Bölüm 9

ENERJİ TASARRUFU VE VERİMLİLİĞİ

Chapter 9

ENERGY CONSERVATION AND EFFICIENCY

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BÖLÜM İÇERİĞİ

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Yaklaşık 39 yıldan (on yılı değişik Türk şirketlerinde) beri enerjiyle ilgili konularla uğraşan ve Sanayi (S), Profesyonel Kuruluşlar (P) ve Üniversite (Ü)'nin, yani SPÜ (bugünlerde Araştırma, İnovasyon ve Ticareleştirme; RIC)'nin dengeli olarak birlikte sağlanmasını amaçlamayan Arif Hepbaşlı, halen Yaşar Üniversitesi Enerji Sistemleri Mühendisliği Bölümü Öğretim Üyesidir. Dr. Hepbaşlı, sanayide yaklaşık 10 yıl (Proje Başmühendisi, Planlama- Kalite Sağlama Müdür Yardımcısı, Yatırımlar Müdür Yardımcısı ve Bakım Onarım Müdürü olarak değişik pozisyonlarda) çalıştıktan sonra, 1996 yılında (öncesi 5 yıl Araştırma Görevlisi olarak üniversitede) Ege Üniversitesi'ne katıldı. Dr. Hepbaşlı'nın ilgi alanları; değişik enerji sistemlerin enerji, ekserji, eksergoekonomik ve eksergoçevresel analizleri ve değerlendirmeleri, enerji/ekserji verimliliği ve yönetim sistemleri / standartları, yenilenebilir enerji teknolojileri, HVAC sistemleri, ısı pompaları, çoklu üretim sistemleri/uygulamaları ve sürdürülebilir enerji teknolojileridir. 665 adetten (320`den fazlası SCI kapsamında makale) fazla bilimsel yayının yazarı/ortak yazarı olup sertifikalı enerji yöneticisidir. Çok sayıda ulusal/uluslararası bilimsel etkinliklerin organizasyonunda yer alan/almakta olan Dr. Hepbaşlı, prestijli 7 derginin Uluslararası Yayın Danışma Kurulu Üyesi ve 1 uluslararası derginin Yardımcı Editörü olup, enerjiyle ilgili çok sayıda ulusal ve uluslararası dergilere ve projelere de hakemlik yapmaktadır. Dr. Hepbaşlı, 2017 yılından beri Türkiye Bilimler Akademisi (TÜBA) Enerji Çalışma Grubu'nda yer alırken, 2019'da TÜBA-Asli Üyesi olarak seçilmiştir.

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Arif Hepbasli, who has dealt with energy-related issues for about 39 years (of which ten years in various Turkish companies) and aims at attaining Industry (I), Profession Institutions (P) and University (U), Balanced IPU (nowadays RIC) simultaneously, is currently a Professor of Energy Systems Engineering Department at Yaşar University in Izmir, Turkey. Dr. Hepbasli joined Ege University in 1996 after about a ten-year period in industry (as head engineer, assistant manager for planning and quality assurance, assistant manager for investments and maintenance manager in various positions). His research has been involved with energy, exergy, exergoeconomic and exergoenvironmental analyses and assessments of energy-related systems, energy/exergy efficiency and management systems/standards, renewable energy technologies, HVAC systems, heat pumps and applications, multigeneration systems/applications, and sustainable energy technologies. Dr. Hepbasli is also a Certified Energy Manager in Turkey while he is author and co-author of over 665 papers (over 320 SCI-based papers. He has chaired and co-chaired many national and international conferences, symposia, workshops and technical meetings. He has served as a consultant for industry in cases involving his research area and is also a member in the International Advisory Board of many prestigious energy-related journals and an Associate Editor of Journal of Energy Engineering (ASCE) while also serving many energy journals and industrial projects as a reviewer. Dr. Hepbasli was elected a Turkish Academy of Sciences (TUBA) Principal Member in 2019 while he has been a member of Energy Working Group at TUBA since 2017.

Özet

Enerji tasarrufu ile enerji verimliliği birbiriyle ilgili olabilir; ancak bunların enerji dünyasında farklı anlamları vardır. Enerji tasarrufu daha az enerji kullanmak için davranışlar ve alışkanlıklar ile ilintili iken enerji verimliliği, aynı işlevi yapmak için, kalite ve hizmetten ödün vermeden, teknolojinin kullanılmasını gerekli kılar. Bu bölümde, ilk olarak enerji yönetiminde kullanılan bazı terimler verildi. Sonra enerji yönetiminin değişik yaklaşımları kıyaslanırken enerji yönetim sistem standardı kısaca anlatıldı. Sonra enerji referans noktaları, amaçları, hedefleri, göstergeleri ve eylem planlarını kapsayan enerji planlama prosesi açıklandı. Daha sonra toplam 25 adet enerji tasarrufu olanağı sunuldu. Son olarak bazı enerji kontrol listeleri tablo şeklinde verildi. Enerji verimliliği sağlamak için sistematik bir yaklaşımın gerekli olduğu sonucuna varılabilir. Bu bağlamda, kuruluşlarda enerji yönetim sistem standardının (ISO 50001) kurulması, enerji kullanımı, enerji tüketimi, enerji verimliliği ve enerji yoğunluğunu içeren enerji performansının sürekli olarak iyileştirilmesine yardımcı olabilir.

Anahtar Kelimeler

Enerji Tasarrufu, Enerji Verimliliği, Enerji Yönetimi, Enerji Yönetim Sistemi, Iso 50001, Enerji Tasarruf Olanakları, Enerji Tasarrufu Kontrol Listeleri

Abstract

Energy conservation and energy efficiency may relate to each other, but they have different meanings in the energy world. Energy conservation is associated with behaviors and habits to use less energy while energy efficiency involves using technology without compromising the quality and service to perform the same function. In this chapter, some terms used in energy management were given first. Next, various approaches to energy management were compared while energy management system standard was briefly explained. Energy planning process covering energy baselines, objectives, targets, indicators and action plans was then described. After that, a total of 25 energy saving opportunities was presented. Finally, some energy saving checklists were given in tabulated forms. It may be concluded that a systematic approach is needed to achieve energy efficiency. In this regard, establishing an energy management system standard at enterprises may help continually improve energy performance, which includes energy use, energy consumption, energy efficiency and energy intensity.

Keywords

Energy Conservation, Energy Efficiency, Energy Management, Energy Management System, Iso 50001, Energy Conservation Opportunities, Energy Conservation Checklists

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