

Milestones 2009

ON THE WAY TO A SUSTAINABLE FUTURE

The future is built from day to day through cooperation. For EDF, every industrial enterprise has a human dimension. This also means that the future is informed by past experience and is based on the historic values of solidarity and respect for individuals, the key strengths of a major public service.



The sustainable city becomes a reality

Our future will involve reinventing the city and redesigning buildings and transportation, through complex solutions that require cooperation between citizens/consumers, local authorities, urban planners, equipment and automobile manufacturers and energy companies.

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MÉDIATHÈQUE EDF: PHILIPPE ERANIAN



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A public health program for local villagers

In Laos, the major Nam Theun 2 dam project will benefit the country as a whole while supporting growth in Thailand and simultaneously improving the day-to-day health and wellbeing of the local residents. [Page 2](#)



MÉDIATHÈQUE EDF: PHILIPPE ERANIAN

An industrial project: the human dimension

In the United Kingdom, the successful integration of British Energy within EDF Energy meant respecting and recognizing the expertise of the UK teams, so that together we can turn a new page in the history of a 100%-British company. [Page 6](#)



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LEADING THE ENERGY CHANGE

NAM THEUN 2 LAOS

A public health program for local villagers

TEXT PATRICK DOUSSOT
PHOTOGRAPHS PHILIPPE ERANIAN

Health is a priority for the government of Laos. The construction of the Nam Theun 2 dam, which involved the resettlement of some 8,000 villagers, led to a health program which contributes to making this major site a benchmark sustainable development project.

Since the start of the project in 2002, the state of health of the resettled villagers has improved markedly. Child immunization rates have increased from 61% in 2005 to over 90%, parasitic infestations from roundworms have fallen from 67.7% in 2002 to 16.6% in 2009, while the mortality rate in children under five is now well below the national average.

Method, means and teamwork

It started before the first stone was laid. NTPC¹, the company responsible for constructing and operating the dam, organized a Health Impact Assessment and launched a health improvement program to mitigate the effects of the dam construction and strengthen the existing health system in five areas: infrastructure and equipment; human resources; health education and awareness; health service delivery development; and health monitoring. The site took into account the risks identified (spraying of roads to avoid the inhalation of dust, for example) and a team of four doctors has been set up. Its mission: to facilitate the implementation of the health improvement program as part of the national public health programs. Since 2002, the site has worked in close cooperation with government health workers in the two community health centers built and equipped by NTPC, which has also provided the local hospital with a four-wheel drive and an ambulance. Every village has its own health volunteer with a medicine cabinet maintained by



a revolving drug fund and a midwife with access to modern equipment.

Systematic health checks and in-field initiatives

The NTPC medical team carried out systematic health checks based on a five-stage methodology. First it interviewed the families to establish basic information for each individual: name, age, ability to read and write, medical history,

etc. Their weight, height and blood pressure were then measured, with special equipment for infants and babies. The team then completed a series of more detailed medical examinations (cardiovascular and respiratory systems, thyroid functioning, sight, hearing and general dental health, etc.) whose results were sent to the local hospital. The fourth stage consisted of taking and analyzing blood and urine samples. Lastly, the

team carried out a number of preventive measures, such as immunizations and family planning initiatives.

Priority given to women and children

Nearly 85% of the villagers agreed to participate in the health checks, which provided baseline information for the health improvement program. The team focused its efforts on care for women

and children: monthly clinics in each village for preventive measures and treatment, health and sexual education including a program on sexually-transmitted diseases. ●

1. Nam Theun 2 Power Company (EDF 35% owned and voting rights)

Local villagers Improving living conditions

At full capacity, the dam's reservoir will cover an area of 450 km², flooding 16 villages which used to house some 8,000 inhabitants. These villages have been resettled in newly-developed areas, with high-quality housing benefiting from electricity access, clean drinking water and sanitation facilities. Access roads have been laid and community buildings, including schools, health centers, markets and community halls, have been built. Each household has been allocated a piece of land along with grazing rights in a separate area. All these facilities foster improvements in the villagers' health and living standards.



Rice yields from villagers' plots have shown a marked increase in the second year.

KEY FACTS

35%

EDF's shareholding in NTPC, the builder and operator

1,075 MW

of installed capacity.
A reservoir covering 450 km²



95%

of the electricity sold to Thailand

30%

Revenue increase to the Laos budget

13% of the dam's budget devoted to human development and environmental protection.

Laos: a health policy supported by the international community

Following years of war and unrest, Laos is listed as one of the world's poorest countries by the United Nations Development Program report. The country's government is now making determined efforts to address the worrying health situation, with support from the United Nations, the World Bank, the Asian Development Bank and the French Development Agency (*Agence française de développement*), within the framework of the Millennium Development Goals. Laos is thus carrying out a Health Impact Assessment, a highly methodological approach combining procedures, methods and tools to evaluate the positive and negative risks of large development projects and implement the measures required to protect populations and seize every opportunity to improve health standards. The outstanding sustainable development initiatives applied to the Nam Theun 2 project helped it to win the support of the World Bank.



Doctor Pany's perspective What are the factors behind the success of the Nam Theun 2 health program?



THE NTPC HEALTH TEAM

- **Sananikhom Pany:**
HPMU Manager
- **Kaul Surinder:**
Public Health Advisor
- **Lattanavong Lattavanh:**
Social Scientist Officer
- **Silavong Aeudom:**
Public Health Team Leader

We're getting the benefit of some major advantages. This program is integrated into the Laos Public Health Action Plan and supplements national efforts in public health. It focuses on a series of clearly-defined initiatives which help development through visible improvements in living conditions. The program benefits from real commitment from all the players and a collaborative approach involving the Ministry of Health, the Pasteur Institute, EDF and NTPC. This is for

the long haul: our work is just starting now and will continue over many years. Using monitoring and surveillance tools also enables the project's impact to be continuously evaluated. It's a unique opportunity to advance our knowledge of the impact of a major hydropower project on epidemiological conditions in a tropical region. What we achieve here can contribute to setting up similar initiatives around projects of this type throughout the world."

ECO-DISTRICT FRANCE

The sustainable city becomes

TEXT PATRICK DOUSSOT
PHOTOGRAPHS PHILIPPE ERANIAN

Cities, where most people now live and work, require reinvention. Housing, places of work and leisure, transportation: solutions are being developed in new urban environments, consuming less energy and fewer resources and with lower greenhouse gas emissions. EDF teams are making a significant contribution to this effort.



Andromède, a new eco-district for a new kind of city

In five years, Andromède, in the Midi-Pyrénées, will be finished. One of the first and largest eco-districts in France, the project was undertaken in partnership with EDF.

Built on a former area of wasteland measuring 210 hectares, located half way between the towns of Blagnac and Beauzelle, the Andromède eco-district gives us an insight into our urban future: surroundings that are respectful of the

environment and a new way of urban living. In 2015, this project, which is maintaining one-third of the total area as green spaces, will accommodate a 11,000 m² complex of shops and business premises, 200,000 m² of office space and 4,000 homes, of which 30% are single-family houses and 20% social housing. A number of community buildings have already opened – a day-care center, leisure center, a police station and schools – while nearly a thousand families have already moved into their new homes. At the end of 2010, a tramway will link them to Toulouse in just 20 minutes.

Team work for a multi-faceted project

From the beginning of the project in 2002, EDF has been working with the project team set up by the mixed ownership corporation (*Société d'économie mixte – SEM*)¹ Constellation and has contributed expertise on low-carbon solutions, energy advisory and technical solutions and support. Experts, urban planners, architects, property developers and landlords are all mobilized around

offering low-cost housing and encouraging social and functional diversity, providing high-quality surroundings combining housing, public spaces, leisure and business activities, public transport infrastructure and cycle paths and, of course, promoting effective environmental solutions for buildings.

Innovative solutions and lower running costs

A vast reservoir will recycle rainwater while all buildings will benefit from insulation, orientation and ventilation solutions conducive to reducing energy consumption. Renewable energies have been tapped to produce domestic hot water (solar thermal systems) and for heating (geothermal heat pumps). The last option, chosen following the trip organized by EDF in Germany, to Aix la Chapelle and the Vauban de Fribourg-en-Brigau eco-district, will be deployed in the housing, shops and offices of the Sirrah low-consumption buildings program that has Effinergie certification. This system will enable savings of up to 70% on running costs. ●

1. Mixed ownership corporation

50
kWh/m²/year
maximum amount of energy used in buildings with the BBC Effinergie low-energy consumption label in new build (80 kWh/m²/year in existing buildings). This maximum will be mandatory as of 2012 for all new buildings.

Andromède eco-district: nine blocks have already been built, and the new residents have been living there for several months.



es a reality

260
kWh/m²/year
average consumption of existing
buildings (150 in new build).

22%
of French CO₂ emissions came from
buildings in 2005 (French Agency for
Environment and Energy Manage-
ment - Ademe).

43.3%
of final energy consumption in
France attributable to the residential
and tertiary sector in 2008 (French
Agency for Environment and Energy
Management - Ademe).

developed for cities with cleaner air and better living
contribution to this process.

EDF IS FOCUSING ON:

Partnerships
with the development
companies and eco-district players.

Advisory services
Energy engineering, public
lighting, electric transportation,
network provisioning,
residential services.

Subcontracting
via its H4 (project management
support), EOS and Everbat
(works), and Dalkia (operations)
subsidiaries and affiliates.

Competition Seriously lower CO₂

MÉDIATHÈQUE EDF: ALDO SPERBER

In France and other European countries, the annual renewal rate for the real estate stock is under 1%. In other words, the renovation market is substantial. In 2009, following a first version dedicated to new housing using renewable energies, EDF thus devoted its low-carbon architecture competition, "Seriously lower CO₂", to existing buildings, including offices, educational institutions and individual houses. Three prizes were awarded to projects combining aesthetic appeal with technical performance.



The 1920 house redesigned by the Zündel and Cristea workshop in Vincennes

Strong points: the harmonious wood strip cladding for the house extension, the thermal insulation of the facades and roof, under-floor heating, a reversible heat pump, double flow ventilation connected to a heat economizer and the solar panel-solar cell combination for the production of hot water.



The Firminy secondary school redesigned by the B-Cube consultancy

Strong points: the multi-layer external insulation, the large fishnet wood strip canopy blending aesthetics with protection from the sun, roof-mounted solar panels, three wood-burning boilers.



The Zerhuss tower redesigned by the Loci Anima agency

Strong points: the large transparent ETFE cushions (ethylene-tetrafluoroethylene) which encase the building in winter while allowing the light to pass, the retractable glass roof on the central section of the tower to exploit all opportunities for natural ventilation.

Champagne-Ardenne La Clairière, a social housing pilot project

Inaugurated in early 2010 at Betheny, *La Clairière* is the first social housing passive building in France. In a project led by Foyer Rémois, EDF and BASF, this pilot building has been awarded the BBC Effinergie² and PassivHaus³ European labels.

Energy performance: +70% compared to the current standard
Bioclimatic building design, superb thermal insulation, double flow ventilation, hot water generation from geothermal systems and solar panels: *La Clairière* has combined all these solutions to meet passive building standards. With annual consumption of under 15 kWh/m² for heating, the building's energy performance represents a 70% improvement on the

current thermal standard. This construction project, which includes 13 social housing units, including four that are adapted for people with reduced mobility, complements the 111 "High Quality Environment" (*Haute Qualité Environnementale*) detached houses in the Les Aquarelles garden city at Petit Betheny, also by Foyer Rémois with EDF support.

Helping tenants to manage their energy consumption

Since the start of the program, EDF has supported Foyer Rémois and provided advice on the optimum solutions. At *La Clairière*, EDF teams measure the energy supply and monitor the collective and individual electricity consumption with different

meters for each type of use (domestic hot water, lighting, back-up heating). This information is then relayed to EDF's R&D center via the internet. A thermal camera measures the thermal imaging of the building and its permeability to air is controlled. The effectiveness of all these technical solutions depends, however, on how they are used. EDF works locally on raising the eco-citizenship awareness of new tenants and help reduce their energy consumption. They have also been provided with low-consumption lighting.

2. *Bâtiment basse consommation* – low energy consumption
3. Passivhaus (passive house): German label for the energy performance of buildings

Strasbourg Experimenting with electric vehicles



In Europe, EDF is participating in a number of experiments with electric and rechargeable hybrid vehicles. The aim: to further investigate technical solutions and business models but also the market's acceptance of this new means of sustainable transport. Since the end of 2009, together with its long-standing partner Toyota and the city of Strasbourg, EDF has been testing around a hundred new-generation rechargeable hybrid Prius vehicles. Some of these vehicles are equipped with an innovative recharging system developed by EDF that supports communication between the plug and the vehicle, identifies the vehicle and issues invoices for the energy used. More than 300 charging points are being set up for this demonstration, which will also contribute to the adoption of international standards for the plugs and recharging infrastructure: a prerequisite for the sale of these vehicles on the mass market.



Teams from British Energy, EDF Energy and the EDF Group are now working together in four business units, at the Qube, London.

BRITISH ENERGY UNITED KINGDOM

An industrial project: the human dimension

TEXT PATRICK DOUSSOT
PHOTOGRAPHS PHILIPPE ERANIAN

By early 2010, EDF Energy had 20,000 employees and was the leading supplier of electricity in the United Kingdom. A completely new company has been created, combining the expertise and professionalism of British Energy and EDF Group teams within the former EDF Energy. We look back at a year of transformation.

On January 5, 2009, EDF took over of British Energy. The integration process, which had started in 2008, was stepped up to combine the strengths of EDF Energy and British Energy while keeping the disruption of day-to-day business activities to the minimum. The aim: an entirely new company capable of making a major contribution to

securing the United Kingdom's energy future, notably by pursuing EPR-type reactor construction projects at a number of British Energy sites.

An event to launch the new company

To launch the new company, 180 British Energy, EDF Energy and EDF senior executives came together on January 12 in London. The name of the event, "Co-

ming Together", became that of the year-long project. Signing the merger with Bill Coley, CEO of British Energy, Vincent de Rivaz, CEO of EDF Energy highlighted that they were "building a totally new company with the ambition to secure the United Kingdom's energy future". Coley emphasized his enthusiasm about the possibility of a nuclear revival, observing that the strengths of British Energy and EDF Energy were coming together in a



Dialogue Planning the future with towns and their residents

As of 2008, even before the integration of British Energy, construction projects for new reactors at its sites had been the subject of extensive consultation with local authorities. The new EDF Energy continued this process and launched dialogue with people living near the plants. Close to the Hinkley Point site it even opened an office where inhabitants could come and discuss projects with company employees. A number of public meetings were held in the vicinity of the Sizewell site, publicized by an extensive poster and leaflet campaign.

The response proved positive. While nuclear waste and the safety of the facilities were concerns, most of the questions were about the impact the sites would have on local infrastructure, the creation of long-term employment and support for the area. "In these communities, nuclear plants play a major economic role by offering employment opportunities to local residents and creating business for local companies. There is considerable local support for the construction of the new sites", said Richard Mayson, Director of Planning,



Sizewell B nuclear plant, pressurized water reactor.

common purpose: "We all have to learn and this will require everyone to embrace change."

Bringing talents together: the executive teams show the way

This same meeting saw the presentation of EDF Energy's new structure and executive team, the composition of which set an example in drawing on the expertise of both companies. Four business units have been created: Existing Nuclear, headed by Bill Coley, who will be succeeded by Andy Spurr in July (also from British Energy); Nuclear New Build, headed by Humphrey Cadoux-Hudson; Energy Sourcing and Customer Supply, headed by Martin Lawrence; and Networks headed by Laurent Ferrari, all three from EDF Energy. The two major corporate functions, Corporate Finance

and Human Resources, are headed by Thomas Kusterer from EnBW and Eva Eisenschimmel from EDF Energy respectively. The executive team also has three other members: Paul Spence, (British Energy) in charge of strategy, Goulven Graillat (EDF), who is responsible for nuclear synergies and Peter Hofman (EDF Energy), in charge of integration and coordination.

It is not only in nuclear that the expertise of the two companies is being pooled. The Energy Sourcing and Customer Supply business unit brings together the EDF Energy and British Energy sales and marketing teams, the latter bringing with it an extensive portfolio of large customers.

Clarity and efficiency

The integration then started to gather pace with a focus on speed and transparency. A project team reporting to Paul Hofman introduced the necessary changes in organization, business practices and processes while keeping the disruption of day-to-day work of thousands of people to a minimum. The new appointments were announced starting at the top of the management pyramid before working down: the senior executives during the first quarter and the rest of

the management at the end of the first half. By late July, most of the employees affected by the integration had a clear idea of their roles, had been confirmed in their posts or had started work in a new position. Others were interviewed individually to review their future on a case-by-case basis.

Open, transparent communication

Throughout this transformation, Vincent de Rivaz, CEO of the new company, visited all the sites and established direct dialogue by openly answering their questions. A dedicated intranet site was also created: edfenergy/coming together. All employees were able to access this site for up-to-date information on organizational changes and Vincent de Rivaz's schedule of visits, and to forward their questions and apply for the new job positions created by the reorganization. In parallel, the executive team maintained dialogue with the unions and a new works council was established in September 2009. During the last quarter, normal business was re-established. ●

Experience: Tony Free, 20 years at British Energy



After having worked for British Energy for 20 years, in August I transferred to EDF

Energy, as Head of the Nuclear Waste and Commitments team in the New Nuclear business unit. The integration's greatest success is probably the way in which we managed human resources, attracting talented and experienced people from British Energy without weakening its existing fleet and particularly its safety and security. The people working in New Nuclear come from very different backgrounds: from British Energy, EDF Energy and the EDF Group's nuclear fleet in France. This pooling of expertise is a very powerful combination."



Tony Free, Head of the Nuclear Waste and Commitments team in the New Nuclear business unit.

54.5 TWh

In 2009, the nuclear fleet recorded its best performance of the decade.



ÉLECTRICIENS SANS FRONTIÈRES: ROBERT CAPOZZELA

Haiti Solidarity with the victims

M On Tuesday January 12, 2010, an earthquake destroyed most of Port-au-Prince, the Haitian capital, with hundreds of thousands of victims. EDF mobilized its teams to help them.

Financial support and three EDF teams mobilized to bring immediate relief

EDF made an immediate €250,000 financial donation and, as of January 14, three teams from the Island Energy Systems Division, comprising agents based in Martinique, Guadeloupe and French Guiana, mobilized to bring aid to the disaster victims.

Up to their return, on February 6, the teams provided emergency support: resupplying and repairing the generators of five hospitals in Port-au-Prince, securing the electricity supply

of the base accommodating 750 French rescue workers, setting up and maintaining the electricity mini-network for two camps housing 2,000 refugees. With Électricité de Haiti, they also established the diagnostic of the Port-au-Prince network and fossil-fired plants.

Handover to ESF volunteers to ensure the work continues

On January 22, they were joined by volunteers from the Électriciens sans frontières (ESF) association who resupplied the priority facilities for the NGOs and hospitals, equipped the rescue sites with night lighting and, together with Électricité de Haiti, distributed 50,000 solar lights and crank handle solar torches to refugees. On February 6, the Island Energy Systems teams handed over to the ESF volunteers, who are continuing the work.

KEY FACTS

€300,000

donation to ESF, Unicef France, Care France and Handicap International

7 tonnes

of equipment (including 16 3-6 kVA generators) sent from Fort-de-France

- One 150 kVA generator supplied to Électricité de Haiti

- One 60 kVA generator donated to the Haitian community hospital

Energy Day The next generation

In October, the third Energy Day in Paris attracted 2,000 students, recent graduates, engineers and technicians looking to learn about the Group's 240 professions.

The main theme of this meeting which was hosted by 300 experts and senior executives from across the Group: sustainable development. To coincide with the event, 500 internships were offered and 245 pre-recruitment interviews held for the Group's most rapidly-growing businesses, namely generation, distribution, R&D and, to a lesser extent, finance and sales and marketing. This recruitment strategy is supplemented by a significant commitment to training. In addition to the creation of a Nuclear Energy Masters, the Group welcomed 3,000 young interns. As of his arrival, Henri Proglie decided to create two corporate Campuses, in France and the United Kingdom, for vocational training at all levels and to relaunch internal promotion.

KEY FACTS

- 3,700 new recruits in France in 2009 (EDF SA, ERDF, RTE)
- 15,000 people to be recruited in France by 2015
- 1,000 engineers and technicians to be recruited every year in nuclear over the next decade

Disabilities? Not for the company

Recruitment, purchasing from the protected sector, partnership with the French Disabled Sports Federation: EDF makes an active commitment to the professional integration of persons with disabilities. Via their R&D work, its engineers also develop projects based on their individual expertise.

For example, a specialist in the resilience of materials used in dams designed a robust, light and easily-transported mobility board for people using wheelchairs. Another example: an engineer who gets around by wheelchair has developed a virtual traffic software package in the nuclear plants to test their accessibility. It has also been tested by the city of Reims for the new cathedral forecourt.



MÉDIATHÈQUE EDF: VINCENT CURTICHER

THE NATIONAL DISABILITY TEAM

Tasked with monitoring respect of the commitments in the 2009-2012 agreement to promote the professional integration of persons with disabilities, the 8th such agreement signed since 1989, the team ensures the reporting of initiatives and, when

necessary, implements corrective measures. It also helps (information and practical assistance) the divisions to welcome and support disabled persons and has three members who are experts in visual, hearing and psychological disabilities.

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For Cécile Dutertre,
changing energy
is in building new nuclear power stations,
to provide secure, low carbon electricity
for British homes.

Cécile Dutertre is an environmental engineer working on nuclear projects in Britain.
Cécile works as a member of the EDF team responsible for the construction of EPR nuclear power stations in Britain. For Cécile, performance is a top priority. EDF has been designed to optimize the production of electricity and reduce the amount of waste.
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LEADING THE ENERGY CHANGE