THE ENERGY SECTOR IN INDIA

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The opinions expressed in the paper are those of the author.

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1. Introduction

The energy sector in India consists of power companies, gas companies and oil refining companies. Within the power sector we have thermal, hydro, gas, wind, solar, and nuclear power companies. The Indian energy sector has both private sector players and public sector players. In oil refining and distribution we have companies like Bharat Petroleum Corporation, Hindustan Petroleum Corporation, Indian Oil Corporation and Reliance Industries. In the power sector we have National Thermal Power Corporation (NTPC), National Hydro Power Corporation (NHPC), CESC, Tata Powerand Adani Power. There are finance companies like Power Finance Corporation (PFC) and Rural Electrification Corporation (REC). In India, energy prices are not determined freely by forces of demand and supply within the economy. Power prices are determined by the government and there are pricing rules Crude oil prices are determined internationally and India is a price taker. India does not have significant crude oil reserves and it imports crude oil.

In the absence of competitive pricing, forecasting of energy sector product prices becomes difficult to model. Current prospects of this sector can be understood from the present and past financial performance of energy companies. To understand future prospects, one can use stock prices as a proxy. Stock prices of companies reflect market expectations from the company, which in turn factors in the prospects of the sector as a whole. For inferring the growth of this market, one can consider movement in stock prices of companies belonging to this sector. The advantage is that we can take study companies using various modes of generating power like coal, water, solar, wind, gas, nuclear etc. through their stock price movements. We can also consider coal producing companies, petroleum refining companies, wind power companies, solar power companies and gas producing companies separately.

To understand the demand side of the energy sector, one needs to look at the overall rate of economic growth, growth in energy consuming industries and growth in consumption. We can consider NIFTY, the overall stock market sentiment index available in the National Stock Exchange (NSE) to represent the state of the economy. To understand the demand emanating from the industrial sector, one can consider the FMCG index, the Auto index, the Capital Goods index and the Consumer Durables index from the National Stock Exchange (NSE). To understand growth in consumption, the Nifty India Consumption Index can be studied.

The influence of supply side factors on the prospects of the energy sector can be estimated from availability of raw materials and also from availability of finance. For the purpose we can consider crude oil prices, share prices Coal India Ltd, Power Finance Corporation and Rural Electrification Corporation. For other industries in the energy sector like gas and petroleum refining, where no specific financial institutions exist in India, we can consider the Banking Sector index in NSE.

While the prospects of the energy sector can be understood by studying various companies of this sector, we can also study the Nifty Energy index consists of ten companies from the oil refining and distribution sector, the power generation and distribution sector, the gas sector and also the non-conventional energy sector. These companies are both in the private sector as well as the public sector.

2. Energy Sector Companies and Indices – Demand and Supply

In the previous section we discussed how demand side factors and supply side factors for the energy sector can be understood from time varying movement of stock prices and indices. In this section we classify the companies and the variables pertaining to this sector.

2.1 Supply side influences

The stock prices of companies and stock market indices that we will study under this group are given in Table 1.

Table 1: Energy companies and index

OVERALL ENERGY	
	NIFTY ENERGY INDEX
POWER	
	NTPC
	NHPC
	TATA POWER
	ADANI POWER
OIL	
	BPCL
	HPCL
	RIL
GAS	
	ONGC
COAL	
	COAL INDIA
FINANCE	
	PFC
	REC

The Nifty Energy Index is composed of the stock prices and turnover of Reliance Industries, NTPC, Power Grid Corporation, GAL, IOC, Tata Power, HPCL, BPCL, ONGC and Adani Green. We will be analyzing the movement in the Energy Index along with its components separately.

2.2 Demand side influences

To get an idea of the demand side of energy, we will examine the following indices given in Table 2.

Table 2: Sources of demand for energy

OVERALL DEMAND		
	NIFTY	
	NIFTY INDIA CONSUMPTION INDEX	
SECTORAL DEMAND		
	FMCG INDEX	
	AUTO INDEX	
	METAL INDEX	

The Nifty Consumption Index is composed of stock prices and turnover of Godrej Consumer Products, Apollo Hospitals, Voltas, Havells, Tata Consumer Products, Titan, Jubilant Food Products, Nuakri.com., McDowell, Trent, Bharti Airtel, Dabur, Bajaj Auto, Eicher Motors, Interglobe Aviation, Asian Paints, Hindustan Unilever, Mahindra and Mahindra, Marico, Page Industries, ITC, Colagate Palmolive, Britannia, Nestle, Crompton & Greaves, D Mart, Berger Paints, Hero Motoco and Zee Entertainment. We can observe that this index is quite comprehensive and covers companies that demand energy. However, in this index, cement producing companies, that are energy intensive, are missing.

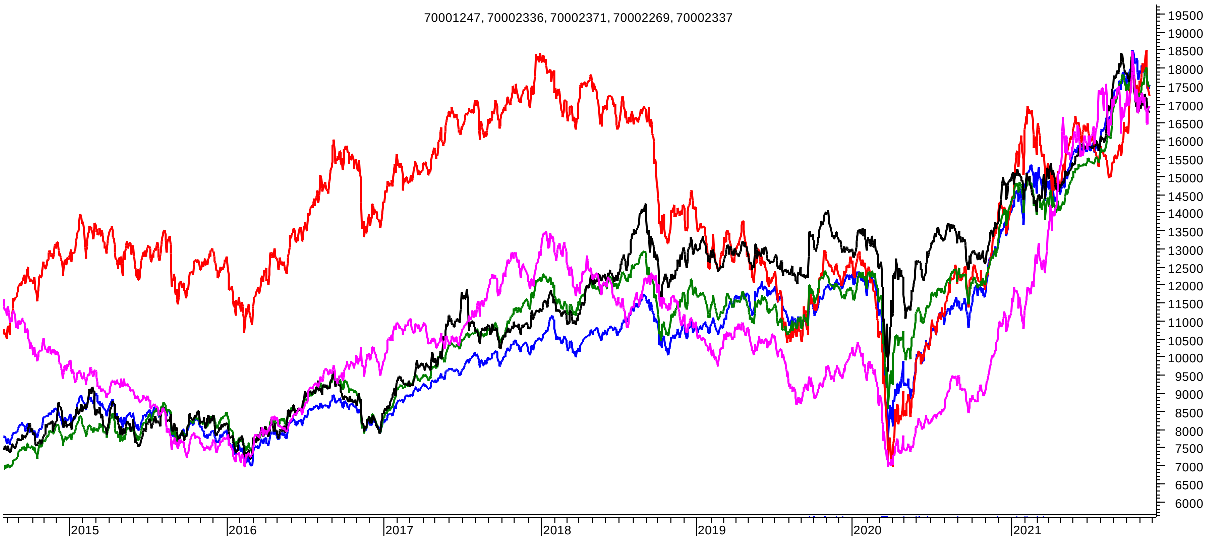
Since our study is based on stock prices of companies, the demand from the household sector is not part of our study. However, as per Economic Survey 2020-21, total electricity generation in the economy has increased from 554.5 billion KWH in 2000-01 to 1598.5 billion KWH in 2019-20. As electricity cannot be stored, this is also demand for electricity in the economy from both producers and the households, and demand has increased almost three fold. Domestic consumption petroleum products has increased from 100.1 million tonnes to 214.1 million tonnes in 2019-20.

3. Time varying movement in demand and supply side factors

Stock prices of companies discount the future expected real performance of companies. The discussions around the dividend discount model and Tobin’s q revolves around expected performance of companies. In our exercise, as companies either determines supply of energy or consume energy, their stock price movements should reflect the future of demand and supply of energy.

Figure 1 presents the demand side of energy in India. The red line indicates the Auto index, the black line the FMCG index, the green line represents the Consumption index and the blue and the purple line indicates the movement in Nifty and the Metal index respectively.

Figure 1: Movement in stock market indices representing demand for energy in India

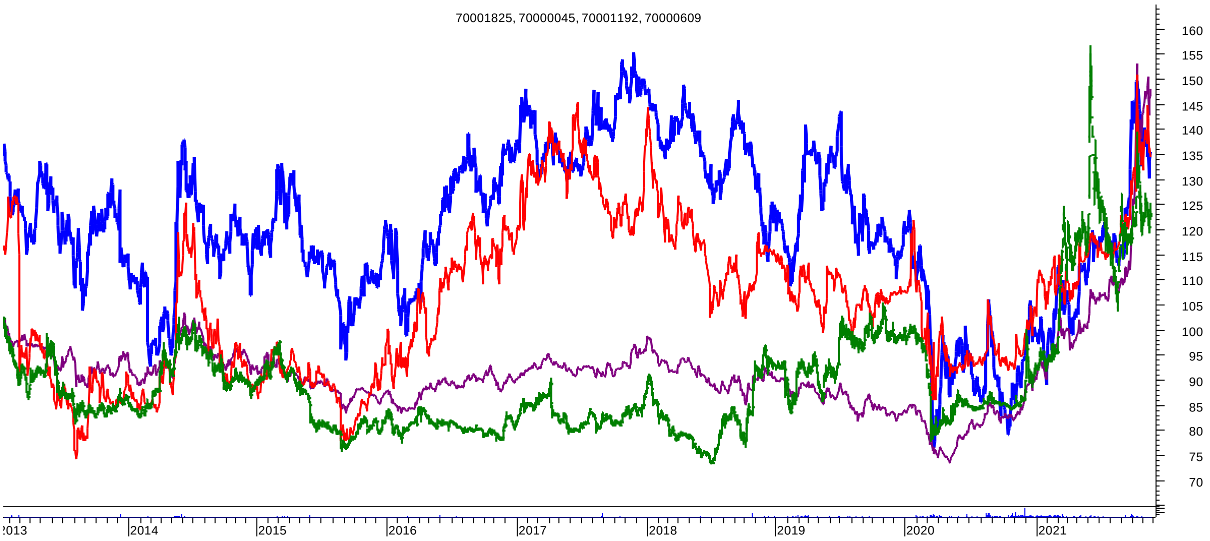


Source: Metastock

It may be observed from Figure 1 that besides metal and auto, the other sectors have shown consistent upward trend. So demand for energy from these sectors has gone up. The demand for the metal sector is related to the auto, infrastructure and the capital goods sector, and movement in metal sector index does not indicate significant demand pull. The FMCG and the consumption index companies have contributed to growth in demand for energy.

Figure 2 represents supply side. We consider share prices of companies that produce energy and also the sectoral index as a whole. If the prospects of a company look good either due to their profitability and operational efficiency, or because the sectoral prospects look good, this would get reflected in their share prices. We consider those companies that are mentioned in Table 1.

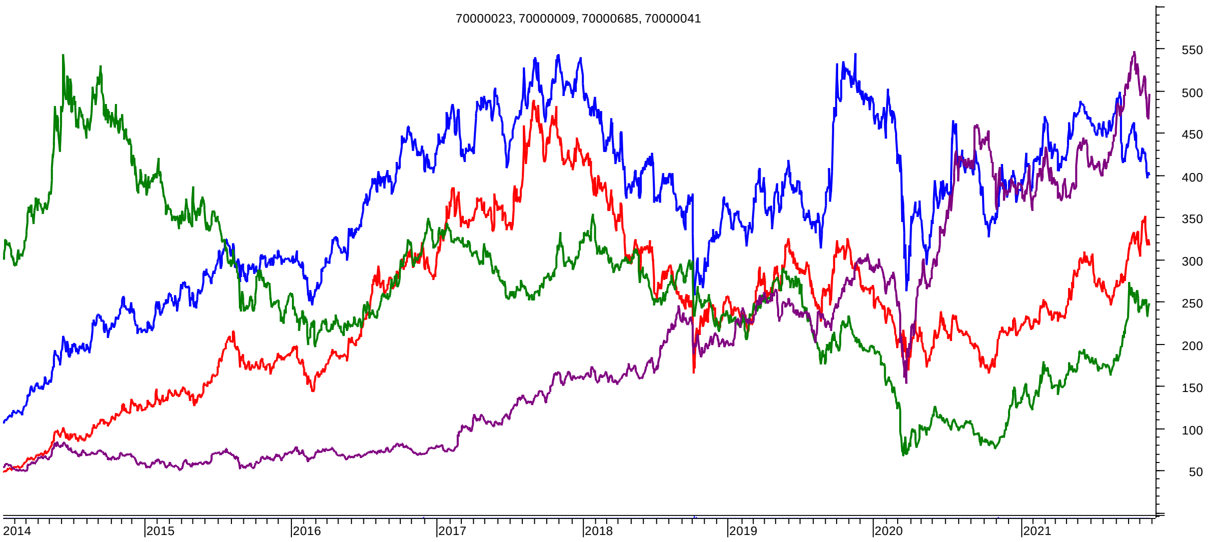
Figure 2: Movement in share prices of select power companies



Source: Metastock

In Figure 2, the share price of NTPC is indicated by the blue line, NHPC by the red line, Tata Power by the purple line and Adani Power by the green line. From the later part of 2020, when the impact of the first wave of Covid 19 had waned, there was a speculative buying of shares fuelled by liquidity. However, before this time, except Adani Power, no discernible trend can be seen in share prices of NTPC, NHPC or Tata Power. Some positivity can be seen in NHPC shares as it is a hydro power company and uses a renewable resource.

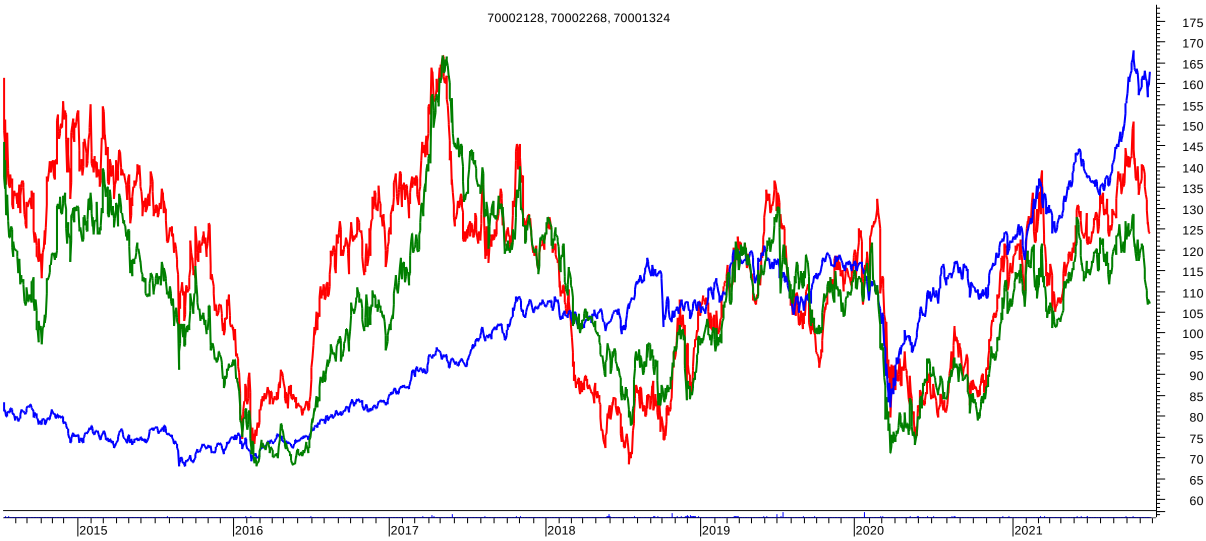
Figure 3: Movement in share prices of select oil and gas companies



Source: Metastock

In Figure 3, the share price of BPCL is indicated by the blue line, HPCL by the red line, ONGC by the green line and Reliance Industries by the purple line. Bulk of the oil refining and distribution is in the hands of public sector companies. Reliance Industries is the largest refining company in the private sector. BPCL, HPCL and ONGC are large profit making dividend paying companies in the public sector. However, their share prices paint a different picture with respect to their future prospects.

Figure 4: Movement in share prices of power finance companies and the energy sectoral index



Source: Metastock

In Figure 4, stock price of Power Finance Corporation is shown in red, Rural Electrification Corporation in green and Nifty Energy Index in blue.

If we look at availability of finance as a constraint towards increase in supply of energy, we can observe from Figure 4 that there is no discernible trend in the share prices of PFC or REC. If share prices are a reflection of future prospects of a company, the share prices of these two companies do not indicate that there is a growth in demand for funds for the power sector, i.e. there is little movement towards capacity expansion of the power sector. The share price movement does not indicate that there is excess demand for funds for generating power. Although the Energy Index shows a distinct upward trend, this is not reflected in the share prices of the power finance companies.

4. Conclusion

With growth in population, urbanization, changing life style, change in demographic composition and technological advancement, demand for energy will be on the rise. There has been, and there will be, a change in the composition of the fuel to generate power. Human beings have moved away from wood towards gas as a source of fuel for cooking. Compressed natural gas has replaced diesel and petrol in vehicles and we are looking at a comprehensive shift towards electric vehicles in the next decade. Given the essential nature of energy in day to day life, the purpose of this paper was to examine the prospects of the energy sector in the future. As it is a regulated industry and pricing is not completely in the hands of the generating companies, the growth in demand does not necessarily get transferred to a rise in prices of the final good. Further, the bulk of energy production and distribution is in the hands of the public sector and the stock market has always been circumspect with respect to the public sector. The movement in stock prices and indices shown above is a reflection of these two factors. They do not point towards a dynamic environment where a lot is happening on a large scale, whereas it should be.