U.S. Senate Committee on Energy and Natural Resources
February 8, 2022 Hearing: The Robinson, DeCarolis, and Daniel-Davis Nominations
Questions for the Record Submitted to Dr. Joseph DeCarolis

Questions from Ranking Member John Barrasso

Question 1: EIA's mission statement says it –"collects, analyzes, and disseminates independent and impartial energy information."

a. Are you committed to safeguarding and promoting EIA's independent and impartial mission?

   Yes – If confirmed, I pledge to uphold EIA's independent and impartial position.

b. Will you fight to preserve the agency's reputation for independence?

   Yes – If confirmed, I will hold this priority above all others.

c. Do you promise that you will not put your own thumb on the scale in favor of policy positions you may hold for any particular source of energy?

   If confirmed, I promise not to put my thumb on the scale regarding particular policy positions or energy sources. My focus on transparency is designed to increase accountability with the public and safeguard against such bias.

Question 2: Representative Cathy McMorris Rodgers and I sent a letter to acting administrator McNalley requesting EIA to model President Biden's announced goal of a 50 to 52 percent cut in emissions by 2030. EIA subsequently issued three carbon fee side cases. The results of these side cases, while showing significant increases in costs for consumers, fall well short of the President's stated emission goals. The administration claims it has analyzed the President's pledge. If it has, that economic analysis has not been made public. When Congress and the public are presented with major, "transformative" policy proposals, we must understand their potential implications.

a. If you are confirmed, do you commit that EIA will expeditiously conduct and make available to Congress and the public an independent analysis of the President's emissions goals that will provide an unbiased assessment of achieving those goals?

   I certainly agree that EIA needs to be able to evaluate major energy policy proposals. As noted in the carbon fee report, EIA does not currently have the capability to model deep decarbonization or net-zero emissions scenarios via the National Energy Modeling System (NEMS). To correct this deficiency, NEMS needs to include a better representation of biofuels; carbon capture, transport, and sequestration; modular nuclear; advanced electrification; and hydrogen deployment. If confirmed as Administrator, I would move expeditiously to develop this capability, and in the meantime would be happy to work with your staff to address specific, outstanding questions.

Question 3: The EIA has a budget of more than $126 million, and employees about 325 federal civil servants and many contractors. Do you have relevant, professional experience managing an organization of similar size and scope?

At NC State, I built an internationally recognized research program from scratch and have managed millions of dollars in research funding. I have successfully pursued collaborations across traditional academic siloes by inspiring people to contribute their time and effort to new endeavors. For example, I co-led the creation of a faculty cluster across multiple colleges, launched and managed a University-wide Energy Collaborative, and led multi-institutional research efforts focused on energy systems analysis. Managing large research projects has taught me how to keep a broad perspective, delegate work, and respond to contingencies. Also, as a former EPA employee, I know the power that leaders have to inspire. If confirmed as EIA Administrator, I plan to motivate and empower EIA employees, making sure they understand the critical importance of their work to the nation. Finally, EIA has excellent front office staff and dedicated career employees, and I will rely on their expertise and experience to perform my administrative duties.

Question 4: In 2019, the United States produced more energy than it consumed for the first time since Dwight Eisenhower occupied the Oval Office.

a. Do you believe overall that this development was beneficial for the United States?

Yes.

b. Do you agree that the primary driver of this was the dramatic increase in natural gas production from shale formations?

Yes, natural gas production played a significant role. According to EIA data, the primary sources of increased production are natural gas, crude oil, and natural gas plant liquids.

Question 5: Are you concerned at all that the increased reliance on wind turbines, solar panels, and electric vehicles will make the United States more dependent on critical materials, like rare earths, that are controlled by China and other U.S. adversaries and tainted with human rights abuses? What can you do as EIA Administrator to help Congress and the public understand some of these trade-offs?

Yes, I believe that is important to build a domestic and secure supply chain for critical minerals and rare earth elements required for renewable energy technologies and batteries, as well as many other consumer products and electronics. EIA does not currently monitor the production and trade of raw manufacturing materials, and EIA's forecasts do not track technology components in enough detail to project sourcing issues. However, the Bipartisan Infrastructure Law calls for the development of a Critical Minerals Outlook, with EIA developing projections of energy technologies requiring critical

minerals. If confirmed, I will direct EIA to engage in cross-agency coordination to help develop this Outlook.

Question 6: The *Washington Post* reported on satellite data that show large leaks of methane from Russian natural gas infrastructure.

a. Do you agree with me that the U.S. oil and gas production has much lower methane intensity of production compared to OPEC+ countries?

The reported satellite data regarding methane emissions is concerning, and I understand the importance of this issue. EIA does not currently track methane emissions domestically or internationally. Such data would be challenging for EIA to build independently, including an accurate characterization of leakage rates where a significant fraction of emissions come from so-called "super emitters." If confirmed, I will confer with EIA staff and explore possible ways to develop estimates of methane intensity from oil and gas production by country.

b. Haven't emissions of methane from U.S. oil and gas systems declined relative to the production of these fuels?

I am not aware of a comprehensive dataset to definitively address this question. Venting and flaring can be difficult to quantify, and precise measurements of leakage are lacking. If confirmed, I will work with EIA staff to explore ways to bound estimates of US methane emissions from oil and natural gas.

c. Do you agree that decreasing domestic natural gas production would place upward pressure on energy prices?

Over the short term, a complex balance of supply, demand, and storage inventories support price development for U.S. natural gas, with imports and exports making up part of that balance. Holding all these other factors constant, decreasing domestic natural gas production would put upward pressure on natural gas prices. This observation is borne out by the 2018 LNG export study commissioned by the Office of Fossil Energy. In addition, EIA is embarking on a multi-year study of the international natural gas market and how it affects long-term market modeling. I would be happy to brief your staff when the first part of the report is released later this year.

Question 7: The energy crisis now sweeping Europe has resulted in record high prices and shortages, and governments there are warning of blackouts this winter.

a. What can and should we learn from this European experience?

Europe is experiencing record high prices due to a complex, interrelated set of drivers, including short-term demand that has outstripped supply, low fuel inventories, weather, generator availability, energy

transportation costs, and ongoing geopolitical risks. The European situation highlights the need for market participants and policymakers to have access to a broad range of information about the operations of their energy system, which are crucial to effective decision-making.

b. Even before the crisis, American consumers and industries were paying much less for electricity and fuels than consumers and industries in Europe. Isn't inexpensive energy a competitive advantage for the United States?

Yes -- American consumers and industries have been paying much less for electricity and fuels than consumers and industries in Europe. EIA currently estimates that the average retail price for electricity in 2021 was 13.7 cents/kWh for the residential sector, 11.3 cents/kWh for the commercial sector, and 7.2 cents/kWh for the industrial sector. These prices are considerably lower than electricity costs in Europe, and do represent a competitive advantage for US commerce and industry.

Question 8: Don't high energy prices have a disproportionate impact on consumers with low and fixed incomes? Does EIA's modeling adequately capture these impacts? What should EIA do to remedy this situation?

Yes, I agree that rising energy costs have a disproportionate impact on low- and fixed-income households. Given high fuel prices and market volatility, I think it is vital assess the impact of energy costs on American consumers. The Bipartisan Infrastructure Law (Section 40413) calls on EIA to assess household energy burdens at the community level. If confirmed, I would make it a priority to assess the effect of current and projected changes in energy prices on households.

Question 9: Advocates for wind and solar electric generation assert these sources are competitive with thermal generation because the "levelized cost of electricity" or "L-C-O-E" may be lower from those sources. EIA explained in its 2021 Annual Energy Outlook that, "Actual plant investment decisions consider the specific technological and regional characteristics of a project, which involve many other factors not reflected in LCOE."

a. What are some of those other factors that affect investment decisions?

There are many other factors that affect individual investment decisions. Factors related to broad market conditions include the cost of other generation that would be displaced by the investment, compensation for contributions to regional reliability or ancillary service markets, and the ability to support compliance with local, state, or national requirements. There could also be site-specific factors including access to high-quality resources, low-cost fuels, transmission, and even the favorability of local terrain for construction.

b. Is the cost of back-up generation for intermittent generating capacity included in the levelized cost of electricity?

As currently calculated in the Annual Energy Outlook (AEO) 2021, the reported LCOE does not include the cost of backup generation. However, EIA has developed a "Levelized Avoided Cost of Energy"

(LACE), which indicates the value of a given generator to the grid, approximated by the potential revenue generated by displacing another marginal asset on the grid. LACE applied to intermittent generators implicitly accounts for its lower capacity value, i.e., its lower contribution to production during peak demand periods. As reported in AEO 2021, the value-cost-ratio obtained by dividing the LACE by LCOE indicates the cost-effectiveness of different technologies and highlights the relative difference between levelized cost and value. Also, EIA publishes an annual report that compares the LACE with LCOE to provide additional insight into its Annual Energy Outlook projections.

c. How about new transmission or storage?

EIA includes the cost of transmission interconnection proportionate to the amount of installed capacity in its levelized cost of electricity, regardless of technology/resource. Renewables with fixed geography, (i.e., wind, hydro, geothermal) have additional transmission costs added to their capital cost to account for the need to build transmission collector lines out to the point of interconnection. Regarding storage, EIA currently reports the levelized cost of electricity for combined solar photovoltaic generation and battery storage investments as well as for stand-alone battery storage assets.

Question 10: The Energy Information Agency has reliably produced impartial research on all types of American energy over the last several decades. Will you commit that, if confirmed, you will work to ensure data on fossil fuel production, exports, and decarbonization is not sidelined or erased?

Fossil fuels currently represent 78% of the US primary energy consumption, and if confirmed, I will maintain EIA's work providing key, unbiased energy data, including fossil fuel data. In addition, growing levels of petroleum and natural gas exports play an important role internationally. Under decarbonization scenarios, fossil fuels still represent a critical pathway to consider and EIA models need to use the best available data on CCUS technologies.

Question 11: You have focused much of your career on developing models relating to energy technology and policy aimed at cutting greenhouse gas emissions.

a. How has your research over the past decade shaped your energy philosophy?

Running complex models under a limited number of scenarios can lead to misleading results. Models should be exercised under a number of assumptions to ensure that the resultant insights are robust. I've learned that accounting for uncertainty can lead to big shifts in technology deployment. Thus, a core tenant of my energy philosophy, based on my own research, is the importance of an all-of-the-above energy strategy to hedge against future uncertainty.

b. Do you believe there should be room for all forms of energy in the American energy system?

Yes. As an energy modeler, I think it is critically important to represent all available fuel and technology pathways. Our future energy system represents a multi-objective planning problem to ensure affordability, security, reliability, and low emissions. To meet this challenge, we all need to consider all technologies.

c. For electric generation in particular, do you agree that having sources that can be called upon to meet instantaneous demand is vital?

Yes. Energy modelers (myself included) have expended much effort making sure that the models include constraints to ensure that electricity supply can meet demand at all times to maintain system reliability.

Question 12: According to the organizing statute (42 U.S. Code § 7135(a)(2)), "The Administrator shall be responsible for carrying out a central, comprehensive, and unified energy data and information program which will collect, evaluate, assemble, analyze, and disseminate data and information which is relevant to energy resource reserves, energy production, demand, and technology, and related economic and statistical information, or which is relevant to the adequacy of energy resources to meet demands in the near and longer term future for the Nation's economic and social needs." Will you commit to briefing the Administration and Congress on data produced to comply with the mission of the EIA to "meet demands in the near and longer term future for the Nation's economic and social needs"?

Yes.

Question 13: You have academic experience in open-source modeling and have advocated for a more open-source modeling system at EIA. What works in an academic setting may not be appropriate for a "just the facts" independent government agency that is supposed to be free of political influence and whose modeling can have a huge influence of policy. There is a lot at stake in EIA modeling, which is why its independence is critical. I'm worried afraid that open-source could be used by interest groups to push EIA's modeling more to pre-determined and favorable outcomes that serve political ends.

a. How would you guard against outside groups using open-source modeling as a way to tip the scales in in one direction or another to match a political preference?

Outside groups on both sides already express frustration about modeling results that do not align with their thinking. With closed models, stakeholders are only able critique the model outputs and have limited ability to understand how model dynamics drive those results. The result can be mistrust and a sense that the modeling is hopelessly flawed. With open models, stakeholders can scrutinize modeling input assumptions. Such an approach can result in more productive discussions based on data and evidence rather than opinions or expectations regarding results.

b. How would you assure people that changes to EIA modeling would be based on merit and not on political influence?

EIA experts are the ultimate arbiters of merit-based changes in the modeling. If confirmed, in my role as Administrator, I will shield them from political influence. As an experienced modeler, I also have a deep understanding of the relevant issues and can discern legitimate points from advocacy.

Question 14: There were some proposals floated early in the discussions of the Bipartisan Infrastructure Framework to require EIA to add to its annual forecasts data on health impacts of energy policy. I can't think of anything more destructive to EIA's reputation for independence and impartiality that getting it in the middle of, and making judgments concerning, the many controversial issues that would entail. Do you think EIA should be in the business of modeling the health impacts of energy policy?

No, I do not think that EIA should be modeling the health impacts of energy policy. If confirmed, I will continue EIA's focused attention on energy data, statistics, and analysis. Energy data made available by EIA can serve as inputs to other federal agencies such as EPA that have expertise in assessing health impacts.

Question 15: Do you agree that rising energy costs have a disproportionate impact on low- and fixed-income households? Is energy poverty an area EIA could contribute?

Yes, I agree that rising energy costs have a disproportionate impact on low- and fixed-income households. Given high fuel prices and potential price changes associated with the energy transition, I think it is vital assess the impact of energy costs on American consumers. The Bipartisan Infrastructure Law (Section 40413) calls on EIA to assess household energy burdens at a granular level. If confirmed, I would make it a priority to develop this capability.

Question 16: In the past you have tweeted about Republican leaders being in charge of executive agencies, expressly stating your disapproval. Some examples include the following:

- On March 9, 2017, you tweeted, "Disgraceful and infuriating that @EPAScottPruitt (a lawyer) rejects scientific consensus on climate change: https://nyti.ms/2m6JTjU"
- On December 13, 2016, you tweeted, "Hopefully Rick Perry forgets (again!) that he wants (wanted?) to abolish @ENERGY. Can't make this stuff up. http://nytimes.com/2016/12/13/us/politics/rick-perry-energy-secretary-trump.html
- On November 11, 2016, you tweeted, "I worked at EPA under Bush and it was difficult; it will likely be far worse under Trump. Academics must step up and help fill the void."

In the role you've been nominated for you must work with likeminded individuals as well as individuals with opposing viewpoints. I would like to get your commitment to work with the Energy and Natural Resources Committee in a bipartisan fashion, with Republicans and Democrats.

Answer: If confirmed, you have my commitment to work with both Democrats and Republicans. I will be impartial and non-partisan in my role as Administrator. I will always support informed decision making with rigorous, impartial data and analysis.

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Questions from Senator Maria Cantwell

Question 1: Mr. DeCarolis, I have seen repeatedly that transparency and comprehensive data, like the products that EIA provides, are necessary elements to ensuring that our oil and gas markets are operating fairly and prices are being set based on the fundamentals of supply and demand. That is why I would like to explore whether EIA is collecting sufficient data from the oil and gas supply chain to ensure consumers are being protected from market manipulation and fraud. My understanding is that the general 1977 law providing EIA with the authority to collect data from the oil and gas industry supply chain provides EIA with considerable discretion on what data it can request.

- Do you believe that collecting more oil and gas supply chain data from industry could increase our understanding of supply and demand and pricing trends in the physical and derivatives oil and gas markets?

  Over the past few years, EIA has been able to expand coverage of various energy sources by publishing it on a more timely basis, and with expanded geographical distinctions. As an example, EIA tracks much U.S. natural gas supply by interstate pipeline reservations. EIA also routinely reviews its surveys and has expanded them to increase available information. For example, EIA will soon begin collection of above-ground storage of natural gas, and has proposed expanding its weekly collection of natural gas processing plant production activity. These reviews are important for improving EIA coverage of energy trends.

  I believe collecting more oil and gas supply chain data from industry could increase our understanding of supply and demand and pricing trends in the physical and derivatives oil and gas markets, but any additional data collection puts burdens both on EIA staff and on the industries involved. I think that reviewing information needs and efforts by EIA to expand its collections are worth the effort, with a clear consideration of the costs of the information collection and the value to market analysts providing insights. I would be happy to work with you and your staff to advance this discussion.

- How could collecting more oil and gas supply chain data from industry provide market analysts within non-government organizations, academia, and regulatory agencies with the tools needed to review, track, and analyze these markets?

  In general, improving data collection frequency or adding new data streams can certainly assist other organizations with market analysis. I would emphasize that EIA is not a regulatory or enforcement agency, but it does play a crucial role through its data collection efforts.

- Do you support collecting further disaggregated data by week (rather than by month) for additional downstream segments below the refinery level including terminals, wholesalers, and retail levels of the supply chain?

It is certainly worth considering the collection of additional data by week for additional downstream segments below the refinery level including terminals, wholesalers, and retail levels of the supply chain, but the costs may be quite significant given the extremely disaggregated nature of the industry in the United States. I would be happy to work with you and your staff to better understand data needs.

Questions from Senator Steve Daines

Question 1: Dr. Decarolis, if confirmed, will you commit to ensuring that the Energy Information Administration remains a non-partisan, non-political, impartial and transparent agency for the dissemination of energy information?

Yes – I commit to ensuring that EIA will remain non-partisan, non-political, impartial, and transparent.

Question 2: Dr. Decarolis, what actions will you take to further EIA's mission to "collect, analyze, and disseminate independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment"?

If confirmed, I would like to pursue three priorities. I want to emphasize that while pursuing these priorities, my overriding objective is to maintain EIA's impartial stance. First, EIA will work to make its models and input data more accessible and transparent. Second, EIA's modeling capability will be expanded to examine a wider range of future scenarios that include the full spectrum of available fuels and technologies. Third, EIA data and analysis will provide additional insight into energy trends and the resulting impacts on communities, including the accessibility and reliability of energy supply and the effect of price changes on energy poverty.

Question 3: Dr. Decarolis, EIA publishes outlooks and projections on a wide range of energy topics. These outlooks are used for policy making as well as market decisions. If confirmed, what actions will you take to provide transparency and accountability for EIA published outlooks?

If confirmed, I would pursue two actions. First, I would work to make the model code and input data more accessible and transparent so that stakeholders can examine it. Second, I would like to enhance the Annual Energy Outlook Retrospective Review to more fully account for the accuracy of past projections.

Questions from Senator James Lankford

Question 1: Dr. DeCarolis, do you agree that the mission of the EIA is to provide independent and impartial energy data to policymakers and the public?

Yes.

Question 2: Dr. DeCarolis, do you believe that it is the EIA's responsibility to be an honest broker of information and allow policymakers to decide how to use that information, or do you believe it is EIA's job to push policymakers in one direction or another?

It is EIA's responsibility to be an honest broker of information, allowing policy makers to make use if it as they see fit. If confirmed, I pledge to uphold EIA's independent and impartial position.

Question 3: Dr. DeCarolis, there has recently been much discussion over the energy sector's access to capital. Do you believe there could be consequences if access to capital is limited for some in the energy sector, like pipeline companies?

- Specifically, do you believe credit challenges could raise consumer energy prices?
- Could a lack of access to capital jeopardize companies' ability to upkeep and maintain critical energy infrastructure?

Prices of petroleum products are determined primarily by global supply and demand. Producers, refiners, and pipeline companies may not be able to pass through higher costs of capital immediately to consumers. However, over time, prices would likely reflect a sustained increase in the cost of capital as long-run prices reflect marginal costs. For companies with projects that require significant amounts of capital, a lack of access to capital would affect their ability to fund or maintain infrastructure projects.

Questions from Senator Catherine Cortez Masto

Question 1: Your written testimony spoke to your career experiences and noted the need to make additional models and data public, in order to address future uncertainty and allow for all energy stakeholders and communities to better understand the ways that energy touches our lives.

a. If confirmed, how do you envision this approach to modeling will contribute to your priorities for the Energy Information Administration (EIA)?

If confirmed, making EIA models and input data more transparent and accessible will be one of my top priorities. Taking such an approach engenders trust, fosters understanding, and allows stakeholders to make better use of EIA products.

b. How can we apply this data to pressing issues like energy poverty to assist disadvantages communities? Can you please elaborate on some of the information gaps that currently exist?

Prices in EIA's Residential Energy Consumption Survey include national and regional estimates of household energy insecurity, as well as estimates by demographic subpopulations. Downscaling to a more granular community scale might be possible by blending Residential Energy Consumption Survey

results with data from other statistical agencies and federal departments. If confirmed as Administrator, I intend to explore these options.

Questions from Senator Bill Cassidy

Question 1: The infrastructure bill directs the EIA to implement measures to expand and improve international energy data resources at the EIA to better understand the production and use of energy in foreign countries, the emission intensity of foreign energy, and how that intensity translates to end-uses. In your role at EIA, do you have thoughts on how to improve international energy data collection?

EIA does not collect any international data directly, but relies on numerous third-party sources to gather international energy data that cover the full spectrum of energy production, uses, and flows. I think there is opportunity to improve EIA's international energy data, including the coverage and timeliness of data updates. On the supply side, EIA does not track the carbon intensity of foreign sources of oil and natural gas. On the demand side, EIA's international data currently do not include energy consumption data by end use sector. EIA would need to avail itself of additional data sources to expand coverage. EIA could also improve the timeliness of data updates by employing imputation methodologies to estimate missing data until actual data become available. If confirmed, I will work with EIA staff to consider how to improve and expand international data collection.

Question 2: Multiple parts of the infrastructure bill increase the EIA's ability to expand the scope of levelized cost of energy to include a more complete metric – levelized cost of carbon abatement – that would take into consideration of all the factors levelized cost of energy does not. How do you anticipate ensuring that the EIA completes the required analysis on levelized cost of carbon abatement and how do you see the study of levelized carbon abatement?

My understanding is that EIA is currently investigating ways to quantify the levelized cost of carbon abatement, as prescribed by the Bipartisan Infrastructure Law. If confirmed as Administrator, I will work to ensure that the levelized cost of carbon abatement metric reflects system-wide costs informed by models that simultaneously account for cost, emissions, and reliability.

Question 3: How can a study of levelized cost of carbon abatement feed into the also required updates to the National Energy Modeling System?

The levelized cost of carbon abatement could be derived by post-processing results from the National Energy Modeling System (NEMS) in order to better evaluate the relative cost-effectiveness of different low carbon technology options. Incorporating a carbon abatement metric would be part of a larger effort to improve NEMS.

Questions from Senator John W. Hickenlooper

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Question 1: If confirmed, what specific actions will you commit to taking in your first month to make EIA's analyses– and particularly its longer-term outlooks – more open, accessible, and transparent?

If confirmed, a critical first step is to work with staff to understand ongoing EIA efforts, including the responses required by the EIA Administrator under Title IV, Subtitle B of the Bipartisan Infrastructure Law. From there, I will work to set both short-, medium-, and long-term plans to make current EIA modeling efforts more open, accessible, and transparent.

Question 2: Today, many people benefit from open-source, interactive models which help technical and nontechnical audiences alike see how their assumptions –in this case about our energy system – impact future outcomes. Do you see merit in EIA building interactive models out of its long-term outlooks to increase accessibility for policy makers and investors, and also afford outside experts deeper insight into EIA's models and assumptions?

I believe building interactive models is a great idea and should be a long-term goal. To clarify, I would consider an interactive model to be one that is run on the cloud and accessible to users through their web browser. The computational burden associated with models such as the National Energy Modeling System (NEMS) is high, and thus it may not be feasible to run a fully interactive version online. However, it may be possible to develop a reduced-form model or provide a set of pre-run scenarios that users can investigate online. If confirmed, I will confer with EIA staff to determine the feasibility of deploying interactive models.

Question 3: EIA's historical forecasts of renewables have famously, consistently, and significantly underpredicted deployment of small, modular energy technologies like wind and particularly solar. Consistent underprediction, from a source as respected and credible and EIA, can deter investment and misdirect policy makers. To the best of your understanding, what factors may have contributed to this, and what steps do you plan to take to ensure maximally accurate and unbiased forecasting going future?

My understanding is that the under-projection of renewables derives from two sources. First, past EIA estimates of capital costs for solar and wind have not kept pace with actual cost declines. Second, the 'Reference' scenario in the Annual Energy Outlook (AEO) assumes that all policies sunset – including renewable tax incentives –according to the timeline prescribed by law when the AEO is written.

Published analysis indicates that this Reference case assumption may have affected the projections of wind deployment in particular. I would take two steps to remedy this issue. First, I want to ensure that EIA is using the most up-to-date and accurate cost data available. Second, I would like to enhance the Annual Energy Outlook Retrospective Review to examine projected technology deployment in order to provide more accountability and stimulate additional thinking on ways to improve future editions of the AEO.