

## **ENERGY**

The Punjab Power Generation Policy, promulgated in 2006 to undertake implementation of power generation programmes in the province, has opened new vistas for development of power projects based on renewable resources such as hydropower, solar and wind coupled with electricity generation based on other indigenous fuel resources such as oil, coal and gas since its revision in 2009 in consonance with the powers conferred by the Constitution of Pakistan. Government of Punjab, pursuing upon creation of the new Energy Department last year, is now introducing the new Energy Sector in the current Development Programme (2012-13) as a dedicated outlay of Rs.10 Billion to support accelerated implementation of the Energy Sector action plans.

### **Vision**

Vision for province's Energy Sector aiming to utilize all available sources in the province to provide affordable energy to all segments of provincial economy through increase in generation and conservation of energy has been delineated to maximize expansion of power generation capacity and infrastructure in the province through participation of both public and private sectors.

### **Objectives**

- Focus on quick gestation projects in public and private sectors through introducing appropriate investment and return incentives under optimized power generation policy / framework.
- Accelerate implementation of public sector projects under the ADB-credited 'Renewable Energy Development Sector Investment Programme (REDSIP)' program to demonstrate technical and financial viability of these initiatives for the intended follow-up series of similar projects.
- Support cheaper and indigenous sources and introduce appropriate technologies that promise quick indigenization including solar, coal, biomass and biogas.
- Enrich provincial potential and ownership of power generation sites to minimize load shedding through reduction of energy losses and transmission costs.
- Foster competition to enforce better quality standards and conservation protocols associated with effective energy audits, and awareness campaigns.

### **Sector Overview**

Pakistan has been experiencing the worst energy crisis in its history since 2007. Total installed electricity generation capacity of Pakistan is 22,668 MW with demand growing at 8 percent annually. Power shortage in the industrial, agricultural and domestic sectors cumulatively compounded to critical proportions during the

year 2011 when gap between peak demand and supply exceeded 7000 MW. Punjab consumes 68% of the total electricity generated in the country and is coping with severe energy shortfalls that have very adversely hit its targets for annual GDP growth rates of 6 percent for the past many years. Since revision of the Punjab Power Policy in year 2009, the province has accelerated activities toward envisaged action plans for renewable energy development in the province. After establishment of the Punjab Power Development Company Limited (PPDCL) to implement the ADB-assisted five low-head hydel power projects in public sector and the Punjab Power Development Board (PPDB) to facilitate power sector investments in private sector. An independent Energy Department has also been established by Government of Punjab in 2011 to plan, oversee and administer the development, growth and regulation of energy sector in Punjab

### **Sectoral Initiatives**

- Renewable energy Development Sector Investment Program (REDSIP) Construction of Five Hydropower Stations
- Feasibility Study for Development of Coal Based Power Projects and Industrial Estate in Punjab
- Installation of Solar Tube Wells

### **Salient Features of Sector's MTDf (2012-15)**

Under its pioneering public sector program envisaging fast-track development of renewable energy resources action plan in the province, Punjab has actively embarked upon implementation of the ADB-assisted "Renewable energy Development Sector Investment Program (REDSIP)" for construction of five (5) hydropower projects at Marala (Sialkot), Chianwali (Gujranwala), Deg Out Fall (Sheikhupura), Pakpattan (Pakpattan), Okara (Okara) with cumulative installed potential of 25 MW and annual generation of 140 GWh. Out of these execution contracts under International Contract Bidding (ICB) for Marala (7.64 MW) and Pakpattan (2.82 MW) have been awarded and the contracting Joint Ventures have started detailed designing to undertake these turnkey projects. Bids on Deg outfall (4.04 MW), Chianwali (5.38 MW) and Okara (4.16 MW) are presently under evaluation for award during June-July 2012. Further, feasibility appraisals are in progress for development of five (5) additional hydropower sites at barrages and canal systems (Khanki and Qadirabad barrages and LCC, UCC and QB Linka Canals) to have total installed capacity of 55 MW with annual energy generation potential of 206 GWh. Under a separate initiative, a detailed technical feasibility

study has also been launched to investigate 120 MW power generation potential at the Taunsa Barrage.

### MTDF Targets for Financial Year 2012-13

Sectoral Initiatives	Targets (FY 2012-13)
Renewable energy Development Sector Investment Program ( <i>REDSIP</i> ) Construction of Five Hydropower Stations	Construction of Marala (7.64 MW) & Pakpattan (2.82 MW) Hydropower Stations Award of Deg outfall (4.04 MW), Chianwali (5.38 MW) and Okara (4.16 MW) Hydropower Stations
Feasibility Study for Development of Coal Based Power Projects and Industrial Estate in Punjab	Undertaking detailed techno-economic feasibility of establishing dedicated coal-based power projects to meet energy requirements of various industrial estates in Punjab.
Installation of Solar Tube Wells / Promotion of alternate energy	Establishment of center of excellence for renewable energy at U.E.T , Lahore Launching research, field trials and production scale provision of solar-based tubewells for water supply and irrigation

**MTDF 2012-15**  
**Energy : Summary**  
**Development Programme 2012-13**

(Million Rs.)

Sub-Sector	Capital	Revenue	Total	F. Aid	Total
<b>Ongoing Schemes</b>					
Foreign Aided	435.000	50.000	485.000	1,500.000	1,985.000
<b>Total</b>	<b>435.000</b>	<b>50.000</b>	<b>485.000</b>	<b>1,500.000</b>	<b>1,985.000</b>
<b>New Schemes</b>					
Survey & Investigation	15.000	0.000	15.000	0.000	15.000
Block Allocation	8,000.000	0.000	8,000.000	0.000	8,000.000
<b>Total</b>	<b>8,015.000</b>	<b>0.000</b>	<b>8,015.000</b>	<b>0.000</b>	<b>8,015.000</b>
<b>Total (ongoing+new)</b>	<b>8,450.000</b>	<b>50.000</b>	<b>8,500.000</b>	<b>1,500.000</b>	<b>10,000.000</b>

**Development Program 2013-14**

<b>Ongoing Schemes</b>					
Foreign Aided	1,000.000	100.000	1,100.000	4,300.000	5,400.000
<b>Total</b>	<b>1,000.000</b>	<b>100.000</b>	<b>1,100.000</b>	<b>4,300.000</b>	<b>5,400.000</b>
<b>New Schemes</b>					
Survey & Investigation	20.000	0.000	20.000	0.000	20.000
Solar Energy	2,600.000	0.000	2,600.000	0.000	2,600.000
Coal Power Projects	1,000.000	0.000	1,000.000	0.000	1,000.000
Biogas Power Project	1,000.000	0.000	1,000.000	0.000	1,000.000
Biomass	980.000	0.000	980.000	0.000	980.000
<b>Total</b>	<b>5,600.000</b>	<b>0.000</b>	<b>5,600.000</b>	<b>0.000</b>	<b>5,600.000</b>
<b>Total (ongoing+new)</b>	<b>6,600.000</b>	<b>100.000</b>	<b>6,700.000</b>	<b>4,300.000</b>	<b>11,000.000</b>

**Development Program 2014-15**

<b>Ongoing Schemes</b>					
Survey & Investigation	20.000	0.000	20.000	0.000	20.000
Solar Energy	800.000	0.000	800.000	0.000	800.000
Coal Power Projects	2,010.000	0.000	2,010.000	0.000	2,010.000
Biogas Power Project	800.000	0.000	800.000	0.000	800.000
Biomass	800.000	0.000	800.000	0.000	800.000
Foreign Aided	800.000	50.000	850.000	3,600.000	4,450.000
<b>Total</b>	<b>5,230.000</b>	<b>50.000</b>	<b>5,280.000</b>	<b>3,600.000</b>	<b>8,880.000</b>
<b>New Schemes</b>					
Survey & Investigation	20.000	0.000	20.000	0.000	20.000
Solar Energy	800.000	0.000	800.000	0.000	800.000
Coal Power Projects	800.000	0.000	800.000	0.000	800.000
Biogas Power Project	800.000	0.000	800.000	0.000	800.000
Biomass	800.000	0.000	800.000	0.000	800.000
<b>Total</b>	<b>3,220.000</b>	<b>0.000</b>	<b>3,220.000</b>	<b>0.000</b>	<b>3,220.000</b>
<b>Total (ongoing+new)</b>	<b>8,450.000</b>	<b>50.000</b>	<b>8,500.000</b>	<b>3,600.000</b>	<b>12,100.000</b>
<b>Energy MTDF 2012-15: Grand Total</b>					<b>33,100.000</b>

## ENERGY: SUMMARY

(Million Rs.)

Type / Sub Sector	No. of Schemes	Provision for 2012-13				Projection for 2013-14	Projection for 2014-15
		Capital	Revenue	Foreign Aid	G. Total (Cap+Rev)		
<b><u>ON-GOING SCHEMES</u></b>							
Foreign Aided Projects	1	435.000	50.000	1,500.000	1,985.000	4,000.000	5,947.000
<b>Total: ON-GOING SCHEMES</b>	<b>1</b>	<b>435.000</b>	<b>50.000</b>	<b>1,500.000</b>	<b>1,985.000</b>	<b>4,000.000</b>	<b>5,947.000</b>
<b><u>NEW SCHEMES</u></b>							
Survey Investigation and Research	1	15.000	0.000	0.000	15.000	0.000	0.000
Block	3	8,000.000	0.000	0.000	8,000.000	0.000	0.000
<b>Total: NEW SCHEMES</b>	<b>4</b>	<b>8,015.000</b>	<b>0.000</b>	<b>0.000</b>	<b>8,015.000</b>	<b>0.000</b>	<b>0.000</b>
<b>Grand Total</b>	<b>5</b>	<b>8,450.000</b>	<b>50.000</b>	<b>1,500.000</b>	<b>10,000.000</b>	<b>4,000.000</b>	<b>5,947.000</b>

# ENERGY

(Million Rs.)

GS No	Scheme Information Approval Date / Location / Scheme ID	Est. Cost	Accum. Exp June, 12	Provision for 2012-13			MTDF Projections		Throw fwd Beyond June, 2015
				Cap	Rev	G. Total (Cap+Rev)	2013-14	2014-15	
1	2	3	4	5	6	7	8	9	10

## ON-GOING SCHEMES

### Foreign Aided Projects

1205	Renewable Energy Development Programme (REDSIP) 06-02-2008, 29-07-2011 Punjab ENR08-08089900012-0001	11,932.000	794.090	1,935.000	50.000	1,985.000	4,000.000	5,947.000	0.000
			Local:	435.000	50.000				
			Foreign:	1,500.000	0.000				
<b>Sub-Total: Foreign Aided Projects</b>		<b>11,932.000</b>	<b>794.090</b>	<b>1,935.000</b>	<b>50.000</b>	<b>1,985.000</b>	<b>4,000.000</b>	<b>5,947.000</b>	<b>0.000</b>
<b>Total: ON-GOING SCHEMES</b>		<b>11,932.000</b>	<b>794.090</b>	<b>1,935.000</b>	<b>50.000</b>	<b>1,985.000</b>	<b>4,000.000</b>	<b>5,947.000</b>	<b>0.000</b>

## NEW SCHEMES

### Survey Investigation and Research

1206	Feasibility Study for Development of Coal Based Power Projects at Industrial States in Punjab Un-Approved Punjab ENR12-08089900001-0002	15.000	0.000	15.000	0.000	15.000	0.000	0.000	0.000
<b>Sub-Total: Survey Investigation and Research</b>		<b>15.000</b>	<b>0.000</b>	<b>15.000</b>	<b>0.000</b>	<b>15.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

### Solar Energy

1207	Installation of Solar Tube Wells/ Promotion of alternate energy Un-Approved Punjab ENR12-08089900001-0003	1,000.000	0.000	1,000.000	0.000	1,000.000	0.000	0.000	0.000
1208	Provision of Solar Panels to Households below the poverty line. Un-Approved Punjab ENR12-08089900013-0005	1,000.000	0.000	1,000.000	0.000	1,000.000	0.000	0.000	0.000
1209	Block Allocation for Coal, Hydel, Biogas, Biomass, Solar and Rice Husking Power Projects. Un-Approved Punjab ENR12-08089900013-0004	6,000.000	0.000	6,000.000	0.000	6,000.000	0.000	0.000	0.000
<b>Sub-Total: Solar Energy</b>		<b>8,000.000</b>	<b>0.000</b>	<b>8,000.000</b>	<b>0.000</b>	<b>8,000.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<b>Total: NEW SCHEMES</b>		<b>8,015.000</b>	<b>0.000</b>	<b>8,015.000</b>	<b>0.000</b>	<b>8,015.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<b>Grand Total</b>		<b>19,947.000</b>	<b>794.090</b>	<b>9,950.000</b>	<b>50.000</b>	<b>10,000.000</b>	<b>4,000.000</b>	<b>5,947.000</b>	<b>0.000</b>