

Economic  
Impacts of the  
Proposed National  
NexGen Battery  
Manufacturing  
Jumpstart Program

**REPORT TO THE  
Florida High Tech Corridor Council Inc.**

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INNOVATION INSIGHT  
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## Executive Summary

The proposed National NexGen Battery program, if it grows as expected, will have a very significant impact on Florida's economy. Based upon detailed business and investment plan data provided by Planer Energy Devices, Inc, and using the REMI Policy Insight economic modeling software, we estimate that this program will generate the following impacts between 2009 and 2015:

- **1,190 direct and indirect Florida jobs**
- **\$972.2 million state Gross Regional Product**
- **\$483.7 million in Florida personal income**
- **\$1.8 billion in Florida sales activity (output)**

## Background

Planar Energy Devices, Inc., an advanced battery company headquartered in Orlando, Florida is revolutionizing the Li-ion battery industry. It is proposing a new initiative – the “National NexGen Battery Manufacturing Jumpstart Program” (NexGen) to address a critical technology need identified by the current presidential administration, and spur technology industry growth and employment in Florida. The stated objective of the program is to:

*“...Rapidly create new jobs and accelerate the nation's economic recovery by returning the manufacturing of high energy batteries to the United States through the re-opening and re-tooling of North America's only volume li-ion battery manufacturing facility for next generation solid state battery technology developed by the US Dept of Energy and licensed to Planar Energy Devices, Inc.”*

## The Challenge

President Barack Obama has called for “one million 150-mile-per-gallon plug-in hybrids on our roads within six years” and pledged to “invest more in the research and development of those plug-in hybrids, specifically focusing on the battery technology.” In the American Recovery and Reinvestment Act of 2009, Congress set aside over \$2B for advancing battery technology and manufacturing in the US. The assumption is that the US does not possess a world-class battery manufacturing capability and that significant federal funding is required to build this industry “from scratch”. In reality, Florida has a long history in battery manufacturing and is home to the largest advanced battery manufacturing facility outside Asia. This facility, built in 1997 at a cost of over \$150M, was recently shuttered as a result of the financial crisis on Wall Street. With a modest investment when compared to the cost of building new facilities, Florida's battery plant can be re-opened and producing batteries within weeks. The plant can quickly jumpstart the federal battery manufacturing initiatives and launch a new domestic industry whose impact will be nearly \$150 billion by 2020.

## The Solution

Backed by venture capital investors, Planar plans to acquire this strategic national asset to immediately produce legacy products and begin re-equipping the facility to produce next generation products for the military and automotive industry. But Planar's efforts are being stymied by the current turmoil in the financial markets. Federal assistance can break the financial deadlock and enable Planar to immediately create jobs and overcome a roadblock impeding the recovery of the US automotive

industry. The NexGen program is designed to become a cornerstone of the nation’s metallic lithium battery market, quickly bringing the Alachua battery facility to full production capacity. In addition to the Alachua battery facility, the program will establishing an Alachua business and technology incubator to foster a cluster of spin-out and supporting technology companies, and will establish an engineering and development laboratory facility in the former Cirent Semiconductors / Bell Labs research facility in Orange County.

### Documenting the Impact

Planar has developed a detailed business and financial plan to establish the NexGen program, including employment, construction and capital acquisition, capital equipment, engineering, and other expenses, revenue forecasts. These figures were compiled and categorized as input into the REMI Policy Insight economic modeling software under the direction and support of the Tampa Bay Regional Planning Council. These inputs included the following:

- A 2009 venture capital investment of \$30M, which will be used for salaries (43%), capital equipment (47%), and operation costs (10%);
- A \$75M federal grant under the Federal stimulus package, which will be used for technology engineering (66%), capital equipment (9%), and construction (25%);
- An employment projection series that captures a reasonable share of the national targeted battery markets, as follows. Employment projections contribute to the impact calculations primarily for the first three years, until revenue projections pick up and the Alachua facility begins to run near capacity.

Year/Jobs (actual)	2009	2010	2011	2012	2013	2014	2015
Employment - Battery Factory (Alachua)	113	157	163	178	195	195	195
Employment - Cirent Facility (Orange)	30	30	30	30	30	30	30
Employment - Battery Incubator (Alachua)	0	10	30	70	100	100	100

- A revenue and cost-of-goods-sold projection series that captures a reasonable share of the national targeted battery markets. This data is business-sensitive and is on file for future records; revenue projections contribute most strongly for the impact calculations from the year 2012+ when the Alachua facility begins to run near capacity. For purposes of impact calculations, we included both revenue and cost of goods sold (sales projections less intermediate goods and costs).

Of course, employment figures, capital equipment, engineering and other expenses were accounted for out of the projected revenues to prevent double-counting errors.

### Projected Impacts of the National NexGen Program

Based on the identified research, expenditure, and employment projections, the REMI Policy Insight modeling software estimated direct, indirect, and induced economic impacts of the NexGen program for the entire state of Florida. The major impacts, including the initial first-year startup/construction impact (which typically induces the largest impact of a new economic development project) as well as ongoing production growth projections, include *employment*, *gross regional product*, *personal income* and *output*.

## Direct and Indirect Employment

Economic impacts include not just direct employment at the NexGen facilities, but also all the jobs in the economy that provide goods and services that benefit from the presence of the NexGen program. The direct and indirect impacts peak in the first (startup) year of the program at approximately 1,682 jobs across the state, and average **1,190 direct and indirect Florida jobs** between 2009 and 2016. During that period, the job multiplier (direct to direct+indirect) ranges from 3:1 to over 11.7:1 during the startup year.

### FLORIDA DIRECT AND INDIRECT EMPLOYMENT IMPACT PER YEAR

	2009	2010	2011	2012	2013	2014	2015
Jobs (actual)	1,682	675	724	835	1,476	1,478	1,463

## Gross Regional Product

An area's gross regional product (GRP), is one of several measures of the size of its economy. Similar to GDP, GRP is defined as the market value of all final goods and services produced within a metropolitan area in a given period of time (source: Wikipedia). The analysis shows that the NexGen program will have an impact on Florida's GDP between \$63.9 million in 2010 (2009 fixed US dollars) to over \$204.6 million in 2015 when the battery production facility is running at maximum capacity – totalling more than **\$972.2 million Florida GDP** over the 2009-2015 period.

### FLORIDA GROSS DOMESTIC PRODUCT IMPACT PER YEAR (MILLIONS USD)

2009	2010	2011	2012	2013	2014	2015
\$131.5	\$63.9	\$70.8	\$105.8	\$194.9	\$200.7	\$204.6

## Personal Income

Personal Income measures economic impacts in terms of the collective increase in individual salaries and wealth. It is defined as *"the income that is received by all persons from all sources. It is calculated as the sum of wage and salary disbursements, supplements to wages and salaries, proprietors' income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustment, personal dividend income, personal interest income, and personal current transfer receipts, less contributions for government social insurance"* (source: [remi.com](http://remi.com)). Over the period from 2009-2015, the NexGen program will increase the state's **collective personal income by \$483.7 million** (all figures 2009 fixed US dollars).

### FLORIDA PERSONAL INCOME IMPACT PER YEAR (MILLIONS USD)

2009	2010	2011	2012	2013	2014	2015
\$31.8	\$45.1	\$52.6	\$51.8	\$93.9	\$101.4	\$107.0

## Output (Sales)

A final major impact category that we present is *output*. Output is essentially collective sales, and is defined as *"...the amount of production, including all intermediate goods purchased as well as value added (compensation and profit). Can also be thought of as sales or supply. The components of Output are*

*Self Supply and Exports (Multiregions, Rest of Nation, and Rest of World)*" (source: [remi.com](http://remi.com)). The sales impact of the NexGen program are very dramatic, totalling to more than \$1.8 billion (\$1,851.2 million) over the 2009-2015 period if the company performs as expected (figures in 2009 fixed US dollars).

FLORIDA OUTPUT (SALES) IMPACT PER YEAR (MILLIONS USD)

2009	2010	2011	2012	2013	2014	2015
\$227.4	\$113.7	\$125.0	\$209.6	\$384.7	\$392.5	\$398.2

## About the Research

- **Innovation Insight** is a research consultation firm based in Pasco County, Florida. Guy Hagen serves as the principal investigator, and has over 13 years' experience conducting research and analyses for economic development. For more information, visit <http://innovationinsight.com>.
- The **Tampa Bay Regional Planning Council (TBRPC)** is an association of local governments and gubernatorial representatives. TBRPC's specific duties include maintaining Future of the Region: A Strategic Regional Policy Plan for the Tampa Bay Region, environmental management, water quality and emergency preparedness planning, protection and restoration of the Tampa Bay estuary, economic analysis, coastal zone management, housing and infrastructure analysis, hurricane evacuation and recovery planning, development of regional impact review, local government comprehensive plan review, cross acceptance, dispute resolution, and review of transportation plans. The TBRPC provided specialized economic impact expertise, analysis, and use of the REMI Policy Insight software under direction of Avera Wynne (Planning Manager) and Patrick O'Neil (Senior Planner). For more information, visit <http://tbrpc.org>.
- The **REMI Policy Insight** modeling software is an economic impact analytical tool designed for dynamic forecasting and policy analysis. The REMI model is a dynamic forecasting and policy analysis tool that can be variously referred to as an econometric model, an input-output model, or even a computable general equilibrium model. In fact, REMI integrates several modeling approaches, incorporating the strengths of each methodology while overcoming its limitations. The result is a comprehensive model that answers "what if...?" questions about your economy. REMI models are dynamic; they demonstrate economic changes over time, allowing firms and individuals to change their behavior in response to changing economic conditions. These responses are based in part on general equilibrium economic theory. The spatial dimension of the economy is represented by the underlying "New Economic Geography" structure of the REMI model. This incorporates the productivity and competitiveness benefits due to the concentration, or agglomeration, of economic activity in cities and metropolitan areas, and to the clustering of industries. REMI is often considered the premier alternative for comprehensively modeling changes and impacts to a region's economy. For more information, visit <http://remi.com>.