

UAV Use Cases and Logistics



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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



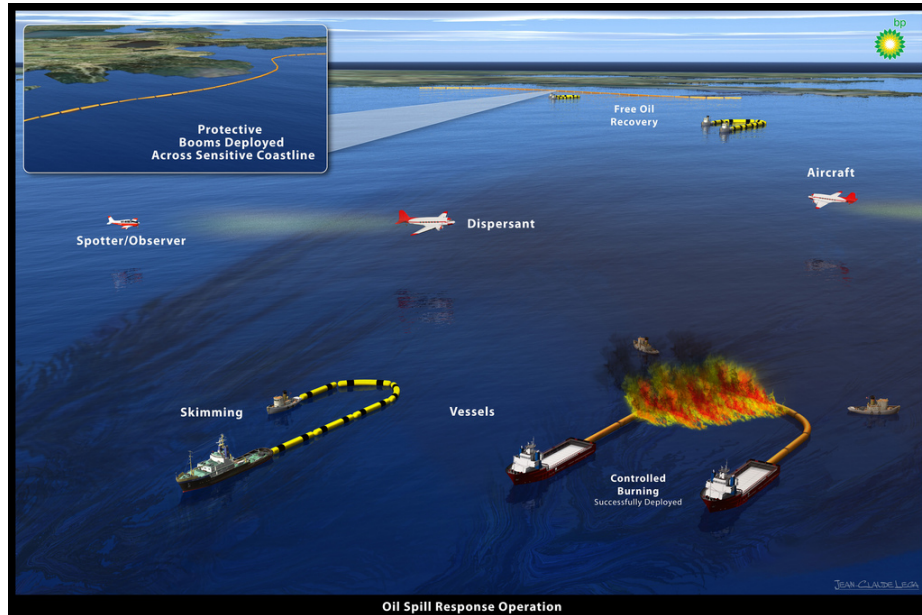
Wind Turbine Inspections



- 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)
 - W_x
 - 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