



PROFILE

April 2024

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Stellae Energy is undertaking major technical work across the globe with large energy groups and multilateral agencies to identify sustainable energy locations, sources and solutions.



IEA / IRENA have identified that additional significant efforts are required to scale up economic, renewable energy solutions to help meet decarbonization targets.

INTRODUCTION

Global Energy Transition

We are an Energy Transition company which is creating end to end Renewable Energy solutions globally.

Our main areas of focus:

- Geothermal Energy (Electricity and Heating/Cooling)
- Solar, Wind, and Energy Storage Hybrids
- Hydrogen / Ammonia – Production / Storage / Fuel Cells
- Carbon Capture and Storage (CCS)
- Subsurface Energy Storage
- Distributed Energy Solutions / Hybrid Microgrids



World Class Experts
Technology Pioneers
Global Commercial/
Financial Deal Makers



OUR TEAM

Wealth of Global Experience in Executing Large Projects

David Hartell – MD & CEO – 40+ years of Energy Industry experience including Asset Management, Geoscience, Drilling, Engineering, Construction, Installation, and Production Operations and Maintenance in the Americas, Europe, Africa, Middle East, and Asia Pacific.

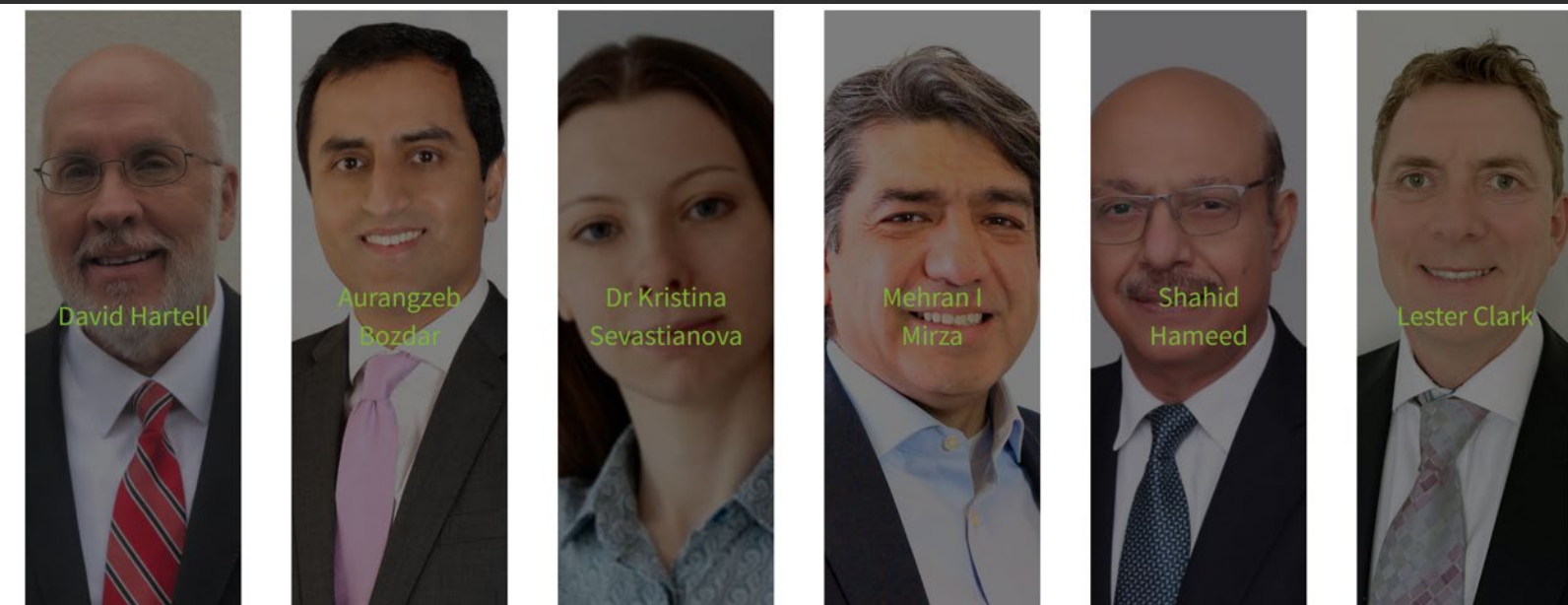
Aurangzeb Bozdar – MD & CFO – 28+ years of global experience in raising finance, M&A, organisational development and strategy implementation in Europe, Middle East, Asia, Africa and South America.

Dr Kristina Sevastianova – Vice President, Energy Asset Developments – 18+ years of Energy Industry asset development experience, clean energy focus - Solar PV, Wind, Batteries, Hydrogen, and Geothermal. PhD in Energy Facilities.

Mehran I Mirza - Head of Business Development – Middle East & Americas – 30+ years of international energy, business advisory experience. Two decades in the international energy industry, where he successfully managed strategy and organisational development.

Shahid Hameed – Senior Advisor - 40+ years of experience working in energy industry for multiple international & local companies as Chief Executive Officer (CEO), Director and in various technical & management roles. An accomplished Geoscientist.

Lester Clark – Senior Advisor – 25+ years of experience in Energy Services, EPCIC, and Infrastructure sectors and has been responsible for Leading major projects in drilling and infrastructure, complex P&L and risk management. Advising businesses on Operational Excellence and Project Financing.



Focussed on
Quality of Delivery
Long Term Partnerships

ENERGY ASSETS DEVELOPMENT

Geothermal
Hybrid Microgrids
Solar/Wind/Energy Storage
Hydrogen / Ammonia
Carbon Capture & Storage

Develop, Own and
Operate Assets with
local and international
partners

WHAT WE DELIVER

Sustainable Energy Assets Development - Strategy - Project Management

- Stakeholder Engagement, Sustainable Development
- Site identification, accessibility, grid connection, resource presence
- Pre-Feasibility, Feasibility, Detailed Design, Construction, Operations
- Arrange Equity, Funding and Finance, working with International Development Banks, Export Credit Agencies, and Green Finance Funds
- Market Intelligence, Customers, Power Purchase Agreement (PPA) Origination
- Local Participation and Content, Social Impact, Public Private Partnerships (PPP)
- Advisory Services
- Existing Asset Reviews
- Opportunity Reviews
- Divestment / Investment Transactions
- Developments



A major benefit is the persistence of Geothermal Energy – unlike Solar and Wind which can be variable and intermittent requiring significant Energy Storage Systems to meet demand profiles. Geothermal Energy can be used for heating/cooling and/or be transformed into electricity.



The technology to access this energy is conventional and well proven.

TECHNOLOGIES

Sustainable Energy

Geothermal Energy

Geothermal Energy uses the Earth's heat to produce persistent electrical energy. It is renewable in the sense that the Earth produces it with internal thermal processes not associated with Man and it is naturally replenished – but it is up to us to access it efficiently and as cleanly as possible.

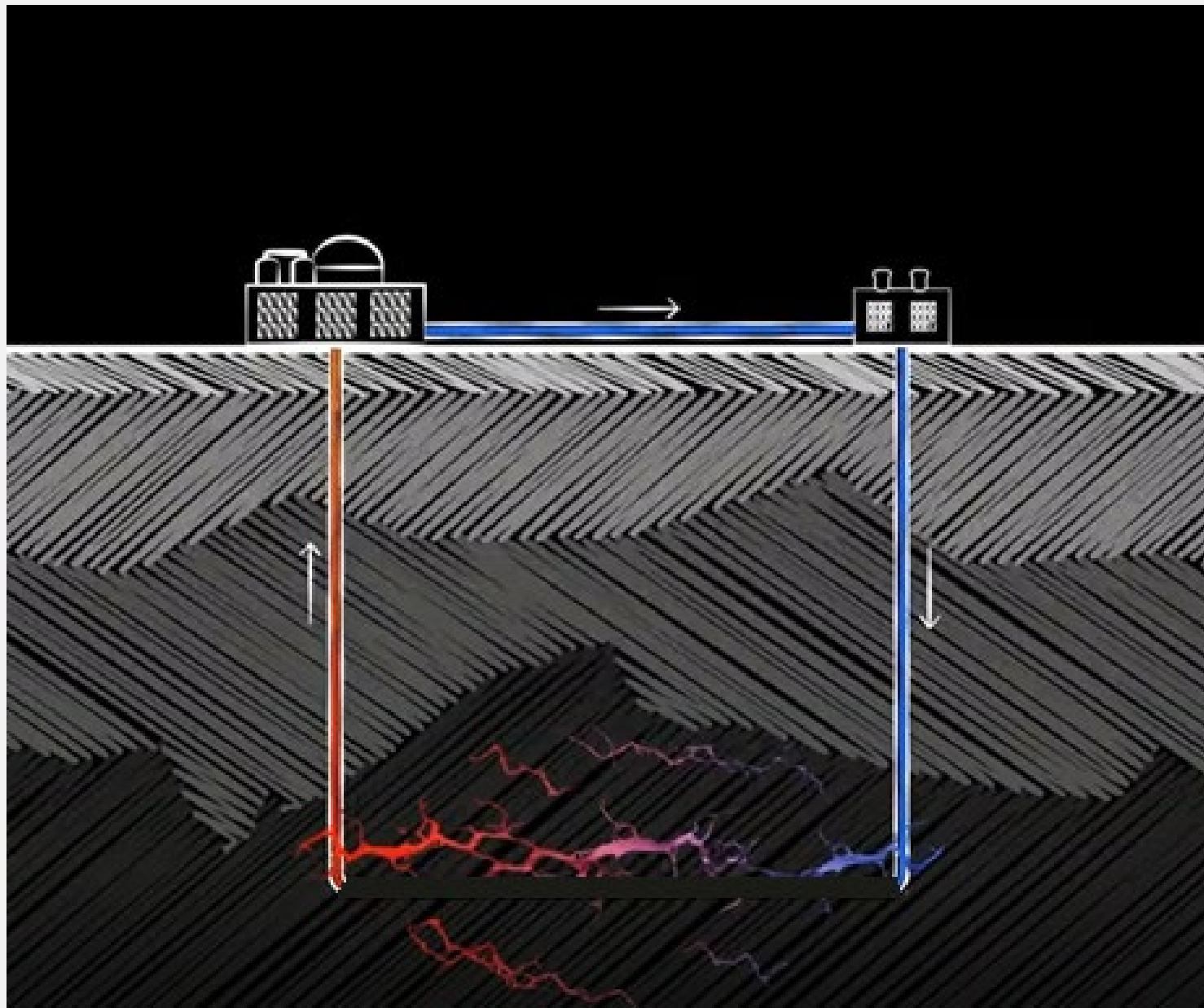
Medium to high temperature resources are generally required for economic electricity production, and there are many good geographical locations for these resources.

Most geographical locations are suitable for more efficient energy use ground source heating and cooling with multiple shallow boreholes using closed circulation systems.

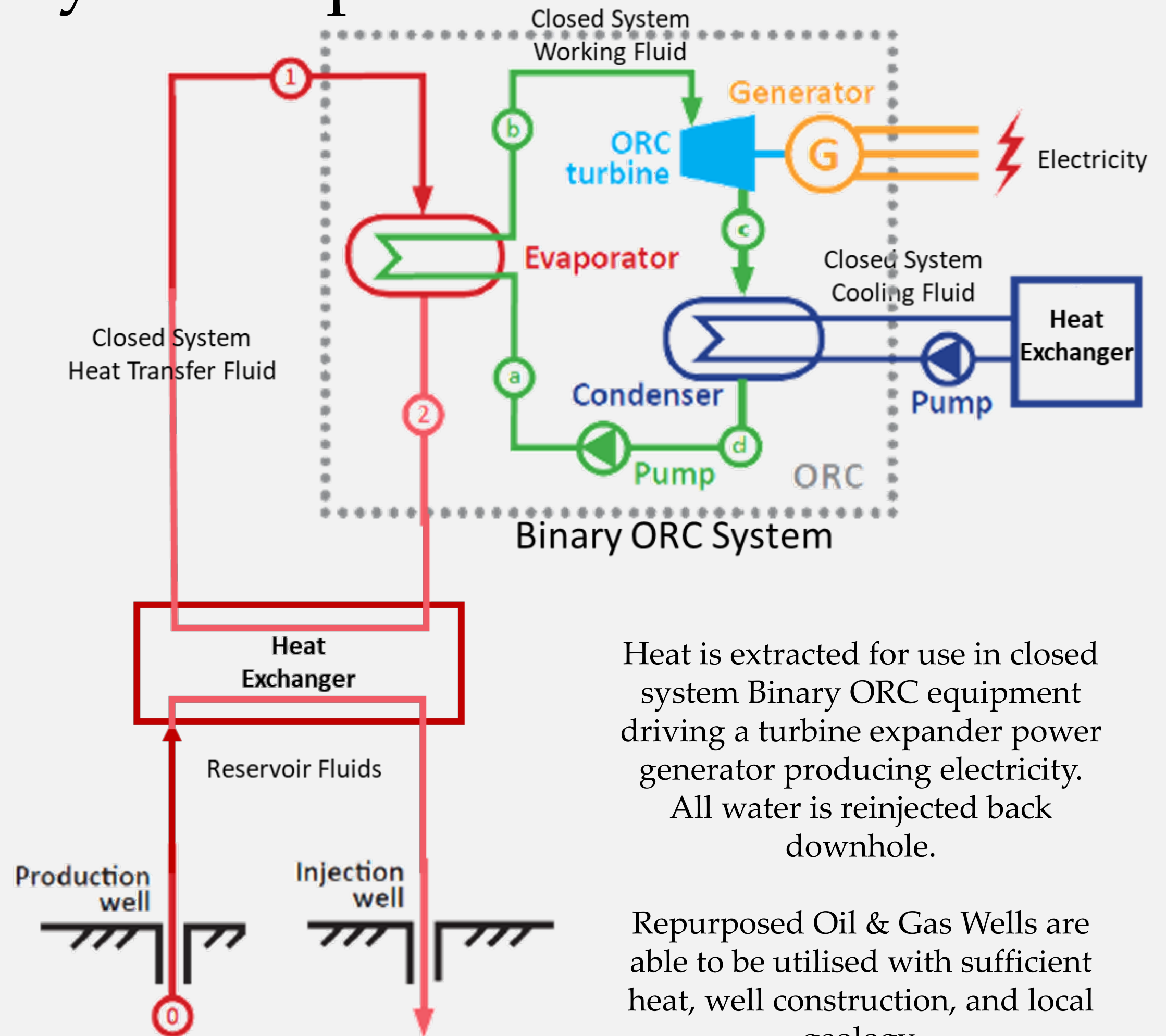




Geothermal Electricity Concept



A number of production and injection wells circulate fluids through the hydrothermal or petrothermal reservoir rock formations, extracting heat for use in surface power generation facilities.



Heat is extracted for use in closed system Binary ORC equipment driving a turbine expander power generator producing electricity. All water is reinjected back downhole.

Repurposed Oil & Gas Wells are able to be utilised with sufficient heat, well construction, and local geology.



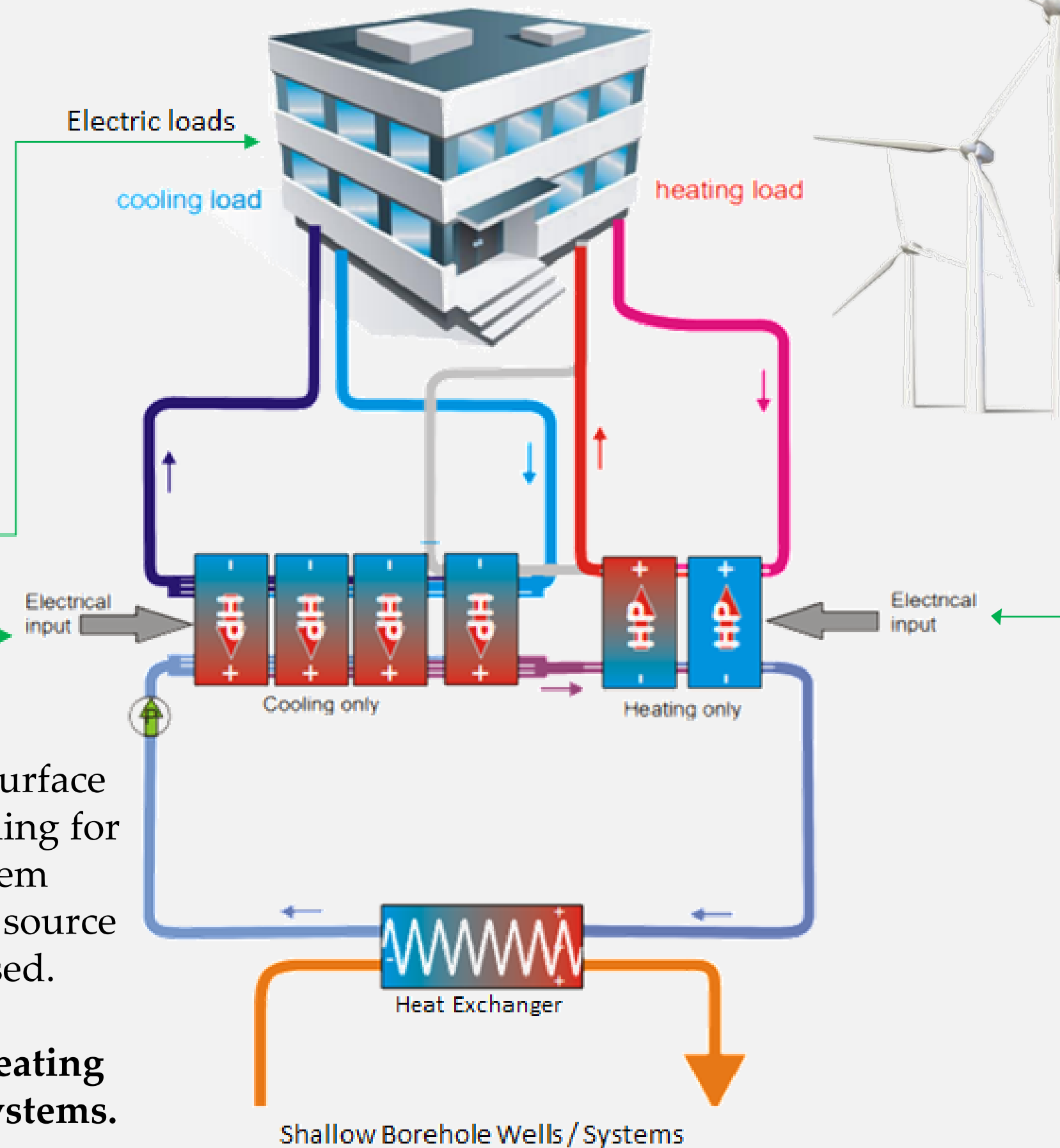
Geothermal Heating and Cooling Concept



Solar PV Panels

Battery Energy Storage System

Controllers, Inverters



A hybrid energy system is possible where renewable energy systems could provide energy for the surface facility. Not all locations have reliable grids and in some cases any grid electricity may be more expensive.

Renewables could also provide reliable power to these ground source heat pumps that are connected to closed circulation systems in multiple shallow boreholes.

Heat is extracted from the ground for use in heating surface facilities or transferred into the ground to provide cooling for surface facilities. Circulating fluid in a closed system provides the heat transfer to and from surface ground source heat pumps where the heating or cooling is increased.

The amount of electricity required to provide this heating and cooling is substantially reduced from existing systems.

Shallow Borehole Wells / Systems

A Hybrid Microgrid is a collection of interlinked renewable and conventional energy resources connected to users and controlled by systems to ensure efficient energy usage and storage.

TECHNOLOGIES

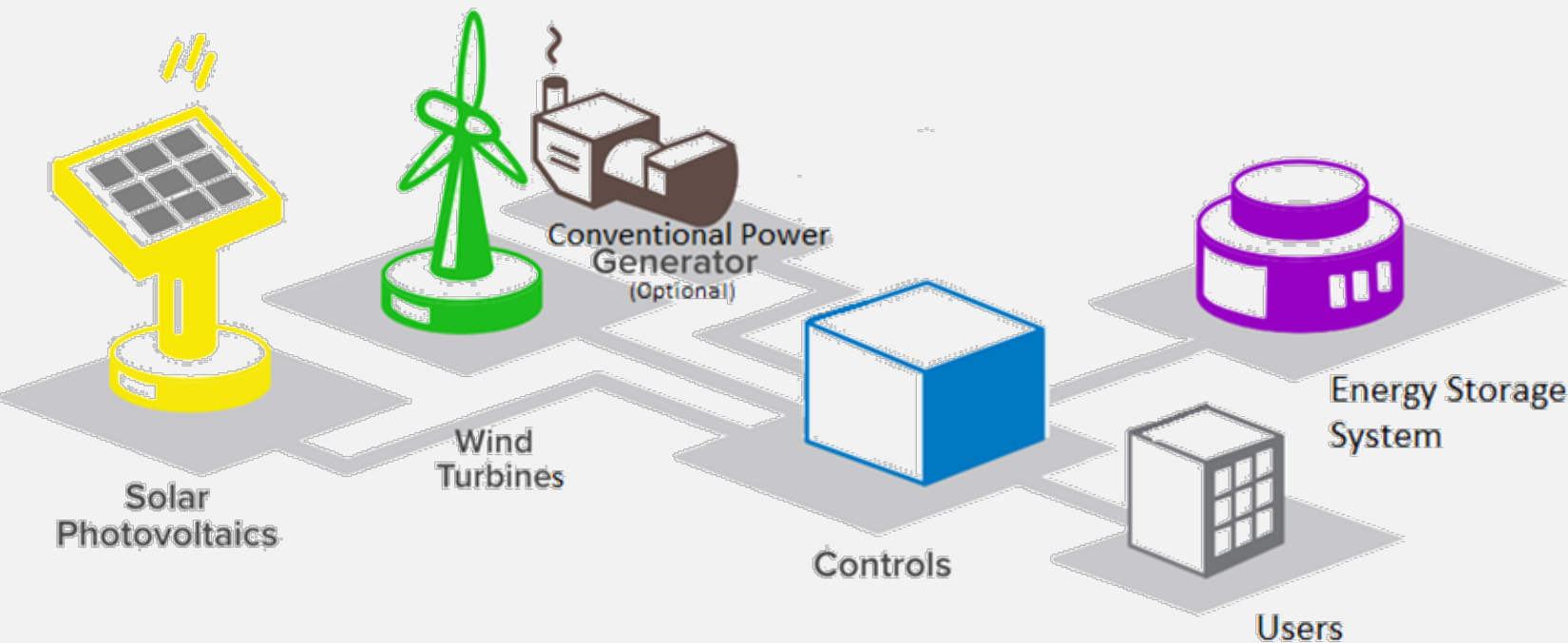
Community Development Goals

Hybrid Microgrids

Stellae is currently working on multiple Hybrid Microgrid concepts in various sectors/locations to provide low GHG efficient “Energy As A Service” (EaaS) to corporations and communities.

Hybrid Microgrids could utilise a mix of renewable energy resources including Solar PV, Wind Turbines, Energy Storage systems, and Shallow Geothermal (heating and cooling).

We believe Hybrid Microgrids could provide significant boost to economic development in the communities which are underserved or not served by national grids due to remoteness or lack of infrastructure within a country.



Energy Poverty is the largest limiting factor to economic growth in the world.



H₂ and NH₃ are important energy carriers for the Energy Transition since their combustion produces only water – but the production process needs to be considered. Popular terms for the method of production involve the colours Grey, Blue, Turquoise, and Green.



H₂ and NH₃ can be attractive carriers of Clean Energy or used for Energy Storage

TECHNOLOGIES

Renewable Power Electrolysis Air Separation Processing

Hydrogen / Ammonia

Hydrogen or Ammonia can be attractive carriers of Clean Energy; they can also be effective high capacity, long duration Energy Storage mediums. There are good applications in residential, commercial, and industrial settings for power generation or as a transportation fuel.

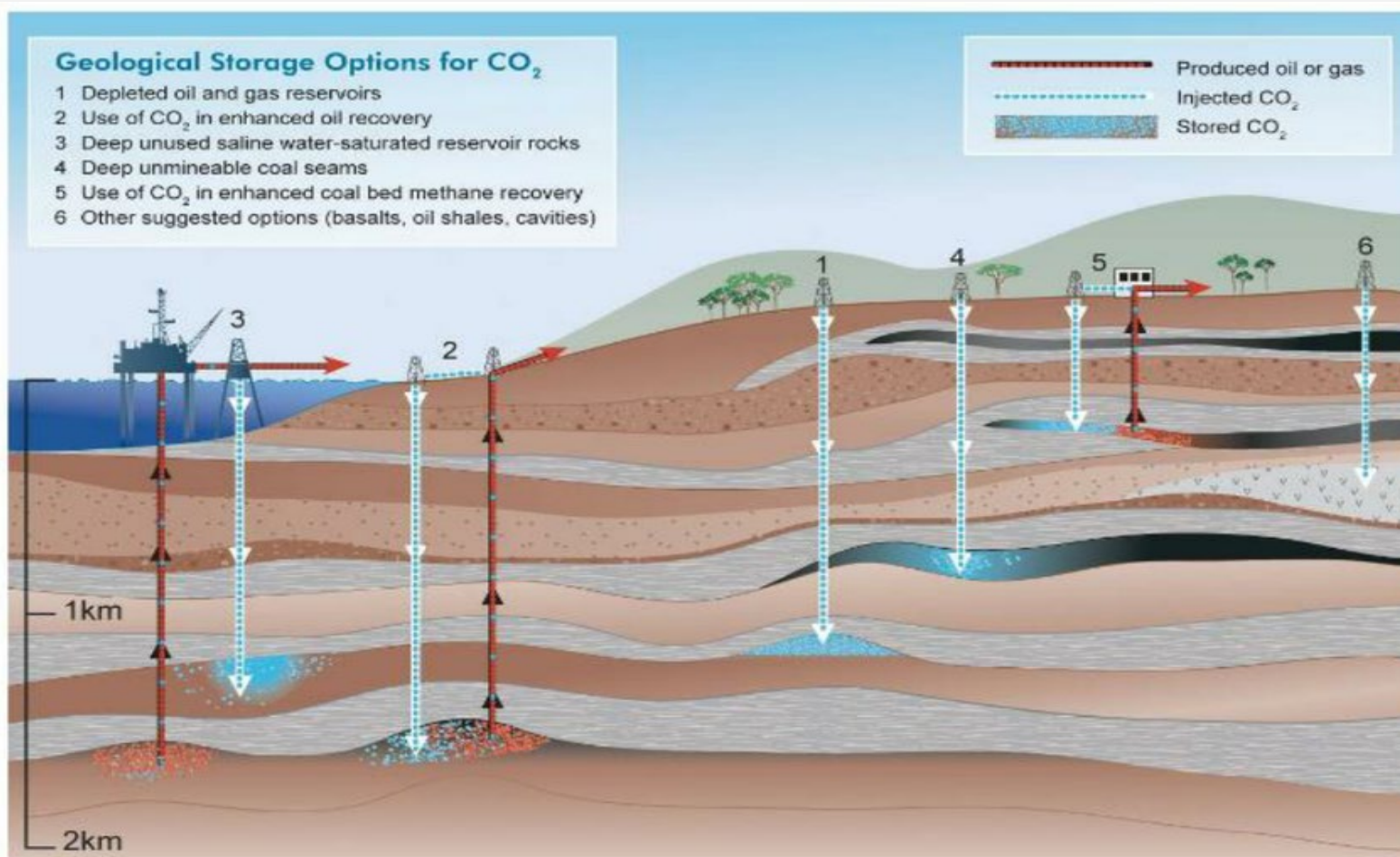
“Green Hydrogen” is the production of Hydrogen through electrolysis powered by renewables power generation (i.e., Solar, Wind, or Geothermal) – this is the most popular and environmentally compliant manifestation of Hydrogen today.

“Green Ammonia” is the production of Ammonia by using Hydrogen (above) combined with Nitrogen produced by air separation and processing them together. The energy density of Ammonia makes this well suited for long distance energy transportation.



Carbon Capture and Storage in Depleted Oil & Gas Reservoirs is Technically Well Established and Commercially Feasible with Carbon Taxes and Cross-Border Duties.

Alternate storage locations include deep saline aquifers.



The Circular Economy challenges us to reutilise existing infrastructure to lower the carbon footprint of any new projects.

TECHNOLOGIES

Geo Engineering

Carbon Capture and Storage

The economics of Carbon Capture is critical to cost effective CCS implementation. Efficiency of CO₂ capture is being challenged to be increased since this step is responsible for 60-80% of the overall economic costs.

CO₂ is well proven for Enhanced Oil Recovery (EOR) and Carbon Sequestration occurs during injection with a percentage of the gas remaining in the rock during each cycle.

Carbon dioxide can sometimes be used as a component of geothermal heat transfer fluid for coupled Carbon Storage and Geothermal heat extraction in an Enhanced Geothermal System (EGS), which allows the technology to be economical at lower subsurface resource temperatures.



Stellae Energy works with its global partners in variety of ways, from being an active participant in energy joint ventures to providing strategic advice and project management services



Currently three Flagship Projects are progressing with Investment Advisors presenting to potential Investors.

BUSINESS MODEL

Flexibility is the Key

Identify Identify technologies, projects and opportunities through Pre-Feasibility Studies

Engage Engage governments, business stakeholders to agree commercial arrangements

Obtain Obtain license to operate

Arrange Arrange funding and finance for the project

Execute Develop, Own and Operate Assets



OUTLOOK

Join Global Energy Transition Evolution

- Stellae Energy team has created some exceptional projects and global collaborations during the last three years. We are pleased to have matured Flagship Projects with additional projects identified and under initial development. Actively pursuing Global and Local Investment Partners to develop these projects.
- All projects are ESG++ initiatives supporting Cleaner Energy Transition with excellent NPVs and robust IRR.



StellaeEnergy.com

THANK YOU

for your kind attention

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