

**Table 5.** Costs in AAP bacteria to construct a PSU, consisting of a reaction centre (RC) with three proteins (L, M and H) and a light harvesting unit (LH1) with two proteins (Alpha and Beta), each containing the indicated number of amino acid (AA) residues.

Component	AA residues	Number per PSU	AA synthesis ( $10^{-18}$ kJ per PSU)	Assembly ( $10^{-18}$ kJ per PSU)
RC L	284	1	0.84	0.12
RC M	324	1	0.95	0.14
RC H	258	1	0.65	0.11
LH1 Alpha	54	14	2.28	0.33
LH1 Beta	50	14	2.02	0.30
Subtotal	946	31	6.74	1.00
BChl	NA	34	NA	0.47
Carotenoids	NA	34	NA	0.07
Subtotal				0.54
Grand total: $8.29 \times 10^{-18}$ kJ per PSU				

The protein and pigment composition of a PSU was taken from Yurkov and Beatty (1998). The number of LH1 proteins (14) assumed here is the middle of the range (12–16) observed in AAP bacteria. The amino acid compositions are averages based on sequence data for *pufL*, *pufM* and *pufH* from *Citromicrobium bathyomarinum* JL354, *Congregibacter litoralis* KT7, *Erythrobacter litoralis*, *Erythrobacter* sp. NAP1, *Fulvimarina pelagi* HTCC2506, *Jannaschia* sp. CCS1, *Roseobacter denitrificans* OCh 114.

NA, not applicable.