**Thermal Energy**

**(TE04)**



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| **Fact Sheet TE04: Insulate and monitor hot water and cooling pipes** | |
| **Overview** | |
| *Objective* | Reduce heat losses from hot water and chilled water pipes. |
| *Action* | Insulate all hot water pipes and chilled water pipes, and monitor the insulation regularly for any signs of damaged or bad insulations. |
| *Key Challenges* | Insulation is sensitive to moisture and other surrounding impacts or vibrations |
| **Process** | |
| *Complexity* | Low – simple calculations (calculating pipes length) |
| *Equipment & Material* | Insulation material (i.e. Rock wool, Glass wool,…) , and aluminum cladding sheets |
| *Human Resources* | An insulation firm for installation (engineers and technicians for applying the insulation), a technician for monitoring the insulation (a side job) |
| **Considerations** | |
| *Regulatory Aspects* | None |
| *Economic* | Low CAPEX, Low OPEX, High savings |
| *Advantages* | * Low CAPEX * Reduction in gas/electrical bill * Reduction in CO2 emissions |
| *Disadvantages* | Requires regular checks and replacement for damaged parts to maintain insulation efficiency. |
| **Impacts** | |
| *Environmental* | Environmentally friendly approach, pollution reduction as a result to CO2 reduction |
| *Employment Opportunities* | Moderate – technical labors |