

Potential Destructive Change of Energy and Society - A Case in Japan

August 29th 2017,

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Institute for Sustainable Energy Policies

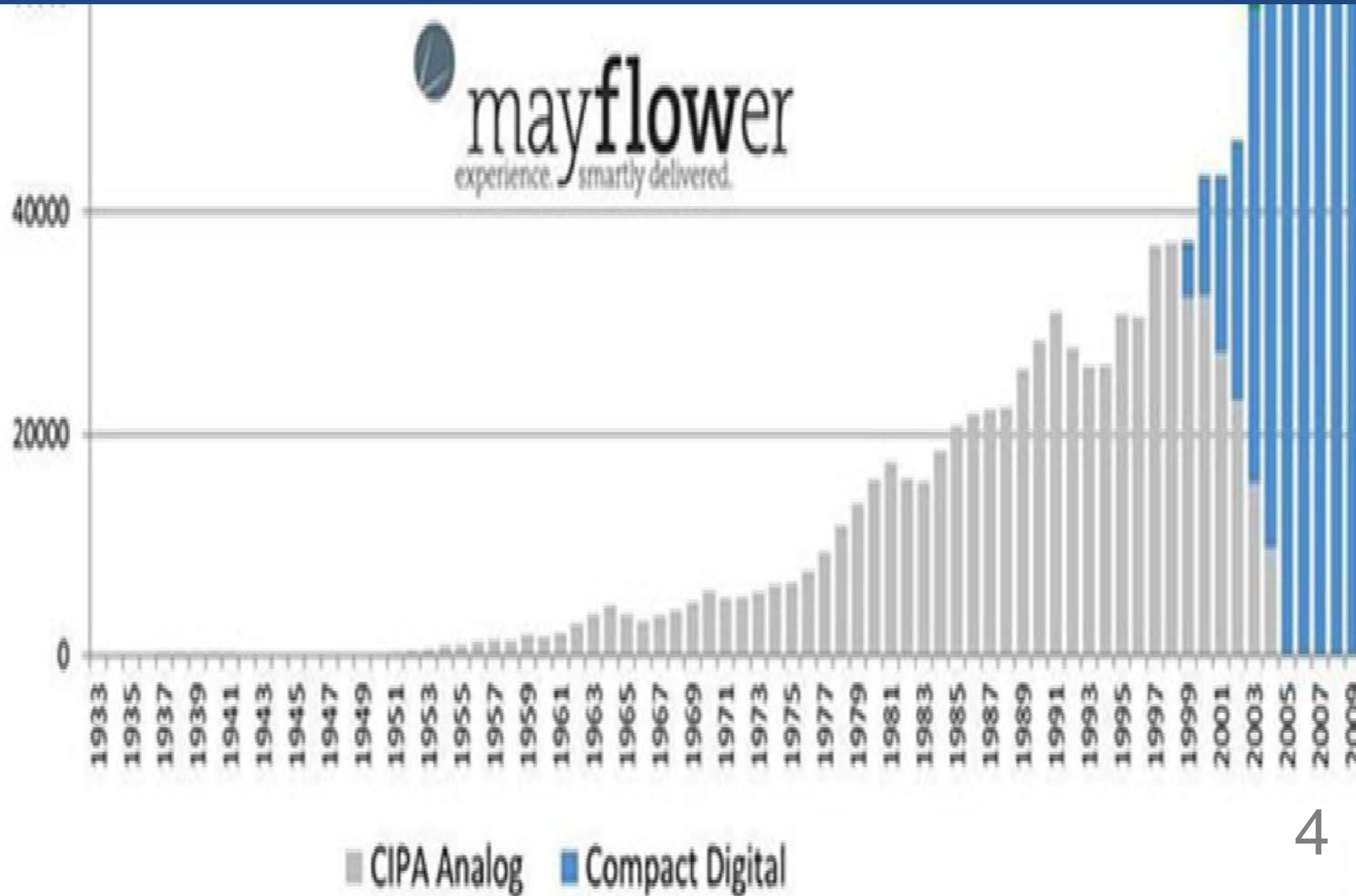
Disruptive changes are
happening

Disruptive change in mobility

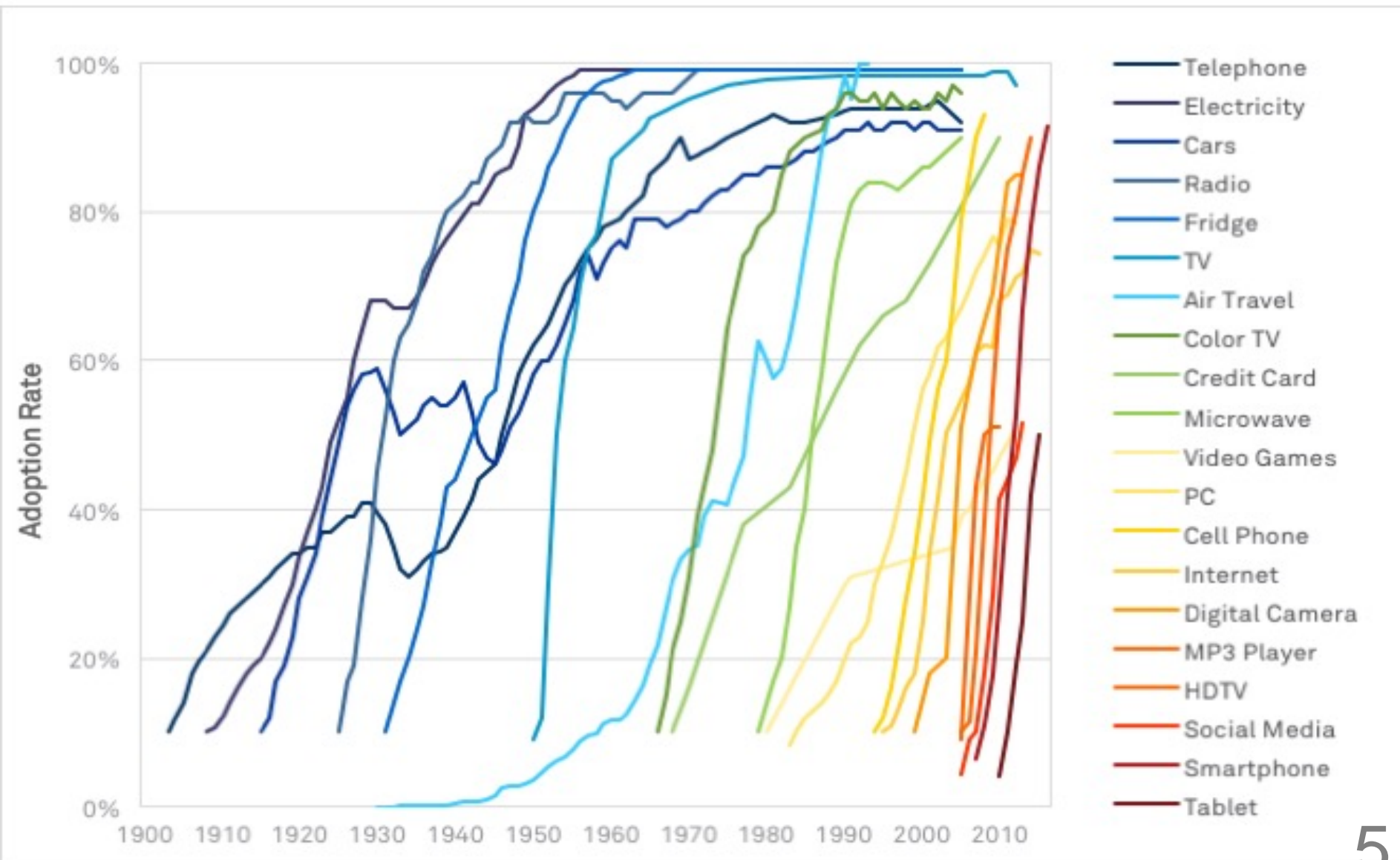
Easter morning 1900: 5th Ave, New York City. Spot the automobile.



Disruptive change in camera/film



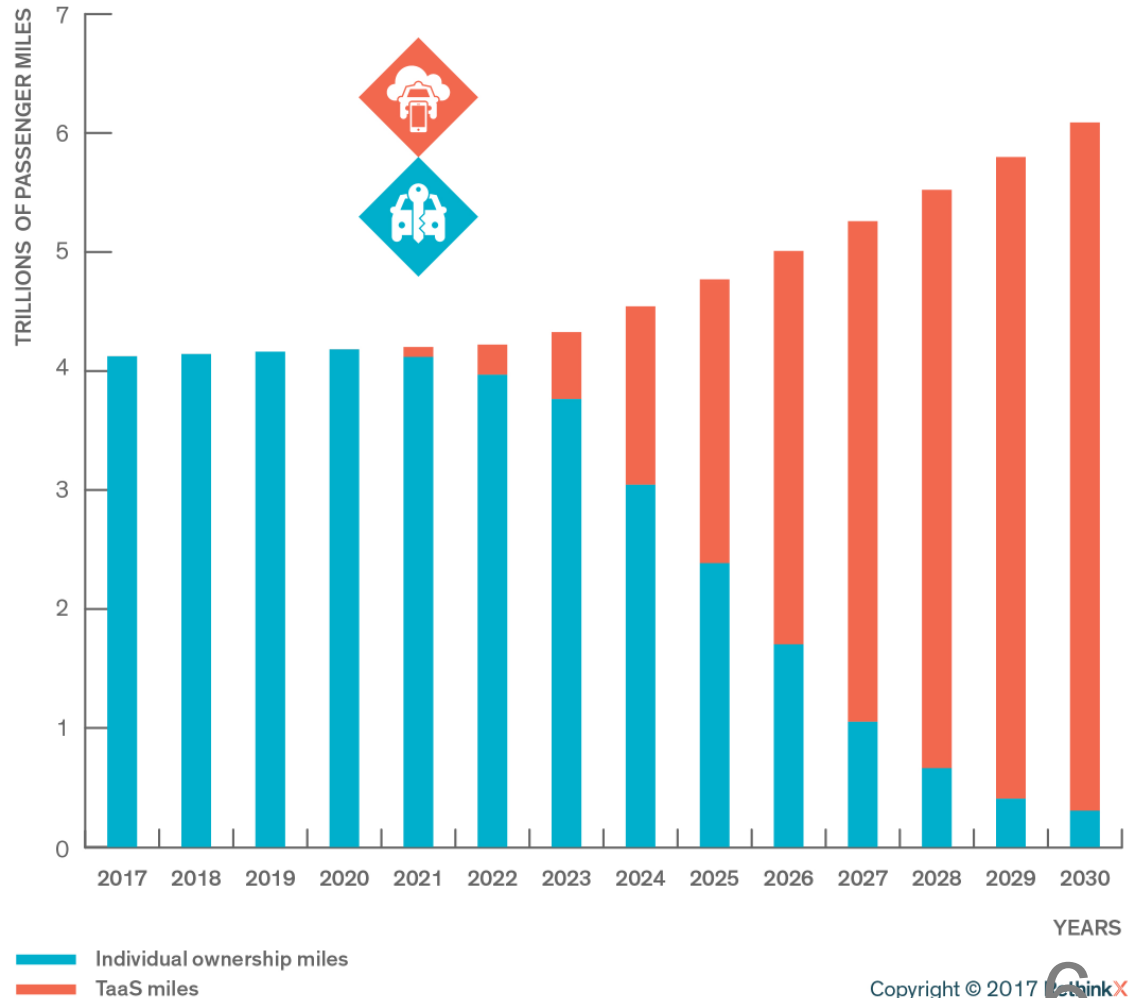
Accelerating technology adaptation curve



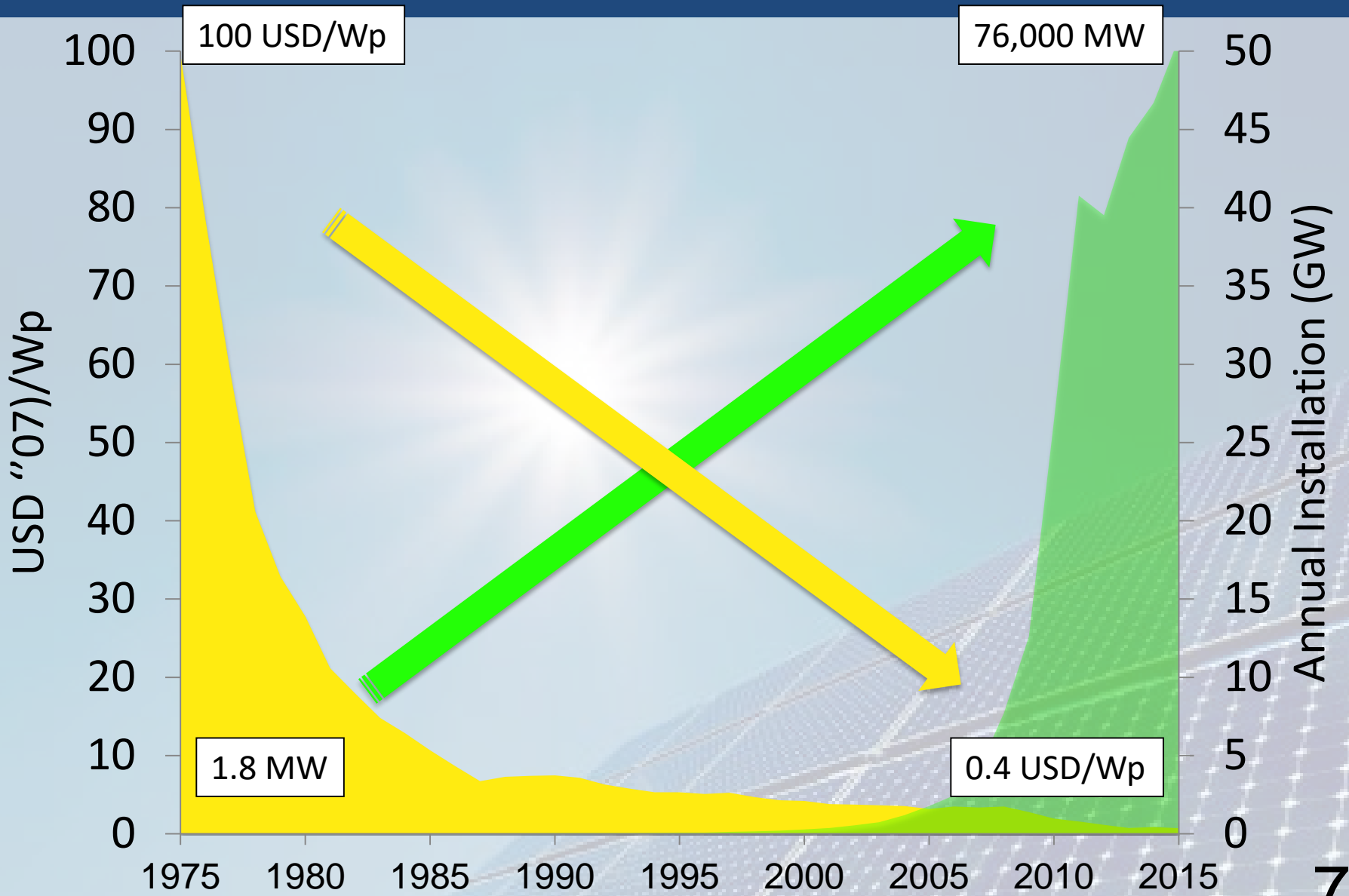
Disruptive change in mobility

“All fossil-fuel vehicles will vanish in 8 years in twin ‘death spiral’ for big oil and big autos, says study that’s shocking the industries” The Telegraph May 16, 2017

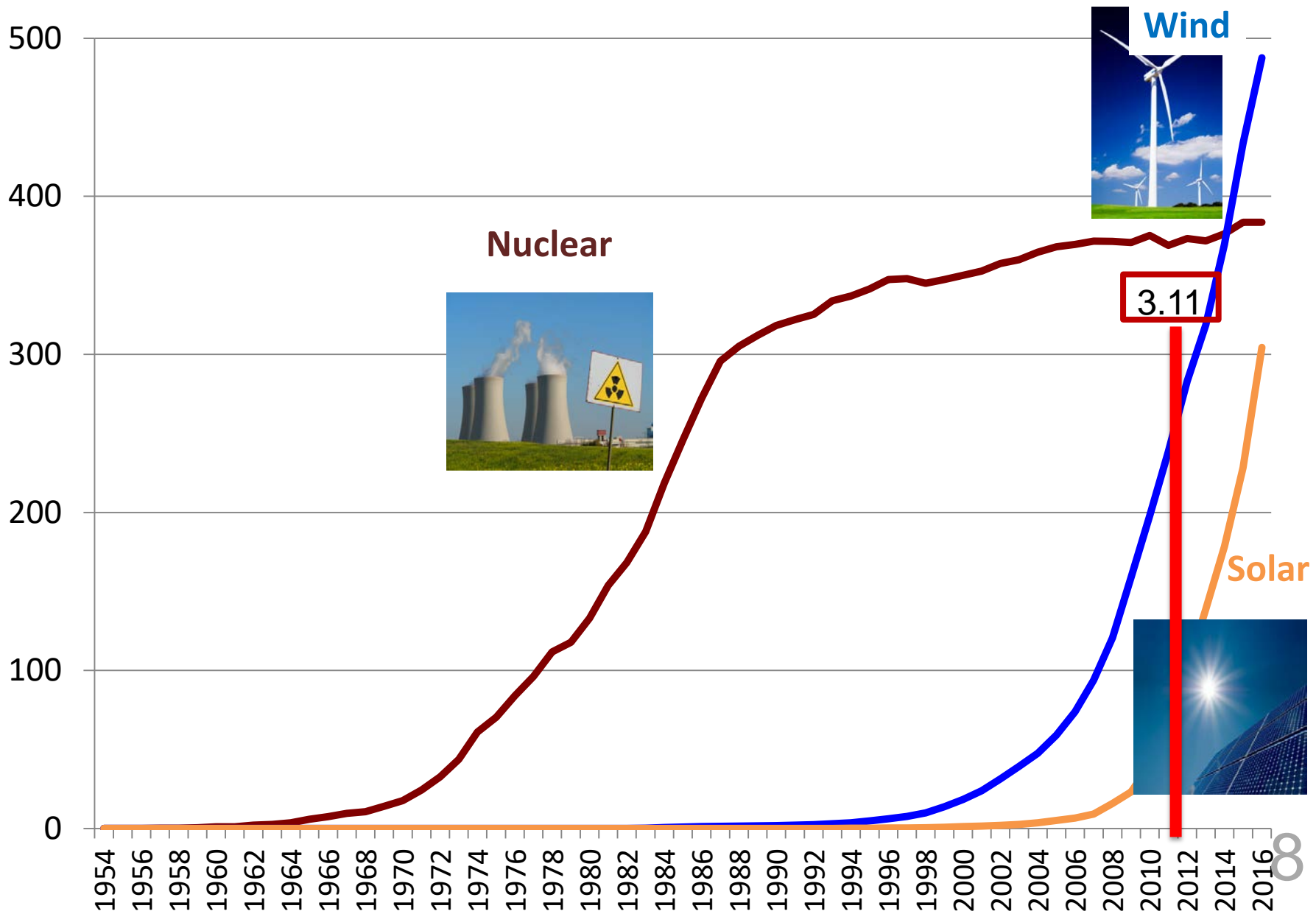
TaaS (Transport-as-a-service) EV+Uber+AutoDrive



Solar has been exponential



Solar (and wind) Explosive change





1988

0.01%

2002

1998

0.1 %

2009

2008

1 %

2015

2018?

10 %

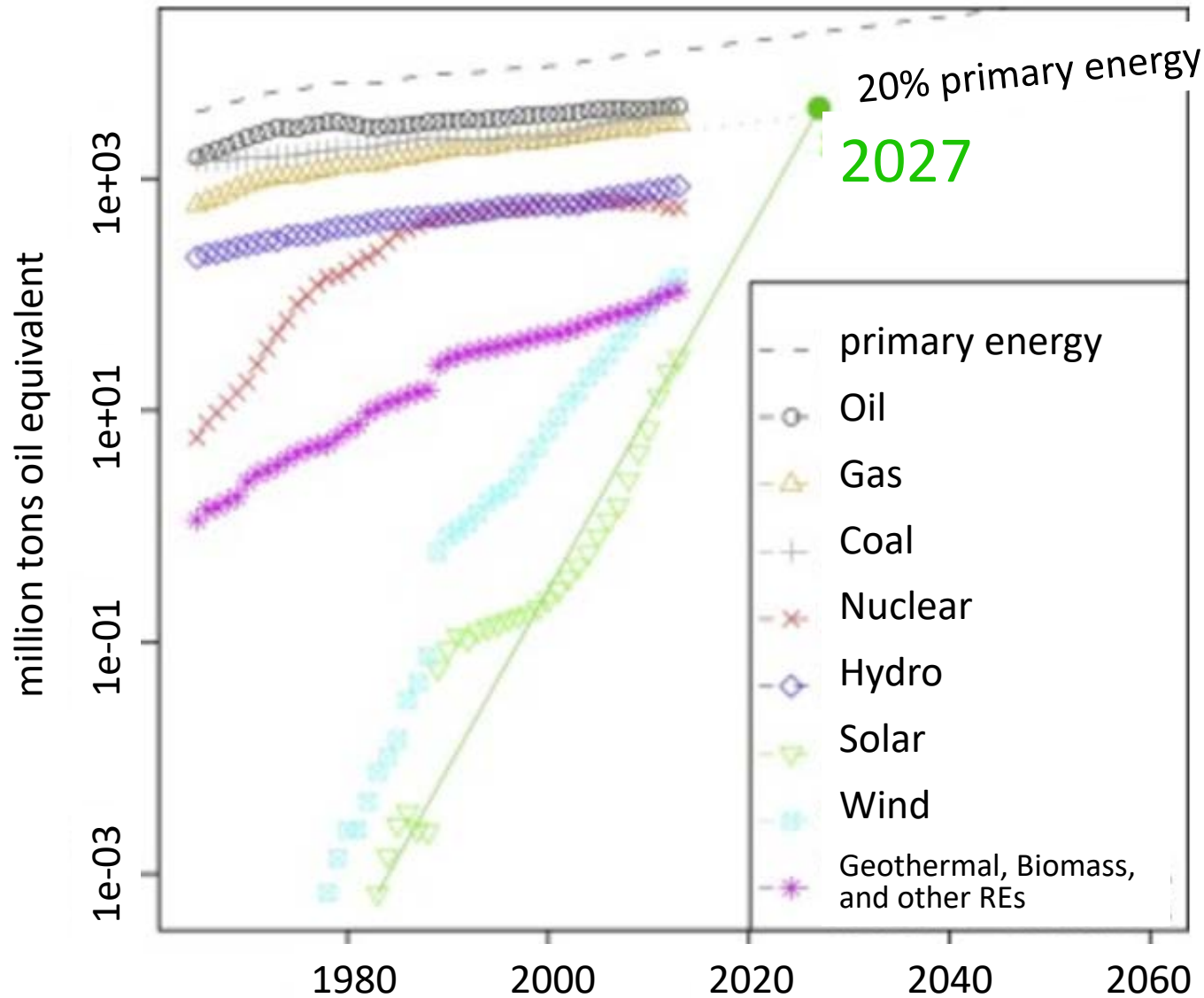
2022?

2028?

100%

2028?

Solar might supply 20% of primary energy within 10 years !?



“Era of energy” changing

Era	Power	Climate	Solar
Period	~ 1990	1990~2015	2015 ~
Driver	(Econo, Ind.) Growth	Issue	Exponential Tech
Through	Monopoly	Norm Policy	Market, democracy
Approach	Top down	Top down w/ Bottom up	Bottom up/distributed Innovation
Region	(each) National	International/g lobal	Ubiquitous
Typical	Nuclear, coal	C&T, CCS	PV(wind), EVs, IoT, AI

「日本と原発」河合弘之監督の最新作

日本と再生

光と風のギガワット作戦



監督 河合弘之 (弁護士)

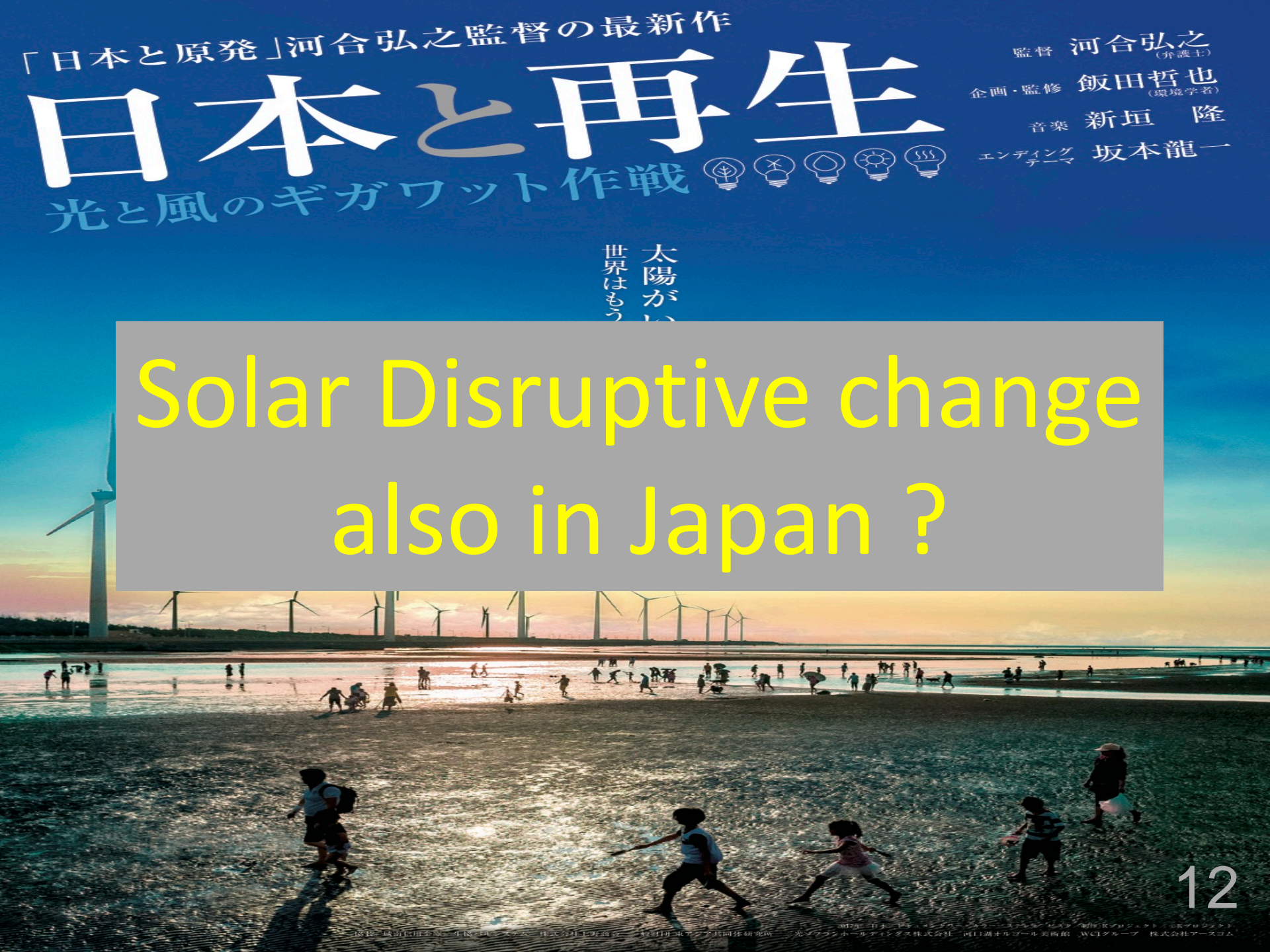
企画・監修 飯田哲也 (環境学者)

音楽 新垣 隆

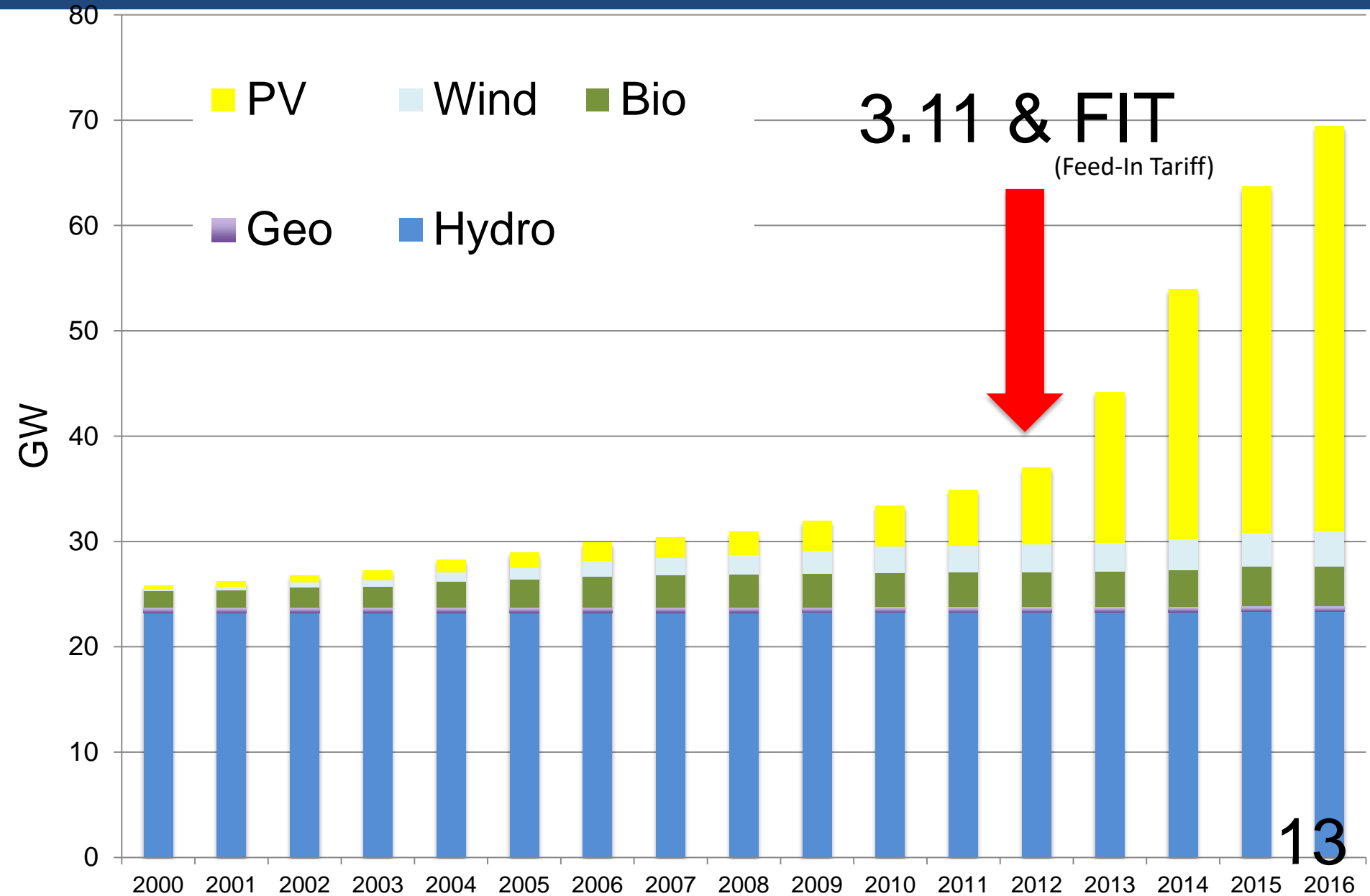
エンディング テーマ 坂本龍一

太陽がい
世界はもう

Solar Disruptive change also in Japan ?

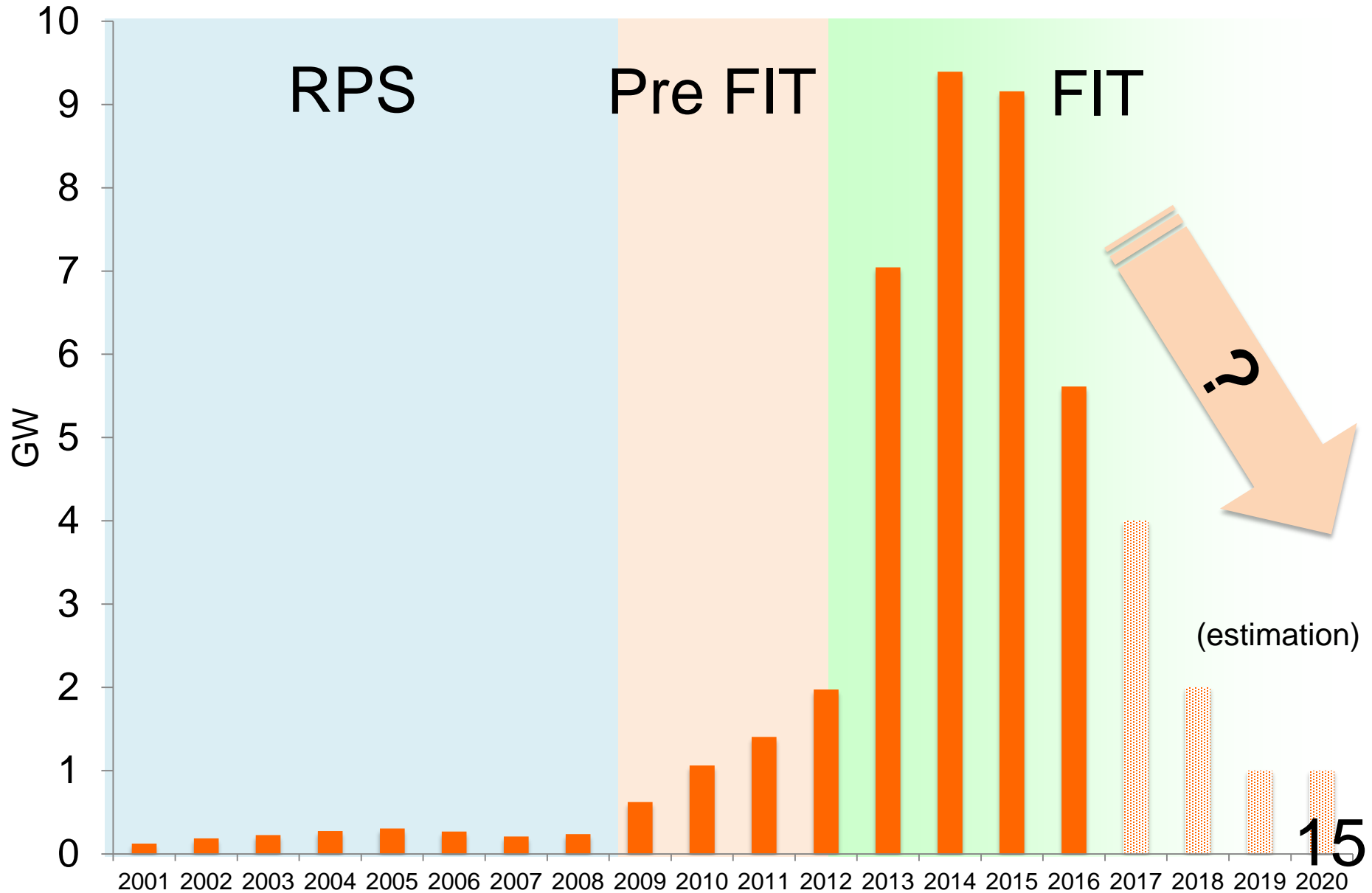


Solar booming in Japan since 3.11

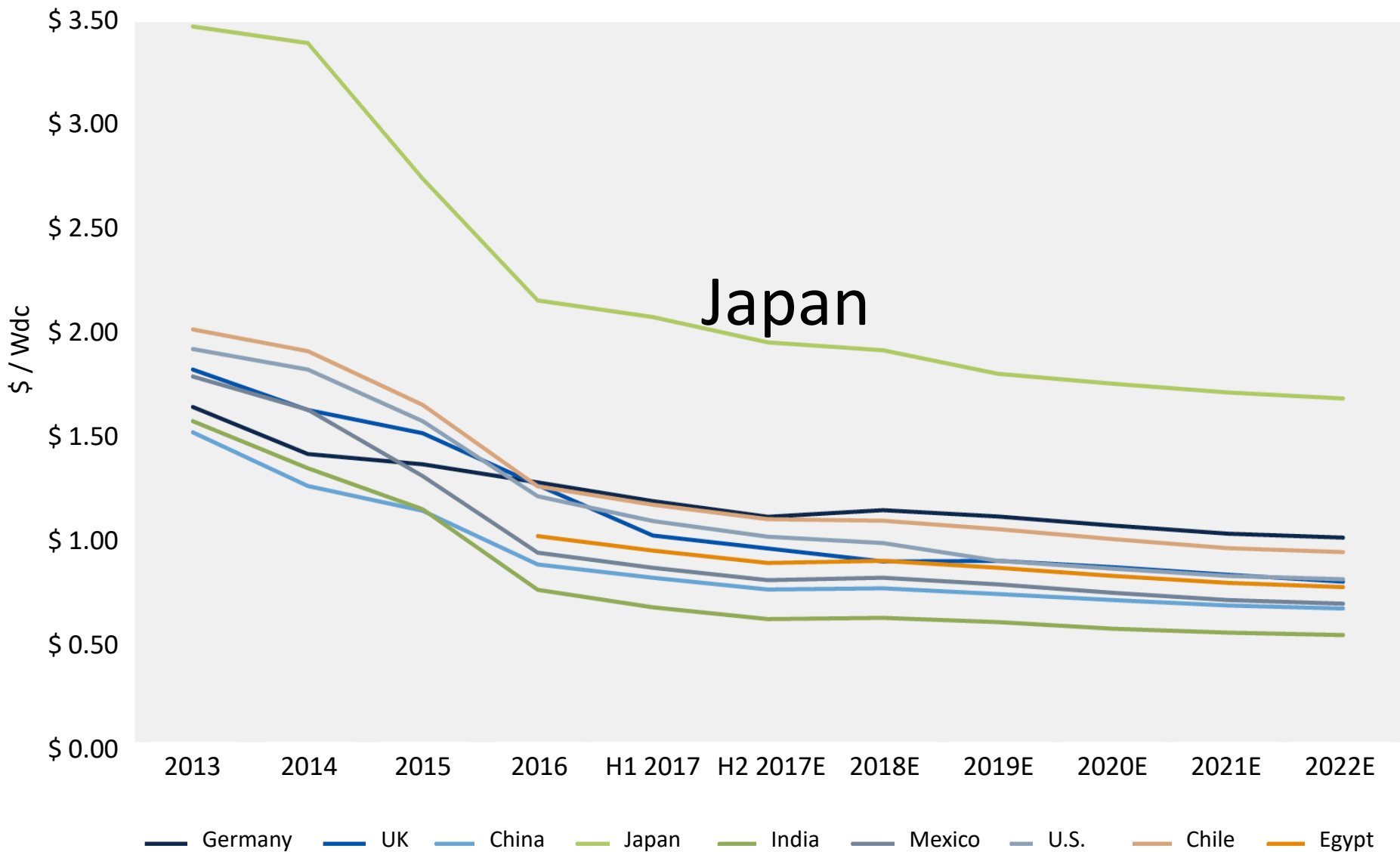


Bad news are ...

Solar boom and burst

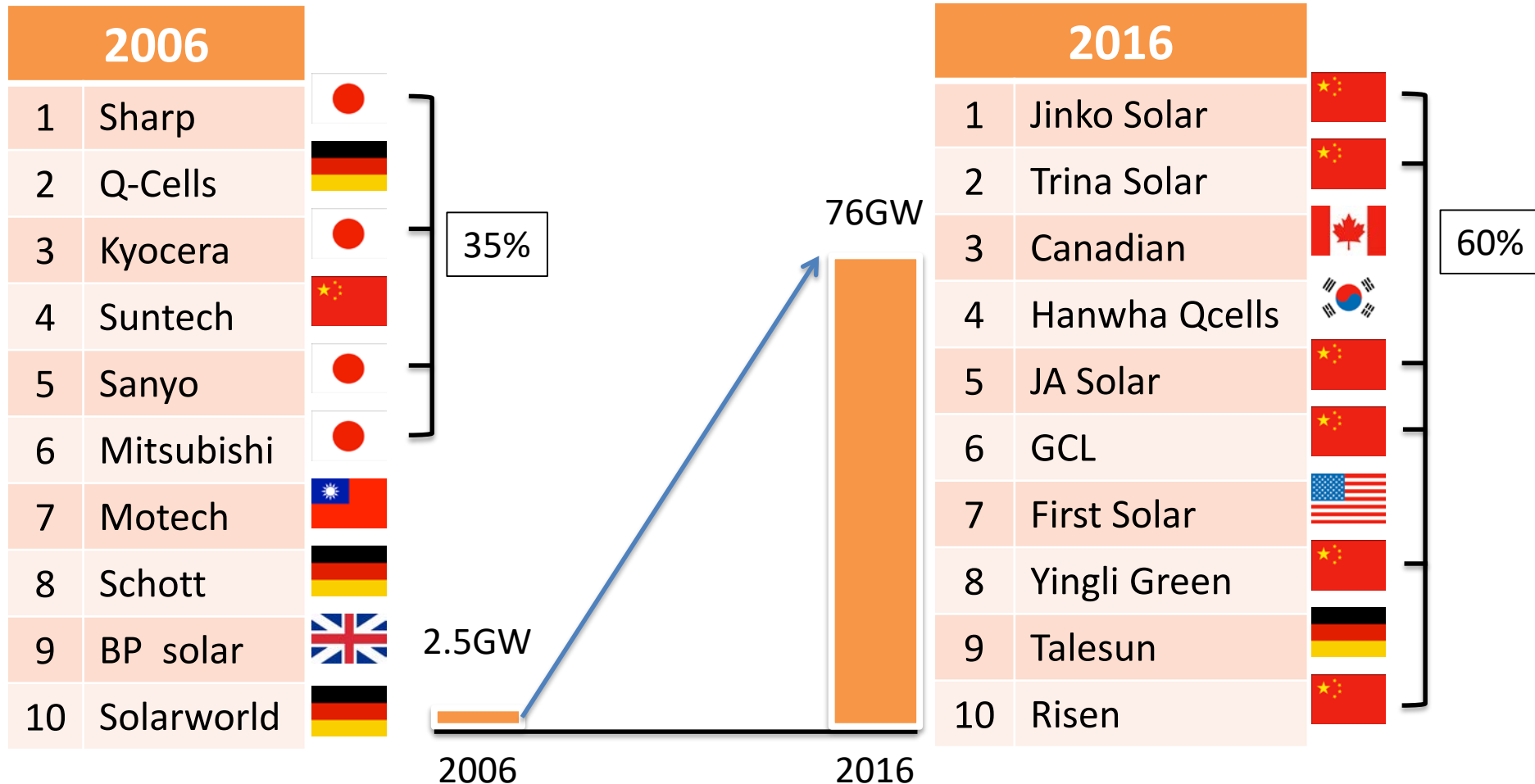


Solar cost declining but keep higher than the world

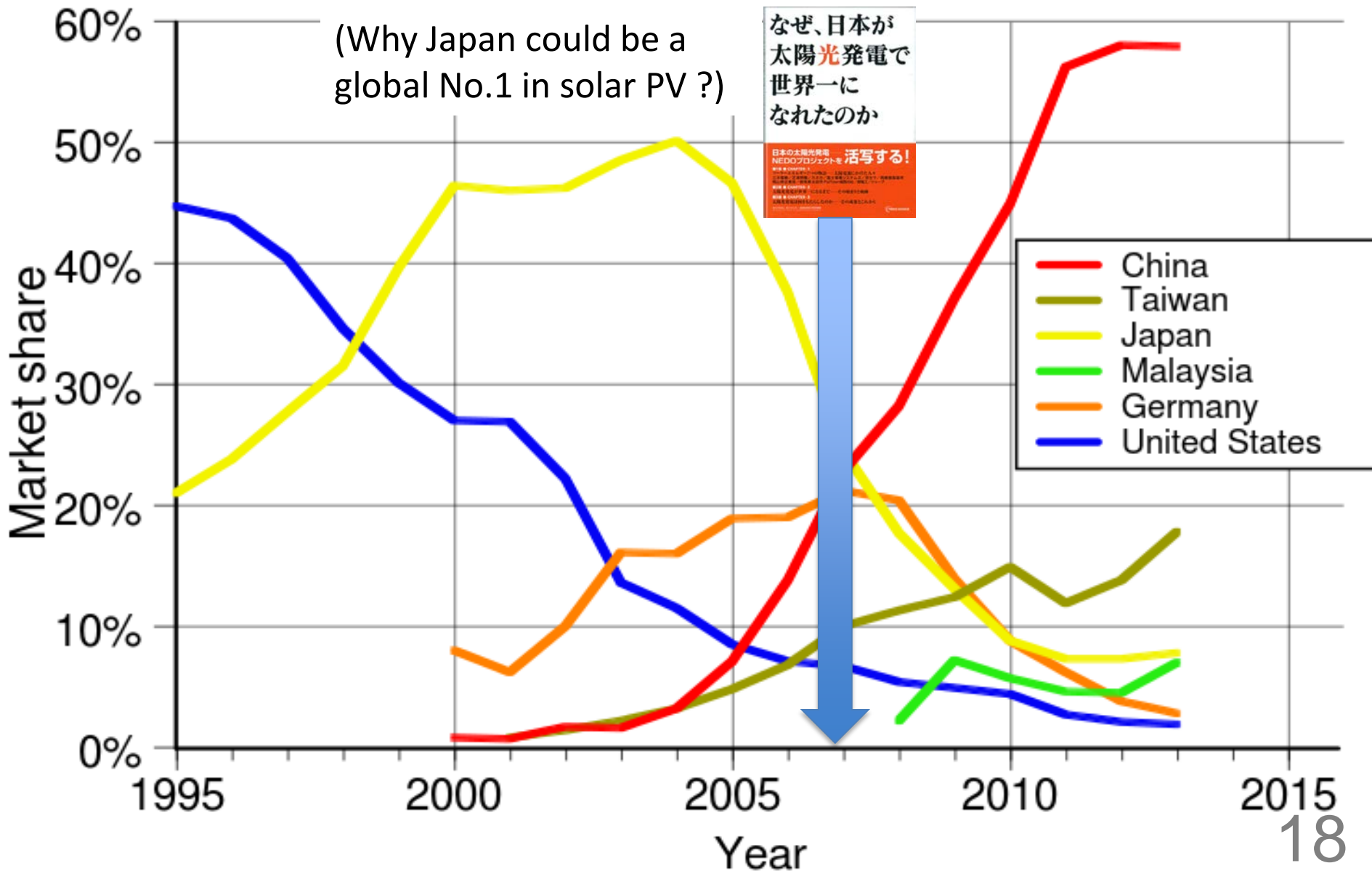


Source: GTM Research

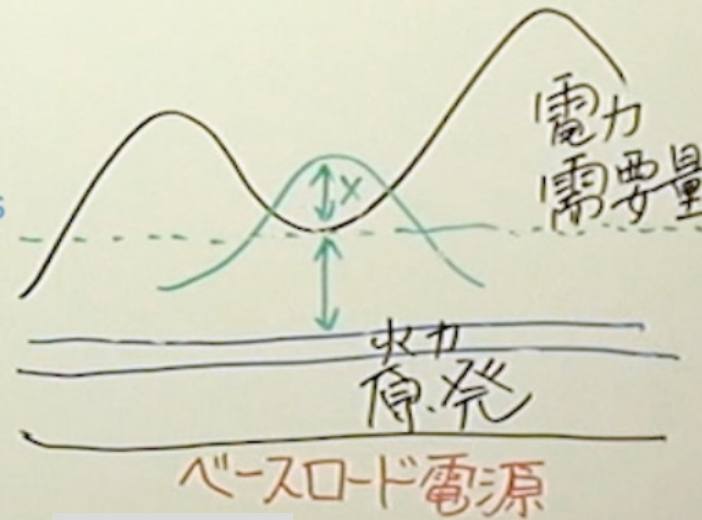
JP Solar industry are going to be lost / collapse



JP Solar industry are going to be lost/collapse



3 Major barriers by grid monopolies



Apr.'16

May.'16

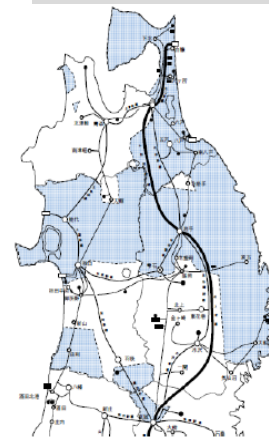


図1 平成28年4月28日付公表

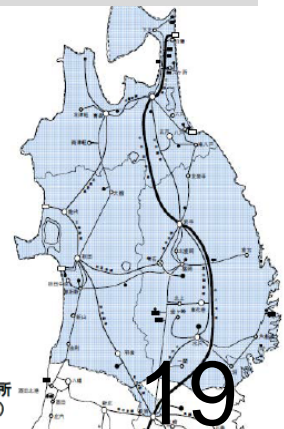
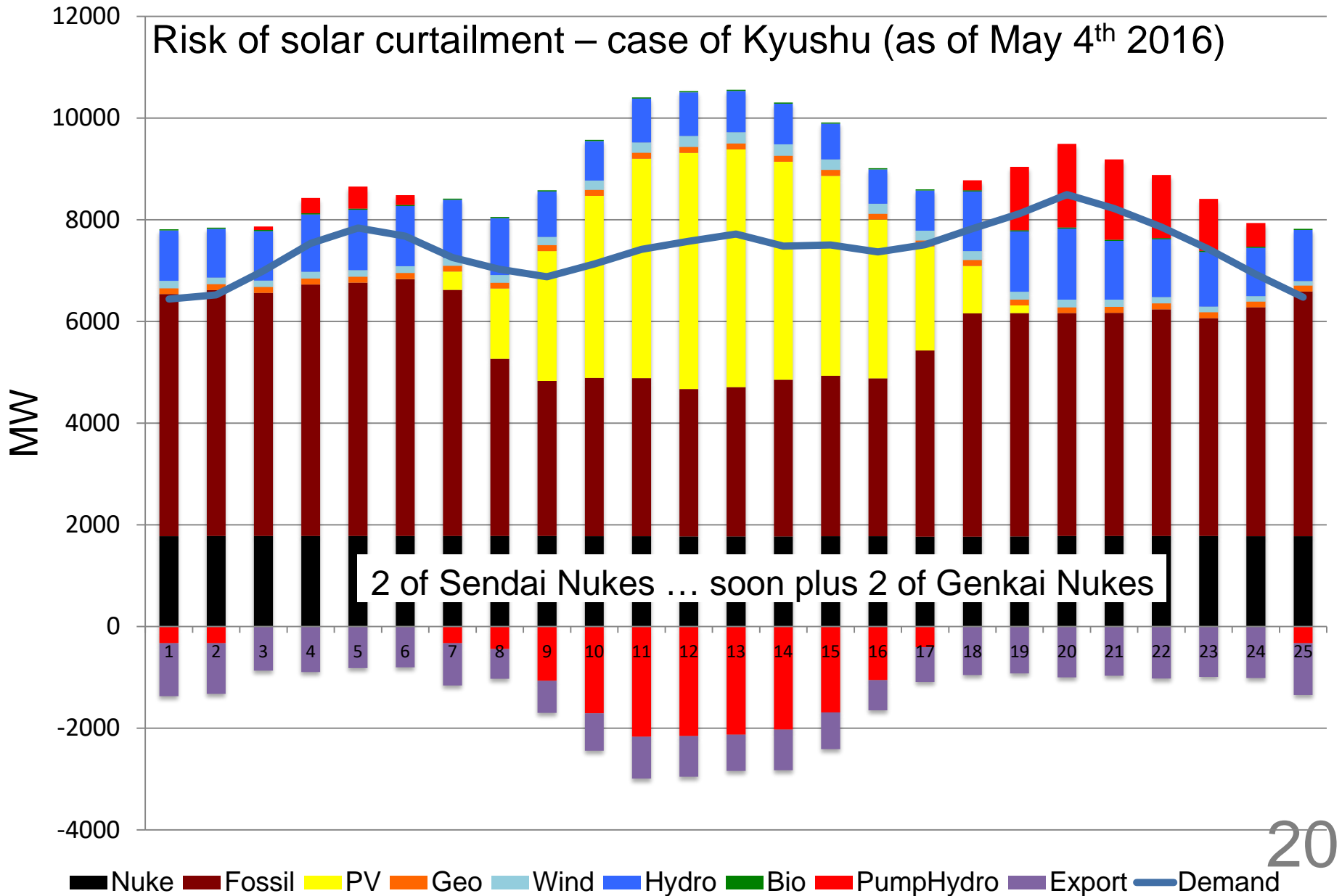


図2 平成28年5月31日付公表

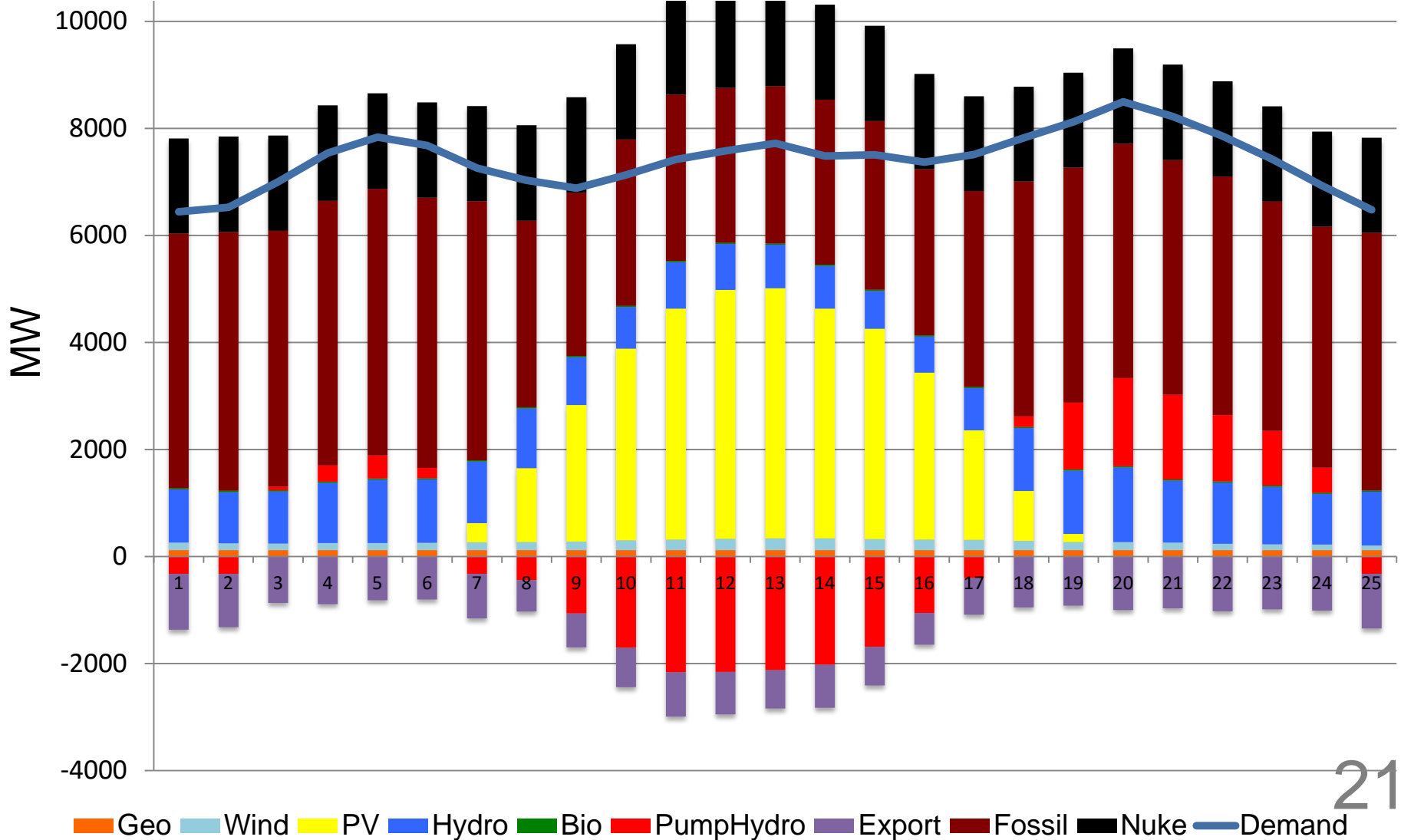
Barriers – Grid monopolies

Risk of solar curtailment – case of Kyushu (as of May 4th 2016)



Barriers – Grid monopolies

12000 - Need to change of idea to RE priority supply and flexibility
grid management



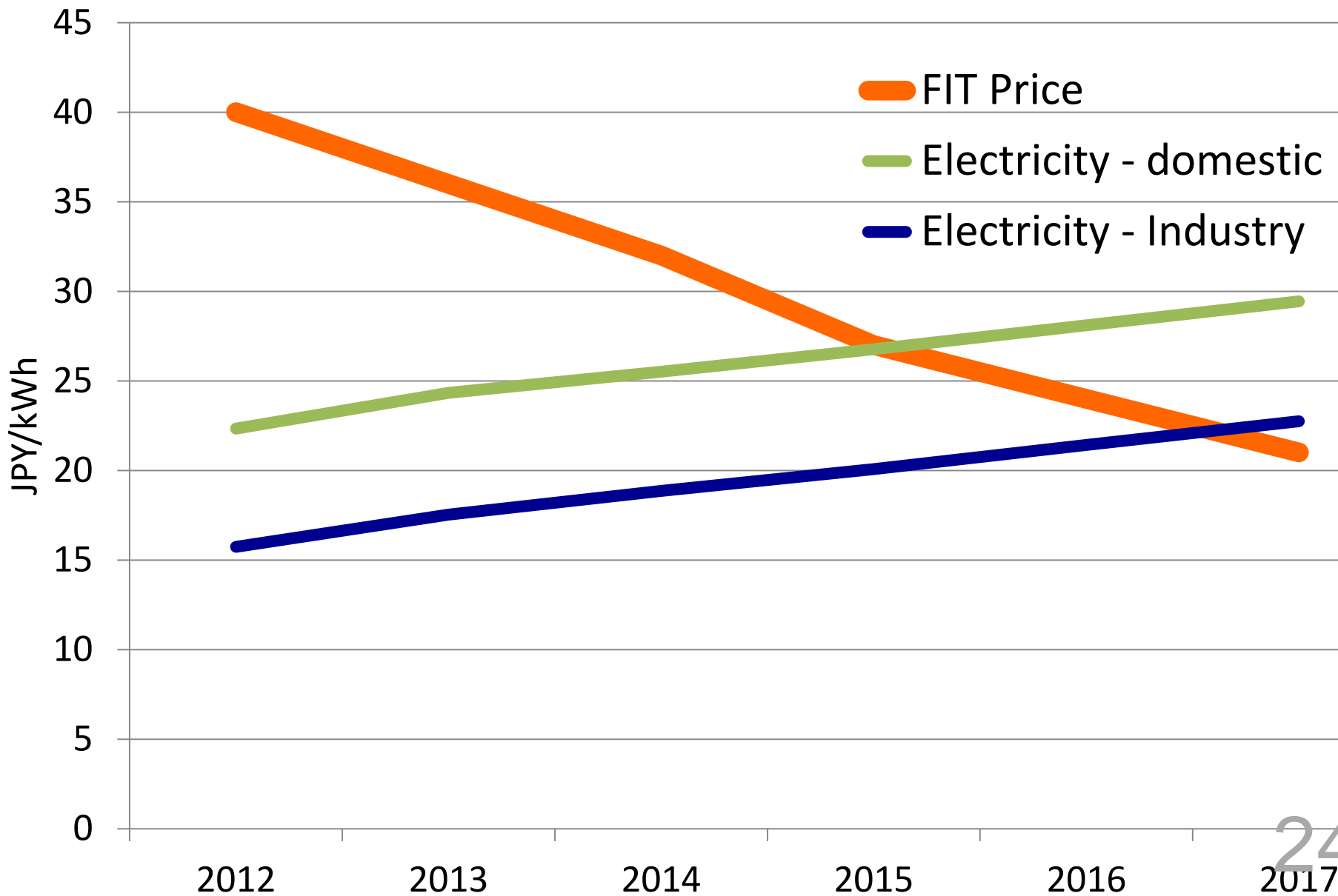
- Outdated energy concept broadly shared by “power elite”
- Heavily relying on outdated pass dependency
- Strong “Nuclear village” network, excluding critical view
- Distorted policy discourse, weak modifying / revising power
- Poor entrepreneurship in industry/economy

“Warship YAMATO” phenomenon

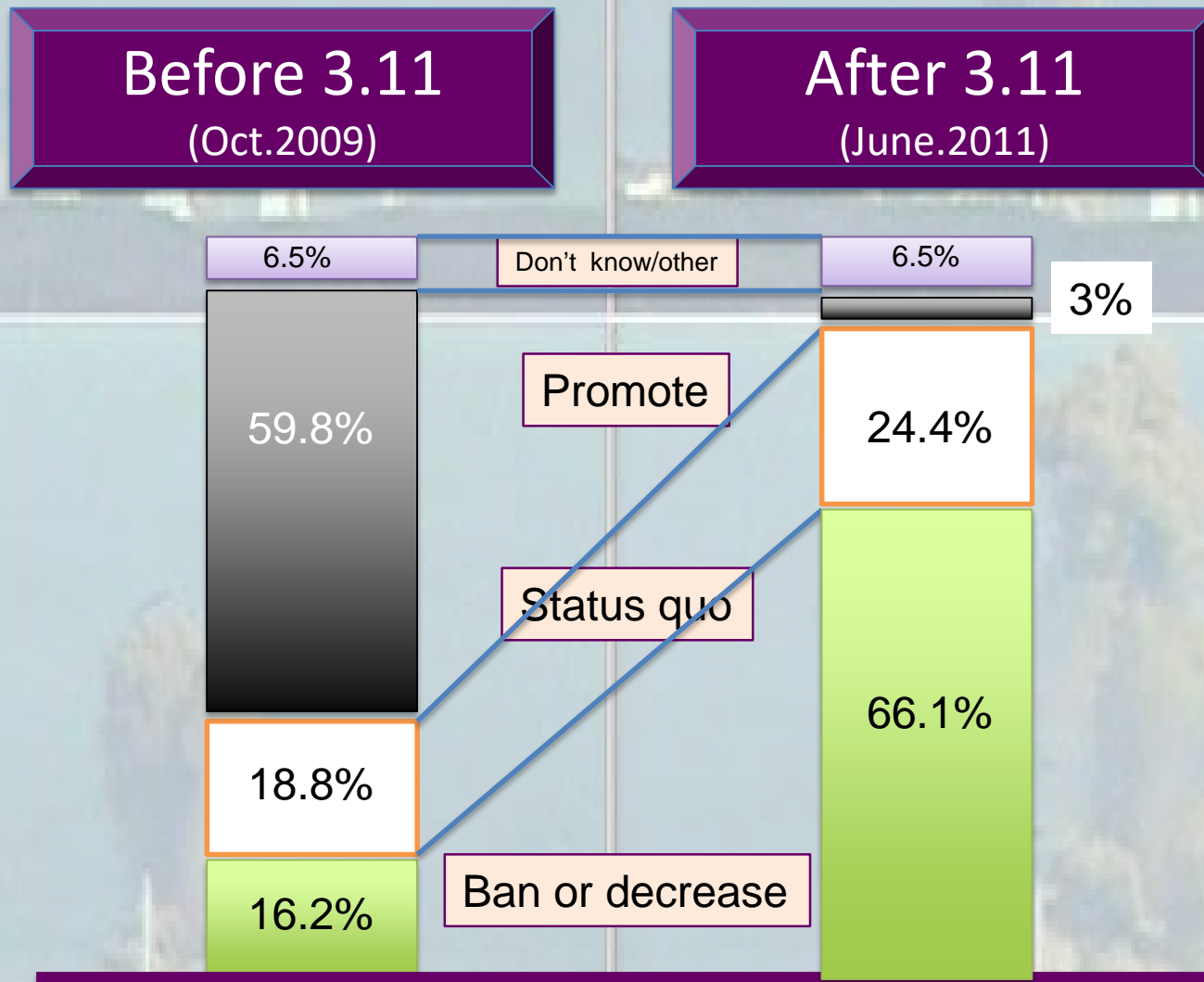


Good news are ...

Cost of solar higher but keep declining



Big shift in public opinion about nuclear



[source] "before 3.11" from Cabinet Office, "After 3.11 from NHK"

Community power arising

Key Figures (preliminary)



Legal Entities

200

Community Solar PV Capacity

45 MW

Community Wind Power Capacity

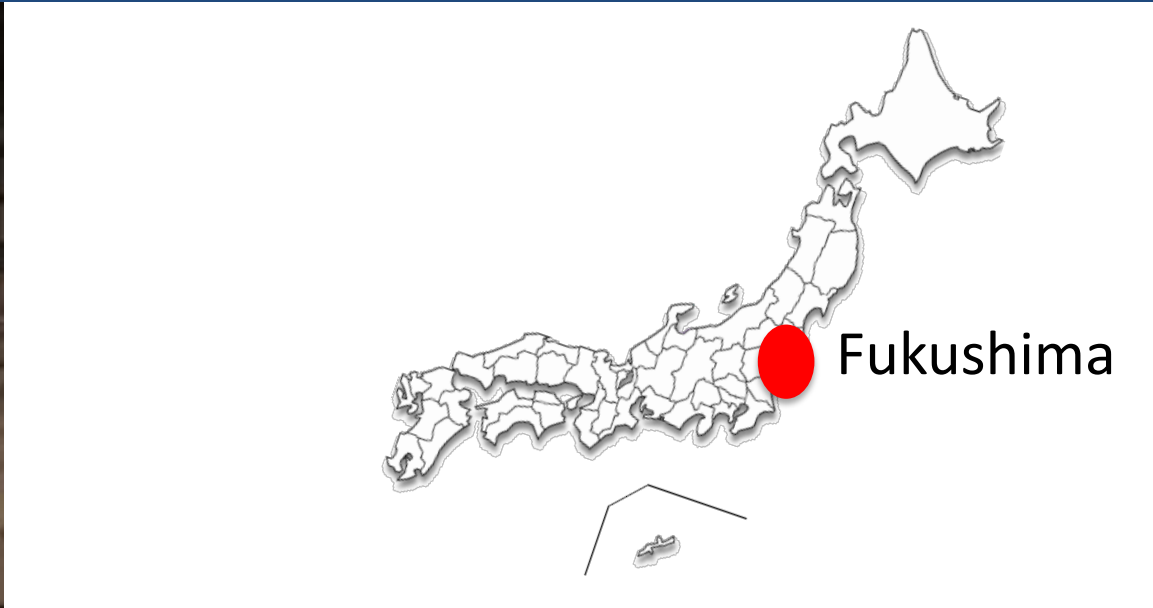
37 MW

Community Oriented Power Supplier

19

Data source: Institute for Sustainable Energy Policies, Japan Community Power Association

Community power – challenge from Fukushima



Where are chances ?

More disruptive technology solution ?

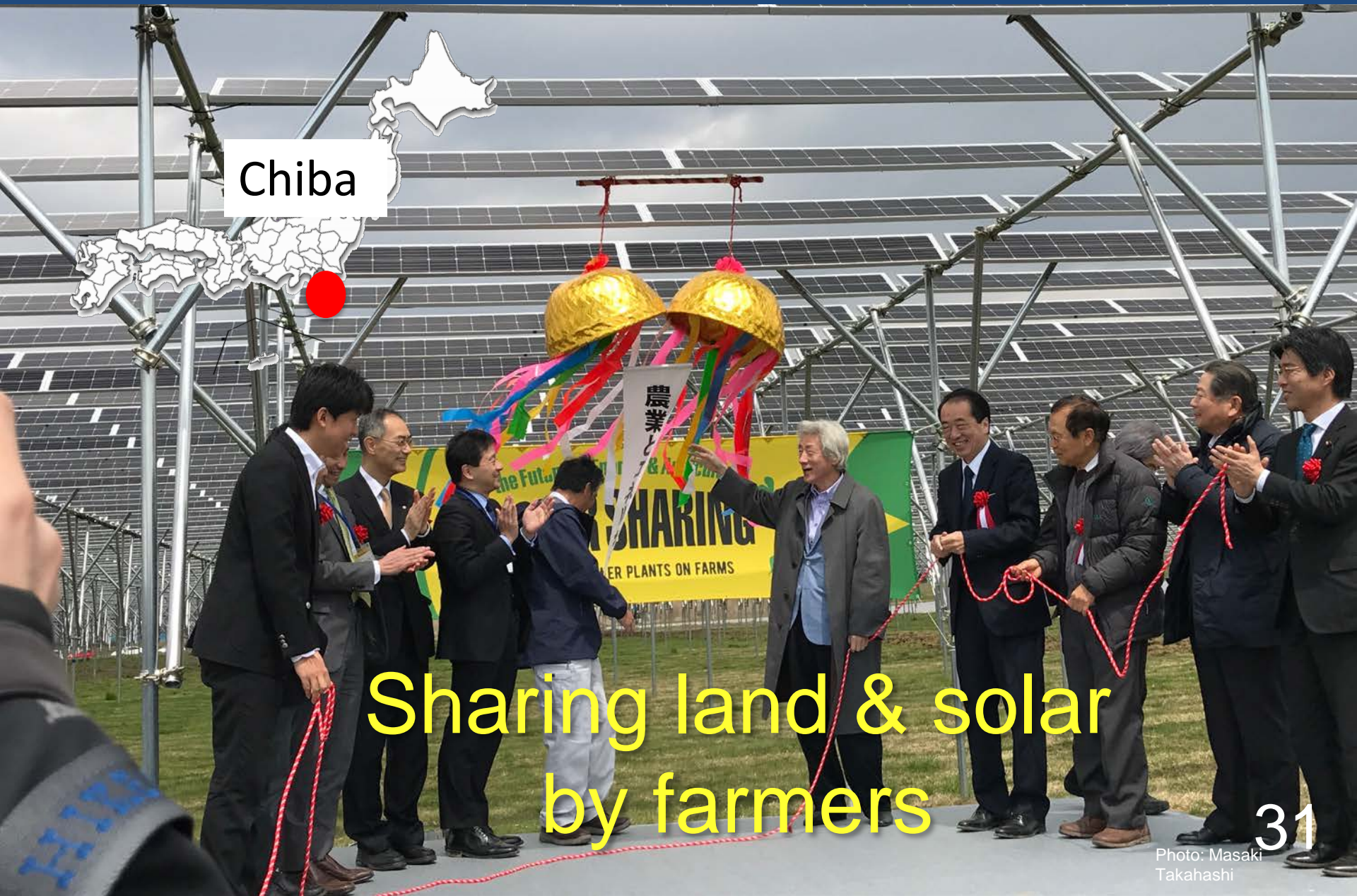


Community super-mega solar owned by nuclear accident refuge farmers



Fukushima

New alliance with farmers ?



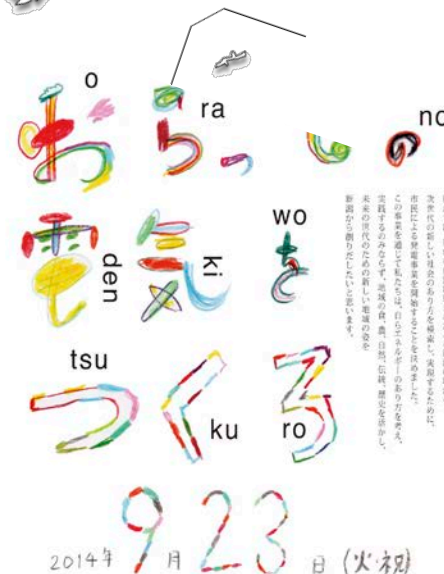
Chiba

Sharing land & solar
by farmers

From local democracy and politics ?



Niigata



市民エネルギーが切り拓く新潟の新しい社会

会場 新潟市万代市民会館 6F多目的ホール

受付 12:30~ 開場 13:00~17:00 懇親会 17:30~

定員 イベント260名 懇親会60名

参加費 500円(当日お支払いください)

申込問い合わせ 「おらっ」にいがた市民エネルギー準備会 (仮) 事務局 | 新潟市東区 電話 TEL 025-226-1365 FAX 025-230-0467 e-mail kansai@city.niigata.lg.jp

協賛: NPO法人環境エネルギー政策研究所
 後援: 全国ご当地エネルギー協会、新潟市
 主催: 「おらっ」にいがた市民エネルギー準備会 <http://www.oratte.org>

第1回 世界ご当地エネルギー会議

The 1st World Community Power Conference

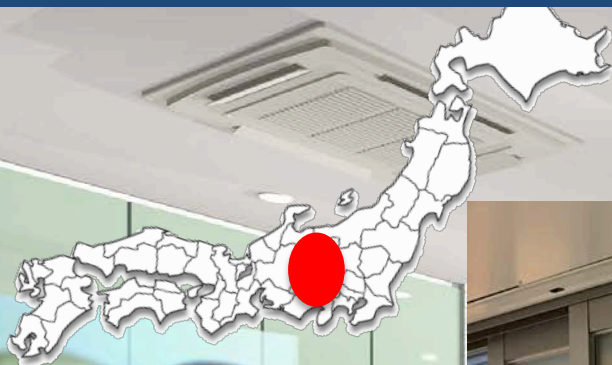
2016年11月3日(木/祝)・4日(金)コラッセふくしま November 3rd - 4th, 2016 Corasse Fukushima



600 peoples **30** countries



Social innovation ?




ISEP Tokyo



Solar disruptive are inevitable even in Japan, but when, how ?

Solar Disruption



Local monopoly
Market monopoly
Political power
+
PV market bursting
PV industry collapsing
PV cost keep higher
Other RE behind
Strong grid barriers
YAMATO phenomenon

- Disruptive technologies
- New electricity suppliers
- Community power
- Challenge from Fukushima
- New alliances
- Local governments
- Local politics
- Energy democracy
- Global network
- Social innovation
- Create new market
- What else ...



Thank you for your attention !