

IPHE – Hydrogen in Emerging Economies

Dennis Hayter – Intelligent Energy



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Intelligent Energy

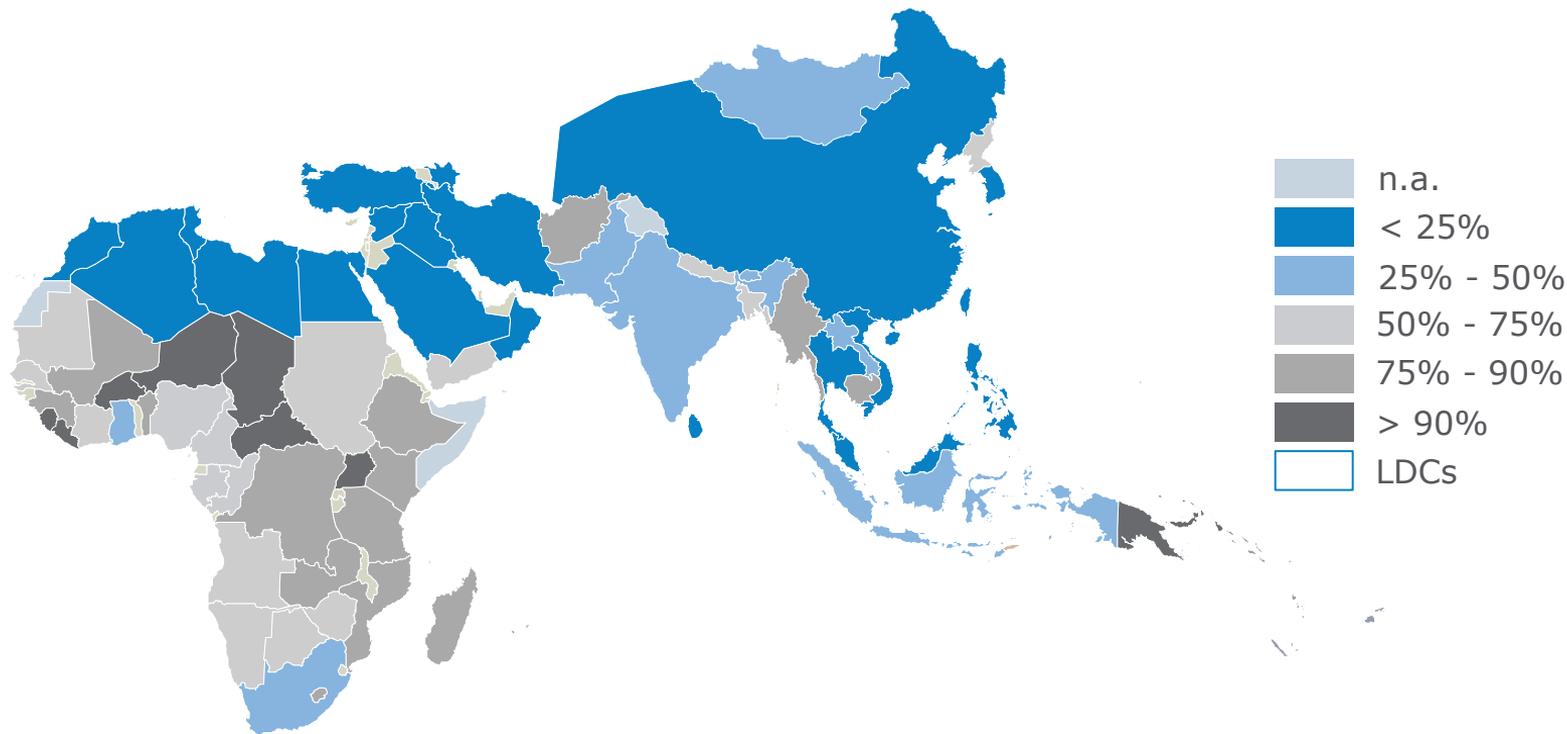
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Growth in the developing world

Electricity availability - % of population with no grid access





Growth in the developing world

- Urbanisation... rapidly accelerating
- Rapidly growing demand for data telecommunications infrastructure
- The energy challenge based on need for distributed power:
 - rapid deployment
 - scalable
 - financeable
- Enabled by a clean, abundant fuel



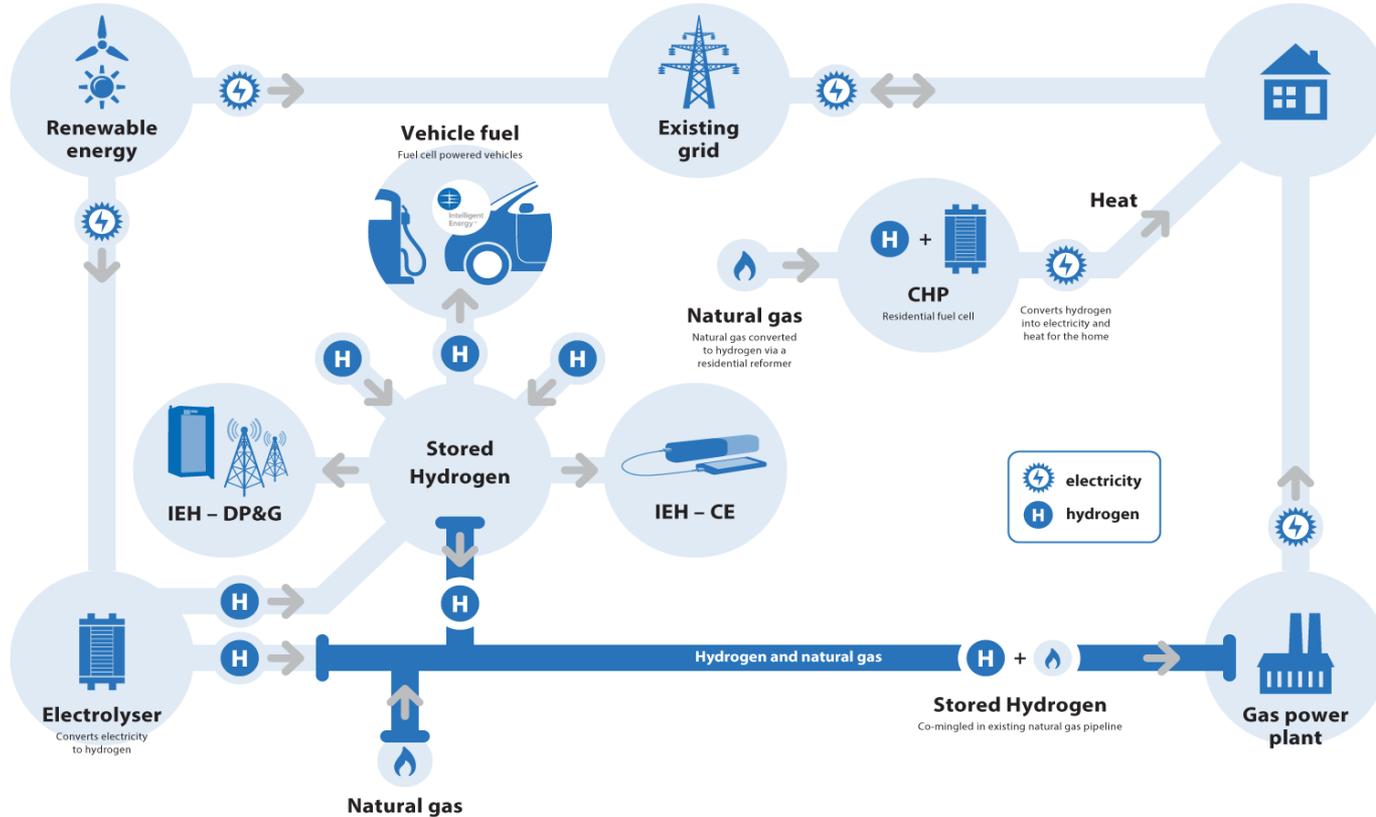
Energy generation and use comes at a cost – increasingly recognised in Asia with a drive for cleaner air

“A staggering 83% of people across the whole of China breathe air that in America would be classed as unhealthy by the Environmental Protection Agency (EPA).”

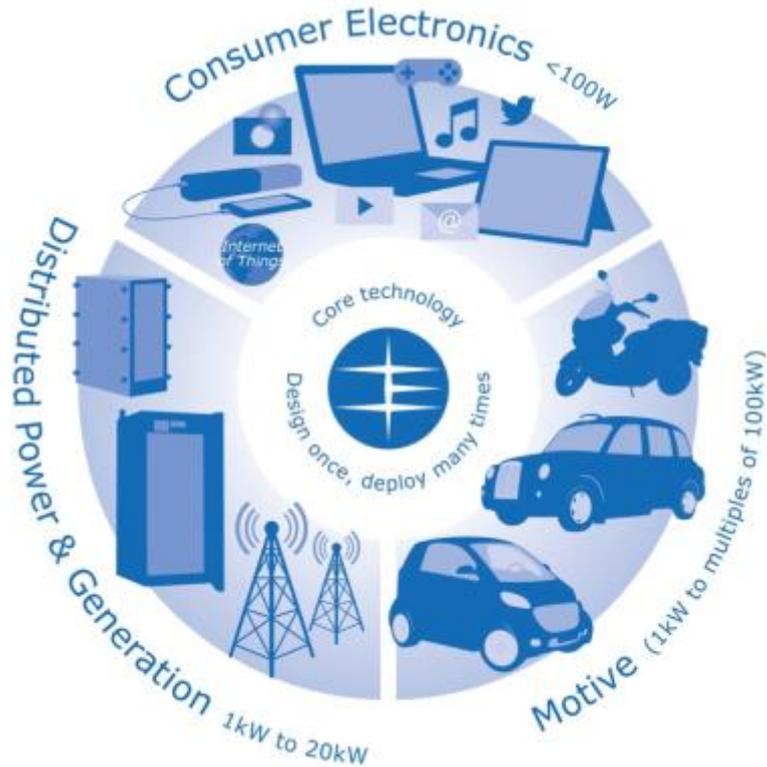




Hydrogen – enabler for developed & developing networks



Intelligent Energy



- Scalable business model
- 450 patent families and circa 1,000 patents granted and 1,000 pending
- Mass market products in high growth sectors
- Flexible and efficient power systems
- DP&G - circa 400MW under contract in India for cell towers
- Motive - serves circa 25% of largest car OEMs
- CE - first of kind product in UK Apple stores

What's Upp



Upp App provides you with fuel prediction capability, personal usage statistics, FAQ's and support



Award winning fuel cell technology, providing innovative and efficient power generation technology.



Charges USB Devices

Upp is compatible with most handheld electronic devices with USB charging capabilities, including leading smartphones, feature phones and MP3 devices.



Rapid Charging

Charges your device as fast as the wall socket, providing you with instant energy on the go.



Battery Protection Technology

Extending the useable life and protecting the charge profile



OTG/Car

Experience energy freedom, wherever you are.

Upp uses hydrogen fuel cell technology to provide clean and efficient power on the move, enabling you to stay charged, keeping you online and connected to your business, friends and family.

Upp conveniently powers and charges all your compatible handheld electronic devices via USB. Just connect the Upp fuel cell to a replaceable Upp fuel cartridge and experience instant energy gratification.

With Upp you can get all the power you need to live life unplugged.

Upp. One week's power, no charging.



Upp is Your Energy — it powers all USB mobile devices



4kW Gen4 AC Platform



FC Power Platforms

- Air-cooled (AC) technology
- Based on modular AC64 - 60cm² active area stack (stack 2kW)
- Validated to automotive standards
- Range extender format
- Stationary power gensets

30-100kW EC Platform



- Evaporatively-cooled (EC) technology
- Modular platform
- Scalable up/down around 30kW
- 100kW 'high performance' system

Telco power – diesel genset replacement

