List of Abbreviations

(P) Projections
₹ or INR Indian Rupee
24x7 24 hours a day, 7 days a week
A&D Aerospace and Defence
APSSDC Andhra Pradesh State Skill Development Corporation
ASSOCHAM The Associated Chambers of Commerce of India
ATF Aviation Turbine Fuel
CAGR Compound Annual Growth Rate
CER Coastal Economic Region
CII Confederation of Indian Industry
CST Central Sales Tax
DPP Defence Procurement Policy 2011 (Government of India)
DPSU Defence Public Sector Unit
DRDO Defence Research and Development Organization
FDI Foreign Direct Investment
FICCI Federation of Indian Chambers of Commerce and Industry
FII Foreign Institutional Investors
FTWZ Free Trade and Warehousing Zones
FY Fiscal Year
GDP Gross Domestic Product
GoAP Government of Andhra Pradesh
Gol Government of India
GSDP Gross State Domestic Product
ISRO Indian Space Research Organization
IT Information Technology
ITI Industrial Training Institute
LCC Low Cost Carrier
MoD Ministry of Defence, Government of India
MoH Ministry of Home Affairs, Government of India

List of Abbreviations

MRO Maintenance, Repair and Overhaul
MSME Micro, Small and Medium Enterprises
MW Megawatt
NCR National Capital Region
NSDC National Skill Development Corporation
OEM Original Equipment Manufacturer
PPP Public Private Partnership
R&D Research and Development
SEZ Special Economic Zone
SGST State Goods and Service Tax
SPV Special Purpose Vehicle
US$ United States Dollar
USA United States of America
VAT Value Added Tax
BEL Bharat Electronics Limited
UAV Unmanned Aerial Vehicle
Andhra Pradesh is strategically located on the southeastern coast of India and is a natural gateway to East and Southeast Asia. The state has a population of 4.93 crore (as per population census - 2011), accounting for 4% of country’s population, residing in 4.9% of country’s geographical area. Andhra Pradesh has abundant natural resources (barytes, limestone, bauxite, and a number of minor minerals), fertile land and river basins, water resources, extensive canal system and conducive agro-climatic conditions.

The State has the second longest coastline in India and is also one of the largest producers of marine products. At current prices, the Gross State Domestic Product (GSDP) of Andhra Pradesh was ₹4,75,859 crore in 2013-14. Between 2004-05 and 2012-13, the average annual GSDP growth rate of Andhra Pradesh was 7.25% while the average per capita income at (current prices) increased from ₹46,345 in 2008-09 to ₹88,876 in 2013-14. The Advanced Estimate for GSDP in 2014-15 is ₹5,20,030 crore and the target for GSDP in 2015-16 is ₹6,36,606 crore (both at current prices).
India’s Aerospace & Defence (A&D) sector is at an inflection point. Various estimates put A&D expenditure on acquisitions at around ₹5 lakh crore (US$ 100 Billion) over the next 10 years. Robust growth potential of the industry is attracting Original Equipment Manufacturers (OEMs) in A&D sector to setup facilities in India thereby providing tremendous opportunity for participation of Indian companies.

The Defence Procurement Policy (DPP-2011) has included civil aviation equipment in the list of direct offsets. This has boosted the Indian aviation market and by 2017, the same is projected to be among the three largest markets globally.

The MRO segment in India is estimated to reach ₹1300 crore by 2020. Given the labour intensive nature of MRO, several leading MRO companies, OEMs and international airlines have outsourced heavy maintenance work to India.
2.1.1 Aerospace

Indian aerospace market is one of the fastest-growing in the world. It is driven by India’s expanding consumer base consisting primarily of airlines, businesses and high net worth individuals.

i. With a size of US$ 16 Billion, the Indian civil aviation industry is ranked amongst the top 10 globally. It also presents a US$ 82 Billion market opportunity in 2010-20 cumulatively.

ii. The aviation sector is growing rapidly in India, driven by a significant increase in the passenger traffic that has recorded an annual growth of over 41% during the period 2012-14.

iii. The Indian space program, run by the Indian Space Research Organization (ISRO) and its affiliates is among the most advanced in the world. Recent mega-missions such as the Chandrayaan and Mangalyaan, coupled with one of the most vigorous satellite programs in the world (Antrix, the commercial arm of ISRO, is tasked with commercialization and promotion of space products, technical consultancy services and transfer of technologies developed by ISRO) are expected to invigorate the sector.

![Civil aerospace market opportunity in India (2010-2020, in US$ bn)](image)

![Commercial aircraft fleet growth and market opportunity in India (2010-2020)](image)

Figure 1: Indian Aerospace Market [Source: KPMG analysis based on Boeing Long Term Market Outlook (2010-2029)]

(Source: KPMG analysis based on Boeing Long Term Market Outlook (2010-2029))
2.1.2 DEFENCE

With 1.81% of its GDP (2014-15) spent on defence, India has the 9th highest defence expenditure in the world (in absolute terms).

i. The allocation for defence in the FY 2015-16 budget is approximately US$ 40.4 Billion (excluding pensions and civil expenditure).

ii. India spends about 40% of its total defence budget on capital acquisitions, of which 70% by value is spent on imports, making India the largest importer of defence equipment in the world.

iii. However, with the recent push for domestic manufacturing, aided by the ‘Make in India’ program and increased FDI permissible in the sector, this ratio is set to change in favor of domestically manufactured products.

Figure 2: Defence Market size in India (2013-20, US$ Billion)
(Source: Budget Documents) Numbers in bubbles indicate CAGR)
2.2 Market Drivers – Exports and Domestic Consumption
The rapidly growing Indian aerospace and defence market, coupled with a competitive industrial base, presents a myriad of opportunities to global aerospace, defence and homeland security companies.

2.2.1 Aerospace
With rising passenger traffic and increasing demand for capital equipment, demand for aircrafts and allied products/services is expected to increase rapidly.

Drivers of Growth
There are several factors driving growth in India’s Aerospace and Defence industry - these include both macro and micro factors.

a) Low Cost Carriers:
The most significant development in Indian domestic market is the growing dominance of Low Cost Carrier (LCC) model, which in FY 2013 accounted for almost 70% of the domestic capacity by volume. LCCs have driven growth in aviation through low fares, introduction of regional routes and periodic discount offers.

b) Maintenance, Repair and Overhaul (MRO) market:
India’s current Maintenance, Repair and Overhaul (MRO) market size is estimated to be around US$ 700 Million. Currently, only about 5-10% of the MRO work for domestic scheduled carriers is carried out in India. By 2020, the total Indian aircraft fleet is expected to double in volume, making it critical to have a strong domestic MRO industry.

c) Manufacturing clusters
The Government of India has increased its focus to indigenize the Aerospace & Defence industry, attract global industry players to manufacture in India and lower the dependence on imports in the sector. With encouraging regulatory enablers, keen industry interest and increasing global attention, the Indian Aerospace and Defence industry has the potential to become one of the largest manufacturing hub globally.

Figure 3: Indian Aerospace manufacturing clusters and Andhra Pradesh’s Strategic Advantage

- Air India MRO
- Small job shops (generalists) coming up in the NCR region
- Maharashtra Airport Development company led SEZ which houses the Boeing MRO, TAL Manufacturing amongst others
- Quest SEZ, Belgaum - 300 acre SEZ aimed at providing end-to-end solution for aerospace manufacturers
- Hub of Indian aerospace industry - 1,000 acres specialized aerospace park near the Bengaluru International Airport
- Several small, medium and large aerospace manufacturers
- 100 hectares Kochi International Airport Industry park for aerospace manufacturing
- Proposed Aerotropolis at Bhogapuram
- Proposed UAV Cluster at West Godavari
- Bharat Electronics Limited (BEL) facility at Machilipatnam
- Proposed Aerospace and Defence Park at Ananthapuram
- Proposed Radar Test Bed Facility at Ananthapuram
2.2.2 Defence
With strong focus on technology, high-tech engineering and research and design capabilities, India has the potential to be one of the key global manufacturing destinations for defence systems and equipment.

Future Outlook - Drivers of growth/Enablers

a) Central Government Initiatives:
   i. The Government of India allows 49% Foreign Direct Investment (FDI) for the Aerospace & Defence sector.
   ii. Investment up to 24%, under automatic route, by foreign portfolio investors/FIs are permitted.
   iii. The relaxed licensing regime for defence products makes it easier for private sector manufacturers to enter into the defence supply chain.
   iv. The offset policy (which stipulates the mandatory offset requirement of a minimum 30% for procurement of defence equipment in excess of ₹30 crore) introduced in the capital purchase agreements with foreign defence players ensures that an eco-system of suppliers is built domestically.
   v. The Defence Production Policy-2011 encourages indigenous manufacture of defence equipment by proactively encouraging larger involvement of the Indian private sector in design, development and manufacture of defence equipment.

b) Significant push for defence modernization as per 2014-2015 and 2015-16 Union Budgets:
   ii. Provision of ₹100 crore to set up a Technology Development Fund for defence (2014-15).
   iii. Provision of ₹144.21 crore for ‘Make in India’ projects in defence (2015-16).

c) Skilled Local Workers:
   India has over 1900 polytechnics and over 10,000 engineering colleges that feed the industry’s requirement for skilled manpower. India has one of the highest number of qualified graduate engineers in the world.

d) Technology Competitiveness:
   Indian firms have developed best practices for quality, project management and automating processes. Many of these practices are replicable for the Aerospace industry which can, in turn, leverage these well tested systems and processes to bring improvements across various services such as R&D, design and development, verification and maintenance services.

e) Cost Advantage:
   i. For Aerospace and Defence manufacturing companies savings are highest in technology and systems implementation activities. Depending on the type of component, India offers significant cost advantages with cost savings ranging between 15-25%, compared to western countries.
   ii. India also has a large, low cost labour base, and average hourly wages are about 20% and 95% lower than that in China and USA, respectively.
3.1 Andhra Pradesh’s strategic position

The State occupies a strategic position in terms of opportunities for the Aerospace and Defence sector. The State has three functional domestic and one international commercial airport. This is in addition to a naval airport at Visakhapatnam. The state further plans to develop eight new airports, which include Greenfield airport at Bhogapuram (near Visakhapatnam), five Greenfield no frills airports at Kuppam, Dagadarthi, Oravakallu, Ongole and Tadepalligudem & two brownfield no frills airports at Donakonda and Nagarjuna Sagar.

The state also plans to develop a Greenfield International Aerotropolis infrastructure project spread over 7500 acres in Visakhapatnam district.

The State also has a large naval presence in Visakhapatnam (which is also the headquarters of the eastern naval command). It hosts primary spaceport for ISRO at Srirakota and has National Atmospheric Research Laboratory at Gadanki near Tirupati.
3.2 Tactical advantages that Andhra Pradesh offers

a) Excellent Port Logistics:

i. Andhra Pradesh has 4 major and intermediate container ports (Visakhapatnam, Kakinada, Krishnapatnam and Machilipatnam) and over 10 minor, deep water ports. This infrastructure provides ample opportunity to industries to develop trade relations with various countries across the globe.

ii. The Sagar Mala project envisages inter-port connectivity in India to augment coastal shipping to reduce transaction cost. Visakhapatnam would be one of the twelve major port locations and leveraging on its competitive advantages, the port would be considered as one of the cruise destinations. Also, a key element of this project is setting up of 10 Coastal Economic Regions (CERs) in the country. Cities such as Visakhapatnam, Krishnapatnam are likely to be focal points of the CER in Andhra Pradesh.

iii. Kakinada seaport is being explored for shipbuilding through tie-up with Sembcorp Shipyard, Singapore.

iv. Andhra Pradesh is developing a network of inland waterways. National Waterway-4 stretches from Kakinada to Puducherry over 1095 kilometers. This would connect ports, cities and industrial townships and the estimated cargo traffic on this waterway would be 10 metric ton by 2029. Rajahmundry-Bhadradalam inland waterway connectivity over the Godavari River is also an important waterway for cargo transport.
b) Large Land Bank:

The state of Andhra Pradesh has an identified land bank of 3 lakh acres and is further in the process of consolidating an additional industrial land bank of approximately 7 lakh acres. This land bank of 10 lakh acres would give the state a strategic edge in attracting investments. This land would be administered in accordance with the New Industrial Development Policy 2015-20.

c) Reliable Infrastructure:

i. The GoAP is committed to supplying 24x7 reliable, quality power to industry. While the state is currently power surplus, it has embarked on an ambitious plan to add another 16,484 MW of power generation capacity by 2019-20.

ii. The state is also committed to invest in world class infrastructure and common facilities across industrial parks, manufacturing zones, Industrial corridor nodes etc.

d) Abundant availability of skilled manpower:

i. The state has a large and highly skilled population of engineering graduates who are trained and have suitable technical competence and experience.

ii. The state has over 200 polytechnics and 225 engineering colleges that can feed the industry’s requirement for skilled manpower.

iii. The state has also set up the Andhra Pradesh State Skill Development Corporation (APSSDC) on the lines of the National Skill Development Corporation (NSDC) which will provide funding to build scalable, for-profit vocational training initiatives in partnership with industry.

e) Technology Competitiveness:

Andhra Pradesh has been promoting investments in Technology sector and facilitating growth of IT Enabled Services through proactive measures.
The proposed Policy objectives and targets are as follows:

a) Objectives:

i. Make Andhra Pradesh one of the most preferred destinations for Aerospace & Defence manufacturing.

ii. Attract mega Aerospace & Defence manufacturing projects in the State and promote establishment of new Aerospace & Defence clusters in order to promote development of a sectoral ecosystem.

iii. Identify and address existing infrastructure gaps affecting Aerospace & Defence manufacturing industry.

iv. Promote Research and Development in the industry and ensure continuous technology upgradation.


vi. Create Industrial township/s catering to Aerospace and Defence manufacturing sectors.

b) Targets:

i. Attract new investments worth ₹20,000 crore in the sector by 2020.

ii. Create 5,000 additional highly skilled employment opportunities in the sector by 2020.

iii. Attract at least 4 anchor unit investments of over ₹1000 crore each in the sector in the policy period.

iv. Attract orders for at least 10% of all offset obligations discharged by companies in India over the policy period.
The policy will be valid for 5 years from the date of notification, unless otherwise notified separately by GoAP.

6.1. Micro, Small and Medium Enterprise (MSME)
GoAP will follow the MSME definition laid out by Government of India for MSME as per MSME Act 2006. The definition for MSMEs will be revised automatically as per the guidelines of GoI from time to time.

6.2. Large Industrial Project
Large Project is an industry unit in which the investment on plant and machinery is less than ₹500 crore and more than the investment threshold for Medium enterprises decided by the MSME Act 2006 of GoI.

6.3. Mega Project
Project with capital investment of over ₹500 crore or creating local employment for over 2000 people will be accorded mega project status and tailor made incentives will be offered based on factors such as investment and technology.

6.4. Anchor Unit
Global/ Indian Original Equipment Manufacturers (OEM) – companies which design and manufacture the A&D platform. This is the high end of the A&D value chain with large entry barriers due to high investments required and technological intensiveness. Investments (for standalone mother unit) greater than ₹200 crore would be designated as Anchor Units. These Anchor Units should qualify that they have defence orders worth at least ₹50 crore or more. The definition of a defence order is a contract with the Ministry of Defence or the Ministry of Home Affairs (of Government of India) or their equivalents in foreign countries.
The Government shall introduce a set of initiatives that will ease the compliance procedures for new and existing aerospace and defence sector companies.

a) Labor Concessions: Subject to applicable laws, the Government will give permission to the Aerospace and Defence industry for 24x7 (three shifts) operations, employment of women in the night shifts, flexibility in employment conditions including working hours for women and shorter or longer shift timings and hiring of contract workers. The industry will be declared to be a ‘Public Utility’ under the Industrial Disputes Act, 1947 in order to prevent flash strikes.

b) Single Desk Clearance: GoAP shall facilitate all industrial clearances in accordance with the Single Desk Policy 2015-20.

c) Special Cell: A special cell would be constituted under the chairmanship of Secretary, Department of Industries and Commerce, GoAP, with the following objectives:

i. to attract and hand hold high potential investors in A&D sector.

ii. to facilitate and streamline defence projects of national importance.
SKILL DEVELOPMENT

INITIATIVES

a) General Initiatives:
   i. GoAP has set up APSSDC on lines of the National Skill Development Corporation (NSDC), a not-for-profit company under the Companies Act, 2013.
   ii. APSSDC will provide funding to build scalable, for-profit vocational training initiatives. It will also enable support systems such as quality assurance, information systems and train the trainer academies either directly or through partnerships.

b) Sector Specific Initiatives:
   i. A&D manufacturing units would be encouraged to adopt Industrial Training Institutes (ITIs) to sponsor and provide a steady stream of employees for A&D industries in the state. Companies can suggest specific curriculum interventions and can sponsor laboratories, buildings and other facilities in their adopted ITIs.
   ii. Universities (in India and abroad) which excel in A&D training and research would be encouraged to tie up with universities in Andhra Pradesh to enhance pedagogy and R&D culture.
   iii. Land in Aerospace and Defence Park would be reserved for training institutions which are expected to impart training to about 1000 personnel annually.

c) Financial Incentives:
   i. Capacity building: For in-plant training, the cost of training would be subsidized by way of offering stipend up to 50% of the cost of training subject to ₹10,000 per month per trainee. This incentive shall be available for maximum of 50 trainees per unit per annum.
GoAP will provide subsidy of up to 50% of the cost of land, building, plant and machinery subject to a maximum of ₹25 crore for testing center, ₹50 crore for technology innovation center and ₹50 crore for the common facility center.

GoAP shall strive to setup Andhra Pradesh Aerospace and Defence Park (on PPP basis) in Ananthapur and Chittoor/Nellore districts. An SPV will maintain and manage this park. The park will provide ‘plug-and-play’ industrial infrastructure allowing companies to focus on their core business. The park will have:

a) Manufacturing area (components, sub-components, sub-assemblies, aerospace parts) and SEZ
b) Testing center
c) Hardware/Embedded Technology Center
d) Technology innovation center
e) Housing & Common facility center
It is proposed to setup a world class Maintenance, Repair and Overhaul (MRO) facility as part of the proposed Bhogapuram Aerotropolis near Visakhapatnam. This will be a state-of-the-art facility which will provide full aircraft base maintenance services and will cater to the maintenance needs of regional and global airline customers.

GoAP will strive to setup Air Cargo Complex near Visakhapatnam (as part of the proposed Bhogapuram Aerotropolis). The complex will be an integrated facility housing both domestic and international cargo terminals under one roof. Key features will include:

a) Processing, storage and handling facilities.
b) Cold storage facilities.
c) Exclusive storage facilities for valuable, vulnerable and dangerous consignments.
d) Customs examination area facilities.
e) Adequate dock leveler facility at the truck dock area to handle any type of vehicle.
f) X-ray Screening facilities.
a) **Land**: For Aerospace and Defence units, land allotment shall be done as per the new Industrial Development Policy 2015-20. However, Anchor units (in defence manufacturing, in particular those with confirmed orders as defined in clause 6.4 above) would be given preference for government land allotment. These anchor units may sub lease part of their land (subject to a maximum of 50% of the total allocated land) to its suppliers. In such cases, the suppliers must sell at least 50% of their output to the respective anchor unit.

b) **Quality Power**: GoAP is committed to supplying 24X7 reliable, quality power to industry. While the state is currently power surplus, it has embarked on an ambitious plan to reach 16,484 MW of power generation capacity by 2019-20. Power Subsidy as envisaged under the New Industrial Development Policy 2015-20 would be made available to the Aerospace & Defence manufacturing sector.

c) **Connectivity and other infrastructure**: GoAP is committed to provide quality basic infrastructure such as roads, water and other such essential utilities to the sector. For A&D units coming up in the State, 100% subsidy would be provided (not exceeding ₹6 crore) on basic infrastructure (developed on under developed land purchased or leased from the government).

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All incentives available under the Industrial development Policy 2015-20 and MSME Policy 2015-20 of GoAP shall be applicable to the Aerospace and Defence Sector as well (only to MSMEs in the sector in the case of MSME Policy). Further, the following incentives would be made available:

a) **Tax Incentives**

i. **Net VAT/CST/SGST reimbursements for MSME and large A&D units** shall be as per the new Industrial Development Policy 2015-20. For Mega and Anchor Units it will be on case to case basis.

ii. **100% exemption from Entry Tax on ‘Plant & Machinery and capital goods’** for an initial period of 3 years (or policy validity period, whichever is earlier) from the date of commencement of project implementation for all aerospace and defence manufacturing units. On raw materials, inputs, component parts & consumables (excluding petroleum products) the exemption shall be for the policy validity period.

iii. **For aircrafts which are brought in specifically for MRO in Andhra Pradesh, 100% reimbursement of VAT/CST/SGST on all input material (excluding Aviation Turbine Fuel) for the policy validity period.**
b) **Capital Subsidy**
Anchor unit subsidy of ₹10 crore each shall be offered to first 10 aerospace and/or defence OEM enterprises established during the policy period (provided they meet the definition of Anchor units as per clause 6.4 above).

c) **Patent Cost/ Quality Certification cost reimbursement**
GoAP proposes to provide financial assistance towards expenses incurred for patent registration and for quality certifications. The financial assistance will be limited to 75% of the cost, subject to a maximum of ₹25 lakh for obtaining patent registration and 50% of all charges, subject to a maximum of ₹5 lakh paid for obtaining quality certification. This would be applicable only to MSME units in the A&D sector.

d) **Marketing incentives**
50% of cost of participation with a maximum amount of ₹5 lakh to be reimbursed to maximum of 10 MSME A&D units per year for participating in international trade fairs. GoAP would also tie up with industry bodies such as CII, FICCI, ASSOCHAM and others for helping develop market access for MSMEs in the sector.

e) **Rebate on Transportation Charges**
   i. A large number of components in A&D products are imported. The logistics cost to transport from the designated logistics park, FTWZs, ports located in Andhra Pradesh to the defence manufacturing facility in Andhra Pradesh will be reimbursed for project cargo whose insurable value is greater than ₹1 crore for an order executed for the MoD or MoH or its foreign equivalents by an anchor unit.
   ii. The reimbursement would be for materials, components and equipment which are used for a project whose contract value should be greater than ₹50 crore and the reimbursement would be capped at a maximum of ₹1 crore per contract.
   iii. Reimbursement can be given only once for any particular contract.

f) **Promotion of Defence Public Sector Units and R&D Centers**
   i. GoAP aims to attract at least one DPSU into AP in the next 5 years. This would ensure a base for defence investments in the state. Vendor base and ancillary industries would emerge as the DPSU would act as an Anchor Unit.
      a. In defence sector, the setting up of DPSUs have set off a virtuous cycle of forming a self-sustaining cluster which includes MSME vendor development and R&D. Hence, to encourage DPSUs to invest in the state, GoAP would provide government owned land at nominal cost to build their facilities (including ancillary facilities such as housing for employees etc.)
   ii. Investments in R&D areas of defence would be encouraged with the following incentives:
      a. R&D investments in defence above ₹10 crore would be eligible for a 10% subsidy on investments subject to a maximum of ₹10 crore per investment.
      b. The R&D center should either have a direct order of at least ₹5 crore from the Ministry of Defence or should be providing services for a manufacturer which has a minimum of ₹50 crore order from the Ministry of Defence.
      c. R&D exporters should have a minimum ₹10 crore order from a foreign government, aerospace and defence supplier for foreign government, civilian aerospace supplier or an MRO facility for defence or aerospace.
      d. For condition ‘b’ and ‘c’ above, in case the order criteria is fulfilled post the set-up of the center (within 2 years of unit going live), investment subsidy as per point ‘a’ above would be provided retrospectively.

Note: Incentives mentioned in Aerospace and Defence Manufacturing Policy 2015 - 20 will be extended to industries as per guidelines to be notified separately.