Optimistically looking back forward

THE CONTEXT MATTERS
And yet, another year comes to an end. 2012, the sixth crisis year after the beginning of the U.S. subprime crisis, the fifth year after the collapse of the U.S. investment bank Lehman Brothers, year 4 after the most severe recession since WW II and the third crisis year after the beginning of the European sovereign debt crisis.

Linking these crises is important. Without this context, the crises cannot be understood and fought respectively. But herein also lies a big and unsolved problem. Among economists and politicians, the reasons for the crises are highly disputed and thus recommendations are contradictory. What has happened? What to do to end the crisis? What does new growth bring? What will make the financial markets and banks more stable? These are currently the questions to be answered. This disorientation is also expressed in political conflicts erupting in Europe and in the U.S.. But also in Japan, China and at the level of the G20 summit.

LEARN FROM THE PAST
Let’s take a short look back: At first, it seemed as if the bursting of the bubble in the U.S. sub-prime markets, the securitization connected to it and its derivatives, as well as the Lehman Brothers’ insolvency were all problems of the USA. Although IKB and Hypo Real Estate had reported early on about the involvement of German and European banks, Europe politely but firmly declined an invitation of the then-U.S. Secretary of the Treasury to find a solution together. One month later, the European states - each state on its own - started to build their own bank rescue funds. The enormous dynamics of the crisis in the fall of 2008 acted as a substantial tailwind for the international movement of G7 and G8 structures in the direction of the G20 summit. The multilateral approach of the G20 nations was of the utmost importance for initially stabilizing the financial markets and especially for warding off an acceleration of the recession in 2009.

United States-German Economic Yearbook 2012

BY TORSTEN WINDELS
CHIEF ECONOMIST
AT NORDDEUTSCHE LANDES BANK
HANOVER, GERMANY
DECEMBER, 2012
For some observers, this line-up of crises as well as the unclear outcome must seem like a standstill of economy and politics. This evaluation, however, depends on perspective and expectation. In my way of interpreting, this crisis can historically only be compared to the Great Depression that began in 1929. From this perspective, the big accomplishment of politics and economy is the (hitherto) prevention of a comparable development. In my opinion, the ending of the recession 2009, and the constant stabilization of financial markets as well as banks via undogmatic, often also unpopular monetary and fiscal policies are the success of collective learning from the developments in 1929. The restrictive, national monetary, fiscal and trade policies at the time (austerity, protectionism) only intensified the crisis without solving it. Substantial sovereign debt and a still-too-high unemployment rate are naturally dissatisfactory and will determine the agenda of the years to come.

IT WILL REMAIN DIFFICULT – HOWEVER, THERE’S NO REASON FOR PESSIMISM

The path to a final solution of the problems is unclear. With the beginning of the European sovereign debt crisis in February 2010 and the euro crisis that quickly developed from it in May 2010, the crisis strategies of the U.S. (national debt to reduce unemployment through growth – or: invest first, save later) and the eurozone (stability and growth through reducing national debt – or: save first, invest later) parted ways. Both approaches are correct, and with it, carried out in isolation, probably incorrect. Europe lacks its growth perspective and points to tomorrow. The U.S. pushes aside structural and fiscal problems and points to tomorrow. But with Keynes we all know that “in the long run, we are all dead” – (J.M. Keynes, 1923).

Didactically, clearness and unambiguousness are advantageous, and markets (as well as voters) demand them. However, it is likely true that we need growth and consolidation. This balance can only be achieved via compromise (also: “as well as” instead of “either or”). A compromise between growth and consolidation, between Northern and Southern Europe, between Democrats and Republicans, between the G20 nations. Here, we have advanced more than what the audience tends to believe.

In Europe, the reforms are beginning to show results. After an initial hesitation, the direction today is clear. There’s no euro exit. Neither in the North, nor in the South. However, according to the EU-Treaty there are not to be any subsidies for financial or structural weaknesses. The unclear and slow solution according to the EU-Treaty there are not to be any subsidies for financial or structural weaknesses. Structural weaknesses in competitive ability or finances are to be resolved on a national level. At the same time, the European Union supports these reform processes (ESM, ECB, aid programs) and further develops the political

NORD/LB AT A GLANCE (AS OF JUNE 30, 2012)

NORD/LB is a public bank, located in Hanover, Germany and owned by the German states of Lower Saxony, Saxony-Anhalt as well as saving banks.

• Balance sheet: EUR229 billion (USD300 billion); #8 amongst German banks
• Universal bank, nearly 250 years in the market
• Amongst top 10 worldwide in ship & aircraft financing, amongst top 10 in Europe in project financing for renewable energy, infrastructure and real estate
• Market leader in Northern Germany in private, commercial and corporate banking
• Represented in the important financial centers worldwide
framework into the direction of a political union (Fiscal Compact, banking union, ...). Progress can be measured according to unit labor costs and the reduction of the current account deficits. This process will continue on for some time. The next step must be to regain investors’ trust in the future of the euro and in the recovery of the countries in crisis, in order to end the distortion of capital flow within the euro zone (TARGET2 balances) and with other currency zones (Switzerland, Norway, but also the USA).

In the U.S., national debt increased dramatically and unemployment remains relatively high. A way out doesn’t seem in sight. However, it must not be overlooked that, at the same time, debt relief for private households and companies has made tremendous headway. In addition, since the trough, over 4 million new jobs have been created. And real estate prices have recovered significantly. Debt relief, new jobs and the costs of homes all sustainably stabilize private consumption. U.S. companies, on average, were able to improve their cash significantly, and today, they have financial reserves that are expected to provide a stable investment cycle when combined with an improved trust into development. Exports increased as well—albeit not as much to notice the reduction of the current account deficit.

**COOPERATION INSTEAD OF CONFRONTATION**

All in all, not a bad run for 2012. For 2013, I remain optimistic that the reduction of bad debts will continue, step by step, and that space for new growth will expand. For the U.S., I anticipate a growth of about 2%, while the eurozone will manage to leave the recession behind and grow by 0.5%. Again, Germany remains the leader in economic growth for Europe with a growth of 1%. Inflation around the currency zones lies with approx. 2% well within the targeted scope of the central banks. Here, decision-makers will realize that holding on to open markets is an advantage for all parties involved. The crisis shows the mutual dependancy on the world market with chances as well as risks. This realization will pave the way for more cooperation. But cooperation also means compromise (even in a transatlantic relationship). It seems to me that in this regard, EU politics will have a lot more to do, but in general is also more advanced compared to current U.S. politics. So there is still a great deal to be done in 2013. No time for pessimism.

Translation from German by Sandy Jones, GACC New York
Support for SMBs comes with National Bias

Access to several US bid invitations remains closed for German companies

By Ullrich Umann (Germany Trade and Invest)

German companies wanting to participate in public bid invitations in the US should undergo a meticulous preparation process. Statutory provisions and regulations on various administrative levels regarding the support of small and medium businesses (SMBs) make it sometimes almost impossible for foreign bidders to submit a bid. In some cases, ‘Buy America’ regulations or lack of transparency before bidding make for insurmountable obstacles. The European Commission shows concern about the current situation.

In the US, public bid invitations in the amount of up to US$ 100,000 are reserved for small and medium businesses (SMBs) with a domestic place of business. This national regulation is not against the official rules set by the World Trade Organization (WTO), since it is covered by an exemption to the WTO Government Procurement Agreement (GPA) under General Note 1 to the US Appendix I.

However, what does pose a problem is the fact that a predetermined award volume percentage of the more extensive bid invitations is exclusively reserved for domestic SMBs – if not via direct award of contract, then in the way that the winning bidder has to award subcontracts to SMBs. According to the Small Business Act (Public Law 85-556), the US government awards 23% of its procurement volume this way to small and medium businesses.

Given these circumstances, the European Commission now assumes that a significant part of local procurement in the US is only realized in a ‘reserved’ scope; all the more since ‘Buy America’ stipulations are tied to awarding criteria in some cases. Sometimes, bid invitations have a lack of transparency, since there is no uniform information platform on state level comparable to the European TED database.

Looking at www.fbo.gov you will find an existing US bid invitation...
portal; however, the listed procurements are largely assigned to federal agencies. A substantial number of public procurement, however, takes place on the administrative sublevel of states and local municipalities.

Regulations set to keep foreign bidders from public procurement have somewhat of a tradition in the US. ‘Buy America’ already played a major role in the 1930s in legislature, since there had already been a worldwide economic crisis the nation had to deal with and overcome. Originally, the Buy America Act of 1933 allowed for numerous restrictions on foreign supplies and/or regulated ‘local content’ to more than 50% when it came to public procurement.

In 1954, the Executive Order 10582 expanded ‘Buy America’ regulations in areas with high unemployment in favor of local small and medium businesses. Foreign bids were allowed to be denied referring a heightened national interest or national security.

In 1953, the Small Business Act of 1953 for the development of small and medium businesses was enacted. Based on this law, a federal agency was established specially for the development of SMBs - the US Small Business Administration. Among others, the Small Business Administration controls the awarding of contracts for SMBs regarding procurement of all federal departments. Within this agency, the Office of Government Contracting has the underwriting authority. The following is from the agency’s website regarding the topic:

“Under the Small Business Act, federal agencies conduct a variety of procurements that are reserved exclusively for small business participation. These transactions are called "small business set-aside". These set-asides can be used for small businesses in general or specific, for HUBZone certified firms, 8(a) certified firms, Service Disabled Veteran-owned small firms, or once implemented, those firms participating in the Women’s Small Business Contracting Program.

For all procurement actions expected to exceed the $150,000 simplified acquisition threshold, prime contractors are required to make a "best effort" attempt to make use of small disadvantaged businesses, SDVOs, and WOSBs as subcontractors if the opportunity exists under the contract. For procurement actions expected to exceed $650,000 ($1.5 million for construction), the winning contractor is required to provide the agency contracting officer with a written plan that establishes a small business subcontracting goal. The plan details how the winning contractor will make use of small business in each subcontract category and provide for timely payments.”

Companies wanting to be considered for public procurement in line with the development of SMBs have to register with the Small Business Administration. Besides complying with sizeable criteria varying with types of procurement (highest possible number of employees in the past 12 months, cap regarding annual turnover, etc.) the company has to have a domestic place of business and has to be primarily active in the US market and/or has to contribute substantially to the further development of the US economy. This includes paying taxes in the US, using materials and components made in the US as well as employing American personnel.

Over the years, US Congress has further refined the regulations concerning SMB quota for public procurement. Currently, the Small Business Administration painstakingly controls whether the individual federal
departments stick to the corresponding, defined SMB quota when it comes to awarding contracts and whether transparency was given during the process.

In times of merging and integrating national economies and free world trade, which the US administration is striving for as well, discrimination in the public procurement process regarding nationality or size of bidding company could only be seen as outdated. This is the reason why the European Commission has already called on Washington several times.

Already during the so-called Uruguay Round (1986-1994), before the WTO was established, the EU negotiated with the US the completion of a bilateral agreement compliant with the later agreed-upon WTO Government Procurement Agreement. With this, the participation conditions for European companies bidding on public procurement in the US improved – yet not by much and not to an utmost satisfaction.

Furthermore, the European Commission is concerned about the ‘Buy America’ regulations when it comes to government procurement; e.g., the federal funding for road and highway construction. As a latest measure, national procurement regulations in line with the American Recovery and Reinvestment Act of 2009 were used. This was not only criticized in Europe but worldwide. Only

the Canadian government managed to enforce Canadian companies not being hindered by ‘Buy America’.

A swift change in national procurement regulations is not expected any time soon. In the US, it would be almost impossible to legally realize the suspension of national law in favor of foreign companies, since such a measure would partially conflict with national legislature, among others, on individual state levels. As a general guideline, the European Union had suggested to use the WTO Government Procurement Agreement, without exception, for all bid invitations and on all administrative levels in the US – up until now without any success.

Several US states follow individual policies for the development of SMBs and/or disabled or otherwise handicapped, however economically active persons; among others, for national minorities and in line with creating equal economic opportunities for women respectively. Based on this, according to EU estimates, foreign bidding companies are already excluded from about 20% of bid invitations in states such as Texas. In Kentucky, the exclusion quota could very well reach 70%.

As problematic as the development of SMBs currently is for US bid invitations for foreign bidders, there is a historic validation for it all. At the beginning of the 1950s after the end of WWII and the Korean War, as hundreds of thousands of demobilized GIs flocked back onto the domestic job market, by far not all homocomers found a new employment - especially since the economy was having a difficult time switching from an extensive war production, closed off to all competition, to the manufacture of goods and services for peacetime and now operating under worldwide competition conditions.

Establishing your own modest company was often the only alternative to unemployment. To guarantee equal opportunities in a free market economy as well as to give a jump start, newly established small businesses were given preferential treatment when it came to the awarding of contracts for public procurement.

With this, survival of the business and corresponding economic prosperity was to be ensured, while keeping competition conditions among companies. The monopoly large bidding companies had in winning bids up until then was effectively and, as history shows, permanently destroyed through the use of the Small Business Act of 1953.

Translation from German by Sandra Jones, GACC New York
3D Printing Market with Great Growth Potential in the U.S.

By Christian Janetzke, Germany Trade and Invest

Translation from German by Sandy Jones, GACC

During 3D printing (so-called additive manufacturing), liquid or solid materials are layered in such a way as to make a three-dimensional structure, predetermined via a computer. Market experts assume that demand on a value basis for 3D printers (including materials and software) has exceeded the US$1 billion threshold in the U.S. in 2013. Mainstream analysts expect significant growth in the double digits in the next couple of years.

From 2014 until 2019, the market researcher IBIS World predicts an average growth rate of 15.7% with an increase to US$3 billion regarding revenue of 3D printer suppliers on the U.S. market. The high expectations are also tied to an increased usage of the technology in the industry sector. Additive manufacturing makes delicate structures possible that cannot be realized by applying traditional manufacturing methods such as milling, turning and drilling.

Great Potential for Industrial Enterprises

In the industry, the technology is mostly used for the manufacture of prototypes for testing purposes in the aviation and automotive sectors. According to Ford, the manufacture of a prototype for an intake manifold using the traditional method will take four months and will cost US$500,000. For the same result, while applying 3D printing technology, four days and about US$3,000 are needed. According to a statement by the carmaker, 3D printing is ideal for the company in view of prototypes as well as applications for niche products passing through numerous development phases.

For the medium term, analysts see great potential in the manufacture of parts. Until now, 3D printers have only been implemented in low numbers for the manufacture of high-end individual parts or for components that have a complicated structure. The market launch of more efficient printers that can process metals and stronger plastics will open the door to industrial manufacturing for the technology, says Jeff Raquet, director of a 3D program at the University of North Carolina.

Compared to classic machining, the technology offers potential to realize a drastic reduction in the use of raw materials. Due to ever-increasing processing of cost-intensive materials (composites made of carbon, fiber glass as well as metal ceramics), this is a decisive argument not least in the aviation industry. Another important aspect in the automotive as well as aviation sector is the weight of the parts that can be manufactured by means of additive manufacturing, which is lower compared to that of conventional products. Both sectors focus more and more on lightweight construction.

Aviation Industry Places Emphasis on 3D Printing Technology

In the aviation industry, the technology is gaining interest in a rapid fashion when it comes to manufacturing. The aircraft manufacturer Boeing places a strong emphasis on the new technology. In the widebody aircraft "Dreamliner 787" for example, 30 parts are integrated that were manufactured using 3D printing technology. These parts are mostly air ducts and hinges.

One of the worldwide largest aircraft engine suppliers has ambitious plans for the aviation industry. GE Aviation, a subsidiary of General Electric, has announced to invest some US$ 3.5 billion into additive manufacturing until 2018. By 2020, the company plans to produce approx. 100,000 parts using the new technology. In the future, GE Aviation wants to implement as standard into its new "LEAP" engines 19 fuel nozzles that were manufactured using 3D printing technology. For their commercial production, the company expanded its plant in Auburn, Alabama, for some US$50 million.

Progress in Eliminating Market Obstacles

Numerous obstacles are however still to be overcome before 3D printing can revolutionize industrial production. For mass production, the speed of the 3D printers that are currently available is not sufficient, say market experts. One of the biggest problems for a commercial breakthrough are the high costs of equipment and material, reports Terry Wholers, President of Wholers Associates, Inc., a specialized market research and consulting firm. The prices of
equipment for industrial usage are mostly between US$150,000 and US$500,000. Material costs of products of additive manufacturing systems for the aviation industry are about 50 to 100 times the costs of those used in traditional manufacturing processes, according to Wholers.

However, signs bode well for the medium-term reduction of market obstacles. In October 2014, the announcement of Hewlett-Packard, the California IT giant, caused quite the stir in the sector. The company plans to conquer the market in 2016 with a 3D printer for the industry sector. Wholers explains that this printer is substantially faster than any other product currently available on the market. Competition between suppliers is thus likely to drastically increase and prices will decrease. Wholers anticipates a substantial surge in growth for the broader application of the technology.

Government incentives for the further development of the technology are likely to provide additional impulses. A number of times, President Obama explained the great importance of the technology for increasing the competitiveness of the U.S. industry. Numerous research projects have been initiated. For example, Youngstown State University opened an innovation center for additive manufacturing (America Makes – National Additive Manufacturing Innovation Institute). The public-private partnership project was subsidized with some US$30 million by the U.S. Department of Defense. GE Aviation also drives development with intense research. In mid-2013, the company established a state-of-the-art rapid prototyping center for additive manufacturing in Louisville, Kentucky.

The fact that the technology also gains interest in the industry sector outside the automotive and aviation industry gives market observers hope. In the area of consumer electronics, 3D printing is entering parts production (amongst others for circuit boards). Motorola Mobility signed a development agreement spanning several years with 3D Systems Corp. in November 2013. The latter will support Motorola with its technology to realize modular smartphones with interchangeable components. 3D Systems Corp. is to exclusively manufacture many of the required components of the individually combinable smartphones applying 3D printing technology. This also applies to parts such as frames and covers.

**Medical Sector with High Demand**

Outside of the industry sector, 3D printing also enjoys increasing popularity. The medical sector is the most important customer. Initial prototypes with which organs and skin may be produced have already been developed. Under the heading “bioprinting” a high dynamic is noticeable in research and development. Scientists at Cornell University in New York were for example able to produce a human ear using 3D printing technology. However, there is still a number of issues in the area of bioprinting.

While research is still in its infant stages when it comes to the printing of cells, dental technology is hard to imagine these days without the technology. Dental laboratories use 3D printers to produce crowns, bridges and plaster models in a speedy and accurate fashion. There is also increasing use of the technology for the production of hearing aids, contact lenses and prostheses.

In the consumer market, mostly vendors of toys and jewelry as well as the design sector are driving demand to manufacture prototypes for their products. Drastically falling prices regarding 3D printers for home use could make for a drastically increasing market penetration for private households in the medium term, according to IBIS World. A growing number of vendors is focusing on serving the needs of do-it-yourselfers. Some products can be purchased for under US$1,000.
California's Water Crisis Requires Significant Investments

By Christian Janetzke, Germany Trade and Invest - Translation from German by Sandy Jones, GACC

In the past three years, California was in part confronted with extreme drought phases, and according to market experts, the situation is likely to only get worse. Snow and ice from the Sierra Nevada mountain range are the basis for approx. one third of California’s water supply. For the foreseeable future, the state of California will no longer be able to count on melting ice from that region to the previous extent. Experts assume that the snow cover for 2015 will be some 90% below the long-time yearly average.

The predicted strong increase in population exacerbates the problem. In 2014, the population amounted to some 38.5 million in the most populous of all U.S. states. According to a forecast of the California Department of Finance, the 44-million mark is likely to be reached in 2030. Experts estimate the demand for water to significantly exceed the water supply around the year 2050 in many regions, not only during periods of drought.

New Regulations to Conserve Water

Due to the situation growing more acute by the minute, Governor Jerry Brown instructed cities and municipalities at the beginning of April 2015 to reduce water consumption by 25% until the end of the year. As another measure, the state wants to replace parks and green spaces boasting lawn areas of approx. 4.6 million sqm with less sophisticated plants such as cacti and agaves. Universities, golf courses and other facilities with large lawns are to be urged to apply irrigation sparingly.

After all, measures to conserve water alone will not suffice to keep up supply in the medium term, explains Cindy Forbes, expert for drinking

Wastewater treatment and recycling becomes more and more important. Large-scale projects in the area of seawater salt removal are in the pipeline.
water supply at the Department of Public Health. Especially California’s southern regions are facing a huge challenge. Here, freshwater sources are being compromised more and more by penetrating saltwater. At the same time, the California Department of Finance expects especially in these regions the largest increase in population in the state.

Large-scale Project Questionable

California’s southern region obtains approximately half of its water demand from the Colorado River, losing in volume, as well as from the Bay Delta in the state’s northern region. Especially while receiving a supply from the Bay Delta, water has to be transported with heavy energy expenditure over long distances. In addition, municipalities are faced with increasing prices for water from these sources, reports Cindy Forbes.

In order to ease the problems in this region, the government of the state of California is currently planning a large-scale project. Two large tunnels below ground will be part of the Bay Delta Conservation Plan. Water from the Sacramento–San Joaquin Delta is to be transported via these tunnels into regions in the center and in the south of the state that are currently facing a water shortage. The government announced construction to begin in 2017. A timeframe of about 10 years is anticipated for completion.

The investment volume is to amount to approx. $25 billion. However, the project is very controversial, not least due to its expected negative impact on the environment. Thus, experts question whether the Bay Delta Conservation Plan will be greenlighted.

Focus on Water Recycling

Independent of the implementation of this project, a multitude of cities and municipalities in the south strive to significantly reduce their dependency on the import of drinking water. Not being able to just focus on a single technology, they put their hope in a combination of strategies. In this respect, wastewater treatment is becoming increasingly important, says Cindy Forbes.

Orange County is seen as one of the trailblazers. Since 2008, a wastewater treatment plant recycles wastewater in a three-step process in such a thorough way that it is afterwards suitable for the supply of drinking water. In February 2015, the capacity of the plant was increased by some 30% to 100 million gallons of drinking water a day (gpd, 1 gallon = 3.79 l). The investment volume for such an expansion amounted to approx. $140 million. Some 850,000 residents of Orange County can now be supplied with water recycled by the plant.

Feeding-in is done indirectly. The water does not immediately flow into the public network but first into artificial lakes. There, it slowly drains into the groundwater reservoir. Only after this stage it is extracted as drinking water. This process is required because a direct reuse of treated wastewater for the supply of drinking water is still not allowed in the state of California. However, the California Department of Health is currently in revision to change this regulation.

The city of San Diego is planning a large-scale project. For some $3.5 billion a plant with a capacity of 83 million gpd for wastewater treatment following the Orange County example is to be built. In 2035, approx. one third of the city’s residents could satisfy its water needs “indirectly” via the plant.

The state is aiming high. Until 2030, the annual amount of treated wastewater is to increase to 2.5 million acre feet (1 acre foot = 43,560 cubic feet). In 2014, this figure came to 0.7 million acre feet. According to calculations by the information portal Circle of Blue, the realization of this goal will require investments ranging from $13 to 81 billion.
California’s environmental agency has enacted stricter standards regarding the quality of treated wastewater in the last couple of years. Various wastewater treatment plants, however, have been in use for decades. According to Cindy Forbes, operators have to increase investments into new technologies and equipment to meet the current standards. This, as an example, has prompted the Sacramento Regional County Sanitation District to spend around $1.5 to 2 billion for a new, state-of-the-art treatment plant. Construction is scheduled to begin in 2015.

**Striving for Efficient Water Management**

Efficient water management is another topic that is pursued in full force. Many companies plan to have a zero liquid discharge production. By means of expansive treatment, industrial water is to be recycled in a way that would allow it to be used again for processes within the respective plant. Not least increasingly stricter standards have led to a change in the thought process. Instead of comprehensive investments into wastewater treatment before discharge into water bodies the focus is now on closed loop processes.

More and more, water suppliers swap their old water meters for smart water meters. This is primarily the result of state regulations. In 2010, California launched the 20x2020 program. Cities within the state are requested to decrease water consumption per capita by 20% between 2010 and 2020. In addition, consumption per household has to be correctly identified and invoiced by 2025. As a result, many cities can no longer get around the installation of smart water meters. The San Francisco Public Utilities Commission, for example, has installed some 180,000 devices since 2011.

The aging water and wastewater infrastructure poses an obstacle for California in its effort for efficiency. According to market experts, said infrastructure is designed for approximately only half of the state’s current population. In line with a 2013 report by the U.S. Environmental Protection Agency (EPA), capital investments into the public drinking water infrastructure of some $44.5 billion are required within the next 20 years. For the wastewater infrastructure, an amount of $29.9 billion is required according to the same source.

Experts observing the market predict an increased application of public-private partnership models in order to eliminate deficiencies. The ailing state can’t even begin to shoulder the required investments. In November 2014, California’s government received the green light via referendum for a borrowing program worth US$7.6 billion (the so-called Water Quality, Supply and Infrastructure Act). It focuses, amongst other things, on infrastructure projects for surface water storage and groundwater storage. Market experts, however, merely see this as a drop in the proverbial bucket.

**Large-Scale Projects for Seawater Salt Removal**

Seawater salt removal as a tool to generate drinking water is gaining more interest. Until now, there are only three small plants for seawater salt removal in the state. The trend is towards large-scale projects. California Water Works (a subsidiary of the water supplier American Water Works), for example, is planning a plant with a capacity of 9.6 million gpd in Monterey, CA.

Close to the city of Carlsbad, the nation’s largest desalination plant boasting a capacity of some 50 million gpd is to cover the drinking water needs of San Diego County by approx. 10% in 2016. The investment volume amounts to approx. $1 billion. The plant’s operator, Poseidon Resources Corp., has entered into a 30-year water delivery contract with the San Diego County Water Authority. In Huntington Beach, the company is planning another 50-million-gpd project. If the project receives the green light, start of production is anticipated for 2018.

According to information given by the Pacific Institute, 15 projects for seawater salt removal along the California coast were waiting for approval at the end of July 2014. The overall capacity of submitted plants amounts to approx. 459 million gpd. Should the Carlsbad project be successful, a multitude of stragglers could be entering the market, expects Tim Quinn, managing director for the Association of California Water Agencies. At the same time, this could significantly increase acceptance for the technology with the responsible authorities.

Suppliers of high-quality filtration membranes could benefit from these pending large-scale projects. Reverse osmosis is by far the dominant desalination technology in the country. On the side of plant operators, demand for efficient pumps and resistant membranes is growing. With them, the desalination process is to become less energy-intensive and pretreatment efforts are to be reduced.
German Automakers Benefit from Dynamics on U.S. Market

By Christian Janetzke, Germany Trade and Invest
Translation from German by Sandy Jones, GACC

Sales of light vehicles (passenger cars and light trucks up to 6.35 t) increased by some 5.8% to 16.4 units in the U.S. in 2014. With this, the industry sector has again reached its pre-crisis sales level (between 2000 and 2007, mostly between 16 and 17 million light vehicles). The market researcher LMC Automotive predicts approx. 17.0 million sold passenger cars as well as light truck units for 2015 (+3.4% compared to 2014). Low interest rates and the recovery on the job market could also have continued positive effects on sales.

German carmakers were able to increase domestic sales in 2014 by some 2.3% to the record level of 1.36 million new vehicles. The percentage of sales amounted to approx. 8.2% (~0.3% compared to the previous year). VW Group of America had to take a sales loss compared to the previous year. This was somewhat cushioned by the large increases in the brands registered in the premium segment. Thus, the subsidiary companies Audi and Porsche were able to generate increases in the double digits. BMW Group and Daimler AG registered increases slightly above and below average compared to overall sales in the U.S.

The slight decrease in the percentage of sales of German manufacturers in 2014 can amongst other things be attributed to the relatively weak positioning when it comes to light trucks. This segment is currently the growth engine on the U.S. automotive market, not least thanks to fuel prices that have dropped significantly since the second half of 2014. Sales of light trucks grew by 10.1% (in units) in 2014.

Expansion of domestic production capacities

In 2014, German manufacturers expanded domestic output by some 15% to 715,000 units, explained the VDA, the German Association of the Automotive Industry, during the Detroit Auto Show at the beginning of January 2015. Compared to 2010, production could be ramped up by some 150%. Approx. one fifth of the German auto brands sold in the U.S. in 2014 came from domestic plants.

German carmakers create new capacities in their U.S. plants. At the end of March 2014, BMW announced investments of up to US$1 billion into its Spartanburg plant. The production capacity is planned to increase from 300,000 to 450,000 vehicles until 2016. VW plans to expand its plant in Chattanooga, Tennessee. Here, the spacious SUV "Crossblue", tailored to the U.S. market, is to roll off the assembly line. With this, VW wants to win market shares in the booming segment of light trucks. In addition, a development center is in the works. Until the end of 2016, VW plans to invest approx. US$600 million into its location.
Most important export sales market in terms of value

According to the VDA, the U.S. was the worldwide most important sales market for German carmakers, as measured by export value. In U.S. import statistics, Germany ranked third in 2014. Imports of light vehicles from Germany increased by 1.0% to approx. US$26 billion.

German parts suppliers as well hold an important position in export as well as in view of manufacture on-site. Says the VDA, German companies in the industry sector are represented with some 300 production facilities nationwide. Mostly in the country’s south, announcements of new subsidiaries continue to emerge without an end in sight. In addition, in view of export into the U.S., German parts suppliers were able to generate a growth of 9.9% to some US$7.9 billion in 2014. With this, Germany was the fifth most important supplier country for automotive parts.

German carmakers would benefit from TTIP in many ways

Experts see much growth potential in the transatlantic automobile trade should negotiations regarding the “Transatlantic Trade and Investment Partnership” (TTIP) be successful. The tariff rate for the export of passenger vehicles from the European Union into the U.S. is at 2.5%. German manufacturers would benefit from the removal of customs duties on both sides of the Atlantic in more than one respect. Some 24% of all light vehicles produced by them in the U.S. in 2014 were exported to Europe. The tariff rate for the export of passenger cars into the European Union is at 10.0%. For the German automotive industry, expenditures regarding customs duties in the transatlantic trade added up to approx. US$1 billion in 2014, according to the VDA.

Experts consistently see a much higher potential in the area of non-tariff trade barriers. A thicket of different regulatory and technical regulations results in costly retrofits for German car manufacturers. Different standards, norms, and regulations mean that German manufac-

urers for the U.S. market are not able to offer the same model as for the European market. In addition, test methods differ in terms of measuring CO2 emissions and pollutants during authorization processes. Harmonizing the various regulations and/or providing mutual recognition of standards would lead to significant cost savings.

Sales of passenger cars and light trucks of German manufacturers in the U.S. in 2014 [in units; changes and market shares in %]

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>VW Group of America</td>
<td>473,791</td>
<td>-3.5</td>
<td>5.9</td>
<td>125,908</td>
<td>4.4</td>
<td>1.5</td>
</tr>
<tr>
<td>BMWV Group</td>
<td>263,837</td>
<td>4.3</td>
<td>3.3</td>
<td>132,913</td>
<td>7.3</td>
<td>1.5</td>
</tr>
<tr>
<td>Daimler AG</td>
<td>222,539</td>
<td>3.3</td>
<td>2.9</td>
<td>144,050</td>
<td>12.4</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Source: Automotive News Data Center
US photovoltaics market remains on whopping growth curve

By Martin Wiekert, Germany Trade and Invest - Translation from German by Sandy Jones, GACC

With the new record installations of 7,286 MW (+17% compared to 2014), the U.S. market for photovoltaics (PV) has increased twelve-fold since 2010. By now, PV capacities exceed the 25-GW threshold. Together with the 1.8 GW from solar thermal power plants (concentrated solar power - CSP), the U.S. has currently more than 27 GW in operational solar power capacities.

For the first time, additionally installed capacities are higher than in the natural gas sector

In 2015, when it came to additionally installed plants, solar energy was able to pass natural gas for the first time. According to the SEIA, last year, it represented almost 30% of the new generating capacity. However, its share in the U.S. power supply is still relatively low. Despite the rapid expansion, it currently is less than 1%.

The bulk of installations carried out in 2015 is provided by larger PV solar power plants ("utility PV"). According to the SEIA, here, a record plant capacity of 4 GW was brought into service (+6% compared to 2014). Meanwhile, additionally built installations in the residential sector increased at a much higher speed. With more than 2 GW, a market growth of 66% was registered. However, installation data in other sectors was slightly less impressive. In the commercial sector, as it was the case in the previous year, plants of approx. 1 GW were added, while in the area of solar thermal power generation 110 MW were added to the grid.

Congress creates long-term stable funding framework

The outlook for the further development of the U.S. solar energy market is currently very optimistic. Largely responsible for this are recent political decisions. Shortly before the turn of the year, U.S. Congress extended some important funding instruments for the sector for the long term. The increased Investment Tax Credit (ITC) of 30% of the investment costs is now granted for commercial solar energy projects whose start of construction is scheduled until the end of 2019. This is followed by a gradual decrease to the funding rate of 10% by 2022, originally already planned for 2017. For private solar investments in the residential sector, analog income tax credits are available until 2021. However, here, the start of operation of the plants is relevant, and the funding regulation will expire in 2022.

The new Clean Power Plan of the U.S. Environmental Protection Agency (EPA) could create an additional impetus for the expansion of solar energy. However, it is still uncertain whether the regulatory measure passed in August 2015 can be implemented as intended by the Obama Administration. The requirements contained in the plan regarding the reduction of CO2 emissions in the electricity sector would significantly stimulate the investments in climate-friendly energy technologies.

Development of the U.S. market for photovoltaic systems

<table>
<thead>
<tr>
<th>Years</th>
<th>New installations (MW)</th>
<th>Change compared to previous year (%)</th>
<th>Overall U.S. capacity at the end of the year (GW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>385</td>
<td>29</td>
<td>1.2</td>
</tr>
<tr>
<td>2010</td>
<td>852</td>
<td>121</td>
<td>2.0</td>
</tr>
<tr>
<td>2011</td>
<td>1,926</td>
<td>126</td>
<td>4.0</td>
</tr>
<tr>
<td>2012</td>
<td>3,373</td>
<td>75</td>
<td>7.3</td>
</tr>
<tr>
<td>2013</td>
<td>4,782</td>
<td>42</td>
<td>12.1</td>
</tr>
<tr>
<td>2014</td>
<td>6,247</td>
<td>31</td>
<td>18.3</td>
</tr>
<tr>
<td>2015</td>
<td>7,286</td>
<td>17</td>
<td>25.6</td>
</tr>
</tbody>
</table>

Sources: Solar Energy Industries Association, National Renewable Energy Laboratory
New installations increase by 17% in 2015

Optimistic market outlook
The sector association SEIA already expects new PV installations of approx. 72 GW between 2016 and 2020 based on the ITC extension. Together with the CSP power plants, U.S. solar power capacities would then reach some 100 GW. The annual additionally installed capacity volume is to increase to approx. 20 GW, says the SEIA.

For 2016, the SEIA predicts a strong expansion of the U.S. PV market. Since there are many project developments due to the initially planned ITC down-sizing, the installation volume is said to increase to approx. 13 GW. The special service IHS even thinks that market volumes of some 15 GW could be possible. For 2017, both organizations assume a temporary slowing in additionally built installations, afterwards installations are said to increase again until 2020.

If the predicted development does in fact take place, the U.S. could count on additional solar investments worth an amount in the three-digit billion dollar range until the end of the decade. Many foreign sector companies are also likely to benefit from the expected wave of investments. Chinese PV technology providers, however, still have to operate under difficult conditions due to the anti-dumping rules imposed on them.

A wealth of opportunities for suppliers from Germany
For German solar companies and supplier companies, additional business opportunities will open up in the next couple of years in the U.S. However, market conditions vary on regional levels. Besides the federal tax credits and the local degree of insolation, the specific local funding environment is also relevant for the development in the sector. In 2015, almost four-fifths of the total installed capacity were contributed by the top ten of U.S. solar states.

According to a market outlook of the U.S. Energy Information Administration (EIA), a continued strong regional concentration of plant installations is likely. According to the EIA, approx. 80% of the solar power plants to be constructed until 2017 alone could be built in California, Nevada, North California, Texas and Georgia.
Moderate-Growth Economic Activity in the U.S. Industry Could Deliver a Stimulus for Investments into Machinery in 2016

By Christian Janetzke, Germany Trade and Invest - Translation from German by Sandy Jones, GACC

In the fall of 2015, many indicators for manufacturers of machines destined for the industrial sector point towards a moderately positive market environment in the U.S. in the medium term. In the first two quarters of 2015, a decrease in industrial production was noticeable. In the 3rd quarter, a trend reversal was possible thanks to an increase of 1.8% projected onto the year as a whole and compared to the quarter of the previous year.

In 2016, the growth is said to slightly accelerate with a plus in industrial production of 2.1%. With this, the output would approximately reach the pre-crisis level of 2007 again. Private gross fixed capital formation (without residential construction) is expected to increase by 4.2% in 2016. Besides an uplift in consumer behavior, an urgent need for modernization in many areas of industrial assets could make for growing investments into machinery amongst other things.

Within the industry sector, the automotive sector is the most significant buyer for a multitude of machine segments. Compared to the same timeframe of the previous year, approx. 3.8% more passenger cars as well as light vehicles up to 6.3 t came off the assembly line in the first three quarters of 2015. The majority of industry experts expect moderate growth again for 2016. In the entire automotive sector (including heavy trucks and the partial segment of passenger vehicles) the Manufacturers Alliance for Productivity and Innovation (MAPI) predicts a production plus of approx. 7% for 2016.

With the aviation industry, another important consumer sector is on a growth curve. According to a forecast of the Aerospace Industries Association, value-based deliveries of the sector’s businesses in the civil aviation industry are to increase by 6.2% in 2015. The positive trend is said to continue in 2016. Increased demand in machinery is to be expected from the very wide network of suppliers of Boeing.

**Good prospects for metal-processing machines**

According to the U.S. Census Bureau, in the first three quarters of 2015, the orders for metal-processing machines grew by 12.4% to USD 25.9 billion compared to the same timeframe of the previous year. The signs bode well for the order value to also increase in 2016. According to the Federal Reserve, capacity utilization in the metal-processing industry was at a high of 80.7% in the third quarter of 2015.

According to forecasts of MAPI, the production of metal products in the country will increase by some 3% in 2016. The market research institute IBIS World predicts a growth in value-based demand for metal-processing machines of 3.4%. According to the market research institute Gardner Business, an especially good sales potential is to be expected in the area of milling machines (and here especially in the area of high-speed cutters).

**Machine tools segment waiting for trend reversal**

Not all segments of metal-processing machinery have recorded growths on the U.S. market in the course of the year up to now. According to a survey among member companies of the Association for Manufacturing Technology (AMT), orders of machine tools decreased by 10.0% to USD 2.7 billion in the first eight months of 2015.

According to expectations of the AMT, the market for machine tools is likely to go through the trend reversal in the second half of 2016 in line with the economic recovery of the industry and increasing capital investments in the automotive industry. According to information of IBIS World, tool and die shops will make significant investments into their machinery in 2016. According to a survey of the consulting firm Harbour Results Inc., especially high-quality machines such as five-axis machining centers and machine tools with computerized numerical control (CNC machines) are near the top on the shopping list.
Industrial machines are likely to be in higher demand in 2016

Slow dynamics in a multitude of industry sectors in the first half of 2015 has heavily affected suppliers of industrial machinery. Corresponding equipment is used in the manufacturing industry outside of metal processing. Industrial machinery orders fell in the first three quarters of 2015 by 9.3% to USD 24.6 billion compared to the same timeframe of the previous year. The paper, printing and plastics industries have announced a relatively low demand in new machinery in this timeframe.

Market experts expect demand to increase in the medium term. The food industry is likely to expand its deliveries, and the textile and plastics industries are said to expand their investments into machinery. According to forecasts of MAPI, the production of industrial machinery in the United States will increase by some 9% in 2016.

Hopes of increasing momentum on the import market

After strong growth in the area of metal-processing machines in 2014 to a record level of some USD 18.8 billion, a significant slump in the first three quarters of 2015 was registered. Germany is the second-most important supplier after Japan. In the course of decreased domestic demand, the growth rate of the previous year could not be upheld for industrial machinery. Germany leads the import market in the segment of industrial machines. For example, the machine building industry ”Made in Germany” claims a top position, amongst others, in the segments of plastics and rubber machinery as well as foodstuffs and packaging machinery.

Due to the expected rise in demand for industrial and metal-processing machinery as well as the U.S. dollar likely continuing to be strong, market experts expect moderate import increases in both segments in 2016. IBIS world predicts a growth of 1.6% in value-based imports of metal-processing machinery.

Modernization of machinery in the industry

Industry experts see the lack of skilled labor in the manufacturing industry as a major growth driver in the medium term regarding the demand for flexible, automated machines. Requirements for industrial and metal-processing machinery to adapt to changed production requirements in a self-guided fashion (material, speed) increase at a tearing pace. Integration of various machining processes such as turning, milling and grinding in a machine for the processing of the respective materials is gaining relevance.

Imports of metal-processing and industrial machinery (NAICS 3332 and 3335, in USD million)

<table>
<thead>
<tr>
<th>NAICS goods number</th>
<th>Description of goods</th>
<th>2014</th>
<th>Changes 2013/14 (in %)</th>
<th>1st-3rd quarter 2015</th>
<th>Changes 1st-3rd quarter*</th>
</tr>
</thead>
<tbody>
<tr>
<td>3335</td>
<td>Metal-processing machines</td>
<td>18,851</td>
<td>14.5</td>
<td>14,270</td>
<td>-12.8</td>
</tr>
<tr>
<td></td>
<td>from Germany (2nd)</td>
<td>2,290</td>
<td>5.5</td>
<td>1,693</td>
<td>-1.8</td>
</tr>
<tr>
<td>3332</td>
<td>Industrial machines</td>
<td>12,492</td>
<td>7.2</td>
<td>9,540</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>from Germany (1st)</td>
<td>2,382</td>
<td>6.9</td>
<td>1,783</td>
<td>-2.1</td>
</tr>
</tbody>
</table>

* Compared to the timeframe of the previous year in %  Source: U.S. International Trade Commission