Sustainability vs. Reliability

The Need for a Balanced Approach to Power Generation

Association of Power Utilities of Africa

July 12-15, 2017
Of the 10 countries with the most sunshine, seven are in Africa ...
... making solar power a sustainable and sensible solution for rural electrification.
With Africa’s vast river network, continued development of hydropower …
... will provide a lasting stream of sustainable power generation.
Despite the benefits of renewables, **sustainable power** is not necessarily **reliable power**.
Sustainable power needs a reliable partner: mobile fast-track power.
Solar hybrids combine benefits of renewables and security of back-up gensets.
Gensets and turbines can inject large blocks of power to stabilize hydroelectric grids.
Best of all, this cost-effective solution can be available in as fast as 60-90 days.
But even with mobile fast-track power to support intermittent renewables ...
Africa needs a balanced approach to power generation for sustainable growth.
Introducing:
Bridge to Permanent Power
Mobile power is fast and cost-effective but it’s also Temporary.
Now there’s a cost-effective power solution that’s

Fast and Permanent.
Bridge to Permanent Power

Customers no longer need to wait for years for installed power

Temporary Bridging Power in as fast as 60-90 days

Permanent Combined Cycle in 1-3 years

Project Developer
APR Energy

Equipment Supplier
GE Fast Power

Project EPC
APR Energy / GE
How Bridge to Permanent Works

A seamless solution at a tiered or levelized cost for power

- Implementation:
  - **Bridging Power**: 2-3 months installation followed by 1-3 years of operation
  - **Permanent Power**: 1-3 years construction followed by 10-20 year PPA

- Pricing
  - **Tiered** – Customer pays same price for generation throughout the PPA and gains substantial fuel savings when permanent plant goes commercial
  - **Levelized** – Customer pays the same cost per kWh (generation and fuel) throughout the PPA regardless of technology

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**Example of Bridge to Permanent Price Options: 100MW w/ pipeline gas**

<table>
<thead>
<tr>
<th>Year</th>
<th>Cents per kWh</th>
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</thead>
<tbody>
<tr>
<td>First</td>
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<tr>
<td>Power</td>
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<tr>
<td>Year 5</td>
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<tr>
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<tr>
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<tr>
<td>Year 20</td>
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</tbody>
</table>
Bridge to Permanent Power with LNG and LPG:

Advantages

- Lower-cost fuels compared with diesel and HFO
- Increasing fuel availability in Africa
- Lower emissions vs. coal, diesel and HFO
Advantages of Bridge to Permanent

The power to grow Africa’s economy – now and for years to come

• Provides electricity **now** with a parallel path to a highly efficient and cost-effective permanent power solution

• Ideal balance between speed and price

• No up-front payment by customer

• Flexibility of turbines to accommodate a range of fuels
With a cost-effective solution that offers fast and permanent power,

why wait?
Questions?