

better place 

## Accelerating the transition to EVs

Guy Pross  
Director Business Development  
Better Place Australia

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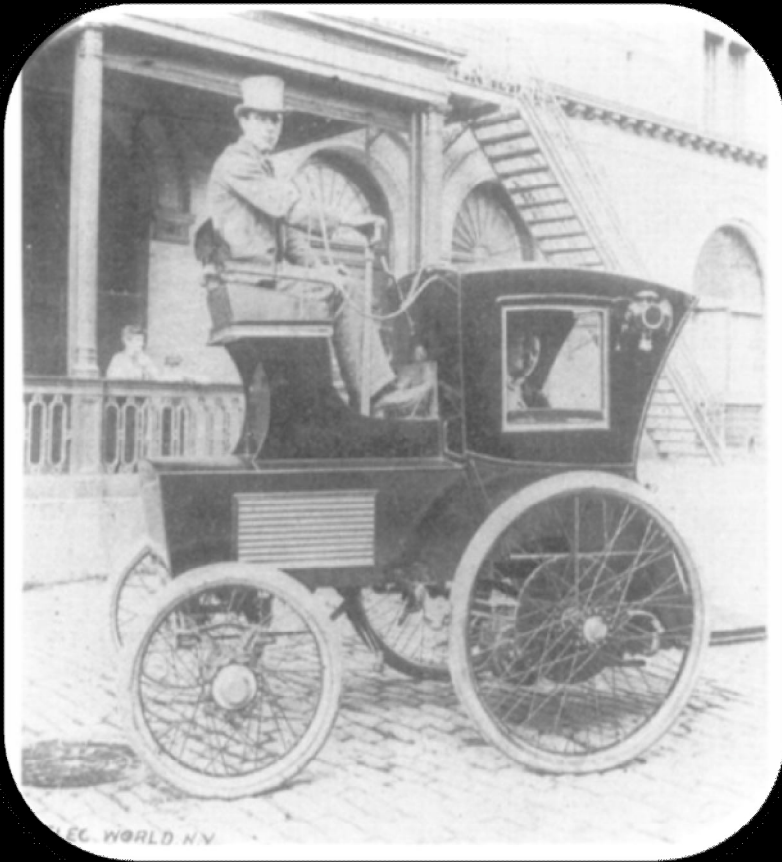




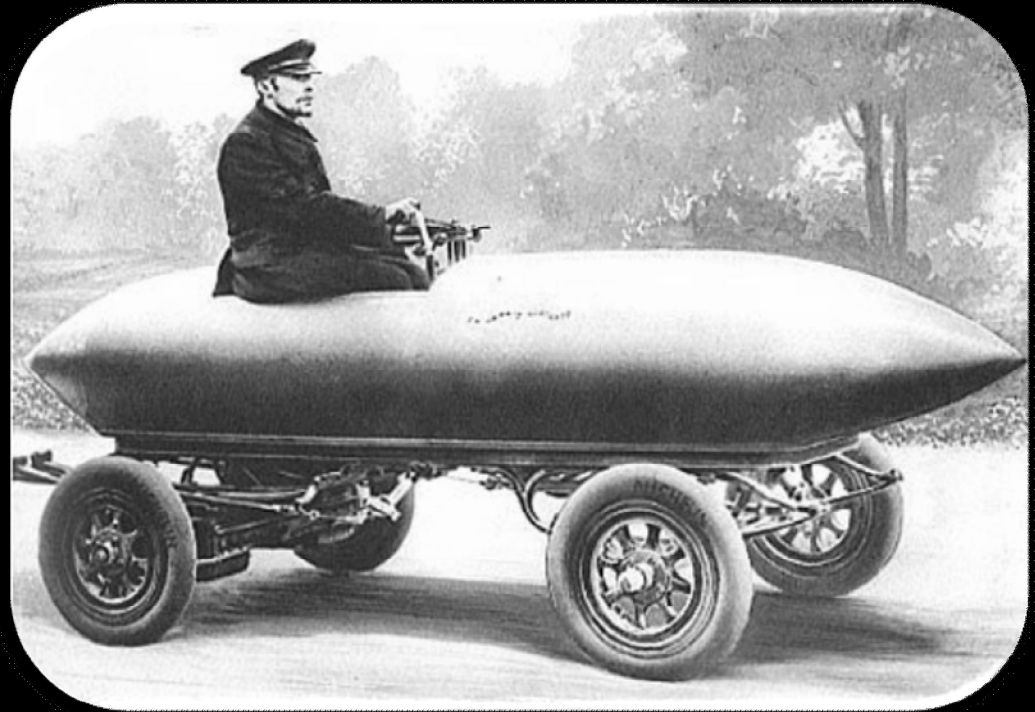
**Electric vehicles are the future.**

**But to start, a little bit of history...**

## **First Wave 1890-1910**



**Electric cab, New  
York  
1897**



**First automobile to reach 100  
km/h, in 1899**

## Second Wave 1990-2000



**1990 Zero Emission Vehicle Program**

**10% of cars sold in 2003 must be zero-emission vehicles**



# Third Wave 2008 → future



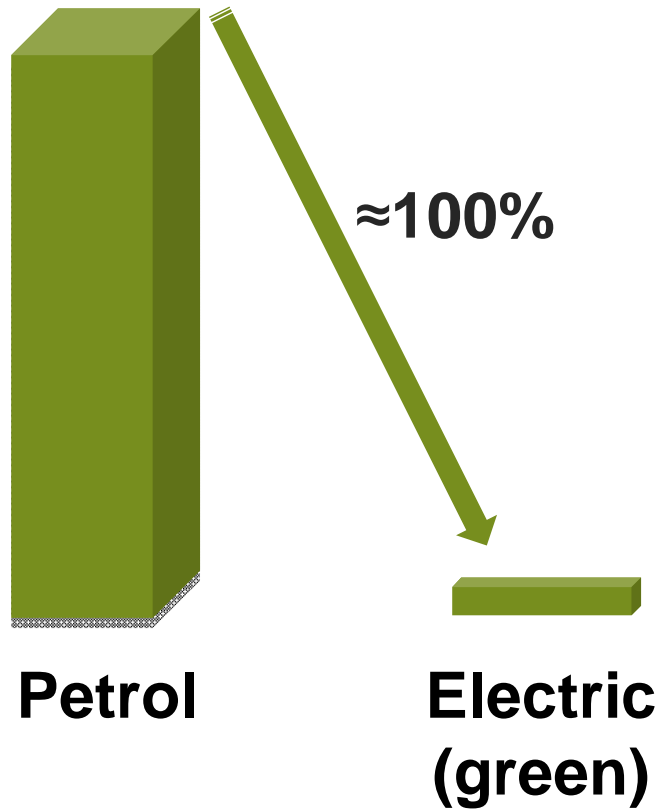
# Secret for Third-Wave success?



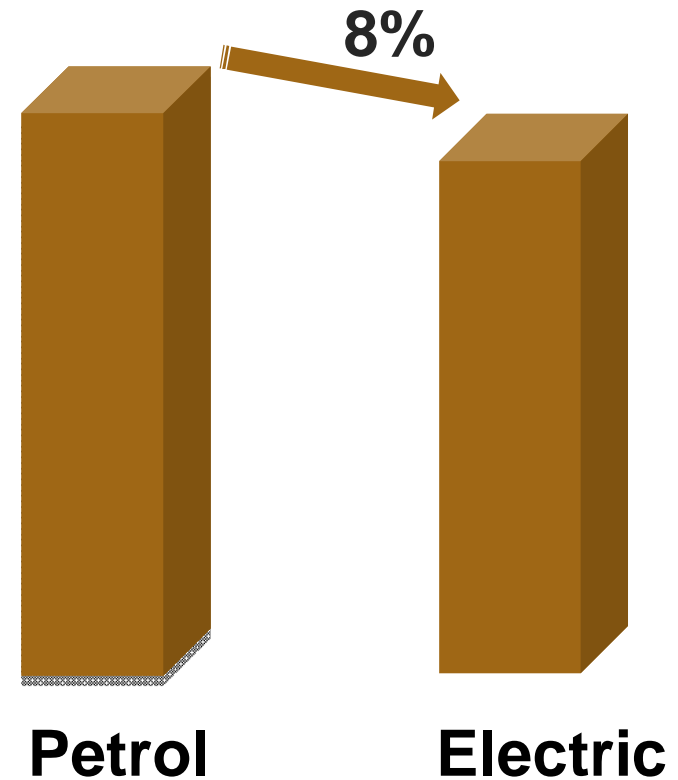
## Seven reasons...

# Reason 1 – operating CO<sub>2</sub> emissions

## Car emissions

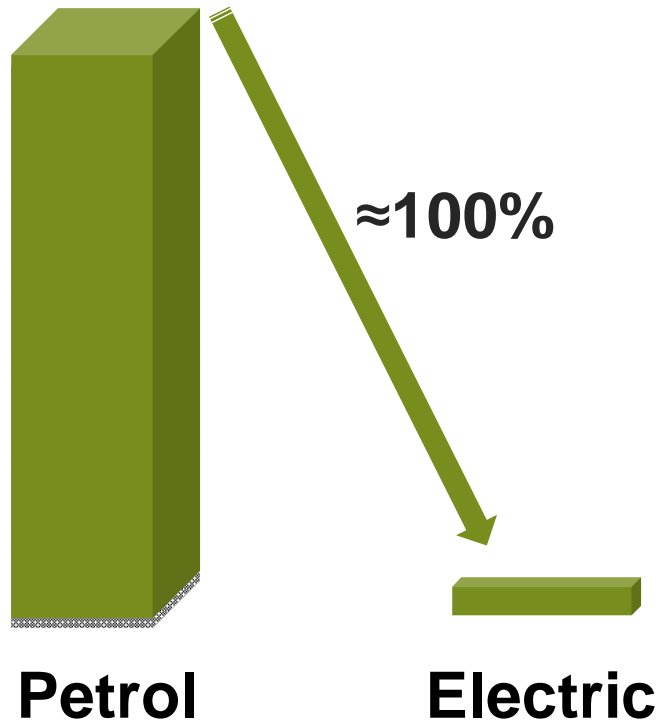


## National emissions



## Reason 2 – oil consumption

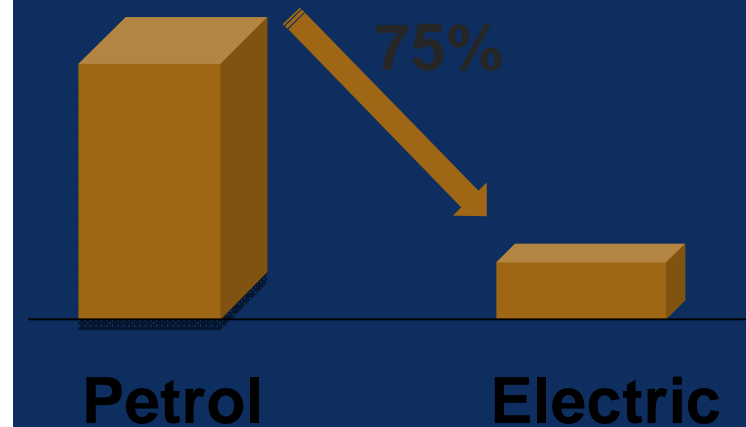
### Car consumption



### National consumption



### National imports



## Reason 3 – market perceptions



## Reason 4 – improved batteries



km/kg ✓  
life ✓  
safety ✓

1972  
Stanley Whittingham  
Exxon employee

## Reason 5 –infrastructure



## Reason 6 – Better Place battery swap stations



## Reason 6 – battery swap stations cont...



## Reason 6 – battery swap stations cont...



## Reason 7 – lower operating costs



**Electric trams since  
late 1800s**

**Trains & trams use electricity – inexpensive**

**Cars – petrol is \$0.12/km, electricity is only \$0.03/km**

# All good, but what are customer concerns?

## 1) Price anxiety

- batteries are expensive at low volumes
- impacts total cost of ownership



## 2) Range anxiety

- country driving
- off-street parking



## 3) Battery anxiety



# Better Place solution elements



## At home and out and about: charge spots and battery switch stations



**Access to charging everywhere**

**Ability to drive long distances**



## In hand, in the car: driver services



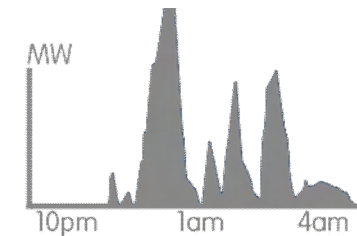
**In-car and remote access to energy information, trip planning**



## Behind the scenes: managed EV services



**Monitor and manage energy supply and demand for utilities and customers**



# Industry focus



- 1) Gov support for mass adoption**
- 2) Standardisation**
- 3) Standards**

## 2) Government support



### Purchase incentives

- Israel: 80% tax reduced to 10%
- Denmark: 180% tax reduced to 10%
- France: purchase bonus €5,000
- US: tax credit up to \$7500
- UK: purchase grant up to £5,000
- Australia: nil

### Regulations & Standards?

- None

### Purchasing policies?

- French govt fleet to purchase 50,000 EVs

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