ENERGY CAPITAL

BIRMINGHAM: ENERGY CAPITAL

TYSELEY ENVIRONMENTAL ENTERPRISE DISTRICT

The City of Birmingham has ambitious plans to deliver carbon reductions, create a low carbon infrastructure and to modernise how it deals with waste. These priorities are captured in the Carbon Roadmap produced by the City's Green Commission which articulates the ambition via CO₂ Emissions Target and Carbon Budgets.



LIQUEFIED PETROLEUM GAS (LPG) nported to the site by tanker. Stored fo efuelling vehicles. Provides a lower-carbor Ilternative than conventional petrol

Inside the biodigester biological residues are broken down in the absence of air and light

plant for further energy

eat from the district

CO. EMISSIONS BY 60% BY 2027

The state-of-the-art Energy Recovery Facility in Tyseley takes 350,000 tonnes of Birmingham's rubbish each year and FROM WASTE converts it into electricity at a rate of 23.5 tonnes per hour. The output is 25MW exported to the National Grid.

ONSITE WIND POWER GENERATION

Wrong time' renewable energy generated by the on-site renewables and/or taken from the grid is used to produce cryogenic 'liquid air' which can be stored easily to generate electricity at times of peak load. The liquid air can also be shipped off-site and used to power 'Dearman engines' to provide col-



can be sent to the TCR

ENERGY SKILLS ACADEMY

eneray technologies.

The Tyseley Environmental Enterprise District

covers over 230 businesses and around 100

hectares of traditional industrial land.

UNIVERSITY TECHNICAL COLLEGE

A new Institute of Energy Technologies will be

established to educate the next generation of

energy engineers and nurture research into the

latest energy technologies. This will be based

in a signature building with exemplar energy

performance and demonstrating cutting edge

The gas treatment plant improves the methane quality and content in order to make it suitable for injection into the gas grid.

BIO POWER PLANT

The new Birmingham Bio Power Plant gasification technology used to generate electricity from recovered wood waste. The 10.3 MW biomass power project has been developed by Carbonarius.

CO, SAVING

FNFRGY

and industry for space nd process heat. Using



volutionary new 'Dearmar ooling, without the associat efrigeration units. Liquid trogen produced on the seley site powers the vehic

CNG FILLING STATION

Natural Gas from the Grid is compressed for use in CNG (Compressed Natura

> The AMR centre will devlop advanced technologies to recover strategic elements and critical materials using

advanced processes and robotic

As a waste product, the TCR process

produces "Biochar" which is useful as

a soil improver for agricultural purposes.

SOLAR POWER RETROFIT

he roof of industrial units generates clean electricity which can be fed into the **ENERGY STORAGE**

ELECTRIC VEHICLE

CHARGING STATION

heat from the district heating system is used of the cryogenic energy

Modern fuel cell vehicles can refill at the

drogen filling station. The hydrogen is ean 'green' hydrogen from renewables,

ather than 'brown' hydrogen from steam

formation of methane. The electrolyser

nto hydrogen. This can be efficiently turned

back into electricity using a fuel cell.

BIODIESEL FILLING

COMMUNITY ENERGY ENABLEMENT HUB

Funding from the Local Growth Fund will enable the creation of a facility to help in the development of bottom-up distributed energy solutions that meet the needs of communities. This will help communities deliver cleaner more efficient solutions for their energy services.

BIOCHAR BY PRODUCT

High Feedstock Flexibility

- Animal Manure
- Agricultural Residues Straw, Husk
- Food Waste
- Organic Waste
- Sewage Sludge
- Municipal Solid Waste Biogas Digestage

anal Wharf on the Tyseley Energy Park

e could provide a distribution point for

an fuels to river barges. Waste for the

ant could be brought in by barge as an

ative to the road

ss plant and Energy from Waste

ELECTROLYSER

Webster & Horsfall Wire

Manufacturing Operation

'green' hydrogen from

enewables, rather than

HYDROGEN POWERED **BUSES AND TAXIS**

The electrolyser can be used to provide grid balancing by turning 'wrong-time' energy into clean hydrogen.

ENERGY VECTORS

District Heating Network Cryogenic 'Liquid Air' Network

Natural Gas (Grid) Network Liquefied Petroleum Gas (LPG)

Hydrogen Network Electricity Network

- - Tyseley Smart Microgrid

BUSINESS ACCELERATOR AND SME SUPPORT HUB

The SME Support Hub will help local businesses consider more sustainable and efficient ways to deliver the energy services that their business require. This could be through the introduction of new energy technologies, systems integration, or through new energy business models.

(TCR PLANT) BIO-BATTERY: THERMAL CATALYTIC REFORMING

The TCR process used in the bio battery produces biodiesel from a range of eedstocks. This can be used in clean Euro IV diesel engines. Efficiency can be mproved further by creating a 'heat ybrid' with a diesel engine.

The hydrogen filling station supplies reen hydrogen from both the electrolyser and pattery thermo-catalytic reforming process.