

Introduction of 0.5MW Solar Power System to Aroma and Food Ingredients Factory, Indonesia

NEXT ENERGY & RESOURCES CO., LTD.

~ Where vision meets reality ~

July 24, 2018

Company Profile

Company Name	Next Energy & Resources Co., Ltd.		
Location	<p>Head Office / Product Technology Center 11465-6, Akaho, Komagane-shi, Nagano, 399-4117, Japan</p> <p>Tokyo Branch Shinjuku First West Building 14F, 1-23-7, Nishishinjuku, Shinjuku-ku, Tokyo, 160-0023, Japan</p> <p>Osaka Office Bussan Bld.6F, 3-10-13, Nishinakajima, Yodogawa-ku, Osaka-shi, Osaka, 532-0011, Japan</p> <p>Nagoya Office 77 Suehiro, Nishibiwajima-cho, Kiyosu-shi, Aichi 452-0003, Japan</p> <p>Ho Chi Ming City Representative Office Floor 15th, Lim II Tower, 62A Cach Mang Thang Tam Street, District 3, Ho Chi Minh City, Vietnam</p>		
Established	December, 2003		
Capital	268 million yen		
President	Atsushi Ito		
URL	http://www.nextenergy.jp/	E-Mail	info@nextenergy.jp
Sales	JPY20.586 billion (as at end of June 2016)		
No. of Employees	197 (as of January 1st, 2017)		
Group Companies	<p>Next Holdings Co., Ltd. Fukumi Construction Co., Ltd. Alectris Japan Co., Ltd. R2 Solution LLC. VEGLIA Laboratories Inc.</p>		

Business Outline

Specialized in PV Related Business

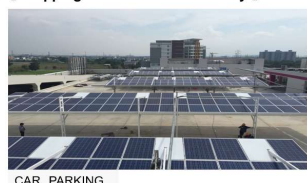


Business Outline

Specialized in PV Related Business



【Shopping Mall in Ho Chi Minh City】



System Capacity: 320kW
PV Modules: 1,436 × NERP156 × 156-60-P SI 255W
Inverter: 16 × DELTA 20kW
Monitoring System: Web Monitoring System (SOLAJIT)

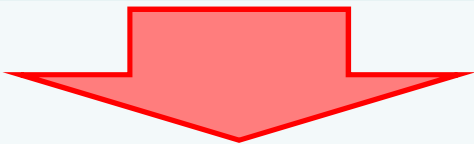


Project Overview

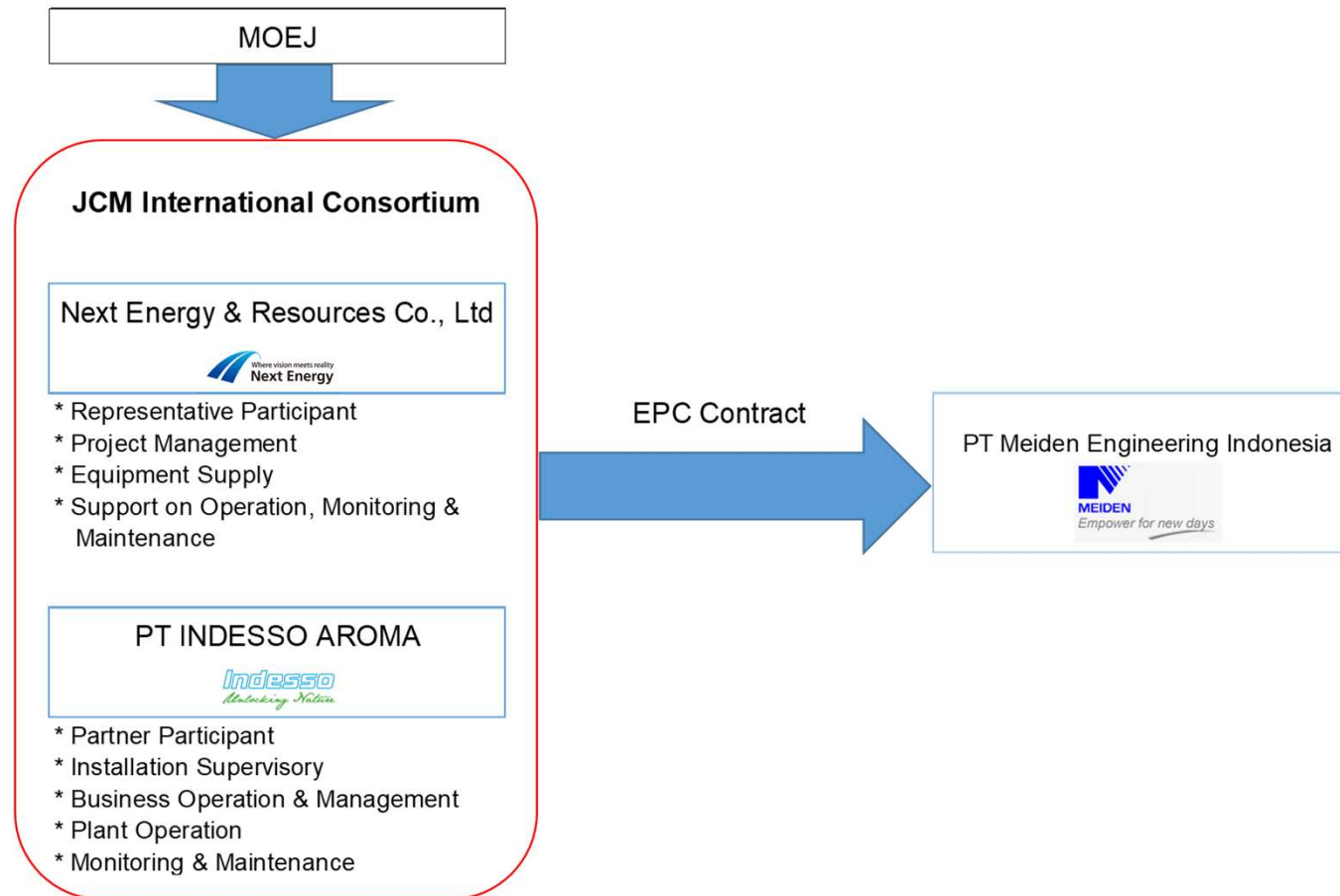
Video file or Web Link

http://gec.jp/jcm/projects/16pro_ina_06/

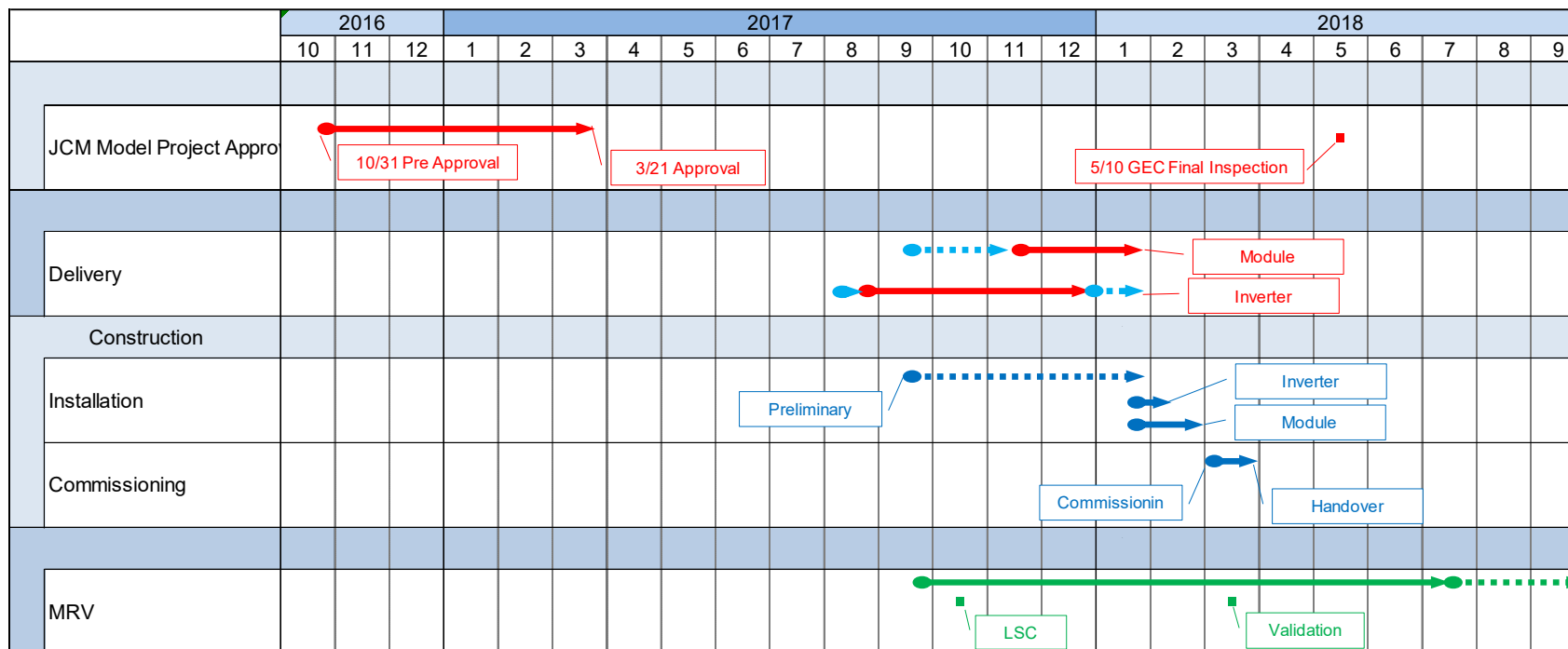
Project Outline

Project	Introduction of 0.5MW Solar Power System to Aroma and Food Ingredients Factory, Indonesia
Representative Participant	Next Energy & Resources Co., Ltd.
Partner Participant	PT Indesso Aroma
EPC	PT Meiden Engineering Indonesia
Summary	<ul style="list-style-type: none"> ✓ To install 500kW Solar PV System to the roof top of Partner Participant's factory in Cileungsi ✓ Electricity generated from the system will be fully utilized by the Partner Participant, replacing coal based electricity to renewal based electricity
 <p>Expected Average Annual Power Generation : 691,334kWh</p> <p>Expected Average Annual Carbon Reduction : 401Tons</p>	
MRV	<ul style="list-style-type: none"> ✓ Site Survey for Validation was conducted on March 6, 2018 ✓ Draft MRV was completed and pursued for Public Comment ✓ Expected to be submitted to JCM Joint Committee in June/July

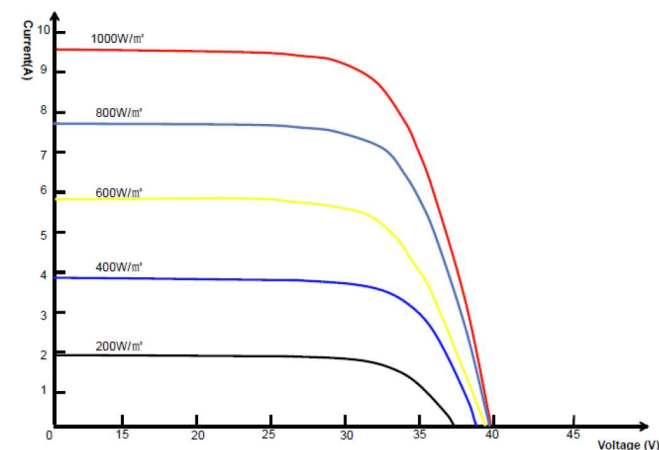
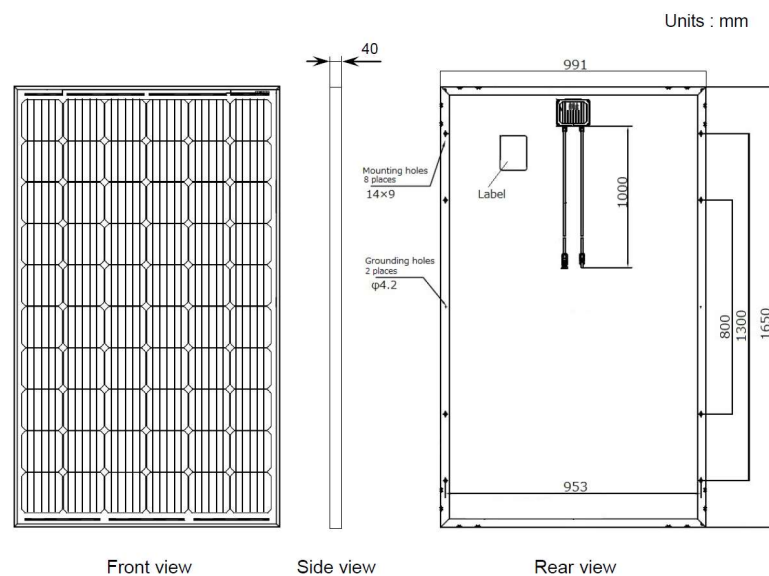
Transaction Scheme



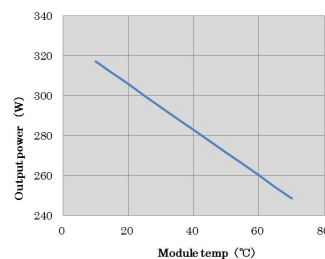
Project in Progress



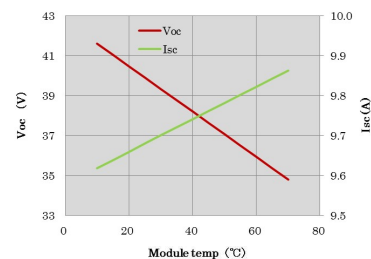
PV Module ~ NER660M300 ~



Output power vs light intensity



Module temp. vs Output power
(300W examples)



Module temp. vs Voc & Isc
(300W examples)

Temperature Characteristics List

Nominal Operating Cell Temperature (NOCT)	46±2°C
Voc temperature coefficient	-0.284%/°C
Isc temperature coefficient	+0.042%/°C
Pmax temperature coefficient	-0.380%/°C

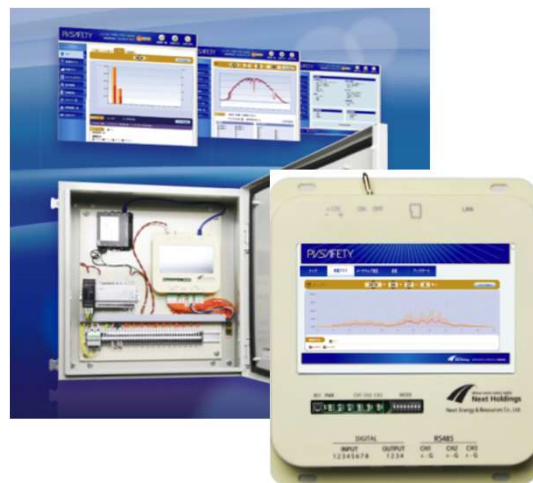
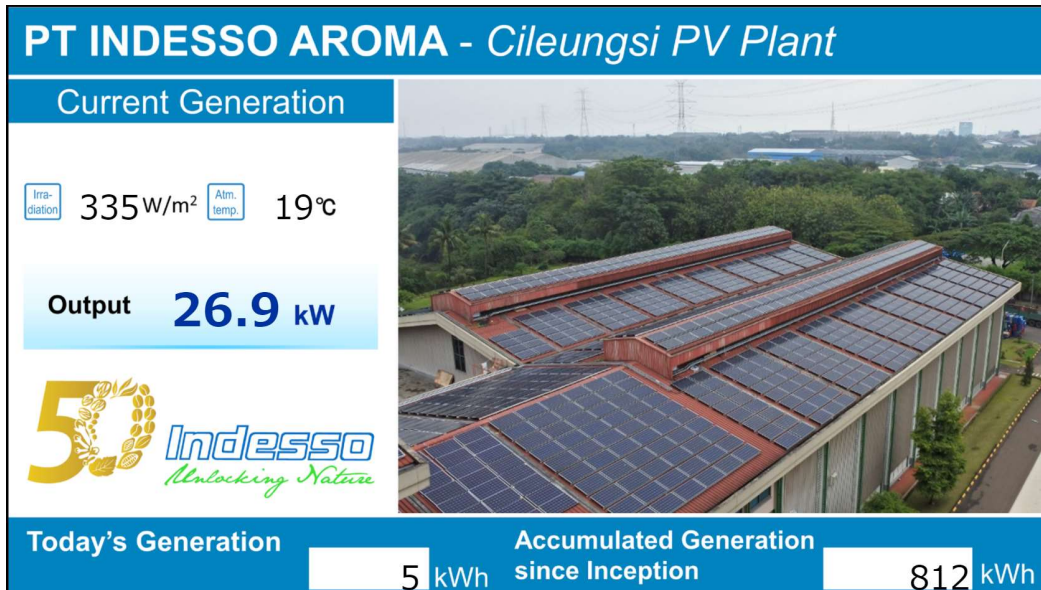
TYPE	NER660M300
Peak Power Output (Pmax)	300W
Open Circuit Voltage (Voc)	39.90V
Short Circuit current (Imp)	9.21A
Maximum Operating Voltage (Vmp)	32.59V
Maximum Operating Current (Isc)	9.68A
Module Area Conversion Efficiency (%)	18.30%
Cell Area Conversion Efficiency (%)	20.40%
Maximum Serie Fuse Current	15A
Maximum System Voltage	1000VDC
Nominal weight	18.2kg
Nominal size	W991×H1650mm D40mm
Number of cells	60 (6×10)
Cell size & cell type	156.75×156.75mm (6 inchs) Mono crystal cell (PERC)
Max load capacity	Snow load 6500Pa (incl. surface and wind loads)
	Wind load 2400Pa (Back side)

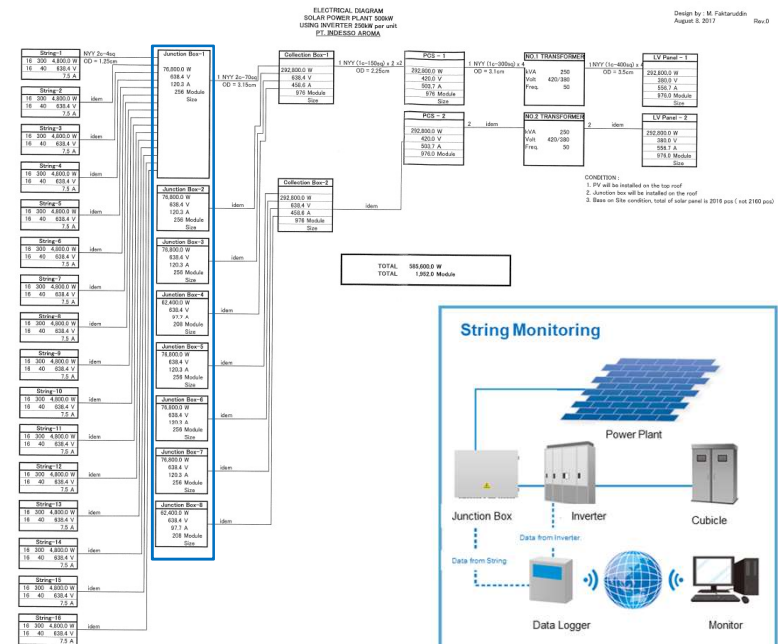
Inverter ~ MEIDEN SP320-250T-N ~

DC input	Supply voltage range	400V-750V
	MPPT working voltage range	400V-750V
	Maximum supply voltage	750V
	Number of input circuits	Maximum of 2 circuits (maximum cable size: 325 sq)
AC output	Electric type	Three-phase three-wire system
	Isolation method	Commercial frequency insulation transformer type
	Rated output power	250kW(250kVA)
	Rated output voltage	420V/440V
	Rated output current	344A/328A
	Rated frequency	50Hz/60Hz
	Current distortion factor	3% or less at each phase, 5% or less in total (during rated operation)
	Output power factor	Delay: 0.99 or more (during rated operation)
	Number of output circuits	Maximum of 2 circuits (maximum cable size: 325 sq)
Transformation efficiency		96.5% or more (during rated operation, including likelihood of JEC)
Installation environment	Installation site	Indoor
	Protection level	IP20
	Allowable ambient temperature	-5°C - +40°C
	Allowable ambient humidity (no condensation)	5%-85%
Dimension and weight	Dimensions (width x height x depth)	1200×1950×1000mm (excluding the fan part)
	Approximate mass	2050kg
Display and communication functions	Operation screen (door)	LCD (2-digit display)
	External communication	RS485 (2-wire), our protocol (compliant with Modbus-RTU)
Compliance standards		Electric Power Conversion System for Grid Interconnection of Distributed Energy Resources (JEC 2470-2005) Grid Connection Standard (JEAC 9701-2012)



Monitoring Equipment~ SOLAJIT NEEB002 ~





Input Circuit	16 Circuits
Monitoring Module Operating Range	200V - 1000Vdc
Max. Output Current	200A
Max. Monitoring Current for Circuit	15A
Current Monitoring Sensitivity	$\pm 1.5\%FS \pm 0.1A (-25^{\circ}C - +60^{\circ}C)$
Voltage Monitoring Sensitivity	$\pm 1.5\%FS (-25^{\circ}C - +60^{\circ}C)$
Operating Temperature Range	$-25^{\circ}C - +60^{\circ}C$
Operating Humidity Range	0 - 95%
Required Communication	RS485 Communication, modbus communicating protocol
Water/Dust Proof	IP65
Size (W X D X H)	720mm X 174mm X 570mm
Input Cable	4 - 6 mm ²
Output Cable	70mm ²
Weight	31kg

Thank you for your patience