What kind of the electricity do we want to have?

'Cost-effective'  'Green'  'Reliable'

Climate change  Sustainable energy development  Grid safety

Global economy

4 major aspects for Smart Grid implementation:

- Reliability assessment
- Cost benefit analysis
- Environmental impact
- Social impact

Smart Grid: Informationisation – Automatisation – Interactivity

LPA Smart Grid projects and published papers:

- 2020 Renewable Strategy Study for National Grid (as part of the future strategy team)
- Power System Planning for EirGrid
- Distribution Network Planning & Designing for UK Power Networks and SSE
- Series Capacitors for Enhancing Transmission Capacity and Sub-synchronous Resonance Study for the GB Transmission System for NGET/SPT
- PV & Wind Farm Grid Connections and Power Quality
- FACTs and HVDC devices for Enhancing System Performance
- Estimation of Dynamic Equivalents of Large Scale Offshore Wind Farm Using on-line Measurements (invited paper)
- WAMS Based Transfer Capacity Assessment in Multi-machine Systems (invited paper)

With over a decade of experience gained in successfully using our solutions to resolve power system issues, LPA is able to offer a wide range of services:

- Generation integration (including distributed generation and G59 protection)
- Demand side management
- EV charging station power quality assessment
- Wide-area solutions design
- Price elasticity of demand study in Smart Grid
- Market analysis and design
- FACTs, SVCs, HVDC, VSC and harmonic filtration applications
- Voltage fluctuations, flicker and reactive compensation
- Loss reduction, energy efficiency and power factor correction
- Grid code, distribution code, connection and other agreements
- Reliability, risk analysis and system security
London Power Associates (LPA) is a power and transportation consultancy founded in 2001 with offices in Staines-on-Thames and Manchester. LPA offers a seamless consultancy service to clients enabling them to invest with confidence in the energy, oil & gas, transportation and industrial sectors. LPA has assisted clients in 67 countries. Its clients have included major utility companies, oil and gas suppliers and transportation concerns.

The more competitive, deregulated and more environmentally-informed marketplace within which such businesses now operate is one where LPA has the experience necessary to enable its clients to thrive. LPA is run and staffed by engineers experienced in delivering results and harnessing techniques that enable them to deliver for clients optimisation of technical performance, value-engineering reviews to maximize cost reduction, risk minimisation and compliance with health, safety and environmental requirements. The sooner we are involved, the greater the business advantage.

Smart Grid is a form of electricity network using digital technology featured by informationisation, automatisation and interactivity. Smart Grid delivers electricity from suppliers to end users using two-way digital communications; this could save energy, reduce costs and increase reliability and transparency if the risks inherent in executing massive information technology projects are avoided. In order to complete the transition that has already started the new system intelligence functions will in the future be required to approach the Smart Grid infrastructure targets. However, without the corresponding development of technical, market and regulatory frameworks in the next few years, the current decentralized system will become unstable and unable to accept further deployment of distributed generation. Meanwhile, system management costs are increasing, and the threat to system security is an increasing concern as installed distributed generating capacity in some areas exceeds local demand.
LPA is able to offer a wide range of services in successfully using our solutions to resolve the issues, e.g., demand side management, reliability, risk analysis and system security, FACTs devices, SVC, HVDC/VSC and harmonic filtration applications for enhancing system performance.

LPA has been commissioned to work on a number of projects related to Smart Grid, such as working as part of the future strategy team on 2020 Renewable Strategy Study for National Grid UK, Distribution Network Planning and Designing for UK Power Networks and SSE, Series Capacitors for Enhancing Transmission Capacity and Sub-synchronous Resonance Study for the GB Transmission System for NGEP/SPT, etc. LPA’s flexible and client-focused approach is such that the poster only seeks to highlight the main areas of specialisation.