Environmental pollution analysis of energy production and consumption in the Baltic region

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Editor(s): Tiezzi E, Brebbia CA, Uso JL

Source: ECOSYSTEMS AND SUSTAINABLE DEVELOPMENT IV, VOLS 1 AND 2  Book Series: ADVANCES IN ECOLOGICAL SCIENCES  Volume: 18 & 19  Pages: 835-845  Published: 2003

References: 16  View Related Records (from ISI Proceedings)

Conference Information: 4th International Conference on Ecosystems and Sustainable Development SIENA, ITALY, JUN 04-06, 2003
Univ Siena; Wessex Inst Tech

Abstract: Estonia, Latvia, Lithuania and the Kaliningrad region possess similar natural conditions and are linked through their power supply networks. Although there are significant differences in the present use of non-renewable energy sources, the potential hidden in alternative and renewable resources is quite similar. The results of the joint research carried out in 2000-2001 show a high potential for renewable energy in the Baltic region. The proportion of organic fossil fuel replaceable with biofuel could reach 41% in Estonia, 77% in Latvia, 25% in Lithuania and 31% in the Kaliningrad region. CO2 output can be reduced by 62% in Estonia, 46% in Latvia, 28% in Lithuania and 31% in the Kaliningrad region. Reductions of SO2 emissions of 84%, 86%, 57% and 53%, respectively, are possible. CO emissions can be reduced in Estonia by 15%, in Latvia by 11%, in Lithuania, by 19%, and in the Kaliningrad region by 21%. Wind energy can add 6-46% to the reduction value. The possible reduction in NOx emissions was found to be insignificant, but the reduction in solid particle emissions would be significant (up to 91%) in Estonia, due to the replacement of oil shale combustion. The alternative energy sources cannot replace nuclear power in Lithuania. In Estonia, oil shale combustion will probably continue for some decades after joining the EU. Further use of biofuel and alternative energy sources in the Baltic region depends very much on the development of the energy policy in northern and eastern Europe.

Document Type: Article

Language: English

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Publisher: WIT PRESS, ASHURST LODGE, SOUTHAMPTON SO40 7AA, ASHURST, ENGLAND

Subject Category: Ecology

IDS Number: BX53C

ISSN: 1369-8273

ISBN: 1-85312-834-1