

**Energy efficiency and conservation
in the construction and the development
of green building**

ECAP 14 Tokyo 2017

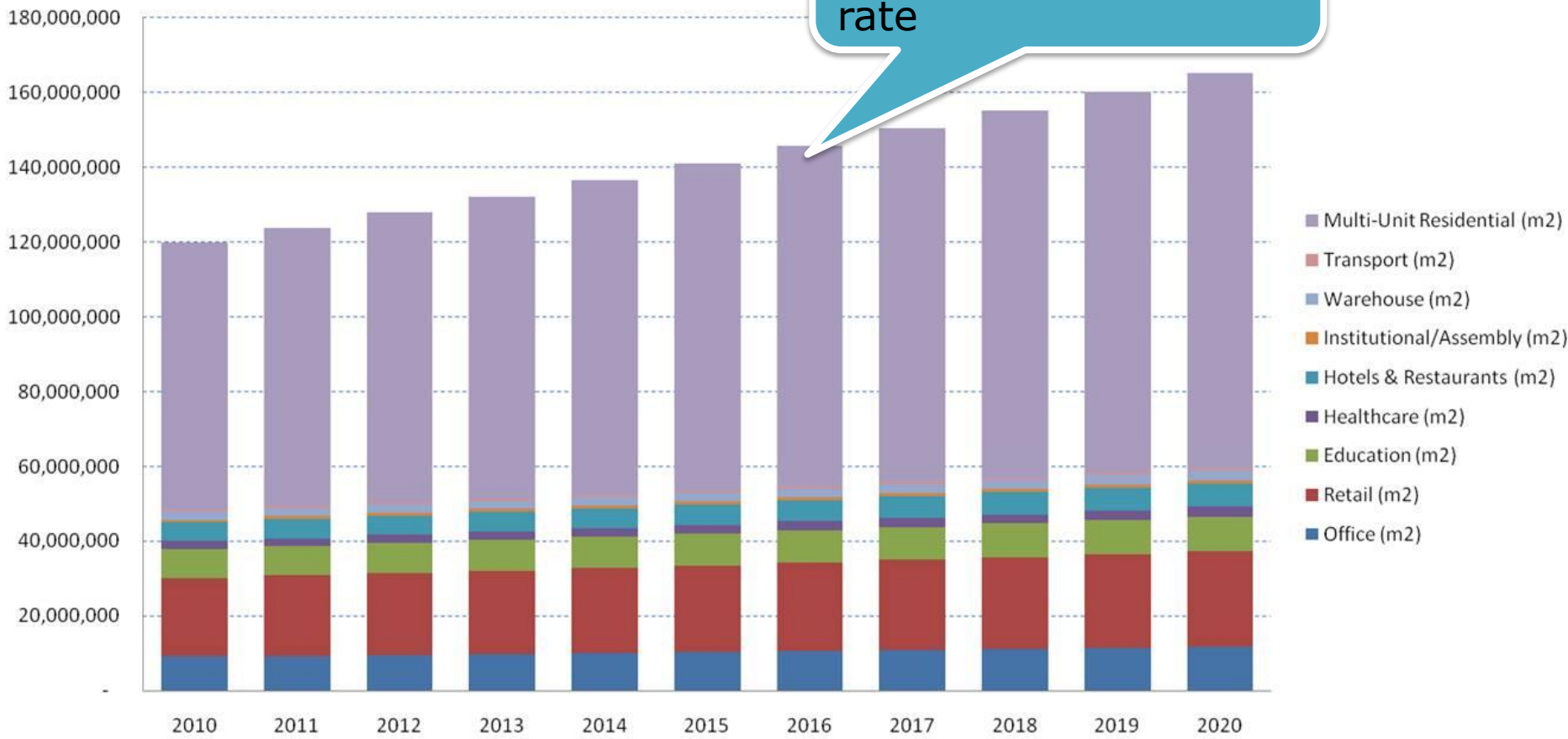
Mr. Nguyễn Văn Long
Energy efficiency and Sustainable Development Department
Ministry of Industry and Trade

Status of energy use in the construction

- In the recent years, the average floor area of new construction in Vietnam is about 80-90 million m²/year.
- The area of working offices, hotels, department stores has rapidly increased.
- In the large cities, the medium and large-sized buildings are increasing.
- The increasing of numbers of buildings, size of the floor area result in the energy consumption in this area increasing significantly every year.
- In 2015, the energy consumption in the civil sector in Vietnam accounted for 15.1% of total national energy consumption.

The growth of building stocks

Building Stock Projections, Vietnam in square meters



Private houses have the highest growth rate

Nguồn: Pike Research

The legal documents on energy efficiency and conservation in the construction

- In 2010, The Law on Energy Efficiency and Conservation was approved by the National Assembly
- In 2011, the Government issued Decree No.21/2011/ND-CP detailing the Law on Energy Efficiency and Conservation and measures for its implementation.
- In September 2013, the Ministry of Construction issued the Technical Regulation on Energy Efficiency Buildings.

The implementation of energy efficiency and conservation in the construction and the development of green building

1. Implementation of National Regulation on Energy Efficiency Buildings (QCVN 09:2013/BXD) :

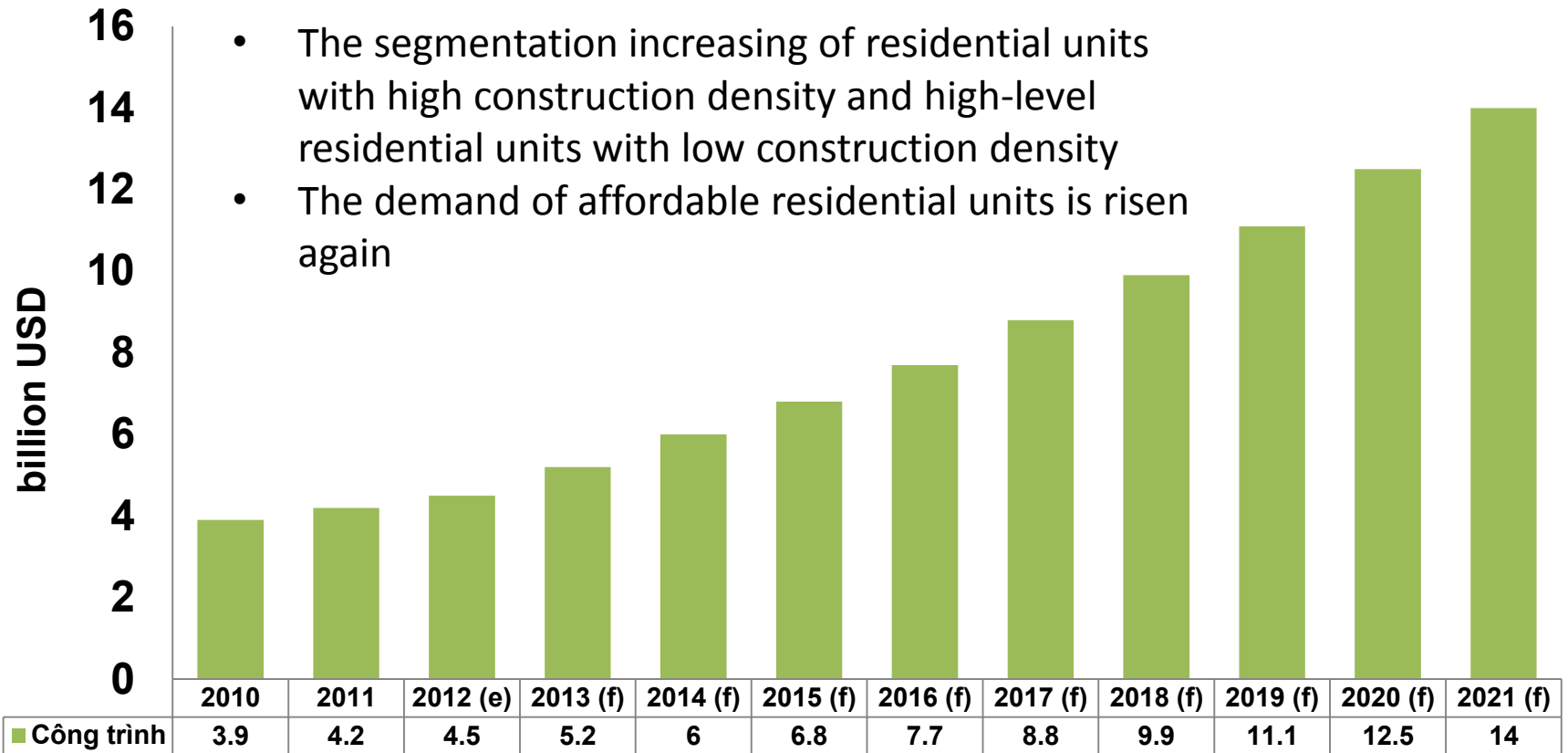
- Coordinate with IFC-WB to develop a check list, tool, technical guideline for applying QCVN 09:2013/BXD
- Organize seminars/ workshops, training courses for dissemination of the Regulation.
- Select 05 works for pilot applying the energy calculation, work design aiming to meet the requirements of the Regulation from the design phase (03 works under IFC project and 02 works under Danish Project).

The implementation of energy efficiency and conservation in the construction and the development of green building (Cont.)

- Establish the list of more than 400 works with the floor area scale over 2500m² in Hanoi, Hai Phong, Da Nang, Ho Chi Minh City and Can Tho.
- Select 225 works for conducting surveys, detailed energy audits. Propose to conduct surveys in 5 cities: Da Nang, Can Tho, Ho Chi Minh, Hai Phong from February 2015 to 2016.
- Set up the energy use database management software in the buildings in 5 cities, then replicate to other regions.
- Capacity building for 02 Energy Conservation Centers in Hanoi Architectural University and Ho Chi Minh City Architectural University.
- Develop the teaching materials on energy saving for teaching delivery in Architectural University and Civil Engineering University.

Growth forecast for Vietnam

Vietnam's construction market is expected to reach 14 billion USD by 2021.



Nguồn: Theo dõi kinh doanh quốc tế, Bộ ngoại giao Mậu dịch quốc tế Canada, Bloomberg, Cơ quan Năng lượng Quốc tế




Status of green building certification in Vietnam

1. According to the Lotus system of VGBC: there are 14 official certified buildings since 2009.
2. According to LEED Standards: There are 19 buildings certified by VGBC.
3. EDGE certification system (by the WB, implemented by IFC in Vietnam): There are 13 buildings granted certificates from the design phase.
4. GREEN MARK 10 buildings

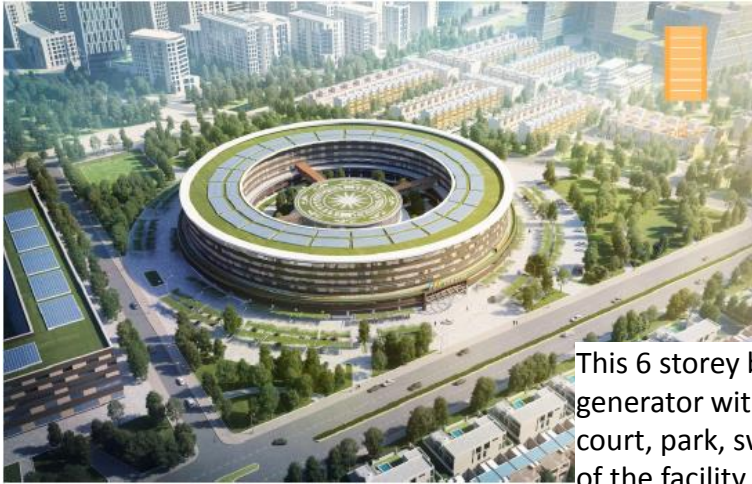
Building EHome 5 Nam Long, TPHCM, Vietnam



Building Ehome 5 Nam Long, also known as Bridgeview, is the complex building consisting of 492 one bedroom apartments with reasonable price. The building locates near school, park, market and only a few kilometer away from the city center. The utilities include community house, river-side park, kindergarten.

EFFECTIVE USE OF RESOURCES	TECHNICAL SOLUTIONS	
 <p>Reduce 31% energy cost</p>	<p>Decrease window/wall ratio, use external sun visor structure, reflective paint for walls and roofs, insulated wall and roof, high heat-resistant glass, power saving lights</p>	
 <p>Reduce 22% water cost</p>	<p>Use low-flow shower, lavabo faucet, low-flow kitchen faucet, use 2 stage toilet flush</p>	
 <p>Reduce 34% materials used</p>	<p>Concrete ceiling and floor, use air pressure concrete block for walls and spilited walls</p>	

Cluster of FPT building, Da Nang



This 6 storey building has a 1,500L solar hot water system and a solar-powered generator with capacity of 12kWh/ day. The complex has a football field, basket ball court, park, swimming pool. The return on investment of energy efficient technologies of the facility is less than 3 years due to the reduction of energy costs..

EFFECTIVE USE OF RESOURCES

TECHNICAL SOLUTIONS



Reduce 21%
energy costs

Solar cells, variable gas cooling system, high COP coefficient, waste gas heat recovery sensor, high heat-resistant glass, insulated roof/wall, energy efficient lights, light control device.



Reduce 32%
water costs

The cooling system has 'dry cooler' to minimize water consumption of ventilation system.



Reduce 20%
materials used

Use air pressure concrete block for walls, concrete floor

Barriers related to the implementation of energy efficiency and conservation in the construction and development green building

- Shortage of human resources implementing the energy efficiency program and development of green building. There is no specialized unit in this sector especially in the localities.
- The limitation of financial resources, state budget for energy efficiency investment;
- The limitation of professional capacity of technical experts in the field of energy efficiency.
- The application and development of green building are just voluntary, based on the consciousness of the project investor.
- There are no specific and appropriate incentives for energy efficiency projects and certified green buildings.

Some solutions for promoting the energy efficiency and conservation in the construction and development of green building

- Studying, screening, supplementing, formulating and issuing norms, unit prices, investment rates related to energy efficiency and green building.
- Formulating and promulgating specific incentive mechanisms for energy efficiency buildings which are certified as green building (incentives in tax, fees ...)
- Strengthening dissemination activities, raising awareness for the concerned subjects in the energy efficiency, development of green building.
- Developing and implementing the regulations on assessment, certification, labeling, certificate granting for materials, equipment, energy efficiency buildings, green buildings.

Thank you very much!