WHR in MSMEs – Experience from World Bank-SIDBI Project

Development Environergy Services Ltd (DESL), New Delhi

At the

Energy Management Action NetworK (EMAK) Workshop
Taj Palace Hotel, New Delhi

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Background

- World Bank Project : Financing Energy Efficiency in MSME implemented by SIBDI and BEE
- SIDBI is leading an activity where services are provided in 5 clusters to MSME units enhancement of energy efficiency
- DESL has had the unique experience of conducting energy assessment studies in over 400 MSME units in the Faridabad cluster
  - The scope of work included Walk Through Audit, Detailed Energy Audit and providing Implementation Support to the MSME units
  - Detailed Energy Audit were conducted in over 260 MSME units in the mixed Faridabad cluster, which included 10 industrial sectors
  - The Waste Heat Recovery system was recommended in mainly the forging, foundry, chemical, textile and die casting units

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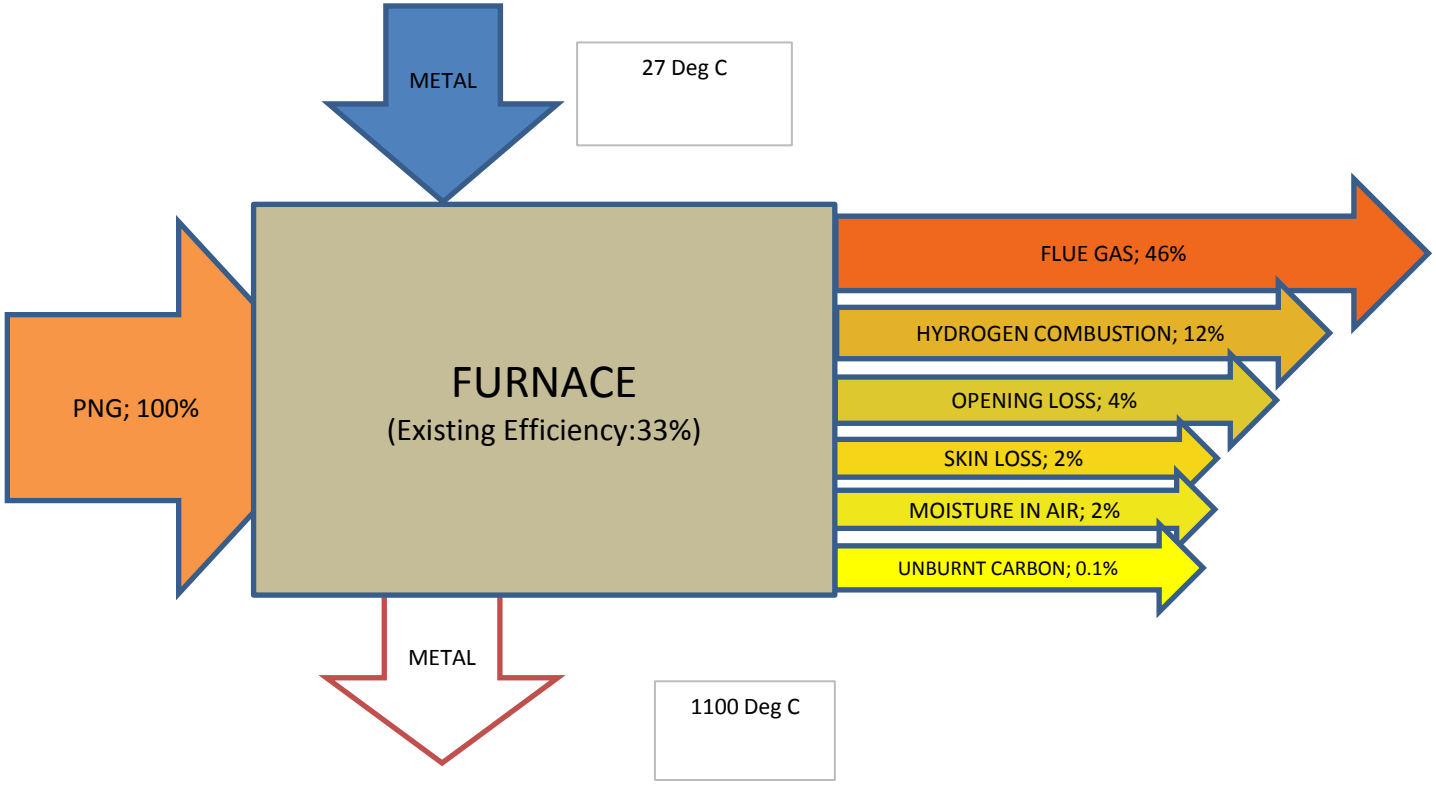
Efficiency of Forging Furnaces

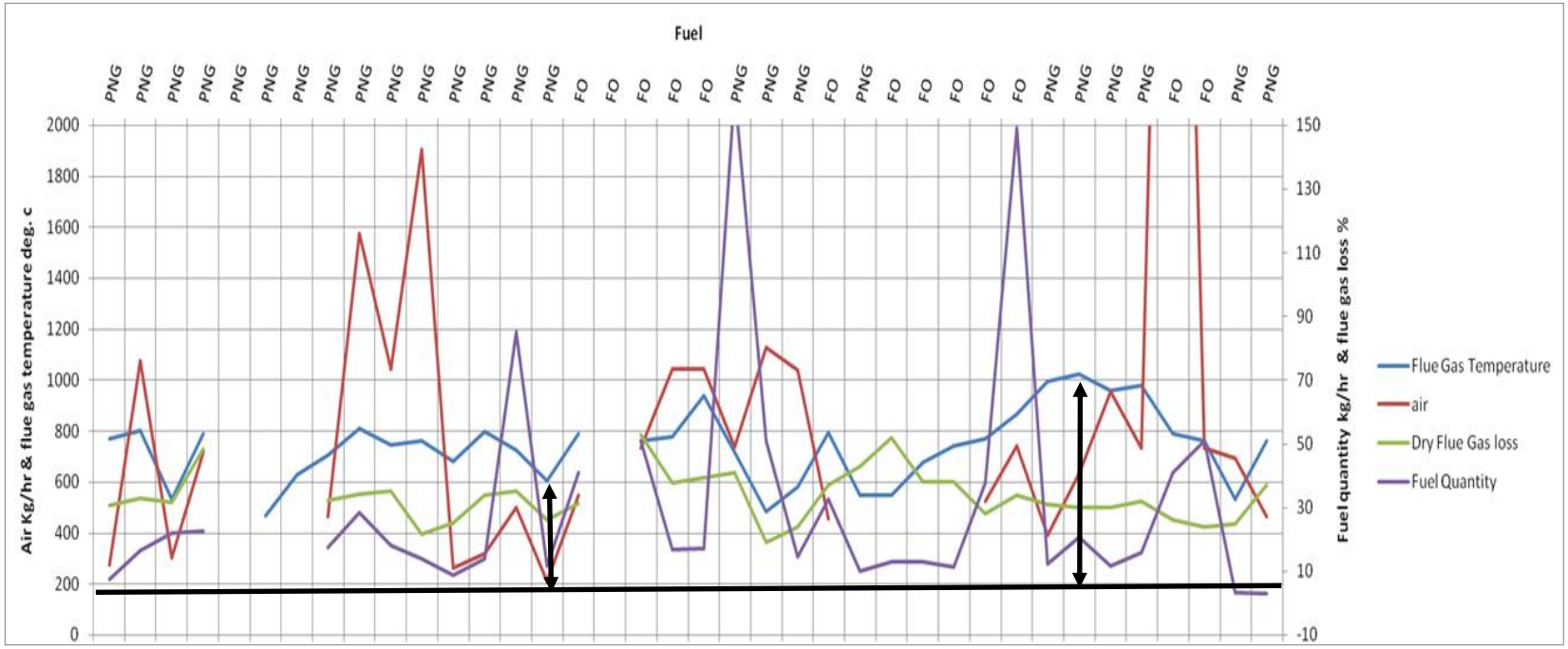


Major EE recommendations: Waste Heat Recovery, Excess Air Control, Insulation Improvement ad Opening Loss reduction

Receptiveness to suggestions

	Receptiveness	Remarks
Excess Air Control	Low	High manual interface Lowest cost option - sensing of temperature through PID is the most accepted EPIA
Insulation and Opening Loss	High	Part of regular O&M measures

Operating Parameters of Forging Furnaces

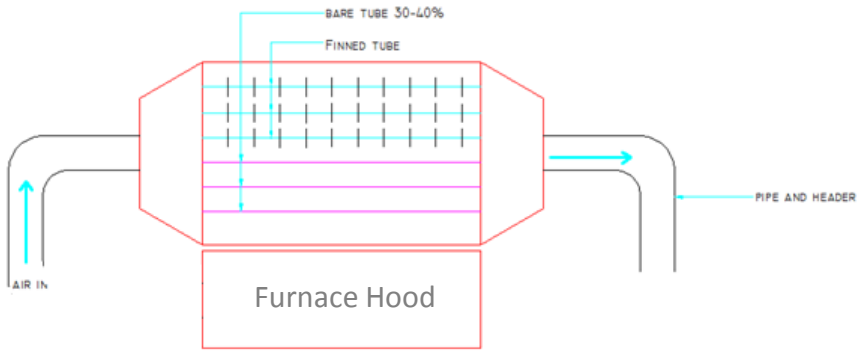


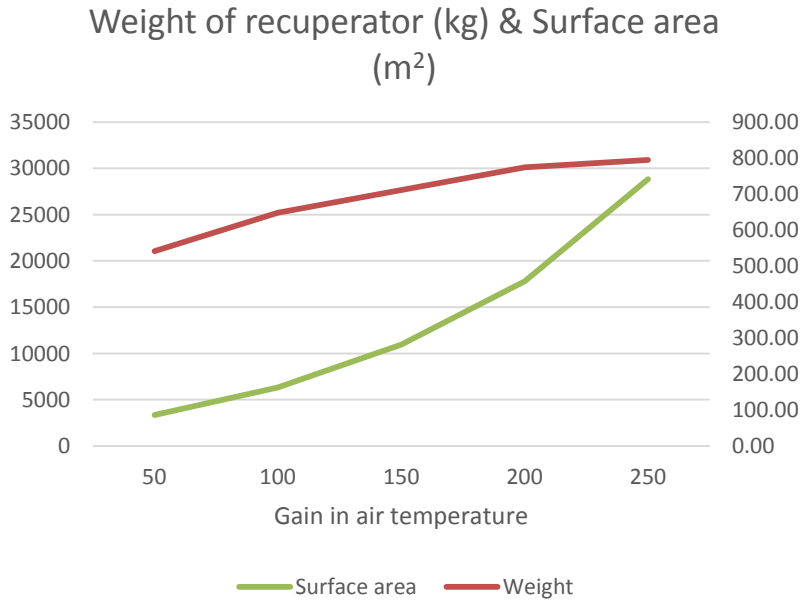
The theoretical maximum possible temperature gain ranges from 230 to 550 C

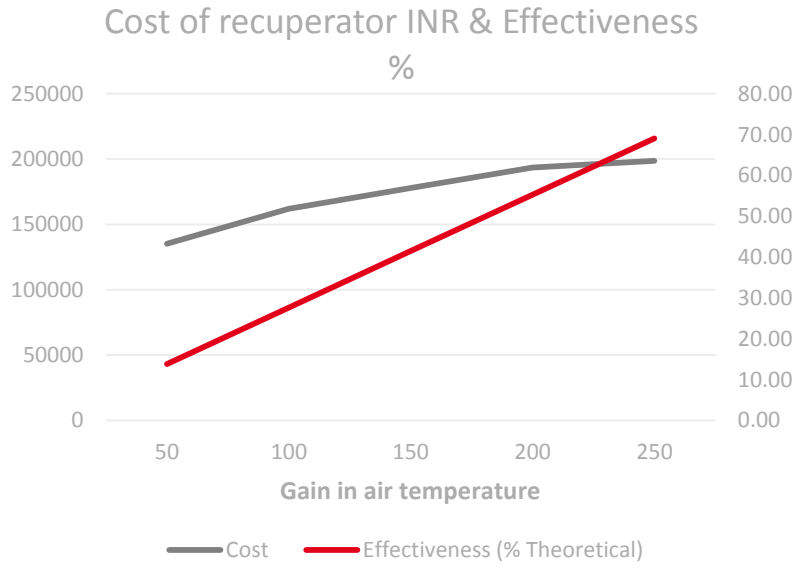
Issues Faced while designing a WHR system

- Draft is not balanced – Flue gas flow from the chimney is found to be very low in many cases

Schematic of a WHR System & Economics







Technical Barriers

- Waste heat sources at a plant are from non-continuous or batch processes
- Seasonal operations and low-volume operations reduce the economic benefits of WHR system
- Scenarios of added cost and complexity for integrating the WHR system controls with existing process controls
- Space limitations and equipment configurations make WHR systems difficult or impossible to site economically
- Lack of back-up service network

Business Barriers

- Industries reluctant to make investment that do not increase production and ensure economic survival and / or Perception about likely negative impact on the production
- Risk of financing projects dependent on uncertain future fuel prices and variable electricity rates
- Resistance to accept new, unproven technology that would potentially jeopardize existing production processes, despite significant potential benefits
- Reliability and operability

Possible Way Forward

- Consolidate success from many ongoing MSME focused programs
- Large scale proliferation by making available designs/design tools to vendors and manufacturers
- Vendor/Manufacturer incentive program for energy efficient design (eg. Rating of products)
- A paradigm shift on how MSME owners view investment in furnaces - Life Cycle Costing (eg. Rs/MT)

About DESL

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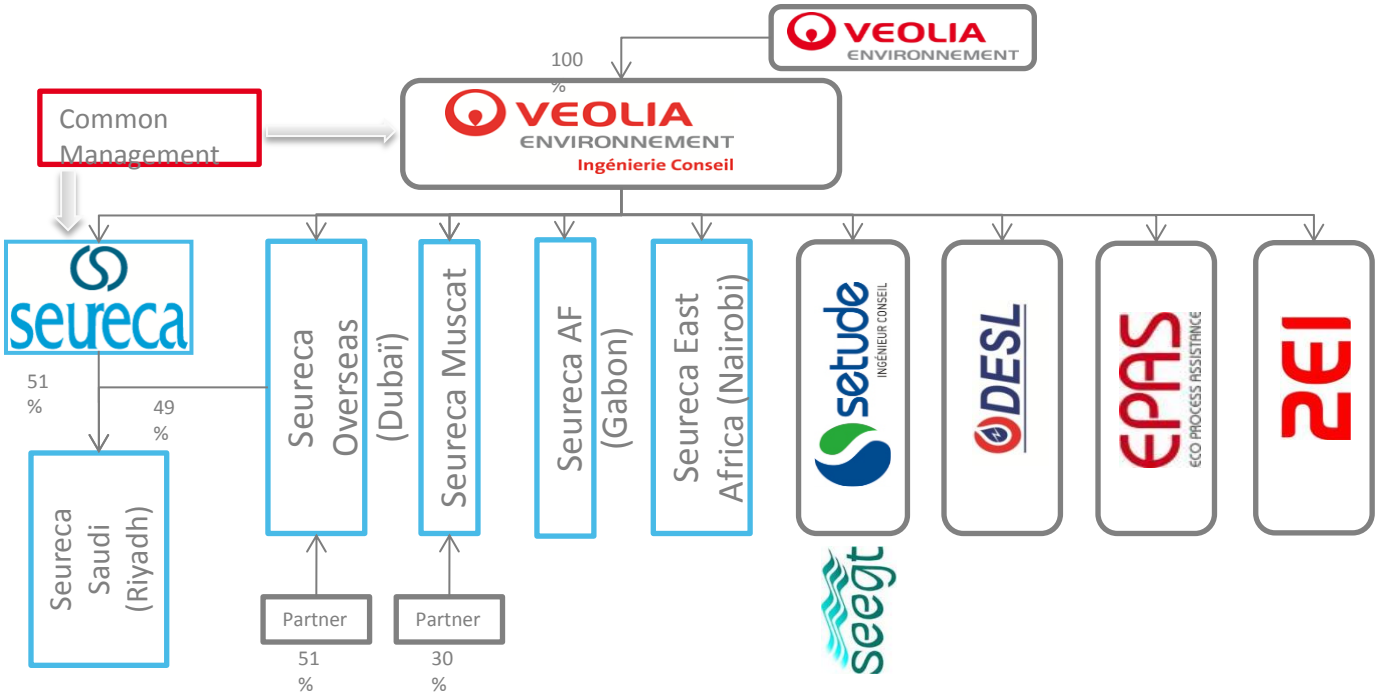
Our Parent Company – VEIC

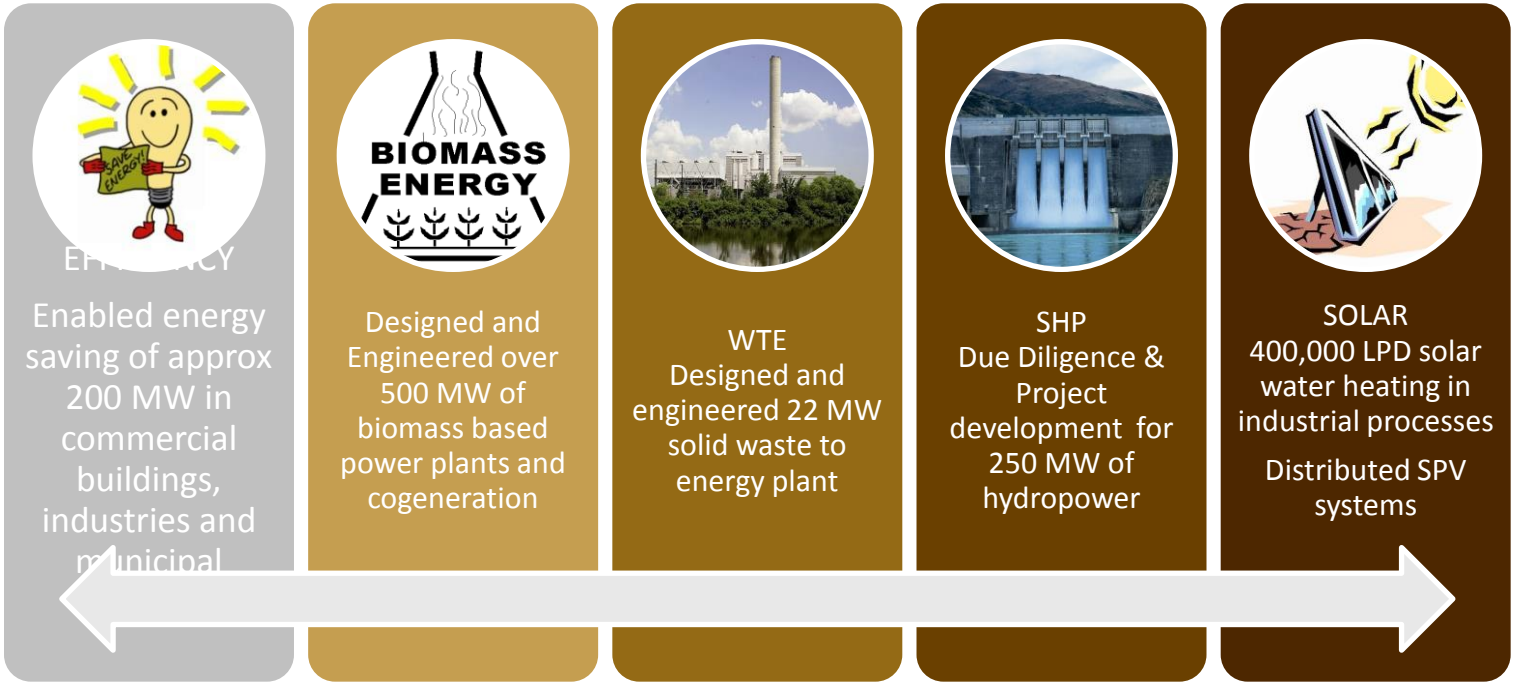
- VEIC is the Veolia subsidiary for **consulting services** in the fields of water and wastewater, energy and waste management services. The structure of companies under VEIC is as follows:



- VEIC has over 200 employees and offices located in India, UAE, Oman, Saudi Arabia, VietNam, Togo; Cameroon, Gabon, Benin, Kenya, Tanzania and Algeria (excluding Europe).

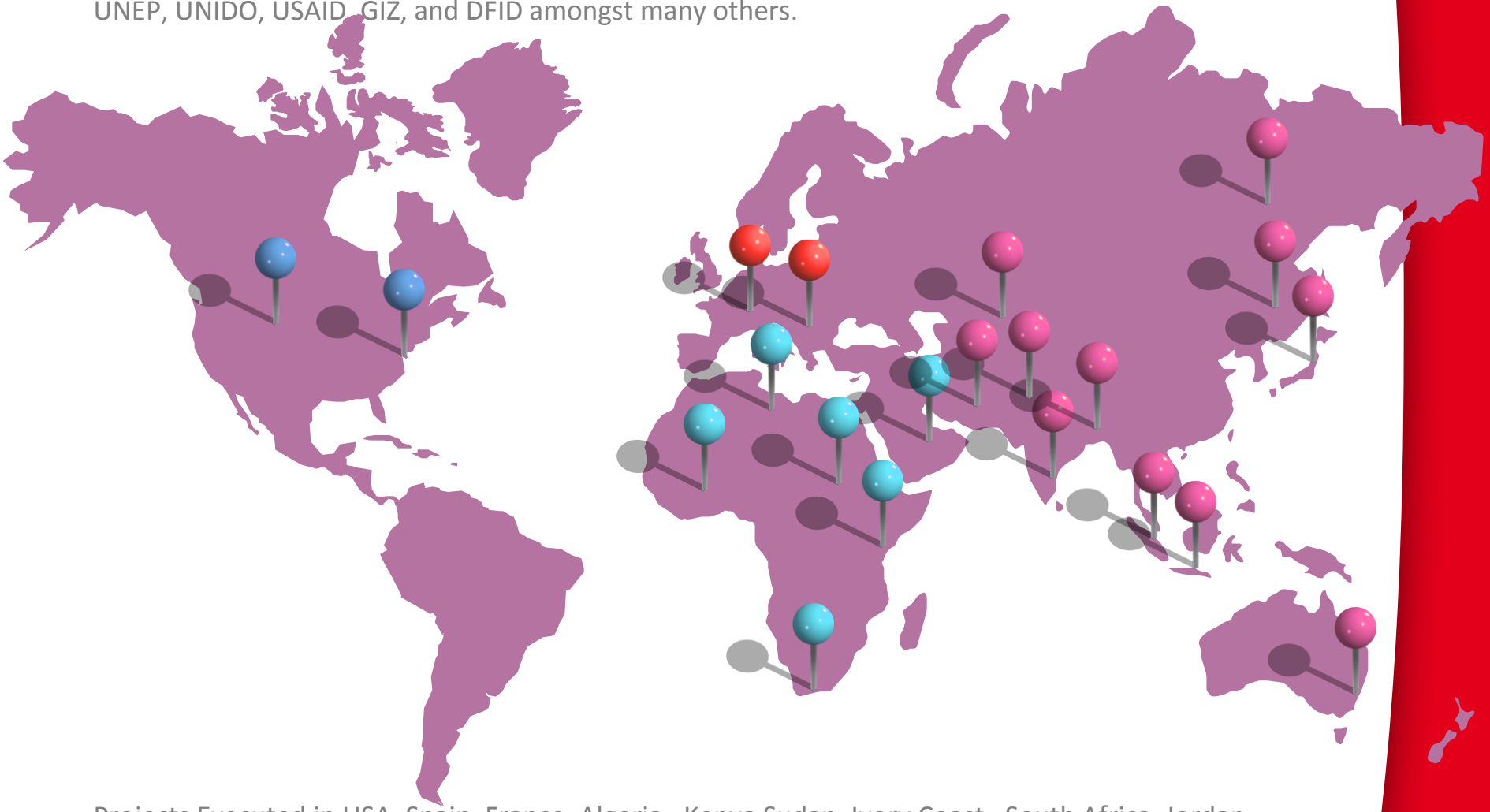
DESL Milestones (1/2)

- In a journey of over 15 years DESL has worked in the energy efficiency and renewable energy space all over the world. The service offerings cover the entire range of services including energy audit, energy services performance contract, project management including basic and detailed engineering, procurement, installation and commissioning services for development of energy efficiency and renewable energy projects as well as consulting services on energy policy, regulations and strategy. DESL has estimated that its services have contributed in reducing GHG emission by close to 4 Million Tons CO_2 equivalent annually.



DESL Milestones (2/2)

- DESL is today a globally recognized energy consulting company having worked for many prestigious assignments for Multi & Bilateral organizations such as World Bank, ADB, UNDP, UNEP, UNIDO, USAID, GIZ, and DFID amongst many others.



- Projects Executed in USA, Spain, France, Algeria , Kenya Sudan, Ivory Coast , South Africa, Jordan, Egypt, UAE, Tajikistan, Nepal, Bangladesh, Pakistan, Vietnam, China, Mongolia, Japan, Singapore

Thank you

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