

Regulatory requirements in international energy
trade:

Energy generation, network use and distribution

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(personal view)

Which is the better Regulator: The Market or the State ?

Markets work perfectly if the 6 following conditions are satisfied (N. G. Mankiw, 2002):

- 1) Perfect competition
- 2) No existence of public goods
- 3) No existence of external effects
- 4) No asymmetry of information
- 5) All goods must be tradable
- 6) Universality of all rare goods (= all rare goods must have a proprietor; property rights)

Optimal division of tasks between State(s) and market

- State(s) to intervene *if and only if* one or more of the six above conditions require
- Market(s) will do the rest
- If State(s) fail where they have to act => State failure (e.g. in some Third World countries or in international negotiations)
- If State(s) act where they shouldn't act => Regulatory failure (e.g. price cap in California electricity crisis)

1) Perfect competition (narrow sense)

- First competition law: US antitrust legislation 1890; the Standard Oil case (1890s – 1911)
- WTO trade-related competition rules (aborted)
- Natural monopolies: last mile (consumer and producer side) in electricity and gas
- => Enact legislation to enforce Third Party Access (= competition **on** the grid, not *among* grids), e.g. EU Directives 2003/54/EC (electricity) and 2003/55/EC (gas)
- Integrated electricity enterprises: Artificial monopolies

1) Perfect competition (broad sense, focus on energy)

- Fossil energy resources mostly concentrated in the “energy belt” between Persian Gulf and Arctic Sea
- Geographical concentration has favoured the creation of national oligopolies and quasi-monopolies
- State response: WTO non-discrimination principles in trade (MFN, NT, market access, abolition of QR, ...)
- Lack of rules concerning the **Making of Investments**
 - ⇒ Energy Charter Treaty, Part III (existing investments) and Supplementary Treaty and MAI/OECD (not adopted)
 - ⇒ WTO Investment Rules (aborted in current round)
 - ⇒ GATS mode 3, energy services (currently under negotiation, but few offers, sensitive issue)



2) Public goods, public service

- Existence of public goods (national defence, **national security**)=> state intervention: burden sharing by all effective consumers
- Economically relevant (import dependency): **legal security** ⇔ protection from warfare, conflict, terrorism, embargos, civil unrest or in major catastrophes, hurricanes, floods ...
- Oil market: embargos 1970s => IEA / IEP, 1973
- **Electricity market: Security of supply (= public service = more specific than legal security) = existence and proper functioning of grid**
- Caution: Not the electricity is the public service, but the grid access and the grid operation (TSO, DSO = exclusive)



3) External effects

Two types of external effects in the energy markets

- 1) Positive externalities: e.g. research benefits all => State to finance fundamental research & dissemination of results, e.g. Euratom, ITER; State to enact patent laws protecting applications
- 2) Negative externalities: e.g. environmental pollution (especially air), lack of sustainability => State to internalize external costs, e.g. carbon tax, emissions quotas, carbon (“black”) certificate trading; support market introduction of renewable energy and efficient technologies, e.g. renewables quotas and “green” certificates trade, efficiency quotas and “white” certificates trading

4) Information asymmetry, 5) All goods must be tradable

- 4) Information asymmetry => labelling obligation of energies (e.g. green electricity, EU directive 2001/77/EC), and of energy equipments (e.g. Energy Star).
- 5) In OECD countries: large part of commercial energy in energy balances, yet considerable part of non-commercial energy exists (passive solar energy) => no need for State intervention, as no over-exploitation exists; uneven distribution of solar resource widely accepted

6) Property rights for all goods

- For physical reasons, energy can not be produced within economic systems (no perpetuum mobile) => energy must be “imported” into the system from outside
- Energy outside the system has no owner
- State intervention: Concession agreements (prevent ruinous exploitation of resource, e.g. biological resources: over-fishing, over-harvesting)
- Energy: Formulate concessions or production sharing agreements (PSA) with sustainability criterion, e.g. geothermal energy: avoid overexploitation = overcooling

6) Property rights for fossil energy

- What does overexploitation mean for concessions of fossil energy sources?
- Extractive Industries Review (EIR, World Bank): non-exhaustive list of criteria, e.g. Prior informed consent of local populations, transparency on use of oil/gas revenues; says nothing about height of concession fees
- Oil rent = approx. renewables' price
- The only theoretical formula: Hotelling (1932): the oil concession fee to rise exponentially over time => implement in WTO in form of minimal concession fees?
- Today's practice: concession fees sufficiently low to protect market shares from others (incl. Renewables)

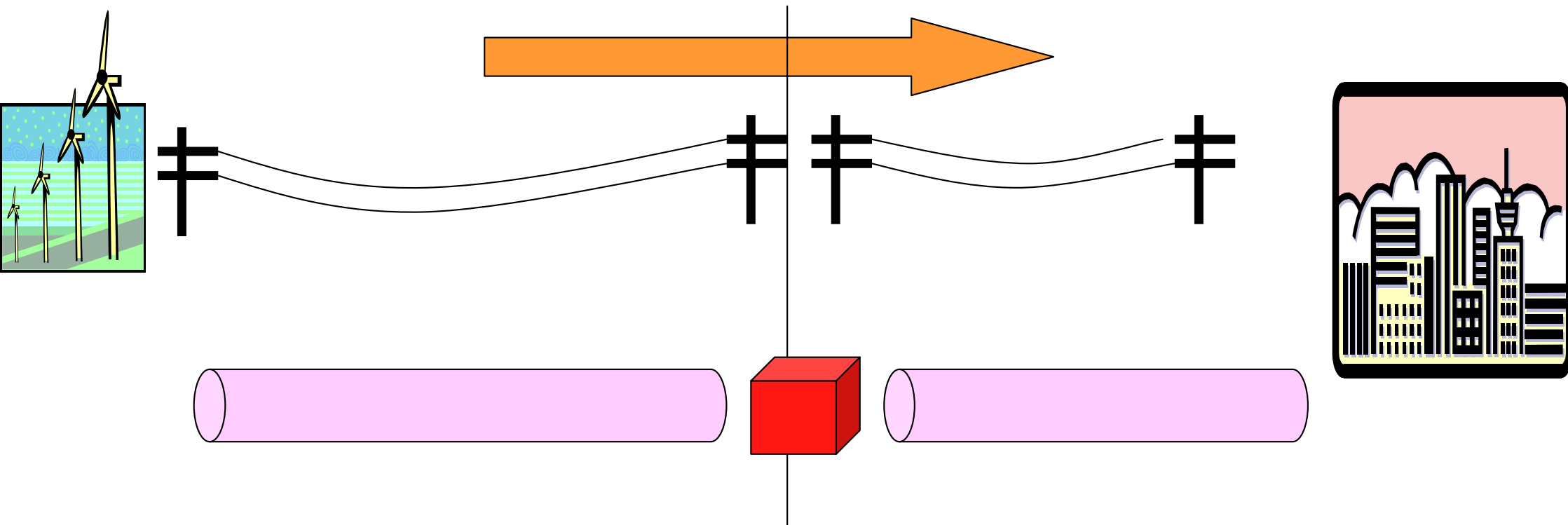
6) Four types of resource management regimes

- Resource publicly owned + extracted and sold by monopoly
- Resource publicly owned + extracted by service supplier (licensed by tendering); product sold by State
- Resource publicly owned, PSA or concession agreement for extraction; product sold by company + profit shared with government
- Resource privatized

GATT vs GATS (gas or electricity)

Country 1
= Energy Exporter

Country 2
= Energy Importer



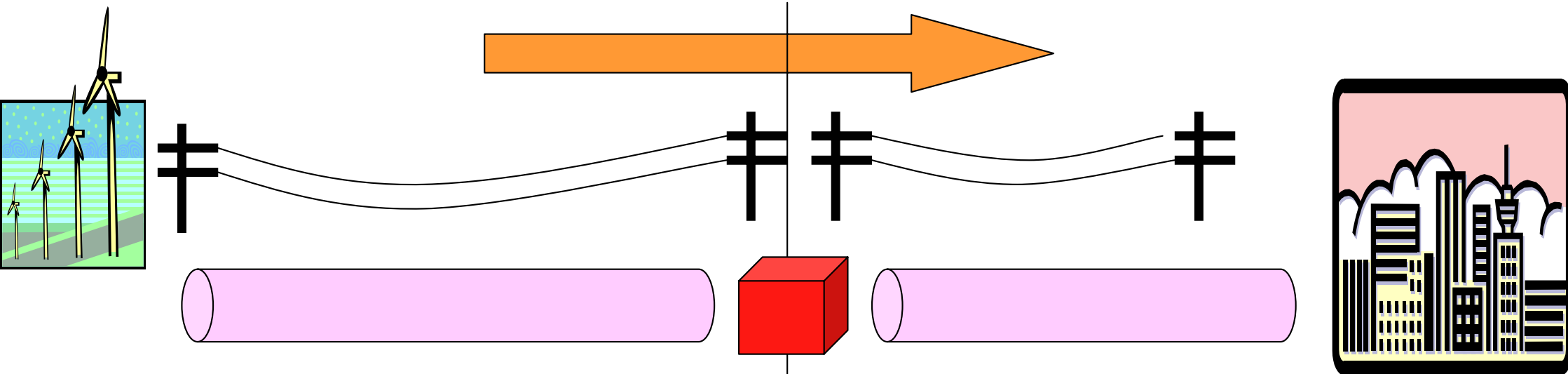
If gas & electricity are goods => GATT applies

- E.g. GATT Art. III:4
- The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, **transportation, distribution** or use.
- Question: Under what other conditions does Art. III:4 imply the right to synchronous interconnection of electricity grids?

GATT vs GATS (if TPA, also GATS applies, but to reverse service flow)

Country 1
 = Energy Exporter

Country 2
 = Energy Importer



If country 2 has TPA =>

Country 1 = Transport Services
 Importer

Country 2
 = Transport Services Exporter



Which GATS commitments on pipeline transport services apply?

- Country 1, import mode 1 : yes
- Country 1, import mode 2 : only if the goods producer has a selling agency (= mode 3) in country 2
- Country 1, export mode 1 : no
- Country 1, export mode 2 : no
- Country 2, import mode 1 : no
- Country 2, import mode 2 : no
- Country 2, export mode 1 : yes
- Country 2, export mode 2 : only if the goods producer has a selling agency (= mode 3) in country 2

Difference WTO / ECT / EU, Transit:

- GATT Art. V: MFN = Freedom of transit
- Question: Does Art. V apply to pipelines?
(V:2: ... via the routes most convenient for international transit, ...)
- ECT Art. 7(3): NT
- WTO, ECT: no grid access
- ECT Transit Protocol: Negotiation obligation
- EU: Transit = crossborder (only 1 border); ICT eliminates distance tariffication

4 Difficulties in setting electricity transport tariffs

- Cost proportional to distance (e.g. at 380 kV: 1000 km = 25%)
- High voltage transport less costly than low voltage
- Quadratic cost increase with load in transport direction
- Compensation of cost with flow in opposing direction

Conclusions

- No long-term co-operation possible outside baseline framework of WTO / ECT / Trade Amendment
- Provide options for stronger regional co-operation between neighbors
- At the center of regional co-operation: Regional spot and forward electricity exchange with dispatching empowerment
- Investments: Enhance public tendering, temporary TPA exception, regional capacity markets
- Question: Can EU model coexist with one or more rival models in CIS countries?