British Solar Renewables

APSE Energy Forum 26/27th Feb 2015
Opening Presentation

Leeds

Steve Edwards

Agenda

- The landscape in Energy supply is changing
- CCs and LAs have a natural role and real opportunities to take part and to benefit
- There is a logical approach to maximising value

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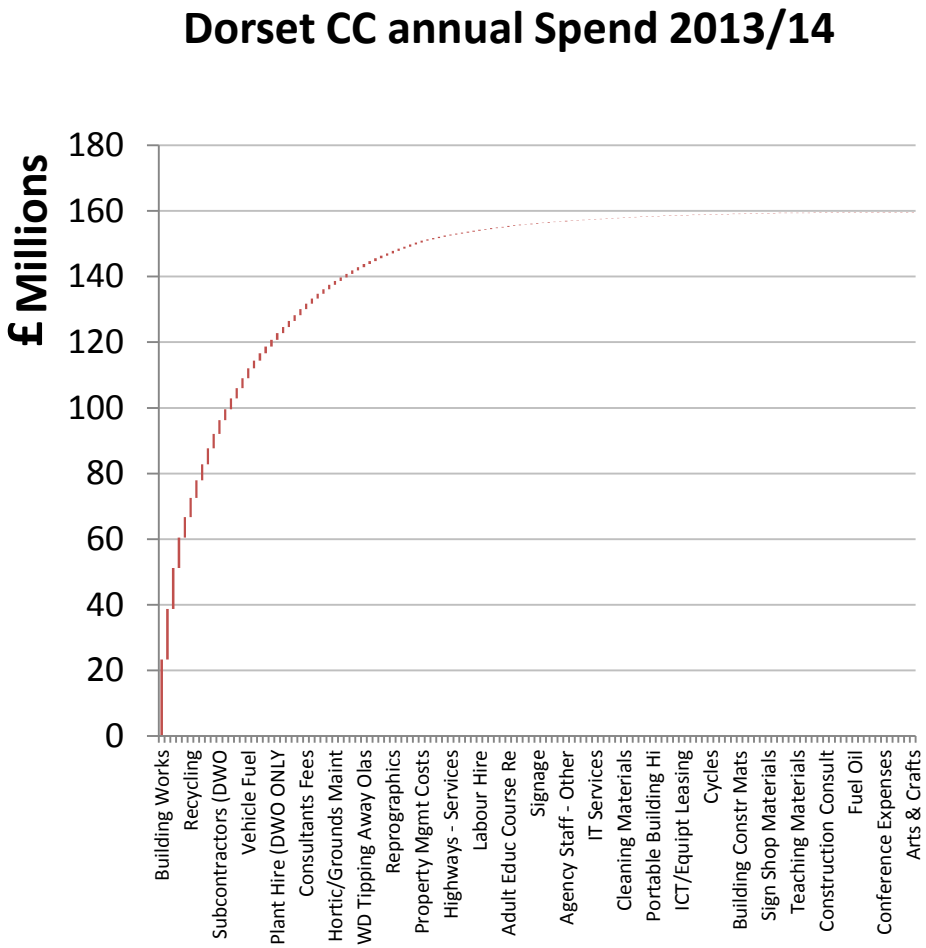
Energy is a significant but often hidden proportion of councils' annual costs

- 4% (£6m) of Dorset CC annual spend is identified as energy, largely street lighting
- However DCC also owns or controls:
  - 240 buildings
  - 50 farms
  - 30 plots of land
  - 5 leased sites
- Individual energy costs may be part of other budgets or paid by tenants – a further ~£2m of spend



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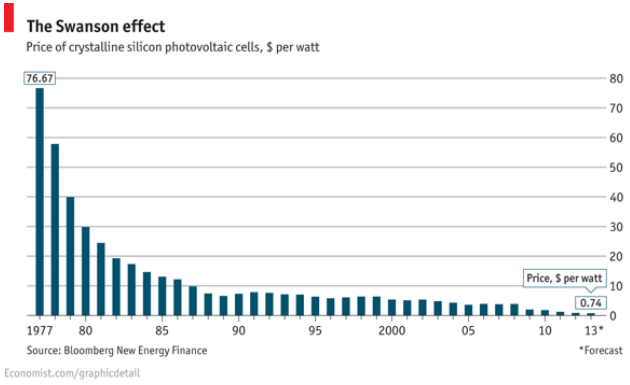
The economics of energy are changing – DG has become increasingly competitive

The cost of renewable generation is falling

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Could solar be the cheapest power source for the UK within a decade?

As leading solar firm reveals UK expansion plans, a major new report from German think tank predicts recent reductions in solar power costs will only continue

By James Murray | 24 Feb 2015 | 2 Comments

There is no end in sight to recent reductions in the cost of solar power, which have already taken the technology to a position where it can undercut fossil fuels in many parts of the world.

That is the conclusion of a major new report from the Fraunhofer Institute commissioned by Agora Energiewende, a German think tank that specialises in researching the country's high profile transition towards low carbon energy sources.

The report details how "solar photovoltaics is already today a low-cost renewable energy technology" and predicts solar power will "soon be the cheapest form of electricity in many regions of the world".

"Cost of power from large scale photovoltaic installations in Germany fell from over 40ct/kWh in 2005 to 9ct/kWh in 2014," the report states, adding that "even in conservative scenarios and assuming no major technological breakthroughs, an end to cost reduction is ...it in sight".


IEA: Solar costs heading to 4c/kWh, rooftop solar "unbeatable"

October 1, 2014 by Giles Parkinson — 9 Comments

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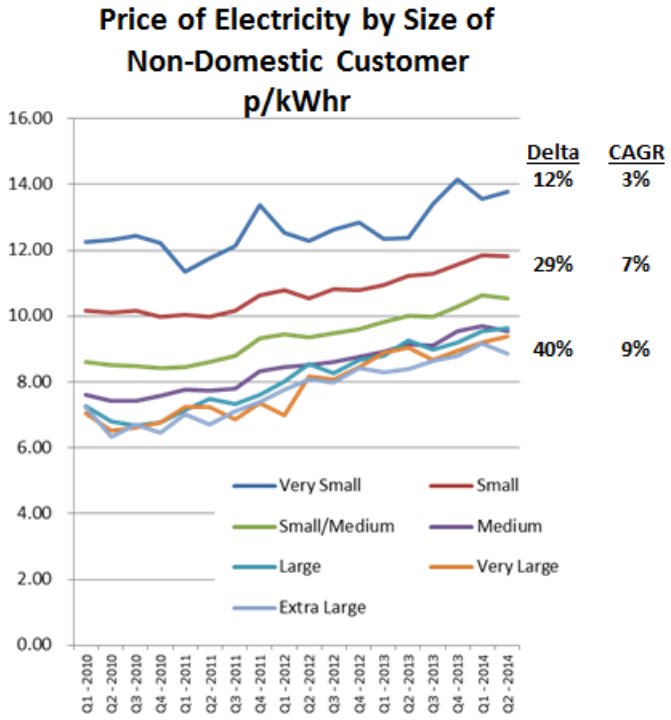
photo Kevin Dooley

Print

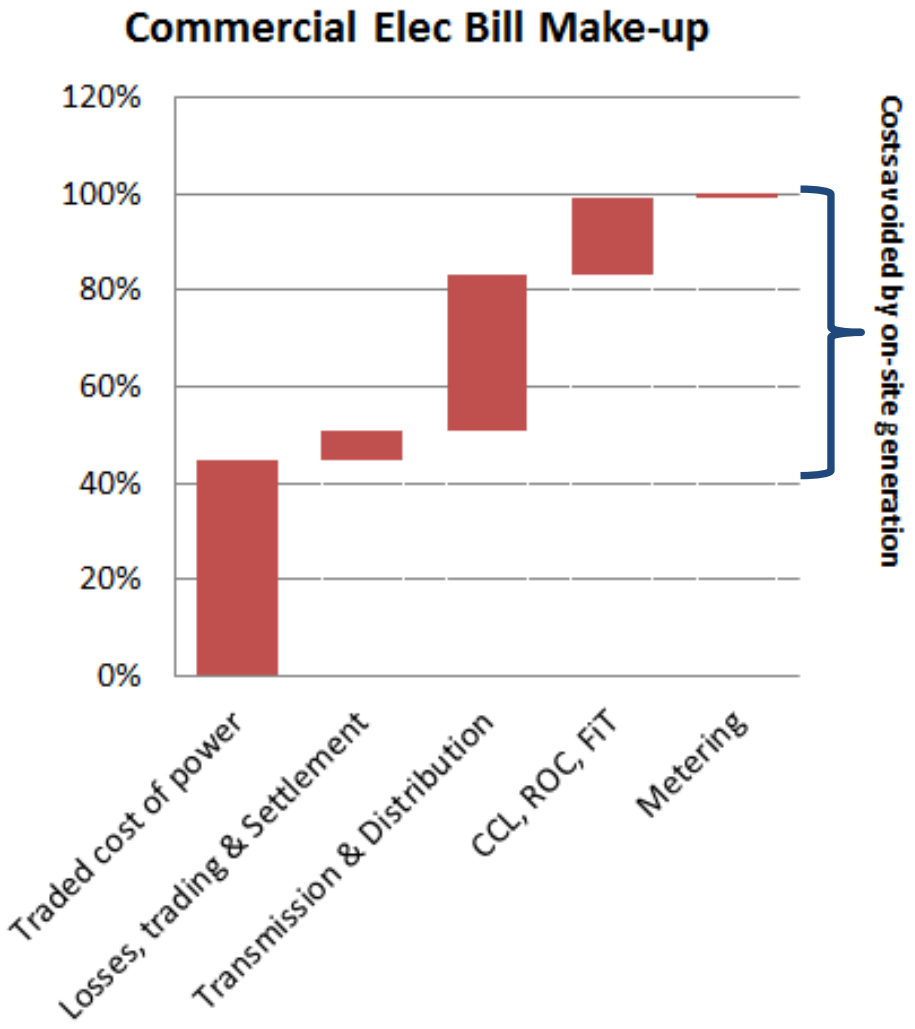
The traditionally conservative International Energy Agency (IEA) predicts the cost of solar energy will fall to around 4c/kWh in coming decades as the sun becomes the largest source of power generation across the world. The latest "Solar Roadmap" published by the IEA on Monday shows that the speed with which solar is reaching "socket parity" has taken the world by surprise, writes Giles Parkinson of Reneweconomy.com.au.

Grid power will become more expensive, especially for commercial customers



Distributed generation avoids the rising cost of grid transmission

- Half of the cost of grid energy is made up of:
  - Transmission
  - Distribution
  - Tax
- On-site generation avoids all regulated energy system costs
- The right mix will depend on site use, location, characteristics
  - PV
  - CHP
  - Battery Storage
  - Biomass



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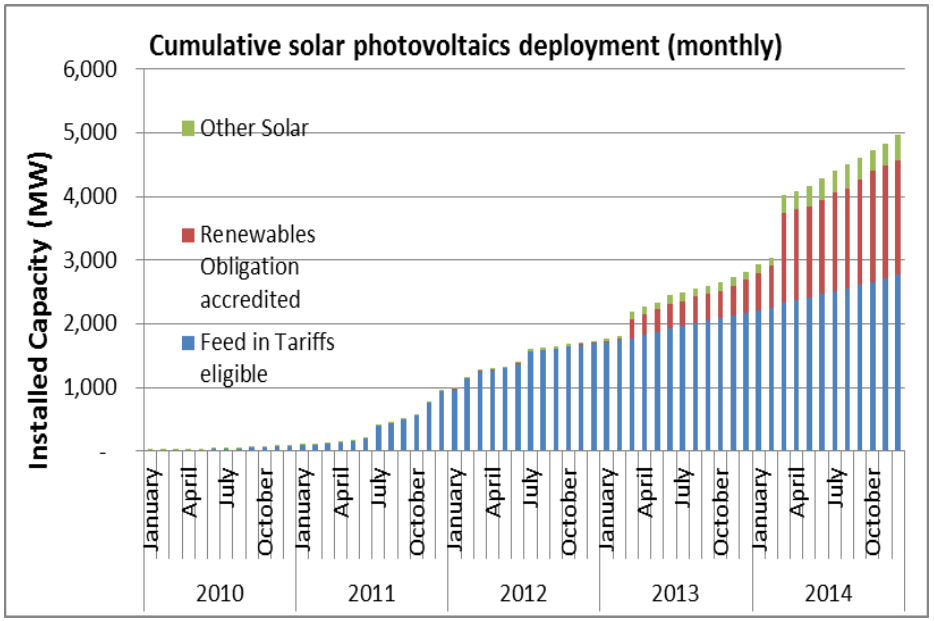
The UK has established a strong base of renewable deployment

- Rate of deployment has build steadily (vs Press impression of boom:bust)
- 0.5GW rooftop, 1.5GW ground in 2014
- UK now has an established marketplace providing:
  - Site development
  - Engineering
  - Funding
  - Operation
- One of BSR's strengths is that we do all of the above



Source: DECC – RO figures under-stated

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Councils were part of building today's Electricity Infrastructure

- Rolling out the UK's first electricity networks required:
  - local authorities' access to infrastructure
  - private companies' expertise and capital
- The Central Electricity Board was formed in 1925
- 600 local authority and private generation companies were nationalised in 1949

List of Companies Nationalised to form North Eastern Electricity Board in 1949

Companies merged into North Eastern Electricity Board (NEEB)

The Board's area was defined as: Durham, Northumberland, the North Riding of Yorkshire and parts of the East and West Ridings of Yorkshire (including York).

Local authority undertakings

- Amble Urban District Council
- Crook and Willington Urban District Council
- Darlington County Borough Corporation
- Eston Urban District Council
- Guisborough Urban District Council
- Harrogate Borough Corporation
- Middlesbrough County Borough Corporation
- Newcastle-upon-Tyne County Borough Corporation
- Redcar Borough Corporation
- Richmond (Yorks) Borough Corporation
- Scarborough Borough Corporation
- Seaham Urban District Council
- Skelton and Brotton Urban District Council
- South Shields County Borough Corporation
- Stanley Urban District Council
- Stockton-on-Tees Borough Corporation
- Sunderland County Borough Corporation
- Tynemouth County Borough Corporation
- West Hartlepool Borough Corporation
- Whitby Urban District Council
- York County Borough Corporation

Private companies

- Carliol House, former headquarters of the Newcastle-upon-Tyne Electric Supply Company
- Askrigg and Reeth Electric Supply Company
- Cleveland and Durham Electric Power Company
- County of Durham Electrical Power Distribution Company
- County of Durham Power Supply Company
- Durham Collieries Electric Power Company
- Durham County Electric Power Company
- Hawes Electric Lighting Company
- Hexham and District Supply Company
- Houghton le Spring and District Electric Lighting Company
- Northern Counties Electricity Supply Company
- Tees Power Station Company
- Newcastle and District Electric Lighting Company
- North Eastern Electric Supply Company Limited (NESCo; formed in 1889 as Newcastle-upon-Tyne Electric Supply Company Ltd.) - built a large AC network pioneered by engineer Charles Merz

Carliol House, former headquarters of the Newcastle-upon-Tyne Electric Supply Company

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There is a logical priority to energy opportunities

1. Consider (and develop) community funding proposal

2. Utilise brownfield assets
   - Quick to implement as planning risk low
   - Does not require investment

3. Self-supply from council sites

4. Supply to own commercial and industrial tenants

5. Supply to local area customers

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Community funding of renewables is a growing trend, and a natural service for councils

- Renewable projects tend to be characterised by high value, low risk, stable income
- As well as pension funds, both councils and their constituents value opportunities to invest in such assets
- Cornwall CC and others have led the way in investing in renewable assets
- **BUT**: The universal experience of community led investment in projects has been of high effort relative to long-term return
- CH&P's model recognises the difficulty of introducing community funding, and proposes a route supported by LA/CCs

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Renewable projects can transform seemingly derelict assets …

- Ex landfill brownfield
- Midlands location, low wind, low light levels
- Weak local capacity or long connection route to grid

Case Study – ex Landfill with nearby large commercial load

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… IF they have the right characteristics

- National distribution centre
- Food processing plant
- On-site consumption
- Further planned commercial expansion

Case Study – ex Landfill with nearby large commercial load

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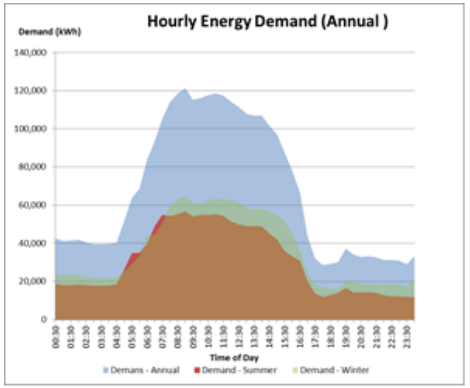
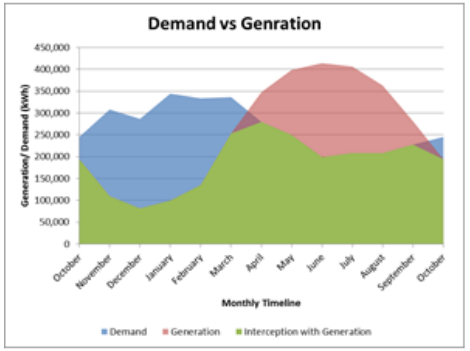
The right solution depends on the site – Example 1

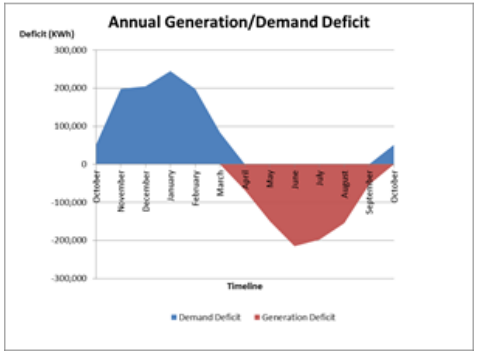
Customer example 1

- Daytime processing site
- Redundant land
- Need for community engagement

Answer: 4.5MW PV installation with option for community involvement







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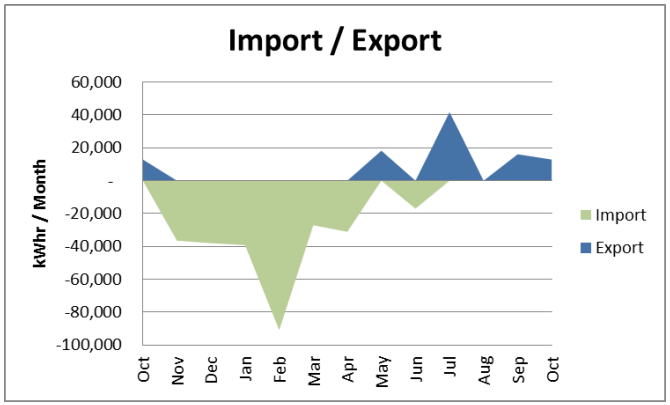
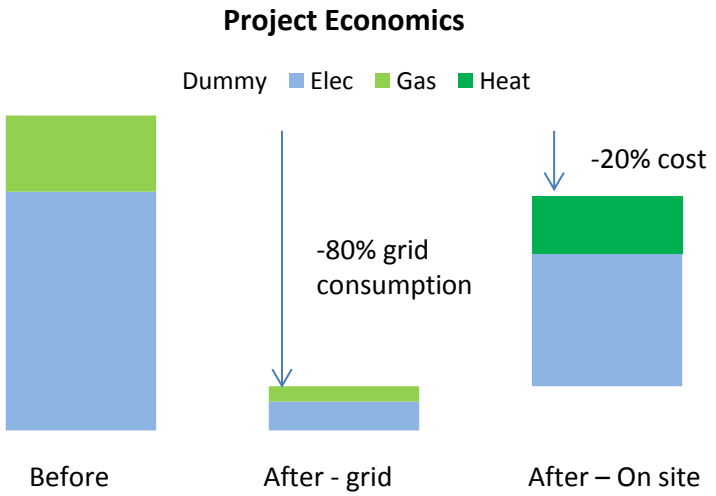
The right solution depends on the site – Example 2

Customer example 2

- 24/7 processing site
- Heat and Power loads
- Option for site expansion



Answer: 0.5MW CHP plant plus 0.3MW PV installation



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In conclusion

- The landscape in Energy supply is changing
- CCs and LAs have a natural role and real opportunities to take part and to benefit
- There is a logical approach to maximising value

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