



APEC Sustainable Energy Center



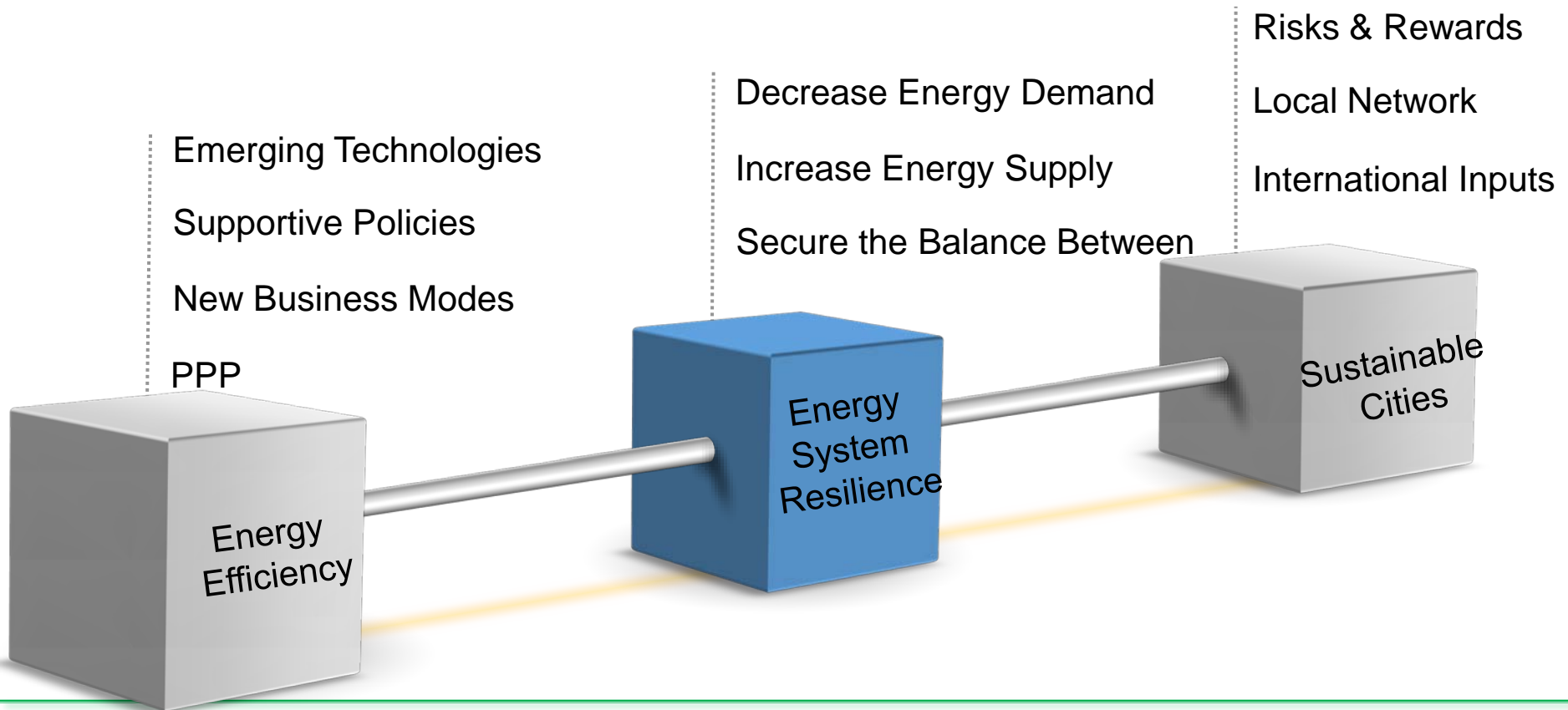
# The Role of Energy Efficiency for a Resilient City

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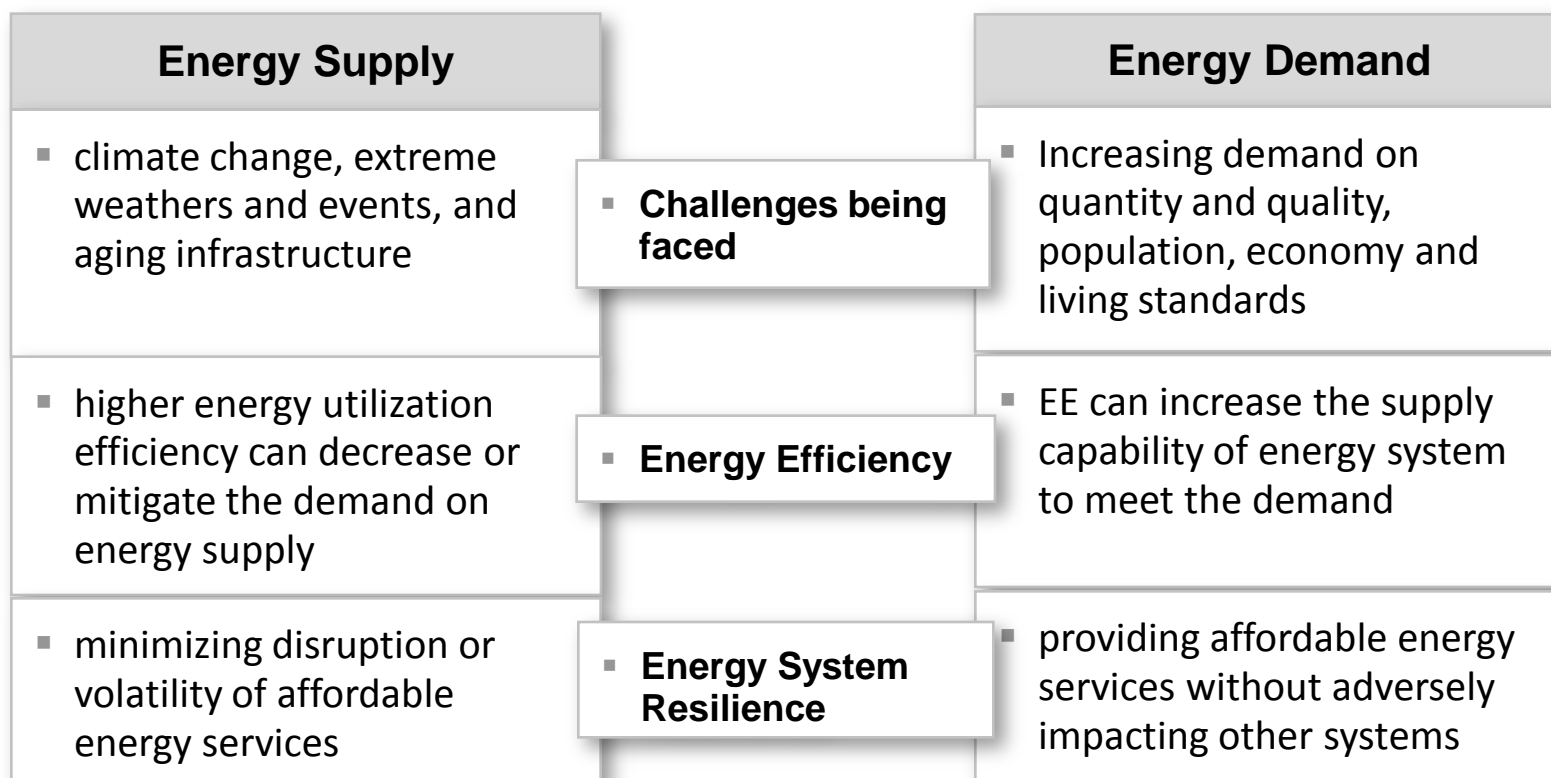
Energy efficiency is a **core strategy to enhance** the resilience of energy systems. A resilient energy system can **ensure secure balance** between energy supply and demand under diverse challenges. Cities with resilient energy systems can then develop in a **sustainable way**.





Q1: Can energy efficiency help build energy system resilience, and if so, what are the emerging opportunities? What role will current and emerging technologies have in unlocking enduring behaviour change?

## Answer: Energy Efficiency can for sure help build the energy system resilience



## Emerging opportunities and challenges

- Energy efficiency is cost-effective and flexible, and communities that embrace energy efficiency are more “resource resilient.”

However,

- Most resilience efforts do not recognize the value of energy efficiency fully. Some local resilience plans incorporate energy efficiency as a key strategy; others treat it as a secondary strategy to help achieve other resilience goals, and some exclude it.
- the energy supply sector is undergoing massive technological changes to reduce its greenhouse gas emissions. There are emerging technologies in all sectors (residential, commercial and industrial), and they all have the resilience features to reduce vulnerability to hazards and increase the capacity of communities to cope with hazards.

## Emerging opportunities and challenges

- *Emerging technologies can unlock the limitation of behavior change, can achieve energy efficiency promoted and upgraded in energy production and consumption, which is the great significance for energy system resilience.*
- Feedback technologies represent one of the most promising “technologies” for influencing behavior change and making it persistent. Two examples include smart thermostats and home energy reports.
- Energy-efficient buildings allow residents/tenants to shelter in place longer, reduces annual energy spending, and reduces overall net emissions. EE Buildings can also help vulnerable populations avoid dangerous and occasionally life-threatening situations in which weather and economics present a dual threat.



**Q2:** What policy and business systems do we need to have in place to facilitate or encourage greater energy efficiency? What are the incentives faced by businesses and consumers to do it (or not)?

We need policies that support greater investment in and adoption of energy efficiency. For example, for residential energy efficiency, local governments can adopt a range of policies and programs to encourage energy efficiency in new construction, existing homes, and new products.

- Energy policymakers need to specify energy efficiency as the “first” resource to consider when developing integrated resource plans. The private sector will then follow this guidance, particularly if they are regulated or if permits need to be acquired.
- For businesses, it is suggested to set up the tax reduction to encourage greater energy efficiency and also to provide a green path to invest novel technologies for improving energy efficiency.
- For consumers, education can be a very urgent factor in the promotion of greater energy efficiency. In reality, the leakages in energy efficiency area are always not the short of advanced technologies, but the awareness of users that how to use the new technologies in a proper way. In additions, consumers will be faced incentives and benefits in finance as well.





**Q3:** What is the role of public-private partnerships in adapting and innovating solutions for greater energy efficiency? Where do the responsibilities for action lie-government, business, individuals?

- “In the area of technology policy, the term ‘public-private partnership’ can be defined as any innovation-based relationship whereby public and private actors jointly contribute financial, research, human and infrastructure resources, either directly or in kind” (OECD 1999). Public-private partnerships let government retain a higher degree of control in the Production. Also within the area of research and development the use of public-private partnerships gets more frequent.
- Collaborations between public and private create better and more effective public services than what could be achieved through traditional hierarchies. The major task of modern government thus becomes to administer networks rather than hierarchies.
- International PPP can be established to foster greater international collaboration and progress pre-commercial technologies.
- In order for partnerships to flourish, governments and agencies need to establish a policy and regulatory environment in which collaboration with owners and operators can take root and grow.

- Neither the public sector nor the private sector is sufficient by themselves to achieve the energy efficiency that is potentially out there. The partnership not only allows more capital to be used for investment in energy efficiency, but the “leadership” in each of these sectors may be more critical than the funding.
- For individuals, there are two responsibilities: how they use energy and how they invest in energy efficiency products and services. For both types of actions, they need to be informed and must be willing to support a long-term perspective (multi-years) versus a short-term perspective (a few months) in deciding how to improve their homes and buildings.



**Q4:** What role does the local network play in resilient cities and how do we share the risks and rewards of resilience? Who captures the benefits?

A powerful local network of businesses, government and critical infrastructure is needed to work together on risks sharing. The local network is an innovative public – private initiative enabling more effective preparation for, response to and recovery from the range of disruption. The network enables businesses, government and other stakeholders to collaborate and bring together a range of capabilities and resources to address shared risks.

How and what does the local network core activities do to share the risks and rewards of resilience?

- build face-to-face communication mechanism of management layer people; create real-time communications & collaboration platform enabling communications / information sharing and collaborative activity before, during, and after disruptive events;
- direct participation/embedding of the private sector in the emergency operations to facilitate more coordinated response and recovery during a crisis.
- share best practices include online lessons in operational resilience to both the private and public sectors.
- table updated key organizational contacts across the region with targeted businesses, NGOs, local government agencies and critical infrastructure operators.
- fulfill joint public-private exercises for targeted stakeholders, integrate cross-industry and cross-discipline efforts in resilience / preparedness / security / risk management to enable more coordinated and informed actions.
- establish Annual Global Risk Digest scanning the diversity of risk assessments and reports from a variety of expert sources and providing key risks to your organization.

- Who captures the benefits?

The consumers benefit from reduced energy bills and increased comfort.

The utilities benefit in that they will not need to build large-scale power plants to meet demand; and some of the reduced demand will be met by renewables or distributed generation (with clean fuels).

And the environment will benefit from reduced pollutants – resulting in local air quality and global climate change benefits.

- It offers various benefits for emergency response and recovery and climate change adaptation and mitigation, as well as social and economic benefits.

First, it benefits communities as they respond to and recover from emergencies and shocks, such as extreme storms, drought, and flooding.

Second, it has social and economic benefits that strengthen community systems, increasing households' and businesses' capacities to cope with unanticipated events.

Third, it can help communities mitigate as well as adapt to the impacts of climate change.



**Q5:** How do we learn from each other's' successes and failures in meeting international goals in a local context?

## ■ Local vs. International

For a local context to achieve international goals, firstly we should **investigate the local situation** clearly in order to have a visible understanding, and analyse the regional advantages and the current existing problems and challenges as well. Meanwhile, should analyse the **adaptability of international goals**, choose which is more suitable for the goal of this regional environment as a priority target, on this basis to develop more accurate area target.

## ■ Learning and using

Local development cannot live without international environment, therefore, it should be paid great attention on cooperation.

Exchange of information at workshops and conferences is a good starting point.

Using social media to highlight key successes.

Learn from the best practice and share the experiences from international team, at same time, manage to bring the international expert team to the local context. The first APEC LCMT Yujiaapu CBD is a good example.

## ■ Failures are also important

It is more difficult to highlight failures, but this should be done, since we can learn from our failures as well as from our successes.



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**Thanks  
for your attention!**

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