

# ESSEX FIRE AUTHORITY

## Essex County Fire & Rescue Service



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MEETING

**Policy & Strategy Committee**

AGENDA ITEM

**10**

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MEETING DATE

23 September 2015

REPORT NUMBER

**EFA/080/15**

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SUBJECT

**Invest to Save Proposal – Installation of Solar Panels – Closure Report**

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REPORT BY

Finance Director & Treasurer

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PRESENTED BY

Finance Director & Treasurer – Mike Clayton

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### SUMMARY

The purpose of this paper is to provide the Committee with a closure report for the Solar Panels project implemented across the Authority's property portfolio. The project was approved in 2013 at an estimated cost of £1.93m and an estimated payback period of 10 years. The final project cost was £1.287m and the current estimated payback period is 13 years.

### Recommendations

Members of the Policy & Strategy Committee are asked to note the report.

### BACKGROUND

In 2013 the Committee approved the funding and installation of solar photovoltaic (PV) panels across the Authority's property portfolio. It was identified as an opportunity to deliver significant savings and protection against increasing energy costs. Solar PV panels generate electricity from the sun's energy; producing electrical energy for use on site and gaining income from the Feed – in Tariff (FIT) scheme for energy generated. The budget for the project was £1.9m.

Following the approval of the initial 31 locations, an additional 5 properties were identified as suitable for installations. The Authority gained the benefit of keen market pricing and technological improvements allowing an increased total, 36 photovoltaic systems have successfully been installed across the portfolio.

The locations found to be suitable for installations are listed in the table below:

| Fire Station                   |                                    |
|--------------------------------|------------------------------------|
| Basildon Fire Station          | Leaden Roding Fire Station         |
| Billericay Fire Station        | Loughton Fire Station              |
| Brentwood Fire Station         | Maldon Fire Station                |
| Brightlingsea Fire Station     | Manningtree Fire Station           |
| Burnham-on-Crouch Fire Station | Newport Fire Station               |
| Canvey Island Fire Station     | Ongar Fire Station                 |
| Chelmsford Fire Station        | Rochford Fire Station              |
| Clacton Fire Station           | South Woodham Ferrers Fire Station |
| Colchester Fire Station        | Southend-on-Sea Fire Station       |
| Corringham Fire Station        | Stanstead Fire Station             |
| Dovercourt Fire Station        | Thaxted Fire Station               |
| Frinton-on-Sea Fire Station    | Tiptree Fire Station               |
| Grays Fire Station             | Waltham Abbey Fire Station         |
| Great Baddow Fire Station      | Weeley Fire Station                |
| Great Dunmow Fire Station      | West Mersea Fire Station           |
| Halstead Fire Station          | Wickford Fire Station              |
| Harlow Fire Station            | Witham Fire Station                |
| Hawkevell Fire Station         | Wivenhoe Fire Station              |

The solar panel project will generate 486,656 kilowatt hours (kWh) of energy per year,

- Enough to power 811 desktop computers, running for 8 hours a day every year.
- Used 2,314 panels which equates to the weight of 10 African elephants.
- Covers an area of 3,795m<sup>2</sup> – ½ a football pitch.

Early calculations show an average combined income and saving of around £101k and an additional 4% in electricity generation per annum. Figures are FIT and weather related so can vary significantly.

Owing to the underspend on the project and the favourable terms for the FIT payment a further installation will also be completed at Kelvedon Park HQ. The install will provide 11,900kWh worth of generation. This will mean 3% of Headquarters energy costs will be being met from natural energy.

## FINANCIAL IMPLICATIONS

At a total project cost of £1,287k, the project shows a substantial underspend of 33%. The project was delayed due to the completion of roofing works at Brentwood, Loughton and Harlow, and the disruption to the contract from localised industrial action. This postponement in the project led to an additional £37k in costs; a substantial saving compared to the cost of removing the solar panels to complete the roofing works.

The estimated payback period from the project is currently calculated at 13 years, subject to the FIT scheme. This is 3 years more than the original estimate.

The realisation of benefits from the Project, both in terms of the financial savings and the reduction in electric purchased will continue under the Authority's RADICALE process. This is a process governed by representative staff groups and stakeholders evaluating new technologies that can contribute to resource reductions.

Maintenance and inspection costs will be managed within the existing arrangements for preventative work on gutters and roofs.

## **RISK MANAGEMENT IMPLICATIONS**

Appropriate procedures were taken to minimise the hazards involved in the installation of the solar panels, as highlighted in the construction phase health and safety plan for the project. The solar panels have a 25 year performance warranty achieving 85% efficiency.

## **LEGAL IMPLICATIONS**

The photovoltaic systems fall under the permitted development rights. Each Local Planning Authority was approached for all the installations across the property's portfolio.

## **ENVIRONMENTAL IMPLICATIONS**

Solar PV panels are a renewable energy resource with the potential to provide an infinite energy supply and since the installations to date (17/06/15) 109,766kg of carbon dioxide (CO<sub>2</sub>) has been prevented from entering into the atmosphere. This is owing to the fact that the production of electricity from the grid uses non – renewable energy resources such as coal, oil and gas, producing CO<sub>2</sub> as a waste product, contributing to the greenhouse effect. The greenhouse effect is a natural process where the sun's energy is absorbed by the atmosphere; however the increase of CO<sub>2</sub> enhances this and contributes to global warming.

The installations across the portfolio will work towards the Authority's long term ambition to reduce the carbon footprint by 30% from the 2006 baseline to the 2020 target. This can be achieved by reducing the electricity consumption obtained from the grid by utilising modern solar PV technology. Initial analysis predicts that this project will contribute to reducing the footprint by 5% after its first year.

The total amount of electricity generated since installation to date (28/08/15) is 318,092kWh which is enough to:

- Boil water for 15.9 million cups of tea.
- Watch television for 3.2 million hours.

The Authority has always supported the idea of a sustainable built environment. Generating such a large volume of our own power utilising today's technology furthers our credentials. We still have the capacity to do more in the future and further benefit from improved generation.

| <b>LOCAL GOVERNMENT (ACCESS TO INFORMATION) ACT 1985</b>                                                   |                                                                                                                                                                                                                                     |
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| List of background documents – including appendices, hardcopy or electronic including any relevant link/s. |                                                                                                                                                                                                                                     |
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