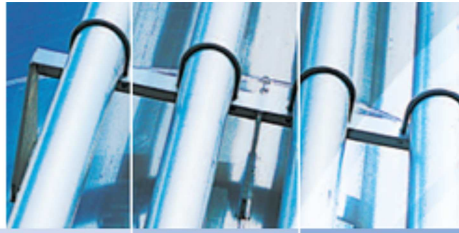


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EMEA eUpdate

The monthly update for
Mechanical Engineers in
Europe, Middle East and Africa

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In celebration of the 100th anniversary of the first edition of what has evolved into the Boiler and Pressure Vessel Code, ASME and the National Board of Boiler and Pressure Vessel Inspectors (NBB) held a special banquet on May 14 recognizing the collective efforts of the many volunteers and staff members from both organizations who have been instrumental in enabling the safe and efficient deployment of boilers, pressure vessels, and related technologies around the world... [Read more](#)

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ASME EVENT ADDRESSES THE QUESTION “WHAT REALLY MATTERS IN STEM EDUCATION?”



(Left to right) Decision Point Dialogue panelists Tamara Hudgins, executive director of Girlstart; James Douglas, former governor of Vermont; Irene Neequaye, a graduate student at the

In middle school, boys and girls turn into teenagers, develop many long-lasting attitudes, and either embrace or turn away from science, technology, engineering, and mathematics (STEM). That makes middle school a critical time for STEM educators. They believe that well-taught STEM courses teach students to solve problems logically as well as by learning from their mistakes. Yet teachers often disagree on approaches and priorities. Their challenges, triumphs, and contradictions were all on display at the live taping of “Critical Thinking, Critical Choices: What Really Matters in STEM,” a far-ranging discussion that featured 12 leaders in STEM education. The event, which was sponsored by the ASME Foundation, kicked off the U.S. News STEM Solutions Conference in Washington, D.C., on Wednesday, 23 April.

“What Really Matters in STEM” is part of the ASME Decision Point Dialogues thought leadership program, where leaders debate the complexities underlying an issue by focusing on the decisions people must make in real life. The event

George Washington University; Ioannis Miaoulis, president and director of the Boston Museum of Science; and Michele Lezama, executive director of the National GEM Consortium. Photos by Bill Petros.



(Left to right) Moderator John Hockenberry, host of National Public Radio's *The Takeaway*, poses a question to panelists ASME President Madiha El Mehelmy Kotb and Kenneth Williams, a public school teacher at Oxon Hill Middle School in Prince George's County, Md.



Tamara Hudgins of Girlstart



Mark Conner (left), director of the Online Engineering and Engineering Academies at Hoover High School in Hoover, Ala., and Arthur Levine, president of the Woodrow Wilson Foundation, discuss the difficulty of replacing high school STEM teachers during the Decision Point Dialogues event last month in Washington, D.C.

will be broadcast on the [ASME website](#) in five weekly instalments starting Tuesday, 10 June.

The dialogue ranged in topics from whether there really is a STEM crisis, how to interest students in STEM classes, the best way to measure results, to how to retain STEM-educated faculty who could find higher-paying jobs in the private sector. Peabody and Emmy Award-winning journalist John Hockenberry, host of public radio's *The Takeaway* programme, moderated the event. His pointed questions kept the heat on the panelists, forcing them to justify their answers and spell out the tradeoffs their choices entailed.

Participants included such luminaries as Boston Museum of Science president Ioannis Miaoulis; ASME President Madiha El Mehelmy Kotb; former Vermont governor James Douglas; Girlstart executive director Tamara Hudgins; Wilson Foundation president, Arthur Levine; and former Newsweek education reporter Pat Wingert.

Hockenberry opened the conversation by describing a mock scenario featuring two 10-year-olds ready to enter middle school. Danica will attend a school in Metro City, a thriving, solidly middle-class school district. Derek will go to West Harding, a poor district that may have its local school closed for poor academic performance.

The give-and-take nature of the forum, a Socratic dialogue, was immediately apparent. Hockenberry described a Metro City STEM festival where companies and schools did demonstrations to motivate students to study STEM.

"Is that something that would excite a 10-year-old girl," he asked.

"If I were her, I would have been bored," said Girlstart's Hudgins. "Most girls at that age are not that interested in science. That's not a way to engage me."

"Should Danica just go home," Hockenberry countered.

"Maybe the school should find a way to engage her on a more personal level," Hudgins replied.

Reaching Derek would be even harder. His district had no STEM festival. Unlike Danica's parents, Derek's mother had been a poor math student and did not see how STEM could lead to a well-paying career. The forum addressed issues Danica and Derek, their parents, teachers, and school administrators will face throughout middle school. For example, while some panelists argued that schools need more STEM classes, others disagreed because that would mean cutting back on history or English to make room for STEM.

Participants went back and forth on the value of project-based courses, where students learn theory by designing and building objects.

Wingate, who is writing a book about STEM education, noted that there is little research on the effectiveness of project-based learning. "It's amazing we teach science in such unscientific ways," she said.

Several participants pointed to Finland and Singapore, which trounced the United States in recent international science and math tests, and said America should model its STEM courses on theirs.

Hal Salzman, a sociologist at Rutgers University, disagreed. Several U.S. states performed as well or better than those top-rated nations, and we do nothing to celebrate them or learn from our successes, he said.

The scenario also included a story about a high school STEM teacher with an engineering degree who needed to find a better paying position because his wife had lost her job.

"What would you tell him to try to get him to stay," Hockenberry asked.

"I would tell him, 'I feel your pain. I have a home and mortgage too,'" said Mark Conner, a teacher from Alabama.

Kenneth Williams, the forum's second teacher, also sympathized. Both have engineering degrees and could find higher paying jobs in industry.

The Wilson Foundation's Levine said that it is hard to replace high school STEM teachers. Education schools are graduating people who want to teach elementary school, he explained. Students who plan to teach and earn STEM degrees often abandon education because they can earn more money in industry.

Conner agreed, and said he should be paid more because his degree is worth more on the market.

When Hockenberry asked former Vermont governor Douglas if he was willing to pay teachers more, he said his state's first need was to control costs. He noted that Vermont looked outside teacher colleges for teaching talent, such as recruiting former IBM employees when their facility downsized.



(Left to right) Also participating in the panel discussion were Pat Wingert, a journalist at the Hechinger Institute on Education and the Media and former writer for Newsweek; Hal Salzman, sociologist and professor of public policy at Rutgers University; and Regis Matzie, a retired senior vice president and chief technology officer for Westinghouse Electric Co.

The panelists also discussed Common Core standards, Next-Generation Science Standards, and teaching to the test. They also discussed whether there was really was a crisis in STEM education.

The education of future engineers, scientists, and mathematicians is an important issue for all engineers. Tune in to the [ASME Decision Point Dialogues page](#) for news, discussions, interviews, podcasts, and videos on this topic. Join the conversation and share your opinions on STEM at <http://bit.ly/OfuewE>.

— Alan Brown, associate editor, *Mechanical Engineering* magazine

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PUBLIC POLICY SYMPOSIUM HIGHLIGHTS ENERGY AND MANUFACTURING POLICY PRIORITIES



Tom Kalil, Deputy Director for Technology and Innovation at the White House Office of Science and Technology Policy, discussed the importance of investing in technology innovation and R&D as well as promoting a “maker culture” in the United States during his keynote speech at the 2014 Engineering Public Policy Symposium. Photos by Bill Petros.

The 2014 Engineering Public Policy Symposium was recently convened in Washington, D.C., to highlight energy and manufacturing public policy issues. The annual event brought together more than 100 leaders – presidents, presidents-elect and executive directors – from 43 national engineering societies, representing more than two million engineers. ASME served as the chair and lead organizer of the Symposium, which was made possible by a grant from the United Engineering Foundation.



ASME President Madiha El Mehelmy Kotb (left) and ASME President-Elect J. Robert Sims (right) presented the ASME President's Award to Patrick Gallagher, director of the National Institute of Standards and Technology, during a meeting at the Department of Commerce following the Public Policy Symposium.

The daylong Symposium featured key speakers from the Obama administration and Congress, who discussed their strategies to encourage resurgence in the U.S. manufacturing sector and the challenges and opportunities facing the energy industry. Kalil served as the event's keynote speaker, and discussed the administration's strong emphasis on investing in technology innovation and R&D, and in promoting a “maker culture” in the United States. Kalil asked the engineering community for support for the president's vision for creating a National Network for Manufacturing Innovation (NNMI), and for assistance in promoting manufacturing events around the country – such as the upcoming White House Maker Faire – to promote the maker movement and a culture that celebrates engineering and science.

Switching to energy issues, the Honourable Daniel Poneman, Deputy Secretary of Energy, highlighted some of the Department of Energy's priority initiatives, including the president's Climate Action Plan. Poneman's comments underscored how severe weather events like Hurricane Sandy serve as a reminder of the vulnerability of the U.S. electric grid, and the key role that engineers must play in developing strategies for adapting to and mitigating the effects of both natural and man-made threats to critical infrastructure.

Providing perspectives from the 113th Congress, the Hon. Chris Collins, one of a handful of engineers in Congress, spoke about his efforts to bring engineering perspectives to public policy. The Hon. Tom Reed and the Hon. Tim Ryan were honoured for their leadership in manufacturing policy as co-chairs of the House Manufacturing Caucus and their work in advancing manufacturing in Congress. In closing, congressional staff from the office of Sen. Christopher Coons (D-DE) discussed legislative action being taken in the Senate to improve the manufacturing base in the United States.

ASME President Madiha El Mehelmy Kotb presented an award on behalf of the Symposium's co-sponsoring organizations to the Hon. Patrick Gallagher, Director of the National Institute of Standards and Technology (NIST), U.S. Department of Commerce, recognizing Dr. Gallagher's leadership in promoting industrial innovation and competitiveness and advancing policies to promote U.S. leadership in science, standards and technology. Gallagher has played an important role in promoting the NNMI, which will be supported through a mixture

of public and private stakeholders and will focus on research related to manufacturing competitiveness.

Following the conclusion of the Symposium, outreach to congressional leaders continued as attendees met with their congressional representatives in the House and Senate to discuss engineering and science budget priorities, urge sustained federal funding to support to energy and R&D, and support the implementation of the NNMI.

The following day, ASME President Kotb presented a second award – the ASME President's Award – to Patrick Gallagher at a meeting at the Department of Commerce. Established in 1998, the ASME President's Award is presented to individuals and companies who have demonstrated significant contributions to the engineering profession. Gallagher joins a distinguished group of past recipients, including former NASA administrator Daniel S. Goldin; Dean Kaman, the founder of For the Inspiration and Recognition of Science and Technology (FIRST); Westinghouse Electric Co.; the U.S. Naval Academy; and the Apollo 11 astronauts, among others.

Roy Chrobocinski, ASME Government Relations

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ASME CELEBRATES 100TH ANNIVERSARY OF BOILER AND PRESSURE VESSEL CODE



ASME President Madiha El Mehelmy Kotb called the ASME Boiler Code "a testament to the engineer's role in ensuring a safety culture" during her remarks last month at a banquet celebrating the 100th anniversary of the Boiler Code. Photo by Mike Nakamura



Kenneth Balkey, senior vice president for Standards and Certification, holds a reproduction copy of "The ASME Report of the Committee to Formulate Standard Specifications for the Construction of Steam Boilers and Other Pressure Vessels and for Their Care in Service."

In celebration of the 100th anniversary of the first edition of what has evolved into the Boiler and Pressure Vessel Code, ASME and the National Board of Boiler and Pressure Vessel Inspectors (NBBI) held a special banquet on May 14 recognising the collective efforts of the many volunteers and staff members from both organisations who have been instrumental in enabling the safe and efficient deployment of boilers, pressure vessels, and related technologies around the world.

Nearly 800 guests attended the banquet, which was organized in conjunction with meetings of ASME's Boiler and Pressure Vessel Code (BPV) Committees and the NBBI being held in Bellevue, Wash. Speakers at the celebration, which also featured a special performance of the show "Cirque Dreams," included ASME President Madiha El Mehelmy Kotb, ASME President-Elect J. Robert Sims, Executive Director Thomas Loughlin, and Deputy Executive Director June Ling. Kenneth Balkey, senior vice president for Standards and Certification, served as master of ceremonies for the evening.

During her remarks at the banquet, President Kotb noted the critical public safety role the Boiler Code has played during the past century. "When the ASME Boiler Code was introduced in 1914, there was no system in place to manage the uniform application of the new code," Kotb said. "It needed to be built. In partnership first with the state jurisdictional authorities and after 1919 with the National Board, the ASME certification system for manufacturers of pressure equipment was created, and this became the model for other similar programmes around the world. The ASME system has performed so well that today it is recognised in over 100 countries around the world by government authorities charged with ensuring public safety. The Boiler Code stands as a testament to the engineer's role in ensuring a safety culture and providing the public with the sense of trust in technology that they deserve."

In a special "Leaders and Legends" ceremony held on 13 May, ASME recognised current and past officers of BPV Standards Committees as well as members who have participated for 35 years or more. During the ceremony, ASME President Kotb and Executive Director Tom Loughlin were joined by June Ling, Bob Sims and Ken Balkey in presenting special recognition to three organizations: Hartford Steam Boiler Inspection and Insurance Co., Babcock & Wilcox, and the National Board of Boiler and Pressure Vessel Inspectors, as well as the Commonwealth of Massachusetts, for their prominent roles in forming the foundations of the first edition of the Code.

Receiving awards on behalf of their respective organisations were Fred Bull, president and chief executive officer of HSB Global Standards; Ronald Pulliam, director of group quality for the Babcock & Wilcox Power Generation Group; David Douin, executive director of the National Board of Boiler & Pressure Vessel Inspectors; and Henry Geryk Jr., district engineering inspector for the Commonwealth of Massachusetts. During this ceremony, ASME President Kotb also presented the National Board with the 2014 ASME President's Award.

In addition to the banquet and award ceremony, ASME recognized the contributions of international subject matter experts and organizations, including participants of ASME's various International Working Groups, hailing from Canada, China, Israel, Italy, Japan, Korea and Scotland.

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TRAINING AND DEVELOPMENT



ASME Training & Development courses for 2014

**Invest in the knowledge that will bring you results and success for your job and organisation.
Register for one of the following training courses:**

Milan, Italy - 16 – 20 June 2014

- Boilers and Pressure Vessels
 - [PD146 - Flow-Induced Vibration with Applications to Failure Analysis](#)
 - [PD441 - Inspection, Repairs, and Alterations of Pressure Equipment](#)
 - [PD442 - BPV Code, Section VIII, Division 1: Design and Fabrication of Pressure Vessels](#)
 - [PD443 - BPV Code, Section VIII, Division 1: Combo Course](#)
 - [PD583 - Pressure Relief Devices: Design, Sizing, Construction, Inspection and Maintenance](#)
 - [PD616 - API 579-1/ASME FFS-1 Fitness-For-Service Evaluation](#)
- Nuclear
 - [PD675 - ASME NQA-1 Lead Auditor Training](#)
- Piping and Pipelines
 - [PD643 - B31.3 Process Piping Code](#)
 - [PD686 - Layout of Piping Systems and Process Equipment and the Use of 3D Modeling](#)

**Coming soon more information
about new dates and destinations: Barcelona, Amsterdam, and Prague.**

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Murat Dogru, Community and Corporate Relations Manager Email: DogruM@asme.org • Tel: +32 2 743 4427**

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ASME EVENTS



The [ASME 2014 12th Biennial Conference on Engineering Systems Design and Analysis \(ESDA2014\)](#) is organised by ASME in cooperation with the Danish Society of Engineers (IDA) and the Danish Society of Mechanical Engineers (DMS) and will be held at the Tivoli Congress Center in Copenhagen, Denmark, 25–27 June, 2014.

Programme Highlights:

Day One, 25 June: “Advanced Manufacturing Impact Forum”

This session will describe the economic potential of emerging technologies, along with the regulatory and technical challenges and will establish a comparison between US and Europe opportunities.

Day One Technical Tracks include: Dynamics, Vibration and Control, Biomedical Biotechnology Engineering, Mechatronics, Automotive Systems, Applied Mechanics, Engineering Systems, Design, Marine and Aerospace Applications.

Day Two, 26 June: “Energy Supply Post 2020 Impact Forum”

This session will provide expert insights on Denmark’s future renewable energy system and opportunities and strategies for entering the shale play market. Discussions will also focus on the biomass for renewable energy production and greening the transport sector.

Day Two Technical Tracks include: Dynamics, Vibration and Control, Fluids Engineering, Mechatronics, Automotive Systems, Micro and Nano Manufacturing, Heat Transfer and Thermal Engineering, Engineering Systems, Materials and Tribology, Digital Manufacturing, Energy.

Day Three, 27 June: “ASME/IDA Student Competitions”

ASME and IDA student members will have the opportunity to showcase their engineering skills in three competitions: the Old Guard Oral Presentation, the Student Design Competition, and the Young Engineers Solution (YES) workshop. The Design Competition will focus on the use of unmanned air vehicles. Participants of the YES workshop will have to propose innovative solutions to concrete engineering problems, using the on-site robots simulation based on LEGO Mindstorm and Experior, a virtual automation platform for 3D visualisation. The winners will win cash prizes and opportunities to travel to Montreal (Canada) in November 2014 to compete in the finals against other students from around the world.

Day Three Technical Tracks include: Fluids Engineering, Computational Mechanics, Robotics, Heat Transfer and Thermal Engineering, Materials and Tribology, Education, and Energy.

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Exhibition and Sponsorship Opportunities

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For more information please contact: [Tanguy Roelens](#).

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**Welcome reception (26 June 2014)
at the Copenhagen city Hall**



**Gala dinner (27 June 2014)
at the National Museum of Denmark**



Book also today your accommodation to obtain best rates – [click here](#) for more details

We look forward to welcoming you in Copenhagen!



Now in its 59th year, [ASME Turbo Expo](#) is recognized as the must attend event for turbomachinery professionals. This technical conference will be held in Düsseldorf, Germany, 16-20 June, 2014.

Turbo Expo has a well-earned reputation for bringing together the best and brightest experts from around the world to share the latest in turbine technology, research and development, and application in areas such as gas, steam and wind turbines, fans and blowers, solar Brayton & Rankine cycle and critical CO₂.

Turbo Expo offers unrivalled networking opportunities with a dedicated and diverse trade show floor. The 3-day exhibition attracts the industry's leading professionals and key decision makers, whose innovation and expertise are helping to shape the future of the turbomachinery industry. Plan now to join over 2,500 turbomachinery colleagues from around the world at ASME Turbo Expo. For registration, sponsorship opportunities and further conference details [click here](#).



19th Blade Mechanics Seminar and Exhibition - Winterthur, Switzerland – Call for Presentations

The Swiss Section and ZHAW Zurich University of Applied Sciences are calling for presentations for the [19th Blade Mechanics Seminar & Exhibition](#). This annual one-day Seminar will be held on 11 September, 2014 in Winterthur, Switzerland. The event scope gets a handle on various motivating numerical and experimental topics (see *Figure 1*) of radial and axial blades and vanes of different aero- and industrial gas turbines, steam turbines, compressors, turbochargers and other rotating components. Because of the practical nature of this unique seminar, almost 90 engineers from various turbomachinery companies meet at ZHAW every year. Long coffee breaks give opportunities to visit the exhibition which is organized by several sponsors who present their software, products and services that are very useful in design and validation of rotating disc assemblies.

Modelling and design methodologies, which can be based on analytical, numerical or/and experimental approaches are solicited in the area of structural mechanics of bladed discs considering interactions with the working medium. The seminar focuses on structural blade mechanics and contributing fluid, acoustic, thermodynamic and cooling aspects, which have an impact on the reliable blade boundary conditions. Also, monitoring and diagnostic are of interest in this seminar. This year one-hour keynote speech will be given about "Blade Design for Damping – Industrial Practice and Future". Below you find the abstract of this keynote lecture: *HCF problems in turbine blades probably date back to the first design of a Parsons steam turbine in 1884. Campbell's (1924) 5-year investigation of 227 steam turbines with ratings above 5 MW resulted in the first resonance design guideline, which neglects damping. Significant advances were made during the period starting with the first fundamental damping study of den Hartog (1931) and continuing through the late 70s, with the development of many closed-form equations supplemented by a great deal of empirical knowledge. Computerization in the 80s allowed for further expansion of the science of damping, offering many specific solutions for friction under-platform or insert dampers; bolt, shroud or winglet contact dissipation; or coating damping. Aero-damping and impact-damping devices and the recently demonstrated piezoelectric-materials and magnetic dissipation widely extend the damping technology portfolio. These newer models, however, are not readily incorporated into common approaches such as the Campbell Diagram and the Mean Stress Diagram (1963), and blade damping is still treated too frequently as an overall empirical factor.*

Regarding the principles of forced vibrations, 4 standard resonance-mitigation strategies (Mass, Stiffness, Mistuning and Damping) are discussed and damping approaches of material and clamping dissipation are reviewed. Then, friction damping technology, such as use of an external or internal damper and shroud or bolt contact dissipation, is summarized in the form of engineering guidelines. With respect to the physical uncertainties in design, evaluation of damping performance and frequency sensitivity are discussed as necessary analyses for integrated blade-damper solutions. Scaling effects in friction damping are demonstrated by considering performance in different sizes of the turbine blade. Coating damping and aero-damping are also briefly discussed.

The market demand for larger AN2 turbine stages will require longer freestanding blades with reliable damping technologies. Therefore, the presentation explores alternative dissipation technologies based on piezoelectric-materials and magnetic damping. The presentation strengthens the overall engineering understanding of damping blade technologies.

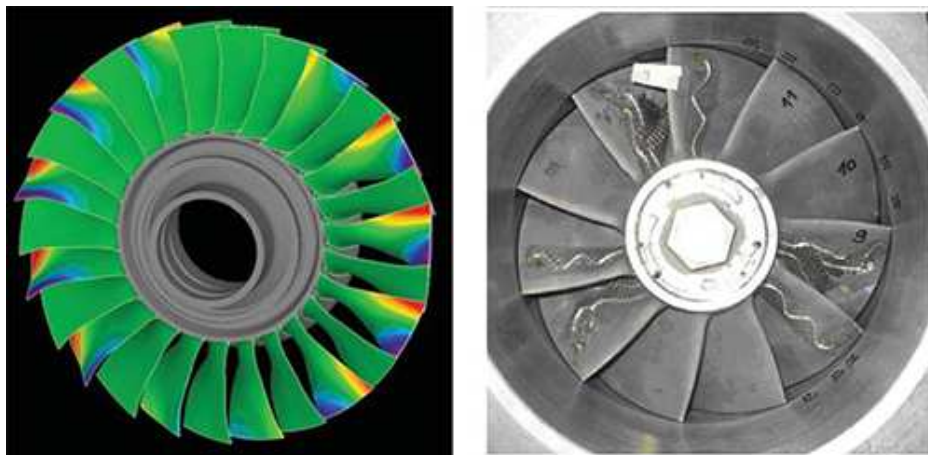


Fig.1 Examples of the numerical result of a mistuned blisk vibration (left-hand side picture) and strain-gauge instrumentation (right-hand side picture) used for blade measurements
(Pictures from the leaflet of the 2013 Blade Mechanics Seminar Program)

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ASME PUBLICATIONS

[Book of the month](#)



Thermal Power Plant Cooling: Context and Engineering.

Edited by Carey King

This book focuses on engineering fundamentals of water use for cooling needs of thermoelectric, or steam cycle, power plants, along with environmental and economic contexts. Water has historically been abundant and cheap; however, the ever-growing human demands for fresh surface water and groundwater are potentially putting ecosystems at risk. Water demands for energy production and electric generation power plants are part of total water demand.

This book contributes important information to aid a broader discussion of integrated water and energy management by providing background, references, and context for water and energy stakeholders specifically on the topic of water for cooling thermal power plants. This book serves as a reference and source of information to power plant owner/operators, water resource managers, energy and environmental regulators, and non-governmental organisations.

From power plant owners wanting to know the tradeoffs in environmental impact and economics of cooling towers to water utilities that might want to deliver waste water for reuse for power plant cooling, this book provides a wide array of regulatory and technical discussion to meet the needs of a broad audience.

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