

Electrifying Taiyuan's Public Transport

Promoting Electric Vehicles in China's Coal-Mining Province

OUR APPROACH



2016



Phase-out 8000+ CNG Taxis (public transport)

Replace with Electric Vehicles (EV)

IMPACT ANALYSIS

Stakeholders Involved:

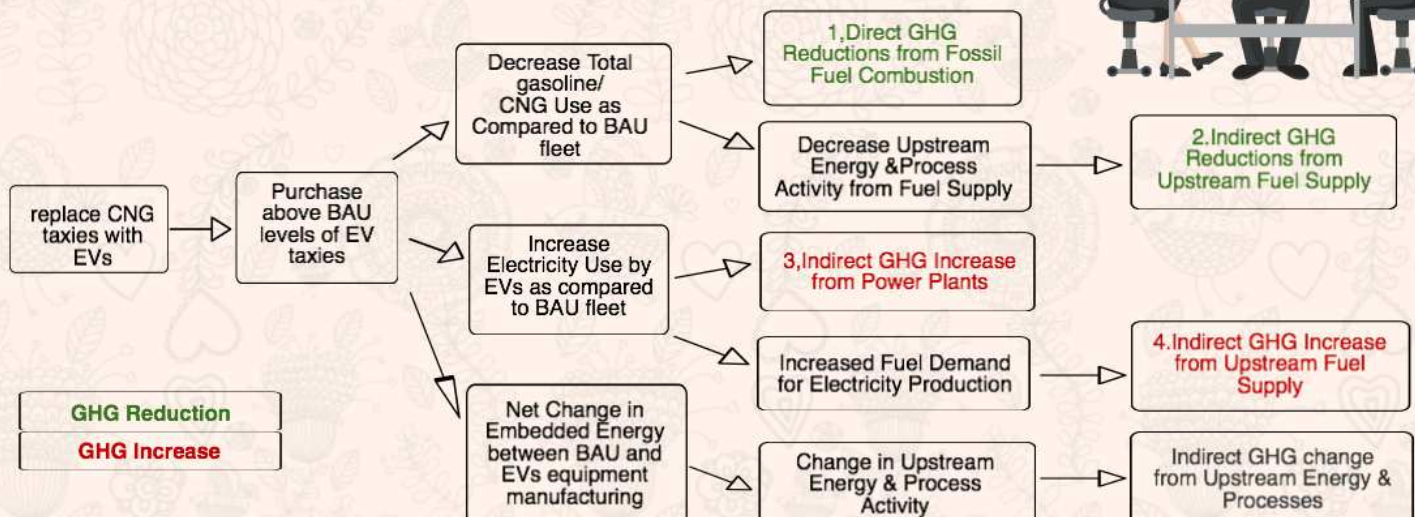
Provincial governmental agencies; Taxi companies/drivers; the companies constructing electricity charging points and stations; the public people;

Cause & Effect:

1. Replace CNG taxis with EVs will reduce the use of CNG
2. GHG will reduce due to less direct fuel combustion and the upstream fuel consumption.
3. Increasing the use of EV will increase of electricity and therefore increase GHG emission.

Questions to Consider:

1. Given the decrease of CNG use and the increase of electricity, will net GHG impact be positive or negative?
2. Can taxi drivers/companies afford the expensive EVs?
3. Will there be enough charging stations? Does it take too long to charge the vehicles?
4. How much does the process cost?

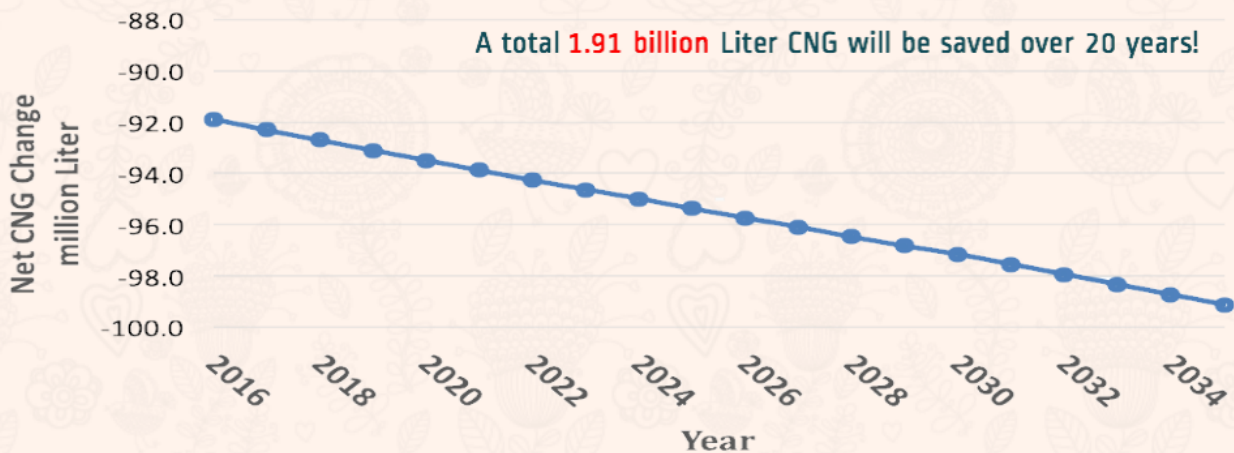


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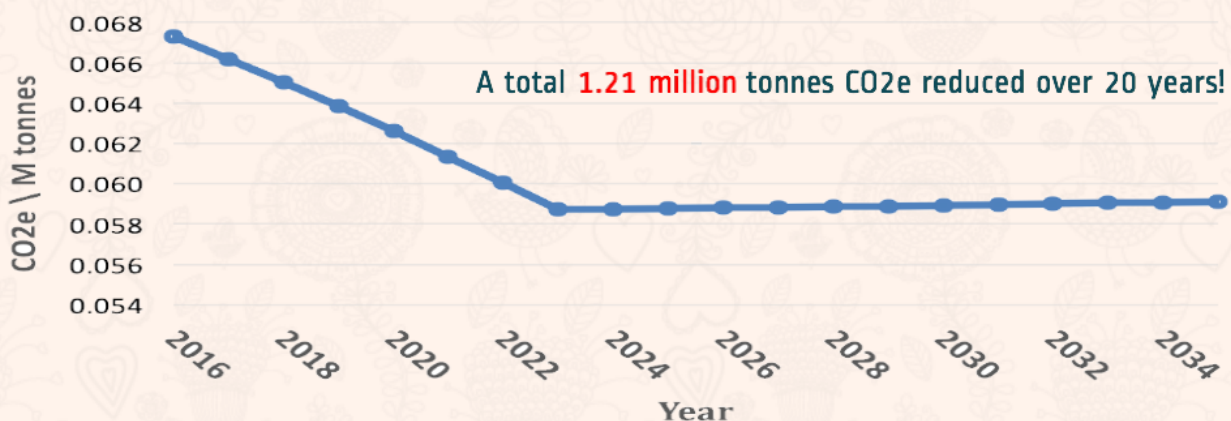
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OUTPUT

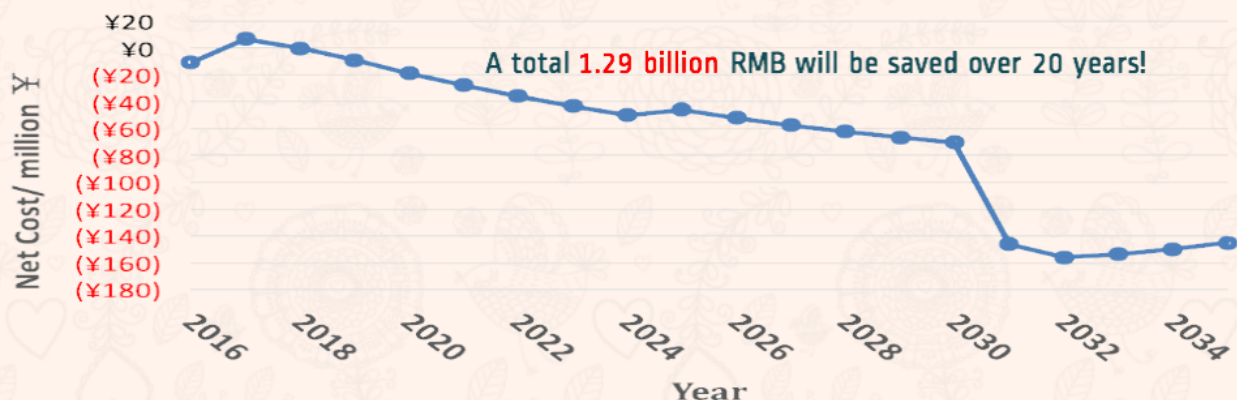
Annual CNG Reductions



Annual GHG Reductions



Net Societal Cost



Conclusion!

Replacing CNG vehicles with EVs can save fossil fuel consumption, which will reduce air pollutants and GHG emissions. This action can also save money for the whole society and benefit the stakeholders over the long-run.

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BEFORE



AFTER

LESSONS LEARNED

AFFORDABILITY

RMB 309,000 Cost of 1 EV

- **RMB 55,000** Subsidy from National Government
- **RMB 55,000** Subsidy from Provincial Government*
- **RMB 110,000** Subsidy from City Government*

RMB 89,000 Paid by Taxi Driver

**Can other provincial and city governments provide subsidies?*

CHARGE-STATION CONVENIENCE

Mid-2016: 1852 charge-stations

End-2016: 5500 charge-stations



**To promote EVs, a city must have enough charging stations!*

GHG EMISSION & SOCIETAL COST

GHG Reduced: 1.21 million tonnes of CO₂e

Societal Cost: RMB 1.3 billion saved over 20 years

**Challenges for government decision-making: Policy period? Short-term & long-term costs and benefits?*

CHARGE TIME & DISTANCE : COST

30min = 80% charge
60 min = 100% charge
1 day needs 2 full-charges

Maximum Distance: ~400km
CNG : 270 ¥ /400km*
EV : 80 ¥ /400km*

**Convenience to Taxi drivers?
Economic benefit to who?