



# TOP TENs 2019

TOP TENs releases second round of international list of energy efficiency Best Available Technologies (BATs) and Best Practices (BPs)

Energy conservation and energy efficiency improvements form the fundamental crux of strengthening energy security, optimising energy supply thereby improving environmental quality. With the global impetus of improving energy efficiency, China and Australia initiated the Top Ten Energy Efficiency Best Available Technologies and Best Practices Task Group (TOP TENs) in 2013 to share and disseminate information on the Best Available Technologies and Best practices in use today, as well as to accelerate the adoption of innovative technologies.

In 2015, the first round of the TOP TENs list was released. This led to the widespread attention and positive response among the international community and facilitated bilateral and multilateral energy efficiency cooperation and technology exchange. In 2016, TOP TENs was positioned as one of the G20's key areas of collaboration on energy efficiency under the Energy Efficiency Leading Programme (EELP). In 2017, the second round of TOP TENs evaluation was launched and the subsequent TOP TENs international list was finalised in June 2019.

Adhering to the spirit of mutual benefit, innovation, inclusiveness and sharing, the member countries will learn and exchange from each other to promote innovative energy efficient technologies and management experience, thereby accelerating international energy efficiency cooperation with strongly aligned efforts.

*The list is arranged in alphabetical order.*

*China and Japan participated in both the BAT and BP of the industrial and building sectors. France participated in the BAT and BP of the industrial sector. The U.S. participated in the BAT of the building sector.*



# TOP TENS 2019

List of Top Ten Best Available Technologies (BATs)  
Industrial sector

<b>BATs Title</b>	<b>Nominator</b>
<b>Energy-saving control chip technology on body voltage sensor</b>	<b>China</b>
<b>Energy saving technology based on three-phase sampling and fast response</b>	<b>China</b>
<b>Heat, cold and electricity generation by tri-generation</b>	<b>France</b>
<b>High-strength and low thermal conductivity heat insulating materials "ROSLIM™Board GH"</b>	<b>Japan</b>
<b>Infrared technologies for drying and baking thin products or coating</b>	<b>France</b>
<b>Matrix Converter U1000</b>	<b>Japan</b>
<b>Optimum control of high efficiency inverter centrifugal chillers using a heat source integrated control system</b>	<b>Japan</b>
<b>Selective and mass heating by microwaves and infrareds</b>	<b>France</b>
<b>The high-effective energy-conservation recovery technology of the excavator's potential energy</b>	<b>China</b>
<b>Variable speed drives (VSD) applied to centrifugal and other dynamic machine (pumps, fans, compressors)</b>	<b>France</b>

Note: the list is alphabetically ordered.





# TOP TENS 2019

List of Top Ten Best Available Practices (BPs)

Industrial sector

<b>BPs Title</b>	<b>Nominator</b>
<b>Cooking of food products using Micro-waves</b>	<b>France</b>
<b>ECO activities to actualise “Visualisation (energy audit)” and “Optimisation” using EQS-AD10 (Environmental Andon System)</b>	<b>Japan</b>
<b>Energy management system construction Case</b>	<b>China</b>
<b>Energy-saving practical case through centralised management and control by Yanggu Xiangguang Copper</b>	<b>China</b>
<b>High frequencies for gelation of PVC coverings</b>	<b>France</b>
<b>High frequency sticking of composite products</b>	<b>France</b>
<b>Promotion of energy conservation by circle activities at a paperboard manufacturing plant</b>	<b>Japan</b>
<b>Reducing CO<sub>2</sub> emissions in the supply chain</b>	<b>Japan</b>
<b>Reduction of base-load energy usage</b>	<b>Japan</b>
<b>Shagang Group 2500kW dust exhausting fan energy-saving reconstruction project</b>	<b>China</b>

Note: the list is alphabetically ordered.





# TOP TENS 2019

List of Top Ten Best Available Technologies (BATs)

Building sector

BATs Title	Nominator
Building energy management and information systems	United States
Carbon dioxide (CO <sub>2</sub> ) heat pump water heaters for home use ecoCute "ESTIA Premium Model"	Japan
Condensing gas tankless water heaters	United States
Heat pump water heaters	United States
Intelligent district heating platform with monitoring and operation optimisation technology in heating system	China
Key technologies of centrifugal units based on temperature and humidity independent control system	China
Light-weight, small-sized, low-cost high efficiency LED high-bay lighting fixtures	Japan
Occupant responsive lighting	United States
Split-type air conditioner "Kirigamine FZ Series"	Japan
Treatment process of the prefabricated directly buried thermal insulating pipes	China

Note: the list is alphabetically ordered.





# TOP TENS 2019

List of Top Ten Best Available Practices (BPs)  
Building sector

<b>BPs Title</b>	<b>Nominator</b>
<b>Application case of the whole-process management of near-zero energy of No. 9 building of Shanghai Hongqiao State Guest Hotel</b>	<b>China</b>
<b>Case of Guangzhou White Swan Hotel energy saving reconstruction</b>	<b>China</b>
<b>China Academy of Building Research nearly zero energy building</b>	<b>China</b>
<b>Energy conservation activities at a next-generation green hospital</b>	<b>Japan</b>
<b>Energy conservation in the distribution of procured building products</b>	<b>Japan</b>
<b>Passive house technology center of Sino-German Ecopark</b>	<b>China</b>
<b>Promotion of super energy-saving construction by achieving "Japan's first urban-style Zero Energy Building (ZEB)"</b>	<b>Japan</b>
<b>Life-cycle management of energy efficiency target - "Joy City" project in Chengdu</b>	<b>China</b>
<b>University-wide efforts to build a smart campus</b>	<b>Japan</b>
<b>Zhuhai Singyes renewable energy R&amp;D building</b>	<b>China</b>

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