

Testimony of Captain Jeff Martin

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Before the Subcommittee on Aviation

Transportation & Infrastructure Committee

U.S. House of Representatives

July 29, 2009

Chairman Costello, Ranking Member Petri, Members of the Committee:

On behalf of Southwest Airlines, thank you for this opportunity to share Southwest's experiences thus far with Required Navigation Performance (RNP). My name is Jeff Martin. I am Senior Director of Flight Operations and a pilot for Southwest Airlines. Since 2006, I have been directing Southwest's multi-phased program and business plan to equip our entire fleet of aircraft – over 500 Boeing 737s – and train our nearly 6,000 pilots in RNP and associated NextGen efforts. I have also led Southwest's efforts in working with the FAA to certify the many aspects of our RNP program and to design and implement new flight procedures that will be critical in achieving the safety, operational and environmental objectives that the Next Generation Air Traffic Management System (NextGen) promises to offer.

Southwest Airlines considers RNP to be a major cornerstone of NextGen. RNP combines the accuracy of a satellite-based, Global Positioning System (GPS) with the performance capabilities of today's modern jet aircraft to fly more direct and precise routes and procedures. It's like having a GPS system in your car, enabling the driver to use satellite technology.

If implemented correctly and widely throughout the national aviation system, RNP will 1) strengthen our environment by greatly reducing the amount of fuel we consume and greenhouse gases we emit; 2) provide our Customers with less congestion and fewer delays; and, 3) improve safety and the operational performance of the commercial aviation industry.

Southwest's RNP Program – Jumping into NextGen With Both Feet

Southwest's decision to move forward with RNP was largely based on the experiences of other commercial air carriers that spearheaded the use of this technology several years ago. These carriers have realized numerous benefits including fuel savings and reduction of operational separation variances.

In March of 2007, Southwest decided to make an unprecedented commitment towards advancing NextGen, announcing that we would devote considerable corporate resources – \$175 million – to make RNP an integral part of our day-to-day operations. Today, 66% of our fleet – nearly 300 Boeing 737-700 aircraft – is RNP capable. Over the next four years, we plan to retrofit the remainder – 215 Boeing 737-300 aircraft – with GPS receivers, software upgrades and the necessary avionics to fly more direct and efficient RNP procedures.

Earlier this month, Southwest reached an important milestone in our quest to fly more efficiently - more “green” – by successfully implementing autothrottles and vertical navigation (VNAV) modifications to our fleet of aircraft. Autothrottles and VNAV modifications permit our pilots to fly more precise speeds and utilize optimum descent profiles.¹ This step, alone, enables Southwest Airlines to conserve millions of gallons of jet fuel per year, while significantly reducing our emissions. Recently, Southwest successfully demonstrated the environmental benefits of RNP with flights between Dallas Love and Houston Hobby Airports.

In addition to the technological and operational specifications, Southwest is embarking on a four-phase training and education program for all of our pilots. Our nearly 6,000 pilots are currently training on the use of autothrottles, automation and VNAV. The third (next) phase will teach pilots how to perform basic GPS approaches. The final phase will focus on RNP flight procedures. We plan to complete all of this training and begin flying RNP procedures by October 2010.

¹ By 2013, Southwest hopes to have the most advanced fleet of aircraft in the commercial airline industry, each plane equipped with GPS navigation and onboard monitoring displays. This equipment will allow Southwest to more easily prepare for the FAA's eventual transition from a radar-based to a satellite-based air traffic control system.

SWA is working closely with the FAA to assist in the design and publication of new RNP flight procedures for many of the airports we serve. Our goal is to have at least one useful – or “carbon negative” – RNP arrival procedure at each of the 66 airports at which we operate. We fully support the efforts of the FAA’s Performance-based Operations Aviation Rulemaking Committee (PARC) to focus on the FAA’s 35 Operational Evolution Partnership (OEP) airports, as well as other airports where more efficient procedures can be implemented relatively easily. It is important to note that, despite our investments in RNP, we want any and all RNP procedures to be procedures that can be utilized by any aircraft operator equipped and certified to fly advanced RNP operations.

RNP Benefits the Environment, Customers and Carriers

Environment

RNP reduces an airline’s carbon footprint. Flying a more direct, economical path results in track-mile savings. Continuous descent approaches, instead of using current “step down” approaches, are also more efficient. This burns less fuel, thereby reducing aircraft emissions.

Based on Southwest’s own demonstration flights, RNP can reduce fuel burn and carbon dioxide emissions by as much as 6 percent per flight. For a company like Southwest Airlines, even a two percent reduction in fuel consumption on 80 percent of our flights would translate into 23 million gallons of fuel saved and carbon reduction of 496 million pounds of CO₂.

Customers

RNP takes safety to the next level. It utilizes the airspace more efficiently, which results in decreased congestion and delay. It makes operations more dependable. This means increased on-time performance and a better experience for the flying public.

Carriers

Carriers benefit from RNP in much the same way as Customers. Modifications that make operations more efficient also enhance safety by giving pilots and controllers better situational awareness and the ability to avoid potential dangers. RNP approaches provide increased operational reliability due to decreased dependence on ground-based navigation systems, which

results in more certainty in dispatch operations, increased on-time performance and a higher level of safety.

RNP Going Forward

Unlike some other components of NextGen, RNP capability exists today and has been successfully demonstrated both here and abroad. RNP has been used in recent years by air carriers in Alaska and in many countries throughout the world to achieve safer, more fuel efficient and environmentally friendly flight operations. RNP-capable aircraft are now flying advanced flight procedures in Canada, Australia, New Zealand, and in many parts of Europe, Asia and Latin America.

However, considering that RNP was first developed and demonstrated in the United States over a decade ago, the U.S. has fallen behind many of these other countries in the widespread implementation of RNP. Countries like Canada and Australia have been much more aggressive in accelerating the deployment of efficient RNP flight procedures and incentivizing their carriers to become equipped to fly these procedures.

For Southwest Airlines, we believe now is the time for United States to reclaim its traditional status as the pacesetter in the development, deployment and use of advanced aviation technologies. RNP is a great place to start.

Industry and Government are Working Together

Airlines are showing leadership in equipping our aircraft. Government can show leadership by accelerating NextGen. It is clear that both the FAA and the aviation industry need to jointly train, market and implement a program to assure the future success of RNP.

FAA Administrator Randy Babbitt recently gave a speech before the RTCA in which he said, “We must take advantage of what operators already have invested. RNP and RNAV work. We know that.... With the airlines – and the economy – still looking at a steep climb, the ROI [return on investment] is even more important.”

For NextGen to succeed, the FAA can begin by designing an aviation system that guarantees airlines a proper return on their investment through more efficient routes and procedures.

Administrator Babbitt understands that, even in the best economic conditions, an airline will only choose to equip its planes with RNP-enabling equipment if the cost-savings achieved through RNP exceeds the equipage and training costs necessary for RNP implementation.

Southwest Airlines has reached a pivotal point in our quest for RNP. Our Company believes we've taken this as far as we can. It is not responsible for the Company to invest more in further developing our RNP program, until there is more certainty that the other stakeholders in this enterprise are meeting their commitments in a timely manner.

The next steps are up to the FAA. These steps include:

1. Requiring that useful RNP procedures be designed, starting with our nation's busiest airports (i.e., the 35 FAA-designated Operational Evolution Plan (OEP) airports).
2. Establishing a standard to determine whether an RNP procedure is "useful."
 - "Useful" RNP procedures decrease flight miles, which reduce an aircraft's fuel burn;
 - "Useful" RNP procedures are carbon negative;

One of the examples of a "useful" RNP procedure that has been designed and implemented by the FAA is an RNP approach into Runway 13-Center at Chicago's Midway Airport. This new approach allows aircraft to fly more direct routes and provides procedural separation of aircraft departing from O'Hare Airport

3. To fully leverage the benefits of RNP, aircraft separation standards must be established and revised, as appropriate;
4. Addressing the environmental impact of RNP in a timely and cost-effective manner;
5. Merging NextGen and traditional flights.

The widespread use of Continuous Descent Approaches (CDA) or Optimized Profile Descents (OPD), combined with revised separation standards, are necessary to enhance airspace and runway capacity as well as the aircraft's operational performance. All of this can be done without compromising safety.

RNP's Success Will Propel Other NextGen Initiatives

Administrator Babbitt recently acknowledged the need to accelerate NextGen implementation. According to the Administrator, "NextGen is just flat out not moving fast enough." We agree. NextGen needs to be accelerated.

Because RNP technology exists today and because it is proven to create greater environmental and operational efficiencies – including sizable reductions in fuel consumption and carbon dioxide emissions – RNP really is "low hanging fruit" for the FAA and industry, in the context of NextGen. RNP also can help pave the way for the future deployment of ADS-B and the FAA's future satellite-based air traffic control system.

My colleagues at Alaska Airlines have long benefited from safe, reliable and efficient RNP procedures in Alaska. Other U.S. airlines are currently certified for RNP and RNAV procedures, but are awaiting the deployment of new and efficient RNP flight procedures to reinforce their past and future investments.

Lessons Learned

During the past 36 six months, the Flight Operations Department at Southwest Airlines has been fully engaged and committed to our NextGen project. Our RNP program is, without a doubt, the most complicated and time-consuming project that Southwest has ever embarked upon.

Southwest Airlines has learned that it's difficult, complicated, and expensive to implement RNP.

Our final Operational Specification – or OPSPEC – package, which is a regulatory requirement for future RNP operations, consisted of 1,871 pages, including regulatory support materials and training procedures. Our training procedures team worked nonstop for 19 months to design our pilot training curriculum. As we found out, adequate time and sufficient resources are necessary to design useful procedures, certify air carriers and provide necessary training.

One of the most important lessons we have learned at Southwest is the importance of employee education, marketing, and technical training. At Southwest, we like to think we're aware of "People" factors. However, we've discovered that the human factors involved in NextGen are often overlooked.

On behalf of Southwest Airlines, thank you for this opportunity to testify and to share our thoughts and experiences with RNP. We look forward to working with the FAA, elected officials and industry stakeholders in ensuring RNP's future success.