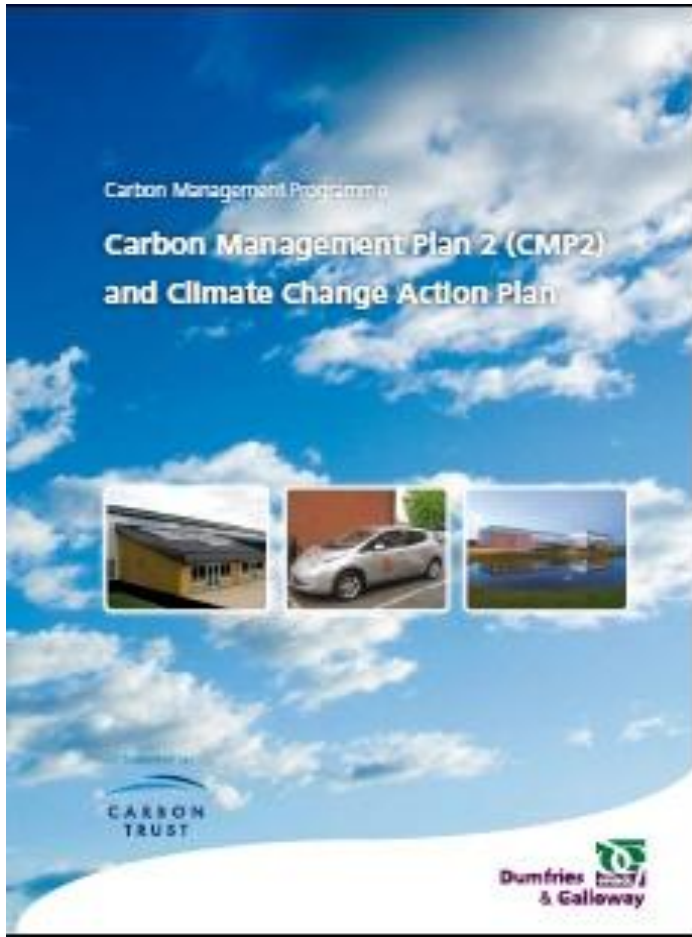


Dumfries and Galloway Council Renewable Energy Installations and Prudential Borrowing

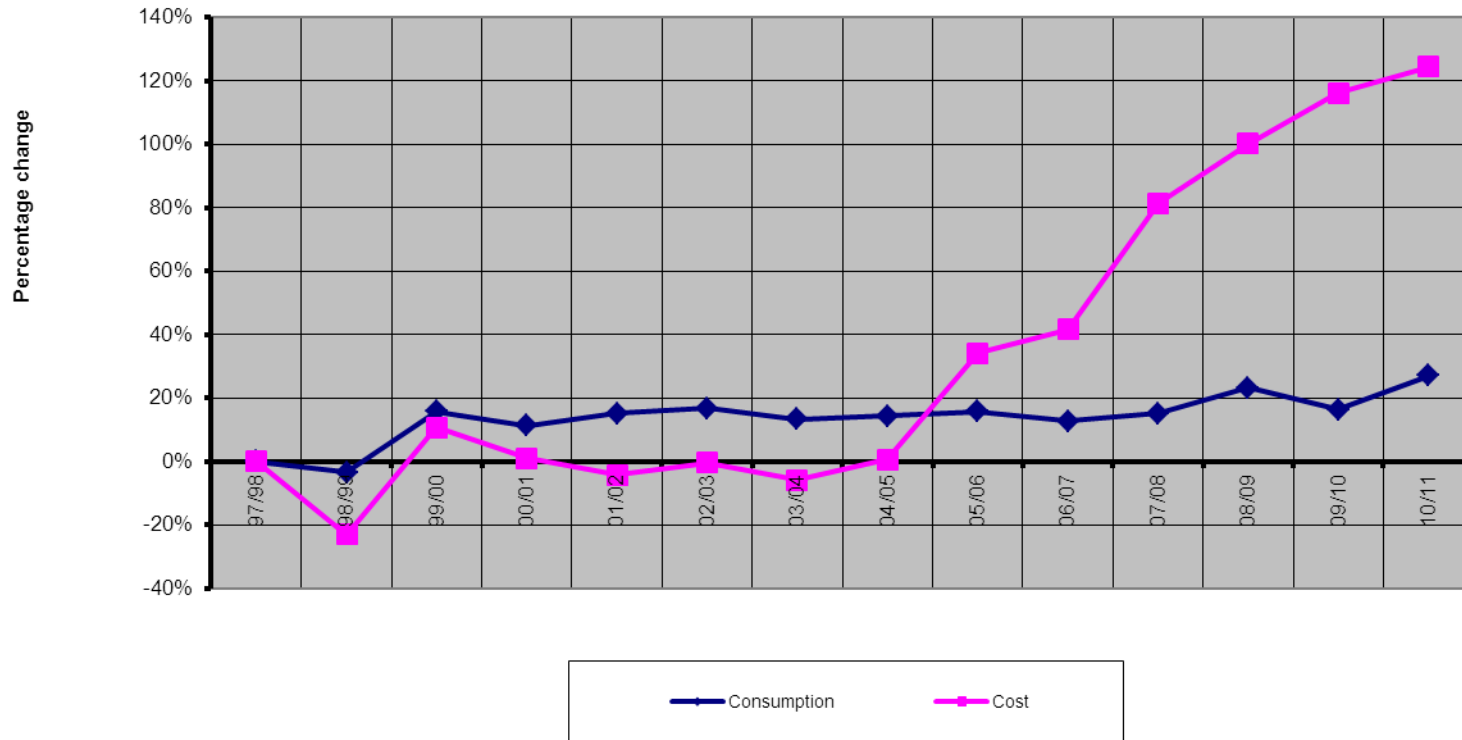
Chris Wood-Gee
Team Leader Sustainable Development

D&G Council's Carbon Management Plan



- Our first step to developing a strategic process to tackle carbon emissions and develop renewable investment has been the Carbon Management Plan which provides a context for Council activities

Energy Cost/Consumption Trends



Solar PV – part of the energy reduction solution



Technical advice

- **APSE guidance on solar PV for Local Government**
- **Specific advice /presentation from Steve Cirrell related to this to convince powers that it was do-able**
- **Legal advice re procurement and tender process**
- **Discussion with procurement team re timescales**
- **Trade shows to start to build knowledge for ourselves and electrical engineers**

Site selection criteria

- **Roof orientation**
- **Roof structure**
- **Electricity consumption in building**
- **Spread of locations across region**
- **Spread of service types (schools, sports facilities , workshops)**
- **Potential size of installation**

Other considerations

- **G59/2 connection agreement with your DNO essential for bigger sites (over 3.96kwp) G83 below This can add cost.**
- **For non school or community sites need an EPC of 'D' or above or the tariff is reduced**
- **Sites over 30kWp need an HH meter or you won't get export tariff (below this is deemed 50/50 split)**
- **Most power companies will now only register sites they supply**
- **Registration can take a long time! Particularly if it is for a over 50Kwp site needing a roofit number from OFGEM**

How can we pay for the investment?

- The business case looked really good –particularly pre October 2011.....
- Seen as a spend to save approach as well as carbon reduction
- Discussed various options
 - Waste PFI sinking fund?
 - Pension fund investment?
 - Rent a roof?
 - Capital programme?

Finally agreed with finance team Prudential Borrowing at 4.5%

What is Prudential Borrowing?

- **Borrowing over and above the general capital grant from Scottish Government**
- **Rules relaxed in 2004 to allow Local Authorities to borrow**
- **Has to follow the CIPFA Prudential Code for Capital Finance in Local Authorities which sets out the procedures and indicators which will assist local authorities in meeting their requirements under Part 7 of the 2003 Act. The 2004 Regulations provide statutory backing to the Code.**
- **In practice money can be borrowed but need to take cognizance of the revenue consequences and of effective debt management practice**

Budget summary sheets

Spend To Save Appraisal Modelling Tool Lochside Primary new rate

\\D6-DFS-F58\Data\F&E\Sustainable Development\1 solar power contract\12 new rate assessments\business case summary by site final\Hodden Primary.xlsx\Service calcs

Inputs	Product Type	Solar Panels 42kw at 50kw + rate at £2337/kw + 2% fees	Period of Outlay (year)
	Amount - Initial Capital Spend 1	100135	1
	Amount - Subsequent Capital Spend		1
	Amount - Subsequent Capital Spend		2
	Net Capital Spend Position	100134.6444	
	Capital Classification	Revenue	
	Term of Spend to Save Project (years)	25	GO TO COST SAVINGS TEMPLATE
	Monthly Equivalent	300	
	Flat Rate - %	4.50%	
Outputs	Regular Loan Instalment per month - £	557	
	Total Interest Payable - £	66,840	
	Total Payments - £	166,974	
	Initial Spend	100,135	
	Cost Savings (incl depreciation) (-ve = saving)	- 414,075	
	Total Cost Savings (incl cost of capital) (-ve = saving)	- 247,101	
	Break Even Year - Costs savings - cost of capital	13	
	Return on Investment	247%	
	Annual Cost Savings (incl cost of capital)	9,884	
	Annual Return on Investment	10%	
	Net Present Value (excludes depreciation)	131,466	

Year	1	2	3	4	5	6	7	8	9
Yearly FIT Payment (£)	9819.05	10015.43	10215.73	10420.05	10628.45	10841.02	11057.84	11279.00	11504.58
Estimated Electricity Saving (£)	1878.40	1972.32	2070.94	2174.48	2283.21	2397.37	2517.24	2643.10	2775.25
Estimated FIT Payment for Electricity sold back to Grid (£)	309.63	315.82	322.14	328.58	335.16	341.86	348.70	355.67	362.78
Total	12,007	12,304	12,609	12,923	13,247	13,580	13,924	14,278	14,643
Cumulative Break Even	12,007	24,311	36,919	49,843	63,089	76,670	90,593	104,871	119,514
	0	0	0	0	0	0	0	0	0

KEY Outputs to Justify Borrowing

Outputs	Regular Loan Instalment per month - £	557
	Total Interest Payable - £	66,840
	Total Payments - £	166,974
	Initial Spend	100,135
	Cost Savings (incl depreciation)(-ve = saving)	- 414,075
	Total Cost Savings (incl cost of capital) (-ve = saving)	- 247,101
	Break Even Year - Costs savings - cost of capital	13
	Return on Investment	247%
	Annual Cost Savings (incl cost of capital)	9,884
	Annual Return on Investment	10%
	Net Present Value (excludes depreciation)	131,466

Outputs after the cut in tariff...

Outputs	Regular Loan Instalment per month - £	549
	Total Interest Payable - £	65,923
	Total Payments - £	164,685
	Initial Spend	98,761
	Cost Savings (incl depreciation)(-ve = saving)	- 256,039
	Total Cost Savings (incl cost of capital) (-ve = saving)	- 91,355
	Break Even Year - Costs savings - cost of capital	19
	Return on Investment	93%
	Annual Cost Savings (incl cost of capital)	3,654
	Annual Return on Investment	4%
	Net Present Value (excludes depreciation)	42,170

Lochside Primary – first site completed



Largest site - Dumfries Icebowl



Power Outputs

- The power output was estimated using PVsol system and indicated an average output of 681kwh /kW installed (SAP rating the main alternative tends to be slightly more optimistic)
- Output in year 1 was 725kwh/kw and about 15% over our estimates (Would be around 770kwh/kw with all sites fully running)
- Electricity cost saving on site was around £58,000
- FIT income around £135k on the PVsol estimate
- Outputs for optimally mounted (30-35 deg and due south) would be around 830kwh

What we have achieved

- **966 KWp installed**
- **19 sites**
- **Approx £2.2 million spent**
- **The first tranche went to a local company**
- **Commitment from staff across the Council to make the project work**
- **That we have generated about 700,000 kwhrs of our own electricity to date, the majority of which has been used on site**

Is it still worth it?

- Fit rates have dropped dramatically
- But so have installation costs
- Our average in phase 1 was approx. £2300/kW installed
- We would be looking for possibly half of that now

- The business case will remain very similar now as it was a 18mths ago-less cash overall but less cost as well.
- Particularly if you can find sites that use all the power generated (pools are great) then there is still a compelling case