5-Year Energy-Saving Initiative at 278 Pachinko Chain Parlors
– From Awareness Raising to Capital Investment –

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Energy Planning & Execution Officer
Maruhan Corporation
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10. Spirit of the Challenge: Team Maruhan
11. Summer 2011: As the Industry Leader
12. Closing
1. Company Outline

<table>
<thead>
<tr>
<th>Company Name:</th>
<th>Maruhan Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Lines:</td>
<td>Operation and management of entertainment facilities (e.g. pachinko parlors, bowling alleys, golf ranges, cinemas) and other leisure-related businesses</td>
</tr>
<tr>
<td>Number of employees:</td>
<td>12,427</td>
</tr>
<tr>
<td>Average age:</td>
<td>30.2</td>
</tr>
<tr>
<td>Number of stores:</td>
<td>278 pachinko parlors, 12 leisure &amp; amusement facilities</td>
</tr>
</tbody>
</table>

**Corporate Brand Image**

Be a pioneering company.

Become a world-class entertainment company.
2. At the Outset

Past Initiatives

"Reckless Efforts" "Orders/Instructions" ⇒ Did not last long

1. Trend of the Times

• Apr. 2010: Enforcement of Revised Act on the Rational Use of Energy ⇒ Maruhan became subject to the Law.
• Apr. 2010: Enforcement of Passive Smoking Prevention Ordinance

2. Change the Pachinko Industry

• 1992: Top message – "Change the Industry." Top-class hospitality project started.
• 2007: Launched environmental improvement efforts under the theme of "Creation of comfortable hall space"

Maruhan to become the pioneer of energy saving activities in the Pachinko industry!
3. Energy Management System

Energy Conservation Committee

Chief Energy Management Officer
Y. Motoyama, Managing Director

Energy Planning & Execution Officer
H. Mikami, Executive Officer/GM of Purchasing Dept.

- Secretariat
  - Purchasing Dept.

- General Affairs Dept.

- Corporate Planning Dept.

- Purchasing Dept.

- In Apr. 2010, Act on the Rational Use of Energy was revised and Maruhan became subject to the Law:
  1. Compliance with the Revised Act on the Rational Use of Energy
  2. Company-wide energy saving & awareness raising initiative
  3. CSR promotion & PR activities
### Changes in the Company's Total Energy Consumption

<table>
<thead>
<tr>
<th>Year</th>
<th>Stores</th>
<th>Electricity Consumption (1,000 kWh)</th>
<th>Oil Equivalent (KL)</th>
<th>Unit Consumption (KL/m²)</th>
<th>Reduction % (Y-o-Y)</th>
<th>Floor Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>211</td>
<td>359,523</td>
<td>95,788</td>
<td>0.191</td>
<td>-</td>
<td>499,380</td>
</tr>
<tr>
<td>2008</td>
<td>229</td>
<td>402,898</td>
<td>109,941</td>
<td>0.202</td>
<td>5.7%</td>
<td>541,981</td>
</tr>
<tr>
<td>2009</td>
<td>245</td>
<td>394,363</td>
<td>103,012</td>
<td>0.177</td>
<td>-12.3%</td>
<td>579,849</td>
</tr>
<tr>
<td>2010</td>
<td>258</td>
<td>381,960</td>
<td>99,672</td>
<td>0.164</td>
<td>-7.3%</td>
<td>609,931</td>
</tr>
<tr>
<td>2011</td>
<td>268</td>
<td>393,302</td>
<td>102,382</td>
<td>0.158</td>
<td>-3.6%</td>
<td>647,618</td>
</tr>
<tr>
<td>2012</td>
<td>278</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>671,783</td>
</tr>
</tbody>
</table>

- In 2009, the energy saving initiative was launched at all stores.
- While the number of stores increased, the energy consumption has not increased since 2008.
## 5. Success Factors of the Energy-Saving Initiative

### Success Factors

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vision Setting: 5-Year Plan &amp; Role Sharing between HQ and Stores</td>
</tr>
<tr>
<td>2</td>
<td>Employee Awareness Raising through Electricity &quot;Visualization&quot;</td>
</tr>
<tr>
<td>3</td>
<td>Sharing of Energy-Saving Best Practices</td>
</tr>
<tr>
<td>4</td>
<td>Capital Investment with Rigorous PDCA</td>
</tr>
<tr>
<td>5</td>
<td>Spirit of the Challenge: Team Maruhan</td>
</tr>
</tbody>
</table>
6. Vision Setting: 5-Year Plan & Role Sharing between HQ and Stores

### Industry Target

<table>
<thead>
<tr>
<th>211 Pachinko Parlor</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>vs. 2007: Goal</td>
<td>-3%</td>
<td>-6%</td>
<td>-9%</td>
<td>-12%</td>
<td>-15%</td>
</tr>
<tr>
<td>vs. 2007: Actual</td>
<td></td>
<td>-7.1%</td>
<td>-8.6%</td>
<td>-14.5%</td>
<td></td>
</tr>
</tbody>
</table>

### Step 1: (2008 -)
- Energy saving in the hall:
  - Employee awareness raising thru electricity visualization
- Capital investments in small-sized facilities:
  - LED, 100% electrification
- Launch of the Energy Conservation Committee:
  - Compliance with Act on the Rational Use of Energy

### Step 2: (2010 -)
- Capital investments in medium-sized facilities:
  - Ventilation control, sprinkler system
  - Maintenance

### Step 3: (2012 -)

- Maruhan won the ECCJ Chairman's Award

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**Success Factor (1)**

- Having a clear vision (5 years later) was the key to implement the energy-saving initiative as planned.
- We started from the employee awareness raising to build a foundation of the energy saving initiative.
7. Employee Awareness Raising through Electricity "Visualization" (1)

Before the visualization

Stores use electricity 100% for customers! There is no waste!

Wasted Electricity

- The peak appears before opening!

Inconsistent Electricity

- Same level even after nightfall!
- Total electricity used in a week
- Inconsistency among users!
7. Employee Awareness Raising through Electricity "Visualization" (2)

After the visualization

Change of awareness (no wastes/inconsistencies) saved energy by 10%!
An Electricity Measuring Function was added to the demand monitoring system. This enabled employees with no technical knowledge to measure electricity consumption per single unit of facilities.

Example) If pachinko machines are turned on 30 minutes later, Saving of 6,400 kWh/year (Saving of electricity cost by ¥100,000/year)

• Visible effects increase the sense of satisfaction! This makes efforts more enjoyable!
The most eco-effective efforts were selected from best practices established by model stores and compiled into a manual. All stores were required to adhere to the manual.

**1. ECO 7**

**ECO-Activity Priorities【ECO 7】**

1. Participate in the eco-activities. (Sharing of aims)
2. Install a thermometer in the hall to keep the temperature at 26 ºC
3. In the morning, switch on the air conditioners at a rate of 1 unit per 30 minutes.
4. Do not switch on the lights and air conditioners if they are not necessary for the work.
5. Display the switching off/on schedules and procedures.
6. Make the best use of outside air.
7. Switch off any unnecessary electrical equipment immediately after closing.
8. Sharing of Energy-Saving Best Practices (2)

Store-Based Eco-Management Standard "ECO-Store Manual"

| Start | Apr. 2010 | Result | -8.6% |

ECO 7 is not flexible enough to handle situations specific to each store (geographical differences, store size, different versions of facilities) and not suitable for handover due to frequent personnel transfers.

⇒ 278 versions of the eco-management standard were developed for each of the 278 stores.

### 2. Eco-Store Manual

- **Store Name:**

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#### 3. Air-conditioning at Store Opening

- **WHERE**
  - Where: Hall
  - What: Air-conditioners

- **WHEN**
  - When: Opening and 30 minutes after closing

- **WHO**
  - Who: Store opening preparations leader

- **HOWEVER**
  - Why: To get used to phased switching-on (to cope with indoor/outdoor temperature gap)

- **WHY**
  - Why: To get used to phased switching-on (to cope with indoor/outdoor temperature gap)

#### Effects

- Cost-saving effect: ¥109,500/year

#### Calculation formula:

\[
8\text{kw} \times 0.5\text{h} \times ¥15/\text{kWh} \times 365\text{days} = ¥109,500/\text{year}
\]

#### Comment:

- Keeping the temperature at a proper level is crucial, but consider the expectations of customers who are coming from the cold outside.
8. Sharing of Energy-Saving Best Practices (3)

Internal Awareness Raising and Employee Education

● Use of Corporate Intranet
  1. Results of CO₂ reduction efforts
  2. Best practices
  3. Energy-saving initiative topics

  were delivered monthly to share information.

■ Study Sessions
  1. 2010: Study sessions were held at 6 locations nationwide covering all stores.
  2. 2011 and thereafter: Study sessions were held for newly assigned managers.

⇒ Energy saving skill was made mandatory for all store managers.

The study sessions were attended by more than 800 employees by the end of July 2012, developing a scheme to be brought back to each store.
9. Capital Investment with Rigorous PDCA (1)

Model Stores with Energy Saving Facilities

1. Lighting: 100% LED
   - Switch all lights to LED to save electricity and reduce the need to change bulbs in high places.

2. Game Machine Lamps: 50% Cut in Electricity Use
   - Use energy-saving number lamps to cut electricity (50% of existing types).

3. Rest Room: Sensor Lighting
   - Use sensor lighting to reduce waste of electricity.

4. Faucets: Water-Saving Device
   - The device saves water without changing the physical feeling of water by injecting air bubbles into the water.

5. Rest Room: Water-Saving Toilets
   - New-types of toilets were used to save water (61% of existing types).

   - Visualize and measure electricity consumption by each set of facilities.

7. A/C System: Air Designer
   - Ensure ventilation, temperature control, and energy saving by using the highly-efficient air-conditioning system.

8. Air: Plasma Cluster
   - Remove airborne bacteria and cigarette smoke by installing plasma cluster ionizers.

9. Smoking Area: Complete Separation
   - 100% separation of smoking/non-smoking areas (Maruhan Akishima).

10. Smoking Partition
    - Install partition boards between game machines to 1) block smoke and 2) reduce noise. (Maruhan Iruma)

    - Reduce noise by using low-noise machines. 85 dBA or less.

Success Factor (4)

Model Stores with Energy Saving Facilities

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Success Factor (4)

9. Capital Investment with Strict PDCA (2)

Changes in the Breakdown of Electricity Consumption

<table>
<thead>
<tr>
<th>Breakdown of Electricity Consumption</th>
<th>Up to FY2007</th>
<th>FY2010</th>
<th>FY2010 Eco-Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Consumption</td>
<td>1,000 kWh/m² per year</td>
<td>-25.4% from 2007 Unit Consumption Level</td>
<td>-32.4% from 2007 Unit Consumption Level</td>
</tr>
<tr>
<td>Electricity Saving</td>
<td>—</td>
<td>746 kWh/m² per year</td>
<td>676 kWh/m² per year</td>
</tr>
<tr>
<td>Lighting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Conditioning</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Up to FY2007**
  - Others 25%
  - Lighting 25%
  - Air conditioning (A/C) 50%
  - Data: Maruhan Yachiyo, 2007

- **FY2010**
  - Others 19.1%
  - Lighting 19.3%
  - A/C 61.6%
  - Data: Maruhan Mobara, Jan.-Aug., 2011

- **FY2010 Eco-Model**
  - Others 16.0%
  - A/C 12.7%
  - Lighting 71.4%
  - Data: Maruhan Iruma, Jan.-Aug., 2011

**Lighting**
- Old-type high-power mercury lamps ⇒ Low luminous efficiency

**Air Conditioning**
- Machine room chamber system ⇒ Problems with the airtightness
- No-roof structure ⇒ Susceptible to outside temperature
- Use of the chamber-box system ⇒ Improved ventilation efficiency
- Standardization of hall ceilings ⇒ Improved heat-insulation effect

**Unit Consumption**
- Motivated all employees to make energy-saving efforts spontaneously
- Use of LED lights ⇒ Improved luminous efficiency & useful life
- Use of the ventilation control system ⇒ Reduced ventilation loss ⇒ Active use of outside air
10. Spirit of the Challenge: Team Maruhan

Employee Awareness Raising

Capital Investment

<table>
<thead>
<tr>
<th>1. Switching hall lights to LED</th>
<th>Stores</th>
<th>Saving Effect</th>
<th>Initial Amount</th>
<th>Running Cost</th>
<th>Cost-Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>77</td>
<td>-6.8% (peak)</td>
<td>¥541M (¥703M/store)</td>
<td>-¥216M/year</td>
<td>2.5 yrs</td>
</tr>
<tr>
<td>2. Sprinkler system for outdoor units</td>
<td>19</td>
<td>-8.8% (peak)</td>
<td>¥22M (¥116M/store)</td>
<td>-¥12M/year</td>
<td>1.8 yrs</td>
</tr>
<tr>
<td>3. Chemical cleaning of outdoor units</td>
<td>119</td>
<td>-3.0% (electricity)</td>
<td>¥37M (¥31M/store)</td>
<td>-¥26M/year</td>
<td>1.4 yrs</td>
</tr>
</tbody>
</table>

(Actual results for 2011–2012)

We are currently:
1. Studying the possibility of installing a ventilation control system;
2. Studying the possibility of installing a rooftop solar power generation system;
3. Planning to install a rainwater storage & sprinkler system;
4. Studying the possibility of installing a geo-heat system;
5. Developing energy-saving facilities jointly with a manufacturing company; and
6. Developing an energy-management system.
11. Summer 2011: As the Industry Leader

- In summer 2011, the electricity-saving measures developed and implemented by Maruhan led the industry association.
- Maruhan promoted the electricity-saving measures in cooperation with a soft-drink vending-machine manufacturer.

### Maruhan’s Electricity-Saving Measures for Summer Season

<table>
<thead>
<tr>
<th>Area</th>
<th>Energy-Saving Measures</th>
<th>Target %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>1. Introduce a 3-times-a-month rotating holiday system (weekdays)</td>
<td>-25</td>
</tr>
<tr>
<td>A/C</td>
<td>2. Set the air conditioner temperature 2°C higher than usual.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Carry out chemical cleaning of air conditioner outdoor units.</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>4. Turn off vending machine lights 24 hours a day.</td>
<td></td>
</tr>
<tr>
<td>Lighting</td>
<td>1. Switch lights to LED (when replacing aged lights)</td>
<td>-10</td>
</tr>
<tr>
<td></td>
<td>2. Turn off (part of) external wall lights.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Turn off (part of) neon lights, signs, and electric bulletin boards.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Turn off (part of) indirect lights in the hall.</td>
<td></td>
</tr>
<tr>
<td>A/C</td>
<td>5. Introduce a sprinkler system for outdoor units and use it during peak electricity-demand hours (when replacing aged units).</td>
<td></td>
</tr>
</tbody>
</table>

### Industry Association’s Electricity-Saving Measures for Summer Season

#### Power-Saving Action Plan

<table>
<thead>
<tr>
<th>Company Name:</th>
<th>Person in Charge:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of total saving</td>
<td>% of total saving</td>
</tr>
</tbody>
</table>

**Lighting**
- Turn off external wall lights 24 hours a day: 1.0%
- Turn off (part of) neon lights, signs, and electric bulletin boards: 1.5%
- Turn off (part of) indirect lights in the hall: 1.0%
- Turn off vending machine lights 24 hours a day: 0.3%
- Turn off 50% or more lights in the hall: 4.2%

**A/C**
- Set the air conditioner temperature 2°C higher than usual: 5.0%

**Holidays**
- Multiple pachinko hall operators will take turn to close their parlors located in TEPCO’s service area. (Rotating holidays of 3 weekdays a month will reduce 15%, 4 weekdays will reduce 20% of electricity consumption): 15.0%

**Lighting**
- Introduction of LED lights: %

**A/C**
- Use of heat-insulating paint, insulation materials/films: %
- Cleaning of air conditioners (filters and outdoor unit fins): %

**Others**
- Shortening of the hours during which vending machines are kept refrigerated: %

To avoid a power outage, we are planning to reduce the electricity consumption by 25% during the peak demand hours for the 3 months from July through September 2011. We are sorry for causing inconvenience to our customers.
12. Closing

There is no miraculous solution in energy-saving activities.

Energy-saving activities will never end.

The key is to make small improvements step by step.

- Act on the Rational Use of Energy was enforced in 1979 in the aftermath of the oil crisis in 1973. Until now, Japan's energy-saving initiatives have been led by the automobile, electronics, and other heavy industries and their factories.

- From now on, we, the service industry in the civilian sector, will contribute to Japanese society by reducing wastes and inconsistencies and implementing "genuinely motivating" awareness-raising and operational improvement activities.

Thank you for your attention.