



Centre for Energy and Environmental Markets UNSW

Renewable Energy & Energy Efficiency Financial Mechanisms: Recommendations

Hugh Outhred, Former Presiding Director, CEEM, UNSW
 APEC Workshop on Recent Advances in Utility-Based Financial Mechanisms that Support Renewable Energy & Energy Efficiency
 Honolulu, Hawaii, 30 March – 1 April 2009

www.ceem.unsw.edu.au

Centre for Energy and Environmental Markets UNSW

Recommendations based on Australian experience #2

- Introducing new RE technology involves *diffusion of innovation* & requires *social capital*:
 - Can be either organic or government-led (accelerated)
 - Government-led should take a holistic approach
- Government-led strategy for RE introduction:
 - Consider both tech. components & tech. systems:
 - Analyse using Decision Making (DM) & I3A Frameworks
 - Consider what *energy services* you wish to promote
 - eg on-grid vs off-grid; RE resources; local manufacture vs import
 - Develop appropriate orgware, software before hardware:
 - Design using DM & I3A frameworks within the cultural context
 - Deploy RE hardware within macro-economic constraints

Recommendations for RE & EE financial mechanisms 3

Centre for Energy and Environmental Markets UNSW

Recommendations based on Australian experience #1

- In the Australian context (may not be transferrable):
 - The National Electricity Market works well
 - The Tradeable Renewable Energy Certificate Scheme has worked well for low-cost RE: wind, hydro & biomass
 - Grid-connected PV still uncompetitive:
 - FiTs used instead but are a form of middle-class welfare
 - Tradeable Energy Efficiency Certificate Schemes are not yet working well (very abstract & need strong regulation)
 - Emissions Trading Scheme yet to be implemented:
 - Very broad coverage may create uncertainty & be easy to game
 - Unlikely to act fast enough for Australia to make an equitable contribution to avoiding dangerous climate change

Recommendations for RE & EE financial mechanisms 2

The I3A Sustainable RE Service Delivery Framework (Retnanestri, 2008)

Implementation: Institutional aspects & external factors affecting RE service delivery


Accessibility: Financial, Institutional, Technological accessibility

Availability: Technological, Institutional aspects to maintain service quality & continuity

Acceptability: Social & ecological dimensions

Recommendations for RE & EE financial mechanisms 4



Centre for Energy and Environmental Markets 

Role of financial mechanisms - conclusions

- Choice of mechanism depends on context, eg:
 - On-grid or off-grid; RE deployment maturity
 - RE hardware: local manufacture or import
 - Orgware & software (O&S) status (education & training, institutions) *develop prior to hardware deployment*
- To deploy technically proven hardware after O&S:
 - FiT, RPS, tradeable instruments etc. as appropriate
- For hardware RD&D:
 - Innovation support policies & institutions
- Education & training (O&S):
 - Scholarships, apprenticeships, courses, RD&D funding

Recommendations for RE & EE financial mechanisms 5

Centre for Energy and Environmental Markets 

Hugh Outhred, CEEM, UNSW: h.outhred@unsw.edu.au
Many of our publications are available at:
www.ceem.unsw.edu.au

www.ceem.unsw.edu.au

