Transforming energy markets with RBF – hype or hope?
Meeting Netiquette

1. Please mute yourself
2. If your internet connection is poor, switch to audio-only call
3. Ask questions in chat box, answers provided at end
   Please indicate name/organisation and who it is addressed to
4. For technical questions during the call, write in the chat box
<table>
<thead>
<tr>
<th>Time</th>
<th>Agenda item</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 – 10:05</td>
<td>Introduction</td>
<td>Barbara Richard, EnDev HQ (GIZ)</td>
</tr>
<tr>
<td>10:05 – 10:15</td>
<td>Welcome remarks: RBF Facility at a glance and key outcomes</td>
<td>Philip Mann, DFID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barbara Richard, EnDev HQ (GIZ)</td>
</tr>
<tr>
<td>10:25 – 10:35</td>
<td>Biogas in Vietnam: from subsidy-dependency towards a market driven sector</td>
<td>Bastiaan Teune, SNV Cambodia</td>
</tr>
<tr>
<td>10:35 – 10:45</td>
<td>Market Development of PAYGO Solar in Benin</td>
<td>Razvan Sandru, EnDev Benin (GIZ)</td>
</tr>
<tr>
<td>10:45 – 11:00</td>
<td>Discussion and Conclusion</td>
<td></td>
</tr>
</tbody>
</table>
EnDev’s RBF Facility financed by UK Aid at a glance

- **South America**
  - Peru

- **West Africa**
  - Benin

- **East Africa**
  - Ethiopia
  - Kenya
  - Malawi
  - Mozambique
  - Rwanda
  - Tanzania
  - Uganda

- **South East Asia**
  - Bangladesh
  - Nepal
  - Cambodia
  - Laos
  - Vietnam

**Key Statistics**
- **Projects**: 17
- **Volume**: 46 million €
- **Duration**: 12/2012 - 12/2020

**Energy Types**
- Hydro
- Grid extension
- Cooking energy
- Solar
- Biogas
Market Transformation Survey – presentation of preliminary results
Purpose of the *online* survey

- To help find out whether the RBF Facility accelerated the growth of commercially sustainable energy access markets for five renewable energy technologies:
  1. Improved cookstoves
  2. Biogas
  3. Pico-PV
  4. Off-grid appliances
  5. Mini-grids
Qualification: a relative insiders’ view on market development and RBF ...

![Graph showing participation rates and survey respondents of different types of respondents: RBF Beneficiaries, Financial Intermediaries, Implementing agencies, and Development partners.](image)
... that may not apply to each country and context.

Varying number of respondents per project and country
How have markets developed over the last five years irrespective of the RBF Facility’s influence thereon?
Markets have expanded ...

- The number of units sold: 1% decreased significantly, 5% decreased, 44% increased, 44% increased significantly.
- The variety of products: 2% decreased significantly, 12% decreased, 48% increased, 37% increased significantly.
- The quality of products: 1% decreased significantly, 4% decreased, 14% no change, 49% increased, 30% increased significantly, 2% no change.
- The geographical reach: 1% decreased significantly, 9% decreased, 55% no change, 34% increased, 1% no change.

Percentage of respondents

- Decreased significantly
- Decreased
- No change
- Increased
- Increased significantly
- Don’t know / not relevant
... with an increase in market players throughout the value chain ...

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of importers and/or domestic input</td>
<td>1% Decreased</td>
</tr>
<tr>
<td>Number of domestic producers</td>
<td>1% No change</td>
</tr>
<tr>
<td>Number of wholesalers</td>
<td>1% No change</td>
</tr>
<tr>
<td>Number of retailers</td>
<td>2% Increased</td>
</tr>
<tr>
<td>Number of service providers</td>
<td>1% INCREASED</td>
</tr>
</tbody>
</table>
... except for domestic producers in pico-PV, off-grid appliances, and mini-grid markets.

<table>
<thead>
<tr>
<th>Percentage of respondents observing a (significant) increase in:</th>
<th>Total</th>
<th>ICS</th>
<th>Biogas</th>
<th>Pico-PV</th>
<th>Off-grid</th>
<th>Mini-grid</th>
</tr>
</thead>
<tbody>
<tr>
<td>the number of importers / domestic input suppliers</td>
<td>77%</td>
<td>73%</td>
<td>66%</td>
<td>85%</td>
<td>89%</td>
<td>76%</td>
</tr>
<tr>
<td>the number of domestic manufacturers</td>
<td>48%</td>
<td>78%</td>
<td>59%</td>
<td>6%</td>
<td>32%</td>
<td>24%</td>
</tr>
<tr>
<td>the number of wholesalers</td>
<td>64%</td>
<td>64%</td>
<td>59%</td>
<td>61%</td>
<td>77%</td>
<td>53%</td>
</tr>
<tr>
<td>the number of retailers</td>
<td>74%</td>
<td>75%</td>
<td>57%</td>
<td>83%</td>
<td>89%</td>
<td>65%</td>
</tr>
<tr>
<td>the number of service companies</td>
<td>66%</td>
<td>50%</td>
<td>72%</td>
<td>63%</td>
<td>89%</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td><strong>66%</strong></td>
<td><strong>68%</strong></td>
<td><strong>63%</strong></td>
<td><strong>60%</strong></td>
<td><strong>75%</strong></td>
<td><strong>60%</strong></td>
</tr>
</tbody>
</table>
Reasons for market growth: an interplay between supply, demand and framework conditions

**Demand-side**
- Ability to pay the technology
- Need & aspiration for technology
- Greater environmental & health awareness
- Greater awareness about the technology
- Marketing campaigns

**Supply-side**
- Easier access / better availability
- Greater affordability
- Improved product quality & utility
- More firms / more competition
- New payment, credit, and leasing models
- Better training and after-sale service
- Greater variety of products

**Framework conditions**
- Improved framework conditions
- Improved international funding
- Better public targets, plans, programs
- Reduction in VAT / import duties
- Better (public-) private partnerships
- Economic growth / devaluation

**Note:** The reasons mentioned more often are depicted in a larger font size (roughly along the scale: often, frequently, and sometimes)
Markets: not yet mature and sustainable

Can markets now grow and be sustained on their own?

- Highly unlikely: 28%
- Likely: 19%
- Unlikely: 37%
- Highly likely: 12%
- Don't know: 4%

Percentage of respondents

65%

Pico-PV Market: 79%

Biogas: 54%
Obstacles that remain

<table>
<thead>
<tr>
<th>Obstacle</th>
<th>ICS</th>
<th>BG</th>
<th>PPV</th>
<th>OG</th>
<th>MG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of respondents (145)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affordability</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Product quality</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Number of market actors</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Product's fit-for purposefulness</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer awareness</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental concerns</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulatory Framework</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Access to capital</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Market access / geographical remoteness of markets</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity tariff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Lack of productive use of electricity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
What is the RBF Facility’s contribution to market expansion?

1. How have the RBF beneficiaries responded to the opportunity to earn incentive payments?

2. What affect did this have on their business?

3. Are the RBF beneficiaries big enough to make a difference in the market?
RBF beneficiaries are big enough to make a difference in the market ...

- 51% have a market share over 15% after participating in the RBF Facility.
... and the RBF Facility helped them grow their business.

![Graph showing percentage of respondents for different factors: Sales volumes, Quality of products, Variety of products, Customer segments, and Geographical coverage. The categories are Decreased significantly, Decreased, No change, Increased, and Increased significantly. The percentages for Sales volumes are 3%, Decreased significantly; 64%, Increased; 29%, Increased significantly; 1%, Don’t know. For Quality of products, 1%, Decreased significantly; 30%, Decreased; 45%, No change; 21%, Increased; 3%, Increased significantly. For Variety of products, 1%, Decreased significantly; 34%, Decreased; 39%, No change; 18%, Increased; 6%, Increased significantly. For Customer segments, 1%, Decreased significantly; 18%, Decreased; 51%, No change; 27%, Increased; 2%, Increased significantly. For Geographical coverage, 1%, Decreased significantly; 12%, Decreased; 51%, No change; 34%, Increased; 2%, Increased significantly.]}
The RBF Facility helped beneficiaries expand operational expenditures ...

<table>
<thead>
<tr>
<th>Offered additional income to pay for:</th>
<th>Number of mentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of respondents</td>
<td>(72)</td>
</tr>
<tr>
<td>Expanding the distribution channels</td>
<td>22</td>
</tr>
<tr>
<td>Increase marketing</td>
<td>11</td>
</tr>
<tr>
<td>Scale production / sales</td>
<td>7</td>
</tr>
<tr>
<td>Hold inventories</td>
<td>4</td>
</tr>
<tr>
<td>Reduce the costs of production</td>
<td>2</td>
</tr>
<tr>
<td>General - no specifics provided</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Reduce price and increase affordability of product to end-customer</td>
<td>9</td>
</tr>
<tr>
<td><strong>Strengthen management, technical and marketing skills</strong></td>
<td>9</td>
</tr>
<tr>
<td>Incentive sales agents and small-scale producers</td>
<td>7</td>
</tr>
<tr>
<td>Improve quality of products</td>
<td>6</td>
</tr>
<tr>
<td>Build supply chains</td>
<td>6</td>
</tr>
<tr>
<td>Allow for sale on credit</td>
<td>5</td>
</tr>
<tr>
<td>Strengthen after sales services and warranties</td>
<td>4</td>
</tr>
</tbody>
</table>
... rather than capital investments.

<table>
<thead>
<tr>
<th>The RBF beneficiaries used the incentive payments to cover:</th>
<th>Number of mentions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total number of respondents</strong></td>
<td>(97)</td>
</tr>
<tr>
<td><strong>Operational expenditures</strong></td>
<td></td>
</tr>
<tr>
<td>Marketing expenditures</td>
<td>34</td>
</tr>
<tr>
<td>Operational expenditures and working capital</td>
<td>18</td>
</tr>
<tr>
<td>Distribution and transport costs</td>
<td>20</td>
</tr>
<tr>
<td>Expand production, sales, and distribution network</td>
<td>14</td>
</tr>
<tr>
<td>Inventory and inputs</td>
<td>12</td>
</tr>
<tr>
<td>Price discounts for customers</td>
<td>8</td>
</tr>
<tr>
<td>Credit lines / PAYG modalities to retailers and customers</td>
<td>8</td>
</tr>
<tr>
<td>Incentives for employees, sales agents and small-scale producers</td>
<td>7</td>
</tr>
<tr>
<td>After sales services and warranties</td>
<td>7</td>
</tr>
<tr>
<td><strong>Investment</strong></td>
<td></td>
</tr>
<tr>
<td>Scale (local) production</td>
<td>12</td>
</tr>
<tr>
<td>Training and capacity development</td>
<td>9</td>
</tr>
<tr>
<td>Product development / R&amp;D</td>
<td>6</td>
</tr>
<tr>
<td>Invest in machinery and production space</td>
<td>6</td>
</tr>
<tr>
<td>Capital investments in mini-grid</td>
<td>6</td>
</tr>
</tbody>
</table>
Conclusion

- The RBF Facility contributed to business and market expansion
- Across the different technologies and irrespective of incentive type
- Market growth not yet self-perpetuating, because:
  - Market growth is complex, i.e. dependent on a complex interplay of demand, supply and framework conditions
  - The RBF Facility may not have invoked capital investments at scale and concomitant efficiency gains in production which would make the business more viable and create room for further investments

*Results-based financing: an effective but not sufficient instrument for market growth and commercially sustainable markets*
RBF in the Biodigester Market of Vietnam - Lessons Learned
RBF Biogas Program – EnDev Vietnam

Please click here for the video
Biogas Programme Vietnam

Biodigester Sales Vietnam

- BP HH Subsidy
- BP RBF


0 5,000 10,000 15,000 20,000 25,000 30,000
## Efficiency: cost after RBF

<table>
<thead>
<tr>
<th></th>
<th>Year</th>
<th>2013</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biodigesters sold</strong></td>
<td></td>
<td>8,250</td>
<td>7,877</td>
</tr>
<tr>
<td><strong>Subsidy vs RBF (~45 Euro)</strong></td>
<td></td>
<td>€ 355,000</td>
<td>€ 367,094</td>
</tr>
<tr>
<td><strong>Programme Costs</strong></td>
<td></td>
<td>€ 620,000</td>
<td>€ 208,559</td>
</tr>
<tr>
<td><strong>Programme Total</strong></td>
<td></td>
<td>€ 976,000</td>
<td>€ 575,653</td>
</tr>
<tr>
<td><strong>Programme Cost/digester</strong></td>
<td></td>
<td>€ 118</td>
<td>€ 73</td>
</tr>
<tr>
<td><strong>Difference</strong></td>
<td></td>
<td></td>
<td>€ 45</td>
</tr>
</tbody>
</table>
### Effectiveness: sales provinces

<table>
<thead>
<tr>
<th>Province</th>
<th>HH Subsidy 2007 – June 2013 (6.5 years)</th>
<th>RBF 2014 – August 2018 (4.5 year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Annual</td>
</tr>
<tr>
<td>Hanoi</td>
<td>4,280</td>
<td>658</td>
</tr>
<tr>
<td>Thai Nguyen</td>
<td>2,890</td>
<td>445</td>
</tr>
<tr>
<td>Vinh Phuc</td>
<td>4,266</td>
<td>656</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11,436</strong></td>
<td><strong>586</strong></td>
</tr>
</tbody>
</table>
Effectiveness Business Growth: Sales Enterprises

Thai Nguyen Province

Sales BAU  Sales RBF
Challenges

1. Administration (PPP, Carbon Finance)
2. Low RBF incentive levels
3. Uneven distribution of RBF benefits

Opportunities

1. Feasible, Effective and Efficient
2. Scalable and Replicable
3. Technologies agnostic (as per RBF generic standards)
Hype

1. RBF is Feasible, Efficient and Effective
2. RBF Optimized Market Forces
3. RBF Regulated Quality and M&E

Hope

1. >1 mln Technical Demand
2. Market Self Propelling yet Dependent
3. Modest ODA Needed
Thank you for your attention!

Felix ter Heegde
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Bastiaan Teune
Sector Leader Energy
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RBF Benin
Solar PicoPV
Market Development
RBF as an approach for market transformation

- RBF incentives are the carrots that nudge the private sector into a certain direction (provided there are no other donors with competing schemes).

- Through the design of incentives, implementers can encourage innovation / expansion / change and partially cover the associated risks or costs:
  - Bonus incentives e.g. on credit sales, or for expanding to certain regions
  - Eligibility criteria e.g. certain quality standards, certain points of sales

- However, RBF has its limits and prerequisites (as it does not address the needs for technical assistance and facilitation, and it favours the strongest players).
State of the market before the RBF in Benin

• Before the onset of the RBF in 2014, the market was characterised by:
  ○ No international companies
  ○ High degree of uncertified solar products (lamps and SHS) being sold
  ○ Low volumes of sales
  ○ High percentage of sales of companies were actually to NGOs and others who distributed systems for free (non-commercial sales)
  ○ Mostly cash sales, no PAYGo and limited, almost informal, instalment options
  ○ Difficulties in importing solar systems and no tax exemptions for the sector
  ○ Limited interest of government actors in off-grid technologies
Adaptive rules and procedures that accompany the private sector

- Importation challenges and low financial capacities of companies -> RBF incentives paid for the importation and sale of systems
  Only sales became eligible

- Non-commercial sales are a challenge for the long-term market sustainability yet important for the companies’ bottom-line -> they were accepted but limited
  Non-commercial sales became non-eligible

- Quality of products was a concern -> only Lighting Global certified products eligible
  Certification requirement extended for SHS
State of the market after the RBF in Benin

As of 2019, the market was characterised by:

- Three international companies (#1, #3 and #4 in the market)
- Increased percentage of certified solar products (lamps and SHS) being sold (but still hard to quantify, since EnDev only accepts certified products, therefore there is no data on the shops selling uncertified products)
- Volumes of sales increased multiple times (sales in 6 months of 2019 are 2.4x higher than the sales of all 2015)
- 90% of sales are through PAYGo
- Relative smooth importing and tax exemption for all solar equipment put in place by the government
Prerequisites for market transformation

Lessons Learned

1. The RBF should be designed as a mechanism accompanying companies.

2. The RBF needs to be simple, light, unbureaucratic. If you can’t explain your RBF to your family in 30 seconds, you need to change your RBF.

3. It helps companies focus, if the RBF is the only financing mechanism available.

4. Enough competent and financially capable companies need to be on the market. It helps to have large, professional international companies with good financial backing.

5. The switch from a tender-based approach to a commercial customer-based approach takes time; and you might see a slump in sales before they go up again.

For more information, see the upcoming publication on market development by EnDev Benin.
Encourage sustainable market transformation

• By weeding out the “grant companies” amongst the solar companies. The RBF needs to encourage companies to focus on their clients, investors and commercial funders, and not on donors.

• By reducing the need for subsidies, lowering incentives gradually and supporting the transition from grants to concessional loans

• By insisting on quality, certified products and facilitating the switch to modern approaches and technologies.
Impacts of the RBF

- **RBF** is an efficient subsidy mechanism with a **transfer of risks to the private sector**, therefore limited risks for the implementer (since results are first verified before incentives get paid).

- **RBF** puts the companies in the driver’s seat on how they want to **spend their incentives** – most commonly for operational costs, paying commissions to agents or carrying out extra trainings.

- However, **local companies** with limited expertise and financial partners are forced out of the market quickly by international actors who are a perfect match for the RBF.

- **Data!** Due to the RBF verification, a wealth of data about both demand (customers, use of energy) and offer (companies) is collected and can be analysed to improve market intelligence (see upcoming publication of EnDev Benin on market development using this data).
Transforming energy markets with RBF – hype or hope?

→ Please ask questions in the chat box.
→ Indicate name/organisation and who it is addressed to.
Conclusion
EnDev RBF Facility Webinar Series

#1 Transforming energy markets with RBF – hype or hope?
18 June 2020, 10:00-11:00 CET
Speakers:
- Philip Mann (DFID)
- Barbara Richard (EnDev HQ)
- Geert Engelsman (Particip GmbH)
- Bastiaan Teune (SNV Cambodia)
- Razvan Sandru (GIZ Benin)

#2 Reaching the bottom of the pyramid with RBF – wishful thinking or reality?
July 2020 (TBC)
Different experiences targeting vulnerable groups will be shared from Rwanda, Tanzania and Malawi to help demystify some of the complexity around LNOB-approaches.

#3 Verification in RBF projects – value for money or waste of time?
September 2020 (TBC)
Ways to design independent verification systems are manifold: from use of digital technology in the Mekong Region, to use of Innovation the context of Kenya.

#4 Accelerating the off-grid appliance market with CLASP
October 2020 (TBC)
Providing energy access with the help of energy-efficient off-grid appliances: in the framework of the Global Leap Award from Bangladesh to East Africa; and with e-cooking in the future.

→ RBFF ONLINE CLOSING EVENT | November 2020 (TBC)
The end of an era or just the beginning? – RBF Sector Spillover and Innovation
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Next webinar: https://endev.info/content/EnDev_RBF_Facility_webinar_series_%26_closing_event_2020:_insights_from_7_years_of_implementation

Websites: https://endev.info/content/Main_Page https://endev.info/content/Results-Based_Financing

If you have any follow-up questions or would like to subscribe to our RBF mailing list, please send an email to sarah.wollring@giz.de or franziska.munzinger@giz.de.