

An  
ITEZZE

Presentation

On

Global Energy Transition

Of

Oil Powered Vehicles & Equipment

To

**ITEZZE - The Electric Vehicle Swap Battery Solution\***

with executive summary on

the real causes

of

**Climate Change**



**ITEZZE**

**\*Formerly known as the Integrated Transport Solution or ITS**

**Disclaimer:** Any material in this document is offered for information purposes as 'Information Only' for parties interested in moving to Electric Vehicles (EV's) or being involved in EV's. Parties interested in investing in the technology who are Professional Investors and control in excess of \$10 million of funds; or otherwise exempt to receive a disclosure document consist with the Corporations Act 2001 (Cth) can apply to the Group for an IM. No responsibility or liability is accepted or implied for the accuracy or otherwise of the information contained herein. Any Investors need to do their own calculations in relation to any analysis and make their own enquiries on any and all matters. Any figures and projections are in US\$ unless otherwise stated and amounts are estimates only.



ITEZZE

# A World in Transition

## Our world faces 3 challenges

Oil Supply is Shrinking & Oil Demand is rising

Climate Change

Caused by CO<sub>2</sub> & Soot Emissions - Both outputs of burning fossil fuels

Falls in Oil output as Natural Decline slices oil supply

### Abbreviations:

**Bpd** - Barrels per Day (of Oil Produced)

**Ind (Oz)** - IT & ES Industries (Oz) Pty Ltd

**BSB** - Battery Service Business (or Fund)

**Mbpd** - Millions of Barrels per day

# The Problems of Oil as a major source of Transport Energy

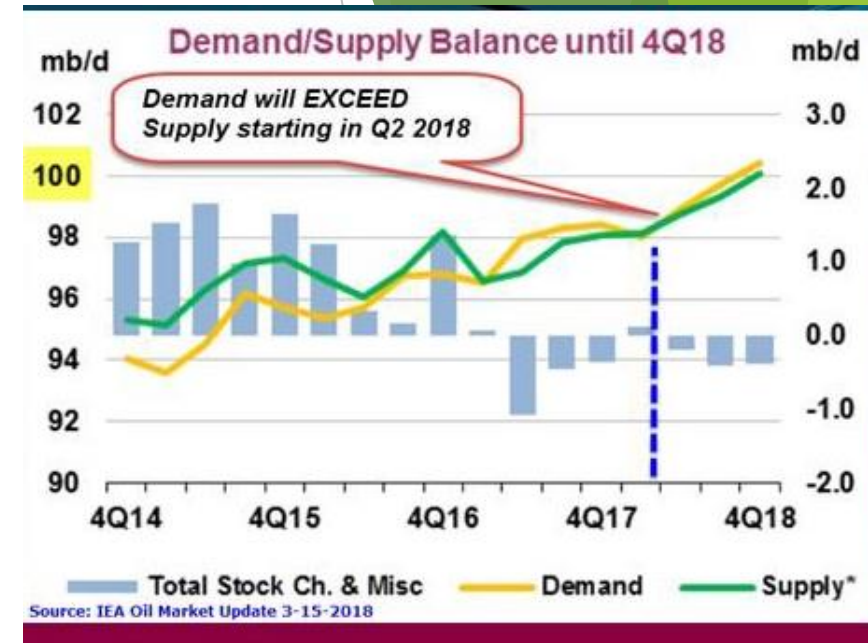
- ▶ Global Oil Production Peaked in 2020; but the pandemic meant demand fell by 10-30 million barrels/day (bpd) and so it went unnoticed;
  - ▶ 81% of producing reserves are in 'Natural Decline' which means they lose 4-5% their output each year.\* (3 million bpd is lost each year)
  - ▶ This is creating a "Supply Gap" where supply is less than demand;
  - ▶ By 2023 as the world begins to beat CoVid, it will run into a 10 million barrel a day oil shortfall. This will create an **Oil Crunch** (See Video)<sup>2</sup>
  - ▶ Diesel and petrol prices then will increase dramatically;
  - ▶ Oil-based fuels are harmful to the environment -
    - ▶ increased carbon (**CO<sub>2</sub>**) emissions &
    - ▶ Soot - in the Air and on Snow
- Caused by dirty exhaust pipes are causing -
- ▶ Global Warming

The World needs a more efficient, environmentally friendly alternative.

**ITEZZE (formerly known as ITS) is the Solution**

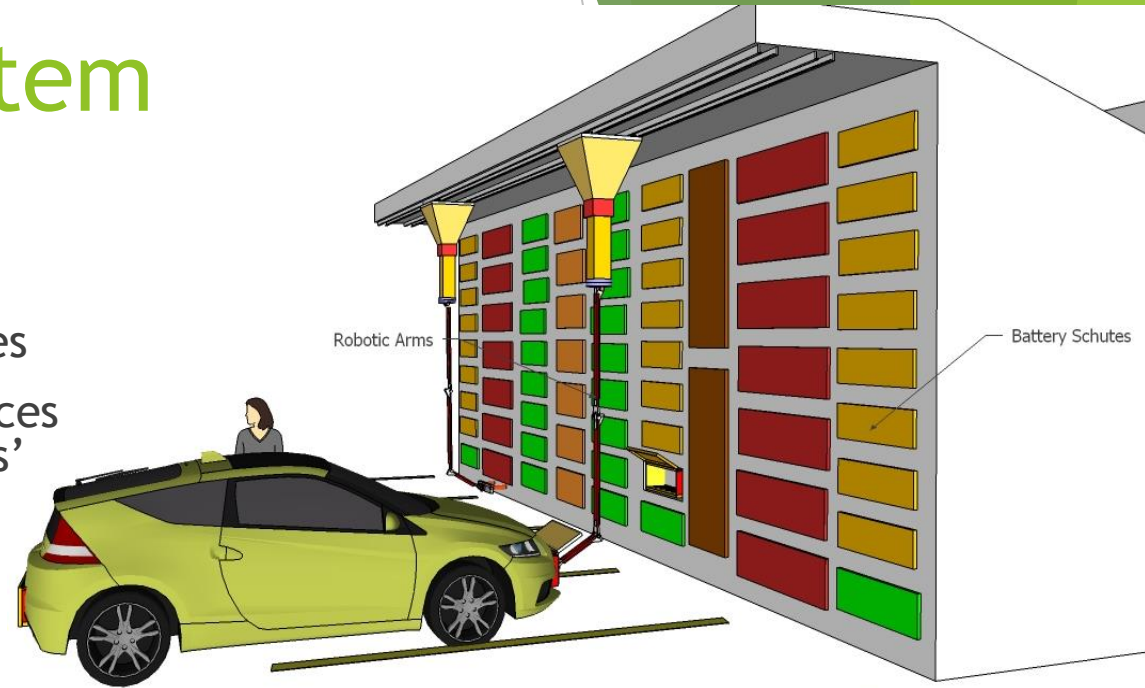
\* <https://www.bloomberg.com/news/articles/2016-08-29/oil-discoveries-at-a-70-year-low-signal-a-supplyshortfall-ahead>

<sup>2</sup> ABC Catalyst Program - The Oil Crunch is important. <https://www.abc.net.au/catalyst/oil-crunch/11012836>



# The ITEZZE swap battery System

- ▶ Computer-controlled 'swap n go' style battery system
- ▶ Patent protected
- ▶ Batteries can be quickly swapped in vehicles of all sizes
- ▶ Electric vehicles can therefore travel unlimited distances using the network of ITEZZE equipped 'service stations'
- ▶ More efficient use of energy
- ▶ Better for the Environment
- ▶ Uses existing infrastructure -
  - ▶ Electricity Grid when using ITEZZE formats has enough **existing capacity** in Australia power to run the existing cars/trucks with ITEZZE
  - ▶ Existing Service station sites can be upgraded & use ITEZZE
- ▶ Cost-efficient in many uses based on today's oil prices
- ▶ Becomes even more economical as the price of oil rises
- ▶ Works on agricultural /earthmoving equipment; mine trucks and heavy transport
- ▶ Mining and Agricultural operations can establish their own 'service stations' or - TCO (Transport Co. Operator sites) to recharge and swap PIG's onsite.



# Climate Change -

## Global warming is caused by 3 things -

1. **Albedo Effect** - Soot Captures sunlight from the Sun; NASA says that – up to 50% of temperature increases before CO<sub>2</sub> became a real issue may have been caused by industrial revolution soot;  
(See NASA & National Geographic Reports)\*

As one industrial chemist said,

**“Soot is like a Bunsen Burner on Snow”\*\***

- it burns its way down to bedrock

When floating in the air soot absorbs radiation and retransmits it as long wave radiation that CO<sub>2</sub> reflects back to earth

2. The **CO<sub>2</sub> blanketing effect** caused by CO<sub>2</sub> & methane in the air which reflects long wavelength radiation and stops energy escaping from the atmosphere.
3. Warmth from the heat released by burning fossil fuel;

**Oil Fuel vehicles are responsible for outputs of  
CO<sub>2</sub> & SOOT emissions**

\*\* Daniel B. Hounsell – Industrial Chemist

\*[https://www.nasa.gov/vision/earth/lookingatearth/Black\\_Soot.html](https://www.nasa.gov/vision/earth/lookingatearth/Black_Soot.html)

<http://news.nationalgeographic.com/news/2014/06/140610-connecting-dots-dust-soot-snow-ice-climate-change-dimick>

# THE ALBEDO EFFECT ON SUNLIGHT FROM THE SUN

- ▶ Sunlight is short wavelength radiation -
- ▶ It bounces off snow, ice and clouds and goes back into space -
- ▶ If it hits dark surfaces - soot floating in the air; snow covered in soot or water/ground/sea it is absorbed
- ▶ 80% of light hitting snow is reflected back into space; ice only reflects 40%
- ▶ Soot **reflects even less** and keeps much more heat and so as snow and glaciers get covered in **SOOT** they melt faster - and less snow cover means more sunlight can be absorbed



So this means the earth is heading towards a situation called the '**tipping point**' where even if we stop burning fossil **fuel...The Ocean Warming will continue.**

## ITEZZE Reduces CO<sub>2</sub> & Soot Emissions

# ITEZZE reduces both CO<sub>2</sub> & SOOT emissions

- ▶ USC (ultra super critical) Coal Fired power Stations **when fitted with Filters** - produce little or no **SOOT**;
- ▶ **A million** soot producing cars can be replaced by **a single USC Station**
- ▶ ITEZZE when using USC Power cuts **CO<sub>2</sub>** emissions by - **43%** vs a Petrol/ diesel powered ICE\* car and more when regeneration\*\* is included
- ▶ Gas Fired Power Stations produce very little SOOT
- ▶ ITEZZE when using gas fired power - cuts **CO<sub>2</sub>** emissions by -
- ▶ **73%** or more compared to a petrol powered ICE\* vehicles (which rise to 90% when regeneration\*\* is added)

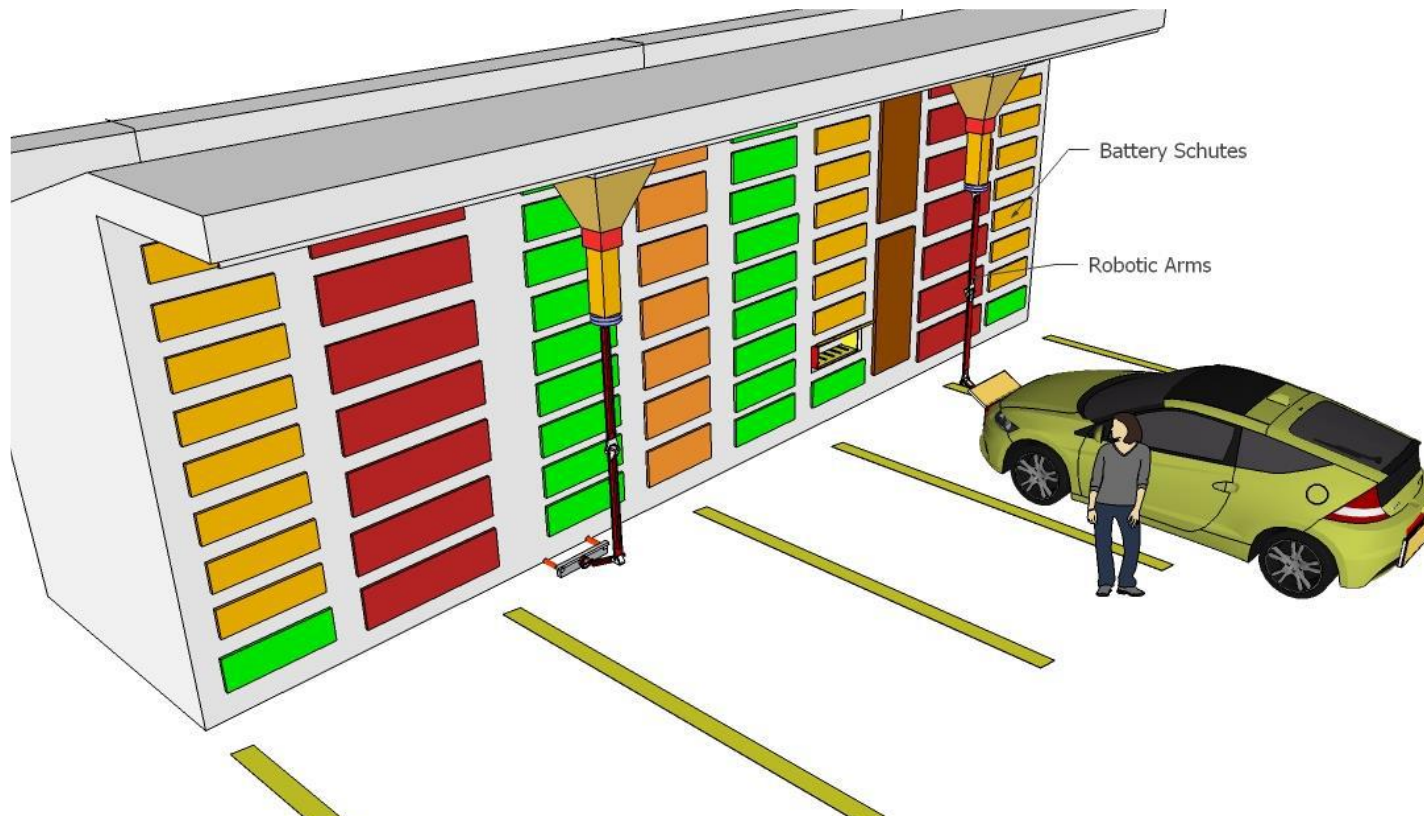
\*ICE (Internal Combustion Engines) in vehicles are very inefficient - only convert 20% of energy in fuel petrol/diesel or LNG to work & produce much **CO<sub>2</sub>** (see Table)

\*\*Regeneration is where electric vehicles scavenge energy and reuse it/convert it back to electricity as they brake or drive downhill

Energy Emissions (Kg CO <sub>2</sub> per GW Energy)		CO <sub>2</sub> emitted (Kg) per Unit of Work (GWhr)	Greenhouse Gas Released Compared to Petrol Combustion Engine	Greenhouse Gas Released Compared to LPG Combustion Engine
ITS Enabled Economy				
Oil to Electricity to ITS Vehicle		2,063	63%	84%
Natural Gas to Electricity to ITS Vehicle		907	28%	37%
Coal to Electricity to ITS Vehicle		1,898	58%	77%
Renewables/Biomass		730	22%	30%
NON-ITS Enabled Economy				
Petroleum to Combustion Engine		3,250	100%	
Natural Gas to Combustion Engine		2,450		100%
Renewables/Biomass to Comb. Engine		1,150		

# The ITEZZE System is the Solution

**ITEZZE Battery Kiosk for robotic swapping of car batteries**

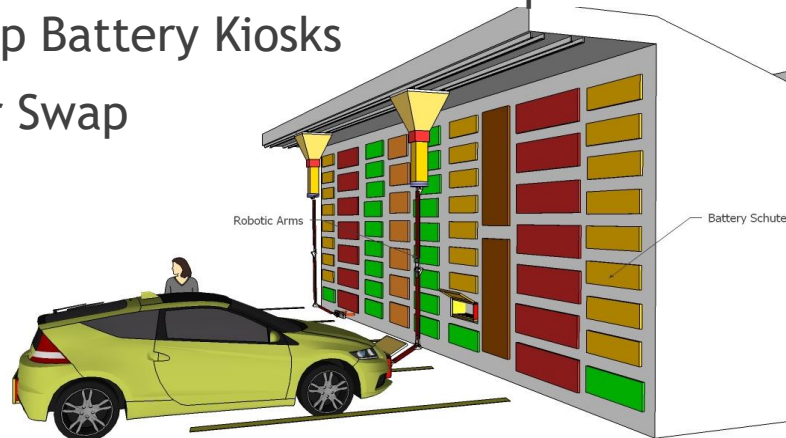
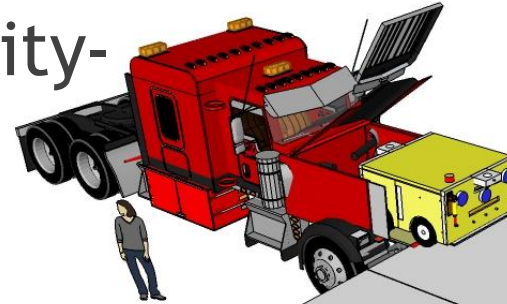


# ITEZZE runs vehicles on electricity using swap batteries

Cars & Trucks can operate on electricity-

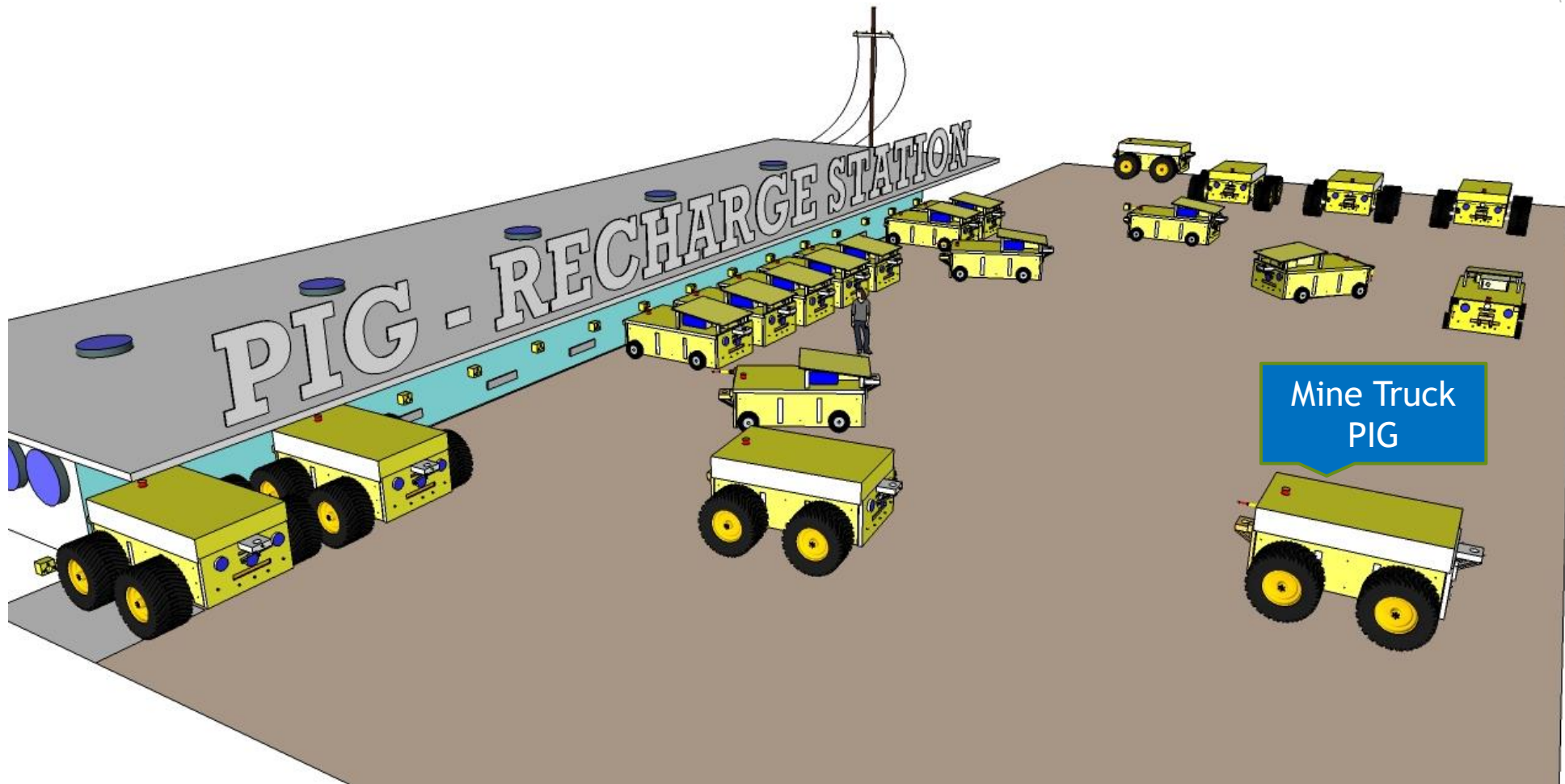
Trucks and busses use -

- ▶ Self Propelled mobile battery drones (PIG's) that -
- ▶ Move themselves from servo recharge station to swap area
- ▶ Truck goes into roadside servo; the old PIG rolls out; and,
- ▶ The new fresh PIG gets goes up the ramp up and automatically loads into the truck's swap slot (See [www.ITEZZE.com/mining](http://www.ITEZZE.com/mining) );
- ▶ Buses use a ramp to swap PIGs during the driver swaps at Depot
- ▶ Other vehicles - SUV's, 4WD's Utes cars etc. can use Swap Batteries from ITEZZE robotic Swap Battery Kiosks
- ▶ Fast swap times - 1½ minutes per Swap



# PIG Plug in Recharge Site (PIG Station)

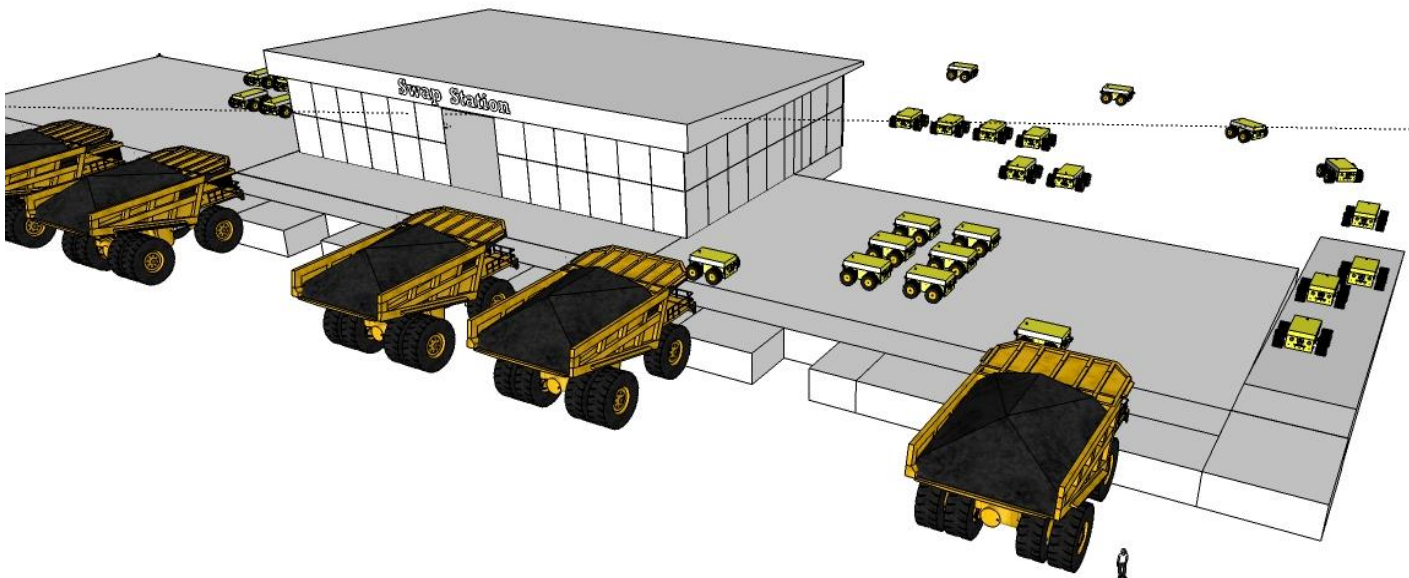
(Mine 'PIG' station)



The PIG lines itself up to the charge point and plugs itself in ... after recharge it goes to swap station automatically using roadside Wi-Fi poles and GPS. On reaching swap station it waits for a mine truck to send out a request to swap then lines itself up with the truck and drives up the mini-ramp into the PIG cradle - The same system can work for excavators where the PIG goes to the excavator and in tractors on farms; in Servo's for heavy transport semis and commercial vehicles

# Mine Truck - Ultra-Fast Battery Swap Technology

- ▶ Mine Truck approaches Swap Station Dock
- ▶ Battery Disconnects itself and prepares to leave mine truck;
- ▶ Truck goes to swap dock, mini-ramp grounds - battery exists in 10 seconds
- ▶ PIGs are fully Robotic - the new PIG loads itself;
- ▶ Old PIG returns to PIG Re-charge Station to plug in;
- ▶ PIG travels on GPS and Wi-Fi guidance under its own power.
- ▶ Total swap time - 70 seconds



# ITEZZE Electric Cars Use -

- ▶ Batteries which go into battery slots in the car;
- ▶ The slot is installed by the car manufacturer & comes with only a little built-in (or resident) battery (10-17 kWh) suitable for day to day running;
- ▶ Uses a standard 3-pin plug to recharge at home or gets swap batteries from Servos;
- ▶ When person wants to go on a trip - they go to servo and fill up slots with ITEZZE exchange batteries;

## Benefits -

- ▶ Cars are much **less expensive starting at US\$15,000 (OZ\$21,000);**

Note: The Cheapest Tesla at the moment is the Model 3 which costs AUS\$60,000+ (US\$40,000) which is too expensive for the average person

- ▶ The ITEZZE \$15K Car is not expensive - av. people can afford to buy it and use it
- 1. **The Car has much less weight;** Other Carmakers to reduce car weight have been reducing electric cable size - **sometimes dangerously.** Makers of ITEZZE cars do not need to do this as ITEZZE cars don't need to be stuffed with unused batteries - they only use them as needed.
- 2. People only pay for fuel used - not useless batteries
- ▶ **Soot and CO<sub>2</sub> Emissions are greatly reduced**

# The US\$15k Car

## which dramatically reduces family fuel cost

A Small 2-4 door family size car with -

- ▶ A small 10 to 15kWh built-in resident battery; which can recharge using a normal 3 pin household plug;
- ▶ Car has a range of 100-130 Km; (Most use 8-12 kWh per 100 km)
- ▶ Car has less weight and can handle all normal weekly tasks - shopping, going to work, kids, school runs etc.
- ▶ Electric Hub or axle motors - no other motor or gearbox;
- ▶ 1 swap battery slot for exchange batteries;
- ▶ The car is supplied without exchange batteries;
- ▶ If the owner wants to go anywhere over the weekend or day trips; they simply go to the nearest ITEZZE service station and put a swap battery in the slot;
- ▶ Very inexpensive US\$15,000-US\$17,000 (\$21,000 Oz); Hence name - the **US\$15k car**
- ▶ Fuel cost for 'IN HOME' RECHARGES with 'controlled load' (off-peak at night) equivalent to AUS\$0-187 cents/kWh or 30-40 cents/litre (US\$ 0-30 cents)
- ▶ **CO<sub>2</sub> emissions - Zero**



**And... the US\$15K Car uses**

**much less Lithium - 1/5<sup>th</sup> to 1/3<sup>rd</sup> that of a Tesla Model S\***

\*Or None - Because ITEZZE vehicles use a smaller built-in battery other battery material such as Nickel Metal Halide may be used.

# ITEZZE can supply Swap Battery Systems to:

- ▶ Cars, Trucks, SUV's, 4WD's etc.
- ▶ Commercials, Vans & Road transport
- ▶ Heavy Equipment Sectors -
- ▶ Mines and Earthmoving
- ▶ Tractors, Harvesters, Irrigation and Agricultural Machinery
- ▶ Cranes and Lift Equipment

**Note: Any Vehicle maker can get Licenses to build ITEZZE enabled vehicles and equipment**



# ITEZZE - why it works ...

- ▶ Swapping batteries in car/trucks etc. seems an obvious solution.
- ▶ So, why isn't it used except in 'closed loop' systems like airports?
- ▶ The reason is **battery abuse**...\*
- ▶ In the past people would take their swap battery to their holiday shack in the country or cabin on the lake ...
- ▶ Remove the battery from the car and attach it to their solar panel, and then...
- ▶ Run their house on it for the 3 months while they holiday.
- ▶ They would use hundreds of charge and recharge cycles but,
- ▶ Batteries originally only had 1700-3000 recharge cycles in normal use so as each cycle costs (US\$)30c/KWH... they were effectively using cycles \$hundreds worth which they didn't pay for; thereby causing the battery Company to go broke.
- ▶ ITEZZE overcomes this by putting a computer chip into each and every battery pack to stop unauthorised recharging and misuse.
- ▶ And **that is part of the patent**

\* similar to what people do with Swap n' Go gas and refill at the hardware instead of swapping the bottle



# ITEZZE works because it can 'Piggyback' on the existing electricity Grids

- ▶ It doesn't need a new grid to be built.

## It also makes maximum use of solar -

- ▶ In Nth Qld (where there is plenty of sun but not many people) solar farms are being built but there is not enough capacity on the Interconnector to move the power to southern cities.

## However -

- ▶ There are farms and highways running adjacent to the solar farms so ITEZZE can harness and utilize that power in trucks, tractors, cars, mine equipment etc.
- ▶ ITEZZE batteries in servos can utilize wind power when it blows - simply by storing it until it is needed in cars/trucks etc.
- ▶ Electricity companies can store unused power in Swap Batteries for later use during peak periods.

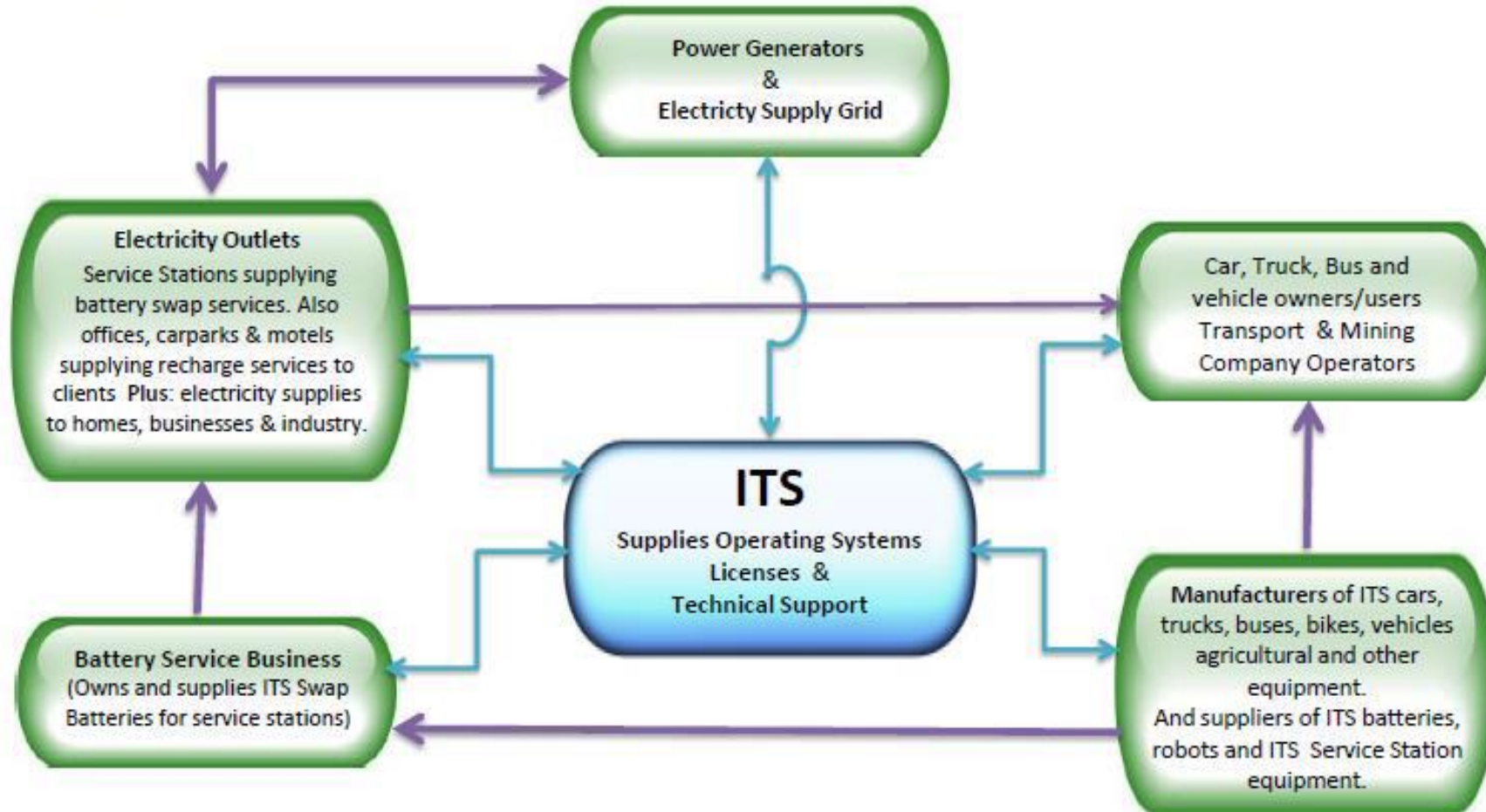
## ITEZZE really does work ...



# Major components of the ITEZZE System

(Previously known as ITS - the Integrated Transport Solution)

**Figure 1.**



ITEZZE is a license Business - parties are licensed to run different sections

# Futures...

- ▶ NASA Climate Change scientists have discovered the effect of soot on global warming & ocean heating. - ITEZZE reduces CO<sub>2</sub> & Soot Output & helps fix Global Warming.
- ▶ Reports on GDP, economics, world food and security requirements indicate that economies worldwide may collapse and populations be decimated if the Agricultural base supported with oil fuels collapses without a replacement technology;
- ▶ Retailers of oil fuels face decimation - they need to transition to ITEZZE, As one Oil Co. executive said when told how transport operators that used to fill their vehicles in Melbourne and drive straight through to Brisbane would now need to stop

**“That is how it is in Transition - if you have income before and don’t make the switch you lose 100% of turnover.”**

ITEZZE Servo’s get even more business because Trucks/Cars need to swap their PIG’s or batteries every 3 hours. So, ITEZZE servo’s have massive residual turnover

The IT & ES Group wants this world to have a Future...

People and businesses Worldwide want to have a Future...

**Together we can make it happen**