



Common borders. Common solutions. Common Energy Future.

CAREC ENERGY STRATEGY 2030

(For Endorsement)

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Executive Summary

A new era for energy in Central Asia

The CAREC Energy Strategy 2030 provides a new long-term strategic framework for the energy sector of Central Asia. It is inspired by a vision to achieve a reliable, sustainable, resilient and reformed energy market by 2030. Guided by the overarching principle of “*Common Borders. Common Solutions. Common Energy Future.*”, CAREC members are committed to create a vibrant energy future – a future in which the electricity supply is reliable and affordable, energy markets flourish and cleaner sources become part of the energy mix.

While Central Asia’s energy sector has done well in powering the countries during a challenging period of rapid growth, new dynamics on the global energy scene are rapidly changing the context CAREC countries will operate in during the next decade. The shifting global dynamics that will influence CAREC’s energy markets include: the rise of renewable energy; the importance of private sector financing to meet investment needs; the necessity to address climate change; and improved political relations stimulating higher level of regional cooperation. The CAREC region must be prepared, equipped and ready to stay ahead of the curve under these new conditions. Hence, a new CAREC Energy Strategy is timely and shall offer fresh approaches and smart solutions for the CAREC region to continue to prosper.

The ambitions formulated for 2030 strongly build upon past achievements. Today, CAREC member countries are more regionally connected and integrated than before. Clean technology deployment is firmly on their agenda and there is greater technical capacity of institutions in the region. These achievements provide a solid foundation for a bolder vision and a new strategy. With closer regional cooperation, CAREC member countries are well positioned to anticipate and take advantage of the changes occurring within the global energy landscape.

Key Strategic Priorities 2020-2030

- Pillar 1: Better energy security through regional interconnections

Being part of a larger electricity network and gas pipeline system allows energy to be traded at competitive prices, enables diversification of energy sources and provides more reliable service to consumers. While some CAREC countries are rich in fossil and hydro resources, others lack sufficient resources to adequately cover their energy demand through domestic resources, and seasonal variability among countries is also particularly pronounced. The uneven distribution of energy resources and their complementarities provides a strong imperative for regional collaboration. Strengthening cross-border links will allow energy to seamlessly flow among countries reinforcing energy security and economic gains for all.

For energy networks to become more interlinked, the CAREC Energy Strategy 2030 proposes a new regional mechanism to identify *Projects of Common Regional Interest* through a platform that brings transmission system operators (TSOs) from the region together under one umbrella. This new regional TSO platform – the *Central Asia Transmission Cooperation Association (CATCA)* – shall be set-up with a view to allow network operators to discuss and produce longer-term regional network development plans. The aim of this initiative is to elevate grid expansion planning from a purely national level to a regional level and enhance information sharing and energy security in the region.

This mechanism introduces a new regional governance system that is jointly owned by CAREC network operators to design, develop and operate the regional grid. Over time, CATCA can also serve as a suitable platform for TSOs to develop region-wide harmonized rules for system operation. These measures will make Central Asia’s energy more secure, accessible and reliable for consumers in the CAREC region.

- ***Pillar 2: More investments through market liberalization reforms***

A well-functioning energy market stimulates competition, attracts investment and promotes efficiency across the value chain. In a number of CAREC countries, the energy sector is now at an important crossroad moving from government operated models towards more liberalized market structures. The next ten years will be decisive in transforming the regional energy sector into a modern energy market.

The CAREC Energy Strategy 2030 recognizes that structural energy sector reforms are significant undertakings. They require new market designs, governance structures and overarching regulatory and institutional frameworks. Thus, the CAREC Energy Strategy 2030 offers a comprehensive support package to accompany the CAREC countries in this important endeavor.

The core vision for the next ten years is to restore financial health in the energy sectors of the region by unbundling state-owned companies and introducing modern and cost-reflective tariffs. Finding the right tariff is a true balancing act as users want high quality of service at low cost. This trade-off becomes even more severe when complementary measures such as reduction of fossil fuel subsidies are introduced which is another indispensable tool to achieve financial stability in the energy sector.

To tackle the typical dilemmas faced by policy makers in the reform process, capacity building and knowledge sharing is key. Hence, CAREC will make particular efforts to equip policy makers with practical and tailored-made guidance to allow them to take informed decisions in the complex process of energy sector reform. Particular emphasis will be put on the elaboration of measures to protect vulnerable consumers and build social safety nets to ensure a sustainable and socially acceptable reform process. A virtual “*CAREC Energy Reform Atlas*” will be a “go to” place to gain access to practical handbooks and other knowledge materials that will provide concerned stakeholders with answers on how to prepare, implement and advance energy sector reforms.

- ***Pillar 3: Enhancing sustainability by greening the regional energy system***

The reality of climate change is challenging governments and businesses around the world to take urgent actions. The region, although a small contributor to global energy related emissions, is no exception. Various studies have established a high climate change vulnerability of the region. Moreover, energy efficient energy systems are desirable for economic competitiveness, and to provide reliable and affordable energy services to consumers. Rapid deployment of cost-competitive renewable energy and accelerating energy efficiency are key tools for an effective response to climate change and greening the regional energy system to enhance long-term sustainability.

The CAREC Energy Strategy 2030 proposes to lay a clear focus on energy efficiency in the next decade given that the region consists of some of the world's most energy intensive economies. CAREC's role over the coming decade will be to support its members in identifying suitable energy efficiency measures and allow them to become regional champions. A regional "Energy Efficiency Scorecard" that allows countries to benchmark their progress against international efficiency standards should serve as central tool to improve energy efficiency in the region alongside creating widespread consumer awareness on how to save energy.

In the next ten years, the CAREC program will also provide extensive support to its members to deploy renewable energy, such as, solar, wind and small hydropower to achieve a higher share of renewable energy in the regional energy mix. This will include strategies for mitigating intermittency of renewable energy and capacity building on suitable incentive schemes to attract more renewable energy generation, preferably through private investments.

To enable the transition towards a green and clean energy sector, the CAREC Energy Strategy 2030 proposes the establishment of a new regional financing vehicle that will allow the CAREC community to mobilize finance from international, domestic, public and private sources to realize clean energy projects. The "CAREC Green Energy Alliance" shall be established as a forum composed of CAREC members to identify and attract these sources of funding. The aim of the alliance should be to create a shared regional fund accessible to all members to co-finance investments into energy efficiency, renewable energy and other climate mitigation projects.

Cross-Cutting Themes

To support the three main strategy pillars, the CAREC energy program will also prioritize three cross-cutting themes.

- ***Theme 1: Creating new knowledge products and peoples' networks***

Quality data and knowledge sharing is central to operations in the energy sector. Therefore, a number of new knowledge products and partnerships with global centers of excellence shall be established to support the successful implementation of the strategy under its three main pillars.

One major initiative included in the CAREC Energy Strategy 2030 is the launch of a new regional data publication aimed at providing enhanced transparency on the state of regional energy markets. This new regional flagship publication – the *CAREC Energy Outlook* – will be developed and regularly updated to provide critical insights on regional market trends and contain substantial analysis on what these trends mean for investors, operators and other stakeholders. The *CAREC Energy Outlook* will thus be a unique new source to inform investment decision making and significantly support CAREC’s efforts to attract more investments to energy markets in the region. In delivering new knowledge publications such as the *CAREC Energy Outlook*, CAREC will consider partnerships with established international knowledge leaders and specialized institutions to deliver highly relevant knowledge products.

The CAREC Energy Strategy 2030 also emphasizes the importance of people’s networks to foster regional cooperation, knowledge sharing and innovation. In this context, new emphasis is placed on young energy professionals in the region to establish a youth platform that gives future energy leaders a louder voice and allows them to participate in shaping the region’s energy future.

- ***Theme 2: Attracting private sector investments across the energy value chain***

The CAREC region’s energy infrastructure investment needs (excluding PRC) is estimated to be about \$1 trillion between 2020-2030. This huge investment need cannot be met without significant private investments given that current public sector investments represent only a fraction of the expected investment needs. The success in achieving the desired outcome from the implementation of the CAREC Energy Strategy 2030 largely hinges on creating enabling conditions for a dynamic private sector. Given the limited public resources, external private investment for the energy sector is essential to relieve growing pressure on government budgets.

To allow policy makers to create effective enabling conditions for private investments, a regional *CAREC Energy Investment Strategy* shall be established with suitable partner organizations. The strategy shall provide recommendations to policy makers and suggest key elements for a robust and harmonized regulatory framework across neighboring countries. This should include facilitation mechanisms for public private partnerships and the possible establishment of a *Central Asia Business Advisory Council* to enhance business climate and increase confidence building measures for investors.

To attract investment to the region, CAREC’s *Energy Investment Forum* shall remain the region’s flagship platform to actively promote B-2-B exchanges, foster start-ups and entrepreneurs that bring new and innovative business ideas to the energy sector.

- ***Theme 3: Empowering women in energy***

Women remain underrepresented in the energy industry around the world including in the CAREC region. Hence, there is substantial room to improve women participation in the energy industry and diversify the sector’s workforce. There are long term and proven advantages from

an inclusive and diverse workforce. CAREC has a role to act as a champion of women empowerment and lead by example.

To make women more visible in the energy sector, the CAREC Energy Strategy 2030 foresees the establishment of a dedicated *CAREC Women in Energy program* to enhance employability and career opportunities for women in the energy sector as well as create new regional networking and support facilities for women on all societal levels. These measures should ensure achieving the overall vision of gender equity in the energy sector by 2030.

Delivering Better Results Together

- *A new team spirit for CAREC Energy*

Given the ambitions of the CAREC Energy 2030, it is imperative that its implementation is carried out in a collaborative manner through joint efforts by all countries concerned in close partnership with international financial institutions. CAREC energy must evolve further into a platform that brings energy experts, companies and governments together to formulate plans and actions on emerging challenges. As the need for knowledge is intensifying, it is important that the CAREC energy family strives towards building a dynamic and high-performing network.

A new team work approach based on working groups and task forces for each of the three strategic priorities and each cross cutting theme shall allow sharing work load and more focused discussions on priority areas by drawing experts from within the CAREC region together. Smart collaboration platforms shall help keep CAREC members connected and allow working together at any given time. This structure shall give CAREC members greater ownership, responsibility and control of the CAREC Energy 2030 work plan and its deliverables.

- *Work Plan 2020-2030*

The CAREC Energy Strategy 2030 contains a clear work plan of actions to be delivered for each of the three strategic pillars and cross cutting themes. It sets out specific performance indicators to track progress. The work plan also proposes a new working group structure to achieve the deliverables and determines which groups shall be responsible for which actions. In addition to the workplan, the CAREC Energy Strategy 2030 also provides a robust results framework including driving principles, outcomes and CAREC interventions to achieve the overarching goals of the strategic pillars and cross-cutting themes.

The vision for 2030 is wide-ranging in scope but achievable. It seeks a smarter, efficient, green, sustainable and resilient energy system for the region. A reliable energy system is the backbone of any modern economy and essential for the wellbeing of people. By sharing common borders, common solutions and a common energy future, a new and promising era for CAREC's energy markets is on the horizon.

I. Rationale and Driving Principles for CAREC Energy 2030

The need for a new CAREC Energy Strategy 2030

The energy system of a country is one of its most complex, expensive and sophisticated set of assets. It provides electricity and gas to millions of homes, offices, industrial complexes and many other essential services. A reliable energy system is the backbone of any modern economy and essential for the wellbeing of people. Keeping “the lights on” under all conditions is therefore a shared challenge in all CAREC countries and remains a top priority up to 2030.

The energy sector has done well to power the countries during a challenging period of rapid growth but new dynamics on the global energy scene are increasingly changing the context CAREC countries will operate in during the next decade. The future global energy system will look different from the past. Therefore, a new CAREC Energy Strategy is timely to offer smart solutions and new approaches for the CAREC region to stay ahead of the curve.

The ambitions formulated for 2030 shall strongly build upon the achievements of recent years. Today, CAREC member countries are more regionally connected and integrated than before and are benefitting from increases in cross-border energy trade. Clean technology deployment are firmly on the agenda and there is greater technical capacity of government and institutions in CAREC member countries. These achievements provide a strong foundation for a new strategy.

Overall, the energy sector in Central Asia is at an important crossroad. The global winds on the climate, economic, geopolitical and financial fronts are reaching the local and regional level, creating both challenges and opportunities for the region. The shifting global dynamics in the energy sector that will influence CAREC’s energy markets in the next decade are the following:

- **Renewable energy is becoming a real alternative:** Solar photovoltaic and large-scale wind generators, have undergone rapid development and begun to compete on costs with fossil fuel-based technologies. The total capacity of renewable power installed globally has outstripped fossil fuelled capacity for the past four consecutive years¹, with higher investment in developing countries than developed countries. Countries with high levels of renewable energy are successfully addressing the challenge of integrating variable renewable energy sources into electricity grids.
- **Climate Change is impacting policy decisions:** The CAREC region is highly vulnerable to the effects of climate change. Water shortages as a result of long-term loss of ice and snow and extreme weather events pose a threat to physical infrastructure in the region. Climate change is also globally influencing government sector policies and private sector investment decisions. Over 140 countries have national targets for renewable energy in

¹ http://www.ren21.net/wp-content/uploads/2018/06/17-8652_GSR2018_FullReport_web_final_.pdf and http://www.ren21.net/wp-content/uploads/2017/06/17-8399_GSR_2017_Full_Report_0621_Opt.pdf

their power sector and some large multi-national corporations are signalling the decarbonization of the energy sector will see coal phased out, potentially sooner than generally expected.

- **Global Economic Downturn is depleting state budgets:** Energy and commodity exporters are particularly impacted by the ongoing downward pressure on prices from dampened demand and worldwide oversupply of energy. This poses a severe risk to regional economies, especially to fossil fuel rich members such as Azerbaijan, Turkmenistan, Kazakhstan and Uzbekistan who rely predominantly on hydrocarbon exports to fill their state budgets. In addition, most CAREC countries offer generous energy subsidies to their consumers which further drain government budgets and are neither financially sustainable, nor in the long-term interest of consumers.
- **Private Sector Finance needs are increasing:** Infrastructure investment needs in the CAREC region (excluding PRC) amount to \$1.15 trillion between 2020-2030. Governments will be unable to shoulder these requirements alone and will need financing partners to realize priority projects. While the cost of finance has risen recently, it has generally been at unprecedented low levels since the 2008-09 financial crisis.
- **Political relations among CAREC countries are improving:** Positive political changes are occurring in the region. This has created fresh opportunities for the region to co-operate on a myriad of long-standing problems. There are also encouraging signals from the Caspian region in terms of resolving the decades old Caspian Sea conflict opening up possibilities for greater regional co-operation.

In light of these developments, the CAREC region must be prepared, equipped and ready to act in order to advance its energy markets under these new conditions. A new CAREC Energy Strategy 2030 is therefore timely and presents an opportunity to create a clear and robust vision for the future.

There is scope to foster development in the following key strategic areas up to 2030:

- Greater regional interconnection to improve energy security and ensure that all gain from trade
- More competitive, market-oriented approaches to deliver greater benefits to energy consumers
- Enhanced sustainability by greening the energy system
- New knowledge and professional networks to deepen and foster long-term regional relationships
- Greater participation from the private sector and creation of institutions to oversee the new market sectors
- Equal opportunity for women to build a diverse and vibrant sector

CAREC Energy 2030 is a fit for purpose and future-proof energy strategy for the Central Asian region that will position the region to meet the challenges of the changing global energy landscape and emergent risks and opportunities.

II. One Region – One Vision

Building a new era for CAREC energy

The CAREC member countries are committed to a shared vision for the development of the region’s energy sector to ensure the region’s long-term economic competitiveness. Guided by the overarching principle of “*Common Borders. Common Solutions. Common Energy Future*”, members are committed to work in a collaborative spirit to transform the energy sector into a common, resilient and modern market by 2030.

To ensure that energy is available, reliable and financially and environmentally sustainable, CAREC members envisage a vibrant energy future:

The future leaves no customer behind

There is commitment to share and expand the regional cross-border energy grid for maximum energy security. Gas and electricity should flow to where it is needed and deliver affordable and sufficient supplies to all corners of the region to ensure no customer is left behind.

The future is more market-oriented

There is a commitment to transforming the energy sector from a government owned and operated model, with vertical integration and subsidies to a more market oriented one. There is a pledge to build stronger institutions and regional market governance to support the process of market liberalization.

The future is a green energy mix

To drive greenhouse gas emissions reductions, there is incentive for energy efficiency and a range of clean energy technologies allowing renewable energy to become an increasing part of the energy mix.

The future is inclusive and equitable

The region strives to develop the next generation of energy professionals who are resourceful and skilled and for women to be more engaged and visible in the energy sector. The sharing of knowledge and expertise across generations, borders and disciplines provides a foundation for long-term cooperation in a closely interconnected region.

The vision for 2030 is wide-ranging in scope, but achievable. It recognizes that the region’s energy and economic futures are closely interlinked. Consequently, the 2030 vision can only be successfully achieved if a number of energy and economic transitions are considered over the next decade. CAREC should provide a vehicle and platform for planning these transitions:

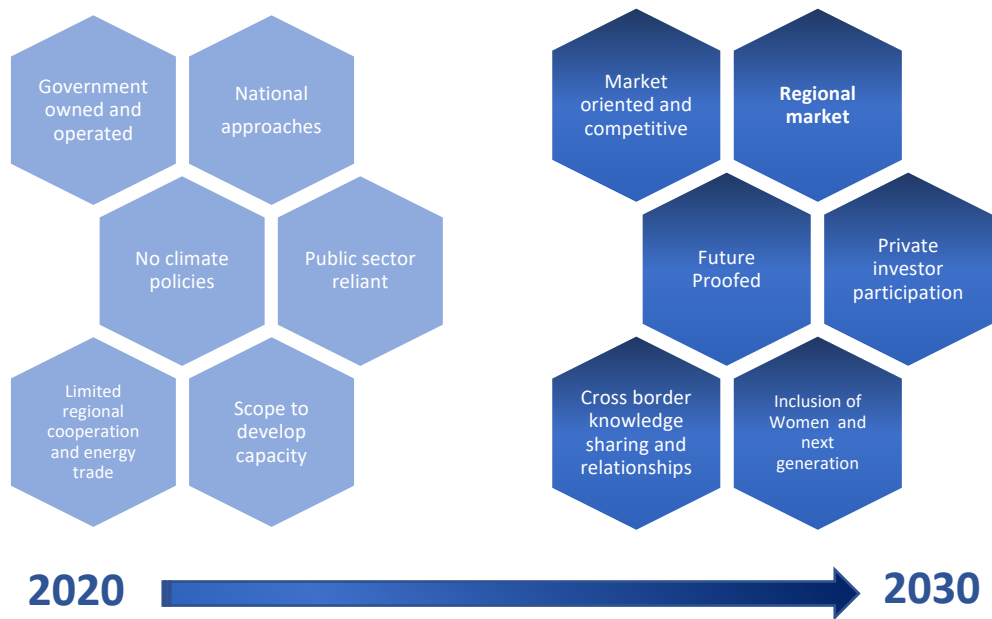
- **Transition to new fuels and technologies:** Replacing high emission generation (such as coal) with lower emission alternatives, including hydro, gas and renewable energy technologies is where the energy industry is heading. Some technologies become cheaper faster than others. New technologies will emerge, and some technologies will be out-competed. Research and development will assist with technology development and

improve the deployment outlook. In order to aid the transition to a new energy mix, CAREC member countries should work toward removing the barriers to uptake of new fuels including fossil fuel subsidies.

- **Transitions in energy market designs and institutional structures:** The complexity of the energy sector is increasing rapidly as a result of the fuel and technology transitions. The ability of energy market institutions to ensure that policy and regulatory settings remain fit-for-purpose will be critical, as will be their ability to work collaboratively to manage the energy transition and develop new knowledge and internal capability. To deliver on a vision for future energy to be available, reliable and financially and environmentally sustainable, CAREC member countries should commit to a clear work plan for energy institutional development and an ongoing energy policy reform agenda.
- **Geo-political transitions:** For the past century, the global balance of geopolitical power has centred around the countries that participate in a global energy system of extraction, delivery and end-use of energy commodities. While some countries are actively exploring the potential for international exports of renewable energy (including via hydrogen), there is a shift in economic activity occurring to suppliers of new technologies: solar, wind, storage, electronic controllers and electric vehicles. These technologies are being manufactured in volume, providing opportunity for technology cost reduction. CAREC member countries should collectively assess regional industry development opportunities associated with rising global demand for new technologies, taking into account existing industry strengths, capabilities and resources. The assessment is important to the development of the energy sector and long-term economic competitiveness.

2020-2030: The decade of transformation

The implementation of a shared vision by CAREC member countries will help to deliver a more certain, resilient and modern energy future for all energy consumers in the region. In this future, end use consumers are more informed about efficient and clean energy and more incentivized by economic signals. A transition to a new energy future will bring long term benefits to all energy consumers in terms of availability, quality and security of energy supply. At the same time, the transition will deliver far-reaching benefits to regional economies in terms of new investment, jobs, skills and knowledge development.



A future proof energy sector for the CAREC region is on the horizon. With regional collaboration and cooperation, CAREC member countries will be well positioned to anticipate and take advantage of the broader changes occurring within the global energy landscape.

III. Key Strategic Priorities 2020-2030

Pillar 1: Better energy security through regional interconnections

Cross-border energy interlinkages between CAREC countries have significantly improved over the past decade. The spillover benefits of such connections are evident: Large-scale energy infrastructure achieves economies of scale, instills collaborative culture and generates a strong drive towards common energy security through long-term regional relationships.

- ***Benefits from cross-border security and connectivity***

Being part of a larger grid network and pipeline system has several advantages. It allows energy to be traded at competitive prices, enables diversification of energy sources and routes and provides more reliable service to consumers as system imbalances can quickly be compensated through support from neighbors. A densely meshed grid is also key in successfully bringing intermittent renewable energy sources online. Coupled with appropriate regulatory reforms, interconnections serve as catalyst to accelerate market integration and connections to global value chains.

While most CAREC countries are rich in fossil and hydro resources, there are other countries which face challenges to cover energy demand through domestic resources, particularly in South Asia. The uneven distribution of energy resources in the region provides a strong imperative for regional collaboration and partnerships. Hence, creating smart links throughout the region which allow energy to flow from countries in excess supply to those in high demand will reinforce energy security and economic gains for all.

Regional interconnections are also key for building confidence essential for investments and easing political constraints. The linking of natural gas and electricity industries across borders can indeed justify mobilizing investments by expanding market size. Increased competition and lower costs lead to a win-win situation for all actors involved which in turn reduces any potential regional or bi-lateral tensions.

- ***Unleashing projects of common regional interest***

Steps taken to achieve more cross-border linkages have been encouraging. Uzbekistan's initiatives to reopen power, rail and road connections with Tajikistan after years of strained relations is a major achievement and provides a positive signal for closer cooperation in the region. First steps have been taken to prepare the re-connection of Tajikistan to Uzbekistan which is another historic moment that will allow the region to share and trade their energy resources.

There are a number of other cross-border energy infrastructure projects currently under implementation in the CAREC region, mostly linking Central Asian energy producers with South

Asian consumers. These projects are at various stages of implementation and include the following flagship electricity and gas interconnection projects: i) TUTAP², ii) TAP³, iii) CASA⁴-1000 and iv) TAPI⁵.

CAREC shall step up its efforts to make these operational as early as possible and track progress on these projects. Further regional connections to achieve supply-demand balance at competitive prices will also allow the region to build links with other attractive energy markets outside the region, e.g. with East Asia and/or Europe in the longer-run.

As a new vehicle to promote regional interconnections, CAREC members shall identify *Projects of Common Regional Interest*. Such projects should be identified and planned together, ideally by developing longer-term regional network development plans. This will not only send clear signals to investors but also give transmission system operators the opportunity to develop a common long-term vision for a shared regional energy grid that is owned by all interconnected parties. *Projects of Common Regional Interest* shall be eligible to receive public money alongside private investments and have priority status if they fulfill certain criteria such as for example: have significant impact on energy security in at least two CAREC countries, produce more competition on energy markets and help diversify the energy mix.

- ***Working together in regional institutions***

There are strong reasons to justify that CAREC countries should not only work together in building and operating physical interconnections, but also in creating appropriate regional governance structures to decide on issues related to grid expansions, modernization of energy infrastructure and other operational issues.

For this purpose, CAREC members shall endeavor developing a concept for a regional body - the “*Central Asia Transmission Cooperation Association (CATCA)*”- which shall bring all transmission system operators from the region together to plan the the development of the regional grid (as opposed to only their national grids) as well as develop region-wide rules and standards for operating it. Its functions shall ideally include:

- Elaborating a long-term regional network development plan including projects of common regional interest to receive priority support
- Providing regular information on electricity and gas supply and demand for the market
- Developing harmonized region-wide rules for system operation

This body shall be composed of transmission system operators from each country and provide appropriate structures to build consensus in the decision-making process.

2 Turkmenistan-Uzbekistan-Tajikistan-Afghanistan-Pakistan electricity interconnections

3 Turkmenistan-Afghanistan-Pakistan

4 Central Asia-South Asia electricity interconnection

5 Turkmenistan-Afghanistan-Pakistan-India gas pipeline

Moreover, as interconnections increase, CAREC countries will become more interdependent and collectively responsible for preventing disruptions. Any local incident may have repercussions in neighboring countries and should therefore also be solved collectively and in a spirit of solidarity.

Access to energy in the CAREC region must also be ensured to those parts of the population which are located in remote areas without grid connection. While the majority of consumers in Central Asia are connected to the grid, a number of mountainous and rural areas remain difficult and/or expensive to reach through grid infrastructure. Hence, off-grid systems, preferably powered by renewable energy, shall be evaluated for roll-out in communities in need. To this end, the experience and lessons learned from pilot projects conducted in and outside the region shall be widely shared. By 2030, consumers in all corners of the CAREC region, whether connected to the grid or not, should enjoy access to modern energy.

Pillar 2: More investments through market liberalization reforms

A well-functioning competitive energy market stimulates innovation and promotes efficiency, pushes down costs and improves the quality of service for end users. Energy sector liberalization is a continuous process and at an early stage in many CAREC countries.

- *The power of reforms*

Despite recent progress, traditional government control of electricity and gas companies as well as the absence of competition has led to distorted energy prices, inefficient network operation and deteriorating infrastructure in many parts of the CAREC region. The energy sector's deep-seated financial difficulties have undermined the ability to invest in existing and new productive assets. One of the root causes for the lack of financial resources in the energy sector is the disproportionate spending on consumer subsidies in many parts of the region causing unavailability of funds for sustainable maintenance of the system.

Sector reforms have the power to break this cycle and establish more market-oriented structures with state-owned enterprises operating on similar principles to those of private companies. This approach is to lay the ground for competition and market mechanisms to evolve, thus responding to the expectations of end-users for high quality of service and affordable prices.

For energy sector reforms to work, they need to be enshrined in law with appropriate enforcement mechanisms to ensure actors will comply or else face consequences. This includes clarifying the roles and responsibilities of government versus utilities and other actors in the market. In this important process of adapting existing legislation and creating new laws during transition, CAREC shall provide a platform for its members to discuss successful international examples of sector legislation and law enforcement methods.

- *Paving the Way to Unbundling*

Vertically integrated value chains still prevail in a large number of CAREC countries. By separating the individual activities into distinct entities for generation and network related activities, the performance of the sector will enhance as each entity will have to sustain itself financially without back-up and cross subsidies from the vertically integrated structure.

The benefit of unbundling consists in the possibility to open up some parts of the value chain to competition, especially generation. It also forces the remaining parts of the value chain, i.e. network related activities which remain state owned, to ensure sufficient income on their own to build, strengthen and maintain the grid. The condition of energy networks has deteriorated in the past decades because financial means and effective incentives were missing. The benefit of unbundling is thus to create an incentive for network operators to deliver an optimal level of service quality at least cost.

Unbundling reforms shall be initiated as a first step to create the fundamental structure for energy markets to move towards liberalization. There are various degrees of unbundling. The higher the degree of separation, the higher the incentives for the network operator to perform high service quality and the easier for new generation companies to enter the market.

For the CAREC region to embark on unbundling and market liberalization reforms, capacity building and knowledge sharing is key. Reforms will only be successful if carried out based on informed decisions and models that fit the individual national context. Therefore, CAREC shall establish a virtual “*CAREC Energy Reform Atlas*” that provides a “go to” place for information on unbundling models and other aspects of market liberalization to support CAREC members in the reform process. The Atlas shall create a solid knowledge base including a web-based directory for study materials that can be accessed by policy makers of the region at any given time.

- *Modern tariffs for better quality of service*

There is no standard reform model for tariff and pricing control in the energy sector. The most appropriate approach will depend on the context and tariff objectives of the governments and available public funds for social safety programs.

Finding the right tariff is a balancing act as users want high quality of supply at low costs. While current end-user tariffs in many CAREC countries are much lower than average, quality of service lags behind because the low tariffs do not reflect the actual cost incurred for running and maintaining the network, let alone crucial investments needed to perform quality service over a longer stretch of time.

To determine the level of tariffs that will allow performing at a high-standard, a careful and sophisticated cost auditing procedure to determine adequate cost levels is needed. Once the cost base is determined, a “fair” rate of return on capital (cost recovery principle) is established and added to get to the optimal price. This rate of return or cost-plus tariff principle is a classical

approach used in many countries, especially at the start of unbundling and market liberalization reforms.

Tariff setting is a complex domain that requires adequate skills and awareness of different principles that exist including best practice examples. Thus, CAREC shall establish a practical guide for its members in the form of a “*Handbook*” that contains advice on tariff setting principles and methods to introduce tariff reform. In addition, customized capacity building workshops shall be held to address frequently asked questions and develop appropriate models for the target audience.

- ***Gradual removal of energy subsidies***

Energy prices, costs and subsidies are among the critical issues determining the health of any given economy. Today, most CAREC consumers in the region receive generous energy subsidies regardless of their income. A high share of low-income households in the CAREC population makes restructuring tariff policy a politically difficult task, but experience shows that well-targeted safety net programs can help address some of the distributional concerns.

A starting point should be the gradual phase-out of fossil fuel subsidies which make up a large share of state budgets and pose a constant threat to economic survival, especially in countries where the energy sector represents the main source of income to the national economy. Subsidizing carbon-based fuels has invariably retarded the emergence of new energy sectors that promise to generate jobs in the future, build greater energy security and achieve climate change goals. It generally slows down the process of the energy transition and creates no incentives for end-users to save energy. Thus, energy subsidies are neither financially sustainable, nor in the long-term interest of consumers.

The removal of subsidies can only go hand-in-hand with solid tariff reforms and is a process that requires time, diligent planning and consideration of social aspects. Therefore, subsidy reform is a gradual process accompanied by other economic and social reforms to ensure the overall goal of stable and affordable energy to be met. CAREC will be a strong partner in accompanying its members in this process and provide the support needed tailored to individual countries’ contexts.

- ***Building a safety net for vulnerable consumers***

Energy sector reform not only affects the economy and markets, it also has a strong impact on consumers. Tariff and subsidy reform will be felt by consumers as their energy bills will increase over time to allow the energy sector to perform better. This does not mean that energy has to become unaffordable to large parts of the population and that subsidies will no longer be a legitimate tool to support consumers who are in need. On the contrary, energy sector reform offers the opportunity to identify vulnerable consumers and provide them with targeted support.

CAREC shall thus help its members to develop a definition of vulnerable energy consumer and develop options for social protection measures. There are many ways in which vulnerable consumers can be supported including via social energy tariffs, improvements in energy efficiency, other social security benefits and limitations on disconnection, especially in critical times such as cold winters or other severe circumstances. To help policy makers understand various options and make appropriate and informed decisions, CAREC shall produce a “Guide to *Social Protection and Energy Sector Reform*” as a reference guide for policy makers to succeed in carrying out reforms.

Pillar 3: Enhancing sustainability by greening the regional energy system

The reality of climate change is challenging governments and businesses around the world to take urgent actions. The region, although a small contributor to global energy related emissions, is no exception. Overall, two-thirds of greenhouse gas emissions result from energy production and use alone. Creating public awareness for clean energy and energy saving is key for greening the regional energy system to enhance long-term sustainability.

- *Energy efficiency as a powerful tool for emission reductions*

The implementation of the Paris Agreement adopted in 2015 at the United Nations’ COP21 Climate Change Conference has become a global tool to reduce green-house gas emissions, promote the deployment of renewable energy and achieve significant energy savings. Indeed, the cheapest form of energy is the energy that is not produced and used. Energy efficiency is therefore one of the most cost-effective ways to support the transition to a low carbon economy.

Energy intensity levels and trends differ widely across world regions, reflecting differences in economic structure, technology maturity and energy efficiency achievements. Uzbekistan's energy intensity is among the highest not only in the CAREC region but also across in the world. It uses twice as much energy as its neighbor, Kazakhstan, to produce a unit of GDP, and six times as much as Germany⁶. But thanks to the reforms introduced, it is decreasing (-2.7%/year since 2012)⁷. A similar trend can be observed in other countries of the region.

Putting energy efficiency first is to reduce energy consumption and carbon emissions, and redirect investments towards smart and sustainable infrastructures that emit the least possible amount of harmful substances. These developments aim to ensure that energy demand and economic growth are decoupled so that any reduction in energy use will not be linked to reduction in the economic or industrial activity.

Despite global efforts and widespread knowledge about the negative effects of climate change, energy efficiency is still not viewed as a real priority in many countries around the world. The

⁶ https://ec.europa.eu/info/sites/info/files/katharina_gassner.pdf

⁷ <https://estore.enerdata.net/energy-market/uzbekistan-energy-report-and-data.html>

CAREC region, consisting of some of the most energy intense economies globally, should thus set a positive example in this regard and adopt ambitious energy efficiency programs.

In this context, CAREC's role over the coming decade should be to support its members in identifying suitable energy efficiency measures and create business opportunities in this field. To this end, a regional CAREC *"Energy Efficiency Scorecard"* shall be developed to allow CAREC countries to benchmark their progress against international efficiency standards. This benchmarking tool should be dynamic and allow to identify and reward high-performers. It should most of all motivate members of the CAREC community to become energy efficiency champions who can share their experience with their peers.

Yet, the most fundamental ingredient for achieving long lasting energy efficiency is creating widespread and true awareness for it. Consumers and business owners must be empowered with knowledge about how to save energy in their daily lives and business operations. Therefore, in the coming decade, the CAREC program will develop recurring public and region-wide energy efficiency campaigns which include the development of *Radio and TV Commercials* and a *CAREC consumer leaflet* on energy savings. In addition, a *CAREC Energy Efficiency Week shall be held* across the region to enhance public awareness for the subject. A reference guide on how to effectively organize consumer awareness campaigns shall also be developed for governments and other stakeholders to repeat the exercise on their own whenever deemed necessary.

- *Creating a cleaner energy mix and economic diversification*

A key solution to minimize energy intensity and carbon emissions is to progressively reduce the share of coal and other fossil fuels in power generation and move to cleaner energy sources. Despite abundant renewable energy potential in the CAREC region, including small hydro, wind and solar energy, the currently installed capacity of solar and wind energy amounts to less than 5% on average. With some of the world's top CO₂ emitting countries present in the region, the transition to renewable energy will thus play a major role in reducing carbon emissions and achieving individual climate commitments made as part of the Paris Agreement.

With costs of solar and wind power generation rapidly decreasing, renewable energy sources are becoming more competitive and thus an increasingly viable alternative for power generation in the region. However, the lack of technical experience in integrating a larger share of renewable energy into the grid still remains a major challenge in many parts of the world including the CAREC region.

Within the next 10 years, the CAREC program will provide support to its members to attract more renewable energy generation in the regional energy mix, preferably through private investments. This will include addressing the technical challenges connected with intermittency of renewable energy and providing guidance on various renewable incentive mechanisms, their pros and cons and solutions on how to finance these. The aim is to make policy makers feel confident to take informed decisions on how to achieve the energy transition effectively in their respective countries. Policy makers will be equipped with a robust guide on legislative and technical

requirements for the integration of renewable energy into the grid. CAREC will ensure this knowledge transfer through tailor-made capacity building programs and opportunities for international best-practice exchanges on the subject, especially from countries such as Germany and others which have come a long way in the energy transition.

Moreover, to enable a smooth transition towards renewables and low carbon economy, it will be essential to talk about the role of transition fuels, especially gas. Gas has significantly lower carbon emissions on combustion per unit of energy delivered than both coal or oil and may therefore act as a “bridging fuel” to a low-carbon energy future. Given that creating a new and more renewable energy mix will only happen gradually and over a longer stretch of time, a focus on gas (which is abundant in the CAREC region) should be included in the regional debate around the energy transition to ensure a realistic and sustainable energy transition. It should also include a broader discussion on how existing infrastructure can remain relevant and technologically viable in the face of climate change.

From an economic and energy security perspective, the pitfalls of relying on oil and gas revenues to fuel an entire economy are well known. A new energy mix will thus not only enable cleaner energy production but also economic diversification. This in turn, will generate new opportunities for growing populations, including large numbers of young people entering the workforce in the CAREC region.

- *Securing funds for a smooth transition*

Deploying renewable energy and energy efficiency measures is capital intensive and difficult to be financed purely from public funds. It requires up-front investments by households, equity from businesses and debt financing from lending institutions to benefit from reduced energy bills in the future.

Climate finance can be mobilized through a range of instruments from a variety of sources, international and domestic, public and private. In fact, today there is more money available for climate change mitigation than ever before, hence these funds should be tapped and used to the benefit of the CAREC region. Available funding for climate friendly projects makes a real difference in accelerating the transition to a clean energy future.

To this end, the CAREC community shall establish a joint platform to mobilize funding for emission reduction projects. The “*CAREC Green Energy Alliance*” shall be a forum composed of all CAREC members to identify and attract sources of funding. The aim of the alliance should be to create a shared regional fund in the longer-term which can be accessed by all members to co-finance investments into clean energy projects.

IV. Cross-Cutting Themes

To support the delivery of the three main strategy pillars, CAREC members will also prioritize several cross-cutting themes. These will improve the results of the main strategy pillars, fill critical gaps and ensure successful implementation of the 2030 CAREC energy vision. The envisaged cross-cutting themes include: (i) Creating new knowledge products and peoples' networks; (ii) Enhancing the role of the private sector, and (iii) Empowering women in energy.

Theme 1: Creating new knowledge products and peoples' networks

Knowledge is central to operations in the energy sector. Therefore, a number of knowledge products and partnerships with knowledge institutions shall be established to support the successful implementation of the three main strategy pillars. Particular attention should be given to include the next generation of energy professionals in all knowledge-related activities. Knowledge sharing within the CAREC community is another key element to advance cooperation in the regional energy sector.

- *A new CAREC Energy and Investment Outlook*

In response to the requests from investors, governments, international organizations and civil society, CAREC shall develop a *Regional Energy Outlook* in periodic intervals. Based on comparable data and analysis gathered from member countries and other organizations, the Outlook will provide critical insights on trends in energy demand and supply and put these into a wider economic and demographic context. The Outlook shall also contain substantial analysis on what the identified trends mean for investors, operators and other stakeholders. It shall specifically examine the impact of current and future trends on energy security, environmental protection and economic development in CAREC countries.

A specific *CAREC Energy Investment Chapter* shall form part of the Outlook and report progress on regional and international investment flows to the energy sector. It should also shed light on new opportunities and barriers to investment. Input to this report shall be provided by the relevant business communities amongst other sources.

These data-driven products will provide enhanced transparency on the state of Central Asian energy markets and support CAREC's efforts to attract more investments, track the reform process and achieve top service quality for consumers.

- *Preparing CAREC's young energy leaders*

Strengthening the role, competence and voice of young professionals is an investment in the future. Millennials and post-Millennials are growing up in a world of accelerated energy transformation and are more aware of climate change, clean energy solutions and the possibilities of technological leapfrogging than ever before. Yet, this generation is still

underrepresented on the decision-making level in the energy industry and is hardly involved in designing new business models, rules of the game and new mindsets that are required to prosper in the future. The idea of playing a leading role in clean energy transition and being at the forefront of a ground-breaking technology and industry is however clearly attractive for many young people.

Millennials are often reluctant to enter the hydrocarbon industries because they are concerned about how long the industry will exist. Given that oil, gas and hydropower represent the competitive strength of CAREC countries today, there is a risk that low interest for this industry will lead to a shortage of workforce compromising the long-run viability of the energy industry. Thus, listening to the ideas, motivations and visions of the next generation is crucial in building a modern energy sector in Central Asia.

One serious barrier for young people getting involved in Central Asia is the accessibility of fora for engagement. Therefore, allowing young professionals to meet and work in joint projects across the region will not only give them a louder voice in the energy sector but also enhance regional cooperation and integration efforts. Thus, CAREC shall provide a regional youth energy dialogue platform to discuss energy security, infrastructure, climate change, energy efficiency and gender equality as reflected in the main pillars of this strategy.

Chosen by virtue of their potential as future leaders of the industry, young professionals in Central Asia shall form a unique community and partake in thought leadership discussions led by prominent executives and officials. To this effect, CAREC shall launch a *Young Energy Leaders Initiative* designed for young professionals from government, companies, universities and NGOs to help talented CAREC youth take leadership roles in the energy world of tomorrow. The initiative shall particularly foster networking, skills development and practical exposure to various parts of the industry.

- *Working with new partners*

The comprehensive vision for 2030 opens up new possibilities for partnerships between CAREC members and professional institutions. In fact, it is neither feasible nor desirable for CAREC to undertake all proposed initiatives in this strategy on its own. Many proposed activities in this strategy can reap tremendous benefit from partnering with specialized institutions to extract high-quality results. The proposed Energy and Investment Outlook for example may be established together with organizations that have built up years of experience in researching market data and creating outlooks for the global investment community. CAREC shall also consider new partnerships with renowned global centers of excellence to support the development of renewable energy in the region and other important areas targeted by this strategy.

Theme 2: *Attracting private sector investments across the energy value chain*

The CAREC region's energy infrastructure investment needs (excluding PRC) amount to \$1.15 trillion between 2016-2030. As public funds fall short of the necessary investment volume and are injected at a pace slower than required, private investments are needed to fill the widening gap.

The creation of conditions for the emergence of a dynamic private sector – capable of diversifying exports, creating jobs and strengthening resilience – is one of the most challenging and important issues facing the CAREC region, where private sector still remains underdeveloped and funding is limited. Given the limitations in public resources, external private investment for the energy sector is essential and can relieve significant pressure on government budgets. Such investment also improves efficiency and viability of projects as they have to be profitable and competitive.

To this effect, governments and development partners need to create more space for the private sector by improving the business climate to build stronger interconnections, attract investments to energy efficiency and renewable energy and bring about competition in liberalized energy markets.

Support is not only needed for large-scale conglomerates or monopolies but also for small and medium-sized enterprises, to stimulate economic growth, combat poverty, enhance energy development and regional linkages in the CAREC region.

- *Developing a CAREC Energy Investment Strategy*

Many countries in the region are land-locked and cannot reach ports without cross-border connections. Therefore, energy infrastructure (and other infrastructure that is needed to bring in equipment and materials) have to traverse borders and cannot be developed by countries in isolation from one another. This makes investments into the CAREC region more complex than average. Therefore, gradually aligning investment policy frameworks — so that investors face similar “rules of the game” across neighboring countries — can make a big difference in unlocking investment for cross-border projects.

To create a solid base for policy makers to create effective enabling conditions for private investments into the energy sector, CAREC will develop a regional *Energy Investment Strategy* with suitable partner organizations. The strategy should benchmark investment policies, identify best practices and provide recommendations to policy makers on how to collectively enhance investment policies which (i) improve coherence and transparency of the investment environment; (ii) enhance market access and healthy competition; (iii) reinforce protection of investors' rights; and, (iv) promote responsible and inclusive investment. The *Energy Investment Strategy* can also focus on projects that promote improvements in corporate governance and social responsibility in the energy sector.

- ***Using public-private partnerships***

Using public-private partnerships (PPPs) as a financing mechanism is another way of helping CAREC governments attract much-needed private sector funds. These will play an integral role in ensuring efficient risk sharing, identifying potentially successful projects and establishing effective project monitoring schemes. PPPs enable governments, which may lack resources and sophisticated knowledge to ensure the quality of large-scale projects, to better distribute risks presented by projects amongst multiple parties.

Although the potential for PPPs remains largely unexplored, there are some promising developments in the region. For example, Kazakhstan adopted a PPP law in 2015. Azerbaijan also recently enacted a new law that introduces options for potential financing of Build-Operate-Transfer infrastructure projects. Uzbekistan has recently created PPP government entity and also Tajikistan and the Kyrgyz Republic have PPP policies in place amongst other CAREC member countries.

Building on these instruments, CAREC shall develop a regional *PPP template* for interconnections based on best practices in the region and elsewhere to overcome the current hurdles to private investment in energy infrastructure projects.

- ***Promoting the CAREC Energy Investment Forum***

The CAREC Energy Investment Forum, launched in 2016, has played a crucial role in highlighting investment opportunities in the CAREC countries by bringing together key government officials, project developers/sponsors, project financiers, equipment manufacturers, engineering, procurement, and construction contractors.

The Forum shall continue to play a major role as the region's flagship platform to attract investments to the region. It should not only feature matters that concern the established international and domestic investors' community but actively promote B-2-B exchanges, foster start-ups and young entrepreneurs that bring new and innovative business ideas to the energy sector. The Energy Investment Forum shall also develop a series of concrete recommendations for government and business leaders after each Forum.

- ***Creating a CAREC Business Advisory Council***

Recognizing the value of bringing the voice of businesses into the regional energy discourse, CAREC will establish a *Central Asia Business Advisory Council (CABAC)* through which the views and needs of the private sector can be fed into regional policies. CABAC shall provide a reality check in the process of creating an effective business climate in the region and articulate business priorities to enable more competition.

Members of the Business Advisory Council shall consist of leaders from regional energy businesses, finance and technology providers. CABAC members are expected to leverage their networks, knowledge, experience and influence to:

- Serve as a source of independent energy business advice to the CAREC Energy Ministers and Energy Investment Forum
- Provide substantial contribution to the *CAREC Energy Investment Strategy and the CAREC Energy and Investment Outlook*
- Increase two-way engagement with the business, government and the wider community

CABAC shall achieve its objectives by convening as a collective body, ideally around the time of the annual Energy Investment Forum and other relevant regional events to support capacity development and investment promotion activities. It should be chaired by the country that is hosting CAREC and co-funded by its members and CAREC.

Theme 3: Empowering women in energy

Women remain underrepresented in the energy industry around the world including in the CAREC region. Today, women only account for around 20% of the global overall energy workforce⁸ and only 11% of the top global oil and gas executives are women⁹. Hence, there is substantial room for opening up the energy industry to women and diversifying the sector's workforce. More women are needed on all hierarchical levels but especially at senior executive level to act as role models to younger women.

Women can multiply outputs and increase organizational performance in the energy sector, thus strong support and collaboration from CAREC countries is needed to ensure gender equality is reached in a meaningful way across all sector activities.

- *Promoting gender equity and added value of women in energy*

Raising awareness for the advantages of an inclusive and diverse workforces is crucial in achieving gender equality in the energy sector in the long-term. Empowering women in energy shall bring about a change in mind-set on the part of government and business energy leaders. Already today, countless companies and governments choosing to put women on their energy agendas find they have a more engaged and efficient staff, perform better and maintain higher retention rates.

To showcase the added value that women bring to the table, CAREC shall start in its own quarters and set a positive example by introducing policies to encourage women participation at its energy

⁸ <http://www.cleanenergyministerial.org/campaign-clean-energy-ministerial/equal-30>

⁹ https://www.ey.com/en_gl/oil-gas/how-diversity-boosts-performance-in-oil-and-gas

events. This approach has already produced first positive results. Women participation at CAREC's Energy Sector Coordinating Committee (ESCC) meetings increased by 30% since 2016 due to a new nomination policy for meeting delegates. CAREC should thus keep pursuing this track and introduce more far reaching women participation, not only in numbers but by providing opportunities for women to get actively involved in discussions.

Moreover, to increase awareness for the importance of gender equity, CAREC will organize a flagship *Women in Energy Summit* that brings CAREC energy women to the forefront. The summit should make women in energy visible to a wide audience, show their talent and allow for new role models to be created. The summit will also provide an excellent opportunity to report on the progress made towards achieving gender equity in the region and beyond.

- *Enhancing employability of women in energy*

Acknowledging the potential of women to formally participate in the energy sector as decision-makers, instead of merely as energy consumers, results in increased benefits. By creating a female talent pool, CAREC will add to the next generation of women energy leaders and provide them with the necessary tools to boost future career paths.

For the share of women in the energy sector to increase, CAREC will establish a "*Women in Energy*" program to enhance employability and career opportunities of women. The program will establish a number of initiatives that will be open to women only and offer targeted opportunities to enhance professional experience and skills. The aim is to raise the profile of CAREC women to be highly competitive on the job market. One way of achieving this goal is to set-up a secondment program between CAREC and renowned international energy companies, public authorities and international organizations that allow CAREC women to be employed in their offices for a specified period of time. This will not only foster the career and leadership development of women but also encourage companies to rethink their business models providing better roles for women in energy and associated sectors.

As part of the "*CAREC Women in Energy Program*", CAREC will also create partnerships with elite universities around the world to facilitate trainings and/or higher education at leading schools. This is not only expected to create a competitive advantage for women in the region but a competitive advantage for the entire regional energy industry as women with top quality education will add fresh ideas, transform, inspire and lead the regional energy industry to better results.

- *Fostering regional cooperation through women networks*

Empowering women in the energy sector offers a valuable opportunity to unlock untapped productivity. For women to be successful on this journey, it is helpful to foresee support networks that provide guidance, inspiration and possibility for exchange among peers on all societal levels. CAREC will therefore establish a regional platform not only to connect urban female energy professionals but also rural women communities to discuss local and regional improvements to

energy sector development and how women can contribute. CAREC should set up a suitable networking structure, keep it up to date and ensure women find what they need. This can include setting up a mentoring program to allow asking peers for advice when needed and connect more senior with more junior women. By connecting CAREC women, a new cross-border community will be born and further contribute to enhancing regional cooperation.

V. Institutional Framework Improvements

Achieving the 2030 objectives for CAREC’s energy sectors is a complex task that requires a clear vision of how to effectively implement it. While setting up a work plan with concrete actions and responsibilities is essential in this process¹⁰, the establishment of optimal institutional structures is equally important to allow for a constructive working environment and high-quality results. This section proposes new and targeted working methods to deliver the objectives of CAREC energy sector work up to 2030. The overall aim of a renewed institutional framework is to ensure better results, more ownership and accountability in CAREC work.

A new team spirit for CAREC Energy

CAREC Energy must be a platform that caters to the needs of the region. It needs a strong sense of community to identify, develop and produce beneficial results for all parties involved. A strong CAREC Energy Family that supports each other and strives towards a common purpose is key for building a dynamic and high-performing network. Over the next decade, CAREC Energy shall thus become a platform that is truly operated by its members for its members. CAREC should also further evolve into a platform that brings energy experts, companies, governments and international financial institutions together to formulate plans and actions on emerging challenges.

Bringing people to the forefront of CAREC Energy requires building a community with names, faces and personalities. Hence, the program must provide appropriate structures for CAREC members to stand in the spotlight and take on responsibility and leadership for specific tasks. “Who is Who” in CAREC Energy must be well known to all members of the community to increase ownership and accountability for results.

Overall, a new and smart approach shall be applied to achieve the objectives of the CAREC Energy Strategy 2030. A new culture of team work shall allow sharing of work load and more focused discussions on the individual 2030 focus areas. The formation of teams shall lead the community to develop a fresh identity and new team spirit. This in turn shall motivate members to work towards a common goal and build closer ties.

Ultimately, the CAREC Energy Strategy 2030 is owned by its members. Its outcomes will be as strong as its actors are. For this reason, members have to be provided with optimal working conditions to achieve maximum impact for the regional energy sector and take regional cooperation to a higher level over the coming years.

¹⁰ Covered in Chapter VI

Delivering more and better

CAREC's main discussion platform for energy issues is the Energy Sector Coordinating Committee (ESCC). ESCC's performance is key as it determines the quality and level of outputs of CAREC's energy sector work. Its effective functioning is thus essential to create lasting results and value added for the CAREC Energy community.

To date, ESCC meetings are held approximately twice a year presenting regional sector updates. Looking forward to 2030 and considering the scope of the new regional priorities, more in-depth discussions and effective division of tasks will be needed at ESCC level. To this end, productivity of a uniform body such as the ESCC should be raised by putting appropriate sub-structures in place that allow individual subject areas to be tackled in a more targeted fashion. ESCC shall thus be transformed into a more output-oriented body with permanent subgroups each delivering assigned results of the strategy.

The new ESCC structure shall mirror the strategy pillars by putting work streams in place for each of the main priority areas:

- Work Stream 1: "Infrastructure Connectivity and Energy Security" (WS 1)
- Work Stream 2: "Policy Reform and Liberalization" (WS 2)
- Work Stream 3: "Energy Efficiency and Diversification of the Energy Mix" (WS 3)

These work streams directly cover the scope of strategy pillars 1, 2 and 3 and shall focus on their respective implementation. Progress and results shall be regularly reported to ESCC for further guidance and adoption of final results.

The cross-cutting themes shall be covered in a similar fashion. Individual task forces for each of the cross-cutting themes shall be established and convened on demand:

- Task Force A on Knowledge Products, Partnerships and People's Networks (TF-A)
- Task Force B on Private Sector Enhancement (TF-B)
- Task Force C on Women Empowerment (TF-C)

While members of the Task Forces must have their own exchanges, they must also be represented in each of the Working Groups to ensure full transparency of cross-cutting actions to all members.

Both work streams and task forces shall establish work programs containing concrete deliverables in accordance with the overall workplan 2030.

Working Groups and Task Forces shall each be led by a Chair and Co-Chair, if possible from two different member countries. Chairs and Co-Chairs are equal in rank and shall be responsible for

steering their groups and producing the foreseen results. They must take part in ESCC meetings and regularly report on the progress and results achieved by their groups.



The new ESCC structure shall give CAREC members full ownership, responsibility and control of the 2030 workplan and its deliverables.

Facilitating outputs through smart collaboration platforms

For regional team work to happen effectively, modern technology and state-of-the art collaboration tools shall be used to facilitate working across borders. A web-based platform shall serve as the main gateway to implement the 2030 Strategy, access working documents, plan meetings and share ideas among the respective working group and task force members.

VI. Strategy Implementation: Work Plan 2020-2030

The following workplan is established to implement the CAREC Energy Strategy 2030. It includes the actions to be delivered for each of the strategy pillars and cross-cutting themes and sets out specific performance indicators to track progress. The workplan also determines which subgroups shall be responsible for the delivery of the actions. The final shape of results will be worked out together with the CAREC Energy Community as part of the Strategy implementation process to best suit individual and regional needs.

Pillar 1: Better energy security through regional interconnections

Actions to be delivered by
Work Stream on “Infrastructure Connectivity and Energy Security”
(WS 1):

| Action | Description | Responsible Party | Performance Indicators |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|
| Realize TUTAP¹¹, TAP¹² and CASA¹³-1000 electricity interconnection projects | CAREC’s flagship power transmission line projects connecting Central and South Asia are at various stages of implementation and shall go into operation within the strategy period | WS 1 | - TUTAP, TAP and CASA-1000 in operation |
| Advance TAPI¹⁴ gas pipeline project | Ongoing negotiations on possible modalities to realize the TAPI gas pipeline shall be accelerated | WS 1 | - Dialogue on the implementation of TAPI intensified |
| Facilitate cooperation of regional transmission system operators | Growing electricity and gas interconnections require increased cooperation among transmission system operators. A corresponding platform for regional network development planning, identification of projects of common interest and information sharing shall be facilitated by this activity | WS 1 | - Concept for “Central Asia Transmission Cooperation Association” (CATCA) developed |

¹¹ Turkmenistan-Uzbekistan-Tajikistan-Afghanistan-Pakistan

¹² Turkmenistan-Afghanistan-Pakistan

¹³ Central Asia-South Asia

¹⁴ Turkmenistan-Afghanistan-Pakistan-India

| | | | |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------|
| Identify new cross-border infrastructure projects | New cross-border gas and electricity links shall be identified to increase energy security in the region | WS 1 | - New regional gas and/or power interconnections identified |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------|

Pillar 2: More investments through market liberalization reforms

Actions to be delivered by
Work Stream on “Policy Reform and Liberalization”
(WS 2):

| Action | Description | Responsible Party | Performance Indicators |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------|
| Provide capacity building on unbundling models and liberalization of energy markets | This activity shall support policy makers in taking informed decisions when embarking on unbundling and market liberalization reforms | WS 2 | - “CAREC Energy Reform Atlas” established (containing access to practical handbooks and database with study materials) |
| Advise on principles in tariff setting and methods to introduce tariff reform | Financial health of network companies is key to ensure high-quality of service. This activity shall shed light on tariff design options and ways to implement gradual tariff reform | WS 2 | - Handbook on tariff principles and reform options published - Capacity building workshops held |
| Develop a definition of vulnerable energy consumer and options for social protection measures | This activity shall assist in elaborating options for social protection measures to accompany tariff reform including the development of a vulnerable consumer definition to assist policy makers in identifying the appropriate target group | WS 2 | - CAREC “Guide to Social Protection and Energy Sector Reform” published |
| Share international best practices on legal enforcement of sector reform | Sector reform requires adaptation of existing and creation of new energy laws. This activity aims at discussing successful examples of relevant sector laws and methods of law enforcement | WS 2 | - Capacity building workshops held |

Pillar 3: Enhancing sustainability by greening the regional energy system

Actions to be delivered by
Work Stream on “Energy Efficiency and Diversification of the Energy Mix”
(WS 3):

| Action | Description | Responsible Party | Performance Indicators |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Establish a joint platform to mobilize sources of funding for emission reduction projects | For emission reduction projects to be realized, a dedicated platform shall be established to identify and secure funding for priority projects | WS 3 | <ul style="list-style-type: none"> - “CAREC Green Energy Alliance” established |
| Identify suitable energy efficiency measures and track progress | Energy efficiency is a powerful tool to reduce emissions. The aim of this activity is to disseminate practical know-how on efficiency measures and establish a regional benchmarking tool to compare progress and reward high-performers | WS 3 | <ul style="list-style-type: none"> - “CAREC Energy Efficiency Week” held - Regional energy efficiency score card developed - Capacity Building Workshops held |
| Create public awareness for energy efficiency | This activity shall enhance public awareness for energy efficiency and empower consumers on how to use energy more consciously | WS 3 | <ul style="list-style-type: none"> - CAREC Consumer Leaflet on Energy Saving prepared - Energy Efficiency radio and/or TV commercial developed - Handbook on how to organize consumer awareness campaigns published |
| Support in the development of renewable energy and diversification of energy mix | This activity aims at supporting CAREC members in adding renewable energy to their energy mix by providing practical guidance on the necessary pre-requisites | WS 3 | <ul style="list-style-type: none"> - Workshop on pros and cons of different renewable incentive schemes held - Coping mechanisms for renewable energy intermittency developed |

| | | | |
|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | <ul style="list-style-type: none"> - Manual on legislative requirements for the integration of renewable energy prepared - Role of gas as a transition fuel discussed |
|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Cross Cutting Themes:

Theme 1: Creating new knowledge products and peoples’ networks

Actions to be delivered by
Task Force on Knowledge Products, Partnerships and People’s Networks
(TF-A):

| Action | Description | Responsible Party | Performance Indicators |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------|
| Develop “CAREC Energy Outlook and Investment Report” | This activity aims at providing investors and other relevant stakeholders with reliable regional data to make investment and policy decisions | TF-A | - CAREC Energy Outlook and Investment Report published |
| Establish relevant partnerships to support the implementation of the three strategy pillars | All three strategy pillars include capacity building, institution building and training initiatives which shall be implemented together with experienced partner organizations | TF-A | - Partnership with global centers of excellence in the fields covered by the strategy established |
| Promote networking and skills development of next generation energy professionals | CAREC shall facilitate cross-regional networking and skills development of next generation energy professionals to allow a natural sense for regional cooperation to emerge among the target group | TF-A | - “CAREC Young Energy Leaders” initiative established |

Theme 2: Attracting private sector investments across the energy value chain

Actions to be delivered by
Task Force on Private Sector Enhancement
(TF-B):

| Action | Description | Responsible Party | Performance Indicators |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------|
| Prepare a Regional Investment strategy | A regional investment strategy containing recommendations on how to create improved enabling conditions for private investments in Central Asia shall be developed | TF-B | - "CAREC Energy Investment Strategy" developed |
| Hold annual CAREC Energy Investment Forum | The annual Energy Investment Forum shall continue to attract investors to the region and foresee a dedicated space for B-2-B meetings | TF-B | - Annual CAREC Energy Investment Fora held |
| Provide practical support to investors to enhance their business operations in the region | This activity shall create improved enabling conditions for private investors operating in the region | TF-B | - "CAREC Business Advisory Council" created to identify needs of private investors |

Theme 3: Empowering women in energy





Actions to be delivered by
Task Force on Women Empowerment
(TF-C):

| Action | Description | Responsible Party | Performance Indicators |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------|
| Establish "CAREC Women in Energy" program | This activity shall provide Women in CAREC with the necessary tools to boost their career paths, build a regional network and become more visible in the region's energy sector | TF-C | - Women in Energy Summit organized - Secondment program for Women in Energy established |

| | | | |
|--|--|--|-----------------------------------------------------------|
| | | | - Educational scholarship for Women in Energy facilitated |
|--|--|--|-----------------------------------------------------------|

VII. Results Framework

Table: CAREC Energy Strategy 2030 Program Results Framework

| Common borders. Common solutions. Common Energy Future. | | | | | | |
|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Impact | Better Energy Security Through Regional Interconnections | More Investments Through Market Liberalization Reforms | Enhanced Sustainability through Greening the Regional Energy System | New Knowledge Products and Peoples' Networks | Enhanced Role of the Private Sector | Empowered Women in Energy |
|  Outcomes | Increased energy security as a result of cross-border collaboration | Higher quality of service without disadvantage to the most vulnerable | The CAREC region is a participant in global efforts to mitigate climate change | More quality data on regional energy markets and engaged young professionals | Increased confidence from the private sector to invest in Central Asia | Increased women's participation in energy |
|  Outputs | Regional platform of transmission system operators is created New Projects of Common Regional Interest are identified | Capacity on tariff setting, vulnerable consumer protection and subsidy phase-out is strengthened | Regional financing vehicle for clean energy is established Incentive mechanism for more energy efficiency is created Capacity on renewable energy integration is enhanced | A new energy publication containing regional energy market data is released Regional cooperation is intensified through a platform for young energy professionals | Improved enabling conditions for private investments are created B2B platforms are made available for investment community Support networks for private sector are created | Opportunities for women to improve qualifications and employability are created |
|  CAREC Interventions | Establish a concept for a "Central Asia Transmission Cooperation Association (CATCA)" Support priority implementation of Projects of Common Regional Interest | Establish a virtual "CAREC Energy Reform Atlas" Release a "Handbook on tariff setting and reform options" Develop a "Guide to Social Protection and Energy Sector Reform" | Establish a "CAREC Green Energy Alliance" Develop a CAREC "Energy Efficiency Scorecard" Provide capacity building on renewable energy integration and uptake Organize public awareness campaigns on energy efficiency | Develop a "CAREC Energy Outlook and Investment Report" Launch "Young Energy Leaders Initiative" | Develop a "CAREC Energy Investment Strategy" Organize regular Energy Investment Fora to provide possibility for B2B exchanges | Establish a "Women in Energy" program |
|  Driving principles | Energy Security Long-term and enduring regional relationships Economic gains for all | Financial sustainability of the energy sector Affordable and reliable service quality to consumers | Emissions reductions through energy efficiency and clean energy Attraction of private finance Diversification of economy and energy mix | Transparent energy markets Higher quality results through specialized partnerships Fresh ideas and innovation from young professionals | Attract private investment to cover the region's energy investment needs | Reap the proven advantages of a diverse and inclusive workforce CAREC to lead by example and act as a champion of fostering women in energy |