



SKA Korea Industry WG Power and Dish

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Industry Engagements

- ▶ Falls in three areas
 - ▶ Strategic positioning
 - ▶ Teaming, market and industry exploitation, specialist exchanges
 - ▶ Industry development
 - ▶ Business creation, new sectors, IP generation, supply chain integration
 - ▶ Industry participation
 - ▶ Contracts awarded, jobs and skills maintained, industry collaboration with academia



Advantages of early stage collaboration

Some benefits of joint R&D with the SKA community are:

- ▶ **The opportunity to grow and hone the creative energies of the best professionals in an imaginative project** whose aim is no less than to chart the history of the Universe;
 - ▶ The ability to perfect leading-edge techniques and products in a very demanding application and **to interact with highly technologically sophisticated users**;
 - ▶ **The ability to generate and share information** with other R&D partners – both institutional and industrial – **in a benign and commercially non-threatening environment**;
 - ▶ **The visibility flowing** from association **with an innovative, high profile, international mega-science project**; and
 - ▶ **The potential for early involvement and favourable positioning** in a €1.5 billion project spanning a wide range of engineering and computing disciplines.
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Industry engagement

▶ SKA industry interaction basics

The international SKA project, and its associated national and regional consortia programs, welcomes interest from potential industry partners. In general terms **any joint research and development is viewed as a shared-risk endeavour, with SKA consortia and industry each contributing to defined activities.**

In some countries **industry may benefit from offset or government funding programs.** The SKA has an agreed policy on intellectual property (IP) developed under its aegis. Broadly, industry partners exploit their own IP contributions in arenas outside the SKA project but innovations are generally available to the SKA project free of any licensing charge.

SKA Korea Industry WG

- ▶ SKA Korea workshop on 13th Dec. 2010
 - ▶ EU–Korea FP7 prepSKA
 - ▶ Discussions on SKA participation strategy
 - ▶ Recognize the importance of Industry involvement
 - ▶ SW correlator, Dish, Power, PCB manufacturing, Cloud computing

- ▶ SKA Korea IWG kick off meeting on 30th May 2011
 - ▶ Building IWG and introduction
 - ▶ Includes 3 companies : High Gain, KDN, eMediaTrack
 - ▶ KASI interests : SW correlator (J.S. Kim), PCB manufacturing (Yeom)
 - ▶ **Early participation consideration of Industry : High Gain, KDN**

Brief Company profiles

KEPCO KDN – Smart Grid Solution
High Gain Antenna – Dish manufacturer

● Small-scale Entry SR-EMS Definition

● System operating in conjunction with distribution system that has under 100kW low voltage(380V).

Economic and Efficient management system for Small-scale renewable energy sources like PV and Wind power generation.

● SR-EMS Development Goal

- Economic Efficiency (less than 5% compared to total cost)
- SmartGrid TOC linked operation
- Scalability applicable to each renewable energy power
- User(Business) Management Convenience

* smart- renewable energy management system

SR-EMS Difference

Small-scale Entry SR-EMS Product Difference

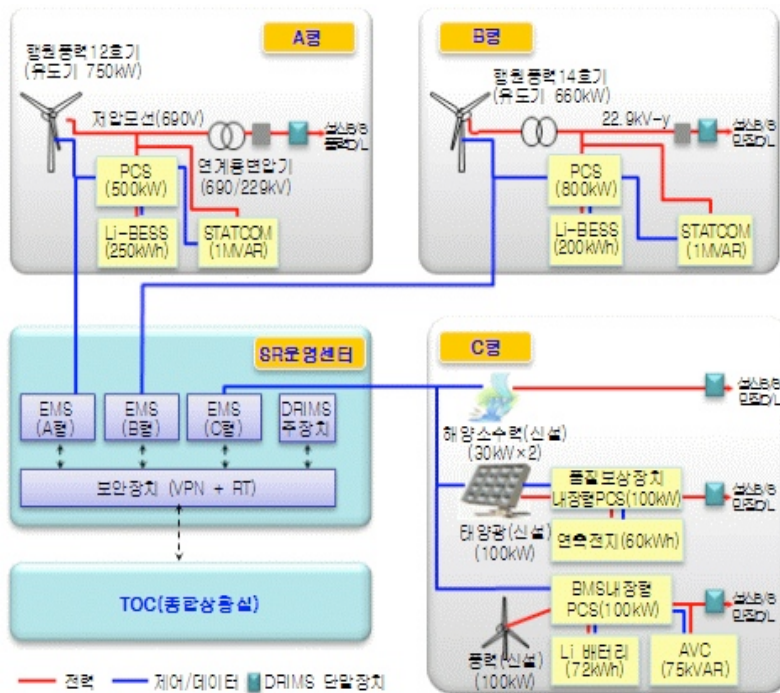
- 100kW Small-scale Entry SR System **linked with low-voltage system**
- SME Product Demonstration by **interconnecting various kinds of Power devices**
- Economical and compact system** for small-scale renewable energy

Jeju Demonstration Goal

- Demonstration suitable for small-scale entry business model
- Energy storage device for stable Wind power/PV Generation
- Operation linked with 100kW small-scale Renewable Energy Source
EMS

Jeju Demonstration System(Configuration)

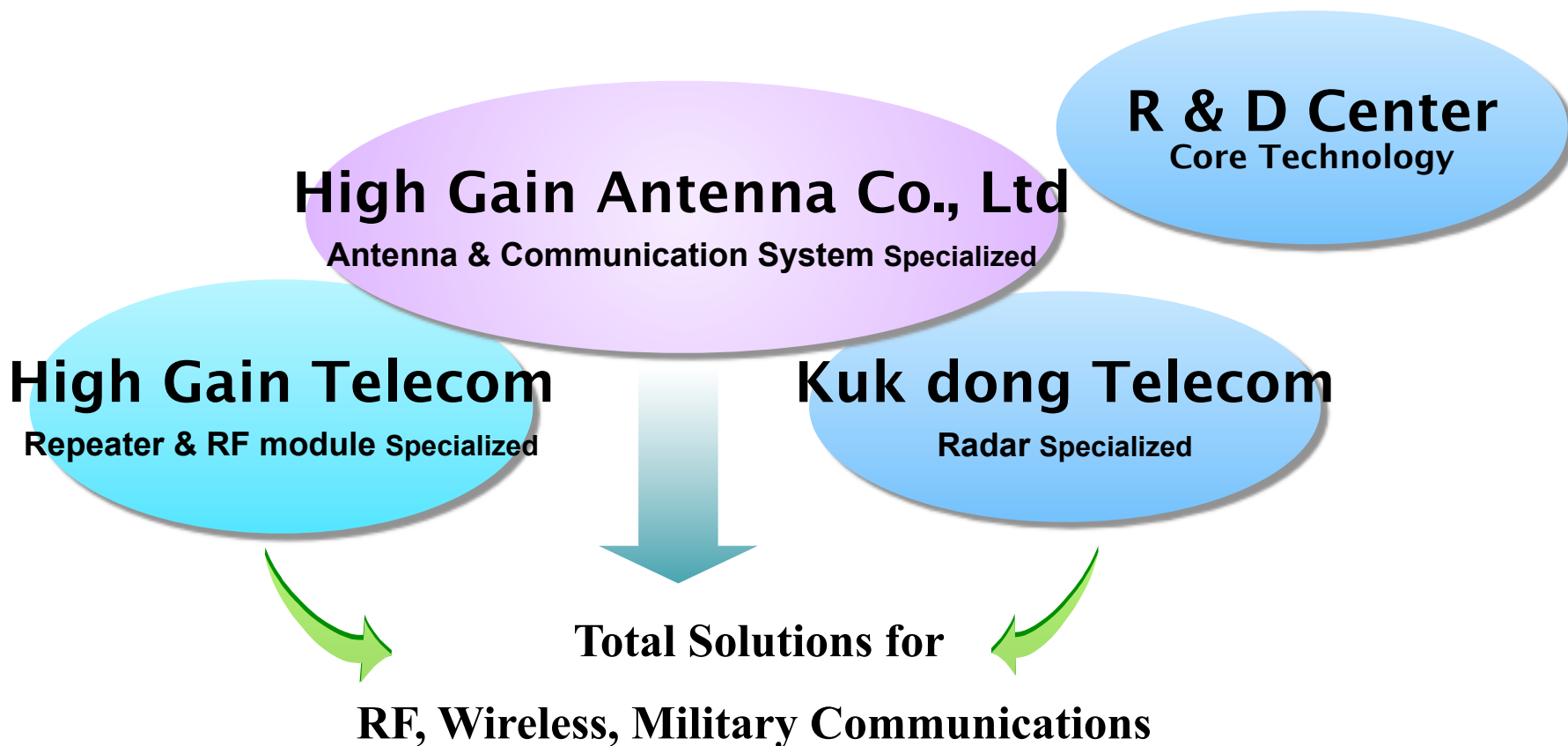
Demonstration system and Configuration



Section		Capacity	Company	Completion date
EMS	Small-scale EMS	Control 1000 Pt	Kepeco KDN	'11.4 Construction
Generation Source	PV power	100kW	Waterworks	'10.9 Completion
	Wind power	100kW	Electricity	'11.3 Completion
	Small Hydropower	60kW	KOSPO	'10.10 Completion

SKA power industry participation plan

	Company	Role
Main Contractor	KEPCO	<ul style="list-style-type: none"> ▪ Project management, contracts ▪ SKA power supply system design, consulting ▪ Power supply system estimation
Consortium members	KEPCO KDN	<ul style="list-style-type: none"> ▪ SKA EMS operation system design and construction ▪ Communication Network design and construction
	수도전기	<ul style="list-style-type: none"> ▪ 100Kw Solar pannel
	인텍FA	<ul style="list-style-type: none"> ▪ Solar PCS system
	넥스콘	<ul style="list-style-type: none"> ▪ BMS system
	아트라스BX	<ul style="list-style-type: none"> ▪ Battery Storage
	삼화콘덴서	<ul style="list-style-type: none"> ▪ Power quality control system



 **Satellite Antenna**



4.6M, 32M Antenna



21M Radio Telescopes
Antenna for KVN



9M Antenna
(Kingpost type, 13m,9m,7.2m,
6.4m)



13M TT&C COMS Antenna



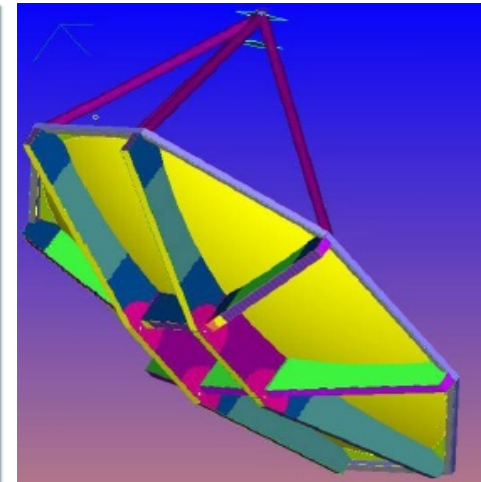
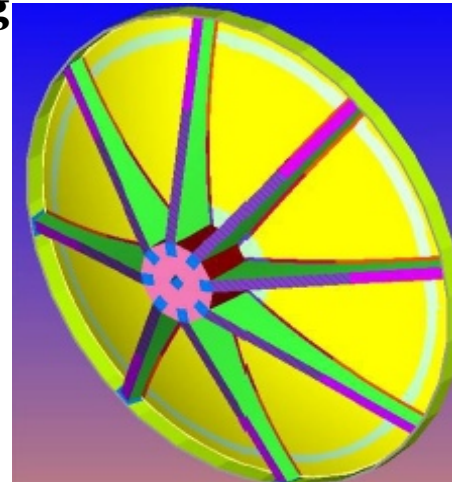
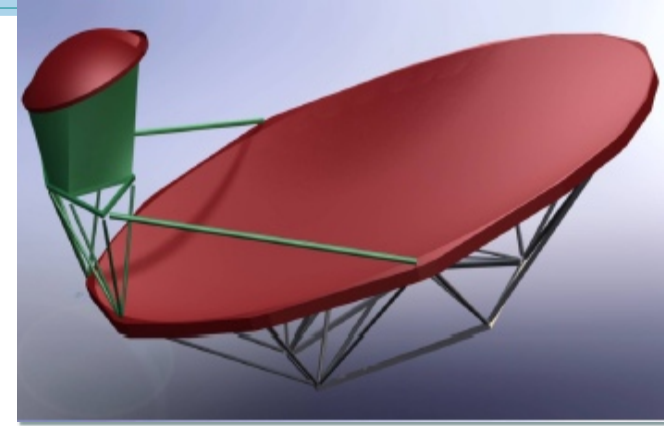
Navy Satellite Auto-Tracking Antenna

- **DISH manufacturing**
 - **Industry development?**
 - **Industry Participation (Procurement)?**

- **Pre-participation plan**
 - **SKA design analysis, analysis report**
 - **Propose improved design**
 - **(if funding source found), detail design and manufacturing plan**

- **Research on three options**
 - **Single panel (~15m) pressing**
 - **Composite type**
 - **Multi-panel**
 - **And hydro-forming?**

- **Looking for starting fund**



Summary and recent moves

- SKA Korea Industry WG
 - [preliminary] Recognize Power and Dish for Strategic positioning or Industry development category of Korean participation
 - KEPCO, KDN : SmartGrid Solution
 - High Gain Antenna : Antenna manufacturing
- Both companies sent Eols to SKA Office
- Expect (or hope) Industry involvement will increase SKA Korea funding opportunity

KVN Tamna, Jeju Island

Thank you!



BACKUP SLIDES

Strategic Positioning

- ▶ Specialist placements, secondments, facility access, project tools, training, etc., offer opportunities for long-term engagement with the SPSO/TSO.
 - ▶ Large global organisations with mega-scale R&D and programmatic experience have a special capability to engage with the SPDO/TSO early under the aegis of a **Statement of Mutual Interest** (SoMI) that permits strategic interaction and high level technical planning and communication to occur for the benefit of the project.
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Industry Development

- ▶ Industry organisations are **encouraged to create/join regional or national consortia** to more effectively present grouped capability to the project at the preconstruction stages. These industry clusters offer opportunities to strengthen local ties for creation of compelling bid offers with POs, and new and expanded industry sectors. Organised industry enables ‘start-ups’ or expansion of companies, meeting of local content targets, and integration of supply chains.

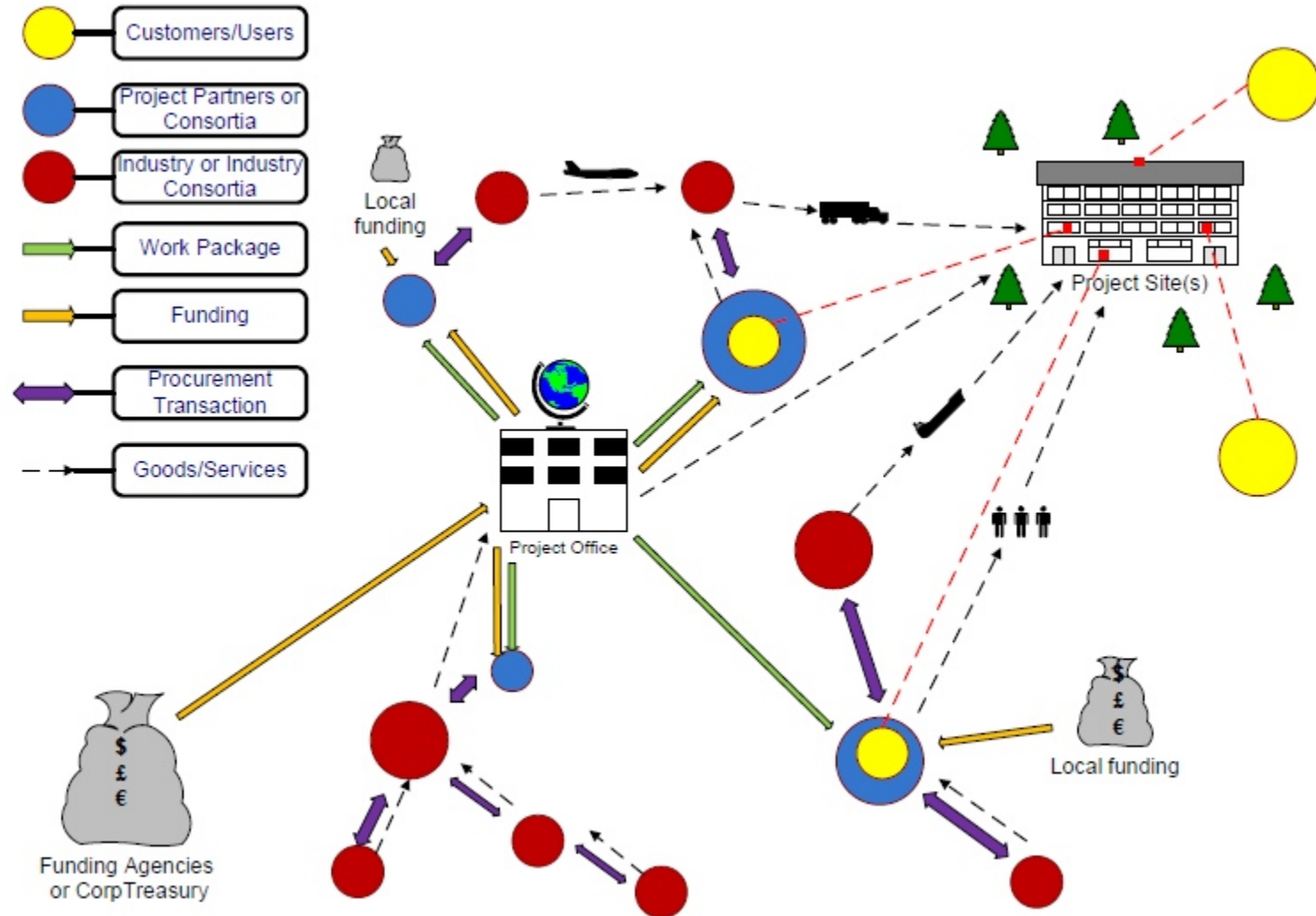


Industry Participation

- ▶ **Requests for Proposals (RfP)** concerning SKA preconstruction will be released from the SPDO/TSO during **2012**. Industry – alone or more **likely in consortia with POs** – will assess these business opportunities and if attractive, be prepared to develop compelling bids. Contracts will be awarded against specified activities, funded largely against cash commitments from the SKA Consortia nations.
- ▶ The output from the pre-construction phase is a group of ‘datapacks’ containing full document sets for the awarding of construction contracts for SKA₁.



The relationships between SPDO/TSO, POs, and Industry



Proposed process for SKA Work package allocation

