



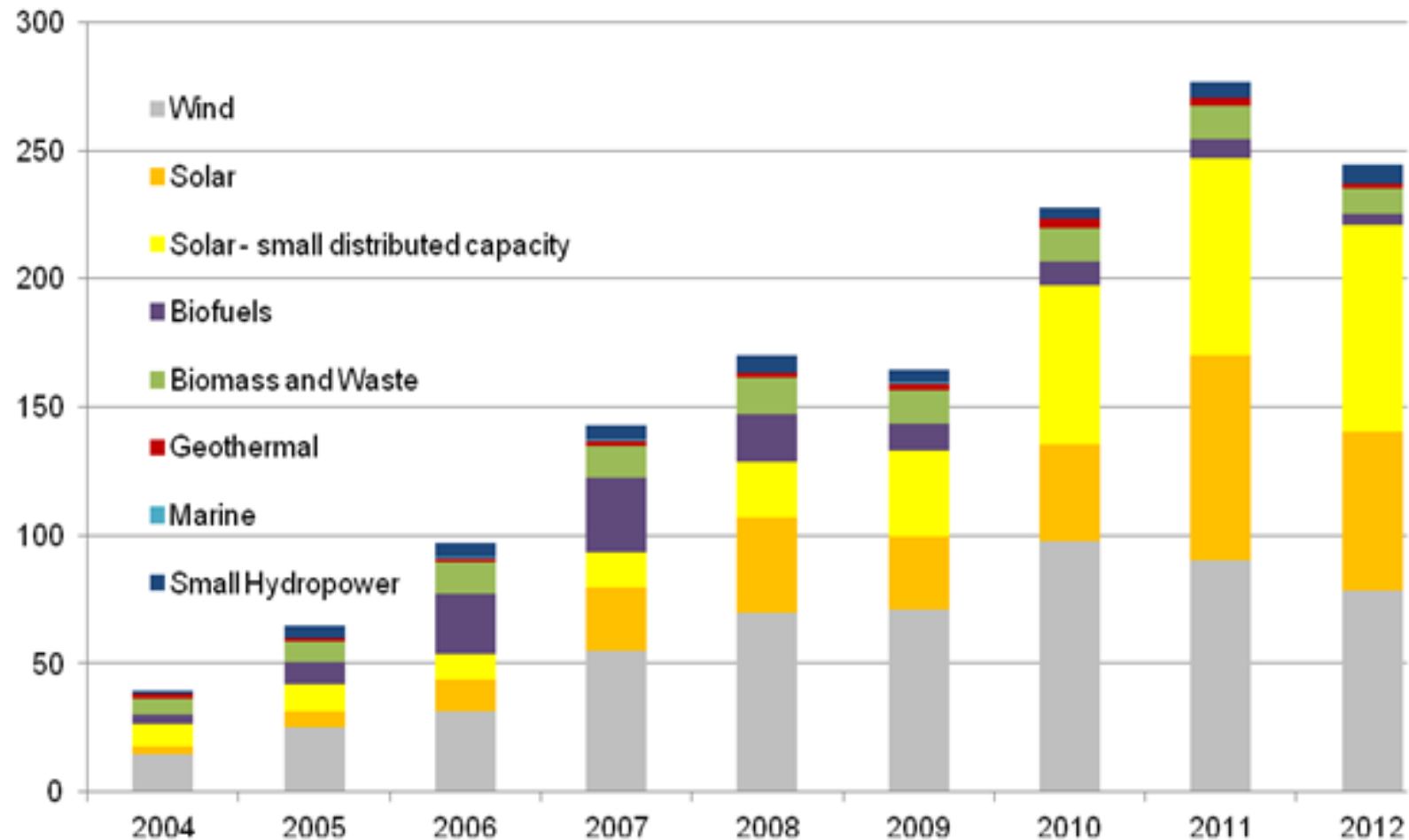
DOMESTIC INCENTIVES FOR RENEWABLE ENERGY WITH TRADE IMPLICATIONS

Workshop on the role of Intergovernmental Agreements in
Energy Policy
29 April 2013

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Environment Division
OECD Trade and Agriculture Directorate*

New Investments in Renewable Energy

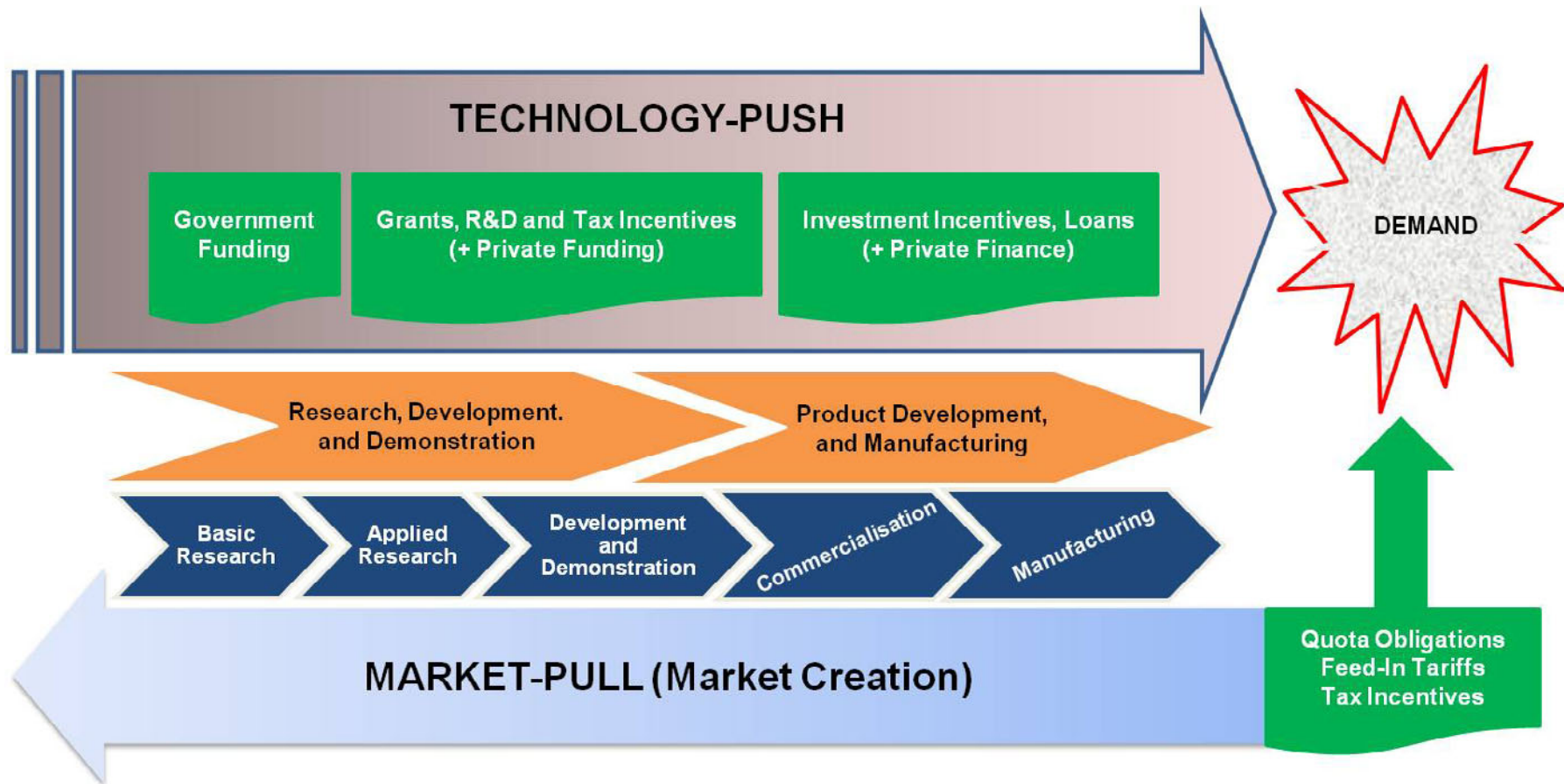
USD billion



Source: Bloomberg New Energy Finance



INCENTIVES FOR RE: A DYNAMIC PERSPECTIVE





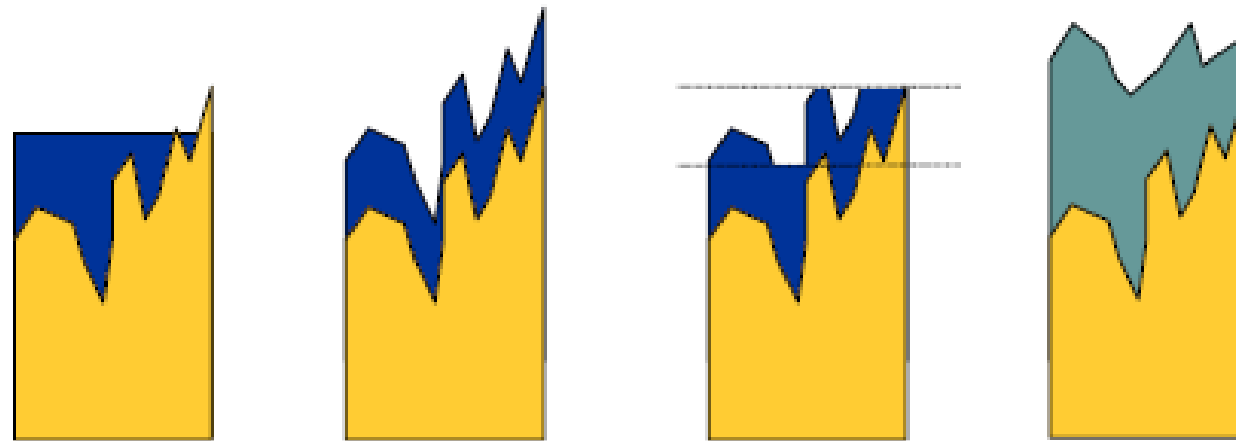
MARKET-PULL POLICIES FOR ELECTRICITY-GENERATING TECHNOLOGIES

- 1) **Quota system and tradable renewable certificates:** An obligation on a utility company to provide a minimum share of energy from RES
- 2) **Feed-in tariffs and premiums:** Guaranteed fixed-price for electricity fed into the grid or fixed premium per kWh sold
- 3) **Incentives for deployment:** Tax incentives, grants, loans for both investment in and production of electricity from RES
- 4) **Disincentives for fossil fuels:** Production of electricity from RES is encouraged through excise taxes on fossil fuels and emission trading schemes





MARKET-PULL POLICIES FOR ELECTRICITY-GENERATING TECHNOLOGIES



Fixed feed-in tariff	Market price plus feed-in premium	Market price plus bounded feed-in premium (cap&floor)	Market price plus TGC revenues
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Market price RES-support TGC revenues





TECHNOLOGY-PUSH POLICIES FOR ELECTRICITY-GENERATING TECHNOLOGIES

- 1) Government support for research, development and demonstration (RD&D):** Grants and incentives are given to both public and private institutions for basic and applied research, and to fund big demonstration projects
- 2) Government support for product development and manufacturing:** Grants, preferential loans, loan guarantees and tax breaks are usually offered to RE equipment manufacturers for product development and manufacturing
- 3) Government promotion of renewable-energy technology exports:** Export credits, financial and diplomatic support to domestic companies

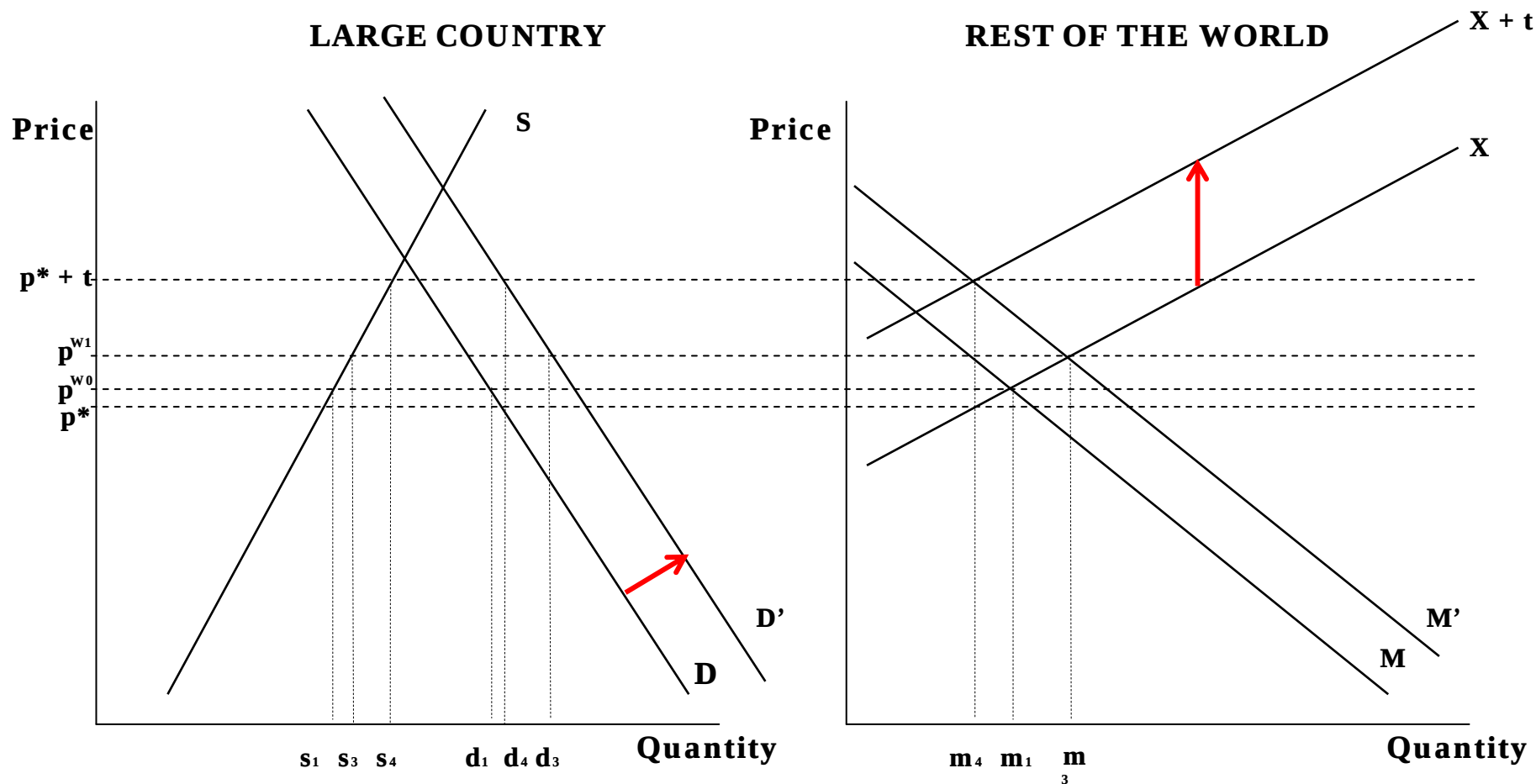




POLICY IMPLICATIONS

- **Demand-pull policies** in isolation increase the domestic supply of RE
- To this extent, they are **trade enhancing** as they facilitate trade in associated technologies and renewable fuels.
- Their main possible impacts on other countries are pecuniary: the extra demand stimulated by domestic incentives may cause international prices for the technologies or fuels to increase (at least in the short run). This may also bring forth extra global capacity over the longer term.
- **However, when demand-pull policies are combined with border protection or domestic content requirements, trade is distorted**, reducing export opportunities for foreign suppliers.

Impact of a FIT in combination with an import tariff on the market for RE equipment in a large country



Problems with domestic content requirements

- Creation of companies that are dependent on continuing protection. Increases cost of renewable energy, especially in short term, leading to economy-wide distortions
- Imposes a large administrative burden on companies. (cf. experience with rules of origin.)
- Insulates local equipment manufacturers and service providers from pressures of international competition.

Problems with domestic content requirements

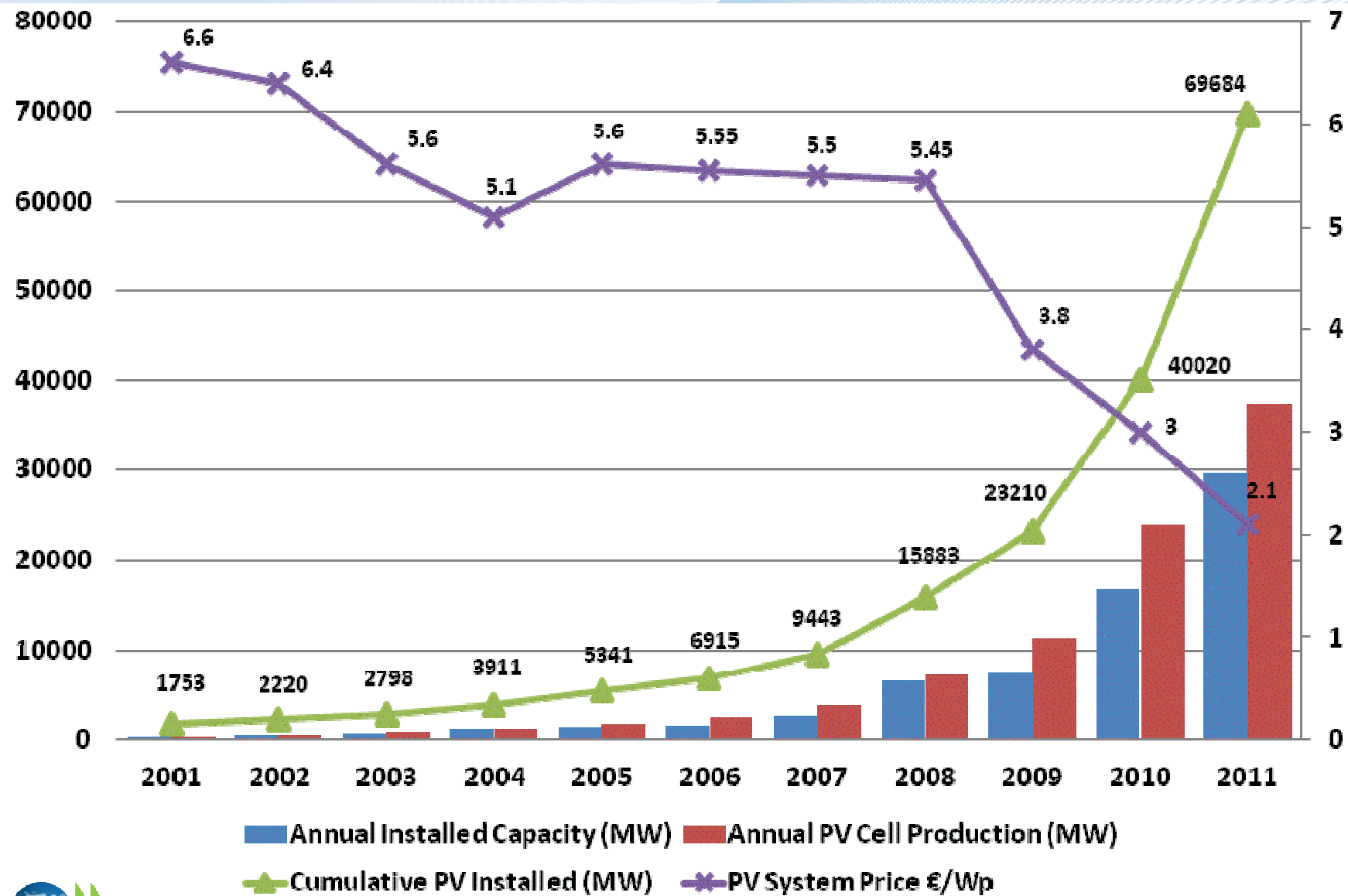
- Can lead to quality problems, delays, perverse outcomes.
- Can lead to the creation of companies that are dependent on continuing protection
- Collectively, if practiced by many countries, can lead to global over-capacity, thus depressing prices and returns to manufacturers everywhere.
- Viewed to be in apparent contradiction with trade principles; can invite costly disputes.



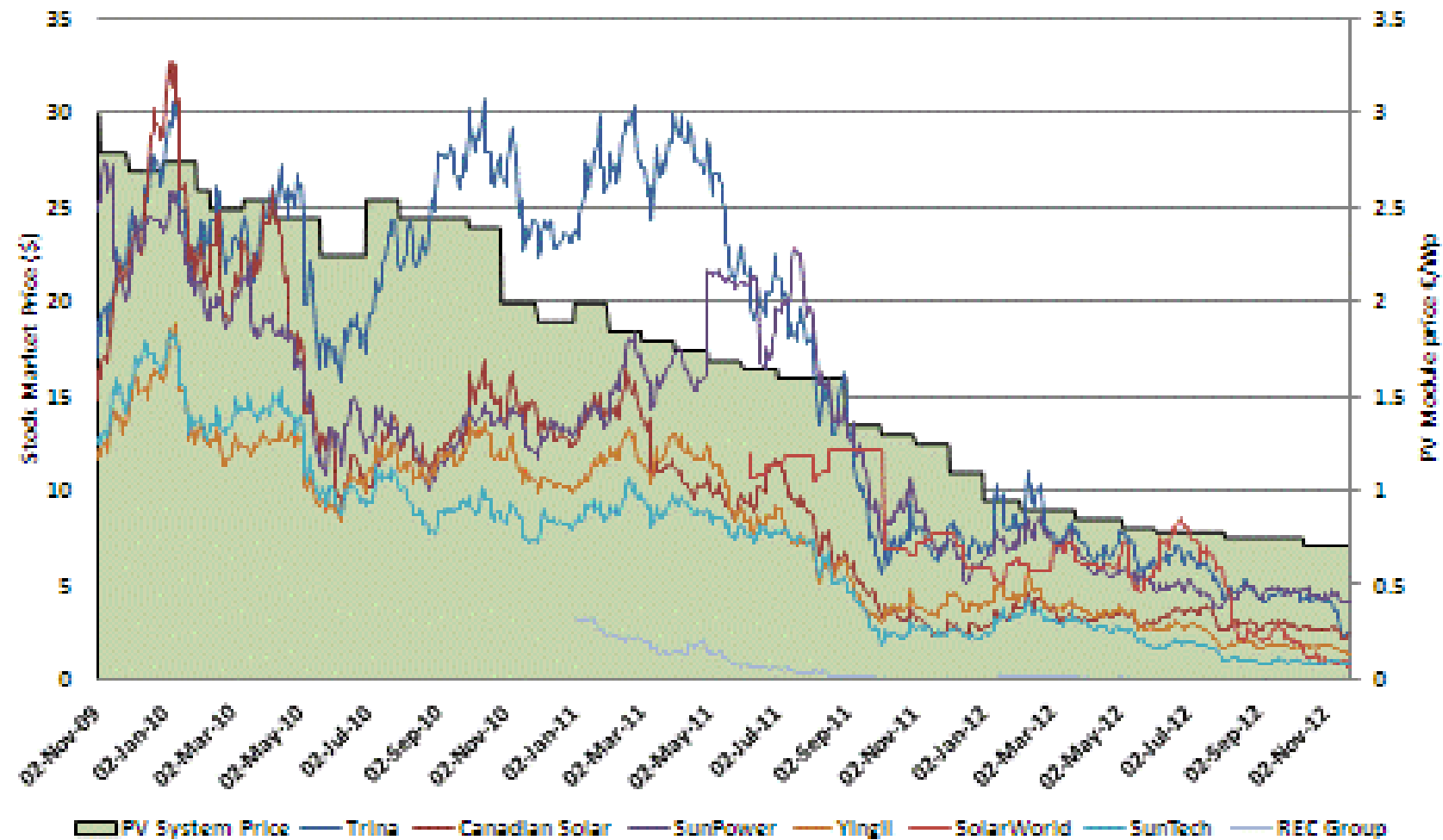
POLICY IMPLICATIONS

- **Technology-push policies** *can* provide a benefit for domestically established firms,
- The spill-over knowledge it generates can also benefit suppliers elsewhere, depending on the stage of technological development.
- Support provided to domestic manufacturing may promote learning by doing, but can also distort trade by reducing the manufacturers' costs and improving their competitive position *vis-à-vis* foreign manufacturers.
- If substantial, and the country is a major producer, such support can also end up depressing world prices.
- In the short run, this benefits consumers of the technologies or fuels, but it can also precipitate the closure of non-subsidised manufacturers.

Solar Photovoltaic Industry - Supply, Demand and Price

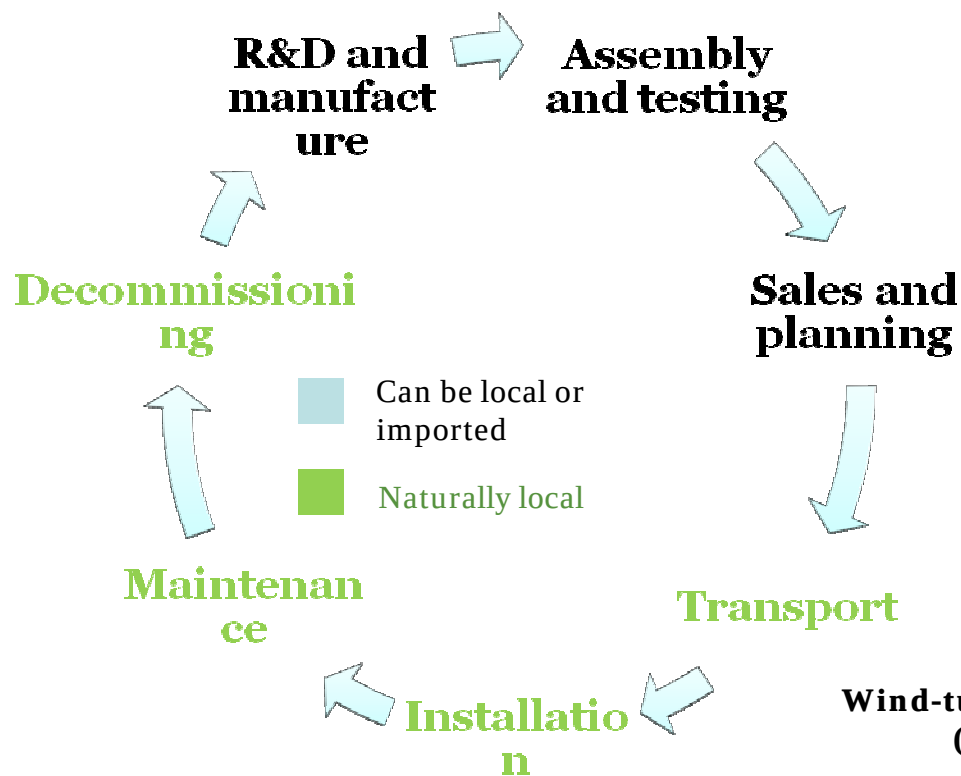


PV Manufactures Stock Market Performance and PV Module Price

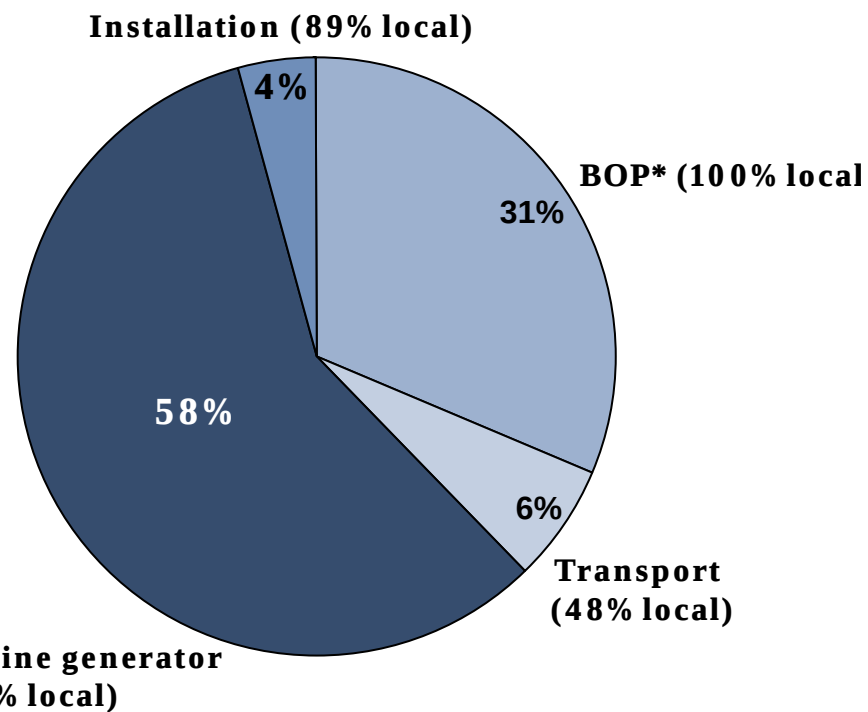


Are “localisation” policies really needed? Much local content is natural!

Example: Wind Turbine

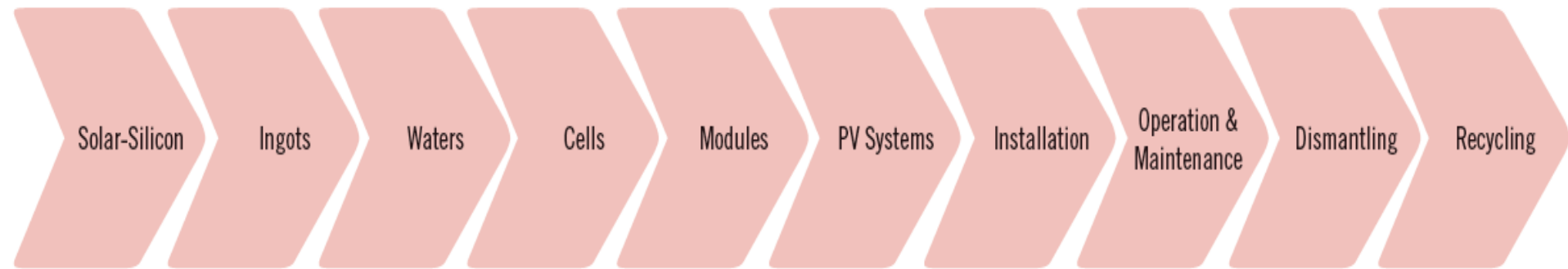


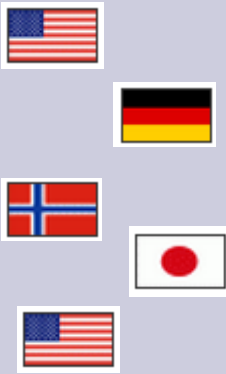
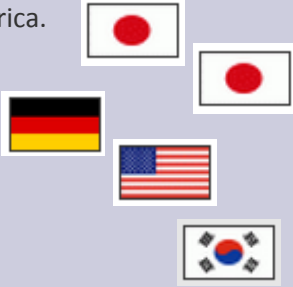
Example: Ukraine



Source: Peter C. Brun, Vestas Wind Systems Ltd.

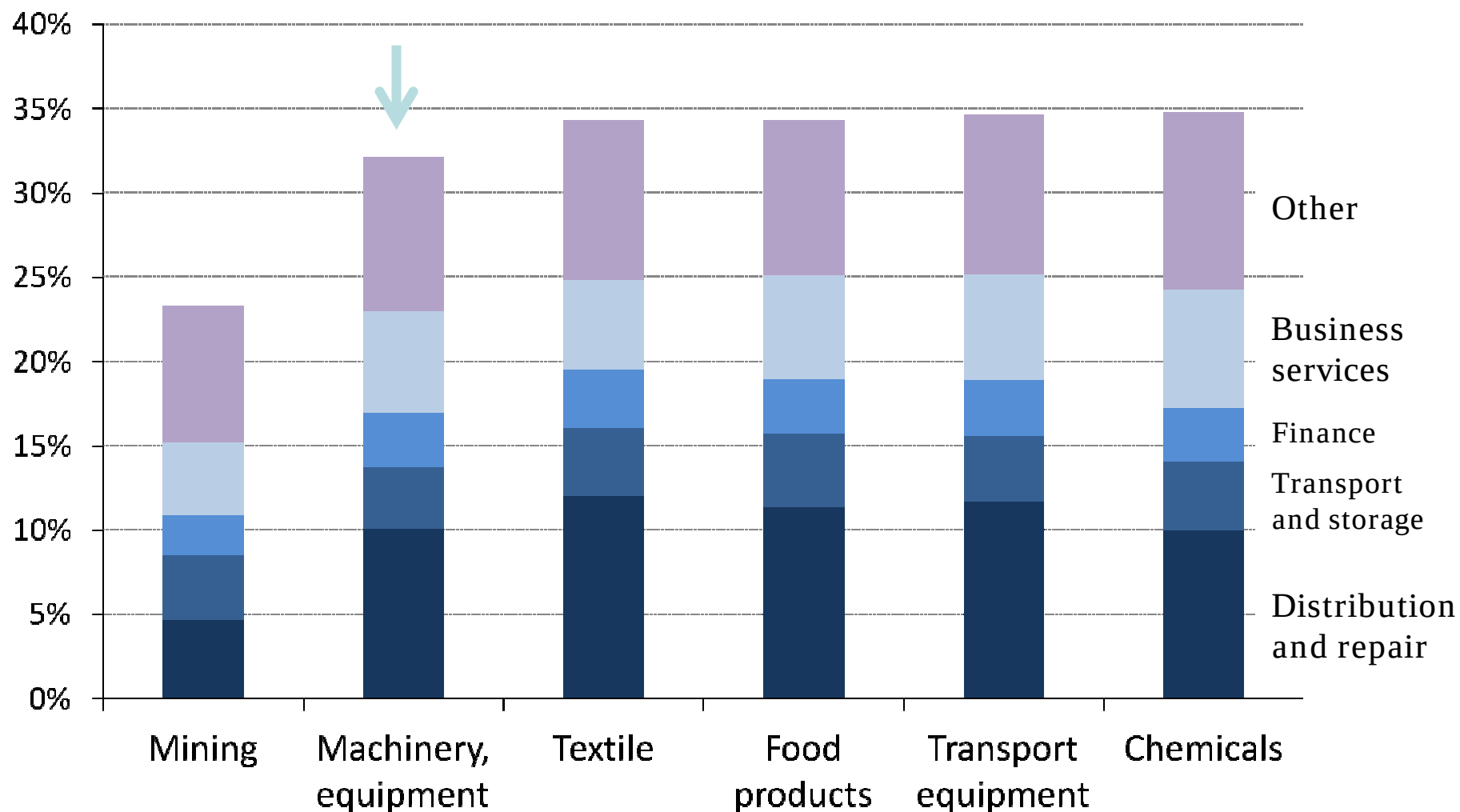
Value chain for crystalline-silicon solar panels



Solar Silicon	Ingots & Wafers	Cells	Modules	PV systems, installation, operation & maintenance, dismantling, recycling
Dominated by 7 companies that supply around 90% of the total market. Barriers to entry: high. 	Top 5 companies have over 90% of the market. Barriers to entry: low. Regionalisation: While Shin-Etsu (JAP) is the market leader in Asia-Pacific, Siltronic (DEU) is the leader in Europe, whilst SUMCO (JAP) leads the market in North America. 	Top 15 producers have about 50% of the market. Barriers to entry: high. 	The biggest share of the market is taken up by Chinese companies (50%), followed by Taiwan (15%), Japan (10%) and USA (5%). Barriers to entry: low. 	Usually taken up by local producers in a given country.

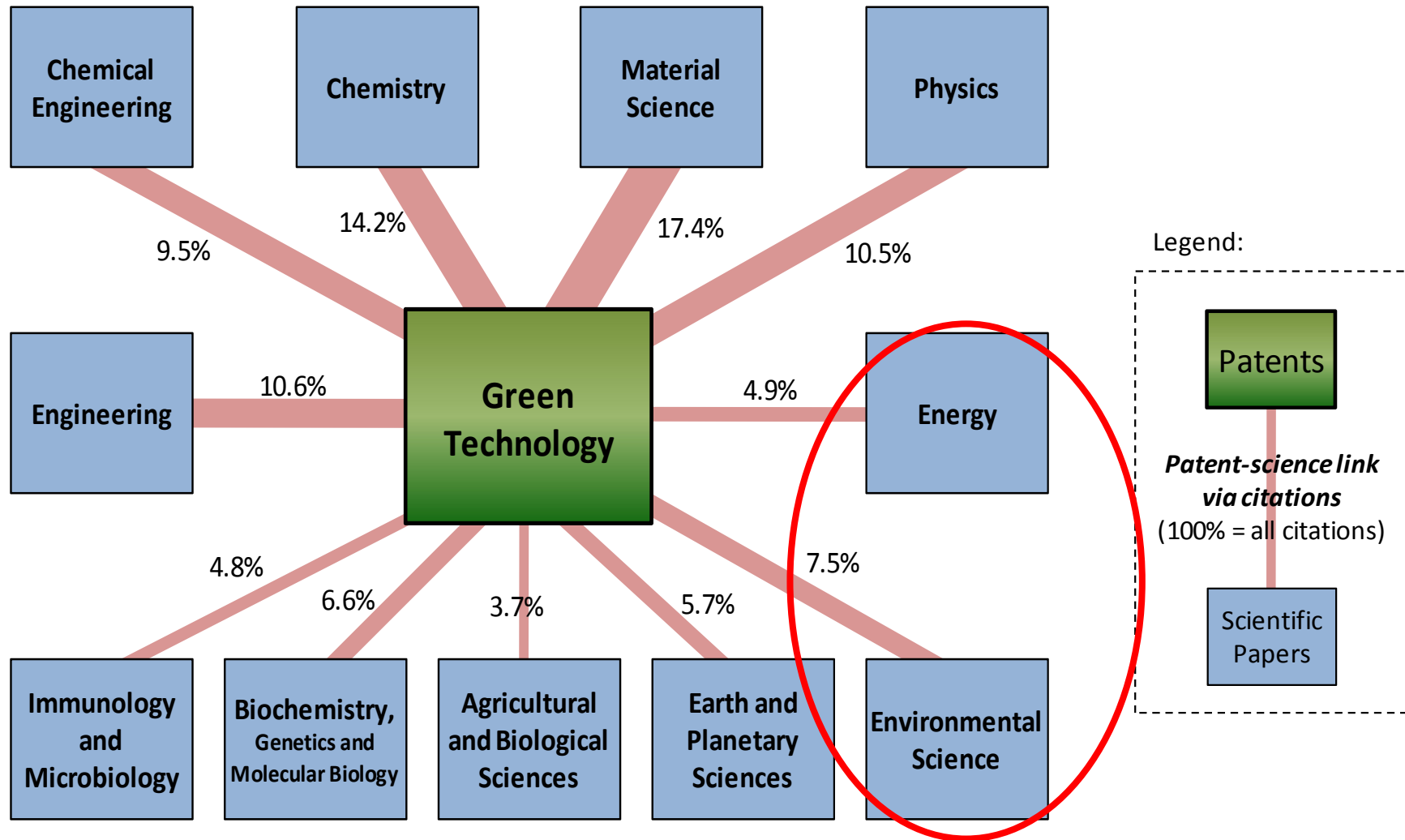
Sources: Adapted from Voituriez and Balmer (2012): "The Muddle over Green Race", IDDRI & Green Rhino Energy (www.greenrhinoenergy.com).

Services make up an important part of value added even in basic products (services share of VA exports, all countries by OECD, 2009)



Source: OECD.

Innovation cannot be forced: it arises from unexpected places



Source: OECD



Thank You

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“Domestic incentive measures for renewable energy with possible trade implications”

Bahar, Egeland and Steenblik

OECD Trade and Environment Paper No. 20013/01