

## EDUCATION, SCIENCE AND TRAINING

### SENATE LEGISLATION COMMITTEE - QUESTIONS ON NOTICE 2005-2006 SUPPLEMENTARY ESTIMATES HEARING

**Outcome:** CSIRO  
**Output Group:** CSIRO

#### DEST Question No. E752\_06 – Final

Senator Wong provided in writing.

#### Question:

The same leaked document says the following on renewable energy research:

*“ET concluded the following:*

- *We should maintain our investment in research into upstream exploration, extraction and processing of coal, gas (methane economy) and oil*
- *We should maintain our investment in electricity generation, distribution, and end use efficiency, subject to performance, and our commitment to longer-term transformational science through the Energy Transformed Flagship contributing to the development of the hydrogen economy.*
- *We should reduce our effort in intelligent transport systems*
- *We should reduce our effort in renewable energy restricting our activities to those in which we have competitive advantage and can have significant impact.”*

How much money will CSIRO shift away from renewables research (per year if possible)?

What is currently classified as renewable energy research? Please provide examples of research projects currently in this area. Where will the money be invested? Please provide details of research projects. Over what time period will this shift occur?

#### Answer:

*CSIRO has provided the following response.*

#### *Renewable energy research*

CSIRO is refocusing its research effort in renewable energy. It is currently engaged in an ongoing Science Investment Process to maximise the impact and relevance of its research outcomes. Therefore no decisions have been reached in relation to the final investment in this area of research.

CSIRO's Science Investment Process is a broad research directions setting framework that will guide its future research priorities. Currently, only broad areas of focus where CSIRO can have the greatest impact have been identified. A 5+ year perspective will be taken for the shifts in research focus to occur.

CSIRO has several research projects in the area of renewable energy. These projects are largely, although not exclusively, undertaken in the Divisions of Sustainable Ecosystems, Energy Technology and Marine and Atmospheric Research, and the Energy Transformed Flagship.

Renewable energy research covers a wide range of areas such as hydro-electric energy generation, wind, ocean, geothermal, solar-thermal, solar-photoelectric and solar-thermal electric biomass.

Examples of renewable research include:

- Internationally recognised research in solar thermal processes including the following:
  - ⇒ Production of hydrogen using solar energy: this project aims to use a relatively low cost concentrated solar energy system to convert natural gas to an intermediate gas which can be further processed to hydrogen;
  - ⇒ Membrane reactor hydrogen production and separation from natural gas. CSIRO is currently developing a membrane reactor powered by solar energy that will enable a high concentration of hydrogen to be produced from natural gas by passing hydrogen through a highly selective membrane;
  - ⇒ Solar spectrum beam splitting for multiple applications in renewable energy. Current solar systems, such as solar cells, only use part of the solar spectrum. This project aims at examining methods of splitting the solar spectrum into a number of its component wavelengths, which will then be used to energise a device designed to operate with that energy component. This will improve the utilisation of the collected solar radiation and improve the system efficiency;
- Energy storage for renewables
  - ⇒ Intermittency of supply has long been acknowledged as an inhibitor to the growth of Australia's renewable energy sector. CSIRO is undertaking research into technologies that will provide cost effective storage options that will allow energy generation from wind and solar to contribute more meaningfully to Australia's energy requirements; and
- Intelligent forecasting and storage systems for wind power, which aims to:
  - ⇒ develop wind forecasting tools on a range of time and space scales to facilitate higher wind penetration levels on the electricity grid capability;
  - ⇒ provide a direct service to the wind energy industry, with a focus on the provision and maintenance of specialised wind energy monitoring networks, quality-controlled datasets and data analysis services for clients; and
  - ⇒ provide the industry access to advanced wind resource analysis tools.