Agency Models

Transmission Arrangements for Distributed Generation

London: 14 July 2006

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Structure

- The Problem (National Grid perspective)

- Agency Model Options

- Three Strawmen for discussion

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The Problems

- Cost reflectivity of transmission charges falls as unlicensed embedded generation increases
    - All generation has an effect on transmission flows
    - Not just about exporting GSPs
- Governance framework does not recognise flow from distribution to transmission without a BEGA
    - No access product
- No operational control where transmission affected
    - DNO networks effectively becoming active
- Investment planning and locational signals
    - Embedded Generation growth
- Specific issues in Scotland
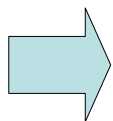
More than just a charging issue, only agency models can resolve

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What do we mean by "Agency"?

- Single point of contact/ interface

- Aggregator of capacity and energy

- Controller of despatch

- Who? Options:

    - "GBSO" to extend into DNO networks? X

    - 14 DNOs to become "active" – DNO Agency

    - Use Supplier interface – Supplier Agency

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Key Considerations

- ## Gross v Net
  - Should embedded generation net from demand?
    - Transmission Charges based on "spill" or installed capacity?
  - Appropriate threshold?

- ## Nodes v Zones
  - Would a defined transmission access product be nodal or zonal?

- ## The degree of change
  - What are we assuming the agent will do?

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Agency Model Matrix

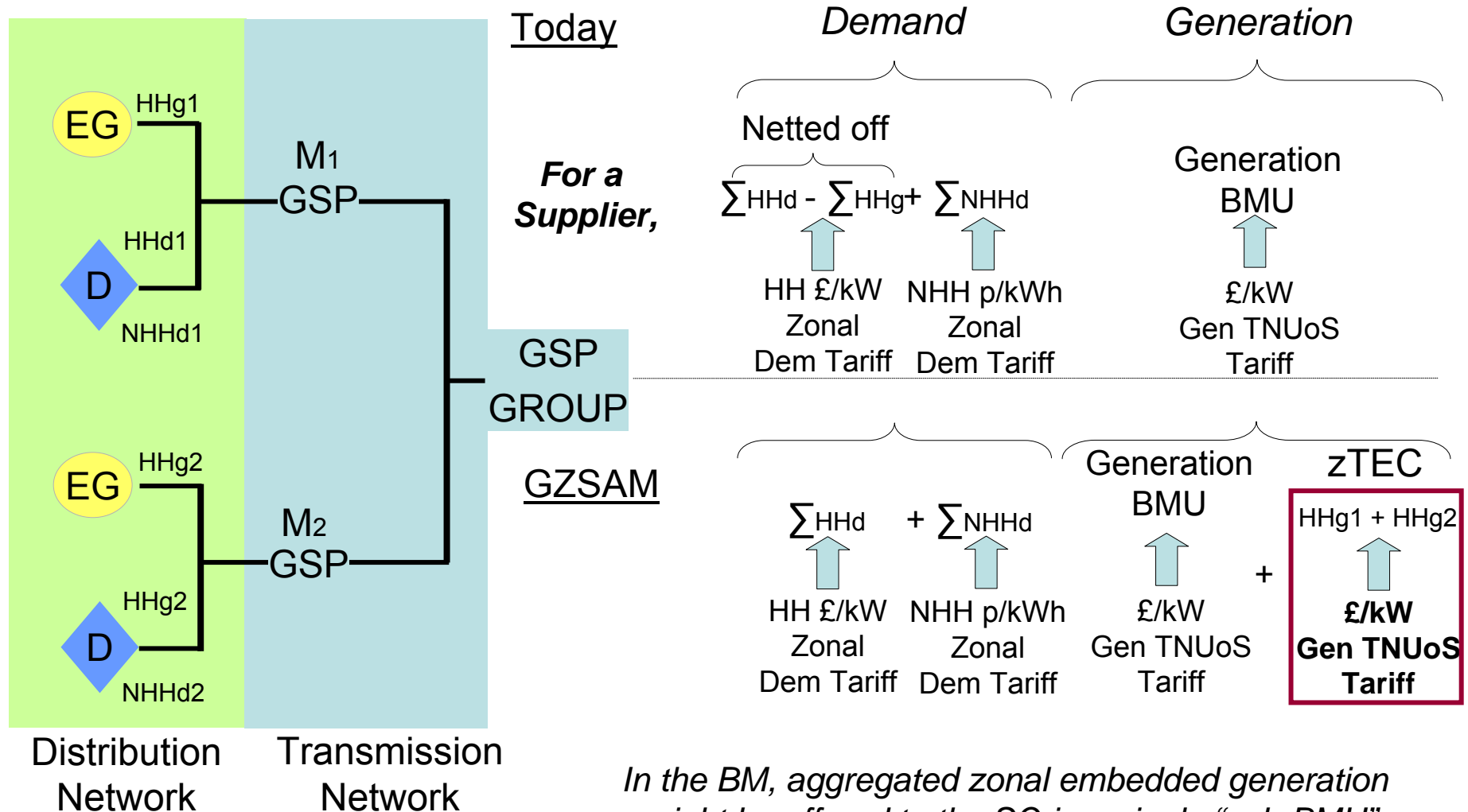|	Gross of GSP	Gross of GSP Group	Net of GSP	Net of GSP Group
Supplier Agency	Strawman 3	Strawman 1	Very Difficult, SVA at GSP Group level, Would need to Re-register 23m meters	**"TODAY"** **(sort of)**
DNO Agency	Strawman 2	Nodal Model Superior	"Interconnector model" Possible, but involves a lot of change	Nodal Model Superior

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Why these Strawmen - objectives

- "Gross" for cost reflective charging

- "Nodal" (where pragmatic) for operational control

- Supplier agent for least change, but DNO Agent could work if it was fully active
  - We think DNO Agent is a lot of change

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Supplier v DNO Agent

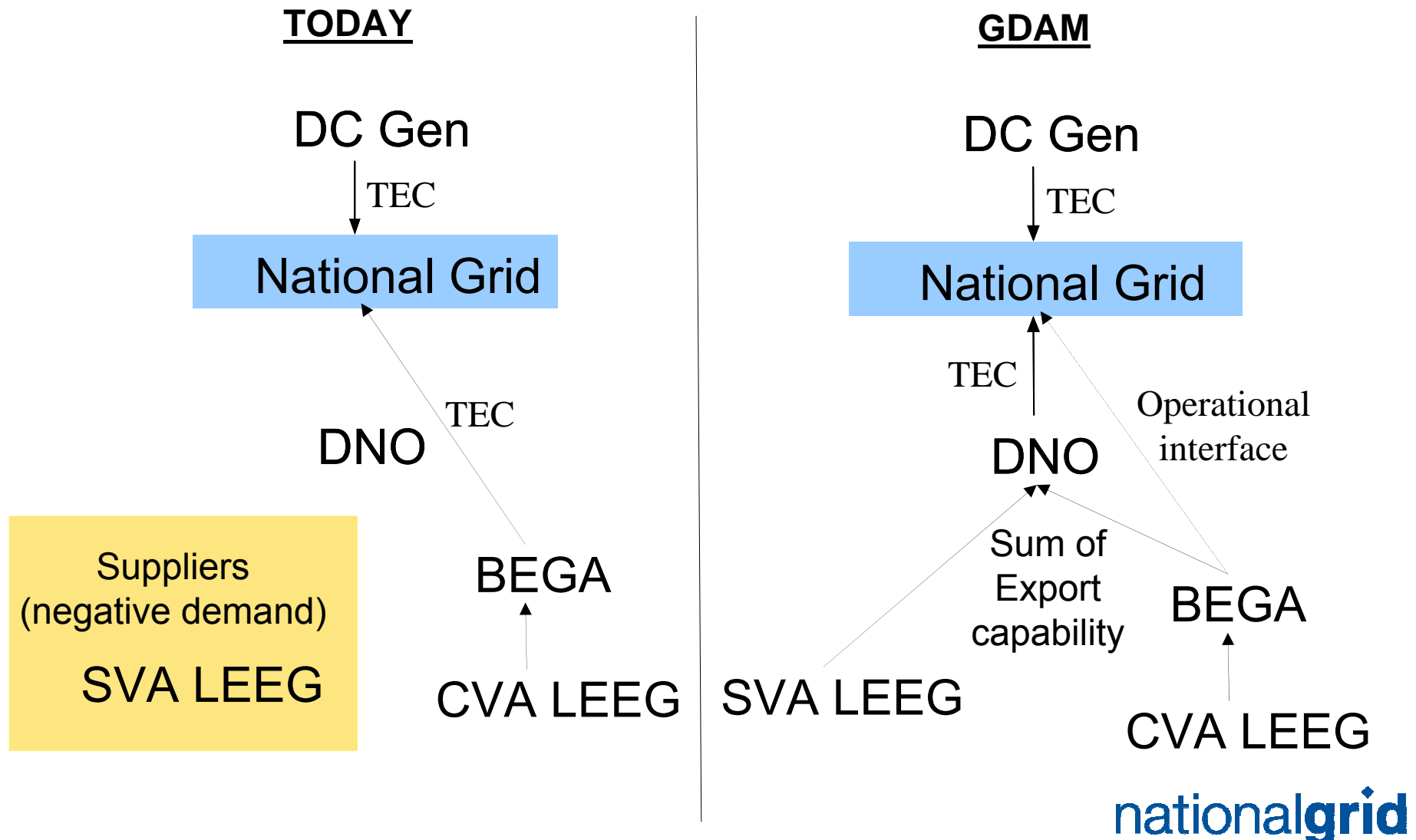|	DNO Agency	Supplier Agency
Pros	➢ Simple conceptually ➢ Physical alignment ➢ Clear operational boundaries of responsibility ➢ DNO bids and offers on a nodal basis	➢ Uses existing settlement structure ➢ Efficient charging signals ➢ Could be implemented in short term
Cons	➢ Major industry restructuring ➢ 14 control rooms ➢ DNO trading energy? ➢ How BM interaction managed? ➢ Methodology to pass transmission charges to suppliers ➢ Treatment of large embedded ➢ Reform of exit product ➢ If "net" model, max export to Grid not at system peak ➢ Definition of service – response/ reactive	➢ Association of bids/ offers with nodes ➢ How does DNO resolve constraints and actively manage the system? – does it need to? ➢ SO despatching plant on another system – safety/ security/ MVar ➢ SO would be issuing BOAs via Supplier Agency

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Gross Zonal Supplier Agency Model (GZSAM)
- Introduction to Strawman 1

In the BM, aggregated zonal embedded generation might be offered to the SO in a single "sub-BMU"
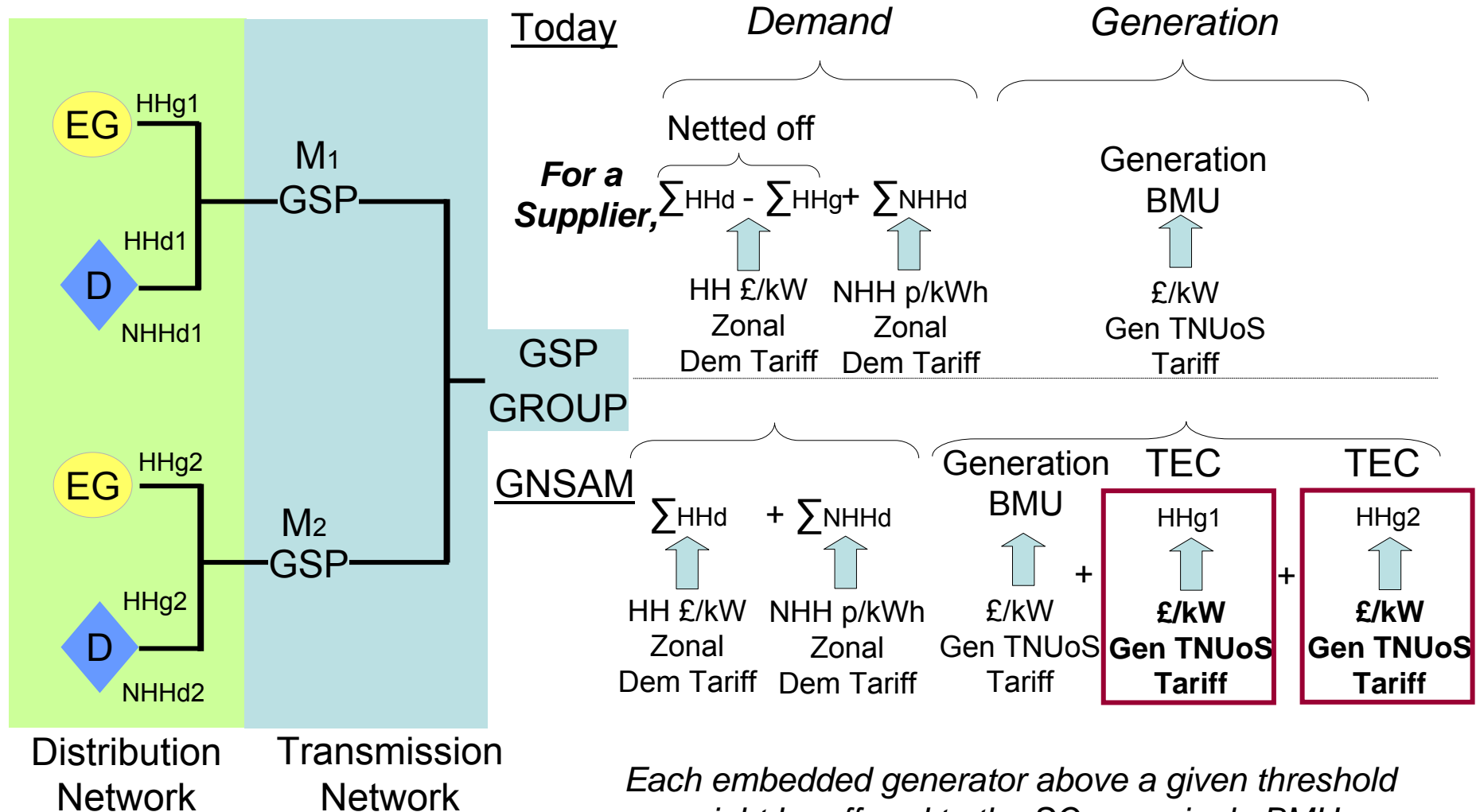
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Gross Nodal DNO Agent Model (GNDAM)
- Introduction to Strawman 2

Gross Nodal Supplier Agency Model (GNSAM)
- Introduction to Strawman 3

Each embedded generator above a given threshold might be offered to the SO as a single BMU

Summary

- There are different approaches

- None of the agency models are simple

- We think "gross" and "nodal" are important
  - cf. "net" and "zonal" today

- No preference which agent
  - DNO conceptually simpler
  - Supplier least change
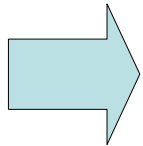
Other Agency ideas?

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The Problem - National Grid Perspective
- "Gross" Background

All generation has an effect on transmission flows
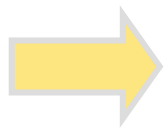
EG within +ve generation
TNUoS charging zones
can reduce local demand,
but may increase flows
south

Transmission
constraint

Power flow south

Similarly, EG within
negative generation
TNUoS charging zones
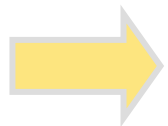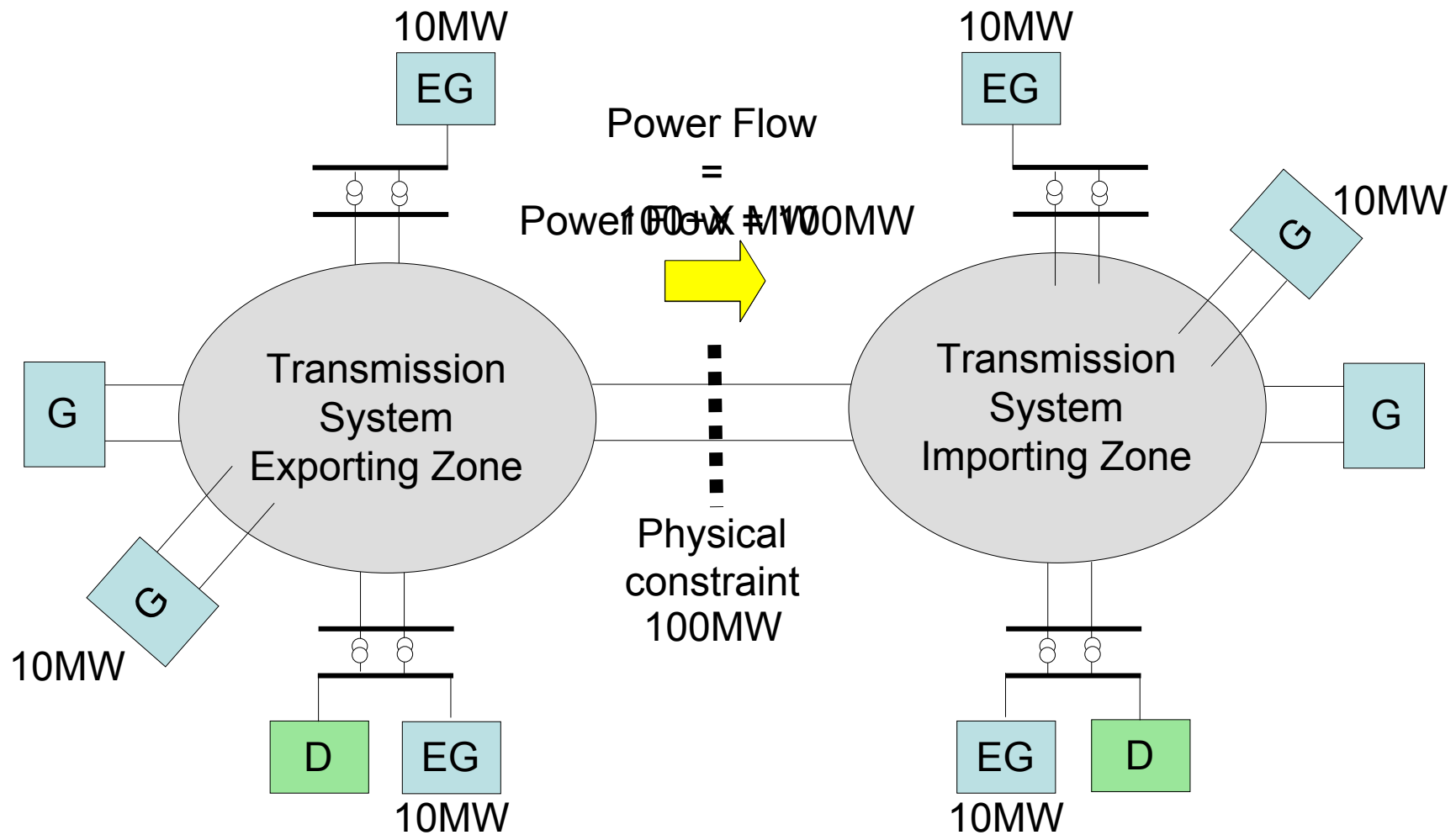may reduce flows south

GSPs do not have to be exporting to affect transmission

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Impact of Embedded Generation
- "Gross" Background

Impact is the same as transmission connected 10MW

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