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# Ichigo Kiryu Okuzawa ECO Power Plant Second in Japan to Acquire Comprehensive Certification

Ichigo ECO Energy Co., Ltd. ("Ichigo ECO") has recently acquired full international and domestic certification for its Ichigo Kiryu Okuzawa ECO Power Plant (panel output of 1.33MW) from third party inspection agency TÜV Rheinland Japan Ltd. ("TÜV Rheinland"). The Kiryu plant is built on a former stone quarry located in Kiryu City, Gunma.

## 1. Overview of TÜV Rheinland Japan's Comprehensive Certification Policy

In the evaluation of solar energy power plants, TÜV Rheinland has many years of experience dealing with international solar plant systems standards IEC 62446 as well as domestic JIS and JEMA standards. By allowing inspections on-site and from the stage of plant construction until the pre-operational period by a neutral third-party inspection agency, Ichigo ECO can increase the reliability, performance quality, and safety of its solar plants. Japanese inspectors with experience in solar power run the inspections and evaluations to quickly respond to domestic certification services.

Comprehensive certification of photovoltaic plants is already widespread in Europe, and this type of inspection by a third-party agency is expected to grow in number and enhance the credibility of solar plants in Japan in the coming years. According to TÜV Rheinland, Ichigo ECO's Kiryu plant is the second in Japan to have obtained a comprehensive certification.

#### Details of the Comprehensive Certification Process

- (1) Inspections are conducted during all stages of plant construction and operation. Stage 1 of inspections evaluate planning and construction; Stage 2 evaluates the plant during its post-construction period until it commences operation; and Stage 3 evaluates the plant once operation has commenced.
- (2) Inspections include on-site shadow analysis\* to yield a precise prediction of the plant's power generation. (\*Shadow analysis: post-construction analysis of any shadows that could have potentially large effects on power generation.)
- (3) Output measurements are conducted in TÜV Rheinland Japan's labs prior to solar cell installation.
- (4) Regular inspections occur every three years in order to check plant safety and output quality.
- (5) Optional laboratory checks can be run on aging solar cells to measure deterioration.

Diagram of Inspection Stages and Services (Source: TÜV Rheinland)

#### Stage 2 Stage 1 Stage 3 After construction, Planning & **Plant** before operations Construction Operation begin **Local & Laboratory** Post-construction Site **Evaluation Evaluation** Inspections Building site evaluation Safe energy production • Regular follow-up checks Energy output prediction • I-V string performance every three years Specification documents Thermography Solar cell output checks Installation system check

Certification issued

Follow-up

Advantages of Certification for Relevant Parties (Source: TÜV Rheinland)

- (1) Power Producers Reduce safety risks
- (2) Financial institutions, banks, investors
  Improve loan eligibility and return on investment

#### Certificate



#### 2. Overview of Ichigo Kiryu Okuzawa ECO Power Plant





1.	Location	Okuzawa-aza Nikko, Niisato-cho, Kiryu City, Gunma
2.	Operator	Ichigo ECO Energy
3.	EPC	Kokko Shisetsu Kogyo
4.	Area	27,588 m <sup>2</sup>
5.	Panel Count	5,334 (Toshiba)
6.	Panel Output	1.33MW (enough to provide power for 440 households)
7.	Inverter Supplier	Fuji Electric

<sup>\*</sup>CO2 emissions reduction data is based on estimates from the National Institute of Advanced Industrial Science and Technology.

## About TÜV Rheinland Japan

TÜV Rheinland is a global leader in independent inspection services, founded more than 140 years ago. The group maintains a presence in 66 countries with 18,000 employees; annual turnover is more than EUR 1.6 billion. The independent experts stand for quality, efficiency and safety for people, technology and the environment in nearly all aspects of life. TÜV Rheinland inspects technical equipment, products and services, oversees projects and helps to shape processes for companies. Its experts train people in a wide range of careers and industries. To this end, TÜV Rheinland employs a global network of approved labs, testing and education centres. Since 2006, TÜV Rheinland has been a member of the United Nations Global Compact to promote sustainability and combat corruption. Website: <a href="https://www.tuv.com">www.tuv.com</a>

