

### 1989 DEMING PRIZE WINNERS

## “WE MADE MAJOR REDUCTIONS IN THE PRICE OF ELECTRICITY WITH MANY IMPROVEMENTS”

John J. Hudiburg, Chairman Emeritus  
Florida Power & Light Company



■ I'm sometimes asked why FPL chose to pursue the deming prize rather than our own country's quality award.

There were several reasons for our doing so.

Since 1985, it has been our desire to install a Japanese style quality management system. This goal was set long before The Baldrige Awards were created.

The principal purpose of our Deming challenge was to inspire and motivate all of our employees, including myself, to work very hard to learn and practice companywide a Japanese TQC management system.

I felt the Deming challenge was the most effective way to further this goal.

I must tell you that our expectations were fully met.

Our people worked very hard and our progress in achieving our goals and our understanding of companywide TQC has been far greater during 1989 than in any prior year.

■ Because FPL as an electric utility company is considered a natural monopoly, the many companies that visit FPL ask why we're so interested in the quality improvement process. People seem to assume that manufacturing companies engaged in competition for market share would be interested in total quality control, but that electric utilities would not be.

My response is that we've found that the problems we must cope with can be managed through TQC better than any other way.

Also, our future corporate health depends on continuing customer satisfaction, which can best be realized through TQC.

Finally, our management and our employees take a great deal of pride in what they do and they want to be the best in the utility industry. To accomplish this, they need TQC. In other words, we use TQC for the same reason any other company does.

■ The methods we used are the same as those followed in Japan.

The principles of our program, for example, focus on customer satisfaction... management by fact... the PDCA cycle... and respect for people. Also, the amount of time taken at FPL to learn the system was probably very similar to the Japanese experience. In addition, the results obtained as we began to improve and integrate the elements of our quality system were very typical of those seen by Japanese companies.

For example, we saw customer complaints reduced to their lowest level of the last ten years ... and our customer surveys revealed that the percentage of satisfied customers was climbing sharply.

We improved reliability 57 percent. We saw employee lost-time injuries drop 65 percent. And while these and many other improvements were taking place, we have made major reductions in the price of electricity.

We have also experienced many intangible effects. These include a renewed sense of pride and respect among employees... and a new way of focusing on customer satisfaction.



from winners' reports at the lecture meeting

## “ACHIEVED PRODUCTS DIVERSIFICATION AND ITS WELL-BALANCED MANAGEMENT”

Hisaei Hikuchi, President  
NEC Tohoku, Ltd.



■ The characteristics of our company consists of three operations of switching systems electronics components and information processing, performing a thorough production from device to system product and from raw

material to product. We also develop dedicated equipment, with 84% of them being internally produced. This permits us to achieve a processing accuracy of 10 micron.

■ Our introduction of the TQC system were caused by a drastic change in technology due to changing market needs, and also by a sharp decline in demand for our existing line of products at the end of 1977, which was attributable to the termination of the contracts with the then Nippon Telegraph and Telephone Public Corporation.

Our possible measures to cope with such situations were to diversify our business operations, and increase demand for our products in an attempt to stimulate private demand for them, rather than public demand. Unfortunately, however, given the capability of our company at that level, we lacked management and technical capabilities. And too much priority was placed upon production, and we were urgently forced to change our constitution. As a result, we declared the introduction of TQC in December 1982.

Such introduction of the TQC system came at a time when we were proceeding with the diversification of product lines, and hence we were increasing our turnover slightly with new addition to our existing products.

To our regret, the profit rate had been decreasing year by year, and we suffered from the reduction in profit rate due to the introduction of new models, longer periods of time taken till the startup of introduction of such new models, and the resulting quality cost increase. They stemmed from the lack of our management and technological capability. We decided to introduce TQC in order to improve on our system to achieve increased profits.

■ Our aims are to diversify operations, divert our energy mainly to meet the demand from the private sector, and introduce electronics technology through maintaining control over management constitution and policies around QA, with priority put on quality and on total involvement. As for the implementation of management through TQC, we set up four measures; policy management, source-oriented QA, corrective actions against quality problems, and development of personnel. Since 1984, we have introduced

policy management and made attempts to cause it to take root in our company, but we have failed to pull ourselves out of the budget-leading management style. As a result, we could not go through the PDCA cycle successfully, falling short of achieving satisfactory results. These attempts were not based on a specific vision, so that drastic measures were required to be taken.

For this reason, since the first half of 1988, we have implemented top management diagnosis. Twice for each term, the Plan stage and the Check stage have been reviewed to successfully carry out the PDCA cycle.

For the vision management, the most important for policy management, the vision for 2000 was established in the latter half of 1988. As a result, we formed a system of setting up a 5-year development plan and mid-range plan, and breaking them down to policies for each term of the fiscal year. This has enabled us to shift to the management based on policy management.

This has proved very effective; we successfully met the requirements for product quality, quality cost, and the number of days of stocktaking in the first half of 1989. This means that our company is becoming increasingly engrossed toward the achievement of objectives. The establishment of the vision for 2000 has made clear our long-term vista.

For quality assurance, emphasis has been placed on the development of quality assurance system that can meet increases in new products, implementation of quality assurance activities aiming at quality source, development of the equipment produced by our company and furtherance of quality assurance activities.

■ Then, for the overall effect, the first is the diversification, which has been the objective of our company. Ever since the introduction of TQC, well-balanced diversification has been achieved from the conventional electronics components business to switching system business and computers peripheral business.

To increase the demand from the private sector, so much attempt has been made that the demand from the private sector has achieved 85% or more of the total demand for our products.

To increase electronics products, renewal activities have been pursued aggressively since the introduction of the TQC, and the electronics shop has come to occupy 70% of the total floor area.

Quality, profitability, assets and efficiency has made marked improvements with the results in 1987 as 100.



# “ACHIEVED BETTER COMMUNICATION BETWEEN WORKERS AND THE MANAGEMENT BY EMPHASIZING POLICY MANAGEMENT”

Katsuhiko Takahashi, President  
Ahresty Corporation



■ The reason why we introduced TQC: our company had been leading easy-going days, because our die cast products had been growing at an annual rate of 10% or more, from the latter half of 1950 to the second oil shock.

When we entered an era of low economic growth, there occurred a state of excessive supply, and we were met with a very fierce price competition. Along with this, our achievement drastically dropped, and we came to the conclusion that quality improvement and cost reduction due to technological innovation were only measures to pull out of the institution. My background is technology, and I believed that if our inherent technology alone could be improved, the situation would become better. Hence, we made the first attempt to enhance engineering technology, and during the process, it became clear that so many problems existed not only in engineering technology, but also in management.

■ Let me sum up the problems that existed at that time. The top management's policy did not penetrate among the employees and many plans did not come true. The people were not conscious of quality, and our quality control system was weak. Our workplace was not vigorous. Thinking that a company-wide approach would be required to improve all these problems, we introduced TQC in 1983.

First of all, we held a seminar by Union of Japanese Scientists and Engineers (JUSE) for education of all the members of the management from our company. Following

this, we employed lecturers to give periodical study meetings. For the initial three years, we were very slow in promoting TQC activities, but meanwhile, we came to have common thinking about TQC, determining the objectives and activity priorities during the process.

In other words, these are the introduction and development of policy management, the promotion of technology and product development, the development of quality assurance activities, the nurturing of personnel and the vitalization of workplace. Together with the affiliated companies, we have proceeded with “strong company placing a top priority on quality” as a motto.

■ Among the TQC activities, we have put emphasis upon policy management. We have made president diagnosis twice a year, for better communication between the workers and the management.

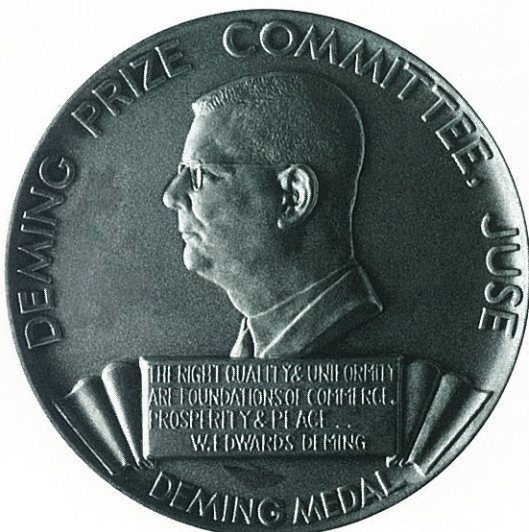
As for technological development and product development, an experimental plan method has been utilized to put into practice a special casting method. For gardening, quality functions deployment have been applied to make development more efficient.

Through these technological developments, more problems relating to engineering technology have been solved, and more patents and utility models granted.

Pertaining to quality assurance, the introduction of FMEA or design review at the stage of die design and of process FMEA at the stage of production in particular have been of great help.

■ By making improvements on the system of claim disposal and utilizing 5-principle sheet (a so-called epitomized version of “QC story”), major claims have continued to be zero these several years.

To vigorous workplace, emphasis has been placed on the proposal for improvements and QC circle activities. Based on the evaluation of each circle, the promotor of a circle, i.e., manager, grasps the weak points of his/her circle, or the leader or other member(s) of a circle understand the strong and weak points of its circle based on the data, stimulating self- and mutual enlightenment.





# DEMING MEDALIST, 1989

Winner of the Deming Prize for Individual Parson

Dr. Hitoshi Kume

Professor, the University of Tokyo

## [Reason of Selection]



Dr. Hitoshi Kume graduated from the University of Tokyo, Faculty of Engineering, in March 1960, and was conferred the degree of Doctor of Engineering. Having served as an assistant professor at Seikei University and the University of Tokyo,

he now holds the important position, the professor at the University of Tokyo, since 1980.

He started the study of quality control under the late Professor Kaoru Ishikawa at the University of Tokyo, Faculty of Engineering, in 1959. Since then, he has been consistently engaged in the study in this field, and publicized a number of achievements while making a tremendous contribution to the enlightenment and dissemination of quality control.

Major studies of Dr. Kume on quality control are largely divided into three categories, development of statistical method, quality control implementation method, and application of control quality to clinical chemical field. The statistical method developed by him includes the pioneering study on the variable selection in the sampling theory and the multiple regression analysis, which formed the backbone of his thesis for the degree. His study on the implementation method includes the study on design change control and the study on design review which emphasized the importance of design process before other people noticed it. In addition, Dr. Kume organized a study group for the creative study of the fool-proofing of work, which was so prominent that he was awarded the Nikkei Quality Control

Literature Prize. The third study field, clinical science, is concerned with the interpretation of analysis values and the precision control. Dr. Kume is noted for the high level of achievements in this field as well, which testifies to the wide coverage and diversity of his research activities.

While continuing his own work in the University of Tokyo, Dr. Kume has been earnestly engaged in the teaching and education of students in the Department and the graduate school, fostering a number of excellent young researchers who are committed to the future development of quality control theory and activities. He has been director and councilor of the Japanese Society for Quality Control, and was chief editor of "Quality," the bulletin of the Society, for two years. His contribution is also great in these fields.

Outside the University, he has also been active, and contributed to the establishment and promotion of international standardization. For example, he was member and chairman of the domestic committee of ISO/TC69 (Statistical Method) and ISO/TC176 (Quality Control and Quality Assurance), respectively, for many years. Further, he has greatly contributed to the enlightenment and dissemination of quality control in the industry at large through publication of a number of excellent papers prepared on the basis of his achievements, and by playing the pivotal role of committee member and lecturer in a number of governmental organs and academic societies and scholarly associations. Dr. Kume's contribution in these fields is also highly evaluated.

In short, Dr. Hitoshi Kume's contribution to quality control in two fields of research and enlightenment and dissemination is very great.

## [Main Books and Papers]

1. On Sampling from the Periodic Population, *Management Science*, Vol. 7 (1964)
2. On the Errors of Systematic Work Sampling, *Statistical Quality Control*, Vol. 16 (1965)
3. On the Problem of Bulk Material Sampling, *Proceedings of ICQC*, (1969)
4. *Multivariate Analysis*, (coauthor), JUSE Press Co. (1971)
5. On the Configuration Control, *Statistical Quality Control*, Vol. 27 (1976)
6. On Variable Selection Methods in Multivariate Regression Analysis, (coauthor) *Quality*, Vol. 9 (1976)
7. Studies of the Fool Proofs in Work System, (coauthor), *Quality*, Vol. 15 (1985)
8. Business Management and Quality Cost-The Japanese View, *Quality Progress*, Vol. 18 (1985)
9. *Statistical Methods for Quality Improvement*, AOTS, (1985)
10. *Quality Control Assisted by JUSE-QCAS*, The Institute of JUSE, (1987)
11. *International Standards on Quality Assurance*, Japan Standards Association (1988)
12. *Invitation to Statistical Analysis*, Iwanami Shoten Publishers (1989)

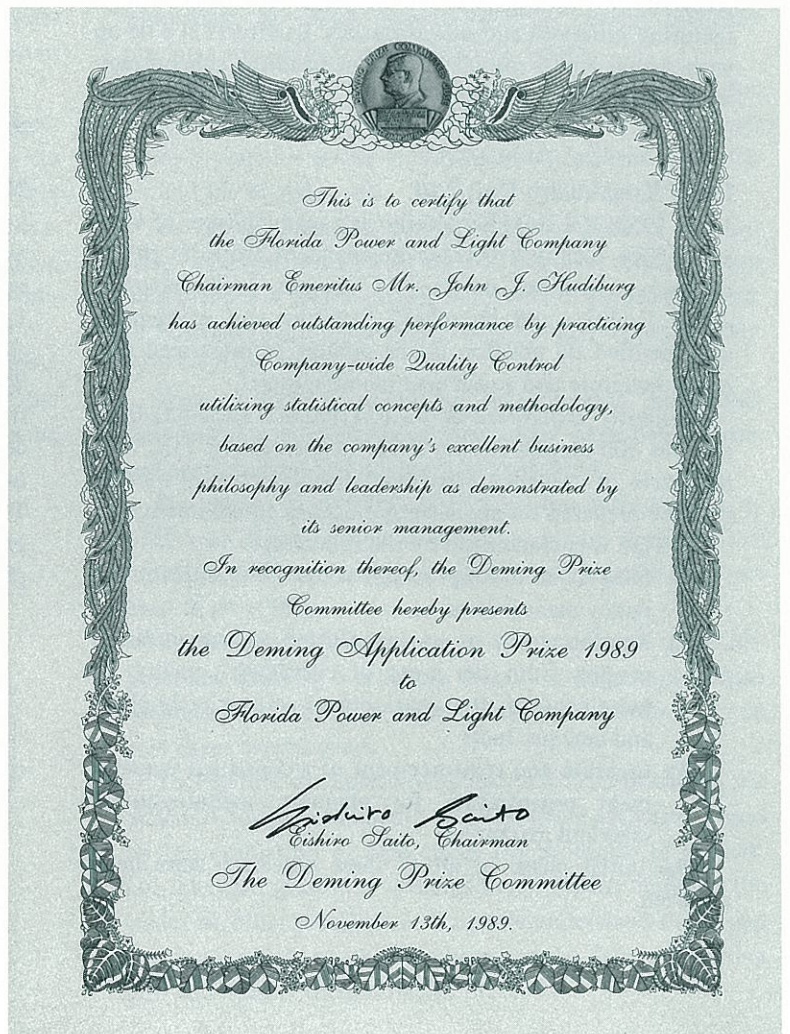




Winners of Deming Prize & Deming Application Prize



Winners of Nikkei QC Literature Award.





# 1989 WINNER OF THE DEMING APPLICATION PRIZE

AND

## THE QUALITY CONTROL AWARD FOR FACTORY ADJUDGED BY THE DEMING PRIZE COMMITTEE

### Deming Application Prize

#### Aishin Shinwa Co., Ltd.

Established in 1964 as a manufacturer of small castings for car parts, and then advanced into the manufacture of forged parts in 1978. Paid up capital currently amounts to ¥680,000,000 (\$4.7 million) and the number of employees reaches 800.

In 1978, the manufacturer introduced the total quality control, and in 1982, it obtained the Deming Application Prize for Small Enterprises. With the aim of further development both in quality and quantity of its operation, it made every effort to thoroughly implement TQC, and phased out of its manufacturing pattern mainly of roughly configured parts. Consequently, it secured a market-leading position with the research and development of new manufacturing processes and new materials. Its efforts in a tie-up with Aishin group companies and in fostering subcontracting companies are highly appraised

#### Itoki Kosakusho Co., Ltd.

In 1950, the Itoki Kosakusho as a manufacturer of saves and office furniture became independent from its parent company, expanded its lines of business, in the areas of office facilities and household furniture and equipment, and fortified its position as the pioneer of integrated new office furniture and equipment manufacturer.

Currently capitalized at ¥2,124,500,000 (\$14,652,000) and has 800 employees. In 1982, IK introduced TQC with its motto of "Quality First" and the objective of making itself be prepared for any adverse business environments.

Its TQC is characterized by the following:

- (1) Integration of long- as well as middle-term plans and policy management
- (2) Reinforcement of its constitution and organization ranging from the grasp of customers' quality requirements to the development of new technology and new products
- (3) Creation and reinforcement of a consistent management organization for planning, manufacturing, sales and marketing.

The initial phase of all of these objectives have been achieved.

#### Toto Ltd.

In 1917, established as a pioneer of sanitary equipment manufacture. This top-ranking manufacturer is currently capitalized at ¥17.3 billion (\$9 million) and has 8,636 employees.

In 1968, Toto introduced and successfully implemented QC circle activities. In 1980, since its sales of main products leveled off, it was urged to put more emphasis on quality rather than quantity, and consequently it introduced TQC in 1985. In the course of promoting TQC, emphasis was placed on the following tasks:

- (1) Implementation of organization by function
- (2) Promotion of improvement activities in every phase of development, production, sales and customer service
- (3) Consolidation of quality assurance organization

Remarkable results in all these tasks were obtained in a short period of time.

#### NEC Tohoku Ltd.

In 1970, NEC Tohoku was established as a wholly owned subsidiary of NEC (Nippon Electric Co.). It is currently capitalized at ¥400 million (\$2.75 million) and has 1,700 employees. It manufactures switchboard equipment, electronic components, and information processing units. With the demand saturation, its market has been shifted from governmental and public demands to mainly civil demands, and it was forced to fortify its corporate constitution to be competitive. To achieve the end, it introduced TQC in 1982. Its activities were guided with its basic principle of "Quality First." the following tasks were emphasized:

- (1) Promotion of policy management
- (2) Development of quality assurance activities
- (3) Improvement in problem solving capabilities
- (4) Promotion of small group activities.

Considerable effects were achieved in product quality, cost reduction and productivity improvement.



## Maeda Corporation

Established in 1920. Its building department was reinforced in 1950. At present Maeda Corporation is rated as a middle sized general contractor. Currently capitalized at ¥9.4 billion (\$64.8 million); number of employees 4,500. It experienced two major accidents consecutively in 1978 and 1979. The unfortunate events caused Maeda to introduce TQC, which was implemented in 1983. Its key items include the following:

- (1) Safety management
- (2) Quality assurance
- (3) New technology development
- (4) Fostering personnel.

In 1985, with the objectives of consciousness reformation and organizational activation, the policy of "intensified TQC promotion" was laid down and the president took the initiative of the thorough execution of TQC activities. Outstanding results were obtained for each item in a limited period of time.

### Deming Application Prize (for Overseas Companies)

## Florida Power & Light Co.

Total assets \$10.7 billion; number of employees 15,000. The utility company holds 2.94 million customers and ranks 5th in the U.S. In the strict social environment of the safety in nuclear power generation and the supply of high quality electric power at lowest possible cost. FPL maintains a vision of "making itself as the enterprise exercising the America's most excellent quality control practices." It adopted the Japanese style quality control method as its sole means to materialize the vision, and introduced it under its unique naming of "Quality Improvement Program" (QIP) in 1985. While it was initially observed that the effective practice of the Japanese QC method was a considerably hard task, the zeal and aggressive actions of its corporate executives as well as the adequate guidance offered by its QIP promotion staff won the positive commitment of every employee, and gained a number of outstanding results.

### Deming Application Prize for Small Enterprise

## Ahresty Corporation

In 1938, Ahresty was established as a manufacturer of secondary aluminum alloy materials and diecast products. Currently capitalized at ¥847 million (\$5.8 million), has 500 employees, and rated as an integrated diecast manufacturer. After the oil crisis, an intensified price war burst forth and its business results were heavily deteriorated. To

make a breakthrough, it introduced TQC in 1983, and under the mighty leadership of its president, wisdom of every employee was called for to enthusiastically strive for the improvement of its corporate constitution. As a result, a variety of management systems were organized, and unexpectedly great results were gained.

## Toyooki Kogyo Co., Ltd.

Became independent from Toyota Koki Co. in 1958. Developed as the sole hydraulic and pneumatic units manufacturer of the Toyota group. Currently capitalized at ¥385 million (\$2.7 million); number of employees 800. With the progressive yen evaluation, business results shrank after 1985, and it was urged to modify its corporate constitution in such a manner as to promote product development on its own initiative. In 1987, it introduced TQC, and every employee was guided to cooperate With one another with the objective of "Always prioritize quality and win the customer satisfaction and reliance" and with the policy management as a driving axle. The results were unexpectedly high for a limited period of its activity duration.

### Quality Control Award For Factory

## Kobe Steel Ltd., Chofu Kita (Iron & Steel Plant) Division

In 1958, established with the purpose of manufacturing seamless steel pipes by hot extrusion process. At present, enjoys high performances as a specialized manufacturer of Zircalloy-cladded tubings and smooth and clean pipes for nuclear power generation plant and semiconductor processing. Its number of employees is 410. The loss of its international competitive power due to the oil crisis and frequent occurrence of troubles in the market aggravated its profitability and urged the manufacturer to introduce TQC. It successfully improved quality and labor productivity, and also developed innovative products that put it in a market-leading position, and greatly improved its profitability.

## Maeta Concrete Industry Ltd., Main Plant

Established in 1929. The agricultural civil engineering concrete as its principal product line lost profitability due to the oil crisis. The QC drive introduced in 1981 was unsuccessful. In 1986, availing the opportunity of its new president's taking office, it declared the introduction of TQC. middle-term corporate management plan was laid down, and with the policy management as an axle, the process-oriented management was promoted. As a result, its records picked up and its ranking jumped up to the second in the industry. The successful implementation of its unique "For Three" (self, company, and community) QC circle activity is noted as well.



# INTERNATIONAL SYMPOSIUM ON RELIABILITY AND MAINTAINABILITY 1990 – TOKYO

*“World Prosperity through Reliability & Maintainability”*

June 5th to 8th 1990  
Keidanren Kaikan, Ohtemachi, Tokyo

## PROGRAM

June	4	Monday eve.	Welcome Cocktail
	5	Tuesday a.m.	Opening Plenary Session
		p.m.	Technical Parallel Session
	6	Wednesday	a.m. Technical Parallel Session
		p.m.	Technical Parallel Session
	7	Thursday	a.m. Technical Parallel Session
		p.m.	Technical Parallel Session
		eve.	Farewell Banquet
	8	Friday	Technical visits in Tokyo area

**Papers presented:** Total 114 papers (41 from 11 countries and area, and 73 from Japan) presented will be divided into four session rooms.

**Language:** Formal languages are English and Japanese. Simultaneous interpretation is available in each session.

**Proceedings:** All the papers presented will be printed in English in the Proceedings.

**Social Programs:** A. ‘Tokyo Afternoon’, B. Tour to Tokyo Disneyland, C. ‘Panoramic Tokyo’, D. One-day tour to Nikko, E. One-day tour to Kamakura and Hakone, F. ‘Kabuki Night’ (with dinner), G. ‘Fascinating Night’ (with dinner), These are available during the symposium.

### Post Symposium Industrial Tour (“Ancient & Modern Japan”):

Starting Tokyo on June 9th Saturday and coming back to Tokyo on June 15th Friday after going around Kyoto, Nara, Kusatsu, Nagoya, Hamamatsu and Hakone. Participants can see both ancient and modern side of Japan society as well as industry with high-technology.

<b>Fees (per person):</b>	Registration with Proceedings		
	before March 1, 1990	Yen	45,000
	after March 1, 1990	Yen	55,000
	Speaker	Yen	40,000
	Technical visits	Yen	8,000
	Farewell Banquet	Yen	8,000

\*As for fees of other program as well as the details of the symposium, please see the 3rd circular. All the payments should be made to the following address.

*Organizer:*  
Union of Japanese Scientists and Engineers (JUSE)  
5-10-11 Sendagaya, Shibuya-ku,  
Tokyo 151 Japan