

juwi Shizen Energy



EU Industry Days

Jan Warzecha, Representative Director

March 18th, 2021

We take action for the blue planet.

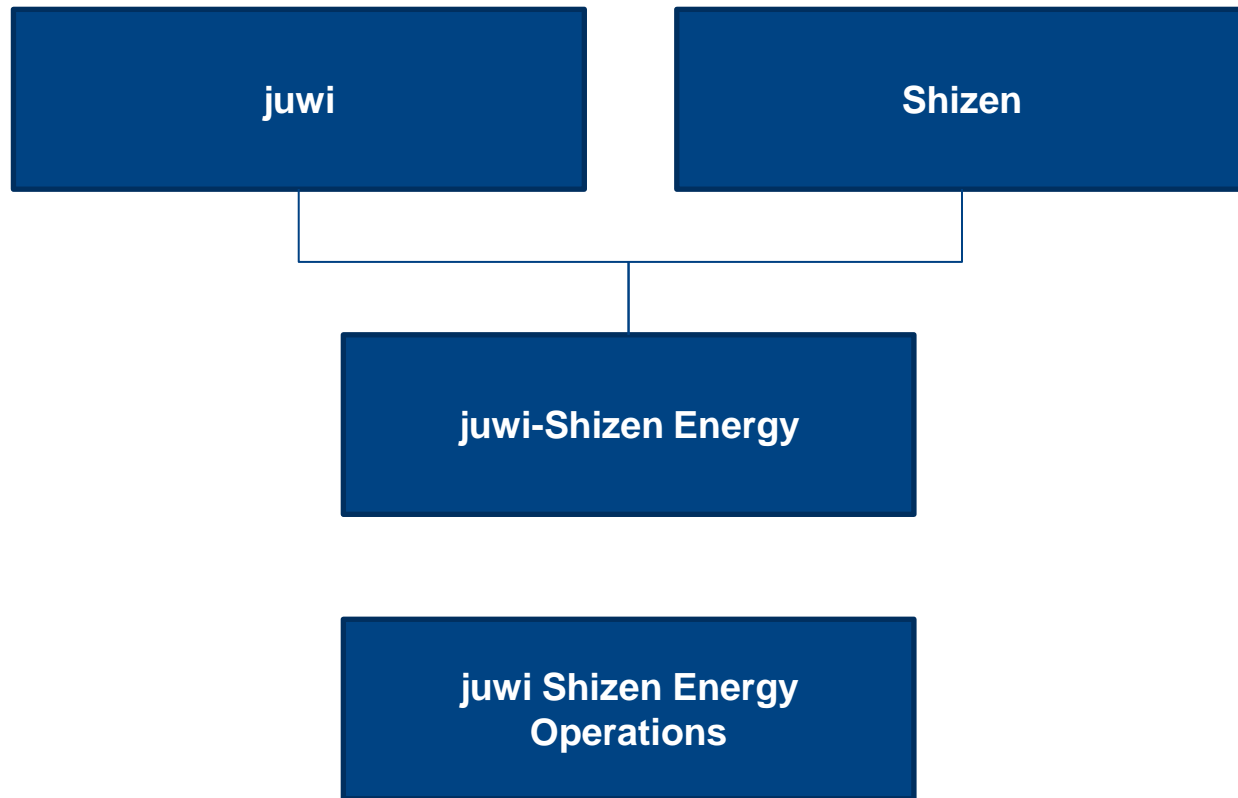


AGENDA

- COMPANY INTRODUCTION
- EXPERIANCE OF OUR EUROPEAN/JAPANESE JOINT VENTURE
- FUTURE OF THE MARKET AND INPUT TO THE CURRENT INDUSTRY DISCUSSION

COMPANY INTRODUCTION

juwi Shizen Energy – a Japanese – European (German) joint venture

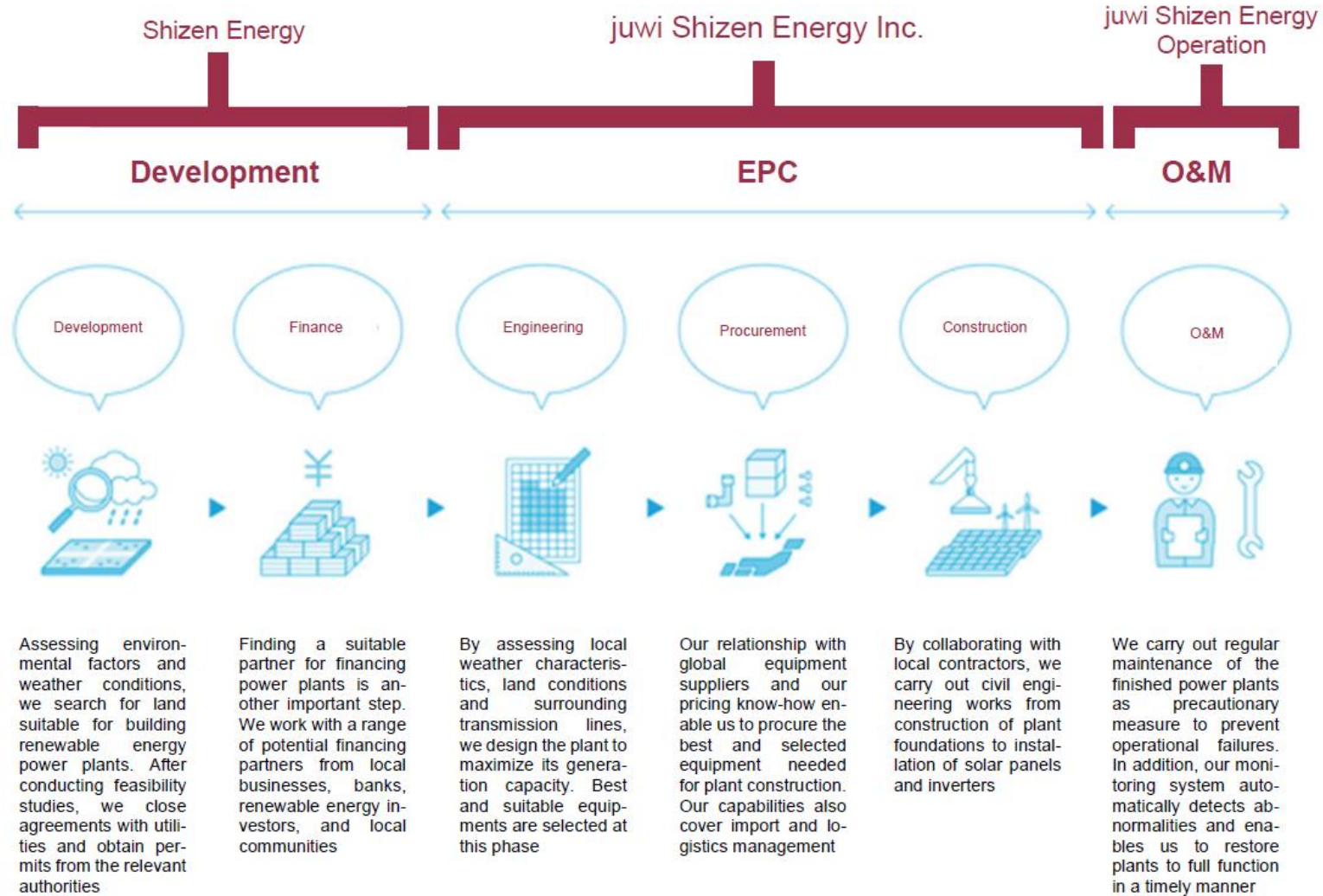


- First contacts in 2012
- JV Founded in 2013

- **E**ngineering, **P**rocurement and **C**onstruction as well as
- **O**peration of Solar power plants

- ~ 175 employees in Japan

GROUP INTRODUCTION



juwi AG INTRODUCTION



juwi AG's headquarters in Wörrstadt

Facts and Figures

850

Employees

8,800

Invest (since 1996) in Mio EUR

5,100

Total Capacity (MW)

1,700

Number of Solar Plants

1,000

Number of Wind Plants

2,734

Plants Monitored (MW)

juwi 実績 Achievements

※ピンは実績の一部です part of the achievement



SHIZEN ENERGY INTRODUCTION

Shizen Energy is Japan's one of the largest developer of solar power plants. We have developed over 950 MW to date, and are committed to create a business that will endure for 100 years. Our strength is our connection to local communities, and our deep know-how about the energy and energy development industries in Japan. We have a commitment to designing energy solutions, and to expanding renewable energy around Japan. Shizen Energy was listed in the TOP500 High Growth companies in 2020 by the Financial Times.

Developing power plants together with local initiatives

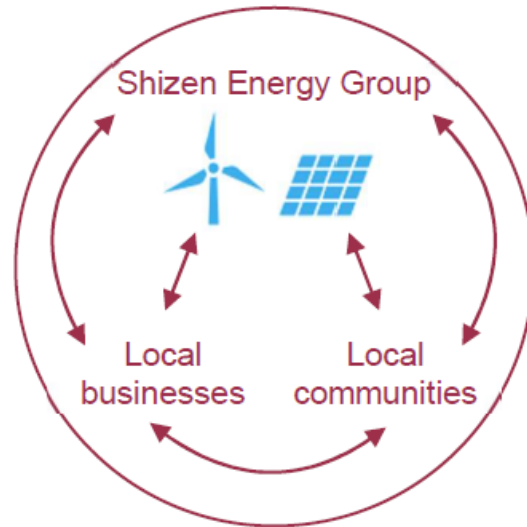
- Financing schemes where local communities participate
- Explanation sessions that include local stakeholders
- Shizen Energy sessions and workshops

Mechanisms in which local residents can proactively take part in the process of building and operating power plants

Creating a community-based business

- Constructing and maintaining power plants in collaboration with local civil engineers and contractors

Sustainable creation of jobs



工事実績 Project Achievements

主なプロジェクト Major Projects



太陽光

Photovoltaic Power

69 カ所 sites

完工合計 Total **291.0** MW

および 着工中合計 Under Construction 約 **314** MW

栃木県佐野市
Sano, Tochigi

42 MW

着工中
Under Construction

栃木県佐野市
Sano, Tochigi

54 MW

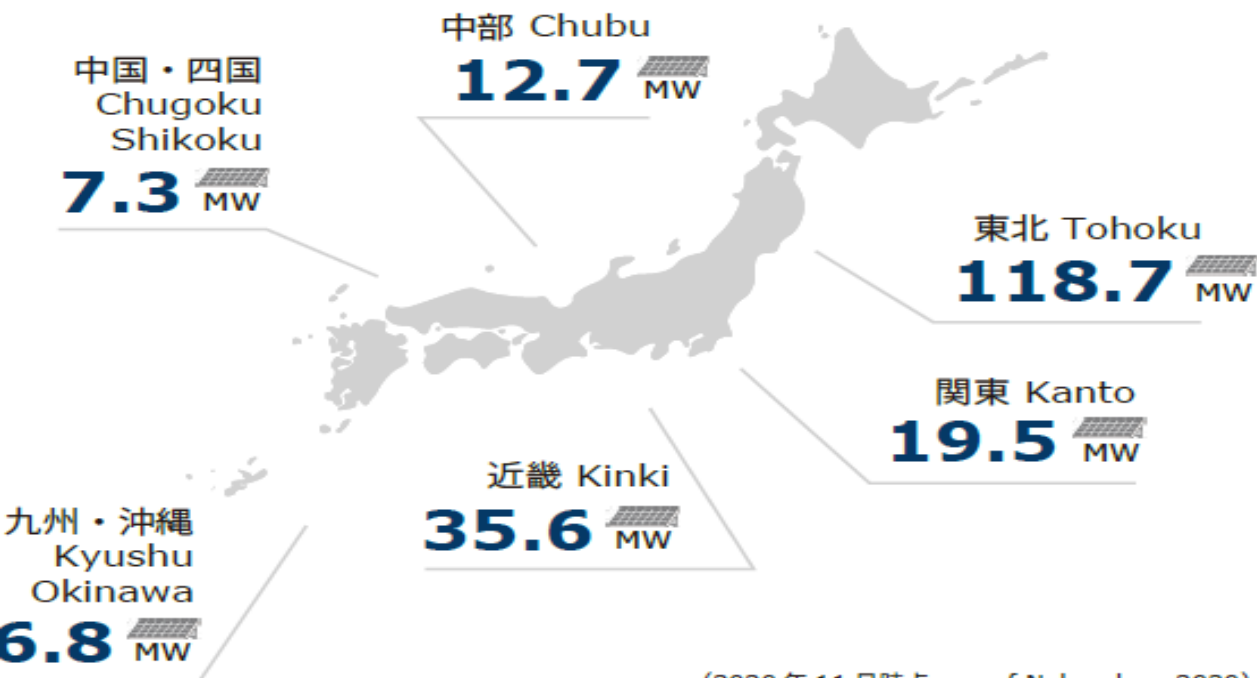
着工中
Under Construction

福島県福島市
Fukushima, Fukushima

100 MW

着工中
Under Construction

完工実績 Completed Project



(2020年11月時点 as of November.,2020)



JSE PROJECTS IN JAPAN – Completed HV projects



EXPERIANCE OF OUR EUROPEAN/JAPANESE JOINT VENTURE

Experience as a Joint Venture

- We are in a very special situation
 - Renewable energy is a very young industry
 - Our role as EPC is creating the link to the very traditional and domestic construction industry
- Within our business we need to integrate
 - International and domestic Japanese business partners
 - Old and young employees (from just graduated to 75 years old colleagues)
 - Visionary and urban mindset with local rural construction sites
- Of course, we face the challenges of any Japanese – international cooperation like
 - Language
 - Business culture
 - Technical standards
- But we manage these challenges successfully since nearly 10 years

FUTURE OF THE MARKET AND INPUT TO THE CURRENT INDUSTRY DISCUSSION

- I. R&D
- II. Standards and Regulations
- III. Direct company-company cooperation
- IV. Housing / construction industry

Comment on research and technology

- In Solar power generation R&D topics between Japan and Europe are not easily identifiable
 - A) the industry is not in an early phase any more
 - B) Key components and drivers of progress are PV modules (Chinese manufacturers by far dominate that segment)
 - C) still the industry in Japan needs to reach a different total cost level (*jSE is working on new initiatives that will lead to further reduction on costs for our customers*)
 - D) For example, new type of rack or rack material and improvement of other components could reduce total cost
- RE-Segments that could be very well be suited for R&D cooperation could be
 - Off-shore wind
 - Hydrogen production (and global sourcing) and infrastructure
 - Electric grid infrastructure and grid management optimization

-Areas of possible cooperation in technical standards and regulatory environment between Europe and Japan

- Technical standards
 - Acceptance of respective technical norms of products and components (i.e. cable specifications) – current setup requires re-certification according to Japanese technical norms. Homogenization of norms could facilitate respective use of products in Europe and Japan
- (Technical) Regulatory environment
 - Building code (construction industry regulations for PV power plants – i.e. static calculations for the racking systems)
 - Electric code on electric power installations (needs adaptations for RE power plants)
 - Rules for management of the Electricity grid (adaptation of the grid management to renewable power: for example, “connect and manage”-principle, i.e. non-firm connection of power plants to the grid in place in Japan since beginning of 2021.)
- (Administrative/Commercial) Regulatory environment
 - Rules for sharing cost burden of adapting the grid to new need of decentral generation
 - Regional obligation to dedicate area for PV and wind and other RE generation (Example: German wind priority areas in regional (city) planning guidelines)

Areas of direct cooperation between European and Japanese companies / facilitating respective market entry

European companies will be looking for market entry and partnerships in the following areas / same as Japanese companies will be looking for partners:

- Innovative solutions/equipment in racks and floating solutions
- Electrolysers and hydrogen components
- Special PV panels i.e. building integrated or hybrid solar panels (electricity + hot water)
- Innovative inverters and software for performance forecast for PV and wind on- and off-shore
- Offshore wind turbines and equipment
- ... and so on.

juwi Shizen Energy willing to explore such opportunities and services!

Further topics from the “decarbonized society”: Housing / construction industry

Energy	①Offshore Wind	To maximize by 2050 targeting 45GW
	②Ammonia	To reach 20% of total Thermal power generation by 2030
	③Hydrogen	Consumption 20 million Tons in 2050
	④Nuclear	Internationnal cooperation with New-Typ-Furnace
Transportation &	⑤Automobile+Storage-battery	All new cars be EVs in mid by mid of 2030s
	⑥Semiconductor&IT	To reduce electricity consumption of power-semiconductor by 50%
Manufacturing	⑦Vessels	To convert to alternative fuel such as Hydrogen by 2050
	⑧Logistics	To decarbonize port facilities
	⑨Foods, Agriculture, Forestry, Fisheries	Zero-emissions of CO2 by 2050
	⑩Aircraft	Innovation, Electrification, Alternative fuels
	⑪Carbon recycling	Cost reduction
Home &	⑫Houses	New houses with Zero-emissions in average by 2030
	⑬Resource circulation	Use of biomass
Offices	⑭Life-style	To promote local decarbonization businesses

Japan has announced ambitious change in housing energy consumption

This could be a mutually advantageous area of cooperation

Programs, learnings and manufacturing know how can be transferred from European (my knowledge from German) market: “triple glazing standard vs. single glass standard”

Japanese government announced the outline of the policy "realization of a decarbonized society by 2050" as of December 2020

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