NACIONALNI ENERGETSKI KOMITET SRBIJE | WPC ENERGY

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BILTEN

Beograd domaćin najvišim predstavnicima upravljačkih tela WPC Energy u okviru priprema 25 Energetskog kongresa u Rijadu 2026. godine

Sa Međunarodne ekspertske radionice „Globalna perspektiva energetskog sektora“ upućen poziv na racionalan pristup energetskoj tranziciji

Sadržaj

UVODNIK

Dragoslava Stojiljković, predsednik IO WPC–Nacionalnog energetskog komiteta Srbije

Imali smo zaista jedinstvenu priliku da upoznamo stavove čelnika WPC Energy o nacionalnim i globalnim politikama energetske tranzicije i njihovim dometima.

Zahvaljujem se na otvorenosti, stručnosti i viziji koju su predstavnici WPC Energy podelili sa nama. Osnovne poruke koje su ovom prilikom istaknute po mom mišljenju mogu se sažeti u sledećem:

- Nafta predstavlja i dalje značajan izvor energije, posebno za sektor saobraćaja. Sva istraživanja i strategije ukazuju da će tako biti i u budućnosti, do 2050. godine.
- Za energetsku tranziciju značajno je da se obezbedi sigurnost u snabdevanju, održivost u poslovanju kompanija i pristupačnost cena za potrošače.
- Energetska tranzicija je kontinuirani proces koji zahteva dugoročne energetske strategije i planiranje, sa fokusom specifičnim za svaku zemlju pojedinačno, a pre svega sa aspekta primene odgovarajućih energetskih tehnologija. Istovremeno, energetska tranzicija mora da obezbedi sigurnost snabdevanja i da uključi ekonomsku isplativost.
- Energetska tranzicija postavlja brojne transformacije, od razvoja novih tehnologija do decentralizacije energetskih sistema i transformacije energetske infrastrukture. Ključno je istražiti izazove i mogućnosti energetske tranzicije sa namerom da se podrži održiva i pouzdana energetska budućnost. Inovacije će biti ključne u procesu dekarbonizacije.
- U budućnosti, nove tehnologije će igrati važnu ulogu. One će uticati na transformaciju tržišta i kompanija.
- Energetska tranzicija je multidisciplinarna i zahteva veliko angažovanje stručnjaka iz različitih oblasti, kao što su inženjerstvo, pravo, finansije itd.
- Energetska tranzicija treba da bude podržana odgovarajućim studijskim programima u okviru obrazovnog sistema i obukom novih generacija stručnjaka, kao i unapređenjem znanja postojećih zaposlenih u energetskom sektoru kroz različite vidove celoživotnog učenja. To zahteva promene u procesu univerzitetskog obrazovanja, razvoj novih nastavnih planova i programa, diverzifikaciju specijalizacija i saradnju sa kompanijama radi boljeg razumevanja njihovih potreba.
- Dalji razvoj je nemoguć bez raznolikosti, ravnopravnosti i inkluzije. Izuzetno je važno podržati što veći broj žena zaposlenih u energetskom sektoru. Ova podrška uključivanju žena u energetski sektor treba da počne od obrazovnog sistema, posebno od univerziteta.
- Kompanije u narednom periodu treba da se posvete korporativnim politikama koje se odnose na održivi razvoj u oblastima životne sredine, društvene odgovornosti i korporativnog upravljanja. Za kompanije će biti izuzetno važna komunikacija, saradnja i međusobno povezivanje kako bi se zajedničkim aktivnostima doprinelo energetskoj tranziciji i kako bi se razmenjivala iskustva.

- Značajnu ulogu u procesu energetske tranzicije imaće nacionalni energetski komiteti koji treba da obezbede povezivanje na nacionalnom nivou različitih učesnika (od kompanija do akademskih i istraživačkih institucija, medija i dr), kao i povezivanje na međunarodnom nivou. Pored toga, nacionalni energetski komiteti treba da prate i vrše analizu postojećeg stanja, kao i da doprinesu planiranju i definisanju strategija za budućnost.
- Sve prethodno navedeno, biće u fokusu rada Nacionalnog energeskog komiteta Srbije koji će pored rada na nacionalnom nivou, podržati i razvijati sve aktivnosti na regionalnom nivou, uz jačanje povezivanja i učešća na međunarodnom nivou.

WPC ENERGY
NACIONALNI ENERGETSKI KOMITET SRBIJE

Senka Walid, generalni sekretar WPC–Nacionalnog energetskog komiteta Srbije

Proleće u Beogradu ovog aprila donelo je više od lepog vremena – donelo je i jednu značajnu priliku za susret i razmenu znanja. Ekspertska radionica koju je organizovao Nacionalni naftni komitet okupila je stručnjake različitih profila, ali sa zajedničkim ciljem: da zajedno razmotre izazove koji nas očekuju u sektoru nafte i gasa, u svetlu promena koje oblikuju savremeni energetski pejzaž.

U atmosferi otvorenog dijaloga govorilo se o tranziciji, tehnološkim inovacijama, bezbednosti i efikasnosti, ali i o ulozi naše struke u vremenu koje zahteva jasne odgovore i odgovorno delovanje. Bilo je osvežavajuće čuti koliko energije, znanja i volje za saradnju postoji unutar naše zajednice.

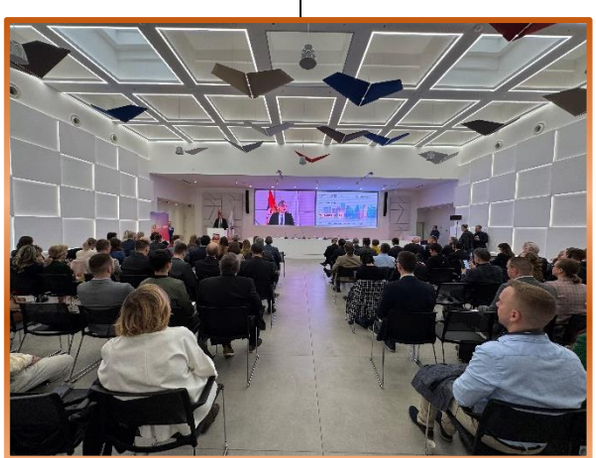
U ovom broju Biltena donosimo osvrt na radionicu, ali i širi kontekst – od domaćih projekata do globalnih trendova koji oblikuju našu svakodnevicu. Verujem da će vas sadržaj podstaći na razmišljanje, ali i na akciju. Jer energetska budućnost nije nešto što se čeka – ona se gradi, i to svakim danom.

Zahvaljujem svima koji su doprineli uspehu skupa u Beogradu, kao i svim članicama što ostajete deo ovog dijaloga.

U organizaciji Nacionalnog energetskog komiteta Srbije–WPC Energy, u Beogradu održana međunarodna ekspertska radionica „Globalna perspektiva energetskog sektora“

SRBIJA DOMAĆIN IZVRŠNOM RUKOVODSTVU WPC ENERGY

Nacionalni energetski komitet Srbije (NEKS) je od 7. do 9. aprila ove godine u Beogradu bio domaćin najvišim predstavnicima upravljačkih tela WPC Energy. Tom prilikom je održan niz sastanaka Izvršnog komiteta ove organizacije, kao deo priprema 25. *WPC Energy* kongresa, koji će se naredne godine održati u Rijadu, prvi put nakon 92 godine od osnivanja, ovaj prestižni skup će se održati u Saudijskoj Arabiji.



Predsednik Svetskog energetskog saveta Pedro Miras Salamanka i članovi Izvršnog komiteta ove organizacije iz Saudijske Arabije, Turske, Španije i Kanade, kao i predstavnici nacionalnih komiteta Mađarske i Kuvajta na poziv domaćina uzeli su učešće na Radionici pod nazivom „Globalna perspektiva energetskog sektora“ koja je 9. aprila organizovana u Privrednoj komori Srbije.

Učesnicima radionice se najpre obratila Dubravka Đedović Handanović, ministarka rudarstva i energetike i predsednica Skupštine Nacionalnog energetskog komiteta Srbije – WPC Energy. On je rekla da je Srbija uprkos svim izazovima sa kojima se suočila tokom energetske krize uspela da sačuva svoju energetsku stabilnost i da nastavi razvoj energetskog sektora u skladu sa svojim strateškim ciljevima.

“Strateškim dokumentima, a pre svega novom Strategijom razvoja energetike, predvideli smo na koji način ćemo postići dekarbonizaciju energetskog sektora do 2050. godine, uz osiguravanje dovoljnih količina energije, očuvanje stabilnog snabdevanja energentima i podizanje energetske sigurnosti. Cena električne energije u Srbiji je i dalje među najnižim u Evropi, a napredak koji smo ostvarili u prethodnih nekoliko godina prepoznat je i od strane Evropske komisije, kao i drugih međunarodnih partnera“, rekla je ministarka.

Ona je naglasila da Srbija mora da sustiže kašnjenje u investicijama u energetskom sektoru u prethodnih 20 godina, zbog čega je odlučna da nastavi sa ulaganjem u sve strateški važne projekte.

“Trenutno radimo na ažuriranju dokumenta “Polazne osnove plana razvoja energetske infrastrukture”, koji je usvojila Vlada pre dve godine, a kojim smo procenili neophodne investicije u narednih 10 godina na oko 14 milijardi evra. Intenzivno investiranje važno je ne samo da bismo nadoknadili kašnjenje, već i da bismo mogli da pratimo globalne trendove i povećavamo našu energetsku bezbednost, a to znači ubrzani razvoj

obnovljivih izvora energije, snažniju prenosnu mrežu, pouzdaniji distributivni sistem, nove gasovode i naftovode, kao i potencijalnu novu rafineriju. U ovom procesu, važno je da jačamo naše državne energetske kompanije kadrovski, organizaciono, korporativno, a svakako da će deo potrebnih investicija doći iz privatnog sektora“, navela je Đedović Handanović.

Istakla je da je energetska bezbednost jedna od najvažnijih tema na globalnom nivou zbog sukoba u Evropi i na Bliskom Istoku i njihovog uticaja na dostupnost i cene energenata, samim tim na razvoj svetske ekonomije.

“Za Srbiju je diversifikacija izvora i pravaca snabdevanja prirodnim gasom i naftom od velikog značaja, pre svega zbog nestabilnog geopolitičkog konteksta. Sa Mađarskom ove godine krećemo da gradimo novi naftovod koji će povezati naše dve zemlje i kojim će se Srbija povezati na naftovod Družba. Time ćemo za tri godine od danas obezbediti alternativni, dodatni pravac snabdevanja sirovom naftom. Danas znamo da je Srbija donela ispravnu odluku da izgradi gasovod Balkanski tok, koji je omogućio Srbiji stabilno snabdevanje i stabilne cene prirodnog gasa”, rekla je Đedović Handanović.

Dodala je da Srbija nastavlja da se povezuje sa susednim zemljama i kada je transport prirodnog gasa u pitanju.

“U naredne tri godine izgradićemo još dva nova gasovoda kojim ćemo se povezati sa Severnom Makedonijom i Rumunijom, uz već izgrađeni gasovod Balkanski tok, kao i interkonekciju Srbija-Bugarska, kojom smo se povezali na gasovod TANAP, odnosno Južni gasni koridor. Na taj način dobijamo pristup različitim izvorima gasa iz TAP-a, TANAP-a, BRUA u Rumuniji, što će nam dati veću sigurnost snabdevanja”, navela je ministarka.

Govoreći o naporima za dekarbonizaciju, ona je podsetila da se ovaj proces ne odnosi samo na proizvodnju električne energije, već i na saobraćaj. “U ovoj oblasti, kao mere pored povećanja broja električnih vozila, vidimo i povećanje korišćenja alternativnih goriva, što je važno da prepozna i NIS u svojim strategijama i planovima razvoja“, navela je Đedović Handanović.

Prema njenim rečima, energetska tranzicija pruža veće mogućnosti za unapređenje rodne ravnopravnosti u energetskom sektoru, stvarajući prilike da se više žena uključi u transformaciju energetskog sektora i prelazak na čistu energiju.

„U Srbiji, energetski sektor je visoko diversifikovan kad je u pitanju rodna ravnopravnost, i možemo da se pohvalimo velikim brojem žena na čelu energetskih kompanija. Dobra vest je da su prosečne zarade u sektoru nafte i gasa u Srbiji dodatno povećane, iz čega se vidi da je naftni i gasni sektor perspektivan za mlade ljude u Srbiji“, rekla je Đedović Handanović.

Marko Čadež, predsednik Privredne komore Srbije (PKS), poručio je da je u današnjem svetu globalne nestabilnosti, kada je izuzetno teško predvideti buduća dešavanja, od suštinskog značaja saradnja i zajednički rad svih lokalnih, regionalnih i globalnih aktera u razmeni znanja i informacija, a u cilju rešavanja problema stabilnosti snabdevanja energentima.

“Svi smo svesni da smo se danas probudili u drugačijem svetu nego što je taj svet bio

pre samo 24 sata. Moramo imati na umu da nismo više u mogućnosti da predvidimo šta bi i kako bi trebalo nešto da se dešava. Zato su nam potrebni novi alati i veštine kako bismo pristupili rešavanju problema“, rekao je Čadež.
Posebno je ukazao da je za rešavanje problema stabilnosti snabdevanja energentima važna saradnja privrede i fakulteta, instituta, naučne zajednice i inženjera, kako bi se savladali izazovi u energetskom sektoru – znanjem, pravovremenim informacijama i inovacijama.
“Potrebna je saradnja u regionu po ovim pitanjima, osigurati pristup EU tržištu, uključujući energetsko tržište, kao i fondovima, jer svet u kojem živimo sada je svet koji ne poznajemo i zato treba da radimo zajedno”, naglasio je predsednik PKS.

Dragoslava Stojiljković, predsednica Izvršnog odbora Nacionalnog energetskog komiteta Srbije (NEKS) - WPC Energy, naglasila je značaj uloge ove organizacije u energetskom sektoru Srbije i povezivanja sa WPC Energy.
“NEKS je pratio sve što se dešava u svetu i iz Nacionalnog naftnog komiteta Srbije prerastao u Nacionalni energetski komitet Srbije, jer je danas na globalnom nivou mnogo širi aspekt – nisu u pitanju samo nafta i gas, nego se moramo baviti energijom uopšte. Svi smo svedoci povećane potrošnje goriva, zahteva da obezbedimo sigurnost snabdevanja i samim tim da poštujemo ekološke principe i održivost”, navela je Stojiljković.
Dodala je da je NEKS podrška svim aktivnostima u ovom sektoru, i resornim ministarstvima i kompanijama, sa ciljem da bude u toku sa dešavanjima u svetu i prenese dobre prakse u Srbiju. To podrazumeva učešće u donošenju oređenih regulatornih okvira, iniciranje propisa, praćenje potrošnje i kretanje svih parametara u vezi sa energentima i realizaciju određenih projekata koji treba da doprinesu energetskom sektoru u našoj zemlji.

Goran Stojilković, predstavnik Petrohemije u Skupštini NEKS-a i član Programskog komiteta WPC Energy, istakao je da je veoma važno da mala zemlja u naftno-gasnom svetu, kao što je Srbija, ima članstvo u ovako važnoj organizaciji kao što je WPC Energy.
“Sedeti za stolom sa svim ovim ključnim igračima u svetskoj naftnoj i gasnoj industriji je zaista privilegija, a moja uloga je u tome da kao predstavnik Srbije dam doprinos organizaciji Svetskog energetskog kongresa. To smatram zaista velikom čašću lično, kao i profesionalnim uspehom i komplimentom koji je Srbija dobila, da kao relativno mali proizvođač ima tako važnu ulogu u organizaciji WPC Energy”, rekao je Stojilković.
On je istakao da će tema sledećeg Svetskog energetskog kongresa u Rijadu, koji će se održati 2026. godine, biti kako doći do energije za sve, na prihvatljiv i održiv način.
Senka Valid, generalna sekretarka i član Izvršnog odbora NEKS-a, podsetila je da je NEKS u prethodnoj godini imao svoje redovne aktivnosti, koje podrazumevaju periodične sastanke i aktivnosti radnih grupa, ali i organizaciju raznih događaja.
Kao primer je navela radionicu o primeni vodonika, gde su predstavljena zanimljiva iskustva iz mađarskog MOL-a. Skup je bio vrlo posećen i medijski propraćen, dodala je ona i navela da je bilo interesantno čuti kako to sve izgleda u praksi, i predstavljalo je dragocenu razmenu iskustva.

WPC Energy Serbia hosted top representatives from the governing bodies of WPC Energy in Belgrade from April 7 to 9.

SERBIA HOSTS WPC ENERGY EXECUTIVE LEADERS

The workshop titled "Worldwide Perspective on the Energy Sector," organized by the National Energy Committee of Serbia – WPC Energy (WPC Energy Serbia), took place on April 9 in Belgrade.

Notable participants included Pedro Miras Salamanca, President of WPC Energy, and members of the Executive Committee from countries such as Saudi Arabia, the USA, Turkey, Spain, and Canada, alongside representatives from the national committees of Hungary and Kuwait.

Dubravka Đedović Handanović, the Minister of Mining and Energy and President of the Assembly of the National Energy Committee of Serbia – WPC Energy, opened the workshop. She emphasized that Serbia, despite facing numerous challenges during the energy crisis, has managed to maintain its energy stability and continue developing its energy sector in line with strategic goals.

"Through strategic documents, particularly the new Energy Development Strategy, we have outlined our steps toward achieving decarbonization of the energy sector by

Đedović Handanović: Decarbonization does not only apply to electricity production, but also to transport

2050. This includes ensuring a sufficient energy supply, maintaining stable energy delivery, and enhancing energy security. The price of electricity in Serbia remains among the lowest in Europe, and our progress over recent years has been recognized by the European Commission and other international partners," she noted.

The minister emphasized that Serbia needs to compensate for investment delays in the energy sector over the past two decades, which is why she is determined to continue investing in all strategically important projects.

"We are currently updating the document on the starting points of the energy infrastructure development plan, originally adopted by the government two years ago. The investments projected in this plan for the next decade are estimated at EUR 14 billion. Intensive investment is crucial for us to keep pace with global trends and enhance our energy security. Accelerated development of renewable energy sources, upgrading the transmission network, creating a more reliable distribution system, and developing new gas and oil

pipelines, as well as a potential new refinery, are all essential. Strengthening our state energy companies in terms of personnel and management is also important, and we expect contributions from private investors," Đedović Handanović underlined.

She pointed out that energy security is one of the most important topics globally due to the conflicts in Europe and the Middle East and their impact on the availability and prices of energy.

"For Serbia, diversifying our sources and routes for natural gas and oil supply is paramount, especially considering the unstable geopolitical landscape. This year, we are beginning to build a new oil pipeline with Hungary that will connect our two countries and link us to the Druzhba oil pipeline. This will provide us with an additional supply route for crude oil within three years. Our decision to construct the Balkan Stream gas pipeline has proven to be the right one, as it has secured stable natural gas supplies and prices," Đedović Handanović stressed.

She also mentioned Serbia's ongoing efforts to connect with neighboring countries for natural gas transport. "In the next three years, we will construct two additional gas pipelines to link with North Macedonia and Romania, along with the already completed Balkan Stream gas pipeline and the Serbia-Bulgaria interconnection, which connects us to the TANAP gas pipeline and the Southern Gas Corridor. This development will allow us access to various gas sources from TAP, TANAP, and BRUA in Romania, thereby enhancing our supply security," the Minister explained.

Finally, she noted that decarbonization extends beyond electricity generation to transport as well. "In this sector, we aim to increase the number of electric vehicles and promote the use of alternative fuels. The national oil company, Naftna Industrija Srbije, must incorporate these measures into its strategies and development plans," Đedović Handanović added.

In her words, the energy transition provides great opportunities for improving gender equality in the energy sector, creating opportunities for including more women in the transformation of the energy sector and the transition to clean energy.

"In Serbia, the energy sector is highly diversified concerning gender equality, and we are pleased with the substantial representation of women in leadership positions across energy companies. Additionally, the average salaries in the oil and gas sector in Serbia have seen further increases, indicating promising prospects for young people entering the field," Đedović Handanović asserted.

Marko Čadež, President of the Chamber of Commerce and Industry of Serbia (PKS), emphasized the need for collaboration amid global instability, where predicting future developments is increasingly challenging. He stated that cooperation among all local, regional, and global stakeholders in knowledge and information exchange is crucial for addressing energy supply stability.

“We must recognize that we now live in a different world. The unpredictability of future developments necessitates new

tools and skills to tackle emerging problems," Čadež noted.
He highlighted that ensuring energy supply stability requires collaboration between industries, universities, research institutes, the scientific community, and engineers to meet challenges in the energy sector through knowledge, timely information, and innovation.
"Regional cooperation on these issues is essential, as well as ensuring access to the EU market, including the energy market, and related funds, because the world we live in is rapidly changing, and is unfamiliar in many ways, which is why we must act together," Čadež stressed.

Dragoslava Stojiljković, the President of the Executive Board of the National Energy Committee of Serbia - WPC Energy, underscored the role of this organization in the energy sector of Serbia and its connection with WPC Energy.
"In line with the recent changes in the world we have grown from the National Oil Committee of Serbia into the National Energy Committee of Serbia - WPC Energy, because today at the global level the paradigm has changed - it is not just oil and gas, we must deal with energy in general. We are all witnesses of increased fuel consumption, the requirement to ensure security of supply and, at the same time, to align with the environmental protection standards and sustainability," Stojiljković underlined.
She added that WPC Energy Serbia supports all initiatives within this sector, collaborating with relevant ministries and companies to stay abreast of global developments and transfer best practices to Serbia. This includes participating in the establishment of regulatory frameworks, initiating regulations, monitoring consumption, and implementing projects aimed at advancing the energy sector in Serbia.

Stojilković, a representative of Petrohemija in the Assembly of WPC Energy Serbia and a member of the Program Committee of WPC Energy, pointed out that it is very important for a small country in the oil and gas world, such as Serbia, to have membership in such an important organization as WPC Energy.
"Sitting at the table with all these key players in the world's oil and gas industry is truly a privilege. As a representative of Serbia my role is to contribute to the organization of the WPC Energy Congress. I consider it as a great honor both personally and as a professional success and compliment to Serbia, which as a relatively small producer has such an important role in the WPC Energy," Stojilković noted.
He pointed out that the topic of the next World Energy Congress in Riyadh, which will be held in 2026, is how to get energy for everyone, in an affordable and sustainable manner.

Senka Walid, Secretary-General and a member of the Executive Board of WPC Energy Serbia, indicated that the National Energy Committee of Serbia completed its regular activities in the previous year, including periodic meetings, working groups, and participation in various events organized by the committee.
For instance, she referred to a workshop on hydrogen applications, during which valuable experiences from Hungary's MOL Group were shared. She noted that the workshop was well-attended, received media coverage, and facilitated valuable exchanges of experience.

Panel diskusija: „Nova energetska slika - kako tehnologija transformiše tržišta i kompanije“ ujedno odgovara i kako obezbediti

SIGURNO SNABDEVANJE PO PRISTUPAČNIM CENAMA,UZ ODRŽIVI RAZVOJ

Učesnici panela

- Muhamad Al Tejr, Saudijska Arabija; WPC Energy, Izvršni odbor;

- Džejms Mekfarland, Kanada; WPC Energy, Izvršni odbor, potpredsednik i WPC Energy, Programski komitet kongresa, predsednik;
- Frank Berent, Nemačka; Technische Universität Berlin, Institute of Energy Engineering

Moderator: Goran Stojilković, Srbija; WPC Energy, Programski komitet kongresa

Goran Stojilković

Veoma je zanimljivo razgovarati o novoj energetskoj slici i kako tehnologija danas transformiše tržišta i kompanije. Možemo proširiti ovu temu i pozabaviti se i pitanjima kao što je energetska trilema o kojoj smo razgovarali jutros: kako postići sigurno snabdevanje energijom po pristupačnim cenama, a tu je i treći aspekt – održivi razvoj.

Bilo je šokantno saznati da 800 miliona ljudi živi bez pristupa energiji, nešto što često uzimamo zdravo za gotovo.

Frank Berent

Moja prezentacija nosi naslov “Snabdevanje energijom kao izazov - Zapažanja o održivosti”.

Prvo dobre i loše vesti. U 2020. godini potrošnja energije bila je 611 eksadžula (EJ), dok je proizvodnja uglja, nafte, gasa i uranijuma bila oko 53/540 EJ. Preostali deo energije dolazi iz biomase, hidroenergije i drugih obnovljivih izvora.

Ako uporedimo proizvodnju od 53/540 EJ sa rezervama od ukupno 41.139 EJ, to ukazuje da bi nafta, gas i ugalj koji se mogu

proizvesti današnjim tehnologijama i po prihvatljivim cenama mogli trajati 80 do 100 godina. Narativ da je vrhunac nafte, gasa ili uglja pred vratima jednostavno nije tačan.

Procenjeni resursi su oko 504.796 EJ, što obuhvata naftu, gas i ugalj koji se ne mogu proizvesti sa trenutnom tehnologijom i trenutno prihvatljivim troškovima. Zato, dostupnost fosilnih goriva – zajedno sa donekle ograničenom ponudom uranijuma i torijuma, koji se koriste za nuklearna goriva – ne bi trebalo da bude razlog za razmatranje alternativnih rešenja.

Međutim, postoji još jedan značajan razlog: Kilingova kriva (eng. Keeling Curve), koja ilustruje koncentraciju CO2 u atmosferi. Merenja su počela 1958. godine na Mauna Loa na Havajima. U to vreme, nivo CO2 je bio nešto iznad 320 ppm, a sada iznosi 420 ppm i nastavlja da raste. Kada sagorevamo fosilna goriva, unosimo štetne supstance u atmosferu, uzrokujući niz problema kojima se moramo pozabaviti. Ovo predstavlja loše vesti za industriju.

Iako još imamo značajne količine nafte, gasa i uglja koje bi se mogle koristiti, trebalo bi da razmotrimo njihovo korišćenje na duži period. Definicija "dužeg perioda" je diskutabilna – da li je to 15, 30 godina ili čak manje – ali svakako ne 100 godina.

Moramo da nastavimo da transformišemo naše energetske prakse jer se glečeri tope i nestaju neviđenom brzinom. Na primer, značajan deo zaliha slatke vode za azijski region dolazi od glečera na Himalajima. Ako ovi glečeri nestanu, mnogi ljudi će se suočiti sa ograničenim pristupom slatkoj vodi, što će dovesti do katastrofalnih posledica.

Zato moramo biti veoma oprezni u vezi sa tim šta se dešava, a veći deo ove katastrofe je skriven u Kilingovoj krivoj.

Kada je reč o smanjenju emisija imamo početnu i krajnju tačku, ali ono što je najvažnije je kako se krećemo između ove dve tačke. Zanimaju me putevi koje možemo da preduzmemo da bismo minimizirali troškove i maksimizirali uticaj. Ovaj fokus je daleko važniji od puke izjave da treba da postignemo cilj za 30 godina, a da ne razmatramo put kojim ćemo stići do njega. Ne možemo se oslanjati samo na nadu u najbolji ishod.

Održivost se često pominje, ali to nije potpuno nov koncept. Bio je jedan državni službenik - fon Karlovic, koji je bio odgovoran za rudarske operacije u regionu Erzgebirge - u to vreme jednom od najvećih rudarskih područja u Evropi. Proces je zahtevao veliku količinu drveta kao izvora energije i sirovine. Shvatio je da mora da obnavlja šumu određenom brzinom kako bi rudarske operacije mogle da se odvijaju.

Dve tehnologije koje su danas u fokusu - solarne ćelije i gorivne ćelije - izumeli su 1839. godine Aleksandar Edmon Bekerel odnosno ser Vilijam Grouv. I posle 110 godina dogodilo se nešto zanimljivo, bile su potrebne u vojnom i sektoru istraživanja svemira jer se fosilna goriva ne mogu koristiti u satelitu. Uložena je velika količina novca i napredak je postignut, a posle je dalji razvoj preuzeo privatni sektor.

Ponekad je potreban neki prelomni trenutak, i to važi i danas. Presudni trenutak za shvatanje da su potrebna ogromna ulaganja za transformaciju tehnološkog sektora.

Goran Stojilković

Sve industrije, uključujući naftu, gas, petrohemiju, razgovaraju o načinima za poboljšanje i kako postati ekološki prihvatljiviji. Međutim, nedavni događaji ukazuju na to da ne napredujemo ka zelenijim praksama koliko bi trebalo.

Sektor istraživanja i proizvodnje nafte i gasa je stalno na meti kritika. Džejmse, vi predstavljate ovaj sektor.

Džejms MekFarland

Moje današnje izlaganje će se nadovezati na mnoge stvari koje je Pedro ranije

predstavio. Ali, kao što je Goran rekao, imam iskustvo u delu istraživanja i proizvodnje nafte i gasa širom sveta.

Prelazak sa energetskog miksa, kojim dominiraju fosilna goriva, na energetski miks sa niskim sadržajem ugljenika, kojim dominiraju obnovljivi izvori energije, verovatno će trajati dugo.

Mnoge zemlje su usvojile strategije za postizanje neto nultih emisija do 2050. ili 2060. godine. Većina uglednih kompanija u sektoru istraživanja i proizvodnje takođe ulaže napore da doprinese ovom cilju. Žele da budu deo rešenja, tako da je važno prepoznati da nisu zlikovci u celoj priči. Umesto toga, igraju ključnu ulogu u obezbeđivanju sigurnosti snabdevanja.

Ali postoje zanimljivi načini da se na to gleda. Mnogi od vas poznaju Dena Jergina, poznatog konsultanta za energetska pitanja. Nedavno sam pročitao šta je napisao. Neverovatno je da su vetroelektrane i solarni parkovi porasli u poslednjih 15 godina, i sada čine 15 odsto proizvodnje električne energije.

Ali, to je 15 odsto za 15 godina. Ono što je istovremeno zanimljivo jeste da je količina energije dobijene iz nafte i uglja bila na rekordnom nivou 2024.

Obnovljivi izvori energije nisu pratili trenutni razvoj. Zato mnogi trenutnu fazu ne vide kao energetsku tranziciju, već kao fazu energetskog dodavanja. Zanimljivo je da BP u svom najnovijem izveštaju naglašava potrebu za prelaskom sa ove faze dodavanja energije na fazu zamene energije.

Ali za mene je to dug period. To znači decenije.

Izazov da se pokrene ta tranzicija je ogroman trošak i industrija ne može sama da ga snosi. Postoji uloga i za industriju i za vladu da to pokrenu, to je jedini način da se postigne napredak. I samo da dodam još jednu stvar onome što je Pedro rekao, 30 odsto svetske populacije i dalje zavisi od tradicionalne biomase za kuvanje. Potražnja za ugljovodonicima još nije dostigla vrhunac.

I dalje moramo da se oslanjamo na njih, i oni će ostati jak i dominantan izvor energije još mnogo godina, decenija.

Goran Stojilković

Koliko smo spremni imajući u vidu trenutne tehnologije? Na konferencijama ima mnogo prezentacija o novim tehnologijama koje se razvijaju širom sveta, a neke od njih su prilično fascinantne.

Kakvo je tvoje mišljenje, Muhamede?

Muhamed Al Tejr

Globalni energetski sistem mora se posmatrati na pragmatičan način. Jer svaka zemlja ima svoje okolnosti. I, naravno, kao što ste možda videli iz onoga što je Pedro podelio, jasno možemo videti kakav je položaj, na primer, Kraljevine Saudijske Arabije u odnosu na položaj različitih zemalja u Severnoj Americi. Sada je pitanje šta mi kao sektor radimo i šta rade različite vlade?

Želeo bih da vam dam neke primere onoga što smo uradili u Kraljevini, a što je zapravo nešto što bismo želeli da se promoviše u različitim zemljama.

Dakle, u oktobru 2020. sastanak G20 je održan u Kraljevini. Naravno, bio je to

veoma izazovan period, kao što svi znate, tokom COVID-a. Ali tokom tog sastanka G20, moja zemlja je želela da promoviše novi koncept. Mi ga nazivamo okvirom.

Ovaj okvir ima za cilj da promeni percepciju CO2 kao nečeg negativnog. Mnogi od nas smatraju ugljen-dioksid štetnim, ali šta ako bismo mogli da nađemo neke nove načine za njegovo korišćenje? Moguće je da, kao globalna zajednica, možemo zajedno da radimo na sprovođenju inicijativa i napora koji efikasno rešavaju ovaj izazov.

Zato smo pokrenuli nešto što se zove Nacionalni okvir za cirkularnu ugljeničnu ekonomiju, fokusiran na veoma jednostavan koncept 4 R - smanjiti CO2 (reduce), ponovo koristiti CO2 (reuse), ukloniti CO2 (remove) i reciklirati CO2 (recycle).

Ideja koju sledimo je da preoblikujemo naš pristup i stvorimo mogućnosti za korišćenje CO2 na održiv način. CO2 se može pretvoriti u različite materijale, sekvestrirati, koristiti za poboljšanje iskorišćavanja nafte, pa čak i uvesti u industriju pića.

Ako se fokusiramo na ova četiri R kao okvir, možemo postići značajan napredak. Dozvolite mi da navedem primer koji verovatno većini blizak.

Svi letimo, i veliki deo današnje diskusije fokusira se na alternative mlaznom gorivu - tačnije, održivo avionsko gorivo (SAF). Ali, da li će proizvodnja održivog avionskog goriva biti dovoljna da smanji emisije CO2? Moguće je, ali nema svaka zemlja kapacitet da smanji troškove i reši druge faktore koji doprinose tome.

U Kraljevstvu sarađujemo sa našim nacionalnim šampionom, kompanijom Saudi Aramko, i sa asocijacijom IATA, kako bismo razvili koncept poznat kao niskougljenično avio gorivo (LCAF). Ovaj dodatak održivom avionskom gorivu (SAF) predstavlja obećavajući korak napred u održivosti vazduhoplovstva.

Dakle, postoje ljudi koji su veoma strastveni i reći će da prestanete da koristite avio gorivo, ali to znači da ne možete posetiti svoju porodicu za Božić, ne možete posetiti različite zemlje. Suština je kako možemo smanjiti emisije iz avio-saobraćaja.

Mislim da je odgovor podrška postojećim tehnologijama i primena pragmatičnih rešenja. Zato smo predvodili ovu inicijativu za niskougljenično avionsko gorivo. Sada želim da idem malo dalje. Nažalost, fokusiramo se samo na gorivo. Da li smo pogledali aerodrom?

Za one od vas koji često putuju avionom, ulazak na aerodrom izgleda kao da ste

zakoračili na jedinstveno ostrvo sa sopstvenim skupom pravila i propisa. Jedno od tih pitanja sa kojima se suočavamo je: kako možemo smanjiti emisije u celom sistemu avio-saobraćaja?

Na primer, možemo minimizirati vreme mirovanja aviona na pisti i primeniti efikasnije procedure sletanja i poletanja. Poboljšanje aerodromske infrastrukture je još jedan ključni korak. Iako se ovo mogu činiti kao male promene, ako ih dosledno primenjujemo na svim aerodromima u zemlji i u svakom gradu, možemo videti značajan napredak.

Iako se često fokusiramo na potrošnju goriva, postoje razni faktori osim goriva kojima se možemo pozabaviti kako bismo smanjili emisije.

Smatram da ne postoji univerzalno rešenje za rešavanje problema emisija. Svaka zemlja ima svoje jedinstvene okolnosti i neophodno je da zajedno radimo kao kolektivno telo kako bismo pronašli efikasna rešenja.

Goran Stojilković

Nove tehnologije pružaju uzbudljive mogućnosti, ali moramo razmotriti kako da to uravnotežimo sa snabdevanjem. Nedavno sam pročitao članak u kojem se navodi da će 25 odsto rafinerijskih kapaciteta biti zatvoreno u narednih pet godina. S obzirom na tempo ovih promena, moguće je da se to desi čak i ranije, možda u roku od tri godine.

Muhamed Al Tejr

Da bismo efikasno rešili postojeća pitanja, neophodno je održavati širok spektar opcija. Na primer, ako se zalažemo za ekološku održivost i težimo postizanju neto nultih emisija, moramo ostati posvećeni našim ciljevima uprkos suočavanju sa izazovima kao što su finansijska kriza ili geopolitički poremećaji koji bi mogli uticati na lance snabdevanja. Ključno je da ostanemo pri stavu da ćemo se držati kursa koji smo postavili.

Pitanje je kako možemo prilagoditi naše strategije kako bismo ispunili naše ciljeve održivosti i krenuli ka neto nultoj emisiji? Daću vam primer.

U narednim sesijama, razgovaraćemo o različitim tranzicijama, počevši od dobro poznate energetske tranzicije. Međutim, važno je razmotriti i druge paralelne tranzicije, kao što su tranzicija u transportu i predstojeća tranzicija materijala, koje bi obe mogle biti prilično revolucionarne.

Evo jedne zanimljive činjenice: da li ste znali da je značajna komponenta lopatica vetroturbina drvo? Konkretno, ključni materijal koji se koristi u ovim lopaticama je drvo od brzorastućeg drveća. Kada potražnja za ovim materijalom premaši ponudu, nastaju problemi. Ako drveće ne može dovoljno brzo da raste, počinjemo da ga sečemo da bismo proizveli lopatice. Dakle, pitanje je: možemo li pronaći alternative seči drveća?

Odgovor je da. Na primer, možemo uvesti druge materijale kao zamenu. Zašto ovo govorim? Ako nameravate da nastavite da proizvodite svoje obnovljive tehnologije kao i do sada, to je u redu. Međutim, kada dođe do poremećaja u lancu snabdevanja, neophodno je tražiti alternative. To je ono na šta bih stavio fokus: kako možemo da proizvedemo obnovljive tehnologije koje su u skladu sa našim ambicijama neto nulte emisije?

Ilustracija toga je naš rad na materijalnoj tranziciji, koja dopunjuje energetsku tranziciju. Slična situacija se javlja i sa električnim vozilima. Da li treba da sprovedemo potpunu promenu ili da idemo u fazama? Početak sa hibridima, na primer, omogućava postepeniju tranziciju, osiguravajući da tržište može da se prilagodi novoj tehnologiji. To podrazumeva razvoj celog ekosistema oko njega, uključujući stanice za punjenje i električnu mrežu sposobnu da podnese povećanu potražnju.

Ostaje fundamentalno pitanje: kako da postignemo ravnotežu? Ova ravnoteža je zaista izazovna, ali nije nemoguća. Ključno je to prepoznati, jer ljudi često imaju običaj da prelako odustanu. Ne bi trebalo da dozvolimo da nam ovo bude način razmišljanja.

To ne bi trebalo da bude slučaj sa kolektivnim telom kao što je WPC Energy.

Verujem da ako možemo da zamislimo rešenje, možemo pronaći volju da se uhvatimo u koštac sa svim dinamičnim promenama na globalnim energetskim tržištima.

Goran Stojilković

Gde je ravnoteža?

Džejms MekFarland

Ako pogledate statistiku IEA, sektor istraživanja i proizvodnje nafte i gasa ima godišnje oko 5,1 gigaton emisija iz opsega 1 i 2. Od ukupnih 37 gigatona iz energetskog sektora to je veliki deo.

Gledajući na bezbednost snabdevanja, postoji niz tehnologija koje se primenjuju kako bi se zadržala i povećala ponuda ugljovodonika i zadovoljila potražnja. Evo nekoliko primera.

Kada razmislite o konvencionalnoj naftnoj i gasnoj industriji, postoje ogromne rezerve na Bliskom istoku, u Rusiji, koje se mogu razviti.

Ako pogledate gde se danas istražuje, takozvana Wildcat istraživanja, to je u ultra dubokim vodama. Dakle, postoje kompanije koje buše na 2.000 metara dubine, u morima Gvajane i Angole, Namibije. Industrija radi svoj deo posla, to su projekti koji su ekonomski isplativi.

Ako pogledate nekonvencionalni deo industrije videćete neverovatan napredak koji je postignut u Severnoj Americi u pogledu razvoja škriljaca. To je dovelo SAD do proizvodnje nafte veće od 13 miliona barela dnevno.

Ako pogledate naftni pesak u Kanadi, odakle ja dolazim, to je ogroman resurs. Utvrđene rezerve koje su ekonomski isplative iznose oko 160 milijardi barela. Sa trenutnom proizvodnjom, to je oko 120 godina proizvodnje.

Šta sektor istraživanja i proizvodnje nafte i gasa radi u vezi sa ozelenjavanjem ili održivošću?

Verovatno najveća stvar u kratkom roku, recimo do 2030. godine, koju bi naftna i gasna industrija mogla da uradi jeste da kontroliše emisije metana u različitim situacijama. Metan je najmanje 25 puta štetniji za klimu u poređenju sa CO2, na primer.

Sada, kako se nosimo sa CO2? Kao što je Muhamed rekao, o tome morate razmišljati na više načina. Znate, govorili smo o hvatanju, korišćenju i skladištenju ugljenika (CCUS) iz perspektive sektora istraživanja i proizvodnje. Najveća poluga koju imamo je sekvestracija CO2. U poslednjih 20 godina industrija je utisnula oko 55.000.000 tona CO2. Dobar deo toga se odnosi na povećanje efikasnosti dobijanja nafte, posebno u SAD, dok je ostalo skladištenje. Postoji niz ovih projekata u pripremi, kao i niz ovih sistema za hvatanje i skladištenje ugljenika (CCS) koji rade u svetu. Na primer, u Severnoj Americi i Kanadi su u toku veliki projekti.

Kanadska industrija naftnog peska ima savez šest glavnih proizvođača, što je pomalo neobično, pod nazivom Pathways Alliance.

Ideja je da se sakuplja CO2 iz oko 20 postrojenja u severnoj Alberti, koja je glavna naftno-gasna provincija u Kanadi, i trajno skladišti. Kao što sam ranije pomenuo, potrebno je mnogo novca da se ovo uradi jer nije ekonomično.

Dakle, zaista je potrebna kombinacija industrije i javnog finansiranja da bi se to ostvarilo. Ali mislim da mnoge zemlje to imaju, SAD to rade godinama preko takozvanog 42Q propisa, gde može da se dobije određena podrška.

U Kanadi razmatramo kombinaciju stvari kako bismo pomogli inicijativi Pathways Alliance da napreduje u smislu poreskih olakšica i tako dalje.

Goran Stojilković

Što se tiče zakonodavstva, kakva su vaša očekivanja?

Džejms MekFarland

Mislim da mnoge zemlje gledaju na isti način. To je pristup štapa i šargarepe.

Mnoge zemlje imaju porez na ugljenik. Kanada je prilično ozbiljna u tom smislu. To je veliki porez koji će porasti na 170 dolara po toni za nekoliko godina.

Dakle, ako ste kompanija šta ćete uraditi? Znate da će vam troškovi porasti. Vaša alternativa je da platite taj porez ili da ugradite tehnologiju.

Tehnologija je tu. Zapravo nema ograničenja. Korišćenje CO2 je druga priča, ali u smislu direktnog hvatanja i skladištenja ugljenika, postoje neki tehnički izazovi, ali to nije problem. Problem je trošak.

Zakonodavstvo se menja, ali mora se menjati sa stavom da je potrebno partnerstvo. Industrija to ne može sama.

Frenk Berent

Industrija ne može uspeti sama, potrebna je kombinacija javnog finansiranja i privatnih investicija. Iako je tehnologija u osnovi dostupna, još nije korišćena u značajnom obimu. I sigurno će to biti revolucionarno. Nema bezbolne tranzicije.

Prelazak na automobile sa motorima sa unutrašnjim sagorevanjem bio je revolucionaran, a očekivanje da će prelazak na buduće tehnologije biti gladak i bezbolan je nerealno. Niko to ne može obećati, i bilo bi nerazumno misliti drugačije.

CCS je trenutno jedina održiva metoda za uklanjanje CO2 iz atmosfere njegovim skladištenjem pod zemljom. Većina trenutnih projekata sa korišćenjem CO2 bavi se samo malim delom koji se emituje godišnje.

Mi, zajedno sa industrijom, akademskom zajednicom i političarima moramo kolektivno da priznamo da je tranzicija neophodna i da će biti bolna. Šta se dešava ako ne prihvatimo ovu promenu? Samo pogledajte nemačku automobilsku industriju kao primer.

Tokom godina oni su prevideli činjenicu da zemlje poput Kine pojačavaju automobilsku industriju zasnovanu na električnim vozilima koja su tehnološki naprednija i jednostavnija od automobila koje proizvode.

Ako značajan deo industrije u razvijenim zemljama ne prepozna da se svet menja, mogli bi se naći u problemu. Nije reč o zaštiti, već o razumevanju mogućnosti za promene, razvoj i investicije – kako iz privatnog tako i iz javnog sektora.

Goran Stojilković

Ko će ovo platiti?

Frenk Berent

Ključni element koji treba uzeti u obzir u vezi sa troškovima jeste da sada uključujemo troškove emisija CO2 u naš ukupni energetski sistem, nešto što smo dugo previđali.

Vredi napomenuti da je prelazak sa uglja na naftu počeo kada je u Italiji otkriveno značajno naftno polje. Nafta se pokazala kao mnogo efikasniji izvor energije od uglja, što je označilo početak pada industrije uglja u Evropi i delovima SAD. Sadašnja vrsta tranzicije nije nova, doživeli smo slične promene u prošlosti.

Postoje dva važna aspekta koja treba uzeti u obzir. Prvo, postoji jasna neusklađenost između životnog ciklusa energetskih investicija i mandata političara. Tipično, ovi mandati traju oko četiri do pet godina, u zavisnosti od zemlje. Kao rezultat toga, političari moraju da uspostave okvire i propise za inicijative koje mogu početi da

pokazuju rezultate tek dugo nakon što napuste funkciju.

Ovo stvara izazov: političari moraju da saopšte svojim biračima da bi život mogao postati težak u narednoj deceniji, a ipak su njihove kampanje za reizbor udaljene samo četiri godine. Ovaj inherentni sukob u demokratijama zahteva lidere koji su spremni da razmišljaju dalje od svojih neposrednih izbornih interesa i da se uključe u dugoročno planiranje. Isti izazov se javlja unutar industrije, kada se pokreću investicioni ciklusi koji traju deset godina - kako objasniti da je potrebno strpljenje.

Od tri ključne uključene grupe - industrije, akademske zajednice i politike - industrija je jedina koja stvara nove proizvode. Dok akademska zajednica može da postavi temelje za buduće inovacije, u krajnjoj liniji industrija mora da isporuči opipljiva dobra.

Jedna stvar je jasna: ako se oduprete promenama, okolnosti će vam ih nametnuti. Biti otvoren za stalne promene i prihvatiti tu ideju je neophodno. Ako odbijete da se prilagodite, neko drugi će oblikovati budućnost umesto vas, što će dovesti do problema.

Ovo je posebno očigledno u zemljama Bliskog istoka poput Saudijske Arabije, gde postoji jasno priznanje da se moraju kretati u novim pravcima i proširiti fokus kako bi izbegli ćorsokak.

Tranzicije su neizbežne. Sve ovo ne uključuje pandemije, invazije i osobe u Beloj kući sa čudnim obrascima ponašanja. Komunikacija treba da bude jednostavna, lideri ne bi trebalo da obećavaju javnosti da će život uvek biti dobar.

Goran Stojilković

Koje će tehnologije biti u fokusu u narednih 5 do 10 godina?

Muhamad Al Tejr

Ključno je da razgovaramo o tekućem trendu digitalizacije i kako bi tehnologije veštačke inteligencije mogle značajno da poremete energetski sektor.

Pomenuo sam napore ka tranziciji materijala. Šta ako nam veštačka inteligencija pomogne da razvijemo sledeći revolucionarni materijal koji je održiv? Šta je sa tehnologijama potrebnim za pokretanje digitalizacije? Odakle će doći energija za njihovo napajanje?

Frenk nam je pružio mnogo pronicljivih ideja i možda se ja osećam malo optimističnije. Verujem da bi svi trebalo da zadržimo optimističan pogled, prepoznajući napore koji se ulažu u industriji, posebno u razvoj tehnologija, primeni i ubrzanju komercijalizacije određenih tehnologija, kao što je Džejms pomenuo.

Važno je priznati da se milijarde dolara trenutno troše na ove vrste tehnologija. Iako ne možemo predvideti koja će pobediti, verujem da zemlje preduzimaju pragmatične, opipljive korake. Zapravo, mislim da naša zemlja predvodi mnoge od ovih inicijativa. Dakle, saglasan sam sa Vama Frenk.

Verujem da će se tranzicija dogoditi. I ne mislim da je “da će se” prava reč. Mislim da se dešava.

Danas je tranzicija od juče, a sutra će biti tranzicija od danas. Dakle, sve dok smo u tom načinu razmišljanja, mislim da zaista možemo potencijalno stvoriti proboj u našem sektoru.

Možda još jedna stvar koju treba istaći. Broj koji me drži budnim je 2,3 milijarde ljudi u svetu koji danas koriste tradicionalno kuvanje loženjem drveta.

To je takođe zdravstveno i ekonomsko pitanje. Zato u Kraljevstvu zapravo imamo program koji smo pokrenuli u okviru Južne zelene inicijative i Bliskoistočne zelene inicijative. Zove se Napred 7 jer je usklađen sa Ciljem 7 održivog razvoja.

Naš cilj je da 750 miliona ljudi od tih 2,3 milijarde pređe sa tradicionalnih metoda kuvanja na čistije metode kuvanja, koje koriste gas, tečni naftni gas. To uključuje

solarne šporete za kuvanje i biodigestere. Između ostalih prednosti, to će nam pomoći da se približimo našoj ambiciji neto nulte emisije.

Džejms MekFarland

Mislim da će sektor nafte i gasa i dalje biti dobavljač u energetskom sektoru u decenijama koje dolaze. Uz to, naravno, imamo odgovornost da ozelenimo taj proces. I zaista moramo da pomognemo u toj tranziciji ka budućnosti energije sa nižim emisijama ugljenika.

Kada se kompanije obavežu, recimo na neto nulte emisije do 2050, zapravo postoji plan iza toga. Zato sam ohrabren, a ne obeshrabren. Znate, tehnologija je tu da to uradi.

Košta, ali mislim da nas javno-privatno partnerstvo može dovesti do cilja. To se može postići.

I kompanije ne preuzimaju te obaveze olako, verujte mi. Zato sam veoma pozitivan u pogledu budućnosti. Divno je biti u sektoru istraživanja i proizvodnje nafte i gasa, uprkos tome šta neki kažu, i mislim da radimo svoj deo posla kako bismo napravili tu tranziciju.

Frenk Berent

Možda nemamo potpunu saglasnost po svim pozicijama, ali svi idemo u istom pravcu. Ključna pitanja uključuju vremenski okvir i konkretne korake koji se mogu preduzeti ranije ili kasnije. Ipak, iz moje perspektive, postoji osnovni dogovor.

U akademskim krugovima obezbeđujemo finansiranje za stvaranje znanja, dok industrija to znanje transformiše u profit. Ovaj odnos formira stalni ciklus.

Da bi ovaj ciklus efikasno funkcionisao, javno prihvatanje generisanog znanja je ključno. Ako razvijamo sjajne ideje, ali ljudi ne pokazuju interesovanje za proizvode koji iz toga nastaju, to predstavlja izazov i za industriju i za akademske krugove. S druge strane, nisu svi proizvodi koje generiše industrija korisni, posebno kada se uzmu u obzir uticaji na životnu sredinu i druge brige.

Stoga će vladini propisi takođe igrati ulogu u rešavanju određenih pitanja. Važno je sagledati potpunu sliku ovog inovacionog ciklusa, koji obuhvata interakciju između akademske zajednice, industrije, javnosti i kreatora politike. Ako možemo da održimo saradnju, bićemo spremniji da se suočimo sa značajnim izazovima. Ovaj ciklus se može prekinuti ako bilo koja strana odbije da učestvuje.

WPC Energy može da obezbedi okruženje u kojem se odvija ova razmena. Možda se ne slažemo uvek oko svega, ali možemo sarađivati kako bismo pronašli rešenja za izazove sa kojima se suočavamo danas i u budućnosti.

Ova interakcija je neophodna za napredak u energetskom sektoru, osigurava da on ostane zdrav prostor za one koji u njemu rade, a istovremeno pozitivno doprinosi dobrobiti više od osam milijardi ljudi na našoj planeti.

Goran Stojilković

Mislim da bi trebalo malo da podignemo svoj glas koristeći naše podatke da bismo pokazali koja je naša uloga. Ne očekujem da ću doći u priliku da kupim stan na Marsu, pa zato hajde da našu planetu zvanu Zemlja održimo bezbednom, zelenom do nivoa koji je moguć, i hajde da igramo svoju ulogu. Rekao bih, izuzetno važnu.

Možete to nazvati misijom, možete to nazvati kako god želite, ali hajde da sačuvamo ovu planetu bezbednom, hajde da obezbedimo energiju za sve i uživamo u letovima i na aerodromima...

Panel Discussion: "The New Energy Landscape – How Technology Is Transforming Markets and Companies" It also addresses how to achieve

SECURE ENERGY SUPPLY AT AFFORDABLE PRICES AND SUSTAINABLE DEVELOPMENT

The panel brought together distinguished experts with deep insight into the global energy landscape, each offering a unique regional and professional perspective shaped by years of hands-on experience. Representing leading organizations and energy institutions, the speakers are widely recognized for their strategic thinking and forward-looking approach in navigating the evolving challenges of the oil and gas sector.Among the distinguished panelists were:

- Mohammad Al Tayyar, Saudi Arabia; WPC Energy, Executive Committee
- James McFarland, Canada; WPC Energy, Executive Committee, Vice President; WPC Energy, Congress Program Committee, Chair
- Frank Behrendt, Germany; Technische Universität Berlin, Institute of Energy Engineering

Moderator: Goran Stojilković, Serbia; WPC Energy, Congress Programme Committee.

Goran Stojilković

It's quite interesting to discuss the new energy landscape and how technology is transforming markets and companies today. We can expand this topic to include broader issues, such as the trilemma we discussed this morning: how to achieve a secure energy supply at affordable prices.

It was shocking to learn that 800 million people live without access to energy, something we often take for granted. The third aspect of this trilemma is sustainable development.

Frank Behrendt

My presentation is titled Energy Supply as a Challenge - Remarks on Sustainability.

Good and bad news first. In 2020, energy consumption was 611 EJ (exajoules), while the production of coal, oil, gas, and uranium was about 53/540 EJ. The remaining portion of energy comes from biomass, hydropower, and other renewables.

If we compare the production figure of 53/540 EJ with reserves totaling 41.139 EJ, it indicates that the oil, gas, and coal that can be produced with today's technologies and acceptable prices could last for 80 to 100 years. The narrative that peak oil, gas, or coal is just around the corner is simply not accurate.

The estimated resources are around 504.796 EJ, which encompasses oil, gas, and coal that cannot be produced with current technology and cost. Therefore, the availability of fossil fuels—along with a somewhat limited supply of uranium and thorium, which are used for nuclear fuels—should not be the sole reason to consider alternative solutions.

However, there is another significant reason: the Keeling Curve, which illustrates the CO2 concentration in the atmosphere. Measurements began in 1958 at Mauna Loa in Hawaii. At that time, the CO2 level was just above 320 ppm, and now it stands at 420 ppm and continues to rise. When we burn fossil fuels, we are introducing harmful substances into the atmosphere,

causing a range of problems that we must address. This poses bad news for the industry.

While we still have a considerable amount of oil, gas, and coal that could be used, we should reconsider using them for much longer. The definition of "much longer" is debatable—whether it's 15, 30 years, or even less—but certainly not 100 years.

We need to continue transforming our energy practices because glaciers are melting and disappearing at an unprecedented rate. For example, a significant part of the freshwater supply for the Asian region comes from the glaciers in the Himalayas. If these glaciers vanish, many people will face limited access to freshwater, leading to catastrophic consequences.

So we have to be very careful about what is happening and most of this disaster is hidden in the Keeling curve.

We have a starting point and an endpoint, but what matters most is how we navigate between these two points. I am interested in the routes we can take to minimize costs and maximize impact. This focus is far more important than simply stating we need to achieve a goal in 30 years and not considering the path we take to get there. We cannot rely solely on hope for the best outcome.

Sustainability is often discussed, but it is not a completely new concept. There was a civil servant - Von Carlowitz who was responsible for mining operations in the Erzgebirge region - at that time one of the largest mining areas in Europe. The process had to be supplied with a lot of wood as a source of energy and raw materials. He realized that he has to regrow the forest to a certain rate to allow mining operations to stay alive.

Two of the technologies that are in focus today - solar cells and fuel cells - were invented in 1839 by Alexandre Edmond Becquerel and Sir William Grove. And after 110 years something interesting happened,

they were needed in military and space sectors because you cannot burn fossil fuels in a satellite. Large amount of money was invested and they made progress. From there industry took over.

Sometimes you need a defining moment and the same is true nowadays. A defining moment to realize that massive investments are needed to transform the technology sector.

Goran Stojilković

All industries, including oil and gas and petrochemicals, are discussing ways to improve and become more environmentally friendly. However, recent developments suggest that we are not progressing toward greener practices as much as we should.

The upstream sector, in particular, tends to bear a significant amount of criticism. James, you represent this sector.

James McFarland

My remarks today will kind of build on a lot of the things that Pedro introduced earlier in terms of the overall situation. But as Goran said, my background has been in the upstream part of the industry, the oil and gas exploration and production around the world.

Transition from a fossil fuel dominated energy mix to a low carbon energy mix dominated by renewables is probably going to take a long time.

Many countries have adopted strategies to achieve net zero emissions by 2050 or 2060. Most reputable companies in the upstream sector are also making efforts to contribute to this goal. They want to be part of the solution, so it's important to recognize that they are not the villains in this scenario. Instead, they play a crucial role in ensuring supply security.

But there's interesting ways to look at it. Many of you know Dan Yergin who's a well-known consultant on energy matters. I recently read what he wrote. It's amazing that wind and solar in the last 15 years have grown, that they're now 15% of the electricity generation.

So 15% in 15 years. But what's interesting at the same time, is the amount of energy derived from oil and coal was an alltime high in 2024.

Renewable energy sources haven't kept pace with current developments. Many view the current phase not as an energy transition, but rather as an energy addition phase. It's interesting to note that BP in the latest report emphasizes the need to shift from this energy addition phase to an energy substitution phase.

But to me, it's a long time. That means decades.

The challenge to move that transition is a huge cost, and it cannot be carried by the industry alone. There is a role for both, industry, government, to move that along, that's the only way that progress is going to be made. And just to add another point to what Pedro was saying, 30% of the world's population still depends on the traditional biomass for cooking. Demand for hydrocarbons hasn't even plateaued yet.

We still have to rely on hydrocarbons. It’s going to remain a strong and dominant source of energy for many years to come, decades.

Goran Stojilković

How prepared are we with current technologies? At the conferences, there are many posters and presentations on new technologies being developed around the world, and some of them are quite fascinating.

What's your perspective, Mohamed? Can you share your thoughts on the recent transformations in this area?

Mohammad Al Tayyar

Global energy system has to be viewed in a very pragmatic way. Because each country has its own circumstances. And, of course, as you may have seen from what Pedro shared, we can clearly see what is the

position of, for example, the Kingdom of Saudi Arabia versus the position of different countries in North America. Now the question is, what are we as a sector and what are we as different governments doing?

I'd like to give you some examples of what we have done in the Kingdom that actually is something that we would like to be promoted in different countries.

So in October 2020, the G20 was held in the Kingdom of Saudi Arabia. Of course, it was a very challenging period, as you all know, during COVID. But during that G20 meeting, the Kingdom wanted to promote a new concept. We call it a framework.

This framework aims to change the perception of CO2 as a negative substance. Many of us view carbon dioxide as harmful, but what if we could rethink its usage? How can we create a framework that treats CO2 as a non-issue? It's possible that, as a global community, we can work together to implement initiatives and efforts that address this challenge effectively.

So this is why we launched something called the Circular Carbon Economy National Framework, focused on a very simple concept 4 R's - reduce CO2, reuse CO2, remove CO2, recycle CO2.

The idea we are pursuing is to reshape our approach and create opportunities to utilize CO2 in a sustainable manner. CO2 can be converted into various materials, sequestered, used in enhanced oil recovery, and even introduced into the beverage industry.

If we focus on these four R's as a framework, we can achieve significant progress. Let me provide an example that resonates with many of us in this room.

We all fly, and much of today's discussion centers around alternatives to jet fuel—specifically, sustainable aviation fuel (SAF). But will the production of sustainable aviation fuel be sufficient to reduce our CO2 emissions? It's possible, but not every country has the capability to lower costs and address other contributing factors.

In the Kingdom, we have been collaborating with our national champion, Aramco, and coordinating with IATA to develop a concept known as low-carbon aviation fuel (LCAF). This complement to sustainable aviation fuel (SAF) represents a promising step forward in aviation sustainability.

So there are people that are very passionate and they'll say stop using jet fuel, but stopping using jet fuel means you can't visit your family at Christmas. You can't go and experience different countries, etc, but the idea is how can I reduce the emissions from aviation?

Uniquely helping the existing technologies that are there and introducing pragmatic solutions. This is why we've been really spearheading this initiative on low carbon aviation fuel. Now I want to go a little bit deeper. We unfortunately only focus on the fuel. Did we look at the airport?

For those of you who travel frequently by air, entering an airport feels like stepping onto a unique island with its own set of rules and regulations. One of the pressing questions we face is: how can we reduce emissions across the entire aviation system?

For example, we can minimize idle time for planes on the tarmac and implement more efficient inflow and outflow procedures for aircraft. Improving airport infrastructure is another crucial step. While these may seem like small changes, if we apply them consistently across all airports in the country and in every city, we can start to see significant progress.

While we often focus on fuel consumption, there are various factors beyond fuel that we can address to reduce emissions.

In conclusion, there isn't a one-size-fits-all solution for tackling emissions. Each

country has its unique circumstances, and it's essential for us to work together as a collective body to find effective solutions.

Goran Stojilković

New technologies are providing exciting opportunities, but we need to consider how to balance this with supply. I recently read an article stating that 25% of refining capacities will close within the next five years. Given the pace of these changes, it's possible this could happen even sooner, perhaps within three years.

Mohammad Al Tayyar

To effectively address the issues at hand, it is essential to maintain a broad range of engagement. For instance, if we are advocating for environmental sustainability and striving to achieve net zero emissions, we must remain committed to our goals despite facing challenges such as a financial crisis or geopolitical disruptions that might affect supply chains. It is crucial to assert, "We will stick to our course."

The question is how can we adapt our strategies to meet our sustainability goals and move toward net zero? I'll give you an example.

In the upcoming sessions, we'll discuss various transitions, starting with the well-known energy transition. However, it's important to also consider other parallel transitions, such as the transition in transportation and the upcoming material transition, both of which could be quite disruptive.

Here's an interesting fact: did you know that a significant component of wind turbine blades is wood? Specifically, the key material used in these blades is wood from fast-growing trees. When demand for this material exceeds supply, issues arise. If the trees can't grow quickly enough, we begin to chop them down to manufacture the blades. So, the question is: can we find alternatives to cutting down trees?

The answer is yes. For instance, we can introduce materials like PPT as substitutes. Why am I sharing this? If you're intent on continuing to manufacture your renewable technologies as you have been, that's fine. However, when disruptions occur in the supply chain, it's essential to seek alternatives. This is part of our focus: how can we produce renewable technologies that align with our net-zero ambitions?

This example illustrates our work on the material transition, which complements the energy transition. A similar situation arises with electric vehicles. Should we transition completely, or should we take a phased approach? Starting with hybrids, for example, allows a more gradual transition, ensuring that the market can adapt to the new technology. It involves developing an entire ecosystem around it, including charging stations and an electricity grid capable of handling the increased demand.

A fundamental question remains: how do we achieve balance? This balance is indeed challenging, but it's not impossible. It's crucial to recognize this, as humans often have a tendency to give up too easily. We should not let this be our default mindset.

This should not be the case with a collective body like WPC Energy operates.

I believe that if we can envision a solution, we can find the will to tackle any dynamic shifts in global energy markets.

Goran Stojilković

Where's the balance?

James McFarland

If you look at the IEA statistics, the upstream sector, the oil and gas sector. There's about 5.1 gigatons per year, scope 1 and scope 2 emissions. That's out of the total from the energy sector of 37 gigatons a year. So it's a big chunk that's associated with the upstream industry.

So looking at supply security, there's a number of technologies that are being put in place to hold and grow hydrocarbon

supply to meet demand. Just a few examples.

You think about the conventional oil and gas industry, there's huge reserves in the Middle East, Russia that can still be developed.

If you look at where people are exploring these days, Wildcat exploration, so-called, it's in ultra deep waters. So there's companies drilling wells in 2,000 metres of water, that's happened in offshore Guyana and Angola, Namibia. So the industry is stepping out to do its part and these are economic developments.

If you look at the unconventional business, you look at the amazing progression that's been made in North America in terms of developing shale oil and gas. That's moved the US to oil production of over 13 million barrels a day. So a huge increase is really driven by the development of shale.

If you look at the oil sands in Canada where I come from, it's a huge resource. Established reserves which are economic are about 160 billion barrels. With current production that's about 120 years of production.

So on the greening side or the sustainability side, what are we doing in the upstream?

Probably the biggest thing in the real short term, let's say up to 2030, the oil and gas industry could do is control methane emissions from flaring, venting called fugitive emissions. Because methane is at least a 25 times factor in terms of climate impact compared to CO2, for example.

Now how do we deal with CO2. As Mohammed said, you have to think about that from many standpoints. You know we talked about carbon capture utilisation and storage (CCUS) from the upstream perspective. The biggest lever we have is the sequestration of CO2. I was looking at some data that in the last 20 years or so, the industry has injected about 55,000,000 tonnes of CO2.

A lot of that was for enhanced oil recovery in the US in particular, but otherwise just plain storage. There's a number of these projects in the wings. There's already a number of these carbon capture and storage (CCS) systems operating in the world. There's some big movements afoot in, in North America and in Canada, for example.

I'm involved in the oil sands industry. We have an alliance of six of the major producers that have got together, which is a little bit unusual.

And the idea is to collect CO2 from about 20 facilities in northern Alberta, which is the oil producing province in Canada. Taking all that CO2 and injecting it in deep saline aquifers for permanent storage. Now, as I mentioned earlier it takes a lot of money to do this because it's not economical.

So it really takes the industry plus public money to make that happen. But I think a lot of countries, the US has done this for years, they've had the so-called 42 Q regulations where you're able to get some support.

In Canada, we're looking at a mix of things to help the Pathways Alliance move ahead in terms of tax credits and so on.

Goran Stojilković

About legislation, what is your expectation?

James McFarland

Well, I think a lot of countries look the same way. It's a carrot and stick approach.

A lot of countries have a carbon tax. Canada's pretty serious. It's a big one that's going to go up to USD 170 a tonne in a few years.

So if you're a company, what do you look at? You know your costs are going to go up. So your alternative is pay that tax for the learning or put the technology in.

The technology is there. There's really no constraints. Utilization is a different story, but in terms of straight carbon capture sequestration, there's some technical

challenges, but that's not the problem. It's really the cost.

The legislation is moving, but it has to move from the standpoint that the partnership is needed. Industry can't do it on its own.

Frank Behrendt

Industry cannot succeed alone; it requires a combination of public financing and private investment. Although the technology is fundamentally available, it has not yet been utilized on a significant scale. And for sure that will be disruptive. There is no soft transition.

The move to combustion engine cars was disruptive, and the expectation that the transition to future technologies will be smooth and painless is unrealistic. No one can promise that, and it would be unreasonable to think otherwise.

CCS is currently the only viable method for removing CO2 from the atmosphere by sequestering it underground. Most current utilizations only address a small portion of the CO2 emitted annually.

We, along with industry, academia, and politicians, must collectively acknowledge that a transition is necessary and that it will come with some pain. What happens if we don't embrace this change? Just look at the German car industry as an example.

Over the years, they have overlooked the fact that countries like China are ramping up the car industry based on electrical vehicles which are technology wise, and simpler than the cars they produce.

If a significant portion of the industry in developed countries fails to recognize that the world is changing, they may find themselves left behind. It's not about protection; it's about having a fair understanding of the opportunities for change, development, and investment—both from private and public sectors.

Goran Stojilković

Who is going to pay this?

Frank Behrendt

A key element to consider regarding costs is that we are now incorporating the cost of CO2 emissions into our overall energy system, something we have long overlooked.

Of note, the transition from coal to oil began when a significant oil field was discovered in Italy. Oil proved to be a much more effective energy source than coal, marking the beginning of a decline in the coal industry in Europe and parts of the United States. This type of transition is not new; we have experienced similar changes in the past.

There are two important aspects to consider. First, there is a clear misalignment between the lifetime cycles of energy investments and the electoral terms of politicians. Typically, these terms last around four to five years, depending on the country. As a result, politicians must establish frameworks and regulations for initiatives that may only begin to show results long after they leave office.

This creates a challenge: politicians need to communicate to their constituents that life may become difficult for the next decade, yet their own re-election campaigns are only four years away. This inherent conflict in democracies requires leaders who are willing to think beyond their immediate electoral interests and engage in long-term planning. The same challenge occurs within the industry, where starting an investment cycle that lasts ten years - how to effectively communicate this need for patience and foresight.

Among the three key groups involved—industry, academia, and politics—industry is the only one that creates new products. While academia can lay the foundational groundwork for future innovations, it is ultimately industry that must deliver tangible goods.

One crucial point is this: if you resist change, circumstances will force it upon

you. Being open to and accepting the notion of continuous change is essential. If you refuse to adapt, someone else will shape the future for you, leading to challenges.

This is particularly evident in Middle Eastern countries like Saudi Arabia, where there is a clear recognition that they must move in new directions and broaden their focus to avoid obsolescence.

Transitions are inevitable. All of this doesn't include pandemics, invasions, and persons in the White House with strange behaviour patterns.

Communication should be straightforward; leaders should not promise the public that life will always be good.

Goran Stojilković

Which technologies will be in focus in the next 5 to 10 years?

Mohammad Al Tayyar

It's crucial that we discuss the ongoing trend of digitization and how the push for AI technologies could significantly disrupt the energy sector.

I mentioned the efforts toward material transition. What if AI could help us develop the next breakthrough material that is sustainable? What about the technologies required to power digitization? Where is that energy going to come from?

Frank provided us with many insightful ideas, and perhaps I'm feeling a bit more optimistic. I believe we should all maintain an optimistic outlook, recognizing the efforts being made in the industry, particularly in technology development, deployment, and the acceleration of the commercialization of specific technologies, as James mentioned.

It's important to acknowledge that billions of dollars are currently being spent on these types of technologies. While we can't predict which ones will succeed, I believe there are pragmatic, tangible steps being taken by countries. In fact, I think our country is leading many of these initiatives. So I agree with you, Frank.

I believe a transition will happen. And I don't think will is the right word. I think it is happening.

Today is a transition from yesterday and tomorrow will be a transition from today. So as long as we are in that mindset, I think we can really create potentially a breakthrough in our sector.

Maybe one last thing to highlight. I also want to emphasize that the number that keeps me awake is 2.3 billion people in the world today who use traditional cooking. They burn wood.

It's also a health and economic issue. This is why in the Kingdom we actually have a program that we launched under the South Green Initiative and the Middle East Green Initiative. It's called Forward 7 because it's aligned with Sustainable Development Goal 7.

Our target is 750 million people from that 2.3 billion to shift from traditional cooking methods to cleaner cooking methods, which include gas, LPG. It includes solar cooking stoves and biodigesters. Among other benefits it will help us get closer to our net zero ambition.

James McFarland

I think the oil and gas sector is still going to be the supplier of choice to the energy sector for decades to come. Having said that, you know, we have a responsibility to green that process. And we really need to help make that transition to a lower carbon energy future.

When companies commit, let's say companies are committing to, let's say, net zero by 2050, there's actually a roadmap behind that. So I'm encouraged, not discouraged. You know, the technology is there to do it.

It costs money, but I think the public-private partnership can get us there. It can be done.

And companies don't make those commitments lightly, believe me. And so I'm very positive about the future. It feels wonderful to be in the upstream part of the business, despite what some might say, but I think we're doing our part to make that transition.

Frank Behrendt

We may not have complete alignment on all positions, but we are all aiming in the same direction. The key issues involve the timeline and the specific steps that may be taken earlier or later. Nonetheless, from my perspective, a fundamental agreement exists.

In academia, we secure funding to create knowledge, while the industry transforms that knowledge into profit. This relationship forms a continuous cycle.

For this cycle to function effectively, public acceptance of the knowledge generated is crucial. If we develop great ideas but people show no interest in the resulting products, it poses a challenge for both industry and academia. Conversely, not all products generated by industry are beneficial, especially when considering environmental impacts and other concerns.

Thus, governmental regulations will also play a role in addressing certain issues. It's important to see the full picture of this innovation cycle, which encompasses the interplay between academia, industry, the public, and policy setting. If we can maintain cooperation, we will be better equipped to tackle significant challenges. This cycle can break down if any party refuses to participate.

The WPC Energy can foster an environment where this exchange occurs. We may not always agree on everything, but we can collaborate to find solutions to the challenges we face today and in the future. This interaction is essential for progress in the energy sector, ensuring it remains a healthy space for those working within it while also contributing positively to the well-being of the over eight billion people on our planet.

Goran Stojilković

I think we should raise our voice a little bit using our data to demonstrate what is our role. I don't expect that I will buy a flat on Mars. So, until that happens, let's keep our planet called Earth safe, green to the level which is possible, and let's play our role. I would say, extremely important. You can call it mission, you can call it however you like, but let's keep this planet safe, let's provide energy for everybody and enjoy in flights and in the airports.

WPC ENERGY | НАЦИОНАЛНИ ЕНЕРГЕТСКИ КОМИТЕТ СРБИЈЕ

Panel diskusija: Energetska tranzicija – globalne perspektive uključujući Evropu, Severnu Ameriku

USPEŠNA ENERGETSKA TRANZICIJA JE MOGUĆA, ALI PRISTUP MORA BITI PRAGMATIČAN

O ciljevima energetske tranzicije, dometima dekarbonizacije, nacionalnim regulativama kojima se stvara okvir za povećanje udela energije iz obnovljivih izvora u ukupnoj potrošnji, o potencijalu **energenata** u koje se polažu velike nade, a da se pri tome tehnologije proizvodnje, transporta skladištenja i korišćenja još uvek razvijaju na nivou naučnih laboratorija i na kraju o tome šta je uopšte energetska tranzicija u aktruelnom kontekstu, učesnici radionice su mogli detaljnije da se upoznaju u okviru Panel diskusije: Energetska tranzicija – globalne perspektive uključujući Evropu i Severnu Ameriku.

Postavljajući provokativna pitanja, uz povremeno preuzimanje uloge paneliste, moderator Aleksandar Kovačević sa Oxford Institute for Energy Studies, omogućio je prisutnima da se sa izazovima energetske tranzicije upoznaju kroz krajnje odvažne i svakako atipične odgovore panelita, koji su ako ništa drugo, učesnicima radionice ponudili opciju preispitivanja opšteprihvaćenih stavova o dometima globalno proklamovene energetske tranzicije.

Učesnici interaktivne panel diskusije su bili Ivan Marten iz Španije, član Izvršnog odbora WPC Energy i specijlani savetnik za transformaciju WPC Energy, Din Taker iz Kanade, takođe član Izvršnog odbora WPC Energy.

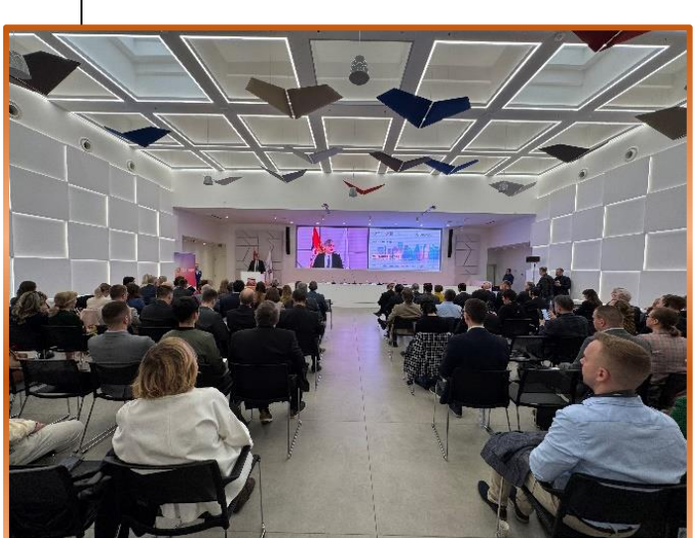
Aleksandar Kovačević

Od jutros slušamo o energetskoj tranziciji. Manje-više svi pominju termin energetska tranzicija, ali ovo je panel o energetskoj tranziciji. Dakle, ovde bismo želeli da se pozabavimo ovim pitanjem. Da pogledamo kako to funkcioniše u Evropi, a kako u Severnoj Americi.

Prvo pitanje je šta je energetska tranzicija?

Din Taker

Tranzicija zapravo znači da ćete napustiti jedan izvor energije ili jednu stvar i preći na drugu. Ostavljate nešto iza sebe. Ali mislim da je transformacija mnogo tačniji opis onoga o čemu govorimo.



Vidimo da potražnja za energijom na globalnom nivou već dugo vremena

nastavlja da raste. Čak i ako pogledate konzervativni scenario IEA, STEPS, koji kaže da će 2030. biti vrhunac potrošnje nafte i gasa, a to ćemo videti, do 2050. i dalje će nam biti potrebno između 90-95 odsto nafte i gasa da bismo zadovoljili rastuću potražnju.

Obnovljivi izvori energije se mnogo poboljšavaju. Postaju jeftiniji, ponuda je veća i uzimaju sve veći deo tržišta električne energije. To je dobro, ali mogu li da zamene svu buduću potražnju?

Kada pogledate potražnju, a znate, zanimljivo je, jer u svetu postoji tri milijarde ljudi koji su u energetskom siromaštvu, 800 miliona nema pristup električnoj energiji. Moraju da se iz toga siromaštva izvuku na razne načine.

Drugi deo je kada pogledate stvari poput data centara. Dakle, tradicionalna potražnja za energijom, plus energetsko siromaštvo, plus nove vrste potražnje za energijom. Ne vidimo ništa osim rasta potrošnje energije i verujemo da će nam biti potreban svaki džul energije do kog možemo da dođemo. Dakle, za mene je reč o transformaciji našeg trenutnog energetskog sistema u ono kako će izgledati u budućnosti. Ko zna kako će se to završiti.

Nafta i gas imaju problem sa emisijama, moraju ih smanjiti. To je deo transformacije.

Ivan Marten

Slažem se sa Dinom da bi trebalo da razgovaramo o energetskoj transformaciji, ali bih naglasio da moramo da razgovaramo o energetskim transformacijama, u množini, jer su neophodne promene u Aziji, Africi, Evropi i drugim regionima širom sveta potpuno različite.

Pristup u velikoj meri zavisi od različitih faktora, kao što su nivo razvoja, pristup resursima i obim industrijalizacije. Zato ne možemo usvojiti jedan model koji se može univerzalno primeniti. To je moja prva poenta.

Drugo, želim da naglasim važnost dekarbonizacije. Moramo se dekarbonizovati koliko god je to moguće, ali je ključno pozabaviti se društvenim troškovima povezanim sa ovim procesom. Evropa je napravila korake u dekarbonizaciji, što je pohvalno, ali je to često dolazilo na štetu njene industrijske baze.

Na prethodnom panelu dve reči su se izdvojile: optimističan i pragmatičan. Možda neću biti zabavan, ali se nadam da ću podstaći na razmišljanje. Optimističan sam u pogledu odgovora industrije i njenih napora da postane deo rešenja u smanjenju emisija. Međutim, nisam optimističan u pogledu situacije u određenim regionima poput Evrope, koja se, u nekim aspektima, bavila samodestruktivnim politikama.

Predugo se Evropa oslanjala na ideologiju i idealizam, a ne na pragmatičan pristup u svojoj energetskoj transformaciji. Obećane su nam razne koristi, ali stvarnost je često bila drugačija.

Obećano nam je da će energetska transformacija stvoriti radna mesta, ali smo videli pad zaposlenosti u Evropi. Rečeno nam je da će emisije biti smanjene, ali umesto toga, emisije su izvezene u druge delove sveta.

Uveravani smo da će investicije u ovoj oblasti biti profitabilne, međutim, negativne ekonomske posledice bile su značajne. Trebalo je da postanemo energetski nezavisni, ali sada smo zavisni od kritičnih minerala i specifičnih vrsta opreme.

Na kraju, obećano nam je da će elektrifikacija biti odgovor na sve naše probleme. Iako je elektrifikacija ključna, ona je samo sredstvo za postizanje dekarbonizacije, što ostaje naš primarni cilj.

Razgovarali smo o potrebi za uravnoteženim pristupom, često nazivanim "šargarepa i štap". Problem, posebno u Evropi, jeste što smo uglavnom zaboravili na šargarepu i fokusirali se isključivo na štap. Pristup je bio u velikoj meri zasnovan na regulativi, sa naglaskom na kazne i zabrane. Nasuprot tome, SAD su usvojile pragmatičniju strategiju, koristeći subvencije i poreske olakšice kako bi podstakle napredak. Evropa je, nažalost, krenula u suprotnom smeru.

Na kraju krajeva, potrebna nam je čista tranzicija gde se primenjuju razne nove metode i tehnologije za dekarbonizaciju. Iako možemo zamisliti budućnost sa električnim vozilima, efikasno i pragmatično rešenje za sada uključuje dekarbonizaciju motora sa unutrašnjim sagorevanjem i usvajanje novih goriva za motore koje već imamo.

Moramo težiti pravednoj tranziciji, što znači izbegavanje negativnih uticaja na pojedince sa niskim prihodima i na zemlje koje imaju problema da se dekarbonizaciju. Štaviše, moramo ostati konkurentni, što podrazumeva podršku industriji i negovanje dinamične ekonomije. Na kraju krajeva, najlakši način za dekarbonizaciju bio bi zatvaranje cele industrije.

Aleksandar Kovačević

Dozvolite mi da ovde ponudim nekoliko ideja. Transformacija u smislu promene vaše primarne energije. To se nije dešavalo u prošlosti. Koristili smo drvo hiljadama godina i još uvek ga koristimo. Koristimo ugalj već neko vreme. Koristimo vetar vekovima. Ova tranzicija je prelazak iz komercijalne industrije u industriju koju pokreću vlade.

Vlade ne samo da pružaju finansijsku podršku industrijama u obliku subvencija, već i nameću propise, koji mogu biti strogi, i usmeravaju industrije šta treba da rade.

Ne mogu da zamislim da će industrija sama doći do ideje o vodoniku ili varijabilnoj energiji u ovom obliku. I dalje verujem da je industrija daleko pragmatičnija, daleko razumnija.

Pomenuli ste reč ideologija. Čini se da se krećemo ka modelu koji ne podseća na tradicionalno shvatanje industrije. Bojim se da ova tranzicija nije dobra tranzicija. Ali, to je moj problem. Rezultat ovih promena je pad industrijske proizvodnje u Evropi.

Na primer, 1905. godine Rusija je bila najveći svetski izvoznik žitarica, a grad Taganrog je služio kao njeno najveće tržište žitarica. Međutim, Sovjetski Savez je uspeo da taj region pretvori u region gladi, što je na kraju dovelo do uvoza hrane.

Kada ideologija vodi glavnu reč i vlade daju rešenja industriji, one mogu da budu u problemu. To je realnost koju doživljavamo i verujem da bi trebalo da pristupimo ovim dešavanjima sa oprezom, a ne da jednostavno usvojimo optimističan ili pesimističan pogled. Paradigma se menja, i nažalost, ne na bolje.

Ivan Marten

Hajde da dopunimo ono što govorite. U stvari, bilo je mnogo tranzicija, ali jedino što smo u stvarnosti uradili jeste dodavanje. Imamo ugalj, dodali smo gas, dodali smo obnovljive izvore energije, dodali smo nuklearnu energiju. Dodavali smo novu energiju jer svetu treba energija.

Din Taker

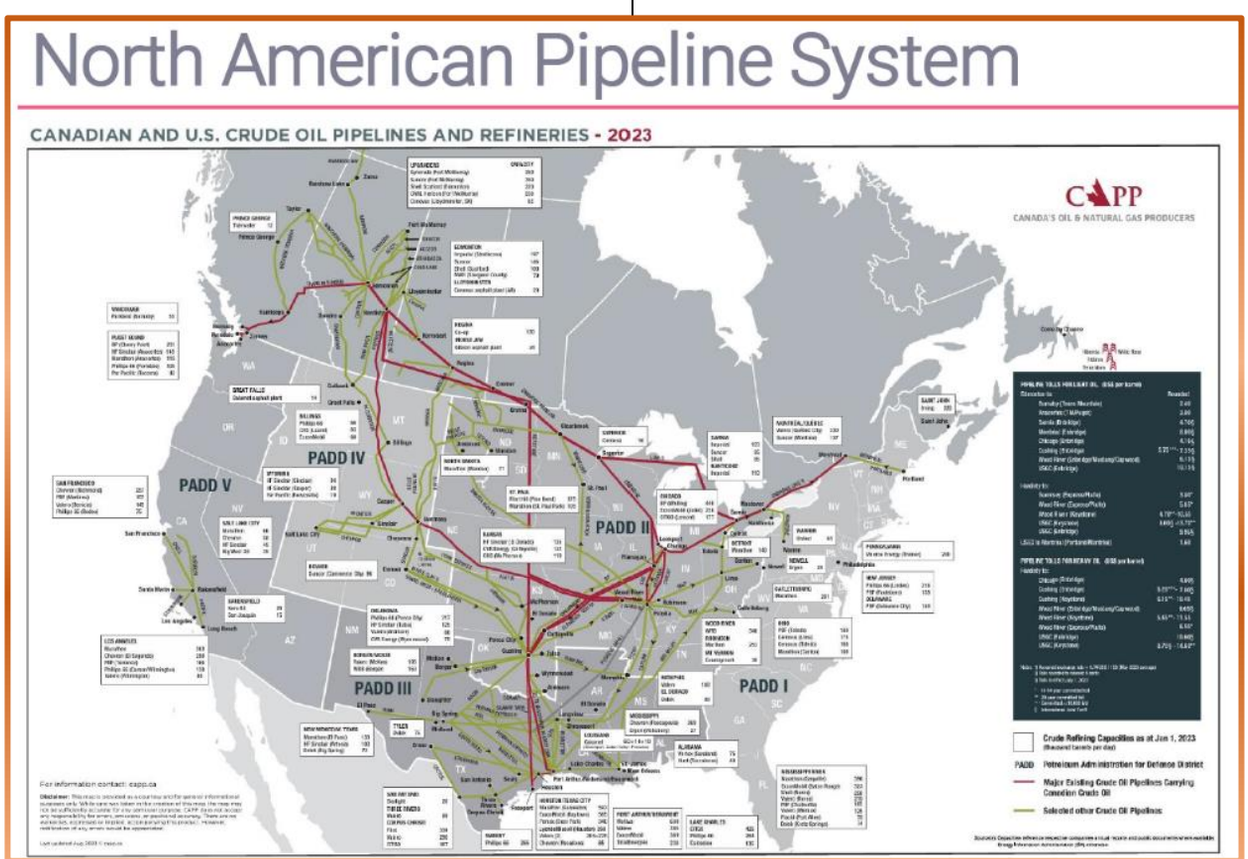
Kada govorite o uključivanju vlada, to je zaista frustrirajuće za mene kao inženjera. Imamo mnogo zaista dobrih ideja. Ali morate znati kako ćete stići od tačke A do tačke B? Kako ćete planirati? Vladini zvaničnici u našoj zemlji kažu da možemo preći sa nafte i gasa na vodonik za 10-15 godina. To je nemoguće. Takva retorika vladinih zvaničnika je neodgovorna.

Na istočnoj obali Kanade imamo svetski poznatu ofšor industriju, koja daje oko 80 odsto naše proizvodnje. Tu poruku o vodoniku čuo sam na konferenciji na istočnoj obali od našeg ministra energetike

i proveo sam naredna tri dana pokušavajući da ohrabrim sve na Njufaundlendu i Labradoru da ne napuštaju naftnu industriju i da ne krenu u gradnju vetroparkova za proizvodnju vodonika.
To neće rešiti problem. Dakle, mislim da vlade imaju svoju ulogu, ali moraju biti oprezne sa težnjama koje iznose.

Ivan Marten

Hajde da detaljnije pogledamo ulogu vlada, koristeći primer SAD naspram Evrope. SAD su 2023. godine pokrenule Zakon o smanjenju inflacije (IRA). Iako je neizvesno da li je on zapravo smanjio inflaciju, jasno je da je podstakao ekonomiju. IRA je stvoren za samo dva meseca. Kao odgovor na to, Evropa je odlučila da pokrene Zakon o neto nultoj industriji, čiji je razvoj trajao pet meseci.
IRA je relativno koncizan, sa najviše 400 stranica, dok evropski zakon obuhvata 4.000 stranica. Prvi nacrt Zakona o neto nultoj industriji je napravljen krajem februara ili početkom marta 2024. godine, ali stvarno usvajanje se nije dogodilo do maja 2025. godine.
Zašto kašnjenje? Evropa se sastoji od 27 zemalja koje sve moraju da postignu konsenzus. Ono što jedna zemlja, poput Nemačke, može podržati, druga manja zemlja može se suprotstaviti. Svaka zemlja ima različita mišljenja o svakom aspektu, što je rezultiralo procesom pregovora koji je trajao više od godinu i po dana da bi se finalizovalo nešto što su SAD postigle za samo dva meseca. Pored toga, SAD nude poreske olakšice za svaku tehnologiju koja smanjuje emisiju ugljenika. Nasuprot tome, Evropa kategoriše tehnologije na „strateške“ i „ne tako strateške“ i primenjuje različite propise na svaku. To postavlja pitanje: zašto bi birokrata u Briselu odlučivao o ovim pitanjima kojima bi idealno trebalo da upravljaju lideri industrije i centri za tehnološka istraživanja?



Aleksandar Kovačević
Dakle, pokušajmo da se okrenemo industriji. SAD, Kanada, Severna Amerika. Postoji tržište nafte. Postoji infrastruktura. Dva veoma velika proizvođača izvoze, ali i uvoze naftu.

Din Taker
To je veoma zanimljiva situacija. Dakle, Sjedinjene Države proizvode oko 13,5 miliona barela nafte, više nego dovoljno da zadovolje svoje domaće potrebe. Kanada proizvodi oko 5,7 miliona barela nafte, više nego dovoljno da zadovolji i svoje domaće potrebe.
Međutim, mi i dalje uvozimo naftu.

Možda je to najbolji način da se to objasni, zato sam samo želeo da imam slajd. Ovo je sistem cevovoda koji postoji u Severnoj Americi.
Glavni region proizvodnje u Kanadi je Alberta, a malo proizvodnje u Saskačevanu i Britanskoj Kolumbiji. Imamo priobalni naftni cevovod koji proizvodi oko 8% naše nafte. Ako vidite ove crvene cevovode, to su Enbridž i Ekson. Glavne linije koje prevoze našu proizvodnju do tržišta. Nažalost, naše tržište je jedno mesto. To su Sjedinjene Države. SAD uvoze naftu i mi uvozimo naftu. Postoje dva razloga.
To je ekonomija i hemija. U SAD veliki deo njihove proizvodnje je veoma laka, slatka, sirova nafta. Sistem rafinerije, posebno u ovoj oblasti PAD2 (PAD su samo terminologija koja je nastala iz Drugog svetskog rata - Proizvodni administrativni odbrambeni okruzi; sada je koriste samo da prate šta se proizvodi i koristi u različitim regionima).
Dakle, u ovoj oblasti PAD2 na Srednjem zapadu SAD, svim rafinerijama je potrebna teža, kiselija sirova nafta. Takođe i u oblasti PAD3. Ali oni proizvode lakšu, slađu sirovu naftu i ne mogu je poslati u rafinerije. Zato je moraju izvoziti.
Ali onda moraju da uvezu naftu da bi mogli da je uklope u rafinerije. Sada, kažete, zašto ne konvertujemo naše rafinerije da prihvate naftu koju proizvodimo? Pa, milijarde i milijarde dolara za konverziju i puno vremena. Dakle, situacija koju imamo funkcioniše prilično dobro za obe zemlje. Do nedavno.
Sada imamo jednu liniju, Trans Moutain, koja ide od centralne Alberte do obale. Ali to je oko 890.000 barela, a čak polovina toga završava u Kaliforniji. Dakle, šaljemo 92% naše proizvodnje u SAD.
I moramo da uvezemo oko 1,5 miliona barela jer je većina našeg stanovništva u južnom Ontariju i Kvebeku. Imamo rafinerije tamo, ali postoji jedan mali cevovod, ova glavna linija Enbridž, koja isporučuje oko 500.000 barela.
Ali rafinerijama je potrebno oko 1,5 miliona. Dakle, i dalje moramo da uvozimo milion barela dnevno, ako izvozimo 4,5. Pogodite odakle dobijamo većinu naše nafte? Iz SAD.
Upravo sam govorio o nafti jer je to dobar primer, ali situacija sa gasom je takođe prilično ista.
Dakle, umesto da imamo jednog kupca, što trenutno imamo u SAD, želeli smo da se proširimo i da budemo u mogućnosti da isporučujemo u Evropu, ali i na Pacifiku, tržištima kojima je zaista potrebna energija.
Postojao je predlog za ovu liniju Energy East, koja bi transportovala nešto više od milion barela do rafinerija u Montrealu, pa čak i do rafinerije na obali, u Nju Branzviku.
Zbog dobrih namera, mislim, naša vlada je veoma fokusirana na životnu sredinu, kao i vlade u Evropi. Htela bi da prestane sa proizvodnjom ugljovodonika i da pređe na obnovljive izvore energije. U tome nema ništa loše, ali kada svetu treba energija, a nama nešto da bismo ekonomski preživeli, to nema mnogo smisla.
Dakle, regulatorni proces za izgradnju tog cevovoda je bio toliko komplikovan da je

usporio investitora do tačke gde su jednostavno rekli: "Završili smo, nećemo ga graditi." Isto je i na Zapadnoj obali. Želeli su da izgrade liniju NOrth Gate, koja bi do obale transportovala oko 600.000 barela, a to je kategorično odbijeno iz ekološke perspektive. Isto je i sa gasovodima.

Zato ću ponoviti nešto što je već rečeno. Potrebna su vam tri stuba. Morate smanjiti emisije, apsolutno, ali i da ekonomski održite zemlju i industriju u pokretu da biste mogli da obezbedite kvalitetan život ljudima.

Kanada još uvek ima mnogo toga da uradi, ali nafta koju proizvodimo ima neke od najstrožih ekoloških propisa na svetu. Spaljivanje prirodnog gasa (flaring) nije dozvoljeno u Alberti više od 30 godina. A porez na CO2 imamo više od 25 godina.

Trenutno, naši dobri prijatelji na jugu teraju ljude u Kanadi da se preispitaju: umesto da imamo jednog kupca, možda bi trebalo da izgradimo nekoliko cevovoda i budemo u mogućnosti da distribuiramo naftu i gas drugim delovima sveta kojima je potrebna energija.

Aleksandar Kovačević

Ali to nije dovoljno. Mehanizam za prekogranično prilagođavanje ugljenika (CBAM) se takođe primenjuje na Kanadu.

Din Taker

Kada ste kompanija na berzi i imate određenu količinu kapitala, odbor mora da obezbedi povraćan na ulaganja. Hvatanje ugljenika ne može da se takmiči sa industrijom nafte i gasa. Mislim da je takvim kompanijama potrebna određena regulativa koja će im pomoći da se odluče na takva ulaganja, a ne da ih dovedu u situaciju da ne rade ništa.

Što se tiče tečnog prirodnog gasa, u poslednjih 10 godina savezna vlada odbila je projekte vredne 280 milijardi dolara. U 2015. godini, i Kanada i SAD nisu izvozile LNG ili je to bilo neznatno. Danas, Kanada gradi jedan terminal, Kitimat, koji će biti aktivan sledeće godine i isporučivaće oko 2,5 milijarde kubnih stopa.

U međuvremenu, SAD su sa nule sigle na 25 milijardi kubnih stopa. Dakle, regulatorni režimi su toliko različiti. Napravili su veliki napredak u snabdevanju gasom. Još uvek ih nismo sustigli.

Mislim da postoji opšte uverenje da LNG može biti veoma koristan, a mi čak ne možemo ni da se pridružimo tržištu zbog regulatornih ograničenja sa kojima se suočavamo u našoj zemlji.

Aleksandar Kovačević

Šta se dešava u Evropi? Mnogo se priča o cevovodima za vodonik i CO2, skladištenju CO2. Ali, mnogo cevovoda je nedovoljno iskorišćeno.

Ivan Marten

Jasno je da je potreba za infrastrukturom zaista velika, moramo da investiramo.

U Evropi, jedno od glavnih pitanja je gas, jer, na kraju krajeva, potrebna vam je jeftina energija da biste održali industriju.

Ako ga u Evropi trenutno plaćamo 13-14 dolara za MMBtu, a u SAD košta 3-4 dolara, onda to znači da je američka ekonomija mnogo konkurentnija od evropske.

Aleksandar Kovačević

Da li su fleksibilnost i unutrašnja trgovina razlog? Da li je to nešto što zapravo donosi konkurentne cene?

Ivan Marten

Ne. Prvo, postoji značajna proizvodnja gasa u SAD i Kanadi. U Evropi, posebno u Nemačkoj, doneta je odluka da se gas ne proizvodi iz škriljaca zbog protivljenja frakingu. Ovo je možda u to vreme izgledalo kao pravi izbor.

Međutim, ironično je da Evropa sada uvozi gas iz škriljaca iz SAD, što znači da je uticaj na životnu sredinu isti.

Kada je reč o snabdevanju gasom, dobro je što je Evropa preduzela nekoliko mera. Prvo, izgradili smo značajnu infrastrukturu u Severnoj Evropi za uvoz LNG-a iz drugih regiona. Takođe smo poboljšali

prekogranične veze. Osim toga, došlo je do smanjenja industrijske potražnje za gasom, što je rezultat promena koje imamo.

Kao rezultat toga, sa smanjenom industrijskom potražnjom, povećanim brojem interkonekcija između zemalja i većim brojem terminala za regasifikaciju, Evropa je uspela da se snađe u ovim izazovnim periodima. Iako smo napravili korake da se nosimo sa krizom, i dalje smo zavisni od gasa iz drugih zemalja.

Aleksandar Kovačević

Održan je sastanak savetodavnog odbora za Južni gasni koridor, tokom kojeg je predsednik Azerbejdžana, Ilham Alijev, razgovarao o mogućnosti udvostručavanja, ili čak utrostručavanja, isporuka gasa Evropi.

Ljubazno je zatražio dugoročni ugovor kako bi se olakšala ulaganja u neophodna unapređenja. Međutim, primetio sam nedostatak entuzijazma kod prisutnih evropskih zvaničnika u vezi sa ovom vrstom sporazuma. Pored toga, saopštenja za štampu se značajno razlikuju jedno od drugog.

Ivan Marten

Stavovi se menjaju u Evropi i sada se govori da dugoročni ugovori za gas neće biti potrebni. Ali, kao što je Muhamed ranije rekao, gas će nam trebati još mnogo godina.

Dakle, to nije nešto što će nestati. Ali poruka u Evropi je i dalje da će nafta i gas nestati i da ćemo živeti u fantastičnom svetu gde će sve biti obnovljivo. Srećno!

Prilično sam siguran da možete prenameniti gasnu infrastrukturu za e-gas. Što se tiče vodonika, imam ozbiljne sumnje jer postoji tehnološko pitanje količine vodonika koju možete staviti u gasovod ili u mrežu za distribuciju gasa. I drugo, postoje određeni, rekao bih, faraonski projekti za dovođenje vodonika iz mesta poput Španije preko Francuske do Nemačke ili iz Severne Afrike u Evropu, za koje nisam baš siguran da računica pokazuje da imaju smisla.

Dakle, mislim da bi vodonik mogao biti dobar izvor, ali će trebati vremena da se razvije, biće potrebno vreme da bude efikasan. Mislim da polaganje svih nada u vodonik nije dobra ideja.

Potrebno je da se razvijamo malo po malo. Neko je ranije rekao da nam je potreban fazni pristup. Dakle, ako želimo da promovišemo vodonik, zašto ne bismo počeli sa plavim vodonikom i stvorili tržište i potražnju? Jer postoji mnogo zemalja koje su spremne da snabdevaju Evropu plavim vodonikom, a u Evropi nema potražnje za plavim vodonikom.

Namera je da promovišu e-goriva. Šta vam je potrebno za e-goriva? Potrebni su vam vodonik i CO2.

Dakle, evropska regulativa vodonik bi trebalo da bude zeleni vodonik. Možete regulatorima reći, ali imamo dosta vodonika koji dolazi iz naših rafinerija. Da li bih mogao da ga koristim? Ne. Trebalo bi da bude zelen.

Možete im reći i da imamo i mnogo CO2 koji dolazi iz naših fabrika i rafinerija. Ali, EU kaže, ne, ne možete uzimati taj CO2 iz rafinerija, treba ga hvatati iz vazduha. Da li je ovo način za razvoj e-goriva u Evropi!? Mislim sa takvim pristupom ne idemo nikuda.

Aleksandar Kovačević

Gledajući iz Kanade, da li vidite ovaj kontinent, Evropu, kao kupca za naftu, za gas, tehnologije? Da li vidite Evropu kao eventualno tržište?

Din Taker

Da. Ali kao što sam rekao, imamo mali problem sa mogućnošću izgradnje neophodne infrastrukture. Ako bismo mogli da izgradimo infrastrukturu do istočne obale Kanade, mogli bismo energiju da isporučimo u Evropu, apsolutno.

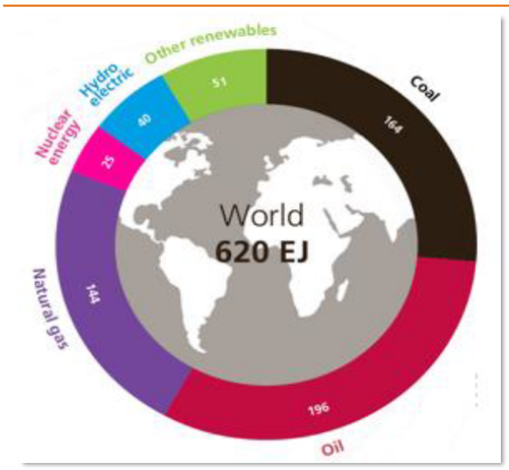
Sada postoji mala promena stava u Kanadi, da bi trebalo da iskoristimo situaciju i da

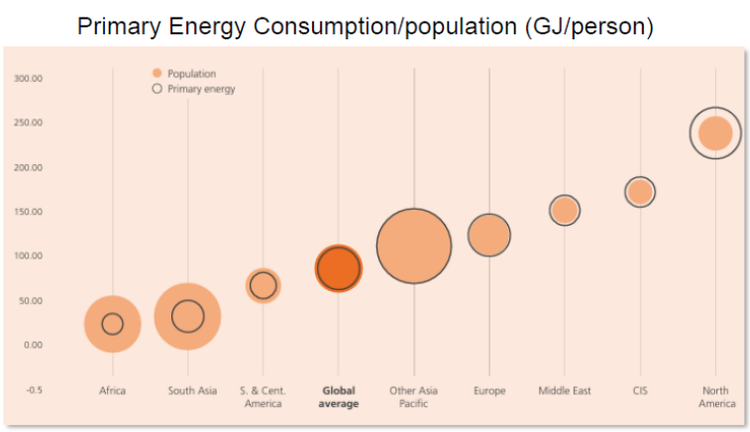
imamo više kupaca. Sa odgovarajućom infrastrukturom mogli bismo biti među prva tri proizvođača i nafte i gasa. Sada smo četvrti po nafti i peti po gasu.
Godinama radimo na hvatanju ugljenika, tehnologijama za smanjenje emisija, čistim tehnologijama i dešava se mnogo neverovatno dobrih stvari. Imamo mnogo plavog vodonika.
Svi znaju za naftni pesak i činjenicu da ima površinske kopove, ali većina se zapravo vadi na licu mesta, samo izlazi iz bušotina. Postoji tehnologija kojom se kiseonik ubacuje u te formacije, pali se, i pri izlasku se filtrira CO2, ponovo se ubrizgava i čisti vodonik izlazi na površinu. Koje je boje taj vodonik?
Kanada bi mogla mnogo toga da izvozi i da poveća svoje kapacitete kako bi snabdevala Evropu i druge delove sveta, i mislim da polako počinjemo da se krećemo ka tome

Ivan Martin

Potrebna nam je tehnologija jer ona donosi promene i trebalo bi da podržimo njen razvoj. Neka se različite tehnologije takmiče jedna sa drugom i najefikasnije će na kraju prevladati. Trebalo bi da dozvolimo zemljama i kompanijama da rade i posluju na način koji smatraju najbolji

Global Energy Mix





Africa and South Asia have very low levels of energy demand relative to the size of their population

Oil: production **96.4m b/d** I consumption **100.2m b/d**
Gas: production **4.1tcm** I consumption **4.1tcm**

Fossil fuels account for 84% of the global energy supply mix.

Source: Energy Institute Statistical Review of World Energy 2024

5

WPC ENERGY

Panel Discussion: Energy Transition – Global Perspectives Including Europe and North America

SUCCESSFUL ENERGY TRANSITION IS ACHIEVABLE BUT ONLY THROUGH A PRAGMATIC APPROACH

Participants of the panel discussion "Energy Transition – Global Perspectives Including Europe and North America" had the opportunity to explore in greater depth the key topics surrounding energy transition—its objectives, the scope of decarbonization, national regulations designed to increase the share of renewable energy in total consumption, and the potential of energy sources in which great hopes are placed, even though the technologies for their production, transport, storage, and use are still being developed at the laboratory level. The discussion also touched on the broader meaning of energy transition in today's complex context.

Through provocative questions and occasionally stepping into the role of panelist himself, moderator Aleksandar Kovačević of the Oxford Institute for Energy Studies guided participants into bold and certainly unconventional reflections offered by the panelists—insights that, if nothing else, encouraged attendees to reconsider widely accepted notions of the scope of the globally proclaimed energy transition.

The interactive discussion featured Ivan Marten from Spain, Executive Board Member of WPC Energy and Special Advisor for Transformation, alongside Dean Tucker from Canada, also a member of the WPC Energy Executive Board.

Aleksandar Kovačević

We have been listening since this morning about energy transition. More or less everybody has been mentioning the term energy transition, but this is panel about energy transition.

So, this is where we would like to address the issue. To take a look how it works in Europe, and how in North America.

First question is what is energy transition?

Dean Tucker

Transition actually means you are going to leave one energy source or one thing and go to another. You leave something behind. But I think transformation is a much more accurate description of what we are talking about.

We see energy demand globally for a very long time continuing to increase. Even if you look at IEA's conservative case, the STEPS case, 2030 is the peak for oil and gas. We will see. By 2050, even in the conservative case, we still need between 90-95% of oil and gas to keep up with the growing demand.

Renewables are improving a lot. They are getting cheaper, there is more supply, and they are taking a bigger piece of supply of electricity. So, that is

good. Can they replace all the coming demand?

When you look at demand, and you know, it is interesting, because there is 3 billion people in the world that are in energy poverty, 800 million do not have access to electricity. They need to move out of that through various means.

The other part is you look at things like data centers. So traditional energy demand, plus energy poverty, plus new types of energy demand. We see nothing but energy increasing, and we believe that we are going to need every joule of energy we can put our hands on. So, to me, it is about a transformation of our current energy system to what it is going to look like in the future. Who knows how that is going to end up.

In oil and gas sector we have a slight problem with the emissions. We have to get those emissions down. That is part of the transformation.

Ivan Marten

I agree with Dean that we should discuss energy transformation, but I would argue that we need to talk about energy transformations, plural, because the necessary changes in Asia, Africa, Europe, and other regions around the world are entirely different.

The approach depends heavily on various factors, such as the level of development, access to resources, and the extent of industrialization. Therefore, we cannot adopt a single model that can be applied universally. That is my first point.

Secondly, I want to emphasize the importance of decarbonization. We need to decarbonize as much as possible, but it's crucial to address the social costs associated with this process. Europe has made strides in decarbonizing, which is commendable, but it has often come at the expense of its industrial base.

Reflecting on the previous panel, two words stood out: optimistic and pragmatic. I may not be entertaining, but I hope to provoke thought. I am optimistic about the industry's response and its efforts to become part of the solution in reducing emissions. However, I am not optimistic about the situation in certain regions like Europe, which, in some respects, has engaged in self-destructive policies.

For too long, Europe has relied on ideology and idealism rather than a pragmatic approach in its energy transformation. We have been promised various benefits, but the reality has often been different.

We were promised that the energy transformation would create jobs, yet we have seen employment decline in Europe. We were told that emissions would be reduced, but instead, emissions have been exported to other parts of the world.

We were assured that investments in this area would be profitable; however, the economic impact on society has been significant. We were to become energy independent, but now we find ourselves reliant on critical materials, minerals, and specific types of equipment.

Lastly, we were promised that electrification would be the answer to all our problems. While electrification is crucial, it is merely a means to achieve decarbonization, which remains our primary goal.

We've discussed the need for a balanced approach, often referred to as "carrots and sticks." The issue, particularly in Europe, is that we have largely forgotten about the carrot and focused solely on the stick. The

approach has been heavily regulation-based, with an emphasis on fines and prohibitions. In contrast, the U.S. has adopted a more pragmatic strategy, utilizing subsidies and tax credits to encourage progress. Europe, unfortunately, has gone in the opposite direction.

Ultimately, we require a clean transition where various new methods and technologies for decarbonization are implemented. While we may envision a future with electric vehicles, an effective and pragmatic solution for now involves decarbonizing internal combustion engines and adopting new fuels for the engines we already have.

We must strive for a just transition, which means avoiding negative impacts on low-income individuals and on countries struggling to decarbonize. Furthermore, we need to remain competitive, which entails supporting industry and fostering a vibrant economy. After all, the easiest way to decarbonize would be to shut down all industry. Well, it is indeed.

Aleksandar Kovačević

Let me offer a couple of ideas here. Transformation in terms of changing your primary energy. That didn't happen in the past. We've been using wood thousands of years ago, and we are still using it. We've been using coal for a while. We've been using wind over centuries.

This transition is transition from the commercial industry into industry which is driven by the governments.

Governments are not only providing financial support to industries in the form of subsidies but are also imposing regulations, which can be strict, and guiding industries on what they should do.

I cannot imagine that the industry will come to the idea of hydrogen on its own. I cannot imagine that the industry will come to an idea about intermittent energy in this form on its own. I still believe that industry is far more pragmatic, far more sane, if you wish.

You mentioned the word ideology.

We seem to be moving toward a model that does not resemble the traditional understanding of industry. I'm afraid that this transition is not a good transition. So that's my problem.

The result of these shifts is a decline in industrial production in Europe. For example, in 1905, Russia was the world's largest exporter of cereals, with the city of Taganrog serving as its biggest cereal market. However, the Soviet Union managed to turn that region into one of famine, eventually leading to food imports.

When ideology takes precedence and governments provide solutions for industries, those industries can suffer. This is the reality we are experiencing, and I believe we should approach these developments with caution rather than simply adopting an optimistic or pessimistic outlook. The paradigm is changing, and unfortunately, not for the better.

Ivan Marten

Let's complement what you are saying. In fact, there have been many transitions, but the only thing we have done in reality is adding. We have coal, we added gas, we added renewables, we added nuclear.

We have been adding new energy because the world needs energy.

Dean Tucker

When you talk about governments being involved, it is really frustrating to myself as an engineer.

We have a lot of really good ideas. But to get from this point to that point, how are you going to execute? How are you going to plan? Government officials in our country say that we can transition from oil, and gas to hydrogen in 10-15 years. It's impossible. That kind of rhetoric from government officials is irresponsible.

We have, on the east coast of Canada, a world-class offshore industry. It creates about 80% of our production. It was at this conference in the east coast, I heard this from our energy minister, and I spent the next three days trying to encourage everyone in Newfoundland and Labrador not to abandon the oil industry and start building windmills to generate hydrogen.

That's not going to fix the problem. So governments, I think, have a part to play, but they need to be careful with the aspirations that they put out there.

Ivan Marten

Let's take a closer look at the role of governments, using the example of the U.S. versus Europe. In 2023, the U.S. launched the Inflation Reduction Act (IRA). While it's uncertain whether it has actually reduced inflation, it's clear that it has boosted the economy. The IRA was created in just two months. In response, Europe decided to launch the Net Zero Industry Act, which took five months to develop.

The IRA is relatively concise, with a maximum of 400 pages, whereas the European act spans 4,000 pages. The first draft of the Net Zero Industry Act was produced around late February or early March 2024, but the actual approval didn't happen until May 2025.

Why the delay? Europe consists of 27 countries that all need to reach a consensus. What one country, like Germany, may support, another smaller country might oppose. Each country has differing opinions on every aspect, which resulted in a negotiation process taking over a year and a half to finalize something that the U.S. accomplished in a mere two months.

Additionally, the U.S. offers tax credits for any technology that reduces carbon emissions. In contrast, Europe categorizes technologies into "strategic" and "not-so-strategic" and applies different regulations to each. It raises the question: why should a bureaucrat in Brussels decide these matters that should ideally be managed by industry leaders and technology research centers?

Aleksandar Kovačević

So let's try to turn to the industry. US, Canada, North America. There is an oil market. There is an infrastructure. Two very big producers export oil. They trade between each other, but they still import.

Dean Tucker

It's a very interesting situation. So the United States produces around 13.5 million barrels of oil, more than enough to meet their domestic needs. Canada produces around 5.7 million barrels of oil, more than enough to meet their domestic needs as well.

However, we still import oil.

Perhaps the best way to explain it, that's why I just wanted to have a slide. This is the pipeline system that exists in North America.

The main producing region in Canada is Alberta, and a little bit of production in Saskatchewan and British Columbia. We do have an offshore that produces about 8% of our oil. If you see these red pipelines, this is Enbridge, Exxon. The major lines that take our production to market. Unfortunately, our market is one place. It is the United States. The US

imports oil and we import oil. There are two reasons.
It's economics and it's chemistry. In the US a lot of their production is very light, sweet, crude. The refining system, especially in this area of PAD2 (PADs are just a terminology that came out of World War II - Production Administrative Defense Districts; They use it now just to monitor what's produced and used in different regions).
So in this PAD2 area in the Midwest of the US all of the refineries need a heavier, more sour crude. Also in the PAD3 area. But they are producing lighter, sweeter crude, and they can't send it to the refineries. So they have to export it.
But then they need to import oil to be able to fit into the refineries. Now, you say, why don't we convert our refineries to accept the oil we produce? Well, billions and billions of dollars to convert and a lot of time. So the situation we have works pretty well for both countries.
Until recently.
Now we do have one line, Trans Mountain, which runs from Central Alberta to the coast. But it's about 890,000 barrels, and even half of that ends up in California. So we send 92% of our production to the US.
And we have to import about 1.5 million barrels because most of our population is in southern Ontario and Quebec. We have refineries there, but there's one small line, this Enbridge main line, that comes in and delivers about 500,000 barrels.
But they need about 1.5 million. So we still have to import a million barrels a day. Even though we're exporting 4.5. Guess where we get most of our oil? From the US. It comes from the coast and down the St. Lawrence seaway.
I just talked about oil because it's a good example, but the gas situation is quite the same as well.
So rather than having one customer, which we have in the U.S. right now, we wanted to expand and be able to ship to Europe, look for natural gas, oil, or to the Pacific Rim as well, markets that really need energy.
There's been a proposal for this Energy East line, which will carry just over a million barrels to the refineries in Sarnia, Montreal, and even expand over to the refinery on the coast, New Brunswick.
Because of good intentions, I think, our government is very much environmentally focused, as Europe. It's kind of been frowned upon to continue to produce hydrocarbons, and they want to move to renewables. There's nothing wrong with that, but when the world needs the energy, and we needed ourselves economically to survive, it doesn't make a lot of sense sometimes. So the regulatory process to build that line was so complicated, it bogged down the company to the point where they just said, we're done, we're not going to build it. The same thing on the West Coast. They wanted to build this Northern Gateway line, which would take about 600,000 barrels to the coast, and it was flat out rejected on an environmental basis. Same with gas lines.
So I am going to repeat something that was said previously. You need the three pillars. You need to reduce emissions, absolutely, but economically, to keep your country and industry moving, and to be able to expand and have quality of life for people.
Canada still has a lot to do, but the oil we produce has some of the strictest environmental regulations in the world. Flaring has not been allowed in Alberta

for over 30 years. And we've had a carbon tax in Alberta for over 25 years.
Right now, our good friends to the south are making people rethink: rather than having one customer, maybe we should build some pipelines and be able to distribute oil and gas to other parts of the world that need energy.

Aleksandar Kovačević

But that is not enough. The EU's carbon border adjustment mechanism also applies to Canada.

Dean Tucker

When you're a publicly traded company, and you have a certain amount of capital, the board has to get a return on that. Carbon capture cannot compete with development of oil and gas. I think publicly traded companies need some regulation to help push them down that road but not to the point where they do not develop or do anything.
On the LNG side, we've had, in the last 10 years, USD 280 billion in projects rejected by the federal government. In 2015, both Canada and the U.S. had zero LNG shipments, or very little. Fast forward to today, Canada has one LNG terminal, Kitimat, that will be active next year, shipping about 2.5 billion cubic feet.
In the meantime, the United States has gone from zero to 25 billion cubic feet. So regulatory regimes are so different. They've shot ahead in their supply of all this gas. We haven't caught up yet.
I think there's a general belief that LNG can be very useful, and we can't even join the market because of regulatory restrictions we face in our own country.

Aleksandar Kovačević

So what happens in Europe? I mean, a lot of talk about hydrogen pipelines, CO2 pipelines, CO2 sequestration. A lot of pipelines are underutilized.

Ivan Marten

It's clear that the need for infrastructure is really big. We need to invest in infrastructure.
In Europe, one major issue has been gas, because, at the end of the day, you need to have cheap energy to sustain the industry.
If in Europe we are right now paying USD 13-14 per MMBtu, compared to the USD 3-4 in US, then that means that the U.S. economy is much more competitive than the European one.

Aleksandar Kovačević

Are flexibility and internal trading the reason? Is that something which actually delivers competitive prices?

Ivan Marten

No. First, there is a significant production of gas in the U.S. and Canada. In Europe, particularly in Germany, a decision was made not to export gas because of opposition to fracking and shale gas. This may have seemed like the right choice at the time. However, it's ironic that Europe is now importing shale gas produced from fracking in the U.S., which means the environmental impact remains similar.
On the positive side, Europe has taken several actions. Firstly, we have built significant infrastructure in Northern Europe for importing liquefied natural gas (LNG) from other regions. We have also improved cross-border connections. Additionally, a reduction in industrial demand for gas has occurred, which is a result of industry adjustments.
As a result, with decreased industrial demand, increased interconnectivity, and more regasification terminals, Europe has managed to navigate these challenging periods. While we have made strides to handle the crisis, we

still find ourselves dependent on gas from other countries.

Aleksandar Kovačević

There was an advisory board meeting for the Southern Gas Corridor, during which Azerbaijan's President, Ilham Aliyev, discussed the possibility of doubling, or even tripling, gas supplies to Europe.

He politely requested a long-term contract to facilitate investment in the necessary upgrades. However, I noticed a lack of enthusiasm from the European officials present regarding this type of agreement. Additionally, the press releases differ significantly from each other.

Ivan Marten

There attitude is changing in Europe, and now they think that long-term contracts for gas are not going to be needed. And as Mohammed was saying before, we are going to need gas for many years.

So it's not something that will disappear. But the message in Europe is still, oil and gas are going to disappear, and we are going to live in a fantastic world where everything is going to be renewable. Good luck.

I am quite positive that you can repurpose the gas infrastructure for e-gas. For hydrogen, I have serious doubts because there is a technology issue. I mean, the amount of hydrogen you can put in a gas pipeline or in a gas distribution network. And second, there are certain, I would say, pharaonic projects to bring hydrogen from places like Spain through France to Germany or from North Africa to Europe that I am not so sure that right now the numbers make sense.

So I think hydrogen could be a good source, but it will take time to develop, it will take time to be efficient.

Betting everything on hydrogen is not a good idea.

We need support, we need the technology, we need to evolve little by little. Someone was saying before that we need a phased approach. So if we want to promote hydrogen, why don't we start with blue hydrogen and create a market and create a demand? Because there are many countries that are ready to supply blue hydrogen to Europe, and there is no demand for blue hydrogen in Europe.

They need to promote e-fuels. For e-fuels, what do you need? You need hydrogen and CO2.

So the European regulation says, yes, hydrogen, it should be green hydrogen. And you can say, but I have plenty of hydrogen coming from our refineries. Could I use it? No. It should be green.

We have a lot of CO2 coming from our factories and our refineries. The EU says, no, you cannot take that CO2 from refineries, it should be captured from the air. Is this the way to develop e-fuels in Europe!? We are not going anywhere.

Aleksandar Kovačević

Looking from Canada, do you see this continent, Europe, as a customer for oil, for gas, technologies? Do you see Europe as an eventual market?

Dean Tucker

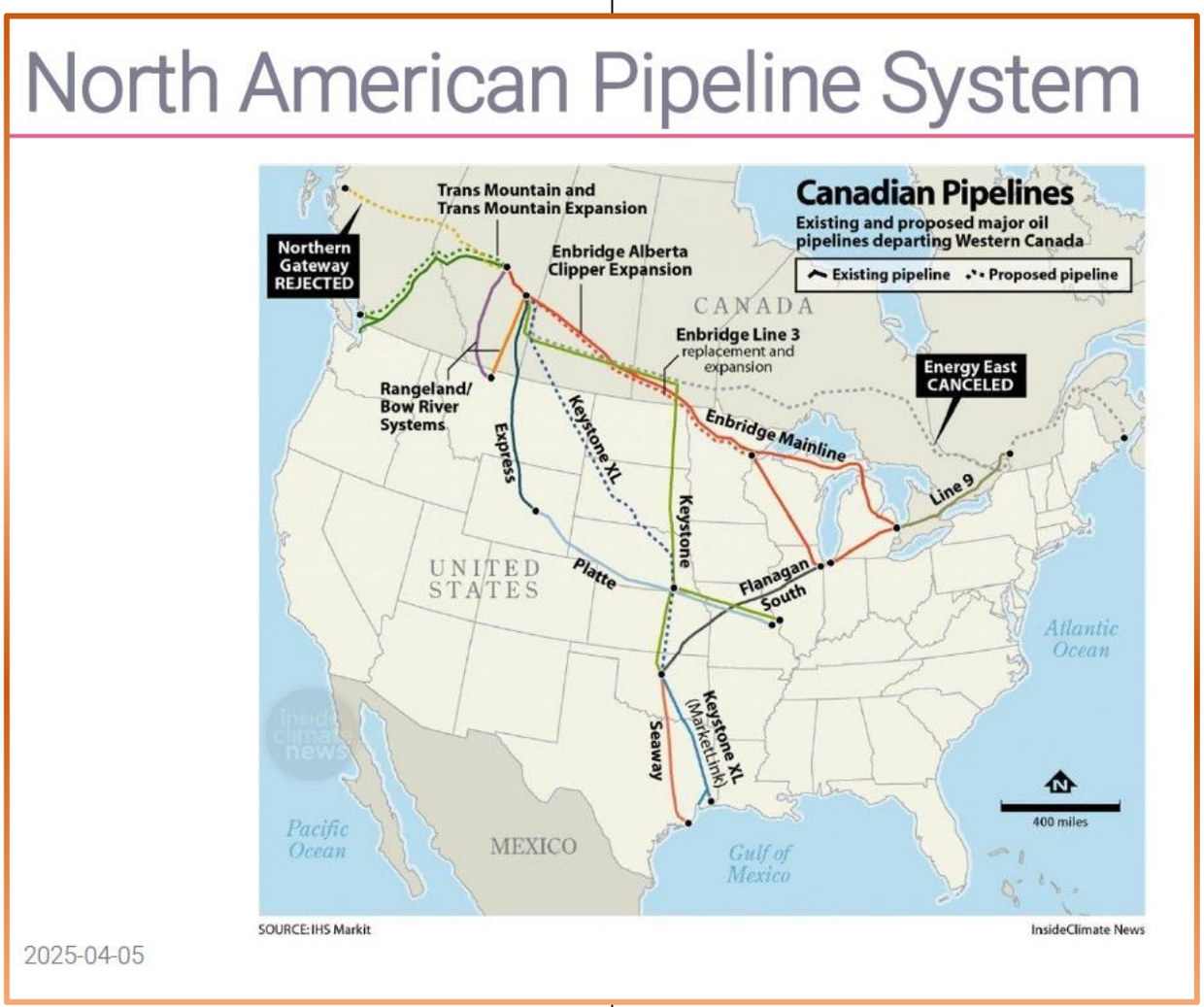
Yes. But as I said we do have a small issue with the ability to build necessary infrastructure. If we could build infrastructure to the east coast of Canada, we could ship it to Europe, absolutely.

There is a slight change of attitude now in Canada, that we should be taking advantage of this and having more customers. With proper infrastructure we could be in the top 3 of oil and gas. Now we are fourt in oil and fifth in gas.

We've been working on carbon capture, emissions reduction technologies, clean technologies for years, and there are a lot of amazing good things happening. We have a lot of blue hydrogen. There are new technologies that are being explored.

Everybody knows about oil sands and the fact that we do open pit mining, but most of it is actually in situ, just comes out of wells. There's a technology of putting oxygen into the formation, igniting it, burning it, and as it comes up, you filter out the CO2, re-inject it, and you flow pure hydrogen to the surface. What colour would that be?

There is a lot that Canada could be exporting and stepping up to supply Europe and other parts of the world, which I think we're slowly starting to move towards.



Ivan Martin

We need technology because it is a game changer, and we should support its development. Let different technologies compete with one another; the most efficient will ultimately prevail. We should allow countries and companies to operate in the way they believe is best.

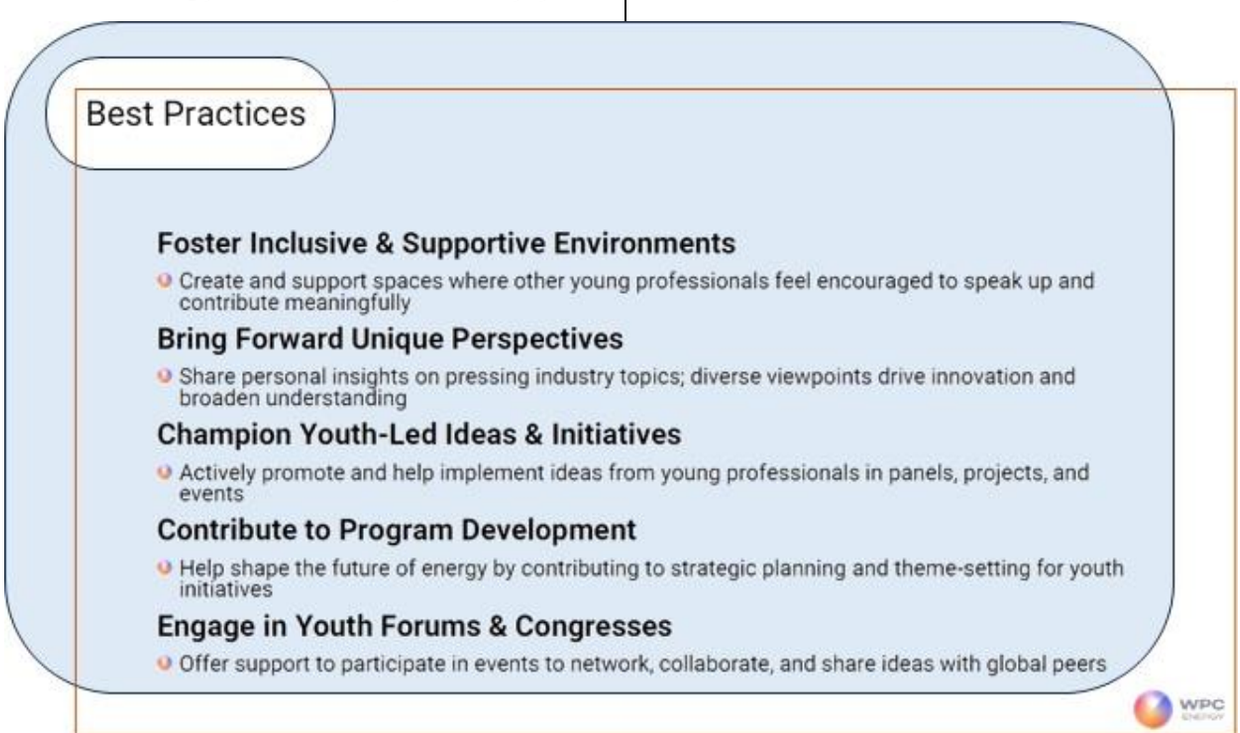
Gde će biti radna mesta u naftnom i gasnom sektoru i kako izgleda budućnost sektora u svetlu globalne potražnje za energijom

MLADI PROFESIONALCI DONOSE NOVE IDEJE I SVEŽU PERSPEKTIVU

Na trećem panelu radionice „Globalna perspektiva energetskog sektora" otvoreno je pitanje koje sve češće zaokuplja pažnju struke i javnosti: gde će sutra biti radna mesta u industriji nafte i gasa i kako izgleda budućnost ovog sektora u svetlu rastuće globalne potražnje za energentima. U fokusu diskusije našli su se upravo mladi profesionalci, u koje panelisti polažu velike nade kao ključne aktere energetske tranzicije. Moderator panela gospođa Pinar Jilmaz, iz SAD-a, viši potpredsednik Izvršnog odbora WPC Energy imala je krajnje kompetentne sagovornike na ovu temu. To su bili Šamus Hardi, iz WPC Energy Kanada, predsednik Odbora mladih stručnjaka, Šajma Al Banaj, iz WPC Energy Kuvajta, član programskog odbora kongresa i Čaba Žoter iz WPC Energy Mađarske, takođe član programskog odbora kongresa.

Pinar Jilmaz

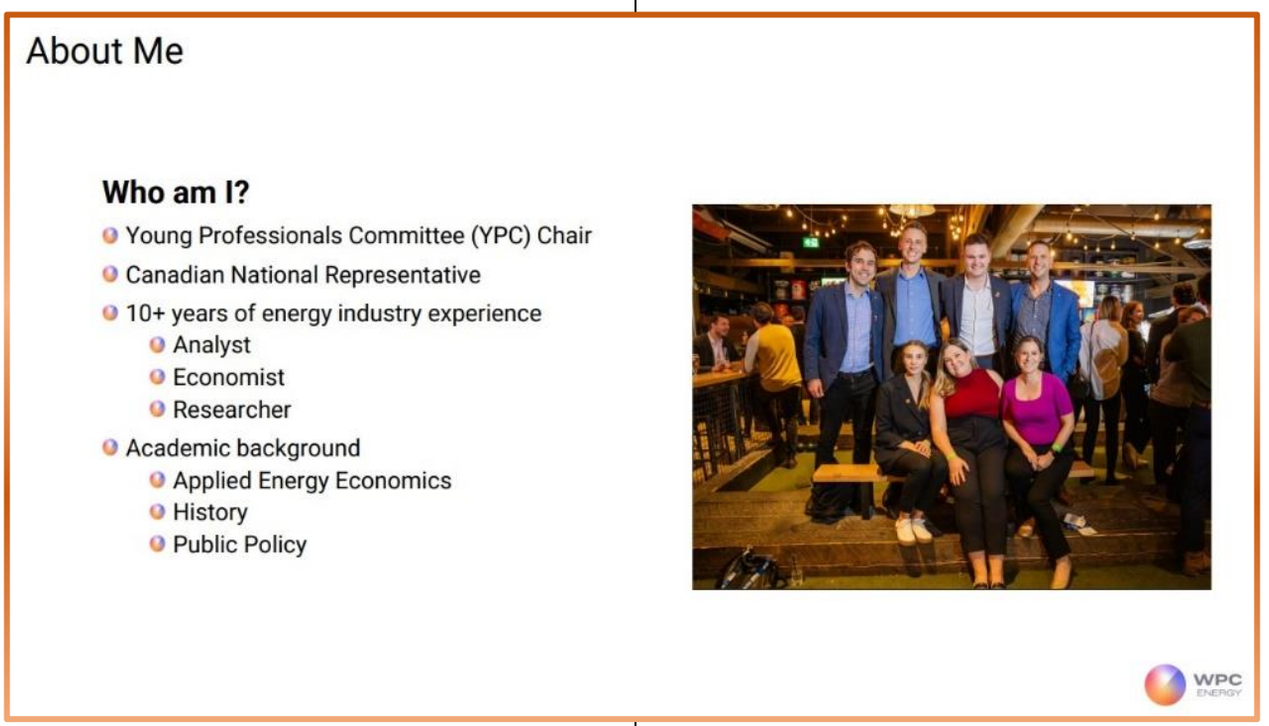
Samo da vam dam nekoliko statističkih podataka koje sam jutros pronašla na Guglu. U našoj populaciji ima 1,8 milijardi ljudi između 15 i 29 godina; 60 odsto afričke populacije je mlađe od 25 godina. Mladi ljudi između 18 i 35 godina smatraju klimatske promene kao nešto što je najvažnije.



Sa propisima donetim u Evropi, delovima Severne Amerike, čujemo mnogo diskusija o tome kako je naftno-gasni posao prljav posao i kako niko ne bi trebalo da imate karijeru u tom poslu. Imam običaj da od mladih ljude koji ulaze u industriju zatražim da iz svojih torbi, džepova i odeće izvade sve što je napravljeno od naftnih derivata. Vrlo malo predmeta nije dobijeno od nafte.

Teško je ovo saopštiti mnogima u obrazovnom sektoru, posebno na univerzitetima gde su programi koji se fokusiraju na geologiju i naftno inženjerstvo redukovani. Umesto toga sve više su usmereni na pitanja životne sredine i klime. Ali, danas smo čuli da će nafta i gas nastaviti da snabdevaju skoro 85 odsto svetskih energetskih potreba.

Dakle, kada čujemo da će obnovljivi izvori energije, koji trenutno čine oko 10-12 odsto snabdevanja energijom, stvoriti 42 miliona radnih mesta u narednih 30 godina, moramo razmotriti gde će biti radna mesta u naftnom i gasnom sektoru i kako izgleda budućnost za taj sektor u svetlu globalne potražnje za energijom.



Da predstavim učesnike panela.

Šejmus Hardi je u oblasti finansija i ekonomije i radi kao viši analitičar u petrohemijskoj kompaniji Inter Pipeline u Kanadi.

Šejma Al Banaj je članica našeg Komiteta za program kongresa (CPC) i predstavlja Ministarstvo nafte u Kuvajtu, a ima i iskustvo u kompaniji Kuwait Oil Company.

Radila je kao savetnica za odnose između Kuvajta i Sekretarijata WPC Energy i ima bogato iskustvo u preduzetništvu. Poseduje sopstveni brend u Kuvajtu, koji možete pronaći na veb stranici. Odlično je što je među nama žena preduzetnica.

Čaba Žoter je u kompaniji MOL u Mađarskoj i potpredsednik je za preradu i prodaju. Stručnjak je za spajanja i preuzimanja, pregovore, upravljanje projektima, snabdevanje i trgovinu i donosi drugačiju perspektivu na panelu.

Šejmus Hardi

Moja prezentacija biće fokusirana na ključne tačke onoga što Odbor mladih stručnjaka radi, kao i na ono što bismo želeli da damo kao preporuke, kao najbolje prakse ne samo za druge mlade profesionalce koji prisustvuju ovim sastancima, već i za druge članove nacionalnih komiteta i iskusnije profesionalce koji žele da uključe perspektive mladih.

Dakle, ja sam član nacionalnog komiteta iz Kanade i uključen sam u WPC već oko pet godina. Za to vreme, stekao sam mnogo iskustva sa Odborom, učestvujući u časopisu Youth Professionals (YP), kao i aktivnim učestvovanjem na kongresima, kako u Hjustonu tako i u Kalgariju. Na kraju kongresa u Kalgariju 2023. godine, izabran sam za predsednika Odbora i tokom ovog vremena sam radio na izgradnji naših timova i pripremama za tekući ciklus, kao i na pripremama za Forum madih koji će se održati u Kuvajtu u oktobru, kao i za Kongres u Rijadu.

Imam nešto više od decenije iskustva u industriji. Počeo sam kao ekonomista radeći za vladu u Alberti, a takođe sam išao na postdiplomske studije javne politike, sa fokusom na energetsku politiku. Privatnom sektoru sam se pridružio pre nešto više od pet godina.

Deo moje prezentacije odnosi se i na Odbor mladih profesionalaca koji imamo u Kanadi i Program budućih lidera. Ova slika je snimljena kada smo bili domaćini večeri mladih profesionalaca u septembru 2023. na kongresu u Kalgariju.

Ovo je samo deo našeg tima, ali otprilike nas je osam koji smo još uvek aktivni.

Odbor ima nešto više od 30 članova koji predstavljaju nešto više od 20 nacionalnosti, a odlično je što imamo veoma globalni doseg. Nismo ograničeni na neki kontinent ili vremensku zonu, već smo različitih godina, iskustava, dolazimo iz različitih sektora industrije, što nam pruža odličnu priliku da podelimo svoje znanje i sagledamo stvari iz različitih perspektiva.

Imamo nekoliko ključnih projekata, kao što su društvene mreže, časopis YP, ankete, program mentorstva. Na početku smo, ali očekujemo da ćemo videti prve rezultate sledećeg aprila na kongresu u Rijadu.

Jedna od stvari na koju sam ponosan u vezi sa Kanadom je to što imamo veoma aktivno članstvo. Jednom godišnje organizujemo događaj pod nazivom Ignite Talks. Umrežavanje koje traje sat ili dva, a zatim ga pretvaramo u panel sesiju sa nekim iskusnim profesionalcima iz industrije. Nedavno smo imali deseto izdanje, obično imamo oko 150 učesnika.

Želeo bih da podelim neke najbolje prakse koje smo otkrili. Odnose se i na mlade profesionalce, koji mogu da se bore za svoje ciljeve, ali i na iskusnije pojedince, koji mogu da pomognu u podsticanju većeg učešća mlađih kadrova.

Prva stvar je da slušate. Budite otvoreni da saslušate neke predloge, možete dobiti neke nove predloge mlađih kadrova i svežu perspektivu. Odnosite se prema njima sa poštovanjem, i ljudi će izneti ideje.

Drugo, podržite te ideje.

Po obrazovanju sam ekonomista i tokom godina sam radio sa mnoštvom inženjera u mnogim drugim disciplinama, ali opet, jedno je imati tehničku perspektivu, ali možda postoji i pogled koji ima veze za godinama i mogao bi biti koristan.

Nešto što se nedavno učilo u školi ili nova teorija ili nova primena, čak i novi

softver, možda ćete moći da se oslonite na ovu perspektivu kako biste oživeli svoje radno okruženje.

Svakako pomaže da mlađi kadrovi imaju iskusnijeg kolegu kao saveznikada se zalaže za te ideje. Imao sam veliku sreću da dobijem podršku Kanadskog nacionalnog komiteta u restrukturiranju našeg Programa budućih lidera.

Neki dekani i nekoliko drugih članova Komiteta bili su prilično otvoreni za te ideje i dijalog pun poštovanja. Lepo je imati nekoga ko će vas gurati i unaprediti te ideje.

Dakle, mislim da je važno, govoreći u ime Odbora, ako želite da se uključite u bilo koju od inicijativa koje imamo, bilo da su to naši projekti ili stvari poput Omladinskog foruma ili kongresa, da nam se obratite. Ali takođe, ako želite da budete više uključeni u neka druga planiranja, različite perspektive su dobra stvar.

I na kraju, pronalaženje načina da se, radi vašeg profesionalnog razvoja, uključite u Forume mladih i kongrese. Ne samo da je korisno doprineti nekim od ovih događaja, već je to stvaranje mreže kontakata, kao i izazov da izađete na binu i održite prezentaciju ili moderirate panel, da kontaktirate neke ljude sa kojima ste oduvek želeli da razgovarate.

Ovo je samo kratak rezime stvari koje bih preporučio, ali molim vas da obratite pažnju na to da ćemo u narednim mesecima kontaktirati više nacionalnih komiteta kako bismo čuli šta njihovi odbori mladih rade ili kako možemo da podržimo i podelimo, ponovo, neke od najboljih praksi.

Šajma Al Banaj

Želela bih da govorim o inovacijama i kako osnažiti nove generacije da učestvuju u njima. Verujem da je deo inovacije korišćenje i redefinisanje starih tehnologija kako bi se stvorile nove. Transformacija trenutnih starih, nasleđenih sistema i opreme u naftnoj i gasnoj industriji novim tehnologijama i informacionim tehnologijama povećava efikasnost, smanjuje troškove i ljudske greške i poboljšava operativne procese. Ova integracija između sadašnjeg sistema operativne tehnologije i IT sistema, moderne infrastrukture, ima određene izazove kojih nove generacije moraju biti svesne da bi ostvarile uspešan projekat.

Po mom mišljenju, dva glavna izazova koja treba prevazići su procena i postavljanje cilja. Potrebno je da procenite postojeći sistem i IT sistem, i da razumete specifične tehnologije, protokole i protok podataka i da procenite koliko su ovi zastareli sistemi kritični u operacijama.

Jasno je da morate da definišete ciljeve ove integracije između starog i novog sistema, kao što su poboljšanje podataka, vidljivost, optimizacija performansi, poboljšanje donošenja odluka i održavanje bezbednosti. Integracija sistema operativne tehnologije u novog IT sistema zahteva saradnju između različitih disciplina.

Na primer, potrebni su IT stručnjaci, inženjeri operativne tehnologije, stručnjaci za sajber bezbednost. Potreban nam je jedinstveni tim koji će pratiti ostvarenje ciljeva.

Čaba Žoter

Pre više od 20 godina, WPC Energy je prepoznao potrebu za fokusom na mlade stručnjake. Prvi Omladinski forum je organizovan u Kini 2004. godine, a Odbor mladih stručnjaka osnovan je 2006. godine.

Male inicijative mogu imati značajan uticaj. Šemus je pomenuo mentorstvo i druge aktivnosti Odbora. Inače, 2013. godine, predstavnik Mađarske u Odboru

mi je rekao da postoji mogućnosti mentorstva u okviru organizacije WPC. Video sam to kao odličnu priliku za učenje, i evo gde sam sada.

Zašto su nam potrebni mladi stručnjaci? Prvo, energetskoj industriji su potrebni jer će sve promene koje želimo da vidimo doći iz same industrije. Upravo ovde su resursi, finansiranje i stručnost. Možete imati velike ambicije da se pozabavite klimatskim izazovima, ali te probleme ne mogu rešiti neprofitne organizacije ili vladine organizacije. Na kraju krajeva, energetska industrija će pronaći rešenja.

Pada mi na pamet jedan istorijski primer: kriza sa konjskom balegom u Londonu 1894. godine. U to vreme, prevoz se oslanjao na kočije sa konjima, što je stvaralo značajne emisije – mada ne na isti način kao moderni automobili. Rešenje za ovu krizu pojavilo se u industriji sa izumom putničkog automobila.

Znam da je to stari primer, ali moja poruka je da je to ono što privlači mnogo mladih ljudi da budu u industriji. Čitav klimatski izazov, energetsku dilemu, najbolje će rešiti energetske kompanije.

Pinar Jilmaz

Zato hajde da započnemo dijalog, da počnemo od društvenih medija. Pošto nova generacija komunicira isključivo na društvenim mrežama, i stalno imamo nove aplikacija koje moramo da naučimo i da preko njih prenesmo poruku.

Da bismo promenili percepciju javnosti, moramo tamo biti prisutni i razgovarati sa javnošću, sa školama, čak i sa osnovnim školama. Kako društveni mediji pomažu da prenesemo poruku da naftno-gasni posao nije prljav?

Šejmus Hardi

Mislim da društvene mreže zaista osvežavaju komunikacionu strategiju. Takođe mislim da je raspon pažnje ljudi mnogo kraći, tako da morate tako preoblikovati svoju poruku. Potrebno je nešto što se lakše prihvata, što možete pogledati na brzinu. To je nešto što smo vežbali sa našim timom za društvene mreže, isprobavajući različite vrste materijala.

Da li je to samo slika? Da li je to neki tekst? Da li se dele vesti? Kada? Mislim da postoji priča koju treba ispričati o industriji.

Opet, ima mnogo negativnih konotacija, ali mislim da postoji i mnogo mogućnosti da pokažete zaista kul, zanimljive stvari koje se dešavaju.

Možete pokazati kako se možda primenjuju određene tehnologije ili kako bi projekat izgledao, pa čak i samo dati perspektive onoga što ljudi rade u industriji, posebno mladih ljudi. Neki video snimci, gde je to kao intervjui, i mladi ljudi podele svoje perspektive o tome šta rade i kako doprinose i pokušavaju da naprave promenu.

Šajma Al Banaj

Mislim da smo prošle godine organizovali takmičenje pod nazivom hakaton za studente, novoprimljene zaposlene u Ministarstvu za naftu. Bez društvenih medija ne bi se znalo za ovo takmičenje, ne bi o tome čula industrija. Cilj takmičenje je osnaživanjue mladih stručnjaka da predstave svoje projekte u vezi sa digitalnom transformacijom i šta su radili.

Jedan od projekata digitalne transformacije je Kuvajtska integrisana digitalna transformacija. Mi to zovemo Pametno naftno polje, koje koristi prikupljanje podataka iz SCADA i ICD sistema, a zatim ih prenosi na kontrolne table.

Kontrolne table nam daju predstavu o tome kako se podaci analiziraju i daju odluke. I sve to rade bez ikakve ljudske

intervencije. To mnogo pomaže. Ovo je jedan od projekata koji je osvojio prvo mesto na hakatonu.

Drugi projekat je od Ministarstva za naftu, koji predstavlja saradnja između ministarstva i Kuvajtske naftne kompanije. Reč je o primarnom odobrenju, konačnom odobrenju i prijavama za posete lokaciji. Naime, da bi se izbušila bilo koja bušotina, potrebno je odobrenje.

Ovaj sistem je Ministarstvu olakšao praćenje svih aktivnosti koje Kuvajtska naftna kompanija sprovodi i obezbedio statistički pregled broja odobrenja. Mslim da je ovaj projekat osvojio drugo mesto.

I sve ove projekte su vodili mladi stručnjaci. Nismo angažovali druge kompanije da nam pomognu sa programiranjem i sa IT-om i novim tehnologijama. Koristili smo naše mlade stručnjake i zaposlene u ministarstvu i Kuvajtskoj naftnoj kompaniji da bismo postigli ciljeve ovih projekata.

Čaba Žoster

U MOL-u imamo specijalizovanu obuku o generacijskim razlikama, što se pokazalo veoma efikasnim. Što se tiče društvenih mreža, obučavamo ambasadore - MOL ambasadore - koji aktivno koriste platforme kao što su LinkedIna, TikTok i Instagram. Čak smo kreirali i određena mesta za selfije u rafineriji, namerno birajući lokacije koje izgledaju odlično za Instagram.

Šalu na stranu, ovo su važne stvari, možda ne za nas, ali za društvene medije. Strateška upotreba društvenih medija često daje bolje rezultate od tradicionalnih oglasa ili marketinških kampanja.

Pinar Jilmaz

Kada završite fakultet ili univerzitet, neki od vas dolaze sa master diplomom, neki sa doktoratom. I svi ste specijalizovani za različite oblasti. Ipak, kada uđete u energetsku industriju, obično te korporacije pružaju godinu ili dve obuke.

Dakle, zaista naučite šta radite. Na osnovu vaših ličnih iskustava, ako biste upoznali mladu osobu koja direktno sa univerziteta ulazi u industriju, koja dva saveta biste joj dali.

Razlog zašto ovo pitam je taj što većina mladih ljudi koji dolaze sa univerziteta očekuje da budu potpredsednici u prve tri godine svoje karijere. To je sindrom trenutnog zadovoljstva.

Šejma Al Banaj

Prvi savet koji bih dala je da učite više. I da koristite stručnost svih profesionalaca i starijih. Jer, kao što sam već rekla, ne možete stvoriti nikakve nove inovacije ili integrisati novu tehnologiju bez korišćenja stare.

Zato bih im dala savet da jednostavno uče, da koristite stručnost iskusnijih profesionalaca.

Šejmus Hardi

Mislim da svakako morate biti strpljivi. Ne možete samo doći na višu rukovodeću poziciju ako nemate dovoljno iskustva, a kamoli veze i znanje. Zato budite uporni. Ali više od svega, svakako pratite svoju strast i pokušajte da vidite gde možete da napravite promenu.

Imamo mentorski program za studente tokom leta na mom poslu. Nešto što uvek pokušavam da savetujem je da budu sunđer. Samo pokušajte da upijete što više možete od što više ljudi i čujete različite perspektive.

Ne bojte da prihvatite izazove. Nećete napredovati ako vam je samo udobno i radite stvari koje su previše lake, posebno na početku karijere. Ne bojte se da se bavite nekim složenim stvarima. U najgorem slučaju, doživećete neuspeh i možda ćete biti

otpušteni, ali to se verovatno neće desiti.
Ali ako ništa drugo, učite iz tih grešaka i bićete bolji. I pre nego što se osvestite, bićete deset godina u industriji, a još nećete biti na poziciji potpredsednika.

Čaba Žoter

Prvi savet, tražite podršku kada je reč o obuci, mentorstvu, i radite na sebi. Bilo kakva podrška je važna, ne možete sami, bez obzira na to koliko imate godina ili kojoj generaciji pripadate.
Drugo je da karijera ne ide proporcionalno trudu koji ulažeš u nju. Ima prekretnica. Uvek će biti ljudi koji napreduju više, a ne bi trebalo. Planirajte na 15 godina, onda je lakše nositi se sa tim prekretnicama.
A imam i savet za sve nas. Kad god vam novi kolega dođe i kaže da želi da bude potpredsednik za tri godine, možete reći, polako, tek si došao, vredno radi, kada to zaslužite onda će i doći. Tri godine, pet godina, tako je bilo i sa našim prethodnicima.
Još jedna stvar. Nije važno samo da se mlađe generacije prilagođavaju iskusnijim profesionalcima, već da se i oni prilagođavaju novoj generaciji. Imamo sve više i više ovakvih slučajeva. To mora da bude obostrana stalna saradnja.

Pinar Jilmaz

Na osnovu mog iskustva, dodaću još nekoliko saveta. Ne zaboravite profesionalnu ljubomoru. Možda ćete ugroziti nečiju ambiciju dok pokušavate da napredujete.
Zato uvek uzimajte u obzir ambicije ljudi. Možda će vas gaziti ili preskakati ili šta god. Ali profesionalna ljubomora je realnost. Prihvatite je. Iskoristite je u svoju korist. I imajte strpljenje. Nemojte se uvrediti ni zbog najmanjih stvari. To je posao, ništa lično.
Neka se vaša reč čuje. Ako žele da vas prekinu, možete reći da ste samo napravili pauzu i da niste još završili. Nastavite. Ali, održavajte svoje tehničko znanje na visokom nivou.

Čaba Žoter

Jedna stvar koju kažemo u Mađarskoj. Bolje je imati stotinu ljudi koji su ljubomorni nego jednog koji vas sažaljeva.

Šejma Al Banaj

Verujem da morate da smanjite svoja očekivanja. Ne očekujte ogromnu nagradu za ono što radite.
Morate imati manja očekivanja i vredno raditi. Osim toga, morate biti timski igrač. Ne možete ništa postići sami.
Morate uzeti u obzir mišljenje drugih disciplina, drugih timova, iz različitih oblasti. Ne možete raditi sami. Morate raditi kao tim da biste postigli svoje ciljeve.

Šejmus Hardi

Rekao bih da upravljate očekivanjima. Ne mislim da ih nužno morate smanjivati. Ali, ako ste visoko efikasni, možda se prilagodite u skladu sa tim.
Nešto što sam naučio u kratkoj karijeri je to da što više napredujete manje su važne tehničke veštine, a više sposobnost upravljanja ljudima, i politika, na neki način. Ako ćete raditi sa timovima, samo jasno komunicirajte sa njima.
A takođe je važno i upravljanje očekivanjima u skladu sa onim što možete da isporučite. Zato imajte na umu da će se vaše veštine menjati tokom vaše karijere.

Pinar Jilmaz

Sada ćemo usmeriti pažnju na tehnološke inovacije, posebno u veštačkoj inteligenciji i robotici. Tempo poslovanja se značajno ubrzao. Da biste uspeli u ovim naprednim tehničkim

oblastima, specifične veštine su neophodne.

Šta mislite da će sledeća generacija morati da poseduje u smislu veština i pristupa za snalaženje u ovom brzo evoluirajućem tehnološkom pejzažu?

Čaba Žoter

Mnogo se diskutuje o veštačkoj inteligenciji (AI) u našoj industriji. Iako napredujemo u usvajanju AI i robotskih rešenja, verujem da bismo to mogli da radimo bržim tempom. Uveren sam da će nova generacija, sa svojim znanjem i otvorenošću, ovo postići brže od starijih generacija.

Što se tiče robotike, u kompaniji se fokusiramo na dve praktične primene koje se odnose na naš svakodnevni život: virtuelna stvarnost (VR) i robotska rešenja. Na primer, osnovali smo centar za obuku srednjoškolaca i studenata. Nedavno smo instalirali VR mašinu sa opremom koja omogućava korisnicima da obavljaju zadatke zavarivanja. Ovo iskustvo simulira težinu i osećaj stvarnog zavarivanja bez povezanih bezbednosnih rizika.

Osim toga, pružamo edukaciju o bezbednosti i zaštiti životne sredine našim podizvođačima radova i novim kolegama. Koristeći VR opremu, oni dolaze u okruženje rafinerije i rade na rešavanju problema u skladu sa našim bezbednosnim standardima.

Šejmus Hardi

Možete videti neke poslove, ne želim da kažem ukinute, ali možda zamenjene. U tome, opet, možda imate manje ruku, ali imate više programera.

Na nekim poljima naftnog peska u Kanadi uveden je autonomni prevoz, pa imate manje vozača, ali više programera koji njima upravljaju.

S druge strane, za ljude koji su već na pozicijama, ovi alati će biti samo proširenje njihovih sposobnosti. Korišćenje GPT-a je u suštini savremeni ekvivalent korišćenja kalkulatora kako biste mogli brže da obavljate matematičke i druge zadatke.

Dakle, budite u mogućnosti da obučite svoju trenutnu radnu snagu da bude u stanju da koristi ove nove alate malo efikasnije i da ubrzate posao koji mogu da obavljaju i možda budu precizniji. Mogućnosti su beskrajne.

Šajma Al Banaj

Imamo projekat pametnih polja u Kuvajtu, koji uključuje mentorske časove i radionice. Organizujemo ih možda svakog meseca kako bismo studentima predstavili kako projekat funkcioniše. Projekat nudi informacije o održavanju, kao i eventualne kvarove koji se dešavaju na naftnom polju.

Takođe vide kako se proizvodnja poboljšava i kako se povećava efikasnost korišćenjem ovih kontrolnih tabli. Kontrolna tabla prikazuje podatke o proizvodnji, kao i podatke o bušenju. Studenti imaju priliku da pogledaju ove podatke i analiziraju ih, a istovremeno i da predvide buduću proizvodnju i eventualne kvarove.

Osim toga, kontrolna tabla daje predloge šta da radite u slučaju kvara.

Pinar Jilmaz

Hajde da pređemo na poslednju temu, a to je energetsko siromaštvo. Svako od nas je čuo da oko 800 miliona ljudi nema pristup energiji. Kako nove generacije mogu pomoći u ublažavanju ovog problema?

Kada je reč o Kanadi, imate Aboridžine, kako rešiti taj problem. A, za Evropu, kako bi bogate energetske ekonomije trebalo da pomognu Africi. Za Kuvajt, to je jedna od najbogatijih zemalja. Šta Kuvajt radi u iskorenjivanju energetskog siromaštva?

Šejmus Hardi

Mislim da ovo ima veze sa pričom o

društvenim mrežama.
To je nešto što me je zaista privuklo ovoj industriji. Samo saznanje da je energija svuda oko nas, posebno ugljovodonici i kako su prisutni u našem svakodnevnom životu.
To je gorivo, grejanje, koriste se u poljoprivredi za đubrivo, koristi se za proizvodnju plastike, koja je svuda oko nas. Dakle, mislim da je velika mogućnost da se ispriča ta priča o tome koliko je industrija važna za naše moderno društvo. I biti svestan da nisu svi privilegovani kao mi u razvijenim zenljama.
U vezi sa Aboridžinima, to je ješto na čemu snažno radimo i razvijamo partnerstva kako bismo pružili mogućnosti da se doprinese lokalnim zajednicama.
Mislim da je način da se bavite energetskim siromaštvom pronalaženje infrastrukture da se ti molekuli dovedu tamo gde treba da budu.
Ne znam koliku bi ulogu vlada trebalo da

ima u ovim situacijama, ali možda postoje neke subvencije koje treba razmotriti kako bi se osiguralo da svi imaju jednake šanse i da se mogu razvijati.

Čaba Žoter

Verujem da je ključno da svi u industriji, u svim generacijama, budu svesni značajnog broja od 800 miliona ljudi pogođenih ovim problemom. Suočavamo se sa dilemom u vezi sa pristupačnom energijom, što komplikuje težnju ka održivosti. Međutim, podizanje svesti je od vitalnog značaja.
Mislim da tehnologija pruža potencijalna rešenja za ove izazove i zato je važno da angažujemo naše kolege, posebno mlađu generaciju.

Pinar Jilmaz

Šta bi trebalo da bude glavna preokupacije sledeće generacije?

Čaba Žoter

Mlada generacija može da promeni stvari iznutra. Mlada generacija mora da ima strpljenje, a iskusniji profesionalci razumevanje.

Šajma Al banaj

Nikada ne prestajte da učite, nikada ne prestajte da radite kao tim. Mladim stručnjacima je potrebna pomoć starijih stručnjaka. Da bi se to postiglo, mislim da iskusniji kadrovi trebjua da pruže svoju pomoć mladim generacijama. Hajde da to bude drugačije, da ne bude sve na mlađima generacijama.

Šejmus Hardi

Za mlade generacije savet je da pronađu ono u čemu mogu da ostvare najveći uticaj, da naprave razliku, i da budu uporni. Sa druge strane, savet za iskusnije kadrove je da pomognu ako vide nekoga sa potencijalom. Svi u industriji će imati korist od toga.

Where will jobs in the Oil and Gas Sector be, and what does the future hold regarding of Global Energy Demand

YOUNG PROFESSIONALS BRING NEW IDEAS AND A FRESH PERSPECTIVE

At the third panel of the workshop "A Global Perspective on the Energy Sector," a pressing question took center stage—where will tomorrow's jobs in the oil and gas industry be found, and what does the future of the sector look like amid growing global energy demand? The spotlight turned to young professionals, in whom the panelists placed great hope as pivotal figures in the energy transition. Moderated by Ms. Pinar Yilmaz of the United States, Senior Vice President of the WPC Energy Executive Board, the panel featured highly competent speakers on the topic: Seamus Hardy of WPC Energy Canada, Chair of the Young Professionals Committee; Shaima Al Banai of WPC Energy Kuwait, a member of the Congress Program Committee; and Csaba Zsoter of WPC Energy Hungary, also a member of the Program Committee.

Pinar Yilmaz

Just to give you a few statistics that I Googled this morning.

There are 1.8 billion people in our population that are in the age of 15 to 29; 60% of the African population is under the age of 25. Young people between the ages of 18 to 35 consider climate change as the most important thing.

With regulations in Europe, parts of North America, we hear a lot of discussion on how the oil and gas business is a dirty business, and how no one should have careers in the oil and gas business.

When I challenge young people entering the industry, I ask them to remove everything made from petroleum products from their briefcases, pockets, and clothing. Few items remain that are not derived from petroleum.

It's difficult to communicate this to many educators, especially at universities where programs that focus on geology and petroleum engineering have been scaled back. Instead, these departments are increasingly centered on environmental and climate issues. We've heard today that oil and gas will continue to supply nearly 85% of the world's energy needs.

So, when we hear that renewables, which currently account for about 10-12% of energy supply, will create 42 million jobs over the next 30 years, we must consider where the jobs in oil and gas will be and what the future looks like for the sector in light of global energy demands.

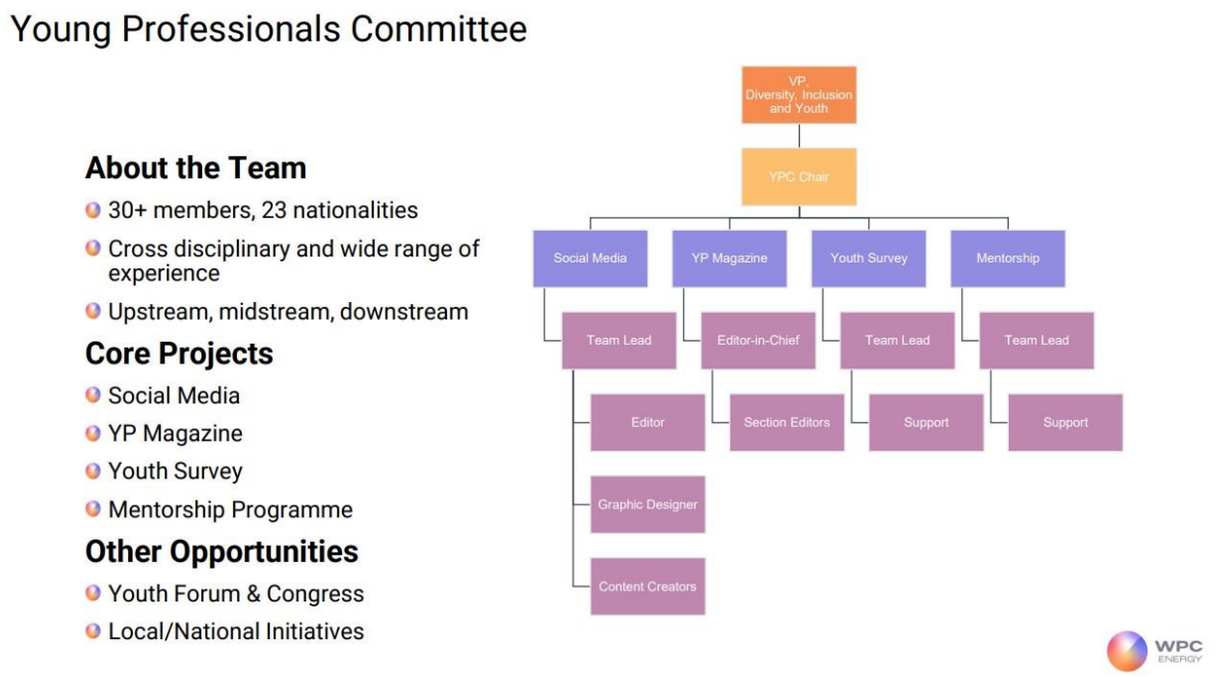
I would like to begin with our three speakers. I will ask them to share their introductory remarks, after which we will proceed with our questions.

Shamus Hardie is in finance and economics, and works as a senior analyst at Inter Pipeline, at the heartland petrochemical business of Canada.

Shayma Al Bannay is a member of our Congress programme Committee, and she's representing the Ministry of Oil at Kuwait, as well as having a background with Kuwait Oil Company.

She has been working as an advisor for the liaison between Kuwait and the WPC Secretariat, and she has extensive experience in entrepreneurship. She owns

her own brand in Kuwait, which you can find on the website. It's great to have a female entrepreneur among us.
Csaba Zsoter is with MOL in Hungary, and he's vice president of downstream. He's an expert in merger and acquisitions, negotiations, project management, supply and trading.
So he brings a different perspective to our group.



Shamus Hardie
My talk today was actually going to be focused on just a couple key points about what the Young Professionals Committee (YPC) does, and as well what we would like to give as recommendations, as best practices for not just other young professionals attending these meetings, but for other national committee members and more senior people looking to incorporate youth perspectives.
I've been involved with WPC for just about five years now. In this time, I've had a lot of experience with the YPC to participate with the YP Magazine, as well as contribute to a couple of congresses, both in Houston and Calgary. Then at the end of the Calgary Congress in 2023, I was selected to be the chair of the YPC, and over this time, I've just been working to build out our teams and get ready for the current cycle, and as well as prepare for the Youth Forum that will be taking place in Kuwait in October, as well as the Congress in Riyadh.
About myself, I have just over a decade of experience in the industry. I started as an economist working for the government in Alberta, and I also went to grad school on public politics, and during that time I was a researcher focused on energy policy. I joined the private sector just over five years ago.
Part of my presentation here is actually also referencing the YPC that we have back in Canada, what we call the Future Leaders Program there, and this picture was taken from when we hosted our Young Professionals Night back in September of 2023 at the Calgary Congress.
This is just a subset of our team, but there's roughly about eight of us that are still currently active.
We have just over 30 members that represent just over 20 nationalities, and the great thing is that we have a very global reach. It's not just limited to any particular continent or time zone, but we're in various

ages, years of experience, and then also aspects of an industry, so it gives us a great opportunity to share our knowledge with each other and look at things from different perspectives.

What we also come together to do is we have a few key core projects that we work on, such as social media, the YPC magazine, youth survey, and then the mentorship program.

It is early work, but expect to see the results of a lot of these projects come next April for the congress in Riyadh.

One of the things I'm proud about with Canada is that we do have a very active membership. We have a flagship event once a year, we call it the Ignite Talks. It is a networking event for an hour or two, and then we turn it into a panel session with some senior leaders within the industry. We've had great success with that, we've just recently had our 10th annual Ignite Talks and usually we see about 150 people attend those events.

Looking ahead, I would like to share some best practices that we've discovered. This advice applies to both the young professionals here—who can use their voices to advocate for their desires—and the more senior individuals, who can help encourage greater involvement from young professionals.

The first thing is to have open ears. Certainly if you're receptive to at least just listening to some suggestions, you're going to get some young professionals to speak up and maybe there is a different way of doing things or just a fresh perspective. Just treat them with respect, simple as that, and people will bring forward those ideas.

Second to that is then just fostering those unique perspectives.

I mentioned earlier that I'm an economist by training, and worked with tons of engineers in many other disciplines over the years, but again it's one thing to have a technical perspective, but perhaps there's also a generational view that might be beneficial to you.

Again, whether it's something that was recently taught in school or a new theory or new application, even a new software system, you might be able to rely on this perspective to help reinvigorate your working environment.

If you do hear some good ideas, then it certainly helps to have a senior person as an ally and champion those ideas. So it's something I've been very fortunate to have support from the Canadian National Committee that we were looking at restructuring our Future Leaders Program and kind of shadowing and getting some mentorship with the board.

Some dean and several of the other Canadian members were quite receptive to that and challenged us on some of our thoughts, but it's a respectful dialogue. It's nice to have someone to push on your behalf and advance those ideas.

So I think the big one, speaking on behalf of the YPC, is if you'd like to get involved with any of the initiatives that we have, whether it's our projects or things like the Youth Forum or the Congress, please reach out.

But also if you want to be more involved in some of the other planning, it helps to have a variety of perspectives.

And then lastly, finding ways to, for your own professional development, get involved with the youth forums and congresses. Not only is it helpful to contribute to some of these events, but it's the network that you're going to make along the way, as well as challenging yourself to get up on stage and give a presentation or moderate a panel, reach out to some people that you've always wanted to hear from in the industry. It just helps bridge those connections.

This is just kind of a quick summary of

things that I'd recommend, but please keep an eye out in the coming months that we're going to be reaching out to more of the national committees to hear about what your youth committees are doing or how we can support and share, again, some of the best practices.

Shayma Al Bannay

I would like to talk about innovations and how to empower the new generations to participate in the new innovation. I believe that part of innovation is using and redefining old technologies in order to create new ones. Transforming current old legacy systems and equipment in the oil and gas industry with new technologies and informational technologies will increase efficiency, reduce costs, reduce human error, and enhance operational processes.

This integration between the operational technology (OT) system, and the IT system, the modern infrastructures, has certain challenges that the new generations need to be aware of to achieve a successful project.

In my opinion, the two main ones to be overcome are the assessment and setting your objective. You need to assess the existing OT system, and the IT, the current IT system, and understand the specific technologies, the protocols, and the data flow involved and evaluate how critical these legacy and old systems are in operations.

You need to set your objective to achieve a successful project. Clearly, you need to define the business goals of this integration between the old system and the new system, such as improving your data, the visibility, optimizing your performance, enhancing decision-making, and maintaining your security. Integrating the OT system into the new IT system requires collaboration between different disciplines. For example, IT professionals, operational technology engineers, cybersecurity experts, and data scientists. We need a unified team to observe the objective of any project that we are going to do.

Csaba Zsoter

Over 20 years ago, WPC Energy recognized the need for a dedicated focus on young professionals. The first Youth Forum was organized in China in 2004, and the YPC, originally called the Youth Committee, was established in 2006.

Small initiatives can have a significant impact. Shemus mentioned the mentoring and other activities of the Young Professionals Committee. In 2013, the representative from Hungary on the Youth Committee informed me about a mentoring opportunity with WPC, which I saw as a great chance to learn. This is how the process works.

So, why do we need young professionals?

First, the energy industry needs young professionals because any changes that we want to see will come from within the industry. It is here that resources, funding, and expertise converge. You can have all the ambitions to address climate challenges, but those issues cannot be solved by nonprofits or government entities alone. Ultimately, it is the energy industry that will find the solutions.

One historical example comes to mind: the horse manure crisis in London in 1894. At that time, transportation relied on horse-drawn carriages, which created significant emissions—though not in the same way as modern cars. The solution to this crisis emerged from the industry with the invention of the passenger car.

And I know it is an old example, but my message is that this is what is attracting plenty of young people to be in the industry. The whole climate challenge, the energy dilemma will be best solved by the energy companies.

Pinar Yilmaz

So let's start a dialogue. Let's sort of start on today's social media. Since the new generation communicates totally on social media, and every day there's a new app that we have to learn and get our message across.

To change the public perception, we need to be out there speaking to the public, to the schools, even down to the primary schools. So how do you see social media helping us to get the message across that the oil and gas business is not a dirty business?

Shamus Hardie

I think with social media, it's really reinvigorating communication strategy.

And I think as well the attention span of people is a lot shorter, so you have to recraft your message that way. So you would almost need to have something that's a little more digestible, something you can just quickly look at. I think that's actually something that we've been practicing with our social media team, trying out different types of material.

Is it just a picture? Is it some text? Is it sharing news? And even figure out what time it is. Is this the best time to send out your posts? I think there's a story to be told about the industry.

There's a lot of negative connotations with it, but I think there's also lots of opportunity that you can show really cool, interesting things that are happening out there.

You can show how maybe certain technologies are being applied, or what a project would look like, and even just giving perspectives of what people are doing in the industry, especially young people. Some videos that I've seen before, where it's just like interviews, and getting young people to share their perspectives on what they're doing and how they're contributing and trying to make a change.

Shayma Al Bannay

I think last year, we organized a competition called the Hackathon for university students, newly fresh employees in the Ministry of Oil. Without social media, this competition wouldn't be distributed and known throughout the oil and gas industry.

This competition was established to empower the young professionals to showcase their projects regarding the digital transformation and what they have been doing. I would like to explain a little about one of the digital transformation projects.

It's Kuwait Integrated Digital Transformation. We call it the Smart Oil Field. It uses the data acquisition from SCADA system and ICD systems, and then transfers it to the dashboards.

The dashboards give us an idea of how the data is analyzed. And after analyzing the data, the dashboard itself will give us decisions. And plus, it gives us decisions and analysis of the data without any human intervention. So that helps a lot. This project won first place in the hackathon.

The second project is from the Ministry of Oil, which is a collaboration between the ministry and Kuwait Oil Company. It's for the primary approval, final approval, and the site visits applications. In order to drill any well, an approval needs to be made.

So this system made it easy for the ministry to monitor all the activities that Kuwait Oil Company is doing and to have a statistical view of the number of the approvals that's been conducted from the company. And I think this project won second place.

All these projects were led by young professionals. We didn't outsource any other companies to help us with the programming and with the IT and the new technologies. We have used our young professionals and our own employees in the ministry and Kuwait Oil Company to achieve the goals of these projects.

Csaba Zsoster

At MOL, we provide specialized training on generational differences, which has proven to be very effective. As for social networks, we have nominated and trained ambassadors—MOL ambassadors—who actively use platforms like LinkedIn, TikTok, and Instagram. We even created designated selfie spots at the refinery, intentionally selecting locations that look great for Instagram.

Jokes aside, these are important things, maybe not for us, but for social media channels.

We've found that the work of these ambassadors and the strategic use of social media often yield better results than traditional ads or marketing campaigns.

Pinar Yilmaz

Once you finish your college or university, some of you come with a master's, some of you come with a Ph.D., you're all specializing in different fields. Yet when you enter the energy industry, usually those corporations give a year or two of training and experiences across the business. So you really learn what it is that you're doing.

Based on your personal experiences, if you met a young person directly from a university about to enter the industry, there would be two pieces of advice you would give them on how to get their careers settled, established and move forward.

The reason I'm asking this is, most of the young people coming from the university expect to be the vice president within the first three years of their careers. It's the instant gratification syndrome. So based on your experiences, please give us a couple of pieces of advice. Just consider that I'm a brand new graduate, I'm about to enter your industry.

Shayma Al Bannay

The first advice I would give is to learn more. And to use the expertise of all professionals and the seniors. Because as I said before, you cannot create any new innovations or integrate a new technology without using the old one.

So I would give them a piece of advice to just learn more, use the expertise of old professionals.

Shamus Hardie

I think certainly you need to be patient. You can't just be coming for a senior leadership role if you don't have enough experience, let alone connections and knowledge.

So hang tight. But more than anything, certainly follow your passion and try to see where you can make a great impact.

I think we have a mentorship program for summer students at my work. Something I always try to advise them on is just to be a sponge. Just try to absorb as much as you possibly can from as many people as you can and just hear those different perspectives.

And then don't be afraid to take on challenges. You're not going to grow if you're just comfortable and doing stuff that's too easy, especially early on into your career. Don't be afraid to step up for some complex things. Worst case scenario, you're going to fail and you might get fired, but that's not very likely to happen.

But if anything, you learn from those mistakes and you take that with you to whatever project you go on to the next or team that you work with and just do better. And before you know it, you'll be 10 years in the industry and still not in a VP position.

Czaba Zsoter

First advice, ask for support when it comes to training, mentoring, even coaching and work on your self-awareness. Whatever support you can get, you can't do that alone in your career, regardless of how old you are or what generation you are.

And the second one is that the career doesn't go proportionately with the effort you put into that. So it's not a linear function. It has inflection points.

There will always be people who are advancing more than they should.
You put your net present value for 15 years, so you would rather plan for 15 years than for three, then it's easier to handle those inflection points. And I also have advice for ourselves.
So I think it's important that whenever a new friend of yours comes in and says that I want to be VP in three years, you might say that, come on; you come here, you work hard, and then once you deserve it, you get it. Three years, five years, because we did that, because our predecessors did that.
But, one more thing. It is not only important that the young generation is adjusting to more experienced professionals, but that these professionals are also adapting to the new generation. We have more and more of these cases. It has to be a mutual continuous relation.

Pinar Yilmaz

Based on my experience, I will add a couple more.
Don't forget professional jealousy. You might step on somebody's ambition while you're trying to do well in the company. So always take into account people's ambitions. They might be walking all over you or jump over you or whatever. But professional jealousy is a reality. Take it. Use it to your advantage.
Don't get offended by the slightest things. It is business, it is nothing personal.
Take a seat at the table and speak up. If they want to interrupt you, then you can say, I was just taking a breath. I'm not finished yet. Continue with it. But keep your technical side very, very strong.

Czaba Zsoter

One thing we say in Hungary. It is better to have a hundred people who are jealous than one who is feeling sorry for you.

Shayma Al Bannay

I believe you have to lower your expectations. Don't wait for a huge reward for what you're doing.
You have to lower your expectations and work hard on whatever you're doing. Plus, you have to work in a team. You cannot achieve anything by working by yourself.
You have to take the opinion of other disciplines, other teams, from different fields. You cannot work by yourself. You have to work as a team to achieve your goals.

Shamus Hardie

I would say manage expectations. I don't think you necessarily need to lower it. But if you're high-performing, maybe adjust accordingly.
Something I appreciate in my young career is that the more you move up, maybe less so about technical skills as it is also being able to manage people and politics in a way. So you have to be able to formalize it. If you're going to work with teams, just communicate with them clearly.
And also just managing those expectations of what you can deliver on. So just keep that in mind that your skill sets will change over your career.

Pinar Yilmaz

We will now turn our attention to technology innovation, particularly in artificial intelligence and robotics. The pace of business has accelerated significantly. To succeed in these advanced technical fields, specific skills are essential.
What do you think the next generation will need in terms of skills and approaches to navigate this fast-evolving technology landscape?

Czaba Zsoter

There is a lot of discussion about artificial intelligence (AI) in our industry. While we are making progress in adopting AI and robotic solutions, I believe we could be doing so at a faster pace. I have confidence that the next generation, with their knowledge and openness, will achieve this

more rapidly than previous generations.
In terms of robotics, we are focusing on two practical applications that relate to our everyday lives: virtual reality (VR) and robotic solutions. For instance, we have established a training center for high school and university students. Recently, we installed a VR machine equipped with a VR headset that allows users to perform welding tasks. This experience simulates the weight and feel of real welding without the associated safety risks.
Additionally, we provide safety and environmental education for our contractors and new colleagues. Using VR headsets, they can immerse themselves in a refinery setting and work on solving problems in line with our safety standards.

Shamus Hardie

I think with a lot of talk of different applications in AI, on one hand, you might see some jobs, I don't know if I want to say replaced, but perhaps substituted. In that, again, you might have less hands, but you have more developers or programmers.
We have seen this even in Canada for some of the oil sands mines that use very large trucks. They have gone to autonomous hauling for some of these projects. And again, instead of having a driver in each of these trucks, now they have a programmer who is writing code for that.
So that's where I think you might see a substitution. But that's also going to create a whole new set of skills that will be in demand. You want to have universities and technical schools prepared for that.
A thought that I have on the other hand is that for people that are in positions already, these tools are just going to be an extension of their abilities. Like I see, using GPT is essentially the modern-day equivalent of using a calculator so that you can do math and other queries faster.
So just be able to train your current workforce to be able to use these new tools a little bit more effectively and help speed up the work that they can do and perhaps be more accurate.
I feel like the opportunities are endless.

Shayma Al Bannay

We have smart fields in Kuwait, the project, with mentorship classes and workshops. We organize them maybe every month to give the students an idea of how the project is working. So they were able to predict maintenance, also to predict any failures that's happening in the oil field.
They will see how the production is enhanced and how the efficiency is increased while using these dashboards. The dashboard is displaying production data and also drilling data. The students have the opportunity to take a look at these data and analyze them, and at the same time to predict any future production and in order to predict any failures.
Plus the dashboard will give you suggestions on what to do in the case of a failure.

Pinar Yilmaz

Let's go to the last topic which is energy poverty. We each have heard and some of us know personally about 800 million people that have no access to energy. How can we help mitigate this as the next generation? This should be one of the key topics.
Especially like for Canada, you have the Aboriginal people, how to get access to them. And for Europe, there's also issues on how to get the rich fuel economies helping Africa. For Kuwait, that's one of the wealthiest countries. What is Kuwait doing trying to help eradicate energy poverty?

Shamus Hardie

I feel like this might touch on one of your questions earlier about the social media piece.
This is something that has really drawn me towards this industry. It's just knowing that energy is all around us, especially

hydrocarbons and how it's in our daily life. It's fuel, it's heating, it's used in agriculture for fertilizer, it's used in plastics all around us. So I think being able to tell that story of how critical it is to our modern society and all these uses. But then also taking that not everywhere in the world is as privileged as many of us in developed countries.

About your point about indigenous, especially in Canada, is that we're strongly working and developing partnerships to give opportunities to have partners with us on projects, just sharing those opportunities to contribute to their own communities.

And then I think as well, how you address energy poverty, it's finding the infrastructure to get those molecules to where they need to be.

I don't know how much of a role the government would be in these types of situations, but perhaps there's some subsidies that you look at to ensure that everyone has an equal chance and can develop.

Czaba Zsoter

I believe it is crucial for everyone in the industry, across all generations, to be aware of the significant number of 800 million people affected by the issue at hand. We face a dilemma regarding affordable and accessible energy, which complicates the pursuit of sustainability. However, raising awareness is vital.

I think technology is providing potential solutions to these challenges. It's important for us to engage our colleagues, especially the younger generation, in addressing this issue.

Pinar Yilmaz

Let's have closing remarks on what you think the next generation should be looking at.

Czaba Zsoter

The young generation can change things from inside. There is a patience needed from the young generation. Understanding is needed from more experienced professionals.

Shayma Al Bannay

Never stop learning, never stop working as a team. The young professionals need the help of old professionals. To achieve that, I think the old professionals need to give their help to young professionals. Let's make it like otherwise, and not just young professionals seeking the help of old professionals.

Shamus Hardie

I think some of my opening remarks earlier were just my advice to young professionals. Find where you feel that you can make the greatest impact and make a difference and do better. Just run with it.

On the other end of the spectrum, for more senior people, if you see someone that you feel has high potential, mentor them. Be that champion and advocate for them. We'll all do better for it.


NIKADA LAKŠE
DO UŠTEDA
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DO 6 din/l
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GAZPROM
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SA NAMA NA PUTU
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PREUZMI APLIKACIJU
ZA ANDROID TELEFON

VESTI ČLANICA NEKS-A

NIS NASTAVLJA SA INVESTICIJAMA U MODERNIZACIJU VOZNOG PARKA

Kompanija NIS obogatila je vozni park sa 39 novih tegljača i 22 nove poluprikolice za prevoz naftnih derivata. Nova transportna sredstva ispunjavaju najviše međunarodne bezbednosne i ekološke standarde, a

vrednost investicije iznosi 9,5 miliona evra. Nabavka novih transportnih sredstava omogućila je smanjenje operativnih troškova, unapređenje bezbednosti i pouzdanosti transportnog procesa, kao i povećanje transportnih kapaciteta, te povećanje učinka u pogledu prevezenih količina naftnih derivata. Konkretno, nove cisterne raspolažu najmodernijim sistemima kontrole i imaju pet komora, čime se omogućava istovremeni prevoz do pet vrsta derivata. Realizacijom ove investicije, NIS ne ulaže samo u modernizaciju voznog parka, već doprinosi i unapređenju bezbednosti i efikasnosti u procesu transporta derivata, čime se povećava celokupna logistika snabdevanja.

Nabavka novih vozila predstavlja samo jednu u nizu investicija koje kompanija sprovodi u okviru unapređenja logističkih kapaciteta – krajem 2022. godine kompanija je nabavila 121 najmoderniju vagon cisternu za prevoz naftnih derivata železnicom ukupne vrednosti 12 miliona evra.

SNIMANJE DRONOM NA NAFTNOM POLJU KIKINDA

NIS je nastavio sa upotrebom inovativnih tehnologija u oblasti istraživanja i proizvodnje nafte i gasa i izvršio dronsko snimanje bušotinskog fonda i nadzemne infrastrukture na naftnom polju Kikinda. Ova metoda omogućava brzo i efikasno prikupljanje podataka sa terena, a dobijeni podaci će služiti geolozima kao osnova za dalje geološke istražne radove i izradu detaljnih modela lokacije.

Rezultati snimanja obuhvataju precizan digitalni model terena, ortofoto snimke, kao i oblake tačaka, koji pružaju detaljan uvid u prostor. Takođe, podaci dobijeni snimanjem dronom koriste se i u projektovanju jer ih projektanti primenjuju pri planiranju cevovoda, objekata i celokupne infrastrukture.

U ovom slučaju, snimanje dronom korišćeno je umesto klasičnih geodetskih metoda. Na osnovu fotografija i markera postavljenih pre leta, i uz pomoć fotogrametrijskog softvera, dobijene su tačke terena sa preciznošću od 15 do 20 milimetara. Dnevno je moguće snimiti i do 90 hektara, na visini leta od 190 metara, sa preciznošću piksela od 3 cm. Takođe, napredak u dron tehnologiji otvara nove mogućnosti – sada se mogu koristiti i dronovi sa LIDAR sistemima, koji laserom probijaju kroz vegetaciju i snimaju stvarnu visinu terena, ili sa termalnim kamerama, koje detektuju gubitke i curenja u cevima.

NOVA SMILE APLIKACIJA – TVOJE MESTO ZA OSMEH!

U svetu automobila, svaki pređeni kilometar priča svoju priču. Bilo da ste zaljubljenik u duge vožnje, vozač koji uživa u dinamici gradskih ulica, ili neko ko voli vikend izlete van utabanih puteva – jedno je sigurno: svaka stanica na tom putu može biti prilika za nagradu. Zato je EKO Serbia

unapredila svoj već prepoznatljiv program lojalnosti i predstavila novu mobilnu aplikaciju EKO Smile – vašeg digitalnog saputnika ka ekskluzivnim pogodnostima, nagradama i specijalnim ponudama krojenim po vašoj meri.

Uz samo nekoliko klikova, vaša EKO Smile digitalna kartica je uvek pri ruci. Sipajte gorivo, uživajte u bezbrižnoj vožnji i sakupljajte poene koji vode do atraktivnih poklona iz novog digitalnog Smile kataloga. U ponudi vas očekuje pažljivo odabran asortiman proizvoda koji unapređuju svaku vožnju – od savremenih auto-dodataka koji pružaju dodatni komfor i stil, preko premium proizvoda za negu vozila koja vaš automobil održavaju besprekornim. Za ljubitelje tehnologije, tu su najnoviji gedžeti, a za trenutke kada niste za volanom, sportska oprema, kućni aparati i lifestyle dodaci, pažljivo odabrani za one koji podjednako vole brzinu, ali i kvalitetan životni stil.

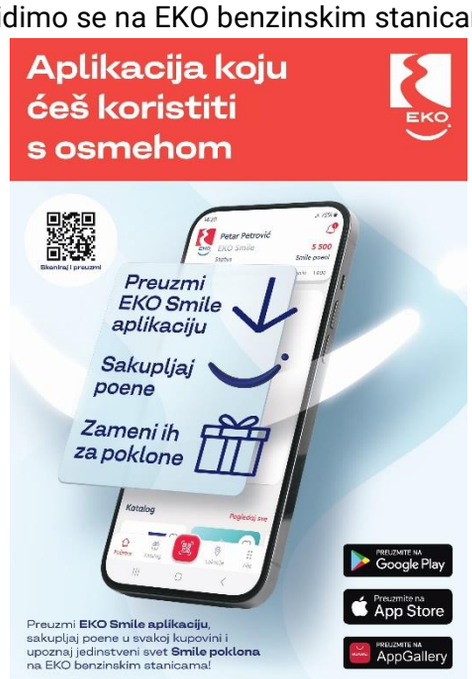
Svaka kupovina na jednoj od 59 EKO benzinskih stanica donosi dodatne pogodnosti – ne samo kroz nagrade, već i kroz personalizovane ponude prilagođene vašim navikama. Sa poverenjem više od 700.000 vernih članova, EKO Smile je postao jedan od najuspešnijih programa lojalnosti na tržištu. A sada, uz novu aplikaciju, sve je brže, jednostavnije i intuitivnije nego ikada pre.

Zato, sledeći put kada svratite na EKO benzinsku stanicu, nećete samo sipati gorivo – dopunićete i svoj Smile račun. U EKO Smile programu, svaka vožnja donosi nagradu.

Nova EKO Smile aplikacija dostupna je za preuzimanje na Android (Google Play Store), iOS (App Store) i Huawei (HUAWEI AppGallery) uređajima, što vam omogućava da odmah počnete da uživate u svim njenim prednostima. Za više informacija o funkcionalnostima aplikacije i programu lojalnosti posetite: www.ekosmile.rs.

Od sada, odlazak na EKO benzinsku stanicu, ne znači samo dopunjavanje rezervoara – već je to korak ka sjajnim nagradama.

Vidimo se na EKO benzinskim stanicama!




BLAGOSLOV PRIRODE
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jazak
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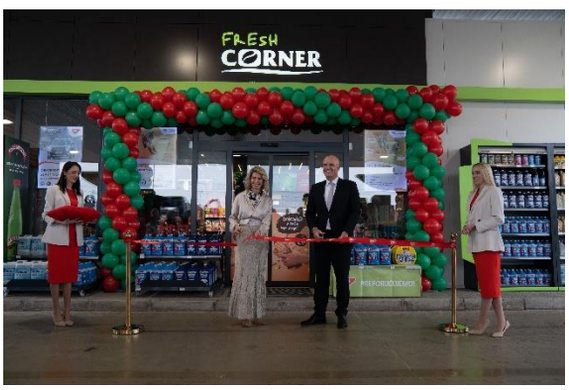
FRUŠKOGORSKA VODA
jazak

TRI NOVE MOL STANICE U PRVOJ POLOVINI 2025.

Beograd, avgust 2025. – Kompanija MOL Serbia otvorila je čak tri nove servisne stanice u prvih šest meseci ove godine.



MOL proizvodi i usluge sada su dostupni na još dve gradske stanice: u Čačku i na ulazu u Novi Sad, kao i na još jednoj autoputskoj stanici na novom auto-putu Miloš Veliki u smeru ka Beogradu. Ovo je deo strateškog širenja maloprodajne mreže na najfrekventnijim pravcima u Srbiji, u okviru šireg investicionog ciklusa kompanije.

Sve tri stanice opremljene su prema najvišim i najnovijim standardima MOL Grupe i dostupne su kupcima 24/7. Pored bogate ponude EVO i EVO plus goriva, kupci mogu uživati u raznovrsnoj ponudi hrane i pića. Uz sveže sendviče i pekarske proizvode, pauzu mogu upotpuniti šoljom Fresh Corner kafe i omiljenim hot dogom. Na stanicama su dostupni i proizvodi za negu automobila, auto kozmetika i dodaci za mobilne telefone, a vozači mogu takođe kupiti ili dopuniti uređaje za elektronsku naplatu putarine.

DUGOGODIŠNJA PODRŠKA MLADIMA SA SMETNJAMA U RAZVOJU

U okviru svog programa društveno odgovornih aktivnosti LUKOIL SRBIJA nastavlja da podržava humanitarnu organizaciju „Dečje srce“ i njene raznovrsne projekte, koji su usmereni na razvoj socijalnih i komunikacijskih veština, kao i na radno osposobljavanje osoba sa smetnjama u razvoju. Kroz različite edukativno-razvojne programe „Dečjeg srca“ koje kompanija podržava počev od 2021. godine, prošlo je nekoliko stotina dece i mladih sa smetnjama u razvoju, kao i njihovih roditelja.

Tokom letnjih meseci na Zlatiboru se održavaju „Škola životnih veština“ i „Škola roditeljstva“ namenjene osobama sa smetnjama u razvoju i njihovim roditeljima. Ovi programi imaju za cilj da na zanimljiv i prihvatljiv način osobama sa smetnjama približe programske sadržaje koji će im pomoći da se pripreme za samostalan život, razvijajući kroz različite psihoedukativne radionice njihovu ličnost, toleranci-ju, samopouzdanje i komunikacijske veštine. Istovre-meno program osnažuje roditelje kao pojedince i obezbeđuje mre-žu socijalne po-drške. Za uspešnu realizaci-ju ova dva pro-grama i prijatan boravak dece i roditelja svake godine je neop-hodno obezbediti radni materijal, obroke i prevoz, u čemu podršku svojom donacijom pruža „LUKOIL SRBIJA.

U okviru radnog centra „Zvuci srca“ u Beogradu realizuje se program edukacije u oblasti radnog osposobljavanja osoba sa smetnjama u razvoju, a koja se sprovodi u skladu sa Zakonom o profesionalnoj rehabilitaciji i zapošljavanju osoba sa invaliditetom Republike Srbije. Svojom podrškom LUKOIL SRBIJA se uključila prošle godine u želji da se mlade osobe sa smetnjama u razvoju osposobe za rad, što će ih učiniti korisnim i sebi i porodici i društvu. Kroz simulaciju radnih uslova u kafiću, radionici i prodavnici u sklopu radnog centra obuka u prvom delu ima za cilj sticanje socijalnih veština i kompetencija, poput poštovanja dnevnog ritma, poslovnog kodeksa oblačenja, higijene i komunikacije. Druga faza obuke fokusira se na primeni konkretnih radnih veština u obavljanju poslova šankera, konobara, prodavca te poslova za rad na presi i mašini za šivenje.

Kontinuiranom i stabilnom podrškom LUKOIL SRBIJA nastoji da doprinese kreiranju podstičućeg radnog i prirodnog okruženja i time pomogne u uspostavljanju poverenja i otvorenosti, što omogućava učesnicima ovih programa da unaprede svoje radne, životne i roditeljske veštine, steknu nove uvide i spremno se suoče sa svakodnevnim izazovima.

jul 2025.

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