



# **THE OCTOBER 2009 PETROBRAS BOND ISSUE (C)**

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# Introduction

EV Background

History

How EV will effect the environment

Motivation for EV

Common Questions

Case Study

Conclusion

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# Electric Vehicles

Cars, Trains, Motorcycles and Scooters

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# What is an electric vehicle (EV)?

Stating the obvious:

A car power by electricity  
(Entirely or Partially)

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# How do they work?

Runs on Electricity not petrol

Energy supplied from Power outlet (Plug in cord)

Energy stored in the battery

Energy powers the electric motor

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# Regenerative Braking

Energy recovery mechanism

Converts Kinetic energy to another (heat)

Sent to Battery by electric motor (Generator)

Then Stored in Battery

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# Types of EVs?

Hybrid Electric Vehicles (HEVs):

Petrol engine + battery (never plugged in).

Plug-in Hybrid: petrol engine + electric motor  
(Plugged in)

Full Electric: electric motor + battery  
(Plugged in)

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# Where can we charge?

Charging at home: Cheap & Easy

Residents have a fixed place for own EV at home

A 240 volt, 40-amp will take 4 – 6 hours

A household with 120 volt, 15 amps will take 10 – 12 hours

Charging will mainly be done at night so this means your car would be getting at least an 8 hour charge

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