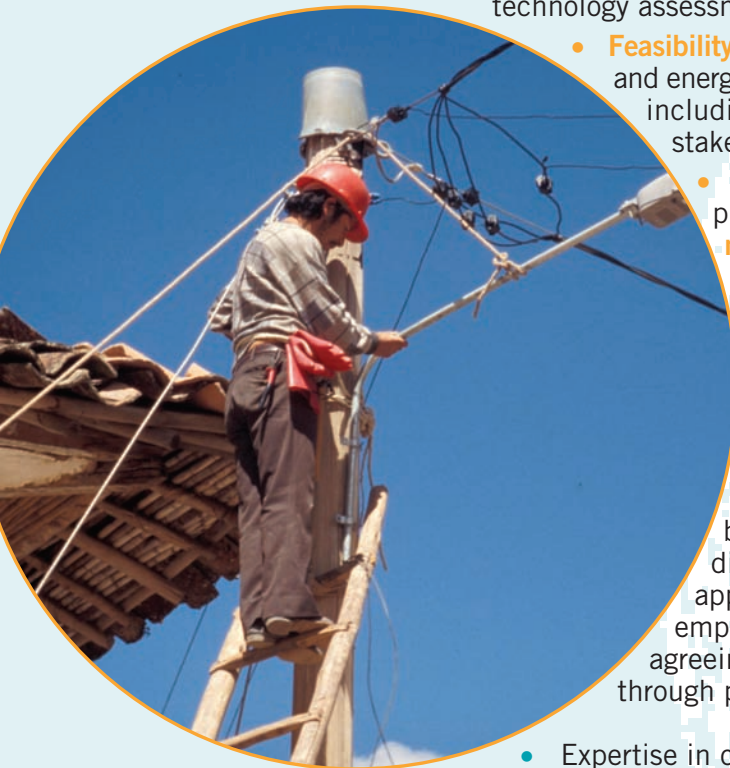


Sustainable Energy Solutions

Technology

Practical Action Consulting (PAC) applies approaches to managing technical change that enable people to work their own way out of poverty. Our long-standing expertise in clean energy technologies and engagement with poor communities enable us to co-develop sustainable energy technology solutions. We provide:

- Energy expertise focussed on **renewable energy and energy efficiency**, encompassing technical, social, environmental and economic aspects
- A specialism in **off-grid and small-scale** energy technologies meeting the range of basic needs for heat, electricity and mechanical power
- An approach connecting energy to **appliances for productive uses** for livelihoods diversification including water pumping/irrigation and agricultural/industrial processing
- A strong background in **innovation systems, approaches** and delivery of high-quality consultancy services on technology assessment, transfer, adaptation and delivery model development
- **Feasibility studies and technical support** for alternative energy and energy efficiency, project design and implementation, including resource and options assessments, and stakeholder consultation at all levels
- Specialist technical support for practical design, implementation and **monitoring and evaluation** of energy projects and programmes



Community

PAC helps to improve the access of poor communities to essential basic energy services and diversified livelihoods. Our approach is demand-driven with an emphasis placed on identifying and agreeing needs, issues and solutions through participatory methods. We provide:

- Expertise in conducting participatory **needs assessment** and **socio-economic analysis** which are fundamental to achieving and monitoring energy outcomes
- **Participatory methodologies** to enable communities to voice concerns in both urban and rural planning processes
- Approaches important in generating **community mobilisation**

Policy

PAC engages with the energy policy arena through the provision of analysis and recommendations to government ministries and international donors on institutional, regulatory and strategy matters. We offer:

- Development of **rural electrification, renewable energy and low-carbon development strategies**
- International best-practice technology, innovation and development-based policy expertise, incorporated into tools for **facilitation of national policy processes**
- Local and national **institutional support and development** in collaboration with local partners through to international networks to bring together international experience and local understanding

Capacity

The supported evolution of technologies and policies must be accompanied by capacity development if change is to be sustainable. We have developed tools for building human capacity and knowledge around energy and technology innovations, working with individuals, enterprises, communities, NGOs and governments. We provide:

- **Workshop facilitation** including participatory methodologies for identifying and agreeing capacity gaps in various institutional settings
- Delivery of energy-related **training** at all levels from government officials and utility professionals, to local technicians and community members
- **Training of trainers** to build capacity and maximise local knowledge transfer and uptake
- Design and production of knowledge products, including **how-to manuals, guidelines and training materials**
- Comprehensive **communication strategies** incorporating elements of awareness raising, education and marketing

Environment

PAC provides services in countries where communities' livelihoods are extremely vulnerable to environmental degradation and change, including those caused by Climate Change. In these circumstances, we provide:

- **Environmental assessments** of technology impacts on the local and global environment, to enable the development of energy solutions which balance development needs and environmental protection
- Implementation of clean energy technologies contributing to **Climate Change mitigation** alongside work with communities to assist in **adaptation** to changing environments via livelihoods diversification
- Expertise in international **advocacy** around the effects of Climate Change and its impact in poor countries
- Advice and connections for accessing **carbon finance** for clean energy projects



Enterprise

At Practical Action Consulting our approach focuses on developing linkages between **energy and productive uses** and on equitable energy services **market development**. We offer:

- **Participatory Market Mapping (PMM)** of renewable energy markets as a basis for targeting market development activities
- **Enterprise development** services supporting the provision of energy services, employment and economic activity within rural communities through micro, small-scale and medium-scale enterprises
- **Facilitation of joint ventures** between local and international renewable energy firms to develop technologies and markets
- **Project design and proposal preparation** to assist partners in developing and financing projects

Recent Projects

- Policy Innovation Systems for Clean Energy Security (PISCES) Energy Research Programme Consortium (RPC), **Kenya, Sri Lanka, India and Tanzania** (DFID, 2007-2012)
- Assessment of Ethanol as a Household Fuel in Madagascar, **Madagascar** (World Bank, 2008-2010)
- Making Carbon Markets Work for the Poor in Vietnam, **Vietnam** (DFID, 2008)
- Study of the Contribution of Mechanical Power to Energy Access and Development, **sub-Saharan Africa and South Asia** (UNDP, 2009)
- Access to Sustainable Energy Sources on a Local Level – Expert Analysis and Study on the Current Policy Issues for the EU Presidency, **Global** (Czech Ministry of Foreign Affairs, 2008)
- International Case Studies Report on the Livelihoods Impacts of Small-Scale Bioenergy Initiatives, **12 countries in Latin America, Asia and Africa** (FAO, 2008)
- Review and Appraisal of Potential Transformative Rural Energy Interventions in the Congo Basin, **Congo Basin** (DFID, 2008-09)
- Gravity Ropeways Feasibility Study in the Chittagong Hill Tracts, **Bangladesh** (FAO, 2009)
- Survey, Feasibility, Design and Procurement of Micro-Hydro Installations, **Laos** (IED/GoL, 2007-08)
- Sustainable Charcoal Market Development in 5 Districts including Training, Marketing and Project Scale-up design, **Kenya** (UNDP, 2009)

- Establishment of a Revolving Fund for the Promotion of Renewable Energies, **Peru** (IADB and others, 1992-date)
- Study into the Legal and Regulatory Structures necessary for Bioenergy Development in the West African Economic and Monetary Union, **9 countries in West Africa** (EPM/UEMOA, 2009)
- Institutional Structures for the Development of Rural Electrification Projects, **Mexico**, (GVEP/World Bank, 2005-06)
- Technical Support to Renewable Energy Partnerships Project, **Azerbaijan** (DEFRA, 2005-06)
- Smoke, Health and Household Energy Project, **Sudan, Nepal, Kenya** (DFID, 2002-05)
- Demonstration and Training Centre for Renewable Energies for Rural Electrification, **Peru** (Multiple, 1997-date)

Partnership Working

Practical Action Consulting is actively involved in a number of international energy and development networks and consortia in order to share best practice and promote information exchange and dissemination. Partnerships include: the Knowledge Network on energy for Low-Income Households in Southern and East Africa (SparkNet), E-Mindset, PISCES, the Household Energy Development Organisations Network (HEDON) and the Energy Forum. In addition, until 2006 Practical Action hosted the secretariat of GVEP – the Global Village Energy Partnership.



Contact us

Please contact our UK office for further information about our products and services, and for enquiries about collaborative work and consultant registration.

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Images: Solar powered water pump at Energy Research Centre, Sudan. Photographer: Dr. Nigel Bruce • Micro-hydro scheme technician Gilberto maintains the system in Yanacancha Baja, Peru. Photographer: Matthew Barker • Woman and children sit on floor around solar lamp, Nepal. Photographer: Rakesh Shrestha • Man stands on weir next to inlet channel at micro-hydro plant, Kenya. Photographer: Zul Mukhida • Installation of electric power lines and street lighting, Peru. Photographer: Steve Fisher • Anagi Stoves ready for collection by distributors, Sri Lanka. Photographer: Steven Hunt

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Energy



Practical Action Consulting has provided consultancy services in the energy and development sector for over 40 years to governments, NGOs, aid agencies and the private sector. We are the consulting arm of the international NGO Practical Action (formerly ITDG) which uses technology to reduce poverty.

Within the energy sector, Practical Action Consulting works in the fields of decentralised rural electrification, renewable energy and household energy. We have a proven track record of managing complex, multi-disciplinary international projects across Africa, Asia, Latin America and Europe. Our experience has taught us that in order to develop sustainable energy solutions it is necessary to work across the areas of **technology, community, capacity, environment, enterprise** and **policy**. For this reason we combine technical skills with economic, institutional, planning, finance, management, environmental and social expertise.