

INFRASTRUCTURE

MINING & METALS

NUCLEAR, SECURITY & ENVIRONMENTAL

OIL, GAS & CHEMICALS

# Dream Bia

**Engineering Our World** 

The Bechtel Report

201

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To *Dream Big* is to **innovate** with our customers, colleagues, and communities to drive change for a more sustainable future.

To *Dream Big* is to recognize those who create the world's modern wonders—wonders that will **deliver** a safer, more efficient, and more connected tomorrow.

To *Dream Big* is to celebrate human ingenuity, big and small, that pushes the limits to imagine and **collaborate** in unexpected ways.

To Dream Big is to uncover the passion, creativity, and **commitment** that inspire our engineers and builders to deliver projects that bring prosperity to our customers and our communities.

Bechtel's **people** *Dream Big* to improve the quality of life for people around our world. Together with our customers, we bring creativity, discipline, and passion to deliver the extraordinary.





# **Executive Letter**

In 2016, as in every year since our founding in 1898, the people of Bechtel were determined to Dream Big. We achieved extraordinary results for our customers and engineered innovative solutions to some of the most pressing challenges of our time. We supported the communities where we live and work. We promoted and enhanced satisfying careers for our 50,000 colleagues worldwide. As always, we aimed to remain competitive and to deliver projects more efficiently, faster, and leaner. To that end, we directed tens of millions of dollars toward investments in innovation to realize both incremental and disruptive improvements in project delivery and cost competitiveness. This effort is not an "add-on" initiative for Bechtel, Rather, it reflects a spirit woven throughout the company. The benefits of this commitment to new ideas accrue to our customers, but they also benefit our colleagues, the company, and our communities.

We codified our enterprise-wide strategy in 2016. This strategy guides our businesses and helps colleagues better understand how their work contributes to our shared success. The strategy captures the company's enduring principles and longer-term objectives to create a sustainable competitive advantage and deliver a consistent experience for all our customers and our people.

Our Vision, Values & Covenants define what we aspire to do, what we believe, and how we behave. We commit to hold ourselves to these standards in all our engagements with our community, our customers, our project partners, and our colleagues.

These core priorities are critical to our business as we pursue new markets and new projects, and build new relationships.

During the year, the Bechtel leadership team assessed opportunities and risks across industries and regions, leading to reallocation of our most senior executive leaders to better address current customer needs and the challenges our industries face.

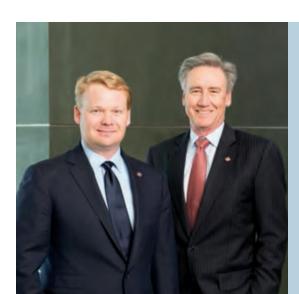
Carrying the successful traditions of our history into the future depends on the active engagement of our dedicated colleagues around the globe, as well as our project partners and suppliers. Together, we celebrate our commitment to safety, quality, ethics, and delivered results. We are proud to represent the organization and our colleagues, and we look forward to helping our customers and communities *Dream Big* and deliver extraordinary results.

### **Financial Performance**

We are pleased to report that Bechtel had a solid year in 2016. Work-off revenue for 2016 totaled \$32.9 billion, slightly above our 2015 results.

Our new worked booked revenue of \$15.3 billion was significantly down in comparison with 2015.

As we predicted last year, the decline in commodity markets and sluggish economic growth continued to impact our opportunities for new wins. Consequently, our backlog revenue declined to \$58.5 billion, from \$70.2 billion the year before. Markets are beginning to show signs of improvement, and we are cautiously optimistic this will bring award announcements that have been in development for some time.



# Brendan Bechtel marks the fifth generation of Bechtel family leadership for the organization

In September 2016, Brendan Bechtel was elected by Bechtel Group, Inc.'s board of directors to succeed Bill Dudley as Bechtel's chief executive officer. Jack Futcher was elected to serve as president and chief operating officer.

In April 2017, Riley Bechtel retired from service as chairman of the board of directors and became a senior director. Simultaneously, the board unanimously elected Brendan as its new chairman.

Left:
Brendan Bechtel
Chairman & CEO

Right: **Jack Futcher** President & COC

### Revenue

in billions of U.S. dollars

2016 | \$32.9

2015 | \$32.3

2014 | \$37.2

2013 | \$39.4

2012 | \$38.0

# New work booked

n billions of U.S. dollar

2016 | \$15.3

2015 | \$21.5

2014 | \$18.4

2013 | \$34.0

2012 | \$24.0

# Backlog revenue

in billions of U.S. dollars

2016 | \$58.5

2015 | \$70.2

2014 | \$70.5

2013 | \$88.2

2012 | \$91.8

# **2016 Project Milestones**

In 2016, we delivered historic results for our customers. We are especially proud to report our completion—on schedule and on budget—of engineering and construction for six liquefied natural gas production trains at three concurrent and sideby-side LNG megaprojects for three different customers on Curtis Island in Queensland, Australia. This was an unprecedented undertaking, as the three programs made up the largest concentration of private-capital investment in Australia's history and Bechtel's largest greenfield program in its history.

While this was one of the most significant of our projects under way last year, all our businesses pursued, launched, and completed important work worldwide. Among them:

- Substantial completion of Train 1 on the Sabine Pass Liquefaction project in Cameron Parish, Louisiana, clearing the way for the first new LNG export from the United States in nearly 50 years
- Completion of the module assembly program at the Wheatstone LNG project near Onslow, Western Australia; both plant's storage tanks and two of four gas turbine generators are also now complete, as production nears for the first liquefied gas from one of Wheatstone's LNG trains this year
- Completion of track installation on the Toronto-York Spadina subway extension for the Toronto Transit Commission's Line 1, including six new subway stations and commuter parking
- Beginning of ground test operations at the Arnold Engineering Development Complex at Arnold Air Force Base in Tennessee, as well as related work at facilities in Maryland and California
- Ongoing underground work on two lines of the Riyadh Metro project in Saudi Arabia's capital city
- Commercial operation status for the Watts Bar Unit 2 nuclear reactor in Tennessee, the first new U.S. reactor to start up this century
- Successful implementation of a massive containment arch to cover a damaged reactor at the Chernobyl Nuclear Power Plant in Ukraine; the arch is providing a safer working environment for cleanup personnel and far better containment of radioactive dust and debris, for at least 100 years
- Completion of work on the electrical substations, high-pressure pump stations, and dual 42-inch (107-centimeter) pipelines at the Escondida Water Supply project in Chile. The pipelines will carry desalinated water from Chile's Pacific coast, across the Atacama Desert, to the world's largest copper mine

### **New Business**

We are grateful that customers in all industries continued to entrust us with their projects, including:

- Constructing tanks and spheres at the Shell Pennsylvania Petrochemicals Complex project north of Pittsburgh, Pennsylvania; work includes 19 flat-bottom tanks, four spheres, and a large ethylene storage tank
- Constructing an onshore gas-processing terminal at BP's West Nile Delta Gas Processing Plant near Alexandria, Egypt; the facility is expected to produce approximately one-fourth of Egypt's gas supply once commissioning is completed in December 2018
- Updating and expanding BP's Galeota Point Terminal in Trinidad and Tobago; the project will improve the terminal's environmental performance with updated condensate-handling and new produced-water facilities
- Beginning stage 1 of the Edmonton Valley Line Light Rail Transit project in Alberta, Canada; with our consortium partners, we are financing, designing, building, and supplying vehicles, and then operating and maintaining the line for the city
- Constructing a sixth potline for an Aluminium Bahrain B.S.C. (Alba) facility, making it the largest single-site smelter in the world
- Front-end engineering and design (FEED) for a new two-reactor nuclear plant in Wales, U.K., for plant owner Horizon Nuclear Power; this work is with joint-venture partners Hitachi Nuclear Energy Europe, Ltd. and Japan Gas Corporation
- Designing and implementing new reforms to improve the Australian Department of Defence's equipment acquisition, sustainment, and management practices for the Australian armed forces, under an extended agreement
- Continuing our longstanding management services work for the Royal Commission for Jubail and Yanbu for work at Jubail, in Saudi Arabia, under a five-year contract extension

# **Industry and Colleague Recognition**

We are proud of the industry recognition that our company, project teams, colleagues, and customers received for excellence, safety, diversity, sustainability, and innovation. Among them:

- Ranked No. 1 on Engineering News-Record's list of the Top 400 U.S. Contractors, for the 18th consecutive year; in addition, Bechtel was recognized as a top contractor on the following lists:
  - Top 20 Petroleum
  - Top 20 Transportation
  - Top 20 Industrial
  - Top 50 Contractors Working Abroad
- Named Global Best Project Award in the power/ industrial category from Engineering News-Record, for the Curtis Island LNG megaprojects
- Awarded Construction Project of the Year from the Platts Global Energy Awards, for the Curtis Island LNG megaprojects
- Presented the Transparency International-USA Corporate Leadership Award, for promoting transparency, combating corruption, and protecting the communities in which we work
- Honored with the U.S. Department of Energy's Voluntary Protection Program Star of Excellence, for worker safety achievements at the Hanford Waste Treatment Plant project
- Awarded a Chief Learning Officer magazine gold medal award, for demonstrating the highest excellence in designing and delivering employee development programs
- Honored NS&E President Barbara Rusinko with the 2016 Global Leadership Award, by the Society of Women Engineers

# Innovation, Value, and Cost Optimization

Throughout 2016, we focused on improving safety, gaining efficiencies, reducing costs, and improving customer value by pioneering ideas that set us apart from our competitors. These efforts are

improving our competitiveness and enabling us to deliver great value and certainty to our customers.

Bechtel's Future Fund totals an investment of \$60 million over three years to accelerate the development of innovative ideas from our colleagues. Since the program launched in early 2016, colleagues have submitted more than 1,200 transformational ideas to improve our business and our entire industry. More than 200 ideas have already moved into the prototype or implementation phase.

Innovation also means using ideas from other industries and building on existing technological advances. For example, although we have used drones for years for aerial imagery, in 2016 we began using drones for materials tracking, giving our project teams yet another tool to improve the effectiveness of our global supply chain.

# Safety

Public and project safety is paramount to our employees, our subcontractors, our customers, and our business. We continuously improve our environmental, safety, and health programs to protect our workforce and increase their well-being.

We continued our journey toward zero incidents by focusing on learning from high-potential events. This emphasis on reducing life-altering injuries resulted in a 25 percent reduction in lost-time incidents and contributed to 35 of our projects completing more than 1 million safe work hours each in 2016. We are especially proud to note that 2016 was the safest year in the history of our Mining & Metals business.

### People

In 2016, we made progress in strengthening our long-term culture of ethics, integrity, accountability, and high performance. This progress was validated by improvements in employee ratings across several key categories of our 2016 employee survey, including Vision, Values & Covenants; Demonstrate Integrity; Respect; Deliver; Collaborate; and Learn It, Do It, Share It.

We have more work to do on consistently valuing the unique contributions of each of our colleagues, drawing on their diverse backgrounds and previous careers to improve our business. A broader and deeper emphasis on diversity and inclusion has already added value to our business by enriching the diversity of our ideas and innovation, strengthening interpersonal relationships, and developing talent we need for today and tomorrow.

# **Looking Ahead**

Our record of delivering projects against difficult odds has resulted in a legacy that we will continue to build. Working with our project partners—our customers, suppliers, and subcontractors—we envision and aim for a leaner, nimbler, and more productive approach to project delivery. We are improving our competitiveness and building new opportunities for our colleagues and for people in the communities where we work.

Through 2017 and beyond, we will continue to invest in people and ideas that have long-term potential. We will *Dream Big* to imagine, design, and deliver new landmarks and innovations that enable Bechtel and our customers to improve our world.

Sincerely,

### **Brendan Bechtel**

Chairman & Chief Executive Officer

### **Jack Futcher**

President & Chief Operating Officer

# Vision, Values & Covenants

# Our Vision: What we aspire to

Be the world's premier engineering, construction, and project management organization by achieving extraordinary results for our customers, building satisfying careers for our people, and earning a fair return on the value we deliver.

# **Our Values: What we believe**

Building on a family and leadership heritage that spans more than a century, we are privately owned by active management and guided by our Vision, Values & Covenants. We value:

**Ethics.** We are uncompromising in our integrity, honesty, and fairness.

**Safety & Health.** We are relentless in keeping people safe from harm, and we provide a healthy work environment.

**Quality.** We are passionate about excellence and doing our work right the first time. Our reputation depends on our delivered value in the eyes of every customer and community.

**People.** We inspire each other with important work full of purpose, challenging development opportunities, and rewarding careers. We aspire to be the employer of choice in our industry.

**Culture.** We actively build a diverse, inclusive, and collaborative work environment where all views are welcomed, openness is encouraged, and teamwork and merit are cornerstones. We are proud of what we do and how we do it—and we enjoy doing it!

**Relationships.** We build positive, long-term relationships with our customers, joint-venture partners, subcontractors, suppliers, and colleagues that are built on trust, respect, and collaboration.

**Innovation.** We develop and apply world-class technology. We listen, learn, and seek out the best ideas. We attack complacency and continually improve.

**Sustainability.** We improve the quality of life in communities where we work by respecting local cultures, engaging local people, and protecting the environment.

# Covenants: How we do it

Wherever we go and whatever we do, we:

**Demonstrate Integrity.** Exercise the highest level of professional and ethical behavior.

**Are Respectful.** Treat people with respect and dignity. Listen actively. Communicate in a timely and forthright manner. Never undermine colleagues.

**Collaborate.** Ask for and welcome help; offer and give it freely. Mutually resolve ambiguity and conflict.

**Build Trust.** Make commitments responsibly and always keep our word. Be candid while building shared understanding.

**Deliver.** Set high aspirations, plan responsibly, and honor all commitments.

**Learn It, Do It, Share It.** Be curious. Seek, share, and build upon experiences and lessons learned.

**Live Our Culture.** Embrace, embody, and actively contribute to our Vision, Values & Covenants. Nurture a proud legacy.

# Bechtel Group, Inc. Strategy

In order to achieve our Vision, we will differentiate ourselves by making our project performance the proof point for our reputation. Our performance, combined with the quality of our people and our long-term commitment, is what enables us to win—and deliver for our customers—the best projects on Earth.

# **Core Strategic Principles**

# Invest in People



### **INSPIRE**

Develop, challenge, and grow our people our most important asset.

# **SHARE**

Talent, experience, knowledge, and opportunities across the company.

# **REWARD**

Recognize colleagues' performance by sharing business returns.

# Perform as Promised



### **DELIVER**

Promise what we can deliver. Deliver what we promised.

# **LEVERAGE**

Unique experience, global reach, deep capabilities, diverse talent, and shared culture—for the benefit of our customers.

### EXECUTE

Discipline and continuous improvement of world-class work processes and procedures.

### **EARN OUR REPUTATION**

Uncompromising ethics, safety, and extraordinary delivery on-time, on-budget.

# Build Our Company for the Long Term



### **BALANCE**

Short-term risk and reward with a long-term perspective. Think, plan, and act with the long-term interests of our customers, our industry, and our company in mind.

### SUSTAIN

Strong values, including management-owned, family-led.

### **ACTIVELY MANAGE**

Balanced portfolio. Be the best, not the biggest. Improve and build on our differentiators, especially our integrated EPC self-perform model.

### **INNOVATE & INVEST**

Continually improve competitiveness.

Increase delivered value to our customers.

# **Strategic Objectives**

# 20% cost reduction

in project delivery

# 30% schedule improvement

in monthly starts and finishes

# Self-perform EPC

broaden, deepen & integrate capabilities

# **Develop profound insights**

into our customers' needs

# Differentiate

process technology, innovative EPC tools, and work processes

# **Build culture**

where colleagues feel valued, challenged, motivated, and treated fairly

# **Project Highlights**

## 1. Pacific NorthWest

**LNG:** Providing front-end engineering and design for a proposed LNG facility, for Pacific North-West LNG

# 2. Tilbury LNG:

Performing EPC for a small-scale LNG facility including new storage capacity for Fortis BC in British Columbia

# 3. Lawrence Livermore **National Laboratory:**

Managing and operating, alongside the University of California, one of the U.S. Department of Energy's most important national security laboratories, which employs more than 6,000 people

# 4. Hanford Tank Waste **Treatment and Immobilization Project:**

Designing, constructing, and commissioning the world's largest and most technically sophisticated radioactive waste treatment plant, for the U.S. Department of Energy

5. Edmonton Valley Line Light Rail Transit: Constructing the Valley Line Light Rail, an essential part of the transportation plan for Canada's fastest-growing city; the 17-mile (27-kilometer) route will have 25 new stops and three stations

6. Los Alamos National Laboratory: Managing and operating a premier U.S. facility for national security and scientific research at one of the world's largest multidisciplinary institutions, for the U.S. Department of Energy

# 7. Pueblo Chemical **Agent-Destruction Pilot**

Plant: Designed, built, systemized, pilot-tested, and now operating, and then closing a first-ofa-kind plant that will safely destroy mustard agent inside munitions stored at the U.S. Army Pueblo Chemical Depot in Colorado

# 8. Corpus Christi Liquefaction: Performing EPC for two LNG trains and related facilities, for a subsidiary of Cheniere Energy

9. North American **Growth—Olefins** Recovery: Building an ethylene plant at the ExxonMobil Baytown complex

# 10. Beaumont **Scanfining Refinery Upgrade:** Upgrading an ExxonMobil refinery, applying the customer's proprietary technology to increase motor fuel production

11. Sabine Pass Liquefaction: Designing and building five trains for a natural gas liquefaction plant, for Cheniere Energy in Louisiana

# 12. Driftwood LNG FEED:

Providing engineering and design support for Tellurian, Inc.'s liquefied natural gas production and export terminal in Louisiana

13. Uranium Processing Facility: Constructing a multibuilding, state-ofthe-art complex for enriched uranium operations related to nuclear security; the sitereadiness project was completed on time and under budget, and it surpassed 600 days without a recordable incident or injury

**Nuclear Security— Pantex Plant and Y-12 National Security** Complex: Managing and operating the nation's manufacturing and nuclear weapons assembly/disassembly facilities to ensure a safe and effective U.S. nuclear weapons deterrent in Texas and Tennessee

14. Consolidated

# 15. Savannah River Remediation:

Operating and providing EPC services for the U.S. Department of Energy's Savannah River Site liquid waste complex

16. PTTGC Petrochemical Complex FEED: Performing front-end engineering and design for a new petrochemical complex for the American subsidiary of Thai PTT Global Chemicals Ohio

# 17. Shell Pennsylvania **Petrochemicals**

**Complex:** Providing EPC services for a world-scale facility that will use ethane to produce 1.6 million tons of polyethylene per year

# 18. Arnold Engineering **Development Complex:**

Leading the test operations and sustainment for the engineering complex at Arnold Air Force Base, helping to improve operations and attract customers currently served by commercial facilities

# 19. Blue Grass Chemical **Agent-Destruction Pilot**

Plant: Designed, built, systemized, and now operating, and then closing a first-of-a-kind plant to safely destroy the chemical weapons stockpile at the Blue Grass Army Depot

city's 5.3-mile (8.6-kilometer) subway system extension project

Supply: Completed construction of a 38,000-gallon- (143,846liter-) per-minute desalination plant, pumping stations, and 112-mile- (180-kilometer-) long twin 42-inch (107-centimeter) pipelines to supply water to the Escondida mine in Chile, for BHP Billiton

**Plant:** Providing front-end engineering and design for a new two-reactor nuclear power plant that will provide electricity to 5 million homes in the U.K.





# Oil, Gas & Chemicals

We represent the essence of what Bechtel can offer customers—from simultaneously completing three megaprojects to applying cutting-edge technology to increasing efficiency. We strive to be the contractor of choice for customers, with whom we work collaboratively to solve complex problems and convert their visions into reality.

In 2016 on Curtis Island in Queensland, Australia, Bechtel completed the third of three adjacent LNG facilities we designed and built for three different customers. For nearly five years, 15,000 colleagues lived and worked on the island, while more than another 15,000 worked worldwide to

engineer facilities, procure materials and supplies, and design and fabricate modules. Together, the three projects used enough concrete to construct seven Empire State Buildings, enough



structural steel for 13 Eiffel Towers, and enough electrical cable to run the entire length of the Grand Canyon 11 times. The Curtis Island projects represented the largest greenfield undertaking in Bechtel's history, for which the company was honored when these projects were selected as Construction Project of the Year in 2016 by *Platts* Global Energy Awards. It also was named best power industrial project of the year by *Engineering News-Record*.

With an eye toward competitiveness, we actively refined our value proposition in the downstream and chemical markets. We also leveraged resources and experience from other sectors within Bechtel, which helped us better address our customers' challenges and created more value for them.

During the year, we ramped up the automation and digitization of our processes, which deepened our integration with Bechtel's functions and other business sectors. We are now better positioned to serve as a partner for customers from concept origination to implementation.

With the 2016 completion of the first of five liquefaction trains at Cheniere's Sabine Pass operations in Louisiana, we helped deliver the first new U.S. LNG export in nearly 50 years and the first ever from the lower 48 states.



Cheniere's operations at Sabine Pass had previously focused on receiving and regasification of LNG, using facilities we completed in 2005. But as market conditions changed and as the United States dramatically increased its shale gas output, Cheniere hired Bechtel to convert the regasification facilities to enable liquefaction and export, ultimately creating a bidirectional facility better suited to changing market conditions.







President, Oil, Gas & Chemicals



The work at Sabine Pass provided Bechtel an opportunity to advance our steadfast commitment to help veterans find well-paying jobs as they transition from military service to the private sector. Through an innovative welder training program carried out in partnership with Cheniere, a local technical college, and a U.S. Army installation in Louisiana, Bechtel trained veterans as part of a comprehensive, threephase training and job qualification program. The Cheniere Craft Development Program has set a new benchmark as veterans are nearly half of the welders working at Sabine.

# 2016 Select New Projects and Milestones

# **Galeota Expansion**

Bechtel was awarded an EPC contract and received full notice by BP Trinidad and Tobago to proceed on the Galeota Expansion project. The project will update a condensate-handling facility and add a new produced-water facility at BP's Galeota Point Terminal in the southeastern part of the island of Trinidad, improving its environmental performance.

# **Corpus Christi Liquefaction**

Bechtel successfully completed roof raises on both tanks at a Corpus Christi, Texas, liquefaction plant project, for Cheniere.

"Working with Bechtel, Cheniere achieved something that has never been done before anywhere in the world. We achieved substantial completion on three LNG trains in 10 months. We couldn't have done that without Bechtel and their expertise."

Jack Fusco CFO. Cheniere

### **BP West Nile Delta Gas Processing Plant**

We received full notice to proceed on the construction of the BP West Nile Delta Gas Processing Plant near Alexandria, Egypt. The onshore gas-processing terminal is expected to produce about one-fourth of Egypt's gas supply when it is completed.

# **Escondida Water Supply**

As part of a Bechtel multidivision collaboration led by our Mining & Metals business, we completed dual pipelines and pumping facilities that will carry desalinated water from Chile's coast to the Escondida copper mine in the Andes.

# **Shell Pennsylvania Petrochemicals Complex**

Shell Chemical selected Bechtel for a multibillion-dollar ethylene and polymers plant just north of Pittsburgh, Pennsylvania. Bechtel's work on the complex will help stimulate overall economic growth and create jobs.

### INNOVATION—DIFFERENTIATING BECHTEL

Innovative changes to our supply chain processes help Bechtel add value for customers of our Oil, Gas & Chemicals business. To deliver the best results for customers, we are developing a consolidated set of manufacturing and fabrication facilities to deliver the components needed for our projects. By self-performing, Bechtel is able to improve quality and schedule, enhance logistics, and reduce costs for our customers.

"I am the third generation from my family to work in the oil and gas industry. My grandfather was a geologist and my father was a drilling engineer. Most of my childhood was within a 10-mile radius of an oil refinery or a gas plant. Therefore, my curiosity for the field was formed at a very early age."

# Siddharth Gangopadhyay OG&C, Project Engineer Wheatstone, Australia 5 years at Bechtel









# Nuclear, Security & Environmental

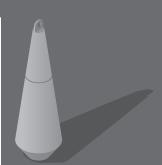
Our Nuclear, Security & Environmental business is focused on government and nuclear work, specifically national and global security, cleaning up Cold War-era waste, and delivering technology and innovations to power the world with clean nuclear energy. At a time of great change, we partner with customers to develop solutions that fit their needs and ensure that missions are completed in a timely and costeffective manner.

We successfully completed our work at Watts Bar Unit 2, the first new nuclear reactor to commence operations in the United States in more than 20 years. Bechtel supported a major milestone with the Chernobyl Shelter Implementation Plan, as the key structure was placed over the damaged reactor at Chernobyl—a pivotal step in the decades-long challenge.

Bechtel's mission-critical work on multiple projects for the U.S. Departments of Defense and Energy is helping to make the world cleaner and safer. During the past year, our government business broadened its portfolio from working almost exclusively with the U.S. government to include the U.K. and Australian governments as well. As a trusted partner of these and other U.S.-allied countries, we handle challenging construction and cleanup efforts in the safest and most efficient manner.

# Pueblo Chemical Agent-Destruction Pilot Plant

Following the completion of construction and testing, the Bechtelled team at the Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) in Colorado achieved a significant milestone with the start of disassembly and destruction of chemical weapons. At full operation, PCAPP will bring the United States closer to meeting international treaty obligations to rid itself of its remaining stockpile of thousands of tons of chemical weapons. The plant will destroy more than 500 chemical-filled artillery shells per day until all 780.000 munitions are dealt with during a four-year timeframe.



500 artillery shells destroyed per day







Using an innovative design with uniquely configured robots, chemical agents stored at the depot are removed from their shells using superheated water. Byproducts are pumped into large reactors for treatment with microbes. The metal munitions bodies are then superheated to destroy any remaining chemicals before the metal is recycled. By making data-centric decisions, the Bechtel team ensures the safe and scheduled mission completion for the Department of Defense and the surrounding community in 2020.



# CYBERSECURITY LAB IN NORTHERN VIRGINIA

Recognizing that cybersecurity is key to protecting facilities such as power stations, government buildings, and process facilities, Bechtel unveiled its new cybersecurity lab in late 2016 near Washington, D.C. The lab allows for the real-world testing of critical industrial control systems in a safe environment, as well as for the creation of equipment more defensible from cyberattacks. In line with Bechtel's emphasis to invest in the future workforce, the facility serves as a training center for students from nearby George Mason University.

# 2016 Select New Projects and Milestones

# **Arnold Engineering Development Complex**

In 2016, we expanded our work in the testing and range market by winning the test operations and sustainment contract for the Arnold Engineering Development Complex, located at a U.S. Air Force base in Tennessee and at two other sites. The complex houses the Air Force's largest and most complex wind tunnels and engine test facilities, which have played a role in developing major aerospace systems, ranging from fighter jets to space satellites.

# **Horizon Nuclear Energy**

Together with joint-venture partners Hitachi Nuclear Energy Europe, Ltd. and Japan Gas Corporation, Bechtel was selected to begin front-end engineering and design development for a two-reactor nuclear power plant for Horizon Nuclear Power in Wales. Before full construction commences in 2020, Bechtel will develop cost and schedule estimates and delivery methodologies utilizing information developed during the FEED activities. The plant will provide carbon-free electricity for up to 5 million homes.

"We needed partners who have been there and delivered. Having Bechtel as part of our team brings us experience on more than 150 nuclear plants and megaprojects across the globe. They are a key part of the team that will deliver a vital element of the U.K.'s low-carbon energy future."

# Shunsuke Utena

Managing Director, Hitachi Nuclear Energy Europe, Ltd.

# Chernobyl

Bechtel continued to oversee an international consortium completing the massive containment arch over the Chernobyl damaged nuclear reactor. In November 2016, the team slid the arch—the largest

movable structure on land—more than 1,000 feet (approximately 300 meters) to cover the plant's damaged reactor building and to protect radioactive contaminants from being spread by wind, rain, and snow.



# Uranium Processing Facility at Y-12 National Security Complex

Bechtel began excavation to build the Uranium Processing Facility at the Y-12 National Security Complex in Tennessee. When completed, the \$6.5 billion project will replace World War II-era facilities and help ensure the long-term viability, safety, and security of nuclear material as the U.S. draws down its nuclear weapons stockpile. At its peak, the project will add 2,400 construction jobs to the local economy.



## Watts Bar Unit 2

Bechtel was prime contractor for the 1,150-megawatt Watts Bar Unit 2 nuclear reactor, which was successfully commissioned in 2016. With this historic milestone, Unit 2 became the first new U.S. reactor to commence operations this century. During Bechtel's decade-long contract, we completed more than 33 million consecutive job hours without a day lost to injury, a remarkable achievement considering the complexity of the work.

"To Dream Big is to embrace a mindset of discovery and let it lead you to places you've never been. As a child, I recognized learning as opportunity, which led me to Bechtel. Throughout my journey at Bechtel, my desire to discover has taken me from learning financial fundamentals to understanding how operations leads to successful mission delivery."



# Cynethia Sims

NS&E, Financial Operations Business Partner Oak Ridge, Tennessee 10 Years at Bechtel



# Mining & Metals

While the mining and metals industry showed signs of revival in 2016, we continued to successfully execute ongoing contracts while applying innovative ideas and tools, and increasing our emphasis on worker protection and safety. As a result, 2016 marked the safest year in Bechtel's history for our Mining & Metals business.

# 2016 Select New Projects and Milestones

# Los Pelambres and Distrito Minero Centinela

We recently completed a feasibility study for the complementary infrastructures of Los Pelambres and the feasibility study stage 1 of DMC copper projects in Chile. Bechtel's long and highly successful relationship with Antofagasta Minerals S.A. (AMSA) began in 1995, with construction of the original Minera Los Pelambres facility. In the interim, Bechtel has executed multiple projects for this customer.

"We awarded the two feasibility studies to Bechtel in very competitive bid processes based on Bechtel's considerable global and regional experience, the capacity of both the company in general and its key personnel in particular, and the fact that the company also took part in developing the original Los Pelambres project."

# Julio Bustamante,

Project Manager, Project Vice Presidency - AMSA

### Amrun

The Amrun project, near the Embley River in north Queensland, Australia, will expand Rio Tinto's Weipa bauxite mine to ensure a steady supply of raw material to two of its alumina refineries in Gladstone, Queensland, as well as for export. Our contract at Amrun encompasses construction of port and ship-loading infrastructure, barge and ferry operations, product-handling facilities, a beneficiation plant, a diesel-fueled power station, and other support facilities and projects.

### AMRUN INNOVATION

At the Amrun bauxite project in Australia, Bechtel engineers conceived an innovative method for constructing a marine terminal. Their construction process relied on setting modularized piles into the ocean floor with the platform pieces pre-attached. This allowed our project team to accelerate construction in a safer and more-efficient manner than by driving piles and attaching platforms later.

# **Alba Six Potline**

Bechtel was chosen to construct the sixth potline for the Alba aluminium smelter in Bahrain. Upon completion of Line Six Expansion Project by early 2019, Alba will be the world's largest single-site aluminium smelter, thus exceeding the aluminium production capacity of the continental United States. Bechtel served as the EPCM contractor for two previous expansions of the Alba smelter.

In 2016, we successfully completed the Escondida Water Supply project in Chile. Our Bechtel-Techint joint-venture team built dual 112mile- (180-kilometer-) long, 42-inch (107-centimeter) pipelines that will carry desalinated water from Chile's Pacific coast, across the Atacama Desert, to the world's largest copper mine, Escondida, located almost 10,000 feet (3,048 meters) above sea level in the Andes Mountains. Our Bechtel-Sigdo Koppers joint venture completed the construction work for the desalination plant and plant facilities.



# Dual 112 mile pipelines

The project team also built support facilities for the pipelines, including a series of electrical substations and high-pressure pump stations. Delivered on schedule and on budget, the desalination plant is pumping water and, when fully completed, will be one of the largest seawater reverse-osmosis facilities in the world









We're introducing innovative technologies to help our customers meet their competitiveness objectives. Whatever our customers need, we are agile, cost focused, and prepared to partner with them to execute and deliver."

President, Mining & Metals

Bechtel drew on expertise from the company's Infrastructure and Oil, Gas & Chemicals business units to perform transmission lines, pipeline, and tank construction work. This first-of-a-kind collaboration of Bechtel capabilities has paved the way for similar "One Bechtel" teaming efforts for other customers' complex projects, saving the customer time and money by offering scope at the highest quality from the same contractor.



"To Dream Big means to never stop growing. Do not let feelings of fear and apprehension rule your decision-making. Park your ego, raise your hand, and dive into the opportunities that come your way. You have to believe in yourself first for others to believe in you."

Mona Zaki 10 years at Bechtel



# Infrastructure

We develop and deliver projects that connect and power communities around the world. Our Infrastructure business has colleagues working in 20 countries on major power, rail, aviation, civil infrastructure, and wireless communications projects. Our expertise encompasses engineering, procurement, and construction through to project management consultancy. A mutually reinforcing connection between our engineering, procurement, and construction skills and our experience, along with our project management capabilities, allows Bechtel to be the most effective delivery partner for our customers. This enables us to successfully deliver some of the world's most challenging projects across the full spectrum of roles ranging from self-performed engineering and construction through creating lasting partnerships with our stakeholders and customers. We engineer and we deliver the world's most challenging transportation, power, and communications projects.

The year 2016 saw a continued global trend of urbanization, with some estimates suggesting a growth of cities by 200,000 people a day. As a result, these communities need new and upgraded sustainable infrastructure, transit systems that transport populations, new power plants, and new water and communications systems. We continue to build on our key business differentiators, including proven innovative public-private partnership approaches to funding megaprojects and successful use of local supply chains and talent pools. In the process, we create and sustain thousands of jobs.

# **Stonewall Energy Center**

The Panda Stonewall Power project is in Loudoun County, Virginia, just outside of Washington, D.C. This 778-megawatt project, the fourth we have executed for power development company Panda Power Funds, features the latest in cutting-edge combined-cycle power generation. The facility, which is expected to finish ahead of schedule, will provide cleaner generated electricity to 800,000 homes and—with new, permanent jobs—boost the local economy.











Stonewall uses both a gas and a steam turbine together to produce more electricity from the same fuel than a traditional simple-cycle plant. The waste heat from the gas turbine is directed to the steam turbine, generating extra power from less fuel.

On Bechtel's combined-cycle power work, a cross-section of company managers and project team members review past projects and develop a standard execution approach. Their findings reduce installation costs and enhance design, procurement, and construction—thus adding value for our customers.

# 2016 Select New Projects and Milestones

# **Edmonton Valley Line Light Rail Transit**

As part of the TransEd Partners team, we were chosen to finance, design, supply vehicles, build, operate, and maintain the Valley Line of the city of Edmonton's light rail project. The project will be delivered using our public-private partnership procurement model.

# **Riyadh Metro**

In the capital and the busiest city in Saudi Arabia, Bechtel is halfway through this majestic project to build two new lines for Riyadh's metro system. In 2016, the Bechtel-led consortium, BACS, completed

all tunnel excavation. The project used a variety of classic and innovative tunneling techniques, with four giant tunnelboring machines that collectively drove 10 miles (16 kilometers) beneath the city.



# Kosovo Motorway

Progress continued on our seven-year work to expand Kosovo's motorway network. In 2016, the company and its joint-venture partner, Enka, completed a 40-mile- (65-kilometer-) long section of Route 6, the highway that will carry traffic from the capital, Pristina, to neighboring Macedonia.

## INNOVATION—VIRTUAL PROJECT DELIVERY

We continue to reimagine how we work.
Using virtual project delivery, our application of the latest technologies, Bechtel is reinventing our standard tools and processes. This leads to more dynamic forecasts and better program management, saving customers money and accelerating delivery schedules.

Our data-centric smart models reflect dimensions, weight, and temperature restrictions, giving project teams better insight into engineering and design. For example, by intelligently modeling the volume of soil on a project as individually tagged cubes, we can actively manage excavation and backfill, mitigating potentially costly access and egress issues. We are layering in scheduling information to achieve 4-D models—which help us visualize construction progress, such as the U.K.'s Crossrail project, now renamed the Elizabeth Line—and are now integrating costs to achieve 5-D models for bid proposals and projects.

"The best decision of my 27-year career was bringing in Bechtel last year to manage the last 30 percent of the Spadina subway extension construction—one that will ensure the line is up and running next year and not in 2018 or 2019."

# **Andy Byford**

CEO, Toronto Transit Commission, Toronto-York Spadina subway extension

"Growing up, I always wanted to build things. As an engineer, I get to do just that. I am integrated with the planning, building, and management of meaningful projects that make a real contribution."



**Lloyd Young**Infrastructure, Senior Principal Engineer
San Jose, California
46 years at Bechtel



# Our People

Our more than 50,000 Bechtel colleagues come from 40 countries and speak some 80 languages. We share a professional culture that embraces, embodies, and actively contributes to our Vision, Values & Covenants, while building a legacy in which each of us takes pride.

Bechtel's people are the core of our organization, and their talent is the source of our competitive differentiation. We deliver every project and work product through our colleagues' expertise, ideas, commitment, and resiliency. We have the best and brightest technical specialists in the world whose deep competence in highly specialized engineering, procurement, and construction skills enables us to confidently design and deliver what others cannot.

While committed to our work, our people are equally dedicated to living our Vision, Values & Covenants, supporting colleagues, our customers, and our communities.

# **BSERV**

Many Bechtel colleagues around the globe serve or have served in the armed forces. They are a great source of talent for our organization. Former service members thrive at Bechtel, with its similar focus on critical, time-sensitive missions and challenges. To support them, Bechtel launched a new resource group for service members, veterans, reservists, and family and friends of the military, called BSERV.

BSERV's vision is to strengthen Bechtel by executing strategies and developing connections that integrate the experiences, values, and knowledge these colleagues have acquired in their service careers with our company culture.

# **Diversity and Inclusion**

Our Vision, Values & Covenants guide us to ensure a diverse, inclusive, and collaborative work environment where all views are welcomed and openness is encouraged. Diversity makes us stronger. Together, with the most diverse input and constructive challenge to find the best ideas, we can achieve the extraordinary. In 2016, we reinforced our focus on building inclusion and strengthening diversity within our organization. We developed a companywide diversity and inclusion strategy. We designed and completed learning experiences to bring awareness to and counteract unconscious bias starting with the most senior leadership of our company. We better equipped ourselves for the journey we have started to become a more diverse and inclusive company.

# **Bechtel Signature Stewardship Program Partners**

At Bechtel, designing and building for the future is what we do every day, and community engagement is a critical component. Bechtel partners with four global organizations to promote education and to use engineering and construction skills to improve the quality of life in communities where we live and work.

- DiscoverE: Sustains and grows the engineering profession through volunteering, education, and outreach to students
- Engineers Without Borders: Supports community-driven sustainable design and development programs around the world
- FIRST®: Inspires people to be leaders through mentor-based programs that build science, engineering, and technology skills
- Junior Achievement®: Educates K-12 students about workforce readiness, financial literacy, and entrepreneurship

# Stewardship

Bechtel colleagues actively volunteer in communities where the company has offices and projects, often working side by side with customers, project partners, local organizations, and government entities.

Some ways Bechtel and our colleagues aided communities around the world in 2016 are:

- Bechtel Group Foundation responded to the devastating floods in the Texas Gulf Coast with a contribution to the American Red Cross as well as a company matching funds donated by Bechtel colleagues.
- Bechtel Group Foundation provided a contribution to Syrian refugees via the International Rescue Committee, a U.S.-based nonprofit with more than 80 years of experience in addressing the unique needs of refugees. The group is the only relief organization working simultaneously in Syria and its neighboring countries, as well as in the European Union and the United States.
- Volunteers from Bechtel's Engineers Without Borders-U.K. chapter partnered with Arup to help a Rwandan village build a footbridge for safe, year-round access to schools, markets, and health care facilities. The work was done through the U.S. nonprofit Bridges to Prosperity.
- Colleagues at Bechtel offices around the world donated time and money to support local food banks, schools, and community activities. Bechtel colleagues also provided funds, supplies, and holiday presents to female domestic abuse victims.
- Volunteers from Bechtel's Reston office worked with high school seniors for an Ethics Day training program hosted by the Greater Reston Chamber of Commerce.









We held a first-ever virtual Women's Leadership Conference open to all Bechtel colleagues featuring senior leaders and panelists from some of the world's most respected organizations, including General Electric, Transurban, and the National Football League. With the innovative new format, the confirmed attendance numbers were four times our average attendance from previous years and growing daily as colleagues access the ondemand site.



In 2016, Bechtel stewardship impacted more than 100,000 people around the world.



# **Engineers Without Borders:**

10 communities worldwide were aided by volunteer projects



# DiscoverE:

55 countries joined the Bechtelsponsored Global Marathon



# FIRST®:

Engaged in 10 countries and provided support to more than 70 teams



# Junior Achievement®:

603 classes reached in 251 schools around the world; 17,314 students impacted directly by Bechtel contributions; 13 different countries had students involved in programs









# Leadership

**Brendan Bechtel** 

Chairman & Chief **Executive Officer** 

**Jack Futcher** 

President & Chief Operating Officer

**Peter Dawson** 

Chief Financial Officer

Michael Bailey General Counsel

**Craig Albert** President

**Scott Osborne** 

Americas

**Shaun Kenny** 

Asia Pacific

**Amjad Bangash** 

Europe, Africa, Middle Fast

**Paul Gibbs** 

United Kingdom

**Larry Estrada** 

**Aviation Sector** 

**Mike Lewis** 

Civil Sector

**John Stroud** 

Communications

Sector

**Scott Osborne** Power Sector

Ailie MacAdam

Rail Sector

**Barbara Rusinko** 

President

**Brian Sheridan** Defense & Security

**James Taylor** 

**Environmental** 

Ty Troutman **Nuclear Power** 

John Howanitz

Nuclear Security & Operations

**Paige Wilson** 

President

Carlos Ruiz Americas

**Shane Hall** 

Europe, Africa, Middle East

**Lucy Martin** Asia Pacific

**Alasdair Cathcart** 

President

Joe Thompson

Downstream & Chemicals

**Darren Mort** 

LNG

**Maurissa Douglas** Rogers

Offshore

**Rich Wall** Pipeline

**Paul Tooze** 

Tanks

Joe St. Julian

Water

**David Welch** 

President

**Andrew Patterson** 

Africa

**Shaun Kenny** 

Asia Pacific

**David Welch (acting)** 

Europe & Middle East

**Hector Garcia** 

Latin America

**Jay Farrar** 

Washington, D.C., Office

**Craig Albert** Michael Bailey **Brendan Bechtel Alasdair Cathcart Peter Dawson Jack Futcher** 

**Riley Bechtel** 

Senior Director Bechtel Group, Inc.

Steve Bechtel, Jr.

Senior Director Bechtel Group, Inc.

**Bill Dudley** 

Former Vice Chairman of the Board Bechtel Group, Inc.

Leigh Clifford, AO

Chairman, Quantas Airways Limited and former CEO, Rio Tinto Group

**Alan Dachs** 

President & CEO Fremont Group

**Nick Moore** 

Former Global Chairperson Pricewaterhouse-Coopers

David O'Reilly

Former Chairman and CEO Chevron

**Dan Warmenhoven** 

Former Executive Chairman NetApp

Steven Katzman

Engineering. Procurement & Construction Functions

**David Wilson** 

Chief Innovation Officer

**Doug Omichinski** 

Construction & Bechtel **Equipment Operations** 

**Greg Ashley** 

Engineering & Technology

Jeff Shoop

Environmental Safety & Health

**David Hammerle** 

Procurement & Contracts

**Scott Edmunds** 

**Project Controls** 

Craig Stoker Quality & Six Sigma

Joe Diaz Startup

**Eric Parker** 

Bechtel Enterprises

**Anette Sparks** 

Controller & Business Services

**Charlene Wheeless** 

Corporate Affairs & Sustainability

**Nancy Higgins** 

Ethics & Compliance

**Justin Zaccaria** Human Resources

**Justin Arnold** People Strategy

Carol Zierhoffer

Information Systems & Technology

Lynne Saint

Internal Audit

**Michael Wilkinson** Risk Management

**Garry Robison** 

**Tam Nguyen** 

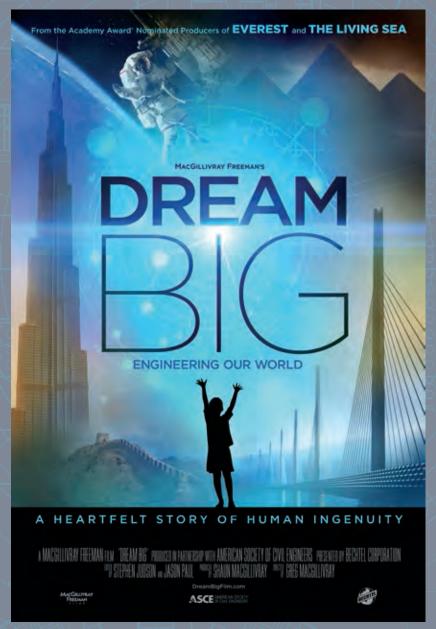
Security

Sustainability John Deshona

Tax

**Kevin Leader** 

Treasury



Dream Big: Engineering Our World IMAX® Film

bechtel.com/dream-big

f y #dreambigfilm

Bechtel partnered with the American Society of Civil Engineers and MacGillivray Freeman Films to create *Dream Big*: Engineering Our World, a first-of-its-kind film for IMAX® and giant screen theaters aimed at inspiring students to pursue careers relating to STEM fields.

Dream Big is more than a movie—it is a movement intended to capture our imagination and promote engineering in our children's education and in our culture. It transforms how we think and feel about engineering, and it inspires future innovators to pursue STEM education and technical careers.

Bechtel understands the vital importance of STEM to the future of the workforce, and as such supports numerous programs to prepare students for this wave of jobs. We also understand the need to humanize STEM as a purpose-driven career path. Not only do STEM skills serve as the backbone of our business, innovative STEM professionals will be essential to delivering on our commitment to engineer the next 100 years of humanity's existence on this planet and, potentially, beyond.

We understand the importance and potential of exposing young people of all backgrounds to STEM. For us, the spirit of ingenuity and innovation can come from anywhere. Diverse perspectives and experiences challenge our engineers to think differently, and we are committed to extending the opportunity of STEM careers to all those who wish to make a positive impact in the world.

Bechtel is proud to share these stories of how engineers and their feats have changed the world. Featuring the Great Wall of China, underwater robots, and the heroic personal stories of those who dared to *Dream Big*, we hope that young minds are inspired, hearts are opened, and passion is kindled, and that the world will welcome the next generation of talent to engineer the extraordinary.

Bechtel is one of the most respected global engineering, construction, and project management companies. Together with our customers, we deliver projects that foster long-term progress and economic growth. Since 1898, we've completed more than 25,000 extraordinary projects across 160 countries on all seven continents. We operate through four global businesses: Infrastructure; Nuclear, Security & Environmental; Oil, Gas & Chemicals; and Mining & Metals. Our company and our culture are built on more than a century of leadership and a relentless adherence to our values, the core of which are safety, quality, ethics, and integrity. These values are what we believe, what we expect, what we deliver, and what we live.



