BELIMO ENERGY VALVE SAVINGS ESTIMATOR Worksheet

Date: ___________________________

Project Name: ____________________________________________________________

Project Address: ____________________________________________________________

Contact Name: ____________________________________________________________

Contact Phone: ____________________________________________________________

CHILLED WATER PLANT DATA

CHILLERS:  ☐ Water Cooled  ☐ Air Cooled

PLANT DESIGN:  ☐ Primary/Secondary  ☐ Variable Pumping

ELECTRICITY COST (Average) _________________________ $/kWh

CHILLED WATER PLANT LOAD (Design Chiller Load) _________________________ tons

NUMBER OF CHILLERS _________________________ pcs.

OPERATING HOURS/DAY _________________________ hours

OPERATING DAYS/Week _________________________ days

OPERATING WEEKS/YEAR _________________________ weeks

CHILLER DESIGN INTEGRATED PART LOAD VALUE (IPLV)

☐ 0.3 = High Efficiency Variable Speed Chillers with Advanced Control Optimization

☐ 0.4 = High-Efficiency Variable Speed Chillers

☐ 0.6 = Typical Constant Speed Chillers

☐ 0.7 = Typical Constant Speed Old-style Chillers

☐ Actual Design = ____________________________

ACTUAL PRIMARY PUMP HEAD (Design)
(if Variable Primary Design selected above) _________________________ ft. of head

-OR-

ACTUAL SECONDARY PUMP HEAD (Design)
(if Primary/Secondary Design selected above) _________________________ ft. of head
PUMP, VFD, MOTOR EFFICIENCY (Avg)  

[Note: For conventional pumps based on static pressure sensor(s) use the lowest possible pump head at part load conditions. If pump(s) are controlled based on actual load, use the minimum pump head value.]

DESIGN DELTA OF DISTRIBUTION SYSTEM  

ACTUAL DELTA T (Prior to Energy Valve Installation)  

FUTURE DELTA T (Energy Valve Delta T Manager Setting)  

OTHER SAVINGS TO CONSIDER (if unknown leave blank)

COOLING TOWER WATER treatment chemicals savings  

(Enter the estimated water treatment savings if water cooled system. A rough estimate could be $300 per cooling tower per year. Enter $0 for air-cooled chiller systems.)

REDUCED NUMBER OF LAG CHILLERS, extending life of chillers, pumps  

(ALLOWING ADDITIONAL COOLING LOADS (GPM) to be added w/out upsizing distribution pumps  

FINANCIALS

INCREMENTAL INVESTMENT FOR ENERGY VALVES  

(Enter the incremental costs for Energy Valves over conventional control valves such as balancing valves, circuit setters, and labor to install and balance. If there are new valves installed in the plant that will be replaced by Energy Valves, the whole replacement costs have to be considered.)

DISCOUNT RATE (default 10)  

(This depends on the finance instrument of the investment. If the project is financed by a mortgage with an interest rate of 4%, then enter 4. Alternatively, it could be financed by a bank loan or simply by cash that’s on an organization’s balance sheet. Some companies are using a so called internal Hurdle Rate.)

ANNUAL INFLATION RATE ON ENERGY COSTS (default 3)  

(This is the inflation rate that is predicted for the cost of electricity. Some forecasts predict this to between 3 and 4% annually, over the next decade.)
CHILLER – VARIABLE PRIMARY SYSTEM

<table>
<thead>
<tr>
<th>Component</th>
<th>kW/ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>KW1 COMPRESSOR</td>
<td></td>
</tr>
<tr>
<td>KW5 CHILLER CONTROLS</td>
<td></td>
</tr>
<tr>
<td>KW6 TRANSMISSION OIL PUMP AND HEATERS</td>
<td></td>
</tr>
</tbody>
</table>

-OR-

CHILLER – PRIMARY/SECONDARY SYSTEM

<table>
<thead>
<tr>
<th>Component</th>
<th>kW/ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>KW1 COMPRESSOR</td>
<td></td>
</tr>
<tr>
<td>KW2 CONSTANT SPEED PRIMARY PUMPS (each)</td>
<td></td>
</tr>
<tr>
<td>KW5 CHILLER CONTROLS</td>
<td></td>
</tr>
<tr>
<td>KW6 TRANSMISSION OIL PUMP AND HEATERS</td>
<td></td>
</tr>
</tbody>
</table>

PUMP

<table>
<thead>
<tr>
<th>Parameter</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PUMP DESIGN FACTOR</td>
<td>%</td>
</tr>
<tr>
<td>MINIMUM PUMP HEAD</td>
<td>ft. of head</td>
</tr>
<tr>
<td>MINIMUM GPM</td>
<td>GPM</td>
</tr>
</tbody>
</table>