

Opening Addresses

**US-Japan Workshop on Fusion Power Plants and Related
Advanced Technologies with
participation of EU January 11-13, 2005 at Tokyo, JAPAN**

**Jan. 11
M. Kikuchi, JAERI**

US-Japan Reactor workshop is a long-standing activity (From my memory)

1st 1989(JAERI,May29-39):ARIES-I, SSTR, ---
2nd 1990(UCLA,Oct.15-17):ARIES-I, SSTR, CFAR
3rd 1992(JAERI,Mar.9-11): ARIES-II/IV,SSTR-2, ST(TARTRs)
4th 1993(UCLA,Sep.17) : in conjunction with IAEA-TCM
5th 1995(Kyoto U.,Mar.13-16): STARLITE,SEAFP, FFHR, Pulsar, IDLT



?th 1999(Kyoto U.,Mar.24-26): CREST, ARIES-ST, DREAM,FFHR
?th 2000(UCSD,Mar.16-17): ARIES-AT, A-SSTR2,FFHR,CREST,ESE
?th 2001(U. Tokyo,ARIES-AT, A-SSTR2,CREST,FFHR,ESE
?th 2002(UCSD,Apr.6-7): FFHR, Laser, ESE
?th 2003(UCSD,Oct.9-11): ARIES-IFE, ARIES-CH,FFHR, ESE
?th 2005(JAERI/UT,Jan.11-13): FFHR, ARIES-CH, VECTOR

Other Frameworks

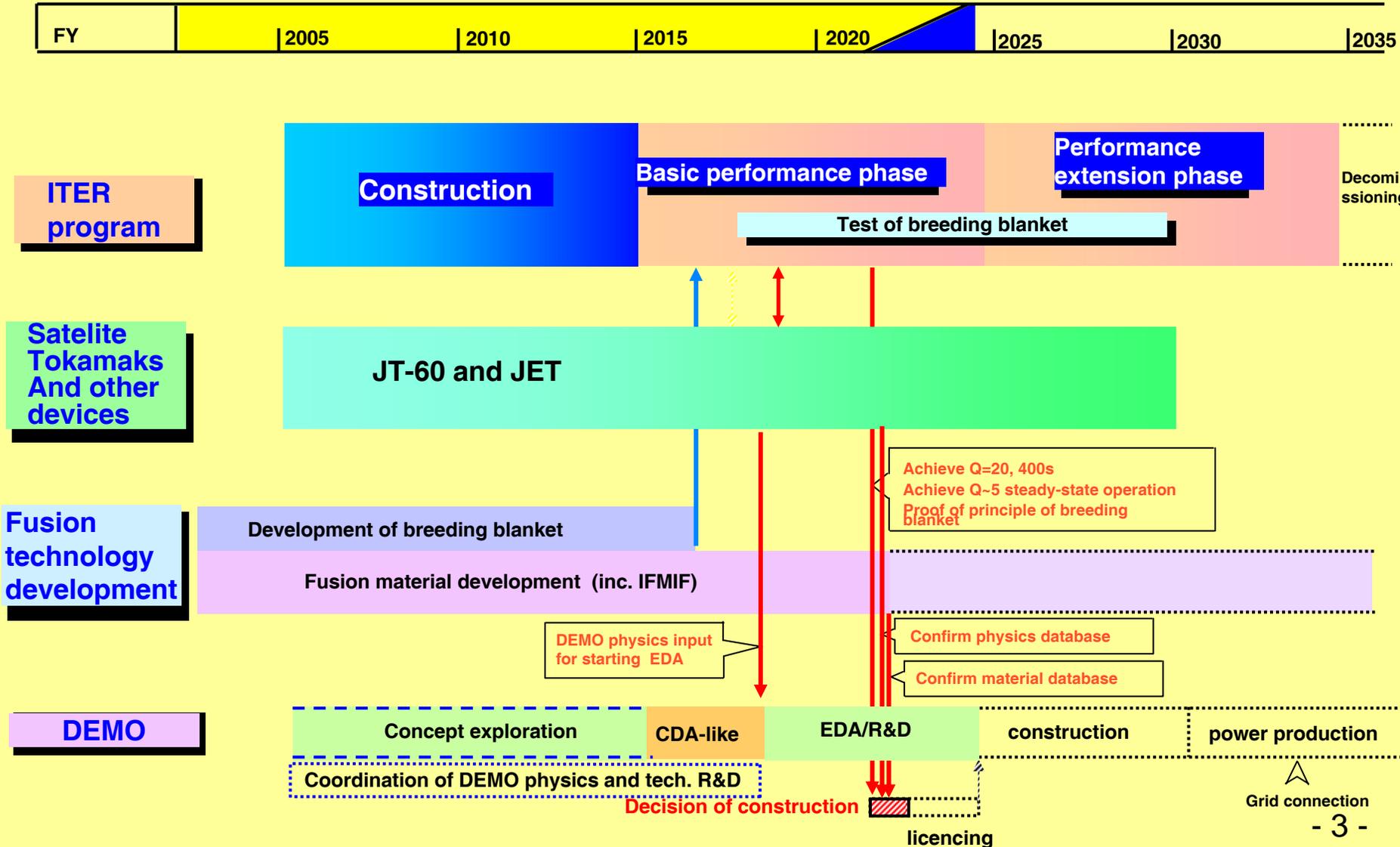
[1] IEA framework : International Energy Agency Cooperative Agreement on Environmental, Safety, and Economic Aspects of Fusion Power

[2] IAEA framework : IAEA technical meeting on 1st generation of fusion power plants

Note : IEA FPCC recommends coordination among various frameworks

Roadmap to Fusion DEMO

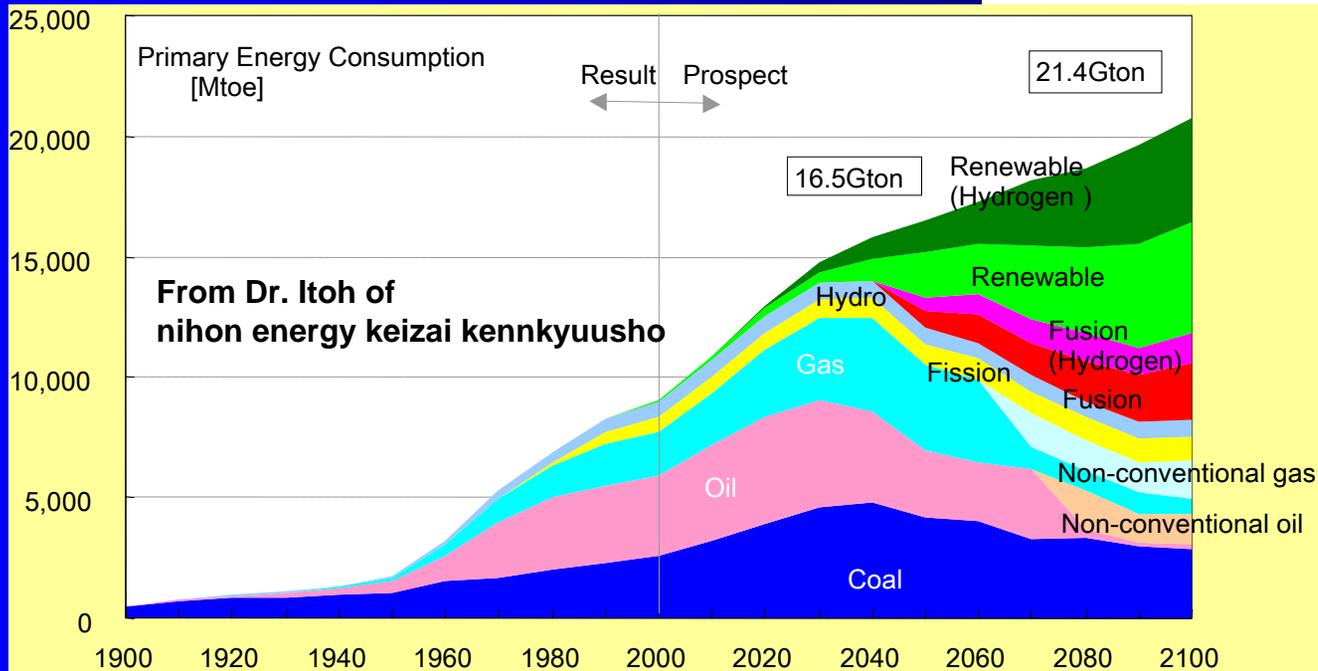
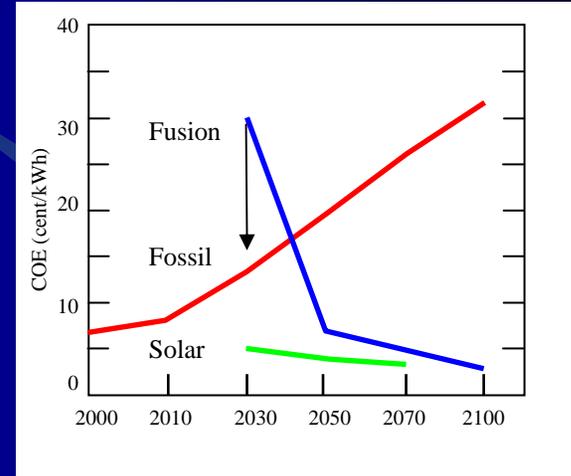
JA,US,EU road map is similar targeting power production early 2030



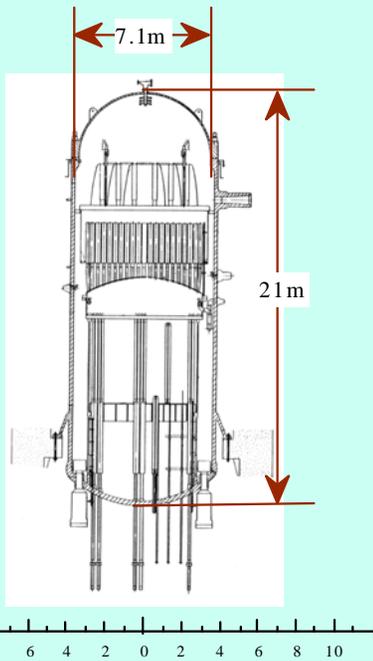
DEMO requirement

Fusion must be economically competitive to enter energy market

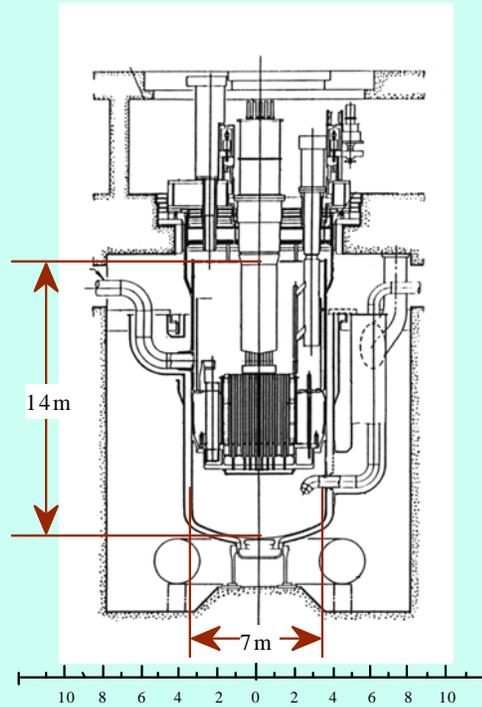
Prediction of world energy prospect for a case with Assumptions ;
 Improving rate of energy efficiency
 ; -1.3%/year (E/GDP)
 Cost of large scale solar power (2030 to 2100)
 ; electricity 5 to 2 cent/kWh, hydrogen 33 to 22\$/barrel
 Cost of fusion power (2030 to 2100)
 ; electricity 30 to 3 cent/kWh, hydrogen 110 to 19\$/barrel



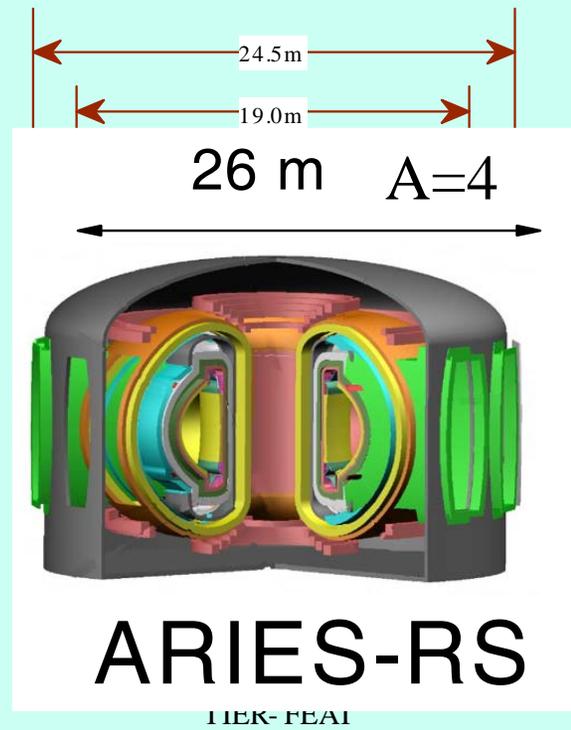
4. Comparison with Fission Core



Reactor vessel of A-BWR



Reactor vessel of MONJYU



Remarks

1. Significant progress has been made in these 15 year on fusion reactor design interacting with experiments.
2. Next 15 years are critically important to identify DEMO to be constructed after ITER.
3. I hope successful workshop!