

Zero Hour

Charley Rattan
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Why now is the time to embrace zero carbon,
renewable energy & the fourth industrial revolution



Charley Rattan

- **Renewable energy strategist and corporate trainer**
- **Shell, SSE, Eon - 15 years offshore renewables**
- **Supply chain mapping - SME's North West**

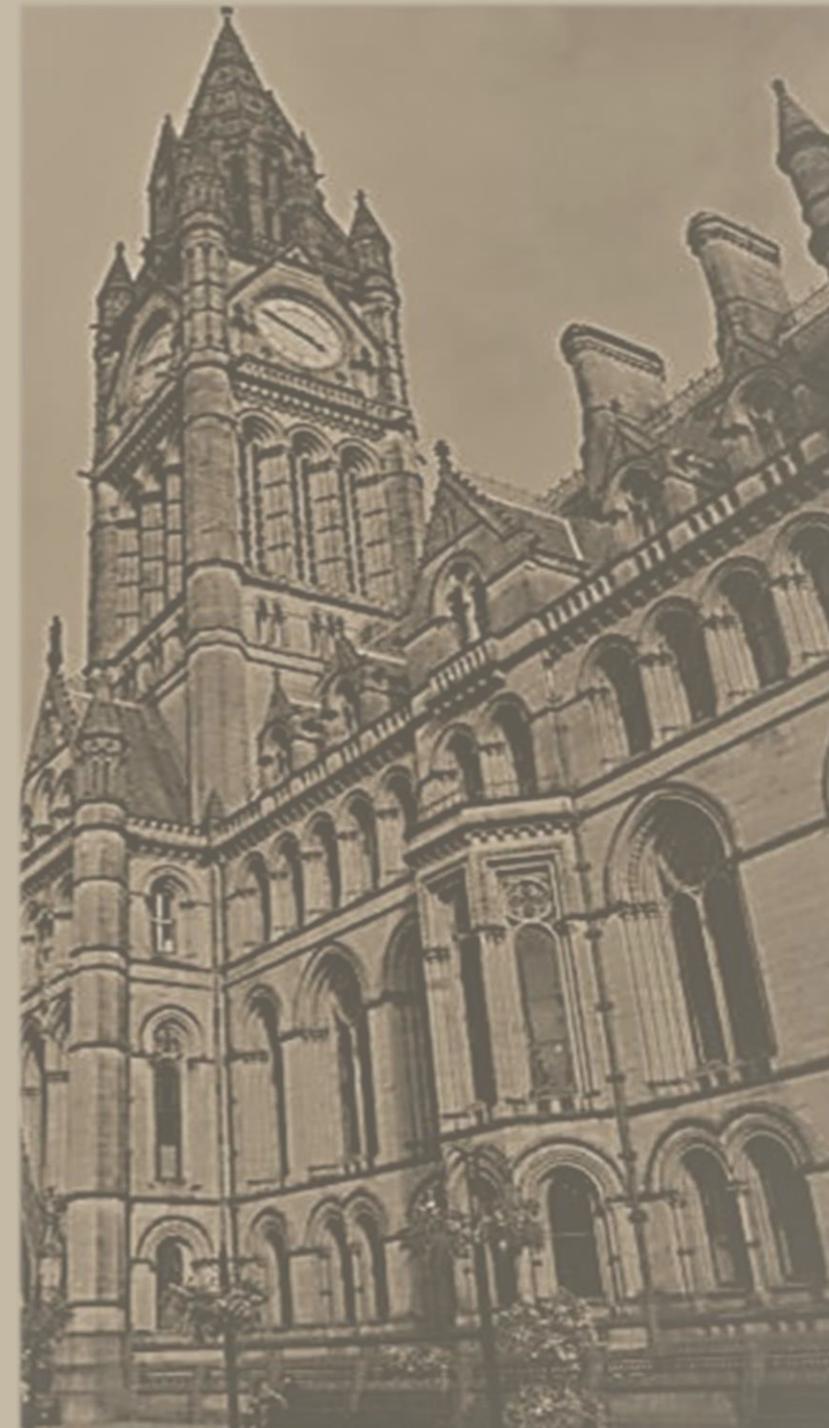


Manchester promises to phase out fossil fuels in 20 years – one of the world's toughest climate change pledges



The story so far

- Around 100,000 people engaged
- Spatial framework consultation and drafting
- Zero carbon ambition formally adopted and announced, Nov 18
- Ambition to give a voice to all 530,000 residents and 18,000 businesses in the city to enable them to collectively define the city's future and play a part in making it happen



What does zero carbon mean?

- Carbon dioxide released into the atmosphere from burning fossil fuels, to be replaced with renewable energy that creates a similar amount of useful energy, so that the carbon emissions are compensated, or alternatively using only renewable energies that don't produce any carbon dioxide (also called a post-carbon economy)
- Large companies already addressing via RE100 buying





Carbon emitters?

- **Industry**
- **Transport**
- **Utilities**
- **Construction and built environment**
- **Agriculture**
- **Public sector - schools, NHS, universities and government**
- **Domestic consumers**

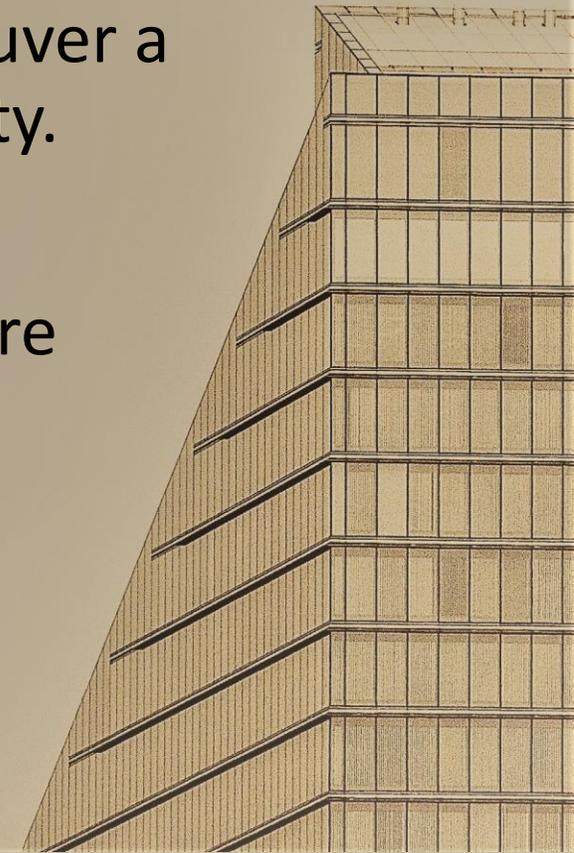
Think about it now

This sector is growing at four times the rate of the wider economy, worth nearly 40,000 jobs and over £5bn to Greater Manchester.

Greater Manchester aims to be alongside Milan and Vancouver a remarkable transformation for the world's first industrial city.

Diesel and fossils to be replaced by:

- Batteries and electric vehicles and associated infrastructure
- Heat pumps
- Solar roofs
- Underpinned by green electricity. Renewable PPA'S



The implications

- Procurement
- Shell et al also driving CRS into supply chain will have to show green evidence
- Contracts
- Planning, housing, offices, energy requirements EV points
- Internet of things and 'virtual power plants'
- Smart working, flexibility on hours avoid rush hour
- Green construction and economic growth
- Rise of SME Prosumer



The fourth industrial revolution - the internet of things

- Diesel and fossil fuels are being replaced
- Electric/ hydrogen vehicles - and associated infrastructure
- Prosumer - on-site generation factories, institutions, organisations
- Biomass, hydrogen fuel cells, generators and boilers
- Heat pumps – roll-out started in Manchester
- Renewable Power Purchase Agreements

Hotel runs on battery -

Avoiding expensive peak tariffs





Floating solar

Godley Reservoir



What getting to zero carbon means

- Short-term shock and possibly pain as realisation of what bold climate vision entails
- Early thought can lead to fresh thinking on energy
- Assess energy needs, including heat and transport
- Year-on-year efficiency improvement
- Emission controls tightening
- Taking advantage of opportunities
- The danger of missing out - rivals are acting
- Prepare now!

Next steps

- **Prepare now**
- **Inform yourselves**
- **Seek advice**
- **Potential network?**



Support and training

- Renewable energy in a nutshell
- What the changing energy landscape means for your company
- Integrated renewables
- The road to sustainability for your company
- Becoming a prosumer. How to take part in the energy revolution

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