Cost Estimate: Transportable Fuel Bladders

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Cost Estimate: 200k gal Fuel Bladder

Assumptions:

- 200k gal Fuel Bladder cost $62,000.00 (https://www.amc.af.mil/News/Article-Display/Article/146258/bagram-fuels-airmen-double-fuel-storage-capacity/)
- Article written in 2010, assume cost given in 2010 dollars.
- Assume price covers all necessary equipment.
- Utilized U.S. Bureau of Labor Statistics CPI-U data (All items in U.S. city average, all urban consumers, not seasonally adjusted)
- Utilized Annual Averages
- Utilized a 5 year average to produce 2023 inflation rate.

Year (i)	Inflation (p_i)	Inflation Increase $(1+p_i)$	Inflation Index (x_i)	Cost (c_i)
2010	N/A	1	1	62000.00
2011	0.032	1.032	1.032	63984.00
2012	0.021	1.021	1.053672	65327.66
2013	0.015	1.015	1.06947708	66307.58
2014	0.016	1.016	1.086588713	67368.50
2015	0.001	1.001	1.087675302	67435.87
2016	0.013	1.013	1.101815081	68312.54
2017	0.021	1.021	1.124953198	69747.10
2018	0.024	1.024	1.151952074	71421.03
2019	0.018	1.018	1.172687212	72706.61
2020	0.012	1.012	1.186759458	73579.09
2021	0.047	1.047	1.242537153	77037.30
2022	0.08	1.08	1.341940125	83200.29
2023	0.0362*	1.0362	1.390518358	86212.14

p_i: CPI (Annual Averages) – U.S. Bureau of Labor Statistics

$$p_{2023} = Average\{p_{2018}, \dots, p_{2022}\}$$

$$x_{2010} = 1$$

$$x_i = x_{(i-1)}(1 + p_i) \quad \forall \quad i = 2011, \dots, 2023.$$

$$c_i = \$62{,}000(x_i) \quad \forall \quad i = 2010, \dots, 2023.$$

$c_{2023} = \$86{,}212.14$ per bladder

Cost Comparison: 200k vs. 25k

Metric	200k gal Fuel Bladder	25k gal Fuel Bladder
Per unit cost ($)	$86,212.14*	$21,455.88**
Per storage gal cost ($)	$0.43	$0.86
Per unit Dry Weight (lbs)	4,300 lbs	745 lbs
Per unit Manpower Required (PAX)	30	6***

* Previously Calculated
** Current price (https://readycontainment.com/product/fuel-bladder/)
*** Approximate value (utilized known manpower requirements for 200k bladder)