

**Recent Considerations
on the Fast Track Fusion Development Path
in Japan**

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Baseline References

Statement by Fusion Council, AEC:

- Fusion development plan (May, 2000)

Study Reports by Fusion Council Panel:

- Fusion development plan and fusion related basic research (May, 2000)
- Fusion material development plan (May, 2000)
- Fusion blanket development plan (August, 2000)

<http://aec.jst.go.jp/jicst/NC/kakuyugo/> (in Japanese)

Present Activities

Fusion Committee under AEC

- Study on the fast track approach
- Overall fusion development plan

Working Group under Council for Science and Technology (MEXT)

- Near Future Plan

Fusion Committee Panel under Science Council in Japan

- Recommendations on fusion development plan

1. Why Fast Track?

Environmental and Energy Issues

2. What are needed for Fast Track?

ITER +

- Material
- Blanket
- Steady State High Beta

3. How to accomplish the needs?

- IFMIF
- ITER Test Blanket (Component Test Facility??)
- Advanced Magnetic Configuration Facility
(Advanced Tokamak, Other configurations)

4. What are technical bases for "Fast Track Demo"?

"Fast Track Demo": Can generate enough interest for the first reactor among power companies, etc.

Current thinking:

- Operation mode (Steady-state, ...)
- Beta ($\beta_N \sim 3.5 - 5.5$)
- Material (Reduced activation ferritic steel, ...)
- T breeding (Li_2Tio_3 , Li_2O , ...)
- Coolant (Pressurized water, ...)
- Magnet ($B_{\text{max}} 13 < 16 < 20$ T)

5. What is cost for Fast Track?

6. Overall balance of fusion development and science activities

7. Needs for international collaboration