PRICING OF ENERGY FROM TEHRI PUMP STORAGE PLANT IN A DEREGULATED MARKET

A DISSERTATION

Submitted in partial fulfillment of the requirements for the award of the degree of

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in

WATER RESOURCES DEVELOPMENT

(ELECTRICAL)

By

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CANDIDATE's DECLARATION

I hereby certify that the work which is being presented in this dissertation entitled **"PRICING OF ENERGY FROM TEHRI PUMPED STORAGE PLANT IN A DEREGULATED MARKET"** in partial fulfillment of the requirement for the award of the degree of **"MASTER OF TECHNOLOGY" in "WATER RESOURCE DEVELOPMENT & MANAGEMENT"** submitted in WRD&M deptt. of Indian Institute of Technology, Roorkee is an authentic record of my own work carried out during the period Sept, 2008 to September' 2009 under the supervision of **Sh. S.K. Shukla,** Director (Technical), Tehri Hydro Development Corporation Ltd. and **Prof. Dev Dutta Das** of WRD&M, IIT Roorkee.

The matter embodied in this dissertation has not been submitted by me for the award of any other degree.

Dated: 6.X.2009.

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ABREVIATIONS

MCP	–	Market Clearing Price
ABT	–	Availabilities Based Tariff
ESI	–	Electricity Supply Industry
CERC	–	Central Electricity Regulatory Commission
SERC	–	State Electricity Regulatory Commission
TRANSCO	–	Transmission Company
SLDC	–	State Load Dispatch Center
RLDC	-	Regional Load Dispatch Center
NEP	–	National Electricity Policy
SAPP	–	South African Power Pool
PJM	–	Pennsylvania – New Jersey Maryland
IEGC	–	Indian Electricity Grid Code.
MOU	–	Memorandum of Understanding
NOC	–	No Objection Certificate.
PX	–	Power Exchange
NPX	–	National Power Exchange
UI	–	Un scheduled Interchange
IEX	–	Indian Energy Exchange
PTC	–	Power Trading Corporation
NVVL	–	NTPC Vidyut Vitran Nigam Ltd.
NHPC	–	National Hydro Power Corporation
PFC	–	Power Finance Corporation.

TCS	–	Tata Consultancy Corporation
SARI	-	South Asia Regional Initiative
OTC	–	Over the Counter
O&M	–	Operation & Maintenance
ROE	–	Return on Equity
ROCE	–	Return on Capital Employed.
CC	–	Capital Cost
A&G	–	Administrative & General
AFC	–	Annual Fixed Charges
NAPAF	–	Normative Plant Availability Factor
NDM	–	Number of Days in Month
NDY	–	Number of days in a Year
AUX	–	Normative Auxiliary Energy Consumption
DC	–	Declared Capacity for i^{th} day of month
IC	-	Installed Capacity
ECR	–	Energy Charge Rate
DE	–	Design Energy
FEHS	–	Free Energy for Home State in Percentage.
MDDL	–	Minim mum Draw Down Land
FRL	–	Final Reservoir Level
PSP	–	Pumped Storage Plant
ACF	–	Auto Correlation Function
PACF	–	Partial Auto Correlation Function
SE	–	Standard Error

DF	–	Degrees of Freedom
RWM	–	Random Walk Model
MA	–	Moving Average
SMA	–	Seasonal Moving Average
AR	–	Auto Regressive
SAR	–	Seasonal Auto Regressive
ARIMA	–	Auto Regressive Integrated Moving Average
SARIMA	–	Seasonal Auto Regressive Integrated Moving Average
DAM	–	Day Ahead Market
MS	–	Mean Square
SS	–	Sum of Squares
MAPE	–	Mean Average Percentage Error

This study provides a forecasting tool based on time series analysis using **Seasonal Auto Regression and Moving Average (SARIMA)** model The market cleaning price in a power exchange is stochastic phenomenon and hence random is nature.

The power exchange operates on day ahead basis. The generator can optimize its profit in Day Ahead Market (DAM) only if he knows the MCP in advance. Producers rely on price forecasting information to prepare their bidding strategies. Therefore to determine MCP in a DAM, the generator needs a forecasting model. The typical power exchange data has been analyzed and a price forecasting model has been developed. The model has been validated from the actual MCP data of the same power exchange.

INTRODUCTION

The deregulation of electricity markets began in the early nineties when the UK Government privatized the electricity supply industry in England and Wales. This process has been subsequently followed in many other countries. In most cases, the restructuring involves separating the electricity generation and retail from the natural monopoly functions of transmission and distribution. This, in turn, leads to the establishment of a wholesale electricity market for electricity generation and a retail market for distribution. In the former case, competing generators offer their electricity output to retailers and in the latter case end-use customers choose their supplier from competing electricity retailers. The deregulated market is characterized by a number of power producers trying to sell electric power though bilateral agreements or power exchanges

Power generation in India has been a state owned monopoly and the deregulation era began after the introduction of the Electricity Act, 2003 along with Availability Based Tariff. The act envisages transforming the power sector from a system of monopoly providers at regulated rate to a system in which different companies compete to provide electricity at a competitive rate.

The conceptual framework underlying this new legislation is that the electricity sector must be opened of competition. It focuses on creating competition in the industry, protecting consumer interests, ensuring supply of electricity to all areas, rationalizing tariff for lowering cross-subsidization levels and encouraging autonomous regulation with the separation of policy, regulatory and operational aspects. The bill provides opportunity for open access in the distribution and to phase out cross-subsidies.

DEREGULATION, a term which gained widespread currency in the period 1970-2000, can be seen as a **process by which governments remove, reduce, or simplify restrictions on business and individuals with the intent**

of encouraging the efficient operation of markets. A deregulated electricity market is also known as a competitive, open or retail market.

The stated rationale for "deregulation" is often that fewer and simpler regulations will lead to a raised level of competitiveness, therefore higher productivity, more efficiency and lower prices overall.

Deregulation is different from liberalization because a liberalized market, while often having less and simpler regulations, can also have regulations in order to increase efficiency and protect consumer's rights.

The difference between deregulation and privatization is that privatization can be seen as taking state- owned service providers into the private sector.

For hundred of years, the electricity and its delivery were thought to be inseparable. Due to diverse reasons both developed and developing countries began to abandon the idea of an electricity industry vertically integrated to adopt a new model that allows competition and choice in electricity as a product and its delivery as a service. This model was put in practice firstly in the U.K. The success and since that moment introduction of competition in the Electricity Supply Industry (ESI) has been taking place in many countries around the world.

The change in the ESI involves two different aspects that are much related to each other. One is restructuring, the other is privatization. Restructuring refers to changes in structure. It is about commercial arrangements for selling energy: separating or "unbundling" integrated industry structures and introducing competition and choice.

Privatization is a change from government to private ownership, and is the end-point of a continuum of changes in ownership and management.

Competition in the ESI may be implemented at the stages of generation and retail of electricity. Transmission and Distribution businesses are considered natural monopolies, so they must be regulated.

The following are the basic models prevailing in Electricity Supply Industry (ESI):

- Model 1: No competition at all.
- Model 2: Requires a single buyer or purchasing agency to choose from a number of different producers, to encourage competition in generation.
- Model 3: Allows distribution companies to choose their supplier, which brings competition into generation and wholesale supply.
- Model 4: Allows all customers to choose their supplier, which implies full retail competition.

International Scenario

Market oriented restructuring of the electricity supply industry (ESI) in the West has led to a realization of the need for reform and competition in developing countries as well. However, there are fundamental difference between the two cases regarding the maturity of the ESI structure, economic priorities and the role of the state in development.

Issues concerning the deregulation of electric power supply and the associated restructuring of utilities are being debated worldwide. Several governments have decided that restructuring is required to maximize consumer choice, promote competition and improve the quality and variety of services and to enhance efficiency of state-owned enterprises.

To encourage competition in the generation and retail sides, it is necessary to unbundle these two from the transmission system and ensure that the latter offers open access on an equitable basis to all power suppliers and consumers. The transmission system thus becomes the focus of attention in organizing competition and must act as a "level playing field," and the rules for managing access by all participants must be transparent and nondiscriminatory.

The factors that drive reform in developing countries, especially in Asia, are different in many important ways from those that do so in the West especially in the United States. Major differences are:

- The need for the consolidation of a national grid which is at a relatively early stage of evolution;
- The directive role of government policy in key sectors or the national economy;
- The way in which a power marked should be designed.

In North America, for instance, many problems associated with the use of transmission system, open access in transmission and parallel path issues are the consequence of multiple-ownership of the transmission network which existed before deregulation. They are "structural problems".

Power industry is moving rapidly from regulated conventional setup to a deregulated environment. There is an urgent need to keep a tract of international experiences and activities taking place in this emerging field.

Wheeling in general and the establishment of wheeling rate in particular, are subjects of extensive debate today. This will be very much useful for all countries, especially, those developing countries which are moving toward the unbundling of electricity supply Industry (ESI).

Wheeling is the use of transmission or distribution facilities of a system to transmit power of and for another entity or entities. The simple definition of "Wheeling is the transmission of power from a seller to a buyer through the network owned by a third party".

In the deregulated environment, generation, transmission, and distribution are independent activities. There is a competition among generators for managing different customers. Main benefits from the deregulation include cheaper electricity, efficient capacity expansion planning, cost minimization, more choice, and better service.

Since mid-1980s, the electricity supply industry around the world has experienced a period of rapid and irreversible change. The need for more efficiency in power production and delivery has led to restructuring of the power sectors in several countries traditionally under control of federal and state governments. The privatization process in Great Britain is the best known followed by others such as Spain, New Zealand, Argentina, and Chile. Even in countries with privately owned utilities, such as the U.S., there has been a strong drive toward deregulation and a more intense participation of third-party generation.

The basic features of electricity supply industry (ESI) restructuring,

- To introduce competition into a hitherto monopolistic industry:
- In order to achieve this, to separate (vertical unbundling) the functions of power generation, transmission, distribution, and electricity supply to consumers;
- To create several competing electricity generation companies (horizontal unbundling) and to recognize that the power transmission system is a natural monopoly and, accordingly, to make special regulatory provisions in this respect;
- To allow consumers to exercise choice between suppliers (generation companies) while still using the existing transmission facilities.

Therefore in order to support fair competition among producers of electricity, one important aspect is to treat the transmission of electrical energy as a separate business. Electrical energy would become a product, which could be bought or sold and transported from one place to another.

CHAPTER-1

DEVELOPEMENT OF INDIAN POWER SECTOR

1.0 General

Indian Power Sector achieved the first Milestone on 10.11.1897 when the first Hydro Electric Station of 130 KW was commissioned in Darjeeling. The installed capacity of Undivided India (now India, Pakistan & Bangladesh) in 1900 was 1.13 MW (Thermal 1 MW + Hydro 0.130 MW). The installed capacity of India at the time of Independence in 1947 was 1362 MW (Thermal 508 MW + Hydro 508 MW + Nuclear 0). Professor Arvidn Panagariya Professor at Columbia University in his latest book on "India the Emerging Giant" divided post- independence period into five phases as under:

1.1 Phase-I (1951-1965)

It is widely called as the period of Nehruvian Socialism which Prof. Panagariya says the period of "Take-off under a liberal regime". Phase-I witnessed GDP growth of 4% per annum compared to 1% growth during British Raj. This is the first three Five Year Plan periods and during the period, public investment in infrastructure, Industry and Social sectors increased rapidly. But phase-I ended in economic ruin in 1965 when two droughts, war with Pakistan and a suspension of foreign aid converted Nehru's once proud India into a beggar country dependent on American food aid to prevent mass starvation.

During Phase-I, the installed capacity of the country rose from 2095 MW to 9027 MW with a capacity addition of 6932 MW within a period of 15 years and under the three successive Five Year Plans. The per capita consumption of electricity rose from 15.6 to 83.5 KWh / annum during the aforesaid period.

1.2 Phase –II (1965-1981)

This period saw another war with Pakistan leading to creation of New Bangladesh. Indira Gandhi's "GARIBI HATAO" was a disaster that slashed India's GDP growth from 4% to 2.6% per annum and per capita growth to almost zero. Sky-high tax rates, stringent industrial and import licensing, widespread nationalization and take over of banks ensured Government control to the commanding heights. The main achievement in this period was the GREEN REVOLUTION which finally weaned India off food aid. During Phase-II, the installed capacity of the country rose from 9027 MW to 28448 MW with a capacity addition of 19421 MW within a period of 16 Years and per capita consumption rose from 83.5 to 130.5 KWh/ annum.

1.3 Phase –III (1981-88)

This period witnessed the end of "GARIBI HATAO" , creeping liberalization that yielded 4.8% GDP growth per annum.During this period , the installed capacity rose from 28448 MW to 53585 MW with a capacity addition of 25137 MW and per capital consumption increased from 130.5 to 210 KWh / annum.

1.4 Phase-IV (1988-2004)

This is called "Triumph of liberalization". GDP growth was accelerated to 6.3% per annum.During this period, the installed capacity rose from 53585 MW to 1, 15,969 MW with a capacity addition of 62384 MW and per capital consumption rose from 210 to 592 KWh / annum.

1.5 Phase-V (2004 onwards)

This regime saw a GDP growth averaging over 8%. Indian companies are taking over foreign companies several times their size. The balance of global economic power is shifting unmistakably away from US & Europe towards China & India. During this period i.e. from 2004 to March'2008, the installed capacity rose from

1.15,969 MW to1, 43,061 MW with a capacity addition of 27092 MW and per capital consumption rose from 210 to 704 KWh / annum.

1.6 Development Mission in Indian Power Sector:

Objectives	**Strategy & Action**
Sufficient power for 9% growth	Generation
Reliable Power	Transmission
Quality Power	Distribution
Inexpensive Power	Rural Electrification
Commercial viability	Electricity Market- ABT, Trading and Power Exchange
Power to all by 2012	Energy Conservation
	Regulation
	Financing

Table-1.1

In spite of the impressive addition in generation capacity over the last 60 years, growth in demand for power has always exceeded the generation capacity augmentation. Peak shortages in India are to the tune of 16.60% and total energy shortages are around 12%. Hence the story of power sector in India is the story of shortages.

In his book India- 2020, Dr. A.P.J. Abdul Kalam, former President of India, has identified Power Sector as one of the crucial sectors for the country. The dream

envisioned by him i.e. "QUALITY ELECTRIC POWER FOR ALL" very aptly provides the direction.

There cannot be any greater need than to devise suitable strategies and action plans now to realize this dream in a time-bound manner, keeping in view the diversified nature of the resources required for power generation.

CHAPTER-2

POWER TRADING: BASIC CONCEPTS

2.0 General

Competitive energy markets are instituted around the world and electric supply industries are restructured to compete in the new emerging markets. Old power systems have been characterized by monopolized structures. These are being gradually broken to make way to fully competitive and open power markets.

In line with the mandate provided by the Indian Electricity Act, 2003 and the National Electricity Policy, the Central Electricity Regulatory Commission (CERC) has issued a number of Regulations to facilitate trading and introduction of competition in the Electricity Sector in the country. Open Access in inter-state transmission was introduced in May, 2004 which facilitated the development of the bilateral market in the country. In order to further streamline the bilateral transactions and to facilitate the implementation of Power Exchange in India, CERC issued the Open Access Regulations, 2008. These regulations provided for two categories of short Term open access transactions namely bilateral and collective (discovered on a power exchange).

2.1 Electricity Act, 2003

The electricity Act, 2003 effective on and from 10th June 2003 consolidates and supersedes Electricity Act, 1910, Electricity (Supply) Act, 1948, Electricity Regulatory Commission Act, 1998 and 8 States Reforms Act. The Act extends to whole of India except state of J&K.

The Act envisages an enabling frame work in an open, non-discriminatory, competitive, market driven environment keeping in view the interest of consumers as well as suppliers.

The other key highlights of the Act are mentioned as under:

- Generation has been de-licensed and trading has been recognized as distinct activity. TRANSCO / SLDC / RLDC can not be engaged in Trading.
- Non-discriminatory Open Access is mandatory in transmission from the outset and is to be implemented in phases in distribution.
- Captive Power Plants are not under the control of Regulator
- Private entities are allowed in distribution; co-operatives and franchise are encouraged for rural distribution, which will bring competition.
- Setting up of State Electricity Regulatory Commission (SERC) is mandatory and Commissions (CERC& SERC) have been given power to grant licenses and to fix up tariff.

2.2 Electricity as a Commodity

A product when traded becomes commodity. Power is the third important commodity after air and water. Power being a commodity should obey the laws of the market. The perfect market conditions stipulate that:

a) There shall be a number of buyers and sellers,
b) Both buyers and sellers can enter and exit the market at any time,
c) It shall try to meet the market demand,
d) Supply and demand of a product determines its price,
e) No body, whether buyer or seller, can influence the price individually.
f) Follow the Market Supply Chain viz Manufacturers- Wholesalers-Distributors –Retailers (**Conventional Market Supply Chain).**

As both buy and sale transactions in Electrical Power take place on real time basis, the supply Chain follows as lightly different Model as stated below:

Manufacturers- Wholesalers- Distributors
(Generators) (Bulk Suppliers) (Retail Suppliers)
(Power Supply Chain)

2.3 Power Trading

Restructuring of the power industry aims at abolishing the monopoly in the generation and trading sectors, thereby, introducing competition at various levels wherever it is possible. Generating companies may enter into contracts to supply the generated power to the power dealers / distributors or bulk consumers or sell the power in a pool in which the power brokers and customers also participate. In a power-exchange, the buyers can bid for their demands along with their willingness to pay. Power generation and trading will, thus, become free from the conventional regulations and become competitive. Electricity sector restructuring, also popularly know as deregulation is expected to attract private investment, increase efficiency, promote technical growth and improve customer satisfaction as different parties compete with each other to win their market share and remain in business.

Prior to Electricity Act, 2003, Core functions / activities of Indian Power Sector were Generation, Transmission & Distribution only. After the enactment of Electricity Act, 2003 from 10th June, 2003, Power trading has been recognized as a distinct licensed activity as per Sec.12 and Sec.14 of the Act and has been added as another core function in Indian Power Sector.

As per Sec. 2 (71) of Electricity Act.2003, Power trading means purchase of electricity for resale thereof.

Trading of electricity is an "on-line process" which means that all buy and sale transactions are conducted on real time basis and can be monitored with the aid of Computer networks.

2.4 Open Access

Open access is the key to a free and fair electricity market. Power producers (sellers) and dealers/customers (buyers) have to share a common transmission network for wheeling the power from the point of generation to the point of consumption. Thus, interconnected transmission system is considered to be a natural monopoly so as to avoid the duplicity, the problem of right-of-the-way, and huge investment for setting up of new infrastructure.

2.5 Derivative Instruments

A derivative is a financial instrument (contract) between two parties with opposite view on the market, who are willing to exchange certain risks. Many derivative instruments are used in electricity trading, but the most common ones applied to energy risk management strategies are future, forward and option contracts.

2.5.1 Future Contracts

Future contracts include an obligation to buy or sell a specified quantity of an asset at a certain future time at a certain price. The futures are standardized contracts which are traded on and cleared by an exchange and the exchange could guarantee that the contract would be honored .However the only point of negotiation is the price. All other terms and conditions are pre-specified, thereby making it a standardized contract.

2.5.2 Forward Contracts

Forward contracts are in some aspects similar to future contracts. They include an obligation to buy or sell a specified quantity of an asset at a certain future time for a certain price. Forward contracts are traded bilaterally or over the counter between two financial institutions or between a financial institution and

one of its corporate clients and the contracted parties usually customize the contract in order to make it fit to their need.

Usually, in future contracts, there is a range of possible delivery date. Whereas forward contracts have a specific expiration at which the asset is delivered and payment is made. The buyer of contract is called long whose purchase obligates him to accept delivery unless he liquidates his contract with an offsetting sale. The seller of the contract is called short.

2.5.3 Option Contracts

An option contract includes a right (not obligation) to buy or sell a specified quantity of an asset at a certain future time for a certain price. In case of futures/forwards, contract is either held for delivery or liquidity, but option contracts may be held for liquidity, delivery or expires worthlessly. To enter an option contract, the buyer pays a premium to the seller of options, while in futures and forwards, the buyer does not have to pay any charges. A call option gives the holder the right to purchase the underlying asset at some future date, and a put option gives the holder the right to sell the underlying asset at some future date.

Since option contracts are tradable, the holders have the flexibility to sell the contract in secondary market. However, option contracts are financial instruments and are not directly related to physical delivery of electricity. The holder does not have to exercise this right. This fact distinguishes options from future contracts.

2.6 Trading Models

2.6.1 Spot Market or Real Time Market:

This is also known as real time trading where the price of electricity is determined by the UI rate. A UI rate is fixed by CERC and has been discussed in the latter chapters of this thesis.

2.6.2 Day Ahead Market:

The power exchange operates on day ahead basis. In the pool (power exchange), power producers submit generation bids and their corresponding bidding prices, and consumers (DISCOMS) do the same with consumption bids. The market operator uses market clearing price to clear the market.

2.6.3 Short-term Trading

Under this frame work, the electricity is sold through the traders.. A bilateral agreement is signed between the generator and the trader. Under this model, generally six months to one year contracts are made. Producers have to find out how much energy to self through bilateral contract and how much to sell to the pool. For this type of portfolio decision, it is desirable to have available forecast of price average values over a year horizon. Discoms buy energy from the pool and through bilateral contracts sell it to the clients. These companies also need to have good short term and long terms price forecast information to maximize their respective benefit This can fetch high profit as compared to the long term trading and involves relatively low risks.

2.6.4 Long-term Trading

Under this frame work, a purchase agreement is made between the purchase and seller and the prices are determined generally on the cost plus basis.

This system involves low risk for the generator since its ensures the guaranteed return, however the return or profit is low.

This refers to any power deal spanning for a period exceeding five years. This type of power trading / power transaction is generally conducted through many routes like Power Purchase Agreement (PPA), Memorandum of Understanding (MOU), Minutes of Meeting (MOM) & Minutes of Discussion (MOD), etc. The risk involved is minimized in this type of power transaction.

2.7 Need for Power Trading

The story of the power sector in India is one of shortages. There has been a consistent upward trend in prices of power units through bilateral contracts in recent years. Even the prices of off-peak power have increased in recent quarters. The price of off-peak power that was Rs.2 per unit in January-March 2004 has increased to about Rs.6 by July- September'2006. Power trading also facilitates players (Discom, merchant power plants and captive power plants) to bring surplus power in the grid. The inherent diversity in demand for various states being under one time zone offers ample scope for power trading with seasonal surplus in one region coinciding with deficit in another region. Power trading in India has a great potential for growth because of demand diversities, open access regulations, adequate transmission capacity being created for wheeling of power, de- licensing generation, and seasonal shortages.

2.8 Power Market

The wholesale transactions for electric power globally are through spot contracts, forward and future contracts and long term bilateral contracts.
The wholesale transactions may be broadly segregated into two market mechanisms.

2.8.1 Bilateral contracts (market model)

This allows direct contracting between counter parties, paying generators what they bid, and introducing an optional balancing market, which will bring the market price to marginal cost. Generators and consumers who have contracted for physical deliveries of electricity, through the forward or short term market, will be responsible for self –dispatching those contracts.

2.8.2 Pool (Optimization process)

In this mechanism, a contractual arrangement is entered into by generators and suppliers that provide electricity to the wholesale market mechanism for trading. The Pool does not itself buy or sell electricity rather those trading in the pool do so against a defined set of rules. Generators sell electricity into a "Pool" and suppliers purchase out of this pool. Participation in the market is through membership of the pool under certain agreements.
In both mechanisms the bids are made daily or hourly on a day-ahead basis.

A transmission and distribution system is like a toll highway, with transmission companies contracting its use, at a price (Transmission charge). Power trading in reality is notional trading where the buyer pays the seller for the contracted schedule. There is no actual supply of power from the seller to the buyer. The generator (supplier), who is connected to the system (Grid) supplies electricity to the grid. The grid operator, in effect, aggregates all the power supplied to it and this power is used by the buyers. Excess power in a particular region gets transmitted to other regions through specific inter-connection points. Conversely, deficits in a region are met by online and real-time synchronization with supply from other regions. Thus, the movement of power is notional. With formation of CENTRAL GRID (consisting of Northern, Eastern Western and North Eastern regions), now there are two synchronous power grids operating in the country. One is the Central grid and the other is the Southern grid. Each of the five regions in the country can be considered as a power pool.

The emerging Power Market scenario vis-a –vis the present electricity market is presented below:

Present Electricity Market	Emerging Electricity Market	Remarks
Long-term PPA	Long –term PPA	97% of power supplies are tied with long-term PPAs and those won't be disturbed under Post Power Exchange era.
Short –term PPA	Short-term PPA	Non-standard contracts, volume varies between 2.12% to 2.45%.
UI / Real-Time	UI / Real Time	Very short-term requirement, volume low about 0.5% to 0.8%.
Bilateral Markets	Bilateral Markets - Common Electricity Market Place (PX)	Standard contracts, Nation-wide acceptance, better price signals, fool-proof payment security mechanism.

Table-2.1

2.9 Power Pool

Power pool has different meanings in different places at different times. Power pools are organized market for trading electricity as a commodity. Power pools are further matured in terms of system operation (Grid operation) and market (Power Market) operation. System Operation and reliability of power pools are assigned to system operators (SO). Market operation i.e. bidding and trading is assigned to market operators.

Electricity Act, 2003 at Section-26, Section-27 &28, and Section -31 & 32 respectively defines institutions with functions in the form of National Load Dispatch Centre (NRLDC), Regional Load Dispatch Centre (RLDC) and State Load Dispatch (SLDC) which are essentially System Operators and can be engaged in the business of trading of electricity. Market Operators are essentially Electricity Traders who have been granted license to undertake trading as per Section-12 of Indian Electricity Act.

CHAPTER-3

EVOLUTION OF POWER EXCHANGE

3.0 General

The first serious attempt to form a liberalized electricity market was launched in Chile in 1982. Nordic Market was started in Norway in 1991 which later became famous Nord Pool in 1996 as a common Electricity Exchange for Norway and Sweden. Electricity Market started operating in Australia & New Zealand in 1994 and 1996 respectively. Several electricity markets were started in late 1990s, such as Pennsylvania- New jersey-Maryland (PJM) Power Pool in 1997, New England, New York and California Markets Spain and Netherlands opened their electricity market in 1998. Texas and Alberta (Canada) opened electricity market in 2001. Some of the prominent power exchanges operating in the world are described at **Table-3.1**

Exchange	EEX	Nord Pool	PJM
Country	Germany	Northern Europe	USA
Products	Spot, futures, options	Spot, futures, forwards, options	Spot, real-time
Members in spot market	150	339	428

Table-3.1

ESKOM has been operating as an " internal" power pool of South Africa whereas South African Power Pool (SAPP) has been operating since 1995 with an objective to promote energy corporation and to develop a common electricity Market amongst 8 nations of the region, including South Africa, Botswana, Mozambiguw, Zambia, Zimbabwe, Angola, Democratic Republic of Congo and Namibia. The inter Government MOU, Inter-Utility MoU and operating Grid Code

are in place and the Grid operation in SAPP resembles that of inter-regional Grid Operation in India based on Indian Electricity Grid Code (IEGC).

The responsibility for the development of the Electricity Market in the country has been entrusted to the Appropriate Commission as per the Section 66 of the Electricity Act, 2003. Section 5.7 of the National Electricity Policy (NEP) provides for promoting competition in the Electricity sector with the objective of benefiting the end consumer. The Central Electricity Regulatory Commission (CERC) is responsible for ensuring the development of the Electricity Market at the interstate level.

The Indian Electricity Grid Code (IEGC) was introduced in Feb 2000 with subsequent revision in April 2006 and the settlement system (Availability Based Tariff or ABT) was introduced in 2002-2003. The ABT mechanism provided the framework for scheduling and handling of imbalances. These two building blocks together provided the basic rules for system operation and the commercial settlement. There are, four essential pillars of electricity market design, i.e. scheduling and dispatch, mechanism for handling imbalances, Congestion management and ancillary services.

Open Accessing Interstate Transmission was introduced in May 2004 and this has been successfully implemented. This facilitated the development of the bilateral market in the country and the results are very encouraging. Open access regulations provided for electronic bidding for reservation of corridor in case of congestion.

In July 2006, CERC took a giant leap forward in developing the electricity market in the country and floated a discussion paper on "Developing a Common Platform for electricity trading". Comments were invited and all the stakeholders were involved in the discussion process, finalization of the framework and rule. CERC issued the guidelines for Establishment of Power Exchange in Feb 2007 and in principle approval was granted to the first Power Exchange in August 2007.

The regulations for open aces in interstate transmission were revised by CERC to include collective transactions discovered on a power exchange, and the

new regulations became effective from1st April 2008. The objective was to provide operational freedom to the Power Exchange within a given framework and regulation would be minimal and restricted to requirements essential for preventing derailment of the process. Private entrepreneurship was allowed to play its role so as to facilitate provision of value added and quality service to the customers.

3.1 Open Access Regulation

CERC open Access Regulations, 2008 (3) made the following provisions:-

- Transactions were categorized as Bilateral and Collective (through Power Exchange).
- Nodal Agency for the two types of transactions was identified. National Load Dispatch Center (NLDC) was designated as the nodal agency for collective transactions. The Regional Load Dispatch centers (RLDCs) were the designated agencies for the bilateral transactions.
- Transmission losses were applied at both the points of injection and drawl. The sellers are required to inject more and the buyers draw less than the traded quantum to compensate for the loss.
- Regulations placed great emphasis on the empowerment of the SLDs. NOC/ Standing Clearance was required to be obtained by State Utilities / Intra-State Entities from the SLDC. The SLDCs are obliged to respond within 3 days to any request for an NOC as per the regulations. SLDC may charge an appropriate fees for such Standing Clearance (as per SERC or Rs. 5000 if not notified by SERC).
- The methodology of application of transmission charge of Rs. 30 per MWh was made payable by both the buyers and sellers in ca se of collective transactions.
- Operating charges for collective transactions @ Rs. 5000 per day per entity involved were applied. All buyers within a State are clubbed together into one group and all sellers within a State are clubbed together into another

group by the Power Exchange(s). Each group of buyers and sellers is counted as a separate entity for scheduling and levy of Operating Charges.

In the Guidelines for setting up of Power Exchange, CERC has prescribed that the promoters shall be required to develop their own model Power Exchange and seek permission from the commission before start of operation.

3.2 key issues:

- One National Power Exchange (NPX) v/s multiple Power Exchange (PX) at National / Regional / State level.
- Mandatory participation v/s Voluntary participation.
- Double side bidding for both suppliers and buyers v/s supply side bidding.
- Uniform Pricing v/s Discriminatory Pricing.
- Day- ahead PX v/s same day PX.
- Unscheduled Interchange (UI) v/s Power Exchange.
- Congestion management and assignment of transmission capacity etc.
- International experience on Electricity Market:

3.3 Guidelines for Development of Power Exchange

The Commission has issued the following broad guidelines for development of Power Exchange viz.

- De-mutualised form of organization
- Reliable, effective and impartial management
- Ring –fencing between ownership, management and participation.
- Investment support from the investors including institutional investors.
- Transparency in operation and decision-making
- Computerized trading and clearing system
- Efficient financial settlement and guarantee system
- Effective trade information and dissemination system

CERC has further proposed that the promoters will have the freedom to develop, manage and operate the Power Exchange according to approved rules, bye-laws and procedures. The Commission will be concerned with the following aspects while granting permission to the power exchange.

- Scrutiny of the Rules and bye-laws of the power exchange
- Assignment of transmission capacity to the power exchange
- Apportionment of transmission charges and losses.
- Procedure for handling transmission congestion
- Monitoring of the functioning of the power exchange to the extent of preventing speculation, collusion and unfair gaming.

3.4 Power Exchange in India

Indian Energy Exchange (IEX), the country's first Power Exchange, made an application for grant of permission to setup a Power Exchange in March 2007 and an in-principle approval was accorded by the CERC on 31st August 2007. IEX commenced operations from the 27th May 2008. PXIL went through a process of Regulatory approval similar to that of its predecessor and it commenced operations on 22nd October 2008.

CERC in February, 2007 issued guidelines for grant of permission for setting up and operation of Power Exchanges which is a milestone in the history of Indian Power Sector which would help in streamlining power trading, standardize electricity as a commodity, provides payment Security mechanism to buyers and sellers, help in harnessing captive generation and co-generation and usher investment in Merchant and Peaking Power Plants so that " AAM AADMI" the end consumers of both Urban India and Rural Bharat can reap the real benefit of Power Sector reforms of low cost affordable power at market driven price.

CERC interim order dated 17.07.2007 paves the way for establishment and Operation of India's first National Power Exchange Indian Energy Exchange Ltd., (IEX) w.e.f. 01.04.2008 promoted by PTC India Ltd., - India's leader in domestic and cross border power trading and FTIL - one of India's top software companies

providing system security which will not only fulfill the mandate provided in Sec.66 of Electricity Act. 2003 to develop the Electricity Market but also will be another option in the hands of all stakeholders / players in electricity market to examine the efficiency and other virtues of market mania as a part of ongoing reforms in Indian power sector as operation of IEX from 1st July, 2008 and the National Power Exchange to be set up by the consortium of NVVNL, NHPC, PFC & TCS and that by power exchange of India in FY-10 will certainly provide short to medium term price signals and will be the leading organized platforms for transparent commercial transactions within India and with India's future electricity trading partners like Bhutan, Nepal, Bangladesh, Sri Lanka and Pakistan as propounded under 4-Border Theory and 2- Border Theory under South Asia Regional Initiative for Energy (SARI) in USAID dream project.

3.5 Trading Mechanism on a Power Exchange:

A power exchange provides a spot market (mainly day-ahead) for electricity, which-like any other market- matches demand and supply for each settlement period, while providing a public price index. It can be viewed as a competitive wholesale spot trading arrangement that facilitates the selling and buying of electricity. An exchange is absolutely neutral towards the market because its rules apply to both sides of each transaction. A power exchange is therefore a voluntary market place providing an alternative to the classic bilateral market (Over the counter, or OTC). Competition in a power exchange's spot market occurs through generators, distributors, traders and large consumers submitting bids for buying and selling electricity. Each sale bid specifies the quantity and its minimum price at which they are willing to supply energy. Conversely, each buy bid specifies the desired quantity and the maximum price at which they are willing to buy energy. The Power exchange matches supply and demand along with publishing a **Market Clearing Price.**

A Power exchange acts as a neutral, unbiased platform by serving as a one-stop, by being a key integrator of power markets, having scheduled coordination

with settlement handling and easy physical delivery. Further, it provides payment guarantee, credit risk management, and transparent price discovery mechanism.

In the process of trading on a power exchange, all the participants will submit bids for buying and selling power to the exchange. It will be a closed, double sided auction. There will be hourly contracts done on the basis of portfolio bidding which should be split into settlement timeslot of 15 minute period. Initially, the minimum contract size would be 10 MW. However, gradually this can be reduced to 5 MW and 1 MW level contracts.

3.6 Comparison between Power Exchange and other Exchanges

A comparison of power exchanges with the existing Stock Exchanges and Commodity Exchanges is shown in **Table 3.2.**

Item	Stock Exchange	Commodity	Power Exchange
Traded Commodity	Shares	Commodity	Power
Delivery	Easiest	Easy	Difficult to package & control delivery
Market-type	Largest	Large	Small
Quality	Continuous	Continuous	Auction & continuous
Quality	Yes	Yes	Nascent, unpredictable now
Retail participation	Available	Available	Not available

Table-3.2

Indian power sector has passed through the cost-plus normative tariff regime under CERC / SERC and has already moved to tariff-based competitive bidding regime in generation as well as in transmission in November and December,2006 setting the National Benchmark of Pithead thermal generation price at 119 p/KWh for Sasan

Ultra Mega Power Project (UMPP) and the transmission tariff at 40% less of PGCIL cost-plus tariff for Western Regional System Strengthening Scheme (WRSSS).

In another significant development to combat the growing power shortage of the country and to stick to its deadline of assuring "Power on Demand" by 2012, Government of India , Ministry of Power has decided to speed up "MERCHANT POWER PLANTS" with 500 MW to 1000 MW capacities. The Ministry of Coal has identified 15 coal blocks with reserve of 3.6 billion tone to be given to merchant power plants for captive use. These merchant power plants have been identified for development by private developers outside the tariff –based competitive bidding process as they cater to different niches in the market, some provide steady supplies to grid while others fire up to meet peak loads.

To meet the growing demand, there is a difference of opinion amongst the experts; about supply options through long-term contract / short-term contract / UI mechanism and through market structured Power Exchanges. One school of thought advocated that a competitive market is the most efficient way to realize optimal fuel and technology choices for extraction, conversion, transmission, distribution, supply and end use of energy. This approach believes that a power market being managed on competitive principles is bound to minimize market distortions and maximize efficiency gains. However, there is another school of thought which questions the very wisdom of assuming automatic efficiency gains in utter disregard to the prevailing market conditions and absence of a matured / perfect market with sufficient number of players in the supply chain and highly skewed demand-supply mismatch.

CHAPTER-4

PRICING UNDER INDIAN REGULATIONS

4.0 General

In India, CERC assumes the jurisdiction of regulation of tariff of generating companies owned by or controlled by Central Govt. The Electricity Act, 2003 has now become the law of land. CERC was established in July 1998, in terms of Electricity Regulatory Commission Act, 1998. The regulation which are in force for determining the generation cost /tariff for the electricity produced from a hydro-electric station are described below. These regulations were revised w.e.f. April 2009.

4.1 Basic Approach

Pricing of electricity include cost of generation, transmission & distribution. The generation cost typically would include fixed and variable cost as well cost associated with unscheduled interchange. Generally cost of service & rate of return models are largely used in electricity market for determination of tariff. In the cost of service regulation the revenue requirement is based on recovery all expenses as under:-

i) Interest on loan,
ii) Depreciation and advance against depreciation;
iii) O&M expenses;
iv) Return on equity;
v) Interest on working capital; and
vi) Income tax, as an expense, at actual.

After the cost of service regulation model, performance based regulations were introduced to increase the economic efficiency and environmental friendly approach while providing energy at lower prices to the end users. This model produces more profits when producer crosses the level forecast by the regulator. If the sales

volume is less than the forecast level, a company would be at financial risk. Availability Based Tariff (ABT) orders for generation prices is such a model now being practiced in Indian Electricity market.

Tariff of the utilities regulated by CERC were earlier computed on a single part per KWh basis up to 1991. This was not found to be conducive for proper grid operation. World over, two part tariffs, comprising capacity charge and energy charge were being used with clear advantages in grid operation. Two part tariff for hydro generation was introduced by the Government of India in 1995.

For improving the grid operation, the Commission has introduced Availability Based Tariff (ABT), which is at present being implemented in all the regions except North Eastern Region. Under ABT, besides the fixed and variable charges, Unscheduled Interchange (UI) charges are also levied for deviation from schedules issued by RLDCs. Considerable improvement in the grid frequency has been noticed in these regions as a result of the introduction of ABT. The components of the cost plus tariff are being discussed in the subsequent paragraphs.

The most common and pervasive system of rate making is the cost of service model.

The Commission's order dated 21.12.2000 clearly brought out the inevitable choices in the rate of return regime-

a) Return on Capital Employed (ROCE), that is, Return on total investment; or

b) Return on Equity (ROE), that is, Return on total investment less the borrowings or return on normative equity.

"Commission considered it appropriate to adopt the cost of equity approach for the present, though we consider the cost of capital approach considered as preferable in principle.

The main components of the pricing structure are discussed in detail in the following sections.

4.2 Cost of Capital

The Cost of Capital includes the cost of land, cost of buildings & equipment, cost of installation, designing and planning of the station. It varies with the site and location of the stations and the type of the equipment used. The generation company generally funds a part of the capital from its own share holders in terms of equity, while the balance is raised in terms of finance from various financing and lending institutions, both in the national as well as international markets in terms of foreign currency borrowings. Price variation includes the change in the cost due to foreign exchange rate variations, inflation or deflation.

$$Equity\ (E) = CC\ x\ {}^{Y}\!/_{100}\text{, and}$$

$$Debt\ (D) = {}^{[CC\ x\ (100-Y)]}\!/_{100}$$

Where: CC = Total Capital Cost;

Y = Proportion of Equity proposed to be put into the Capital Cost by the Stakeholders / owners of the project

4.3 Fixed Charges

Fixed Charges are proportional to the cost of installed capacity, subject to in-house consumption. A cost escalation component is included to accommodate any variation in the initial project cost due to unexpected events. The components of the demand charges include interest on loan capital, depreciation ,return on investment ,operation & maintenance expenses ,interest on working capital, taxes and cost escalation component, Taxes and insurance are those applicable on land, building and on income. The generating company can choose these, keeping in line with the provisions of the applicable laws and regulations. Various components of fixed charges are explained in the following section.

4.3.1 Interest on Loan Capital

The interest on Loan capital has to be calculated taking the detail loan agreement details of each loan separately, and then aggregating it to arrive at the total interest applicable on the Loan Capital. However, in this model, for the purpose of generalization, in a new project, the loan interest is capitalized for the period of construction. Once the project is capitalized, the interest is calculated on the average of the opening and closing balances of the loan capital.

4.3.2 Depreciation

Depreciation can be defined in both accounting and regulatory terms. Depreciation in accounting terms is a measure of the weeding out, consumption or other loss of value of a depreciable asset arising from use or obsolescence through technology and market changes.

Depreciation is the loss of the value of an asset caused by wear and tear during the operation of the asset, and is spread over the useful life of the asset. Assets are depreciated to a maximum up to their salvage / scrap value. Depreciation also depends on the size & type of equipment, part from its estimated useful life. Depreciation usually is used to build up a reserve for the replacement of the asset, and is used to service and pay back the loan capital, which is usually not allowed as a cost to be recovered through tariffs under a regulated tariff regime.

Straight Line Method (SLM) as is prevalent in utilities in India to calculate depreciation

$$Depreciation_{SLM}\ (\%) = \frac{(1 - \%\, residual\, value\, of\, assets)}{Life\ of\ the\ asset\, in\, years}$$

$$Dep = (Gross\, Book\, Value\, of\ Assets) \; x \; Depreciation_{SLM}\ (\%);\ subject\ to\ \min Salvage\ Value\ of\ Assets$$

4.3.3 Return on Investment / Return on Equity

Return on Investment (ROI) is a measure of the company's ability to use its assets to generate additional value for shareholders. It is computed on the basis of net profit after tax divided by the net assets available and expressed in terms of a percentage (%). A generating company can usually follows the Return on Investment (ROI) as a benchmark to evaluate the viability and profitability of the project.

$$ROI = EBIT\,(1-T) \Big/ Net\ Assets = \frac{EBIT\,(1-T)}{NA}$$

However, under a regulated market regime, the regulator usually allows a fixed percentage as Return on the Equity put into the project.

Return on Equity is applicable only to generating companies / stations that come under regulated regime of tariff fixation. In addition, any change in foreign exchange rate variation and additional capitalization affects equity. Equity is limited to a specified percentage of capital cost.

4.3.4 Operation and Maintenance (O&M) Expenses

The Operation & Maintenance Cost covers a vast spectrum of expenditure incurred on the employees, repair and maintenance of the generating stations / transmission system, administrative overheads etc.

Operation and Maintenance (O&M) Expenses depend on the capacity of the plant as well as the operation and maintenance of the generating station, expenditure on spares & repairs, administration & general (A&G) expenses, and other miscellaneous expenses. O&M expenses can be calculated using an average method or comparison method

In case of the hydro generating stations declared under commercial operation on or after 01.04.09, operation and maintenance expenses shall be fixed at 2% of the

original project cost (excluding cost of rehabilitation & resettlement works) and shall be subject to annual escalation of 5.72% per annum for the subsequent years.

4.3.5 Interest on Working Capital

Working Capital generally is used for the purchase of raw materials, components and spares, payment of wages and salaries, day-to-day expenses, and overhead costs such as power and office expenses etc. The interest on working capital is determined on a normative basis.

As per the latest CERC guidelines, for the hydro-generating companies the interest on working capital is derived as follows:

i) Receivables equivalent to two months of fixed cost.
ii) Maintenance spares @ 15% of operation and maintenance expenses
iii) Operation and maintenance expenses for one month.

4.3.6 Taxes

Income taxes, as applicable have to be built into the price of electricity. Under a regulated regime, normative taxes are allowed as a pass through to be recovered through the tariff.

4.4 Variable Chagres

The Variable Charges are energy charges based on ex-bus energy delivered. The ex-bus energy depends on the availability of water, plant load factor, time of operation, auxiliary consumption, transformation losses and design energy of the station.

4.5 Computation of capacity charge

i) The fixed cost of a hydro generating station shall be computed on annual basis, based on norms specified under these regulations, and recovered on monthly basis under capacity charge (inclusive of incentive) and energy charge,

which shall be payable by the beneficiaries in proportion to their respective allocation in the saleable capacity of the generating station, that is to say, in the capacity excluding the free power to the home state.

ii) The capacity charge(inclusive of incentive) payable to a hydro generating station for a calendar month shall be

AFC x 0.5 x NDM /NDY x (PAFM / NAPAF) (in rupees), where,

iii) The PAFM shall be computed in accordance with the following formula:

$$PAFM = 10000 \times \sum_{i=1}^{N} DCi / \{ N \times IC \times (100-AUX) \} \%$$

N = Number of days in the month.

iv) The energy charge shall be payable by every beneficiary for the total energy scheduled to be supplied to the beneficiary, excluding free energy, if any , during the calendar month, on ex-power plant basis, at the computed energy charge rate. Total Energy charge payable to the generating company for a month shall be:

(Energy charge rate in Rs. / kWh) x {Scheduled energy (ex-bus) for the month in kWh} x (100-FEHS) / 100 where FEHS = Free Energy for the Home State

v) Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis, for a hydro generating station, shall be determined up to three decimal places based on the following formula, subject to the provisions of clause (7):

ECR = AFC x 0.5 x 10 / { DE x (100-AUX) x (100-FEHS) }

4.6 Norms of operation for hydro generating stations.

Normative Annual Plant availability Factor (NAPAF) for hydro generating stations shall be determined by following criteria

Storage and Poundage type plants with head variation between FRL and MDDL of more than 8%, where plant availability is not affected by silt: Plant –specific allowance to be provided in NAPAF for reduction in MW output capability as reservoir level falls over the months. As a general guideline the allowance on this account in terms of a multiplying factor may be worked out from the projection of annual average of net head, applying the formula;

(Average head / Rated head) + 0.02

Alternatively in case of a difficulty in making such projection, the multiplying factor may be determined as:

(Head at MDDL / Rated head) x 0.5 + .52

ii) Auxiliary Energy Consumption (AUX) for underground hydro generating stations with static excitation system: 1.2%.

4.7 Foreign exchange rate Variation.

The generating company or the transmission license, as the case may be, may hedge foreign exchange exposure in respect of the interest on foreign currency loan and repayment of foreign loan acquired for the generating station or the transmission system, in part or full in the discretion of the generating company.

4.8 Availability Based Tariff (ABT)

Availability Tariff, particularly in the Indian context, stands for a rational tariff structure for power supply from generating stations, on a contracted basis. The

power plants have fixed and variable costs. The fixed cost elements are interest on loan, return on equity, depreciation, O&M expenses, insurance, taxes and interest on working capital. The variable cost comprises of the fuel cost, i.e., coal and oil in case of thermal plants and nuclear fuel in case of nuclear plants. The payment of fixed cost to the generating company is linked to availability of the plant, that is, its capability to deliver MWs on a day-by-day basis.

The second component of Availability Tariff is the 'energy charge', which comprises of the variable cost (i.e., fuel cost) of the power plant for generating energy as per the given schedule for the day.

4.8.1 ABT Mechanism

The process starts with the Central generating stations in the region declaring their expected output capability for the next day to the Regional Load Dispatch Centre (RLDC). The RLDC breaks up and tabulates these output capability declarations as the schedules so finalized become the operational datum, and the regional constituents are expected to regulate their generation and consumer load in way that the actual generation and drawls generally follow these schedule. Deviations are allowed as long as they do not endanger the system security. The schedules are also used for determination of the amounts payable as energy charges, as described earlier. Deviations from schedules are determined in 15- minute time blocks through special metering, and these deviations are priced depending on frequency. As long as the actual generation /drawal is equal to the given schedule, payment on account of the third component of Availability Tariff is Zero. In case of under –drawl, a beneficiary is paid back to the extent according to the frequency dependent rate specified for deviations from schedule.

The energy actually supplied by the generating station may differ from what was scheduled. If actual energy supplied were higher than schedule, the generating station would be entitled to receive a payment for the excess energy (the deviation from schedule, technically termed as Unscheduled Interchange (UI) in Availability Tariff terminology) at a rate dependent on frequency at that time. If the energy

actually supplied is less than what is scheduled, the generating station shall have to pay back for the energy shortfall, at same frequency-linked rate.

For the above purpose, the energy is metered in 15-minute time blocks, since frequency keeps changing (and the UI rate with it). The metered energy is then compared with the scheduled energy for that 15-minutes time block, and the difference (+or-) becomes the UI energy, as illustrated in the following figure, The corresponding UI rate is determined by taking the average frequency for the same 15- minutes time block into account.The concept of ABT is presented with the help of **fig.4.1**

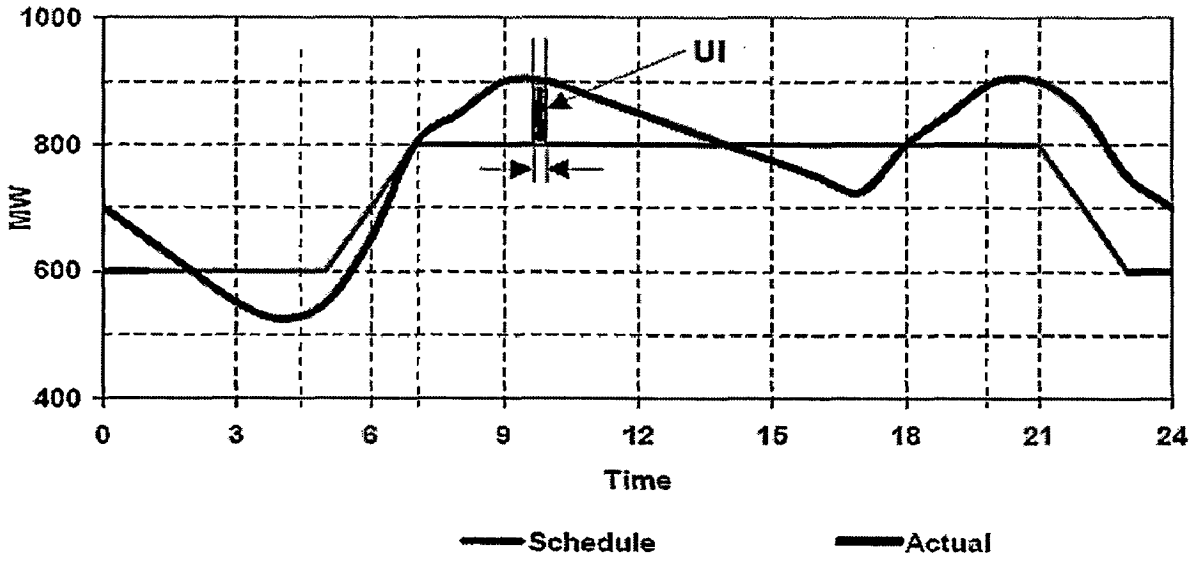


Figure-4.1

4.9 Merit Order Despatch

Economic efficiency dictates that least cost power should be dispatched in preference to more costly power (merit order dispatch). This becomes difficult without a two part tariff for all stations. States tend to compare the total cost of central generators with the variable cost of their own stations, since for them the fixed costs of state level stations are sunk costs. These results in making central generation appear artificially more expensive than state level stations even though on variable cost basis the former may be cheaper.

4.10 Determination of tariff for Tehri PSP

Tehri is one of the very few sites in northern region suitable for PSP. The availability of two reservoirs in cascade after the construction of the Tehri dam & HPP Stage – I (1000 MW) and the Koteshwar Dam (400 MW), provide ideal location for installation of a PSP at Tehri.

Tehri pumped storage plant (1000 MW) involves 4 reversible pump turbine units of capacity 250 MW each, located in an underground power house.
The reservoir created by Tehri Dam shall function as the upstream reservoir, and reservoir of Koteshwar Dam shall function as the downstream reservoir for Tehri PSP.

Tehri PSP scheme has been envisaged to generate 1000 MW of peaking power and provide balancing load to thermal base during off-peak hours.
Annual energy generation from Tehri PSP shall be 1000MW/1252.78 MU during peaking hours (4-6 hrs). For pumping operation during off- peak hrs. (11 PM to 6 AM) for 9 months (Non- Monsoon period) of reversible units during off-peak hours, the energy requirement will be of the order of 1000MW/1712 MU generation

Tehri PSP is envisaged to be funded with a debt: equity ratio of 70:30. The equity portion is to be shared in the ratio of 3:1 by Govt. of India & Govt. of U.P.
Loan portion is proposed to be funded through PFC / RFC/ other financial institutions & Banks. The Operation of Tehri PSP would be based on the concept of recycling of water discharged from upper reservoir to lower reservoir. There would neither by any additional burden coming on the natural resources due to PSP, nor would there be any dislocation or distress caused therefore 12 % free power to home state has not been proposed.

Based on the regulations discussed before, the generation cost for the power generated from Tehri PSP has been calculated as per **Exhibit-1**.

It may be mentioned that at present no separate regulation exists for determining the tariff for the energy from pump storage plant. T.H.D.C has already entered into PPAs with state government like Rajasthan & Delhi. As per the agreement, these states would provide power for pumping during non peaking hours & in turn receive

power from Tehri PSP during peaking hours. T.H.D.C will only charge the conversion charges from these states in terms of the levellized tariff as calculated based on the CERC regulation.

CHAPTER-5

TIME SERIES FORECASTING: BASIC CONCEPTS

5.0 General

The electric power industry in many countries all over the world is moving from a centralized operational approach to a competitive one. An electricity market usually includes two instruments to facilitate trade among power producers and consumers. In the frame work of competitive electricity market, power producers and consumers need accurate price fore- casting tools while planning bidding strategies in order to maximize their profits. This study provides a price forecasting tool based on time series analysis using auto regression integrated moving average method.

5.1 Market Clearing Price:

In a deregulated market, the power producers submit bids to the electricity exchange committing a certain amount of energy that they can deliver in the next day indicating the price for the same. These bids are arranged in order of increasing price by the electricity exchange. A curve showing the bid price as a function of cumulative bid quantity of energy is prepared. This cumulative energy curve vis-à-vis energy price is termed as the supply curve for the market. Similarly a demand curve for the market is created by the exchange. Each consumer indicates the likely demand of power and the price he can offer for the same. These offers are arranged in decreasing order of price.

The inter-section of the supply and the demand curve represent the market clearing price (MCP). In other words, it also indicates the price at which market equilibrium shall occur. The producers are paid the MCP for every unit of energy that they produce. Similarly the consumers pay the MCP for every unit of energy that they consume. This is adopted by the electricity exchange irrespective of the price the producers offer for selling or the consumers offer for purchasing.

5.2 Basic Terms

5.2.1 Regression and Correlation

Since next day price forecast is crucial for producers, this study proposes a next day price forecasting tool based on SARIMA model. This is based on the time series analyses and is used to forecast energy prices in the power exchange. The present study involves the auto –regression analysis of the Market clearing Price (MCP) time series. Regression analysis is the study of dependence of one variables i.e, the dependant variable on one or more other variable, the explanatory variable with a view to estimating and or predicting the mean or average value of the former in terms of the known or fixed values of the latter. Correlation and regression are closely related but conceptually different. In correlation analysis the primary objective is to measure the strength or degree of linear association. In regression analysis, we are not primarily interested in such measure instead we try to estimate or predict the average value of one variable on the variable.

5.2.2 Auto Correlation Function (ACF):

It is an important parameter of a time series analysis and measures the correlation between observations at different distances (lags) apart. These coefficients help in identifying the probability model that generates the data. It is defined for a time series involving the in a power exchange, it may be defined as

$\rho_k = E[((MCP)_t - \mu) - \{(MCP)_{t+k} - \mu)\}] / E[(MCP)_t - \mu)^2]$

The set of values ρ_k and the plot of ρ_k against k=1,2.....are known as auto correlation function (ACF) or Correlogram. It has the following properties.

- ACF is an even function i.e $\rho_k = \rho_{-k}$
- $|\rho_k| \leq 1$
- Lack of uniqueness

To use auto correlation for identifying models, it is necessary to know when ρ_k is effectively zero or is significantly different from zero. For this purpose the standard error (se) of the sample auto correlation is required. Observed values of ρ_k which fall outside these limits are significantly different from zero at 5% confidence level.

5.2.3 Partial Auto correlation function (PACF):

PACF at lag k is defined as the correlation between time series k lags apart, after the correlation due to intermediate terms has been removed.

The lag k partial auto correlation in the partial regression coefficient φ_{kk} in the k^{th} order auto regression model can be expressed as

$(MCP)_t = \varphi_k(MCP)_{t-1} + \varphi_{k2}(MCP)_{t-2}+\ldots\ldots\ldots\ldots \varphi_{kk}(MCP)_{t-k} + a_t$

It measures the additional correlation between $(MCP)_t$ and $(MCP)_{t+k}$ after adjustment have been made for the intermediate variables $(MCP)_{t-1}$, $(MCP)_{t-2},\ldots\ldots .(MCP)_{t-k+1}$ The approximate standard error are equal to $SE(\varphi_{kk})= 1/\sqrt{n}$

And the values of PACF that lies with in the confidence interval of $\pm 2/\sqrt{n}$ are said to be significantly not different from 0 at 95% significance level.

5.2.4 Standard Error:

Since least squares estimate are a function of sample data. But since the data are likely to change from sample to sample, the estimate will change ipso.facto. therefore there is needed some measure of "reliability" or precision of estimates. In statistics the precision of an estimate is measured by its standard error(se). The standard errors of the Ordinary Least Square(OLS) estimators can be obtained as follows :

$$var(\hat{B}_2) = \sigma^2 / \Sigma x_i^2$$

$$se(\hat{B}_2) = \sqrt{var((\hat{B}_2)}$$

$$var(\hat{B}_1) = \Sigma x_i^2 * \sigma^2 / n\,\Sigma x_i^2$$

$$se(\hat{B}_1) = \sqrt{var((\hat{B}_1)}$$

$$\text{Where } x_i = X_i - \bar{X} \;\&\; y_i = Y_i - \bar{Y}$$

All the quantities entering into above equations except σ^2 can be estimated from the data. σ^2 can be estimated from the following expression

$\hat{\sigma}^2 = \Sigma \hat{u}_i^2/(n-2)$

Where $\hat{\sigma}^2$ is the OLS estimates of the true but unknown σ^2 and where the expression (n-2) is known as degree of freedom. $\Sigma \hat{u}_i^2$ being the sum of residual squared or the residual sum of squares (RSS).

5.2.5 Degree of freedom:

The number of degree of freedom means the total number of observations in the sample (=n) less the number of independent (linear) constraints put on them. In other words, it is the number of independent observations out of a total of n observations.

The general rule is:

Degree of freedom = n- number of parameters estimated

5.3 Market Clearing Price: Time Series:

The observations made on MCP in a power exchange can be considered as a stochastic time series. A time series is a collection of observation made sequentially in time and successive observations are usually expected to be dependent. The methodology adopted to study the movement and time of the variables e.g. hourly market clearing price of electricity in a power exchange is called time series analysis. The time series considered here is discrete in nature. Price values are recorded at fixed hourly time interval. In empirical analysis, it is assumed that the under lying time series is stationary though in practice they are not. A time series is said to be stationary if it's mean and variance do not change (vary) systematically over time and the value of co-variance between two time periods depend only on the distance or gap or lag between two time period and the actual time at which the covariance is computed .

$$\text{Mean} = E(Y_t) = \mu$$

$$\text{Variance} = E[Y_t - E(Y_t)]^2 = \sigma^2$$

$$\text{Covariance } Y_k = E[(Y_t - \mu)(Y_{t+k} - \mu)]$$

Where Y_k is covariance at lag k i.e covariance between values Y_t & Y_{t+k} i.e between two Y values k period apart.

All practical time series including the series under study are non stationary in nature. Therefore, they have a seasonal component and a there exists a definite trend in the observations collected. Mathematically a time series is expressed as

$$Y_t = f(S_t, T_t, E_t)$$

Where Y_t = Time series value at time t(actual value)

S_t = Seasonal component

T_t = Trend cycle component

E_t= Irregular (random) component

In the instant case, if we plot the data, it is evident that the trend cycle component is absent, however seasonal component is present. Thus mathematically (MCP) t can be expressed as

$$(MCP)_t = f(S_t, E_t)$$

Seasonal variations represent the recurring pattern of demand swing to the grid in each 24 hours and they are related with peaking or non-peaking hour. While analyzing a practical time series, the non stationary time series is converted in to stationary time series. For this the seasonality and trends are removed from the time series.

Under a deregulated market, the price of the electricity can be determined if we can fore cast the market clearing price in the power exchange.

5.4 Random Walk Model:

We call a stochastic process purely random if it has a zero mean, contt variance σ^2 and serially un correlated. The error term entering the classical normal random model, $U_t \sim N(0, \sigma^2)$ i.e. U_t is independently and identically distributed as a normal distribution with zero mean and constant variance.

Although we are Interested in a stationary time series, but in practice we often come across non-stationary time series. The under lying time series involving the market clearing price in an energy exchange is also a non stationary time series.

This follows a random walk model. If U_t is a while noise term with zero mean and variance (σ^2) then the series Y_t is said to follow a random walk model.

If U_t is a while noise term with zero mean and variance (σ^2) then the series is Y_t said to follow a random walk model. In a MCP time series data

$$(MCP)_t = MCP)_{t-1} + U_t$$

i.e value of MCP at any time t is equal to its previous value at (t-1) plus a random stock, then above equation can be considered as a regression of MCP at a time t_1 on its value lagged one period.

Therefore we can write

$$(MCP)_1 = (MCP)_0 + U_1$$

$$(MCP)_2 = (MCP)_1 + U_2 = (MCP)_0 + U_1 + U_2$$

$$(MCP)_3 = (MCP)_2 + U_3 = (MCP)_0 + U_1 + U_2 + U_3$$

In general

$$(MCP)_t = MCP)_0 + \Sigma U_t$$

Therefore

$$E(MCP) = E(MCP)_0 + \Sigma U_t$$

$$= (MCP)\,0$$

Similarly, Variance

$$(MCP)_t = t.\sigma^2$$

The above analysis shows that mean of (MCP) is equal to its initial value or starting value which is contt. But as't' increases, variance increases indefinitely thus violates the condition of stationarity. Hence, this is non-stationary process. As is seen that Market Clearing Price (MCP) at any time't 'is equal to sum of its initial value and random stock.

Therefore it can also be written

$$(MCP)_t = (MCP)_{t-1} = \Delta(MCP)_t = U_t$$

Since U_t follows a standard normal distribution i.e

$$U_t \sim N(0,1)$$

5.5 Unit Stochastic Process:

It can be written that $(MCP)_t = \rho\,(MCP)_{t-1} + U_t$

Where $-1 \leq \rho \leq 1$

If $\rho = 1$, $(MCP)_t = (MCP)_{t-1} = U_t$

This is known as unit root stochastic process.

$\Delta (MCP)_t = (MCP)_t - (MCP)_{t-1} = U_t$ is a stationary process since random shock term U_t has zero mean and contt.variance . This implies that if the series is differenced once, the series become stationary.

5.6 Forecasting Methods:

Price forecasting tools are, therefore, potentially useful for all the market players. Price forecasting techniques in power system are relatively recent phenomena. In the past, demand was predicted in centralized markets. Competition has opened a new field of study and there are already several techniques in use to forecast energy prices.

There are two major approaches for such forecasting, namely, time series and simulation. The former is based on historical data of mainly recent market prices, while the latter is generally perceived to be an extension of traditional production cost based optimization approach. In simulation approach, power system equipment and their information are rigorously modelled. In time series method, there are two approaches: linear regression based models and non linear heuristic machine learning models. Regression based models involve auto regressive moving average (ARMA) models and its extension: auto regressive integrated moving average (ARIMA) models and their variants. While ARMA & ARIMA models are aimed at modeling and forecasting the changing price itself, SARIMA model takes care of the volatility of prices. Non linear heuristic models are mostly based on artificial neural network (ANN). A typical procedure of price forecasting is described in **fig.5.1.**

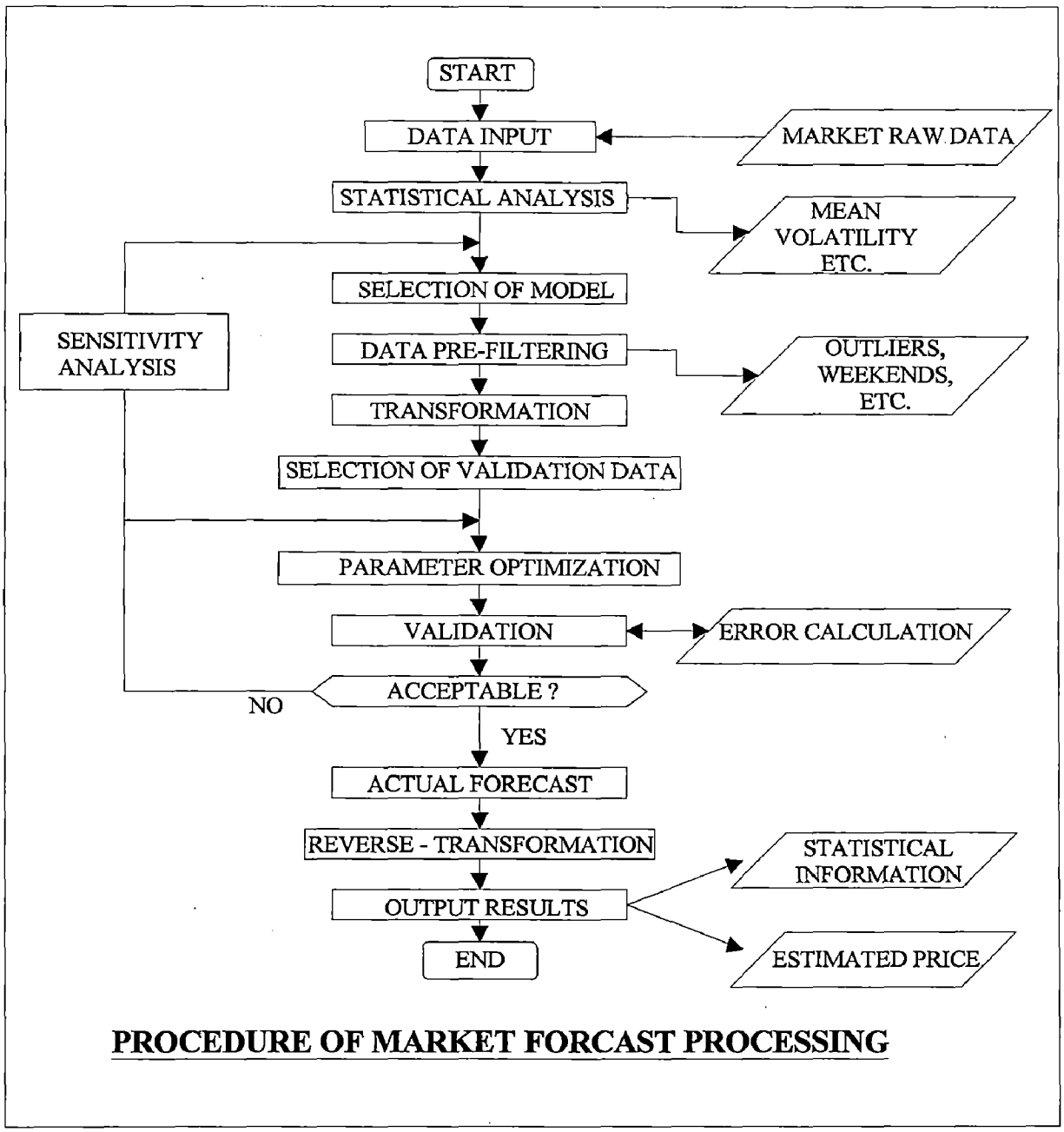


fig.5.1

5.7 ARMA MODEL

ARIMA Model (Auto Regressive Integrated Moving Average) technique has been followed in the present study. The emphasis of this method is not constructing single equation or simultaneous equation models but on analyzing the probabilistic or stochastic properties of time series on their own under the philosophy "let the data speak -themselves"

In the present analysis, the (MCP) is explained by past, or lagged value of market clearing price $(MCP)_t$ itself and stochastic error term.

If we express $(MCP)t$ as

$[(MCP)_t - \delta] = \alpha_1[(MCP)_{t-1} - \delta] + U_t$

Where δ is the mean value of (MCP) and U_t is an uncorrelated error term with zero mean and constant variance (σ^2) (i.e. it is a while noise), it is said say that $(MCP)_t$ follows a first order auto regressive process or AR(1) stochastic process. Here (MCP) at any time t depends upon its value in the previous time period and a random term. The (MCP) values are expressed as deviation from their mean values.

In other words this model says that the forecast value of (MCP) at any time't 'is simply some proportion (= α_1) of its value at (t-1) plus a randome shock or disturbance at time't'. Again MCP values are expressed around their mean values.

But if this model is considered as

$[(MCP)_t - \delta] = \alpha_1[(MCP)_{t-1} - \delta] + \alpha_2[(MCP)_{t-2} - \delta] + U_t$

Then it is said that $(MCP)_t$ follows a second order auto regressive or AR (2) . Similarly it can be generalized that $(MCP)_t$ as p^{th} order auto-regressive AR (p) process.

(MCP) at any time limit can also be expressed as

$(MCP)_t = \mu + \beta U_t + \beta U_{t-1}$

Where 'U_t', a white noise is stochastic term and μ is a contt.

This means that MCP at any time 't' is equal to a contt plus moving average of the current and past error term i.e MCP follows a first order Moving Average MA(1) process. In general it can have 'q' order moving average processes MA(q). This implies that it is simply a linear combination of white noise error term.

It is quite likely that MCP follows ARMA process i.e

$((MCP)_t = \theta + \alpha_1(MCP)_{t-1} + \beta_0 U_t + \beta_1 U_{t-1}$

i. e. There is one Auto Regressive and one Moving Average term.

5.8 ARIMA Model

Most of the time series models are based on the assumption that the time series involved are stationary but practically they are not i.e they are integrated. To convert a time series into stationary, the differencing is done. In general if a time series is I(d) i.e differenced 'd' times, a stationary series I(0) is obtained. Therefore if we do difference a time series d times to make it stationary, ARIMA(p, q) model is applied to it and original time series becomes ARIMA(p, q, d) i.e it is an auto regressive integrated moving average time series.

Where p = no. of auto regressive terms

q= no. of moving average terms

d= no. of time series is to be differenced before it becomes stationary.

The study of various ARIMA processes consume a lot of space, therefore the guidelines presented in **Table-5.1** may be used to identify the type of model.

Type of model	Typical pattern of ACF	Typical pattern of PACF
AR(p)	Decays exponentially or with damped sine wave pattern or both	Significant spikes through lags p.
MA(q)	Significant spikes through lags (q).	Decline exponentially
ARIMA(p,q)	Exponential decay	Exponential decay

Table-5.1

5.9 Seasonal ARIMA Model:

The underlying MCP time series exhibits seasonality at lag 24. It is expected that $(MCP)_t$ depends upon term $(MCP)_{t-24}$ as well as term $(MCP)_{t-1}$, $(MCP)_{t-2}$. Therefore Box-Jenkins extended and generalized the ARIMA models to analyze seasonal variations. Following clauses explains seasonal ARIMA models.

5.9.1 Seasonal Auto regressive (SAR) Models:

A time series may be expressed as first order seasonal auto regressive process if the current value say $(MCP)_t$ is described as a linear function of value attained s lag before i.e $(MCP)_t = \Phi_1(MCP)_{t-s} - \varepsilon_t$ (s=24 in the present study)

Using back shift operator

$(1-\Phi_1 B^s)\ (MCP)_t = \nabla_s{}^d \nabla^d$ where Φ_1 is the SAR parameter and this equation is known as SAR(I) model. In general a seasonal auto regressive model of order can be written as $\Phi.(B^s) = 1 - \Phi_1(B^s) - \Phi_2(B^{2s}) - \ldots\ldots\ldots \Phi_p(B^{ps})$

And $w_t = \nabla_s{}^d \nabla^d (MCP)_t$

Where $\nabla_s{}^d \nabla^d$ is the combination of seasonal and consecutive differencing operator, s is the span and d is the order of consecutive differencing.

Back shift operator is defined as

$B\ (MCP)_t = (MCP)_{t-1}$ therefore $\nabla = 1-B$

The seasonal & consecutive difference operator ($\nabla_s{}^d \nabla^d$) is used to introduce stationarity to the MCP time series. The auto correlation function of SAR model is similar to the regular AR model, except that the values of auto-correlation appear at the multiples of span i.e. auto correlation of SAR(I) model have non zero values at lags that are multiples of span.

5.9.2 Seasonal Moving Average Model (SMA):

In this case the current value of series say $(MCP)_t$ can be described by a current shock, ε_t and a shock occurring exactly s observations earlier ,ε_{t-s} where s equals the span of seasonal model. Such model can be represented as

$(MCP)_t = \varepsilon_t - \Theta_1 \varepsilon_{t-s}$

Using back shift operator

$(MCP)_t - (1- \Theta B^s)\ \varepsilon_t -$ which is first order SMA

Where Θ the seasonal moving average parameter

An SMA of order Q can be represented as

$w_t = \Theta(B^s)\ \varepsilon_t$

Where $\Theta(B^s) = 1 - \Theta(B^s) - \Theta_2(B^{2s}) - \ldots\ldots\ldots\ldots \Theta_q(B^{qs})$ and

$w_t = \nabla_s{}^d \nabla^d (MCP)_t$

$\nabla_s{}^d \nabla^d$ are used to introduce stationary in series.

5.9.3 Mixed Seasonal (SARIMA) Models:

It is the combination of seasonal auto regressive and seasonal moving average process and expressed as $\Phi.(B^s)\, w_t = \Theta\,(B^s)\, \varepsilon_t$

Where $\Phi.(B^s)\, w_t$; $\Theta(B^s)\, \varepsilon_t$ are expressed in the foregoing paras. The auto correlation of a seasonal mixed process have non zero auto correlations at lags s which is the multiple of the span.

If regular AR &MA and seasonal AR and MA are combined into one model then this broad class of model called multiplicative SARIMA model and can be expressed as

$\varnothing p(B)\, \Phi_p(B^s)\, w_t = \theta_q\,(B)\, \Theta\, \alpha(B^s)\, \varepsilon_t$

Where $\varnothing p(B) = 1 - \varnothing_1(B) - \varnothing_2(B^2) - \ldots\ldots\ldots\ldots \varnothing p(B^p)$

$\Phi_p(B^s) = 1 - \Phi_1(B^s) - \Phi_2(B^{2s}) - \ldots\ldots\ldots\ldots\ldots \Phi_p(B^{ps})$

$\theta_q\,(B) = 1 - \theta_1\,(B) - \theta_2\,(B^2) - \ldots\ldots\ldots\ldots\ldots \theta_q\,(B^q)$

$\Theta\, q(B^s) = 1 - \Theta\, q(B^s) - \Theta\, q(B^{2s}) - \ldots\ldots\ldots \Theta\, q(B^{sq})$

$w_t = \nabla_s{}^d \nabla^d (MCP)_t$

The equation can be summarized as SARIMA (p,d,q)x (P,D,Q)

Where P = No of seasonal autoregressive terms

Q = No of seasonal auto moving average terms

D = No of times seasonal differencing done to make the series stationary.

5.10 Flow Chart of Box-Jenkins Model

A typical procedure that follows while implementing a Box-Jenkins (SARIMA) model for forecasting has been presented in **fig.5.2.**

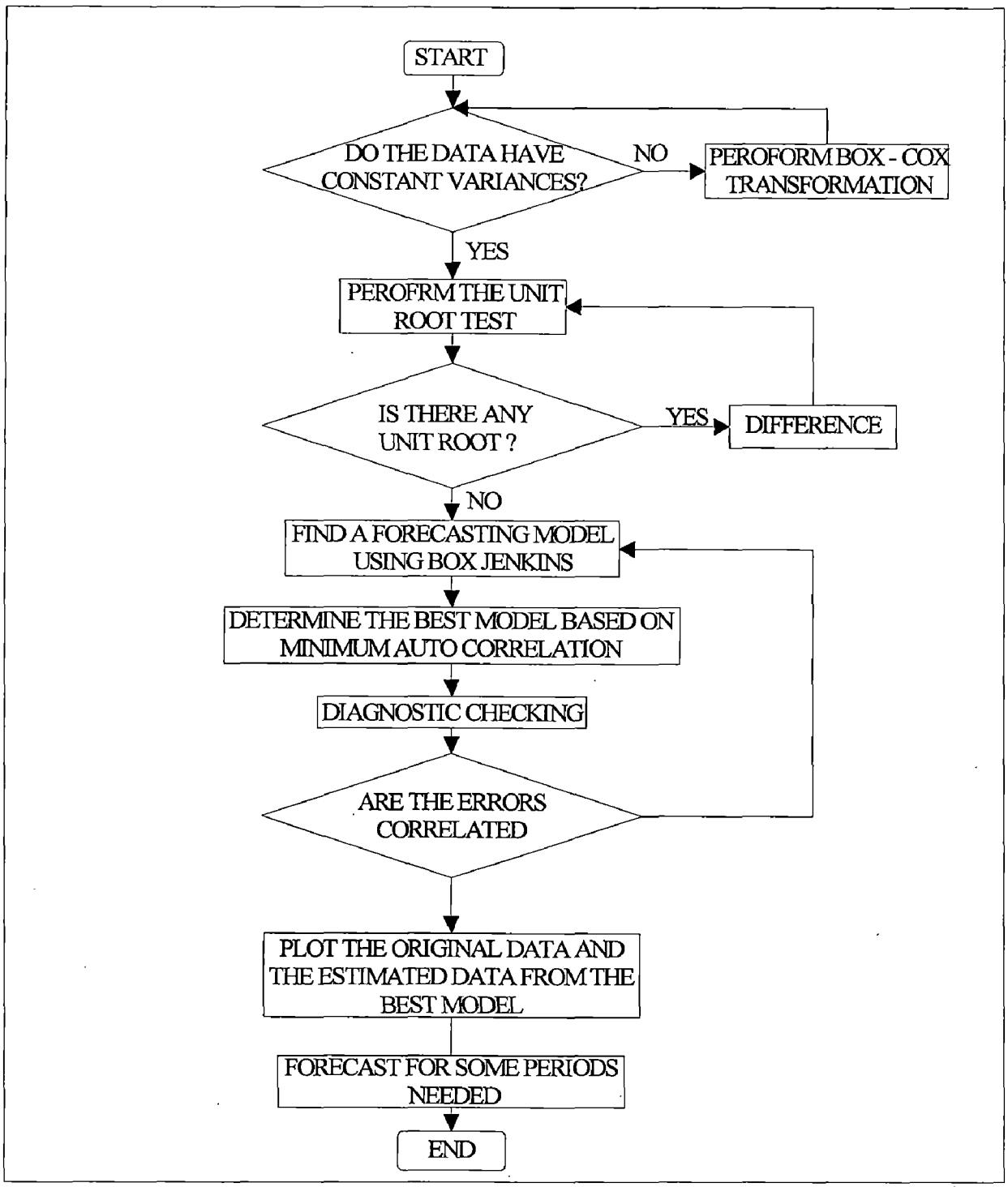

START
DO THE DATA HAVE CONSTANT VARIANCES?
NO
PEROFORM BOX - COX TRANSFORMATION
YES
PEROFRM THE UNIT ROOT TEST
IS THERE ANY UNIT ROOT ?
YES
DIFFERENCE
NO
FIND A FORECASTING MODEL USING BOX JENKINS
DETERMINE THE BEST MODEL BASED ON MINIMUM AUTO CORRELATION
DIAGNOSTIC CHECKING
ARE THE ERRORS CORRELATED
PLOT THE ORIGINAL DATA AND THE ESTIMATED DATA FROM THE BEST MODEL
FORECAST FOR SOME PERIODS NEEDED
END

Fig.5.2

CHAPTER-6

SARIMA MODEL FOR INDIAN POWER EXCHANGE

6.0 GENERAL

In deregulated power market, the market clearing price of electricity is the basic information for all market players. Therefore, the market players, i.e. the producers, the traders and the user agencies, need accurate price forecasting tools. This dissertation deals with a forecasting model based on time series analysis and involves seasonal autoregressive integrated moving average process. This technique is explained and verified for actual electricity price data of a typical power exchange operating in India. The power exchange in India operates on day ahead basis. The producer can optimize his profit in a Day-Ahead-Market only if he has a robust knowledge of the likely MCP in advance.

In empirical analysis it is assumed that the underlying time series is stationary, though in practice they are not but can be made stationary through mathematical transformations. The stationary time series exhibits adaptive behavior.

Another important reason to remove the non-stationary components from a time series is that the meaningful sample statistics such as means, variances and correlations with other variables can be obtained. Such parameters are important descriptors for future behavior only if the series is stationary in nature. For example, if the series is consistently increasing over time, the sample mean and variance will grow with the size of sample, and will always under-estimate the mean and variance for future periods. Therefore, if the mean and variance of a time series are not well defined, then it's correlation with other variables shall be similarly ill-defined. For this reason, one should be cautious in extrapolating regression model to fit to non-stationary data.

Energy price time series are far from stationary when expressed in their original units of measurement, and even after seasonal adjustment they typically exhibit trends, cycles, random-walking, and other non-stationary behaviour. In most competitive electricity market, this series presents the following characteristics High frequency

- Non constant means and variance.
- Multiple seasonality (Corresponding to daily and weekly periodicity report)
- Calendar effect (such as weekend & holidays).
- High volatility.
- High percentage of un- usual prices (mainly in periods of high demand).

6.1 Modeling SARIMA for MCP Forecasting

Market clearing price time series are far from stationary when expressed in their original units of measurement, and even after seasonal adjustment they typically exhibit trends, cycles, random-walking, and other non-stationary behavior

If the series has a stable long-run trend and tends to revert to the trend line following a disturbance, it may be possible to make it stationary by de-trending (e.g., by fitting a trend line and subtracting it out prior to fitting a model, or else by including the time index as an independent variable in a regression or ARIMA model, in conjunction with logging or deflating. Such a series is said to be **trend-stationary**. However, MCP time series prices are not trend stationary. Also, sometimes even de-trending is not sufficient to make the series stationary, in which case it may be necessary to transform it into a series of period-to-period and/or season-to-season *differences*. If the mean, variance, and autocorrelations of the original series are not constant in time, even after de-trending, perhaps the statistics of the *changes* in the series between periods or between seasons *will* be constant. Such a series is said to be **difference-stationary**. MCP time series in day ahead markets are usually difference stationary.

The first difference of MCP is expressed as ΔMCP. If the first difference of MCP is stationary and also completely random (not auto correlated), then MCP is described by a random walk model, each value is a random step away from the previous value. If the first difference of MCP is stationary but not completely random , i.e., if it's value at period 't' is auto correlated with its value at earlier periods, then a more sophisticated forecasting model such as exponential smoothing or ARIMA may be appropriate.

The data for the present study has been taken from a typical power exchange in India from 1st Nov.'2008 to 31st March'2009. Thus the total number of observation analyzed in this paper is 6576. Market clearing price data during 1st April'2009 & 2nd April'2009 validates the mathematical model developed in this paper.

The seasonal part of an ARIMA model has the same structure as the non-seasonal part: it may have an AR factor, an MA factor, and/or an order of differencing. In the seasonal part of the model, all of these factors operate across multiples of lag s (the number of periods in a season).

In identifying a SARIMA model, the first step is to determine whether or not a seasonal difference is needed, in addition to or perhaps instead of a non-seasonal difference. ACF and PACF plots for all possible combinations of 0 or 1 non-seasonal difference and 0 or 1 seasonal difference are examined.

If the seasonal pattern is both strong and stable over time (e.g., high exactly 24 hours before any hour '*t*', and low exactly 12 hours before, '*t*'), then one should use an order of seasonal differencing.

The signature of pure Seasonal Auto Regressive (SAR) or pure Seasonal Moving Average (SMA) behaviour is similar to the signature of pure AR or pure MA behaviour, except that the pattern appears across multiples of lag s in the ACF and PACF. For example, a pure SAR (1) process has spikes in the ACF at lags s, 2s, 3s, etc., while the PACF cuts off after lag s. Conversely, a pure SMA (1) process

has spikes in the PACF at lags s, 2s, 3s, etc., while the ACF cuts off after lag s. An SAR signature usually occurs when the autocorrelation at the seasonal period is positive, whereas an SMA signature usually occurs when the seasonal autocorrelation is negative. Hence, if the autocorrelation at the seasonal period is positive, an SAR term is added to the model. If the auto correlation at the seasonal period is negative, an SMA term is added to the model.

MINITAB Release-14 software has been used to determine the price model. MINITAB is a statistical software package in wide use by academe and industry. It includes modules for general univariate statistics, multi variate statistics and time series analysis etc. This package is developed by **Minitab Inc**. Minitab has been one of the world leading developers of statistical analysis and process management Software Company's flagship product. Minitab Inc..headquartered in state college,PA, oprates offices in the United Kingdom and France.

6.2 Flow Chart

The flow chart involved while modeling has been presented in **fig.6.1.**

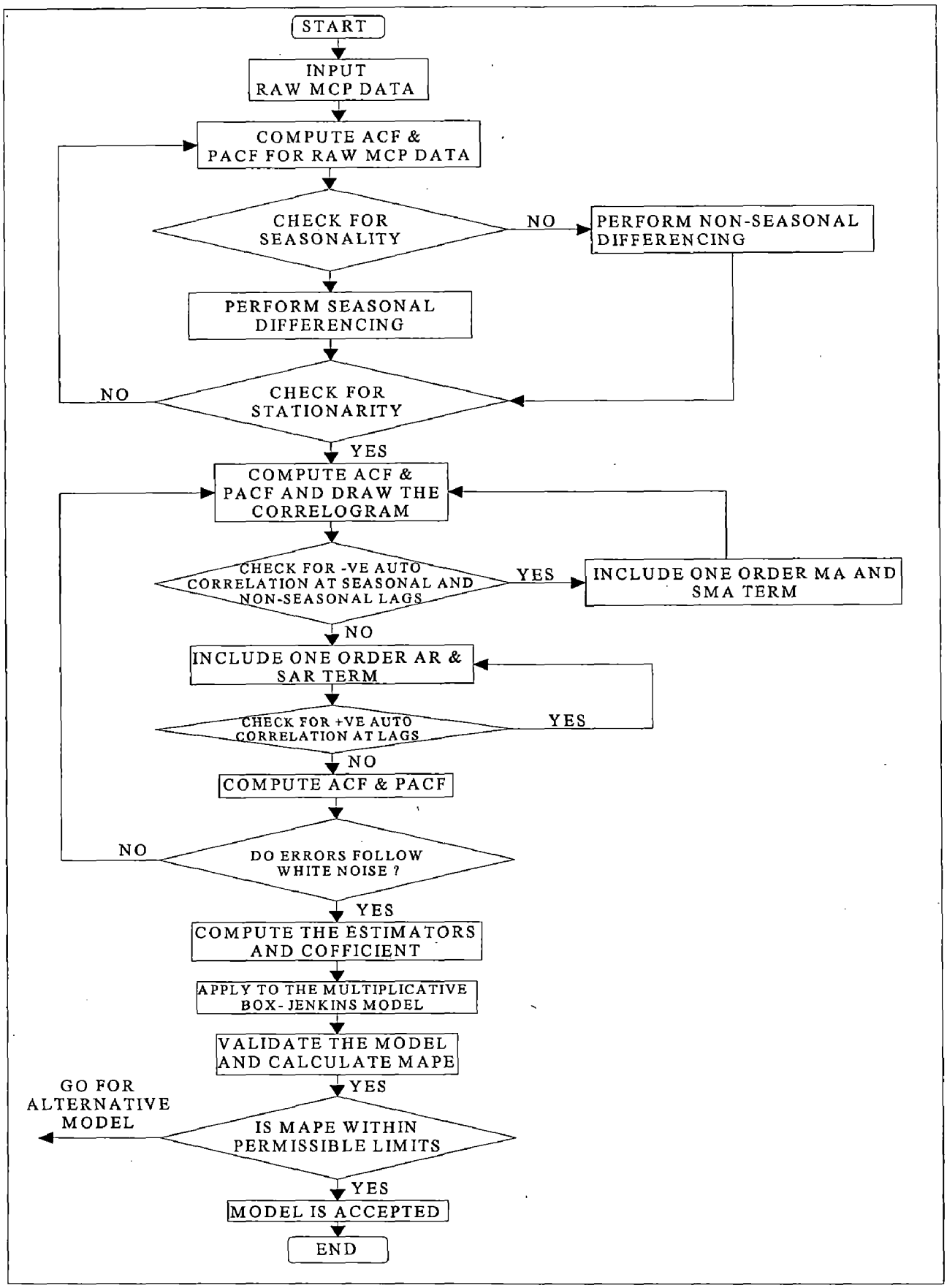

START
INPUT RAW MCP DATA
COMPUTE ACF & PACF FOR RAW MCP DATA
CHECK FOR SEASONALITY
NO
PERFORM NON-SEASONAL DIFFERENCING
PERFORM SEASONAL DIFFERENCING
NO
CHECK FOR STATIONARITY
YES
COMPUTE ACF & PACF AND DRAW THE CORRELOGRAM
CHECK FOR -VE AUTO CORRELATION AT SEASONAL AND NON-SEASONAL LAGS
YES
INCLUDE ONE ORDER MA AND SMA TERM
NO
INCLUDE ONE ORDER AR & SAR TERM
CHECK FOR +VE AUTO CORRELATION AT LAGS
YES
NO
COMPUTE ACF & PACF
NO
DO ERRORS FOLLOW WHITE NOISE ?
YES
COMPUTE THE ESTIMATORS AND COFFICIENT
APPLY TO THE MULTIPLICATIVE BOX- JENKINS MODEL
VALIDATE THE MODEL AND CALCULATE MAPE
YES
GO FOR ALTERNATIVE MODEL
IS MAPE WITHIN PERMISSIBLE LIMITS
YES
MODEL IS ACCEPTED
END

Fig. 6.1

6.3 Identification of the data generation process of MCP in Day Ahead Energy Markets

Available hourly MCP data (6576 observations) have been analysed with respect to ACF and PACF. ACF and PACF plots of the original series, which are obtained in the forecasting procedure by plotting the "residuals" of an ARIMA(0,0,0)x(0,0,0) model with constant are presented in **fig. 6.2A & 6.2B** respectively.

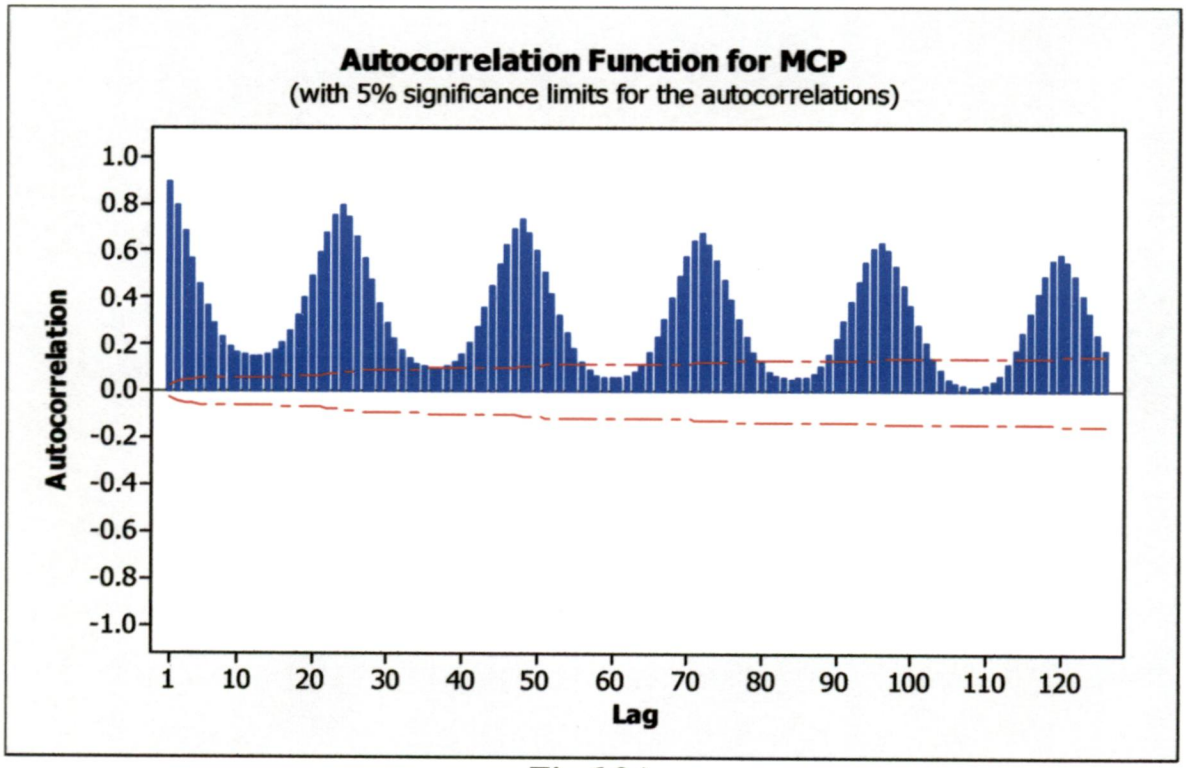


Fig.6.2A

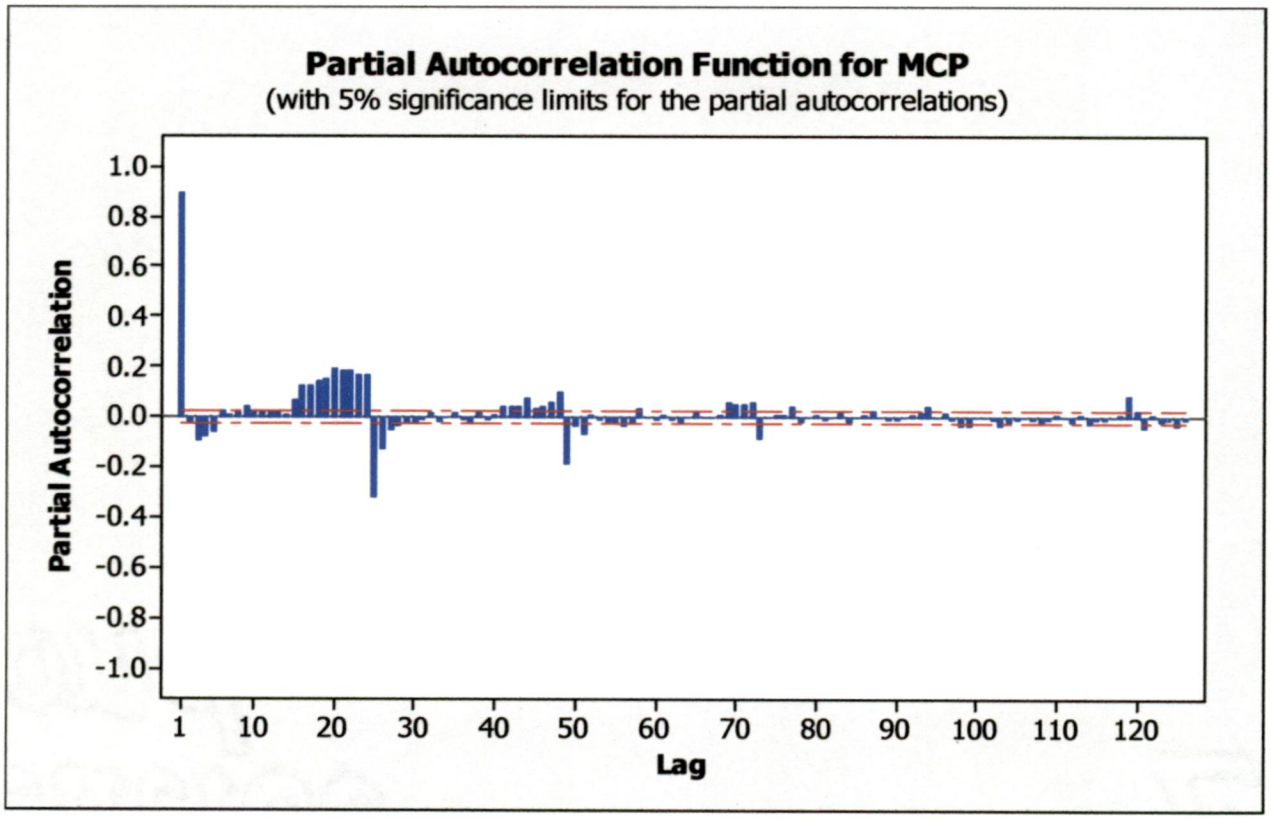


Fig.6.2B

The "suspension bridge" pattern in the ACF is typical of a series that is both non-stationary and strongly seasonal which clearly requires at least one order of differencing. The corresponding plots appear as in **fig.6.3A&6.3B** after implementing one non seasonal differencing.

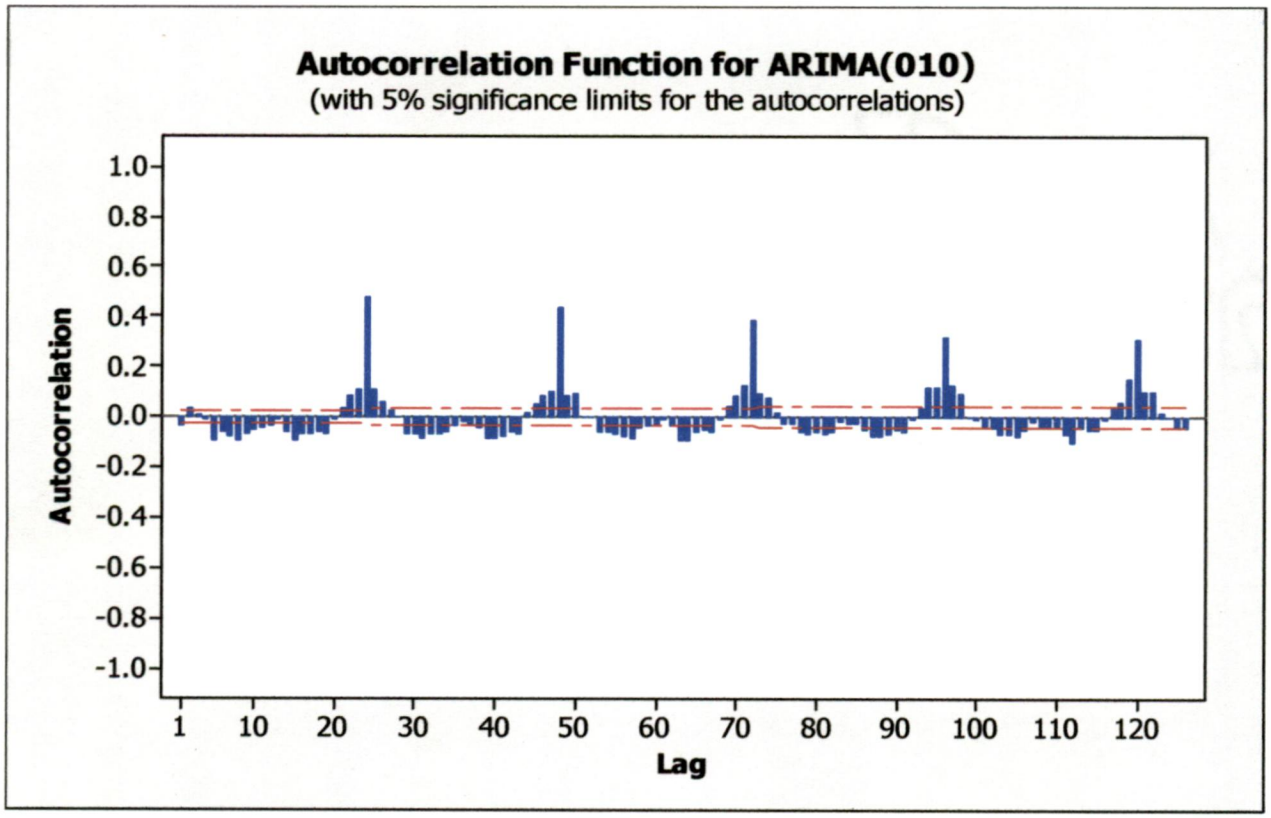


Fig.6.3A

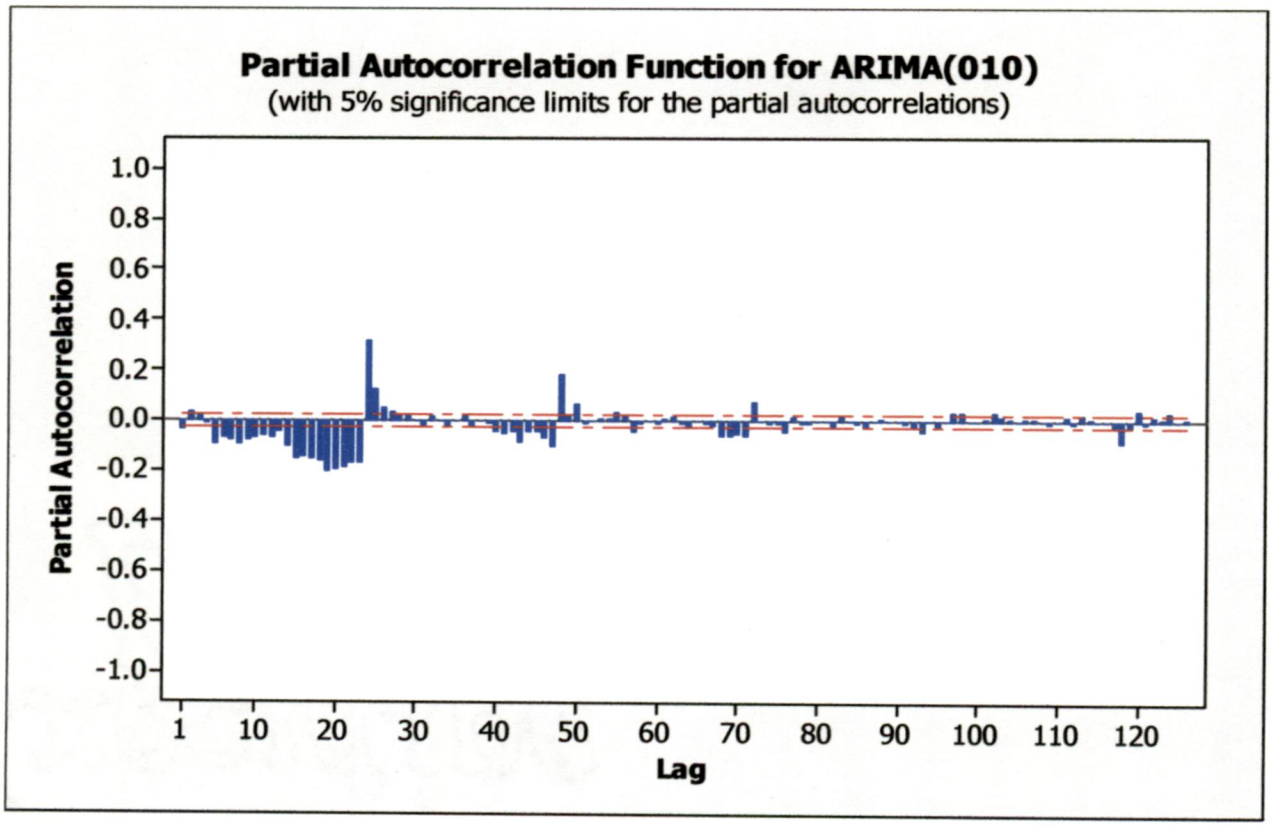


Fig 6.3B

The differenced series (the residuals of a random-walk-with-growth model) still looks non-stationary, and there is still very strong autocorrelation at the seasonal period (lag 24, 48, 72,).Since the seasonal pattern is strong and stable, the model demands an order of seasonal differencing. The correlogram is presented in **fig.6.4** after performing the same.

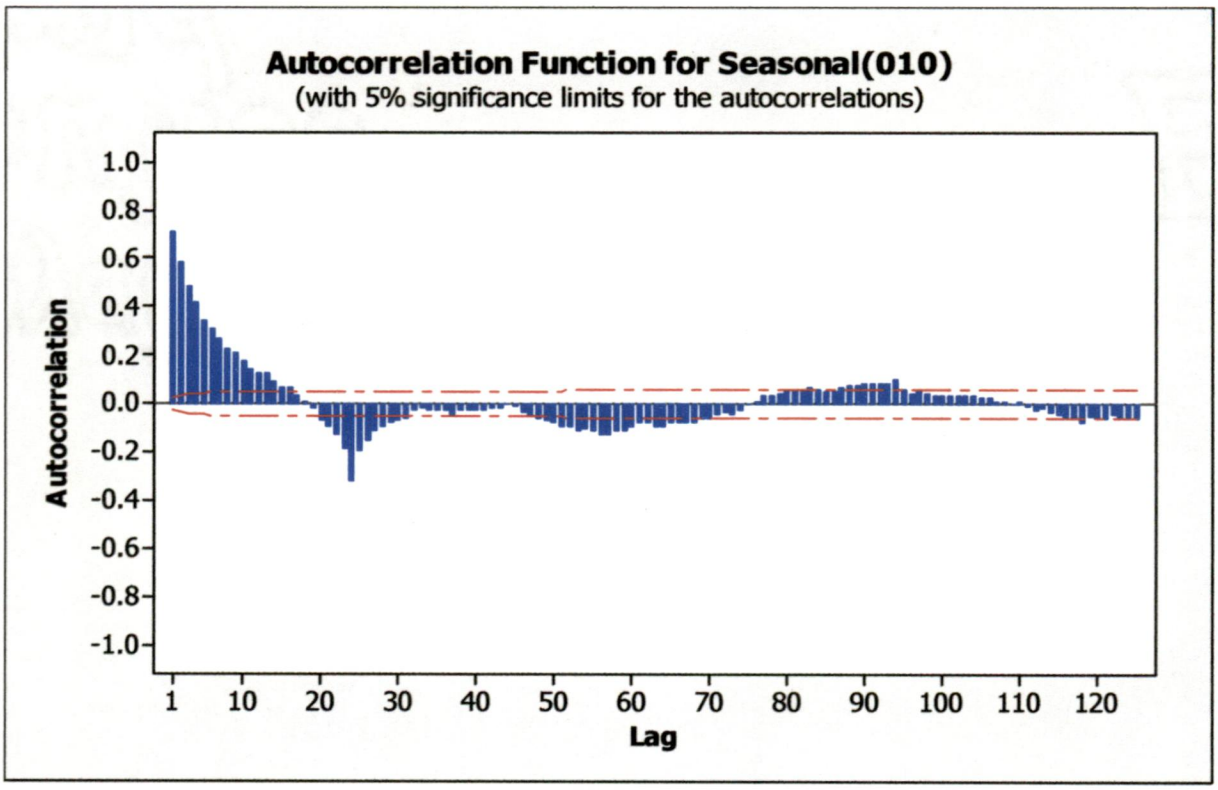


Fig.6.4

It is evident from fig.3 that the seasonally differenced series still shows a very strong pattern of positive autocorrelation. This could be an "AR signature"--or it could signal the need for another differencing.

Thus the pattern emerges as in **fig.6.5** after one seasonal and one non-seasonal differencing.

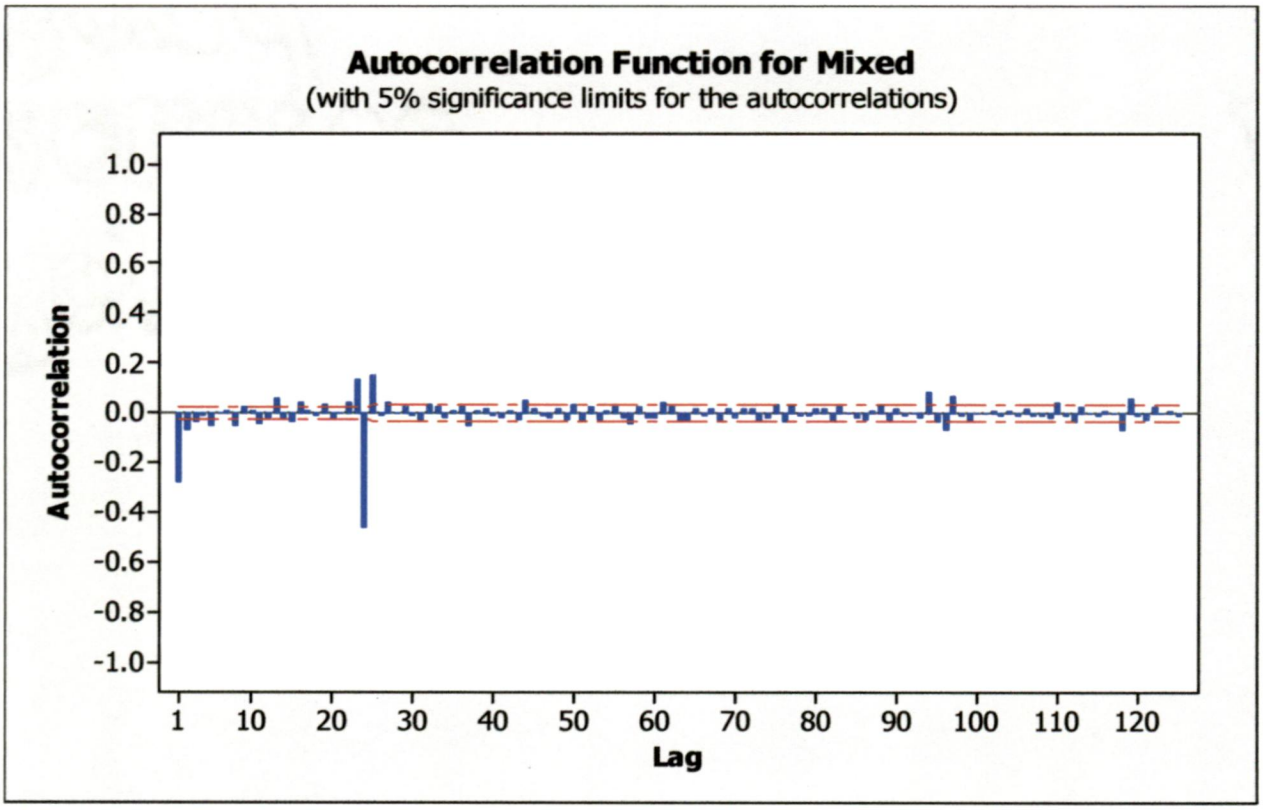


Fig.6.5

The pattern at fig.6.5 indicates, the negative autocorrelation at lag 1 and seasonal lag 24 which warrants the inclusion of a MA (1) and SMA (1) term. The results after inclusion of the same are presented at **fig.6.6A & 6.6B.**

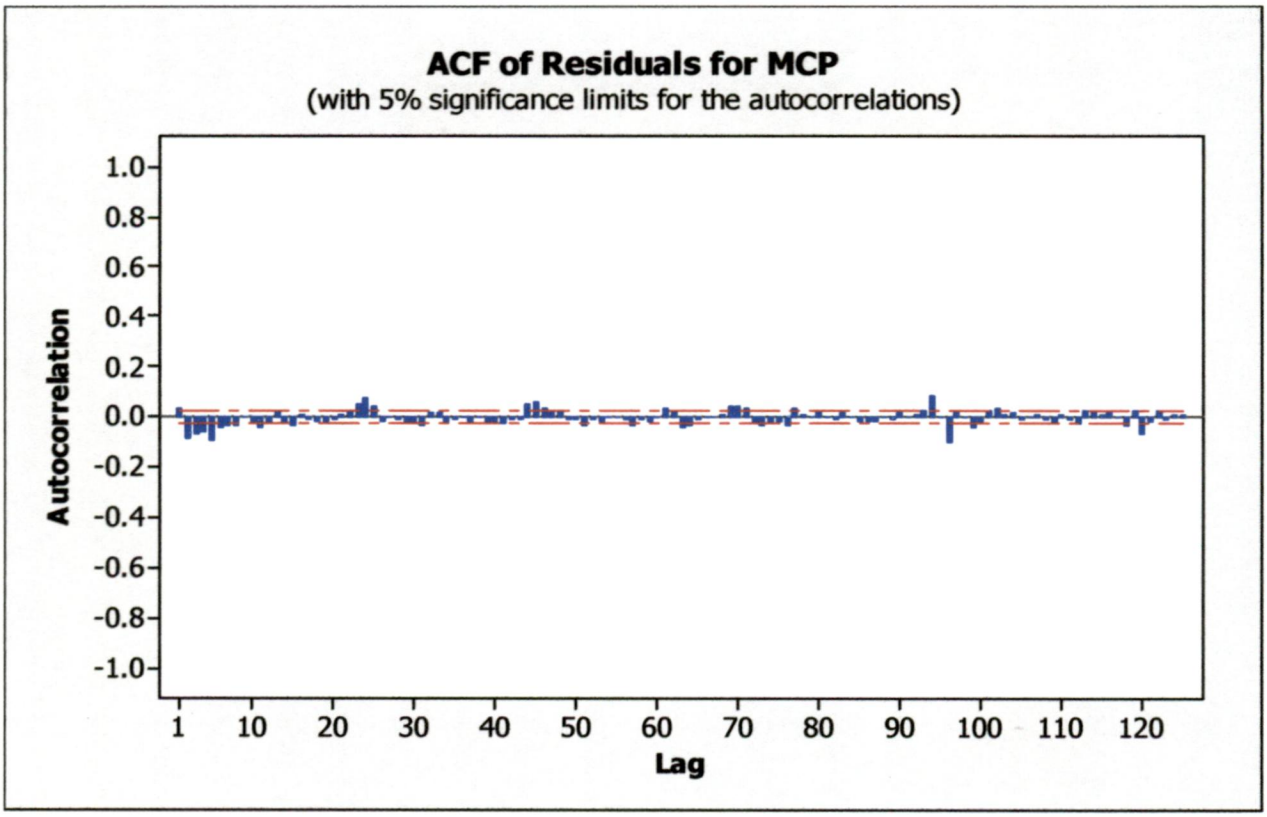


Fig.6.6A

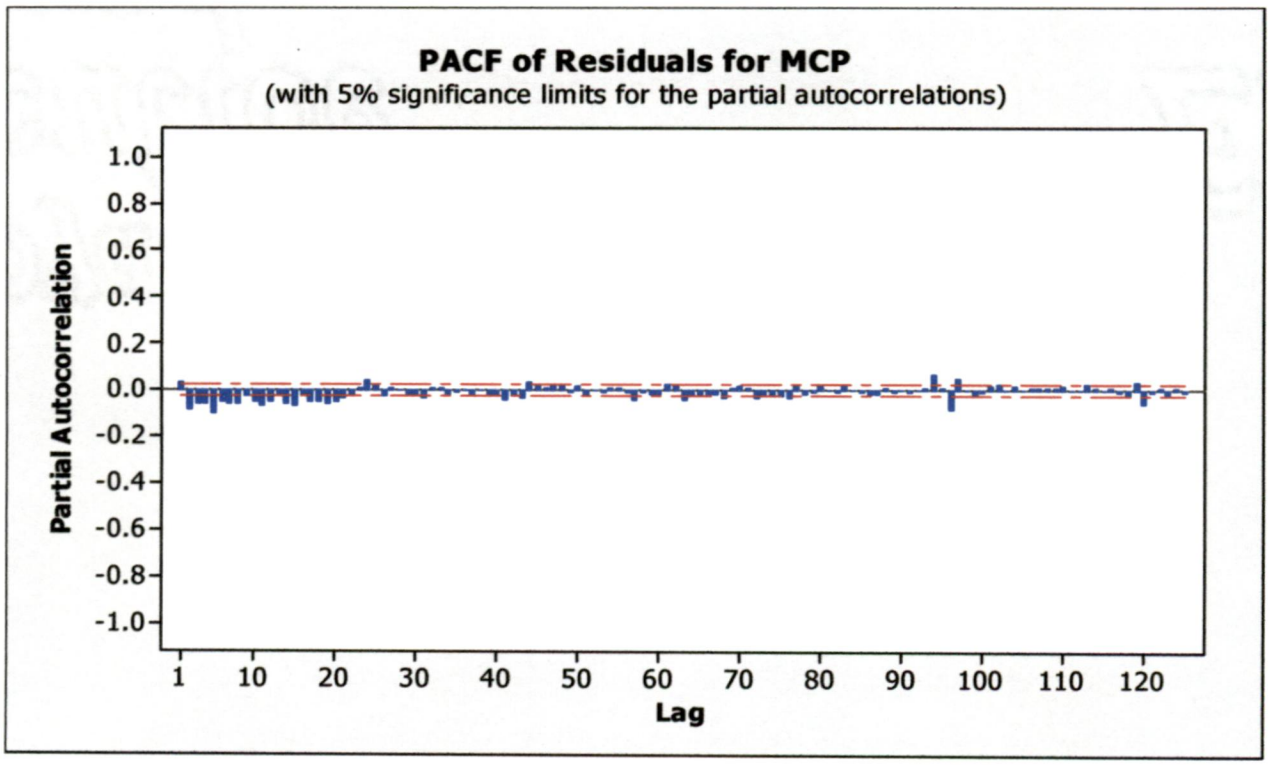


Fig.6.6B

Though, the residuals appear to be stationary now, but autocorrelation at lag 24 is still slightly positive. This requires examination of the series as a SARIMA(0,1,1)X(1,1,1) process. The ACF and PACF of the residuals so obtained are not very different from those obtained above. Finally, **SARIMA (1, 1, 1)X(1,1,1)24** is tested and ACF and PACF thus obtained are drawn at **fig.6.7A & 6.7B.**

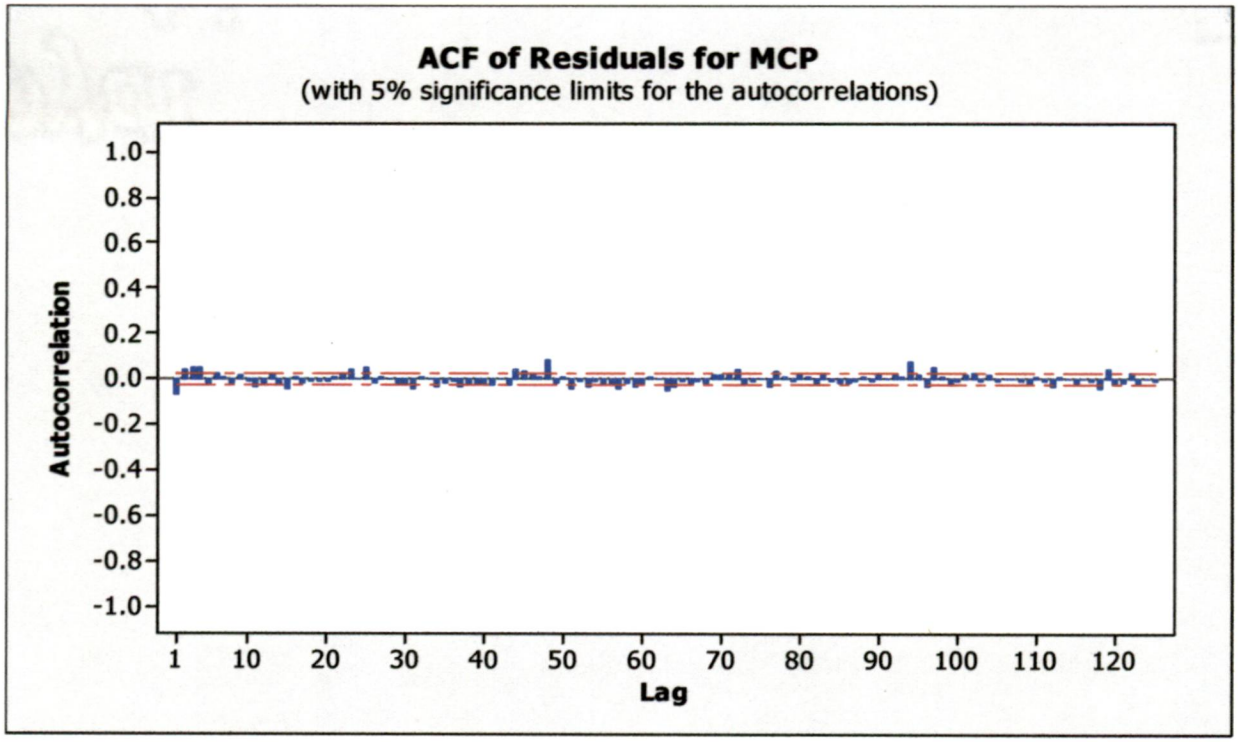
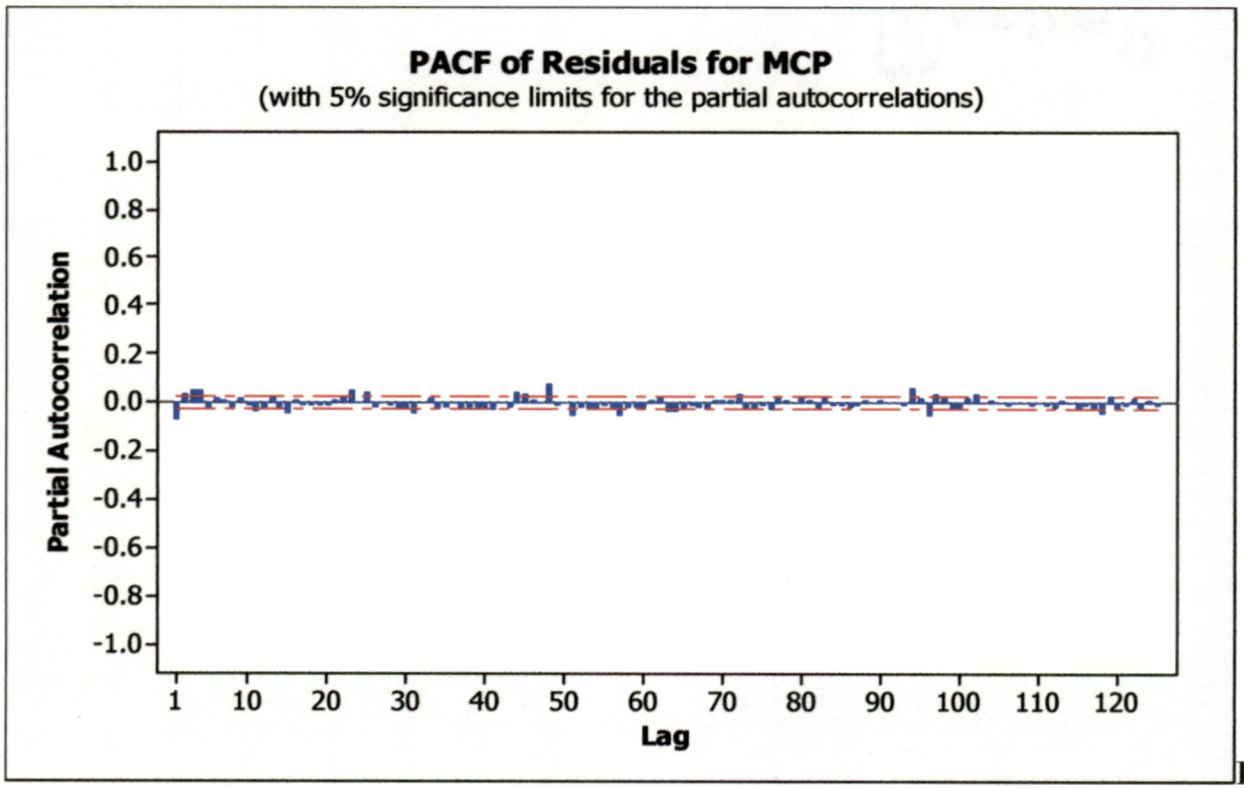


Fig 6.7A



F

Fig.6.7B

6.4 Mathematical Model

It is evident from the above graphs that the DGP (Data generation process) of the MCP in the day ahead market under current study follows SARIMA (1,1,1) x (1,1,1) 24 process. Above analysis shows that the white noise term thus obtained consequent upon the mathematical transformation performed on the series follows Gaussian distribution with mean = 0 and variance as σ^2 i.e. error terms are purely random in nature.

The coefficients of the above process are:

Type		Coeff.	SE Coeff.	T	P
AR	1	0.6707	0.0104	64.64	0.000
SAR	24	0.1668	0.0149	11.20	0.000
MA	1	0.9460	0.0036	262.79	0.000
SMA	24	0.8604	0.0076	112.96	0.000

Differencing: 1 regular, 1 seasonal of order 24

Number of observations: Original series 6576, after differencing 6551

Residuals: SS = 6463.24 (back forecasts excluded)

MS = 0.99 , DF = 6547

General multiplicative SARIMA model for the MCP series shall be as governed by the following expression

$(1-ØB)\ (1-B)\ (1-ΦB^s)\ (1-B^s)\ MCP_t$

$= (1-\theta B)(1-ΘB^s)\varepsilon_t$

Where s=24

Ø = Coefficient for AR term

Φ = Coefficient for SAR term

θ = Coefficient for MA term

Θ = Coefficient for SMA term

The equation, in the extended form for MCP is after substituting the values of different co-efficient, the mathematical model turns out to be as follows

$$MCP_t - 0.6707 \times MCP_{t-1} - MCP_{t-1} + 0.6707 \times MCP_{t-2} - 0.1668 \times MCP_{t-24} + 0.1606 \times 0.6707 \times MCP_{t-25}$$
$$+ 0.1668 \times MCP_{t-25} - 0.1606 \times 0.6707 \times MCP_{t-26} - MCP_{t-24} + 0.6707 \times MCP_{t-25} + MCP_{t-25}$$
$$- 0.6707 \times MCP_{t-26} + 0.1668 \times MCP_{t-48} + 0.1606 \times 0.6707 \times MCP_{t-50} =$$
$$\varepsilon_t - 0.8604 \times \varepsilon_{t-24} - 0.9460 \times \varepsilon_{t-1} + 0.9460 \times 0.8604 \times \varepsilon_{t-25}$$

It may be noted that the above equation is based on the adaptive behaviour of the market participants – i.e. it MCP depends only on its past values. While this equation gives reasonable in-sample forecasts of MCP

6.5 Validation of Model

The data used in the above estimation is hourly price data from November 1, 2008 to March 31, 2009. MAPE for out-of-sample hourly forecasts up to 48 hours, i.e. for April 1 2009 and April 2 2009 is approximately 12.25%. This is shown in **Table 6.1** below:

Time	01.04.2009			02.04.2009		
	Actual	Forecast	Per unit error	Actual	Forecast	Per unit error
12:00-1:00	3.00	4.51	0.50	3.20	4.38	0.37
1:00-2:00	3.00	4.29	0.43	2.98	4.29	0.44
2:00-3:00	3.00	4.15	0.38	3.20	4.23	0.32
3:00-4:00	3.50	4.43	0.27	3.75	4.55	0.21
4:00-5:00	4.50	5.44	0.21	4.75	5.60	0.18
5:00-6:00	6.60	7.39	0.12	7.00	7.56	0.08
6:00-7:00	7.50	7.48	0.00	6.50	7.53	0.16
7:00-8:00	8.09	8.20	0.01	8.09	8.29	0.02
8:00-9:00	8.60	8.55	0.01	9.00	8.63	0.04
9:00-10:00	9.60	9.06	0.06	10.00	9.06	0.09
10:00-11:00	9.60	9.26	0.04	10.00	9.29	0.07
11:00-12:00	10.10	9.79	0.03	10.20	9.84	0.04
12:00-13:00	10.10	9.77	0.03	10.20	9.81	0.04
13:00-14:00	10.10	9.59	0.05	10.20	9.60	0.06
14:00-15:00	10.10	9.41	0.07	10.20	9.39	0.08
15:00-16:00	10.10	9.14	0.10	10.00	9.08	0.09
16:00-17:00	8.00	7.90	0.01	8.00	7.99	0.00
17:00-18:00	6.99	6.80	0.03	6.99	6.87	0.02
18:00-19:00	4.41	5.83	0.32	8.00	6.17	0.23
19:00-20:00	6.00	6.26	0.04	6.40	6.40	0.00
20:00-21:00	4.99	5.99	0.20	6.40	6.26	0.02
21:00-22:00	6.00	6.20	0.03	6.40	6.34	0.01
22:00-23:00	4.99	5.51	0.10	6.40	5.70	0.11
23:00-24:00	6.00	5.70	0.05	6.40	5.75	0.10
Mean Percentage Error						**12.25%**

Table 6.1: Computation of MAPE for out-of-sample forecasts of MCP for April 1 and April 2, 2009

Above analysis shows the validation of the forecast model by estimating the market clearing price in a power exchange.

The model has been validated by estimating MCPs on 1st April & 2nd May, 09 and comparing the same with the actual data available during this period. For time series estimation, the MAPE is the accuracy measure which is defined as Mean absolute percentage error. In a fitted time series value in statistics, specifically trending, it is usually expressed as a percentage.

$$\text{MAPE} = \frac{1}{n}\sum_{t=1}^{n}\left|\frac{A_t - F_t}{A_t}\right|$$

The difference between actual value A_t and the forecast value F_t, is divided by the actual value A_t. The absolute value of this calculation is summed for every fitted or forecast point in time and divided again by the number of fitted points 'n'. This makes it a percentage error so that one can compare the error of fitted time series that differ in level.

MAPE for 48 datas have been worked out as 12.5% basis which is supposed to be quite reasonable for time series estimation using SARIMA model. However following observations are made.

1. Per unit percentage error during 12AM to 24PM & again 12 AM to 5 AM on both days appear to be on higher side as compared to hourly prices during rest of the period on the same days. In other words, it may be concluded that error in the actual & forecast MCP is more during the period when there is an abrupt change of load.
2. Per unit percentage error during 6 AM to 11 PM is reasonably less i.e. forecast values of MCP are closer to the actual values.

In view of above it may be concluded that the SARIMA model can reasonably be applied to forecast the hourly prices during the period when there is no wide fluctuation in load in the system and during the period when there are abrupt change in load, some other methods like the techniques based on ANN etc may be evolved.

CHAPTER -7

PRICING OF ENERGY FROM TEHRI PSP UNDER DEREGULATED AND REGULATED REGIME: A COMPARISON

Power markets generally operate with power purchase agreements (PPAs) for long term trading and bilateral contracts for short term trading.. For very short term requirements, there is the un-scheduled interchange (UI). Under deregulated environment, these markets are complemented by power exchange.

The Power exchange in India operates on day ahead basis. In a day ahead market, the market players need a forecasting tool to estimate the likely market clearing price during the next day in a power exchange. A model has therefore been developed and described in the previous chapter, which has also been validated by the actual MCP price available in a power exchange operating in the country.

Based on the study undertaken in this thesis, pricing of power from Tehri PSP has been done under the following frameworks of power trading.

7.1 Trading under Spot Market at UI rate

Pump storage power plants are intended to provide peaking power to the grid and thus, shall be dispatched in such a manner as to replace expensive peaking power from other sources. The variable charge in respect of hydro energy is almost zero, however energy is generated from a pumped hydro at the cost of using power available during the off peak period. Hence power generated from a pumped hydro has got an opportunity cost.

The economic viability of a Pumped Storage Project is always related to the relative availability of energy with regard to the frequency conditions in the grid. The genesis of PSP's successful operation lies in the fact that the energy available in

the grid at relatively higher frequency (say, 49.8 Hz and above) is utilized in pumping operation for banking. This energy in the form of potential energy of water in the upper reservoir may be utilized when the frequency goes down (say, below 49.2 Hz). The levelised tariff for Tehri PSP at the project cost of Rs. 3124 Cr. (cost estimated by THDC for the purpose of tendering) and 22.52% conversion loss(as envisaged in DPR), works out to Rs. 4.49 per unit (tariff worked out as per CERC regulation, 2009). In other words, if the beneficiary provides pumping energy @ Rs. 1.92 per unit (i.e. equivalent to frequency approx. 50 Hz at the prevailing UI rate), then the output energy will cost the beneficiary @ Rs. 6.91 per unit considering the above conversion charges. Then, it will be beneficial for the beneficiary to draw from Tehri PSP when the frequency goes down below 49.26 Hz i.e. when the UI rate exceeds Rs. 7.00 per unit as per the prevailing UI rate.

Presently the UI Charges as applicable w.e.f 01.04.09 are as under.

Frequency (Hz) below	**Frequency (Hz) not below**	**UI rate**
>50.3	*49.50*	*0-480,*

(Each 0.02 Hz step is equivalent to 12.0 paise/KWh in the 50.3-49.5 Hz frequency range,).

49.50	*49.20*	*480-735*

(Each 0.02 Hz step is equivalent to 17.0 paisa/KWh in the 49.5-49.2 Hz frequency range).

7.2 Trading under Day Ahead Market:

Pump storage plants are operated in such a manner that cheaper power (low MCP) is available in the grid for pumping and when the demand in the grid is high, plant is made to operate in generation mode so as to fetch higher revenue to the plant owner.

Comparison

The comparison with regard to revenue realization has been made in **Table-7.1&7.2** for the two different frameworks of electricity trading i.e. One under day ahead market in the power exchange and the other at the levellised tariff under regulated regime on 1st and 2nd April, 2009 during which actual and forecast MCP are available.

Comparison presented here shows that revenue earned under regulated regime is more than the revenue earned if traded in power exchange on a day ahead basis. This is due to the fact that under regulated regime, no specific regulations and norms exists for determining the price of energy from pumped storage plants and in case of Tehri PSP, the pricing has been done by THDC and it's beneficiaries under a power purchase agreement such that the beneficiaries will provide electricity for pumping during off peak hours and in turn Tehri PSP will provide energy to the beneficiaries during the peaking hours. THDC will take only the conversion charges from the beneficiaries, hence, the pumping charges appear as zero under this column **Table- 7.1&7.2.** Comparison has been made on the basis of following inputs taken from DPR of the project.

Total Energy generated during the year =1252.78 MU
Total Energy required for pumping during the year =1712.00 MU
Average Energy generated /hour = (1252.58/(30*12*24)) =0.15 MU
Average Energy required for pumping /hour = (1712 /(30*12*24))=0.20 MU

S.No. (1)	Actual Rate (Rs. / Unit) (2)	Forecast Rate (Rs. /Unit) (3)	Energy Generated(+) / Pumped(-) (in MU) (4)	Charges Paid(-)/ earned (+) (Rs in Lacs) (5)=(3)x(4) (at forecast price)	Charges Paid(-)/ earned (+) (Rs in Lacs) (6)=(2)x(4) (at actual price)	Revenue earned under regulated regime calculated @ levelised tariff i.e. Rs 4.49/ unit (Rs in Lacs)
1	3.00	4.51	-0.20	-9.02	-6.00	0
2	3.00	4.29	-0.20	-8.58	-6.00	0
3	3.00	4.15	-0.20	-8.30	-6.00	0
4	3.50	4.43	-0.20	-8.86	-7.00	0
5	4.50	5.44	-0.20	-10.88	-9.00	0
6	6.60	7.39	0.15	11.09	9.90	6.74
7	7.50	7.48	0.15	11.22	11.25	6.74
8	8.09	8.2	0.15	12.30	12.14	6.74
9	8.60	8.55	0.15	12.83	12.90	6.74
10	9.60	9.06	0.15	13.59	14.40	6.74
11	9.60	9.26	0.15	13.89	14.40	6.74
12	10.10	9.79	0.15	14.69	15.15	6.74
13	10.10	9.77	0.15	14.66	15.15	6.74
14	10.10	9.59	0.15	14.39	15.15	6.74
15	10.10	9.41	0.15	14.12	15.15	6.74
16	10.10	9.14	0.15	13.71	15.15	6.74
17	8.00	7.9	0.15	11.85	12.00	6.74
18	6.99	6.8	-0.20	-13.60	-13.98	0.00
19	4.41	5.83	-0.20	-11.66	-8.82	0.00
20	6.00	6.26	-0.20	-12.52	-12.00	0.00
21	4.99	5.99	-0.20	-11.98	-9.98	0.00
22	6.00	6.2	-0.20	-12.40	-12.00	0.00
23	4.99	5.51	-0.20	-11.02	-9.98	0.00
24	6.00	5.7	-0.20	-11.40	-12.00	0.00
Net revenue (Rs lacs) =				**28.09**	**49.98**	**80.82**

Table – 7.1

S.No. (1)	Actual Rate (Rs. / Unit) (2)	Forecast Rate (Rs. /Unit) (3)	Energy Generated(+) / Pumped(-) (in MU) (4)	Charges Paid(-)/ earned (+) (Rs in Lacs) (5)=(3)x(4) (at forecast price)	Charges Paid(-)/ earned (+) (Rs in Lacs) (6)=(2)x(4) (at actual price)	Revenue earned under regulated regime calculated @ levelised tariff i.e. Rs 4.49/ unit (Rs in Lacs)
25	3.20	4.38	-0.20	-8.76	-6.40	0
26	2.98	4.29	-0.20	-8.58	-5.96	0
27	3.20	4.23	-0.20	-8.46	-6.40	0
28	3.75	4.55	-0.20	-9.10	-7.50	0
29	4.75	5.6	-0.20	-11.20	-9.50	0.00
30	7.00	7.56	0.15	11.34	10.50	6.74
31	6.50	7.53	0.15	11.30	9.75	6.74
32	8.09	8.29	0.15	12.44	12.14	6.74
33	9.00	8.63	0.15	12.95	13.50	6.74
34	10.00	9.06	0.15	13.59	15.00	6.74
35	10.00	9.29	0.15	13.94	15.00	6.74
36	10.20	9.84	0.15	14.76	15.30	6.74
37	10.20	9.81	0.15	14.72	15.30	6.74
38	10.20	9.6	0.15	14.40	15.30	6.74
39	10.20	9.39	0.15	14.09	15.30	6.74
40	10.00	9.08	0.15	13.62	15.00	6.74
41	8.00	7.99	0.15	11.99	12.00	6.74
42	6.99	6.87	-0.20	-13.74	-13.98	0.00
43	8.00	6.17	-0.20	-12.34	-16.00	0.00
44	6.40	6.4	-0.20	-12.80	-12.80	0.00
45	6.40	6.26	-0.20	-12.52	-12.80	0.00
46	6.40	6.34	-0.20	-12.68	-12.80	0.00
47	6.40	5.7	-0.20	-11.40	-12.80	0.00
48	6.40	5.75	-0.20	-11.50	-12.80	0.00
	Net revenue (Rs lacs) =			**26.03**	**34.35**	**80.82**

Table -7.2

CHAPTER- 8

CONCLUSION

Restructuring of power industry aims at abolishing the monopoly of the generation and trading sectors and introducing competition at various levels, wherever possible. In a power exchange buyer can bid for their demands along with their willingness to pay. Power generation & trading will, thus become free from the conventional regulations and become competitive. The deregulation is expected to draw private investment, increase efficiency, promote technical growth and improve customer satisfaction, as different parties compete with each other to win their market share and remain in business.

Price forecasting plays a significant role in wholesale power markets. In this thesis, a forecasting model based on SARIMA process involving a time series has been proposed to predict market clearing price in a power exchange. From present study, the following conclusions are drawn:

1. From the analysis carried out in chapter 7, it is evident that trading of power from Tehri PSP would be more profitable if priced as per the existing power purchase agreement between THDC and it's beneficiaries than if traded in power exchange on a day ahead basis.. This is due to the fact that the pumping changes in this case are considered zero, since as per PPA with different beneficiaries, pumping energy shall be made available by the beneficiaries free of cost and THDC shall only take the conversion charges from the beneficiaries in the form of levelised tariff.

2. While validation of the proposed model to forecast the MCP in the power exchange, it is observed that during transitional hours, where there is an abrupt change in load, there are less accurate forecasts. It may be noted that the proposed model is based on uni-variate time series estimation and on the adaptive behavior of the market participants – i.e MCP depends only on its past values.

3. While the model gives reasonable in-sample forecasts of MCP. The forecast results can be further improved by considering certain exogenous variables such as those related to weather etc. The model can further be broadened by taking into account other determinants of MCP. This is only illustrative in nature. This can however be taken up in a future research on MCP estimation in Indian power markets.

4. Although served useful tools for forecasting prices exists, every market is different. Therefore, there is no universal tool for price forecasting even if it focused on the spot energy prices of a certain market. For practical applications, it is recommended to one or more suitable tools for a specific market and the desired target.

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(Exhibit-1)

TEHRI PSP (1000 MW)

CALCULATION OF LEVELISED TARIFF AT COMPLETION COST (3124.76)

(As per CERC Regulations 2009-14 & ROL on Half Yearly Basis)

INPUT ENERGY (MU)	1712.00
OUTPUT ENERGY (MU)	1268.00
ANNUAL GENERATION ON 90% Av.Yr.(MU)	1268.00 *
AUXILIARY CONSUMPTION (0.7%)	8.88
BALANCE AVILABLE AT BUS BAR	1259.12
TRANSFORMER LOSSES(0.5%)	6.34
ENERGY AVIALABLE	1252.78
FREE TO HOME STATE (0.0%)	0.00
ENERGY AVAILABLE FOR SALE	1252.78
PLANT LOAD FACTOR	34.00%

TOTAL COST OF PROJECT INCLUDING IDC (Rs.in Cr.)		3124.76
COST OF POWER COMPONENT INCLUDING IDC (Rs.in Cr.)		3124.76
DEBT (Rs.in Cr.)		2187.33
EQUITY (Rs.in Cr.)		937.43
DEBT : EQUITY	70 30	
WEIGHTED AVERAGE RATE OF INTEREST		12.00%

RATE OF RETURN ON EQUITY (upto 10th Year)	17.481%
RATE OF RETURN ON EQUITY (from 11th Year onwards)	23.481%
INTEREST RATE ON WORKING CAPITAL	12.25%
RATE OF O&M CHARGES	2.00%
ANNUAL INCREMENT OF O&M CHARGES	5.72%
SPARES CHARGES (in %age of O&M CHARGES)	15.00%
ANNUAL INCREMENT OF SPARES CHARGES	0.00%
RATE OF DEPRECIATION	5.28%
DISCOUNTING FACTOR	10.19%

Sl No	OUTST-ANDING LOAN	INTEREST ON LOAN	DEPRE-CIATION	RE - PAYMENT OF LOAN	RETURN ON EQUITY	O&M CHARGES	O&M CHARGES FOR 1 MONTH	2 (Two) MONTHS BILLING	SPARES	WORKING CAPITAL	INTEREST ON WORKING CAPITAL	TOTAL CHARGES	SALEABLE ENERGY	TARIFF (Paise/unit)	DIS-COUNTING FACTOR	DIS-COUNTED TARIFF (Paise/unit)
1	2	3	4	5	6	7	8	9	10	11 =(8+9+10)	12	13=(3+4+6+7+12)	14	15	16	17
1	2187.33	257.53	164.99	164.99	163.87	62.50	5.21	110.71	9.37	125.29	15.35	664.23	1252.78	530.20	1.00	530.20
2	2022.34	237.73	164.99	164.99	163.87	66.07	5.51	107.96	9.91	123.38	15.11	647.77	1252.78	517.07	0.91	469.25
3	1857.36	217.93	164.99	164.99	163.87	69.85	5.82	105.26	10.48	121.55	14.89	631.53	1252.78	504.10	0.82	415.18
4	1692.37	198.13	164.99	164.99	163.87	73.84	6.15	102.59	11.08	119.82	14.68	615.52	1252.78	491.32	0.75	367.23
5	1527.38	178.34	164.99	164.99	163.87	78.07	6.51	99.96	11.71	118.17	14.48	599.74	1252.78	478.73	0.68	324.73
6	1362.40	158.54	164.99	164.99	163.87	82.53	6.88	97.37	12.38	116.63	14.29	584.22	1252.78	466.34	0.62	287.07
7	1197.41	138.74	164.99	164.99	163.87	87.25	7.27	94.83	13.09	115.19	14.11	568.96	1252.78	454.16	0.56	253.72
8	1032.42	118.94	164.99	164.99	163.87	92.25	7.69	92.33	13.84	113.86	13.95	553.99	1252.78	442.21	0.51	224.20
9	867.43	99.14	164.99	164.99	163.87	97.52	8.13	89.89	14.63	112.64	13.80	539.32	1252.78	430.50	0.46	198.08
10	702.45	79.34	164.99	164.99	163.87	103.10	8.59	87.49	15.47	111.55	13.67	524.97	1252.78	419.04	0.42	174.98
11	537.46	59.55	164.99	164.99	220.12	109.00	9.08	94.73	16.35	120.16	14.72	568.37	1252.78	453.68	0.38	171.92
12	372.47	39.75	164.99	164.99	220.12	115.23	9.60	92.45	17.28	119.34	14.62	554.70	1252.78	442.78	0.34	152.27
13	207.48	23.81	36.19	36.19	220.12	121.82	10.15	68.98	18.27	97.41	11.93	413.88	1252.78	330.37	0.31	103.11
14	171.29	19.47	36.19	36.19	220.12	128.79	10.73	69.46	19.32	99.51	12.19	416.76	1252.78	332.67	0.28	94.22
15	135.10	15.13	36.19	36.19	220.12	136.16	11.35	70.01	20.42	101.78	12.47	420.06	1252.78	335.30	0.26	86.19
16	98.91	10.78	36.19	36.19	220.12	143.95	12.00	70.63	21.59	104.22	12.77	423.81	1252.78	338.29	0.23	78.92
17	62.71	6.44	36.19	36.19	220.12	152.18	12.68	71.34	22.83	106.85	13.09	428.02	1252.78	341.65	0.21	72.33
18	26.52	2.39	36.19	26.52	220.12	160.89	13.41	72.17	24.13	109.71	13.44	433.02	1252.78	345.65	0.19	66.41
19			36.19		220.12	170.09	14.17	73.37	25.51	113.06	13.85	440.25	1252.78	351.42	0.17	61.27
20			36.19		220.12	179.82	14.98	75.08	26.97	117.03	14.34	450.46	1252.78	359.57	0.16	56.90
21			36.19		220.12	190.10	15.84	76.88	28.52	121.23	14.85	461.26	1252.78	368.19	0.14	52.87
22			36.19		220.12	200.98	16.75	78.78	30.15	125.68	15.40	472.68	1252.78	377.31	0.13	49.17
23			36.19		220.12	212.47	17.71	80.79	31.87	130.37	15.97	484.75	1252.78	386.94	0.12	45.76
24			36.19		220.12	224.63	18.72	82.92	33.69	135.33	16.58	497.52	1252.78	397.13	0.11	42.62
25			36.19		220.12	237.48	19.79	85.17	35.62	140.58	17.22	511.01	1252.78	407.90	0.10	39.73
26			36.19		220.12	251.06	20.92	87.54	37.66	146.13	17.90	525.27	1252.78	419.28	0.09	37.06
27			36.19		220.12	265.42	22.12	90.06	39.81	151.99	18.62	540.35	1252.78	431.32	0.08	34.60
28			36.19		220.12	280.60	23.38	92.71	42.09	158.19	19.38	556.29	1252.78	444.04	0.07	32.33
29			36.19		220.12	296.65	24.72	95.52	44.50	164.74	20.18	573.14	1252.78	457.50	0.07	30.23
30			36.19		220.12	313.62	26.14	98.49	47.04	171.67	21.03	590.96	1252.78	471.72	0.06	28.29
31			36.19		220.12	331.56	27.63	101.63	49.73	179.00	21.93	609.80	1252.78	486.75	0.05	26.49
32			36.19		220.12	350.52	29.21	104.95	52.58	186.74	22.88	629.71	1252.78	502.65	0.05	24.82
33			36.19		220.12	370.57	30.88	108.46	55.59	194.93	23.88	650.76	1252.78	519.45	0.04	23.28
34			36.19		220.12	391.77	32.65	112.17	58.77	203.58	24.94	673.02	1252.78	537.22	0.04	21.85
35			36.19		220.12	414.18	34.52	116.09	62.13	212.73	26.06	696.55	1252.78	556.00	0.04	20.52
			2812.28	2187.33											10.45	4697.80
															(A)	(B)

* Design energy as provided by Design department.

LEVELISED TARRIF (B/A) 449.49

NOTE: Considering Tax Holiday for first 10 years, ROE @ 17.481 % shall be applicable. From 11 th year onwards ROE @ 23.481% shall be applicable.

Exhibit –II

MCP DATA

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
-Nov-08	0-1	6248.37	3-Nov-08	9-10	6116.93	5-Nov-08	18-19	8050.28
-Nov-08	1-2	6295.99	3-Nov-08	10-11	6119.81	5-Nov-08	19-20	6758.1
-Nov-08	2-3	6268.42	3-Nov-08	11-12	8025.89	5-Nov-08	20-21	7060.37
-Nov-08	3-4	6243.36	3-Nov-08	12-13	8025.89	5-Nov-08	21-22	6943.87
-Nov-08	4-5	6359.11	3-Nov-08	13-14	8014.31	5-Nov-08	22-23	7000.76
-Nov-08	5-6	5200.8	3-Nov-08	14-15	8014.66	5-Nov-08	23-24	3999.99
-Nov-08	6-7	6344.92	3-Nov-08	15-16	6107.13	6-Nov-08	0-1	9398.23
-Nov-08	7-8	6369.6	3-Nov-08	16-17	6643.5	6-Nov-08	1-2	9398.23
-Nov-08	8-9	6071.46	3-Nov-08	17-18	8050.61	6-Nov-08	2-3	9398.12
-Nov-08	9-10	6062.54	3-Nov-08	18-19	8008.32	6-Nov-08	3-4	9398.08
-Nov-08	10-11	6064.15	3-Nov-08	19-20	6714.99	6-Nov-08	4-5	9398.5
-Nov-08	11-12	8018.16	3-Nov-08	20-21	6835.28	6-Nov-08	5-6	8000
-Nov-08	12-13	8018.62	3-Nov-08	21-22	6806.7	6-Nov-08	6-7	7750.26
-Nov-08	13-14	8018.51	3-Nov-08	22-23	5499.08	6-Nov-08	7-8	8050.15
-Nov-08	14-15	8018.85	3-Nov-08	23-24	3881.95	6-Nov-08	8-9	8090.31
-Nov-08	15-16	6060.92	4-Nov-08	0-1	6369.64	6-Nov-08	9-10	8094.47
-Nov-08	16-17	6734.85	4-Nov-08	1-2	6443.69	6-Nov-08	10-11	8200.2
-Nov-08	17-18	8050.63	4-Nov-08	2-3	6440.56	6-Nov-08	11-12	8146.53
-Nov-08	18-19	8012.49	4-Nov-08	3-4	6437.44	6-Nov-08	12-13	8144.99
-Nov-08	19-20	8000.74	4-Nov-08	4-5	6537.59	6-Nov-08	13-14	8143.51
-Nov-08	20-21	7599.9	4-Nov-08	5-6	7500.82	6-Nov-08	14-15	8143.61
-Nov-08	21-22	7599.39	4-Nov-08	6-7	6516.95	6-Nov-08	15-16	8200.36
-Nov-08	22-23	4000.41	4-Nov-08	7-8	6541.7	6-Nov-08	16-17	8200.66
-Nov-08	23-24	3707.54	4-Nov-08	8-9	6299.52	6-Nov-08	17-18	8200.51
-Nov-08	0-1	6203.76	4-Nov-08	9-10	6288.88	6-Nov-08	18-19	8088.48
-Nov-08	1-2	6265.41	4-Nov-08	10-11	6499.48	6-Nov-08	19-20	6845.2
-Nov-08	2-3	6237.84	4-Nov-08	11-12	8050.37	6-Nov-08	20-21	7096.23
-Nov-08	3-4	6212.78	4-Nov-08	12-13	8050.52	6-Nov-08	21-22	6980.07
-Nov-08	4-5	6324.87	4-Nov-08	13-14	8050.36	6-Nov-08	22-23	7000.86
-Nov-08	5-6	5240.37	4-Nov-08	14-15	8050.37	6-Nov-08	23-24	4096.5
-Nov-08	6-7	6343.07	4-Nov-08	15-16	6499.19	7-Nov-08	0-1	8487.37
-Nov-08	7-8	6377	4-Nov-08	16-17	6809.32	7-Nov-08	1-2	8487.03
-Nov-08	8-9	6067.92	4-Nov-08	17-18	8132.58	7-Nov-08	2-3	8490.03
-Nov-08	9-10	6056.08	4-Nov-08	18-19	8050.17	7-Nov-08	3-4	8487.53
-Nov-08	10-11	6054.85	4-Nov-08	19-20	6713.04	7-Nov-08	4-5	8494.71
-Nov-08	11-12	8000.33	4-Nov-08	20-21	6933.17	7-Nov-08	5-6	8000.6
-Nov-08	12-13	8000.33	4-Nov-08	21-22	6850.5	7-Nov-08	6-7	7963.63
-Nov-08	13-14	8000.32	4-Nov-08	22-23	5600.98	7-Nov-08	7-8	8000.74
-Nov-08	14-15	8000.34	4-Nov-08	23-24	4079.23	7-Nov-08	8-9	8050.8
-Nov-08	15-16	6066.54	5-Nov-08	0-1	6380.16	7-Nov-08	9-10	8200.06
-Nov-08	16-17	6652.92	5-Nov-08	1-2	6446.15	7-Nov-08	10-11	8200.2
-Nov-08	17-18	8050.47	5-Nov-08	2-3	6443.03	7-Nov-08	11-12	8093.94
-Nov-08	18-19	7985.37	5-Nov-08	3-4	6441.78	7-Nov-08	12-13	8088.07
-Nov-08	19-20	7599.31	5-Nov-08	4-5	6543.8	7-Nov-08	13-14	8075.66
-Nov-08	20-21	6962.08	5-Nov-08	5-6	7539.48	7-Nov-08	14-15	8075.91
-Nov-08	21-22	6889.83	5-Nov-08	6-7	6538.34	7-Nov-08	15-16	8145.9
-Nov-08	22-23	4000.65	5-Nov-08	7-8	7500.93	7-Nov-08	16-17	8149.69
-Nov-08	23-24	3985.28	5-Nov-08	8-9	8000.08	7-Nov-08	17-18	8300.02
-Nov-08	0-1	6200.29	5-Nov-08	9-10	8000.1	7-Nov-08	18-19	8050.81
-Nov-08	1-2	6328.13	5-Nov-08	10-11	8050.08	7-Nov-08	19-20	8200.12
-Nov-08	2-3	6324.1	5-Nov-08	11-12	8050.95	7-Nov-08	20-21	8199.78
-Nov-08	3-4	6320.22	5-Nov-08	12-13	8055.95	7-Nov-08	21-22	6999.99
-Nov-08	4-5	6415.75	5-Nov-08	13-14	8050.94	7-Nov-08	22-23	7000.52
-Nov-08	5-6	5311.7	5-Nov-08	14-15	8050.95	7-Nov-08	23-24	5999.14
-Nov-08	6-7	6416.34	5-Nov-08	15-16	7750.39			
-Nov-08	7-8	6475.6	5-Nov-08	16-17	7750.39			
-Nov-08	8-9	6141.26		17-18	8145.73			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
8-Nov-08	0-1	8446.67	10-Nov-08	9-10	8500.12	12-Nov-08	18-19	8500.05
8-Nov-08	1-2	8472.5	10-Nov-08	10-11	8500.44	12-Nov-08	19-20	8441.92
8-Nov-08	2-3	8478.5	10-Nov-08	11-12	8300.53	12-Nov-08	20-21	8500.02
8-Nov-08	3-4	8466.25	10-Nov-08	12-13	8500.31	12-Nov-08	21-22	8396.92
8-Nov-08	4-5	8500.88	10-Nov-08	13-14	8500.32	12-Nov-08	22-23	7999.46
8-Nov-08	5-6	8260	10-Nov-08	14-15	8301	12-Nov-08	23-24	4688.03
8-Nov-08	6-7	8081.41	10-Nov-08	15-16	8295.99	13-Nov-08	0-1	8440.97
8-Nov-08	7-8	8092.73	10-Nov-08	16-17	8300.23	13-Nov-08	1-2	7461.12
8-Nov-08	8-9	8104.47	10-Nov-08	17-18	9300.72	13-Nov-08	2-3	7509.12
8-Nov-08	9-10	8279.67	10-Nov-08	18-19	8277.81	13-Nov-08	3-4	8500.82
8-Nov-08	10-11	8287.36	10-Nov-08	19-20	8363.46	13-Nov-08	4-5	8644.44
8-Nov-08	11-12	8147.46	10-Nov-08	20-21	8302.25	13-Nov-08	5-6	8510.3
8-Nov-08	12-13	8150.61	10-Nov-08	21-22	8300.56	13-Nov-08	6-7	8536.83
8-Nov-08	13-14	8147.52	10-Nov-08	22-23	8300.73	13-Nov-08	7-8	9000.13
8-Nov-08	14-15	8146.04	10-Nov-08	23-24	7000.58	13-Nov-08	8-9	9000.32
8-Nov-08	15-16	8200.22	11-Nov-08	0-1	7799.51	13-Nov-08	9-10	9000.45
8-Nov-08	16-17	8200.53	11-Nov-08	1-2	5999.74	13-Nov-08	10-11	8839.39
8-Nov-08	17-18	8398.95	11-Nov-08	2-3	7799.67	13-Nov-08	11-12	8840.06
8-Nov-08	18-19	8200.58	11-Nov-08	3-4	8500.44	13-Nov-08	12-13	9000.36
8-Nov-08	19-20	8286.07	11-Nov-08	4-5	8500.66	13-Nov-08	13-14	8836.65
8-Nov-08	20-21	8286.07	11-Nov-08	5-6	8397.18	13-Nov-08	14-15	8837.44
8-Nov-08	21-22	8254.83	11-Nov-08	6-7	8385.4	13-Nov-08	15-16	9000.66
8-Nov-08	22-23	8239.33	11-Nov-08	7-8	8500.05	13-Nov-08	16-17	9600.11
8-Nov-08	23-24	6500.37	11-Nov-08	8-9	8500.48	13-Nov-08	17-18	9600.48
9-Nov-08	0-1	8455.4	11-Nov-08	9-10	8500.98	13-Nov-08	18-19	9600.41
9-Nov-08	1-2	8463	11-Nov-08	10-11	8500.75	13-Nov-08	19-20	8637.31
9-Nov-08	2-3	8462.6	11-Nov-08	11-12	8500.6	13-Nov-08	20-21	8635.51
9-Nov-08	3-4	8422.6	11-Nov-08	12-13	8500.89	13-Nov-08	21-22	8500.55
9-Nov-08	4-5	8521.8	11-Nov-08	13-14	8500.82	13-Nov-08	22-23	8276.61
9-Nov-08	5-6	8265.13	11-Nov-08	14-15	8500.66	13-Nov-08	23-24	6499.16
9-Nov-08	6-7	8078.94	11-Nov-08	15-16	8500.39	14-Nov-08	0-1	9500.03
9-Nov-08	7-8	8069.67	11-Nov-08	16-17	8800.16	14-Nov-08	1-2	9398.08
9-Nov-08	8-9	8080.57	11-Nov-08	17-18	9300.84	14-Nov-08	2-3	9398.05
9-Nov-08	9-10	8249.7	11-Nov-08	18-19	8384.4	14-Nov-08	3-4	8800.2
9-Nov-08	10-11	8259.5	11-Nov-08	19-20	8343.15	14-Nov-08	4-5	8800.2
9-Nov-08	11-12	8146.29	11-Nov-08	20-21	8300.83	14-Nov-08	5-6	9300.1
9-Nov-08	12-13	8200.09	11-Nov-08	21-22	8250.37	14-Nov-08	6-7	8750.5
9-Nov-08	13-14	8200.18	11-Nov-08	22-23	8250.42	14-Nov-08	7-8	9300.25
9-Nov-08	14-15	8150.62	11-Nov-08	23-24	4999.7	14-Nov-08	8-9	9300.44
9-Nov-08	15-16	8199.54	12-Nov-08	0-1	6499.09	14-Nov-08	9-10	9300.67
9-Nov-08	16-17	8200.23	12-Nov-08	1-2	6159	14-Nov-08	10-11	9300.88
9-Nov-08	17-18	8500.54	12-Nov-08	2-3	6499	14-Nov-08	11-12	9300.85
9-Nov-08	18-19	8200.18	12-Nov-08	3-4	8469.19	14-Nov-08	12-13	9300.85
9-Nov-08	19-20	8243.08	12-Nov-08	4-5	8505.22	14-Nov-08	13-14	9300.62
9-Nov-08	20-21	8232.48	12-Nov-08	5-6	8425.27	14-Nov-08	14-15	9300.51
9-Nov-08	21-22	8228.68	12-Nov-08	6-7	8425.53	14-Nov-08	15-16	9300.61
9-Nov-08	22-23	8262.91	12-Nov-08	7-8	8652.43	14-Nov-08	16-17	9800.15
9-Nov-08	23-24	7000.98	12-Nov-08	8-9	8673.67	14-Nov-08	17-18	9800.46
10-Nov-08	0-1	8500.08	12-Nov-08	9-10	8690.05	14-Nov-08	18-19	9800.21
10-Nov-08	1-2	8500.22	12-Nov-08	10-11	8686.63	14-Nov-08	19-20	8697.08
10-Nov-08	2-3	8500.22	12-Nov-08	11-12	8694.46	14-Nov-08	20-21	8696.04
10-Nov-08	3-4	8500.59	12-Nov-08	12-13	9000.1	14-Nov-08	21-22	8800.18
10-Nov-08	4-5	8511.27	12-Nov-08	13-14	8682.84	14-Nov-08	22-23	8500.93
10-Nov-08	5-6	8375.4	12-Nov-08	14-15	8694.9	14-Nov-08	23-24	8500.19
10-Nov-08	6-7	8144.44	12-Nov-08	15-16	8692.3			
10-Nov-08	7-8	8145.21	12-Nov-08	16-17	9300.36			
10-Nov-08	8-9	8200.1	12-Nov-08	17-18	9300.7			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
15-Nov-08	0-1	7889.24	17-Nov-08	9-10	8700.44	19-Nov-08	18-19	8050.09
15-Nov-08	1-2	5999.89	17-Nov-08	10-11	9300.07	19-Nov-08	19-20	7522.79
15-Nov-08	2-3	5999.85	17-Nov-08	11-12	9300.15	19-Nov-08	20-21	5994.86
15-Nov-08	3-4	7839.47	17-Nov-08	12-13	9300.19	19-Nov-08	21-22	6000.01
15-Nov-08	4-5	8817.07	17-Nov-08	13-14	8500.58	19-Nov-08	22-23	4998.47
15-Nov-08	5-6	9250.41	17-Nov-08	14-15	8999.07	19-Nov-08	23-24	4916.91
15-Nov-08	6-7	8786.97	17-Nov-08	15-16	8700.69	20-Nov-08	0-1	4994.33
15-Nov-08	7-8	9300.49	17-Nov-08	16-17	8999.5	20-Nov-08	1-2	5249.04
15-Nov-08	8-9	9300.8	17-Nov-08	17-18	8999.75	20-Nov-08	2-3	4992.56
15-Nov-08	9-10	9300.91	17-Nov-08	18-19	9799.45	20-Nov-08	3-4	5249.7
15-Nov-08	10-11	9341.13	17-Nov-08	19-20	5999.75	20-Nov-08	4-5	6540.73
15-Nov-08	11-12	9345.98	17-Nov-08	20-21	5999.61	20-Nov-08	5-6	6575.27
15-Nov-08	12-13	9338.19	17-Nov-08	21-22	4999.61	20-Nov-08	6-7	7458.11
15-Nov-08	13-14	9300.44	17-Nov-08	22-23	4432.7	20-Nov-08	7-8	8050.2
15-Nov-08	14-15	9300.8	17-Nov-08	23-24	3499.64	20-Nov-08	8-9	8050.97
15-Nov-08	15-16	9324.69	18-Nov-08	0-1	4973.91	20-Nov-08	9-10	8500.72
15-Nov-08	16-17	9800.14	18-Nov-08	1-2	4974.58	20-Nov-08	10-11	8700.59
15-Nov-08	17-18	9800.02	18-Nov-08	2-3	4969.02	20-Nov-08	11-12	8999.54
15-Nov-08	18-19	9778.24	18-Nov-08	3-4	5249.81	20-Nov-08	12-13	8999.09
15-Nov-08	19-20	8671.83	18-Nov-08	4-5	6605.07	20-Nov-08	13-14	8500.84
15-Nov-08	20-21	8682.16	18-Nov-08	5-6	6736.4	20-Nov-08	14-15	8500.22
15-Nov-08	21-22	8780.26	18-Nov-08	6-7	7799.45	20-Nov-08	15-16	8500.34
15-Nov-08	22-23	7912.56	18-Nov-08	7-8	8050.83	20-Nov-08	16-17	8999.1
15-Nov-08	23-24	7860.75	18-Nov-08	8-9	8050.95	20-Nov-08	17-18	9353.46
15-Nov-08	0-1	6199.17	18-Nov-08	9-10	8050.28	20-Nov-08	18-19	9000.68
15-Nov-08	1-2	5999.81	18-Nov-08	10-11	8050.34	20-Nov-08	19-20	8500.41
15-Nov-08	2-3	5999.47	18-Nov-08	11-12	8434.8	20-Nov-08	20-21	7998.71
15-Nov-08	3-4	7545.18	18-Nov-08	12-13	8434.8	20-Nov-08	21-22	8500.43
15-Nov-08	4-5	8553.22	18-Nov-08	13-14	8332.8	20-Nov-08	22-23	8750.6
15-Nov-08	5-6	8769.67	18-Nov-08	14-15	8348.13	20-Nov-08	23-24	4937.67
16-Nov-08	6-7	7999.74	18-Nov-08	15-16	7799.47	21-Nov-08	0-1	7741.87
16-Nov-08	7-8	8500.32	18-Nov-08	16-17	8050.79	21-Nov-08	1-2	5500.66
16-Nov-08	8-9	8500.87	18-Nov-08	17-18	8999.34	21-Nov-08	2-3	5500.56
16-Nov-08	9-10	8789.22	18-Nov-08	18-19	8500.09	21-Nov-08	3-4	5303.19
16-Nov-08	10-11	9300.16	18-Nov-08	19-20	8000.05	21-Nov-08	4-5	6604.8
16-Nov-08	11-12	9300.15	18-Nov-08	20-21	5999.59	21-Nov-08	5-6	6778.26
16-Nov-08	12-13	8999.64	18-Nov-08	21-22	5781.78	21-Nov-08	6-7	7771.27
16-Nov-08	13-14	8774.82	18-Nov-08	22-23	4946.2	21-Nov-08	7-8	8258.48
16-Nov-08	14-15	8794.82	18-Nov-08	23-24	3499.85	21-Nov-08	8-9	8500.16
16-Nov-08	15-16	8800.07	19-Nov-08	0-1	4970.78	21-Nov-08	9-10	8700.99
16-Nov-08	16-17	8999.96	19-Nov-08	1-2	4977.25	21-Nov-08	10-11	9500.33
16-Nov-08	17-18	9500.37	19-Nov-08	2-3	4969.55	21-Nov-08	11-12	9500.86
16-Nov-08	18-19	9166.87	19-Nov-08	3-4	5249.35	21-Nov-08	12-13	9500.53
16-Nov-08	19-20	8388.06	19-Nov-08	4-5	6703.47	21-Nov-08	13-14	8713.76
16-Nov-08	20-21	8328.06	19-Nov-08	5-6	6886.63	21-Nov-08	14-15	8999.02
16-Nov-08	21-22	8499.49	19-Nov-08	6-7	7799.4	21-Nov-08	15-16	8757.31
16-Nov-08	22-23	8249.33	19-Nov-08	7-8	7853.67	21-Nov-08	16-17	9061.26
16-Nov-08	23-24	5249.89	19-Nov-08	8-9	7999.32	21-Nov-08	17-18	9500.6
17-Nov-08	0-1	4447.7	19-Nov-08	9-10	7999.39	21-Nov-08	18-19	10000.17
17-Nov-08	1-2	4461.03	19-Nov-08	10-11	8500.15	21-Nov-08	19-20	9378.41
17-Nov-08	2-3	4461.03	19-Nov-08	11-12	8500.56	21-Nov-08	20-21	9294.12
17-Nov-08	3-4	4461.03	19-Nov-08	12-13	8500.27	21-Nov-08	21-22	8500.47
17-Nov-08	4-5	4945.78	19-Nov-08	13-14	8186.8	21-Nov-08	22-23	8500.51
17-Nov-08	5-6	4999.95	19-Nov-08	14-15	8200.13	21-Nov-08	23-24	7000.97
17-Nov-08	6-7	8000.17	19-Nov-08	15-16	8050.32			
17-Nov-08	7-8	8500.81	19-Nov-08	16-17	8500.44			
17-Nov-08	8-9	9300.16	19-Nov-08	17-18	9500.01			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
22-Nov-08	0-1	7498.14	24-Nov-08	9-10	7799.26	26-Nov-08	18-19	10000.79
22-Nov-08	1-2	6092.45	24-Nov-08	10-11	7500.77	26-Nov-08	19-20	8300.99
22-Nov-08	2-3	6092.45	24-Nov-08	11-12	8050.88	26-Nov-08	20-21	7000.29
22-Nov-08	3-4	6005.38	24-Nov-08	12-13	8050.23	26-Nov-08	21-22	7000.25
22-Nov-08	4-5	6599.83	24-Nov-08	13-14	8027.67	26-Nov-08	22-23	8250.47
22-Nov-08	5-6	7500.53	24-Nov-08	14-15	8009.31	26-Nov-08	23-24	3999.26
22-Nov-08	6-7	8235.8	24-Nov-08	15-16	7499.74	27-Nov-08	0-1	5149.86
22-Nov-08	7-8	8495.8	24-Nov-08	16-17	7500.78	27-Nov-08	1-2	5000.48
22-Nov-08	8-9	8500.55	24-Nov-08	17-18	8500.74	27-Nov-08	2-3	5000.48
22-Nov-08	9-10	8800.01	24-Nov-08	18-19	9400.83	27-Nov-08	3-4	5199.87
22-Nov-08	10-11	9399.25	24-Nov-08	19-20	9400.72	27-Nov-08	4-5	5949.87
22-Nov-08	11-12	8999.97	24-Nov-08	20-21	6999.97	27-Nov-08	5-6	7008.97
22-Nov-08	12-13	8999.22	24-Nov-08	21-22	6999.58	27-Nov-08	6-7	8005.04
22-Nov-08	13-14	8587.71	24-Nov-08	22-23	6500.56	27-Nov-08	7-8	8005.73
22-Nov-08	14-15	8598.82	24-Nov-08	23-24	3499.96	27-Nov-08	8-9	8199.07
22-Nov-08	15-16	8577.71	25-Nov-08	0-1	5199.29	27-Nov-08	9-10	10000.19
22-Nov-08	16-17	8800.22	25-Nov-08	1-2	4954	27-Nov-08	10-11	10000.22
22-Nov-08	17-18	9399.61	25-Nov-08	2-3	4949.82	27-Nov-08	11-12	10000.13
22-Nov-08	18-19	9500.53	25-Nov-08	3-4	5249.65	27-Nov-08	12-13	8400.75
22-Nov-08	19-20	9049.25	25-Nov-08	4-5	5999.61	27-Nov-08	13-14	8400.62
22-Nov-08	20-21	7955.89	25-Nov-08	5-6	6999.23	27-Nov-08	14-15	8400.37
22-Nov-08	21-22	7498.98	25-Nov-08	6-7	7106.47	27-Nov-08	15-16	8400.37
22-Nov-08	22-23	6999.77	25-Nov-08	7-8	7500.11	27-Nov-08	16-17	8050.79
22-Nov-08	23-24	5378.29	25-Nov-08	8-9	7799.08	27-Nov-08	17-18	11000.17
23-Nov-08	0-1	6999.31	25-Nov-08	9-10	8050.01	27-Nov-08	18-19	11000.4
23-Nov-08	1-2	6150.59	25-Nov-08	10-11	8050.55	27-Nov-08	19-20	9700.82
23-Nov-08	2-3	6150.59	25-Nov-08	11-12	8200.69	27-Nov-08	20-21	7800.24
23-Nov-08	3-4	6122.58	25-Nov-08	12-13	8180.69	27-Nov-08	21-22	7100.52
23-Nov-08	4-5	6500.69	25-Nov-08	13-14	8148.03	27-Nov-08	22-23	7025.23
23-Nov-08	5-6	7500.09	25-Nov-08	14-15	8154.69	27-Nov-08	23-24	3999.61
23-Nov-08	6-7	8000.04	25-Nov-08	15-16	8050.07	28-Nov-08	0-1	4999.76
23-Nov-08	7-8	6999.7	25-Nov-08	16-17	8050.2	28-Nov-08	1-2	4899.52
23-Nov-08	8-9	7799.03	25-Nov-08	17-18	9000.89	28-Nov-08	2-3	4899.52
23-Nov-08	9-10	8050.02	25-Nov-08	18-19	9400.91	28-Nov-08	3-4	4999.81
23-Nov-08	10-11	8300.42	25-Nov-08	19-20	8466.16	28-Nov-08	4-5	5899.4
23-Nov-08	11-12	8500.31	25-Nov-08	20-21	6999.97	28-Nov-08	5-6	6949.62
23-Nov-08	12-13	8500.06	25-Nov-08	21-22	6999.89	28-Nov-08	6-7	6399.86
23-Nov-08	13-14	8050.08	25-Nov-08	22-23	5999.76	28-Nov-08	7-8	7999.07
23-Nov-08	14-15	7799.83	25-Nov-08	23-24	3499.9	28-Nov-08	8-9	8005.04
23-Nov-08	15-16	7799.81	26-Nov-08	0-1	3999.36	28-Nov-08	9-10	8005.73
23-Nov-08	16-17	7799.46	26-Nov-08	1-2	3999.41	28-Nov-08	10-11	8005.73
23-Nov-08	17-18	9400.53	26-Nov-08	2-3	3999.41	28-Nov-08	11-12	8400.2
23-Nov-08	18-19	9400.09	26-Nov-08	3-4	5199.27	28-Nov-08	12-13	8399.2
23-Nov-08	19-20	8500.88	26-Nov-08	4-5	5249.63	28-Nov-08	13-14	8050.55
23-Nov-08	20-21	6999.89	26-Nov-08	5-6	6949.16	28-Nov-08	14-15	8050.25
23-Nov-08	21-22	7500	26-Nov-08	6-7	6999.73	28-Nov-08	15-16	8050.29
23-Nov-08	22-23	6941.45	26-Nov-08	7-8	7000.98	28-Nov-08	16-17	7800.42
23-Nov-08	23-24	5166.49	26-Nov-08	8-9	8050.13	28-Nov-08	17-18	9700.13
24-Nov-08	0-1	5249.15	26-Nov-08	9-10	8131.17	28-Nov-08	18-19	9700.53
24-Nov-08	1-2	5000.48	26-Nov-08	10-11	8106.9	28-Nov-08	19-20	9700.4
24-Nov-08	2-3	5000.48	26-Nov-08	11-12	8232.8	28-Nov-08	20-21	6999.73
24-Nov-08	3-4	5000.98	26-Nov-08	12-13	8203.92	28-Nov-08	21-22	6999.3
24-Nov-08	4-5	5249.81	26-Nov-08	13-14	8149.03	28-Nov-08	22-23	5799.17
24-Nov-08	5-6	5600.87	26-Nov-08	14-15	8050.86	28-Nov-08	23-24	2499.3
24-Nov-08	6-7	5499.92	26-Nov-08	15-16	7499.61			
24-Nov-08	7-8	7500.61	26-Nov-08	16-17	7499.92			
24-Nov-08	8-9	7799.36	26-Nov-08	17-18	9184.48			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
29-Nov-08	0-1	3899.88	1-Dec-08	9-10	8050.5	3-Dec-08	18-19	9000.3
29-Nov-08	1-2	3899.88	1-Dec-08	10-11	8250.35	3-Dec-08	19-20	9000.5
29-Nov-08	2-3	3999.85	1-Dec-08	11-12	8250.36	3-Dec-08	20-21	8000.24
29-Nov-08	3-4	3999.85	1-Dec-08	12-13	8050.91	3-Dec-08	21-22	6999.96
29-Nov-08	4-5	4999.04	1-Dec-08	13-14	8050.19	3-Dec-08	22-23	4499.81
29-Nov-08	5-6	4999.42	1-Dec-08	14-15	8050.19	3-Dec-08	23-24	2240.36
29-Nov-08	6-7	6199.31	1-Dec-08	15-16	8050.9	4-Dec-08	0-1	4459.58
29-Nov-08	7-8	6249.68	1-Dec-08	16-17	8050.98	4-Dec-08	1-2	4459.58
29-Nov-08	8-9	6425	1-Dec-08	17-18	8500.76	4-Dec-08	2-3	4459.58
29-Nov-08	9-10	7304.6	1-Dec-08	18-19	8500.03	4-Dec-08	3-4	4459.58
29-Nov-08	10-11	7304.6	1-Dec-08	19-20	8500.11	4-Dec-08	4-5	4499.36
29-Nov-08	11-12	7904.13	1-Dec-08	20-21	6500.14	4-Dec-08	5-6	5000.38
29-Nov-08	12-13	7870.8	1-Dec-08	21-22	4499.57	4-Dec-08	6-7	7500.72
29-Nov-08	13-14	7499.17	1-Dec-08	22-23	4000.93	4-Dec-08	7-8	7500.96
29-Nov-08	14-15	7499.01	1-Dec-08	23-24	1071.43	4-Dec-08	8-9	7799.25
29-Nov-08	15-16	7499.01	2-Dec-08	0-1	3499.85	4-Dec-08	9-10	8050.39
29-Nov-08	16-17	7499.09	2-Dec-08	1-2	3499.85	4-Dec-08	10-11	8050.5
29-Nov-08	17-18	7918.85	2-Dec-08	2-3	3499.85	4-Dec-08	11-12	8050.5
29-Nov-08	18-19	8903.85	2-Dec-08	3-4	3499.85	4-Dec-08	12-13	8000.82
29-Nov-08	19-20	8250.31	2-Dec-08	4-5	4063.13	4-Dec-08	13-14	7999.32
29-Nov-08	20-21	6249.25	2-Dec-08	5-6	4499.06	4-Dec-08	14-15	8000.2
29-Nov-08	21-22	5263.14	2-Dec-08	6-7	4999.62	4-Dec-08	15-16	7799.11
29-Nov-08	22-23	4999.12	2-Dec-08	7-8	6000.94	4-Dec-08	16-17	8050.42
29-Nov-08	23-24	1999.04	2-Dec-08	8-9	6000.99	4-Dec-08	17-18	8250.25
30-Nov-08	0-1	3499.81	2-Dec-08	9-10	7500.51	4-Dec-08	18-19	9000.49
30-Nov-08	1-2	3499.81	2-Dec-08	10-11	8050.18	4-Dec-08	19-20	9000.59
30-Nov-08	2-3	3499.81	2-Dec-08	11-12	8050.19	4-Dec-08	20-21	6999.84
30-Nov-08	3-4	3499.81	2-Dec-08	12-13	8005.49	4-Dec-08	21-22	6999.18
30-Nov-08	4-5	3500.5	2-Dec-08	13-14	8002.49	4-Dec-08	22-23	4486.36
30-Nov-08	5-6	3745	2-Dec-08	14-15	8002.49	4-Dec-08	23-24	2219.21
30-Nov-08	6-7	2650.87	2-Dec-08	15-16	7849.18	5-Dec-08	0-1	4499.46
30-Nov-08	7-8	3999.7	2-Dec-08	16-17	7849.8	5-Dec-08	1-2	4499.46
30-Nov-08	8-9	4285.27	2-Dec-08	17-18	9000.46	5-Dec-08	2-3	4499.46
30-Nov-08	9-10	4648.91	2-Dec-08	18-19	8300	5-Dec-08	3-4	4499.46
30-Nov-08	10-11	4648.91	2-Dec-08	19-20	9000.12	5-Dec-08	4-5	5000.03
30-Nov-08	11-12	5746.3	2-Dec-08	20-21	6000.64	5-Dec-08	5-6	5500.57
30-Nov-08	12-13	5249.22	2-Dec-08	21-22	6000.18	5-Dec-08	6-7	7800.45
30-Nov-08	13-14	5249.01	2-Dec-08	22-23	4499.51	5-Dec-08	7-8	8050.22
30-Nov-08	14-15	4897.13	2-Dec-08	23-24	1200.95	5-Dec-08	8-9	8050.64
30-Nov-08	15-16	4816.86	3-Dec-08	0-1	3499.92	5-Dec-08	9-10	8050.58
30-Nov-08	16-17	3785.98	3-Dec-08	1-2	3499.92	5-Dec-08	10-11	8050.65
30-Nov-08	17-18	6999.6	3-Dec-08	2-3	3499.92	5-Dec-08	11-12	8050.81
30-Nov-08	18-19	6999.26	3-Dec-08	3-4	3499.92	5-Dec-08	12-13	8050.5
30-Nov-08	19-20	6999.23	3-Dec-08	4-5	5000.22	5-Dec-08	13-14	8050.2
30-Nov-08	20-21	4499.9	3-Dec-08	5-6	5500.8	5-Dec-08	14-15	8050.04
30-Nov-08	21-22	4499.4	3-Dec-08	6-7	5999.41	5-Dec-08	15-16	8050.2
30-Nov-08	22-23	3999.67	3-Dec-08	7-8	7500.35	5-Dec-08	16-17	8050.74
30-Nov-08	23-24	1304.35	3-Dec-08	8-9	7500.42	5-Dec-08	17-18	8250.18
1-Dec-08	0-1	3499.78	3-Dec-08	9-10	7000.82	5-Dec-08	18-19	9100.49
1-Dec-08	1-2	3499.78	3-Dec-08	10-11	7799.31	5-Dec-08	19-20	8900.97
1-Dec-08	2-3	3499.78	3-Dec-08	11-12	7800.72	5-Dec-08	20-21	7500.47
1-Dec-08	3-4	3499.87	3-Dec-08	12-13	8000.61	5-Dec-08	21-22	7200.06
1-Dec-08	4-5	3999.07	3-Dec-08	13-14	8000.09	5-Dec-08	22-23	5500.63
1-Dec-08	5-6	4499.44	3-Dec-08	14-15	8000.22	5-Dec-08	23-24	3000.45
1-Dec-08	6-7	4499.76	3-Dec-08	15-16	7499.84			
1-Dec-08	7-8	8050.27	3-Dec-08	16-17	7799.68			
1-Dec-08	8-9	8050.38	3-Dec-08	17-18	9000.32			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
6-Dec-08	0-1	5000.06	8-Dec-08	9-10	8000.92	10-Dec-08	18-19	9100.68
6-Dec-08	1-2	5000.06	8-Dec-08	10-11	8050.67	10-Dec-08	19-20	9100.78
6-Dec-08	2-3	5000.33	8-Dec-08	11-12	8050.84	10-Dec-08	20-21	8300.78
6-Dec-08	3-4	5000.33	8-Dec-08	12-13	8050.29	10-Dec-08	21-22	7500.19
6-Dec-08	4-5	5499.66	8-Dec-08	13-14	8000.63	10-Dec-08	22-23	6000.4
6-Dec-08	5-6	6000.68	8-Dec-08	14-15	8000.61	10-Dec-08	23-24	2165
6-Dec-08	6-7	8000.65	8-Dec-08	15-16	8000.84	11-Dec-08	0-1	3899.92
6-Dec-08	7-8	8050.76	8-Dec-08	16-17	8050.2	11-Dec-08	1-2	3899.92
6-Dec-08	8-9	8250.08	8-Dec-08	17-18	9000.83	11-Dec-08	2-3	3899.42
6-Dec-08	9-10	8250.53	8-Dec-08	18-19	9499.06	11-Dec-08	3-4	3999.32
6-Dec-08	10-11	8250.92	8-Dec-08	19-20	9300.42	11-Dec-08	4-5	3999.88
6-Dec-08	11-12	8500.17	8-Dec-08	20-21	7500.22	11-Dec-08	5-6	6000.16
6-Dec-08	12-13	8200.98	8-Dec-08	21-22	6999.49	11-Dec-08	6-7	7200.38
6-Dec-08	13-14	8200.24	8-Dec-08	22-23	3999.36	11-Dec-08	7-8	8100.23
6-Dec-08	14-15	8050.39	8-Dec-08	23-24	2218.6	11-Dec-08	8-9	8100.6
6-Dec-08	15-16	8050.22	9-Dec-08	0-1	3999.04	11-Dec-08	9-10	8200.22
6-Dec-08	16-17	8050.86	9-Dec-08	1-2	3999.03	11-Dec-08	10-11	8200.52
6-Dec-08	17-18	9000.21	9-Dec-08	2-3	3999.02	11-Dec-08	11-12	8300.52
6-Dec-08	18-19	9499.08	9-Dec-08	3-4	3999.02	11-Dec-08	12-13	8300.62
6-Dec-08	19-20	9250.64	9-Dec-08	4-5	3999.23	11-Dec-08	13-14	8050.98
6-Dec-08	20-21	8000.91	9-Dec-08	5-6	4500.75	11-Dec-08	14-15	8000.92
6-Dec-08	21-22	7499.09	9-Dec-08	6-7	4633.23	11-Dec-08	15-16	7799.92
6-Dec-08	22-23	5500.42	9-Dec-08	7-8	8000.6	11-Dec-08	16-17	7988.47
6-Dec-08	23-24	3899.11	9-Dec-08	8-9	8000.74	11-Dec-08	17-18	8600.63
7-Dec-08	0-1	4799.62	9-Dec-08	9-10	8000.7	11-Dec-08	18-19	9150.68
7-Dec-08	1-2	4799.12	9-Dec-08	10-11	8000.85	11-Dec-08	19-20	9150.57
7-Dec-08	2-3	4000.87	9-Dec-08	11-12	8300.42	11-Dec-08	20-21	8300.06
7-Dec-08	3-4	4000.62	9-Dec-08	12-13	8050.45	11-Dec-08	21-22	6999.27
7-Dec-08	4-5	3999.9	9-Dec-08	13-14	8000.48	11-Dec-08	22-23	5600.06
7-Dec-08	5-6	4000.43	9-Dec-08	14-15	8000.29	11-Dec-08	23-24	2149.5
7-Dec-08	6-7	4999.46	9-Dec-08	15-16	7183.1	12-Dec-08	0-1	3999.23
7-Dec-08	7-8	6500.01	9-Dec-08	16-17	7282.1	12-Dec-08	1-2	3999.18
7-Dec-08	8-9	6500.03	9-Dec-08	17-18	8050.39	12-Dec-08	2-3	3999.18
7-Dec-08	9-10	6999.74	9-Dec-08	18-19	9000.82	12-Dec-08	3-4	4000.18
7-Dec-08	10-11	6999.38	9-Dec-08	19-20	9000.65	12-Dec-08	4-5	3999.9
7-Dec-08	11-12	7000.75	9-Dec-08	20-21	6999.57	12-Dec-08	5-6	6000.14
7-Dec-08	12-13	7000.42	9-Dec-08	21-22	6999.02	12-Dec-08	6-7	7200.16
7-Dec-08	13-14	7000.15	9-Dec-08	22-23	3999.68	12-Dec-08	7-8	8100.2
7-Dec-08	14-15	5249.96	9-Dec-08	23-24	2190.32	12-Dec-08	8-9	8100.44
7-Dec-08	15-16	7000.29	10-Dec-08	0-1	3999.57	12-Dec-08	9-10	8100.28
7-Dec-08	16-17	7000.47	10-Dec-08	1-2	3999.4	12-Dec-08	10-11	8100.49
7-Dec-08	17-18	7749.68	10-Dec-08	2-3	3999.21	12-Dec-08	11-12	8300.2
7-Dec-08	18-19	8050.49	10-Dec-08	3-4	3999.21	12-Dec-08	12-13	8300.21
7-Dec-08	19-20	8000	10-Dec-08	4-5	3999.46	12-Dec-08	13-14	8300.03
7-Dec-08	20-21	6999.83	10-Dec-08	5-6	6000.15	12-Dec-08	14-15	8300.03
7-Dec-08	21-22	6999.24	10-Dec-08	6-7	6000.78	12-Dec-08	15-16	7874.55
7-Dec-08	22-23	3999.36	10-Dec-08	7-8	8100.38	12-Dec-08	16-17	7965.73
7-Dec-08	23-24	3479.37	10-Dec-08	8-9	8100.5	12-Dec-08	17-18	8600.92
8-Dec-08	0-1	3999.76	10-Dec-08	9-10	8100.29	12-Dec-08	18-19	9150.8
8-Dec-08	1-2	3999.49	10-Dec-08	10-11	8100.65	12-Dec-08	19-20	9150.69
8-Dec-08	2-3	3999.49	10-Dec-08	11-12	8300.78	12-Dec-08	20-21	7200.45
8-Dec-08	3-4	3999.51	10-Dec-08	12-13	8300.08	12-Dec-08	21-22	6200.33
8-Dec-08	4-5	3999.27	10-Dec-08	13-14	8050.85	12-Dec-08	22-23	5151.59
8-Dec-08	5-6	4499.53	10-Dec-08	14-15	8050.69	12-Dec-08	23-24	2149.38
8-Dec-08	6-7	4999.78	10-Dec-08	15-16	8000.16			
8-Dec-08	7-8	8000.19	10-Dec-08	16-17	8000.91			
8-Dec-08	8-9	8000.74	10-Dec-08	17-18	8600.2			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
13-Dec-08	0-1	3799.6	15-Dec-08	9-10	7000.98	17-Dec-08	18-19	9000.85
13-Dec-08	1-2	3799.6	15-Dec-08	10-11	8000.59	17-Dec-08	19-20	9000.6
13-Dec-08	2-3	3799.6	15-Dec-08	11-12	8000.59	17-Dec-08	20-21	5849.18
13-Dec-08	3-4	3999.12	15-Dec-08	12-13	8050.08	17-Dec-08	21-22	5699.35
13-Dec-08	4-5	3999.58	15-Dec-08	13-14	8000.17	17-Dec-08	22-23	3749.54
13-Dec-08	5-6	5900.1	15-Dec-08	14-15	8000.04	17-Dec-08	23-24	3279.22
13-Dec-08	6-7	7100.15	15-Dec-08	15-16	8000.61	18-Dec-08	0-1	2499.21
13-Dec-08	7-8	8000.31	15-Dec-08	16-17	8050.51	18-Dec-08	1-2	2499.21
13-Dec-08	8-9	8000.51	15-Dec-08	17-18	9300.63	18-Dec-08	2-3	2499.21
13-Dec-08	9-10	8000.55	15-Dec-08	18-19	8700.98	18-Dec-08	3-4	2499.21
13-Dec-08	10-11	8000.57	15-Dec-08	19-20	8700.84	18-Dec-08	4-5	3999.62
13-Dec-08	11-12	8200.06	15-Dec-08	20-21	6000.96	18-Dec-08	5-6	4629.59
13-Dec-08	12-13	8200.08	15-Dec-08	21-22	6000.96	18-Dec-08	6-7	6000.34
13-Dec-08	13-14	8000.77	15-Dec-08	22-23	3499.13	18-Dec-08	7-8	6000.61
13-Dec-08	14-15	7799.77	15-Dec-08	23-24	2109.38	18-Dec-08	8-9	8000.72
13-Dec-08	15-16	8000.01	16-Dec-08	0-1	2849.13	18-Dec-08	9-10	8000.7
13-Dec-08	16-17	8000.06	16-Dec-08	1-2	2849.13	18-Dec-08	10-11	8050.15
13-Dec-08	17-18	8500.67	16-Dec-08	2-3	2849.13	18-Dec-08	11-12	8150.79
13-Dec-08	18-19	9065.38	16-Dec-08	3-4	2849.13	18-Dec-08	12-13	8150.74
13-Dec-08	19-20	9056.29	16-Dec-08	4-5	3449.82	18-Dec-08	13-14	8150.58
13-Dec-08	20-21	7100.02	16-Dec-08	5-6	4624.72	18-Dec-08	14-15	8150.39
13-Dec-08	21-22	6100.6	16-Dec-08	6-7	6000.06	18-Dec-08	15-16	8000.61
13-Dec-08	22-23	5013.43	16-Dec-08	7-8	6100.24	18-Dec-08	16-17	8000.65
13-Dec-08	23-24	2149.38	16-Dec-08	8-9	8000.37	18-Dec-08	17-18	8800.95
14-Dec-08	0-1	2282.5	16-Dec-08	9-10	8000.6	18-Dec-08	18-19	9000.47
14-Dec-08	1-2	2282.5	16-Dec-08	10-11	8050.96	18-Dec-08	19-20	9000.36
14-Dec-08	2-3	2282.5	16-Dec-08	11-12	8100.99	18-Dec-08	20-21	6000.25
14-Dec-08	3-4	2282.5	16-Dec-08	12-13	8100.7	18-Dec-08	21-22	5699.57
14-Dec-08	4-5	3769.62	16-Dec-08	13-14	8100.54	18-Dec-08	22-23	3999.49
14-Dec-08	5-6	3999.29	16-Dec-08	14-15	8100.26	18-Dec-08	23-24	2679.73
14-Dec-08	6-7	3769.39	16-Dec-08	15-16	8050.18	19-Dec-08	0-1	2299.56
14-Dec-08	7-8	4199.69	16-Dec-08	16-17	8000.71	19-Dec-08	1-2	2299.56
14-Dec-08	8-9	5249.39	16-Dec-08	17-18	9500.67	19-Dec-08	2-3	2299.56
14-Dec-08	9-10	5249.28	16-Dec-08	18-19	9499.76	19-Dec-08	3-4	2299.56
14-Dec-08	10-11	5249.5	16-Dec-08	19-20	9000.92	19-Dec-08	4-5	3999.3
14-Dec-08	11-12	6799.72	16-Dec-08	20-21	6100.44	19-Dec-08	5-6	5500.28
14-Dec-08	12-13	6849.18	16-Dec-08	21-22	5499.79	19-Dec-08	6-7	8000.3
14-Dec-08	13-14	5499.91	16-Dec-08	22-23	3999.01	19-Dec-08	7-8	8250.39
14-Dec-08	14-15	5499.5	16-Dec-08	23-24	3399.43	19-Dec-08	8-9	8250.47
14-Dec-08	15-16	5499.51	17-Dec-08	0-1	2299.51	19-Dec-08	9-10	8050.49
14-Dec-08	16-17	5499.58	17-Dec-08	1-2	2299.51	19-Dec-08	10-11	8100.44
14-Dec-08	17-18	6999.3	17-Dec-08	2-3	2299.51	19-Dec-08	11-12	8500.65
14-Dec-08	18-19	7500.89	17-Dec-08	3-4	2299.51	19-Dec-08	12-13	8500.56
14-Dec-08	19-20	7099.46	17-Dec-08	4-5	3999.43	19-Dec-08	13-14	8500.35
14-Dec-08	20-21	5699.55	17-Dec-08	5-6	4695.5	19-Dec-08	14-15	8500.34
14-Dec-08	21-22	5249.55	17-Dec-08	6-7	6000.58	19-Dec-08	15-16	8250.35
14-Dec-08	22-23	3899.5	17-Dec-08	7-8	6150.57	19-Dec-08	16-17	8050.54
14-Dec-08	23-24	961.29	17-Dec-08	8-9	8000.8	19-Dec-08	17-18	9000.63
15-Dec-08	0-1	2420.8	17-Dec-08	9-10	8050.02	19-Dec-08	18-19	9100.46
15-Dec-08	1-2	2420.8	17-Dec-08	10-11	8050.91	19-Dec-08	19-20	9100.43
15-Dec-08	2-3	2420.8	17-Dec-08	11-12	8150.97	19-Dec-08	20-21	7500.24
15-Dec-08	3-4	2420.8	17-Dec-08	12-13	8150.9	19-Dec-08	21-22	5500.61
15-Dec-08	4-5	3449.81	17-Dec-08	13-14	8150.63	19-Dec-08	22-23	4024.17
15-Dec-08	5-6	4500.1	17-Dec-08	14-15	8150.34	19-Dec-08	23-24	2679.95
15-Dec-08	6-7	5499.34	17-Dec-08	15-16	8000.7			
15-Dec-08	7-8	5499.62	17-Dec-08	16-17	8000.93			
15-Dec-08	8-9	7000.78	17-Dec-08	17-18	9500.47			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
20-Dec-08	0-1	2099.51	22-Dec-08	9-10	8050.31	24-Dec-08	18-19	9100.06
20-Dec-08	1-2	2099.51	22-Dec-08	10-11	8050.54	24-Dec-08	19-20	7499.88
20-Dec-08	2-3	2099.51	22-Dec-08	11-12	8100.78	24-Dec-08	20-21	5499.84
20-Dec-08	3-4	2099.51	22-Dec-08	12-13	8200.8	24-Dec-08	21-22	4752.04
20-Dec-08	4-5	2679.59	22-Dec-08	13-14	8200.49	24-Dec-08	22-23	3299.07
20-Dec-08	5-6	5500.15	22-Dec-08	14-15	8200.4	24-Dec-08	23-24	2999.32
20-Dec-08	6-7	8200.14	22-Dec-08	15-16	8050.79	25-Dec-08	0-1	1849.33
20-Dec-08	7-8	8200.38	22-Dec-08	16-17	8050.52	25-Dec-08	1-2	1849.33
20-Dec-08	8-9	8200.27	22-Dec-08	17-18	9500.04	25-Dec-08	2-3	1849.33
20-Dec-08	9-10	8049.63	22-Dec-08	18-19	9100.19	25-Dec-08	3-4	1849.33
20-Dec-08	10-11	8050.51	22-Dec-08	19-20	9100.04	25-Dec-08	4-5	2099.33
20-Dec-08	11-12	8500.4	22-Dec-08	20-21	5249.84	25-Dec-08	5-6	4499.39
20-Dec-08	12-13	8500.23	22-Dec-08	21-22	5249.14	25-Dec-08	6-7	7000.11
20-Dec-08	13-14	8500.06	22-Dec-08	22-23	1799.43	25-Dec-08	7-8	7000.71
20-Dec-08	14-15	8050.68	22-Dec-08	23-24	2679.84	25-Dec-08	8-9	7999.82
20-Dec-08	15-16	8000.2	23-Dec-08	0-1	2099.21	25-Dec-08	9-10	7500.87
20-Dec-08	16-17	8000.55	23-Dec-08	1-2	2099.21	25-Dec-08	10-11	7999.29
20-Dec-08	17-18	9000.5	23-Dec-08	2-3	2099.21	25-Dec-08	11-12	8000.76
20-Dec-08	18-19	8703.14	23-Dec-08	3-4	2099.21	25-Dec-08	12-13	8000.53
20-Dec-08	19-20	8533.57	23-Dec-08	4-5	2679.31	25-Dec-08	13-14	8000.22
20-Dec-08	20-21	5699.89	23-Dec-08	5-6	5000.38	25-Dec-08	14-15	8000.08
20-Dec-08	21-22	5499.42	23-Dec-08	6-7	7999.83	25-Dec-08	15-16	7500.2
20-Dec-08	22-23	2679.57	23-Dec-08	7-8	8100.95	25-Dec-08	16-17	7200.79
20-Dec-08	23-24	1099.63	23-Dec-08	8-9	8500.53	25-Dec-08	17-18	8050.08
21-Dec-08	0-1	1799.7	23-Dec-08	9-10	8100.95	25-Dec-08	18-19	8050.16
21-Dec-08	1-2	1799.7	23-Dec-08	10-11	8100.8	25-Dec-08	19-20	7349.86
21-Dec-08	2-3	1799.7	23-Dec-08	11-12	8100.93	25-Dec-08	20-21	4999.17
21-Dec-08	3-4	1799.7	23-Dec-08	12-13	8200.87	25-Dec-08	21-22	3999.42
21-Dec-08	4-5	2599.36	23-Dec-08	13-14	8200.69	25-Dec-08	22-23	2022.11
21-Dec-08	5-6	3999.48	23-Dec-08	14-15	8200.63	25-Dec-08	23-24	1697.69
21-Dec-08	6-7	5500.23	23-Dec-08	15-16	8100.43	26-Dec-08	0-1	2049.33
21-Dec-08	7-8	6500.74	23-Dec-08	16-17	8100.83	26-Dec-08	1-2	2049.33
21-Dec-08	8-9	6800.85	23-Dec-08	17-18	9500.14	26-Dec-08	2-3	2049.33
21-Dec-08	9-10	7000.33	23-Dec-08	18-19	8500.67	26-Dec-08	3-4	2049.33
21-Dec-08	10-11	7000.1	23-Dec-08	19-20	8500.17	26-Dec-08	4-5	2049.33
21-Dec-08	11-12	7500.16	23-Dec-08	20-21	5699.53	26-Dec-08	5-6	4499.99
21-Dec-08	12-13	7800.45	23-Dec-08	21-22	5499.56	26-Dec-08	6-7	7100.55
21-Dec-08	13-14	7800.26	23-Dec-08	22-23	3749.33	26-Dec-08	7-8	8039.24
21-Dec-08	14-15	5499.93	23-Dec-08	23-24	3249.03	26-Dec-08	8-9	8200.81
21-Dec-08	15-16	6500.2	24-Dec-08	0-1	1999.1	26-Dec-08	9-10	8200.15
21-Dec-08	16-17	5499.89	24-Dec-08	1-2	1999.1	26-Dec-08	10-11	8050.7
21-Dec-08	17-18	8050.87	24-Dec-08	2-3	1999.1	26-Dec-08	11-12	8100.96
21-Dec-08	18-19	8050.83	24-Dec-08	3-4	1999.1	26-Dec-08	12-13	8100.76
21-Dec-08	19-20	6997.47	24-Dec-08	4-5	1999.48	26-Dec-08	13-14	8100.62
21-Dec-08	20-21	5171.83	24-Dec-08	5-6	5000.11	26-Dec-08	14-15	8100.62
21-Dec-08	21-22	4999.24	24-Dec-08	6-7	8100.03	26-Dec-08	15-16	8050.24
21-Dec-08	22-23	2199.27	24-Dec-08	7-8	8100.87	26-Dec-08	16-17	8050.36
21-Dec-08	23-24	1049.71	24-Dec-08	8-9	8200.04	26-Dec-08	17-18	8050.78
22-Dec-08	0-1	1799.7	24-Dec-08	9-10	8100.64	26-Dec-08	18-19	8500.45
22-Dec-08	1-2	1799.7	24-Dec-08	10-11	8100.6	26-Dec-08	19-20	7249.87
22-Dec-08	2-3	1799.7	24-Dec-08	11-12	8100.79	26-Dec-08	20-21	5249.71
22-Dec-08	3-4	1799.7	24-Dec-08	12-13	8200.62	26-Dec-08	21-22	5100.01
22-Dec-08	4-5	2949.3	24-Dec-08	13-14	8200.46	26-Dec-08	22-23	1748.29
22-Dec-08	5-6	4499.86	24-Dec-08	14-15	8200.46	26-Dec-08	23-24	1748.63
22-Dec-08	6-7	6500.63	24-Dec-08	15-16	8200.05			
22-Dec-08	7-8	8000.13	24-Dec-08	16-17	8100.24			
22-Dec-08	8-9	8050.84	24-Dec-08	17-18	8100.84			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
27-Dec-08	0-1	-	29-Dec-08	9-10	8500.73	31-Dec-08	18-19	8300.03
27-Dec-08	1-2	-	29-Dec-08	10-11	8500.52	31-Dec-08	19-20	7800.3
27-Dec-08	2-3	-	29-Dec-08	11-12	8500.79	31-Dec-08	20-21	4999.78
27-Dec-08	3-4	-	29-Dec-08	12-13	8500.49	31-Dec-08	21-22	3478.26
27-Dec-08	4-5	1999.3	29-Dec-08	13-14	8200.97	31-Dec-08	22-23	
27-Dec-08	5-6	5000.17	29-Dec-08	14-15	8200.83	31-Dec-08	23-24	
27-Dec-08	6-7	7100.59	29-Dec-08	15-16	8050.97	1-Jan-09	0-1	1647.86
27-Dec-08	7-8	8100.87	29-Dec-08	16-17	8500.25	1-Jan-09	1-2	1647.86
27-Dec-08	8-9	8201	29-Dec-08	17-18	8400.67	1-Jan-09	2-3	1647.86
27-Dec-08	9-10	8500.48	29-Dec-08	18-19	8500.16	1-Jan-09	3-4	1647.86
27-Dec-08	10-11	8500.47	29-Dec-08	19-20	7700.37	1-Jan-09	4-5	1647.86
27-Dec-08	11-12	8100.92	29-Dec-08	20-21	5249.7	1-Jan-09	5-6	3499.7
27-Dec-08	12-13	8100.82	29-Dec-08	21-22	4499.49	1-Jan-09	6-7	3999.99
27-Dec-08	13-14	8100.6	29-Dec-08	22-23	1648.44	1-Jan-09	7-8	6999.24
27-Dec-08	14-15	8100.6	29-Dec-08	23-24	1648.63	1-Jan-09	8-9	7899.5
27-Dec-08	15-16	8100.53	30-Dec-08	0-1	-	1-Jan-09	9-10	7799.13
27-Dec-08	16-17	8100.71	30-Dec-08	1-2	-	1-Jan-09	10-11	7799.65
27-Dec-08	17-18	8100.03	30-Dec-08	2-3	-	1-Jan-09	11-12	8050.97
27-Dec-08	18-19	8500.22	30-Dec-08	3-4	-	1-Jan-09	12-13	8050.95
27-Dec-08	19-20	7200.34	30-Dec-08	4-5	-	1-Jan-09	13-14	8050.19
27-Dec-08	20-21	5250.25	30-Dec-08	5-6	3699.5	1-Jan-09	14-15	7899.59
27-Dec-08	21-22	4499.81	30-Dec-08	6-7	7400.55	1-Jan-09	15-16	7799.3
27-Dec-08	22-23	1747.29	30-Dec-08	7-8	8000.54	1-Jan-09	16-17	7799.73
27-Dec-08	23-24	1747.63	30-Dec-08	8-9	8600.07	1-Jan-09	17-18	7999.44
28-Dec-08	0-1	1750.5	30-Dec-08	9-10	8600.27	1-Jan-09	18-19	8050.24
28-Dec-08	1-2	1750.5	30-Dec-08	10-11	8100.91	1-Jan-09	19-20	7250
28-Dec-08	2-3	1750.5	30-Dec-08	11-12	8100.89	1-Jan-09	20-21	3999.77
28-Dec-08	3-4	1750.5	30-Dec-08	12-13	8100.89	1-Jan-09	21-22	4000.72
28-Dec-08	4-5	1750.5	30-Dec-08	13-14	8100.71	1-Jan-09	22-23	2675.71
28-Dec-08	5-6	3999.28	30-Dec-08	14-15	8100.65	1-Jan-09	23-24	1644.83
28-Dec-08	6-7	7600.21	30-Dec-08	15-16	8100.4	2-Jan-09	0-1	-
28-Dec-08	7-8	7600.61	30-Dec-08	16-17	8050.26	2-Jan-09	1-2	-
28-Dec-08	8-9	7600.66	30-Dec-08	17-18	8400.33	2-Jan-09	2-3	-
28-Dec-08	9-10	7100.4	30-Dec-08	18-19	8300.24	2-Jan-09	3-4	-
28-Dec-08	10-11	7100.69	30-Dec-08	19-20	7600.18	2-Jan-09	4-5	-
28-Dec-08	11-12	7500.51	30-Dec-08	20-21	5499.77	2-Jan-09	5-6	3999.7
28-Dec-08	12-13	8000.12	30-Dec-08	21-22	3999.82	2-Jan-09	6-7	5000.18
28-Dec-08	13-14	7499.47	30-Dec-08	22-23	-	2-Jan-09	7-8	7000.57
28-Dec-08	14-15	7499.07	30-Dec-08	23-24	-	2-Jan-09	8-9	8100.13
28-Dec-08	15-16	5999.59	31-Dec-08	0-1	-	2-Jan-09	9-10	8050.78
28-Dec-08	16-17	5999.26	31-Dec-08	1-2	-	2-Jan-09	10-11	8050.82
28-Dec-08	17-18	7009.67	31-Dec-08	2-3	-	2-Jan-09	11-12	8000.58
28-Dec-08	18-19	7009.51	31-Dec-08	3-4	-	2-Jan-09	12-13	8000.58
28-Dec-08	19-20	6099.44	31-Dec-08	4-5	-	2-Jan-09	13-14	8000.51
28-Dec-08	20-21	4199.04	31-Dec-08	5-6	4000.39	2-Jan-09	14-15	8100.13
28-Dec-08	21-22	3648.7	31-Dec-08	6-7	7500.66	2-Jan-09	15-16	8050.22
28-Dec-08	22-23	1648.27	31-Dec-08	7-8	8100.93	2-Jan-09	16-17	8000.48
28-Dec-08	23-24	1648.63	31-Dec-08	8-9	8600.25	2-Jan-09	17-18	8050.64
29-Dec-08	0-1	1849.33	31-Dec-08	9-10	8600.5	2-Jan-09	18-19	8050.38
29-Dec-08	1-2	1849.33	31-Dec-08	10-11	8500.51	2-Jan-09	19-20	7500.15
29-Dec-08	2-3	1849.33	31-Dec-08	11-12	8500.59	2-Jan-09	20-21	4499.64
29-Dec-08	3-4	1849.33	31-Dec-08	12-13	8500.45	2-Jan-09	21-22	4499.31
29-Dec-08	4-5	2499.21	31-Dec-08	13-14	8100.81	2-Jan-09	22-23	-
29-Dec-08	5-6	3999.6	31-Dec-08	14-15	8100.73	2-Jan-09	23-24	-
29-Dec-08	6-7	7500.79	31-Dec-08	15-16	8100.77			
29-Dec-08	7-8	8050.96	31-Dec-08	16-17	8050.29			
29-Dec-08	8-9	8500.2	31-Dec-08	17-18	8400.73			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
3-Jan-09	0-1	-	5-Jan-09	9-10	7350.38	7-Jan-09	18-19	6899.36
3-Jan-09	1-2	-	5-Jan-09	10-11	7350.06	7-Jan-09	19-20	4899.18
3-Jan-09	2-3	-	5-Jan-09	11-12	7350.28	7-Jan-09	20-21	3999.1
3-Jan-09	3-4	-	5-Jan-09	12-13	7350.14	7-Jan-09	21-22	3999.71
3-Jan-09	4-5	-	5-Jan-09	13-14	7299.48	7-Jan-09	22-23	-
3-Jan-09	5-6	4000.1	5-Jan-09	14-15	7299.28	7-Jan-09	23-24	-
3-Jan-09	6-7	4000.53	5-Jan-09	15-16	7299.43	8-Jan-09	0-1	-
3-Jan-09	7-8	6235.83	5-Jan-09	16-17	7899.22	8-Jan-09	1-2	-
3-Jan-09	8-9	7000.99	5-Jan-09	17-18	7500.86	8-Jan-09	2-3	-
3-Jan-09	9-10	7500.7	5-Jan-09	18-19	7299.8	8-Jan-09	3-4	-
3-Jan-09	10-11	7500.98	5-Jan-09	19-20	5249.74	8-Jan-09	4-5	-
3-Jan-09	11-12	7000.89	5-Jan-09	20-21	3999.32	8-Jan-09	5-6	3249.43
3-Jan-09	12-13	7000.84	5-Jan-09	21-22	6999.04	8-Jan-09	6-7	6999.31
3-Jan-09	13-14	7000.55	5-Jan-09	22-23	-	8-Jan-09	7-8	6999.96
3-Jan-09	14-15	7500.55	5-Jan-09	23-24	-	8-Jan-09	8-9	7950.1
3-Jan-09	15-16	7500.57	6-Jan-09	0-1	-	8-Jan-09	9-10	7899.73
3-Jan-09	16-17	7799.24	6-Jan-09	1-2	-	8-Jan-09	10-11	7899.1
3-Jan-09	17-18	7999.12	6-Jan-09	2-3	-	8-Jan-09	11-12	6999.95
3-Jan-09	18-19	7500.88	6-Jan-09	3-4	-	8-Jan-09	12-13	7000.01
3-Jan-09	19-20	6499.86	6-Jan-09	4-5	-	8-Jan-09	13-14	6999.7
3-Jan-09	20-21	4499.2	6-Jan-09	5-6	3299.44	8-Jan-09	14-15	6999.62
3-Jan-09	21-22	6000.6	6-Jan-09	6-7	3299.58	8-Jan-09	15-16	6999.26
3-Jan-09	22-23	-	6-Jan-09	7-8	6999.09	8-Jan-09	16-17	6999.81
3-Jan-09	23-24	-	6-Jan-09	8-9	6999.84	8-Jan-09	17-18	7000.86
4-Jan-09	0-1	-	6-Jan-09	9-10	7400.36	8-Jan-09	18-19	6999.85
4-Jan-09	1-2	-	6-Jan-09	10-11	6999.82	8-Jan-09	19-20	6999.48
4-Jan-09	2-3	-	6-Jan-09	11-12	6999.76	8-Jan-09	20-21	4499.4
4-Jan-09	3-4	-	6-Jan-09	12-13	6999.66	8-Jan-09	21-22	6999.18
4-Jan-09	4-5	-	6-Jan-09	13-14	6999.05	8-Jan-09	22-23	3499.64
4-Jan-09	5-6	3399.15	6-Jan-09	14-15	6999.15	8-Jan-09	23-24	3499.1
4-Jan-09	6-7	3399.24	6-Jan-09	15-16	6999.17	9-Jan-09	0-1	-
4-Jan-09	7-8	4999.97	6-Jan-09	16-17	6999.84	9-Jan-09	1-2	-
4-Jan-09	8-9	6999.1	6-Jan-09	17-18	6999.75	9-Jan-09	2-3	-
4-Jan-09	9-10	4999.83	6-Jan-09	18-19	6999.55	9-Jan-09	3-4	-
4-Jan-09	10-11	5999.59	6-Jan-09	19-20	5000.67	9-Jan-09	4-5	-
4-Jan-09	11-12	5999.59	6-Jan-09	20-21	3999.58	9-Jan-09	5-6	4000.28
4-Jan-09	12-13	5999.56	6-Jan-09	21-22	6999.06	9-Jan-09	6-7	6999.62
4-Jan-09	13-14	5999.52	6-Jan-09	22-23	-	9-Jan-09	7-8	8000.33
4-Jan-09	14-15	5999.5	6-Jan-09	23-24	-	9-Jan-09	8-9	8000.69
4-Jan-09	15-16	5999.53	7-Jan-09	0-1	-	9-Jan-09	9-10	8000.79
4-Jan-09	16-17	5999.7	7-Jan-09	1-2	-	9-Jan-09	10-11	8000.64
4-Jan-09	17-18	6799.86	7-Jan-09	2-3	-	9-Jan-09	11-12	8000.56
4-Jan-09	18-19	6399.82	7-Jan-09	3-4	-	9-Jan-09	12-13	8000.57
4-Jan-09	19-20	4999.01	7-Jan-09	4-5	-	9-Jan-09	13-14	8000.41
4-Jan-09	20-21	3999.05	7-Jan-09	5-6	3499.22	9-Jan-09	14-15	8000.49
4-Jan-09	21-22	2999.94	7-Jan-09	6-7	3999.46	9-Jan-09	15-16	8000.57
4-Jan-09	22-23	-	7-Jan-09	7-8	6999.55	9-Jan-09	16-17	7500.8
4-Jan-09	23-24	-	7-Jan-09	8-9	7500.04	9-Jan-09	17-18	7500.93
5-Jan-09	0-1	-	7-Jan-09	9-10	7500.02	9-Jan-09	18-19	7500.23
5-Jan-09	1-2	-	7-Jan-09	10-11	7500.03	9-Jan-09	19-20	6999.69
5-Jan-09	2-3	-	7-Jan-09	11-12	7499.71	9-Jan-09	20-21	6999.32
5-Jan-09	3-4	-	7-Jan-09	12-13	7499.71	9-Jan-09	21-22	6999.74
5-Jan-09	4-5	-	7-Jan-09	13-14	6999.77	9-Jan-09	22-23	3499.82
5-Jan-09	5-6	3399.21	7-Jan-09	14-15	6999.79	9-Jan-09	23-24	3499.7
5-Jan-09	6-7	3399.43	7-Jan-09	15-16	6999.93			
5-Jan-09	7-8	5399.26	7-Jan-09	16-17	7499.91			
5-Jan-09	8-9	7299.46	7-Jan-09	17-18	7000.78			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
10-Jan-09	0-1	-	12-Jan-09	9-10	7999.4	14-Jan-09	18-19	7499.48
10-Jan-09	1-2	-	12-Jan-09	10-11	7999.34	14-Jan-09	19-20	5999.95
10-Jan-09	2-3	-	12-Jan-09	11-12	7999.48	14-Jan-09	20-21	5400.92
10-Jan-09	3-4	-	12-Jan-09	12-13	7299.82	14-Jan-09	21-22	5999.21
10-Jan-09	4-5	-	12-Jan-09	13-14	6499.93	14-Jan-09	22-23	3249.77
10-Jan-09	5-6	3849.88	12-Jan-09	14-15	6499.93	14-Jan-09	23-24	2291.67
10-Jan-09	6-7	7000.37	12-Jan-09	15-16	7499.04	15-Jan-09	0-1	-
10-Jan-09	7-8	8000.71	12-Jan-09	16-17	7999.27	15-Jan-09	1-2	-
10-Jan-09	8-9	8000.88	12-Jan-09	17-18	7999.27	15-Jan-09	2-3	-
10-Jan-09	9-10	8000.94	12-Jan-09	18-19	7999.24	15-Jan-09	3-4	-
10-Jan-09	10-11	8000.93	12-Jan-09	19-20	6999.01	15-Jan-09	4-5	-
10-Jan-09	11-12	8000.87	12-Jan-09	20-21	6999.09	15-Jan-09	5-6	3249.21
10-Jan-09	12-13	8000.87	12-Jan-09	21-22	6999.02	15-Jan-09	6-7	3249.83
10-Jan-09	13-14	8000.73	12-Jan-09	22-23	3499.28	15-Jan-09	7-8	5998.15
10-Jan-09	14-15	8000.75	12-Jan-09	23-24	3499.28	15-Jan-09	8-9	5998.38
10-Jan-09	15-16	8000.81	13-Jan-09	0-1	-	15-Jan-09	9-10	5998.27
10-Jan-09	16-17	8050.36	13-Jan-09	1-2	-	15-Jan-09	10-11	5998.74
10-Jan-09	17-18	8050.55	13-Jan-09	2-3	-	15-Jan-09	11-12	5998.93
10-Jan-09	18-19	8050.06	13-Jan-09	3-4	-	15-Jan-09	12-13	5998.68
10-Jan-09	19-20	6999.75	13-Jan-09	4-5	-	15-Jan-09	13-14	5998.31
10-Jan-09	20-21	6999.27	13-Jan-09	5-6	3999.46	15-Jan-09	14-15	5998.19
10-Jan-09	21-22	6999.41	13-Jan-09	6-7	6000.82	15-Jan-09	15-16	5998.56
10-Jan-09	22-23	3499.81	13-Jan-09	7-8	7499.07	15-Jan-09	16-17	5999.07
10-Jan-09	23-24	3499.13	13-Jan-09	8-9	7499.56	15-Jan-09	17-18	5998.62
11-Jan-09	0-1	-	13-Jan-09	9-10	7500.14	15-Jan-09	18-19	5999.4
11-Jan-09	1-2	-	13-Jan-09	10-11	7500.39	15-Jan-09	19-20	5998.2
11-Jan-09	2-3	-	13-Jan-09	11-12	7500.55	15-Jan-09	20-21	5998.26
11-Jan-09	3-4	-	13-Jan-09	12-13	6999.34	15-Jan-09	21-22	5998.33
11-Jan-09	4-5	-	13-Jan-09	13-14	6999.1	15-Jan-09	22-23	2799.05
11-Jan-09	5-6	3499.23	13-Jan-09	14-15	6999.1	15-Jan-09	23-24	2799.09
11-Jan-09	6-7	4999.81	13-Jan-09	15-16	6999.44	16-Jan-09	0-1	-
11-Jan-09	7-8	6999.67	13-Jan-09	16-17	7799.13	16-Jan-09	1-2	-
11-Jan-09	8-9	7000.72	13-Jan-09	17-18	8050.03	16-Jan-09	2-3	-
11-Jan-09	9-10	6999.99	13-Jan-09	18-19	8000.22	16-Jan-09	3-4	-
11-Jan-09	10-11	6999.7	13-Jan-09	19-20	6499.96	16-Jan-09	4-5	-
11-Jan-09	11-12	6999.89	13-Jan-09	20-21	5500.99	16-Jan-09	5-6	2999.21
11-Jan-09	12-13	6999.69	13-Jan-09	21-22	6499.37	16-Jan-09	6-7	2999.22
11-Jan-09	13-14	6999.38	13-Jan-09	22-23	3499.23	16-Jan-09	7-8	5499.09
11-Jan-09	14-15	5999.98	13-Jan-09	23-24	2499	16-Jan-09	8-9	5499.37
11-Jan-09	15-16	6999.23	14-Jan-09	0-1	-	16-Jan-09	9-10	5499.35
11-Jan-09	16-17	6999.79	14-Jan-09	1-2	-	16-Jan-09	10-11	5499.55
11-Jan-09	17-18	6999.81	14-Jan-09	2-3	-	16-Jan-09	11-12	5499.65
11-Jan-09	18-19	6999.29	14-Jan-09	3-4	-	16-Jan-09	12-13	5499.55
11-Jan-09	19-20	5999.13	14-Jan-09	4-5	-	16-Jan-09	13-14	5499.47
11-Jan-09	20-21	5499.64	14-Jan-09	5-6	3249.97	16-Jan-09	14-15	5499.47
11-Jan-09	21-22	6000.89	14-Jan-09	6-7	5799.67	16-Jan-09	15-16	5499.27
11-Jan-09	22-23	3499.53	14-Jan-09	7-8	3644.4	16-Jan-09	16-17	5499.25
11-Jan-09	23-24	3499.52	14-Jan-09	8-9	5999.27	16-Jan-09	17-18	5199.58
12-Jan-09	0-1	-	14-Jan-09	9-10	5999.22	16-Jan-09	18-19	5499.61
12-Jan-09	1-2	-	14-Jan-09	10-11	5999.5	16-Jan-09	19-20	5499.18
12-Jan-09	2-3	-	14-Jan-09	11-12	5999.62	16-Jan-09	20-21	5499.04
12-Jan-09	3-4	-	14-Jan-09	12-13	5999.37	16-Jan-09	21-22	5199.86
12-Jan-09	4-5	-	14-Jan-09	13-14	5999.75	16-Jan-09	22-23	2041.67
12-Jan-09	5-6	3499.29	14-Jan-09	14-15	5999.75	16-Jan-09	23-24	2799.04
12-Jan-09	6-7	7000.42	14-Jan-09	15-16	5999.25			
12-Jan-09	7-8	7099.33	14-Jan-09	16-17	5999.31			
12-Jan-09	8-9	7999.12	14-Jan-09	17-18	5999.49			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
17-Jan-09	0-1	1750.43	19-Jan-09	9-10	5499.68	21-Jan-09	18-19	5499.1
17-Jan-09	1-2	-	19-Jan-09	10-11	5499.97	21-Jan-09	19-20	4996.52
17-Jan-09	2-3	-	19-Jan-09	11-12	5499.97	21-Jan-09	20-21	4999.65
17-Jan-09	3-4	-	19-Jan-09	12-13	5999.03	21-Jan-09	21-22	4999.68
17-Jan-09	4-5	-	19-Jan-09	13-14	5499.9	21-Jan-09	22-23	2999.48
17-Jan-09	5-6	-	19-Jan-09	14-15	5499.9	21-Jan-09	23-24	2999.09
17-Jan-09	6-7	2999.01	19-Jan-09	15-16	5499.92	22-Jan-09	0-1	-
17-Jan-09	7-8	4999.15	19-Jan-09	16-17	5499.96	22-Jan-09	1-2	-
17-Jan-09	8-9	4999.37	19-Jan-09	17-18	5499.72	22-Jan-09	2-3	-
17-Jan-09	9-10	4999.59	19-Jan-09	18-19	5499.32	22-Jan-09	3-4	-
17-Jan-09	10-11	4999.66	19-Jan-09	19-20	4996.65	22-Jan-09	4-5	2999.01
17-Jan-09	11-12	4999.53	19-Jan-09	20-21	5499.01	22-Jan-09	5-6	3000.77
17-Jan-09	12-13	4999.43	19-Jan-09	21-22	5499.02	22-Jan-09	6-7	3000.48
17-Jan-09	13-14	4999.23	19-Jan-09	22-23	2999.31	22-Jan-09	7-8	5999.25
17-Jan-09	14-15	4999.23	19-Jan-09	23-24	2999.14	22-Jan-09	8-9	5999.55
17-Jan-09	15-16	4999.16	20-Jan-09	0-1	-	22-Jan-09	9-10	5500.7
17-Jan-09	16-17	4999.25	20-Jan-09	1-2	-	22-Jan-09	10-11	5500.34
17-Jan-09	17-18	4999.34	20-Jan-09	2-3	-	22-Jan-09	11-12	5500.33
17-Jan-09	18-19	4999.5	20-Jan-09	3-4	-	22-Jan-09	12-13	5500.3
17-Jan-09	19-20	4999.16	20-Jan-09	4-5	-	22-Jan-09	13-14	5500.37
17-Jan-09	20-21	4999.13	20-Jan-09	5-6	2999.18	22-Jan-09	14-15	5500.41
17-Jan-09	21-22	4999.07	20-Jan-09	6-7	2999.32	22-Jan-09	15-16	5999.88
17-Jan-09	22-23	2999.44	20-Jan-09	7-8	5499.48	22-Jan-09	16-17	7000.04
17-Jan-09	23-24	2999.24	20-Jan-09	8-9	5999.31	22-Jan-09	17-18	5499.33
18-Jan-09	0-1	-	20-Jan-09	9-10	5500.14	22-Jan-09	18-19	5499.47
18-Jan-09	1-2	-	20-Jan-09	10-11	5999.85	22-Jan-09	19-20	4986.41
18-Jan-09	2-3	-	20-Jan-09	11-12	5999.83	22-Jan-09	20-21	4249.12
18-Jan-09	3-4	-	20-Jan-09	12-13	5999.84	22-Jan-09	21-22	4249.15
18-Jan-09	4-5	-	20-Jan-09	13-14	5999.46	22-Jan-09	22-23	2999.46
18-Jan-09	5-6	-	20-Jan-09	14-15	5999.62	22-Jan-09	23-24	2999.1
18-Jan-09	6-7	2009.55	20-Jan-09	15-16	5999.38	23-Jan-09	0-1	-
18-Jan-09	7-8	3500.76	20-Jan-09	16-17	5999.92	23-Jan-09	1-2	-
18-Jan-09	8-9	4999.29	20-Jan-09	17-18	5499.85	23-Jan-09	2-3	-
18-Jan-09	9-10	4999.43	20-Jan-09	18-19	5499.35	23-Jan-09	3-4	-
18-Jan-09	10-11	4999.36	20-Jan-09	19-20	4996.83	23-Jan-09	4-5	2998.23
18-Jan-09	11-12	4999.26	20-Jan-09	20-21	5499.09	23-Jan-09	5-6	3000.84
18-Jan-09	12-13	4999.26	20-Jan-09	21-22	5499.01	23-Jan-09	6-7	5498.76
18-Jan-09	13-14	4250	20-Jan-09	22-23	2999.59	23-Jan-09	7-8	7000.01
18-Jan-09	14-15	4250	20-Jan-09	23-24	2999.13	23-Jan-09	8-9	7000.54
18-Jan-09	15-16	4250	21-Jan-09	0-1	-	23-Jan-09	9-10	6000.39
18-Jan-09	16-17	4999	21-Jan-09	1-2	-	23-Jan-09	10-11	7000.49
18-Jan-09	17-18	4299.35	21-Jan-09	2-3	-	23-Jan-09	11-12	5999.75
18-Jan-09	18-19	4299.89	21-Jan-09	3-4	-	23-Jan-09	12-13	5600.98
18-Jan-09	19-20	4099.53	21-Jan-09	4-5	-	23-Jan-09	13-14	5600.86
18-Jan-09	20-21	4999.08	21-Jan-09	5-6	2999.45	23-Jan-09	14-15	5600.86
18-Jan-09	21-22	4999.08	21-Jan-09	6-7	2999.13	23-Jan-09	15-16	6100.27
18-Jan-09	22-23	2999.24	21-Jan-09	7-8	5000.6	23-Jan-09	16-17	7000.36
18-Jan-09	23-24	2999.11	21-Jan-09	8-9	5499.78	23-Jan-09	17-18	5600.52
19-Jan-09	0-1	-	21-Jan-09	9-10	5499.86	23-Jan-09	18-19	5500.58
19-Jan-09	1-2	-	21-Jan-09	10-11	5500.15	23-Jan-09	19-20	5499.43
19-Jan-09	2-3	-	21-Jan-09	11-12	5500.39	23-Jan-09	20-21	5499.24
19-Jan-09	3-4	-	21-Jan-09	12-13	5499.89	23-Jan-09	21-22	5499.11
19-Jan-09	4-5	-	21-Jan-09	13-14	5499.73	23-Jan-09	22-23	2999.49
19-Jan-09	5-6	2999.15	21-Jan-09	14-15	5499.65	23-Jan-09	23-24	2999.17
19-Jan-09	6-7	2999.22	21-Jan-09	15-16	5499.75			
19-Jan-09	7-8	4496.67	21-Jan-09	16-17	5499.62			
19-Jan-09	8-9	5499.54	21-Jan-09	17-18	5499.4			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
24-Jan-09	0-1	2499.11	26-Jan-09	9-10	5499.29	28-Jan-09	18-19	7000.67
24-Jan-09	1-2	1598.34	26-Jan-09	10-11	5499.18	28-Jan-09	19-20	6600.02
24-Jan-09	2-3	-	26-Jan-09	11-12	3000.95	28-Jan-09	20-21	6499.15
24-Jan-09	3-4	-	26-Jan-09	12-13	4248.23	28-Jan-09	21-22	5499.52
24-Jan-09	4-5	2998.54	26-Jan-09	13-14	3949.2	28-Jan-09	22-23	2979.43
24-Jan-09	5-6	3000.9	26-Jan-09	14-15	2499.88	28-Jan-09	23-24	2979.39
24-Jan-09	6-7	5999.15	26-Jan-09	15-16	4389.55	29-Jan-09	0-1	1999.9
24-Jan-09	7-8	7000.6	26-Jan-09	16-17	4389.52	29-Jan-09	1-2	1650.27
24-Jan-09	8-9	7000.65	26-Jan-09	17-18	4389.75	29-Jan-09	2-3	1999.9
24-Jan-09	9-10	6150.34	26-Jan-09	18-19	5000.08	29-Jan-09	3-4	1999.9
24-Jan-09	10-11	7000.79	26-Jan-09	19-20	5496.44	29-Jan-09	4-5	3000.8
24-Jan-09	11-12	6150.1	26-Jan-09	20-21	5499.1	29-Jan-09	5-6	4000.65
24-Jan-09	12-13	5600.93	26-Jan-09	21-22	4389.25	29-Jan-09	6-7	5600.4
24-Jan-09	13-14	5601	26-Jan-09	22-23	2500.9	29-Jan-09	7-8	6499.95
24-Jan-09	14-15	5601	26-Jan-09	23-24	2989.13	29-Jan-09	8-9	6499.96
24-Jan-09	15-16	6100.59	27-Jan-09	0-1	1650.27	29-Jan-09	9-10	6500.24
24-Jan-09	16-17	7100.13	27-Jan-09	1-2	1650.27	29-Jan-09	10-11	6499.53
24-Jan-09	17-18	5600.59	27-Jan-09	2-3	1650.71	29-Jan-09	11-12	6499.67
24-Jan-09	18-19	5500.02	27-Jan-09	3-4	1650.71	29-Jan-09	12-13	6499.6
24-Jan-09	19-20	5499.81	27-Jan-09	4-5	2998.5	29-Jan-09	13-14	6499.59
24-Jan-09	20-21	5500.01	27-Jan-09	5-6	2999	29-Jan-09	14-15	6499.59
24-Jan-09	21-22	5499.15	27-Jan-09	6-7	5500.9	29-Jan-09	15-16	6499.6
24-Jan-09	22-23	2999.64	27-Jan-09	7-8	6499.16	29-Jan-09	16-17	6499.62
24-Jan-09	23-24	2998.84	27-Jan-09	8-9	8000.11	29-Jan-09	17-18	6500.22
25-Jan-09	0-1	2498.21	27-Jan-09	9-10	6499.65	29-Jan-09	18-19	7000.1
25-Jan-09	1-2	1900.74	27-Jan-09	10-11	6499.58	29-Jan-09	19-20	6499.56
25-Jan-09	2-3	1900.49	27-Jan-09	11-12	6499.74	29-Jan-09	20-21	6499.2
25-Jan-09	3-4	1900.49	27-Jan-09	12-13	8050.15	29-Jan-09	21-22	4498.08
25-Jan-09	4-5	2998.93	27-Jan-09	13-14	6499.8	29-Jan-09	22-23	2739.5
25-Jan-09	5-6	3000.46	27-Jan-09	14-15	6499.96	29-Jan-09	23-24	2979.03
25-Jan-09	6-7	5300.91	27-Jan-09	15-16	7275	30-Jan-09	0-1	-
25-Jan-09	7-8	5499.73	27-Jan-09	16-17	8050.06	30-Jan-09	1-2	-
25-Jan-09	8-9	6000.04	27-Jan-09	17-18	8050.19	30-Jan-09	2-3	-
25-Jan-09	9-10	6000.44	27-Jan-09	18-19	8050.62	30-Jan-09	3-4	-
25-Jan-09	10-11	6000.07	27-Jan-09	19-20	6499.56	30-Jan-09	4-5	2998.76
25-Jan-09	11-12	5499.79	27-Jan-09	20-21	5500.65	30-Jan-09	5-6	4500.56
25-Jan-09	12-13	5000.26	27-Jan-09	21-22	5499.01	30-Jan-09	6-7	5700.14
25-Jan-09	13-14	4999.87	27-Jan-09	22-23	2979.91	30-Jan-09	7-8	6499.84
25-Jan-09	14-15	4999.78	27-Jan-09	23-24	2979.18	30-Jan-09	8-9	6499.7
25-Jan-09	15-16	4999.27	28-Jan-09	0-1	1999.9	30-Jan-09	9-10	6499.38
25-Jan-09	16-17	5499.17	28-Jan-09	1-2	1650.27	30-Jan-09	10-11	6499.46
25-Jan-09	17-18	5499.41	28-Jan-09	2-3	2000.31	30-Jan-09	11-12	6499.57
25-Jan-09	18-19	5499.43	28-Jan-09	3-4	2000.31	30-Jan-09	12-13	6499.62
25-Jan-09	19-20	5500	28-Jan-09	4-5	2999.04	30-Jan-09	13-14	6499.56
25-Jan-09	20-21	5499.41	28-Jan-09	5-6	3950.14	30-Jan-09	14-15	6499.52
25-Jan-09	21-22	5499.1	28-Jan-09	6-7	5600.68	30-Jan-09	15-16	6499.54
25-Jan-09	22-23	2999.01	28-Jan-09	7-8	6499.9	30-Jan-09	16-17	6499.57
25-Jan-09	23-24	2998.26	28-Jan-09	8-9	6499.94	30-Jan-09	17-18	6499.62
26-Jan-09	0-1	1649.9	28-Jan-09	9-10	7000.16	30-Jan-09	18-19	6499.95
26-Jan-09	1-2	1649.9	28-Jan-09	10-11	7000.3	30-Jan-09	19-20	6499.16
26-Jan-09	2-3	1649.9	28-Jan-09	11-12	6500.29	30-Jan-09	20-21	5499.43
26-Jan-09	3-4	1649.9	28-Jan-09	12-13	6500.04	30-Jan-09	21-22	3999.19
26-Jan-09	4-5	1999.9	28-Jan-09	13-14	6500.18	30-Jan-09	22-23	2979.28
26-Jan-09	5-6	1999.9	28-Jan-09	14-15	6500.35	30-Jan-09	23-24	2979.18
26-Jan-09	6-7	4248.56	28-Jan-09	15-16	6499.54			
26-Jan-09	7-8	5499.19	28-Jan-09	16-17	6499.56			
26-Jan-09	8-9	5499.34	28-Jan-09	17-18	6499.6			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
31-Jan-09	0-1	1750.27	2-Feb-09	9-10	6600.61	4-Feb-09	18-19	7100.54
31-Jan-09	1-2	1750.27	2-Feb-09	10-11	6600.59	4-Feb-09	19-20	6999.93
31-Jan-09	2-3	1750.27	2-Feb-09	11-12	6600.79	4-Feb-09	20-21	4999.41
31-Jan-09	3-4	1750.27	2-Feb-09	12-13	6600.79	4-Feb-09	21-22	4999.19
31-Jan-09	4-5	2998.93	2-Feb-09	13-14	6499.86	4-Feb-09	22-23	3499.14
31-Jan-09	5-6	4500.82	2-Feb-09	14-15	6499.61	4-Feb-09	23-24	1599.54
31-Jan-09	6-7	5700.86	2-Feb-09	15-16	6499.62	5-Feb-09	0-1	3299.23
31-Jan-09	7-8	6600.17	2-Feb-09	16-17	6499.18	5-Feb-09	1-2	3299.23
31-Jan-09	8-9	6600.27	2-Feb-09	17-18	6499.29	5-Feb-09	2-3	3299.23
31-Jan-09	9-10	6499.86	2-Feb-09	18-19	7000.53	5-Feb-09	3-4	3400.62
31-Jan-09	10-11	6499.71	2-Feb-09	19-20	6999.26	5-Feb-09	4-5	3400.71
31-Jan-09	11-12	6499.58	2-Feb-09	20-21	4999.26	5-Feb-09	5-6	5200.81
31-Jan-09	12-13	6499.42	2-Feb-09	21-22	3118.73	5-Feb-09	6-7	5956.98
31-Jan-09	13-14	6499.32	2-Feb-09	22-23	3118.39	5-Feb-09	7-8	6900.8
31-Jan-09	14-15	6499.32	2-Feb-09	23-24	3118.04	5-Feb-09	8-9	6900.99
31-Jan-09	15-16	6499.34	3-Feb-09	0-1	-	5-Feb-09	9-10	6999.58
31-Jan-09	16-17	6499.39	3-Feb-09	1-2	-	5-Feb-09	10-11	6999.54
31-Jan-09	17-18	6499.6	3-Feb-09	2-3	-	5-Feb-09	11-12	6999.66
31-Jan-09	18-19	6999.48	3-Feb-09	3-4	3300.51	5-Feb-09	12-13	6999.65
31-Jan-09	19-20	6600.57	3-Feb-09	4-5	3300.47	5-Feb-09	13-14	6999.41
31-Jan-09	20-21	5499.61	3-Feb-09	5-6	5000.69	5-Feb-09	14-15	6999.41
31-Jan-09	21-22	4000.93	3-Feb-09	6-7	5900.55	5-Feb-09	15-16	6999.44
31-Jan-09	22-23	2499.57	3-Feb-09	7-8	7100.75	5-Feb-09	16-17	6500.59
31-Jan-09	23-24	3249.08	3-Feb-09	8-9	7100.92	5-Feb-09	17-18	6500.33
1-Feb-09	0-1	1750.33	3-Feb-09	9-10	6800.68	5-Feb-09	18-19	6999.55
1-Feb-09	1-2	1750.33	3-Feb-09	10-11	6800.67	5-Feb-09	19-20	6999.01
1-Feb-09	2-3	1750.33	3-Feb-09	11-12	6800.83	5-Feb-09	20-21	4999.3
1-Feb-09	3-4	1750.33	3-Feb-09	12-13	6800.74	5-Feb-09	21-22	4999.32
1-Feb-09	4-5	2998.67	3-Feb-09	13-14	6600.73	5-Feb-09	22-23	3299.18
1-Feb-09	5-6	4600.27	3-Feb-09	14-15	6600.55	5-Feb-09	23-24	1598.54
1-Feb-09	6-7	5677.09	3-Feb-09	15-16	6600.55	6-Feb-09	0-1	3300.54
1-Feb-09	7-8	6600.56	3-Feb-09	16-17	6499.17	6-Feb-09	1-2	3300.54
1-Feb-09	8-9	6600.62	3-Feb-09	17-18	6499.33	6-Feb-09	2-3	3300.81
1-Feb-09	9-10	6499.22	3-Feb-09	18-19	8050.33	6-Feb-09	3-4	3385.5
1-Feb-09	10-11	6499.02	3-Feb-09	19-20	7100.23	6-Feb-09	4-5	3389.38
1-Feb-09	11-12	6499.19	3-Feb-09	20-21	4999.42	6-Feb-09	5-6	5200.83
1-Feb-09	12-13	6499.2	3-Feb-09	21-22	4999.43	6-Feb-09	6-7	6000.29
1-Feb-09	13-14	5298.66	3-Feb-09	22-23	3098.47	6-Feb-09	7-8	7000.92
1-Feb-09	14-15	5298.48	3-Feb-09	23-24	1599.54	6-Feb-09	8-9	7500.19
1-Feb-09	15-16	5298.41	4-Feb-09	0-1	1599.68	6-Feb-09	9-10	7500.64
1-Feb-09	16-17	5298.59	4-Feb-09	1-2	-	6-Feb-09	10-11	7500.68
1-Feb-09	17-18	6099.23	4-Feb-09	2-3	-	6-Feb-09	11-12	7500.65
1-Feb-09	18-19	7000.26	4-Feb-09	3-4	3400.3	6-Feb-09	12-13	7500.56
1-Feb-09	19-20	6499.58	4-Feb-09	4-5	3400.56	6-Feb-09	13-14	7500.53
1-Feb-09	20-21	5300.14	4-Feb-09	5-6	5200.7	6-Feb-09	14-15	7500.53
1-Feb-09	21-22	4000.46	4-Feb-09	6-7	6000.65	6-Feb-09	15-16	7500.53
1-Feb-09	22-23	2998.1	4-Feb-09	7-8	7100.65	6-Feb-09	16-17	7500.7
1-Feb-09	23-24	2000.76	4-Feb-09	8-9	7100.79	6-Feb-09	17-18	7500.88
2-Feb-09	0-1	3000.39	4-Feb-09	9-10	6900.51	6-Feb-09	18-19	8050.1
2-Feb-09	1-2	3000.31	4-Feb-09	10-11	6900.5	6-Feb-09	19-20	7000.66
2-Feb-09	2-3	3000.31	4-Feb-09	11-12	6900.56	6-Feb-09	20-21	4979.38
2-Feb-09	3-4	2998.1	4-Feb-09	12-13	6900.75	6-Feb-09	21-22	4979.38
2-Feb-09	4-5	3142.2	4-Feb-09	13-14	6700.59	6-Feb-09	22-23	3999.78
2-Feb-09	5-6	4750.85	4-Feb-09	14-15	6700.59	6-Feb-09	23-24	1597.54
2-Feb-09	6-7	5700.75	4-Feb-09	15-16	6700.6			
2-Feb-09	7-8	8050.24	4-Feb-09	16-17	6499.53			
2-Feb-09	8-9	8050.61	4-Feb-09	17-18	6499.27			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
7-Feb-09	0-1	3300.69	9-Feb-09	9-10	7400.97	11-Feb-09	18-19	7499.77
7-Feb-09	1-2	3098.19	9-Feb-09	10-11	7400.96	11-Feb-09	19-20	7499.46
7-Feb-09	2-3	3098.94	9-Feb-09	11-12	8050.01	11-Feb-09	20-21	4499.23
7-Feb-09	3-4	3400.83	9-Feb-09	12-13	8050.26	11-Feb-09	21-22	4499.6
7-Feb-09	4-5	3400.87	9-Feb-09	13-14	8050.24	11-Feb-09	22-23	3999.41
7-Feb-09	5-6	5200.69	9-Feb-09	14-15	8050.08	11-Feb-09	23-24	3999.2
7-Feb-09	6-7	6000.11	9-Feb-09	15-16	7400.98	12-Feb-09	0-1	1597.68
7-Feb-09	7-8	6749.69	9-Feb-09	16-17	8050.03	12-Feb-09	1-2	-
7-Feb-09	8-9	7500.22	9-Feb-09	17-18	8050.18	12-Feb-09	2-3	-
7-Feb-09	9-10	7500.42	9-Feb-09	18-19	8050.2	12-Feb-09	3-4	-
7-Feb-09	10-11	7500.46	9-Feb-09	19-20	7149.13	12-Feb-09	4-5	3400.85
7-Feb-09	11-12	7500.44	9-Feb-09	20-21	4899.34	12-Feb-09	5-6	5100.08
7-Feb-09	12-13	7500.44	9-Feb-09	21-22	4899.09	12-Feb-09	6-7	5800.63
7-Feb-09	13-14	7500.66	9-Feb-09	22-23	-	12-Feb-09	7-8	6999.66
7-Feb-09	14-15	7500.61	9-Feb-09	23-24	3999.21	12-Feb-09	8-9	8000.7
7-Feb-09	15-16	7500.61	10-Feb-09	0-1	2999.21	12-Feb-09	9-10	8100.37
7-Feb-09	16-17	7500.72	10-Feb-09	1-2	2999.02	12-Feb-09	10-11	7499.61
7-Feb-09	17-18	7500.79	10-Feb-09	2-3	2999.02	12-Feb-09	11-12	7499.83
7-Feb-09	18-19	7500.93	10-Feb-09	3-4	3999.02	12-Feb-09	12-13	7499.32
7-Feb-09	19-20	7250.03	10-Feb-09	4-5	3499.02	12-Feb-09	13-14	7300.81
7-Feb-09	20-21	4969.13	10-Feb-09	5-6	5000.63	12-Feb-09	14-15	7300.86
7-Feb-09	21-22	4969.09	10-Feb-09	6-7	5799.86	12-Feb-09	15-16	7300.77
7-Feb-09	22-23	4499.04	10-Feb-09	7-8	6549.67	12-Feb-09	16-17	7300.81
7-Feb-09	23-24	1596.39	10-Feb-09	8-9	8050.04	12-Feb-09	17-18	7300.36
8-Feb-09	0-1	3699	10-Feb-09	9-10	8050.63	12-Feb-09	18-19	7300.34
8-Feb-09	1-2	-	10-Feb-09	10-11	8050.65	12-Feb-09	19-20	7300.54
8-Feb-09	2-3	-	10-Feb-09	11-12	8050.74	12-Feb-09	20-21	4499.33
8-Feb-09	3-4	2998.31	10-Feb-09	12-13	8050.74	12-Feb-09	21-22	4499.17
8-Feb-09	4-5	3200.73	10-Feb-09	13-14	8050.72	12-Feb-09	22-23	3998.55
8-Feb-09	5-6	5100.34	10-Feb-09	14-15	8050.51	12-Feb-09	23-24	3998.15
8-Feb-09	6-7	5899.22	10-Feb-09	15-16	8050.53	13-Feb-09	0-1	-
8-Feb-09	7-8	6499.57	10-Feb-09	16-17	8050.59	13-Feb-09	1-2	-
8-Feb-09	8-9	6499.73	10-Feb-09	17-18	8050.4	13-Feb-09	2-3	-
8-Feb-09	9-10	6499.84	10-Feb-09	18-19	8050.79	13-Feb-09	3-4	-
8-Feb-09	10-11	7400.08	10-Feb-09	19-20	8050.65	13-Feb-09	4-5	3300.47
8-Feb-09	11-12	7400.11	10-Feb-09	20-21	4849.7	13-Feb-09	5-6	5000.14
8-Feb-09	12-13	7400.05	10-Feb-09	21-22	4849.7	13-Feb-09	6-7	5700.51
8-Feb-09	13-14	6499.95	10-Feb-09	22-23	4499.02	13-Feb-09	7-8	6899.63
8-Feb-09	14-15	6499.95	10-Feb-09	23-24	4199.6	13-Feb-09	8-9	8500.35
8-Feb-09	15-16	6499.95	11-Feb-09	0-1	2499.1	13-Feb-09	9-10	8500.51
8-Feb-09	16-17	6499.95	11-Feb-09	1-2	-	13-Feb-09	10-11	8500.5
8-Feb-09	17-18	7400.22	11-Feb-09	2-3	-	13-Feb-09	11-12	8500.36
8-Feb-09	18-19	7400.4	11-Feb-09	3-4	-	13-Feb-09	12-13	7300.92
8-Feb-09	19-20	6499.47	11-Feb-09	4-5	3500.34	13-Feb-09	13-14	7300.29
8-Feb-09	20-21	4949.16	11-Feb-09	5-6	5100.33	13-Feb-09	14-15	7300.38
8-Feb-09	21-22	4949.12	11-Feb-09	6-7	5900.17	13-Feb-09	15-16	7300.67
8-Feb-09	22-23	2499.83	11-Feb-09	7-8	6550.66	13-Feb-09	16-17	7300.3
8-Feb-09	23-24	3999.27	11-Feb-09	8-9	7989.5	13-Feb-09	17-18	7300.46
9-Feb-09	0-1	1597.82	11-Feb-09	9-10	7989.44	13-Feb-09	18-19	7300.03
9-Feb-09	1-2	-	11-Feb-09	10-11	7989.81	13-Feb-09	19-20	7300.01
9-Feb-09	2-3	-	11-Feb-09	11-12	7989.03	13-Feb-09	20-21	3999.32
9-Feb-09	3-4	2998.77	11-Feb-09	12-13	7499.92	13-Feb-09	21-22	3999.24
9-Feb-09	4-5	3200.88	11-Feb-09	13-14	7499.07	13-Feb-09	22-23	3999.2
9-Feb-09	5-6	5100.7	11-Feb-09	14-15	7400.93	13-Feb-09	23-24	3997.03
9-Feb-09	6-7	5900.54	11-Feb-09	15-16	7499.49			
9-Feb-09	7-8	6650.73	11-Feb-09	16-17	7499.62			
9-Feb-09	8-9	7400.83	11-Feb-09	17-18	7499.6			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
14-Feb-09	0-1	2001.4	16-Feb-09	9-10	8050.67	18-Feb-09	18-19	8100.33
14-Feb-09	1-2	2001.4	16-Feb-09	10-11	8099.22	18-Feb-09	19-20	7147.21
14-Feb-09	2-3	2001.4	16-Feb-09	11-12	8050.94	18-Feb-09	20-21	5499.25
14-Feb-09	3-4	-	16-Feb-09	12-13	8599.37	18-Feb-09	21-22	5499.28
14-Feb-09	4-5	3200.9	16-Feb-09	13-14	7000.89	18-Feb-09	22-23	4499.15
14-Feb-09	5-6	4900.54	16-Feb-09	14-15	7499.53	18-Feb-09	23-24	3498.57
14-Feb-09	6-7	5600.99	16-Feb-09	15-16	8599.88	19-Feb-09	0-1	2998.2
14-Feb-09	7-8	8100.02	16-Feb-09	16-17	8750.4	19-Feb-09	1-2	-
14-Feb-09	8-9	8100.37	16-Feb-09	17-18	6999.93	19-Feb-09	2-3	-
14-Feb-09	9-10	8100.89	16-Feb-09	18-19	7248.47	19-Feb-09	3-4	-
14-Feb-09	10-11	8100.58	16-Feb-09	19-20	7000.47	19-Feb-09	4-5	3600.81
14-Feb-09	11-12	8100.52	16-Feb-09	20-21	3499.42	19-Feb-09	5-6	5000.81
14-Feb-09	12-13	8100.08	16-Feb-09	21-22	3499.2	19-Feb-09	6-7	6199.73
14-Feb-09	13-14	7200.97	16-Feb-09	22-23	3499.14	19-Feb-09	7-8	7500.66
14-Feb-09	14-15	7299.72	16-Feb-09	23-24	3698.05	19-Feb-09	8-9	8549.54
14-Feb-09	15-16	8100.28	17-Feb-09	0-1	-	19-Feb-09	9-10	8549.17
14-Feb-09	16-17	7299.57	17-Feb-09	1-2	-	19-Feb-09	10-11	8549.66
14-Feb-09	17-18	7200.82	17-Feb-09	2-3	-	19-Feb-09	11-12	8549.39
14-Feb-09	18-19	7200.57	17-Feb-09	3-4	-	19-Feb-09	12-13	8500.75
14-Feb-09	19-20	7200.1	17-Feb-09	4-5	3599.66	19-Feb-09	13-14	8000.86
14-Feb-09	20-21	3499.17	17-Feb-09	5-6	5000.27	19-Feb-09	14-15	8399.07
14-Feb-09	21-22	3499.17	17-Feb-09	6-7	6300.76	19-Feb-09	15-16	8399.01
14-Feb-09	22-23	3499.38	17-Feb-09	7-8	6999.79	19-Feb-09	16-17	8399.56
14-Feb-09	23-24	3499.05	17-Feb-09	8-9	8700.83	19-Feb-09	17-18	8000.62
15-Feb-09	0-1	-	17-Feb-09	9-10	8000.58	19-Feb-09	18-19	7999.46
15-Feb-09	1-2	-	17-Feb-09	10-11	8000.91	19-Feb-09	19-20	7140.32
15-Feb-09	2-3	-	17-Feb-09	11-12	8000.64	19-Feb-09	20-21	5499.19
15-Feb-09	3-4	-	17-Feb-09	12-13	8099.15	19-Feb-09	21-22	5499.23
15-Feb-09	4-5	3700.24	17-Feb-09	13-14	7247.16	19-Feb-09	22-23	3998.93
15-Feb-09	5-6	5000.14	17-Feb-09	14-15	7500.88	19-Feb-09	23-24	3998.28
15-Feb-09	6-7	5200.36	17-Feb-09	15-16	8099.88	20-Feb-09	0-1	-
15-Feb-09	7-8	6500.19	17-Feb-09	16-17	8099.64	20-Feb-09	1-2	-
15-Feb-09	8-9	7500.11	17-Feb-09	17-18	8100.85	20-Feb-09	2-3	-
15-Feb-09	9-10	7500.04	17-Feb-09	18-19	7499.39	20-Feb-09	3-4	-
15-Feb-09	10-11	6999.63	17-Feb-09	19-20	7000.21	20-Feb-09	4-5	3500.56
15-Feb-09	11-12	6999.22	17-Feb-09	20-21	3499.33	20-Feb-09	5-6	5000.78
15-Feb-09	12-13	6998.36	17-Feb-09	21-22	3498.5	20-Feb-09	6-7	6099.2
15-Feb-09	13-14	6499.25	17-Feb-09	22-23	3498.17	20-Feb-09	7-8	7489.38
15-Feb-09	14-15	6998.62	17-Feb-09	23-24	3498.07	20-Feb-09	8-9	8399.44
15-Feb-09	15-16	6999.16	18-Feb-09	0-1	2499.67	20-Feb-09	9-10	8399.59
15-Feb-09	16-17	6998.75	18-Feb-09	1-2	-	20-Feb-09	10-11	8399.6
15-Feb-09	17-18	6499.53	18-Feb-09	2-3	-	20-Feb-09	11-12	8399.58
15-Feb-09	18-19	6998.36	18-Feb-09	3-4	-	20-Feb-09	12-13	8349.4
15-Feb-09	19-20	6499.86	18-Feb-09	4-5	3600.65	20-Feb-09	13-14	7849.19
15-Feb-09	20-21	3499.17	18-Feb-09	5-6	5000.74	20-Feb-09	14-15	8249.01
15-Feb-09	21-22	3499.17	18-Feb-09	6-7	6200.89	20-Feb-09	15-16	8249.03
15-Feb-09	22-23	2499.44	18-Feb-09	7-8	7500.41	20-Feb-09	16-17	8249.06
15-Feb-09	23-24	1596.7	18-Feb-09	8-9	8750.21	20-Feb-09	17-18	7500.22
16-Feb-09	0-1	-	18-Feb-09	9-10	8750.21	20-Feb-09	18-19	7499.71
16-Feb-09	1-2	-	18-Feb-09	10-11	8750.21	20-Feb-09	19-20	7000.31
16-Feb-09	2-3	-	18-Feb-09	11-12	8750.19	20-Feb-09	20-21	4000.77
16-Feb-09	3-4	-	18-Feb-09	12-13	8750.03	20-Feb-09	21-22	4000.77
16-Feb-09	4-5	3700.28	18-Feb-09	13-14	8500.7	20-Feb-09	22-23	3999.14
16-Feb-09	5-6	5000.41	18-Feb-09	14-15	8500.7	20-Feb-09	23-24	1597.21
16-Feb-09	6-7	6249.77	18-Feb-09	15-16	8500.48			
16-Feb-09	7-8	6999.63	18-Feb-09	16-17	8500.33			
16-Feb-09	8-9	8099.99	18-Feb-09	17-18	8500.59			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
21-Feb-09	0-1	1999.83	23-Feb-09	9-10	7750.82	25-Feb-09	18-19	9001.3
21-Feb-09	1-2	1999.83	23-Feb-09	10-11	7750.46	25-Feb-09	19-20	8200.57
21-Feb-09	2-3	1999.83	23-Feb-09	11-12	7750.41	25-Feb-09	20-21	8100.15
21-Feb-09	3-4	2200.85	23-Feb-09	12-13	7750.69	25-Feb-09	21-22	5489.93
21-Feb-09	4-5	3500.83	23-Feb-09	13-14	7699.34	25-Feb-09	22-23	4600.93
21-Feb-09	5-6	5100.86	23-Feb-09	14-15	7699.33	25-Feb-09	23-24	4600.47
21-Feb-09	6-7	5468.47	23-Feb-09	15-16	7699.09	26-Feb-09	0-1	-
21-Feb-09	7-8	7249.14	23-Feb-09	16-17	7699.64	26-Feb-09	1-2	-
21-Feb-09	8-9	8049.17	23-Feb-09	17-18	6999.34	26-Feb-09	2-3	4000.8
21-Feb-09	9-10	8049.3	23-Feb-09	18-19	6999.99	26-Feb-09	3-4	5100.89
21-Feb-09	10-11	8049.31	23-Feb-09	19-20	6750.68	26-Feb-09	4-5	5300.9
21-Feb-09	11-12	8049.3	23-Feb-09	20-21	3999.82	26-Feb-09	5-6	7200.92
21-Feb-09	12-13	8049.28	23-Feb-09	21-22	5489.2	26-Feb-09	6-7	9000.45
21-Feb-09	13-14	7649.27	23-Feb-09	22-23	3500.97	26-Feb-09	7-8	9000.67
21-Feb-09	14-15	8049.04	23-Feb-09	23-24	3500.17	26-Feb-09	8-9	9750.6
21-Feb-09	15-16	8049.04	24-Feb-09	0-1	-	26-Feb-09	9-10	9750.61
21-Feb-09	16-17	8049.1	24-Feb-09	1-2	-	26-Feb-09	10-11	9750.7
21-Feb-09	17-18	7399.36	24-Feb-09	2-3	-	26-Feb-09	11-12	9750.84
21-Feb-09	18-19	7389.38	24-Feb-09	3-4	4999.51	26-Feb-09	12-13	9750.84
21-Feb-09	19-20	6500.89	24-Feb-09	4-5	5100.87	26-Feb-09	13-14	9750.55
21-Feb-09	20-21	-	24-Feb-09	5-6	6926.55	26-Feb-09	14-15	9750.55
21-Feb-09	21-22	4999	24-Feb-09	6-7	7000.49	26-Feb-09	15-16	9750.55
21-Feb-09	22-23	3999.07	24-Feb-09	7-8	8150.11	26-Feb-09	16-17	9750.54
21-Feb-09	23-24	1596.2	24-Feb-09	8-9	8600.82	26-Feb-09	17-18	9750.5
22-Feb-09	0-1	1999.7	24-Feb-09	9-10	8600.77	26-Feb-09	18-19	9750.27
22-Feb-09	1-2	1999.7	24-Feb-09	10-11	8600.97	26-Feb-09	19-20	9199.95
22-Feb-09	2-3	1999.7	24-Feb-09	11-12	8750.12	26-Feb-09	20-21	9000.72
22-Feb-09	3-4	1999.7	24-Feb-09	12-13	8600.62	26-Feb-09	21-22	6000.8
22-Feb-09	4-5	4500.85	24-Feb-09	13-14	8600.48	26-Feb-09	22-23	5000.96
22-Feb-09	5-6	6000.48	24-Feb-09	14-15	8600.47	26-Feb-09	23-24	5000.78
22-Feb-09	6-7	5099.57	24-Feb-09	15-16	8500.77	27-Feb-09	0-1	-
22-Feb-09	7-8	6399.74	24-Feb-09	16-17	8500.81	27-Feb-09	1-2	-
22-Feb-09	8-9	6989.73	24-Feb-09	17-18	7689.58	27-Feb-09	2-3	4100.9
22-Feb-09	9-10	6989.44	24-Feb-09	18-19	7000.12	27-Feb-09	3-4	5100.95
22-Feb-09	10-11	6899.35	24-Feb-09	19-20	7250.49	27-Feb-09	4-5	6500.45
22-Feb-09	11-12	6500.65	24-Feb-09	20-21	7250.09	27-Feb-09	5-6	7500.04
22-Feb-09	12-13	6899.24	24-Feb-09	21-22	5489.49	27-Feb-09	6-7	9500.2
22-Feb-09	13-14	6399.33	24-Feb-09	22-23	4500.18	27-Feb-09	7-8	10000.25
22-Feb-09	14-15	3499.07	24-Feb-09	23-24	4500.68	27-Feb-09	8-9	10000.27
22-Feb-09	15-16	3499.07	25-Feb-09	0-1	-	27-Feb-09	9-10	10000.32
22-Feb-09	16-17	-	25-Feb-09	1-2	-	27-Feb-09	10-11	10000.34
22-Feb-09	17-18	-	25-Feb-09	2-3	4000.53	27-Feb-09	11-12	9950.98
22-Feb-09	18-19	6899.05	25-Feb-09	3-4	5100.24	27-Feb-09	12-13	9951.19
22-Feb-09	19-20	6200.62	25-Feb-09	4-5	5300.79	27-Feb-09	13-14	9950.88
22-Feb-09	20-21	-	25-Feb-09	5-6	7188.14	27-Feb-09	14-15	9950.64
22-Feb-09	21-22	3999.02	25-Feb-09	6-7	8000.04	27-Feb-09	15-16	9950.63
22-Feb-09	22-23	-	25-Feb-09	7-8	8600.88	27-Feb-09	16-17	9950.71
22-Feb-09	23-24	-	25-Feb-09	8-9	9200.64	27-Feb-09	17-18	9950.57
23-Feb-09	0-1	-	25-Feb-09	9-10	9200.77	27-Feb-09	18-19	9950.17
23-Feb-09	1-2	-	25-Feb-09	10-11	9200.97	27-Feb-09	19-20	9950.27
23-Feb-09	2-3	-	25-Feb-09	11-12	9251.18	27-Feb-09	20-21	9500.4
23-Feb-09	3-4	-	25-Feb-09	12-13	9251.33	27-Feb-09	21-22	9250.52
23-Feb-09	4-5	5000.61	25-Feb-09	13-14	9200.81	27-Feb-09	22-23	9750.65
23-Feb-09	5-6	6500.53	25-Feb-09	14-15	9201	27-Feb-09	23-24	9750.5
23-Feb-09	6-7	6149.8	25-Feb-09	15-16	9201			
23-Feb-09	7-8	7000.79	25-Feb-09	16-17	9251.02			
23-Feb-09	8-9	7699.88	25-Feb-09	17-18	8800.88			

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
28-Feb-09	0-1	7500.51	28-Feb-09	8-9	10000.87	28-Feb-09	16-17	10000.77
28-Feb-09	1-2	7500.35	28-Feb-09	9-10	10000.84	28-Feb-09	17-18	10000.79
28-Feb-09	2-3	7500.71	28-Feb-09	10-11	10000.84	28-Feb-09	18-19	10000.77
28-Feb-09	3-4	7500.71	28-Feb-09	11-12	10000.87	28-Feb-09	19-20	10000.81
28-Feb-09	4-5	7693.72	28-Feb-09	12-13	10000.87	28-Feb-09	20-21	10000.84
28-Feb-09	5-6	8000.1	28-Feb-09	13-14	10000.87	28-Feb-09	21-22	10000.85
28-Feb-09	6-7	10000.78	28-Feb-09	14-15	10000.86	28-Feb-09	22-23	10000.85
28-Feb-09	7-8	10000.87	28-Feb-09	15-16	10000.86	28-Feb-09	23-24	10000

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
1-Mar-09	0-1	7,500.71	3-Mar-09	1-2	6,499.91	5-Mar-09	2-3	8,500.15
1-Mar-09	1-2	7,500.71	3-Mar-09	2-3	6,499.88	5-Mar-09	3-4	8,200.95
1-Mar-09	2-3	7,500.70	3-Mar-09	3-4	6,499.88	5-Mar-09	4-5	10,000.70
1-Mar-09	3-4	7,500.76	3-Mar-09	4-5	9,250.80	5-Mar-09	5-6	10,000.74
1-Mar-09	4-5	9,250.70	3-Mar-09	5-6	9,250.87	5-Mar-09	6-7	11,500.65
1-Mar-09	5-6	9,250.71	3-Mar-09	6-7	10,000.60	5-Mar-09	7-8	12,000.12
1-Mar-09	6-7	10,000.72	3-Mar-09	7-8	10,600.36	5-Mar-09	8-9	12,000.21
1-Mar-09	7-8	10,000.80	3-Mar-09	8-9	10,600.61	5-Mar-09	9-10	12,050.30
1-Mar-09	8-9	10,000.87	3-Mar-09	9-10	10,600.95	5-Mar-09	10-11	12,050.63
1-Mar-09	9-10	10,000.91	3-Mar-09	10-11	10,651.82	5-Mar-09	11-12	12,050.73
1-Mar-09	10-11	10,000.90	3-Mar-09	11-12	11,000.50	5-Mar-09	12-13	12,050.68
1-Mar-09	11-12	10,000.96	3-Mar-09	12-13	11,000.37	5-Mar-09	13-14	11,749.66
1-Mar-09	12-13	10,200.10	3-Mar-09	13-14	10,651.02	5-Mar-09	14-15	11,749.89
1-Mar-09	13-14	10,000.91	3-Mar-09	14-15	10,651.22	5-Mar-09	15-16	10,900.00
1-Mar-09	14-15	10,000.93	3-Mar-09	15-16	10,651.22	5-Mar-09	16-17	11,749.07
1-Mar-09	15-16	10,000.92	3-Mar-09	16-17	10,651.96	5-Mar-09	17-18	10,899.55
1-Mar-09	16-17	10,000.92	3-Mar-09	17-18	10,651.28	5-Mar-09	18-19	11,650.63
1-Mar-09	17-18	10,000.79	3-Mar-09	18-19	11,000.12	5-Mar-09	19-20	10,399.89
1-Mar-09	18-19	10,050.10	3-Mar-09	19-20	10,000.97	5-Mar-09	20-21	11,650.21
1-Mar-09	19-20	10,050.48	3-Mar-09	20-21	10,000.88	5-Mar-09	21-22	12,000.10
1-Mar-09	20-21	10,050.35	3-Mar-09	21-22	10,100.85	5-Mar-09	22-23	12,000.37
1-Mar-09	21-22	10,050.35	3-Mar-09	22-23	10,100.48	5-Mar-09	23-24	12,000.70
1-Mar-09	22-23	9,000.94	3-Mar-09	23-24	9,750.94	6-Mar-09	0-1	10,192.43
1-Mar-09	23-24	8,750.94	4-Mar-09	0-1	7,847.61	6-Mar-09	1-2	10,170.70
2-Mar-09	0-1	6,999.65	4-Mar-09	1-2	7,835.46	6-Mar-09	2-3	10,143.74
2-Mar-09	1-2	6,999.03	4-Mar-09	2-3	7,831.89	6-Mar-09	3-4	10,122.00
2-Mar-09	2-3	6,499.98	4-Mar-09	3-4	7,831.89	6-Mar-09	4-5	11,015.24
2-Mar-09	3-4	6,499.98	4-Mar-09	4-5	9,250.79	6-Mar-09	5-6	11,015.37
2-Mar-09	4-5	9,250.69	4-Mar-09	5-6	9,250.89	6-Mar-09	6-7	11,499.77
2-Mar-09	5-6	9,250.73	4-Mar-09	6-7	10,000.69	6-Mar-09	7-8	12,100.62
2-Mar-09	6-7	10,000.44	4-Mar-09	7-8	10,000.90	6-Mar-09	8-9	12,100.24
2-Mar-09	7-8	10,000.62	4-Mar-09	8-9	10,000.95	6-Mar-09	9-10	12,100.27
2-Mar-09	8-9	10,000.74	4-Mar-09	9-10	11,500.14	6-Mar-09	10-11	11,949.91
2-Mar-09	9-10	10,000.79	4-Mar-09	10-11	11,500.52	6-Mar-09	11-12	12,000.11
2-Mar-09	10-11	10,000.95	4-Mar-09	11-12	11,500.64	6-Mar-09	12-13	12,000.19
2-Mar-09	11-12	10,600.95	4-Mar-09	12-13	11,500.61	6-Mar-09	13-14	11,015.61
2-Mar-09	12-13	10,600.40	4-Mar-09	13-14	11,500.07	6-Mar-09	14-15	11,015.66
2-Mar-09	13-14	10,000.90	4-Mar-09	14-15	11,500.26	6-Mar-09	15-16	11,015.62
2-Mar-09	14-15	10,000.84	4-Mar-09	15-16	10,649.83	6-Mar-09	16-17	11,749.48
2-Mar-09	15-16	10,000.86	4-Mar-09	16-17	11,500.38	6-Mar-09	17-18	11,015.26
2-Mar-09	16-17	10,000.81	4-Mar-09	17-18	10,649.89	6-Mar-09	18-19	11,649.34
2-Mar-09	17-18	10,000.72	4-Mar-09	18-19	11,500.38	6-Mar-09	19-20	11,015.85
2-Mar-09	18-19	10,000.94	4-Mar-09	19-20	10,150.32	6-Mar-09	20-21	11,499.21
2-Mar-09	19-20	10,000.91	4-Mar-09	20-21	10,150.20	6-Mar-09	21-22	12,000.31
2-Mar-09	20-21	10,000.83	4-Mar-09	21-22	10,150.82	6-Mar-09	22-23	12,000.64
2-Mar-09	21-22	10,000.44	4-Mar-09	22-23	10,150.80	6-Mar-09	23-24	12,000.01
2-Mar-09	22-23	9,000.80	4-Mar-09	23-24	9,750.53	7-Mar-09	0-1	11,288.35
2-Mar-09	23-24	8,750.30	5-Mar-09	0-1	8,500.30	7-Mar-09	1-2	11,270.96
3-Mar-09	0-1	6,499.91	5-Mar-09	1-2	8,500.17	7-Mar-09	2-3	11,255.74

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
7-Mar-09	3-4	11,255.74	9-Mar-09	9-10	13,000.73	11-Mar-09	15-16	12,000.27
7-Mar-09	4-5	12,000.51	9-Mar-09	10-11	13,000.55	11-Mar-09	16-17	10,499.77
7-Mar-09	5-6	12,000.47	9-Mar-09	11-12	13,000.71	11-Mar-09	17-18	9,498.60
7-Mar-09	6-7	12,000.40	9-Mar-09	12-13	13,000.77	11-Mar-09	18-19	7,999.35
7-Mar-09	7-8	12,000.68	9-Mar-09	13-14	13,000.63	11-Mar-09	19-20	8,000.78
7-Mar-09	8-9	12,000.76	9-Mar-09	14-15	13,000.66	11-Mar-09	20-21	8,999.06
7-Mar-09	9-10	12,000.66	9-Mar-09	15-16	13,000.69	11-Mar-09	21-22	10,499.81
7-Mar-09	10-11	12,000.16	9-Mar-09	16-17	13,000.56	11-Mar-09	22-23	10,293.21
7-Mar-09	11-12	12,000.32	9-Mar-09	17-18	13,000.20	11-Mar-09	23-24	11,021.17
7-Mar-09	12-13	12,000.44	9-Mar-09	18-19	13,000.41	12-Mar-09	0-1	4,998.08
7-Mar-09	13-14	12,000.41	9-Mar-09	19-20	13,000.25	12-Mar-09	1-2	4,998.08
7-Mar-09	14-15	12,000.40	9-Mar-09	20-21	13,000.36	12-Mar-09	2-3	4,998.82
7-Mar-09	15-16	12,000.45	9-Mar-09	21-22	13,000.30	12-Mar-09	3-4	4,998.82
7-Mar-09	16-17	12,000.17	9-Mar-09	22-23	13,000.25	12-Mar-09	4-5	7,999.96
7-Mar-09	17-18	11,750.93	9-Mar-09	23-24	13,000.45	12-Mar-09	5-6	7,999.89
7-Mar-09	18-19	12,000.43	10-Mar-09	0-1	9,749.50	12-Mar-09	6-7	10,499.53
7-Mar-09	19-20	12,000.56	10-Mar-09	1-2	9,499.88	12-Mar-09	7-8	11,049.93
7-Mar-09	20-21	12,000.56	10-Mar-09	2-3	9,499.67	12-Mar-09	8-9	12,500.22
7-Mar-09	21-22	12,000.55	10-Mar-09	3-4	9,499.59	12-Mar-09	9-10	12,000.74
7-Mar-09	22-23	12,000.47	10-Mar-09	4-5	9,499.72	12-Mar-09	10-11	12,600.93
7-Mar-09	23-24	12,000.70	10-Mar-09	5-6	9,499.72	12-Mar-09	11-12	13,000.27
8-Mar-09	0-1	11,311.52	10-Mar-09	6-7	10,299.21	12-Mar-09	12-13	13,000.30
8-Mar-09	1-2	11,272.39	10-Mar-09	7-8	12,000.02	12-Mar-09	13-14	13,000.33
8-Mar-09	2-3	11,259.95	10-Mar-09	8-9	12,000.06	12-Mar-09	14-15	13,000.18
8-Mar-09	3-4	11,259.95	10-Mar-09	9-10	6,490.94	12-Mar-09	15-16	13,000.12
8-Mar-09	4-5	12,000.59	10-Mar-09	10-11	6,490.99	12-Mar-09	16-17	11,049.54
8-Mar-09	5-6	12,000.62	10-Mar-09	11-12	6,999.05	12-Mar-09	17-18	8,999.96
8-Mar-09	6-7	12,010.93	10-Mar-09	12-13	6,490.83	12-Mar-09	18-19	8,999.02
8-Mar-09	7-8	12,500.40	10-Mar-09	13-14	6,490.78	12-Mar-09	19-20	8,999.35
8-Mar-09	8-9	12,500.33	10-Mar-09	14-15	6,490.75	12-Mar-09	20-21	7,999.34
8-Mar-09	9-10	13,100.09	10-Mar-09	15-16	6,999.15	12-Mar-09	21-22	6,998.97
8-Mar-09	10-11	12,250.86	10-Mar-09	16-17	6,490.31	12-Mar-09	22-23	5,999.74
8-Mar-09	11-12	12,250.79	10-Mar-09	17-18	6,490.60	12-Mar-09	23-24	5,999.91
8-Mar-09	12-13	13,001.01	10-Mar-09	18-19	6,499.66	13-Mar-09	0-1	4,979.37
8-Mar-09	13-14	12,010.41	10-Mar-09	19-20	8,000.47	13-Mar-09	1-2	4,979.33
8-Mar-09	14-15	13,000.22	10-Mar-09	20-21	9,499.38	13-Mar-09	2-3	4,979.33
8-Mar-09	15-16	12,000.99	10-Mar-09	21-22	9,998.16	13-Mar-09	3-4	4,979.67
8-Mar-09	16-17	13,000.13	10-Mar-09	22-23	9,499.41	13-Mar-09	4-5	7,499.76
8-Mar-09	17-18	12,000.78	10-Mar-09	23-24	9,998.35	13-Mar-09	5-6	9,000.74
8-Mar-09	18-19	12,000.93	11-Mar-09	0-1	4,999.96	13-Mar-09	6-7	10,499.52
8-Mar-09	19-20	12,000.77	11-Mar-09	1-2	4,999.94	13-Mar-09	7-8	11,999.12
8-Mar-09	20-21	12,000.73	11-Mar-09	2-3	4,999.80	13-Mar-09	8-9	12,000.26
8-Mar-09	21-22	12,000.95	11-Mar-09	3-4	4,999.80	13-Mar-09	9-10	11,500.70
8-Mar-09	22-23	12,010.07	11-Mar-09	4-5	7,999.89	13-Mar-09	10-11	11,500.74
8-Mar-09	23-24	12,010.47	11-Mar-09	5-6	9,499.77	13-Mar-09	11-12	12,999.22
9-Mar-09	0-1	12,003.65	11-Mar-09	6-7	10,499.72	13-Mar-09	12-13	12,000.55
9-Mar-09	1-2	12,003.56	11-Mar-09	7-8	10,499.73	13-Mar-09	13-14	12,000.08
9-Mar-09	2-3	12,003.29	11-Mar-09	8-9	12,000.18	13-Mar-09	14-15	11,500.63
9-Mar-09	3-4	12,003.24	11-Mar-09	9-10	12,000.98	13-Mar-09	15-16	11,500.10
9-Mar-09	4-5	13,000.36	11-Mar-09	10-11	12,500.29	13-Mar-09	16-17	8,499.97
9-Mar-09	5-6	13,000.34	11-Mar-09	11-12	12,500.36	13-Mar-09	17-18	7,999.65
9-Mar-09	6-7	13,000.46	11-Mar-09	12-13	12,500.23	13-Mar-09	18-19	8,499.03
9-Mar-09	7-8	13,000.66	11-Mar-09	13-14	12,000.73	13-Mar-09	19-20	6,979.89
9-Mar-09	8-9	13,000.65	11-Mar-09	14-15	12,000.52	13-Mar-09	20-21	6,499.37

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
13-Mar-09	21-22	6,979.82	16-Mar-09	3-4	4,419.13	18-Mar-09	19-20	5,650.46
13-Mar-09	22-23	5,989.91	16-Mar-09	4-5	6,399.06	18-Mar-09	20-21	5,500.02
13-Mar-09	23-24	7,999.80	16-Mar-09	5-6	7,399.37	18-Mar-09	21-22	6,439.47
14-Mar-09	0-1	4,498.05	16-Mar-09	6-7	6,499.92	18-Mar-09	22-23	5,500.59
14-Mar-09	1-2	4,498.05	16-Mar-09	7-8	8,299.28	18-Mar-09	23-24	6,428.87
14-Mar-09	2-3	4,498.04	16-Mar-09	8-9	8,989.96	19-Mar-09	0-1	5,000.69
14-Mar-09	3-4	4,498.84	16-Mar-09	9-10	8,979.79	19-Mar-09	1-2	5,000.89
14-Mar-09	4-5	6,499.57	16-Mar-09	10-11	9,299.21	19-Mar-09	2-3	5,228.47
14-Mar-09	5-6	8,995.17	16-Mar-09	11-12	12,500.31	19-Mar-09	3-4	6,998.97
14-Mar-09	6-7	8,299.99	16-Mar-09	12-13	12,500.31	19-Mar-09	4-5	6,949.99
14-Mar-09	7-8	9,789.74	16-Mar-09	13-14	9,799.83	19-Mar-09	5-6	9,200.11
14-Mar-09	8-9	9,990.10	16-Mar-09	14-15	10,000.08	19-Mar-09	6-7	5,999.17
14-Mar-09	9-10	9,299.08	16-Mar-09	15-16	8,999.42	19-Mar-09	7-8	8,039.76
14-Mar-09	10-11	9,299.50	16-Mar-09	16-17	8,000.20	19-Mar-09	8-9	8,849.73
14-Mar-09	11-12	10,789.18	16-Mar-09	17-18	7,399.69	19-Mar-09	9-10	8,199.75
14-Mar-09	12-13	10,000.10	16-Mar-09	18-19	6,999.01	19-Mar-09	10-11	8,999.96
14-Mar-09	13-14	9,799.74	16-Mar-09	19-20	5,879.46	19-Mar-09	11-12	10,349.29
14-Mar-09	14-15	9,000.47	16-Mar-09	20-21	5,389.47	19-Mar-09	12-13	10,000.44
14-Mar-09	15-16	7,499.87	16-Mar-09	21-22	6,449.59	19-Mar-09	13-14	9,500.98
14-Mar-09	16-17	6,289.20	16-Mar-09	22-23	5,549.25	19-Mar-09	14-15	10,349.35
14-Mar-09	17-18	5,799.31	16-Mar-09	23-24	6,899.24	19-Mar-09	15-16	9,500.32
14-Mar-09	18-19	0.00	17-Mar-09	0-1	4,419.08	19-Mar-09	16-17	8,000.23
14-Mar-09	19-20	5,000.66	17-Mar-09	1-2	4,399.70	19-Mar-09	17-18	6,998.48
14-Mar-09	20-21	5,000.61	17-Mar-09	2-3	4,399.63	19-Mar-09	18-19	6,979.85
14-Mar-09	21-22	5,879.85	17-Mar-09	3-4	4,399.63	19-Mar-09	19-20	5,650.64
14-Mar-09	22-23	4,889.90	17-Mar-09	4-5	5,999.82	19-Mar-09	20-21	5,500.45
14-Mar-09	23-24	5,998.44	17-Mar-09	5-6	7,099.88	19-Mar-09	21-22	6,450.30
15-Mar-09	0-1	4,419.48	17-Mar-09	6-7	5,979.92	19-Mar-09	22-23	5,500.95
15-Mar-09	1-2	4,419.48	17-Mar-09	7-8	8,050.36	19-Mar-09	23-24	6,399.58
15-Mar-09	2-3	4,419.47	17-Mar-09	8-9	8,899.78	20-Mar-09	0-1	6,828.02
15-Mar-09	3-4	4,419.47	17-Mar-09	9-10	8,479.78	20-Mar-09	1-2	6,979.20
15-Mar-09	4-5	6,399.65	17-Mar-09	10-11	8,979.76	20-Mar-09	2-3	6,498.90
15-Mar-09	5-6	7,499.02	17-Mar-09	11-12	10,789.26	20-Mar-09	3-4	6,499.59
15-Mar-09	6-7	8,999.20	17-Mar-09	12-13	10,000.06	20-Mar-09	4-5	6,979.74
15-Mar-09	7-8	9,789.75	17-Mar-09	13-14	8,999.19	20-Mar-09	5-6	9,500.93
15-Mar-09	8-9	9,789.69	17-Mar-09	14-15	8,999.32	20-Mar-09	6-7	6,949.63
15-Mar-09	9-10	9,299.31	17-Mar-09	15-16	8,199.81	20-Mar-09	7-8	8,039.05
15-Mar-09	10-11	9,299.95	17-Mar-09	16-17	7,999.43	20-Mar-09	8-9	8,849.15
15-Mar-09	11-12	12,500.29	17-Mar-09	17-18	6,999.88	20-Mar-09	9-10	7,999.84
15-Mar-09	12-13	12,500.07	17-Mar-09	18-19	6,998.06	20-Mar-09	10-11	8,900.06
15-Mar-09	13-14	11,000.63	17-Mar-09	19-20	5,800.06	20-Mar-09	11-12	11,250.39
15-Mar-09	14-15	12,500.00	17-Mar-09	20-21	5,479.98	20-Mar-09	12-13	9,999.57
15-Mar-09	15-16	9,299.84	17-Mar-09	21-22	6,449.29	20-Mar-09	13-14	9,489.34
15-Mar-09	16-17	7,499.75	17-Mar-09	22-23	5,479.95	20-Mar-09	14-15	10,750.08
15-Mar-09	17-18	7,499.07	17-Mar-09	23-24	6,479.25	20-Mar-09	15-16	8,999.86
15-Mar-09	18-19	6,999.74	18-Mar-09	0-1	4,500.20	20-Mar-09	16-17	7,999.14
15-Mar-09	19-20	5,879.84	18-Mar-09	1-2	4,500.47	20-Mar-09	17-18	6,499.70
15-Mar-09	20-21	5,389.42	18-Mar-09	2-3	4,398.74	20-Mar-09	18-19	6,979.04
15-Mar-09	21-22	6,499.53	18-Mar-09	3-4	4,399.79	20-Mar-09	19-20	5,800.39
15-Mar-09	22-23	5,599.87	18-Mar-09	4-5	6,998.38	20-Mar-09	20-21	5,650.98
15-Mar-09	23-24	7,499.38	18-Mar-09	5-6	7,089.87	20-Mar-09	21-22	6,500.34
16-Mar-09	0-1	4,419.13	18-Mar-09	6-7	5,969.87	20-Mar-09	22-23	5,999.35
16-Mar-09	1-2	4,419.13	18-Mar-09	7-8	8,049.11	20-Mar-09	23-24	7,228.27
16-Mar-09	2-3	4,419.13	18-Mar-09	8-9	8,889.28	21-Mar-09	0-1	1,499.25

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
23-Mar-09	11-12	8,000.34	25-Mar-09	17-18	5,499.66	27-Mar-09	23-24	3,518.04
23-Mar-09	12-13	8,498.70	25-Mar-09	18-19	4,999.43	28-Mar-09	0-1	2,500.54
23-Mar-09	13-14	8,498.68	25-Mar-09	19-20	4,999.28	28-Mar-09	1-2	2,500.28
23-Mar-09	14-15	7,939.02	25-Mar-09	20-21	4,999.98	28-Mar-09	2-3	2,500.18
23-Mar-09	15-16	7,939.75	25-Mar-09	21-22	4,989.96	28-Mar-09	3-4	2,998.01
23-Mar-09	16-17	8,000.19	25-Mar-09	22-23	4,989.57	28-Mar-09	4-5	3,518.37
23-Mar-09	17-18	6,499.82	25-Mar-09	23-24	4,479.63	28-Mar-09	5-6	6,150.10
23-Mar-09	18-19	5,499.44	26-Mar-09	0-1	1,500.27	28-Mar-09	6-7	4,999.98
23-Mar-09	19-20	5,325.31	26-Mar-09	1-2	1,500.27	28-Mar-09	7-8	5,000.54
23-Mar-09	20-21	5,325.04	26-Mar-09	2-3	1,500.17	28-Mar-09	8-9	5,699.39
23-Mar-09	21-22	4,999.95	26-Mar-09	3-4	3,000.18	28-Mar-09	9-10	5,699.30
23-Mar-09	22-23	4,999.09	26-Mar-09	4-5	3,209.43	28-Mar-09	10-11	5,699.36
23-Mar-09	23-24	3,398.57	26-Mar-09	5-6	4,999.56	28-Mar-09	11-12	5,999.62
24-Mar-09	0-1	3,996.35	26-Mar-09	6-7	2,506.31	28-Mar-09	12-13	5,999.77
24-Mar-09	1-2	3,598.25	26-Mar-09	7-8	4,999.18	28-Mar-09	13-14	5,999.75
24-Mar-09	2-3	3,439.32	26-Mar-09	8-9	4,999.45	28-Mar-09	14-15	5,198.76
24-Mar-09	3-4	3,439.27	26-Mar-09	9-10	6,499.17	28-Mar-09	15-16	4,999.35
24-Mar-09	4-5	3,439.76	26-Mar-09	10-11	6,600.07	28-Mar-09	16-17	4,499.49
24-Mar-09	5-6	5,849.03	26-Mar-09	11-12	6,999.07	28-Mar-09	17-18	3,598.27
24-Mar-09	6-7	5,699.16	26-Mar-09	12-13	6,999.50	28-Mar-09	18-19	3,598.27
24-Mar-09	7-8	6,949.27	26-Mar-09	13-14	6,999.12	28-Mar-09	19-20	3,999.68
24-Mar-09	8-9	7,499.52	26-Mar-09	14-15	6,499.62	28-Mar-09	20-21	4,500.01
24-Mar-09	9-10	7,999.33	26-Mar-09	15-16	5,849.83	28-Mar-09	21-22	3,998.94
24-Mar-09	10-11	8,000.84	26-Mar-09	16-17	6,299.02	28-Mar-09	22-23	3,000.61
24-Mar-09	11-12	8,000.78	26-Mar-09	17-18	4,999.16	28-Mar-09	23-24	2,749.28
24-Mar-09	12-13	8,000.87	26-Mar-09	18-19	4,499.31	29-Mar-09	0-1	2,998.45
24-Mar-09	13-14	8,000.27	26-Mar-09	19-20	4,499.68	29-Mar-09	1-2	2,998.22
24-Mar-09	14-15	7,999.93	26-Mar-09	20-21	4,499.58	29-Mar-09	2-3	2,899.94
24-Mar-09	15-16	7,999.94	26-Mar-09	21-22	4,499.38	29-Mar-09	3-4	2,998.74
24-Mar-09	16-17	7,499.86	26-Mar-09	22-23	4,498.83	29-Mar-09	4-5	4,000.62
24-Mar-09	17-18	5,999.77	26-Mar-09	23-24	4,398.95	29-Mar-09	5-6	6,203.31
24-Mar-09	18-19	4,999.58	27-Mar-09	0-1	2,998.86	29-Mar-09	6-7	6,500.84
24-Mar-09	19-20	5,199.42	27-Mar-09	1-2	2,998.66	29-Mar-09	7-8	6,650.50
24-Mar-09	20-21	5,350.91	27-Mar-09	2-3	2,998.61	29-Mar-09	8-9	6,650.97
24-Mar-09	21-22	4,999.99	27-Mar-09	3-4	2,998.87	29-Mar-09	9-10	6,650.95
24-Mar-09	22-23	5,000.48	27-Mar-09	4-5	4,200.36	29-Mar-09	10-11	8,000.40
24-Mar-09	23-24	4,989.41	27-Mar-09	5-6	6,100.30	29-Mar-09	11-12	8,000.43
25-Mar-09	0-1	1,462.50	27-Mar-09	6-7	6,600.25	29-Mar-09	12-13	8,000.15
25-Mar-09	1-2	1,462.50	27-Mar-09	7-8	6,600.39	29-Mar-09	13-14	7,500.92
25-Mar-09	2-3	1,462.50	27-Mar-09	8-9	6,600.52	29-Mar-09	14-15	6,209.59
25-Mar-09	3-4	1,462.50	27-Mar-09	9-10	6,600.39	29-Mar-09	15-16	5,399.77
25-Mar-09	4-5	2,999.28	27-Mar-09	10-11	6,600.64	29-Mar-09	16-17	5,199.82
25-Mar-09	5-6	5,499.02	27-Mar-09	11-12	8,100.23	29-Mar-09	17-18	4,399.87
25-Mar-09	6-7	4,249.66	27-Mar-09	12-13	8,100.22	29-Mar-09	18-19	5,199.47
25-Mar-09	7-8	6,749.10	27-Mar-09	13-14	8,100.12	29-Mar-09	19-20	5,000.53
25-Mar-09	8-9	6,499.74	27-Mar-09	14-15	8,100.11	29-Mar-09	20-21	4,989.64
25-Mar-09	9-10	7,999.10	27-Mar-09	15-16	8,000.56	29-Mar-09	21-22	4,325.71
25-Mar-09	10-11	7,999.55	27-Mar-09	16-17	6,299.04	29-Mar-09	22-23	3,000.52
25-Mar-09	11-12	7,999.46	27-Mar-09	17-18	4,899.18	29-Mar-09	23-24	2,826.66
25-Mar-09	12-13	8,600.13	27-Mar-09	18-19	4,299.78	30-Mar-09	0-1	2,998.69
25-Mar-09	13-14	7,999.88	27-Mar-09	19-20	4,999.28	30-Mar-09	1-2	2,998.71
25-Mar-09	14-15	7,800.99	27-Mar-09	20-21	5,449.07	30-Mar-09	2-3	3,000.03
25-Mar-09	15-16	7,800.68	27-Mar-09	21-22	4,500.84	30-Mar-09	3-4	3,500.06
25-Mar-09	16-17	7,196.76	27-Mar-09	22-23	4,299.49	30-Mar-09	4-5	4,199.70

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.
30-Mar-09	5-6	6,650.05	1-Apr-09	11-12	10100.46	3-Apr-09	17-18	7989.27
30-Mar-09	6-7	8,100.04	1-Apr-09	12-13	10100.35	3-Apr-09	18-19	7989.6
30-Mar-09	7-8	8,100.23	1-Apr-09	13-14	10100.29	3-Apr-09	19-20	7100.39
30-Mar-09	8-9	8,100.44	1-Apr-09	14-15	10100.48	3-Apr-09	20-21	7100.17
30-Mar-09	9-10	9,600.59	1-Apr-09	15-16	10100.06	3-Apr-09	21-22	7100.68
30-Mar-09	10-11	9,600.32	1-Apr-09	16-17	8000.23	3-Apr-09	22-23	7100.57
30-Mar-09	11-12	9,600.58	1-Apr-09	17-18	6989.10	3-Apr-09	23-24	7100.47
30-Mar-09	12-13	9,600.53	1-Apr-09	18-19	4408.90	4-Apr-09	0-1	6000.35
30-Mar-09	13-14	9,600.33	1-Apr-09	19-20	6000.50	4-Apr-09	1-2	5099.28
30-Mar-09	14-15	9,600.41	1-Apr-09	20-21	4989.21	4-Apr-09	2-3	3879.01
30-Mar-09	15-16	9,600.13	1-Apr-09	21-22	6000.45	4-Apr-09	3-4	3800.93
30-Mar-09	16-17	6,999.09	1-Apr-09	22-23	4989.30	4-Apr-09	4-5	4999.09
30-Mar-09	17-18	4,999.43	1-Apr-09	23-24	6000.29	4-Apr-09	5-6	7100.8
30-Mar-09	18-19	4,999.81	2-Apr-09	0-1	3200.14	4-Apr-09	6-7	8700.93
30-Mar-09	19-20	4,899.84	2-Apr-09	1-2	2979.9	4-Apr-09	7-8	8700.87
30-Mar-09	20-21	4,899.92	2-Apr-09	2-3	3200.18	4-Apr-09	8-9	9100.86
30-Mar-09	21-22	4,500.10	2-Apr-09	3-4	3750.16	4-Apr-09	9-10	10100.84
30-Mar-09	22-23	3,999.40	2-Apr-09	4-5	4750.16	4-Apr-09	10-11	10100.85
30-Mar-09	23-24	4,199.33	2-Apr-09	5-6	7000.21	4-Apr-09	11-12	10250.88
31-Mar-09	0-1	2998.86	2-Apr-09	6-7	6499.57	4-Apr-09	12-13	10250.63
31-Mar-09	1-2	2998.79	2-Apr-09	7-8	8089.65	4-Apr-09	13-14	10250.33
31-Mar-09	2-3	2999.76	2-Apr-09	8-9	9000.19	4-Apr-09	14-15	10250.33
31-Mar-09	3-4	3500.22	2-Apr-09	9-10	10000.36	4-Apr-09	15-16	10250.43
31-Mar-09	4-5	4500.41	2-Apr-09	10-11	10000.5	4-Apr-09	16-17	8000.81
31-Mar-09	5-6	6599.77	2-Apr-09	11-12	10200.54	4-Apr-09	17-18	8000.17
31-Mar-09	6-7	7499.03	2-Apr-09	12-13	10200.42	4-Apr-09	18-19	10000.49
31-Mar-09	7-8	8089.59	2-Apr-09	13-14	10200.12	4-Apr-09	19-20	10000.24
31-Mar-09	8-9	8600.12	2-Apr-09	14-15	10200.17	4-Apr-09	20-21	10000.24
31-Mar-09	9-10	9600.60	2-Apr-09	15-16	10000.45	4-Apr-09	21-22	10000.36
31-Mar-09	10-11	9600.16	2-Apr-09	16-17	8000.24	4-Apr-09	22-23	10000.3
31-Mar-09	11-12	10100.46	2-Apr-09	17-18	6989.35	4-Apr-09	23-24	10000.38
31-Mar-09	12-13	10100.35	2-Apr-09	18-19	8000.4	5-Apr-09	0-1	9500.13
31-Mar-09	13-14	10100.29	2-Apr-09	19-20	6400.3	5-Apr-09	1-2	9500.12
31-Mar-09	14-15	10100.48	2-Apr-09	20-21	6400.05	5-Apr-09	2-3	9500.32
31-Mar-09	15-16	10100.06	2-Apr-09	21-22	6400.37	5-Apr-09	3-4	9500.45
31-Mar-09	16-17	8000.23	2-Apr-09	22-23	6400.27	5-Apr-09	4-5	9500.85
31-Mar-09	17-18	6989.10	2-Apr-09	23-24	6400.36	5-Apr-09	5-6	9500.87
31-Mar-09	18-19	4408.90	3-Apr-09	0-1	3331.7	5-Apr-09	6-7	10500.24
31-Mar-09	19-20	6000.50	3-Apr-09	1-2	3278.13	5-Apr-09	7-8	10500.43
31-Mar-09	20-21	4989.21	3-Apr-09	2-3	2999.85	5-Apr-09	8-9	10500.44
31-Mar-09	21-22	6000.45	3-Apr-09	3-4	2999.92	5-Apr-09	9-10	11000.76
31-Mar-09	22-23	4989.30	3-Apr-09	4-5	4900.25	5-Apr-09	10-11	11000.3
31-Mar-09	23-24	6000.29	3-Apr-09	5-6	7100.57	5-Apr-09	11-12	11000.49
1-Apr-09	0-1	2998.86	3-Apr-09	6-7	8700.61	5-Apr-09	12-13	11000.56
1-Apr-09	1-2	2998.79	3-Apr-09	7-8	8700.75	5-Apr-09	13-14	11000.56
1-Apr-09	2-3	2999.76	3-Apr-09	8-9	9100.81	5-Apr-09	14-15	11000.56
1-Apr-09	3-4	3500.22	3-Apr-09	9-10	10100.86	5-Apr-09	15-16	11000.51
1-Apr-09	4-5	4500.41	3-Apr-09	10-11	10100.38	5-Apr-09	16-17	10000.51
1-Apr-09	5-6	6599.77	3-Apr-09	11-12	10250.53	5-Apr-09	17-18	9700.06
1-Apr-09	6-7	7499.03	3-Apr-09	12-13	10250.44	5-Apr-09	18-19	10000.18
1-Apr-09	7-8	8089.59	3-Apr-09	13-14	10250.4	5-Apr-09	19-20	11000.32
1-Apr-09	8-9	8600.12	3-Apr-09	14-15	10250.42	5-Apr-09	20-21	11000.45
1-Apr-09	9-10	9600.60	3-Apr-09	15-16	10250.47	5-Apr-09	21-22	11000.57
1-Apr-09	10-11	9600.16	3-Apr-09	16-17	8100.18	5-Apr-09	22-23	11000.64

Date	Time	Rs./MWhr.	Date	Time	Rs./MWhr.	Date	Time	Rs
5-Apr-09	23-24	11000.18	8-Apr-09	8-9	12600.31	10-Apr-09	17-18	
6-Apr-09	0-1	10500.06	8-Apr-09	9-10	12600.59	10-Apr-09	18-19	
6-Apr-09	1-2	10200.75	8-Apr-09	10-11	12800.04	10-Apr-09	19-20	
6-Apr-09	2-3	10200.21	8-Apr-09	11-12	12800.04	10-Apr-09	20-21	
6-Apr-09	3-4	6999.11	8-Apr-09	12-13	12600.97	10-Apr-09	21-22	8
6-Apr-09	4-5	10200.65	8-Apr-09	13-14	12600.83	10-Apr-09	22-23	90
6-Apr-09	5-6	11500.26	8-Apr-09	14-15	12600.54	10-Apr-09	23-24	
6-Apr-09	6-7	11500.83	8-Apr-09	15-16	12600.79			
6-Apr-09	7-8	12000.15	8-Apr-09	16-17	12600.27			
6-Apr-09	8-9	12000.24	8-Apr-09	17-18	8000.97			
6-Apr-09	9-10	12000.91	8-Apr-09	18-19	12800.45			
6-Apr-09	10-11	12000.7	8-Apr-09	19-20	12800.45			
6-Apr-09	11-12	12000.78	8-Apr-09	20-21	12800.39			
6-Apr-09	12-13	12000.81	8-Apr-09	21-22	12800.3			
6-Apr-09	13-14	12000.78	8-Apr-09	22-23	12800.13			
6-Apr-09	14-15	12000.79	8-Apr-09	23-24	12800.39			
6-Apr-09	15-16	12000.83	9-Apr-09	0-1	8279.76			
6-Apr-09	16-17	13000.37	9-Apr-09	1-2	8279.57			
6-Apr-09	17-18	12000.63	9-Apr-09	2-3	6999.64			
6-Apr-09	18-19	12000.93	9-Apr-09	3-4	6999.35			
6-Apr-09	19-20	12000.72	9-Apr-09	4-5	12589.94			
6-Apr-09	20-21	12000.81	9-Apr-09	5-6	12600.5			
6-Apr-09	21-22	12000.88	9-Apr-09	6-7	12600.04			
6-Apr-09	22-23	12000.85	9-Apr-09	7-8	12600.27			
6-Apr-09	23-24	12000.9	9-Apr-09	8-9	12589.49			
7-Apr-09	0-1	11000.57	9-Apr-09	9-10	12589.09			
7-Apr-09	1-2	11000.06	9-Apr-09	10-11	12600.39			
7-Apr-09	2-3	10189.26	9-Apr-09	11-12	12600.69			
7-Apr-09	3-4	10189.64	9-Apr-09	12-13	12600.54			
7-Apr-09	4-5	12100.31	9-Apr-09	13-14	12600.57			
7-Apr-09	5-6	12100.5	9-Apr-09	14-15	12600.57			
7-Apr-09	6-7	12100.42	9-Apr-09	15-16	12600.51			
7-Apr-09	7-8	12100.5	9-Apr-09	16-17	9679.94			
7-Apr-09	8-9	12100.47	9-Apr-09	17-18	8000.15			
7-Apr-09	9-10	12100.53	9-Apr-09	18-19	12850.14			
7-Apr-09	10-11	12100.82	9-Apr-09	19-20	12800.74			
7-Apr-09	11-12	12100.87	9-Apr-09	20-21	12800.76			
7-Apr-09	12-13	12100.91	9-Apr-09	21-22	12800.7			
7-Apr-09	13-14	12100.73	9-Apr-09	22-23	12800.39			
7-Apr-09	14-15	12100.8	9-Apr-09	23-24	10999.39			
7-Apr-09	15-16	12100.67	10-Apr-09	0-1	6779.16			
7-Apr-09	16-17	11989.6	10-Apr-09	1-2	6779.03			
7-Apr-09	17-18	10279.49	10-Apr-09	2-3	6000			
7-Apr-09	18-19	12500.42	10-Apr-09	3-4	5999.95			
7-Apr-09	19-20	12500.26	10-Apr-09	4-5	6999.25			
7-Apr-09	20-21	12100.9	10-Apr-09	5-6	7350.59			
7-Apr-09	21-22	12100.84	10-Apr-09	6-7	8479.26			
7-Apr-09	22-23	12100.94	10-Apr-09	7-8	8999.57			
7-Apr-09	23-24	12500.26	10-Apr-09	8-9	8000.49			
8-Apr-09	0-1	10999.81	10-Apr-09	9-10	8000.18			
8-Apr-09	1-2	9479.93	10-Apr-09	10-11	8000.96			
8-Apr-09	2-3	7999.58	10-Apr-09	11-12	9279.25			
8-Apr-09	3-4	7999.32	10-Apr-09	12-13	8999.88			
8-Apr-09	4-5	12600.13	10-Apr-09	13-14	9279.42			
8-Apr-09	5-6	12600.49	10-Apr-09	14-15	9279.76			
8-Apr-09	6-7	12600.62	10-Apr-09	15-16	8490.1			
8-Apr-09	7-8	12600.57	10-Apr-09	16-17	7999.61			