

Dear Liquid Helium Users,

As discussed at our meeting last week here is the breakdown of the structural cost of Liquefier:

Bauer compressors ~ \$6k/a

Salary operator (0.5fte): \$65k/a

Consumables: \$2k/a

Linde maintenance ~ \$60k in year 4 (exchange rate dependent).

We also need to build up a buffer for unforeseen problems. The aim is to build up \$100k in 2 years and maintain this buffer which should lead to a drastic change of the price in year 3. This is not a lot since a turbine is more than \$100k at the strong exchange we just saw, so I have \$10k for year 3 to take into account this. Assuming our 2012 consumption of 25kl/a this leads to:

Component	Year 1	Year2	Year 3
Linde	14394.3	14394.3	14394.3
Salary	65000	65000	65000
Bauer	5952.27	5952.27	5952.27
Contingency	50000	50000	10000
Consumables	2000	2000	2000
Total	137346.6	137346.6	97346.57
Price per litre (\$)	5.493863	5.493863	3.8938628

We will re-evaluate the model every year or on a shorter time scale if something drastic happens. One item we are still pricing is the hydrostatic pressure test of our high pressure storage. There will be other things we will learn along the way. From experience with other plants this is realistic and we should be able to soon reach a low and sustainable price. We need to keep in mind that the maintenance budget is lean and that we currently face a devaluation of the AUD. Given the current (high) external LHe price of \$27/l the internal cost per litre for a given loss rate are:

Loss %	Price (fee +loss)
5	6.84
10	8.19
15	9.54
50	18.99
100	32.49

All signs indicate that we will see large fluctuations in the external LHe price with an increasing trend and that supply will be unsteady. That is why we have the liquefier but the model only works if we minimize losses so that we are not exposed to external supply availability & price peaks.