

Drones: The Good, The Bad, & The Ugly

**Air & Waste Management Association
Kentucky Chapter – Spring Workshop
Frankfort, KY - April 21, 2017**



STITES & HARBISON PLLC
ATTORNEYS

Drones: The Good, The Bad, & The Ugly

Outline

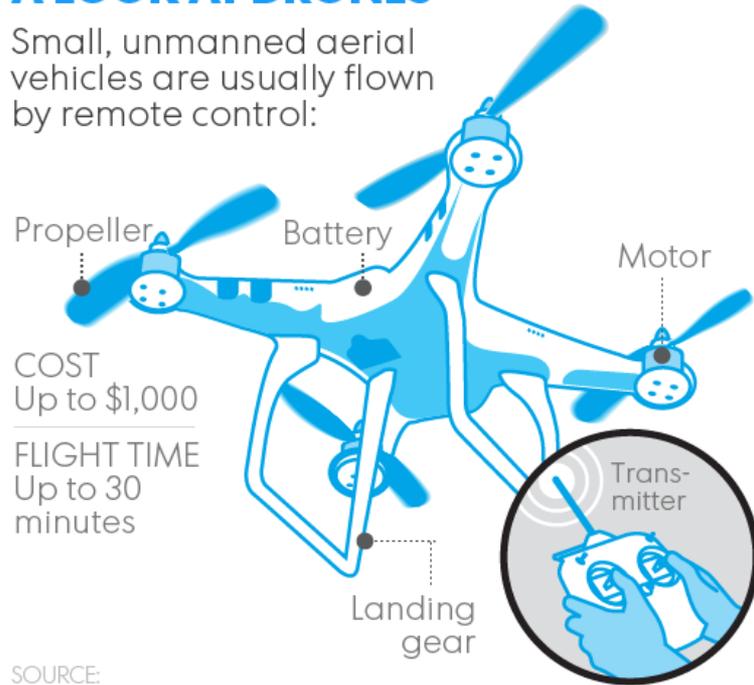
- **The Good**
 - Innovative uses of drone technology by environmental professionals
 - Complying with the new FAA rules for commercial and hobbyist drone pilots
- **The Bad**
 - Unauthorized drone flyovers for surveillance / terrorism activities
 - Unauthorized drone flyovers for environmental citizen suit data gathering
- **The Ugly**
 - Status of Kentucky Law regulating drones / right to privacy



Drones: The Good, The Bad, & The Ugly

A LOOK AT DRONES

Small, unmanned aerial vehicles are usually flown by remote control:



COST
Up to \$1,000

FLIGHT TIME
Up to 30 minutes

SOURCE:
USA TODAY research
ANNE CAREY AND KARL GELLES, USA TODAY



Emergency Services & Disaster Recovery



1. Disaster & hazmat monitoring
2. Emergency delivery (medicine, equipment, supplies...)
3. Emergency response coordination (situational awareness)
4. Disaster relief & post-disaster assessment
5. Search & rescue

Security Services



6. Crime scene investigation
7. Criminal surveillance & tracking
8. Police response coordination
9. Security surveillance
10. Training & evaluation

Agriculture, Aquaculture, Silviculture, Viticulture



11. Chemical & biological monitoring (irrigation, pesticides, treatments...)
12. Flood & fire detection & monitoring
13. Inventory & records
14. Pest & disease detection & treatment
15. Precision operations & management

Environmental Management



16. Environmental hazard assessment
17. Environmental impact assessment & compliance
18. Invasive species & pest control
19. Scientific research
20. Wildlife & habitat monitoring & protection

Urban Planning, Real Estate, Architecture & Engineering



21. Construction management
22. Environmental design (architecture, engineering, landscape architecture, urban design)
23. Mapping (archaeology, resource, topography...)
24. Marketing
25. Site analysis, planning & design

Media & Communications



26. Advertising & marketing
27. Art (commercial design, fine art, social practice...)
28. Entertainment (film, television, Internet...)
29. Investigative journalism
30. News photography & videography

Business & Commerce



31. Aero-technology / robotics research & development
32. Documentation (accident reporting, building verification, site status...)
33. Exploration (water, oil, gas, mineral...)
34. Inspection (infrastructure, structural, industrial...)
35. Pick-up & delivery services

Recreation & Entertainment



36. Exploration
37. Group activities & events
38. Hobby (do-it-yourself & kit building)
39. Personal photography & videography
40. Remote control flying

The Good



Potential Applications for Drones at Your Facility

- Inspecting Structures
 - Stacks
 - Flares
 - Pollution control equipment
 - Surface impoundments
 - Power lines
 - Rail spurs
 - Underground bunkers, conveyors
 - Other hard to reach sites
- Accident Investigations
- Monitoring construction progress
- Release Investigation
- General Facility Monitoring
- Others????

The Good



Potential Applications for Drones at your Facility

- All these tasks were done previously...
- But, drones can:
 - Save money
 - Save time
 - Reduce risks
 - Be more effective



The Good

Applications for Drones at Energy Facilities

- Scan oil pipelines with thermal cameras for hot spots that may indicate structural weakness
- Look for cracks in wind turbine blades
- Maintain large, remote solar panel installations in the desert southwest
- Inspect equipment inside large, coal-fired boilers at power plants



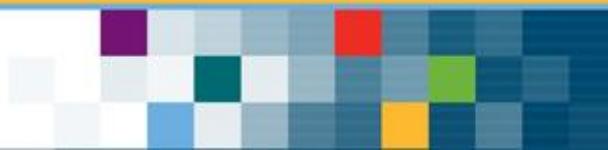
The Good



Case Study - Xcel Energy

- Serves 3.5 million electric and 2 million natural gas customers in 8 States
 - CO, MI, MN, NM, ND, SD, TX, WI
- 13 coal plants, 3 wind farms, 27 hydro plants, 2 nuclear power plants
- Operates 4th largest transmission system in the US
- 320,000 miles of electricity and natural gas infrastructure
- >1,000 substations, gas regulator stations, & dozens of power plants

The Good



The Good

Other Applications for Drones

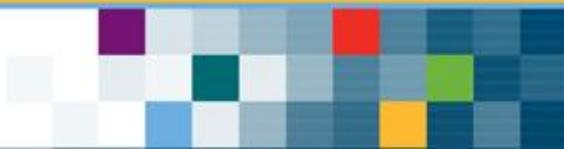
- Atmospheric research
 - NASA evaluating how ozone and water vapor interact in the stratosphere
- Disaster Relief
 - Access radiation “hot zones” where human access would be dangerous



The Good

Other Applications for Drones

- Wildlife research/surveys
 - USGS testing drone to conduct aerial counts of endangered sandhill cranes
 - University of Florida using thermal imaging camera equipped drones to hunt for Burmese pythons invading the Everglades
 - Snakes regulate temperatures of their nests in a way that makes them visible through thermal technology



The Good

Other Applications for Drones

- Amazon.com Prime Air delivery drone



The Good

Other Applications for Drones

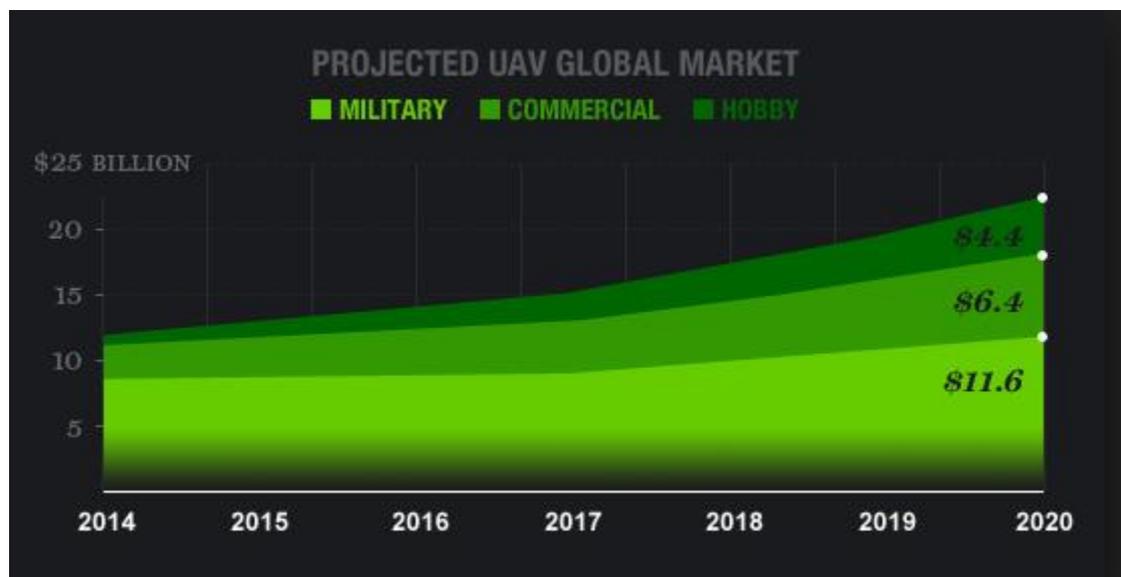
- And, of course, the Domino's Pizza "DomiCopter"



Let's Talk about FAA Rules

New FAA Drone Regulations

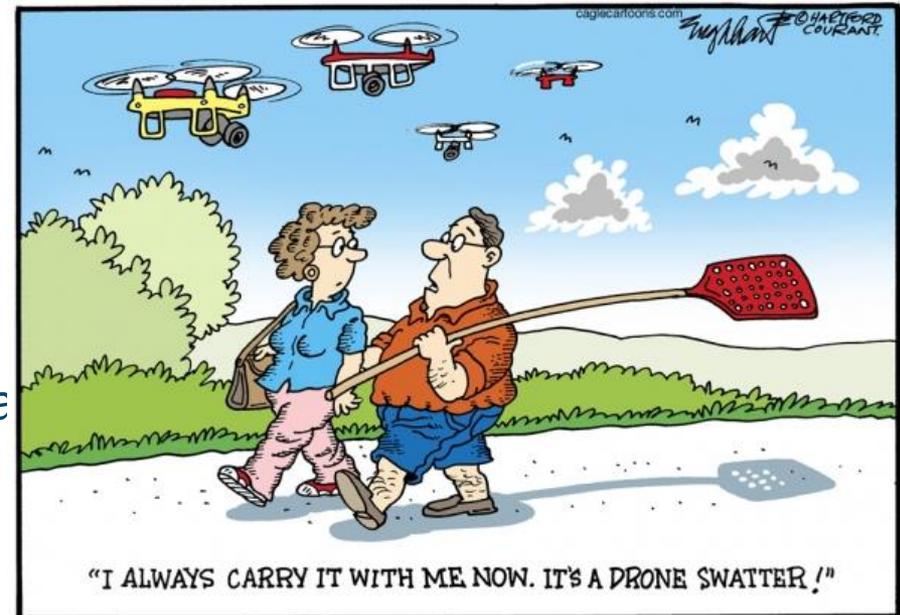
- FAA has exclusive and sole responsibility for National Air Safety
- Regulates Aircraft, Air Traffic Control, and Pilots
- Develops Plans and Policies for Navigable Air Space
 - Policies need to be consistent across the 50 States
- Proliferation of Drones led to new FAA regulations



Let's Talk about FAA Rules

Recreational/Hobby Use

- Definition: Flying the Drone for enjoyment and not for work, business purposes, compensation or hire
 - Hobby: "Pursue outside one's regular occupation, engaged in especially for relaxation."
 - Recreation: "Refreshment of strength and spirits after work; a means of refreshment or diversion."
- UAS/Drone Requirements
 - Limited to 55 pounds
 - Register the UAS with the FAA (\$5 fee, valid for 3 years)



Let's Talk about FAA Rules



Recreational/Hobby Use

- Operator Requirements
 - Minimum age: 13
 - Fly during daylight hours only
 - Fly within visual line-of-sight (VLOS)
 - At below 40 mph and 400' AGL
 - Do not exceed 30 minutes flight
 - Give way to manned aircraft
 - Do not fly within 5 miles of an airport or 3 nautical miles of a stadium

Let's Talk about FAA Rules

Commercial Drone Operations

- Operation and Certification of Small Unmanned Aircraft Systems Rule (81 FR 42063)
 - Effective August 29, 2016
 - Revised Part 107 to 14 CFR for small unmanned aircraft systems (UAS) (*i.e.*, drones) to operate for non-hobby and non-recreational purposes

Prior commercial rules required drone operators to be licensed pilots

- Burdensome & Time Consuming



Let's Talk about FAA Rules

Commercial Drone Operations

- UAS/Drone Requirements
 - Limited to 55 pounds
 - Registration with the FAA

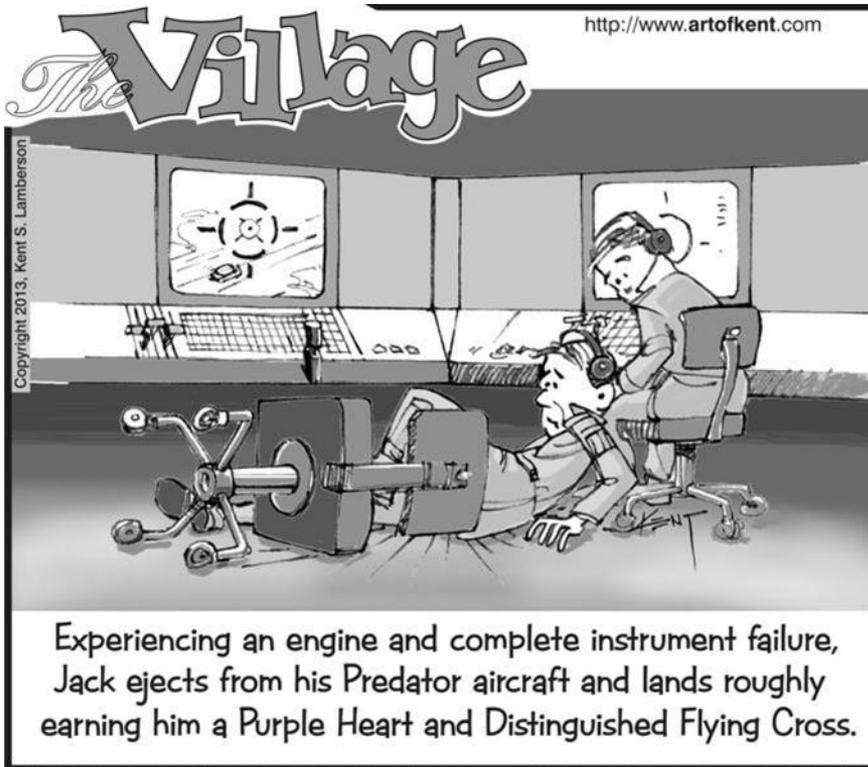


Let's Talk about FAA Rules

Commercial Drone Operations

Operator Requirements

- At least 16 years old
- Remote pilot airman's certificate with small UAS rating
 - Pass initial aeronautical knowledge test at "FAA-approved" knowledge testing center (\$150) or
 - Hold pilot's certificate and complete small UAS online training course provided by FAA
- Pass a TSA background check



Thanks for the concept to Anonymous, assumed to be a real fighter pilot unimpressed with remote combat.

Let's Talk about FAA Rules

Commercial Drone Operations

• Operational Limitations

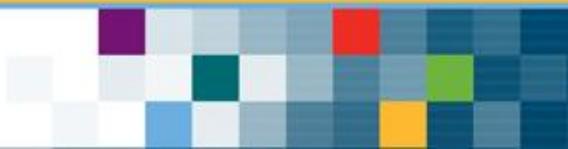
- VLOS only (unaided, no binoculars, scopes, etc.)
- Daylight-only operations, or civil twilight with appropriate anti-collision lighting
- Max. groundspeed of 100 mph
- Max. altitude of 400 feet above ground level, but can be higher if remain within 400 feet of a structure
- Class G (uncontrolled) airspace only without ATC permission
- Can't operate from a moving vehicle unless sparsely populated area
- No carriage of hazardous materials
- Give way to manned aircraft
- Preflight inspection by UAS pilot



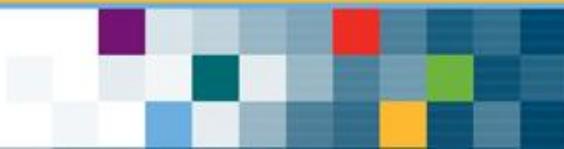
The Bad

In 2012, a Dallas area hobbyist flew his \$75 drone with a point and shoot camera over Trinity River

- Pilot noticed that the water in Cedar Creek (a tributary to the river) adjacent to a meatpacking plant was red
- Pilot contacted the Coast Guard, who notified the Texas Commission on Environmental Quality (TCEQ)
- Investigator dispatched and on-site within 20 minutes
- Resulted in a criminal investigation for dumping pigs blood into the river



The Bad



The Bad

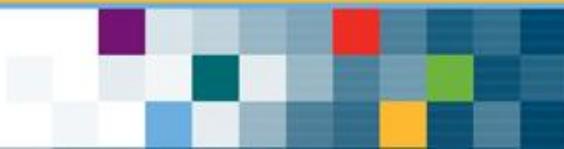
- In 2014, French authorities revealed that unidentified drones had breached the airspace over 13 of France's 19 nuclear power plants.
- In 2016, the U.S. Department of Energy revealed that its Savannah River Site—which processes and stores nuclear materials—had experienced eight unauthorized flyovers in the span of two weeks.



The Bad



- Unauthorized flyovers can pose a number of problems for energy, utility, and manufacturing facilities
- Flyovers could be used
 - For reconnaissance missions by hostile groups to collect intelligence on site layout and security movements
 - To disrupt/disable site operations by dropping explosives
 - As a means of environmental surveillance to seek out noncompliant operations (environmental citizens' suits???)
 - By marketplace competitor to gain competitive advantage
 - Others????
- Between 2016 and 2020, sales of small drones are expected to increase from 2.5 million to 7 million.



The Bad



In China, Ministry of Environment uses 4 drones

- Inspect emissions from stacks at power stations, steel mills, & cement plants
- Drones can cover 70 KM² during a 2-hour flight
- Has resolved over 200 cases since 2012
- Drones more effective than typical inspection, because can catch facilities "off-guard"
- Testing the use of drones to spray chemicals into the air to disperse smog during times of high air pollution

The Bad

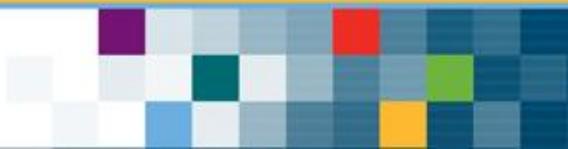


EPA has used manned aircraft to conduct surveillance, but to date we have no indication that EPA or KDEP has or will utilize drone technology in environmental compliance investigations.

The Ugly

Status of Drone Law in Kentucky

- In 2015, Sen. Rand Paul told CNN that if a drone flies over his house, “they better beware, because I’ve got a shotgun.”



The Ugly

Status of Drone Law in Kentucky



Six months later, a Kentuckian in Bullitt County, *i.e.*, the “Drone Slayer,” shot down a drone as it hovered over his backyard

- Drone Slayer charged with 1st degree criminal mischief and wanton endangerment
- Arrested and spent a night in jail
- Judge dismissed the charges finding that hovering drone was an invasion of privacy

The Ugly

Status of Drone Law in Kentucky

Drone owner filed suit against the “Drone Slayer” in Federal Court

- Seeking declaratory relief and damages to his chattel (*i.e.*, his drone).
- Case dismissed 3/17
- *Boggs v. Merideth*, Case No. 3:16-cv-00006, W.D. KY



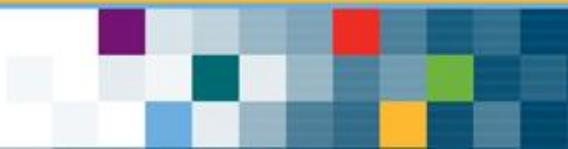
The Ugly

Status of Drone Law in Kentucky

- In 2015, a UK law student was charged with second-degree wanton endangerment when he crashed his drone into Commonwealth Stadium just prior to kickoff with Louisiana-Lafayette
 - Student was cited, but not arrested
 - No one was hurt and no property damage
 - Pled guilty to criminal trespassing
 - Fined \$100 and forfeited his drone and iPad
- *Probably, the most exciting thing that's happened at Commonwealth Stadium in years.....*



The Ugly



The Ugly

Status of Drone Law in Kentucky

In Kentucky, its better to shoot down a drone than to crash it into a football stadium.

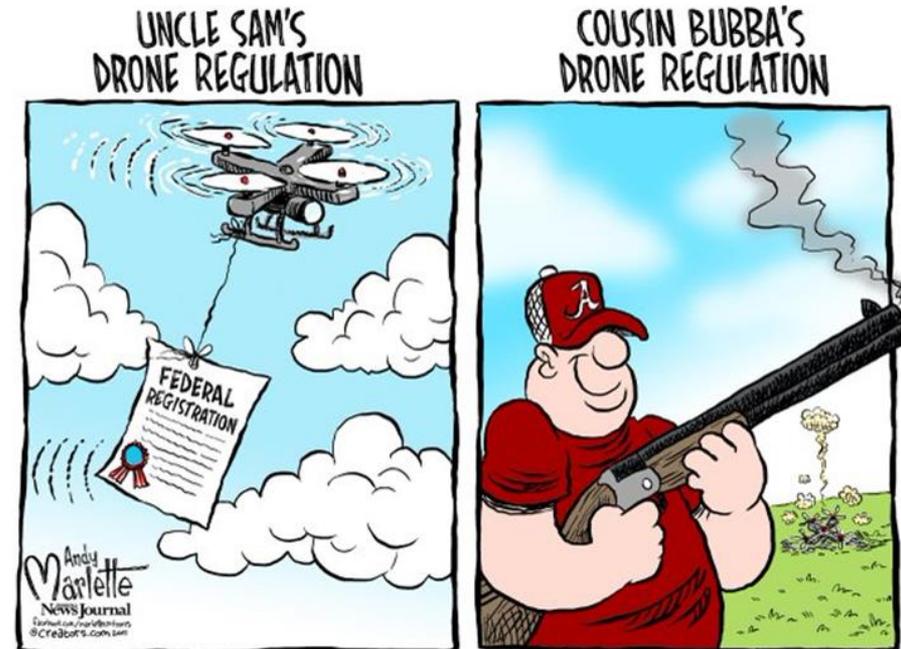


FN: SB7 would have permitted Kentuckians as young as 18 to carry a concealed weapon without obtaining a permit or taking a firearms training course.

The Ugly

Status of Drone Law in Kentucky

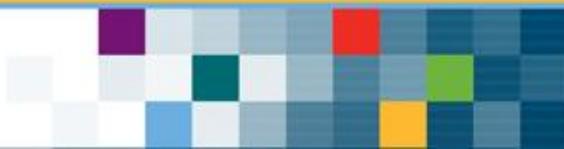
- Currently, no statutes or regulations specifically pertaining to drones in Kentucky
 - As usual, we are behind
 - Over 25 states have enacted drone-specific laws or regulations



The Ugly

Status of Drone Law in Kentucky

- **SB 51**
 - Defined “Critical Infrastructure”
 - Petroleum refinery
 - Chemical/rubber plant
 - Electric generation, transportation, transmission, or distribution facility
 - Petroleum/chemical storage facility
 - Pipelines & related facilities
 - Railroad yards/tunnel ports,
 - Drinking water collection, treatment, storage, or distribution facility



The Ugly

Status of Drone Law in Kentucky

- **SB 51**
 - Prohibit drones from
 - conducting surveillance of,
 - collecting information about,
 - photographing, or
 - electronically recording
 - critical infrastructure without consent of the owner
 - Penalties
 - 1st offense – Class A Misdemeanor
 - 2nd offense + - Class B Misdemeanor



The Ugly

Status of Drone Law in Kentucky

- **SB 51**
 - Would not apply to:
 - Drones used or authorized by owner/lessee of critical infrastructure
 - Drones used by or authorized by state or federal government
 - Satellites
 - Insurance company underwriting risk or investigating damage
 - Court Orders
 - Didn't make it out of committee



The Ugly



Status of Drone Law In Kentucky

- **HB 291- Citizens' Freedom from Unwarranted Surveillance Act**
 - Businesses can use drones for business purposes
 - Schools can use drones for educational, research or testing purposes
 - Recreational users can operate drones in compliance with 14 CFR Part 101
 - Government agencies can use drones for “legitimate governmental purposes”

The Ugly



Status of Drone Law in Kentucky

- **HB 291- Citizens' Freedom from Unwarranted Surveillance Act**
 - Law enforcement **cannot** use drones for searches unless they have a search warrant
 - Data collected by drone **cannot** be used as evidence in any civil, criminal, or administrative proceeding unless there was a search warrant

The Ugly



Status of Drone Law in Kentucky

- **HB 291- Citizens' Freedom from Unwarranted Surveillance Act**
 - A person is guilty of trespass to "**critical infrastructure**" if he or she knowingly enters or remains unlawfully in or upon or knowingly causes a drone to enter or fly above real property which has been identified by the KY Office of Homeland Security as critical infrastructure
 - Penalties
 - 1st offense – Class B Misdemeanor
 - 2nd offense – Class A Misdemeanor

The Ugly



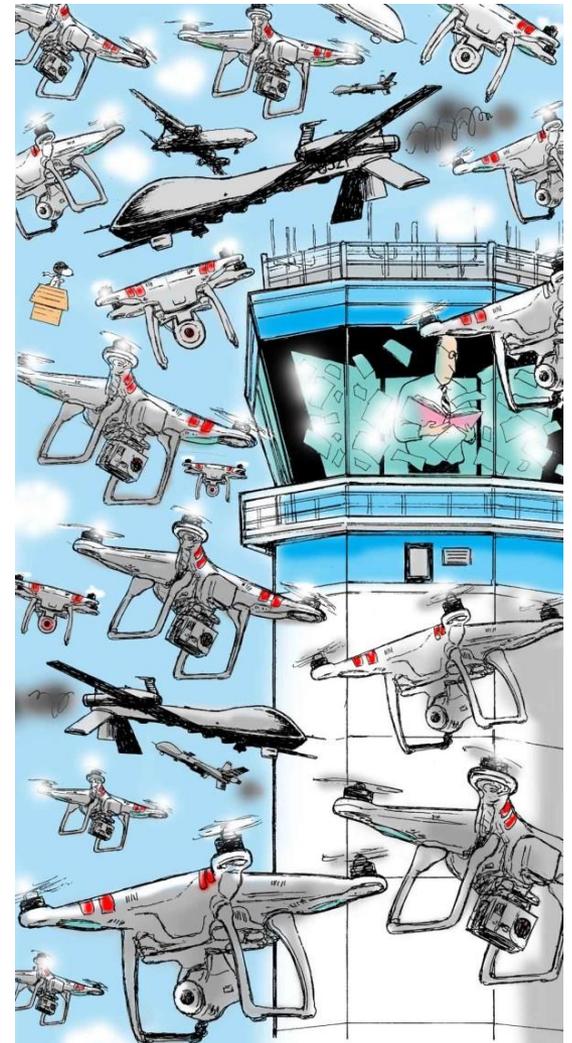
Status of Drone Law in Kentucky

- **HB 291- Citizens' Freedom from Unwarranted Surveillance Act**
 - Passed house on 2/22/17
 - Amended in Senate; failed to be voted out

The Ugly

Status of Drone Law in Kentucky

- **HB 540**
 - Allows commercial airports to create, in consult with FAA, unmanned aircraft facility maps designating areas unsafe for drone operation
 - FAA map supersedes airport's own map
 - Map not to extend beyond approach surface areas
 - Commercial drone pilot cannot operate drone in designated airport areas or
 - In a reckless manner to create serious risk of harm to person or property
 - Passed both houses, vetoed, & overridden on 3/29/17



Conclusions



Tip of the Iceberg

- Tremendous upsides to business community
- But, potential for unwanted surveillance or worse...
- Law is under development
- Can law keep up with technology?

STITES & HARBISON PLLC

ATTORNEYS



Georgia

- Atlanta
- Blue Ridge



Tennessee

- Franklin
- Nashville
- Memphis



Indiana

- Jeffersonville



Virginia

- Alexandria



Kentucky

- Covington
- Frankfort
- Lexington
- Louisville