



Leeds Solar PV Scheme 2015

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Scope of the Project

- The key aspects of the project I will be speaking about today:
 - Why we decided to invest in a Solar PV
 - History of Solar PV in Leeds
 - How the project was funded and costs
 - What the project involved in order to achieve its goals
 - What benefits have been achieved
 - The key challenges
 - What lessons have been learned to use for future projects

Why do it?

We have a Vision for Leeds

- The Vision for Leeds 2011 to 2030 acknowledges that **climate change is one of the three major challenges** that have emerged since the last Vision was published in 2004 and has a specific aim to ensure that **'all homes are of a decent standard and everyone can afford to stay warm'**.
- The Vision is supported by the City Priority Plan 2011 to 2015, which brings together a number of key four-year priorities that will help us deliver the **2030 Vision**. It is supported by five separate action plans that address the **five key themes**. Of these, two contain priorities which are directly relevant to this project:
 - Best City....for business:
 - **Improve the environment through reduced carbon emissions**
 - Best City... to live:
 - Maximise regeneration investment to increase housing choice and affordability within sustainable neighbourhoods.
 - Enable growth of the City whilst protecting the distinctive green character of the city
 - **Improve housing conditions and energy efficiency**

What did the Project need to achieve?

- Leeds City Council has 7 **breakthrough projects**, one of which is “Cutting Carbon in Leeds”, with each containing 7 aims, labelled “7 on the seven”. These are the 7 aims from “Cutting Carbon in Leeds” of which this project works directly towards 3:
 - **Reduce fuel bills** for all residents by promoting energy efficiency and encouraging households to switch suppliers
 - **Make low carbon Leeds a reality** by planning for a more sustainable future and setting a revised and improved carbon target for 2050
 - Deliver air quality improvements by transforming the Council’s fleet of vehicles and establishing a green transport infrastructure
 - **Support economic development and create jobs in Leeds through investment in low carbon technologies and industries**
 - **Tackle fuel poverty.** Delivering 4,000 home energy efficiency improvements for our most vulnerable people will improve health and save money
 - **Increase energy security and deliver savings to residents** and businesses by creating Leeds’ first district heating scheme by 2017. This could provide lower cost heating to over 2,000 households by 2020
 - **Install solar panels on 1,000 council houses by the end of 2015 to generate free electricity for tenants**

How do words turn into reality???

Capital Investment for low carbon technology can fly, but critically they must link to 3 key policy markers.

- **Contributes to the saving of carbon emissions**
- **Helps reduces fuel poverty**

Has a sound business case!



What the numbers told us

- Circa 11.6% (38,000) of Leeds households were estimated to be in fuel poverty
- The cost of Solar PV technology had reduced by 60%
- A £3.8m investment would install circa 1000 systems
- A £3.8m investment would generate £6.4m revenue income over 20 years
- We could go it alone and fund through the HRA
- Tenants would save >£4.4m in electricity costs over 20 years
- Tenants would on average be £136 per year better off
- Carbon savings would reduce by c862 tonnes per annum
- Equivalent to taking 452 cars off the road

What we learnt from history

We tried hard in 2011 to get a scheme off the ground but the slash in FIT rates rendered this unaffordable.

Key lessons learnt – Phase1

- The Government can and do change the FIT rates - sometimes at the risk of projects!!!
- We had already mapped the city for the best performing housing stock
- We knew where we couldn't install solar PV
- We had a good relationship with the Distribution Network Operator (DNO)
- We had a robust specification
- We identified the key risks
- We understood the tenants opinion
- We understood the financial mechanics
- We had a call off contract in place and ready to go
- **To watch the market closely and act quickly**



What was different from Phase I

- More strategic selection of housing
- Income not shared (self funded)
- Performance criteria and penalties
- No tenancy variations required
- LCC controlled software platform



How did we cherry pick?

- The size, pitch and orientation of the roof.
A large roof with a pitch of 35° and facing due south is ideal
- The roof being in good repair, with a life of at least 5 years
- Absence of shading from trees, lamp posts, other buildings, or roof-mounted obstructions (e.g. dormer windows, chimneys etc)
- Minimal asbestos or structural issues
- Modern internal wiring, fuse boards and electricity meters.

What were the risks?

- Reduction in income (time)
- Tenant take up and access
- Tenant awareness and system use
- Right to buy



What did we achieve?

Installation of 1003 properties in 15 week period.



- 66 properties a week
- Project completed on time, in full and on budget

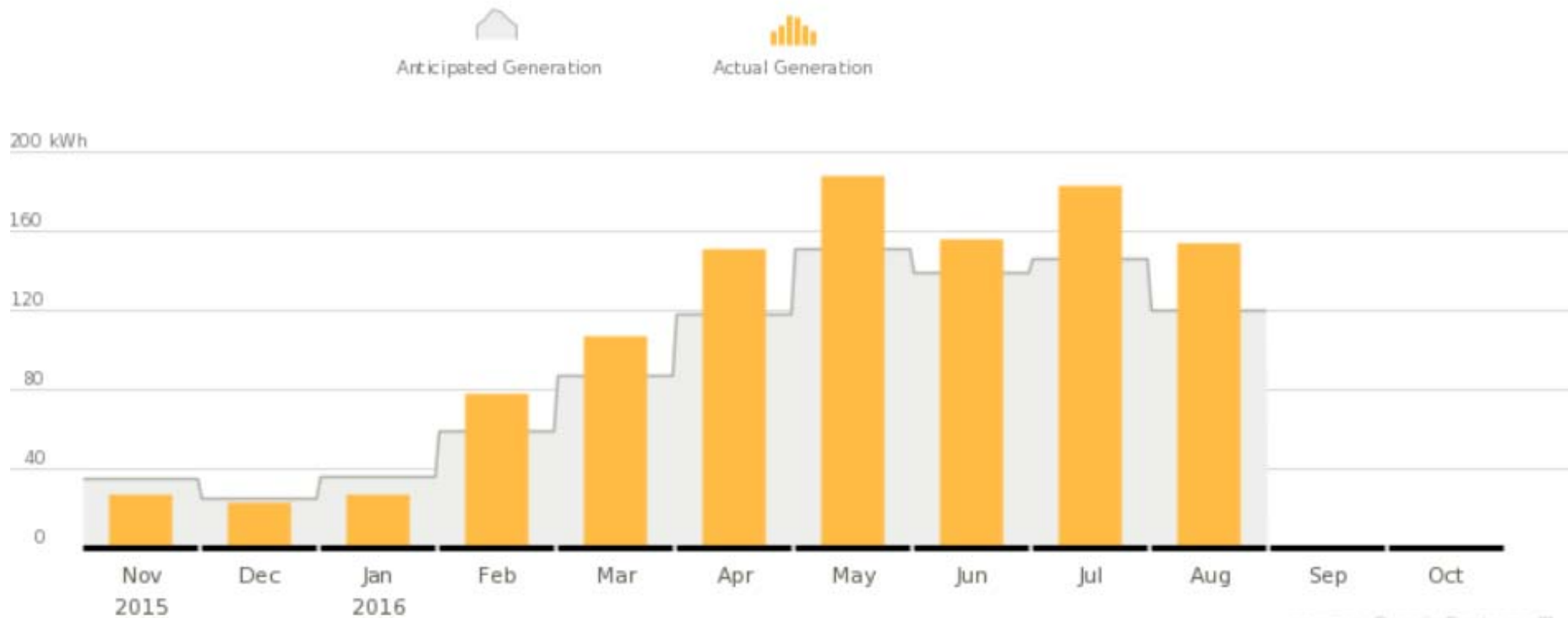
So who gets what?

- Tenants get free electricity
- LCC get ongoing income
- The city gets ongoing reductions in carbon
- Contractors & manufacturers get paid
- LCC increase its mixed economy of energy solutions
- We should all get a warm feeling of doing something GOOD



Actual benefits realised

Solar PV Generation



Guiseley property over performing!

Lifetime Solar PV Monitor Graph Data

Home:

Period:

Date	Actual (kWh)	Anticipated (kWh)
2015/11	27.83	35.04
2015/12	23.21	25.16
2016/01	27.76	36.31
2016/02	78.14	59.1
2016/03	107.07	87.96
2016/04	151.84	118.17
2016/05	188.32	151.52
2016/06	156	139.13
2016/07	183.01	146.76
2016/08	154.49	120.08
Total Generated:	1097.67	

Supplier*	Tariff	Avg. kWh unit price (ex VAT)	Annual Standing Charge (ex VAT)	Savings
isupplyenergy	iFix 201703 v3	9.958 pence	£70.18	£109.31
Scottish Power	Help Beat Cance	10.716 pence	£71.43	£117.63
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SSE	SSE 1 Year Fixed	10.804 pence	£80.01	£118.59
Scottish Power	Online Fixed Pri	10.939 pence	£71.43	£120.07
first:utility	First Fixed April	10.972 pence	£57.71	£120.44
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What were the challenges?



- Making sure Sky connections were not lost
- Timescales and pace of project
- Managing roof replacement programme
- Successful communications
- Coordinating the various surveys required
- Tenancy Variations
- Juggling Right to Buy issues
- Managing 2 contractors on the same contract
- Weather

Lessons Learned

- Tenant liaison is key
- Access is always an issue – think about your policies
- Set performance criteria to ensure you get the right outcome
- Desk top studies don't give the full picture
- Planning is critical – asbestos, roofing, wiring
- Think about the weak elements of systems and put mitigation in place

Things we would do differently

- Consider sheltered housing blocks
- Allow more time if possible
- LED light somewhere obvious so people know system is working
- Consider electrical issues within void properties
- Update Tenancy Agreement to consider new technologies
- Understand signal strengths of local masts
- Provide long term support to tenants

Benefits of the Project

- Fuel poverty
- Lowering the cost of electricity on average by £136 per annum for residents, addressing fuel poverty in the area.
- Introducing renewable energy solutions across the city that are **highly visible** making Leeds a more sustainable city.



Thank you for Listening

- Any Questions?