

Index

A

Air emissions

- Chernick and Caverhill study, 26
- Tellus Institute study, 23-24,26,42

Alachlor risks, 48

Assumptions

- average effects versus marginal effects, 55-57
- damage costs versus control costs, 52-55
- discounting, 60-62
- federal policymaking and, 46,70
- frameworks of, 62-65
- goals, 62,64
- influence on studies, 45
- internalization, 57-59
- managing uncertainty, 59-60
- methods, 64-65
- monetization, 47, 49, 50-52
- other studies on values and assumptions, 48
- quantification, 47,49-50,51-52
- strategies, 64-65

Australia study, 19-20

Average vs. marginal effects, 55-57

B

Bernow, Stephen, 23

Biewald, Bruce, 23

Biosystems Analysis, 29

Bonneville Power Administration study

- contingent valuation, 39
- damage cost methods, 52-53
- discount rates, 61
- hedonic valuation, 38-39
- history and quantitative results summary, 28-30
- interstudy comparisons, 32, 36
- market valuation, 38

Boston Gas Co., 15,26

BPA study. See Bonneville Power Administration study

C

CAAA. See Clean Air Act Amendments of 1990

California emission standards, 26

California Energy Commission study, 19-20

Cavanagh, Ralph, 30

Caverhill, Emily, 26

Chernick, Paul, 26

Chernick and Caverhill study

- categorization of effects, 20
- control cost methods, 52
- generation technology, 20-21
- history and quantitative results summary, 26
- interstudy comparisons, 33

Clean Air Act, 48,53,58

Clean Air Act Amendments of 1990,6,68,69

Clinton administration, 68

Commission of the European Communities, 21-22,

26. See *also* DOE/EC study

Comparison of studies. See Study comparisons

Computer model

New York State study, 22

Congress. See Federal policymaking

Congressional Research Service, 48

Contingent valuation

- criticisms, 41
- definition, 4,37
- non-use values and, 39, 40
- purpose, 39,41

Control cost methods

- critiques, 53-54
- damage cost methods comparison, 52-55
- definition, 4
- impacts, 54
- supporters of, 43
- Tellus Institute study, 24-26
- underlying assumptions, 54-55
- use in current cost studies, 38, 42

Criteria used for selected studies

- comprehensiveness, 13
- influence, 13
- methodological discussion, 15

CRS. See Congressional Research Service

CV. See Contingent valuation

76 Studies of the Environmental Costs of Electricity

D

- Damage cost methods
 - control cost methods comparison, 52-55
 - DOE/EC study, 22
 - supporters of, 43
- Damage evaluation, 11. See *also* Stages of environmental cost studies
- Department of Energy/Commission of the European Communities. See DOE/EC study
- Discounting
 - critiques, 61
 - impacts, 61
 - purpose, 60-61
 - underlying assumptions, 62
- DOE. See DOE/EC study; U.S. Department of Energy
- DOE/EC study. See *also* Commission of the European Communities; U.S. Department of Energy
 - advances over older studies, 7
 - contingent valuation, 39
 - damage cost methods, 52-53
 - focus on specific sites, 56
 - fundamental goals, 64
 - history and quantitative results summary, 21-22
 - internalization, 57

E

- EC. See Commission of the European Communities; DOE/EC study
- ECO Northwest, 29
- Ecological systems, 11
- Electric Power Research Institute, 22
- Emissions identification, 10-11. See *also* Stages of environmental cost studies
- Empire State Electric Energy Research Corporation, 22
- Energy Policy Act of 1992, 6, 67, 68-69
- Environmental effects. See *also* Stages of environmental cost studies
 - average effects versus marginal effects, 55-57
- Environmental Protection Agency, 6, 69
- EPA. See Environmental Protection Agency
- EPRI. See Electric Power Research Institute
- ESEERCO. See Empire State Electric Energy Research Corporation
- Externalities. See *also* Internalization
 - economic theory of, 14-15
 - as fourth stage of environmental effects, 13

F

- Federal laws, 6, 67-69. See *also specific laws*
- Federal policymaking

- assumptions and, 46
- emphasis on nonquantitative results, 7, 72-73
- environmental costs and federal revenue, 68
- federal laws, 6, 67-69
- informing legislative decisionmaking, 7-8
- mismatch of state and federal goals, 6-7
- pending legislation, 69
- roles for environmental cost studies in, 67-73
- usefulness of disaggregated results, 7, 73

Federal Republic of Germany

- Hohmeyer study, 26-27

Fossil fuels

- Hohmeyer's study, 20
- Pace study, 23
- study differences, 15

Frameworks of assumptions

- fundamental goals, 62, 64
- methods, 64-65
- strategies, 64-65

Fraunhofer-Institute for Systems and Innovation Research, 26

H

Health impacts

- Hohmeyer study, 28
- Shuman and Cavanagh study, 30

Hedonic valuation, 4, 37, 38-39

Hohmeyer, Olav, 26

Hohmeyer study

- categorization of effects, 20
- control cost methods, 52
- history and quantitative results summary, 26-28
- interstudy comparisons, 36
- mitigation cost valuation, 43
- monetization of effects, 49
- technology specificity, 20-21

I

Impacts. See *also* Stages of environmental cost studies

- average versus marginal effects, 56-57
- control cost methods, 54
- discount rates, 61
- emissions and, 13, 57
- evaluation of, 11
- identification of, 11
- internalization and, 58
- monetary damages and, 13
- monetization, 51
- quantification, 51
- uncertainty, 60

Industrial Economics, Inc., 22

Internalization

- critiques, 57-58

- impacts, 58
 - underlying assumptions, 58-59
- L**
- LCA. See Life-cycle assessment
 - Legislation. See *also* Federal laws; State laws and regulations
 - pending legislation, 69
 - Life-cycle assessment, 72
 - Location specificity, 21,56
- M**
- Marginal effects
 - average effects comparison, 55-57
 - Marine oil spills
 - Chernick and Caverhill study, 26
 - Market valuation, 4,37,38
 - Marron, Donald, 23
 - Massachusetts Department of Public Utilities, 26
 - Minnesota/Wisconsin study, 19-20
 - Mitigation cost valuation, 4,38,42-43
 - Monetization. See *also* Valuation methods
 - approach in environmental studies, 47, 49
 - critics of, 52
 - federal policymaking and, 73
 - impacts, 51
 - policymaking and, 7
 - underlying assumptions, 51-52
- N**
- Natural Resources Defense Council, 15,30
 - Nero and Associates, 29
 - Nevada study, 19-20
 - New source performance standards, 33
 - New York Public Service Commission, 22
 - New York State Department of Public Service, 22
 - New York State Energy Research and Development Authority, 22,23
 - New York State study
 - advances over older studies, 7
 - contingent valuation, 39
 - damage cost methods, 52-53
 - history and quantitative results summary, 22-23
 - internalization, 57
 - software-based model, 22-23, 33
 - study in progress, 3
 - uncertainty, 60
 - Non-use values, 39,40
 - Northwest Conservation Act Coalition, 15,30
 - Northwest Power Planning Council, 28,69
 - NSPS. See New source performance standards
 - Nuclear power
 - Pace study, 23
 - Shuman and Cavanaugh study, 30
- O**
- Oak Ridge National Laboratory, 15,21-22
 - ORNL. See Oak Ridge National Laboratory
 - OTA report summary
 - assumptions in cost studies, 5-6
 - cost estimate findings, 3
 - current laws and regulations, 6
 - decisionmaking factors, 7-8
 - framework of goals and values, 5-6
 - monetization, 7
 - policymaking, 6-8
 - report in context, 2
 - state regulatory commissions, 6-7
 - valuation methods, 3-5
- P**
- Pace study
 - categorization of effects, 20
 - contingent valuation, 39
 - control cost methods, 52
 - externalities, 58
 - generation technology, 20-21
 - hedonic valuation, 38
 - history and quantitative results summary, 23
 - interstudy comparisons, 32, 33
 - market valuation, 38
 - mitigation cost valuation, 43
 - monetization of effects, 49
 - size of study, 15
 - Pace University Center for Environmental Legal Studies, 15
 - Pacific Northwest Electric Power Planning and Conservation Act of 1980,6,28,68,69
 - Passive-use values, 40
 - PLC, Inc., 26
 - Policy. See Federal policymaking; State laws and regulations
 - Public utility commissions, 70-71
 - PUCs. See Public utility commissions
 - Purpose of studies. See Structure and purpose of studies
- Q**
- Qualitative criteria, 70,73
 - Quantification. See *also specific studies*
 - approach in environmental studies, 47, 49
 - critiques of, 49-50
 - impacts, 51
 - policymaking and, 70,73
 - underlying assumptions, 51-52

78 Studies of the Environmental Costs of Electricity

R

RCG/Hagler, Bailly, Inc., 15,22
Resource Insight, Inc. See PLC, Inc.
Resources for the Future, 21-22,48
Revealed preference methods, 53
RFF. See Resources for the Future
Secretary of Energy, 68-69

S

Shuman, Michael, 30
Shuman and Cavanagh study
 control cost methods, 52
 discount rate, 61
 estimate of highly speculative effects, 50
 history and quantitative results summary, 30
 interstudy comparisons, 36
 size of study, 15
 uncertainty, 60
Site specificity, 21,56
Software-based model
 New York State study, 22
Sponsors of studies, 15
Stages of environmental cost studies
 damage valuation, 11, 13
 emissions identification, 10-11, 13
 externality as fourth stage, 13, 14-15
 impact identification and evaluation, 11, 13
State laws and regulations, 1,6-7,70
Structure and purpose of studies, 10-11, 13
Studies not reviewed
 Australia study, 19-20
 California Energy Commission study, 19-20
 Nevada study, 19-20
 types of, 11
 Wisconsin/Minnesota study, 19-20
Study comparisons
 categorization differences, 32-33
 cost estimate uncertainty, 36
 cost estimate variation, 33, 36
 domination of one effect category, 33
 independence of estimates, 31-32
Study differences
 analysts and sponsors, 15
 categorization of effects, 20
 energy sources, 15
 environmental effects, 15, 20
 location specificity, 21

methods, 15

size and complexity, 15
technology specificity, 20-21

Study similarities

comprehensiveness, 13
influence, 13
methodological discussion, 15

Study structure and purpose, 10-11, 13

Summary of report. See OTA report summary

Technology specificity, 20-21

T

Tellus study

categorization of effects, 20
control cost methods, 52
control cost valuation, 24-26, 42
history and quantitative results summary, 23-26
interstudy comparisons, 33

U

Uncertainty

critiques, 59-60
impacts, 60
underlying assumptions, 60

Underlying assumptions. See Assumptions

U.S. Department of Energy, 21,23. See *also*
DOE/EC study

Use values, 40

V

Valuation methods. **See also** Control cost methods;

Damage cost methods

contingent valuation, 4, 37, 39,41-42
control cost valuation, 42
conversion of impacts to damages, 13
determination of, 5
disputes over methods, 4-5
hedonic valuation, 4,37,38-39
market valuation, 4, 37, 38
mitigation cost valuation, 4, 38,42-43
process, 3
related issues, 36

W

Wisconsin/Minnesota study, 19-20