

## **Analyzing Renewable Energy Industry in Scotland**

https://marketpublishers.com/r/A790C9DD3D4EN.html

Date: June 2011

Pages: 100

Price: US\$ 350.00 (Single User License)

ID: A790C9DD3D4EN

## **Abstracts**

The development of renewable energy in Scotland has come forward in technical, economic, and political terms during the opening years of the 21st century. The natural resource base for renewables is exceptional by European, and even global standards. In addition to an existing installed capacity of 1.3 Gigawatts (GW) of hydro-electric schemes, Scotland has an estimated potential of 36.5 GW of wind and 7.5 GW of tidal power, 25% of the estimated total capacity for the European Union and up to 14 GW of wave power potential, 10% of EU capacity. The renewable electricity generating capacity may be 60 GW or more, considerably greater than the existing capacity from all Scottish fuel sources of 10.3 GW.

Much of this potentiality remains unexploited, but continuing improvements in engineering are sanctioning more of the renewable resources to be utilised. Fears regarding "peak oil" and climate change have driven the subject high up the political agenda and are also boosting the use of various biofuels. Although the funds of many projects remain either risky or contingent on subsidies, it is probable that there has been a significant, and in all probability long-term change, in the underpinning economics.

Besides the planned increases in both mass generating capacity and microsystems using renewable sources, various related schemes to reduce carbon emissions are being researched. While there is substantial support from the public, private and community-led sectors, concerns about the effect of the technologies on the natural environment have been expressed. There is also an emerging political debate about the relationship between the siting, and the ownership and control of these widely distributed resources.

Aruvian's R'search presents a focus on the Renewable Energy Industry in Scotland in its report – Analyzing Renewable Energy in Scotland. The report is a complete analysis of the various sectors of renewable energy in Scotland. Starting with an analysis of the



energy issues facing Scotland and the overall renewable energy industry in Scotland, the report analyzes the following renewable commodities: small hydro power, biomass, wind energy, tidal and wave energy, nuclear power, and wind energy. Scotland's environment for the development of renewable energy is also discussed in details in the report. Regulatory frameworks, government schemes promoting the use of renewable energy, etc., are all described in the report.

Major industry players such as Scottish and Southern Energy, Ecotricity, Airtricity, etc., are also profiled in the Aruvian's Analyzing Renewable Energy in Scotland.



## **Contents**

#### A. EXECUTIVE SUMMARY

#### **B. ENERGY ISSUES IN SCOTLAND**

- **B.1** Overview
- B.2 Drivers for Future Energy Policy
- B.2.1 Energy Supply Security
- **B.2.2 GHG Emissions**
- **B.2.3 Energy Prices**
- B.3 Regulatory Issues
- B.4 Issues with Energy Efficiency
- B.5 Increasing the Use of Cleaner Energy
- **B.5.1 Inducing Emissions Control**
- B.5.2 Fuel Substitution with Renewables
- B.6 Requirement of Cleaner Fuels for Transportation
- B.7 Requirement of Cleaner Fuels for Heating
- B.8 Requirement of Cleaner Fuels for Electricity
- B.9 Looking at Nuclear Fission

#### C. ENERGY SOURCES IN THE UK & SCOTLAND

- C.1 Looking at the Sources of Energy
- C.2 Reasons for Rising Energy Prices
- C.2.1 Declining New Supplies of Oil & Gas
- C.2.2 Privatization & Market Failure
- C.2.3 Rising Demand & No Concept of Energy Efficiency
- C.3 Looking at Climate Change
- C.4 Conclusion

#### D. LOOKING AT SCOTLAND'S ELECTRICITY NETWORK

#### E. INTRODUCTION TO RENEWABLE ENERGY IN SCOTLAND

- E.1 Overview of the Renewable Energy Market in Scotland
- E.2 Potential of Renewable Energy in Scotland
- E.3 Scotland's Renewable Resource Potential
- E.4 Potential of Onshore Wind



- E.5 Potential of Offshore Wind
- E.6 Potential of Hydro Power
- E.7 Potential of Biomass
- E.8 Potential of Tidal & Wave Energy
- E.9 Potential of Hydrogen & Other Technologies
- E.10 A Look at Scotland's 2020 Target

#### F. REDUCING GHG EMISSIONS IN SCOTLAND THROUGH RENEWABLE ENERGY

- F.1 Introduction
- F.2 Electricity Requirements of Scotland
- F.3 Looking at the 2010 Target
- F.4 Looking at the 2020 Target
- F.5 Closure of Conventional Power Plants
- F.6 Will Renewables Fulfill the Rising Energy Demand?
- F.7 Looking at Micro-Generation
- F.8 Conservation of Energy
- F.9 Building an Energy Strategy
- F.10 Conclusion

#### G. MAJOR CONCERNS RELATED TO RENEWABLE ENERGY IN SCOTLAND

#### H. WIND ENERGY INDUSTRY IN SCOTLAND

- H.1 Overview
- H.2 World's Largest Wind Turbine in Scotland
- H.3 Wind Potential
- H.4 Wind Variability in the Region
- H.5 Issues with Aesthetics & Landscape
- H.6 Community-owned Schemes
- H.7 Looking at the Black Law Wind Farm
- H.8 Looking at the Hadyard Hill Wind Farm
- H.9 Looking at the Whitelee Wind Farm
- H.10 Looking at the Clyde Wind Farm
- H.11 Looking at the Beinn an Tuirc Wind Farm
- H.12 Looking at the Bowbeat Wind Farm
- H.13 Looking at the Robin Rigg Wind Farm

#### I. LOOKING AT THE FINDHORN ECOVILLAGE



#### J. BIOFUELS IN SCOTLAND

- J.1 Development of Biodiesel
- J.2 Development of Biogas/Landfill Gas
- J.3 Development of Solid Biomass

#### K. BIOMASS IN SCOTLAND

- K.1 Introduction
- K.2 Aims of the Scottish Biomass Action Plan
- K.3 Overview of the Plan
- K.4 Impact of Scotland on UK's Biomass Strategy
- K.5 A Look at Biomass Heating

#### L. WAVE POWER IN SCOTLAND

#### M. TIDAL ENERGY FARMS IN SCOTLAND

- M.1 Introduction
- M.2 Importance of Marine Energy
- M.3 Impact of Tidal Energy
- M.4 Looking at the Advantages of Tidal Current Energy
- M.5 Looking at the Disadvantages of Tidal Current Energy
- M.6 Socio-economic Advantages
- M.7 Scotland's Marine Resources
- M.8 Limited Deployment of Marine Renewable Devices
- M.9 Large Scale Hydro versus Micro-Hydro
- M.10 Developing a Channel Model
- M.11 Developing a Strategy for Base-load Generation
- M.12 Challenges Facing Grid Connection & Extension
- M.13 Opting for Embedded Generation
- M.14 Usage of Energy Storage to Reduce Residual Excesses & Deficits
- M.15 Combining Generation Methods to Increase Power
- M.16 Research & Development in the Industry
- M.17 Market Status & Opportunities
- M.18 Resource Potential
- M.19 Tidal Current Development Potential
- M.20 Barriers to Development



#### N. ANALYZING SMALL HYDRO SCHEMES IN SCOTLAND

- N.1 Understanding the Hydro Technology
- N.2 Considering the Potential of a Site
- N.3 Types of Turbines
- N.3.1 Impulse Turbines
- N.3.2 Reaction Turbines
- N.4 Developing a New Hydro Scheme in Scotland
- N.5 Electricity Prices & a Scheme's Power Rating in Scotland

#### O. IMPACT OF CLIMATE CHANGE ON DERIVING ENERGY FROM SMALL HYDRO

- O.1 Introduction
- O.2 Relation between Climate Change & Small Hydro
- O.3 Case Study: Ormiston Mill Small Hydro Scheme
- O.4 Analyzing Climate Sensitivity
- O.5 Deriving Projections from Climate Models
- O.6 How to Adapt Small Hydro Schemes to Climate Change
- O.7 Summing Up

#### P. DERIVING ENERGY FROM PEAT

### Q. DERIVING ENERGY FROM WASTE

# R. LOOKING AT OTHER RENEWABLE ENERGIES & METHODS OF LOWERING GHG EMISSIONS

- R.1 Hydro-electric
- R.2 Solar Power
- R.3 Geothermal
- R.4 Carbon Offsetting
- R.5 Hydrogen Economy

#### S. ANALYZING NUCLEAR POWER IN SCOTLAND

- S.1 Market Overview
- S.2 Looking at the Chapelcross Nuclear Station
- S.3 Looking at the Hunterston A Nuclear Power Station



- S.4 Looking at the Hunterston B Nuclear Power Station
- S.5 Looking at the Torness Nuclear Power Station
- S.6 Looking at Dounreay DFR
- S.7 Looking at the Dounreay DFR

# T. LOOKING AT THE SOCIAL-ENVIRONMENTAL IMPACT OF RENEWABLE ENERGY IN SCOTLAND

- T.1 Introduction
- T.2 Support of the UK Government in Promotion of Renewable Energies
- T.3 'Rurality' & Renewable Energy
- T.4 Support & Promotion of Renewable Energies in Scotland
- T.5 Investigating the Impact of Renewable Energies on the Environment & the People
- T.6 Conclusion

#### **U. CASE STUDIES**

- U.1 Looking at the Ben Cruachan Hydro-electric Power Station
- U.2 Looking at Islay LIMPET

#### V. LEADING INDUSTRY CONTRIBUTORS

- V.1 A7 Energy
- V.2 Airtricity
- V.3 British Energy
- V.4 British Nuclear Fuels plc
- V.5 Centrica
- V.6 Community Windpower

### V.7 E.ON UK

- V.8 Eco2
- V.9 Ecotricity
- V.10 Falck Renewables
- V.11 Fred Olsen Renewables
- V.12 Npower

#### **V.13 RES**



- V.14 Scottish and Southern Energy
- V.15 Scottish Hydro Electric
- V.16 Scottish Nuclear
- V.17 Shetland Aerogenerators
- V.18 South of Scotland Electricity Board
- V.19 Triodos Renewables
- V.20 United Kingdom Atomic Energy Authority
- V.21 Wavegen

#### W. APPENDIX

## X. GLOSSARY OF TERMS



## I would like to order

Product name: Analyzing Renewable Energy Industry in Scotland

Product link: <a href="https://marketpublishers.com/r/A790C9DD3D4EN.html">https://marketpublishers.com/r/A790C9DD3D4EN.html</a>

Price: US\$ 350.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer

Service:

info@marketpublishers.com

## **Payment**

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <a href="https://marketpublishers.com/r/A790C9DD3D4EN.html">https://marketpublishers.com/r/A790C9DD3D4EN.html</a>