

Advancing **Energy**

>> Together

能量之道 共创未来



SHV experience in hydrogen refueling station

June 3<sup>rd</sup>, 2020



喜威

# Content



Who we are and what we do



Why enter hydrogen



Our strategy and pilot

## Note :

- New energy vehicle includes pure electric, plug-in hybrid and fuel cell vehicle
- EV=Electric Vehicle; PEV=Pure Electric vehicle; PHEV=Plug-in Hybrid Vehicle; HFCV=Hydrogen Fuel Cell Vehicle
- HFCV is now the main type of fuel cell vehicle (FCV)



**SHV ENERGY CHINA**

- Family-owned

- Non-listed

- Decentralized



Data up to 2019



Cash-and-carry wholesale



Energy distribution



Animal nutrition and aqua feed



Engineered heavy lifting and transport

**SHV Holdings**  
**global business**  
**( 7 groups)**



Oil and gas investments



Industrial services



Private equity investments



## About SHV Energy China

FOCUSING ON CHINA MARKET  
FOR MORE THAN 20 YEARS,  
OFFER CLEAN ENERGY IN  
FOUR BUSINESS SEGMENTS:  
RESIDENT  
COMMERCIAL  
INDUSTRIAL  
TRANSPORTATION



1997

Entered China  
market

PRD

1997–2006

Further developed  
PRD market, with  
acquisition of DG  
Xiwei, FS Shunran,  
and GZ Xiran



2005

Started LPG  
auto gas  
business



2007

Marched into YRD  
market, with  
acquisition of SH  
Bestir Energy



2009

With acquisition of  
Zhuhai Gas Group, 3  
new members joined  
Xiwei – ZH Gas, YJ  
Senye and JM Huayu

LNG

2012

Further  
developed LNG  
business



2012–2013

Acquired bottled  
gas business of BP  
in SH, GZ, FS, ZS  
and JM



2018

Acquired  
bottled gas  
business of  
Foshan LPG  
Co., Ltd



2019

Started hydrogen  
refueling business  
  
Acquired bottled gas  
business of Zhuhai  
Shin-Shin Energy

# What we did in transportation before hydrogen



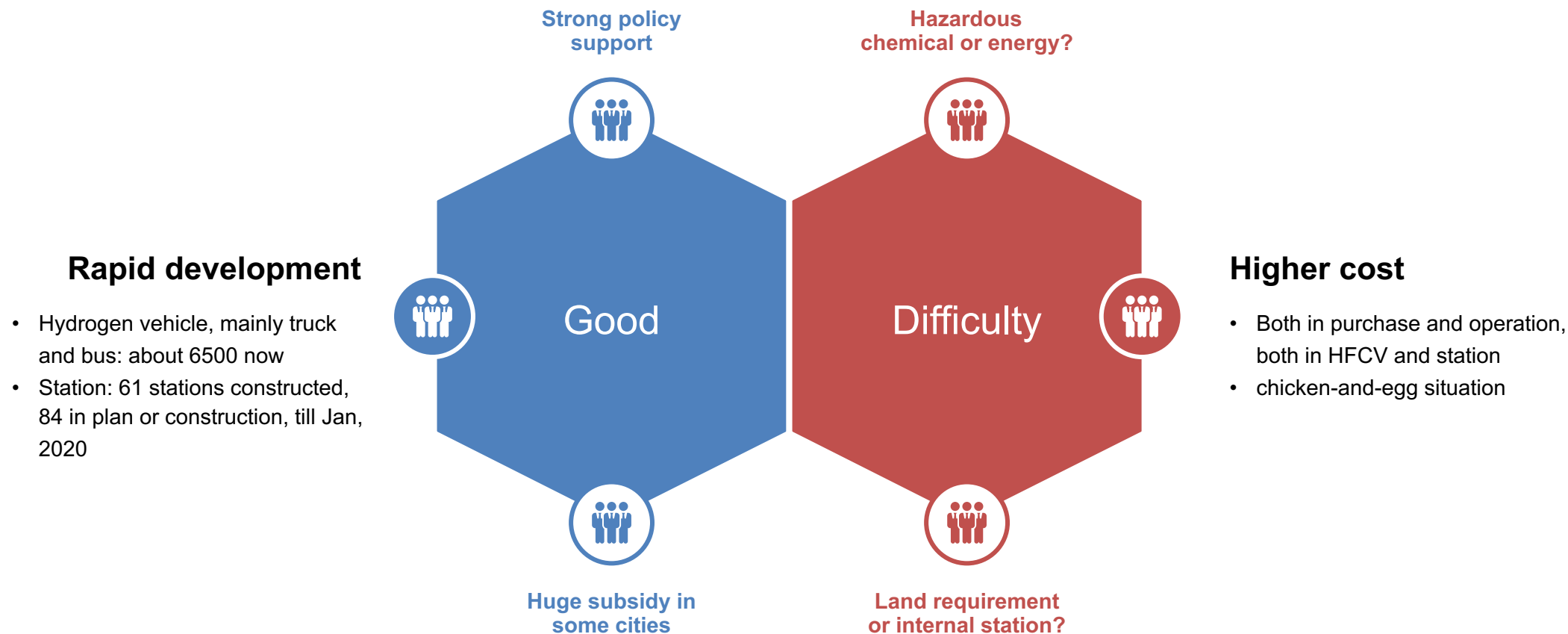
## Station Construction History of SHV Energy Guangzhou



Our cash cow business of LPG and LNG stations have been impacted destructively since 2018 when GZ strongly promoted the replacement of LPG and LNG bus, LPG taxi. We faced the tough choice, to die or to convert. Charging piles, service station, hydrogen station may become the direction.

- Not charging piles due to high land cost, no comparative advantage;
- Service station: land use is not acceptable.
- Hydrogen station?

# ■ Fundamental reality: HFCV is still at a start-up stage, at present, it is a policy-driven market, just as EV years ago.





## Our basic judgement after our research in hydrogen industry: While the prospects are bright, the road has twists and turns.

- Technically, HFCV is less mature than EV, but both are facing some significant technical challenges, in quite a long term, they will co-exist and compete. No one now can be sure which is the right direction, that is why both government and manufacturer are walking on two legs. At present, HFCV is more suitable for commercial vehicle, EV for short-range passenger vehicle.
- Currently, both purchase cost and fuel cost of HFCV is much higher than EV. With technical progress, product localization improvement and scale of economy, production cost of both vehicle and hydrogen will decrease quite a lot in the future.
- In the coming years, hydrogen development will keep the momentum, however, it will be highly impossible to make money soon. Regional difference will be enormous depending on the supportive policy. PRD ,YRD area and some cities will be one key areas of hydrogen industry.
- In China, the government is so powerful that China will be the leading country in terms of HFCV scale in the coming years, commercial will be the main use, like trucks, buses, .

# Our strategy : pilot in an asset-light way, expand at a appropriate timing

## Hard power we have

1.Station with great location, very convenient for commercial HFCVs to charge or refuel.

## Soft power we have

1.Capable team with rich experience in automotive energy industry.  
2.Great brand recognition.  
3.Strong connection with public transportation customer.

## Business matchup

### Hydrogen station:

(1) Similar to what we do today;  
2) High threshold for operation.

### Focus:

- We are good at operation, without comparative advantage in HFCV or hydrogen production, so focus on hydrogen station
- We now only have mature team in Guangzhou, focus in Guangzhou.

### Strategy:

- As HFCV is still at a very early stage with bright future yet even more risks, avoid large investment, stay flexible.
- Pilot first, then expand at the right time. When the market is clear, convert LPG station to hydrogen station, then develop new ones.



## **Pilot: stay flexible, no-capital-expenditure approach, no loss making.**

**Our thinking about pilot:** considering many uncertainties ahead and investment return, we adopt a no-capital-expenditure strategy.

**Our purpose of pilot:**

- Get to know and practice hydrogen refueling station business, in preparation for business transformation;
- The leading position in hydrogen refueling station could give us enormous sway over policy.

**Cooperation model of Knowledge City Hydrogen station in Huangpu District, Guangzhou:**

- Partner rents land, constructed the station, develop HFCV, takes charge of supply chain. It means there is no procurement and sales for us,.
- We rent the station for free, and operate it under our name, offer refueling service for the vehicles that our partner develops; Partner is in charge of utilities and equipment repair cost.
- We charge our partner a service fee based on our personnel cost.

Thus, we don't need to invest, we don't have operation loss.

**Financial return:**

As no sales, we charge the service fee without considering volume.

# Pilot project: Knowledge City hydrogen refueling station

- Location: Guangzhou
- Area: 2500 m<sup>2</sup>
- Capacity: 500 KG/day
- Gun pressure: 350 Bar
- Long tube trailer first, but too time-consuming when pressure lowers, then add tanks
- Two guns, one for truck and bus, the other for passenger car



# Thank you !