



February 2, 2006

MEMORANDUM

TO: City Commissioners, Madame Mayor

FROM: Judah Rose, ICF Consulting
King Lin
David Pickles

SUBJECT: Alternative Options

The purpose of this memorandum is to respond to the request that ICF consider additional alternative options for analysis of the electricity futures of the City of Gainesville. This memorandum supplements the memorandum of Monday, January 30, 2006 which identified the option of replacing the 220 MW natural gas-fired combined cycle with a 75 MW biomass plant and maximum DSM. The two alternatives proposed here use decision analysis combined with explicitly delaying all generation decisions by 5 years. These two options are:

- **Maximum DSM/ Delay Generation Decisions 5 years/ Make Decisions Assuming 100% Resolution of Uncertainty – Natural Gas Combined Cycle** – This alternative is graphically summarized in Figure 1¹. The decisions for today are: (1) solid fuel CFB, (2) solid fuel IGCC, (3) natural gas combined cycle on-line 2011/2012, and (4) waiting, pursuing maximum DSM, and then making a decision among the three generation options at a future date (2011/2012) with the simplifying assumption that uncertainties are fully and completely resolved, and at that time the best decision is made for the state of the world at that time.
- **Maximum DSM/ Delay 5 years/ Make Decisions Assuming 100% Resolution of Uncertainty – 75 MW Biomass** – This alternative is graphically summarized in Figure 2. It is the same as the above option except that the natural gas combined cycle option is replaced by a 75 MW biomass option.

¹ Graphically, uncertainties are represented as circles and decisions as squares. The expected values of the options across various metrics are still evaluated, but after the resolution of uncertainty, the optimal decisions are taken for each state of the world. This can have a greater or lesser value depending on the exact circumstances.



Pros and Cons

The advantages of this approach are several. First, the value of waiting is explicitly taken into account since in each state of the world the best option is chosen. Second, in the interim, the exposure to wholesale power market fluctuations is captured.

The disadvantages are several. First, while learning occurs over time about the future state of the world, 100% resolution of uncertainty is clearly an overstatement made for analytic convenience. One certainty is that uncertainty will not be fully resolved. Second, it is more complicated to understand and describe this approach. Third, this option is not directly comparable to the other options which reflect uncertainty and the decision-makers true dilemma: uncertainty exists and all that can be done is to incorporate the available information.

While ICF explicitly considered and rejected this type of analysis in favor of a maximum DSM only approach, ICF stands ready to meet the preferences of the City of Gainesville.

Figure 1:
Alternative Approach to Options – Biomass Plant

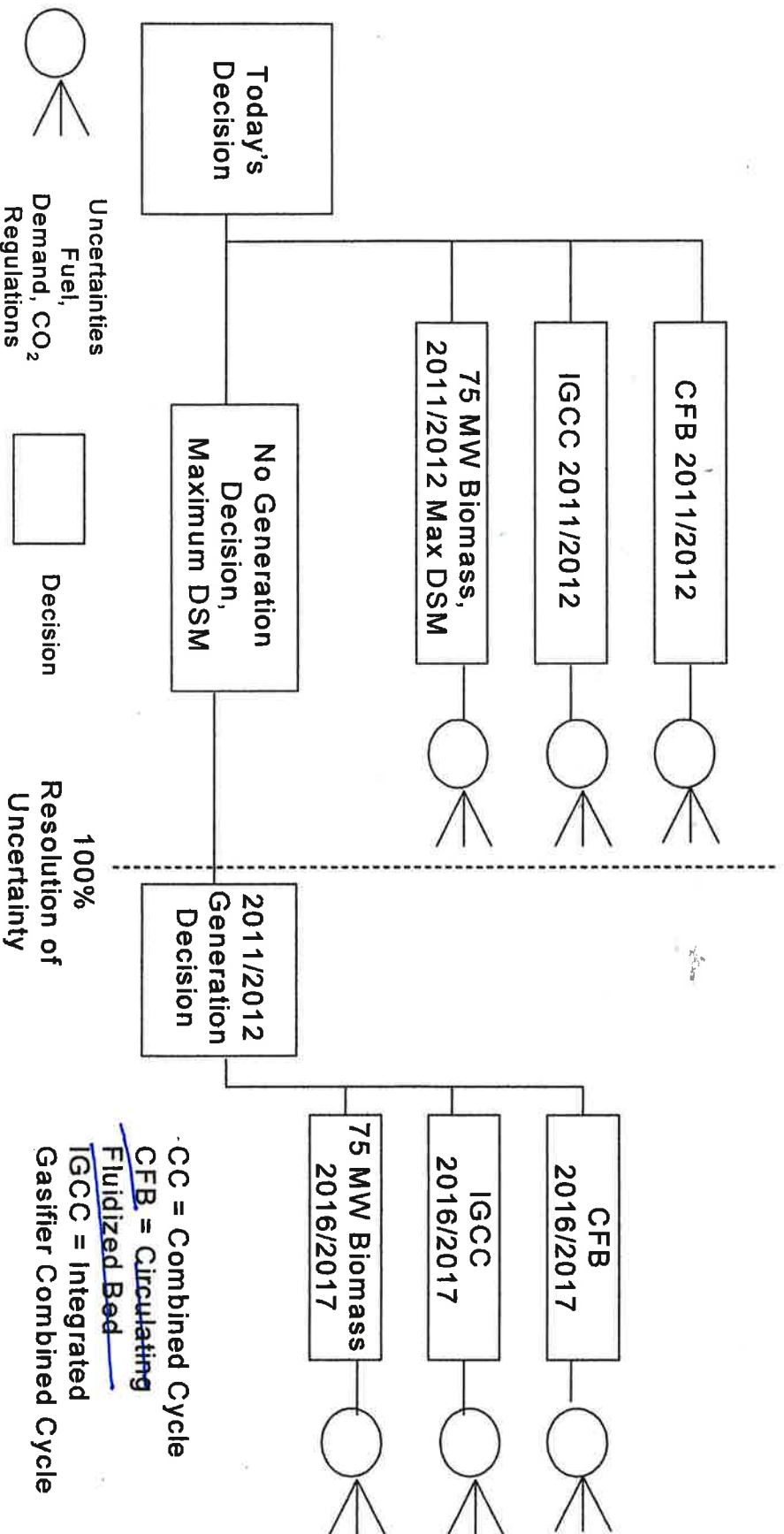


Figure 2:

Alternative Approach to Options – Natural Gas Combined Cycle

