

## TERA-Award 智慧能源創新大賽

### TERA-Award Smart Energy Innovation Competition

#### 1. 中華煤氣公司為何舉辦智慧能源創新大賽 TERA-Award?

國家主席習近平在氣候雄心峰會上表示，到 2030 年，中國單位國內生產總值二氧化碳排放，將比 2005 年下降 65%以上，非化石能源占一次能源消費比重將達到 25%左右，並力爭 2030 年前二氧化碳排放達到峰值，2060 年前實現碳中和。要實現雙碳目標，能源產業必須參與其中。

中華煤氣公司作為能源業的領先企業，除了在運營方面爭取減碳外，希望通過 TERA-Award 智慧能源創新大賽鼓勵全球科研精英在智慧能源領域提出突破性創新方案，並發掘具有前瞻性的技術及解決方案，推動全球能源行業的綠色化轉型發展，開啟零碳智慧城市的大門。

#### Why is Towngas organising the TERA-Award smart energy innovation competition?

At the Climate Ambition Summit, President Xi Jinping stated that China's carbon dioxide emission per unit of GDP is set to drop to 65 per cent below 2005 levels by 2030, while non-fossil energy resources will make up about 25 per cent of the country's primary energy consumption. China will strive to peak carbon dioxide emissions by 2030 and achieve carbon neutrality by 2060. In order to reach these emission reduction goals, the energy industry's participation is indispensable.

As a leading energy enterprise, Towngas strives to reduce its carbon emissions in its operations. In addition, the company hopes to encourage global elites in the field of scientific research to devise smart energy breakthroughs with a view to discovering visionary technology and solutions to drive the development of the energy industry worldwide and the construction of smart cities.

## 2. TERA-Award 比賽名稱是什麼意思?

TERA-Award 的大賽名字源自功率單位“太瓦” (Terawatt, TW) 和用電量單位太瓦時 (TWH)。

1 TW=  $10^{12}$  瓦特 (即是 1 之後有 12 個 0, 也就是 1 萬億), 1TWH=10 億度電

根據國家能源局發佈 2020 年中國全社會用電量為 75,110 億千瓦時, 即是 7511 太瓦時。

### What does the name “TERA-Award” mean?

The name of the event stems from the power unit “terawatt” (TW), equivalent to  $10^{12}$  or 1 trillion watts.

According to the National Energy Administration, China’s total power consumption for 2020 was 7,511 gigawatts, or 7.5 terawatts.

## 3. 智慧能源創新大賽 TERA-Award 有什麼機構參與?

**主辦機構:** 香港中華煤氣有限公司 (煤氣公司)

**聯合主辦:** 國家電力投資集團有限公司 (國家電投)

**戰略合作夥伴:** 大灣區共同家園投資有限公司

**學界合作夥伴:** 香港大學、清華大學

**支持機構:** 中國城市燃氣協會分散式能源專業委員會、  
國家能源互聯網產業及技術學院創新聯盟、  
香港工程師學會燃氣及能源分部、香港科技園等。

### Which organisations are taking part in TERA-Award?

Host: The Hong Kong and China Gas Company Limited (Towngas)

Co-host: State Power Investment Corporation Limited (SPIC)

Strategic partner: Greater Bay Area Homeland Investments Limited

Academic partners: The University of Hong Kong & Tsinghua University

Supporting organisations: China Gas Association Distributed Energy Committee, China Energy Internet Alliance, The Hong Kong Institution of Engineers Gas & Energy Division, Hong Kong Science and Technology Parks Corporation, and more.

#### 4. 智慧能源創新大賽 TERA-Award 的目標範疇主要涵蓋什麼?

主要涵蓋四大類別，分別是「能源供給」、「能源需求」、「綠色交通」以及「能源互聯網」。這些範疇的技術應用層面廣泛，有助滿足全球追求低碳或可再生能源的需求，發展潛力相當可觀。

<b>能源供給</b>	<b>能源需求</b>
<ul style="list-style-type: none"> <li>· 可再生能源與儲能</li> <li>· 氫能</li> <li>· 配電網</li> <li>· 分散式能源利用</li> </ul>	<ul style="list-style-type: none"> <li>· 工商業能效管理</li> <li>· 工業節能與餘熱利用</li> <li>· 需求回應</li> <li>· 虛擬電廠</li> </ul>
<b>綠色交通</b>	<b>能源互聯網</b>
<ul style="list-style-type: none"> <li>· 電池創新</li> <li>· 電動車充換電</li> <li>· 電池梯次利用</li> </ul>	<ul style="list-style-type: none"> <li>· 智慧微電網</li> <li>· 碳交易和碳管理</li> <li>· 智慧能源管理平臺</li> <li>· 能源大資料及區塊鏈</li> </ul>

#### What are the target areas of TERA-Award?

The four key areas targeted are energy supply, energy demand, green transportation and the energy internet. The broad scope of application encompassed by these four fields contributes towards meeting the global demand for low-carbon and renewable energy, thereby presenting significant potential.

<b>Energy Supply</b>	<b>Energy Demand</b>
<ul style="list-style-type: none"> <li>• Distributed energy integrated application</li> <li>• Renewable energy and energy storage</li> <li>• Distribution grid</li> <li>• Hydrogen fuel/fuel battery</li> </ul>	<ul style="list-style-type: none"> <li>• Waste heat utilisation</li> <li>• Virtual power plant</li> <li>• Demand response</li> <li>• Energy saving</li> </ul>
<b>Green transportation</b>	<b>Energy internet</b>
<ul style="list-style-type: none"> <li>• Electric vehicle battery charging and replacement</li> <li>• Battery innovation</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated energy management platform</li> <li>• Artificial intelligence</li> </ul>

<ul style="list-style-type: none"> <li>Battery echelon utilisation</li> </ul>	<ul style="list-style-type: none"> <li>Energy blockchain</li> <li>Energy big data</li> <li>Micro-grid</li> </ul>
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## 5. 獎項評審團隊的組成？

考慮到智慧能源創新技術尚處於發展初期階段，為確保評審的專業和公平公正，大賽組委會也推出覆蓋產、學、研領域的評審專家委員會，由中華煤氣、國家電投中央研究院、大灣區共同家園投資有限公司、中國科學院、清華大學、香港大學及國際頂級研發機構的專家學者共同組成。

### Who are the members of the judging panel?

The judging panel comprises renowned scholars and industry experts from various fields.

Industry representatives	Academic representatives
Towngas	Energy expert
SPIC	Fellow
Greater Bay Area Homeland Investments Limited	Tsinghua University
Quanta Research Institute	The University of Hong Kong
Towngas Energy Investment Limited	

## 6. 獎項的評審標準？

獎項主要有 4 個評審標準：

創新性, 執行力, 組織力及商業化

### What are the criteria for judging?

The award takes into account four areas: innovation, implementation and talent capability and commercialization.

## 7. 智慧能源創新大賽 TERA-Award 獎項是怎麼設置的?

設有 3 個獎項(一等獎、二等獎及三等獎，**實際獎項數目取決於參賽專案的數量**)，一等獎獎金 100 萬美元，並有機會獲得投資機會，以及于應用場景作技術試行。國家電投與中華煤氣攜手，將平臺、場景、資源、資金等優勢與獲獎項目和團隊共用，助力“雙碳”目標實現。

一等獎：100 萬美元；

二等獎：10 萬美元；

三等獎：5 萬美元

**注：主辦機構、聯合主辦機構和 TERA-Award 大賽的戰略合作夥伴就各參賽者的所有參賽作品擁有全部或部分獲取、購買、資助及/或投資的優先購買權及/或優先報價權。**

### **How many prizes will TERA-Award present?**

Three prizes are available, including TERA-Award Gold, TERA-Award Silver and TERA-Award Bronze. The actual number of prizes will depend upon the quality of the entries. The winner of TERA-Award Gold will be presented with over US\$1 million as well as the opportunity to be considered for investment and to conduct technical trials through application scenarios.

TERA-Award Gold: US\$1 million

TERA-Award Silver: US\$100,000

TERA-Award Bronze: US\$50,000

Note: The host, co-host and strategic partners of TERA-Award collectively or individually possess the right to priority purchase or priority quotation for obtaining, purchasing, funding or investment of the entries submitted by participants in part or in their entirety.

## 8. 參賽者需要什麼資格？

- 參賽專案產品或解決方案屬於行業前沿技術或新應用方向。
- 參賽項目進入商業化應用初期，已實現營收，營收規模不限。
- 參賽團隊擁有獨立智慧財產權，包括且不限於發明專利及其也專利、軟著等。
- 擁有創新、創業、技術/研發相關獎項最佳。

### **What is the eligibility criteria to take part?**

- Start-up enterprises or research teams
- Possessing the patent to the prototype and products with potential for commercialisation
- In search of collaboration partners, investors and markets

## 9. 智慧能源創新大賽 TERA-Award 何時開始報名及公佈結果？

大賽即日起接受網上報名，地域不限。（網址：[www.TERA-Award.life](http://www.TERA-Award.life)）。截止日期為 2021 年 8 月 31 日，預計 2021 年 11 月公佈結果及頒發獎項。

### **What are the key dates for application and results announcement?**

Research teams and start-up enterprises from across the world are welcome to apply online between now and the end of August at [www.TERA-Award.life](http://www.TERA-Award.life).

Participating projects will undergo technical and feasibility assessment as well as expert interviews. Results announcement and prize presentation are expected to take place in November 2021.