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DEPARTMENT OF MECHANICAL ENGINEERING

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Inside This Issue

Compressed Air Car - 1

Carbon Capturing - 2

Real Life Iron Man - 3

COMPRESSED AIR CAR

A Compressed-air car is a compressed-air vehicle that uses a motor powered by compressed air. The carcan be powered solely by air, or combined with gasoline, diesel, ethanol, or an electric plant with regenerative braking.

ENGINES:

Compressed air cars are powered by motors driven by compressed air ,which is stored in a tank at high pressure such as 31 Mpa (4500 psi or 310 bar Rather than driving engine pistons with an ignited fuel-air mixture, compressed.air cars use the expansion of compressed air, in a similar manner to the expansion.of steam in a steam engine . They Have been Prototype cars since the 1920s, with Compressed air used in torpedo propulsion.

ADVANTAGES:

- It uses no gasoline or other bio-carbon based fuel.
- Air, on its own, is non-flammable which reduces the danger involved in high-impact crashes compared to hydrogen or liquid fuels.
- High degrees of energy recovery can be accomplished with systems storing air using braking and pneumatic suspension.
- Rotary engines and all mechanical and pneumatic parts can be Manufactured.

TECHNOLOGY

Various companies are investing in the research development and Deployment of Compressed air cars. Overoptimistic reports of impending production date back to at least May 1999. For instance,the MDI Air Car made its public debut in South Africa in 2002. and was predicted to be in production "within six months" in January 2004, As of January 2009, the air car never went into production in South Africa. Most of the cars under development also rely on using similar technology to low -energy vehicles in order to increase the range and performance of their cars.

Motor Development international, Tata Motors, Citroen Etc Are Leading Manufacturers if Air Car.

G.M. Mani Kumar

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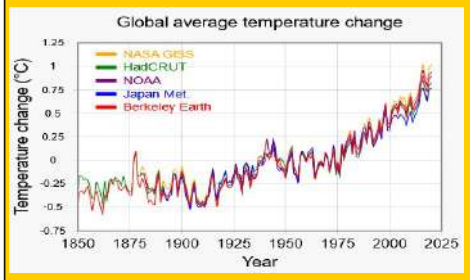
II ME A

CARBON CAPTURING

In the 21st century GLOBAL-WARMING has a very big impact on the environment and the climatic system. This is due to the presence of more carbon compounds in the in the atmosphere , it results in the temperature of the earth. For this reason a group of scientist from Canada initiated the process of "Carbon Capturing" under a privet company called Carbon Engineering.

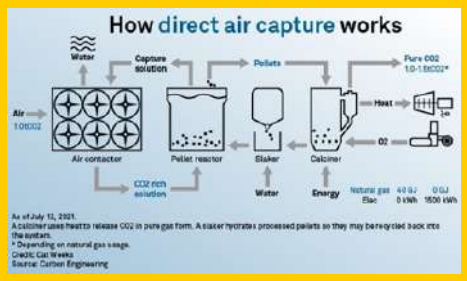


WHAT IS CARBON ENGINEERING

Carbon Engineering is a Canadian-based clean energy company focusing on the commercialization of Direct Air Capture (DAC) technology that captures carbon dioxide (CO_2) directly from the atmosphere.

This captured Co2 can either be stored underground in what is known as carbon capture and storage, or converted into carbon neutral fuel using renewable energy sources, by a process the company calls Air to fuels. The company is running a pilot plant in squarish, British Columbia removing CO_2 from the atmosphere since 2015 and converting it into fuels since December, 2017.

Carbon Engineering is funded by several government and sustainability-focused agencies as well as by private investors, including Microsoft founder Bill Gates and oil sands financier N Murray Edwards In addition, in 2019 the company received US$68 million from private investors, including fossil fuels companies Chevron Corporation etc.



TECHNOLOGY USED

In this process the air is sucked through the Air Contacter where it is mixed with the alkaline hydroxide solution. Air contactor consist of tightly co-ordinated PVC sheets . This carbon rich solution will be further moved to pellet reactor where the concentrated carbon particles and solution separated. Carbon particles are made into pellets and the remaining carbon dioxide is stored in under ground , used in oil extraction areas and the least quality carbon is used for preparing synthetic oils.

SCOPE OF CARBON ENGINEERING

In 2017 there was only one company and roughly around 1 ton of carbon is being captured (i.e. the emission of 800 cars)and the estimated cost for capturing 1 ton is 100 US Dollars. But now there are around 15 plants setup and new companies from Iceland like "CLIMAX ORCA" partnering with another Icelandic company "CARBVIX" which are commercially made for this purpose only altogether will capture about 1000 tons of carbon every day.

Still there is up to 1000 giga-tons of carbon is present in the atmosphere which can be gradually declined using more number of equipment all around the world.

ADVANTAGES

- Clean and green environment can be achieved
- Can control the climatic changes
- Decreases atmospheric pollution
- Helps used to stop depending on new alternate sources of energy
- Increases the production of crude oil
- Ozone layer will returns to its original size and shape and thus reduces the UV radiation.
- Investors for carbon engineering are increasing day to day.
- Can be used in all areas.

LIMITATIONS

- Less number of equipment
- Initial setup cost is high
- Lack of knowledge and awareness

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III. REAL LIFE IRON MAN

Everyone think in different ways but his thoughts are unimaginable. The person who takes risk for his whole life. He failed when his thoughts were impossible to be possible but he made it possible. The man who takes the adventures in whole life by his thoughts, the man who is transforming the way we think about technology, made the impossible electric car and hyperloop to be possible, and revolutionary ideas on how we live through Artificial Intelligence and colonizing Mars. He is "The Real-life Iron Man" Elon Musk.

He was born in South Africa in 1971 to an American mother and South African father. At the age of 10, his parents got divorced. He made his first $500 at the age of 12, by selling a computer game (Blaster) thathe coded to the magazine PC and Office Technology.He also feared about the dark like normal kids, but he started thinking what actually the dark is. While he started knowing about dark, he found dark is zero photons in between the wave length of 400nm-700nm. He thought it is a silly thing to fear for zero photons, it shows how his way of perception is different from others.

"When something is important enough, you do it even if the odds are not in your favour." -

Elon Musk

In 1989, he moved to Canada and then to the US to pursue his graduation. While studying at the Pennsylvania University, he paid his tuition by organising house parties, replete with club-inspired art installations. At the same time, he wrote a business plan for an electronic book-scanning service akin the one which Google would launch more than a decade later. Since the eventual launch of Google Books led to a $3bn lawsuit from the Author's Guild that took eight years to fight, Musk may have been lucky that his plan never got off the ground.

His first break was in 1995, when he and his brother Kimbal started the web software company Global Link Information Network, which created and licensed online guides to cities to newspapers. The company was rebranded as Zip2 and won contracts with the New York Times and Chicago Tribune, before selling to Compaq in 1999 for more than $300M. Musk reinvested those proceeds into X.com, an online financial services and payment company, which became PayPal – customers found the name X.com confusing, and some assumed it was pornographic in nature, according to the firm's market research.

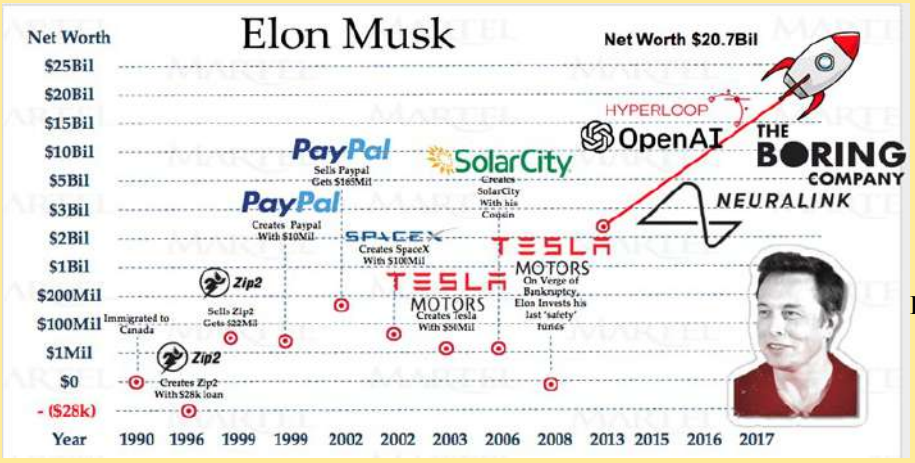
PayPal grew rapidly, but largely without Musk; he was pushed out as chief executive in 2000, but remained on the board with enough stock to get a windfall of $165m when the company was sold to eBay in 2002.

The period following his time at PayPal was the creation of the Musk we know today. In 2001, he started thinking seriously about spaceflight, driven by a desire to send a rocket to Mars. The dream hardened into a genuine goal towards the end of the year, according to an earlySpaceX investor, when a back-of-an-envelope calculation on the cost of rockets convinced Musk that the cost of reaching orbit could be slashed tenfold. He enters into his first adventurous life.In 2004, Musk invested heavily in an electric car company called Tesla Motors, founded a year earlier by Martin Eberhard and Marc Tarpenning. Musk thought about clean energy which would not affect the environment and he started SolarCity solar panel manufacturing and installing company in 2006, this marked the beginning of struggles in his life. His most awaiting project SpaceX rocket blasted after 33seconds from launch in 2007, gave him lots of challenges, comments, Sarcasm.

Tesla launched its first car: The Roadster, a luxury sports car. Company said 320km for single charge but it is break down after 80km in test drive. Again, he failed, people lost their hopes in tesla cars, SpaceX 2nd rocket engine shutdown while entering the orbit, SolarCity investors cancelled their deal,

SpaceX 3rdrocket blasted. Nothing was left in his pocket, his wife divorced him. Even though no one were ready to invest in his company, Musk never gave-up.

SpaceX 4th project was successfully launched. He got a special call from NASA to get deal with him for sending payloads and goods to space. SpaceX is the only private company dealing with NASA. Musk's early investment and active role bought him the right to call himself a co-founder, and he took over as chief executive in 2008.The same year, Tesla model Sluxurious and sports look car launched and it travelled 1080km for single charge. And Tesla cars got historic record of 5.4/5 rating from National Highway Traffic Safety Administration for safety features in Tesla Model S car. SolarCity grown up slowly. World recognised the power and talent of Elon Musk.



K. Ram Prasad

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