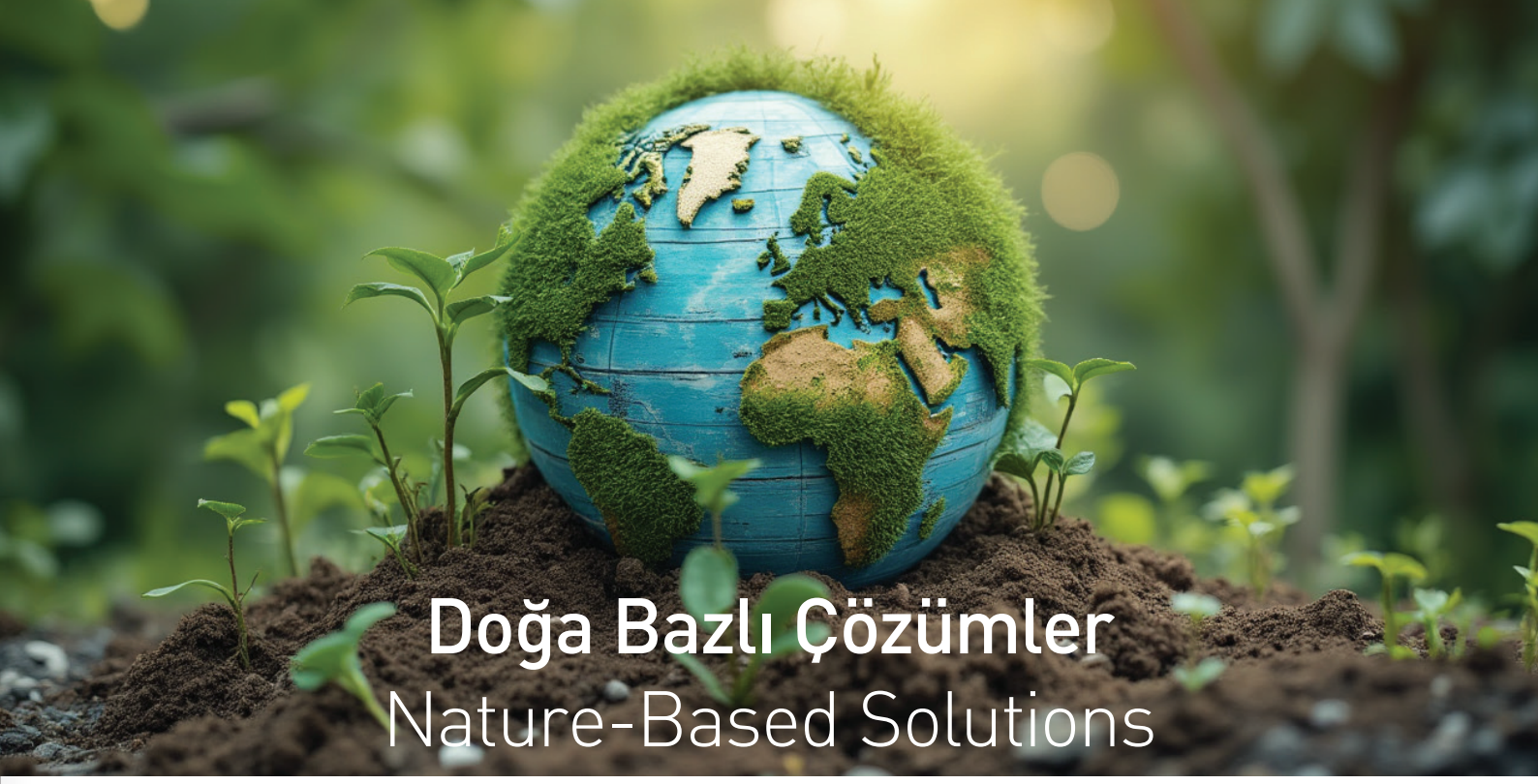

IRENEC 2026

16. ULUSLARARASI %100 YENİLENEBİLİR ENERJİ KONFERANSI

16th INTERNATIONAL 100% RENEWABLE ENERGY CONFERENCE

Sürdürülebilirlik ve İklim Değişikliği

Sustainability and Climate Change

6-9 Mayıs 2026 / 6-9 May 2026

YENİLENEBİLİR ENERJİ BİRLİĞİ

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EUROSOLAR Türkiye

IRENEC

16. ULUSLARARASI %100 YENİLENEBİLİR ENERJİ KONFERANSI

16th INTERNATIONAL
100% RENEWABLE ENERGY CONFERENCE

Tanay Sıdkı Uyar

EUROSOLAR Türkiye
Başkanı

YENİLENEBİLİR
ENERJİ BİRLİĞİ

EUROSOLAR Türkiye

Saygıdeğer Belediye Başkanları, değerli akademisyenler, kıymetli sektör temsilcileri, sevgili genç araştırmacılar ve dünyanın dört bir yanından gelen sayın konuklar,

IRENEC'in 16. yılında sizleri İstanbul'da ağırlamaktan büyük bir onur duyuyoruz.

Bugün burada yalnızca bir konferansın açılışını yapmıyoruz.

Bugün burada 16 yıllık bir fikrin, bir mücadelenin ve bir dönüşümün hikâyesini birlikte yazmaya devam ediyoruz.

Bu hikâye, 2010'ların başında cesur bir soruyla başladı: "%100 yenilenebilir enerji mümkün mü?"

O günlerde bu soru birçokları için bir vizyondu, hatta kimileri için bir ütopyaydı.

Ama bu konferansın kurucuları ve ilk katılımcıları için bu, bilimsel olarak temellendirilebilecek, politik olarak savunulabilecek ve teknolojik olarak gerçekleştirilebilecek bir hedefti.

İlk yıllarda burada, potansiyeli konuştuk.

Güneşin, rüzgârın, suyun ve yerel kaynakların gücünü tartıştık.

Enerji sistemlerinin nasıl dönüşebileceğini anlamaya çalıştık.

Sonra zaman ilerledi.

Sorularımız değişti.

"Bu mümkün mü?" sorusu yerini

"Bunu nasıl yaparız?" sorusuna bıraktı.

Politikaları konuştuk.

Teşvik mekanizmalarını, piyasa tasarımlarını, regülasyonları ele aldık.

Enerji sistemlerinin entegrasyonunu, şebeke esnekliğini ve teknolojik ilerlemeleri tartıştık.

Ve bugün, 16. yılımızda artık çok daha farklı bir noktadayız.

Artık sorumuz şu:

"Bunu nasıl hızlandırır ve nasıl ölçeklendiririz?"

Çünkü artık biliyoruz ki:

%100 yenilenebilir enerji yalnızca mümkün değil, aynı zamanda zorunlu.

İklim krizi bize zamanın daraldığını açıkça gösteriyor.

Enerji güvenliği, ekonomik dayanıklılık ve sürdürülebilir kalkınma hedefleri, bu dönüşümü hızlandırmamız gerektiğini ortaya koyuyor.

Değerli katılımcılar,

Bu konferansı özel kılan yalnızca ele aldığı konular değil.

Onu güçlü kılan, farklı dünyaları bir araya getirme kapasitesidir.

Burada akademi var.

Burada sanayi var.

Burada politika yapıcılar var.

Ve burada geleceği şekillendirecek genç zihinler var.

İstanbul gibi eşsiz bir şehirde buluşmamız da tesadüf değil.

Bu şehir, yüzyıllardır kıtaları, kültürleri ve ticaret yollarını birbirine bağladı.

Bugün ise enerji dönüşümünün Avrupa ile Asya arasındaki köprülerinden biri olma potansiyeline sahip.

Tam da bu nedenle, IRENEC yalnızca bir konferans değil; bir diyalog alanı, bir iş birliği platformu ve bir dönüşüm katalizörüdür.

Ancak açık konuşmak gerekir:

16 yılın sonunda artık sadece konuşmak yeterli değil.

Bugün burada alınan kararların, kurulan iş birliklerinin ve ortaya konan fikirlerin gerçek dünyada karşılık bulması gerekiyor.

Bu nedenle 16. yılımızı bir dönüm noktası olarak görüyoruz.

Bu yılın hedefi: yalnızca bilgi paylaşmak değil, somut çıktılar üretmek, politikalara yön vermek ve uygulanabilir çözümler ortaya koymaktır.

Önümüzdeki günlerde;

Yeni teknolojileri tartışacağız, enerji sistemlerinin geleceğini yeniden düşüneceğiz, finansman modellerini değerlendireceğiz ve birlikte daha güçlü bir yol haritası çizeceğiz.

Ama en önemlisi, birlikte hareket etmenin gücünü yeniden keşfedeceğiz.

Çünkü enerji dönüşümü tek bir kurumun, tek bir ülkenin ya da tek bir sektörün başarabileceği bir süreç değildir.

Bu, ortak bir yolculuktur.

Ve bu yolculukta IRENEC, 16 yıldır olduğu gibi, yön gösteren bir platform olmaya devam edecektir.

Sözlerime son verirken şunu vurgulamak isterim:

Geliniz, bu 16 yıllık birikimi bir başlangıç noktası olarak görelim.

Geliniz, birlikte daha hızlı, daha kararlı ve daha etkili adımlar atalım.

Ve geliniz, %100 yenilenebilir enerji hedefini bir vizyon olmaktan çıkarıp gerçekliğe dönüştürelim.

Hepinize katılımınız için teşekkür ediyor, verimli ve ilham verici bir konferans diliyorum.

Gelecek, bekleyenlerin değil; hazırlayanların ve harekete geçenlerin olacaktır.

Tanay Sıdkı Uyar

EUROSOLAR Türkiye
President

Distinguished mayors, esteemed academics, respected industry leaders, dear young researchers, and valued guests from around the world,

It is a great honor to welcome you to Istanbul for the 16th edition of the International Renewable Energy Conference (IRENEC).

Today, we are not merely opening a conference.

We are continuing the story of a vision, a commitment, and a transformation that has been unfolding for 16 years.

This journey began in the early 2010s with a bold question:

"Is 100% renewable energy possible?"

At the time, for many, this was a vision—perhaps even an idealistic one.

But for the founders and early participants of this conference, it was a goal grounded in science, supported by policy, and achievable through technology.

In the early years, we explored potential.

We discussed the power of the sun, wind, water, and local resources.

We sought to understand how energy systems could evolve.

Then, over time, our questions changed.

"Is it possible?" became

"How can we make it happen?"

We examined policies, incentives, and market designs.

We addressed system integration, grid flexibility, and technological progress.

And today, in our 16th year, we stand at a new stage.

The question is now:

"How do we accelerate and scale this transformation?"

Because we now know:

100% renewable energy is not only possible—it is necessary.

The climate crisis makes it clear that time is limited.

Energy security, economic resilience, and sustainable development all demand faster action.

Distinguished participants,

What makes this conference truly unique is not only the topics it addresses, but its ability to bring different worlds together.

Here, we have academia.

We have industry.

We have policymakers.

And we have the young minds who will shape the future.

Gathering in Istanbul is no coincidence.

This city has, for centuries, connected continents, cultures, and trade routes.

Today, it stands as a bridge in the energy transition between Europe and Asia.

For this reason, IRENEC is not just a conference; it is a platform for dialogue, collaboration, and transformation.

However, we must be clear:

After 16 years, it is no longer enough to only talk.

The ideas we share, the partnerships we build, and the decisions we make here must translate into real-world impact.

That is why we see this 16th edition as a turning point.

Our goal this year is not only to exchange knowledge, but to produce tangible outcomes,

to help shape policy,

and to deliver implementable solutions.

In the days ahead,

we will explore new technologies,

rethink the future of energy systems,

evaluate financing models,

and work together to define a stronger roadmap.

But above all, we will rediscover the power of collective action.

Because the energy transition is not something that any single institution, country, or sector can achieve alone.

It is a shared journey.

And in this journey, IRENEC will continue to serve as a guiding platform, just as it has for the past 16 years.

Let me conclude with this:

The future belongs not to those who wait, but to those who prepare and take action.

Let us see these 16 years not as a milestone alone, but as a starting point for what comes next.

Let us move forward together—faster, stronger, and more decisively.

And let us turn the vision of 100% renewable energy into reality.

Thank you, and I wish you all a productive and inspiring conference.

16. ULUSLARARASI %100 YENİLENEBİLİR ENERJİ KONFERANSI

IRENEC 2026 PROGRAMI

6 Mayıs 2026 Çarşamba			
09.00 - 10.00	**Açılış Oturumu**		
Konuşmacılar	Prof. Dr. Tanay Sıdkı UYAR	İstanbul Gedik Üniversitesi Öğretim Üyesi	
	Prof. Dr. Feriha Erfan KUYUMCU	İstanbul Gedik Üniversitesi Rektörü	
	Hülya GEDİK	İstanbul Gedik Üniversitesi Mütevelli Heyeti Başkanı	
10.00-10.15	Ara		
10.15-12.00	**Belediye Başkanları Oturumu**		
Moderatör	Prof. Dr. Tanay Sıdkı UYAR	İstanbul Gedik Üniversitesi Öğretim Üyesi	Avrupa Yeşil Mutabakatı 2050, AB Misyonları 2030, Yerel Yönetimler için Önemi
Konuşmacılar	Alp KARGI	Merzifon Belediye Başkanı	
	Bekdemir İŞBİLİR	Amasya Belediyesi Başkan Yardımcısı	
	Emin ERSOY	Havran Belediye Başkanı	
	Dr. Dilek KARS	Kartal Belediyesi Başkan Yardımcısı	
	Atakan YÜCE	Pendik Belediyesi Başkan Yardımcısı	

16th INTERNATIONAL 100% RENEWABLE ENERGY CONFERENCE

IRENEC 2026 PROGRAM

6 May 2026 Wednesday			
09.00 -10.00	**Opening Session**		
Speakers	Prof. Dr. Tanay Sıdkı UYAR	Istanbul Gedik University Faculty Member	
	Prof. Dr. Feriha Erfan KUYUMCU	Rector of Istanbul Gedik University	
	Hülya GEDİK	Chair of the Board of Trustees of Istanbul Gedik University	
10.00-10.15	Break		
10.15-12.00	**Municipalities Session**		
Moderator	Prof. Dr. Tanay Sıdkı UYAR	Istanbul Gedik University Faculty Member	Avrupa Yeşil Mutabakatı 2050, AB Misyonları 2030, Yerel Yönetimler için Önemi
Speakers	Alp KARGI	Mayor of Merzifon Municipality	
	Bekdemir İŞBİLİR	Vice President of Amasya Municipality	
	Emin ERSOY	Mayor of Havran Municipality	
	Dr. Dilek KARS	Deputy Mayor of Kartal Municipality	
	Atakan YÜCE	Deputy Mayor of Pendik Municipality	

16. ULUSLARARASI %100 YENİLENEBİLİR ENERJİ KONFERANSI

IRENEC 2026 PROGRAMI

7 Mayıs 2026 Perşembe

09:00-10:30	**Enerji Ekonomi Çevre Modelleme Uygulamaları**		
Moderatör	Prof. Dr. Egemen SULUKAN	İstanbul Gedik Üniversitesi Mühendislik Fakültesi Dekanı	
Konuşmacılar	Ceren AYDIN	İstanbul Gedik Üniversitesi	Türkiye Referans Enerji Sistemi için Güncel Bir Modelin Geliştirilmesi
	Uğur KAYA	İstanbul Gedik Üniversitesi, Makine Mühendisi	Hava Radar İstasyonu İçin Referans Enerji Sisteminin Geliştirilmesi ve Sürdürülebilir Enerji Teknolojileri İçin Bir Yol Haritası Belirlenmesi
	Alperen SARI	Marmara Üniversitesi	Denizcilik Sektöründe Modelleme Çalışmaları
	Dr. Utku KÖKER	Endüstri Mühendisi, Uşak İl Afet ve Acil Durum Müdürlüğü	Bir Enerji Sisteminde Maliyet ve Çevresel Etki Optimizasyonu: Depolama Birimlerinin Rolü
	Doğancan BEŞİKCİ	Yenilenebilir Enerji Birliği EUROSOLAR Türkiye Genel Sekreteri	Enerji Sistem Modelleme Pratiklerinde Türkiye-Kanada Karşılaştırması
10:30-11.15	**Yenilenebilir Enerjinin Sanayiye Entegrasyonu**		
Moderatör	Prof. Dr. Savaş DİLİBAL	İstanbul Gedik Üniversitesi Mühendislik Fakültesi	
Konuşmacılar	Asst. Prof. Dr. Fahriye Enda TOLON	İstanbul Gedik Üniversitesi Sürdürülebilirlik Ofisi	Üniversiteler Yeşil Dönüşümde Katalizör Olarak: İstanbul Gedik Üniversitesi Sürdürülebilirlik Ofisinin Rolü
	Asst. Prof. Dr. Doruk GÜRKAN	İstanbul Gedik Üniversitesi Mühendislik Fakültesi	Tozların Enerji Verimli Hibrit Lazer İşlemesi: Geleneksel Üretim Yöntemleriyle Karşılaştırmalı Değerlendirme
	Asst. Prof. Dr. Aytaç Uğur YERDEN	İstanbul Gedik Üniversitesi Mühendislik Fakültesi	Sürdürülebilir Enerji Depolama için Yeşil Yapay Zeka
11.15-12.15	**Yerel Yönetimler Oturumu**		
Moderatör	Prof. Dr. Tanay Sıdkı UYAR	Yenilenebilir Enerji Birliği EUROSOLAR Türkiye, Yönetim Kurulu Başkanı	
Konuşmacılar	Abdül TAŞYASAN	Saray Belediye Başkanı	
	Berker ELBELİ	Saray Belediyesi, Temizlik İşleri Müdürü	
	Dr. Yüksel YALÇIN	İstanbul Enerji AŞ, İSETAŞ Genel Müdürü	Yerel Yönetimlerde Enerji Yönetimi
	Bilal Deniz ÖZCAN	Üsküdar Belediyesi, Strateji Geliştirme Müdürü	Atık Yönetiminden Enerji Yönetimine: Üsküdar'da Bir Dönüşüm Süreci
12.15-13.00	Ara		
13.00-14.00	**Sektör Kuruluşları Özel Oturumu**		
Moderatör	Doğancan BEŞİKCİ	Yenilenebilir Enerji Birliği EUROSOLAR Türkiye, Genel Sekreteri	
Konuşmacılar	Prof. Dr. Tanay Sıdkı UYAR	Yenilenebilir Enerji Birliği EUROSOLAR Türkiye, Yönetim Kurulu Başkanı	
	Hakan ERKAN	Güneş Enerjisi ve Depolama Sanayicileri Derneği, GENSED, Genel Sekreteri	Türkiye'de GES Yatırımlarında Güncel Durum
	Elvan Aygün ANBAR	Enerji Sanayicileri ve İş İnsanları Derneği, ENSİA, Başkan	Enerji Dönüşümü ve Arz Güvenliği
14.00-14.45	**Genel Kurul Konuşmacısı**		
	Prof. Dr. İbrahim DİNÇER	Ontario Teknik Üniversitesi, Kanada, Yıldız Teknik Üniversitesi, Türkiye, Ulusal Hidrojen Enerjisi Derneği Başkanı, TÜBA-Enerji Çalışma Grubu Başkanı	Sürdürülebilir Bir Gelecek için Yeşil Hidrojen
14.45-15.15	**Davetli Konuşmacı**		
	Prof. Dr. Şener OKTİK	Maltepe Üniversitesi Öğretim Üyesi	Nereye?: Güneş Fotovoltaik + Elektrokimyasal Depolamanın Kesintili Gücü
15.15-15.30	Ara		
15.30-16.30	**Enerji ve Hukuk Özel Oturumu**		
Moderatör	Prof. Dr. Kutluhan BOZKURT	İstanbul Gedik Üniversitesi, Uluslararası Hukuk Bölümü	
Konuşmacılar	Dr. Azzam ABU-RAYASH	Yardımcı Doçent, Fen ve Mühendislik Fakültesi, Hamad Bin Khalifa Universitesi, Katar	Enerji Dayanıklılığı için LiDAR Değerlendirmesi Kullanılarak Körfez İşbirliği Konseyi Ülkelerinde Güneş Enerjisi Potansiyelinin Değerlendirilmesi
	Prof. Dr. Kutluhan BOZKURT	İstanbul Gedik Üniversitesi, Uluslararası Hukuk Bölümü	Uluslararası Hukuk ve Aarhus Konvansiyonu Bağlamında Yenilenebilir Enerji ve Çevrenin Korunması
	Av. Ramazan ÇAKMAKÇI	Avukat	Enerji Hukukunda Yapay Zekânın Kaçınılmazlığı: Normatif Kör Noktaların Tespiti, Mevzuat Kesişimlerinin Analizi ve Düzenleme Değişikliklerinin Sistemik Etkisinin Öngörülmesi
	Doç. Dr. Yusuf BİÇER	Sürdürülebilir Kalkınma Bölümü, Bilim ve Mühendislik Fakültesi, Hamad Bin Khalifa Üniversitesi	Petrol Ve Doğalgaza Bağımlı Ülkeler için Temiz Enerjiye Geçiş Yolları: Katar Örneği
16.30-17.00	**Davetli Konuşmacı**		
	Prof. Dr. Eberhard WAFFENSCHMIDT	TH Köln, Uygulamalı Bilimler Üniversitesi	Merkezi Olmayan Dağıtım Şebekesi Yönetimi için Enerji Aracıları
17.00-17.30	**Tema Konuşmacısı**		
	Prof. Dr. Alvin B. CULABA	De La Salle Üniversitesi Mühendislik ve Sürdürülebilir Kalkınma Araştırma Merkezi	Filipinler'de Yenilenebilir Enerji Alanındaki Son Gelişmeler

16th INTERNATIONAL 100% RENEWABLE ENERGY CONFERENCE

IRENEC 2026 PROGRAM

7 May 2026 Thursday

09:00-10:30	**Energy, Economics, and Environmental Modeling Applications**		
Moderator	Prof. Dr. Egemen SULUKAN	Dean of the Faculty of Engineering, Istanbul Gedik University	
Speakers	Ceren AYDIN	İstanbul Gedik University	Development of a Current Model for the Türkiye Reference Energy System
	Uğur KAYA	Mechanical Engineer, Istanbul Gedi University	Development of a Reference Energy System for an Air Radar Station and Determination of a Roadmap for Sustainable Energy Technologies
	Alperen SARI	Marmara University	Modelling Efforts in Maritime Sector
	Dr. Utku KÖKER	Industrial Engineer, Uşak Provincial Directorate of Disaster and Emergency Management	Cost and Environmental Impact Optimization in a Virtual Energy System: The Role of Storage Units
	Doğancan BEŞİKCİ	Renewable Energy Association EUROSOLAR Türkiye	A Comparison of Energy System Modeling Practices Between Türkiye and Canada
10:30-11.15	**Integration of Renewable Energy into Industry**		
Moderator	Prof. Dr. Savaş DİLİBAL	Istanbul Gedik University Faculty of Engineering	
Speakers	Asst. Prof. Dr. Fahriye Enda TOLON	Istanbul Gedik University Sustainability Office	Universities as Catalysts for Green Transition: The Role of Istanbul Gedik University Sustainability Office
	Asst. Prof. Dr. Doruk GÜRKAN	Istanbul Gedik University Faculty of Engineering	Energy-Efficient Hybrid Laser Processing of Powders: A Comparative Assessment with Conventional Manufacturing Routes
	Asst. Prof. Dr. Aytaç Uğur YERDEN	Istanbul Gedik University Faculty of Engineering	Green AI for Sustainable Energy Storage
11.15-12.15	**Local Governments Session**		
Moderator	Prof. Dr. Tanay Sıdkı UYAR	Chairman of the Board, Renewable Energy Association EUROSOLAR Türkiye	
Speakers	Abdül TAŞYASAN	Mayor of Saray Municipality	
	Berker ELBELİ	Saray Municipality, Cleaning Services Director	
	Dr. Yüksel YALÇIN	İstanbul Enerji AŞ, General Manager of İSETAŞ	Energy Management in Local Governments
	Bilal Deniz ÖZCAN	Üsküdar Municipality, Strategy Development Manager	From Waste Management to Energy Management: A Transformation Process in Üsküdar
12.15-13.00	Break		
13.00-14.00	**Special Session of Sectoral Associations**		
Moderator	Doğancan BEŞİKCİ	Secretary General, Renewable Energy Association EUROSOLAR Türkiye	
Speakers	Prof. Dr. Tanay Sıdkı UYAR	Chairman of the Board, Renewable Energy Association EUROSOLAR Türkiye	
	Hakan ERKAN	General Secretary, Solar Energy and Storage Manufacturers Association, GENSED	Current Status of Solar Power Plant Investments in Turkey
	Elvan Aygün ANBAR	President, Energy Industrialists and Businessmen Association, ENSIA	Energy Transition and Supply Security
14.00-14.45	**Plenary Speaker**		
	Prof. Dr. İbrahim DİNÇER	Ontario Tech. University, Canada, Yıldız Technical University, Türkiye, President of National Hydrogen Energy Association, President of TÜBA-Energy Working Group	Renewable Hydrogen for Sustainable Future
14.45-15.15	**Invited Speaker**		
	Prof. Dr. Şener OKTİK	Maltepe University Faculty Member	Quo Vadis: Intermittent Power of Solar Photovoltaic + Electrochemical Storage
15.15-15.30	Break		
15.30-16.30	**Special Session of Energy and Law**		
Moderator	Prof. Dr. Kutluhan BOZKURT	Istanbul Gedik University, Department of International Law	
Speakers	Dr. Azzam ABU-RAYASH	Assistant Professor, College of Science and Engineering, Hamad Bin Khalifa University, Qatar	Assessment of Solar Energy Potential in Gulf Cooperation Council Countries Using LiDAR Evaluation for Energy Resilience
	Prof. Dr. Kutluhan BOZKURT	İstanbul Gedik University, Department of International Law	Renewable Energy and Environmental Protection in the Context of International Law and the Aarhus Convention
	Av. Ramazan ÇAKMAKÇI	Lawyer	The Inevitability of Artificial Intelligence in Energy Law: Identifying Normative Blind Spots, Analyzing Legislative Intersections, and Predicting the Systemic Impact of Regulatory Changes
	Doç. Dr. Yusuf BİÇER	Division of Sustainable Development, College of Science and Engineering, Hamad Bin Khalifa University, Qatar Foundation, Education City, Doha, Qatar	Pathways to Clean Energy for Countries Dependent on Oil and Natural Gas: The Qatar Example.
16.30-17.00	**Invited Speaker**		
	Prof. Dr. Eberhard WAFFENSCHMIDT	TH Köln, University of Applied Sciences	Energy Agents for a Decentralized Distribution Grid Management
17.00-17.30	**Keynote Speaker**		
	Prof. Dr. Alvin B. CULABA	Center for Engineering and Sustainable Development Research De La Salle University	Recent Developments on Renewable Energy in the Philippines

16. ULUSLARARASI %100 YENİLENEBİLİR ENERJİ KONFERANSI

IRENEC 2026 PROGRAMI

8 Mayıs 2026 Cuma

09.00-10.00	**Geleceğin Enerji Sistemlerini Şekillendirmek: Yenilenebilir Potansiyelden ve Isıtma Karbonsuzlaştırmasından İklim Direncine**		
Moderatör	Prof. Dr. Tanay Sıdkı UYAR	İstanbul Gedik Üniversitesi Öğretim Üyesi	
Konuşmacılar	Dr. Demet SUNA	Avusturya Teknoloji Enstitüsü, Enerji Enstitüsü, Entegre Enerji Sistemleri	Gelecek Enerji Sistemleri Planlamasında İklim Değişikliği Etki Değerlendirmesinin Artan Önemi: Avusturya Örneği
	Dr. Ralf-Roman SCHMIDT	Avusturya Teknoloji Enstitüsü, Enerji Enstitüsü, Entegre Enerji Sistemleri	Isıtma ve Soğutmanın Karbonsuzlaştırılması - Dönüşüm, İnovasyon, Optimizasyon
	Dr. Gustav Resch	Enerji Senaryoları ve Sistem Planlaması Kıdemli Bilim İnsanı ve Tematik Koordinatörü, Enerji Enstitüsü, AIT Avusturya Teknoloji Enstitüsü	Avusturya'da 2030 ve 2040 yıllarına kadar gerçekleştirilebilir yenilenebilir enerji potansiyellerinin kapsamlı bir değerlendirmesi
10.00-10.30	**Davetli Konuşmacı**		
	Maryke van STADEN	ICLEI'nin karbon İklim Merkezi Direktörü, ICLEI Dünya Sekreterliği, ICLEI – Sürdürülebilirlik için Yerel Yönetimler	Etkin Çok Düzeyli Yönetişim Aracılığıyla Sürdürülebilir Enerji Geçişini Hızlandırmak
10.30-10.45	Ara		
10.45-12.00	**Agri-PV Özel Oturumu**		
Moderatör	Prof. Dr. Tanay Sıdkı UYAR	İstanbul Gedik Üniversitesi Öğretim Üyesi	
Konuşmacılar	Duygu KUZYAKA	ODTÜ-GÜNAM, Kıdemli Araştırmacı, Entegre Fotovoltaik Sistemler Biriminde Tarıma ve Suya Entegre Fotovoltaik Sistemler Grubu	Yüksek Değerli Mahsuller İçin Tarımsal Fotovoltaik Sistemlerin Tasarımı: Tropikal ve Kurak Bölgeler İçin Sürdürülebilir Bir Yaklaşım
	Ömer YALÇIN	ODTÜ-GÜNAM, Kıdemli Araştırmacı, Entegre Fotovoltaik Sistemler Biriminde Tarıma ve Suya Entegre Fotovoltaik Sistemler Grubu	Bir Tarımsal Fotovoltaik (AgriPV) Sisteminin Elektriksel Performansı ve Işık Dağılımı Analizi: Balıkesir-Havran Taşarası Örneği
	Talat ÖZDEN	ODTÜ-GÜNAM, Entegre Fotovoltaik Sistemler Birim Koordinatörü	Güneş Enerjisinde Paradigma Değişimi: Entegre Fotovoltaik (IPV) Konusunda Küresel ve Ulusal Bakış Açıları ve ODTÜ-GÜNAM'ın Ar-Ge Ekosistemi
12.00-13.00	Ara		
13.00-14.30	**Endüstride Sürdürülebilirlik Yaklaşımları ve Uygulamaları**		
Moderatör	Oğuzhan HAZNEDAR	Yönetim Kurulu Sayman Üyesi, Yenilenebilir Enerji Birliği EUROSOLAR Türkiye	
Konuşmacılar	Ender NUR	Rönesans Enerji Ticaret Direktörü	Enerji Ticareti ve Sürdürebilirlik
	Oğuzhan HAZNEDAR	Şule Enerji	Tatmetal'in (SKVM) Sınırda Karbon Vergisi Mekanizması İlişkin Hazırlıkları
	Serkan ÖZCAN	Genel Müdür, Chiron Group Türkiye	Performans Hassasiyetle Buluşuyor
	A. Murat ÇAMKORU	ETİ GIDA, Sürdürülebilirlik ve WCM Kıdemli Direktörü	ETİ'de Sürdürülebilirlik Yaklaşımları ve Uygulamaları
	Levent ÖNCEL	Gedik Kaynak, Operasyonlardan Sorumlu Genel Müdür	Gedik Kaynak'ta Yürütülen Sürdürülebilirlik Faaliyetleri
14.30-15.00	**Davetli Konuşmacı**		
	Prof. Dr. Hasan HEPERKAN	Nişantaşı Üniversitesi, Mühendislik Fakültesi Dekanı	İklim Değişikliğinin ve Sürdürülebilir Enerji Teknolojilerinin Yeni ve Mevcut Binalar Üzerindeki Etkileri
15.00-15.15	Ara		
15.15-15.45	**Davetli Konuşmacı**		
	Prof. Dr. Eralp ÖZİL	Zeta Bilgi Teknolojileri, CEO	Sanayi Nasıl Karbon Emisyonlarını Düşürür, Yarı Gönüllülük Yaklaşımı
15.45-17.00	**Su, Enerji, Gıda, Ekosistem Nexus Oturumu**		
	Prof. Dr. Tanay Sıdkı UYAR	EUROSOLAR Türkiye Yönetim Kurulu Başkanı	Geleceğin Tarımı: Sınır Tarımı Taşarası Köy Projesi
	Prof. Dr. Gertrud BUCHENRIEDER	FrontAg Proje Koordinatörü, Bundeswehr Munich Üniversitesi	Su, Enerji, Gıda ve Ekosistem (WEFE) Bağlantısının sosyo-ekonomik ve ekolojik etkilerinin gösterilmesi

16th INTERNATIONAL 100% RENEWABLE ENERGY CONFERENCE

IRENEC 2026 PROGRAM

8 May 2026 Friday

09.00-10.00	**Shaping Future Energy Systems: From Renewable Potential and Heating Decarbonization to Climate Resilience**		
Moderator	Prof. Dr. Tanay Sıdkı UYAR	Istanbul Gedik University Faculty Member	
Speakers	Dr. Demet SUNA	AIT Austrian Institute of Technology GmbH, Center for Energy, Integrated Energy Systems	Increasing Importance of Climate Change Impact Assessment for Future Energy System Planning: The Case of Austria
	Dr. Ralf-Roman SCHMIDT	AIT Austrian Institute of Technology GmbH, Center for Energy, Integrated Energy Systems	Decarbonization of Heating and Cooling - Transformation, Innovation, Optimization
	Dr. Gustav Resch	Senior Scientist and Thematic Coordinator for Energy Scenarios and System Planning, AIT Austrian Institute of Technology GmbH	A comprehensive assessment of realisable renewable energy potentials in Austria by 2030 and 2040
10.00-10.30	**Invited Speaker**		
	Maryke van STADEN	Director of ICLEI's carbonn Climate Center, ICLEI World Secretariat, ICLEI – Local Governments for Sustainability	Accelerating the Sustainable Energy Transition Through Effective Multilevel Governance
10.30-10.45	Break		
10.45-12.00	**Special Session: Agri-PV**		
Moderator	Prof. Dr. Tanay Sıdkı UYAR	Istanbul Gedik University Faculty Member	
Speakers	Duygu KUZYAKA	METU-GÜNAM, Senior Researcher, Integrated Photovoltaic Systems Unit, Integrated Photovoltaic Systems for Agriculture and Water Group.	Designing Agrivoltaic Systems for High-Value Crops: A Sustainable Approach for Tropical and Arid Regions
	Ömer YALÇIN	METU-GÜNAM, Senior Researcher, Integrated Photovoltaic Systems Department, Integrated Photovoltaic Systems for Agriculture and Water Group	Electrical Performance and Light Distribution Analysis of an Agrivoltaic (AgriPV) System: Taşarası Case Study in Balıkesir-Havran
	Talat ÖZDEN	METU-GÜNAM, Integrated Photovoltaic Systems Unit Coordinator	The Paradigm Shift in Solar Energy: Global and National Perspectives on Integrated Photovoltaics (IPV) and ODTÜ-GÜNAM's R&D Ecosystem
12.00-13.00	Break		
13.00-14.30	**Sustainability Approaches and Practices in Industry**		
Moderator	Oğuzhan HAZNEDAR	Treasurer of the Board of Directors, EUROSOLAR Türkiye Renewable Energy Association	
Speakers	Ender NUR	Renaissance Energy Commercial Director	Energy Trading and Sustainability
	Oğuzhan HAZNEDAR	Şule Energy	Tatmetal's (CBAM) Preparations Regarding the Border Carbon Tax Mechanism
	Serkan ÖZCAN	General Manager, Chiron Group Türkiye	Performance Meets Precision
	A. Murat ÇAMKORU	Sustainability and WCM Executive Director, ETİ GIDA	Sustainability Approaches and Practices at ETİ
	Levent ÖNCEL	Gedik Kaynak, Chief Operations Officer	Sustainability Activities Carried Out in Gedik Kaynak
14.30-15.00	**Invited Speaker**		
	Prof. Dr. Hasan HEPERKAN	Dean of the Faculty of Engineering, Nişantaşı University	Impacts of Climate Change and Sustainable Energy Technologies for New and Existing Buildings
15.00-15.15	Break		
15.15-15.45	**Invited Speaker**		
	Prof. Dr. Eralp ÖZİL	Zeta Information Technologies, CEO	How Industry Can Reduce Carbon Emissions: A Semi-Voluntary Approach
15.45-17.00	**Water, Energy, Food, Ecosystem Nexus Session**		
	Prof. Dr. Tanay Sıdkı UYAR	Chairman of the Board, Renewable Energy Association EUROSOLAR Türkiye	Farming of the Future: The Frontier Agriculture Taşarası Village Project
	Prof. Dr. Gertrud BUCHENRIEDER	FrontAg Project Coordinator, University of the Bundeswehr Munich	Demonstrating the socio-economic and ecological impacts of the Water, Energy, Food, and Ecosystem (WEFE) Nexus

16. ULUSLARARASI %100 YENİLENEBİLİR ENERJİ KONFERANSI

IRENEC 2026 PROGRAMI

9 Mayıs 2026 Cumartesi			
09.00 - 10.00	**Konferans Sunumlar 1. Oturum**		
Moderatör	Dr. Engin AÇIKALIN	İstanbul Gedik Üniversitesi, Malzeme Bilimi ve Nano Teknoloji Mühendisliği, Öğretim Üyesi	
Konuşmacılar	İdil KANADOĞLU	Tilburg Üniversitesi, Hollanda	Sürdürülebilirliğin Yapay Zeka ve Veri Uyumluluk Çerçevelerine Entegrasyonu: Kurumsal Yönetim Perspektifi
	Dr. Seniz TÜRKÜZ	Araştırmacı	Kaynak Mühendisliğinde Sürdürülebilirlik Yaklaşımları: Yeşil Dönüşüm 2050'ye Doğru Proses Optimizasyonu ve Yenilikçi Uygulamalar
	Iman ABDEL-HADI	Hamad Bin Khalifa Üniversitesi, Fen ve Mühendislik Fakültesi, Katar Vakfı, Katar	Atıksu Arıtma Tesislerinde Güneş Fotovoltaik Sistemlerinin Entegrasyonu için PESTEL-AHP Kıyaslama Çerçevesi
	Demet ÇAKICIOĞLU	Istanbul Gedik Üniversitesi, Türkiye	Gıda Perakendeciliği ve Ev Dışı Tüketim Ürünleri Dağıtım Sektörlerinde İş Kazaları ve Önleyici Tedbirlerin Analizi
10.00-11.00	**Konferans Sunumlar 2. Oturum**		
Moderatör	Dr. Engin AÇIKALIN	İstanbul Gedik Üniversitesi, Malzeme Bilimi ve Nano Teknoloji Mühendisliği, Öğretim Üyesi	
Konuşmacılar	Sena ERKENT	Süleyman Demirel Üniversitesi, Türkiye	Akışkan Yatakta Yıkım Atıkları Tarafından CO2 Adsorpsiyonunun Araştırılması: Operasyonel Parametrelerin Etkisi
	Moaz Bilto	Texas Üniversitesi Dallas Kampüsü Makine Mühendisliği Bölümü	Çelikten Scramjetlere: Hidrojenin Fayda Sağladığı ve Sağlamadığı Yerler
	Buse Nur AKYAZI	Maltepe Üniversitesi, Türkiye	Jeotermal Enerjinin Yaşam Döngüsü Değerlendirmesi
	Uğur KAYA	İstanbul Gedik Üniversitesi, Makine Mühendisi	Havaalanlarında Referans Enerji Sistemlerinin Uygulanması
11.00-11.15	Ara		
11.15-11.45	**Konferans Sunumlar 3. Oturum**		
Moderatör	Dr. Engin AÇIKALIN	İstanbul Gedik Üniversitesi, Malzeme Bilimi ve Nano Teknoloji Mühendisliği, Öğretim Üyesi	
Konuşmacılar	Marwa ALLAB	İstanbul Gedik Üniversitesi, Türkiye	Yerel Kültürel Mirası Sürdürülebilir Modüler Mimariye Entegre Etmek: Cezayir Yerel Konutlarında Avlu Tabanlı Çevresel Performans
	Kutay KARAKUŞ	Piri Reis Üniversitesi, Gemi İnşa ve Gemi Mühendisliği Bölümü, Türkiye	Çekilebilir Hibrit Açık Deniz Enerji Platformunun Tasarımı ve Çift Kullanımlı Operasyonel Çerçevesi: Yüzer Şarj İstasyonlarından Mobil Güç Üslerine

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9 May 2026 Saturday			
09.00 - 10.00	**Conference Presentations Session 1**		
Moderator	Dr. Engin AÇIKALIN	İstanbul Gedik University, Materials Science and Nanotechnology Engineering, Faculty Member	
Speakers	İdil KANADOĞLU	Tilburg University, Netherlands	Integrating Sustainability into AI and Data Compliance Frameworks: A Corporate Governance Perspective
	Dr. Seniz TÜRKÜZ	Researcher	Sustainability Approaches in Welding Engineering: Process Optimization and Innovative Applications towards Green Transition 2050
	Iman ABDEL-HADI	College of Science and Engineering, Hamad Bin Khalifa University, Qatar Foundation, Qatar	A PESTEL-AHP Benchmarking Framework for Solar PV Integration in Wastewater Treatment Plants
	Demet ÇAKICIOĞLU	İstanbul Gedik University, Türkiye	Analysis of Occupational Accidents and Preventive Measures in the Food Retail and Out-of-Home Consumption Products Distribution Sectors
10.00-11.00	**Conference Presentations Session 2**		
Moderator	Dr. Engin AÇIKALIN	İstanbul Gedik University, Materials Science and Nanotechnology Engineering, Faculty Member	
Speakers	Sena ERKENT	Süleyman Demirel University, Türkiye	Investigation of CO2Adsorption by Demolision Waste in a Fludized Bed: Effect of Operational Parameters
	Moaz BILTO	Department of Mechanical Engineering, The University of Texas at Dallas	From Steel to Scramjets: Where Hydrogen Delivers and Where It Doesn't
	Buse Nur AKYAZI	Maltepe University, Türkiye	Life Cycle Assessment of Geothermal Energy
	Uğur KAYA	Mechanical Engineer, Istanbul Gedi University	Implementation of Reference Energy Systems in Airports
11.00-11.15	Break		
11.15-11.45	**Conference Presentations Session 3**		
Moderator	Dr. Engin AÇIKALIN	İstanbul Gedik University, Materials Science and Nanotechnology Engineering, Faculty Member	
Speakers	Marwa ALLAB	İstanbul Gedik University, Türkiye	Integrating Vernacular Heritage into Sustainable Modular Architecture: Courtyard-Based Environmental Performance in Algerian Vernacular Housing
	Kutay KARAKUŞ	Department of Naval Architecture and Marine Engineering, Piri Reis University, Türkiye	Design and Dual-Use Operational Framework of a Towable Hybrid Offshore Energy Platform: From Floating Charging Stations to Mobile Power Bases

16. ULUSLARARASI %100 YENİLENEBİLİR ENERJİ KONFERANSI

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BEKDEMIR İŞBİLİR

ATAKAN YÜCE

Development of a Current Model for the Turkey Reference Energy System

CEREN AYDIN

At the global scale, energy systems are undergoing a rapid transformation driven by climate change mitigation efforts, energy supply security concerns, and sustainable development goals. Effective planning of this transformation requires comprehensive and quantitative analyses of national energy structures through integrated modeling approaches. In this study, an up-to-date Reference Energy System (RES) model for Türkiye is currently under development to support the assessment of the country's existing energy infrastructure and its prospective energy transition pathways. The proposed model is being structured to represent the entire energy chain, from primary energy resources to final energy consumption. Major sectors, including electricity generation, industry, transportation, and buildings, are considered separately. Fossil fuels, renewable energy sources, and emerging energy technologies are being systematically incorporated into the model framework. Through the reference energy system approach, the aim is to comprehensively represent Türkiye's energy supply–demand balance, resource allocation, and sectoral energy consumption structure. In the ongoing model development process, a base year is being defined using the most recent available statistical data, and the framework is being prepared for long-term energy system projections. In addition to the reference scenario, alternative scenarios based on different policy and technology assumptions are planned to be constructed. These scenarios are intended to enable comparative analyses of energy demand trends, renewable energy penetration, and carbon emission trajectories. The preliminary structure of the developed model highlights the potential of reference energy system modeling as a robust analytical tool for examining Türkiye's energy transition. Once completed, the model is expected to provide a quantitative decision-support framework for strategic energy planning and policy development, supporting evaluations of national energy policies, sustainability targets, and long-term decarbonization strategies.

Development of a Reference Energy System for an Air Radar Station and Determination of a Roadmap for Sustainable Energy Technologies

UĞUR KAYA

The net zero emission target set out in the Paris Climate Agreement has been adopted by many countries and international organizations worldwide. The International Civil Aviation Organization (ICAO), which ensures the use of global airspace in accordance with standards, accepted the net zero carbon emission target set out in the Paris Climate Agreement at its 41st General Assembly. Along with ICAO, many aviation organizations such as the International Air Transport Association (IATA) and Airport Carbon Accreditation (ACA) support environmental regulations.

Airports are places with intensive energy consumption. Various energy sources are consumed for flight operations and operational activities. Secondary Surveillance Radar (SSR) stations, which determine the position of aircraft and transmit data such as identity, altitude, and speed to the ATC unit, are generally located at high points far from airports. Therefore, there are certain challenges in meeting the energy demand of these stations. Due to high altitude, access to the station becomes difficult during winter months because of heavy snowfall and harsh weather conditions. Additionally, power outages occur due to damage to lines and infrastructure. Heating boilers, generators, and engines used in snow-clearing vehicles cause greenhouse gas emissions, while electricity is used as an energy source in other systems of the station, and this electricity leads to emissions at the point of generation.

In this study, a Reference Energy System for an SSR Radar Station was established, and current energy consumption was analyzed using the LEAP SEI software, which is a decision support tool. Through modeling, energy consumption and emission amounts related to demands were calculated. In line with the net zero carbon emission target, scenarios were created based on the targets set by national and international organizations, and the results were analyzed to provide efficiency-enhancing and emission-reducing improvement recommendations.

Modelling Efforts in Maritime Sector

ALPEREN SARI

The maritime sector constitutes one of the most significant contributors to global greenhouse gas emissions and remains heavily reliant on fossil fuels owing to its substantial energy demands. In accordance with the Sustainable Development Goals (SDGs), European Union policy frameworks, and the regulatory standards set forth by the International Maritime Organization (IMO), accelerating the maritime energy transition has grown considerably more pressing given the increasingly constrained timeframe available for decarbonization.

Following the 2015 Paris Agreement under the UNFCCC, maritime energy system research has increasingly integrated Reference Energy System (RES) modeling with energy decision support tools, facilitating the systematic evaluation of fuel consumption, emissions, and operational scenarios. Analytical tools such as LEAP, MARKAL/TIMES, and MATLAB/Simulink have been widely employed for this purpose.

Recent geopolitical tensions — most notably the Russia–Ukraine conflict and the U.S.–Israel–Iran conflict of 2026 — have significantly heightened concerns regarding global energy security. Iran's retaliatory closure of the Strait of Hormuz severely disrupted global trade and amplified oil market volatility. Consequently, Brent crude oil prices surged from approximately 60 USD per barrel at the outset of 2026 to nearly 120 USD per barrel, underscoring the pronounced interdependence between geopolitical risk and energy markets.

In response, scholarly focus has shifted from single-vessel studies toward fleet-level analyses of commercial shipping systems. This study develops RES-based models for a representative commercial fleet, with future work aimed at integrating decision support tools — including LEAP, MARKAL/TIMES, and AVL EMOS — to inform maritime energy transition strategies under uncertainty.

Cost and Environmental Impact Optimization in a Virtual Energy System: The Role of Storage Units

UTKU KÖKER

In the context of the global energy transition, balancing cost minimization with environmental sustainability in meeting energy demand is of critical importance. This study focuses on the cost-optimal energy supply for a hypothetical settlement with a predefined long-term energy demand profile, utilizing various energy production technologies. The primary objective is to simultaneously analyze economic outcomes and environmental impacts while meeting dynamic energy requirements.

The methodological framework of the research centers on OSeMOSYS (Open Source Energy Modelling System), a transparent and accessible energy system modeling tool. Through the optimization process conducted via OSeMOSYS, the study identifies the most economical pathway to satisfy energy demand. Furthermore, the model quantifies the total system costs and the resulting environmental degradation, providing a comprehensive assessment of the planning outcomes.

A defining feature of this study, which distinguishes it from many existing open-source modeling applications, is the explicit integration of energy storage technologies into the optimization portfolio. While many contemporary models neglect storage units or exclude them from the technology mix to reduce computational complexity, this research treats storage as a fundamental component for enhancing system flexibility and reliability. Consequently, this study stands among a limited number of applications that incorporate storage units within an open-source framework.

The model, developed for a virtual region, demonstrates the system's response to fluctuating demand over years and details the impact of storage units on overall system costs. The findings highlight the potential of open-source software and energy storage solutions in supporting decision-making processes for sustainable energy planning.

DOĞANCAN BEŞİKCİ

Universities as Catalysts for Green Transition: The Role of Istanbul Gedik University Sustainability Office

Asst. Prof. Dr. F. ENDA TOLON

The Sustainability Office of İstanbul Gedik University plays a central role in integrating sustainability into the university's institutional strategy. By adopting a holistic approach, the Office promotes resource efficiency, environmental impact reduction, and social equity across campus operations and academic processes. In alignment with the United Nations Sustainable Development Goals (SDGs), particularly SDG 17: Partnerships for the Goals, strengthening national and international collaborations is defined as a strategic priority.

Within this framework, the Sustainability Office coordinates data collection, reporting, and continuous improvement processes for international sustainability rankings such as Times Higher Education Impact Rankings and UI GreenMetric. These efforts enhance the global visibility and accountability of the university's sustainability performance.

In addition, the Office actively develops and manages European Union and Erasmus+ projects, contributes to scientific publishing activities including journals and books, and supports the integration of sustainability and climate change education at associate, undergraduate, and graduate levels. The Office also fosters multi-stakeholder collaborations with public institutions, private sector organizations, and civil society to contribute to sustainable development from a multidisciplinary perspective.

Overall, the Sustainability Office ensures the integration of sustainability principles into all university activities, reinforcing İstanbul Gedik University's commitment to building a more sustainable and resilient future.

Energy-Efficient Hybrid Laser Processing of Powders: A Comparative Assessment with Conventional Manufacturing Routes

Asst. Prof. Dr. DORUK GÜRKAN

The increasing demand for sustainable and energy-efficient manufacturing technologies has driven the development of alternative processing methods that minimize energy consumption while maintaining high material performance. In this study, a novel defocused nanosecond pulsed laser-based hybrid sintering–melting approach is evaluated in comparison with conventional manufacturing techniques, including furnace-based sintering and continuous-wave (CW) laser processing. Traditional powder metallurgy routes typically require prolonged processing times, high global temperatures, and controlled atmospheres, leading to significant energy consumption and environmental impact. Similarly, continuous-wave laser systems, while capable of achieving full densification, often involve excessive heat input, large heat-affected zones, and inefficient thermal utilization. In contrast, the proposed pulsed laser method operates under open atmospheric conditions and introduces cyclic heating–cooling behavior, enabling precise control of energy input and localized thermal accumulation. The comparative analysis demonstrates that the proposed method significantly reduces total energy input by eliminating the need for bulk heating, long processing cycles, and auxiliary systems such as inert gas shielding. The hybrid sintering–melting regime allows gradual densification, minimizing unnecessary overheating and improving thermal efficiency. Furthermore, the defocused laser configuration increases the interaction area, promoting effective energy distribution and reducing peak energy requirements. The method offers a unique balance between energy efficiency, process controllability, and material performance, making it highly relevant for next-generation green manufacturing systems aligned with renewable energy and sustainability goals.

Green AI for Sustainable Energy Storage

Asst. Prof. Dr. AYTAÇ UĞUR YERDEN

This study aims to investigate the impact of green AI and energy storage systems on reducing the environmental impact of generative AI and large language models. Literature shows findings on software selection through prompt engineering or hardware selection through model training. The study examines the impact of more energy-efficient green AI algorithms, which are the focus of sustainable AI systems, particularly on energy storage systems, whose importance is increasing today, by analyzing battery management systems, state of charge (SoC), and state of health (SoH) parameters. The findings show that when models are not trained and run on the necessary part of the data for AI algorithm optimization, energy consumption increases. Future studies aim to focus on battery thermal management and system structures to overcome these limitations and improve capacity.

ABDÜL TAŞYASAN

BERKER ELBELİ

Energy Management in Local Governments

YÜKSEL YALÇIN

The presentation addresses energy management in local governments, along with its role in the fight against climate change. Energy management is no longer merely a technical issue. It is a strategic management area that directly impacts the quality of municipal services, financial sustainability, climate goals, and the future of urban life. For this reason, the presentation evaluates both the global climate agenda and the responsibilities cities must assume within this agenda.

Climate change is no longer a distant risk for the future; it has become one of the fundamental realities cities face today. The temperature anomaly visuals included in the presentation clearly demonstrate how the world has changed from 1880 to 2025. According to the data, the world will be approximately 1.44 °C warmer in 2025 compared to the pre-industrial average. Additionally, the last 10 years stand out as the hottest on record. This picture demonstrates that the climate crisis is not merely an environmental issue but also an economic, social, and urban governance challenge. Therefore, the new normal for cities must be built on adapting to climate change, reducing greenhouse gas emissions, and managing resources more intelligently.

Globally, greenhouse gas emissions continue to rise. As seen in the graphs in the presentation, global total greenhouse gas emissions reached 53,200 million metric tons of CO_2 equivalent in 2024. A similar upward trend is observed in Turkey. While Turkey's total greenhouse gas emissions stood at 229 million tons in 1990, they rose to 584.5 million tons by 2024. This increase highlights the need for stronger and more comprehensive policies in sectors such as energy, transportation, industry, buildings, and waste management. Local governments play a critical role in this context.

This is because a significant portion of emissions originates in cities, and cities are also where solutions must be implemented.

Combating climate change has been a key item on the international agenda for many years. The process, which began with the 1992 Rio Summit, has gained a stronger framework through the 1997 Kyoto Protocol, the 2005 C40 initiative, the 2015 Sustainable Development Goals, and the Paris Climate Agreement. In 2019, the European Green Deal made emission reductions, the decoupling of economic growth from resource use, and green transition goals more concrete. In Turkey, climate policies have taken on a clearer direction with the entry into force of the Paris Climate Agreement. This process demonstrates that combating climate change can only be achieved not only through national policies but also through actionable and measurable initiatives at the local level.

Cities are both a major source of the climate crisis and one of the areas most vulnerable to its impacts. Covering approximately 3% of the Earth's land area, cities account for roughly 70% of global emissions. This ratio clearly highlights the decisive role cities play in climate policies. Additionally, energy demand in cities is increasing day by day. Growing populations, expanding service sectors, transportation demands, infrastructure needs, and the building stock are making energy consumption more complex for local governments. Traditional infrastructure may prove insufficient to meet these needs and hinder sustainability goals. Extreme weather events, the urban heat island effect, drought, and infrastructure vulnerability also directly impact cities. Therefore, the strategic solution lies in integrating energy management with the smart city approach. A smart city is a management ecosystem that uses digital technologies to monitor energy consumption, manage resources efficiently, reduce emissions, and align urban services with climate goals.

One of the most important tools for local governments is the Sustainable Energy and Climate Action Plan (SECAP). SECAP is a strategic plan that identifies a city's current greenhouse gas emissions status, assesses climate risks, sets reduction targets, and defines concrete actions to achieve these goals. SECAP is not merely a report. It is a roadmap that makes a local government's energy and climate vision manageable by incorporating timelines, responsibilities, stakeholders, estimated impacts, and monitoring processes. In this context, long-term goals such as a 40% emissions reduction by 2030 and a carbon-neutral target by 2050 guide local governments' decision-making processes. The SECAP approach offers a framework applicable not only to municipalities but also to industrial zones, universities, campuses, public institutions, and private-sector organizations.

SECAP initiatives in local governments include steps such as employee training, greenhouse gas emission reduction targets, renewable energy systems, smart lighting, electric vehicle charging stations, efficient waste management, and stakeholder-participatory workshops. Industrial

From Waste Management to Energy Management: A Transformation Process in Üsküdar

BİLAL DENİZ ÖZCAN

Energy management is shaped not only by technical solutions at the local level but also by a holistic approach to urban systems. The initiatives developed in Üsküdar in the field of waste and resource management—including source separation, on-site recycling, and behavior-change-based practices—have laid a strong foundation that indirectly influences energy consumption. This approach, built on field experience, demonstrates that the transition to energy management is possible not by starting from scratch, but by transforming existing systems. Initiating the institutional energy management process and supporting it with youth-focused innovative solutions ensures that local governments position themselves not merely as implementers in this field, but as actors who design the transformation and develop scalable models.

Prof. Dr. TANAY SIDKI UYAR

Current Status of Solar Power Plant Investments in Turkey

HAKAN ERKAN

Solar energy investments in Turkey continue to grow rapidly, with total installed solar capacity exceeding 26 GW. While the majority of installed solar capacity consists of license-free rooftop and ground-mounted solar power plants, a significant increase has also been observed recently in licensed solar power plant and YEKA solar power plant investments.

The continued upward trend in the share of solar (GES) and wind (RES) power plants within Turkey's total installed capacity, which has reached approximately 125 GW, clearly indicates that solar and wind power projects with energy storage will play a decisive role in the energy transition in the coming period.

In my presentation, I will provide a general assessment of the current state of solar energy in Turkey, the challenges faced by the sector, and proposed solutions to these challenges.

ELVAN AYGÜN ANBAR

Positioning Industry at the Center of Energy Transition

ENSIA addresses the energy transition not only from the production side, but through an industrial ecosystem that develops technology and equipment.

- Brings together all components of Türkiye's clean energy value chain (main industry + supply chain) under one structure
- Expands not only production but also technological capacity through a "clean energy & clean technologies" approach
- Increases domestic production and export capacity, turning the transition into an economic opportunity

Clustering Model that Increases International Competitiveness

ENSIA transforms companies from individual actors into a competitive cluster structure at the international level.

- Establishes collaborations, joint projects, and consortia among members
- Supports companies in reaching global markets through EU projects, national projects, and B2B platforms
- Aims to make Türkiye a production and solution center in clean energy technologies

Active Contribution to the European Green Deal and CBAM Compliance

ENSIA plays an active role in the process of industry adaptation to carbon regulations.

- Develops roadmaps for sectors within the scope of the Carbon Border Adjustment Mechanism (CBAM)
- Provides technical support to companies on carbon footprint, MRV and energy management
- Addresses energy transition not only as an environmental issue but also as a matter of commercial sustainability

Bridge Role Between Public–Private Sector–Academia

Energy transition is only possible through a multi-stakeholder structure; ENSIA ensures coordination of this structure.

- Active cooperation between development agencies, local authorities, universities, and the private sector
- Takes an active role in policy development processes and conveys sectoral opinions and needs
- Establishes connections between local practices and international targets

Creating Concrete Impact Through Projects

ENSIA is an implementing cluster structure.

- Provides direct capacity-building support to companies through EU and national projects
- Conducts applied work in energy efficiency, digitalization, and carbon management
- Develops scalable models through pilot applications and field experience

Addressing Energy Transition as a System Transformation

Energy transition = transformation of industry + finance + technology + human resources

- Focuses on new technologies such as storage technologies, green hydrogen, and digitalization
- Works on financing mechanisms and the investment environment
- Carries out workforce transformation and capacity-building activities

Impact Extending from Local to Global

Although ENSIA is based in İzmir, it aims to create impact at a global level.

- International fairs, trade delegations, and cooperation activities
- Active networks with cluster platforms and energy clusters in Europe and other regions
- Integration of Türkiye into the global clean energy value chain

Renewable Hydrogen for Sustainable Future

Prof. Dr. İBRAHİM DİNÇER

Quo Vadis: Intermittent Power of Solar Photovoltaic + Electrochemical Storage

Prof. Dr. ŞENER OKTİK

As of 2026, the experimentally recorded efficiencies for single-junction crystalline silicon heterojunction solar cells with back-contact architectures under standard test conditions (AM1.5G) are reported above 27% (NREL) approaching the maximum theoretical efficiency of approximately 33% for single p-n junction solar cells (the Shockley-Queasier limit). Recent advances in photovoltaic materials and device architectures aim to overcome this fundamental limitation by improving spectral utilization and reducing recombination losses. Among these approaches, multi-junction and tandem solar cells represent the most successful pathway. By stacking absorbers with different bandgaps, tandem structures can capture a broader portion of the solar spectrum and reduce thermalization losses. In 2025, perovskite–silicon tandem solar cells achieved certified efficiencies of 34.85%, surpassing the theoretical SQ limit for single-junction devices and demonstrating the viability of tandem architectures for next-generation photovoltaics. (2). Unprecedented cost reductions driven by technological advances together with increasing global market volume have been accelerating deployment of solar photovoltaic (PV) systems for transforming global electricity generation. By 2026, global solar PV installed capacity is approaching 3 TWp with the Levelized Cost of Electricity (LCOE)" for utility-scale solar PV has declined dramatically by nearly 90% over the past decade to approximately 24–50 USD/MWh, while conventional baseload generation typically remains in the 50–150 USD/MWh range depending on the energy source (3) and yet an inherent intermittency of solar PV power poses critical challenges for grid stability and reliability. SolarPV -plus-electrochemical storage (PV+BESS) systems are expanding rapidly, with annual growth rates exceeding 40% and global battery storage capacity surpassing 100 GW, dominated by lithium-ion technologies according to recent assessments by the International Energy Agency and International Renewable Energy Agency (4). These developments suggest that integrated solar-storage systems could transform solar energy from an intermittent resource into a reliable cornerstone of future power systems.

This paper explores the question "Quo Vadis?" by examining the integration of electrochemical energy storage primarily lithium-ion and emerging battery technologies with PV systems to enable dispatchable and flexible power generation.

A system-level analysis is presented, focusing on PV–battery energy storage systems (PV-BESS) and their role in mitigating temporal mismatches between generation and demand. Electrochemical storage is evaluated in terms of efficiency, response time, scalability, and lifecycle performance. The study highlights how PV-BESS configurations enhance capacity value, reduce curtailment, and provide essential grid services, including frequency regulation and peak load management. Economic implications are discussed through the lens of levelized cost of electricity and system value, emphasizing the transition from energy-centric to flexibility-driven market structures.

The findings indicate that the synergistic coupling of PV and electrochemical storage is a cornerstone of future low-carbon base load electrical energy productio. Despite ongoing challenges in cost, degradation, and recycling, continued technological advancements and supportive policy frameworks are expected to accelerate the transition toward resilient, decentralized, and sustainable power systems.

Assessment of Solar Energy Potential in Gulf Cooperation Council Countries Using LiDAR Evaluation for Energy Resilience

Dr. AZZAM ABU-RAYASH

Renewable Energy and Environmental Protection in the Context of International Law and the Aarhus Convention

Prof. Dr. KUTLUHAN BOZKURT

Over the past few decades, the effects of global warming and climate change have increased significantly across the globe. In the fight against climate change, shifting towards alternative energy sources and promoting clean, environmentally friendly energy production have emerged as key objectives. Clearly, both national and international legal frameworks are essential for protecting the planet and its environment, including its natural habitats and ecosystems. Universal regulations, particularly cross-border international and supranational ones, are also necessary in the fight against global warming and climate change, which affect many regions of the planet.

International legal regulations can play a significant role in harmonising states' differing practices and fostering a common consensus on shifting towards renewable energy sources and promoting this shift. However, due to the nature of international law and the issue of enforcement (the absence of a central authority), certain challenges are highly likely to arise. One way to overcome these challenges is to consider the positive role of cross-border regulations and judicial decisions.

The Aarhus Convention sets out key principles for the protection of the environment under international law. This Convention has adopted extremely important principles. These include public access to information on environmental matters, public participation in decision-making on environmental issues, and judicial review (environmental justice). Türkiye is not yet a party to this convention. Nevertheless, in some of its rulings, the European Court of Human Rights (ECHR) has referred to the convention, effectively treating it as a cross-border regulation and ruling on human rights violations in relation to Türkiye.

The principles of access to information, public participation, and environmental justice as defined by the Aarhus Convention should be regarded as key parameters for transitioning from a carbon-based economy to a green, renewable energy system. Therefore, ensuring the protection of the planet and ecosystems, informing the public and society, facilitating public participation in decision-making processes and adapting national laws to the Aarhus Convention to ensure environmental justice will be key objectives in the process of transitioning from a carbon-based economy and energy system to green and nature-friendly (clean) energy.

The energy crisis caused by the recent attacks and armed conflicts launched by the US and Israel against Iran—which constitute a complete violation of international law—could provide a positive impetus for states in their transition to renewable energy; and the potential for the strict application of the principles of the Aarhus Convention to create negative entropy in terms of preventing (or mitigating) the tendency towards disorder in international law should not be overlooked. The fact that the use of the Strait of Hormuz has become dangerous and risky, coupled with the excessive rise in oil prices, raises the possibility of positively influencing states' shift towards clean and sustainable energy.

The Inevitability of Artificial Intelligence in Energy Law: Identifying Normative Blind Spots, Analyzing Legislative Intersections, and Predicting the Systemic Impact of Regulatory Changes

Av. RAMAZAN ÇAKMAKCI

This article argues that energy law has evolved from a linear normative field composed solely of statutes and regulations into a multi-layered and networked normative ecosystem shaped by the simultaneous interaction of EMRA (Energy Market Regulatory Authority) regulations, the technical processes of TEİAŞ (Turkish Electricity Transmission Corporation), environmental and planning regimes, and judicial precedents. This transformation gives rise to "normative blind spots" which, despite the increasing specialisation of legal practitioners, technical experts, and industry actors within their respective fields, result in implicit conflicts, intersections between regulatory regimes, and areas of risk that have not yet developed into legal disputes being overlooked at the level of the system as a whole. The central thesis of the article is that, in a field such as energy law, characterised by high technical density and regulatory complexity, the use of artificial intelligence is no longer an optional convenience but a methodological necessity. In this context, artificial intelligence is positioned not as an autonomous decision-maker replacing human expertise, but as an "epistemic prosthesis", a "lens", and a tool of "augmented expertise" that expands the reach of human reasoning, renders hidden connections visible, and processes multi-layered data relationally. The study examines the functions of artificial intelligence in regulatory mapping, case-law clustering, bridging technical data and legal reasoning, simulating the cascading effects of regulatory changes, and anticipating disputes that have not yet emerged. Finally, the article argues that a human-centred governance model grounded in the principles of explainability, auditability, data reliability, accountability, and human oversight is essential for the legitimate use of this technology in energy law.

Clean energy transition pathways for oil and gas-driven countries: A case study of Qatar

Doç. Dr. YUSUF BİÇER

In hydrocarbon-dependent economies, achieving deep decarbonization necessitates transition pathways that are both locally based and technically sound. This study conducts a long-term, scenario-based evaluation of Qatar's energy transition to 2050, focusing on how a major natural gas producer can reduce emissions while preserving the reliability of the energy system and its economic viability.

The analysis examines ways to reduce carbon emissions in buildings, transportation, and industry through targeted measures such as demand-side management, district cooling expansion, electrification, electric vehicle adoption, and industrial heat decarbonization. The results show that by 2050, emissions could be cut by about 30% in buildings, 28% in transportation, and 32% in industry in Qatar.

The study also creates and compares different scenarios for the electricity sector, from policies that have been put in place and the least-cost way to develop, to more ambitious low-carbon and clean-electricity paths. The findings indicate that a pragmatic least-cost approach can achieve nearly a 50% reduction in power-sector emissions by 2050, whereas more ambitious strategies may achieve near-total decarbonization of the power sector, albeit at the cost of substantially greater investments in renewable capacity, grid enhancements, and advanced technologies.

The research advances the Energy Transformation 2050 agenda by demonstrating how sector coupling, electrification, renewable integration, and scenario-based planning can facilitate a systematic transition to a low-emission energy future.

Energy Agents for a Decentralized Distribution Grid Management

Prof. Dr. EBERHARD WAFFENSCHMIDT

The growing numbers of electrical loads and decentral generators will put a high burden to the distribution power grids. The required instantaneous power may in the near future often exceed the requirements for grid assets, if too many loads are by chance operated simultaneously. A grid management system may avoid this.

The recently reformed German energy industry act (§14a) allows grid operators to implement incentives to avoid grid overloading before hard switching is applied. Here, we propose a decentralized local grid management based on a local marked. It consists of energy agents associated to each dispatchable load. They can communicate to each other in the local power grid, e.g. by powerline communication or broadcast methods.

They share bids for dispatchable power. One them acts as master and calculates a merit order from the bids. This results in in a local re-dispatch, which is communicated back to the agents.

In an extension, the agents share physical measurements at their grid connection point. Using the set of all measurements the master performs a grid state estimation to obtain the actual power limit. This way additional non-monitored loads are considered, which contribute to the grid load.

The approach is simulated exemplarily for a planned energy neutral community consisting of 36 family houses in Bergneustadt, Northrhine-Westfalia. Each house is equipped with an electric vehicle, a heat pump and a roof top photovoltaic (PV)-system.

The agents bid by offering a price for an amount of dispatchable power. If global time varying energy tariffs are applicable, each agent first calculates a price optimized dispatch plan for its component. Any deviation of it would increase cost and this increased cost is used as the first component of the bid. In addition, a second bid component is calculated from the urgency of the energy need. As an example, the closer the desired time for the charging to complete is, the higher the bid is. Simulations with different time dependencies are performed and compared.

Recent Developments on Renewable Energy in the Philippines

Prof. Dr. ALVIN B. CULABA

The global transition toward 100% renewable energy is no longer an environmental aspiration but an urgent strategic necessity for energy security, economic resilience, and climate survival. For the Philippines, this transition is particularly critical due to its heavy dependence on imported fossil fuels, rising electricity demand, vulnerability to global fuel price shocks, and high exposure to climate-related disasters. Current energy consumption reached 35.1 MTOE and is projected to grow annually by 5.8% until 2040, while self-sufficiency remains at only 51.5%, highlighting the urgent need for domestic renewable energy expansion. This paper examines the Philippine pathway toward a fully renewable and sustainable energy future through a systems perspective integrating technology, policy, economics, and innovation. It highlights the country's strong potential in geothermal, solar, wind, hydropower, biomass, ocean energy, hydrogen, and next-generation biofuels, supported by enabling frameworks such as the Renewable Energy Act, Biofuels Act, and the National Renewable Energy Plan 2040. Under the Clean Energy Scenario, renewable energy is projected to increase from 21% to 50% of electricity generation by 2040, requiring major investments in smart grids, storage systems, electric mobility, and energy efficiency programs. The presentation also discusses strategic challenges including grid stability, transmission expansion, intermittency management, and financing barriers, while emphasizing the role of life cycle thinking, carbon management, and innovation ecosystems in ensuring a just and resilient energy transition. Achieving 100% renewable energy demands not only technological transformation, but also strong governance, regional cooperation, and science-driven policy leadership for a sustainable global future.

Increasing Importance of Climate Change Impact Assessment for Future Energy System Planning: The Case of AustriaDoç.

Dr. DEMET SUNA

Transitioning to low-carbon energy systems requires a large expansion of weather-dependent variable renewable energy systems such as wind, photovoltaics, and hydropower. Therefore, future power systems will become more variable and increasingly dependent on adequate system flexibility. At the same time, climate change introduces additional uncertainty, as future global warming levels (GWLs) depend on global mitigation efforts. Combined with increasing weather-dependent generation, this creates a major challenge for robust long-term energy system planning and requires explicit consideration of both uncertainties.

Austria is a particularly relevant case, given its already high renewable electricity share (≈88

% in 2023) and its target of full decarbonization by 2040. Meeting rising electricity demand from electrification requires substantial PV and wind expansion, further increasing climate sensitivity. Consequently, research on potential climate change impacts on future power systems is increasingly important.

In our research, we examine multiple dimensions of climate-related impacts on future Austrian energy systems. We assess climate impacts on future electricity systems (e.g. 2040) using regionalized, NUTS3-level climate data classified by GWLs (1°C–4°C). Long-term projections of temperature, solar radiation, wind, and run-of-river hydropower quantify regional changes in electricity demand and renewable generation. We also evaluate power-system-relevant extremes, such as dark doldrums and heatwaves, by assessing their frequency and duration across GWLs to support resilient energy system planning.

Across 35 NUTS-3 regions, PV shows minimal spatial variation. Run-of-river hydropower exhibits stronger regional differences, with GWL-4 °C changes ranging from –4.3% to +13.8%. Wind shows the largest deviations, increasing by up to 46.8% at GWL-4 °C, particularly in regions with historically low full-load hours (FLH), while high-FLH regions experience more moderate changes.

Decarbonization of Heating and Cooling – Transformation, Innovation, Optimization

Dr. SCHMIDT RALF-ROMAN

This paper addresses the decarbonization of the heating and cooling sector, focussing on both large scale and district scale district heating and cooling (DHC) networks.

It first examines the key motivations driving this transition—primarily climate targets, regulatory pressure, and the need for increased system flexibility—alongside the global, technical, and implementation related challenges.

Building on this foundation, the paper explores innovation pathways across four critical dimensions: heat sources, energy storage solutions, network design, and decision-support tools. Emphasis is placed on integrating renewable and low-carbon heat sources, enhancing thermal storage capacity, and optimizing network operation through advanced planning and digitalization.

The analysis is complemented by two case studies. The first investigates the decarbonization of the Linz AG DHC network, highlighting strategies for reducing carbon intensity in an established large-scale system. The second focuses on the decarbonization of a Viennese district utilizing an "anergy" DHC network, demonstrating the potential of low-temperature systems and sector coupling in urban environments.

Together, these perspectives illustrate how coordinated technological and systemic innovations can enable the effective transformation of heating and cooling systems toward climate neutrality.

A comprehensive assessment of realisable renewable energy potentials in Austria by 2030 and 2040

Dr. GUSTAV RESCH

The study "Renewable Energy Potentials in Austria for 2030 and 2040" provides a comprehensive, methodologically consistent, and spatially highly resolved assessment of renewable energy potentials across Austria. It evaluates the technical and realisable potentials of all major renewable energy technologies and analyses their possible contributions to the energy system in the target years 2030 and 2040.

A key objective of the study is to ensure comparability across technologies by applying a harmonised methodological framework. The analysis is carried out with high spatial resolution and differentiates between technical and realisable potentials, taking into account environmental constraints, land-use aspects, and socio-economic framework conditions. The results are presented as ranges (Low, Medium, High), reflecting uncertainties and varying development conditions.

The findings show that Austria has substantial renewable energy potentials that could enable a largely climate-neutral energy system by 2040. Photovoltaics and wind energy provide the largest additional potentials in the electricity sector, while hydropower remains a central pillar. In the heat sector, ambient heat and shallow geothermal energy offer particularly significant contributions, complemented by waste heat, solar thermal energy, and deep geothermal resources. Bioenergy continues to play an important role, although its expansion potential is limited, with increasing relevance in specific applications such as process heat and renewable gases.

Overall, the study highlights that the realisation of these potentials depends less on technical feasibility than on political, economic, and societal framework conditions. By providing a transparent and consistent data basis, the study supports informed decision-making in energy policy, spatial planning, and infrastructure development.

Please note that results are made accessible through an interactive web-based GIS platform that enables detailed spatial exploration of renewable energy potentials down to the municipal level: https://gtif-austria.info/.

Further information on the project, including methodology and results, is available via the AIT Austrian Institute of Technology project page: https://www.ait.ac.at/en/themen/energieszenarien-und-energiesystemplanung/projects/renewable-energy-potentials-in-austria-for-2030-and-2040

Accelerating The Sustainable Energy Transition Through Effective Multilevel Governance

MARYKE VAN STADEN

To advance efficiently in ensuring a sustainable future for everyone, it is essential to embed sustainable energy at the heart of all planning, policy and action – for every sector, in every strategy. This means all levels of government have a role to play, considering a whole-of-government approach, also to ensure this is done is a comprehensive and holistic manner that serves the whole-of-society. Tackling sustainable development requires an understanding of complex, multi-faceted challenges, which are exacerbated by climate change. It also needs a tailor-made local approach, considering many factors.

Considering climate change as a major global challenge we must address and respond to, sustainable clear energy is central when enhancing climate resilience, adapting to climate impacts and accelerating climate change mitigation. This requires renewables (locally, as far as this is available) and scaling up energy efficiency, also bringing nature-based solutions and exploring the efficient use of increasingly limited resources. Again, this calls for a holistic and comprehensive approach.

From setting clear targets, to defining the strategy, establishing policy and regulations, guiding action, and then monitoring, evaluating and adjusting as needed – these steps are all part of a strategic governance approach. Every level of government has a key role to play, considering its mandate, roles and responsibilities. Yet, often these are not clearly defined when considering climate change and the sustainable energy transition. The challenge governments face is to implement "good governance" to plan, protect and nurture people and place – the country and whether densely populated cities, peri-urban districts, rural areas, or industrial parks. Multilevel governance should include all levels of government – working vertically (across all levels), but also horizontally (across ministries and departments) – through cross-discipline relationships with the aim to explore and then implement scale-potential for positive and high impact action. In this regard, collaborative governance and inclusive governance can make a huge difference to achieving such intended goals.

Building on the topic of IRENEC 2025 and this year's focus on sustainability, climate change and nature, the intervention will focus on ICLEI's approach to climate neutrality when guiding cities, towns and other subnational territories around the globe to achieve climate neutrality, through its GreenClimateCitiesTM Program. The focus in on enablers, not only for effective policy, the flow of finance, and the differentiated roles of government tiers, but also on the socio-economic imperative for action, to ensure a just transition when enhancing resilience of people and place.

Designing Agrivoltaic Systems for High-Value Crops: A Sustainable Approach for Tropical and Arid Regions

DUYGU KUZKAYA

Agrivoltaic (AgriPV) systems offer a compelling pathway toward co-producing food and electricity on shared land, yet early-stage designs rarely align photovoltaic (PV) geometry with crop-specific light thresholds and local hydro-climatic conditions. This study develops and evaluates a crop-aligned design framework across two contrasting Turkish climatic zones—Harran (hot semi-arid, Köppen BSh) and Manavgat (hot semi-tropical Mediterranean, Köppen Csa). Standard bifacial c-Si modules were configured in A-shaped (ridge) and V-shaped (valley) typologies at three cover ratios (CR = 35, 50, 60%). Ground-level irradiance fields were simulated using Rhinoceros 3D with Ladybug/Honeybee extensions; monthly means were extracted at six virtual sampling points and converted to sub-panel photosynthetic photon flux density (PPFD) for comparison with crop thresholds: avocado 400–700, coffee 200–400, saffron 200–400, and black cumin 350–500 µmol m^{-2} s^{-1}. Increasing CR systematically depressed PPFD; V-shaped frames produced more spatially uniform shade via a central corridor, whereas A-shaped frames generated lateral shade lobes with greater intra-row dispersion. Saffron was best supported at CR ≈ 50–60%, black cumin at CR ≈ 35–50%, coffee at CR ≈ 50–60%, and avocado at CR ≈ 35–50%. Integrated rainwater-harvesting channels offer operational co-benefits for irrigation and module cleaning. The framework identifies moderate coverage with typology-appropriate geometry as a practical compromise between crop light requirements, bifacial PV performance, and water management in arid and warm-Mediterranean settings.

Electrical Performance and Light Distribution Analysis of an Agrivoltaic (AgriPV) System: Taşarası Case Study in Balıkesir-Havran

ÖMER YALÇIN

Photovoltaic (PV) systems require large land areas, which can lead to significant land-use conflicts with the agricultural sector. Agricultural photovoltaic (AgriPV) systems offer a highly sustainable and innovative solution by enabling simultaneous agricultural production and renewable energy generation on the same plot of land. This study presents a comprehensive electrical performance and dynamic light distribution analysis of a pilot AgriPV system planned in Taşarası, Havran (Balıkesir, Turkey) within the scope of the FrontAg Nexus project. The proposed system utilizes 24 double-sided TopCon PV modules, reaching a total installed capacity of 14.04 kWp (DC) and 10 kWe (AC). The annual energy yield is robustly estimated at 20.15 MWh. To optimize plant growth conditions, the modules are strategically placed in an east-west direction with a constant tilt angle of 21° using a checkerboard arrangement. A detailed Photosynthetic Active Radiation (PAR) analysis was performed using Rhinoceros software and Ladybug environmental simulation tools. Based on 33 representative points meticulously selected from 120 measurement points, the average annual PAR values for the upper, middle, and lower rows under the modules were calculated as 668, 658, and 649 µmol/m^2s, respectively. Specifically, the lower row reached a peak radiation value of 1024 µmol/m^2s during the summer months due to its proximity to open structural voids. The analytical results definitively demonstrate that the proposed checkerboard arrangement provides an extremely balanced light distribution, preventing excessive shading while maintaining efficient clean energy production. This highlights the profound applicability of agricultural photovoltaic systems in driving regional energy transition and sustainable land use.

The Paradigm Shift in Solar Energy: Global and National Perspectives on Integrated Photovoltaics (IPV) and ODTÜ-GÜNAM's R&D Ecosystem

TALAT ÖZDEN

As the global energy landscape transitions toward decentralized and multifunctional systems, Integrated Photovoltaics (IPV) has emerged as a transformative frontier, moving beyond traditional ground-mounted installations. IPV technologies—encompassing Building-Integrated (BIPV), Vehicle-Integrated (VIPV), and Agri-Photovoltaics (AgriPV)—offer the unique advantage of dual-land use and seamless energy generation within functional surfaces. This presentation explores the global IPV market trajectory and evaluates Türkiye's immense potential to lead in this sector, driven by its geographic location and industrial manufacturing capacity.

At the heart of this evolution in Türkiye, ODTÜ-GÜNAM (Center for Solar Energy Research and Applications) serves as a critical R&D hub, bridging the gap between fundamental material science and industrial application. Our current research portfolio includes the development of semi-transparent modules for BIPV, high-efficiency lightweight solutions for VIPV, and dynamic tracking algorithms for AgriPV systems. By fostering strategic collaborations with national stakeholders (e.g., PV manufacturers, industrial partners for facade systems and TAGEM for agricultural integration), ODTÜ-GÜNAM is not only developing high-performance hardware but also establishing the necessary technical standards and regulatory frameworks. This talk will highlight our recent pilot projects and technological milestones that aim to position Türkiye as a key player in the global IPV ecosystem. Başlık: Güneş Enerjisinde Paradigma Değişimi: Entegre Fotovoltaiklerin (IPV) Dünyadaki ve Türkiye'deki Potansiyeli ve ODTÜ-GÜNAM'ın Ar-Ge Ekosistemi

ENDER NUR

Tatmetal's (CBAM) Preparations Regarding the Border Carbon Tax Mechanism

OĞUZHAN HAZNEDAR

At a time when regulations such as the EU's Carbon Border Adjustment Mechanism (CBAM) are reshaping global trade, energy-intensive sectors must undergo both operational and strategic transformation. This presentation will address Tatmetal's approach to preparing for CBAM through renewable energy investments, carbon footprint management, and operational transformation.

Using wind and solar projects under the Tatmetal and Şule Enerji umbrella, the role of clean energy investments in reducing carbon intensity will be shared through concrete examples.

SERKAN ÖZCAN

Sustainability Approaches and Practices at ETİ

A. MURAT ÇAMKORU

Starting its industrial journey with the vision of "A Factory Producing Little Happiness" and having pioneered numerous firsts of the sector since its founding 65 years ago, ETİ continues to enhance the delivered value to its consumers. In this context, within the field of sustainability—an area it has focused on for many years — ETI carries out significant activities through approaches developed in compliance with related requirements such as UN Sustainable Development Principles, EU Green Deal, and Carbon Border Adjustment Mechanism, etc.

With the slogan "Long Live Earth", ETİ addresses sustainability through four main pillars: Environment (Our Planet), People (Our People), Value Chain (Our Business), and Innovative Transformation (Our Future). Through its initiatives in the key areas of Low-Carbon Transition and Energy Efficiency, Renewable and Alternative Energy, Circular Economy (Zero Waste), Water Footprint, and Sustainable Agriculture, ETİ demonstrates a commitment that benefits the planet, our country, and humanity. ETI's approaches and initiatives within the scope of sustainability will be shared at IRENEC 2026.

Sustainability Activities Carried Out in Gedik Kaynak

LEVENT ÖNCEL

The production of welding electrodes, welding wires, and submerged arc welding flux is an energy-intensive industrial activity due to its high-temperature processes, high electricity consumption, and continuous production structure. In line with increasing global carbon neutrality targets and sustainable production approaches, increasing energy efficiency, using renewable energy, and effectively managing resources are critically important in such industrial facilities. At Gedik Kaynak A.Ş., we implement a holistic sustainability approach in our welding electrode, welding wire, and submerged arc welding flux production facility, incorporating renewable energy integration, waste heat recovery, and water management practices.

Within the facility, approximately 36% of annual electricity consumption is met through a rooftop solar power system (SPP), depending on the season. This application contributes to reducing indirect carbon emissions by decreasing the amount of electricity drawn from the grid. To improve water efficiency, rainwater collected from the factory roof surfaces is stored and recovered for non-process industrial uses. This reduces freshwater consumption and improves the facility's water footprint.

In addition to the use of renewable energy, various waste heat recovery systems have been implemented at the facility. The hot air released during the operation of compressors used in compressed air systems is utilized in water heating systems, minimizing energy losses. The heat from the flue gases of natural gas-fired furnaces is recovered and used in auxiliary processes, thus reducing fuel consumption and overall energy requirements. Furthermore, all waste from the process is recycled and reintroduced into the economy. Investment projects have also been initiated for the regeneration of chemicals used in gas shielded welding wire production, as part of efforts to reduce waste and carbon emissions and strengthen environmental sustainability.

A holistic evaluation of these applications demonstrates that in facilities producing metal-based consumables such as welding electrodes and welding wires, it is possible to increase energy efficiency, reduce greenhouse gas emissions, and protect natural resources without compromising production quality.

Impacts of Climate Change and Sustainable Energy Technologies for New and Existing Buildings

Prof. Dr. HASAN HEPERKAN

Energy is the most important input for the social and economic development of societies. Fossil fuel reserves are decreasing and becoming more and more vulnerable. The concentration of greenhouse gases in the atmosphere is reaching dangerous levels for human well-being. Clean energy production and efficient use of energy are among the most crucial issues of our day.

A protocol was organized in Kyoto, Japan to limit greenhouse gases; it entered into force in 2005. The Paris Agreement reached a universal consensus in 2015 to strengthen global climate action by keeping the global temperature increase in this century well below 2°C compared to pre-industrial levels.

Adaptation to the climate change and transition to a carbon-neutral society can be achieved by carefully managing a series of changes. Such transitions that will lead the world to a green future require not only energy and the environment, but also the inclusion of economic and social areas in the process. The European Union has determined its direction on this issue with two vision documents; the Energy Roadmap 2050 and the European Green Deal.

The recently revised 2018 Energy Performance of Buildings Directive (EPBD) is an important component of the strategy to achieve a zero-emission and completely carbon-neutral building stock by 2050. It emphasizes the importance of improving the quality of life, health and work performance of building occupants. Comfort and health are also included in the "Smartness Readiness Indicator (SRI)".

The proposed measures will increase the renovation rate of the worst-performing buildings in each country, modernize the building stock, support better air quality and the digitalization of energy systems for buildings. It introduces energy performance classes based on common criteria to increase the reliability, quality and digitalization of Energy Performance Certificates (building renovation passport). Heat pumps are a promising alternative in this context for the construction sector.

In modern economies, it is difficult to do business without ICT, information and communication technology and internet connectivity. New devices include communication modules that connect them to the internet or a similar network. These products are called IoT (Internet of Things), which is a network of interconnected cyber-physical objects. Digitalization is the widespread use of ICT, information and communication technologies (ICT), especially smart devices and sensors, and the innovative use of big data collection and analysis. Digital Control Systems (DDC) and BIM technologies are also used in building applications. These technologies are very useful in the design, operation, control, management and monitoring of air-conditioning and mechanical systems of buildings. Zero-energy and smart building technologies are considered an important tool for reducing greenhouse gas emissions without compromising comfort conditions through the correct design of mechanical and air-conditioning systems.

Prof. Dr. ERALP ÖZİL

Prima FrontAg Nexus Project

Prof. Dr. TANAY SIDKI UYAR

Prof. Dr. GERTRUD BUCHENRIEDER

Integrating Sustainability into AI and Data Compliance Frameworks: A Corporate Governance Perspective

İDİL KANADOĞLU

The rapid expansion of artificial intelligence (AI) systems across energy-intensive digital infrastructures has raised a fundamental question: what is the environmental cost of regulatory compliance itself? As organisations deploy AI-driven tools to meet obligations under the EU AI Act and the General Data Protection Regulation (GDPR), the computational resources required contribute significantly to carbon emissions. Despite the EU's climate commitments under the European Green Deal, existing AI and data governance frameworks remain largely silent on the environmental implications of compliance-driven data processing.

This paper examines the structural gap between corporate AI compliance obligations and Environmental, Social, and Governance (ESG) reporting frameworks. While the Corporate Sustainability Reporting Directive (CSRD) and the EU Taxonomy Regulation impose sustainability disclosure requirements on large undertakings, they do not account for the environmental footprint generated by AI compliance infrastructure. Organisations are thus placed in the paradoxical position of expanding their digital governance apparatus in response to regulatory demands, while being expected to reduce their environmental impact under a disconnected body of sustainability law.

This study analyses how AI governance and sustainability frameworks interact at the level of corporate governance, arguing that their incoherence creates both regulatory inefficiency and normative inconsistency within the EU's legal architecture. It evaluates whether the risk classification system under the EU AI Act, combined with CSRD reporting obligations, could serve as a foundation for integrating environmental metrics into AI compliance assessments. Ultimately, the paper argues that digital sustainability must be recognised as an autonomous dimension of corporate AI governance — and that without deliberate regulatory integration, the EU risks institutionalising an accountability deficit at the intersection of digital regulation and climate policy.

Sustainability Approaches in Welding Engineering: Process Optimization and Innovative Applications towards Green Transition 2050

Dr. SENİZ TÜRKÜZ

Accelerating global decarbonization and energy security mandates necessitate a strategic re-evaluation of welding engineering through the lens of life-cycle performance and resource efficiency. This study provides a literature-based analysis of sustainability in joining technologies, focusing on process optimization, consumable management, and circular manufacturing. The findings suggest that environmental impact is dictated by a multifaceted matrix including heat input, spatter formation, and the embodied carbon of filler materials, rather than operational electricity consumption alone. While solid-state methods like friction stir welding offer significant mitigation potential, pulsed-arc technologies and power-factor-corrected sources provide immediate industrial efficiency gains. A distinctive contribution of this review is the correlation established between welding sustainability and high-temperature flow-control equipment, specifically industrial thermo valves in concentrated solar and geothermal plants. Ultimately, welding engineering drives the green transition by both minimizing its operational footprint and ensuring the structural integrity of critical renewable energy infrastructure.

A PESTEL-AHP Benchmarking Framework for Solar PV Integration in Wastewater Treatment Plants

IMAN ABDEL-HADI

Wastewater treatment plays a critical role in sustainable water management by rendering wastewater safe for reuse or discharging it into water bodies; however, water treatment is highly energy-intensive and contributes to emissions. Solar PV integration into treatment plants has proven its benefits in reducing carbon emissions, improving water management, and enhancing environmental sustainability. Multiple studies have tackled challenges in the water treatment sector; however, limited research addresses the barriers to solar PV integration in wastewater treatment plants in the Gulf Cooperation Council countries. This paper focuses on understanding progress in the water sector in the GCC countries and on exploring their priorities in water management and solar PV integration. This paper applies the multidimensional PESTEL framework to examine the multifaceted water sector. AHP is then used to rank each indicator selected for each PESTEL pillar. The study reveals that, despite national plans for solar PV integration in desalination across the region, there is a lack of institutional readiness to integrate solar PV into wastewater treatment plants. Although GCC countries have demonstrated technological readiness for solar PV, as evidenced by centralized solar PV plants, there remains a gap in implementing decentralized solar PV solutions for wastewater treatment plants. This can be attributed to the reliance on fossil fuels for electricity generation, which can hinder solar PV adoption for wastewater treatment plants in Qatar and the GCC region. Feasibility studies for solar PV implementation are required to study the potential integration of solar PV for energy-intensive processes in the GCC region.

Analysis of Occupational Accidents and Preventive Measures in the Food Retail and Out-of-Home Consumption Products Distribution Sectors

DEMET ÇAKIROĞLU

Food retailing in Türkiye has expanded significantly in recent years, both in overall market volume and in online commerce. Delivering products to customers on time and in full, while managing the supporting operations efficiently in the background, has become a major factor of competitive advantage for companies. This study examines occupational accidents, one of the key risks to operational excellence, in the food retail and out-of-home consumption product distribution sectors. The analysis focuses on hourly distribution, accident types, and root causes. The data consist of anonymized occupational accident records reported between January 2023 and October 2025 in two companies with different operational structures. A total of 299 accident records were reviewed, and 104 records containing time information were used for time-based analyses. A mixed-method approach was adopted. The distribution of occupational accidents across time groups was examined, and a Chi-square test of independence was applied to evaluate differences between the two companies. In the qualitative part, selected accident types were analyzed using fishbone diagrams under the dimensions of human, equipment, method, material, environment, and management. The findings show that occupational accidents were not evenly distributed throughout the day and tended to cluster in different time periods depending on the operational structure of each company. The Chi-square test indicated a significant association between company and time group. Recurrent root-cause clusters were also identified across different accident types. The

main contributing factors were time pressure, insufficient training, inappropriate equipment, narrow work areas, weak traffic management, inadequate lighting, and lack of supervision. Overall, the study suggests that occupational accidents can be understood more meaningfully when time, operational flow, and systemic causes are considered together rather than treating them as isolated events. Based on the findings, practical recommendations were developed regarding shift planning, break scheduling, equipment standardization, pedestrian-equipment separation, ergonomic improvements, and root-cause-oriented supervision.

Investigation Of CO_2 Adsorption By Demolition Waste in a Fluidized Bed: Effect of Operational Parameters

SENA ERKENT

Atmospheric carbon dioxide (CO_2) emissions have been increasing significantly due to the extensive use of fossil fuels, leading to a continuous rise in global temperatures. Therefore, the development of effective CO_2 capture and storage technologies has become an urgent priority. Large-scale combustion facilities are among the primary targets for carbon capture applications, as they emit substantial amounts of CO_2 into the atmosphere. Among available technologies, post-combustion capture is widely preferred because it enables the removal of CO_2 directly from flue gas streams and can be integrated into existing facilities without requiring major modifications to combustion systems. In this context, the present study aims to investigate the CO_2 capture potential of recycled concrete aggregates (RCA) derived from construction and demolition waste (CDW) using a laboratory-scale fluidized bed system. Adsorption experiments were conducted at 25, 50, and 150 °C under different contact times and bed heights, in a 13% CO_2 atmosphere to simulate flue gas conditions. The maximum CO_2 uptake reached 0.069 g CO_2/g CDW at 150 °C. Furthermore, mineralogical (XRD), elemental (EDS), and morphological (SEM) analyses were also performed to elucidate the capture mechanism. The results confirmed that CO_2 capture primarily occurs through the carbonation of portlandite, as evidenced by the formation of aragonite. Overall, the findings highlight the potential of RCA as a low-cost adsorbent for CO_2 capture from post-combustion gases.

From Steel to Scramjets: Where Hydrogen Delivers and Where It Doesn't

MOAZ BİLTO

Global hydrogen demand hit about 100 Mt in 2024, but less than 1% comes from low-emission sources. Over 60 countries have hydrogen strategies and there are 1,700+ projects announced, yet the viable pipeline has actually shrunk—from 49 to 37 Mtpa since 2022—because natural gas prices dropped while electrolyzer costs went up, pushing the green-grey cost gap past $3/kg in most Western markets. This presentation cuts through the hype with a sector-by-sector look at where hydrogen actually works and where it doesn't. Across refining, ammonia, steelmaking, transport, power generation, and aerospace, we assess what's commercially ready, what's too expensive, and what's genuinely promising by 2030. The answer is clear: hydrogen's biggest impact is in sectors that simply cannot electrify—steel via H2-DRI, green ammonia for fertilizers and shipping, and long-duration storage beyond 13 hours. On the aerospace side, hydrogen's thermophysical properties—2.8x the energy density and 7.2x the specific heat capacity of kerosene—make it the only fuel that works for scramjet propulsion above Mach 8. We also address the real barriers: hydrogen

leakage as an indirect greenhouse gas, iridium supply limits for PEM electrolyzers, and water stress in the regions best suited for green hydrogen production. Five research priorities are laid out for closing the gap between announcements and actual deployment.

Life Cycle Assessment Of Geothermal Energy

BUSE NUR AKYAZI

This study aims to evaluate the environmental impacts of geothermal power plants by focusing on their main process stages using the Life Cycle Assessment (LCA) methodology. With the increasing demand for sustainable and low-carbon energy sources, geothermal energy has gained attention due to its ability to provide continuous and reliable power generation with relatively low greenhouse gas emissions.

Within the scope of this study, the key processes of geothermal energy production—including drilling, fluid extraction, energy conversion, and reinjection—are analyzed in detail. The environmental performance of each stage is assessed, with a particular focus on carbon dioxide (CO_2) emissions and overall environmental impact. In addition, differences between geothermal technologies, such as binary cycle and conventional systems, are considered in terms of emission levels and system efficiency.

The results show that geothermal energy systems produce significantly lower CO_2 emissions compared to fossil fuel-based power plants. However, certain stages, especially drilling and fluid management processes, contribute notably to the overall environmental impact. Despite these challenges, the long operational lifetime and stable energy output of geothermal power plants enhance their overall sustainability performance.

In conclusion, geothermal energy is an environmentally favorable renewable energy source. Improving process efficiency and optimizing early-stage operations are essential to further reduce environmental impacts and support the sustainable development of geothermal energy systems.

Implementation of Reference Energy Systems in Airports

UĞUR KAYA

The zero-emission target set out in the Paris Climate Agreement has been adopted globally by numerous countries and international organizations. At its 41st Assembly, the International Civil Aviation Organization (ICAO), a specialized agency of the United Nations that ensures the safe, efficient, and standardized utilization of global airspace, accepted the zero carbon emission target established in the Paris Climate Agreement. Alongside ICAO, various air transport associations such as the International Air Transport Association (IATA) and Airports Council International (ACI) support these environmental regulations.Airports are highly energy-intensive locations. Various energy sources are consumed at airports and their affiliated stations for both flight and operational activities. Radar Stations, which collect detailed data such as identity, altitude, and position from aircraft to manage air traffic, are typically situated at high elevations away from airports. Conversely, when the UNEP Scenario, which we prepared in line with the United Nations Environment Programme's (UNEP) target of reducing emissions by approximately 35% by 2035 to limit the temperature increase to 2°C, was applied, the CO2 equivalent emission amount decreased to 58.8 metric tons in 2035. These results indicate that if actions are taken in accordance with UNEP targets, the 2050 net-zero emission goal can be achieved.

Integrating Vernacular Heritage into Sustainable Modular Architecture: Courtyard-Based Environmental Performance in Algerian Vernacular Housing

OURIDA MAROUA ALLAB

Housing is not only a phenomenon that responds to the need for physical protection, but also a spatial expression of the search for livability and comfort. Vernacular housing, shaped by local materials and traditional construction techniques and directly adapted to environmental conditions, represents one of the most authentic expressions of this search. Throughout history, housing forms have developed as a result of the relationship between humans and their environment and the continuous effort to improve living conditions. In this sense, housing can be understood as a spatial system responding to fundamental needs such as climatic adaptation, privacy, security, and the organization of daily life. Although construction techniques and architectural expressions have evolved over time, the essence of these needs has remained unchanged; what has transformed are the spatial configurations and design approaches used to address them. In this article, the role of courtyard space in traditional residential architecture in Algeria is examined, with a focus on its position within spatial organization. The study considers courtyard typology as an adaptive spatial strategy shaped by climatic variation and cultural layers. According to the Köppen climate classification, Algeria's Mediterranean, continental, and desert climate zones are seen as key factors influencing residential architectural forms. These climatic conditions directly affect design decisions related to ventilation, thermal comfort, shading, and privacy.

The analysis shows that the courtyard is not simply a traditional architectural element, but a flexible spatial device that responds to environmental constraints. Over time, this typology has evolved as a reflection of the relationship between local living practices and climate. In this sense, the courtyard can be understood as a model that ensures continuity with vernacular traditions while also offering potential for integration into contemporary sustainable design approaches.

Design and Dual-Use Operational Framework of a Towable Hybrid Offshore Energy Platform: From Floating Charging Stations to Mobile Power Bases

KUTAY KARAKUŞ

This article describes the conceptual design and the multipurpose operational concept of the towable hybrid offshore energy platform. To improve the mobility and security of energy in maritime operations. It is designed as a 60 m x 40 m barge with an L/B ratio of 1.5, which is ideal for shallow water and offshore environments, incorporating a 5 MW wind turbine and a 252 kWp solar panel array. Regarding naval architecture, the structure is designed to counteract the overturning moment caused by the wind turbine. Stability is ensured using the IMO 2008 IS code criteria. Hydrodynamic performance and resistance during the relocation process were

analyzed using Computational Fluid Dynamics (CFD). One of the major innovations of this research is the development of the "dual-use" strategic framework, which is intended to act as a floating charging station for electrical ships in civilian maritime routes and simultaneously act as a mobile forward power source for military or humanitarian activities in grid-independent territories. The operational viability of the proposed solution was also validated by logistic studies that showed a required bollard pull of 21.76 tons for a 5-knot speed during towing operation, which is supported by an optimized design of an electrical tugboat. This research provides a novel solution for the decarbonization of maritime logistics and the development of strategic energy security.

16. ULUSLARARASI %100 YENİLENEBİLİR ENERJİ KONFERANSI

CHIRON Group

CHIRON GROUP

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Otomotiv, Medikal, Havacılık, Hassas Teknoloji, Takım İmalatı, Makine Mühendisliği: CHIRON Group işleme merkezleri, bu endüstrilerde hassas, verimli ve esnek işleme sağlar. Bu uzmanlık bir tesadüf değil, makine mühendisliğindeki sürekliliğin ve teknoloji ve ürün yelpazesindeki güçlü değişimin sonucudur.

Değişim biçimlendirici ilkedir; 1921'den beri şirkette akmaya devam eden ve CHIRON Grubu'nun DNA'sına sıkı sıkıya örülmüş ortak bir çizgidir. Şirket, müşterilerin ve pazarların taleplerini karşılamak, potansiyeli hızla fark etmek ve sistematik olarak kullanmak için değişmeye istekli olmuştur.

Yenilikçi ürün ve hizmetleriyle CHIRON Group artık birçok farklı endüstride hassas, üretken ve esnek işlemeyi kolaylaştırıyor. Tüm çalışanları ile birlikte tek bir hedefin peşinden gidiyor: Dünyanın dört bir yanındaki tüm müşteriler için kalite, teknoloji ve hizmet açısından referans noktası olarak kalmak ve onların avantajlarını geliştirmek. Bir şey, gelecekteki olumlu gelişme için her zaman olduğu kadar önemli olmaya devam ediyor: Hassasiyet tutkusu.

Automotive, Medical Technology, Aerospace, Precision Technology, Tool Manufacturing, Mechanical Engineering: The CHIRON Group machining centers ensure precise, productive, and flexible machining in these industries. This expertise is no accident, but the result of continuity in mechanical engineering, and a strong change in technology and product range.

Change is the formative principle; it is the common thread that has continued to run through the company since 1921 and is firmly woven into the DNA of the CHIRON Group. The company has been willing to change to meet the demands of the customers and markets, to quickly recognize potential, and to systematically exploit it.

With its innovative products and services, the CHIRON Group now facilitates precise, productive, and flexible machining in many different industries. Together, all employees are pursuing one goal: Remaining the benchmark for quality, technology, and service for all customers around the world and building on their advantage. One thing remains as important for future positive development as it ever has been: The passion for precision.

Rönesans Enerji, Rönesans Holding'in bağlı şirketlerinden biridir ve enerji sektöründe yatırım yapmaktadır. Rönesans Enerji, faaliyetlerini yürütürken, Holding'in inşaat alanında kazandığı deneyimlerden büyük ölçüde yararlanmakta ve bu deneyimleri, stratejik hedeflerine ulaşabilmek amacıyla kullanmaktadır.

Rönesans Enerji, hızla büyüyen Türk enerji piyasasındaki yatırım olanaklarını değerlendirebilmek amacıyla 2007 yılında kurulmuştur. Enerji sektöründe oldukça deneyimli bir ekibe sahip olan Rönesans Enerji, faaliyetlerine öncelikle, yenilenebilir enerji üretimi alanında yatırım yaparak ve özellikle de hidroelektrik santralleri inşa ederek başlamıştır.

İşletmede toplam 166 MW kurulu güce sahip 6 Hidroelektrik santral yatırımı olan şirket, son dönemde toplam gücü 480 MW'a ulaşan bir çok rüzgar ve güneş santrali ile ilgili geliştirme çalışmaları yapmakta ve yenilenebilir enerji sektöründe yerini sağlamlaştırmak istemektedir.

Rönesans Energy is a subsidiary of Rönesans Holding and invests in the energy sector. While conducting its operations, Rönesans Energy benefits greatly from the Holding's experience in the construction sector and utilizes this experience to achieve its strategic goals.

Rönesans Energy was established in 2007 to capitalize on investment opportunities in the rapidly growing Turkish energy market. Rönesans Energy, which has a highly experienced team in the energy sector, started its operations primarily by investing in renewable energy generation, particularly in the construction of hydroelectric power plants.

The company, which has 6 hydroelectric power plants with a total installed capacity of 166 MW in operation, has recently been working on the development of several wind and solar power plants with a total capacity of 480 MW and wants to consolidate its position in the renewable energy sector.

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Tatmetal, Türkiye'nin lider yassı sac üreticilerinden biri olarak Tatçelik markası altında; sıcak haddelenmiş asitlenmiş, soğuk haddelenmiş, galvanizli ve boyalı yassı çelik üretimi gerçekleştirmektedir. Hizmet verdiği sektörlerin başında; Otomotiv, Dayanıklı Tüketim, İnşaat, Enerji, Ambalaj ve Makine-Ekipman gelmektedir. 1,5 milyon tonu aşan kapasitesiyle sektörde global bir oyuncu olarak 6 kıtada 70'ten fazla ülkeye ihracat gerçekleştirmekte, Türkiye'nin en büyük ilk 500 sanayi şirketi arasında 31'inci sırada yer almaktadır.

Tatmetal produces hot-rolled pickled, cold-rolled, galvanized, and prepainted flat steel through the Tatçelik brand as one of Türkiye's leading flat steel producers. Automotive, White Goods, Construction, Energy, and Machinery-Equipment are the leading industries Tatmetal serves. As a global player in the sector, Tatmetal exports to more than 70 countries on 6 continents, and it is ranked 31st among the first 500 largest industrial companies in Türkiye.

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Çaykur, 49 Yaş Çay İşleme Fabrikası, 1 Çay Paketleme Fabrikası, 1 Pazarlama ve Üretim Bölge Müdürlüğü, 8 Pazarlama Bölge Müdürlüğü, Anatamir Fabrikası, Atatürk Çay ve Bahçe Kültürleri Araştırma Enstitüsü Müdürlüğü, 12.000 çalışanı ve 9.250 ton/gün yaş çay işleme kapasitesi ile Türkiye çay sektörünün en büyük ve lider kuruluşudur.

Bölgede üretilen yaş çay ürününün yıllara göre değişmekle birlikte yaklaşık %60 - 65'i Çaykur tarafından satın alınmaktadır. Çaykur´un yurt içi kuru çay piyasasındaki pazar payı da yaklaşık %60-65 `dir.

Vizyon

Çaykur, gelişen pazarın koşullarına uygun olarak kaliteyi, verimliliği ve ürün çeşitliliğini artırarak sektörde en büyük ve öncü kuruluş olamaya devam edecektir.

Misyon

Türkiye´nin Tarım Politikasına uygun olarak çay ziraatını geliştirmek, çay kalitesini ıslah etmek, işlenmesini teknik esaslara göre yürütmek, iç ve dış pazar isteklerini karşılamak üzere kuru çay üretmek, ithal etmek ve ihraç etmek, verimlilik esasına dayalı işletme politikasıyla sermaye birikimine yardım ederek yatırım kaynağı yaratmaktır.

Kar Altın da Çay;

Doğu Karadeniz Bölgesinde yetiştirilen çaylar, ekolojik şartlar nedeniyle kış aylarında kar altında kalmaktadır. Bu durum hastalık ve zararlıların gelişmesi ve yayılması için oluşabilecek uygun ortamları doğal olarak engellediği için ülkemizi sağlıklı çay üretimi konusunda ideal ülke durumuna getirmekte ve Organik Çay tarımında da en avantajlı ülke konumuna sokmaktadır.

Yukarıda bahsedilen ekolojik şartlar sayesinde Doğu Karadeniz'deki topraklarımızda ve de çay tarımında hiçbir suretle kimyasal mücadele ihtiyacı oluşmamıştır. Kimyasal zirai mücadele ilacı kullanılmadan üretilen ÇAYKUR Siyah, Yeşil ve Beyaz çaylarımızı gönül rahatlığıyla tüketebilirsiniz.

Çaykur, Turkey With its 12,000 employees and 9.250 tons / day of wet tea processing capacity, the tea plantation of Turkey, with a capacity of 49 tea tea processing plants, 1 tea packaging plant, 1 marketing and production district management, 8 marketing regional directorate, Anatamir plant, Atatürk tea and horticultural research institute directorate Is the largest and leading company in the tea industry.

Vision

Çaykur will continue to be the largest and leading company in the sector by increasing the quality, productivity and product variety in accordance with the conditions of the developing market.

Mission

Importing and exporting dry tea to meet the demands of domestic and foreign markets, helping to accumulate capital with efficiency based policy, to increase the investment resources by improving the quality of tea, improving the quality of tea in accordance with the Agricultural Policy of Turkey, improving tea quality, .

Tea in Snow Gold;

Tea grown in the Eastern Black Sea Region is under snow during the winter months due to ecological conditions. This situation naturally hampers the environment that can occur for the development and spread of disease and pests, thus making our country the ideal country for healthy tea production and also the most advantageous country in Organic Tea cultivation.

Thanks to the above-mentioned ecological conditions, we do not need any chemical fighting in our lands in Eastern Black Sea and in tea farming. You can consume our ÇAYKUR Black, Green and White teas without the use of chemical pesticides.

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Köklü geçmişi ve kurumsal yapısıyla güvenilir, yenilikçi, öncü ve sektöründe lider bir oyuncu olan Eti, 1961 yılında Eskişehir'de kuruldu.

Kurucumuz Firuz Kanatlı "İnsanlığın mutluluğundan daha yüce bir amaç yoktur" sözü ile Eti'nin kurumsal varoluş amacını ortaya koymuş, kurum kültürü ve değerlerini bu varlık sebebi üzerine inşa etmiştir.

Bugün kurucu vizyonumuz ve kurum değerlerimizi temel alan bir yaklaşımla 7 bini aşkın çalışanımız, 9 üretim tesisimiz, 50 markamız ve 300'den fazla ürünümüzle dünyanın dört bir yanında insanların hayatına dokunuyoruz. Güçlü satış ve ihracat ağımızla ülkemizi global pazarlarda başarı ile temsil ediyoruz.

Tüm paydaşlarımız için sürdürülebilir değer yaratma hedefimiz doğrultusunda, Eti'nin ekosisteminde birçok işletmeye ve üreticiye iş, on binlerce kişiye istihdam sağlıyoruz. Toplamda 430 bin metrekarelik alana yayılan ve dünyaya örnek olan tesislerimizde ileri teknolojiyle en yüksek kalitede; bisküvi, kek, çikolata, tuzlu atıştırmalık, gofret, fonksiyonel ve lifli ürünler, kahvaltılık ürünler, dondurulmuş ürünler, soğuk atıştırmalıklar, glütensiz ve bebeklere özel ürünler olmak üzere çok geniş bir yelpazede üretim yapıyoruz. Ar-Ge merkezlerimizin sahip olduğu üstün yetkinlikler sayesinde sektörümüzde standartları belirliyor ve teknoloji yatırımlarımızla öne çıkıyoruz.

Benzersiz lezzetleriyle hayata mutluluk katan kaliteli ve yenilikçi bir dünya markası olma misyonuyla çalışırken mutluluğu sadece ürünlerimizin yaşattığı keyif anları ile sınırlı tutmuyor, toplumsal fayda yaratmayı amaçlayan, çevreye duyarlı ve sağlıklı yaşamın önemine dikkat çeken sosyal sorumluluk projelerimizle hayata değer katıyoruz.

Eti, founded in 1961 in Türkiye, is a reliable, innovative, pioneering and leading player in the food industry with its deep-rooted history and corporate structure.

Our founder Firuz Kanatlı set out the corporate purpose at the establishment stage with his saying, "There is no higher purpose than the happiness of humanity", and grounded our corporate culture and values on this cause of existence.

Today, empowered by a business approach based on our founding vision and corporate values, we touch the lives of people around the world with than 7,000 employees, 9 manufacturing facilities, 50 brands and more than 300 products. With our robust sales and export network, we successfully operate globally.

In line with our goal to create sustainable value for all our stakeholders, we provide sustenance for various companies and manufacturers within Eti's eco-system, as well as creating jobs for tens of thousands of people. At our 430,000 square metered facilities that earned global recognition, we manufacture a wide range of high-quality products, including cookies, muffins, chocolate, salty snacks, waffles, functional and fiber products, breakfast foods, frozen products, cold snacks, gluten-free and baby products using advanced technology. Thanks to our highly advanced R&D centers, we are setting standards in the industry and differentiating ourselves from competitors with our investments in technology.

While we are committed to becoming an innovative global brand that creates happiness with our range of tasty products, happiness is not just moments of palate pleasures that our products provide; we add value to people's lives by initiating social responsibility projects to generate social benefits and raise awareness about the importance of protecting the environment and healthy lifestyle.

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