

## TIDAL ENERGY SYSTEMS

I. Hrushetska, *EM-81*

Efficient energy use is the goal of efforts to reduce the amount of energy required to provide products and services. There are various different motivations to improve energy efficiency. Reducing energy use reduces energy costs and may result in a financial cost saving to consumers if the energy savings offset any additional costs of implementing an energy efficient technology. Reducing energy use is also seen as a key solution to the problem of reducing emissions. We can say that efficient energy use can help to control global emissions of greenhouse gases. Humanity has to figure out all importance of this colossal problem.

Why Tidal Energy? This kind of power is always offered as an alternative energy source, but is largely ignored in favour of wind and solar power. As a replacement to traditional fossil fuels, tidal power can make a significant contribution on a local and regional scale to the power grid of several countries.

The constant interaction between earth and its moon make for one of the most complex yet overlooked scientific phenomena: the tidal system. Harnessing energy from such an extremely predictable source seems rather practical and ingenious. However, significant tidal range, the one crucial component of the system, can only be found in isolated areas of the world.

How does tidal power work to generate electricity? Conversion of tidal energy into electrical energy is possible through the construction of tidal power stations.

There are many different designs of tidal power stations but overall they share the same goal. A tidal barrage is created at the mouth of a river or other choke point that connects to the ocean. You can think of this as basically a dam. In flood tidal power generation below the water level there are opening in this barrage that have turbines in them. These turbines are powered when the tide goes in or the water level rises. After ebb the water level decreases and water goes out what makes turbines work again.

Costs of tidal power stations compared to traditional power sources are much higher during development but much lower during operation. Unfortunately this means that governments are usually unwilling to help finance tide power stations because of this long investment to return lag. Lately though governments have been realizing the importance of such renewable and alternative energy sources and have begun to pick up funding projects such as tide power generation. Tidal power history is a short one but hopefully the first chapter of many to come.

A. Dyadechko, *ELA*