

Japanese battery & electronics market

MMTA's International Minor Metals Conference
March 29 2009 ISTANBUL

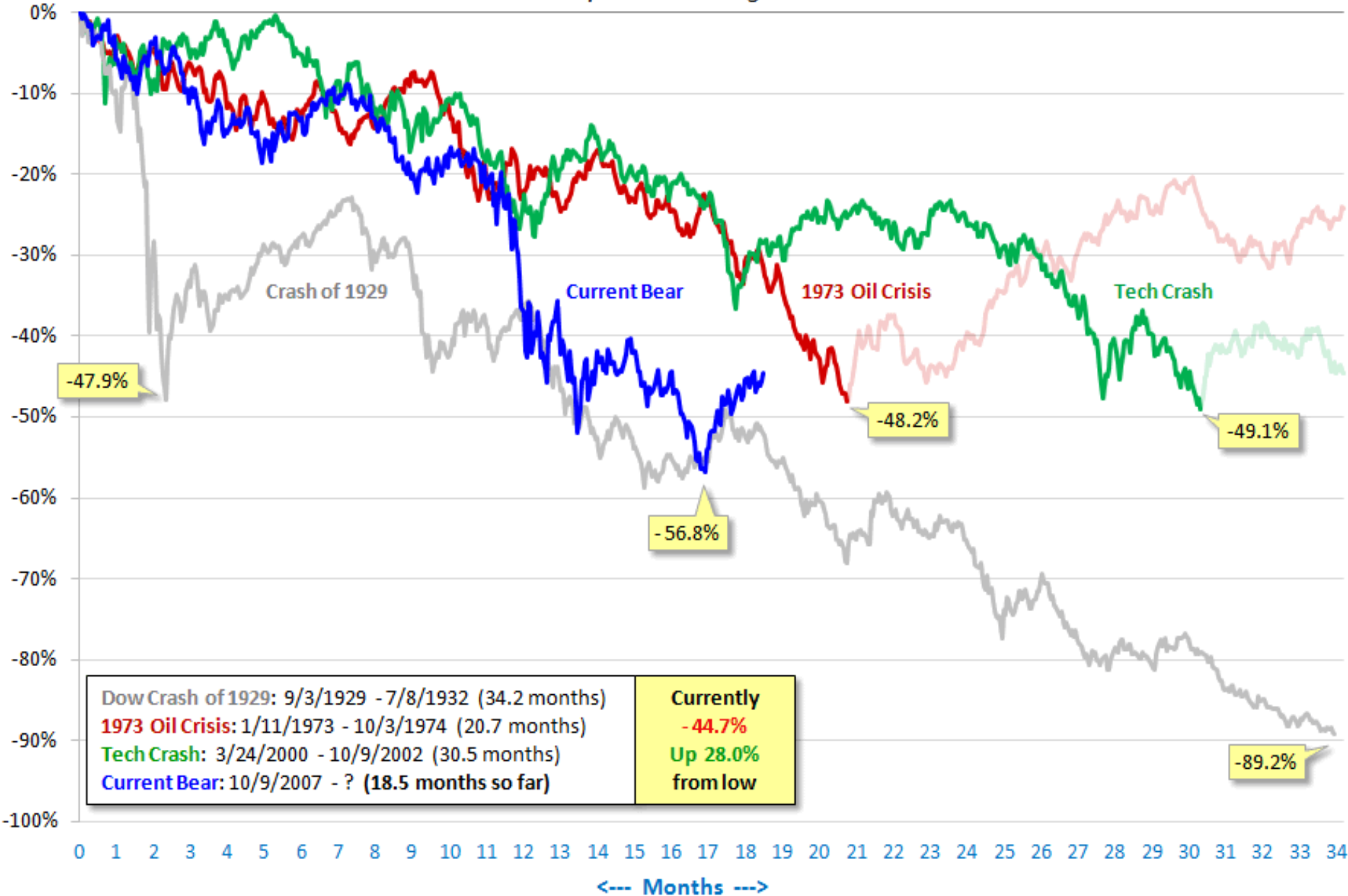


AMJ
Shigeo Nakamura

Four Bad Bear Markets

Dow in 1929-1932; S&P 500 in 1973-74, 2000-02, 2007-09

nominal price excluding dividends



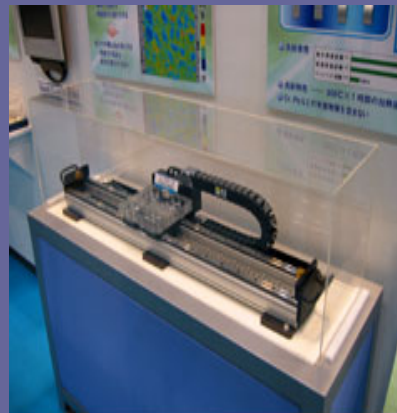
Dow Crash of 1929: 9/3/1929 - 7/8/1932 (34.2 months)	Currently -44.7% Up 28.0% from low
1973 Oil Crisis: 1/11/1973 - 10/3/1974 (20.7 months)	
Tech Crash: 3/24/2000 - 10/9/2002 (30.5 months)	
Current Bear: 10/9/2007 - ? (18.5 months so far)	

← Months →

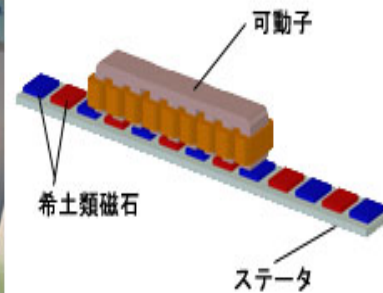


The automobile field

Hybrid car , Electro mobile and Electric hybrid bicycle and Linear motor car

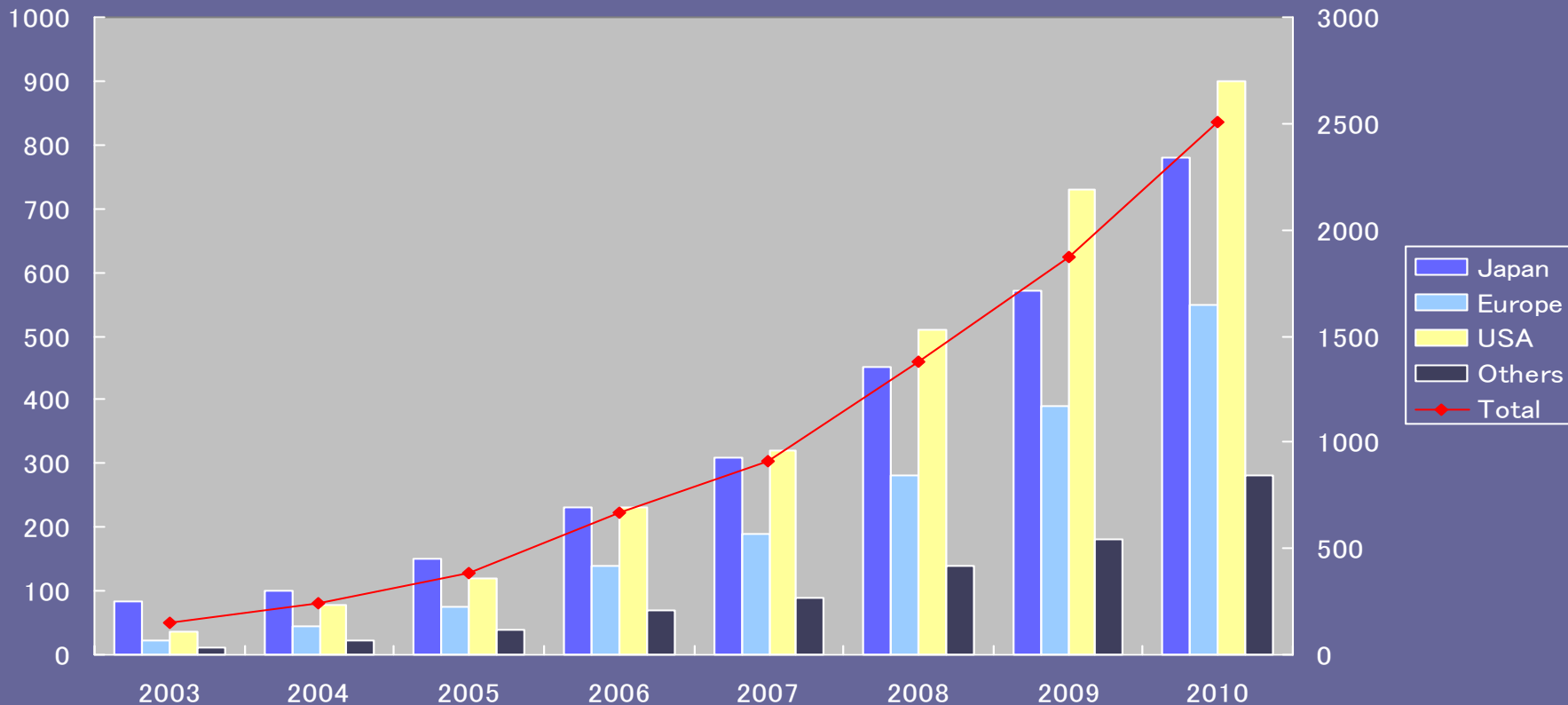


リニアモータ





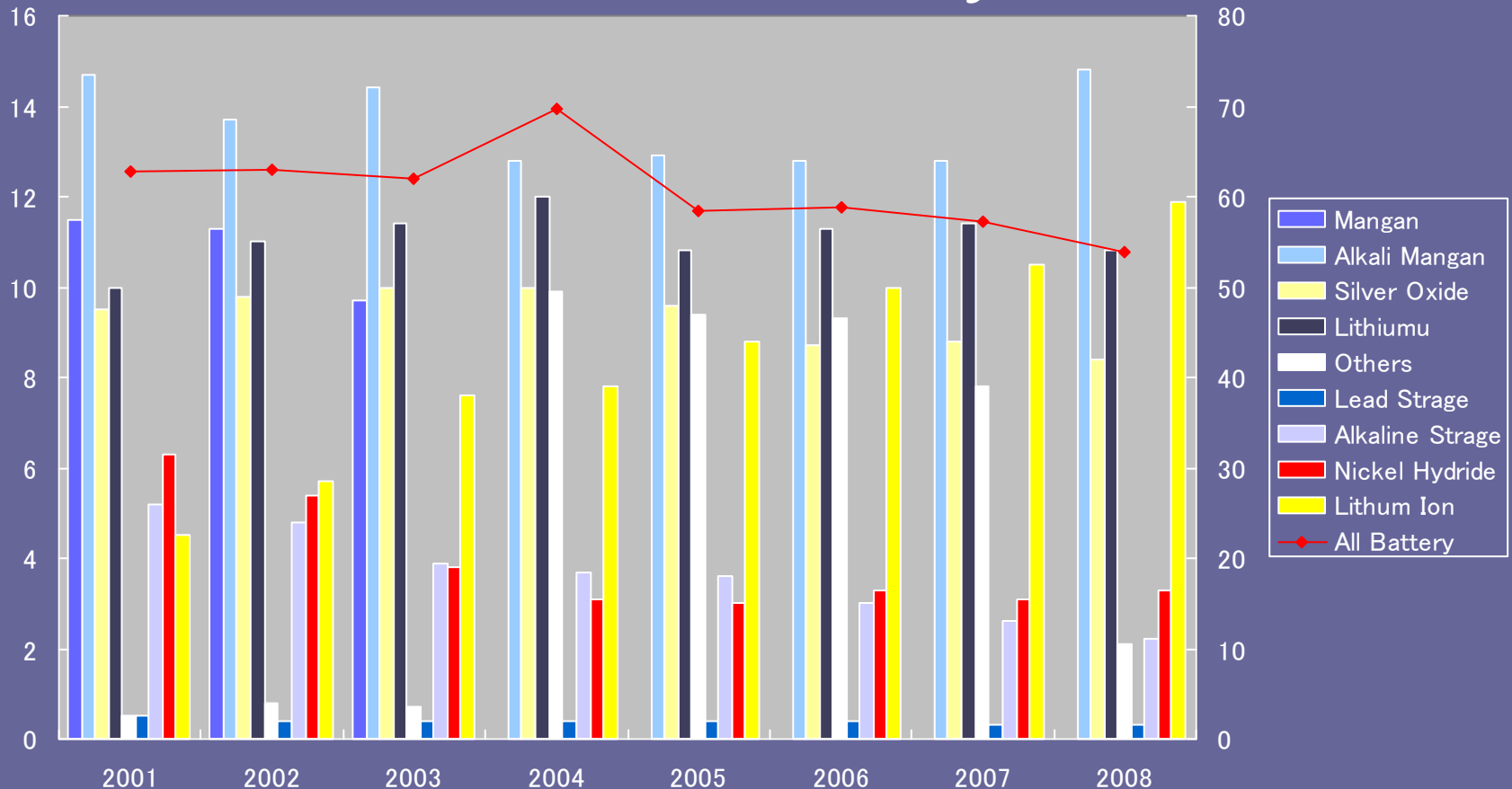
Demand prediction according to an HEV market



In Japan, 3000Mt of the NH-Alloy is needed for 300,000set of HEV demand in 2010. Also 300Mt of the NdFeB Magnet is the demand for annual HEV production. In 2010, 25,200Mt of the NH-Alloy will become the world demand, and 2,520Mt Magnet(4,200Mt NdFeB-Alloy) will become the world demand.



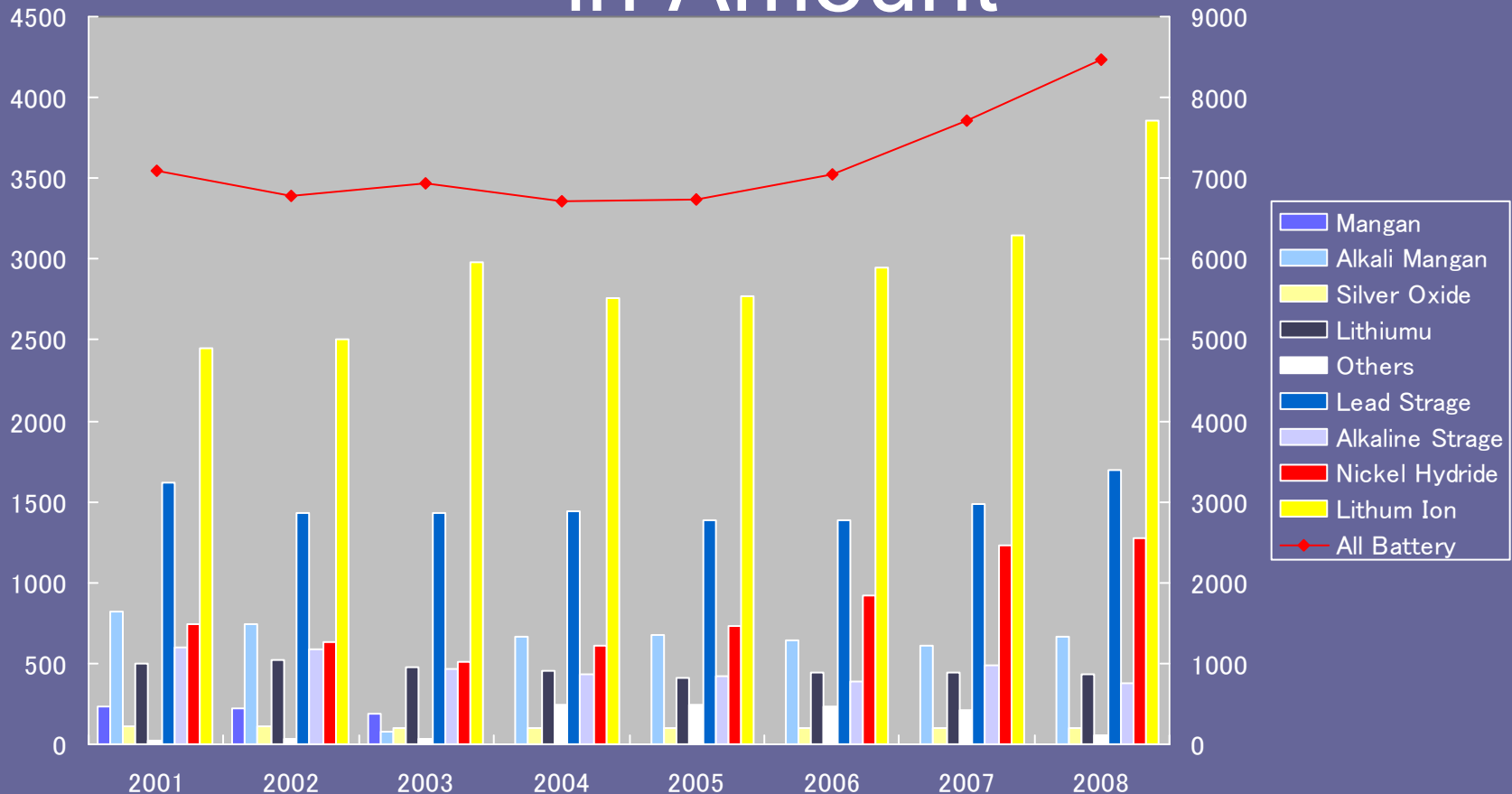
Japanese Battery Market in Quantity



N-H battery and lithium ion battery are the mainstream for the development of new energy system of HEV, EV and FCV.



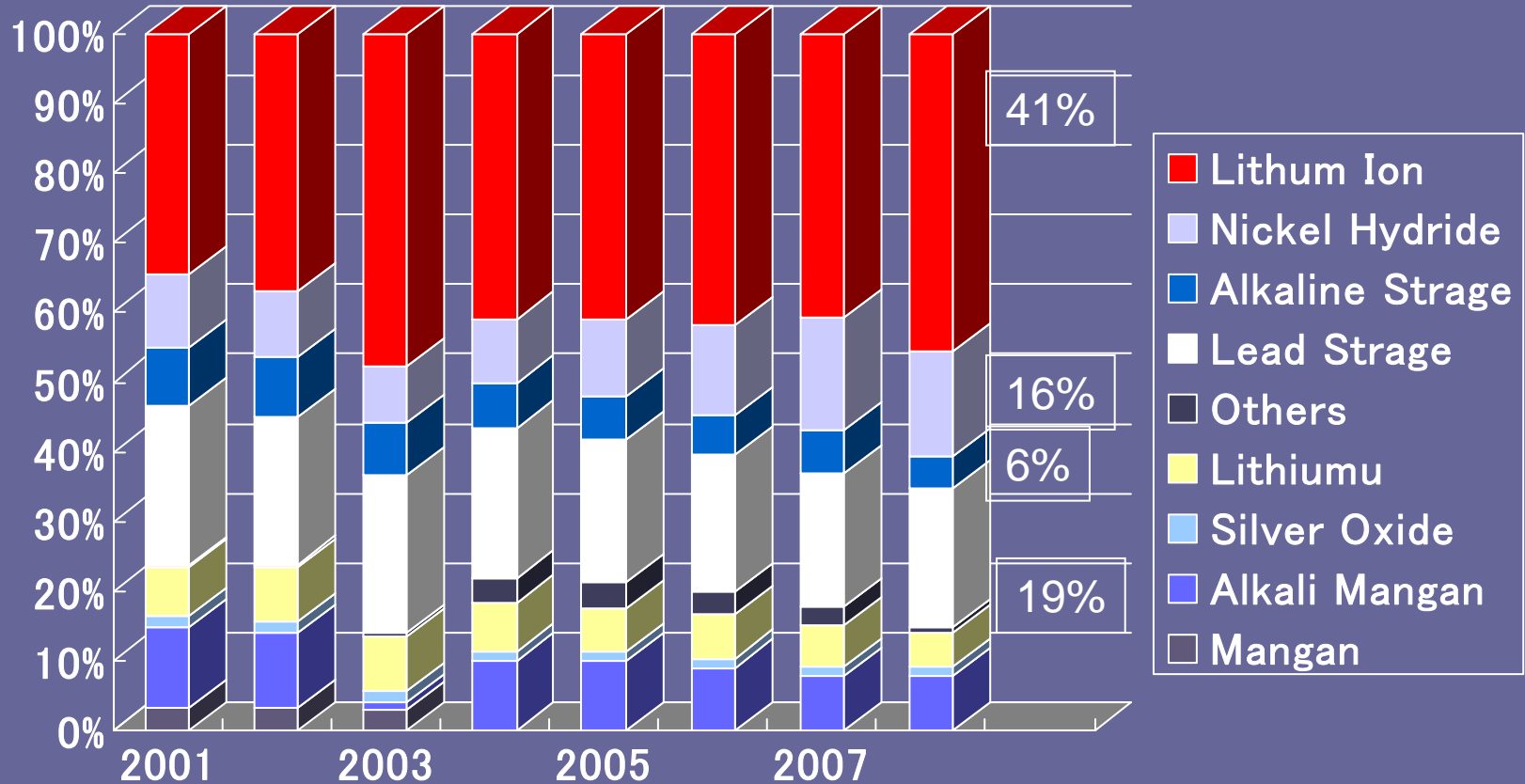
Japanese Battery Market in Amount



Secondary battery's market will be influenced and reflected on rare earth metal, nickel, lithium and the cobalt materials supply and demand.



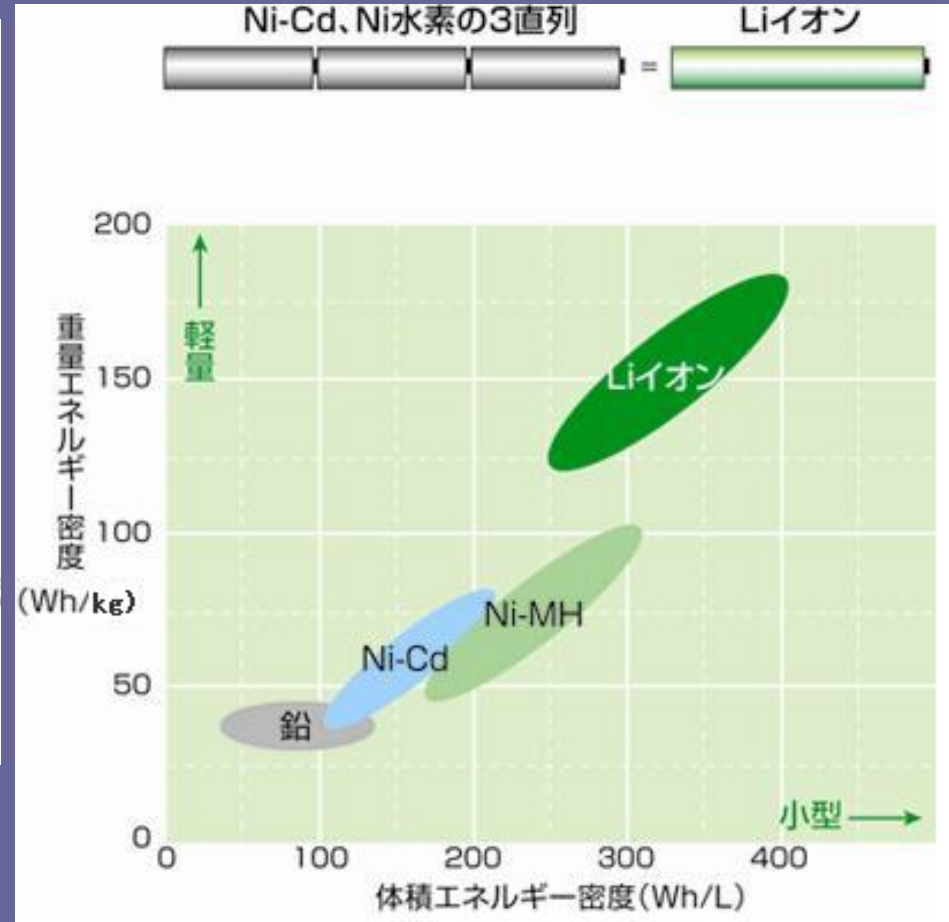
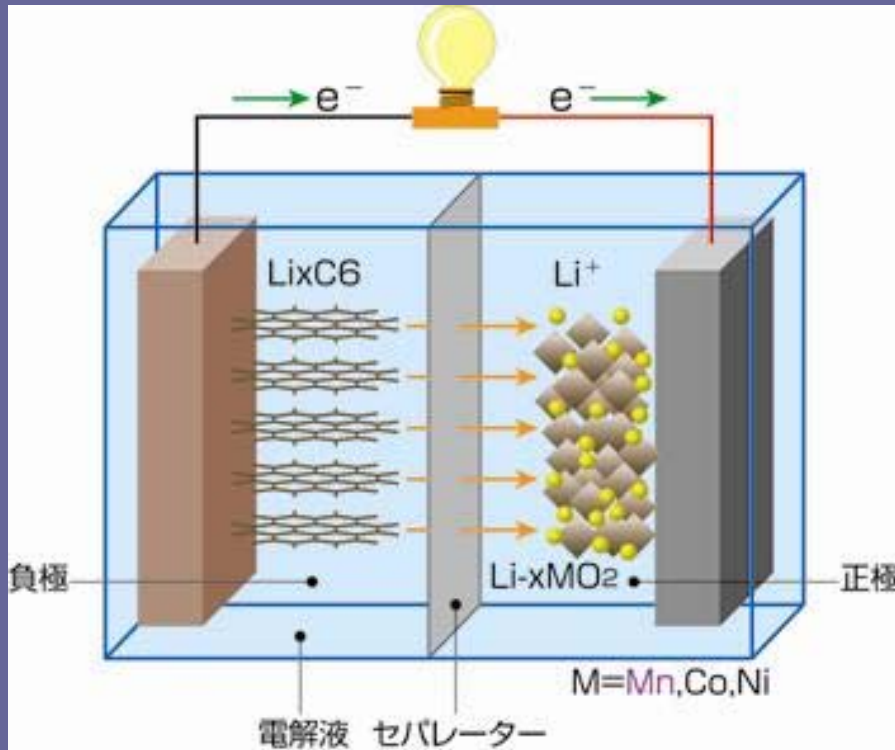
Rechargeable Battery demand share



Primary Battery Amount Share is only 18%, Secondary Battery is 82% share



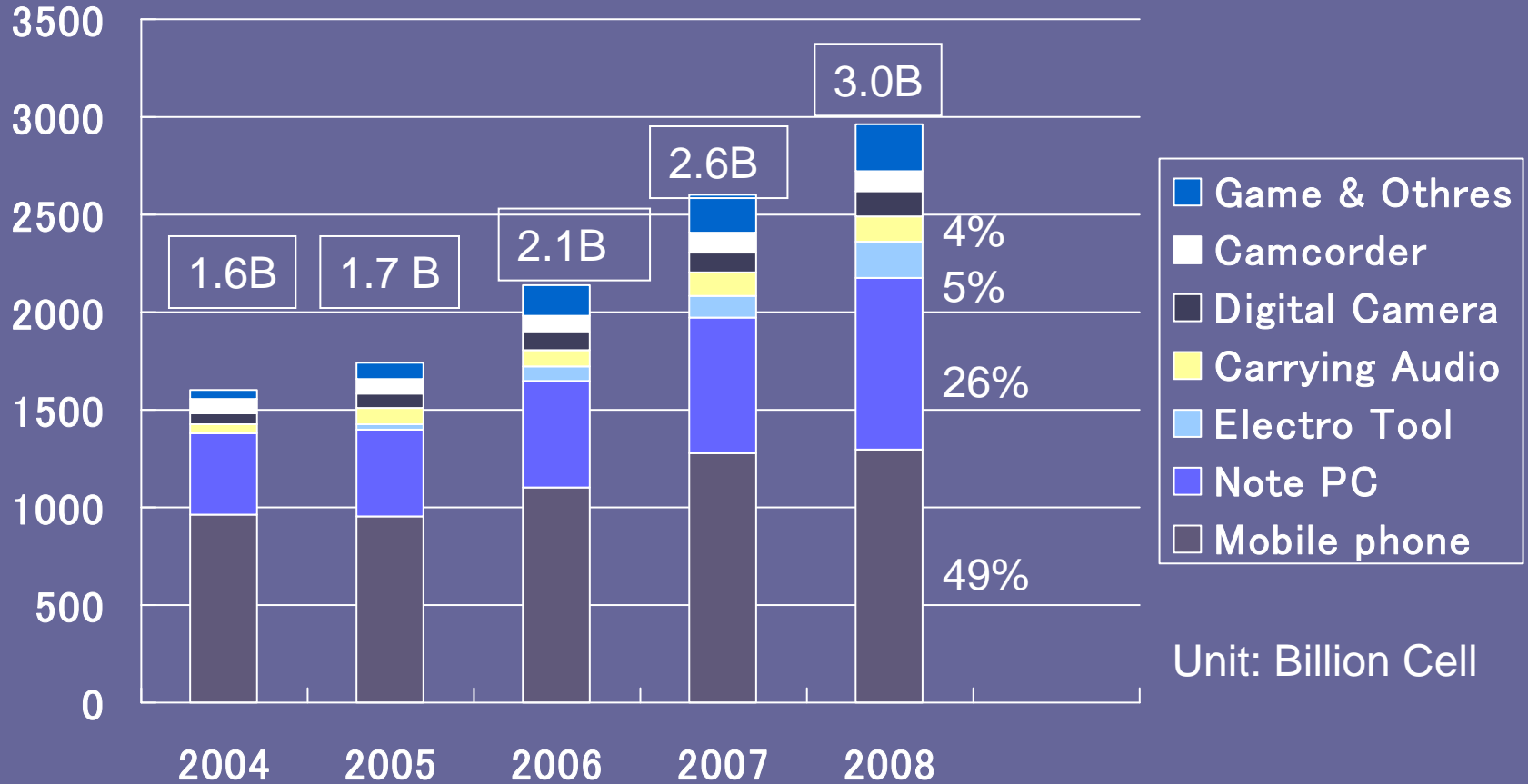
Lithium Ion Battery



Production of the HEV will lead the new demand of Battery and magnetic raw materials of motor and the inverter.

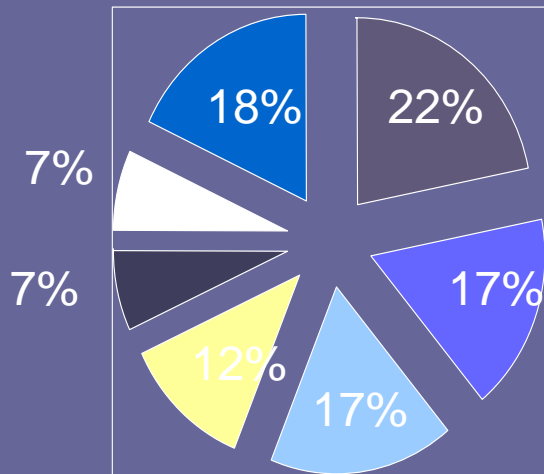


Lithium Ion battery market

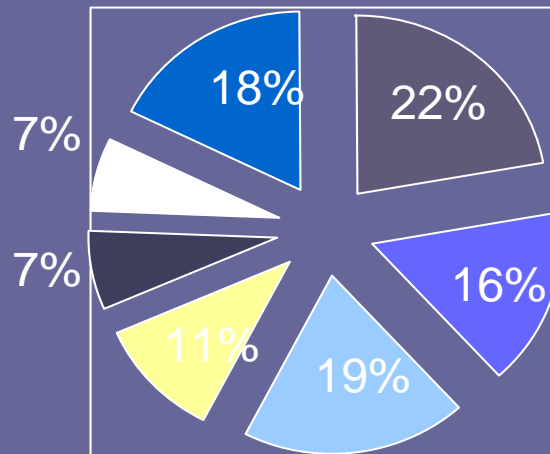




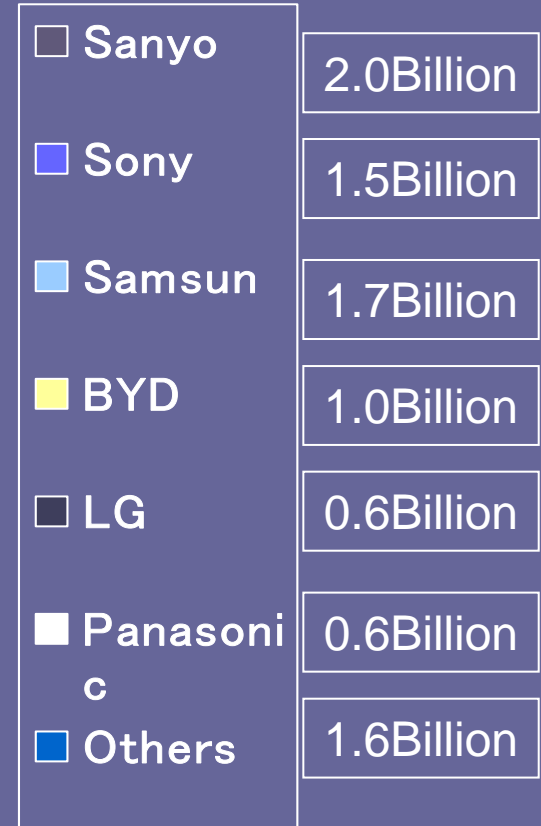
Lithium Ion Battery World Share in 2008



Quantity: Total 3Billion Cell

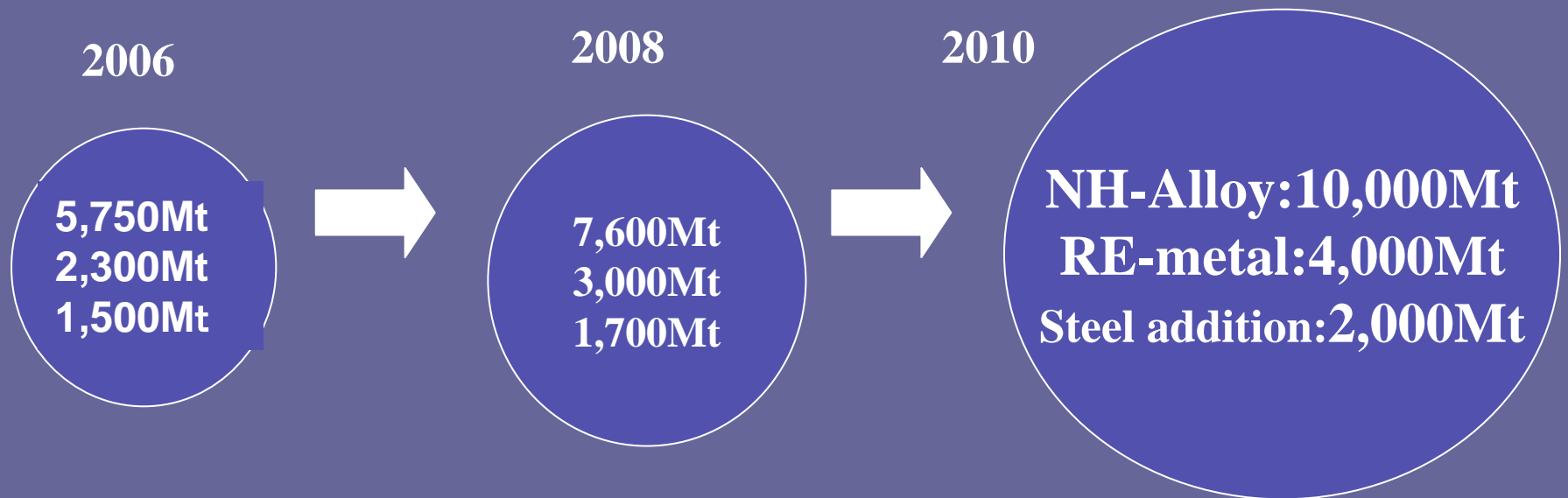


Amount: Billion \$





Nickel Hydrogen and Steel additive market in RE Metals





Battery Maker's Supply in Japan

- PEVE (Panasonic EV Energy) supplies a Ni-H battery to Toyota and Nissan.
- MBI supplies a Ni-H battery to Honda.
- SANYO supplies a Ni-H battery to Honda.
- PEVE supplies HEV and PHEV and BEV to Toyota.
- AESC (Automotive Energy Supply) supplies HEV and PHEV and BEV to NISSAN.
- AESC supplies BEV to Subaru.
- AESC supplies HEV to Mazda.
- AESC supplies BEV to SUZUKI.
- LEJ (YUASA + Mitsubishi) supplies BEV in Mitsubishi.

AESC is Automotive energy supply corporation.
LEJ is Lithium Energy Japan.



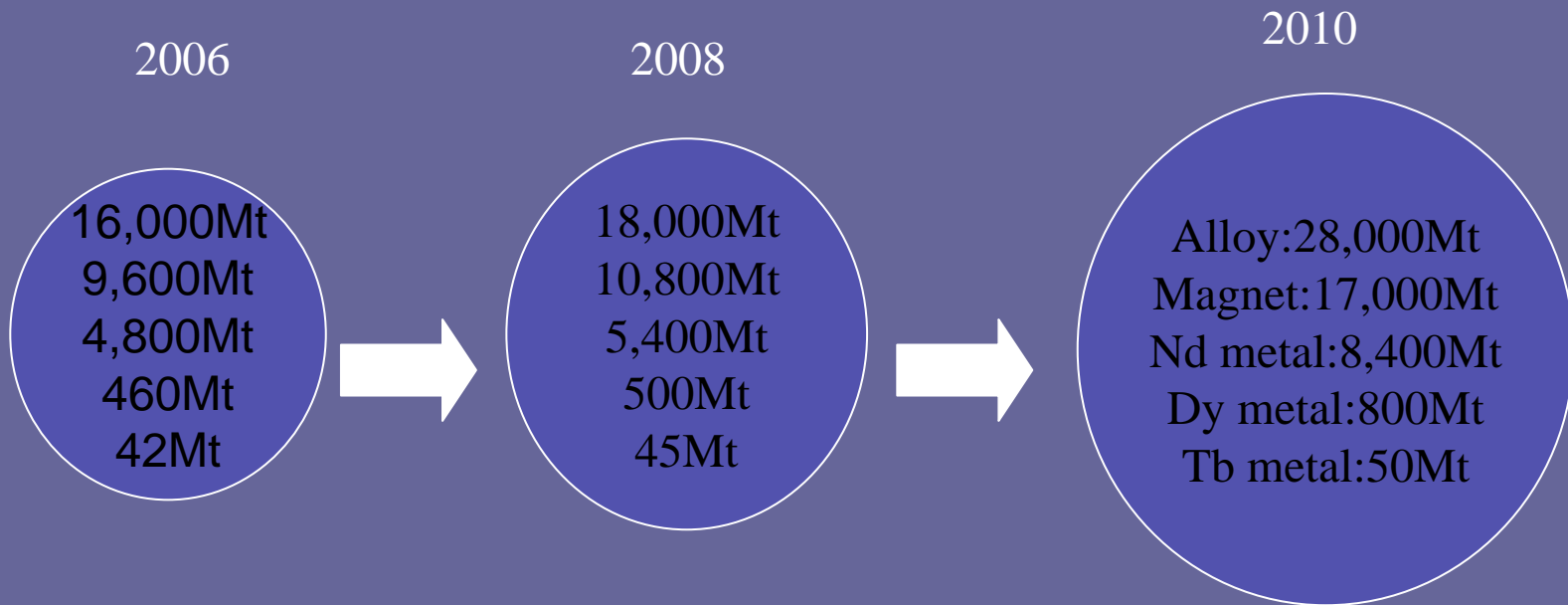
New growing field application for Rare Metal's elements

Lithium Ion Battery	Li, Co, Mn and Ni
Nickel hydrogen battery	Mm, La, Ce, Nd and Ni
Magnetic material	Di, (Pr, Nd), Sm, Tb, Dy
Fluorescence, Luminescence	Y, La, Ce, Eu, Tb and Ge
Automobile Catalyst & FCC	Y, Ce, La, Nd, Pt and Pd
Chemical Catalyst & Paints, glaze	Ce, La, Pr
Optical glass & Lenz	Ta, Nb, Y, La, Ce, Pr, Nd, Eu, Gd, Ho, Er
Ceramic condenser	La, Nd, Ti, Ba, Sr and others
Others	All kind of the rare metal & rare earth.

Others are Magnetic optical recording material, Hard disk material, Fuel cell and solid electrolyte, Superconductivity, Atomic power and Structure materials, Rader, Nuclear Reactor and all kind of the Metallurgy use.



NdFeB-Alloy, Magnet and RE metal demands of Japanese market



Magnetic materials are reflected on Nd, Dy, Tb, Sm, Co and Mn.

It became 18,000Mt in Alloy in 2008. Growth rate is 13%. In case of the yield rate is 60%, Magnet will become 10,800Mt scale and Nd is 5,400Mt, Dy is 500Mt and Tb will be 45Mt.

In 2010, Alloy will become 28,000Mt and Magnet will become 17,000Mt base and Nd metal demand will become 8,400Mt scale.



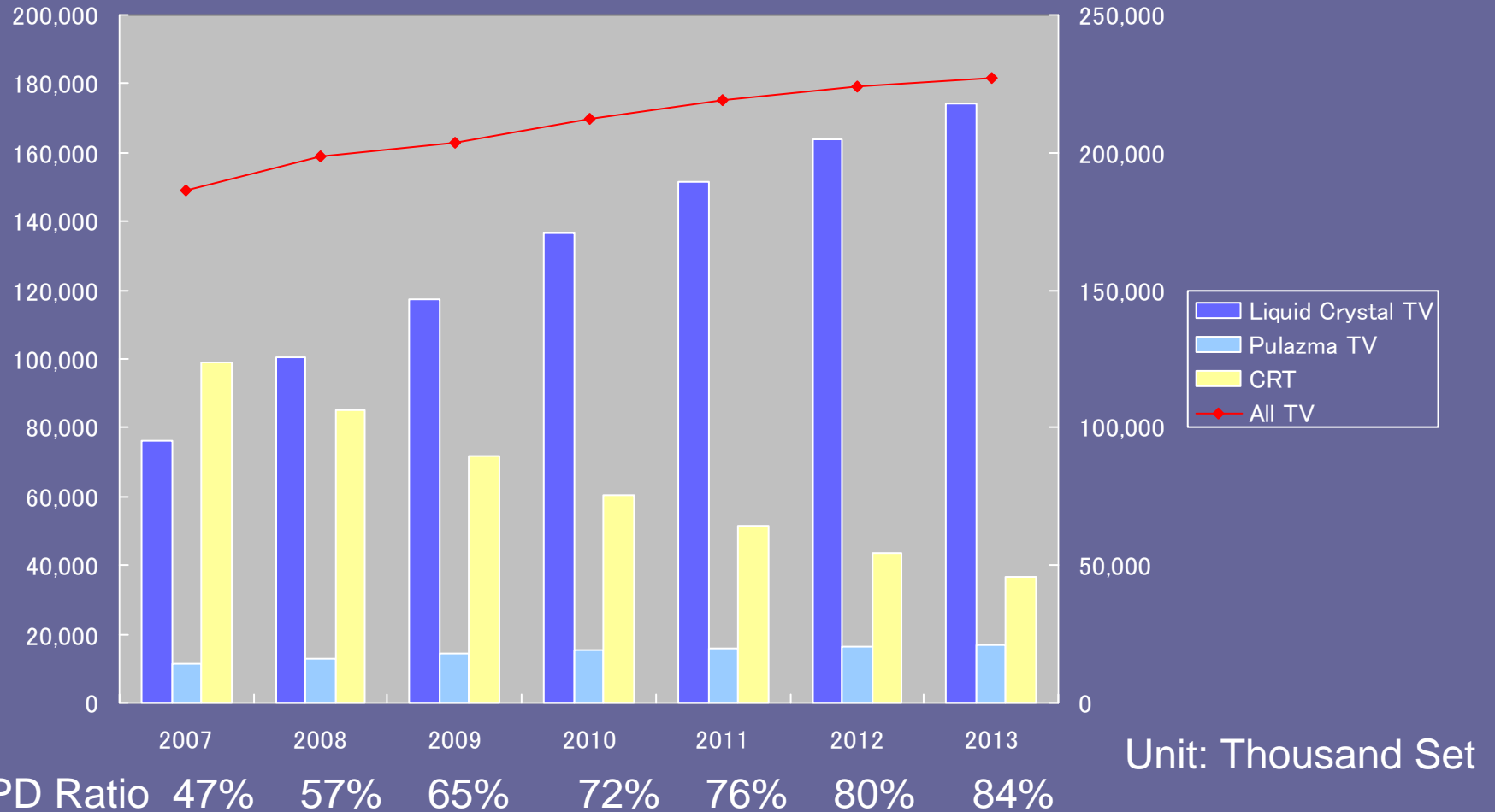
New Electronics Materials of Advanced Fields in Japan

- HEV, EV and FCV are a lump of the electronics materials of RE.
- 65% of the world share of these electronics materials are in the Japanese market.
- World Market of FPD
- LCD World Market
- LCD Monitor World Demand
- Note PC World Demand
- Global market prediction of the use of the fluorescent substance
- Fluorescence Market 19,000Mt



World Market of FPD

Reported by JEITA 09, March

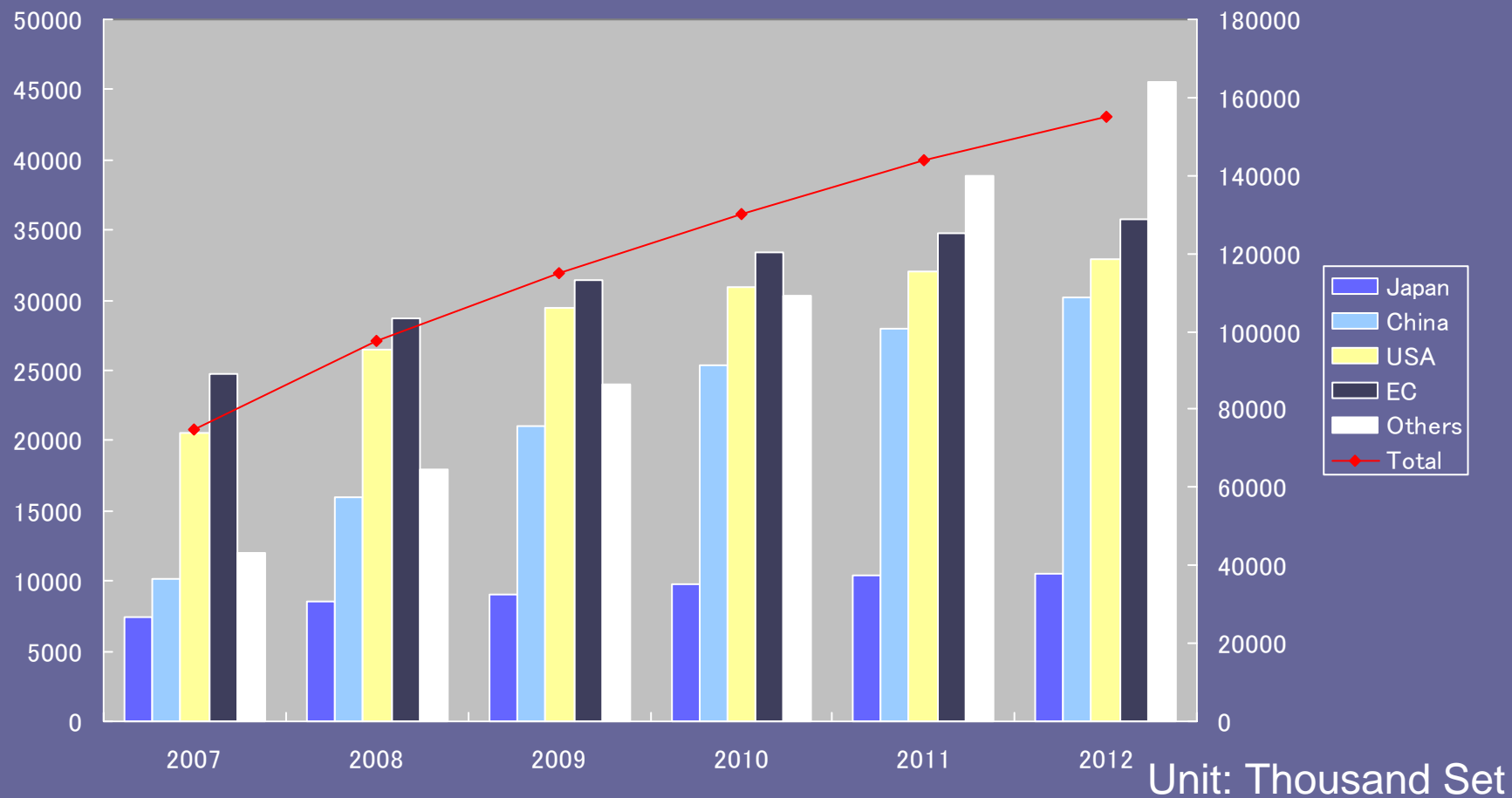


The market of the FPD and Note PC influences fluorescence substances and rare earths, In and Ge., too.



LCD World Market

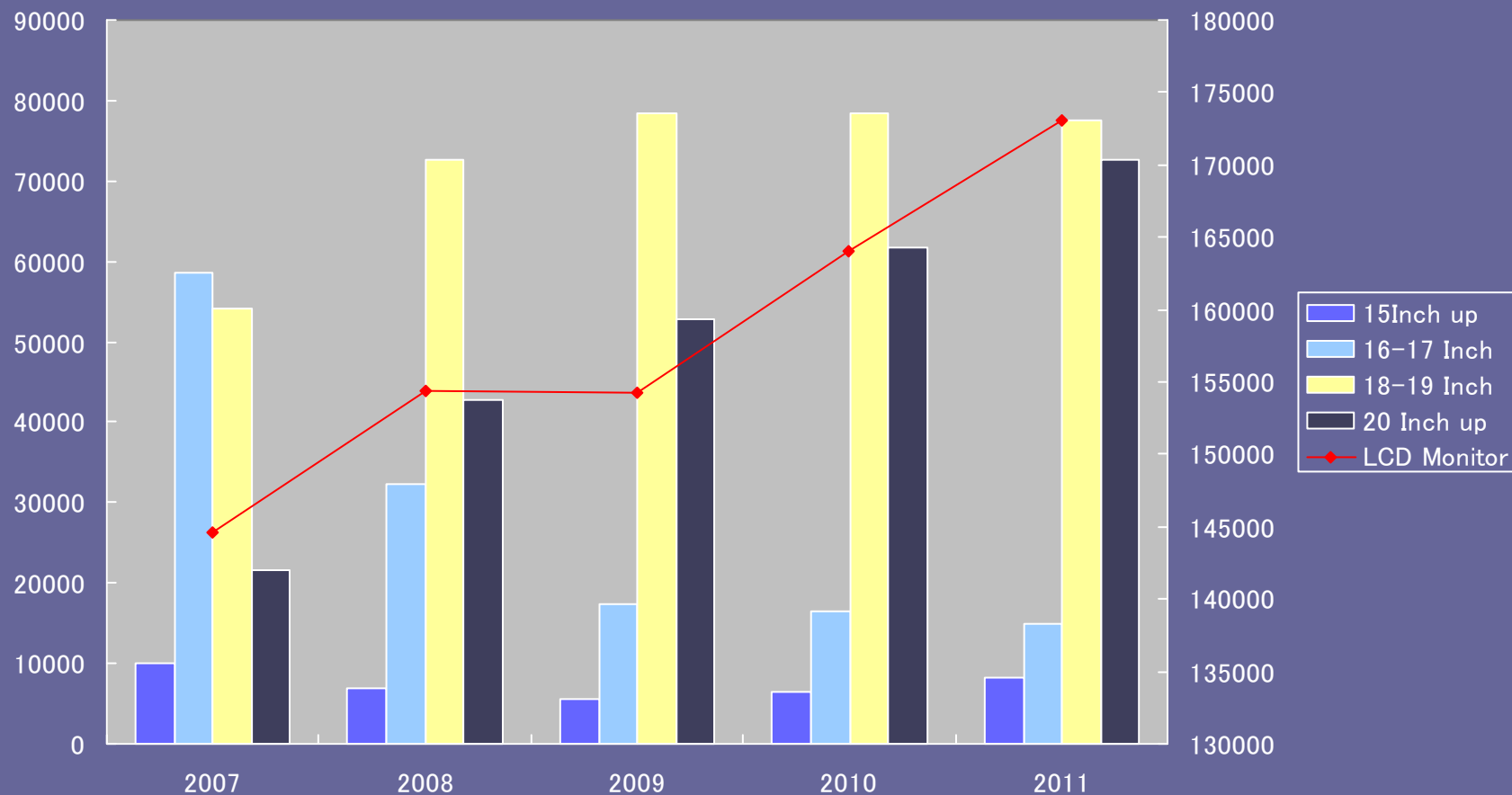
Reported by JEITA 09, March





LCD Monitor World Demand

Reported by JEITA 09, March

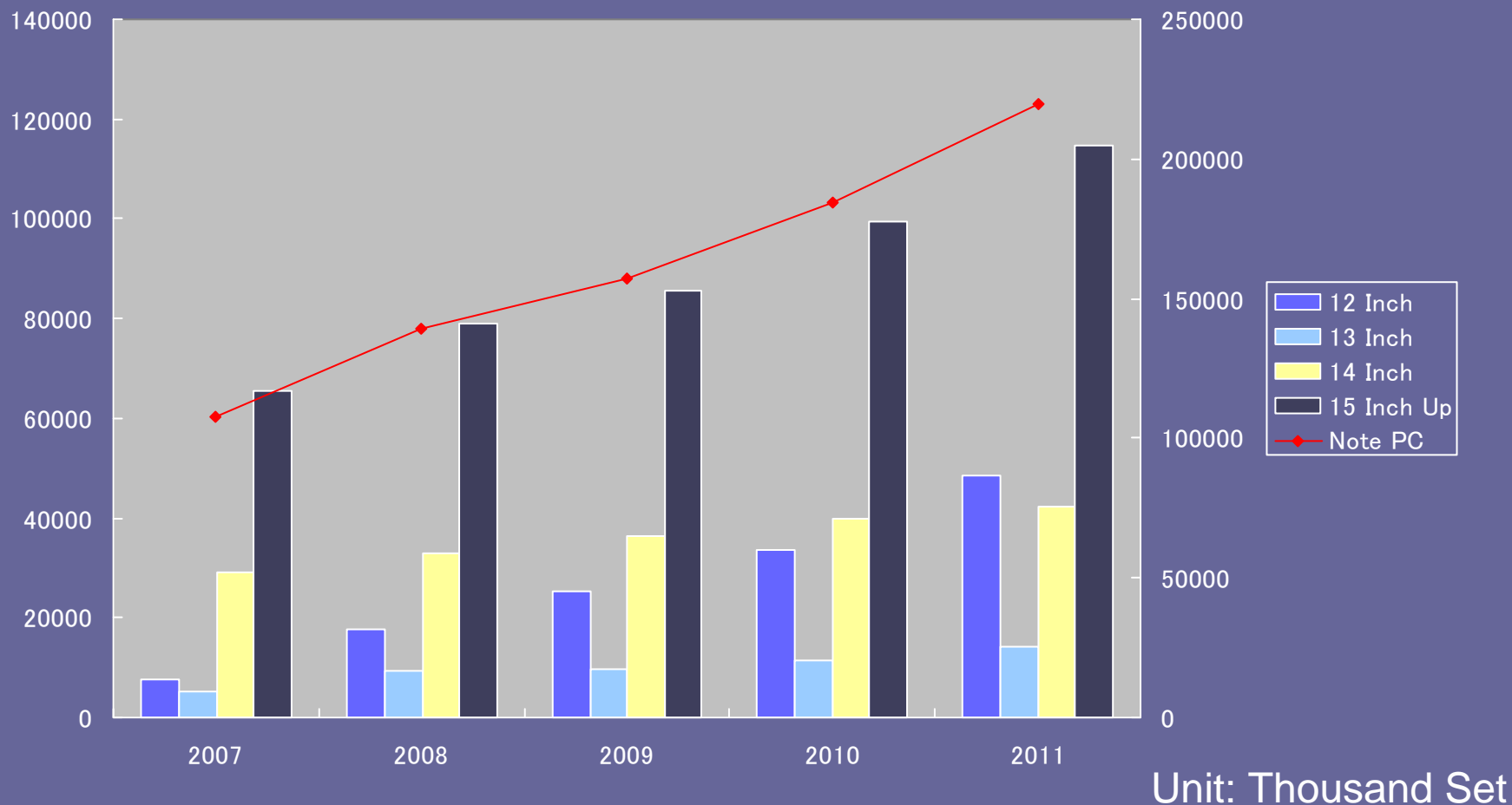


Unit: Thousand Set



Note PC World Demand

Reported by JEITA 09, March





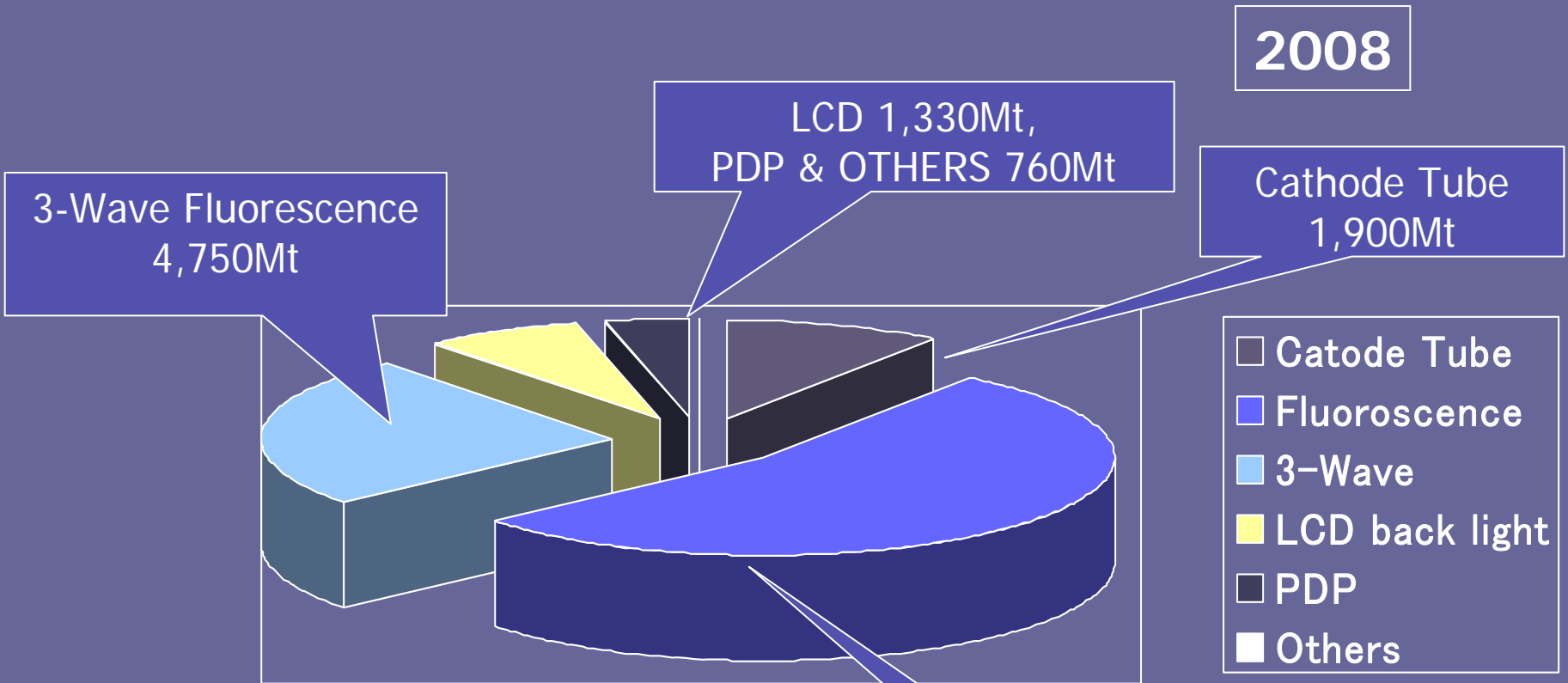
Global market prediction of the use of the fluorescent substance

	2002	2005	2008	2011
All fluorescent substances	17,000~ 18,000t	17,500~ 18,500t	18,000~ 19,000t	19,000~ 20,000t
Fluorescent tube(white type)	57%	60~61%	54~55%	~50%
Fluorescent tube (3 wave)	11%	14~15%	25%	40%
Cathode Tube	30%	20%	~10%	1%
CCFL (LC Back Light)	0.3~0.4%	}~1%	7~8%	10%
PDP	0.25%		2~4%	4% less
Market Scale	500Mil \$	600Mil \$	700Mil \$	800Mil\$



Fluorescence Market 19,000Mt in 2008

2008



3-Wave Fluorescence
4,750Mt

LCD 1,330Mt,
PDP & OTHERS 760Mt

Cathode Tube
1,900Mt

Y2O3:80%, Eu2O3:4/8%, Tb4O7:1.9%
La2O3:9%, CeO2:3.2%, Gd2O3:1.3%

Fluorescence
10,260Mt



Conclusion

- The market of HEV, BEV, PHEV becomes more and more active, and a battery and the car electronics material market will become tight.
- Ni Hydrate battery plays a key role in HEV sector for a while (5 years), but it is moved to Lithium Ion Battery slowly from 2010.
- NdFeB magnets demand will become tight with an increase in high production of the HEV and EV.
- FPD markets will become increase in the worldwide.
- The LCD monitor will become more big size, and the fluorescent substance market becomes active with it, too.
- After financial panic is restored, the demand for electronic parts (mobile telephone and digital camera and others) returns; a rare metal market (W, Ta, Nb, Co, Mo, Ga, Ge, In etc) becomes active, too.

Thank you for kind attention !!!



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