

Plans for Socioeconomic Studies for FY01

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Electronic copy: <http://aries.ucsd.edu/najmabadi/TALKS>

ARIES Web Site: <http://aries.ucsd.edu/ARIES>

Socioeconomic Studies: Planning for FY 01

- Four separate socioeconomic studies were launched in FY 99. An overview of these studies was presented to VLT PAC in Dec. 1999. (see <http://aries.ucsd.edu/najmabadi/TALKS>)
- Plans for a coordinated national activity focused on making fusion visible in the energy planning and forecasting circles were presented to the PAC.
- PAC recommendation: “The PAC contains a variety of views on this initiative. Hence, we recommend that the socioeconomic study be initiated on a smaller scale than that proposed. This can demonstrate, on a small scale, the feasibility of penetration into the energy community, and thereby lay the basis for implementation of the full plan. The smaller scale effort should be clarified at our next meeting, and work should be allocated according to competitive peer review ”

There Is a Large World-Wide Activity in Energy Projections for the Next Century

- US DOE Energy Information Agency:
 - * National Energy Modeling System (NEMS);
 - * World Energy Projection System (WEPS);
 - * Annual Energy Outlook reports
 - International Energy Agency (IEA):
 - * Energy Technology System Analysis Programme (ETSAP);
 - * World Energy Outlook reports.
 - International Atomic Energy Agency:
 - * DECADES project.
 - International Institute for Applied Systems Analysis (IIASA) and World Energy Council (WEC).
 - Pacific Northwest Laboratory (PNL):
 - * MiniCAM 98.7
- ⇒ Recent emphasis is on ecologically driven scenarios

Global Energy Modeling -- Observations

- Large-scale studies are performed by groups recognized world-wide as experts with sophisticated models. This expertise does not exist in the fusion program.
 - * **Strategies for fusion:**
 - (1) Fund a large-scale study by an expert group (probably too expensive);
 - (2) Partial support for one of the studies to include fusion in their cases. This is the approach with the PNL study.
 - (3) Use one or more of these scenarios as is and investigate the role of fusion.
- Fusion is absent from energy supplies considered
 - * It is not clear if this is due to the charter of the study or any technical reasons by the authors.
 - * In either case, there is a clear need to make a case for fusion.
 - * Strategy will depend on why fusion is absent and other potential long-term sources are included.

Case for Fusion in Global Energy Strategy

- There is a divergence of opinion in the fusion community of why fusion is not considered in energy forecasting scenarios:
 - * Fusion is not demonstrated
 - Strategy: Make a case that fusion is technically feasible and can be realized in a reasonable time-scale.
 - * Energy is not the goal of the program;
 - Strategy: We need to verbalize the dual pillars of fusion research (energy and science).
 - * Fusion COE is too high;
 - Strategy: Examine other sources of energy included in various scenarios and develop comparable fusion costs.
 - * Lack of fundamental information on fusion potential;
 - * Invisibility of fusion scientists in energy projection field.
 - Strategy: One or a few fusion scientists dedicated to outreach activity (needs funding).

How to Make a Case for Fusion -- A Strategy

- Present activities are too small to make much impact. Connection to energy forecasting scientists and circles does not exist.
- In order to make a case for fusion, sufficient investment has to be made or we will always remain outside of these circles.
- It takes a coordinated national activity focused on making fusion visible in the energy planning and forecasting circles.
 - 3 to 5 FTP level of effort (500 to 800k), consisting of part-time activities from several scientists from major fusion institutions.
 - National effort should lead to a consensus view rather than highlighting advocacy group positions.
 - Establish credibility and expertise through high-quality research and publishing papers in scientific journals of this field.
 - Establish a circle of scientists that attend all major conferences/symposia in energy forecasting field.

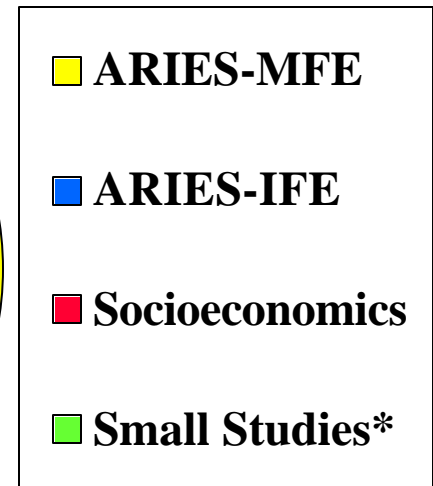
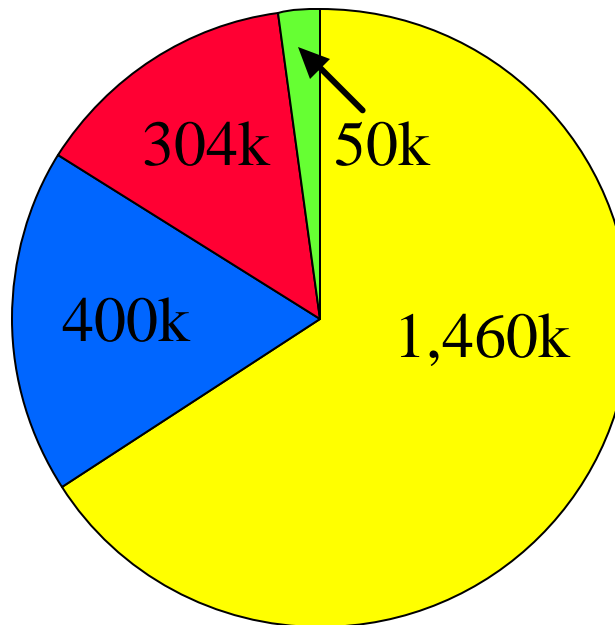
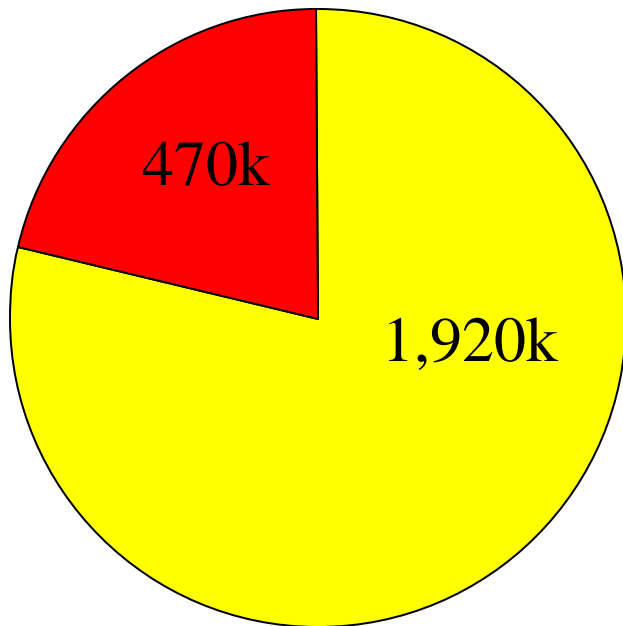
How to Make a Case for Fusion --Initial Study

- Thorough review of various energy forecasting scenarios (builds bridges with energy forecasting groups).
- Choose one of the scenarios (such as IIASA/WEP) for initial study.
- Examine other sources of energy included in various scenarios and develop comparable fusion development scenarios and costs.
 - * Promotes interaction with other disciplines;
 - * Argument for fusion can be made in a similar context.
- Develop a case that fusion can contribute to all energy usage categories (not solely electricity).
- Examine energy projection scenarios both in global and regional (e.g., North American) scale.

Distribution of Advanced Design Research

FY99: 2,435k

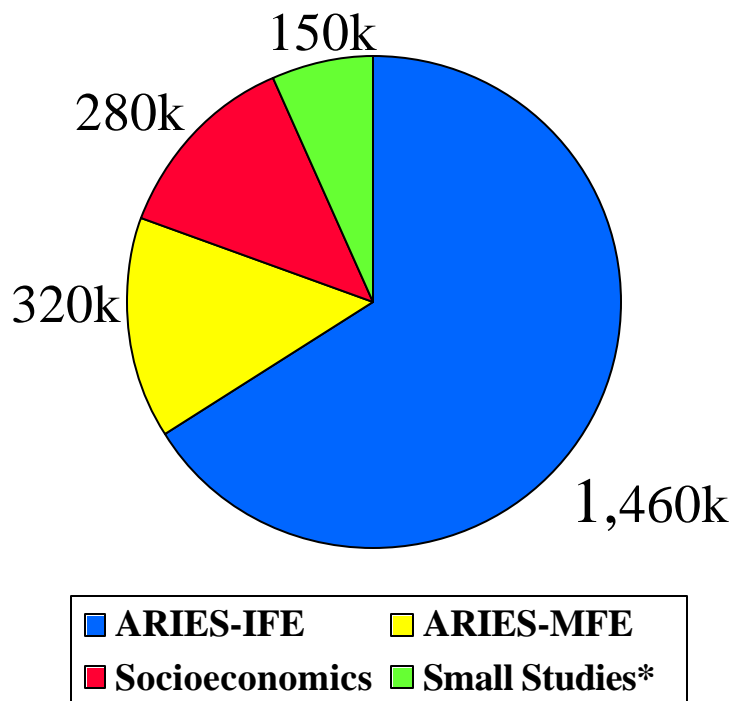
FY00: 2,214k



* Traditionally, ~10% of total effort have been for “small studies” of exploratory concept (awarded based on peer review). These studies were eliminated (plus reduction in ARIES program) in FY99 to launch the socioeconomic research.

FY01 Distribution of Advanced Design Research

President's Budget: 2,210k
Presented at 4/9 FWP meeting



Issues for President's Budget:

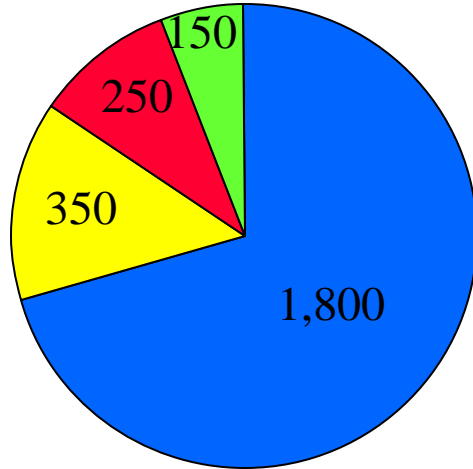
- 1) Under-funded ARIES-IFE study;
- 2) ARIES-MFE expertise on hold;
- 3) Socioeconomic studies on hold.

4/13 Fin Plan/VLT Budget: 2,049k

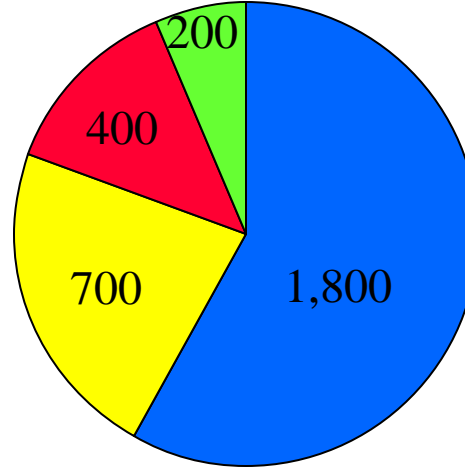
- * 160k reduction, 120k from ARIES-IFE (to 1,340k), 40k from the other three elements (called MFE studies).
- * 12/99 PACs recommendation for ARIES-IFE was 1,500k.
- * PAC recommended small-scale socioeconomic activity (research activities below 250-300k is not viable).
- * No detailed distribution of cuts from OFES, awaiting congressional action.

Expected Deliverables for 3 Budget Increments (Presented at FWP Meeting)

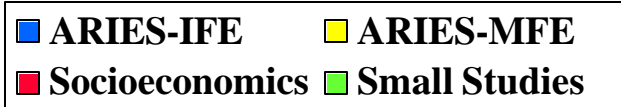
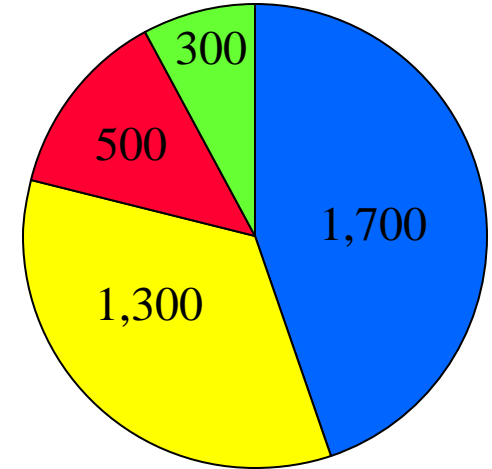
Case A: 2,525k



Case B: 3,100k



Case C: 3,800k



1. Cost-effective IFE Study
2. MFE Studies on hold
3. Socioeconomic on hold

1. Cost-effective IFE Study
2. Start on MFE PoP concepts
3. Start on socioeconomic

1. Cost-effective IFE Study
2. Cost-effective MFE study
3. Healthy socioeconomic research

FY01 Socioeconomic Activities

- What should be the scope of socioeconomic research in FY01?
 - A. Stop this area.
 - Funding 0k.
 - B. Continue with small studies as before (should we focus on some specific area?)
 - Minimum Funding: 100k X no. of studies.
 - C. Initiate a coordinated national activity focused on making fusion visible in the energy planning and forecasting circles.
 - Minimum Funding: 250-300k
 - We need to plan to increase funding in a couple of years to >500k if the research proves to be fruitful.
- In your deliberations consider the totality of the advanced design program.
- In any case, the research in this area will be awarded according to comparative peer review.