

### Calculating the required mass of Fuel

Power density of SOFC fuel: 36.6 kWh/kg

Mass required per hour:

$$\frac{74.4}{36.6 * 10^3} = 2.034 * 10^{-3} \text{ kg}$$

For 60 days mission:  $0.002034 \text{ kg} * 1440 \text{ hours} = 2.92 \text{ kg}$

Total mass = Fuel Mass + SOFC mass + Container Mass

Assuming mass 191 *gm* SOFC, 648 *gm* Hydrogen container, 357 *gm* Oxygen container, total mass is about  $\approx 4.134 \text{ kg}$