The Voice of the Networks

Energy Networks Association

The Big Energy Summit 2018

What about the national grid?

Thursday 8th March 2018

Energy networks in UK & Ireland

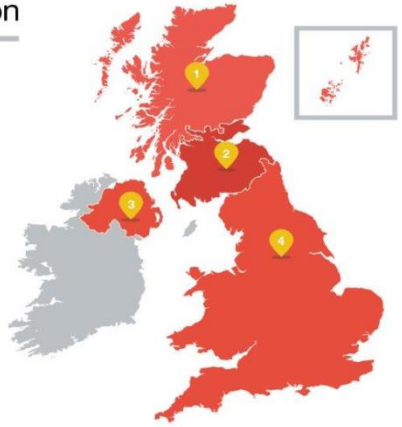
- Energy networks are divided into two groups:
  - **Transmission networks ('A roads'):** High pressure or voltage transmission networks transport gas or electricity long distances, typically from large power plants or gas storage sites
  - **Distribution networks ('B roads'):** Lower pressure or voltage distribution networks transport gas or electricity shorter distances from the transmission network to homes, businesses and communities
- Infrastructure is owned and operated by private companies acting as regulated monopolies since privatisation in 1990.

Network operators in UK & Ireland

Electricity Transmission

1. Scottish & Southern Electricity Networks
2. SP Energy Networks
3. Electricity Networks
4. nationalgrid

mutualenergy — Owns and operates the Moyle Interconnector



Electricity Distribution

1. Scottish & Southern Electricity Networks
2. SP Energy Networks
3. Electricity Networks
4. electricity north west
5. Northern Powergrid
6. Western Power Distribution
7. UK Power Networks
8. ESB Networks

gtc — Independent distribution network operators

Gas Transmission

1. nationalgrid
2. Gas Networks Ireland
3. mutualenergy

Gas Distribution

1. SGN
2. Northern Gas Networks
3. Cadent
4. Gas Networks Ireland
5. Wales & West Utilities

gtc — Independent Gas Transporters

Investment

- Running network infrastructure is highly capital intensive
- Network companies in GB own and operate £62bn of assets
- 1 million km of electricity cabling and 272,000 km of gas pipelines.
- 32,000 employed people across all areas of the country
- Network companies attract investment through RIIO price control system
- Around £100bn of investment has been delivered since privatisation
- £45bn forecasted to be invested by 2023

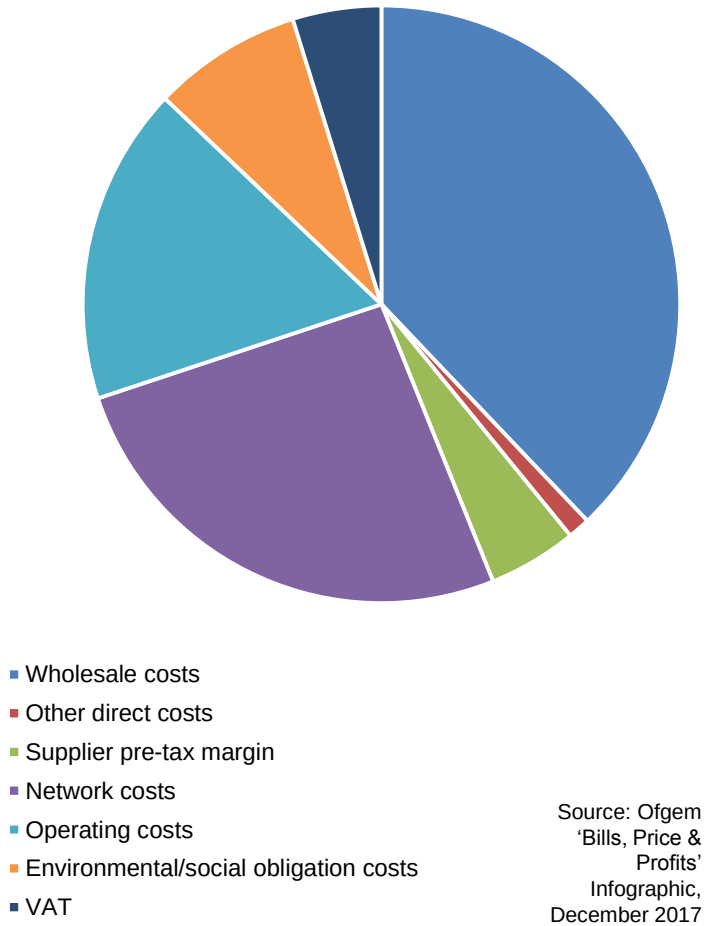
Recent trends

- >28GW of distributed generation since 2007
- 25% of electricity generation capacity now connected locally
- On average a customer will now experience a power cut only once every two years
- Average annual duration of a power cut is now just 40 minutes.
- Over 38,000km of local gas mains have been replaced since 2007
- Fuel Poor Network Extension Scheme has connected almost 97,000 households, enabling access to cheaper heating
- The number of power cuts across Great Britain has halved since 2002

Costs to the billpayer

- The cost of delivering gas and electricity via the networks makes up about a quarter of the average energy bill
- Network costs charged to the consumer are either stable or falling across into the next decade
- Costs almost a fifth (17%) lower than when the sector was privatised in 1990 and either flat or falling as we head into the next decade
- Costs in the UK are broadly in line with or lower than those of other major European economies

Make up of the average dual fuel bill

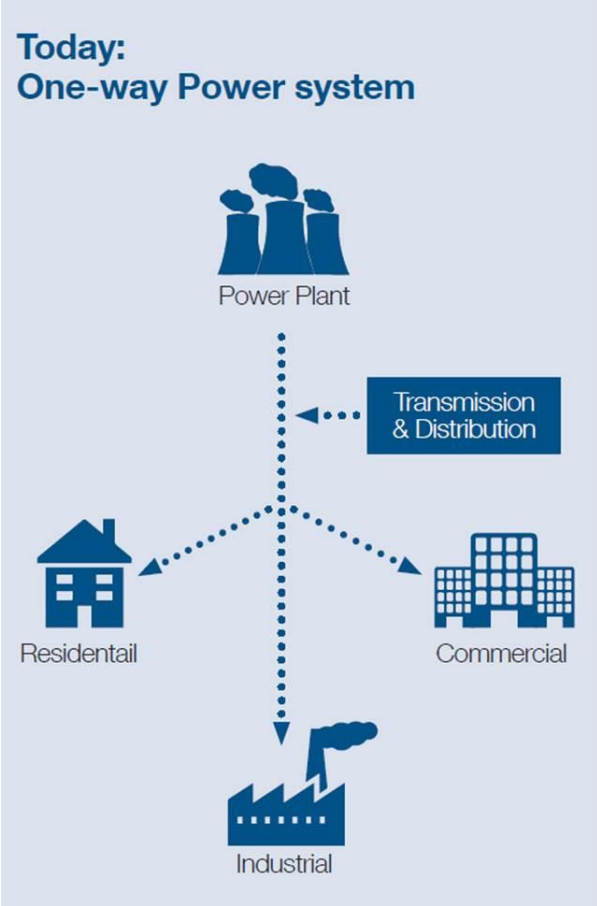


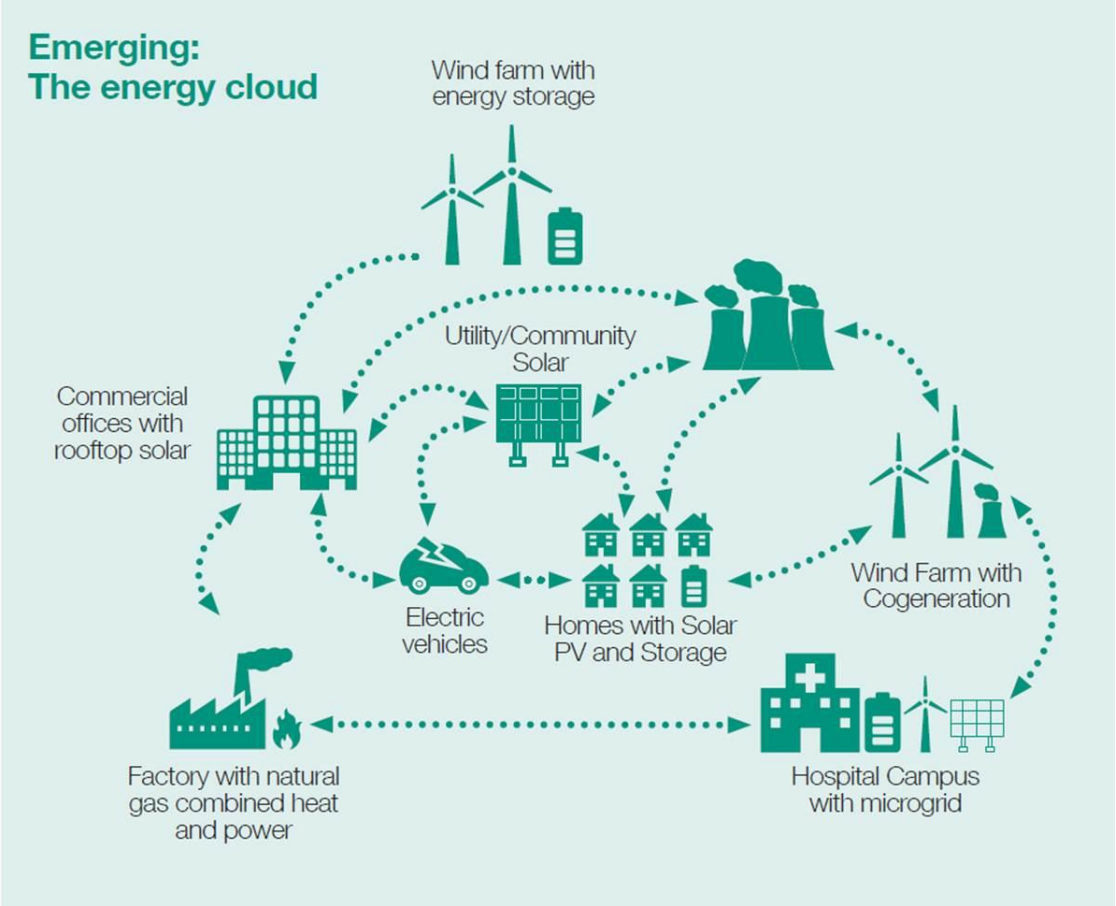
Source: Ofgem 'Bills, Price & Profits' Infographic, December 2017

Changing roles

- Technology is driving changes to the way network companies work
- Innovation projects supported by the RIIO-1 price control to support integration of new technologies. E.G:
  - Distributed generation
  - Storage
  - Decarbonised gas
  - Electric and hydrogen fuel cell vehicles
- Pöyry: Existing innovation projects by local electricity networks could deliver up to £1.7bn of benefits by 2031
- NIC: UK could save up to £8bn a year by 2030 through smart grids

Changing roles





Getting the most out of the grid

- Network companies increasingly looking to work with third parties to deliver innovation:
  - RIIO-1 Price Control Innovation Projects & joint Network Innovation Strategies
  - December 2017: Local electricity networks commit to ‘rapid increase’ to use flexibility services by 2023
  - RIIO-2 price controls proposals (2021 onwards) for increased activity with third parties
- Local electricity networks delivering institutional changes to become platform of third-party services and technologies (DSO transition & Open Networks)

Case study: Energywise

- **Scale**: 550 homes in London
- **Partners**: UK Power Networks, British Gas & Tower Hamlets Homes and Poplar HARCA
- **Purpose**: Examine how local electricity networks can engage with vulnerable customers to facilitate energy efficiency and provide networks services, such as Demand Side Response (DSR)

Further contact

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