



NGV Global
International Association for Natural Gas Vehicles

The Global NGV Scene – Time for US to Wake Up?

Brett Jarman



WE'RE ON
FACEBOOK!

Boston - August 2010

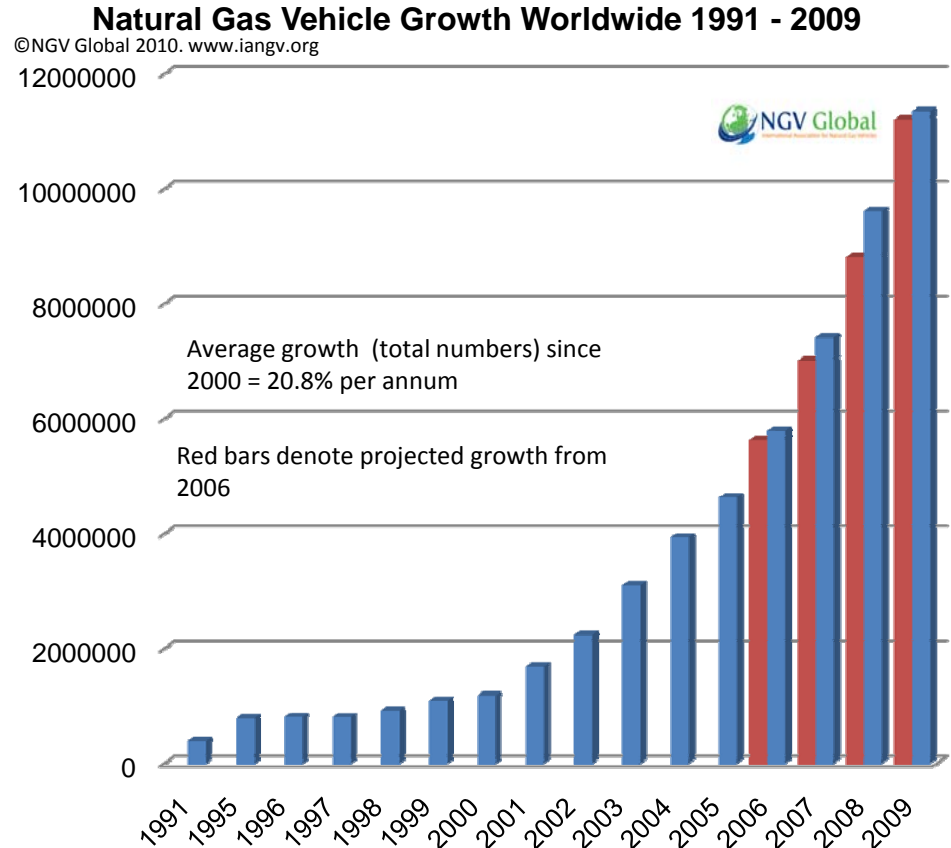
follow us on
twitter



Connecting the Natural Gas Vehicle Industry

Global Momentum

- Average growth (total numbers) since 2000 = 27% /annum
- Average of 4,000 new NGVs on the road per day (past 5 years)
- Average of 8 new NGV fuelling stations established per day (past 2 years)
- Vehicle growth on par with projections made in 2006, despite recession in 2009
- 65 million NGVs (approx 9% of current world vehicle fleet size) projected by 2020
- A lot of takeover and merger activity - \$200 million in one week in July



Markets are Maturing

- Pakistan, Argentina, Iran and Brazil, all with more than 1.5 million NGVs each.
- India – 1 million vehicles now or very soon?
- Iran – 2 million NGVs very soon
- Top ten nations account for 89% of total NGV population (10.096 million)
- Rate of growth in top four nations will slow dramatically

Dec 2009	NGVs	Stations
Pakistan	2,300,000	3,068
Argentina	1,807,186	1,851
Iran	1,665,602	1,021
Brazil	1,632,101	1,704
India	935,000	560
Italy	628,624	730
China	450,000	1,339
Colombia	300,000	460
Ukraine	200,000	285
Bangladesh	177,555	500

Common elements of most top 10 NGV markets

- Mostly driven by aftermarket conversions
- Most OEM activity in form of 0 km conversions (QVM)
- Mostly in the light vehicle non-commercial sectors. 'Moms and Dads', Taxis.
- Almost all activity is fuel price driven
- Mostly low fuel consumption vehicles
- Some transit bus fleets in India and China but minimal elsewhere
- Minimal HD truck activity (except Ukraine?)
- Several markets with subsidised fuel (esp diesel). Difficult to compete in HD sector
- (Iran about to go through price upheaval of all fuels)
- All have proven that chicken and egg problem is just a mindset - not insurmountable

In Italia

- Italian conversion market, oldest in the world, now surpassed by OEM sales as of 2009.
- 14 OEM models (light commercial and passenger) available from FIAT alone!
- 7% of all new cars sold in Italy in 2009 were NGVs - 120,000
- Minimal HD activity
- Recent regional mandates ensuring availability of fuels on station forecourts



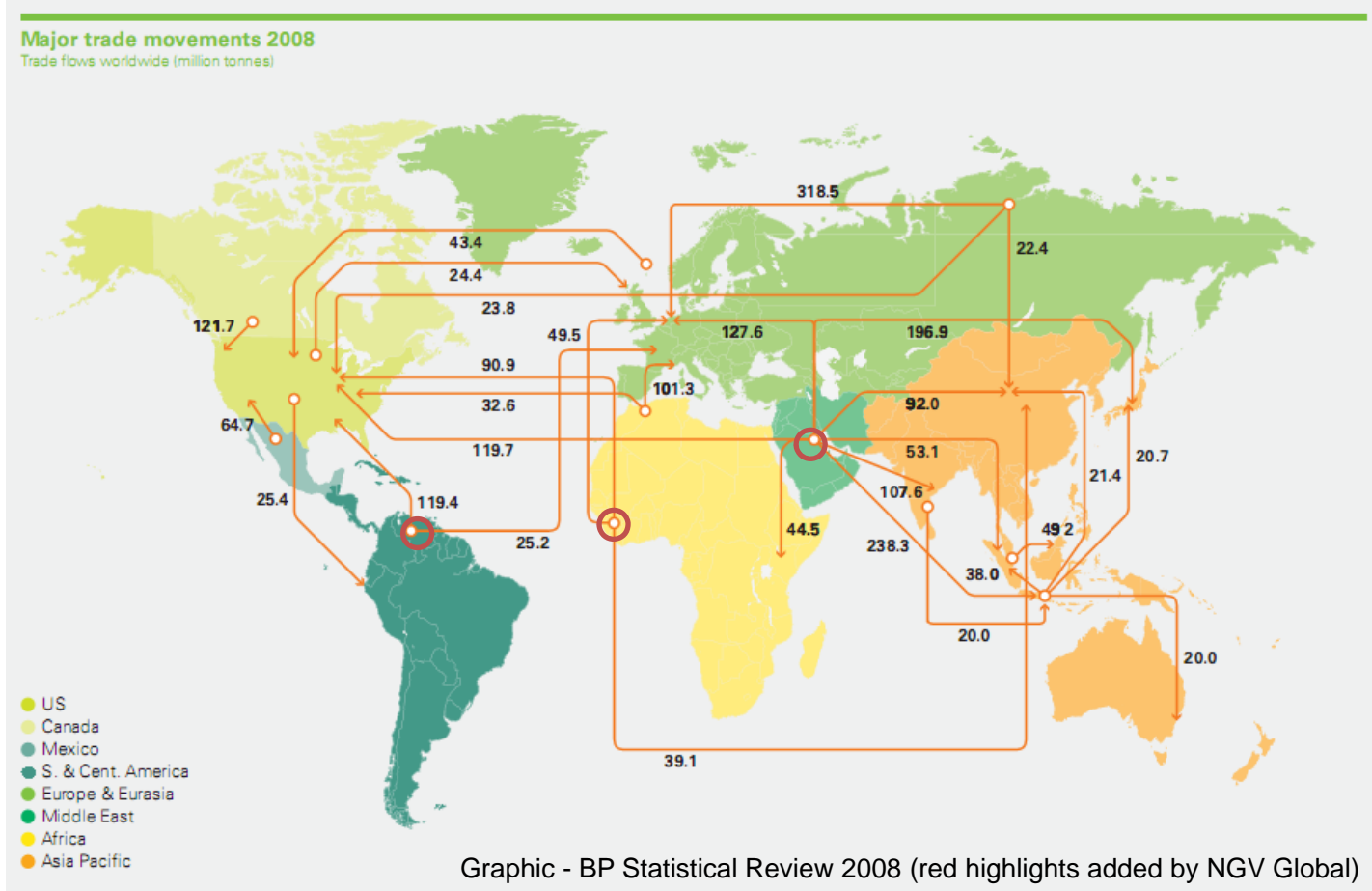
Coming soon to a showroom near you?

Market drivers have shifted...

- 10 years ago, primarily environmental and mostly air quality related.
- Nowadays it's...
 - Energy security
 - Energy diversity
 - Economical (macro for governments and micro for fleet operators)
 - Greenhouse reductions (esp in Europe) – up to 30% on fossil NG and almost carbon neutral with biomethane
- Priorities vary depending on location but NGVs deliver on all counts.

Energy Security

- Oil distribution— limited sources. Subject to price ‘management’ via supply



Energy balance is shifting...

Gazprom's Export Dreams Shattered As America Blows Past Russia To Become The Saudi Arabia Of Natural Gas

Vincent Fernando | Jan. 15, 2010, 12:22 PM | 1,169 | 7

Tags: Economy, Regulation, Markets, Gas, Energy, Commodities

Print

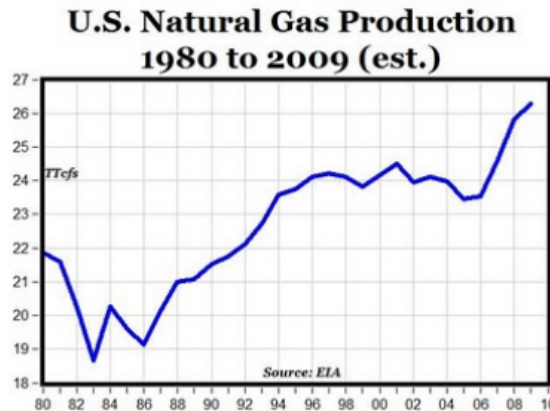
8 tweets
retweet

Due to rising U.S. natural gas production, and a giant 17% production plunge in Russia, America

became the world's largest producer of the fuel in 2009. (Chart to the right via Carpe Diem)

Keep in mind this is before the vast potential of shale gas has really kicked in.

This sea-change took markets by surprise.



Businessinsider.com

THE AMERICAN

THE ENTERPRISE
PRACTICAL WISDOM. SEVERAL TIMES.

The Journal of the American Enterprise Institute

ARTICLE TOOLS | EMAIL A FRIEND | EMAIL THE EDITOR | PRINT | SHARE | BLOG COMMENTS

The Quiet Energy Revolution

By Max Schutz

Thursday, February 4, 2010

Filed under: Science & Technology, Big Ideas, Economic Policy, Government & Politics, Lifestyle, Public Square

How ironic that during the 'drill, baby, drill' demonstrations as gasoline prices spiked in 2007 and 2008, a silent revolution with natural gas was already underway that will make those concerns largely irrelevant.



The 20th century was the century of oil. Wars were fought over it, and the outcomes of the century's biggest conflicts hinged on the stuff. In World War I, for instance, Churchill's conversion of the British Navy to oil gave the crown's ships supremacy over German vessels. In World War II, when the Nazis and Japanese each failed to secure supplies of oil, they were doomed. Later, President Ronald Reagan, CIA Director William Casey, and America's Middle Eastern partners manipulated global oil production to bankrupt the Soviet Union and win the Cold War. In the first half of the century, oil policy served as the catalyst for military victory. In the second half, oil helped propel the greatest economic expansion in the history of the world, and liberate mankind from the tyranny of immobility.

All hail oil! But not too much, because the 21st century won't be defined by oil. It is more likely to be defined by a different fossil fuel: natural gas.

Two monumental shifts in the world of energy are underway right now: one technological, the other financial. They will change the way we power our lives (especially our cars), provide a real measure of energy security, and help curb greenhouse gas emissions. Neither shift has anything to do with the turn to a green renewable energy economy promised by President Obama. Physics ensures that that will never happen, no matter how much wishful thinking (and government subsidy) is applied. Sorry, greens, carbon-based energy will continue to dominate our energy future, not windmills or solar panels.

Suddenly, the mammoth shale formations in Texas, Pennsylvania, Ohio, New York, North Dakota, and elsewhere have the potential to produce abundant amounts of gas for decades to come.

american.com

Increasing OEM Commitment

- “Natural gas is the only real, immediate alternative to petrol.” Sergio Marchionne, CEO of Fiat Group & Chrysler Group.
- “Methane gas is by far the most accessible fuel as an alternative to diesel.” Lars Mårtensson, Environmental Director of Volvo Trucks....
- Maruti Suzuki (India) releasing 5 new OEM models within weeks (factory builds).



Variety of applications

- Motorcycles to mining trucks and everything in between. Rail locomotives. Ocean going ferries...
- All of them commercially available **now**.
- No other 'alternative fuel' matches natural gas for diversity.
- Even gasoline doesn't match natural gas for diversity
- But for a handful of diesel motorcycles, same situation applies
- Maybe there is **one** solution?

Proven Performance

- 2nd place Austrian Rally Championship 2009
- Dedicated racing series for CNG VW Sciroccos
- Turbo charged sedans now available off the showroom floor (Europe and Iran)
- 150 tonne road trains in Australia
- Long distance challenges 2006, 2007, 2009-10



The reasons are growing every day

- Sleeping giants of the industry...
 - **India** – connecting 200 cities to natural gas over 5 years. Middle class vehicle ownership boom.
 - **USA** – legislation becoming increasingly supportive of swinging energy pendulum towards natural gas.
 - **Australia** – Sleeping hobbit. Similar market conditions but only a fraction of the size
- Other established markets growing consistently.
- University studies!

Toyota Launches Corolla Altis CNG at India's Auto Expo 2010

January 13, 2010 – 6:31 pm | India, New Delhi



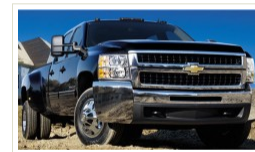
Toyota launches the CNG Corolla Altis

Toyota India has launched the Corolla Altis CNG at the Auto Expo 2010. Adding to the Innova [release](#) in 2009, the launch expands Toyota's range of vehicles factory-fitted with certified CNG Kits. Expectations are that the eco-friendly and economical Altis CNG version, which meets Bharat Stage IV emission norms, will help the company continue to build sales of the already popular model. Both petrol and CNG models are powered by the same 1794cc, 4 cyl, VVT-i engine, and are the same in other respects too, except for the hidden CNG tank.

[ShareThis](#)

NaturalDrive Receives 2010 EPA Certification for CNG 6-Liter Truck Retrofits

January 29, 2010 – 6:53 pm | Source: The Auto Channel | USA, Phoenix AZ



EPA-certified CNG retrofits now available for the GM Silverado and other GM 2010 models

Laboratory-proven reductions of 51% CO, 41% NOx, and 22% of CO2 greenhouse gas emissions

NaturalDrive Partners, LLC, a small volume manufacturer of alternative fuel retrofits for fleet and consumer applications, has obtained model year 2010 Environmental Protection Agency (EPA) emissions certification for its dedicated compressed natural gas (CNG) retrofit of the General Motors 6 liter three quarter and full ton trucks. Models covered include the C25, K25, and K35 Silverado and Sierra vehicles in 2WD and 4WD configurations. [Read More »](#)

[ShareThis](#)

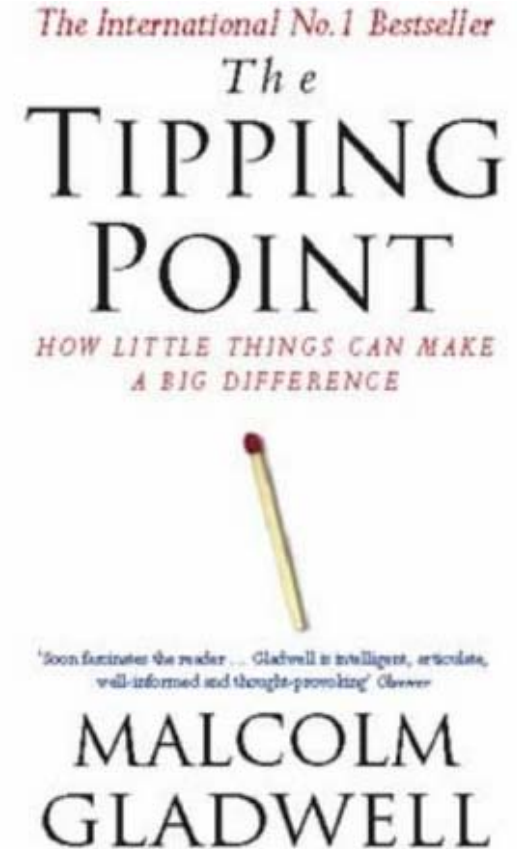
USA – It's Time to Wake The Sleeping Giant

- First market in world to tackle high fuel use markets (Australia a close second)
- More bang for your buck on all counts (fuel replacement, emissions reductions)
- More certainty and easier planning for infrastructure investment
- High end fleet users committing (AT&T, Verizon, Ryder...)
- Ground swell of public sentiment (Pickens Plan, CNG NOW, NGVsNOW)
- OEMs are becoming 'gas ready'
- Energy at top of political agenda (along with financial crisis)
- A perfect storm?



What's Missing?

- Political commitment
- A level playing field is needed to address the massive energy imbalance towards crude oil
- The Tipping Point – Context, Stickiness, Law of the Few.



Context – Addiction to Oil

- It's not just a buzzword
- Consequences of addiction
 - Social
 - Individually
 - Collectively
 - Economic
 - Health
 - Environmental

Opinion: It's Time to End Our Oil Addiction
Updated: 10 days 6 hours ago
Print Text Size

Our view on gas tax: Price holds key to ending nation's addiction to oil
Updated 7/25/2010 8:31 PM | Comments 518 | Recommend 15
Two years ago this month, crude oil prices spiked to more than \$145 a barrel, driving the price of regular gasoline to more than \$4 a gallon and painfully reminding the nation once again how vulnerable it is to the whims of the international oil market.

Tax our way out of nation's oil addiction
July 30, 2010 at 6:07 am by John de Rosier
Gradually increasing a tax on oil would spur innovation and help the complete dependence on fossil fuels, so benefits would and a er environment

CONFRONTING OUR ADDICTION TO OIL
Michael Doug Carlin, 4 Steps
Century City For Recovery
Published 07 PST
Rate This Article: 0

Energy: Pains of oil addiction

Letters from Readers
Want to submit a letter to the editor?
Letters of about 200 words are preferred. Longer letters will be edited for space. Letters with a clear, concise message have the best chance of being published. You may submit letters using our

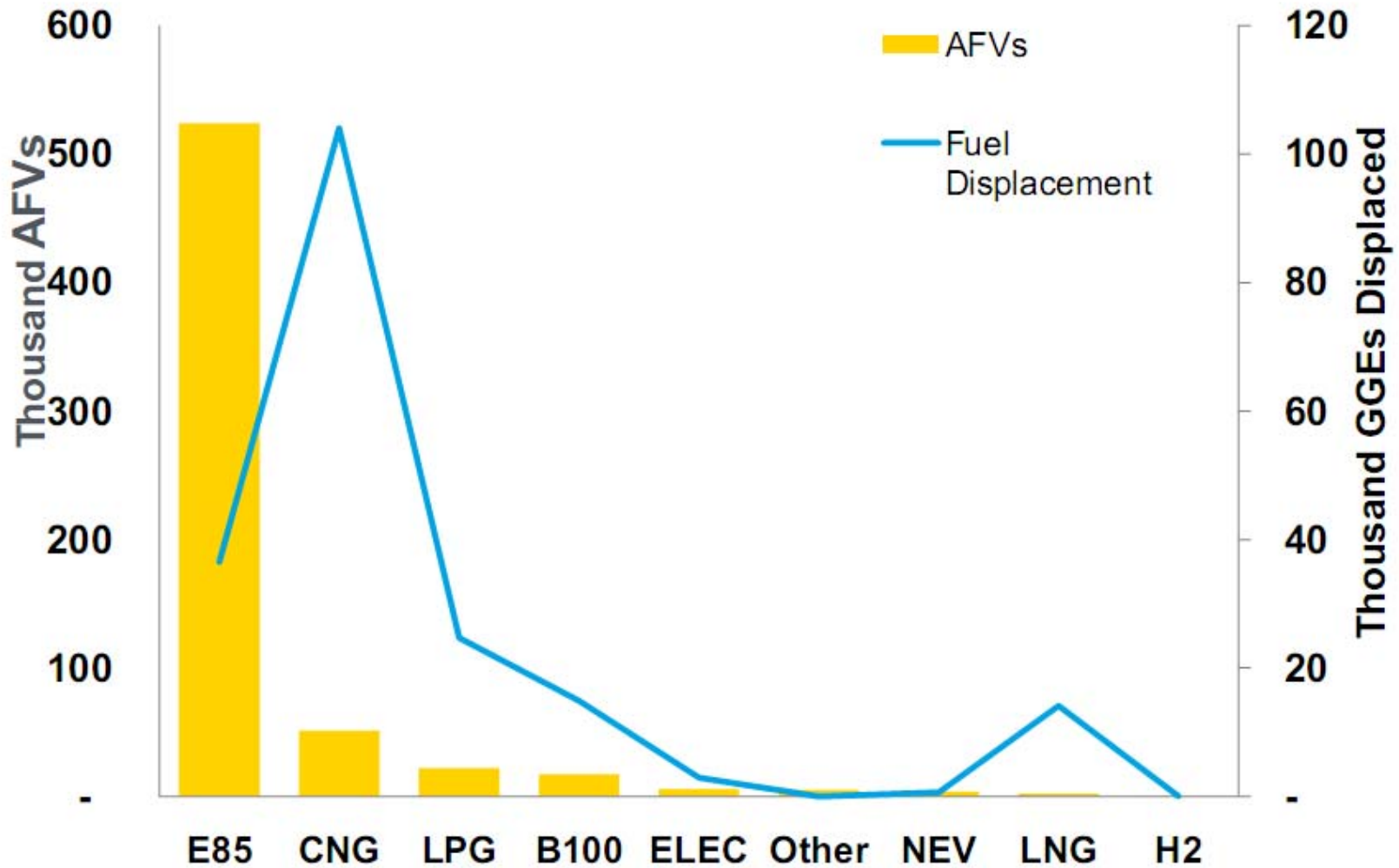
The Gulf oil spill is a nightmare, but we are on oil. Sometimes staff situation in per

August 2010

Overcoming Addiction

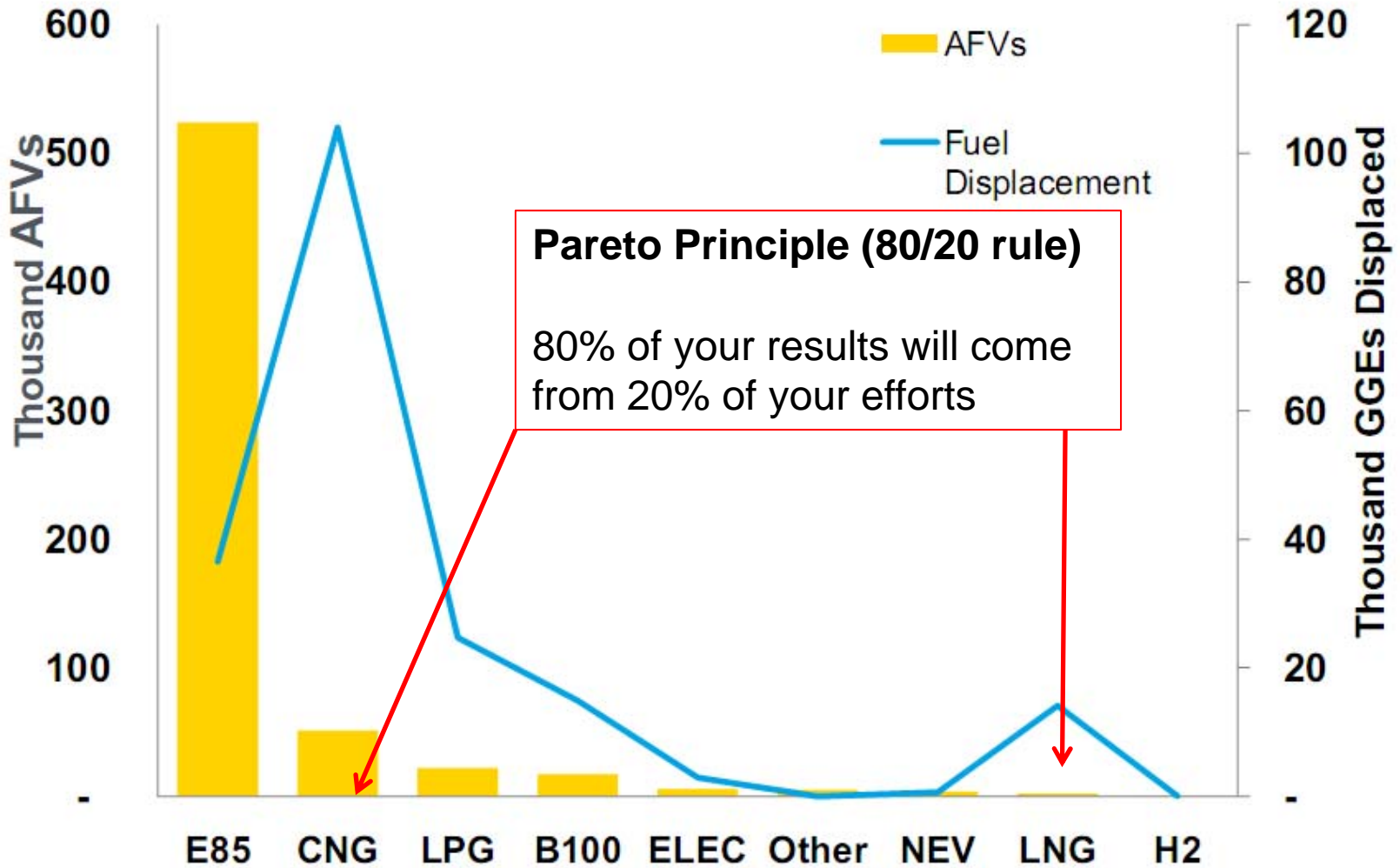
- Variety of methods available
 - Ethanol
 - Biodiesel
 - FT diesel
 - Electric
 - Hybrid
 - Plugin hybrid
- Value in experimentation
- Experimentation can easily become avoidance
- Paralysis by analysis (a mask for inaction)

The Results Are In



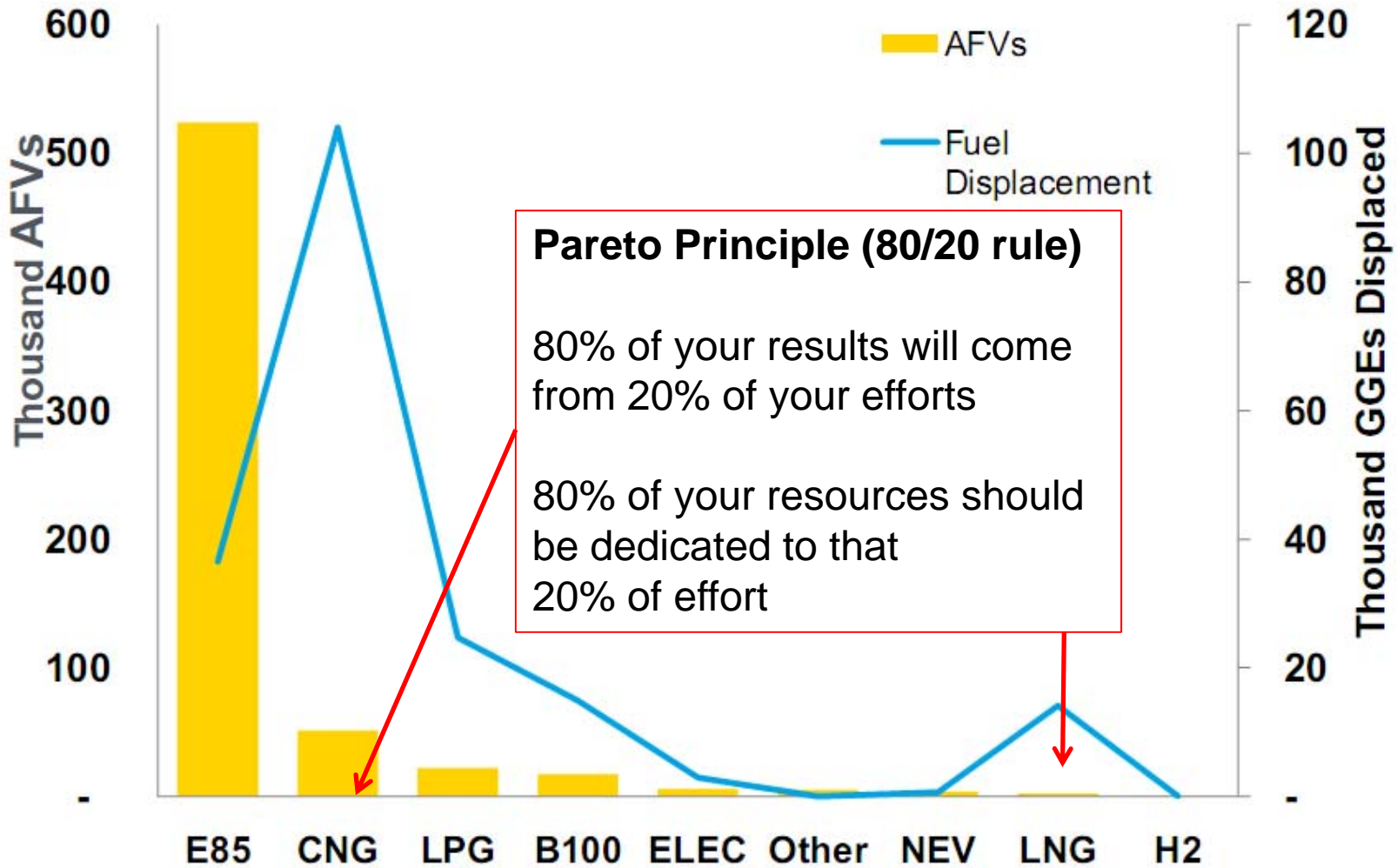
Source: Clean Cities Annual Metrics Report 2008, August 2009

The Results Are In



Source: Clean Cities Annual Metrics Report 2008, August 2009

The Results Are In



Source: Clean Cities Annual Metrics Report 2008, August 2009

Stop Avoidance and Take Action

- All alternative fuels and technologies have had ample chance to prove their capabilities
- Only natural gas can demonstrate the **capability and capacity** to address oil addiction on a massive scale **NOW**
- If oil is an addiction then natural gas has proven itself to be the methadone of alternative fuels

Do We Have To Spell It Out?

If oil is an addiction then natural gas has proven itself to be the methadone of alternative fuels

Do We Have To Spell It Out?

methadone

Do We Have To Spell It Out?

do
metha ne

Do We Have To Spell It Out?

do
metha ne

Do We Have To Spell It Out?

do
metha ne

Do We Have To Spell It Out?

do
methane!

Do We Have To Spell It Out?

**do
methane!**

Do We Have To Spell It Out?

**do
methane!**

Do We Have To Spell It Out?

**do
methane!**

Do We Have To Spell It Out?

**do
methane!**



USA - The World's Most Prolific User

- \$1 billion/day habit – exporting wealth, importing pollution, creating an energy surplus you don't need
- 254 million vehicles
- 5% of world's population –
 - 25% of the world's energy consumption (Power Full)
 - 20% of oil consumption
- 4:1 per capita ratio compared to the average person
- Every 'user' you get off oil addiction has **FOUR TIMES THE GLOBAL IMPACT** than the average user
- No other country can impact global oil addiction as much as the US.

The Writing is on the Wall

No other fuel has the CAPACITY or the CAPABILITY to match natural gas in overcoming our common addiction to oil

No other country has the CAPACITY or the CAPABILITY to match the United States to overcome our common addiction to oil

US led us into the addiction – please lead us out of it!

THINK BIG – ACT BIG

- Don't fight a \$1 billion per day habit with small change!
- Do whatever it takes
 - GFC
 - BP Gulf of Mexico
 - Haiti Earthquake
- Do whatever it takes to create a level playing field so US consumers can make a **real** choice
 - Mandates?
 - **Only** 5000 stations to reach 75% of population.
- Set your spending program in relation to the problem you are trying to solve – put 80% into NGVs
- Energy independence is a worthwhile goal and fundamental responsibility of leadership
- Don't underestimate your roles in this quest
- Small things that make a big difference

NGV Global

- Brett Jarman – Executive Director
bjarman@iangv.org
- Head Office - PO Box 128 446, Remuera, Auckland, New Zealand
Web sites www.iangv.org www.ngvglobal.com
www.ngvglobal.org
- Over 300 members worldwide
- Network of national and regional affiliates