

- **Allocate funding to promote recycling of TDPs at the end of their useful life.** CalRecycle already has approved a scope of work to investigate and promote best management practices for recycling turf infill, playground surfaces, and other TDPs at their end-of-life stage. CalRecycle could consider allocating a portion of funding to advance these efforts. Given the early stage of such efforts, funding may need to be focused on pilot projects, identifying potential customers, and/or demonstrating technologies needed to process TDPs to produce reusable or recyclable-grade materials. A portion of funding could also be allocated to demonstrate best management practices for the design of TDPs that maximize life-cycle benefits related to EOL management, greenhouse gas emissions, and other issues.
- **Step up monitoring and consideration of emerging technologies.** Private firms have sought to refine and commercialize a number of waste tire processing technologies over many years. While there have been many failed attempts, sustained efforts in the United States and globally have also seen some successes, and the landscape of alternative technologies and variants is ever-changing. Faced with insufficient customer demand for established crumb rubber products and civil engineering applications, CalRecycle may wish to update its assessment and policy treatment of certain technologies periodically.<sup>14</sup> In some cases, technologies may blur the line between recycling and transformation, but they may still offer attractive greenhouse gas reductions, which also need to be documented in the context of now-established guidelines developed by the California Air Resources Board. Examples of technologies to monitor include devulcanization (modifying the structure of vulcanized waste rubber to remove crosslink bonds, allowing it to potentially be used in a variety of applications); pyrolysis (thermochemical decomposition of organic material at elevated temperatures in the absence of oxygen); and gasification (a process that utilizes a reactive agent such as air, oxygen, hydrogen, or steam to produce fuel primarily in the form of gas, as well as carbon black).<sup>15</sup>

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<sup>14</sup> Examples of past CalRecycle-sponsored tire emerging technology evaluations include: 1) “Technology Evaluation and Economic Analysis of Waste Tire Pyrolysis, Gasification, and Liquefaction,” prepared by the University of California, Riverside. <http://www.calrecycle.ca.gov/Publications/Detail.aspx?PublicationID=1174>; 2) “Environmental Factors of Waste Tire Pyrolysis, Gasification, and Liquefaction,” prepared by Cal Recovery, Inc., 1995 <http://www.calrecycle.ca.gov/Publications/Detail.aspx?PublicationID=1134>; 3) “Evaluation of Waste Tire Devulcanization Technologies,” prepared by Cal Recovery, Inc., 2004 <http://www.calrecycle.ca.gov/Publications/Detail.aspx?PublicationID=1078>; and “New and Emerging Conversion Technologies, Report to the Legislature.” Prepared by RTI, 2007.

<sup>15</sup> Definitions are adapted from information in the CalRecycle reports listed in footnote 15.