

The road toward sustainable energy in Western Australia: what legal and policy settings could make the South West Interconnected System renewable?



Original submission to NELA Essay Competition 2014, "Are we selling ourselves short?"

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1. Introduction

Energy, in all its forms, underpins our economy and standard of living. It is the combining factor and metaphorical mode of transport for all activities that make our societies what they are. Because energy is the cornerstone of our way of life, the utmost attention and strategizing must be applied to the way we generate, distribute and use energy over time.

The South West Interconnected System (**SWIS**) is unique in the Australian context. Due to the geographical divide, it is disconnected from the national electricity grid. This distance means it is highly unlikely that the SWIS and the national grid will ever be connected¹. The SWIS has its own legislative state jurisdiction and has independent regulations². These factors allow for the opportunity for progressive reform in the SWIS.

This discussion asks the question: is our current planning for the SWIS selling us short in terms of future electricity generation methods and achievement of social goals?

In addressing this, it will be argued that developing a long sighted, fully sustainable energy system based on renewable energy generation is the socially responsible, and most low risk, outcome for the SWIS. Furthermore, achieving this keeps Western Australia in line, if not ahead, of international norms. The legal and policy reform pathways, in conjunction with existing and potential regulatory and governance issues, will be analyzed to outline reform pathways that could be used to achieve this goal.

This discourse will focus primarily on legal and policy reform. Whilst the overlap is often indiscernible, market reform will be considered only by consequence. The analysis is built upon four assumptions:

1. Political leadership and commitment to sustainability³ is forthcoming;
2. A decision to change the law is apparent;
3. The Government has a strategic and progressive economic disposition;
4. Community support for reform exists.

My focus will be on the role of the Western Australian State Government and the challenges of electricity generation and distribution whilst energy efficiency and demand side management will be briefly addressed.

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¹ Delphine de Bablinea, Tania Urmeea & Jamie Ally, 'Prospects and problems of increasing electricity production from mid-size renewable energy generation on the South-West Interconnected System (SWIS) in WA' (2012) *Procedia Engineering* 49, 57 – 65, 26

² *Ibid*, 26

³ Alleen McHarg, 'Regulating for sustainable electricity market outcomes in Britain: Asking the law question' (2013), 30 *Environmental Planning and Law Journal*, 289, 292

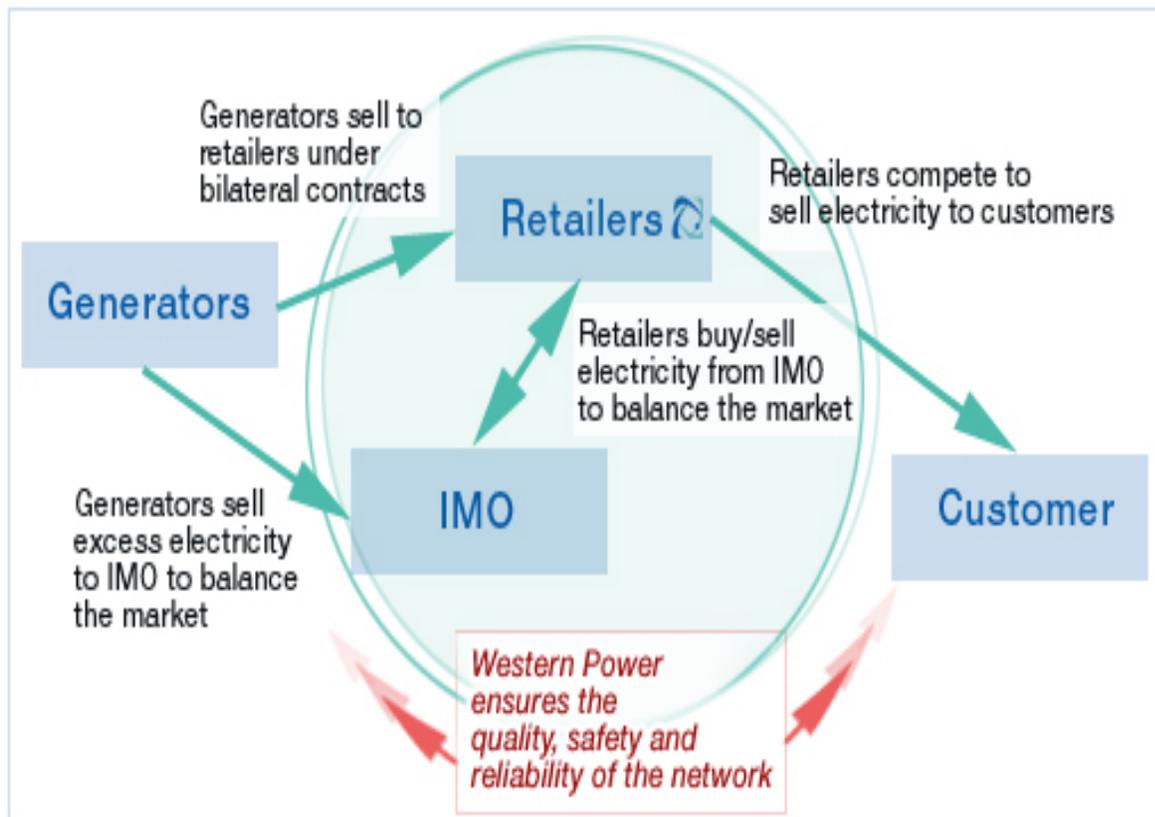


Figure 1: Operation of the SWIS / WEM

Taken from: Perth Energy, Market & Consumers, (2014) Perth Energy – Power to choose
<http://www.perthenergy.com.au/index.php/electricity-market/market-and-consumers>

2. Characteristics of the SWIS

The SWIS network supplies electricity to around 1.1 million customers over an area of 261,000km². It is bordered by Kalbarri in the north, Kalgoorlie in the east, and Albany in the south (Figure 2⁴). This network was designed to transport electricity from centralized generation facilities to consumers across a broad network.

The SWIS market is referred to as the Wholesale Electricity Market (**WEM**)⁵.

In 2006 the energy sector in Western Australian underwent a historic reform where “the state owned vertically integrated electricity utility ...disaggregated into four entirely separate corporate business entities”⁶. The resulting SWIS businesses are:

- Western Power - ownership and operation of the SWIS which connects generators to consumers;
- Synergy - retailing; and
- Verve Energy - ownership and operation of power stations connected to the SWIS⁷.

⁴ Australian Energy Regulator, *State of the energy market 2007 - Chapter 7 Beyond the national electricity market*, 26 July 2007, State of the energy market 2007

<<https://www.aer.gov.au/sites/default/files/Chapter%207%20Beyond%20the%20national%20electricity%20market%202007.pdf>>

⁵ Delphine de Bablinea, Tania Urmeea & Jamie Ally, ‘Prospects and problems of increasing electricity production from mid-size renewable energy generation on the South-West Interconnected System (SWIS) in WA’ (2012) *Procedia Engineering* 49, 57 – 65.

⁶ Above n 1

⁷ Above n 1

The SWIS is governed by the Office of Energy and the Department of Finance (Public Utilities Office) who support the State Government and the Minister for Energy⁸. The Western Australia Economic Regulation Authority (ERA) regulates the WEM and the Independent Market Operator (IMO) operates the WEM⁹.

Owing to high summer temperatures, today the retail market dictates that the SWIS is a summer peaking system. In 2013-14, the summer peak was 3,702 MW, while the winter peak was 3,069 MW¹⁰. The IMO 2014 review states that

peak demand is forecast to increase at an average annual rate of 2.1 per cent between 2014-15 and 2023-24 ...sent out energy is forecast to grow at an average annual rate of 1.8 per cent between 2014-15 and 2023-24 ... [and] *no new capacity will be required in the SWIS until 2023-24*¹¹

This is because current total generation capacity was 6087MW in 2013-14¹².

As shown in Figure 3, in 2011, renewable energy made up 2% of total electricity generation. 'Electricity production from renewable energy for the SWIS is fairly small and not constant, and the use of coal and gas dominates the rest of the electricity generation'¹³ (see Figure 4). Some coal, but primarily gas electricity generation, accounts for almost all of the remaining 98% of supply. If gas truly is the transition fuel from fossil fuels to renewables¹⁴, then it would seem that WA is well on its way down this path.

However, it would appear that in the SWIS, this phenomenon is a function of circumstance and resource convenience, rather than a transitional low emissions strategy.



Figure 2: Electricity infrastructure map—Western Australia
 Taken from: Australian Energy Regulator, *State of the energy market 2007 - Chapter 7 Beyond the national electricity market*.

⁸ Honorable Dr Mike D. Nahan

⁹ Australian Government, Department of Industry, *Energy White Paper: Green Paper 2014 – to inform preparation of a white paper*, (September 2014), 41

¹⁰ Independent Market Operator, *SWIS Electricity Demand Outlook*, (June 2014), 17

¹¹ *Ibid* 3

¹² Perth Energy, *Market & Consumers*, (2014) Perth Energy – Power to choose <<http://www.perthenergy.com.au/index.php/electricity-market/market-and-consumers>>

¹³ Above n 1, 58. The current breakup of electricity generation between renewable and non-renewable sources within the SWIS can be seen in Figure 3.

¹⁴ R.E.H. Sims, R.N. Schock, A. Adegbulugbe, J. Fenhann, I. Konstantinaviciute, W. Moomaw, H.B. Nimir, B. Schlamadinger, J. Torres-Martínez, C. Turner, Y. Uchiyama, S.J.V. Vuori, N. Wamukonya, X. Zhang, 2007: Energy supply. In *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA <<https://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter4.pdf>>

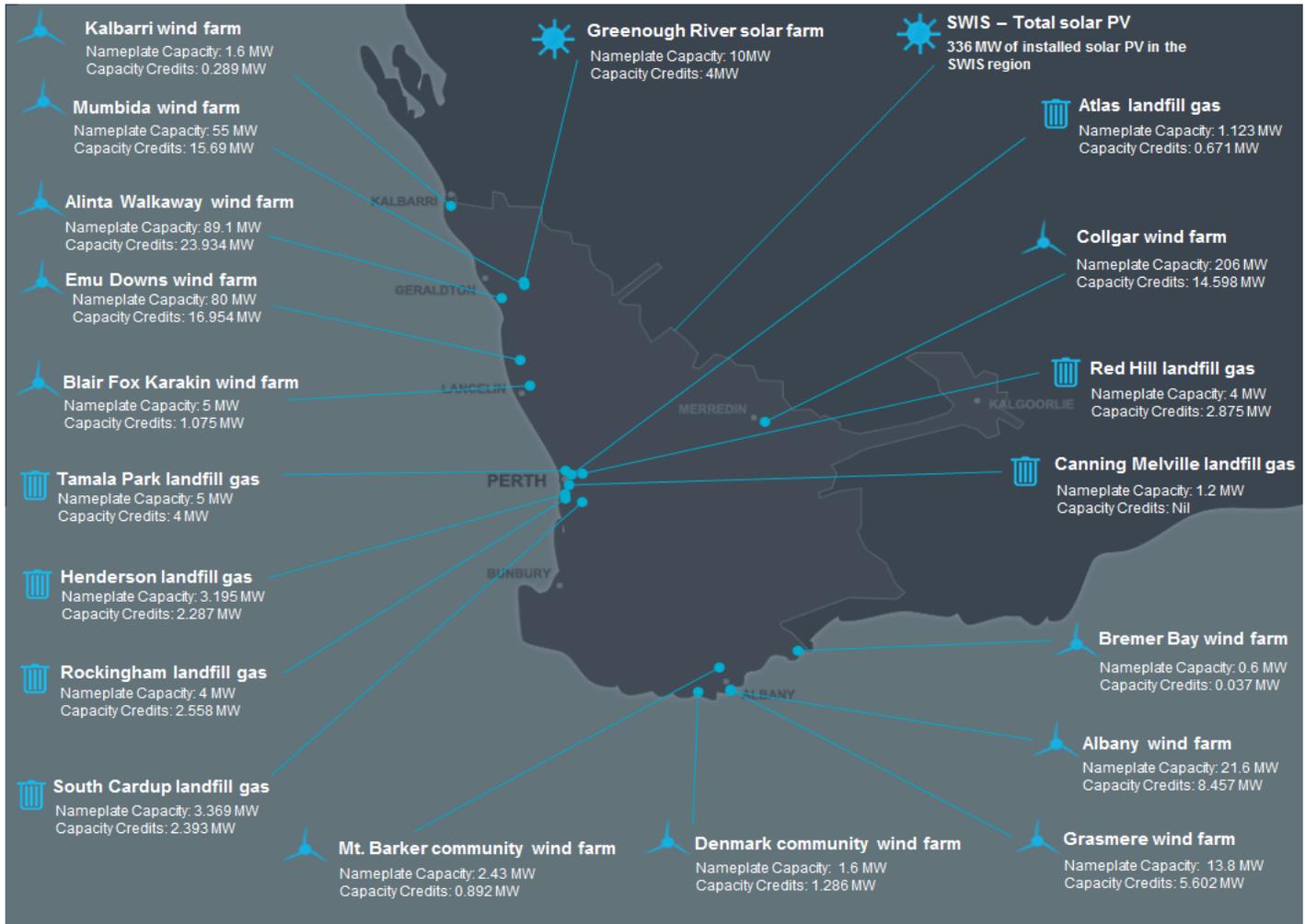
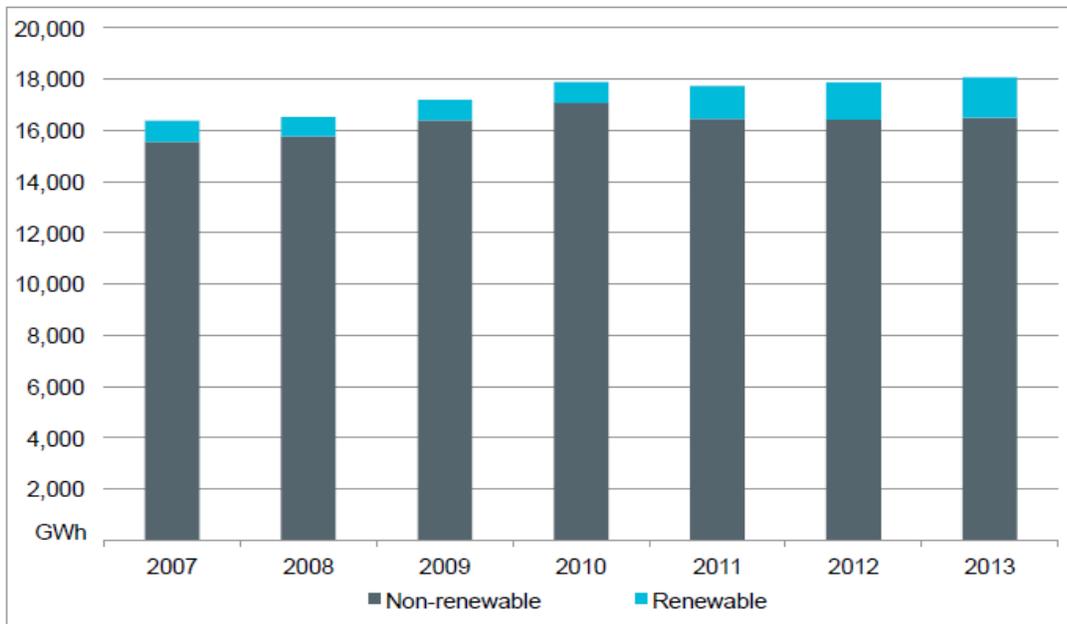


Figure 3: Existing Renewable capacity of the SWIS

Taken from: Independent Market Operator, SWIS Electricity Demand Outlook, (June 2014), 46



Source: IMO

Figure 4: Renewable and non-renewable electricity generation, 2007 to 2013

Taken from: Independent Market Operator, SWIS Electricity Demand Outlook, (June 2014), 47

3. Motivation for Reform: Climate Change

“It is the duty of the law to keep pace with changing times and scientific developments”¹⁵. Climate change is the long term, integrate science of the state of our earth. It is the science of change, the science of flux, of micro and macro processes and transcends fourteen orders of magnitude over space and time¹⁶. Most importantly for the law, is that over the last three and a half decades, the realization of anthropocentric influences on the natural climate system has meant climate change has become the science of the longevity of the global community and has caused households, nations and the world, to question our place within it.

Climate models allow scientists to predict future scenarios depending on various emissions and land use pathways. Based on current levels of information, the most likely climate scenario for the South Western Region regarding temperature change to the year 2050 is a 1–2 degree rise in average summer temperatures and 1–1.5 degree rise in annual temperature (Figure 5)¹⁷.

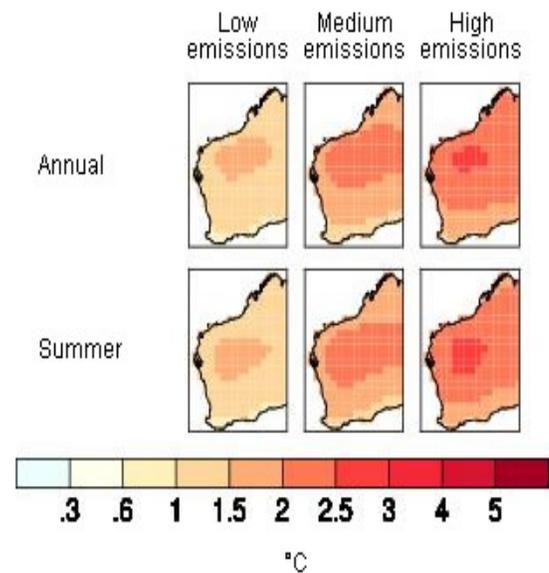


Figure 5: *Western Australia Temperature Change 2050 50th Percentile (Modified from original)*

But this data begs the question, why should we take note of climate data and act to reform our energy sector? Australia's per capita CO₂ emissions are nearly twice the OECD average and more than four times the world average.¹⁸ Electricity generation is the largest source of these emissions. A view to protect the status quo would go on to note that “Australia generates about 1.5% of global greenhouse gas emissions”¹⁹. But, from a state perspective, energy production accounted for 75.7% of total emissions²⁰ in Western Australia in 2009. These statistics still do not necessitate reform in themselves, unless the negative externalities of GHG emissions are accounted for.

The simple motivation for this discussion permeates from historical and current events in the WA political cycle. Much of the policy platform for ‘Opportunities for Renewable Energy Generators’ to enter the Western Australian market were as “a result of national greenhouse policy drivers, including the national renewable energy target and the introduction of carbon pricing”²¹. In the years since these state policies were developed, the national carbon pricing legislation has been repealed²² and the national renewable energy target has been down-graded. In addition, the themes, strategies and plans of the Energy 2031 Directions Paper²³ (WA) are

¹⁵ Adrian Bradbrook ‘NUISANCE AND THE RIGHT OF SOLAR ACCESS’ *Western Australian Law Review*, 148 - 186

¹⁶ Gavin Schmidt, ‘The emergent patterns of climate change’ (Speech filmed at TED2014, March 2014) https://www.ted.com/talks/gavin_schmidt_the_emergent_patterns_of_climate_change#t-62382

¹⁷ Taken from: Australian Government, *Western Australia Temperature Change 2050 50th Percentile*, (2014) CSIRO; Bureau of Meteorology; Department of Climate Change and Energy Efficiency, <<http://www.climatechangeinaustralia.gov.au/watemp20.php>>

¹⁸ Carbon Neutral, *Australia’s Greenhouse Gas Emissions*, (no date), Carbon Neutral <<http://www.carbonneutral.com.au/climate-change/australian-emissions.html>>

¹⁹ Ibid

²⁰ Australian Bureau of Statistics, *1367.0 - State and Territory Statistical Indicators, 2012 – Carbon Emissions*, (27/01/2012) <<http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1367.0~2012~Main%20Features~Carbon%20Emissions~6.39>>

²¹ Government of Western Australia, *Office of Energy Renewable Energy Handbook 2010* (September 2010) 18

²² Emma Griffiths, ‘Carbon tax scrapped: PM Tony Abbott sees key election promise fulfilled after Senate votes for repeal’, *ABC News Online*, 17 Jul 2014, 10:18pm <<http://www.abc.net.au/news/2014-07-17/carbon-tax-repealed-by-senate/5604246>>

²³ Government of Western Australia, Office of Energy, *Energy2031 Strategic Energy Initiative: Directions Paper - A smarter energy future for Western Australians* (March 2011)

currently under review, with Phase 2 designed to realise the reform options.²⁴ When considered together, these events indicate that the goals and pathways of our energy sector in relation to sustainability and renewable energy are in need of deliberation.

4. What Does Sustainable Energy Mean?

Sustainability can be discussed in a range of dimensions, however in its most fundamental state it refers to maintaining “the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations”²⁵. A sustainable energy future in Australia would “see a shift in focus to meeting energy service needs (rather increased energy consumption)”²⁶.

‘Energy’ can take a number of forms: kinetic, thermal, potential, electrical, chemical, mass and electromagnetic. By definition, energy is the capacity to do work. ‘Work’ is defined as a force applied which creates movement. Most simply, energy is power over a given timeframe²⁷.

‘Sustainable Energy’, therefore, is *a form of energy where power exerted over time, exists in productive harmony with humans and nature*. The forms of energy which encapsulate the requirements for sustainability are renewable energy sources. These are “resources that can be replenished at a rate equal to or greater than the rate of depletion”²⁸.

5. Toward a Sustainable SWIS: The Western Australian Government and Energy Reform

Climate change mitigation creates the context for this energy system reform discussion. Like any public policy, a range of competing factors are at work. Sustainable energy in WA would entail a system entirely powered by low emission, renewable energy generation sources - but this tells us little about how to achieve such a system. Pears stated:

[W]hen we imagine Australia’s energy future, we need to reflect upon the activities and services that will be needed or desired. These, combined with the technologies available, will determine the requirements for energy’²⁹.

Moreover, energy service requirements will be linked to population trends and the mix of types and the level of economic activity³⁰.

To discuss this issue, a structured approach must be adopted. Dovers³¹ provides a methodology which delineates *Problem Framing* from *Policy Framing*. Problem framing contains the elements of: Debating social goals; Monitoring topicality; Monitoring human/natural systems; Identifying problematic change; Identifying proximate and underlying causes; and Assessing uncertainty and risk. These elements will be used to critique the historic and current ideologies which have resulted in the current energy system. This information will then be utilized to frame policy.

²⁴ Department of Finance, *Electricity Market Review - Phase 2*, Government of Western Australia (15 October 2015), Government of Western Australia <http://www.finance.wa.gov.au/cms/Public_Utility_Office/Electricity_Market_Review/Electricity_Market_Review_Phase_2.aspx>

²⁵ United State Environmental Protection Authority, *Basic Information: What is sustainability?* (no date), United State Environmental Protection Authority <<http://www.epa.gov/sustainability/basicinfo.htm>>

²⁶ Kinrade, Peter, ‘Toward a sustainable energy future in Australia’ (2007) *Futures* 39 230–252, Abstract

²⁷ Christopher Dey, ‘Energy: a primer, with an Australian perspective’ (Lecture notes from Energy and Climate Law, delivered at Sydney University on Monday 29 September 2014).

²⁸ Above n 9

²⁹ Alan K. Pears ‘Imagining Australia’s energy services futures’ (2007) *Futures* 39 253–271, 254

³⁰ *Ibid*, 254-256

³¹ Dovers, Stephen, *Environment and Sustainability Policy: Creation, Implementation, Evaluation*. (The Federation Press, 2005)

The Honorable Peter Collier MLC, Minister for Energy (WA), in 2010 stated that “the community at large has a genuine desire to embrace low-emission and renewable energy sources”³². Whilst community desires are subject to change over time, the desire of a community to embrace a sustainable energy future is different to most social indicators. In this case, it demonstrates a more pervasive and less volatile community consensus because of the integrated and long-term nature of sustainable energy. The reflective and in-depth consideration required to arrive at a decision for the long-term future (and a wish to embrace renewable energy) is representative of a want for fundamental structural change.

Open recognition that sustainability is a higher order social goal and that it represents a generational-scale challenge, means that policy and institutional responses are contingent and need to evolve³³. The Western Australian community arrived at this decision in 2010, thus, policy formulation about the nature of sustainability and the relationship between communities in the SWIS should now begin to move toward practical policy reform.

Insofar as Dovers’ policy framing elements are concerned, the steps of debating social goals and monitoring topicality are addressed by this social consensus. Furthermore, data gathered from the monitoring of natural systems is now robust enough for reasonable conclusions about our region to be drawn regarding climate change.

The remaining ‘problem defining’ elements, are all underpinned by one factor: *the assessment of uncertainty and risk*. Indeed, “if there was little uncertainty attached to issues such as climate change ... or basic human needs, they would not be issues”³⁴. But, uncertainty is socially constructed, and must be navigated politically and through policy³⁵.

The most accepted method for constructively managing uncertainty is the precautionary principle,

which states: Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures’³⁶. This principle is applicable to uncertainty in all decision making scenarios, not simply those which have a scientific or environmental basis, and is the cornerstone of this discussion.

To frame a policy, the techniques of a Guiding Statement, Policy Statement and Measureable Goals are required³⁷. In developing a pathway to sustainable energy it is important to define each of these elements as they exist in the current policies.

The Western Australian *State Planning Strategy 2050 (Strategy 2050)* provides the high level, guiding principles which dictate the policy and planning landscape of Western Australia. The principles are as follows:

- *Community*: Enable diverse, affordable, accessible and safe communities;
- *Economy*: Facilitate trade, investment, innovation, employment and community betterment;
- *Environment*: Conserve the State’s natural assets through sustainable development;
- *Infrastructure*: Ensure infrastructure supports development;
- *Regional Development*: Build the competitive and collaborative advantages of the regions; and
- *Governance*: Build community confidence in development processes and practices³⁸.

³² Above n 21, Foreword

³³ Above n 31

³⁴ Above n 31, 81

³⁵ Above n 31, 83

³⁶ 1992 Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26 (vol. I) / 31 ILM 874 (1992), Principle 15

³⁷ Above n 31

³⁸ Government of Western Australia, Western Australian Planning Commission, *State Planning Strategy 2050* (June 2014), 22

As a 'consideration of reform' in the Strategy 2050 document, climate change is described as one of the seven fundamental contextual elements. Strategy 2050 acknowledges the global, regional and localized nature of climate change and its impacts, whilst also making note of Western Australia's ability to contribute in a mitigative capacity through our abundant renewable energy resources³⁹.

Although climate change impacts are not an exclusive ultimatum of prosperity for developed countries, the *Environment* principle of Strategy 2050 is the only principle which is intrinsically linked to the remaining five principles. This is especially true of sustainable development, in that without a sustainable environmental interaction, the community, economy, infrastructure, regional development nor governance are optimal, or sustainable.

Strategy 2050 provides an Energy Policy Statement in the form of energy planning objectives: to enable *secure, reliable, competitive and clean energy* that meets the State's growing demand⁴⁰. These objectives of policy are echoed by the *Energy2031 Strategic Energy Initiative Direction Paper*⁴¹ (**Energy2031**). Although it remains the case that policy statements do not always reflect a full and apparent policy process, it is the most viable and visible communication mechanism⁴².

In essence, a key requirement of a policy statement is that it does not simply communicate the policy decision and direction, but it makes clear the basis upon which these policies have been decided as well as how they will be achieved⁴³. The achievability of a policy statement requires the articulation of measurable goals.

Strategy 2050 addresses this with regard to 'cleaner and renewable energy' by stating that the outcome of energy production and consumption that minimises carbon emissions and maximizes affordability⁴⁴ will be measured by the "intensity of greenhouse emissions from energy production"⁴⁵ and the "renewable energy contribution to total delivered electricity supplies"⁴⁶. Clearly, the measurability of this policy outcome not only lacks an empirical element, but provides no clarification of a baseline against which to be measured.

This measurable target stands in contrast to that of the South Australian Government who, as a result of a key recommendation by the Economic Development Board (2009) self-imposed a renewable energy target of 33 per cent⁴⁷. Since then, the State has now set a 50 per cent target by 2025⁴⁸ and identified renewable energy as an important industry for South Australia's economic future⁴⁹.

The basis upon which the Western Australian policy direction has been decided is flawed. The government states that Commonwealth programs remain "the primary driver of renewable energy growth in Western Australia over the short to medium term"⁵⁰. In 2010, low emissions electricity generation was expected to play an increasing role in the state's electricity supply because of national greenhouse policy drivers⁵¹. However the recent repeal of national level legislation has no doubt changed this outlook.

³⁹ Ibid 18

⁴⁰ Above n 38, 75

⁴¹ Above n 24

⁴² Above n 31, 99

⁴³ Above n 31, 99

⁴⁴ Above n 38, 77

⁴⁵ Above n 38, 77

⁴⁶ Above n 38, 77

⁴⁷ Government of South Australia, *About*, (no date) Renewables SA < <http://www.renewablessa.sa.gov.au/>>

⁴⁸ Parkinson, Giles & Vorrath, Sophie, 'South Australia sets 50% renewable energy target for 2025' *RenewEconomy* (online) 23 September 2014 < <http://reneweconomy.com.au/2014/south-australia-sets-50-renewable-energy-target-for-2025-2020>>

⁴⁹ Government of South Australia, *About*, (no date) Renewables SA < <http://www.renewablessa.sa.gov.au/>>

⁵⁰ Above n 38, 76

⁵¹ Above n 21, 18

Moreover, the basis for the policy decision is stooped in the forecast that demand for energy is expected to continue to grow⁵². Whilst this is historically correct, given the correlation between energy demand and population growth, recent trends in energy markets tell a different story.

Data from the Bureau of Resources and Energy Economics in 2014 has shown an unprecedented plateauing of Australian energy consumption from 2008-2013⁵³. This data was a 'Key Fact' in Strategy 2050 for Western Australia too, showing "While population growth will increase overall demand for electricity, there has been a 1.5% slowdown in the growth of electricity consumption ...when compared with the historical average"⁵⁴.

The government's policy, if effectively implemented, further encourages decreased consumption via demand side management techniques in energy efficiency. Three of the seven aspirations of Strategy 2050 with regard to renewable energy are that:

- Energy efficiency improvements continue to be realized through ... low emission technologies;
- Reduction of per capita household consumption through energy efficiency; and
- The improved availability and uptake of alternative fuels, combined with a shift towards the use of more efficient vehicle technologies and energy efficient modes of transport⁵⁵.

Each of these demonstrate the government's commitment to decreasing the demand side consumption of energy across a variety of energy mediums, using both technological and behavioral techniques.

Given these factors, demand as it currently stands, is afforded a significant buffer in the SWIS because of the substantial over capacity of the system. There is no need for an increase in capacity until 2023-24⁵⁶ because of the current 2300MW over-capacity. The over-capacity is due to the 'gold plating' of infrastructure which has occurred over recent years⁵⁷. Because of the government's intent to increase energy efficiency, and the dampening effects this would have on demand, this capacity-buffer-forecast could further extend into the future with the plateauing energy consumption trend. Also, a significant proportion of infrastructure in the SWIS is ageing. Strategy2050 identifies the progressive replacement of this infrastructure with *newer technologies* as a key challenge⁵⁸.

Surely, a more stable energy system in terms of demand is unlikely – this is the reality of elements which frame current energy policies. Thus, if a transition to a fully renewable system was to occur, now is the time. A decade, perhaps further, is afforded to the SWIS network, to plan and install the necessary policies and infrastructure. This process would also shift the market mechanisms to accommodate a new energy system which would align with the objectives of being *secure, reliable, competitive and clean*. The associated policy reform would require a number of techniques to facilitate the adjustment. As Newman points out 'in order for planning to produce the best strategic and economic outcomes, it is essential that the planning regime reflect the realities of local conditions yet remain the driving force behind development regulation'⁵⁹.

McHarg⁶⁰ analysed the reform of the British electricity system and explains the five techniques, which, although not exhaustive, have been used to support the transition to regulating sustainable energy generation in Britain.

⁵² Above n 24, 31

⁵³ Bureau of Resources and Energy Economics, *2014 Australian Energy Update*, July 2014, Australian Government <<http://www.bree.gov.au/sites/bree.gov.au/files/files//publications/aes/2014-australian-energy-statistics.pdf>>

⁵⁴ Above n 38, 76

⁵⁵ Above n 38, 76

⁵⁶ Above n 10, 3

⁵⁷ Adam McHugh, 'The sorry state of WA's electricity market reform', *The Conversation*, (Australia) 30 October 2012 <<http://theconversation.com/the-sorry-state-of-was-electricity-market-reform-10340>>

⁵⁸ Above n 38, 76

⁵⁹ Andrew Newman, 'Creating the power for renewal: Evaluation of New South Wales' renewable energy planning law changes and suggestions for further reform' (2012) 29 EPLJ 498, 503.

⁶⁰ Above n 3, 293

- the creation of new *regulatory institutions* (institutional reform);
- the imposition of new *statutory duties*;
- the creation of *legally-binding targets*;
- obligations to produce *guidance, strategies and plans*; and
- *legal protections* against regulatory change⁶¹.

Institutional reform involves the establishment of new, or reorganization of existing, institutions with new personnel and procedures, and wide-ranging responsibility for sectorial regulation⁶². Because of the disaggregation of the SWIS market in 2006, along with the independent nature of the IMO and ERA, influencing reform cannot be direct. The British system encountered similar issues because of the multi-layered nature of their energy policy.

A hybrid institutional reform system could be developed for the SWIS by using statutory duties. The ERA is an independent statutory authority established by the Parliament of Western Australia⁶³. As such, their responsibilities can be dictated to include new responsibilities for renewable energy programs. Similar to the approach taken in Britain with their regulator, Ofgem, these responsibilities would involve implementation rather than policy development, and are organized separately from its regulatory functions⁶⁴.

By modifying statutory duties, the ERA can be required to give greater priority to sustainability objectives through regulation and achieve alignment with a medium term vision of renewable energy dominance.

The monitoring process of such regulatory reforms would bring together private and public industry under section 299(1) of the *Corporations Act 2001* (Cth). This provision states that as a part of the Annual Directors' Report, Corporations must "give details of the entity's performance in relation to environmental regulation"⁶⁵. Thereby, the best strategic and economic outcomes of institutional reform can reflect the localized historic regulatory regimes, and future regimes can be monitored accordingly.

Statutory duties which would facilitate this process would primarily be modified within the *Economic Regulation Authority Act 2003* (WA). Under the Act, the scope of the ERA is broad. It is to undertake the inquiry, reporting and other functions it is given under the Act⁶⁶. Furthermore, it must carry out any functions prescribed to it under the *Energy Coordination Act 1994* (WA), the *National Gas Access Act 2009* (WA) or functions it is given by or under *any other enactment*⁶⁷.

This pathway would require a process of introducing amendments to existing legislation relating to the function of the ERA. Amendments would require it to perform the facilitation of integrating renewable energy into the market and the phasing out of fossil fuel generation sources.

Learning from the British experience, and to not contradict the existing functions of the ERA, a hierarchy of responsibilities must be developed. McHarg points out:

[t]he *Energy Act 2004* (UK) first inserted a new tertiary duty requiring the regulator to carry out its functions in the manner "best calculated to contribute to the achievement of sustainable development"⁶⁸.

⁶¹ Above n 3, 293

⁶² Above n 60, 293

⁶³ Economic Regulation Authority, *Our Energy Related Work*, (no date) Economic Regulation Authority <<http://www.erawa.com.au/cproot/10814/2/20120925%20-%20D88550%20-%20Fact%20sheet%20-%20our%20energy%20related%20work.pdf>>

⁶⁴ Above n 3, 293

⁶⁵ *Corporations Act 2001* (Cth) s. 299 (1)(f)

⁶⁶ *Economic Regulation Authority Act 2003* (WA) s. 25 (a)

⁶⁷ *Economic Regulation Authority Act 2003* (WA) s. 25 (b, c, f)

⁶⁸ Above n 3, 294

However, it required amendment to clarify “that it included the interests of future as well as current consumers”⁶⁹. The preferential use of renewable energy sources in the SWIS must be clear in the statute. Any amendments to statutory duties must explicitly state the intergenerational focus of the ERA’s responsibilities. Once the statutory duties are established, the malleability of the market will necessitate its adaption to the new regulatory environment.

Statutory duties which manipulate the role of the ERA would have trickle down effects; but in order for the market to realistically adapt, facilitation of market mechanisms would need to be complimented by land use planning changes. For instance, provisions to develop ‘smart grid technologies’ and modification of the transmission grid are essential in order to accommodate the growth in renewable electricity sources⁷⁰.

In Germany, the legislative framework encourages local government to allocate specific sites for renewable energy development. It enforces these obligations by allowing developers to build turbines on vacant land with minimal assessment requirements if a council has not provided a suitable site. “The German plan has a clear philosophical underpinning that recognizes the importance of planning decisions in shaping the social and physical landscape”⁷¹.

Adopting this philosophy to streamline the building of renewable energy infrastructure for the SWIS is vitally important because “the principal contribution [for 100% renewable electricity] will have to come from large-scale systems. The transformation cannot be achieved on rooftops alone”⁷². This facet of renewable energy generations shows that statutory facilitation is required through land use planning tools in the *Planning and Development Act 2005 (WA)*, the *Town Planning and Development Act 1928 (WA)* and *Metropolitan Region Town Planning Scheme Act 1959 (WA)*.

Western Australia should be guided by lessons learnt from South Australia and Victoria in their attempts to integrate renewable energy so that changes to land use planning laws are not simply of a command-and-control nature. A cross-jurisdictional, community approach is essential.

The former Victorian Labor Government attempted to fast-track legislation for wind precincts that moved control of development from local councils to the State Planning Minister⁷³. The lobbying which resulted from this meant that over time, fewer areas were able to be used as renewable energy generation sites.

The SWIS covers an area larger than the state of Victoria with extensive amounts of open land. Still, in the interest of maintaining community consensus for the greater transition toward renewable energy, as well as upholding the aesthetic values of where residents choose to live, a methodical and holistic consultative process should be adopted.

The increasing dissatisfaction over time of South Australian communities also emphasizes the importance of having equitable tools in Western Australia. The South Australian government adopted a similar fast-tracking legislative approach to Victoria, including giving approval powers to the State Planning Minister⁷⁴. Whilst this initiative was initially effective, “a growing tide of resistance to wind projects premised on community health and amenity concerns”⁷⁵ arose. To accommodate the diversity of community opinion within the legislation, the South Australian guidelines now permit ‘mandatory’ community buffers from generation facilities to be waived by mutual consent between the developer and the owner of the property⁷⁶.

⁶⁹ Above n 3, 294

⁷⁰ Julie Styles, *The US Waxman–Markey climate change bill*, (2009) Department of Parliamentary Services, Australia <<http://www.aph.gov.au/binaries/library/pubs/bn/2008-09/climatechangebill.pdf>>

⁷¹ Above n 59, 503

⁷² Mark Diesendorf ‘Sustainable Energy Policy for Australia’ (23 February 2010) EnergyScience Coalition – Briefing Paper #5 (updated February 2010) www.energyscience.org.au

⁷³ Above n 59

⁷⁴ Above n 59

⁷⁵ Above n 59

⁷⁶ Above n 59

The policy philosophy of encouraging planning flexibility should be used in the SWIS. Policy written in this way facilitates increased renewable energy generation beyond the status quo for those communities who are sympathetic. At the same time, the legislation sets minimum, mandatory development requirements for those who do not share these views.

Statutory duties may appear comprehensive, but they represent only one piece of the renewable-reform puzzle. There must be sufficient alignment between regulatory decisions and government strategy. The modification of Government strategy leads to setting legally binding targets and to obligations to produce guidance, strategies and plans.

Legally-binding targets address the government, specifically Ministers, and “provide harder-edged commitments to achieve specific outcomes by a specified date”⁷⁷. The Renewable Energy Target sets a national target of 20% of Australia's electricity supply to come from renewable sources by 2020 and a “constitutional corporation need not comply with any law of a State that substantially corresponds”⁷⁸ to this Act. Nevertheless, insofar as a planning regime reflects the realities of local conditions, the RET is a nationally focused scheme which contains no specific goals or incentives for the SWIS to fundamentally change.

“Any worthwhile policy intervention is meant to cause significant behavior change in society”⁷⁹. As such, to work toward a policy objective of low emissions over the entire electricity sector, a more ambitious and focused policy goal should be adopted.

Britain, as well as many other countries, have expressed their strategy as a stepped approach. The *Climate Change Act 2008* (UK) imposed a set of overarching targets to reduce greenhouse gas emissions by 26% compared with 1990 levels by 2020 and by 80% by 2050, along with an obligation to set legally-binding “carbon budgets” at five-yearly intervals⁸⁰.

In the United States, the proposed Waxman-Markey Bill⁸¹ combined the Renewable Electricity Standard (**RES**) and Energy Efficiency Resource Standard (EERS) into one standard. This required “retail electricity suppliers to source a certain percentage of their electricity generation from renewable resources and electricity savings. The combined renewable electricity and savings must amount to six per cent in 2012, increasing to 20 per cent by 2020”⁸².

To adopt such a target for the SWIS, a four step approach could be taken to allow constant monitoring toward a 100% renewable goal by 2050. For example, the combination of legally binding targets for Ministers, in conjunction with statutory duties for the ERA could facilitate a mandatory 15% total consumption of renewable energy (or reduction in greenhouse gas emissions) by 2020 against 2000 levels, 40% by 2030, 75% by 2040 and 100% by 2050. Of course this example is indicative only. Fundamentally, the structure adopted to facilitate a renewable SWIS it must be consistent. As it stands:

Lack of consistency in energy policy greatly reduces opportunities for renewable energy, and blocks the emergence of a strong renewable energy industry operating on the SWIS. Such weaknesses in policy tend to make renewable energy more expensive, and builds the perception that renewable energy is a dangerous investment in WA⁸³.

Whilst these targets can promote consistency, a legally binding target should address both public and private liable entities. The enforceability of a legally binding target against a public entity has been contested, and found wanting, such as in *R (Friends of the Earth) v Secretary of State for Energy and Climate Change*⁸⁴. It is therefore

⁷⁷ Above n 3, 297

⁷⁸ *Renewable Energy (Electricity) Act 2000* (WA) s. 7C

⁷⁹ Above n 31, 75

⁸⁰ Above n 3, 297

⁸¹ H.R. 2454— The American Clean Energy and Security Act of 2009

⁸² Above n 70

⁸³ Above n 1

⁸⁴ *R (Friends of the Earth) v Secretary of State for Energy and Climate Change* [2009] EWCA Civ 810,

important for the liability for achieving renewable energy generation in the SWIS to also include private corporations within the energy sector.

This could mirror the achievements of the *National Greenhouse and Energy Reporting Act 2007* (Cth) whereby the 'responsible member' of a private company "in accordance with [Section 22X (2)] and in respect of the financial year, [must] provide a report to the Regulator relating to the: (a) greenhouse gas emissions; and (b) energy production; and (c) energy consumption"⁸⁵. Failure for a private company to comply with this provision would entail a civil penalty of 2,000 penalty units for each day they are in lieu of fulfilling their duties.

Ultimately, the purpose of a legally binding target "is to secure progress towards a policy goal, rather than to ensure strict compliance... they have a high symbolic value ... [and] increase policy stability and hence investor certainty"⁸⁶.

Production of guidance, strategies and plans set, justify and articulate the objectives of the SWIS. These tools work further to increase policy stability and set in place politically symbolic direction on the issues of energy generation, emission reduction, climate change and social responsibility. Usually they are not legally binding, but act as the public communication tool. To be effective they must be "specific, not just about their policy goals, but about the particular means by which those goals will be secured, thus providing additional clarity and certainty"⁸⁷.

Strategy 2050 and Energy2031 are the most obvious plans which dictate the SWIS. These are effective in communicating their objectives of *secure, reliable, competitive and clean energy* but the pathways by which cleaner energy sources will be secured are vague, non-obligatory and rely upon federal programs outside their jurisdiction.

A revision of these plans is a critical element to creating a pathway toward making the SWIS fully renewable. As noted by Diesendorf: "Specific policies are needed to encourage the rapid growth of energy efficiency and renewable energy technologies"⁸⁸, thus the upmost attention should be paid to the articulation of guidelines, strategies and plans.

Of paramount importance to any governing document is its objective or 'end goal'. The Australian experience with the Renewable Energy Target (RET) has highlighted how ambiguity in articulating a goal can be problematic. The objectives of the RET are to encourage the *additional generation* of electricity from renewable sources and *reduce* greenhouse gas emissions in the electricity sector. Recently, the Report of the Expert Panel of the RET⁸⁹ (**Warburton Review**) found that "The RET has encouraged significant new renewable electricity generation."⁹⁰ However, amongst other options, the Warburton Report recommends: "In order to reduce the cost of the LRET and its impact on electricity markets, the Panel recommends that the LRET should be closed to new entrants"⁹¹.

The objectives of the RET to encourage *additional* rather than to move toward *entire renewable generation*, along with the goal of *reducing* rather than *phasing out* greenhouse gas emissions, has meant that the success of the RET has acted as a reason to phase out the program, rather than fulfil what might be argued as its intent – to phase out electricity generation from fossil fuel sources.

The articulation of strategies and plans for the SWIS need to be clear that the intention behind reform and encouraging renewable energy generation sources is to eventually remove fossil fuel electricity generation

⁸⁵ *National Greenhouse and Energy Reporting Act 2007* s. 22X (2)

⁸⁶ Above n 3, 298

⁸⁷ Above n 3, 300

⁸⁸ Above n 72

⁸⁹ Dick Warburton, Renewable Energy Target Scheme Report of the Expert Panel, (August 2014)

<https://retreview.dpmc.gov.au/sites/default/files/files/RET_Review_Report.pdf>

⁹⁰ Ibid, Executive Summary

⁹¹ Ibid, Executive Summary

entirely. Whilst potentially posing short term political difficulties, these documents are the vehicle through which defining 'hard truths' must be communicated.

Legal protections address the potential volatility of a policy decision over longer time frames and safeguard against changes in the political landscape. A multi-decadal electricity generation reform will require rigidity and certainty toward the end goal. In this way, legal protections exist for investors in sustainable technologies against regulatory change.

Indeed, the legal protections designed to provide investment certainty to current gas- and coal-based electricity generators in the SWIS, are one of the major barriers of change. Any policy decision which seeks to amend the status quo will need to address (via compensation or other means) the upheaval of existing legal protections in favour of installing new protections. This transition process must be undertaken strategically and fairly. If not, the risk of legal challenges against the government may occur.

In Britain, legal challenge has occurred in a number of instances, from the fossil fuel and renewable energy industries - both of whom are vying for industrial, investment and profit certainty. In *Secretary of State for Energy and Climate Change v Friends of the Earth*⁹² there was a dispute regarding a change to the feed-in tariff. The Court of Appeal held that it was inherent in the notion of a [feed-in tariff] that it guaranteed a rate of return on investment and that, in the absence of explicit statutory authority, the tariff rate could not be changed retrospectively⁹³.

But, judicial challenges to regulatory change should not be overstated. Being able to gain standing to validate a claim of obligation in a policy scheme is difficult. This was discovered in Britain in the case *Tate and Lyle Sugars Ltd v Secretary of State for Energy and Climate Change*⁹⁴ where their application for judicial review regarding a change in support rates under the Renewables Obligation was dismissed because of a lack of standing.

The role of the judiciary is significant outside simply upholding the intention of policy decisions and pathways. Short of engaging in judicial activism, Preston J explains that it would be acceptable to say that a court can "adopt a construction of the statute which promotes or better implements environmental goals, if to do so is consonant with and required by the principles of genuine interpretation"⁹⁵. There is a growing body of precedent in public and private case law, both in Australia and overseas, which interprets high greenhouse gas emissions as a matter in conflict with upholding the public interest⁹⁶. Interpretations made by judges in this 'up stream' section of the energy sector, thus hold up a yard stick for the government when deliberating over which energy sources should be used in the SWIS.

Furthermore, these judgments act as an indicator of shifting priorities in communities around the world which should stimulate reflection on which existing Western Australian policy objectives are *actually* in the public interest.

The use of fossil fuels for energy generation has such wide-reaching global ramifications that judiciaries are now beginning to require analysis of larger spatial externalities. For example, in the United States of America, the case *Mid States Coalition for Progress v. Surface Transportation Board*⁹⁷ handled a challenge against a proposed rail line which would facilitate the exploitation of a major coal reserve. In concurrence with the decision, Heaney J noted that 'The environmental consequences of such an increase [in coal consumption] to other geographic areas should be considered'⁹⁸.

⁹² *Secretary of State for Energy and Climate Change v Friends of the Earth* [2012] EWCA Civ 28

⁹³ Above n 3, 301

⁹⁴ *Tate and Lyle Sugars Ltd v Secretary of State for Energy and Climate Change* [2011] EWCA Civ 664,

⁹⁵ Preston, Brian J "The Role of the Judiciary in Promoting Sustainable Development: The Experience of Asia and the Pacific" [2005] *AsPacJEnvLaw* 6; (2005) 9(2-3) *Asia Pacific Journal of Environmental Law* 109

⁹⁶ Anna Rose, 'Gray v Minister for Planning: The Rising Tide, of Climate Change Litigation in Australia' (2007) *Sydney Law Review* VOL 29: 725

⁹⁷ *Mid States Coalition for Progress v. Surface Transportation Board*, 345 F.3d 520 (8th Cir. 2003)

⁹⁸ *Mid States Coalition for Progress v. Surface Transportation Board*, 345 F.3d 520 (8th Cir. 2003) [page 34]

Some State governments are also showing social stewardship by seeking judicial remedies via challenging utility companies regarding their GHG emissions. In the American case of *American Electric Power Company, Inc., et al., Petitioners v. Connecticut et al.*⁹⁹, the State of Connecticut argued that companies' greenhouse gas emissions create a public nuisance by contributing to climate change. Their claim was ultimately dismissed because the court considered that disputes concerning climate change should be resolved by the legislature. This dismissal reiterates that focus on reforming the high emissions nature of the SWIS should be directed at the Parliament, rather than perused through litigation.

In Australia, Courts and Tribunals are providing clarification to decision makers about the relevant considerations under their statutory obligations. Scope 3 emissions¹⁰⁰ were considered in the case of *Australian Conservation Foundation v Minister for Planning*¹⁰¹. Here, the Victorian Civil and Administrative Tribunal decided that a planning scheme amendment made under the *Planning and Environment Act 1987* (Vic) "to allow an expansion of a coal mine, was required to consider the indirect impacts of greenhouse gas emissions resulting from the burning of the coal at a power station"¹⁰². By not addressing the effect of the mined coal on the environment, the obligations under the Act were not upheld.

In 2006, this was built upon in *Gray v The Minister for Planning & Ors*¹⁰³. In this judicial review application, Justice Pain heard that:

The area of land which constitutes Anvil Hill has a deposit of approximately 150 million tonnes of thermal coal. The proposed open cut mine will produce up to 10.5 million tonnes of coal per annum. The mine is intended to operate for 21 years. The intended use of this coal is for burning as fuel in power stations in New South Wales and overseas. There is an existing contract for sale of coal to Macquarie Generation, which operates the Bayswater and Liddell power stations. About half the coal is intended for export for use as fuel in power stations to produce electricity generally in Japan. There is no dispute that burning of coal will release substantial quantities of greenhouse gases into the atmosphere.¹⁰⁴

Ultimately, the Court upheld that 'the Director-General failed to take into account ESD principles, in particular the principle of intergenerational equity and the precautionary principle'¹⁰⁵ and that the GHG implications of a mine should be a consideration of mine approval. This ruling may have a compounding effect on Ministerial Approvals of mines and generation facilities which power the SWIS in years to come.

The implication of judicial decisions is that they should act as a guiding tool for decision makers. The goal of creating a low emissions, renewable energy generated SWIS forms part of the higher principle of achieving ecologically sustainable development. Regarding the consensus around climate change, any decision "inevitably requires [a subsequent] decision to be made for the future by accommodating sets of competing objectives in the overall system"¹⁰⁶.

The interaction between judicial rulings and ministerial decisions, at the highest level, is about the decision making framework as it relates to the public interest. Fisher discusses how the public interest is determined according to what criteria are assigned (public, private, economic, social or environmental)¹⁰⁷. "There are – and

⁹⁹ *American Electric Power Company, Inc., et al., Petitioners v. Connecticut et al.* No. 10-174 131 S. Ct. 2527

¹⁰⁰ Scope 3 emissions include indirect GHG emissions from sources not owned or directly controlled by the entity but related to the entity's activities. See: US Environmental Protection Agency, *EPA's Greenhouse Gas Emissions Reductions*, (2014) <<http://www.epa.gov/greeningepa/ghg/>>

¹⁰¹ *Australian Conservation Foundation v Minister for Planning* [2004] VCAT 2029

¹⁰² Chris McGrath, 'Federal Court case challenges greenhouse gas emissions from coal mines' (2006)

¹⁰³ *Gray v The Minister for Planning, Director-General of the Department of Planning and Centennial Hunter Pty Ltd* [2006] NSWLEC 720

¹⁰⁴ *Gray v The Minister for Planning, Director-General of the Department of Planning and Centennial Hunter Pty Ltd* [2006] NSWLEC 720

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¹⁰⁵ *Gray v The Minister for Planning, Director-General of the Department of Planning and Centennial Hunter Pty Ltd* [2006] NSWLEC 720

[145]

¹⁰⁶ Douglas E Fisher, 'The rule of law, the public interest and the management of natural resources in Australia' (2014) 31 EPLJ 151

¹⁰⁷ *Ibid*

always have been – detailed sets of procedures of an administrative nature in making applications about access to and use of natural resources and in responding to these applications before leading to a final decision”¹⁰⁸.

The *Electricity Corporations Act 2005* (WA) notes that a corporation must consult the Minister before it enters upon a course of action that in its opinion is likely to be of significant public interest¹⁰⁹. Furthermore, the *Electricity Industry Act 2004* (WA) specifies in Section 9 that the Authority must not exercise a power conferred by this Division unless the Authority is satisfied that it would not be contrary to the public interest to do so¹¹⁰. This clause is reiterated by Section 11K of the *Energy Coordination Act 1994* (WA).

What is persistent, despite the detailed administrative procedures which exist at both the state and federal levels, is the lack of clarity regarding to what extent the public interest penetrates spatial and temporal parameters. “The essence of the concept of the public interest is that it involves a *public benefit*”¹¹¹. Beyond this however, it is the interpretations articulated by the Judiciary to which Decision Makers should turn to gain guidance about the length of foresight their policies should encompass. In this case, the high order priority of a low emissions, sustainable and renewable energy system should be the defining factor in our state energy policies.

“The reality is that Australians have a range of demand side and supply side energy options, all of which can help to satisfy our future energy service requirements, and are or can be made cost-effective”¹¹². The choices we are making are, either consciously or unconsciously, dictated by underlying assumptions relating to our cultural and personal priorities. Climate change, judicial decisions, resource constraints and our place in the national and global community should be assessed and the outcomes of these, not simply the enticement of short term economic gains, should shape our energy future.

6. Concluding Remarks

It has been observed internationally that there “is too much focus on short term growth and not enough cooperation on building the new growth platforms needed over the next several decades”¹¹³. It would seem that the Western Australian Government has adopted an attitude to their policies which focuses on short term growth in electricity generation. Fortunately for the public, the level of commitment toward renewable energy and climate change at the federal and state levels do not need to reflect one other, and are malleable.

The removal of systemic barriers to adopting renewable energy can only be achieved through collaboration amongst the IMO, ERA, Western Power, the Public Utilities Office, relevant state government elected officials¹¹⁴ and all stakeholders in industry and the community. First, the recalibration of policy objectives and passing of statutory duties through legislation are needed to kick start this process.

Whether or not energy reform toward renewable generation occurs is ultimately political. What must be recognized within this however is that *low-priced* power may not be the same as *low-cost* power when environmental and social externalities are taken into account. This means we need to recalibrate our system to account for this risk. The Bloomberg Review summarised the challenge as “what countries are willing to pay now for an energy source that may be cheaper and will undoubtedly be cleaner in the long run”¹¹⁵.

¹⁰⁸ Ibid

¹⁰⁹ *Electricity Corporations Act 2005* (WA) s. 70 (b)

¹¹⁰ *Electricity Industry Act 2004* (WA) s. 9 (1)

¹¹¹ Chris McGrath, *Flying foxes, dams and whales: Using federal environmental laws in the public interest*, (2008) 25 EPLJ 324, 325

¹¹² Above n 29, 270

¹¹³ Molitor Michael, ‘Decarbonising energy is only way to reach global growth ambitions’ *RenewEconomy* (online) 13 December 2013 <<http://reneweconomy.com.au/2013/molitor-83862>>

¹¹⁴ Above n 1

¹¹⁵ Reed Landberg, *Solar Energy - Growing Fast, but Nighttime Is Still a Problem*, October 12, 2014, Bloomberg <<http://www.bloombergview.com/quicktake/solar-energy>>

This discussion has endorsed using the rule of law to facilitate additional regulation of the SWIS and WEM. Some may see this as a 'step backward' toward recreating the natural monopoly that existed pre-2006. Certainly in the short term, increased regulatory involvement would contradict the goals of competition policy. However, the disaggregation has failed to lead to increased efficiency, and lower electricity prices have not transpired¹¹⁶. The sooner this transition is invested in, the sooner it will become the new status quo, and the market will recalibrate.

By not stepping in and taking control of our collective energy future in the SWIS we are selling ourselves, the global community and future generations short.

Barack Obama recently said in his address to the United Nations General Assembly, "we cannot rely on a rule book written for a different century"¹¹⁷. The centralised, fossil fuel based system, and the rule book that governs it, was built for a different century. It is to the benefit of our industries, our communities, our environment and our children to invest in a cleaner energy system.

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¹¹⁶ Above n 57

¹¹⁷ Barack Obama, 'President Obama's 2014 UN General Assembly Speech' (Speech delivered at the United Nations General Assembly, New York, 2014) <<https://www.youtube.com/watch?v=7gzFPI11jp8>>