



# China's Energy Efficiency Program:

## A commendable policy instrument for emerging economies

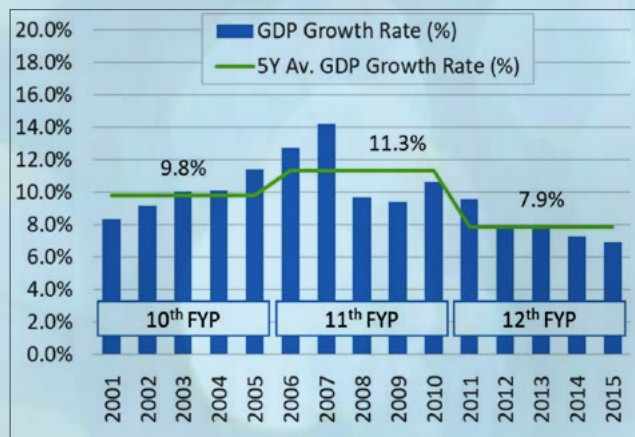
By Saqib Sajjad

China made considerable success in energy efficiency before 2002, indicated by a substantial diminution in industrial energy intensity from 1981 to 2002, prior to entering a new era of outstanding economic growth. Energy intensity, which refers to energy consumption per unit of Gross Domestic Product (GDP), gradually increased from 2003 to 2005, during the new phase of economic growth, due to a rapid increase in domestic demand for energy intensive commodities like steel and cement for buildings and infrastructure construction.

The Chinese government recognized the repercussions of rapid growth in energy demand on the economic growth itself as well as on the environment. Accordingly, the National Development and Reform Commission (NDRC) passed the Medium and Long Term Energy Conservation Plan in 2004 to assure a sustainable growth. The plan unveiled some imperative policy measures and initiatives such as the Ten Key Energy-Saving

Projects which were incorporated into China's 11th Five Year Plan (FYP). In 2005, the Chinese government set an ambitious goal for energy efficiency improvement in the 11th FYP. A mandatory target was set to reduce energy intensity by 20% in five years from 2005. Based on actual energy consumption of 2005, target implied total energy savings of 645 Mtce (19 EJ).

Figure 1 China's GDP Growth Rate



One of the key policy instruments introduced by China for realizing the energy efficiency target was Top-1000 Enterprises Energy Efficiency Program (Top-1000 Program), aiming industrial energy efficiency improvement by targeting China's 1000 largest energy consuming enterprises (referred as Top-1000 Enterprises). These enterprises accounted for almost half of total industrial energy consumption and one-third of total energy consumption in China. Large-scale enterprises with a minimum of 180,000 tce (5.3 PJ) energy consumption in 2004 were included in the Top-1000 Program. Total 1008 enterprises were selected from nine major energy intensive industries: iron and steel, petroleum and petrochemicals, chemicals, electric power generation, non-ferrous metals, coal mining, construction materials, textiles, and pulp/ paper. These enterprises consumed around 670 Mtce (19.6 EJ) energy in 2004. The Top-1000 Program was formally launched in April 2006.

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A number of departments and entities at national, provincial and local government levels actively participated in execution of the Top-1000 program, making it one of the most dynamic energy efficiency improvement policy instruments of all times. The Department of Resource Conservation and Environmental Protection of NDRC which is China's macro-economic management agency under the State Council to promote energy savings, the National Bureau of Statistics (NBS) which manages statistical information, the State-owned Assets Supervision and Administration Commission which manages major state-owned enterprises, the Office of National Energy Leading Group, and the General Administration of Quality Supervision, Inspection and Quarantine participated at the central government level, whereas, Provincial Development & Reform Commissions (DRC) and Economic & Trade Commissions (ETC) supported at provincial government level.

The national government established the guiding principles and objectives of the program and also

published the list of the Top-1000 enterprises, whereas, provincial and local government agencies collaborated with related enterprises to lead and implement the Top-1000 program. The local authorities promoted target-setting mechanisms, monitored the enterprises through audits, and encouraged enterprises to meet energy saving targets ahead of schedule.

The Top-1000 Program implementation plan provided direction and guidance to the enterprises and primarily aimed three objectives. First to reduce energy consumption per unit of production (energy intensity) by the enterprises to the level of advanced domestic production, second to attain international or industry advanced levels of energy intensity by some enterprises and third to realize minimum savings of 100 Mtce (2.93 EJ) from the expected 2010 energy consumption of these Top-1000 enterprises. All 1008 enterprises included in the Top-1000 Program signed energy conservation agreements with local governments and pledged to reach energy saving target in the stipulated time.

The Top-1000 Program achieved much higher energy savings than the original target. In 2009, NDRC reported energy savings of 106.2 Mtce (3.11 EJ) by 2008 indicating realization of initial target of 100 Mtce (2.93 EJ) well in advance. Subsequently, in 2011, NDRC announced total energy savings of 150 Mtce (4.40 EJ) by 2010. The magnitude of success can be gauged from the fact that the energy savings realized by China's Top-1000 Enterprises Energy Efficiency Program were more than the total energy consumption of Pakistan in Year 2010. Not just the Top-1000 program goal, China also closely accomplished the challenging target of 20% improvement set in the 11th FYP. China's energy intensity drastically reduced by 19.1% from 2006 to 2010 reflecting energy savings of more than 600 Mtce (17.6 EJ).

Pakistan and other emerging economies have to inevitably face intense energy demand in the trajectory of economic growth. Implementing the key policy instruments and initiatives executed by China, during peak of its economic growth, have immense potential to considerably reduce the energy consumption, as evident from China's success stories of energy efficiency improvement. Policy instruments like Top-1000 Program are vital for emerging economies with net energy imports, and shall be deemed essential to reduce burden on national exchequer and improve energy security ■



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