NEXRAD Program/
Radar Operations Center Update

(Informational Briefing)

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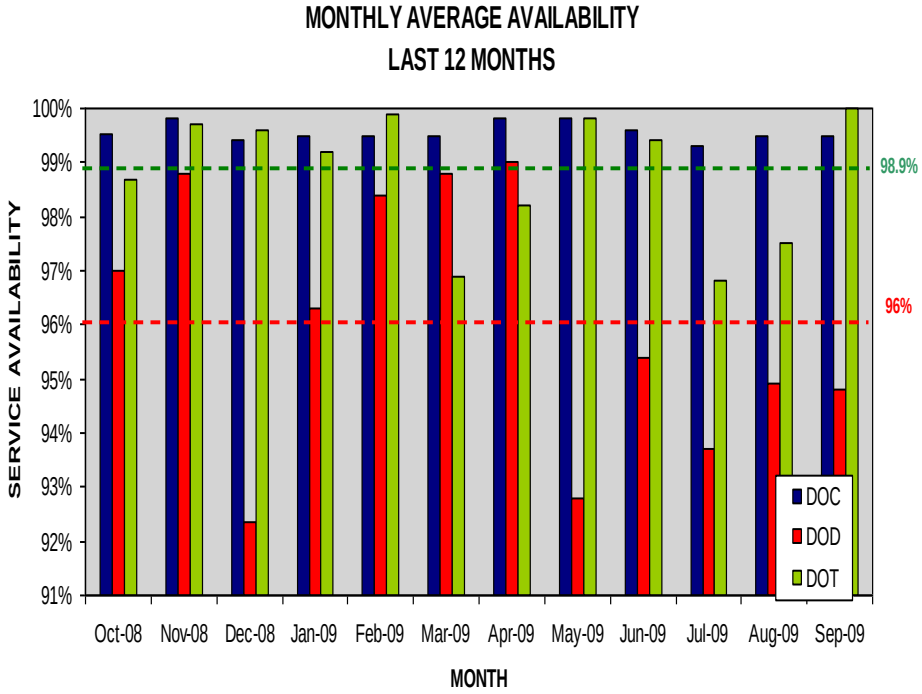
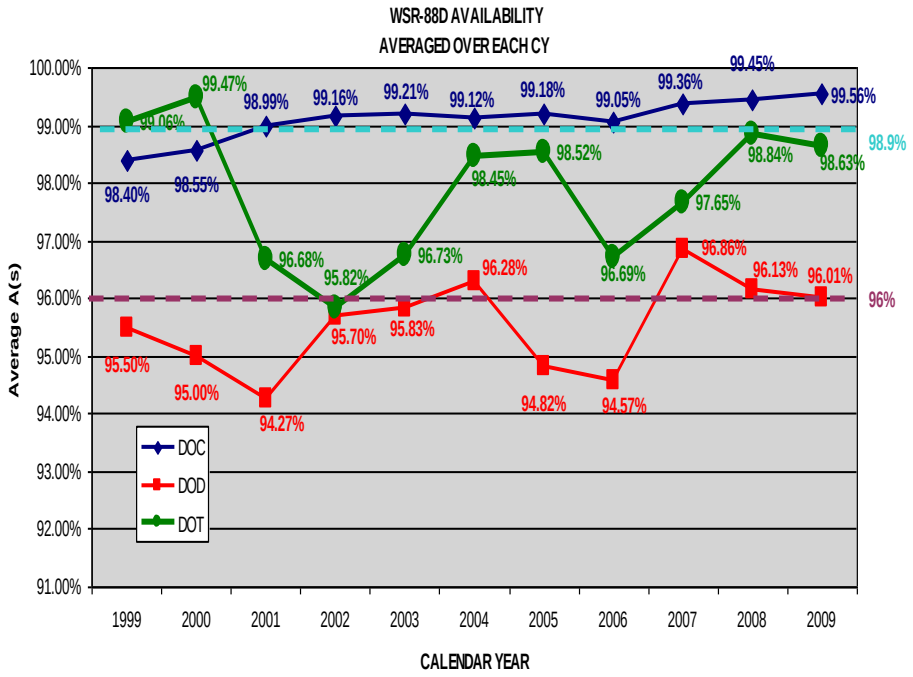
NEXRAD Technical Advisory Committee

Keep Operational Systems Running
(Triagency Availability)





Keep Operational Systems Running

- Hotline annually providing ~7000 Assists; ~80% closed on first call
- Electronic Maint. Team annually completing ~70 depot-level trips
  - Pedestal bull gears replaced: 1 – 2006; 1 – 2007, 6 – 2008, 1- 2009
- High-voltage trigger amplifier and opto-isolator modifications have continued to improve reliability and lower costs
- Monitoring WSR-88D data quality in real time and working with Data Quality Team (ROC, NSSL, OU engineers & meteorologists)

Keep Operational Systems Running

- Reconstituted Reno, NV WSR-88D following catastrophic damage
  - December 2008 wind-driven (140 kts) destruction of radome and antenna
  - Difficult to reach; work at 8300 ft MSL site
    - Primitive 15-mi-long winding dirt road: steep; narrow; ice/snow-covered; and difficult to traverse with large equipment (120-ton crane)
    - Winds less than 20 mph needed for much of work
  - Repairs completed in 46 days vs. initial 6-month estimate; radar supported rest of active winter storm season
  - Radar after initial damage:

Keep Operational Systems Running

- After second storm:

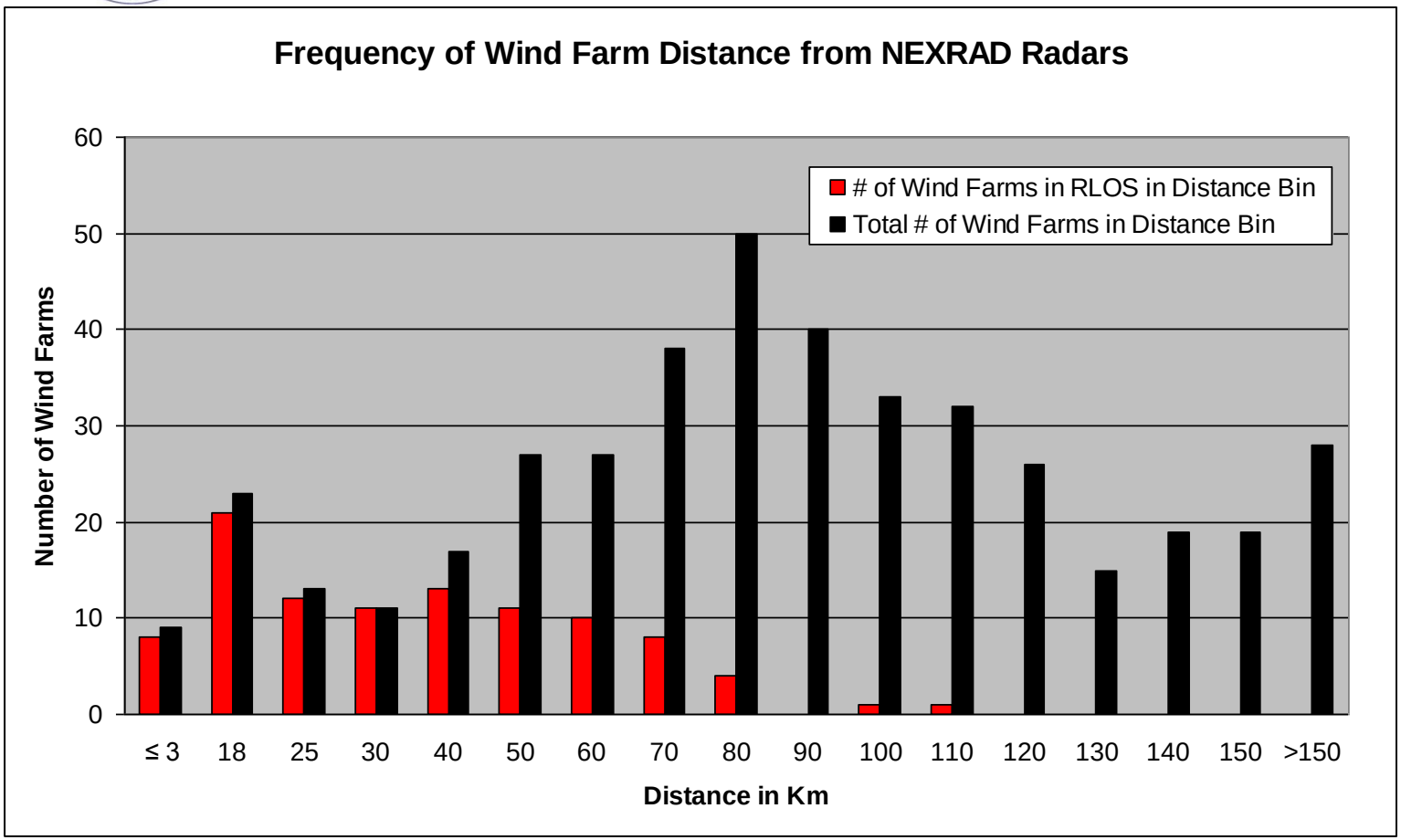
- Repair final stages:

Sustain Baseline
Operational Radar System Capabilities

- Considerable dialog regarding whether faster VCPs causing excessive pedestal/gearbox wear:
  - All faster VCPs operate radar within original specifications
  - Radars automatically revert to VCP32 if no precip. within 1 hr
  - Conclusion: Pedestals aging & more pedestal repairs can be expected, no evidence faster VCPs alone causing significant problems
- Recent major modification examples:
  - RPG router upgrade (in progress): addresses obsolescence, IT security issues, and IPv6 compliance
  - Communications
    - In progress through FY12, switch remaining analog connections to digital;
    - NWS CIO planning satellite comms capability for emergency situations

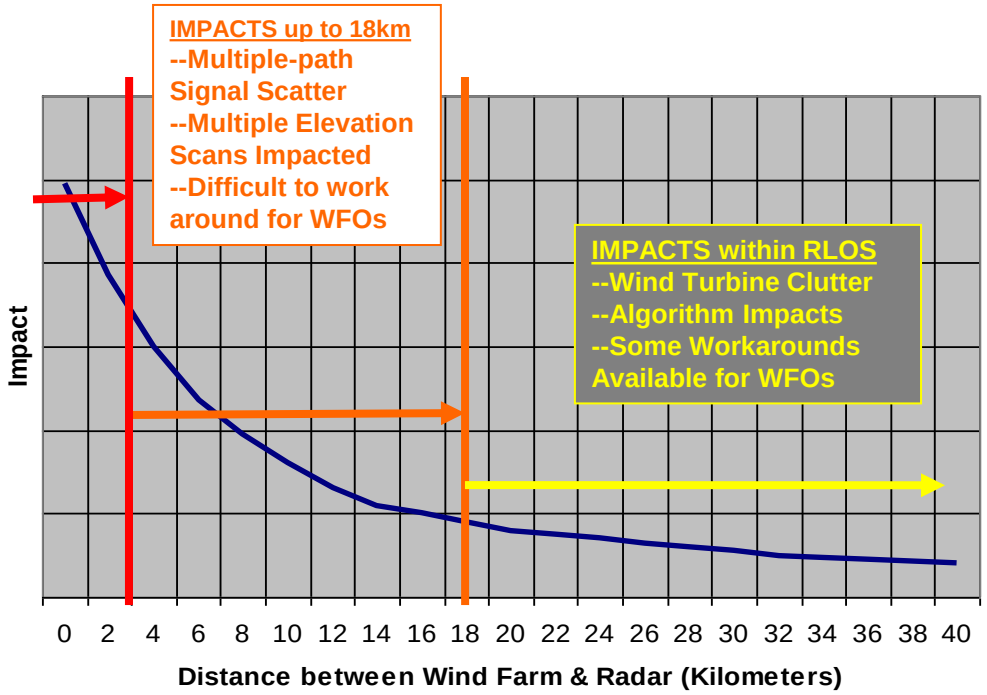
Sustain Baseline
Operational Radar System Capabilities

- ROC WSR-88D - Wind farm interaction efforts
  - Outreach program to wind energy industry continuing and making progress; increasingly more
    - Voluntary contacts from developers
    - Industry awareness of potential wind farm – weather radar interaction
  - Completed over 550 analyses since summer 2006
  - Frequently updating ROC wind farm – radar interaction web site: http://www.roc.noaa.gov
  - Supporting OU wind turbine clutter identification & mitigation work
  - Analyzing impacts on data and warning operations separately – impact on warning operations the key
    - Going beyond original benchmark of wind turbine blades in RLOS (Std. Atmos.)


Frequency of Wind Farm Distance from NEXRAD Radars
# of Wind Farms in RLOS in Distance Bin
Total # of Wind Farms in Distance Bin
Number of Wind Farms
0
10
20
30
40
50
60
≤ 3
18
25
30
40
50
60
70
80
90
100
110
120
130
140
150
>150
Distance in Km

Estimate of Wind Turbine Impacts on Warning Operations with Distance

IMPACTS up to 3km
--Radar Receiver Damage (within 200 m)
--Radar Beam Formation (within 1.5 km)
--Partial Attenuation of Radar Beam (within 3 km)
--Limited or No Workarounds for WFOs



Sustain Baseline
Operational Radar System Capabilities

- DHS invited ROC participation, on behalf of weather radars, in statement of work for development of "Wind Turbine/Radar Modeling Tool for Assessing the Effect of Wind Turbines on Radars"
  - Broad Agency Announcement (BAA) released 11/5/09: http://www.fbodaily.com/archive/2009/11-November/07-Nov-2009/FBO-01998473.htm
  - Goals:
    - Make assessments of potential wind turbine impacts on radars more objective
    - Portray the impacts more accurately
    - Replace current impact assessment tools
    - Reduce impact assessment workload
    - Serve as a tool the wind energy industry will have more confidence in
  - Intent is not to impede the growth of the wind energy industry, but to discover a means to co-exist

Improve Radar System Reliability And Integrate New Capabilities

(Continued)

- Software builds
  - Build 11 released in April 2009; major contents
    - Clutter Mitigation Decision (CMD) Process
  - Build 12 RPG to be released in June 2010; major contents
    - Implements Dual Pol algorithms and products operationally
    - Integrates Super Resolution base data in Meso Detection Alg.
  - Build 12 RDA – Dual Pol contractor provided
    - CMD deactivated when site modified with Dual Pol
  - Build 13 RDA – first post-Dual Pol release
    - Merge Build 11.x with Build 12 (contractor)
    - Reactivate CMD
    - SREC to meet in early 2010 to define recommended contents and release dates

Improve Radar System Reliability And Integrate New Capabilities

(Continued)

- WSR-88D Level II collection, distribution and archive plans
  - January 2010, add 4 Hawaiian FAA WSR-88Ds; Legacy resolution
  - RPG Build 12, June 2010 release; add remaining 8 DoD CONUS WSR-88Ds; Legacy resolution
  - Dual Pol modification, add NWS Dual Pol Level II data
  - Refresh of Level II equipment and rearchitecture starting 1CY10
    - Use of NOAAnet primarily, simpler communications network
      - Data will continue to flow to existing top tier sites via Internet 2
    - Centralized vs regional aggregation of data
      - Primary collection point at NWS TOC, auto-failover backup at ROC
    - More reliable Level II data flow (e.g., no regional outages)

Improve Radar System Reliability And Integrate New Capabilities

(Continued)

- TDWR product collection, distribution and archive
  - Products from all 45 sites part of product central collection as of February 2009
  - No plans for collecting TDWR Level II data at this time

Improve Radar System Reliability And Integrate New Capabilities

(Continued)

- Install additional network radar along Washington state coast
  - Specific funding and language in FY09 appropriations
  - Remaining funding in FY10 budget
  - Operational by 9/30/12
  - Radar will improve
    - QPE in radar-blocked portions of western Washington
    - Off-shore coverage
    - Forecasts of weather hazards including severe convection, damaging winds, flash floods, and precipitation type (melting level)

Support NPI Program

- PMRT of TDWR SPG program from NWS OS&T to ROC in FY10
- Assisting Dual Polarization Program
  - Participation in Technical Interchange Meetings
  - Answer contractor legacy system inquiries
  - Participation in design and program reviews
  - Will lead testing and data quality evaluations