



WASTE HEAT RECOVERY



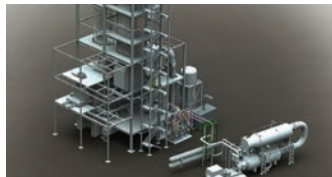
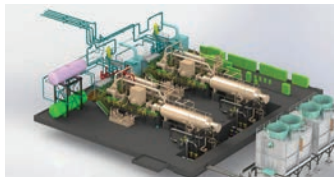
Clean Energy
CONSULTING INC.



Waste Heat Recovery

Waste Heat Recovery is a viable approach to improve overall plant efficiency by capturing and utilizing “waste heat” intrinsic to all industrial manufacturing. As much as 60% of energy consumed in an industrial process is typically lost in streams of hot exhaust gasses and liquids, as well as through heat conduction, convection, and radiation from equipment surfaces and heated product streams.

Clean Energy Consulting provides high value services to a wide range of industrial customers. We focus our efforts on practical, renewable power generation and have a track record for delivering outstanding results on demanding projects. Contact us to discuss how our expertise with waste heat recovery can provide an innovative solution tailored for your specific requirements.



Project Development

- Opportunity Identification and Selection
- Business Case Development
- Cost Estimating and Economic Modelling
- Power Purchase Agreements
- Front End Engineering Design
- Plant Audits
- Pinch Analysis
- Energy Evaluation
- Project Financing Support
- Vendor Contract Negotiations

Engineering Services

- Heat and Mass Balance
- Modelling
- Detailed Design
- Process Design and Control
- Mechanical
- Structural
- Power Systems
- Electrical
- Instrumentation
- HAZOP Studies

Project Management

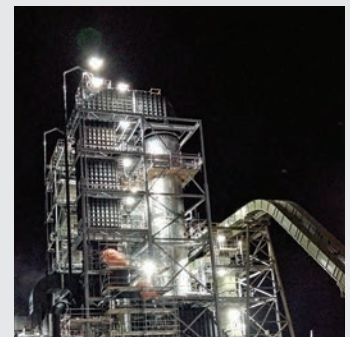
- Stage Gate Project Delivery Model
- Budgeting and Cost Control
- Scheduling and Planning
- Risk Management
- Document Management and Quality Controls
- Site Engineering
- Procurement
- Construction Management
- Commissioning
- Start-Up



Waste Heat Recovery Applications

Biomass

Biomass is an important and widely available renewable energy source. As an alternative to incineration, wood, agricultural residue and other biomass can be combusted in an energy system to produce electricity and heat. In most industrial applications the heat and electricity produced can be integrated to improve the overall process efficiency or sold at a premium. Projects typically range in size from 250 kW_{el} to 15 MW_{el}.



Gas Compression Exhaust

Waste heat in the exhaust of a gas turbine or compressor is ideal for steam or electricity generation. A number of technologies are available with varying benefits depending on local regulations and site specific energy requirements.



Waste Heat Recovery is possible in many industries including

- Chemical
- Lime and Cement
- Glass and Ceramic
- Food and Beverage
- Rubber and Plastic
- Metal and Mining
- Pulp and Paper





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Corporate Profile

Clean Energy Consulting is passionate about developing and implementing practical projects that will have a meaningful, positive impact on the tremendous challenges facing our global community. From sustainable power generation and industrial efficiencies to extracting value from waste, our team of consulting professionals can help transform your project from concept to reality. We provide comprehensive project and multi-discipline engineering services to a wide range of industries and have a track record of delivering outstanding results on demanding projects.

We understand the importance of exploring options when developing a project to select the optimal configuration for further definition. The right balance of technical, business and economic factors needs to be attained before the project can proceed. To accomplish this our development team is able to evaluate alternate technology configurations and implementation methods rather than defaulting to what has been done before.

Clean Energy Consulting believes the likelihood for success on a project can be significantly influenced during the early stages before decisions are locked in. With a full understanding of financing, regulatory, consultant and contractor expectations, CEC ensures that the elements necessary for success are embedded from the start so changes at later stages are minimized.

The CEC team is motivated by challenges and look for innovative ways to achieve outstanding results. Combined with integrity, humility and a strong sense of ownership, our people are committed to success with all facets of a project – design optimization, efficient construction and exceptional plant performance. We are dedicated to continuous improvement by listening and applying the lessons learned on previous projects.

Our focus on sustainability and renewable energy allows us to maintain intimate relationships with key stakeholders in this small and passionate network of professionals. We can assist with advising and facilitating regulatory shifts, utility negotiations and accessing specialized services for key aspects of your project.

Clean Energy Consulting is the right strategic partner to transform your vision from concept to reality!

Ask us about

- Run of River and Small Hydro
- Project Development
- Biomass Conversion
- Consulting Engineering Services
- Transmission & Distribution Line Engineering
- Process Optimization

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