A System for Integral Efficiency Analysis of Sustainable Technologies

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ABSTRACT

Sustainability is receiving increasing interest from the CS community and average users. We present plans for a system that provides an integral efficiency analysis for recommending the most appropriate sustainable technology for a given location.

Categories and Subject Descriptors

K.4.m [**Computers and Society**]: Miscellaneous

General Terms

Management, Human Factors

Keywords

Sustainability, efficiency analysis, payback

1. INTEGRAL EFFICIENCY ANALYSIS OF SUSTAINABLE TECHNOLOGIES

The human activity is leading to considerable changes in the environment of our planet. Climate change, water, air and noise pollution are influencing the lives of millions of people and are quickly turning into the major threat for the following generations.

While the scientific community is still analyzing the exact scale of impact, various technologies and approaches have started gaining momentum. These "sustainable" solutions target environmental and social friendliness. For many of these solutions, evaluating the local environmental parameters is critical for meeting the end user needs with minimal negative influence on the environment and high financial efficiency.

Renewable energy technologies are a prominent example. Depending on the precise environmental parameters, these can be deployed for generating energy with relatively low environmental and economic costs.

The aim of our project is to create an expert system capable of giving indicative recommendations concerning the deployment of sustainable technologies and approaches in everyday life. The target system will be available online. Upon receiving a user request, it will utilize diverse data sources to fetch information about environmental, economical and legal parameters in local area as well as information about the specific solutions potentially suitable for the user requirements. The solutions with the best ecological and economic efficiency will be recommended to the user. The system will
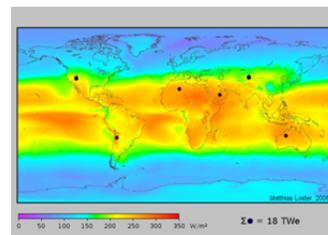
Figure 1: Example solar radiation map (brighter means more solar radiation)

incorporate knowledge about a wide range of fields including renewable energy, water utilization, waste management, sustainable architecture and sustainable living.
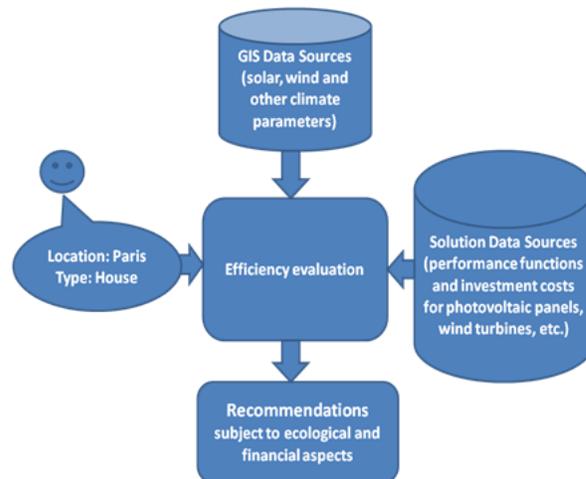

Figure 2: Efficiency evaluation process

Apart from giving automatic recommendations, the system will also serve as an interactive reference of sustainable technologies and approaches. Thus, it will not only be a valuable tool for private and corporate users directly deploying the solutions, but also a helpful learning aid for those eager to learn. Users curious about sustainability will be given a new possibility to learn interactively by playing with real world scenarios.