

## Comparison of Basic and Sophisticated Approaches for Quantifying Air Pollutant and GHG Emission Effects of Clean Energy Initiatives

Approach	Description	Advantages	Disadvantages	When to Use This Method
Basic	<ul style="list-style-type: none"> <li>▪ Spreadsheet-based analyses that use emission factors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Transparent.</li> <li>▪ Modest level of time, technical expertise, and labor required.</li> <li>▪ Inexpensive.</li> </ul>	<ul style="list-style-type: none"> <li>▪ May be imprecise.</li> <li>▪ May be inflexible.</li> <li>▪ May have embedded assumptions that have large impacts on outputs.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Preliminary studies for short-term resource planning.</li> <li>▪ Designing new programs and evaluating existing ones.</li> <li>▪ Regulatory compliance and energy plans.</li> </ul>
Sophisticated	<ul style="list-style-type: none"> <li>▪ Dynamic electricity or energy system models</li> </ul>	<ul style="list-style-type: none"> <li>▪ More rigorous than basic modeling methods.</li> <li>▪ May be perceived as more credible than basic modeling methods.</li> <li>▪ Allows for sensitive analysis.</li> <li>▪ May explicitly account for and quantify leakage.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Less transparent than spreadsheet methods.</li> <li>▪ Labor- and time-intensive.</li> <li>▪ Often high software licensing costs.</li> <li>▪ Requires assumptions that have large impact on outputs.</li> <li>▪ May require significant technical experience.</li> </ul>	<ul style="list-style-type: none"> <li>▪ State Implementation Plans.</li> <li>▪ Late-stage resource planning.</li> <li>▪ Rate cases.</li> <li>▪ Project financing.</li> <li>▪ Regulatory compliance and energy plans.</li> </ul>