CHAPTER 1
Introduction to Energy Production Related for Malaysia Sustainable Development

Aizuddin Supee and Miss Hasimawaty Mat Kiah

1.1 INTRODUCTION

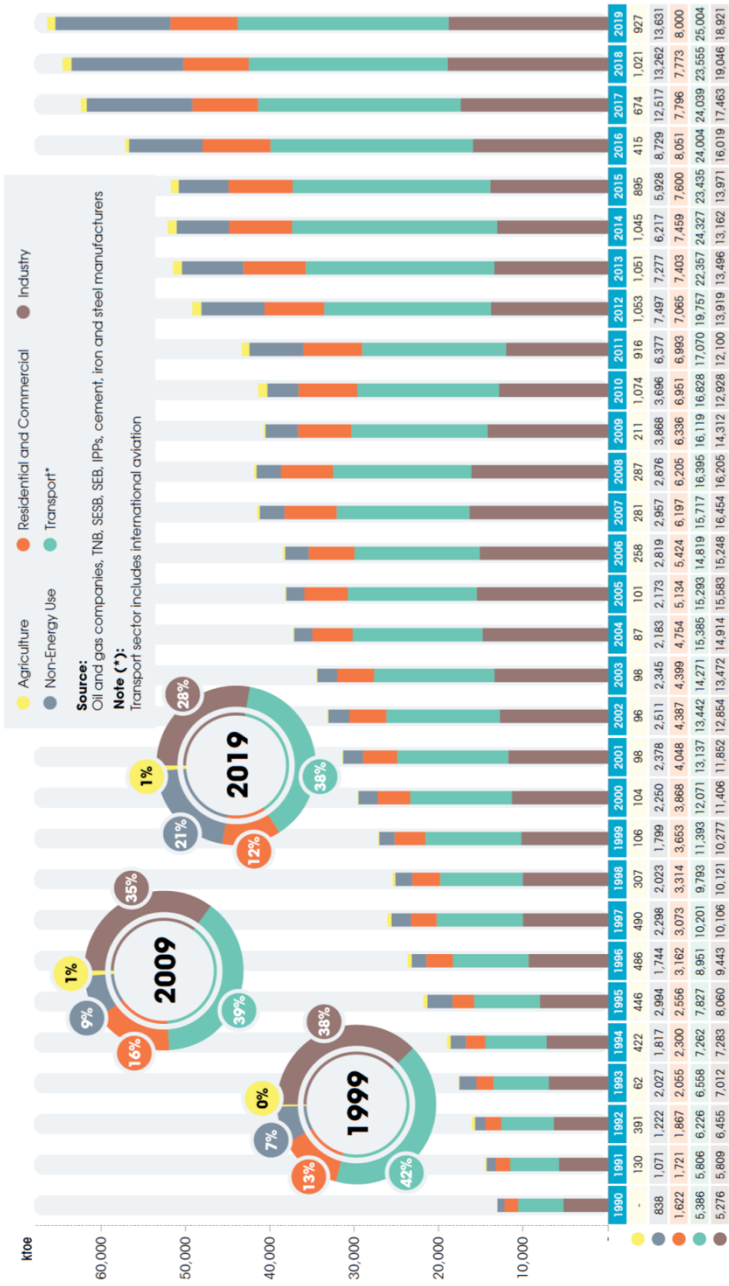
The rapid growth of the economy in numerous sectors including agriculture, transportation, telecommunication, industrial activities, etc. has resulted in substantially increased demand for energy, especially in Malaysia. It is undeniable that Malaysia still heavily relies on non-renewable/conventional fuels (fossil) including oil, gas, and coal which typically use as the resources for energy production. These forms of resources are finite, subjected to reserves found, and can be depleted in the future.

The status quo of fossil fuels price is volatile and depends on the fuel market and availability, thus, the security/sustainability and reliability of energy supplies could be questionable. Therefore, it is essential for Malaysia to attain energy considering the security/sustainability/reliability of conventional fuels as well as consider the diversification of other forms of resources such as renewable energies (RE) to ensure that the resources for energy production are not interrupted in the forthcoming. At present, Malaysia has taken an action to overcome this concern by aligning it with the aims of the energy

policies (Hannan et al., 2018; Minister of Energy, Green Technology and Water [KeTTHA], 2017a), which change based on the current energy requirement, as summarized in Table 1.1.

Table 1.1 The evolution of energy policies in Malaysia (Hannan et al., 2018; KeTTHA, 2017a)

Energy Policy	Aims
National Petroleum Policy (1975)	To manage the oil and gas industry in the downstream area via the Petroleum Regulations 1974
National Energy Policy (1979)	• To improve the adequacy, safety, and economical of energy supply • To motivate an effective use of energy • To minimize an adverse environmental effect in the energy supply chain
National Depletion Policy (1980)	To prolong the life span of the nation's oil and gas reserves for future security and constancy resources
Four-Fuel Policy (1981)	Ensuring reliability and security of supply through diversification of fuel (oil, gas, hydro and coal)
Five-Fuel Policy (2001)	Encourage the utilization of renewable resources such as biomass, solar, mini hydro etc. in energy supply combination
National Renewable Energy (RE) Policy + Action Plan (2009)	• To increase RE contribution in the national power generation mix • To facilitate the growth of the RE industry • To ensure reasonable RE generation costs • To conserve the environment for future generation • To enhance awareness on the role and importance of RE
New Energy Policy 2010	To encapsulate an entire effort for safeguarding the financial efficiency and security of supply as well as to meet social and environmental targets



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Agriculture	-	130	391	62	422	446	486	490	307	106	104	98	96	98	87	101	258	281	287	211	1,074	916	1,053	1,061	1,045	895	415	674	1,021	927
Non-Energy Use	838	1,071	1,222	2,027	1,817	2,994	1,744	2,298	2,023	1,799	2,250	2,378	2,511	2,345	2,183	2,173	2,819	2,957	2,876	3,868	3,696	6,377	7,497	7,277	6,217	5,928	8,729	12,517	13,262	13,631
Residential and Commercial	1,622	1,721	1,867	2,065	2,300	2,556	3,162	3,073	3,314	3,653	3,868	4,048	4,387	4,399	4,754	5,134	5,424	6,197	6,205	6,336	6,951	6,993	7,065	7,403	7,459	7,600	8,051	7,796	7,773	8,000
Transport*	5,386	5,806	6,226	6,558	7,262	7,827	8,951	10,201	9,793	11,393	12,071	13,137	13,442	14,271	15,385	15,293	14,819	15,717	16,395	16,119	16,828	17,070	19,757	22,367	24,327	23,435	24,004	24,039	23,555	25,004
Industry	5,276	5,809	6,455	7,012	7,283	8,060	9,443	10,106	10,121	10,277	11,406	11,852	12,854	13,472	14,914	15,583	15,248	16,454	16,205	14,312	12,928	12,100	13,919	13,496	13,162	13,971	16,019	17,463	19,046	18,921

Figure 1.1 Energy consumption in Malaysia based on the sector (Energy Commission [ST], 2019)