

Introduction

►HELIO and Sustainable Energy Watch

HELIO International, a non-governmental organisation based in Paris, was founded in 1997 with the intention of helping to ensure sustainable energy development through the creation of its Sustainable Energy Watch (SEW). SEW combines a world-wide network of observers and regional co-ordinators to monitor and regularly report on a set of eight indicators intended to measure progress toward energy, social, and environmental sustainability. HELIO has assembled a group of international energy experts who continue to help develop the methodology and the set of indicators. Members of this Scientific and Technical Advisory Committee (STAC) meet annually to review the approach and ensure that the monitoring accurately reflects desired progress. A list of HELIO's Steering Committee, Executive Committee and STAC members can be viewed on HELIO's website: www.globenet.org/HELIO.

The Sustainable Energy Watch (SEW) program measures progress toward energy sustainability in individual nations as well as globally. A set of indicators of such progress (or, in many cases, regress) have been selected by SEW's Steering Group with input from several members of its Scientific and Technical Advisory Group. These eight indicators – two for each of four segments: Environment, Society, Economy, and Technology – are used by an expanding network of Observer-Reporters to file reports on the status of the indicators in each country. Node-Coordinators will use the country studies to prepare a regional report. Finally, the SEW Secretariat in Paris will assemble a global report by aggregating the country and regional reports.

Selecting indicators at once meaningful for a wide range of conditions and do-able by a network of dedicated non-specialists is a difficult task. The indicators have been chosen without reference to a comprehensive and unassailable definition of sustainability: the project's co-ordinators are less interested in what is ultimately sustainable regarding energy and societal/environmental impacts than simply measuring progress toward carefully chosen interim goals. The objectives may change, but there will exist accurate, meaningful, and documented measurements to adjust as goals and definitions are fine-tuned.

The criteria for selecting indicators were to derive a small number of meaningful indicators, clearly definable (even if sustainability eludes definition), for which data is available in or for every country, and, if calculation is required, it must be simple to accomplish. Other objectives include using a consistent set of indicators with applicability to most if not all countries. Naturally, the results – for each country as well as for the world – must be clearly communicated to decision-makers, the media, and the general public. For all of these reasons the involvement, critiques, and support of readers is encouraged.

For each of the indicators, a vector is presented with the value of 1 indicating some measure of 'status quo', either as a global average or historical national data, and the value of 0 being the sustainability goal. In other words, the underlying metric (eg energy use per unit of GDP) is normalised so that we can compare across indicators how close the country is to sustainability goals. The metric values that correspond to 1 and 0 on the vector are presented in each indicator section.

► Contributions to the Report

This is the second Sustainable Energy Watch report for South Africa. The report was compiled by Randall Spalding-Fecher of the Energy and Development Research Centre (EDRC), University of Cape Town. The author's hope is that these indicators, while by no means definitive or comprehensive, will stimulate debate within South Africa on energy and sustainable development goals – as well as how South Africa should track progress toward those goals. As a work in progress, we welcome comments from stakeholders and experts in South Africa and beyond. This feedback will help to improve the accuracy of the data, as well as the quality of the policy conclusions that are drawn from the data.

Estimates have been developed for all eight indicators, and 1990 or similar benchmarks are also included for six of the indicators. For each of these indicators, the value of 1 is either the global average or the historical trend for South Africa, while the value of 0 is the sustainability target. In some cases international time series data has been used instead of local data, but these have been checked against local research and estimates. South African energy statistics (and government statistics in general) have changed dramatically since 1993 and the end of the apartheid era. For this reason, some indicators can only be measured accurately from 1993 or 1994.

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Many people have contributed data, insights and comments on this report. Those who helped with statistics and data include the following: Deon Stassen (DBSA), Anton Louis Olivier (UNCCEE), Hilton Trollip, Janneke Weidema (DME), Mark Howells (ERI, UCT), Anastassios Pouris (SCE), Steve Szewczuk (CSIR), Phillip Lloyd (UCT), Pierre Rubbers (Eskom), Kevin Nassiep (Eskom), Lawrence Edwards (UCT), Doug Banks (RAPS), Anthony Williams, Trudi Hartzenberg (DPRU, UCT) and Krzysztof Wojciechowicz (DTI). Harald Winkler and Lwazikazi Tyani of EDRC provided valuable comments on early drafts, and Ethney Waters helped to track down reports. Helene Connor from the SEW Secretariat provided valuable support in interpreting the indicators, as did Richard Heede of Rocky Mountain Institute and Emilio Lebre La Rovere from the Federal

Finally, thanks to Tim James for editing and layout. As always, the opinions expressed in the report and any errors remain solely the author's responsibility.

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Note that all references have been reported at the end, rather than within each indicator.