Attack and Defence in an era of Missile Defence

Justin Bronk, Research Fellow for Airpower

Royal United Services Institute

Missile-Based Missile Defence is Currently a Must-Have

- GBI in the news (DPRK)
- THAAD in the news (DPRK)
- Iron Dome/David's Sling in the news
- S-400/Patriot in the news (Turkey)
- NIFC-CA dominating the future of US Naval airpower thinking with SM-6 and SM-3 at the centre

But Even the US Cannot Down Them All

- 86 of 105 hit-to-kill intercept attempts have been successful across all programs since the integrated system began development in 2001 (Includes Aegis Ballistic Missile Defense (BMD), Ground-based Midcourse Defense (GMD), Terminal High Altitude Area Defense (THAAD), and PATRIOT Advanced
- 56 of 71 hit-to-kill intercept attempts have been achieved for THAAD, Aegis BMD, and GMD test programs since 2001.
- $200Bn since 1985

- Missile Defense Agency, Dec 2018

The Hypersonic Problem

DF-21D

Kh-47M2 Kinzhal

- The migration of ICBM levels of offensive overmatch into the tactical/operational arena
- Mobile launchers, unpredictable trajectories, manoeuvrable terminal phases
- Multiple guidance options

Offensive Standoff Missiles A Priority For Many – Why?

The Obvious: Tactical + Strategic Offensive Advantage

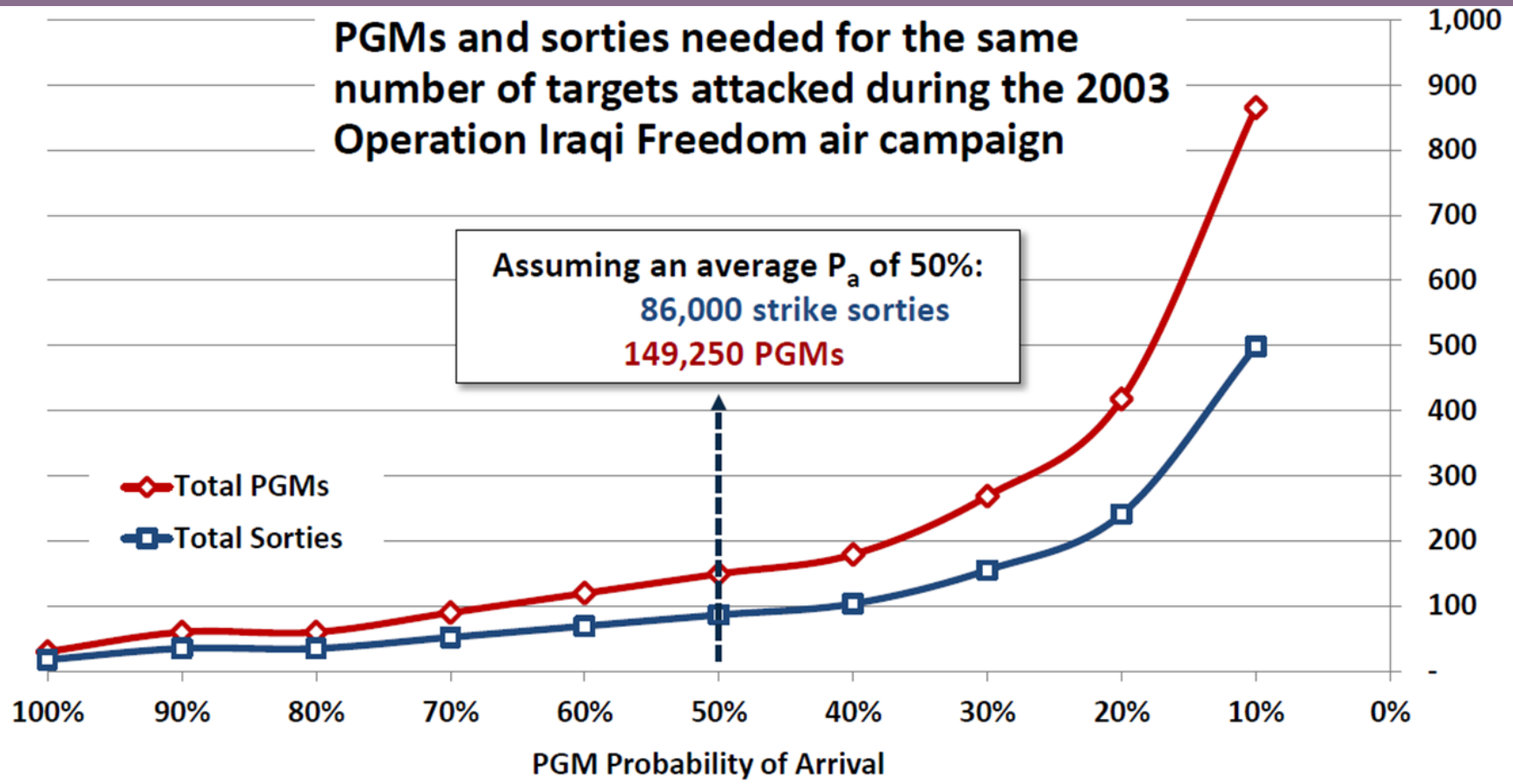
This is always going to be easier, faster and cheaper to achieve….

Than this…

Easier to Improve Offensive P_a than Defence P_k

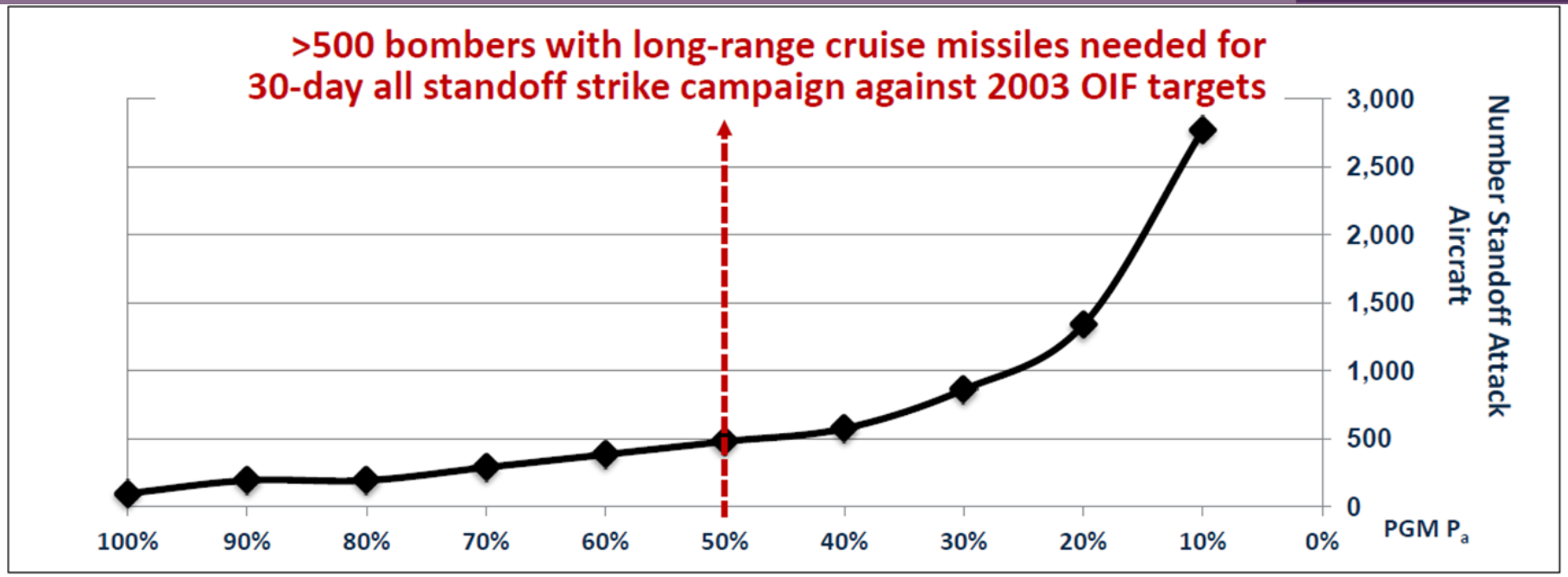
- BUT then costs per shot go up for offence
- Terminal manoeuvring, hypersonic/supersonic cost range and money
- Reduced signature increases costs, inventory
- Range is a crucial cost driver – keeping launch platforms at bay is key

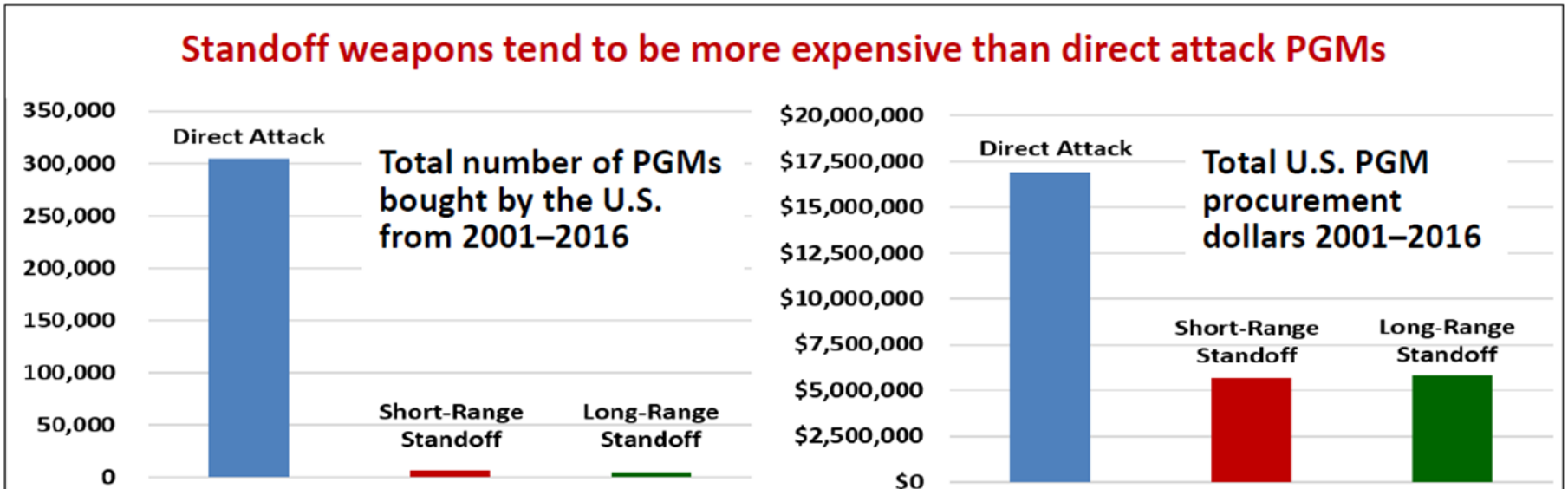
Offense Could Be Made to Struggle Operationally



- **86,000 strike sorties** = 5 times the number of strike sorties flown during the 2003 air campaign
- **149,250 PGMs** = about half the total number of air-delivered PGMs procured by the U.S. military from 2001 to 2015

Massed Standoff Costs Money!





A New Balance?

- HVT defence may become extremely unreliable – significant implications
- Redundancy and Mass required again!
- Layered defence in an era of standoff could be very effective at the operational level
- IF cost per shot can be dramatically reduced…
- Railguns, HPM solutions all might have a role
- But very vulnerable to network disruption – require combined RAP