Energy Parks in Sri Lanka

Sri Lanka Sustainable Energy Authority

http://www.energy.gov.lk

A renewable energy park, or "energy park" is an evolving concept, and the definition still varies; but for the most part, it is an area used and planned for the purpose of clean energy development, like wind and solar generation. This renewable infrastructure can serve as smart and sustainable assets for areas with surplus industrial property. Renewable energy parks not only provide a source of reliable, locally produced clean energy, but they have also contributed to eco-tourism and served as an educational resource to local schools, universities, and business groups.

In the past, energy sites have been one-dimensional with a coal or gas plant producing electricity, for example; whereas, energy parks today can incorporate an assortment of technologies and purposes. For instance, generation can come from solar, wind, biomass, geothermal, nuclear, clean fossil, or hydrogen generation.

Energy Park is a concept initially proposed as an alternative strategy to accelerate wind and solar power development in Sri Lanka. Energy Parks function in the form of a public–private partnership. The main purpose of energy parks is to attract investments for renewable energy development at the optimum economic efficiency.

At present, the involvement of the private sector in wind and solar development is in relative slow progression. The main challenge faced by renewable energy developers is that the project capital costs are comparatively higher in terms of specific costs (USD/kW). This disparity is largely due to the:

- Economy-of-scale effect—10 MW projects compared to the current global trend of project capacities of 50–100 MW
- Lack of scale for competitive bidding—leading equipment suppliers are reluctant to bid for small scale projects
- Poor engineering infrastructure involving lift and shift equipment for MW-class projects, especially for wind turbines. This situation compels to call for the hiring of such equipment from overseas at considerable additional costs.
- The need to absorb the cost of dedicated power transmission line.

The main elements of the energy park strategy consist of measures that could, directly or indirectly, contribute to reducing the cost of electricity and enabling renewable energy resources emerge as a financially viable source of energy.

- One measure is to increase the scale of wind and solar power projects from the currently allowable 10 MW capacity per project to a 75–100 MW project. A project of this scale is most likely to result in the reduction in the capital cost due to the following reasons:
  - Economy-of-scale effect
  - Increased competition among equipment suppliers
  - Proportionately lower balance-of-plant costs
- The reduction of operation and maintenance costs due to the low level of specific manpower and spare parts stocks that has to be maintained.
- Large wind projects are often beyond the investment capacity of most local companies and local financial institutes. It is therefore proposed that a Special Purpose Vehicle (SPV) or a joint venture initiative be set up with several local private companies, with us and the CEB as equity partners, centered around an Energy Park located in a particular geographical area, deemed suitable for wind power generation.
- Several countries in Europe, e.g. Denmark, Germany, Norway, offer low-interest or low-interest credit facilities (called Mixed Credit) for projects in developing countries, which are important to the recipient country, but are financially unviable under normal commercial terms. These are however tied aid programs in which goods and services must be financed from the donor country.
- The Government partner of the SPV would act as the Project Team Leader, undertaking the following main activities:
  - Collection of reference data and site-specific data for the particular energy resource
  - Seek soft financing including a long-term renewable energy bond, issued to local investors
  - Land survey, acquisition, and related vesting tasks
  - Local infrastructure development including rail/road building
  - Extension/strengthening of HV transmission
  - Addition/augmentation of Grid Sub Station Capacity
  - Approvals from state agencies and environmental clearance

Advantages of energy parks

The Energy Park is an "energy ecosystem" in which the relationship between producers and consumers is symbiotic. By feeding of each other's waste products the park's occupiers minimize their own energy requirements. The energy they do use is produced locally, eliminating transmission losses, and renewable, eliminating the need for fossil fuels.

Through decentralization and co-location, the Energy Park provides the basis for an economically and environmentally sustainable future.

The main benefits of an energy park are as follows:

- Reduced cost of renewable energy-based power generation
- Better grid integration
- Broad basing of ownership of renewable energy projects
- Renewable energy mainstreamed in the national electricity industry
- Improved public acceptance for the projects
- Favorable investment environment for renewable energy

Energy management in Sri Lanka

National Cleaner Production Centre, Sri Lanka

https://www.ncpcsrilanka.org

The concern on energy consumption and energy cost has been increasing across all energy-intensive industry sectors not only because of its immediate impact on production costs, but also because of environmental impacts. Cost of energy in any organization can potentially bring significantly down to improve business benefits, through proper energy services. NCPC, Sri Lanka is a member of "RECPnet" global network, leading the global Cleaner Production agenda, with a network of over 70 such centers around the globe. As such, there is no organization better equipped to deliver a robust solution that best suits your energy efficiency needs.

Energy consultancy/auditing

Being an Energy Services Company (ESCo) registered under Sri Lanka Sustainable Energy Authority (SLSEA) since the inception of ESCO system in Sri Lanka, NCPC has been expertized to offer customized energy auditing services to any industry sector.

Energy audit attempts to balance the total energy inputs with its use and serves to identify all the energy streams in the systems and quantifies energy usage. Energy audit helps in energy cost optimization, pollution control, safety aspects and suggests the methods to improve the operating & maintenance practices of the system. With a strong dedication to providing commissioning, an energy consulting and sustainability service, NCPC has successfully consulted on over hundreds of detailed energy audits and assessments.

Our energy audits provide you with a clear understanding of energy consumption in your buildings and facilities. Quantitative findings can provide substantial practical guidelines for:

- Continuous improvement in production efficiency
- Identifying cost-saving opportunities in energy efficiency
- Identify fast-payback energy retrofit opportunities
- Make well-informed decisions on capital investments in your industry
- Identify low-cost/no-cost O&M measures that have an immediate impact
- Develop integrated capital improvement programs that coordinate energy programs with other planned improvements

Starting with the development of an energy consumption inventory detailed auditing activities will be conducted to identify buildings and facilities with particular focus on rationalizing their energy profiles. Field measurements will be also taken to quantify critical operating parameters. Following the establishment of an energy consumption profile, the potential energy-saving opportunities can be identified. NCPC-SL equipped with latest energy measuring instruments including power analyzers, flue gas analyzers, Infrared thermometers and etc…

The type of industrial energy audit conducted depends on the function, size, and type of the industry, the depth to which the audit is needed, and the potential and magnitude of energy savings and cost reduction desired. Based on these criteria, an industrial energy audit can be classified into following types:

Preliminary energy audits

Primary energy assessments conducted in short time period based on history data and key instant measurements to identify general energy-saving potentials.

Detailed energy audits

ore comprehensive results and accurate picture of industry energy consumption is given by detailed energy audit since it based on continuous recorded measurements and more history data.

Customized energy services

Apart from standard energy audits, following specific energy services are offered by NCPC

- Demand analysis for tariff changes
- Power factor analysis for corrections
- Equipment efficiency analyze
- Illuminance level analysis for light replacements/daylight utilization
- Heat load calculations for chiller installations, replacements
- Building management systems and energy management systems
- Fuel switching consultancy

Measuring and verification

NCPC offers customized third party measuring and verification services for specially energy-saving implementations to understand the actual energy and monetary savings of particular installation respected to baseline data.

NCPC Sri Lanka, is closely partnered with other RECP members of the RECPnet, who are rich in wealth of experience in respective countries. Hence, we maintain easy access to additional capacity and resources whenever necessary to provide a specific service beyond the capacity of us and the country.

The energy audit services can further provide a range of additional benefits. The findings of an energy audit can be a good reference for your management in supporting commercial decisions. one can acquire a sustainable reputation with your customers. As the law or policy for energy efficiency will be enacted sooner or later; earlier preparation can enhance your competitiveness. A diverse range of industries have already experienced improved energy and production efficiency following our energy audit services.