CMI at CCBLR Energy Round Table
Innovative solutions for tomorrow
May 2017
200 years of industrial experience
A growing international group
A specialized Group

Waste treatment  Energie solaire  Défense  Air
Training  Energies  Chaudières Eau
Environnement  Lignes de galvanisation
HRSGs  Boilers  Sidérurgie  Aeronautics  Simulators
Solar energy  Maintenance  Operational efficiency
Stations d'épuration  Services aux projets  Equipment
Know-how  Galvanizing lines  Energies  Laminors  HRSGs
Spécialistes  Environment  Systèmes d'armes  Durable
Métaux  Industrial furnaces  Weapon systems  Biomasse
Services to industries  Projects services  Water
Savoir-faire  Fours industriels  Equipement  Simulateurs
Efficacité opérationnelle  Metals  Biomass  Rolling mills
Specialists  Services aux industries  Air
Formations  Aéronautique  Defense
Sustainable  Maintenance  Steelmaking

Cockerill Maintenance & Ingénierie  29/05/2017
CMI Energy: Power Generation

- Heat Recovery Steam Generators
  - Combined gas-steam cycle power plants
  - Integrated solar combined cycle power plants
  - Cogeneration

- Tower Receivers and heat accumulators
  - Thermo-solar power plants

- Industrial Boilers
  - Industrial process
  - Combined heat & power
  - Biomass applications

- Welding Expertise Center
  - All welding techniques
  - Advises, specifications, execution, non-destructive testing
Our experience in Russia

CMI ENERGY supplied 10 HRSGs in Russia for 6 projects over 3 500 MW of capacity …

<table>
<thead>
<tr>
<th>SITE NAME</th>
<th>End-user</th>
<th>HRSG Qty</th>
<th>Plant Capacity</th>
<th>GT</th>
<th>Order Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazan</td>
<td>TAIF</td>
<td>1</td>
<td>540</td>
<td>9HA 01</td>
<td>2014</td>
</tr>
<tr>
<td>Yayvinskaya, Yajva</td>
<td>OGK4:/ YAJVA STATE DISTRICT BRANCH</td>
<td>1</td>
<td>450</td>
<td>SGT5-4000F</td>
<td>2008</td>
</tr>
<tr>
<td>Nevinnomyssk</td>
<td>OGK-5 / POWER MACHINES</td>
<td>1</td>
<td>450</td>
<td>SGT5-4000F</td>
<td>2007</td>
</tr>
<tr>
<td>Surgut</td>
<td>OGK-4 / POWER MACHINES</td>
<td>2</td>
<td>800</td>
<td>9FA</td>
<td>2007</td>
</tr>
<tr>
<td>Shatura</td>
<td>RAO UES / OGK-4</td>
<td>1</td>
<td>400</td>
<td>9FA</td>
<td>2007</td>
</tr>
<tr>
<td>St Petersburg</td>
<td>LENENERGO</td>
<td>4</td>
<td>900</td>
<td>V94.2</td>
<td>1994</td>
</tr>
</tbody>
</table>
Solar Receivers

Direct Steam Generation

Molten salts
- Ideal for Heat storage & Dispatchability
- Still allowing efficient steam cycles

CMI’s involvements
- Tower Receivers
- Steam Generators
New activity in the field of energy storage
The energy model evolves towards more decentralisation
Battery : Hybridation

- Hybridation to optimize storage between:
  - Frequency regulation: needs high dynamic response ➔ Li-Ion Battery
  - Load shifting: needs flexible storage capacity ➔ Flow Battery
CMI Environment
The right partner for your environmental and innovative solutions

Across the 5 continents, **CMI Environment** offers the expertise of multi disciplinary teams, to implement for you global and taylor-made environmental solutions.

- **Water**
  - Industrial water treatment
  - Municipal water treatment
  - Drinking water solutions
  - Waste water treatment
  - Water treatment products and processes (preventive and/or curative services)

- **Air & Gaz**
  - Air & fumes treatment
  - Hot & cold gas treatment
  - Odors control

- **Solid & Wastes**
  - High temperature thermal conversion processes for:
    - Solid wastes
    - Biomass
    - Activated carbon
  - Based on Multiple Hearth Furnace (MHF) & Vertical Shaft Kiln (VSK) technologies

- **Energy efficiency**
  - Energy efficiency solutions: process, utilities, management...
  - AFNOR’s referents trainers
  - Hydro-power
  - Waste to energy (anaerobic digestion, gazification)
Water treatment

- **Expertise**
  - Physical-chemical treatment
  - Biological treatment
  - Thermal processes
  - Membrane filtration processes

- **Last experience in Russia**
  - Severstal – industrial water treatment of the plant
A sustainable Group: our foundations

Achieve sustainable industrial progress for the benefit of its customers, staff, shareholders and the communities in which it is established and for the planet:

- Provide quality jobs
- Reinforce good governance and promote responsible behaviour
- Encourage the development of “green” technologies
- Reduce its own environmental footprint and that of customer industries
- Support local development in the communities in which CMI is established
- Guarantee the development and viability of the Group over the long term
Thank you
Laurent de Schaetzen
E-mail: laurent.de-schaetzen@cmigroupe.com
Tel: +32 (0) 4 330 77 80

www.cmigroupe.com