

## We support Mega-Solar Power Plant Development !



After simple screening, the precise solar panel layout plan is required to estimate the business potential. We offer a shade simulation service in consideration with the terrain condition, surrounding environment and panel angle based on 3D digital map to prepare the best solar array layout. Projection of annual energy production can be estimated from the result of the solar array layout for the realistic project plan.



Digital terrain Map

Slope Map

Solar Array Layout

## **Regulation Check**

Understanding the government requirement

We offer information gathering services based on proactive negotiation with authority concerned to collect required items for the permission, approval and license.

Simple Environment Assessment Preparing for environmental considerations report

We have a long standing experience, knowledge and knowhow in the field of the environment assessment, and provide various services for field survey, reporting the expected impact and environment protection measures.



## Installation Flow Chart Mega-Solar Power Plant

		we can Support !
STEP1 Location Survey	<ul> <li>Research for potential site to estimate the amount of solar insolation.</li> <li>Investigation of geographic condition (natural and social condition)</li> <li>Designing the installation size</li> </ul>	<ul> <li>Find potential sites &amp; conduct local survey</li> <li>Screening laws and regulations info using GIS</li> <li>Confirmation of land owner information</li> <li>Collect land classification, power cable route information</li> </ul>
STEP2	Measurement of solar insolation     Estimation for solar conditions and power generation     capacity	Organizing mega-solar power plant project based on solar insolation database with our partner company
Measurement of Solar Insolation STEP3 Basic Design	Reviewing the outline of economic performance     Designing the solar array layout     Select solar array size and type     Planning the financial arrangements	<ul> <li>Acquisition of precise geospatial data from the standpoint of basic designing/civil engineering</li> <li>Provide LiDAR/Aerial survey service</li> <li>Create precise contour map</li> <li>Designing the solar array layout</li> <li>Review the shading effect to estimate the power produced</li> </ul>
STEP4 Negotiations	Negotiation with electric power company for transmission line systems and buying and selling of electric power.	Organizing the consultation with concerned parties in collaboration with our partner company.
STEP5 Government Approvals	<ul> <li>Environmental assessment(noise pollution, low frequency sound, landscape, indigene etc.)</li> <li>Forest Act ,Agricultural Land Act, Act for Improvement of Agricultural Promotion Areas, Building Standard Law, Civil Aeronautics Act, Seacoast Law etc</li> </ul>	<ul> <li>■ Documentation for government approvals and licenses and pre-discussion with party involved</li> <li>■ Environmental assessment</li> <li>⇒ AAS have many licensed engineers with long standing experience, knowledge and knowhow</li> </ul>
STEP6 Execution Design	<ul> <li>Execution of field and geologic survey</li> <li>Facility design, construction design, execution scheme, and transportation plan</li> </ul>	<ul> <li>Propose and provide the most effective field and geological survey</li> <li>Planning and designing for the civil engineering and utility constriction in collaboration with our partner company.</li> </ul>
STEP7 Construction work	Material transportation     Civil engineering , facility/electric construction     Test operation and inspection	Organizing the construction contractor for the civil engineering, electric power distribution, building, facilities etc.
STEP8 Operation &	Monitoring the operating condition     Maintenance check of facilities	Organizing the operation & maintenance contractor for monitoring the operation and maintenance.
Maintenance		

## ■Past performance

2013	Private Company	"Mega-Solar Power Plant basic examination report"
2013	Private Company	"Mega-Solar Power Plant advanced study report"
2011-2012	Ministry of Environment, Global Environment Bureau	"Study of basic zoning information on renewable energy"
2010	Kyoto City Environmental Policy Bureau	"Study for the available quantity of solar energy"
2010	Ministry of Environment, Global Environment Bureau	"Study of potential for the introduction of renewable"
2009	Ministry of Environment, Global Environment Bureau	"Study of potential for the introduction of renewable"
2009	Kawasaki City Environment Bureau	"Research for the renewable energy utilization"



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