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**before the  
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Chairman Hastings, and Cochairman Cardin, Ranking Members Smith and Brownback, and members of the Commission, thank you for this opportunity to discuss U.S. policy on energy security in Europe and Eurasia. Our energy interests in these regions – encompassing Europe, Russia, the South Caucasus, and Central Asia – are far reaching. Anchored by our five prong global energy strategy to (1) diversify the supply of conventional fuels and expand production (2) diversify our energy portfolio by expanding the use of alternative and renewable energy, (3) promote increased energy efficiency and conservation measures, (4) advance environmental stewardship, and (5) protect critical infrastructure and promote market stability, we have adopted a comprehensive strategy tailored to Europe and Eurasia with the following objectives:

- The United States and our Euroatlantic allies maintain reliable access to diversified supplies of energy, including oil, natural gas, renewable and alternative fuels, and nuclear power;
- Hydrocarbon producers in Azerbaijan and Central Asia realize the benefit from multiple export routes to European and global markets;
- European energy markets (especially for natural gas) function efficiently;
- Decrease potential for energy to be used as a political or commercial weapon;
- Eurasian energy producers manage hydrocarbon wealth wisely to avoid corruption and economic instability; and

- The Euroatlantic community develops commercially viable technologies to reduce carbon emissions without slowing economic growth.

These objectives are inter-related. By increasing diversity of sources of supply and transit routes, we can bolster market efficiency through competition and reduce vulnerability to energy supply disruptions. Relying on market-based policies to manage energy revenue streams transparently can limit the corruption and economic distortions that undermine economic growth and stability. By increasing diversity of types of energy, we also reduce the danger of politically or commercially motivated energy cutoffs, directed at either producers or consumers, while reducing our dependence on hydrocarbons, which in turn reduces carbon emissions and pollution, benefiting the environment.

To advance our international energy strategy, we are pursuing a broad range of mechanisms, including enhanced trade and transparency, intensified technology development, new regional energy partnerships, bolstered energy dialogues, and novel public-private sector partnerships.

### **Diversification of Energy Suppliers and Routes**

America's aim is to advance reliable, long-term flows of oil and natural gas from the Caspian region. Reliability requires sustained investment *and* diversified sources and supply routes – a point emphasized and endorsed by G8 leaders during their summit in Russia last July, when they committed to the St. Petersburg Global Energy Security Principles, which also include commitments to open transparent, efficient, and competitive energy markets.

The EU is heavily reliant on fossil fuels and likely will be for decades. Oil accounts for 40 percent of the EU's energy demand; gas, 24 percent; coal, 17 percent; nuclear, 13 percent; and hydroelectric and renewables, six percent. According to the International Energy Agency, Russia provides 60 percent of EU gas imports and 25 percent of oil imports. In March, the European Union adopted a broad package of targets and incentives that is meant to reduce EU dependence on fossil fuels. The IEA nevertheless projects that by 2030, barring major policy shifts, the EU will import 70 percent of the energy it consumes.

Russia remains the largest single supplier of oil and gas for many EU member states. Dependence on Russian crude oil in 2006 is as follows: 12

percent of France's oil comes from Russia; Germany obtains 34 percent from Russia; and Poland, Slovakia and Hungary each obtain almost 100 percent. But oil is a fungible commodity that can find its way to global markets through a multiplicity of pipelines and tanker routes from any point on the globe.

Natural gas is a different story. Until liquid natural gas is a globally traded commodity like oil, the market for natural gas will remain based on long-term contracts. The EU is dependent on Russian parastatal company Gazprom for 60 percent of its natural gas imports and 40 percent of all the natural gas it consumes. Europe secures the balance of its natural gas from the North Sea and the Norwegian Continental Shelf, North Africa, imports of liquefied natural gas, and limited production on mainland Europe. In 2005, Gazprom accounted for 32 percent of pipeline gas imports in France; 40 percent in Germany; 68 percent in Hungary; 63 percent in Poland; and 100 percent in Slovakia, Bulgaria, and the Baltic states. EU dependence on Gazprom will likely grow in coming years, as North Sea gas supplies deplete, and Gazprom seeks to lock in exclusive supply contracts lasting two to three decades, and Gazprom control of delivery infrastructure and distribution assets in the downstream increases.

Map 1 depicts the enormous network of pipelines on which Gazprom relies to transport gas from Western Siberia and Central Asia to Europe.



In the eyes of many European consumers, Russia’s reputation for reliability of gas supply was damaged by its January 2006 cutoff of gas supplies to Ukraine, and mysterious explosions on a Russian pipeline that cut all gas flows to Georgia and Armenia during the peak of the winter of 2006’s harshest weather. A similar oil cutoff to Belarus, and threats of new stops in service to Azerbaijan and Georgia in winter 2007, further propelled European consumers to seek diversity of supply sources.

Because of Russia’s nationalistic interventions in its energy sector, investment in Russia’s upstream production and infrastructure has lagged and this can lead to significant challenges to meeting supply obligations. Existing Russian gas production in Western Siberia is being depleted, and has not been replaced or expanded by investment in new production or reinvestment for expansion; in effect, several of the country’s most important large gas fields are experiencing production declines, and the

substantial volumes of gas production have been voluntarily shut in by Gazprom. Significant lead time and foreign technical expertise would be needed to begin to develop many of these shut in resources. During the course of the next five to ten years, Russia will need to develop new supplies of gas to continue meeting its 25- and 30-year contracts in Europe. This will require huge levels of investment in highly remote areas like the Arctic, Eastern Siberia and Russia's Far East. Gazprom is eyeing the Caspian Basin, especially Central Asia, as the cheapest and most readily available supply of natural gas to allow Gazprom to fulfill its supply contracts in Europe. Gazprom seeks to continue buying Central Asian gas at low rates which it can sell at high prices by virtue of its position as the monopolist owner of the largest pipeline network serving Europe, and the only one linking central Asia and Europe.

Gazprom, as the dominant supplier to the European market, currently purchases gas in Central Asia for \$100 per 1,000 cubic meters, then sells gas for \$265 or \$285 in Europe. Preliminary price estimates for Azerbaijani gas shipped to Europe via the SCP and the Turkey-Greece-Italy pipeline indicate an independent route could potentially yield better prices for both European consumers and Caspian producers through transparent market mechanisms, and will increase competition for those markets.

The enormous rents generated by the current differential in gas price between Central Asia and Europe are generally distributed non-transparently, contributing to corruption and undermining energy sector and broader economic reform along the entire supply chain. These revenue streams and control of a considerable portion of the world's gas reserves enable Gazprom, a monopoly by Russian law, to constrain competition in both upstream and downstream markets by acquiring strategic energy infrastructure in Europe and the Caspian, by concluding exclusive long term purchase and delivery contracts under non-transparent terms, and by acquiring equity positions in European energy companies. It is therefore critical to find common cause with our European allies and Central Asian producers to counter monopoly pressure by increasing the number of suppliers and supply routes for world gas markets.

Map 1 shows the first option to increase competition for gas markets through multiple gas pipelines. The yellow line on the map that links Baku, Azerbaijan with Erzurum, Turkey depicts the South Caucasus Gas Pipeline (SCGP), one of the most complex gas pipelines ever developed, and which

parallels much of the Baku-Tbilisi-Ceyhan (BTC) oil pipeline. SCGP and BTC received strong support from the United States for over a decade, as we helped the Governments of Azerbaijan, Georgia, and Turkey work together and with private investors to realize these infrastructure projects that changed Europe's strategic map. As SCGP comes fully on-stream in coming weeks, it will link Azerbaijan's giant Shah Deniz gas field in the Caspian Sea with Turkey's gas grid. Development of the Shah Deniz field has the potential to make Azerbaijan self-sufficient in natural gas, and will provide Georgia and Turkey with an invaluable alternative supplier.

Map 2 depicts the vision of what we hope to achieve in 2020 – a ring of natural gas infrastructure extending from the Caspian Sea around the Black Sea into Europe. Working with companies and countries, we seek to expand the SCGP into a larger “Southern Corridor” comprising two emerging projects: the Turkey-Greece-Italy (TGI) and Nabucco pipelines. The Southern Corridor will complement Gazprom's existing pipeline infrastructure, as well as new supplies of liquid natural gas from Norway and perhaps Russia and other countries.

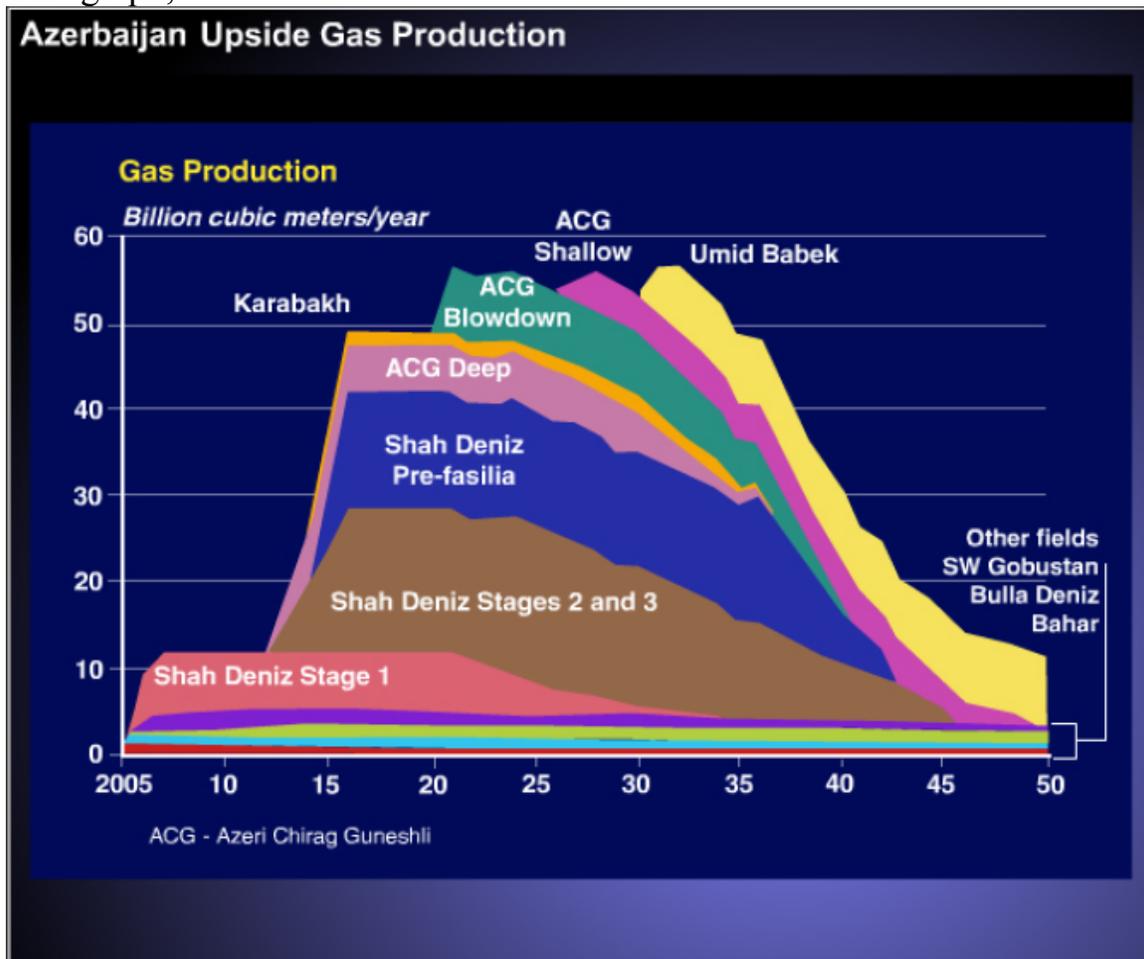


The first phase of TGI will be operational later this summer, when the Turkish and Greek gas grids are connected. Shortly thereafter, we expect a modest volume of Azerbaijani gas to reach Greece. Over the subsequent three to five years, a trans-Adriatic link will connect the gas grids of Greece and Italy, providing a reliable flow of diversified gas supply from Azerbaijan.

The Nabucco pipeline, conceived by the European Commission in conjunction with the Governments of Turkey, Bulgaria, Romania, Hungary, and Austria, is in an earlier phase of development. Nabucco promises to deliver large volumes of natural gas from the Caspian Basin and the Middle East into Southern and Central Europe. The U.S. supports Nabucco exclusively as a way to transport Azerbaijani – but not Iranian – gas to Europe. We believe Azerbaijan’s gas reserves and potential production are

sufficient to fill both TGI and the first phase of Nabucco. We are working to facilitate close cooperation among all Nabucco countries, the Government of Azerbaijan, and investors in both the pipeline and Azerbaijani gas production, which is crucial to ensure sufficient Azerbaijani gas is available to meet the investors' schedule for Nabucco's realization.

This graph,



drawn from data provided by international energy companies operating in Azerbaijan, projects that Azerbaijani gas production could expand to nearly 50 billion cubic meters (BCM) per year by 2016. The graph provides an un-risked, upside estimate of how quickly gas production can expand in Azerbaijan if investors and governments synchronize at the same, high level of efficiency that characterized our efforts on BTC and SCGP. It is an optimistic, but practicable, estimate. If investors and governments reach these targets, their effort could provide 20 to 30 BCM for export to Europe, covering the 11.5 BCM required for TGI and the 8.5 to 10 BCM required for Nabucco's first phase. Reaching these production targets will be a

challenge, requiring synchronization of upstream production with midstream investments in pipelines. The United States is committed to offering whatever diplomatic assistance the relevant governments and companies may seek as they strive to forge the same successful public-private partnership that realized BTC and the SCGP.

While Azerbaijani gas reserves are sufficient to launch Nabucco, later phases of the pipeline project will require additional gas supplies from Turkmenistan, Kazakhstan, and/or Iraq.

Kazakhstan is a growing energy giant. Its oil and gas production will increase rapidly over the next five years. That production will require new outlets to world markets. We are proud of the leading role US companies have played in helping to build Kazakhstan's energy sector and the country's broader economy. As a rising non-OPEC oil producer, Kazakhstan is especially important. As new fields come on line, Kazakhstan exports will add to world supplies. Export outlets are a problem, however. The stalled expansion of the existing Caspian Pipeline Consortium (CPC) pipeline through Russia will certainly necessitate development of new routes to market. Kazakhstan's large natural gas reserves and rising production will likewise induce the development of new means to bring energy supplies to markets.

Turkmenistan presents new challenges and opportunities. The closed nature of the previous regime discouraged new investment and prevented the flow of much-needed advanced technology to the Turkmen energy sector. In the absence of such investment over the past decade, Turkmenistan had scant opportunity to increase its production; indeed, its ability to ship gas to Russia has fallen below the volume for which it has contracted. The declaration issued in Ashgabat in mid-May by the Presidents of Russia, Kazakhstan, and Turkmenistan calls for investment in Turkmenistan's gas infrastructure. We support Turkmenistan in observing existing gas sales contracts. At the same time, Turkmenistan will benefit from additional options to export its gas and we will work with the government of Turkmenistan to facilitate its access to world markets.

Additionally, the U.S., Turkey, and Iraq are exploring potential gas production in northern Iraq, which could be exported to Turkey and onward into Nabucco. We are only in the early stages of this effort, as we work together to attract investment and ensure that Iraq has sufficient natural gas

available to meet its domestic demand even as it seeks to tap European gas markets. EUR Deputy Assistant Secretary Matt Bryza and Turkish Energy Minister Hilmi Guler co-chaired the first trilateral meeting on Iraq gas production/exports in March. They plan to follow up with a subsequent meeting in Istanbul on June 30.

Our cooperation with the EU to realize the Southern Corridor of natural gas infrastructure is accelerating. During the recent U.S.-EU Summit, the United States and the European Commission pledged to seek diversification of energy types, sources, and supply routes, with a particular focus on the Caspian region. We are also working to help our European allies unify their energy policies to elicit more equitable and market-based energy deals with Russia and resist divide-and-conquer tactics. We continue to oppose oil and gas pipelines that run to, from or through Iran. By standing together, EU member states can transform into negotiating reality the theory that Russia is as dependent on revenue streams from Europe as Europe is dependent on Russian natural gas flows. The centerpiece of this effort is the Athens Process, which seeks to harmonize gas and electricity markets through the Southeast Europe Cooperation Process.

We are also working with our European partners to diversify sources of gas supply in Northern Europe. As Russia and Germany strive to develop the massive Nordstream pipeline to transport Russian and Central Asian natural gas under the Baltic Sea to Germany, Nordic and Baltic countries are striving to increase regional competition. Norway is entering a new phase of large-scale natural gas production; it already serves as a key alternative supplier of natural gas to northern Europe. Oslo, Copenhagen, and Warsaw may be moving closer to agreement on a project to link Norway's gas fields with Denmark's gas pipelines under the Baltic Sea, with an extension to Poland. We are supporting this initiative, as well as efforts by Poland, Estonia, Latvia, and Lithuania to develop commercially viable ventures involving regional liquid natural gas terminals, natural gas storage, and thermal power generation that could reduce their dependence on Russia gas as the Nordstream pipeline develops.

### **Diversifying Energy Resources and Managing Energy Demand**

Over the last two years the U.S. and the EU have greatly intensified cooperation aimed at accelerating the development and deployment of alternative energy and efficiency technology and legislation. Beginning with

the 2006 U.S.-EU Summit declaration, the U.S. and EU – for the first time – outlined a systematized approach to cooperation on biofuels, energy efficiency and efforts to diversify European hydrocarbons supplies.

In the 2007 U.S.-EU Summit declaration, we went further, laying out our individual complementary goals and a detailed joint action plan to:

- work on carbon capture and storage technologies, to unlock the enormous potential of clean coal;
- further our work on energy efficiency bilaterally and in multilateral fora;
- develop a groundbreaking set of compatible specifications for pure bioethanol and biodiesel by the end of 2007, to facilitate international trade in and development of these fuels;
- cooperate to hold an international renewable energy conference at the Ministerial level in Washington in March 2008, with the goal of advancing and commercializing renewable energy systems; and
- develop a joint workplan within the framework of the Methane-to-Markets international partnership to identify specific activities and goals to advance recovery of methane, a powerful greenhouse gas.

We launched last fall U.S.-EU working groups on biofuels and energy efficiency, working subsequently to implement the groups' detailed joint work plans. On biofuels, we are taking steps to cooperate in research and development of cellulosic or "second generation" bioethanol, and looking at biodiesel as well. We are also sharing results and ideas on regulatory and policy tools to promote biofuels development, exchanging analyses of potential economic and environmental impacts of biofuels, and comparing respective resource assessments of potential biofuels source biomass. These initiatives involve the Department of Energy, the EPA and the Department of State.

On efficiency, we have renewed the U.S.-EU ENERGY STAR agreement covering office equipment, and are exploring extension of this agreement to other products such as consumer electronics. We are examining coordination on development of international lighting efficiency standards (such as for compact fluorescent lighting), and joint efforts to address efficiency of TVs, digital television adapters and computer servers. We are also seeking to cooperate on energy efficient buildings and housing in three areas: 1) assessment of buildings technologies – sharing lessons learned,

especially in retrofits of existing buildings; 2) cooperation on energy efficient model codes and standards; and 3) sharing information on building energy performance criteria and requirements.

We are also cooperating to promote efficiency in key third countries, most specifically by securing EU cooperation in the development of a trilateral U.S.-EU-Ukraine energy efficiency action plan. Enhancing efficiency of electricity and gas markets in Ukraine will have an immediate benefit of providing more potential Ukrainian energy exports for the EU.

We have more recently held joint workshops on carbon capture and storage, and are preparing a report on possible areas of transatlantic cooperation on environmental, economic and regulatory coordination in the development of this promising technology. We are looking for possible policy incentives to promote commercialization of carbon capture and storage as quickly as possible. We also share the goal of committing to a common approach to monitoring CO<sub>2</sub> stored in underground geological formations or elsewhere.

In addition, we have dramatically increased our direct engagement with the private sector, to draw upon firms' dynamism, creativity and adaptability in meeting these technology challenges. The State Department and Germany's Foreign Ministry in March convened the U.S.-EU Energy Technology CEO Forum, which drew together 20 senior transatlantic private sector leaders to generate key recommendations on speeding transatlantic cooperation in the development and deployment of advanced clean energy technologies. Their report, covering biofuels, energy production, energy efficiency, and energy research in key technologies (second generation biofuels, energy storage, and carbon capture and sequestration) provides a set of 7 distinct initiatives that are being pursued by the U.S., EU, and German governments.

On March 9, the EU's 27 heads of state adopted a set of 17 broad energy and climate mandates on energy efficiency, greenhouse gas emissions, and initiatives to speed clean energy technology development, increase energy sector competition, integrate the EU-wide internal energy market and develop a coherent external EU energy policy.

The U.S. does not favor the EU's approach of mandatory greenhouse gas targets, and we see the EU targets as highly unlikely to be met within 13 years, given that the EU-15 are lagging in their numerical goals now. The EU has not estimated costs of such reductions, and leaders made no mention

of potential costs. Independent studies have estimated that it may cost the EU upwards of \$1 trillion to meet its 2020 goals.

Specific elements of the March 9 package include:

- binding targets to cut EU greenhouse gas emissions 20 percent, increase renewables use to 20 percent and raise biofuels use to 10 percent of fuels by 2020;
- a 20 percent increase in EU energy efficiency by 2020;
- a target of 30 percent greenhouse gas cuts by 2020 if other OECD countries agree;
- a call for negotiations on a global climate change agreement after Kyoto lapses in 2012; and
- measures to increase energy sector competition, integrate energy markets and develop a coherent external energy policy by 2009.

The EU sought to address a number of interrelated goals with this package, including the need to use efficiency to reduce demand for imported hydrocarbons and reduce internal power generation needs, the necessity of increasing the smooth functioning and effectiveness of the EU's internal energy markets, the intention to reduce EU greenhouse gas emissions, and the imperative of developing a coherent external energy policy, allowing the EU to "speak with one voice" in negotiating with Russia and other external suppliers. According to the European Commission, the "Energy Policy for Europe" is intended "to combat climate change and boost the European Union's energy security and competitiveness."

Greenhouse Gas Reductions: In the package the EU laid out an objective of limiting the global average temperature increase to 2 degrees Celsius above pre-industrial levels. Toward this end EU leaders committed to at least 20 percent reduction of greenhouse gas emissions by 2020 compared to 1990. They set an EU goal of 30 percent reduction in greenhouse gas emissions by 2020 if OECD countries commit to comparable reductions, and called for advanced developing countries (such as China and India) to "contribute adequately" according to their capabilities. The EU has also called for developed countries as a whole to reduce collective emissions by 50 percent by 2050 compared to 1990.

The U.S. does not favor the EU's approach of mandatory greenhouse gas targets, and we see the EU targets as highly unlikely to be met within 13 years, given EU-15 lagging on Kyoto goals. The EU has not estimated costs of such reductions, and leaders made no mention of potential costs. Independent studies have estimated that it may cost the EU upwards of \$1 trillion to meet its 2020 goals.

Energy Efficiency: The EU leaders endorsed an earlier EU target of saving 20 percent of EU energy consumption compared to current projections for 2020. This is an EU-wide objective rather than a binding target for each country. There are no sectoral (e.g. buildings, transport, power generation) targets or objectives mentioned in the Council decisions. We believe the EU's goals will increase the EU's motivation to work with the U.S. on efficiency measures such as ENERGY STAR, and green/efficient buildings.

Energy Sector Competition, Internal Market Integration and External Energy Policy: EU leaders did not support a European Commission proposal for complete "unbundling," or forcible break-ups, of energy generation and distribution companies, but called for "greater separation" based on independently run network operators (a Commission compromise offer, based on the successful "Scottish model.") Germany and France had fiercely resisted the potential break-up of national energy champions such as E.ON/Ruhrgas and Gaz de France; the compromise deal should allow ownership of such firms to avoid EU legal challenges.

The EU leaders also agreed to the following:

- steps to complete physical integration of the EU's internal energy market by January 2009, including building more electrical interconnectors between countries;
- appointment of coordinators to facilitate completion of key projects, including a Germany-Poland-Lithuania power link, offshore wind project links, a France-Spain power link, and the Nabucco gas pipeline in SE Europe; and
- a plan to develop a common EU external energy policy by 2009 using multilateral, bilateral and regional instruments.

Completion of the EU internal energy market, by linking EU electricity and gas networks, will improve EU member state ability to respond to supply shocks, such as the Ukraine gas cutoff in 2006, and the interruption of oil

supplies via Belarus and Lithuania in 2006 and 2007. This will substantially enhance security of energy supply in Europe.

Renewable Energy: The EU endorsed a binding target of 20 percent share of renewable energy in overall EU energy consumption by 2020.

Differentiated national targets are to be developed by the European Commission and Member States together and take into account differing economic starting points, economic potential and current energy mix. Each Member State will set its own national renewables target for different sectors (e.g. electricity, heating, transport, excepting biofuels).

The renewables deal sets an EU-wide average target, a compromise to appease France and coal-dependent Poland, Czech Republic, and Slovakia, who are worried about meeting individual country targets. EU leaders acknowledged that setting individual country targets will involve difficult and lengthy negotiations, and did not specify the legal mechanism for enforcement. France failed in its effort to have nuclear energy recognized as a renewable energy equivalent based on low carbon emissions. Germany and other countries, including the Nordics, are expected to exceed the 20 percent average goal, allowing for newer EU members to set lower individual goals.

Biofuels: Finally, the EU endorsed a “binding target” of a 10 percent minimum biofuels share in overall EU transport petrol and diesel consumption by 2020. This target is specifically mandated for each Member State to meet, subject to biofuels production being “sustainable” and second-generation biofuels becoming commercially available. This will require the EU amending its Fuel Quality Directive. This target further enhances EU willingness to work with the U.S. toward compatible international biofuels standards.

In sum, the EU package contains a number of targets that will be difficult to meet physically and/or could be foiled by internal disagreements within the EU. Nevertheless, the EU package provides room for the U.S. to work with Europe on development and commercial deployment of biofuels, renewables, clean coal and other energy technologies, as agreed during the April 30 U.S.-EU Summit.

## **Conclusion**

There is no “silver bullet” or quick fix to increase energy security. The EU and U.S. both recognize the vital importance of diversification of supplies of hydrocarbons, upon which both the US and Europe will depend for many decades. It will take a multifaceted, long term effort between the U.S., the EU, and with producer and consumer countries to increase supply diversification, develop alternative energy sources, and encourage Russia to bring more of its oil and gas resources to world markets within a free and competitive market framework.

To meet the long-term energy and climate challenges that Europe and the U.S. both face, we are working with Europe to help reduce energy demand and diversify energy sources. We are dramatically accelerating and deepening cooperation with the EU to develop and deploy advanced clean energy technologies – such as biofuels, renewables, clean coal, and nuclear power – that will be critical to meeting our joint energy security needs in the future. We are collectively joining forces with our private sectors and forging new partnerships to take advantage of our comparative advantages.

Our collective energy challenges have undoubtedly invigorated and focused many of our key European and Eurasian relationships. Energy has grown to be a critical center of gravity, exposing our joint interests and vulnerabilities in the region. While our intensified efforts have already begun to yield promising results, we continue to look for opportunities to bolster our work in the region.

We are honored to be here before you today. Thank you again Mr. Chairman and members of the Committee for giving us this opportunity to be here this afternoon.