



# NEW APPROACHES TO ENERGY AND HOUSING

TRENT BASIN LOW ENERGY DEVELOPMENT

Nick Ebbs

blueprint



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# blueprint

- A developer that specialises in developing sustainable homes and sustainable workspaces
- Set up by Government in 2005 to tackle the more complex projects in the Midlands
- Managed by igloo Regeneration Ltd who manage several similar ventures
- But different in terms of Ownership, Purpose and Approach



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# blueprint

- A public private partnership between Nottingham City Council and Places for People Capital.
- PPPs confer benefits. Combine skills, expertise and money from the private sector and different skills, powers and assets from the public sector
- Purpose to deliver social and financial returns
- All activity shaped by a CSR Policy called Footprint. Modeled on three themes PEOPLE PLACE and PLANET
- Delivery of PURPOSE and APPROACH requires INNOVATION



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# blueprint

- STRATEGY FOR CARBON REDUCTION and work towards net zero carbon emissions
- PASSIVE URBAN DESIGN and ARCHITECTURE to reduce energy use
- OCCUPIER CONTROL and INFLUENCE to enable occupiers to determine use
- LOW OR ZERO CARBON ENERGY SUPPLY



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# blueprint

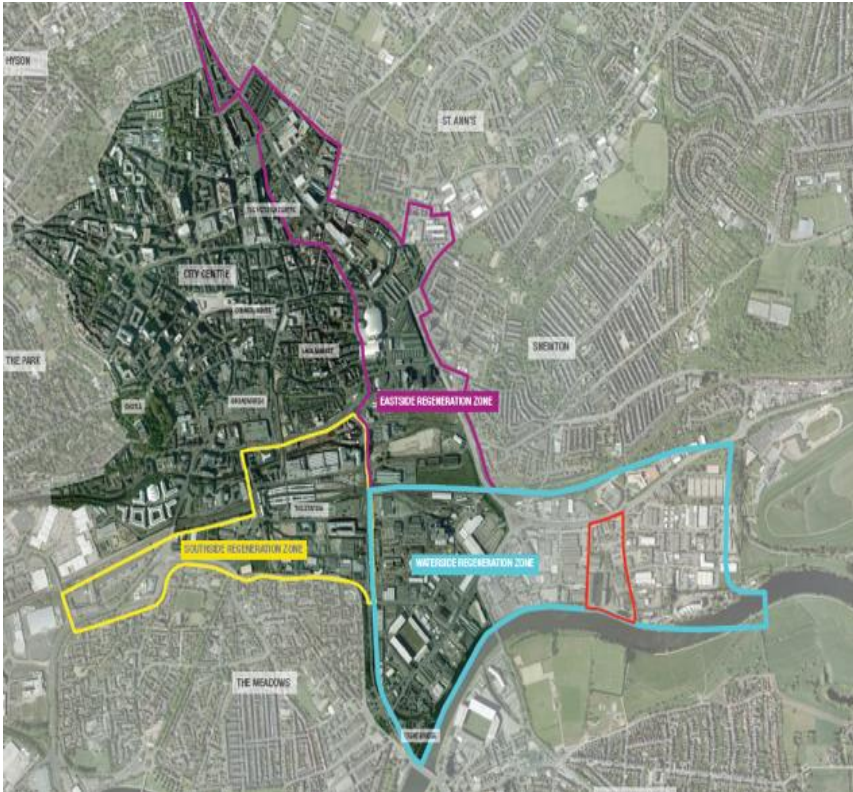


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## TRENT BASIN WITHIN NOTTINGHAM WATERSIDE



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## The Trent Basin Development - Four development phases



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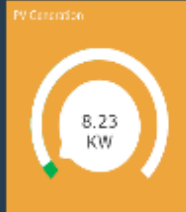
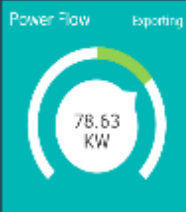
# COMMUNITY ENERGY PROJECT

- Three components being delivered through a Public, Private and Academic Collaboration supported by innovate UK (Project Scene and Energy Research Accelerator). Key Partners include University of Nottm, SmartKlub, Solar Ready, AT Kearney and Nottm City Council.
- ENERGY GENERATION STORAGE supporting circa 250 homes. Includes generation from renewables, battery storage and redistribution either to the grid or homes (in time).
- SMART HOMES – enabling informed choices and more efficient use of energy
- LOW CARBON FORMS OF MOBILITY – electric bikes and vehicles (early days)



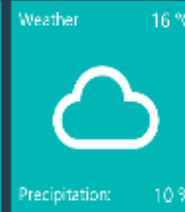
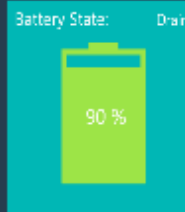
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Total generated to date:  
153391 kWh

Carbon emissions saved:  
53926 kgCO<sub>2</sub>e



15:30:49

16 October 2018

Logged in as:

Overview

Solar

Battery

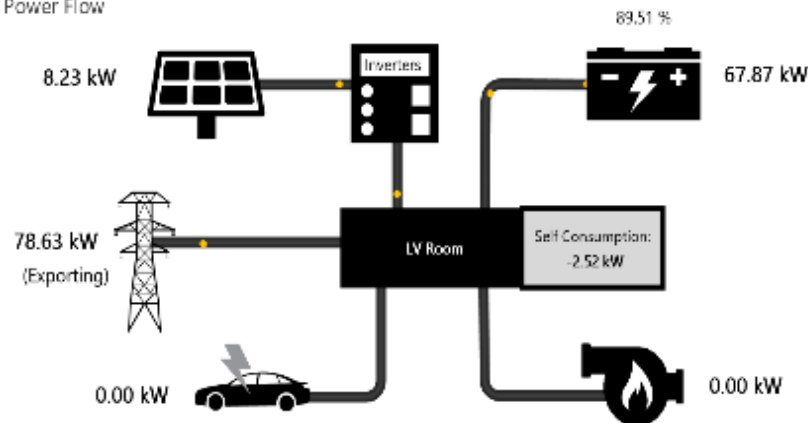
Inverters

ESCO

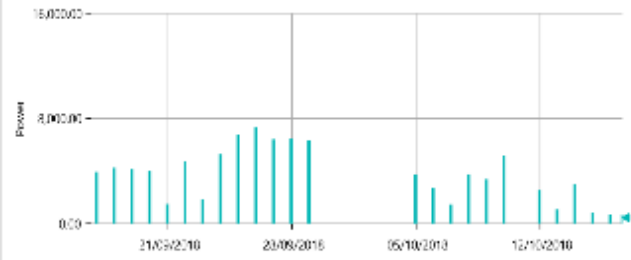
Trends

Alarms

Power Flow



Daily Power Trend

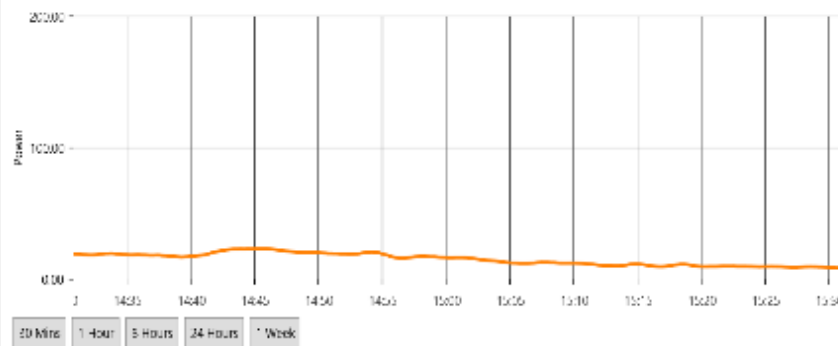


Weather Station

Rain Gauge: 0.00  
 Outdoor Temperature: 15.65 °C  
 Outdoor Humidity: 100.17 %  
 Solar Irradiance: 56.00 Wm<sup>2</sup>



Instantaneous PV Power Generation (kW)



5-day Weather Forecast

	16/10	17/10	18/10	19/10	20/10
Temperature	12 °C	15 °C	12 °C	12 °C	14 °C
Precipitation	10 %	5 %	4 %	5 %	7 %
Humidity	94 %	72 %	66 %	70 %	79 %



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Private wire – generation only



Urban solar farm



Sub station



Energy Centre



2.1 MWh Battery



Battery



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# THE BUSINESS MODEL STORY



## STRUCTURE

- Three levels of shareholding - Funder, Operator and Community
- Income generated from project (renewables/arbitrage with grid/sale of energy to residents) shared with priority returns to Funder and Operator
- Distribution of Surplus determined by Community
- Some regulatory challenges



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Nottingham

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# EV-elocity

Electric Vehicles -- Next Phase of Development



# Trent Basin only just begun

- Business model innovation is hard
- The layered value models of smart energy imposes complexity
- Capital Cost is a challenge
- Vulnerable to Govt rule changes
- The Project is a Work in Progress



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