# Six steps to energy sustainability and security

## Business recommendations for G20 Energy Ministers

Access to reliable, affordable, economically-viable, socially-acceptable and environmentally-sound energy is fundamental to economic growth and sustainable development. In light of expected growth in world population and energy demand—projected to increase by one-third by 2035, across all types and forms of energy—long-term energy access and security must become priorities for G20 Leaders.

Meeting the future demands for reliable, affordable and sustainable energy will require timely investment in supply and demand infrastructure, given that projects can take up to a decade to develop and implement. The level of energy investment is expected to be the largest single area of overall infrastructure investment, requiring US$1-2 trillion per annum over the coming decades depending on overall energy use and the pace of expansion of low-carbon energy.

The majority of global energy demand in 2040 will still be met by coal, oil and gas. Under a prolonged period of lower than expected oil prices, there could be major implications for investment such as deferring upstream investment or weakening the case for fuel switching and efficiency investments; and security concerns can re-emerge if low-price oil demand outstrips supply. At the same time, the energy sector is at the heart of many solutions for tackling global climate change, calling for clear rules as governments around the world follow through on policy commitments made at the COP21 meeting in Paris in December 2015. Moreover, digitization and accelerating innovation are transforming most industry sectors and society at large, posing challenges to capital intensive, long-term energy investments. The potential sources of disruptive innovation and uncertainty on energy demand are many, requiring companies to more actively scan the innovation horizon in years to come than they have in the past.

Therefore, G20 leadership on energy policy must: (i) support the expansion of lower-carbon energy and the sustainable development of hydrocarbon resources; (ii) deliver long-run energy security, ensure affordability, increase energy access and realize environmental objectives; and (iii) provide a stable and predictable environment that will encourage long-term investment.

## Policy recommendations for G20 countries

Given the vast scale and long timeframes of required energy investments, effective and predictable policy and legal frameworks will be critical to ensure that adequate and appropriate energy investment occurs now and over the coming decades. To enable these massive investment requirements, the *ICC G20 CEO Advisory Group* offers the following recommendations to G20 leaders:

1. **Utilize a broad energy mix to drive sustainable development.** The majority of global energy demand in 2040 will still be met by coal, oil and gas. Therefore, G20 leadership is needed to employ the abundance of all available energy resources. including conventional fuels such as coal, gas, gas liquids and oil; nuclear power; and renewables such as bioenergy, geothermal, hydro (including ocean), solar and wind.

   Each of these energy resources presents opportunities and constraints, which may be different depending on local circumstances. Therefore, all energy options must remain open in order to cater to the wide variety of national and regional circumstances, policy options and constraints, uncertainties and

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risks, particularly with regard to energy security. Broadening the energy mix can help alleviate environmental or other sustainability challenges associated with any one form of energy, and promote other synergies that support sustainable development. For example, the expansion of renewable energies in the mix may result in increased local supply and support the growth of businesses, jobs and in some cases export markets, as well as reduce greenhouse gas emissions.

2. **Manage the long-term transition to secure and sustainable global energy systems by establishing stable regulatory frameworks that encourage and incentivize energy investment.** In general, energy sectors are capital intensive have very long investment and planning horizons, and can take decades to change. The useful life of capital stock, including public infrastructure, can vary considerably, but in some applications can be as long as 50 years; premature retirement of useful capital assets is costly to society, to investors, and to operators of infrastructure. Given the long-term natures of energy innovation, energy investment and energy infrastructure, stable policy and regulatory frameworks are essential and should be designed to (i) ensure long-term energy security; (ii) make energy in all forms more efficient and affordable; (iii) mitigate price volatility; (iv) promote sustainable energy delivery and consumption and access to reliable and modern energy services; and (v) generate positive societal, economic and environmental impacts.

   To businesses, energy security means confidence in their ongoing ability to access reliable and affordable energy wherever they operate. Energy security is an important consideration for business viability, planning and investment over the near, medium and long term, and impacts businesses' ability to grow and to increase employment. Over the long term, many companies face energy mix decisions that impact not only existing infrastructure, but also R&D, future investment plans, and sourcing of future resources.

   The G20 can also encourage wise and efficient investment in energy by (i) supporting global carbon pricing as a policy framework, such as through building upon and extending the G7 Carbon Pricing initiative; (ii) building on Paris Agreement pledges (Nationally Determined Contributions) and ensuring transparency to encourage investment; (iii) replicating, adapting and building upon efforts undertaken by the UK Emissions Trading Group (comprising government, regulatory, and impacted businesses) for effective joint decarbonization planning; and (iv) implementing national mechanisms that rationally incentivize emissions reductions.

   The G20 can also demonstrate leadership in improving conditions for energy investment by pursuing policies which facilitate the import and export of energy commodities; promoting regional cooperation on cross-border energy infrastructure projects which add to the supply diversity and energy security; championing the elimination of tariff and non-tariff barriers on energy and environmental goods and services, as currently envisaged under WTO and regional trade agreements; and reducing inefficient and wasteful energy subsidies that distort markets.

3. **Increase R&D investments for innovative energy technology.** While technology development and deployment is integral to achieving many future global energy objectives, investment in energy research has declined on a global scale for the last few decades. This trend must be reversed.

   Technologies in the R&D phase may need different policies, incentives or collaborations from technologies that are commercial or near-commercial. Accelerating energy R&D should be a global priority, and the G20 must accelerate R&D investment and strengthen and enlarge the supply of well-trained scientists, engineers and technicians necessary for global energy R&D to revive and succeed.

There is an urgent need for multi-national collaborative research projects on a diverse range of key energy technologies that could deliver the step-changes in performance that materially widen the portfolio of global energy options. Business will continue to play an important role in finding solutions, within its sphere of responsibility and in collaboration with other stakeholders, but governments, business and civil society should also partner to leverage resources. To be successful, these partnerships should combine the strengths and capabilities of relevant partners from the public sector and private sector in pursuit of agreed objectives that are aligned with long-term energy investment needs. New and innovative partnerships and market mechanisms should be shaped to accelerate deployment of near-commercial technologies, to increasingly integrate digital and energy solutions and to incentivize accelerated R&D activity by the technology leaders of today and of tomorrow.

To accelerate technology development and deployment, policymakers need to address business decisions on future investment and where to deploy current R&D funds. If large scale energy security and sustainability improvement and innovation is to occur more rapidly, policies need to be considered in, and coordinated in, an integrated manner. For example, policy and legislation will be required for the timely development of regulations to site facilities and pipelines for the transport of $CO_2$ to support evolving policy on the development and deployment of carbon capture and sequestration (CCS) technologies. A project-by-project approach will not address larger infrastructure requirements and, therefore, may delay large scale roll out. Accelerating technology innovation and research cooperation may require large-scale R&D efforts as well as pilot programs in both the developed and developing world.

4. **Promote and prioritize energy efficiency.** Business supports energy efficiency as a critical component of any comprehensive sustainable energy strategy. Governments should continue to promote and support energy efficiency across industries and to promote adoption of energy-efficient behaviors and devices by energy consumers through education, regulation and incentives. Supported by sound, stable fiscal and regulatory frameworks, business can collaborate with public authorities to improve the efficiency of current systems and to reduce future energy demand.

   The G20 should demonstrate leadership by establishing government efficiency standards in the main energy-consuming sectors where price sensitivity is limited, with particular emphasis on buildings, housing and transport. Success from energy efficiency efforts will depend critically on G20 governments' ensuring compliance.

   The G20 should further incentivize private sector investment in innovations in energy technology, delivery, efficiency, and commercial transfer across borders, for example through public-private-partnerships (PPPs) and through on-going support to strengthen existing global technology initiatives such as the Climate Technology Centre and Network (CTCN).

5. **Improve global energy governance and coordinate international efforts.** A holistic view that includes careful consideration of energy mix and diversification is critical to addressing long-term energy issues and risks and to mitigating the cross-sectoral impacts of price or supply volatility. Integrated economic, energy and environmental policies, which take into account both long-term considerations and current realities as well as account for international agreements, need to be formulated and implemented at the national level. Conversely, national policies must take current realities and international agreements into account.

The G20 can better coordinate integrated international efforts by improving the global governance framework for energy policy. Leadership by G20 should start with establishing formal business representation in the G20 energy-related working groups (e.g., G20 Energy Sustainability Working Group). G20 leadership would also include: (i) encouraging the completion of the International Energy Forum Joint Oil Data Initiative (JODI) work on oil, gas and coal information to improve energy market transparency and efficiency; (ii) reforming current institutions (e.g., International Energy Agency, International Energy Forum), including increasing collaboration among countries and international energy-oriented organizations; (iii) promoting regional energy supply security projects; (iv) supporting Sustainable Development Goals, as efficient energy systems are essential to achieving several of them; (v) adapting global best practices to local context and needs; and (vi) defining and following through on Nationally Determined Contributions (NDCs) pursuant to the COP21 Paris Agreement on Climate Change (COP21) outcomes.

6. **Increase worldwide access to clean, modern forms of energy in accordance with SDG 7, with emphasis on Africa and the Asia-Pacific region.** At least 1.1 billion people live without access to electricity and 2.7 billion people are without access to clean, modern energy for cooking. Access to reliable, affordable, economically-viable, socially-acceptable and environmentally-sound energy is fundamental to economic growth and sustainable development. Energy contributes to meeting basic needs, such as clean water, food preservation, transportation, healthcare, sanitation, education and communications. In light of expected growth in world population and energy demand, long-term energy access and security must be among G20 priorities.

   The challenge is to support choices and access within the framework of international cooperation and global markets. The G20 should:

   - Support the UN SE4All initiatives and its High-Impact Opportunity (HIO) partners (including energy efficiency in district energy, green building, transportation, lighting and appliances);
   - Support the development by energy-poor countries of national and, where applicable, regional energy plans that balance all primary and final forms of energy to ensure reliable and affordable access, while respecting the need for energy security and source diversity, especially for net energy-importing countries;
   - Improve transparency and access to accurate data about national and regional energy markets, plans and projects;
   - Cooperate closely with international organizations to coordinate efforts on energy access in developing countries (e.g., the African Development Bank's New Deal on Energy for Africa);
   - Partner with international organizations and the private sector (through appropriate representative institutions) to improve the potential for financing and implementation of initiatives related to energy-access and energy efficiency.