

R. Baroudi: «Απόλυτα εφικτό η Ελλάδα να αποτελέσει στρατηγικό ενεργειακό κόμβο για την Ευρώπη»



newmoney

Ένα από τα σημαίνοντα στελέχη της παγκόσμιας ενεργειακής αγοράς εξηγεί πώς προέκυψε η τέλεια ενεργειακή καταιγίδα – Τι λέει για τις άστοχες πολιτικές της Ευρώπης

Ο Roudi Baroudi έχει 40 χρόνια διεθνή εμπειρία στους τομείς του πετρελαίου και του φυσικού αερίου, των ανανεώσιμων και πράσινων πηγών και των ενεργειακών υποδομών. Η καριέρα του

ξεκίνησε από τις Ηνωμένες Πολιτείες το 1978, πέρασε από την Παγκόσμια Τράπεζα, το ΔΝΤ και την Ε. Επιτροπή και τον έφερε στην περιοχή της Ανατολικής Μεσογείου, περιοχή που έχει μελετήσει βαθιά και για την οποία έχει γράψει το βιβλίο με τίτλο «Maritime Disputes in the Eastern Mediterranean: The Way Forward».

Διευθύνων σύμβουλος, πλέον, της Energy & Environment Holding του Κατάρ μετέχει στο 10ο «Athens Energy Dialogues» και μιλώντας στο newmoney επιμένει ότι μία συνεργασία Ελλάδας και Τουρκίας στον χώρο της ενέργειας είναι και δυνατή και αμοιβαία επωφελής, αν και όχι απολύτως ανώδυνη. Επίσης, προκαλεί αισιοδοξία η πεποίθησή του ότι έχει ξεκινήσει η διαδικασία αποκλιμάκωσης του κόστους της ενέργειας στην Ευρώπη.

-Ποια είναι η εκτίμησή σας για την ενεργειακή κρίση; Πόσο θα κρατήσει; Υπάρχει διέξοδος από αυτή χωρίς τη Ρωσία;

«Προφανώς είναι ένα πολύ σοβαρό πρόβλημα, όχι μόνο για την Ευρώπη, αλλά και για ολόκληρο τον κόσμο, καθώς επηρεάζει τόσες πολλές πτυχές της καθημερινότητας, από την τιμή του ηλεκτρικού ρεύματος έως τη βενζίνη, τις μεταφορές γενικότερα, την τροφική αλυσίδα κ.λπ. Είναι πολύ δύσκολο να προβλέψουμε πόσο θα διαρκέσει, καθώς ο πόλεμος μόλις ξεκίνησε. Η πρόβλεψη μιας ημερομηνίας λήξης είναι δύσκολο εγχείρημα, καθώς τόσο τα προβλήματα όσο και οι λύσεις έχουν πολλά κινούμενα μέρη.

Καταρχάς, το πρόβλημα είναι προϊόν πολλών παραγόντων, όπως:

- οι παλαιότερες αποφάσεις για σταδιακή κατάργηση της χρήσης άνθρακα και πυρηνικών σε ορισμένες ευρωπαϊκές χώρες
- η αποτυχία αποτελεσματικής διαφοροποίησης του συνολικού ενεργειακού καλαθιού της Ευρώπης (που οδηγεί άμεσα στην υπερβολική εξάρτηση από τις ρωσικές προμήθειες, ιδίως από το φυσικό αέριο που μεταφέρεται με αγωγούς)
- οι επακόλουθες επιπτώσεις της πανδημικής κατάρρευσης των τιμών του πετρελαίου και του φυσικού αερίου, που

ανάγκασε πολλούς παραγωγούς σε όλο τον κόσμο να κλείσουν, οδηγώντας με τη σειρά του σε ανοδικές πιέσεις στις διεθνείς τιμές όταν η ζήτηση ανέκαμψε.

Ο συνδυασμένος αντίκτυπος όλων αυτών έγινε ακόμη πιο βαρύς από τη συγκυρία: η κρίση έρχεται ακριβώς τη στιγμή που αγωνιζόμαστε να πετύχουμε με τους στόχους απαλλαγής από τις εκπομπές άνθρακα, καταργώντας τα ορυκτά καύσιμα. Έτσι οι ευρωπαϊκές αγορές ενέργειας έμειναν εξαιρετικά ευάλωτες σε διακοπές εφοδιασμού – ή ακόμα και στην πιθανότητα διακοπής.

Το να ξεσπάσει ο πόλεμος στην Ουκρανία, όταν αυτό έγινε, ήταν από πολλές απόψεις το χειρότερο σενάριο, και αυτό είναι που έχουμε να αντιμετωπίσουμε.

Δεύτερον, η αποτελεσματικότητα των λύσεων θα καθοριστεί από πολλαπλές μεταβλητές που εξαρτώνται από τη σωστή λήψη και εφαρμογή των αποφάσεων, την επαρκή χρηματοδότηση τόσο από τις κυβερνήσεις όσο και από διάφορους χρηματοπιστωτικούς οργανισμούς και τη συνεργασία μεταξύ των χωρών της ΕΕ και με τους γείτονές τους στη Βόρεια Αφρική και την Ανατολική Μεσόγειο.

Η Ευρώπη έχει πολλά κουμπιά που μπορεί να πατήσει και όσο περισσότερα πατήσει, τόσο καλύτερα θα είναι τα αποτελέσματα. Μερικά από αυτά θα ήταν:

- η καθυστέρηση της σταδιακής κατάργησης του άνθρακα/πυρηνικής ενέργειας
- η ριζική αύξηση των επενδύσεων σε ανανεώσιμες πηγές ενέργειας όπως η αιολική και η ηλιακή ενέργεια
- η επέκταση των δυνατοτήτων της Ευρώπης να δέχεται και να επεξεργάζεται μεταφορά μέσω πλοίων υγροποιημένου φυσικού αερίου
- η καλύτερη αξιοποίηση τέτοιων λύσεων στην Ισπανία, με σύνδεση μέσω αγωγών με τη Γαλλία και επομένως με την υπόλοιπη Ευρώπη
- εγκατάσταση κοινών δικτύων ηλεκτρικής ενέργειας με

γειτονικές περιοχές

- η στήριξη στην αξιοποίηση υποθαλάσσιων κοιτασμάτων φυσικού αερίου στην Ανατολική Μεσόγειο και
- η κατασκευή νέων αγωγών που συνδέουν τις αγορές της ΕΕ με τους παραγωγούς φυσικού αερίου στην Κεντρική Ασία.

Όσο περισσότερα από αυτά τα πράγματα κάνουμε –και κάνουμε καλά– τόσο πιο γρήγορα θα υποχωρήσει η κρίση. Όσο επιτρέπουμε να καθυστερεί η εφαρμογή τέτοιων μέτρων, τόσο περισσότερο θα διατηρηθεί η κρίση –και η ευπάθεια της Ευρώπης σε παρόμοια προβλήματα στο μέλλον.

Σε τελική ανάλυση, λοιπόν, ναι, μπορούμε να βγούμε από την κρίση, αλλά δεν υπάρχει ένα μόνο μονοπάτι που θα οδηγήσει εκεί. Και ναι, μπορούμε να το κάνουμε με ή χωρίς τη συμμετοχή των Ρώσων, αλλά φυσικά η διαδικασία θα ήταν πολύ πιο εύκολη αν με κάποιο τρόπο συμμετείχαν σε αυτή».

-Πιστεύετε ότι οι τιμές της ενέργειας είναι δυνατό να επιστρέψουν ξανά στα επίπεδα του 2020; Θα πρέπει οι Ευρωπαίοι να προσαρμοστούν στο να ζουν με ακριβό ηλεκτρικό ρεύμα και καύσιμα; Τι θα σήμαινε αυτό για την ευρωπαϊκή οικονομία;

«Μεσομακροπρόθεσμα, με την προϋπόθεση ότι θα λάβουμε όλα ή τα περισσότερα από τα μέτρα που ανέφερα προηγουμένως, οι τιμές της ενέργειας σίγουρα θα επιστρέψουν μια μέρα στα επίπεδα του 2020, αλλά όχι στις αρνητικές τιμές που παρατηρήθηκαν για σύντομο χρονικό διάστημα, όταν ο COVID-19 κατακρήμνισε τη ζήτηση.

Όπως είμαι βέβαιος ότι γνωρίζετε, οι τιμές πετρελαίου και φυσικού αερίου συνδέονται όχι μόνο με τις αντίστοιχες καταστάσεις προσφοράς και ζήτησης, αλλά και μεταξύ τους. Οι συνθήκες που προκάλεσαν αρνητικές τιμές ήταν εξαιρετικά ασυνήθιστες, και ακόμη κι αν προσεγγίζαμε ξανά αυτά τα επίπεδα, από τη φύση τους δεν θα μπορούσαν να διαρκέσουν πολύ.

Ωστόσο, οι τιμές μπορούν να μειωθούν και η διαδικασία βρίσκεται ήδη σε εξέλιξη.

Ήδη σήμερα, πολλές υπεύθυνες χώρες αυξάνουν την παραγωγή πετρελαίου και φυσικού αερίου για να βοηθήσουν στην ηρεμία των αγορών στην Ευρώπη και αλλού. Ωστόσο ορισμένες άλλες χώρες αρνούνται να το κάνουν, ενώ κάποιες άλλες βρίσκονται υπό κυρώσεις, που τις εμποδίζουν να φέρουν στην αγορά αρκετά εκατομμύρια βαρέλια που είναι απαραίτητα για να πέσουν οι τιμές.

Προς το παρόν, οι Ευρωπαίοι δυσκολεύονται πολύ να αντιμετωπίσουν το κόστος ηλεκτρικής ενέργειας και καυσίμων, ειδικά εδώ στην Ελλάδα, όπου οι τιμές της ενέργειας είναι απίστευτα υψηλές. Η Γερμανία είναι ένα άλλο παράδειγμα.

Δεδομένης της κατάστασης, και επειδή είναι η ταχύτερη διαθέσιμη μέθοδος, ορισμένες ευρωπαϊκές χώρες πρέπει να αναστείλουν ή να ανακαλέσουν τις αποφάσεις τους να κλείσουν τους πυρηνικούς σταθμούς και τους σταθμούς ηλεκτροπαραγωγής με άνθρακα. Πρέπει να καθυστερήσουν το κλείσιμο για άλλα πέντε έως επτά χρόνια και ίσως να κατασκευάσουν επίσης ένα ή δύο νέα εργοστάσια άνθρακα, για να αντιμετωπίσουν την αυξανόμενη ζήτηση και να περιορίσουν την ανοδική πίεση στις τιμές μέχρι να προστεθούν στο δίκτυο άλλες πηγές ενέργειας.

Παρά την πιθανότητα οι τιμές να υποχωρήσουν τελικά, βραχυπρόθεσμα έως μεσοπρόθεσμα, οι Ευρωπαίοι πρέπει οπωσδήποτε να προσαρμοστούν. Μελέτες έχουν δείξει ότι οι αυξημένες τιμές της ενέργειας θα σημαίνουν μειωμένη οικονομική ανάπτυξη, ειδικά στη Γερμανία.

Αυτό σημαίνει ότι περισσότεροι άνθρωποι θα έχουν λιγότερα μέσα για να αντεπεξέλθουν στις υψηλότερες τιμές ενέργειας και αυτό καθιστά καθήκον των ηγετών της ΕΕ και των εθνικών κυβερνήσεων να αναπτύξουν πολιτικές και μηχανισμούς για να αμβλύνουν το πλήγμα, ειδικά για τις οικογένειες με χαμηλότερο εισόδημα».

-Η ελληνική κυβέρνηση ζητά από την ΕΕ «στοχευμένη και προσωρινή παρέμβαση» στη χονδρική αγορά φυσικού αερίου για τη μείωση των τιμών. Πιστεύετε ότι μια τέτοια παρέμβαση είναι

εφικτή, και αν ναι, τι αντίκτυπο θα μπορούσε να έχει;

«Είναι σίγουρα εφικτή. Υπάρχουν περιστάσεις όπου η ΕΕ θα πρέπει να βοηθήσει τα κράτη-μέλη, όπως σε περιόδους πολέμου, και η τρέχουσα κατάσταση είναι εξαιρετική, πρωτοφανής μετά τον Β' Παγκόσμιο Πόλεμο. Με αυτήν την εξαιρετική κατάσταση πραγμάτων, η ελληνική κυβέρνηση –όπως κάθε άλλο κράτος μέλος – μπορεί και πρέπει να προτείνει βιώσιμους δρόμους προς τα εμπρός, π.χ. ανώτατα όρια στο αυξανόμενο κόστος ηλεκτρικής ενέργειας, πετρελαίου ή/και άλλων ενεργειακών δαπανών. Με τη βοήθεια της ΕΕ, η κυβέρνηση θα πρέπει να μπορεί να επιδοτεί ορισμένους καταναλωτές χαμηλού επιπέδου, για παράδειγμα νοικοκυριά των οποίων η κατανάλωση είναι μικρότερη από 100 kWh την ημέρα».

«Έχετε γράψει ένα βιβλίο με τίτλος «Ναυτιλιακές διαφορές στην Ανατολική Μεσόγειο: Ο δρόμος προς τα εμπρός». Πιστεύετε ότι υπάρχει περιθώριο για ειρηνική συνεργασία Ελλάδας, Κύπρου και Τουρκίας στον ενεργειακό τομέα και εάν ναι, ποια θα ήταν τα μέσα για να επιτευχθεί;

«Ναι, πιστεύω ακράδαντα ότι η Ελλάδα, η Κύπρος και η Τουρκία θα μπορούσαν και θα έπρεπε να βρουν τρόπους συνεργασίας στον ενεργειακό τομέα, και υπάρχουν αρκετοί τρόποι με τους οποίους η συνεργασία θα προσφέρει πολλά πλεονεκτήματα.

Το ένα είναι η εξερεύνηση και η εκμετάλλευση κοιτασμάτων πετρελαίου ή/και φυσικού αερίου κάτω από τον βυθό της Ανατολικής Μεσογείου, όπου τα μέρη θα μπορούσαν να μοιραστούν το κόστος, να μοιραστούν δεδομένα, να μειώσουν τις επικαλύψεις, να επενδύσουν το ένα στα κοιτάσματα του άλλου κ.λπ.

Το ίδιο θα μπορούσε να ισχύει και για τα υπεράκτια αιολικά πάρκα.

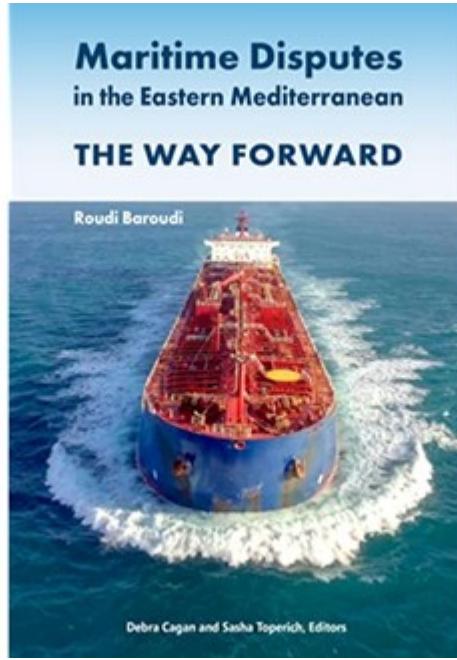
Ένας άλλος τρόπος είναι η κατασκευή ενός ή περισσότερων αγωγών που θα μετέφεραν αέριο από τη νοτιοανατολική Μεσόγειο στην Ευρώπη χωρίς να χρειάζεται όλη η διαδρομή να γίνεται κάτω από

το νερό: ο αγωγός θα μπορούσε να φτάσει έως την τουρκική ακτή και ο υπόλοιπος να συνέχιζε από την στεριά.

Δυνητικά, οι τρεις χώρες θα μπορούσαν επίσης να συνεργαστούν για να κατασκευάσουν μια μονάδα LNG, μια τεράστια επένδυση που γίνεται πιο ελκυστική αν διαμοιραστεί το ρίσκο. Σίγουρα πάντα υπάρχει χώρος για ειρήνη και πάντα υπάρχει χώρος για διπλωματία. Ο δρόμος προς τα εμπρός είναι η Ελλάδα και η Τουρκία να συνεχίσουν τις συζητήσεις τους με βάση τις αρχές της Σύμβασης του ΟΗΕ για το Δίκαιο της Θάλασσας (UNCLOS) που είναι ο Άτλαντας του Παγκόσμιου Ωκεανού. Σε αντίθεση με την Κύπρο, ούτε η Ελλάδα ούτε η Τουρκία έχουν υπογράψει την UNCLOS, αλλά οι κατευθυντήριες γραμμές και τα δεδικασμένα της ισχύουν – και μπορούν να εφαρμοστούν – από όλες τις χώρες. Η UNCLOS παρέχει μια νομική και τεχνική υποδομή με την οποία η Ελλάδα και η Τουρκία, ως κύρια μέρη, θα μπορούσαν να καθίσουν και, με αναφορά σε έρευνες που χρησιμοποιούν την τελευταία λέξη της επιστήμης και τεχνολογίας, να καταλήξουν σε μια δίκαιη και ισότιμη θαλάσσια λύση.

Τόσο ο Πρωθυπουργός Μητσοκάκης όσο και ο Πρόεδρος Ερντογάν έχουν εκφράσει την προθυμία τους να επιλύσουν αυτή τη σύγκρουση και πιστεύω ότι αυτή τη στιγμή είναι η κατάλληλη για να γίνει.

Στο βιβλίο μου, έχω επισημάνει μελέτες που δείχνουν ότι και οι δύο χώρες θα έχαναν ορισμένες θαλάσσιες περιοχές, αλλά και οι δύο χώρες θα κέρδιζαν πολύ περισσότερα: την ομορφιά ενός αποτελέσματος *win-win*, στο οποίο και οι δύο γείτονες θα μπορούσαν να επωφεληθούν από τον πλούτο του πετρελαίου και του φυσικού αερίου της περιοχής, ενώ και οι δύο λαοί θα μπορούσαν να απολαμβάνουν ειρήνη και ευημερία.



Φυσικά, αυτού του είδους η συνεργασία εξαρτάται από τη φιλική δέσμευση, και αυτή τη στιγμή αυτό ακούγεται δύσκολο, αλλά, όπως εξηγεί το βιβλίο, υπάρχουν τρόποι να επιλυθούν ορισμένες από τις διαφορές μεταξύ των τριών χωρών, ειδικά των διαφορών που σχετίζονται με τα θαλάσσια σύνορα.

Το επόμενο βιβλίο μου, «Κλίμα και ενέργεια στη Μεσόγειο», προχωρά ακόμη περισσότερο προτείνοντας συνεργασία σε όλη την ευρωμεσογειακή περιοχή. Ένα από τα παραδείγματα που μπορούμε να δούμε είναι η Κασπία, όπου πέντε χώρες – Αζερμπαϊτζάν, Ιράν, Καζακστάν, Ρωσία και Τουρκμενιστάν – βρήκαν μια πολύ δημιουργική λύση. Βασικά, συμφώνησαν να εφαρμόσουν ένα σύνολο κανόνων για τον βυθό της θάλασσας και ένα άλλο για το νερό και τους πόρους του. Αυτή η συμφωνία δεν είναι τέλεια, και ορισμένες πτυχές πρέπει ακόμη να αποτελέσουν αντικείμενο διμερών διαπραγματεύσεων, αλλά η συμφωνία επέτρεψε σε κάθε χώρα να πάρει τουλάχιστον μερικά από αυτά που ήθελε και να συνεχίσουν με την εκμετάλλευση των αντίστοιχων μεριδίων τους».

-Η Ελλάδα φιλοδοξεί να γίνει στρατηγικός ενεργειακός κόμβος για την Ευρώπη. Είναι αυτό εφικτό και αν ναι τι οφέλη θα αποφέρει στη χώρα;

«Είναι απολύτως εφικτό. Ανάλογα με τις ποσότητες που

διαθέτουν, κάθε χώρα της Ανατολικής Μεσογείου που καταλήγει να παράγει πετρέλαιο και φυσικό αέριο μπορεί να γίνει τουλάχιστον σε κάποιο βαθμό ενεργειακός κόμβος. Κοιτάζοντας πίσω, πριν από 10 χρόνια, η Κύπρος είχε την ευκαιρία να γίνει ένας ωραίος περιφερειακός κόμβος αγωγών και τερματικού σταθμού LNG, και εάν η ανάπτυξη συνεχίσει να αυξάνεται, έχει ακόμα μια καλή ευκαιρία να πραγματοποιήσει αυτές τις προβλέψεις. Η Ελλάδα θα μπορούσε επίσης να γίνει σημαντικό ενεργειακό κέντρο την επόμενη δεκαετία, εάν επιβεβαιωθούν κοιτάσματα ανάλογα με αυτά που βρέθηκαν σε άλλες χώρες της Ανατολικής Μεσογείου, όπως η Αίγυπτος και το Ισραήλ. Πράγματι, πολλές εταιρείες του ιδιωτικού τομέα ενδιαφέρονται, αλλά αυτό πιθανότατα θα διαρκέσει 5-10 χρόνια αφού η εξερεύνηση επιβεβαιώσει επαρκείς ποσότητες υδρογονανθράκων. Τα οφέλη του κόμβου θα ήταν σημαντικά: περισσότερες καλοπληρωμένες θέσεις εργασίας για τους Έλληνες πολίτες, περισσότερα κέρδη για τις ελληνικές εταιρείες, περισσότερα έσοδα για την ελληνική κυβέρνηση, περισσότερα διαθέσιμα κεφάλαια για δρόμους, σχολεία και νοσοκομεία, μεγαλύτερη επιρροή στην ευρωπαϊκή και παγκόσμια σκηνή, και τα λοιπά».

European Energy Crisis: R. Baroudi: “It is entirely possible for Greece to be a strategic energy hub for Europe”



Roudi Baroudi

CEO, Energy & Environment Holding, Qatar

Interview with Newmoney.gr by Symela Touchtidou

Questions:

- 1. What is your assessment on the current energy crisis? How long will it last? Is there a way out of it? Is there a way out of it without Russia included?**

Obviously it's a very serious problem, not only for Europe, but also for the whole world as this is affecting so many aspects, from electricity crises to petrol prices for vehicles, transportation in general, food chain, etc.

It's very difficult to predict how long it will last as the war has just begun, but four months in, it has already caused so much damage. Predicting an end-date is a difficult ask because both the problems and the solutions have so many moving parts. First, the problem is a product of several

contributing factors, including: earlier decisions to phase out coal and nuclear plants in some European countries; a failure to sufficiently diversify Europe's overall energy basket (leading directly to over-reliance on Russian supplies, especially pipelined natural gas); and the after-effects of the early-pandemic collapse of oil and gas prices, which forced many producers around the world to shut down, leading in turn to upward pressure on international prices when demand recovered. The combined impact of all this was made even heavier by the timing: the crisis comes just as we are struggling to keep up with decarbonization goals by transitioning away from fossil fuels and toward cleaner and greener energy, leaving European energy markets extremely vulnerable to supply interruptions – or even the possibility thereof. To have had the Ukraine war break out when it did was in many ways worst-case scenario, and that's what we're dealing with.

Second, the effectiveness and timeliness of solutions will be determined by multiple variables that depend on sound decision-making and dedicated follow-up, adequate financing from both governments and multilateral financial institutions, and cooperation among EU countries and with their neighbors in North Africa and the Eastern Mediterranean. Europe has several buttons it can push, and the more of them it pushes, the better the results will be. Some of these would be to delay the coal/nuclear phaseouts; radically increase investments in renewables like wind and solar; expand Europe's capacity to receive and process shipments of liquefied natural gas; make better use of such capacity in Spain by linking it to France, and therefore the rest of Europe, by pipeline; install shared power grids with neighboring regions; help develop undersea gas resources in the Eastern Mediterranean; and build new pipelines linking EU markets to gas producers in Central Asia. The more of these things we do – and do well – the sooner the

crisis will recede. The more we allow implementation of such steps to be delayed, the longer the crisis – and Europe's vulnerability to similar problems in the future – will persist.

So in the final analysis, yes, we can get out of this crisis, but there is no single path that will get us there. And yes, we can do so with or without the participation of the Russians, but of course the process would be much easier with them somehow included.

2. Do you see energy prices ever going back to the 2020 levels? Will Europeans have to adjust to living with expensive electricity and fuels? What would that mean for the overall European economy?

In the medium/long terms, provided we take all or most of the steps I listed earlier, energy prices will definitely go back one day to the levels for 2020 as a whole, but not to the negative prices seen briefly when COVID-19 caused demand to fall off a cliff before production had been dialed back, causing a sudden glut. As I'm sure you know, commodity prices for oil and gas are connected not only to their respective supply and demand situations, but also to each other. The conditions that caused negative prices were highly unusual, and even if we approached those levels again, by their nature they could not last long.

Nonetheless, prices can be brought down, and the process is already under way. As of today, many responsible countries are increasing their production of oil and gas to help calm markets in Europe and elsewhere, but some countries are refusing to, while several others are under sanctions, preventing them from bringing to the market several million barrels needed to cool off the price hikes. For the time being, Europeans are having a very hard time to cope with

electricity and fuel costs, especially here in Greece, where energy prices are unbelievably high.

Germany is another example.

Given the situation, and because it's probably the fastest method available, some European countries need to suspend or reverse their decisions to close their nuclear and coal power plants. Instead, they need to delay closures for another five-to-seven years, and maybe build one or two new coal plants, too, to cope with rising demand and restrain upward pressure on prices until other sources of energy can come online.

Despite the likelihood that prices will eventually retreat, in the short to medium term, Europeans definitely need to adapt. Studies have indicated that elevated energy prices will mean reduced economic growth, especially in Germany, whose importance to the rest of Europe cannot be overstated. That means more people will have less means to cope with higher energy prices, and that makes it incumbent on EU and national leaders to develop policies and mechanisms to cushion the blow, especially for lower-income families.

3. **The Greek government asks from the EU “a targeted and temporary intervention” in the natural gas wholesale market to bring prices down. Do you believe such an intervention is possible, and if so, what impact could be?**

It is definitely possible. There will be circumstances when the EU has to assist EU members, such as during times of war, and the current situation is an extraordinary one, unseen since World War II. With this extraordinary state of affairs, the Greek government – like any other member state – can and should propose viable paths forward, e.g. caps on rising electricity, petroleum and/or other energy costs. At the very least, with the help of the EU, the government should be able

to subsidize certain low-level consumers, for instance households whose consumption is less than 100 KWh per day.

4. Are you aware of the 'Six-Point Plan' of the Greek government? What is your assessment on it? (available here <https://primeminister.gr/en/2022/03/09/28836>)

Yes, I am aware of the Six-Point Plan that Prime Minister Mitsotakis has proposed. It's a very positive move forward in order to cushion some of the pain from disastrous price increases, which are driving inflation across the Greek economy. Here, Greece is contributing to the European Union's overall policy formulation, which seeks to provide protection against the major consequences emanating from the Russia-Ukraine war, and the Greek plan is definitely doable. There are other measures, too, that could be taken to shield the country from the continuous negative repercussions of the war in Ukraine. Of course gas supplies could be increased by expanding the Trans-Anatolian gas pipeline (TANAP) to boost imports from Azerbaijan gas, for instance, but keeping coal power plants would also help contain pressure on electricity prices, as would adding a nuclear plant of 4,000-6,000 MW. Moving quickly to promote energy conservation, too, would also help alleviate spiking costs and give Greek households and business sustainable access to more affordable electricity.

5. Greece is the only European country where electricity prices are directly linked to natural gas international stock prices. Do you believe there is a way out of this? What measures could be taken to bring electricity prices in the Greek market down?

Yes, there is definitely a way out. This is the responsibility of the Regulatory Authority for Energy, which controls and regulates energy prices in Greece. Given the circumstances,

the RAE certainly has a powerful incentive to propose a different mechanism, one that would follow other European countries in order to help keep energy prices at affordable costs for all.

6. You have written a book on “Maritime Disputes in the Eastern Mediterranean: The Way Forward”. Do you believe there is room for peaceful cooperation between Greece, Cyprus and Turkey in the energy field and if so, what would be the means to achieve it?

Yes, I believe very strongly that Greece, Cyprus, and Turkey could and should find ways to cooperate in the energy field, and there are several ways in which working together would offer many advantages. One is exploration and development of oil and/or gas deposits beneath the seabed of the Eastern Mediterranean, in which the parties could share costs, share data, reduce duplication, invest in one another's fields, etc. The same could go for offshore wind farms.

Another is the construction of one or more pipelines that could transport East Med gas to the European mainland without having to have the entire route under water: just get it to Turkish coast and run the rest of it overland. Potentially, the three countries also could team up to build an LNG plant, an enormous investment and therefore one for which spreading the risk would be very attractive.

Definitely there is always room for peace and there is always room for diplomacy. The way forward is for Greece and Turkey to continue their discussions based on the principles of the UN Convention on the Law of the Sea (UNCLOS) which is the Atlas of the World Ocean. Unlike Cyprus, neither Greece nor Turkey is a signatory to UNCLOS, but its guidelines and precedents are applicable to – and actionable by – all countries. UNCLOS provides a legal and technical

infrastructure with which Greece and Turkey, as the main parties, could sit down and, with reference to surveys using the latest science and technology, arrive at a fair and equitable maritime solution. Both Prime Minister Mitsokakis and President Erdogan have expressed their willingness to solve this conflict, and I believe that right now, the time is right to get it done. In my book, I have highlighted studies indicating that both countries would lose some maritime areas, but both countries would gain far more: the beauty of a win-win outcome, one in which both neighbors would be able to benefit from the region's oil and gas wealth, and both peoples would be able to enjoy peace and prosperity.

7. Greece aspires to become a strategic energy hub for Europe. Is this possible and if so what benefits will it bring to the country?

Absolutely it is possible. Depending on what quantities they have, every East Med country that ends up producing oil and gas can become an energy hub to some extent at least. Looking back, 10 years ago, Cyprus was slotted to become a nice regional hub for pipelines and an LNG terminal, and if development keeps on growing, it still has a good chance to make those predictions come true. Greece could also become a major energy center in the next decade if their exploration efforts confirm the same kinds of deposits found offshore other East Med countries like Egypt and Israel. Indeed a lot of private sector firms are interested, but this will probably take 5-10 years after exploration confirms sufficient quantities of hydrocarbons.

The benefits of hub status would be significant: more good-paying jobs for Greek citizens, more profits for Greek companies, more revenues for the Greek government, more funds available for roads, schools, and hospitals, more influence on the European and global stages, etc.

The end of Europe's clean-energy preaching



By Ana Palacio/ Madrid

Russian President Vladimir Putin's war against Ukraine has served Europe a heaping dose of energy realism. While the European Union was touting a "no pain, all gain" transition to renewable energy, many of its industries – particularly in Germany – had developed a debilitating dependence on cheap Russian gas. This revelation should be the first step toward a more realistic – and less dogmatic – European approach not only to its own energy transition, but also to that in the Global South.

The EU has an action plan for weaning itself off Russian fossil fuels. But, while the details of REPowerEU are still being finalised, it is already clear that, like so many European "solutions," the plan is an exercise in muddling through, exemplified by the fact that it will not be completed

until 2030.

Though REPowerEU aims to accelerate the rollout of renewables and replace gas in heating and power generation, it also depends significantly on the diversification of energy supplies. Already, energy producers in the Global South have received desperate pleas to help meet the EU's energy needs, which has probably prompted more than a few eye rolls. After all, countries across the developing world have endured years of European proselytising about the importance of rapid progress toward a carbon-free energy system.

If the EU cannot achieve this in the short term – in order to avoid funding an unjust war, no less – the Global South most certainly cannot. Europe is worried that economic growth and local livelihoods will suffer if it attempts to move too rapidly to renewables. Developing economies are worried that they will have no path to sustained economic growth and poverty reduction at all.

They are right to worry. The positive correlation between baseload power and prosperity clearly shows that a reliable energy supply is essential to economic progress. But, globally, 770 million people – mostly in Africa and Asia – lack access to electricity. In Sub-Saharan Africa, the pandemic worsened energy poverty, with 77% of the region's people now living without electricity, compared to 74% in 2019.

Given that future population growth – and, thus, growth in energy demand – will be concentrated in the Global South, this problem is set to get much worse. And, for now, renewables cannot solve it, because they do not represent a sufficiently reliable power supply. A scale-up in hydrogen fuel could change this, though this remains a stretch for emerging-market and developing economies.

United States Special Presidential Envoy for Climate John Kerry, for one, has now recognised the folly of attempting to force developing economies to go fully renewable. On March 7, following the Russian invasion of Ukraine, he acknowledged that gas would be crucial to economic development in African

countries. Even the World Bank – without much fanfare – has reversed its moratorium on financing gas projects.

Yes, this new realism implies a near-term increase in African emissions – but starting from a very low level. The 48 countries that comprise Sub-Saharan Africa (excluding South Africa) represent 0.55% of global carbon dioxide emissions. As a whole, Africa consumes less energy than any other continent – far less than Europe, especially if one takes into account historical consumption. Rich countries are well aware of this discrepancy, which is why developing countries have been increasingly critical of the developed world's climate hypocrisy: constant pressure to cut emissions coupled with prolonged refusal to finance climate mitigation and adaptation in the Global South.

The Green Climate Fund embodies this hypocrisy. At the United Nations Climate Change Conference in 2009, developed economies pledged to channel \$100bn per year for mitigation and adaptation efforts in developing countries by 2020. As of January 2022, participating countries' pledges amounted to a measly \$10bn.

Sustainability is vital to our planet's future. But the green transition must be just. And justice demands that the Global South receive the same opportunity to develop as the North had. That will be possible only with energy security for all.

That is why this week's Sustainable Energy for All Forum is so important. Stakeholders from both the public and private sectors will gather in Kigali, Rwanda, to find ways to accelerate progress toward UN Sustainable Development Goal 7: ensure access to affordable, reliable, sustainable, and modern energy for all.

This year's Forum comes at a pivotal time in the global energy transition. Moreover, this is the first time since the Forum was launched in 2014 that it will be held in Africa. One hopes that the continent's centrality to the event – and the harsh realisations that the war in Ukraine has imposed on Europe – will be reflected in its conclusions, which, given the current crisis, will be more consequential than ever.

Europe has always prided itself on being a leader in the green-energy transition. This should not change. But, rather than allowing its vision to become clouded by idealism and ideology, the EU must ensure that its energy ambitions – for itself and for developing economies – are firmly grounded in reality. Europe must support developing countries' efforts to adapt to climate change and achieve net-zero emissions. But it must also help them to achieve energy security. As one African minister succinctly put it, “We will decarbonise, but first we have to carbonise.” – Project Syndicate

- *Ana Palacio, a former foreign minister of Spain and former senior vice president and general counsel of the World Bank Group, is a visiting lecturer at Georgetown University.*

Public-private decarbonisation



As we mark the 52nd Earth Day, we must recognise that

achieving net-zero carbon dioxide emissions by 2050 will require significant investment to finance the necessary economic and social transitions. McKinsey estimates that this will take \$9.2tn of annual global investment over the next 30 years – an increase of \$3.5tn per year from what is spent today on clean, renewable energy.

Most of these investments will come from the private sector, which is already leading the charge. The value of assets under management with net-zero commitments is now \$57tn. The 450 members of the Glasgow Financial Alliance for Net Zero, representing more than \$130tn in assets, have pledged to align their portfolios with the Paris climate agreement's 1.5° Celsius warming target. The First Movers Coalition (whose founding members include companies like Amazon, Apple, Boeing, Trane, and Volvo) has pledged to create demand for early-stage clean technologies in “hard-to-abate” sectors like steel, cement, and aviation. In the United States alone, private investment in clean-energy assets reached a record \$105 billion in 2021, 11% higher than in 2020 and up 70% over the previous five years.

Moreover, last fall, the International Financial Reporting Standards Foundation created a new International Sustainability Standards Board to develop industry-specific climate disclosure guidelines that will build on reporting standards developed by the Sustainability Accounting Standards Board. By the end of 2021, 258 institutional investors, representing \$76tn in assets, had adopted the SASB's voluntary standards. And, in a significant policy move, the US Securities and Exchange Commission recently proposed new rules that would require public companies to disclose information about their carbon emissions and their plans for addressing climate-related real asset and transition risks.

As these examples suggest, the net-zero challenge cannot be solved by private actors alone. Public-private co-operation and co-ordination will be critical to deploying private capital at the necessary speed and scale. The public sector – from international organisations like the International

Monetary Fund and the International Bank for Reconstruction and Development to national, state, and municipal governments – must shape incentives and issue regulations to fuel the necessary private investment in clean-energy projects and infrastructure.

In the US, public-private collaboration has already yielded some clean-energy commercial success stories – most notably Tesla, which was created with the help of a US Department of Energy loan. Government-furnished funding for research and development, loans, and tax incentives have accelerated the growth of the electric-vehicle industry and supported a remarkable reduction in the costs of solar and wind energy over the past 15 years.

Publicly funded and directed innovation has a long history of success in the US. In California, standards set by the California Air Resources Board led to the widespread adoption of the catalytic converter, reducing tailpipe emissions in the state by 90% between the mid-1960s and the early 1980s. The technology then became a standard part of all motor vehicles sold in the US, because automakers needed to comply with the regulations set first by California (and then by the newly formed Environmental Protection Agency).

Owing to the size of the California market, the fuel-efficiency standards it sets continue to be adopted by major car manufacturers. And within the state, private capital is now being mobilised through public initiatives like the Self-Generation Incentive Program, which provides rebates to organisations that install onsite energy-storage technologies, and through investment tax credits for solar and storage.

As William H Janeway notes in a recent Project Syndicate commentary, the explosion of venture capital in the information-technology and health industries over the past half-century occurred only after the government had invested billions of dollars in upstream R&D and advance-purchase commitments for new products and services. Historically, alternative-energy and decarbonisation technologies have received nowhere near the support provided by the US

Department of Defense and the National Institutes of Health for information-technology and biomedical innovations. Increased government support for R&D of climate technologies would accelerate venture capital investment, which has lately gathered momentum.

Policymakers and business leaders should take advantage of this moment to supercharge public-private partnerships for climate-change adaptation and mitigation. The new \$1tn Bipartisan Infrastructure Deal allocates \$62bn to the DOE to accelerate the developing and scaling up of clean-energy technologies through R&D support, demonstration projects, an expansion of the DOE loan program, and targeted tax credits. These are major first steps. The \$555bn of climate provisions in the Build Back Better bill would provide additional de-risking incentives to unlock the private investment required for the net-zero transition.

Although Russia's war in Ukraine has forced the US to look for ways to increase fossil-fuel production in the short run, it has also provided a wake-up call. Domestic clean-energy production will be key not just to mitigating climate change but also to energy security over the long run. The climate policies in the Build Back Better legislation would accelerate progress toward both of these goals.

But regardless of what happens at the federal level, states and cities can follow California's example and implement bold climate policies of their own. California has pledged \$37bn over the next six years – more than most national governments – to combat climate change, and has introduced its own new loan program to encourage innovation in clean-energy technologies.

This is a unique and critical moment for the private sector. It must step up and deploy its capital, building on public-policy catalysts to drive innovation and investment for a sustainable future. – Project Syndicate

lLaura Tyson, a former chair of the President's Council of Economic Advisers during the Clinton administration, is a

professor at the Haas School of Business at the University of California, Berkeley, and a member of the Board of Advisers at Angeleno Group.

Daniel Weiss, Co-Founder and Managing Partner of Angeleno Group, is Co-Chair of the UCLA Institute of Environment and Sustainability Advisory Board and serves on the board of the World Resources Institute.

Russia-Ukraine war could delay Europe's decarbonization plans for a decade



Russia's invasion of Ukraine could force Europe to delay key decarbonization efforts for up to a decade, a prominent

regional energy expert has warned in Greece.

"They don't have many choices left," said Roudi Baroudi, CEO of Doha-based Energy and Environment Holding, an independent consultancy. "Unless some European countries pull out all the stops, much of the continent could soon be looking at crippling shortages, prohibitively high prices, or both."

Now that Europe is moving to reduce imports of Russian oil and gas, he explained, some of the measures expected to reduce carbon emissions may have to be put off "for eight, nine, maybe 10 years," as would planned shutdowns of nuclear generating stations.

"The European Union will need to provide the necessary permissions in some cases, plus financing in others," he said. "Eight to 10 nuclear plants and as many as 30 coal stations slated for decommissioning will have to remain online to keep up with electricity demand, and several projects required to replace Russian gas will need to be accelerated with additional funding and/or guarantees."

If and when gas stops flowing through pipelines from Russia, Baroudi told the 7th Delphi Economic Forum last week, "it cannot be replaced by simply ordering more liquefied natural gas from Qatar, the US, and/or other producers. Europe doesn't have enough receiving facilities to re-gasify such huge amounts, which is why efforts to expand capacity in Germany and the Netherlands are so urgent."

Coordinated releases of strategic oil reserves by the US and other countries are helping to contain upward pressure on crude and other energy prices, he said, but reasonable levels "cannot be maintained unless more supply makes it to market and that means oil producers –primarily OPEC but others as well – have to start pumping more."

On yet another front, "Spain has both spare LNG receiving capacity and an undersea pipeline for imports of gas from North Africa – but very little of that can reach the rest of Europe unless and until a new pipeline connects the Iberian

Peninsula to the rest of Europe via France," said Baroudi, who has been advising companies and governments on energy policy for decades. "Paris has recently voiced new openness to that idea, but the EU can and should do more to facilitate it. It should also do more to establish an agreed route for another pipeline to carry gas from the Eastern Mediterranean to Greece and/or Turkey."

Baroudi also argued that the EU would be wise to ensure adequate capital flows into renewables such as wind and solar. "We might have to retain fossil fuels longer than we had planned, but that's no reason to stop funding a cleaner future," he said. "In fact it's a reason to move as quickly as possible."

"The whole situation is very sad," he added. "Ever since the Paris Agreements of 2015, and especially since the Glasgow climate summit last year, Europe had been on the right track to be ready for a decarbonized economy. But now those plans are being pushed temporarily to the back burner. Apart from the lives being lost in the fighting, the energy and economic implications will mean severe hardships across the continent, especially for lower-income people. And much of the cause is due to the fact that Europe had delays to diversify its sources of supply. Now it finds itself scrambling to prevent an economic disaster."

Russia-Ukraine War Could Delay Europe's Decarbonization Plans for a

Decade “The Whole Situation is Very Sad” – Energy Expert



8 April 2022

Roudi Baroudi

DELPHI, Greece: Russia's invasion of Ukraine could force Europe to delay key decarbonization efforts for up to a decade, a prominent regional energy expert warned on Friday.

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climate summit last year, Europe had been on the right track to be ready for a decarbonized economy. But now those plans are temporarily being pushed to the back burner. Apart from the lives being lost in the fighting, the energy and economic implications will mean severe hardships across the continent and even beyond, especially for lower-income people, who are the most vulnerable as rising energy prices cause the cost of food to spike as well. So there will be hunger, too. And much of the cause is due to repeated delays in the diversification of Europe's sources of supply. Now it finds itself scrambling to prevent an economic disaster."

'Qatar, US recognise urgency climate change challenge'



Doha

The State of Qatar and the United States of America recognise the urgency of the challenge posed by climate change and the

importance of accelerating global efforts on all aspects of the climate change agenda.

Qatar and the US also agree on the need to provide energy security and tackle the climate crisis together in light of current events and on the road to COP27 in Sharm el Sheikh. Rapidly reducing methane emissions is the most effective strategy to limit global warming in the near term and keep 1.5 degrees Celsius within reach.

Qatar's endorsement of the Global Methane Pledge provides critical momentum to global efforts to urgently reduce methane emissions. There are now 111 country endorsements of the Global Methane Pledge, representing 70% of the global economy and nearly half of global anthropogenic methane emissions.

Countries endorsing the Global Methane Pledge commit to take national-level, voluntary actions to support the collective pledge target of 30% reduction in anthropogenic methane emissions by 2030 from 2020 levels.

Qatar is a global leader in tackling methane emissions as it has achieved example-setting progress reducing methane intensity in the energy sector over the past decade. Qatar has an impressive track record of actions and commitments to monitor, report, verify, and reduce methane, including through reducing flaring and methane emissions in the energy sector.

QatarEnergy was the first national oil company in the Middle East to sign the Methane Guiding Principles, which support voluntary corporate efforts to reduce methane emissions across the natural gas supply chain.

QatarEnergy is also an active member of the Global Gas Flaring Reduction Partnership (GGFR) with a firm commitment to end routine flaring by 2030 and has joined the second phase of the Oil and Gas Methane Partnership (OGMP 2.0), which enables systematic and credible reporting on oil and gas methane emissions.

The Global Methane Pledge builds on Qatar's status as a founding member of the Net-Zero Producers Forum, and its ongoing strong performance, and provides an exciting new platform for Qatar and the US to deepen cooperation on methane reduction efforts, including with third countries.

UN climate report reignites global fight for compensation



With this week's UN climate science report laying bare the staggering economic costs and losses already faced from climate change, an inevitable question arises: who should pay? Within UN climate negotiations, "loss and damage" refers to the costs countries are incurring from climate-related impacts and disasters – costs that disproportionately hit the world's poor and vulnerable who did least to cause global warming.

Drawing on more than 34,000 references from the latest scientific papers, the report released on Monday by the UN Intergovernmental Panel on Climate Change (IPCC) confirmed that economic sectors from agriculture and fishing to tourism were already being damaged.

Extreme heat has fuelled crop losses. Rising seas have turbo-charged cyclones that have razed homes and infrastructure, slashing economic growth.

And as the bills mount up, poorer countries are left with even less to spend on health, education and infrastructure – compounding suffering.

"It's an unending situation," said Anjal Prakash, a lead IPCC

author and research director at the Indian School of Business. The report is likely to intensify a years-long political fight over funding to pay for climate-linked losses, ahead of the next UN climate summit, COP27, in Egypt in November.

Vulnerable countries for years have sought funding to help them shoulder these costs. So far, it hasn't arrived, and rich nations have resisted steps that could legally assign liability or lead to compensation.

The mention of "loss and damage" in the 2015 Paris Agreement came with the caveat that it "does not involve or provide a basis for any liability or compensation".

Last November at the COP26 climate summit in Glasgow, poor countries called for a special "loss and damage" fund to be established, but the United States and other rich nations resisted. The delegates agreed to set up a UN body to help countries address loss and damage, and to continue discussions towards making "arrangements" for funding.

But there is no clarity on where the money would come from.

"We can't just create more talk shops when people are dying," said Harjeet Singh, senior adviser at Climate Action Network. He said COP27 needed to establish the funding facility that developing countries, including China, had called for at COP26.

Singh and other campaigners said the IPCC report – which has been approved by nearly 200 governments – could intensify pressure on the world's most powerful nations.

"It will help us to say that science is clear, the impacts are clearer now. So you are accountable for this, and you have to pay for this," said Nushrat Chowdhury, a policy advisor at NGO Christian Aid.

The report's discussion of climate losses is bolstered by recent improvements in "attribution science", which allows scientists to confirm when climate change caused or worsened a specific extreme weather event.

Still, putting a number on the resulting losses remains contentious. For example, can climate-linked losses from a weather event be separated from losses caused by poor disaster

planning? Can costs be counted for losses outside our economic systems, such as when nature is degraded or a community burial site is destroyed?

"We are still debating that in the scientific community," said another IPCC lead author Emily Boyd, a professor at Sweden's Lund University.

As climate disaster costs mount and UN negotiations remain stuck, some are considering other options.

"Liability and compensation have other avenues to be taken forward, which are courts," said Saleemul Huq, an adviser to the Climate Vulnerable Forum group of 55 countries.

Sophie Marjanac, lawyer at environmental law firm ClientEarth, said the IPCC report "will generally support litigation" to address climate change.

The legal avenue faces other obstacles, however.

Last year a federal appeals court rejected New York City's attempt to use state law to hold five oil companies liable to help compensate harm caused by global warming. The court said the regulation of greenhouse gas emissions should instead be addressed under federal law and international treaties.

"Challenges in climate change litigation are related to the law, not to do with the science," Marjanac said. "The science has been clear, very clear for years."

Global airlines on the flight path to carbon neutral aviation



Air transport's commitment to tackling its environmental challenges has not diminished despite the Covid-19 crisis that has decimated the global aviation industry. On the contrary, many airlines have pledged further action by targeting net-zero emissions; by purchasing sustainable aviation fuel (SAF); retiring aged aircraft, such as the iconic Boeing 747; and investing in the latest generation of fuel-efficient planes, including the Boeing 737 MAX and Airbus A350.

The development and deployment of sustainable aviation fuel (SAF) is the biggest area of opportunity for long-term reductions in aviation emissions, according to IATA, the global body of airlines.

SAF has the capability to reduce emissions 80% on a "like-for-like" basis with Jet A-1 fuel.

Elevating the production capacity for SAF is therefore a priority for airlines. Current levels are too low, at around 0.02% of global demand, to significantly lessen emissions or to generate the economies of scale necessary to reduce costs to competitive levels. But production is beginning to increase dramatically.

In 2021, IATA estimates the production and use of between 100mn and 120mn litres of SAF – an increase of more than 50% on 2020.

SAF facilities commissioned some three to four years ago are now coming online, IATA noted. An example is the Fulcrum Sierra Biofuel plant in Reno, Nevada, in the United States, which converts solid municipal waste into SAF.

Numerous additional SAF production facilities will come online over the next four years, such that by 2025 approximately 5bn litres of SAF could be available. That, IATA says, will meet around 2% of global demand.

By 2030, projections are for SAF availability to increase to cover at least 5% of demand globally. Meeting and exceeding projections for SAF cannot be the responsibility of SAF producers and the aviation industry alone.

Governments need to set in place supportive policy frameworks, industry experts say.

The global air transport industry recently took a momentous decision to achieve net-zero carbon emissions by 2050 and ensure that flying is sustainable.

To achieve that, cost-competitive sustainable aviation fuels (SAF) should fuel the majority of aviation's global emissions mitigation in 2050.

The industry has set out the pathway to meet its 2050 goal using a mixture of new technology, efficient operations, and improved infrastructure.

The target of reducing net CO2 by half is feasible through the aggressive deployment of SAF.

Other proposed options include the accelerated development of small, zero-emissions aircraft for short-haul operations from 2035 and the use of offsets in the interim.

These and other measures could also make it possible for the industry to meet an even more ambitious goal of net-zero carbon emissions by 2050.

It is estimated that (under the industry's trend setting initiative CORSIA or Carbon Offsetting and Reduction Scheme for International Aviation – a global carbon offsetting scheme) aviation will have to offset 2.6bn tonnes of CO2 between 2021 and 2035.

Obviously, the aviation industry has pinned its hopes on

sustainable aviation fuels, which it believes will help reduce airlines' global emissions and industrial carbon footprint. It is proven that SAF can cut CO₂ lifecycle emissions up to 80% compared with conventional jet fuel. It uses sustainable fuel sources, which do not compete with food or water, or damage biodiversity.

Rather than being refined from petroleum, SAF is produced from sustainable resources such as waste oils from a biological origin, agri-residues, or non-fossil carbon dioxide (CO₂).

Sustainable aviation fuels are currently certified by regulators for up to 50% use in commercial flights.

SAF has been around since 2008. And more than 300,000 flights have taken to the skies using SAF since 2016, according to the International Air Transport Association. More than 45 airlines now have experience with SAF.

These flights have used it blended with regular aviation – without the need for any modification of engines or aircraft – and production continues to grow.

The amount of SAF used by commercial aircraft rose 65% between 2019 and 2020, despite the devastating financial impact of Covid-19 on airlines.

IATA Director General Willie Walsh says governments must be active partners in achieving net zero by 2050. As with all other successful energy transitions, government policies have set the course and blazed a trail towards success.

“The costs and investment risks are too high otherwise. The focus must be on reducing carbon,” Walsh insists.

India solar park sparks

desire for school



By Roli Srivastava/Bhadla

The teenage girls of Bhadla, near one of the world's largest solar parks, store their books in tattered briefcases and their dreams in the essays they write between household chores.

Their remote pastoral community lost the land their animals grazed on until about a decade ago to the solar power plant in the northwestern state of Rajasthan – as well as the opportunity to work at the park due to a lack of education and skills.

Once resentful, these days Bhadla's young women say they want to get jobs at the solar facility, reflecting emerging aspirations as India expands its renewable power capacity amid a global shift to clean energy.

"I could work in the solar park if I was educated – I could manage files in the office or do their accounts," said Hira Bano, 18, who finished tenth grade two years ago.

"I have to study or I will be stuck in household work all my life," said Bano, taking her books out of a briefcase gathering dust since the only village school shut more than

two years ago.

Bhadla is home to one of the 52 solar parks India had approved across 14 states as of last year, in a drive to wean itself off planet-heating coal and meet a renewable energy goal of 500 gigawatts by 2030.

Sunny Rajasthan is a preferred state for building large new solar installations as it has available barren desert land that is sparsely populated, said state officials.

At 2,300 megawatts, Bhadla has the world's largest solar farm capacity – and more parks are in the offing in Rajasthan, according to officials at the state-run Rajasthan Renewable Energy Corporation Limited (RRECL).

That is creating opportunities in a region with previously few jobs due to its extreme natural conditions and lack of water, said RRECL chairman and managing director Subodh Agarwal.

Nonetheless, Bhadla locals – pastoralists who for generations kept animals on state land they treated as their own – feel left out of the development frenzy in their backyard.

"We have lost land and livestock, so it is only education that can give us a livelihood," said village elder Mohamed Sujawal Mehr.

"Now big companies surround us, but only a few of our men got jobs there," he said, noting that even a security guard position requires tenth-grade schooling. "How can they hire us if we can't read or write?"

Bhadla's school was once an unused village accessory, as education was not seen as a priority, until the arrival of the solar park infused new life into it.

The park's biggest operator, Saurya Urja, a joint venture of the state and infrastructure firm IL&FS, started sending two teachers to the school to hold regular classes.

One of them, Andaram Meghwal, said that when he first came to the village in 2017, the children climbed to the tops of the trees they were so afraid.

"We got students (to come in) from nearby towns to give them exposure to the world outside," he said. "We shared stories of women achievers, the challenges they overcame."

Bano – who had previously spent her time grazing cattle, working on the farm and fetching firewood – fell in love with science, school games and the idea of pursuing a career.

Girls were more inspired to study than boys as they had lost their main activity of grazing animals, while men could find work at the solar park, Meghwal said.

This was between 2015 and 2020, when 900,000 blue solar panels were erected on 12,000 acres, 5,500 jobs were created, and eateries and tea shops opened along a new highway.

But as the park neared completion, jobs for unqualified workers began to shrink. The plant has created about 1,100 long-term jobs to operate and maintain it over 25 years – but locals lack the technical skills needed, said Saurya Urja officials.

Sarthak Shukla, a sustainability policy consultant, said clean energy provides fewer direct jobs than thermal coal power, which employs 800 to 900 people for a 1GW plant compared with 25 to 30 at a similar-sized solar park.

In Bhadla, Ayub Khan Chooda, 35, is among those who have benefited, crediting his contract to wash 400 solar panels daily to his three tractors – which pull small water tankers along the rows – despite having studied only up to first grade.

Dadda Khatoon, 32, was also happy when her husband returned from Dubai, after six years of milking and grazing camels, and got a security guard job at the solar park for Rs8,000 (\$106.30) a month.

“He is happy, healthy and we are also able to save some money,” said Khatoon, sitting with village women in the winter sun. “But I don’t seem to have a role anymore apart from cooking and feeding my family. I think I had more respect then.”

With no land left to graze their animals, Bhadla residents sold their livestock whose fodder, a bitter yellow fruit called “tumba”, now lies uneaten on the vine between the solar panels.

Women from this conservative community no longer venture out,

fearing the busy highway and “the new people from cities”. Local health workers said hypertension and diabetes have become quite common owing to the new sedentary lifestyles. Shukla said that with a better understanding of the social and cultural impacts and the right policies, the solar sector could offer opportunities for Indian women, including training and other incentives such as health and education programmes. Globally, women make up 32% of the renewable energy workforce compared with 22% in the oil and gas industry, according to the International Renewable Energy Agency.

Local elder Mehr loves to recall the celebrations two years ago when three girls, including Bano, passed their tenth grade, the first to do so in this village of 250 households. “We banged plates, clapped,” he said.

But their school, which had about 100 students, shut down soon after when a disgruntled teacher submitted a report showing zero attendance – a claim disputed by villagers.

The solar firm also stopped supporting classes and shifted to a broader community focus running mobile health and veterinary clinics, according to Saurya Urja CEO Keshav Prasad.

He told the Thomson Reuters Foundation that the company backed the villagers’ demand to reopen the school, pointing to rising demand for education across villages near the solar park.

Manphool Singh, the education official overseeing Bhadla school, said he had received the requests and a government decision was pending.

“We are trying our best to open it so children can study again,” he said.

Meanwhile, the girls cook, clean and stitch together colourful pieces of cloth to make rugs for their dowries.

Drawing water from a well, Asma Khatoon, 15, said her only desire was for the school to reopen so she could sit her tenth-grade exam.

In a short Hindi essay, she wrote: “This village has too many restrictions... I want to study, become a working woman.” – Thomson Reuters Foundation