



Report to the 2009 Legislature:

Efforts to Support Emerging Growth Industries

**Pursuant to
Hawaii Revised Statutes §201-19**



Department of Business, Economic Development and Tourism

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Program Acronyms Used in this Report

ATDC	Aloha Tower Development Corporation (BED 151)
CID	Creative Industries Division BED (105)
FTZ	Foreign-Trade Zone Division (BED 107)
HCATT	Hawaii Center for Advanced Transportation Technologies (HTDC)
HCDA	Hawaii Community Development Authority (BED 150)
HHFDC	Hawaii Housing Finance and Development Corporation (BED 160)
HSDC	Hawaii Strategic Development Corporation (BED 145)
HTA	Hawaii Tourism Authority (BED 113)
HTDC	High Technology Development Corporation (BED 143)
LUC	Land Use Commission (BED 103)
NELHA	Natural Energy Laboratory of Hawaii Authority (BED 146)
NELHA/CEROS	Center of Excellence for Research in Ocean Sciences
OP	Office of Planning (BED 144)
READ	Research & Economic Analysis Division (BED 130)
SID	Strategic Industries Division (BED 120)
SMSD	Strategic Marketing & Support Division (BED 100)

I. INTRODUCTION

Hawaii's economy has slowed significantly since early 2008 as the result of worsening national and global economic conditions. The rapid spread of the defaults in the sub-prime credit markets and the impact on financial institutions' balance sheets and capital market liquidity, severely impacted asset prices and consumer confidence in the U.S. and even internationally. These factors led to a precipitous drop in Hawaii's visitor industry activity and declining construction and consumer activity. The contraction is expected to continue through the first part of 2009, with tourism declining about 2 percent for 2009 as a whole. Nevertheless, while it is of limited consolation, Hawaii's economy has so far shown less impact from the national recession than most other states.

Addressing Hawaii's Current Economic Challenge

In addition to long-run development and diversification efforts, DBEDT's role and function includes leading efforts to mitigate the negative impacts of national and global events on Hawaii's economy. This particularly includes positioning the State for more diversified sustainable growth beyond the downturn. In 2003, the department played a similar role at the outset of the SARS epidemic and the second Gulf War. Fortunately, the economic recovery after those events was more rapid than most economists predicted.

In mid-2008, as the national credit crisis spread, the department recognized the need for quick, public sector response and action. Relying on policy and fiscal tools that were within the control of state governments, the department formulated recommendations that became the basis for the Hawaii Five-Point Plan for Economic Action to help cushion the decline of tourism and impacts of the national recession. The plan includes increased tourism outreach marketing, acceleration of \$1.8 billion investment in capital improvement projects statewide, lowering selected business costs, attracting outside investment (especially for renewable energy projects) and maximizing the use of federal funding and other partnerships to leverage limited state funds.

In addition to its role in recommending and formulating the Hawaii Five Point Plan, the department is coordinating and overseeing key aspects of its implementation. This includes monitoring and coordinating the \$1.8 billion capital improvements projects package and continued leadership in implementing the Hawaii Clean Energy Initiative's effort to attract outside investment capital to support the local business community. This latter effort includes urging the State's procurement policy board to extend preferences and set asides as appropriate to small businesses in Hawaii's emerging growth sectors such as computer software development (including digital media) and renewable energy. The department, in close coordination with the Hawaii Tourism Authority and its contractors, is working to limit the loss of visitors in this recession. Finally, the department is closely involved with efforts with Hawaii's federal delegation and County Mayors to monitor and maximize funding to Hawaii from federal economic stimulus packages that may be enacted in 2009. Areas targeted for increased federal partnerships include traditional infrastructure, energy and green infrastructure, world-class broadband infrastructure and affordable housing.

Positioning Hawaii for Long-Term, Sustainable Growth

Beyond minimizing the impact of the current national recession on Hawaii, the department sees the most critical challenge facing Hawaii as positioning its economy in the post-recession period for long-term sustainable growth in the innovation-driven, digitally-dominated and globally-interconnected commence of the twenty first century. Ultimately this century, tourism and, analysts believe, defense activity will likely reach a plateau in terms of their contributions to growth in the economy. Hawaii must be ready for that transition with new growth drivers serving emerging national and global markets to maintain an increasing standard of living.

But emerging growth companies require a stable and growing economic environment. The department's actions to help stabilize the overall economic conditions are a start, but we also need to lay the foundation for an economic recovery that will support the ability of emerging industries to participate competitively in the recovery.

Over the past several years, as tourism, construction and defense spending have provided an umbrella of strong growth, the department has been working to encourage the development of emerging growth activity so that Hawaii will have the alternative and complementary drivers to support its long term, sustainable growth. Part of this effort has involved direct assistance to such targeted industries as film, dual-use and energy start-up firms, space industries and creative industries, among others. However, DBEDT believes that government's most effective role is primarily to focus on facilitating or creating in the *preconditions* for emerging industry development in areas of innovation.

Ensuring these preconditions to – or capacity for – innovation has included establishing strategic department objectives in six key areas that reflect the important needs of modern, knowledge-based economies:

1. **Renewable Energy Development (Energy For Tomorrow/Hawaii Clean Energy Initiative):** Fundamentally transform how Hawaii produces, distributes, and uses energy by developing policies and regulatory proposals and leading public/private partnerships to accelerate the development of indigenous renewable energy; increase energy efficiency; encourage the adoption of new technologies; improve Hawaii's energy infrastructure; develop a energy business sector and "green-collar" jobs; and retain in Hawaii's economy portion of the \$5 billion to \$7 billion a year exported to purchase foreign oil.

2. **Human Capital Development (Education and Workforce):** Align, facilitate and lead public and private resources to encourage Hawaii citizens' life-long learning and development of science, technology, engineering, and math skills, resulting in the ability to turn new and creative ideas into products and services that have demand in global markets.

3. **Creation of an Innovation Infrastructure:** Build the capacity of Hawaii's creative and entrepreneurial talent to turn ideas into globally competitive products and services by providing supportive policies, facilities, and assistance.

4. **Global Links:** Increase the range and value of goods and services exchanged between Hawaii and its export markets by improving the export-readiness of Hawaii businesses, encouraging international educational exchanges, and reinforcing factors that link Hawaii and the Asia-Pacific region.

5. **Improving Hawaii's Business Environment:** Lead public sector efforts to bring about a world competitive business environment by reducing unnecessary regulations and barriers to competition; increasing transparency; and advocating for overall improvements to Hawaii's business environment.

6. **Workforce Housing:** Create workforce housing units in high-quality living environments by developing state lands; expediting approvals and permits; providing incentives and financing tools; and advocating for land use and housing policy changes.

Goals of this Report

Hawaii Revised Statutes 201-19 requires the Department of Business, Economic Development and Tourism (DBEDT) to provide before each legislative session "*a written performance report on the impact of activities of the department and attached agencies that demonstrate their efforts to support, promote, and facilitate the expansion and*

long-term viability of emerging growth industries including those identified [in HRS 201-19].” This report is the second by the department under that provision.

The department sees this report as more than a statutory requirement. It views it as an important opportunity to share with the legislature and stakeholders DBEDT’s policies and activities to address the serious challenges of long-term economic transformation, especially in light of the current national recession and decline in visitors to Hawaii. With that in mind, the report addresses not only the department’s activities to directly support and expand emerging industries, but also its activities to position Hawaii’s economy for recovery and long-term growth through six major strategic objectives.

In Section I, the report addresses how DBEDT and its affiliated agencies have been directly impacting the growth of emerging industries. The DBEDT Research Division is finalizing a comprehensive report on the size and performance of numerous economic activities that the state, counties and stakeholders have suggested as promising. Data from that report will be presented in this first section to provide available summary information on the recent performance of the industries.

Providing direct services or support to emerging industries is only one aspect of the effort to recover from the current economic situation and to build a more diversified economy. Emerging growth industries and much of Hawaii’s broader economic recovery depend on competitiveness. Among the most critical elements of that competitiveness are human capital (education and workforce development), markets and business opportunities on the U.S. mainland and the Asia-Pacific region, modern infrastructure, and more stable, efficient energy resources. In Section II the activities of the department to lay this basic foundation for emerging innovation activity through its strategic objectives will be presented.

It is important to note that this is not meant to be a report on the performance of emerging industries, although some basic performance information is presented. A comprehensive report that identifies, measures and evaluates the performance of targeted and emerging growth industries is forthcoming from the department’s Research Division. Since the enactment of Act 148 in 2007, DBEDT has been building the internal capacity to conduct specialized research on industry development in conjunction with other agencies and economic development and industry organizations. That process has resulted in this compilation of DBEDT impacts on emerging industries and several other reports this past year and in progress. It has also included and ongoing technical collaboration with the Hawaii Science and Technology Council (HiSciTech) to profile the state’s Technology Industry, resulting in the Publication, *Innovation and Technology n Hawaii: An Economic and Workforce Profile*, in September of 2008.

II. EMERGING AND GROWTH INDUSTRIES

For many years the state has provided direct support to potential growth activities that have appeared to have competitive advantages in Hawaii. Two of the earliest were film and astronomy. Today those two activities have become major sources of capital transfers to the state. Other target sectors for support have included ocean and marine science and technology, specialty areas of diversified agriculture, aerospace activity, international meetings and conventions and others. Over the last decade direct support has also been provided for specific emerging sectors such as music, digital media, biotechnology and other specialties that embody combinations of technology, creativity and innovation. Most recently, the dual-use sector and indigenous renewable energy development has become targets for development efforts.

As indicated earlier, emerging economic activities also need considerable input of indirect assistance. Important indirect inputs include access to a highly trained workforce, capital resources, and reliable infrastructure, among others. These more indirect but often equally critical inputs are discussed in the next section.

HRS 201-19 identifies a number of specific, emerging growth industries to be the focus of research, performance monitoring and enumeration of efforts to assist them. Those activities are; Ocean Science and Technology, Biotechnology and Life Sciences, Astronomy, Technology and Information Services, Film and Creative Media, Diversified Agriculture, Aquaculture, and Specialty Tourism. In addition, DBEDT is evaluating the performance of numerous other activities that may have potential to add growth and above average paying jobs to Hawaii’s economy.

1. Broad-based Support for Emerging and Growth Activities

As detailed below, several programs in DBEDT are providing underlying support for the range of emerging economic activity in Hawaii. Considerably more efforts to support innovative economic activity indirectly are detailed in the following section on DBEDT’s strategic objectives.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
Director’s Office	*Pursued advocacy and coordination of science, technology, engineering and math (STEM) education and skill-set building through supportive government policies and providing leadership and interface among secondary education and higher-education systems, workforce development programs, research institutions and private industry.	*Continued advocacy, inter-agency coordination, policy formulation, inter-face with business community and institutionalization of STEM education initiatives.
Director’s Office	*Pursued formulation and advocacy of Hawaii Innovation Initiative legislative initiatives, including Creativity Academies, STEM scholarships and university R&D commercialization.	

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
Director's Office	<p>*Provided inter-agency coordination supporting in-classroom STEM education and extra-curricular STEM contextual programs. Primary interface between scholastic robotics programs and business community for mentorships, financial and other forms of support.</p> <p>*Impacts: 1) Increased visibility and support, including business community support, for STEM education; 2) Department of Human Services (DHS) funding for HiEST STEM academies; 3) Release and management of Project East funding; "Robotic Organizing Committee to support scholastic robotic programs; 4) Continued funding in biennium budget for contextual STEM learning programs; 5) Launch of STEM portal</p>	
Director's Office	<p>*Led outreach to national science and technology organizations and national laboratories, including the National Science Board, National Science Foundation, National Renewable Energy Laboratory and Lawrence Berkeley, Aragon, Sandia and Oak Ridge national labs.</p> <p>*Impact: 1) First-ever National Science Foundation Day in Hawaii, held on Maui and Oahu, to familiarize research and technology community with NSF grants; 2) Over \$10 million in funding from national labs.</p>	<p>*Continued outreach and increase in science and technology grant and other funding.</p>
Director's Office	<p>*Led outreach with international science and technology organizations, with focus on Asia Pacific region.</p> <p>*Impact: 1) Seminar for technology companies by Industrial Technology Research Institute (ITRI) of Taiwan and Agreement on OTEC project with Lockheed Martin; 2) Relationship between Academia Sinicia (Chinese Academy of Sciences) and U.H. Hilo regarding astronomy</p>	<p>*Continued outreach. Expect 4 visits by Asia Pacific science and technology research institutions.</p>
Director's Office	<p>*Outreach and interface with science and technology sector investors, positioning Hawaii's emerging industries as above-average investment opportunities.</p> <p>Impact: Meeting with Kleiner Perkins and Draper Fisher on mainland; meetings in Hawaii with Vantage Capital, JP Morgan, Macquarie Capital, Manulife Capital, Goldman Sachs, others.</p>	<p>Continued meetings with investors.</p>

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
HTDC/ SBIR	*Phase I SBIR awards: 19 (compared to 13 in 2005; and 27 in 2006)	*Phase I awards: 19 (compared to 13 in 2005, and 27 in 2006 and 19 in 2007; alternating highs/lows consistent over time when following a SBIR conference year).
HTDC/ SBIR	*New first-time SBIR companies: 2 (compared to 4 in 2005 and 8 in 2006).	*New first-time SBIR companies: 2 (compared to 4 in 2005, and 8 in 2006 and 2 in 2007; note this is dependent on federal agencies making awards).
HTDC/ SBIR	*Phase II awards: 5 (compared to 6 in 2005 and 5 in 2006).	*Phase II awards: 5 (compared to 6 in 2005, 5 in 2005, and 5 in 2007). Over the long term, goal is to increase commercial success ratio to 1 commercial success per 15 Phase II awards (currently 1 in 25).
HTDC/ SBIR		*Work with federal R&D awardees on improving activities that occur before manufacturing (the process of innovation), including recommending pricing strategies, market potential and manufacturing processing methods to accelerate commercialization.
HTDC/ MEP	*Worked with federal R&D awardees on recommending pricing strategies, market potential and manufacturing processing methods.	*Continue working with federal R&D awardees on recommending pricing strategies, market potential and manufacturing processing methods.
HTDC/ MEP	*Strengthened synergies among participating SBIR companies to collaborate and participate in peer mentoring, and developing greater support among business development organizations.	*Collaborate on at least 3 training events with other business development organizations as well as assist 50 new companies become more competitive.
HTDC/ MEP	*Energy efficiency: Provided consulting with Dept. of Energy's Industrial Assessment Center for 3 Hawaii companies on how to lower their operating costs by 10-25% off their electricity bills, totaling potential savings of \$500K per year.	*Plan to duplicate similar services in 2009.
NELHA/ CEROS	*Selected, Awarded and Managed 18 (~\$10M), Research & Development Contract Projects to local Hawaii High Tech companies with funds provided through the Defense Advanced Project Agency (DARPA)	*Will Select, Award and Manage ~20 (~\$10M) Research & Development Contract Projects to local Hawaii High Tech companies with funds provided through the Defense Advanced Project Agency (DARPA). Will continue to mentor new start-up high tech companies with defense related products/services
READ	*Developing innovation indicators data series and report to monitor development of the technology, creative and other emerging activity. *Planned Emerging Industries Benchmark report to provide metrics for emerging growth industries.	*Begin Developing industry specific reports by county *Work with OP and county economic development agencies on the Comprehensive Economic Development Strategy goals for growth industries. * Publish Emerging Industries Benchmark report to provide metrics for emerging growth industries. *Work with and provide technical assistance to EPSCoRE subcommittee developing a comprehensive development plan for Science & Technology.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	<p>*Continued to partner with the University of Hawaii, through the Office of Technology Transfer & Economic Development to increase UH-Industry collaboration through the Experimental Program to Stimulate Competitive Research program (EPSCoR). Activities included collaboration on Technology Showcases and the Hawaii Science & Technology Council Tech Download series. Also included are the activities of the STEM Workforce Development Coordinator to develop increased internship/mentorship opportunities for students in STEM fields to assist industry in nurturing potential employees.</p>	<p>*DBEDT is working with the UH Office of the Vice President for Research to continue State support for EPSCoR industry and workforce development programs.</p>
SMSD	<p>*Participated in 7 out-of-state events that promoted business, trade and education that involved 87 Hawaii firms/individuals. (OIA, SHOB, SHOT)</p> <p>*Attracted \$2M investment from China for housing Development as part of the Immigrant Investor Program</p> <p>*MicroNose Technologies obtained a \$1.25M contract in Qingdao, China to manufacture water purification products for domestic use and export</p>	<p>*With the reaffirmation of the Hawaii Regional Center, DBEDT will be working closely with CanAm Enterprises LLC, to promote the EB-5 program to overseas project investors and Hawaii project developers. Minimum \$50 million is expected in investments over 2 years.</p>
SMSD	<p>*Organized in collaboration with the Okinawa Prefectural The Hawaii – Okinawa Innovation Seminar attended by 75 individuals. Hawaii speakers included representatives from UH Manoa; Worldwide Uchinanchu Business Association; UH Center for Japanese Studies; Hawaii United Okinawa Association; Okinawa Prefectural Government Scientific and Technical Affairs Division; Okinawa National College of Technology; and DBEDT.</p> <p>*In collaboration with the Niigata Prefectural Government, supported visitation and interest in establishing an international educational exchange program with Hawaii.</p>	
SMSD	<p>*Awarded a \$10,000 Community-Based Economic Development (CBED) grant to Ho’oulu Lahui, Inc., a Charter School on the Island of Hawaii to plan and develop efficient and best utilization of the land and unique features and resources available. Development will include incorporation of wind and solar power. In preliminary discussion with solar energy providers, the opportunity exists for Ho’oulu Lahui, Inc. to become the primary energy provider for itself and residents of the area as no electric company sources are yet available to the area (Puna).</p> <p>*Plan and conducted, in partnership with SID, a Clean Energy workshop for the 7th Annual Native Hawaiian</p>	<p>*The Community-Based Economic Development Program (CBED) will plan and develop a grant program for community-based initiative on the Leeward Coast with more than \$600,000 in funds from the Department of Health. Community initiative which support environmentally beneficial community projects will receive grants to implement those initiatives. Grants are anticipated to be between \$50,000 to \$100,000 per initiative. The grant program will support the Administration’s Leeward Coast Initiative.</p>

Convention held from September 30 through October 2, 2008 at the Hawaii Convention Center. The workshop introduced new energy technology to attendees, and provided real community projects incorporating clean energy design into their community economic development projects

2. Astronomy & Space Science

Hawaii is one of the world's premier sites for astronomical observation. A dozen observatories plus support facilities for Mauna Kea in Hawaii county and Haleakala in Maui County employ nearly 900 workers directly and generated \$63 million in total worker earnings for 2007.

Astronomy Market Segment 2007

Astronomy Market Segment	Hawaii	US
Empl. 2007 (all astronomy jobs)	885	n/a
Empl. 2007 (private-sector astronomy jobs)	342	222,685
% of all private-sector Empl.	0.0%	1%
Annual private-sector Empl. growth rate ('02-'07)	7.3%	1.2%
Ave. earning 2007	\$70,951	n/a
Ave. earning 2007 – private-sector only	\$83,654	\$106,567
Establishments 2007	28	n/a

Source: The Hawaii Science & Technology Institute (HiSciTech), *Innovation and Technology in Hawaii: An Economic and Workforce Profile*, October, 2008

The aerospace industry is a significant and growing component of the world economy. Global space revenues from government and private sources reached \$251 billion in 2007, representing a strong growth rate of 11 percent over 2006. More than three-quarters of global space economic activity stemmed from purchases of commercial satellite-based products and services (55%) and U.S. government spending (25%). Total revenue for space products and services in 2007 is estimated at \$138.83 billion, an increase of approximately 20 percent over 2006. The Office of Aerospace Development (OAD) was established in 2007 to help bring aerospace “down to earth” for Hawaii and tap into the significant economic development potential provided through this industry (per above). OAD's mission is to serve as a focal point within State government to facilitate dialogue and coordination among Hawaii's government, private and academic sectors, and between State-based organizations and overseas entities, both public and private, to promote the growth of Hawaii's aerospace industry.

DIVISION/ AGENCY

Outputs and Impacts FY 08

Intended Outputs & Impacts FY 09

SID *Established the Pacific International Space Center for Exploration Systems (PISCES) at UH Hilo which (a) inaugurated an annual national aerospace competition challenging college students to apply STEM disciplines in developing a viable design for a future lunar base (Honolulu Community College took first place in 2007); (b) instituted space science curricula at UH Hilo which are being adapted statewide through the UH System; (c) formed research partnerships with five NASA field centers which successfully bid for two federal grants totaling \$640K to conduct robotic field tests in Hawaii; (d) conducted the first international PISCES conference in Hawaii to begin multinational collaboration in the design, development and implementation of future robotic and human missions to the Moon and Mars.

*Establish an Aerospace Advisory Committee to (a) help identify strategic areas for expansion and diversification statewide; and (b) propose innovative strategies to implement workforce and business development programs in aerospace-related fields.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	<p>*DBEDT supported the University of Hawaii’s Institute for Astronomy to promote and leverage Hawaii’s strategic technological and geographical assets to attract state-of-the-art astronomy infrastructure and research programs to Hawaii. For example:</p> <ul style="list-style-type: none"> • The final Environmental Impact Statement for the Advanced Technology Solar Telescope (ATST) – the largest and most sophisticated instrument of its kind - is near completion, with construction scheduled to commence in 2010. A \$250 Million project funded by the National Science Foundation, the ATST will investigate activity on the surface of the sun, including generation of the solar wind, which has a direct and profound impact on Earth’s climate (see http://pan-starrs.ifa.hawaii.edu/public/). • The prototype telescope for Pan-STARRS (the Panoramic Survey Telescope & Rapid Response System) – PS1 – has been established at Science City atop Haleakala, with initial funding of \$30 million from a consortium comprised of astronomers from Germany, the United States, the United Kingdom and Taiwan (see http://ps1sc.org/). • Hawaii is also one of two finalist candidate sites for locating the next-generation Thirty Meter Telescope, a \$1 billion project supported by corporate and university funds (see http://www.tmt.org/). 	<p>* OAD is currently working with NASA, the Federal Aviation Administration, and other federal agencies, major universities, and other aerospace institutions and organizations worldwide on several initiatives to expand and diversify this industry statewide, including development of the Pacific International Space Center for Exploration Systems (PISCES) on the Big Island (see section on Astronomy & Space Science and http://pisces.hilo.hawaii.edu), opportunities to establish Hawaii as a regional testbed for next generation aviation technologies (see http://www.jpdo.gov/nextgen.asp), innovative aerospace education and training programs engaging K-12 and college students as members of NASA teams on robotic missions to the Moon, Mars and other solar system bodies (see http://lcross.arc.nasa.gov/ and http://quest.nasa.gov/projects/spacewardbound/), obtaining a commercial spaceport license for the State of Hawaii to enable the launching and landing of next-generation spaceplanes in the islands (see http://www.faa.gov/about/office_org/headquarters_offices/ast/media/Developments_Concepts_Feb_2008.pdf), formulation of international partnerships to develop and implement multinational space research programs (see http://justsap.org/), facilitating Hawaii-based field demonstrations of innovative technologies to support both robotic and human space exploration programs to the Moon, Mars and beyond (see http://www.nasa.gov/home/hqnews/2008/nov/HQ_08-288_Rover_Hawaii_Tests.html), and the design, testing and evaluation of new systems for generating renewable energy from space (see http://www.thespacereview.com/article/1210/1).</p>
SID	<p>*Facilitated the world’s first solar energy to microwave power-beaming experiment in Hawaii that demonstrated the viability of this innovative technology to serve as an unlimited source of renewable energy for both planet earth and future colonies on the Moon and Mars (the demonstration was aired nationally on the Discovery Channel).</p>	<p>*Undertake a preliminary assessment of the current status and future potential of Hawaii’s aerospace industry through (a) a review of state, federal and international aerospace initiatives and priorities, including an analysis of current aerospace demands and projected trends, both national and global; and (b) a comprehensive survey of Hawaii’s existing resources, infrastructure, ongoing R&D, and other factors impacting the State’s capabilities and strategic advantages in aerospace-related fields, including an assessment of how these resources and capabilities can be leveraged to grow/diversify the State’s economy.</p>

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	* Conducted the 2007 JUSTSAP Symposium and 2007 PISCES Conference on the Big Island, engaging over 150 leading scientists, engineers, educators, business leaders and government officials from around the Asia-Pacific with Hawaii researchers to establish international R&D teams focusing on autonomous robotic systems, renewable energy, in-situ resource utilization, advanced satellite systems, and commercial utilization of the International Space Station.	*Conduct the 2008 JUSTSAP-PISCES Symposium on the Big Island and initial NASA field tests to demonstrate the viability of innovative robotic technologies to support future missions to the Moon and Mars (including the ability to extract oxygen and water from volcanic rock that simulates the lunar/Martian soils).
SID	*Represented Hawaii at the Aerospace States Association (ASA) semi-annual board meeting (Washington, D.C.); the National Space Foundation Symposium (Colorado Springs); the American Institute of Aviation & Aeronautics (AIAA) National Symposium (San Diego); and the NASA Space Exploration Symposium (San Jose) to promote interest in and support for Hawaii-based aerospace activities.	*Network with aerospace professionals at NASA Headquarters and NASA Regional Centers, at aerospace companies nationwide (Boeing, Lockheed Martin, Raytheon, SAIC, Northrop Grumman), and at foreign aerospace agencies and institutions to build public-private partnerships that can expand/diversify PISCES and other collaborative multinational aerospace ventures in Hawaii.
SID	* Developed extensive marketing materials (including websites, brochures, video productions and Skyline displays) to promote Hawaii's aerospace assets, current activities and future potential to the global space community.	*Initiate environmental and safety studies required to obtain a commercial space transportation license for the State of Hawaii to enable spaceplanes to launch and land at Honolulu, Kona and Kalaeloa airports (carrying experimental payloads, small satellites and tourists to space).
NELHA		*Astronomy and space science --- NELHA has been in discussions during fiscal 2009 about supplying green power to telescopes on the mountain. NELHA has also been in discussions with a company about conducting research aimed at self-sufficient space colonies using assets similar to those found at NELHA.
NELHA/ CEROS	*CEROS awarded a ~\$500K space/defense related Research & Development project to Pacific Defense Solution, a Maui company.	*CEROS will continue to encourage and consider new space related defense project proposals from the Hawaii high tech community for funding
READ	* Developed Emerging Industries Benchmark report including analysis and metrics for Astronomy.	*Update Astronomy and space science metrics

3. Biotechnology

Biotechnology and Life Sciences are represented in Hawaii's economy through a range of university and commercial research and development activity. Private biotech activity employed nearly 3,850 workers in 2007 and total worker earnings of \$264 million. The average earnings for workers in biotechnology amounted to \$68,531 in 2007. The sector has experienced notable growth over the last five years, with employment increasing nearly three times the U.S. rate.

Hawaii Biotechnology Sector, Employment and Earnings

Detailed Activities	Hawaii Jobs		% Change 2002-07		Ave. Earnings 2007
	2002	2007	Hawaii	U.S.	Hawaii
Biotechnology Total	3,112	3,848	23.7%	8.1%	\$68,531
Medical laboratories	1,309	1,645	26%	13.8%	\$51,759
Research and development in biotechnology (Est)	1,020	1,469	44%	15.7%	\$83,386
Dental laboratories	228	234	3%	2.9%	\$51,698
Testing Labs and Diagnostic imaging	203	226	6%	12.3%	\$59,789
Medical and Biological Related instrument Mfg.	53	136	159%	2.3%	\$100,784
Pharmaceutical and other biological product Mfg	90	70	-23%	-0.5%	\$66,772
Agriculture chemical Mfg	209	68	-67%	-10.8%	\$34,920

Source: DBEDT Based on BIO and HiSciTech definitions.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	<p>*Co-sponsored and helped the Biotechnology Industry Organization (BIO) organize the Second Pacific Rim Summit on Industrial Biotechnology & Bioenergy in November 2007. The meeting focused on the use of biotechnology tools to develop more efficient methods of industrial production, including new ways to make pharmaceuticals and other bio-based renewable chemicals. Of particular interest, was the focus on biofuels. The 400 attendees represented 216 companies and organizations from 20 countries. Over 40 business partnering meetings were arranged.</p>	<p>*Negotiations with BIO are in progress for bringing the Summit back to Hawaii in late 2009 or early 2010. It is expected that with the increased activity on alternate fuel production, not only in Hawaii, but around the world, the conference will continue to grow.</p>
SID	<p>*Organized and substantially funded the four-day Hawaii pavilion at BIO 2008 in San Diego, hosting 40 participants, from 23 companies and organizations. The pavilion featured an economic development booth, jointly staffed by DBEDT and the county economic development boards, which focused on the advantages of the State and each of the islands for life science R&D and expertise. Collected over 200 direct contacts. In a post-event survey, 82% of respondents indicated they were very satisfied with the event.</p> <p>The University of Hawaii Office of Technology Transfer and Economic Development focused on developing licensing opportunities for Hawaii-developed technologies and discoveries. Nanopoint, Inc. carried out a new product launch, developing several significant</p>	<p>*Planning is underway for BIO 2009 in Atlanta. Given the increasing interest by companies in taking dedicated space, it is anticipated that more direct results will be seen. It is possible, however, that the downturn in the economy may affect participation. That issue will be evaluated to determine ways in which the momentum gained in developing Hawaii's market presence can be maintained.</p>

sales leads. Cellular Bioengineering, Inc. featured its wide range of products and services. Through its participation at BIO, the firm ABR, LLC developed an agreement with Castle & Cook for its Dole Company to test ABR’s growth enhancement products on various crops worldwide. At BIO 2008, ABR entered into talks with one domestic and three international distributors, including one with the Chinese Department of Agriculture. ABR attributes 30% of their growth to attendance at BIO.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
<p>SID</p>	<p>*In conjunction with BIO 2008, assisted Enterprise Honolulu, HiBEAM, and OTTED in organizing the HawTechnology Showcase at Roy’s Restaurant in La Jolla. The Showcase is an ongoing effort to attract mainland investor and industry interest in Hawaii technology companies, including UH start-ups. Six Hawaii companies presented and indicated a high rate of satisfaction and their intent to participate in future events. Also collaborated with SMSD in organizing a Kama’aina Come Home event immediately following the Showcase. Almost 50 Kama’aina attended presentations by Hawaii companies, two of which reported they identified potential new employees.</p>	<p>*Working with the Biotechnology Industry Organization (BIO) to bring the Pacific Rim Summit on Industrial Biotechnology & Bioenergy back to Hawaii. Held for two years in Honolulu, the 2008 event moved to Vancouver. DBEDT will focus on developing attendance from Asia and industry support for this conference. It is expected to bring over 400 industry, government and academic leaders to Hawaii, with a program focused heavily on biofuels.</p>
<p>SID</p>	<p>*Continued to work with industry, the Hawaii Science & Technology Council, the University of Hawaii and the Department of Agriculture to address policy issues, such as opposition to genetically modified crops, related to agricultural biotechnology.</p>	<p>*Continue to work with industry, the Hawaii Science & Technology Council, the University of Hawaii and the Department of Agriculture to address policy issues, including the economic consequences of new rules governing importation of species for research and commercial production.</p>
<p>SID</p>	<p>*Continued to support the efforts of the University of Hawaii John A. Burns School of Medicine to establish a Regional Biosafety Laboratory with funding from the National Institutes of Health. The state-of-the-art facility will provide the capacity to carry out research on developing rapid and more accurate diagnostic tests, drugs and vaccines for emerging and re-emerging infectious diseases.</p>	<p>*Continue support as needed.</p>

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	<p>*Represented DBEDT on the legislatively established Temporary Advisory Commission on Bio-prospecting. Chaired and staffed by the Office of Hawaiian Affairs, the Commission carried out research, heard presentations by experts, sponsored public meetings on all the Islands, and carried out lengthy deliberations. The purpose was to provide recommendations to the Legislature and the Governor on the development of public policy to balance development and commercialization of public resources with research and conservation, while addressing the issue of fair and equitable benefit-sharing with the general public and native Hawaiians. The Commission was not funded by the Legislature, but put together a limited budget with funds from DBEDT, the University of Hawaii, OHA, Cardax Pharmaceuticals, and the Hawaii Science & Technology Council. In spite of the Commission's best efforts to address this complex and divisive issue, almost no one was satisfied with the final recommendations. A bill was introduced in the 2008 Legislature to continue the Commission, but was not passed.</p>	<p>*DBEDT is supporting the UH proposal to NSF for a third RII grant, which would be for \$4 million per year for five years. The proposed focus is on understanding and predicting how invasive species, anthropogenic activities and climate change impact the biodiversity, ecosystem function and current or potential human use of Hawaiian focal species (defined here as - <i>endemic species in Hawai'i and any species used by early Hawaiian society that helped define its place in the natural landscape</i>).</p>
SID	<p>*DBEDT provided State matching funds in support of a Research Infrastructure Improvement (RII) grant to the University of Hawaii from the Experimental Program to Stimulate Competitive Research (EPSCoR) of the National Science Foundation (NSF). One of the focal areas of the current EPSCoR grant is Ecological and Evolutionary Genetics.</p>	
HCDA	<p>*Cancer Research: Signed a long term ground lease with the University of Hawaii, JABSOM, for the site of the proposed cancer research center to be located in Kaka'ako's Makai area.</p>	
SMSD	<p>*Organized "Discover Hawaii Life Sciences" forum in Tokyo. In 2007 attended by 90 individuals. Hawaii speakers included representatives from the Cancer Research Center of Hawaii; Department of Health, Department of Taxation and DBEDT.</p>	

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
HTDC	*Incubated biotech companies through its innovation centers and statewide virtual incubation program, and provided assistance to apply/obtain federal research and development grant funds. Focused on entrepreneurs with university-based technologies in agriculture-energy based biotech.	*Continued incubation of biotech companies with focus on energy solutions.
NELHA/ CEROS	*CEROS awarded a ~\$500K marine alga to biodiesel related Research & Development project to Kuehne Agrosystems a Honolulu company.	*CEROS will continue to encourage and consider new marine bio defense project proposals from the Hawaii high tech community for funding
READ	*Worked with HiSciTech, technology profile study team to ensure elements of BIO defined biotech sector were incorporated in the new definition of technology. *Calculated and compiled biotech measure for Hawaii and U.S. for this report and forthcoming Emerging Industries Benchmark Report.	*Assist HiSciTech in updating measures for this industry for 2008 * Publish Emerging Industries Benchmark report to provide metrics for biotechnology.

4. Computer Programming & Services (Including Digital Media)

Computer programming and services encompasses a range of computer activity from systems design and installation to custom programming, control systems, and even digital media and animation. In 2007 this sector employed about 5,900 workers with total worker earnings of \$464.2 million. The average annual earnings in the industry for 2007 amounted to nearly \$71,300.

Hawaii Computer Services Sector, Employment and Earnings

Detailed Activities	Hawaii Jobs		% Change 2002-07		Ave. Earnings 2007
	2002	2007	Hawaii	U.S.	Hawaii
Computer Services	5,588	6,512	16.5%	16.6%	\$71,287
Custom computer programming services	1,519	1,833	20.7%	17.0%	\$84944
Computer systems design services	1,652	2,577	56.0%	29.0%	\$80192
Computer facilities management services	2,153	2,052	-4.7%	-3.0%	\$48316
Other computer related services	264	50	-81.1%	-19.0%	\$54381

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
CID	Moved process forward for a Digital Media Center at the Hawaii Film Studio site at Diamond Head. This is a result of an U.S. Economic Development Administration matching grant with the University of Hawaii Academy for Creative Media, managed by DAGS / DBEDT.	DBEDT will continue master planning process for Digital Media Center, with final plans expected by end of FY09. Proximity to studio, involvement of UHM ACM and UHCC/Kapiolani Community College digital / new media programs provides core synergies to establish a "creative industries zone" in and around the Hawaii Film studio.
CID	Established Creativity Academies (CA) program in partnership with DOE/CTE, UHCC/Kapiolani CC STEM and New Media Arts leadership, and industry to infuse creative disciplines of animation, game development, creative writing and digital media into STEM learning for middle and high school students. CA curriculum development began in summer 08.	Conduct teacher training for DOE and charter school science and digital media faculty. Deploy CA curriculum in up to 5 HS and 1 MS classrooms in fall 09. Convene CA Visioning Team comprised of core partners (DOE, UHCC, DBEDT, industry (STEM, Game/Animation/FX/Digital media leaders Hawaii/Asia/Mainland) and California Institute of the Arts, USC School of Cinematic Arts, FIRST Robotics, and physics professors from Vassar and Skidmore Universities.
OP	* OP and DAGS are co-recipients of a \$160,000 EDA grant for a Master Plan for Film and Digital Media Center. Continued to administer the grant to support the film and digital media industries.	*A master plan to develop a Film and Digital Media Center will be completed.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SMSD		*The Small Business Utilization Council (SBUC), chaired by DBEDT, recommended and State Procurement Council approved a small business set-aside preference on state and county contracts for custom computer software development.
NELHA/ CEROS	*CEROS awarded 8 (~\$500K each) defense-related command, control and communications (C3) and software development Research & Development project to 8 different Hawaiian companies.	*CEROS will continue to encourage and consider new defense related C3 and software project proposals from the Hawaii high tech community for funding
READ	*Updated measures for computer programming services for use in measuring performance of the sector.	*Prepared data and performance report for DBEDT-chaired, Small Business Utilization Council on custom computer programming which helped justify small business contracting preference for the sector.

5. Diversified Agriculture & Aquaculture

Development of diversified agriculture and aquaculture are primarily the responsibilities of the State department of Agriculture (DOA). However, DBEDT compiles data on the sector and has worked with the DOA to establish a measureable definition of agri-business in Hawaii. Under that definition, agriculture and aquaculture accounted for nearly 22,900 workers in 2007 and total industry worker earnings of \$725.9 million. The average earnings per worker in 2007 for agri-business amounted to over \$31,700.

Hawaii Agribusiness Sector Employment & Earnings

Detailed Activities	Hawaii Jobs		% Change 2002-07		Ave. Earnings 2007
	2002	2007	Hawaii	U.S.	Hawaii
Agribusiness	24,576	22,882	-6.9%	-3.1%	\$31,724
Farm production & services	14,945	13,702	-8.3%	-3.3%	\$24,818
Agricultural processing & marketing	6,560	6,406	-2.3%	-2.4%	\$47,670
Aquaculture	2,331	1,978	-15.1%	-12.9%	\$13,598
Packaging & warehousing	369	400	8.4%	0.6%	\$81,811
Agricultural inputs & raw materials	371	396	6.7%	-1.5%	\$52,683

Source: DBEDT based on U.S. Dept of Ag. definition.

In addition to the research activities indicated below, DBEDT's Community Based Economic Development (CBED) program has provided extensive funding for local agriculturally related businesses in rural areas of the state. Details on the activities of that program are presented in Section III, Improved Small Business Environment. Other divisions and agencies have impacted development of diversified agriculture and aquaculture as indicated below.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
OP	Participate in the policy review and formulation of legislation pertaining to the protection of important agricultural lands.	*Continue to participate in the policy review and formulation of legislation pertaining to the protection of important agricultural lands.
OP	Review petitions for land use district boundary amendments for their impact on important agricultural lands and present the State's position before the Land Use Commission.	*Continue to review petitions for land use district boundary amendments for their impact on important agricultural lands and present the State's position before the Land Use Commission.
SID	*HCEI Lanai Partnership Project has developed a plan to achieve nearly 100% renewable generation on Lanai, including conservation PV, and a B30 biodiesel-powered system.	*Future plans include developing home-grown bioenergy crops.
SID	*The state's renewable energy permitting facilitator has worked with three bioenergy companies to date.	*The state's renewable energy permitting facilitator expects to work with at least one additional bioenergy company as well as continuing to work with the three currently engaged.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	<p>*The HCEI Bioenergy Partnership Project made progress on state's Bioenergy Master Plan (which kicked off May 21, 2008). The Bioenergy Project is providing biofeedstock suggestions to Castle & Cooke (Lanai) on crops and business models. Eventually, home-grown biofuels could help the state's utility, independent power producers, and end-users meet its Renewable Fuels Standard goals while reducing biodiesel and ethanol imports.</p>	<p>*The Bioenergy Master Plan will be completed in 2009. In addition, the relationship between energy and food will be explored.</p>
NELHA	<p>*There are 17 commercial and research/development aquaculture tenants at the Natural Energy Laboratory of Hawaii Authority. Production ranges from seaweeds to valuable finfish, mostly for export. An outstanding example is Kona Bluewater Farms, which in the past year has more than doubled its production of Kona Kampachi to approximately 2.0 million pounds. Troutlodge Marine Farms Kona is in the process of closing the breeding cycle for butterfish, an exceptionally valuable finfish both in Hawaii and Japan.</p> <p>*All the aquaculturalists at NELHA are dependent upon the ability of NELHA to deliver deep cold seawater and surface seawater. Two deep seawater pipelines are still out of service as a result of the October 2006 earthquakes. Recently, approval was obtained to begin negotiating a contract to repair that damage.</p>	<p>*The ICA decision regarding Ohana Pale vs. Department of Agriculture is impacting aquaculture tenants at NELHA. If tenants will have to conduct an environmental assessment to get their annual import permits renewed (as is presently the case for new importations) it will severely limit or eliminate their ability to operate. Presently, there is substantial confusion over this matter and some potential aquaculture tenants have either delayed their NELHA projects or cancelled them entirely.</p>
SMSD	<p>*Kodama Koi Farm invested \$2 million to open its Hawaii operations. They are now exporting products and have created 20 full time positions.</p> <p>*Organized participation in Food Taipei resulted in \$1.5 million of new Hawaii exports to Taiwan.</p> <p>*Kona Brewing new export of \$12,000. (SHOT)</p>	
SMSD	<p>*Act 143 was signed which supports diversified agriculture by allowing more farmers to qualify for EZ tax incentives. Ag producers and processors receive EZ eligibility where businesses are damaged by natural disasters; allows sales of value-added products made from crops grown within an EZ to count towards certification requirements; in lieu of having to hire more workers, ag businesses need to increase their total gross revenues; allows full-time leased employees to be counted as full-time employees.</p>	<p>*Begin work on updating the Hawaii Administrative Rules with the provisions passed in Act 143.</p>
SMSD	<p>*Held a presentation workshop in NELHA to biotech and aquaculture companies to explain the benefits of the EZ program.</p>	

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SMSD	*Participated in the Hawaii Farm Bureau's 2007 Annual Conference held in Kona. The EZ program was featured as an exhibitor. There were approximately 100 attendees.	
SMSD	*Held a presentation workshop in NELHA to biotech and aquaculture companies to explain the benefits of the EZ program.	
SMSD	*Participated at Ag Day at City Hall as an exhibitor of the EZ program. This event was designed to increase awareness of agriculture on Oahu as well as to highlight various governmental-related agencies. Was invited by the Hawaii Farm Bureau and Mayor Hanneman's office.	
SMSD	*Waimanalo was designated as Oahu's 6 th Enterprise Zone in 2008. Conducted presentations to the Waimanalo Agricultural Association and met via on-site appointments with various nurseries and ag businesses to explain the EZ program and its benefits.	
SMSD	*Participated and was a speaker about the EZ program at Representative Karen Awana's Agricultural Resource Meeting at Maili Elementary school. It was taped and broadcasted over Olelo and was designed to bring resources and assistance to Leeward Coast farmers.	
SMSD	<p>*Awarded a \$10,000 Community-Based Economic Development grant to the Hawaii Cooperative of Organic Farmers, to plan and develop the Hawaii Organic Food Center. The Center would be a multi-function center designed to consolidate all organic Produce from Neighbor Island and conduct distribution Processing, retail sales, research, education and Visitor activities.</p> <p>*Awarded a \$10,000 Community-Based Economic Development grant to the North Shore Country Market to develop Phase I of the organization's Organic Farm and training center. The Organic Farm and Training Center will operate as a commercial farm, producing a range of Greens, root crops, herbs, and fruits. It will offer services, training, an incubator service, and support to North Shore residents to increase their understanding of the nutritional, health, environmental, and economic value of organic crops, and establish small scale organic farming.</p>	

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
HTDC/ MEP	*Implemented grant program which provided training sessions to small and medium size companies on the how-to's of exporting to emerging markets – sessions were linked to Kauai, Maui, Kona, and Oahu. This Export Readiness Training Program of the U.S. Dept. of Agriculture and the Foreign Agricultural Service Western United States Agricultural Trade Association was in partnership with the Hawaii Department of Agriculture.	*Continue to support Hawaii's agricultural companies with exports to emerging markets, and technical assistance to grow businesses.
READ	*Developed updated definition and measurement of Hawaii's Agribusiness sector.	*Measurement and performance of Agribusiness sector will be published in upcoming Emerging Industry Benchmark report.

6. Ocean Science and Technology

Ocean science and technology represents specialized research and development activity for which ocean resources are the prime focal point. There are a range of activities in the sector including engineering, water quality research, transportation, fisheries mariculture, surveying, energy, recreation, marine biology and others. Ocean science and technology is very a difficult sector to measure with standard statistics. However, DBEDT has commissioned surveys of this sector for some years to estimate employment and revenues. In 2007 there were 1,230 employees involved in ocean science and technology activities, down a slight, 0.6% from the year before. Revenues were also down a slight 0.3%.

Revenues in the Ocean Science and Technology Sector

Year	Total	Private	Fed	State	All Other
2004	\$ 176.3	\$ 7.7	\$ 143.4	\$ 8.6	\$ 16.6
2005	\$ 164.2	\$ 11.6	\$ 129.1	\$ 7.4	\$ 16.2
2006	\$ 143.0	\$ 6.9	\$ 119.7	\$ 9.3	\$ 7.2
2007	\$ 142.5	\$ 8.6	\$ 115.8	\$ 7.8	\$ 10.4
% Chng 04-07	-19.2%	10.8%	-19.2%	-9.5%	-37.7%

However, between 2004 and 2007 revenues fell nearly 20% for the sector as a whole. Only private sector revenues in the sector managed to show a gain for the period. With respect to research areas, only transportation and energy showed increased funding levels between 2004 and 2007.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
NELHA	<p>*NELHA is a leader in stimulating the development of alternative energy in Hawai'i, including ocean related energy. There are currently four alternative energy projects underway; solar thermal, solar concentrating, wind energy, and biofuels from algae. In the past year, the companies pursuing these projects have spent over \$17 million in capital dollars and created 25 new, permanent, high technology jobs in addition to numerous construction jobs.</p> <p>*There are currently 310 private industry jobs directly supported by NELHA's services.</p> <p>*NELHA is the only location in the world that has the capability of producing deep sea water from three different pipeline systems, ranging from 2,000 to 3,000 feet in depth. The state has invested over \$40 million in those pipelines, which are the lifeblood for those jobs mentioned above. NELHA is a desirable location for this activity because "NELHA is unique in that large volumes of uncontaminated surface and deep seawater are available without resorting to costly ship time...These volumes of water from the deep sea are <i>only</i> available at NELHA." (Quote from Dr. Daniel Repeta from Woods Hole Oceanographic Institute.)</p>	<p>*A company will add another 10 to 20 permanent high tech jobs this year. NELHA is presently trying to encourage a renewable waste-to-energy plant to locate on site. It would represent a capital investment of between \$100 and \$150 million, create 29 full-time jobs, produce 6 to 8 megawatts of electrical power and perhaps 140,000 to 190,000 barrels of biodiesel or biojet on an annual basis.</p> <p>*Employers have informed us that, beside the 10 to 20 jobs mentioned above, another 40 to 50 will be created this year, mostly in the water bottling industry. *NELHA itself has a request for proposal in the issuance process for private industry to come and build a scale-up OTEC plant, using the \$19.9 million 55" pump system the state built originally for that purpose.</p> <p>*NELHA today is the only location in the world where research and development of ocean thermal energy conversion can be accomplished without the expenditure of vast sums of money to build the required infrastructure. Makai Ocean Engineering has submitted a proposal to our next Board meeting to do that -- on behalf of Lockheed-Martin Corporation and various federal governmental bodies.</p>

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	*DOE selected Hawaii as one of two Marine Renewable Energy Centers in the U.S.—a \$5 million, 5-year award. The Hawaii Marine Renewable Energy Center is hosted by HNEI, with the support of the State’s Energy Program.	*SID will work with HNEI to further all means of ocean energy, including wave energy and ocean thermal energy conversion.
SID	*Hawaii, Taiwan, and Lockheed launch a partnership to develop a 10 MW ocean thermal energy conversion plant in Hawaii.	*The State will work with partners, including the US Department of Defense, to continue to advance the development of OTEC.
SID	*Worked with READ to develop an update survey of jobs and income in the Ocean Science and Technology sector	*Results of Ocean Science and Technology survey to be published in READ's Emerging Industry Benchmark report.
SID	*Organized the Hawaii pavilion at OCEANS 2007 MTS/IEEE, the major conference and exposition for marine science & technology in North America, in Vancouver BC. About a dozen Hawaii participants represented government, academia and the private sector.	*DBEDT did not participate in OCEANS 2008 because the location did not warrant participation by Hawaii companies. Participation in OCEANS 2009 is being evaluated.
HTDC	*Provided advice to potential developers, states, and regional economic development organizations conducting feasibility analysis for the development of ocean science and technology parks.	*Continue to provide assistance, as requested.
NELHA/ CEROS	*CEROS awarded 11 (~\$600K each) defense-related Ocean Technology Research & Development project to 10 different Hawaiian companies.	*CEROS will continue to encourage and consider new defense related maritime and ocean project proposals from the Hawaii high tech community for funding
READ	*Contracted for the development of an update survey of jobs and income in the Ocean Science and Technology sector, in collaboration with the Strategic Industries Division (SID).	*Report received and data incorporated into the division’s Emerging Industries Benchmark Report.

7. Research and Development

Research and Development encompasses a number of strategic objectives of the department, including building the capacity to innovate. Therefore, program impacts under a variety of other categories reported herein should be considered part of the department's efforts to develop the R&D sector.

Private research and development activity employed about 3,400 workers in 2007, up 24% from 2002. It has been one of the fastest growing areas of Hawaii's technology sector. The average earnings in 2007 amounted to nearly \$72,100.

Hawaii's Research and Development Sector, Employment & Earnings

Detailed Activities	Hawaii Jobs		% Change 2002-07		Ave. Earnings 2007
	2002	2007	Hawaii	U.S.	Hawaii
Research & Development Services	2,715	3,373	24.2%	13.1%	\$72,070
R&D in Biological research	1,020	1,469	44.0%	34.4%	\$54,459
R&D in Physical, engineering and other life sciences	1,155	1,404	21.5%	10.4%	\$95,909
Social science and humanities research	540	500	-7.4%	-4.0%	\$56,842

The primary source of support for research and development comes from University of Hawaii activity and grants as well as defense contracts. Much of DBEDT's support for this activity is focused on providing a solid base of infrastructure, workforce development effort and business assistance. This ranges from the incubation and start up financing of the High Technology Development Corporation to the efforts to establish strong science, technology, engineering and math (STEM) skills in the public schools. These more indirect efforts are detailed at the end of this section under Broad-based Support for Potential Emerging and Growth Activities. Related information can also be found under the Section III discussions of DBEDT's objectives for the innovation infrastructure, human capital development and business assistance.

DIVISION/ AGENCY

Outputs and Impacts FY 08

Intended Outputs & Impacts FY 09

SID	<p>*Managed contract with the University of Hawaii for State matching funds for a Research Infrastructure Improvement grant from the Experimental Program to Stimulate Competitive Research (EPSCoR) of the National Science Foundation. DBEDT and UH collaborate on programs to: 1) improve interactions between UH and industry to accelerate commercialization of R&D and increase industry input into development of UH research and curricula; and 2) support STEM workforce development efforts. Activities included collaboration with the Hawaii Science & Technology Council to produce monthly S&T forums to bring industry, academic researchers and government policy people together to discuss technical developments and industry challenges. Co-sponsored Tech Showcases with UH Office of Technology Transfer & Economic Development, HiBEAM and Enterprise Honolulu. Established the STEM Workforce Development Program Office at UH. DBEDT Director is a member of the Statewide Steering Committee for EPSCoR. DBEDT state match funding for</p>	<p>*Continuing collaboration with UH to manage existing contract for matching funds and assisting UH in request for additional matching funds (FY10 & 11) for a new 5-year Research Infrastructure Grant. Matching funds will help sustain existing programs and support continued growth of the research enterprise at UH Hilo. Funds from Act 111 (SLH 2007) are being leveraged with the EPSCoR matching funds to develop and expand STEM internship and mentorship opportunities for Hawaii students. Also co-developed the MySTEMHawaii.org web portal with a grant by the National Governors Association for STEM education. The web portal is designed to be a one-stop location for parents, students, teachers, and industry to locate STEM programs across the State. Developed by creative media students, mentored by professional media experts, the portal also will feature STEM success stories and build support for the importance of STEM education. DBEDT is co-chairing an EPSCoR subcommittee to develop a statewide S&T.</p>
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the UH EPSCoR programs have, in part enabled the phenomenal growth in research at UH Hilo, which now secures one of the highest rates of extramural funding awards relative to the number of faculty at the institution.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	*DBEDT's support of the University of Hawaii's Institute for Astronomy has also promoted and leveraged Hawaii's strategic technological and geographical assets to attract state-of-the-art infrastructure and research programs to Hawaii.	
SID/ SMSD	*Established and reinforced relationships with program offices in the National Science Foundation (NSF), and built on Memoranda of Understanding signed with the National Science Board (NSB) and with the National Aeronautics and Space Administration (NASA) to explore funding opportunities in support of R&D and workforce development objectives.	*Continue to develop broader and deeper understanding of federal funding programs and identify funding streams and apply for grants to meet R&D and workforce development objectives.
SMSD	*Organized for the National Science Foundation – NSF Day workshops conducted December 3-5, 2008 at the Maui Community College, Honolulu Community College and at the Hawaii Convention Center. The NSF plays a large role as a funder of research and education programs in Hawaii. The workshops provided information to stimulate new interest in NSF programs for science and technology grants for research and workforce education programs. Workshops were well attended and attracted over 300 participants.	
HTDC	*As a follow up to READ's data analysis of the research and development section, HTDC retained a national consultant and utilized pro-bono services of the National States Science & Technology Institute (www.SSTI.org) to prepare a framework of best practices with current Hawaii resources for the development of a statewide science and technology plan.	*Draft report to be circulated to tech-based economic development stakeholders in private and public sectors for input and changes and alignment with university research institutions.
HTDC	*A major R&D program is the Hawaii Small Business Innovation Research and Hawaii Small Business Technology Transfer Program. Since 1989, the Hawaii SBIR program awarded \$4.5 million to 67 companies that won 229 SBIR and STTR Phase I awards. As a result, 31 of these companies have so far successfully competed for 79 Phase II awards, totaling over \$50 million. In total dollars, the Hawaii program has helped local companies attract over \$73 million in federal SBIR and STTR dollars to the State; \$58 million has been attracted by Hawaii companies in SBIR Phase III Commercialization dollars in the form of contracts, private investment and sales. For every State dollar invested in the Hawaii program, more	*HTDC will host its 11 th Biennial SBIR/STTR Conference in 2009 at which federal program managers at their own cost meet with local companies to apply for grant funds. The State's 2010-11 budget cuts reduced HTDC program funds by 38% so future program impact success numbers will be reduced.

than \$16 federal dollars have been returned, or \$29 for every State dollar invested when Phase III dollars are included.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
HSDC	*HSDC conducted contract negotiations, development and oversight/monitoring for the '5M Follow-On-Funding' legislative directed contract with PICHTR (HTDV). The 1 st round of sub-contract awards with the Hawaii high tech community and the subsequent awarding of the first 6 contracts (\$1.5M) were completed.	*\$3M in contracts are expected to be completed in 2009,
NELHA/ CEROS	*All of CEROS 19 (~\$10M total) defense-related contract projects are for Research & Development and the development of Intellectual Property for Hawaiian companies.	*CEROS will continue to encourage and consider new defense related Research & Development proposals from the Hawaii high tech community and are expected to award ~\$10M in contracts in 2009
READ	*Worked with HiSciTech technology industry profile study team to revise definition and measure the research and development sector.	*Updated measure for final 2007 data and prepared analysis of sector's performance for the forthcoming Emerging Industries Benchmark report.

8. Information and Telecommunications Technology

Information and selected telecommunications technology services employed nearly 2,400 workers in 2007, with average earnings of \$59,500.

Hawaii Information & Telecommunications Technology Sector, Employment and Earnings

Detailed Activities	Hawaii Jobs		% Change 2002-07		Ave. Earnings 2007
	2002	2007	Hawaii	U.S.	Hawaii
Information and Telecom Technology Services	2,185	2,364	8.2%	3.1%	\$59,499
Software publishers	149	90	-39.6%	7.0%	\$90113
Internet publishing and broadcasting	34	80	135.3%	25.0%	\$55201
Cable and other program distribution	718	955	33.0%	17.0%	\$49385
Other telecommunications	198	227	14.6%	-24.0%	\$117040
Internet service providers	374	179	-52.1%	-22.0%	\$43509
Web search portals	30	32	6.7%	130.0%	\$33204
Data processing and related services	682	801	17.4%	-3.0%	\$56888

As with research and development activity, much of DBEDT's assistance to the infotech sector is indirect, through broad assistance to tech startup companies, infrastructure, and workforce development. Therefore many of the DBEDT activities under support for emerging industries and in the strategic objectives section support information and telecommunications technology.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
HTDC	*Participated in the Broadband Task Force, by providing background information and research of best practices and metrics for the "Why Broadband Matters" subcommittee. Assisted in reviewing the Broadband Policy draft currently under review.	*Assist to implement policies recommended by the Broadband Task Force
SMSD	*Currently have 35 IT businesses enrolled in the Enterprise Zone program which is designed to encourage economic development in Hawaii's most distressed communities. Among the enrolled are Maui Alliance, Ventura Technology Enterprises, Universal Real Enterprises, SystemMetrics LLC, Shakanet, Referentia, Servpac Inc, and Hawaiian Homestead Technologies. As a requirement for benefits, these businesses need to increase their employment levels.	
SMSD		*The Small Business Utilization Council (SBUC), chaired by DBEDT, recommended and State Procurement Council approved a small business set-aside preference on state and county contracts for custom computer software development.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	*HECO has committed to investing in smart grid technology, including advanced metering infrastructure, which will enable a more resilient electric grid.	SID will continue to work with the state's utilities to build the grid of the future.
READ	*Worked with HiSciTech technology sector profile study team to redefine the information/telecom technology sector and update the measure for final 2007 data.	*Sector will be more fully evaluated in the upcoming Emerging Industries Benchmark report and later in 2009 data will be updated to 2008.

9. Film, Television, Video Production

Film and television activity in Hawaii has been an important contributor to both jobs and income in the state and also important to the visitor industry through the worldwide exposure these productions have given Hawaii. In 2007 the film industry generated nearly \$230 million in production expenditures by preliminary estimate. This is the highest total for expenditures in a least a decade.

The competition within the film and television industries has increased globally in recent years. However, thanks to a competitive tax incentive program put in place by the legislature and administration in 2006, Hawaii has managed to maintain its competitive attraction for major productions. The state's film incentive, known as Act 88, offers productions 15% back on all their Oahu expenditures and 20% back on their Neighbor Island expenditures.

There is evidence that annually more than 4,000 workers are employed in some facet of Hawaii's film industry. These include a vast array of specialties including technical workers, performers, stunt men and women, writers, producers, drivers, makeup specialists, special effects artists, computer animation programmers and even caterers, among many others. From a measurement point of view, this diversity of contributing industries greatly complicates accounting for the jobs and performance of this industry.

The data for employees in film, TV, and video production, primarily technical production workers, show about 1,300 employees, proprietors and self-employed in 2007. This was up from 2006 but down from 2002 (see Table below). However, this number does not include the many workers in other industries that also participate in film video activity. For instance, data for artists, writers, and performers, a related industry category, totaled nearly 7,400 jobs in 2007, a 23 percent increase from 2002.

Thus, while the economic value of the film industry to Hawaii is apparent, tracing the jobs created through the various industries is presenting a challenge. The DBEDT Film Office and Research Divisions are collaborating on an effort to identify and measure how the various industries are participating in the film industry.

Hawaii Film, TV and Video Production Sector, Technical Employment and Earnings

Description	Hawaii Jobs		% Change 2002-07		Ave Earnings 2007
	2002	2007	Hawaii	U.S.	Hawaii
Film, TV, Video Production	1,510	1,321	-12.5%	3.9%	\$52,660
Motion picture and video production	1,458	1,236	-15.0%	9.0%	\$53,207
Cable and other subscription programming	21	38	81.0%	5.0%	\$43,999
Teleproduction and postproduction services	11	35	218.0%	5.0%	\$39,049
Motion picture and video distribution	20	12	-40.0%	-23.0%	\$63,437

Expenditures on Film and TV Productions/Related Artistic Employment in Film & TV

Film & TV	2002	2003	2004	2005	2006	2007	% chng
Production Expenditures (\$mil.)	\$ 147.0	\$ 84.0	\$ 164.0	\$ 117.1	\$ 140.2	\$ 228.7	55.6%
Independent artists, writers, and performers	2002	2003	2004	2005	2006	2007	% chng
Employees & self employed (full and part time)	6,023	6,067	6,478	6,841	6,866	7,379	22.5%

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
CID	*Maintained and marketed Hawaii Film Studio complex at Diamond Head to attract and support production industry.	*Provide ongoing maintenance of facility, increase marketing efforts and development of new business in light of tenant vacating in 2010. (Lost ABC/Touchstone has lease agreement through June 2010.
	*Supported Hawaii based film festivals that showcased Hawaii and international films, as well as providing opportunities for business-to-business development for Hawaii's film industry.	*Continue support of Hawaii based festivals, including expansion of panels that focus on marketing and distribution for Hawaii based filmmakers.
CID	*New Hawaii Production Tax Credit, known as Act 88, has generated an estimated \$314M in direct expenditures since it was established July 1, 2006. 58 productions have applied for the credit including 14 feature films, 18 television series, episodes or specials, and 26 commercials. Of the commercial production activity generated, the majority have been international.	*Work with DBEDT READ division to provide input and further refine existing data collection of film, television and digital media statistics.
CID	*By their nature, the motion picture and television industries generate temporary and permanent jobs. In Hawaii, more than 8,200 local Hawaii residents have worked on productions in varying capacities, according to information compiled from Film permits and Act 88 applications. This increase reflects that productions coming to Hawaii have engaged our local residents to provide more than 77% of the total workforce necessary to support these productions. Productions have provided invaluable training, mentorship and development opportunities to increase Hawaii residents capabilities and skill-sets which helps to further develop this clean, high paying industry sector.	*Continue to market the tax incentive to production industry globally. Increase support of educational programs and major innovation in education initiatives by producers/studios.
CID	*More than 30 public, and charter schools on Oahu, Maui, Kauai, and the Big Island, as well as University of Hawaii Academy For Creative Media have benefitted by training opportunities or cash /in-kind contributions to their student film, video or digital media programs. In addition, several college interns have sequenced into full time employment on the "Lost" television series in a variety of capacities.	*Increase mentorship, in-kind and monetary contributions by producers and studios to Hawaii educational programs in digital, new and creative media. Develop "above-the-line" mentorship opportunities for Hawaii's aspiring writers, directors, producers.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
CID	*A major feature film was shot in every island county (Pirates of the Caribbean 3 on Maui and Molokai; Indiana Jones 4 on the Big Island; Forgetting Sarah Marshall on Oahu; and Tropic Thunder on Kauai, in addition to the hit TV show Lost currently filming its fifth season on Oahu and committed to shoot in Hawaii until the spring of 2010.	
CID	*Streamlined film permitting process that stems from centralized system at the state level and MOUs with major state agencies we engage for filming purposes (DLNR and DOT). Knowledgeable and seasoned film permit staff who established relationships with Federal, State and County agencies to facilitate film permit process. FIB's film permitting process is a model for the country due to its centralized system of facilitation and multi-agency agreements.	*Continue to offer efficient, timely, one-stop permitting and core production servicing to keep up with increased level of production activity
CID	*Efficient processing of tax credit applications and final certification of credits. Close working relationship with Department of Taxation in processing of credit claims and interacting with film productions to make the process equitable and transparent.	*Continue to work with DoTax and industry to provide timely processing of applications and reports.
CID	*Working in concert with Kapolei Studios project leadership to assist in supporting their progress on creation of a multi-stage complex and education facility in Kapolei/Kalaeloa	*Continue to provide support for Kapolei Studios project, including interface with community and industry.
SMSD	*Approved Kapolei Studios project into the Enterprise Zone program. They are now eligible to take advantage of Honolulu County's incentive benefits of building permit and grading permit fee waivers. And a 2-year property tax rebate from any increase due to construction. Also, they are eligible to take advantage of GET exemption on construction for work done by a Hawaii State licensed contractor or sub-contractor. Kapolei Studios is planning a major development in Kalaeloa.	
CID		*Working with other state agencies (DLNR and DOT) to introduce new legislation or administrative rules that address filming issues on state land with the ultimate goal of making Hawaii a more film friendly environment.
CID		*Continue planning process for Digital Media Center for the Hawaii Film Studio site at Diamond Head. (CID initiated U.S. Economic Development Administration matching grant with the University of Hawaii Academy or Creative Media. Contract, managed by DAGS / DBEDT with input from UHM ACM, UHCC/KCC and a

HCDA

broad base of industry sectors.

*Film Industries: Continuing to work with Hawaii's film industry to facilitate the use of facilities by **production companies in Kaka`ako for filming and staging**. Eleven right of entries were granted to production companies wanting to enter onto or use HCDA property, including the production company for "Lost".

10. Music

Hawaii has always had a unique music-arts culture based on Hawaiian heritage, but it has expanded to embrace trends in music worldwide. The range of talented musicians in Hawaii has been an important attraction for visitors as well as a staple of the island's culture and an integral part of Hawaii's tourism product. Until the digital age, the problem of taking Hawaii's unique music to the world at large had been the limitations of a recording industry that was mainstream oriented and the high investment cost of producing and distributing recorded music without the backing of major music labels. The dynamics changed with the digital age, which has made production of high quality recording affordable to individual artists and created a new distribution system that allows artists to promote their music through the internet and music downloading services. A major breakthrough in promoting Hawaiian music was made several years ago with the establishment of a special Grammy category devoted to that genre.

Hawaii's music industry has shown substantial growth since 2002, expanding nearly five times faster than the industry nationally. There were about 1,200 employed and self employed workers in Hawaii's music industry in 2007, most of them performers.

Hawaii Music Sector, Employment & Earnings

Description	Hawaii Jobs		% Change 2002-07		Ave Earnings 2007
	2002	2007	Hawaii	U.S.	Hawaii
Music	1,053	1,212	15.1%	2.9%	\$28,085
Musical groups and artists	796	902	13.0%	3.0%	\$31,641
Musical instrument and supplies stores	158	144	-9.0%	-4.0%	\$24,012
Sound recording studios	39	75	92.0%	21.0%	\$11,373
Integrated record production and distribution	45	55	22.0%	-5.0%	\$21,610
Other sound recording industries	5	18	260.0%	-18.0%	--
Record production	5	13	160.0%	24.0%	--
Music publishers	5	5	0.0%	34.0%	--

DIVISION/ AGENCY

Outputs and Impacts FY 08

Intended Outputs & Impacts FY 09

CID *The Music & Entertainment Learning Experience (MELE) program at the Honolulu Community College (HCC) consists of a comprehensive music business, production, and audio engineering technology curriculum that meet the requirements for entry-level training into the music industry that is paramount to building an educational foundation for this important sector of Hawaii's creative industries growth. The curriculum focuses on combining academic experience with real-world applications to prepare students to work in the rapidly evolving global music industry for the twenty-first century.

*During FY 2009 Belmont University will continue to provide curriculum support for MELE classes. A live video link will provide course content in conjunction with local material from HCC faculty members. HCC will also bring Belmont faculty to Hawaii to provide expert and music business content to Hawaii. The support from two institutions will require travel and training and professional development for MELE faculty members. Marketing will be provided for the newly approved program to familiarize local audiences about the opportunities in the music business and audio-technology industries.

*In collaboration with HCC, CID will facilitate a mentorship program to provide growth and business development opportunities for MELE students.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
	<p>*The MELE program has trained 25 students the first year of operations and 38 students are enrolled currently. Three faculty, two studio/electronic techs, a secretary, and one management support APT, in addition to Belmont personnel and staff round out the program's infrastructure. Belmont has provided the curriculum, all updates, training for technicians and faculty and a visiting faculty member to teach and work with Hawaii's music and entertainment industry on expanding product and live venue activity. CID is spearheading the MELE mentorship program, putting students into hands-on, real world concert, recording and television environments.</p> <p>* MELE faculty from Hawaii has traveled to Nashville for a two-week training intensive at Belmont.</p>	<p>*The collaboration between Belmont University, HCC, CID/DBEDT and industry leaders nationally such as ASCAP, BMI, Grand Old Opry and the Recording Academy, ensure development of a network that supports development and increases exposure of Hawaii's music industry.</p> <p>*MELE's student body growth ensures a robust program that supports the development of the breadth of Hawaii's music industry.</p>
CID	<p>*Fourth annual Grammy concert. On January 11, 2008, the Live from the Lawn series (see below) took place on the front lawn of the Hawaii State Art Museum. The concert featured Hawaii's Grammy nominees for Best Hawaiian Music Album of the Year and was taped for simulcast on Oceanic Time Warner Cable (OC-16) and KITV. The objective of the annual January event is to generate attention for Hawaii's Grammy category, as well as to achieve the longer term objective of growing it to include more categories. DBEDT was able to leverage its seed funding to amass a production/promotional value for the program valued at over \$93,000. In addition, added promotional value included live web streaming for all airings and video on demand programming.</p>	<p>*To build upon the success of Live From the Lawn to expand the series, generating an annual television special that can be broadcast on national television network(s), broadband and music download sites such as iTunes and Rhapsody.</p>
CID	<p>*In conjunction with the Grammy awards ceremony in Los Angeles, DBEDT supported live in-store performances by Hawaii's Grammy nominees for Best Hawaiian Music Album of the Year from February 5-9, 2008 in Borders Books and Music Stores in Sacramento, San Francisco, Costa Mesa and Torrance, California. Each event was highly successful and generated record attendances (of 400-500 people) and CD sales at each of the stores.</p>	<p>*To showcase Hawaii's 2009 Grammy nominees at the Grammy Museum in Los Angeles. The public event and educational program are part of the ongoing CID outreach to music industry leaders in support of further exposing the talents of Hawaii's diverse musical artists and composers. Education forum on Hawaiian music is for the Los Angeles Unified School District (LAUSD) in conjunction with Grammy Foundation/Grammy Museum.</p>
CID	<p>*MusicTech 2008 was co-sponsored by CID, the Pacific Northwest Chapter of the Recording Academy, and Outrigger Hotels & Resorts. Beginning in 2003, CID has co-sponsored the annual educational forum to provide Hawaii's music community with information about the changing music business landscape and to illustrate different ways they can better compete in the global market. This year's event was attended by</p>	<p>*To plan, coordinate and implement MusicTech 2009 and expand the educational forums to a neighbor island. Expand on the relationship developed with NARAS, ASCAP and Grammy Museum to further expand opportunities and partnerships for Hawaii's musicians, performers and composers through CID strategic music initiative FY10-11.</p>

approximately 85 people representing a broad cross section of Hawaii’s music industry, including professional recording artists, aspiring musicians, producers, students from HCC’s MELE program, and more. Panels on “Building a Web Community for Your Music” and “Marketing Your Music on the Web” provided timely information on how professionals can thrive in the evolving music industry, which has seen a shift away from the sale of physical goods/CDs and big box retailers to a performance based model and an emphasis on digital distribution.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
CID	<p>*Live from the Lawn performances in front of the Hawaii State Art Museum have presented a broad cross section of musical artists. It is estimated that over 5500 people attended the Live from the Lawn performances during FY 2007-2008, and reached an additional 50-75,000 via the broadcast on KITV, OC16 and OTW internet site.</p>	<p>*Continue to co-sponsor the Live from the Lawn event featuring musical performances of Hawaii artists.</p> <p>*Develop broadcast/broadband content around Live From the Lawn concert series in conjunction with Oceanic Time Warner and national broadcast entity.</p>
CID	<p>*Design and place a full page 4-color ad to appear in the 2009 South by Southwest Annual Directory and SXSW World Magazine to support Hawaiian music showcases as part of the South by Southwest Music Media Conference and Festival (SXSW) March 2009. The ad directs readership and attendees to venues, dates and times of performances as well as artist’s websites, contact info for artists and their representatives.</p>	<p>*Develop and implement a larger Hawaii presence at SXSW and to co-sponsor a greater number of activities at the conference and festival.</p> <p>*Rhapsody/Real Networks, Inc.: to develop and implement an online marketing campaign and Rhapsody branded live performances to accelerate the growth and development of Hawaii’s music industry in key global markets that also support tourism outreach/marketing.</p>

11. Performing & Creative Arts

Hawaii has a thriving and vital cultural life with a creative economy that generates income, jobs, and tax revenues. This sector includes a wide spectrum of commercial businesses, individuals, cultural enterprises, non-profit institutions and government agencies that directly or indirectly produce goods and/or services that are the product of artistry, design, aesthetic value or cultural enterprise. There are about 10,100 employees and self employed estimated in this sector. Many are part time participants, so the average earnings do not represent a fulltime labor force. However, the sector grew more than 18 percent from 2002 to 2007, significantly faster than the same sector nationwide (see following table).

Hawaii's rich artistic and cultural sector is very important to the ability of Hawaii to attract new and returning visitors, especially in the current tourism market in which the State needs every competitive edge it can offer potential visitors. This sector is also a key source for a highly skilled innovation workforce that can provide artistic and applied design-based talent to other emerging industries like digital media and technology product design.

DBEDT's goal for Arts and Culture during this economic slowdown is to provide support that will help accelerate the creative sector when the economy turns upward. During FY08, the focus was on the industries that showed growth potential such as music, the literary arts and arts educational services. The department's indirect efforts to promote the creative sector are included in the next section under the innovation infrastructure.

Hawaii's Performing & Creative Arts Sector, Employment & Earnings

Description	Hawaii Jobs		% Change 2002-07		Ave Earnings 2007
	2002	2007	Hawaii	U.S.	Hawaii
Performing and Creative Arts	8,530	10,093	18.3%	14.0%	\$14,502
Independent artists, writers, and performers	6,023	7,379	23.0%	14.0%	\$11,423
Art dealers	836	853	2.0%	1.0%	\$33,611
Promoters with facilities	426	483	13.0%	35.0%	\$19,393
Theater companies and dinner theaters	470	473	1.0%	7.0%	\$18,417
Agents and managers for public figures	458	470	3.0%	19.0%	\$12,706
Dance companies	133	229	72.0%	33.0%	\$10,769
Promoters without facilities	184	206	12.0%	0.0%	\$33,442

Note: 'Independent artists, writers and performers' is a subsector for both creative arts and Film, TV.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
CID	<p>*Live from the Lawn is a series of free arts-oriented entertainment performances for FIRST FRIDAYS that take place on the front lawn of the Hawaii State Art Museum. FIRST FRIDAY is Honolulu's highly successful gallery walk where downtown galleries and studios, including the Hawaii State Art Museum, open their doors for extended hours on the first Friday of every month, providing locals and tourists to experience the rich artistic and cultural resources of Honolulu. Live from the Lawn performances represent a broad cross section of the performing arts including music, dance, and mixed media/visual arts. The monthly Live from the Lawn arts series met its objective to attract new and diverse audiences to the downtown State Art Museum, provide broadcast and internet exposure for artists Hawaii's noted artists and musicians. It is estimated that over 5500 people attended the Live from the Lawn performances during FY 2007-2008, and reached an additional 50-75,000 via the broadcast on KITV, OC16 and OTW internet site.</p>	<p>*Continue to co-sponsor the Live from the Lawn performances with Friends of HiSAM and the LEF Foundation.</p> <p>*Develop broadcast/broadband content around Live From the Lawn concert series in conjunction with Oceanic Time Warner and a national broadcast entity.</p>
CID		<p>*Co-sponsored the Textile Society of America's 2008 Symposium, "Textiles as Cultural Expressions," held on September 24-27, 2008, at the Sheraton Waikiki Hotel. The event hosted more than 280 participants from 32 states and 24 foreign countries.</p> <p>*The symposium is a clear example of the importance of collaboration among the museums and cultural institutions in Hawaii and sister organizations worldwide. By working together they were able to create an event in Honolulu that drew the attention of people around the world. It shows that a place like Hawaii, that has a reputation of "sun and surf," needs to market its cultural strengths to attract those who would not come otherwise. The direct spend generated by events such as the Textile Society Symposium show that the art and cultural sectors are an important niche market for tourism development.</p>

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
CID	<p>*Co-sponsored the Hawaii Book Publishers Association (HBPA) participation at the American Library Association Conference (ALA) in Los Angeles. The annual convention is attended by more than 18,000 librarians, educators, writers and publishers. Attending the tradeshow were representatives from the University of Hawaii Press, Islander Group/Booklines, Bishop Museum Press and Bess Press. Books and collateral materials from all 20 HPBA members were represented at the tradeshow. Impacts were as follows: 1. Made contact with, and have since had additional conversations with Publishers for Publishers Weekly and Library Journal, two primary national trade publications for book publishing and library services respectively. Both expressed interest in running a special editorial section on publishing in the "islands"; 2. Made contact with several of the national library book jobbers to get them contacts for and updated information on offerings from the HBPA membership; 3. Made contact with the Asian Pacific American Librarians Association (an affiliate of the ALA), which in addition to touching base with the ALA president allowed HBPA to meet with a key group of Librarians – probably the most strategic at the conference for Hawaii book publishers.</p>	<p>*Plan, coordinate, and implement a Hawaii section in cooperation with HBPA in Book Expo America, May 28-31, 2009, in New York.</p> <p>*Develop broadcast and broadband opportunities for Hawaii's literary sector to develop their works for stage, screen.</p> <p>*Establish Native Voices track within Hawaiian Islands Writers Conference (aka Maui Writers Conference) to showcase readings, works and books by Hawaii-based authors. Event also develops networking opportunities for Hawaii writers, publishers to meet with leaders in literary and entertainment arenas.</p> <p>*HiMAX Broadband Arts and Culture Network: to establish a resource for visitors online and mobile applications; to build cultural itineraries pre and during travel to Hawaii to increase the depth of understanding of arts and culture of Hawaii by creating an online/mobile arts channel and cultural itinerary module. Partners include University of Hawaii Interactive Learning Technologies Lab (LILT), Hawaii State Foundation on Culture and the Arts, DOE Digital media programs (to capture artists interviews Hawaii Arts Alliance, Western States Arts Agencies Federation (WESTAF) and Hawaii Visitors and Conventions Bureau.</p>
READ	<p>*Worked with CID to explore redefinition of the Creative Economy in Hawaii based on more recent models elsewhere in the country.</p>	<p>*Revised definition, measurement and performance of the creative sector will be presented in the upcoming Emerging Industries Benchmark report and a special report on the Creative sector.</p> <p>*Added new measurements to track effectiveness of programs to support creative sectors.</p>

12. Niche and Specialty Tourism

Specialty or Niche tourism represents an effort to diversify the visitor industry while respecting the goal of increasing the value of tourism to Hawaii, but not necessarily the number of tourists. Niche tourism focuses on activities and visitors that can help fill in seasonal or cyclical lows in tourist activity or provide higher than average return per visitor. Niche tourism activities appeal to the interests certain visitors rather than geographical or socio-economic visitor markets.

Benchmark Visitor Counts for selected major niche markets 2007 and growth from 2006 to 2007 (by air only except for cruise market. Rounded to nearest 1,000):

Cruise	503,000 (21%)
Honeymoon/Weddings:	627,000 (-2%)
Conventions:	279,000 (-13%)
Sports events	114,000 (0%)
Cultural events:	35,000 (-21%)

Most specialty tourism markets appear to have reached their cyclical peak growth in 2006 with only one major specialty market, cruises, showing growth in 2007. By comparison, overall visitor arrivals by air in 2007 were down a slight, 0.4 percent from 2006.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
HTA	*HTA, in support of the Hawaiian Culture and Tourism Product Development strategic initiatives, supports programs in various communities that help provide jobs and stimulate the economy, including helping to provide for an improved small business environment.	*Our goals are primarily to honor and perpetuate the Hawaiian culture and community, as well as to provide a diverse and quality tourism product unique to Hawai'i that enhances the Hawai'i visitor experience and enriches residents' quality of life. In working towards the goal, Hawaii's small business environment is a beneficiary. However, we do not specifically say that we will support a certain number of small businesses, etc. *The Hawai'i State Legislature was provided the study in mid-December. The study is intended to be used by policymakers to assess the need, if any, to make decisions in response to the impacts and benefits. Additionally, all of Hawaii's cruise industry stakeholders can utilize various parts of the study (e.g. Economic Impact, Harbor Impacts, Marine Impacts, and others) to plan and help support a healthy Hawai'i cruise industry.
HTA	*To help ensure a sustainable cruise industry, HTA worked with DBEDT, DOT and DLNR and contracted with ICF International to assess the cumulative benefits and impacts of Hawaii's cruise industry on the State and each island.	*The comprehensive cruise study was completed in November 2008 and is available on HTA's website at www.hawaiitourismauthority.org .

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
HTA	*HTA, in support of the all of its strategic initiatives (Access, Communications and Outreach, Hawaiian Culture, Marketing, Natural Resources, Research and Planning, Safety and Security, Tourism Product Development and Workforce Development), helps to provide an environment that fosters the creation of emerging industries, including those that support specialty tourism niches including avid leisure, romance, family, health, wellness and relaxation, culture and history, activities, golf, outdoor recreation and sports.	*Our goal is to support and help to develop programs that contribute to sustainable economic growth. *HTA does not have specific, quantifiable goals – the overall goals are to maintain and increase visitor arrivals and expenditures, and these niches create the opportunities to generate interest and visitors to come to Hawai'i.
HTA	*HTA supports the National Football League's (NFL) all-star game, the "Pro Bowl." The Pro Bowl is played at Aloha Stadium one week after the Super Bowl. This all-star game matches the top players from the American Football Conference (AFC) against the top players from the National Football Conference (NFC). In addition to the football game the week of events leading up to the game include festivities and youth clinics.	*In 2008 approximately 24,761 visitors attended the Pro Bowl, of which, 80 percent specifically came to Hawai'i for the game, accounting for \$28.07 million in visitor spending and \$2.5 million in state taxes. The Nielsen national rating for the Pro Bowl was 6.3. The NFL annually contributes \$100 thousand to local charities, hosts youth football clinics across the State, and coordinates festivities such as the Waikiki Block Party during the week leading up to the event.
ATDC		*The Aloha Tower Marketplace is exploring specialty tourism niches through marketing as a cruise ship destination port. It has also initiated a monthly Night Market concept to attract both visitor and tourists to wine, art, cuisine and music offerings.
SMSD	*As a result DBEDT's mission to Korea that participated at the Korea-U.S. Pacific States Conference in Seoul and Jeju, attracted two groups totaling over 300 English language teachers from Korea to Hawaii for a 4-week training program. The organizer, Credu (subsidiary of Samsung) will make Hawaii a continuing site and location for its teacher training programs.	
CID		*Developing national broadcast television and broadband online opportunities to showcase music, arts, filmmakers of Hawaii to support niche marketing efforts to affluent cultures worldwide.
READ	*Compiles and Providing data on various niche tourism areas	*Work with HTA and industry to develop improved data and research for Tourism niche activities

III DBEDT STRATEGIC OBJECTIVE AREAS

Along with the direct assistance to emerging growth industries discussed above, the department believes it is critical to ensure that the building blocks of viable and prospering growth industries are in place. Otherwise, the direct support for and investment in those activities will be less likely to sustain the desired results. Those building blocks include, lower cost indigenous energy generation and use, development of Hawaii's human capital through improved education and workforce development, upgrading Hawaii's infrastructure to support innovation activity, efforts to open global links for commercial partnerships and export expansion, an improved business environment, and increasing the supply of workforce housing to ensure Hawaii is affordable for those who live or wish to return here.

Over the past four years DBEDT has built its departmental objectives around these building blocks. With the difficult economic conditions we now face, it is even more important to ensure that Hawaii's industry sectors, both the emerging and innovation-oriented and the traditional, have a supportive foundation of those six elements. Otherwise Hawaii's recovery from the current serious national and international recession will be much more difficult.

Some of the activities discussed under Strategic objectives will overlap with related discussions under Section II, Emerging and Growth Industries.

1. Renewable Energy Development (*Hawaii Clean Energy Initiative*)

The Hawaii Clean Energy Initiative is an extremely timely effort to fundamentally transform how Hawaii produces, distributes, and uses energy by leading partnerships to accelerate the development of renewable energy; increasing energy efficiency, encouraging the adoption of new technologies; and improving Hawaii’s energy infrastructure. The department will lead efforts to sustain this initiative and to obtain for Hawaii the economic benefits from lower imported fuel in the coming years. This will allow the state to retain a portion of the \$7 billion transferred out of the state per year to buy petroleum and will enable a faster economic recovery and expansion. Other benefits of the initiative will include:

- A vibrant and growing advanced energy technology sector, focused on renewable generation, smart grids and distribution systems, bio-fuel conversion, advanced transportation technology platforms, engineering and integration solutions, and energy efficiency systems.
- Higher-paying and technology-intensive “green collar” jobs.
- Capital transfers into Hawaii from federal and private sector investments.
- Exports of energy services, as Hawaii becomes a model for other states and regions.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
<p>SID</p> <p>*The Hawaii Clean Energy Initiative (HCEI) began in January of 2008 with the signing of a Memorandum of Understanding between the State and the U.S. Department of Energy. The initiative is expected to transform Hawaii’s energy system, by the year 2030, from 77% dependent on imported petroleum into one that is at least 70% powered by clean energy sources, including energy efficiency and locally-produced renewable energy. This will result in the development of renewable energy projects, support, industries, research and development opportunities in areas such as wind, solar, biomass, geothermal, hydropower, and ocean energy; attract to Hawaii billions of dollars of private investment and millions of dollars in federal funds, grants, and technical assistance; and stabilize and secure Hawaii’s energy sector while reducing the outflow from Hawaii of billions of dollars per year to purchase imported petroleum.</p> <p>*In FY 2008, HCEI working groups were established to evaluate energy efficiency, electricity generation, energy delivery, transportation and biofuels, and integration; a variety of scenarios were proposed and evaluated; consultant reports were prepared, reviewed, discussed, and revised; and policies for transformation of Hawaii’s energy systems were put forth, for further discussion and decisions in FY 2009.</p>		<p>*Hawaii Clean Energy Initiative (HCEI) activities and projects in FY09 are expected to bring Federal funds and grants as well as private investments into the State to support renewable energy projects including technical studies and assessment of the undersea cable connecting Oahu and the Maui County; grid integration studies; technical assessments of infrastructure and policies required for electric vehicles and charging; wind energy; solar systems; waste-to-energy, bio-fuels, and other renewable technologies.</p> <p>*In October, 2008, the Hawaiian Electric Companies and the State (Governor, DBEDT, DCCA) will sign an Energy Agreement that commits to an aggressive plan to transform Hawaii’s energy system. The Agreement will contain more than 70 references to State actions or supporting activities.</p> <p>*In FY 2009, legislative initiatives proposed and evaluated by the HCEI working groups – energy efficiency, electricity generation, energy delivery,</p>

transportation and biofuels, and integration – will be finalized and proposed for action by the Legislature and Administration.

Beginning in August, 2008, the Renewable Energy Facilitator will:

- Consult with appropriate state and county agencies to develop and establish a permit plan application format and procedure designed to ensure a timely review to obtain required permits and approvals for renewable energy facilities;
- Develop a permit plan application and fee schedule;
- Receive applications from applicants for the approval of the siting, development, construction, and operation of renewable energy facilities;
- Identify all state and county permits necessary for approval of the renewable energy facilities;
- Assist in the permit plan application process by coordinating permitting processes, giving technical assistance, overseeing the creation of the permit plan, and providing general oversight to facilitate the timely review and permitting of the siting of renewable energy facilities;
- Gather information relevant and necessary for the reviewing and processing of permit applications;
- Coordinate public meetings on the island where a renewable energy facility is proposed;
- Work with the federal, state, and county agencies and the applicant to determine the terms and conditions of the permit plan and permits.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
<p>SID</p>	<p>*Bioenergy:</p> <ul style="list-style-type: none"> ▪ The statewide multi-fuels biofuel production assessment continued. It will evaluate the feedstocks, processes, and pathways for local production of ethanol, biodiesel, and hydrogen, with some consideration of jet fuel production. Completion is scheduled for mid 2009. ▪ The Bioenergy Master Plan project began with a kickoff meeting open to the public in May, 2008. Issues to be addressed include land, water, crop selection, conversion technologies, costs, incentives, and risks. Completion is scheduled for the end of 2009. ▪ DBEDT/SID met with several companies that are seeking to develop large scale biofuel projects 	<p>*Bioenergy:</p> <ul style="list-style-type: none"> ▪ The statewide multi-fuels biofuel production assessment to evaluate the feedstocks, processes, and pathways for local production of ethanol, biodiesel, and hydrogen, with some consideration of jet fuel production, will be completed by mid 2009. ▪ The Bioenergy Master Plan project, to address issues including land, water, crop selection, conversion technologies, costs, incentives, and risks, will continue, with completion at the end of 2009. ▪ DBEDT will assist DLNR in evaluating energy projects which have requested state lands from the BLNR through the process laid out in

throughout the state. These companies intend to use a variety of locally grown biomass feedstocks, including algae, trees, grasses, and oilseeds.

HRS § 171-95 which allows direct negotiation for renewable energy projects.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	<p>*Geothermal: Negotiations between Puna Geothermal Venture and HELCO for 8 MW of expanded capacity are being monitored through the IRP and other processes. Data on geothermal reserves and likely commercially-exploitable resources were provided as needed to the HCEI working groups, decision makers and the general public.</p>	<p>*Geothermal: Plans for power plant expansion will continue to be monitored. As appropriate, opportunities for the development of direct use enterprises will be examined.</p>
SID	<p>*Hydropower: DBEDT continued to monitor proposed expansions to hydropower capacity in the state, including refurbished plants on Maui and Kauai. Proposals to establish pumped storage hydro facilities on Maui and Hawaii (in concert with wind plants) were followed through the Integrated Resources Planning process, HCEI and other means.</p>	<p>*Hydropower: Proposed new and expanded plants will continue to be monitored, as will plans for pumped storage facilities.</p>
SID	<p>*Ocean Energy:</p> <ul style="list-style-type: none"> ▪ DBEDT provided assistance to the Hawaii Natural Energy Institute (HNEI) in developing a successful proposal to the U.S. Department of Energy (USDOE) for one of two National Marine Renewable Energy Centers. A DBEDT staff member serves as liaison with the new HNEI Marine Center, facilitating communication with wave energy developers. USDOE is providing \$5 million in funding over five years. ▪ DBEDT co-sponsored the EnergyOcean conference in Galveston, June 2008; the 2007 conference was held on Oahu. In cooperation with S&T Branch, RE Branch staffed a booth and made a presentation, contacting many individuals and companies currently and potentially working in fields such as marine engineering, subsea surveys, OTEC and wave energy development. Follow-up information was provided to a number of firms. ▪ DBEDT co-chaired an energy and climate session and presented a paper at PACON 2008, held in Honolulu. ▪ Communication with ocean energy companies interested in continuing or initiating projects in 	<p>*Ocean Energy:</p> <ul style="list-style-type: none"> ▪ DBEDT will continue work with HNEI's Marine Energy Center; facilitate communications between the State, University and private sector; and assist with the establishment of Marine Center sites and activities. Research is expected to be initiated in 2009. ▪ DBEDT is considering co-sponsorship of targeted conferences, including the International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2009), which will be held in Honolulu, and EnergyOcean 2009, which will be held in Maine. ▪ Communication will continue with ocean energy companies interested in continuing or initiating projects in Hawaii, as well as analysis of federal policy changes and opportunities. New developments in technology and progress toward commercialization will continue to be monitored. ▪ DBEDT plans to attend and present a paper, in collaboration with HNEI, at the 8th European Wave and Tidal Energy Conference, which will be held in Sweden. ▪ Once the Honolulu Sea Water Air Conditioning

Hawaii is ongoing, as is analysis of federal policy changes and opportunities. New developments in technology and progress toward communication are monitored.

- In order to maintain a high profile as a location for ocean energy development, DBEDT submitted an abstract to the 8th European Wave and Tidal Energy Conference.
- DBEDT/SID has also worked closely with Honolulu Sea Water Air Conditioning on the permitting and environmental review of a project that will cool office buildings in downtown Honolulu.
- Met with Lockheed and Makai Engineering to discuss the development of Ocean Thermal Energy Conversion (OTEC) power projects here in Hawaii.

EIS is accepted, the project can begin its coordinated permitting process.

- DBEDT will continue to work with Lockheed and Makai Engineering on development of OTEC technology here in Hawaii.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
<p>SID</p>	<p>*Solar:</p> <ul style="list-style-type: none"> ▪ In support of concentrating solar technologies, direct normal, diffuse and global irradiation data were provided to consultants with SolFocus, which is constructing a demonstration project at NELHA. Sopogy, which has a different approach to concentrating solar, is also building a demonstration plant at NELHA. ▪ As a result of legislation mandating solar water heaters for new construction, DBEDT is drafting a template to be used by individuals and companies wishing to apply for an exemption to the mandate. ▪ Data on photovoltaic installations continued to be collected. These data will enable analyses of the numbers, capacities and capacity factors of PV systems statewide, and track the impact of changes in policies such as NEM ceilings. 	<p>*Solar:</p> <ul style="list-style-type: none"> ▪ Data relating to solar thermal, photovoltaic and concentrating solar technologies will continue to be gathered, analyzed and shared as appropriate. ▪ It is anticipated that processing exemption requests for the solar water heating mandate may pass from DBEDT to the new public benefits fund administrator, pending legislation in 2009.
<p>SID</p>	<p>*Wind:</p> <ul style="list-style-type: none"> ▪ The expanding wind industry continued to be monitored, with particular attention to impacts on wildlife at the Kaheawa project on Maui. Wind capacity increased 157% in 2007 over 2006; 2008 data are not yet available. ▪ On March 31, 2008, the National Renewable Energy Laboratory established a Remote Research Affiliate Partner Site at First Wind's Kaheawa Wind Farm on Maui. ▪ DBEDT has also begun working with Castle and Cooke to develop a permitting plan for the wind farm on Lanai that could produce up to 400 MW of power. The goal is to shorten the permitting time line from five years down to one. 	<p>*Wind:</p> <ul style="list-style-type: none"> ▪ Castle and Cooke is expected to complete its Environmental Impact Statement and beginning its consolidated permitting plan as detailed in HRS § 201N. ▪ The expanding wind industry will continue to be monitored; information and assistance will be provided to developers upon request; through public outreach efforts; and via the State website. ▪ Maui Community College will continue to provide training, data collection, and outreach activities in support of the Windpowering America Program, through the State Energy Office.

- Maui Community College provided training, data collection, and outreach activities in support of the Windpowering America Program, through the State Energy Office.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	<p>*Alternative Transportation Fuels:</p> <ul style="list-style-type: none"> ▪ DBEDT is working with electric vehicle manufacturers, including Better Place, Phoenix Motor Cars, and the Advanced Vehicle Testing Activity of Idaho National Laboratories, to bring electric and plug in hybrid electric vehicles to Hawaii. ▪ The status of other alternative fuels - E85, biodiesel, hydrogen - was monitored; information was provided upon request to project developers, fleet managers, and others upon request and via the website. 	<p>*Alternative Transportation Fuels:</p> <ul style="list-style-type: none"> ▪ DBEDT will work with the vehicle manufacturers; national laboratories and the US Department of Energy; County and State agencies; and local experts to install charging facilities, complete infrastructure studies, and participate in demonstration and commercialization programs for electric and plug-in hybrid electric vehicles. ▪ The status of other alternative fuels - E85, biodiesel, hydrogen - will be monitored; information will provided upon request to project developers, fleet managers, and others upon request and via the website; alternative fuel information will be provided to individuals and fleets; an alternative fuel exhibit may be included in the 2009 Auto Show.
SID	<p>*Renewable Energy Distribution and Storage:</p> <ul style="list-style-type: none"> ▪ Energy storage can collect excess renewable energy produced off peak and make it available for use on-peak; smaller systems can smooth out energy fluctuations over seconds or minutes, improving the stability of the electric grid. Options such as pumped storage hydro, batteries, and other technologies were monitored. ▪ On April 21, 2008, the U.S. Department of Energy (DOE) announced plans to invest up to \$7 million over three years in a demonstration project to reduce peak demand by at least 15 percent at the Maui Lani Substation in Maui. The project will also provide ramp-rate relief for the existing 30-MW Kaheawa wind farm, which represents as much as 30 percent of Maui's generation during low-load conditions. The team included General Electric, Hawaiian Electric, Maui Electric, Columbus Electric Cooperative, the New Mexico Institute of Mining and Technology, Sentech, and UPC Wind. ▪ In June, 2008, Hawaii was awarded a \$50,000 grant from the National Governor's Association to analyze the costs and benefits of electric vehicles as well as the infrastructure needed to support their greater use in Hawaii. 	<p>*Renewable Energy Distribution and Storage:</p> <p>In September, 2008, a \$500,000 Federal grant to Hawaii will be announced for a study on four technology areas:</p> <ul style="list-style-type: none"> ▪ Deploying undersea transmission lines to deliver energy generated from wind and solar generation sources on Lanai and Molokai to Oahu; ▪ Upgrading and expanding Oahu's transmission and distribution system to enhance reliability and stability and to be able to accept up to one gigawatt of renewable energy; ▪ Evaluating the integration of electric vehicle storage into the electrical grid to maximize renewable energy use; and ▪ Deploying a suite of energy storage systems to study both grid stability issues and bulk power issues raised by new "as-available" renewable energy systems.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	<p>*Energy Efficient Transportation: Preliminary meetings were held with the transportation community to discuss means of incorporating energy cost and fuel estimates into transportation planning and estimating energy demand associated with transportation plans. As illustrated by the change in congestion observed with the increase in fuel prices, energy issues affect transportation mode choice and congestion; likewise, the type and efficiency of the transportation system affect the types and quantities of fuel needed.</p>	
SID	<p>*Renewable Energy Information & Outreach: Information on renewable energy was provided via website, publications, presentations, interviews, correspondence, and in response to telephone inquiries.</p>	<p>*Renewable Energy Information & Outreach: Information on renewable energy will be provided via website, publications, presentations, interviews, correspondence, and in response to telephone inquiries.</p>
SID	<p>*Organized the State's first exhibit at the Power-Gen Conference and Exhibition on Renewable Energy & Fuels held in Las Vegas. Participants included representatives of DBEDT and the county economic development boards. S&T Branch collaborated with the Energy Efficiency Branch to produce a Renewable Energy brochure as part of the Technology in Paradise series which showcases Hawaii's natural resource advantages, progressive programs, research institutes, and commercial projects. Also developed an industry directory for distribution at the trade show and other venues. Collected over 60 direct leads.</p>	<p>*Planning is underway for the 2009 conference, renamed the Renewable Energy World Expo. The pavilion has been expanded and will include at least one private company.</p>
SMSD		<p>*Organized and assisted Taiwan Bureau of Energy (BOE) to visit Hawaii and sign an exchange note with DBEDT for corporation on renewable energy development. As a result, on 11/17/08, Lockheed Martin Corporation signed a Joint statement with Taiwan Industry Research and Technology Institute (ITRI) for a Hawaii Ocean Thermal Energy Technology (OTEC) project. Value of investment projected at \$2 million, shorter; \$2 billion long-term. (SHOT)</p>
SMSD		<p>*Asia Pacific Clean Energy Summit and Expo intended to attract 1,000 participants, increase consulting and technology sales by \$1million, economic impact of conference being held in Hawaii estimated at \$750,000. (OIA/STB)</p>

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
ATDC	*A development plan for the new 70-acre Kapalama Container Terminal (KCT) was completed that features advances in cargo terminal technology such as high efficiency access gates, solar photovoltaic systems and cold ironing to reduce ship emissions in port.	*A development plan for the relocation of the University of Hawaii Marine Center to further development of the KCT is also being planned to include energy-reducing features such as solar photovoltaic systems and shore power.
FTZ	*Formulate RFP to seek interested companies in developing PV energy systems for the FTZ9 Pier 2 site roof. 1. To bring roofing up to date and sustain planned updates such as PV systems. 2. Work within multiple agencies to develop RFP that would be able to provide PV system, which would have been first of its kind for the State.	*Solar Panels on FTZ roof. – The Foreign-Trade Zone has a warehouse facility which is over 260,000 square feet at Pier 2 in downtown Honolulu. This location makes the facility a perfect location to utilize solar energy. The amount of energy produced through these panels would be enough to operate the warehouse and office facility.
FTZ	*Work within multiple agencies to develop RFP that would be able provides PV system, which would have been first of its kind for the State.	
HCDA		*Recycled Building Products: Promoting the use of recycled building materials by leasing warehouse space in Kaka`ako to Re-Use Hawaii, a nonprofit corporation that deconstructs buildings and recycles usable building materials.
HCDA	*	*Kalaeloa Energy Corridor: Constructing an energy corridor starting from Kapolei Parkway along Ft. Barrette Road, Enterprise Road, and then to Midway Road. The project will bring much needed utility connections, including electrical, telephone, and cable, to Kalaeloa, and spur development within the Kalaeloa district. Cost is approximately \$8.5 million and estimated completion date is December 2013.
HCDA		*Biodiesel: For Kalaeloa, continuing discussions with a company that proposes to develop an algae farm for the production of biodiesel.
HCDA		*Seawater Cooling: For Kaka`ako, encouraging seawater air conditioning cooling technology, including considering leasing space for cooling equipment.
HTDC/ HCATT	*Continued ongoing transportation technology development and demonstration program that has brought in over \$35M in federal funding over the past 16 years. FY08 funding totaled \$2.4M to: upgrade the hydrogen production and fueling station at Hickam AFB; introduce renewable energy sources to produce hydrogen to power the fuel cell vehicle fleet; expand hybrid electric drive fleet, to include new fuel cell hybrid vehicles.	*Install 146kW photovoltaic array and five 10kW vertical axis wind turbines to produce hydrogen at Hickam AFB to power fuel cell vehicle fleet *Develop and deliver additional zero and low emission vehicles to Hickam AFB *Expansion of hydrogen fuel cell use for stationary applications *Commercialization of advanced technology products *Develop model systems for worldwide deployment

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
HTDC/ HCATT	*Developed project with Volcanoes National Park to incorporate use of renewable hydrogen in fuel cell powered tour buses.	*Implement National Parks-DOT partnered hydrogen bus project on the Big Island in collaboration with the Hawaii Natural energy Institute which is providing the hydrogen infrastructure through funding by US DOE and State hydrogen fund *Develop and deliver two prototype hydrogen powered tour buses for operation in Volcanoes National Park
HTDC/ HCATT	*Continued coordination with U.S. Air Force to develop Alternative Energy Program for Air Force operations in Hawaii.	*Coordinate with Army to develop Alternative Energy Program similar to long standing program with Air Force. Federal funding available under Alternative Energy line in DOD Bill.
LUC	*LUC requiring energy conservation measures in connection with any development that it approves.	*LUC requiring energy conservation measures in connection with any development that it approves.
NELHA	*NELHA had more than 4,000 visitors to its LEEDS Platinum Gateway Center facility during fiscal 2008, educating about alternative and renewable energy.	*NELHA will continue to operate, as funds are available, the Gateway Center for energy education.
NELHA		*New renewable energy projects underway at NELHA (w2Energies, Cellana, LLC., Bioenergy Hawaii, LLC., SolFocus, and Keahole Solar Partners, LLC.) are beginning the hiring and training process for renewable energy technicians. This will expand during the coming fiscal year 2009 as these projects come on-line and hire personnel.
NELHA	*NELHA leads the way in Hawai'i in researching and demonstrating renewable energy. Significantly, this is being done through public/private partnerships that actually generate revenues for the state. Private investment in these projects is believed to be over \$12,000,000 to date.	*Continuation of the foregoing projects is anticipated. The Bioenergy Hawaii project alone will cost an estimated \$100 to \$150 million when completed.
NELHA	*New techniques in alternative energy are being demonstrated by commercial companies at NELHA – Cellana (biofuels from algae) Bioenergy Hawaii (electricity from waste and biofuels from algae), w2Energies (revolutionary wind turbine), Keahole Solar Partners (solar thermal electricity generation), and SolFocus, Inc. (solar concentrating and tracking mechanisms).	*NELHA has a number (4 to 5 at present) renewable energy projects or demonstrations being discussed with private businesses.

DIVISION/ AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
NELHA		*For its own account, NELHA has an RFP waiting to be issued for the construction of 1 to 3 megawatts of photovoltaic power --- usable for powering perhaps two of its three pumping stations and likely to be able to supply the Kona International Airport with alternative energy-generated electricity at well.
NELHA	*	*NELHA is also putting the finishing touches on a RFP for the construction of a 1 megawatt on-shore t. Whereas this will represent a scale-up plant, it is considered far more feasible to construct than a multi-\$100 million plant on floating platforms. Economic analysis of such a 1 megawatt plant two years ago proved that electricity could be generated by it for \$0.18 to \$0.22/kilowatt-hour compared to NELHA currently purchased grid power at \$0.40 to \$0.47/kilowatt-hour.
Director's Office	* Interface with U.S. Department of Commerce Economic Development Administration, National Science Foundation and National Science Board and U.S. Department of Energy *FY08 U.S. Department of Energy expended approximately \$7 million on Hawaii Clean Energy Initiative	*Obtaining third Hawaii EPSCoR grant, expected to be in range of \$20 million *FY09 U.S. Department of Energy budget line item of at least \$8.7 million for Hawaii Clean Energy Initiative (exclusive of any additional congressional appropriation for renewable energy programs)
NELHA/ CEROS	*CEROS awarded a ~\$500K marine alga to biodiesel related Research & Development project to Kuehne Agrosystems a Honolulu company.	*CEROS will continue to encourage and consider new marine bio defense project proposals from the Hawaii high tech community for funding
READ	*Developing a monthly energy statistical publication to provide current, timely information on energy related data. *Participating in the HiSciTech research study to define and profile technology, energy and other innovation industry.	*Continue to provide data support for measuring and monitoring energy use and related metrics. *Provide research support for profiling renewable and alternative energy development activities including workforce development data needs. * Publish Innovation Indicators report to assist in measuring this goal.

2. Infrastructure for Innovation

Infrastructure needed to allow emerging innovation activity to occur and be sustained includes a wide range of investments to enable Hawaii's creative and entrepreneurial talent to turn ideas into globally competitive products and services by providing supportive policies, facilities, and assistance; and advocating and implementing policies to build competitive workforce and businesses in Hawaii. The activities range from continued efforts to develop Kakaako into a major biotechnology center, to the development of the digital media center at the Hawaii film studio, a globally competitive broadband infrastructure, to aero-space and astronomy research, development and deployment on Hawaii, Maui and Kauai islands.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
CID	<p>*A general partnership agreement between HCC and Belmont University was established in the spring of 2007. The purpose of the comprehensive partnership will allow students to complete an Associate degree with a concentration in Music Business & Production or Audio Engineering Technology. The partnership includes a shared curriculum that will ensure transferable credits earned at HCC through the MELE program, enabling students to matriculate to Belmont University to pursue advanced degrees. Courses in the major subject areas are delivered through synchronous and asynchronous delivery modes.</p>	<p>*In FY 2009 an 11-month faculty and program coordinator will start, institutionalizing a Title III position that serves as liaison with Belmont University. This position is critical to the daily oversight and growth of the program.</p> <p>*Increase business growth in music industry sector as a result of CID programs in partnership with MELE, The Recording Academy, Grammy Foundation, Grammy in the Schools and KSBE Kapalama area redevelopment.</p>
CID	<p>*Continued planning process for Digital Media Center for the Hawaii Film Studio site at Diamond Head. This is a result of an U.S. Economic Development Administration matching grant with the University of Hawaii Academy for Creative Media, managed by DAGS / DBEDT.</p>	<p>*Continue master planning process for Digital Media Center education and incubator facility, with final plans expected by end of FY09. Benefits of positioning such a facility in proximity of Hawaii Film Studio and UHCC/Kapiolani Community College provide synergies for multiple programs/business development of the digital media, new media and film sectors.</p>
CID		<p>*Rhapsody/RealNetworks, Inc.: To develop and implement an online marketing campaign and Rhapsody branded live performances to accelerate the growth and development of Hawaii's music industry in key global markets that also support tourism outreach/marketing.</p>
CID		<p>*Ovation Television Network: To co-sponsor a series of interstitial programs on Hawaii's culture, music, and arts for multi-platform broadcast.</p>
CID		<p>*Supporting efforts of private sector to develop new film studio facilities both on Oahu and the Neighbor Islands.</p>

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
FTZ	*Work with other DBEDT division that are involved with Hawaii's High Tech and "Clean Tech" industries so they can bridge the gap with those potential A+ companies to see if they could capitalize on the services of the FTZ in developing their own island operations	*Develop a series of seminars with HTDC – MEP which provide businesses the opportunity to learn about importing and exporting.
FTZ	*Utilize technology more to create cost efficient ways to run current operations	*Discussing with the U.S. Commercial Services office in co-sponsoring an E-Commerce seminar that will provide opportunities in developing businesses e-commerce.
FTZ	*Doing video conferencing and updating website to fulfill online capabilities which creates ease to FTZ users and consuming less waste.	*Providing Statewide seminars on the FTZ program as well as other business incentive programs with the USEAC, Hawaii Customs Brokers Association, DCCA – BAC, HTDC-MEP.
FTZ	*Evaluating current processes and it's feasibility of electronically filing certain steps.(Customs and Border Protection dependent)	
HCDA	*Life Sciences: Assisting Kamehameha Schools in permitting a life science research facility in Kaka`ako Makai. Review of preliminary plan and program for compliance with Makai Area Rules.	*Photovoltaic Project: Facilitating the development of a photovoltaic project at the Kalaeloa Airport. Identifying and facilitating all stakeholder participation, feedback, and support for project. Distribute and provide updates to neighborhood boards from Makaha to Ewa.
HCDA	*Life Sciences/Parking: Preparing a district-wide parking facility Plan in Kaka`ako Makai to support the life sciences/bioscience research facility projects.	
HCDA		*Kalaeloa Rules: Implementing the Kalaeloa zoning rules to encourage economic development, new jobs, and spur other development within Kalaeloa.
HCDA		*Investment in Kaka`ako: Since the establishment of HCDA in 1976, investment of over \$200 million by the state has spurred over \$2 billion in private sector development and projects.
HTDC	*Supported Governor's Hawaii Innovation Council. As secretariat to the HIC, HTDC provided guidance on policies and best practices affecting states transitioning to an innovation-based economy.	*Continue to support Governor's Hawaii Innovation Council, as secretariat, with guidance and recommendations to improve Hawaii's climate for an innovation-based economy.
HTDC	*Private Developers' Proposed Asia Pacific Research Center in Kakaako: Recession and market conditions negatively impacted developers financing model. Completed Status Report to the Legislature January 2008.	* Continue to support private developers and work with partners and stakeholders to investigate feasibility for innovation/tech centers/parks on Oahu including financing options given the current recession and lack of state funding.
HTDC	*Awareness of Manoa Innovation Center's short term land lease situation with the University of Hawaii resulted in the State legislature passing a Concurrent Resolution requesting the UH to extend HTDC's land lease by 5 years.	*Continue discussions with University of Hawaii and other partners to keep Manoa Innovation Center as an incubator/innovation center or find a replacement center.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
HTDC	*Energy efficiency programs for lighting installed at Manoa Innovation Center and Maui Research & Technology Center.	*Continue to investigate and implement energy savings programs for HTDC facilities on Oahu, Maui and the Big Island. Consider possibilities for upgrade of centers' facilities to be more energy efficient to control and reduce CAM for our incubating companies at all centers.
HTDC	*Updated companies' business performance records, increased requirements for participation in business growth workshops, provided more opportunities for training and business development.	*Devise metrics beyond "successful graduation rate", length of stay, commercial square footage leased, increase in jobs which are more indicative of occupancy-based model using land-based economy index.
HTDC	*Directly assisted neighbor island (Kauai) TBED and ED organizations with federal funding and state program in-kind support.	*Continue to build partnerships among entrepreneurs-supporting organizations to provide services to clients in a coordinated manner with focus on Big Island
HTDC	*Assist tech and non-tech local companies with organization, staffing, operation, and production skills through the federal funded Manufacturing Extension Partnership (MEP) Program.	*Continue to assist tech and non-tech local companies with organization, staffing, operation, and production skills through the federal funded Manufacturing Extension Partnership (MEP) Program.
HTDC	*Commission a report that ties together recent reports on what a framework should look like for a state-wide science and technology master plan.	*Circulate the draft report "A Framework for Developing a Statewide Innovation Plan" to TBED stakeholders (legislators, EDA,UH, etc) engaged in education and workforce development, entrepreneurial development, R&D Infrastructure, and risk/capital formation.
HTDC	*Commission a study that ties together recent reports on what the framework should be for a state-wide science and tech master plan	
NELHA	*NELHA provides a unique site in the world for the conduct of research, development, and commercialization of ocean technologies and sciences.	*NELHA is hopeful in fiscal 2009 of finally being able to repair its deep sea pipelines damaged by the 2006 earthquakes. One of these, the 40" line, is essential to the conduct of research into OTEC and OTEC components, as it is the only existing place in the world where such research has been done in the past.
NELHA	*The replacement value of the unique NELHA assets is likely in the multi-\$100 million range as to obtain the permits necessary for pipelines such as NELHA controls would be expensive today. Much more expensive would be the HDPE pipe used to carry the deep seawater to the surface; these are the envy of many nations and considered by them to be a rarely recognized national treasure held by the state of Hawai'i.	*NELHA, to the extent leasable property is available, lease lands to companies that need the unique assets available only at NELHA, for both the extraction of wealth from the oceans but also the creation of energy using the solar and ocean assets available at NELHA.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
NELHA	* NELHA holds the only offshore research and commercialization corridor permitted by the state. This 11'500 wide and 14,500' long corridor extends from the shoreline environment to extremely deep offshore waters.	*Funding is awaiting allotment to expand the delivery capability of NELHA's 55" pipeline system, which will enable the Kona International Airport to utilize seawater air conditioning in its new terminals, significantly reducing its costs of operation in the future. This expansion also provides the infrastructure for significantly expanding the lands available at NELHA for research, development and commercialization purposes.
OP	*Coordinating the update of the Comprehensive Economic Development Strategy (CEDS) for which is used to evaluate projects for EDA funding.	*Update the CEDS to identify projects and assure that Hawaii remains eligible for EDA funding.
OP	*Implementing the existing CEDS by supporting CEDS projects. Specifically, three business master plans were prepared to implement CEDS projects: 1) Kohala Center Site Selection Study (supports Hawaii natural resource based education); 2) Bay Clinic New Community Health Center Complex Site Selection Study, and 3) Central Oahu Agricultural Business Complex Master Plan.	*
OP	*Coordinating the Leeward Coast Initiative. OP staff met with community leaders and state agencies to assess the progress in implementing the "35 Great Ideas" generated during community outreach. Twelve of the projects were either completed or moving forward. An Environmental Justice Trust Fund has been established to fund community-based environmental projects on the Waianae Coast in 2009. The fund will be administered by CBED.	* Coordinate the Leeward Coast Initiative by continuing to work with state agencies to identify projects and track implementation of the Great Ideas and conducting community outreach.
OP	*Molokai Action Team (MAT). Following the closure of Molokai Ranch on April 5, 2008, the MAT comprised of Molokai residents was convened to listen to the community's concerns and provide information on government initiatives. The Director of OP has been chairing monthly meetings of the MAT.	* Chair meetings of the Molokai Action Team to listen to community concerns and provide information on government activities. OP will review and evaluate development proposals for their impacts and recommend improvements to the land use regulatory system.
OP	*OP continues to review and evaluate development proposals for their impacts and recommend improvements to the land use regulatory system. OP has focused on improving policies and best practices for the Rural District. OP continues to review legislation and prepare testimony on policy issues related to important agricultural lands and other land use issues.	* OP will review and evaluate development proposals for their impacts and recommend improvements to the land use regulatory system. OP will submit legislation to improve and provide for better use of the State Rural District. OP will review legislation and prepare testimony on policy issues related to important agricultural lands and other land use issues.
OP	*	*A Rural Best Land Use Practices Guidebook will be completed for publication and dissemination in web format.
OP		*OP will undertake a Planning for Rural Economic

Development study.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
OP	*OP continued to administer the statewide GIS program including collecting additional data sets and providing mapping and analysis services for State initiatives.	*OP will administer the statewide GIS program including collecting additional data sets and providing mapping and analysis services for State initiatives
READ	*Developing innovation indicators data series and report to monitor development of the technology, creative and other emerging activity. *	*Publish Innovation Indicators report to assist in measuring this goal. *Publish Emerging Industries Benchmark report to provide metrics for emerging growth industries.
Director's office/ READ	*Analysis, formulation and recommendation for the \$800 million Harbors Modernization Plan	*Analysis, formulation and recommendations for (i) Hawaii broadband initiative (with DCCA), (ii) Parks Renaissance initiative (with DLNR); and (iii) Highways Modernization Plan (with DOT)

3. Expand Global Links

From tourism to emerging industries, Hawaii is facing intense global competition for markets and resources. Hawaii has a unique range of products and services to offer global markets. But to compete effectively, Hawaii firms must understand their options in terms of markets to serve, products and services to offer, and means to communicate with those markets. Effective market development overseas will be an important capability, as will development of overseas partnerships.

DBEDT's primary focus in global links is to increase the range and value of products and services exchanged between Hawaii and export markets by improving the export-readiness of Hawaii firms, encouraging international educational exchanges, and reinforcing factors that link Hawaii and the Asia-Pacific region.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
ATDC	*Construction was completed on \$2.7 million in improvements to Pier 1&2, which provided expanded cargo handling area for imports and exports to the state.	*ACT 200, SLH 2008 was adopted which partners the ATDC with the Department of Transportation-Harbors Division (DOT-H), for implementation of the Harbors Modernization Plan. The legislation is effective from 7/1/2008 to 6/30/2016 and calls for the ATDC/DOT partnership to expedite the development of critically needed port infrastructure statewide. Appropriations totaling \$144.3 million were approved for the program in FY09.
ATDC	*A warehouse shed at Pier 40 was demolished to provide expansion area for cargo.	
CID		*Developing national broadcast television and broadband online opportunities to showcase music, arts, filmmakers of Hawaii via partnerships with RealNetworks Japan, Rhapsody, iTunes, PBS and Ovation Television.
CID	<p>*Co-sponsored the Hawaii Book Publishers Association (HBPA) participation at the American Library Association Conference (ALA) in Los Angeles. The annual convention is attended by more than 18,000 librarians, educators, writers and publishers</p> <p>*Made contact with the Asian Pacific American Librarians Association (an affiliate of the ALA), which in addition to touching base with the ALA president allowed HBPA to meet with a key group of Librarians – probably the most strategic at the conference for Hawaii book publishers.</p>	*Plan, coordinate and implement a Hawaii section in cooperation with HBPA at Book Expo Americac, May 28-31, 2009 in New York City.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
CID	<p>*Co-sponsored the Textile Society of America's 2008 Symposium, "Textiles as Cultural Expressions," held on September 24-27, 2008, at the Sheraton Waikiki Hotel. The exceptionally successful event hosted more than 280 from 32 states and 24 foreign countries.</p> <p>*The symposium is a clear example of the importance of collaboration among the museums and cultural institutions in Hawaii. By working together they were able to create an event in Honolulu that drew the attention of people around the world. It shows that a place like Hawaii, that has a reputation of "sun and surf," needs to market its cultural strengths to attract those who would not come otherwise. There is a whole new tourist out there that we need to appeal to.</p>	<p>*Explore new opportunities for cultural exchange with global arts and culture sectors, with a focus on Hawaii's emerging markets of China and Korea.</p>
CID	<p>*Participated in Locations Tradeshow in Santa Monica CA. Represented Hawaii among the more than 200 other global film commissions. Participation in Cineposium Annual Film and Digital Media Conference in Wellington, New Zealand. Both events sponsored by the Association of Film Commissioners International (AFCI), of which Hawaii Film Office (aka Film Industry Branch) has been a member for over 20 years.</p>	<p>*Hawaii Film Office branch chief was invited as key panelist at Cineposium, annual conference for the Association of Film Commissioners International. Held in Wellington, New Zealand, Hawaii's No. 1 competitor in the global film industry, the event provided branch chief and opportunity to market Hawaii's new tax incentive, interact with government and film industry officials from NZ and nearly 100 film commissions from around the world to better understand Hawaii's competitive challenges and issues facing all film commissions.</p>

FTZ *The Foreign-Trade Zone’s mission is to provide the tools to grow international trade. The Foreign-Trade Zone (FTZ) intends to do this by explaining the benefits and providing incentives to businesses to participate in the FTZ program state wide. Seminars and additional marketing efforts will be used to increase awareness of the FTZ program.

*FTZ to put on a first of its kind venue inviting Small Business’s and associations, local Chambers of Commerce members and all potential initiatives that the Gov. is proposing by bridging the gap and understanding of the FTZ and potential companies/FTZ tenets (i.e. brokers, Ex-Im, Venture Capital groups, Immigrant Investor Program, Hawaii Pacific Export Council, Minority Business Development Agency, shipping co) to highlight the FTZ and the HUB program implemented, and to increase/broaden opportunities for export of small business in Hawaii

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
FTZ	*Education and Training Seminar put on by Business Development Program, with private and public partners, periodically present educational seminars and briefings designed to assist businesses in “doing business” with targeted international markets.	*Work to increase foreign investments toward Hawaii businesses to open global markets, reduce the dependency on local markets and avoid seasonal fluctuations.
FTZ	*Working with DBEDT’ –TEAM HAWAII in promoting the “Hawaii Global Links” motto for potential new users of the FTZ program.	*Ensuring key partnerships are forged to offer information and services tied to global markets and industries.
FTZ	*FTZ hosted a seminar that was held in the Harbor Conference Room at the FTZ facility with business organizations that dealt with the import/export industries and video conference with DBEDT’s Beijing and Taiwan office as well as the Export Import Banking office to present their benefits and services to the attendees. Worked with other private and public offices and businesses in presenting the FTZ program at business specific seminars (FHB –Chaminade, SBA). *The seminars and presentation included other DBEDT depts. to expand opportunities for both businesses and departments.	
HTDC	*Initiate programs and services that provide export and/or marketing skills for the global economy (e.g., eCommerce and eMarketing training, export readiness training).	*Further enrich those programs by partnering with other entities to bring the expertise to various industry sectors.
NELHA	*NELHA hosted a number of foreign country delegations during fiscal 2008, all seeking information as to how to duplicate the NELHA success story in their countries. These included groups from Germany, Japan, Korea, and China and Taiwan.	*Thus far in fiscal 2009, NELHA has hosted groups from Korea, Taiwan, and China, again seeking advice on how to duplicate the NELHA success in aquaculture and alternative energy development in their countries.

SMSD *Various groups from China, Japan and Southeast Asia attracted to Hawaii for education, training, protocol, sports, and cultural exchange. 996 individuals stayed in Hawaii a total of 5,013 days. Economic impact estimated at \$1.2 million; Total Output at \$2.02 million. (OIA, SHOB)

*Assisted Governor Lingle's visits to Taiwan in November and arranged meetings with Taiwan President Ma, Deputy Minister of Foreign Affairs, Deputy Minister of Economic Affairs, President of China Airline. Vice Chairman of Taiwan Academia Sinica, Director of American Institute in Taiwan, sixteen top Taiwan business leaders and twenty travel industry leaders. Value of new air routes to Hawaii projected at \$10 million. (SHOT)

SMSD *Assisted with Lt. Gov's trip to Korea in November and arranged meeting with government, tourism and business representatives to encourage more visitors and business activity in light of the new Visa Waiver Program.

*Attract a major Korean Insurance Company to open its Regional headquarters in Hawaii. Investment will be upwards of \$1million and employ over 20 people.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SMSD	*Global Links seminars and workshops, and International Education Conference reached /touched 1001 individuals in Hawaii. (OIA,SHOB, SHOT, IBAB) *Published six issues of Hawaii Global Links newsletter. (OIA)	* Continue sponsoring Global Links events in collaboration with community, business and academia; export series to help increase international trade and relations. *Continue publishing Hawaii Global Links newsletter and expand readership.
SMSD	*Contract for tourism consulting secured for the Integrated development group: \$75,000.	
SMSD	*Out-of-state students recruited through partnership with Study Hawaii: \$1 million (IBAB)	
SMSD	*Kona Brewing new export of \$12,000. (SHOT)	
SMSD	*Hawaii Simple Green new export of \$60,000. (SHOB)	
SMSD	*Hawaii Food Product exports as a result of Food Taipei Trade Show. \$1.5 million. (SHOT)	
READ	*Developing innovation indicators data series and report to monitor development of the technology, creative and other emerging activity.	*Publish Innovation Indicators report to assist in measuring this goal.

4. Improved Small Business Environment

Improving Hawaii business environment takes on an even more important role during the current slowdown and will greatly assist the recovery later on. While all of the strategic objectives in this section benefit the overall business community, DBEDT makes efforts to target and support small business in the current economic climate. First, the Community Based Economic Development program and Enterprise Zone programs are targeting small businesses across the islands at the community level for assistance. Second, the Small Business Regulatory Review Board ensures that business’s voice is heard before new government regulations are put into effect. Third, the Small Business Utilization Council chaired by the DBEDT Director, has proposed preferences and set asides in State and county contracting for small businesses in emerging sectors that could help accelerate Hawaii’s economic recovery. Other programs including the Foreign Trade Zone, Hawaii Community Development Authority, High Technology Development Corporation and others, which are making efforts to assist small business and improve the business environment.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SMSD	*Awarded 11 grants of \$111,949 to community based organizations for workforce/job development. Organizations reported that 163 new f-t jobs created, 100 new p-t jobs created, 72 new businesses created, 92 businesses assisted, 280 students trained. (CBED)	*Through CBED efforts, three organizations provided \$28,000 in technical assistance to community organizations. (CBED)
SMSD	*Reviewed 67 agency/program rules for impact upon small business. (SBRRB)	*Will review 70 agency/program rules for impact upon small business. (SBRRB)
SMSD	*Enrolled 22 new companies into the Enterprise Zone program; 209 companies total in program. (EZ)	*Will enroll 25 new companies into the Enterprise Zone program; to reach 215 in program. (EZ)
SMSD	*Provided management and technical assistance and training to 3 organizations valued at \$28,000. (CBED)	*Will award \$50,000 in grants to 5 small business/community organizations.
SMSD	*Awarded grants to 11 small business organizations/community organizations for a total of \$53,949. (CBED)	
SMSD	*12 community based organizations who received CBED financial support in previous years reported that 163 new full time jobs were created, 100 new part time jobs created, 72 new businesses created, 92 existing businesses assisted, 280 students trained. (CBED)	

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
FTZ	*Evaluate current FTZ incentives and benefits offered and look to streamline processes	*Increase awareness and usage of the warehouse and Pier 2 facilities through marketing campaigns and seminars. Ensuring the public has a firm knowledge of the Hawaii Foreign-Trade Zone and its services.
FTZ	*Provide customers with evaluation forms to comment on FTZ performance and experience.	*Offer services and facilities through the “HUB” business model designed to assist businesses in an effort to increase export and e-commerce activities.
FTZ	*Finalized executive conference room for FTZ tenants to utilize for video conferencing and sales meetings.	*Lower business operating costs through shared facilities and services while opening global markets.
FTZ	*Evaluating needs of importers/exporters and building programs to fit changing global needs.	*Ensure the Foreign-Trade Zone stays flexible enough to meet the needs of small businesses.
FTZ	*Join small business sub committees with business and cultural chambers in developing programs, relationships and opportunities in promoting the FTZ program.	*Develop a new web site designed to instruct and assist site visitors with the import/export process. This comprehensive web site will explain the process and offer links to specialists for additional information. It will also utilize technologies such as video and podcasts to retain visitor interest and deliver pertinent information on a timely basis.
FTZ		*Implement an import-export “HUB” business model which will assist businesses with the process of importing and exporting. Utilize key shipping and customs representatives to assist businesses by streamlining the process, making it more “user friendly.”
FTZ		*Increase export and e-commerce usage from current and new FTZ users through the use of an innovative pack and ship program through the FTZ focused on foreign destinations.
FTZ		*Completed Security upgrade in association with a Homeland Security grant
HCDA	*Acquiring land in Kaka`ako Mauka to construct a district-wide parking facility that can provide parking for customers of businesses in Kaka`ako Mauka.	<p>*Small Business/Small Lot Development Strategy: Continuing to work with small landowners and businesses in Kaka`ako’s Central Kaka`ako district to solicit their concerns and solutions to the impact of development in surrounding areas.</p> <p>*Kewalo Basin Harbor: Proposing a major capital project to this commercial boat harbor that will improve the harbor for charter, commercial fishing, pleasure, and excursion operators, and benefit local businesses by expanding commerce and delivering activities for the tourist industry.</p>

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
HCDA	*Kewalo Basin Harbor: Promulgating new rules (in connection with the transfer of management and operations from DOT to HCDA) for Kewalo Basin Harbor which will facilitate the construction of much-needed improvements that will benefit the small business tour, excursion, commercial fishing, and charter boat operators. A transition in management and operations of the harbor is expected in the first quarter of 2009.	
HTDC/ SBIR	*Provide SBIR/STTR, and other federal programs training and information sessions to add to available funding for R&D	*Conduct training workshops and 11 th Biennial SBIR Conference for 200 companies.
HTDC/ MEP	*Met requirements (total weighted score of 85 points) to be able to host the MEP program for the State of Hawaii and continued to provide MEP services.	*In addition to meeting federal requirements bBe recognized source of assistance for manufacturing and dual use companies in Hawaii, as measured by overall increased impacts to our clients; target impact for manufacturers statewide last year and for fy09: \$18.1M of clients cost savings, new & retaining sales.
LUC	*LUC processed all district boundary petitions and special permit requests within specific statutory time frames.	*LUC will continue to process all district boundary petitions and special permit requests within statutory time frames.
NELHA	*NELHA has subsidized small businesses for many years, enabling them to establish themselves in difficult fields such as aquaculture.	*In fiscal 2009, NELHA has subsidized big Island Abalone Corporation, enabling its acquisition by Trident Sea Foods. This subsidy will, at current seawater consumption rates by Big Island and current electrical prices, absorb over \$300,000 of NELHA's Special Fund.
NELHA	*In fiscal 2008, NELHA welcomed as commercial tenants three new aquaculture companies that had begun their development efforts at NELHA: Pacific Aquaculture and Biotechnology, LLC. Troutlodge Marine Farms, LLC., and Kona Coast Shellfish, LLC.	*NELHA is evaluating possible tenants in the renewable energy field for incubation.
NELHA	*Working with the County of Hawaii, NELHA sped up the permitting process for new businesses to become tenants.	*NELHA continues to seek ways to assist its tenants, such as being part of Foreign Trade Zone #9, an Enterprise Zone, and working with the County of Hawaii to speed up energy development permitting.
NELHA		*In fiscal 2009, NELHA expects to work closely with the County administration to solve water quality standard issues on the west coast and further stimulate and develop energy projects on the island.
HTA	*HTA, in support of the Hawaiian Culture and Tourism Product Development strategic initiatives, supports programs in various communities that help provide jobs and stimulate the economy, including helping to provide for an improved small business environment.	*Our goals are primarily to honor and perpetuate the Hawaiian culture and community, and provide a diverse and quality tourism product unique to Hawai'i. In working towards this goal, Hawaii's small business environment is a beneficiary.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
NELHA/ CEROS	*17 of 19 (~\$9M total) defense-related contract projects were awarded to Hawaii small companies .	*CEROS will continue to encourage and consider new defense related proposals from small Hawaii high tech companies and are expected to award ~\$10M in contracts in 2009
READ	*Developing an on-line data warehouse to provide data and business information more effectively.	*Update on-line data warehouse with most recent data and research. *Publish Innovation Indicators report to assist in measuring this goal.

5. Workforce Housing

More housing targeted at Hawaii’s working or “gap” population is essential to Hawaii’s attracting and keeping workers as the economy recovers. The national and global economic recession creates an opportunity for Hawaii to attract back to the islands the large number of Kama’aina living abroad who may play a role supporting the growth of Hawaii’s emerging sectors. Creating a supply of affordable housing will facilitate the re-entry of these Kama’aina back into Hawaii.

DBEDT’s goal is to facilitate creation of workforce housing units in high-quality living environments by developing state lands; expediting approvals and permits; providing incentives and financing tools; and advocating for land use and housing policy changes.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
HCDA	*Workforce Housing: 124 rental workforce housing units under construction with another 85 for sale units permitted.	*Workforce Housing: Facilitating the production of more workforce housing units in Kaka’ako’s Mauka Area by working with major landowners, developers, and lenders to identify tools that will provide incentives to developers and streamline the permit and approval process for eligible projects.
HCDA	*Transitional Shelters: Supporting transitional housing shelters by leasing Kaka’ako warehouse space for the Next Step shelter located on Pier 1, and by leasing Building 36 in Kalaeloa.	
HHFDC	*1,503 new or preserved housing units, 1,173 rental, 330 for sale	* 400 new or preserved housing units, 212 rental, 188 for sale
HHFDC	*194 first-time homebuyers assisted with Mortgage Credit Certificates	*225 first-time homebuyers to be assisted with Mortgage Credit Certificates
LUC	*Approved district boundary amendments covering in approximately 880 acres for housing and other uses. Projected to provide approximately 525 residential lots; 20% of which must be affordable per Hawai’i county Ordinance.	*LUC currently processing district boundary petitions for major master planned communities covering in excess of 2,500 acres that, if approved, will produce over 5,000 affordable units in addition to over 12,000 market residential units. This development will occur over many years.
LUC	*LUC currently processing district boundary petitions for major master-planned communities covering in excess of 2,500 acres that, if approved, will produce over 5,000 affordable units in addition to over 12,000 market residential units. This development will occur over many years.	
NELHA	*None, NELHA is specifically prohibited from housing activities at its facility.	
SMSD	*Investment in 1723 Kalakaua condo/Housing Development. \$2 million. (SHOT)	

6. Human Capital Development

Education and Workforce Development have not been DBEDT’s traditional area of focus or responsibility. However, economic development analysts and best practices show that without highly educated workers and a workforce development system that helps provide emerging and traditional sectors with appropriately-skilled workers, economic development efforts will be severely constrained. Consequently an important DBEDT objective is to make recommendations and proposals and assist other agencies and stakeholders to improve educational readiness of Hawaii’s youth and the skill level of the workforce. DBEDT’s role is to bring together the “three pillars” of education, workforce development and economic development. Moreover, DBEDT is working to establish internships in Hawaii business for high school and college students and obtain business sector support and involvement (including mentorships) in these efforts.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
<p>CID</p>	<p>*The Music & Entertainment Learning Experience (MELE) program at the Honolulu Community College (HCC) consists of a comprehensive music business, production, and audio engineering technology curriculum that meet the requirements for entry-level training into the music industry that is paramount to building an educational foundation for this important sector of Hawaii’s creative industries growth. The curriculum focuses on combining academic experience with real-world applications to prepare students to work in the rapidly evolving global music industry for the twenty-first century.</p>	<p>*During FY 2009 Belmont University will provide curriculum support for MELE classes. A live video link will provide course content in conjunction with local material from HCC faculty members. HCC will also bring Belmont faculty to Hawaii to provide expert and music business content to Hawaii. The support from two institutions will require travel and training and professional development for MELE faculty members. Marketing will be provided for the newly approved program to familiarize local audiences about the opportunities in the music business and audio-technology industries.</p> <p>*CID is also providing key industry alliance contact to support mentorship and visiting lecturer series geared to support growth of industry partnerships, job opportunities.</p>
<p>CID</p>	<p>*Creative Academies (CA) is a new curriculum paradigm for the 21st century that blends the creative arts, science and technology to achieve relevant and dynamic course content that will excite and engage students from middle school through workforce. Through a partnership between DBEDT/CID, the University of Hawaii Community Colleges/Kapiolani Community College, Department of Education, Career and Technical Education (CTE) students in STEM and New Media Arts, Uluu Media and business and industry, the concept to fuse arts and science in a modular curriculum tied to workforce development, was born.</p>	<p>*CA curriculum will be completed in Q1 of 2009, and is developed in partnership with DOE, CTE, UHCC/Kapiolani CC STEM and New Media Arts leadership, UHACM program and industry. Teacher training programs begin in Summer 09 with Fall 09 deployment of CA curriculum in up to 5 HS and 1 MS on Oahu and a neighbor island.</p>

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
CID		<p>*Working to adopt Hawaii Administrative Rules that will further clarify Act 88 and other tax incentives for film. Among the key elements are strengthening requirements for productions making best efforts to hire locally and further enhancing education and workforce development requirements.</p>
CID	<p>*In FY 2008, the Creativity Academies (CA) program began implementing the following:</p> <p>*Established the Creativity Academies program via a contract between DBEDT/CID and UHCC/KCC and integration with DOE/CTE pathways.</p> <p>*Established a CA Visioning Team (CAVT) to examine best practices in STEM, new media arts including UH College of Education, CalArts, USC School of Cinematic Arts, UH ACM, Sony Imageworks, PTC/RWDC leadership, digital media faculty from DOE schools, CTE faculty from DOE schools, Charter Schools, Avatar Reality, Ulua Media, and Oceanic Time Warner.</p> <p>*Hired a CA coordinator based at KCC to manage activities, handle reporting, create website and oversee budget.</p> <p>*Hired CA outreach coordinator for after school programs.</p> <p>*Assigned sub-committees for curriculum development and outreach.</p>	<p>*In FY2009, the CA program began implementing the following:</p> <p>*CA Curriculum modules finalized by January 31, 2009.</p> <p>*A Teacher training summer 2009 for up to 30 teachers. Applied for NSF/ATE grant 10/15/08 (KCC-\$1.2M – FY 09-12).</p> <p>*Integrate CA teacher training modules in DOE Career and Technical Education Symposium 11/18-19/08 focused on game and animation curriculum.</p> <p>*Integrate CA teacher training modules in DOE Career and Technical Education Symposium 11/18-19/08 focused on game and animation curriculum.</p> <p>*Spring 09 after school/early learning CA curriculum programs implemented at Palolo Learning Center/KCC.</p>
CID		<p>*Develop a long term commitment by those entities receiving the credit to support specific workforce development programs in film, television, digital media on a more robust basis, e.g. Creativity Academies, Creative Industries Development Fund, etc.</p>
CID		<p>*The CA program will be pilot tested in Hawaii high schools via CTE pathways in the fall of 2009, with CA Outreach after-school programs pilot tested in beginning in the spring 2009 and launch of the CA website in early 2009 for teacher tool kit support. Will align with mystemhawaii.org portal which provides information on STEM education and workforce development programs.</p>

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
FTZ	*2248 people were employed directly and indirectly from the FTZ program (General Purpose and Sub Zones)	*2828 people were employed directly and indirectly from the FTZ program (General Purpose and Sub Zones)
FTZ	*During the past year we have been engaged in a number of activities to increase FTZ Pier 2 usage and as a result 37 new companies have used the FTZ.	*During the past year we have been engaged in a number of activities to increase FTZ Pier 2 usage and as a result 28 new companies have used the FTZ.
HTDC	*Workforce pipeline: familiarize with university internship programs (STEM disciplines as well as business school, law school, etc. appropriate to both HTDC and to HTDC client companies)	*Complete the updates of techjobshawaii.org and hitechhawaii.com to be a resource for continued education for the workforce
HTDC	*Update and expand Holiday Tech Job Fair to contribute to workforce development issues	*Expand strategy to include partnerships for coordinated workshops and entrepreneurship curricula.
HTDC	*Coordinated workshops and entrepreneurship curricula, themes that consistently address the 3 basic needs of companies to 1) find money, 2) save money and 3) make money, to be provided via partnerships to affect more companies in the industry	*Formalized and periodic business reviews with mutually agreed upon milestones facilitated by HTDC staff, paid consultants, partnership with the business schools, and volunteer mentors, as well as mock board mtgs for client companies, as needed
HTDC	*Add programs/services to virtual incubation program	*Consider an entrepreneur-in-Residence program (provide office space for an established entrepreneur or a "C" level executive (CEO, CTO, CIO, CFO, etc.) to provide advice to and assist client companies, and to run workshops/be featured as guest speaker
HTDC	*Re-introduce Affiliate provider program (match-making or referral service to introduce expert providers to client companies)	*TBED Clinic: casual forum for tech-based economic development groups to discuss challenges, look for possible partnerships for specific projects, share ideas
HTDC		*Revise graduation requirements (to be linked to individual company performance vs. set time to reflect different lengths of incubation period for different business plan or type of tech industry
NELHA	*NELHA is home to the outstanding public charter school in Hawaii: the West Hawaii Explorations Academy, which this year has more than 170 students and was recently the recipient of a Turner Foundation grant.	*Expansion of the West Hawaii Explorations Academy is being facilitated by NELHA.
NELHA		*NELHA has begun a program to assist graduate students in the general field of oceanography to undertake and complete experiments designed to improve our knowledge of the world's oceans. The first such student completed his work during early fiscal 2009.

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	<p>*DBEDT continued to partner with the DOE to carry out the program defined for a prestigious National Governors Association grant for STEM education, funded by the Bill and Melinda Gates Foundation and Intel Corporation. Began working with the P-20 Council to incorporate the STEM academies and other STEM programs into the new HI-PASS tracking system to enable longitudinal analysis to effectively evaluate the effectiveness of the program.</p>	<p>*DBEDT continues to participate in the NGA STEM grant administration. An important element of the grant is to develop a STEM web portal to provide one place where students, parents, teachers, industry and the general public can access information on all STEM programs in the State. MyStemHawaii.org was developed in collaboration with the STEM Workforce Development Program at the University of Hawaii and was launched (softly) in November 2008 to begin collecting program information. The NGA Center for Best Practices developed a STEM Communications Toolkit and provided the services of a consultant firm specializing in education outreach to help develop a STEM Communications Strategy for each of the six grantee states. DBEDT has recruited a STEM Communications Team from industry, academia and government to implement the strategy. The web portal and the Communications Strategy build on the concept of adding new meaning to the STEM acronym: STEM relevance is reinforced by using the phrase “Skills that Excite, Empower, and Employ Me.</p>
SID	<p>*DBEDT continued to support programs designed to supplement the current education system and offer students and teachers added programs/tools to raise the standards of STEM education. The Hawaii Excellence in Science & Technology (HiEST) Academy program administered by the UH Community Colleges in volunteer DOE high schools was piloted at Waipahu High. DBEDT partnered with the University of Hawaii’s STEM Workforce Development Program in the Office of Technology Transfer & Economic Development to establish a secondary and post-secondary internship/mentorship program that will expand opportunities for students to experience work environments in the private sector related to their field of study. DBEDT entered into a contract with the Economic Development Alliance of Hawaii to utilize an appropriation to maintain and expand the successful Project EAST contextual learning program.</p>	<p>*DBEDT continues to support the STEM education efforts. The HiEST Academy program expanded to seven high schools. DBEDT is working with the University of Hawaii Colleges of Engineering and Education, the UH Community Colleges and the DOE to develop strategies to make the HiEST high school academy and FIRST middle school pre-academy programs, as well as the professional development and internship programs, and Project EAST sustainable.</p>
SID		<p>*DBEDT successfully applied for a two-year \$330,000 College Access Challenge Grant from the US Department of Education and plans to issue an RFP for non-profit organizations to provide programs that increase the number of under-represented students in Hawaii who enter and remain in postsecondary institutions.</p>

DIVISION/AGENCY	Outputs and Impacts FY 08	Intended Outputs & Impacts FY 09
SID	*Cosponsored Science & Technology Day at the Capitol to raise awareness about Hawaii's S&T companies and education programs, including the need to develop a strong workforce to support growth in Hawaii's emerging industries.	*Increase use of the internet and other communications methods to expand awareness of Hawaii's S&T assets, advantages and accomplishments to increase investment in S&T companies, the purchase of S&T products and services, and location of research and commercialization projects in Hawaii.
SID SMSD		*Collaborating on proposal to NSF for funding to support mechanisms to expand and sustain STEM education programs statewide.
SMSD	*Study abroad programs resulted in 64 teachers and students studying in China and Taiwan. (OIA/STB, SHOB,SHOT)	*Pan-Pacific VEX Robotics Championships: 2,000 spectators, 84 schools participating, 67 Hawaii teams, 5 mainland teams, 1000 students, 700 students from Hawaii. (IBAB)
SMSD	*FIRST Hawaii Regional Robotics Competition: 2,000 spectators, 27 Hawaii teams, 12 mainland teams, 450 Hawaii students involved, \$595,000 in scholarships and grant support secured. (IBAB)	*FIRST Hawaii Regional Robotics Competition: 2,000 spectators, 24 Hawaii teams, 8 mainland teams, 700 students, 450 Hawaii students involved, \$250,000+ in scholarships and grant expected. (IBAB)
SMSD	*Awarded 11 grants of \$111,949 to community based organizations for workforce/job development. Organizations reported that 163 new f-t jobs created, 100 new p-t jobs created, 72 new businesses created, 92 businesses assisted, 280 students trained. (CBED)	*Through CBED efforts, three organizations provided \$28,000 in technical assistance to community organizations. (CBED)
	*Workforce Development Council Forum, Hawaii January 2008. Focus of discussion centered on the changes in the workforce and the Workforce Investment Act programs. Over 150 attended from agencies and the business community	*Workforce Development Council Five Year Strategic Plan for the State – Setting policy on workforce for the Governor and Legislature. Focus on education and training, incumbent workers and yout, expansion of labor pool and workforce housing.
		*Partnered with the WDC, UH School of Nursing and the State of Colorado – eColorado program to write an application for a USDOL grant for Technolgoey Based Learning. It is to address the great shortage in qualified RN's and Health workers in our workforce by utilizing technology and online networking. Grant application asked for \$900,000. (pending USDOL decision)
		*Partnered with the Workforce Development Council and the DLIR to apply for the National Governors Association Center for Best Practices – State Sector Strategy programs for industry sector strategies and Career and Technical Education.
READ	*Developing innovation indicators data series and report to monitor key activities such as workforce development and education.	*Assist SMSD and WDC in identifying human capital data and analysis needs for emerging and other key industries * Publish Innovation Indicators report to assist in measuring this goal. *Identify occupations and skill sets in demand by emerging industries.

Description of DBEDT Core Programs and Attached Agencies

Divisions

Strategic Marketing & Support Division (BED 100)

The Strategic Marketing & Support Division (SMSD) promotes industry development and economic diversification in Hawaii by supporting existing and emerging industries, attracting new investment and businesses that can create more skilled, quality jobs in the state, and work to increase exports of Hawaii products and services. Business support provides new and existing businesses direct loans, licensing and permit information and referral, business advocacy, planning and coordination of programs and projects aimed at specific business sectors or economically-distressed areas (including rural areas and areas affected by natural disaster); and to promote the statewide economic development of the film and video industry in Hawaii.

Creative Industries Division BED (105)

The Creative Industries Division (CID) promotes the development and growth of Hawaii's Creative Economy, whose primary and core sector consists of Copyright Based Industries, with a focus on businesses that create/design exportable products and services and depend on the protection of their Intellectual Property in order to market to a global community. IP protection is a crucial base to profitability and survival. These are the core businesses that contribute to our economy with job creation and tax revenue.

This cluster is comprised of producers and service providers in film, video and digital media production, commercial and applied design firms and diverse range of creative (visual and performing) and cultural businesses in Hawaii. Surrounding this core sector are a great variety of arts and cultural organizations, service organizations, educational institutions, foundations, community groups and a variety of individual artisans.

Foreign-Trade Zone Division (BED 107)

The Foreign-Trade Zone Division (FTZ) administers the federal grant issued to Hawaii in 1965 by the Foreign-Trade Zones Board in Washington D.C. FTZ's mission is to increase the amount of international trading activity in Hawaii, to encourage value-added activities, stimulate capital investment and generate employment opportunities by using the federal trade development program to reduce the costs associated with international trade. There are currently 13 sites on the islands of Oahu, Maui, and Hawaii that have received FTZ designation. The Foreign-Trade Zone Division is responsible for ensuring that U.S. Customs and Foreign-Trade Zones Board regulations are followed at these sites.

Strategic Industries Division (BED 120)

Strategic Industries Division's (SID) mission is to support statewide economic efficiency, productivity, development and diversification by promoting, attracting and facilitating the development of Hawaii Technology-based industries which engage in the sustainable development of Hawaii's energy, environmental, ocean, recyclable, and technological resources.

Research & Economic Analysis Division (BED 130)

The Research & Economic Analysis Division (READ) works to enhance and contribute to the economic development of the State by providing analyses and policy recommendations on economic issues. READ provides economic forecasts that contribute to long-term statewide planning and infrastructure needs assessment, and also conducts and reports on basic research into the economy of the state. These functions are conducted by collecting, compiling, interpreting and publishing data and statistics on all aspects of business activity, the economy and demographic characteristics of the State. READ also developed and maintains a statewide statistical reporting system.

Attached Agencies

Land Use Commission (BED 103, Statewide Land Use management)

The Land Use Commission (LUC) works with the State Legislature, County Planning Departments, interest groups and landowners to define constitutionally mandated standards and criteria for protecting important agricultural lands in the State of Hawaii. The Commission also engages the county planning departments in enhancing and clarifying the special permit process in the Agricultural Land Use District.

The Land Use Commission is also working to establishing data warehouses with the county planning departments with respect to storage and retrieval of land use data; and developing cooperative memorandum-of-understanding with the University of Hawaii Department of Urban and Regional Planning with respect to planning practicum and faculty consultation.

Hawaii Tourism Authority (BED 113, Tourism)

The Hawaii Tourism Authority (HTA) is the lead tourism agency responsible for creating a vision and developing a long-range plan for tourism for the State of Hawaii. The HTA is composed of a thirteen-member board of directors to oversee the Tourism Special Fund, create a vision for tourism, and administer tourism development from a statewide perspective.

The HTA's tourism strategic plan, titled *Ke Kumu*, provides a framework for bringing together the common goals for the good of Hawaii and its people, and also serves to guide the HTA in fulfilling its leadership role as steward of Hawaii's tourism industry. Seven initiatives are identified to achieve HTA's overall goal of increased visitor expenditures - a combination of spending per day, length-of-stay, and visitor arrivals.

Tourism funds will be expended according to a plan with specific goals and measures of accountability that will help the agency achieve its mission - To manage the strategic growth of Hawaii's visitor industry in a manner consistent with the economic goals, cultural values, preservation of natural resources, and community interests of the people of Hawaii.

High Technology Development Corporation (BED 143)

The High Technology Development Corporation (HTDC) works to facilitate the growth and development of the commercial high technology industry in Hawaii. HTDC's functions include developing, managing, and assisting technology centers statewide; create business opportunities for the growth of technology companies and industry; market and promote Hawaii's technology assets; and provide support needed by Hawaii's technology industry.

HTDC assists in developing, managing, and operating technology centers statewide, including the Manoa Innovation Center, Maui Research & Technology Center and the West Kauai Technology and Visitor Center. These

sites serve as high technology company incubation facilities to ease the transition from start up ventures to full-fledged, independent commercial enterprises.

Office of Planning (BED 144, Statewide Planning and Coordination)

The Office of Planning (OP) works to maintain an overall framework to guide the development of the State through a continuous process of comprehensive, long-range, and strategic planning to meet the physical, economic, and social needs of Hawaii's people, and provide for the wise use of Hawaii's resources in a coordinated, efficient, and economical manner - including the conservation of natural, environmental, recreational, scenic, historic, and other limited and irreplaceable resources which are required for future generations.

The Office of Planning's 3 main objectives are: 1) fix responsibility and accountability to successfully carry out statewide programs, policies and priorities; 2) improve the efficiency and effectiveness of the operations of the executive branch; and 3) Ensure comprehensive planning and coordination to enhance the quality of life of the people of Hawaii.

Hawaii Strategic Development Corporation (BED 145)

The Hawaii Strategic Development Authority's (HSDC) mission is to develop a sustainable venture capital industry in Hawaii which will stimulate the growth of viable new businesses. HSDC works to diversify the state's economy by commercializing emerging technologies and providing skilled employment opportunities for citizenry.

Near-term objectives are to develop venture capital investment funds in Hawaii which will attract external sources of private investment; to establish a fund of funds to raise capital for Hawaii venture funds, to expand the business infrastructure supporting the venture industry and the growth of emerging companies; and to assist entrepreneurial development through focused conferences and seminars.

Natural Energy Laboratory of Hawaii Authority (BED 146)

The mission of NELHA is to participate in the development and diversification of the economy of Hawaii by providing resources and facilities for energy and ocean related research, education, and commercial activities in an environmentally sound and culturally sensitive manner. This is achieved through managing, operating, marketing and leasing activity that provide sites and resources for the development of research and commercial businesses and technologies that utilize the natural resources available such as cold deep seawater, warm surface seawater, and high solar energy. Facilities are located at Keahole Point in Kona and in Puna, both on the Island of Hawaii.

NELHA at Keahole Point is the only location in the world, which consistently pumps large quantities of warm and cold seawater ashore for use in aquaculture, marine biotechnology, and other related technologies. NELHA serves as the laboratory for research and development, as an incubator facility for developing innovative, new technologies and businesses, and as a base for commercial operations that utilize or are related to the use of the cold and warm seawater and other resources available.

NELHA/CEROS, is a project associated with NELHA, was created in the early 1990's to provide a source of funding for Hawaii High Tech community to: (1) create defense related intellectual property; and, (2) establish lasting collaborations with Defense Department Research and Development and Acquisition stakeholders.

Hawaii Community Development Authority (BED 150)

The Hawaii Community Development Authority (HCDA) works to stimulate the economic development of specific community districts by planning and implementing community development programs and facilitating capital investments. HCDA's main objectives are: 1) plan and implement capital improvement projects to upgrade infrastructure and develop public facilities to meet Hawaii's economic and recreational needs, and 2) implement long term planning initiatives to support residential development in a mixed-use community.

Aloha Tower Development Corporation (BED 151)

The Aloha Tower Development Corporation (ATDC) was mandated to redevelop an area of land surrounding the Aloha Tower in order to strengthen the international economic base of the community in trade activities, to enhance the beautification of the waterfront; in conjunction with the Department of Transportation, to better serve modern maritime uses; and to provide for public access and use of the waterfront property. The objective of the corporation is to enhance and strengthen Hawaii's economy by facilitating and providing redevelopment opportunities in the Aloha Tower Complex for private capital investments as well as through the formation of public-private partnerships, and to encourage redevelopment to take place in an orderly and incremental fashion.

Hawaii Housing Finance and Development Corporation (BED 160)

The Hawai'i Housing Finance and Development Corporation (HHFDC) was created in 2006 and is administratively attached to the Department of Business, Economic Development, and Tourism (DBEDT) as part of the strategic objective to create workforce and affordable housing for a skilled labor force.

The HHFDC manages assets of approximately \$729 million, of which \$436 million is attributable to the issuance of tax-exempt bonds. To date, HHFDC has successfully facilitated the delivery of 566 affordable rentals and plans to deliver 6,227 workforce or affordable units over the next five years.