



**Asia-Pacific
Economic Cooperation**



APEC Sustainable Energy Center

Momentum from the Belt and Road Initiative Towards Regional Clean Energy Adoption

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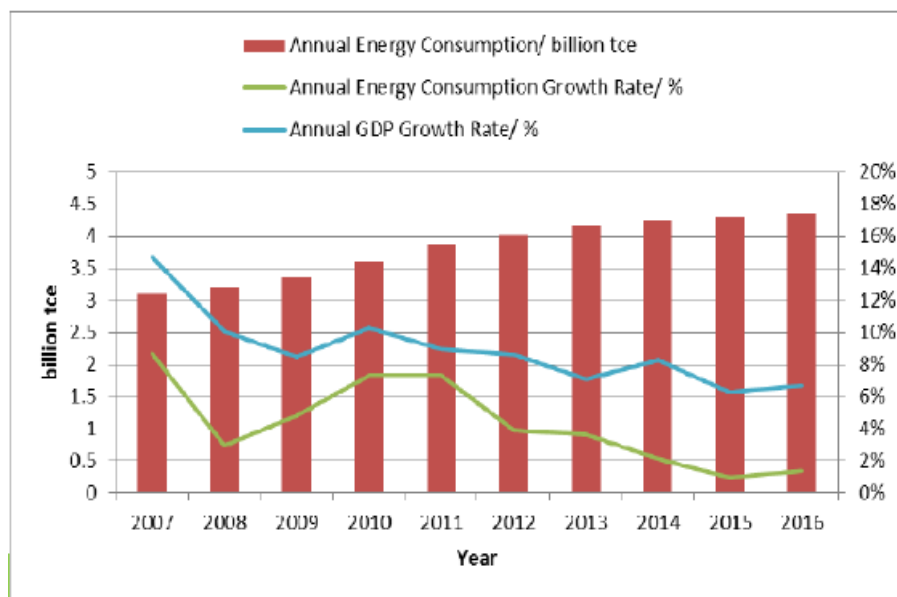
President, APEC Sustainable Energy Center

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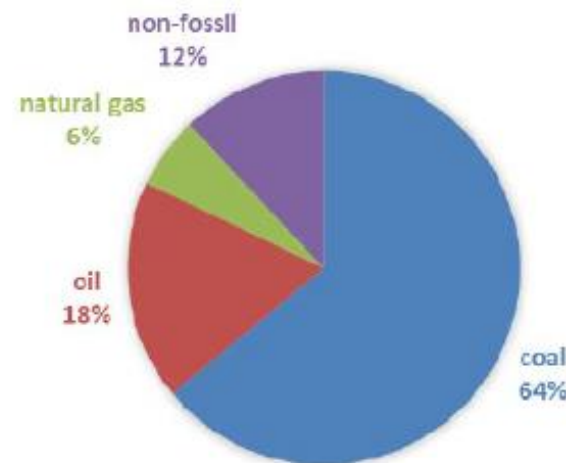
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Energy in China

- The growth rate of China's energy consumption decreased quickly in the past 10 years, while the economic growth is decoupling.
- Coal consumption takes the biggest share of total energy consumption.



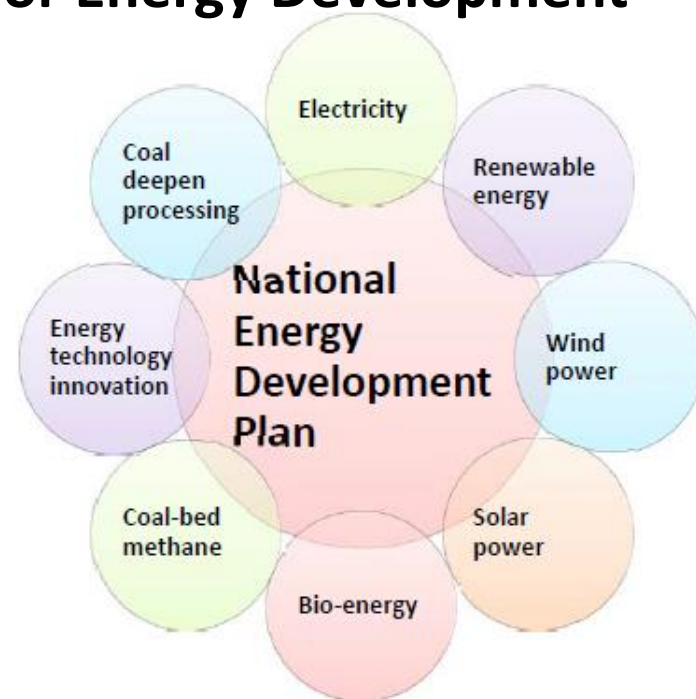
STRUCTURE OF TOTAL ENERGY CONSUMPTION



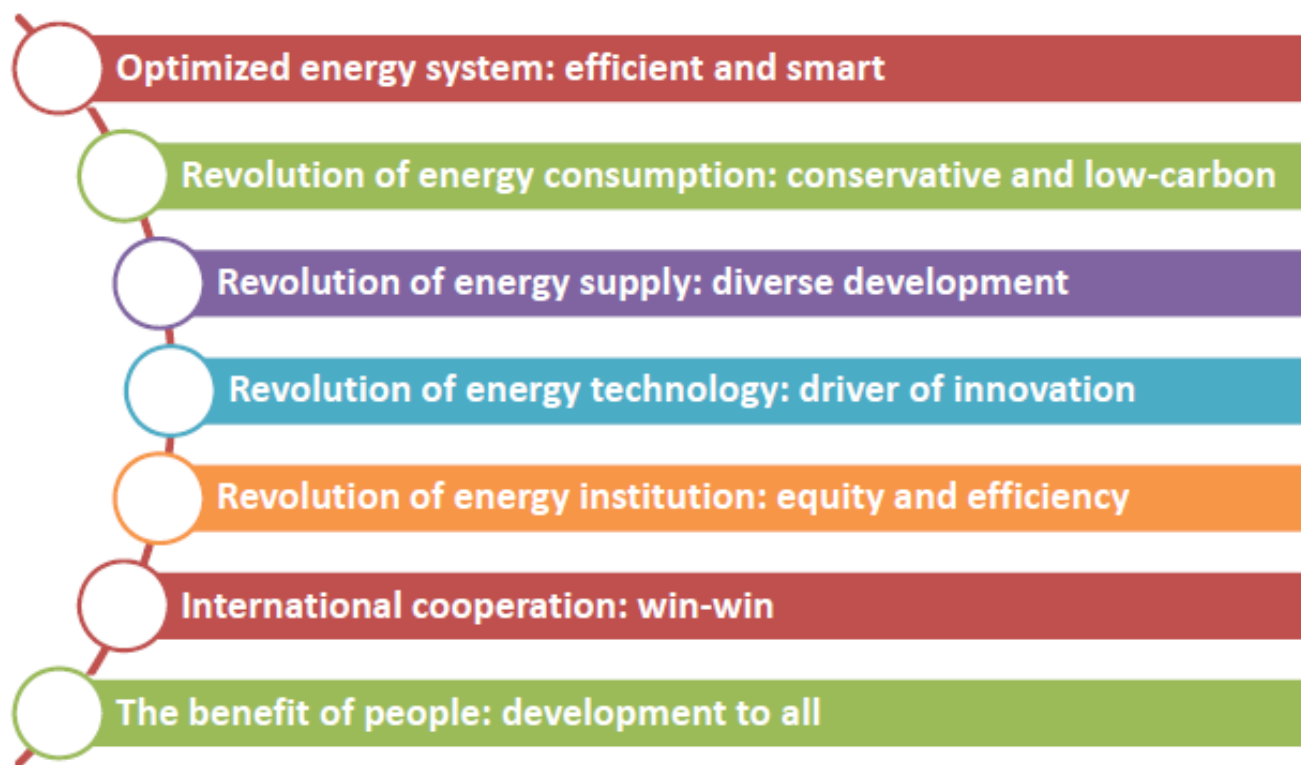
Key Targets of 2016-2020 (13th FYP)

Metrics	Targets
Total energy consumption/coal consumption	5 billion tce/4.1 billion tons
Domestic energy supply (tce)	4 billion tce
Reduction of energy intensity (tce/GDP)	[15%] (compared to 2015)
Share of non-fossil energy consumption	15%
Reduction of coal consumption in total energy consumption	[6%] (from 55% to 49%)

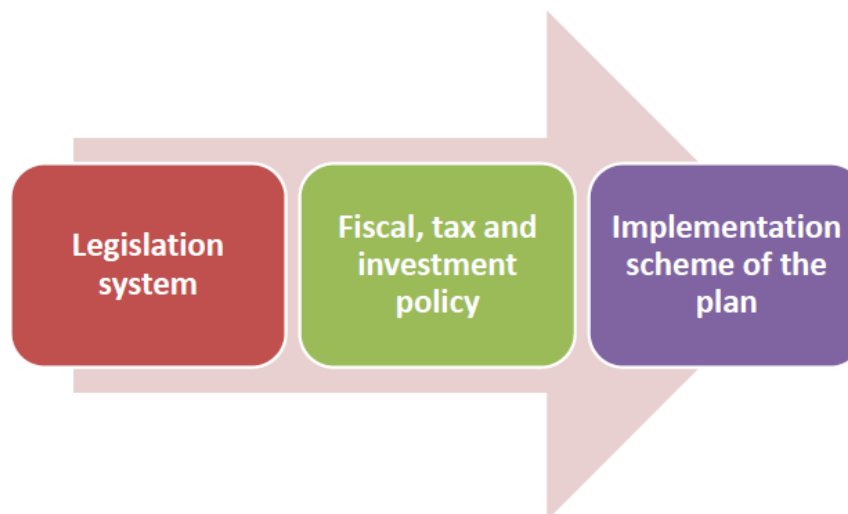
1+N National Plans for Energy Development



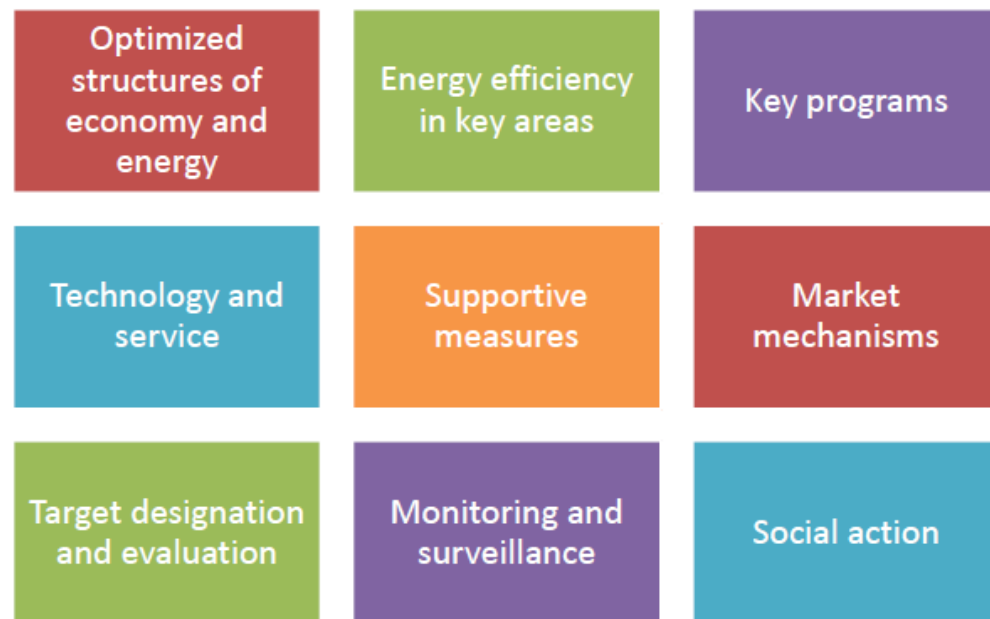
Main Tasks of Energy Development Plan



Supportive measures



Working framework in the action plan



Vision and Actions on Energy Cooperation in Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road

- We will actively participate in multilateral energy cooperation within the framework of the UN, G20, **APEC**, SCO, BRICS, **The Lancang-Mekong Cooperation Mechanism, The Greater Mekong Sub-region, Central Asia Regional Economic Cooperation, ASEAN-China, ASEAN+3, East Asia Summit, Asia Cooperation Dialogue**, Cooperation between China and Central and Eastern European Countries, China-League of Arab States, and China-Gulf Cooperation Council and etc.
- We will actively implement the **ASEAN-China Clean Energy Capacity Building Plan**..... We will explore international platforms for their constructive roles, including the Global Energy Transition Forum and the **East Asia Summit Clean Energy Forum**.
- Bilateral cooperation mechanisms, such as China-Indonesia Energy Forum, China-Thailand Energy Working Group Meeting, China-Myanmar Electric Power Cooperation Commission

Energy Cooperation Between China and Southeast Asia

- **ASEAN+3**
 - Leaders' Meeting, Annual meeting since 1995
 - 'Ministers-Senior Officials-Professional Forum' Three-levels Energy Cooperation, since 2001
 - Since 2010, 'Energy Security & Oil Reservation', 'Natural Gas & Oil Market', 'NRE, EE&C' THREE Forums
 - NEA attends Ministers Meeting and SOM. As the leading country, regularly attend Natural Gas Forum
 - Capacity Building became a focus since 2014
- **East Asia Summit (10+8)**
 - Annual Leaders' Summit, Energy is one of the FIVE key cooperative areas, since 2005
 - Ministers Meeting and ECTF mechanism
 - East Asia Summit Clean Energy Forum (3)

Energy Cooperation Between China and Southeast Asia (continued)

- **GMS-RPTCC (Greater Mekong Sub Regional Power Trade Coordination Committee), since 2004**
- **APER Forum (Asia-Pacific Energy Regulatory Forum), since 2007**
- **China-Indonesia Energy Forum, since 2002**
 - Oil, Natural Gas and Power
- **China-Thailand Energy Working Group Meeting, since 2013**
 - Biomass, Nuclear and Power
- **China-Myanmar Commission on electric power cooperation**
 - since 2015, mainly on power

ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025

- Energy is key to the realization of the ASEAN Economic Community (ACE) which calls for a well-connected ASEAN to drive an integrated, competitive and resilient region.
- According to the AEO4, the demand in primary energy is expected to grow by an average of 4.7% per year from 2013 to 2035.
- APAEC has the theme as ‘Enhancing Energy Connectivity and Market Integration in ASEAN to Achieve Energy Security, Accessibility, Affordability and Sustainability for ALL’.
- APAEC will be implemented in two phases, i.e. 2016-2020 & 2021-2025. The ASEAN Ministers of Energy Meeting (AMEM) provides overall guidance and advice on the implementation of APAEC.

SEVEN Programme Areas of the APAEC 2016-2025

ASEAN Power Grid

To initiate multilateral electricity trade in at least one sub-region by 2018.

Trans ASEAN Gas Pipeline

To enhance connectivity for energy security and accessibility via pipelines and regasification terminals.

Coal & Clean Coal Technology

To enhance the image of coal through promotion of clean coal technologies (CCT).

Energy Efficiency & Conservation

To reduce energy intensity³ by 20% in 2020 based on 2005 level.

Renewable Energy

Aspirational target to increase the component of renewable energy⁴ to 23% by 2025 in ASEAN Energy Mix⁵.

Regional Energy Policy & Planning

To better profile the energy sector internationally.

Civilian Nuclear Energy

To build capabilities in policy, technology and regulatory aspects of nuclear energy.

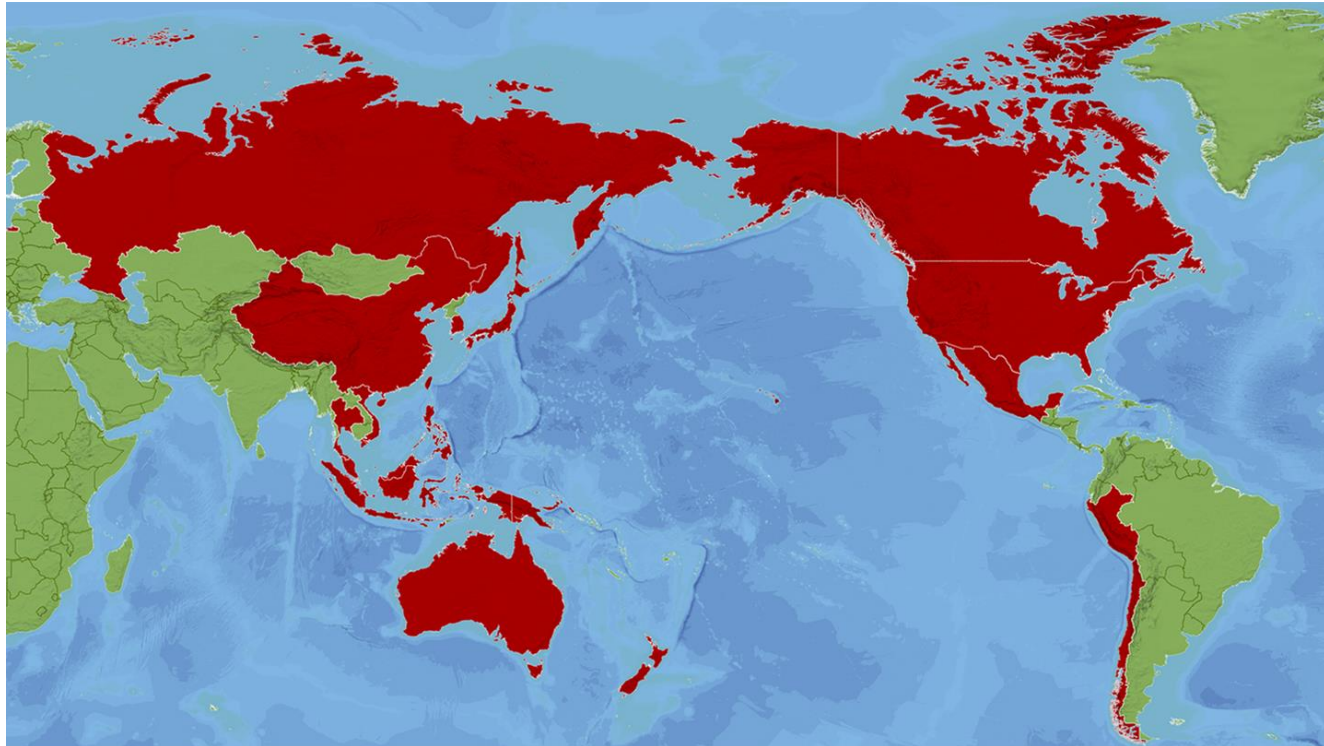
PART 2-APEC, APSEC & BRI



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Asia-Pacific Economic Cooperation

41% of World **Population**

44% of World **Trade**

51% of World **GDP**

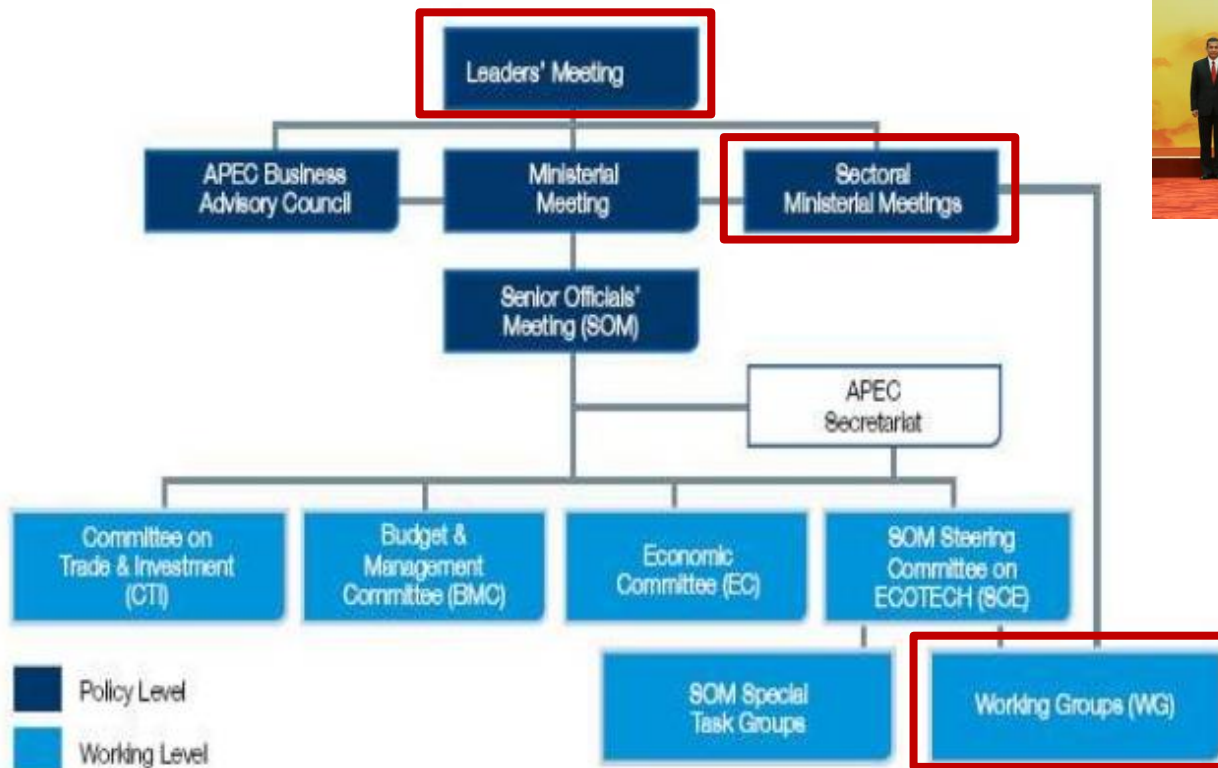
**21 Member
Economies**

APEC Sustainable Energy Center-APSEC

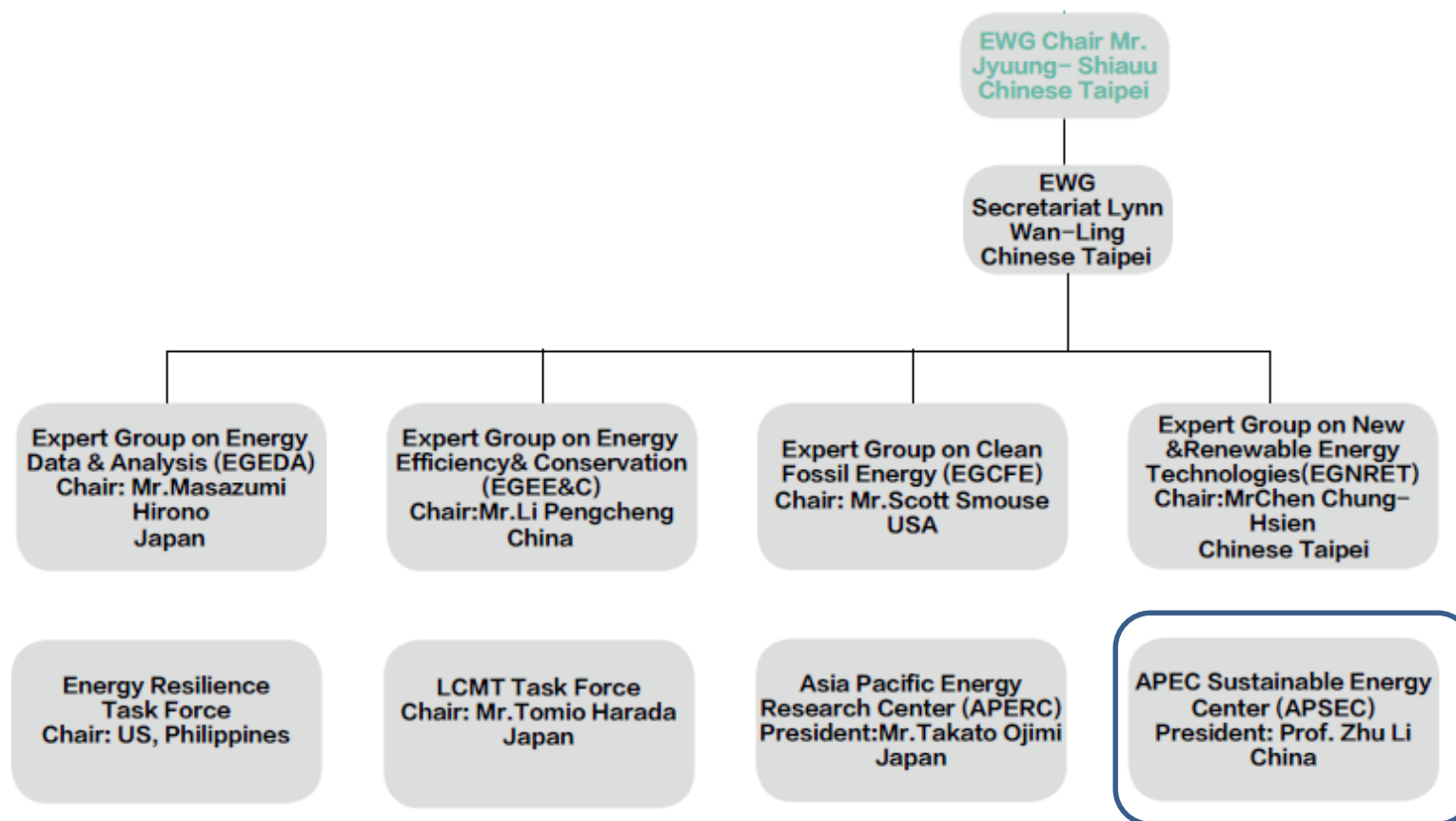
APSEC was established in the 11th APEC EMM in 2014 China Year. Its foundation was announced by former Administrator of NEA and was stated by Vice Premier Zhang Gaoli in his opening speech. Its establishment was written into the 22th APEC Leaders' Declaration 'Beijing Agenda'.



APEC STRUCTURE



EWG Structure

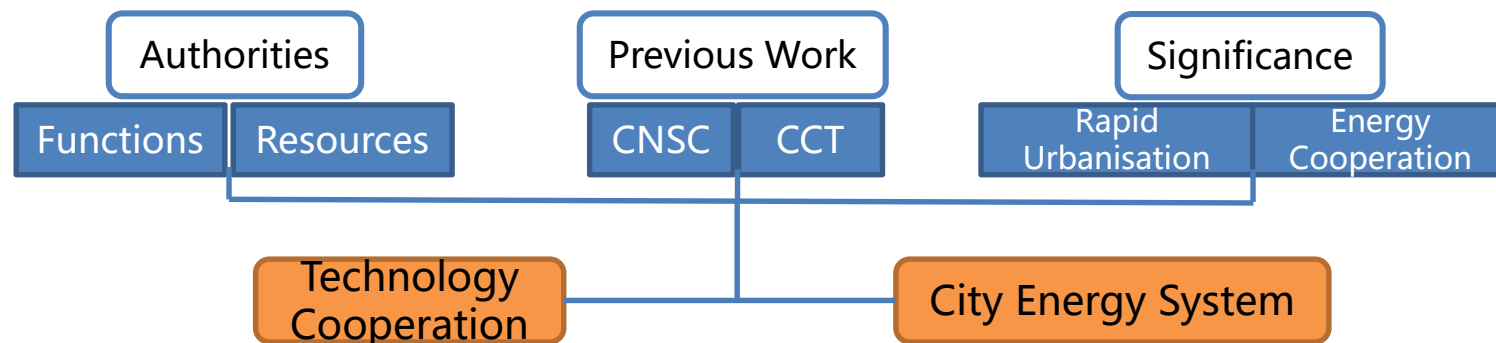


Nature of APSEC

Under APEC mechanism, APSEC is **directly** guided by APEC Energy Working Group (EWG).

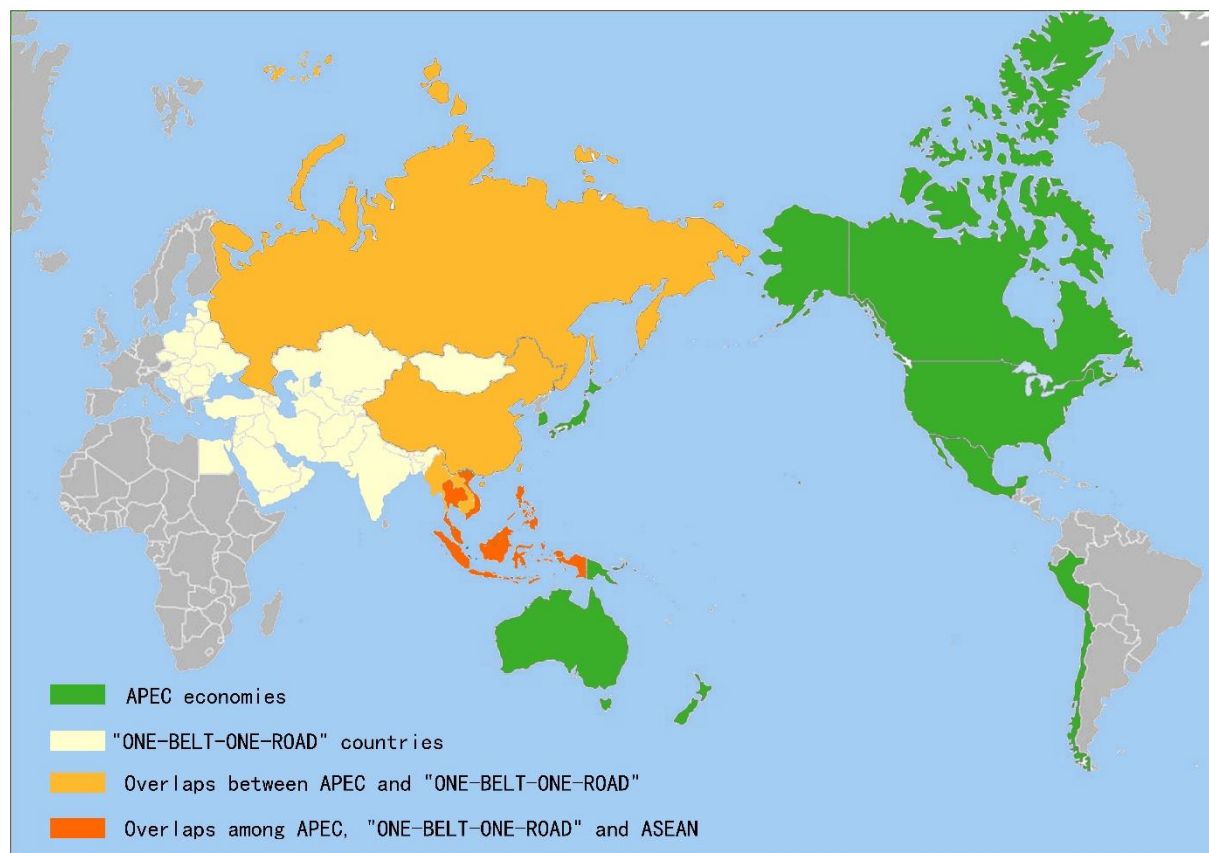
In Chinese context, APSEC accepts the guidance of its Steering Committee comprising leaders from **National Energy Administration, Ministry of Foreign Affairs and Tianjin University** respectively.

APSEC **is affiliated to NEA**, and TU is responsible for its O&M.



- **Cities as platform to realize energy low carbon transition, to achieve a sustainable energy future.**
- TWO Pillar Programs: APEC Sustainable City Development Program (CNSC) & Asia-Pacific Clean Coal (Energy) Technology Transfer (CCT)
- promote energy technology transfer and cooperation through cities, implement demonstration project construction, enhance internationalization level of cities of the Asia-Pacific region.
- provide feasibility analysis and technology transfer roadmap for sustainable energy technology transfer. Through technical training, consulting services, thematic research to promote technical applications and industry demonstration. Publish series of research reports and policy recommendations. Gradually establish the energy technology and project-related information data platform.

Possible regional cooperation among APEC members, ASEAN and “ONE-BELT-ONE-ROAD” countries



Enhance Public & Private Sectors' Joint Efforts

- **Vision and Actions on Energy Cooperation in Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road**
 - investment cooperation. We encourage enterprises to adopt various measures including direct investment, merger and acquisitions, and public-private-partnerships (PPP) to deepen energy investment cooperation. We will enhance the involvement of financial institutions in the lifecycle of energy cooperation projects to create sound energy “industry plus finance” cooperation pattern.

Enhance Public & Private Sectors' Joint Efforts

- **INSTRUCTIONS FROM APEC ENERGY MINISTERS, Cebu, Philippines
13 Oct 2015**
 - We encourage Member Economies to **adopt Public-Private Partnership** to strengthen energy infrastructure development and connectivity, such as oil and natural gas pipelines, grid transmission and interconnection highways, LNG facilities, smart grids and distributed energy systems to boost trade and investment among Member Economies. We further instruct the **EWG to work with the APEC Business Advisory Council (ABAC) and the SME Working Group** in developing a multi-year approach crucial to stimulate energy investments based on shared interest and mutual benefits.

APSEC's Work under the BRI for ASEAN countries

- Establishment of the Cities Network and Service Network
- Strategic Partner cities along the 'Belt and Road'
- Work on Solar Technology Transfer along the 'Belt and Road', starting from China-Indonesia
- Creating an Alliance on Green Energy Industry for innovative development of the 'Belt and Road' Countries
- Explore the cooperation with Central-Eastern Europe Countries (16+1) on Green Energy Buildings

Establishment of the **APEC Cooperative Network for Low-carbon & Energy-efficient Cities**, May 2015, Canberra AUS

First Batch 7 Cities:

1. ACT, Australia
2. Adelaide, Australia
3. Bitung, Indonesia
4. Tianjin, China
5. Turpan, China
6. Zhenjiang, China
7. Kunming, China



Establishment of the **APEC Sustainable City Service Network**, May 2015

First Batch 10 Organisations:

1. ANU--Academica, Australia
2. Maoneng Pty Ltd—Industry, Australia
3. Collaborative Outcomes- Industry, Australia
4. Vector Limited—Industry, New Zealand
5. Tianjin University—Academic, China
6. CLP Power Hong Kong Limited—Industry, HK China
7. The Hong Kong and China Gas Company Limited—Industry, HK China
8. Hong Kong and China Gas Investment Limited—Industry, HK China
9. Australia-Indonesia Center—Research, Australia
10. APSEC



Strategic Partner Cities-- Bitung, Indonesia&Turpan, China



Work with the local to implement the cooperation, signing the MoU with Indonesian Sam Ratulangi University, April 2017, Singapore



A bubble chart titled "Cities" showing the distribution of cities across different countries. The central bubble is labeled "Cities". Surrounding it are bubbles for various cities: Lima Peru, KunMing China, Turpan China, Bitung Indonesia, XuWei China, ZhenJiang China, TianJin China, Wellington New Zealand, Da Nang Vietnam, Canberra Australia, Adelaide Australia, ZhangJiaKou China, Manila Philippines, and KunMing China. The size of each bubble represents the number of cities in that category.

City	Country
Lima	Peru
KunMing	China
Turpan	China
Bitung	Indonesia
XuWei	China
ZhenJiang	China
TianJin	China
Wellington	New Zealand
Da Nang	Vietnam
Canberra	Australia
Adelaide	Australia
ZhangJiaKou	China
Manila	Philippines



Symposium on Solar Energy Technology Transfer along the “Belt & Road”, Sept. 2017, Tianjin China





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APEC Sustainable Energy Center

1st Preparatory Meeting on “the 'Belt and Road' Green Energy Industry Innovative Development Alliance” (BRIGEA), Oct. 2017, Tianjin China





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APSEC Sustainable Energy Center

Explore the cooperation with Central-Eastern Europe Countries (16+1) on Zero Energy Buildings under the guidance of Tianjin Municipal S&T Commission



Responsible for the Operation of the “Chinese Network for Participating APEC Energy Cooperation”, established in Sept. 2017, Tianjin China





**Asia-Pacific
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***Thanks
for your attention!***

“Joining Hands Toward Sustainable Energy Development in the Asia-Pacific Region.”