

# MANUFACTURING AND INDUSTRIAL BASE POLICY (MIBP)

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## Title III of the Defense Production Act



# The Defense Production Act

## (50 U.S.C. App. § 2061 *et seq.*)

### Enacted in 1950

Provides broad authorities to Federal agencies to ensure the ability of the domestic industrial base to supply materials and services to meet national needs. DPA authorities delegated to Federal agencies via E.O. 12919

### Title I – Priorities & Allocations

Provides the authority to order priority performance (delivery) on Government contracts and allocate materials to meet national requirements (DO/DX ratings)

### Title III – Expansion of Productive Capacity and Supply

Authorizes use of unique economic incentives to create, expand or preserve domestic industrial manufacturing capabilities for industrial resources, technologies, and materials needed to meet Government requirements (includes homeland security)

### Title VII – General Provisions

- Committee on Foreign Investment in U.S. (CFIUS)
- Defense Production Act Committee (DPAC)
  - Established in 2009 DPA reauthorization
  - Advises President on effective use of DPA authorities to mitigate industrial base risks



# Title III of the Defense Production Act

- Government-wide authority. Allows Federal Departments and agencies to pool resources into the “DPA Fund” to mitigate industrial base shortfalls/risks and expand U.S. production capabilities that impact national requirements.
- Title III oversees capital expenditure (CAPEX) investments (retrofits, new machinery, or whole-sale construction).
- Authorities focused on initiatives for military and energy production/construction, stockpiling, space, critical infrastructure protection/restoration, homeland security, emergency preparedness, and critical infrastructure assistance to foreign nations.
- Title III actions stimulate private investment in production resources by reducing the risks associated with the capitalization and investments required to establish the needed production capacity. Projects range from process improvement to production plant construction.
- Objectives:
  - Creating/expanding/sustaining production capacity
  - Ensuring U.S. Government access to technology/resources
  - Ensuring long-term commercial viability
- DoD effectively functions as the Executive Agent for the Government



# Title III Economic Incentives

## Purchases/Purchase Commitments (*Sec. 303a*)

- Purchases provide direct subsidy to company to assist in establishing production capacity
  - Purchase and installation of production equipment
  - Engineering support to improve quality and yield of production facility
  - Sample quantities for process validation and customer qualification testing
  - Costs to develop business and marketing plans
- Purchase Commitments
  - Guaranteed market to incentivize companies to establish, expand or maintain production capability
  - Company may use internal funding or obtain external funding i.e., loan
  - Government is buyer of last resort. Some or all of funds may not be expended
- Installation of Production Equipment in Government or Privately Owned Facilities (*Sec. 303e*)
- Development of Substitutes (*Sec. 303g*)
- Loans/Loan Guarantees (*Sec. 301; Sec. 302*)
- Focus of Title III investments is to establish commercially viable industrial capabilities that will continue to prosper after Government assistance expires



# Title III Statutory Requirements for Project Execution

**DETERMINATION UNDER SECTION 303 (a)(5) OF  
THE DEFENSE PRODUCTION ACT  
FOR  
HIGH HOMOGENEITY OPTICAL GLASS**

In accordance with section 303(a)(5) of the Defense Production Act, 50 U.S.C. 2093(a)(5), which authority was delegated to the Secretary of Defense by Executive Order 12919, and further delegated to me by Secretary of Defense memorandum, Subject: Delegation of Authorities and Assignment of Duties of the Secretary of Defense Under Executive Order 12919, National Defense Industrial Resources Preparedness, Implementing the Defense Production Act (DPA), dated September 28, 1994, I hereby determine that:

**1. *The industrial resource or critical technology item is essential to the national defense.***

High Homogeneity Optical Glass (HHOG) blanks characterized as possessing a maximum refractive index variation across the entire optic of  $\pm 1.0 \times 10^{-6}$  (industry equivalent of grade H4) or better, are critical elements of high precision optical lens systems. These lens systems are key technology enablers for defense and national security related systems and applications and are employed by a broad mix of governmental agencies including: the Department of Defense (DoD), the Department of Energy (DOE), and the National Aeronautics and Space Administration (NASA).

Of particular concern to the DoD are lens products made from large format (diameters greater than 30cm), H4 grade HHOG blanks required in optical designs for aerial, satellite and other space surveillance systems. Other HHOG-dependent DoD and national security applications include, but are not limited to: ground and airborne directed energy systems (target acquisition, missile defense, laser weapons), precision interferometric positioning (precision measuring), microlithography (semiconductor production) and fusion energy development (National Ignition Facility and other laser utilities). In support of these applications, the Production Process Technology for High Homogeneity Optical and Technical Glasses is listed within the Military Critical Technology List (MCTL) under Lasers, Optics and Sensors Technology (11.2-5, page MCTL-11-49, July 2007).

**2. *Without action under DPA authority, US industry cannot reasonably be expected to provide the capability for the needed industrial resource or critical technology item in a timely manner.***

The existing domestic market for HHOG blanks is characterized by a limited number of suppliers, high start-up cost barriers for new market entrants, extremely long production cycle/lead times, low manufacturing yields and higher per-unit cost. Current

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approach, focusing on dramatically improved manufacturing efficiencies, will result in increased supply of HHOG blanks to better meet anticipated demand.

Approved by: Ashton B. Carter Date: JUN 30 2009  
Ashton B. Carter  
Under Secretary of Defense  
Acquisition, Technology and Logistics

## 1. Obtain “Presidential Determination”

- Industrial resource or technology item is essential for national defense
- Industry cannot/will not provide needed capacity in a reasonable time without Title III assistance

## 2. Notify Congress in writing

## 3. Wait 30 days to allow for Congressional comment

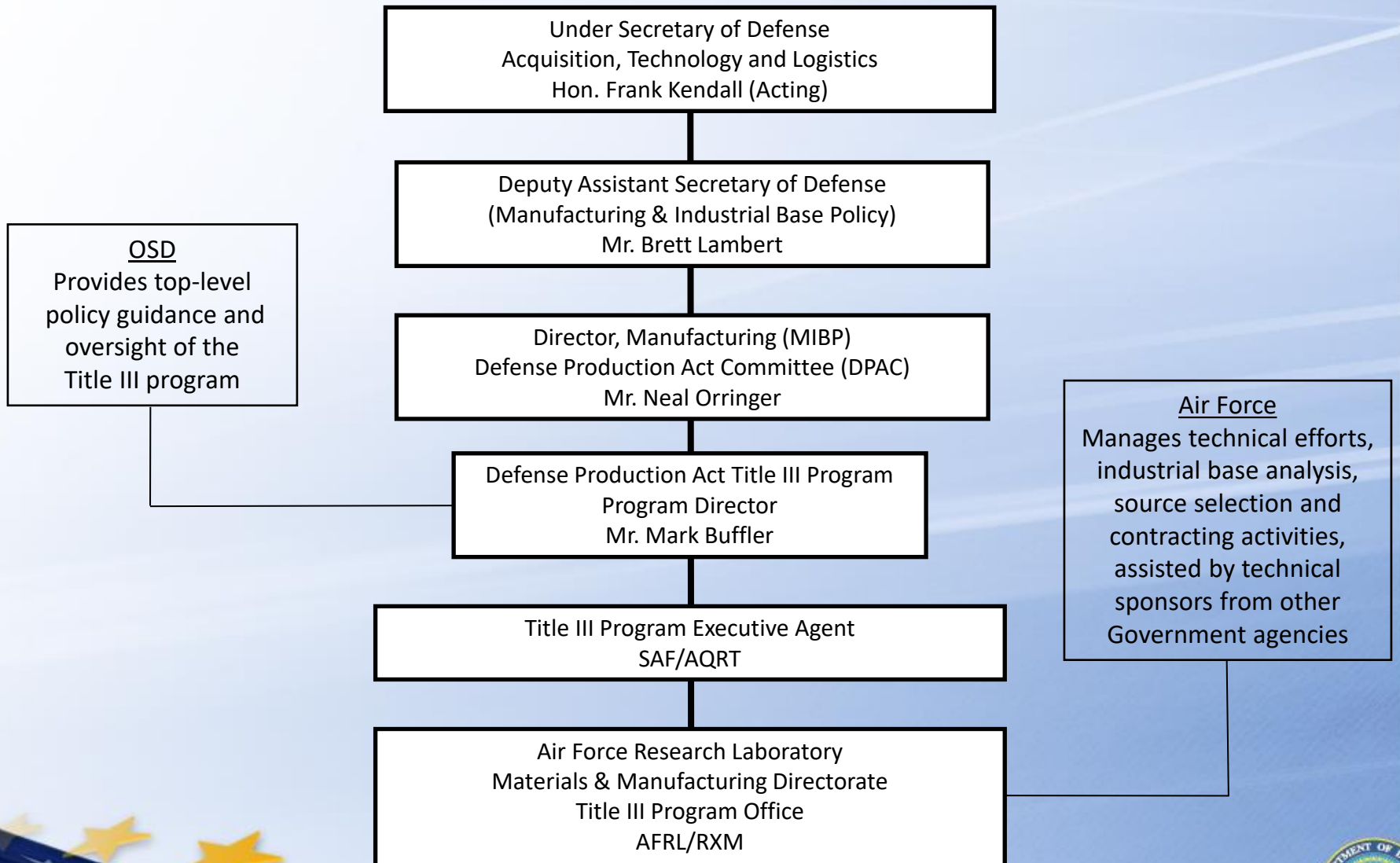


# Title III Funds

- Title III appropriations are credited to the Defense Production Act Fund
  - Special repository in Treasury to support Title III activities (non-DoD Fund)
  - Title III appropriations are no-year procurement funds and are valid until expended
  - By law, funds may be used only for Title III purposes
  - SECDEF designated as Fund Manager for Federal Government by E.O. 12919
- Funding for Title III initiatives may also be provided by other Federal Agencies as funding offsets for specific Title III efforts.
- Revolving fund permits reuse of unexpended and recovered moneys by Title III Program
- DPA contains its own authorization of appropriations
  - Funds appropriated for Title III are automatically authorized. Title III initiatives are not normally included in authorization bills for this reason.



# Title III Organization



# Defense Production Act Title III Initiatives



## ALON Transparent Armor

- Expanded production of ALON transparent armor
- $\frac{1}{3}$  the thickness and  $\frac{1}{2}$  the weight of glass-based transparent armor.
- Improved ballistic protection, performance, and reliability for vehicles equipped with ALON.
- Stops .50 cal AP.



## Radiation Hardened Electronics Capital Expansion Project

- Modernized two obsolete semiconductor foundries to maintain a critical technology for defense space & missile systems
- 0.15-micron rad hard electronics enable advanced processing & performance capabilities
- Preserves a critical domestic industrial resource needed for national security

## Advanced Explosives Detection Technology

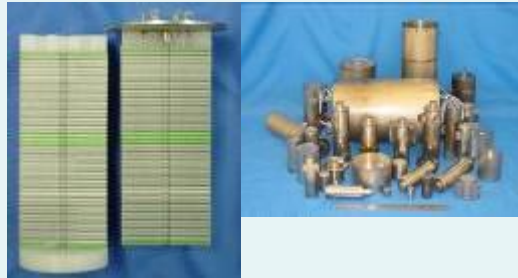
- Successfully scaled up production of the Fido IED Detection device
- Provides compact, superior detection capabilities against explosives & IED threats
- Facilitates new non-military markets – e.g., first responder, customs, homeland security

## Silicon Carbide Substrates

- Established viable production base for SiC MMIC devices & accelerating insertion of SiC based technology into DoD systems
- Enabler for next-generation radar systems, electronic warfare systems & advanced communications systems
- Enabled installation of LED lighting in Pentagon & other Federal buildings
- Enabled GaN-on-SiC MMICs for next generation CREW Counter Improvised Explosive Device system

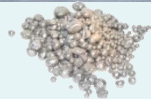
## Thermal Battery Project

- Establishing domestic manufacturing capacity for advanced thermal batteries for tactical and strategic defense systems
- Partnering with domestic providers to expand production capacities
- Significant performance advantages over current battery technology w/lower maintenance costs



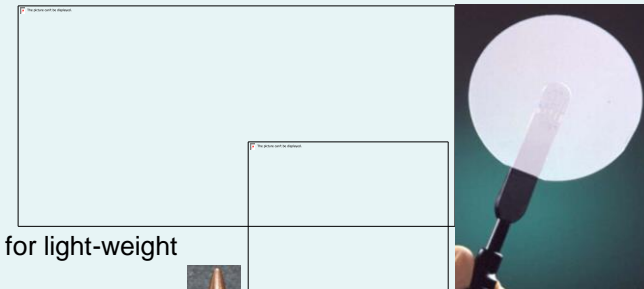
## Re-establishing Domestic Beryllium Production Capability

- Re-establishing domestic manufacturing capability for high-purity Beryllium
- Critical enabling material for defense applications including: electro-optic systems; missile guidance systems, satellites, missile defense systems, nuclear weapons, nuclear power plants



## Light-Weight Polymer Ammunition

- Developing a production capability for light-weight polymer-based ammunition.
- ~30% lighter than conventional ammunition.
- Drop-in replacement for existing systems – no redesign required.
- Reduces soldier burden
- Improves battlefield mobility and survivability
- Reduces fuel consumption, improves battlefield logistics.
- Supports Lighten-the-Load Initiative



LED Light





# Program Portfolio

	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	Tot Val
<b>Radiation Hardened Electronics</b>								
5/02	RH CAPEX						Honeywell & BAE	167.0
6/03	Rad Hard PowerPC						BAE	21.0
6/05	Read Out ICs						ON Semiconductor	32.8
-----	-----	-----	SIBC: Read Out ICs #1				ON Semiconductor	5.2
-----	-----	-----	SIBC: Read Out ICs #2				Tower/Jazz	5.2
<b>Electronic Materials &amp; Devices</b>								
7/04	Thermal Batteries						ENSER	17.4
8/05	SIC MMIC Devices						Cree	30.3
9/08	Lithium Ion Batteries for Space						Quallion	54.9
9/07	TWT Amplifiers for Space						L3 Comm	10.6
11/07	Atomic Layer Coatings						Raytheon	5.9
8/07	Methanol Fuel Cells						DuPont	4.9
9/07	Solar Cell Encapsulant						STR Technologies	7.8
9/08	Low Cost Military GPS						Rockwell Collins	11.3
9/09	Gallium Nitride X-Band MMICs						Raytheon	11.3
-----	-----	-----	Gallium Nitride Radar & EW MMICs Contr #1				TriQuint	17.5
-----	-----	-----	Gallium Nitride Radar & EW MMICs Contr #2				Cree	21.1
-----	-----	-----	Conductive Composites Nano-materials				Conductive Composites	3.2
-----	-----	-----	Advanced Carbon Nanotubes				Nanocomp	4.3
-----	-----	-----	SIBC: TWT Amplifiers for Space				L3 Comm	7.6
-----	-----	-----	SIBC: Cadmium Zinc Telluride Substrates					8.0
-----	-----	-----	SIBC: CMOS FPA for Visual Star Trackers					12.5
-----	-----	-----	Li Ion Batteries for Military Applications					24.4
-----	-----	-----	SIBC: Germanium Solar Cells					3.1
-----	-----	-----	SIBC: TBD FY12 New Start					9.4
-----	-----	-----	SIBC: TBD FY13 New Start					7.6
-----	-----	-----	SIBC: TBD FY14 New Start					7.6
-----	-----	-----	SIBC: TBD FY15 New Start					4.0
<b>Structural Materials</b>								
9/04	Flexible Aerogels						Aspen Aerogels	55.1
11/05	Beryllium Production						Brush Wellman	79.6
9/06	Titanium Metal Matrix Composites						FMW Composites	29.7
9/05	Silicon Carbide Powder & Ceramic Veh Armor						Superior Graphite	9.1
9/05	Carbon Foam						Touchstone Research	11.5
10/07	Integrated Advanced Composite Fiber Placement						ATK	42.4
12/06	Vacuum Induction Melt/Vacuum Arc Remelt Steel						Latrobe	59.2
9/08	Steel to Titanium Transformation						Gautier	9.0
1/09	Armstrong Titanium Production						ITP	20.3
9/09	Extremely Large Expendable Structures (ELDERS)						ATK	23.4
<b>Advanced Technologies &amp; Systems</b>								
6/05	POSS Nanomaterials						Hybrid Plastics	17.1
8/05	Military Lens Systems						FLIR	11.3
9/05	Mini-Compressors for Cooling						Aspen Compressor	12.7
9/06	Reactive Plastic CO2 Absorbent						Micropore	14.2
11/06	ALON/Spinel						Surmet	13.9
9/08	Light-Weight Ammo & Armor						MAC LLC	14.9
11/09	Polycrystalline Laser Gain Materials						VLOC	6.1
-----	-----	-----	High Homogeneity Optical Glass				Schott Glass	8.8
-----	-----	-----	SATCOM Transceiver				General Dynamics	3.0
-----	-----	-----	Navy Production Capacity				Lehigh Valley Forge	3.2
-----	-----	-----	Tetrahyz Spectrometer *				Goodrich	2.7
-----	-----	-----	Bio-Syn Paraffinic Kerosene (Award Pending)				UOP LLC	3.6
-----	-----	-----	Alternative Energy from Organic Sources					2.9
<b>TOTAL</b>								<b>803.5</b>

\* Pending Determination



# Why Use Title III

- Title III is a Government-wide authority that focuses on industrial base issues that are beyond the capabilities of individual agencies or programs to rectify. Capable of engaging multi-agency partners.
- Single tool to directly address industrial production shortfall issues.
  - Title III investments injected directly into industrial base – no intermediaries
- Provides a transition bridge from R&D arena to affordable, volume production; supports development of engineering specifications to qualify new materials in defense applications.
- Enhances Affordability
  - Reduced costs through efficient, lean processes
  - Improved quality driven by modern production technologies
- Enables trusted sources for uncompromised components for critical government applications.
- Accelerates availability of emerging technologies years ahead of “normal” availability
- Maintains secure domestic sources vice potentially unreliable foreign sources
- Strengthens the economic & technological competitiveness of the U.S. industrial base
- Creates U.S. based jobs





# Defense Production Act Title III Contacts

web site:

<http://www.acq.osd.mil/ott/dpatitle3/>

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