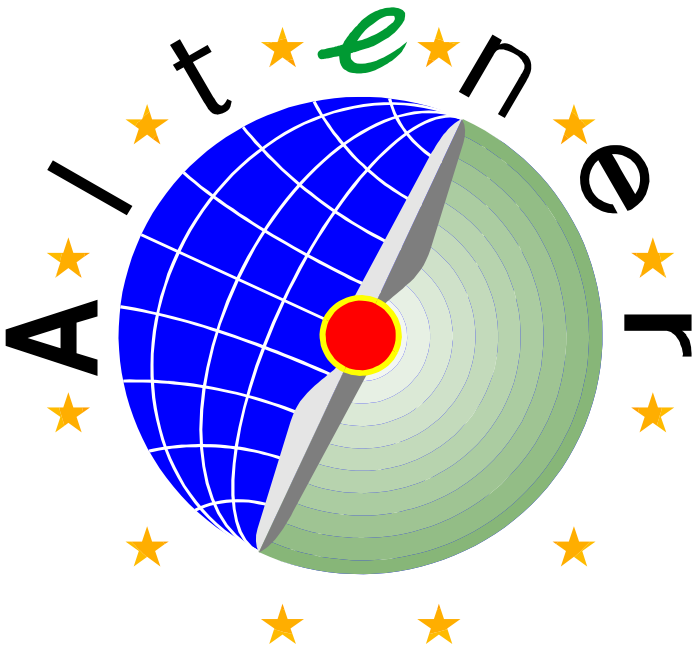
Greenham REnewable ENergy (GREEN) Business Community

S.TAGG
Greenham Common Trust

Contract AL/98/194

FINAL REPORT

January 1999 to September 2000



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Greenham REnewable ENergy (GREEN) Business Community

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FINAL REPORT

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Greenham REnewable ENergy (GREEN) Business Community

Final Report

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EXECUTIVE SUMMARY

The major success of the project has been to develop local environmental champions within the Greenham Business community as well as within the local surrounding community including the local municipality (West Berkshire Council). This has enabled various initiatives to take root which, if successful, will lead to the realisation of a 100% Hybrid Renewable Energy Community at Greenham satisfying the initial aspiration of the project team. But, perhaps of even greater importance, is the realisation of a sub-regional initiative, assisted by the SAVE II Programme, to establish a local energy management agency with the priority of delivering 155MW of new renewable energy generation to the wider community of the Thames Valley. An initiative only made possible because of the foundation laid by ALTENER at Greenham Park.

The project at the New Greenham Business Park has made significant progress and there are many successes to report. However, it has not been possible to complete the programme of work in its entirety, mainly as a result of disruption and delays caused by the late agreement of contract with the Commission. Nevertheless, significant project objectives have been met and overall good progress and value for money achieved. An estimated 84% of the programme has been accomplished.

The first three Tasks have been completed and were reported on earlier in the interim report. That is, the energy audit of the site, the initial renewables assessment and the scenario generation (cost/ benefit analysis) for the most promising renewables solutions. This shows that the expected rapid growth in energy demand (predominantly in the form of electricity) can be easily met from local renewables resources. A combination of solar, wind and biomass is proposed which has the potential to allow the site to become net energy self-sufficient by the year 2010 (the project 'concept').

Integrating the technical possibilities with the forward plan of the Business Park along with visualising the equipment and technology necessary to achieve the desired result has been a major theme of the intervening period between the interim report stage and the final report. Extensive consultations have also been carried out with a very wide range of stakeholders based locally and more regionally within the south east and south west of England. Their very positive feedback has enabled a more rounded and robust strategy for implementation to be constructed for the area. It has also informed a consensus-lead target setting exercise for the south east (and south west) region and for the sub-regions including the Thames Valley (Greenham is situated within this sub-Region).

In reality, the major success of the project has been the focusing of attention on the issues of sustainability in the locality, resulting in the Trust:

- Adopting a proactive stance with regard to future renewable energy generation both on and off the Business Park and seeking to become 100% renewable energy self-sufficient
- Leading the local community by example and illustrating how a more sustainable future (in terms of energy, transport and environment) is both desirable and achievable

- Fostering the establishment of a local energy management agency (TV Energy Ltd) at the Business Park to promote, educate and deliver sustainable renewable energy solutions locally and throughout the Thames Valley sub-region.

1. INTRODUCTION

1.1 Project Background

The Campaign for Take Off represents a crucial part of the Community's aim of working towards doubling the EU Renewable Energy Sources share by 2010. One important element of the Campaign is the initiative for the Integration of Renewable Energies in 100 Communities. This is concerned with encouraging the development of 100 community-based schemes which can reasonably aim at 100% power supply from RES.

This project at Greenham has investigated the practicality and viability of a large business community switching to 100% RES supply. In so doing, it has been able to a limited extent to examine the connected environmental and socio-economic factors which influence decision making at this project centred level. The major output of the project has been a 'hearts and minds' process of educating the local community to the benefits of renewable energy. Follow-on from the study will hopefully deliver individual renewables initiatives on wind, PV and biomass/ green waste which will collectively produce a hybrid solution for the Business Park – the original intention of the work.

1.2 Project Objectives

The objectives of this project were threefold:

1. To develop an optimised 'costed' concept for the Greenham Park Community Development (currently 100 businesses and leisure connected SMEs) achieving 100% RES supply
2. To achieve agreement with all partners involved (Trust, businesses, Local Authority)
3. To arrive at a specified 'bankable' action/ implementation plan, which might be submitted for financing/ support to banks, regional/ national or European authorities.

These aims have been examined to a greater or lesser extent given the shortfall in time for the project. Initially, an assessment of the current energy situation was carried out in a rigorous manner and this then lead onto the broader prospects for the site and environs over the next 10 or so years time horizon. The concept of sustainability in terms of energy, environment and the local economy has been tested with the view to maximising the interest of stakeholders and hence maximising the chances of an early progression to full implementation.

'Deliverables' or 'success indicators' for the original project were defined as follows:

1. For the 'concept' a report adopted by the Trust

2. For the 'agreement' a memorandum or an equivalent document signed by the key parties concerned
3. For the 'action/ implementation plan' the document.

1.3 Project Phases

The action commenced later than anticipated due to many contractual delays and given the option, could have completed by the end of March 2001 within budget. However, the project was terminated at the end of September 2000 which severely restricted the project team in their capacity to complete the action. The project was originally divided into **11 separate tasks** or phases, as follows:

1. Assessment/Audit of Current Energy Consumption
2. Technical and Economic Assessment of RES Availability
3. Cost/Benefit Analysis of 100% RES Against Traditional Fuels
4. Consideration of RES Within the 10/20 Year Business Development Plan Horizon for the Common
5. Equipment Specification and Visualisation
6. Optimising the Environmental Gain
7. Local Business and Public Community Involvement
8. Marketing Plan
9. Action/Implementation Plan
10. Reporting
11. Meetings

Tasks 1 – 3 have been completed in their entirety and are reported on here (see annexes 1 to 3). Tasks 5, 7, 10 and 11 are also completed and reported on in the main body of the text. Other tasks are partially completed (see Section 3.3). A summary of activity is included for completeness.

A revised project timing Gantt chart is included as Table 1.

2. TECHNICAL OVERVIEW

2.1 Summary

Although the project start date was January 1999, the major work of Task 1 was delayed until the Summer period (as there was no contract in place). This inevitably affected the planned schedule causing all subsequent Tasks to be delayed by approximately 6 months (the extra time requested to complete the study). Separate correspondence with the Commission covers these matters.

During the project life (from January 1999 to September 2000) the main activities have related to Tasks 1, 2, 3, 5, 7, 10 and 11. These are completed. Major aspects of the remaining Tasks (4, 6, 8, and 9) have been carried out but none are completed in the way that the original programme envisaged.

Nevertheless, in one major way, the project has achieved its goals leading on as it does to ACTION on the ground with the full expectation of DEPLOYMENT OF TECHNOLOGY in the very near future both at and around Greenham Business Park, resulting in renewable energy generation and reduction of emissions from the use of conventional fuels. ***In the strategic context then, the project may be seen as a major success for ALTENER and something to be built upon.***

2.2 Major Activities

The key activities during the study have been:

Task 1: Assessment and Audit of Current Energy Consumption (11 months)

This Task is COMPLETED. See report attached as Annex 1.

Task 2: Technical and Economic Assessment of Renewable Energy Supply (RES) Availability (10 months)

This Task is COMPLETED. See report attached as Annex 2.

Task 3: Cost/ Benefit Analysis of 100% RES Against Traditional Fuels (8 months)

This Task is COMPLETED. See report attached as Annex 3.

Task 4: Consideration of RES Within the 10/ 20 Year Business Development Plan Horizon for the Common (12 months)

The aim of this task is to ensure that forward development plans at the Business Park take into account the needs for inclusion of renewable energy production and use.

To this end, several discussions have taken place with regard to the future evolution of the Greenham site. Indeed, without such work it would have been impossible to project energy demand over the next 10 or so years, a prerequisite to carrying out the scenario generation for RES in 2005 and 2010.

Investment and rationalisation of the energy infrastructure of the business park has continued with a view to the inclusion of embedded renewable energy generation. Specifically, the ring has been reinforced and renewed where necessary, sub-stations rationalised and modernised.. The system is now significantly more robust and able to accept the proposed level of renewable generation – an important position with respect to the totality of the project work reported here.

Technical/ Planning

A great deal of thought has been given to what might be achieved in the next 5 years. Section 4 reports more fully on the options being seriously considered for PV/ solar, wind energy and biomass/ green waste utilisation. Also, to the interplay of using these resources to generate a hybrid 100% RES solution for the Park.

Included in forward considerations have been consultations with the local electricity utility, Scottish and Southern. Other utilities and service providers (TXU Europe Power and Ecotricity) have also been approached to test out interest in future embedded generation projects and to discuss interest in green energy provision and import/ export. The prospects remain extremely positive for involvement in due course.

Financial

Discussions have also been held with a number of potential investors and developers including National Wind Power and Lloyds. Financing is not believed to be a problem for good projects based at or near the Park.

Contractual

Discussions are underway and relate to existing provision (see earlier) and how additional benefit might be derived from embedded sources.

Marketing

Discussions are underway and plans are still developing which will explore this topic beyond the timetable of the project through TV Energy.

SOCIO-ECONOMIC MODELLING

Task 3 was originally to have included an assessment of bioenergy potential using the BIOSEM (socio-economic multiplier model) and SLU cost models. This was delayed until Task 4 due to a lack of early information. The work has now been completed and a summary is included below with more details provided in Annex 4. The work concludes that the effects of project implementation are substantial and they should carry weight when decisions are taken whether to proceed or not with project implementation. In terms of employment and revenue generation it is believed that:

"The total effects of the (bioenergy) project will be that around 50 man years/year of employment will be added and the annual earnings in the local community will increase by around an estimated 600,000 Euro (£375,000)."

This task is considered PARTIALLY COMPLETED (80%).

Task 5: Equipment Specification and Visualisation (17 months)

Many meetings and site visits have been carried out (see listing under Task 11 below) taking advantage of opportunities such as conferences as and when these have arisen. A planned project visit to Sweden has also been carried out (see Annex 5 for summary report). This has allowed a range of RES equipment to be examined, discussions with developers and equipment suppliers, community groups and others to be held.

Technologies covered include:

ALL RES:	SUSTAIN '99 (May 1999)
WIND:	Limnos AFBV workshop and site visits (October 1999)
BIOMASS and WASTE/ AD:	Sweden site visits (April 2000)
ALL RES:	UK/ Local visits and stakeholder consultations (2000)

This Task is considered to be COMPLETED.

Task 6: Optimising the Environment Gain (10 months)

A number of interested groups (e.g. Countryside Agency, Environmental Trust for Berkshire and the RSPB) have been consulted over possible future developments at Greenham (see also Section 7 for wider Regional consultation context with environmental groups such as Friends of the Earth, CPRE and WWF). Apart from embedded energy considerations, the impact of energy use in transport has also been comprehensively covered in a special Business Park publication entitled 'Green Transport Plan'. (See Annex 11 for the full report).

This plan sets out proposals and plans by the Trust for the sustainable management of the transport needs of the business and staff. These plans are supported by central Government, the Regional Development and Planning Agencies, West Berkshire Council and Basingstoke and Deane Borough Council (adjacent municipality).

Strong linkage has also been established with the Local Officers responsible for the re-establishment of the adjacent common at Greenham and Crookham. The expectation is that renewable energy developments will be dovetailed with developments on the Common (See section 4 on Eco-centre initiative).

Environmental best practice has also been extensively discussed with stakeholder groups and local community fora (e.g. the Local Agenda 21 group in Newbury) using possible developments at Greenham Park to illustrate future scenarios.

Unfortunately, the other activity including the environmental modelling has not been carried out since this was to have been performed by the JRC. The JRC declined contract (see Section 3).

This task is considered PARTIALLY COMPLETED (50%).

Task 7: Local Business and Public Community Involvement (8 months)

The aim of this task was to establish a positive local community involvement and ownership of the vision of 100% RES and sustainability.

In this regard, a series of consultations were carried out in the SE and SW of England in conjunction with the Regional Government Offices, Planning authorities and local communities. In total some 25 consultations were carried out and the Greenham project featured strongly at all of these events. But the most important of these meetings for the project relate to those held at Greenham Park itself with all businesses and local stakeholders invited (see report below) as well as the two major SE stakeholder meetings held at Guildford and Reading (University) since these have given the context for Greenham until the year 2010. The latter meetings are reported in Annex 9 and conclusions set out in Annex 10.

Community Workshop: 25th September 2000 at New Greenham Business Park

Participants

Sue Element	Government Office for the South East
Adrian Foster Fletcher	Friends of the Earth
Martin Marais	British Wind Energy Association
Barry Fisher	Berkshire Solar Club
Chris Hopkins	Vodafone Travel Co-ordinator
Stuart Tagg	Greenham Common Trust
Jackie Ackram	Furniture Recycling Business and LA21 member
Peter Hulme	Marketing Consultancy / City Car Clubs
Keith Richards	ETSU
Karl Cradick	Terence O'Rourke plc
Martin Miller	Terence O'Rourke plc
Richard Eastham	Terence O'Rourke plc

Main points emerging from discussion
There was general agreement that 'sustainability' and a 'sustainable way of life' was an objective worth pursuing. Although 'sustainability' can mean different things to different people, there was a general consensus that renewable energy had a part to play in reaching that objective.

It was agreed that renewable energy and energy efficiency should go hand in hand with the benefits of CO_2 reduction will only be realised if the renewable generation of electricity replaces fossil fuel generation rather than simply adding to the overall supply.

Reaction to various types of renewable energy development : POSITIVE. There was general enthusiasm for the job creation benefits of renewable energy. Some technologies, such as biomass, are relatively labour intensive when compared to fossil fuel generation. These benefits were still considered to be positive when balanced against potential job losses if fossil fuel power stations were to be phased out.

Enthusiasm for the rural diversification benefits of coppice growing for biomass generation, especially once the gentle impact it has upon the landscape was appreciated.

Photovoltaic technology should be used, it was believed, to tackle 'power poverty' in urban areas, but it was considered that large industries and corporations should be leading the uptake of this technology in order to bring the costs down for domestic users.

Reaction to various types of renewable energy development : NEGATIVE. Concern was expressed that a single renewable energy technology may be dominant across the South East region. A 'spread' of technologies would be preferable to lessen any impact on the landscape.

The option for people in the South East to enjoy open countryside may be compromised by the extensive deployment of wind turbines in the region. If people then choose to drive outside the region in their free-time, then any CO_2 savings may be lost.

Concern that 'energy from waste' is not a solution. It can only be considered a short term strategy, may produce more dangerous materials, is still reliant on landfill and may undermine recycling initiatives.

While biomass technology and coppice growing were welcomed, there were concerns that extensive planting may result in 'monocultures' which threaten biodiversity.

Other consultation
Finally, considerable effort has been expended in building up links with the West Berkshire Waste and Recycling Officials with a view to collaborative initiatives in the future. The project is also included in the Newbury LA21 activities and action plan and is the source of much hope for the future.

Information continues to be made available to local businesses and the community through site newsletters and the web site.

http://www.greenham-common-trust.co.uk.htm

This task is considered to be COMPLETED.

Task 8: Marketing Plan

The first part of the plan was to establish with local SMEs what sustainability and renewables is all about. The Trust has commenced this process through on site events, exhibitions and through web pages relating to the environment.

Please see: http://www.greenham-common-trust.co.uk/environ.htm

Once placed in context the aim has been to show SMEs what gains there are in business terms to becoming more sustainable. This strategy will continue to be explored through TV Energy based at the site.

This task is considered PARTIALLY COMPLETED (50%).

Task 9: Action/ Implementation Plan

The final aim was to produce a 'bankable' project plan or specification. Sadly, this has not been possible in the time. However, there are ongoing discussions and actions leading to expected deployment of technology (see Section 4). This work will be carried on through a partnership of Greenham Trust and TV Energy. **Additional resources from the EC and others will be sought in due course to optimise the chances of project success, promotion and to achieve replication.**

This task is considered PARTIALLY COMPLETED (50%).

Task 10 Reporting

The following reports have been made; a short event report from SUSTAIN '99 (See Annex 4), a statement of progress in a paper given to the REBUILD conference in October 1999 at the request of the Commission (See Annex 5), a summary case study visit report for Limnos (See Annex 6) and a site visits report for Sweden in April 2000 (see Annex 7).

This task is COMPLETED.

Task 11 Meetings Attended

Nature of Meeting	Date	Venue	Commentary
Project pre-meeting	January 1999	Greenham	GCT and ETSU
Project pre-meeting	March 1999	Greenham	GCT and ETSU
Kick-off Meeting	April 1999	Greenham	All project parties
Various progress meetings (7 in total)	May 1999 to May 2000	Greenham	GCT and ETSU
World Sustainable Energy Fair and CFTO meeting	May 1999	Amsterdam	Part of Task 5 activity (separate report to the Commission) See ANNEX 4
REBUILD conference	October 1999	Barcelona	Part of Task 10 activity (paper presented at request of Commission) See ANNEX 5
AFB V 100% Communities workshop	October 1999	Limnos, Greece	Part of Task 7 activity (paper presented and included in ALTENER event proceedings. See ANNEX 6

Table Continued …..

Nature of Meeting	Date	Venue	Commentary
CHP, District Heating and MSW treatment site visits	April 2000	Enkoping and Borlange, Sweden	Part of Task 5, arranged by SLU/ Swedish partner See ANNEX 7
Four project meetings between GCT and ETSU	26th July, 11th and 26th September 2000 and 22nd February 2001	Greenham	GCT and ETSU
Renewable Energy Conference	3 – 8th June 2000	Sevilla, Spain	ETSU and SLU whilst at conference
World Renewable Energy Congress and Exhibition	1 – 7th July 2000	Brighton, UK	ETSU and SLU whilst at conference
Renewable Energy Stakeholders Meeting (I)	6th September 2000	Guildford, UK	GCT and ETSU Plus stakeholders
Greenham Community Meeting	25th September 2000	Greenham	GCT and ETSU Plus local stakeholders
Renewable Energy Stakeholder Meeting (II)	29th September 2000	Reading University, UK	GCT and ETSU Plus stakeholders

This task is considered to be COMPLETED.

2.3 Technical Progress

Technical progress has been good and the activity is fully covered in the individual Task reports as given in Annexes 1 to 3 as well as the text in the main body of the report. The key deliverable of 'the concept' has been agreed and was ratified by the Greenham Trust Board last year. The full text is available in Task 3 (Annex 3). But briefly states:

The concept with the ultimate aim of achieving net RES energy self sufficiency can now be considered in phases, having the following two clearly defined elements:

1. **GREEN ENERGY PURCHASE**: in the prelude to possible active participation in green energy production either within the Greenham Park boundary or close by, to purchase energy with an agreed **10% green energy component** and by no later than **2003** from an accredited energy provider so long as any additional cost is clearly merited on the basis of a combination of local economic, social and environmental considerations.

2. **GREEN ENERGY PRODUCTION**: through harnessing a combination of DSM, solar, wind and biomass energy technologies to seek 100% RES supply (either

directly or in partnership with others) by **2010**, providing this can be achieved without undue price penalty (existing tariff plus a premium commensurate with the additional cumulative economic, social and environmental benefits accruing to the local community) to Greenham Trust.

The expectation is that the forward strategy will be a partnership between Greenham Trust and TV Energy.

2.4 Comparison Between Planned Activities and Actual Work

We estimate that some 84% of the project work has been completed based on giving each task equal weighting.

Task Number	Degree of Completeness
1	COMPLETED
2	COMPLETED
3	COMPLETED
4	80% Complete
5	COMPLETED
6	50% Complete
7	COMPLETED
8	50% Complete
9	50% Complete
10	COMPLETED
11	COMPLETED
TOTALS	

See also Section 3.3 for further discussion and detail.

3. MANAGEMENT & CO-ORDINATION ASPECTS

3.1 Team Structure

The original partnership responsible for this project comprised the following organisations:

TABLE 2: Project partnership

Affiliation	Country
Greenham Common Trust (GCT) (Project Co-ordinator)	UK
ETSU (AEA Technology)	UK
EC-JRC-ISIS	*EU*
SLU	SW

The work of the project has, however, been carried out in its entirety by GCT, ETSU and SLU. This is because it proved impossible to engage the JRC on the project after the initial kick-off meeting (held prior to receipt of contract but with the knowledge of the Commission) even though many repeated attempts were made to get JRC involved (through telephone, e-mail, fax and letter). Hence, very reluctantly the JRC have been written out of the work since they have made no sensible contribution to the work or to the report. The main impact of losing JRC has been on the work of Task 5 (Environment). Here, the JRC were to have applied their modelling expertise to the specifics of the proposed Greenham project developments. This work could not be carried out by the other partners and hence cannot be reported here.

3.2 Meetings

A project 'kick-off' Steering Group meeting was held in April 1999 at Greenham and was attended by all parties. This meeting confirmed the programme and actions. Each partner gave a short presentation about their organisation, skills and track record and discussed their views on the project. A site inspection was also carried out in order that all parties could better understand the background the task of achieving 100% RES supply to the site.

Many local meetings have been held between the co-ordinator (Greenham Trust) and ETSU during the project life to assist with maintaining the momentum of the project and to resolve any problems that have arisen. Information has been communicated to partners primarily by e-mail and telephone. Meetings have also been held after formal contract closure (September 2000) in order to facilitate the production of the final report.

Opportunities have also been taken to hold project meeting with Bo Hektor of SLU during the two days of site visits and meetings carried out in April 2000. This meeting helped to focus the particular input that SLU made to the project. Meetings were also

carried out with SLU in Seville (June 2000) and Brighton (July 2000) to maintain project linkage and momentum.

3.3 Contractual and Financial Matters

As alluded to earlier, a time extension was requested from the Commission to allow the successful completion of this project. The revised project completion date was to be March 2001. However, this request on appeal was turned down.

As an estimated 84% of the work has been carried out (see Section 2.4) if equal weight is given to each of the 11 Tasks, costs up to this sum might thus be deemed eligible by the partners and form the basis of our final costing to the Commission.

However, using the Task breakdown as set out in the proposal and in the agreement with the Commission, the following more detailed computation has been generated (figures in Euro) based on the degree of completion by individual Task:

Task Number	Degree of Completeness	GCT	ETSU	SIMS or SLU
1	COMPLETED	1,672	8868	NIL
2	COMPLETED	NIL	13878	1000
3	COMPLETED	760	8260	3000
4	80% Complete	(3344x0.8) = 2675	(7363x0.8) = 5890	(1000x0.8) = 800
5	COMPLETED	8,952	14870	4000
6	50% Complete	(912x0.5) = 456	(6347x0.5) = 3174	NIL
7	COMPLETED	3192	6338	NIL
8	50% Complete	(3824x0.5) = 1912	(2911x0.5) = 1456	NIL
9	50% Complete	(1520x0.5) = 760	(3944x0.5) = 1972	(500x0.5) = 250
10	COMPLETED	1520	6076	500
11	COMPLETED	4302	4258	6500
TOTALS		**26,201**	**75,040**	**16,050**

JRC shall not invoice towards the original 19,444 Euro since no contract was agreed and no work was done. Hence our preference is to base the costing on the column highlighted below:

Partner	Original Contract (Euro)	Based on Weighted 84% Total Project Cut By Partner (Euro)	Based on Task by Task Weighting on Work Done (Euro)
GCT	30,098	25,282	26,201
ETSU	83,113	69,815	75,040
SIMS	16,500	13,860	16,050
JRC	19,444	16,333	NIL
TOTAL	**152,747**	**125,290**	**117,291**

Our proposal is that this computation forms the basis of the proportion of the original contract sum now claimed from the Commission by each partner (upper limit – to be shown by eligible costs incurred). In total, this represents just under 77% of the total from the original agreement (some 7% less than by the straight project cut method).

On a pro-rata basis, if the maximum sum allowable here is claimed, then 231,789 Euro in other contributions needs to be reported by the Trust to keep the EC contribution at 33.6% in total. In reality, it is likely that partners will be claiming below the maximum sum deemed eligible, hence the co-financing sum will need to be re-computed down.

4. THE FUTURE PROSPECTS FOR RENEWABLE ENERGY AT NEW GREENHAM PARK

The major success of the project has been to develop local environmental champions within the Greenham Business community as well as within the local community including the local municipality (West Berkshire Council). This has enabled various initiatives to take root which, if successful, will lead to the realisation of a 100% Hybrid Renewable Energy Community at Greenham satisfying the initial aspiration of the project team. But, perhaps of even greater importance, is the realisation of a sub-regional initiative, assisted by the SAVE II Programme, to establish a local energy management agency with the priority of delivering renewable energy to the wider community.

Aspects of future developments are explored below:

4.1 New Developments - Solar Energy

An option is currently under discussion to introduce photovoltaics (PV) into the fabric of the next phase of development at the park. Meetings have been held with the developers and architects with a view to incorporating PV as follows:

- Roof mounted, inclined panels over the wing areas
- Roof mounted translucent arrays over the roof to the street
- Arrays mounted on the breise soleil on the south face of the building

In total, some 300m2 of panel are under consideration sufficient to generate some 30,000kWh/yr contributing substantially to the energy needs of the development. The pay back is extreme at over 100 years but with UK grant assistance from the DTI may be considered viable, reducing the payback to a little under 20 years – well within the lifetime of the building.

Artist's Impression of the New Gateway West Development at New Greenham Park

4.2 Wind Energy

There exists significant interest in the prospect for a single, large wind turbine of the type pioneered by Ecotricity at Swaffham in the east of England. These turbines have been developed with a local community involvement and linked to local 'eco-centres'. Such a model has been well received in initial community consultations at Greenham (see Task 7 report). Of particular interest is the idea of a viewing platform at the base of the hub – see picture below. This adds some 10% to the capital costs but is considered by the developer to be well worth the investment. At Swaffham, the community have now requested that a second turbine be built in order that the town can claim to be 100% RES self sufficient.

A founding sponsor of TV Energy, National Wind Power, has agreed to supply a wind mast to measure wind speed over 1 – 2 seasons to establish the local wind regime at the Park and to ascertain whether such a turbine will be viable. The belief is that wind speed is sufficient at between 6 and 7 metres per second (on average) to make economic sense. At the time of writing this report planning permission is being sought to erect the mast (temporary structure of 40m height). An initial site visit has been carried out with Planners and local Councillors which was very positive. Planners in particular did not see a problem with landscape degradation at the site. The site chosen for the mast lies almost equidistant from the two most likely sites: on top of one of the redundant cruise missile silos/ reinforced concrete structures or adjacent to the old control tower which will be redeveloped as a part of a new eco-centre for the Common (see Section 4.5).

The hope is that with a positive wind regime a turbine might be in place by 2003.

1.5MW Wind Turbine at Swaffham, East England

4.3 Biomass/ Green Waste Energy

There are three main threads to possible future development here:

- **Test Biomass Plantation:** Rothamsted Agricultural Institute are interested in a joint project with Greenham Trust and TV Energy to establish trial biomass plantation plots either on site or off-site at Greenham. The purpose here will be to demonstrate to local growers and the community at large what such crops look like.
- **Green waste:** TV Energy are to carry out a 3 year project with Shanks Waste Solutions and EB Nationwide to investigate the potential for green waste and biomass in hybrid energy combustion/ digestion projects. Such a project may be located at or nearby Greenham. The project will be linked to a proposed Thematic Network under the latest 5th Framework call – the project is entitled BIOCOGEN and will be co-ordinated by CRES from Greece in conjunction with TV Energy.
- **Biomass Power Generation Facility:** through local consultations, interest in a project similar to the one pioneered by Ambient Energy (see illustration below) is seen as desirable if project finance, siting etc. can be accomplished. Discussions will continue with potential partners through the offices of TV Energy over the coming months.

5MW Biomass Gasification Project, Eye Suffolk. Picture courtesy of Ambient Energy

4.4 TV Energy Limited

A new energy Agency is to be launched on 2nd April 2001 under the auspices of SAVE II with partners from the Region of Murcia (Spain) and Obstina Rousse (Bulgaria).

TV Energy
Renewable Energy for the Thames Valley

The web site address is as follows: www.tvenergy.org

The Agency will be based at New Greenham Business Park with the Trust acting as one of the lead founder sponsors and providing a Director for the Management Board. Other sponsors include the 17 local municipalities and authorities of the Thames Valley sub-region plus some 30 or so public and private sector organisations.

The mission of the Agency is to promote, educate and deliver practical sustainable energy solutions to business, organisations, communities and individuals. Some 900,000€ has so far been raised for an initial three year programme of work.

The intention is to have an annual international conference on renewables at Greenham each year as well as many other related activities including an 'energy surgery' for SMEs. The energy theme will hopefully develop into a major connecting activity for Greenham as an 'innovation hub' for the south east of England. Having a series of 'flagship' renewable energy applications on site will obviously add considerably to the effectiveness of this whole strategy. Linkage too will be made with Reading University, an 'environmental hub' in the Region. Graduate students will be placed with the Agency commencing with a sociologist or psychologist to study the impact and benefits on communities of the introduction of new, green technology. This work will link to the IEA Bioenergy activity on socio-economics (see tv energy web site for more details and hot link to the Task web site).

4.5 Greenham Common Eco-Centre Initiative

The expectation is that an eco-centre will be developed on the adjacent restored Greenham Common. Renewable energy and sustainability topics will be linking themes between this centre and the business park. A possible site for the 1.5MW wind turbine is adjacent to the centre. The centre might also incorporate wood fuel heating and PV.

5. OTHER REQUESTED AND AGREED ACTIVITIES

The Commission requested that the project team link or 'cluster' with another ALTENER project, Eco-Technopole, based on Humberside in the UK. (The project reference is 98/352.)

Three meetings were held with the project leader, Mr. Stephen Hudson, Director for Wykeland Group Ltd, one at ETSU and two on Humberside (the last in January 2000). Keith Richards of ETSU also assisted Wykeland to redefine their project and strategy.

However, as far as is known, Wykeland did not proceed with the project due to complications with local waste management and site management matters.

Wykeland were invited to join in with a number of activities sponsored by Greenham but were unable to attend on any occasion.

In addition, linkage was made with the Devon based solar ALTENER initiative through the offices of Devon County Council (Mr. Steve Batt). This lead to some constructive dialogue and involvement in joint actions and activities including papers and presentations (Limnos seminar and North Tawton community seminar).

Finally, the Greenham project was included in the work of the ALTENER initiative AFBV (Agro-Forestry Biomass network, phase V) as an example of a community based scheme in prospect.