Stanford University

GCEP Global Climate & Energy Project

Stanford
June 13, 2005

Welcome and Introduction

Lynn Orr, Project Director

Meeting the Challenge of Reducing Global GHG Emissions through Energy Research

GCEP Research Symposium

Why Are We Here?

- To learn about the results from GCEP research projects
- To take a detailed look at three technical areas within the GCEP portfolio
- To discuss a wide range of energy technology issues associated with reduceing greenhouse gas emissions

Addressing the Energy Challenge

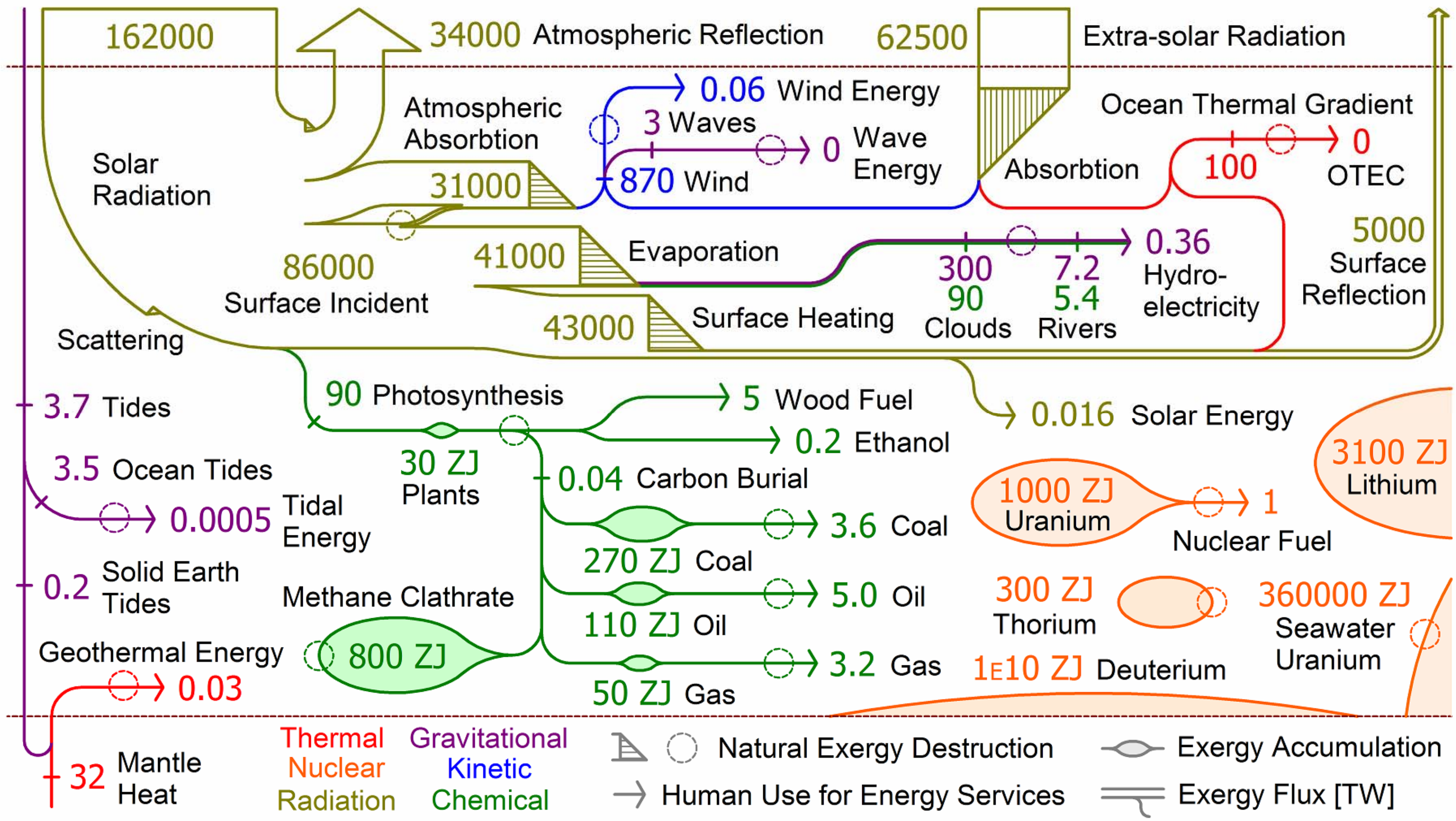
The Challenge

- Meeting the future energy demands of the world's population while protecting, restoring, and improving the planetary geochemical systems
  - Resources, transformations, systems
  - Greenhouse gas emission reductions

GCEP Role

- To conduct fundamental research necessary to expand options for supplying and transforming energy with much lower emissions of greenhouse gases
  - Portfolio approach
  - Step-out research
  - Game changing technologies

Exergy Flow of Planet Earth (TW)



Current Global Exergy Usage Rate ~ 15 TW (0.5 ZJ per year)

86000/15 = 5733

Source: W. Hermann, GCEP Systems Analysis Group 2004.

(1 ZJ = 10^{21}J)

GCEP Symposium

Organization

- Keynote Addresses
- Invited Presentations
- GCEP Research Reports
- Panel Discussions
- Student Posters

Sessions:

- Monday – Geologic Sequestration of CO_2
- Tuesday – Advanced Combustion
- Wednesday – Hydrogen
- Thursday – Assessments, Renewables, and Recently Awarded GCEP Projects

Special thanks to our sponsors

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for making this symposium (and all the work reported) possible

Thanks also to

- The speakers – for sharing their knowledge
- The GCEP PIs – for leading the research
- The students, postdocs, and research staff – for doing the most important work
- GCEP staff – for organizing all of this