



3.1 Heavy Electrical Engineering Industry caters to the needs of energy sector & other industrial sectors. The performance of this Industry is closely linked to the power programme of the country. The Government of India has an ambitious mission of 'Power for All by 2012' and planned power capacity addition of 78,700 MW in the 11th Five Year Plan (2007-12), against which only 80% of the target is likely to be achieved by the end of this Plan period.

Development Council for Heavy Electrical and Allied Industries has been constituted on 27th September 2011 to plan a road map for the next 10 years for the growth of the heavy electrical equipment industry. Road map includes enhancement in the competitiveness by bridging the technology gaps, suggesting benchmarking for global competition, promotion of power generation through nonconventional energy sources, establishing joint R&D activities between equipment manufacturers & their collaborators and research institutions in India. Development Council recommends suitable policy measures and support required from the Government to achieve its goal.

Major products being manufactured in this sector are:

3.1.1 Boilers

Boiler is a pressurized system in which water is vaporized to high pressure steam which may be used directly as the working fluid in a prime mover to convert thermal energy to mechanical work, which in turn may be converted to electrical energy. BHEL is the largest manufacturer of boiler in the country, accounting for around 2/3rd of the domestic market share. It has the capacity to manufac-

ture steam generators for utilities ranging from 30 MW to 500 MW capacity using coal, lignite, oil, natural gas or a combination of these fuels. They are also manufacturing higher capacity boilers with super critical parameters upto 800 MW unit size. Manufacturing facilities are also available for higher size super critical boilers. As per SIA statistics production figures for the last three years for non SSI Sectors are as under:

Product	2008-2009 (₹. cr.)	2009-2010 (₹. cr.)	2010-2011 (₹. cr.)
Boiler	10,153.94	12763.	17018.45

(Source-SIA)

As per SIA statistics, production figures for the last three years for non SSI Sectors are as under:-

Product	2008-09 (Million KVA)	2009-10 (Million KVA)	2010-11 (Million KVA)
Transformer	71.86	85.23	96.62

(Source-SIA)

3.1.2 Switchgears & Control-gears

Switchgear refers to the combination of electrical disconnects, fuses and/or circuit breakers used to isolate electrical equipment. Switchgear is used both to de-energise equipment to allow work to be done and to clear faults downstream. Switchgear & Control gear Industry in India is a fully developed and mature industry, producing and supplying a wide variety of switchgear and control gear items needed by the

industrial and power sector. This industry sector in fact manufactures the entire voltage range from 240 V to 800 KV. Secondary equipment, such as relays used for various types of fault protection, also known as control gear, has made significant advances due to major development in the field of electronics. As per SIA statistics, production figures for the last three years for non SSI Sectors are as under:-

Product	2008-09 (Nos.)	2009-10 (Nos.)	2010-11 (Nos.)
Switchgear and Control gear	17805938	18119497	23123776

(Source-SIA)

3.1.3 Turbines & Generator Sets

Indigenous capability for manufacture of various kinds of turbines such as steam and hydro turbines including industrial turbines, has been established upto unit size of 800 MW. Apart from BHEL, which has the largest installed capacity, there are other units in the private sector manufacturing turbines for power generation and industrial use. The manufacturing range of BHEL includes Steam Turbines, Boilers, Generators up to 800 MW size for utility and combined cycle application are also manufactured within the country. BHEL has the capacity to manufacture Gas Turbines up to 260 MW.

The AC Generator industry in India is adequately catering to the alternative power requirement of large and small industries, commercial establishments and domestic sector. For this sector, manufacturers in India are capable of manufacturing AC Generators right from 0.5 KVA to 25000 KVA with specified voltage ratings.

As per SIA statistics, production figures for the last three years for non SSI Sectors are as under:

Product	2008-2009 (₹ Cr.)	2009-2010 (₹ Cr.)	2010-2011 (₹ Cr.)
Turbines (steam hydro)	4193.00	5428.00	6990.00
Electric Generators	1778.10	2116.73	2580.00

(Source-SIA)

3.1.4 Transformers

A transformer is an electrical device, which changes voltage levels and facilitates transmission, distribution and utilization of electrical power in the most efficient and economic manner. The major users of this product are the State Electricity Boards, Power Grid Corporation of India Ltd. and other industries. Some other types of transformer are also manufactured for specialized usage such as welding, traction and electrical furnaces etc. The transformer industry in India, which has developed for over 50 years, has a well matured technology base. Energy efficient amorphous core transformers with low losses and low noise levels are also being developed to meet international requirement.

3.2. Heavy Engineering and Machine Tools Industry

Heavy Engineering and Machine Tools Sector mainly consists of Capital Goods Industry. Prominent sub-sectors of Capital Goods Industry are machine tools, textile machinery, construction and mining machinery and other heavy industrial machinery such as cement machinery, rubber machinery, metallurgical machinery, chemical and fertilizer machinery, printing machinery, dairy machinery, material handling equipment, oil field equipment, paper machinery etc.

The Department has constituted Development Councils for Machine Tools Industry and Textile Machinery Industry which provides a platform where machinery/equipment manufacturers, users of machineries and policy maker from Government Departments

discuss the various issues and take decisions for the sustainable growth of these industries. Planning Commission has constituted a Working Group on Capital Goods and Engineering Sector for the 12th Five Year Plan (2012-2017) under the Chairmanship of Secretary, Department of Heavy Industry. Seven sector-wise sub-groups, viz. machine tools, plastic processing machinery, earth moving and mining equipment, heavy electrical and power plant equipment, metallurgical machinery, textile machinery, process plant equipment, engineering goods and dies, moulds & tool industry were constituted. In order to achieve global competitiveness, a holistic approach for development of strategic capital goods sub-sectors has been advocated. It involves through multi-dimensional programmes, schemes and policy interventions. The underlying strategy is to overcome the present limitations with specific plans, including fiscal and other policy measures to develop an enabling environment.

3.2.1 Machine Tools Industry

There are around 200 machine tool manufacturers in the organized sector as there are also around 400 small scale units. The industry lacks in design and engineering capability to undertake high precision Computer Numerically Controlled (CNC) Machines. Due to technology gaps in the field of metal cutting machine tools, metal forming machines, special technologies and critical components development etc. the import of technology as well as R&D initiatives is encouraged to bridge the gaps. This industry is de-licensed and foreign direct investment (FDI) up to 100 percent is under automatic route. Technology collaboration and import of old and new machine tools is also allowed freely. As per Indian Machine Tools Manufacturers Association (IMTMA) the production, import and export figures for the last three years are as under :

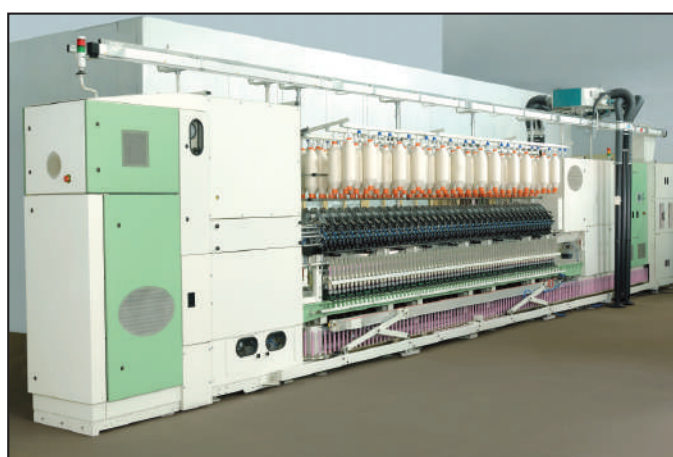
	2008-09 (₹ Cr.)	2009-10 (₹ Cr.)	2010-11 (₹Cr.)
Production	2138	2484	3624
Import	6271	4842	7245
Export	89	81	91

Source: IMTMA

3.2.2 Textile Machinery Industry

Textile Machinery Industry is a significant component of the capital goods industry. It comprises of over 1446 machinery and components manufacturing units with over 600 units producing complete machinery and other units are mainly into the production of parts and accessories of textile machinery. There are technology gaps in areas like weaving, processing, special purpose finishing machines, knitting and garmenting machineries and in critical components such as auto comer and rotor spinning machine with automation, wider width processing machines, etc. Insufficient in-house R&D as well as absence of large foreign/domestic players in weaving and processing machineries is the draw back at the moment. This industry is also de-licensed with foreign direct investment (FDI) up to 100 percent under automatic route. Technology collaboration and import of old and new machinery is allowed freely.

As per Textile Machinery Manufacturers Association (TMMA) with a capital investment



Ring Frame LR 59

of Rs. 6900 crore and an installed capacity of Rs. 8048 crore per annum, the current production, exports and imports for the last three years are as under: -

Year	Production (₹ Crore)	Exports (₹ Crore)	Imports (₹ Crore)
2008 -2009	4063	607	4411
2009 -2010	4245	582	4357
2010 -2011	6150	650	5000

Source: Textile Machinery Manufacturers Association

3.2.3 Cement Machinery Industry

Cement plants based on raw mill grinding, pyro-processing and cement grinding process technology for capacities upto 10,000 Tons Per Day (TPD) are being manufactured in collaboration with foreign technology. With an installed capacity of around Rs. 600 crore/annum the industry is fully capable to meet the domestic demand. This industry is also de-licensed and foreign direct investment (FDI) is up to 100 percent under automatic route. Technology collaboration is allowed freely. Import of old and new machinery too is allowed freely. As per records the industry has made no imports or exports during the last three years.

3.2.4 Sugar Machinery Industry

Domestic manufacturers occupy a prominent position in the global scenario who are capable of manufacturing from concept to commissioning stage sugar plants of latest design for a capacity upto 10,000 TCD (Tons Crushing per day). There are presently 27 units in the organised sector for the manufacture of complete sugar plants and components with an installed capacity of around ₹ 200 cr. per annum. This industry is also de-licensed and foreign direct investment (FDI) is up to 100 percent under automatic route as well as technology collaboration is allowed freely. Import of old and new machineries too is allowed freely. As per Directorate General of Commercial Intelligence and Statistics (DGCI&S) the exports and imports figures for the last three years are as under: -

	2008-09 (₹. Lac)	2009-10 (₹. Lac)	2010-11 (₹. Lac)
Import	2465	1293	4728
Export	4821	3262	7028

Source: DGCI&S

3.2.5 Rubber Machinery Industry

There are about 10 units for the manufacture of rubber machinery mainly required for tyre/tube industry. The range of equipment manufactured includes inter-mixer, tyre curing presses, tube splicer, bladder curing presses, compression & transfer moulding machines, tyre moulds, tyre building drums/machines, turret servicer, bias cutters, bead wires, etc. The domestic installed capacity is about ₹ 1000 crore. There is gap in technology for the manufacture of high speed calendering line particularly for heavy earthmoving equipment and duplex/triplex extruder which are being imported. This industry is also de-licensed and foreign direct investment (FDI) is up to 100 percent under automatic route as well as technology collaboration is allowed freely. Import of old and new machinery too is allowed freely.

As per Directorate General of Commercial Intelligence and Statistics (DGCI&S) the exports and imports figures for the last three years are as under: -

	2008-09 (₹ Crore)	2009-10 (₹ Crore)	2010-11 (₹ Crore)
Import	63.13	158.00	155.96
Export	101.33	33.13	18.57

Source: DGCI&S

3.2.6 Material Handling Equipment Industry

The range of equipments manufactured includes coal/ore/ash handling plant and associated equipment such as stackers, reclaimers, ship loaders/unloaders, wagon tippers, feeders etc. catering to the growing and rapidly changing needs of the core industries such as Coal, Cement, Power, Port, Mining, Fertilizers and steel plants. This

industry is also de-licensed and foreign direct investment (FDI) is up to 100 percent under automatic route. Technology collaboration is allowed freely. Import of old and new machinery too is allowed freely. There are 50 units in the organised sector for the manufacture of material handling equipment. Besides, there are numbers of units operating in the small-scale sector.

As per Directorate General of Commercial Intelligence and Statistics (DGCI&S) the exports and imports figures for the last three years are as under: -

	2008-09 (₹.Crore)	2009-10 (₹. Crore)	2010-11 (₹.Crore)
Import	1782.17	1924.98	1588.8 4
Export	140.55	132.45	153.20

3.2.7. Oil Field Equipment

Domestic production covers mainly the on-shore drilling equipment. Under offshore drilling only offshore platforms and some other technological structures are being produced locally. The major producers of these equipments are BHEL, Hindustan Shipyard, Mazagon Dock and Larsen & Toubro. This industry is also de-licensed and foreign direct investment (FDI) is up to 100 percent under automatic route as well as technology collaboration is allowed freely. Import of old and new machinery too is allowed freely.

As per Directorate General of Commercial Intelligence and Statistics (DGCI&S) the exports and imports figures for the last three years are as under: -

	2008-2009 (₹.Crore)	2009-2010 (₹. Crore)	2010-2011 (₹. Crore)
Import	1091.82	1341.29	137.46
Export	534.11	411.22	356.51

3.2.8 Metallurgical Machinery

Metallurgical machinery includes equipment for mineral beneficiation, ore dressing, crushing and screening plants, steel plant equipments, foundry equipments and furnaces. At present there are 39 units in the organized sector engaged in the manufactures of various types of metallurgical machinery. Indigenous manufacturers are in a position to supply blast furnaces, sinter plants, coke ovens steel melting shop equipment, continuous casting equipment, rolling mills & finishing line with imported knowhow. There is a technological gap in the basic design and engineering for plants and equipments required in the ferrous and non-ferrous sector. This industry is also de-licensed and foreign direct investment (FDI) up to 100 percent under automatic route as well as technology collaboration is allowed freely. Import of old and new machineries too is allowed freely.

As per Directorate General of Commercial Intelligence and Statistics (DGCI&S) the exports and imports figures for the last three years are as under: -

	2008-09 (₹. Crore)	2009-10 (₹.Crore)	2010-11 (₹.Crore)
Import	3842.33	3252.31	2943.24
Export	986.10	441.76	564.74

Source: DGCIS

3.2.9 Mining Machinery

The major mining equipment are longwall mining equipment, road header, side discharges loader (SDL), haulage winder, ventilation fan, load haul dumper (LHD), coal cutter, etc. At present there are 32 manufacturers in the organized sector both in public and private sector for underground and surface mining equipment of various types. Out of these 17 units manufacture underground mining equipment. Majority of the requirement of the mining industry is being met by the indigenous manufacturers. This industry is

also delicensed and foreign direct investment (FDI) up to 100 percent under automatic route as well as technology collaboration is allowed freely. Import of old and new machineries too is allowed freely. As per Directorate General of Commercial Intelligence and Statistics (DGCI&S) the exports and imports figures for the last three years are as under:

	2008-09 (₹.Crore)	2009-10 (₹. Crore)	2010-11 (₹.Crore)
Import	158.03	373.14	255.94
Export	3.30	15.00	4.52

3.2.10 Dairy Machinery Industry:

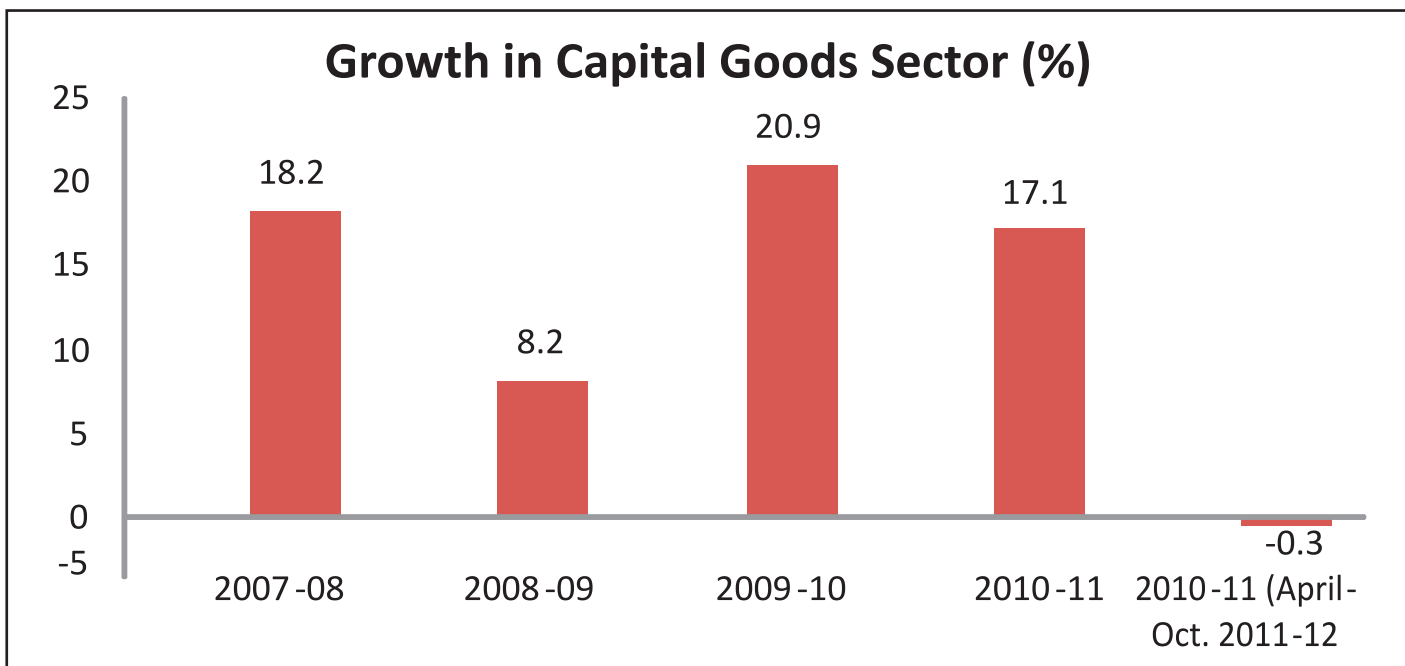
At present there are around 20 units in the organized sector, both in private and public sectors, manufacturing dairy machinery equipment such as evaporators, milk refrigerators and storage tanks, milk and

cream deodorizers, centrifuges, clarifiers, agitators, homogenisers, spray dryers and heat exchangers. The technology gap exist for handling equipments such as self cleaning cream, separator, aseptic processing systems, and for the equipment required for manufacture of yoghurt and traditional Indian sweets etc. This industry is also de-licensed and foreign direct investment (FDI) is up to 100 percent under automatic route as well as technology collaboration is allowed freely. Import of old and new machinery too is allowed freely.

As per Directorate General of Commercial Intelligence and Statistics (DGCI&S) the exports and imports figures for the last three years are as under :-

	2008-09 (₹. Crore)	2009-10 (₹. Crore)	2010-11 (₹. Crore)
Import	112.42	65.37	78.82
Export	23.03	18.73	28.87

Source: DGCIS



4 Automotive Industry



4.1 Overview of the Automotive Industry

Automotive Industry globally is one of the largest industries and is a key driver of economy. Automobile Industry in India was de-licensed in July 1991 with the announcement of the New Industrial Policy. The passenger car was however de-licensed in 1993. No industrial license is now required for setting up any unit for manufacture of automobiles except in some special cases. At present, 100% Foreign Direct Investment (FDI) is permissible under automatic route in this sector including passenger car segment. With the gradual liberalization of the automobile sector since 1991, the number of manufacturing facilities in India has grown progressively. The auto industry currently employs 12.5 million people, directly and indirectly, and contributes nearly 5% to the national GDP. The industry is also making a contribution of nearly 20% to the kitty of indirect taxes of the Government.

The Indian automobile sector is described as the 'sun rise' sector. During the last decade, the sector has been growing at approximately 12-15% per annum; however, in 2008-09 the automobile sector was badly hit due to global economic slowdown. In order to tide over the situation GoI took immediate remedial action and announced stimulus measures which have resulted in Indian automotive industry bouncing back on the high growth track as enshrined in the Automotive Mission Plan (AMP) 2006-16. The details of actual production of various automobile segments during the year 2007 to April- (upto October, 2011) are given below:

In the year 2010-11 (April 2010 to Nov. 2011), The details of export of various automobile segments during the year 2007-08 to April-Oct.11 are as follows :

4.2 Auto Components Industry:

Auto Component Manufacturers Association (ACMA) represents over 600 companies,

Automobile production:

(Nos. in thousands)

Segment	2007 -08	2008 -09	2009 -10	2010 -11	April –Oct. 11
Passenger Vehicle	1778	1839	2357	2987	1688
Total Commercial Vehicles	549	417	568	753	499
Three Wheelers	501	497	619	800	518
Two Wheelers	8027	8420	10513	13376	8879
Total	10854	11172	14057	17916	11584
Percentage Growth	-2.1	2.9	25.8	27.5	13.7

Source: SIAM

Automobile Exports:

(Nos. in thousands)

Segment	2007 -08	2008 -09	2009 -10	2010 -11	April –Oct. 11
Passenger Vehicle	218	336	446	453	293
Total Commercial Vehicles	59	42	45	76	49
Three Wheelers	141	148	173	270	228
Two Wheelers	820	1004	1140	1540	1183
Total	1011	1238	1530	1804	1755
Percentage Growth	25.43	22.45	23.61	18.05	29.7

Source: SIAM

which contribute more than 85% of the total auto component output in the organised sector. A variety of components are also being exported to OEMs and after-markets worldwide.

Exports represent about 21% and imports

represent 13% of the total turnover of the industry that registered a growth of over 34% in 2010-2011. The overall details of this segment are given below:

Automotive Component Industry- Performance 2007-11

(in ₹ Crores)

Segment	2007-08	2008-09	2009-10	2010-11
Turnover	106,400	105,700	135,700	182,100
% Growth	2.3	0.7	28.4	34.2
Exports	15,960	18,400	16,048	23,712
% Growth	19.4	6.4	-15.5	54
Imports	26,040	31,280	30,680	38,760
% Growth	61.4	9.6	-4.2	30.2
Investment	7,560	460	8,024	9,120-10,260
Imports as % of turnover	14	17	11	13
Export as % of turnover	23	30	22	21

(Converted from US dollar @ ₹ 47 for 2009-10, ₹43.2 for 2008-2009 and ₹ 45.6 for 2010)

(Turnover includes supplies to OEMs, after market sales and exports but sans imports. It does not take into account production for captive consumption by OEMs, components manufactured by non ACMA members whose majority supplies are non-automotive and the unorganized sector)

4.3 Agricultural Machinery

Agricultural Machinery mainly consists of Agricultural Tractors, Power Tillers, Combine Harvesters and other Agriculture Machinery & Implements. Due to negligible production of Power Tillers, Combine Harvesters and other Agricultural Machinery, this sector is mainly dominated by Agricultural Tractors. Indian Tractor Industry is the largest in the world (excluding sub 20 HP belt driven tractors used in China), accounting for one third of the global production. The other major tractor markets in the world are China and United States.

Indian tractors were exported to US and other countries like Malaysia, Turkey etc. Indian players have aggressively started exporting to African countries by bidding for government tender requirement. As such, Indian tractors are gaining acceptance in international markets.

4.4 Earth Moving and Construction Machinery

The Indian Earthmoving and Construction Equipment industry have been undergoing a silent revolution over the past few years, expanding volumes at a compounded annual rate of 40 per cent. The Eleventh Five Year Plan had set an ambitious target of increasing total investment in infrastructure from around 5% of GDP in the base year of the Plan 2006-07 to 9% by the terminal year 2011-2012. This was expected to result in investment requirement of \$514 billion for ten infrastructure sectors over the five year period. During the period 2009-2010 to 2013-14, the construction equipment industry is expected to grow at 19.3 per cent and reach a size of ₹ 300 billion in 2013-14. The equipment sales volume is expected to increase from over 60,000 units in 2010 to 330,000 in 2020.

Nearly all the leading global Original Equipment Manufacturers (OEMs) have already entered India, while a few more are in the process of entering. All these players can be expected to increase product variety, introduce new applications and services (e.g. rentals, financials) and hence catalyze growth by increasing supply.

4.5 Important initiatives taken in respect of Auto Sector by the Department of Heavy Industry (DHI):

Being the Nodal Department, Department of Heavy Industry takes up a range of issues for the development of the sector at various platforms. In this regard, Development Council for Automotive and Allied Industries (DCAAI) met under the chairmanship of Secretary, Heavy Industry 16.03.2011 to identify key areas of concern. Further the Indo-German Joint Working Group (JWG) on

Automotive Sector, which has been established under the aegis of Indo-German Joint Commission on Industrial and Economic Cooperation (JCM), had its third meeting in New Delhi on 18.04.2011. The three working sub-groups, constituted on (i) Technology (ii) Commercialization & Framework Development (iii) Institutional Cooperation, Training & Skill Development, also participated in the meeting.

The Chairmanship, Co-chairman and Secretariat for the Informal Group on EFV under GRPE (WP-29), UNECE have been conferred on India. Department of Heavy Industry is also functioning as the Secretariat for the informal group till 2012 i.e., the period till the next EFV Conference to be held in USA.

In terms of the recommendations of the Prime Minister's Group on Technology and on the initiatives taken by National Manufacturing Competitive Council (NMCC), the Department

of Heavy Industry has initiated the task of finalizing policy recommendations for moving ahead in the field of electric mobility in the country. Based on the various discussions held at NMCC, and inputs obtained from all stakeholders, an elaborate policy document has been prepared. The Cabinet in its meeting held on 31.03.2011 has approved this Department's proposal for setting up of National Council for Electric Mobility (NCEM) and National Board for Electric Mobility (NBEM) for mission mode approach to expand electric mobility and manufacture of electric vehicles (including hybrids) and their components in India. As a follow up to this decision, the Department has set up the NCEM headed by Minister of this Department and NBEM headed by Secretary, Department of Heavy Industry. The Department is in the process of preparing a National Mission for Electric Mobility Plan.



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