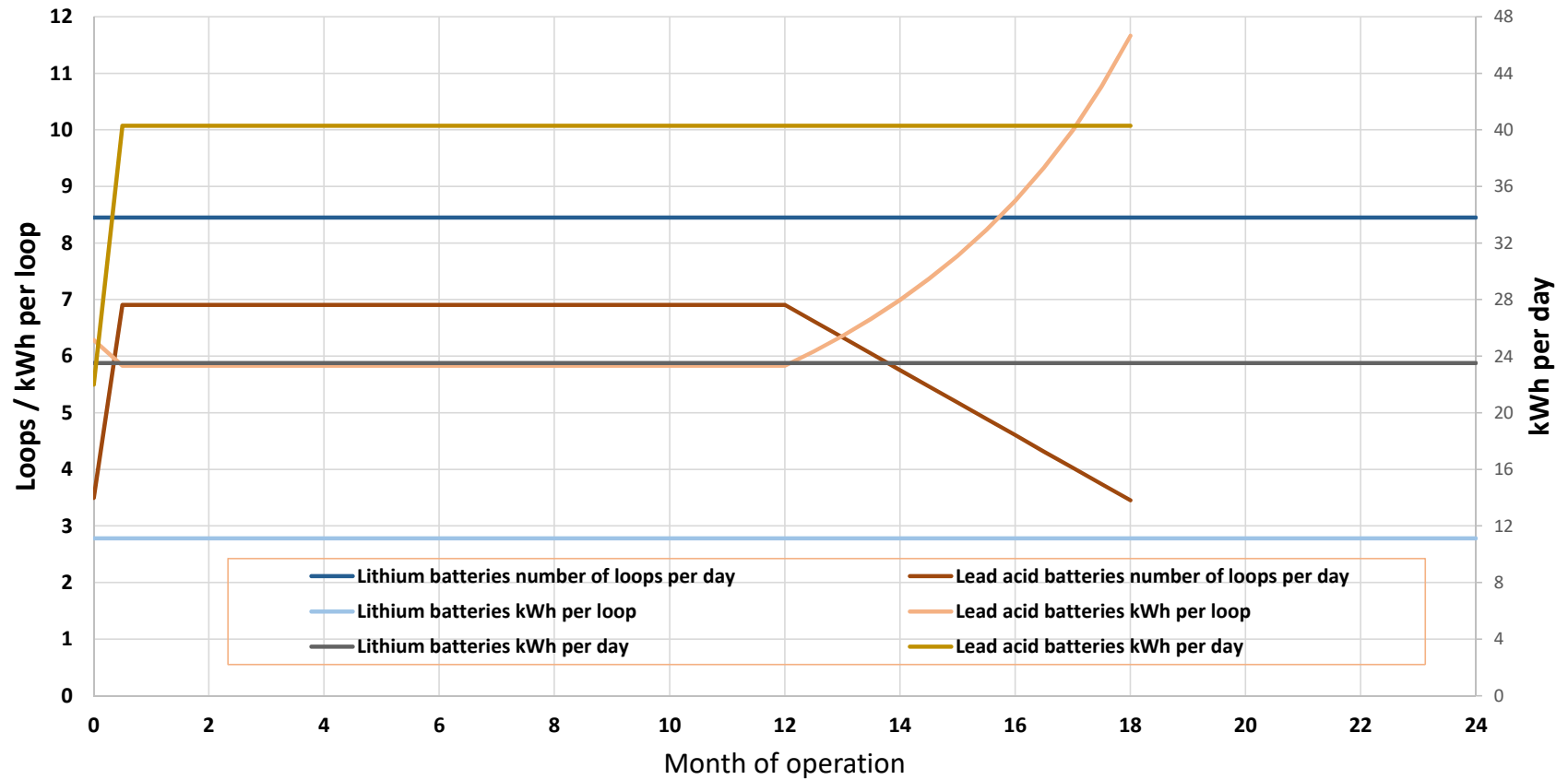


Number of loops per day



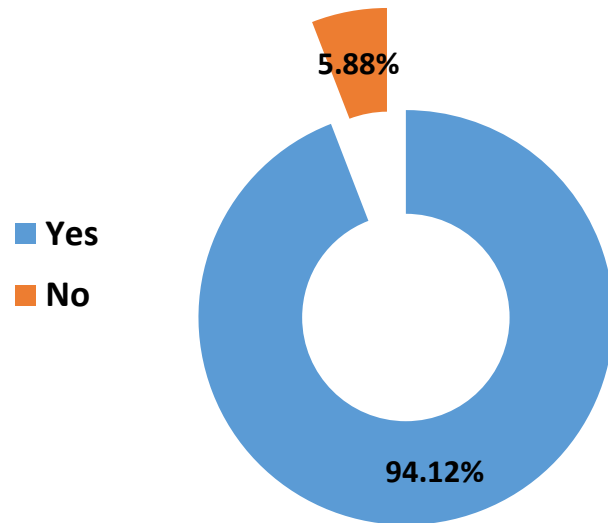
Findings

Number of loops per day and energy consumption per loop and per day

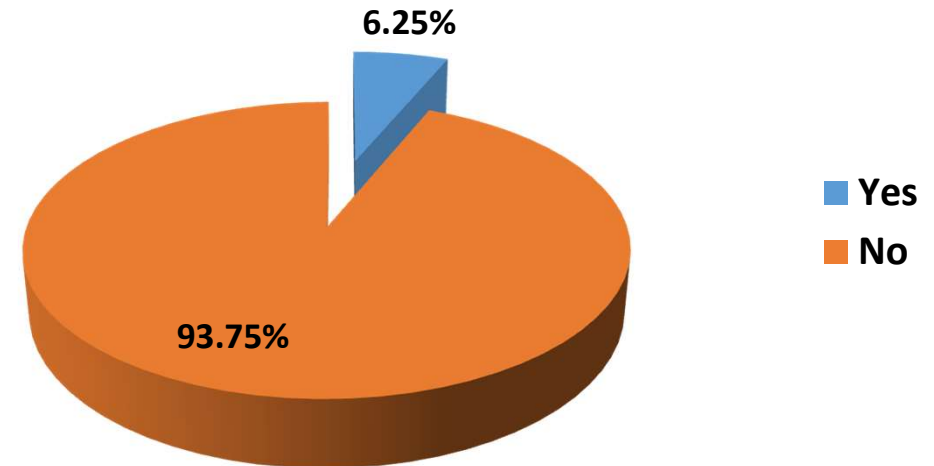


Findings

Would you recommend Lithium Battery to your counterparts?



Respondents satisfaction in using Lead Acid Battery



Almost 60% of people who are using Lead acid batteries are interested to use Lithium battery while 37.5% denied stating with their weak purchasing capacity and affordability of the big investment cost.

Conclusion

- Through the survey, it was revealed that Lithium batteries are more economic, incurs less maintenance time and cost, more number of operating days, environmentally safe and durable life, provides less risk to damages and more number of people interested towards the services.