NET ZERO IMPLEMENTATION STRATEGY

PUBLIC SECTOR CONTEXT

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Paris Agreement

- An international treaty on climate change adopted by 196 parties at the 2015 summit to minimize dangerous climate change by limiting global warming to well below 2^0C degrees and pursuing efforts to limit it to 1.5^0C.

Key element of the agreement

  - Climate Change Mitigation
  - Adaptation
  - Resilience
  - Finance e.g., Salix Finance, Green Finance Institute etc.

- Paris Agreement for Net -Zero green house gas (GHG) emission after 2050 must meet the 17 sustainable goals lunched in 2015 to end poverty and protect the planet.

NET ZERO IMPLEMENTATION STRATEGY

PUBLIC SECTOR CONTEXT

- **Sustainable Development Goals (SDG)**

- It is the development that meets the needs of the present without compromising the ability of the future generation to meet their needs World Commission on Environment and Development (WCDE 1987).

- United Nations Global Impact Perspective Sustainability encompasses business practices.

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NET ZERO IMPLEMENTATION STRATEGY

Climate Change Construct

What is Net Zero?

In the context of Paris Agreement Net Zero is the reduction of CO2 emission into the atmosphere through renewable energy technologies decarbonisation measures. Simply decarbonising all buildings in line with Paris Agreement.

- Climate change impact on the world
- UK Government Net-Zero target 2050
- Triple Bottom Line
- Social
- Economic
- Environment
- Governance

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NET ZERO IMPLEMENTATION STRATEGY

LONDON BOROUGH OF HAMMERSMITH AND FULHAM- LBH&F

NET ZERO GOAL

- LBH&F Council set up the Climate and Ecological Emergency Commission (CEEC) 17th July 2019 with Climate Emergency net zero target for 2030.
- LBH&F asset- Non-Domestic Portfolio: 12,000 businesses, 3 football stadiums, 1 prison, 2 major hospitals, 60 schools, variety of retail shops e.g. Westfield market, entertainment arena and leisure Centres.
- LBH&F total production –based emissions: 648,752 tonnes of C02e
- 36% from homes gas use, 43%, other buildings from electricity and 21%, transport mostly road
- Decarbonisation projects estimated in excess of £2 billion
- LBH&F decarbonisation net cost is estimated to be £248m

NET ZERO IMPLEMENTATION STRATEGY

COUNCIL'S DECARBONISATION

- Fabric First Approach- insulation, heating controls, ventilation
- Design Proposal – Scope of Works – Specifications – Warranties. Who is responsible? Contractor delivery the decarbonisation projects or external consultants
- Investment Grade Proposal (**IGP**) scrutiny and High Level Appraisal (**HLA**) analysis
- Adequate KVA Power Capacity at Site and DNO application
- BMS/SMART Metres/ AMR upgrade/P375- Balancing Mechanism(BM)
- Offsetting the increase in electricity consumption/demand
- Building characteristics and relevance of the building
- External Stakeholder Engagement: Lease or freehold

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NET ZERO IMPLEMENTATION STRATEGY

COUNCIL'S DECARBONISATION CHALLENGES

- Council Structure to implement the Net Zero projects
- Finding the Expertise in one Team for the decarbonisation projects
- Pure data for Gas and Electricity consumption
- Site Selections: Suitability of asset to integrated Energy Conservation Measures (ECMs)
- Council Planning Team. Planning permission for selected site e.g., listed buildings, area of outstanding buildings
- Positioning of ASHP/GSHP/Photovoltaic solar
- Noise Mitigation, Acoustic Noise Report- **"silent mode feature"**

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COUNCIL'S DECARBONISATION CHALLENGES

- New technology resistance from member of the public, replacement of gas boilers with ASHP
- Roof Structure integrity & U-value – Enhancement of roof insulation etc
- Segregation/Partitioning of Services to Building
- Master programme to accommodate site closure
- Communication with site managers and building occupiers
- Control Philosophy of integrated installed system
- Building and Roof incompatible to ASHPs installations and solar PV system

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COUNCIL'S DECARBONISATION CHALLENGES

- Significant Capital Cost – Business Case - Guaranteed savings
- Asbestos Removal / Abatement
- Roof U-value and warranties
- Photovoltaic suitability on roof and implication on roof warranty
- Building Insulations
- Heat Lost calculation for ASHPs sizing, sensors,

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COUNCIL'S DECARBONISATION CHALLENGES

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COUNCIL'S DECARBONISATION CHALLENGES

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D-G MODEL OF SUSTAINABLE SOLUTIONS

... NET ZERO IMPLEMENTATION STRATEGY

D-G MODEL OF SUSTAINABLE SOLUTIONS

- Technologies: Wind implemented as far as 500 BC and use to generate electricity since 1887 in Scotland
- Photovoltaic effect in1839 by Edmond Becquerel
- Solar Thermal
- Solar Farm
- Wind energy
- LED LIGHTING
- Heat Pump Technologies: Geothermal e.g. ASHP, GSHP
- Water Efficiency Management Software for leakage detection and monitoring. AMR and Limpet technology

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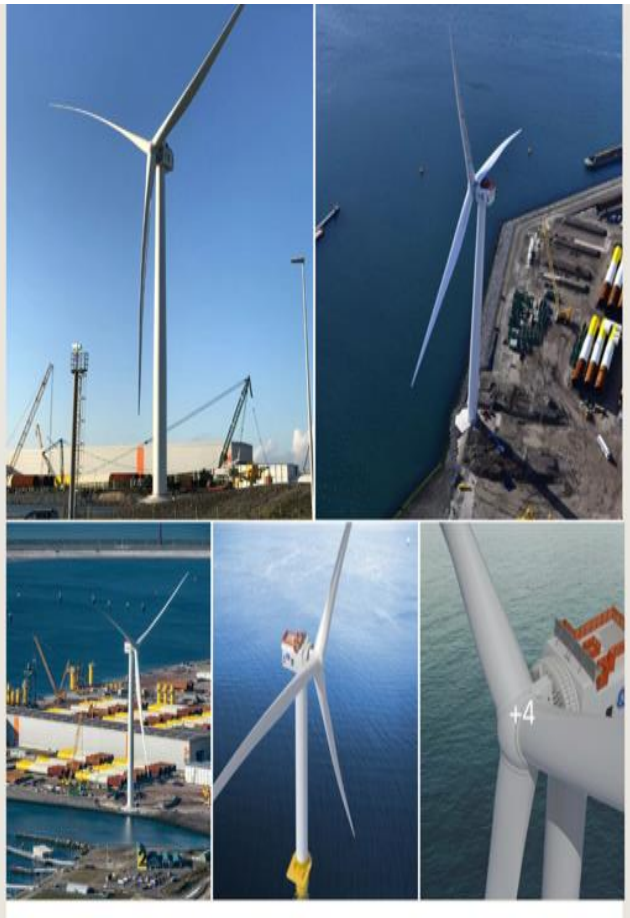
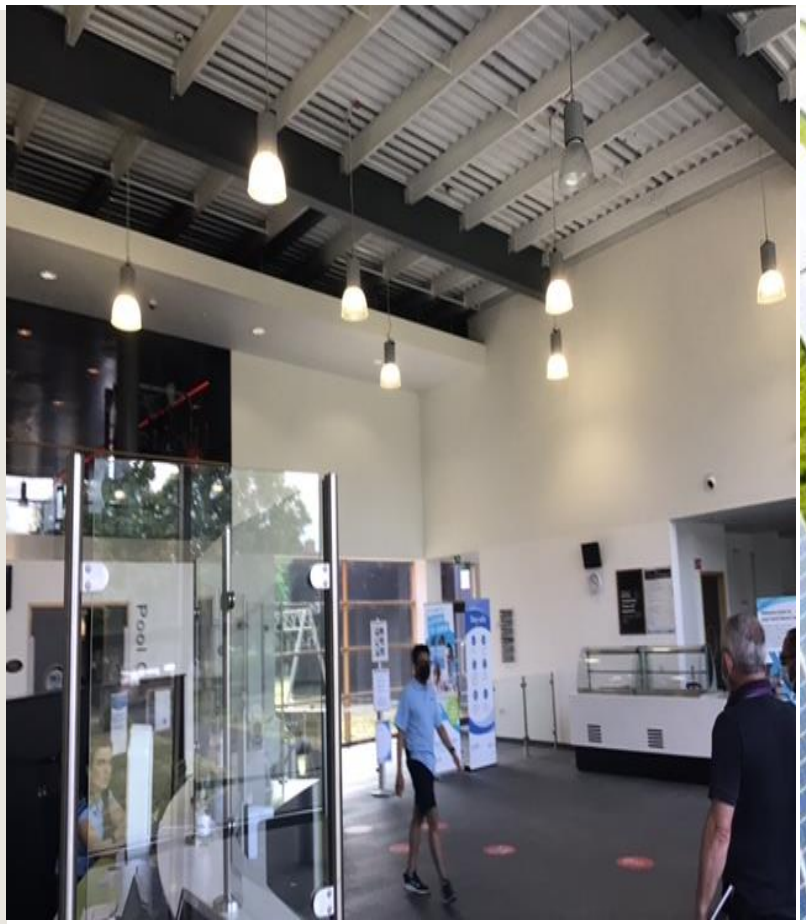
D-G MODEL OF SUSTAINABLE SOLUTIONS





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D-G MODEL OF SUSTAINABLE SOLUTIONS

Decarbonisation and Green Energy (DG) Model

- Evaluation and Adaptation of technologies for specific site
- Energy Efficiency Measures and setting ASHP to “**Silent Modes”**
- Software application IES and NABERS
- Finding the Renewable Energy Project Manager-Multi-skills acquisition
- Procurement Route: Suitable Framework FIT Framework
- Stakeholder Engagement – Weekly Project updates – Technical Designs reviews
- Design Proposal – Thorough research and analysis leading to agreement with the design team

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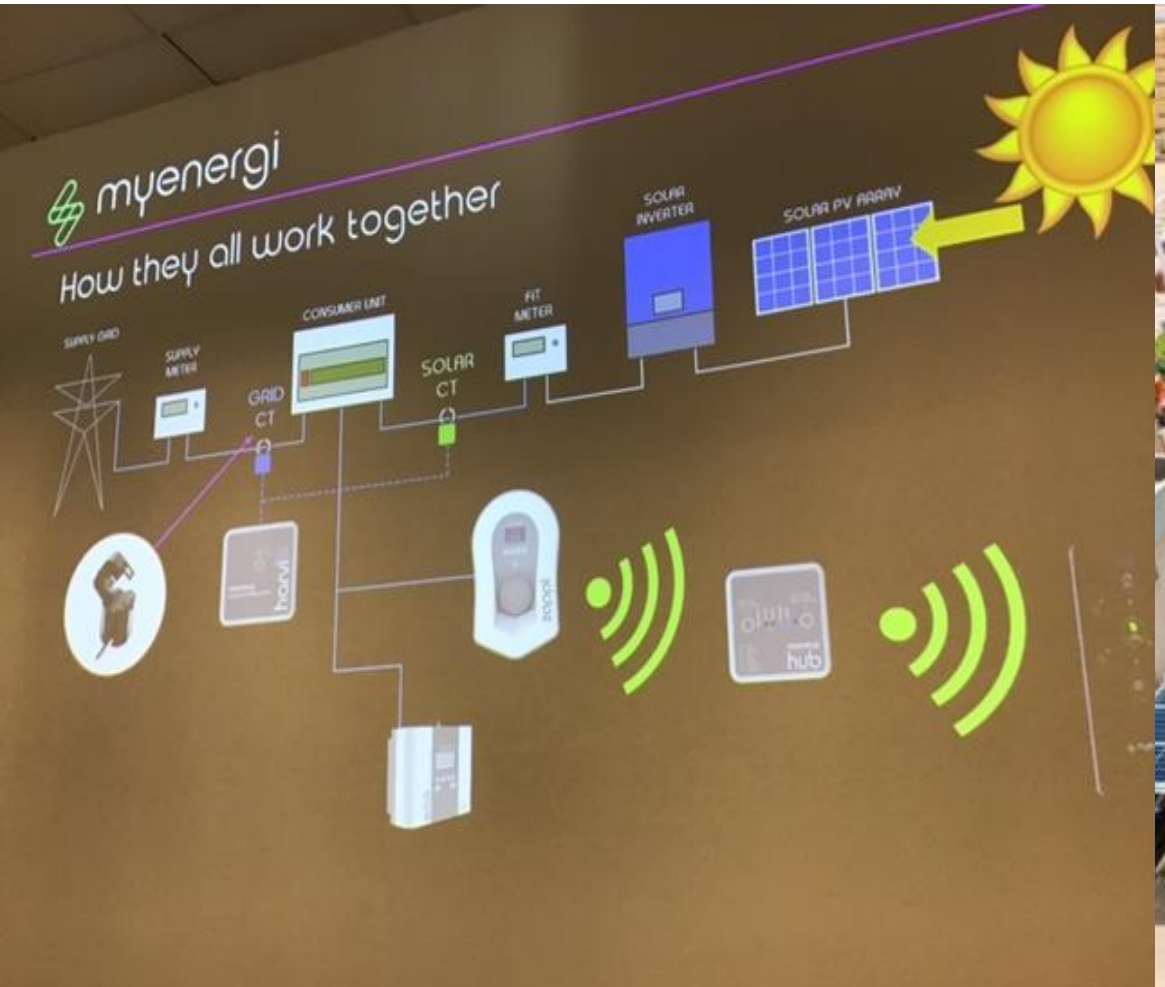
D-G DIGITALISATION OF COUNCILS' INFRASTRUCTURES



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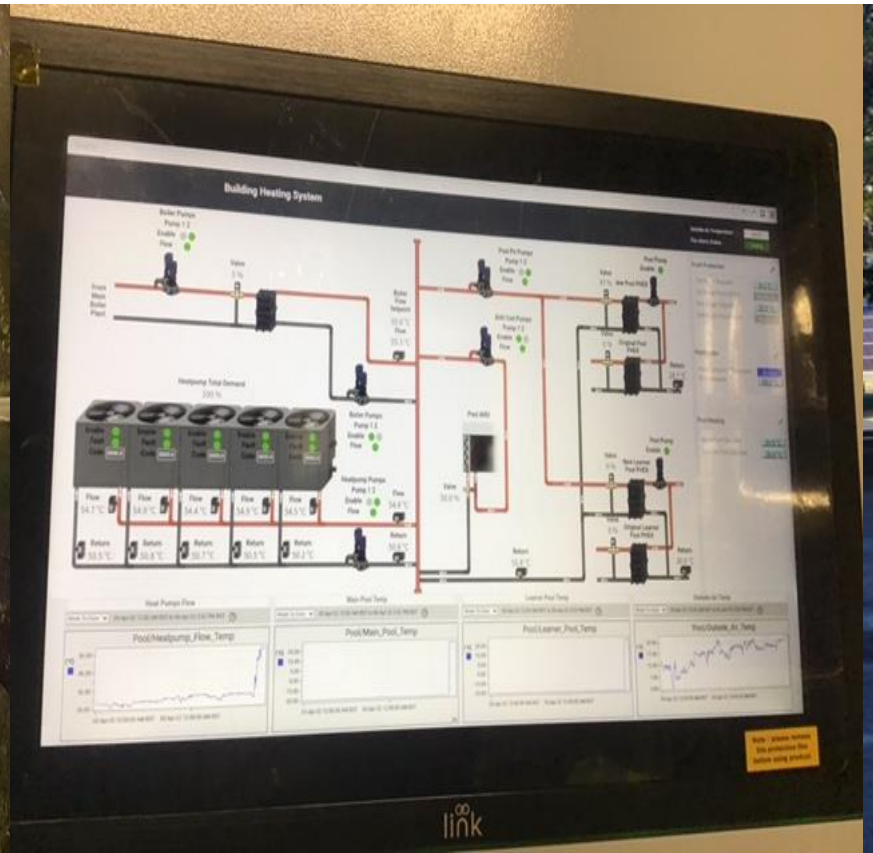

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D-G MODEL OF SUSTAINABLE SOLUTIONS

COUNCIL'S NET ZERO DIGITALISATION

- Urban Infrastructure by integration and optimisations of renewable technologies
- Optimisation of Photovoltaic solar installation to generate electricity for office space and EV charger
- Solar roof and Solar Window
- Transformation to green energy generation, energy hub and battery storage system
- Security system camera
- Smart City Concept Integration to offices, businesses, buildings etc

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CONCLUSION

- A sustainable strategy will requires an holistic approach integrating sustainable technologies to achieve the net zero target
- A net-zero target should be a collective responsibility of all the stakeholders
- Consumer education on energy efficiency measure (EEM).

QUESTIONS & THANKS FOR LISTENING

Presented by Henry Oriabure

Project Manager

Hammersmith & Fulham Council

henry.oriabure@lbhf.gov.uk

07807870737

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