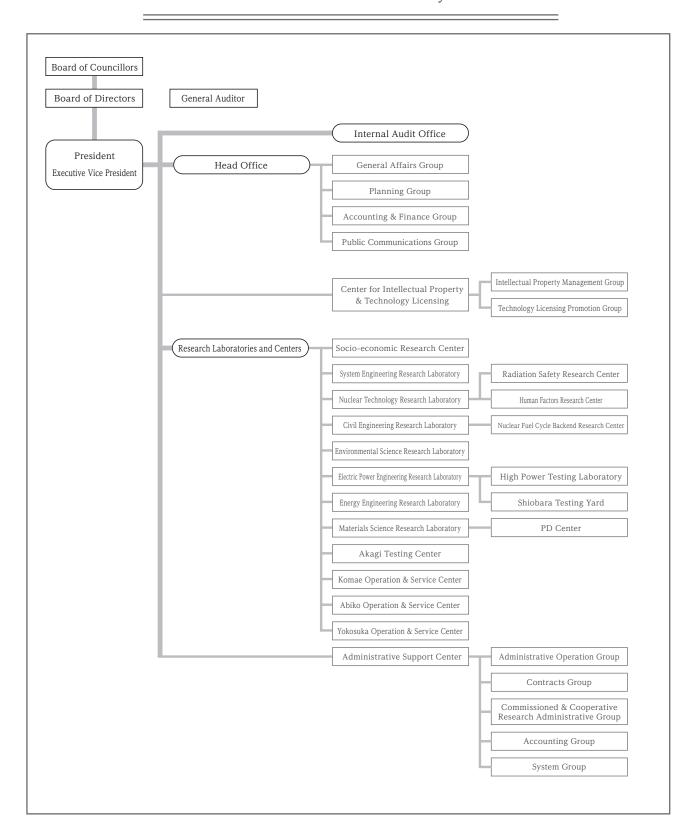
Organization of the Central Research Institute of Electric Power Industry



Central Research Institute of Electric Power Industry

Annual Research 2011 Report Fiscal Year 2011



Contents -

1. Outline of Research Activities	
CRIEPI's R&D Portfolio (Pillars of research and eight research laboratories)	
2. Principal Research Results	5
Due in at Culainata	
Project Subjects Fatablishment of Ontimed Biole Management	
Establishment of Optimal Risk Management	,
1 Sustainable Structures and Regulations for Electric Utilities	_
2 Energy Technology Strategy	_
3 Seismic Margin Evaluation of Civil Engineering Structures in Nuclear Power Plants	_
4 Assessment of Radioactive Material Diffusion in the Environment and its Remediation	
5 Elucidation of the Mechanisms of Low-dose Radiation Effects	
6 Rational Radiation Safety Technology	_
7 Storage and Transport Technology for Spent Nuclear Fuel	_
8 High-level Radioactive Waste Management	
9 Low-level Radioactive Waste Disposal	
10 Evaluation of Damage to Overhead Transmission Facilities Caused by Wind, Snow, and Salt-	
11 Strategic Disaster Restoration Support Technology for Electric Power Distribution and Substation Equipment	
12 Lightning Protection for an ICT-oriented Society	28
13 Long-term Global Warming Projection and Support for Adaptation	30
14 Severe Storm Prediction and the Impact Assessment of Electric Power Facilities under Global Warming	32
Further Improvement of Facility Operations and Maintenance Technologies	
15 Irradiation Embrittlement and Structural Integrity of Reactor Pressure Vessels	34
16 Stress Corrosion Cracking in Light-water Reactors	36
17 Wall Thinning and the Seismic Evaluation of Piping	38
18 Deterioration Diagnosis of Instrumentation and Electrical Equipment	40
19 Disaster Prevention and Maintenance for Hydropower Facilities	42
20 Integrated Remaining Life Assessment Technology for Inspection, Prediction, and Monitoring	44
21 Operation and Diagnosis of Aged Power Apparatuses for Substations and Underground Power Transmission Lines	46
22 Development of Simple Method for the Cleaning of PCB-contaminated Transformers	48
Development of a Supply/Demand Infrastructure for Next-generation Electric Power	
23 Expansion of Fuel Types and the Improvement of Efficiency in IGCC	50
24 Utilization of Low-grade Fuel	52
25 Advanced Utilization Technology of Biomass and Waste	54
26 Thermal Power Generation Systems with CO ₂ Capture	56

27 Basic CO ₂ Storage Technology Development Considering Geological Structure in Japan	58
28 Integrated Operation and Control Techniques for Supply and Demand in Autonomous Demand Area Power Systems-	60
29 Next-generation Communications Network Systems	62
30 Evaluation of the Feasibility of Demand Response Suitable for Japan	64
31 Operation of Trunk Power Systems in a Coordinated Manner with Autonomous Demand Area Power Systems	66
32 Next-generation Electric Power Equipment for Distribution and Transmission Systems	68
33 Design Support for Electric Kitchens	70
34 High-efficiency Heat Pumps	72
35 Low-loss Power Semiconductor	74
36 Low-loss Compact Inverter Applied Equipment	76
37 Acceleration of Electrification with Electric Vehicles and Secondary Battery Systems	78
38 Lithium Secondary Batteries with Reliable Safety	80
sic Technology Subjects	
1 Socio-economic Research Center	82
2 System Engineering Research Laboratory	84
3 Nuclear Technology Research Laboratory	86
4 Civil Engineering Research Laboratory	88
5 Environmental Science Research Laboratory	90
6 Electric Power Engineering Research Laboratory	92
8 Materials Science Research Laboratory	96
. Principal New Research Facilities	99
. Activities	107
	33 Design Support for Electric Kitchens 34 High-efficiency Heat Pumps 35 Low-loss Power Semiconductor 36 Low-loss Compact Inverter Applied Equipment 37 Acceleration of Electrification with Electric Vehicles and Secondary Battery Systems 38 Lithium Secondary Batteries with Reliable Safety sic Technology Subjects 1 Socio-economic Research Center 2 System Engineering Research Laboratory 3 Nuclear Technology Research Laboratory 4 Civil Engineering Research Laboratory 5 Environmental Science Research Laboratory 6 Electric Power Engineering Research Laboratory 7 Energy Engineering Research Laboratory 8 Materials Science Research Laboratory Principal New Research Facilities