

Rethinking Parks

Powering Parks

Farming underground heat in Hackney's greenspaces and the wider potential for ground source heat pumps



Rethinking Parks

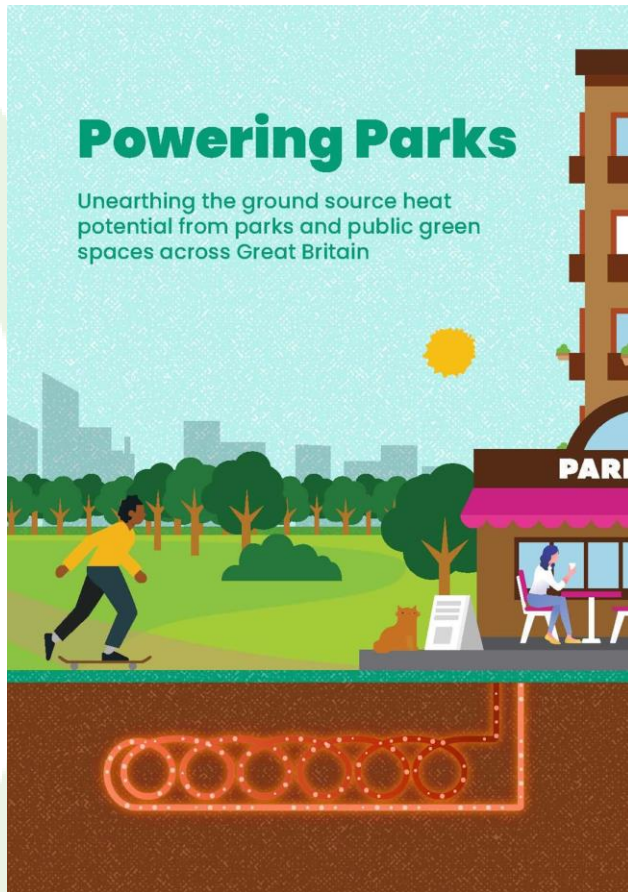


- Summer 2018 successful with NESTA bid
- Partnership between Possible, Scene and Hackney
- Focus of the project to generate income
- Summer 2019 Hackney declared a Climate Emergency

“Committed to doing everything within our power to deliver net zero emissions across Council functions by 2040.”

- *“Softer” benefits rise up the agenda*

Heat from greenspace: potential at a national scale



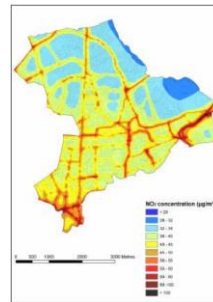
- Data source: Ordnance Survey Greenspace Mastermap layer
- Vertical and horizontal systems account for about 50% each
- Represent a 'reasonable' upper bound potential: widespread deployment but not covering every square metre of the country's parks

Heat from greenspace: large-scale benefits



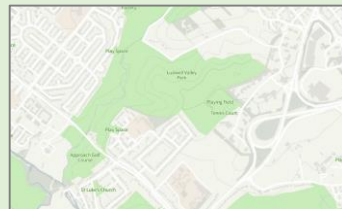
➔ **Contribution to Net Zero:**
moderate slice of an enormous pie!

➔ **Eliminating direct use of fossil fuels**



➔ **Air quality improvements:**
most relevant for cities, where transport emissions are falling such that gas boiler NOx etc. can no longer be ignored
London: 38% of local emissions in 2020

Greenspace-specific benefits



➔ **Protecting greenspace:**
Growing the economic value of greenspace without diminishing its social value

➔ **High quality opportunities to engage the public on climate action**

£ £ ?

And - in many contexts - the **least-cost heating solution** (energy prices, subsidies, taking a long-term view...)?

Potential versus current deployment

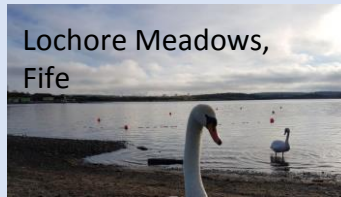
Large potential...
Compelling benefits...



Applicable in many thousands of parks and green spaces

... but only deployed in a handful of greenspace sites so far.

SCOTLAND



plus 2 - 3 others



National Trust

Multiple sites –
England & Wales



Cotswold Water Park



Owen Sq. Park, Bristol

Forthcoming...



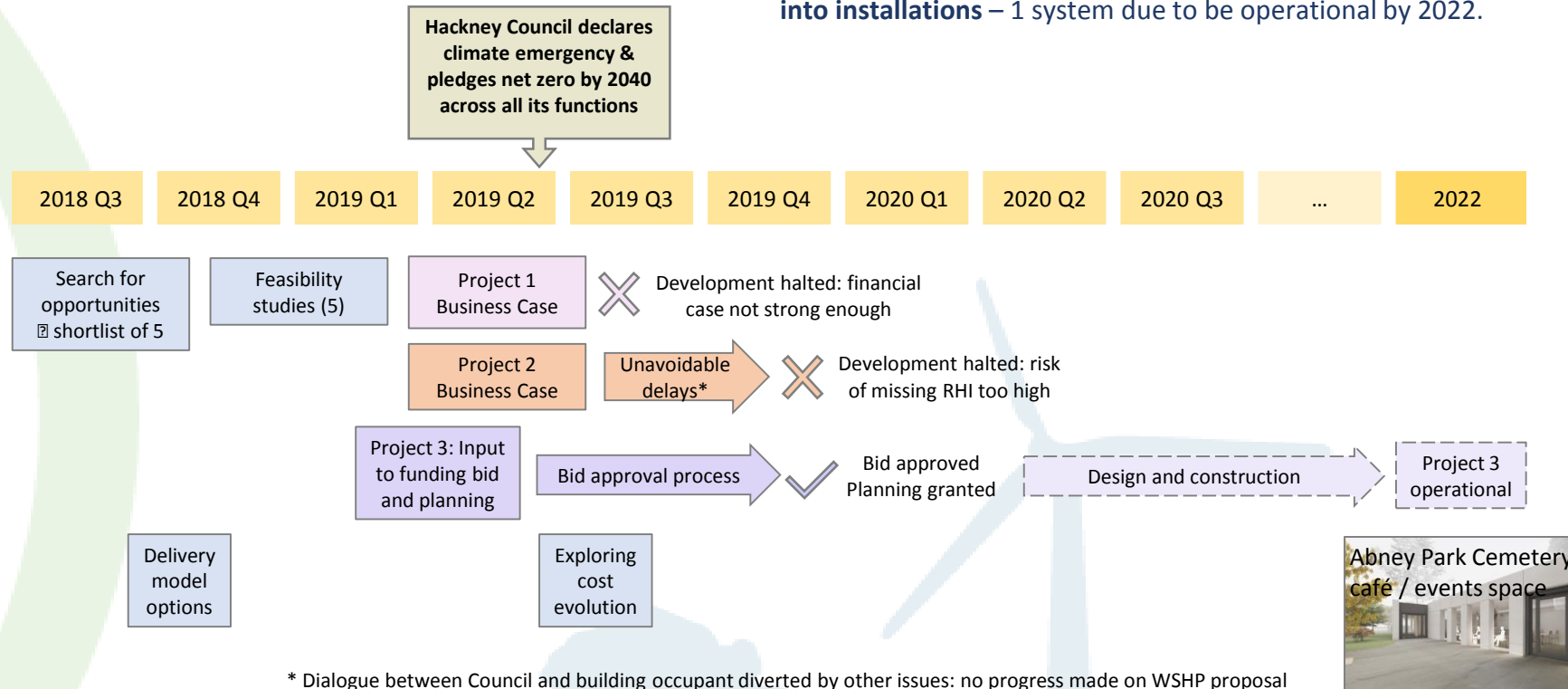
Delamere Forest
visitor centre



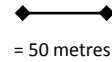
Abney Park Cemetery
café / events space

Hackney project development timeline

Same story in miniature: lots of potential, but not yet translating into installations – 1 system due to be operational by 2022.



Hackney opportunities - 1

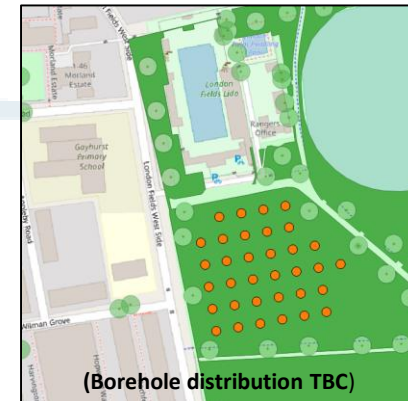


Daubeney Fields – Kingsmead Primary School

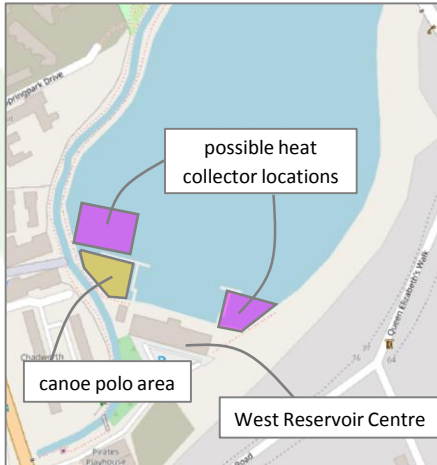
- large open grassy space - “unloved” park where improvements are being considered
- primary school right next to the park
- 115kW heat demand (determined by heat loss survey) – RHI eligible
- choice between boreholes or trenches: boreholes would leave more space for future expansion (residential tower block adjacent to opposite side of park)
- **ultimate outcome:** capital cost unexpectedly high (including for trenched system); relatively small savings due to high electricity price and low gas price. **PARKED**

London Fields Lido

- discounted early on as a pilot: not eligible for RHI due to outdoor nature of pool
- large open grassy space adjacent to the Lido, used for events
- 50-metre lido heated to 25°C 24/7/365. 300kW baseload to be supplied from GSHP during off-peak hours (overnight)
- without subsidy, more expensive than gas during daytime when electricity rates are high – so GSHP would only be used at night
- **ultimate outcome:** despite excellent COP, relatively small savings due to limited running hours and no subsidy. **PARKED**



Hackney opportunities - 2



West Reservoir Centre – Water Source Scheme

- 10 hectare reservoir, up to 8 metres deep. Temperature: 7°C – 23°C
- West Reservoir Centre: converted water tower & filtration works, now a watersports and events venue. Solar PV planned for roof.
- 130kW heat demand, RHI-eligible
- delivery/business model TBC: Council could sell heat to centre operator
- **ultimate outcome:** good financial case if accredited for RHI. However, unrelated issues prevented necessary discussions taking place between Council and centre operator – time window for developing project and getting RHI accreditation was too narrow. **PARKED** (pending details of RHI replacement).

Abney Park Cemetery

- new café and events space to be built as part of Lottery-funded restoration
- most of park is a cemetery but entrance area is free from burials
- ~7 boreholes to supply 53kW space heating + hot water load
- will miss out on RHI – eligibility for future subsidy is uncertain
- **ultimate outcome:** same overall cost of heat as gas, but included in funding bid as “the right thing to do”. **Funding approved December 2019.**



In locations with more favourable energy prices, the same scheme would be delivering savings

Why isn't this happening widely yet?

In 2020, what are the barriers to deployment?

The Economic

- £ High electricity prices, low gas prices
- 🪙 RHI subsidy expiring, no replacement announced yet
- 🏷️ Capital costs exceeding benchmarked expectations

↑
can't influence
(government, markets)

Organisational & Management

- 👥 Disconnect between energy staff and parks/greenspace
- 🤝 Capacity and willingness to play a new role (heat supplier)
- 📍 Waiting for energy masterplans to be 'ready'
- 🏗️ Waiting for opportunities to co-ordinate with other works

↑
can offer general guidance

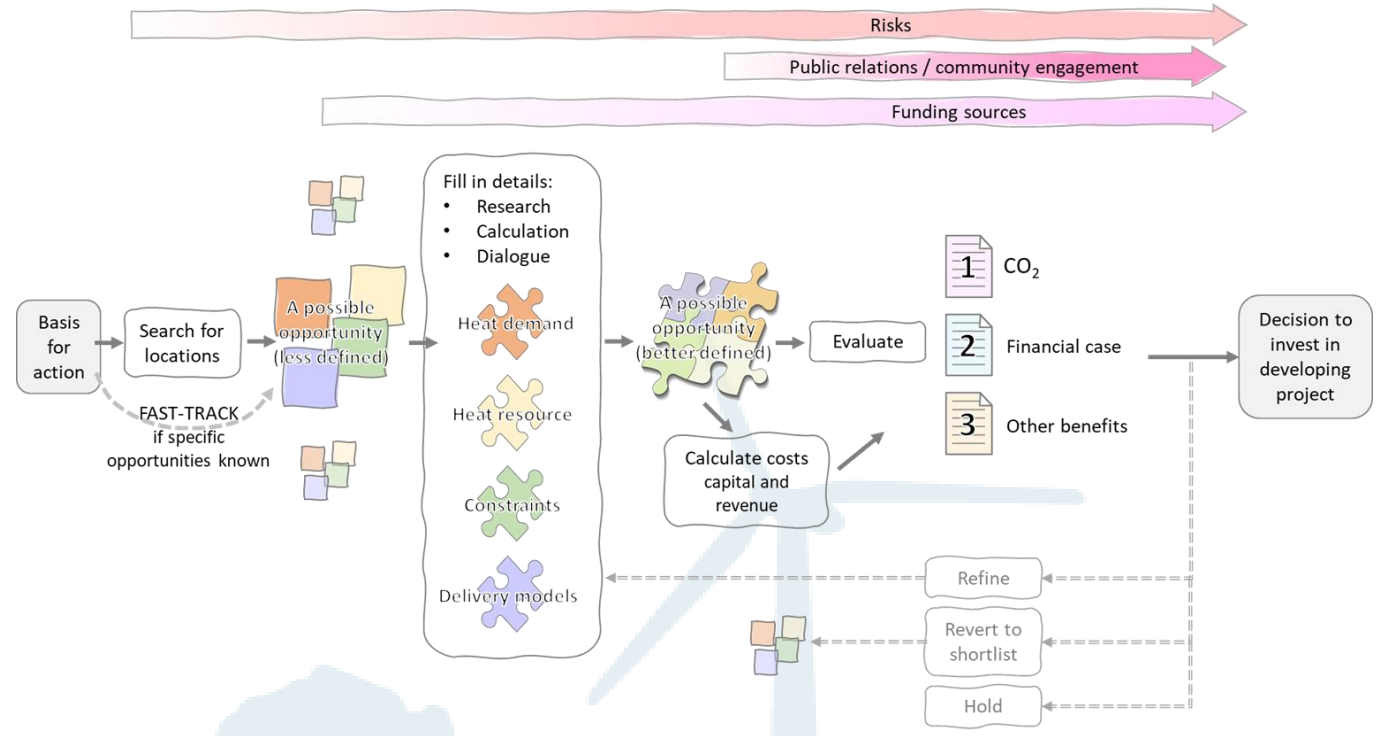
Knowledge Gaps

- 🧠 Knowledge of co-benefits (public engagement, greenspace protection etc.)
- 🔍 How to identify and assess opportunities at a basic level, before calling in the experts
- 📺 Appreciation of the maturity of the technology and widespread adoption in other countries

↑
can provide targeted tools and
knowledge resources

Powering Parks: Replication Toolkit

- Tools
- Step-by-step guides
- Background “Educational” resources
- FAQs



Heat Decarbonisation in London

Greater London Authority (GLA) recognises scale of role that heat pumps must play: prominence in **London Environment Strategy (2018), 1.5C Compatible Zero Carbon plan (Dec 2018)**

Encouraging retrofit installations:

- **Commercial boiler scrappage scheme** ‘Cleaner Heat Cashback’ 2018 – 2020
- 1.5C Compatible Zero Carbon plan (Dec 2018) requires the uptake of :
 - **300,000 heat pumps by 2025** in London of which 80,000 in existing buildings (retrofits)
 - **120,000 heat pump retrofits per year in 2030s** (unless hydrogen route is chosen)
- Procuring research and strategic advice on the **building typologies** suited to installing heat pumps now and the **business models** that will make that economically viable – public report will add to the knowledge base.

Encouraging uptake in new-build:

- From 2019, planners “encouraged” to use more **progressive carbon emissions factors** in assessing applications for new developments – strongly **favours heat pumps over gas CHP**
- **London Plan** (draft available, final version imminent) makes this mandatory – and formalises through heat pumps’ position in the “heating hierarchy”
 - Test case for Scottish/England&Wales regulations moving in same direction?



Engaging with greenspace heat



Powering Parks: Draft toolkit available mid-March

- Some reviewers and road-testers lined up, but we are looking for more
- Potential for closer one-to-one support for implementing part of the toolkit 'user journey':
 - general search for opportunities
 - early-stage assessment of specific opportunities

Full version of the toolkit available from June

Get on our mailing list!

Email neil.jones@wearepossible.org

Or speak to us at lunch