TOTAL ACCESS TO ENERGY

Mats STÅHLE

Globalisation, Inequality, Energy
Oslo, June 12th, 2018
TOTAL is the world’s 4th-ranked international oil and gas company and a global leader in solar energy through our affiliates SunPower and Total Solar. With operations in more than 130 countries, we have 98,000 employees who are committed to better energy.

Our Shared Ambition

- Improve access to affordable, reliable, sustainable, clean, modern energy
- Have a positive impact on the climate
- Reach scale by creating an innovative business segment
- Become the responsible energy major
TOTAL IS FOCUSED ON THE THREE AREAS IDENTIFIED BY IEA

THREE AREAS OF FOCUS

to integrate the IEA’s* 2°C scenario

1. REDUCE the carbon intensity
2. DEVELOP renewable energies
3. IMPROVE energy efficiency

*IEA : International Energy Agency
### CONTEXT

**ACCESS TO ENERGY** IS AT THE CROSSROAD OF DEVELOPMENT

- **Increasing needs** to get access to energy in **daily life**, to light up, **recharge phones** or other electrical devices, cook ...
- **1.2 billion people** in the world still do not have access to electricity*
- **2.8 billion people** lack access to clean cooking, most of them using solid biomass in traditional stoves (wood, charcoal, waste)**
- **$27 billion / year** are spent by the poorest households in traditional sources of energy (candles, kerosene lamps, wood ...)**

### IN 2010, TOTAL LAUNCHED THE ACCESS TO ENERGY PROGRAM

**DEVELOPING NEW BUSINESS MODELS AND CREATING LOCAL VALUE**

- Providing accessible, affordable and quality **off grid energy solutions** and delivering positive economic, societal and environmental impacts
- Developing sustainable business models and foster local activity through capacity-building, replicable business models and financial viability
- Leveraging **Total’s assets and expertise** including closeness and innovation
- Working to improve **energy efficiency**

### OUR RESPONSE

**OUR AMBITION**

Bring access to affordable, reliable, sustainable, clean and modern energy to all in line with the Sustainable Development Goals from the United Nations

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**Energy Access Outlook 2017, from International Energy Agency (IEA)
***Etude IFC from gap to opportunity, Business Models for scaling up Energy Access 2012*
OUR ACHIEVEMENTS FOR A GREATER ACCESS TO ENERGY

- **6** years of experience (launch in 2011)
- **2.5** million sold lamps
- **10%** market share* in Africa
- **11** million people impacted
- **35 000** people trained
- **4 300** service stations in Africa
- **45** distributing countries
- **89%** of users say that solar lamps have improved their daily life a lot

*Lighting Global quality verified products
OUR INTEGRATED APPROACH TO MEET THE WHOLE RANGE OF ENERGY ACCESS NEEDS

SCALABLE RANGE OF SOLAR SOLUTIONS

INDIVIDUAL SOLUTIONS
HOME SOLUTIONS PAYGO
COMMUNITY SOLUTIONS

DEDICATED ORGANIZATION THROUGHOUT THE VALUE CHAIN

At Group-level:
A central team with expertise in sourcing, quality, business development, …

At country level:
45 affiliates with:
• Solar Managers
• Distribution network
• Logistics / storage facilities

INNOVATION

Identifying, incubating and seeding pioneer projects

Energy Access Lab > Energy Access Fund

ECOSYSTEM: BUILDING LONG-TERM PARTNERSHIPS

MARKET ENABLERS
DEVELOPMENT ORGANIZATIONS
MANUFACTURERS & DISTRIBUTORS

ECOSYSTEM: BUILDING LONG-TERM PARTNERSHIPS

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OUR ADDED VALUE FOR PARTNERS

WE ARE COMMITTED TO ENGAGE IN STRONG PARTNERSHIPS
TO INCREASE IMPACT & FOSTER COMPLEMENTARY SOLUTIONS

QUALITY SOURCING
✓ Certified solar products
✓ Technical expertise & scalable offer

LOGISTICS DELIVERY
✓ Local affiliates with import capacities
✓ Optimization costs & delay
✓ Warehouses

DISTRIBUTION NETWORK
✓ More than 4000 service stations in Africa
✓ A recognized and trusted brand, Total

MARKETING & TRAINING FOR RESELLERS
✓ Dedicated training tools and marketing materials
✓ over 40 solar managers in the field
✓ Training sessions for resellers / entrepreneurs
✓ Operational tools

AFTER SALES SERVICE
✓ 2 years warranty
✓ Recycling strategies

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OUR APPROACH FOR A GREATER ACCESS TO ENERGY

A SUSTAINABLE BUSINESS MODEL WITH SOCIAL IMPACTS

1. Deliver **positive economic, societal and environmental impacts** to contribute to the development of emerging markets through access to sustainable energy.

2. Ensure **economic profitability** for all actors in the value chain, to guarantee sustainability.

3. Engage with reliable & expert partners to **tackle complex local challenges**.
WHAT IS THE IMPACT OF TOTAL SOLUTIONS?

**SAVINGS**

S20:
- $8,64 / month (€8.02)
- Product amortization: 7 weeks

S300:
- $12,08 / month (€11.15) including:
  - $8,99 (€8.29) : lamp
  - $3,51 (€3.24) : charger
- Product amortization: 13 weeks

**ENVIRONNEMENT**

Almost complete substitution for households using traditional energies:
- Candles: 86%
- Kerosene lanterns: 87%
- Battery torches: 77%

**SATISFACTION**

- 96% of people interviewed are proud to own a solar lamp.
- Better living conditions for 89% of people.

**NEW OCCUPATIONS**

325 people (among which 26% of women) use their lamp for:
- A new professional activity
- Spend more time on their professional activity

**HEALTH & SAFETY**

65% of the 82 persons suffering from respiratory irritation and coughing have noticed a complete disappearance of symptoms with the use of their solar lamp.

Quantitative study carried out among 2,610 people by the KIMSO agency, in 7 French-speaking countries of Africa.
OFFSETTING OUR CARBON FOOTPRINT WITH OUR CLEAN COOKING OFFERING

ACCESS TO ENERGY PROJECTS GENERATE CARBON CREDITS

TRADITIONAL STOVE

IMPROVED STOVE

GREENHOUSE GAS EMISSIONS

7 t CO₂/year (traditional stove)

2 t CO₂/year (improved stove)

= 5 t CO₂/year avoided = 5 carbon credits

THE ENTITY CAN USE CARBON CREDITS TO OFFSET PART OF ITS CARBON FOOTPRINT

ENTITY emitting greenhouse gas (carbon footprint)

€ THE ENTITY PURCHASES CARBON CREDITS

PROJECT sequestering or avoiding greenhouse gas emissions

1 METRIC TON CO₂ = 1 CARBON CREDIT

OFFSETTING OUR CARBON FOOTPRINT WITH OUR CLEAN COOKING OFFERING
OUR ACTIVITIES THROUGHOUT THE WHOLE VALUE CHAIN

1. PRODUCTS SOURCING
2. SUPPLY CHAIN OPTIMIZATION
3. CUSTOMER AWARENESS & CAPACITY BUILDING
4. LAST MILE DISTRIBUTION
5. FINANCING SOLUTIONS
6. ADAPTABLE PRODUCTS OFFER
7. AFTER SALES SERVICE
8. END-USERS NEEDS ANALYSIS

TOTAL ACCESS TO ENERGY
INDIVIDUAL SOLAR SOLUTIONS
A COMPREHENSIVE & EVOLUTIVE RANGE

TO LIGHT UP EVERYDAY ACTIVITIES...

<table>
<thead>
<tr>
<th>BRIGHTNESS at highest mode</th>
<th>25 lumen</th>
<th>30 lumen</th>
<th>40 lumen</th>
<th>50 lumen</th>
<th>50 lumen</th>
<th>65 lumen</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTONOMY at maximum power</td>
<td>6 hours</td>
<td>4 hours</td>
<td>4 hours</td>
<td>2 hours</td>
<td>20 hours</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

...AND CHARGE PHONES...

<table>
<thead>
<tr>
<th>BRIGHTNESS at highest mode</th>
<th>50 lumen</th>
<th>50 lumen</th>
<th>65 lumen</th>
<th>100 lumen</th>
<th>110 lumen</th>
<th>150 lumen</th>
<th>200 lumen</th>
<th>200 lumen</th>
<th>300 lumen</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTONOMY at maximum power</td>
<td>4 hours</td>
<td>20 hours</td>
<td>4 hours</td>
<td>6 hours</td>
<td>8 hours</td>
<td>6 hours</td>
<td>4 hours</td>
<td>5 hours</td>
<td>3 hours</td>
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...FOR ALL NEEDS OF THE DAILY LIFE!

More details on our catalogue online:
http://catalogue-awango.com
HOME SOLAR SOLUTIONS
A COMPREHENSIVE & EVOLUTIVE RANGE

TO POWER VARIOUS ELECTRICAL APPLIANCES:
LIGHT BULBS AND LAMPS, PHONES, RADIO, FAN, TELEVISION, …

**SOLAR HOME SYSTEMS** = PANEL + BATTERY + DEVICES

<table>
<thead>
<tr>
<th></th>
<th>SunKing Home 40Z</th>
<th>SunKing Home 60</th>
<th>SunKing Home 120</th>
<th>d.light D330</th>
<th>d.light X850</th>
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</thead>
<tbody>
<tr>
<td><strong>BRIGHTNESS</strong></td>
<td>200 lumen</td>
<td>300 lumen</td>
<td>600 lumen</td>
<td>420 lumen</td>
<td>1200 lumen</td>
</tr>
<tr>
<td><strong>AUTONOMY</strong></td>
<td>5 hours</td>
<td>5 hours</td>
<td>5 hours</td>
<td>5 hours</td>
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COMMUNITY SOLAR SOLUTIONS
A COMPREHENSIVE & EVOLUTIVE RANGE

TO PROVIDE ACCESS TO ENERGY FOR OFF-GRID COMMUNITIES AND VULNERABLE PEOPLE...

...TOGETHER WITH OPPORTUNITIES TO GENERATE LOCAL ACTIVITY FOR ENTREPRENEURS
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