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**CANADIAN FORCES COLLEGE / COLLÈGE DES FORCES CANADIENNES  
AMSP 10 / PSEM 10**



RESEARCH PAPER / MÉMOIRE DE RECHERCHE

**What Happened to the Force in Canada's Air Force?**

24 October 2007 / 24 octobre 2007

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## **ABSTRACT**

*Following a decade and a half of relative neglect, the Canadian Forces (CF) are now finding themselves in a period of rejuvenation. Transformation is ongoing and new resources are being provided to current and newly identified defence capabilities.*

*Although positive in nature, the CF seems to be focusing the bulk of these benefits on Afghanistan and present day activities at the expense of long range capability planning and domestic operations. Additionally, in order to support some of the newly identified capabilities, there has been a requirement to divest in others. From an Air Force (AF) perspective, the result will be a substantial decrease in its ability to provide combat air operations to the operational commander. While significant in its own right, there is also a potential that future combat capabilities may be deemed overly expensive for the CF. If this turns out to be the case, the result would be the inability of Canada to protect its domestic air space, provide long range patrol of its coasts, or project Canadian aerospace power overseas.*

*Throughout this paper, the author will review the future operating environment and current situation to argue that the CF is in this situation due to a flawed prioritization of capabilities, competition for limited resources, and a lack of focus on domestic and future operations. The author will also compare Canada's combat air capability to that of partner nations, and contend that an appropriate level of combat air operations can be attained through continued transformation and government support, a rationalization and reprioritization of resources, and a greater focus on the complete CF mandate.*

## INTRODUCTION

The number of operational missions undertaken by the Canadian Forces (CF) has dramatically increased since the end of the Cold War resulting in the requirement for the recent transformation within the CF and an increase in funding by the Government of Canada (GoC). These are both critical components for the future of the CF and play a big role in meeting Canada's current defence policy.<sup>1</sup> While transformation is aimed at making the organization more efficient and streamlined towards its objectives, the increase in funding is necessary to not only maintain current personnel, infrastructure and equipment, but also to expand it to meet future challenges.

In order to align with CF transformation and the joint concept, the Air Force (AF) is in the process of producing a new strategy that will meet the AF plan and that falls in line with the CF Vision. The strategy will remove the desire to stovepipe capabilities purely by aircraft with the end result anticipated to make a much more flexible AF that is situated to meet the demands of a joint CF and the GoC.<sup>2</sup> The timing of the new Air Force Strategy (AFS) also corresponds to a much-needed investment in AF capabilities.

The capabilities planned for the AF are based on current and future needs and take into account the full spectrum of potential conflicts as well as the current war. While the majority of actual aircraft are planned to fill current roles, others are planned to fill new capabilities that are deemed necessary for 21<sup>st</sup> century operations. As the strategy is

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<sup>1</sup> Canada. Department of National Defence. *Canada's International Policy Statement. A Role of Pride and Influence in the World. Defence.* (Ottawa: Government of Canada, 2005), 8.

<sup>2</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces' Aerospace Power).* A-GA-007-000/AF-007. (Ottawa: Director General Air Force Development, 2007), 40.

obviously resource dependent, it requires new personnel to operate these new capabilities, along with more operating money and infrastructure to support them.

Realistically, however, the rate at which the CF transforms and grows has to be tapered to some extent. It is certainly accepted that it would be cost prohibitive to modernize the Forces and provide all of the desired resources, all at the same time (i.e. the perfect storm). This reality has resulted in the requirement to divest in certain capabilities in order to afford new ones. Although the concept may seem sound, pressures to support the current conflict in Afghanistan, coupled with potential environmental biases for resources, could result in the priority of capabilities being thrown out of whack.

This certainly seems to be the case with regard to the future of combat air operations within the AF. In order to afford new CF capabilities, the CF18 Hornet multi-role fighter, CP140 Aurora Long Range Patrol (LRP) aircraft and the CH146 Griffon helicopter are all planned to be reduced in size and scope. Interestingly, these are three of the four aircraft within the AF that provide operational commanders with a combat capability. Further aggravating the situation is the potential that the replacement of these capabilities may be deemed too expensive. If this were the case, the incoming CH148 Cyclone, a Maritime Helicopter (MH), would be the only aircraft within the AF with a combat capability.<sup>3</sup>

Ultimately, an AF without a reasonable combat capability would render it ineffective in policing and combat operations thereby placing the defence policy at risk

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<sup>3</sup> Canada. Department of National Defence. "Investment Plan Framework – AF Impact", Briefing Note for CAS. August 27, 2007.

from its perspective. This paper will argue that the CF is on the cusp of losing this combat air capability due to flawed prioritization and competition for limited resources, and its lack of focus on domestic and future operations. In doing so, it will review the future operating environment and the current situation, while also comparing Canada's combat air capability to that of partner nations. It will contend that an appropriate level of combat air operations can be attained through continued transformation and GoC support, a rationalization and reprioritization of resources, and a greater focus on the complete CF mandate.

## **FUTURE OPERATING ENVIRONMENT**

While wars will no doubt continue to evolve and asymmetric conflicts will likely predominate much of the 21<sup>st</sup> century, there will continue to be many interstate power struggles and regional uncertainties throughout the world.<sup>4</sup> Russia, for one, is working hard to regain its prestige and influence on the world stage, recently committing much more emphasis on and money into its military. While it is unlikely that this initiative will result in a second Cold War, fighter aircraft from Finland, Great Britain and Canada have all intercepted Russian bombers in their respective territories during the past few months.<sup>5</sup> In addition, large regional powers such as China and India continue to increase their economic and military strength and compete for power within and outside of their traditional areas of influence. Rogue states such as North Korea and Iran must also be

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<sup>4</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces' Aerospace Power)*. A-GA-007-000/AF-007. (Ottawa: Director General Air Force Development, 2007), 4.

<sup>5</sup> Chris Lambie. "Chief: Canadian top guns, Russians tangoed this week", *The Chronicle Herald*. (September 14, 2007) available from <http://thechronicleherald.ca/Front/857828.html>; Internet; accessed 01 October 2007.

considered as future adversaries given their extremely hostile and unpredictable policies towards the West and their advancements in nuclear technology.<sup>6</sup> Therefore, Canada and its Western allies must be careful not to solely train and resource for today's war (such as the current asymmetric conflict in Afghanistan), but be ready for the full spectrum of conflict (humanitarian aid, peace keeping and combat operations), which will require a wide variety of traditional and non-traditional combat capabilities.

In order to cope in this environment, the AF of the future will be expected to be an efficient and agile force forming a portion of joint and coalition forces as part of a *Whole of Government* approach at home and abroad. The CF's Canada First policy will remain key, with the AF responsible for protecting Canada's airspace and its population.<sup>7</sup> *Canada's International Policy Statement on Defence* indicates that future domestic missions will include the surveillance of domestic airspace to include the capability to engage hostile or criminal aircraft when and where necessary. It is anticipated that there will be an increased requirement to patrol the three coastlines and to provide surveillance and detect illegal and hostile activities with the potential to take action if necessary. Air Mobility operations will "provide airlift anywhere in Canada for the deployment of land and command elements"<sup>8</sup> along with support for other domestic needs. Also, Search and

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<sup>6</sup> Wesley K Clark. "The Next War", Washington Post, (16 September 2007); <http://www.washingtonpost.com/wp-dyn/content/article/2007/09/14/AR2007091401401973.html>; Internet; accessed 01 October 2007.

<sup>7</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces' Aerospace Power)*. A-GA-007-000/AF-007. (Ottawa: Director General Air Force Development, 2007), 5.

<sup>8</sup> Canada. Department of National Defence. *Canada's International Policy Statement. A Role of Pride and Influence in the World. Defence*. (Ottawa: Government of Canada, 2005), 20.

Rescue (SAR) will continue to provide a high standard of operations in support of the National SAR Secretariat (NSS).

In addition to domestic operations, foreign expeditionary missions will continue to require Air Mobility aircraft to transport troops and equipment as well as provide an air bridge to sustain operations. The current conflict in Afghanistan has identified the requirement for Medium to Heavy Lift Helicopters (MHLH) with Battlefield Reconnaissance Utility Helicopter (BRUH) escorts to tactically move troops and equipment in theatre. Also, an ISR capability that can stream video to commanders for both domestic and overseas operations is and will be in strong demand. Finally, future conflicts involving combat will benefit from the ability to conduct Close Air Support (CAS) to the troops in the battlefield and a precision strike capability.<sup>9</sup>

## **CURRENT SITUATION**

The AFS is an aggressive plan designed to meet the AF Defence Tasks (DTs) and the needs of the CF in general. In order to support these future requirements, a 20-year Campaign Plan (CP) has been integrated into the AFS and includes nine Lines of Operation (LOOs) based on doctrinal functions and capabilities. An example of a LOO is Air Mobility, which has already received the first of four new CC177 Globemaster III aircraft. Seventeen CC130Js are also planned to enhance Air Mobility by filling the tactical airlift requirement through the replacement of the current CC130Es starting in 2010. Twenty-eight CH148 Cyclone helicopters will replace the extremely tired Sea

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<sup>9</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces' Aerospace Power)*. A-GA-007-000/AF-007. (Ottawa: Director General Air Force Development, 2007), 8.



King in the Maritime Helicopter role starting in 2009 and 16 CH147 Chinook will be introduced in 2011. A Medium Altitude Long Endurance (MALE) Unmanned Aerial Vehicle (UAV) called the Joint Airborne Intelligence Surveillance and Reconnaissance (ISR) Capability (JAIC) is planned in 2010 and will provide “real-time intelligence and targeting information...to address overland ISR operations in a primarily expeditionary context.”<sup>10</sup> Fixed Wing Search and Rescue (FWSAR) aircraft are also planned to be replaced in 2015 to 2017.

While the above mentioned increase in capabilities seems very optimistic, it also presents a conundrum for the AF. With the increase in demand comes the requirement to man and fund the capability, which ironically does not fit within the designated resource envelope of the AF. For instance, although the recent requirement to purchase the CC177 will certainly enhance the movement of equipment and troops throughout the world, a large portion of the infrastructure and personnel requirements to support the capability must come from within current AF resources. The situation is the same for the proposed acquisition of the CH147 and the JAIC UAV. While all three new capabilities will assist in both domestic and theatre operations, the AF will have to divest in other capabilities to afford them.<sup>11</sup> Additionally, although the CH147 and JAIC were identified as requirements necessary to support the conflict in Afghanistan, neither aircraft will be available prior to the end of the CF’s current 2009 mandate.<sup>12</sup> Even if this mandate was

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<sup>10</sup> *Ibid.*, 57-61.

<sup>11</sup> Canada. Department of National Defence. “Investment Plan Framework – AF Impact”, Briefing Note for CAS. August 27, 2007.

<sup>12</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces’ Aerospace Power)*. A-GA-007-000/AF-007, (Ottawa: Director General Air Force Development, 2007), 42-44.

extended to 2011, the CH147 would still remain unavailable. Also, while the CC177 will provide support to the Afghanistan mission, it will only contribute a relatively small portion of the overall strategic airlift requirement. The remainder will continue to be contracted out to civilian companies or provided by foreign militaries, specifically that of the United States.<sup>13</sup> Of note, none of these three new aircraft have a combat role within the AF.

Although the plan in the AFS relies on the replacement of the current combat aircraft as they meet their respective Estimate Life Expectancy (ELE), the MH is the only one currently funded. Additionally, all current combat aircraft have been cut back in strength or will be in the next few years, with the exception of the MH. In fact, in the Preface of the AFS, the Chief of the Air Staff (CAS) states: “while revitalization presents enormous opportunities, it also presents a number of challenges. The AF must replace, divest and introduce capabilities while simultaneously maintaining operational commitments at home and around the world. Our institutional capacity...will be tested.”<sup>14</sup>

Sadly, the cutback in military acquisitions throughout the 1990s and the requirement for new equipment to support the conflict in Afghanistan have resulted in significant competition for numerous CF capital equipment projects in the same

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<sup>13</sup> Canada. Government of Canada. “Government Response to the Report of the Standing Committee on National Defence and Veterans Affairs”. <http://cmte.parl.gc.ca/cmte/CommitteePublication.aspx?COM=226&SourceId=129918&SwitchLanguage=1>; Internet; accessed 01 October 2007.

<sup>14</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces' Aerospace Power)*. A-GA-007-000/AF-007, (Ottawa: Director General Air Force Development, 2007), Preface.

timeframe. Along with recent and upcoming AF acquisitions, equipment such as Leopard II tanks, RG-31 Nyala armoured vehicles, Expedient Route Opening Capability (EROC), etc, have put a strain on the CF budget. While the current 10 year CF Investment Plan being prepared for Treasury Board approval mentions the ageing CF18 and CP140 aircraft, it has no funding earmarked for their replacement. These two platforms alone make up the bulk of Canada's airborne combat capability and fulfill extremely important roles both domestically and overseas. For these two projects to proceed it will take either one time capital funding by the GoC or the AF/CF will have to reprioritize commitments internally in order to pay for them within the current budget. Also, in order to upgrade or replace other current capabilities within the AFS, the AF will have to resource them within its own personnel and monetary resources. As previously indicated, to stay within budget, the proposed CF solution is to divest in the CF18, CP140 and CH146.<sup>15</sup>

Looking from the outside in at the current-day situation, it might seem logical to reduce these three airframes in order to support current requirements. After all, other than the NORAD requirement, they are not being used in Afghanistan; they are getting old and are expensive to operate. Therefore, from today's snapshot, it could seem like the correct decision. Not apparent to the uneducated eye, however, are what these aircraft could provide to the Afghanistan conflict, the amount of time and effort it takes to rebuild an AF capability (from a personnel perspective) and what the next conflict will be.

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<sup>15</sup> Canada. Department of National Defence. "Investment Plan Framework – AF Impact", Briefing Note for CAS. August 27, 2007.

As previously noted, the tried and true CF18 could easily participate in Afghanistan in a Close Air Support (CAS), or other multi-role fighter capacity, assisting coalition troops and the Army in combat operations. Also, the CP140 could be used as an ISR platform providing streaming video and enduring persistence over the battlefield. Finally, the CH146 could provide ISR and light utility helicopter roles for the Army.

Along with the reduction of fleets comes an associated reduction in personnel. While this may not pose a problem in the short term, to rebuild an AF capability and retrain combat ready personnel in specialized trades and classifications is a lengthy and expensive process. The AF is still reeling from the Force Reduction Plan (FRP) of the 1990s and has put its efforts into the retention of current personnel over all other personnel initiatives.<sup>16</sup> Therefore, to significantly reduce fleets for present day operations and then expect them to be fully manned and trained for future operations is not as simple as it sounds. If planned for future employment in their area of expertise, a better solution might be to retain them in their current capacity at a lower state of preparedness than to eliminate them outright. This would enable the CF and AF to support future operations that require different combat skills than those required for the current conflict. Of course this would mean an investment of new personnel to man and maintain any new capability.

So, how much *force* does Canada's Air Force have to offer? In order to better understand this, the next few paragraphs will review the current environment regarding

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<sup>16</sup> Canada. Department of National Defence. *The Aerospace Capability Framework (A guide to transform and develop Canada's Air Force)*. CFP A-GA-007-000 AF-002 2003, (Ottawa: Director General Air Force Development, 2003), pg 47.

combat aircraft, the changing situation and the direction the CF could take to ensure a future capability.

In 1982 Canada bought 138 CF18s to replace the ageing CF101 Voodoo and CF104 Starfighter, and later on the CF5 Freedom Fighter.<sup>17</sup> Unfortunately, only 80 of these CF18s have been funded to undertake its mid-life upgrade, termed Engineering Change Proposal 583 (ECP 583), and in line with recent divestment requirements only 67 will be operationally employed on a regular basis. Current ELE of the aircraft is planned for 2017 with the potential to extend it to 2020 if deemed necessary.<sup>18</sup> Although most frontline aircraft are only planned to have a lifespan of approximately 20 to 25 years, the CF18 will be in service for a total of 35 to 38 years - an extremely long time for a country's sole fighter aircraft. That being said, the ongoing upgrades to the aircraft still permit the multi-role fighter to bring a significant capability to the fight. Domestically, CF18s provide defence of the airspace, both for Canada First and in the *no-fail* NORAD mission. Internationally they can be used in aerospace control or force application roles as well as strategic attack, or other counter land roles such as CAS, in support of the Army.<sup>19</sup> Nevertheless, while the upgraded CF18 fleet continues to be a very effective force, the overall capability and flexibility available to the operational commander has diminished with its numbers.

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<sup>17</sup> Christopher Shores. *History of the Royal Canadian Air Force*. (Greenwich, CT: Bison Books Corp, 1984), 116.

<sup>18</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces' Aerospace Power)*. A-GA-007-000/AF-007, (Ottawa: Director General Air Force Development, 2007), 48.

<sup>19</sup> Canada. Department of National Defence. *The Aerospace Capability Framework (A guide to transform and develop Canada's Air Force)*. CFP A-GA-007-000 AF-002 2003, (Ottawa: Director General Air Force Development, 2003), 8.

As the procurement of new AF capabilities is a lengthy process, follow-on options to replace the capabilities provided by the current CF18 fleet must be considered right away to ensure no gap occurs. While no aircraft has been chosen to date, a 2003 Defence Research and Development Canada (DRDC) study analyzed the best system to replace the current and future roles expected of the CF18. After researching numerous options (e.g., Surface to Air Missiles, bombers, multi-role fighters, etc.) it concluded that the multi-role fighter is the most suitable system. Although it is potentially more expensive than some of the other options, it is highly flexible and can fulfill all of the mandated roles.<sup>20</sup> This result initiated the Director of Aerospace Requirements (DAR) to begin analysis of 5<sup>th</sup> generation multi-role fighters to replace the 4<sup>th</sup> generation CF18.<sup>21</sup> The project is named the Next Generation Fighter Capability (NGFC).

Recognizing the importance that 5<sup>th</sup> generation fighters will play in future military operations, the GoC has invested in the development of the new F-35 Joint Strike Fighter (JSF), recently signing a MOU for the third phase of the project. Even though it has already cost Canada \$160M to participate in the development of the aircraft, it has also resulted in Canadian aerospace and defence industries securing 154 contracts to-date, totaling \$157M of what could eventually be billions of dollars of industrial spin-offs.<sup>22</sup> The aircraft itself will be designed to have “improved survivability, precision engagement

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<sup>20</sup> Thierry Gongora. *Future Combat Air operations System: Initial Assessment of roles and Options*; DOR (CORP) Project Report PR 2003/07, June 2003.

<sup>21</sup> Canada. Department of National Defence. “Flying into the Future: Next Generation Fighter Capability Project”, *Equipment & Capabilities of the Air Force*, April 2007, Vol. 5, No. 2. [http://www.airforce.gc.ca/site/newsroom/crew.2007\\_04/03\\_e.asp](http://www.airforce.gc.ca/site/newsroom/crew.2007_04/03_e.asp); Internet; accessed 01 October 2007.

<sup>22</sup> Canada. Department of National Defence. “Canada’s New Government Signs on to phase III of Joint Strike Fighter Program and Secures Access to up to \$8 Billion in possible contract for Canadian Industry”. News release GOC NR – 06.090, December 12, 2006. [http://www.forces.gc.ca/site/newsroom/view\\_news\\_e.asp?id=2167](http://www.forces.gc.ca/site/newsroom/view_news_e.asp?id=2167); Internet; accessed 01 October 2007.

capability, the mobility necessary for future joint operations and the reduced life cycle costs associated with tomorrow's fiscal environment."<sup>23</sup> Although the JSF is only one of a number of multi-role fighters that DAR will assess, it is capable of filling all of the AF's future air-to-air and air-to-ground roles. Additionally, as it will be mass-produced, it should be affordable to allied countries such as Canada who are involved in the program. An aircraft such as this would be supportable well into the future, while at the same time permitting Canada to meet its domestic and overseas mandates. It seems odd then, given the capability a 5<sup>th</sup> generation aircraft has to offer, and Canada's participation in the JSF program, that the NGFC has not received sufficient priority to be supported in the long-term CF budget.

The CP140 is in a similar situation to the CF18. Initially acquired for Anti-Submarine Warfare (ASW) during the Cold War, it has become a true multi-role aircraft. Today the CP140 makes up a significant portion of the AF ISR capability, monitors surface ships, patrols the coasts and was engaged in Operation Apollo in the Persian Gulf from 2001 to 2003.<sup>24</sup> Most recently, it was involved in gathering evidence of illegal driftnet fishing off of British Columbia.<sup>25</sup> Originally, 18 CP140s were purchased in the early 1980s (plus three Arcturas trainers) and were recently planned to be significantly enhanced through the Aurora Incremental Modernization Project (AIMP) and extended to

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<sup>23</sup> Military Analysis Network. "Joint Strike Fighter (JSF)", December 01, 2005 <http://www.fas.org/man/dod-101/sys/ac/jsf.htm>, 1; Internet; accessed 01 October 2007.

<sup>24</sup> Canada. Department of National Defence. *The Aerospace Capability Framework (A guide to transform and develop Canada's Air Force)*. CFP A-GA-007-000 AF-002 2003, (Ottawa: Director General Air Force Development, 2003), pg 70.

<sup>25</sup> Editorial, *Ottawa Citizen*. "Forces watching outlaw driftnetters". September 29, 2007.

2025 by the Aurora Service Life Extension Project (ASLEP).<sup>26</sup> However, due to fiscal constraints and CF priorities, the ASLEP was not initiated and the AIMP is now being diminished in scope. Also, although all of the CP140s have been retained, the operational fleet was recently cut back to 12 aircraft and the Yearly Flying Rate (YFR) reduced. Although the ELE of the aircraft is being extended to 2016, the aircrew and maintenance personnel have already been reduced and reassigned. Obviously this force reduction impacts on the ability for the aircraft to sustain LRPs and ASW missions.<sup>27</sup>

Although the recent CP140 reduction will result in a decreased capacity to conduct ISR operations, the AF sees a growing demand for ISR over Canada's waters and in support of expeditionary operations. New ISR flights over Canada's vast northern area are also expected to be required in the near future. While there is a plan to use JAIC UAVs in the ISR role, they are predominately planned for expeditionary use and would be difficult to operate in Canada's North. Even though the CP140 has been filling this role and is a very capable platform, the cancellation of the AIMP program limits its overall capability to conduct overland ISR and the airframe itself has only nine years of service life left.<sup>28</sup>

The Canadian Multi-mission Aircraft (CMA) is the AF's theoretical aircraft that is planned to fill these ISR and ASW gaps. It is anticipated to be a multi-role aircraft with ISR, ASW and potentially air-to-ground weapon capabilities. Planned to operate in

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<sup>26</sup> Canada. Department of National Defence. "CP-140 Aurora", Air Force Home. [http://www.airforce.forces.gc.ca/site/equip/cp140/history\\_e.asp](http://www.airforce.forces.gc.ca/site/equip/cp140/history_e.asp); Internet; accessed 01 October 07.

<sup>27</sup> Editorial, *CBC News*. "Ottawa halts \$1.6B upgrade of patrol aircraft". September 20, 2007. <http://www.cbc.ca/canada/story/2007/09/20/aurora-upgrade.html?ref=rss>; Internet; accessed 01 October 07.

<sup>28</sup> *Ibid.*



both domestic and expeditionary roles with a Command and Control (C2) aspect, it could also incorporate a self-defence suite that would enable it to safely operate over the AO. Ideally the CMA would assume existing CP140 roles and much more, well into the 21<sup>st</sup> century.<sup>29</sup> Along with the NGFC, the AF is pushing the capabilities of the CMA, but to date it remains outside of the current CF budget.

Although the CH146 Griffon helicopter does not currently have a direct combat capability, it does support ground troops that do. A utility tactical transport helicopter, the CH146 provides ISR, medical evacuation of personnel, directs fires, is used for secondary SAR and conducts a host of additional activities.<sup>30</sup> With the planned introduction of the CH147 Chinook helicopter, the CH146 fleet will have to proportionally decrease in size to make up for the CH147 personnel and budgetary demands. As a result, the current plan is to reduce the fleet from 85 to 64 aircraft, or potentially lower, which will result in a reduction of light utility helicopter support to the Army. The personnel freed up will assist in manning and maintaining the incoming CH147 Chinook fleet. Ironically, as the CH147 will require escort helicopters to protect it in theatre, a number of the remaining CH146 aircraft are planned to be fitted with Electro-Optical, Infra-Red (EO/IR) sensor kits and a basic weapon system. This will then give them a combat capability, albeit defensive in nature, to carryout the escort role.

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<sup>29</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces' Aerospace Power)*. A-GA-007-000/AF-007, (Ottawa: Director General Air Force Development, 2007), 62.

<sup>30</sup> Canada. Department of National Defence. *The Aerospace Capability Framework (A guide to transform and develop Canada's Air Force)*. CFP A-GA-007-000 AF-002 2003, (Ottawa: Director General Air Force Development, 2003), 37.

While operating in this configuration, they will be called the Interim Battlefield Reconnaissance Utility Helicopter (IBRUH).<sup>31</sup>

The eventual replacement of the CH146 / IBRUH will not be initiated until approximately 2019 with the planned introduction of the BRUH. The BRUH is envisaged to have more firepower and be much more operationally capable than the CH146, able to provide fire support, reconnaissance and other utility functions.<sup>32</sup> As this aircraft is not planned until the end of the next decade, it is outside the timeframe of the CF's 10-year budget plan.

Overall, the AF has a dilemma in that it cannot do all that it is being told to do or wants to do. Operationally, the AF seems to be heading in the direction of a bus and truck service for the Army. This makes one think that re-education on what combat air operations can bring to the fight is necessary! It seems as though the overall positioning of the CF is fully focused on purely expeditionary operations against an asymmetric threat and only up to 2009, at the expense of domestic and future requirements. If permitted to continue down this path, one might suggest that the CF will be aligned for one mission only and will be unable to meet the remainder of its mandated requirements and goals.

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<sup>31</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces' Aerospace Power)*. A-GA-007-000/AF-007, (Ottawa: Director General Air Force Development, 2007), 64.

<sup>32</sup> *Ibid.*, 64.

## POTENTIAL SCENARIOS

Taking this into account, the following are a number of scenarios the AF could take with regard to combat air operations:

Scenario 1: Status Quo. Divest in the current combat aircraft and do not replace them once they retire. This would provide the operational commander with limited ASW, LRP and manned ISR up to 2016, but none after. Additionally, there would be no capability to provide airborne defence of Canada or for NORAD post 2017. This would result in a significant sovereignty impact, as Canada has no other medium that could deter over-flight of Canadian territory.<sup>33</sup> There would also be no air-to-ground capability for use in theatre or for Army training;

Scenario 2: Receive one time GoC investment to acquire a CMA prior to 2016, a NGFC prior to 2017 and a BRUH prior to 2020. This would be the easiest to deal with, as it would be the least disruptive and provide the desired end state. However, both the CMA and NGFC would have to compete with a large number of other capital projects expected around the same timeframe, such as the following: CC130J, CH147, JAIC, FWSAR, UTA, Joint Support Ship, Future Family of Combat Vehicles for the Army, and new Frigates and Destroyers for the Navy. Conversely, the planned introduction of the BRUH is later than the bulk of the major acquisitions, therefore it may be easier to support from a purely financial basis than the CMA or NGFC;

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<sup>33</sup> Dr. John C. Col. (Ret), et al. "Canada's Air Force in a Transformed Canadian Armed Forces" <http://www.cdadai.ca/pdf/Air%20Force%20Revival%20in%20a%20Transformed%20Canadian%20Forces.pdf>, 2; Internet; accessed 01 October 07.

Scenario 3: Reprioritize resources within the current CF budget to elevate the CMA and NGFC above other CF capabilities. This would be contentious at best as certain projects and capabilities would have to be reduced or eliminated to support the NGFC and CMA. In all likelihood this would create significant debate amongst the Environmental Chiefs and take much higher direction to resolve. Although resource prioritization is absolutely necessary, it may be difficult to resolve/satisfy all of the environmental and political hurdles;

Scenario 4: Reprioritize resources within the AF to elevate the CMA and NGFC above other AF capabilities. Given the overall cost of the two projects this may be impossible to achieve without additional financial support. This taken into account, a radical transformation within the CF/AF might make the acquisition of new combat aircraft more palatable. Potential areas for savings could be found in rationalizing the fleets, diminishing Headquarter (HQ) staffs and reducing infrastructure;

Rationalizing the fleets could entail the realignment of the AF LOOs to retain only those aircraft with core combat and support capabilities and contract out the remainder on an as required basis. Cost analyses would obviously be necessary in each LOO, but when one considers the equipment, infrastructure and training bill required to sustain the AF, there are likely savings to be made. This would logically result in fighters, LRP, MH, UAVs, Tactical Helicopter and Tactical Airlift aircraft being defined as core AF capabilities, required to be flown and maintained by AF personnel. Strategic Air Transport, VIP transport, SAR, Utility Transport Aircraft (UTA) and training aircraft would be defined as non-core AF

capabilities, capable of being contracted or chartered instead of permanent assets within the AF itself (if deemed cost and operationally effective); and

Further transforming the Headquarters (HQ) and Wings could also provide additional savings. As indicated on the CF transformation site, the plan is to “blend existing and emerging systems and structures to create greatly enhanced capabilities relevant to future missions, roles and tasks.”<sup>34</sup> The current structure of a strategic and operational environmental HQ, along with a strategic central HQ and operational commands (dot-comms) could potentially produce significant redundant activity through the various staffs resulting in additional personnel to conduct the same amount of business. As the CF is mandated to work towards joint interoperability, it would make sense to support the central decision making staff for Force Development issues<sup>35</sup> while retaining an environmental level organization at the operational level to coordinate specific Force Generation (FG), Force Employment (FE) and NORAD requirements.<sup>36</sup> Also, coordinating and combining the redundant Joint-level staffs within the various dot-comms (not J2, J3, or J5) while providing sufficient liaison staff would ensure strong network communications and support, and be much more efficient. This level of restructuring would most likely provide significant personnel and infrastructure

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<sup>34</sup> Canada. Department of National Defence. “Transform and Modernize the Canadian Forces”. October 10, 2006. [http://www.cds.forces.gc.ca/cft-tfc/intro\\_e.asp](http://www.cds.forces.gc.ca/cft-tfc/intro_e.asp); Internet; accessed 01 October 07.

<sup>35</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces' Aerospace Power)*. A-GA-007-000/AF-007, (Ottawa: Director General Air Force Development, 2007), 17.

<sup>36</sup> Canada. Department of National Defence. “1 Canadian Air Division/Canadian NORAD Region”. [http://www.airforce.forces.gc.ca/site/orgdocs/organization2\\_e.asp](http://www.airforce.forces.gc.ca/site/orgdocs/organization2_e.asp); Internet; accessed 01 October 2007.

savings. The money saved from the infrastructure and associated office support could be refocused on capital acquisition projects, while the personnel savings could be redirected to fill holes in the operational and tactical levels; and

Significant savings could also be made by operationally restructuring at the Wing level by combining Wings and Bases together thereby cutting down on the extremely high infrastructure costs<sup>37</sup> and result in a much more efficient organization. While some Wings could be eliminated altogether, such as Goose Bay, others could potentially be collocated with Army or Navy Bases (i.e., Cold Lake and Edmonton, or Valcartier and Bagotville). Although it is understood that the elimination of bases impacts local economies and is therefore highly sensitive and political, from an operational perspective it makes complete sense to reduce the infrastructure footprint as much as possible. This would not only cut down on cost, it would also allow the AF, Army and Navy to *train like they fight*. The benefit of living on the same Base or Wing would provide opportunities to more easily plan and train together as well as provide a better understanding of each other's *raison d'être*. While enhancing jointness, the financial savings could also be redirected into capital projects.

Although many of the dramatic changes noted in Scenario 4 would be difficult to accept in the short term, evolution in that direction seems likely. Of course a combination of Scenarios 2, 3 and 4 would probably be the most efficient and logical. The ideal scenario would be to convince the GoC to invest in the NGFC and CMA (later

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<sup>37</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces' Aerospace Power)*. A-GA-007-000/AF-007, (Ottawa: Director General Air Force Development, 2007), 36.

on the BRUH) by educating it on how these capabilities will provide home security and sovereignty, and positively impact foreign operations. Additionally, the monetary savings gained through HQ and Wing reductions could be reinvested into refurbishing or replacing infrastructure to support the new capabilities. Finally, the personnel savings from the HQ reductions could then be provided to the operational level and the Wings, filling new capabilities and reducing current shortages.

### **WHAT SHOULD THE OPERATIONAL COMMANDER EXPECT?**

Obviously the ideal end-state would be to provide the commanders at the operational level with AF resources to permit them to complete their respective mandates. For the Commander of CANOSCOM, it would ensure there are enough Air Mobility aircraft to permit the movement of goods into and out of the AO. As current operations use whatever AF assets are available and charter the rest, there should be no real change in the concept, whether the AF provides more or less direct bluesuit support.<sup>38</sup>

For the Commander of CanadaCOM, future NGFC and CMA would provide aerial defence of Canada, the ability to provide LRP off its coasts and a manned ISR capability over its vast territory. Additionally, all of the other domestic tasks, such as SAR, UTA and Air Mobility could be provided in one form or another. NORAD responsibilities would still be retained and implemented by the Commander of the

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<sup>38</sup> Canada. Government of Canada. "Government Response to the Report of the Standing Committee on National Defence and Veterans Affairs". <http://cmte.parl.gc.ca/cmte/CommitteePublication.aspx?COM=226&SourceId=129918&SwitchLanguage=1>; Internet; accessed 01 October 07.

Canadian NORAD region, currently held by the Commander of 1 Canadian Air Division and supported with these capabilities.<sup>39</sup>

The Commander CEFCOM would be provided a host of combat capabilities such as aerospace control, force application, strategic attack, along with counter-sea and counter-land roles such as CAS. Manned and unmanned ISR would be available over the AO, with Tactical Helicopter sustainment for ground and seaborne troops and ASW in support of the naval forces. Tactical Air Transport would also be available within the theatre and strategic airlift could provide logistic support into rear staging areas. The Commander CANSOFCOM could expect similar support as the Commander CEFCOM with the addition of dedicated Tactical Helicopter support.

Understanding that Operational Commanders could put a combat capable AF to good use, the next question would be how much do they need or require. This is not as easy to calculate as might appear. For example, in 1989 the AF had almost three times as many operational fighters as it does today, but the CF conducts more operations today than it did then. Arguably, the nature of conflict was different then than it is today and current fighters are much more capable today than they were in 1989. Therefore, rather than purely referring to historical statistics, the best method would be to calculate the minimum amount necessary to support operations at home and then determine how much capability is necessary or desired for expeditionary and contingency operations. This should result in a detailed analysis being conducted to establish the correct number of aircraft required, taking into account the available budget. Of note, an identified number

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<sup>39</sup> Canada. Department of National Defence. "1 Canadian Air Division/Canadian NORAD Region". [http://www.airforce.forces.gc.ca/site/orgdocs/organization2\\_e.asp](http://www.airforce.forces.gc.ca/site/orgdocs/organization2_e.asp); Internet; accessed 01 October 07.



of attrition aircraft should also be included to ensure the mandate is achievable until the anticipated life expectancy of the aircraft.

## **FORCE COMPARISON**

One could compare Canada's combat capability against typical business or coalition partners to determine the best mix. To compare against a country such as the United States would be inaccurate though, as a power such as this could go it alone in a conflict if it had to. Canada is not in that position, nor does it want to be. As Canada is a member of the Group of Eight (G8), perhaps one could compare it with the other seven countries. Although Russia is the only country in the Group with more territory to defend than Canada, they all have significantly greater combat air capability. For example, Russia has approximately 2100 fighter aircraft alone, while the remainder (not including the United States) have somewhere between 275 to 400 fighters each. That being said, they have much greater populations and also different domestic and foreign policies. So, how about comparing with other European countries? From a social and cultural point of view, they may be the closest link to Canada, outside of the United States. Typically, however, they are much smaller in size but much more densely populated. Even those that have smaller populations, however, often have more combat air power. For instance, the Netherlands is a very small country in comparison to Canada with a population of only 16.5 million. However, it has 90 multi-role fighters and 29 attack helicopters.<sup>40</sup>

That being said, other than being associated through the North Atlantic Treaty Organization (NATO), the defence requirements of European countries are quite different

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<sup>40</sup>Wikipedia, The Free Encyclopedia. "List of air forces".  
[http://en.wikipedia.org/wiki/List\\_of\\_air\\_forces](http://en.wikipedia.org/wiki/List_of_air_forces); Internet; accessed 01 October 2007.

than those of Canada. In fact, it may be impossible to find another country that is exactly like Canada.

Although situated on the other side of the world and influenced by some differing domestic and foreign pressures, Australia has some close similarities to Canada. It is a Western style country comparable in cultural beliefs, size and population. As previously discussed, Canada will operationally fly 67 CF18s and 12 CP140s, and is acquiring 28 CH148 Maritime Helicopters. It will also likely purchase some IBRUH kits for a portion of the 64 CH146 helicopters in order to support CH147 and Army operations.<sup>41</sup> In contrast, Australia has 71 F/A18s, 28 F111s, is buying 24 F/A18F Super Hornets to replace the F111 in 2010 and is planning on acquiring up to 100 JSF fighter-bombers to replace its ageing F/A18s. It also has 21 P3s (the Australian version of the CP140) as well as a number of combat capable helicopters flown by its Navy (Seahawk, Sea King and Seasprite) and Army (Eurocopter Tiger and S-70 Blackhawk) in support of combat operations.<sup>42</sup> Strategic support for its next generation fighter is also extremely strong. This is illustrated by the Australian Strategic Policy Institute statement that Australia's planned purchase of the JSF "will profoundly affect Australia's military strength. Their capabilities will be the single most important factor in determining our capacity to defend our continent from conventional threats, and they will be a key element of our ability to

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<sup>41</sup> Canada. Department of National Defence. *DRAFT Air Force Strategy (The Flight Plan for Canadian Forces' Aerospace Power)*. A-GA-007-000/AF-007, (Ottawa: Director General Air Force Development, 2007), 42-44.

<sup>42</sup> Australia. Australian Government Department of Defence Web Site <http://www.defence.gov.au/index.htm>; Internet; accessed 01 September 07.

project strategic influence in the region.”<sup>43</sup> This indicates two things: first the Australians currently have significantly more airborne combat capability than Canada; and second they have a comprehensive plan to replace and improve on it for future operations.

## CONCLUSION

Even though the CF is moving forward through transformation and increased funding, it is evident that its views on the benefit of combat air operations are not in line with partner nations, such as Australia, the G8 or European countries. In fact, one could argue that Canada’s attention is primarily focused on present day operations and its current war, rather than on its full mandate and potential conflicts of the future. Although the concept of the new AFS may be sound in theory, having already drastically reduced the combat air operations capability available to operational commanders, there is a serious potential of losing it all and Canada being caught with its pants down.

Canada and the CF have some tough decisions to make. Most important, what is the price Canada puts on the defence of its country and its sovereign airspace, and what is the plan for the future? While the Taliban will not likely be the organization to challenge this potential shortfall, there are a number of nations and asymmetric actors that could. Although it is doubtful that the US would permit hostile forces to fly through Canadian territory unchallenged, having the US control Canadian airspace in itself violates Canadian sovereignty. The same would be true for Canada’s waterways. Therefore, one could surmise that Canada needs a method of ensuring sovereignty and providing defence

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<sup>43</sup> Australia. Australian Strategic Policy Institute. *Strategy (A Big Deal: Australia’s future air combat capability)*. Aldo Borgu, Program Director, (February 2004), 1.

over its territories through the use of combat capable aircraft. The same can be said for combat air operations overseas. Undoubtedly past AF combat missions have provided commanders with a significant force multiplier while at the same time protecting lives in the air and on the ground. If the CF wishes to continue in this vein, it will have to invest in the future.

Combat air operations are firmly ingrained as an integral component in the current and future AF mandate with the type and level of requirement dependent on the conflict and situation at any given time. That being said, current predictions indicate that global hostilities are on the rise and Canada and the CF have to be prepared to react to a wide variety of threats with a suitable response. In some cases this will be humanitarian aid or peace keeping, but in others it will require combat air operations. For the Operational Commander, the ideal solution would be to have combat capabilities available in all media. From an air perspective this means CF18s and CP140s in today's world and multi-role fighter-bombers (under the NGFC project) and the Canadian Multi-mission Aircraft in tomorrow's world. To best affect this, the CF must continue to transform, limit divestment in these capabilities and retain a complete and well-trained cadre of personnel. It must also work with the GoC to invest in future resources to prevent a gap from occurring. To delay or avoid doing so will significantly impact the operational commander's capability to ensure Canadian sovereignty and expeditionary mission success.

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