

For OSSBN Potential Partners

Invitation to
OPEN EMS Solution Business
for Energy Market

Feb. 2014

Eiji Miyazoe, President & CEO
OSS BroadNet

Basic Concept

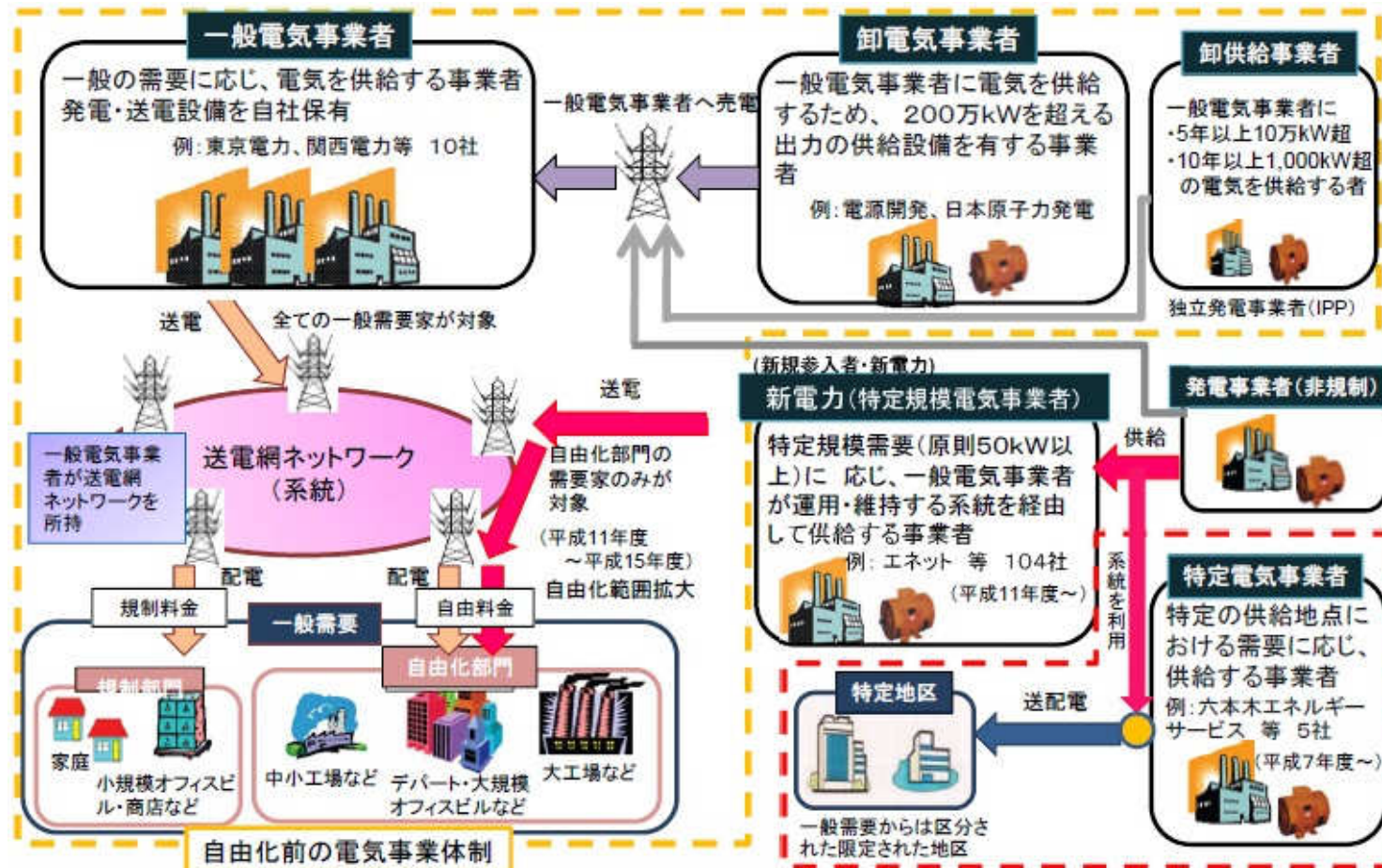
- **Lock-on to the coming energy market deregulation in 2016**
 - Targeted customers are not current 10 regional power companies (giants) but coming small/middle new power companies.
 - Now Japanese are VERY serious for Energy because of Fukushima nuclear power plant problem. Good timing to change.
- **Excellent matching with our current business assets**
 - Our DOCSIS CM monitoring software could be a good reference to develop smart meter Data Collector and MDMS. Already proven.
 - Can design & develop package solution from the experience of FNJ and F-BIT project. Now minor version up effort is ongoing continuously.
 - Can sell head-end software to utilities from our existing SI partners. No more friendship effort, just to go business directly.
 - Can focus on to following business areas seamlessly.
 - Metering via CATV network.
 - Energy aggregation by CATV operators.
 - Smart community as an option of CATV service.
- **Off course we are always open for anybody. Why not go together with us.**

Contents

- I. Market Analysis
- II. Products/Technologies
- III. Sales Plan

How electric power market is organized in Japan?

- In Japan 4 types of power companies are legally categorized. Generic, Wholesale, Specific Purpose and Specific Size (called “New Power Companies” or “PPS”).
- Currently Japan government is going to disassemble existing 10 regional power companies (giants) to 3 different business sectors, generation, feeding and sales. New power companies are trying to M&A those “sales” sectors.

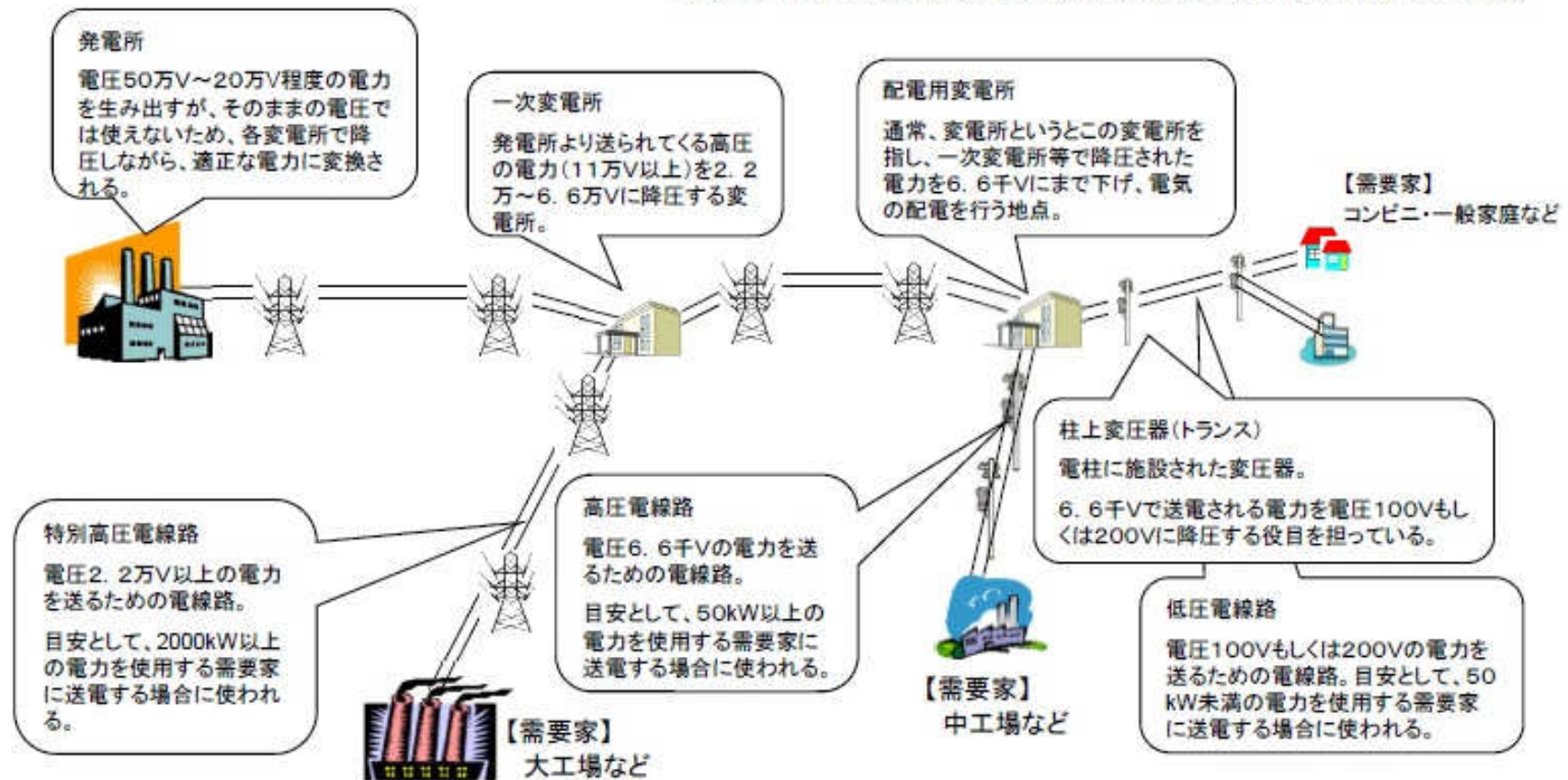


Source: “Deregulation Strategy of Energy Market”, the Agency of Natural Resources and Energy, Oct. 2013

How power is fed from plant to consumer?

- 発電所により発電された電気は、送電線 → 変電所 → 配電線 の経路をたどり、各需要家まで供給されています。
- そのため、電力供給のシステムにおいては、発電部門(発電所)、送配電部門(送電:発電所～変電所、配電:変電所～需要家)の大きめに2つの部門に分類されます。

※一般に、送電線は、発電所相互間、発電所と変電所、変電所相互間を連絡する電線路のことを指し、配電線は、発電所や変電所から他の変電所等を経ないで需要場所まで到達する電線路のことを指す。



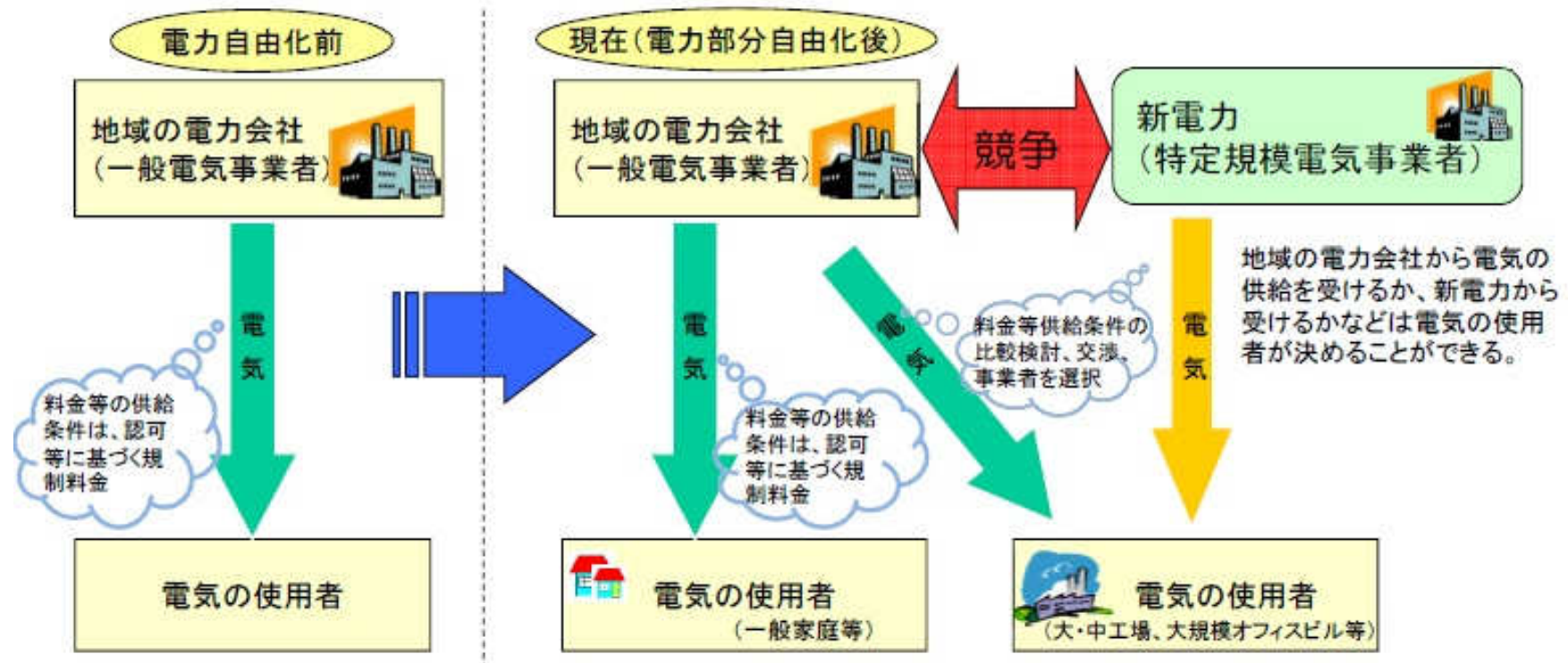
Source: "Deregulation Strategy of Energy Market", the Agency of Natural Resources and Energy, Oct. 2013

Who's new power company / PPS ?

- Power Producer and Supplier
 - If we go direct translation from the legal definition, “Specific size Power Company” ...???
 - Legally two restrictions.
 - Supply power to less than 50kW consumers is prohibited.
 - Need to use 10 regional's feeding infrastructure.
- Targeted business area WAS as follows.
 - Middle to large size MDU, Super market
 - Residential community, School, Public facility
 - Shop, Hotel Hospital, etc.
- What is ongoing ... from Nov. 2013 government report
 - Number of registered NPC/PPS are increasing in these several years.
 - Total registered: 113 companies
 - Service commercially launched: 39
 - Just started commercial service in 2013: 16
 - Planned to start by March 2014: 18
- Why rushing?
 - For “retail market”, means less than 50kW sales business, deregulation is planned in 2016
 - After disassembling, current sales sector of 10 giants will go M&A market.
 - To have business license might be a criteria to be a bidder for the coming M&A.
 - AMI & Smart Meter are key technologies to win.

What's 2016 deregulation?

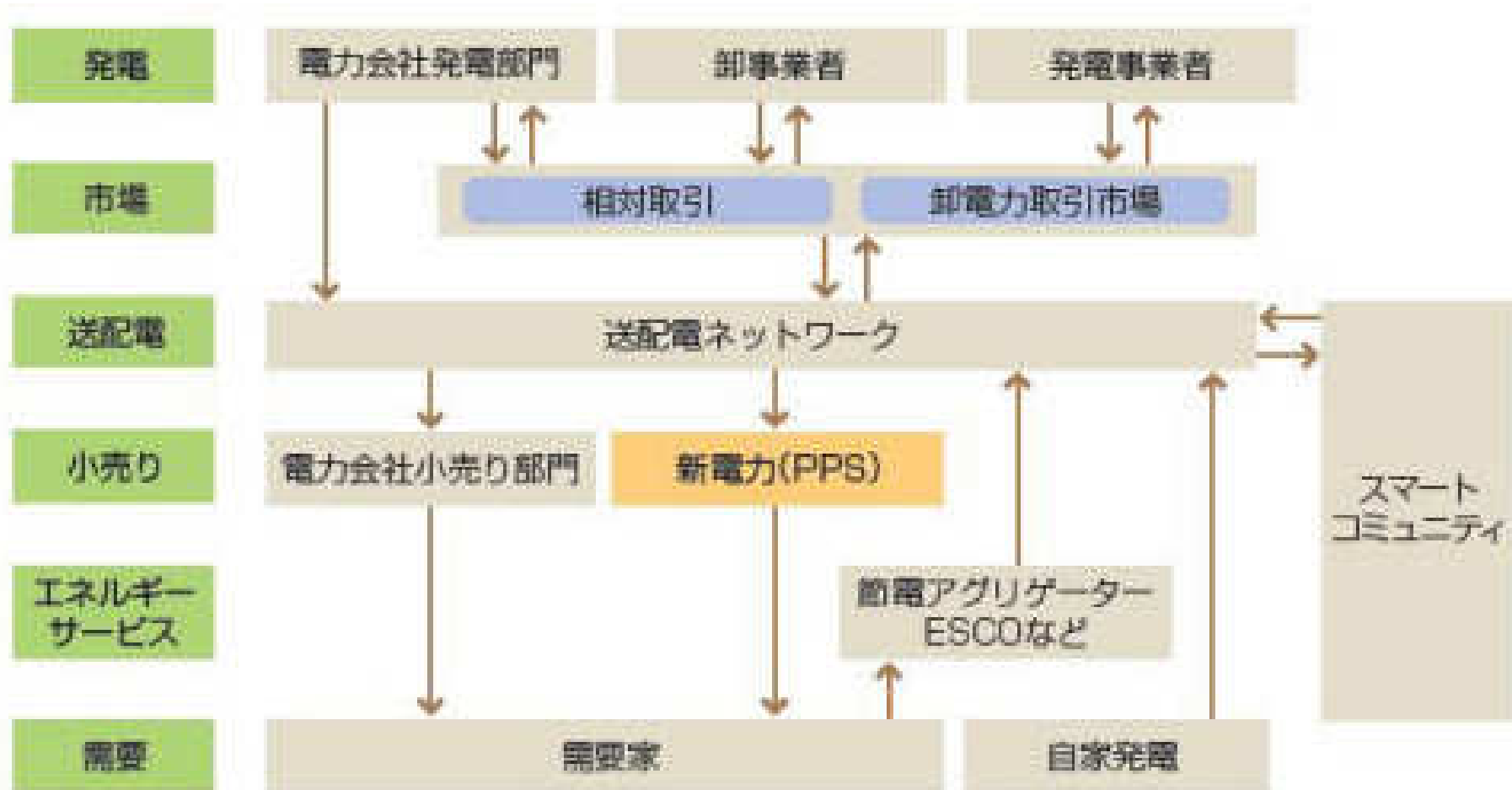
- 電力の小売事業は、電気事業法による参入規制によって地域の電力会社に小売供給の地域独占が認められてきましたが、規制緩和により、現在では家庭用等規制が残る部分を除いて、自由化されています。
- これにより、電気の大口使用者は、経済性や供給サービスの観点で電気の小売事業者を選択し、また料金についても小売事業者と交渉の上決定することができることになりました。
- また、家庭用等規制が残る部分についても、平成28年(2016年)を目途に自由化することを予定しています。(小売全面自由化)



Source: "Deregulation Strategy of Energy Market", the Agency of Natural Resources and Energy, Oct. 2013

Expected market structure after deregulation

- New power companies & power aggregators are expected to play major part.



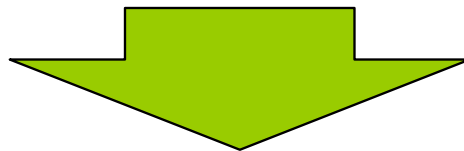
Source: Nikkei Ecology, June 2012

Market trends

- Extremely high / high Voltage market (mostly for manufacturing plant) demand is roughly 60%, for stores or office buildings are 5%, for residential consumers are 35%.
- The market share of new power company /PPS is only 4% in 2013.
 - Extremely high V (over 2000kW) was no increase since 2010.
 - High V (over 50kW) is increasing as linear.
- As regional share of new power companies, TEPCO & KEPCO areas are high, other areas are low.
 - New power company's share in TEPCO area was 7%, KEPCO was 3.5% in 2012
 - Other areas in the same year was 0.2(Shikoku) ~ 2%(Chu-bu)
- Need to solve followings
 - Establish & maintain competitive price structure against 10 giants
 - Power feeding cost reduction (need to find other options)
 - More capacity of power generation
 - Suppress unbalance of demand & consumption within 3% (legal regulation)

Why smart meter?

- 10 giants at last started open bidding for smart meter procurement since 2012. Low-cost IEC meters will come real even for more smaller power company market.
- Application on smart meter device will come in commercial phase.
 - Automated Demand Response control
 - HEMS application & home automation integration
 - Load profiling in every 30m for demand/consume balancing
- 2016 deregulation in regional market

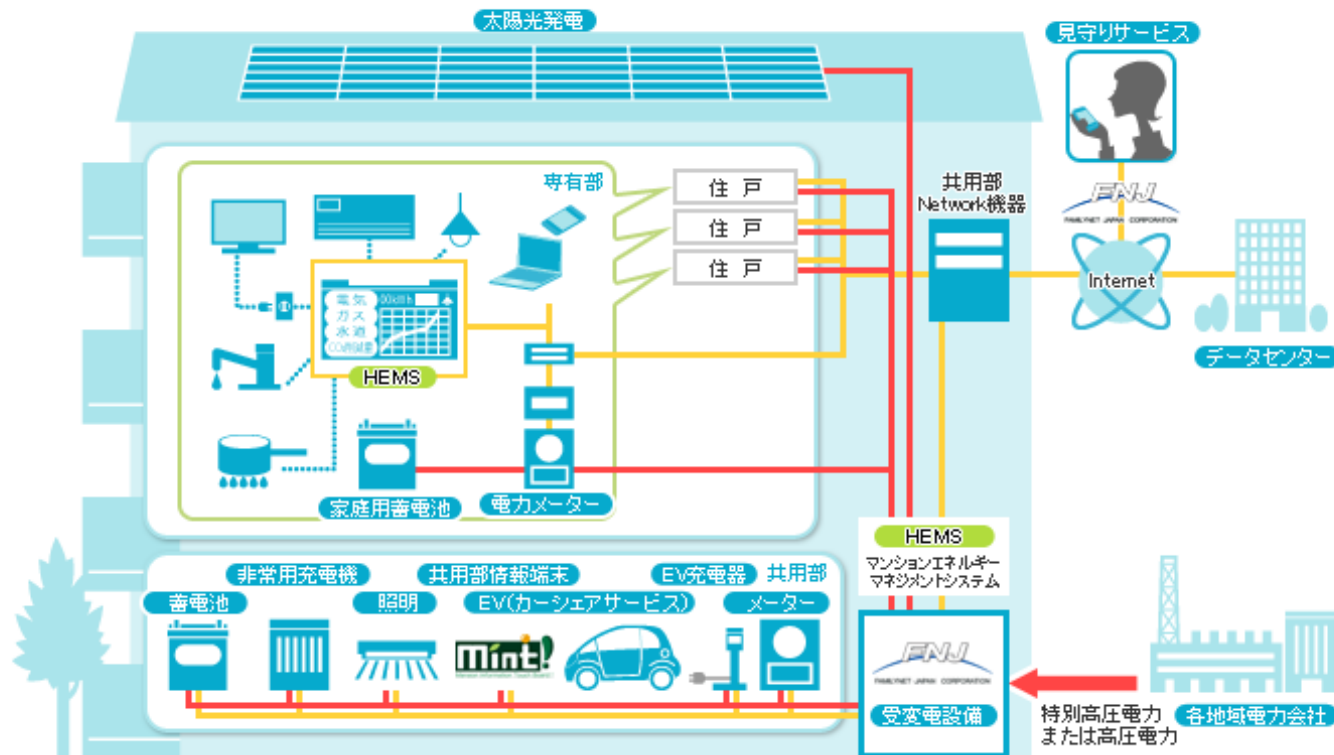


- **In the short term, MDU market continues to be active.**
After deregulation, residential market will be active.

What we did for Smart MDU?

スマートマンション

電力供給サービスをベースに、太陽光発電やEV充電などのエネルギーソリューションと、ICT技術との連携を実現します。あわせて、エネルギーの最適利用をサポートする管理サービスを提供することで、デマンドレスポンスを促進し、"スマートマンション"としての先進性を追求します。



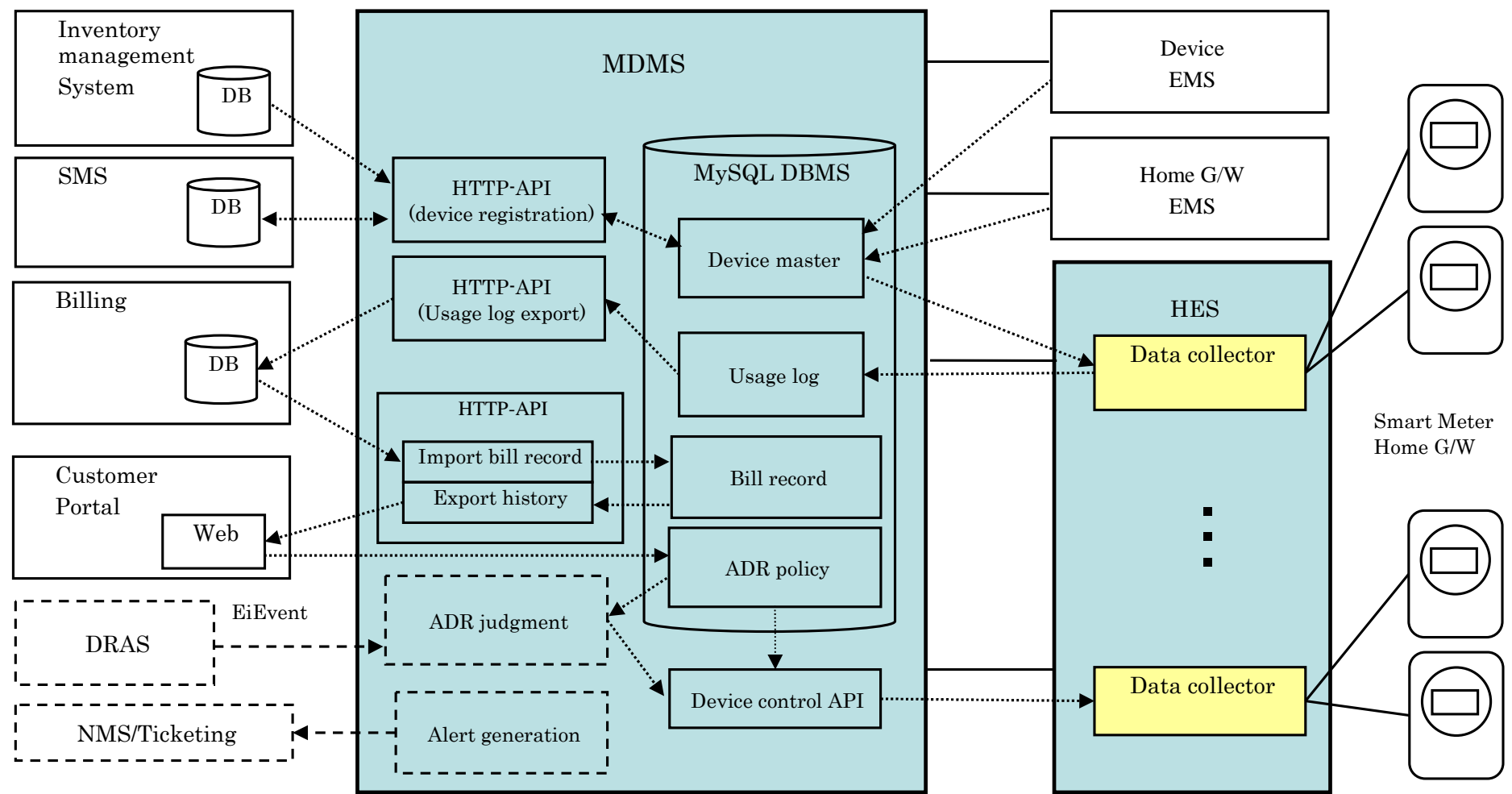
FNJ Smart MDU service utilizes smart meter, HEMS gateway, smart receptacle, common EV charger, PV generator.

OSSBN developed HES/MDMS and application software to make energy consumption visible for residents.

Source: FNJ www site

What we did for FNJ's AMI system?

OSSBN developed AMI (Advanced Metering Infrastructure) systems for FNJ. We developed Data Collector & MDMS, and related applications.



Market needs for data collector & MDM

Since TEPCO adopted IEC62056 DLMS/COSEM as their standard protocol & data model for mass procurement in 2013&2014, IEC will be major for coming 10 years.

Right now there is no domestic software developer here in Japan to develop full stack of IEC62056 as a comprehensive package solution.

However, to use foreign vender's technology and make core software as a black box is too risky, in terms of support & maintenance.

On the other hand, smart meter, HEMS gateway, or sensor devices are very actively developed here in Japan.

Also ADR is another key idea for the coming new power companies to make business profitable, leveraging power consumption as flat as possible and well-balanced demand/consume.

So key points should be as follows.

Readiness for IEC smart meter

Easy to maintain, good cost performance

Scalability from startup (new power companies should be targeted)

Various ADR options

Data Collector & MDMS are key technologies for all above, we believe.

- I. Market Analysis
- II. Products/Technologies
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What's OPEN EMS?

Pls. see our product introduction ppt.

Competitive Analysis

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Intellectual Properties

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Thanks for government support for R&D

- Supported by
 - Kanagawa prefecture
- Project name
 - Development of authentication, encryption and provisioning software for smart energy market.
- Objectives
 - Protect hacking against ADR infrastructure, achieve secure society.
 - Develop a reference model of automated authentication & provisioning mechanism suitable for Japan market
- Ratio of R&D investment from government side
 - 2/3
- Project period
 - 2nd December 2013 ~ end of April 2014
- Mentors
 - Katsuhiro Naito (Mie Univ.)
 - Mitsuo Sano (Advisory member of TEPCO)

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Price List (HE/MDM)

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Price List (VPS/EA)

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Price List (CE/AG)

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Price List (PROV/ALA/VPA)

Category	No.	Product name	LP(w/o tax)	Product number	Contents
PROV	1	Estimated as professional service	N.A.	N.A.	
Category	No.	Product name	LP(w/o tax)	Product number	Contents
ALA	1	Estimated as professional service	N.A.	N.A.	
Category	No.	Product name	LP(w/o tax)	Product number	Contents
VPA	1	To be negotiated.	N.A.	N.A.	

System cost assumption (Initial CAPEX)

- Conditions. Prices are for power company basis.
 - Capacity: 20,000 devices
 - Energy consumption Web view service: yes
 - Meter ADR service: no
 - Provisioning: auto
 - Encryption: X.509 certificate base, private CA, AES128
 - Redundancy: all head-end systems (1:1 worm stand-by for MDM/HE, load-balancing for VPS)
 - VPA: Out of scope of this estimation
 - EA: ditto
 - SMS/Billing: ditto

No.	Product name	Unit Price	Q'ty	Unit	Sub total	Remarks
Software						
1	OPEN EMS MDM	\$30,000.00	1	set	\$30,000.00	
2	OPEN EMS HE	\$20,000.00	1	set	\$20,000.00	
3	OPEN EMS VPS	\$10,000.00	2	set	\$20,000.00	
4	OPEN LIB AG	\$20,000.00	1	set	\$20,000.00	
Total					\$90,000.00	
Hardware						
1	MDM PC (OS included)	\$8,000.00	2	set	\$16,000.00	
2	HE PC (OS included)	\$6,000.00	2	set	\$12,000.00	
3	VPS PC (OS included)	\$3,000.00	2	set	\$6,000.00	
4	accessories	\$1,000.00	1	set	\$1,000.00	L2 switch, etc.
5	Installation & wiring	\$2,000.00	1	set	\$2,000.00	
Total					\$37,000.00	
Professional service						
1	Business flow analysis & systems designing	\$10,000.00	4	man.month	\$40,000.00	PROV/ALA included
2	Customize development	\$8,000.00	6	man.month	\$48,000.00	ditto
3	Installation & training	\$5,000.00	1	set	\$5,000.00	
Total					\$93,000.00	
Grand-total					\$220,000.00	

Further business opportunities

Start from MDM/HE, expand to following areas.

- Route-C metering by CATV & FTTH
- DR aggregation business by CATV operator

Any questions?

- Please send your questions or comments to:

emiyazoe@ossbn.co.jp

Thanks!