



AFA Conference/Governor's Aerospace Summit

“Yes, We Can.”

**October 6-7, 2009
Spokane, WA**



Disclaimer

Analysis and predictions are based on information as of 9/30/09. Every effort has been made to assure accuracy and reasonableness. Views and predictions are solely the work of Leeham Co. and may or may not be shared by anyone else.



“Yes, we can.”

- **Recent big event:**

**Snohomish
County** 

**Saving Washington Aerospace
August 3, 2009
Lynwood, WA**

- My take-away:

'Saving Washington Aerospace'



Saving Aerospace

- **‘Saving’ 787 Line 2 for Washington**
- **Assumptions**
 - **Line 2 elsewhere could be beginning of end of Boeing here**
 - **If Boeing leaves, so does ‘everyone’ else**
 - **So we have to ‘save’ Line 2 and ‘save’ Washington aerospace**



Reality

- **Boeing has been leaving Washington**
 - **Only 787's vertical tail produced in WA**
 - **Only 800-1,200 assembly jobs for 787**
 - **The 'disappearing airplane'**



Reality

- **2001: Boeing HQ to Chicago**
- **Renton: Boeing's move to the lake**
- **Boeing is becoming an integrator, not a producer = fewer jobs**
- **Boeing will continue to leave Washington**



Reality

- **787 Line 2 could be in Charleston**
- **Future of 737RS, 777RS a question**
- **Even assuming Line 2, 737RS, 777RS remain in Puget Sound, integration model means fewer jobs**



Reality

- **Outsourcing**
 - **Boeing believes in it, but:**
 - **“Resource flow to most efficient uses doesn’t mean the cheapest.”**
 - **Adam Pilarski, Economist, Avitas Aviation**



Reality

- **Timeline**

- **787 Line 2 decision by YE2009 or before**
- **737RS EIS 2020 means decision 2013-15**
- **777RS EIS e2018 means decision 2011-13**



Reality

- **Adjust the Mindset**
- **Washington's Task is *not*:**
 - **'Saving Washington Aerospace'**
 - **'Saving' Washington Aerospace is:**
 - **Maintaining the status quo;**
 - **Watching jobs disappear;**
 - **Ignoring changes; and**
 - **Ignoring new opportunities**



Reality

- **Washington's Task is:**
 - ‘**Growing** Washington Aerospace’
 - **Adjusting to realities**
 - **Looking for new opportunities in the changing world of aerospace**
 - **“Aerospace” is *not* just airliners: refocus**



Growing Washington Aerospace





Growing Aerospace

- **In Reality, 787 Line 2 is *growing* Washington aerospace**
 - More direct and indirect jobs
 - More revenue
- **The task is how to land Line 2 to *grow*, not ‘*save*’**

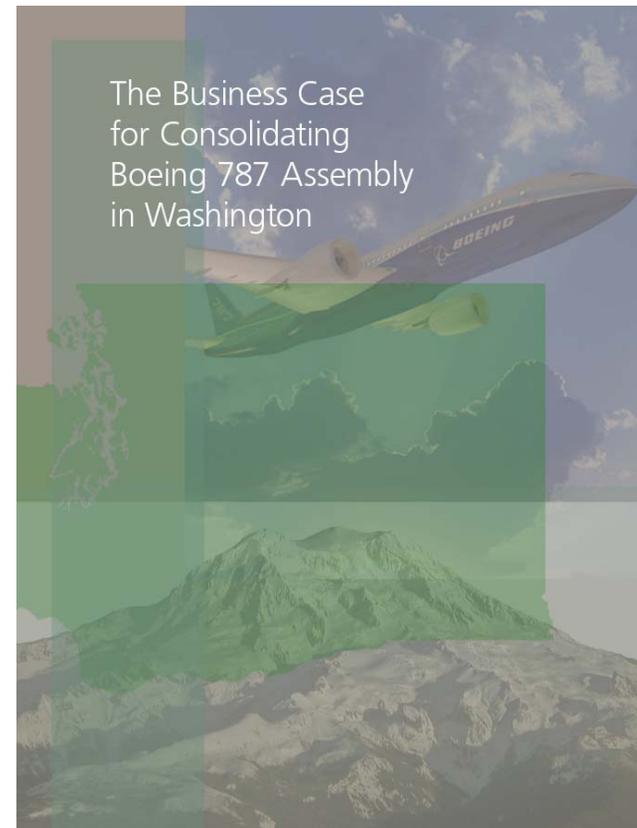


Growing Aerospace

- **Landing Line 2: we know the issues**
 - **‘Business climate’**
 - **Reliable, steady production**
 - **Labor/Management relations**

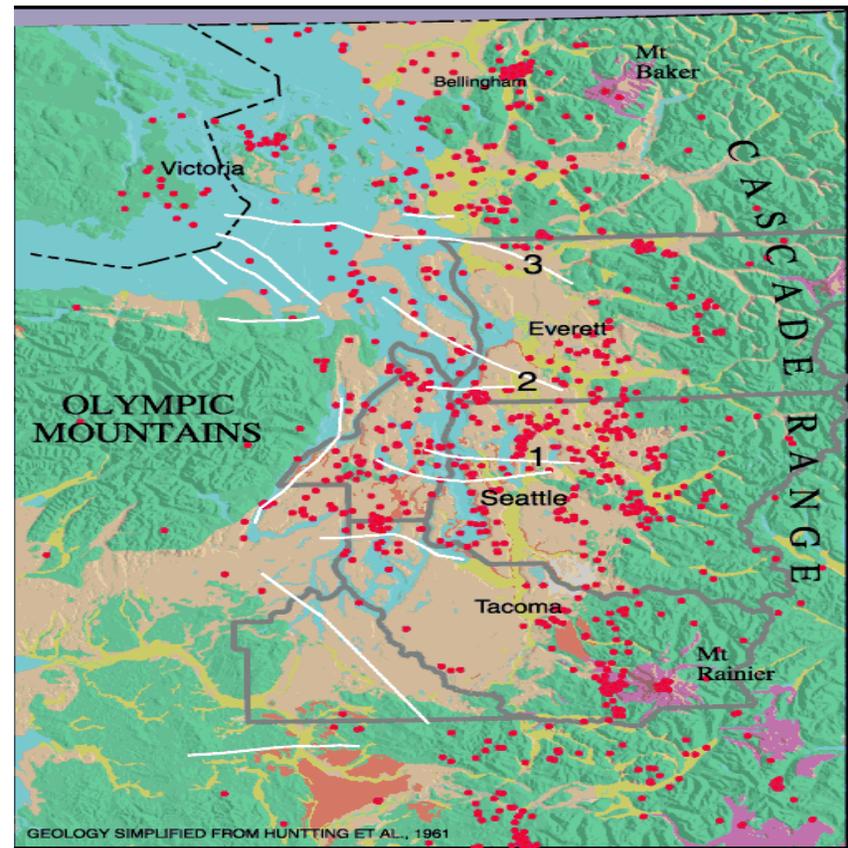
Growing Aerospace

- **Business Climate**
 - **Perpetual issue**
 - **State delivered Business Case to Boeing**
 - **WA in better shape than reputation**
 - **Still progress to be made, especially for smaller companies**



Growing Aerospace

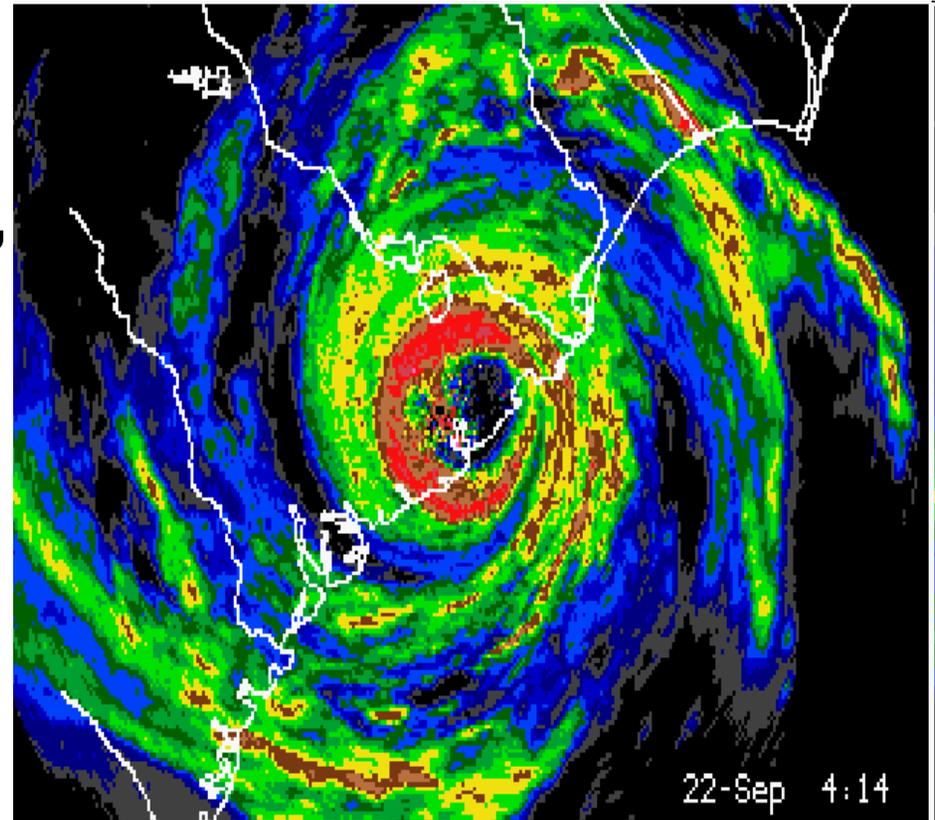
- Boeing raising concerns of natural disaster
- Earthquakes could shut down Everett
- Last major quake near Everett: 5.7, 1932
- Locating Line 2 elsewhere reduces this risk



red dots = earthquakes; white lines = faults

Growing Aerospace

- But is SC the best place?
- Hurricanes every year, many along East Coast
- Hurricane Hugo, 1989, landfall at Charleston

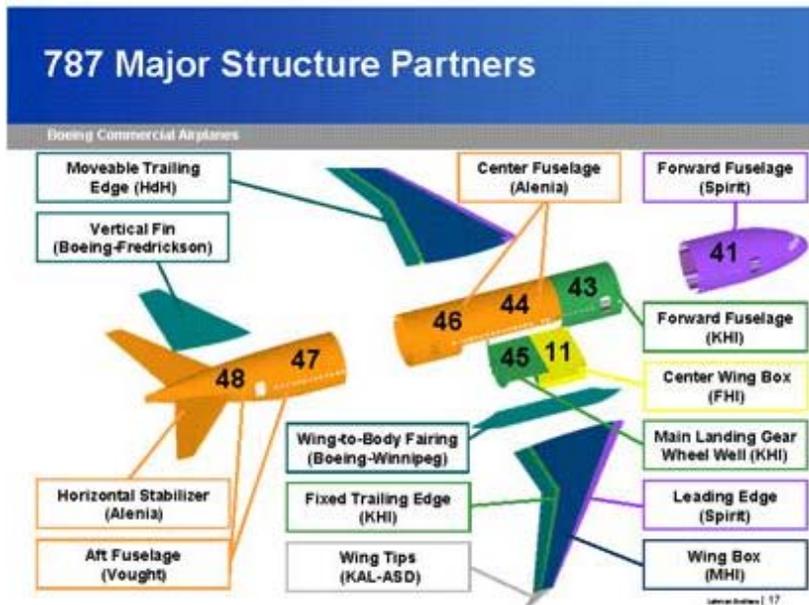


Growing Aerospace



Growing Aerospace

- Production Risks





Growing Aerospace

- **Is Charleston a production risk?**
 - You betcha!
 - New construction
 - Hiring new, untrained workers
 - Steep learning curve
 - IAM Everett fixing Charleston mistakes
- ***(Identical arguments made by Boeing (IDS) against Northrop/Airbus KC-30 tanker in Mobile, AL)***

Growing Aerospace

- Labor/Management Relations
 - Biggest issue is strikes





Growing Aerospace

- **What is the plan if 787 Line 2 goes elsewhere?**
 - **Plan B required to grow WA aerospace with or without Line 2**
 - **Plan C required to assure 737RS/777RS remains in WA**
 - **Plan D required to grow WA aerospace *regardless* of what Boeing does or doesn't do**



Growing Aerospace

- **777RS: Good facilities at Everett**
- **737RS: Greatest threat to leave Puget Sound, greatest opportunity for Eastern Washington**

Growing Aerospace

- **Staying in Renton**
 - **To stay as long as 737NG is produced, e2020**
 - **Boeing considering a 737 Re-Engine program**
 - **Airbus decision YE2010-Boeing at the same time?**
 - **RE EIS 2014-15, needs 7-8 years for ROI**
 - **P-8A Poseidon built here**
 - **Total Market Potential: 210**

Growing Aerospace

- **Boeing's Current Backlog**
 - **737: 2,151 or 6 years (to 2016)**
 - **747-8: 107 or 9 years (to 2019)**
 - **767: 59 or six years (to 2015)**
 - **777: 310 or 5.2 years (2016)**
 - **787: 850 (moving target)**
 - **Tanker: 15/yr = from 2015, or ~2027**
- Assumptions: current production rates
- Backlog data at 8/30/09, Source: Boeing



Growing Washington Aerospace Opportunities

Opportunities

- **KC-X re-compete**



- **DRFP issued in September**
- **Contract Mid-2010**
- **WA prefers Boeing but supply chain can serve Northrop/Airbus**



Opportunities

New airplanes in production



70-149 seats

- **ARJ21** **EIS 2010**
- **Superjet** **EIS 2010**
- **CSeries** **EIS 2013**
- **MRJ** **EIS 2013**

Opportunities

New Airplanes Concepts



MC 21-100
Base variant: 132 passengers



MC 21-200
156 passengers



MC 21-300
174 passengers



150-200 seats

- Comac 919 (China)
FF2014, EIS 2016 (!)
- MC-21 (Russia)
- Japan Aircraft
Development Corp.
YPX 150-seater
(Japan), EIS 2018-19

Opportunities

- Comac is *right now* selecting suppliers for C919



Oppotunities

More information

<http://www.iag-inc.com/store1.html>

The Coming Aerospace Squeeze

A review of
Commercial Aerospace Programs in
Brazil, Canada, China, Japan & Russia



October 2009

A IR INSIGHT

Opportunities

787 Ramp-up, Expansion



- **787-8 EIS
4Q2010/1Q2011**
- **Line 2 late 2013**
- **787-9 e2013**
- **Production changes
for 787-9 for more
control, better
efficiency**
- **787-9 “guts” very
different from 787**

Opportunities

- **Airbus A350-900/800/1000**
 - **EIS 2013/2014/2015**



© AIRBUS S.A.S. 2006 - COMPUTER RENDERING BY FIXION - HCSGM

Opportunities



- **A320, 737 RE or RS**
- **Repeat: 737RS is greatest challenge for WA State to keep**
- **737RS is Spokane's greatest opportunity**
 - **Decision by Boeing e2013-2015**
 - **Start thinking now**

- **737 Re-engine likely stays in Puget Sound**



Opportunities



- Turbo-props resurging-RS Studies
- ATR-72-600, RS
- Q400, RS
- Embraer may re-enter market

BOMBARDIER



ATR



Opportunities

- ***Expand* your thinking**
 - Think *beyond* production/assembly
 - Think engineering center, training
 - Think green aviation
 - Think supply chain
 - Think: Northrop, Raytheon, Lockheed, Bombardier, and...



Opportunities

- **Think Airbus and EADS**
 - **It's *not* crazy and shouldn't be political blasphemy**
 - **Airbus and Boeing share suppliers**
 - **A strong supply chain benefits Boeing**
 - **EADS is a supplier on the 787**

Opportunities

Airbus US Suppliers:

- **WA State: \$1.7bn since 1990; let's get more!**
- **In 2008:**
 1. **Ohio (GE Engines) \$3.9bn**
 2. **Connecticut (PW Engines) \$3.8bn**
 3. **California ~\$1bn**
 - 4-5. **Arizona/Tennessee \$225m ea**
 6. **Washington \$200m**

Opportunities

- **Common supplier to Airbus and Boeing**



– Top 10

- | | | |
|--------|--------|--------------------|
| • 777 | C-17 | 28% Revenue/Boeing |
| • 737 | UH60* | FY1Q |
| • CH47 | A380** | A320 #10 in FY4Q |
| • V22 | F15 | *Sikorsky |
| • 787 | 747 | **Airbus |

Opportunities





Opportunities

- **Green Aviation will be big**
 - **Boeing, Airbus have major Green programs**
 - **Connect with Boeing, others to support efforts**
 - **All levels of commercial (and military) aviation are going Green**
 - **It's official DOD policy to “green up”**
 - **Washington has opportunity to focus on this growing market segment**



Opportunities

- **Green Aviation will be big**
 - **Biofuels for airlines and the military**
 - **Biofuels for airports, ground equipment**
 - **“Green” supplies**
 - **“Green” MRO practices**

Opportunities



Opportunities

- **UAVs**
 - **Boeing estimates \$60bn-\$100bn market over 10 years**
 - **Boeing's Insitu now builds more UAVs than BCA builds airplanes**
 - **54/mo vs >40/mo (8/09 data)**
- **Boeing, Northrop, EADS, General Atomics, Raytheon, Asian and European interests covet UAV market**

Opportunities

Research and Development

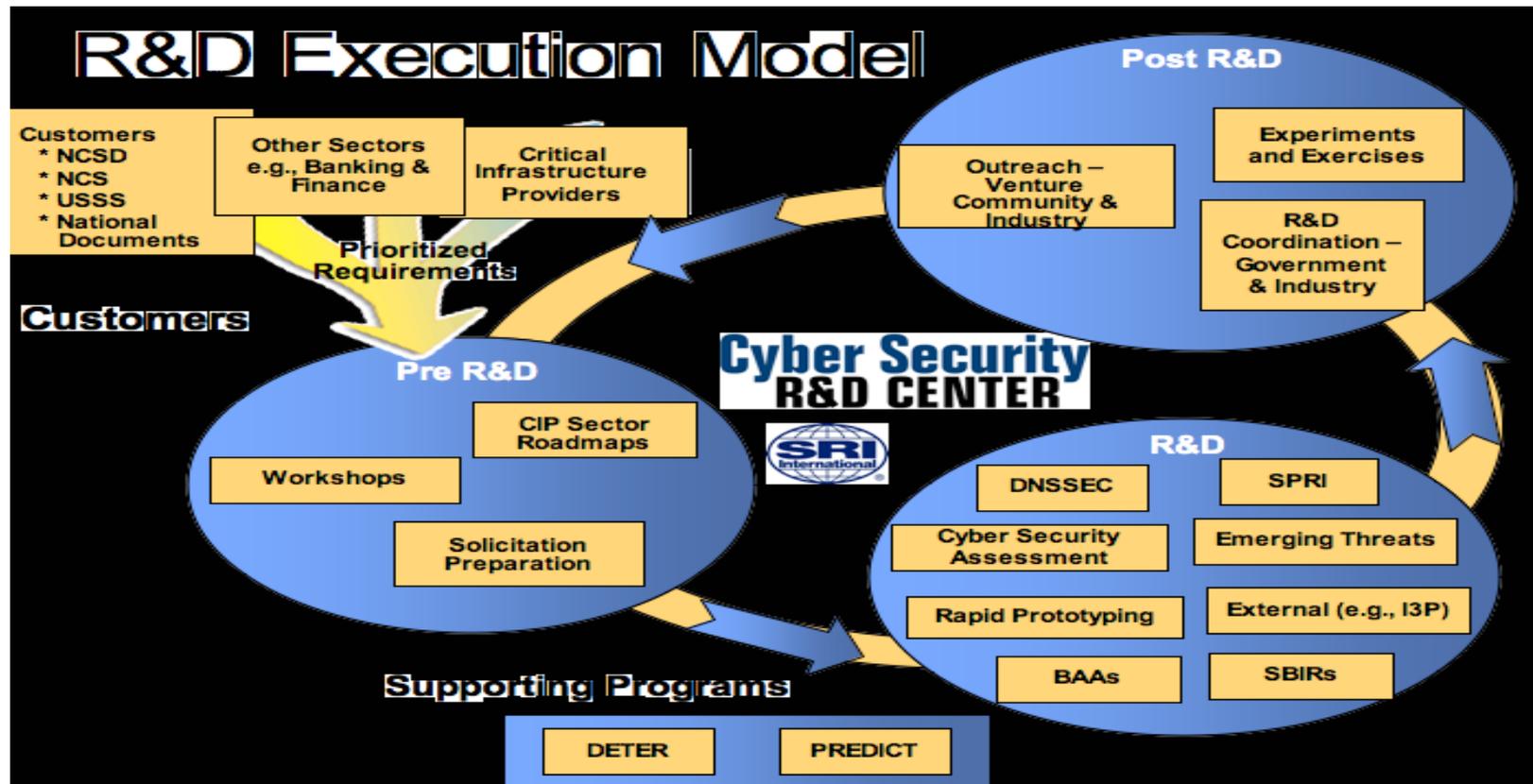




Opportunities

- **Create an engineering center**
 - Airbus has one in Wichita, near Boeing facilities
 - Employs 200 engineers
 - SPEEA turnover 2%-3% of 12,000 annually
 - New engineers, transfers, move from other states
- **Engineering, IAM pool**
 - Laid off numbers
 - Huge brain drain, outsourcing off-shore

Opportunities





Opportunities

- **Cyber Security**

- **Boeing announced at Paris Air Show this is a new focus**
- **Northrop Grumman is partnering with universities in “Small Town, USA” to grow next generation of “security thinker”**
- **Raytheon reaching into 7th-8th grades, Boeing into universities**

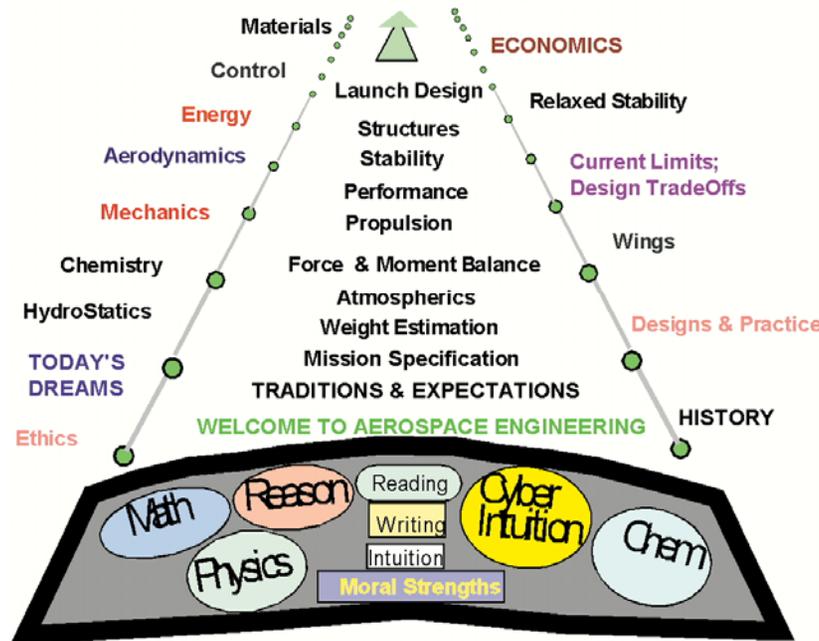
Opportunities

- **Cybersecurity**
 - **While not aerospace-specific, WA State can support aerospace companies in this growing field of national security—it's a *huge* undertaking**
 - **Needs 400,000 engineers per year, only 225,000 graduating**
 - **Create a 'Cyber U'**
 - **Pool money from contractors**

Opportunities

Education and Training

Approach: The Runway Across Canyons



Georgia Tech



Opportunities

- **Education and Training**
- **Dedicated Engineering Program**
 - Embry-Riddle
 - Few aerospace programs at UW, WSU
- **“Washington Institute of Technology”**
 - Aerospace, computers, cyber security, other fields



Opportunities

- **Dedicated Technical Training Institute**
 - **Millions needed for equipment on today's advanced technology**
 - **Could be world-class, attracting students for all over**

Opportunities





Opportunities

- **Coordination needed**
 - 1) **Aerospace Futures Alliance**
 - 2) **Boeing Works Here**
 - 3) **Inland Northwest Aerospace Consortium**
 - 4) **Pacific Northwest Aerospace Alliance**
 - 5) **Prosperity Partnership Aerospace Working Group**
 - 6) **Washington Aerospace Partners**
 - 7) **Washington Council on Aerospace**
 - 8) **Various Economic Development councils**

Opportunities





Opportunities

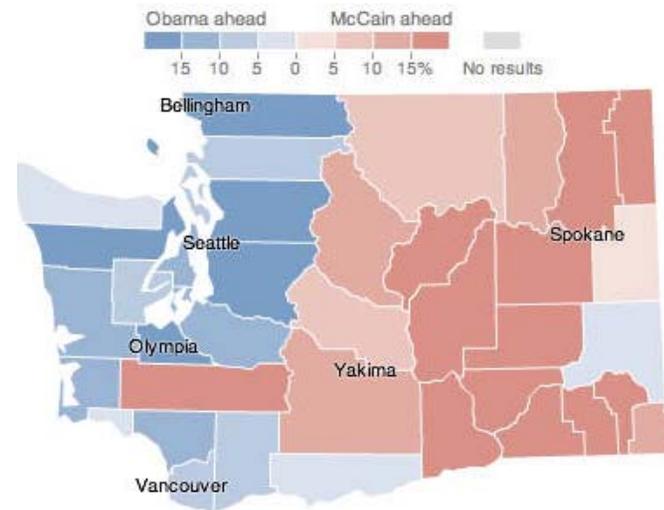
- **State needs higher profile at Air Shows**
 - Singapore (Feb. 2010)
 - Farnborough (July 2010)
 - Paris (2011)
 - “You have to spend money to make money,” even in poor economy
- **You just can’t wait for the phone to ring**
- **Be *aggressive*, Be “*out there*”**



“Yes, we can.”



- **Blue Washington/Red Washington Politics**



- **One Washington for Aerospace**

- 
- **Obama didn't invent "Yes, we can."**
 - **"Yes, we can, Spokane"—1987, 22 years ago**
 - **Created by Spokane's Ed Clark, Clark & White**
 - **Slogan for Spokane's "Momentum" campaign**

- 
- **“Yes, we can.”**
 - **Apt for this topic.**
 - **Apt for this time.**
 - **Apt for this location.**



The Mission, the Mindset is:

- ***Growing Washington Aerospace***

Yes, you can, Spokane



The Mission, the Mindset is:

- ***Growing Washington Aerospace***

Yes, you can, Spokane
Yes, you can, Washington



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