

Incentives

While command and control regulations have been effective in many situations, harnessing market forces to foster innovation has proven to be an effective tool to drive change. Government has at its disposal a number of approaches to promote changes within industry and among consumers, including incentives such as.

- Production tax credits, including refundable credits (e.g. tax exemption for categories of products;)
- Rebates to consumers or business (e.g. buyer “feebate” for fuel efficient cars; tax credit for bio based fuels)
- Investment tax credits (including refundable) on new equipment or facilities purchased or constructed (e.g. Accelerated Capital Cost Depreciation for abatement equipment)
- R&D tax credits
- Competitive government R&D grants
- Government grants for equipment
- Government loans or loan guarantees for large purchases or construction of large facilities
- Public infrastructure development
- Government support to deployment of environmentally preferred products or technologies (e.g. clean coal; bio-diesel)
- Public/Private partnerships (equity participation in CO2 pipelines supporting carbon capture and sequestration and EOR)
- Employee training and workforce development
- CEQA exemption on qualified projects or other regulatory relief
- Special status once qualified (Fast track permits; Environmental Leaders programs) or other expedited permitting programs
- Government preferred purchasing or government sponsored preferences
- Government specified product standards (e.g., CAFE standards, energy efficiency standards for buildings, bans on incandescent lighting bulbs, etc.)
- Use of consensus standards (e.g., ANSI or ASTM standards)
- Use of third party standards and certification (e.g. NSF International, Underwriters Laboratories, etc.)
- Product labeling programs (e.g. Energy Star, WaterSense, nutrition labels, etc.)
- Web based consumer information

Done well, incentives are some of the most powerful instruments governments have at their disposal. Incentives can harness market forces and foster creativity to deliver not yet imagined solutions and technologies at a pace greatly exceeding traditional regulatory processes. Done poorly, incentives can disrupt markets, create trade barriers and stifle innovation.

This requires that the “desired outcome” is well defined preferably in terms of performance objectives. Performance objectives allow interested parties the flexibility and creativity in how to achieve the desired result. Approaches that are technological

neutral (e.g. promoting renewable energy versus specifying wind energy) are generally preferred since the additional flexibility allows new solutions to contribute.

It is particularly important to think through the “signals” that are being sent to markets to avoid unintended consequences. For example, specifying increased recycle content will significantly raise barriers to entry and delay introduction of new, innovative materials since recycling infrastructure and markets take time to develop. A flexible, performance based approach avoids the government picking technological winners and losers, but it must be done using a holistic, long-term view.

Defining these criteria or the “to be” state is critical. Incentives can then be constructed to address barriers to implementation and help close “first developer” market place deployment gaps. Perhaps the technological solution does not exist, in which case R&D incentives would be appropriate. In other cases, the adoption of the technology is slow either due to the need to replace existing equipment, make major modifications to existing equipment or because demand is not sufficient. In other cases, the technology is not yet cost competitive because it lacks economies of scale. Sometimes uncertainty about the long-term competitiveness of a technology or solution is delaying adoption (e.g., will oil stay above \$70/barrel over the next 10-15 years). Once the objective is defined, these “roadblocks” can be overcome using the appropriate suite of incentive mechanisms.

In principle incentives should be constructed to

- Foster innovation in the private sector and academia
- Create markets
- Facilitate increasing demand for the desired products and solutions
- Periodically be reviewed to assess the ongoing need of the incentives to drive change
- Be as comprehensive and equitable as possible
- Provide transparent and user friendly information to consumers

To be sustainable, a solution must be economically viable in the long run. Unending subsidies and credits are not appropriate and can disrupt markets. However, these tools can be very powerful to initiate, develop and commercialize new technologies and products. Rewarding early adopters should be the objective. These risk sharing mechanisms between the private and public sectors should have a finite limit.

It is important to remember that not all incentives require revenue or an exchange of money. Expedited permitting or regulatory relief can be very important to companies and cost governments little to implement and can even streamline the government processes in some cases.

While the above list shows many tools, we would encourage California to focus on the development of a consensus standard that would provide the basis for any incentive mechanisms (R&D tax credit, purchase preference, etc.). Such standards, while challenging to develop, provide the greatest long-term flexibility for a multi-dimensional, diverse challenge like implementing green chemistry. The output of such a process could

provide a label or other format to share information on products that could inform a range of decisions (personal and institutional). The first challenge in this approach will be to define the critical attributes or criteria that will form the basis for the standard. Dow would be happy to work with California to establish a multi-stakeholder group to develop such a standard.