1) Where are we?

The commitment (planned and/or announced) as well as the actions taken so far that are in line with aims of Paris Agreement, the 1.5/2 degrees' goal and the transition towards a net-zero emission society by this mid-century [Maximum 300 words]

The mission of the Business Council for Sustainable Energy, on behalf of its members from the energy efficiency, natural gas and renewable energy sectors in the U.S., is to advocate for energy and environmental policies that promote markets for clean, efficient and sustainable energy products and services. The Paris Agreement is a prime example of a market-based solution – as it provides a framework for governments to implement their Nationally Determined Contributions (NDC) and policies that will facilitate the transformation of the energy sector globally.

The Council works to "power the ambition" of Parties – by providing countries with the technology and technical expertise, market information and policy experience that demonstrates how existing clean energy solutions can deliver emissions reductions, increase resilience to a changing climate and enable greater political ambition on climate action. The Council also works to share the story of the U.S. energy sector transformation to a global audience. BCSE seeks to show how the U.S. is reducing its emissions, while growing its economy and creating jobs. The Council also highlights how the U.S. marketplace is embracing cleaner sources of energy, despite federal policy uncertainty.

Corporations are playing a leadership role in climate change solutions, through commitments to renewable energy through RE100, energy productivity through EP100 and by establishing science-based emission reduction targets. Companies are directly procuring renewable energy at high levels – in 2017 alone, U.S. companies contracted for 2.9 GW of off-site renewable energy capacity from wind and solar. U.S. companies are also participants in the We Are Still In Coalition.

Progress made so far against the above commitments, including success stories, case studies and gaps [Maximum 300 words]

- American Carbon Registry (ACR) issued 150 million tonnes of GHG emissions reductions representing a climate finance value of over $1 billion to support mitigation actions in a range of sectors including forest conservation and management, transportation efficiency, and clean energy. ACR is advancing the use of technology to reduce costs for monitoring, reporting and verification, which ACR believes will help scale mitigation efforts globally.
- Ingersoll Rand is on pace to meet/exceed its 2020 Climate Commitment. Through 2017, Ingersoll Rand has reduced the GHG footprint of its refrigerant products 27.5%; reduced the GHG footprint of its operations by 35%; and invested $300 million in product-related R&D to fund long-term reduction of GHG emissions. Ingersoll Rand also plans to incorporate lower GWP products across the company's product portfolio by 2030.
- Johnson Controls has committed to doubling the energy productivity of its global operations from 2009 to 2030 as part of EP100, and has achieved its ten year U.S. DOE Better Plants Challenge goal in only seven years.
- Philips Lighting's Brighter Lives Better World program set a goal to be Carbon Neutral by 2020. Philips Lighting has reduced its carbon footprint by 51% since 2007. These measures and additional

offsetting, have resulted in carbon neutral operations in 7 markets: Greater China, Middle East & Turkey, Italy Israel & Greece, France, Benelux, UK & Ireland and Iberia.

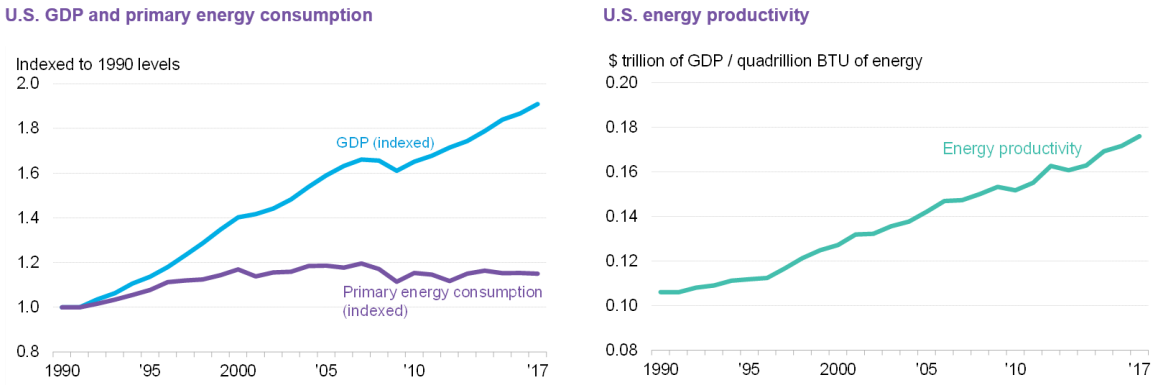
- Qualcomm has taken several direct emissions reduction activities, which through December 2016, have resulted in approximately 9% GHG emissions reduction from its 2014 baseline. These projects included consolidating office space, implementing energy efficiencies, as well as achieving LEED Gold certification for its new 219,000 square foot facility in Bangalore. See 2017 Sustainability report.
- U.S. Green Building Council's LEED is the most widely recognized and used green building certification program, with nearly 100,000 projects participating in 167 countries and more than 200,000 square meters of occupant space certifying every day – helping to reduce emissions around the world.

Quantitative impact so far with respect to mitigation, adaptation, resilience and/or finance [Maximum 300 words]

The BCSE, in partnership with Bloomberg New Energy Finance, released the 6th edition of the *Sustainable Energy in America Factbook* in February 2018. In 2017, the transformation of the U.S. energy sector shifted into higher gear, with a near-record rate of renewable energy deployment and increases in U.S. energy productivity.

Since 2008, the U.S. power sector has made large strides toward a decarbonized grid. In the last decade, natural gas' share of electricity generation increased from 22% to 32%, and renewable energy's share climbed from 9% to 18%. Natural gas and renewable energy now account for 50% of U.S. power generation. Simultaneously over the past decade, the U.S. gross domestic product (GDP) grew 15.3% while total energy use fell 1.7%. In other words, the energy productivity of the U.S. economy—the ratio of U.S. GDP to energy consumed grew 17.3% since 2008. Amidst all of these changes, the total percent of household expenses dedicated to energy costs is just under 4%, near an all-time low.

U.S. energy overview: Economy's energy productivity



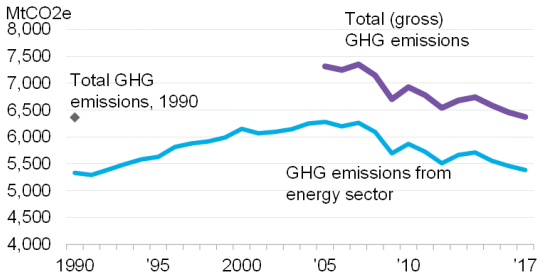
Source: Bureau of Economic Analysis, EIA, Lawrence Berkeley National Laboratory, BNEF Notes: Values for 2017 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through October 2017). 2017 GDP estimate is a projection from economists compiled at ECFC <GO> on the Bloomberg Terminal. 2018 Sustainable Energy in America Factbook, p.18.

In 2017, U.S. GHG emissions fell to their lowest levels since 1991, shrinking to an estimated 6.4GtCO2e in 2017 after contracting another 1.4% from 2016 to 2017. The power sector continues to drive the economy's decarbonization – emissions from this sector ebbed 4.2% in 2017, this time on the back of declining load and greater renewable generation. Power-sector emissions now sit 28% below their 2005 peak, which puts the U.S. only 4 percentage points away from achieving its former Clean Power Plan target of 32% below 2005

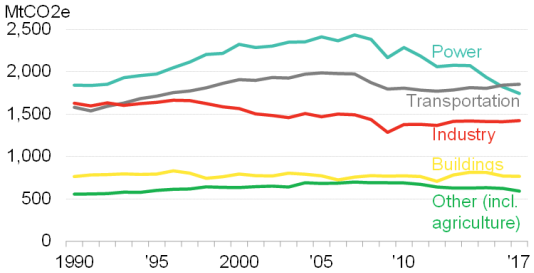
levels by 2030. The rapid emissions reduction in the power sector has also helped to bring the U.S. halfway to its Paris Agreement target of slashing economy-wide emissions to 26% below 2005 levels by 2025.

U.S. energy overview: Greenhouse gas emissions

Economy-wide and energy sector emissions



Emissions by sector



Source: Bloomberg New Energy Finance, EIA, EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2015 Notes: "Sinks" refer to forests and green areas which absorb carbon dioxide. Values for 2017 are projected, accounting for seasonality, based on monthly values from EIA available through October 2017. 2018 Sustainable Energy in America Factbook, p.26.

In 2016, the renewable energy, energy efficiency and natural gas sectors employed approximately three million Americans. Energy efficiency, with nearly 2.2 million jobs, was the largest single employer within the sustainable energy sectors.

Source of graphs in this submission: 2018 Sustainable Energy in America Factbook, Bloomberg New Energy Finance and The Business Council for Sustainable Energy (February 2018), available: www.bcse.org/sustainableenergyfactbook

2) Where do we want to go?

Vision of the future for your organization and/or sector in terms of its possible role in achieving the 1.5/2 degrees' goal and a net-zero emission world by this mid-century [Maximum 300 words]

The BCSE and its members support a vision that embraces a broad, diverse and climate-friendly portfolio of energy solutions that deliver emissions reductions, increased climate resilience and economic prosperity. This portfolio of solutions includes demand and supply-side energy efficiency technologies and solutions, combined heat and power, demand response, energy storage, smart grid, carbon capture utilization and storage, natural gas, and renewable energy solutions that include biomass, biogas, fuel cells, geothermal, hydro (including marine and hydrokinetic power), solar, waste-to-energy and wind.

The vision for 1.5/2 degrees world needs policies and investments today that encourage the development and deployment of all these technology solutions. The Council's members provide today's best-in-class solutions and are also developing tomorrow's solutions. The integration of these solutions will minimize emissions and maximize economic benefits.

Possible and potential new commitments and pledges of to achieve the 1.5/2 degrees' goal and a net-zero emission world by this mid-century [Maximum 300 words]

Examples of today's solutions that are delivering on climate ambition and that provide a platform for the next generation of commitments include:

- At Ingersoll Rand, EcoWise™ is a portfolio of products designed to lower environmental impact with next generation, low global warming potential refrigerants and high efficiency operation. To date, Ingersoll Rand has introduced 6 new products in this class.
- Johnson Controls: University of Hawai'i Maui College Net-Zero Campus by 2019 In response to a state of Hawaii commitment to convert 100% of its energy supply to renewables by 2045, Johnson Controls is partnering with the University of Hawaii system to complete energy efficiency upgrades and install solar PV and battery energy storage systems at five campuses. Maui College will be one of the first net-zero college campuses in the country and four O'ahu campuses will see reductions in fossil-fuel use of 70% to 98%, saving the system $79 million in energy costs over 20 years.
- U.S. Green Building Council: Developing a verification for projects that achieve net zero carbon emissions for energy and transportation

Foreseen positive impact of these commitments once they are realized, including contributions to the sustainable development agenda [Maximum 300 words]

3) How do we get there?

Ways in which the UN Climate Change process can help you achieve your vision and goals, and how your actions can help in expediting sustainable transitions to climate neutral societies [Maximum 300 words]

The UN Climate Change process can continue to help the Business Council for Sustainable Energy advance the breadth and depth of the deployment of a broad portfolio of clean and efficient energy solutions by agreeing at COP 24 to a Rulebook that protects the integrity of the Paris Agreement, fosters private sector engagement and embodies the following:

- Reaffirms the shared commitment to transparency and data integrity by all countries and ensure that the measurement, reporting and verification (MRV) system for emissions and mitigation actions utilizes the latest technologies and borrows from best practices already in place for corporate greenhouse gas emissions reporting and disclosure.

- Expands the reach of market-based policies and carbon pricing through NDCs and a Paris Agreement framework that encourages enhanced ambition, including sector-wide approaches. That establishes robust carbon accounting rules and measures and a transparent reporting framework to protect environmental integrity and to prevent the double counting of emissions reductions. The early setting of operational rules for cross-border transfers and a new mitigation mechanism will accelerate private sector investment in low-carbon opportunities.

- Deepens channels for capacity-building to build integrated systems in campuses, cities and regions that enable the transition to cleaner sources of energy to take root and grow.

- Encourages the Green Climate Fund to embrace attractive financing tools and a more streamlined project process to attract private sector investment.

- Creates a robust, new Technology Framework that builds upon existing Mechanism and continues to protect innovation systems.

- Opportunities for continued and new, innovative approaches to working with the private sector, with the aim to increase the ambition of NDCs and to build out practical investment and technology pathways for countries to meet their NDC targets.

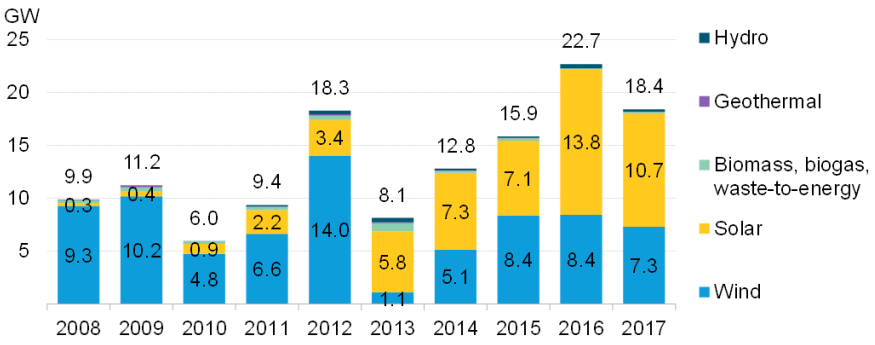
The UNFCCC has an important role to create the public space for accountability and innovation for climate solutions, especially in the post-2020 era of implementation.

Concrete solutions that have been realized while implementing your commitments, including lessons learnt from success stories and challenges, and case studies that are in line with the 1.5/2 degrees' goal and can support the Parties in achieving their NDC goals, enable higher ambition and inspire engagement of other non-state actors [Maximum 300 words]

Stable policies supporting clean energy research, development and deployment have played a key role in the low-carbon energy transformation that is well underway in the U.S. in the energy efficiency, natural gas and renewable energy sectors. Examples include:

1) Stable tax credit policies have driven tremendous growth in the wind and solar sectors (see 2011-17) and the lack of this long-term policy certainty has restrained the growth of other renewable energy sectors (biomass, biogas, waste-to-energy, geothermal, hydro).

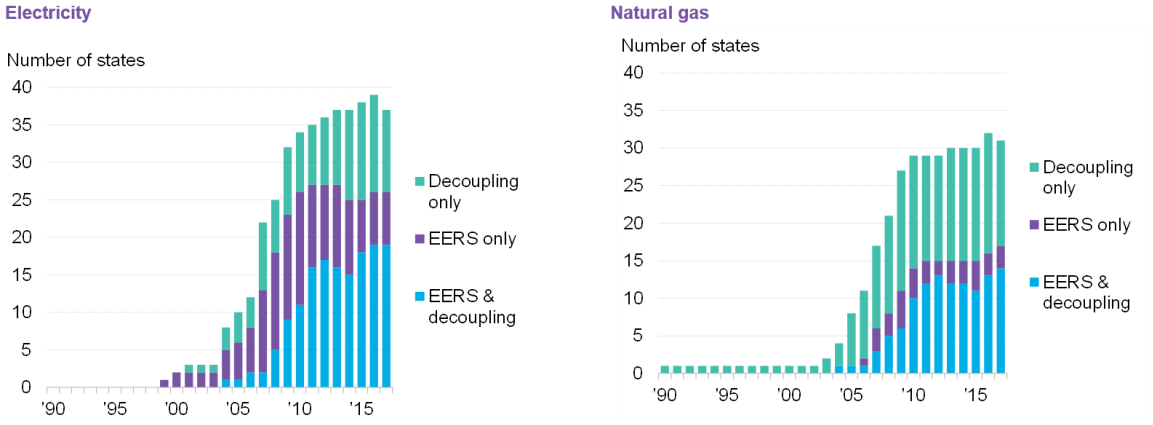
U.S. energy overview: Renewable energy capacity build by technology



Source: Bloomberg New Energy Finance, EIA, 2018 Sustainable Energy in America Factbook, p.24.

2) Energy efficiency resource standards (EERS) are state-level policies that require utilities to invest in measures that improve end-user efficiency to meet energy-savings goals set by the government. Decoupling is a regulatory framework in which utilities' revenues are based on the reliable provision of energy, but not on the volume sold. Decoupling removes the disincentive for utilities to invest in efficiency. Utilities are most likely to invest in energy efficiency in states with both EERS and revenue decoupling. In 2016, U.S. utility spending on efficiency reached $7.6 billion.

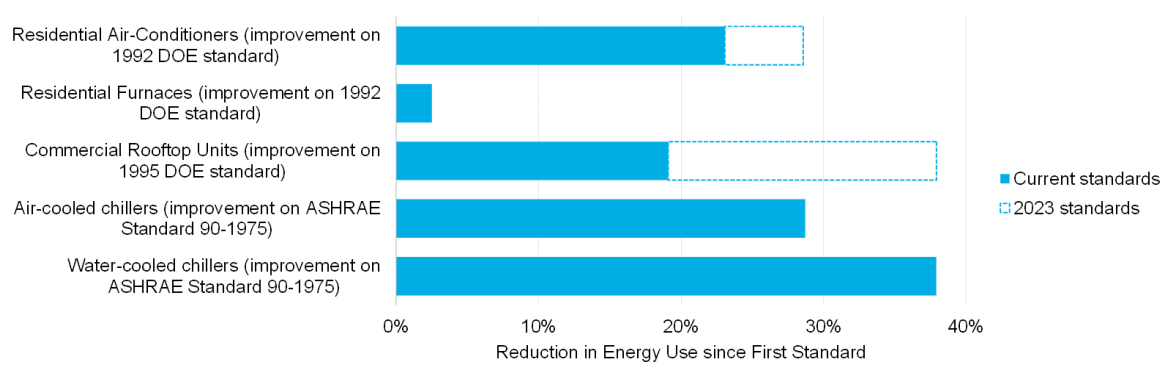
Policy: U.S. states with EERS and decoupling legislation for electricity and natural gas



Source: Bloomberg New Energy Finance, ACEEE, 2018 Sustainable Energy in America Factbook p. 100.

3) Tightening of efficiency standards drive building energy use reductions through innovation and other improvements. Today, air conditioning equipment uses 20-40% less electricity to provide the same amount of cooling as when standards were first introduced. Additional efficiency gains can come from optimizing these and other building systems through building energy codes, market-proven certification schemes and other "systems efficiency" approaches.

Policy: Reductions in energy use by HVAC equipment, as required by efficiency standards



Source: © 1975 ASHRAE www.ashrae.org Note: 2023 standards reflect Department of Energy appliance standards to take effect in 2023, 2018 Sustainable Energy in America Factbook p. 107.

4) Continued investment in energy research, development and deployment is needed to increase the efficiency of our energy generation and use, and to spur new innovations. Natural gas and utility industries look for long-term and stable investments. Public-private partnerships reduce investment risks and enable industry to tackle tougher challenges that have benefits that are shared by the greater public. A prime example is the public-private partnership that introduced technology that brought about the shale gas revolution, which has led to a reduction in energy sector emissions.

Collaboration models with other stakeholders and, in particular, between non-Party stakeholders, national governments and the UN Climate Change process that have been successful in helping you, or can help you, achieve your commitments [Maximum 300 words]

The Building Efficiency Accelerator (BEA), under Sustainable Energy for All, is a powerful model that connects local governments with experts, stakeholders and technology providers to advance building efficiency at a scale that will drive change and emissions reductions at the local-level. This public-private partnership is engaged with local jurisdictions on every continent except for Antarctica and is in the process of engaging national governments to strengthen the national-local nexus as it pertains to climate action. Since 2015, the BEA has engaged with 253 cities and 1,800 stakeholders in meetings, workshops and webinars, securing 47 policy and project commitments from 25 cities. The actions from six BEA partner cities are estimated to avoid 5.8 million tons of carbon emissions through 2030.

The Global Alliance for Energy Productivity is another public-private partnership aimed at doubling energy productivity by 2030. By elevating the concept of increasing both economic growth and energy efficiency as goals that can be achieved in tandem, this type of visionary partnership can create political space and the win-win scenario for additional emissions reductions.

The US Green Building Council's sister organization, Green Business Certification Inc. leads the City Climate Planner credential program that ensures professionals are equipped to support local climate action planning. The program was developed by The World Bank Group, C40 Cities, ICLEI, and WRI.

Opportunities to further scale up action and means to address barriers that can enable even further action by non-Party stakeholders based on the actions you have taken to implement your commitments. ("We've made progress and have made new commitments as described above. This is what I need from national governments, other non-

Party stakeholders and the UN Climate Change process to take even further action…") [Maximum 200 words for each item below]:

- *Policy levers*

  - Tax policy has been the most impactful energy policy at the federal level for the United States for the past several decades. The tax code can be a market catalyst if the specific tax measures are consistent with the project investment cycle of the sector they seek to impact. Examples of tax provisions that have resulted in significant new investment in renewable energy are the Production Tax Credit (PTC) and the Investment Tax Credit (ITC), Tax credits have also been market drivers for energy efficiency, and in the most recent federal tax bill that passed in late 2017, includes tax incentives for carbon capture and storage projects. Alternatively, the lack of certainty around tax policy can hinder energy sector investment.

  - Standards – For energy use in appliances and fuel use in vehicles, building codes are proven tools to encourage investment in efficiency. State-level policies such as energy efficiency resource standards or renewable energy portfolio standards have also been very successful at encouraging uptake of these solutions.

- *Collaboration/cooperation opportunities*

  - Joint research, development and deployment between public and private sector - Over the last two decades, carbon capture, utilization and storage (CCUS) technology has been developed and brought to readiness for commercial scale CCUS demonstration by Jupiter Oxygen Corporation. This technology uses an oxy-combustion process to achieve high flame-temperature conditions in power plant boilers, which enables cost effective carbon capture from existing natural gas and coal-fired power plants. The U.S. Department of Energy's National Energy Technology Laboratory (NETL) worked over 10 years with Jupiter Oxygen to perfect the carbon capture train and integrated air pollutant control.

- *Lessons learned based on the experience and progress so far*

Investments in the energy sector – both power and transportation – are long-lived and require a stable policy environment to support the transition to low and zero-carbon resources. Clear and stable policies in the energy sector provide necessary signals to private sector investment that this is the direction the market is going and that investments will be profitable. In the U.S. experience, intermittent and short-term policies have negatively impacted the growth of clean energy sectors.

Other key elements or enabling environments that must be in place for basic business investment in a country include rule of law, protection of intellectual property and innovation, anti-corruption measures, a trained work force and a working infrastructure that supports the flow of goods and services. When these elements are in place, market signals are created and investment flows more easily. Adaptation of business models and public-private partnerships is also necessary, depending on the incumbent energy sector framework and state or country-specific natural resources and industries.

- *Public and private financing models*

Based on the experience of BCSE members, the following are successful models:

- Energy-savings performance contracts (ESPCs) – allows U.S. federal agencies to procure energy savings and facility improvements with no up-front capital costs or special appropriations from Congress. An ESPC is a partnership between an agency and an energy service company (ESCO).
- Property-Assessed Clean Energy (PACE) – a means of financing energy efficiency upgrades or renewable energy installations for residential, commercial and industrial property owners.
- Purchase Power Agreements (PPAs) for renewable energy.
- Renewable Energy Credits (RECs).

Also, the BCSE encourages multi-lateral development banks (MDBs) to also consider a broader approach to clean energy financing, to also help facilitate the research and development of key tools such as oxy-fuel and carbon capture, utilization and storage (CCUS). The BCSE also seeks greater flexibility to allow countries that have sovereign debt with an international financial institution to make public sector investments in renewable energy and energy efficiency.

- *Impact on non-Party stakeholders if these actions by national level governments and the UN Climate Change process and other opportunities are implemented and how much further they could go*