<PN>PART III

<PT> Analysing policy choices

<CN>12.<EN><CT>Climate change law and policymaking: the utility of the Delphi method

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# <A>THE DELPHI METHOD

A balanced law or policymaking process requires an effective policy assessment approach.[[3]](#endnote-3) However, processes of political decision-making are frequently not rationally based.[[4]](#endnote-4) Many commentators agree that policymaking is strongly influenced by politics and that the choice of available policy options is limited by institutional dependencies and political factors.[[5]](#endnote-5) In achieving their own goals, participants in the policymaking process may have different sets of preferences influencing policy evaluation. These different preferences will inhibit collaboration aimed at ascertaining the most suitable policy option overall.[[6]](#endnote-6) Nonetheless, the principles of rational discussion and balanced problem solving can be employed in policymaking processes.[[7]](#endnote-7)

The history of the evaluation of environmental policy is rather short and the concepts are fragmented, but the interest in evaluations in this field is growing rapidly in many countries.[[8]](#endnote-8) The need for policy evaluation is not only emphasized within environmental research but also policymakers and administrators are more frequently articulating the necessity for environmental policy evaluations. Evaluation of climate change related policies is also recognized as an important stage of policymaking but there are not many examples of climate policy evaluations.[[9]](#endnote-9)

A climate change policy evaluation procedure needs to consider many crucial factors. For example, economics tends to treat economic efficiency as a pivotal concept, while environmental science focuses on pollution, and none of the disciplines combine all concerns.[[10]](#endnote-10) Accordingly, an efficient and effective policy might still be defective if, for instance, it dangerously compromises equity. In a similar vein, hypothetical equity of a policy would not rationalize its lack of efficiency and environmental effectiveness. For this reason, all of the corresponding factors need to be considered simultaneously at the stage of policy evaluation.

This chapter utilizes a policy evaluation study as an example of the utility of the Delphi method in climate change policymaking. In this study the Delphi method assisted in prioritizing the criteria used in the evaluation. The need for policy evaluation is not only emphasized within environmental research but also policymakers and administrators are more frequently articulating the necessity for environmental policy evaluations.[[11]](#endnote-11) This chapter discusses the Delphi method as a useful instrument in environmental policy research. Based on the findings of the Delphi study conducted to facilitate climate change policies assessment in Australia the authors analyse the strengths and limitations of the method.

# <B>Defining the Delphi Method

In the 1950s, researchers working at the Rand Corporation developed the Delphi method.[[12]](#endnote-12) This method was designed as a tool for forecasting future events using a series of questionnaires combined with controlled-opinion feedback.[[13]](#endnote-13) The development of this tool has resulted in expanded and more diverse capabilities in academic research, and decision-making by industry and government.[[14]](#endnote-14)

The Delphi method is frequently utilised for the examination of ideas as well as the creation of appropriate information for decision-making.[[15]](#endnote-15) Equipped to handle complex problems or tasks systematically, this method provides a process for collecting knowledge from an identified group of experts by means of a series of questionnaires combined with controlled opinion feedback.[[16]](#endnote-16) These questionnaires facilitate accumulation of personal responses to the problems posed and allow the experts the flexibility to either confirm or vary their responses. The characteristics of the Delphi method are anonymity, controlled feedback, and statistical response,[[17]](#endnote-17) characterized as a 'relatively strongly structured group communication process’ where the group is comprised of experts dealing with often incomplete available information.[[18]](#endnote-18) The other important characteristic of the Delphi method is its ability to transfer the implicit and complex knowledge to a simpler plan or proposal.[[19]](#endnote-19) That makes the Delphi method useful for policymaking processes involving a variety of stakeholders.[[20]](#endnote-20)

# <B>Some Examples of Use of the Method

The Delphi method has been used in different research contexts. Examples include, analysing the features of a good offender treatment programme in criminology studies;[[21]](#endnote-21) identifying key words essential for analysing the international discourse on intellectual property law;[[22]](#endnote-22) and country risk assessment when dealing with export letter of credit transactions.[[23]](#endnote-23)

There are various studies where the Delphi method has been utilised for policy-related issues,[[24]](#endnote-24) such as in the field of taxation policy where Evans has successfully utilised this method.[[25]](#endnote-25) In the environmental policy context, the Delphi method has been applied to natural resource issues such as forest biodiversity, sustainability, heritage tourism, environmental disputes, forecasting, national park selection and aquatic habitat selection.[[26]](#endnote-26) There are also some examples of the Delphi method being applied to climate change policy issues. One of the early examples is the Finnish study by Wilenius and Tirkkonen[[27]](#endnote-27) or the Dutch National Research Programme.[[28]](#endnote-28) The more recent application of the Delphi method in this context is the US Government Accountability Office (GAO) study conducted to identify experts’ opinions concerning climate change economic policy options.[[29]](#endnote-29) Another example is a Malaysian study based on the research of Guglyuvatyy and of Mariolla.[[30]](#endnote-30) This study was conducted with a group of Malaysian experts and professionals from various fields to identify operative strategies for promoting effective environmental policy in Malaysia.[[31]](#endnote-31)

The Australian example that is discussed in the next section comprises a Delphi study conducted to verify the evaluation criteria for Australian climate change policy and to assess the relative importance of those criteria.[[32]](#endnote-32)

# <A>THE AUSTRALIAN CLIMATE CHANGE POLICY CONTEXT

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# <B>Climate Change Law Making in Australia

With the exception of the current government, both sides of politics in Australia have been committed to establishing an emissions trading scheme (ETS) designed to mitigate climate change.[[33]](#endnote-33) For example, in December 2006, the then Howard government announced that Australia would introduce a domestic ETS by 2012.[[34]](#endnote-34) The succeeding Rudd government announced an Australian Carbon Pollution Reduction Scheme (ACPRS) in 2008 in response to the findings of the Garnaut Report.[[35]](#endnote-35) However, the ACPRS legislation was twice defeated in the Australian Parliament in 2009. The next Australian government, led by Australia’s first female Prime Minister, Julia Gillard, established the Multi-Party Climate Change Committee (the Committee)[[36]](#endnote-36) consisting of members of the federal government and senators which proposed a temporary carbon pricing scheme,[[37]](#endnote-37) to be followed by an ETS and incorporating a variety of other complementary measures. This Clean Energy Future scheme, as it was called, came into operation from 1 July 2012. The following briefly considers the process of the Committee in developing this scheme.

The primary task of the Committee was to design a climate change policy framework and specifically to establish a carbon price mechanism. To begin with the Committee issued eleven policy principles that were intended to provide ‘a consistent basis for the deliberations on a carbon price’.[[38]](#endnote-38) The principles were as follows:

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* Environmental effectiveness
* Economic efficiency
* Budget neutrality
* Competitiveness of Australian industries
* Energy security
* Investment certainty
* Fairness
* Flexibility
* Administrative simplicity
* Clear accountabilities, and
* Supports Australia’s international objectives and obligations.[[39]](#endnote-39)

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The Committee specified that these 11 principles would facilitate the development of the carbon pricing mechanism.[[40]](#endnote-40)

The implemented carbon price scheme is similar in some respects to the design of the earlier proposed ACPRS.[[41]](#endnote-41) Nevertheless, the Committee’s carbon pricing mechanism provided some substantial improvements. For example, a generous industry compensation package was implemented as a temporary measure based on historic emissions levels for the affected industries and the assistance package for households was designed to compensate low and medium income earners rather than high income earners.[[42]](#endnote-42) Additionally, various supporting measures designed to boost energy efficiency and green innovation provided a significant improvement. Meanwhile, the legislation drafted to implement the scheme did not reflect some of the Committee’s criteria adequately.[[43]](#endnote-43)

The government announced that the legislation ‘is the most cost-effective and economically responsible way of reducing Australia's carbon pollution’,[[44]](#endnote-44) indicating that the costs-effectiveness of GHG emissions reduction was favoured over other important criteria. Furthermore, the entire process of the policy design by the Committee is unclear. For instance, there was no information revealed concerning major features of policymaking such as what methods have been employed to prioritize criteria and how policy options were assessed if at all. In addition, the policy was modified in 2012 and once again there was no clarification why the policy had been changed.[[45]](#endnote-45)

# <B>Applying the Delphi Method – a Case Study

The Delphi method was used by Guglyuvatyy as one part of a broader research project conducted in 2010.[[46]](#endnote-46) The key question for this study focusses on what would be an optimal policy for climate change mitigation in Australia a carbon tax or an emissions trading scheme. The study assessed carbon tax and emissions trading policy options on the basis of multiple climate change policy criteria and included various research methods. The study demonstrates how the Delphi method can contribute to the policymaking process, in this instance being utilised to assess a set of evaluation criteria.

The Delphi method was designed to obtain experts’ opinions concerning the list of criteria relevant to evaluating the two carbon pricing instruments being analysed and weigh the relative importance of those criteria.[[47]](#endnote-47) The multidisciplinary nature of climate change lends itself to methods, such as Delphi, which bridge the gap between research and practice. It is generally acknowledged that to select an optimal instrument the policies should be first evaluated in accordance with a set of specific criteria.[[48]](#endnote-48) Guglyuvatyy’s study selected evaluation criteria on the basis of existing research assessing climate change policies. Moreover, the study tested identified criteria by means of the Delphi method. Thus, to update and verify the list of the criteria, Australian experts were involved in the Delphi study to ensure an Australian perspective was maintained. The criteria presented in Table 12.1 reflect the general principles of rational climate change policy.

*<cap>Table 12.1 Preliminary list of the criteria for climate change policy evaluation*

|  |
| --- |
| **Selected criteria** |
| 1. Environmental effectiveness |
| 1. Cost-effectiveness |
| 1. Correct price signal |
| 1. Competitiveness issues |
| 1. Administrative costs |
| 1. Compliance costs |
| 1. Predictability/regulatory certainty |
| 1. Effect on technology development |
| 1. Minimize rent-seeking |
| 1. International harmonization |
| 1. Flexibility of the policy |
| 1. Political acceptability |
| 1. Transparency |
| 1. Distribution of benefits and costs across income groups |
| 1. Public acceptability |
| 1. Distribution of benefits and costs across generations |

*Source*: Evgeny Guglyuvatyy, Assessing carbon tax and emissions trading as policy options for climate change mitigation in Australia. PhD Thesis, The University of New South Wales, 2011.

The Delphi study was conducted in two rounds targeting a group of experts, who were selected to represent diverse perspectives between the experts from various disciplines related to climate change discourse. In particular, academics, scientists, climate economists and environmental policy consultants were selected for this study. The questionnaire devised for the Delphi study was designed to minimize obscurities. Closed ended-questions and the five points Likert scale[[49]](#endnote-49) were utilized for the first part of the questionnaire and were followed by open-ended questions for the second part.[[50]](#endnote-50) This provided the Delphi study with required quantitative information on criteria weights and qualitative data necessary for in-depth analysis.

Eleven experts participated in the study. They represented internationally recognized Australian specialists bringing a high level of expertise to the study. In the first round, the experts were asked to think of the potential criteria for the climate change policies and then to verify and update the proposed 16 criteria required for policy evaluation in the Australian context. The second question sought participants’ views on the importance of those criteria. The experts were asked to weigh each criteria based on a standard rating scale 1‒5, where 1 indicating not at all important or considered least necessary criteria and 5 indicating extremely important, and/or most critical criteria. The panel members were also asked to add any other relevant criteria.

In the second round the experts were provided with the opportunity to revise their previous responses. This is a fundamental aspect of the Delphi process. There was a substantial level of agreement among the experts’ responses concerning the necessity of evaluation criteria proposed by the Guglyuvatyy study. The average weightings mostly remained the same, thus, a reasonable level of stability had been reached regarding the importance of the criteria.

Additional criteria identified by the experts were listed together and presented for consideration by all of the participants in the second-round questionnaire with the aim of obtaining further weightings and/or comments from the experts. The Delphi study resulted in identification of two additional imperative criteria namely, to ‘minimise GHG emissions leakage’ and the ‘polluter pays principle’ which are included in the list of criteria of this study. The final list of criteria and the importance values of those criteria expressed as a percentage are presented in Table 12.2.

*<cap>Table 12.2 Established evaluation criteria*

| **Criteria** | *Average weight* | *Importance value in per cent* |
| --- | --- | --- |
| Environmental effectiveness | 4.63 | 92.6 |
| Transparency | 4.27 | 85.4 |
| Minimize rent-seeking | 4.09 | 81.8 |
| Correct price signal | 4.00 | 80 |
| Flexibility of the policy | 3.90 | 78 |
| Minimize GHG emissions leakage | 3.81 | 76.2 |
| Public acceptability | 3.54 | 70.8 |
| Political acceptability/feasibility | 3.45 | 69 |
| Predictability/regulatory certainty | 3.45 | 69 |
| Polluter pays principle | 3.45 | 69 |
| Effect on technology development | 3.36 | 67.2 |
| Cost-effectiveness | 3.27 | 65.4 |
| Distribution of benefits and costs across generations | 3.27 | 65.4 |
| Compliance costs | 3.09 | 61.8 |
| Distribution of benefits and costs across income groups | 3.00 | 60 |
| Competitiveness issues | 2.45 | 49 |
| Administrative costs | 2.45 | 49 |
| International harmonization | 2.36 | 47.2 |

*Source*: Evgeny Guglyuvatyy, Assessing carbon tax and emissions trading as policy options for climate change mitigation in Australia. PhD Thesis The University of New South Wales, 2011.

The results of the Delphi method, applied in the Guglyuvatyy study, demonstrate that the main point of agreement was that the criteria identified by this study are valid and essential for climate change policy evaluation in the Australian context. The experts agreed that environmental effectiveness is a principal criterion confirming that GHG reduction is the primary aim for a climate change policy. Overall, the Delphi approach employed by Guglyuvatyy enabled the obtaining of reliable and methodically justified weightings for climate change evaluation criteria.

**<B>Current Australian Developments**

The results of the study discussed in the previous section deliver the set of criteria which are comparable with the criteria designated by the Multi-Party Climate Change Committee with some important differences. Moreover, the discussed Delphi study confirmed the validity of the proposed criteria and comparative importance of those criteria for climate change policy evaluation. As mentioned in the above section, the Delphi experts agreed that the three principal criteria are non-economic signifying the equity characteristics of a climate change policy. Importantly, the ‘transparency’ and ‘minimising rent-seeking’ criteria do not even appear in the list of principles considered by the Multi-Party Climate Change Committee. Conversely, the competitiveness issues, administrative costs and international harmonization criteria while appearing in the 11 principles espoused by the Committee, were assessed as least important in the Guglyuvatyy Delphi study.

The criteria prioritized by the Committee, and as a result the introduced policy, appear to reflect political negotiation rather than an effective and transparent process of policymaking. The result of such a policymaking process is a compromised policy and non-transparent political trade-off. Thus, there is no surprise that the introduced policy has been the subject of significant criticism.

However, the carbon pricing legislation discussed above has been recently repealed by the present Australian government. Instead of the carbon pricing mechanism the Australian government has introduced the Direct Action Plan.[[51]](#endnote-51) Unfortunately, the government did not provide details concerning the development of the Direct Action Plan. It is not clear what the basis for the introduced policy is. Successive Australian governments attempting to introduce climate change related policies were taking into consideration policy developments and proposals of previous governments. However, the policy introduced by the present Abbott government is strikingly different to carbon pricing and/or emissions trading mechanisms favoured by former Australian governments. In the same vein the government neither disclosed what criteria has been used to develop the Direct Action Plan, if any, nor did it explained what criteria or principles were prioritized to establish the proposed legislation.

Nonetheless, the government states that the Direct Action Plan is introduced to ‘efficiently and effectively source low cost emissions reductions.’[[52]](#endnote-52) The Direct Action Plan includes as a centerpiece the Emissions Reduction Fund (ERF) which is supposed to provide incentives for GHG reduction activities across the entire Australian economy.[[53]](#endnote-53) Under the ERF the government will pay for projects that will reduce CO2 emissions at minimal cost.[[54]](#endnote-54) Funding from the ERF will be allocated through reverse auctions.[[55]](#endnote-55) A range of possible projects for CO2 reduction include: energy efficiency, cleaning up power stations, reforestation and revegetation and/or improvement of soil carbon.[[56]](#endnote-56)

The important feature of the Direct Action Plan is its voluntary nature. Numerous commentators argue that a voluntary carbon mechanism does not provide incentive for businesses to participate and compete for participation in ERF.[[57]](#endnote-57) The Australia Senate inquiry on the Direct Action Plan provides the following comment: ‘The committee is persuaded that the government's Direct Action Plan and the proposed Emissions Reduction Fund are fundamentally flawed. They ignore the well-established principle of “polluter pays”, and instead propose that the Australian taxpayer should effectively subsidize big polluters.’[[58]](#endnote-58) Overall, the Direct Action Plan has been significantly criticized and it is labelled as a step backwards for Australian climate change policy.[[59]](#endnote-59)

The current Australian government has sought to abolish the Climate Change Authority[[60]](#endnote-60) which was established by the previous government to provide an independent assessment and advice on carbon policy. Should the Authority be abolished, there will be no independent assessment of policy and targets and no requirement for the government to respond to independent review, which would further reduce transparency and accountability of carbon policymaking. In this light, it is difficult to consider the climate change law-making process in Australia as adequate and comprehensive. Thus, the present government’s policymaking practice raises even more questions and as one may note the climate change policymaking process in Australia is deteriorating rather than developing.

# <A>CRITICALLY EVALUATING THE DELPHI METHOD

The Delphi method has been criticized on the basis of the soundness, reliability and credibility of its application. Some commentators argue that the Delphi method is unscientific, and therefore inherently ambiguous.[[61]](#endnote-61) Nonetheless, some other methods that aimed at consensus such as focus groups and nominal groups also run the same risk. Some other issues which need to be addressed before conducting a Delphi study may include potential administrative complexity and low response rate.[[62]](#endnote-62)

In contrast, there have been numerous studies supporting the utility of the Delphi method. Basu and Schroeder reported that the Delphi studies were 10–15 per cent more accurate than quantitative methods of forecast.[[63]](#endnote-63) Generally, the Delphi method is especially suitable when its results serve as inputs for further investigation.[[64]](#endnote-64) The potential of the Delphi to acknowledge the contribution of each participant and the guaranteed anonymity are some of the major advantages of the method. Furthermore, the experts responses to questions is expected to encourage ideas that are free of influences of others and accordingly more likely to be accurate.[[65]](#endnote-65) The ‘collective human intelligence capability’ attributable to groups of experts can be used by adopting the Delphi method.[[66]](#endnote-66)

The Delphi study discussed earlier demonstrated the effectiveness of the method as an instrument seeking to clarify ill-defined topics. The Delphi method is a reliable tool providing participants with opportunities to revise their responses through multiple rounds based on feedback received from other members of a panel. The Delphi method with a set of pre-selected options proved to be an effective approach as demonstrated by the Guglyuvatyy study.

The Delphi method may help to improve real-world policymaking. For example, the criteria which are assessed and validated by the multidisciplinary climate change experts in the Guglyuvatyy study could have provided justified and solid determinants that promote joint environmental, economic and equity considerations of a policy. Consideration of these criteria and their importance in policy appraisal would have ensured adequacy of the policy development and selection and provide an essential guide for the law makers. Thus, the application of the Delphi method can provide a foundation for the balanced policymaking model that can be utilised in various fields of environmental policymaking and research.

This chapter advocates a practical method facilitating transparent and comprehensive policymaking procedures. This methodological approach is coherent and simple in that it can be utilized by a single researcher or policymaker/s when considering such a multidimensional policy as climate change. The Delphi method advances the discussion by bringing forward new aspects, ideas and generalizations, enforcing learning processes that can contribute to improving the choices and implementation of policy instruments.

# <A>CONCLUSION

The discussion in this chapter illustrates how the Delphi method has and can be applied to climate change policymaking. The examples discussed, including the Delphi study in the Australian Climate Change context, validate both the use of this method in climate policy research and its appropriateness for policymaking. This has strengthened the utility of the technique in theoretical and reform-oriented research, particularly as a method of identifying and ranking key evaluative criteria to be applied in a policy analysis whether of an existing regime or to assist with the choice of a regime from a variety of policy options.

There are criticisms of the Delphi method but the greatest criticism narrates to the way the method is carried out, in particular, how the experts are chosen. It relies upon the skill of the researcher in defining who is an expert in the field being investigated. Conversely, the proponents of the technique hail the flexibility of the Delphi method, its ability to obtain ‘equal and balanced participation’ with reduced peer-pressure thereby providing for consensus based conclusions, and the ability of the method to clarify complex and ambiguous issues and achieve valid judgements. Whether the Delphi method is utilized in empirical or theoretical research or in policymaking, this chapter has demonstrated the strength of the technique in providing transparent and justified results, which in turn reinforces the utility of the method as a research and/or policymaking tool.

<A>NOTES

1. \* Evgeny Guglyuvatyy is a Lecturer in the School of Law and Justice at the Southern Cross University. [↑](#endnote-ref-1)
2. \*\* Natalie Stoianoff is a Professor in the Faculty of Law at the University of Technology, Sydney, and the Director of the Intellectual Property Program. [↑](#endnote-ref-2)
3. Mickwitz, P*.* (2006), *Environmental Policy Evaluation: Concepts and Practice*, Tampere, Commentationes Scientiarum Socialium. [↑](#endnote-ref-3)
4. Kingdon, J.D. (1995), *Agendas, Alternatives and Public Policy*, New York: HarperCollins; Zahariadis, N. (2003), *Ambiguity and Choice in Public Policy. Political Decision Making in Modern Democracies*, Washington DC: Georgetown University Press. [↑](#endnote-ref-4)
5. Becker, G. (1983), ‘A Theory of Competition among Pressure Groups for Political Influence’, *Quarterly Journal of Economics*, 98, 371‒400. [↑](#endnote-ref-5)
6. Bernauer, T. and L. Caduff (2004), 'In Whose Interest? Pressure Group Politics, Economic Competition and Environmental Regulation’, *Journal of Public Policy*, 24, 99‒126, 100. [↑](#endnote-ref-6)
7. Sanderson, Ian (2002), ‘Evaluation, Policy-learning and Evidence Based Policy Making’, *Public Administration*, 80, 1‒22, 19. [↑](#endnote-ref-7)
8. Hilden, M., J. Lepola, P. Mickwitz, A. Mulders, M. Palosaari, J. Similä, J., S. Sjöblom and E. Vedung, *Evaluation of Environmental Policy Instruments – a Case Study of the Finnish Pulp & Paper and Chemical Industries*. Monographs of the Boreal Environment Research. Helsinki; Mickwitz above n. 1. [↑](#endnote-ref-8)
9. Some examples of climate change related policy evaluations are discussed in the next subsection. [↑](#endnote-ref-9)
10. Adger, W.N. (2002), ‘Inequality, Environment, and Planning’, *Environment and Planning*, 34, 1716‒1719. [↑](#endnote-ref-10)
11. For example, a policy evaluation requirement is formulated in the 6th Environmental Action Program for the European Union which was adopted in June 2002. Article 10, paragraph C of this document states: ‘[The objectives shall be pursued by] improvement of the process of policy making through: 1) ex-ante evaluations of the possible impacts, in particular the environmental impacts, of new policies including the alternative of no action and the proposal for legislation and publication of the results; 2) ex-post evaluation of the effectiveness of existing measures in meeting their environmental objectives.’ [↑](#endnote-ref-11)
12. Dalkey, N.C. and O. Helmer (1963), ‘An Experimental Application of the Delphi Method to the Use of Experts’, *Journal of the Institute of Management Sciences, in: Management Science*, 9, 458‒467. [↑](#endnote-ref-12)
13. It should be noted though, that Dalkey and Helmer were not satisfied with the term Delphi, arguing that the term implied ‘something oracular’, something signifying a little of the occult rather than a method designed to identify the best possible solutions (Dalkey, N.C. 1968, cited in H. Gunaydin, ‘The Delphi Method, Optimization Group’ 2006, http://www.iyte.edu.tr/~muratgunaydin/delphi.htm at 9 April 2013). [↑](#endnote-ref-13)
14. Turoff, M. and H.A. Linstone, ‘The Delphi Method: Techniques and Applications’, http://is.njit.edu/pubs/delphibook/ at 28 April 2013. [↑](#endnote-ref-14)
15. Gunaydin, H. (2006), ‘The Delphi Method, Optimization Group’ http://www.iyte.edu.tr/~muratgunaydin/delphi.htm at June 2013. [↑](#endnote-ref-15)
16. Ziglio, E. (1996), ‘The Delphi Method and Its Contribution to Decision-Making’, in Adler, M. and E Ziglio (eds), *Gazing into the Oracle: The Delphi Method and its Application to Social Policy and Public Health*, London: Jessica Kingsley Publishers. [↑](#endnote-ref-16)
17. Turoff and Linstone, above n. 12. [↑](#endnote-ref-17)
18. Hader, M. and S. Häder (1995), ‘Delphi und Kognitionspsychologie: Ein Zugang zur theoretischen Fundierung der Delphi-Methode’, in *ZUMA-Nachrichten*, 37, 12. [↑](#endnote-ref-18)
19. Gupta, U.G. and R.E. Clarke (1996), ‘Theory and Applications of the Delphi Technique: A bibliography (1975‒1994)’, *Technological Forecasting and Social Change*, 53, 185‒211. [↑](#endnote-ref-19)
20. Eto, H. (2003), ‘The Suitability of Technology Forecasting/Foresight Methods for Decision Systems and Strategy. A Japanese View’, *Technological Forecasting and Social Change*, 70, 231‒249. [↑](#endnote-ref-20)
21. McCulloch Anna and Mary McMurran (2007), ‘The Features of a Good Offender Treatment Programme Manual: A Delphi Survey of Experts’, *Psychology, Crime and Law*, 13 (3), 265‒274. [↑](#endnote-ref-21)
22. Ghafele, Roya (2010), ‘Of War and Peace: Analysing the International Discourse on Intellectual Property Law’, *Intellectual Property Quarterly*, 3, 237‒255. [↑](#endnote-ref-22)
23. Bergami, Roberto (2010), ‘A Risk Management Approach for Export Letter of Credit Transactions’, *Vindobona Journal of International Commercial Law and Arbitration*, 14, 165. [↑](#endnote-ref-23)
24. DeLoe, R.C. (1995), ‘Exploring Complex Policy Questions Using the Policy Delphi’ *Applied Geography*, 15, 53‒68; Evans, Chris (2007), ‘Unravelling the Mysteries of the Oracle: Using the Delphi Methodology to Inform the Personal Tax Reform Debate in Australia’, *eJournal of Tax Research*, 5, 105‒135. [↑](#endnote-ref-24)
25. Evans, above n. 22. [↑](#endnote-ref-25)
26. Kangas, J.J., M. Alho, O. Kolehmainen and A. Mononen (1998), ‘Analysing Consistency of Experts’ Judgments – Case of Assessing Forest Biodiversity’ *Forest Science*, 44, 610‒617; Mendoza G.A. and R. Prabhu (2000), ‘Development of a Methodology for Selecting Criteria and Indicators of Sustainable Forest Management: A Case Study of Participatory Assessment’, *Environmental Management*, 26, 659‒673; Garrod, B. and A. Fyall (2000), ‘Managing Heritage Tourism’, *Annals of Tourism Research*, 27, 682‒708; Miller, A. and W. Cuff (1986), ‘The Delphi Approach to the Mediation of Environmental Disputes’, *Environmental Management*, 19, 321‒330; Ying, L.G. and H. Kung (2000), ‘Forecasting up to Year 2000 on Shanghai’s Environmental Quality’, *Environmental Monitoring and Assessment*, 63, 297‒312; Kuo, N.W. and Y.H. Yu (1999), ‘Policy and Practice: An Evaluation System for National Park Selection in Taiwan’, *Journal of Environmental Planning and Management*, 42, 735‒745; Bush, W.D. and S.J. Lary (1996), ‘Assessment of Habitat Impairments Impacting the Aquatic Resources of Lake Ontario’, *Canadian Journal of Fisheries and Aquatic Life*, 53, 113‒120. [↑](#endnote-ref-26)
27. Wilenius, M. and J. Tirkkonen (1997), ‘Climate in the Making. Using Delphi for Finnish Climate Policy’, *Futures*, 29 (9), 845‒862. [↑](#endnote-ref-27)
28. Klabbers, J., P. Vellinga, R. Swart, A. Van Ulden and R. Jansson (1996), ‘Climate Change and Climate Policy: Improving Science/Policy Interface’, *Mitigation and Adaptation Strategies for Global Change*, 1 (1), 73‒93. [↑](#endnote-ref-28)
29. The group of experts includes respected professionals in the field of climate change economics. GAO. ‘*Expert Opinion on the Economics of Policy Options to Address Climate Change*.’ United States Government Accountability Office. Washington DC 2008. [↑](#endnote-ref-29)
30. Guglyuvatyy, Evgeny (2011), *Assessing Carbon Tax and Emissions Trading as Policy Options for Climate Change Mitigation in Australia*. PhD Thesis, The University of New South Wales, unsworks.unsw.edu.au/fapi/datastream/unsworks:9300/SOURCE02; Mariola, M.J. (2009), ‘Are Markets the Solution to Water Pollution? A Sociological Investigation of Water Quality Trading’, The Ohio State University, http://etd.ohiolink.edu/view.cgi?acc\_num=osu1250015222 at 5 May 2013. [↑](#endnote-ref-30)
31. Hong, L.C., D. Lakshmayya and T.L. Cheng (2012), ‘Subsidies: Boon or Bane in Promoting Proper Implementation of Good Environmental Public Policy’, Research Paper. http://library.wou.edu.my/vertical/vf2012-10.pdf at 5 May 2013. [↑](#endnote-ref-31)
32. Guglyuvatyy, above n. 28. [↑](#endnote-ref-32)
33. Wilder, M. and L. Fitz-Gerald (2009), ‘Review of Policy and Regulatory Emissions Trading Frameworks in Australia’, *Australian Resources and Energy Law Journal*, 27, 1‒22. [↑](#endnote-ref-33)
34. Ibid. Note, however, that in 2005, the Australian State and Territories issued a discussion paper concerning a national emissions trading scheme which would cover the power generation sector. [↑](#endnote-ref-34)
35. Garnaut, Ross (2008), *The Garnaut Climate Change Review, Final Report*, Cambridge: Cambridge University Press. [↑](#endnote-ref-35)
36. Multi-Party Climate Change Committee, http://www.climatechange.gov.au/government/initiatives/mpccc.aspx at May 2013. [↑](#endnote-ref-36)
37. A carbon pricing scheme is often called a ‘tax’ because during the fixed price period, the liable parties are obliged to purchase fixed price carbon units which is similar to paying tax. However, they cannot trade the units on the market, as under an emissions trading scheme. [↑](#endnote-ref-37)
38. Multi-Party Climate Change Committee, http://www.climatechange.gov.au/~/media/Files/minister/combet/2011/media/february/mr20110224.pdf at May 2013. [↑](#endnote-ref-38)
39. It is important to note that the principles are not stated in any order of priority. See Multi-Party Climate Change Committee, http://www.climatechange.gov.au/~/media/Files/minister/combet/2011/media/february/mr20110224.pdf at May 2013. [↑](#endnote-ref-39)
40. Multi-Party Climate Change Committee, above n. 36. [↑](#endnote-ref-40)
41. For details see: ACPRS, above n. 33. [↑](#endnote-ref-41)
42. Clean Energy Future, http://www.cleanenergyfuture.gov.au/wp-content/uploads/2011/06/09-FS-Household-Assistance-Tax-Reform-110708-1234hrs.pdf at December 2014. [↑](#endnote-ref-42)
43. See for example, Guglyuvatyy, Evgeny (2012), ‘Australia’s Carbon Policy – a Retreat from Core Principles?’ *eJournal of Tax Research*, 10(3), 552‒572. [↑](#endnote-ref-43)
44. Clean Energy Agreement, http://www.climatechange.gov.au/government/initiatives/mpccc/resources/clean-energy-agreement.aspx at December 2014. [↑](#endnote-ref-44)
45. On 28 August 2012, the Minister for Climate Change and Energy Efficiency announced that the price floor would no longer be implemented as part of a package agreed with the European Commission to link the European Union Emissions Trading System with Australia’s emissions trading scheme. See, Price floor for Australia's carbon pricing mechanism http://www.climatechange.gov.au/government/submissions/closed-consultations/price-floor-carbon-pricing.aspx at December 2014. [↑](#endnote-ref-45)
46. Guglyuvatyy, Evgeny (2010), ‘Identifying Criteria for Climate Change Policy Evaluation in Australia’, *Macquarie Journal of Business Law*, 7, 98‒130. [↑](#endnote-ref-46)
47. The weights may be obtained directly from the decision-maker, stakeholders or may be developed by applying appropriate methods. Nonetheless, it is very difficult to obtain objective quantitative weights, as knowledge and the confidence are typically rare. Criteria weighting is sensitive to the expressed preferences of decision-makers or stakeholders which adds an additional subjectivity to the outcome. Considering this it is necessary to limit the degree of subjectivity in weighting process for this purpose some policy evaluation procedures involve experts. Employing experts instead of decision-makers or stakeholders is expected to bring an element of unprejudiced and objective assessment of the required information. Gough, C. and S. Shackley (2006), ‘Towards a Multi-criteria Methodology for Assessment of Geological Carbon Storage Options’, *Climatic Change*, 74**,** 141‒174. [↑](#endnote-ref-47)
48. See for example, Smith, S. and H.B. Vos (1997), *Evaluating Economic Instruments for Environmental Policy*, Paris: OECD, Business and Economics; Dovers, S. (2005), *Environment and Sustainability Policy: Creation, Implementation, Evaluation*, Sydney: The Federation Press; Mickwitz, above n. 1. [↑](#endnote-ref-48)
49. Carifio, J. and J.P. Rocco (2007), ‘Ten Common Misunderstandings, Misconceptions, Persistent Myths and Urban Legends about Likert Scales and Likert Response Formats and their Antidotes’, *Journal of Social Sciences*, 3 (3), 106‒116. [↑](#endnote-ref-49)
50. This scale of measurement lists data in rank order but without fixed differences among the entries. The ordinal scale is utilized to weigh the importance of criteria, with values from 1 to 5, where 1 = not at all important; 2 = somewhat important; 3 = moderately important; 4 = quite important; and 5 = extremely important. [↑](#endnote-ref-50)
51. Australian Government Department of the Environment http://www.environment.gov.au/clean-air at December 2014. [↑](#endnote-ref-51)
52. Australian Government Department of Environment, http://climatechange.gov.au/reducing-carbon/news-article/repeal-carbon-tax-and-introduction-direct-action-plan at December 2014. [↑](#endnote-ref-52)
53. Above n. 49. [↑](#endnote-ref-53)
54. Above n. 49. [↑](#endnote-ref-54)
55. Above n. 49. [↑](#endnote-ref-55)
56. Above n. 49. [↑](#endnote-ref-56)
57. See for example, Australian Government Department of Environment, Emissions Reduction Fund, public submission of Professor David Karoly, Professor Ross Garnaut, WWF-Australia and others, http://www.environment.gov.au/climate-change/emissions-reduction-fund/green-paper at December 2014. [↑](#endnote-ref-57)
58. The Australian Senate, Environment and Communications References Committee (2014), ‘Direct Action: Paying polluters to halt global warming?’ 98. [↑](#endnote-ref-58)
59. Ibid. [↑](#endnote-ref-59)
60. Climate Change Authority (Abolition) Bill 2013 [No. 2]. [↑](#endnote-ref-60)
61. Sackman, H. (1975), *Delphi Critique: Expert Opinion, Forecasting, and Group Process*, Lexington, MA: Lexington Books. [↑](#endnote-ref-61)
62. Miller and Cuff, above n. 24. [↑](#endnote-ref-62)
63. Basu, S. and R.G. Schroeder (1977), ‘Incorporating Judgments in Sales Forecasts: Application of the Delphi Method at American Hoist and Derrick’, *Interfaces*, 7, 18‒27. [↑](#endnote-ref-63)
64. Gatewood, R.D. and E.J. Gatewood (1983), ‘The Use of Expert Data in Human Resource Planning: Guidelines from Strategic Forecasting’, *Human Resource Planning*, 5 (1), 83‒94. [↑](#endnote-ref-64)
65. Goodman, C.M. (1987), ‘The Delphi Technique: A Critique’, *Journal of Advanced Nursing*, 12, 729‒734; Snyder-Halpern, R. (2002), ‘Indicators of Organizational Readiness for Clinical Information Technology/Systems Innovation: A Delphi Study’, *International Journal of Medical Informatics*, 63, 179‒204. [↑](#endnote-ref-65)
66. Linstone, H.A. and M. Turoff (1975), *The Delphi Method Techniques and Applications*, Reading: Addison-Wesley. [↑](#endnote-ref-66)