

**Monitoring Renewable Energy Statistics
in the South East of England**

The development of SEE-Stats: a
database and statistics presentation
system

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Declaration of originality

I certify that this is my own work, and it has not previously been submitted for any assessed qualification. I certify that the use of material from other sources has been properly and fully acknowledged in the text. I understand that the normal consequences of cheating in any element of an examination, if proven and in the absence of mitigating circumstances, is that the Examiners' Meeting be directed to fail the candidate in the examination as a whole.

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Date:

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Abstract

The project involved the development of SEE-Stats (South East renewable Energy Statistics), an integrated database and statistics system designed to communicate the installation details, technical information and socio-economic benefits of renewable energy in the South East of England.

The aim was to enable policy-makers to monitor progress towards achieving regional renewables targets via a regionalised database, simultaneously serving as a public information service and promoting renewable energy sources. Principles applied included regionality, consistency with other methodologies, and a broad technology and size range.

The project was supported by regional authorities and carried out by TV Energy in conjunction with the University of Reading. Methodological linkages were made with the national parent system RESTATS and IEA Bioenergy.

The methodology formulated was applied to a database consisting of the 84 installations and 46 prospects which were identified and partially surveyed. Feedback was collected and applied when helping produce the information website, www.see-stats.org.

Executive summary

Objectives

- 1) To collect and communicate data on renewable energy (RE) installations in the Thames Valley and Surrey sub-region, in the form of a web-based map-database-statistics system.
- 2) To develop the system ready for expansion the entire South East of England
- 3) To formulate and apply a consistent methodology, ensure that the statistics would be useful and accessible while upholding technical rigour and accuracy.
- 4) To establish linkage with the national RE statistics system, RESTATS¹ and the work of IEA Bioenergy Task 29: Socio-economic aspects of bioenergy systems.²
- 5) To have a simple, offline prototype system for presentation at the IEA Bioenergy Task 29 2003 conference³ and an online version by September 2003.

Introduction

The South East's regional government needs to monitor its progress towards achieving renewable energy targets.⁴ A regionalised RE tracking tool would set a precedent in the UK. The take-up of environmentally benign energy sources requires stimulation and a public information service could aid this process.

SEE-Stats (South East renewable Energy Statistics) is the solution: an integrated RE database of installations and web-based statistics communication system. Its brief is to monitor and communicate the installation details, technical information and socio-economic data of individual generators and their aggregated regional statistics.

The project was conceived and carried out by TV Energy, the regional renewable energy agency, in conjunction with the University of Reading's Energy Group, and was made possible by support from the Government Office for the South East. Contact was maintained with the South East England Development Agency and the South East England Regional Assembly.

Summary of work undertaken

A database based on TV Energy's initial concept was designed over May–July 2003, fusing the principles of regionality and consistency with RESTATS/IEA.

The general methodology was largely completed over May–September 2003 with due regard to a review of existing systems, and in consultation with the RESTATS operators, TV Energy experts, correspondence with external experts and literature.

Identification of Thames Valley & Surrey RE schemes was done May–September 2003 using a range of sources from TV Energy records to local authority and business knowledge, and the data obtained from owners or operators mainly via email, but also by telephone, fax and post.

The website was developed alongside the web design company, enhancing TV Energy's original design and maintaining accuracy and user-friendliness through frequent and detailed requests for improvements.

Summary of main results

A database with 30 fields including installed capacity, annual output, social benefits, jobs, emissions displaced, and homes supplied was constructed.

A methodology was designed to cover the full range of fixed-site RE generation technologies and sizes, streamlining their key data into a uniform but valid matrix. Ways were examined to

¹ <http://www.etsu.com/restats>

² <http://www.iea-bioenergy-task29.hr>

³ <http://www.tvenergy.org/news-bioenergy-task29/>

⁴ **South East England Regional Assembly (2003)**, 'Harnessing the Elements', SEERA (May 2003)

generate and display both historical and projected aggregated statistics in order to track RE progress.

Largely complete data on 51 operational or planned installations was gathered, while partial data was recovered for 33 further schemes, limited information being obtained on about 46 prospects. An online test website was launched and presented to the IEA Bioenergy Task 29 conference on 18th June, which provided feedback on the site and advice on socio-economic benefits of RE. A web survey was designed and linked: a small, high quality sample of 10 respondents gave 100% overall approval for the site, and useful comments and recommendations on content and design. By September 2003 an enhanced test site was online at www.see-stats.org and www.see-stats.co.uk.



Figure 1 The SEE-Stats website banner and logo

Summary of conclusions

- 1) Much RE installation data from Thames Valley & Surrey has been successfully collected, though much is still pending due to long response times. It is expected that a high penetration of the extant generation schemes will be achieved in the next quarter. The means to communicate the data has also been established.
- 2) The system is ready for the subsequent addition of data for the rest of the region, given the advent of sub-regional partner collectors and the author as a full-time employee at TV Energy.
- 3) A consistent methodology has been formulated; it is believed that feedback has helped ensure that the eventual statistics display will be useful and accessible for users and convenient to update. Technical rigour and accuracy has been observed within the limitations of the low data availability that may hamper efforts for high reliability in the early phase of SEE-Stats.
- 4) A methodological linkage with the RESTATS was ensured by using its conventions such as Declared Net Capacity. The IEA Bioenergy Task 29 link was not exploited fully due to
- 5) A SEE-Stats test website and database were successfully produced and went online ahead of schedule. The website remains limited in content as technical funding reasons precluded the addition of the 51 datasheets and the more ambitious design plans.

Recommendations for future work

The database, particularly its interaction with statistics, would benefit greatly from the addition of database and GIS software; this and increased monitoring, data availability and accuracy could allow recording of year-on-year outputs. A new £/kWh costing field could facilitate scheme comparisons.

Methodology for solar thermal capacity could use the region's average irradiance, and the output based on fuel bills; a Reading student could study this and recommend a technique. Projections of future capacity etc. must be based on either historical patterns or be scenario-based.

More attention for data collection activities should be cast the way of bodies which do monitor generators: suppliers often have the highest quality and quantity of data.

The website's statistics page, datasheets and sub-regional map page urgently require conversion from test to real status, with accompanying improvements, notably adding statistics for emissions displaced, altering the generator data to match subsequent methodology changes, permitting the viewing of schemes on the map by technology. A 'Featured domestic system' should also appear on the homepage, to emphasise the value of smaller scale RE activity and inspire website visitors.