

## 1. Definitions of various types of resources

### 1.1 Advanced Geothermal Resources

#### 1.1.4 Offshore Hydrothermal Vents

Divergent tectonic plates induce the formation of oceanic spreading ridges that permits the upwelling of magma, heating the sea water that has swept from the surroundings. The heating process creates strong jets of very hot water flowing up as plumes.

This thermal energy, called **offshore geothermics**, can be transformed in some cases into electricity by appropriated devises such as a submersible *Rankine* cycle power plant.

There are more than 50 000 km of sea floor ridges in the Pacific, Atlantic and Indian Oceans. Along them, 280 sites with important vent discharges have been studied.

In some practical cases like in the upper Gulf of California, preliminary assessments indicate that 10 MWe can be obtained from a medium size vent of 28" diameter. Extrapolating this value to the length of the most powerful ridges distributed along the Oceans, it is easy to predict that there is an enormous potential in the world to produce electricity from this vast renewable energy resource.