

## CONSULTATION RESPONSE TEMPLATE

<i>NAME OF RESPONDENT</i>	Chip eServices
<i>CONTACT DETAILS</i>	Jerry Sweeney jerry@chipservices.com
<i>TYPE OF COMPANY</i>	Software Company
<i>INTEREST IN DSM</i>	We wish to bring software that enables Demand Side Management to market.

## SECTION 2

QUESTION 1: Do you agree with our characterisation of the four types of benefits that demand side management can provide?

ANSWER:

The overriding challenge for the Irish electricity market is to facilitate renewable penetration. We should have as an objective the generation of far greater than 100% of our needs and the export of the surplus. All other benefits should be seen in this context.

- 1) Overall demand reduction (i.e. efficiency) should be dealt with separately from the other benefits. The concepts are easier to understand for consumers and this is an issue for individual consumers, their hired consultants and suppliers, and for government policy delivered through organisations such as SEAI. It is not an issue for the market and as such could lead to dilution of focus. To focus of demand side vision from a market perspective must be on the issues around load shifting.
- 2) Static peak reduction will become an out dated concept in the Irish market by 2020. The peak of demand minus renewables will be the critical issue and this peak cannot be considered static. For this reason, I believe this benefit should be combined with benefit 3) below.
- 3) Flexible measures should be the focus of this the demand side vision for 2020.
- 4) Ancillary services, as understood in the context of generation, become unwieldy when applied to a market involving 1.5 million (potentially bidirectional) meters with average annual consumption of €2,000 per annum. Ancillary services in the demand side should be implemented as part of 3).

QUESTION 2: Are there other cost savings which you believe demand side management can deliver?

ANSWER: Not all benefits come in the form of cost savings. The concept of demand stimulation is not mentioned in the benefits. The greatest problem facing the long term penetration of weather based renewables on the Irish

market will be a lack of investment due to curtailment of wind farms. The stimulation of demand during peaks of production would be a huge benefit in ensuring continued investment in renewables. For example Hydrogen production or data centres that used a 'follow the moon' utilisation pattern could stimulate demand which created exportable commodities.

QUESTION 3: Are there additional studies and reports (to those listed in **Error! Reference source not found.**) which you are aware of and believe we should review?

ANSWER:

Electricity Pricing that Reflects Its Real-Time Cost, Severin Borenstein, National Bureau of Economic Research 2009

QUESTION 4: What other insights do you have from your experience of demand side management adopted internationally?

ANSWER:

There is no comparable country in the world with Ireland's grid size, lack of connectivity, and abundant weather based renewable energy resources. It is vital that we design an electrical generation and international marketing industry that leads rather than follows the world. New Zealand for example generates 52% of its electricity from hydro and therefore had totally different market dynamics. We are unique.

It is highly likely that Ireland will face the brunt of global severe energy scarcity issues before 2020. It is also likely that we will do so with a national debt equal to our GDP.

QUESTION 5: Are you aware of other quantitative findings from international experience which you believe are important for us to capture and consider?

ANSWER:

Again, as per Q4. I think that Ireland is in uncharted waters and that studying overseas experience should be extended by local vision.

QUESTION 6: Do you agree with our identified drivers of future value for demand side response/management? Are there any additional drivers we should consider?

ANSWER:

I agree fully with the identified drivers of future value

### SECTION 3

QUESTION 7: Are there any other aspects of current demand side activity in Ireland which should be captured?

ANSWER:

I am not aware of any.

QUESTION 8: Do you agree with our high level assessment of the potential for demand side management in Ireland by 2020?

ANSWER:

The 2020 market is estimated at close to 40TWh in Table 3 which equates to a mean load of 4.6GW. This sounds reasonable.

Flexible demand is estimated, in table 4, at a huge percentage of the average load. In fact the upper estimate exceeds the average demand. I don't see any estimate of how much movement is actually predicted in this flexible demand.

Therefore I agree with the figures stated but I do not see that they estimate the potential for demand side management in terms of MWh shifted. I apologise if my interpretation of the data is incorrect.

### SECTION 4

QUESTION 9: Do you agree with our definition of each individual demand side measure?

ANSWER: I agree completely

QUESTION 10: Is our description of the current policy baseline for each demand side measure accurate and complete. If there are omissions please point them out.

ANSWER: These seem to reflect the policies but I do not necessarily agree with the policies.

QUESTION 11: Do you agree with our categorisation of different types of "market issue" and typical remedies for each?

ANSWER: I am hugely concerned by and I totally disagree with the smart meter policy currently being followed. The current policy is anti-market because it puts too much control in the hands of ESNB, forces a one size fits all solution for the country, and will stop companies like ours coming to market with DR solutions.

The correct strategy should be far simpler. Each home should be fitted with an interval meter where the interval is variable and can be reduced to a very small interval if required in the future. This interval meter should be able to meter import and export. An agreed output signal from this meter should be available so that HAN suppliers and electricity suppliers can come to market with competitive solutions.

Under no circumstances should any monopoly, state or private, have any control over any infrastructure other than the legal minimum measurement device. This is compatible with EU directives.

QUESTION 12: Do you agree with our identified barriers and enablers for each of the specific demand side measures we have identified?

ANSWER:

Answer as per Question 11.

QUESTION 13: Do you agree with our identified market issues for each specific demand side measure and our proposed remedies to address these?

ANSWER:

Answer as per Question 11.

QUESTION 14: What are your views on the likelihood and effectiveness of the identified policy options addressing the specified market issue and delivering the desired change?

ANSWER:

If the CER allow ESBN any input in control of energy usage or give them a monopoly in the supply of any form of equipment other than the billing meter then the whole DSM project will be critically impaired. Ireland will not be a development laboratory for this technology and we will lose a potential export industry.

Given the state ownership of ESBN and the €2.4B deficit in the ESB pension fund, I am very fearful that Smart metering in Ireland will become a 'competitive advantage' of ESBN rather than of the Island of Ireland. ESBN should install interval meters and then step away from the table.

The rollout of import/export interval metering should be implemented on an as-requested basis. This will spread the capital cost of the rollout and ensure that those that get the meters will be the most highly motivated to benefit.

QUESTION 15: Are there any unintended undesirable consequences that any of the options might create elsewhere?

ANSWER:

Answer as per Question 14.

## SECTION 5

QUESTION 16: Do you agree with our identified specific demand side measures and our assessment of the different types of benefits each demand side measure provides?

ANSWER:

The focus on ToU tariffs (where the tariff is the same on consecutive days) is false as the issue will in time be so dynamic, due to renewable availability variation, as to make ToU tariffs pointless. Real time pricing would be much more valuable.

QUESTION 17: Are there any additional demand side measures that we should individually identify and assess? If so, what type of benefit(s) is it felt they provide?

ANSWER:

1) I include below a suggestion for a dynamic pricing model.

Once the Island has interval metering then the next step will be to reduce the market calculation from a daily market to a closer to real-time market. Currently the only signal available to implement DSM is the D-1 ex-ante price signal. This signal could be updated several times during the day as weather and market conditions change. A rolling 48 hour pricing signal, with 15 minute intervals, and updated every hour would be a great target.

Suppliers could build tariffs based on the D-1 price and add information such as 48 hour weather forecast to the published signals.

Special 'apps' could be implemented for ancillary services. So for example in transmission constrained areas discounts to consume electricity could be offered at certain times. These would be built into the models of the suppliers. This would in effect look like the current mobile phone tariff structure where consumers shop for plans that best suit their needs and they also adjust their usage patterns to suit the tariff they are on.

Over time the CER should require suppliers to move a percentage of their customers to dynamic pricing. This would be similar to the CAFÉ standards in California for vehicle efficiency. For example, every supplier should have 30% of their customer base on dynamic/RTP pricing by 2020 and 40% by 2025. Obviously, if there was resistance to this from consumers then the suppliers would have to increase prices to users on STOD/ToU tariffs and reward dynamic price consumers so that enough customers adopted dynamic pricing.

2) Modification to standards.

The idea of modifying the grid connection code, and electrical appliance standards, and algorithms for HANs etc

to mandate some of the benefits currently only available via ancillary services charges should be considered. Frequency response is an obvious candidate for such a modification. Devices and systems with built in frequency response could be given higher energy efficiency ratings and could eventually become mandatory on the EU market.

QUESTION 18: Have we identified all of the relevant criteria for assessing the individual and comparative merits of the demand side measures?

ANSWER:

The only criterion for assessing merit is how much load was shifted. The benefit from this load shifting is measurable in the reduction of wind farm curtailment and reduction in capacity payments for peaking plant.

I respectfully suggest that the carrot should be dynamic RTP pricing that is very competitive and the stick is STOD/ToU tariffs that are less and less competitive.

QUESTION 19: What are your views about our approach to high level assessment of different demand side options?

ANSWER:

No comment

QUESTION 20: Do you agree with our assessment of each demand side measure against each of the identified factors?

ANSWER:

No comment

QUESTION 21: Do you agree with our overall assessment of the relative merits of the different demand side options?

ANSWER:

QUESTION 22: Do you have any comments on our high level assessment of the benefits of different demand side measures?

ANSWER:

I disagree with the overall ranking of 'Low' for dynamic pricing. Dynamic Pricing is used in the wholesale market. Why would it not work in the retail market? There is wide acceptance of the theoretical economic benefits of real time pricing. However, there is a belief by market operators that consumers do not respond to RTP and therefore it has no value. It is true that humans cannot respond to real time pricing because they are not aware, moment by

moment, of the price. However, demand side smart grid technologies are now appearing that will respond to such RTP signals. Ireland could gain a dominant position in the various aspects of the smart grid sector by being the first to implement an RTP market.

Incidentally responding to the D-1 ex-ante price signal is currently a very good approximation to RTP as the D+4 ex-post price settles with a high correlation. A growing number of suppliers are now offering tariffs based on the D+4 and this is to be encouraged. The next step would be to offer improved estimates to the D-1 during the market day while customers were still exposed to the D+4 settled price.

Over time Ireland could migrate closer and closer to RTP, and we could do so through small annual increases in RTP usage so that the system would have time to learn and adapt.

## SECTION 6

QUESTION 23: Do you agree with our assessment of the relative priorities of different demand side options in developing a 2020 Demand Side Vision?

ANSWER:

As per answer to Question 22

QUESTION 24: What alternative views do you have on relative (merits and) priorities?

ANSWER:

As per answer to Question 22

QUESTION 25: Do you agree with our proposed high level 2020 Demand Side Vision as described above?

ANSWER:

The demand side vision places too much emphasis on 'effort' on behalf of consumers. Consumers make purchasing choices. They do not make instantaneous actions based on marginal costs. No consumer is going to get out of bed at 2:00am to start their condensing clothes dryer at a price trough and then get out of bed again at 2:45 to stop it because the grid frequency excursion to 49.4Hz has occurred. However the incremental cost of an intelligent Internet connected clothes dryer that is grid frequency aware might be €5.00 higher than a model without those features.

In the current Smart Meter trials there is too much emphasis on behavior. Despite the rigorous statistical analysis being performed I believe that the Hawthorne effect will give the results a positive skew. In the real world the effects will be less. The trials do not include an RTP tariff. If it did then the response of the consumer would be even less than for ToU because a dynamic tariff cannot be 'learned' as it changes every day.

Simple technical innovations will become common place that will make these instantaneous decisions on our behalf. The key is to educate and expose the consumer to RTP and let the market take care of the problem. There

are a growing number of participants eager to enter this space with products.

RTP tariffs will make the retail market transparent. Therefore, RTP based tariffs will encourage Suppliers to differentiate themselves by the DSM offerings they supply as part of the package.

QUESTION 26: What alternative vision would you put forward?

ANSWER:

There is full acceptance globally of RTP in wholesale markets. However this phenomenon is only thirty years old. It is my opinion that RTP in retail markets will be equally ubiquitous thirty years from now. The IT capability exists to make this happen. Most large IT companies are moving into the smart grid space. See the following two stalking horse web sites.

<http://www.google.com/powermeter>

<http://www.microsoft-hohm.com/>

Ireland is different. We require higher levels of weather based renewable energy than anywhere else on the planet. Therefore we will be exposed to the problem first. However, past peak oil and heading for peak gas, the rest of the world will follow us. Meeting, and solving, the problem first could become a huge opportunity.

Ireland could become a smart grid leader if we do the following.

- 1) Ensure that the Smart Meter program doesn't stifle innovation and entrepreneurship by limiting ESNB involvement to interval metering and leaving the DSM and HAN space to innovators that will go on to export their technology overseas.
- 2) Ensure that we lead the world in implementation of (close to) RTP retail markets. My bet is they will become the global norm within thirty years.
- 3) We must not be afraid to let the market decide prices. We must be careful about anything that distorts the market such as capacity payments or REFIT tariffs. Such policy instruments have their place but they should be sparingly (and temporarily) administered. Consumers should be exposed to the troughs and peaks of the market. The market will, over time, find solutions that avoid the peaks and exploit the troughs.

QUESTION 27: Do you agree with our proposed policy pathways for implementation of the identified different policy options for realising our proposed 2020 Demand Side Vision?

ANSWER:

Yes

QUESTION 28: What alternative policy pathways would you propose based on your previous comments and responses?

ANSWER:

Above all else do no harm! Keep the market open for commercial firms to participate.

## SECTION 7

QUESTION 29: Do you have any additional view or comments you feel are important/useful for us in (a) establishing a Demand Side Vision for 2020; (b) identifying associated policy development and (c) determining policy pathways?

ANSWER:

No Comment.

QUESTION 30: Are there any final comments industry stakeholders wish to make about this consultation and the proposed next steps in the consultation process?

ANSWER:

The structure of the consultation document is excellent and it made responding very easy. I appreciate the opportunity to contribute to the consultative process.