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ECONOMETRIC ASSESSMENT OF ENERGY REGULATIONS ON ENVIRONMENTAL DIMENSIONS FOR SUSTAINABLE DEVELOPMENT OF ENERGY PORTFOLIOS IN GLOBAL ENERGY MARKET

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Overview

On account of growing economies world over and population explosions among Asian Nations, in particular, global energy consumptions are expected to increase by 59 - 63 per cent, over a period of next 30 years, growing from 382 quadrillion British thermal units (Btu) in 2000 to 607 quadrillion Btu – 620 quadrillion Btu in 2030, representing an average annual growth rate of 2.2 per cent. Major economic growth and improvements in Human Developmental Indices are expected in developing countries, in contrary to Kyoto Limitations and ongoing debates on Critical Environmental Issues and Climate Changes, primarily due to robust economic growth on Carbon Based Economy of 20th century, in terms of dominant uses of fossil fuels and its further continuence in mid century term. Energy demands in developing Asia – specifically India and China, and Central and South America are projected to more than double between 2000 and 2030, accounting for more than half of the total growth on world energy consumption. By 2030, energy consumptions in developing nations are expected to nearly equal the industrialized nations. At the same time, energy consumption in East European / Former Soviet Union is expected to recover from the decline experienced through 1990s but remain below 1990 levels in 2030 as well, as these nations recover from economic downturn of a decade ago. In low and high economic growth cases, total energy consumption is expected to range from 513 to 713 quadrillion Btu by 2030 and beyond. In addition to developing renewable energy portfolios, Natural Gas has been estimated as the major economic driver among fossil fuels for 21st century on account of its abundant resource base across the globe, especially its two-third accumulations in and around Middle East or Gulf Regions and moreover its environmental friendly energy applications. Such a critical scenario on sustainable energy prospecting on environmental dimensions due to enhanced energy use stimulates energy and environmental economists to derive an econometric analysis and its critical assessment on related carbon or GHG emissions' potentials to assess externalities impacting emergence of new set of policy approaches ane energy regulations in socio- economic context and environmental dimensions – as the strategies for minimzing environmental risks and deriving threshold dimensions to sustainable development of Global Energy Markets on emerging Energy Scorecard, in mid century term.

Methods

The paper emphatically is aimed at evolving Energy Business Scorecard for developing sustainable energy portfolios and deriving threshold dimensions for long term prospectivity of Global Energy Market, taking into account of synergic nature of energy and environmental regulations, economic reforms, technological advancements, and market dynamics on related carbon emissions' potentials in mid century term. The Econometric Analysis of economic and environmental determinants and assessment of potential carbon emissions on dominant uses of fossil energy in mid century term leads to formulate a new set of energy business scorecards that determines the threshold dimensions for developing sustainable energy portfolios in Global Energy Market on long term prospects in 21st century. Energy Scorecard programming is based on interactive simulation techniques featuring critical issues on energy, environment and furthermore economic instruments for environment management, market dynamics on fossil energy use, social and economic orientations on development &

adaptability of mixed energy portfolios, as the functions of emerging long term economic reforms and energy & environmental policy approaches and regulations. Apart from developing energy business scorecard, the methodology leads to derive economic assessment modeling, pinpointing transition of 20th century carbon economy to 21st century hydrogen economy as a synergy of carbon vs. hydrogen economy in mid century term. Econometric analysis integrated with evolved matrices of Energy Scorecard Simulation Model demonstrates a re-designing of energy regulations & economic reforms on trans-boundary dimensions to develop a more sustainable Energy Market for 21st century in particular.

Results

The paper objectively derives threshold dimessions of evolving energy - market directions on environmental dimenssions in a framework of a new set of Energy Business Scorecard and determins critical limits for developing sustainable energy portfolios in global energy market in mid century term. It also focuses on evolving socio-economic parameters for adaptability of emerging energy portfolois incorporationg nuclear and renewable energy resources.

Conclusions

The paper objectively concludes in deriving, the 'Roadmaps on Energy Business Scorecards' in an 'Economic Modeling incorporating Regulatory, Financial, Economic and Environmental Reforms' for sustainable development of energy portfolios in Global Energy Market, at large.

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