

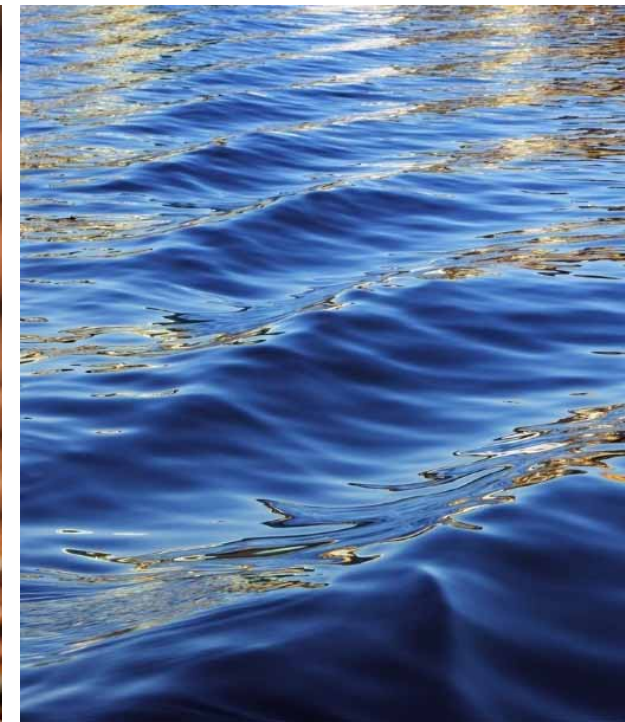
Hong Kong 【4R20】

Co-benefits of renewables
in a dense urban context

Ir Albert Lai 黎廣德

COP 22, November 2016

Prepared by CCA 低碳亞洲
A Social Business for Sustainability



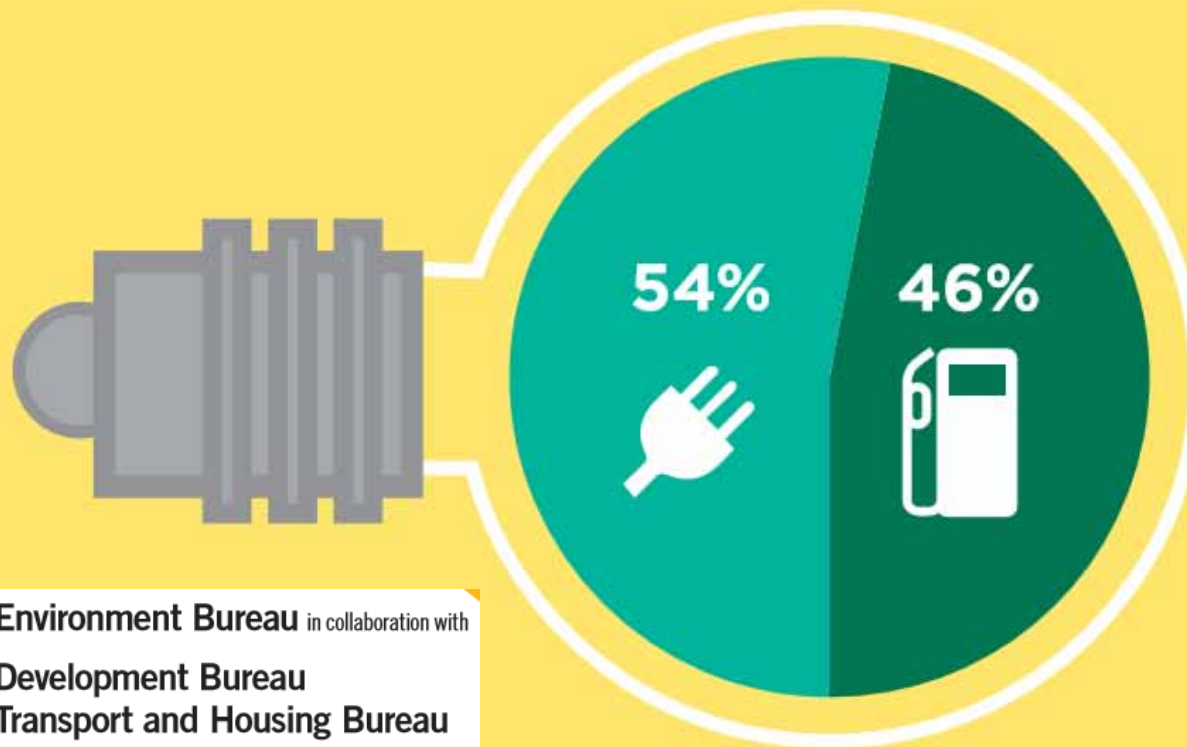
Hidden Externalities – IMF Study 2015

Energy subsidies as inconvenient truth

Country	Nominal GDP US\$, billions	Population, millions	Post-tax subsidies in US\$ billions (nominal)							Total post- tax subsidies
			Pre-tax subsidies	Global warming	Local air pollution	Congestion	Accidents	Road damage	Foregone consumption tax revenue	
Cyprus	21.41	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Czech Republic	208.87	10.53	0.00	3.86	12.44	0.35	0.20	0.08	0.65	17.58
Denmark	361.33	5.63	0.00	1.19	0.66	2.35	0.19	0.08	1.30	5.78
Estonia	27.41	1.32	0.00	0.06	0.05	0.00	0.00	0.00	0.01	0.13
Finland	280.67	5.51	0.00	0.96	0.48	0.00	0.00	0.00	0.01	1.45
France	2935.36	64.21	0.15	8.07	8.04	6.08	1.57	0.60	5.61	30.12
Germany	3908.79	81.36	3.26	21.91	24.55	0.00	0.00	0.00	5.92	55.64
Greece	252.42	10.98	0.25	1.66	4.60	0.00	0.00	0.00	0.09	6.60
Hong Kong SAR	312.39	7.31	0.00	1.95	6.70	0.48	0.11	0.06	0.33	9.64
Iceland	17.22	0.33	0.00	0.02	0.03	0.00	0.00	0.00	0.04	0.09
Ireland	252.64	4.65	0.11	0.68	0.29	0.00	0.00	0.00	0.14	1.22
Israel	321.24	8.37	0.01	1.91	7.17	0.00	0.00	0.00	0.23	9.31
Italy	2152.99	60.24	0.00	8.24	2.28	0.00	0.00	0.00	2.75	13.27
Japan	4881.91	126.73	0.13	42.29	49.33	48.48	5.16	2.51	9.19	157.09
Korea	1560.57	50.64	0.00	22.11	31.71	6.83	6.77	1.23	4.31	72.95

Energy Subsidies – where do they go?

Characteristics relevant to energy and electricity usage in Hong Kong

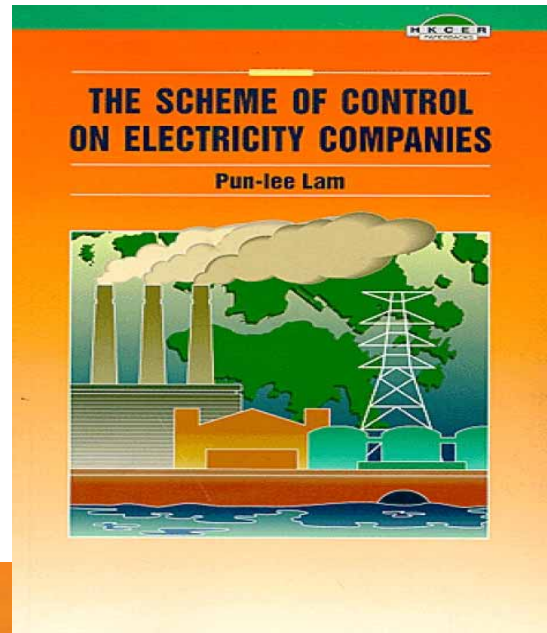
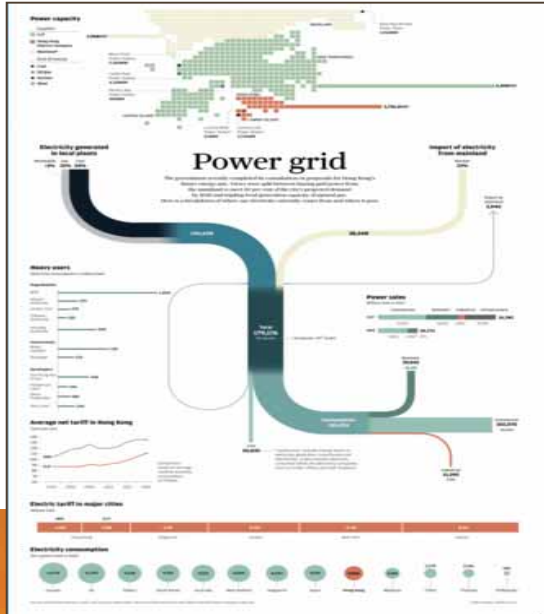


More than half (54%) of Hong Kong's total annual energy end-use is in the form of electricity consumption. The rest is used in the form of oil and coal products, town gas and liquefied petroleum gas (LPG), and to a very small extent, biodiesel.

Environment Bureau in collaboration with
Development Bureau
Transport and Housing Bureau

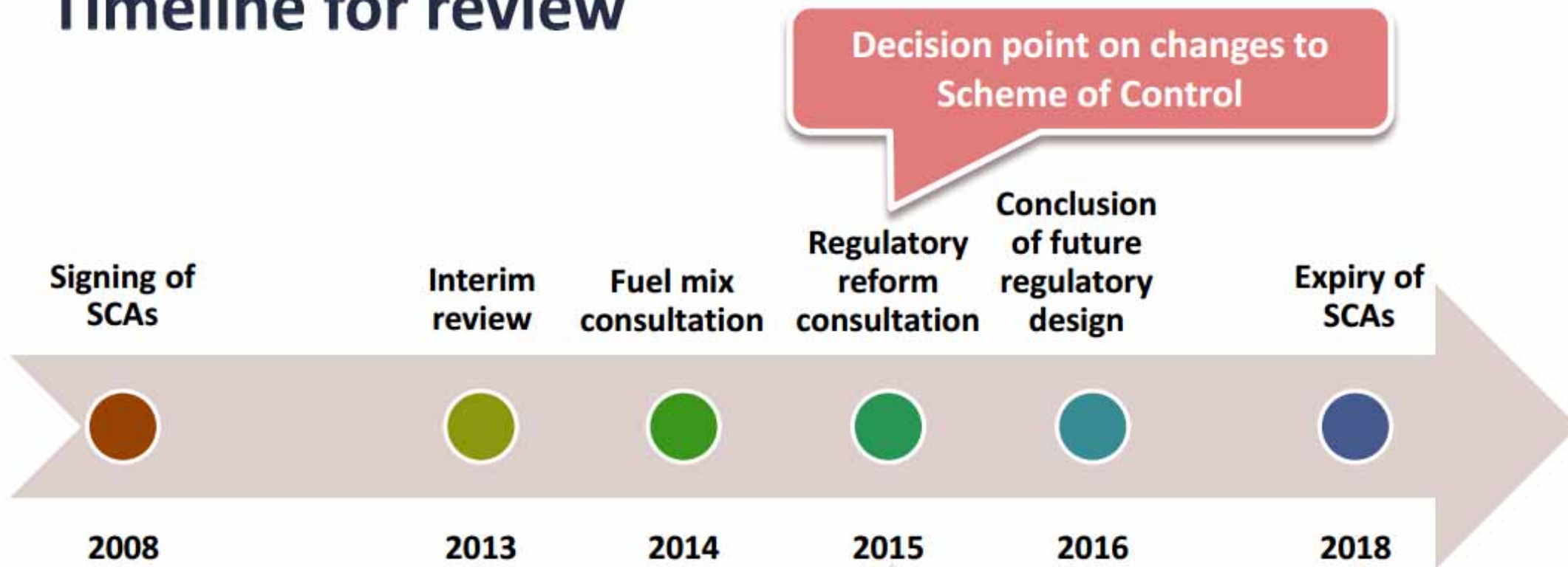
May 2015

A duopoly of entrenched interests



Golden Opportunities for Energy Transformation

Timeline for review



Solar PV Potential in Hong Kong

- Another Inconvenient Truth?



areas. The total electricity output is 5.54 TWh. Supposing all the rooftops have deployed the PV systems in Hong Kong, the potential energy can cover 5.9% of the city's total consumption and 6.9% of local electricity generation in Hong Kong. If PV systems are implemented in all open spaces, this will contribute 6.4% of the total consumption and 7.4% of local electricity generation in 2012. Supposing PV systems are deployed at the buildings in Government, Institution and Community facilities, the estimated output is 511.7 GWh. This covers 1.1% of total consumption and 1.3% of local electricity generation in 2012. More details of different types of buildings, their PV potentials, and average



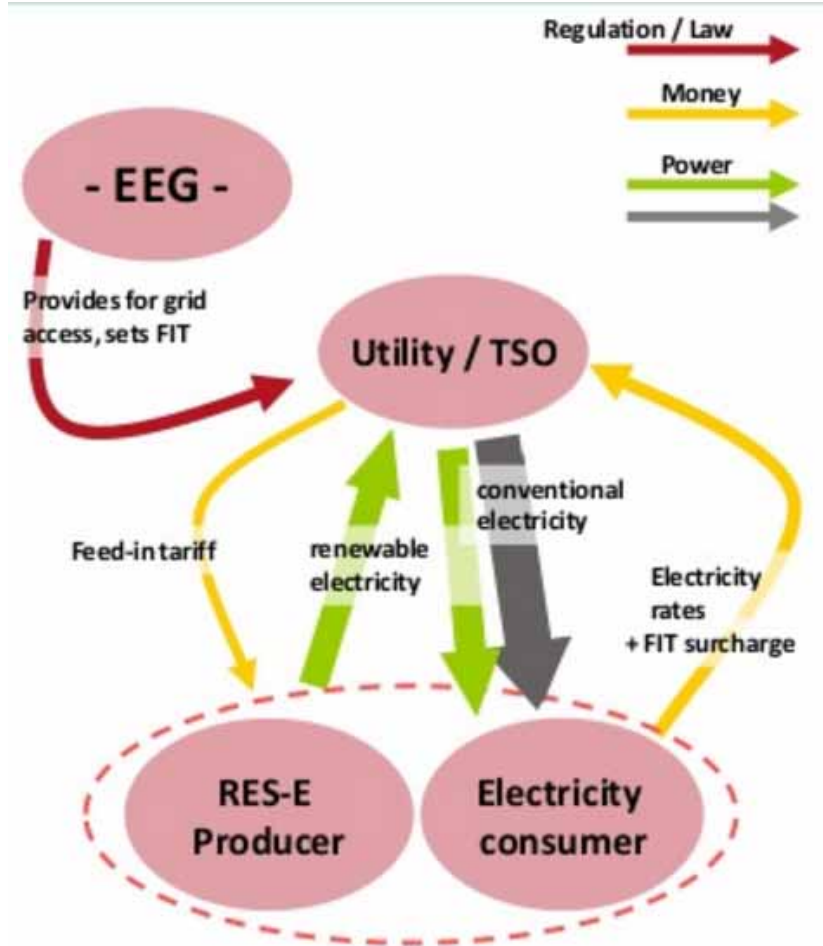
Hong Kong [4R20] - Pillar 1

Priority Grid Access for Renewables

The Renewable Energy Act

- Priority grid access for Renewables installations

Renewable Energy Development in Germany
/ Rainer Hinrichs-Rahlwes



Hong Kong [4R20] - Pillar 2

Attractive feed-in tariff for Renewables

特區政
裝規章》
並網安全利

因應澳門的實際情況，為推動大小規模的光伏系統，按照系統安裝容量的大小訂定三級別的上網電價(詳見下表)，較大安裝容量的上網電價較低，反之則然。

按20年收購期，不同太陽能光伏並網系統安裝容量的上網電價

等級	光伏系統安裝容量(千瓦)	上網電價 (澳門幣/千瓦時)
I	小於10	\$4.8
II	等於10~100	\$4.3
III	大於100	\$3.9

“光伏並網安全和安
”，即《太陽能光伏

Hong Kong [4R20] - Pillar 3

Redirection of Existing Resources

Annual Scheme of Control Permitted return
for two utilities = HK\$15.2 billion (2015)

Government Position: Reduce Permitted
Return from 9.9% to 6-8%

Each % cut = HK\$1.5 billion surplus

Hong Kong [4R20] - Pillar 3

Redirection of Existing Resources

Plan A
Cut ROA 3%

Plan B
Cut ROA 2%



Government
2:1
matching fund



FIT Fund
\$4.5 Billion
Annually

Hong Kong [4R20] - Pillar 4

Create Space for Community Participation



Hong Kong [4R20] - Pillar 5

Green Finance to Accelerate Transformation

A. RECOMMENDATIONS FOR ACTION IN THE NEAR FUTURE

- 3.1 Recommendation One: Strategic green bond issuance
- 3.2 Recommendation Two: Continuing coordination on green finance activities
- 3.3 Recommendation Three: Supporting growth of a green investor base
- 3.4 Recommendation Four: Developing and implementing green labelling and green project accreditation schemes.....

B. RECOMMENDATIONS FOR ACTION IN THE MEDIUM TERM

- 3.5 Recommendation Five: Public listings for green sector companies
- 3.6 Recommendation Six: Support for private equity.....
- 3.7 Recommendation Seven: Climate and environmental risks to investment portfolios.
- 3.8 Recommendation Eight: Providing supporting services for emissions trading

Hong Kong [4R20]

Benefits to the Community

No tariff Increase – less risk exposure to fossil fuel fluctuations

Direct benefits – a switch from consumers to producers

Community participation – grassroots may benefit via social enterprises

Health benefits from cleaner air and climate mitigation from carbon reductions



Hong Kong [4R20]

Benefits to the Business Sector & Job Creation

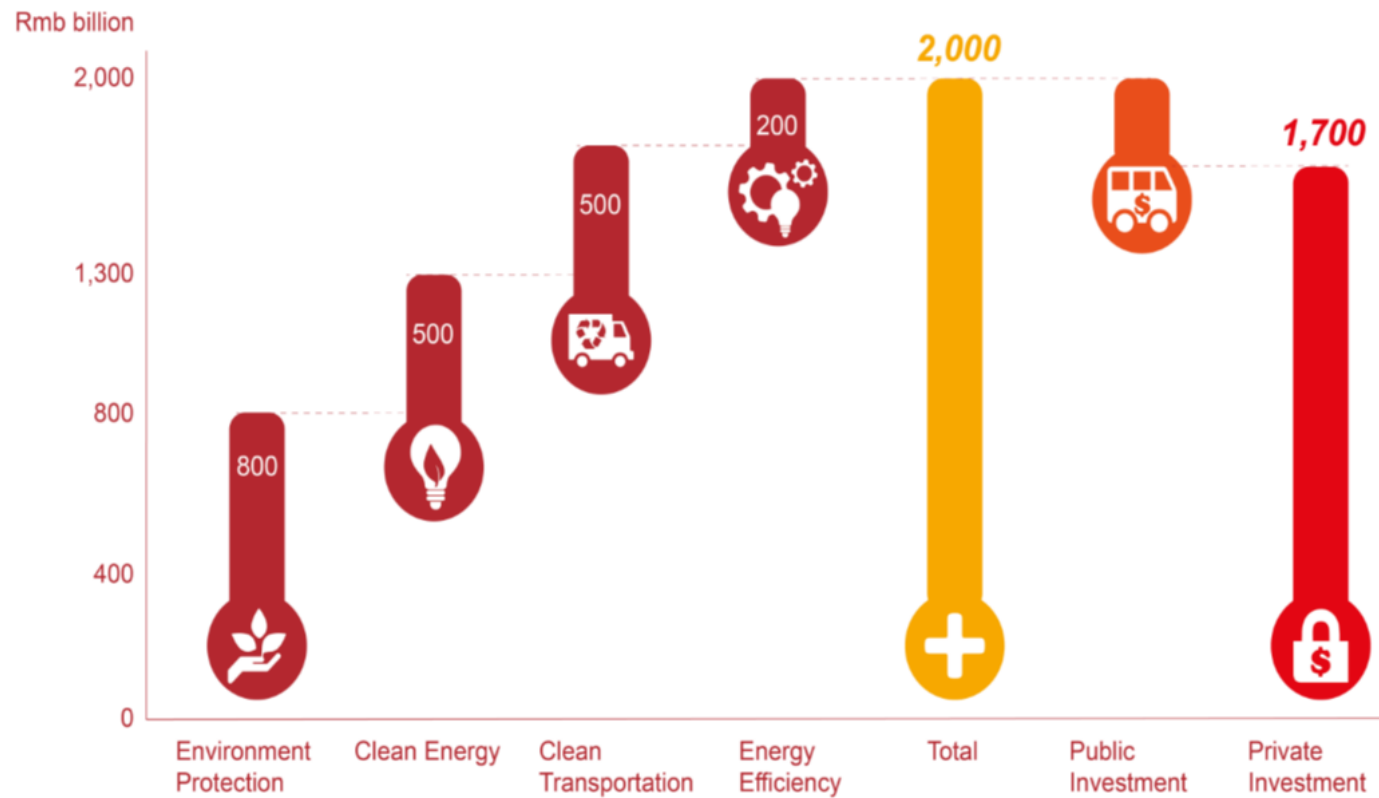


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Benefits to the Finance Sector



Figure 2: Investment required to meet China's environmental goals in the 13th Five-Year Plan period



Source: Green Finance Task Force

Hong Kong 【4R20】

Benefits to the Government

2020年非水电可再生能源发电量占比应超9%

3月3日，国家能源局网站发布《国家能源局关于建立可再生能源开发利用目标引导制度的指导意见》（下称《指导意见》）。《指导意见》明确，2020年，除专门的非化石能源生产企业外，各发电企业非水电可再生能源发电量应达到全部发电量的9%以上。

Revenue Neutral or Positive
after accounting for Energy
Subsidies

Hong Kong 【4R20】

Benefits to the Power Utilities

Relieve public pressure to open up/interconnect/import electricity

More opportunities on smart grid investment and green jobs

Meet sustainability targets – earn social license to operate

Thank You!



Carbon Communications

Carbon Strategies

Solution Partners

ESG & Carbon Reporting

Commissioned Research

Carbon Offset

Leadership Development Workshops

CarbonCare® Event

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