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978-1-107-05484-4 - The Ethics of Nuclear Energy: Risk, Justice, and Democracy in the post-Fukushima Era

Edited by Behnam Taebi and Sabine Roeser

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The Ethics of Nuclear Energy

Despite the nuclear accident at the Fukushima Daiichi plant in Japan, a growing number of countries are interested in expanding or introducing nuclear energy. However, nuclear energy production and nuclear waste disposal give rise to pressing ethical questions that society needs to face. This book takes up this challenge with essays by an international team of scholars focusing on the key issues of risk, justice, and democracy. The essays consider a range of ethical issues, including radiological protection, the influence of gender in the acceptability of nuclear risk, and environmental, international, and intergenerational justice in the context of nuclear energy. They also address the question of when, and under which conditions, nuclear energy should play a role in the world's future supply of electricity, looking at both developing and industrialized countries. The book will interest readers in ethics and political philosophy, social and political sciences, nuclear engineering, and policy studies.

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Abbreviations

ABWR	Advanced boiling water reactor
ALARA	As low as reasonably achievable
ALARP	As low as reasonably practicable
ALEPP	At Least Equal Protection Principle
AP	Accountability Principle
BFE	Bundesamt für Energie (Switzerland)
BNP	Background of Nature Principle
BWR	Boiling water reactor
CDF	Core damage frequency
CEMP	Comparative Exposure Minimization Principle
CIP	Current Impacts Principle
CNP	Concerned Neighbors of Pilgrim
CoRWM	Committee on Radioactive Waste Management
COWAM-2	Community Waste Management-2 (EU)
CRA	Capability-based Risk Analysis
CRP	Comparable Risk Principle
DECC	Department of Energy and Climate Change (UK)
DF	Distributive fairness
DLP	Dose Limit Principle
DOE	Department of Energy (USA)
DTI	Department of Trade and Industry (UK)
EHP	Excessive Harm Principle
EIS	Environmental impact statement
EISD	Energy Indicators for Sustainable Development
EPA	Environmental Protection Agency (USA)
EWA	Institute for Energy Economics (Germany)
GRP	Generator's Responsibility Principle
HDI	Human Development Index
HLW	High-level waste
HSE	Health and Safety Executive (UK)
IAEA	International Atomic Energy Agency
IARC	International Agency for Research on Cancer

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ICRP	International Commission on Radiological Protection
IP	Inclusiveness Principle
IPCC	Intergovernmental Panel on Climate Change
ISS	International Security Studies
JP	Justification Principle
JRWA	Jones River Watershed Association
KASAM	Swedish National Council for Nuclear Waste
LOCA	Loss of coolant accident
LWR	Light water reactor
MADPH	Massachusetts Department of Public Health
MBP	Maximizing Benefit Principle
MEMA	Massachusetts Emergency Management Agency
MPLP	Minimal Practical Level Principle
NAIIC	Nuclear Accident Independent Investigation Commission (Japan)
NAT	Normal Accident Theory
NBP	Net Benefit Principle
NEA	Nuclear Energy Agency (OECD)
NHP	No Harm Principle
NP	Necessity Principle
NPDES	National Pollutant Discharge Elimination System
NPT	Non-Proliferation Treaty
NRA	Nuclear Regulation Authority (Japan)
NRC	Nuclear Regulatory Commission (USA)
NSAP	No Significant Action Principle
NWMO	Nuclear Waste Management Organization (Canada)
OBP	Optimal Balancing Principle
OHP	Offsetting Harm Principle
OP	Optimization Principle
OV	Outcome valence
P&T	Partitioning and transmutation
PF	Procedural fairness
PNBP	Presumptive Net Benefit Principle
PP	Publicity Principle
PPFGP	Protection of Present and Future Generations Principle
PRA	Probabilistic risk assessment
PWR	Pressurized water reactor
QALY	Quality Adjusted Life Years
RCA	Reliability-based capability approach
RY	Reactor year
SALT	Strategic Arms Limitation Talks
SEMP	Subordinate Exposure Minimization Principle
SF	Spent fuel

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SFOE	Swiss Federal Office of Energy
SMHS	Southeastern Massachusetts Health Study
SRP	Special Representation Principle
TEPCO	Tokyo Electric Power Company
TMI	Three Mile Island
UBP	Undue Burdens Principle
UCS	Union of Concerned Scientists
VP	Vulnerability Principle
WCED	World Commission on Environment and Development
WHO	World Health Organization
WNA	World Nuclear Association
WTA	Willingness-to-accept
WTP	Willingness to pay
WWF	Worldwide Fund for Nature