



Countering Terrorism Threats in Smart Cities: UAS* to Protect Critical Energy Infrastructure

A Research Project Proposal by the PMP-MTA

Coordinators: A. Sobel and F. Steinhäusler

With special thanks to Lord J. Alderdice and Dr. Lydia Wilson

- Unmanned Aircraft Systems
- Presentation current as of 4 May 2016

PMP MTA Members

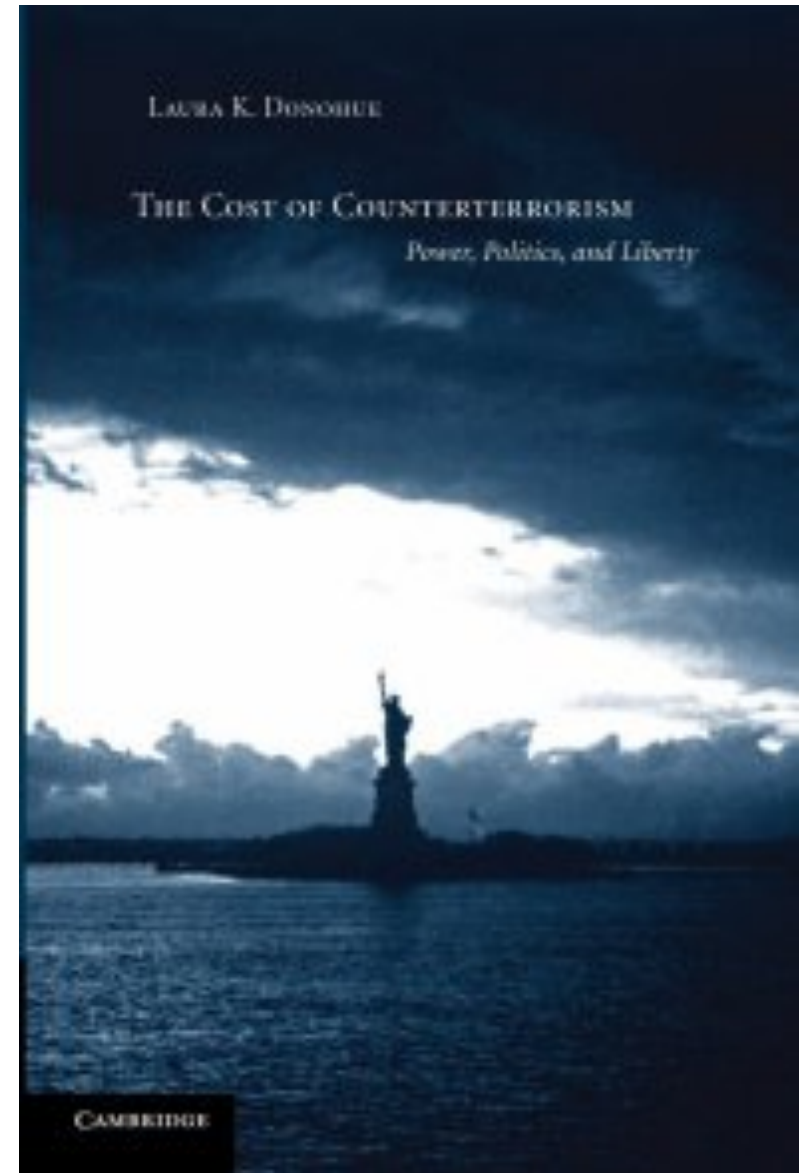
- Professor Robert Duncan
- Professor Richard L. Garwin
- Professor Pervez Hoodbhoy
- Dr. Vasily Krivokhizha
- Dr. Richard Lanza
- Dr. Sally Leivesley
- Dr. Alan Leigh Moore, Jr.

Topics

- Goals
- Time Frame
- Financial Requirements
- People involved
- Institutions involved
- Scholarships request
- International Dissemination of Results

Goals

- Reduction in cost of terrorism response
- Standardization of techniques, tactics and procedures across Energy CIP that can serve as a model for the EU and beyond
- Smart Grid and adaptive energy phasing coordination with anticipated attack scenarios



Time Frame

2016:

- Identify team scientists and approvals for WFS team to collaborate with ENEA
- Deploy and analyze a network of UAS platforms to selected energy systems and subsystems in Italy
- Perform baseline critical infrastructure analysis

2017:

- Perform a feasibility analysis and concept demonstration
- Formulate risk-based vulnerability analysis
- Perform Big Data analytics to assess potential system vulnerabilities

2018:

- Propose adaptive resilience strategies
- Develop and validate energy and emergency response optimization strategy
- Optimize emergency response capacity

Financial Requirements (2016 – 2018)

1. Travel:

- US-Europe € 25 000
- Within EU € 15 000

2. Staff:

- US: € 35 000
- Europe: € 35 000

3. Hardware:

- UAV € 25 000
- Big Data Analysis € 25 000

Total Cost: € 160 000

Team Members

- **EU:**

UAS, Computer Modelling & Risk Assessment, International Security Competence Centre

Prof. Friedrich STEINHÄUSLER, PhD

Lukas AUER, Eng.

Andreas FEICHTNER, M. Sc.

Thomas WILFLINGER, M. Sc.

Austrian Armed Forces Proving Ground

Access & Pertinent Geospatial Information

ENEA, Vittorio Violante, Ph.D. (Lead scientist from ENEA)

- **US:**

UAS, Energy CIP & Big Data

Ravi Vadapalli, Ph.D., HPCC (High Performance Computing Center @TTU)

Reese Technology Center (formerly Reese AFB, Lubbock, Texas)

Leigh Moore, Ph.D., Visiting Research Scientist, TTU

Educational modules

www.Droneblocks.io

EU/US Institutions Involved



EU:

- ENEA, Italy
- International Security Competence Centre, Austria
- Paris Lodron University of Salzburg, Austria

USA:

- Texas Tech University, Lubbock, Texas
- Reese Technology Center, Lubbock, Texas
- Droneblocks, www.droneblocks.io Texas

Scholarship Requests

- **Europe:**

3 Scholarships (one year each):

Computer modelling, risk assessment, UAS € 90 000

- **US:**

3 Scholarships (one year each)

Big Data analytics, UAS demo of CIP overhead surveillance,
robotic controller integration for semi-autonomous network

€ 90 000

Total value: € 180,000



International Dissemination of Results

- **EU:**

- ENEA Public Affairs – Project Website, print/electronic media outreach & social media

- EU workshop with energy providers & security entities
-Center for Resolution of Intractable Conflicts, Oxford

- **US:**

- International UAS workshop in Lubbock, Texas

- Possible test range demonstrations/TTU pubs

Secondary Proposal

- Hand-held, human-portable, subatomic particle accelerator for countering effects of terrorists
- High priority funding recommended
- Fast track prototype demonstration

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