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طاقة الشمال
North Lebanon Alternative Power
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الجامعة اللبنانية
كلية العلوم

Discipline

Energetic physics

Master Thesis proposal

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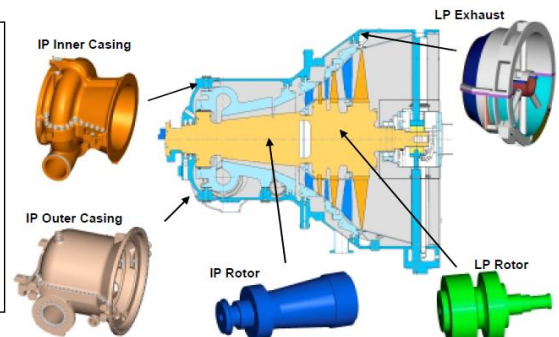
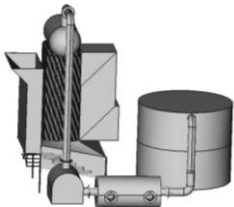
Ras Nhache, 5.3.2016

Thesis title: Design, Regulation and Test of an enlarged turbine (1,5 MW el. power) for a the waste incineration power plant TEMO-IPP

Abstract: The motive power in a steam turbine is obtained by the rate of change in momentum of a high velocity jet of steam impinging on a curved blade which is free to rotate.

The steam from the boiler is expanded in a nozzle, resulting in the emission of a high Velocity jet. This jet of steam impinges on the moving vanes or blades, mounted on a shaft. Here it undergoes a change of direction of motion which gives rise to a change in momentum and therefore a force.

The turbine modules are furthermore divided into sub-modules of different sizes, which may be combined as required.



Working packages:

- Reading and searching about the subject (2 Weeks) (<http://www.aecenar.com/publications>)
- Detailed design for the cylinder, rotor, and blades (3 Weeks)
- Waste incineration based regulation concept for the turbine (e.g. air supply regulation) (3 weeks)
- Support of the CNC machine based manufacturing of the turbine (4 weeks) (- 15 June 16)
- Test of the delivered turbine with the the TEMO-IPP incinerator (2 weeks) (- 30 June 16)
- Calculation of the efficiency of the turbine (1 Week)
- Documentation (4 Weeks).

(the duration of packages is only approximately)

Key Words: alternative energy, FreeCAD, steam turbine regulation, cylinders, rotor, blades, CAM (Computer Aided Manufacturing)