

# Value issues in decision-making about



VALUE ISSUES IN DECISION-MAKING ABOUT NUCLEAR POWER GENERATION:  
AN ETHICAL ANALYSIS Report drawn up for Afrosearch by Prof. Johan  
Hattingh and Me. Leanne Seeliger Unit for Environmental Ethics University of  
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Report on Value issues in decision-making about nuclear power generation.

Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for

Environmental Ethics, University of Stellenbosch. This Report consists of 98

pages in total, including the Executive Summary , Bibliography and

Addendas. EXECUTIVE SUMMARY This report gives an overview of the value

and ethical issues relevant to decision-making about nuclear power

generation in general. An historical overview of the emergence of these

value issues as they respectively related to the USA, Western Europe and

South Africa was traced in Section 4. Questions with regards to the

ambivalence towards nuclear power generation (i. e. strong opposition

versus strong support) that emerged from this historical overview were

analyzed in Section 5 and 6, where they were placed within the context of a

social-cultural as well as an analysis of ideology. In this regard it was found

that nuclear science and technology has brought modernism to its peak, but

exactly this has also raised problems that cannot be overcome from within

the framework of conventional responses of modernism itself. Section 6 of

this report has been devoted to a close analysis of particular arguments pro-

and contra nuclear power generation as they relate to value issues with

regards to nuclear power generation in general. Particular attention was

given to issues of: § Clean energy § Safety § Nuclear energy and nuclear

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weapons § The cost of nuclear energy. The recommendations for decision-making that we make, have been based on the principles and contents of common morality, the contours of which are discussed in Section 3. These recommendations are stated in the report within the context from which they have emerged. All of these recommendations have been consolidated in a separate list at the end of this report (see Addendum 1). It is important to note that these recommendations should be read in conjunction with one another, and not in isolation from one another. \*\*\* Since the nature, methodology, importance and implications of an ethical analysis of the value issues pertaining to nuclear power generation is not evident from the outset, these themes were discussed in Addendum 2 in which the following questions were addressed: § Why is it important to focus on values in a process of decision-making on nuclear? § What is the nature of an ethical analysis of the value issues involved? § What is the difference that such an ethical analysis can make to decision-making? 3 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. 1.

INTRODUCTION This report gives an overview of the value and ethical issues relevant to decision-making about nuclear power generation in general. The brief for this study was to do a desktop study in which the value issues are identified that are related to the use of nuclear power generation (in general), to analyze these issues from an ethical point of view, to show what the implications of these issues are for decision-making, and to make recommendations about appropriate responses to these value issues. The

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terms of reference of this study also required an overview and critical analysis of the main arguments for and against nuclear power generation. This analysis of pro- and antinuclear positions will endeavour to bring rational understanding to a terrain where informed debate seems to have made way for "an anarchy of values, interests, and perspectives" (Barrie 1994: 173), adversarial confrontation, and ideological posturing. Part of the aim of this overview is to identify strategies to come to grips with this situation. It should be borne in mind that the context of this study is the process of decision-making about the proposed siting of a demonstration model pebblebed modular nuclear reactor (PBMR) in South Africa, either at Koeberg near Cape Town, or at Pelindaba near Pretoria. Associated with this proposal, but subject to different assessments in their own right are proposals about a fuel manufacturing plant for the PBMR at Pelindaba, as well as the importation and transportation of raw material and manufactured fuel along certain routes. However, in terms of our brief, it falls outside the terms of reference for this study to address the particular value issues pertaining to the complex of proposals pertaining to the siting of a PBMR in South Africa. The results of this study, though, will be used to alert decision-makers to the value issues related to the PBMR proposals that may require in depth attention. In the study that we have conducted, the methodology of which is described below, the following have been identified as the main areas about which the pro- and anti-nuclear positions differ deeply and fundamentally. § The question of the health hazards of radioactivity § The problem of the disposal of nuclear waste § The problem of the risk of catastrophic reactor accidents § The problem of external costs and affordability § Nuclear proliferation. § Terrorism § Sabotage 4 Report on Value

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issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. For the purpose of our investigation, we have distinguished between stronger and weaker variants in the anti- and pro-nuclear positions, and have identified the main reasons why these differences occur. As we will show in the course of our study, these differences have to do with different sets of opposing, and in some instances, incommensurable assumptions that are adopted on a variety of issues - which explains why the divide between the stronger variants of the pro- and anti-nuclear positions appears to be unbridgeable, and why it is virtually impossible to negotiate one's way in the nuclear debate without facing strong counter-arguments and even deep-seated emotions. We acknowledge that all of the problem areas listed above clearly cannot be divorced from involved technical and scientific considerations, which raises the problem of the vast difference in the levels of knowledge between experts working in the nuclear field and the public that is expected to comment on proposals in this regard, as well as that of effective public participation. However, the focus of this report will fall on the value dimensions of these problems and the ethical issues that are brought forward by them. For the purposes of this report, it is assumed that the facts with regards to technical aspects of nuclear power generation are known and well understood. It should also be stated at the outset that his report is written against the background of an emerging international trend in risk decision-making, namely to acknowledge and incorporate value and ethical issues in the whole of the process, from feasibility studies, scoping studies,

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impact assessments, generation and consideration of alternatives, right up to the final decision-making and implementation phase (see Nye 1986; Brown 1995; Lemons 1995; Cothorn 1996, Newton and Dillingham 1996; Harris, Pritchard and Rabins 2000; Reason in Practice 2001, Shrader-Frechette 1991, 1993a, 1993b, 1994, 2000 ). Since not everyone involved in the process of risk decision-making is aware of, or in agreement with this emerging trend, a brief overview of what is entailed here is given in Addendum 2 attached to this study. Before we proceed with the analysis of the value and ethical issues pertaining to decisionmaking about nuclear power generation, it is important to first provide an overview of the historical and socio-political context within which the nuclear debate is currently situated internationally, as well as locally within South Africa. In this regard we will give a brief overview of the § Historical emergence of the nuclear debate in the USA, Western Europe and South Africa § The deeper cultural and socio-political assumptions informing the nuclear debate. 5 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. The rationale of this study is to determine what the implications of an ethical analysis of the value issues involved are for public decision-making about nuclear power generation. These recommendations will be identified during the course of this report at the places where they arise. A full articulation and a consolidated list of these recommendations will be given at the end of this study. 2. METHODOLOGY In order to execute this brief, a survey of local and international publications about the history of the <https://assignbuster.com/value-issues-in-decision-making-about/>

socio-political debate about nuclear energy was undertaken. In this regard, the focus fell particularly on literature devoted to the values that are at issue in this debate. Literature from the subject fields of philosophy and ethics were of great help in this regard. In the main part of this report, a close analysis of the arguments for and against nuclear power generation is given, focusing on different variants of the pro- and anti-positions in this debate, and concentrating in particular on the different assumptions informing each variant. On the basis of this analysis, a number of value issues (or ethical risk areas) were identified that should receive due consideration in any public decision-making on nuclear power generation. What these ethical risk areas entail, and what an appropriate ethical response to it could entail, was captured in a number of recommendations that are consolidated at the end of our study. A number of interviews with specialists on the scientific and technical aspects of nuclear power generation have also been conducted. Since some of them have instructed us not to mention their names in this report, we withhold all names in this regard for the sake of consistency. 3.

**THE BASIS AND STRUCTURE OF THE RECOMMENDATIONS** In order to overcome the problem of casting our recommendations in a prescriptive, moralistic tone that could be easily dismissed as biased or subjective (cf. Stout 1993: 215), we have opted to formulate them either in terms of ethical risk areas, or in terms of issues about which decision-makers will need to have clarity if they wish to make any ethically defensible decision at all. These ethical risk areas or issues have been identified on the basis of what is generally known in the literature as "common morality" (cf. Outka and Reeder 1993; Reeder 1993; Stout 1993). This common morality comprises a cluster of values and assumptions that a substantive majority in society



adhere to in their daily lives, setting the parameters of what one can reasonably expect of human behaviour within society, in particular within the public domain. 6 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. It is assumed within this study that common morality is based on the notion of acknowledging and respecting certain common traits shared to a large degree by all human beings (Harris, Pritchard, Rabins 2000: 32-33). These common traits include: § Vulnerability (The ability to suffer and to experience pain and unhappiness; the limitations of bodily existence and susceptibility to diseases and disability; the fact of growing old and dying.) § Autonomy (All humans share to some degree the ability of thinking for themselves and making their own decisions.) § Interdependency (All humans depend on others to help them get what they want, through co-operative endeavour and division of labour. Our well-being also depends on others refraining from harming us.) § Shared expectations and goals (Besides wanting things for ourselves as individuals, we may want things together, as groups working toward shared ends. These groups may range from caring relationships between two or more individuals to larger groups, such as a particular profession, religious institution, nation, or even an international organization as the United Nations.) § Common moral traits (Humans typically display shared moral traits such as fairmindedness, self-respect, respect for others, compassion, benevolence etc. Despite individual differences in the strength, scope, and constancy of these traits, they are found to some degree in all humans.) It is not claimed here that this list is

complete, but it does give us a reasonable basis for understanding why common morality would include general moral rules or principles about duties such as (Harris, Pritchard, Rabins 2000: 33; Rachels 1997: 10): § Not to harm others. § To make reparations for harms done to others. § Not to lie or cheat. § To keep our promises. § Not to interfere with the freedom of others. § To respect others' capacity to make rational decisions about matters affecting their lives. § To treat others fairly. § To help those in need. § To be open and honest in one's dealing with others. § To take special care when one can cause great harm to others. It is furthermore important to know that different standard approaches exist to prioritize these duties and obligations, or to cluster them around a more general principle.

Utilitarianism, for instance, in one of its versions, would support the principle of maximizing human well-being 7 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. (i. e. ensuring satisfaction of human welfare for the greatest number of people for the longest time). Certain rule-based approaches, on the other hand, will relate these core duties and obligations of humankind to a morality of respect for persons. For the purposes of this overview, these different approaches are important in so far as they make use of different argumentative channels to arrive at a decision about what should be done. However, in spite of the differences in " logic" that they display, substantive overlap exists in the conclusions that they reach.

Utilitarian morality (typically focusing on a close analysis of consequences in terms of costs and benefits: the morally acceptable option is the one with

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the best consequences) and a respect-for-persons morality (typically making use of respect for human autonomy as point of departure, or emphasizing the importance of special obligations, justice and human rights) may indeed differ in terms of what they appeal to, and accordingly what they offer as reasons for or against a certain course of action. However, despite different approaches to justify moral choices, often these different approaches arrive at remarkable similarities in what they support as morally acceptable and what they reject as morally unacceptable. Both approaches also have fairly well developed strategies to overcome differences if they find that they make diverging recommendations (Harris, Pritchard, Rabins 2000: 60, 93; cf. also Jonsen and Toulmin 1988: 1-20). That such a thing as common morality exists, is evident from the fact that the gist of the duties and obligations listed above is informally codified in strong societal notions of what constitutes the difference between acceptable and unacceptable behaviour. Similarly, much of the "spirit" of these duties and obligations form the basis of formal instruments within society, for example legislation and acts. The Bill of Rights in South Africa's Constitution, for example, is one possible codification of common morality - conceptualized as a set of shared norms and principles that the majority of reasonable and thinking people in society would like to see realized. The same can be said of about every act of Parliament that has been passed since the transformation to democracy in 1994, and about many others that have been passed before that. They all, to a greater or lesser degree, codify some aspect of common morality thereby setting standards below which we would not like people to go in their choices and actions. As such, common morality entails a "thin" layer of consensus among people in a society where a line is drawn below which no-one is

allowed to venture without a very good justification. This observation highlights the phenomenon that any deviation from the minimum standards of common morality are frowned upon by society, and that such deviations are only allowed if very good reasons exist to do so. For example: to respect freedom of movement is one of the instances of respecting the autonomy of persons, but one would be foolish if one insists on this freedom if it will interfere with government rendering assistance to people

8 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. suffering from a natural disaster such as a flood. In such a case, it is apparent that good reasons exist to temporarily restrict the right of the public to move freely in certain areas. Another important point to bear in mind, is that the standards of individual morality may differ from that of common morality. Many individuals ascribe to moral standards that are much higher than that of common morality. These could be referred to as moral ideals, and as such, it would not be reasonable for society to expect everyone to adhere to the same standards. An apt example would be the self-sacrifice of Mother Theresa in her humanitarian service to the poor and destitute of society. We all may admire her for her courage and heroism, but we cannot blame others if they do not follow the same path in their lives. We can only legitimately start to blame someone for unacceptable behaviour and take him/her to task about it if the minimum standards of common morality are transgressed. Similar observations can be made about professional conduct, with the difference that we sometimes can hold professionals accountable at a higher

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level of morality for unacceptable behaviour. Professional morality often sets standards that are higher than that of common morality, and professional bodies are created to ensure that these standards are adhered to.

Accordingly, we can take professionals to task if their actions fall below the standards that they have set for themselves. However, if they act in areas where no professional standards exists, the minimum standards of common morality apply in the same manner as in the case of individuals acting in public. The implications of the points mentioned above for public decision-making follow from the fact that a core set of duties and obligations related to common morality can always be identified at any given time in any society. If common morality is not encoded in laws, structures and standard operational procedures, common practice amongst reasonable, thinking people will always yield ample pointers to the contents and basis of such a common morality. As such, common morality will always be available as a point of reference in public decision-making. Similarly, common morality will also always be available as basis for the evaluation of any public decision-making. In fact, where society may to some extent still tolerate individuals who fall below the minimum standards of common morality, less room for tolerance is given to bodies who have to make decisions where the common good and the welfare of the public are at stake. However, if public decisions are made in areas where there is no clear guidance from existing laws, statutes and standard operational procedures, the minimum standards of common morality will be applied. With this in mind, an ethical risk area can in the first place be defined as an actual or a potential course of action in which the letter and the spirit of the minimum standards of 9 Report on Value issues in decision-making about nuclear power generation. Final

Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. common morality are ignored, undermined, or transgressed. The ethical risk factor lies in the fact that society would not easily allow anyone to go below the minimum standards of common morality, or forgive them for that matter if they in fact do so. The frequent occurrence of public scandals (and the victimization of transgressors) is more than enough evidence of this phenomenon. An ethical risk area can further be described as an actual or a potential course of action in which the letter and the spirit of the standards in relevant legislation and regulatory procedures are ignored, undermined, or transgressed. In such cases it is not only a standard operational procedure that is ignored, or a law that is broken; what is compromised is public trust in agencies and officials who, beyond their duties and obligations as individuals, individually and collectively also have special duties and obligations to obey the law, and follow standard procedures to ensure that the interests of the common good and public welfare are well-served. Within the context of decision-making about nuclear power generation, a third level of ethical risk has to do with the fact that the development and application of nuclear technology places extraordinary duties and obligations on those responsible for its management and control since the potential exists within this context for " acute exposures" and " catastrophic accidents" (DME 1998: 62). This follows from the reasonable expectations of the public that officials have a duty of due care correlative to the actual or potential dangers related to the processes and procedures that they manage. This injunction is based on the tenet of common morality, which states as follows: Other things being

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equal, one should exercise due care to avoid contributing to significantly harming others. However, if the dangers or risks involved are extreme, then common morality dictates that we have a correlatively extreme duty to take due care to safeguard the public from such dangers. In literature on professional ethics, this is referred to as the corollary of proportionate care, and it reads as follows: When one is in a position to contribute to greater harm or when one is in a position to play a more critical part in producing harm than is another person, one must exercise greater care to avoid doing so (Harris, Pritchard and Rabins 1998: 63; cf. also Alpern 1991: 189). In the case of decision-making about nuclear power generation, this exposes officials, regulators and decision-makers to ethical risks if they fail to demonstrate to what extent they indeed can, and in future will be able to meet the reasonable expectations of the public to be protected from disasters or harm to their best interests. Accordingly, the recommendations in this overview are structured in such a manner that they highlight those areas in which a course of action (in this case a decision about nuclear power generation) exposes decision-makers to the three levels of ethical risks mentioned above. Conversely, the recommendations in this report are structured to show which kinds and which 10 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. levels of justifications would be required to legitimately digress, if at all, from the reasonable expectations and minimum standards of common morality.

Recommendation 1 General formulation Decision-makers and those

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commissioned to inform decision-making (e. g. scientists, engineers and environmental assessors) should clearly state which values they are using, and how they are using their values to make their choices and formulate their recommendations. Application This recommendation applies to all of the phases of the scientific and technical studies commissioned to inform decision-making. This also applies to all of the phases of decisionmaking.

Note This could be done without falling into the traps of subjectivity and relativism by referring back to the minimum standards set by common

#### 4. A HISTORICAL OVERVIEW OF THE EMERGENCE OF VALUE ISSUES

RELATED TO NUCLEAR POWER GENERATION For the purposes of this study, the history of the emergence of value issues with regards to nuclear technology in the USA, Western Europe and South Africa will be used as point of departure. This history is fairly well-documented, but it is important to pay attention to it in broad overview to form an understanding of the long period of the sensitization of public opinion against nuclear technology (Piller 1991; Dunlap, Kraft and Rosa 1993; Gerrard 1995). Although there is a substantive overlap in the value issues that have been raised in the nuclear debates in the USA, Western Europe and South Africa respectively (see Mink 1981; Patterson 1982; Welsh 2000), it should be borne in mind that similar kinds of value issues have been responded to differently in different countries. For instance, in France where about 75% of its electricity is generated by nuclear power plants, a predominantly positive attitude towards nuclear technology exists that is steadily growing (Koopmans and Duyvendak 1994). This difference, we believe, should not be ascribed to the existence of different value issues, 11 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002.



Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. but rather to the fact that virtually the same value issues can be responded to in different ways by different societies and communities. It should also be borne in mind that the history of the emergence of value issues regarding nuclear technology the world over should not be seen as one single and coherent phenomenon. As it will be shown in the sections below, this history differs from country to country, depending on numerous national and international factors impacting on the public consciousness of the broad population of a particular country or region. Where some countries (for instance Germany) have experienced a progressive growth in public opposition towards nuclear technology, as well as an increase in levels of mistrust in the institutions responsible for the management and regulation of it, other countries (for example France) have little, if any resistance movement against nuclear technology left to speak of.

**Recommendation 2 General formulation**

Decision-makers about nuclear technology should duely acknowledge and respect the differences in the articulations and interpretations of value issues brought forward by any use of nuclear technology. Special attention should be given to the sharp divide between those opposed to nuclear technology, and those that support it.

**Particular formulation**

In order, to enable themselves to make up their minds in a rational and reasonable manner in a situation of such differences, decision-makers about nuclear technology should familiarize themselves thoroughly with the nature and structure of these differences, as well as the grounds and the justifications for the different positions that are defended.

**Application**

If a decision is made

for or against any proposal about nuclear technology, a strong obligation rests on decision-makers to clearly spell out what the grounds and justifications for their choices are, and why these grounds and justifications should be accepted above others. 12 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. 4. 1 The nuclear debate in the USA 4. 1. 1 Value issues in the early history of nuclear technology in the USA A review of relevant literature shows that the early history of the utilization of nuclear technology in the 1940s and 1950s in the USA, whether for the purpose of weapons manufacturing or for the generation of electricity, was characterized by an atmosphere of technological euphoria and optimism (Dunlap et al 1993: 33, 34). At this time, the completion of the Manhattan Project was seen as the " most remarkable scientific and engineering feat in the history of the human race" (Dunlap et al 1993: 33), and accordingly, everything that was required to establish and promote the fledgling nuclear industry on a commercial basis in the USA was done. The most famous and often quoted articulation of this optimism is found in the words of Lewis Strauss, then Chairman of the US Atomic Energy Commission who spoke of " unlimited power", and of electricity " too cheap to meter". He also referred to an era in which famines would be remembered only as matters of history. Strauss further argued that people would " travel effortlessly over the seas and under them and through the air with a minimum of danger and at great speeds and [would] experience a life span far longer than ours". In his view, atomic power promised " an age of peace"

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(quoted in Dunlap et al: 1993: 35-36). Since the era after the Second World War was also characterized by the Cold War and an accelerating arms race between East and West, the development of nuclear technology was, for understandable reasons of security, covered by a blanket of official secrecy. This secrecy also applied to commercial nuclear facilities, which made it very difficult for the public to gain access to data about potential safety problems of plants. This, in turn, made it virtually impossible for the public to influence either the development of the nuclear industry in the USA, or its regulation. In fact, legislation about atomic energy in the fifties made it possible for the US Atomic Energy Commission to leave it largely to the nuclear industry to regulate itself, while the right of the public to hold the industry liable for damages in cases of a major nuclear accident was for all practical purposes suspended. The net result of this was that the industry was provided with a great deal of protection and support, while the ability of the public to scrutinize and intervene in the industry's development was effectively curtailed (Dunlap et al 1993: 34 - 38). It was only during the early 70s after new legislation has been passed that a new approach to regulation was developed in which the public received a greater ability to influence regulatory decisions. Until then, the development of the nuclear industry was very much a foregone conclusion, with little hope for the public to be able to intervene in the direction or momentum of this development process. 13

Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. The central issues that were put on the table from the side of the

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nuclear industry at this time, were commercial in nature, and had to do with § patent rights § ownership of fissionable materials, and § free competition in private enterprise. From the side of the industry, public health and safety received less attention than the difficulties of establishing a viable commercial enterprise. " Public interests, insofar as it was considered at all, was singularly defined as providing consumers with limitless supplies of cheap electricity ..." (Dunlap et al 1993: 34). From the side of the public though, health, safety and security were central value issues that manifested in concerns about: § The siting of nuclear facilities § Reactor safety and the risk of catastrophic accidents § Weapons proliferation. What is clear from the literature is that the problem of nuclear waste storage was of little concern during this time, since the volume of it involved was relatively small. The question whether the use of nuclear technology was really necessary or not, was also not seriously considered in public debates. Both of these questions only moved to centre stage during the 1980s.

Recommendation 3 General formulation With the scenario of a new generation civilian nuclear industry being established in South Africa, the temptation may be to promote the industry by protecting it from effective public scrutiny, thereby blocking the ability of the public to influence development and regulatory decisions in this regard. Decision-makers as well as the proponents of nuclear technology should avoid this at all costs. Specific formulation Because nuclear based energy generation has become a sensitive issue, the ability of the public to participate and influence the process of decision-making should rather be actively promoted and developed.

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Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. Explanatory note 1 The central value assumption on which this recommendation rests, is that effective public participation in the process of decision-making about nuclear power plants is essential to ensure (a) the health and safety of the public, and (b) to establish trust in both the nuclear industry and the institutions responsible for its regulation on the one hand, and the process of decision-making about it on the other hand. Explanatory note 2 Effective public participation within this context entails at least (a) access to adequate information about nuclear technology and its applications that will enable interested and affected parties to make up their own minds about the value issues (e. g. health and safety issues) involved; (b) reasonable time allocations for interested and affected parties to digest and understand the information; (c) reasonable time and opportunities for interested and affected parties to convey their views to decision-makers; (d) reasonable time and opportunities for interested and affected parties to explain their views to decision-makers and to answer questions about these views.

Recommendation 4 Introductory note The introduction of any new-generation nuclear technology in a country rests on the hidden assumption that it is indeed necessary to establish such a new generation of nuclear technology. General formulation In order to ensure that the development of new-generation nuclear technology in South Africa is not seen as a foregone conclusion that cannot be changed or influenced by the public, a strong burden of proof rests on the proponents of such technology to make it clear whether they see the development of this technology as necessary or not, what the grounds for this view is, and how these grounds can be justified.

Application Such grounds and justifications given by the proponents should subsequently be made available for public review in a process of effective public participation, and eventually proponents should be able to demonstrate if, how and why these grounds and justifications should be upheld in the face of criticism.

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4. 1. 2 Value issues during the era of the proliferation of nuclear power plants: 1960s and 70s Since the erection of the first nuclear power plant at Shippingsport, Pennsylvania in 1957, the era roughly spanning the 1960s and 70s, until the accident at Three Mile Island in 1978 can, on the one hand, be characterized as that of the proliferation of nuclear power plants, while on the other hand it can be characterized as the era of the consolidation of ambivalence towards nuclear technology. As it was in the era before, the central concerns about nuclear technology in the mind of the public were the siting of nuclear facilities, reactor safety and the risk of catastrophic accidents, and given the Cold War, the dangers of weapons proliferation. These concerns were based on a greater emphasis placed by the public on health, safety, and the effective management of technological hazards. On the other hand, the nuclear industry was preoccupied with delivery, since utilities finally started to place commercial orders for nuclear reactors after the mid-sixties. This preoccupation was clearly vindicated retrospectively by the oil crisis of 1973, which opened the eyes of the world to its vulnerability if it only depended on oil as its source of energy. During this time, public participation in decision-making about the

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siting and regulation of nuclear power plants was virtually non-existent. In terms of the rules of the Atomic Energy Commission (AEC), AEC staff and utilities worked out their differences behind closed doors, while the public was not even permitted access to the agency's data about potential safety problems of the plants. Notwithstanding these conditions, the public raised several safety issues in public hearings on proposed reactors that the AEC was not able to resolve. Rosa and Freudenburg (in Dunlap et al 1993: 37) pointed out that "... the AEC's response scarcely indicated 'excessive sensitivity' to public concern. Rather than holding up the issuance of permits until the questions could be answered, the AEC decided that if a question covered several plants, it no longer needed to be decided in an individual licensing case. Instead, it would be treated as a 'generic' safety issue, the resolution of which would be sought through the ongoing research of the AEC and the industry. In the meantime, the plant could be built and operated." This meant that the AEC effectively treated safety issues as irrelevant to the licensing of nuclear reactors. The perception was therefore created that the AEC only paid attention to issues that itself found legitimate, and that public opinion was not taken seriously in decisionmaking about nuclear technology. If one further takes into account that the AEC at the time only had minimal safety standards, leaving safety issues largely in the realm of the industry's

16 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. own responsibility, and add to this that the industry was not accustomed to the intensity of management required, sometimes showing

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indifferent compliance to the minimal AEC procedures at the time, it is no wonder that public trust was lost in the ability of the AEC to effectively regulate the nuclear industry and that an active anti-nuclear movement started to emerge. In 1973 an evaluation of the AEC licensing process funded by the National Science Foundation concluded: " The whole process as it now stands is nothing more than a charade, the outcome of which is, for all intents and purposes, pre-determined" (quoted in Dunlap et al 1993: 37). In her characterization of this trend as a crisis of participation, political philosopher Robyn Eckersley (1992: 8-11) points out the basic value issue involved here is that of justice. On the one hand, administrative justice requires that people are not only adequately informed about any imminent public decisions that may impact on their lives, whether these impacts are positive or negative, but also that they are given a reasonable opportunity to participate in the process of making that decision. At the same time, the requirements of distributive justice state that the benefits and burdens of any public decision ought to be distributed fairly among the population. The ideal would, from an ethical point of view be that, if there are burdens, that the population enjoying the benefits completely overlap with the population bearing the burdens. Since this cannot be achieved in all cases, the next issue is raised, namely fair compensation. Since these questions require careful deliberation about siting, management and regulatory decisions, the public value of justice in all of the meanings listed above is seriously compromised if the process of public participation about siting, management and/or regulation has deteriorated into a charade. Recommendation 5

General formulation Decision-makers about any proposed development or application of nuclear technology should be able to clearly demonstrate that



public opinion expressed in the process of public participation has been taken seriously, and that concerted efforts have been made to understand and accommodate public opinion in the process of decision-making.

Application In order to do this, decision-makers will have to do much more than merely provide a list of concerns and views that have been raised in the process of public participation. They will have to provide in the first place clear and coherent reasons and justifications for their decisions, and show, in the second place with proper arguments why certain concerns and 17 Report on Value issues in decision-making about nuclear power generation. Final

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Addendas. views were dismissed in the process of decision-making, and why others were taken into account. Explanatory note Given the technicalities of

the issues related to decision-making about nuclear technology, and given the fact that public concerns can easily be swept off the table by experts in the field as unfounded, a real danger exists that the public can lose its trust

in the ability and willingness of decision-makers and regulators to take their concerns seriously. This clearly can happen if the concerns of interested and

affected parties are dismissed as unimportant without providing explicit

reasons why this is done. Similarly, trust in decision-makers and regulators

would be severely undermined if the concerns or views of interested and

affected parties were reduced to merely technical or management problems

- as challenges that can be addressed by public relations programmes, or

information and education campaigns. 4. 1. 3 Value issues in an era of

profound skepticism about nuclear technology During the 80s and early 90s,

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the ambivalence towards nuclear energy in the USA deepened to the point that virtually no reconciliation between the pro- and the anti-nuclear groups seem possible. During the 80s a profound skepticism emerged about the ability of institutions in the nuclear industry to ensure nuclear safety, in particular the safe storage of nuclear waste. With about 112 commercial nuclear reactors in operation in the USA alone, the problem of a large volume of high level radioactive waste emerged as the most problematic policy challenge that the nuclear industry has ever faced. With public opinion fueled by images of catastrophe after the Chernobyl disaster of April 26, 1986, all of the efforts of the DOE to find a single geological repository for high level nuclear waste storage proved to be unsuccessful. In fact, the studies that were done in order to determine the feasibility of the proposed Yucca Mountain geological storage site rather concentrated the focus of public opinion, turning it into a general rejection of continuing with any further development of nuclear technology at all. However, in the light of concerns about climate change and the alleged links to high levels of CO<sub>2</sub> emissions, a resurgence of interest in nuclear power occurred in the late 80s and early nineties. The first Bush administration, for instance boosted this interest when it stated in its National Energy Strategy of 1991 that the USA's capacity for electricity generation should be increased from its levels of 99.5 gigawatts in December 1990 to between 190 (double) and 290 (triple) gigawatts. 18 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. With the advantage of hindsight, after what transpired at the <https://assignbuster.com/value-issues-in-decision-making-about/>

Kyoto Conference on Climate Change in 1997 - the USA chose not to sign the multi-lateral agreement on the curtailment of CO<sub>2</sub> emissions - critical observers around the world started to question the very basis of the extremely high levels of energy consumption that is found in the USA. With some basing their questions on concern for fairness toward future generations, and with some basing their questions on concern for fairness towards other nations living on the planet now, it is asked more and more these days to what extent such high levels of energy consumption can be reconciled with the ideals of inter- and intra-generational justice. According to Robyn Eckersley (1993: 17-21), questions like these confronts us with a crisis of culture and character. It confronts us with large, all-encompassing questions about who we are, what kinds of lives we are living, and how we shape our own future and that of the planet by the choices we make now in the present. This in turn not only confronts us with a further set of questions, like: Do we really need this kind of energy and at this level? Do we really need this kind of transport; and this level of consumption in our lives? What does it mean to live a rich and full life? It also confronts us with the question of how we go about settling these questions: on the basis of which considerations, on the basis of which reasons and which justifications? In short, these questions require of us to make explicit what kinds of lives we can justifiably live in the face of scarce resources and global injustices. It furthermore requires of us to make explicit what kinds of institutions and organizations and states we justifiably support in order to realize public values such as justice and fairness. This line of thinking clearly brings us into the realm of a radical questioning of the current social ideals that we support, and structures that we live in, as well as the question whether they

should be continued in their present form, or substantively transformed. As Eckersley (1993) sees it, the environmental crisis has created an opportunity for us to emancipate ourselves from the assumptions, ideals, structures and institutional forms that have become problematic in our time. Apparently this seems to be a long way off from the question of how decisions should be made about the development of nuclear technology in a developing country such as South Africa. It seems as if questions like these take us into the area of idealism, utopianism and aspirational thinking, and that they therefore should not be taken seriously in deliberations about nuclear technology. Our argument in this regard, however, is that these questions cannot be ignored in public decision-making about nuclear energy in South Africa today. They form part of an essential framework of considerations that fundamentally shape the way in which we think about nuclear power and its management and regulation. This framework has to do with our basic ideas about science and technology, about what we can know, what we ought to do, and what

Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. we can hope to achieve in the future. This general framework of cultural ideals has to do with what we think of ourselves as human beings, and even what a meaningful life on this earth is, or could entail. As such, this framework provides us with a long-term vision against the background of which we articulate our aspirations and make our plans for the future of ourselves and our children. Without an explicit awareness and a constant critical questioning of this broad framework of cultural ideals, humankind

would be like a ship on the open seas that has lost its orientation, drifting aimlessly going nowhere. It is therefore essential that the content and the substance of this framework of deep cultural assumptions is also explicated in decision-making about nuclear technology - albeit in a rudimentary form.

**Recommendation 6 General formulation** Decision-makers about nuclear technology should familiarize themselves with the different answers and kinds of answers that have been given in the socio-political debate about nuclear technology on the radical questions with which the development and application of nuclear technology confronts us (such as: who are we as humans and where are we going in this world with our knowledge and technology). **Specific formulation** Decision-makers should familiarize themselves with the reasons and justifications given for the different answers provided in the socio-political debate about nuclear technology on the radical framework questions conjured up by the development and application of nuclear technology. **Application** When decision-makers decide about any development or application of nuclear energy, they should be able to explain in public why they give precedence to a certain position in the broad socio-political debate on the radical framework questions referred to above, and why that particular position is better than another.

**Recommendation 7** Granted that the conversation of humankind about the radical framework questions referred to above is incomplete and unending, and that we therefore cannot postpone decision-making about a particular proposal about nuclear technology indefinitely, decision-makers at least have the obligation to show that (a) they are aware of the existence of this conversation, (b) that they are aware that they are implicitly contributing to the substance of this conversation

making about nuclear power generation. Final Version: 15 March 2002.

Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the

Executive Summary , Bibliography and Addendas. by the choice that they will make, and (c) that they, in the choice that they make, do not foreclose the outcome of that conversation or undermine the conditions for its

continuation. 4. 2 The nuclear debate in Western Europe It would be difficult to give an overview of the nuclear debate in Western Europe in terms of distinct historical phases (as it has been done in the case of the USA, and as it will be done in the case of South Africa). The reason for this is that different countries in Western Europe have had different exposures to, and therefore different responses to nuclear technology and its applications.

However, what is similar in Europe to the history of the nuclear debate in the USA, is that the capacity for nuclear power generation for civilian purposes was developed during the 1950s, and that most of it was established, albeit against certain levels of public opposition and protest, during the 1960s. In this history, the same issues of official secrecy and government imposition were also experienced (Welsh 2000: 13-15). During the late 1960s and the early 1970s, strong and vocal opposition to nuclear power swept through the whole of Europe, coinciding with the New Left revolution on university campuses, although this didn't represent the attitudes of the majority of the population in most of the West European countries. In some countries, this opposition succeeded to halt any further development of nuclear power generation capacity (for example in the Netherlands in 1974); or to prevent any nuclear power generation capacity to be established at all (Denmark). In some, for instance in the United Kingdom, the anti-nuclear movement only

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really got off the ground in the late 1970s and early 1980s. In other countries such as France and Belgium, this opposition proved to have no effect at all on the respective country's nuclear power programme. An important fact in the interpretation of the nuclear debate in Europe, is that its intensity, which is much higher than that in the USA, can be linked to the Europeans' direct experience of warfare in their continent, and to the fact that nuclear weapon installations were deployed throughout Western Europe in close proximity to large masses of population in the era after the Second World War (Snow and Benford 1988: 209). With the constant threat of nuclear war, a strong anti-nuclear movement that is not only opposed to nuclear weapons but also to nuclear power generation emerged in Western Europe, although its history and success differs from country to country. In the Netherlands and Denmark, the position of the antinuclear movement was that nuclear energy is both dangerous and unnecessary, and this view has become the dominant viewpoint among the general public, the news media, and a majority of the political parties. In Germany, however, no clear winner has emerged from the debate between pro-nuclear and anti-nuclear positions - the fight for supremacy continues. 21 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. On the other hand, France is the best example in Europe of a country in which the antinuclear movement has lost the debate and has been marginalized by a discourse that emphasizes the safety of the national nuclear industry and the necessity of nuclear power as a guarantee for economic independence and as a source of national grandeur

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(Koopmans and Duyvendak 1994: 11; Welsh 2000: 18, 21). It is furthermore significant to note that public opposition to nuclear energy in Europe (recorded in attitude surveys in distinction from open protest behaviour) significantly increased throughout Europe after the Chernobyl disaster of April 1986, with the exception of France and Belgium where opposition decreased. In countries such as the United Kingdom, Italy and Denmark in which a majority of people in 1978 thought that nuclear energy was worthwhile to pursue, significant shifts of opinion took place when the figures of 1987 just after the Chernobyl disaster are taken into account. In the United Kingdom, Italy and Denmark, a majority of the public assumed an anti-nuclear energy stance in 1987. In the UK, the shift in opinion was 33%, while in Italy a massive 70% shift was registered, while the shift in Denmark was a substantive 52% (Koopmans and Duyvendak 1994: 12). The Chernobyl disaster of April 1986 also led to a very interesting pattern in the revival of anti-nuclear protest in Western Europe. In a study completed by Koopmans in 1992, it was found that only Germany experienced a spectacular rise in the number of anti-nuclear protest events. In France and Switzerland only a small increase took place, and in the Netherlands no change was detectable. The same pattern emerged when the volume of participation in these events was taken into account. Where Germany saw a substantive increase in the number of protesters, no increases on this level was experienced in the Netherlands and France. A significant increase in the number of protesters was registered in Switzerland though, although not as high as that of Germany (Koopmans en Duyvendak 1994: 4-6). The reaction of politicians and the general public (in distinction from protesters) affirm how wide definitions and interpretations of similar events can differ. For example, in <https://assignbuster.com/value-issues-in-decision-making-about/>



Germany, several state and local governments prohibited the consumption of fresh vegetables, closed children's playgrounds and swimming pools and even cancelled sports events. None of this happened in France: On one side of a Rhine Bridge, at Kehl, in West Germany, the children were forbidden to play on the grass and the lettuces sat uneaten in the ground. On the French side of the bridge, around Strassbourg, very similar lettuces were declared harmless (Hawkes et al: 1986: 154, quoted in Koopmans and Duyvendak 1994: 7). How can this be explained? According to Koopmans and Duyvendak (1994) these differences have to do with differences in the level of mobilization of protest against nuclear power in a country, and pursuant to that differences in the public image of nuclear power in the public 22 Report on Value issues in decision-making about nuclear power generation. Final Version: 15 March 2002. Prepared for Afrosearch by the Unit for Environmental Ethics, University of Stellenbosch. This Report consists of 98 pages in total, including the Executive Summary , Bibliography and Addendas. consciousness of a country. In Germany for instance, the Chernobyl disaster occurred within a period in which public protest against nuclear power was already at a high level and well organized. Public protest was already mobilized during 1985 against a nuclear reprocessing plant in Wackersdorf, Bavaria, so that the Chernobyl disaster only provided further impetus to a movement that was already up and running. This impetus was further supported by the antinuclear stance of a number of German political parties. In the Netherlands however, the antinuclear movement almost came to a standstill after its campaign to close its two existing nuclear power plants failed in 1981. Similarly, the anti-nuclear movement in France was reduced to marginal proportions after the Socialists took office in 1981

(Koopmans and Duyvendak 1994: 7-8). The significance of these observations for public decision-making on the development and application of nuclear science and technology lies on different levels: In the first place, it highlights the fact that real differences can exist between objective reality (for instance levels of radiation that can be scientifically measured at a specific time and place) and the interpretations and perceptions of people in that same place at that same time. This difference between objective facts and subjective perceptions is significant for any process of public decision-making, but it is highly important, in the second place, to note that this very distinction itself is contested in the nuclear debate. It is not always clear exactly what the distinction is between objective facts and subjective perceptions, since different definitions of concepts will lead to different sets of facts - and these different sets of facts can then be interpreted differently (i. e. they can be given different meanings and weights) depending on different definitions used for words such as " risk", " danger", " safety", " health" etc. From this perspective then it should be borne in mind that straightforward scientific measurement would often be of no value in efforts to settle the differences between pro- and anti-nuclear groups. They often do not differ on what the facts are, but on what counts as facts - on what is accepted as facts. This is another way to say that the nuclear debate, as many other debates in life, is predominantly driven by values (that provide the framework within which " the facts" for the " content" of the debate are constructed along the lines of the fundamental assumptions informing that framework). In the third instance, this implies that decision-makers should exercise a healthy skepticism about any facts that are introduced in the

nuclear debate - until they are satisfied that the definitions of concepts on the basis of which these facts are presented are clear, and that the assumpti