Joint Fuze Technology Program (JFTP)
58th Annual NDIA Fuze Conference
Baltimore, MD

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Indian Head EOD Technology Division

Outline

- BLUF and Background
- JFTP Process
- JFTP Project Highlights
- DoD Fuze IPT Overview
- Key JFTP and Fuze IPT Events

Bottom Line Up Front

- This program addresses, from a Joint Service perspective, advanced Fuze technology development associated with improving the lethality, reliability, and survivability of munitions and weapon systems.
- Addressing High priority Service weapon fuzing needs & gaps:
  - Cluster fuzing reliability, hard target penetration, cannon proximity fuzing
  - Leveraging DoD Fuze IPT Initiatives and coordination with NAC (National Armaments Consortium)
  - Industry engagement – Technology exchanges, components for evaluation, application of M&S tools
  - Fuze Technology ties to weapon development and acquisition plans – Weapon roadmaps, PM/PEO endorsements
- FY15 JFTP budget: 6.2 - $6.4M, 6.3 - $6.8M

JFTP projects transitioning to Services and Industry

Joint Fuze Technology Program Management Structure

OUSD(AT&L)/ PSA/LW&M

Technical Advisory Committee

JOINT FUZE TECH PANEL OVERSIGHT COMMITTEE

PROGRAM MANAGERS (OSD, Service)
Charles Kelly, Lawrence Fan, Phil Gorman, Tim Tobik

JFTP Support Staff:
Technical: Danny Hayles, Cliffton Chu
Financial: Jamie Oswald

FUZE AREA TECHNOLOGY GROUPS

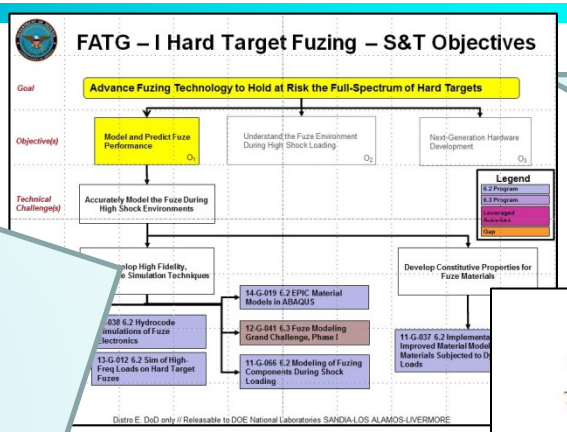
FATGI – Hard Target / Survivable Fuzing	FATGII – Tailorable Effects & Initiation	FATGIII – High Reliability Fuzing	FATGIV – Enabling Fuze Technologies
Chair: John Kandell (Navy)	Chair Gene Henderson (Army)	Chair John Hendershot (Navy)	Chair Chris Janow (Army)
Co-Chairs Shannon Haataja (Army) Howard White (AF)	Co-Chairs Daniel Lanterman (Navy) George Jolly (AF)	Co-Chairs Kelly Oliver (AF) Tom Crowley (Army)	Co-Chairs Ken Williamson (AF) Bruce Hornberger (Navy)
SME Participants	SME Participants	SME Participants	SME Participants

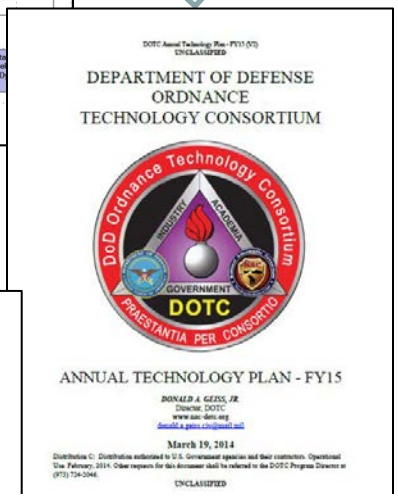
JFTP Service Requirements Flow-Down

Air Force Weapon Gaps

Army Weapon Gaps

Navy Weapon Gaps



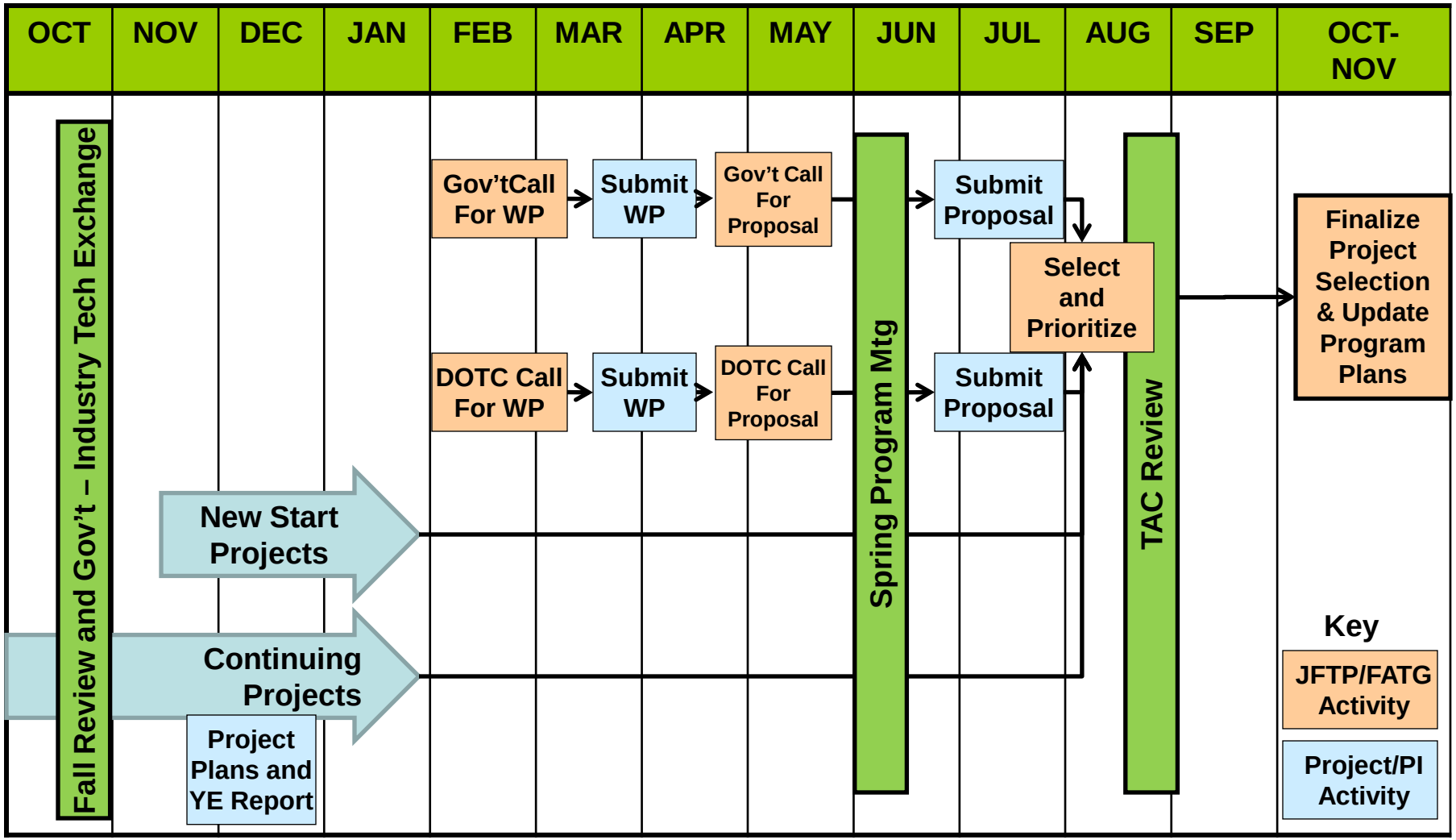


JFTP Project Evaluation Criteria

1. Technology Innovation, Feasibility and Maturity
2. Technical Approach
3. Addresses FATG Goals & Objectives
4. Success Metrics Deliverables/Mile
5. Transition & Tec Transfer
6. Leveraging/Cost
7. Cost Realism
8. Experience & Cc
9. Jointness & Add Services' Needs

- **Leveraging and Cost Sharing**
- **Meeting Joint Needs/Gaps**
- **Transition Strength**

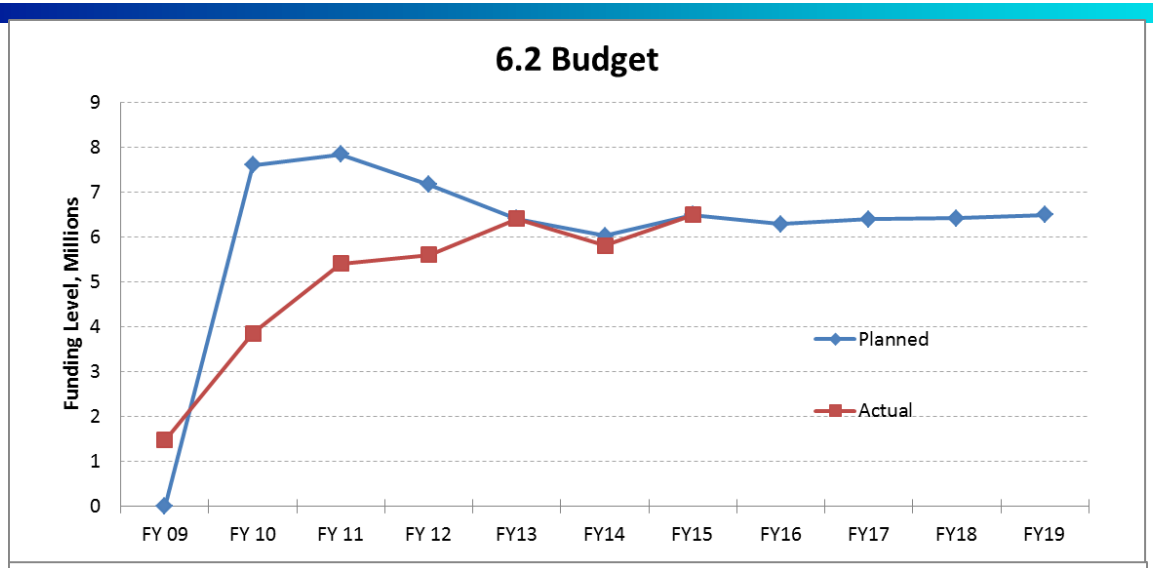
JFTP Annual Cycle

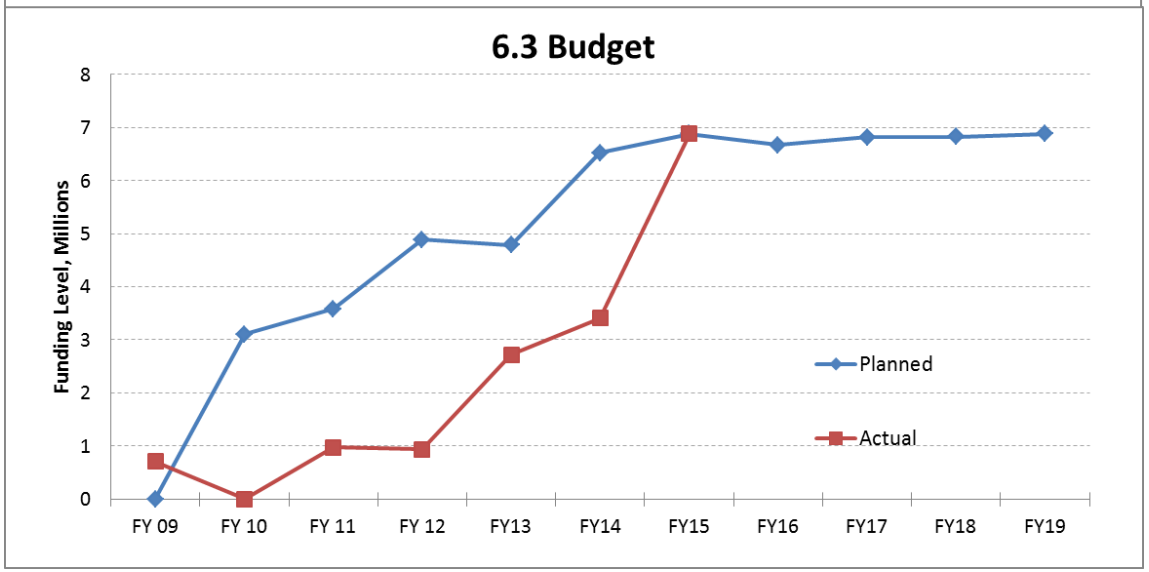


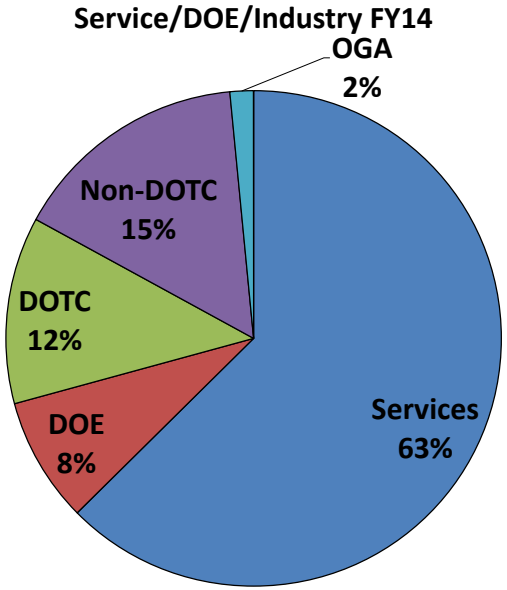
Fuze Area Technology Groups

FATG I – Hard Target / Survivable Fuzing	FATG II – Tailorable Effects & Initiation	FATG III – High Reliability Fuzing	FATG IV – Enabling Fuze Technologies
1.1 Improved M&S **1.2 Fuze Environment** **1.3 Next Generation Fuzing Hardware**	**2.1 In-Line TE Fuzing** **2.2 Out-of-Line TE Fuzing** **2.3 "Smart" Fuzing for TE** **2.4 Advanced Fuze Initiation Technologies**	**3.1 Fuzing Architecture** **3.2 Fuzing Components** **3.3 UXO reduction features**	**4.1 Common / Modular Fuze Architecture** **4.2 Components Technologies** **4.3 Proximity Sensors** **4.4 Weapons Effects & Damage Assessment** **4.5 Fuzing Power Sources**

Budget History and Projections







JFTP Project Highlights (FATG I)

JFTP Project 12-G-041, Fuze Modeling Grand Challenge (Session VA)

- The JFTP Fuze Modeling Grand Challenge is in response to an Air Force identified need for “a fundamental understanding of our predictive capabilities”.
- Provides a baseline comparison of computational modeling tools in predicting fuze response using common test platform

JFTP Project 10-095, Hardened Miniature Fuze Technology (HMFT)

- The JFTP Hardened Miniature Fuze Technology project, which capitalized on previous AFRL investments, is establishing new benchmarks for fuze survivability in the ordnance package for AFRL’s High Velocity Penetrating Weapon…its #1 Flagship Capability Program

JFTP Project Highlights (FATG II)

JFTP Project 10-120, Tailorable Effects Explosive Trains

- Systematic scientific based methodology to characterize fuzing/weapon system explosive train design influences.
- Technique leveraged by MOP and the Army's Tailorable Effects Detonating and Deflagrating Warhead

JFTP Project 10-027, Low-Voltage Command Arm System for Distributed Fuzing Systems (Session IIIA)

- Implementing of serial communication based design architectures that were approved by the Fuze Engineering Standards Working Group (FESWG) in 2014

JFTP Project Highlights (FATG III)

JFTP Project 10-119, A New Methodology for Explosive Transfer Reliability

- Paradigm shift in characterizing and quantifying explosive transfer reliability utilizing physics based methodologies.
- Instrumental in weapon fuze/detonator failure analyses and design of fuzing explosive train concept for AFRL's future penetrating weapon

JFTP Project 14-G-014: 6.3 Non-Disruptive Umbilical Solutions for High Reliability DPICM Replacement (HRDR) (Session VB)

- Developing the electrical signal distribution in a weapon system with large numbers of submunitions with minimal disruption to the dispense event
- Collaborates with and leverages ONR-USMC S&T efforts to provide high reliability compliant cluster munition fuze.

JFTP Project Highlights (FATG IV)

JFTP Project 10-010, MEMS Retard & Impact Sensors (Session VB)

- Applied MEMS technologies to improve retard and impact sensor precision, reliability, producibility, and cost effectiveness as drop-in replacements for sensors in the FMU-139, FMU-143, and FMU-152 bomb fuzes.

JFTP Project 10-042, Next Generation Proximity Sensors

- Developing a Joint solution for a Next Generation Proximity Sensor (NGPS) that is small, cost-effective, countermeasure-resistant and has broad DoD munition applicability
- Industry partnering with NAC to participate at major program reviews (PDR/CDR/TRR)

JFTP Project 14-G-023 6.2 Understanding and Characterizing F-PLD Memory Failure Modes In Fuzes

- Provide knowledge and issue guidance to fuze and weapon community about Field Programmable Logic Devices for broad, general, standardized, safe and effective use of F-PLDs in fuzing in weapons

DoD Fuze IPT

DoD Fuze IPT Overview

- **DoD Fuze IPT Strategic Plan Implementation Phase well underway**
  - Strategic Plan Action List completed and coordinated with industry via National Armaments Consortium (NAC)
  - Multiple Initiatives Including:
    - Fuze Acquisition Best Practices: Provide Industry insight into Gov't R&D initiatives (JFTP)
    - Real-Time Engagement with Industry (DoD Fuze IPT meetings and regular telecoms)
    - DoD Fuze Roadmap (Fall Fuze IPT Meeting)
  - Status of progress on IPT Top Initiatives monitored by IPT Leadership and NAC Fuze Advisory Panel

DoD Fuze IPT Membership

OSD

- AT&L / Land Warfare & Munitions
- AT&L / Defense Threat Reduction Agency
- AT&L / Director of Defense Research & Engineering
- AT&L / DCMA
- Policy

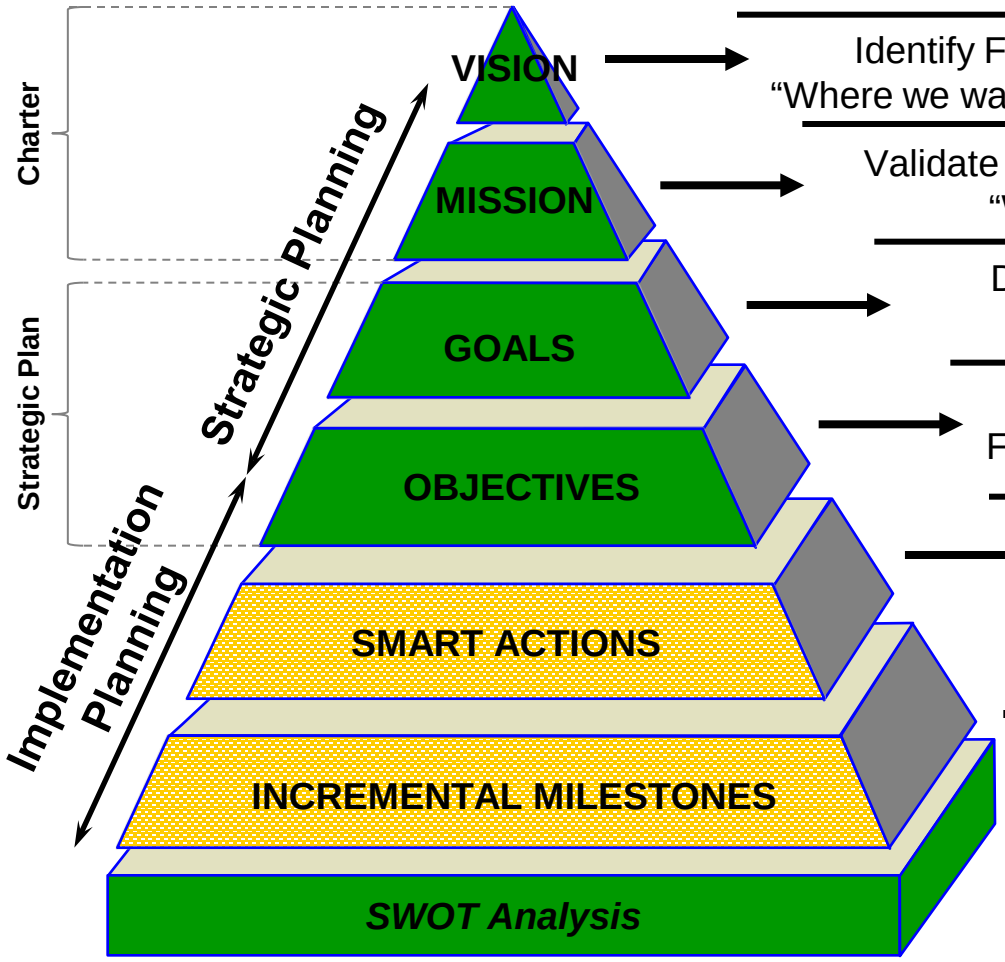
Military Services

- Air Force
- Army
- Marines Corps
- Navy

Department of Energy

- Lawrence Livermore National Laboratory
- Los Alamos National Laboratory
- Sandia National Laboratories

DoD Fuze IPT
Strategic Plan Structure



Identify Future State and Implications
"Where we want to be; what success looks like"

Validate Organization Purpose and Function
"Why the organization exists"

Define and Prioritize Broad Direction
"What does it take to get us there"

Develop Specific Targets & Activities
First Level of "How" to Achieve Goals and Vision

Develop the **S**pecific, **M**easurable, **A**ttainable, **R**elevant, and **T**ime Oriented (SMART) Actions

Detailed Description of Activities
"Who does what by when"

Strengths, Weaknesses/Limitations, Opportunities, and Threats Analysis Provides Foundation for Developing Goals & Objectives

DoD Fuze IPT
Road Ahead

- **Strategic Plan Implementation**
  - **IPT is making good progress on its current list of Top Initiatives**
  - **Continue to emphasize collaboration with industry**
  - **Next highest priority Strategic Plan SMART Actions to be addressed**

Strategic Plan Action List is where the rubber meets the road…success requires integrated Gov't & Industry fuze acquisition and S&T effort

DoD JFTP and Fuze IPT Key Dates

Event	Date
Preliminary FY16 proposal selection	September 2015
JFTP Fall Review and DoD Fuze IPT Meeting (Gov't and NAC)	17-19 November 2015
FY17 Call for White Papers	February 2016
Spring Fuze IPT meeting	Week of 4 April 2016
FY17 Call for Proposals	May 2016
JFTP Spring Review (FY17 Proposals Briefed)	June 2016

Questions?