Fuji Geothermal Binary System
2,000kW
Environmentally Friendly Fuji Binary System

The binary system (Organic Rankine Cycle) utilizes a secondary working fluid with a low boiling point, and generates electricity from low temperature geothermal resources that have not been considered as suitable for power generation.

**Features of Fuji binary system**
- Environmentally friendly
  - Reinjection of full amount of geothermal fluid to avoid geothermal gas emission
  - Use of normal pentane as a working fluid against global warming
  - Application of air cooled condenser (no need of cooling water)
- High reliability
  - Standardization of specification and design
  - Application of experienced geothermal flash technologies
  - Stable operation of the demonstration plant

**Total solution of geothermal energy**
Fuji will provide total solution of geothermal energy based on abundant experiences in geothermal flash system.

- **Binary system**
- **Hybrid system** (combination of back pressure turbine and binary system)
- **Flash system** (single, multi)

**Power generation**

**Standard specification**
- **Capacity**: 2000kW
- **Working fluid**: Normal pentane
- **Resource inlet condition**: 300kPa/135°C/16kg/s
- **Resource outlet condition**: 300kPa/135°C/41kg/s
- **Turbine inlet condition**: 900kPa/120°C
- **Turbine type**: Single flow, top exhaust
- **Generator type**: Horizontal, synchronous

**System flow**
Geothermal fluid is fully led to reinjection well to avoid geothermal gas emission

**Layout**
Equipment, piping and cables are functionally arranged in consideration with sufficient operation and maintenance spaces.
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**System flow**
Geothermal fluid is fully led to reinjection well to avoid geothermal gas emission

**Power generation**

**Standard specification**
- **Capacity**: 2000kW
- **Working fluid**: Normal pentane
- **Resource inlet condition**: 320°C/350kg/s
- **Resource outlet condition**: 320°C/47kg/s
- **Turbine inlet condition**: 250°C/120kPa
- **Turbine type**: Single flow, top exhaust
- **Generator type**: Horizontal, synchronous

**Equipment, piping and cables are functionally arranged in consideration with sufficient operation and maintenance spaces.**
### 220kW demonstration plant (operation: 2006 to 2009)

<table>
<thead>
<tr>
<th>Capacity</th>
<th>220kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working fluid</td>
<td>Isopentane</td>
</tr>
<tr>
<td>Resource inlet condition</td>
<td>310kPa/135°C/1kg/s</td>
</tr>
<tr>
<td>Resource outlet condition</td>
<td>800kPa/105°C/6kg/s</td>
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</tbody>
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