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Input services – scope

Innovation and Participation Advisory Group

IPAG secretariat

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This material reflects the current thinking based on discussion at the April IPAG meeting. It is not final.

What is the project?

- Customers buy, sell, and trade electricity services.
- Increasing uptake of new technology is changing the nature of these services.
- New kinds of service are available, and customers can have multiple service providers at one location.
- To provide new electricity services to customers, service providers need access to input services including metering & network connection
- There are no standards for input services where multiple parties use the same data and network connection.

- The Authority has asked IPAG for advice on ways to reduce and remove barriers associated with:
  - Access to data to supply services to a consumer
  - Shared use of the distribution service to supply services to a consumer

What is an input service?

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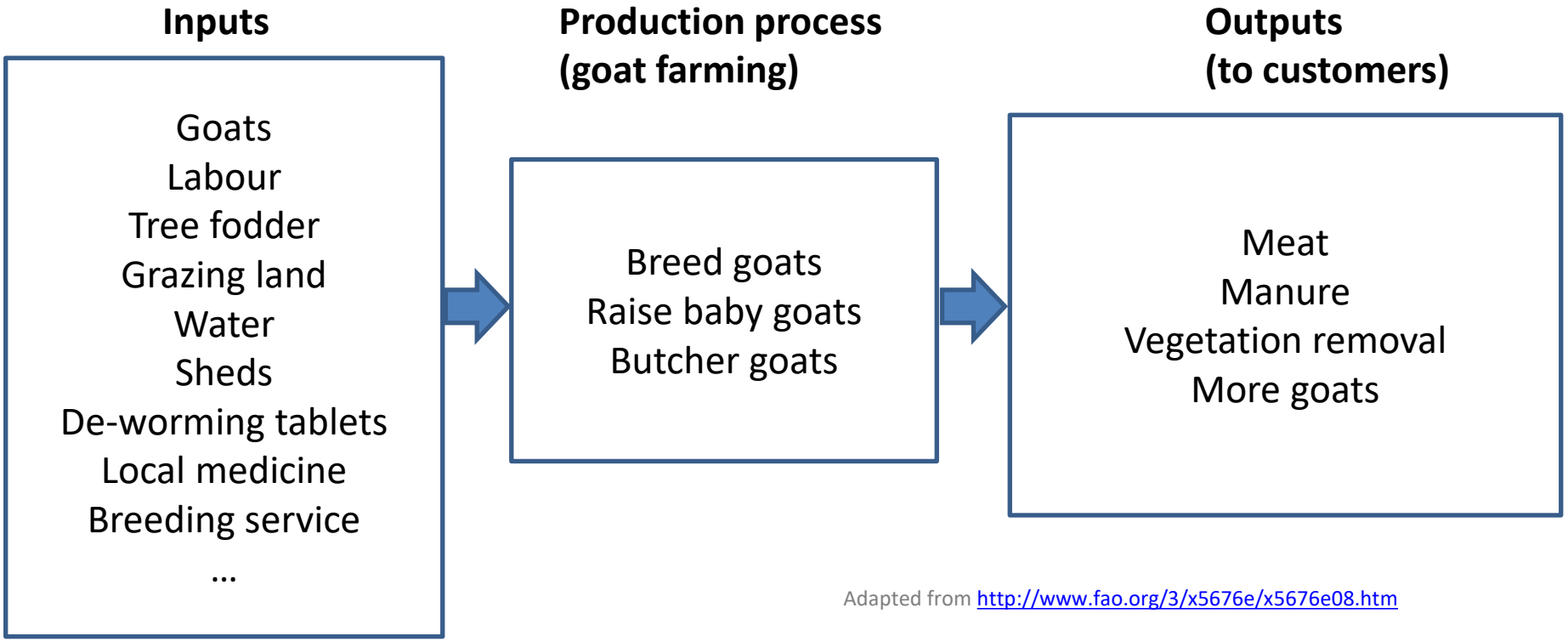
What is an ‘input service’

- ‘Factors of production’, ‘resources’, or ’**inputs**’ are the things used to bring about the production of a good or service.
- Examples of ‘inputs’ are raw materials, employees, information, money, and other resources
- **Output** refers to the actual finished product or service that is produced.

Example: Goat farming

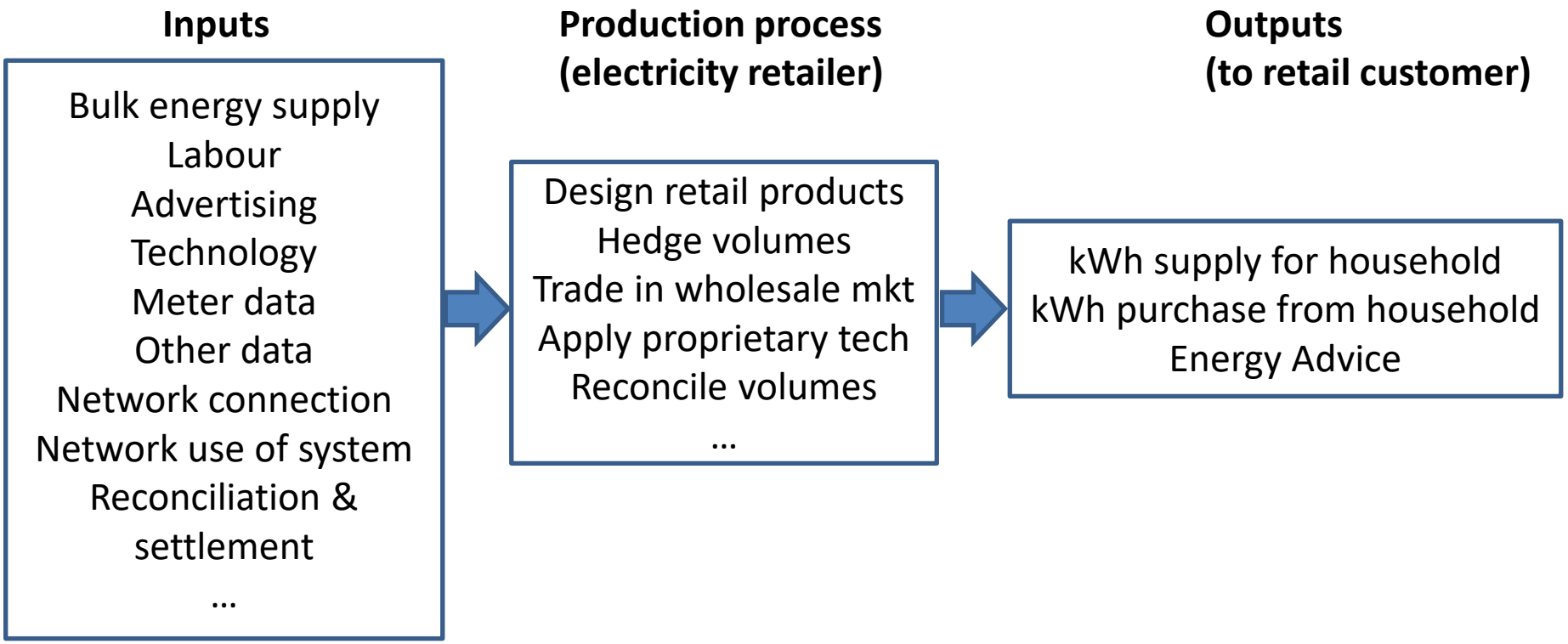
Example: the process of goat farming takes the *inputs* of fodder, water, labour, medicine etc and uses them to create the *outputs* of meat, manure etc.



Adapted from http://www.fao.org/3/x5676e/x5676e08.htm

Example: electricity retailer

An electricity retailer takes a variety of specialised inputs and uses them to create a variety of services



Electricity output services

The same inputs could be used to provide other kinds of electricity services to a variety of end consumers.

For example:

- kWh supply (for an individual appliance)
- kWh purchase (from an individual appliance)
- Battery charge management (for a household)
- Vehicle charge management (for a household)
- Aggregated data provision (for a distribution company)
- Load control services (for a distribution company)
- Grid ancillary services (for the system operator)

Some of these services may not be possible under current market arrangements.

Electricity input services for this project

- Not all inputs are in scope for this project. This project is about reducing and removing barriers relating to access to data and shared use of the distribution service.
- Input services in scope are those which use *monopoly infrastructure*, and which are *required* to provide electricity services to customers at ICP and *sub-ICP* level.
  - *Monopoly infrastructure* means there is only one possible provider of the input service, or an alternative provider could only be engaged by duplicating or replacing existing infrastructure for no additional value
  - *Required:* output services cannot be provided without them
  - *Sub-ICP:* where the service is one of a number supplied to the ICP (the customer receives services from multiple providers)

In-scope input services

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In-scope input services

We have identified potential five in-scope input services:

1. Network service (connection and use of system)
2. Certified meter data
3. Central reconciliation & settlement
4. Customer load control
5. Comms via Transpower fibre

Each of these input services relies on monopoly infrastructure and is required for at least one sub-ICP output service.

Input service 1: Network service

- Electricity service providers use the transmission and distribution networks to move energy to and from the customer
- It is inefficient to install multiple parallel physical network connections
- Access to the network connection is currently only available by a commercial agreement with the party responsible for the ICP (Retailer/Connection Agent), or by installing a new connection
- There is no standard way to price the distribution service when shared by several users

Input service 2: Certified meter data

- Electricity service providers use usage & technical data at ICP/sub-ICP level to measure, reconcile and bill their services
- Each ICP's total energy usage, distribution system usage, and contribution to the costs of central market functions (including UFE) is based on usage data from certified revenue meters.
- The meter certification process incurs significant overhead in pursuit of accuracy and precision.
- Meter infrastructure is provided by Meter Equipment Providers (MEPs). They are the only party who can read the meters and provide meter data.
- Regular access to meter data is only available by commercial agreement with the party responsible for the ICP (Retailer/Connection Agent)
- Certified meters have a 10-15 year life, and it is inefficient to install duplicate measurement equipment or to replace a meter within its lifespan.
- One MEP holds 66% of the market for AMI services, and the top three hold 95% between them
- There is no standard way to price metering services when shared by several users

Input service 3: Central reconciliation and settlement

- The electricity market uses centralised systems and processes to reconcile volumes and settle payment amounts
- It is not possible to provide in-front-of-the-meter services to end customers without access to central processes and systems
- Access to central processes and systems is only available to reconciliation participants, who must be responsible for all services at an ICP.

Input service 4: Customer load control

- Most ICPs have the capability to shed load in response to a ripple control signal
- It would be inefficient to install new load control devices to duplicate this function (but it does happen at commercial/industrial sites)
- Access to trigger load control is currently only available to the local distributor
- Customers are recompensed for load control service through a lower distribution tariff

Input service 5: Transpower fibre

- Transpower has one of the largest fibre networks in the country.
- This network is part of their regulated asset base, on which they earn a regulated return.
- For some locations, this network is the only high-speed comms connection.
- It would be inefficient to duplicate network infrastructure.
- Third party access to the network is currently only available by agreeing suitable commercial terms with Transpower.

Problems we have heard so far

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What we have heard so far – problems

We have identified problems in five categories:

Access

- There are no mechanisms to require and enforce multiple party access to data or services from entities with effective monopoly power
- Lots of data exists, but users and third parties find it hard to get. Existing participants cannot use the data to find efficiencies. New participants cannot use it to devise and deliver new services
- Some existing contracts restrict access to services (e.g. where retailer-MEP contract disallows MEP from providing data to anyone else)
- Some data is unavailable due to technical limitations (e.g. smart meters measure harmonics and voltage, but it is not collected and stored at MEP head end)

Quality

- Some data that would be useful is not collected (e.g. location of EV charger installations, distributed PV, distributed storage)
- The data that exists is incomplete (e.g. missing values in kWh data) or incorrect (e.g registry AMI flag)

Timeliness

- Most data is historic only. Real-time data is available in some cases, but access is relatively expensive
- In most cases there is a delay between requesting historic data and getting access – it is not available instantaneously. It is not possible for participants to build customer-friendly automated tools.

Standardisation

- The same data is provided in different formats by different parties
- Distribution networks have different rules for connection and operation of new technologies

Governance

- Current regulation does not drive compliance with existing service standards (e.g. registry data quality)
- Current regulation allows inefficient outcomes (e.g. NHH read overrides a HHR read in some situations)
- There are no practical commercial levers to drive better quality of service