

2. The long view

In this section we tell the story of how the Manchester City Region led the way in developing the countries first gas and electricity networks, based upon public and private investment in infrastructure critical to its growth.

2.1 The ‘town gas’ undertakings

Lighting from town gas – an early form of gas produced from a range of solid and liquid fuels - was Manchester’s first energy utility. At first it was produced from whale oil and vegetable oil, but advances in engineering based on experience in London enabled it to be produced on a large scale from coal, which was becoming readily available from the growing Lancashire coalfield. Valuable by-products such as naphtha also attracted industries such as Mackintosh in Manchester to co-locate with the town gas works ¹.

The first gas networks were developed around the turn of the 19th Century. These were small-scale ‘strategic’ investments by mill and factory operators, sometimes as joint undertakings, enabling them to benefit from this new form of lighting. There followed a period during which these small networks expanded as private undertakings, supplying the emerging market in Greater Manchester’s expanding town centres for street, retail and office lighting. Gas factories were by necessity located near to where the demand was.

Manchester established a precedent as the first area to establish its own municipal gas company. Upon being granted its Charter it invested to expand the network, using the revenue to fund public works – including the town hall ². Rapid urbanisation led Salford, Stockport, Rochdale, Oldham and Bury to emulate this model, buying up the private gas undertakings from industrialists so that they too could generate revenue to fund public works.

2.2 The electricity undertakings

Electricity networks were to develop later in the 19th Century. The invention of electricity generators created the prospect of electricity for lighting and trams. Early Acts of Parliament that created the licensing regime for electricity undertakings were introduced, and a range of private enterprises applied for licenses to supply buildings, factories and towns across Greater Manchester – including major retailers such as Pauldens.

¹ Wilson, J.F (1991) *Lighting the town – a study of management in the North West gas industry 1805-1880*, Paul Chapman Publishing Ltd

² Manchester City Council (1938) *How Manchester is managed, 1938* – a record of municipal activity

Local authorities such as Manchester and Salford, having benefited from their gas and water undertakings, were reluctant to cede this new opportunity to the private sector. They opposed private applications and established their own undertakings. The Electric Lighting Act of 1882 created the enabling legislation for local authorities to establish these undertakings – providing them with powers to break open the public highway to lay cables and to build power stations ³.

The demand for electricity grew at a rate that would outstrip all predictions. In the period 1880-1900 town and city centres across Greater Manchester invested in electricity networks and generating capacity ranging from 100 kWe to 3,000 kWe ⁴. Generating stations were by necessity located near to commercial centres where the demand was, and in the case of Bloom Street in Manchester also supplied steam for heating – becoming the first Combined Heat and Power (CHP) plants ⁵.

During the period 1900-1920 demand increased exponentially, driven by electrification of tram networks and the expansion of electricity supply – driven by lighting and conversion of cotton mills from steam to electricity. Generating capacity in the range of 10,000 kWe and 100,000 kWe were now required to meet this demand, with large new power stations such as Stuart Street in Manchester requiring much larger sites in industrial areas.

With demand increasing so rapidly security of supply became a critical issue, with many generating plant running flat out. With the feasibility of long distance transmission of electricity having been demonstrated by Ferranti, high voltage interconnections were developed between each undertakings' electricity network. Later this would enable a local grid to be formed between larger power stations such as Barton, Chadderton and Agecroft ⁶.

2.3 What lessons can be learnt from the past?

The historical development of Greater Manchester's gas and electricity networks demonstrates that there is precedent for the widespread deployment of new technology to meet the sub-region's energy needs. But it also had the benefit of being able to learn from the experience from other cities, drawing on leading engineering expertise and making use of tried and tested technology.

The sheer scale and pace of change required new forms of collaboration and business models to attract the necessary investment. The enterprising approach taken by the early pioneers – made up of public and private sector investors – sustained the industrial revolution and supported the growth of the sub-region's towns and cities. The extent of the supply networks is illustrated in Figure 2.1 which shows Manchester Corporations' gas (green), electricity (blue) and water (yellow and red) supply areas.

³ Swale W.E (1963) *Forerunners of the North West Electricity Board*, The North West Electricity Board

⁴ See footnote 2

⁵ Manchester Civic Society (2002) *What Manchester did yesterday*, Article published in Manchester Forum

⁶ See footnote 2

To this day the sites and the names of the first power stations to be built form the basis for the modern electricity distribution network. For example, central Manchester's are still labelled Bloom Street, Stuart Street and Frederick Road after the power stations that used to supply them. With the need to revisit the concept of 'decentralised energy' it may be that we will have come full circle.

The burgeoning opportunities for the sale of energy required regulation of the new markets that were being created. Central Government created the framework for a range of energy enterprises to flourish, but it was social entrepreneurs in Local Government that drove the most significant stages of expansion and investment, enabled by regulations that evolved in response to their needs.

Figure 2.1
Historical utility supply areas (1939)

