

CITIES, ENERGY AND SUSTAINABLE HEAT

Janette Webb

University of Edinburgh

www.heatandthecity.org.uk

<https://www.gov.uk/government/publications/the-future-of-heating-meeting-the-challenge>

<http://www.eti.co.uk/wp-content/uploads/2014/07/Edinburgh-Report-Version11.pdf>



LOCALISING ENERGY – THE RESEARCH

- Collaborative and multi-disciplinary
- Funding from Research Councils–UK *Energy Programme* & ETI
- 100+ interviews, and attendance at project meetings, with
 - Local Authority Project Teams
 - Law, finance and engineering experts
 - District energy suppliers
 - Central governments and public bodies
- Technical-economic feasibility reports and project documents
- European comparison: Netherlands and Norway
- Time 1/Time 2 Wyndford estate householder survey (200 households/10% sample repeated)
- Database of local engagement in energy, synthesising 37 datasets, covering all 434 UK local authorities
- District Energy Vanguard: Workshops



WHY HEAT AND THE CITY?



The single biggest reason we use energy

Policy focus has been on macro- & micro-levels

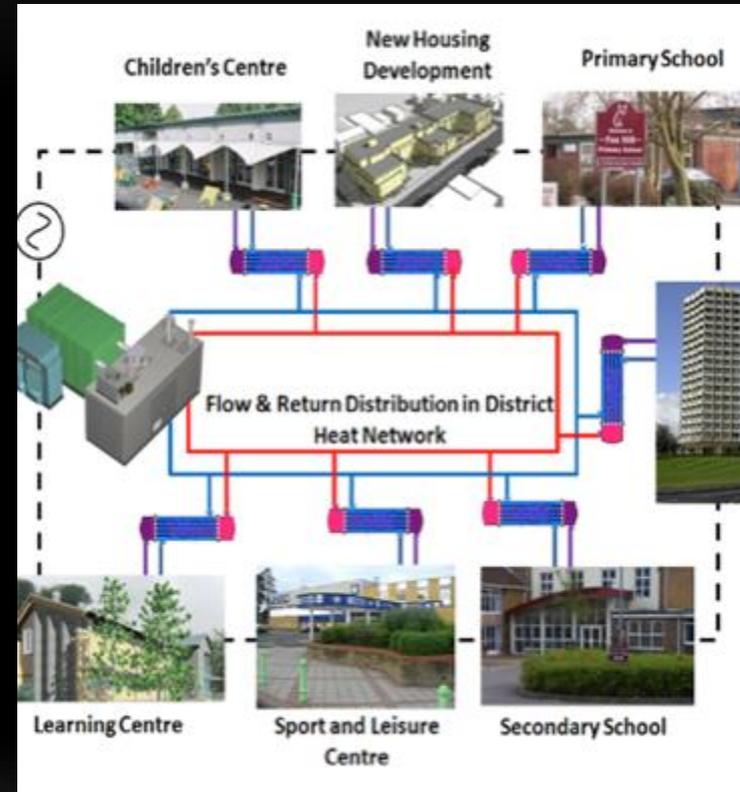
H&C examines the idea that action at urban and regional scale is key to low carbon heat

“there has been a historic failure to get to grips with one enormous part of the energy jigsaw; the supply of low carbon heat”

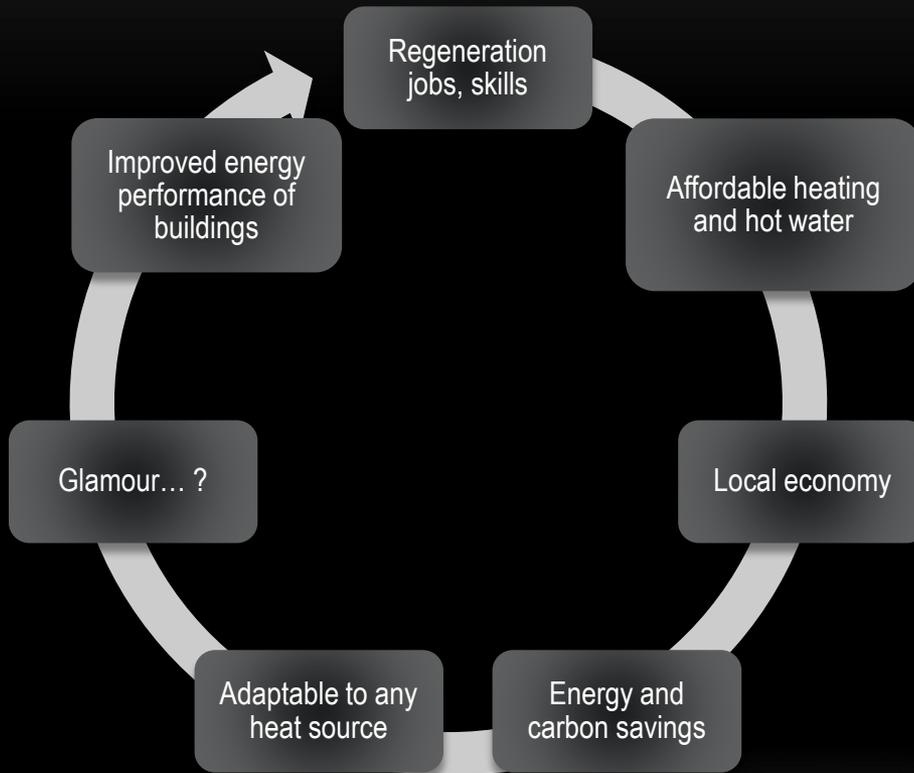
THE VISION - URBAN ENERGY SYSTEMS - RESILIENT, FLEXIBLE & EFFICIENT

- Decarbonisation
- Security
- Reducing cost of plant and network reinforcement
- Reducing electricity demand by generating heat locally
- Demand shifting by thermal store

Source: UK Gov EMR White Paper p.104 and UK DECC 2013

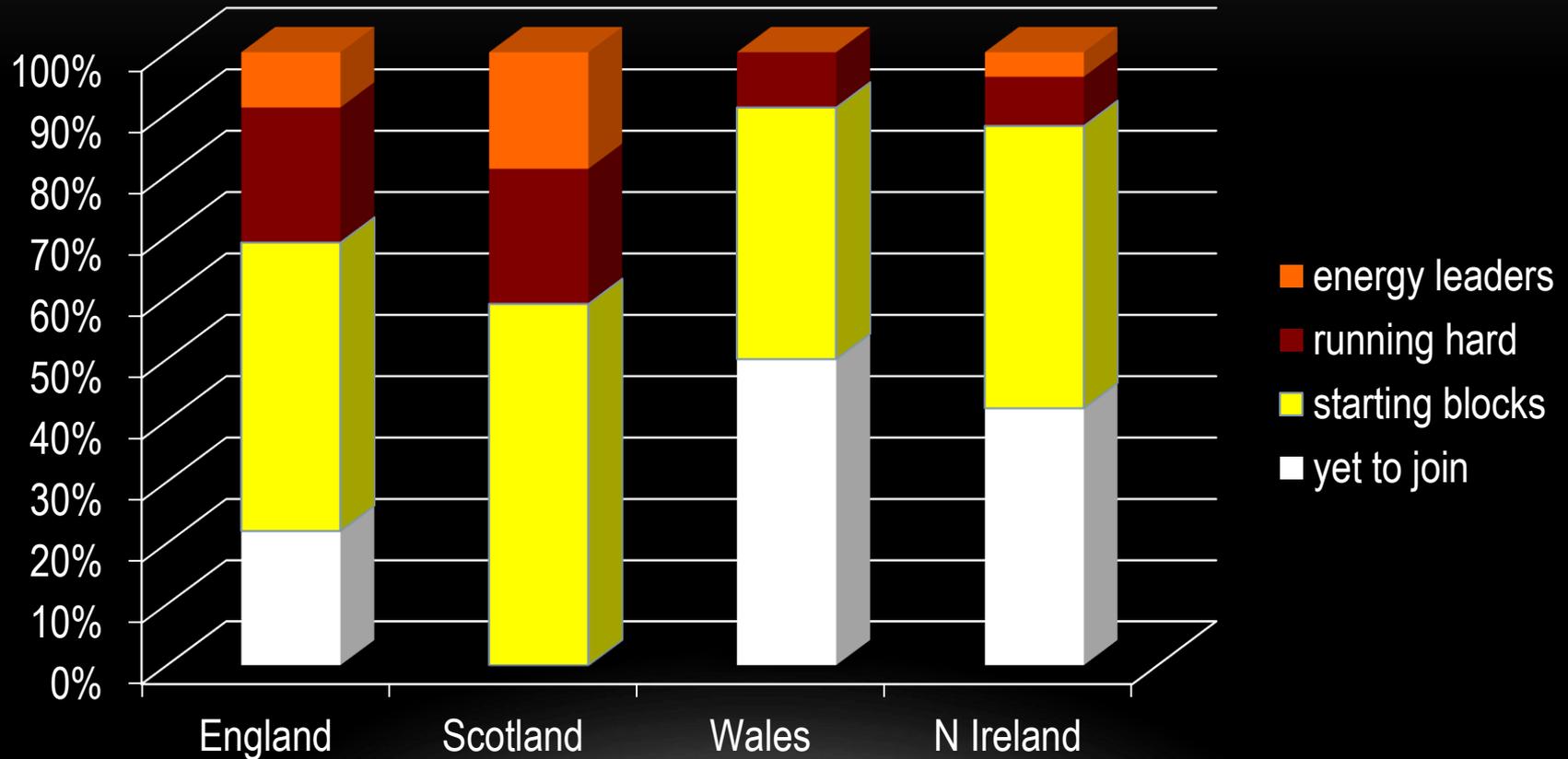


LOCAL BENEFITS?



Local Authorities: Long-term committed actors

LOCAL AUTHORITY ENGAGEMENT IN ENERGY BY UK COUNTRIES



WHY IS IT DIFFICULT?

- Scale and complexity of centralised energy
- Lack of capacity and resources
- Coordination at local scale
- No regulatory framework for heat
- Uncertain policy landscape
- Different objectives of municipal and corporate actors

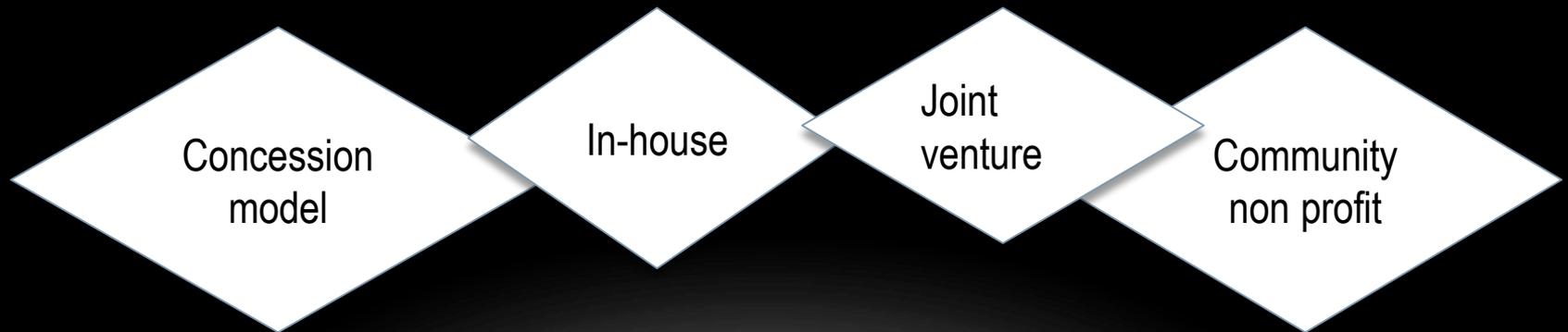
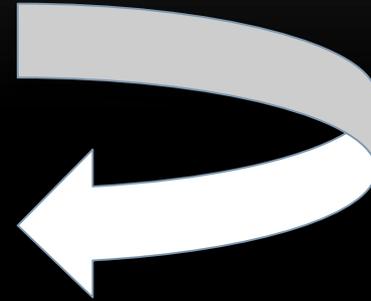
The concept of a city being an energy manager, setting up an ESCo, was ... remote from both senior director and political party interests

The quest for recovery does not welcome policies and projects which might be seen as adding undue complexities to short term economic growth

BUSINESS STRUCTURES IN USE DEPEND ON

Priorities & finances

Social, economic, environmental
Appetite for risk and control



CITY A - CHP/DH CONCESSION MODEL

Regeneration & political conservatism

Someone takes the commercial risk, makes the investment, gets their money back, so the concession lasts a long time. Once that's done, you now have a set of assets which you can do something with

Finance Director,
Consulting Engineer



CONCESSION MODEL TRANSACTION COSTS?

Effectively the public sector needs to package something up, hand it over and keep their fingers crossed that they will be able to somehow influence the private sector going forward (Director, Finance Corporation)

What the council wanted to do was say “yes, we’ve solved the city wide heat problem...at the same time as spending no money”, an irresistible combination. But of course they haven’t solved the city wide heat problem, because X has made no commitment, other than to come to A and make some money (Finance Director, Consulting Engineer)

CITY B - LOCAL AUTHORITY LED: UNCERTAINTY

- Regeneration, social and environmental goals
- Original concession contract
- Steep learning curve
- Council decision to separate design & build from operation



CITY C - NON-PROFIT COMMUNITY BUSINESS

- Social goals, regeneration and carbon saving
- Political leadership
- Expertise to develop, govern and operate
- Expansion to commercial sectors?



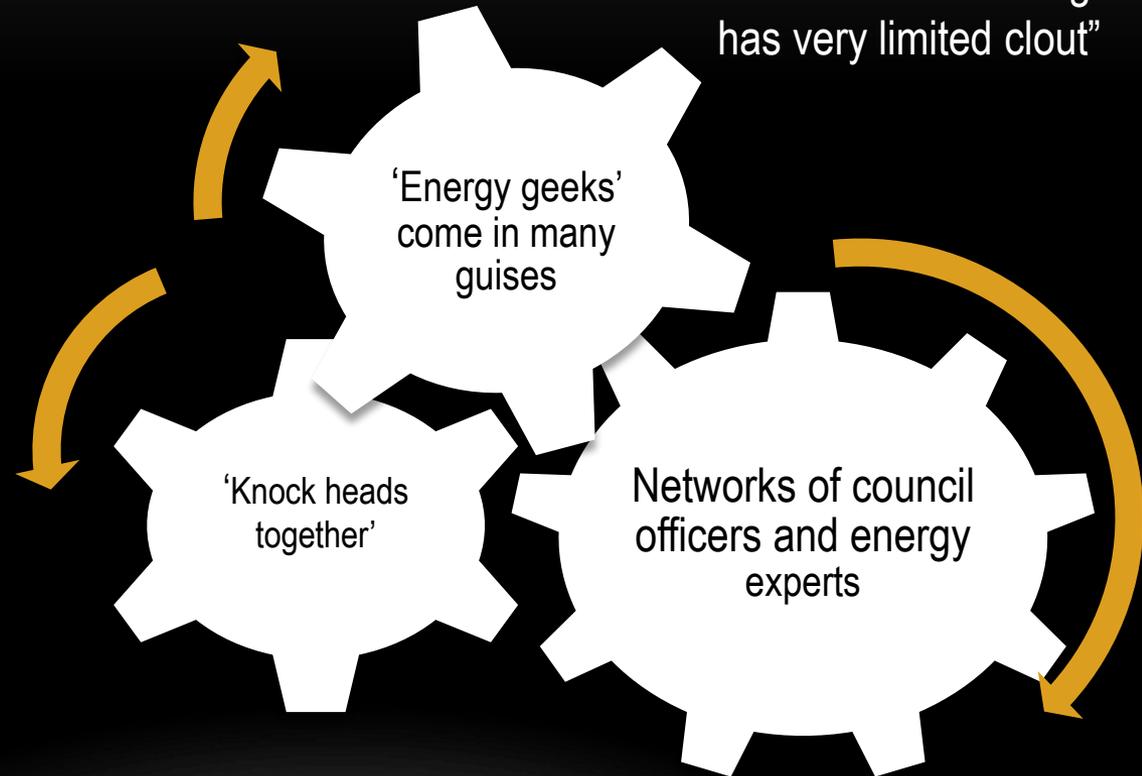
WHAT WORKS? LOCAL LEADERSHIP FIT FOR CIRCUMSTANCES

“Full and frank discussions”

“He sees the opportunity, but he’s a middle ranking officer who has very limited clout”

Valuing local assets:
“a high stakes poker game”

Resourcefulness



PROSPECTS

- Derive from energy efficiency benefits and carbon targets plus energy poverty & urban regeneration goals
- Majority of cities demonstrate ambition
- If all authorities were as active as current leading edge in non-industrial CHP and DH, our pilot modelling indicates contribution of approx 10% of UK energy
- UK Government DECC 2013 estimates 14% to 43% heat demand met economically via urban heat networks

Government can accept risks that nobody else can accept