

Sustainable Nottingham and the RemoUrban project

Jane Lumb

**Head of Energy and Sustainability
Policy**

- Who we are
- Our achievements
- How we've done it
- Challenges
- RemoUrban

Nottingham Energy City

- who are we?

- Most energy self-sufficient city in the UK
- Largest District Heat Network in the UK
- 2 award winning Universities
- Large energy employers – EON, Siemens
- First local authority owned energy supply company: Robin Hood Energy



Sustainability at city scale



Sustainable and Smart

Vision to be:

UK's most Smart Liveable City



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Achievements so far

- ✓ Beat CO2 target 4 years early – 33% reduction (05-14) – highest reduction of core cities
- ✓ Lowest emissions per person of core cities
- ✓ 15% of city's energy from low carbon sources (2014)
- ✓ Fuel poverty decreased from 18% in 2012/13 to 14% in 2013/14
- ✓ Land fill decreasing, last year only 6.4%
- ✓ Recycling increasing, currently 33%



HOW?

District heating and power

- Energy from Waste
- 5000 homes
- 150 business
- Private wire electricity
- **Displaces 27,000 tonnes of fossil fuel per year**



Domestic solar PV

- Installed solar PV on over 4000 houses across city
- Focus on areas of fuel poverty to reduce bills
- Forecast 470,000kWh of renewable energy in 2016



Commercial solar PV

- 44 commercial PV sites inc 2 solar car ports
- Over 2 miles of Solar PV installed
- Saved £36,500 on energy bills in 2016



Reduce energy on NCC estate

- Driving down energy usage through LEDs, insulation, boiler replacements, etc.
- Saved over £3m since 2007
- Behaviour change initiatives in schools reached nearly 6000 kids and 1200 teachers



Tackling inefficient housing

- Delivered over 40,000 energy saving measures
- Includes 4,000 External Wall Insulations, focusing on neighbourhoods in fuel poverty



Fuel poverty – energy costs

- Creation of Robin Hood Energy to provide affordable energy to all
- Not for profit energy supplier – FIRST local authority owned energy supply company
- Both domestic and commercial customers
- Tailored energy switching solution for void properties
- White label partnerships – to develop and promote community energy schemes



Low tariffs available nationally:

Call 0800 030 4567

Visit

www.robinhoodenergy.co.uk

email

join@robinhoodenergy.co.uk



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Sustainable Transport

Largest electric bus
fleet in Europe



2nd tram line opened
August 2016



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Go Ultra Low City Programme



- EV Charging Network
- Business Support/EV Grants
- ULEV Promotions
- D2N2 Transport Technology Centre
- Electric Car Club
- Clean Air Zone
- Eco Expressway Shared ULEV Corridor

What next – challenges

- Most old housing stock will still be here in 2050
- National policy uncertainty
- National planning policy
- Fuel poverty is complex
- Finance challenges – everything has to stack up

How to tackle all these things?



“Regenerating existing cities
into sustainable cities”



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Nottingham Demo Site



@Remourban_EU



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RemoUrban

Low Energy Districts



Retrofitting, renewable heating and cooling, distributed energy generation, monitoring tools for energy efficiency, electricity distribution and advanced building energy management systems

Sustainable Mobility



Clean energy vehicles, renewed transport infrastructures and plans for reduced energy consumption and CO2 emissions

Integrated Infrastructures



Smart grid connectivity, city information platforms, optimized traffic flows, multi-modal transport solutions and collaborative information transfer





Lighthouse Cities



Valladolid (Spain)

Administrative capital of Castilla y Leon

Population: 310,000

Impact:

50%
energy
savings

80%
emissions
avoided

5,700
citizens
involved

Nottingham (UK)

One of the major cities in the Midlands

Population: 306,000

Impact:

50%
energy
savings

26%
emissions
avoided

8,100
citizens
involved



Tepebasi/Eskisehir (Turkey)

The second biggest city in Middle-Anatolia

Population: 315,000

Impact:

85%
energy
savings

79%
emissions
avoided

600
citizens
involved



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Remourban in Nottingham

Making a demonstration area smarter through

- Deep retrofit of 400 homes to much improved energy standards
- Electric buses and cars
- Integrated ICT platforms across the city to collect and monitor data
- Detailed citizen engagement

£3.6m of EU money



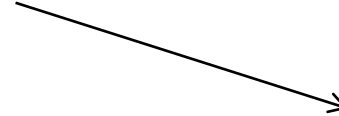
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Sustainable District – BRONZE homes



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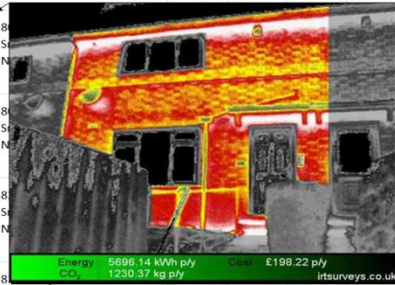


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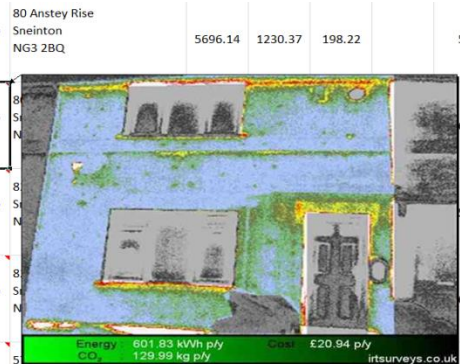


Sustainable District – BRONZE homes

Before	24ANH080007	Enlarge	NG3 2BQ						
After	24ANH080007	Hover to Enlarge							
Before	24ANH082002	Hover to Enlarge							
After	24ANH082002	Hover to Enlarge							
Before	24EF1A057004	Hover to Enlarge							



Before	24ANH080007	Hover to Enlarge	80 Anstey Rise Sneinton NG3 2BQ	5696.14	1230.37	198.22	55
After	24ANH080007	Hover to Enlarge					54
Before	24ANH082002	Hover to Enlarge					52
After	24ANH082002	Hover to Enlarge					61
Before	24ELA057004	Hover to Enlarge	Sneinton NG3 2BP	4781.79	1032.87	166.41	54



Before and after thermal imaging carried out as part of the commissioning



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Sustainable District – SILVER homes

Measures:

- External Wall Insulation
- LED Lighting
- Solar PV
- Battery Storage
- Low Temperature District Heating





Sustainable District – SILVER homes



Testing innovative finance:

- ESCO
- Pay as you save



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Sustainable District – GOLD homes

2050 homes: Zero Energy solutions and financial implications



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Sustainable Districts – GOLD homes

ENERGIESPRONG:

- First UK demonstration
- Zero net energy
- Innovative procurement
- Pay as you save
- Replicable
- Offsite manufacturing



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Citizen engagement

- Emphasis on involving citizens in the demonstration area.
- Existing local groups and community leaders





Remourban: urban mobility

Three main areas supported by Remourban

- Charging Infrastructure for our Electric Bus Fleet
- Low Carbon Last mile Delivery Project
- Expansion of our City Car Club to include electric vehicles



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Remourban: urban mobility

Electric Bus Charging Infrastructure



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Remourban: urban mobility

City Car Club – Electric Vehicles



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Remourban: urban mobility

Low Carbon Last Mile Delivery



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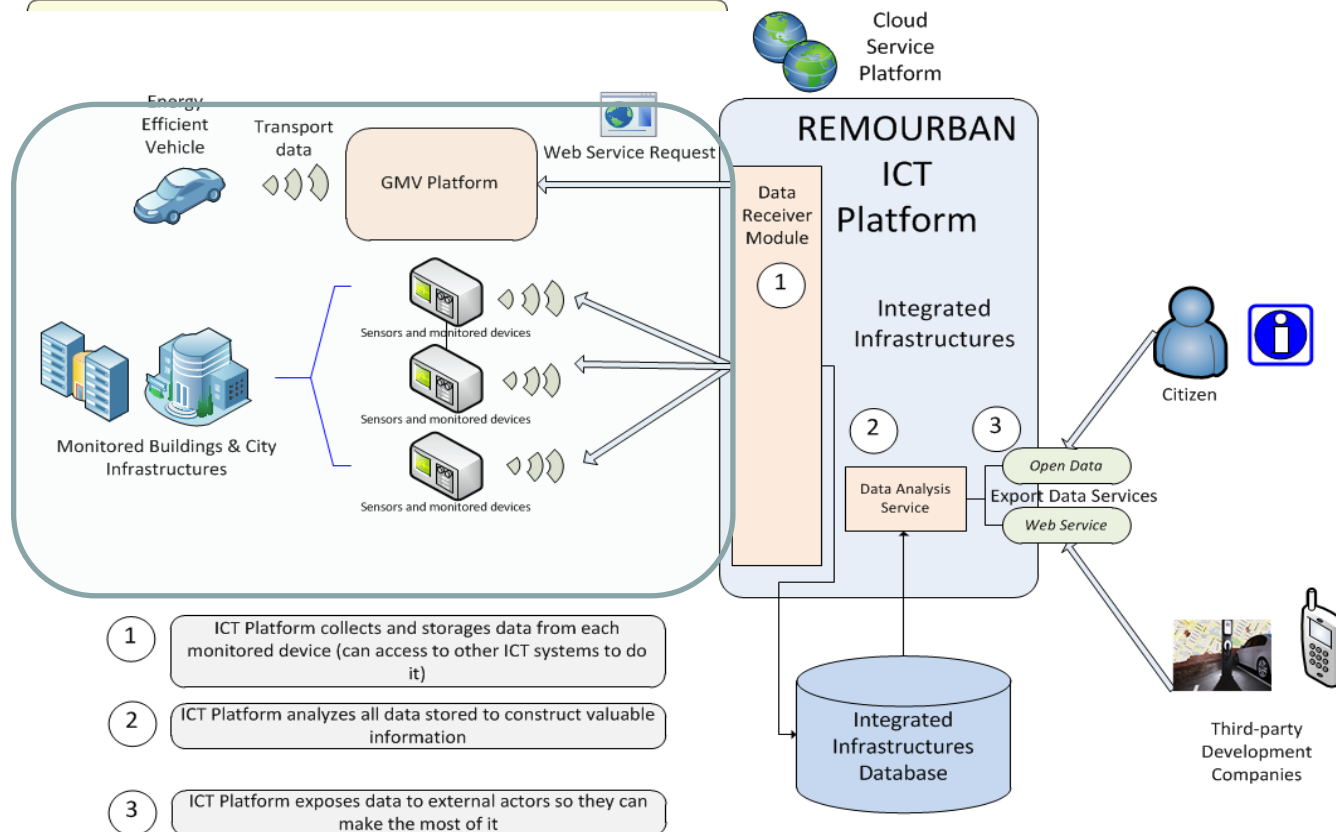
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ICT platform and integration strategies

REMOURBAN Global Platform

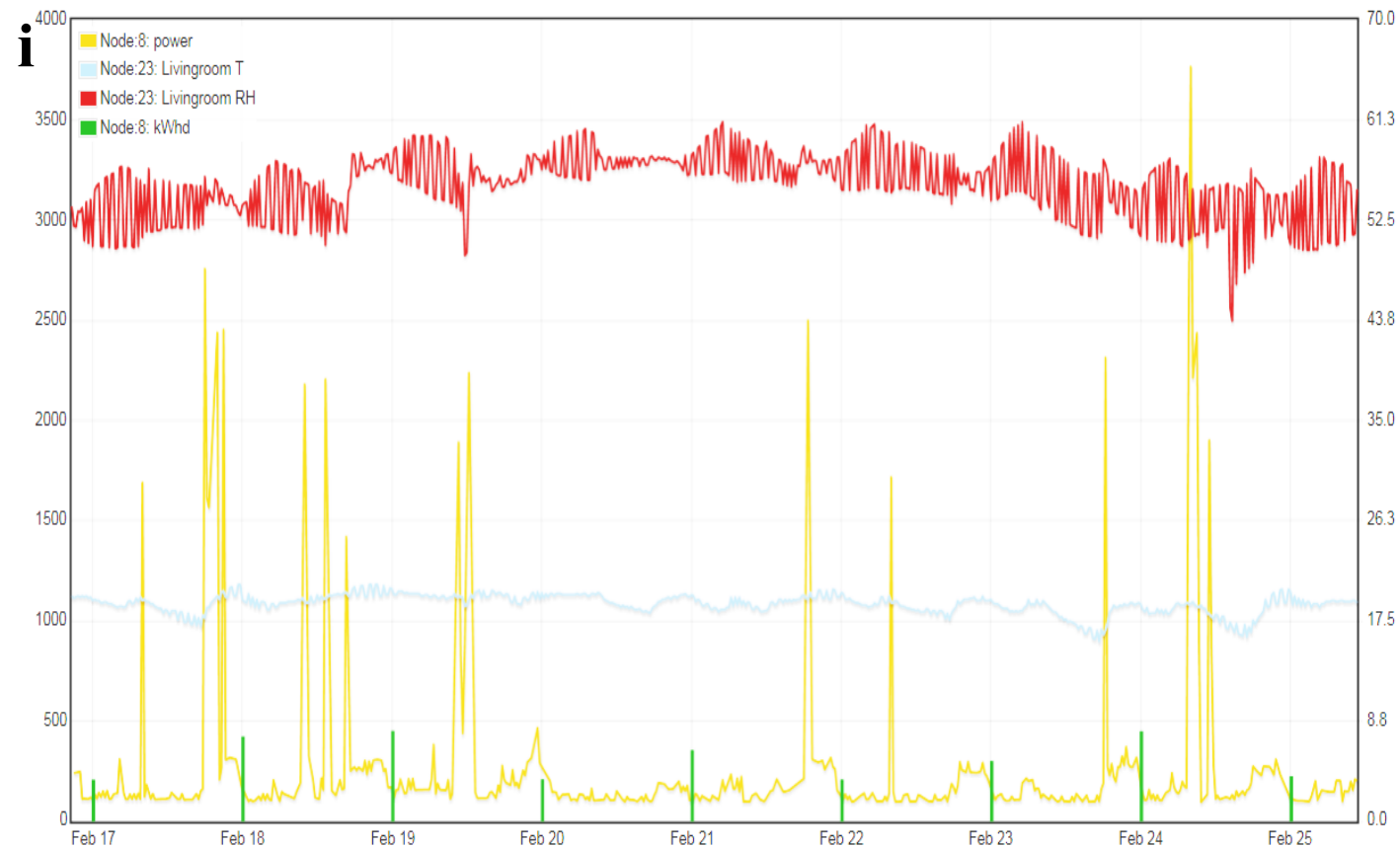




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ICT platform and integration strategies

Monitoring examples of Electrical Power Draw, Temperature, Relative Humidity in 10-minute





Remourban in Nottingham: progress

- Bronze homes almost complete
- Silver homes tender being prepared
- Gold homes tender awarded this week!
- New electric bus depot completed
- Tender to be award imminently on charging points for car club
- WEGO Last Mile Delivery option progresssing



SUSTAINABLE NOTTINGHAM: WHAT NEXT

Continue to drive ambition

- Developing new Sustainable Development Action Plan with “Nottingham Green Partnership”
- Continue to collaborate with universities
- Continue to trial and deploy new technologies
- Commercialise energy offering

Project SCeNE (Smart Community Energy Network)



- Led by University of Nottingham with Blueprint housing (part owned by NCC)
- Aim to develop “subsidy free” commercial model for community energy networks
- £11m project on Trent Basin housing development

Battery Storage Projects

- 8kWh battery to complement existing 88.5kWh PV solar canopy
- Below canopy provides electricity into a battery which will power lighting under the car port
- Lifetime of 10,000 recharge cycles



Stationary Fuel Cell

- DEFRA £200k funding awarded
- Due to install in 3-4 Council owned properties
- Will generate a minimum of 20% of the buildings electricity consumption
- 100% reduction in air pollutant emissions from heating systems (based on fuel cell providing 100% heating)
- Due to be installed in October 2017



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