## COMPANY PROFILE

2004





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modes.

The Kansai Electric Power Company, Inc. (Kansai EP) has been supplying the electricity vital to home living and business activities for many decades. Today, turning to advantage the vast experience and technological skills we have nurtured through the years, we are renewing our commitment to serve as a trusted partner with capability to respond to the diversified needs of all our customers, in order to improve both their home living and business environments. Above all, we cherish the deep trust placed in us by our loyal clientele.



### Message from the Management

Since the inception of partial deregulation of Japan's retail electric power industry in March 2003, the scope of the liberalized market has expanded in graduated phases. This development has accorded customers a notably broader range of energy choices to enhance the quality of their daily lives and business activities. To provide such selective prerogatives tailored to all requirements, however specific they might be, a partner is needed who possesses knowledge and expertise spanning the full spectrum of energy

And to respond to that trust, today more than ever the full complement of Kansai EP employees is taking to heart the Company's obligation to provide its customers the stable and secure supply of electricity indispensable to the needs of both private users and the business community.

We earnestly ask for your ongoing support as we move forward to carry out this renewed pledge in the coming years.

Yoshihisa Akiyama Chairman of the Board of Directors President and Director

Yohsaku Fuji



# 24 hours a day, we work to maintain vital lifelines.



At Kansai EP we recognize only too well that electric power is a vital and indispensable part of the lives of every customer. To supply that power with optimal safety and security, we work assiduously around the clock to keep our comprehensive network of facilities – from the generating plant to the user site – in top working order. This commitment to safety is shared, and will continue to be embraced, by every Kansai EP employee.



#### Stable Supply

# Stable Supply

## Wholly integrated operations ensure a stable supply of electricity.



Kansai EP achieves a stable supply of electricity through operation of a fully integrated system from power generation to sales. We also realize efficient provision of high-quality electricity by pursuing the optimum generation mix factoring in the respective advantages of nuclear, thermal and hydro power options.



#### Breakdown of power sources\*



Central Load Dispatching Center



# Taking Responsibility for the Full Complement of Operations

To ensure a stable supply of power to all customers, Kansai EP shoulders responsibility for all operational aspects from actual generation through sales. We also promote the optimum generation mix of energy sources and are dedicating our resources to forge a distribution system of maximum quality and efficiency.

#### Continuing Quest for the Optimum Generation Mix

The optimum generation mix translates to a stable and efficient supply of power combining the respective advantages of the three generation modes: nuclear, thermal and hydro. Advantages are gauged in terms that encompass fuel supply stability, environmental impact, economic viability, and adaptability to fluctuations in demand. Our pursuit of this optimum mix not only results in an efficient and stable supply of electricity, but also enables Kansai EP, with its strong focus on nuclear generation, to keep emissions of CO<sub>2</sub> per kWh to the lowest level among Japan's power providers.

#### Committed Response to Steadily Growing Demand

In Japan the 21st century is expected to be an era of steadily rising demand for electric power. As society becomes progressively grayer and increasingly information-intensive, electrically operated products and IT devices of tremendous variety are projected to become increasingly common fixtures of both the home and business environments. Kansai EP is firmly committed to maintaining the stable power supply necessary to meet these expanding requirements well into the future.

#### Nuclear Power

## Nuclear Power

Nuclear power serves as our core energy, with complete heed to safety management.



In recognition of the salient advantages of nuclear power as a stable source of energy that imposes minimal burden on the environment, Kansai EP will put this precious energy source to effective use, always with utmost heed paid to safety management.

> Central Control Room (Takahama Nuclear Plant)



Salient Advantages Economically and Environmentally

1 14 14

In order to ensure stable provision of electricity over the long term, Kansai EP pursues the optimum generation mix. Currently 56% of our total electricity output draws upon nuclear power. Uranium, the source of nuclear energy, is available in stable sup ply, and when spent fuel is recycled, uranium resources can be utilized many times over. Nuclear power is also a superior energy source because it emits no CO<sub>2</sub> during the generation process and therefore is effective in curbing global warming.



Fuel rod replacement



#### Safe, Efficient Use of Precious Resources

In order to win the enduring trust of the regions and commun ities where our nuclear facilities are located, we implement strin gent safety measures covering all aspects of our nuclear opera tions. These include a program under which plutonium is mixed with uranium to form mixed oxide (MOX) fuel, in a quest to make the most efficient use of both uranium and plutonium, which is recovered through reprocessing of spent nuclear fuel.

## Thermal & Hydroelectric Power

Thermal power enables elastic response to fluctuating demand.

#### Balanced Dependency on **Diversified Fuels**

Thermal power plays a key role as a middle-load energy source that offers supreme elasticity to cope with cease lessly fluctuating demand, enabling stable provision of electric power. Presently 29% of Kansai EP's total elec tricity output is generated from fossil fuels. Going forward we aim to contin ue diversifying our thermal fuel op tions through greater reliance on coal, available at relatively stable prices, and liquefied natural gas (LNG), which is environmentally compatible.





Using Domestic Water

Resources to Advantage

Today a comparatively modest 14%

of the electricity generated by Kansai

EP derives from hydroelectric power, but because this energy source offers environmental benefits and domestic water resources are readily available, it is of monumental importance. Also playing a major role as a source of en

ergy is pumped-storage hydro power, a method whereby water is pumped

from one reservoir to another at a higher elevation at night, when de mand is relatively low and capacity is available; the energy created is alloca ted to meet peak daytime demand or

emergency needs.



Thermal Power Plant

Kurobegawa No.4 Hydro Power Plant



Hydro power is naturally available and environmentally friendly.

11%

14%

2004 (FY)

## We work around the clock to ensure a stable power supply.





## Transmission & Distribution

### Power Delivery System of World-class Stability

The function of Kansai EP's transmis sion and distribution facilities is to deliv er electricity stably from the power station to the customer.

To monitor and control our vast phys ical plant around the clock 365 days a year, we make use of monitoring and au tomation systems incorporating today's most advanced technologies in informa tion management. We also carry out a comprehensive program of training and drills to prepare for natural calamities of every kind. These efforts, and the com mitment behind them, have been rewar ded by significant decreases in the incidence and length of power outages per customer, enabling Kansai EP to ach ieve one of the world's highest levels in power supply reliability.

Harima West transmission lines

Shin-Ikoma Substation



At Kansai EP we have two overriding goals: to provide a stable supply of electricity at all times, and to offer a wealth of services inviting customer satisfaction as a trusted partner who responds to their diverse needs for daily

living or business. To achieve these dual objectives, Kansai EP musters its Groupwide strengths to propose solutions that will enhance the quality of life of its customers at all lifestages and for all lifestyles. Our business solutions center on optimal ways of utilizing energy in factories and office buildings. In myriad ways, today we are expanding from our core focus on energy into exciting peripheral realms.

# From our core in energy, we are expanding into new realms around the periphery.



## **Business Solutions**

We provide optimal solutions to satisfy business needs of remarkable variety.





#### Energy Experts and Dependable Partner

The energy usage patterns of business customers vary according to the category and scale of each enterprise, and consequently the number of energy solutions demanded of Kansai EP is as vast as the number of its corporate customers. Among our customers' most pressing needs are the desire to trim costs and improve their work environment through efficient use of electricity, or the quest for reductions in both costs and CO<sub>2</sub> emissions through judicious selection of energy modes.

Kansai EP, as professionals in the energy world, responds to the kaleidoscopic needs of business customers through application of its technological capabilities and knowhow accumulated over many years. Today, based on this record, we pledge to take all steps necessary to remain a dependable partner in solving the energy issues of the corporate sector into the future.

#### Rate Options Tailored to Customer Requirements

Kansai EP has a tradition of developing rate schedules optimally suited to the circumstances unique to its corporate customers, from large-scale factories to small-scale commercial enterprises. Going forward, in parallel with increasingly diversified and sophisticated formats of energy usage, we will continue to take the initiative in developing and offering finely tailored rate menus as our way of responding to the full spectrum of the business community's needs.





Energy equipment diagnosis



## **Business Solutions**

### Solutions and Services of High Added Value

Kansai EP today provides a wealth of energy solutions tailored to the multifarious needs of its corporate customers, as a way of assisting them in achieving optimal efficiency in electricity usage. Among our numerous energy-efficient product offerings are "Eco Ice" thermal-storage systems, which make effective use of power generated inexpensively at night, and attractive and easily managed kitchen systems for commercial establishments. We also offer leasing options that enable elimination of initial investment outlays.

Today the corporate sector's requirements are also becoming increasingly sophisticated with respect to their aspirations to trim costs through more judicious selection of energy modes and to reduce CO<sub>2</sub> emissions through use of more environmentally friendly energies. At Kansai EP, as a Group we respond to those aspirations by providing solutions for obtaining the optimal energy mix with respect to costs, including gas and cogeneration options. We also deliver electricity with the lowest output of CO2 per kWh among all domestic power providers.

Another way we support the business sector Groupwide is by providing the stable, ultra-high-speed, large-capacity information technology (IT) infrastructure now indispensable to their operations. Through our Internet access and leased-line services, we lend vital support to a plethora of business operations, including remote distribution of medical images and cable TV broadcasts via optical fiber. Finally, we also offer a host of services highly beneficial to the day-to-day performance of commercial operations; these include temporary staff services, payment processing services, and consigned operation of employee cafeterias.

Going forward, as a business partner we will continue to work in collaboration with the full complement of our Group affiliates to develop and provide an ever richer menu of high value-added solutions and services to meet the evolving needs of the business community.





Gas utility services (SAKAI LNG Corporation)









Electrical cooking equipment

Cable TV services (K-CAT, Inc.)

Health management support (Kansai Medical Net Co.)



## Home Living Solutions

## Today we are providing customers unprecedented comfort, convenience and peace of mind.

#### Happier Lives through Electric Installations

At Kansai EP we are vigorously promoting the adoption of fully electric home installations under an initiative we aptly call "HAP-e Life" – or just "HAP-e" for short. A happy home life means different things to different people. To some, it means the joy of cooking in a kitchen equipped with no gas-burning appliances, a kitchen that is easy to clean and always sanitary. To others, a joyous home life means the pleasure of relaxing in a living room where the air is always fresh and clean; or the convenience of a bathroom in which hot water is always immediately available; or the luxury of sleeping through muggy summer nights in airconditioned comfort, without worrying about the expense.

These modest contributors to happiness are now a reality thanks to the development of safe-to-use IH (induction heater) stove-tops, cozy floor-heating systems, and environmentally friendly "Eco-Cute" electric hot-water supply systems – and these are merely a few examples. These and other exciting innovations are complemented by our "HAP-e Plan," an attractive discount menu that offers salient economic advantages to customers whose homes are fully electric.

Our foremost aim at Kansai EP today is to bring this attractive, happy home life enabled by fully electric installations within ever closer reach for more and more customers. With that in mind, today we offer our innovative "HAP-e Package," under which subscribers lease their home appliances and therefore avoid bearing any initial cost burden. In this way we are lending our support to the realization of a happy home life for an ever larger number of customers.







Floor-heating system







Electric dishwasher

## Home Living Solutions

Internet (K-Opticom)





Internet (K-Opticom)







NOVA Internet Study-at-Home program

#### Making Lifestyles Happier with "HAP-e"

Under its "HAP-e" program Kansai EP, working in tandem with its diverse Group companies, today is helping customers of all ages to enjoy more rewarding home lives enriching their individual lifestyles.

Senior citizens' lives are made happier through FTTH (fiber-tothe-home), a technology that enables seniors to enjoy their autumn years more vigorously and actively. With FTTH, they can stay in frequent touch with their grandchildren via videophone; with elearning, they can "attend" courses through the years directly from home (NOVA Internet Study-at-Home, etc.), to keep their faculties sharp and their curiosity unquenchable. Home security services also enable the elderly to live with total peace of mind.

FTTH makes the lives of young families all the happier and more vibrant, too. Fiber-optic cable TV lets families gather around to enjoy movies or sporting events of their choice when they choose, or to study foreign languages without leaving home. Home security services permit families to enjoy excursions away from home with worry-free assurance.

#### Making Homes Happier with "HAP-e"

Kansai EP also brings together the full cornucopia of its Group capabilities to assist customers in the design of homes that will adapt to their evolving lifestages. We recognize that a home is a once-in-alifetime purchase and therefore should be built not only to fully satisfy its occupants and keep them safe and comfortable today, but also to adapt to their future changes, both in terms of family makeup and maturing.

Kansai EP and its Group companies stand ready to contribute to happier lives in every phase of home development, whether it involves new construction design, remodeling or rebuilding. Creating safety-assured kitchens with all-electric appliances and bathrooms of barrier-free design are just some of the many ways we provide tailor-made assistance.



Home remodeling to electrical installations (KANDEN EHOUSE)





Our driving goal at Kansai EP is to work, in partnership with both the local and global communities, toward the creation of a more brilliant tomorrow. In keeping with that goal, we proactively support a host of educational and volunteer programs and activities. We also apply our rich experience toward mitigating the Earth's increasingly serious environmental challenges. As part of our commitment, at Kansai EP today we conduct ongoing research toward the development of new energy solutions and provide a wealth of technical cooperation overseas. We are confident that, as a global team, we can achieve mankind's aspirations for the future.

# Working in partnership with the local and global communities toward a brilliant tomorrow.



## **Regional Activities**

## We live and enjoy life hand-in-hand with our local community.



Hands-on lessons about electricity



Our fervent desire at Kansai EP is to make contributions to the social development of our home region through a solid rapport with local citizens, achieved through community activities ranging from energy classes and workshops to sponsorship of sports and cultural events.







Tree plar

EL MAR MAIZURU (PR Hall and Planetarium at Maizuru Power Plant)

Osaka Castle and Osaka Business Park (OBP)



#### Deepening Ties Through Diverse Local Activities

Kansai EP strengthens its ties with local citizens in myriad ways. To stimulate curiosity toward science and electricity, we go directly into classrooms and conduct workshops involving electricity. To safeguard the lives of senior citizens living alone and protect important cultural properties, we undertake regular inspections of related electrical facilities. We also maintain open avenues of communication by supporting concerts, art exhibitions and other cultural events, and sports activities such as football.

#### Joint Action on the Environment

The 21st century is destined to be a century of coping with environmental issues, and at Kansai EP we are determined to support the local community in addressing environmental concerns. As an example, our program of "eco-friendly" activities, implemented at all sales offices, works hand-in-hand with local citizens to improve the environment through initiatives such as tree planting and local beautification drives.

#### Venues for Enjoyable Learning about Energy

With the dual desires to bring energy concerns into sharper focus at the individual level and to foster communication with local communities, we have established "PR Halls" at 21 locations around our operating area. Here, visitors can observe how electricity is generated and learn about energy issues first-hand, in an atmosphere designed for fun and enjoyment.

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## **Environmental Protection**

Through research and support activities, we work to safeguard the Earth's environment.





Kansai FP is Japan's first power provider to have its electricity acquire the "EcoLeaf"™ label. Under this labeling program, quantitative data on a product's environmental impact is certified and disclosed by a third party.

Nanko Power Plant (ISO14001certified)

Kansai EP contributes to protection of the Earth's environment in a multitude of ways. These include initiatives to curb global warming by reducing CO2 emissions and measures to achieve an ecologically sustainable society.



Soil decontamination services: KANDEN GEO-RE Inc.







Mangrove research



## Diverse Initiatives to Prevent Global Warming

In response to global warming, Kansai EP is actively working to re duce CO2 emissions worldwide. Our domestic initiatives include promo tion of emission-free nuclear power plants, pursuit of enhanced thermal efficiency at facilities reliant on fossil fuels, creation of new flue-gas de carbonization technologies, and development and promotion of highly efficient systems and equipment that use electricity generated mainly by nuclear facilities at night. We are also active outside Japan, as illustrated by our research project on mangrove afforestation in Thailand.

## Acquisition of "EcoLeaf" Label

As a result of its many efforts toward curbing global warming, Kansai EP became the first power provider in the nation to acquire the "EcoLeaf" label, certifying the environmental compatibility of the elec tricity it supplies its customers. The Company's electricity produces only 0.261 kilograms of CO2 per kWh of power, the lowest level among all domestic power providers.

## Development and Promotion of Renewable Energies

Kansai EP is also taking tangible steps to promote use of renewable energies. To illustrate, we purchase power generated by wind and solar energy and we support the "Kansai Green Power Fund" promoting adoption of those energy sources. In response to the enactment in April 2003 of the RPS (Renewable Portfolio Standard) Law, which requires use of renewable energies by domestic electricity providers, we will pursue renewable energies ever more vigorously in the coming years.

Wind-power generation equipment supported by the Kansai Green Power Fund (Taiko-yama, Kyoto)

#### Toward an Ecologically Sustainable World

In a long-term quest to eliminate all emissions emanating from land fill disposal of untreatable wastes, at Kansai EP we carry out a program of "3R" activities - reduce, reuse and recycle - spanning all areas of our operations. We are equally active on a Groupwide basis, where initia tives encompass soil decontamination and recycling of dam driftwood.

## Research & Development

## We continuously explore exciting new possibilities for tomorrow.



Basic research into SOFC materials

Relying on its advanced technological capabilities and vast expertise accumulated through half a century, Kansai EP engages in R&D on kaleidoscopic fronts, in a continuing quest for new products offering economic and other benefits to society.







Metal fatigue inspection by electron microscope









Networked housing project



#### Development of Products Elevating Customer Satisfaction

Kansai EP steadfastly pursues R&D projects targeting the creation of new products that will offer ever greater convenience and econo my to the customer. Presently under development, for example, is a comprehensive, multifunctional hot-water supply and heating sys tem incorporating our energy-saving "Eco-Cute" hot-water system plus floor-heating and bathroom-drying systems. Meanwhile at our "Lifestyle e-Creation Institute," a research facility for assessing the quality of living environments, evaluation research is being carried out with the objective of devising electrically operated systems ena bling more comfortable living environments.

In conjunction with initiatives in developing high valued-added systems and services to support home living, Kansai EP, under con signment from the Japanese Ministry of Public Management, Home Affairs, Posts and Telecommunications, is currently conducting re search toward development of a networked housing platform (mid dleware). Presently the Company is developing systems and services to enable central control of a full array of networked appliances and to permit links with web services of all kinds, according to the needs of residents of tomorrow's dwellings.

#### Research toward Provision of Next-Generation Energies

Kansai EP is also carrying forward research into solid oxide fuel cells (SOFC), which are garnering wide attention today for their superiority in terms of power-generation efficiency, stability and environmental friendliness. The Company is now working toward commercialization of low-cost systems of light weight and compact size, to enable the realization of a hydrogen energy-based society in the future.

We are also pursuing research into silicon carbide (SiC) diodes, next-generation power semiconductor elements to supersede con ventional silicon elements, that are expected to enable major reduc tions in power loss. We have already successfully developed inverters using SiC diodes, and once they shift into commercial pro duction and replace today's Si inverters, power loss will be curbed by more than 50%. They are thus projected to make a dramatic contri bution to energy savings throughout the entire industrial sector.

# Globally Recognized for Contributions to Environmental Protection

For some time, in conjunction with our environmental protection initiatives we have carried out R&D into high-performance chemical absorbents of CO<sub>2</sub>, and today our achievements have won patents not only in Japan but also in the United States, Europe and Asia. Re lated technologies have already been adopted in a urea production plant in Malaysia. We are also conducting research into regeneration of tropical rain forests as a means of revitalizing the natural environ ment and expanding CO<sub>2</sub> absorption sinks.

Another R&D focus relating to environmental protection is the development of soil decontamination technologies employing bio technologies. We are currently conducting research into soil reme diation technologies and into biosensors for measuring heavy metals, dioxins and other environmentally detrimental substances.

## **Overseas Operations**

Our horizons are expanding beyond Asia to the entire world.





Through technological cooperation, Kansai EP is making significant contributions toward resolving diverse energy issues across the globe. Heading the list is our participation in the San Roque Multipurpose Project in the Philippines and the Rojana Power Project in Thailand.

Suizhong Power Plant, Liangning province, China







#### Involvement in Diverse Projects Across the Globe

In 1998 Kansai EP became Japan's first power provider to take part in a power-generation project overseas, the San Roque Multipurpose Project in the Philippines. Under a "BOT" (build-operate-transfer) scheme, we constructed a hydro power plant that we will operate for 25 years, after which we will transfer the facility to that country. The plant went onstream in May 2003, and under our operation and maintenance (O&M) administration the project is pro ceeding smoothly. Other overseas projects in which we are active include a fund targeted at conserving energy and curbing emissions in Eastern Europe, and acquisition of equity and participation in management of Thailand's Rojana Power Co., Ltd., which operates a cogeneration power plant fueled by natural gas.

#### Solid Progress in Overseas Consulting Services

In recent years Kansai EP, capitalizing on its accumulated expertise in power solutions, has been promoting its con sulting services throughout Asia. Illustrating our success is a contract awarded by a government-owned wholesale power provider in China. The order, placed in recognition of our unique solutions in risk-based maintenance (RBM), called for provision of advice toward achieving optimal maintenance and inspection of the client's coal-fired powergeneration facilities, featuring an output of 1,600 mega watts (MW). Consultation services are now being provided, and going forward we will continue to probe further busi ness opportunities through operations in this sphere.

#### Assertive Approach to Issues of Global Scale

Worldwide cooperation is indispensable to addressing the major issues confronting the global community, such as global warming and sustainable development. The power industry can play a particularly important role in the pri vate sector by transferring technologies relating to nuclear power generation, energy conservation and environmental protection, and Kansai EP is looked upon to make signifi cant contributions to areas such as these.

In response to those high expectations, the Company proactively participates in a multitude of international projects. Examples representative of our strong commit ment include our participation in international organiza tions that promote development of sustainable energies, collaboration with the developing countries toward reduc ing greenhouse gas emissions, and development of the human resources needed to deal with power and environ mental concerns in the developing world.

We also renew our pledge to continue applying our tech nologies and knowhow to mitigating changes in the Earth's environment and resolving other significant issues of global scale in the coming years.

## **Corporate Data**

## **Transmission Network**

km<sup>2</sup>)

~	10 A
	erview

#### (As of March 31, 2004)

Date of establishment:	May 1, 1951
Paid-in capital:	¥489,321 million
Outstanding shares:	962.7 million
Operating revenues:	¥2,375,239 million (consolidated: ¥2,540,156 million)
Total assets:	¥6,540,844 million (consolidated: ¥7,150,826 million)
Employees:	22,656
Energy sales volume:	Lighting: 44,655 million kWh
	Power: 95,591 million kWh
	Total: 140,246 million kWh
Contracted customers:	Lighting: 11,695 thousand
	Power: 1,358 thousand
	Total: 13,053 thousand
Gross system input:	153,115 million kWh
System peak demand:	33,060 MW (August 2, 2001)
Supply area:	Entire Osaka, Kyoto, Nara, Shiga and Wakayama prefectures; greater part of Hyogo
	prefecture; portions of Mie, Gifu and Fukui prefectures (total coverage area: 28,700 k





Power plants:	Hydro:	145	8
	Thermal:	12	16
	Nuclear:	3	9
	Total:	160	34
Transmission lines (length):	ngth): Overhead:		14
	Undergro	ound:	
Distribution lines (length):	Overhead	d:	12
	Undergro	ound:	
Substations:	1,534	1	49 n

9,768 MW 4,824 MW 14,242 km 4,089 km 20,148 km

5,547 km

million kVA



Brief History

## Brief History

ny events	Year	National, world events
stablished er industry	1951	Signing of San Francisco Peace T reaty
r esearch earpower	1957	
ne acr oss n the world)	1961 •	
construction	1963	
first time	1966	
hama No.1)	1970	Osaka Expo '70
	1973 •	First oil crisis
nk network	1976	
No.2 plant	1979	Second oil crisis; Three Mile Island nuclear power plant accident
industry's QC) program	1981 •	
ning A ward industries)	1984 •	
	1986	Chernobyl nuclear power plant disaster in the Soviet Union
r first time	1987	
	1990	International Garden and Greenery Exposition held in Osaka
No.2 plant	1991	Persian Gulf crisis
established 1 accident	1992	United Nations Confer ence on Environment and Development ("Earth Summit") convened in Brazil
or first time tions, etc.	1995	Great Hanshin-Awaji Earthquake
plemented; ver supply	1996	
	1997	Third session of Confer ence on Parties to United Nations Framework Convention on
plemented	1998	Climate Change (COP3) held in Kyoto
d, ushering plemented ting system	2000	
ne in 5 years	2001	
plemented	2002	U.S. war against Afghanistan; Inspection improprieties revealed at Tokyo Electric Power Co.
certification	2003	U.S. war against Iraq
a-3 r eactor	2004	