

## SENATE SELECT COMMITTEE ON CLIMATE POLICY

### SUBMISSION BY THE AUSTRALIAN BUREAU OF STATISTICS APRIL 2009

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The mission of the Australian Bureau of Statistics (ABS) is to assist and encourage informed decision making, research and discussion within governments and the community by leading a high quality, objective and responsive national statistical service.

Remaining responsive to existing and emerging information needs of governments and the community is a key objective of the ABS.

Climate change and climate change policies are expected to change the Australian economy, society, and environment. Business, industry, households and communities will all be affected in one form or another.

Existing statistics will need to reflect the impacts of climate change and climate change initiatives and demand for new statistics is inevitable.

*It is essential that all information needs related to climate change and climate change initiatives, including statistical priorities, are considered as part of the policy development process.* It takes time and resources to put new statistical infrastructure into place. Without this valuable data, debate and policy evaluation will be ill-informed and lack evidence based rigour.

*The ABS has a role in assisting government and community understanding of the economic, environmental and social impacts of climate change and climate change policies.* ABS products are comprehensive, unbiased, apolitical and available to all. ABS statistics are based on robust statistical principles and practices, and use sound statistical methodologies, frameworks, classification systems and analysis to enhance understanding.

In 2008 the ABS assessed how the impacts of climate change and climate change initiatives are expected to be reflected in Australia's statistics. This assessment was discussed and refined at an ABS-hosted Climate Change Information Needs Roundtable involving a range of stakeholders including relevant Commonwealth agencies, the CSIRO, the RBA, NAB Capital and the Victorian Government.

The assessment was also presented and discussed by the Australian Statistics Advisory Council, the key advisory body to the Minister for the ABS and the Australian Statistician on statistical services.

The assessment found that economic statistics will be directly and immediately impacted, particularly by the planned implementation of an emission trading scheme. Population, social and environmental impacts of climate change will be more gradual, and therefore these statistics will reflect less dramatic change than is expected for economic statistics. However, the impacts of climate change that have already occurred may not be adequately reflected in Australia's current population, social or environmental statistics.

The assessment also identified an emerging range of economic, environmental, social and regional statistical needs that currently cannot be met from existing statistics, for instance, regular emission statistics to inform markets.

*Established ABS statistics will be affected by the climate change agenda.* Climate change and climate change initiatives will impact the Australian economy, society and environment, especially where climate and human activity have strong associations. Some impacts will be direct and immediate (e.g. changes in energy use and behaviour), while others will be indirect, gradual or localised (e.g. possible health outcomes, migration). Some ABS statistics will need to be enhanced to properly account for these impacts.

*New statistics will be required to measure the impact of climate change.* The ABS is well placed to measure the impacts on businesses and households through its rigorous statistical infrastructure including household and business surveys, and internationally developed frameworks, standards and classifications.

*Information to measure how Australia changes economically, environmentally and socially will be required.* Comprehensive information on changes in community and business behaviours will assist in monitoring the impacts and effectiveness of climate change initiatives. Use of environmental accounting frameworks, such as the international standard System of Integrated Environmental and Economic Accounting (SEEA), enable integrated analysis of economic, social and environmental data. ABS support is essential to ensure a whole of government approach to measuring these impacts while minimising administrative and reporting burden.

*An integrated statistical approach is required to support, monitor and evaluate climate change initiatives.* The ABS encourages a collaborative approach for the efficient production and use of statistics. The ABS supports other providers of statistics by sharing its expertise; by providing frameworks, classifications and standards to maximise comparability of statistical information, and by supplying tools for developing statistical capacity.

A more detailed outline of the assessment can be found at attachment 1.

### **Future requirements and directions for information**

The ABS acknowledges that there is a pressing need for robust and ongoing statistical information across a wide range of economic, social, population and environmental issues. Remaining responsive to these needs is a key objective of the ABS.

It is also recognised that policy imperatives are key in setting information priorities and that a long term plan for climate change information, including statistics, is desirable and needed. Securing appropriate resourcing is also crucial.

There is little scope to divert existing statistical resources from population, social or economic statistical priorities to meet the increasing pressures for environmental statistics. Additional resourcing strategies are needed to meet the critical and substantial statistical issues raised by ABS' initial assessment and ways of obtaining these resources are currently under active consideration.

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April 2009

## CLIMATE CHANGE AND IMPLICATIONS FOR STATISTICS

### Introduction

The 2008-09 Budget included many climate change initiatives for example the design, modelling, and establishment of an emissions trading scheme; Clean Business Australia; Energy Innovation Fund; National Clean Coal Fund; the Renewable Energy Fund; Australia's Farming Future and the Climate Change and Forestry Adaptation Action Plan.

2 Across all these initiatives, statistics and information will be required to assist and encourage informed discussion and debate; responsive and robust statistics are paramount.

3 This paper presents an initial assessment of the impact of these initiatives on Australia's statistics. Section 1 describes what must be done to ensure the robustness of ABS' existing statistics. Section 2 presents an assessment of the statistics needed to understand and support mitigation strategies to reduce Australia's greenhouse gas emissions (pillar 1 of the Australian Government's climate change strategy) and section 3 presents an assessment of the statistics needed to understand and support 'adaptation to climate change we cannot avoid' (pillar 2).

### SECTION 1: ENSURING THE ROBUSTNESS OF EXISTING STATISTICS

4 As Australia's central statistical authority, it is ABS' responsibility to assist and encourage informed discussion and debate within governments and the community. The ABS fulfils this role through the delivery of an extensive range of economic, population and social statistics and a growing range of environmental statistics which are trusted by governments and the community.

5 The ABS produces a range of main economic indicators, such as the Consumer Price Index (CPI) and Gross Domestic Product (GDP), and it is critical the impacts of climate change strategies are addressed in order to continue to meet their 'core' purposes. Existing statistics that will be impacted by the introduction of a Carbon Pollution Reduction Scheme (CPRS) are as follows.

- i. The CPRS will have a direct impact on the CPI as it will cause changes in the relative prices of goods and services purchased by households. Some commodities are expected to be relatively more expensive. This price effect could lead to changes in consumer spending patterns. The ABS will need to consider the issue of CPI weights in the context of the CPRS. The greater the variation in price behaviour across commodities, the greater the role of weights in correctly measuring aggregate rates of price change. In September 2011, a reweighted CPI series will be available based on expenditure patterns from 2009-10, that is, before the CPRS is introduced. Consideration is needed of the timing of the subsequent household expenditure survey (HES), currently scheduled

for 2015-16 (weights would then be updated in the CPI in September 2017), taking into account expectations of how dispersed the rates of price change might be and how quickly consumption patterns might settle down to a new 'normal' pattern. Any changes to the frequency of the ABS household survey program would take into account not only the need for updated weights for the CPI, but other community needs.

- ii. For some commodities in the CPI, both consumption patterns and pricing methods may change. Price samples will need to be correctly structured to capture these changes.
- iii. Producer Price Indexes (PPI) need to remain responsive, particularly those PPIs where fuel and/or energy is a major component of production processes, such as transport, manufacturing and mining products and services. There are no PPI samples covering the mining and electricity industries per se and this should be addressed.
- iv. Quarterly measures of GDP will provide a contemporary view of the economy including changes arising from the introduction of a CPRS. However, maintaining time-series in order to analyse real-world change, including shocks such as the introduction of a CPRS, will be a key consideration.
- v. Input-output tables provide a structural view of the goods and services traded in the market. A comprehensive program of industry statistics provides the base data for these tables. The program will need to be reviewed to ensure regular and timely provision of key industry statistics.
- vi. There will be a need to separately identify any financial instruments created around permits and the holdings and flows of these in various sets of financial statistics and accounts. This will require ABS to ensure holdings of permits, financial instruments and trading activity associated with primary and secondary markets are captured in domestic and international statistics such as Balance of Payments, International Investment and Financial Accounts.
- vii. Government Finance statistics need to accurately capture, record and report permit values, and transfers through the tax and social security systems.

6 Economic statistics are produced within a coherent statistical framework called the System of National Accounts. This framework supports international, national and regional comparison. Extensive use is made of common standards and classifications in order to provide for this comprehensive and integrated view of the Australian economy. Product classifications are essential for GDP, CPI, PPI and input-output tables, and it will be critical to revisit these classifications in a holistic manner to maximise integration of climate change relevant items. For example, the input-output tables used in the modelling undertaken by Garnaut posed some challenges as climate changes impacts are cross cutting, yet different product

classifications were used across the economic, environmental, and social collections.

## **SECTION 2: STATISTICS TO UNDERSTAND AND SUPPORT PILLAR 1 (MITIGATION STRATEGIES TO REDUCE AUSTRALIA'S EMISSIONS)**

7 Reducing emissions is fundamental to the Government's climate change strategy<sup>1</sup> and the CPRS will require a substantial transformation to Australia's economy<sup>2</sup>. The strategy introduces a carbon market, and governments, business and the community will be seeking carbon-related information.

8 The ABS already has a range of statistics to inform mitigation strategies. Existing socio-economic statistical datasets, such as agriculture production, energy use, energy supply, motor vehicle usage, water and land use, and household income and expenditure, must remain responsive to information priorities.

9 In addition, new statistics to understand and support mitigation strategies, including the CPRS, are likely to be needed as follows:

- i. Regular, timely and credible statistics relating to emissions and emission permit trading. Informal discussions with the Reserve Bank of Australia suggest quarterly emission estimates will be required to support a well-functioning market.
- ii. Australia's energy statistics, compiled by ABARE, were last benchmarked in 2000-01. With increasing scrutiny being placed on Australia's energy statistics, regular benchmarking would assist in quality assurance and statistical coherence over time.
- iii. Energy use and supply statistics can be brought together into an integrated environmental-economic account, similar to Australia's National Account, to analyse to what extent production and consumption patterns are producing emissions and to inform on the links between the physical use of energy products, expenditure on those products, and the associated emissions. Data in an environmental-economic account are consistent with the national accounts thus enabling environmental data such as emissions to be directly compared to macro-economic indicators such as GDP and industry valued added. These comparisons enable the derivation of indicators such as emission intensities.
- iv. Regular, timely and relevant information on the prices of energy products and services. Whilst energy price information is available, it is currently collected to support price index calculation to show change in prices over time and may not enable production of prices, such as an average price per kW hour for electricity.

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<sup>1</sup> Carbon Pollution Reduction Scheme Green Paper, page iv

<sup>2</sup> Carbon Pollution Reduction Scheme Green Paper, page v

- v. With the energy industry being the key industry within the context of the CPRS, demand for up-to-date statistics relating to the energy industry is a priority. The energy industry is included in existing economic statistics but more detailed information, such as the adoption of new technologies, is anticipated.
- vi. Environmental management statistics, such as management practices, adoption of new technologies, and expenditure on environmental management by businesses, would support energy, water, waste, and emission-related strategies. These statistics are indicative of the response of various sectors to environment protection regulations and policies.

10 ABS legislation seeks to avoid duplication in the collection of information. One of the many mechanisms in place to achieve this is to enable information collected by official bodies to be suitable for, and used for, statistical purposes. Customs and taxation data are examples of where this occurs in practice. As new reporting systems are developed, such as the National Greenhouse and Energy Reporting System and permit registers, the ABS would work with the owners of these data to ensure to the greatest extent possible, these data are suitable for statistical use, and can be accessed for statistical purposes.

### **SECTION 3: STATISTICS TO UNDERSTAND AND SUPPORT PILLAR 2 (ADAPTING TO CLIMATE CHANGE WE CANNOT AVOID)**

11 In April 2007, COAG agreed to a National Climate Change Adaptation Framework that identified medium-term actions to build Australia's capacity to manage the risks of climate change impacts and to reduce the vulnerability of key sectors and regions. A National Adaptation Plan is currently being developed to underpin ongoing action.

12 Scientific or observation based information, such as temperature and rainfall measures, will be essential for governments, business and the community to 'adapt to climate change we cannot avoid'. Statistics that measure the interaction between human activities and the environment will provide the understanding of where adaptation is required as well as the impact of adaptation plans.

13 Reliable, basic information is needed to support forecasting and modelling. Information such as population, poverty, migration, labour, business counts, land use, water use and harvest and crop production are examples of the statistics required to support forecasting and modelling. The ABS already produces a range of statistics that can support forecasting and modelling, and maintaining relevance of these existing collections and products to information priorities and analytical uses will be essential.

14 New statistics that could be needed to understand and support adaptation strategies can be summarised as follows:

- i. Regular, timely and accurate statistics on the supply and use of water in the Australian economy. The government's Water for the Future policy identifies action on climate change as a priority and reforms include

making sure water planners have the best information on available resources and the likely impacts on climate change. More frequent measures of who is using Australia's scarce water supplies will help to fill this identified need.

- ii. Targeted, land-based surveys of coastal, storm surge, peri-urban and other regions of interest such as the Murray Darling Basin will be required to understand the effect of climate change on local communities, on land holders and on local economies. It is strongly expected that regional studies will be a key input into climate change adaptation analysis and integrated vulnerability assessments.
- iii. There is an emerging environment industry that will require benchmark and performance measures.
- iv. The local government sector will have a key role in climate change adaptation strategies. There is substantial interest in changes to local government activities due to climate change related strategies, for instance changes to planning processes and building codes, as well as environment-related expenditure and activity data.
- v. Governments, business and in particular the community will benefit from the timely release of statistical snapshots on energy use, energy production, water use, environmental management, and other environmental topics to inform and promote climate change related issues and trends.

15 The island continent of Australia features a wide range of climatic zones, from the tropical regions of the north, through the arid expanse of the interior, to the temperate regions of the south<sup>3</sup>. Climate change impacts can only be adequately analysed if economic and social information is integrated into an environmental context such as the biophysical features of the land<sup>4</sup> through river basins or water catchment areas.

16 The spatial scales required to appropriately inform discussion and debate are likely to place increasing pressure to disseminate spatially-relevant statistics. The implementation of geographical building blocks (mesh blocks) in key datasets such as the Census of Population and Housing, the Agricultural Census and Centrelink data, will assist in the building of comparable spatial outputs.

17 The ABS has a range of statistics available across various spatial scales and dissemination tools that support inter-regional comparison across statistics would provide greater transparency and useability of this information by governments, business and the community.

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<sup>3</sup> Year Book, Australia 2007 page 39

<sup>4</sup> Are Central Statistical Offices Prepared to Track the Impacts of Climate Change? Statistics Canada paper to a UN-led International Conference on Climate Change and Official Statistics, Norway, 2008.



## SECTION 4: ABS ACTIVITIES AND NEXT STEPS

### Stakeholder Engagement

18 To ensure that the ABS' initial assessment is an accurate reflection of statistical needs the ABS hosted a Climate Change Information Needs Roundtable on 1 September 2008. A range of external stakeholders attended including relevant Commonwealth agencies, the CSIRO, the RBA, NAB Capital and a representative from the Victorian Government. The purpose of the Roundtable was to enable discussion around:

- ensuring the robustness of existing statistics (such as the consumer price index, GDP and household expenditure patterns); and
- statistics to understand and support climate change adaptation strategies and mitigation initiatives to reduce Australia's emissions (such as the Carbon Pollution Reduction Scheme and related emission trading markets).

19 A number of key outcomes were reached at the Roundtable including:

- i. recognition of the 'must do' activities to ensure the quality, relevance and robustness of main economic indicators (i.e. CPI and PPI);
- ii. identification of a number of priorities (i.e. timely emission indicators to inform the carbon market; information on energy prices, energy industry, energy activities and energy accounts; information on environmental management; water statistics and tools to support and enable regional comparisons); and
- iii. agreement on opportunities for collaborative work to further the climate change related information base (i.e. ABARE, ABS, DCC, DRET and others working together to improve the range and quality of Australia's energy and other climate change-related statistics, for example, collaborative opportunities with DCC around NGERS).

20 It was recognised that policy imperatives are important in setting information priorities and that a long term plan for climate change information, including statistics is desirable.

21 Climate change and the implications for statistics was also the subject of discussion by the Australian Statistics Advisory Council (ASAC), Australia's key advisory body for statistical services. ASAC discussed the importance of measuring not just the short term impacts of climate change such as the impact of the emissions trading scheme on prices but also the longer term physical outcomes of climate change; the importance of climate change statistics to assist agencies develop policies, such as pre-emptive policies on areas vulnerable to climate change; and the value of satellite accounts to more comprehensively measure climate change impacts. ASAC also emphasised the importance of cross-agency work and ABS leadership in the development of robust statistical methodologies across stakeholders.

## **CONCLUSION**

23 Ensuring Australia's statistics and the ABS remain responsive to climate change and climate change strategies will require 'must do' activities to ensure the robustness of existing statistics as well as the funding of enhanced and new information to understand and support mitigation and adaptation strategies. Medium and longer term priorities need to be established. It will be important for the ABS, as Australia's central statistical agency, to provide robust and new statistical information. The ABS must lead and support and collaborate with jurisdictions, industry and governments in developing and exploiting information to present a rich statistical picture to address climate change information needs.