

# Nuclear Energy's Role in Climate Change Policy

The consensus of the international community of climate scientists is that humans are influencing the global climate.<sup>1</sup> While the state of climate science is still maturing, the American Nuclear Society (ANS) believes that the risks presented by rising temperatures are sufficient to warrant enactment of policies designed to limit emissions of greenhouse gases into the atmosphere as a means of abating these risks.<sup>2</sup> ANS therefore supports the principal objective of recent international agreements on carbon dioxide emission reductions, along with state and federal initiatives designed to reduce greenhouse gas emissions from human activities.

ANS supports policies designed to reduce greenhouse gas emissions that are performance-based and technology-neutral. Nuclear energy (which provides much of the U.S. non-emitting generation) should be considered on the same basis as other non-emitting energy technologies. ANS believes that nuclear energy has a crucial role to play in addressing the global need to reduce emissions. Policies should evaluate energy sources based upon their ability to contribute reliably to meeting emission-reduction targets. ANS's recommended role for nuclear energy is consistent with recommendations by the Nuclear for Climate Initiative<sup>3</sup> by the Declaration from Nuclear Societies,<sup>4</sup> and by the International Panel on Climate Change<sup>1</sup>

Nuclear energy delivers economically competitive electricity with no greenhouse gas emissions during electricity generation operations and has among the lowest lifecycle greenhouse gas emissions of any energy source.<sup>5</sup> Nuclear energy is the only energy technology with worldwide potential for growth that has a proven record of delivering large amounts of reliable electricity without greenhouse gas emissions. ANS believes that nuclear energy is an important tool in reducing emissions and will make major contributions under well-composed technology-neutral emission-reduction policies.

Several states have enacted policies that compensate electricity generators for producing electricity without emitting greenhouse gases (e.g., zero-emission credit programs).<sup>6</sup> ANS supports these policies, which recognize the value of nuclear energy in a reliable, affordable, low-emission electric power system. Unfortunately, some governments have mandated preferential treatment for specific technologies and/or fuel sources (e.g., wind and solar) but have not provided comparable support for nuclear energy despite its ability to reduce carbon emissions.

Performance-based policies, which clearly define the outcome as opposed to selecting the technology, help to properly value electricity that is generated by nuclear plants and support nuclear plants that may be facing closure due to economics.<sup>7,8</sup> ANS has developed a "Nuclear in the States Toolkit" that outlines policies related to new and existing nuclear reactors for policymakers to consider as they develop policies to reduce emissions.<sup>9</sup>

ANS recognizes the value of energy diversity and believes that other energy technologies should be deployed as appropriate while acknowledging the full range of benefits and drawbacks associated with each technology. For example, the need for dispatchable backup electricity generation capacity, such as natural gas or energy storage capabilities, must be considered for intermittent generation sources, such as solar and wind. Further, attributes like reliability, resilience, and land use requirements constrain the contributions of inherently diffuse energy sources.<sup>10</sup> In all cases, policymakers should base energy generation choices on the complete set of attributes of energy technologies.

As the world recognizes the need to decarbonize our energy supply, combustion processes will be replaced by non-emitting processes to generate electricity. Nuclear power should be a key element of the effort to meet the need for non-emitting electricity production.

## References

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