



Title

Towards a Sustainable Climate and Energy Policy Mix: Theoretical Insights and the Case of Japan

Sven Rudolph
Takeshi Kawakatsu
Achim Lerch

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Motivation and Questions

multiple goals \Rightarrow multiple instruments (Tinbergen 1952)!

instrument invasion (Sinn 2008, Weimann 2008)!

well-planned policy mix or chaotic policy mess? (Hansjürgens 2012)?



sustainable climate and energy policy mix

necessary, definable and assessable, politically feasible?

assessment of Japan's climate and energy strategy?

further research?

Necessity

inefficiency without additional environmental effects
(Sinn 2008, Weimann 2008)

BUT

multiple externalities

carbon-nuclear lock-in

politics-induced insufficiencies

real-world multi-level governance

energy transformation as socio-technological revolution

(Diekmann/Kempfert 2005, Fishedick/Samadi 2010, SRU 2011)



Sustainability

environmental effectiveness

nuclear-free decarbonization

economic efficiency

cost-efficiency

social justice

prevention of excessive burden for poor household

BUT

equal burden within and across generations

Feasibility

influential coalition of opponents prevents
sufficiently ambitious carbon pricing
(Kirchgässner/Schneider 2003)

BUT A POLICY MIX

shifts burden away from well-organized industry groups,
overcomes lock-in in time, reduces probability of sudden price hikes,
lowers political costs compared to sole carbon pricing solution,
creates and strengthens new political players
(Gawel et al. 2014)

Japan

Targets

-3.8% by 2020 (2005)

no targets for renewables or nuclear

Domestic ETS (~~2010~~)

Carbon Tax (2012)

low rates on all fossil fuels
revenues used for mitigation



CO₂ -0.5-3%

no influence on GDP

FIT (2012)

high rates, for 20 years
surcharge on consumers, but
exemptions for industries



CO₂ -1% in 2013 (1990)

fossil fuel costs -325.7 billion yen



Conclusions (for Research)

A climate and energy policy mix
is necessary and possible and
enhances the political feasibility of a nuclear-free decarbonization,
but sustainability criteria still have to be operationalized!

Political feasibility and social justice issues
are least well understood and need to be further studied!

Japan's climate and energy strategy cannot be considered sustainable,
political barriers remain to be high;
chances to overcome these barriers need to be studied in more detail!

Conclusions (for Policy Design)

Carbon pricing – particularly cap-and-trade – has to be the main pillar of climate and energy policy, accompanied by support schemes and other instruments!

Contradicting regulations
as well as double regulation and double counting
have to be avoided!

Excessive burdens on poor households should be prevented,
remaining burdens must be compensated
(e.g. by redistributing carbon pricing revenues)!

Japan: Carbon Tax (2012)

object of taxation	Petroleum and Coal Tax	Carbon Tax		
		Oct, 2012	April, 2014	April, 2016
Crude Petroleum and Petroleum Products (per kilo liter)	2,040 yen	250 yen (2290 yen)	500 yen (2,540 yen)	760 yen (2,800 yen)
Gaseous Hydrocarbon (per ton)	1,080 yen	260 yen (1,340 yen)	520 yen (1,600 yen)	780 yen (1,860 yen)
Coal (per ton)	700 yen	220 yen (920 yen)	440 yen (1,440 yen)	670 yen (1370 yen)



Japan: FIT (2012)

Energy source	Solar PV		Wind power			Geothermal power		Small- and medium-scale hydraulic power			Small- and medium-scale hydraulic power (utilizing installed water-introducing passage)		
	10kW or more	Less than 10kW	20kW or more	Less than 20kW	Floating wind turbine	15MW or more	Less than 15MW	1MW or more but less than 3MW	200kW or more but less than 1MW	Less than 200kW	1MW or more but less than 3MW	200kW or more but less than 1MW	Less than 200kW
Tariff (per/kWh) ^a	32 yen ^b	37 yen ^c	22 yen	55 yen	36 yen	26 yen	40 yen	24 yen	29 yen	34 yen	14 yen	21yen	25 yen
Duration (years)	20	10	20			15		20			20		

Energy source	Biomass				
Biomass type	Biogas	Wood fired power plant (Timber from forest thinning)	Wood fired power plant (Other woody materials)	Waste (excluding woody wastes)	Wood fired power plant (Recycled wood)
Tariff (per/kWh)	JPY 39	JPY 32	JPY 24	JPY 13	JPY 17
Duration (years)	20				