

Keynote 02: Toward a Coordinated Effort to Focus Research to Fulfil Needs of The Energy Industry

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ABSTRACT

Development of the energy industry did not end when Sri Lanka declared 100% electrification in 2016. When the improved household woodstove was developed by a NGO in 1970s, further developed by the NERD Centre and promoted by Ceylon Electricity Board (CEB), research into more efficient ways to use firewood did not end. Actually, that is where research has to begin, to make the expanded electricity network more efficient, technically and financially. Energy needs for industrial heating, provided cheap and used efficiently, is key to growth in manufacturing and competitive exports.

As many in this conference would know, research efforts have to be guided toward innovation or problem solving, and for that guidance, countries use different avenues. A centralized research coordination agency to direct resources to thrust areas, developing research groups or centres of excellence, forming joint research programs with other research agencies, are some of these initiatives. None of these should create another bureaucracy and delay the flow of resources (which happens to many new institutions or arrangements) but catalyse and focus resources.

Coming back to the energy industry, research needs are many. Global electricity industry is struggling with managing the transition to clean energy, and all the problems of seasonality and intermittency, that threaten the reliability of electricity supply enjoyed by the developed world for nearly a century. Electricity production that was centralised has now become a mix of central and distributed generation. Keeping in mind that electricity has to be produced at the same instant the customer wants it, innovation in demand forecasting, control engineering and the full understanding of behaviour of resources, conversion processes and customers has to be built-up through research.

Sri Lanka's problems are more basic. There is only a thin separation between planning a technically and financially efficient electricity supply, and research needs. This is because the country has to face global changes to weaker resources, before the technical and financial stability of the grid could be achieved. We achieved only grid coverage. A Sri Lankan uses only 700 kWh/person per year; some countries in the developing world use only 200 kWh/person per year, but at the top of the league is Norway, using 25,000 kWh/person per year. Replacing production from fossil fuel with renewable energy is far easier, than building reliable generating systems from distributed generation in the face of high demand growth, and a power sector in financial ruin.

Sri Lanka's research needs to address the needs of grid planning as well as research to make it more technically efficient and progressive. Grid planning that was conducted by professional engineers and reviewed by the Public Utilities Commission, is gradually moving to a politically appointed council, which can do no good to meet the technical and commercial challenges of the future. Electricity supply to much of the country, except the city of Colombo and sections of Kandy and Galle, undergo at least 10 hours of planned shutdown for maintenance every month, affecting businesses and households alike. The public think electricity prices have to be reduced, while expecting exorbitant prices to be paid for electricity production from rooftop solar units. The public "thinking" must be dispelled with analysis and research, and in that effort, the contribution of Universities, particularly academics and research teams, will be invaluable.

I urge the academics and researchers, even at undergraduate level, to be progressive and outspoken, especially in communicating your research results to the public. In the debate about organic fertilizer, academics spoke with one voice, loud and clear. I wish engineering, science and technology

academics too be similar, in communicating their research and knowledge to the general public, in simple language.

Presently, I hear only a few lone voices, to communicate the way forward with science, engineering and technology, research results and research needs.

BIOGRAPHY



Engineer Tilak Siyambalapitiya graduated from University of Moratuwa, in 1982. He earned his PhD in Electric Power Engineering from University of Cambridge, UK. After 14 years of work in the Ministry of Power and Energy, Ceylon Electricity Board and other electricity utilities abroad, he currently works as an international energy consultant based in Sri Lanka. He served as an Energy Consultant in countries in south Asia, south-east Asia, and east Africa, advising governments, electric utilities, banks and industries on electricity industry-related policy and planning initiatives, energy costing and pricing, energy efficiency and on renewable energy development initiatives. He was President Sri Lanka Energy Managers Association over 2004-2006. He was the editor of SLEMA Journal since 1988 and is currently the Editorial Advisor to the Sri Lanka Energy Journal. He is currently serving as the Managing Director of Resource Management Associates (Pvt) Ltd.