UAV Use Cases and Logistics

Maryland / DC Utilities Association
Dennis Dunning
Dale Davis
General Site Inspections / Surveys

- Construction progress
- Equipment condition (stacks, emission controls, steam piping, HRSGs, air filters, cooling towers)
- Security inspections
- Mapping (dam seeps, wetlands, stormwater drainage)

- Storage tank / containment inspections
- Rights-of-way inspections & encroachments
Wind Turbine Inspections

- Blade inspections (autonomous, three blades, four sides)
- Improved safety over climbing
- Reduced outage times
- Reduced O&M costs
- Tile field inspections
Spill Response Management

- Aerial view of incidents
- Real time data w/ FPV
- Command & control support
- Anchor / mooring points (GPS)
- Booming strategies
Hydro Inspections

- Photogrammetry baseline for comparison to future conditions (settlement, cracks, defects)
- Spill gate, tail race & concrete inspections
- Penstock, 26’ gate valve inspections
UAV Mission Logistics

- ‘Planning is 90% of the mission’
- Selecting the right equipment (w/ backups)
  - UAVs, monitors (iPads or other), chargers, cables, extension cords, power supplies / generators, power strips, SD cards, etc.
- Transportation, Shipping / Receiving
  - HazMat shipping (LiON batteries)
- UAV firmware / Other equipment operating systems (iPad IOS)
- Mission Planning & Execution
  - Airspace – Authorizations and Waivers (night, over people, from moving vehicle, BVLOS, single pilot, > 400’, controlled airspace)
  - Wx
  - TFRs
  - Critical infrastructure, sensitive areas (power plants, Nat’l Parks)
  - The ‘public’
UAV Logistics (cont’d)

- Unexpected Issues
  - Equipment interferences
  - Image transmission
  - GPS access & stability
  - Gimbal connection issues
- Post Production Processing Needs
  - Editing
  - Storage & transfer