4. Energy Data Management and Training Activities plus Energy Efficiency Indicators

APERC Workshop

The 71st Meeting of APEC Energy Working Group (EWG71)
18 March 2026 – Nanchang, China

Mr Edito BARCELONA, Senior Research Fellow, APERC

Presentation Outline

- EGEDA and APERC
- Energy Data Management
- Training Activities
- Energy Efficiency Indicators
- Looking Ahead and Conclusion

EGEDA and APERC

About EGEDA and APERC

- **Expert Group on Energy Data and Analysis (EGEDA)**: Formed in 1991 to manage APEC's energy database and support regional energy policy with timely, reliable data.
- **Asia Pacific Energy Research Centre (APERC)**: Established in 1996 to support APEC energy cooperation through research and analysis.
- **Mandate for statistics:** Provide statistical foundations for energy planning, policy formulation, and cooperation across APEC economies.

Why EGEDA Was Created

- **Mandated by APEC Energy Officials** (1991)
- **Addressed limitations** of existing data sources (e.g., IEA, ADB)
- **Supported regional energy policy** with timely, harmonized data
- **Avoided duplication** and reduced reporting burden on member economies

EGEDA's Core Functions

- Develop and standardize energy data formats and methodologies
- Facilitate timely data sharing and dissemination
- Support energy policy and cooperation through data analysis
- Cross-fora collaboration with EGEEC, EGNRET and EGCFE
  - Hydrogen and e-fuels
  - Energy storage
  - End-use energy consumption data
  - Energy efficiency indicators
- Coordinate trials and continuous improvements
- Expand into projections and environmental data

Energy Data Management

APERC's Role in Energy Data Management

- Designated as the **Secretariat** for EGEDA
- Manages the **APEC Energy Database**
- Leads **data collection, processing, and validation**
- **Publishes key references**: *APEC Energy Statistics* and *APEC Energy Handbook*
- **Supplies data** to: *APEC Energy Overview* and *APEC Energy Demand and Supply Outlook*
- **Provides support, training and capability** development
- **Provides data and policy support**, including:
  - Annual and historical data
  - Economy-specific energy profiles
  - Long-term projections
  - Tracking of energy intensity, renewable energy goal, and GHG emissions

Evolution of Data Collection (1991-2025)

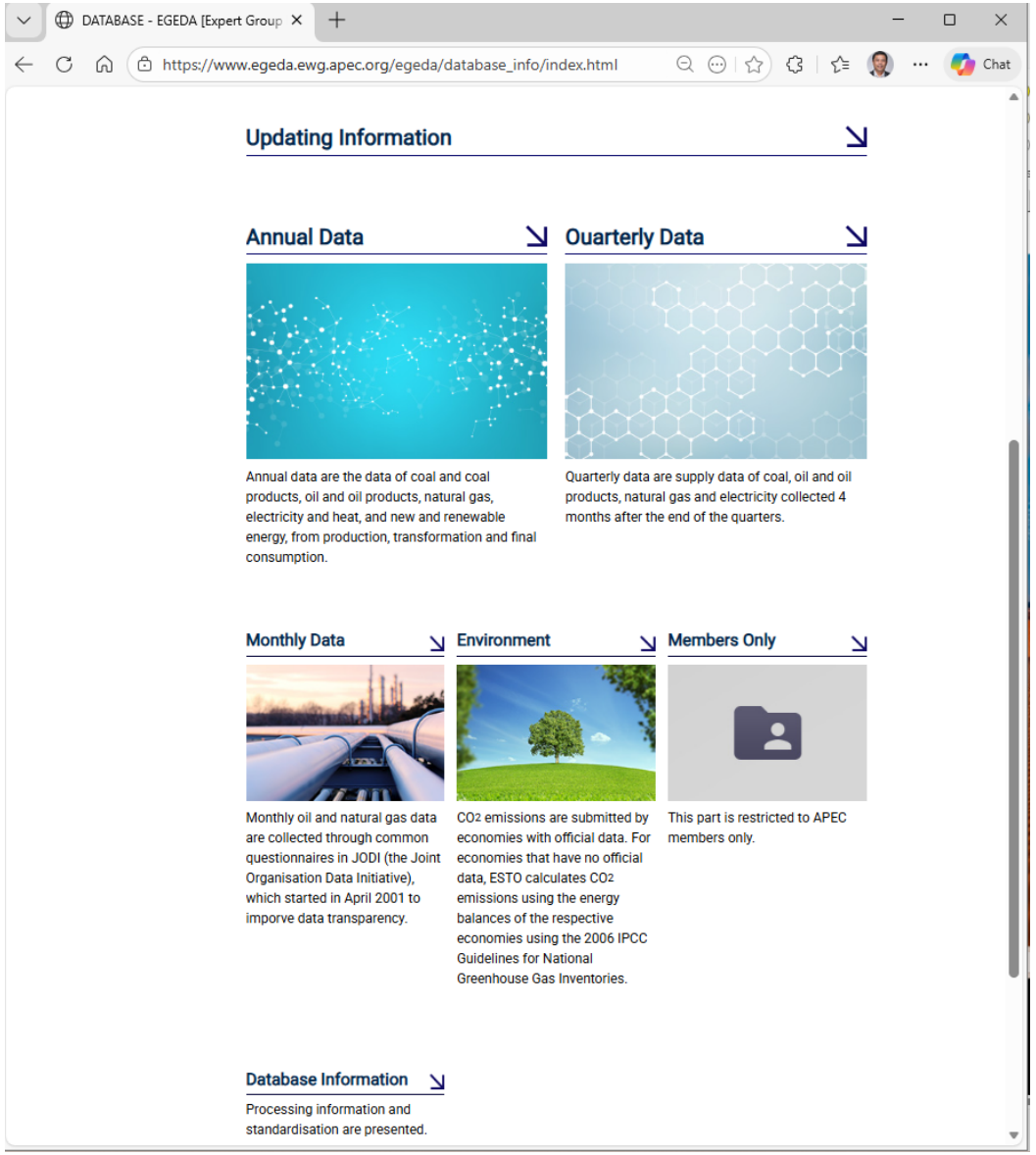
Period	Milestone
1991-1994	Collection of **annual energy supply and consumption data** Trial runs using Lotus 1-2-3 and floppy disks
1995-2000	Added **quarterly data collection, CO_2 and LNG** data
2000s	Launch of APEC Energy Overview and **JODI Oil/Gas** participation
2010s	Online database migration; **energy efficiency indicators**
2020s	Pilot data collections for **Hydrogen, district cooling, and battery electricity storage**

Processing of annual data

- Original data are converted to a common energy unit using the **physical energy content method.**
- **Net calorific values** (NCV) are used to convert data from original mass and/or volume units to energy units.
  - In the absence of NCV, these are calculated from gross calorific values or use typical values from international sources.
  - Electricity from hydro, solar PV, wind and ocean are converted to primary energy equivalent using the actual electricity generated.
  - For electricity from geothermal, concentrated solar power (CSP) and nuclear energy, it is the heat used to generate electricity that is considered as the primary energy.
  - In the absence of actual heat data, geothermal is assumed to have 10% efficiency, CSP and nuclear .(33%)

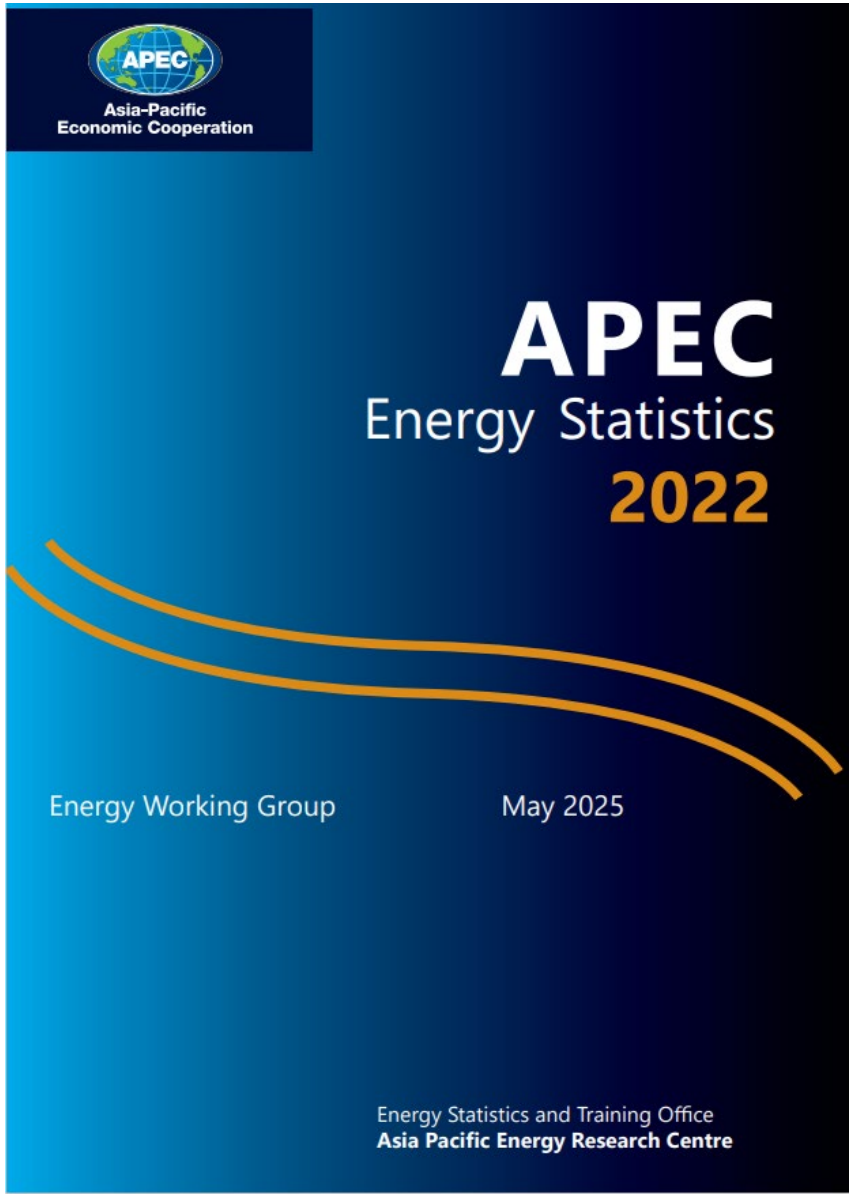
Data dissemination

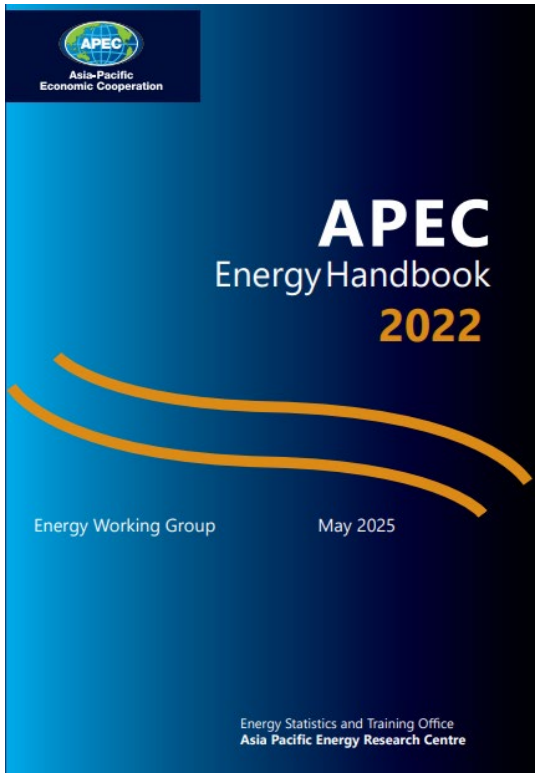
- All date are posted in the publicly available **APEC Energy Database** at https://www.egeda.ewg.apec.org/egeda/database_info/index.html.
  - Annual data
  - Quarterly data
  - Monthly data (JODI)
  - CO_2 emissions
  - Prices and socio-economic data (available only to APEC member economies)



Data dissemination

- **Publications**
  - APEC Energy Statistics (available online only)
  - APEC Energy Handbook (printed and online)
  - https://www.egeda.ewg.apec.org/egeda/publication/index.html





Training Activities

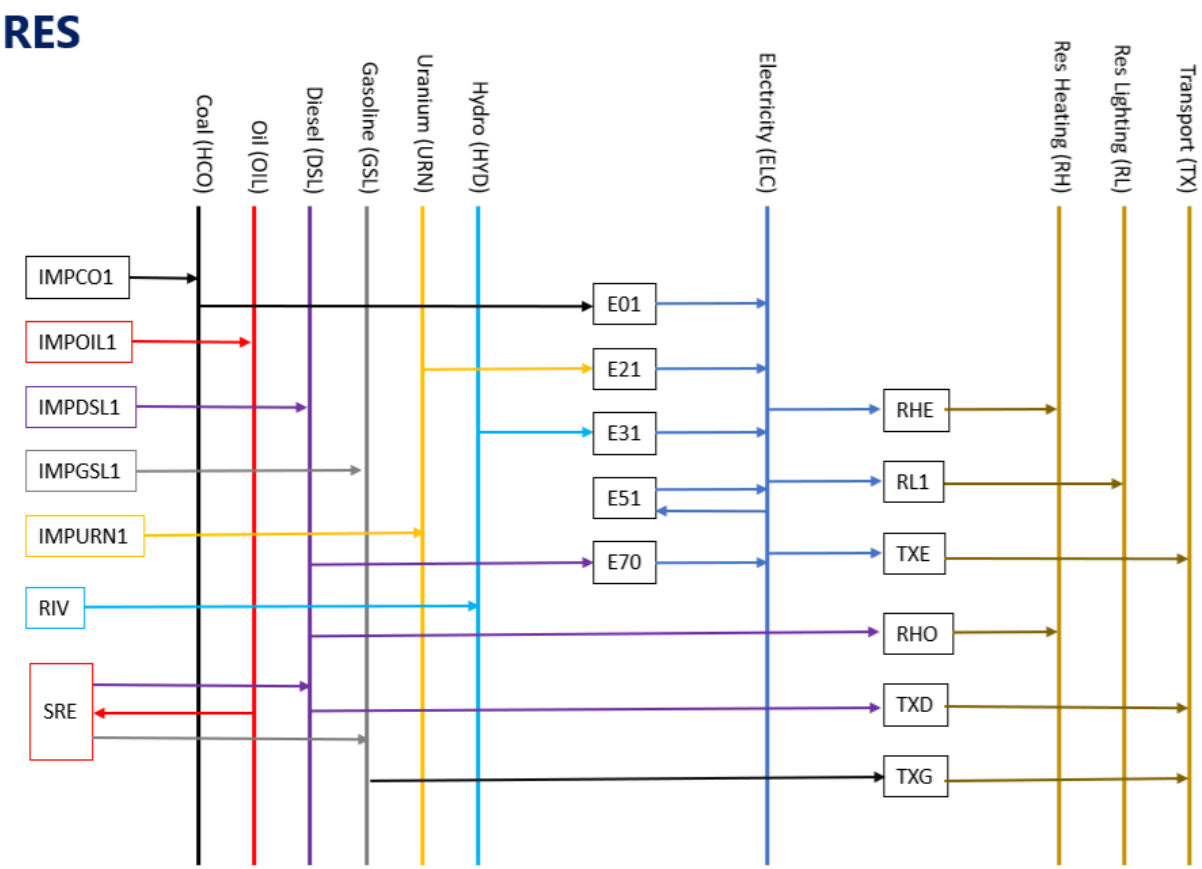
Energy outlook modeling seminar

- Started in 1996
- **Objective:** To strengthen the technical capacity of energy officials and researchers in APEC member economies by enhancing their understanding and skills in **energy demand and supply projection**.
- Annual seminar on energy demand/supply projection and data management are held in Tokyo.
- In addition, experts/researchers are dispatched to member economies to provide training support upon request.
- Latest seminar was held on 2-6 March 2026

Energy modeling seminar, 4-8 March 2024

Recent Modeling Seminar Highlights

- Annual in-person training in Tokyo resumed post-COVID in 2023
- Latest seminar
  - March 2-6, 2006
  - 11 trainees from 7 economies
  - Agenda: Energy-sector modelling with focus on the power sector
  - Software: OSeMOSYS – an open-source energy modelling system
- Latest seminar in a member economy
  - January 27-31, 2025
  - Energy Policy and Planning Office, Thailand
  - End-use energy modelling and using the LEAP software



EGEDA Training Program on Energy Statistics

- **Short-, mid-, and long-term training courses** in Tokyo
- **Special training programs** for interested economies upon request
- **APEC Workshops on Energy Statistics** (now on its 24th year)
- **Collaborations** with IEA, IRENA
- Focus areas:
  - Energy balances and statistics
  - Energy Efficiency Indicators (EEI) methodologies (including transportation statistics)
  - Hydrogen and district cooling data
  - End-use energy consumption surveys

APERC implements the EGEDA training program on energy statistics

- APERC is the only organization offering independent energy statistics and data training program specifically tailored to APEC economies.
  - The IEA also offers a program, but it is based in Paris and oriented towards OECD/EU context.
  - The UNSD conducts similar training, rotating across different global regions each year.
- The program emphasizes practical skills through workshop exercises that participants can immediately apply within their home economies.
- Member economies would benefit in engaging with APERC on this activity.

Recent Statistics Training Highlights

- Annual in-person training in Tokyo resumed post-COVID in 2023
- Latest training held on 19-30 January 2026
- Special training for Viet Nam energy statisticians in Tokyo for 5 days also in 2023
- Topics included:
  - Uses of energy statistics
  - Renewable energy data
  - Unit conversion and building the energy balance table
  - Calculating GHG emissions from energy use
  - New energy technologies
  - Energy efficiency indicators

APEC Workshops on Energy Statistics

- **2023:** In-person workshop in Tokyo resumed post-COVID
  - Topic: Data collection on new energy products and technologies
  - Hydrogen, electric vehicles, battery electricity storage, district cooling, methane emissions
- **2024:** Tracking the progress of capacity built during the last workshop
- **2025:** Capacity Building in Conducting Household Energy Consumption Survey

23rd APEC Workshop on Energy Statistics, Tokyo, September 2025

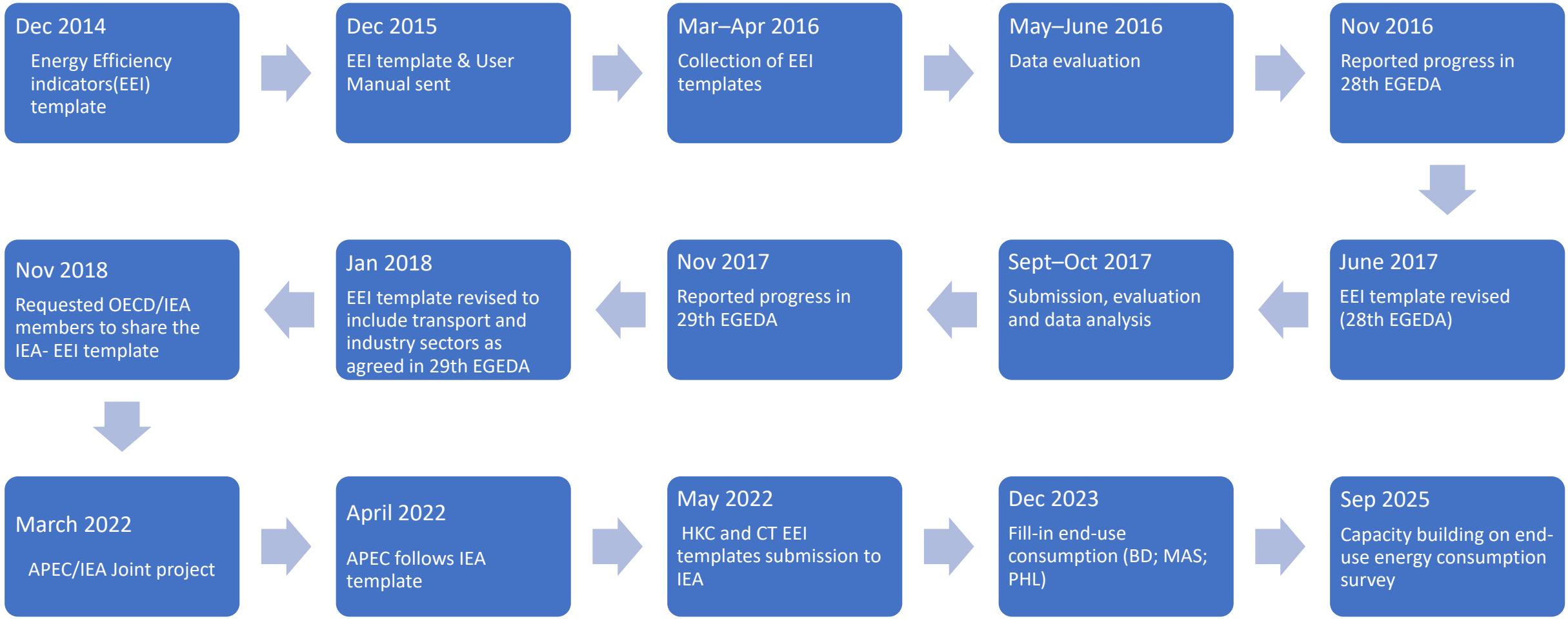
Energy Efficiency Indicators (EEI)

Improve data for detailed energy efficiency analysis

Importance of Energy Efficiency Indicators

- **Useful for evidence-based decision making down to the end-use level**
  - Objective measurement — Provide a factual basis for decisions, reducing reliance on assumptions
  - Cross-economy comparability — Enable benchmarking across APEC economies to identify best practices and performance gaps
  - Scenario and policy modelling — Serve as inputs for forecasting future energy demand and assessing the impact of policy options
- **Monitoring and evaluation**
  - Track policy effectiveness — Show whether implemented measures are delivering results
  - Detect unintended outcomes — Reveal rebound effects, structural shifts, or inefficiencies that require policy adjustment
  - Ensure accountability — Provide transparent metrics for reporting progress to stakeholders, international partners, and the public
  - Support continuous improvement — Enable iterative refinement of policies based on real-world performance data

APERC's Activities in the Collection of EEI



Progress of EEI Template Collection

- Seven APEC members that are also OECD members can fill the template for submission to IEA; IEA shares the templates of these economies to APERC
- Hong Kong, China and Chinese Taipei are the non-OECD member economies that can fill the template
- Continuing efforts or the remaining economies
  - APERC assisted 3 economies in completing the template using the results of their surveys
  - In 2025, the APEC workshop on Energy Statistics focused on end-use energy consumption survey for households to build the capacities of concerned economies in collecting data
  - In 2026, two volunteer economies will be asked to hold pilot data collection using the outcomes of the workshop
  - In 2027, the results of the pilot surveys will be discussed during the APEC Workshop on Energy Statistics

Looking Ahead and Conclusion

Looking Ahead

- Further strengthen data quality and timeliness
- Pursue the collection of energy efficiency indicators data
- Deepen collaboration with other fora and international agencies
- Enhance digital tools and automation
- Build capacity for emerging technologies
- Support APEC's evolving energy goals through robust data systems

New Data Frontiers

- Expanding data coverage
  - Hydrogen production and use
  - Grid-scale battery storage
  - Electric, hybrid, and hydrogen vehicles
  - District cooling systems
- Aligning with international standards (IEA, IRENA)
- Supporting new APEC energy goals

Conclusion

- EGEDA and APERC have built a trusted, evolving energy data system
- Reliable, timely, and harmonized data is essential for:
  - Tracking progress
  - Informing decisions
  - Achieving a sustainable, low-carbon energy future

Asia-Pacific Economic Cooperation

APERC Asia Pacific Energy Research Centre

Thank you.

https://aperc.or.jp

https://www.egeda.ewg.apec.org