

## 10.0 Utilities

### **GOAL 1: Provide Adequate, Reliable, and Sustainable Chilled Water and Steam Services to Existing and Future Facilities.**

#### ***Objective 1.1: To correct existing chilled water and steam system deficiencies.***

Policies	Status	Benchmarks	Recommendations
<b>Policy 1.1.1:</b> The Physical Plant Division shall continue to evaluate any chilled water deficiencies and implement improvements as necessary.	Ongoing	The Physical Plant Division continues to provide this service.	Modify – clarify application to chilled water and steam systems with data monitoring and operational measures; add reference to Policies 1.1.1 and 1.31 of the Facilities Maintenance Element regarding programming of corrective projects
<b>Policy 1.1.2:</b> The University shall continue its policy for replacing ozone-depleting refrigerants with environmentally safe refrigerants as approved by the Environmental Protection Agency and the USGBC (United States Green Building Council).	Ongoing	The Physical Plant Division continues to provide this service.	Move – this policy is more closely related to Objective 1.4 regarding sustainable practices for existing facilities
<b>Policy 1.1.3:</b> The University shall review annually the approved project list for new facilities to determine whether any projected steam supply shortfalls will occur and schedule steam generating capacity additions with Progress Energy.	Ongoing	The Physical Plant Division continues to provide this service.	Delete – redundant of policies 1.2.2 and 1.2.3

Policies	Status	Benchmarks	Recommendations
<p><b>Policy 1.1.4:</b> The University shall publish, and keep current, a campus-specific set of heating and cooling criteria based on the standards set forth by the American Society of Heating, Refrigerating and Air-Conditioning Engineers which identify:</p> <ul style="list-style-type: none"> <li>• Indoor summer and winter design temperatures;</li> <li>• Indoor humidity conditions;</li> <li>• Preferred HVAC systems; and</li> <li>• Redundancy requirements.</li> </ul>	Ongoing	The Physical Plant Division continues to provide this service.	Modify – rewrite to recognize that these standards are maintained in the UF Design and Construction Standards
<p><b>Policy 1.1.5:</b> The University shall publish and maintain a testing procedure protocol for newly installed systems.</p>	Ongoing	Testing procedures for new building systems are addressed through building systems and testing processes outlined in the UF Design and Construction Standards	Modify – rewrite to recognize that these standards are maintained in the UF Design and Construction Standards

**Objective 1.2:** *To provide for planned expansion of the steam and chilled water systems to meet the University's needs at the end of the planning time frame.*

Policies	Status	Benchmark Data	Recommendations
<p><b>Policy 1.2.1:</b> The University shall maintain continuous accurate records of chilled water temperatures and flows and steam flows.</p>	Ongoing	The Physical Plant Division continues to provide this service.	Retain

Policies	Status	Benchmark Data	Recommendations
<p><b>Policy 1.2.2:</b> The University shall maintain updated documents that clearly illustrate the current status of the chilled water system including:</p> <ul style="list-style-type: none"> <li>• Location of chiller plants;</li> <li>• Existing chilled water generating capacity;</li> <li>• Location of chilled water distribution piping;</li> <li>• Capacity of existing distribution system, considering pumps and piping; and</li> <li>• Existing building loads.</li> </ul> <p>These documents shall be updated periodically or as major revisions to the chilled water system are implemented. On an annual basis approved new projects shall be reviewed for potential effects on the chilled water system.</p>	<p>Ongoing</p>	<p>The Physical Plant Division continues to provide this service. New project utility impacts are evaluated during building programming, not on an annual basis.</p>	<p>Modify – strike “On an annual basis”</p>

Policies	Status	Benchmark Data	Recommendations
<p><b>Policy 1.2.3:</b> The University shall develop documents that clearly illustrate the current status of the steam production system including:</p> <ul style="list-style-type: none"> <li>• Location of steam plants;</li> <li>• Existing steam generating capacity;</li> <li>• Location of steam distribution piping;</li> <li>• Capacity of existing distribution system, considering piping; and</li> <li>• Existing building loads.</li> </ul> <p>These documents shall be updated periodically or as major revisions to the steam system are implemented. On an annual basis, the approved new projects shall be reviewed for potential effects on the steam system.</p>	Ongoing	The Physical Plant Division continues to provide this service. New project utility impacts are evaluated during building programming, not on an annual basis.	Modify – strike “On an annual basis”
<p><b>Policy 1.2.4:</b> The University shall implement steam and chilled water facility improvements as identified on Figure 10-1. The timing and phasing requirements and priorities for identified steam and chilled water facility improvements are established in the Capital Improvements Element.</p>	Ongoing	Steam and chilled water facility improvements will be programmed as funding permits.	Retain
<p><b>Policy 1.2.5:</b> The University shall evaluate use of electric, steam turbine and steam absorption refrigeration for major chiller plant expansions.</p>	Not completed	The University is not anticipating use of such technologies for chiller plant expansions.	Delete
<p><b>Policy 1.2.6:</b> The University shall require all new buildings to evaluate methods to utilize waste heat recovery to reduce consumption of chilled water and steam.</p>	Ongoing	The Physical Plant Division continues to provide this service.	Modify – replace “waste heat” with “energy”
<p><b>Policy 1.2.7:</b> The University shall maintain consultant guidelines for ventilation air requirements to satisfy indoor air quality concerns.</p>	Ongoing	UF’s Environmental Health and Safety office ensures air quality compliance.	Delete – redundant of policies under Objective 1.6 of the Facilities Maintenance Element

Policies	Status	Benchmark Data	Recommendations
<b>Policy 1.2.8:</b> The University has adopted a level of service standard for saturated steam, which provides and maintains a minimum of 300 degrees supply temperature to meet building heating demands.	Ongoing	The Physical Plant Division continues to provide this service standard.	Retain
<b>Policy 1.2.9:</b> The University has established a level of service standard for chilled water which provides and maintains a 45 degree chilled water supply temperature to meet building cooling demands.	Ongoing	The Physical Plant Division continues to provide this service standard.	Retain
<b>Policy 1.2.10:</b> The Physical Plant Division shall appropriately size new chillers to meet anticipated future demand (based on the 10-year capital improvement list) when doing routine upgrades, replacements or new installations.	Ongoing	The Physical Plant Division plans for the ongoing strategic need of chiller expansion.	Retain
<b>Policy 1.2.11:</b> The University shall require that all chillers that are not internal to a building (i.e. independent – internal to building chillers are exempt) shall be in a Utility Future Land Use classification prior to expansion or construction.	Not Complete	The University determines on an individual basis the design requirements of new chillers. The Future Land Use definitions provide for chiller infrastructure to be located as a primary use in a Utility Future Land Use or an ancillary utility in other Future Land Use classifications.	Delete

***Objective 1.3: To provide redundant capability for chilled water utility.***

Policies	Status	Benchmark Data	Recommendations
<b>Policy 1.3.1:</b> The University shall strive to ensure that each distribution system has 100% backup capacity through valving.	Ongoing	The University ensures that chiller plants have “N+1” redundancy of major production equipment where feasible.	Modify – clarify to current standard

Policies	Status	Benchmark Data	Recommendations
<b>Policy 1.3.2:</b> The University shall require new construction to ensure redundant chilled water service is maintained when feasible.	Ongoing	The University continues to provide redundant chilled water service with new construction when feasible.	Retain

**Objective 1.4: To provide sustainable steam and chilled water systems in new and existing facilities.**

Policies	Status	Benchmark Data	Recommendations
<b>Policy 1.4.1:</b> The University shall provide new building HVAC designs and implement retrofits to existing building's HVAC systems to maintain a 16 degrees minimum temperature difference between supply and return chilled water temperature.	Not Complete	The University maintains standards and testing procedures in its UF Design and Construction Standards	Delete – standards are addressed in policies under Objective 1.1
<b>Policy 1.4.2:</b> The University shall update and modify chilled water systems for LEED certified buildings based on the measurement verification system program, which is a system that measures actual energy consumption in relation to design specifications. When a building is using more energy than its design specifications indicate that it should, the Physical Plant Division shall institute an energy audit to identify and correct the situation. This process shall be an ongoing verification of chilled water and steam usage, with the Physical Plant Division monitoring usage on an at least monthly basis.	Not Complete	The University maintains standards and testing procedures in its UF Design and Construction Standards	Delete – standards are addressed in policies under Objective 1.1  Add a policy to address refrigerant replacement - <b>Policy 1.4.1:</b> The University shall continue replacing ozone-depleting refrigerants with environmentally safe refrigerants as approved by the Environmental Protection Agency and the USGBC (United States Green Building Council) during all production equipment replacements.

**Goal 2: Provide Adequate Facility Capacity to Meet Present and Future Needs of the University, While Identifying Opportunities to Reduce University Energy consumption in New and Existing Facilities.**

***Objective 2.1: To correct existing electric power and other fuel deficiencies.***

Policies	Status	Benchmark Data	Recommendations
<b>Policy 2.1.1:</b> Double-ended substations shall be provided to ensure redundancy of transformer capacity.	Ongoing	The Physical Plant Division continues to provide this service.	Delete – these standards are addressed in the UF Design and Construction Standards as referenced in Policy 2.1.5 as modified
<b>Policy 2.1.2:</b> Loads connected to new double ended substations should not exceed 50% of the total substation capacity.	Ongoing	The Physical Plant Division continues to provide this service.	Delete – these standards are addressed in the UF Design and Construction Standards as referenced in Policy 2.1.5 as modified
<b>Policy 2.1.3:</b> Loads on main substations shall be balanced on all transformer banks to extend useful life of transformers.	Ongoing	The Physical Plant Division continues to provide this service.	Delete – these standards are addressed in the UF Design and Construction Standards as referenced in Policy 2.1.5 as modified
<b>Policy 2.1.4:</b> Age and type of transformers shall be investigated annually to ascertain present condition and useful life.	Ongoing	The Physical Plant Division continues to provide this service.	Retain
<b>Policy 2.1.5:</b> The University shall publish, and keep current, campus-specific criteria for providing electric power, including: distribution voltages, building secondary distribution voltages, master control criteria and lighting levels. These criteria shall be published for each type of facility or occupancy anticipated for the campus.	Ongoing	The Physical Plant Division continues to provide this service.	Modify – rewrite to recognize that these standards are maintained in the UF Design and Construction Standards

Policies	Status	Benchmark Data	Recommendations
<b>Policy 2.1.6:</b> The University shall correct deficiencies as necessary. The timing, phasing requirements and priorities for these improvements shall be established in the Capital Improvements Element.	Ongoing	Energy facility improvements will be programmed as funding permits.	Retain
<b>Policy 2.1.7:</b> Underground utilities and support structures are the preferred installation unless otherwise approved by the University.	Ongoing	Underground installations continue to be the preferred design type for energy distribution where feasible.	Retain
<b>Policy 2.1.8:</b> If it is determined that the utility or support structure must be placed above ground, appropriate decorative architectural walls or landscaping shall be provided to help screen the structures from view.	Ongoing	Above-ground utility structures continue to be screened where feasible.	Retain

***Objective 2.2: To provide additional electric power and other fuel capacity to satisfy projected load of master plan.***

Policies	Status	Benchmark Data	Recommendations
<b>Policy 2.2.1:</b> New substations shall be provided to allow campus expansion. Loads connected to new double ended substations shall not exceed 50% of the total substation capacity. The timing and phasing requirements and priorities for these improvements are established in the Capital Improvements Element.	Ongoing	The Physical Plant Division continues to provide this service.	Retain



Policies	Status	Benchmark Data	Recommendations
<p><b>Policy 2.2.2:</b> The University shall maintain documents that clearly illustrate the current status of the electric power system including:</p> <ul style="list-style-type: none"> <li>• Location of substations;</li> <li>• Existing substation capacity;</li> <li>• Location of electric feeders; and</li> <li>• Capacity of existing distribution system, considering existing substation and feeder loads.</li> </ul> <p>These documents shall be updated periodically or as major revisions to the electric power system are implemented. On an annual basis, the approved new projects shall be reviewed for potential effects on the electric power system, and specific system revisions shall be recommended to accommodate those new projects. The adopted campus master plan shall be amended as needed to reflect these revisions.</p>	Ongoing	The Physical Plant Division continues to provide this service. New project utility impacts are evaluated during building programming, not on an annual basis.	Modify – strike “On an annual basis”
<p><b>Policy 2.2.3:</b> On an annual basis approved new projects shall be reviewed for additional loads on non-university maintained substations. The utility company (ies) shall be requested to increase service capacity as required.</p>	Ongoing	The Physical Plant Division continues to provide this service.	Retain
<p><b>Policy 2.2.4:</b> The University shall establish and adopt a level of service standard for electrical energy and other fuels that provides and maintains an appropriate supply to campus buildings. This level of service shall ensure redundancy by requiring double ended substations and loading transformers below 50% of their maximum capacity.</p>	Ongoing	The Physical Plant Division continues to provide this service.	Retain

Policies	Status	Benchmark Data	Recommendations
<b>Policy 2.2.5:</b> The University shall maintain an annual procedure and assign responsibility to the Physical Plant Division for regularly scheduled meetings with utilities that provide power to campus properties relative to the University's need for electrical power. The University shall pursue interlocal agreements and memoranda of understanding necessary to ensure that electrical energy shall be available to meet the future needs of the University.	Ongoing	The Physical Plant Division continues to provide this service.	Retain
<b>Policy 2.2.6:</b> The University shall encourage the development of alternative fuel sources and energy recapture where appropriate. Examples of alternatives include biomass (biorefinery), solar and wind.	Ongoing	The Physical Plant Division continues to provide this service. Since 2009, 350KW of solar panels have been installed on the university's main campus.	Retain

***Objective 2.3: Provide redundant capability for electrical utility.***

Policies	Status	Benchmark Data	Recommendations
<b>Policy 2.3.1:</b> The University shall require each distribution system to have at least 100% backup capacity through switching.	Ongoing	The Physical Plant Division continues to provide this service.	Retain
<b>Policy 2.3.2:</b> The University shall require new construction to ensure redundant electrical service is maintained. If redundancy cannot be met, program corrective solutions as part of new construction shall be accomplished by adding new electrical transformers.	Ongoing	The Physical Plant Division continues to provide this service.	Retain

**Objective 2.4: To implement sustainable energy practices that focus on reducing consumption, retrofitting inefficient systems and provides energy efficient guidelines for new development.**

Policies	Status	Benchmark Data	Recommendations
<b>Policy 2.4.1:</b> The University shall continue to evaluate lighting levels and where appropriate reduce levels to an acceptable standard as established in the University Design and Construction Standards by deleting lighting fixtures and/or lamps and using energy efficient lighting fixtures. Additionally, energy efficient electronic ballasts and lamps shall be provided. Variable frequency drives shall be provided when justified by life cycle costing.	Ongoing	The University has amended its Design and Construction Standards to provide appropriate light levels and encourage energy efficient fixtures. Additional modifications to these standards could facilitate easier adaptation of energy efficiency technology.	Modify – rewrite to focus on implementation through the UF Design and Construction Standards; delete “deleting lighting fixtures and/or lamps”
<b>Policy 2.4.2:</b> The University shall explore ways to make each building occupants on campus aware of their utility consumption by building, so that they may monitor their energy usage and shall establish an incentive program that rewards building occupants that reduce energy usage.	Ongoing	The University has employed a variety of measures toward this goal including information dashboards and metering upgrades.	Retain

**Goal 3: Provide Safe and Adequate Facility Capacity to Meet Present and Future Needs of the Universities Telecommunications and Networking infrastructure.**

**Objective 3.1: To correct existing telecommunications infrastructure deficiencies where identified.**

Policies	Status	Benchmark Data	Recommendations
<b>Policy 3.1.1:</b> The University shall evaluate the current state of campus telecommunications infrastructure and shall recommend methods to correct deficiencies. The adopted campus master plan shall be amended as needed to reflect these methods.	Ongoing	The Division of Information Technology continues to provide this service.	Modify – assign responsibility to the Division of Information Technology

Policies	Status	Benchmark Data	Recommendations
<b>Policy 3.1.2:</b> Telephone, data and video pathways shall be reinforced in capacity to serve present requirements and to replace old aerial and direct buried installations.	Ongoing	The Division of Information Technology continues to provide this service.	Retain
<b>Policy 3.1.3:</b> The Utility land use category shall be used to relocate existing radio and satellite antennas or locate new facilities, except as allowed within other land uses as identified in the Future Land Use Element.	Ongoing	Radio and satellite antennas are sited consistent with Future Land Use designations and definitions.	Retain
<b>Policy 3.1.4:</b> The University shall continue to expand wireless telecommunication system capabilities to all populated areas of campus.	Ongoing	Wireless telecommunication systems have been expanded throughout campus in buildings and exterior spaces.	Retain

***Objective 3.2: To provide additional telecommunications systems capacity to satisfy projected needs of master plan.***

Policies	Status	Benchmark Data	Recommendations
<b>Policy 3.2.1:</b> Telephone, data and video pathways shall be reinforced in capacity and expanded to serve requirements of the master plan. The University shall appropriately size telecommunication facilities to meet anticipated future demand (based on the 10-year capital improvement element) when doing routine upgrades, replacements or new installations.	Ongoing	The Office of Information Technology Network Services continues to provide this service.	Retain

Policies	Status	Benchmark Data	Recommendations
<p><b>Policy 3.2.2:</b> The University shall maintain documents that clearly illustrate the current status of the telecommunications system including:</p> <ul style="list-style-type: none"> <li>• Location of incoming services;</li> <li>• Location of telecommunication distribution; and</li> <li>• Capacity of existing distribution system.</li> </ul> <p>These documents shall be updated periodically or as major revisions to the telecommunications system are implemented. Approved new projects shall be reviewed for potential effects on the telecommunications system, and specific system revisions shall be recommended to accommodate those new projects. The adopted campus master plan shall be amended as needed to reflect these revisions.</p>	Ongoing	The Office of Information Technology Network Services continues to provide this service.	Modify – add the following to list of document maintenance <ul style="list-style-type: none"> <li>• Wall plate locations</li> <li>• Emergency Notification Device locations</li> <li>• Wireless access point locations</li> </ul>
<p><b>Policy 3.2.3:</b> The University shall implement telecommunications facility improvements as necessary. The timing and phasing requirements and priorities for these improvements are established in the Capital Improvements Element.</p>	Ongoing	Telecommunications facility improvements will be programmed as funding permits.	Retain
<p><b>Policy 3.2.4:</b> The University shall establish a procedure and assign responsibility for regularly scheduled meetings with service providers relative to the University's need for telecommunications. The University shall pursue interlocal agreements and memoranda of understanding necessary to ensure that telecommunications shall be available to meet the future needs of the University.</p>	Ongoing	The Office of Information Technology Network Services continues to provide this service.	Retain

Policies	Status	Benchmark Data	Recommendations
<p><b>Policy 3.2.5:</b> The most recent version of the University of Florida Telecommunication Standards shall be utilized by all campus personnel when moving or replacing any part of the telecommunication infrastructure. These standards may be found on line at <a href="http://www.cns.ufl.edu/telecom/pdf/uf-telecom-standards.pdf">http://www.cns.ufl.edu/telecom/pdf/uf-telecom-standards.pdf</a> or by contacting Computing and Network Services. Additionally, all such activities shall be coordinated in advance with Computing and Network Services.</p>	Ongoing	The UF Telecommunication Standards shall be maintained and published online.	Modify – replace web link with “online”; replace CNS with Network Services – Telecommunications and Network Infrastructure (TNI)