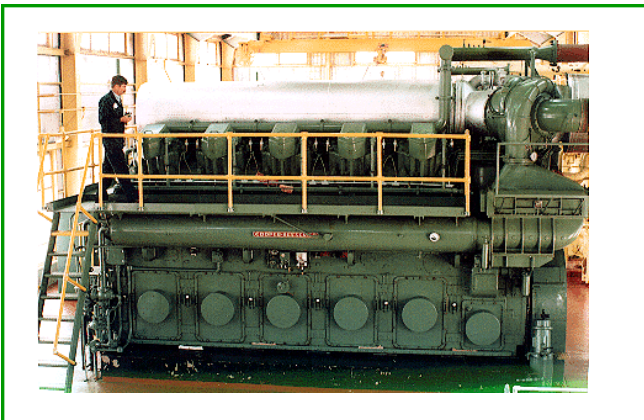


## **BarnCat** Inc. is a provider of Industrial Engineering Services.

Charlie Cote, the owner of **BarnCat** Inc., has completed mechanical custom control system design upgrades on the following types of industrial prime movers and the processes driven by these prime movers:

### **Steam and Gas Turbines:**

- General Electric single and double extraction to large split compound steam turbines to 1 GW.
- GE DRV auxiliary drive steam turbines.
- Westinghouse double extraction process turbines
- Elliott mechanical drive steam turbines.
- Hitachi steam turbines.
- Franco-Tosi Steam Turbines.
- Murray steam turbines
- Worthington steam turbines
- Mitsubishi steam turbines
- Fuji steam turbines
- General Electric Industrial Frame gas turbines.
- General Electric Aero-derivative gas turbines.
- Westinghouse industrial gas turbines.



### **Piston Engines:**

- MAN Engines
- Cooper Bessemer GMW, GMV, LSV, V-250 integral compressor piston engines.
- Ingersoll Rand piston engines.
- Dresser TLA, HBA, TCV integral compressor piston engines.
- Caterpillar industrial drive and generator set applications.

### **System analysis and trouble shooting:**

- Trouble shooting, analysis and repair of an existing emergency trip system on a large utility steam turbine generator. Included the redesign of system field piping and the mobilization and supervision of a pipe fitting crew.
- Analytical comparison of turbine trip times for existing OEM trip system and proposed trip

### **We design and construct modifications or new systems for the following industrial applications:**

- Electrical power generation (fossil and nuclear)
- Compressor (ethylene production, pipeline, refining)
- Combined cycle power generation
- Marine propulsion.
- Marine auxiliary mechanical drive and power generation.

### **Expert Witness and investigation services:**

- Expert reports and services for industrial litigation projects.

**BarnCat** Inc. is a provider of Industrial Engineering Services.

Charlie Cote, the owner of **BarnCat** Inc., has completed the following projects:

- Experts witness services for a project involving the arbitration of disputes concerning the design, installation and operation of an industrial combined heat and power system.
- Design of seal oil systems for 3 hydrogen cooled utility generators.
- Failure investigation and expert witness services for a steam turbine overspeed with damage incident.
- Designed new Mechanical Triple Modular Redundant (TMR) emergency trip devices for 3 Mitsubishi steam turbines at Lyondell Chemical, Laporte Olefins Plant in Laporte, Texas. Also designed custom position feedback devices for 5 steam valve positioners and 3 turbine speed sensing assemblies for these turbines.
- Designed and installed 4 custom steam valve positioners, 2 speed sensing systems, and 2 hydraulic power units for 2 GE steam turbines (Kennecott Copper)
- Methane fuel piping system design and installation for ANR Pipeline Company in Illinois.
- Piping and industrial process instrumentation design at the Hess Oil Sea Robin Plant in Louisiana, Including the design of a new fuel throttling, emergency shutdown system and speed sensing system for a Westinghouse 251B gas turbine.
- Training class development and teaching of *"MHC Steam Turbine Control Systems"* for Wood Group Turbine Controls Services at Loveland Colorado.
- Expert Witness service for a product liability law suit involving personal injuries and damage to capital equipment.
- Development, testing, documentation and production of a family of standard direct acting steam valve positioners, and a family of standard high and low pressure emergency trip systems to be applied on large utility steam turbines. This work was done for the start up of a turbine controls division of Wood Group, an international turbine services company. This work included the full



## Portfolio

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**BarnCat** Inc. is a provider of Industrial Engineering Services.

Charlie Cote, the owner of **BarnCat** Inc., has completed the following projects:

- Design and installation of a mechanical turbine control system including direct acting steam valve positioners, Hydraulic Power Unit, High speed emergency trip system, and plant piping design for a GE Utility steam turbine generator at the PPL Montana, Corrette Generating Station.
- Design and documentation for a new engine fuel limiter device to be used in a marine propulsion control for trans-oceanic container ships.
- European Union Pressure Equipment (PED) certification for a family of industrial fuel control valves.
- Lead engineer on a team that designed and developed a new self contained electro-mechanical marine governor now used on the propulsion and auxiliary engines of commercial ships. This work included formal CSA, EU and Det VERITAS Marine certifications.
- Design and implementation of new mechanical steam turbine controls on a Westinghouse utility steam turbine generator at Public Service Oklahoma's North Eastern Power Station. This work included the design of pilot acting steam valve controls, a high speed emergency trip system, and thrust alarm and shut down sensors.
- Trouble shooting and repair of a mechanical control system on a Westinghouse utility steam turbine generator at Entergy's Sabine Generating Station. This repair involved extensive diagnostics and system modeling and analysis. Repairs required the design and construction of new plant piping and the contracting and supervision of a crew of local pipe fitters.