

BipBop

Business, Innovation, & People at the Base Of the Pyramid
Spread access to a safe, affordable and green energy for
those who need it the most

Vincent G. Mazauric

Dec. 8th, 2011

UNFCCC – Durban – South Africa



ParisTech's Chair Modeling for
sustainable development

ParisTech
INSTITUT DES SCIENCES ET TECHNOLOGIES
PARIS INSTITUTE OF TECHNOLOGY

Schneider
Electric

Spreading the development of access to energy

1.3 Billion people

who currently do not have access to energy



A tight equation towards sustainability

- **Demography:**

- Rise of energy systems in developing countries
- Refurbishment of existing capabilities in developed countries
- Urban population, from 50% today to 80% in 2100, claims for high density energy networks

- ***The Earth: An isolated chemical system***

- Fossil (and fissil) fuels depletion:
 - Peak oil around 2020
 - Peak gas around 2030
 - Around two centuries for coal or Uranium
- Climate change:
 - Whole electrical generation provides **45% of CO₂ emissions**
 - **Global efficiency** of the whole electrical system is just **27%** (37% for all fuels)
 - Despite a thermodynamic trend toward reversibility

- ***The Earth: A fully open energy system***

- Domestic energy is 10.000 times smaller than natural energy flows:
Solar direct, wind, geothermy, waves and swell
- But very diluted and intermittent

Committed to tackle the main energy challenges

Achieve more while using less:

- Reduce energy consumption
- Lower the environmental impact of business activities

Energy management

- Making energy intelligent
- Spreading energy efficiency
- Integrated solutions

up to
30%
energy saving

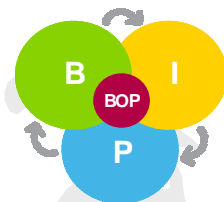


Spread access to energy

to the 1.3 billion who do not have it to foster development

Energy access

- Training young people in electrical Careers
- Developing adapted offers and business models
- Fostering entrepreneurship in access to energy

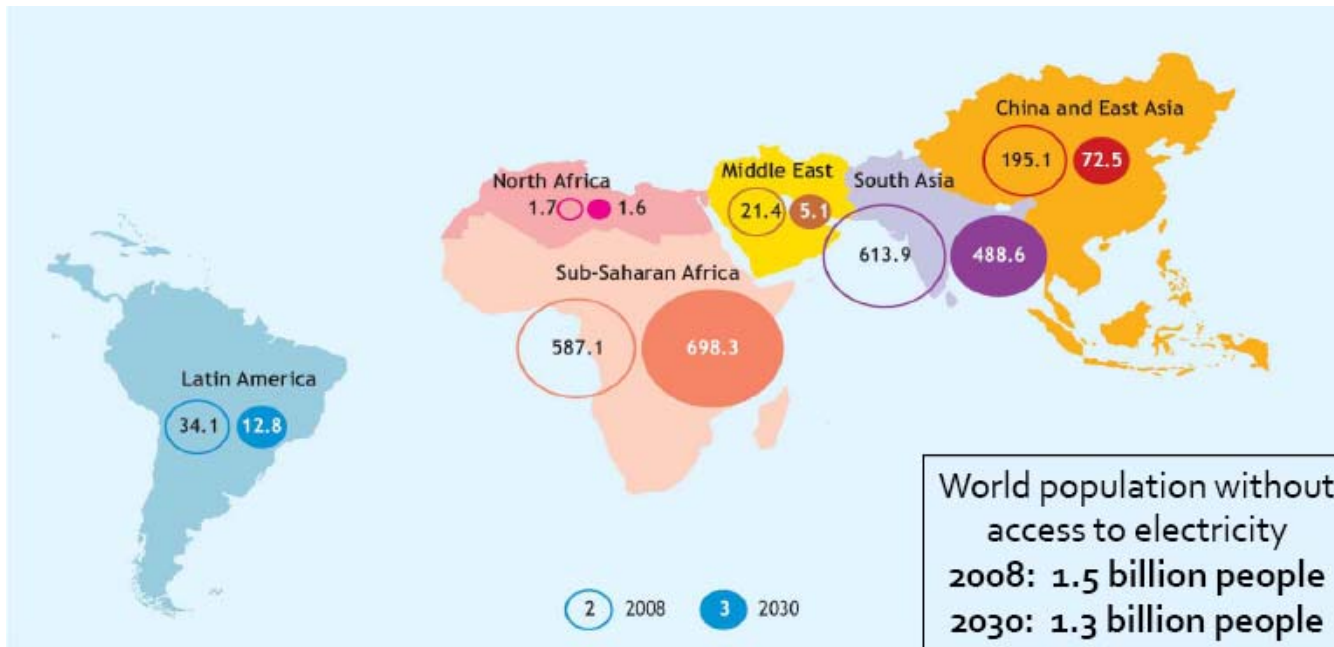


The stakes of access to energy

1.3 Billion people with no access to electricity worldwide

3 Billion people with an unsafe, expensive and fossil-based access

Share of populations with no access to energy



Without energy, no or almost :

- Healthcare
- Lighting
- Battery charging, fan
- Fridge

«sample from the most common needs for electricity expressed by base of the Pyramid population »

The boundaries and names shown and the designations used on maps included in this publication do not imply official endorsement or acceptance by the IEA.

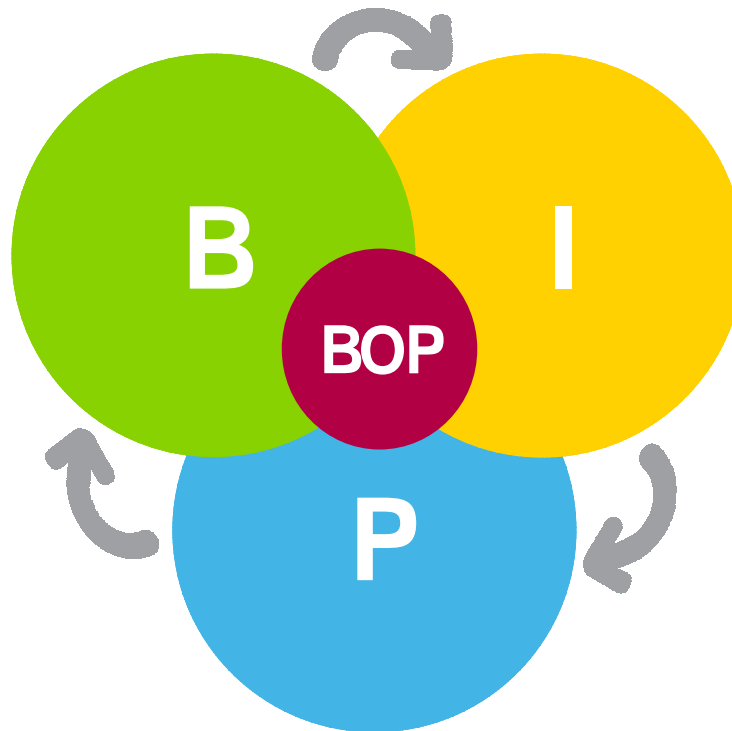
Source: International Energy Agency - 2009

BipBop programme:

promoting development through combined initiatives

Business

Manage a socially driven investment fund to financially support companies dedicated to the electrical business at the Base of the Pyramid



Innovation

Build adequate offers/solutions and business models to be a champion in the access to energy field for the Base of the Pyramid

People

Train young people from the Base of the Pyramid in energy management related skills and sponsor them

Managing an “impact” investment fund: *Schneider Electric Energy Access - SEEA*



Promote the development of business that provide energy access in rural or suburban areas



Support the deployment of innovative energy access solutions that use renewable energies for the Base of the Pyramid



Support the creation of companies dedicated to electrical business by unemployed people



First international investment of the sustainable fund SEEA : Kayer SARL, photovoltaic company in Senegal

Current size: € 4.5M

Investment policy: always in co-investment

International

France

Delivering solutions for access to energy

Adapted offers for domestic, collective and portable markets

Isolated places

Lighting system

Direct current management systems

Rural

Collective/entrepreneurial

Domestic

Water pumping station

Off-grid generation system

Battery charging station

Lighting systems (battery or grid powered)

Peri-urban

Lighting systems (battery and / or grid powered)



Developing training around energy management trades



Basic trainings

Short, affordable, widely accessible



Official diploma or degrees

conducted with local Ministry of education



Train the trainers

provided by Schneider Electric employees of professional teachers for effective replication



On-going projects

- **Access level/** India, Cambodia, China, Cameroon
- **Official diploma:** Chile, Brazil, South Africa, Colombia, Tanzania, Algeria, China, Turkey, Cameroon
- **Train the trainers:** Brazil, Algeria...

Reasonable but ambitious objectives, part of our company programme

From 01/2009 to 12/2011 objectives

Q3 2011

Business

500 contractors at the base of the pyramid* set up their activities in the electricity sector

319

Innovation

1M households from BoP equipped with adequate energy offers/solutions by 2011

1,246,996

People

10,000 young people from the base of the pyramid trained in energy skills

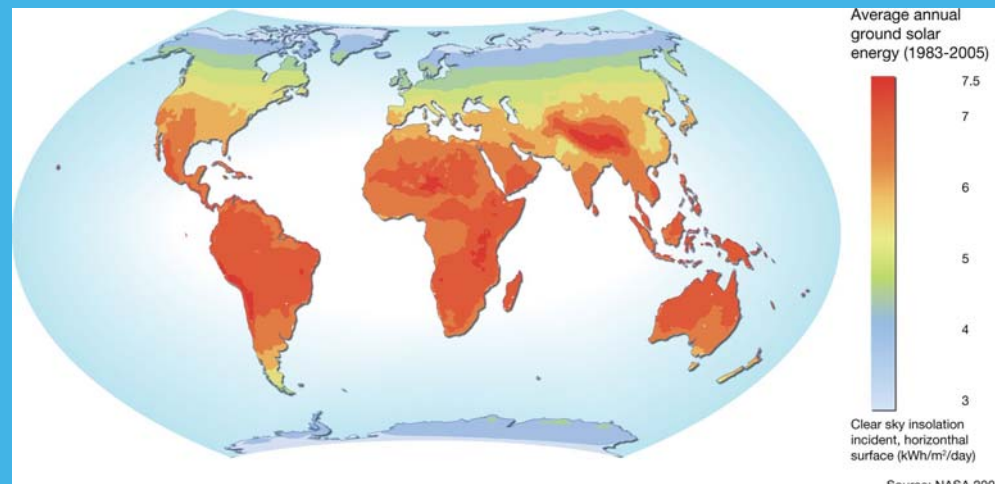
10,096



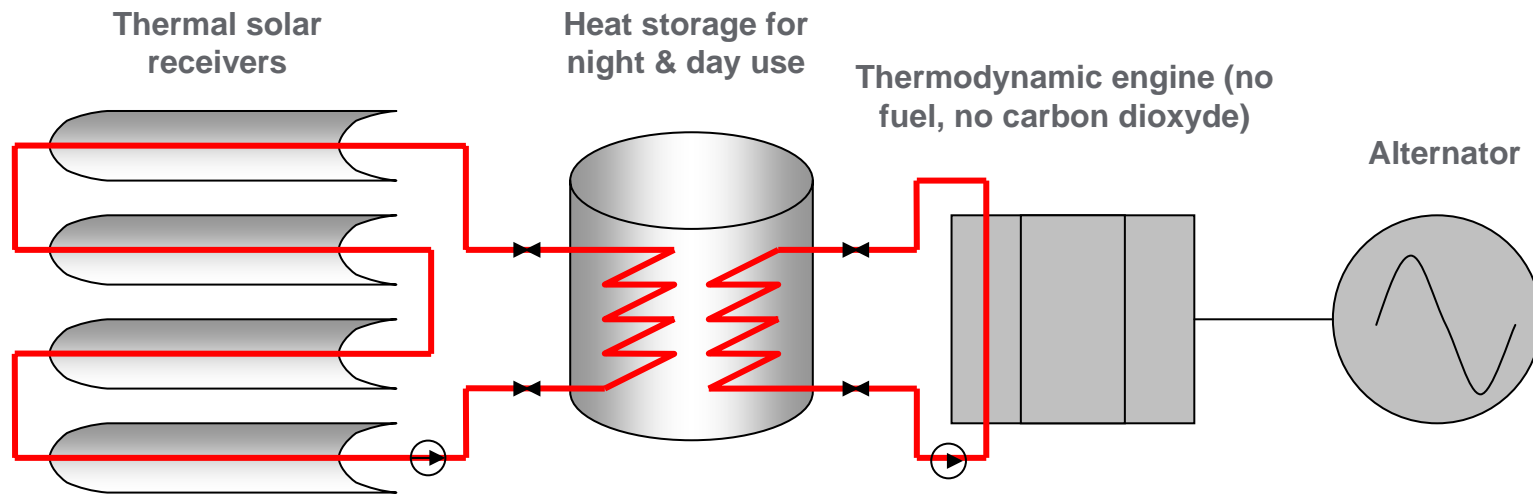
MiCST project

(Solar Thermodynamic Power Station)

- A project co-funded by the **Ademe**
(French Agency for Environment and Energy Management)
- Labeled by **Capenergies** and **Tenerdis**
- Between **11 partners** : starts-up, small and big enterprises and Research laboratories



MiCST principle of operation



- Power **10 kWe** ; energy storage **150 kWhe**
- A **heat storage** rather than electro-chemical
 - Built with non-toxic materials extracted or recovered locally
 - Functional for the entire lifetime of the power station (20 years)
- Possibility of a **direct heat valuation** for the production of drinking water, cooking, drying or processing of food.

Fossil-free and Reliability issues

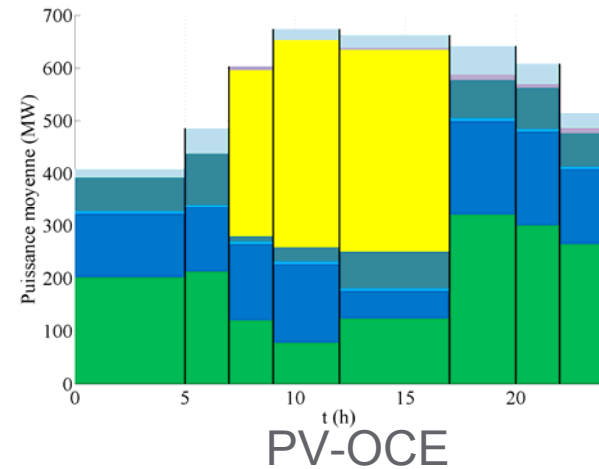
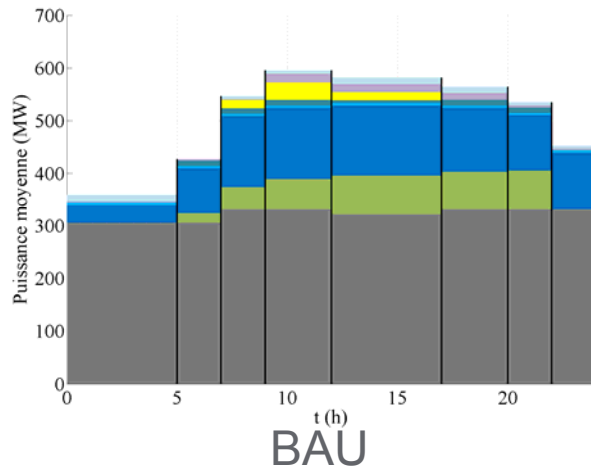
- Reunion island
- Isolated power network:
 - 2008 2550GWh
 - Mix:
 - 50% coal
 - 13% oil
 - 25% hydro
 - 10% sugar pan
- Environmental target:
 - 100% renewables by 2030



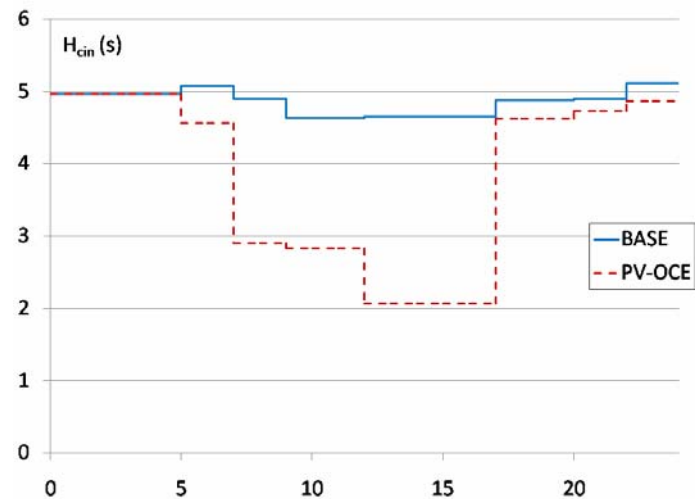
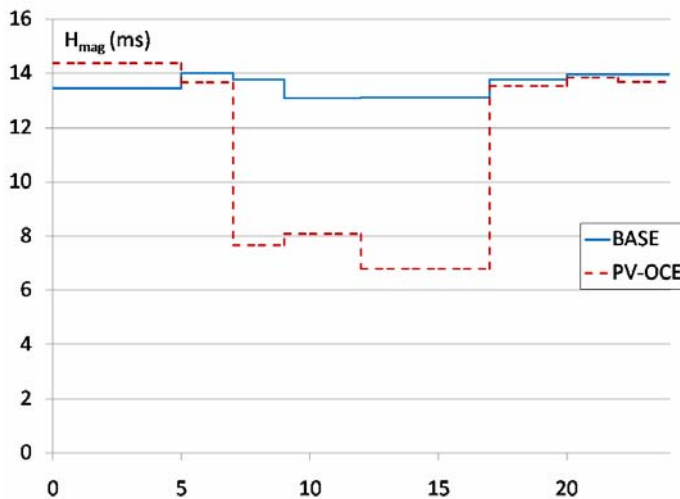
ParisTech's Chair Modeling for sustainable development

ParisTech
INSTITUT DES SCIENCES ET TECHNOLOGIES
PARIS INSTITUTE OF TECHNOLOGY

Reunion Island: Optimal Energy systems



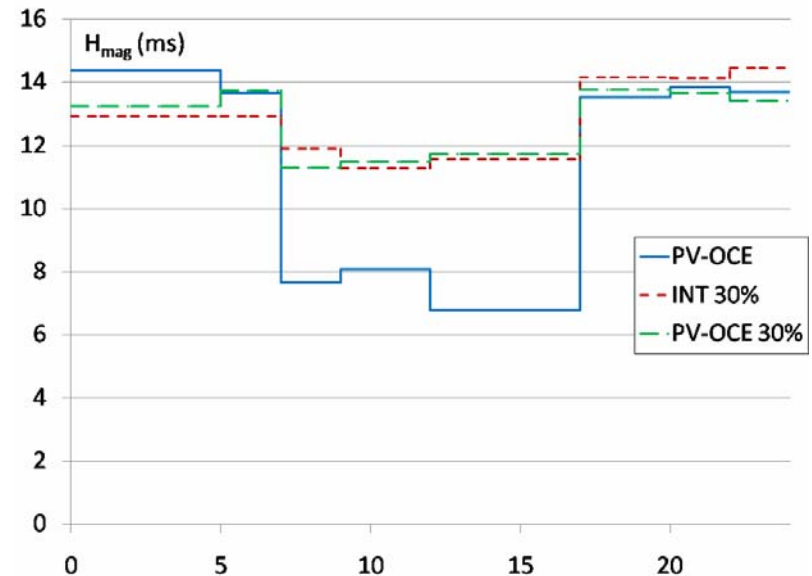
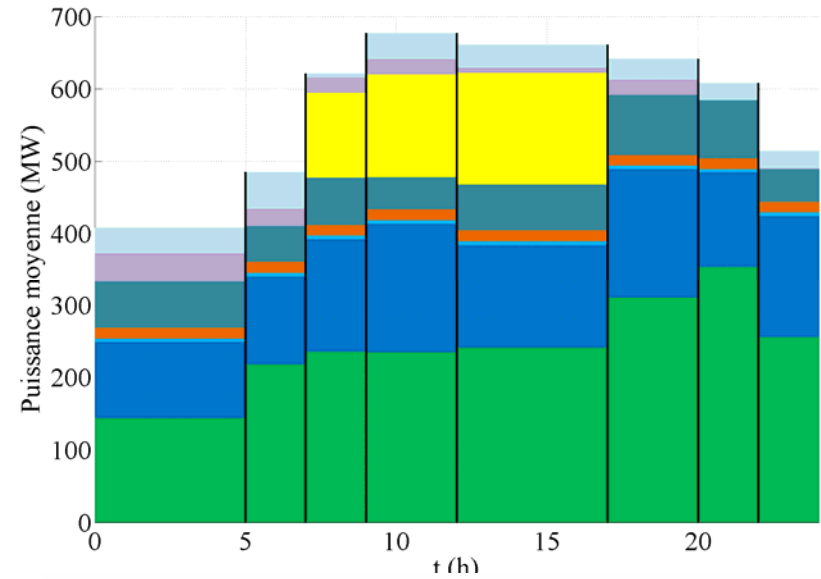
- Coal
- Coal / sugarcane
- Distillate fuel oil
- Sugarcane / wood
- Hydropower (run of river)
- Biogaz
- Wind energy (onshore)
- Geothermy
- Wave energy
- Heavy fuel oil
- Hydropower (dams)
- Photovoltaïcs
- OTEC



Reunion Island: Reliable energy systems

INT-30%

- Coal
- Coal / sugarcane
- Heavy fuel oil
- Distillate fuel oil
- Sugarcane / wood
- Hydropower (dams)
- Biogaz
- Photovoltaïcs
- Hydropower (run of river)
- Geothermy
- OTEC
- Wind energy (onshore)
- Wave energy



ParisTech's Chair Modeling for sustainable development

ParisTech
 INSTITUT DES SCIENCES ET TECHNOLOGIES
 PARIS INSTITUTE OF TECHNOLOGY

All the projects are on the map

Access to energy programme

Date ▾ Geo. zones ▾ Programs ▾

Programme d'accès à l'énergie

Schneider Electric propose dans le cadre d'un programme responsable d'apporter une électricité propre et sûre à ceux qui en ont le plus besoin partout dans le monde.

Equipment installation in Arusha, Tanzania
Arusha - TANZANIA
2010/09/28 - Overview of three actions freshly implemented in Arusha, Tanzania

Impacted people: 2868

Show all projects >

Français | Legal information | **Schneider Electric**

schneider-electric.com/bipbopmap

Make the most of your energy



To know more

schneider-electric.com/bipbop



Schneider
Electric