



Industry &
Investment



Energy, agriculture, forestry and environmental policies for short rotation crops

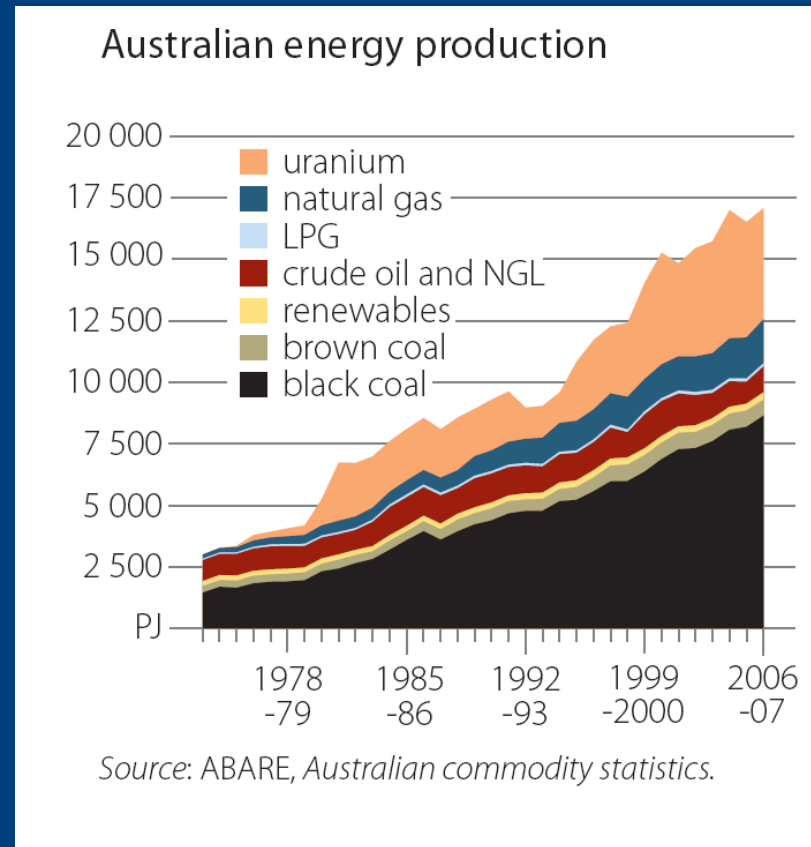
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Task 30 Short rotation crops for bioenergy systems

Overview

- Energy production and consumption
- Different drivers
- Policy - levels
 - Current policy snapshot
- Implications for short rotation crops for bioenergy
- Summary

Australia – energy production

- Australia is the world's 8th largest energy producer
- We export 66% of energy
 - Energy production is increasing (growth of 4.3% p.a. over last 10 years, prior to that 3.4% p.a.)
 - But we are a net importer of crude oil and refined petroleum



Source: ABARE, 2009; *Energy in Australia*

Australia – energy consumption

- Increasing (2.3% p.a. last 10 years) but at a slower rate (2.7% increase p.a. previous 10 years)
- Efficiency becoming more important

Selected fuel consumption (PJ)

■ Black coal	1 664
■ Brown coal	675
■ Petroleum prods	2 001
■ Natural gas	1 157
■ <u>Wood</u>	<u>93</u>
■ <u>Bagasse</u>	<u>111</u>
■ Total electricity	941
– Hydro	52
– Wind & solar	23

Policy drivers

- Energy security
- Regional development
- Greenhouse gas reduction
- Air quality

Some current Australian policy

- Renewable energy
 - The national Emissions Trading Scheme (CPRS) – 2010
 - Lots of negotiation
 - The national Renewable Energy Target – 20% by 2020
- Biofuel
 - NSW increasing to a 10% ethanol & 5% biodiesel mandate (*Biofuels Act 2007*)
 - Queensland currently working towards a 5% mandate in 2010+
 - Other states have targets

How do we assess policy outcomes?

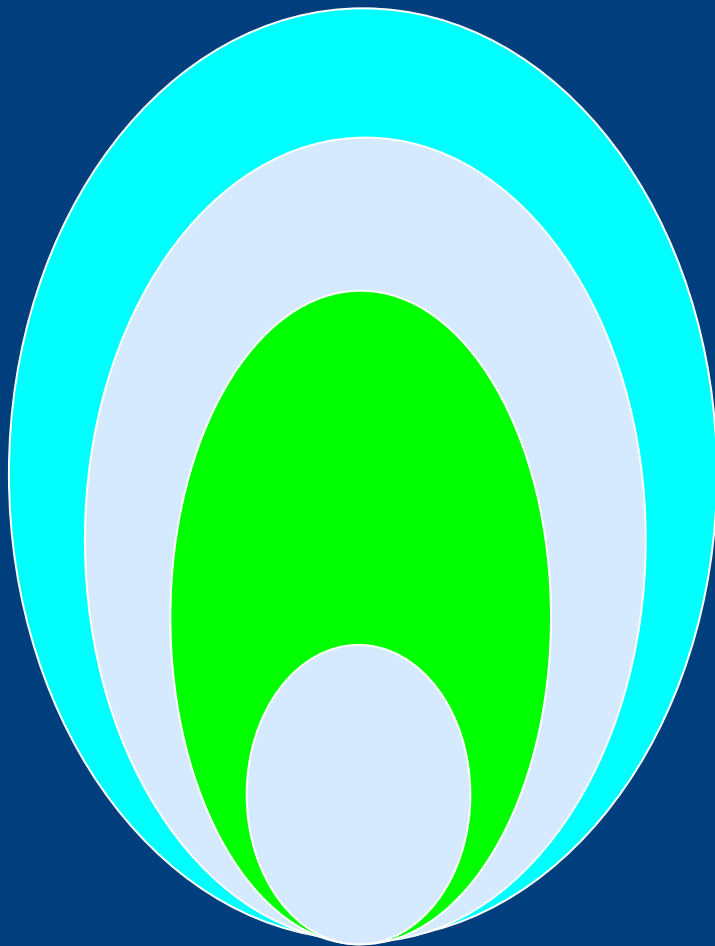
- Is policy
 - To advantage
 - Neutral
 - Explicitly or implicitly limiting SRC development?
 - Is it cost effective? (not discussed today)
 - At what point in the value chain does it have an impact?
- At what scale does production require regulation?

Global and national issues in biomass energy production

- Greenhouse gas benefits – mitigation capacity
- Residue management
- Water harvesting
- Impact on associated agriculture (e.g., meal production and intensive agriculture)
- Food v fuel?
- Sustainability of new cropping system or land now in use
- Market acceptance

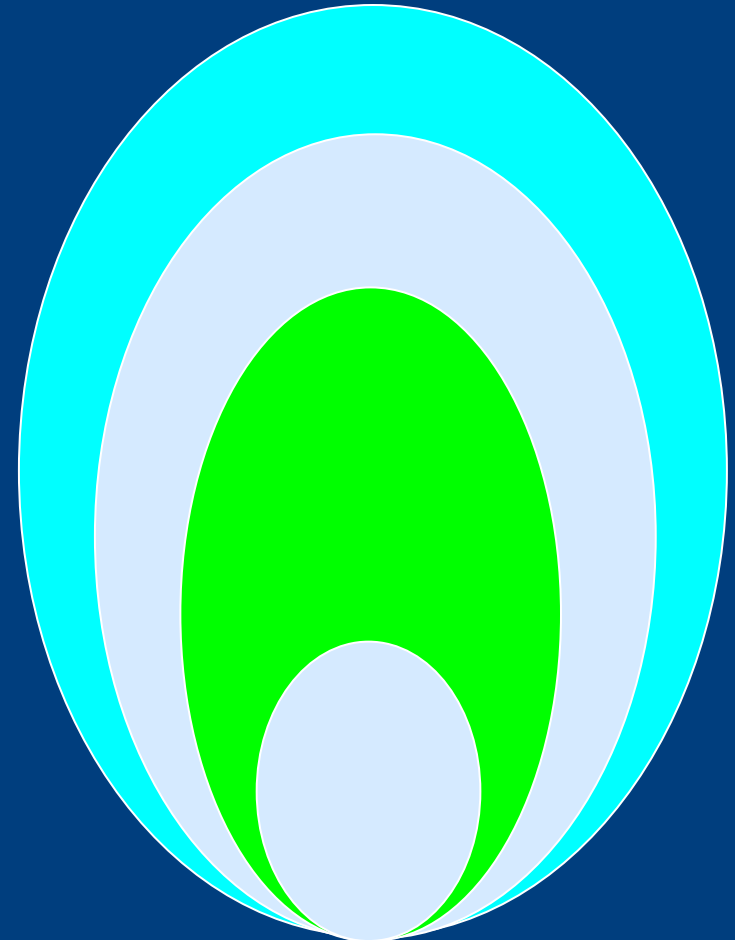
Scale – production and regulation

production



international
multinational
national
national
regional/state
local
local

regulation



Some policy relating to forestry biomass in NSW, Australia

- *Environment Planning and Assessment Act 1979*
- *Native Vegetation Act 2003*
- *Noxious Weeds Act 1993*
- *Plantation and Reafforestation Act 1999*
 - *Rural Fires Act 1997*
 - *Water Management Act 2000*
 - *Forestry Act 1916*
 - *Protection of the Environment Operations Act 1997*

National Water Initiative

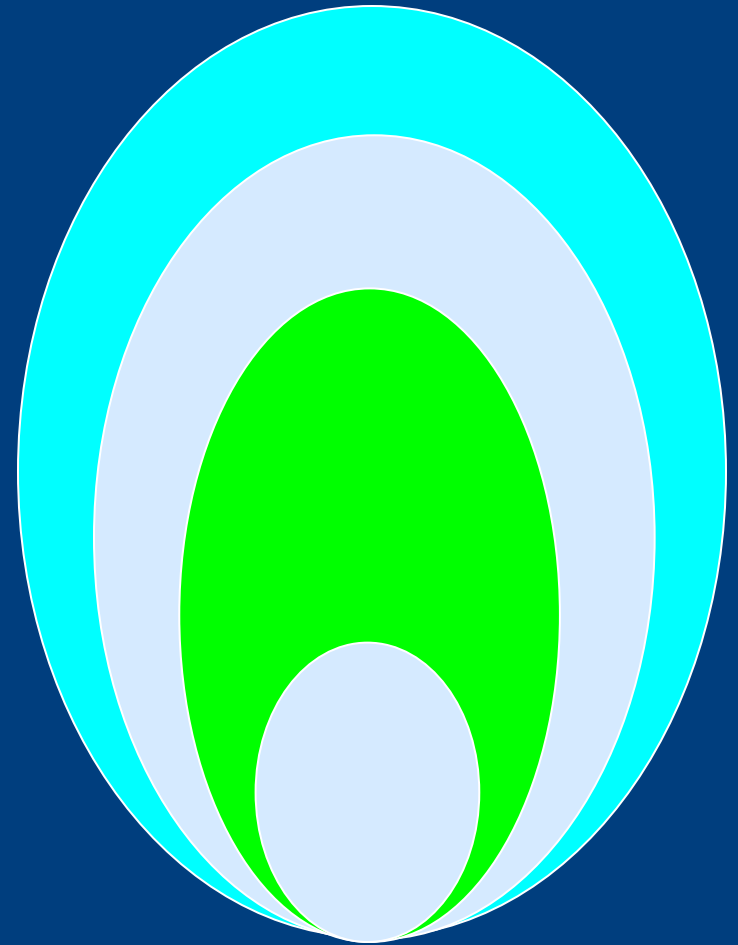
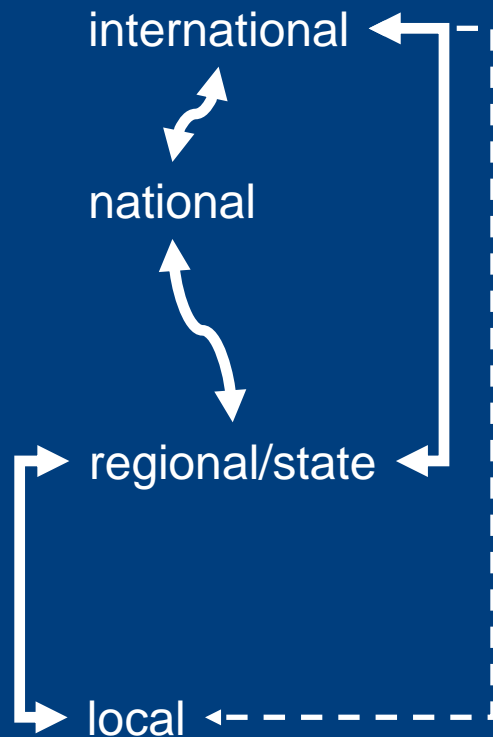
- *Intergovernmental agreement on a national water initiative*
- The Parties recognise that a number of land use change activities have potential to intercept significant volumes of surface and/or ground water now and in the future. Examples of such activities that are of concern, many of which are currently undertaken without a water access entitlement, include:
 - i) farm dams and bores;
 - ii) intercepting and storing of overland flows; and
 - iii) **large-scale plantation forestry.**

([Clause 55](#))

NSW *Biofuels Act 2007*

- “Only ethanol that complies with a biofuel sustainability standard may be counted towards the volume of ethanol sold for the purposes of this section.”
- From the Office of Biofuels...
 - “The Biofuels Regulation 2007 prescribes as a standard the *Principles and Criteria for Sustainable Biofuels Version Zero..*”

Interaction across jurisdictions



Principles on Sustainable Biofuel Production - I

Legality

(Biofuels Act 2007)

1. Biofuel production shall respect all applicable laws of the country in which they occur, and all international treaties and agreements to which the country is a signatory.

Consultation

(EP&A 1979)

2. Biofuel projects shall be designed and operated under appropriate, transparent, consultative, and participatory processes that involve all relevant stakeholders'.

Climate Change and Greenhouse Gas

(proposed CPRS)

3. Biofuels shall contribute to climate stabilization by reducing GHG emissions as compared to fossil fuels.

Principles on Sustainable Biofuel Production - II

Human and Labor Rights

(Multiple instruments)

4. Biofuel production shall not violate human rights or labor rights, and shall ensure decent work and the well-being of workers.

Socio-economic Development

(NWI + State Plan)

5. Biofuel production shall not violate land or water rights, and shall contribute to the social and economic development of local, rural and indigenous peoples and communities.

Food Security

6. Biofuel production shall not impair food security.

Principles on Sustainable Biofuel Production - III

Conservation and Biodiversity

(NVA 2003)

7. Biofuel production shall avoid negative direct and indirect impacts on biodiversity and areas of High Conservation Value.

Soil

(Multiple instruments)

8. Biofuel production shall not directly or indirectly degrade or damage soils.

Water

(NWI – key issue)

9. Biofuel production shall not directly or indirectly contaminate or deplete water resources.

Principles on Sustainable Biofuel Production - IV

Air

(POEO Act)

10. Biofuel production shall not directly or indirectly lead to air pollution.

Technology

11. The use of any new technology must improve production efficiency and environmental performance in the long term and in all stages of the biofuel value chain.

Summary

- There are significant regulatory developments for bioenergy;
- Some of the developments are positive, some neutral, some potentially negative;
- Mix of scale (production) and governance (where in the supply chain and at what level) will complicate outcomes;
- Energy crops need to be considered – or they could be significantly disadvantaged.