

Growing Energy as a Source of Income



Edward Gurney
Solar P.V. Manager

Today...

- Introducing NCC – Our Energy Strategy
- Meet the team
- Nottingham Experience
- Solar Canopy Programme
- Case study 1 – Harvey Hadden Sports Village
- Case study 2 – Ken Martin Leisure Centre
- Solar Farm Development
- Final comments

Nottingham Energy Strategy

Target:

26% reduction by 2020 against 2005 levels

Achieved:

33% reduction in 2016



edie.NET

HOME NEWS FEATURES TOPICS **NEW!** JARGON BUSTER SUPPLIERS EVENTS

Nottingham smashes climate targets four years early

8 August 2016, source [edie newsroom](#)

Nottingham has surpassed its climate change targets four years early, according to Government data which shows a 33% reduction in the city's carbon emissions since 2005.

Energy Projects Service – Meet The Team



Energy Projects Service

- Solar feasibility, project management and delivery
- Energy Performance Certificates (domestic and non-domestic)
- Display Energy Certificates
- Air Conditioning Surveys
- EE Monitor (for heat metering and billing)
- Renewable Energy project management
- Energy Efficiency project management
- Environment Management System consultancy
- Energy Saving Opportunity Scheme consultancy

<http://nottmcommercialservices.co.uk/energy-projects-service/>





The Nottingham Experience

- 4,200 Domestic Installations – Total of 12MWp
- 52 Commercial Sites – Total 1.8MWp
- 2 Large scale solar canopies – Largest publicly owned in the UK and award winning for innovation
- In total over 14MWp of Solar PV in the last 3 years

NCC Solar Canopy Programme

1. Site selection

2. Business Case
3. Internal Approval
4. External Approval
5. Delivery
6. Monitoring and Maintenance

- Orientation
- Shading
- Car park layout
- On site energy user
- Site longevity



NCC Solar Canopy Programme

1. Site selection

2. Business Case

3. Internal Approval

4. External Approval

5. Delivery

6. Monitoring and Maintenance

- Energy savings
- FiT income
- 5% ROI (after borrowing)
- Additional considerations
 - o EV charging
 - o Shared installation costs
 - o Premium Parking
 - o Advertising
 - o LED lighting
 - o Surface protection

NCC Solar Canopy Programme

1. Site selection
2. Business Case

3. Internal Approval

4. External Approval
5. Delivery
6. Monitoring and Maintenance

- Pre approved limits
- Exec Board



NCC Solar Canopy Programme

1. Site selection
2. Business Case
3. Internal Approval

4. External Approval

5. Delivery
6. Monitoring and Maintenance

- DNO grid connection
- Planning
 - Specification
 - Structural details
 - Drainage and surface-water management
 - Grid connection
 - Glint and glare
 - Details of construction
- Consultation

NCC Solar Canopy Programme

1. Site selection
2. Business Case
3. Internal Approval
4. External Approval

5. Delivery

6. Monitoring and Maintenance

- Internal delivery
- Specialist Contractors
- Scheduled maintenance (in business plan)
- Visual displays



Harvey Hadden Sports Village

Total kWp: 67

Area (m²): 400

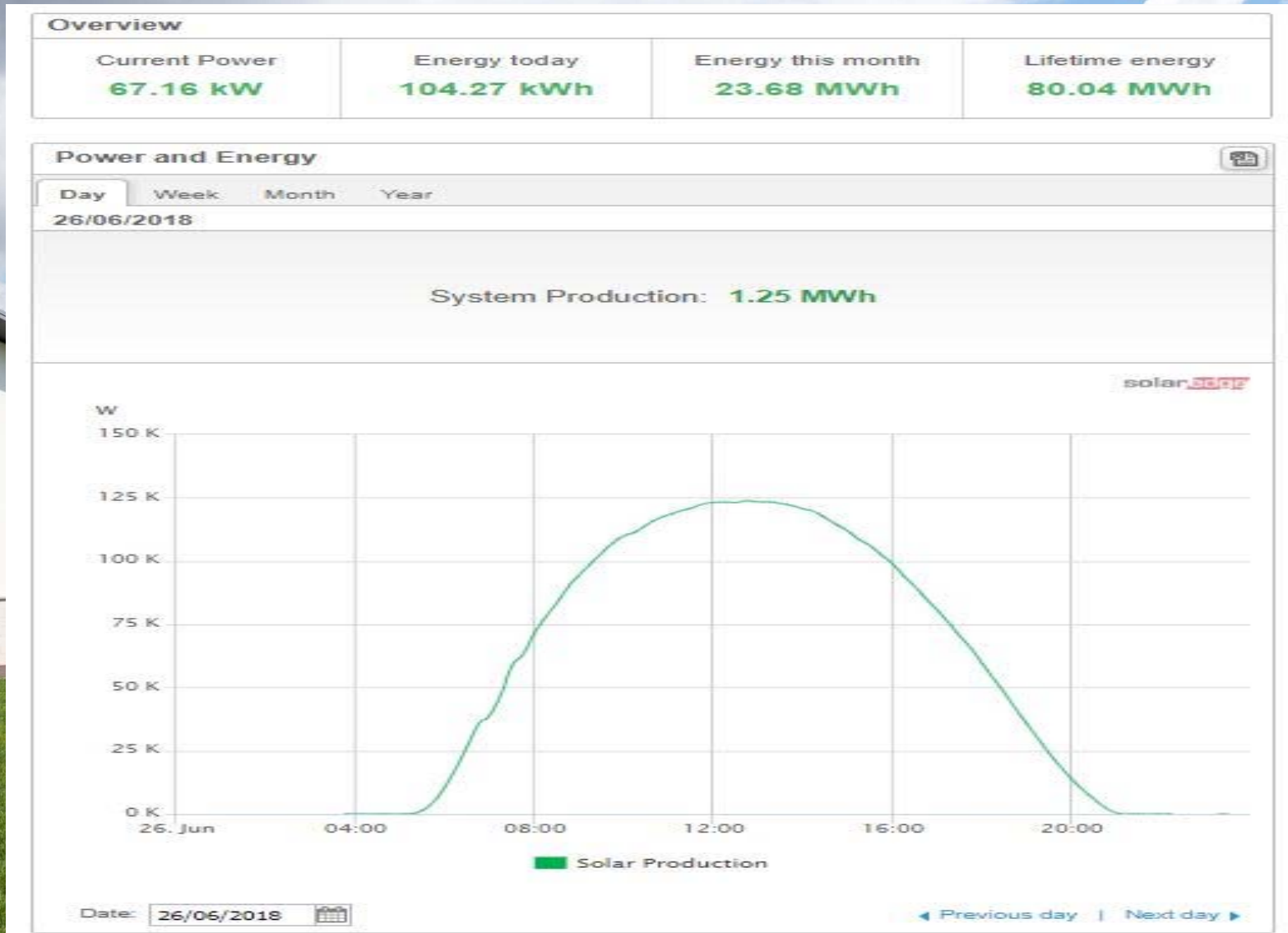
Estimated generation (kWh): 51,000

Carbon savings (Tonnes): 29



Arvey Hadden Sports Village

Installed Capacity: 267 kWp









Ken Martin Leisure Centre

Total kWp: 89

Number of panels: 354

Parking Bays: 41

Estimated generation (kWh): 80,000

Carbon savings (Tonnes): 36



Solar Farm Development

1. Site selection

2. Business Case
3. Internal Approval
4. External Approval
5. Delivery
6. Monitoring and Maintenance

- Where will it be used.
- On site energy user.
- Private wire.
- Sleeving.
- Site longevity.

Solar Farm Development

1. Site selection

2. Business Case

3. Internal Approval

4. External Approval

5. Delivery

6. Monitoring and Maintenance

- Energy savings
- 9/10p per kWh
- 5% ROI (after borrowing)
- Additional considerations
 - Security
 - Fencing
 - DNO Infrastructure Upgrades
 - HV upgrades
 - Surrounding areas
 - Groundworks

Solar Farm Development

1. Site selection
2. Business Case

3. Internal Approval

4. External Approval
5. Delivery
6. Monitoring and Maintenance

- Pre approved limits
- Exec Board

Solar Farm Development

1. Site selection
2. Business Case
3. Internal Approval

4. External Approval

5. Delivery
6. Monitoring and Maintenance

- DNO Grid Connection
- Planning Permission
 - Grid connection
 - Glint and glare (CAA)
 - Details of construction
 - Ground Studies – Topographical
- Consultation

Solar Farm Development

1. Site selection
2. Business Case
3. Internal Approval
4. External Approval

5. Delivery

6. Monitoring and Maintenance

- Internal delivery
- Construction time relatively quick.
- Specialist Contractors
- Scheduled maintenance (in business plan)

Generating Further Income

- Maintenance of all systems. Internal delivery teams can maintain works providing savings to council as well as income generation
- The internal delivery of projects in the first place will provide cost savings
- FIT generates revenue for 20-25 years.
- PPA secures revenue for 20-30 years
- All of this results in revenue achieved being re-invested into more projects or directly to front line services
- Cheaper energy bills means services at leisure centers can keep running in communities that really need them.

Some Numbers...and growing every year

- Per year our domestic PV provides the council with **£1.1m** in FIT and export payments.
- Per year our commercial PV provides the council with **£160,000.000** income and savings. Increasing each year.
- Operational sites have been importing ZERO from the grid at times this summer. Running 100% on solar energy.
- In total since 2012 we have generated **£4.9m** for the authority

Further Developments

- Battery Trial
- EV charge point rollout through Go Ultra Low
<http://goultralownottingham.org.uk/the-programme/public-charging-infrastructure-network/>
- Vehicle to Grid trial through Interreg funding:
<http://www.nweurope.eu/projects/project-search/cleanmobilenergy-clean-mobility-and-energy-for-cities/>





Edward Gurney – Solar PV Manager

Edward.gurney@nottinghamcity.gov.uk

07864 959587