Cost comparison between the InvisiHead and the Wedge-Wire Screen Intakes

SN	Parameter	InvisiHead	Wedge-wire screen intake
1	**Costs per installed cubic meter per hour**	**$270 for smaller systems to $66 for larger ones**	**$1112 for smaller systems to $198 for larger ones**
2	Costs of the Seawater intake pumps installed in the onshore intake basin	To cover costs of pumps required to pump 100% of the plant capacity.	To cover pumps required to pump 100% of the plant capacity plus backwash and flushing water quantities.
3	Costs to cover backwash screen pumps	No costs are involved since no backwash is required.	Added since back wash is an integral part of the system.
4	basin screen backwash blowers	No costs are involved since no basin screen backwash is required.	Added since back wash is an integral part of the system
5	Costs to cover offshore screen backwash pumps	No costs involved since no offshore screen backwash is required.	Added since back wash is an integral part of the system.
6	Air compressors, air purging	No costs are involved since no air purging is required.	Added since air purging is an integral part of the system.
7	Backwash equalizing basin blowers	No costs are involved since no screens are required.	Added since screening is an integral part of the system
8	Offshore screen	No costs are involved since no offshore screens are required.	Added since screening is an integral part of the system.
9	Trash racks	No costs are involved since no screening is required.	Added since screening is an integral part of the system.
10	Traveling screens	No costs are involved since no screening is required.	Added since screening is an integral part of the system.
11	Costs of the complete Elmosa offshore sweater intake system	They include the costs of the offshore portion (the passive InvisiHead) the pipeline, the passive onshore intake basin, and the seawater pumps. The pipeline costs are less due to the smaller pipes required for the operation. The costs of the intake basin are less due to its smaller size. The costs of seawater pumps are less due to the lesser capacity required for system operation.	The costs of the wedge wire screen intake system include the costs of the active wedge wire screen intake head, the pipelines, and the screening and filtration equipment installed in the onshore intake basin. Extra costs are required for a larger pipeline, a large intake basin, and backwash, flushing, and air purging equipment including compressors and pumps, and computer monitoring systems to operate the backwash and cleanup systems when pressure drop threshold is reached.
12	Energy costs	The only costs involved are those involved with the seawater intake pump operation	Higher costs are involved in the operation of the seawater intake pumps, backwash and flushing pumps, blowers, compressors, etc.
13	**Capital cost**	**Ranges between $85,000 for a 2 MGD seawater intake capacity to $3,000,000 for a 290 MGD capacity**	**Ranges between $350,000 for a 2 MGD seawater intake capacity to $9,000,000 for a 290 MGD capacity**
14	**Overall operation & maintenance costs, annually**	**0 costs**	**Ranges between $42,000 for a 2 MGD system to $100,000 for a 290 MGD**
15	**Investment payback period**	**Taking into account how much the utility would spend on O&M, the InvisiHead systems pays back the money invested in purchasing it in 2 years in case of the 2 MGD capacity and about 30 years for the 290 MGD capacity in the form of saving the money that would be spent in covering the costs of operation and maintenance for wedge wire screens. We should keep in mind the savings made in capital investment. $265,000 would be saved in case of the smaller capacity and $6,000,000 in the larger on if the InvisiHead is used instead of the wedge wire screens.**	**N/A**

InvisiHead Cost Effectiveness

If we take a 500 MW coal-fired power plant that uses wedge screens to supply cooling water to the plant as an example, the total annual O&M costs are about $80,000/year. The amount can be saved by using the O&M-free InvisiHead system.

For a 2 mgd capacity the estimated total capital cost of a wedge wire intake screen system would be approximately $350,000, $320,000 and $310,000 for 0.5 ,1.0 and 2.0-mm slot size

wedge-wire screens with a hydroburst system, respectively. The estimated annual O&M costs would be around $42,000 for the 0.5, 1.0, and 2.0-mm slot size wedge-wire screens with a hydroburst system.

For a large capacity of a 290 MGD, the capital costs are about $9,000,000 for the 1.0-mm wedge-wire screen.

On the other hand, the duplex steel InvisiHead capital costs are about $85,000 for the 2 MGD and $3,000,000 for the 290 MGD capacity.

$42,000 a year for the 2 MGD and $80,000 for the 290 MGD that would otherwise be spent as O&M expenses in wedge wire screens will be saved if the case of using the InvisiHead.

The smaller capacity InvisiHead is made of a 6-mm thick duplex steel plate while the larger one is made of 12-mm thick plate. Useful life of the InvisiHead structure is 50+.