

ENERGY

Government of Punjab established Energy Department in 2011 for energy sector development at provincial level and to enhance the Energy Security and fuel Provincial Economy by creating an environment that can reliably meet the energy demands of all the sectors of Punjab's Economy. In a very short span of time since its inception, the Department has become mature enough to devise and pursue strategic goals through a multi-dimensional approach ranging from attracting Private Sector investment, Hybridization of Renewable Energy systems and Energy Efficiency & Conservation Programmes to explore new avenues for sustainable energy production from local as well as imported fuels.

Energy Department aims at fully utilizing the indigenous energy resources that Punjab is blessed with, including solar, hydel, bio-mass, wind and coal to meet the energy requirement of the Province. The Department has also established dedicated companies / attached bodies to work in the specific areas and energy sector projects.

SECTOR OVERVIEW

Punjab, being the biggest consumer of energy among all the provinces, is currently facing several challenges in energy sector. There is a dire need of creating different institutions to undertake development projects in Public and Private sector not only for energy generation but also for the energy conservation. Together, the Federal and Provincial Governments are synergizing their efforts to cope up with the growing energy shortages by installing several mega power projects and focussing on promoting the culture of Energy Conservation.

POLICY

“Provision of affordable energy to all segments of the society to boost the Provincial Economy on the basis of inclusive growth”

VISION

"To enhance Punjab Energy security and fuel economic growth by creating an environment that reliably meet the energy demands of all sectors

of Punjab's economy through a sustainable and affordable energy mix and its efficient use"

OBJECTIVES / STRATEGIES

- Availability of affordable Energy to all citizens.
- Energy Conservation through efficient appliances and conservation measures.
- Sustainable Energy Mix by introducing appropriate technologies.
- Power Generation using indigenous resources (e.g. solar, coal, biomass, wind, hydel and biogas).
- Develop projects to tap the run of the river / canal hydel potential.
- Develop enabling environment for private sector investment in Energy sector.

ACHIEVEMENTS OF FINANCIAL YEAR 2017-18

Research to adopt new and innovative techniques & technology is a key to success for every sector. Energy Department has played a pivotal role to meet the need of Energy with the focus to provide electricity to all the consumers. The most notable milestone achieved in this regard is 1156 MW Bhikki Combined Cycle Power Plant, which was commercially operated with its full potential by the start of May 2018. The establishment of Punjab Thermal Power Pvt. Ltd. for the construction and installation of 1263 MW RNLG based Power Plant at Jhang is an another big initiative of Punjab Government.

Energy Department has also undertaken the up-gradation of the "Centre for Energy Research and Development" at UET, KSK Campus, Lahore to take up and adopt the emerging trends of industrial and commercial uses as an aid to develop the standard codes.

The promotion of the culture of efficient and effective utilization of available energy is one of the core functions of the Energy Department. Punjab's Energy Efficiency & Conservation Programme is the best example to promote the public awareness with respect to adopting the energy efficient measures. Under this programme, conventional appliances in GC University Lahore have been replaced with energy efficient appliances, as a result of

which 0.36 Mega Watt of Energy is saved annually. Moreover, Energy audits of the public buildings are also being carried across the province to reduce wastage and unnecessary use of energy.

Punjab Government has installed 4450 AMI meters in Government electricity connections for reconciliation of electricity billing with the concerned DISCOs. Through installation of these meters the Government of Punjab has been able to save an amount of Rs. 900 million, as a result of reconciliation of overbilling to the Public Institutes.

The energy production through indigenous resources, like hydel, solar, biogas etc. is the best and prudent strategy for the sectoral growth on sustainable grounds. Mini hydro power sites are under implementation stage and two hydro power projects have been completed under REDSIP which are feeding electricity to the national grid. The feasibility study for energy solution using indigenous resources in villages has been completed and the project is under implementation stage.

Moreover, around 11,000 schools are being solarized in South Punjab, under Khadim-e-Punjab Ujaala Programme (KPUP). The project is aimed at providing uninterrupted supply of electricity to the students in remote and deprived areas during school hours. The project shall not only facilitate the students for their studies but also encourage the attendance and enrolment of more students.

The Net-meters have been installed at Public Buildings where solar power solutions were already installed, which would help in crediting the solarized buildings for the electricity they would add to the National Grid during off-Peak hours.

TARGETS FOR FINANCIAL YEAR 2018-19

- Energy Sector Policy formulation for Punjab (Research & Development)
- Completion of 1263 MW RLNG based Power Plant in Jhang
- Establishment of Energy Labs in “Centre for Energy Research and Development” at UET, KSK Campus, Lahore
- Retrofitting of Public Institutes with energy efficient appliances under World Bank Funded Programme

- Initiation of Solarization in Public Institutes under Public Private Partnership (PPP) Mode
- Infrastructure Development of Quaid-e- Azam Solar Park, Bahawalpur
- Acquisition of Land for Construction of Energy Resource Centre & Model Energy Efficient Building
- Completion of AMI Meters (Pilot Project)

TREND OF ALLOCATION

(PKR Million)

| SR.NO. | YEARS | ALLOCATION |
|---------------|--------------|-------------------|
| 1. | 2013-14 | 20,431 |
| 2. | 2014-15 | 22,000 |
| 3. | 2015-16 | 16,000 |
| 4. | 2016-17 | 8,750 |
| 5. | 2017-18 | 9,000 |
| 6. | 2018-19 | 5,000 |

MTDF 2018-21
Energy: Summary
Development Programme 2018-19

(PKR Million)

| Sub-Sector | Local | F. Aid | Total |
|-----------------------------------------|------------------|--------------|------------------|
| On-going Schemes | | | |
| Regular | 3,874.000 | 0.000 | 3,874.000 |
| Total: On-going Schemes | 3,874.000 | 0.000 | 3,874.000 |
| New Schemes | | | |
| Regular | 115.000 | 0.000 | 115.000 |
| PPP | 1.000 | 0.000 | 1.000 |
| Research & Development | 10.000 | 0.000 | 10.000 |
| Total: New Schemes | 126.000 | 0.000 | 126.000 |
| Other Development Program | | | |
| Regular | 1,000.000 | 0.000 | 1,000.000 |
| Total: Other Development Program | 1,000.000 | 0.000 | 1,000.000 |
| Total (Ongoing + New + ODP) | 5,000.000 | 0.000 | 5,000.000 |

Development Programme 2019-20

(PKR Million)

| Sub-Sector | Local | F. Aid | Total |
|-----------------------------------------|------------------|--------------|------------------|
| On-going Schemes | | | |
| Regular | 4,261.400 | 0.000 | 4,261.400 |
| Total: On-going Schemes | 4,261.400 | 0.000 | 4,261.400 |
| New Schemes | | | |
| Regular | 126.500 | 0.000 | 126.500 |
| PPP | 1.100 | 0.000 | 1.100 |
| Research & Development | 11.000 | 0.000 | 11.000 |
| Total: New Schemes | 138.600 | 0.000 | 138.600 |
| Other Development Program | | | |
| Regular | 1,100.000 | 0.000 | 1,100.000 |
| Total: Other Development Program | 1,100.000 | 0.000 | 1,100.000 |
| Total (Ongoing + New + ODP) | 5,500.000 | 0.000 | 5,500.000 |

Development Programme 2020-21

(PKR Million)

| Sub-Sector | Local | F. Aid | Total |
|--------------------------------|------------------|--------------|------------------|
| On-going Schemes | | | |
| Regular | 4,687.540 | 0.000 | 4,687.540 |
| Total: On-going Schemes | 4,687.540 | 0.000 | 4,687.540 |
| New Schemes | | | |
| Regular | 139.150 | 0.000 | 139.150 |
| PPP | 1.210 | 0.000 | 1.210 |
| Research & Development | 12.100 | 0.000 | 12.100 |
| Total: New Schemes | 152.460 | 0.000 | 152.460 |

Development Programme 2020-21

(PKR Million)

| Sub-Sector | Local | F. Aid | Total |
|-----------------------------------------|------------------|--------------|-------------------|
| Other Development Program | | | |
| Regular | 1,210.000 | 0.000 | 1,210.000 |
| Total: Other Development Program | 1,210.000 | 0.000 | 1,210.000 |
| Total (Ongoing + New + ODP) | 6,050.000 | 0.000 | 6,050.000 |
| MTDF 2018-21 : Grand Total | | | 16,550.000 |

ENERGY: SUMMARY

(PKR Million)

| Type / Sub Sector | No. of Schemes | Provision for 2018-19 | | | | Projection for 2019-20 | Projection for 2020-21 |
|-------------------------------------------|----------------|-----------------------|------------------|--------------|----------------------|------------------------|------------------------|
| | | Capital | Revenue | Foreign Aid | G. Total (Cap + Rev) | | |
| <u>ON-GOING SCHEMES</u> | | | | | | | |
| Regular | 11 | 1,783.000 | 2,091.000 | 0.000 | 3,874.000 | 2,343.391 | 0.000 |
| Total: ON-GOING SCHEMES | 11 | 1,783.000 | 2,091.000 | 0.000 | 3,874.000 | 2,343.391 | 0.000 |
| <u>NEW SCHEMES</u> | | | | | | | |
| Regular | 6 | 60.000 | 55.000 | 0.000 | 115.000 | 6,997.000 | 1,866.100 |
| Research & Development | 1 | 0.000 | 10.000 | 0.000 | 10.000 | 40.000 | 0.000 |
| PPP | 1 | 0.000 | 1.000 | 0.000 | 1.000 | 9.000 | 0.000 |
| Total: NEW SCHEMES | 8 | 60.000 | 66.000 | 0.000 | 126.000 | 7,046.000 | 1,866.100 |
| Total: ADP | 19 | 1,843.000 | 2,157.000 | 0.000 | 4,000.000 | 9,389.391 | 1,866.100 |
| <u>OTHER DEVELOPMENT PROGRAMME</u> | | | | | | | |
| Regular | 2 | 0.000 | 1,000.000 | 0.000 | 1,000.000 | 0.000 | 0.000 |
| Total: OTHER DEVELOPMENT PROGRAM | 2 | 0.000 | 1,000.000 | 0.000 | 1,000.000 | 0.000 | 0.000 |
| Grand Total | 21 | 1,843.000 | 3,157.000 | 0.000 | 5,000.000 | 9,389.391 | 1,866.100 |

Energy

(PKR Million)

| GS No | Scheme Information Scheme ID / Approval Date / Location | Est. Cost | Accum. Exp. June, 18 | Provision for 2018-19 | | | MTDF Projections | | Throw fwd Beyond June, 2021 |
|-------|------------------------------------------------------------|-----------|----------------------|-----------------------|------|---------------------|------------------|---------|-----------------------------|
| | | | | Cap. | Rev. | G.Total (Cap.+Rev.) | 2019-20 | 2020-21 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

ON-GOING SCHEMES

Regular

| | | | | | | | | | |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|--------------|--------------|
| 5060 | PC-II, Feasibility Study Consultancy for BioMass based Power Plant setup near wheat and rice produc 46-14-09-000651 / 08-11-2016 / Faisalabad LO14000125 R | 151.484 | 32.488 | 0.000 | 40.000 | 40.000 | 80.000 | 0.000 | 0.000 |
| 5061 | Renewable Energy Development Sector Investment Programme (REDSIP) 46-18-12-024316 / 07-11-2013 / Gujranwala LO11111111 C, LO11111111 R | 12,345.540 | 9,475.540 | 1,783.000 | 30.000 | 1,813.000 | 1,055.000 | 0.000 | 0.000 |
| 5062 | Project Management Unit 46-16-19-007582 / 01-02-2017 / Lahore LO17000003 R | 309.600 | 46.640 | 0.000 | 70.000 | 70.000 | 192.960 | 0.000 | 0.000 |
| 5063 | Upgrading of Center for Energy Research & Development at UET Lahore 46-17-19-024807 / 26-10-2017 / Lahore LO11111111 R | 73.500 | 0.000 | 0.000 | 73.500 | 73.500 | 0.000 | 0.000 | 0.000 |
| 5064 | Reconciliation of Government Electricity Billing by Installing AMI Meters (Pilot Project) 46-14-37-000333 / 28-02-2018 / Punjab LO17000004 R | 156.000 | 130.905 | 0.000 | 25.095 | 25.095 | 0.000 | 0.000 | 0.000 |
| 5065 | Energy Efficiency & Conservation Programme 46-15-37-002194 / 15-12-2015 / Punjab LO15001751 R | 1,205.000 | 350.500 | 0.000 | 500.000 | 500.000 | 354.500 | 0.000 | 0.000 |
| 5066 | Reconciliation of Government Electricity Billing by Installing AMI Meters (2nd Phase) 46-16-37-004530 / 28-02-2018 / Punjab LO17000006 R | 290.000 | 211.300 | 0.000 | 42.905 | 42.905 | 35.792 | 0.000 | 0.000 |
| 5067 | Energy Solution Using Indiginous Resources In villages 46-16-37-004533 / 02-09-2016 / Punjab LO00000000 R | 232.000 | 7.311 | 0.000 | 99.000 | 99.000 | 125.689 | 0.000 | 0.000 |
| 5068 | Establishment of Mini Hydro Power Sites 46-17-37-007070 / 30-06-2017 / Punjab LO00000000 C, LO00000000 R | 600.000 | 12.200 | 0.000 | 100.500 | 100.500 | 487.300 | 0.000 | 0.000 |
| 5069 | PC-II, Consultancy Services on Position of Punjab in Oil & Gas Sector in the Post of 18th Amendment Scenario. 46-17-37-024642 / 26-09-2017 / Punjab LO11111111 R | 22.150 | 0.000 | 0.000 | 10.000 | 10.000 | 12.150 | 0.000 | 0.000 |
| 5070 | Khadi-e-Punjab Ujala Program (Southern Punjab) 46-17-37-024806 / 18-07-2017 / Punjab LO11111111 R | 4,500.000 | 3,251.000 | 0.000 | 1,100.000 | 1,100.000 | 0.000 | 0.000 | 0.000 |
| Total: Regular | | 19,885.274 | 13,517.884 | 1,783.000 | 2,091.000 | 3,874.000 | 2,343.391 | 0.000 | 0.000 |
| Total: ON-GOING SCHEMES | | 19,885.274 | 13,517.884 | 1,783.000 | 2,091.000 | 3,874.000 | 2,343.391 | 0.000 | 0.000 |

NEW SCHEMES

Regular

| | | | | | | | | | |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|--------|-------|--------|--------|-------|-------|
| 5071 | Liaison office for Energy Department 46-18-29-025185 / Un-Approved / Rawalpindi LO11111111 C | 20.000 | 0.000 | 10.000 | 0.000 | 10.000 | 10.000 | 0.000 | 0.000 |
| 5072 | Acquisition of Land for Construction of Energy Resource Centre and Model Energy Efficient Building 46-18-19-025192 / Un-Approved / Lahore LO11111111 C | 100.000 | 0.000 | 50.000 | 0.000 | 50.000 | 50.000 | 0.000 | 0.000 |

Energy

(PKR Million)

| GS No | Scheme Information Scheme ID / Approval Date / Location | Est. Cost | Accum. Exp. June, 18 | Provision for 2018-19 | | | MTDF Projections | | Throw fwd Beyond June, 2021 |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------|-----------------------|------------------|---------------------|------------------|------------------|-----------------------------|
| | | | | Cap. | Rev. | G.Total (Cap.+Rev.) | 2019-20 | 2020-21 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 5073 | Infrastructure Development of Quaid-e-Azam Solar Park (Notional) 46-18-02-023917 / Un-Approved / Bahawalpur LO00000000 R | 2,117.000 | 0.000 | 0.000 | 10.000 | 10.000 | 1,490.000 | 617.000 | 0.000 |
| 5074 | Reconciliation of Government Electricity Billing by Installing AMI Meters (3rd Phase) 46-18-37-024810 / Un-Approved / Punjab LO11111111 R | 230.000 | 0.000 | 0.000 | 25.000 | 25.000 | 135.000 | 70.000 | 0.000 |
| 5075 | Retrofitting of Public Institutes as a part of World Bank Funded Punjab Green Development Programme (Notional / Foreign Funding Option) 46-18-37-025177 / Un-Approved / Punjab LO11111111 R | 3,811.100 | 0.000 | 0.000 | 10.000 | 10.000 | 2,622.000 | 1,179.100 | 0.000 |
| 5076 | Punjab Ujaala Program (Central Punjab) (Notional) 46-18-37-025470 / Un-Approved / Punjab LO11111111 R | 2,700.000 | 0.000 | 0.000 | 10.000 | 10.000 | 2,690.000 | 0.000 | 0.000 |
| Total: Regular | | 8,978.100 | 0.000 | 60.000 | 55.000 | 115.000 | 6,997.000 | 1,866.100 | 0.000 |
| Research & Development | | | | | | | | | |
| 5077 | Energy Sector Policy Formation 46-18-37-024283 / Un-Approved / Punjab | 50.000 | 0.000 | 0.000 | 10.000 | 10.000 | 40.000 | 0.000 | 0.000 |
| Total: Research & Development | | 50.000 | 0.000 | 0.000 | 10.000 | 10.000 | 40.000 | 0.000 | 0.000 |
| PPP | | | | | | | | | |
| 5078 | Solarization of Public Institutes (Public Private Partnership Mode) 46-18-37-026097 / Un-Approved / Punjab LO11111111 R | 10.000 | 0.000 | 0.000 | 1.000 | 1.000 | 9.000 | 0.000 | 0.000 |
| Total: PPP | | 10.000 | 0.000 | 0.000 | 1.000 | 1.000 | 9.000 | 0.000 | 0.000 |
| Total: NEW SCHEMES | | 9,038.100 | 0.000 | 60.000 | 66.000 | 126.000 | 7,046.000 | 1,866.100 | 0.000 |
| OTHER DEVELOPMENT PROGRAM | | | | | | | | | |
| Regular | | | | | | | | | |
| 5079 | Substitute funding for Bridge Financing for Establishment of RLNG Power Project upto date of Financial Close (Punjab Thermal Power Pvt Ltd) 46-16-10-025811 / 30-06-2016 / Jhang LO11111111 R | 62,000.000 | 0.000 | 0.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| 5080 | Balance amount of Equity for Establishment of 1200 MW RLNG Power Plant (Punjab Thermal Power Pvt Ltd) 46-16-37-025199 / 30-06-2016 / Punjab LO11111111 R | 45,000.000 | 0.000 | 0.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| Total: Regular | | 107,000.000 | 0.000 | 0.000 | 1,000.000 | 1,000.000 | 0.000 | 0.000 | 0.000 |
| Total: OTHER DEVELOPMENT PROGRAM | | 107,000.000 | 0.000 | 0.000 | 1,000.000 | 1,000.000 | 0.000 | 0.000 | 0.000 |
| Grand Total | | 135,923.374 | 13,517.884 | 1,843.000 | 3,157.000 | 5,000.000 | 9,389.391 | 1,866.100 | 0.000 |